HUMAN HEALTH RISK ASSESSMENT (HHRA) FOR OFFSITE IMPACTS FROM TRAIL, B.C., SMELTER

Phase 4—Additional Data Collection and Probabilistic Risk Calculations

Prepared for

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ACRONYMS AND ABBREVIATIONS

ACGIH	American Conference of Governmental Industrial Hygienist
As III	arsenite
As V	pentavalent arsenic
ASIL	acceptable source impact level
ATSDR	Agency for Toxic Substances and Disease Registry
ATV	all-terrain vehicle
BCMoE	British Columbia Ministry of the Environment
BMDL	benchmark dose lower limit
BMR	benchmark response
CARB	California Air Resources Board
CCME	Canadian Council of Ministers of the Environment
CSF	cancer slope factor
CSR	contaminated site regulation
CTE	central tendency exposure
DMA III	dimethylarsinous acid
DMA V	dimethylarsinic acid
EPA	U.S. Environmental Protection Agency
ERA	ecological risk assessment
FDA	U.S. Food and Drug Administration
HHRA	human health risk assessment
Integral	Integral Consulting Inc.
IRIS	Integrated Risk Information System
LOAEL	lowest-observed-adverse-effect level
MAC	maximum acceptable concentration
MCL	maximum contaminant level
MMA III	monomethylarsonous acid
MMA V	pentavalent monomethylarsonic acid
MTD	maximum tolerated dose

NOAEL	no-observed-adverse-effect level
NRC	U.S. National Research Council
NTP	National Toxicology Program
PCOC	potential contaminants of concern
PDF	probability density function
PM10	particulate matter of 10 microns in diameter or smaller
ppm	parts per million
PRA	probabilistic risk assessment
PRG	preliminary remediation goal
RAGS	Risk Assessment Guidance for Superfund
RBA	relative bioavailability adjustment
RBC	risk-based concentration
RfC	reference concentration
RME	reasonable maximum exposure
SALM	strong acid leachable metals
SARA	Sudbury Area Risk Assessment
TC	tolerable concentration
TDI	tolerable daily intake
Teck Cominco	Teck Cominco Metals, Ltd.
TLP	Trail Lead Program
TLV-TWA	time weighted average threshold limit value
TRV	toxicity reference value
UCLM	upper confidence limit on the mean
URF	unit risk factor
WHO	World Health Organization
WOE	weight-of-evidence
ww	wet weight

EXECUTIVE SUMMARY

BACKGROUND

On behalf of Teck Cominco Metals, Ltd. (Teck Cominco), Integral Consulting Inc. (Integral) has conducted an update to the quantitative human health risk assessment (HHRA) for offsite exposures to metals, other than lead, released from the smelter in Trail, British Columbia (B.C.). Occupational exposures at the smelter are not evaluated as part of this HHRA. Workplace exposures are regulated separately by Worksafe B.C. and monitored, as required, by Teck Cominco.

Trail has been the site of lead and zinc smelting operations for more than 80 years. These operations have resulted in releases of lead and other metals to the air, with resultant deposition of metals-containing dust onto the surrounding area. During the past several decades, operational changes, including transition to a new smelter in 1997 with significant improvements in emission controls, have resulted in marked reductions of releases. The reduced releases combined with community outreach efforts have resulted in substantial reductions in blood lead levels of children residing in Trail.

Lead exposures are continuing to be addressed in Trail, both by ongoing blood lead monitoring of preschool aged children and remediation efforts by Teck Cominco and the City of Trail (2001). The Medical Health Officer has endorsed the remedial recommendations of the Trail Lead Task Force (Trail Lead Program 2001), indicating that he believes the top priority should be further reduction of smelter emissions and the second priority should be control of secondary movement of metals in surface dust (Ames 2001).

In 1997, the Task Force began an investigation of other smelter-related contaminants including arsenic and cadmium. Analyses were conducted by Exponent from 1997 through 1999 under contract to the Trail Community Lead Task Force to address nonlead smelter contaminants at the site. HHRA Phases 1 through 3 for the Trail site resulted in a deterministic risk characterization focusing on risks associated with exposure to arsenic, antimony, and cadmium that was presented to the Task Force and the community in 2000 (Exponent 1997; 1998a; 2000a). At that time, the Task Force acknowledged that incorporation of additional or new data and the addition of a probabilistic analysis to refine exposure and risk estimates for potential contaminants of concern (PCOCs) could be completed in a subsequent Phase 4 HHRA. The use of probabilistic techniques for risk assessment has become more accepted over the last 15 years. Probabilistic risk assessments allow for the use of probability density functions (PDFs) for input parameters and result in distributions of risk, rather than point estimates. With probabilistic assessments, both uncertainty and variability can be incorporated into input parameters.

PHASE 4 ASSESSMENT METHODS

This Phase 4 HHRA has been conducted in accordance with guidance from the British Columbia Ministry of the Environment (BCMoE), Health Canada, and the U.S. Environmental Protection Agency (EPA). Specific objectives were as follows:

- Synthesize recent data on environmental media concentrations of PCOCs
- Address data and information gaps identified in BCMoE reviews of Phases 1 through 3 (Fox 2004, pers. comm.) and the Phase 4 Work Plan (Fox 2007, pers. comm.)
- Identify and address any other data gaps that may exist due to new knowledge or changes in standards or toxicity reference values since Phase 3 was completed
- Perform probabilistic risk calculations for key pathways, to better quantify potential risks at the site
- Review and summarize results of the urinary thallium survey conducted in Trail in 2002
- Develop recommendations regarding the potential utility of arsenic and/or cadmium biomonitoring in characterizing local exposures to these PCOCs
- Develop recommendations regarding possible methods for determining “hot spot” criteria, which would be used for deciding where contaminated soil cannot be safely managed in place.

The remediation plan for the Trail site is evolving and will likely take a site wide approach (Hilts 2007). Thus, a new objective for this HHRA is to address risks on a site wide basis. However, the assessment also looks at risks in the neighborhoods that are expected to have the highest exposures to PCOCs.

The Phase 4 pathway screening analysis included reevaluation of the screening conducted in Phase 1 incorporating new data for Phase 1 media, as available. Phase 4 also included screening of residential exposures to outdoor dust and recreational exposures to beach sand/sediment and to air, dusts, and surface soils along a limited stretch of the Columbia River where dirt bike and all-terrain vehicle (ATV) riding occurs. Reevaluation of Phase 1 pathways in Phase 4 combined available existing data with new data for soil, outdoor dust, surface water, groundwater, air, homegrown produce, beach sand/sediment and fish. Based on this reevaluation, all pathways are potentially complete for at least one land use of concern at the site.

Data collection that has occurred since the Phase 3 HHRA includes sampling of air, fish, surface water, groundwater, outdoor dust, sediment, homegrown produce, and soil. Due to the magnitude of new data available, as well as updated regulatory guidance, a comprehensive list of site related contaminants was screened for each Phase 4 pathway to identify PCOCs. This list consisted of antimony, arsenic, barium, beryllium, cadmium, chromium, cobalt, copper, fluoride, mercury, molybdenum, nickel, selenium, silver, thallium, tin, vanadium, and zinc.

Barring cleanup, concentrations of metals in soil are not expected to change over time, and for this reason, all data of good quality collected between 1989 and 2007 were included in Phase 4. For air, only data collected since the new smelter was operational is included in this HHRA.

In accordance with BCMoE recommendations, identification of PCOCs for focused evaluation in the HHRA was conducted by screening contaminant concentrations against current applicable regulatory criteria, site-specific background concentrations (as appropriate), and site-specific, risk-based objectives. For this screening, the maximum concentration for each contaminant for each medium site wide, and in each of the five neighborhoods evaluated in Phase 3 (as applicable), was compared to the currently available and applicable criterion for that medium. All metals with at least one result above the respective criterion were retained as PCOCs for focused evaluation in this HHRA. For soil, outdoor dust, and indoor dust, antimony, arsenic, cadmium, selenium, silver, thallium, tin, and zinc are retained as PCOCs. Antimony, arsenic, cadmium, and thallium are also retained as produce PCOCs. Arsenic and cadmium are retained as PCOCs for air. PCOCs for fish are arsenic, mercury, vanadium, selenium, thallium, and chromium. No PCOCs are retained for beach sediment, surface water or groundwater; therefore, these pathways are excluded.

In this risk assessment, both stochastic (probabilistic) and deterministic approaches were used to characterize site-specific exposure estimates. For exposure scenarios previously evaluated in Phase 3, a probabilistic approach was used. For Phase 4 exposure scenarios not evaluated in prior phases (i.e., fish ingestion, recreational ATV/dirt bike use), a deterministic approach was used.

For the probabilistic assessments, a combination of distributions (i.e., PDFs) and point estimates were used, depending on the specific input parameter. Central tendency exposures (CTE) were estimated using the average or median and reasonable maximum exposures (RME) were estimated using the 90th or 95th percentile of the risk distributions. Probabilistic assessments were conducted by Monte Carlo analysis using Crystal Ball® software. A quantitative sensitivity analysis was performed to test the impact of certain input parameter distributions on the risk outcome.

The risk characterization for Phase 4 focuses on site wide risks, but also presents risks for the neighborhoods assessed in Phase 3 (i.e., East Trail, Rivervale, Tadanac, Waneta, and West Trail). For all relevant scenarios, risks calculated for ingestion of indoor dust, ingestion of soil, ingestion of outdoor dust, and ingestion of produce were added together to obtain combined risk estimates. Risks via inhalation of ambient air were calculated separately and added only to risks via ingestion for neighborhoods in which an air monitoring station is located. Risks from ingestion of fish and from recreational use of ATVs and dirt bikes were calculated separately from all other pathways.

For probabilistic assessments, measures of central tendency risks (e.g., average and median of the distribution) and reasonable maximum risks (e.g., 90th and 95th percentile of the distribution) are presented. Health Canada (2007a) considers the 95th percentile to be sufficiently protective; the guidance states, "it is believed that day-to-day and year-to-year variations in individuals' exposures over a life stage or over a life time will result in the vast majority of individual risks being essentially negligible if the 95th percentile risk estimate is essentially negligible." In addition, neighborhood results are presented for those neighborhoods closest to the smelter, where exposures (and thus risks) are expected to be the highest. Characterizing risks for these neighborhoods provides an additional level of conservatism.

PHASE 4 ASSESSMENT RESULTS

Residential Scenario

Site wide, noncancer risks are below levels of concern for residential receptors. Noncancer hazard indices based on combined exposures to thallium in soil, dust, and homegrown produce slightly exceed 1.0 for the child scenario evaluated for the East Trail, Rivervale, Tadanac, and West Trail neighborhoods. For Tadanac, combined exposures to arsenic (adult plus child) also slightly exceed 1.0. All other neighborhood-specific noncancer risks are below levels of concern.

Site wide and neighborhood 95th percentile risks exceed the BCMoE default acceptable cancer risk of 1 in 100,000 for all pathways. However, none of the 95th percentile site wide cancer risks exceeded 1 in 10,000 level, above which EPA generally considers that a response action is warranted (USEPA 1997c). As proposed in Hilts (2007), the 1 in 10,000 risk level might be reasonably considered as a possible alternate acceptable risk level for the Trail site, at least in the shorter term. For neighborhoods assessed in Phase 3, total residential cancer risk for all pathways summed are predicted to be highest in East Trail and Tadanac (both at 1 in 10,000).

Broken down by exposure routes, the total estimated 95th percentile site wide cancer risk from ingestion is 3 in 100,000. Two-thirds of this estimated risk is due to ingestion of arsenic in soil, indoor dust, and outdoor dust and the other third is due to ingestion of homegrown produce. Estimates of neighborhood 95th percentile lifetime cancer risks via inhalation of air range from 2 in 100,000 to 7 in 100,000, primarily attributable to arsenic with a much smaller contribution from cadmium. If the maximum air monitoring station risk (Birchbank at 7 in 100,000) is added to the site wide risks for ingestion of soil, indoor dust, and outdoor dust and ingestion of produce, total risks equal 1 in 10,000.

Commercial and Agricultural Scenarios

Estimated site wide noncancer risks are also below target risk levels for the commercial and agricultural exposure scenarios. For both scenarios, noncancer risk estimates were based on ingestion of cadmium and antimony in soil, indoor dust, and outdoor dust, and for the agricultural scenario, the total noncancer risk estimates also included exposure to antimony via inhaled particulates.

Cancer risk estimates for the commercial and agricultural scenarios were restricted to the inhalation route because the PCOC for soil (antimony and cadmium) are not carcinogens via the oral exposure route. Risks were assessed using ambient air data for those neighborhoods having both air monitoring stations and commercial or agricultural land use. neighborhood Estimated 95th percentile incremental lifetime cancer risks for the commercial scenario were at or above the 1 in 100,000 risk level for all three air monitoring stations, but below the 1 in 10,000 level. The highest risk came from the Butler Park station, where the risk was 2 in 100,000.

Overall, risks estimated for the commercial and agricultural scenarios were lower than the highest residential exposure risk estimates for combined exposure via inhalation of air, ingestion of soil/dust, and consumption of homegrown produce. Residential exposures, including consumption of homegrown produce, were assessed throughout Trail.

Fish Consumption

For fish consumers, estimated 95th percentile hazard quotients for mercury exceed 1.0 for walleye and rainbow trout. Chromium risks only exceed 1.0 when a suspect high concentration value from one sample is included. For arsenic, selenium, thallium, and vanadium, all hazard quotients are less than 1.0. Estimated lifetime incremental cancer risks (for arsenic) for typical (average) ingestion of locally caught fish are all below the 1 in 100,000 level. Estimated 95th percentile risks range from 2 in 100,000 for mountain whitefish to 7 in 100,000 for rainbow trout. The fish consumption risks estimated in this assessment are conservatively derived by applying the full consumption rate to each species of fish of local, freshwater fish evaluated. An alternative approach would have been to assume each species of local, freshwater fish represents only a portion of an individual's total fish consumption and to apportion the consumption rate accordingly.

Off-road Vehicle Use

Hazard indices for the total pathway exposures by ATV/dirt bike user are well below 1.0, and the screening of soil data resulted in no carcinogens being included in the PCOC list for the ATV/dirt bike use area.

SENSITIVITY OF INPUTS AND ASSUMPTIONS TO RISK RESULTS

The probabilistic outputs for this HHRA include a ranking of the input distributions that contribute most to the variability in output distributions.

For the residential and commercial inhalation of ambient air pathways (adult plus child cancer risk), the input distributions with the greatest impact on results are the metal concentrations in air. Variability in the output distributions are also contributed by exposure duration and, to a lesser extent, child inhalation rate and body weight. The adult inhalation rate and body weight have limited impacts on the spread of the output distributions.

The spread of the cancer risk output distributions for consumption of homegrown produce by Trail residents is affected by all PDF inputs. The factors with the largest impact on cancer risk outputs are (in general order of decreasing importance): exposure duration, nonroot produce concentration, root produce concentration, child nonroot produce consumption rate, and child root produce consumption rate. The hazard quotient outputs are most affected by root and nonroot produce concentrations but also by child produce consumption rates.

For ingestion of soil, indoor dust, and outdoor dust (residential and commercial), the PDF with the greatest impact on the variability in the output distributions is the child soil ingestion rate. The uncertainty associated with the soil ingestion rates, and the fact that the impact on variability is large, suggest the possible need for refinement of this parameter. For the agricultural scenario, output variability in the inhalation of particulates pathway is dominated by exposure duration for cancer risks and particulate concentration in air for hazard quotients.

The HHRA includes quantitative sensitivity analysis of the following inputs: arsenic concentration in air, adult plus child exposure duration, child soil ingestion rate, and antimony concentration in soil. Testing of most probable alternate inputs for these parameters produced slightly different risk results; for some parameters, use of the alternate input distribution increased risk estimates, while for others it resulted in decreased risks.

USE OF BIOMONITORING TO ASSESS EXPOSURES

According to the B.C. contaminated site regulations (CSRs), acceptable risk levels other than the specified default values may be considered if recommended by the Medical Health Officer after public consultation. Recommended alternate levels may be based on "biometrics" (e.g., blood lead levels) but must be specific numerical risk levels. Biomonitoring studies can be particularly valuable in providing an integrated picture of exposures when residents may be exposed by multiple pathways and locations. This approach is widely accepted as a means of tracking exposures to lead and is being used in Trail to monitor ongoing efforts to manage and reduce lead exposures. Biomonitoring studies can also be effective methods of assessing exposures to arsenic, cadmium and thallium, other elements of concern in Trail.

After a preliminary 2001 study by Teck Cominco, in 2002, the Trail Health and Environment Committee conducted a thallium biomonitoring study of 50 adult Trail residents. Geometric mean urinary thallium results for Trail were 0.25 μg/L, whereas for a study of the U.S. population, the geometric mean values were 0.17 μg/L from 1999 to 2000 and 0.16 μg/L from 2001 to 2002. This comparison suggests that residents in Trail may be experiencing slightly higher exposures than those received by the general U.S. population, but overall, exposures are well below those of concern. All results were below 2 μg/L, well below the World Health Organization (WHO) guideline value of 5 μg/L. In the Phase 4 risk assessment, upper end thallium exposures were estimated to be slightly above the acceptable risk level for noncancer health effects. The biomonitoring data provide biometric evidence that acceptable exposure levels are not, in fact, likely to be exceeded.

A similar biomonitoring study for arsenic could illustrate whether the risk assessment overestimates risks for arsenic as well. Cadmium biomonitoring is not recommended at this time due to the low predicted risk relative to arsenic. Studies focusing on environmental exposures have relied upon measurement of "speciated arsenic" in the urine, which includes inorganic arsenic, monomethyl arsenic and dimethyl arsenic, but excludes the more complex organic arsenicals from seafood. Typical levels of speciated arsenic (i.e., inorganic arsenic, monomethyl arsenic and dimethyl arsenic) range from 5 to 20 μg/L. A recent study in Middleport, New York (Exponent 2004) used reference levels for speciated and inorganic arsenic in urine of 40 and 20 μg/L, respectively. An arsenic biomonitoring study in Trail could allow a general determination of whether exposures are sufficient to be detected, and if they are elevated could provide insight into the relative importance of different exposure media. Furthermore, if biomonitoring studies in Trail found that exposures to lead and other site metals were correlated, that could suggest that some of the same factors driving lead exposures are driving exposures to other metals. This analysis could provide insight into the effectiveness of remediation and intervention processes.

SETTING REMEDIATION GOALS

Another issue that has been raised in Trail is how to identify "hot spots" where metals might be present at sufficiently elevated concentrations to warrant remediation or other actions to reduce the potential for human contact. Hilts (2007) describes one method for identifying hot spots for metals in Trail soil. Specifically, this paper proposes a cleanup level for lead concentrations in soil that is based on the draft protocol for classifying site risk levels (BCMoE 2007). Due to strong correlations between lead and other site related metals, the ability of this cleanup level for lead to address other metals in soil can be assessed.

Another method that would directly address nonlead metals in soil is the calculation of preliminary remediation goals (PRGs) for all PCOCs, based on this site-specific risk assessment. PRGs were calculated for a noncancer target risk level of 1.0 and cancer target risk levels of

1x10-6, 1x10-5, and 1x10-4. These PRGs did not take into account exposure and risk from ingesting homegrown produce. Median, mean, 5th percentile (representing the 95th percentile risk) and 1st percentile (representing the 99th percentile risk) are presented, with comparison to the 5th percentile recommended for the determination of hot spots. For arsenic, 12.4 percent of measured residential soil results (site wide) exceed the 5th percentile PRG based on noncancer risk for the adult plus child scenario (76 mg/kg). For thallium and tin, 0.7 and 6.6 percent, respectively, of soil results exceed the 5th percentile PRG for the child scenario (8 and 28 mg/kg, respectively). No other metals exceeded the corresponding 5th percentile PRGs. Using a target cancer risk of 1x10-5, 59.8 percent of soil arsenic results exceed the 5th percentile PRG (20 mg/kg). However, when calculating a 5th percentile PRG for arsenic using a target cancer risk of 1x10-4 (186 mg/kg), only 1.6 percent of soil results exceed this level.

These PRGs may also be applied in the context of planned response actions for the site. For instance, in a draft protocol for classifying site risk levels (BCMoE 2007), the BCMoE proposes an "Upper Cap" concentration for lead (5000 mg/kg) for classifying "high risk sites" for direct BCMoE oversight and review. Areas where soil lead exceeds this upper cap would likely require "immediate response." Assuming those areas were addressed via BCMoE's protocol, the percent of measured soil results exceeding the 5th percentile PRG for arsenic (based on noncancer risk for the adult plus child scenario and a PRG of 76 mg/kg) would be reduced slightly from 12.4 to 11.1 percent. For thallium, the 0.7 percent exceedance discussed above would not change, but for tin, a slight reduction is noted from 6.6 to 5.2 percent of soil results exceeding the 5th percentile PRG for the child scenario (28 mg/kg). Using a target cancer risk of 1x10-5, 60.3 percent of soil arsenic results exceed the 5th percentile PRG (20 mg/kg) for the subset of samples with lead concentrations at or below the upper cap. This represents a slight increase over site wide results and is likely due to a nonlinear relationship between site lead and arsenic levels at high lead soil concentrations. In contrast, at the 5th percentile PRG for arsenic using a target cancer risk of 1x10-4 (186 mg/kg), the percent of soil results exceeding this PRG is reduced from 1.6 percent site wide to 0.4 percent in the subset of samples at or below the upper cap for lead.

Consideration of these PRGs to for determining "hot spots" can also be applied in the context of a garden soil replacement program at Trail. For this program, Trail families of children with elevated blood lead levels are offered soil replacement for if soil lead concentrations in their vegetable garden plots exceed 1000 mg/kg. Based on evaluation of garden soil samples in Phase 4, a total of 24 samples have soil lead concentrations at or below the 1000 mg/kg soil replacement level. For these 24 samples, none of the measured soil results exceeds corresponding 5th percentile PRG values for any of the metals based on noncancer risks or at a target cancer risk for arsenic of 1x10-4 (186 mg/kg). At a target cancer risk for arsenic of $1x10^{-5}$, the 5th percentile PRG (20 mg/kg) is exceeded in 29 percent of these 24 garden soil samples.

1 INTRODUCTION

On behalf of Teck Cominco Metals, Ltd. (Teck Cominco), Integral Consulting Inc. (Integral) has conducted an update to the quantitative human health risk assessment (HHRA) for offsite exposures to metals, other than lead, released from the smelter in Trail, British Columbia, (B.C.). Occupational exposures at the smelter are not evaluated as part of this HHRA. Workplace exposures are regulated separately by Worksafe B.C. and monitored, as required, by Teck Cominco.

1.1 SITE HISTORY AND PREVIOUS INVESTIGATIONS

Trail has been the site of a major lead and zinc smelter for more than 80 years. A new lead smelter, with significant improvements in emission controls, started operation in late March 1997, and the old smelter ceased operation in May 1997. Periodic shutdowns in production occurred until January 1999; however, the smelter has been running consistently since this time, other than during planned shutdown periods (e.g., maintenance shutdowns).

Prior lead biomonitoring efforts in Trail have clearly identified air emissions and associated dustfall as a principal factor affecting blood lead levels in children. A 1975 study found that blood lead levels of children living in Trail were elevated compared to a nearby community. A follow-up study in 1989 showed a decline in blood lead levels; however, 39 percent of children in Trail still tested above the U.S. Environmental Protection Agency (EPA) "level of no concern" of 15 μg/dL[1], which prompted the formation of the Trail Community Lead Task Force.[2] The Task Force has been successful in using community blood lead monitoring to help assess and manage lead exposures in Trail. The ongoing monitoring during the 1990s was a crucial element in directing intervention efforts to reduce children's lead exposures by clarifying the relative importance of various exposure pathways and the effectiveness of specific interventions such as hand washing, HEPA vacuum cleaning, street sweeping, and other methods (Ames 2001; Trail Lead Program 2001). A key finding of these studies was the critical role played by ingested outdoor and indoor dust in exposure of young children.

The effects of Task Force activities combined with the opening of a more efficient smelter in 1997 are reflected in reductions in blood lead levels among Trail children over the period between 1991 and 2000. Specifically, the geometric mean blood lead level for children in Trail dropped from 13.5 to 6.7 μg/dL during this time. In addition, the percentage of Trail children with a blood lead greater than 10 μg/dL dropped from 83 to 27 percent over this period. Based

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[1] The current level of concern, as determined by the U.S. Centers for Disease Control and Prevention, is 10 μg/dL.
[2] The Task Force included members of Teck Cominco and local and regional government, as well as representatives of the school district, the United Steelworkers of America, and local environmental groups. The Task Force conducted community education programs, provided case management, and investigated exposure routes and intervention options (Trail Lead Program 2001).

on these results, the Trail Lead Program (2001) concluded, "The blood lead level in Trail is currently acceptable and is expected to decline further over the next few years as the effects of the new lead smelter continue to be realized."

Lead exposures are continuing to be addressed in Trail, both by ongoing blood lead monitoring of preschool aged children and remediation efforts by Teck Cominco and the City of Trail (Trail Lead Program 2001). The Medical Health Officer has endorsed the remedial recommendations of the Trail Lead Task Force (Trail Lead Program 2001), indicating that he believes the top priority should be further reduction of smelter emissions and the second priority should be control of secondary movement of metals in surface dust (Ames 2001).

In 1997, the Task Force began an investigation of other smelter-related contaminants including arsenic and cadmium. Analyses were conducted by Exponent from 1997 through 1999 under contract to the Trail Community Lead Task Force to address non-lead smelter contaminants at the site. HHRA Phases 1 through 3 for the Trail site resulted in a deterministic risk characterization that was presented to the Task Force and the community in 2000 (Exponent 1997; Exponent 1998a; Exponent 2000a). At the time of this presentation, the Task Force acknowledged that incorporation of additional or new data and the addition of a probabilistic analysis to refine exposure and risk estimates for potential contaminants of concern (PCOCs) could be completed at a later date.

Specific tasks of Phases 1 through 3 included:

- Phase 1: Evaluated existing data and made recommendations for future data collection. Conducted pathway screening and created conceptual site models. Screened data and refined PCOC list to include antimony, arsenic, cadmium, mercury, selenium, thallium, tin, and zinc.
- Phase 2: Conducted *in vitro* bioaccessibility testing for cadmium and arsenic in Trail soils to determine estimates of relative bioavailability. Conducted screening of newly collected data and refined PCOCs to arsenic, cadmium, and antimony. Conducted a screening level deterministic risk assessment, which evaluated exposures for residential and commercial scenarios via incidental ingestion of soil and dust and inhalation of ambient air. Exposures via ingestion of soil and inhalation of particulates for an agricultural scenario were also evaluated.
- Phase 3: Incorporated measured produce and house dust data into a refined screening level deterministic risk assessment for Trail with the same scenarios as Phase 2.

1.2 OBJECTIVES OF THE PHASE 4 ASSESSMENT

This update (Phase 4) of the Trail HHRA was conducted to refine and augment site-specific risk estimates generated in prior phases (Phases 1 through 3). The Phase 4 assessment incorporates additional or new data, addresses data gaps identified by the British Columbia Ministry of Environment (BCMoE) in Phases 1 through 3 (Fox 2004), and selectively employs probabilistic assessment techniques to better quantify risks reported for the site neighborhoods evaluated in Phase 3 (i.e., East Trail, Rivervale, Tadanac, Waneta, and West Trail). Collectively, Phase 4 work tasks were designed to ensure that potential exposures and health risks associated with the site are sufficiently assessed within the context of up-to-date, site-specific information and current regulatory guidance.

Specific objectives of the Phase 4 HHRA were as follows:

- Synthesize recent data on environmental media concentrations of PCOCs
- Address data and information gaps identified in BCMoE reviews of Phases 1–3 (Fox 2004) and the Phase 4 Work Plan (Fox 2007, pers. comm.)
- Identify and address any other data gaps that may exist due to new knowledge or changes in standards or toxicity reference values (TRVs) since Phase 3 was completed
- Perform probabilistic risk calculations for key pathways, to better quantify potential risks at the site
- Review and summarize results of the urinary thallium survey conducted in Trail in 2002[3]
- Develop recommendations regarding the potential utility of arsenic and/or cadmium biomonitoring in characterizing local exposures to these PCOCs[4]
- Develop recommendations regarding possible methods for determining "hot spot" criteria, which would be used for deciding where contaminated soil cannot be safely managed in place.[5]

The remediation plan for the Trail site is evolving and will likely take a site wide approach (Hilts 2007). Thus, a new objective for this HHRA is to address risks on a site wide basis.[6]

1.3 RISK ASSESSMENT APPROACH

The approaches described in this HHRA report reflect Integral's understanding of the current risk assessment framework recommended by BCMoE, which "…is intended specifically to support the contaminated site remediation process, from project planning through monitoring" (Golder Associates 1993b). The risk assessment framework followed for the Phase 4 update consists of four primary components:

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[3] Provided in the technical memorandum "Secondary Objectives for the Phase 4 HHRA" as Appendix E.
[4] Ibid.
[5] Ibid.
[6] Site wide risks were assessed for residential scenarios only. Commercial and agricultural scenarios were assessed on a neighborhood basis because these land uses only occur in certain neighborhoods, not throughout Trail.

1. Problem Formulation: Risk assessment techniques are utilized to develop and document the conceptual site model, which provides the foundation for the second component, analysis of exposures. Within the problem formulation, data gaps are evaluated. Preliminary characterization of the contaminants, release mechanisms, transport media, exposure routes, and likely receptors is completed as part of this component to focus the remainder of the risk assessment process on those contaminants and exposure scenarios likely to represent the most significant potential risk.
2. Exposure Assessment: The exposure assessment component generally represents the greatest site-specific effort in the risk assessment process. This component involves characterizing the temporal and spatial distributions of contaminants at the site, as well as refining the nature of receptor populations to be characterized and the specific exposure characteristics (e.g., contact rates, exposure frequency, exposure duration) to be used in deriving site-specific exposure estimates.
3. Toxicity Assessment: Toxicity assessment includes classification of toxicants as carcinogens or noncarcinogens, compilation of toxicity criteria, and description of the dose-response analysis.
4. Risk Characterization: The risk characterization component summarizes risk estimates generated from integration of the exposure and toxicity assessments and provides an interpretation of the significance of these estimates. An analysis of uncertainties associated with the estimates is also provided in the risk characterization.

A summary of current guidance followed in conducting this risk assessment is provided below.

1.3.1 Risk Assessment Guidance Followed in Phase 4

BCMoE's recommended framework for *Quantitative Human Health Risk Assessment* (Golder Associates 1993b) guided the risk characterization resulting from Phases 1 to 3. The 1993 framework relied heavily on EPA's *Risk Assessment Guidance for Superfund (RAGS)* in effect at the time of development (USEPA 1989). Since 1993, the RAGS methodology has continued to evolve and additional guidance has been developed, including guidance for conducting probabilistic risk assessment (PRA) (USEPA 2001b).

In December 2006, BCMoE released draft guidance, *Supplemental Guidance for Risk Assessments*, outlining their approved risk assessment policies (BCMoE 2006b). Approved risk assessment guidance includes EPA's RAGS, EPA's policy on PRA, and EPA guidance for carcinogen risk assessment, reproductive toxicity risk assessment, and neurotoxicity risk assessment. Also approved are Health Canada guidance documents on HHRAs for Federal Contaminated Sites in Canada, the most recent of which is a June 2007 draft final guidance document on complex site-specific human health assessment of chemicals (Health Canada 2007a).

BCMoE has established the following order of preference for sources of chemical toxicity values: EPA Integrated Risk Information System (IRIS), Health Canada, EPA Region 9 Preliminary Remediation Goals (PRGs), Agency for Toxic Substances and Disease Registry (ATSDR), World Health Organization (WHO), Netherlands National Institute of Public Health and the Environment, and California Environmental Protection Agency.

1.3.2 Probabilistic vs. Deterministic Approaches

As noted previously, a specific objective of the Phase 4 HHRA was to perform probabilistic risk calculations for key pathways, to better quantify potential risks at the site. The use of probabilistic techniques for risk assessment has become more accepted over the last 15 years. PRAs allow for the use of probability density functions (PDFs) for input parameters and result in distributions of risk, rather than point estimates. With probabilistic assessments, both uncertainty and variability can be incorporated into input parameters. BCMoE's recommended risk assessment framework (Golder Associates 1993b) lists considerations for selecting either a deterministic or probabilistic (stochastic) approach.

In the recommended risk assessment framework, Golder Associates (1993b) states:

> Certain conditions exist where the use of stochastic modeling provides a distinct advantage: where there is a high degree of site-specific uncertainty; where there is a high degree of public interest (i.e., where qualitative estimates of uncertainty are not credible); where the deterministic result is close to the action level (i.e., where risk managers could significantly overestimate or underestimate actual risk); or when a value-of-information analysis could save significant time, money, or resources by focusing on key parameters in planning data collection or to aid in evaluating remediation techniques.

A stated drawback of deterministic assessments is that "there is no quantitative estimate of whether the point estimate of risk is an overstatement or understatement of the average of reasonable maximum likely risk."

Health Canada (2007a) discusses PRA and reasons for conducting them:

> The primary reason for undertaking a probabilistic analysis is to determine the possible range and distribution of the estimated risk, in cases where a single point estimate of risk is insufficient. Other reasons for a probabilistic analysis may include: quantifying the influence of uncertainty and communicating the resulting confidence in the risk estimate; quantifying the selection of a risk estimate in terms of the portion of the population potentially receiving greater exposure; decision-making regarding the value of information and additional data collection; cost-benefit analysis and allocation of resources for remediation or risk management strategies.

The Compendium of Canadian Human Exposure Factors for Risk Assessment (Richardson 1997) also discusses probabilistic approaches to risk assessment:

> Risk assessment in Canada is now evolving from approaches based on single value, deterministic assumptions to probabilistic (stochastic) methods (Richardson 1996). With the advent of Monte Carlo methods in risk assessment, exposure factors are no longer described as simple point values representing average (Health Canada 1994b), reasonable maximum (USEPA 1991) or worst case values. Instead, exposure factors (and all variables in a risk assessment model) may be described statistically as a probability density function (the full range and frequency of possible values for the variable) which help determine the intensity, duration and frequency of exposure.

EPA policy on PRAs has evolved over the last two decades. In the early 1990s, EPA recognized the overly conservative nature of typical deterministic HHRA and subsequently amended its risk assessment guidance to allow for PRA (USEPA 1992). In May of 1997, the agency issued a policy on the use of probabilistic techniques in characterizing uncertainty and variability. This policy document stated, "…such probabilistic analysis techniques as Monte Carlo analysis, given adequate supporting data and credible assumptions, can be viable statistical tools for analyzing variability and uncertainty in risk assessments." (USEPA 1997b).

Finally, EPA and Health Canada list a number of advantages of a PRA over a traditional, deterministic risk assessment, including the following:

- Results in a range of risk estimates
- Provides more comprehensive characterization of variability and uncertainty
- Identifies the drivers of risk and exposure by quantitative sensitivity analysis
- Uses a wider variety of site-specific information
- Provides confidence limits on the risk estimates
- Through the sensitivity analysis, identifies variables that have the greatest influence on risk estimates
- Provides more information to decision-makers than deterministic methods, hence making risk management more informed and policy thereby more site-specific.

1.4 ORGANIZATION OF RISK ASSESEMENT REPORT

Organization of the remainder of this HHRA is as follows:

- Section 2, Problem Formulation, includes the screening of contaminants, receptors, and pathways to update the conceptual site model for Trail.

- Section 3, Exposure Assessment, presents the exposure assessments for the Phase 4 risk characterization.
- Section 4, Toxicity Assessment, presents the toxicity assessments for the PCOCs in the Phase 4 risk characterization.
- Section 5, Risk Characterization, presents quantitative estimates of health risks for each scenario evaluated, including an evaluation of associated uncertainty, and an analysis of the sensitivity of reported risk estimates to alternate input values.
- Section 6, References, summarizes the literature and guidance cited in development of this HHRA.

2 PROBLEM FORMULATION

The primary outcome of the problem formulation is the development of the conceptual site model. As part of this development process, a variety of exposure scenarios are evaluated to identify potentially complete pathways. Data quality and adequacy are evaluated and contaminant-screening procedures are employed to identify contaminant-specific exposure scenarios for focused consideration in the analysis phase of the HHRA.

This section of the HHRA provides an overview of the Phase 4 pathway screening analysis, followed by a summary of the data used in the Phase 4 HHRA and the data screening process employed to update the contaminant-specific conceptual site models.

2.1 PHASE 4 PATHWAY SCREENING ANALYSIS AND CONSTRUCTION OF CONCEPTUAL SITE MODELS

The Phase 4 pathway screening analysis included reevaluation of the screening conducted in Phase 1[7] incorporating new data for Phase 1 media, as available. Phase 4 also included screening of residential exposures to outdoor dust and recreational exposures to beach sand/sediment and to air, dusts, and surface soils along a limited stretch of the Columbia River where dirt bike and all-terrain vehicle (ATV) riding occurs.

Reevaluation of Phase 1 pathways in Phase 4 combined available existing data with new data for soil, outdoor dust, surface water, groundwater, air, homegrown produce, beach sand/sediment and fish. Based on this reevaluation, all pathways are potentially complete for at least one land use of concern at the site (Figure 2-1).

The Phase 1 pathway screening analysis evaluated exposures via consumption of locally grown commercial crops and livestock (see Appendix D, Exponent 1997). Based on this evaluation, consumption of commercial crops represented an incomplete pathway for all PCOCs. Consumption of livestock represented a potentially complete pathway, but it was considered minor for all PCOCs. Data supporting the Phase 1 evaluation have not changed for these pathways; therefore, these exposure pathways were also excluded from quantification in this Phase 4 risk assessment.

[7] The Phase 1 pathway screening analysis considered residential, commercial, and agricultural exposures to eight site-related PCOCs in surface soil, indoor dust, produce, particulates in air, crops, livestock, groundwater, surface water, sediments, and fish. Based on the Phase 1 screening, exposures to commercial crops, livestock, groundwater, surface water, and sediment were considered to represent minor or incomplete pathways. Exposure to fish was also found to be minor or incomplete for all site-related PCOCs, except mercury and selenium. For residential exposure to garden vegetables, only arsenic, cadmium, selenium, and thallium were retained for further evaluation.

Skin contact with soil, dust, and sediment could potentially lead to exposures via dermal absorption or by hand-to-mouth transfer and oral absorption. However, dermal absorption is considered minor, given that "the relatively low lipid solubility of most metals limits absorption through the skin" (USEPA 2007a). Thus, dermal exposures to metals were not evaluated quantitatively in this risk assessment.

2.2 DATA SUMMARY

Barring cleanup, concentrations of metals in soil are not expected to change significantly over time, and for this reason, all data of good quality collected between 1989 and 2007 were included in Phase 4. For air, only data collected since the new smelter was operational is included in this HHRA. A summary of the data used in the Phase 4 HHRA is provided in Table 2-1. Data quality and adequacy are discussed below.

2.2.1 Data Quality

Data quality was evaluated prior to use in the earlier risk assessments, and decisions regarding which data to include or exclude are documented in those reports (Exponent 1997; 1998a; 1998c; 2000a). This section provides a brief review of those decisions and a description of the assessment of data quality for new datasets. Only data considered to be of sufficient quality for use in risk assessment was used in the Phase 4 risk assessment. Table 2-1 provides information on data quality for each data set considered for this HHRA. Some of the potential data quality issues are summarized here.

- The soil sampling from 1989 was conducted over a different depth range (0 to 3 or 5 cm) when compared with more recent data (0 to 2 cm). The 1989 sampling data were included in the Phase 4 HHRA.
- For all non-detect results, a value of one-half the detection limit was used. All of the non-detect soil data from previous phases was provided to Integral with this correction already made, and no distinction was made between detected and non-detected values. All data determined to be of good quality were used in the HHRA.
- For the 1989 dataset, only metals with high enough data quality were included (Exponent 1997). The quality of the selenium, antimony, and silver data could not be determined due to insufficient information, and the chromium results had low recovery (22 to 24 percent). Data for these four metals were excluded from the HHRA. Additionally, though included in the HHRA, Exponent (Exponent 1997) noted that the arsenic concentrations may have been underestimated due to lower than expected recoveries of reference materials (65 percent).
- The data from 1995 were excluded from the HHRA due to a lack of quality assurance/quality control information (Exponent 1997).

- The Trail Lead Program reviewed the locally grown produce data collected in 1998 and 1999 and determined it to be of good quality (Exponent 2000a). However, due to differences between measured and published concentrations of retail produce from similar regions of the country, Exponent expressed concern that the data collected in 1998 was overestimating actual produce concentrations. Results showed that in many cases, the 1998 results were higher than those from 1999. In the Phase 3 assessment, all of the data was used, but Exponent noted that this approach may have overestimated risks from produce ingestion.
- The fish tissue data from 2000 and 2001 has elevated detection limits for certain metals compared with data from other years. For example, the detection limit for arsenic in 2000 and 2001 was 4 mg/kg wet weight, while in 2002, it was 0.2 mg/kg wet weight, and in 2005, it was 0.01 mg/kg wet weight. Results that were less than these limits were presented as one-half the detection limits, as for all other results.

2.2.2 Data Adequacy

The availability of data is sufficient to support a site wide risk assessment. For certain media (e.g., indoor dust, homegrown produce), there are small numbers of samples for certain neighborhoods that introduce somewhat greater uncertainty in risk estimates for those neighborhoods. However, as a whole, the size of the Trail dataset is acceptable for the site wide HHRA. Figures 2-2 through 2-5 illustrate the number and range of the samples that were collected for air, soil, indoor dust, outdoor dust, and homegrown produce. Similarly, for beach sediment, risks are estimated at three beaches based on relatively small datasets (10 to 12 samples per beach). However, the selection of beaches for data collection was biased toward increased likelihood and frequency of human exposure, and, as a whole, the size of the Trail dataset for all neighborhoods and media is acceptable for the site wide HHRA.

To further evaluate the adequacy of site data used in the HHRA and to ensure that the HHRA data from the outlying areas was representative, a comparison was conducted between the HHRA soil dataset and the soil dataset collected in support of the Trail ecological risk assessment (ERA).[8] For the HHRA, soil samples were collected in residential neighborhoods only, and more data were collected in neighborhoods close to the smelter (e.g., Tadanac, West Trail) than those farther away (e.g., Oasis, Waneta). The soil sampling effort in support of the ERA occurred over a much wider area and was more evenly distributed. This comparison was qualitative in nature due to differences in sampling depths. The ERA data was collected at a range of 0 to 15 cm, while the HHRA data was collected at a range of 0 to 2 cm, 0 to 3 cm, or 0 to 5 cm. The following metals were included in this comparison: antimony, arsenic, cadmium, selenium, silver, thallium, tin, and zinc.[9]

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[8] This analysis was conducted prior to the soil sampling event of August 2007 and does not include those data.
[9] These are the metals identified as PCOCs for soil, outdoor dust, and indoor dust. See Section 2.3.4.

In general, the ERA data were in close agreement with the HHRA data for HHRA PCOCs within the Phase 4 HHRA geographic areas evaluated. For silver, tin, and zinc, all levels measured in the ERA were the same as or lower than those measured in the HHRA. There are instances of elevated soil concentrations[10] captured in the ERA but not in the HHRA for antimony, arsenic, cadmium, selenium, and thallium. However, none of these instances occurred in residential areas included in the Phase 4 evaluation, except for a single selenium elevation in the Waneta neighborhood that exceeded its highest human health screening value. In contrast, the Phase 1 screening of selenium in soil was based on eight soil samples from the Waneta area and all were below the lowest human health screening value for selenium. Additionally, three soil samples collected from Waneta residential gardens as part of the 2007 homegrown produce sampling effort were also below the lowest human health screening value. Thus, the ERA result appears to be an anomalous elevation that is not representative of poor data adequacy for selenium in Waneta.

2.3 PHASE 4 CONTAMINANT DATA AND SCREENING PROCESS

Data collection that has occurred since the Phase 3 HHRA includes sampling of air, fish, surface water, groundwater, outdoor dust, sediment, homegrown produce, and soil. Due to the magnitude of new data available, as well as updated regulatory guidance, a comprehensive list of site-related contaminants was screened for each Phase 4 pathway to identify PCOCs. This list consisted of antimony, arsenic, barium, beryllium, cadmium, chromium, cobalt, copper, fluoride, mercury, molybdenum, nickel, selenium, silver, thallium, tin, vanadium, and zinc.

In accordance with BCMoE recommendations, identification of PCOCs for focused evaluation in the HHRA was conducted by screening contaminant concentrations against current applicable regulatory criteria,[11] site-specific background concentrations (as appropriate), and site-specific risk-based objectives. For this screening, the maximum concentration for each contaminant for each medium site wide, and in each of the five neighborhoods evaluated in Phase 3 (as applicable), was compared to the currently available and applicable criterion for that medium. All metals with at least one result above the respective criterion were retained as PCOCs for focused evaluation in this HHRA.

A summary of the Phase 4 contaminant screening results, by medium, is provided below.

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[10] Based on comparison to soil screening levels used in this risk assessment.
[11] Guidance has been updated since Phase 3. For example, a criterion value of 1 ppm for thallium in soil was established by the Canadian Council of Ministers of Environment (CCME) since completion of the Phase 3 contaminant screening. Previously, there was no Canadian residential human health standard for thallium in soil.

2.3.1 Soil Data

Based on recommendations from BCMoE review (Fox 2004) of the previous phases of the HHRA, additional soil data were collected to support the Phase 4 evaluation. Phase 4 screening of PCOCs in soil combines these new data with those used in the prior phases. The results of the screening are presented in tables 2-2 through 2-5.

Soil samples supporting evaluations in the prior HHRA phases were analyzed using TLP methods, which differ from the B.C. Contaminated Sites Regulation Strong Acid Leachable Metals (SALM) method currently specified by BCMoE. Detailed descriptions of these two methods are provided in the HHRA Work Plan (Integral 2007). As described in Integral (Integral 2007), to ensure comparability of soil data from prior phases with that collected in Phase 4, a total of 90 samples[12] from seven neighborhoods (East Trail, Glenmerry, Rivervale, Shavers Bench, Sunningdale, West Trail, and Tadanac) were collected in the summer of 2006 and analyzed using both the SALM and TLP methods. Comparison of the results for these samples was conducted prior to screening PCOCs in soil for the Phase 4 HHRA to ensure that new analytical data collected to support Phase 4 could be combined with prior phase data analyzed by the TLP method. Data analysis to support this method comparison is provided in Appendix A1 and discussed below.

Appendix A1, Table A1-1 summarizes the frequency of detection for each analyte in soil by each method, neighborhood, and sampling event. Table A1-2 summarizes additional information evaluated including the presence of statistically significant method differences (based on t-test, $p<0.05$, 2-tailed, paired samples) and the relative strength and direction of relationships observed between the two methods (based on a Pearson correlation coefficient, r). Table A1-2 also summarizes the range and average concentration for each metal in the prior phase data, as generated TLP method analysis, as well as for the 2006 SALM data. Collectively, these pieces of information provide reasonable support for the overall comparability of most of the new SALM data with the prior phase TLP data.

Specifically, there appears to be good agreement between both methods with regard to the frequency of detections for arsenic, barium, beryllium, cadmium, chromium, copper, lead, molybdenum, thallium, vanadium, and zinc at all neighborhoods sampled during each event (Appendix A1, Table A1-1). Statistical significance of method differences for molybdenum could not be assessed, but is assumed given that it was never detected in the 2006 samples analyzed by either the SALM or TLP methods. Further support for the comparability of beryllium, cadmium, lead, and thallium is apparent in the lack of statistically significant method differences (based on t-test) for these metals on a site wide basis (Appendix A1, Table A1-2). Strong correlations between the methods further support data comparability for cadmium, lead, and thallium (Appendix A1, Table A1-2). A very high frequency of nondetect

[12] With replicates, a total of 96 samples were available for method comparison based on the 2006 sampling.

results in the beryllium data for both methods is responsible for the low correlation for this metal reported in Table A1-2.

Although statistically significant method differences ($p<0.05$) for arsenic were determined on a site wide basis and in the West Trail neighborhood based on the 2006 method comparison, results for arsenic by the two methods were not statistically different for the other six neighborhoods evaluated. Except for in Sunningdale, methods also correlated well ($r = 0.79$ to 0.98) for arsenic across neighborhoods and on a site wide basis. Figure A1-1 provides a graphical display of this relationship. As shown in this figure, in general, the data tend toward higher concentrations in the SALM analyzed samples versus the TLP samples. However, comparing range and average arsenic concentrations in the 2006 SALM data to the prior phase TLP data on a neighborhood-specific basis (Table A1-2), a tendency toward higher concentrations in the TLP data is revealed. Given these findings, use of the Phase 4 SALM arsenic data in combination with the prior phase TLP data is reasonable.

As with arsenic, statistically significant method differences ($p<0.05$) and moderate to strong correlations were determined for barium with an overall tendency toward higher barium concentrations in the 2006 SALM versus 2006 TLP data. However, the average and range of barium concentrations in the 2006 SALM are comparable to, but generally lower than corresponding statistics for the prior phase TLP data on a neighborhood basis. Thus, reasonable comparability is expected between Phase 4 soil data for barium and prior phase data.

For chromium, statistically significant method differences ($p<0.05$) were determined in all neighborhoods and site wide. Method correlation was moderate to high ($r = 0.69$ to 0.93) in all neighborhoods except Sunningdale. As shown in Figure A1-2, the SALM method tended to produce higher results for chromium in the 2006 samples compared to the TLP method. Comparison of the 2006 SALM ranges and averages to corresponding statistics in the prior phase TLP data is limited only to East Trail, Tadanac, and site wide data, but reveals overall comparability between the new and old data. To ensure potential underestimation of chromium was not a factor in screening this PCOC from soil, the maximum prior phase TLP concentration, 46 mg/kg, was adjusted upward according to the linear relationship between SALM and TLP in the 2006 data. The resulting concentration, 93 mg/kg, while higher than the maximum SALM concentration, 58.1 mg/kg, is still lower than the residential soil screening value for chromium. Thus, potential method differences for chromium in soil are not expected to introduce significant uncertainty in the overall Phase 4 evaluation of risks.

For copper, statistically significant method differences were determined site wide and in all neighborhoods except Glenmerry and Sunningdale. Method correlation was generally high ($r = 0.78$ to 0.97) in all neighborhoods except Sunningdale. In the 2006 data, SALM concentrations tended to be higher than corresponding TLP concentrations (Figure A1-3). Comparison of the 2006 SALM ranges and averages to corresponding statistics in the prior phase TLP data indicates apparent comparability as well, though higher values tend to be represented in the

2006 SALM data. To ensure potential underestimation of copper was not a factor in screening this PCOC from soil, the maximum prior phase TLP concentration, 311 mg/kg, was adjusted upward according to the linear relationship between SALM and TLP in the 2006 data (Figure A1-3). The resulting concentration, 444.9 mg/kg, is lower than the maximum SALM concentration, 502 mg/kg, and it is also lower than the residential soil screening value for copper. Thus, potential method differences for copper in soil are not expected to introduce significant uncertainty in the overall Phase 4 evaluation of risks.

Vanadium data for the 2006 method comparison were fairly well correlated in East Trail (r = 0.97), Tadanac (r = 0.72), West Trail (r = 0.70), and site wide (r = 0.81), but correlations in other neighborhoods were weak. There is an overall tendency toward higher SALM versus TLP concentrations in the 2006 data (Figure A1-4). However, the ranges and averages for 2006 SALM data compare well with the corresponding prior phase TLP data. Further, adjustment of the maximum result reported for the prior phase TLP data based on the linear regression for 2006 SALM and TLP data, does not impact screening for this metal.

Statistically significant method differences for zinc were determined site wide and at all neighborhoods except Sunningdale and Glenmerry. However, strong correlations were apparent for all neighborhoods except Rivervale (r = 0.49) and Sunningdale (r = 0.68). Ranges and averages compared for 2006 SALM results and prior phase TLP results appear to be similar despite slightly higher 2006 SALM results relative to 2006 TLP results (Figure A1-5). Further, adjustment of the maximum result reported for the prior phase TLP data based on the linear regression for 2006 SALM and TLP data, does not impact screening for this metal.

In contrast to the metals discussed above, the frequency of detection for antimony, cobalt, nickel, selenium, silver, and tin are notably different for the two methods based on evaluation of the 2006 data. For selenium, this difference reflects a 20-fold difference between method detection limits (0.1 mg/kg for SALM and 2 mg/kg for TLP), which resulted in nondetects for all of the TLP analyzed samples and a fairly narrow and low range of detections in SALM analyzed samples. For silver, both methods had the same detection limit, and the frequency of detection agrees for both methods in the June 2006 data; however, it differs dramatically in the August 2006 data. Similar differences, more pronounced in the August 2006 data than in the June 2006 data, are noted for antimony, cobalt, and nickel. No discernible pattern was identified to explain the method-specific differences observed between different sampling events for these few analytes. Tin was never detected above the method detection limit in the TLP data, but the frequency of detection in the SALM data ranged from 9 to 80 percent and appears unrelated to the specific sampling event. The frequency of so many nondetects in the TLP method results limits the significance of correlations determined for the two methods for each of these metals. Despite differences in detection, for most of these metals, the ranges and averages reported in the 2006 SALM data do appear comparable to prior phase TLP data for these metals.

The exception to this is antimony, for which there appears to be greater variability in the range and average concentrations represented by the 2006 SALM data and the prior phase TLP data, as well as in the range of correlations determined across neighborhoods (r = 0.04 to 0.93). As shown in Figure A1-6, antimony concentrations in the 2006 SALM data tend to be higher than corresponding 2006 TLP data indicating that concentrations of antimony in soil reported in prior phases using the TLP method are underestimated relative to concentrations reported using the SALM method. Previously, arsenic and antimony concentrations in Trail soil have been shown to correlate well. Therefore, the decision was made to rely on this relationship to replace TLP antimony data with values predicted based on arsenic concentrations. The relationship between the arsenic and antimony concentrations reported using the new SALM method was evaluated by a linear regression[13] (Figure A1-7), and this regression was applied to prior phase soil arsenic data to predict corresponding soil antimony concentrations more reflective of the relationship between soil arsenic and soil antimony observed with processing by the SALM method. Soil antimony concentrations from prior phases were predicted using this regression for all available soil arsenic data from prior phases analyzed by TLP. Predicted values were substituted for existing TLP-derived values and were also used when prior data for antimony were not available. The regression used is as follows:

$$\ln(Sb) = 0.9181 \times \ln(As) + 0.1831$$

$$R^2 = 0.684$$

For screening, all of the 2006 soil data were then combined with the data from Phase 1 through Phase 3, including newly predicted antimony and zinc concentrations for prior phases. Maximum soil concentrations of each metal in each neighborhood were screened against B.C. Numerical Soil Standards. For any metals for which there is not a B.C. standard, Canadian Soil Quality Guidelines were used for screening.[14]

In the prior phases, some soil data[15] were collected for residential gardens. Residential garden soil data were not combined with other soil data for screening purposes because of the potential that amendments used in garden soils could confound interpretation of site-related contaminants present. Whether amended or not, garden soils do represent a potential exposure medium for the residential scenario; therefore, all soil data, including residential garden soil samples, were combined in the HHRA for calculating risk estimates.

[13] In the prior phases, the same approach was applied in order to estimate antimony concentrations in locations for which arsenic, but not antimony, concentrations were measured.
[14] The only metal for which this applies is thallium.
[15] Data collected between 1989 and 1998, as well as August 2007 sampling event. In August 2007, surface (0 to 1 cm) and subsurface soil (0 to 15 cm) samples were collected from 27 residential locations in eight neighborhoods. These garden soil data (surface only) from the August 2007 data were not included in the screening but were included in the HHRA.

Soil samples were collected from residential areas in 14 Trail neighborhoods: Casino, East Trail, Glenmerry, Lower Warfield, Miral Heights, Montrose, Oasis, Rivervale, Shavers Bench, Sunningdale, Tadanac, Upper Warfield, Waneta, and West Trail. Screening was conducted on a site wide basis and individually for the five neighborhoods evaluated in Phase 3 (Table 2-2). Metals detected above soil standards in residential areas include arsenic, cadmium, antimony, nickel, selenium, silver, and tin. Elevated levels of silver and tin were found only in Tadanac, and East Trail had the only elevated level of nickel.

For cadmium, there are two residential standards. The first at 35 parts per million (ppm) is based on the incidental ingestion of soil pathway, and the second, 3 ppm, is solely for land used to grow produce (e.g., home gardens). For conservatism in the screening purposes, the produce-based standard was used to select PCOCs.

Total fluoride exceeds soil standards for some neighborhoods; however, Exponent (1997) reports that fluoride levels in Trail are within the range of background. Fluoride in background soil samples ranges from 310 to 630 mg/kg, while the highest fluoride results found in residential and agricultural soils were 470 and 420 mg/kg, respectively. In addition, none of the samples exceeds the EPA Region 9 screening level (3,700 mg/kg) for soluble fluoride. For these reasons, fluoride is excluded as a PCOC.

For nickel, there was only one exceedance of the residential soil standard of 100 ppm. This result, 157 ppm, was 4.5 times higher than the next highest result. The 95th and 99th percentiles, 23 and 32 ppm, respectively, were less than one-third of the soil standard. In addition, this sample was tested by both the SALM and TLP methods. While the SALM result was 157 ppm, the TLP result was below the detection limit of 5 ppm. Though the lab found no error in the analysis, the lab indicated that there may have been significant heterogeneity in this sample (Crowther 2007, pers. comm.). Due to the single exceedance of the soil standard and the vast difference in results for that sample by different analytical methods, nickel was not included as a PCOC for Trail.

For commercial properties, we compared metal concentration data to B.C. soil standards for commercial properties. Four neighborhoods in Trail currently contain commercial properties.[16] East Trail, Glenmerry, Waneta, and West Trail (Hilts 2007b, pers. comm.). Of the four neighborhoods with commercial property soil data, only East Trail had any soil samples that

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[16]Prior phases of the Trail HHRA included evaluation of metal concentration data in commercial soils located within the Tadanac neighborhood, along the boundary of the Teck Cominco facility. However, former commercial properties corresponding to these soil sample locations were demolished in the past few years and converted to green space. Maximum metal concentrations in these samples are lower than commercial soil standards for all metals except antimony. For antimony, the maximum concentration in these samples was approximately one-half the corresponding maximum for residential soils in the Tadanac neighborhood (i.e., 84.9 mg/kg commercial vs. 178 mg/kg residential). Currently, there are no commercial properties within Tadanac. Based on current land use and consideration that none of the maximum metal concentrations for these samples exceeded corresponding maximums for the residential soil in Tadanac, these data were excluded from the Phase 4 risk evaluation.

exceeded the soil standards, and the two metals retained as PCOCs for commercial properties based on screening are cadmium and antimony (Table 2-3).

For Waneta, samples were also collected from agricultural land, and these were compared with B.C. soil standards for agricultural properties[17]. Only antimony and cadmium exceeded the soil standards and are the only PCOCs retained for agricultural properties (Table 2-4).

A small area south of Trail along the Columbia River is used frequently by dirt bike and ATV riders and was evaluated in the Phase 4 HHRA (Figure 2-6). There has been no data collection in this area for the HHRA, but there are data collected for the Trail ERA. These data were screened using the residential soil standards described above, and only antimony screened in as a PCOC (Table 2-5).

PCOCs for soil: For the Phase 4 HHRA, the contaminant screening identified the following metals as PCOCs for residential properties: arsenic, cadmium, antimony, thallium, selenium, silver, and tin. Cadmium and antimony are retained as PCOCs for commercial properties and agricultural properties. For the recreational dirt bike/ATV scenario, only antimony is retained as a PCOC.

2.3.2 Outdoor Surface Dust Data

Outdoor dust was collected from 10 locations each in the East Trail, Tadanac, Glenmerry, Rivervale, Shavers Bench, West Trail, and Sunningdale neighborhoods during August 2006. Dust samples were collected from hard surfaces (e.g., a sidewalk) with a 1 m^2 area (see Integral 2006 for more details). Outdoor dust samples were analyzed for antimony, arsenic, barium, beryllium, cadmium, chromium, cobalt, copper, molybdenum, nickel, selenium, silver, thallium, tin, vanadium, and zinc. Site wide and for East Trail, Rivervale, Tadanac, and West Trail separately, the data were screened against soil standards. When the maximum value from each neighborhood exceeded its soil standard, the given analyte was included as a PCOC for that neighborhood.

Results of the outdoor dust screening are shown in Table 2-6. Antimony, arsenic, cadmium, selenium, silver, thallium, tin, and zinc exceeded screening levels in at least one neighborhood. Concentrations of metals in dust generally tended to be similar to those found in collocated soil samples. For most metals, the maximum dust concentration tended to be higher than the maximum soil concentration, but this was frequently not the case when looking at the mean or median concentrations. Often at operating smelter sites, the outdoor dust metal concentrations have been found to be much higher than the soil concentrations, a finding that has been attributed to deposition of airborne metal-containing particulate emissions. The finding that

[17] Waneta is the only neighborhood with agricultural land.

average outdoor dust metal concentrations in Trail are not generally higher than soil concentrations suggests that airborne smelter emissions are well controlled.

PCOCs for outdoor dust: For the Phase 4 HHRA screening, the following PCOCs are identified for outdoor dust: arsenic, cadmium, antimony, silver, zinc, thallium, selenium, and tin.

2.3.3 Indoor Dust Data

Indoor dust collected in April and August of 1998 was analyzed for arsenic, antimony, and cadmium. In the prior phases, it was determined that there was no correlation between yard soil and house dust. In both phases, all three PCOCs were retained for house dust. Additional indoor dust data were not collected for Phase 4. Instead, Phase 2 and 3 data were included in the Phase 4 HHRA.

PCOCs for indoor dust: Based on the screening for the Phase 3 HHRA, arsenic, cadmium, and antimony are retained as PCOCs for Phase 4.

2.3.4 Soil, Outdoor Dust, and Indoor Dust PCOCs

For soil, outdoor dust, and indoor dust, metals retained as a PCOC for one of these three media are retained for all three media. Based on screening, the PCOCs retained for soil, outdoor dust, and indoor dust under the residential exposure scenario are antimony, arsenic, cadmium, selenium, silver, thallium, tin, and zinc. Although average outdoor dust concentrations were similar to average soil concentrations, maximum outdoor dust concentrations were frequently higher than soil. For this reason, for Waneta where outdoor dust was not collected, we conservatively assumed that outdoor dust concentrations are equal to twice those of soil.

Although zinc soil concentrations did not exceed respective screening levels, zinc is evaluated in soil due to exceedance of the outdoor dust screening level for zinc. However, limited data are available for zinc in some of the neighborhoods evaluated. As shown in Figure A1-8 (Appendix A1), zinc is well correlated with cadmium in the 2006 soil data for SALM and TLP method comparison. The linear regression calculated for this relationship, is used to predict zinc values to replace existing or missing prior phase TLP-based zinc data. The regression for zinc based on cadmium is as follows:

$$Zn = 71.052 \times (Cd) - 10.758$$

$$R^2 = 0.884$$

PCOCs for soil, outdoor dust, and indoor dust: antimony, arsenic, cadmium, selenium, silver, thallium, tin, and zinc are retained as PCOCs.

2.3.5 Air Data

As part of the Phase 2 HHRA, available air data corresponding to the period of March 1997 through February 1998 was evaluated (Exponent 1998c). Operation of a new, more efficient lead smelter was initiated in March 1997, with operation of the old smelter ceasing in May 1997. Thus, the Phase 2 HHRA dataset is not reflective of current conditions with the new smelter operating with minimal upset conditions. For that reason, the Phase 4 HHRA utilized more recently collected data from April 2003 through September 2007 instead of the data set used in previous phases.

From 2003 through 2007, Teck Cominco collected particulate matter of 10 microns in diameter or smaller (PM10) metals data for antimony, arsenic, barium, beryllium, cadmium, chromium, cobalt, copper, mercury, molybdenum, nickel, selenium, silver, thallium, tin, and zinc, as well as metals not evaluated in this assessment (e.g., lead) at seven air monitoring stations surrounding the Trail smelter. By monitoring station, maximum metal concentrations were compared with selected screening values described below. Maximum metal concentrations (as PM10) for years 2003 through 2007 are presented in Table 2-7.

BCMoE does not have current air quality standards or guidelines for any metals. Instead, it recommends using values from Washington State (Willis 2006, pers. comm.). For screening purposes, maximum metal concentrations in PM10 samples from Trail, B.C., were compared with Washington's acceptable source impact levels (ASILs) (Ecology 1998). ASILs are either risk-based (for Class A Toxic Air Pollutants, which are carcinogens) or threshold-based (for Class B Toxic Air Pollutants, which are noncarcinogens). ASILs for carcinogens are based on an increased cancer risk of one in 1 million and are derived from unit risk factors from EPA's IRIS or other sources without adjustment for inhalation rate or body weight (i.e., ASILs represent the ratio of a 1 in 1,000,000 risk level to the chemical-specific unit risk value). For noncarcinogens, the ASIL is based either on an IRIS reference concentration (RfC) or a threshold limit value—time-weighted average (TLV-TWA) converted to a 24-hour TWA (by dividing the TLV-TWA by 300[18]). TLV-TWAs are published by the American Conference of Governmental Industrial Hygienists (ACGIH) and are developed for workplace exposures lasting 8 hours per day, 5 days per week. In addition to ASILs, air concentrations were also compared with EPA Region 9's PRGs.

Maximum and annual average arsenic and cadmium concentrations exceeded screening values for all sites in all years and were retained as PCOCs. In addition, Genelle and West Trail each had at least one exceedance in the quarterly monitoring data of the ASIL for nickel during 2003. However, it was determined that these exceedances of the ASIL for nickel were for samples

[18] TLV-TWAs are published by the ACGIH and are developed for workplace exposures lasting 8 hours per day, 5 days per week. The correction factor applied here is based on a conversion to 24 hour exposure, 7 days per week. These guidelines are intended for workplace exposures only, and the ACGIH recommends against applying them to any other types of exposure. (ACGIH 2003)

with results below the detection limit. Samples collected in 2004[19] were all below detection limits and since these detection limits were all below the screening level indicating that elevations of nickel in air are not likely to be a concern. Therefore, nickel was not retained as a PCOC for air.

Based on this most recent sampling data, some of the copper data exceed screening values. Two ASILs are available for copper: one for fume and one for dusts and mists, both based on ACGIH TLV-TWA values. Air samples collected at four sites exceed the ASIL for copper in fume during years 2003 through 2006, whereas the ASIL for copper in dusts and mists is exceeded only once (at the Warfield site in August 2003). For reference, USEPA Region III (2005) has developed a risk-based concentration (RBC) based on the oral RfD for copper in air that is more than two orders of magnitude higher than the ASIL for fume; there were no exceedances of this value. The toxicity of copper via the inhalation pathway is low, as neither EPA IRIS, nor Health Canada have TRVs for copper via inhalation. Based on the information provided above, copper was not included as a PCOC in air.

The unit risk reported in IRIS for hexavalent chromium serves as the basis for both the hexavalent chromium ASIL and the total chromium PRG used in this screening. This IRIS unit risk is based on a study by Mancuso (1975) of the levels of soluble, insoluble, and total chromium associated with lung cancer mortality among chromate workers. As reported in IRIS, it does not reflect any adjustment for the portion of total chromium represented as hexavalent chromium. The ASIL for hexavalent chromium and the PRG for total chromium, similarly, are not adjusted to account for the portion of hexavalent chromium represented. Speciation of chromium was not conducted for Trail air samples, thus only total chromium data is available for comparison. While the concentration of total chromium in Trail air data exceeded the detection limit[20] only twice, the detection limit for total chromium exceeds both the cancer risk-based ASIL and PRG. All of the detected and nondetected total chromium air data for Trail are below the noncancer threshold-based ASIL for total chromium (1.7 $\mu g/m^3$). Given that the study on which both the ASIL and PRG were derived represents total chromium exposures, direct comparison of Trail data to these values is considered reasonable, but overly conservative. Specifically, the contribution of hexavalent chromium to total chromium in air at the chromate workers site is expected to be much more significant than at the Trail site, where the potential for hexavalent chromium to be present in stack or fugitive emissions is expected to be minimal (Akiki 2008).

PCOCs for air: For the Phase 4 HHRA, arsenic and cadmium are retained as PCOCs for air. Barium, beryllium, cobalt, mercury, molybdenum, antimony, selenium, silver, thallium, tin, and zinc did not exceed their respective ASILs and were not retained as PCOCs. Copper was not included as a PCOC as the screening value recommended by BCMoE was judged to be

[19] Sampling data at the Genelle and West Trail air monitoring stations are available through August 2004.
[20] In Warfield, one sample was at the detection limit in May 2005, and in West Trail, one sample slightly exceeded the detection limit in February 2003.

inappropriate for this application and there were no exceedances of the RBC. Nickel was not retained as a PCOC since all exceedances of screening levels were determined to be below the limit of detection for the samples. Chromium was not retained as a PCOC due to its low potential contribution to total stack and fugitive emissions, minimal detections (two) of total chromium at or above the detection limit, and the likely overestimation of hexavalent chromium-derived cancer risk that would result based on comparison to the chromate worker study based toxicological value.

2.3.6 Beach Sediment Data

Additional sampling to support Phase 4 included beach sediment, to evaluate potential exposures of people engaging in recreational activities at beaches along the Columbia River. Three beaches were sampled in August 2006: Fort Sheppard, Gyro Park, and Casino Beach. A total of 12 discrete samples were collected at eight locations along four transects. For each transect, three samples were collected as follows: 1) at 2 ft above the existing waterline, one sample was collected from each of two depths (0 to 15 cm and 15 to 30 cm); and 2) at 1 to 2 m above the existing waterline, one sample was collected from a depth of 0 to 15 cm.[21]

Beach sediment data analyzed for antimony, arsenic, barium, beryllium, cadmium, chromium, cobalt, copper, lead, molybdenum, nickel, selenium, silver, thallium, vanadium, tin, and zinc were screened against residential soil standards. As summarized in Table 2-8, for all metals other than chromium, concentrations were less than soil standards at all three locations. At the Gyro Park beach, a single sample showed levels of chromium elevated above the B.C. residential soil standard for inadvertent ingestion of soil. This beach is located upstream of the facility and not expected to be impacted by site-related PCOCs by water (Figure 2-7). This expectation is supported by analysis of chromium soil concentrations conducted to support the Trail ERA, which found that chromium in soil was not related to the smelter (Cantox 2007).[22] Therefore, chromium is not retained as a PCOC.

PCOCs for sediment: For the Phase 4 HHRA, no PCOCs for sediment are retained and this pathway is, therefore, not evaluated further.

2.3.7 Fish Tissue Data

As noted in prior phases, a subsistence fishery is absent from the Trail site, but there are consumers of locally caught fish in the Trail community. Fish data have been collected since

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[21] Methods are described fully in the sampling and analysis plan (Integral 2006), For Gyro Park, only three samples were collected at the 15 to 30 cm depth 1 m from shore. A fourth was not collected due to large rocks underground. In addition, one sample from Gyro Park was lost during shipping. There were a total of 12 samples collected at Fort Sheppard and Casino Beach and 10 analyzed from Gyro Park.
[22] Cantox calculated correlation coefficients for metal concentrations and distance from the smelter and found no correlation for chromium.

completion of Phase 3. Between 2000 and 2005, walleye, mountain whitefish, and rainbow trout[23] collected both upstream and downstream of Trail were analyzed for a large number of metals.[24] All fish samples were grouped together, rather than split into upstream and downstream categories. This differs from the aquatic ERA conducted by Golder and Associates (2007) where mountain whitefish and prickly sculpin were split into downstream and upstream (reference) groups. These two species, particularly the sculpin, do not travel as far along the river. However, few differences in tissue metal concentrations were seen between upstream and downstream mountain whitefish, indicating that there may not have been enough distance separating the groups. Furthermore, rainbow trout and walleye have a much larger range and are assumed to move between upstream and downstream locations. For this reason, all upstream and downstream data were combined for all three evaluated species. Most of the fish samples were analyzed as fillets, but one data set of mountain whitefish from 2004 was analyzed as whole body. These data have been reviewed and screened against relevant regulatory standards described below. The results of the screening are presented in Table 2-9.

For the fish result data collected in September 2000, samples were processed two ways, with and without skin, and then analyzed. For these data, there are two sets of results. For screening purposes, all data were included. However, for the HHRA, the higher of the two sets for each metal (determined by averaging) is included. For one sample, the chromium result was 809 µg/g by one method (no skin) and 7.7 µg/g by the other (with skin). Because the higher result is inconsistent with the rest of the data, risks were calculated two ways: 1) including this result or 2) excluding this result and using the value for the sample processed with skin.

The Food Directorate of Health Canada has established a guideline level of 0.5 ppm total mercury in fish (Health Canada 2001). The technical basis for this level is not provided. According to the web site, this value is currently undergoing further evaluation by the Bureau of Chemical Safety, Health Canada. This guideline is higher than any of the EPA screening values for mercury. No other Canadian guidelines were located for protection of human health via fish consumption.

USEPA (2000) provides fish advisory screening values for both recreational and subsistence fishers for arsenic, cadmium, mercury, and selenium. Values for cadmium, mercury, and selenium are for total metal tissue concentrations, whereas the fish advisory level for arsenic applies only to its inorganic forms. These values are based on an adult body weight of 70 kg and fish intake rates of 17.5 g/day and 142.4 g/day for recreational and subsistence fishers, respectively. The advisory values for carcinogens (in this case, only arsenic) are based on a risk level of 1 in 100,000.

[23] Prickly sculpin tissue samples were also collected, but these were not included in the HHRA because they are not eaten by humans.
[24] Including all metals of potential concern, except for fluoride, that were evaluated in this risk assessment.

EPA Region III (2005) has published RBCs for fish that are protective of humans exposed via fish consumption. These RBCs assume a 54 g/day fish ingestion rate and 70 kg body weight. For carcinogens, the target risk level is 1 in 1,000,000. The source of the fish ingestion rate is provided neither in the RBC table nor in the technical background document. These RBCs were used directly for this screening exercise, but were also corrected to apply to a subsistence fisher, who has significantly higher ingestion rates. A correction factor of 2.6[25] was applied to each RBC to account for a subsistence fisher population. This correction was made to be more protective of local consumers in the screening process, even though there is not a subsistence fisher population in Trail.

The EPA national screening values for subsistence and recreational fisher populations and Region III RBCs were used to screen metal concentrations in fish. Metal concentrations in fish were also compared to background levels in rainbow trout and mountain whitefish tissue reported in Rieberger (1992). Based on this screening, arsenic, mercury, vanadium, selenium, thallium and chromium were retained as PCOCs for fish. However, the screening values for arsenic and chromium may be overly conservative for reasons noted below.

Measurements of arsenic in fish were for total arsenic but the organic forms of arsenic, which typically account for 80 to 99 percent of total arsenic in fish (USEPA 2000), are relatively nontoxic. Schoof and Yager (2007) recently reviewed data on levels of inorganic arsenic (the arsenic form of concern) in fish and recommended assuming that inorganic arsenic makes up 10 percent of total arsenic in freshwater fish when only total arsenic data are available.[26] Screening values developed by EPA are based on exposure to inorganic arsenic, so comparison to total arsenic levels in fish is misleading. The use of the total arsenic concentrations in the HHRA screening is conservative.

The screening value for chromium in fish tissue used in this HHRA is the EPA Region III RBC for Cr(VI), 4.1 mg/kg. This RBC is a conservative screening value because total chromium, rather than the speciated form (i.e., Cr(VI) or Cr(III)), was measured in fish tissue at the site. For reference, the RBC for Cr(III) is 2,000 mg/kg. According to U.S. Food and Drug Administration's (FDA) *Guidance Document for Chromium in Shellfish* (FDA 1993), Cr(III) is usually the most stable and "the main form found in plants and animals." Consequently, use of the Cr(VI) screening value may have erroneously caused chromium to screen in as a PCOC.

PCOCs for fish: The Phase 4 HHRA screening identified the following PCOCs for fish: arsenic, mercury, vanadium, selenium, thallium, and chromium. All other metals are below screening values and are not retained as PCOCs.

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[25] 2.6 = 142.4 g/day (EPA recommended intake for a subsistence fisher) / 54 g/day (intake used for the derivation of the RBCs).

[26] Ten percent represented the 75th percentile of the dataset examined.

2.3.8 Produce Data

Homegrown vegetables were collected in 1998 and 1999 and analyzed for arsenic and cadmium, both of which were assessed in the previous phases of the HHRA. Additional produce data collected in August 2007 was analyzed for all potentially site-related metals except for fluoride and mercury.[27] In the Phase 3 assessment, due to small sample size for each neighborhood, produce data were grouped into two categories: those near the Teck Cominco facility (East Trail, Glenmerry, Lower Warfield, Miral Heights, Shaver's Bench, Sunningdale, Tadanac, Upper Warfield, and West Trail) and those far from the facility (Casino, Oasis, Rivervale, and Waneta). Based on a subsequent reevaluation of the neighborhoods (Exponent 2000b), Rivervale was included in the "near" category for the Phase 4 assessment; all other classifications remained the same. For Phase 3, homegrown produce data were also grouped into two broad produce types, "leafy" and "non-leafy." The Phase 4 assessment groups produce into "nonroot" and "root." This change was made to be consistent with Canadian produce ingestion rates provided in Richardson (1997).

Measured produce concentrations were compared with screening values calculated using methods and assumptions outlined in the Sudbury Area Risk Assessment (SARA) (SARA Group 2006). The Sudbury produce screening values were derived by multiplying the TRV (e.g., RfD) for a chemical by body weight, dividing by a produce consumption rate, and adjusting with allocation and amortization factors to calculate conservative produce screening levels.

Table 2-10 shows the results of the homegrown produce screening. Based on comparison of the calculated screening values to metals concentrations in Trail produce, antimony, arsenic, cadmium, and thallium were retained as PCOCs. Arsenic was screened as total arsenic, but for the HHRA calculations, inorganic arsenic was used. Consistent with Phase 3, inorganic arsenic was estimated using values reported in Schoof et al. (1999a) (Table 2-11).

PCOCs for homegrown produce: Arsenic, cadmium, antimony, and thallium are retained as produce PCOCs for the Phase 4 HHRA.

2.3.9 Groundwater Chemistry Data

Groundwater chemistry data for all multiuser drinking water wells in Trail obtained since Phase 3 where reviewed for the Phase 4 screening, although there is only limited use of groundwater as a drinking water supply in Trail. Groundwater samples were collected between 1996 and 2001 from wells in residential areas as well as in parks, a golf course, and the airport (see Table 2-12 for the list of the 22 distinct wells sampled). These data have been

[27] A memorandum summarizing the data quality evaluation of the August 2007 produce and soil data collected from Trail is provided as Appendix A2.

reviewed to determine if there are any PCOCs for this medium. The results of this review are presented in Table 2-12.

B.C. water quality guidelines (BCMoE 2006a) for drinking water were selected as screening values for groundwater samples. Water samples were also compared to Canadian National Drinking Water Quality Guidelines (maximum acceptable concentrations, or MACs) (Health Canada 2004c) and EPA maximum contaminant levels (MCLs) (USEPA 2008) when MACs were greater than MCLs or when MACs for a specific metal were not available. No metals exceeded any of the selected water quality standards, and thus no PCOCs were retained for groundwater.

PCOCs for groundwater: No PCOCs are retained for groundwater because all metals were below water quality criteria; therefore, this pathway is excluded.

2.3.10 Surface Water Chemistry Data

Surface water samples collected from the Columbia River, obtained since Phase 3, were screened using the following guidelines. The results of the screening are presented in Table 2-13.[28]

Few guidelines exist for screening recreational waters for inorganic contaminants. WHO (2003) recommends using drinking water guidelines as a starting point for deriving screening values and also draws on a past study that conservatively assumed recreational waters make up a fraction (10 percent) of total exposure. As such, drinking water guidelines should be adjusted based on the minor contribution of recreational waters. WHO (2003) states "a simple screening approach is therefore that a substance occurring in recreational water at a concentration ten times that stipulated in the drinking-water guidelines may merit further consideration."

Columbia River samples were screened for recreational exposures (e.g., swimming and wading), using B.C. drinking water quality guidelines (BCMoE 2006a) or EPA National Primary Drinking Water Regulation MCLs (USEPA 2008), without a correction factor, when B.C. guidelines were not available for a specific metal. Maximum metal concentrations were below drinking water quality criteria for all screened contaminants, and thus no metals were retained as PCOCs.

PCOCs for surface water: No PCOCs are retained for surface water because all metals were below water quality standards; therefore, this pathway is excluded.

[28] Note that in the Work Plan (Integral 2007), this table erroneously omitted two of the three surface water data sets used in the screening. This table has been updated to include all available surface water data.

2.4 PHASE 4 CONTAMINANT-SPECIFIC CONCEPTUAL SITE MODELS

Based on the results of the media screening, chemical-specific conceptual site models have been developed and are shown in Figures 2-8 to 2-16.

2.4.1 Summary of Exposure Scenarios for Phase 4

Based on the results of the contaminant screening for site media, contaminant-specific conceptual site models have been developed and are shown in Figures 2-8 to 2-16. Based on the pathway and media screening, land use scenarios developed for analysis in Phase 4 include residential, commercial, agricultural, and recreational (ATV/dirt bike use). All pathways evaluated in previous phases were included in this reassessment. A summary of each scenario evaluated in Phase 4 is provided below. For residential and commercial scenarios, exposures were calculated for a young child (6 months to 5 years old) and for a combined exposure period as an adult plus as a young child. The adult plus child scenario was selected because it allows for the calculation of risks for a resident that spends time as both a child and adult (or teenager) in Trail. Agricultural and recreational exposures were assessed for adults only.

2.4.2 Residential Scenario

The Phase 2 assessment evaluated exposures to adults residing in Trail. Exposures to children, aged 6 months to 5 years, were evaluated separately. Exposure pathways included the following:

- Incidental ingestion of soil
- Incidental ingestion of indoor dust
- Inhalation of ambient air.

Phase 3 added a produce ingestion pathway to the residential exposure scenario. Building upon the prior phases, the Phase 4 assessment evaluates the following pathways:

- Incidental ingestion of soil
- Incidental ingestion of indoor dust
- Inhalation of ambient air
- Ingestion of homegrown produce
- Ingestion of locally caught fish
- Incidental ingestion of outdoor dust.

2.4.3 Commercial Scenario

Previous risk assessments (Phases 2 and 3) evaluated exposures to a worker and child spending a significant amount of time on a commercial property (e.g., in daycare). Exposure routes evaluated in Phases 2 and 3 included the following:

- Inhalation of ambient air
- Incidental ingestion of soil
- Incidental ingestion of indoor dust.

The same pathways are evaluated in Phase 4.

2.4.4 Agricultural Scenario

The final exposure scenario evaluated in Phases 2 and 3 was agricultural. It was assumed that farming activities around Trail could lead to additional exposures via incidental soil ingestion and inhalation of ambient air. Exposure was assumed to occur 8 hours per day, 169 days per year for 55 years.[29] Exposure pathways evaluated in Phases 2 and 3 included the following:

- Incidental ingestion of soil
- Inhalation of particulates in air.

The Phase 4 reevaluation assesses exposures via these same pathways. Specific agricultural land uses surrounding Trail include dairies and a commercial winery. The agricultural scenario for Phase 4 was designed to encompass the range of exposures experienced by workers in these properties by selecting exposure parameter distributions (e.g., for exposure frequency, ingestion rate, particulate concentration in air) that consider the possible ranges of exposures for individuals working in these industries. An additional agricultural land use in this area is rangeland for horses. Although this land use was not included in the range of exposures, it is not expected to be greater than those evaluated.

2.4.5 Recreational ATV/Dirt Bike Use

The Phase 4 assessment evaluates exposures to ATV and dirt bike riders who currently recreate in areas south of Trail, along the river. It is assumed that this group could contact soil through ingestion and inhalation while riding. Relevant pathways for the ATV/dirt bike rider include the following:

- Incidental ingestion of soil
- Inhalation of particulates in air.

[29] The assumed exposure duration for an agricultural worker is from teenage years to retirement. The exposure frequency assumes 225 days per year of outdoor worker activity prorated over a 9-month duration.

3 EXPOSURE ASSESSMENT

Exposure assessment involves characterizing the temporal and spatial distributions of contaminants at the site, as well as refining the nature of receptor populations to be characterized and the specific exposure characteristics (e.g., contact rates, exposure frequency, exposure duration) to be used in deriving site-specific exposure estimates. In this risk assessment, both stochastic (probabilistic) and deterministic approaches were used to characterize site-specific exposure estimates. For exposure scenarios previously evaluated in Phase 3, a probabilistic approach was used. For Phase 4 exposure scenarios not evaluated in prior phases (i.e., fish ingestion, recreational ATV/dirt bike use), a deterministic approach was used.

For the probabilistic assessments, a combination of distributions (i.e., PDFs) and point estimates were used, depending on the specific input parameter. Central tendency exposures (CTE) were estimated using the average or median and reasonable maximum exposures (RME) were estimated using the 90th or 95th percentile of the risk distributions. Probabilistic assessments were conducted by Monte Carlo analysis using Crystal Ball® software. A quantitative sensitivity analysis was performed to test the impact of certain input parameter distributions on the risk outcome.

Deterministic assessments were conducted for new exposure scenarios evaluated in Phase 4 (i.e., fish ingestion, recreational ATV/dirt bike use). CTE and RME risks were calculated for deterministic assessments using point estimates for central and upper end exposures.

3.1 INTAKE ANALYSIS – GENERAL APPROACH AND ASSUMPTIONS

Intakes for each scenario were calculated using site-specific media concentrations combined with receptor- and scenario-specific exposure assumptions. Intake refers to the amount of a chemical that enters the mouth or lungs.[30] Chemical-specific intakes for each exposure pathway are estimated using equations that incorporate several factors in addition to the exposure concentration previously described. These factors or "variables" are described below:

- Contact rate—The amount of water, food, dust, soil, or air that a person may take into his or her body (i.e., drink, eat, breathe) over a specified time
- Intake fraction—Fraction of media contacted that is assumed to be from the contaminated source

[30] Intakes via dermal pathway will not be evaluated due to minimal transfer of metals across the skin.

- Absorption factor—An adjustment factor to account for relative absorption of a chemical from the medium of interest compared to absorption from the exposure medium in the toxicity study(ies) used to derive the toxicity value
- Exposure frequency—How often a person could be exposed to the chemical
- Exposure duration—How long a person could be exposed to the chemical
- Body weight—The typical mass (in kilograms) for each age group of people who may be exposed
- Exposure averaging time—The time (in days) over which exposure is averaged (e.g., over a lifetime for chemicals that might cause cancer or over a year for other chemicals).

Intake is estimated using each of these variables and the exposure concentration in the following equation:

$$\text{Intake}\,(\text{mg/kg}\cdot\text{day}) = \frac{C \times CR \times F \times ABS \times EF \times ED}{BW \times AT}$$

Where:

C	=	chemical-specific exposure concentration (e.g., mg/kg or mg/m^3)
CR	=	contact rate (e.g., mg/day or m^3/day)
F	=	intake fraction (unitless)
ABS	=	absorption factor (unitless)
EF	=	exposure frequency (days per year)
ED	=	exposure duration (year)
BW	=	body weight (kg)
AT	=	averaging time (days)

The variables shown in the exposure algorithm above are called “exposure factors,” and they vary depending on the receptor population being evaluated. Each Phase 4 receptor population (i.e., residential, commercial, agricultural, recreational) was characterized by a number of assumptions regarding the frequency of contact with potentially contaminated media, duration of exposure, and other parameters unique to that receptor population. Some of the exposure factors used in prior phases (Phases 1 through 3), were also used in Phase 4. Other factors were obtained from regulatory guidance and/or other published literature, including Richardson (1997), BCMoE (1996), Health Canada (2004a), and USEPA (1989; 1991; 1997a; 2001a; 2004). When available, Canadian exposure information was used preferentially over U.S. data. Information on regional behavior patterns was also considered, as appropriate. Exposure factors incorporated in the risk assessment are in the form of either PDFs or point estimates depending on the parameter, information available, and whether the exposure scenario was evaluated with probabilistic or deterministic approaches.

3.1.1 Derivation of PCOC Concentration Distributions

Site-specific soil, outdoor dust, indoor dust, ambient air, fish tissue, and produce sampling data were used to generate intake estimates. For Waneta, outdoor dust was assumed to equal two times the soil concentration (see Section 2.3.4).

Summary statistics describing the data sets for air, fish, indoor dust, outdoor dust, soil and produce are provided in Tables 3-1 through 3-6. For all data sets, one-half the detection limit was used for values below the detection limit. As described in Section 2.3.1, we determined that the concentrations of antimony and zinc in soil from the previous phases were unreliable and likely underestimated due to differences in the analytical methods used in the current and prior phases. For this reason, a regression of the arsenic data was used to estimate antimony concentrations in soil, and a regression of the cadmium data was used to estimate zinc in soil. For probabilistic assessments, PDFs for each medium were generated by performing distributional fit tests on the individual data sets using Crystal Ball®, ProUCL, and/or Stata® software.[31] For deterministic assessments and for data sets with samples sizes fewer than 10, we utilized point estimates represented by the lower value of either the maximum of the data set or the upper confidence limit on the mean (UCLM).[32]

3.1.2 Exposure Duration

Exposure duration is the length of time during which someone may be exposed through a specific exposure pathway. It varies depending on the receptor and the activity and often involves consideration of the length of residence in an area. For all child scenarios, a point estimate value of 4.5 years was assumed (Health Canada 2007a).

3.1.2.1 Probabilistic Assessments

For the adult plus child scenarios, a distribution of residence time in the U.S. was selected based on data from USEPA (1997a) and analysis by USEPA (2001a). No information on exposure duration for either Trail or Canada was available. The uncertainty associated with relying on U.S. data is discussed in the uncertainty evaluation (Section 5.3). The selected lognormal distribution with a mean of 12.6 years and a standard deviation of 16.2 years takes into account the variability associated with the time spent at a residence. For commercial and residential scenarios, this distribution was truncated at 87 years, the maximum value from the study reported by EPA (1997a). For agricultural scenarios, the distribution was truncated at 55 years

[31] Distributions for datasets with at least 15 samples were determined using Crystal Ball®. For sample sets with between 10 and 14 samples, distributions were tested using ProUCL software, and in some cases, datasets were plotted using Stata® to help determine distributional shape.
[32] Determination of distributions for sample sizes less than 10 is unreliable.

to represent a likely upper bound of the time spent working in agriculture (i.e., from age 15 to 70).

For residential and commercial scenarios, the distribution of exposure duration values resulted in exposure durations of less than or equal to 4.5 years, the child exposure duration, for some model runs.[33] In such cases, the exposure scenario for that model run was assumed to represent a child and only child-specific exposure assumptions were used to estimate intakes. For exposure duration values in the distribution that were greater than 4.5 years, the exposure scenario was assumed to represent both child and adult periods with the child exposure portion equal to 4.5 years and the adult exposure portion equal to the remaining exposure duration for that model run.[34]

3.1.2.2 Deterministic Assessments

For the deterministic assessment, exposure duration of 9 years was selected as an estimate of CTE, and 30 years was selected as an estimate of RME. Exposure duration is a surprisingly difficult parameter to measure on a site-specific basis and no suitable data are available from Trail upon which to base estimates of exposure duration for the two activities evaluated deterministically (i.e., fish consumption and riding ATVs). The values selected have been identified as reasonable CTE and RME estimates for residential exposure in the U.S. (USEPA 1989) and were judged to be reasonable estimates for the two activities evaluated.

For ingestion of locally caught fish, the CTE exposure duration was assumed to be 3 years as a child and 6 years as an adult. The RME exposure was assumed to be 4.5 years as a child and 25.5 years as an adult. For the ATV/dirt bike exposures, it is assumed that no young children participate and that the entire exposure duration applies to adults (which are assumed to include teenagers).

3.1.3 Body Weight

For probabilistic assessments, lognormal distributions of body weight taken from the Compendium of Canadian Human Exposure Factors for Risk Assessment (Richardson 1997) were utilized. For adults, body weight averaged 70.7 kg with a standard deviation of 14.5 kg. The child body-weight distribution averaged 16.5 kg with a standard deviation of 4.5 kg. For deterministic assessments (i.e., ATV/dirt bike use and ingestion of locally caught fish), the means of these distributions were used as point estimates.

[33] There are 10,000 simulations (or runs) of the model for each risk calculation
[34] For example, if for a specific model run, the exposure duration was equal to the mean of the distribution, 12.6 years, then the exposure duration for that model run would assigned as follows: 4.5 years for the child and 12.6, 4.5, or 8.1 years for the adult.

3.1.4 Averaging Time

The averaging time is the time over which an exposure is averaged. The averaging times for evaluating carcinogenic and noncarcinogenic effects are different. For evaluating carcinogenic effects, chemical intakes are averaged over the full 75-year lifetime (27,375 days) to be consistent with the way carcinogenic slope factors are derived. When evaluating noncarcinogenic effects, however, chemical intakes are averaged over the exposure duration. For noncarcinogenic effects, the exposure duration (typically expressed in years) is converted to days and used as the averaging time. For example, for child scenarios, this value is equal to 4.5 years times 365 days/year or 1,643 days. For the adult plus child scenarios, this value is a function of the exposure duration distribution. The averaging time for cadmium is different from the others because the RfD for cadmium is based on lifetime exposure. For this reason, the exposure duration for cadmium was set as 27,193 days (or 74.5 years[35] 365 days/year).

3.2 Soil, Indoor Dust, and Outdoor Dust Ingestion

The soil, indoor dust, and outdoor dust ingestion algorithms and assumptions are presented in Exhibit 3-1. Risks via this pathway were modeled probabilistically.[36] Soil and dust ingestion rates, fractional intakes, exposure frequencies, and relative bioavailability of chemicals from soil are discussed in detail below.

3.2.1 Soil Ingestion Rates

Incidental soil and dust ingestion rates for direct exposures to soil and/or dust vary based on several factors, including the following:

- Frequency of an individual's hand-to-mouth behaviors
- Seasonal climate conditions that affect availability of soil (e.g., snow cover)
- Type of groundcover at the exposure location (e.g., grass vs. bare ground)
- Amount and type of outdoor and indoor activity
- Individual personal hygiene practices (e.g., frequency of hand washing).

Of these factors, the frequency of an individual's hand-to-mouth behaviors is considered a primary determinant of soil and dust intake. Frequent mouthing behaviors typical of early childhood, particularly under the age of 4 years, increase the potential for ingestion of soil and dust that adheres to hands. Although fewer studies of adult soil ingestion have been published, hand-to-mouth activities in adults are considered much less frequent than in children. For this

[35] This value was selected for consistency with the prior phase, which assumed lifetime exposure as age 6 months to 75 years.
[36] Except for the ATV/Dirt bike scenario for which risks were modeled deterministically.

reason, risk assessment guidance typically recommends default soil ingestion rates that are higher for children than for adults.

3.2.1.1 Children

BCMoE (1996) and Health Canada (2004b) recommend a default child soil ingestion rate of 80 mg/day. USEPA (2002a) recommends 100 mg/day as the best estimate, and 400 mg/day as an upper percentile estimate, of the mean daily soil ingestion rate for children less than 6 years of age. The EPA values are based on short-term population surveys conducted over 3 to 7 days, and USEPA (1997a; 2002a) notes that they do not represent usual intakes over longer periods.

Estimates of soil ingestion derived from short-term studies tend to overestimate soil ingestion over longer averaging times. Stanek and Calabrese (2000) and Stanek et al. (2001) addressed the uncertainty related to use of short-term studies to represent long-term daily average intakes, showing that 95th percentile estimates of soil intake decline substantially when the distribution represents a longer period. A comparison of 95th percentile child soil ingestion estimates for 1 day with those averaged over 1 year reveals a decline from 141 to 106 mg/day and from 201 to 124 mg/day, for the respective Anaconda and Amherst data sets (Stanek and Calabrese 2000).

In their 2001 paper, Stanek et al. revisited the Anaconda data using a statistical method called best linear unbiased predictors and reported a long-term soil ingestion distribution for probabilistic assessment. This lognormal distribution had a mean of 31 mg/day and a 95th percentile of 91 mg/day. The authors "recommend the use of the empirical distribution based on the best linear unbiased predictors estimates because this distribution will shrink the overall distribution somewhat to account for uncertainty in soil ingestion estimates on a day, as well as day to day variability in soil ingestion."

In a risk assessment of the Rocky Flats site in Colorado, USEPA (2001a) developed a soil ingestion distribution for children based on the Stanek and Calabrese papers. The lognormal distribution, with a mean and standard deviation of 47.5 and 112 mg/day, accounted for uncertainty associated with the use of short-term studies for long-term estimates. This same distribution was adopted for use in this HHRA. The Stanek et al. (2001) distribution was tested in the sensitivity analysis (Section 5.4).

3.2.1.2 Adults

BCMoE (1996) and Health Canada (2004b) recommend a default adult soil ingestion rate of 20 mg/day, while USEPA (1997a) recommends 50 mg/day.

For adult scenarios, the distribution of data taken from the adult soil ingestion study conducted by Stanek et al. (1997) was used. Their reported average and 95th percentiles values (10 and 331 mg/day, respectively), fit to a lognormal distribution, were used for all adult probabilistic scenarios in Phase 4. This distribution is likely to be conservative because it is based on short-term estimates of soil ingestion, which tend to overpredict estimates over longer averaging times.

3.2.2 Fractional Intakes

Soil ingestion rates, described above, encompass ingestion of soil, indoor dust, and outdoor dust. Therefore, intake fractioning for each media was applied when data for each media were available. For commercial scenarios, only soil data were available, so the assumed fractional intake for soil was 1.

For residential scenarios, data was available for soil, indoor dust, and outdoor dust. USEPA (USEPA 1994) assumes that 55 percent of soil ingestion comes from indoor dust, whereas the previous assessments (1998a; Exponent 2000a) assumed that 70 percent came from indoor dust. A uniform distribution encompassing both of these values between 0.55 and 0.70 was therefore selected. Soil and outdoor dust were assumed to split the remaining source fraction such that a fractional intake of 0.70 for indoor dust would correspond to fractional intakes of 0.15 for outdoor dust as well as for soil.

3.2.3 Exposure Frequencies

Exposure frequency describes how many days per year someone may have contact with exposure media (e.g., soil or water) in a typical 1-year period. Values for exposure frequency vary for each scenario and sometimes for different exposure pathways within a scenario. Exposure frequencies for soil, indoor dust, and outdoor dust appear in Exhibit 3-1.

3.2.3.1 Residential Scenarios

For adult and child residents who have contact with soil and particulates in their yards and homes, USEPA (1991) recommends an exposure frequency of 350 days/year for both the CTE and the RME cases for the general population. This value is based on an assumption that residents spend at least 2 weeks at a location other than their home each year (e.g., a 2-week vacation or other periods of absence from the home). This value was selected for indoor dust exposure frequency. For soil and outdoor dust exposure frequency, a distribution derived in USEPA (2001a) using data from USEPA (USEPA 1997a) was selected. This triangular distribution assumed a minimum of 175, a maximum of 350, and a most likely value of 234 days/year. This distribution takes into account reductions in time spent outside due to weather, snow cover, etc.

3.2.3.2 Commercial Scenarios

A normal distribution was developed for commercial scenarios assuming that the mean of the distribution was equal to USEPA (2001a; 2004) recommendations for CTE exposures, 219 days/year and the 95th percentile corresponded to the RME recommendation, 250 days/year.

3.2.3.3 Agricultural Scenarios

A point estimate value of 169 days/year was selected for agricultural scenarios. USEPA (2002b) assumes an exposure frequency of 225 days/year for outdoor workers. Because Trail has snow cover for three months of the year, this value was corrected for months without snow cover (i.e., 9 months/12 months * 225 days/year, which equals 169 days/year).

3.2.4 Relative Bioavailability

For evaluation of incidental soil, indoor dust, and outdoor dust ingestion, a relative bioavailability adjustment (RBA) was incorporated to account for the difference in metal bioavailability in the exposure medium versus the dosing vehicle used in the critical toxicity test that is the basis for the toxicity value.

For practical reasons, toxicity tests are usually designed using dosing media with high bioavailability, often diet or and water. The bioavailability of metals in soil, on the other hand, can vary depending on such factors as the following:

- Form of the chemical present (e.g., oxidation state or molecular composition)
- Physical form in the soil (e.g., encapsulation of a mineral within a soil particle)
- Length of time the chemical has been present in soil (aging or weathering)
- Soil characteristics (e.g., fraction organic carbon, pore size).

The RBA accounts for differences in the bioavailability of a metal in soil relative to the dosing medium used in the critical toxicity study. It can be calculated as follows:

$$\mathrm{RBA} = \frac{\text{absorbed fraction from soil}}{\text{absorbed fraction from dosing medium used in toxicity study}} \times 100$$

The RBA is typically less than 1.0 because the most bioavailable form of a metal is commonly used in toxicity studies.

As presented in Technical Memorandum 2.1, Exponent (1998b) conducted *in vitro* bioaccessibility testing for arsenic and cadmium to estimate bioavailability. Based on this study, Exponent conservatively estimated that Trail soil samples contain arsenic with a relative bioavailability of 55 percent and cadmium with a relative bioavailability of 33 percent. These values were incorporated into the calculation of exposure to arsenic and cadmium via the soil and dust ingestion route for all exposure scenarios evaluated. These values, and particularly the value for arsenic, are high compared to relative bioavailability values observed at other sites affected by smelter emissions.

The toxicity value (RfD) for antimony is based on a study of potassium antimony tartrate administered in water. No discussion is provided in the documentation of this value regarding absorption or applicability to other forms of antimony or antimony in mixed media. A draft toxicological profile for antimony from ATSDR does discuss absorption (ATSDR 1992a). This document indicates that gastrointestinal absorption of antimony salts in humans is less than 10 percent. It also specifically cites the recommendation of 10 percent for antimony tartrate and 1 percent for all other forms of antimony as values for gastrointestinal absorption of different forms of antimony in humans. Because the RfD is based on administration of antimony tartrate and since this form is not expected in Trail soils, the exposure estimates were adjusted downward by a factor of 10, to reflect an RBA of 10 percent applied for antimony exposures. This adjustment is consistent with Phase 3.

The RBA value for selenium, 30 percent, was taken from the Sudbury HHRA conducted by the SARA Group (2006). This study employed a complex *in vitro* procedure, simulating both gastric and intestinal phases of absorption, to determine bioaccessibility of selenium in soil and dust. An examination of regression lines, goodness of fit, and 95 percent upper confidence limit on the mean (95 percent UCLM), revealed that the most conservative point estimate (95 percent UCLM) would be most appropriate for risk assessment of selenium. All other RBA values (for silver, thallium, tin, and zinc) were assumed to equal 100 percent.

Exhibit 3-1: Incidental Ingestion of Soil, Outdoor Dust, and Indoor Dust

Equation 1

$$LADD_{(d+s)} \text{ or } ADD_{(d+s)} = \frac{[(C_S \times EF_S \times FI_S) + (C_{ID} \times EF_{ID} \times FI_{ID}) + (C_{OD} \times EF_{OD} \times FI_{OD})] \times IR \times FS \times RBA \times ED}{BW \times AT \times CF}$$

Where:

$LADD_{(d+s)}$	=	Lifetime average daily dose from incidental ingestion of dust and soil (mg/kg-day)
$ADD_{(d+s)}$	=	Average daily dose from incidental ingestion of dust and soil (mg/kg-day)
C_S	=	Concentration of chemical in soil (mg/kg)
EF_S	=	Exposure frequency for soil (days/year)
FI_S	=	Fractional intake from soil (unitless)
C_{ID}	=	Concentration of chemical in indoor dust (mg/kg)

EF_{ID}	=	Exposure frequency for indoor dust (days/year)
FI_{ID}	=	Fractional intake from indoor dust (unitless)
C_{OD}	=	Concentration of chemical in outdoor dust (mg/kg)
EF_{OD}	=	Exposure frequency for outdoor dust (days/year)
FI_{OD}	=	Fractional intake from outdoor dust (unitless)
IR	=	Combined soil and dust ingestion rate (mg/day)
FS	=	Fraction ingested from source (unitless)
ED	=	Exposure duration (years)
RBA	=	Relative bioavailability adjustment factor (unitless)
AT	=	Averaging time (days)
BW	=	Body weight (kg)
CF	=	Unit conversion factor (1 x 10^6 mg/kg)

Parameter Values

Parameter	Units	Dist. Type	Mean	Std Dev.	95th Percentile	Source/Comment
Residential Scenario						
C_S	mg/kg	Best Fit				Site wide or by neighborhood
EF_S	days/year	Triangular: 175, 234, 350				USEPA (2001a) - based on USEPA (1997a) data;
FI_S	unitless	Uniform: 0.15 – 0.225				Uses a uniform distribution between what was used in Phase 3 (0.3 for outdoors) and USEPA (1994) (0.45 for soil). Splits soil and outdoor dust. In the modeling equations, will be equal to ½*(1-FI_{ID}) in order to keep FI = 1.
C_{ID}	mg/kg	Best Fit				By neighborhood
EF_{ID}	days/year	Point Estimate	350			Phases 2 and 3 HHRA, assumes 2 weeks away from residence
FI_{ID}	unitless	Uniform: 0.55 – 0.7				Uses a uniform distribution between what was used in Phase 3 (0.7 for indoors) and USEPA (1994) (0.55 for indoor dust).
C_{OD}	mg/kg	Best Fit				By neighborhood

Parameter	Units	Dist. Type	Mean	Std Dev.	95th Percentile	Source/Comment
EF_{OD}	days/year	Triangular: 175, 234, 350				USEPA (2001a) - based on USEPA (1997a) data;
FI_{OD}	unitless	Uniform: 0.15 – 0.225				Uses a uniform distribution between what was used in Phase 3 (0.3 for outdoors) and USEPA (1994) (0.45 for soil). Splits soil and outdoor dust. In the modeling equations, is equal to ½*(1-FI_{ID}) in order to keep total FI = 1.
IR_{CHILD}	mg/day	Lognormal	47.5	112	177	USEPA (2001a) based on Stanek/Calabrese papers
IR_{ADULT}	mg/day	Lognormal	10	94	331	Stanek et al. (1997)
FS	unitless	Point Estimate	1			Phases 2 and 3 HHRA
RBA	unitless	Point Estimate				Chemical-specific: see RBA table below
ED_{CHILD}	years	Point Estimate	4.5			
$ED_{ADULT+CHILD}$	years	Lognormal	12.6	16.2		From USEPA (2001a) based on data from USEPA (1997a) Min: 1; max: 87
AT_{CANCER}	days	Point Estimate	27,375			75 yr × 365 days/yr
$AT_{NONCANCER-CHILD}$	days	Point Estimate	1,643			ED_{CHILD} × 365 days/yr
$AT_{NONCANCER-ADULT+CHILD}$	days	Varies with $ED_{ADULT+CHILD}$				$ED_{ADULT+CHILD}$ × 365 days/yr
$AT_{NONCANCER-LIFETIME}$	days	Point Estimate	27,193			(74.5 years) × 365 days/yr; for cadmium only
BW_{CHILD}	kg	Lognormal	16.5	4.5		Richardson (1997)
BW_{ADULT}	kg	Lognormal	70.7	14.5		Richardson (1997)
Commercial Scenario						
C_S	mg/kg	Best Fit				By neighborhood
EF_S	days/year	Normal	219		250	Superfund CTE and RME for workers, USEPA (2004)
FI_S	unitless	Point Estimate	1			Indoor dust assumed to equal soil since there are no indoor dust data for commercial properties
IR_{CHILD}	mg/day	Lognormal	47.5	112	177	USEPA (2001a)
IR_{ADULT}	mg/day	Lognormal	10	94	331	Stanek et al. (1997)

Parameter	Units	Dist. Type	Mean	Std Dev.	95th Percentile	Source/Comment
FS_{CHILD}	unitless	Point Estimate	0.66			Phases 2 and 3 HHRA, assumes 8 of 12 waking hours spent in commercial areas
FS_{ADULT}	unitless	Point Estimate	0.6			Phases 2 and 3 HHRA, assumes 10 of 16 waking hours spent in commercial areas
RBA	unitless	Point Estimate				Chemical-specific: see RBA table below
ED_{CHILD}	years	Point Estimate	4.5			
$ED_{ADULT+CHILD}$	years	Lognormal	12.6	16.2		From USEPA (2001a) based on data from USEPA (1997a) Min: 1; max: 87
AT_{CANCER}	days	Point Estimate	27,375			75 yr × 365 days/yr
$AT_{NONCANCER-CHILD}$	days	Point Estimate	1,643			ED_{CHILD} × 365 days/yr
$AT_{NONCANCER-ADULT+CHILD}$	days	Varies with $ED_{ADULT+CHILD}$				$ED_{ADULT+CHILD}$ × 365 days/yr
$AT_{NONCANCER-LIFETIME}$	days	Point Estimate	27,193			(74.5 years) × 365 days/yr; for cadmium only
BW_{CHILD}	kg	Lognormal	16.5	4.5		Richardson (1997)
BW_{ADULT}	kg	Lognormal	70.7	14.5		Richardson (1997)
Agricultural Scenario						
C_S	mg/kg	Best Fit				By neighborhood
EF_S	days/year	Point Estimate	169			9 mo no snow * 225 days/yr (USEPA (1997a) outdoor worker)
IR_{ADULT}	mg/day	Point Estimate	100			USEPA (1997a) Outdoor worker
FS	unitless	Point Estimate	1			Phases 2 and 3 HHRA
RBA	unitless	Point Estimate				Chemical-specific: see RBA table below
ED_{ADULT}	years	Lognormal	12.6	16.2		From USEPA (2001a) based on data from USEPA (1997a) Min: 1; max: 55;
AT_{CANCER}	days	Point Estimate	27,375			75 yr × 365 days/yr
$AT_{NONCANCER-ADULT}$	days	Varies with ED_{ADULT}				ED_{ADULT} × 365 days/yr
$AT_{NONCANCER-LIFETIME}$	days	Point Estimate	27,193			(74.5 years) × 365 days/yr; for cadmium only
BW_{ADULT}	kg	Lognormal	70.7	14.5		Richardson (1997)

Proposed RBA Values

Metal	Proposed RBA Value	Source / Notes
Arsenic	55%	Phases 2 and 3, Exponent (1998b)
Cadmium	33%	Phases 2 and 3, Exponent (1998b)
Antimony	10%	Phases 2 and 3, ATSDR (1992a): based on correction of form used to develop RfD vs. forms found in Trail
Selenium	30%	Sudbury HHRA (value for soil) SARA Group (2006)
Thallium	100%	No data
Silver	100%	No data
Tin	100%	No data
Zinc	100%	No data

3.3 INHALATION OF AMBIENT AIR

The algorithms and assumptions for quantifying inhalation of ambient air are in Exhibit 3-2. Risks via inhalation were estimated using probabilistic modeling. For this pathway, indoor air concentrations were conservatively assumed to be equal to outdoor air concentrations. Additional discussion is provided below for values selected for inhalation rates, exposure frequencies, and exposure times (if applicable).

3.3.1 Inhalation Rates

Inhalation can be expressed in terms of a daily rate (m^3/day) or in terms of an hourly rate (m^3/hour). For the purposes of this HHRA, daily rates were used for residential scenarios, and hourly rates were used for commercial scenarios, because the exposure scenario involves exposure for less than a full day. Daily rates were taken from Richardson (1997), and hourly rates came from Allan and Richardson (1998).[37] Daily rates for children averaged 9.3 m^3/day with a standard deviation of 2.6 m^3/day and for adults averaged 15.8 m^3/day with a standard deviation of 3.9 m^3/day. Hourly rates averaged 0.75 and 1.24 m^3/hour with standard deviations of 0.32 and 0.24 m^3/hour for children and adults, respectively.[38]

[37] Allan and Richardson (1998) provide hourly breathing rates for the following categories: resting, very light, light, light to moderate, and moderate to heavy.
[38] Average of light and light to moderate activities.

3.3.2 Exposure Frequencies

The residential exposure frequency for this scenario is 350 days/year. This assumes residents are at home all of the time with the exception of a 2-week absence (e.g., vacation), as described for the residential indoor dust ingestion pathway above. For workers, the exposure frequency is a normal distribution with a mean of 219 days/year and a 95th percentile of 250 days/year, as described for the commercial soil ingestion pathway above.

3.3.3 Exposure Times

Residential exposures are assumed to occur for 24 hours/day and are estimated using a daily inhalation rate. Commercial exposures are expected for only a portion of the day. For children and adults, respectively, commercial exposure times were assumed to be 8 and 10 hours. The commercial scenario did not evaluate combined inhalation exposures for a resident/worker.

Exhibit 3-2: Inhalation of Ambient Air

Equation 2

$$LADD_{air} \ or \ ADD_{air} = \frac{C_{air} \times InhR \times ET \times EF \times ED}{AT \times BW}$$

Where:

$LADD_{air}$	=	Lifetime average daily dose from inhalation of particulates in outdoor air (mg/kg-day)
ADD_{air}	=	Average daily dose from inhalation of particulates in outdoor air (mg/kg-day)
C_{air}	=	Concentration of chemical in air (mg/m^3)
InhR	=	Inhalation rate (m^3/hour)
ET	=	Exposure time (hours/day) (commercial scenario only)
EF	=	Exposure frequency (days/year)
ED	=	Exposure duration (years)
AT	=	Averaging time (days)
BW	=	Body weight (kg)

Parameter Values

Parameter	Units	Dist. Type	Mean	Std Dev.	95th Percentile	Source/Comment
Residential Scenario						
C_{air}	mg/m^3	Best Fit				By monitoring station
EF	days/year	Point Estimate	350			Phases 2 and 3 HHRA, assumes 2 weeks away from residence
$InhR_{CHILD}$	m^3/day	Lognormal	9.3	2.6		Richardson (1997)
$InhR_{ADULT}$	m^3/day	Lognormal	15.8	3.9		Richardson (1997)
ED_{CHILD}	years	Point Estimate	4.5			
$ED_{ADULT+CHILD}$	years	Lognormal	12.6	16.2		From USEPA (2001a) based on data from USEPA (1997a) Min: 1; max: 87
AT_{CANCER}	days	Point Estimate	27,375			75 yr × 365 days/yr
$AT_{NONCANCER-CHILD}$	days	Point Estimate	1,643			ED_{CHILD} × 365 days/yr
$AT_{NONCANCER-ADULT+CHILD}$	days	Varies with $ED_{ADULT+CHILD}$				$ED_{ADULT+CHILD}$ × 365 days/yr
$AT_{NONCANCER-LIFETIME}$	days	Point Estimate	27,193			74.5 yrs × 365 days/yr; for cadmium only
BW_{CHILD}	kg	Lognormal	16.5	4.5		Richardson (1997)
BW_{ADULT}	kg	Lognormal	70.7	14.5		Richardson (1997)
Commercial Scenario						
C_{air}	mg/m^3	Best Fit				By monitoring station
ET_{CHILD}	hours/day	Point Estimate	8			Phases 2 and 3 HHRA
ET_{ADULT}	hours/day	Point Estimate	10			Phases 2 and 3 HHRA
EF	days/year	Normal	219		250	Superfund CTE and RME for workers, USEPA (2004)
$InhR_{CHILD}$	m^3/ hour	Lognormal	0.75	0.32		Average of light and light to moderate rates from Allan and Richardson (1998)
$InhR_{ADULT}$	m^3/ hour	Lognormal	1.24	0.24		Average of light and light to moderate rates from Allan and Richardson (1998)
ED_{CHILD}	years	Point Estimate	4.5			
$ED_{ADULT+CHILD}$	years	Lognormal	12.6	16.2		From USEPA (2001a) based on data from USEPA (1997a) Min: 1; max: 87

Parameter	Units	Dist. Type	Mean	Std Dev.	95th Percentile	Source/Comment
AT_{CANCER}	days	Point Estimate	27,375			75 yr × 365 days/yr
$AT_{NONCANCER-CHILD}$	days	Point Estimate	1,643			ED_{CHILD} × 365 days/yr
$AT_{NONCANCER-ADULT+CHILD}$	days	Varies with $ED_{ADULT+CHILD}$				$ED_{ADULT+CHILD}$ × 365 days/yr
$AT_{NONCANCER-LIFETIME}$	days	Point Estimate	27,193			74.5 yrs × 365 days/yr; for cadmium only
BW_{CHILD}	kg	Lognormal	16.5	4.5		Richardson (1997)
BW_{ADULT}	kg	Lognormal	70.7	14.5		Richardson (1997)

3.4 INHALATION OF PARTICULATES – AGRICULTURAL

The algorithms and assumptions for quantifying inhalation of airborne particulates are shown in Exhibit 3-3. Risks via this pathway were calculated probabilistically. Additional discussion is provided below for values selected for inhalation rates, particulate concentration in air, exposure frequency, and exposure time.

3.4.1 Inhalation Rate

An hourly inhalation rate was used for the agricultural scenario, because this scenario involves exposure for less than a full day. The same distribution used for the commercial scenario was utilized for the agricultural scenario (i.e., a lognormal distribution with a mean of 1.24 m^3/day and a standard deviation of 0.24 m^3/day).

3.4.2 Particulate Concentration in Air

The particulate concentration in air was calculated using emission equations from California Air Resources Board (CARB) (2003a; 2003b; 2004) and represents the range of dust concentrations in air from vineyard and dairy operations (see Exhibit 3-3 below). A uniform distribution ranging from 0.0063 mg/m^3 (vineyard) to 0.029 mg/m^3 (dairy) was selected.

3.4.3 Exposure Frequency

A point estimate value of 169 days/year was selected to be consistent with the soil ingestion pathway for the agricultural scenario.

3.4.4 Exposure Time

A point estimate of 8 hours per day was selected for the agricultural scenario.

Exhibit 3-3: Inhalation of Particulates – Agricultural

Equation 3

$$LADD_{air} \text{ or } ADD_{air} = \frac{C_s \times PC_{air} \times InhR \times ET \times EF \times ED}{AT \times BW \times CF}$$

Where:

$LADD_{air}$	=	Lifetime average daily dose from inhalation of particulates in outdoor air (mg/kg-day)
ADD_{air}	=	Average daily dose from inhalation of particulates in outdoor air (mg/kg-day)
C_s	=	Concentration of chemical in soil (mg/kg)
PC_{air}	=	Particulate concentration in air (µg/m^3)
InhR	=	Inhalation rate (m^3/hour)
ET	=	Exposure time (hours/day)
EF	=	Exposure frequency (days/year)
ED	=	Exposure duration (years)
AT	=	Averaging time (days)
BW	=	Body weight (kg)
CF	=	Unit conversion factor (1 x 10^9 µg/kg)

Parameter Values

Parameter	Units	Dist. Type	Mean	Std Dev.	95th Percentile	Source/Comment
Agricultural Scenario						
Cs	mg/kg	Best Fit				by neighborhood
PC_{air}	mg/m^3	Uniform	Vineyard: 0.0063 Dairy: 0.029			Range of vineyard and dairy estimates. CARB (2003a, 2003b, 2004); equation 4
ET_{ADULT}	hours/day	Point Estimate	8			

Parameter	Units	Dist. Type	Mean	Std Dev.	95th Percentile	Source/Comment
EF	days/year	Point Estimate	169			9 mo/yr times 225 d/yr for outdoor worker
$InhR_{ADULT}$	m^3/ hour	Lognormal	1.24	0.24		Average of light and moderate rates from Allan and Richardson (1998)
ED_{ADULT}	years	Lognormal	12.6	16.2		From USEPA (2001a) based on data from USEPA (1997a) Min: 1; max: 55;
AT_{CANCER}	days	Point Estimate	27,375			75 yr × 365 days/yr
$AT_{NONCANCER-ADULT}$	days	Varies with ED_{ADULT}				ED_{ADULT} × 365 days/yr
$AT_{NONCANCER-LIFETIME}$	days	Point Estimate	27,193			74.5 yrs × 365 days/yr; for cadmium only
BW_{ADULT}	kg	Lognormal	70.7	14.5		Richardson (1997)

Equation 4

$$PC_{air} = \frac{DailyEmission \times CF1}{u \times w \times h \times ET \times CF2}$$

Where:

PC_{air}	=	concentration of particulates in air (mg/m^3)
Daily Emission	=	daily emission factor for land use (lbs PM10/day)
u	=	wind speed (m/s)
w	=	width of area (m)
h	=	mixing height (m)
ET	=	exposure time (hrs/day)
CF1	=	unit conversion factor (453,600 mg/lb)
CF2	=	unit conversion factor (3600 s/hr)

Parameters Values

Parameter	Units	Value	Source
Daily Emission: Vineyard	lbs PM10/day	Vineyard: 0.10	Calculated by the following (CARB 2003a, 2003b): $DailyEmission = \frac{LandOperationEmissionFactor \times Acres}{ExposureFrequency}$ Assumed 10 acres and an exposure frequency of 169 days/year
Daily Emission: Dairy	lbs PM10/day	Dairy: 0.67	Calculated by the following (CARB 2004): $DailyEmission = EmissionFactor \times \frac{N_{cattle}}{1000}$ N_{cattle} assumed to equal 100 (rounded up from an average of 66), based on information from Canadian Dairy Commission (2007).
u	m/s	1.88	Environment Canada data from Warfield: average of 2002-2004
w: Vineyard	m	45	Assumed to work in a 0.5 m^2 area
w: Dairy	m	63.5	Assumed to work in a 1 m^2 area
h	m	3	Best professional judgment
ET	hr/day	8	

3.5 CONSUMPTION OF HOMEGROWN PRODUCE

The algorithms and assumptions for quantifying consumption of homegrown produce are in Exhibit 3-4. Risks via this pathway were calculated probabilistically. Additional discussion is provided below for values selected for produce consumption rates, exposure frequency, and fractional intake.

3.5.1 Produce Consumption Rates

Richardson (1997) provides food (including produce) consumption rate distributions based on Canadian national data. Lognormal distributions for root and nonroot produce consumption were selected for both adults and children. Mean values for root produce consumption are 105 and 196 g/day for children and adults, respectively, with standard deviations of 91 and 160 g/day, respectively. Child nonroot produce consumption averages 67 g/day with a standard deviation of 74 g/day, while adults average 143 g/day with a standard deviation of 135 g/day.

3.5.2 Exposure Frequency

As in the Phase 3 HHRA, a value of 365 days/year was selected for exposure frequency for consumption of homegrown produce because the consumption rates are generated as average daily values over a year.

3.5.3 Fractional Intake

The produce consumption rates encompass both commercial and homegrown sources. Canadian Council of Ministers of the Environment (CCME) (2006) assumes that 10 percent of produce comes from homegrown sources; therefore, a fractional intake of 0.10 was applied to this scenario.

Exhibit 3-4: Consumption of Homegrown Produce

Equation 5

$$LADD_{produce} \text{ or } ADD_{produce} = \frac{[(C_{root} \times IR_{root}) + (C_{nonroot} \times IR_{nonroot})] \times EF \times ED \times FI}{AT \times BW \times CF}$$

Where:

$LADD_{produce}$	=	Lifetime average daily dose from consumption of produce (mg/kg-day)
$ADD_{produce}$	=	Average daily dose from consumption of produce (mg/kg-day)
C_{root}	=	Concentration of chemical in root vegetables (mg/kg dw)
IR_{root}	=	Root vegetable consumption rate (g/day as consumed)
$C_{nonroot}$	=	Concentration of chemical in nonroot vegetables (mg/kg dw)
$IR_{nonroot}$	=	Nonroot vegetable consumption rate (g/day as consumed)
EF	=	Exposure frequency (days/year)
ED	=	Exposure duration (years)
FI	=	Fractional intake from homegrown sources (unitless)
AT	=	Averaging time (days)
BW	=	Body weight (kg)
CF	=	Unit conversion factor (1,000 g/kg)

Parameter Values

Parameter	Units	Dist. Type	Mean	Std Dev.	95th Percentile	Source/Comment
Residential Scenario						
C_{root}	mg/kg	Best Fit				Site wide / near / far
$C_{nonroot}$	mg/kg	Best Fit				Site wide / near / far
EF	days/ year	Point Estimate	365			Phases 2 and 3 HHRA

Parameter	Units	Dist. Type	Mean	Std Dev.	95th Percentile	Source/Comment
IR_{root_CHILD}	g/day	Lognormal	105	91		Richardson (1997)
IR_{root_ADULT}	g/day	Lognormal	196	160		Richardson (1997)
$IR_{nonroot\_CHILD}$	g/day	Lognormal	67	74		Richardson (1997)
$IR_{nonroot\_ADULT}$	g/day	Lognormal	143	135		Richardson (1997)
ED_{CHILD}	years	Point Estimate	4.5			
$ED_{ADULT+CHILD}$	years	Lognormal	12.6	16.2		From USEPA (2001a) based on data from USEPA (1997a) Min: 1; max: 87
AT_{CANCER}	days	Point Estimate	27,375			75 yr × 365 days/yr
$AT_{NONCANCER\text{-}CHILD}$	days	Point Estimate	1,643			ED_{CHILD} × 365 days/yr
$AT_{NONCANCER\text{-}ADULT+CHILD}$	days	Varies with $ED_{ADULT+CHILD}$				$ED_{ADULT+CHILD}$ × 365 days/yr
$AT_{NONCANCER\text{-}LIFETIME}$	days	Point Estimate				74.5 yrs × 365 days/yr; for cadmium only
BW_{CHILD}	kg	Lognormal	16.5	4.5		Richardson (1997)
BW_{ADULT}	kg	Lognormal	70.7	14.5		Richardson (1997)
FI	unitless	Point Estimate	0.10			CCME (2006)

3.6 CONSUMPTION OF LOCALLY CAUGHT FISH

The algorithms and assumptions for quantifying consumption of locally caught fish are in Exhibit 3-5. Because this pathway is new for the Phase 4 assessment, risks via this pathway were calculated deterministically. Additional discussion is provided below for values selected for fish consumption rates, exposure frequency, and fractional intakes.

3.6.1 Fish Consumption Rates

Richardson (1997) provides food, including fish, consumption rate distributions based on Canadian national data. Consumption rates apply to eaters of fish only and do not take into account individuals who never eat fish. For CTE estimates, average values of 56 g/day for children and 113 g/day for adults were utilized. Seventy-fifth percentile estimates, 59.8 g/day for children and 135.9 g/day for adults, were used for RME risks. It should be noted that these fish consumption rates, for total fish consumption, were applied to risks for consumption of specific species of fish. This assumption will overestimate actual consumption of each species.

3.6.2 Exposure Frequency

The residential exposure frequency for this scenario is the same as the one for produce consumption, 365 days/year. This assumes residents are at home all of the time with the exception of a 2-week absence (e.g., vacation).

3.6.3 Fractional Intakes

Fish consumption rates provided in Richardson (1997) include all types of fish (e.g., saltwater, freshwater, commercial, local). For this reason, fractional intakes for both freshwater fish and locally caught fish were applied. For CTE risks, a fractional intake of 0.25 was applied for both freshwater and local fractional intakes, while for RME risks, a factor of 0.5 was applied for both. An additional factor was applied to arsenic risks because most arsenic found in fish is in organic forms that exhibit little or no toxicity. Schoof and Yager (2007) recently reviewed data on levels of inorganic arsenic (the arsenic form of concern) in fish and recommended assuming that inorganic arsenic makes up 10 percent of total arsenic in freshwater fish when only total arsenic data are available[39], so a factor of 0.10 was applied to arsenic risk calculations.

Exhibit 3-5: Consumption of Locally Caught Fish

Equation 6

$$LADD_{fish} \text{ or } ADD_{fish} = \frac{C_{fish} \times IR_{fish} \times EF \times ED \times FI_{freshwater} \times FI_{local} \times FI_{inorganic}}{AT \times BW \times CF}$$

Where:

$LADD_{fish}$	=	Lifetime average daily dose from consumption of fish (mg/kg-day)
ADD_{fish}	=	Average daily dose from consumption of fish (mg/kg-day)
C_{fish}	=	Concentration of chemical in fish (mg/kg)
IR_{fish}	=	Fish consumption rate (g/day)
EF	=	Exposure frequency (days/year)
ED	=	Exposure duration (years)
$FI_{freshwater}$	=	Fractional intake from freshwater fish (unitless)
FI_{local}	=	Fractional intake from locally caught fish (unitless)
$FI_{inorganic}$	=	Fractional intake for inorganic forms (arsenic only) (unitless)
AT	=	Averaging time (days)

[39] Ten percent was the 75th percentile of the distribution of the data set examined.

BW = Body weight (kg)

CF = Unit conversion factor (1,000 g/kg)

Parameter Values

Exposure Factor	Value CTE	Value RME	Units	Source/Comment
Residential Scenario				
C_{fish}	UCLM	UCLM	mg/kg ww	By species
IR_{fish_CHILD}	56	59.8	g/day	Average and 75th percentile from Richardson (1997) (eaters only)
IR_{fish_ADULT}	113	135.9	g/day	Average and 75th percentile from Richardson (1997) (eaters only)
EF	365	365	days/year	
ED_{CHILD}	3	4.5	years	USEPA (1989)
ED_{ADULT}	6	25.5	years	USEPA (1989)
AT_{CANCER}	27,375	27,375	days	75 yr × 365 days/yr
$AT_{NONCANCER\text{-}CHILD}$	1,095	1,643	days	ED_{CHILD} × 365 days/yr
$AT_{NONCANCER\text{-}ADULT}$	2,190	9,308	days	ED_{ADULT} × 365 days/yr
BW_{ADULT}	70.7	70.7	kg	Richardson (1997)
BW_{CHILD}	16.5	16.5	kg	Richardson (1997)
$FI_{freshwater}$	0.25	0.5	unitless	Best professional judgment based on information from USEPA (1997a)
FI_{local}	0.25	0.5	unitless	Best professional judgment
$FI_{inorganic}$	0.1	0.1	unitless	For arsenic only; Schoof and Yager (2007)

3.7 INCIDENTAL INGESTION OF SOIL – ATV/DIRT BIKE

The algorithms and assumptions for quantifying incidental ingestion of soil during ATV/dirt bike use are in Exhibit 3-6. Because this pathway is new for the Phase 4 assessment, risks via this pathway were calculated deterministically. Additional discussion is provided below for values selected for soil ingestion rates and exposure frequencies.

3.7.1 Soil Ingestion Rates

Soil ingestion rates selected for CTE and RME risks, respectively, are 50 and 100 mg/day. These values were derived from other risk assessments of ATV/dirt bike use (ATSDR 2000; USEPA 1996; USEPA 2006).

3.7.2 Exposure Frequency

ATV/dirt bike use in the Trail area occurs mainly in March and April but also continues through October. Anticipated use is 3 to 4 days/week for 10 to 20 weeks/year (Hilts 2007a, pers. comm.). For CTE risks, we assumed that activity occurred for 3 days/week for 10 weeks/year, or 30 days/year. RME exposures are assumed to occur for 4 days/week for 20 weeks/year, or 80 days/year.

3.7.3 Relative Bioavailability

As for residential ingestion of soil, an RBA adjustment of 10 percent was applied for antimony exposures via ingestion of soil during ATV/dirt bike use.

Exhibit 3-6: Incidental Ingestion of Soil – ATV/Dirt Bike Use

Equation 7

$$LADD_{soil} \text{ or } ADD_{soil} = \frac{C_{soil} \times IR_{soil} \times EF \times ED \times RBA}{AT \times BW \times CF}$$

Where:

$LADD_{soil}$	=	Lifetime average daily dose from incidental ingestion of soil (mg/kg-day)
ADD_{soil}	=	Average daily dose from incidental ingestion of soil (mg/kg-day)
C_{soil}	=	Concentration of chemical in soil (mg/kg)
IR_{soil}	=	Soil ingestion rate (g/day)
EF	=	Exposure frequency (days/year)
ED	=	Exposure duration (years)
AT	=	Averaging time (days)
BW	=	Body weight (kg)
CF	=	Unit conversion factor (1×10^6 mg/kg)
RBA	=	Relative bioavailability factor (unitless)

Parameter Values

Exposure Factor	Value CTE	RME	Units	Source/Comment
Residential Scenario				
C_{soil}	22.9	22.9	mg/kg	Antimony only; UCLM of 11 data points from Trail ERA
IR_{soil}	50	100	mg/day	ATSDR (2000); USEPA (2006); USEPA (1996)
EF	30	80	days/year	Assumptions: 3-4 days/wk for 10-20 wks (mainly in March/April but also in May-October)
ED_{ADULT}	9	30	years	USEPA (2006); USEPA (1996)
AT_{CANCER}	27,375	27,375	days	75 yr × 365 days/yr
$AT_{NONCANCER-ADULT}$	3,285	10,950	days	ED_{ADULT} × 365 days/yr
BW_{ADULT}	70.7	70.7	kg	Richardson (1997)
RBA	0.1	0.1	unitless	Phases 2 and 3; ATSDR (1992a)

3.8 INHALATION OF PARTICULATES – ATV/DIRT BIKE

The algorithms and assumptions for quantifying inhalation of particulates during ATV/dirt bike use are in Exhibit 3-7. Because this pathway is new for the Phase 4 assessment, risks via this pathway were calculated deterministically.[40] Additional discussion is provided below for values selected for soil ingestion rates, exposure frequencies, exposure times, and concentration of particulates in air.

3.8.1 Inhalation Rates

Average hourly inhalation rates for light to moderate and moderate to heavy activities from Allan and Richardson (1998), 1.6 and 2.7 m^3/hr, were selected for CTE and RME risk calculations, respectively.

3.8.2 Particulate Concentration in Air

The concentration of particulates in air was calculated using a box model and the Cowherd (1985) method as used in EPA (1996) and ATSDR (2000). This method takes into account the silt content of the soil, the vehicle speed, the vehicle weight, the number of tires per vehicle, the vehicle miles traveled, and the moisture content of the soil (estimated by precipitation). For the CTE risk estimates, it was assumed that a dirt bike traveled throughout the area and that the length of the area was 5 times that of the width. For RME, we assumed that the vehicles travel

[40] Typically, risks are estimated using deterministic methods as a more conservative first step in risk assessment. If any PCOC/pathway/receptor combinations are found to pose unacceptable risks in deterministic modeling, probabilistic assessment can be undertaken to refine the risk estimates and better describe uncertainty.

mainly in the wider portion and that length equals 2 times width. The model-estimated particulate concentrations in air were $2.1x10^{-7}$ kg/m^3 for CTE and $5.6x10^{-7}$ kg/m^3 for RME.

3.8.3 Exposure Times

For CTE exposures, we assumed 2 hours/day, and for RME exposures, we assumed 4 hours/day (Hilts, 2007b, pers. comm.).

3.8.4 Exposure Frequencies

Exposure frequencies for the inhalation pathway were the same as for the ingestion pathway, i.e., 30 days/year for CTE and 80 days/year for RME.

Exhibit 3-7: Inhalation of Particulates – ATV/Dirt Bike Use – Teen/Adult only (Deterministic)

Equation 8

$$LADD_{air} \text{ or } ADD_{air} = \frac{C_s \times PC_{air} \times InhR \times ET \times EF \times ED}{AT \times BW}$$

Where:

$LADD_{air}$	=	Lifetime average daily dose from inhalation of particulates in outdoor air (mg/kg-day)
ADD_{air}	=	Average daily dose from inhalation of particulates in outdoor air (mg/kg-day)
C_s	=	Concentration of chemical in soil (mg/kg)
PC_{air}	=	Particulate concentration in air (kg/m^3)
InhR	=	Inhalation rate (m^3/hour)
ET	=	Exposure time (hours/day)
EF	=	Exposure frequency (days/year)
ED	=	Exposure duration (years)
AT	=	Averaging time (days)
BW	=	Body weight (kg)

Parameter Values

Exposure Factor	Value CTE	RME	Units	Source/Comment
Residential Scenario				
C_s	22.9	22.9	mg/kg	Antimony only; UCLM of 11 data points from Trail ERA
PC_{air}	2.06×10^{-7}	5.64×10^{-7}	kg/m^3	method from Cowherd (1985); equations 9 and 10
ET_{adult}	2	4	hr/day	Based on site observations (Hilts 2007b, pers. comm.)
EF_{adult}	30	80	days/year	Assumptions: 3–4 days/wk for 10–20 wks (Hilts 2007b, pers. comm.)
$InhR_{adult}$	1.6	2.7	m^3/hr	Allan and Richardson (1998) for light to moderate and moderate to heavy activities
ED_{ADULT}	9	30	years	USEPA (1991)
AT_{CANCER}	27,375	27,375	days	75 yr × 365 days/yr
$AT_{NONCANCER\text{-}ADULT}$	3,285	10,950	days	ED_{ADULT} × 365 days/yr
BW_{ADULT}	70.7	70.7	kg	Richardson (1997)

Equation 9

$$C_{air} = \frac{E \times X}{\frac{h}{2} \times u}$$

Where:

C_{air} = Concentration of particulates in air (kg/m^3)

E = Emission factor (kg/s)

X = distance from upwind to downwind edge of the box (m)

h = mixing height (m)

u = wind speed (m/s)

Equation 10

$$E = \left[0.85 \times \frac{s}{10} \times \left(\frac{v}{24}\right)^{0.8} \times \left(\frac{w}{7}\right)^{0.3} \times \left(\frac{T}{6}\right)^{1.2} \times \left(\frac{274-p}{274}\right)\right] \times VKT$$

Where:

s	=	silt content of soil (%)
v	=	average vehicle speed (km/hr)
w	=	vehicle weight (Mg, where 1 Mg = 1000 kg)
T	=	number of tires per vehicle (unitless)
p	=	number of days with at least 0.01 inches of rain (includes adjustment for 9 months of year without snow cover: 365*0.75=274)
VKT	=	vehicle kilometers traveled (km/s)

Equation 11

$$VKT = v \times n_{vehicles} \times CF$$

Where:

v	=	average vehicle speed (km/hr)
$n_{vehicles}$	=	number of ATVs/dirt bikes (unitless)
CF	=	conversion factor (3600 s/hr)

Parameter Values

Parameter	Units	Value	Source
X	m	CTE: 1000	CTE: Total Area = 5.2 km^2 Assumption that length= 5*width
		RME: 930	RME Assumptions: Vehicles travel mainly in the wider 1/3 of area: 1.73 km^2 and length=2*width
h	m	3.05	Best professional judgment
u	m/s	1.88	Environment Canada data from Warfield: average of 2002-2004
s	%	15	Site-specific; Average of 8 samples within this area collected for the ERA (range of 2.6 to 30.2%)
v	km/hr	30	USEPA (1996)
w	mg	0.09 (90 kg)	Dirt bikers are the heaviest users. Dirt bikes range from ~50 to 150 kg based on product website; assumed average of 90 kg.

Parameter	Units	Value	Source
T	unitless	2	Dirt bikers are the heaviest users.
p	days	95	Days with 0.02 mm rain for March-November: Environment Canada data for Warfield 1961-1990
$n_{vehicles}$	unitless	5	Based on observation of dirt bike use in this area

4 TOXICITY ASSESSMENT

The purpose of the toxicity assessment is to summarize health effects that may be associated with exposure to the chemicals included in the risk assessment and to identify doses that may be associated with those effects. The focus is on effects associated with long-term exposures and on effects that could be associated with the chemical concentrations and pathways of exposure that are relevant in environmental settings. Toxicity values developed based on dose-response assessments for these relevant adverse effects are identified. These toxicity values are numerical expressions of chemical dose and response, and vary based on factors such as the route of exposure (e.g., oral or inhalation) and duration of exposure.

4.1 TOXICITY VALUES

Toxicity values for carcinogenic and noncarcinogenic health effects have been developed for many chemicals by government agencies, including Health Canada, EPA, ATSDR, and WHO. In its supplemental guidance released December 2006, BCMoE established the following order of preference for the source of chemical toxicity values: EPA IRIS, Health Canada, EPA Region 9 PRGs, ATSDR, WHO, Netherlands National Institute of Public Health and the Environment, and California Environmental Protection Agency. Chemical toxicity values from IRIS were available for all of the PCOCs, and are provided in Tables 4-1 and 4-2, along with the most current Health Canada values.[41] Subchronic toxicity values are not available in EPA IRIS or from Health Canada; therefore, a subchronic tolerable daily intake (TDI) for arsenic was taken from a paper by Tsuji et al. (2004).

Duration of exposure is an important factor to consider when selecting appropriate toxicity values for the HHRA. This is because the exposure levels that cause toxic effects vary depending on how long the exposure occurs. For example, with continuous exposure to a chemical for many years (typically referred to as chronic exposure), much lower concentrations (and resulting doses) of a chemical could be associated with toxic effects, compared to concentrations that would be identified as causing toxic effects in a person who is exposed to a chemical for only 1 day (referred to as an acute exposure). Intermediate duration exposures (referred to as subchronic exposures) are more likely to lead to toxic effects at intermediate concentrations. This HHRA evaluates risks associated with scenarios involving subchronic and chronic exposures to PCOCs; acute exposures are not considered. This approach is health-protective because the concentrations of PCOCs in the environment that can lead to chronic or subchronic effects are typically much lower than those that result in acute effects.

In addition to addressing data gaps during phases 1 through 3 of the HHRA, the Phase 4 HHRA addresses new knowledge areas pertinent to the risk characterization, which may have arisen

[41] Health Canada is currently working to update its TRVs (Petrovic 2006, pers. comm.).

since completion of Phase 3. Changes in standards or TRVs represent a key area of new knowledge that is addressed in Phase 4. For each of the PCOCs carried forward from Phase 3 i.e., antimony, arsenic, and cadmium, the toxicological evaluation conducted in Phase 3 has been reviewed and updated as necessary to reflect current information. Toxicological evaluations are also provided for PCOCs new to Phase 4 (i.e., chromium, mercury, selenium, silver, thallium, tin, vanadium, and zinc).

4.1.1 Noncancer Effects

The potential for noncancer health effects from chronic exposures (i.e., defined as greater than one-tenth of lifespan or 7 years) is evaluated by comparing the estimated daily intake with a chronic oral TDI for ingestion or by comparing estimated exposure concentrations in air with tolerable concentrations (TCs) for inhalation. These toxicity values represent average daily exposure levels at which no adverse effects are expected to occur with chronic exposures. Subchronic TDIs and TCs are applied when exposures are less than 7 years, as is the case with children (i.e., 0 to 4.5 years).

The TDIs for many noncarcinogenic effects are generally derived from laboratory animal studies or epidemiological studies in humans. In such studies, the TDI is typically calculated by first identifying the highest concentration or dose that does not cause observable adverse effects (the no-observed-adverse-effect level, or NOAEL) in the study. If a NOAEL cannot be identified from the study, a lowest-observed-adverse-effect level (LOAEL) may be used. This dose or concentration is then divided by uncertainty factors to calculate a reference dose.

The uncertainty factors are applied to account for limitations in the underlying data and are intended to ensure that the toxicity value calculated based on the data will be unlikely to result in adverse health effects in exposed human populations. For example, an uncertainty factor of 10 is used to account for interspecies differences (if animal studies were used as the basis for the calculation), and another factor of 10 is used to address the potential that human subpopulations such as children or the elderly may have increased sensitivity to the chemical's adverse effects. Thus, variations in the strength of the underlying data are reflected in the uncertainty factors used to calculate the toxicity values and in the low, medium, or high confidence ratings assigned to those values (USEPA 2007b).

4.1.2 Carcinogenic Effects

A component of assessing carcinogenic health effects is a qualitative evaluation of potential for the chemical to be a human carcinogen. For most chemicals listed in IRIS, this evaluation was conducted by EPA using a classification system called weight-of-evidence (WOE) determination. A chemical is assigned a WOE classification based on data obtained from both human and animal studies. Once a WOE is assigned to a chemical, a quantitative estimate of carcinogenic potential for the chemical is derived. Chemicals for which EPA considers adequate human data indicating carcinogenicity are available are categorized as "known human carcinogens" (WOE class A). Other chemicals, with various levels of supporting data, may be classified as "probable human carcinogens" (WOE class B1 or B2), or "possible human carcinogens" (WOE class C). Where EPA considers that data are inadequate for determining carcinogenicity, the chemical is "not classifiable as to human carcinogenicity" (WOE class D). When studies provide evidence of noncarcinogenicity, a chemical is assigned a WOE class E (USEPA 2007b).[42]

To assess carcinogenic health effects, cancer slope factors (CSFs) are used for oral exposures, and unit risk factors (URFs) are used for inhalation exposures. CSFs and URFs are upper-bound estimates of the carcinogenic potency of a chemical. They are used to estimate the incremental risk of developing cancer, corresponding to a lifetime of exposure at the average daily doses described in the exposure assessment. In standard risk assessment procedures, estimates of carcinogenic potency reflect the conservative assumption that no threshold exists for carcinogenic effects (i.e., that any exposure to a carcinogenic chemical will contribute an incremental amount to an individual's overall risk of developing cancer). The CSF and URF values used in this risk assessment are conservative upper-bound estimates of potential risk.

4.2 ANTIMONY TOXICITY SUMMARY

Antimony (Sb) is a naturally occurring metal that can exist in four oxidation states Sb(-3), Sb(0), Sb(+3), and Sb(+5). The trivalent (+3) state is the most common and stable. Many compounds, complexes, and alloys of antimony occur naturally or are manufactured. Antimony can occur in the environment in its metallic form or as either inorganic or organic compounds. Common trivalent inorganic antimony compounds include antimony trioxide, antimony trichloride, and antimony trisulfide. Common pentavalent inorganic compounds include antimony pentoxide, antimony pentachloride and antimony pentasulfide. Organic salts of antimony include potassium antimony tartrate, sodium antimony tartrate and antimony acetate (ATSDR 1992a). Antimony trioxide is the primary form of antimony in the atmosphere (National Toxicology Program [NTP] 2005). For the purposes of this toxicological profile, the focus is on the metallic and inorganic forms of antimony.

4.2.1 Toxicokinetics

Studies in animals suggest that at least some forms of ingested antimony are probably absorbed in the gastrointestinal tract. Estimates of the absorption of antimony tartrate and antimony

[42] The WOE categories described in the final Guidelines for Carcinogen Risk Assessment (USEPA 2005b) as "standard hazard descriptors" differ from and may eventually supersede those used in IRIS (USEPA 2007b). These descriptors include "carcinogenic to humans," "likely to be carcinogenic to humans," "suggestive evidence of carcinogenic potential," "inadequate information to assess carcinogenic potential," and "not likely to be carcinogenic to humans."

trichloride in animals range from 2 percent to 7 percent. Gastrointestinal absorption in humans is believed to be generally low and is likely to be affected by the chemical form of antimony, particle size and solubility, age, and diet (ATSDR 1992a).

Elevated blood and urine antimony levels were observed in workers exposed to antimony in airborne dust. Antimony metal and inorganic compounds exist in air as fine suspended particulate matter. When inhaled, some portion of the particulate matter is deposited in the airways or lungs. As with most particulates, absorption of antimony from the respiratory tract is a function of particle size. Animal data suggest that oxides, hydroxides, halides, sulfides, sulfates and nitrates of antimony have a longer respiratory tract clearance rate (weeks) than all other common compounds of antimony (days) (ATSDR 1992a). Data for occupationally exposed workers indicate that inhaled antimony may be retained in the lungs for several years without significant systemic distribution (NTP 2005).

The form of antimony and the route of exposure can greatly affect the absorption and distribution of antimony to various target sites. In the absence of sufficient toxicological data to differentiate among various forms or antimony, it is assumed that the mechanism of action involves the ion's effect on a target site and that the toxic effects for a particular valence state at a target site are the same for all antimony compounds and exposure routes.

Following absorption from any exposure route, antimony is distributed throughout the body in the blood. Animal studies provide evidence that the major sites of accumulation of antimony absorbed from the gastrointestinal tract are the liver, kidney, bone, lung, spleen and thyroid. There are limited animal data that suggest that there are valency differences in the distribution of antimony from oral exposure. Animal data indicate that the major sites of accumulation of antimony absorbed from the lung include the liver, thyroid, skeleton and fur. Valence-state differences have been shown to exist in the distribution of antimony in laboratory animals exposed via inhalation (ATSDR 1992a).

Antimony does not undergo any direct metabolic conversion. Antimony can covalently interact with sulfhydryl groups and phosphate as well as numerous proteins. The potential i*n vivo* interconversion of trivalent and pentavalent antimony is not understood (ATSDR 1992a).

Antimony that has been absorbed appears to be excreted in the urine and feces of humans to a variable degree, depending upon the chemical form. Human and animal studies where antimony was injected parenterally found that pentavalent antimony was excreted predominantly in the urine, whereas trivalent antimony was excreted in the feces (ATSDR 1992a). Transplacental transport of antimony appears limited, but there is animal evidence that suggests that antimony can be excreted in milk during lactation (ATSDR 1992a).

4.2.2 Noncancer Effects

There are very limited data on noncancer health effects of oral exposure to antimony in humans. Human data for inhalation exposure of antimony are limited to studies of occupationally exposed workers. In humans, the lung is the primary target organ from inhalation exposure. Antimony has historically been used as a medicine to treat parasitic diseases (ATSDR 1992a).

There are two major chronic exposure studies of laboratory animals to antimony via oral exposure. Both studies found an effect of decreased longevity of mice/rats exposed to potassium antimony tartrate in drinking water (ATSDR 1992a). Animal studies of antimony inhalation exposure have primarily focused on antimony trioxide.

4.2.2.1 Systemic Effects

Pre- and post-natal oral exposure of rats to antimony trichloride has been found to affect the development of certain cardiovascular reflexes that regulate systemic arterial blood pressure at a dose of 0.07 mg/kg-day (ATSDR 1992a). Other studies in rats have found no effect on blood pressure or heart rate in rats exposed to antimony trichloride or antimony trioxide. Subchronic inhalation exposure to antimony trisulfide dust resulted in degenerative changes in the myocardium and related electrocardiogram abnormalities in a variety of animal species at doses ranging from 2 to 4 mg/m^3. However, a 1-year exposure study of pigs exposed to 4.2 mg/m^3 of antimony as antimony trioxide did not show any cardiovascular effects. Myocardial damage also was not observed in rats exposed to 17 mg/m^3 antimony as antimony trioxide (ATSDR 1992a).

In laboratory animals, at very high oral doses ranging from 418 to 1000 mg/kg-day, hematological effects such as increased red blood cell count (antimony trioxide) and decreased hematocrit and hemoglobin levels, and decreased plasma protein levels (metallic antimony) have been observed (ATSDR 1992a).

Occupational exposure to dusts and fumes of antimony trioxide were associated with irritation to the respiratory tract contributing to laryngitis, pharyngitis, tracheitis, rhinitis, epistaxis, and bronchitis (NTP 2005). Radiological evidence of pneumonitis was observed in an acute study of antimony smelter workers at an average antimony concentration of 10 to 12 mg/m^3. Chronic occupational exposure to dusts containing 90 percent antimony trioxide with some antimony pentoxide and up to 5 percent silica has been associated with antimony pneumoconiosis (lung inflammation) and clinical respiratory effects, such as cough, breathlessness, wheezing, and chest pain (NTP 2005). In all of these studies, workers were also exposed to other compounds such as arsenic oxide, hydrogen sulfide and sodium hydroxide, which are confounding factors for respiratory effects (ATSDR 1992a).

A variety of respiratory effects has been associated with inhalation exposure to antimony in laboratory animals. Most of these effects are associated with the physiological response to dust accumulation in the lung (pneumoconiosis). The effects progress from pneumoconiosis and a proliferation of alveolar macrophages to fibrosis (ATSDR 1992a). Subchronic and chronic exposure studies of rats and rabbits to antimony trioxide found effects of increased alveolar macrophage, interstitial inflammation and granulomatous inflammation at doses as low as 1.9 mg/m^3 (NTP 2005).

Gastrointestinal effects have been reported in factory workers after exposure to airborne antimony dust, but estimates of exposure are insufficient to characterize toxicity (NTP 2005). One subchronic exposure study of dogs found severe diarrhea associated with ingestion of 84 mg/kg-day antimony trioxide. A subchronic exposure study in rats found no gastrointestinal effects associated with ingestion of 501 mg/kg-day antimony trioxide (ATSDR 1992a). Gastrointestinal effects such as abdominal pain, diarrhea, vomiting and ulcers have been reported in factory workers chronically exposed to antimony trichloride, antimony trisulfide, or antimony oxide via inhalation. In these cases, there are confounding factors of exposures to other compounds (e.g., hydrogen chloride and sodium hydroxide) that have similar gastrointestinal effects (ATSDR 1992a).

Cloudy swelling of the hepatic cords was observed in rats exposed to 418 mg/kg-day antimony as antimony trioxide or 500 mg/kg-day metallic antimony; however, hepatic effects were not observed at lower dose concentrations of antimony trioxide or potassium antimony tartrate (ATSDR 1992a).

Dermatitis has been shown to be associated with exposure to airborne antimony in occupational settings (ATSDR 1992a).

4.2.2.2 Reproductive and Developmental Effects

An increased incidence of spontaneous abortions, compared to a control group, was reported in one study of female workers exposed to antimony trioxide, antimony pentasulfide and metallic antimony. This study did not include estimates of exposure levels or an assessment of confounding factors (such as exposure to other compounds) (ATSDR 1992a). Studies in rats exposed to antimony trioxide via inhalation have found decreases in rates of conception and litter size at doses ranging from 209 to 250 mg/m^3 (ATSDR 1992a; NTP 2005). No effects on birth weight and no teratogenic effects were observed.

Rats exposed to antimony trioxide during gestation showed increased pre- and post-implantation embryo deaths, and fetal retardation at various doses. The NOAEL was 0.027 mg/m^3. Female rats exposed to antimony trioxide via inhalation during gestation at a dose of 2.6 mg/m^3 had greater lung weights and accumulation of alveolar macrophages (NTP 2005).

4.2.2.3 Toxicity Values for Noncancer Effects

Oral

EPA has established an RfD of 4×10^{-4} mg/kg-day for antimony. This value is based on a chronic exposure study of rats administered potassium antimony tartrate in drinking water. The study included only one dose (estimated as 0.35 mg/kg-day) and observed effects included decreased blood glucose levels and decreased mean heart weights in males and altered cholesterol levels in both sexes (USEPA 2007b). An uncertainty factor of 1000 (10 for interspecies conversion, 10 to protect sensitive individuals, and 10 because the effect level was a LOAEL rather than a NOAEL) was applied to the LOAEL to obtain the RfD (USEPA 2007b). EPA rates the confidence in the oral RfD as low.

Health Canada has established an oral TDI of 2×10^{-4} for antimony. This value is based on a 13-week study of rats exposed to potassium antimony tartrate in drinking water. Observed effects were histological changes and a NOAEL of 0.06 mg/kg-day was reported. An uncertainty factor of 300 (10 for intraspecies variation, 10 for interspecies variation, and 3 for short-term exposure period) was applied to the NOAEL to develop the TDI (Health Canada 2004b).

It should be noted that both the EPA oral RfD and the Health Canada oral TDI are based on exposure to an organic salt of antimony. Substantially higher doses of antimony trioxide (a more likely form for multimedia exposure) were tolerated by rats in other studies (USEPA 2007b) likely due to lower bioavailability.

Inhalation

Toxicity values for noncancer health effects associated with antimony inhalation exposure have not been published by Health Canada (Health Canada 2004b). EPA has established an RfC for antimony trioxide of 2×10^{-4} mg/m^3 (USEPA 2007b). This value is estimated using a benchmark concentration approach with data from a chronic study involving rats exposed to antimony trioxide in air for 1 year. Pulmonary toxicity was noted in the high concentration groups. Rats were observed for an additional year post exposure, and at the 18- and 24-month marks, rats were observed to have experienced interstitial inflammation. An uncertainty factor of 10 is used for the protection of sensitive subpopulations. Two uncertainty factors of 3 are applied to account for interspecies differences and database inadequacies. EPA confidence in this RfC is classified as medium.

4.2.3 Carcinogenic Effects

No human studies were identified regarding cancer effects associated with oral exposure to antimony. The two major chronic exposure studies on antimony toxicity are drinking water studies of potassium antimony tartrate in mice and rats. These two studies have suggested that oral exposure to antimony is not a carcinogen (Health Canada 2007b).

In one study of occupationally exposed workers, inhalation exposure to 8.87 mg/m^3 antimony as antimony oxide did not affect the incidence of cancer in workers (ATSDR 1992a). In another study, the lung cancer death rates of antimony smelter workers in Texas were found to be elevated and a significant positive trend in mortality with increasing duration of employment was observed (Health Canada 2007b). One explanation for the mixed results of occupational studies may be the presence of other respiratory carcinogens in the workplace (Health Canada 2007b).

Studies of inhalation exposure in rats that evaluate carcinogenicity have mixed results. One recent inhalation study of rats exposed to antimony trioxide at doses ranging from 0.06 to 4.5mg/m^3 did not find an increase in tumor incidence (NTP 2005). Earlier studies found lung tumors in rats exposed to 4.2 or 36 mg/m^3 antimony as antimony trioxide or 17 mg/m^3 as antimony trisulfide, but not in rats exposed to 4 mg/m^3 antimony as antimony trioxide (ATSDR 1992a).

4.2.3.1 Toxicity Values for Carcinogenic Effects

Oral

No oral slope factors, tumorigenic concentrations, or unit risks have been established for antimony by Health Canada (2004b) or USEPA (2007b).

Inhalation

Inhalation slope factors, tumorigenic concentrations or unit risks have not been established for antimony by Health Canada (2004b) or USEPA (2007b).

4.3 ARSENIC TOXICITY SUMMARY

Arsenic is found in several forms within environmental and biological systems. It exists in multiple oxidation states and in a number of inorganic and organic forms. The inorganic forms are the most toxic. Inorganic forms of arsenic include trivalent arsenic (also known as arsenite) (As III), the form found in arsenite and arsenic trioxide, and pentavalent arsenic (As V), the form found in arsenate. Organic forms of arsenic include trivalent monomethylarsonous acid (MMA III), pentavalent monomethylarsonic acid (MMA V), dimethylarsinous acid (DMA III), and dimethylarsinic acid (DMA V). Arsenocholine, arsenobetaine, and arseno-sugars are organic forms commonly found in seafood.

Arsenic is naturally present in food and environmental media; therefore, all humans are exposed to low doses of arsenic every day. These low doses of arsenic are not known to be associated with any adverse health effects. More relevant to this risk assessment is an assessment of the potential for longer-term exposure to incrementally elevated doses of arsenic to cause adverse health effects. Chronic noncancer effects of arsenic and arsenic carcinogenicity are described below.

While toxicity data in humans is available for inorganic forms of arsenic, toxicity data for the organic forms is limited to studies conducted in animals. Animals and humans have been shown to have different sensitivities to arsenic (ATSDR 2005a), and therefore drawing inferences for human toxicity to organic arsenic forms from animal studies includes considerable uncertainties. The discussion of toxicity here is focused on inorganic arsenic.

4.3.1 Toxicokinetics

When present in a water-soluble form, inorganic arsenic is well absorbed through oral absorption; studies in humans demonstrate that greater than 95 percent of arsenic in this form may be absorbed (ATSDR 2005a; Klaassen 2001). Oral bioavailability of inorganic arsenic is reduced when ingested as soil or dust. Less soluble forms of arsenic are reported to be one-half to one-tenth as bioavailable as the more soluble forms of arsenic (USEPA 2005a).

When inhaled, the water-soluble forms of arsenic are absorbed most rapidly and efficiently, whereas the absorption of particulate bound arsenic is greatly dependent on the dynamics of deposition and clearance of particles by the respiratory system (ATSDR 2005a). The deposition and clearance of particles are influenced by the properties of the particles and exposure conditions.

After it is absorbed, arsenic is distributed throughout the body; it does not show preferential accumulation in any internal organs. Inorganic arsenic does not appear to cross the blood-brain barrier; however, its ability to transfer across the placenta has been reported in both humans and rats (ATSDR 2005a; Health Canada 2006).

Inorganic arsenic is metabolized through a series of reduction and oxidative methylation reactions. In the first step of metabolism inorganic arsenate (As V) is reduced to arsenite (As III). Following the initial reduction step, arsenite is methylated to MMA (V), which is reduced to MMA (III), and then methylated to the principal metabolite, DMA (V/III).

While arsenic metabolism occurs in many tissues, the main site of methylation activity is the liver. Although the process of methylation is saturable, under normal conditions the availability of methyl donors (methionine, choline, cysteine) is not limited, and the process does not reach capacity. However, conditions including dietary deficiencies (e.g., restriction of methyl donor intake) can result in decreased methylating capacity (ATSDR 2005a).

While earlier studies reported that stable pentavalent methyl derivatives of arsenic appeared to be less toxic than inorganic forms, recent studies evaluating multiple toxicity endpoints have suggested that the less stable trivalent methyl forms may have greater toxicity than inorganic arsenic forms. One study measuring toxicity in hepatocytes found that MMA (III) was more toxic than both arsenite (As III) and MMA (V). MMA (III) and DMA (III) have also been found to be more effective than As (III) in inducing DNA damage (Health Canada 2006). Further work is needed in order to confirm these findings and establish the role of various metabolites of inorganic arsenic to its toxicity (ATSDR 2005a; Health Canada 2006).

The primary pathway of elimination of arsenic is via urine. Inorganic arsenic is rapidly excreted in urine, mostly within the first day following ingestion, whereas the methylated forms are mostly excreted within 2 to 3 days after exposure (Health Canada 2006). A small fraction of arsenic is excreted through feces, bile, sweat, and breast milk (ATSDR 2005a; Health Canada 2006).

4.3.2 Noncancer Effects

The vast majority of available studies evaluating arsenic toxicity are via the oral route of exposure. A large number of studies in human populations exposed to high levels of arsenic in drinking water provide extensive data on toxicity via this route. The data available to quantify the dose response of effects following inhalation is more limited. The majority of evaluations of inhalation toxicity are studies of occupational exposure that are often limited by incomplete control of potential confounders. Studies for inhalation also frequently involve short-term exposures to high doses of arsenic.

4.3.2.1 Systemic Effects

The available data from humans identify skin as the most sensitive noncancer endpoint of long-term oral arsenic exposure. Hyperkeratinization of the skin, formation of multiple hyperkeratinized corns or warts, and hyperpigmentation of the skin with interspersed spots of hypopigmentation are the most common types of lesions associated with oral arsenic exposure. The majority of studies demonstrate that these effects manifest at levels of approximately 0.002 to 0.2 mg As/kg-day (ATSDR 2005a).

Dermal effects are also seen following inhalation of arsenic; however, doses associated with dermal effects via these routes are not well established. Altered dermal pigmentation and hyperkeratosis have been reported in humans exposed to inorganic arsenic via inhalation. Occupational studies of exposures to arsenic in dusts provide evidence that direct contact with skin may cause mild irritation and dermatitis symptoms. These symptoms usually heal without treatment upon cessation of exposure (ATSDR 2005a).

Studies in humans have also reported cardiovascular effects following oral exposures to arsenic. A few studies also report cardiovascular effects following inhalation of arsenic; however, the effects are less consistently reported via this exposure route. Cardiac effects are numerous and include altered myocardial depolarization, cardiac arrhythmias, and ischemic heart disease. Chronic exposure to arsenic has also been shown to lead to effects on the vascular system.

Blackfoot disease, characterized by loss of circulation to the hands and feet, necrosis, and gangrene, has been found in Taiwanese populations, corresponding to arsenic doses of approximately 0.014 to 0.065 mg/kg-day. Other vascular effects that have been associated with arsenic include increased incidence of Raynaud's disease, cyanosis, hypertension, and vascular occlusion of the blood vessels (ATSDR 2005a).

While some studies have reported minor respiratory symptoms in individuals following chronic oral exposure to 0.03 to 0.05 As mg/kg-day, more serious respiratory effects have not been associated with long-term repeated oral ingestion of low doses of arsenic in general. Studies of occupationally exposed individuals have reported increased mortality due to respiratory illness as well as respiratory symptoms, including nose, throat, and lung irritation with chronic inhalation of inorganic arsenic. Most of these studies contain limitations including limited sample sizes, incomplete treatment of potential confounders and sparse dose response data for the symptoms. Whether respiratory effects following inhalation are directly due to arsenic, a secondary effect caused by damage to the pulmonary vasculature, or a general effect of foreign material in the lungs is not known (ATSDR 2005a).

Gastrointestinal effects including nausea, vomiting, and diarrhea are associated with chronic long-term oral exposures to arsenic of approximately 0.01 mg /kg-day. The effects usually diminish with cessation of the exposure (ATSDR 2005a)

Oral exposure to arsenic at doses of 0.05 mg/kg-day has been associated with anemia; however, hematological effects are not reported following all cases of exposure at these levels. Oral exposure to arsenic at doses of 0.05 mg/kg-day has been associated with anemia and leucopenia No studies have reported hematological effects following inhalation to arsenic.

Hepatic effects including swelling of the liver, portal tract fibrosis, and cirrhosis have been reported in individuals chronically exposed to arsenic. Swelling, one of the more sensitive hepatic effects, has been associated with exposure in the range of 0.01 to 0.1 mg As/kg-day. There is no evidence that inhalation of arsenic causes effects to the liver, however few studies evaluating this endpoint are available.

Although little is known regarding the effects of arsenic on the endocrine system, several studies have reported an association between exposure to arsenic in drinking water and diabetes mellitus. Recent studies indicate that arsenic may act as an endocrine disruptor by altering gene regulation by steroid and estrogen receptors; however, the precise mechanism by which hormone stimulated gene regulation is altered remains undetermined (Davey et al. 2007).

4.3.2.2 Neurological Effects

Chronic exposure to inorganic arsenic at doses between 0.03 to 0.1 mg As/kg-day through oral and inhalation routes have been associated with peripheral neuropathy. Peripheral neuropathy is characterized initially by numbness in the hands and feet, and with increased exposure, symptoms may progress to a painful sensation of "pins and needles" followed by weakness, loss of reflexes, and wrist-drop or ankle-drop in more advanced cases. Neuropathy may partially diminish with cessation of exposure (ATSDR 2005a). At lower chronic exposures to arsenic, effects including headache, depression, and dizziness have been reported, although these effects are less consistently reported. Studies that are more recent report decreased intelligence scores in children chronically exposed to arsenic (ATSDR 2005a; von Ehrenstein et al. 2007; Wasserman et al. 2007).

4.3.2.3 Reproductive and Developmental Effects

Developmental effects following oral and inhalation exposure to arsenic are uncertain. Studies of women chronically exposed to arsenic in drinking water in Bangladesh, India, and Taiwan have shown excess incidence of miscarriages, stillbirths, pre term births, and low birth weights; however, dose response data are not currently available for these effects. Occupationally exposed individuals, and populations residing in close proximity of smelters and arsenic pesticide facilities have shown increased incidence of spontaneous abortion and still birth; however, these studies were small and suffered from incomplete treatment of confounders. While studies in laboratory animals by oral and inhalation exposure have also found developmental effects, these studies were conducted at relatively high dose levels that also produced material toxicity (ATSDR 2005a).

4.3.2.4 Toxicity Values for Noncancer Effects

Oral

EPA established an oral RfD of 0.0003 mg/kg-day based on the critical effect of characteristic changes in the skin and possible vascular complications. The principal study used in deriving the RfD, a study of a Taiwanese population exposed to high concentrations of arsenic in drinking water (hundreds of micrograms per liter) reported a NOAEL of 0.009 mg/L. A water consumption rate of 4.5 L/day and a body weight of 55 kg were assumed in the RfD derivation. An uncertainty factor of 3 was also applied to account for both the lack of data to preclude reproductive toxicity as a critical effect and some uncertainty in whether the NOAEL of the critical study accounts for all sensitive individuals. EPA ranked confidence in the oral RfD as medium. Limitations of the study included poor exposure characterization and potential confounding with other contaminants present (USEPA 2007b). No oral TDI is currently available from Health Canada (2004b).

Neither EPA nor Health Canada provides an RfD specifically for characterizing risk following subchronic exposures to arsenic. Tsuji et al. (2004) developed a reference level of 0.005 mg/kg-day for subchronic exposures (e.g., 14 days to 16 years). The reference level was established by reviewing health effects in children exposed to arsenic for subchronic durations. A study of children aged 0 to 9 exposed to arsenic via drinking water showing skin effects provided the basis for the reference level. Similar to the EPA's RfD, the subchronic reference level is based on the most sensitive endpoint established for arsenic, changes to the skin. Based on the greater than 10 fold difference between EPA's chronic RfD and the subchronic reference level established by Tsuji et al (2004), the use of EPA's chronic RfD to evaluate subchronic exposure to arsenic, is likely to considerably overestimate risk of adverse health effects following subchronic arsenic exposure.

Inhalation

No inhalation RfC or tolerable concentration (TC) are available from USEPA (2007b) or Health Canada (2004b).

4.3.3 Carcinogenic Effects

Human epidemiological studies provide clear evidence that exposure to arsenic at certain levels leads to increased risk of cancers. EPA has classified arsenic as a known human carcinogen (WOE Class A). Health Canada (as defined by Health Canada in 1994) and the International Agency for Research on Cancer classify arsenic in Group I (i.e., carcinogenic to humans) (Health Canada 2006).

The majority of data on the carcinogenic effects of arsenic come from populations chronically exposed to high levels of arsenic in drinking water. Following chronic oral exposure to arsenic, squamous cell carcinomas of the skin, bladder, and respiratory tumors have been reported. While human studies provide clear evidence of an association between oral arsenic exposure at high doses and increased cancer risk, there is considerable uncertainty in extrapolating the observed dose-response relationship to much lower doses.

Studies of occupationally exposed smelter workers exposed to arsenic trioxide and chemical plant workers exposed to arsenate via inhalation have reported increased risk of lung cancer. Although some studies suggest that residents living near smelters or arsenical plants may have increased risk of lung cancer, the reported increases are small and not clearly detectable in all cases (ATSDR 2005a). Populations with chronic inhalation exposure of 0.07 mg As/m^3 or greater have shown increased risk of lung cancer, while the effects below those levels are less clear (ATSDR 2005a).

4.3.3.1 Toxicity Values for Carcinogenic Effects

Oral

EPA's dose response assessment for cancer established an oral slope factor of 1.5 (mg/kg-day)$^{-1}$. The risk is based on an assessment of increased incidence of skin cancer in a Taiwanese population exposed to high levels of arsenic (several hundred micrograms per day) in drinking water (Tseng et al. 1968; Tseng 1977). The risk estimate is based on an assumption of linear dose response (USEPA 2007b). Health Canada established a cancer slope factor of 2.8 $(mg/kg\text{-}day)^{-1}$.

Since its completion, EPA's oral assessment has been highly controversial, and the subject of many reviews. The U.S. National Research Council (NRC) completed reviews of EPA's approach in both its 1999 report, *Arsenic in Drinking Water*, and its 2001 report, *Arsenic in Drinking Water: 2001 Update*. These reviews have influenced ongoing re-evaluations of arsenic dose response via oral exposure. A draft reassessment completed by EPA (USEPA 2005c) has more recently been the subject of review by EPA's Science Advisory Board (SAB 2007).

Specific weaknesses identified regarding the studies underlying the EPA CSF include uncertainties associated with the exposure assessment, as well as inadequate consideration of differences in genetic, nutritional, cultural, social, economic, and lifestyle factors between the Taiwanese study population, and populations outside that region. The use of linear extrapolation to estimate risks at lower arsenic exposures also contributes to unreliable estimates of dose-response for carcinogenicity.

For example, data on concentrations of arsenic in drinking wells in the Taiwanese villages is not comprehensive; not all wells present in each of the villages were sampled. For those villages in which more than one well was tested, considerable variability in arsenic concentrations existed (NRC 1999). In addition, wells experience temporal variability in arsenic concentrations; therefore, the limited sampling conducted may not accurately reflect concentrations in the wells over time. The problem in using this data for dose-response assessments is that each village is assigned a single arsenic value, and the assumption that all persons were exposed to that single selected concentration is made. Several analyses have demonstrated that lack of precise exposure data has led to overestimation of the responses associated with a given exposure to arsenic (Brown 2007; Brown and Chen 1995). Although these analyses measured the effect that the imprecise exposure information had for estimating risk to internal cancers, similar consequences are expected for risk estimates of skin cancers.

In addition to uncertainties associated with drinking water sources, factors such as health and nutritional status may affect the human response to arsenic. For example, results from several studies reviewed by NRC (2001) suggest that diets low in certain nutrients may exacerbate arsenic toxicity. Uncertainties in the overall impact of nutritional status on toxicity, therefore, add to uncertainties in extrapolating risks across populations.

Increased incidence of skin cancer is not indicated based on studies of U.S. populations consuming drinking water with relatively high arsenic concentrations (~0.1 to 0.2 mg/L) (ATSDR 2005a). While this lends further evidence that risk estimates based on the Taiwanese population may be overestimates, these U.S. studies are limited by small sample sizes.

Estimates of incremental cancer risk at low doses that are based on linear extrapolation from observed effects at high doses may overestimate risks. An evaluation of the mode of action for arsenic toxicity indicates that the shape of the dose-response curve is non-linear at lower doses; that is, a given incremental dose of arsenic yields a relative response that is smaller when total exposures are low than the same incremental dose at higher exposure levels. Specifically, while the precise mode of action of arsenic induced carcinogenesis is not well established, it is generally agreed that arsenic carcinogenesis involves indirect, rather than direct interactions with DNA, and that it does not elicit its toxicity through a single mechanism, but rather through a number of interrelated pathways (NRC 2001; Rossman 2003; Schoen et al. 2004). The majority of plausible mechanisms (e.g., oxidative damage, disruption of DNA methylation, inhibition of DNA repair systems, chromosomal damage, modulation of signal transduction pathways and alteration of gene transcription) are consistent with a sublinear dose-response relationship for arsenic carcinogenicity[43] (Rudel et al. 1996; Schoen et al. 2004).

In addition, there is biochemical and cellular evidence that subtoxic levels of arsenic induce cellular protective mechanisms (NRC 1999; NRC 2001; Snow et al. 2005). Evidence that arsenic can induce cellular protective responses at low doses provides further support that the effects of low doses of arsenic cannot be accurately predicted by linear extrapolations from high doses.

Overall, the body of evidence supports a non-linear dose-response relationship for arsenic. Therefore, extrapolations of response at lower arsenic exposures from known toxicity at higher doses, as was used in EPA's derivation of an oral slope factor, overpredict true risk of adverse health effects at lower doses.

Inhalation

EPA derived an inhalation unit cancer risk value for arsenic exposure in air of 0.0043 per $\mu g/m^3$. This unit air risk for arsenic corresponds to an inhalation CSF of 15 mg/kg-day $^{-1}$. The cancer risk was derived from studies by Brown and Chu (1983a; 1983b; 1983c), Lee-Feldstein (1983), Higgins et al. (1982) and Enterline and Marsh (1982); which indicated increased lung cancer mortality in two exposed populations; workers from two copper smelters.

The derivation of the slope factor is based on a linear extrapolation model.

There are limitations in using occupational studies for determining risks associated with arsenic inhalation in residential settings. Exposure estimates are often hard to obtain, especially from earlier time periods. The predominant form of airborne arsenic in copper smelters is arsenic trioxide dust (ATSDR 2005a), while residential exposures via inhalation are more likely to be resuspended soil particulates containing a variety of arsenic forms. In occupational settings, exposures via oral and dermal pathways are also likely to occur; therefore, the risk associated

[43] Sister chromatid exchange is reported by Rudel et al. (1996) as the "one effect consistently induced by arsenic with a linear or superlinear dose response." Given the fact that this toxic mode of action is hypothesized to be acting with others, the overall dose-response relationship for arsenic toxicity is not expected to be linear.

solely with inhalation exposure is difficult to decipher. Co-exposures to other metals and chemicals may also confound associations in occupational studies. For these reasons, estimating risks to individuals exposed in other settings, including residential settings, is subject to considerable uncertainties.

4.3.4 Susceptible Populations

There is no evidence for differences in uptake or toxicity of arsenic in children and adults. As discussed previously arsenic toxicity may to some degree be influenced by the rate and extent of methylation in the liver. Reduced hepatic methylation could result from dietary deficiency of methyl donors such as choline or methionine (ATSDR 2005a); however, this is unlikely to be of concern for most individuals. Recent studies indicate that genetic factors may also influence rates of methylation and therefore, influence susceptibility to arsenic (ATSDR 2005a; Steinmaus et al. 2007). Only a small number of studies evaluating the influence of genetics on susceptibility have been completed, and the full impact of these factors on human susceptibility is not known.

4.4 CADMIUM TOXICITY SUMMARY

Cadmium is a naturally occurring metal. In nature, two oxidation states of cadmium (0 and +2) are possible, but cadmium occurs most commonly in the +2 oxidation state (Health Canada 1994a). Cadmium enters the environment from the natural weathering of minerals, forest fires, and volcanic emissions (ATSDR 1999a). Cadmium also enters the environment from anthropogenic sources such as mining and smelting operations, fuel combustion, disposal of metal-containing products and application of phosphate fertilizer or sewage sludge (ATSDR 1999a).

The mobility, bioavailability and residence times of cadmium in different environmental media may be affected by physical and chemical processes. Cadmium compounds in air occur in the form of particulate matter. The principal chemical species in air is cadmium oxide, although other cadmium compounds may also occur (e.g., cadmium chloride and cadmium sulfate) (ATSDR 1999a; Health Canada 1994a). In surface water and groundwater, cadmium can exist as the hydrated ion, or as ionic complexes with other substances. Site-specific factors (e.g., pH, suspended matter levels, redox potential) affect the proportion of cadmium that is in a dissolved state (and therefore mobile) in freshwater systems. When not in a dissolved state, cadmium is generally not mobile as it is part of insoluble complexes or adsorbed to sediments. Cadmium in soil may exist in soluble form in soil porewater, or in insoluble complexes with inorganic and organic soil constituents (ATSDR 1999a; Health Canada 1994a).

4.4.1 Toxicokinetics

Most ingested cadmium passes through the gastrointestinal tract without being absorbed. Approximately 2.5 percent of total ingested cadmium in food is absorbed and approximately 5 percent of total ingested cadmium in water is absorbed (USEPA 2007b). Factors affecting cadmium absorption included metal-metal (e.g., iron, calcium, chromium, magnesium, zinc) and metal-protein interactions (glutathione, sulfhydryl-containing enzymes) in the body or in food or water (ATSDR 1999a). Cadmium absorption is known to increase with iron or calcium deficiency and increased fat in the diet (ATSDR 1999a).

Cadmium metal and cadmium salts have low volatility and exist in air as fine suspended particulate matter. When inhaled, some portion of the particulate matter is deposited in the airways or lungs. About one-quarter of total inhaled cadmium is absorbed. The absorption of cadmium compounds from the lung does not always correlate with water solubility (ATSDR 1999a).

Following absorption from any route of exposure, cadmium widely distributes throughout the body, with the major portion residing in the liver and kidney. Cadmium that is absorbed into the body is excreted very slowly, primarily through urinary and fecal excretion. EPA assumes that 0.01 percent of the total body burden of cadmium is eliminated per day (USEPA 2007b). Cadmium can cross the placenta and can be excreted in human milk (ATSDR 1999a).

Cadmium is not known to undergo any direct metabolic conversion. The cadmium (+2) ion will readily bind to anionic groups in proteins and other molecules. Cadmium interacts with the protein metallothionein, which is capable of binding as many as seven cadmium ions per molecule. Metallothionein is inducible in most tissues by exposure to cadmium, zinc and other metals as well as organic compounds and physicologic stressors. Parenteral exposure studies in animals have shown that induction of metallothionein by pretreatment with zinc reduces toxicity of cadmium exposure. Zinc can prevent or reduce testicular and prostatic cancers induced by injection of cadmium, but these interactions have been shown to be dependent on dose, route, and target organ (ATSDR 1999a).

Cadmium in the liver becomes bound to metallothionein and is released to the bloodstream. Metallothionein-bound cadmium can be filtered and reabsorbed in the kidney, a process that may induce synthesis of proximal tubular cell metallothionein. The cadmium is then bound to the metallothionein in the kidney. It is hypothesized that the presence of free cadmium in the kidney is associated with renal damage; thus, the rationale that a critical concentration of cadmium in the kidney is required before renal effects will occur (ATSDR 1999a).

4.4.2 Noncancer Effects

The form of cadmium and the route of exposure can greatly affect the absorption and distribution of cadmium to various target sites. However, the mechanism of action involves the cadmium cation's effect on the target site; therefore, the potential toxic effects once cadmium reaches a particular target site are presumed to be the same for all cadmium compounds and exposure routes (ATSDR 1999a).

The health effects of oral exposure to cadmium in humans have been studied for residents living in cadmium-impacted areas. Cadmium has a long biological half-life (20 to 30 years in humans) (WHO 1972). Long-term exposure to cadmium; therefore, results in a variety of cumulative adverse health effects. Cadmium exposure in studied populations is often estimated by blood or urinary cadmium levels in residents. Urinary cadmium levels primarily reflect total body burden of cadmium, while blood cadmium levels may only reflect recent exposure. Urinary cadmium levels are generally reported as microgram per gram cadmium, adjusted for creatinine in the urine (μg/g Cr). Estimates of environmental exposure in these cases may be confounded by exposure to cadmium from smoking (ATSDR 1999a).

Human studies included evaluation of occupational exposures to various forms of cadmium including cadmium sulphate aerosol, cadmium oxide fumes, and cadmium oxide dust. Most of the available human studies of inhalation exposure of cadmium evaluated occupationally exposed workers or smokers. Occupational exposures tend to be high, while inhalation exposures associated with smoking are significantly lower.

Studies of oral exposure to cadmium in animals mainly focused on the form cadmium chloride. Some studies also evaluated exposure to cadmium in the form of cadmium sulphate (Health Canada 1994a). Animal studies of cadmium inhalation exposure have focused primarily on cadmium chloride and cadmium oxide dust, since these compounds seem to exhibit greater toxicity than cadmium sulfide or cadmium sulphate.

4.4.2.1 Systemic Effects

The preponderance of human and animal studies to date indicate that the critical organ in chronic cadmium exposure is the kidney. The earliest sign of kidney damage is an increase in tubular proteinuria, characterized by the urinary excretion of a number of proteins (e.g., β2-microglobulin) that would normally be reabsorbed in the proximal tubule. The excretion of such proteins in the urine, therefore, indicates damage to the proximal tubules. Tubular proteinuria may be followed by other signs of kidney dysfunction, such as increased urinary excretion of glucose, amino acids, calcium, phosphorus and uric acid (Health Canada 1994a). Elevated incidences of tubular proteinuria have been found in numerous epidemiologic studies of residents in cadmium-polluted areas of Japan and Belgium, as well as studies of occupationally exposed workers (ATSDR 1999a). Proteinuria has been shown to continue even after exposure to cadmium has ceased, indicating that the adverse effect is not readily reversible. However, kidney failure was not a common cause of death among occupationally exposed workers (ATSDR 1999a; Health Canada 1994a).

Numerous studies in humans and laboratory animals have demonstrated that proteinuria develops only when cadmium concentrations in the kidney exceed a critical level (ATSDR 1999a; Health Canada 1994a). This critical value was estimated based on several studies that measured cadmium levels in the kidney either by neutron activation analysis, by autopsy, or by biopsy, and compared them with urinary protein levels or histopathological alterations in the same individuals. Estimates of the critical threshold value in the kidney obtained from the major studies ranged from 180 μg/g to 385 μg/g wet weight (ww). For purposes of quantifying potential human toxicity, EPA has established the critical level in the kidney as 200 μg/g ww in the renal cortex.

Subchronic and chronic oral exposure to cadmium is associated with proteinuria and histopathologic changes in the kidney in several studies of rats. The critical concentration of 200 μg/g in the renal cortex needed before proteinuria occurs is generally supported by the animal data (ATSDR 1999a).

The kidney also appears to be the most sensitive target organ to cadmium toxicity following inhalation exposure in humans. Renal damage has been observed in many studies of workers exposed via inhalation. Tubular proteinuria was the endpoint most often evaluated, since it is an early indicator of kidney damage. An additional renal effect observed in occupationally exposed populations was increased frequency of kidney stone formation (ATSDR 1999a).

Animal studies have confirmed that renal damage occurs following inhalation exposure to cadmium, particularly at high dose levels. However, some animal studies found that the doses that resulted in serious respiratory effects over a chronic exposure period were too low to result in proteinuria (ATSDR 1999a).

Studies of cardiovascular effects in humans after oral exposure to cadmium, that also control for smoking, have typically found no association between body cadmium levels (primarily reflecting dietary exposure) and hypertension. Cardiovascular effects such as lower blood pressure, conduction system disorders, and decreased frequency of cardiac ischemic changes were found among elderly women with historical high dietary exposure to cadmium (ATSDR 1999a). Oral exposure of rats, rabbits, and monkeys over subchronic and chronic exposure periods has been found to increase blood pressure in some studies and not in others. Such mixed results may reflect a secondary effect associated with cadmium-induced anemia or other systemic effects. Overall, ATSDR concluded that animal evidence for cardiovascular toxicity resulting from oral cadmium exposure indicates a slight, but not critical, effect (ATSDR 1999a).

Oral exposure to cadmium can reduce gastrointestinal uptake of iron where dietary intake of iron is low. At least one study has found anemia in humans with chronic dietary exposure to cadmium, but other studies have found no significant relationship between dietary cadmium and anemia (ATSDR 1999a). Studies of oral exposure to cadmium in rats, mice and rabbits have indicated that anemia is associated with cadmium in food or drinking water, and that additional iron prevents anemia. Some subchronic exposure studies of rats have shown evidence of anemia at doses ranging from 2 to 14 mg/kg-day, while others have shown no adverse effects. Results of chronic exposure studies in monkeys, rats, and mice have mixed results. In cases where clinical signs of anemia were observed, biological indicators (such as number of reticulocytes or erythroid progenitor cells in bone marrow) differed, indicating that anemia may be a result of more than simply reduced gastrointestinal absorption of iron (ATSDR 1999a).

Some studies of workers exposed via inhalation have noted lowered hemoglobin concentrations and decreased packed cell volumes in exposed workers, although these effects were often not statistically significant. Other occupational studies did not identify such effects. Therefore, the evidence supporting hematological toxicity in humans from inhalation exposure is conflicting (ATSDR 1999a). The results of animal studies evaluating hematological effects from inhalation exposure are mixed. Two subchronic exposure studies of cadmium oxide dust and cadmium chloride in rats resulted in increased hemoglobin and hematocrit effects at doses as low as 0.05 mg/m^3, although other studies reported no cadmium-related hematological effects. A subchronic exposure study of cadmium sulfide in rats found no effect on red blood cell counts and a chronic exposure study of cadmium oxide dust in rats at 0.09 mg/m^3 found no hematological effects (ATSDR 1999a).

There is substantial epidemiological evidence that dietary cadmium exposure in humans can result in osteomalacia, osteoporosis, and spontaneous/painful bone fractures under certain conditions. Cadmium-exposed individuals exhibit both a disturbance of renal metabolism of vitamin D to its biologically useful form and increased urinary excretion of calcium. Thus, adverse musculoskeletal effects may be a secondary effect of disruption of vitamin D metabolism and resulting problems with calcium absorption/excretion (ATSDR 1999a).

Musculoskeletal effects, such as decreased calcium content of bone and increased urinary calcium excretion, occurred in rats orally exposed to cadmium at doses ranging from 2 to 8 mg/kg-day over subchronic and chronic exposure periods (ATSDR 1999a). Adverse effects on bone may be exacerbated by a calcium-deficient diet, by exposure at a young age during bone growth, by ovariectomy, or by gestation and lactation. Some studies in mice have detected effects in bone prior to development of proteinuria (the critical effect upon which the human toxicity value is based) (ATSDR 1999a).

There are case studies of workers exposed via inhalation that indicate that calcium deficiency, osteoporosis, or osteomalacia can develop after long-term exposure to high levels of cadmium via inhalation, as well as oral exposure. Skeletal effects are generally only observed after kidney damage has occurred and may be secondary to changes in calcium, phosphorous and vitamin D metabolism (ATSDR 1999a).

No adverse effects on the respiratory system were observed in a chronic dietary study of Rhesus monkeys; however, lung lesions and emphysema were observed in some subchronic and chronic drinking water studies of rats at doses ranging from 1.2 mg/kg-day to 3.6 mg/kg-day cadmium chloride (ATSDR 1999a). Other oral exposure studies of rats found no adverse lung effects at doses ranging from 8 mg/kg-day to 16 mg/kg-day. Animal studies of respiratory effects associated with cadmium in food or drinking water indicated that effects on the lung in rats following oral exposure to cadmium may be secondary to systemic changes; however, the studies that found lung effects in rats did not examine other systemic effects (ATSDR 1999a).

Several studies of occupationally exposed workers have been conducted to evaluate respiratory effects of subchronic and chronic exposure to cadmium via inhalation. The most relevant studies are those that control for smoking and that evaluate cadmium dust. Some human studies have found an association between cadmium exposure and impaired lung function. Others have found no significant difference in lung function between cadmium-exposed and reference groups. These studies evaluated respiratory effects associated with inhalation of cadmium fumes. In one study in Singapore, lung function was shown to recover after cessation of occupation exposure to cadmium oxide dust (ATSDR 1999a). Additional respiratory effects observed in occupationally exposed workers include chronic rhinitis and impairment of sense of smell (ATSDR 1999a).

In animal studies, subchronic exposure levels of cadmium in the 0.4 to 4 mg/m^3 range have been shown to result in lung damage. Effects have included fibrosis, emphysema, bronchiolitis, type 2 cell hyperplasia, and increased dry lung weight in rats. Effects in rabbits included chronic pneumonia, emphysema, type 2 cell hyperplasia, and lung interstitial inflammation (ATSDR 1999a). Fewer studies of chronic exposure are available. Respiratory effects associated with chronic exposure include increased lung weights and adenomatous hyperplasia in rats at doses ranging from 0.0134 to 0.092 mg/m^3.

Subchronic oral exposure has been associated with histopathologic changes in the liver at doses of 1.6 to 15 mg/kg-day and metabolic alterations (i.e., changes in enzyme activities) at doses of 0.05 to 10 mg/kg-day in laboratory animals. Several subchronic and chronic oral exposure studies; however, did not find liver effects in animals at doses up to 14 mg/kg-day (in rats) (ATSDR 1999a).

The results of animal inhalation studies evaluating hepatic effects are also mixed. In some studies, indicators of liver damage (such as increased liver weight) were observed at doses ranging from 0.1 to 1 mg/m^3. In other studies, no adverse effects to the liver were observed at doses ranging from 0.03 to 0.58 mg/m^3. These studies examined various forms of cadmium, which may partially explain the differing results. Cadmium can accumulate in the liver, as well as the kidney, but the liver appears to have much greater resistance to toxic effects from cadmium (ATSDR 1999a).

A recent study of occupationally exposed workers found evidence of pancreatic damage in humans associated with concentrations of urinary cadmium (Lei et al. 2007). Urinary cadmium was used as a biomarker for exposure and serum insulin and amylase were used as biomarkers for pancreatic effects. Benchmark dose lower limits (BMDLs) of a one-sided 95 percent confidence interval for 10 percent excess risk were 3.7 and 5.3 μg/g creatinine (urinary cadmium corrected for creatinine) for serum insulin and amylase, respectively. Comparative BMDLs for urinary β_2-microglobulin and urinary albumin (biomarkers of renal tubular dysfunction) were 3.8 and 5.8 μg/g creatinine, respectively (Lei et al. 2007). The results of this study indicate that cadmium exposure can result in pancreatic dysfunction at levels similar to those associated with renal tubular dysfunction.

Limited studies of endocrine effects in animals after oral exposure to cadmium indicated no adverse effects to the parathyroid glands, adrenal glands or pituitary glands in rats at the tested doses. Pancreatic atrophy and pancreatitis was observed in rats exposed to dietary cadmium at 2.79 mg/kg-day for 100 days (ATSDR 1999a).

Animal studies of immunological effects from cadmium inhalation have shown mixed results. Subchronic exposure studies in laboratory animals have identified effects such as increased relative spleen weight and enlarged thoracic lymph nodes associated with cadmium inhalation. Other animal studies have found no effect on natural killer cell activity or viral induction of interferon in mice. There is evidence that suggests that the same exposure would decrease resistance to bacterial infection while increasing resistance to viral infection (ATSDR 1999a).

4.4.2.2 Neurological Effects

A few human studies have examined the neurological effects of oral cadmium exposure. These studies used hair cadmium as a biomarker of exposure and various behavioral endpoints. The potential impacts of several confounding factors and possibly inadequate measure of exposure make the results of these studies highly uncertain, and; therefore of limited usefulness in evaluating neurological effects (ATSDR 1999a).

Subchronic and chronic exposures to cadmium have been shown to be associated with neurological effects in laboratory animals, including weakness and muscle atrophy, aggressive behavior, anxiety, and changes in brain biochemistry at doses ranging from 5 to 40 mg/kg-day (ATSDR 1999a).

4.4.2.3 Reproductive and Developmental Effects

Subchronic exposure to cadmium in drinking water in male rats and mice has been associated with necrosis and seminiferous tubule damage, increased testes weight, decreased sperm count and motility at doses ranging from 5.8 mg/kg-day to 12.9 mg/kg-day. Subchronic exposure to cadmium in females was associated with decreased percentage of pregnancies and increased duration of estrus cycle at doses ranging from 40 mg/kg-day to 61 mg/kg-day (ATSDR 1999a).

Evidence is insufficient to determine an association between inhalation exposure to cadmium and reproductive effects. Reproductive effects were evaluated in several studies of occupationally exposed workers and in smokers versus non-smokers. Some studies found an association between cadmium and reduced sperm count or sperm motion parameters in exposed males. Other studies found no differences in semen quality or fertility in exposed males. A study of occupationally exposed women in Russia found no irregularities in menstrual cycles. No other studies were identified that showed reproductive effects in women associated with cadmium inhalation exposure (ATSDR 1999a).

In rats, inhalation exposures of cadmium have been associated with increased duration of the estrous cycle in females and increased relative testes weight in males (ATSDR 1999a).

Numerous studies of rats and mice have shown that cadmium can be fetotoxic from oral exposures prior to and during gestation. Developmental effects include reduced fetal or pup weights and skeletal malformations at doses ranging from 1 to 20 mg/kg-day. The most sensitive indicator of developmental toxicity of cadmium, however, appears to be neurobehavioral development. Neurobehavioral effects include reduced exploratory locomotor activity and decreased conditioned avoidance behavior at doses ranged from 0.04 mg/kg-day to 0.7 mg/kg-day (ATSDR 1999a).

Subchronic and chronic exposure of rats via inhalation resulted in effects such as delayed ossification, decreased locomotor activity, reduced fetal weight and impaired reflexes in offspring at doses ranging from 0.02 to 0.58 mg/m^3 (ATSDR 1999a).

4.4.2.4 Toxicity Values for Noncancer Effects

Oral

TDI and RfD values for human oral exposure to cadmium have been developed by Health Canada and EPA. In both cases, these values are based on a critical effect of significant proteinuria, an early indicator of renal tubular dysfunction. Numerous studies in humans and laboratory animals have demonstrated that proteinuria develops only when cadmium concentrations in the kidney exceed a critical level, established at 200 µg/g (ww) in the kidney cortex by USEPA (2007b). Both the TDI and RfD values are based on this critical cadmium concentration in the renal cortex.

The TDI of 8×10^{-4} mg/kg-day was derived from a lower limit of permissible intake of cadmium of 0.057 mg/day as recommended by WHO and an assumed adult body weight of 70 kg (Health Canada 2007c; Health Canada 2007d). The permissible daily intake value recommended by WHO was based on a multicompartmental model for cadmium distribution in the body and reflects an estimate of 0.1 percent of the population reaching the critical cadmium concentration of 200 μg/g in the renal cortex after 50 years (Kjellstrom and Nordberg 1978; WHO 1972).

The EPA RfD values of 1×10^{-3} (food) and 5×10^{-4} (water) are based on application of a toxicokinetic model that assumes that 0.01 percent of the total body burden of cadmium is eliminated per day. It also assumes 2.5 percent or 5 percent absorption of cadmium from food and water, respectively. The toxicokinetic model predicts a NOAEL for either food or water that would result in 200 μg/g ww cadmium in the human renal cortex. An uncertainty factor of 10 was applied to the NOAEL to account for intrahuman variability (USEPA 2007b).

Inhalation

Toxicity values for noncancer health effects associated with cadmium inhalation exposure have not been published by Health Canada or EPA (Health Canada 2004b; USEPA 2007b).

4.4.3 Carcinogenic Effects

There is little evidence of an association between oral exposure to cadmium and increased cancer rates in humans. Epidemiological studies of populations in England, Belgium and Japan did not show significant increase in cancer rates or mortality from cancer, including prostate, kidney or urinary tract cancer. These studies either did not estimate cadmium exposures or made categorical estimates of cadmium exposure (ATSDR 1999a).

Animal studies on chronic oral exposure to cadmium do not provide sufficient evidence to determine whether cadmium is a carcinogen by the oral route. One study on male rats evaluated the effects of chronic dietary zinc deficiency on oral cadmium carcinogenesis. In this study, oral cadmium exposure was associated with tumors of the prostate, testes, and hematopoietic system, while dietary zinc deficiency had complex, apparently inhibitory, effects on cadmium carcinogenesis. In a subsequent study on male mice, it was concluded that cadmium may reduce tumor formation in the lungs and liver of mice treated with a carcinogen (N-nitrosodiethylamine) through a mechanism that may involve reduced activity and responsiveness of the metallothionein system (ATSDR 1999a).

4.4.3.1 Inhalation Exposure

Several epidemiological studies have evaluated the relationship between occupational exposure to cadmium and increased risk of cancer. The results of these studies are conflicting. Controls for confounding factors such as co-exposure with other known carcinogens (such as arsenic and nickel) and smoking, in the cases where they were included, were limited by the post-exposure nature of the studies (ATSDR 1999a).

Early studies indicated an elevation in prostate cancer among occupationally exposed men, but subsequent investigations found either no increases in prostate cancer or increases that were not statistically significant.

In early studies, lung cancer mortality was also found to be significantly elevated among occupationally exposed males in the U.S. Subsequent evaluations of potential confounding effects; however, have disagreed about whether or not arsenic exposure and cigarette smoking were more likely to be the major determinants of observed increased lung cancer mortality. Further investigation has suggested several hypotheses: that there may be a toxic interaction between cadmium and arsenic, that cadmium oxide may be a lung carcinogen while other forms are not, or that observed lung cancer mortality on workers may be associated solely with arsenic exposure (ATSDR 1999a; Health Canada 1994a).

Studies in rats provide strong evidence of the lung carcinogenic potential of cadmium exposure via inhalation. Increases in lung tumors were associated with exposure to cadmium chloride, cadmium oxide dusts, cadmium oxide fumes, cadmium sulfate and cadmium sulfide. Chronic exposure studies found increased lung tumors in males and females at doses ranging from 30 to 90 $\mu g/m^3$. Studies in hamsters and mice did not find statistically significant associations between lung tumors and doses tested (ATSDR 1999a).

Based on both human and animal data, EPA has classified cadmium as a probable human carcinogen by inhalation (WOE Class B1) (USEPA 2007b).

4.4.3.2 Toxicity Values for Carcinogenic Effects

Oral

No oral slope factors, tumorigenic concentrations, or unit risks have been established for cadmium by Health Canada (2004b) or USEPA (2007b).

Inhalation

The inhalation cancer slope factor for cadmium established by EPA is 6.3 $(mg/kg\text{-}day)^{-1}$ (USEPA 2007b). This value is based on a unit risk factor of 0.0018 $(\mu g/m^3)^{-1}$ that was converted to a slope factor using the assumptions of an inhalation rate of 20 m^3/day and a body weight of 70 kg (USEPA 2007b).

The inhalation cancer slope factor published by Health Canada is 42.9 $(mg/kg\text{-}day)^{-1}$ (Health Canada 2004b). This value is based on the tumorigenic concentration in air associated with a 5 percent increase in incidence or mortality due to tumors, known as the tumorigenic concentration-05. The tumorigenic concentration-05 established by Health Canada for cadmium of 5.1 μg/m^3 (Health Canada 2004b) was converted to a unit slope factor using the assumptions of an inhalation rate of 16 m^3/day and a body weight of 70.7 kg (Health Canada 2004b).

4.5 CHROMIUM TOXICITY SUMMARY

Chromium is a PCOC for human exposure via fish ingestion only. This toxicological profile, therefore, focuses on potential human toxicity associated with oral exposure over subchronic and chronic exposure periods. Chromium is a naturally occurring element. Chromium exists in two major valence states in the environment, +6 and +3. In the hexavalent state, chromium exists as oxo species (such as chromate) that are strongly oxidizing. In soil and in water, hexavalent chromium reacts with organic matter to form trivalent chromium. The bioconcentration factor for hexavalent chromium in fish muscle is low (<1), but it is substantially higher in shellfish (125 – 192) (USEPA 1998).

4.5.1 Toxicokinetics

Hexavalent chromium is more readily absorbed in the gastrointestinal tract than trivalent chromium, although absorption is still low (less than 5 percent). In humans, ingested hexavalent chromium is efficiently reduced to the trivalent form by gastric juices in the stomach. Both trivalent and hexavalent chromium are better absorbed from the gastrointestinal tract in the fasted than in the fed state. Once absorbed, hexavalent chromium readily enters red blood cells through the phosphate and sulfate anion-exchange carrier pathway, while trivalent chromium does not. Hexavalent chromium is reduced to the trivalent form in red blood cells by the action of glutathione. A significant amount of absorbed chromium is concentrated in the bone. Chromium also concentrates in tissues of the liver, kidney, and spleen. Trivalent chromium is an essential element that potentiates insulin action in peripheral tissue and is essential for lipid, protein and fat metabolism in humans and animals (USEPA 1998; USEPA 2007b).

4.5.2 Noncancer Effects

An epidemiological study of residents exposed to approximately 20 ppm hexavalent chromium in drinking water in China indicated potential gastrointestinal effects including sores in the mouth, diarrhea, stomachache, indigestion, and vomiting. However, precise exposure data and confounding factors were not addressed in the study.

Chronic and subchronic studies in rats indicate that trivalent chromium is substantially less toxic than hexavalent chromium. A chronic dietary study of rats fed chromic oxide found no adverse effects at a dose of 1,468 mg/kg-day. A subchronic dietary rat study found increased weight of liver and spleen at a dose of approximately 1,400 mg/kg-day, but no other adverse effects. Other oral exposure studies in rats have found no effects at lower dose levels of trivalent chromium (USEPA 2007b).

A 1-year drinking water study in rats exposed to hexavalent chromium given as potassium chromate found no adverse effects at a dose of 2.5 mg/kg-day. Doses of hexavalent chromium as low as 37 mg/kg-day (drinking water concentration of 250 ppm) have been reported to cause developmental toxicity in rats. However, reproductive studies in mice and rats fed potassium dichromate at lower dietary concentrations (15 to 400 ppm) found no adverse reproductive effects (USEPA 2007b).

4.5.2.1 Oral Toxicity Values for Noncancer Health Effects

EPA has established an oral RfD of 1.5 mg/kg-day for trivalent chromium, based on the chronic dietary study in rats discussed above. EPA has established an oral RfD of 3×10^{-3} mg/kg-day for hexavalent chromium based on the drinking water study in rats discussed above. An uncertainty factor of 300 was applied to the NOAEL of 2.5 mg/kg-day to account for interhuman and interspecies variability and the less-than-lifetime exposure duration of the principal study. In addition, a modifying factor of 3 was applied to account for uncertainty associated with the observed gastrointestinal effects in the epidemiological study in China (USEPA 2007b).

Health Canada has established an oral TDI of 1×10^{-3} for hexavalent chromium. This value is based on a LOAEL of 5 mg/L in drinking water studies in laboratory animals and NOAELs from several other studies (Health Canada 2004b).

4.5.3 Carcinogenic Effects

No human data are available that address exposure to trivalent chromium alone (without hexavalent chromium). Two oral studies of trivalent chromium in rats and mice indicate that trivalent chromium is not carcinogenic. EPA has classified trivalent chromium as "Group D – not classified as to human carcinogenicity" (USEPA 2007b).

Hexavalent chromium is a known human carcinogen via inhalation. However, the potential carcinogenicity of hexavalent chromium via the oral exposure route is still being investigated. One 4-year drinking water study of dogs exposed to potassium dichromate found no evidence of carcinogenicity (USEPA 2007b). A recent, 2-year drinking water study showed clear evidence of carcinogenic activity of sodium dichromate dihydrate (a hexavalent chromium compound) in rats, based on malignant tumors in the oral cavity, and in mice, based on benign and malignant tumors in the small intestine (NTP 2007).

There is some concern that studies of hexavalent chromium in rodents may not be directly applicable to humans. Toxicokinetics studies have indicated that the reduction of hexavalent chromium to trivalent chromium in the low pH environment of the human stomach occurs readily and rapidly (USEPA 1998). Due to differences in feeding habits and other factors, pH is not as low in rodent stomachs as in human stomachs. It is also likely that as doses of hexavalent chromium are increased far above environmental levels (as in the NTP studies), the reducing capacity of the gastrointestinal tract may be exceeded, resulting in the observed tumors in the gastrointestinal tract. Even in these rodent studies, systemic tumor incidence was not increased (NTP 2007).

4.5.3.1 Oral Toxicity Values for Cancer Effects

No oral slope factors, tumorigenic concentrations, or unit risks have been established for trivalent or hexavalent chromium by Health Canada (2004b) or USEPA (2007b).

4.6 MERCURY TOXICITY SUMMARY

Mercury is a chemical of concern for potential human exposure via fish ingestion only. The predominant form of mercury in fish is methylmercury (an organic form). Therefore, this toxicological profile focuses on potential human toxicity associated with oral exposure to methylmercury over subchronic and chronic exposure periods. Mercury is a naturally occurring element. Mercury exists in two major valence states in the environment, +1 and +2. Many inorganic and organic forms of mercury can be formed from the divalent cation. In the environment, inorganic mercury can be methylated by microorganisms to methylmercury. It is methylmercury that accumulates in the tissues of fish and animals (ATSDR 1999b).

4.6.1 Toxicokinetics

In humans, methylmercury in fish is efficiently absorbed from the gastrointestinal tract following ingestion. Approximately 95 percent of methylmercury in fish was absorbed by human volunteers in one study and studies in laboratory animals support this finding. After absorption, methylmercury is readily absorbed into the blood and distributed to all tissues, including the brain and fetus. Absorbed methylmercury is metabolized to inorganic mercury in the body. It is hypothesized that the time required for methylmercury metabolism to inorganic mercury may account for a latent period observed in some epidemiological studies of methylmercury poisoning incidents. In humans, approximately 90 percent of the absorbed dose of methylmercury is excreted in the feces.

4.6.2 Noncancer Effects

Methylmercury has been extensively studied in humans. Several epidemiological studies have indicated that the critical effect of methylmercury is neurotoxicity in children. Chronic low-dose prenatal exposure to methylmercury in fish has been associated with subtle endpoints of neurotoxicity in children. Human exposure following high-dose poisonings in Japan and Iraq resulted in severe adverse neurological effects in exposed adults. Studies in laboratory animals have also shown effects on cognitive, motor and sensory functions (USEPA 2001c; USEPA 2007b). There is evidence in humans and laboratory animals suggesting that methylmercury exposure may have delayed neurotoxic effects that are expressed with age. Low-level methylmercury exposure has also been associated with cardiovascular effects in children and adult males. Short-term, high dose studies in laboratory animals have shown an association between methylmercury ingestion and adverse reproductive effects, but the evidence suggests that the developing nervous system is more sensitive to methylmercury than the reproductive system (USEPA 2001c; USEPA 2007b).

4.6.2.1 Oral Toxicity Values for Noncancer Health Effects

EPA has established an oral RfD of 1×10^{-4} mg/kg-day for methylmercury based on a critical effect of developmental neuropsychological impairment. The RfD is based on an integrated assessment of three epidemiological studies. All three studies evaluated potential effects of ingested methylmercury on mother-child pairs. A benchmark response (BMR) was set at 0.05. BMDLs (the lower 95 percent confidence limit of the BMD_{05}) were calculated for all endpoints in all three studies. An integrated analysis of all BMDLs resulted in a $BMDL_{05}$ range of 46 to 79 ppb in maternal blood for different neuropsychological effects in the offspring at 7 years of age, corresponding to a range of maternal daily intakes of 0.857 to 1.472 μg/kg-day. An uncertainty factor of 10 was applied to a $BMDL_{05}$ of 1 μg/kg-day to account for interindividual variability and uncertainty in toxicokinetics and pharmacodynamics. Confidence in the oral RfD is high based on the wealth of epidemiological and experimental data that converges on the same value (USEPA 2007b).

4.6.3 Carcinogenic Effects

Three available epidemiological studies evaluated the carcinogenic potential of methylmercury exposure in humans. EPA concluded that no persuasive evidence of increased carcinogenicity was observed; however, interpretation of the results was complicated by poor study design and inadequate reporting issues. Dietary studies of methylmercury in laboratory animals have had mixed results. In general, tumors were observed only at doses that exceeded the maximum tolerated dose (MTD). Chronic exposure of mice to methylmercury produced overt symptoms of neurotoxicity at daily doses that were an order of magnitude lower than those required to induce tumors. EPA has classified methylmercury as a possible human carcinogen (WOE Class C) (USEPA 2007b).

4.6.3.1 Oral Toxicity Values for Cancer Effects

No oral slope factors, tumorigenic concentrations, or unit risks have been established for methylmercury by Health Canada (2004b) or USEPA (2007b).

4.7 SELENIUM TOXICITY SUMMARY

Selenium is a PCOC for potential human exposure via ingestion only. This toxicological profile, therefore, focuses on potential human toxicity associated with oral exposure over subchronic and chronic exposure periods. Selenium combines with metals and many nonmetals directly or in aqueous solution (ATSDR 2003). In air, common selenium compounds include selenium dioxide, dimethyl selenide, dimethyl diselenide and hydrogen selenide. In soils, sediments, and water, selenium occurs mostly in the form of selenates and selenites. In fish ingested by humans, selenium is more likely to be in the form of selenomethionine (an organic form). Selenium in aquatic environments is bioaccumulated by aquatic organisms and evidence suggests that selenium may biomagnify in aquatic organisms as well (ATSDR 2003). Selenium is considered an essential trace element for human nutrition (ATSDR 2003).

4.7.1 Toxicokinetics

Studies in humans and laboratory animals indicate that several selenium compounds including selenite, selenate, and selenomethionine are readily absorbed from the gastrointestinal tract, often at greater than 80 percent of the administered dose. The bioavailability of ingested selenium can be affected by the physical state of the compound (e.g., solid or solution), the chemical form of selenium (e.g., organic, inorganic), and the dosing regimen. In general, it appears that the degree of selenium absorption is independent of the exposure level in humans. In some cases, absorption has been shown to increase when selenium deficiency exists (ATSDR 2003). The greatest concentrations of selenium are found in the liver and kidney, although selenium accumulates in many organ systems in the body. Selenium is primarily eliminated in the urine and feces. Human metabolism of selenium is a function of the dose ingested. Excess selenium ingested as selenite and selenate can be metabolized to methylated compounds and excreted.

4.7.2 Noncancer Effects

Chronic oral intake of very high levels of selenium can produce selenosis in humans, the major effects of which are dermal and neurological. A series of epidemiological studies of an affected population in China have exhibited diseased nails and skin, hair loss, unsteady gait, and paralysis associated with high dietary exposure. Selenium levels in soil and several food types commonly eaten by the exposed population showed a positive correlation with blood and tissue selenium levels. Blood selenium levels were shown to be associated with clinical signs of selenium intoxication. The lowest blood selenium concentration associated with selenosis was 1.35 mg/L, which corresponded to 1.261 mg/day selenium intake. NOAEL for the China study was 0.85 mg/day. An additional human study in the U.S. found no signs for selenium toxicity for individuals whose selenium intake was as high as 0.724 mg/day, a result consistent with the findings of the study in China (USEPA 2007b).

Selenium has been reported to cause growth retardation, decreased fertility, embryotoxicity, fetotoxicity, and teratogenic effects in animals; however, teratogenic effects in humans were not observed in the epidemiological studies. In addition, reproductive and developmental effects were not observed in several key studies of primates, rats and mice at doses below LOAEL for clinical selenosis in humans (USEPA 2007b).

4.7.2.1 Oral Toxicity Values for Noncancer Health Effects

EPA has established an oral RfD of 5×10^{-3} mg/kg-day for selenium. The RfD is based on the epidemiological study of a Chinese population discussed above and the critical effect of clinical selenosis. An uncertainty factor of 3 was applied to the NOAEL to account for sensitive individuals. Confidence in the oral RfD is high because many animal studies and other epidemiologic studies support the results of the principal study in China (USEPA 2007b).

4.7.3 Carcinogenic Effects

Epidemiological studies have evaluated selenium in blood and cancer mortality in areas of high versus low naturally occurring selenium. The results of these studies are inadequate to determine the potential carcinogenicity of selenium because they do not assess specific selenium compounds or correlate exposure with cancer risk (USEPA 2007b). The results of animal studies are conflicting and difficult to interpret due to apparent anti-carcinogenic activity and high toxicity of some selenium salts. In addition, different selenium salts have different degrees of bioavailability that contribute to the lack of consensus among animal studies (USEPA 2007b).

4.7.3.1 Oral Toxicity Values for Cancer Effects

No oral slope factors, tumorigenic concentrations, or unit risks have been established for selenium by Health Canada (2004b) or USEPA (2007b).

4.8 SILVER TOXICITY SUMMARY

Silver is a PCOC for potential human exposure via ingestion only. This toxicological profile, therefore, focuses on potential human toxicity associated with oral exposure over subchronic and chronic exposure periods. Silver is a naturally occurring element which occurs in several oxidation states, the most common being elemental silver (0) and monovalent silver ion (+1). Under oxidizing conditions in soil, silver occurs primarily as bromide, chloride and iodide compounds. Under reducing conditions in soil, silver is found most often as the free metal or silver sulfide (ATSDR 1990).

4.8.1 Toxicokinetics

Studies in humans and laboratory animals indicate that many silver compounds, including silver salts, are absorbed by humans across mucous membranes in the mouth and nasal passages and from the gastrointestinal tract. The extent of absorption associated with ingestion is associated with transit time through the gastrointestinal tract. Ingested silver undergoes a first pass effect through the liver resulting in excretion into the bile. Subsequent distribution of any remaining silver may occur throughout the body. The deposition of silver in tissues is the result of the precipitation of insoluble silver salts such as silver chloride and silver phosphate. These insoluble silver salts may undergo various metabolic reactions. In humans, silver is eliminated primarily in the feces (ATSDR 1990).

4.8.2 Noncancer Effects

Silver compounds have been used for medical purposes for centuries. Therefore, the bulk of available human data are associated with studies of the toxic effects of silver as medication. The critical effect observed in humans exposed via ingestion is argyria, a medically benign but permanent discoloration of the skin. Argyria results from the deposition of silver in the dermis and from silver-induced production of melanin. Although the skin discoloration is permanent, it is not associated with any other adverse health effects. A long-term intravenous injection study of argyria in humans found that silver accumulates in the body over time and that a total accumulative intravenous dose of 8 grams silver arsphenamine was the threshold beyond which argyria could develop. Therefore, a LOAEL of 1 gram total dose of metallic silver (the lowest dose resulting in argyria in one patient) was established for this study (USEPA 2007b).

4.8.2.1 Oral Toxicity Values for Noncancer Health Effects

EPA has established an oral RfD of 5×10^{-3} mg/kg-day for silver. The RfD is based on the human intravenous injection study discussed above and the critical effect of argyria. An uncertainty factor of 3 was applied to account for minimal effects in a subpopulation that exhibited an increased propensity for the development of argyria (USEPA 2007b). Confidence in the RfD is low due to the use of an intravenous study for establishment of an oral toxicity value and the clinical nature of the supporting studies (USEPA 2007b).

4.8.3 Carcinogenic Effects

No evidence of cancer in humans has been reported despite frequent therapeutic use of silver over hundreds of years. In laboratory animals, a few studies have found local sarcomas to be associated with implantation of foils and discs of silver. However, the interpretation of these findings has been questioned due to the phenomenon of solid-state carcinogenesis in which many insoluble solids have been shown to result in local fibrosarcomas (USEPA 2007b).

4.8.3.1 Oral Toxicity Values for Cancer Effects

No oral slope factors, tumorigenic concentrations, or unit risks have been established for silver by Health Canada (2004b) or USEPA (2007b).

4.9 THALLIUM TOXICITY SUMMARY

Thallium is a PCOC for potential human exposure via ingestion only. This toxicological profile, therefore, focuses on potential human toxicity associated with oral exposure over subchronic and chronic exposure periods. Thallium (Tl) is a naturally occurring element that exists in the environment most often in combination with other elements (primarily oxygen, sulfur, and the halogens) in inorganic compounds. In water, thallium is found primarily as the monovalent ion (Tl^+). Thallium has been shown to bioconcentrate in aquatic plants, invertebrates, and fish.

4.9.1 Toxicokinetics

Limited human studies and animal studies suggest that thallium is readily absorbed in the gastrointestinal tract. After absorption, human and animal data indicate that thallium is distributed throughout the body. No information on metabolism of thallium in humans or animals was readily available. Thallium is eliminated in both urine and feces. In one human study, the greatest proportion of radioactive thallium was excreted in the urine (ATSDR 1992b).

4.9.2 Noncancer Effects

The toxicology of thallium has been studied for various thallium compounds, including thallium sulfate, thallium nitrate, thallium chloride, thallium carbonate, and thallium acetate. Data on chronic and subchronic exposure of humans to thallium compounds are extremely limited and are insufficient for development of appropriate NOAELs or LOAELs. Case studies of acute exposure in humans that have ingested high doses of thallium have indicated the potential for adverse effects to the respiratory and cardiovascular systems, as well as to the liver, kidney and muscle (ATSDR 1992b).

Drinking water studies of subchronic and chronic exposure of rats to thallium sulfate have associated thallium with testicular effects and functional and histopathological changes in the peripheral nerves at doses ranging from 0.7 to 1.4 mg/kg-day. A subchronic gavage study in rats of thallium sulfate found no adverse effects at 0.25 mg/kg-day.

4.9.2.1 Oral Toxicity Values for Noncancer Health Effects

EPA has established an oral RfD of 8×10^{-5} mg/kg-day for thallium sulfate, thallium chloride and thallium carbonate. An oral RfD of 9×10^{-5} was established for thallium acetate and thallium nitrate. The oral RfDs for all of these thallium compounds are based on the subchronic gavage study of thallium sulfate in rats discussed above. The differences in oral RfD values for the various thallium compounds reflect the conversion from a NOAEL of 0.25 mg/kg-day thallium sulfate to a comparable molecular weight of the thallium compound of interest. An uncertainty factor of 3000 was applied to the NOAEL to account for extrapolation from subchronic to chronic exposure, extrapolation across species, interspecies variability and lack of reproductive and chronic toxicity data. Confidence in the oral RfD for all thallium compounds is low due to uncertainties in the principal study, lack of chronic and reproductive studies and lack of human data (USEPA 2007b).

4.9.3 Carcinogenic Effects

Limited occupational studies of workers exposed to thallium have not indicated that thallium is carcinogenic. No animal studies that specifically evaluated carcinogenicity were found. EPA has classified thallium as not classifiable as to human carcinogenicity (WOE Class D) (USEPA 2007b).

4.9.3.1 Oral Toxicity Values for Cancer Effects

No oral slope factors, tumorigenic concentrations, or unit risks have been established for selenium by Health Canada (2004b) or USEPA (2007b).

4.10 TIN TOXICITY SUMMARY

Tin is a PCOC for potential human exposure via ingestion only. This toxicological profile, therefore, focuses on potential human toxicity associated with oral exposure over subchronic and chronic exposure periods. Tin (Sn) is a naturally occurring element that can form both inorganic and organic compounds. In general, organic tin compounds are released to the environment from anthropogenic sources, but some methyltin compounds can occur naturally. Inorganic tin compounds do not contain a tin-carbon bond, whereas organotin compounds contain at least one tin-carbon bond. In compounds, tin can exist in the +2 or +4 oxidation state (ATSDR 2005a).

4.10.1 Toxicokinetics

Inorganic tin compounds are not readily absorbed after oral exposure. Gastrointestinal absorption of various forms of inorganic tin was less than 5 percent in dogs, mice, rats and monkeys. Clinical evidence in humans indicates that organotin compounds are more readily absorbed. One study of butyltin compounds in mice found that up to 35 percent of the administered dose was excreted in urine. Absorption appears to increase with an increased number of butyl groups. After absorption, inorganic tin may be distributed through the body, with the greatest concentrations likely to occur in the kidney, liver, lung and bone. There is evidence that tin may accumulate in human tissues, but overall concentrations were low. Organic tin is more likely to be distributed to soft tissues, including kidney, liver and brain. No information on the metabolism of inorganic tin was readily available. Metabolism of ethyltin and butyltin compounds includes dealkylation and hydroxylation. Metabolism of phenyltin compounds includes dearylation. In humans, urinary excretion is the major route of elimination of absorbed inorganic tin. Studies in rats and mice have found both urinary and fecal excretion of absorbed organotins (ATSDR 2005b).

4.10.2 Noncancer Effects

Subchronic studies of inorganic tin in laboratory animals have found various effects, including decreased hemoglobin and abdominal and intestinal distension at doses as low as 7.9 mg/kg-day. One chronic study of inorganic tin in rats found decreased longevity at a LOAEL of 0.7 mg/kg-day (ATSDR 2005b).

There are numerous studies of potential effects of organotins in laboratory animals. For organotins, the most critical effect for mammals appears to be immunotoxicity. Various studies have shown that the lymphoreticular system, specifically the thymus, is the main target organ for many organotin compounds. Ingestion of organotin compounds has also resulted in reproductive toxicity and developmental toxicity in rats at relatively low doses (ATSDR 2005b). Toxicity studies are available for several different categories of organotins, including ethyltins, butyltins, phenyltins, and octyltins. Tributyltin oxide is one of the organotins with a high potential for gastrointestinal absorption and for which a wide variety of toxicity data are available (USEPA 2007b). Therefore, the toxicity value for tributyltin oxide is considered a useful surrogate for other classes of organotins.

4.10.2.1 Oral Toxicity Values for Noncancer Health Effects

Neither Health Canada nor EPA has oral toxicity values for inorganic tin, the expected form of tin in Trail. As a surrogate, we conservatively used EPA's oral RfD of 3 × 10-5 mg/kg-day for tributyltin oxide. ATSDR (2005b) provides evidence that inorganic tin is less toxic than organic forms via their minimal risk levels for intermediate duration exposure to inorganic tin and tributyltin oxide. The minimal risk level for inorganic tin is 1000 times higher than the one for tributyl tin oxide, suggesting that the risk from inorganic tin is significantly less than from organic forms.

The RfD for tributyltin oxide was based on subchronic and chronic immunity studies in rats that were fed tributyltin oxide at three doses ranging from 0.025, 0.25 and 2.5 mg/kg-day, plus a control dose. Immunologic function studies for specific and nonspecific resistance were performed in rats after exposure for either 4 to 6 months or 15 to 17 months. No significant differences in results between the two tested exposure periods were observed. Based on the critical effects of depression of immunoglobulin E titers and the increase in *T. spiralis* larvae in muscle (representing a decrease in antibody response), the LOAEL for immunotoxicity was 0.25 mg/kg-day and the NOAEL was 0.025 mg/kg-day. EPA derived a benchmark dose using a 10 percent relative change compared to the control as the benchmark response. The BMDL (the lower 95 percent confidence boundary on the dose corresponding to the BMR) was calculated for three measured endpoints. The data on one endpoint, immunoglobulin E titer, provided both a measure of the primary biological response (weakened host resistance) and a better fit to the observed data in the exposure range of interest. The BMDL of 0.03 mg/kg-day for this endpoint was used to establish the RfD. An uncertainty factor of 100 was applied to the BMDL to account for interspecies variability and to protect sensitive individuals (USEPA 2007b).

4.10.3 Carcinogenic Effects

Evidence for cancer effects may include human studies, animal studies, and i*n vitro* studies of mutagenicity or genotoxicity. Only human and animal studies are discussed in this profile.

Limited oral exposure studies in rats have indicated that inorganic tin is not likely to be carcinogenic (ATSDR 2005b). Of the organotins, tributyltin oxide has the greatest potential for absorption; therefore, it has been studied more extensively than other compounds. Cancer bioassays of tributyltin oxide following oral exposure in rats and mice have shown mixed results. Some studies of rats found increased in tumors at high doses, but the significance of the results were questionable. Studies of mice showed no increased tumors. Several genetic toxicity studies indicate that tributyltin oxide is not genotoxic. Therefore, EPA has classified tributyltin oxide as not classifiable as to human carcinogenicity (WOE Class D) (USEPA 2007b).

4.10.3.1 Oral Toxicity Values for Cancer Effects

No oral slope factors, tumorigenic concentrations, or unit risks have been established for tin by Health Canada (2004b) or USEPA (2007b).

4.11 VANADIUM TOXICITY SUMMARY

Vanadium is a PCOC for potential human exposure via fish ingestion only. This toxicological profile, therefore, focuses on potential human toxicity associated with oral exposure over subchronic and chronic exposure periods. Vanadium (V) is a naturally occurring element that forms a wide variety of compounds. It has six oxidation states (1-, 0, 2+, 3+, 4+, and 5+) of which 3+, 4+, and 5+ are the most common. The ion is generally bound to oxygen. Toxicologically significant compounds include vanadium pentoxide, sodium metavanadate, sodium orthovanadate, vanadyl sulfate and ammonium vanadate (ATSDR 1992c).

4.11.1 Toxicokinetics

Studies of laboratory animals indicate that absorption of vanadium through the gastrointestinal tract is low (ranging from 0.1 to 2.6 percent of administered oral dose in adult rats). After absorption, vanadium is distributed primarily to the kidney, bones, liver and lungs. Prolonged retention of vanadium occurs only in the skeleton. In the body there is an interconversion of two oxidation states of vanadium, vanadyl (V+4) and vanadate (V+5). Vanadium can bind reversibly to transferring protein in the blood and then be taken up into erythrocytes. The principal route of excretion of absorbed vanadium is through the kidney (ATSDR 1992c).

4.11.2 Noncancer Effects

Many forms of vanadium may occur in the environment. In one subchronic human study, subjects were administered sodium vanadyl tartrate in capsule form. No adverse effects were noted on measured endpoints of indicators of renal and hepatic toxicity at a dose of 1.3 mg/kg-day. Studies of various forms of vanadium, including vanadium pentoxide, sodium metavanadate, and vanadyl sulfate in laboratory animals have found effects on various systemic endpoints at doses as low as 0.57 mg/kg-day. A chronic drinking water exposure study in rats found development effects to occur at a dose of 2.8 mg/kg-day (ATSDR 1992c).

4.11.2.1 Oral Toxicity Values for Noncancer Health Effects

EPA has established an oral RfD of 9×10^{-3} mg/kg-day for vanadium pentoxide. The RfD was based on a chronic dietary study of vanadium pentoxide in rats. The endpoints evaluated in the study were growth rate, survival and hair cystine content. The only significant change reported was a decrease in the amount of hair cystine at a dose range of 2.5 to 7.5 mg/kg-day. An uncertainty factor of 100 was applied to the NOAEL of 0.89 mg/kg-day to account for interspecies extrapolation and added protection for sensitive individuals (USEPA 2007b).

4.11.3 Carcinogenic Effects

No oral exposure studies that assess the potential carcinogenicity of vanadium were readily available (ATSDR 1992c; USEPA 2007b).

4.11.3.1 Oral Toxicity Values for Cancer Effects

No oral slope factors, tumorigenic concentrations, or unit risks have been established for vanadium by Health Canada (2004b) or USEPA (2007b).

4.12 ZINC TOXICITY SUMMARY

Zinc is a PCOC for potential human exposure via ingestion only. This toxicological profile, therefore, focuses on potential human toxicity associated with oral exposure over subchronic and chronic exposure periods. Zinc (Zn) is a naturally occurring element with two common oxidation states, Zn(0) and Zn(+2). Zinc forms a variety of different compounds, including zinc chloride, zinc oxide and zinc sulfate. In humans and animals, zinc is an essential nutrient that plays a role in membrane stability, in over 300 enzymes, and in the metabolism of proteins and nucleic acids (ATSDR 2005c).

4.12.1 Toxicokinetics

The toxicokinetics of zinc have been extensively studied. Approximately 20 to 30 percent of ingested zinc is absorbed under normal conditions. Factors that influence the absorption of zinc include the solubility of the zinc compound as well as inhibitors (such as calcium, phosphorus, and dietary fiber) and enhancers, (such as amino acids picolinic acid and prostaglandin E_2). After absorption, zinc is distributed throughout the body with concentrations greatest in muscle, bone, gastrointestinal tract, kidney, brain, skin, lung, heart and pancreas. Zinc is excreted in both urine and feces (ATSDR 2005c).

4.12.2 Noncancer Effects

Zinc is an essential element that is required for survival and health maintenance, as well as growth, development, and maturation of developing organisms of all animal species. A wide range of clinical symptoms has been associated with severe zinc deficiency in humans, including diarrhea, alopecia, mental disturbances, and impaired cell-mediated immunity. Symptoms associated with moderate zinc deficiency include growth retardation, male hypogonadism, skin changes, poor appetite, mental lethargy, abnormal dark adaptation and delayed wound healing. Excessive zinc intake has been associated with reduced copper status. Copper status and zinc-superoxide dismutase activity are considered sensitive measures of the effects of high levels of zinc exposure. Change in enzyme activity was shown to occur prior to changes in plasma or tissue levels of copper in rats (USEPA 2007b).

4.12.2.1 Oral Toxicity Values for Noncancer Health Effects

EPA has established an oral RfD of 3×10^{-1} mg/kg-day for zinc. The RfD was based on human clinical studies designed to establish daily nutritional requirements. Four human studies identified physiological changes on similar, sensitive endpoints (indicators of body copper status) at similar dose levels (0.81 to 0.99 mg/kg-day). The average LOAEL from these studies was 0.91 mg/kg-day and was selected as the point of departure for the RfD. An uncertainty factor of 3 was applied to account for variability in susceptibility in human populations.

Confidence in the oral RfD was medium-high because the principal studies were well-conducted clinical studies with a limited number of study subjects (USEPA 2007b).

4.12.3 Carcinogenic Effects

There were no available reports that directly assessed potential carcinogenicity of zinc in humans. Evidence of carcinogenicity in laboratory animals was also inadequate (ATSDR 2005c; USEPA 2007b). There is some evidence that indicates that either zinc deficiency or excessively high levels of zinc may enhance susceptibility to carcinogenesis, while appropriate levels of zinc may offer protection (USEPA 2007b).

4.12.3.1 Oral Toxicity Values for Cancer Effects

No oral slope factors, tumorigenic concentrations, or unit risks have been established for zinc by Health Canada (2004b) or USEPA (2007b).

5 RISK CHARACTERIZATION

To characterize risks, quantitative estimates of exposure and toxicity are combined to yield numerical estimates of potential health risk for noncarcinogenic and carcinogenic PCOCs. This phase of a risk assessment also involves interpreting and qualifying the derived risk estimates and the uncertainty associated with them. The focus of this risk characterization is on site-wide risks, but risks for the neighborhoods assessed in Phase 3 are also presented here.

For all relevant scenarios, risks calculated for ingestion of indoor dust, ingestion of soil, ingestion of outdoor dust, and ingestion of produce were added together to obtain combined risk estimates. Risks via inhalation of ambient air were calculated separately and only added to risks via ingestion for neighborhoods in which an air monitoring station is located. Risks from ingestion of fish and from recreational use of ATVs and dirt bikes were calculated separately from all other pathways.

For probabilistic assessments, measures of central tendency risks (e.g., average and median of the distribution) and reasonable maximum risks (e.g., 90th and 95th percentile of the distribution) are presented. Health Canada (2007a) considers the 95th percentile to be sufficiently protective; the guidance states: "it is believed that day-to-day and year-to-year variations in individuals' exposures over a life stage or over a life time will result in the vast majority of individual risks being essentially negligible if the 95th percentile risk estimate is essentially negligible." Furthermore, in addition to calculating site wide risks, we are presenting results for those neighborhoods closest to the smelter, for which exposures (and thus risks) are expected to be the highest. Calculating risks for these neighborhoods provides an additional level of conservatism. Expanded risk results are presented in Appendix B, and a Crystal Ball® report is presented as Appendix C.

5.1 NONCANCER RISKS

Noncarcinogenic health risks are characterized as the increased likelihood that an individual will suffer adverse health effects as a result of chemical exposure. If receptors are exposed to levels of PCOCs less than or equal to an acceptable level, such as a TDI, no adverse health effects are expected. Exposures above the TDI or TC do not mean that adverse human health effects will occur, but rather that further evaluation is required.

To evaluate noncancer risks, the ratio of the average daily intake to the TDI or TC is calculated. This ratio is referred to as the hazard quotient. If the calculated value of the hazard quotient is less than or equal to 1.0, no adverse health effects are expected. If the calculated value of the hazard quotient is greater than 1.0, then further risk evaluation is needed. For the ingestion pathway, the hazard quotient was calculated using the following equation:

$$HQ = \frac{I}{TDI}$$

Where:

HQ	=	Hazard quotient associated with exposure to the chemical via the specified exposure route (dimensionless)
I	=	Estimated average daily intake of the chemical via the specified exposure route (mg/kg-day)
TDI	=	Tolerable daily intake for the chemical (mg/kg-day)

To evaluate noncancer health risks for inhalation exposures, the TC was converted to a TDI for inhalation and the equation above was used to calculate hazard quotients.

To evaluate the effect of exposure to multiple chemicals that act on the body in a similar manner, the hazard quotients for each exposure pathway for individual chemicals are typically summed to determine a noncancer hazard index using the following formula:

$$HazardIndex = \frac{I_1}{TDI_1} + \frac{I_2}{TDI_2} + \ldots + \frac{I_i}{TDI_i}$$

Where:

I_i	=	Intake for chemical *i* (mg/kg-day)
TDI_i	=	Tolerable daily intake for the i^{th} chemical (mg/kg-day)

Hazard indices for multiple chemicals are generally not summed if the reference doses for the chemicals are based on effects on different target organs. This is because the noncancer health risks associated with chemicals that affect different target organs are unlikely to be additive. As summarized in Table 5-1, the TRVs for antimony, arsenic, cadmium, chromium, mercury, selenium, silver, thallium, tin, vanadium, and zinc are based on effects on different organs or systems within the body. Based on these differences, hazard quotients for different chemicals will not be summed in this risk assessment.

5.1.1 Noncancer Risks for Probabilistic Assessments

Noncancer hazard quotients were calculated probabilistically for the following scenarios and pathways:

- Residential
  - Ingestion of soil, indoor dust, and outdoor dust

   - Ingestion of homegrown produce
- Commercial
   - Ingestion of soil, indoor dust, and outdoor dust
- Agricultural
   - Ingestion of soil
   - Inhalation of particulates in air.

Noncancer risks due to inhalation exposures were not evaluated for the residential and commercial scenarios because the PCOCs for these scenarios for air (arsenic and cadmium) are evaluated as carcinogens, and they do not have noncancer inhalation toxicity values.

5.1.1.1 Noncancer Risks for Residential Scenarios

Noncancer risk results are presented for both site wide and those neighborhoods assessed in Phase 3 (i.e., East Trail, Rivervale, Tadanac, Waneta, and West Trail).

Site Wide

For both soil, indoor dust, and outdoor dust ingestion and produce ingestion, 95th percentile risks are less than 1.0 on a site wide basis for all metals (Table 5-2). Hazard indices for these two pathways added together are also less than 1.0, but highest for arsenic (adult plus child), thallium (adult plus child), and thallium (child), with values of 0.787, 0.703, and 0.959, respectively. For thallium, evidence from the biomonitoring study conducted in Trail (Appendix E) suggests that exposures to thallium among Trail residents are only slightly higher than background. Based on that study, results here may be overestimates.

Neighborhoods Assessed in Phase 3

All 95th percentile noncancer hazard quotients are less than or equal to 1.0 for the ingestion of soil, indoor dust, and outdoor dust (Table 5-3). Noncancer risks are highest from arsenic exposure for the adult plus child scenario in Tadanac (0.965) and East Trail (0.713). The only other hazard quotients greater than 0.5 (but still less than 1.0) were tin in Tadanac (0.549, child) and arsenic in West Trail (0.651, adult plus child).

For ingestion of homegrown produce pathway, 95th percentile hazard quotients are less than 1.0 for all metals (Table 5-4). The metal with the highest produce risk is thallium. For “near” neighborhoods, thallium 95th percentile hazard quotients are 0.76 and 0.98 for the adult plus child and child scenarios, respectively.

Hazard indices for the two ingestion pathways (soil, indoor dust, and outdoor dust and homegrown produce) added together are shown in Table 5-5. Child 95th percentile noncancer risks are slightly greater than 1.0 for thallium in East Trail, Rivervale, Tadanac, and West Trail and approach 1.0 for site wide risks. Additionally, 95th percentile arsenic hazard indices equal or exceed 1.0 for the adult plus child receptor for East Trail and Tadanac. All other hazard quotients are less than 1.0. The largest contributor to risk for antimony and cadmium is produce, while soil, indoor dust, and outdoor dust contribute the most of the risk for arsenic and thallium (Appendix B).

5.1.1.2 Noncancer Risks for Commercial Scenarios

All noncancer risks for the commercial scenario are well below 1.0 (Table 5-6). The highest 95th percentile noncancer risk is for the child scenario for antimony in East Trail, with a hazard quotient of 0.164.

5.1.1.3 Noncancer Risks for Agricultural Scenarios

For the agricultural scenario, noncancer risks in Waneta are very low for both antimony and cadmium (Table 5-7). The ingestion of antimony in soil and dust yielded the highest hazard quotient (0.012), well below 1.0. The contribution of the inhalation of particulates pathway for antimony to the total noncancer risks for this metal was negligible.

5.1.2 Noncancer Risks for Deterministic Assessments

Noncancer hazard quotients were calculated deterministically for the following scenarios and pathways:

- Residential
  - Ingestion of locally caught fish
- Recreational ATV/dirt bike use
  - Incidental ingestion of soil
  - Inhalation of particulates.

5.1.2.1 Noncancer Risks for Fish Ingestion

For arsenic, selenium, thallium, and vanadium, all hazard quotients are less than 1.0 for CTE and RME for both the child and the adult plus child scenarios (Table 5-8). For the RME results, hazard quotients for mercury exceed 1.0 for walleye and rainbow trout, but not mountain whitefish for child, adult, and child plus adult evaluations. Hazard quotients for mercury in walleye were approximately 2 times values in rainbow trout, with child exposures representing the greatest noncancer risk (Table 5-8). Noncancer risks for mercury in walleye were also slightly elevated for the child CTE evaluation. The fish consumption risks estimated in this assessment are conservatively derived by applying the full consumption rate to each species of fish of local, freshwater fish evaluated. An alternative approach would have been to assume each species of local, freshwater fish represents only a portion of an individual's total fish consumption and to apportion the consumption rate accordingly.

As noted in Section 2.3.7, there are two chromium results for each fish sample from September 2000 because samples were processed two different ways. For one walleye sample, the results obtained are vastly different (809 µg/g excluding skin versus 7.7 µg/g with skin). RME hazard quotients calculated including this high result are 16.9 for the child scenario and 10.1 for adult plus child. However, when the lower result is included for this sample, RME results are 0.8 and 0.5 for the child and adult plus child scenarios, respectively. CTE hazard quotients were also elevated for the child and adult plus child scenarios for the samples processed without skins (4.0 and 2.6, respectively). RME noncancer risk was also slightly elevated (1.3) for chromium in rainbow trout when calculated using the "no skin" sample.

5.1.2.2 Noncancer Risks for ATV/Dirt Bike Scenario

Hazard indices for the total pathway exposures by ATV/dirt bike user are well below 1.0 (Table 5-9).

5.2 CANCER RISKS

The cancer risk estimates derived using standard risk assessment methods are characterized as the incremental probability that an individual will develop cancer during his or her lifetime due to exposure to site-related chemicals resulting from the specific off-site exposure scenarios that are evaluated. The term "incremental" reflects the fact that the calculated risk associated with site-related exposure is in addition to the background risk of cancer experienced by all individuals in the course of daily life. The risk estimates were compared with the BCMoE default acceptable risk level, which for carcinogens is 1 in 100,000 (contaminated site regulation [CSR] 2007), and with a risk level 1 in 10,000. The 1 in 10,000 risk level can be considered as a possible alternate acceptable risk level for Trail. As described in Hilts (2007), the 1 in 10,000 risk level is the level above which EPA generally considers that a response action is warranted (USEPA 1997c).

Excess incremental lifetime cancer risks for the ingestion exposure pathway were calculated using the following equation:

$$Cancer\ Risk = I \times CSF$$

Where:

I	=	Estimated average daily intake of the chemical via the specified exposure route (mg/kg-day)
CSF	=	Cancer slope factor for the PCOC (mg/kg-day)

Because cancer risks are assumed to be additive, risks associated with simultaneous exposure to more than one carcinogen in a given medium are typically combined to estimate the total cancer risk associated with exposure to that medium (USEPA 1989). Where exposures may occur via multiple exposure pathways, total cancer risks for each pathway may also be summed to determine the total cancer risk for the population of concern (e.g., a resident). For example, a resident may be exposed to a particular chemical by eating homegrown produce, breathing ambient air, as well as incidental ingestion of soil and dust. Each of these pathways is summed to determine total exposure risk. Thus, total cancer risk considers both exposure to multiple carcinogens and exposure via multiple pathways.

5.2.1 Cancer Risks for Probabilistic Assessments

Cancer risks were calculated probabilistically for the following scenarios and pathways:

- Residential
  - Ingestion of soil, indoor dust, and outdoor dust
  - Ingestion of homegrown produce
  - Inhalation of ambient air
- Commercial
  - Inhalation of ambient air
- Agricultural
  - Inhalation of particulates.

Ingestion pathway cancer risks were not calculated for the commercial and agricultural scenarios because the PCOCs for soil (antimony and cadmium) are not carcinogens via ingestion.

5.2.1.1 Cancer Risks for Residential Scenarios

Phase 4 cancer risk results are presented for both site wide and those neighborhoods assessed in Phase 3 (i.e., East Trail, Rivervale, Tadanac, Waneta, and West Trail). Inhalation cancer risks were assessed for each air monitoring station separately.

Site Wide

For ingestion of soil, indoor dust, and outdoor dust, site wide mean and median cancer risks were at or below BCMoE's target risk level of 1 in 100,000 (Table 5-10). Site wide 95th percentile cancer risks for these pathways exceeded the 1 in 100,000 default acceptable risk level but were less than the 1 in 10,000 level (Table 5-10).

At the 95th percentile, cancer risk from ingestion of homegrown produce equaled BCMoE's default acceptable risk level (Table 5-10). When the risks from ingestion of soil, indoor dust, and outdoor dust were added to those from ingestion of homegrown produce, 95th percentile risks equaled 3 in 100,000 (Table 5-10).

For cadmium, cancer risks for all monitoring stations were less than 1 in 100,000 via inhalation of ambient air (Table 5-11). However, risks from arsenic equaled or exceeded this risk level for all monitoring stations at the 90th and 95th percentiles and for Birchbank and Butler Park at the mean. The highest 95th percentile risk was found at Birchbank, where the excess cancer risk was 7 in 100,000, with the majority of the risk coming from arsenic (Table 5-11). Even at the maximum location, excess cancer risks were below the 1 in 10,000 risk level.

If the maximum inhalation risk (i.e., the 95th percentile risk, 7 in 100,000, for the Birchbank air monitoring station) is added to the total site wide risk for ingestion of soil, indoor dust, and outdoor dust and ingestion of produce (3 in 100,000), combined risks equal 1 in 10,000 (Table 5-15).

Neighborhoods Assessed in Phase 3

All evaluated neighborhoods had 95th percentile cancer risks for ingestion of soil, indoor dust, and outdoor dust equal to or exceeding the 1 in 100,000 risk level, but below 1 in 10,000 (Table 5-12). The highest 95th percentile risk, 4 in 100,000, was found in Tadanac.

Homegrown produce cancer risks equaled or exceeded BCMoE's target risk site wide and for "near" neighborhoods, respectively, at the 95th percentiles (Table 5-13). The 95th percentile risk was 2 in 100,000 for "near" neighborhoods.

Total ingestion risks (soil, indoor dust, and outdoor dust plus homegrown produce) are presented in Table 5-14. For all neighborhoods and site wide, 95th percentile risks exceed 1 in 100,000, but were below 1 in 10,000. The highest risk, 6 in 100,000, is in Tadanac.

For neighborhoods with an air monitoring station (e.g., Butler Park in East Trail), total risks at the median, mean, 90th percentile, and 95th percentile exposures were calculated by summing intakes for ingestion of soil, indoor dust, and outdoor dust, ingestion of homegrown produce, and inhalation of ambient air (Table 5-15). The highest total risk was found in East Trail, where air contributed 54 percent, soil, indoor dust, and outdoor dust 29 percent, and produce 17 percent of the total risk (Table 5-15 and Appendix B). This maximum risk equaled but did not exceed the 1 in 10,000 possible alternate acceptable risk level.

There was no air monitoring station in the Tadanac neighborhood. However, as noted above, this neighborhood was associated with the highest combined risk for ingestion of soil, indoor dust, outdoor dust, and homegrown produce. The three nearest air monitoring stations to Tadanac are Warfield, West Trail, and Butler Park. Combining the highest inhalation risk estimated for these stations (i.e., for Butler Park, Table 5-11) with the highest total non-air risk estimated at Tadanac (Table 5-14) results in a total combined risk of 1 in 10,000, which is equivalent to the highest site wide risk that includes air exposures.

5.2.1.2 Cancer Risks for Commercial Scenarios

Cancer risks were assessed for inhalation of ambient air at the Butler Park, Columbia Gardens, and West Trail monitoring stations (Table 5-16). Mean and median cancer risks were below 1 in 100,000 for all three stations. At the 95th percentile, however, cancer risks were at or above 1 in 100,000, but below 1 in 10,000. The highest risk came from the Butler Park station, where the risk was 2 in 100,000

5.2.1.3 Cancer Risks for Agricultural Scenarios

Cancer risk for the agricultural scenario for Waneta, through the inhalation of cadmium in air particulates, was well below BCMoE’s target risk level. Ninety-fifth percentile risk was calculated to be 0.004 in 100,000 (Table 5-7).

5.2.2 Cancer Risks for Deterministic Assessments

Cancer risks for deterministic assessment were calculated only for residential ingestion of locally caught fish. CTE cancer risks for ingestion of locally caught fish are all below BCMoE's risk target of 1 in 100,000 (Table 5-8). RME risks range from 2 in 100,000 for mountain whitefish to 7 in 100,000 for rainbow trout. These risks are influenced by conservative consumption rates and high detection limits for some of the concentration data.

5.2.3 Comparison with Phase 3 Results

In order to see the impact of the newly collected data and the refinement of exposure inputs, comparisons were made between results for Phases 3 and 4. First, we investigated the impact on the data by comparing Phases 3 and 4 exposure point concentrations[44] using Phase 3 methods (Table 5-17). In almost all cases, the exposure point concentrations are lower using the Phase 4 data.

Comparisons of noncancer risks between Phases 3 and 4 are presented in Table 5-18 and Figures 5-1 through 5-3. For Phase 3, risks were calculated for an adult receptor and a child receptor, while for Phase 4, risks were calculated for an adult plus child receptor and a child receptor. For cadmium, noncancer risks for ingestion of soil and dust were calculated for adult plus child only in both Phase 3 and Phase 4 because the RfD for cadmium is based on lifetime exposure. Risks for all receptors are shown in Table 5-18, while risks for children (or adult plus

[44] Exposure point concentrations are either the maximum or the UCLM of the lognormal distribution, whichever is lower.

child in the case of cadmium) are shown in Figures 5-1 through 5-3. For the child receptor, risks for antimony were generally higher for Phase 4, which may be due to the availability of more reliable antimony data for Phase 4. Child arsenic risks and adult plus child cadmium risks tended to be higher in Phase 3, which is likely due to more accurate modeling in Phase 4.

Comparisons between Phases 3 and 4 show lower cancer risk results for Phase 4. As shown in Figure 5-4, 95th percentile excess cancer risks via inhalation are approximately half (or less) of the estimates from Phase 3 for monitoring stations evaluated in both phases. For example, at the Butler Park monitoring station, the Phase 3 risk was 10 in 100,000, while the Phase 4 risk is 5 in 100,000. Comparisons between total risk calculations for all pathways summed are provided in Figure 5-5. For all neighborhoods evaluated, total cancer risks were higher in Phase 3. The decline in cancer risk is likely due to a combination of lower concentrations of metals in environmental media and more accurate exposure modeling in Phase 4.

5.2.4 Consideration of Background Exposures

The interpretation of Phase 4 risk results should include quantification of not only incremental risks, but also incremental exposures versus background. Because metals are widely distributed in the environment and food supply from many natural and anthropogenic sources, it is useful for the community to understand the magnitude of possible risk reduction from smelter operations versus from other sources of exposure.

Background sources of arsenic and cadmium, two of the main risk drivers for the site, are discussed below. A probabilistic assessment of background cancer risk for arsenic (all pathways) and cadmium (inhalation only) is also included for comparison to site-related cancer risks (Appendix B). A background evaluation was not conducted for the third risk driver, thallium, because thallium was the subject of a prior urinary biomonitoring study (Appendix E).

Biomonitoring studies such as the one conducted for thallium or the blood lead studies previously conducted have the advantage of integrating multipathway exposures. Studies monitoring urinary arsenic excretion have been successful in supplying this information for a number of communities, and this approach could be considered as a tool for evaluation of arsenic, cadmium, and potentially other metal exposures in Trail. This issue, along with thallium biomonitoring studies previously conducted in Trail, is discussed in the technical memorandum accompanying this report as Appendix E.

5.2.4.1 Arsenic

As part of the Phase 1 HHRA, Exponent (1998b) estimated background inorganic arsenic levels for the community of Trail. These estimates included exposure from air, food, drinking water, soil, and cigarette smoke. Average background estimates ranged from 4.0 to 4.6 µg/day for young children, from 8.7 to 8.9 µg/day for adult nonsmokers, and from 10.5 to 10.7 µg/day for adult smokers (Exponent 1998b, Table 5-19).

Phase 1 background intake estimates were updated in Phase 4 based on reassessment of the contribution to background exposures from inorganic arsenic in food. In Phase 1, estimates of background inorganic arsenic in food were taken from a study of the Canadian diet. The average intake for children and adults from this study were 4.8 µg/day and 10.4 µg/day, respectively (Yost et al. 1998). These values were adjusted based on the assumption that 80 percent of the inorganic arsenic would be absorbed, resulting in estimates of 3.8 µg/day and 8.3 µg/day for children and adults, respectively. More recently, Schoof et al. (1999b) reported average inorganic arsenic intakes of 3.2 µg/day (95th percentile: 6.2 µg/day) for adults, while Yost et al. (2004) reported an average intake of 3.2 µg/day (95th percentile: 3.4 µg/day) for children. These more recent values were incorporated into the Phase 4 assessment of background intakes resulting in a total average background for children of 3.6 µg/day and for adult nonsmokers of 3.7 µg/day. Phase 4 background intakes were not updated for smokers. Contributions to background from other sources were also not changed from the Phase 1 assessment. Table 5-19 provides a summary of this information.

Estimated 95th percentile background risk from arsenic exposure is 8 in 100,000, with the majority of risk coming from exposure to arsenic in food. Site-related cancer risks are similar to, or in many cases lower than, these background risks (Appendix B).

5.2.4.2 Cadmium

Exponent (1998b) provided estimates of average background cadmium exposures of 0.35 µg/day for adult nonsmokers and 1.35 µg/day for adult smokers (Table 5-20). A brief summary of their assumptions is provided below.

The estimated daily dietary intake of cadmium for Canadians aged 20 to 65 years is was 13.5 µg/day, based on data obtained in a total diet survey conducted by Health and Welfare Canada from 1986 to 1988 (Dabeka and McKenzie 1995). Assuming 2.5 percent absorption of cadmium from food, the estimated daily absorbed dose of cadmium from the diet is 0.34 µg/day (Table 5-20).

Cadmium was not detected in Trail drinking water based on at a detection limit of 0.2 µg/L. Therefore, the average cadmium concentration in drinking water for Trail was assumed to be 0.1 µg/L, or one-half the detection limit. Assuming that 5 percent of cadmium in water is absorbed and that a 70-kg person ingests 1.5 L/day, the estimated daily absorbed dose of cadmium from drinking water is 0.0075 µg/day (Table 5-20).

The average background air concentration of cadmium for the region surrounding Trail was assumed to be 0.001 µg/m^3. Conservatively assuming that 25 percent of the estimated cadmium intake was deposited and absorbed by an adult inhaling 23 m^3 air per day, the estimated daily absorbed dose of cadmium from ambient air was approximately 0.006 μg/day (Table 5-20).

In Exponent (1998b), the amount of cadmium absorbed from smoking one pack of cigarettes per day was approximately 1 μg/day. This estimate is based on older cigarette types (i.e., with different or nonexistent filters) and may not be reliable for current smokers.

5.3 UNCERTAINTY EVALUATION

The uncertainty evaluation puts the risk estimates into context. Factors that may tend to over- or underestimate risks were identified and the relative magnitude of the uncertainty for each factor was evaluated. In general, a conservative approach was used in selecting parameters, assumptions, and methodologies in this risk assessment, thus tending to overestimate exposures and risks. By using probabilistic techniques for the Phase 4 HHRA, some of the uncertainty associated with input parameters in the exposure assessment is expressed in the selected PDFs.

Table 5-21 provides a summary of key uncertainties associated with the risk assessment. This table also provides information about the direction and potential magnitude of effect on the risk evaluation results for each uncertainty. The basis for assumptions associated with each uncertainty identified is also summarized. For example, one source of uncertainty comes from using regressions of arsenic concentrations to estimate antimony in soil and cadmium concentrations to estimate zinc in soil for samples collected for the prior phases. While the regressions of arsenic to antimony and cadmium to zinc showed good fits, the variation in the distributions may not have been accurately represented.

Table 5-22 provides more detail on specific sources of uncertainty and variability for each input parameter to the probabilistic exposure model. One source of uncertainty associated with the probabilistic assessments comes from distribution fitting, which may affect several input parameters. In some cases, data sets fit more than one distribution. While care was taken to select the best fit distribution, for some data sets with smaller sample sizes, the data set may have been better predicted by an alternate distribution. The impact of the distribution selection on the risk estimates for certain pathways is discussed in the sensitivity analysis below.

5.4 SENSITIVITY ANALYSIS

A sensitivity analysis evaluates the relative impact of individual parameters on the risk outcome. Conducting sensitivity analysis as specified in USEPA (2001a) better identifies the key contributors to uncertainty. USEPA (1997b) states: “A sensitivity analysis can be a valuable component of the evaluation of a risk assessment. Sensitivity analysis can identify important variables and pathways that may be targets for further analysis and data collection. The type of information provided by a sensitivity analysis will vary with each tier of a PRA. Several methods are available at each tier, and the results of the analysis can vary greatly depending on the methods used."

USEPA (1997b) discusses the utility of a sensitivity analysis:

> Results of Monte Carlo simulations that include one or more preliminary distributions may lead to several alternative decisions. If the sensitivity analysis suggests that the risk estimate is relatively insensitive to the variable described with the distribution, then the uncertainty associated with the choice of a distribution should not affect the risk management decision process using the tiered approach (e.g., choice of RME percentile, derivation of a PRG). In other words, the choice would be to continue with the tiered process. If, however, the variables described by preliminary distribution are important sources of variability or uncertainty in the risk estimate, then this information should be presented in the scientific management decision point. The uncertainty may be sufficiently important in the risk management decision to warrant additional data collection efforts. Conversely, it may be necessary to exit the tiered process if the uncertainty cannot be reduced.

5.4.1 Input Distributions with the Greatest Impact on Output Distributions

The probabilistic outputs for this HHRA include a ranking of the input distributions that contribute most to the variability in output distributions. This ranking is conducted by calculating rank correlations between the assumption and forecast values (provided in Appendix D). Discussed below are the PDFs that had the biggest impacts on the output distributions by scenario and pathway.

For the residential and commercial inhalation of ambient air pathways (adult plus child cancer risk), the input distributions with the greatest impact on results are the metal concentrations in air. Variability in the output distributions are also contributed by exposure duration and, to a lesser extent, child inhalation rate and body weight. The adult inhalation rate and body weight have limited impacts on the spread of the output distributions.

The spread of the cancer risk output distributions for consumption of homegrown produce by Trail residents is affected by all PDF inputs. The factors with the largest impact on cancer risk outputs are (in general order of decreasing importance[45]): exposure duration, nonroot produce concentration, root produce concentration, child nonroot produce consumption rate, and child root produce consumption rate. The hazard quotient outputs are most affected by root and nonroot produce concentrations but also by child produce consumption rates. Body weight, exposure duration, and nonroot consumption rates have limited impacts on the hazard quotient

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[45] Varies depending on whether you are looking at: near, far, or site wide.

output distributions' variability. The exception to this is cadmium exposures, for which exposure duration does make a large impact, due to the difference in averaging time for cadmium (see Section 3.1.4).

For ingestion of soil, indoor dust, and outdoor dust (residential and commercial), the PDF with the greatest impact on the variability in the output distributions is the child soil ingestion rate. The uncertainty associated with the soil ingestion rates (Tables 5-21 and 5-22), and the fact that the impact on variability is large, suggest the possible need for refinement of this parameter. For some metals (selenium, silver, thallium, tin, and zinc), soil concentration is the second greatest contributor to variability, while for others (antimony, arsenic, cadmium), this is not the case. For site wide risks for antimony, arsenic, and cadmium, indoor dust concentration contributes to variability. The sensitivity of indoor dust concentration on the variability of outputs for other metals was not evaluated due to limited availability of indoor dust data for those metals. For all metals, exposure duration and child body weight affect output variability to a more limited degree.

For the agricultural scenario, output variability in the inhalation of particulates pathway is dominated by exposure duration for cancer risks and particulate concentration in air for hazard quotients. Body weight and inhalation rates also impact both outputs. The ingestion pathway for agricultural scenarios is dominated by exposure duration for cadmium exposures and body weight for antimony exposures.

5.4.2 Quantitative Sensitivity Analysis

Based on the analyses in Section 5.4.2 and the uncertainty analysis, the following distributions were tested for the quantitative sensitivity analysis: arsenic concentration in air, adult plus child exposure duration, child soil ingestion rate, and antimony concentration in soil. A summary of the alternate values and associated risk results are provided in Table 5-23. The sensitivity analysis was conducted for selected metals[46] for the adult plus child receptor only for the following exposure locations: site wide (for soil/dust and produce) and Butler Park (for air).

As described in the uncertainty analysis, distribution fitting of data can introduce uncertainty. To test the effect of a distribution on the risk results, an alternative distribution was selected for arsenic in Butler Park air. The best fit distribution in the HHRA was determined to be an exponential distribution; for this analysis, a lognormal distribution was tested. By changing this distribution from exponential to lognormal, the mean and 95th percentile risk results increase slightly, by factors of 1.15 and 1.18, respectively.

An alternate exposure duration for residents in Trail was tested due to the concern that Trail residents have a longer residency time than other populations. The original exposure duration

[46] The following metals were included in this assessment: arsenic (all pathways), thallium (produce only), and antimony (soil/dust only).

was based on the U.S. population. It should be noted that the exposure duration used in the analysis was more conservative (health protective) than the one used in the Wells, B.C. HHRA prepared for BCMoE (Golder Associates 1993a).[47] For the sensitivity analysis, the original distribution was used except that the mean was increased by 50 percent (to 18.9 years) and the standard deviation was decreased by 25 percent (to 12.15 years). Changing the exposure duration had mixed impacts on the risk results. For cancer risks, increasing the exposure duration increased the risk results (e.g., for the inhalation pathway, cancer risks increased by factors of 1.40 and 1.26 for the mean and 95th percentile, respectively). However, for noncancer risks, increasing the exposure duration actually resulted in lower mean and 95th percentile risks. The maximum risks were higher for the alternative exposure duration, but due to assumptions about child and adult ingestion rates[48], the distributions shifted such that mean and 95th percentile risks decreased.

The child soil ingestion rates used in this HHRA were based on a EPA assessment of a paper by Stanek et al. (2001) (USEPA 2001a). EPA's evaluation resulted in a higher ingestion rate than the one reported in this paper. For the sensitivity analysis, the distribution (mean of 31 mg/day, 95th percentile of 91 mg/day) originally reported by Stanek et al. (2001) was used. The use of this alternative distribution reduced noncancer risks to 0.69 and 0.60 times the original for the mean and 95th percentile, respectively. Further discussion of the child soil ingestion rate is provided in Section 3.2.1.

To test the effect of the regression of arsenic data to estimate antimony concentrations, for the sensitivity analysis, the model was run using only the SALM antimony data. This change had only a marginal effect on the risk results, which suggests that the approach employed in this risk assessment for estimating antimony concentrations was appropriate. See Section 2.3.1 for more information on this regression.

5.5 CONCLUSIONS

Site wide, noncancer risks are below levels of concern for residential receptors. For neighborhoods closest to the site, noncancer hazard indices slightly exceed 1.0 for thallium and arsenic. However, the urinary thallium biomonitoring study, described in Appendix E, suggests that thallium risks exposures are only slightly higher than background and may be overestimated. Noncancer and cancer risks to receptors in agricultural areas are well below levels of concern. For commercial scenarios, noncancer risks are also below target risk levels.

Site wide and neighborhood 95th percentile risks exceed the BCMoE default acceptable cancer risk of 1 in 100,000 for all pathways. However, none of the 95th percentile site wide cancer risks

[47] For that HHRA, the assumed distribution was lognormal with a mean of 9 years, a standard deviation of 8 years, and a maximum of 71 years.
[48] Children are assumed to have significantly higher soil ingestion rates than adults.

exceeded 1 in 10,000 level, above which EPA generally considers that a response action is warranted (USEPA 1997c). As proposed in Hilts (Hilts 2007), the 1 in 10,000 risk level might be reasonably considered as a possible alternate acceptable risk level for the Trail site, at least in the shorter term. For neighborhoods assessed in Phase 3, total residential cancer risk for all pathways summed is predicted to be highest in East Trail and Tadanac.

Site wide, 95th percentile cancer risk associated with ingestion of soil, indoor dust, and outdoor dust equals 2 in 100,000. For ingestion of produce, site wide 95th percentile cancer risk is estimated at 1 in 100,000. Risks via inhalation of air range from 2 in 100,000 to 7 in 100,000 at the 95th percentile. If the maximum air monitoring station risk (Birchbank at 7 in 100,000) is added to the site wide risks for ingestion of soil, indoor dust, and outdoor dust and ingestion of produce, total risks equal 1 in 10,000.

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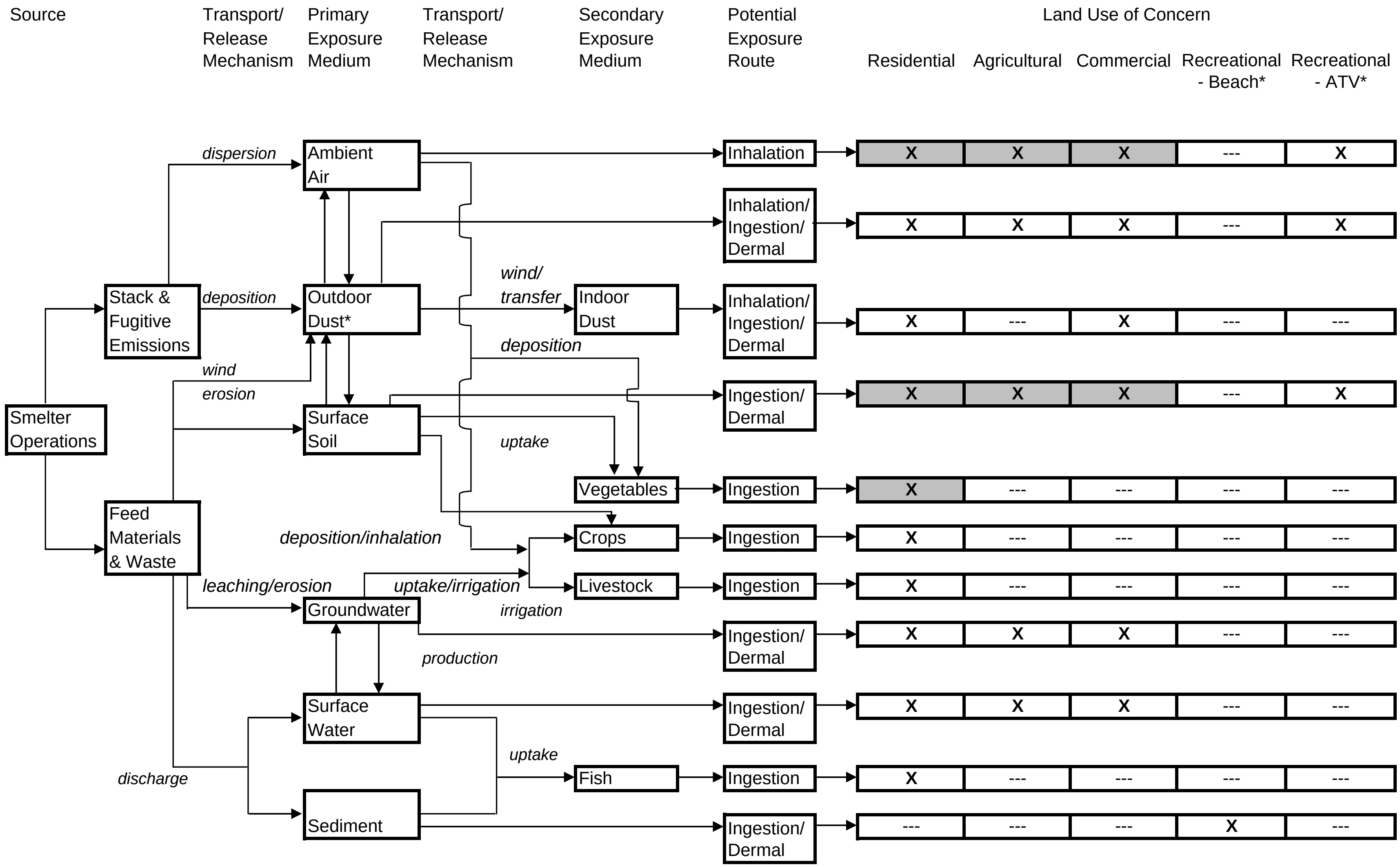
FIGURES



Exposure Medium	Potential Exposure Route	Residential	Agricultural	Commercial	Recreational - Beach*	Recreational - ATV*
Ambient Air	Inhalation	X	X	X	---	X
Outdoor Dust*	Inhalation/ Ingestion/ Dermal	X	X	X	---	X
Indoor Dust	Inhalation/ Ingestion/ Dermal	X	---	X	---	---
Surface Soil	Ingestion/ Dermal	X	X	X	---	X
Vegetables	Ingestion	X	---	---	---	---
Crops	Ingestion	X	---	---	---	---
Livestock	Ingestion	X	---	---	---	---
Groundwater	Ingestion/ Dermal	X	X	X	---	---
Surface Water	Ingestion/ Dermal	X	X	X	---	---
Fish	Ingestion	X	---	---	---	---
Sediment	Ingestion/ Dermal	---	---	---	X	---

LEGEND

X Potentially complete pathway

--- Incomplete pathway

Shading indicates exposure scenarios/pathways evaluated in the Phase 2 and 3 risk assessments

* Evaluated for the first time in Phase 4

Figure 2-1. Updated Pathway Screening Analysis Summary, Phase 4 Human Health Risk Assessment, Trail, British Columbia

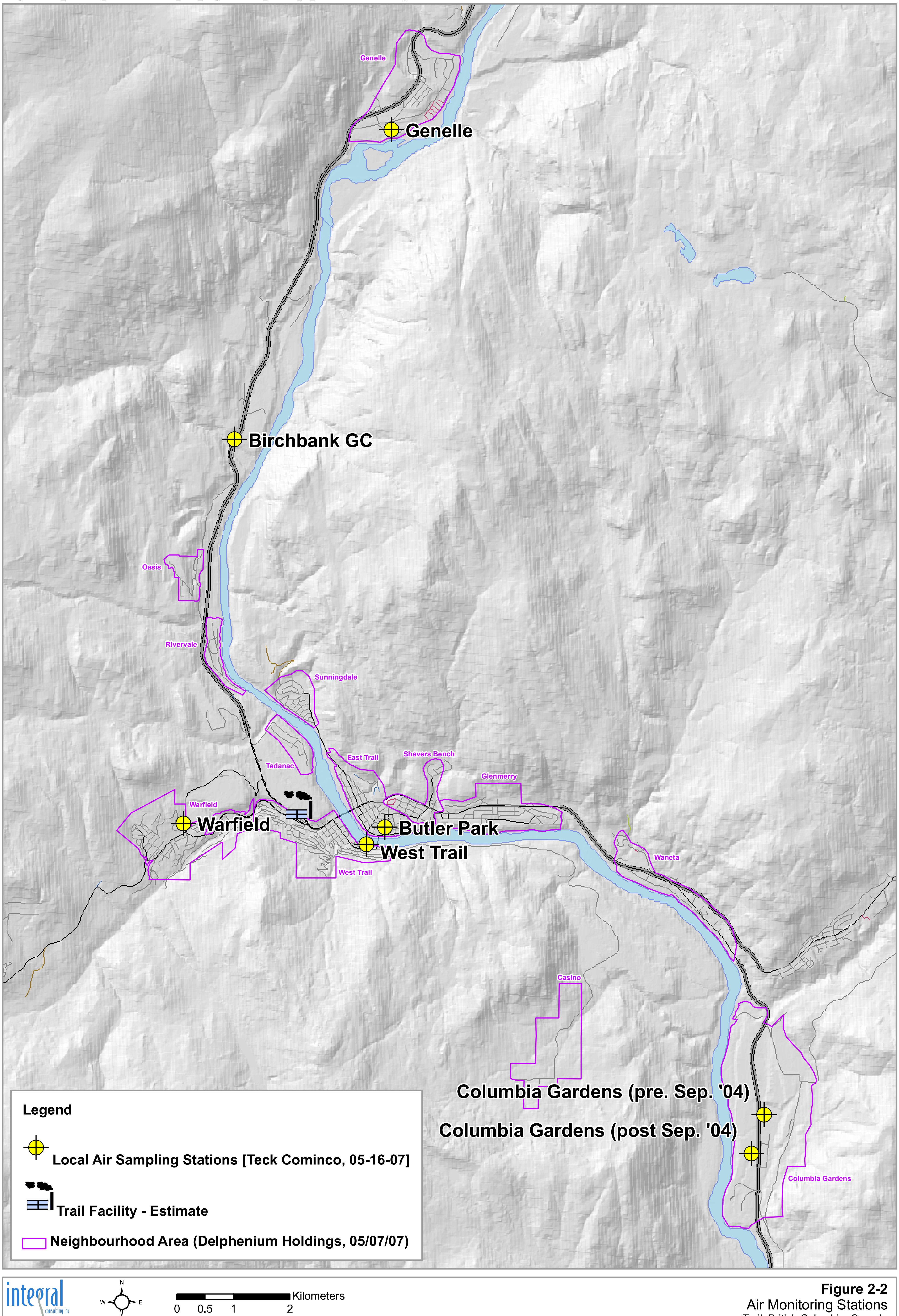


Figure 2-2
Air Monitoring Stations
Trail, British Columbia, Canada

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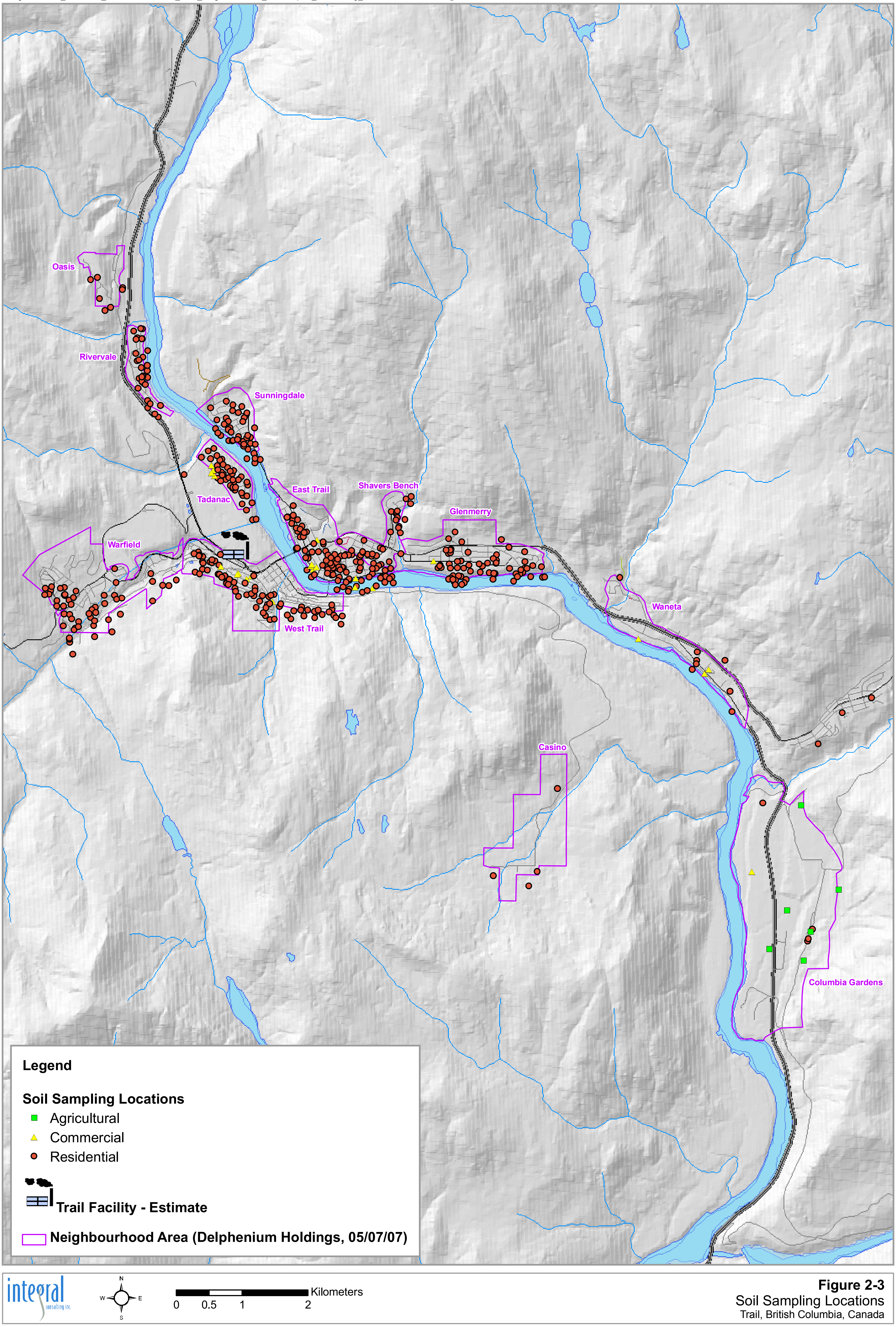

Figure 2-3
Soil Sampling Locations
Trail, British Columbia, Canada

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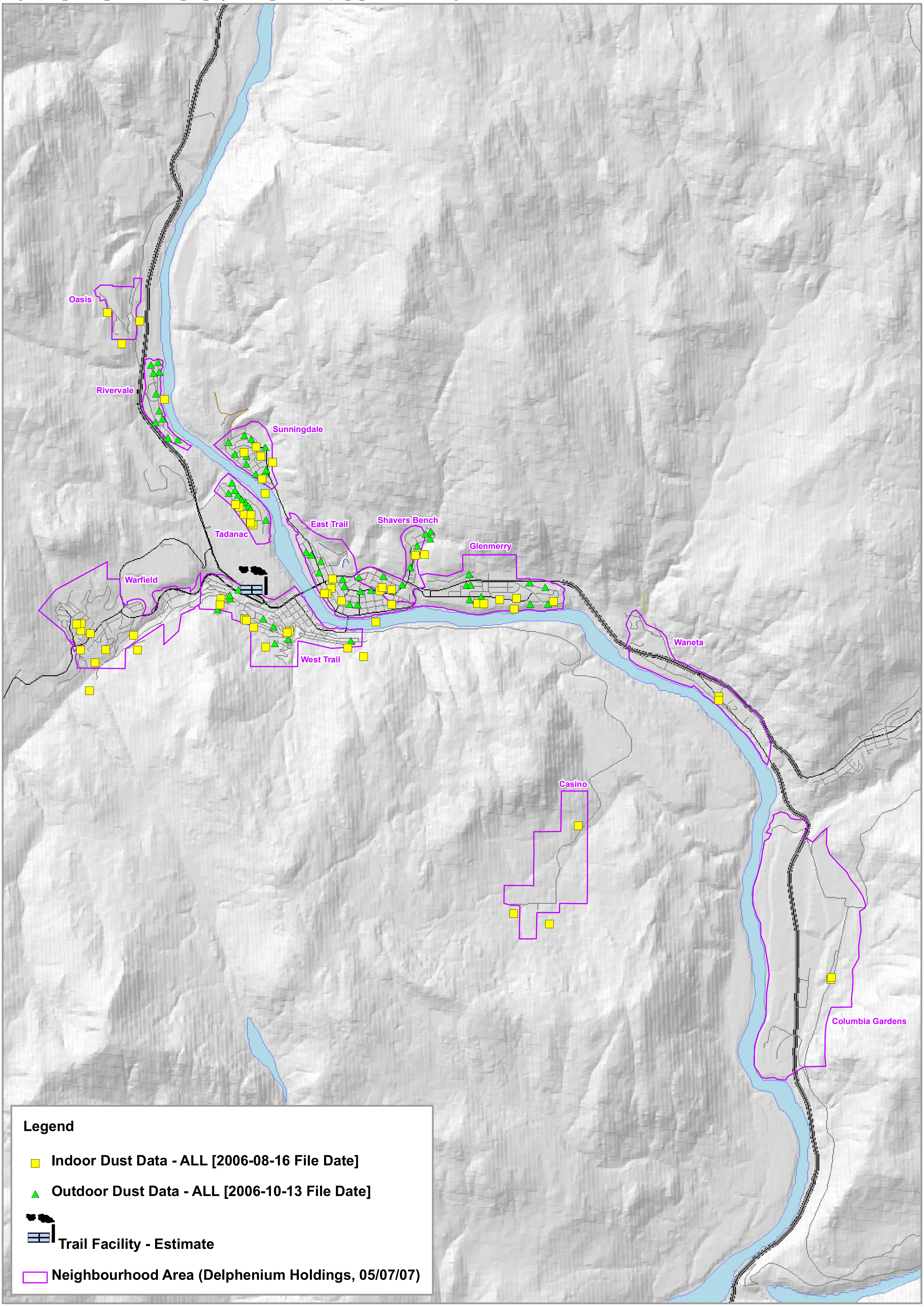

integral consulting inc.

Figure 2-4
Indoor and Outdoor Dust Sampling Locations
Trail, British Columbia, Canada

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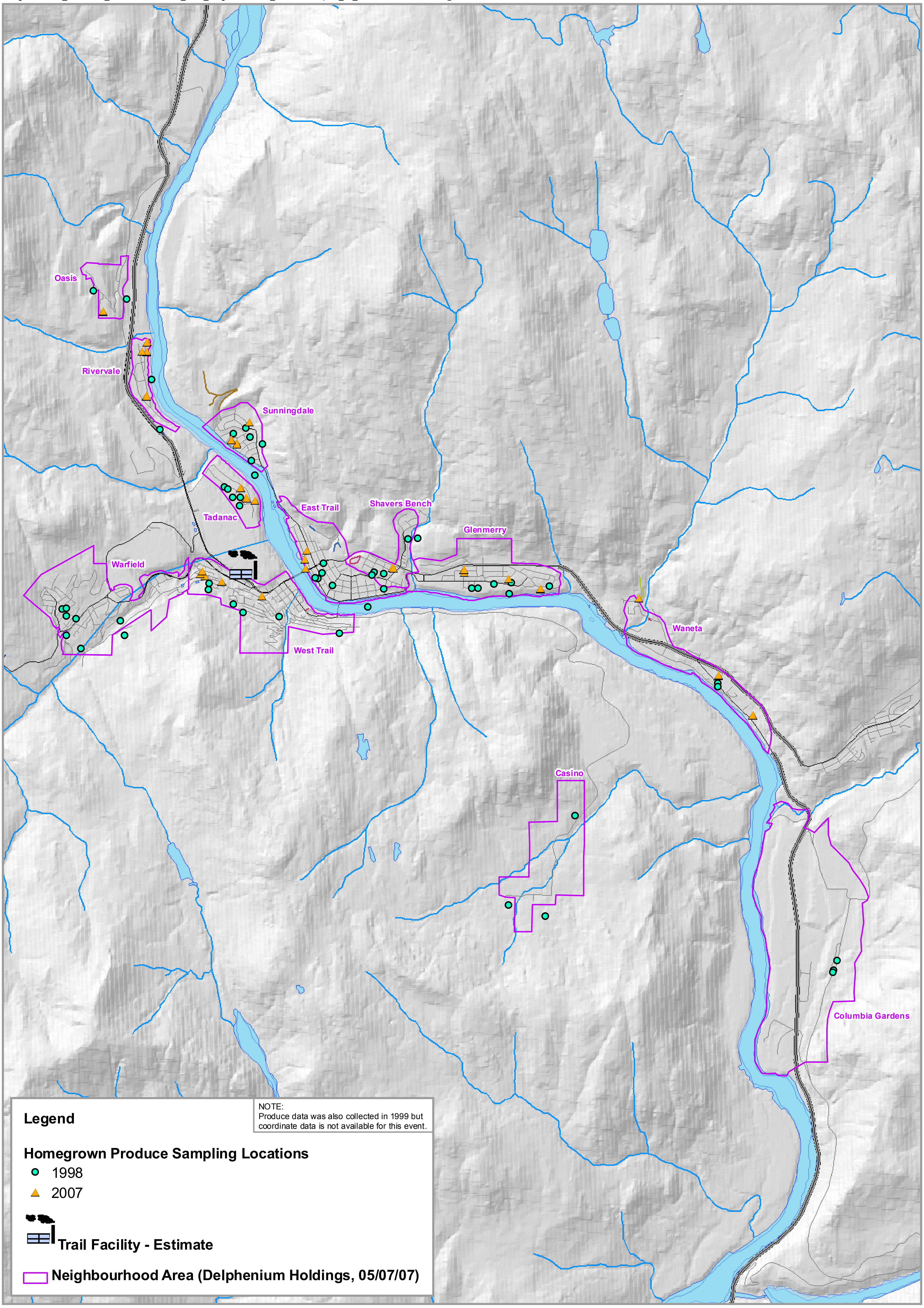

Figure 2-5
Homegrown Produce Sampling Locations (1998 and 2007)
Trail, British Columbia, Canada

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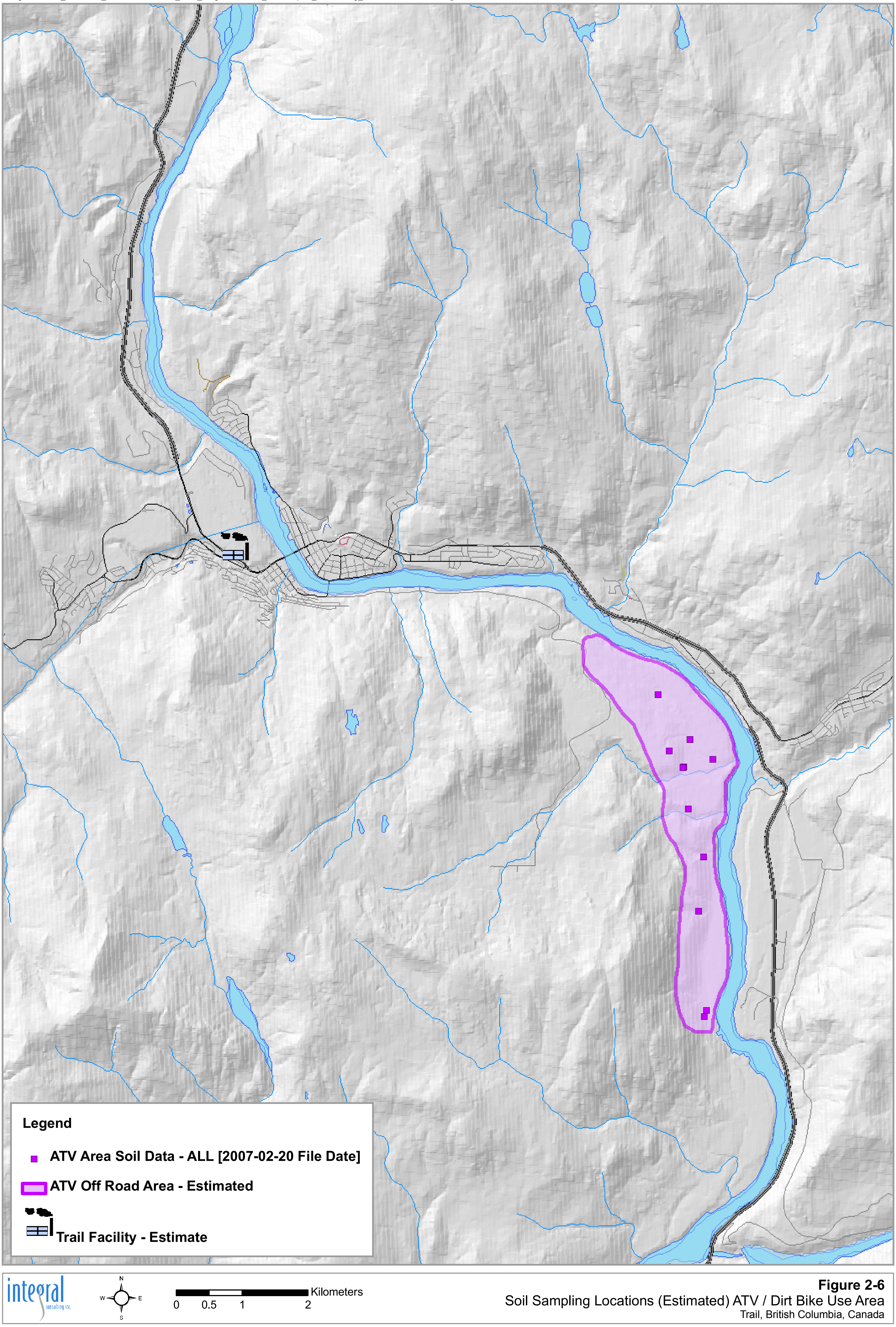

Figure 2-6
Soil Sampling Locations (Estimated) ATV / Dirt Bike Use Area
Trail, British Columbia, Canada

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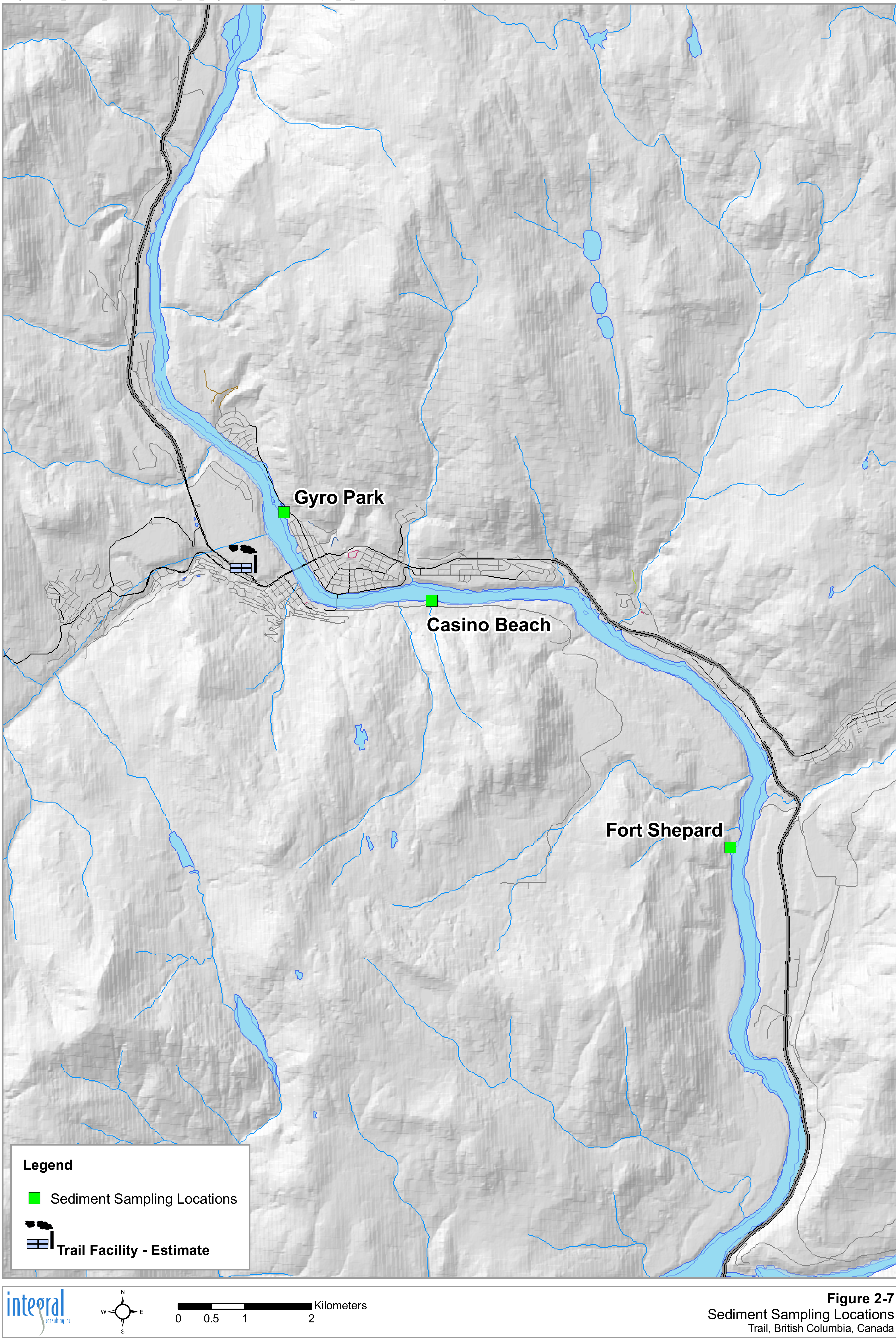

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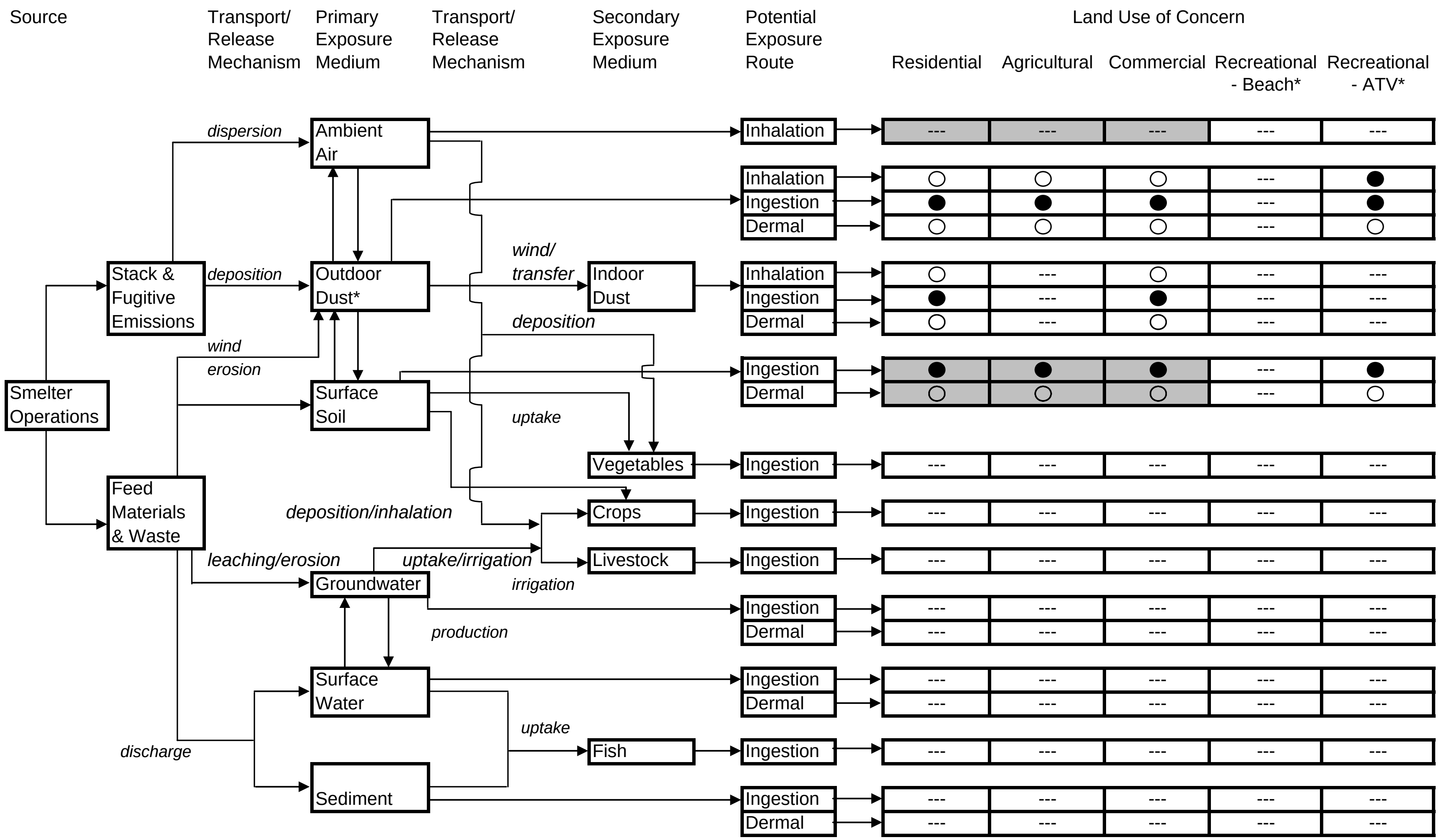
Figure 2-7
Sediment Sampling Locations
Trail, British Columbia, Canada



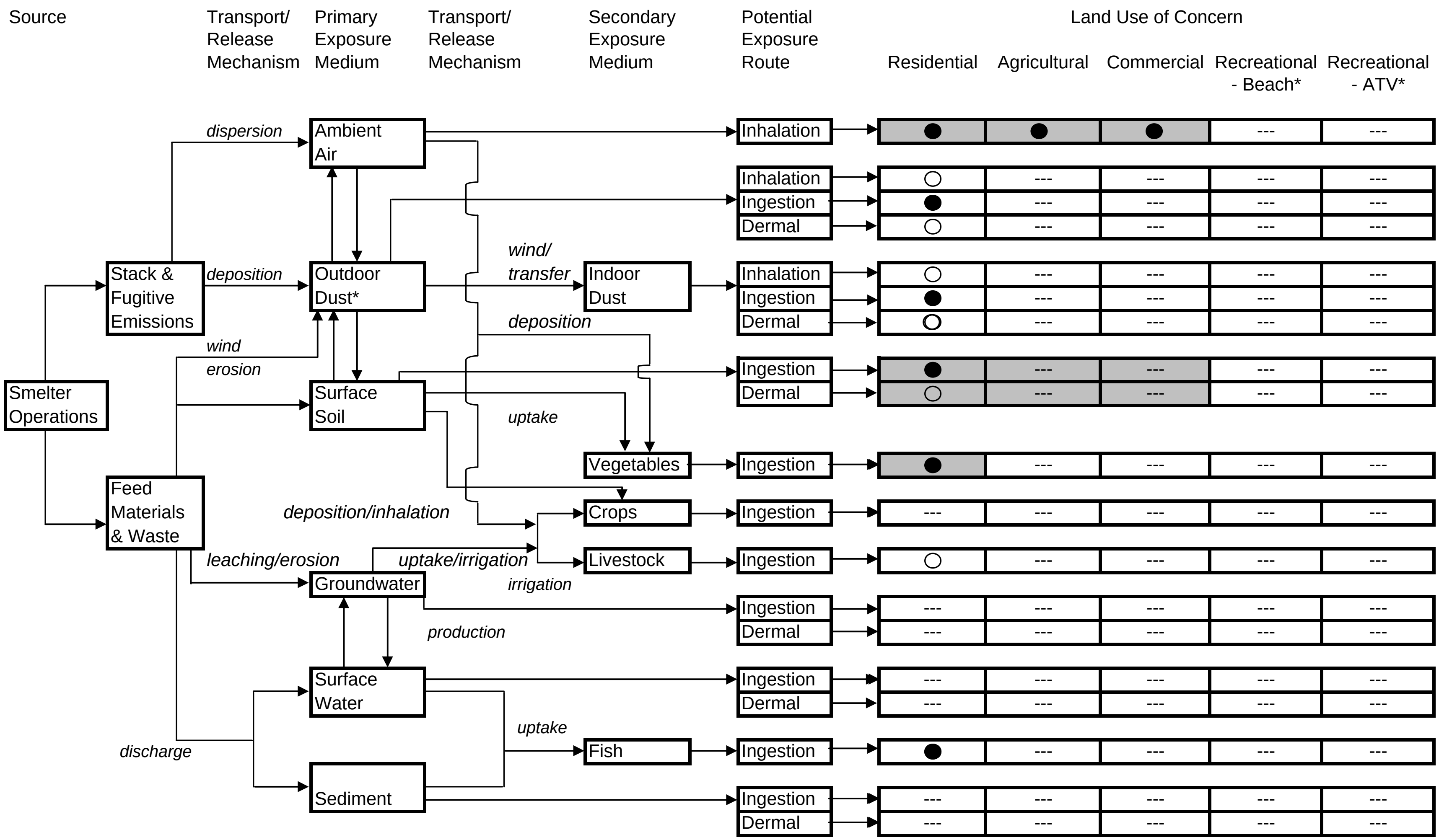
LEGEND

- ● Potentially significant pathway; quantitative evaluation
- ○ Minor pathway; qualitative analysis only
- --- Pathway not complete

Shading indicates exposure scenarios/pathways evaluated in the Phase 2 and 3 risk assessments

* Evaluated for the first time in Phase 4

Figure 2-8. Antimony: Phase 4 Human Health Risk Assessment, Trail, British Columbia



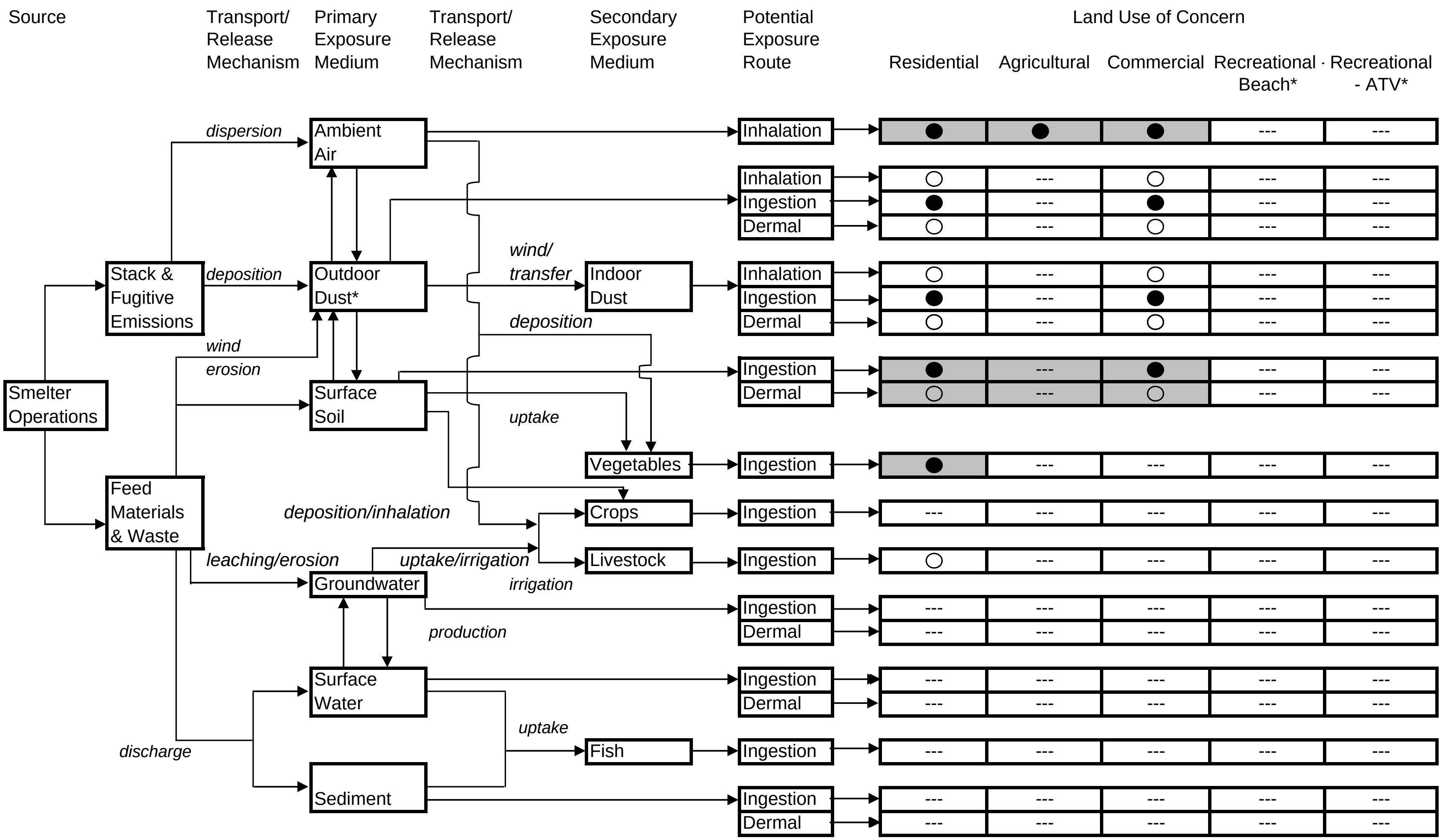
LEGEND

- ● Potentially significant pathway; quantitative evaluation
- ○ Minor pathway; qualitative analysis only
- **---** Pathway not complete

Shading indicates exposure scenarios/pathways evaluated in the Phase 2 and 3 risk assessments

* Evaluated for the first time in Phase 4

Figure 2-9. Arsenic: Phase 4 Human Health Risk Assessment, Trail, British Columbia



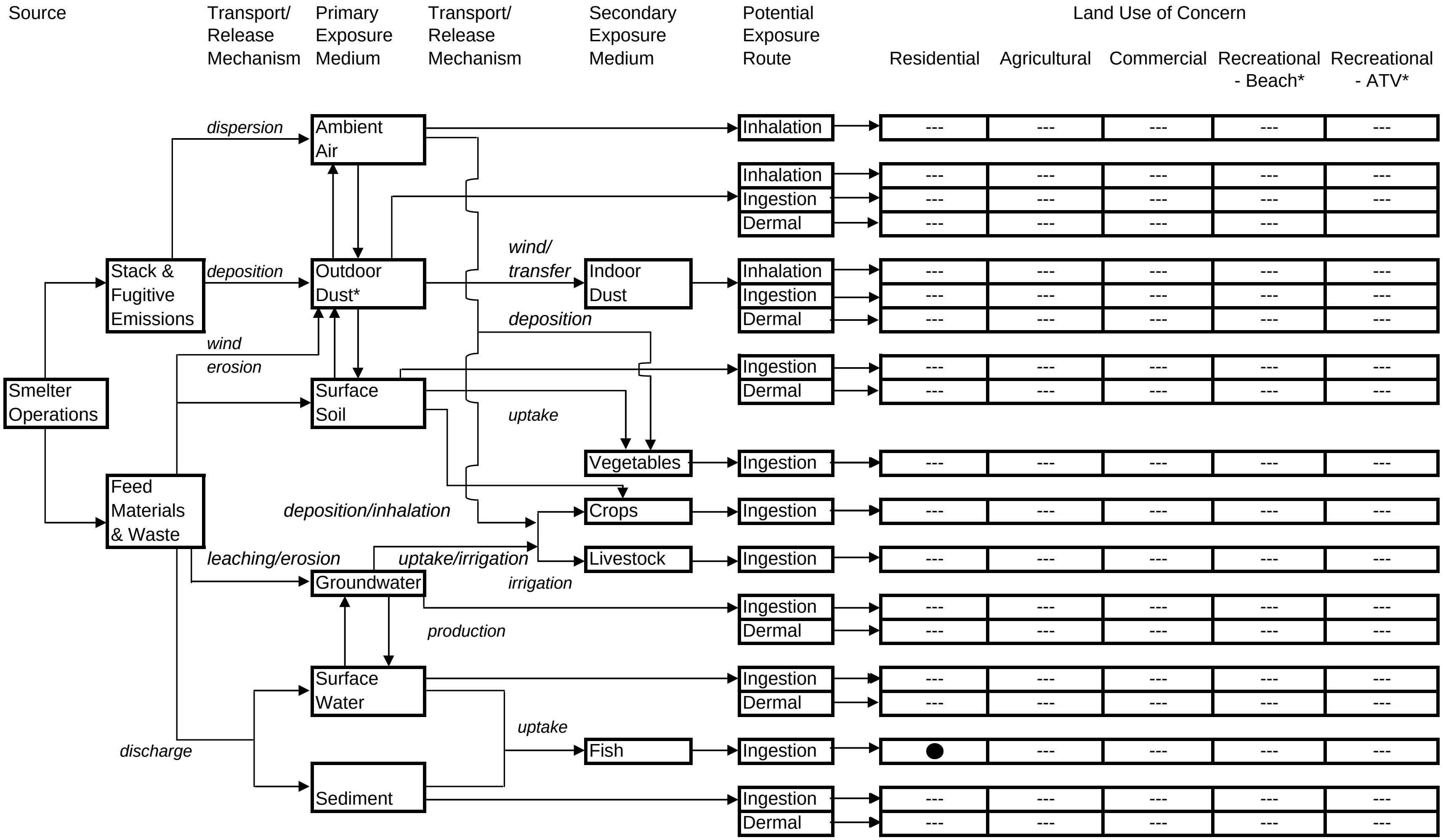
LEGEND

- ● Potentially significant pathway; quantitative evaluation
- ○ Minor pathway; qualitative analysis only
- --- Pathway not complete

Shading indicates exposure scenarios/pathways evaluated in the Phase 2 and 3 risk assessments

* Evaluated for the first time in Phase 4

Figure 2-10. Cadmium: Phase 4 Human Health Risk Assessment, Trail, British Columbia

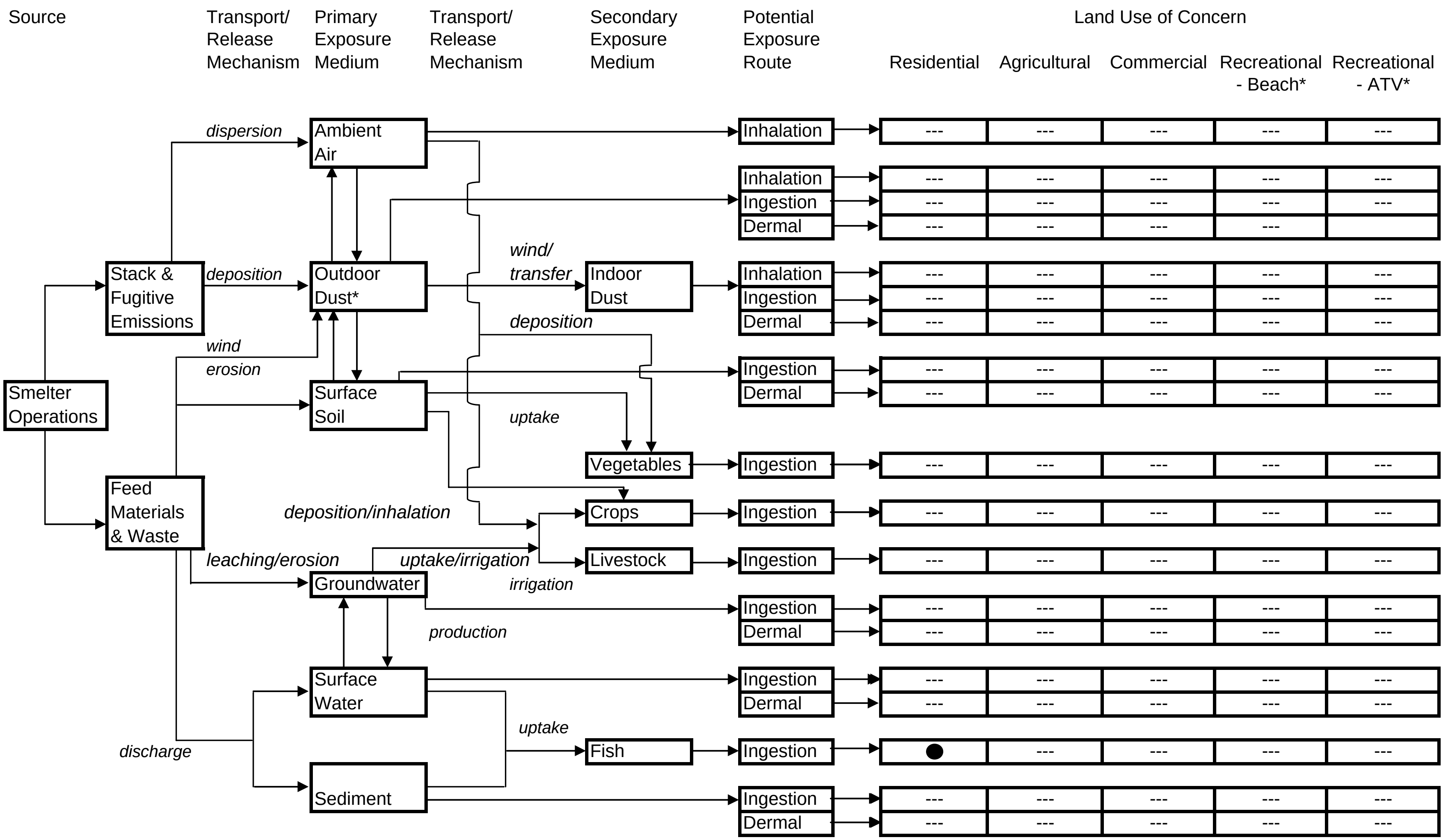


LEGEND

- ● Potentially significant pathway; quantitative evaluation
- ○ Minor pathway; qualitative analysis only
- --- Pathway not complete

* Evaluated for the first time in Phase 4

Figure 2-11. Chromium: Phase 4 Human Health Risk Assessment, Trail, British Columbia

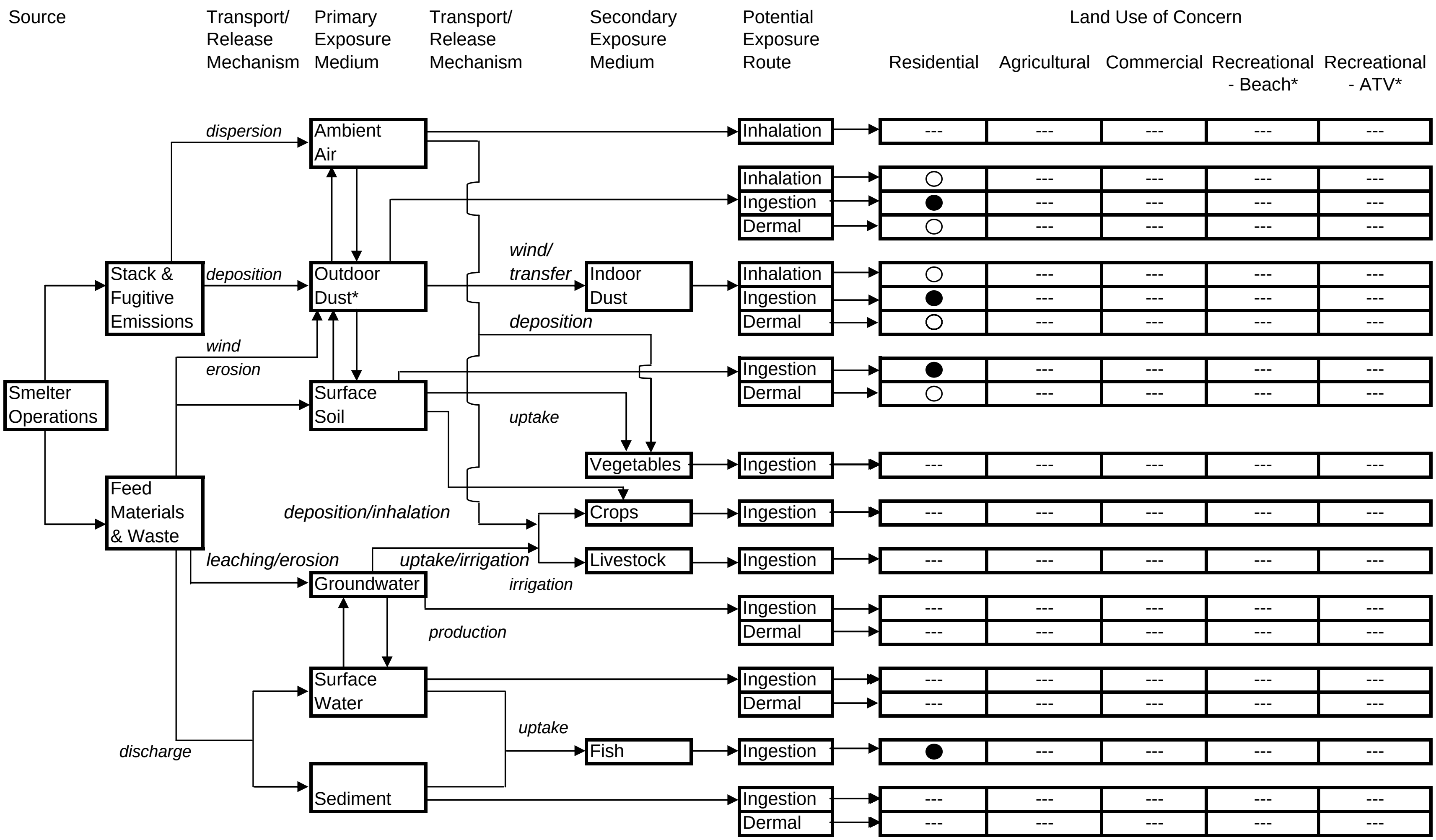


LEGEND

- ● Potentially significant pathway; quantitative evaluation
- ○ Minor pathway; qualitative analysis only
- --- Pathway not complete

* Evaluated for the first time in Phase 4

Figure 2-12. Mercury: Phase 4 Human Health Risk Assessment, Trail, British Columbia

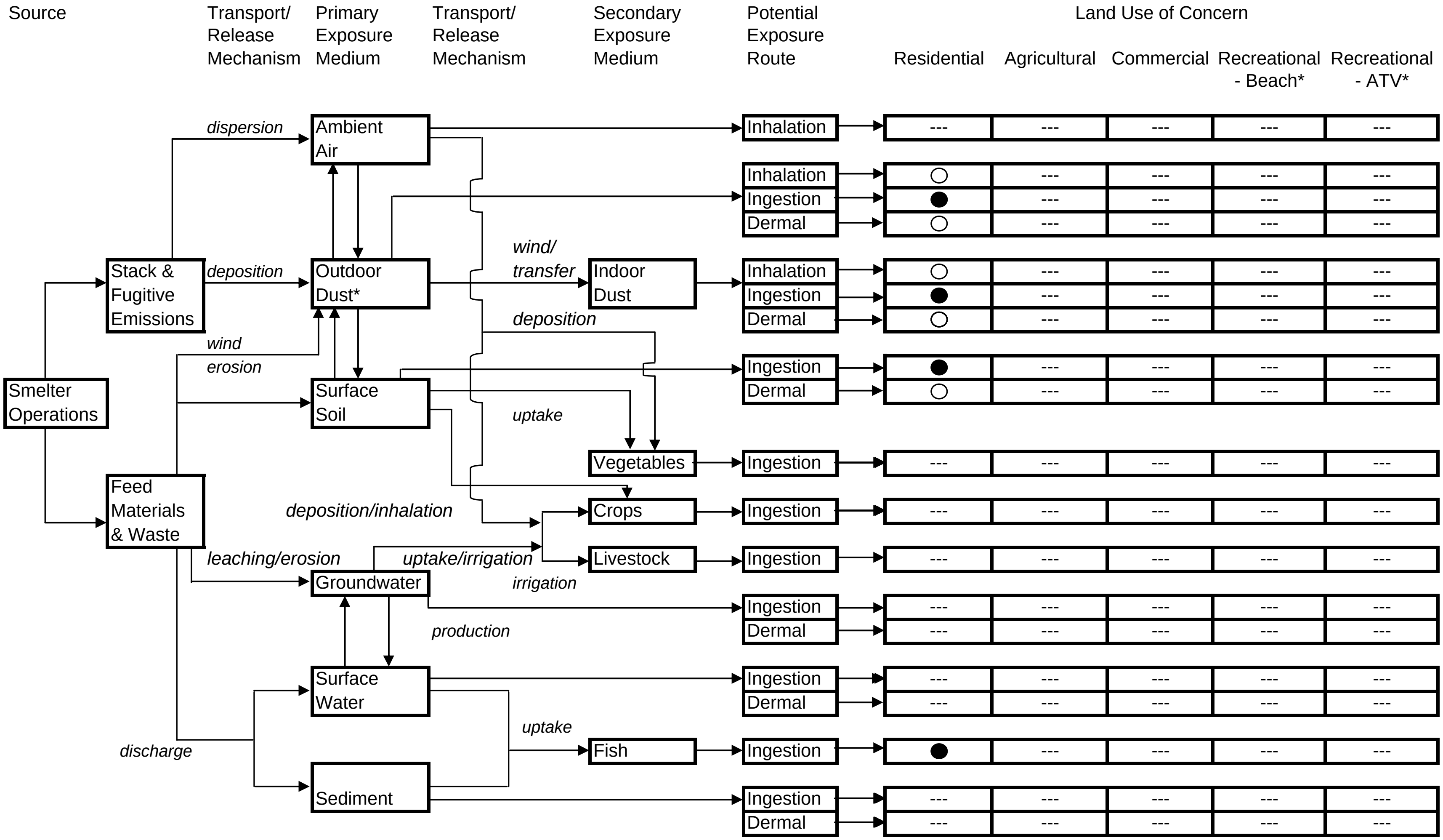


LEGEND

- ● Potentially significant pathway; quantitative evaluation
- ○ Minor pathway; qualitative analysis only
- --- Pathway not complete

* Evaluated for the first time in Phase 4

Figure 2-13. Selenium: Phase 4 Human Health Risk Assessment, Trail, British Columbia



LEGEND

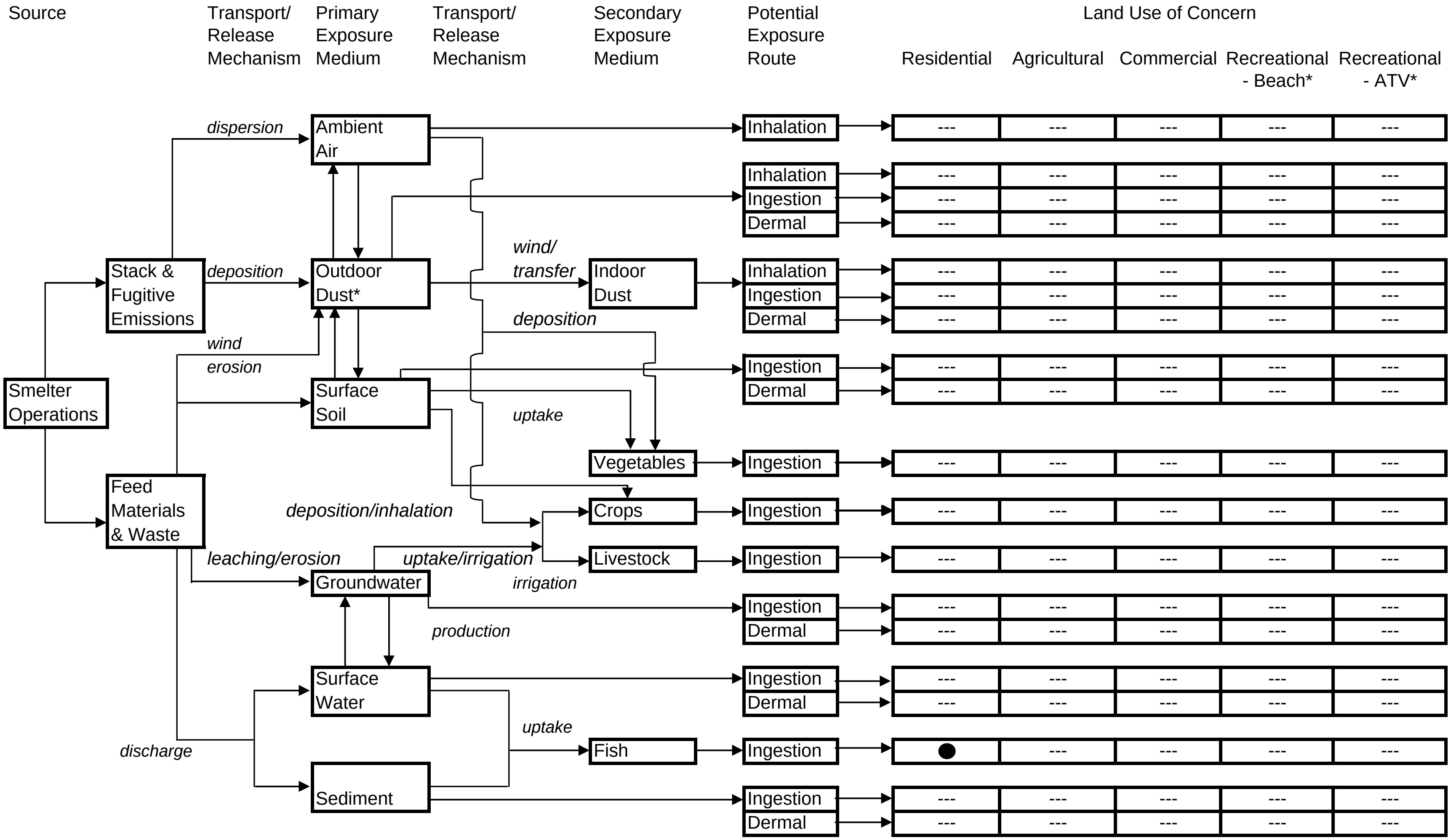
● Potentially significant pathway; quantitative evaluation

○ Minor pathway; qualitative analysis only

--- Pathway not complete

* Evaluated for the first time in Phase 4

Figure 2-14. Thallium: Phase 4 Human Health Risk Assessment, Trail, British Columbia

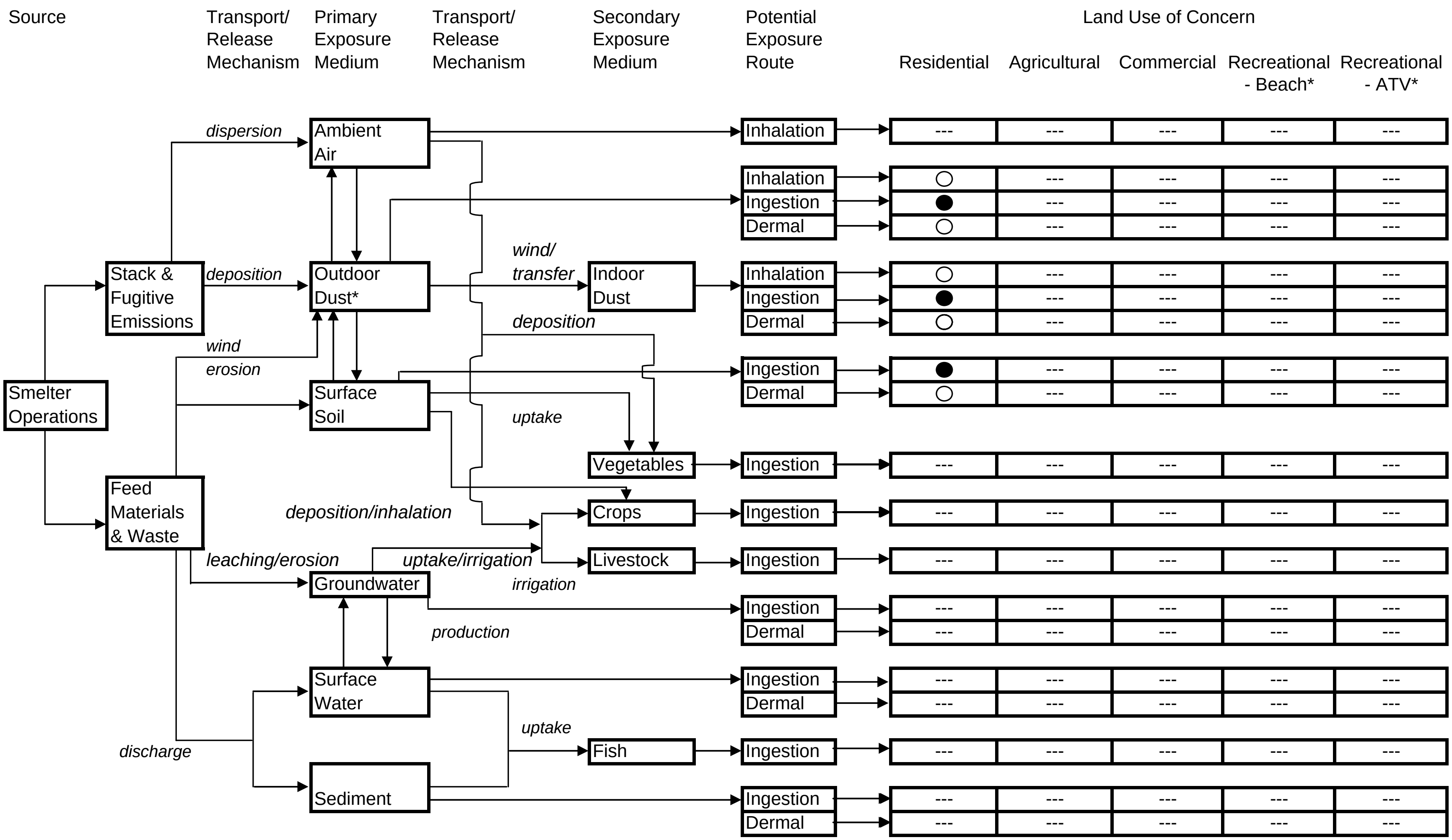


LEGEND

- ● Potentially significant pathway; quantitative evaluation
- ○ Minor pathway; qualitative analysis only
- --- Pathway not complete

* Evaluated for the first time in Phase 4

Figure 2-15. Vanadium: Phase 4 Human Health Risk Assessment, Trail, British Columbia



LEGEND

- ● Potentially significant pathway; quantitative evaluation
- ○ Minor pathway; qualitative analysis only
- --- Pathway not complete

* Evaluated for the first time in Phase 4

Figure 2-16. Zinc: Phase 4 Human Health Risk Assessment, Trail, British Columbia

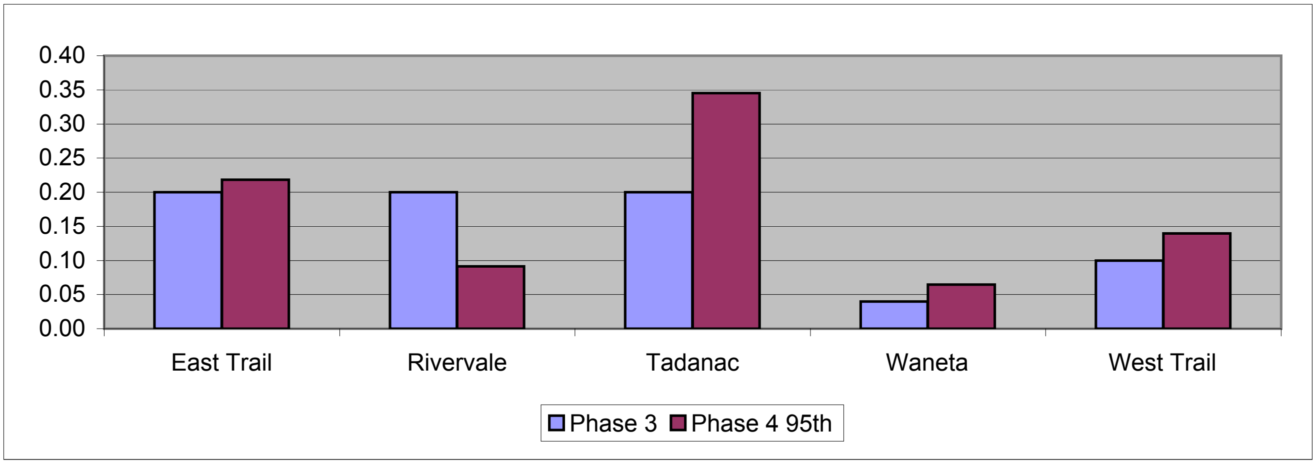


Figure 5-1. Comparison of Phase 3 and Phase 4 Child Noncancer Hazard Indices for Ingestion of Soil/Dust: Antimony

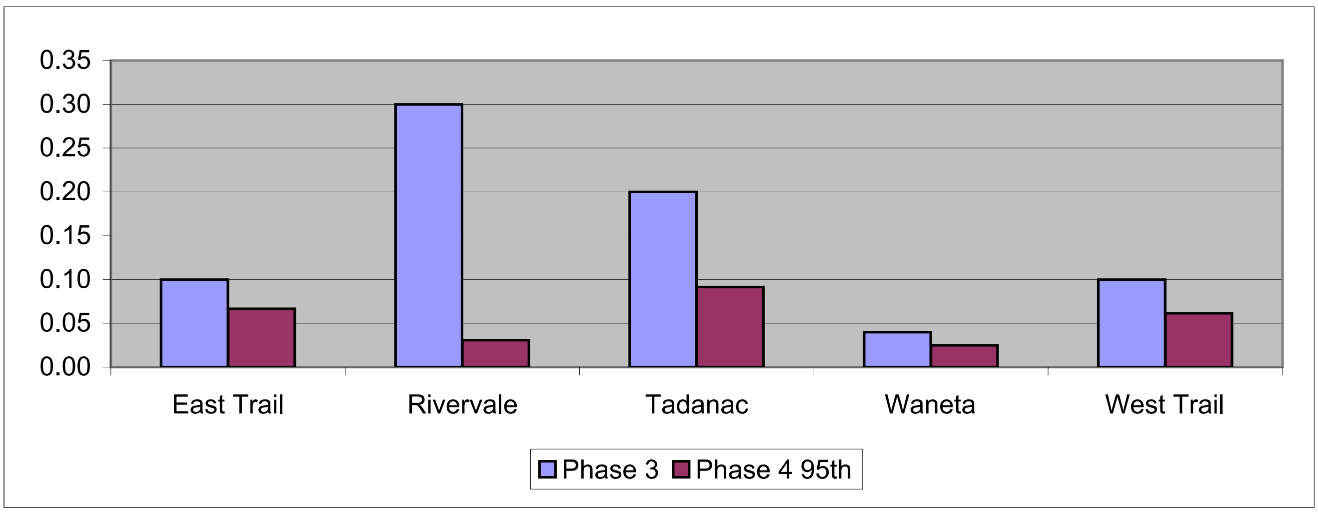


Figure 5-2. Comparison of Phase 3 and Phase 4 Child Noncancer Hazard Indices for Ingestion of Soil/Dust: Arsenic

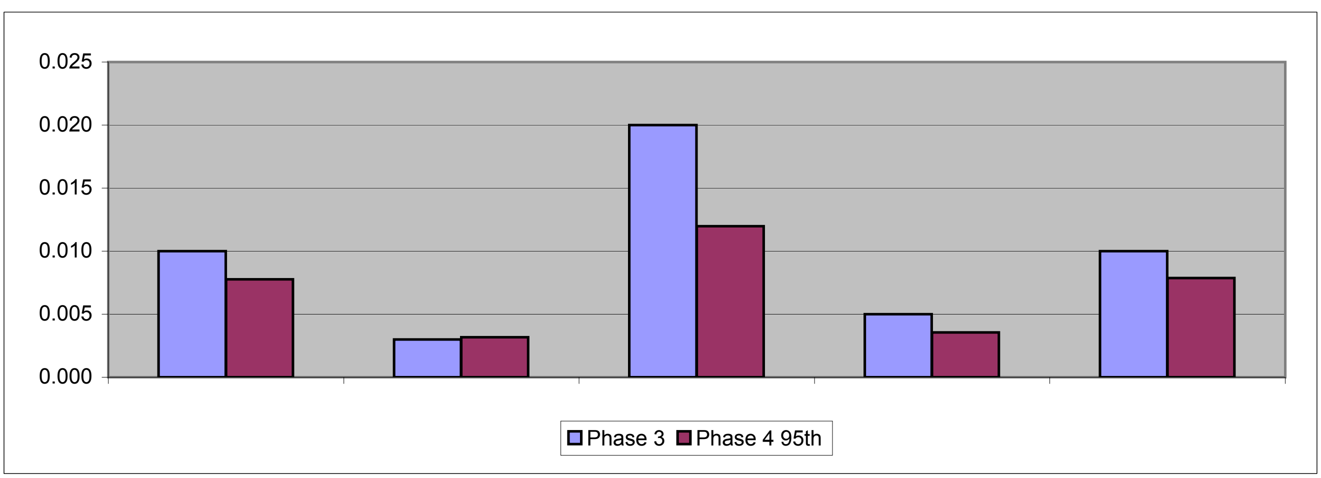


Figure 5-3. Comparison of Phase 3 and Phase 4 Adult and Child Noncancer Hazard Indices for Ingestion of Soil/Dust: Cadmium

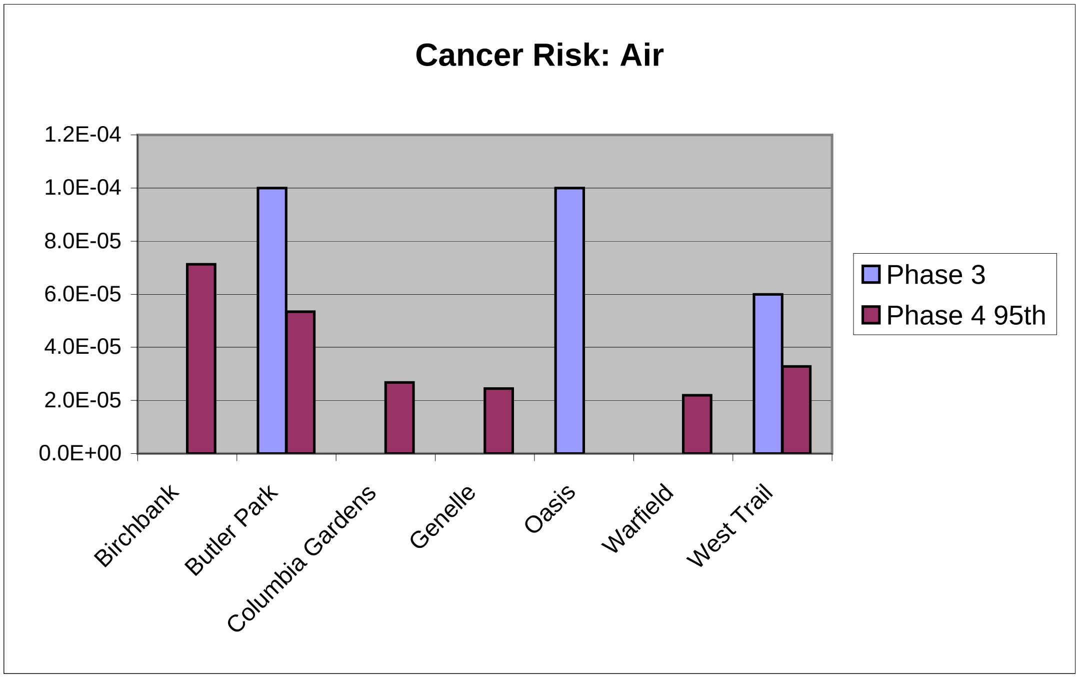


Figure 5-4. Comparison of Inhalation Cancer Risk Estimates between Phase 3 and Phase 4

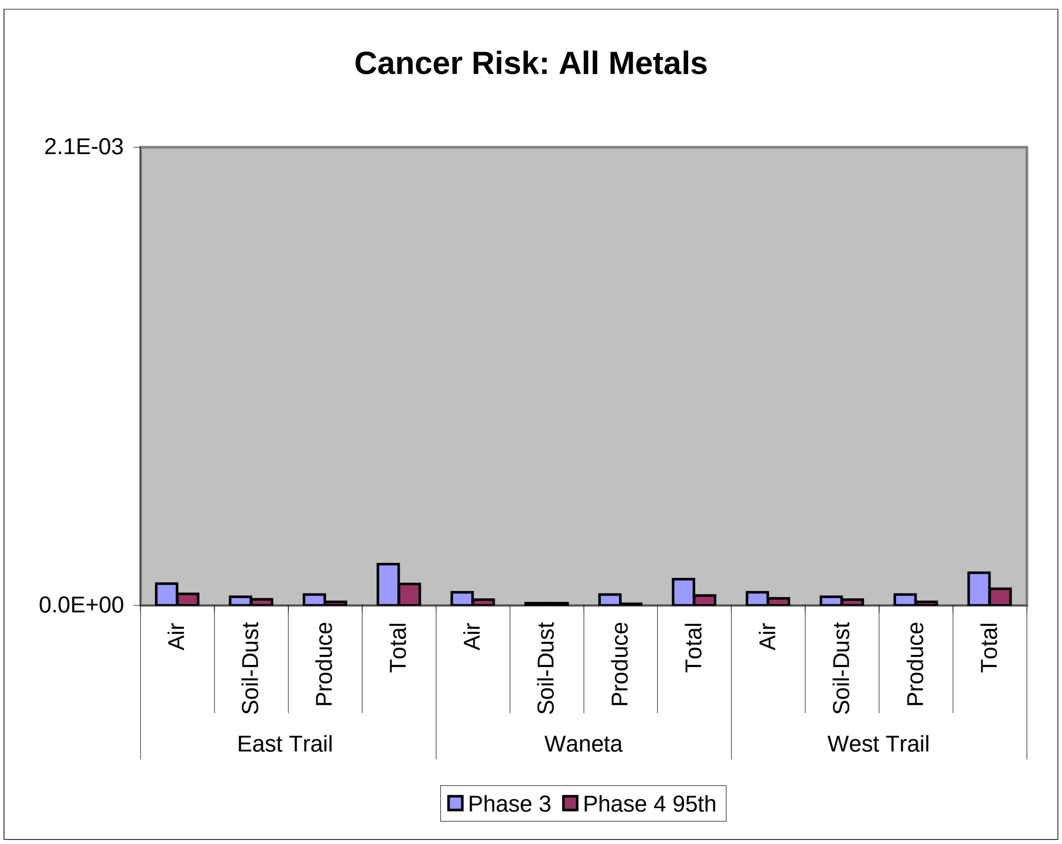


Figure 5-5. Comparison of Total Cancer Risk Estimates between Phase 3 and Phase 4

TABLES

Table 2-1. Summary of Data

Medium	Year(s) Collected	Metals Analyzed[a]	Number of Samples[b]	Data quality issues	Included in HHRA?	Potential Effect of Data Quality Issues	Reference
Air	2003-2007	All except for F & V	6 monitoring stations: 110-253 samples / station	none identified	Yes		Phase 4 HHRA
Fish	2000	All except for F & Tl	16 rainbow trout, 10 walleye	two processing methods used; Cr results for 1 sample very different, high detection limits for Sb, As, Cd, Se, Sn	Yes	possible overestimation of As, Sb, Cd, Se, Sn	Phase 4 HHRA
Fish	2001	All except for F & Tl	10 walleye, 10 mountain whitefish	high detection limits for Sb, As, Cd, Se	Yes	possible overestimation of As, Sb, Cd, Se	Phase 4 HHRA
Fish	2002	All except for F	19 walleye	none identified	Yes		Phase 4 HHRA
Fish	2003	All except for F	20 mountain white fish; 20 rainbow trout	none identified	Yes		Phase 4 HHRA
Fish	2004 - October	All except for F	24 mountain whitefish; 24 walleye	none identified	Yes		Phase 4 HHRA
Fish	2004 - November	As, Cd, Cr, Co, Cu, Se, Ag, Tl, Zn	64 mountain whitefish	none identified	Yes		Phase 4 HHRA
Fish	2005	All except for F	24 walleye	none identified	Yes		Phase 4 HHRA
Ground-Water	1996-2001	All	22	none identified	Yes		Phase 4 HHRA
Indoor Dust	1991	As, Cd		no QA/QC info	No		Exponent (1997)
Indoor Dust	1998	As, Cd, Sb	61	none identified	Yes		Exponent (2000)
Outdoor Dust	2006	All except for Hg & F	70	none identified	Yes		Phase 4 HHRA

Table 2-1. Summary of Data

Medium	Year(s) Collected	Metals Analyzed[a]	Number of Samples[b]	Data quality issues	Included in HHRA?	Potential Effect of Data Quality Issues	Reference
Produce	1971-1990	Unknown		no QA/QC info, high detection limits for older sampling data	No		Exponent (1997): Appendix A
Produce	1998	As, Cd	69	measured concentrations of collected retail produce higher than published values	Yes	possible overestimation of produce concentrations	Exponent (2000)
Produce	1999	As, Cd	19	none identified	Yes		Exponent (2000)
Produce	2007	All except for Hg & F	63	none identified	Yes		Phase 4 HHRA
Sediment	2006	All except for Hg & F	3 sampling locations: 10-12 samples / location	none identified	Yes		Phase 4 HHRA
Soil	1989	All except for Sn & Tl	154	quality could not be determined for Ag, Se, F, Ba, Mo, and Sb; Cr had low recovery (22-24%); analytical/processing method issues for Hg; As, Be had moderately low recoveries (63-65%, 55%)	Yes, except for Ag, Se, F, Ba, Mo, Sb, Hg, and Cr data and Tadanac commercial property data	As, Be concentrations potentially under-estimated	Exponent (1997): Appendix A
Soil	1991	As, Cd	328	none identified; sampled households selected based on a child having a BLL of 15+ ug/dL	Yes, except for Tadanac commercial property data		Exponent (1997): Appendix A
Soil	1995			no QA/QC info	No		Exponent (1997): Appendix A

Table 2-1. Summary of Data

Medium	Year(s) Collected	Metals Analyzed[a]	Number of Samples[b]	Data quality issues	Included in HHRA?	Potential Effect of Data Quality Issues	Reference
Soil	1997	All	20	low Ba recovery (33%), considered acceptable due to known problems with Ba recovery, TLP method potentially underestimates Sb, Sn, Cr, Ni, V, and Zn concentrations	Yes, except for Cr, Sn, Ni, and V, and Tadanac commercial property data	potential under-estimation of Ba concentrations, regressions used for Sb, Zn	Exponent (1997): Appendix E
Soil	1997 - transect	Sb, Hg, Se, Tl, Sn	22	Sb, Sn concentrations potentially underestimated (TLP method)	Yes, except for Sn, and Tadanac commercial property data	regression used for Sb	Exponent (1998)
Soil	1998 - paired dust	As, Cd, Sb	47	no discussion of data quality, Sb concentrations potentially underestimated (TLP method)	Yes	regression used for Sb	Exponent (1997): Appendix G
Soil	2006	All except for Hg & F	90	none identified	Yes		Phase 4 HHRA
Soil	2007	All except for Hg & F	57	none identified	Yes, surface only		Phase 4 HHRA
Surface Water	2001-2006	As, Cd, Cr, Cu, F, Hg, Tl, Zn	8	none identified	Yes		Phase 4 HHRA
Surface Water	2004	All except for Hg	378	none identified	Yes		Phase 4 HHRA

Notes:
[a] Metals included in the HHRA are as follows: antimony, arsenic, barium, beryllium, cadmium, chromium, cobalt, copper, fluoride, mercury, molybdenum, nickel, selenium, silver, thallium, tin, vanadium, and zinc
[b] For soil, where multiple samples were collected at a single location, sample results were averaged together. The sum of the sample numbers is more than the total number of samples used in the HHRA.

Table 2-2. Summary of Screening Results for Soil from Residential Properties

Metal	Soil Standard[a] (mg/kg)	Maximum Concentration (mg/kg)					
		East Trail	Rivervale	Tadanac	Waneta	West Trail	Site Wide
Arsenic	100	340	420	161	28.7	190	420
Cadmium	35/3[b]	129	30	59.8	11.4	88	129
Antimony	20	253	308	178	26.2	148	308.0
Chromium	100	58.1	36.5	46	27	50.7	58.1
Cobalt	50	16.1	6	11	9	8	41.8
Copper	15,000	311	208	424	54	196	502
Mercury	15	2	--	2	--	1	2
Molybdenum	10	2	2	2	2	2	2
Nickel	100	157	16	35	20	24	157
Selenium	3	5	3.17	3.05	1	2	5
Silver	20	15	3.65	24.5	1	11.3	24.5
Zinc	10,000	9,119	2,121	3,820	799	6,242	9,119
Thallium	1	6.6	2	12.5	1.4	2.4	12.5
Vanadium	200	77.5	49.8	49	46	39.6	77.5
Fluoride (dissolved)	--	5	--	3	--	--	5
Fluoride (total)	400	470	--	420	330	--	470
Tin	50	30	33.1	69	2.5	40.8	69
Beryllium	4	1	1	1	1	1	1
Barium	500	302	177	319	212	342	369

Notes: Shaded values exceed the soil standard and the chemical is retained as a PCOC except where noted in text.

[a] All soil standards are B.C. residential standards except the standard for thallium, which is a Canadian National Standard.
[b] 35 mg/kg for incidental ingestion, 3 mg/kg for land used to grow produce

Table 2-3. Summary of Screening Results for Soil from Commercial Properties

Metal	Soil Standard[a] (mg/kg)	Maximum Concentration (mg/kg)			
		East Trail	Glenmerry	Waneta	West Trail
Arsenic	300	185	13	40	40
Cadmium	100	102.5	7.8	5.95	26.7
Antimony	40	144.9	12.7	35.5	35.5
Chromium	300	20.7	--	37	--
Cobalt	300	7	--	13	7
Copper	15,000	82.5	--	32	134
Mercury	40	--	--	--	--
Molybdenum	40	2	--	2	--
Nickel	500	16	--	23	17
Selenium	10	1.02	--	--	--
Silver	40	6.7	--	1	--
Zinc	40,000	1,280	--	320	2,850
Thallium	n/a	3.6	--	1	--
Vanadium	n/a	30	--	85	32
Dissolved Fluoride	2,000	--	--	1	--
Total Fluoride	2,000	--	--	350	--
Tin	300	13	--	2	--
Beryllium	8	0.25	--	1	1
Barium	2,000	114.5	--	207	268

Notes: Shaded values exceed the soil standard and the chemical is retained as a PCOC.

[a] All soil guidelines are B.C. commercial standards.

Table 2-4. Summary of Screening Results for Soil from Agricultural Properties

	Soil Standard[a] (mg/kg)	Maximum Concentration (mg/kg) Waneta
Arsenic	100	72.9
Cadmium	35/9/3[b]	13.2
Antimony	20	61.6
Chromium	100	29
Cobalt	40	10
Copper	15,000	98
Mercury	15	--
Molybdenum	5	2
Nickel	150	21
Selenium	2	1
Silver	20	3
Zinc	10,000	640
Thallium	2	1.9
Vanadium	200	55
Dissolved Fluoride	200	1
Total Fluoride	200	420
Tin	5	2
Beryllium	4	1
Barium	750	274

Notes: Shaded values exceed the soil standard and the chemical is retained as a PCOC.

[a] All soil standards are B.C. agricultural standards.

[b] 35 mg/kg for incidental ingestion, 9 mg/kg for livestock ingestion soil/fodder, 3 mg/kg for land used to grow produce

Table 2-5. Summary of Screening Results for Soil for ATV/Dirt Bike Area

	Soil Standard[a] (mg/kg)	Maximum Concentration (mg/kg)
Arsenic	100	42.3
Cadmium	35	6
Antimony	20	29
Chromium	100	16
Cobalt	50	6
Copper	15,000	84
Mercury	15	0.16
Molybdenum	10	2
Nickel	100	18
Selenium	3	0.5
Silver	20	--
Zinc	10,000	305
Thallium	1	0.5
Vanadium	200	22
Total Fluoride	400	--
Tin	50	6
Beryllium	4	2
Barium	500	240

Notes: Shaded values exceed the soil standard and the chemical is retained as a PCOC.

[a] All soil standards are B.C. residential standards except the standard for thallium, which is a Canadian National Standard.

Table 2-6. Summary of Outdoor Dust Screening

Metal	Soil Standard[a] (mg/kg)	Maximum Concentration (mg/kg)				
		East Trail	Rivervale	Tadanac	West Trail	Site Wide
Arsenic	100	236	22	226	28.7	236
Cadmium	35	114	12.5	97.4	46.3	114
Antimony	20	210	20	338	27	338
Chromium	100	86.6	34.1	66.2	65.4	86.6
Cobalt	50	10.6	6	9.4	6.8	10.6
Copper	15,000	496	350	876	179	876
Molybdenum	10	2	2	4.4	2	4.4
Nickel	100	25.4	16.1	24.2	25.7	41.8
Selenium	3	2.59	0.43	4.2	0.62	4.2
Silver	20	62.8	7.4	78.6	8.9	78.6
Zinc	10,000	15,200	1,940	11,100	6,390	15,200
Thallium	1	4	0.5	4.8	1.2	4.8
Vanadium	200	45.7	49.2	40.4	31.2	61.7
Tin	50	44.7	5.8	61.1	14.7	61.1
Beryllium	4	0.25	0.25	0.25	0.25	0.25
Barium	500	166	113	475	185	475

Notes:

Shaded values exceed the soil standard and the chemical is retained as a PCOC.

[a] All soil standards are B.C. residential standards except the standard for thallium, which is a Canadian National Standard.

Table 2-7. Summary of Screening Results for Ambient Air (µg/m^3 PM10)

Metal	Screening Value - WA ASIL	Screening Value - PRG	Minimum of ASIL / PRG	Birchbank	Butler Park		Columbia Gardens	Genelle		Warfield		West Trail	
				W Max	W Max	Q Max	W Max	W Max	Q Max	W Max	Q Max	W Max	Q Max
Arsenic	0.00023	0.00045	0.00023	0.25	0.12	0.021	0.15	0.061	0.046	0.054	0.0060	0.055	0.031
Barium	1.7	0.52	0.52	--	--	0.074	--	--	0.073	--	0.076	--	0.067
Beryllium	0.00042	0.0008	0.00042	--	--	0.00032	--	--	0.00031	--	0.00031	--	0.00030
Cadmium	0.00056	0.0011	0.00056	0.10	0.092	0.012	0.036	0.0062	0.0049	0.028	0.12	0.023	0.0091
Cobalt	0.17	0.00069	0.00069	--	--	0.00061	--	--	0.00062	--	0.00031	--	0.00061
Chromium	0.000083	0.00016	0.00008	--	--	0.0043	--	--	0.0043	--	0.0055	--	0.021
Copper	0.67	--	0.67	--	1.58	0.68	--	0.68	0.68	3.96	0.48	1.6	1.03
Mercury	0.33	0.31	0.31	--	--	0.00061	--	--	0.00062	--	0.0018	--	0.00061
Molybdenum	17	--	17	--	--	0.00062	--	--	0.030	--	0.00031	--	0.0012
Nickel	0.0021	0.008	0.0021	--	--	0.0016	--	--	0.0031	--	0.0015	--	0.0030
Antimony	1.7	--	1.7	--	0.080	0.0098	--	0.017	0.0068	0.033	0.0067	0.04	0.0097
Selenium	0.67	--	0.67	--	--	0.0016	--	--	0.0031	--	0.0015	--	0.003
Silver	0.33	--	0.33	--	--	0.0049	--	--	0.0056	--	0.0079	--	0.0048
Thallium	0.33	--	0.33	--	0.0062	0.00032	--	0.008	0.00062	0.013	0.00031	0.018	0.00061
Tin	6.7	--	6.7	--	--	0.0055	--	--	0.0037	--	0.010	--	0.0097
Zinc	3.3	--	3.3	1.04	0.98	0.42	0.85	0.92	0.86	0.98	1.1	1.76	0.60

Notes:

Shaded values exceed the screening value.

Values less than the detection limit are expressed as one-half detection limit.

W = weekly (sampling occurred every six days)

Q = quarterly

Table 2-8. Summary of Beach Sediment Screening

Metal	Soil Standard[a] (mg/kg)	Maximum Concentration (mg/kg)		
		Fort Shepard	Gyro Park	Casino Beach
Arsenic	100	6.7	2.5	2.5
Cadmium	35	1.44	1.67	1.19
Antimony	20	14	5	5
Chromium	100	23.4	351	15.9
Cobalt	50	5.6	4.1	3.5
Copper	15,000	204	9.9	26.5
Molybdenum	10	2	9	2
Nickel	100	7	13.7	7.5
Selenium	3	0.57	0.14	0.14
Silver	20	1	1	1
Zinc	10,000	2,860	173	262
Thallium	1	0.5	0.5	0.5
Vanadium	200	31.9	27.5	30.7
Tin	50	19.2	2.5	2.5
Beryllium	4	0.25	0.25	0.25
Barium	500	233	52.6	49.7

Notes:

Shaded values exceed the soil standard (see text).

[a] All soil standards are B.C. residential standards except the standard for thallium which is a Canadian National Standard.

Table 2-9. Summary of Screening Results for Fish (mg/kg wet weight)

	Screening Values					Reference Values		Maximum Fish Tissue Concentrations		
	EPA Region III RBC	EPA Region III RBC (adjusted fish consumption rate)[a]	EPA Subsistence Fishers	EPA Recreational Fishers	Health Canada	Background Concentration in B.C. Rainbow Trout Muscle	Background Concentration in B.C. Mountain Whitefish Muscle	Rainbow Trout	Mountain Whitefish	Walleye
Antimony	0.54	0.21	N/A	N/A	N/A	NR	NR	4	2	2
Arsenic	0.0021	0.0008	0.0033	0.026	N/A	0.15	0.02	2	2	2
Barium	270	103.8	N/A	N/A	N/A	0.24	0.33	1.11	0.05	0.94
Beryllium	2.7	1.04	N/A	N/A	N/A	0.23	0.24	0.04	0.05	0.05
Cadmium	1.4	0.54	0.491	4	N/A	0.23	0.24	0.2	0.2	0.2
Chromium	4	1.6	N/A	N/A	N/A	NR	NR	13	4	809
Cobalt	N/A	N/A	N/A	N/A	N/A	NR	NR	10.8	0.2	10
Copper	54	20.8	N/A	N/A	N/A	0.39	0.35	4.5	2.4	4.4
Fluoride	N/A	N/A	N/A	N/A	N/A	NR	NR	--	--	--
Mercury	0.14	0.054	0.049	0.4	0.5	0.09	0.11	0.59	0.17	1.82
Molybdenum	N/A	N/A	N/A	N/A	N/A	NR	NR	0.4	1.2	1
Nickel	27	10.4	N/A	N/A	N/A	0.4	1.21	4	3.7	7
Selenium	6.8	2.6	2.457	20	N/A	NR	NR	5	2	7
Silver	6.8	2.6	N/A	N/A	N/A	NR	NR	1	1	1
Thallium	0.10	0.037	N/A	N/A	N/A	NR	NR	0.05	0.07	0.05
Tin	810	311.5	N/A	N/A	N/A	NR	NR	5	36.5	2
Vanadium	1.4	0.54	N/A	N/A	N/A	NR	NR	0.4	3	3
Zinc	410	157.7	N/A	N/A	N/A	1.35	4.16	31.5	23.1	44

Notes:

Shaded values are above at least one screening value and are retained as PCOCs. Background concentrations were not used for screening and are provided.

For non-detected values, one-half the detection limit was used.

N/A = not applicable

NR = not reported

[a] EPA Region III values adjusted to ensure protection for subsistence fishers

[b] Sample result obtained from one of two processing methods; when this sample was analyzed using the other processing method, the result was 7.7

Sampling Events

Rainbow Trout: September 2000 and September 2003

Mountain Whitefish: September 2001, September 2003, October 2004, and November 2004

Walleye: September 2000, September 2001, October 2002, September 2003, October 2004, and October 2005

Table 2-10. Summary of Homegrown Produce Screening

Metal	Produce Screening Level[a]	Maximum Concentration (mg/kg ww) All
Nonroot		
Antimony	0.18	0.2
Arsenic	0.01	0.35
Barium	133	16.2
Beryllium	1.33	0.05
Cadmium	0.33	3.04
Chromium	2.0	0.05
Cobalt	6.7	0.01
Copper	6.0	2.14
Molybdenum	3.3	1.02
Nickel	2.3	0.1
Selenium	3.3	0.28
Silver	3.3	0.042
Thallium	0.06	0.14
Tin	200	0.16
Vanadium	5.99	0.05
Zinc	200	165
Root		
Antimony	0.18	0.02
Arsenic	0.01	0.086
Barium	90.1	5.9
Beryllium	0.90	0.05
Cadmium	0.23	0.76
Chromium	1.35	0.05
Cobalt	4.5	0.01
Copper	4.1	1.1
Molybdenum	2.3	0.26
Nickel	0.96	0.05
Selenium	2.30	0.10
Silver	2.3	0.005
Thallium	0.04	0.12
Tin	135	0.15
Vanadium	4.05	0.05
Zinc	135	29.4

Notes:
Shaded values exceed the produce screening level.
[a] Produce screening levels were calculated using methods from the Sudbury risk assessment.

Table 2-11. Total and Inorganic Arsenic in Vegetables

Produce Type	Schoof et al. 1999 Mean Values (ng/g ww) Total Arsenic	Inorganic Arsenic	Ratio of Inorganic to Total
Bean	2.1	1.2	0.57
Carrot	7.3	3.9	0.53
Corn	1.6	1.1	0.69
Cucumber	9.6	4.1	0.43
Lettuce	1.4	1.5	1.0
Onion	9.6	3.3	0.34
Peas	4.3	4.5	1.0
Potato	2.8	0.8	0.29
Spinach	5.1	6.1	1.0
Tomato	9.9	0.9	0.09
Swiss chard			1.0[a]
Beet			0.5[b]
Broccoli			0.5[b]
Celery			0.5[b]
Eggplant			0.5[b]
Kohlrabi			0.5[b]
Parsnip			0.5[b]
Pepper			0.5[b]
Pumpkin			0.5[b]
Radish			0.5[b]
Squash			0.5[b]
Zucchini			0.5[b]

Notes:

Source: Schoof et al. 1999a. A market basket survey of inorganic arsenic in food.

[a] assumed to be equal to lettuce

[b] assumed to be equal to the average of all nonleafy vegetables for which values were availabl

Table 2-12. Summary of Screening Results for Groundwater

Well Name	Maximum Concentration (mg/L)						
	Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium	Cobalt
Birchbank Golf Course	0.001	0.0007	0.132	0.001	0.0002	0.005	0.016
Birchbank Picnic Ground	0.0001	0.0005	0.1	0.001	0.0002	0.005	0.011
Trail Airport	0.001	0.0005	0.038	0.001	0.0002	0.006	0.005
Trail Airport	0.001	0.0013	0.018	0.001	0.0002	0.005	0.005
Columbia Reload	0.001	0.0006	0.055	0.002	0.0002	0.005	0.005
Montrose No 1	0.001	0.0005	0.023	0.001	0.0002	0.005	0.005
Montrose No 2	0.001	0.0014	0.018	0.001	0.0002	0.011	0.005
Industrial Park	0.001	0.0012	0.024	0.001	0.0002	0.023	0.005
Old Morrish Schoolyard							
Genelle No 1	0.001	0.0005	0.014	0.001	0.0002	0.005	0.005
Genelle No 2	0.001	0.0005	0.035	0.001	0.0002	0.005	0.005
Whispering Pines No 1	0.001	0.0005	0.088	0.001	0.0002	0.018	0.009
Whispering Pines No 2	0.001	0.0015	0.072	0.001	0.0002	0.009	0.005
Whispering Pines No 3	0.001	0.0006	0.112	0.001	0.0002	0.005	0.005
Green Gables	0.0015	0.0005	0.024	0.001	0.0002	0.01	0.005
Oasis No 1	0.001	0.0005	0.025	0.001	0.0002	0.005	0.005
Oasis No 2	0.001	0.0005	0.025	0.001	0.0002	0.008	0.005
Oasis No 3	0.001	0.0013	0.001	0.001	0.0002	0.005	0.005
Bear Creek	0.001	0.0005	0.028	0.001	0.0002	0.005	0.005
Riverdale Waterworks District	0.000728	0.0003	0.0203	0.000006	0.00031	0.0003	0.000073
China Creek Water Users Community	0.000531	0.0002	0.0177	0.000011	0.00005	0.0006	0.000075
Kiwanis campground well	0.000081	0.0001	0.02024	0.000002	0.00003	0.0013	0.000043
Maximum Detected (mg/L)	0.0015	0.0015	0.132	0.002	0.00031	0.023	0.016
B.C. Drinking Water Quality Guidelines (mg/L)	0.006	0.025	1	5	0.005	0.05	NA
Canadian Maximum Acceptable Concentration (mg/L)	0.006	0.01	1	NA	0.005	0.05	NA
Canadian Aesthetic Objective (mg/L)	NA	NA	NA	NA	NA	NA	NA
USEPA Maximum Contaminant Level (mg/L)	NA	0.01	2	0.004	0.005	0.1	NA

Table 2-12. Summary of Screening Results for Groundwater

Well Name	Maximum Concentration (mg/L) Copper	Fluoride	Mercury	Molybdenum	Nickel	Selenium	Silver
Birchbank Golf Course	0.061	0.26	0.00005	0.01	0.02	0.001	0.01
Birchbank Picnic Ground	0.0013	0.07	0.00005	0.01	0.02	0.0001	0.01
Trail Airport	0.004	0.14	0.00005	0.01	0.02	0.001	0.01
Trail Airport	0.053	0.05	0.00005	0.01	0.02	0.001	0.01
Columbia Reload	0.069	0.01	0.00005	0.01	0.02	0.001	0.01
Montrose No 1	0.0047	0.11	0.00005	0.01	0.02	0.001	0.01
Montrose No 2	0.0008	0.05	0.00005	0.01	0.02	0.001	0.01
Industrial Park	0.056	0.08	0.00005	0.01	0.02	0.001	0.01
Old Morrish Schoolyard							
Genelle No 1	0.0005	0.08	0.00005	0.01	0.02	0.001	0.01
Genelle No 2	0.0005	0.05	0.00005	0.01	0.02	0.001	0.01
Whispering Pines No 1	0.0005	0.07	0.00005	0.01	0.02	0.001	0.01
Whispering Pines No 2	0.0005	0.41	0.00005	0.01	0.02	0.001	0.01
Whispering Pines No 3	0.0018	0.09	0.00005	0.01	0.02	0.001	0.01
Green Gables	0.0036	0.09	0.00005	0.01	0.02	0.001	0.01
Oasis No 1	0.0005	0.03	0.00005	0.01	0.02	0.001	0.01
Oasis No 2	0.0005	0.03	0.00005	0.01	0.02	0.001	0.01
Oasis No 3	0.0041	1.2	0.00005	0.01	0.02	0.001	0.01
Bear Creek	0.0006	0.1	0.00005	0.01	0.02	0.001	0.01
Riverdale Waterworks District	0.00085	0.05	0.00005	0.00059	0.0005	0.0002	0.00002
China Creek Water Users Community	0.00064	0.04	0.00005	0.00047	0.0007	0.0002	0.00002
Kiwanis campground well	0.0104	0.07	0.00005	0.00092	0.00172	0.0002	0.00002
Maximum Detected (mg/L)	0.069	1.2	0.00005	0.01	0.02	0.001	0.01
B.C. Drinking Water Quality Guidelines (mg/L)	1	1.5	0.001	NA	0.25	0.01	NA
Canadian Maximum Acceptable Concentration (mg/L)	NA	1.5	0.001	NA	NA	0.01	NA
Canadian Aesthetic Objective (mg/L)	1	NA	NA	NA	NA	NA	NA
USEPA Maximum Contaminant Level (mg/L)	1.3	4	0.002	NA	NA	0.05	NA

Table 2-12. Summary of Screening Results for Groundwater

Well Name	Maximum Concentration (mg/L) Thallium	Tin	Vanadium	Zinc
Birchbank Golf Course		0.05	0.01	0.031
Birchbank Picnic Ground		0.05	0.01	0.034
Trail Airport		0.05	0.01	0.234
Trail Airport		0.05	0.01	0.55
Columbia Reload		0.05	0.01	0.045
Montrose No 1		0.05	0.01	0.002
Montrose No 2		0.05	0.01	0.002
Industrial Park		0.05	0.01	0.025
Old Morrish Schoolyard				
Genelle No 1		0.05	0.01	0.012
Genelle No 2		0.05	0.01	0.002
Whispering Pines No 1		0.05	0.01	0.002
Whispering Pines No 2		0.05	0.01	0.003
Whispering Pines No 3		0.05	0.01	0.015
Green Gables		0.05	0.01	0.008
Oasis No 1		0.05	0.01	0.002
Oasis No 2		0.05	0.01	0.002
Oasis No 3		0.05	0.01	0.534
Bear Creek		0.05	0.01	0.002
Riverdale Waterworks District	0.000015	0.00001	0.00058	0.0177
China Creek Water Users Community	0.00001	0.00001	0.00047	0.0025
Kiwanis campground well	0.000002	0.00001	0.00104	0.148
Maximum Detected (mg/L)	0.000015	0.05	0.01	0.55
B.C. Drinking Water Quality Guidelines (mg/L)	NA	NA	NA	5
Canadian Maximum Acceptable Concentration (mg/L)	NA	NA	NA	NA
Canadian Aesthetic Objective (mg/L)	NA	NA	NA	5
USEPA Maximum Contaminant Level (mg/L)	0.002	NA	NA	NA

Sources: British Columbia Schedule 6: Generic Numerical Water Standards: Drinking Water. B.C. Contaminated Sites Regulation; Reg. 375/96

Guidelines for Canadian Drinking Water Quality, Maximum Acceptable Concentration (mg/L), Table 3. Summary of Guidelines for Chemical and Physical Parameters. www.hc-sc.ca/ewh-semt/pubs/water-eau/doc_sup-appui/sum_guide res/recom/g…

Guidelines for Canadian Drinking Water Quality. Aesthetic Objectives. Table 3.

USEPA Maximum Contaminant Levels.

Note: All screening conducted using the full detection limit for those values below the detection limit.

Table 2-13. Summary of Screening Results for Surface Water

	Drinking Water Guidelines (μ/L)[1]	Adjusted for Recreational Use (μ/L)	Maximum Concentration (μ/L)					
			Sand Bar Eddy - 2004	Birchbank - 2004	Birchbank - 2001-2006	Trail - 2004	Beaver Creek / Fort Shepard - 2004	Waneta - 2001-2006
Dissolved Antimony			--	--	0.152	--	--	0.61
Total Recoverable Antimony	6	60	--	--	0.156	--	--	0.62
Dissolved Arsenic			0.23	0.24	0.31	0.36	0.24	0.37
Total Recoverable Arsenic	25	250	0.25	0.24	0.3	0.60	0.26	0.9
Dissolved Barium			--	--	24.1	--	--	24.3
Total Recoverable Barium	1000	10000	--	--	24.1	--	--	24.4
Dissolved Beryllium			--	--	0.026	--	--	0.029
Total Recoverable Beryllium[2]	4000	40000	--	--	0.05	--	--	0.05
Dissolved Cadmium			0.02	0.03	0.041	0.84	0.04	0.591
Total Recoverable Cadmium	5	50	0.02	0.04	0.2	0.97	0.04	0.5
Dissolved Chromium			0.28	0.53	0.48	0.27	0.32	0.70
Total Recoverable Chromium	50	500	0.18	0.22	1.4	0.28	0.25	50.8
Dissolved Cobalt			--	--	0.131	--	--	0.12
Total Recoverable Cobalt	NA	NA	--	--	0.3	--	--	0.4
Dissolved Copper			1.14	1.35	1.98	1.46	1.48	3.05
Total Recoverable Copper	1000	10000	0.62	0.55	1.8	1.66	52.20	1.59
Dissolved Mercury			0.0102	0.0328	--	0.0159	0.0144	--
Total Recoverable Mercury	1	10	0.0184	0.0092	--	0.0135	0.0114	--
Dissolved Molybdenum			--	--	0.84	--	--	0.916
Total Recoverable Molybdenum	250	2500	--	--	1.1	--	--	1.4
Dissolved Selenium			--	--	0.37	--	--	0.4
Total Recoverable Selenium	10	100	--	--	0.33	--	--	0.62
Dissolved Silver			--	--	0.011	--	--	0.044
Total Recoverable Silver	NA	NA	--	--	0.7	--	--	0.6
Dissolved Thallium			0.0036	0.0028	0.025	1.49	0.05	0.27
Total Recoverable Thallium[2]	2	20	0.0035	0.0042	0.026	1.53	0.05	0.27
Dissolved Tin			--	--	0.038	--	--	0.016
Total Recoverable Tin	NA	NA	--	--	0.015	--	--	0.018
Dissolved Vanadium			--	--	1.14	--	--	0.936
Total Recoverable Vanadium	NA	NA	--	--	0.4	--	--	0.946
Dissolved Zinc			7.3	11.7	3.9	38.3	11.20	11.9
Total Recoverable Zinc	5000	50000	10.1	11.8	6.9	66.9	36.60	10.6
Fluoride	1500	15000	0.08	0.08	0.11	0.11	0.08	0.28

Notes:
[1]B.C. Guidelines were used for all metals except beryllium and thallium. Source: BCMoE. 2006. British Columbia Approved Water Quality Guidelines, 2006 Edition. Updated August 2006. B.C. Environment and Lands HQ Division, Victoria, B.C.

[2]National Primary Drinking Water Regulations. Source: USEPA. 2008. National Primary Drinking Water Regulations. http://www.epa.gov/safewater/contaminants/index.html. Accessed August 6, 2008. Updated June 5, 2008. U.S. Environmental Protection Agency, Washington, D.C.

Table 3-1. Summary Statistics for PCOCs in Air

Metal	Year(s) Collected	Sample Size	Concentration (μg/m³)			
			Minimum	Maximum	Average	Median
Birchbank	2004 - 2007					
Arsenic		164	0.00031	0.25	0.017	0.0067
Cadmium		164	0.00031	0.104	0.004	0.0012
Butler Park	2003 - 2007					
Arsenic		235	0.00030	0.12	0.016	0.011
Cadmium		235	0.00030	0.092	0.0048	0.0031
Columbia Gardens	2004 - 2007					
Arsenic		173	0.00030	0.15	0.0076	0.0036
Cadmium		173	0.00030	0.036	0.0027	0.0018
Genelle	2003 - 2004					
Arsenic		117	0.00031	0.061	0.0074	0.0031
Cadmium		117	0.00031	0.0062	0.0015	0.00062
Warfield	2003 - 2007					
Arsenic		253	0.00030	0.054	0.0057	0.0031
Cadmium		253	0.00030	0.028	0.0028	0.0012
West Trail	2003 - 2004					
Arsenic		110	0.00030	0.055	0.0099	0.0082
Cadmium		110	0.00030	0.023	0.0041	0.0031

Note:
The HHRA Work Plan (Integral 2007) presented data up through 2006; new data collected up through September 2007 is included in the HHRA.

Table 3-2. Summary Statistics for Fish PCOCs

Media	Year(s) Collected	Sample Size	Concentration (mg/kg wet weight) Minimum	Maximum	Mean	Median
Rainbow Trout	2000 - 2003					
Arsenic		36	0.20	2.0	1.0	0.20
Chromium		36	0.50	13	2.4	1.0
Mercury		36	0.025	0.59	0.17	0.111
Selenium		16	2.0	5.0	3.3	3.0
Thallium		20	0.050	0.050	0.050	0.050
Vanadium		16	0.40	0.40	0.40	0.40
Mountain Whitefish	2001 - 2004					
Arsenic		118	0.012	2.0	0.33	0.048
Chromium		118	0.034	4.0	0.34	0.087
Mercury		54	0.020	0.17	0.070	0.060
Selenium		98	0.20	2.0	0.48	0.32
Thallium		108	0.0030	36.5	0.73	0.0081
Vanadium		34	0.40	11	3.9	2.0
Walleye	2000-2005					
Arsenic		107	0.0050	2.0	0.57	0.20
Chromium		107	0.10	809	8.7	0.50
Mercury		107	0.080	1.8	0.42	0.34
Selenium		87	0.25	7.0	0.82	0.40
Thallium		87	0.025	0.05	0.031	0.025
Vanadium		87	0.40	3.0	1.1	1.0

Note:
In the HHRA Work Plan (Integral 2007), data collected in 2000 was mistakenly counted twice, as all samples were processed and analyzed by two different methods.

Table 3-3. Summary Statistics for PCOCs in Indoor Dust

		Concentration (mg/kg)			
Metal	Sample Size	Minimum	Maximum	Average	Median
East Trail					
Antimony	14	37	151	79	75
Arsenic	14	20	82	49	51
Cadmium	14	15.5	67	36	38
Rivervale					
Antimony	1	40	40	40	40
Arsenic	1	26	26	26	26
Cadmium	1	21	21	21	21
Tadanac					
Antimony	9	56	186	117	129
Arsenic	9	33	100	66	68
Cadmium	9	27	90	55	53
Waneta					
Antimony	4	9	28	18	17
Arsenic	4	7	23	15	14
Cadmium	4	6	25	13	11
West Trail					
Antimony	15	23	136	55	36
Arsenic	15	16	133	38	26
Cadmium	15	16	79	38	32
Site Wide					
Antimony	77	9.0	186	63	54
Arsenic	77	7.0	133	40	33
Cadmium	77	6.0	90	34	28

Notes:

For all other metals, indoor dust concentrations were assumed to equal soil concentrations.

All data collected in 1998.

Table 3-4. Summary Statistics for Measured Concentrations of PCOCs in Homegrown Produce

Metal	Year(s) Collected	Sample Size	Concentration (mg/kg dry weight)			
			Minimum	Maximum	Average	Median
Near - Nonroot	1998 - 2007					
Antimony		38	0.005	0.22	0.028	0.005
Inorganic Arsenic		96	0.0001	0.35	0.05	0.02
Cadmium		96	0.003	3.04	0.57	0.10
Thallium		38	0.005	0.14	0.02	0.005
Near - Root	1998 - 2007					
Antimony		14	0.005	0.02	0.0067	0.005
Inorganic Arsenic		31	0.0015	0.0458	0.0079	0.0064
Cadmium		31	0.050	0.7614	0.27	0.23
Thallium		14	0.005	0.12	0.03	0.02
Far - Nonroot	1998 - 2007					
Antimony		7	0.005	0.032	0.014	0.005
Inorganic Arsenic		16	0.0002	0.074	0.016	0.011
Cadmium		16	0.0025	0.87	0.19	0.036
Thallium		7	0.005	0.016	0.0074	0.005
Far - Root	1998 - 2007					
Antimony		4	0.005	0.010	0.006	0.005
Inorganic Arsenic		7	0.002	0.008	0.004	0.003
Cadmium		7	0.08	0.22	0.12	0.09
Thallium		4	0.005	0.014	0.007	0.005
Site Wide - Nonroot	1998 - 2007					
Antimony		45	0.005	0.22	0.03	0.01
Inorganic Arsenic		112	0.0001	0.35	0.044	0.016
Cadmium		112	0.00	3.04	0.52	0.09
Thallium		45	0.005	0.14	0.01	0.01
Site Wide- Root	1998 - 2007					
Antimony		18	0.005	0.020	0.007	0.005
Inorganic Arsenic		38	0.001	0.046	0.007	0.005
Cadmium		38	0.05	0.76	0.24	0.20
Thallium		18	0.005	0.12	0.03	0.014

Note:
In the HHRA Work Plan (Integral 2007), Rivervale was included in the "far" designation. For the HHRA, this neighborhood has been moved to the "near" category.

Table 3-5. Summary Statistics for PCOCs in Soil from Residential, Commercial, and Agricultural Properties

Metal	Year(s) Collected	Sample Size	Concentration (mg/kg)			
			Minimum	Maximum	Average	Median
RESIDENTIAL PROPERTIES						
East Trail	1989-2007					
Antimony		81	5.0	253	51	43
Arsenic		81	6.95	340	63	50
Cadmium		81	1.81	129	27	20
Selenium		24	0.37	5.0	1.36	1.01
Silver		24	1.0	15	4.1	2.9
Thallium		26	0.25	6.6	1.48	0.5
Tin		23	2.0	27.3	8.1	6.1
Zinc		81	166	9119	1936	1380
Rivervale	1989-2007					
Antimony		31	5	308	50.5	33.0
Arsenic		31	9.1	420	61.4	35.8
Cadmium		31	2.0	30	8.42	6.28
Selenium		14	0.17	3.17	0.94	0.75
Silver		14	1.0	3.7	1.9	2.0
Thallium		14	0.5	2.0	0.76	0.5
Tin		14	2.5	33.1	6.8	3.2
Zinc		31	160	2121	754	579
Tadanac	1989-2007					
Antimony		35	19	178	61.9	47.1
Arsenic		35	19.4	161	66.3	59.2
Cadmium		35	4.38	59.8	24.0	22.5
Selenium		26	0.12	3.05	1.23	1.0
Silver		21	1.0	24.5	6.88	3.75
Thallium		28	0.5	12.5	2.11	1.3
Tin		20	2.5	52.8	15.1	8.38
Zinc		35	487	3820	1828	1662
Waneta	1991-2007					
Antimony		12	3.3	26.2	13.9	14.9
Arsenic		12	3	28.7	16.5	18.0
Cadmium		12	0.715	11.4	4.9	4.2
Selenium		3	1.0	1.0	1.0	1.0
Silver		4	1.0	1.0	1.0	1.0
Thallium		4	0.5	1.4	0.7	0.5
Tin		3	2.5	2.5	2.5	2.5
Zinc		12	82	799	355	286

Table 3-5. Summary Statistics for PCOCs in Soil from Residential, Commercial, and Agricultural Properties

Metal	Year(s) Collected	Sample Size	Concentration (mg/kg) Minimum	Maximum	Average	Median
West Trail	1989-2007					
Antimony		68	5	148	38.0	32.3
Arsenic		68	8.4	190	45.4	36.2
Cadmium		68	3.65	88	22.5	17.7
Selenium		14	0.16	2	0.9	0.9
Silver		14	1.0	11.3	3.1	2.3
Thallium		20	0.5	2.4	0.8	0.5
Tin		14	2.5	40.8	13.3	10.1
Zinc		68	161.5	6242	1736	1430
Site Wide	1989-2007					
Antimony		450	3.3	308	34.1	22.2
Arsenic		450	0.25	420	39.8	24.7
Cadmium		450	0.25	128.5	15.2	10.2
Selenium		125	0.05	5.0	1.0	0.9
Silver		121	1.0	24.5	3.4	2.0
Thallium		136	0.25	12.5	1.2	0.5
Tin		116	2.5	52.8	8.6	5.4
Zinc		450	24.8	9119	1165	799
COMMERCIAL PROPERTIES						
East Trail	1989-2006					
Antimony		7	15.3	145	52.3	40
Cadmium		7	7.25	103	30.1	16.1
AGRICULTURAL PROPERTIES						
Waneta	1991-1997					
Antimony		6	15.2	61.6	36.1	34.6

Note:
Summary data are provided for all PCOCs (by land use) when available.

Table 3-6. Summary Statistics for PCOCs in Outdoor Dust

Metal	Sample Size	Concentration (mg/kg)			
		Minimum	Maximum	Average	Median
East Trail					
Arsenic	10	6.3	236	44.2	15.65
Cadmium	10	5.21	114	23.5	8.465
Antimony	10	5	210	38.4	13
Selenium	10	0.05	2.59	0.6	0.25
Silver	10	1.0	62.8	10.8	2.9
Thallium	10	0.5	4	1.1	0.5
Tin	10	2.5	44.7	8.7	2.5
Zinc	10	542	15200	2874	889
Rivervale					
Arsenic	10	7.45	22	13.6	12.75
Cadmium	10	2.19	12.5	6.0	4.8
Antimony	10	5	20	10.2	8.5
Selenium	10	0.13	0.43	0.2	0.24
Silver	10	1.0	7.4	3.0	2
Thallium	10	0.5	0.5	0.5	0.5
Tin	10	2.5	5.8	2.8	2.5
Zinc	10	361	1940	885	707
Tadanac					
Arsenic	10	16.7	226	88.8	75.9
Cadmium	10	7.55	97.4	54.8	58.2
Antimony	10	24	338	129.9	107.5
Selenium	10	0.05	4.2	1.81	1.78
Silver	10	5.1	78.6	34.6	29.25
Thallium	10	0.05	4.8	2.42	2.35
Tin	10	9.2	61.1	27.8	24.0
Zinc	10	933	11,100	5515	4,980
West Trail					
Arsenic	10	2.5	28.7	13.8	11.25
Cadmium	10	0.95	46	12.1	9.1
Antimony	10	5.0	27	11.4	9
Selenium	10	0.05	0.62	0.3	0.31
Silver	10	1.0	8.9	3.2	2.4
Thallium	10	108	6390	1744	1565
Tin	10	0.5	1.2	0.6	0.5
Zinc	10	2.5	14.7	6.0	4.05
Site Wide					
Arsenic	70	2.5	236	27.6	13.85
Cadmium	70	0.25	114	17.5	8.2
Antimony	70	5.0	338	31.7	12
Selenium	70	0.05	4.2	0.5	0.245
Silver	70	1.0	78.6	8.9	3.05
Thallium	70	0.5	4.8	1	0.5
Tin	70	2.5	61.1	8.0	2.5
Zinc	70	103	15200	2072	1330

Note: All data collected in 2006

For neighborhoods without outdoor dust data, the HHRA assumed concentrations twice those of soil

Table 4-1. Toxicity Values for Noncarcinogenic PCOCs

Chemical	Previous[a] Oral TDI (mg/kg-day)	Previous[a] Inhalation TC (mg/m^3)	Source	USEPA - IRIS Oral RfD (mg/kg-day)	USEPA - IRIS Inhalation RfC (mg/m^3)	Updated Health Canada[b] Oral TDI (mg/kg-day)	Updated Health Canada[b] Inhalation TC (mg/m^3)
Antimony	$4.04x10^{-4}$	$2.00x10^{-4}$	IRIS	$4.0x10^{-4}$	--	$2.0x10^{-4}$	--
Arsenic	$2.00x10^{-3}$		HC / BCE 1995	$3.0x10^{-4}$ (chronic)[c]	NP	NP	NP
Cadmium	$8.10x10^{-4}$		HC	$5.00x10^{-4}$ (food) / $1.00x10^{-3}$ (water)	NP	$8.0x10^{-4}$	NP
Chromium, hexavalent				0.003	--	0.001	--
Chromium, total				NP	--	0.001	--
Methyl mercury				$1.0x10^{-4}$		NP	--
Nickel, metallic				NP	NP	NP	$1.80x10^{-5}$
Nickel, soluble salts				0.0200	NP	NP	NP
Selenium				$5.00x10^{-3}$	--	NP	--
Silver				$5.00x10^{-3}$	NP	NP	NP
Thallium[d]				$9.00x10^{-5}$	--	NP	--
Tin [e]				$3.00x10^{-4}$			
Vanadium[f]				$9.00x10^{-3}$	--	NP	--
Zinc				0.3	--	NP	--

Notes:

NP: not provided; -- : pathway not evaluated for chemical

[a] Previous RfD and cancer slope factors used in Phases 2 and 3. See Tables 21 and 22 in the Phase 3 report.

[b] Updated Health Canada TRVs (Source: Federal Contaminated Site Risk Assessment in Canada. Part II: Health Canada Toxicological Reference Values (TRVs). September 2004. Environmental Health Assessment Services. Safe Environments Programme). Values are health-based tolerable daily intakes/concentrations and tumorigenic doses/concentrations.

[c] subchronic RfD used for childhood exposures ($5.0x10^{-3}$), taken from Tsuju et al (2003)

[d] RfDs available for multiple thallium compounds: sulfate, nitrate, chloride, carbonate, acetate: all either $8x10^{-5}$ or $9x10^{-5}$

[e] for tributyl tin

[f] For vanadium pentoxide

Table 4-2. Toxicity Values for Carcinogenic PCOCs

	Previous[a]			USEPA - IRIS		Updated Health	
Chemical	Oral	Inhalation	Source	Oral	Inhalation[c]	Oral	Inhalation
Antimony				NP	--	NP	--
Arsenic	1.75	15	HC (oral) IRIS (inhal)	1.5	15	2.8	28
Cadmium		6.3	IRIS	NP	6.3	NP	42.9
Chromium, hexavalent				NP	--	NP	--
Chromium, total				NP	--	NP	--
Nickel, soluble				NP	NP	NP	3.1
Nickel, refinery dust				NP	0.84	NP	NP
Selenium				NP	--	NP	--
Silver				NP	--	NP	--
Thallium				NP	--	NP	--
Tin				NP	--		
Vanadium				NP	--	NP	--
Zinc				NP	--	NP	--

Notes:

NP: not provided; -- : pathway not evaluated for chemical

[a]Previous RfD and cancer slope factors used in Phases 2 and 3. See Tables 21 and 22 in the Phase 3 report.

[b]Updated Health Canada TRVs (Source: Federal Contaminated Site Risk Assessment in Canada. Part II: Health Canada Toxicological Reference Values (TRVs). September 2004. Environmental Health Assessment Services. Safe Environments Programme). Values are health-based tolerable daily

[c] Assuming inhalation rate = 20 m^3/day, BW = 70 kg

Table 5-1. Basis for Toxicity Reference Values

Chemical	Critical Effect: Oral	Critical Effect: Inhalation	Reference(s)
Noncancer			
Antimony	longevity, blood glucose, and cholesterol	pulmonary toxicity, chronic interstitial inflammation	Phase 2 and 3 Reports
Arsenic	skin, blood, central nervous system effects	--	Phase 2 and 3 Reports
Cadmium	kidney toxicity	--	Phase 2 and 3 Reports
Chromium	no effects observed	--	USEPA (2007b)
Mercury	developmental, neuropsychological, impairment (methyl mercury)	--	USEPA (2007b)
Selenium	clinical selenosis[a]	--	USEPA (2007b)
Silver	argyria[b]		USEPA (2007b)
Thallium	increased levels of SGOT and LDH enzymes	--	USEPA (2007b)
Tin	immune system suppression		USEPA (2007b)
Vanadium	decreased hair cystine	--	USEPA (2007b)
Zinc	reduced copper status		USEPA (2007b)
Cancer			
Arsenic	skin, bladder, lung cancer	lung cancer	Phase 2 and 3 Reports; USEPA (2007b)
Cadmium	--	lung cancer	Phase 2 and 3 Reports

Notes:
-- = None established

[a] Hair, nail loss, nail brittleness, central nervous system effects, lowered hemoglobin, skin lesions
[b] discoloration of the skin

Table 5-2. Summary of Site Wide Noncancer Risks

			Median	Mean	90th	95th
Soil/ Dust	Adult + Child	antimony	0.006	0.020	0.045	0.082
		arsenic	0.034	0.108	0.249	0.434
		cadmium	0.001	0.001	0.003	0.005
		selenium	0.000	0.000	0.000	0.000
		silver	0.000	0.001	0.003	0.005
		thallium	0.006	0.021	0.045	0.081
		tin	0.012	0.045	0.101	0.183
		zinc	0.002	0.007	0.016	0.029
	Child	antimony	0.011	0.032	0.076	0.124
		arsenic	0.003	0.010	0.024	0.042
		selenium	0.000	0.000	0.000	0.001
		silver	0.001	0.002	0.004	0.008
		thallium	0.010	0.034	0.074	0.128
		tin	0.019	0.072	0.164	0.287
		zinc	0.003	0.012	0.026	0.045
Produce	Adult + Child	antimony	0.017	0.029	0.056	0.085
		arsenic	0.025	0.063	0.144	0.237
		cadmium	0.017	0.051	0.091	0.163
		thallium	0.114	0.200	0.413	0.622
	Child	antimony	0.020	0.036	0.073	0.113
		arsenic	0.002	0.005	0.011	0.019
		thallium	0.143	0.257	0.552	0.831
Soil/Dust + Produce	Adult + Child	antimony	0.023	0.049	0.102	0.167
		arsenic	0.059	0.171	0.394	0.671
		cadmium	0.017	0.052	0.094	0.168
		thallium	0.120	0.221	0.458	0.703
	Child	antimony	0.031	0.068	0.148	0.236
		arsenic	0.005	0.015	0.035	0.060
		thallium	0.152	0.290	0.625	0.959

Note:
Cadmium risks calculated for adult + child scenario only

Table 5-3. Summary of Noncancer Hazard Quotients for Ingestion of Soil and Dust

				Median	Mean	90th	95th
Residential	Site Wide	Adult + Child	antimony	0.0062	0.0204	0.045	0.082
			arsenic	0.0342	0.1079	0.249	0.434
			cadmium	0.0005	0.0014	0.003	0.005
			selenium	0.0000	0.0001	0.000	0.000
			silver	0.0003	0.0012	0.003	0.005
			thallium	0.0056	0.0211	0.045	0.081
			tin	0.0116	0.0449	0.101	0.183
			zinc	0.0019	0.0074	0.016	0.029
		Child	antimony	0.0107	0.0322	0.076	0.124
			arsenic	0.0035	0.0103	0.024	0.042
			selenium	0.0000	0.0001	0.000	0.001
			silver	0.0006	0.0019	0.004	0.008
			thallium	0.0095	0.0337	0.074	0.128
			tin	0.0191	0.0717	0.164	0.287
			zinc	0.0033	0.0117	0.026	0.045
	East Trail	Adult + Child	antimony	0.0124	0.0352	0.081	0.139
			arsenic	0.0627	0.1797	0.416	0.713
			cadmium	0.0008	0.0021	0.005	0.008
			selenium	0.00004	0.0001	0.0003	0.0005
			silver	0.0004	0.0016	0.004	0.007
			thallium	0.0082	0.0285	0.064	0.112
			tin	0.0116	0.0452	0.100	0.177
			zinc	0.0032	0.0108	0.025	0.044
		Child	antimony	0.0216	0.0563	0.133	0.218
			arsenic	0.0065	0.0172	0.040	0.067
			selenium	0.0001	0.0002	0.000	0.001
			silver	0.0008	0.0026	0.006	0.010
			thallium	0.0139	0.0452	0.104	0.174
			tin	0.0200	0.0735	0.162	0.282
			zinc	0.0055	0.0173	0.040	0.070
	Rivervale	Adult + Child	antimony	0.0051	0.0149	0.034	0.060
			arsenic	0.0287	0.0850	0.195	0.335
			cadmium	0.0004	0.0009	0.002	0.003
			selenium	0.0000	0.0001	0.000	0.000
			silver	0.0002	0.0007	0.002	0.003
			thallium	0.0039	0.0124	0.028	0.051
			tin	0.0085	0.0328	0.071	0.126
			zinc	0.0012	0.0042	0.009	0.017
		Child	antimony	0.0089	0.0240	0.055	0.091
			arsenic	0.0030	0.0082	0.019	0.031
			selenium	0.0000	0.0001	0.000	0.001
			silver	0.0004	0.0011	0.002	0.004
			thallium	0.0067	0.0201	0.047	0.081
			tin	0.0142	0.0530	0.116	0.209
			zinc	0.0084	0.0086	0.011	0.012

Table 5-3. Summary of Noncancer Hazard Quotients for Ingestion of Soil and Dust

				Median	Mean	90th	95th
	Tadanac	Adult + Child	antimony	0.0197	0.0557	0.129	0.222
			arsenic	0.0863	0.2444	0.567	0.965
			cadmium	0.0013	0.0032	0.007	0.012
			selenium	0.0000	0.0001	0.000	0.001
			silver	0.0012	0.0037	0.009	0.015
			thallium	0.0100	0.0395	0.084	0.155
			tin	0.0253	0.0901	0.202	0.377
			zinc	0.0042	0.0131	0.029	0.052
		Child	antimony	0.0342	0.0891	0.208	0.345
			arsenic	0.0090	0.0235	0.056	0.091
			selenium	0.0001	0.0002	0.000	0.001
			silver	0.0020	0.0059	0.014	0.024
			thallium	0.0169	0.0626	0.133	0.236
			tin	0.0430	0.1458	0.332	0.549
			zinc	0.0071	0.0208	0.048	0.080
	Waneta	Adult + Child	antimony	0.0037	0.0105	0.024	0.041
			arsenic	0.0239	0.0680	0.158	0.272
			cadmium	0.0004	0.0010	0.002	0.004
			selenium	0.0000	0.0001	0.000	0.000
			silver	0.0001	0.0004	0.001	0.001
			thallium	0.0101	0.0286	0.066	0.113
			tin	0.0054	0.0153	0.035	0.060
			zinc	0.0007	0.0023	0.005	0.009
		Child	antimony	0.0064	0.0167	0.039	0.065
			arsenic	0.0025	0.0065	0.015	0.025
			selenium	0.0001	0.0002	0.000	0.001
			silver	0.0002	0.0006	0.001	0.002
			thallium	0.0177	0.0457	0.107	0.177
			tin	0.0095	0.0245	0.058	0.095
			zinc	0.0012	0.0037	0.009	0.015
	West Trail	Adult + Child	antimony	0.0079	0.0224	0.051	0.089
			arsenic	0.0585	0.1662	0.382	0.651
			cadmium	0.0009	0.0021	0.005	0.008
			selenium	0.0000	0.0001	0.000	0.000
			silver	0.0003	0.0010	0.002	0.004
			thallium	0.0045	0.0140	0.031	0.057
			tin	0.0180	0.0642	0.146	0.260
			zinc	0.0028	0.0090	0.020	0.035
		Child	antimony	0.0139	0.0358	0.085	0.139
			arsenic	0.0062	0.0160	0.037	0.062
			selenium	0.0000	0.0001	0.000	0.001
			silver	0.0005	0.0016	0.004	0.006
			thallium	0.0078	0.0224	0.052	0.087
			tin	0.0313	0.1023	0.234	0.414
			zinc	0.0047	0.0146	0.033	0.056
Agricultural	Waneta	Adult	antimony	0.0084	0.0086	0.011	0.012
			cadmium	0.0002	0.0003	0.001	0.001
Commercial	East Trail	Adult + Child	antimony	0.0094	0.0266	0.061	0.106
			cadmium	0.0010	0.0024	0.005	0.009
		Child	antimony	0.0164	0.0424	0.099	0.164

Note:
Cadmium risks calculated for adult + child scenario only

Table 5-4. Summary of Noncancer Hazard Quotients for Ingestion of Homegrown Produce

			Median	Mean	90th	95th
Site Wide	Adult + Child	antimony	0.02	0.03	0.06	0.09
		arsenic	0.02	0.06	0.14	0.24
		cadmium	0.02	0.05	0.09	0.16
		thallium	0.11	0.20	0.41	0.62
	Child	antimony	0.02	0.04	0.07	0.11
		arsenic	0.002	0.005	0.01	0.02
		thallium	0.14	0.26	0.55	0.83
Near	Adult + Child	antimony	0.02	0.03	0.06	0.10
		arsenic	0.03	0.07	0.17	0.28
		cadmium	0.02	0.06	0.10	0.19
		thallium	0.14	0.24	0.52	0.76
	Child	antimony	0.02	0.04	0.08	0.12
		arsenic	0.002	0.005	0.01	0.02
		thallium	0.18	0.31	0.67	0.98
Far	Adult + Child	antimony	0.03	0.04	0.07	0.10
		arsenic	0.02	0.05	0.07	0.13
		cadmium	0.01	0.02	0.04	0.07
		thallium	0.10	0.12	0.22	0.29
	Child	antimony	0.04	0.05	0.10	0.13
		arsenic	0.001	0.003	0.01	0.01
		thallium	0.13	0.16	0.30	0.38

Note:
Cadmium risks calculated for adult + child scenario only

Table 5-5. Summary of Noncancer Hazard Indices for Ingestion of Soil and Dust and Ingestion of Homegrown Produce

			Median	Mean	90th	95th
Site Wide	Adult + Child	antimony	0.023	0.049	0.102	0.167
		arsenic	0.059	0.171	0.394	0.671
		cadmium	0.017	0.052	0.094	0.168
		thallium	0.120	0.221	0.458	0.703
	Child	antimony	0.031	0.068	0.148	0.236
		arsenic	0.005	0.015	0.035	0.060
		thallium	0.152	0.290	0.625	0.959
East Trail	Adult + Child	antimony	0.029	0.066	0.144	0.236
		arsenic	0.089	0.251	0.584	0.994
		cadmium	0.020	0.062	0.109	0.196
		thallium	0.151	0.271	0.583	0.873
	Child	antimony	0.042	0.096	0.212	0.338
		arsenic	0.008	0.023	0.053	0.088
		thallium	0.191	0.356	0.777	1.151
Rivervale	Adult + Child	antimony	0.022	0.046	0.097	0.157
		arsenic	0.055	0.157	0.363	0.616
		cadmium	0.019	0.061	0.106	0.192
		thallium	0.147	0.255	0.547	0.812
	Child	antimony	0.030	0.063	0.135	0.211
		arsenic	0.005	0.014	0.032	0.052
		thallium	0.184	0.331	0.720	1.058
Tadanac	Adult + Child	antimony	0.036	0.087	0.192	0.319
		arsenic	0.112	0.316	0.735	1.246
		cadmium	0.020	0.063	0.112	0.201
		thallium	0.153	0.282	0.603	0.916
	Child	antimony	0.055	0.128	0.287	0.465
		arsenic	0.011	0.029	0.068	0.113
		thallium	0.194	0.373	0.807	1.213
Waneta	Adult + Child	antimony	0.036	0.051	0.098	0.138
		arsenic	0.040	0.115	0.232	0.406
		cadmium	0.011	0.024	0.044	0.071
		thallium	0.109	0.152	0.286	0.403
	Child	antimony	0.046	0.068	0.137	0.194
		arsenic	0.004	0.010	0.021	0.035
		thallium	0.144	0.203	0.404	0.554
West Trail	Adult + Child	antimony	0.025	0.053	0.114	0.187
		arsenic	0.085	0.238	0.550	0.932
		cadmium	0.020	0.062	0.109	0.197
		thallium	0.147	0.256	0.550	0.818
	Child	antimony	0.035	0.075	0.164	0.259
		arsenic	0.008	0.021	0.050	0.083
		thallium	0.185	0.333	0.725	1.064

Note:
Cadmium risks calculated for adult + child scenario only
Shading indicates results above a target risk of 1.0

Table 5-6. Summary of Hazard Quotients for the Commercial Scenario
Ingestion of Soil/Dust: East Trail

		Median	Mean	90th	95th
Adult + Child	antimony	0.009	0.027	0.061	0.106
	cadmium	0.001	0.002	0.005	0.009
Child	antimony	0.016	0.042	0.099	0.164

Table 5-7. Summary of Noncancer and Cancer Risks for the Agricultural Scenario: Waneta

	Median	Mean	90th	95th
Hazard Quotient				
Antimony				
Ingestion of Soil/Dust	0.008	0.009	0.011	0.012
Inhalation of Particulates	0.0003	0.0003	0.0005	0.0006
Total	0.009	0.009	0.011	0.012
Cadmium				
Ingestion of Soil/Dust	0.0002	0.0003	0.0008	0.0010
Cancer Risk				
Cadmium				
Inhalation of Particulates	7E-09	1E-08	3E-08	4E-08

Table 5-8. Noncancer and Cancer Risks for Ingestion of Locally Caught Fish

	CTE			RME		
	Walleye	Mountain Whitefish	Rainbow Trout	Walleye	Mountain Whitefish	Rainbow Trout
CHILD – Hazard Quotient						
arsenic	0.07	0.05	0.14	0.3	0.2	0.6
chromium – no skin	4	0.04	0.3	16.9	0.19	1.3
chromium – with skin	0.2	--	--	0.8	--	--
mercury	1.2	0.2	0.58	5	0.85	2.5
selenium	0.06	0.03	0.16	0.24	0.12	0.7
thallium	0.08	0.06	0.12	0.33	0.27	0.5
vanadium	0.03	0.05	0.01	0.14	0.21	0.04
ADULT – Hazard Quotient						
arsenic	0.03	0.02	0.07	0.16	0.1	0.32
chromium – no skin[a]	1.9	0.02	0.14	8.9	0.1	0.67
chromium – with skin[a]	0.1	--	--	0.4	--	--
mercury	0.55	0.09	0.27	2.6	0.45	1.3
selenium	0.03	0.01	0.08	0.13	0.06	0.37
thallium	0.04	0.03	0.06	0.17	0.14	0.27
vanadium	0.02	0.02	0	0.07	0.11	0.02
ADULT+CHILD – Hazard Quotient						
arsenic	0.05	0.03	0.09	0.18	0.12	0.36
chromium – no skin[a]	2.6	0.03	0.19	10.1	0.11	0.76
chromium – with skin[a]	0.1	--	--	0.5	--	--
mercury	0.76	0.13	0.38	3	0.51	1.5
selenium	0.04	0.02	0.11	0.14	0.07	0.42
thallium	0.05	0.04	0.08	0.2	0.16	0.3
vanadium	0.02	0.03	0.01	0.08	0.13	0.02
ADULT+CHILD – Cancer Risk						
arsenic	2E-06	2E-06	5E-06	3E-05	2E-05	7E-05

Notes
Shading indicates noncancer risks above a target risk of 1.0 and cancer risks above a target risk of $1x10^{-5}$.
[a] For the fish result data collected in September 2000, samples were processed two ways: with and without skin and then analyzed. For the HHRA, the higher of the two sets for each metal (determined by averaging) was included. For one sample, the chromium result was 809 µg/g by one method (no skin) and 7.7 µg/g by the other (with skin). Because the higher result is inconsistent with the rest of the data, risks were calculated two ways: 1) including this result or 2) excluding this result and using the value for the sample processed with skin.

Table 5-9. Noncancer Risks for ATV/Dirt Bike Scenario

Noncancer Risk	CTE	RME
Incidental Ingestion of Soil	0.0003	0.002
Inhalation of Particulates	0.0041	0.102
Total All Pathways	0.0045	0.104

Table 5-10. Summary of Site Wide Cancer Risks

	Median	Mean	90th	95th
Soil/Dust	2E-06	5E-06	1E-05	2E-05
Produce	1E-06	3E-06	8E-06	1E-05
Soil/Dust + Produce	3E-06	8E-06	2E-05	3E-05

Shading indicates results above a target risk of $1x10^{-5}$

Table 5-11. Cancer Risk Estimates: Residential Scenario - Inhalation

		Median	Mean	90th	95th
Birchbank	arsenic	3E-06	2E-05	3E-05	7E-05
	cadmium	4E-07	1E-06	3E-06	4E-06
	total	4E-06	2E-05	4E-05	7E-05
Butler Park	arsenic	7E-06	1E-05	3E-05	5E-05
	cadmium	7E-07	2E-06	4E-06	6E-06
	total	7E-06	1E-05	4E-05	5E-05
Columbia Gardens	arsenic	2E-06	6E-06	1E-05	2E-05
	cadmium	5E-07	9E-07	2E-06	3E-06
	total	3E-06	7E-06	2E-05	3E-05
Genelle	arsenic	2E-06	6E-06	1E-05	2E-05
	cadmium	3E-07	5E-07	1E-06	2E-06
	total	2E-06	7E-06	1E-05	2E-05
Warfield	arsenic	2E-06	5E-06	1E-05	2E-05
	cadmium	4E-07	1E-06	2E-06	4E-06
	total	2E-06	6E-06	1E-05	2E-05
West Trail	arsenic	4E-06	8E-06	2E-05	3E-05
	cadmium	7E-07	1E-06	3E-06	5E-06
	total	5E-06	9E-06	2E-05	3E-05

Shading indicates results above a target risk of 1x10^{-5}

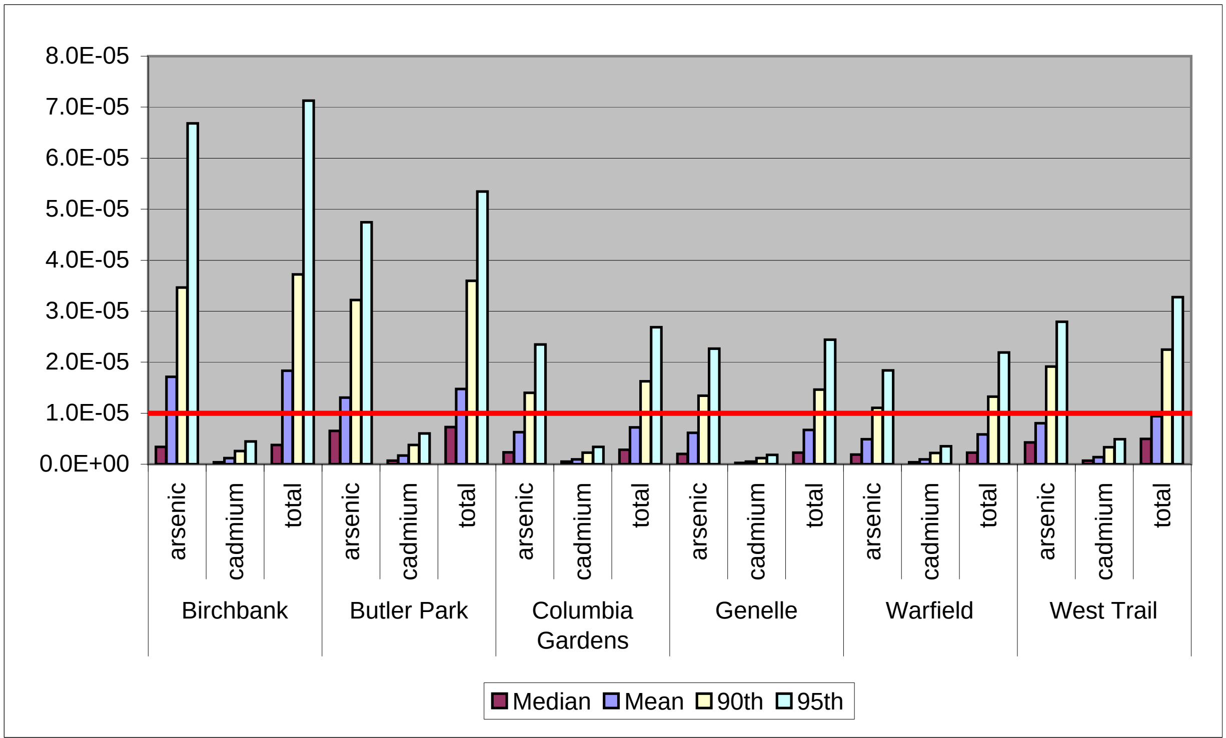


Table 5-12. Cancer Risk Estimates: Residential Scenario - Ingestion Soil/Dust (arsenic)

	Median	Mean	90th	95th
Site Wide	2E-06	5E-06	1E-05	2E-05
East Trail	3E-06	8E-06	2E-05	3E-05
Rivervale	1E-06	4E-06	8E-06	1E-05
Tadanac	4E-06	1E-05	2E-05	4E-05
Waneta	1E-06	3E-06	7E-06	1E-05
West Trail	3E-06	7E-06	2E-05	3E-05

Shading indicates results above a target risk of $1x10^{-5}$

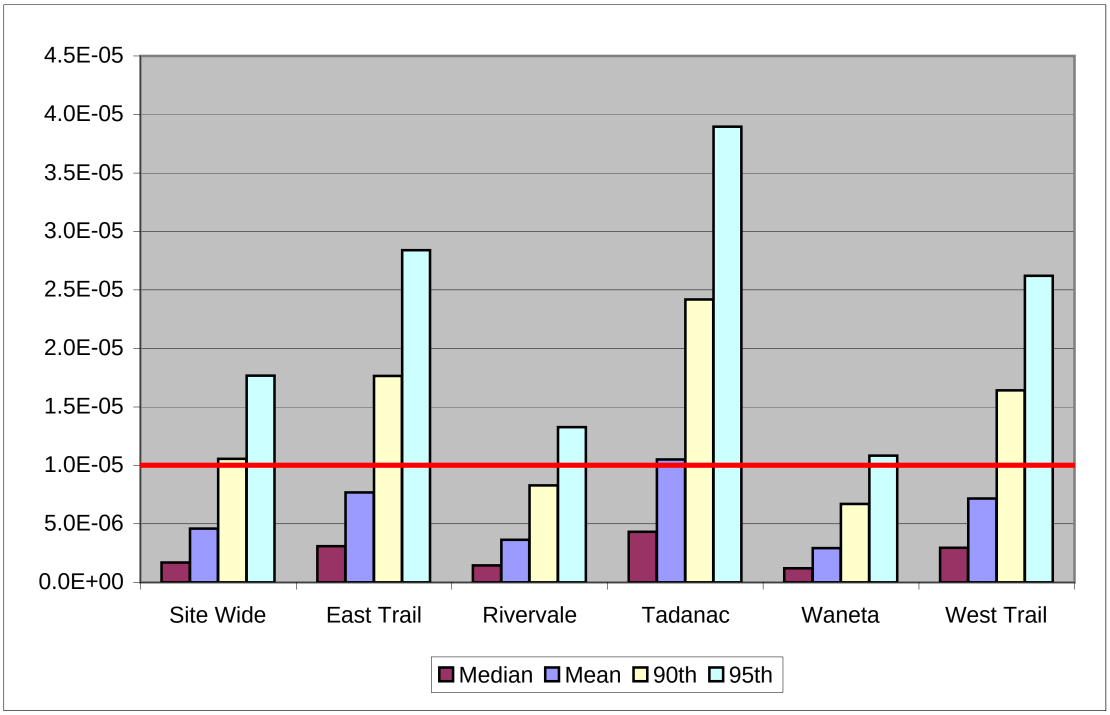


Table 5-13. Cancer Risk Estimates: Residential Scenario - Ingestion Homegrown Produce (arsenic)

	Median	Mean	90th	95th
Site Wide	1E-06	3E-06	8E-06	1E-05
Far	8E-07	2E-06	4E-06	8E-06
Near	1E-06	4E-06	9E-06	2E-05

Shading indicates results above a target risk of $1x10^{-5}$

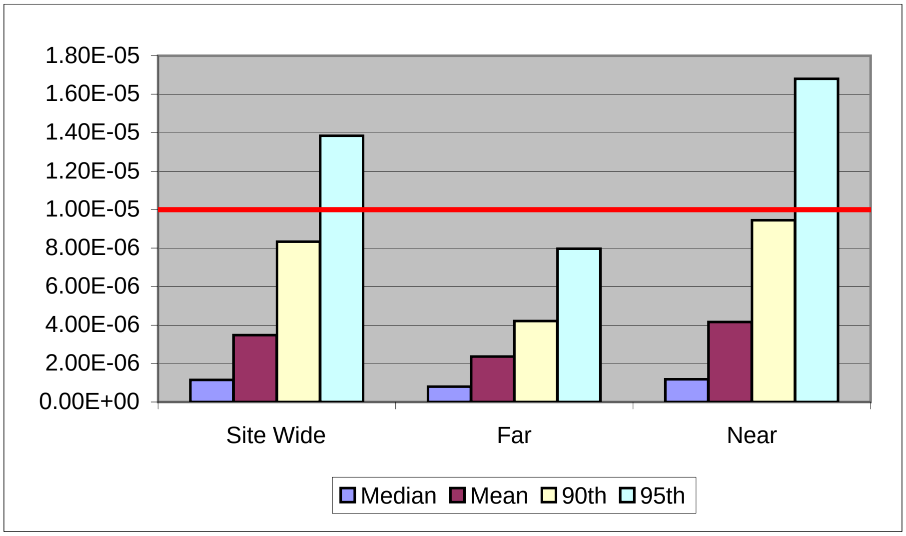


Table 5-14. Cancer Risk Estimates: Residential Scenario - Ingestion Soil/Dust and Ingestion Homegrown Produce

	Median	Mean	90th	95th
Site Wide	3E-06	8E-06	2E-05	3E-05
East Trail	4E-06	1E-05	3E-05	5E-05
Rivervale	3E-06	8E-06	2E-05	3E-05
Tadanac	6E-06	1E-05	3E-05	6E-05
Waneta	2E-06	5E-06	1E-05	2E-05
West Trail	4E-06	1E-05	3E-05	4E-05

Shading indicates results above a target risk of $1x10^{-5}$

Table 5-15. Total Cancer Risk Estimates: Residential Scenario

		Median	Mean	90th	95th
East Trail (Butler Park)	Air	7E-06	1E-05	4E-05	5E-05
	Soil-Dust	3E-06	8E-06	2E-05	3E-05
	Produce	1E-06	4E-06	9E-06	2E-05
	Total	1E-05	3E-05	6E-05	1E-04
Waneta (Columbia Gardens)	Air	3E-06	7E-06	2E-05	3E-05
	Soil-Dust	1E-06	3E-06	7E-06	1E-05
	Produce	8E-07	2E-06	4E-06	8E-06
	Total	5E-06	1E-05	3E-05	5E-05
West Trail (West Trail)	Air	5E-06	9E-06	2E-05	3E-05
	Soil-Dust	3E-06	7E-06	2E-05	3E-05
	Produce	1E-06	4E-06	9E-06	2E-05
	Total	9E-06	2E-05	5E-05	8E-05

Air monitoring station noted in parentheses

Shading indicates results above a target risk of $1x10^{-5}$

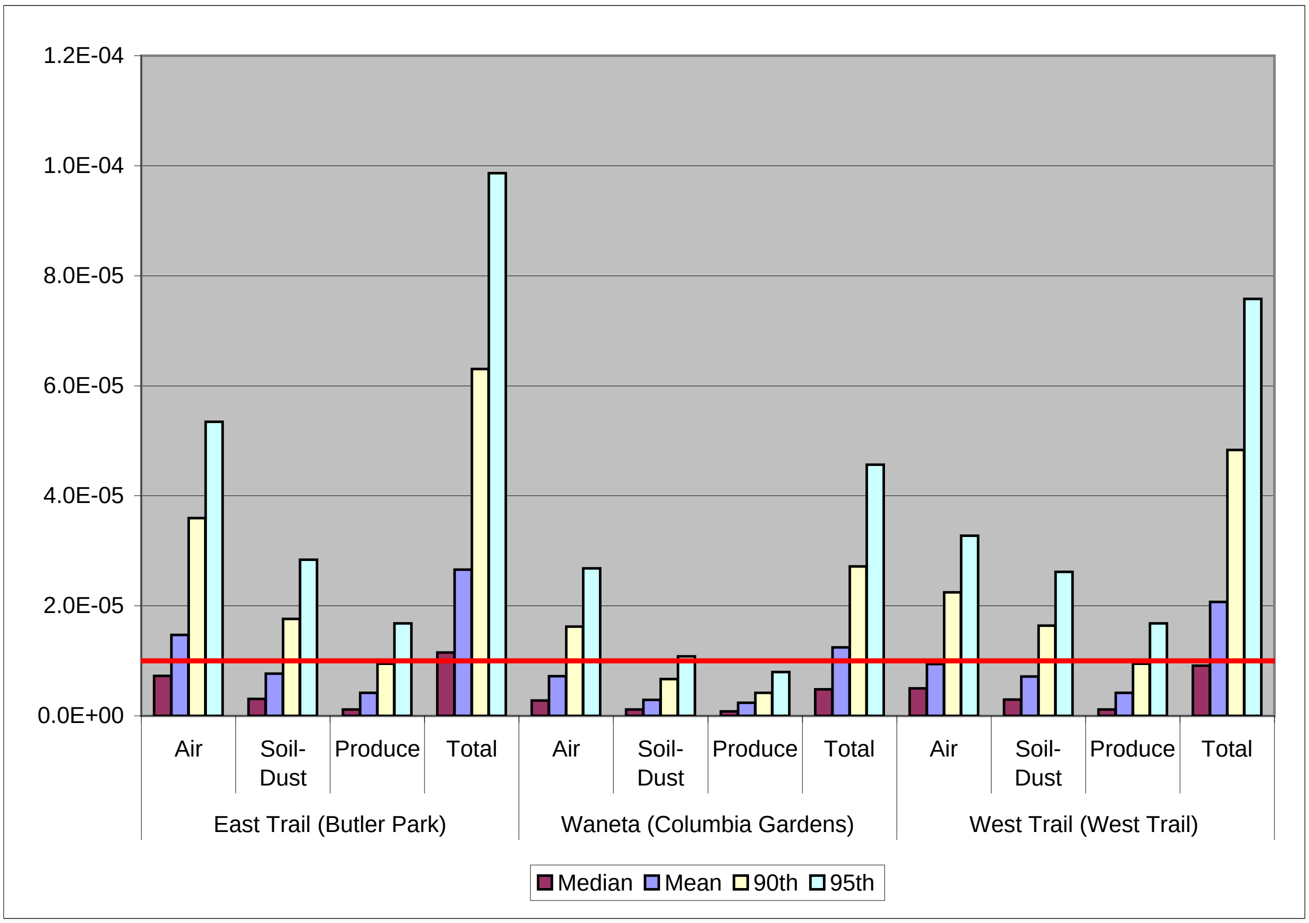


Table 5-16. Summary of Cancer Risks for the Commercial Scenario
Inhalation of Ambient Air

		Median	Mean	90th	95th
Butler Park	Arsenic	3E-06	6E-06	1E-05	2E-05
	Cadmium	3E-07	7E-07	2E-06	3E-06
	Total	3E-06	7E-06	2E-05	2E-05
Columbia Gardens	Arsenic	1E-06	3E-06	6E-06	1E-05
	Cadmium	2E-07	4E-07	1E-06	2E-06
	Total	1E-06	3E-06	7E-06	1E-05
West Trail	Arsenic	2E-06	4E-06	9E-06	1E-05
	Cadmium	3E-07	6E-07	1E-06	2E-06
	Total	2E-06	4E-06	1E-05	2E-05

Shading indicates results above a target risk of 1×10^{-5}

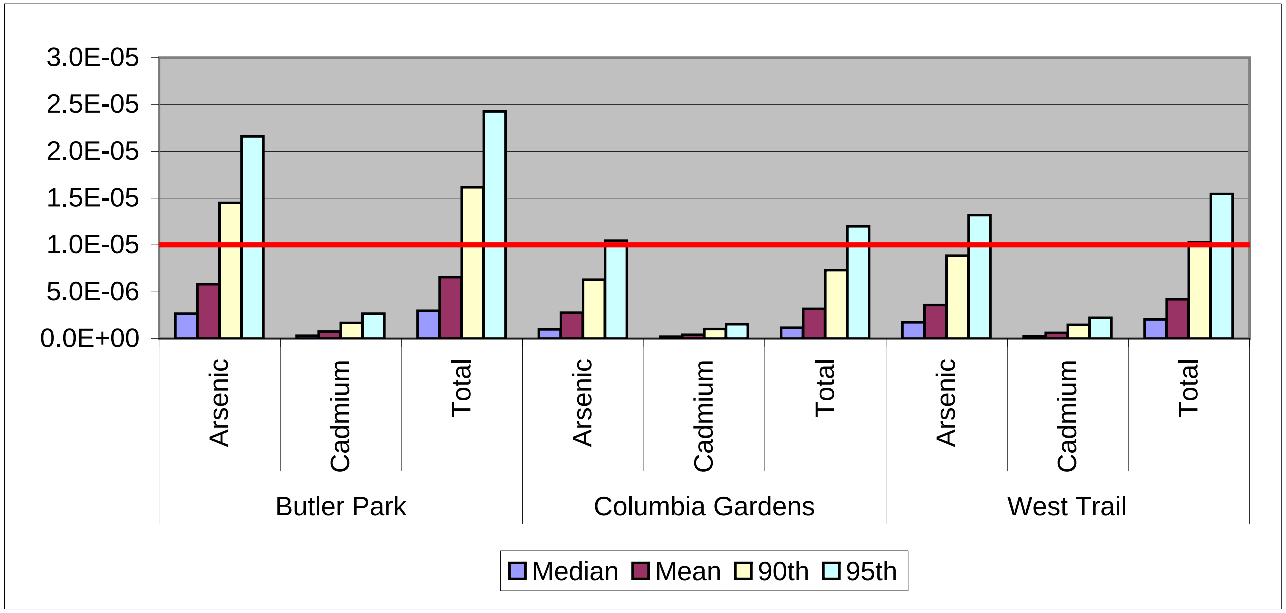


Table 5-17. Comparison of Exposure Point Concentration (EPC) Values between Phases 3 and 4

		Antimony		Arsenic		Cadmium	
		Phase 3	Phase 4	Phase 3	Phase 4	Phase 3	Phase 4
Residential Soil (mg/kg)[a]							
East Trail	EPC	107	59	92	73	37	31
	Sample Size[b]	*12*	*81*	*60*	*81*	*60*	*81*
Rivervale	EPC	140	70	169	88	14	10
	Sample Size	*15*	*31*	*15*	*31*	*15*	*31*
Tadanac	EPC	76	75	107	79	34	28
	Sample Size	*13*	*35*	*15*	*35*	*15*	*35*
Waneta	EPC	26	18	29	21	5	6.5
	Sample Size	*1*	*12*	*4*	*12*	*4*	*12*
West Trail	EPC	33	44	60	52	30	26
	Sample Size	*14*	*68*	*53*	*68*	*53*	*68*
Residential Air (ug/m^3 PM10)[c]							
Butler Park (East Trail)	EPC	NC	0.009	0.026	0.018	0.0124	0.0082
	Sample Size		*235*	*28*	*235*	*28*	*235*
Oasis	EPC	NC	NC	0.018	NC	0.0091	NC
	Sample Size			*49*		*49*	
Genelle	EPC	NC	0.0040	NC	0.010	NC	0.0018
	Sample Size		*117*		*117*		*117*
Birchbank	EPC	NC	NC	NC	0.031	NC	0.0085
	Sample Size				*162*		*162*
Downtown[d]	EPC	0.0025	NC	--	NC	--	NC
	Sample Size	*211*					
Columbia Gardens (Waneta)[d]	EPC	0.0095	NC	--	0.015	--	0.0039
	Sample Size	*60*			*172*		*172*
Warfield	EPC	NC	0.005	NC	0.009	NC	0.0041
	Sample Size		*225*		*231*		*231*
West Trail	EPC	0.018	0.0044	0.0099	0.009	0.0046	0.0042
	Sample Size	*34*	*253*	*49*	*253*	*49*	*253*

Table 5-17. Comparison of Exposure Point Concentration (EPC) Values between Phases 3 and 4

		Antimony		Arsenic		Cadmium	
		Phase 3	Phase 4	Phase 3	Phase 4	Phase 3	Phase 4
Garden Produce (mg/kg wet weight)[e]							
Near - Root	EPC	NC	0.008	0.016	0.011	0.50	0.35
	Sample Size		*14*	*17*	*31*	*17*	*31*
Far - Root	EPC	NC	0.010	0.007	0.008	0.22	0.18
	Sample Size		*4*	*3*	*7*	*3*	*7*
Near - Nonroot	EPC	NC	0.043	0.69	0.25	2.51	1.71
	Sample Size		*38*	*58*	*96*	*58*	*96*
Far - Nonroot	EPC	NC	0.032	0.019	0.074	1.76	1.45
	Sample Size		*7*	*9*	*16*	*9*	*16*

Notes:
EPCs are either the maximum or the 95th upper confidence limit on the mean (UCLM) of the lognormal distribution, whichever is lower.
Lognormal distribution used to be consistent with Phase 3.
--: not used in Phase 3; NC: no concentration data available
[a] For Phase 3, data collected between 1989 and 1998. For Phase 4, data collected between 1989 and 2007
[b] For Phase 4, sample sizes are greater for the following reasons: 1) new samples have been collected; 2) all garden soil data is included, and 3) antimony concentrations are estimated from all arsenic concentrations
[c] For Phase 3, data collected between 1997 and 1999. For Phase 4, data collected between 2003 and 2007.
[d] Total suspended particulate (TSP) data for Phase 3
[e] For Phase 3, data collected 1998 and 1999. For Phase 4, data collected 1998, 1999, and 2007. For Phase 3, produce was broken into leafy and nonleafy. For comparison with Phase 4 categories, EPCs were calculated for Phase 3 only data for root and nonroot.

Table 5-18. Comparison of Noncancer Risks: Phase 3 versus Phase 4 95th Percentiles

Pathway			Antimony Phase 3	Antimony Phase 4 95th	Arsenic Phase 3	Arsenic Phase 4 95th	Cadmium Phase 3	Cadmium Phase 4 95th
Ingestion soil/dust	East Trail	Adult	0.01	--	0.01	--	--	--
		Adult + Child	--	0.14	--	0.71	0.01	0.01
		Child	0.20	0.22	0.10	0.07	--	--
Ingestion soil/dust	Rivervale	Adult	0.01	--	0.01	--	--	--
		Adult + Child	--	0.06	--	0.34	0.003	0.003
		Child	0.20	0.09	0.30	0.03	--	--
Ingestion soil/dust	Tadanac	Adult	0.01	--	0.01	--	--	--
		Adult + Child	--	0.22	--	0.97	0.02	0.01
		Child	0.20	0.35	0.20	0.09	--	--
Ingestion soil/dust	Waneta	Adult	0.002	--	0.002	--	--	--
		Adult + Child	--	0.041	--	0.27	0.01	0.004
		Child	0.04	0.06	0.04	0.03	--	--
Ingestion soil/dust	West Trail	Adult	0.01	--	0.01	--	--	--
		Adult + Child	--	0.09	--	0.06	0.01	0.01
		Child	0.10	0.14	0.10	0.06	--	--
Ingestion Produce	Near to Site	Adult	--	--	0.01	--	0.30	--
		Adult + Child	--	0.10	--	0.28	--	0.19
		Child	--	0.12	--	0.02	--	--
Ingestion Produce	Far from Site	Adult	--	--	0.01	--	0.20	--
		Adult + Child	--	0.10	--	0.13	--	0.07
		Child	--	0.13	--	0.01	--	--

Note:
Cadmium risks calculated for adult + child scenario only

Table 5-19. Background Arsenic Intakes for Adults and Children

Medium	Background Concentration	Intakes (µg/day) Adult	Child	Reference/Notes
Air	0.003 $\mu g/m^3$	0.02	<0.01	ATSDR 1993, Exponent 1998b
Drinking Water	0.25 µg/L	0.4	0.2	PTI 1997, Exponent 1998b
Soil	1-14.9 mg/kg	0.1-0.16	0.04-0.66	BC Environment 1996, Exponent 1998b
Food - Exponent 1998b		8.3	3.8	Yost et al 1998, Exponent 1998b
Cigarettes	1.8 µg/pack	1.8	0	USEPA 1984, Exponent 1998b
Total - Exponent 1998b		**8.7-10.7**	**4.0-4.6**	adult includes range of smokers and non smokers
Food - Revised		3.2	3.2	Schoof et al. 1999, Yost et al. 2004
Total - Revised		**3.7-3.8**	**3.4-4.1**	adult only includes non smokers

PTI. 1997. Recommendations for subsequent risk assessment for non-lead constituents at Trail, British Columbia.
ATSDR. 1993a. Toxicological profile for arsenic.
Yost et al. 1998.
USEPA. 1984. Health assessment document for inorganic arsenic.

Table 5-20. Background Cadmium Intakes for Adults

Medium	Background Concentration	Adult Intake (µg/day)	References
Air	0.001 µg/m^3	0.006	ATSDR 1993, Exponent 1998b
Drinking Water	0.1 µg/L	0.0075	PTI 1997, Exponent 1998b
Food		0.34	Dabeka and McKenzie 1995, Exponent 1998b
Cigarettes		1	WHO 1992, Exponent 1998b
Total - Smokers		1.35	
Total - Nonsmokers		0.35	

Notes:

PTI. 1997. Recommendations for subsequent risk assessment for non-lead constituents at Trail, British

ATSDR. 1993b. Toxicological profile for cadmium.

Dabeka and McKenzie. 1995. Survey of lead, cadmium, fluoride, nickel, and cobalt in food composites and estimation of dietary intakes of these elements by Canadians in 1986-1988.

WHO. 1992. Environmental Health Criteria 134. Cadmium.

Table 5-21. Key Uncertainties Associated with the Human Health Risk Assessment

Source of Uncertainty	Effect on Risk Estimates	Potential Magnitude of Effect	Rationale for Assumptions
All Pathways			
Distribution Fitting – Probabilistic Assessments*	Under- or Overestimate	Medium	In some cases, data sets fit more than one distribution. Care was taken to select the best fit, but in some cases, particularly for data sets with smaller sample sizes, the data set may have been better predicted by an alternate distribution.
Exposure Duration – Probabilistic Assessments*	Underestimate	Medium	Trail residents may have lower residential mobility than some populations. The use of U.S. national data may have underestimated exposures for residents that remain in Trail for their entire lives.
Exposure Duration – Deterministic Assessments	Overestimate	Medium	For the fish ingestion and ATV/dirt bike scenarios, it was conservatively assumed that a resident would engage in these activities regularly for up to 30 years. Though residents may reside in Trail for this time period, it is less likely that they will engage in these activities at the specified exposure frequencies for their entire residency.
Toxicity Values – Threshold	Overestimate	High	Toxicity values assume lack of a threshold for cancer induction in dose-response models. This assumption may lead to high risk estimates when risks may actually be as low as zero. New cancer dose-response assessments are beginning to consider evidence of alternative dose-response models for carcinogens.
Toxicity Values-- Extrapolation	Overestimate	High	Standard toxicity assessment procedures are designed to minimize that chance that risks will be underestimated. Standard procedures use conservative assumptions to extrapolate toxicity estimates from animal studies to humans, from high doses to low doses, and from less-than-lifetime to lifetime exposures. Each of these factors adds an element of conservatism into the risk estimates calculated using the resulting toxicity values.

Table 5-21. Key Uncertainties Associated with the Human Health Risk Assessment

Source of Uncertainty	Effect on Risk Estimates	Potential Magnitude of Effect	Rationale for Assumptions
Soil, Indoor Dust, and Outdoor Dust Ingestion			
Fractional Intake—Soil, Indoor Dust, Outdoor Dust	Under- or Overestimate	Low to Medium	Data on the fraction of exposure from indoor dust, outdoor dust, and soil were not available. Estimates taken from USEPA and Phase 3 were utilized, but may not accurately represent exposure for all residents throughout the exposure duration.
Estimated Concentrations—Antimony and Zinc*	Under- or Overestimate	Low to Medium	Data analyzed using the TLP[a] method was found to be unreliable for certain metals. For these metals, a regression was utilized. This approach was used because it was considered to be more conservative, but actual concentrations may have been under- or over-estimated.
Soil Ingestion Rate—Children*	Under- or Overestimate	Medium	Soil ingestion rates were derived from a USEPA analysis of a Stanek et al. (2001) and may overestimate long-term soil ingestion by children.
Soil Ingestion Rate—Adults	Overestimate	Low to Medium	Soil ingestion rates were derived from a small, short term study of adults. Estimates of soil ingestion derived from short-term studies tend to overestimate soil ingestion over longer averaging times.
Relative Bioavailability—Arsenic and Cadmium	Under- or Overestimate	Low	For arsenic and cadmium, relative bioavailability was estimated using results from an *in vitro* bioaccessibility study. The values obtained in this study may be under or overestimates of true relative bioavailability.
Relative Bioavailability—Other Metals	Overestimate	Low to Medium	For many metals, no estimate of relative bioavailability was available. Most toxicity values are based on absorption from water, and since bioavailability from soil is less than from water and, risks for these metals are likely overestimated.

Table 5-21. Key Uncertainties Associated with the Human Health Risk Assessment

Source of Uncertainty	Effect on Risk Estimates	Potential Magnitude of Effect	Rationale for Assumptions
Produce Ingestion			
Produce Consumption Rates	Over- or Underestimate	Low to Medium	Estimates of produce consumption are based on short-term dietary surveys and may not be applicable to long-term ingestion. Furthermore, the data used to derive these ingestion rates is over 35 years old. That said, these rates are similar to more recent rates for the U.S. population (USEPA 1997, 2002a).
Inhalation			
Indoor Air Concentration	Overestimate	Low to Medium	For conservatism, it was assumed that indoor and outdoor air concentrations were equal. It is expected that indoor air concentrations are lower than those outdoors, so exposures may be overestimated.
Daily Inhalation Rates	Overestimate	Low	Estimates of daily inhalation rates for Canadians are slightly higher than those for the U.S. population (USEPA 1997). There is no clear reason for U.S. and Canadian populations to have different inhalation rates, so there is some uncertainty associated with these values.
Particulate Concentration in Air	Under- or Overestimate	Medium	Particulate concentrations were estimated using emission equations assuming certain types of agricultural activities. They may not be inclusive of all potential exposures for Trail agricultural workers.
Fish Ingestion			
Fish Consumption Rates—Derivation	Under- or Overestimate	Medium	Ingestion rates are based on short-term surveys and may not be representative of long-term exposures.
Fish Consumption Rates—Species	Overestimate	Medium	Because species-specific consumption rates were not available, total fish consumption rates were applied for each species.
Fractional Intakes	Under- or Overestimate	Medium	Fractional intakes were applied to account for the types of fish eaten by residents, but may under- or over-estimate the true fraction of local, freshwater fish.

Notes:

*****Evaluated in Sensitivity Analysis (Section 5.4 and Table 5-23).

[a] Trail Lead Program (see Section 2.2.1).

Table 5-22. Sources of Uncertainty and Variability in Probabilistic Exposure Parameters

Input	Source(s) of Variability	Source(s) of Uncertainty
All Pathways		
Exposure Duration	differences in residence time	no site specific data; using U.S. data - residence time may be longer in Trail
Body Weight	differences among individuals	
Exposure Frequency	differences in individuals activity patterns	no site specific data
Ingestion of Soil, Indoor Dust, and Outdoor Dust		
Soil Concentrations	range throughout Trail; distance from smelter may play a role for some metals	analytical methodology limitations for some data (SALM vs. TLP)[a]; smaller datasets for some metals in some areas of Trail; distribution fitting
Indoor Dust Data	range throughout Trail; distance from smelter may play a role for some metals	data lacking for several metals; data 10 years old; distribution fitting
Outdoor Dust Data	range throughout Trail; distance from smelter plays a role for some metals	data missing for some neighborhoods; distribution fitting
Soil Ingestion Rates	differences in individuals' activity patterns	limited studies; no site specific data; short term study design used to derive rates
Fractional Intake: Soil, Indoor Dust, and Outdoor Dust	differences in individuals' activity patterns	no site specific data
Ingestion of Produce		
Produce Concentrations	range throughout Trail; distance from smelter plays a role for some metals; differences in garden soil concentrations	smaller datasets for some metals in some areas in Trail; distribution fitting
Produce Ingestion Rates	differences among individuals	no site specific data; older data; short term study design used to derive rates
Inhalation		
Air Data	range throughout Trail; distance from smelter plays a role for some metals	limited to air monitoring stations
Inhalation Rates	differences in individuals' activity patterns	differences in Canadian and U.S. rates
Particulate Concentration in Air	differences in individuals' activity patterns	no site specific data; does not include estimate for rangeland

Notes

[a] SALM = Strong Acid Leachable Metals (method); TLP = Trail Lead Program (See Section 2.3.1)

Table 5-23. Results of the Sensitivity Analysis[a]

Parameter	Original	Alternate	Site location	Medium	Metal	Risk Type[b]	Original Risk Results		Alternate Risk Results		Ratio of Alternate to Original	
							Mean	95th	Mean	95th	Mean	95th
Arsenic concentration	exponential distribution (rate: 62.46)	lognormal (mean: 0.018; std dev: 0.0293)	Butler Park	Air	Arsenic	CR	1.3E-05	4.7E-05	1.5E-05	5.6E-05	1.15	1.18
Adult plus child exposure duration	lognormal (mean: 12.6, std dev: 16.2; truncated at 87)	lognormal (mean: 18.9, std dev: 12.15; truncated at 87)	Butler Park	Air	Arsenic	CR	1.3E-05	4.7E-05	1.83E-05	5.96E-05	1.40	1.26
			Site Wide	Soil/Dust	Arsenic	CR	4.6E-06	1.8E-05	5.6E-06	2.0E-05	1.22	1.12
						NC	0.11	0.43	0.066	0.24	0.61	0.55
				Produce	Arsenic	CR	3.5E-06	1.4E-05	5.3E-06	2.0E-05	1.54	1.46
						NC	0.06	0.24	0.05	0.20	0.82	0.83
					Thallium	NC	0.20	0.62	0.16	0.50	0.81	0.80
Child soil ingestion rate	lognormal (mean: 47.5, 95th: 177)	lognormal (mean: 31, 95th: 91)	Site Wide	Soil/Dust	Arsenic	CR	4.6E-06	1.8E-05	3.2E-06	1.1E-05	0.70	0.62
						NC	0.11	0.43	0.074	0.25	0.69	0.59
Antimony concentration	regression of arsenic data	SALM data only	Site Wide	Soil/Dust	Antimony	NC	0.020	0.082	0.021	0.082	1.03	1.00

Notes:

[a] All results are for the adult plus child receptor

[b] CR = cancer risk; NC = non cancer hazard index

APPENDIX A

SELECTED DATA EVALUATIONS OF PHASE 4 DATA

APPENDIX A1

COMPARISON OF RESULTS FOR 2006 SALM AND TLP ANALYSES

Table A1-1. Method Comparison for Frequency of Detection for Soil from Residential Properties and Public Areas

	Detection Limit (mg/kg)		Frequency of Detection											
			East Trail (June 2006)		**East Trail (August 2006)**		Glenmerry (June 2006)		Glenmerry (August 2006)		**Tadanac (June 2006)**		**Tadanac (August 2006)**	
Metal	TLP	SALM	TLP	SALM	TLP	SALM	TLP	SALM	TLP	SALM	TLP	SALM	TLP	SALM
Antimony	10	10	38%	75%	10%	90%	50%	67%	0%	36%	75%	100%	27%	100%
Arsenic	5	5	100%	100%	100%	100%	67%	83%	91%	100%	100%	100%	100%	100%
Barium	1	1	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Beryllium	0.5	0.5	13%	25%	0%	0%	17%	0%	0%	0%	0%	0%	0%	0%
Cadmium	0.5	0.5	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Chromium	2	2	100%	100%	90%	100%	100%	100%	73%	100%	100%	100%	100%	100%
Cobalt	2	2	75%	100%	0%	100%	67%	100%	18%	100%	75%	100%	9%	100%
Copper	1	1	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Lead	50	50	100%	100%	100%	100%	83%	83%	100%	100%	100%	100%	100%	100%
Molybdenum	4	4	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Nickel	5	5	63%	100%	0%	100%	33%	100%	0%	100%	50%	100%	0%	100%
Selenium	2	0.1	0%	100%	0%	90%	0%	100%	0%	91%	0%	100%	0%	100%
Silver	2	2[a]	50%	50%	0%	80%	67%	67%	0%	18%	88%	75%	9%	91%
Thallium	1	1	50%	38%	60%	60%	67%	67%	9%	18%	75%	63%	45%	45%
Tin	5	5	0%	63%	0%	60%	0%	67%	0%	9%	0%	63%	0%	73%
Vanadium	2	2	100%	100%	90%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Zinc	1	1	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%

Table A1-1. Method Comparison for Frequency of Detection for Soil from Residential Properties and Public Areas (Continued)

	Detection Limit (mg/kg)		Frequency of Detection											
			Rivervale (August 2006)		Shavers Bench (August 2006)		Sunningdale (August 2006)		**West Trail (August 2006)**		**Site Wide[b] (June 2006)**		**Site Wide[c] (August 2006)**	
Metal	TLP	SALM	TLP	SALM	TLP	SALM	TLP	SALM	TLP	SALM	TLP	SALM	TLP	SALM
Antimony	10	10	20%	60%	18%	64%	9%	82%	10%	90%	55%	82%	14%	74%
Arsenic	5	5	100%	100%	82%	91%	100%	100%	100%	100%	91%	95%	96%	99%
Barium	1	1	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Beryllium	0.5	0.5	0%	0%	0%	9%	0%	0%	0%	0%	9%	9%	0%	1%
Cadmium	0.5	0.5	100%	100%	91%	91%	100%	100%	100%	100%	100%	100%	99%	99%
Chromium	2	2	80%	100%	73%	100%	100%	100%	100%	100%	100%	100%	88%	100%
Cobalt	2	2	0%	100%	27%	100%	45%	100%	50%	100%	73%	100%	22%	100%
Copper	1	1	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Lead	50	50	100%	100%	91%	91%	100%	100%	100%	100%	95%	95%	99%	99%
Molybdenum	4	4	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Nickel	5	5	0%	100%	9%	100%	9%	100%	10%	100%	50%	100%	4%	100%
Selenium	2	0.1	0%	100%	0%	82%	0%	100%	0%	100%	0%	100%	0%	95%
Silver	2	2[a]	0%	60%	0%	55%	0%	27%	0%	70%	68%	64%	1%	57%
Thallium	1	1	30%	30%	27%	27%	18%	27%	30%	50%	64%	55%	31%	36%
Tin	5	5	0%	50%	0%	55%	0%	45%	0%	80%	0%	64%	0%	53%
Vanadium	2	2	100%	100%	82%	100%	100%	100%	100%	100%	100%	100%	96%	100%
Zinc	1	1	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%

Notes: Bolded neighborhoods are quantitatively evaluated in Phase 4. Shaded values represent a FOD ≤ 10%.

[a] In one of the June 2006 samples (ET04), the detection limit was reported as 3 mg/kg.

[b] The June 2006 Site Wide dataset is comprised of soil samples from public areas within East Trail, Glenmerry, and Tadanac.

[c] The August 2006 Site Wide dataset is comprised of soil samples from residential properties within East Trail, Glenmerry, Tadanac, Rivervail, Shavers Bench, Sunningdale, and Waneta.

Table A1-2. Comparison of TLP Method and SALM Data

Method Comparison

	East Trail								Glenmerry							
	Prior Phase TLP			2006 SALM			2006 Method Comparison		Prior Phase TLP			2006 SALM			2006 Method Comparison	
Metal	Minimum	Average	Maximum	Minimum	Average	Maximum	p value	r	Minimum	Average	Maximum	Minimum	Average	Maximum	p value	r
Antimony	19.5	59.13	147	5	30.12	66	***0.000***	0.46	8.5	27.75	72	5	17.63	65	***0.027***	0.53
Arsenic	13	73.27	340	13.9	38.98	67.3	0.167	0.91	9	40.05	186.5	2.5	19.51	57	0.867	0.79
Barium	66	177.94	301.5	50.5	134.89	296	***0.001***	0.92	60	149.00	232	48.6	109.28	229	0.397	0.82
Beryllium	1	1.00	1	0.25	0.27	0.57	0.379	0.64	1	1.00	1	0.25	0.25	0.25	0.332	NA
Cadmium	5.3	29.84	128.5	3.09	21.67	67.7	0.404	0.95	2	12.06	78.5	1.09	10.68	58.9	0.513	0.83
Chromium	25	31.67	38	16.1	24.91	58.05	***0.000***	0.93	0	NA	0	12.9	21.41	36.5	***0.000***	0.84
Cobalt	5	6.11	8	2.7	5.13	16.05	***0.000***	0.93	5	6.41	9	3.1	4.36	8.2	***0.000***	0.50
Copper	16	107.50	311	13.3	79.45	201	***0.020***	0.78	18	71.24	160	12.3	75.59	502	0.687	0.95
Lead	141.3	1986.76	8365	121	1258.97	3290	***0.007***	0.92	105	819.41	5185	25	544.91	2050	0.086	0.76
Molybdenum	2	2.00	2	2	2.00	2	NA	NA	0	NA	0	2	2.00	2	NA	NA
Nickel	13	18.11	26	9.2	21.92	157	***0.042***	0.05	12	17.00	30.5	8	11.31	18.3	***0.000***	0.08
Selenium	1	1.67	3	0.37	1.33	5	0.841	NA	0	NA	0	0.05	0.53	2.34	***0.003***	NA
Silver	2	7.33	15	1	4.29	12.3	***0.005***	0.47	0	NA	0	1	2.36	7.4	0.557	0.52
Thallium	0.25	1.47	3.9	0.5	1.94	6.6	1.000	0.92	0	NA	0	0.5	1.04	3.3	0.548	0.89
Tin	6	14.67	30	2.5	9.86	27.3	***0.002***	NA	0	NA	0	2.5	5.13	20.9	0.059	NA
Vanadium	23.5	33.56	54	20.2	30.42	77.5	***0.000***	0.97	22	30.76	45	19.5	27.53	45.4	***0.000***	0.53
Zinc	268	1970.31	4320	166	1790.35	5300	***0.033***	0.92	163	851.18	2105	116	1029.63	5110	0.899	0.83

Method Comparison

	Rivervale								Shavers Bench							
	Prior Phase TLP			2006 SALM			2006 Method Comparison		Prior Phase TLP			2006 SALM			2006 Method Comparison	
Metal	Minimum	Average	Maximum	Minimum	Average	Maximum	p value	r	Minimum	Average	Maximum	Minimum	Average	Maximum	p value	r
Antimony	15.2	39.10	63	5	37.40	176	0.072	0.93	13	24.33	46	5	21.80	49	***0.007***	0.85
Arsenic	13	84.13	420	9.1	39.06	127	0.063	0.94	8	31.77	87	0.25	27.63	84.1	0.111	0.98
Barium	87.7	108.63	132.5	68.9	96.19	142	***0.000***	0.65	81	175.86	268	55.4	140.36	313	***0.003***	0.95
Beryllium	1	1.00	1	0.25	0.25	0.25	NA	NA	1	1.00	1	0.25	0.25	0.25	0.341	NA
Cadmium	2.3	9.24	30	2.01	7.52	15.2	0.054	0.60	4.4	13.74	34	0.25	14.26	42.6	0.699	0.97
Chromium	0	NA	0	12.9	22.66	36.5	***0.000***	0.69	0	NA	0	13.1	19.02	27.2	***0.000***	0.70
Cobalt	5	5.63	6	3.3	4.10	4.8	***0.000***	NA	5.5	6.08	7	3.3	4.54	6.5	***0.000***	0.62
Copper	30	38.13	51	13	62.55	208	***0.036***	0.86	27	65.32	138	9	61.68	146	***0.008***	0.97
Lead	221.3	1687.77	11250	79	1029.50	4490	0.446	0.89	145	734.91	1720	25	741.44	1950	***0.048***	0.97
Molybdenum	0	NA	0	2	2.00	2	NA	NA	0	NA	0	2	2.00	2	NA	NA
Nickel	14	15.17	16	9.1	11.49	13.3	***0.000***	NA	12.5	16.54	26	8.9	12.54	18.7	***0.000***	0.64
Selenium	0	NA	0	0.17	0.72	3.17	0.358	NA	0	NA	0	0.05	0.63	2.23	0.060	NA
Silver	0	NA	0	2	2.00	2	0.062	NA	0	NA	0	1	2.96	6.6	***0.015***	NA
Thallium	0	NA	0	0.5	0.87	2	0.299	0.98	0	NA	0	0.5	0.93	2.2	0.676	0.95
Tin	0	NA	0	2.5	8.08	33.1	0.096	NA	0	NA	0	2.5	6.67	15.9	***0.019***	NA
Vanadium	23	30.30	39	23.5	31.95	49.8	***0.000***	0.26	24	27.90	32	19.4	24.07	27.8	***0.000***	0.57
Zinc	272	407.20	571	189	857.20	1890	***0.008***	0.49	369	1022.25	1820	43.2	1356.13	3580	***0.023***	0.98

Table A1-2. Comparison of TLP Method and SALM Data

	Method Comparison															
	Sunningdale								**Tadanac**							
	Prior Phase TLP			2006 SALM			2006 Method Comparison		Prior Phase TLP			2006 SALM			2006 Method Comparison	
Metal	Minimum	Average	Maximum	Minimum	Average	Maximum	p value	r	Minimum	Average	Maximum	Minimum	Average	Maximum	p value	r
Antimony	9	14.72	20	5	17.15	33	***0.001***	0.04	20.1	52.17	91.1	19	68.00	178	***0.000***	0.75
Arsenic	11	20.93	48	9.2	18.90	28.1	0.394	0.45	23.7	72.85	140	19.35	64.69	161	0.069	0.80
Barium	90.5	175.70	341	55.9	92.30	118	0.099	0.44	144	223.07	319	67.3	139.19	204	***0.000***	0.51
Beryllium	1	1.00	1	0.25	0.25	0.25	NA	NA	1	1.00	1	0.25	0.25	0.25	NA	NA
Cadmium	1.55	9.46	22	3.54	10.18	16.6	0.168	0.57	9.175	26.79	48.375	4.38	23.37	59.8	0.072	0.84
Chromium	0	NA	0	15.6	22.90	41.8	***0.000***	0.11	46	46.00	46	15.5	24.64	35.2	***0.000***	0.82
Cobalt	5	7.00	10	3.6	13.04	41.8	***0.000***	0.56	6	7.29	11	3.7	5.46	7.95	***0.000***	0.78
Copper	15.5	36.70	56	27.2	44.62	65.9	0.277	0.53	48	107.07	157	41.2	136.54	424	***0.009***	0.83
Lead	87	638.38	3955	194	610.45	1130	0.144	0.36	550.3	1549.01	2860	429.5	2085.21	6060	0.989	0.77
Molybdenum	0	NA	0	2	2.00	2	NA	NA	2	2.00	2	2	2.00	2	NA	NA
Nickel	15	18.00	22	7.7	11.66	18.9	***0.000***	0.83	16	21.00	35	9.3	12.92	18.1	***0.000***	0.68
Selenium	0	NA	0	0.12	0.38	0.8	***0.000***	NA	2	2.00	2	0.115	1.11	3.05	0.914	NA
Silver	0	NA	0	1	1.61	3.2	0.083	NA	8	8.00	8	1	7.56	24.5	***0.001***	0.84
Thallium	0	NA	0	0.5	0.71	1.3	0.676	0.45	3.8	3.90	4	0.5	2.47	12.5	0.506	0.94
Tin	0	NA	0	2.5	6.12	13.8	***0.033***	NA	25	47.00	69	2.5	16.53	52.8	***0.003***	NA
Vanadium	25.5	37.50	52	19.6	26.60	39.6	***0.000***	0.17	27.5	39.29	49	24.3	32.47	45.65	***0.000***	0.72
Zinc	166.5	508.30	970	412	956.15	1610	0.750	0.68	618	2279.29	3130	487	1745.18	3820	***0.001***	0.86

	Method Comparison															
	West Trail								**Site Wide**							
	Prior Phase TLP			2006 SALM			2006 Method Comparison		Prior Phase TLP			2006 SALM			2006 Method Comparison	
Metal	Minimum	Average	Maximum	Minimum	Average	Maximum	p value	r	Minimum	Average	Maximum	Minimum	Average	Maximum	p value	r
Antimony	3.6	25.08	49.8	5	23.89	53	***0.001***	0.67	0.9	27.15	147	5	33.03	178	***0.000***	0.73
Arsenic	12	49.08	190	8.4	33.08	71.5	***0.020***	0.93	3	42.15	420	0.25	36.37	161	***0.002***	0.84
Barium	74.5	208.34	341.5	84.2	168.80	282	***0.005***	0.89	28	168.74	369	48.6	125.85	313	***0.000***	0.84
Beryllium	1	1.00	1	0.25	0.25	0.25	NA	NA	1	1.00	1	0.25	0.25	0.57	0.752	0.34
Cadmium	4	22.60	88	3.65	19.29	46.6	0.068	0.93	0.5	15.30	128.5	0.25	16.08	67.7	0.093	0.88
Chromium	0	NA	0	16	27.02	50.7	***0.000***	0.91	25	33.60	46	12.9	23.35	58.05	***0.000***	0.80
Cobalt	5	6.33	8	3.6	5.63	8	***0.000***	0.78	3	6.44	11	2.7	5.83	41.8	***0.000***	0.83
Copper	19	71.41	142.5	21.8	84.04	196	***0.002***	0.96	12	61.48	311	9	82.55	502	***0.000***	0.86
Lead	60	1363.02	3875	172	1324.78	3320	0.335	0.96	34	1022.50	11250	25	1142.78	6060	0.069	0.82
Molybdenum	0	NA	0	2	2.00	2	NA	NA	2	2.00	2	2	2.00	2	NA	NA
Nickel	13	17.67	24	9.4	14.38	21.2	***0.000***	0.10	7	17.54	35	7.7	14.17	157	***0.000***	0.15
Selenium	0	NA	0	0.16	0.76	1.53	0.247	NA	1	1.80	3	0.05	0.83	5	***0.002***	NA
Silver	0	NA	0	1	3.49	11.3	***0.031***	NA	1	6.20	15	1	3.79	24.5	***0.000***	0.65
Thallium	0.5	0.50	0.5	0.5	0.99	2.4	***0.035***	0.89	0.25	2.01	4	0.5	1.42	12.5	0.331	0.93
Tin	2	2.00	2	2.5	14.48	40.8	***0.018***	NA	2	20.29	69	2.5	9.81	52.8	***0.000***	NA
Vanadium	22.5	30.55	39.5	22.9	28.51	38.2	***0.000***	0.70	13	31.67	54	19.4	29.19	77.5	***0.000***	0.81
Zinc	161.5	1217.31	2505	301	1732.67	3920	***0.009***	0.95	65	942.30	4320	43.2	1392.17	5300	***0.000***	0.85

Notes: Bolded neighborhoods are quantitatively evaluated in Phase 4. Bolded, italicized p values are significant at $p<0.05$.
NA = Not able to be assessed based on available data.

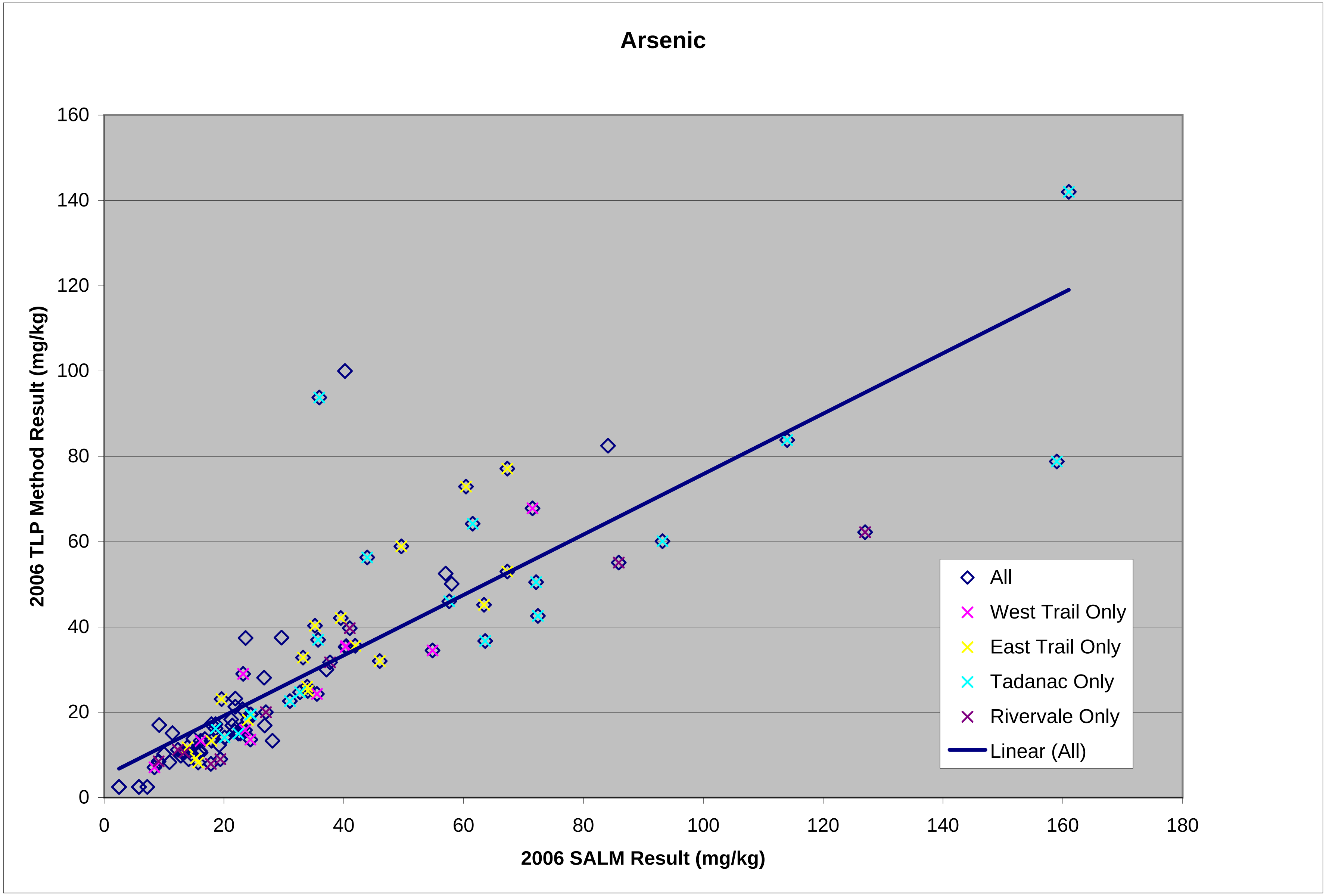


Figure A1-1. Method Comparison for Arsenic in Soil Based on Results from the 2006 Sampling Investigation

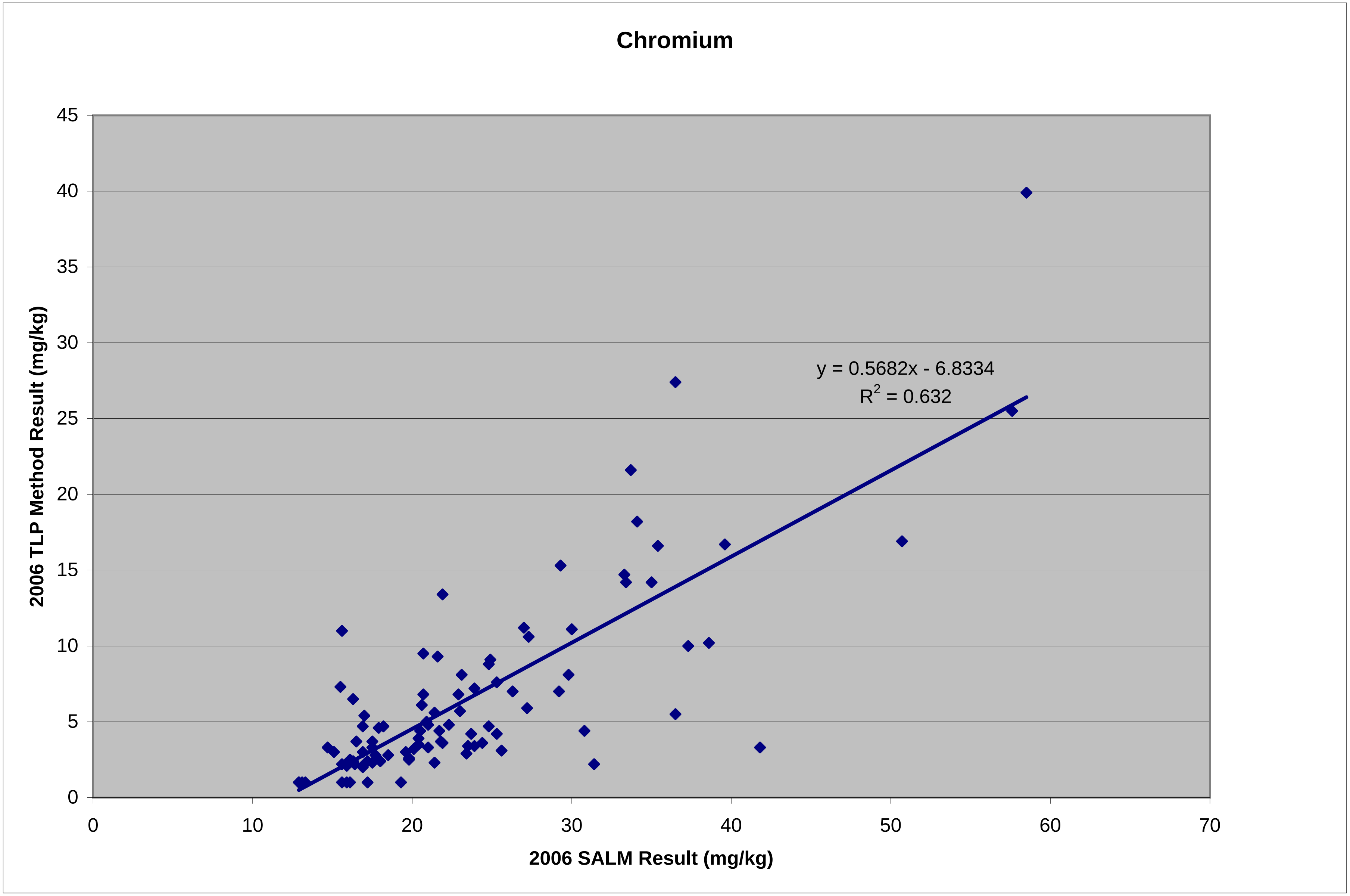


Figure A1-2. Method Comparison for Chromium in Soil Based on Results from the 2006 Sampling Investigation

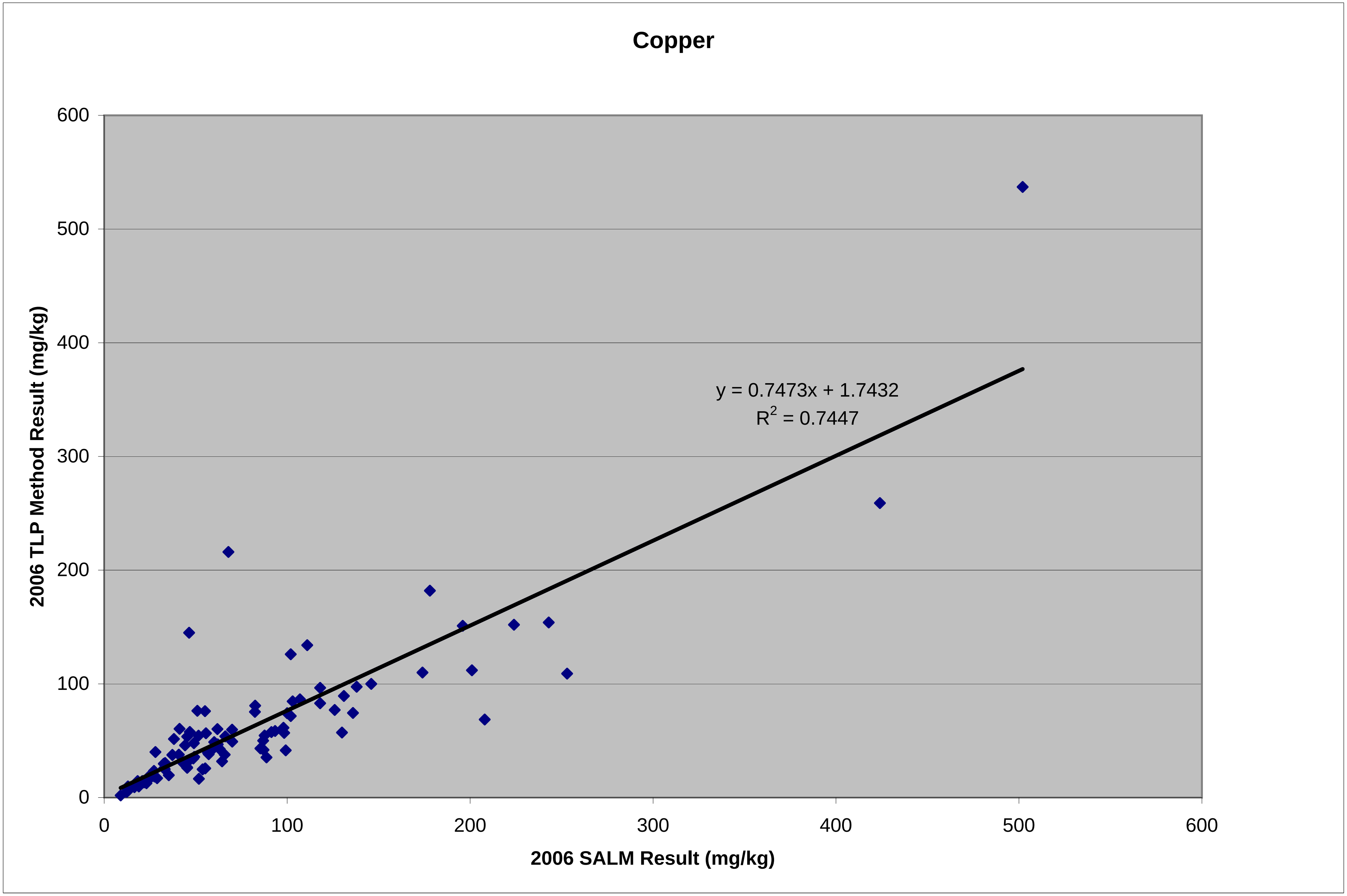


Figure A1-3. Method Comparison for Copper in Soil Based on Results from the 2006 Sampling Investigation

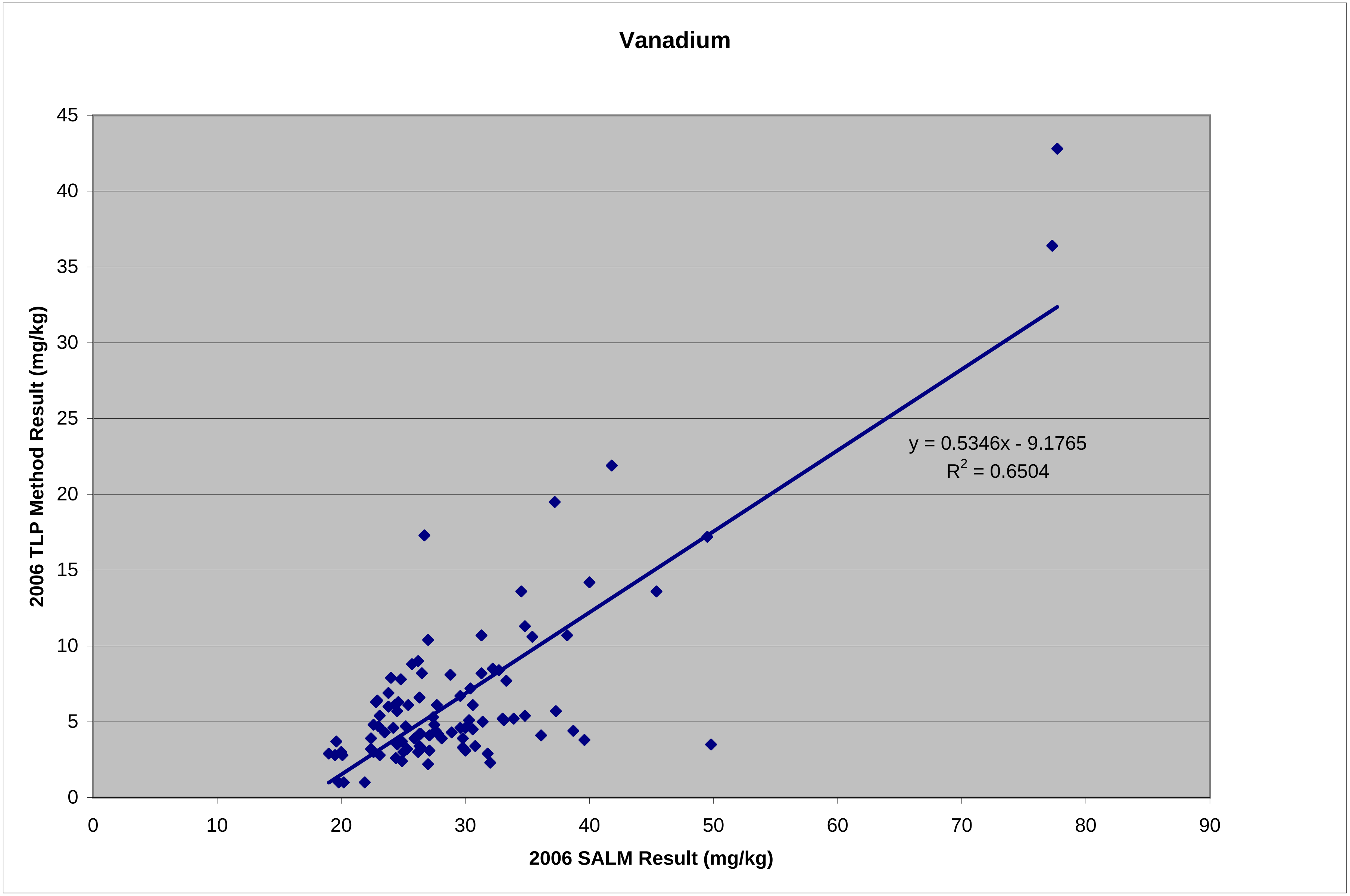


Figure A1-4. Method Comparison for Vanadium in Soil Based on Results from the 2006 Sampling Investigation

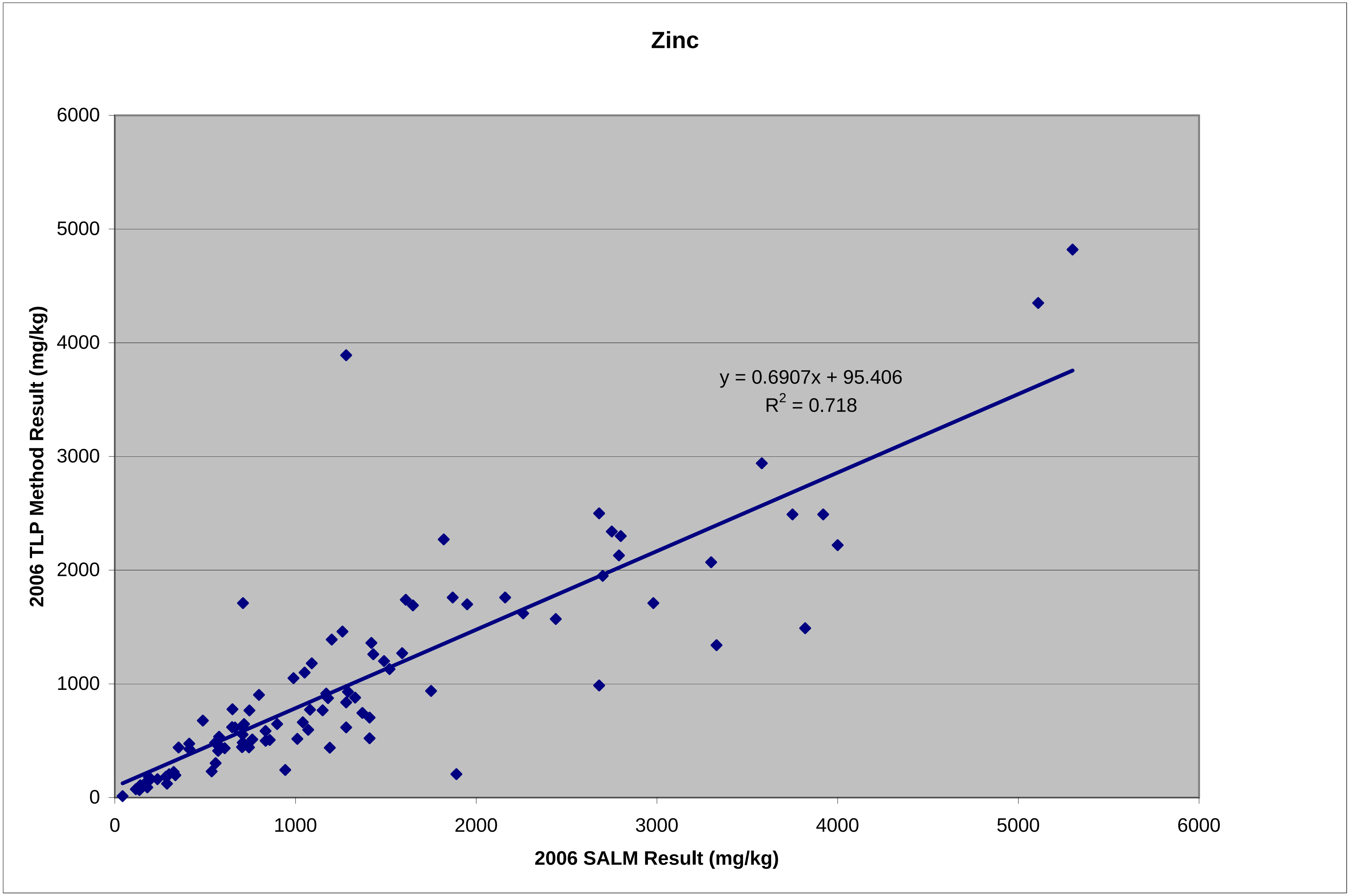


Figure A1-5. Method Comparison for Zinc in Soil Based on Results from the 2006 Sampling Investigation

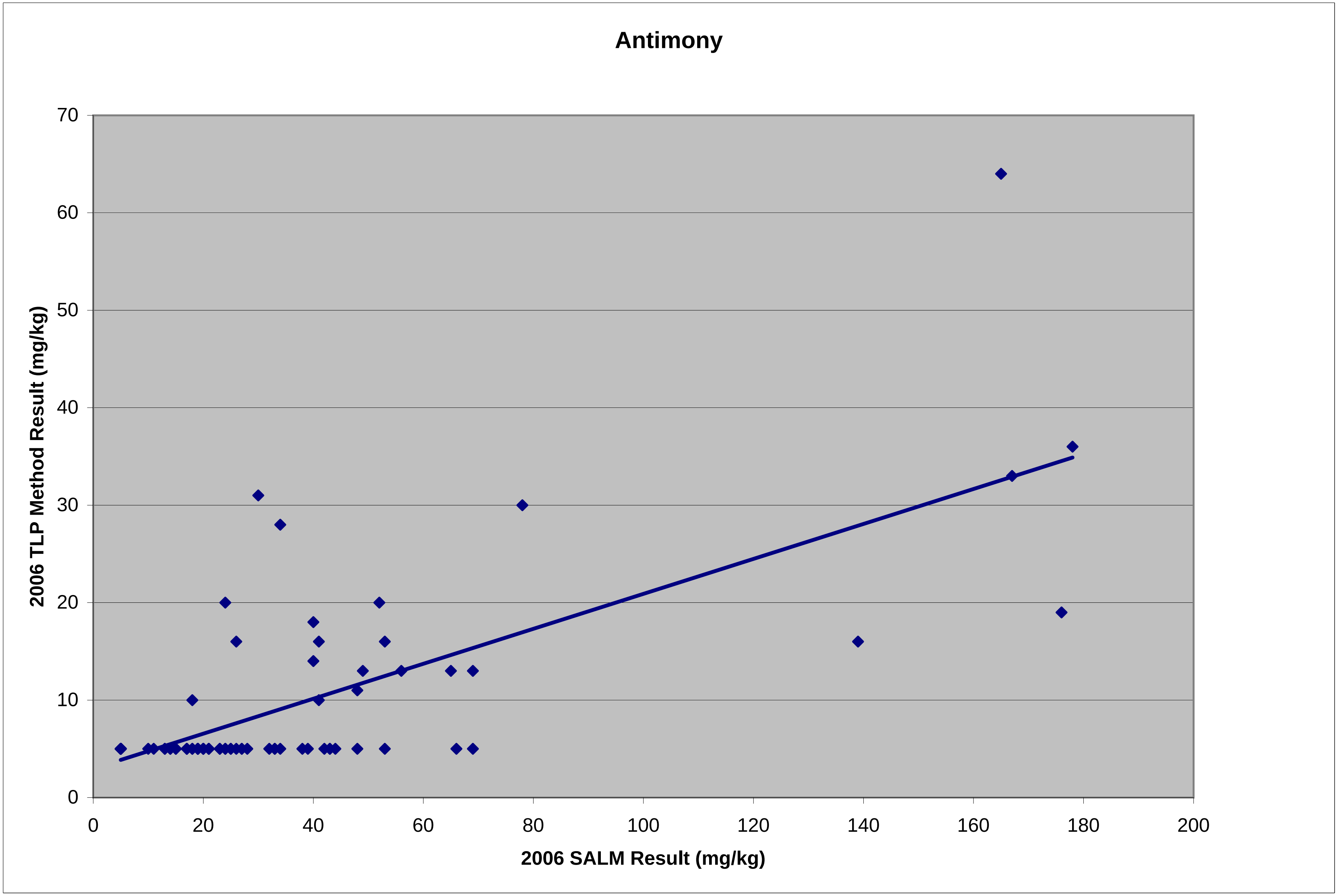


Figure A1-6. Method Comparison for Antimony in Soil Based on Results from the 2006 Sampling Investigation

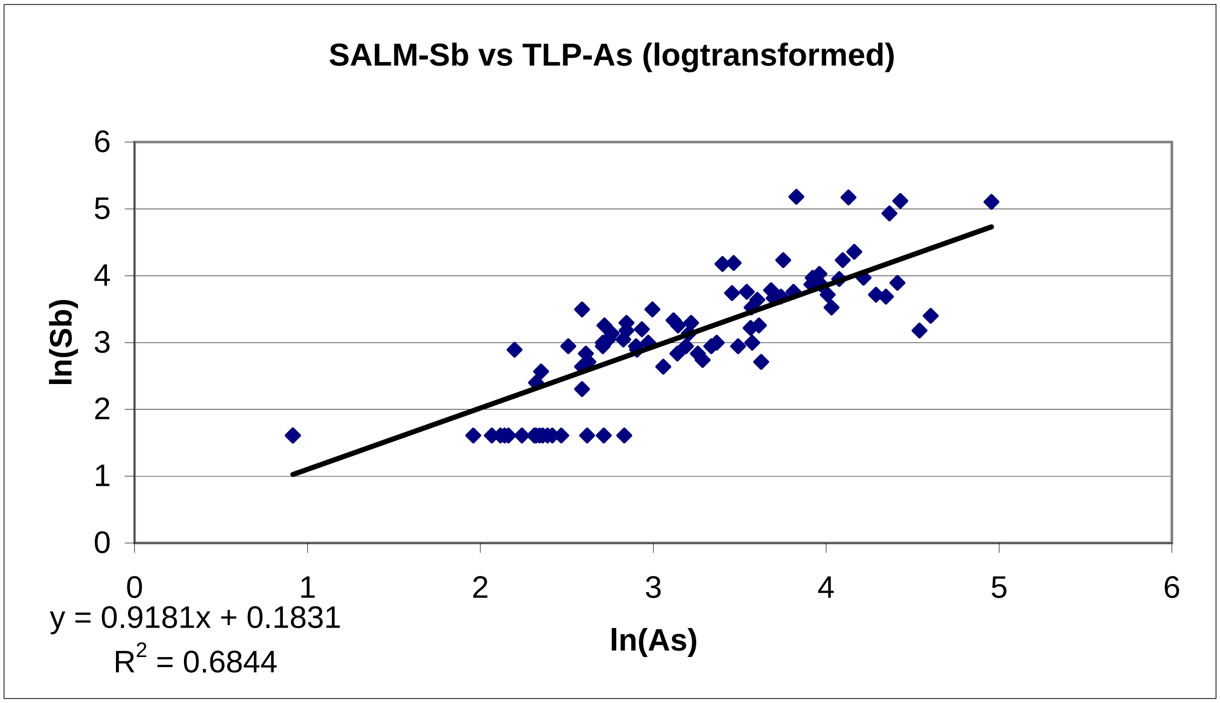


Figure A1-7. Regression of Antimony Data

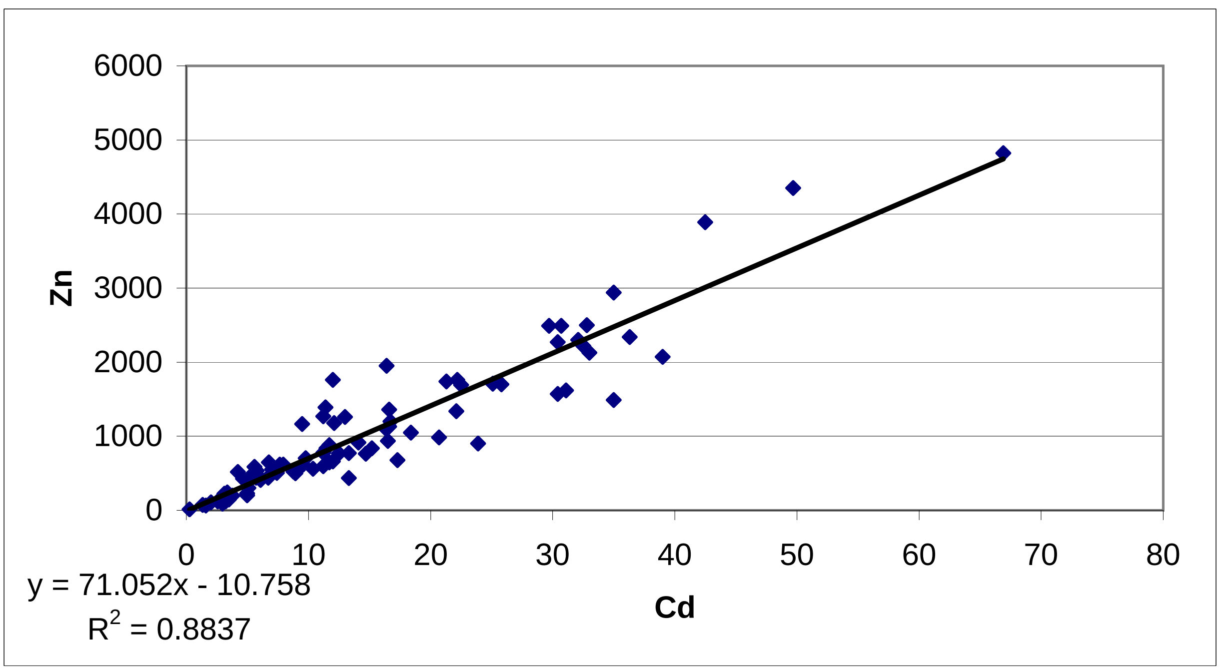


Figure A1-8. Regression of Zinc Data

APPENDIX A2

QUALITY ASSURANCE EVALUATION OF 2007 PRODUCE SAMPLING DATA

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MEMORANDUM

To:	Dina Johnson, Project Manager
From:	Maja Tritt and Adrienne Stutes, Chemists
Date:	March 19, 2008
Subject:	Data Quality Evaluation for August 2007 Produce and Soil Data from Trail
Project No.:	C164

Integral Consulting conducted a quality assurance review of laboratory data for chemical analysis of soil and homegrown produce samples collected at residential properties in Trail, B.C. Samples were collected by Morrow Environmental Consultants Inc. in August 2007. Analyses were completed by ALS Environmental. This work was completed for Teck Cominco Metals Ltd (TCML).

Laboratory quality assurance and quality control (QA/QC) data were available for method blanks, certified reference materials (CRMs), and laboratory duplicate analyses. No data were available to allow a review of initial and continuing instrument calibration, interference check standards, matrix spikes, internal standard recoveries, serial dilution, or other QC procedures that ALS Environmental may have completed in the course of the produce and soil analyses.

Equipment blanks and deionized water samples were collected in the field and evaluated during the QA review. Triplicate samples were collected from different areas of the garden to assess variability of analytes in individual gardens. These samples are not applicable for evaluation of field or laboratory precision and were not evaluated during the QA review.

The data set, laboratory methods, and results of the data quality assessment are described below, followed by a data quality summary.

DATA SET

The following data sets were reviewed:

- Lab work order number CL546325, 94 soil samples
- Lab work order number CL548851, 44 soil samples
- Lab work order number CL546692, 51 produce samples
- Lab work order number CL548617, 24 produce samples
- Lab work order number CL546669, 4 rinsate blanks and 1 field blank (i.e., deionized water)
- Lab work order number CL548792, 2 rinsate blanks and 2 field blanks.

LABORATORY METHODS

Soil samples were sieved using a 2 mm mesh sieve and dried prior to analysis. Samples were digested for analysis using procedures from Contaminated Sites Regulation (CSR) Analytical Method 8 “Strong Acid Leachable Metals (SALM) in Soil,” B.C. Ministry of Environment, Lands and Parks (June 26, 2001); and procedures adapted from “Test Methods for Evaluating Solid Waste,” SW-846 Method 3050B, U.S. Environmental Protection Agency (EPA). Metals analyses were completed using inductively coupled plasma-mass spectrometry (ICP-MS) according to EPA Method 6020A and inductively coupled plasma-optical emission spectrometry (ICP-OES) according to EPA Method 6010B.

Produce samples were digested for analysis using procedures adapted from “Recommended Guidelines for Measuring Metals in Puget Sound Marine Water, Sediment, and Tissue Samples,” prepared for EPA and the Puget Sound Water Quality Action Team in 1995. The metals analyses of produce samples were completed by ICP-MS according to EPA Method 6020A.

The rinsate and field blanks were digested for analysis using EPA method 3005A and analyzed by ICP-MS and ICP-OES according to EPA Methods 6020A and 6010B, respectively.

DATA QUALITY ASSESSMENT

Certified Reference Materials

For soil samples, two CRMs were analyzed 5 times each over the course of the metals analyses in soil samples. The identity and certified concentrations of the CRMs were not provided. Results met the laboratory's control limits in all cases except for tin. However, the laboratory control limits for tin were very narrow (97 to 115 percent) and recoveries were good (greater than or equal to 84 percent). No bias in the tin data was evident based on the CRM results. The laboratory control limits, as well as the recoveries for barium and beryllium, were quite low (12 to 23 percent). Results for these metals in soil are likely to be biased low.

The accuracy of results for antimony, molybdenum, selenium, silver, and thallium could not be assessed because these metals were not reported for either soil CRM, presumably because the CRMs are not certified for these metals. No other QC data for accuracy were provided for the soil samples.

Two CRMs for produce were analyzed a combined total of 5 times with the produce samples. Results were acceptable in all cases. Several control limit exceedances noted for aluminum and chromium were the result of narrow control limits for aluminum and low control limits for chromium; the CRM recoveries for these metals were acceptable and did not imply inaccuracies in the tissue data for aluminum or chromium.

The accuracy of results for antimony, arsenic, beryllium, bismuth, cadmium, cobalt, lithium, molybdenum, nickel, selenium, silver, thallium, tin, uranium, and vanadium could not be assessed because these metals were not reported for either produce CRM, presumably because the CRMs are not certified for these metals. No other QC data for accuracy were provided for the produce samples.

Laboratory Duplicate Analyses

A total of six laboratory duplicate analyses were completed for the soil samples and seven for the produce samples. A control limit of 45 relative percent difference (RPD) was used by the laboratory for soil samples when metal concentrations were greater than or equal to 4 times the reported detection limit. A control limit of 30 RPD was used for produce samples when metal concentrations were at least 4 times the detection limit. When the metal concentration was below 4 times the detection limit in the sample or duplicate, the control limit was based on the absolute difference between the metal concentrations in the sample and duplicate. The control limit for this difference was 4 times the detection limit.

Duplicate results were well below the control limits in all cases. Good analytical precision was achieved by ALS Environmental for the soil and produce analyses.

Laboratory Method Blanks

A total of four method blanks were analyzed by the laboratory for the 138 soil samples. None of the metals were detected in any of the method blanks for soils.

A total of five method blanks were analyzed with the 75 produce samples. Copper was detected in two of the method blanks at concentrations equivalent to 0.043 and 0.044 mg/kg in the produce samples. In these cases, blank correction was not applied. The copper levels in two produce samples (TCHP-PRO-DUP05-0708241115 and TCHP-SD02-PR03-ONI-0708241010), were below the control limit of 5 times the concentration found in the blank. The copper results for these samples are likely to be biased high because of laboratory contamination. No other metals were detected in the method blanks.

Sampling Equipment Rinsate Blanks and Field Blanks

Blanks collected in the field included six equipment rinsate blanks and three field blanks. As described in a technical memorandum from Suzanne Girard (Morrow Environmental) to Steven Hilts (TCML) titled "Trail Homegrown Produce and Paired Soil Sampling, and Soil Sampling of Replaced Garden Soil at Selected Residential Properties in Trail, BC Field Activities Summary" (September 7, 2007), rinsate blanks were collected by running deionized water over soil sampling equipment after decontamination was completed and collecting it in a sample jar. Field blanks were created by pouring the deionized water directly into a sample jar. Both types of blanks were compared to the soil data, and results for field blanks were compared to the produce data.

A number of metals were detected in the rinsate blanks at low levels, and several metals were also detected in the field blanks. However, the metals concentrations in the blanks were lower than the detection limits for the soil and produce samples in all cases, and no data were affected. Field decontamination procedures were sufficient for the soil and produce samples.

Summary

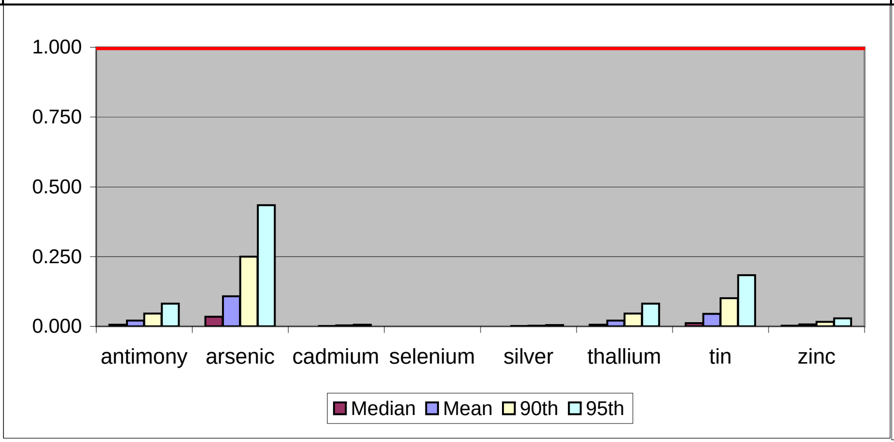
The data appear to be of good quality overall, based on the limited available QC data. Field decontamination procedures were effective. Analytical accuracy was acceptable for the metals data that could be evaluated. Barium and beryllium results for soil are likely to be biased low. Precision was very good for all metals. Data for laboratory method blanks indicate that low levels of copper contamination were experienced by the laboratory for the produce samples analyzed as part of work order CL548617; the results for samples TCHP-PRO-DUP05-0708241115 and TCHP-SD02-PR03-ONI-0708241010 are likely to be biased high as a result. No other QA/QC anomalies were found.

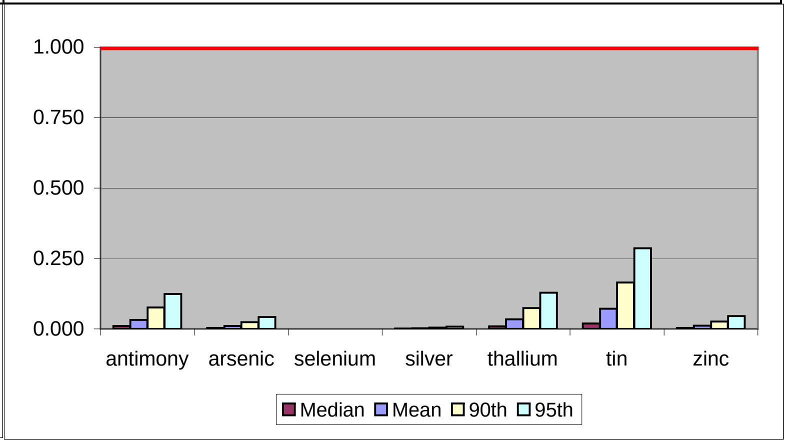
APPENDIX B

EXPANDED PROBABILISTIC RISK RESULTS

Hazard Quotient: Ingestion of Soil, Indoor Dust, and Outdoor Dust: Site Wide

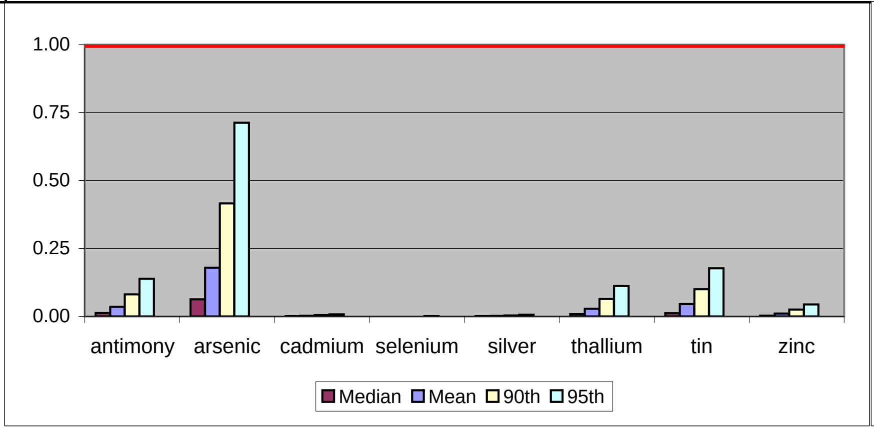
	Site Wide														
	Adult + Child								Child						
	antimony	arsenic	cadmium	selenium	silver	thallium	tin	zinc	antimony	arsenic	selenium	silver	thallium	tin	zinc
Median	0.006	0.034	0.001	0.00002	0.0003	0.006	0.012	0.002	0.011	0.003	0.0000	0.001	0.010	0.019	0.003
Mean	0.02	0.11	0.001	0.0001	0.0012	0.02	0.04	0.01	0.03	0.01	0.0001	0.002	0.03	0.07	0.01
90th	0.05	0.25	0.003	0.0002	0.0027	0.05	0.10	0.02	0.08	0.02	0.0003	0.00	0.07	0.16	0.03
95th	0.08	0.43	0.01	0.0003	0.0047	0.08	0.18	0.03	0.12	0.04	0.0006	0.01	0.13	0.29	0.05

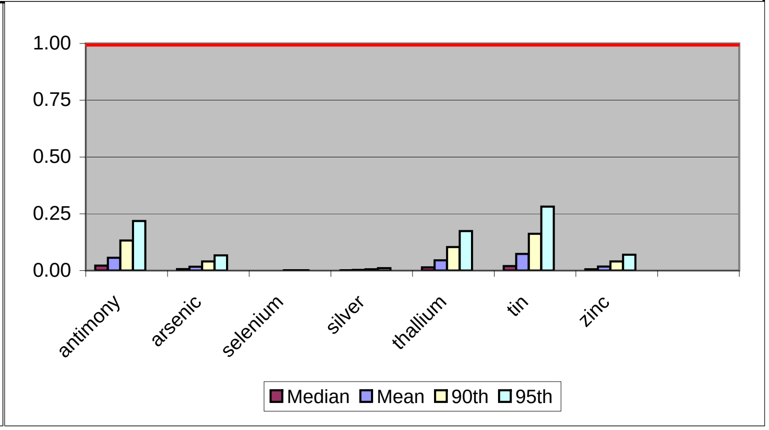




Hazard Quotient: Ingestion of Soil, Indoor Dust, and Outdoor Dust: East Trail

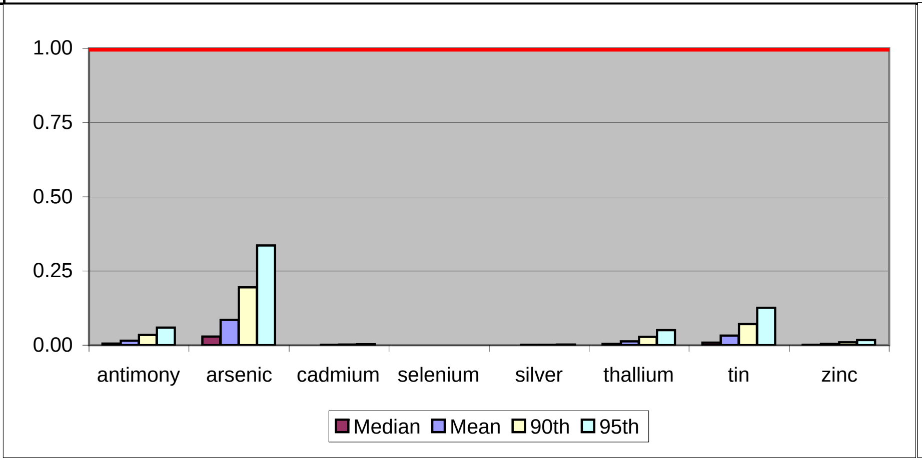
	East Trail														
	Adult + Child								Child						
	antimony	arsenic	cadmium	selenium	silver	thallium	tin	zinc	antimony	arsenic	selenium	silver	thallium	tin	zinc
Median	0.012	0.063	0.001	0.000	0.000	0.008	0.012	0.003	0.022	0.007	0.000	0.001	0.014	0.020	0.005
Mean	0.04	0.18	0.00	0.00	0.00	0.03	0.05	0.01	0.06	0.02	0.00	0.00	0.05	0.07	0.02
90th	0.08	0.42	0.00	0.00	0.00	0.06	0.10	0.03	0.13	0.04	0.00	0.01	0.10	0.16	0.04
95th	0.14	0.71	0.01	0.00	0.01	0.11	0.18	0.04	0.22	0.07	0.00	0.01	0.17	0.28	0.07

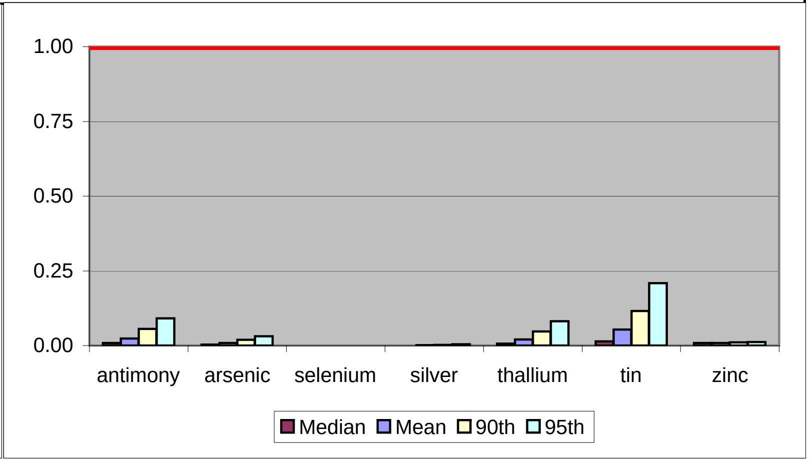




Hazard Quotient: Ingestion of Soil, Indoor Dust, and Outdoor Dust: Rivervale

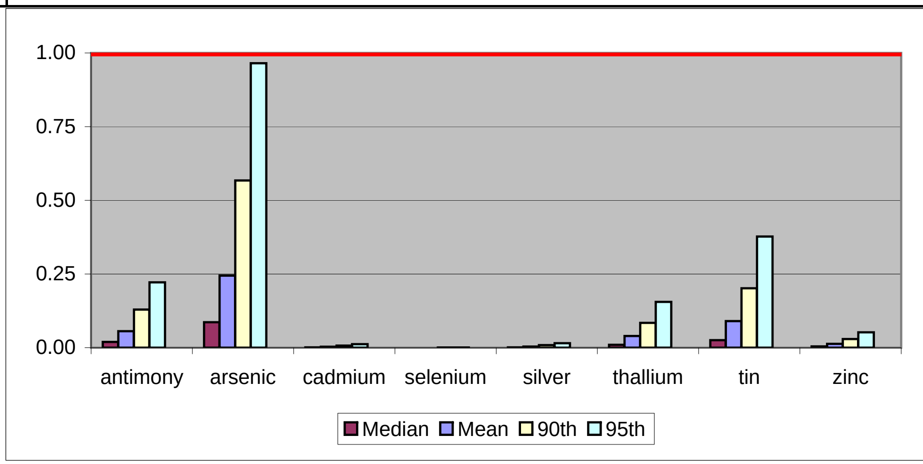
	Rivervale														
	Adult + Child								Child						
	antimony	arsenic	cadmium	selenium	silver	thallium	tin	zinc	antimony	arsenic	selenium	silver	thallium	tin	zinc
Median	0.005	0.029	0.000	0.000	0.000	0.004	0.008	0.001	0.009	0.003	0.000	0.000	0.007	0.014	0.008
Mean	0.01	0.09	0.00	0.00	0.00	0.01	0.03	0.00	0.02	0.01	0.00	0.00	0.02	0.05	0.01
90th	0.03	0.19	0.00	0.00	0.00	0.03	0.07	0.01	0.06	0.02	0.00	0.00	0.05	0.12	0.01
95th	0.06	0.34	0.00	0.00	0.00	0.05	0.13	0.02	0.09	0.03	0.00	0.00	0.08	0.21	0.01

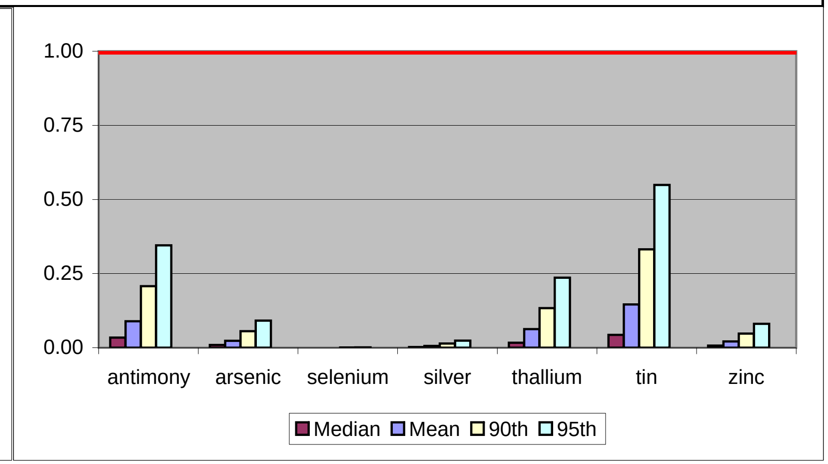




Hazard Quotient: Ingestion of Soil, Indoor Dust, and Outdoor Dust: Tadanac

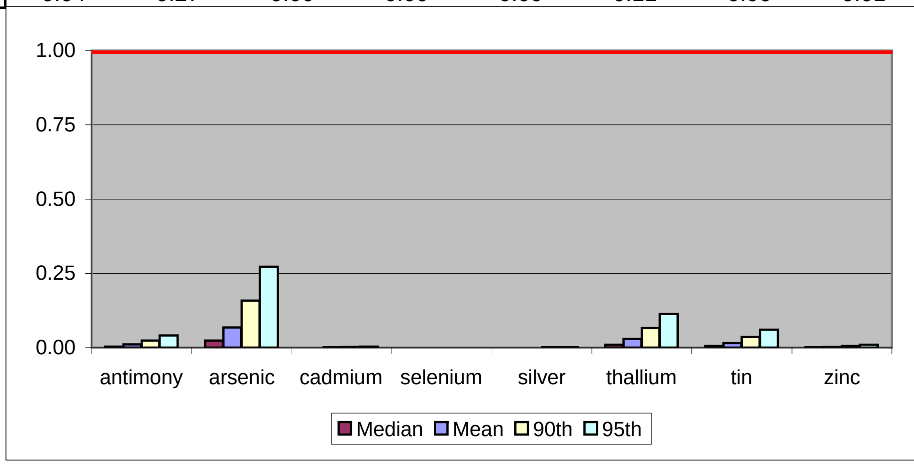
	Tadanac														
	Adult + Child								Child						
	antimony	arsenic	cadmium	selenium	silver	thallium	tin	zinc	antimony	arsenic	selenium	silver	thallium	tin	zinc
Median	0.020	0.086	0.0013	0.00004	0.0012	0.010	0.025	0.004	0.034	0.009	0.0001	0.0020	0.017	0.043	0.007
Mean	0.06	0.24	0.0032	0.0001	0.0037	0.04	0.09	0.01	0.09	0.02	0.0002	0.0059	0.06	0.15	0.02
90th	0.13	0.57	0.0073	0.0003	0.0087	0.08	0.20	0.03	0.21	0.06	0.0005	0.014	0.13	0.33	0.05
95th	0.22	0.97	0.0120	0.0005	0.0154	0.16	0.38	0.05	0.35	0.09	0.0009	0.024	0.24	0.55	0.08

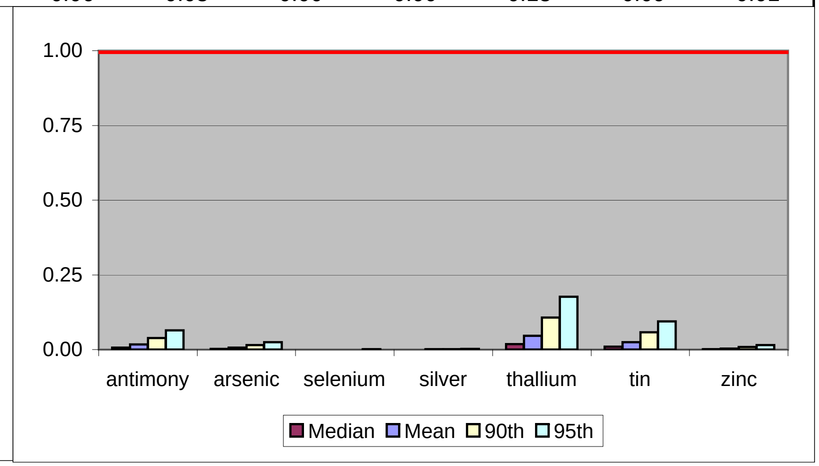




Hazard Quotient: Ingestion of Soil, Indoor Dust, and Outdoor Dust: Waneta

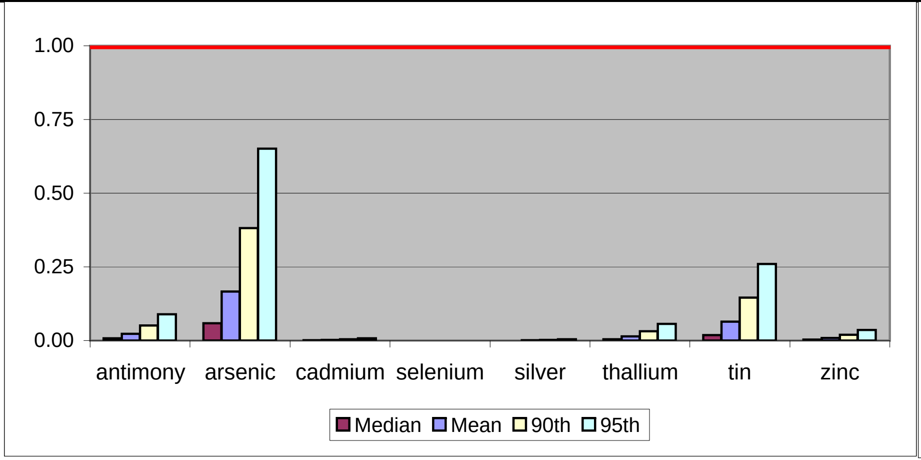
	Waneta														
	Adult + Child								Child						
	antimony	arsenic	cadmium	selenium	silver	thallium	tin	zinc	antimony	arsenic	selenium	silver	thallium	tin	zinc
Median	0.004	0.024	0.000	0.000	0.000	0.010	0.005	0.001	0.006	0.002	0.000	0.000	0.018	0.009	0.001
Mean	0.01	0.07	0.00	0.00	0.00	0.03	0.02	0.00	0.02	0.01	0.00	0.00	0.05	0.02	0.00
90th	0.02	0.16	0.00	0.00	0.00	0.07	0.04	0.01	0.04	0.02	0.00	0.00	0.11	0.06	0.01
95th	0.04	0.27	0.00	0.00	0.00	0.11	0.06	0.01	0.06	0.03	0.00	0.00	0.18	0.09	0.01

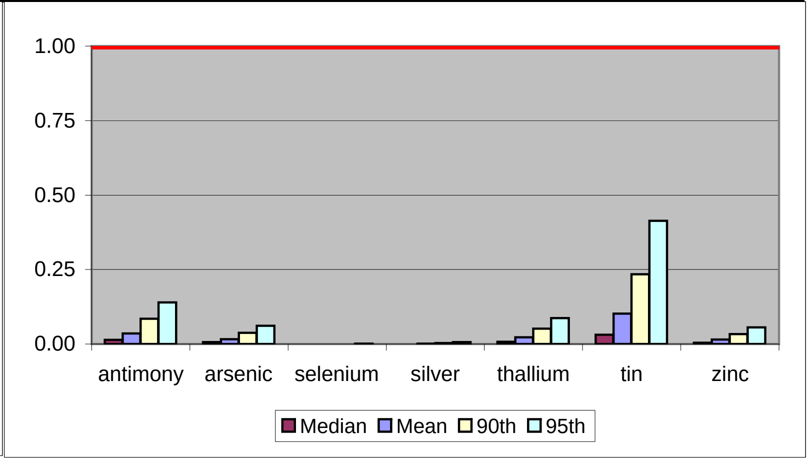




Hazard Quotient: Ingestion of Soil, Indoor Dust, and Outdoor Dust: West Trail

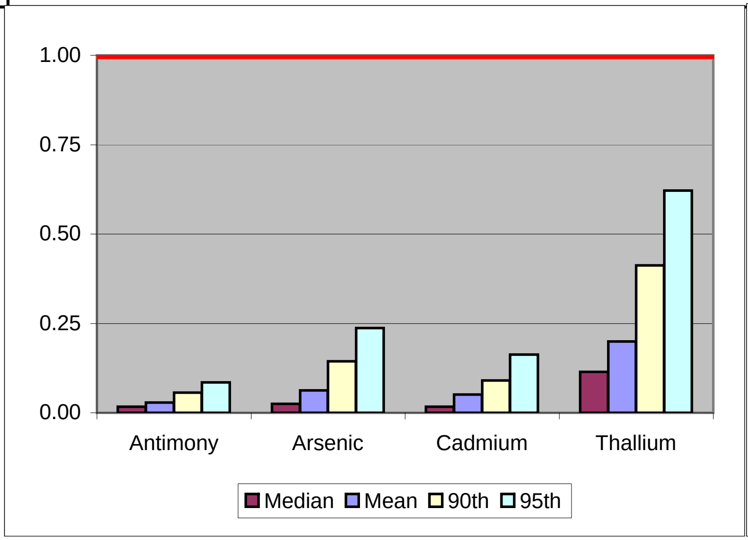
	West Trail														
	Adult + Child								Child						
	antimony	arsenic	cadmium	selenium	silver	thallium	tin	zinc	antimony	arsenic	selenium	silver	thallium	tin	zinc
Median	0.008	0.058	0.0009	0.00003	0.0003	0.004	0.018	0.003	0.014	0.006	0.00005	0.000	0.008	0.031	0.005
Mean	0.02	0.17	0.002	0.0001	0.0010	0.01	0.06	0.01	0.04	0.02	0.0001	0.002	0.02	0.10	0.01
90th	0.05	0.38	0.005	0.0002	0.0022	0.03	0.15	0.02	0.08	0.04	0.0003	0.004	0.05	0.23	0.03
95th	0.09	0.65	0.01	0.0003	0.0039	0.06	0.26	0.04	0.14	0.06	0.0006	0.006	0.09	0.41	0.06

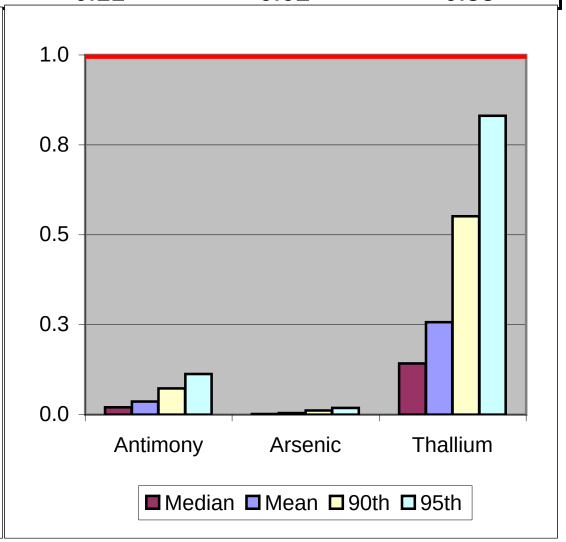




Hazard Quotient: Ingestion of Produce: Site Wide

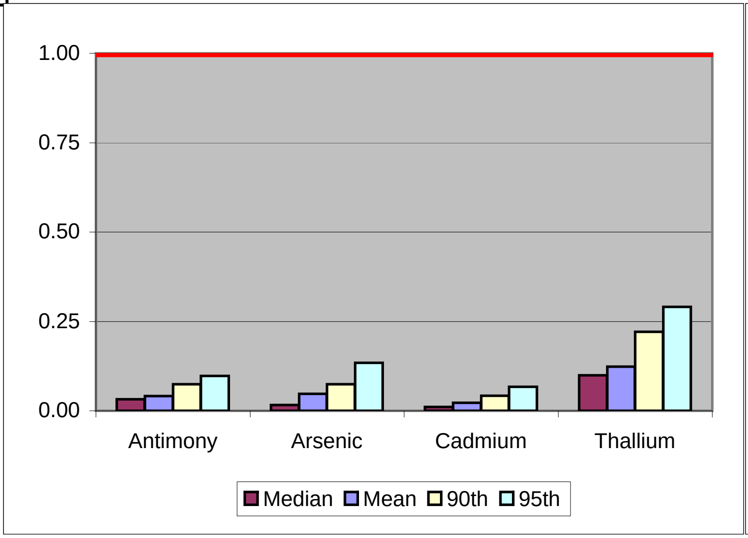
	Site Wide						
	Adult + Child				Child		
	Antimony	Arsenic	Cadmium	Thallium	Antimony	Arsenic	Thallium
Median	0.02	0.02	0.02	0.11	0.02	0.002	0.14
Mean	0.03	0.06	0.05	0.20	0.04	0.005	0.26
90th	0.06	0.14	0.09	0.41	0.07	0.01	0.55
95th	0.09	0.24	0.16	0.62	0.11	0.02	0.83

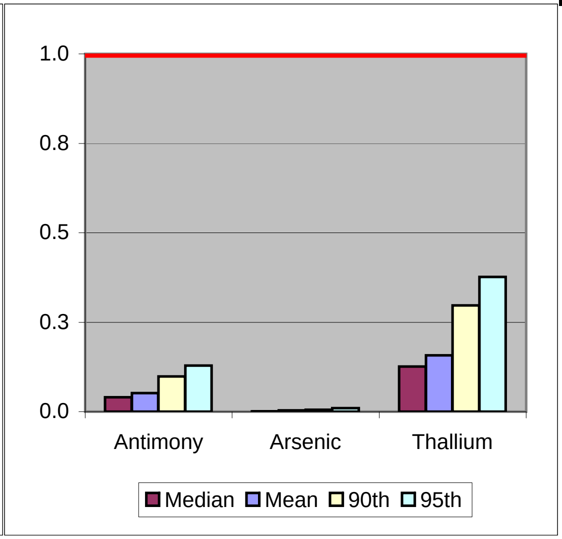




Hazard Quotient: Ingestion of Produce: Far from Site

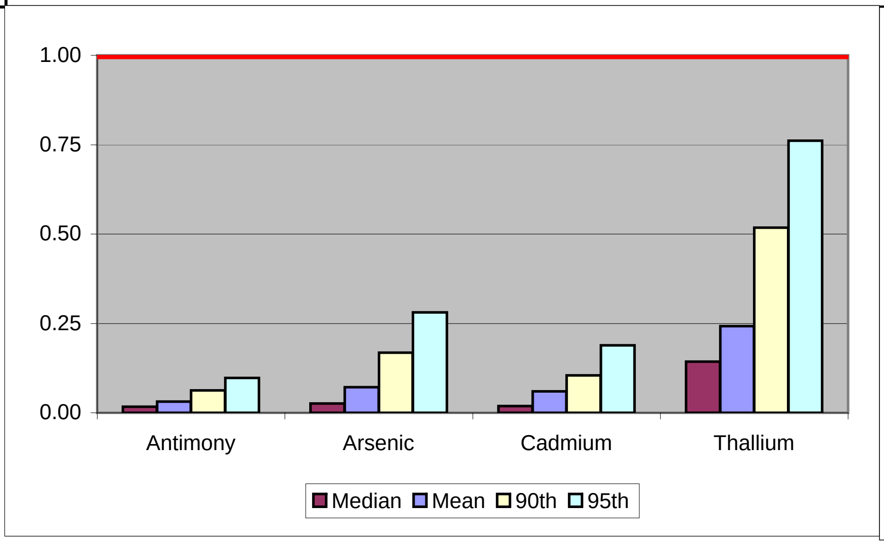
	Far						
	Adult + Child				Child		
	Antimony	Arsenic	Cadmium	Thallium	Antimony	Arsenic	Thallium
Median	0.03	0.02	0.01	0.10	0.04	0.00	0.13
Mean	0.04	0.05	0.02	0.12	0.05	0.00	0.16
90th	0.07	0.07	0.04	0.22	0.10	0.01	0.30
95th	0.10	0.13	0.07	0.29	0.13	0.01	0.38

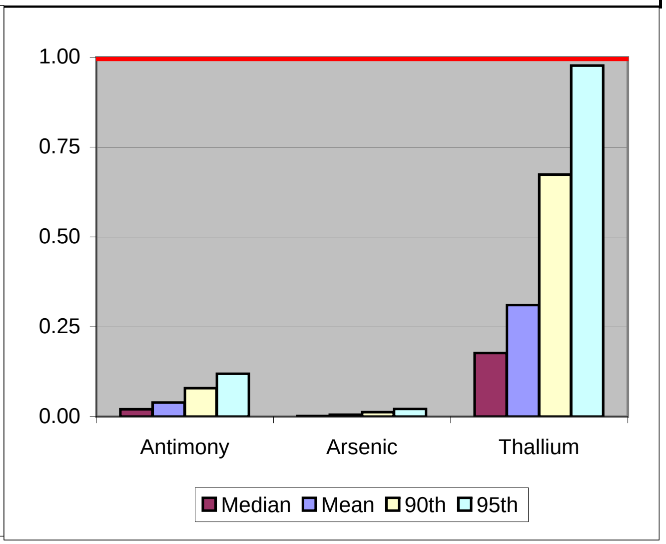




Hazard Quotient: Ingestion of Produce: Near to Site

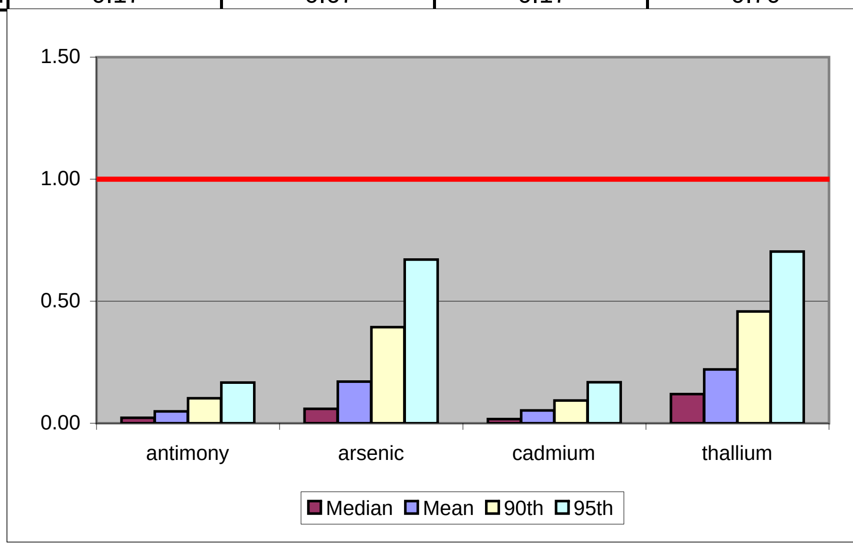
	Near						
	Adult + Child				Child		
	Antimony	Arsenic	Cadmium	Thallium	Antimony	Arsenic	Thallium
Median	0.02	0.03	0.02	0.14	0.02	0.002	0.18
Mean	0.03	0.07	0.06	0.24	0.04	0.005	0.31
90th	0.06	0.17	0.10	0.52	0.08	0.013	0.67
95th	0.10	0.28	0.19	0.76	0.12	0.02	0.98

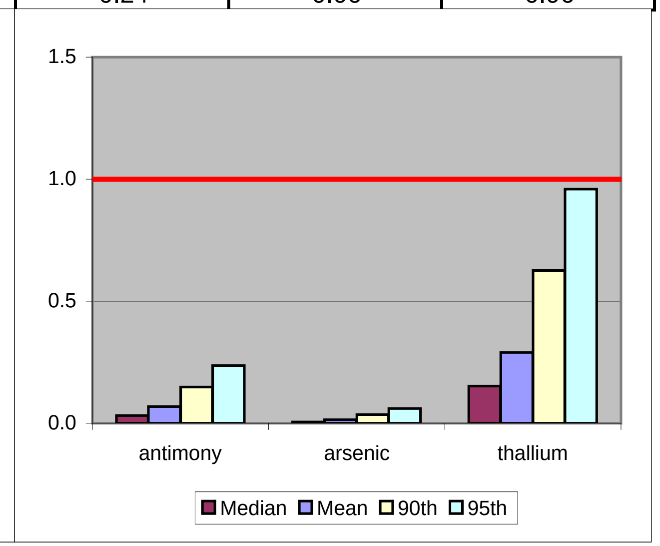




Site Wide: Noncancer Hazard

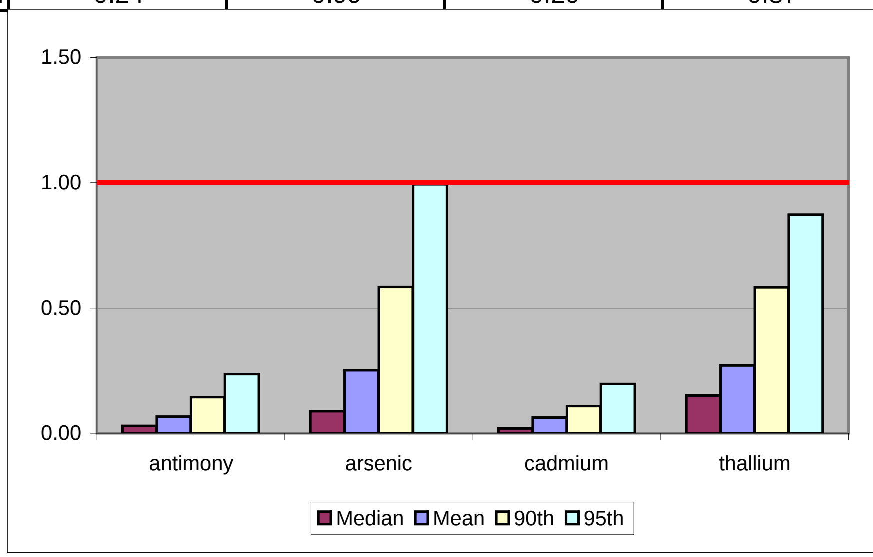
	Adult + Child				Child		
	antimony	arsenic	cadmium	thallium	antimony	arsenic	thallium
95th Percentile HQ							
Soil-Dust	0.08	0.43	0.01	0.08	0.12	0.04	0.13
Produce	0.09	0.24	0.16	0.62	0.11	0.02	0.83
Total HI							
Median	0.02	0.06	0.02	0.12	0.03	0.01	0.15
Mean	0.05	0.17	0.05	0.22	0.07	0.01	0.29
90th	0.10	0.39	0.09	0.46	0.15	0.04	0.63
95th	0.17	0.67	0.17	0.70	0.24	0.06	0.96

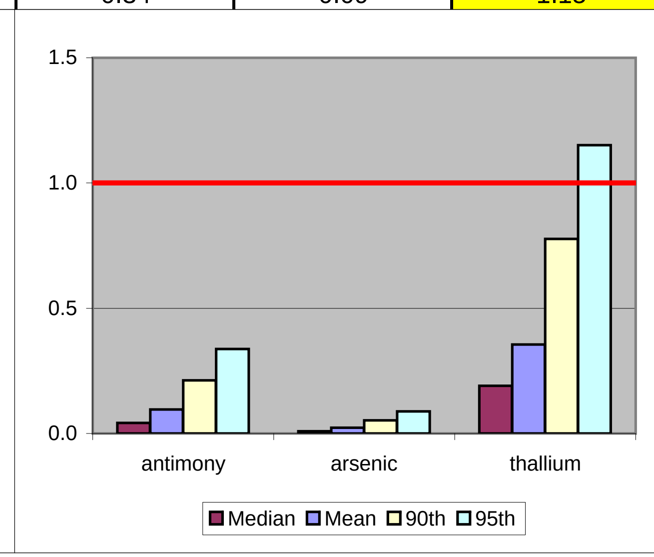




East Trail: Noncancer Hazard

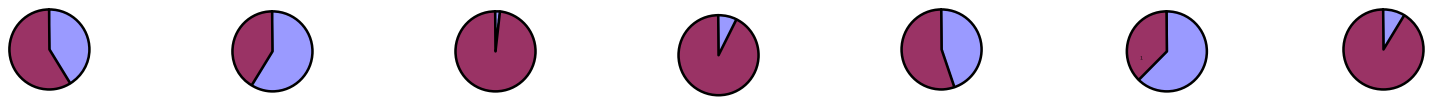
	Adult + Child				Child		
	antimony	arsenic	cadmium	thallium	antimony	arsenic	thallium
95th Percentile HQ							
Soil-Dust	0.14	0.71	0.008	0.11	0.22	0.07	0.17
Produce	0.09	0.24	0.16	0.62	0.11	0.02	0.83
Total HI							
Median	0.03	0.09	0.02	0.15	0.04	0.01	0.19
Mean	0.07	0.25	0.06	0.27	0.10	0.02	0.36
90th	0.14	0.58	0.11	0.58	0.21	0.05	0.78
95th	0.24	0.99	0.20	0.87	0.34	0.09	1.15



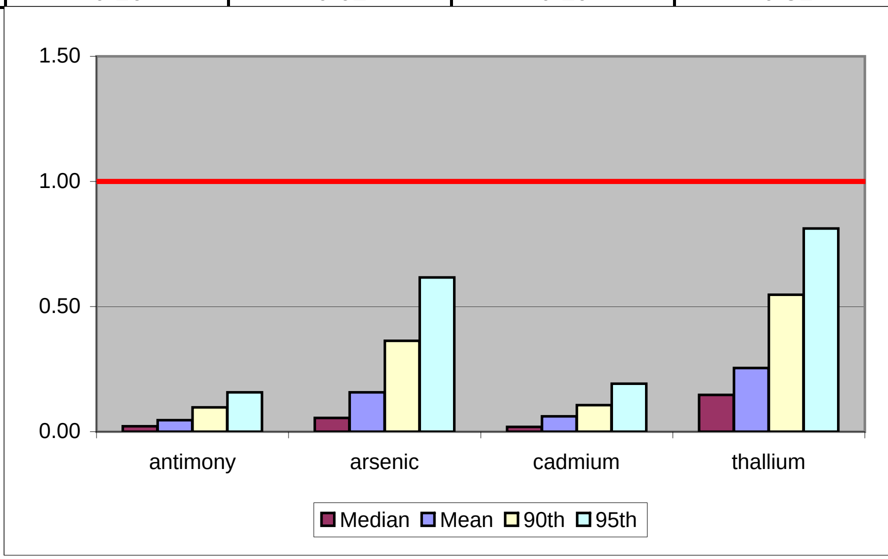


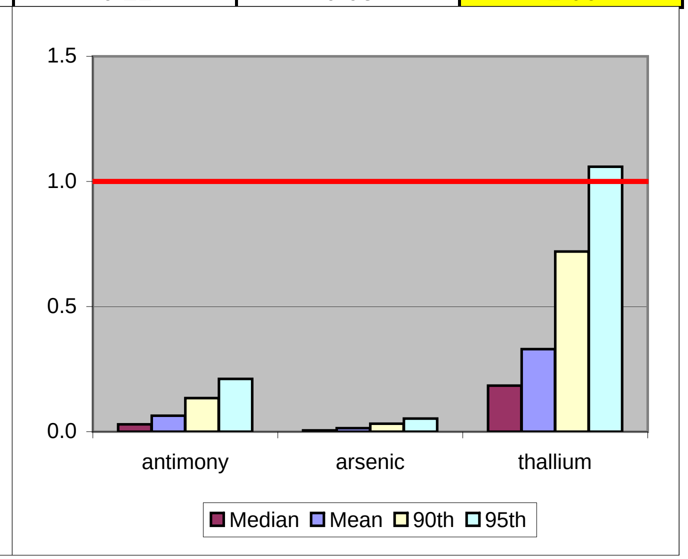
Rivervale: Noncancer Hazard

produce soil-dust

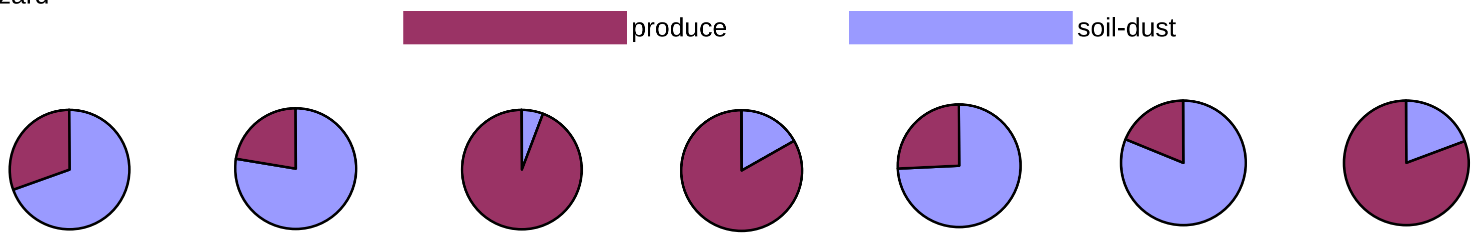


	Adult + Child				Child		
	antimony	arsenic	cadmium	thallium	antimony	arsenic	thallium
95th Percentile HQ							
Soil-Dust	0.06	0.34	0.00	0.05	0.09	0.03	0.08
Produce	0.09	0.24	0.16	0.62	0.11	0.02	0.83
Total HI							
Median	0.02	0.05	0.02	0.15	0.03	0.00	0.18
Mean	0.05	0.16	0.06	0.25	0.06	0.01	0.33
90th	0.10	0.36	0.11	0.55	0.13	0.03	0.72
95th	0.16	0.62	0.19	0.81	0.21	0.05	1.06

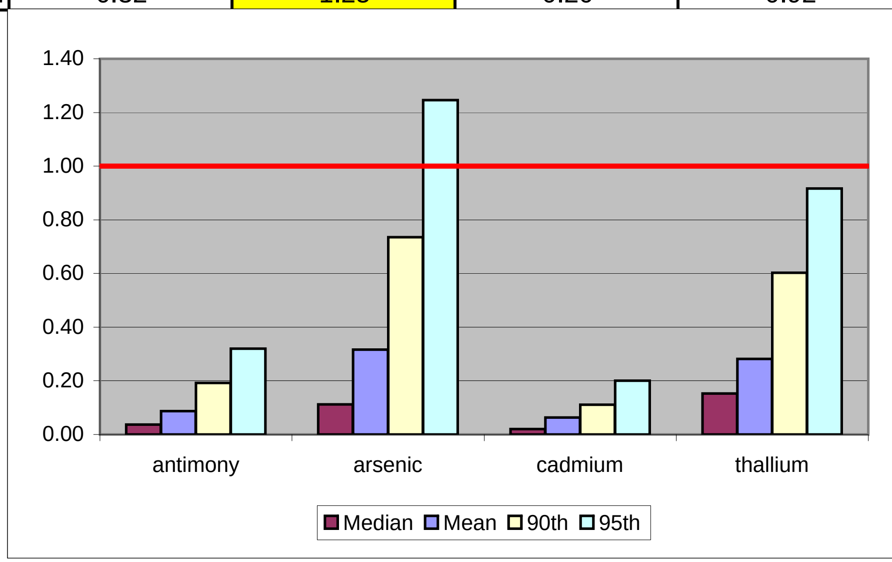


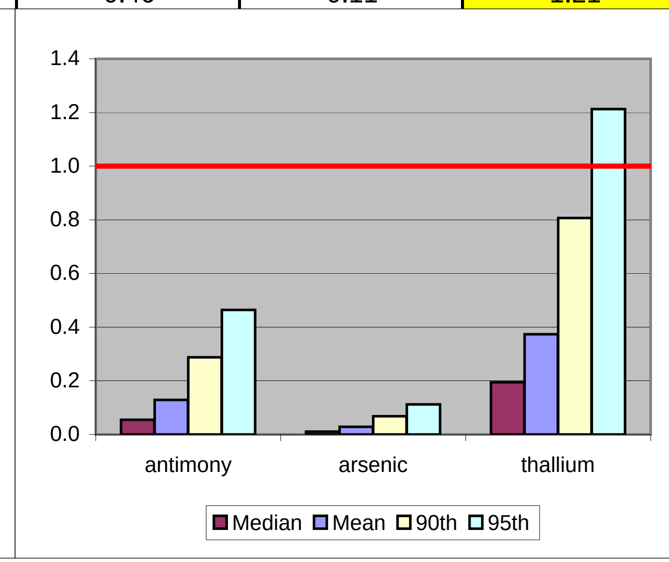


Tadanac: Noncancer Hazard



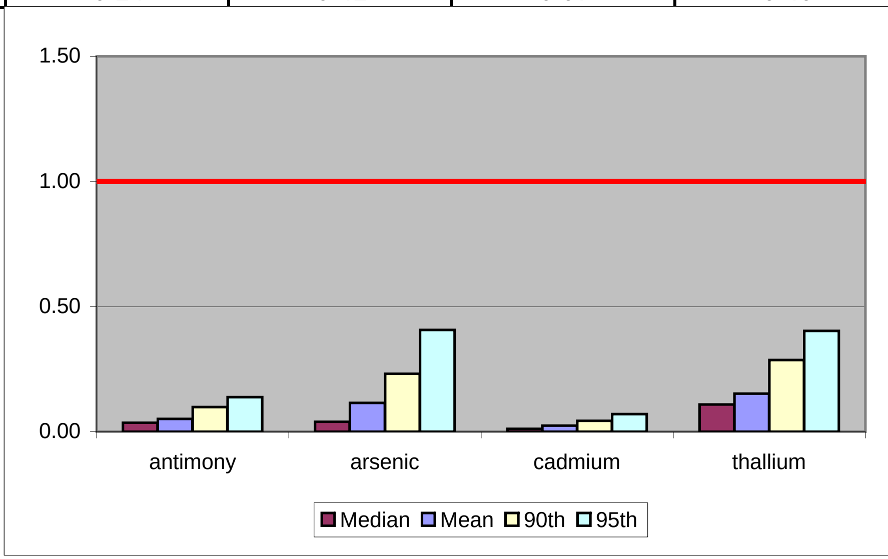
	Adult + Child				Child		
	antimony	arsenic	cadmium	thallium	antimony	arsenic	thallium
95th Percentile HQ							
Soil-Dust	0.22	0.97	0.012	0.16	0.35	0.09	0.24
Produce	0.10	0.28	0.19	0.76	0.12	0.02	0.98
Total HI							
Median	0.04	0.11	0.02	0.15	0.06	0.01	0.19
Mean	0.09	0.32	0.06	0.28	0.13	0.03	0.37
90th	0.19	0.74	0.11	0.60	0.29	0.07	0.81
95th	0.32	1.25	0.20	0.92	0.46	0.11	1.21

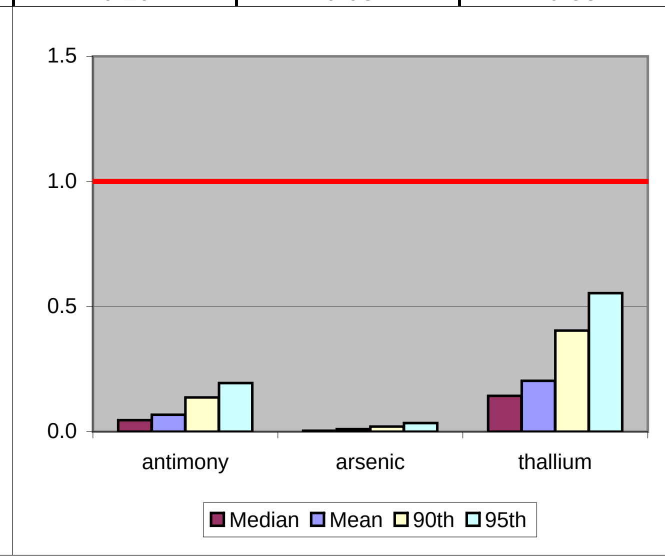




Waneta: Noncancer Hazard

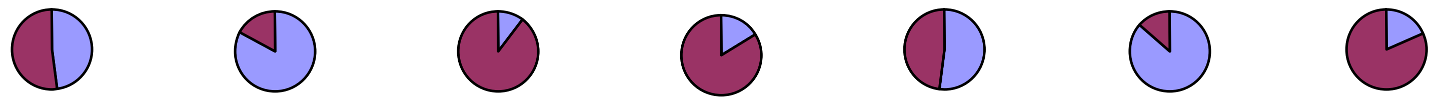
	Adult + Child				Child		
	antimony	arsenic	cadmium	thallium	antimony	arsenic	thallium
95th Percentile HQ							
Soil-Dust	0.04	0.27	0.00	0.11	0.06	0.03	0.18
Produce	0.09	0.24	0.16	0.62	0.11	0.02	0.83
Total HI							
Median	0.04	0.04	0.01	0.11	0.05	0.00	0.14
Mean	0.05	0.12	0.02	0.15	0.07	0.01	0.20
90th	0.10	0.23	0.04	0.29	0.14	0.02	0.40
95th	0.14	0.41	0.07	0.40	0.19	0.03	0.55



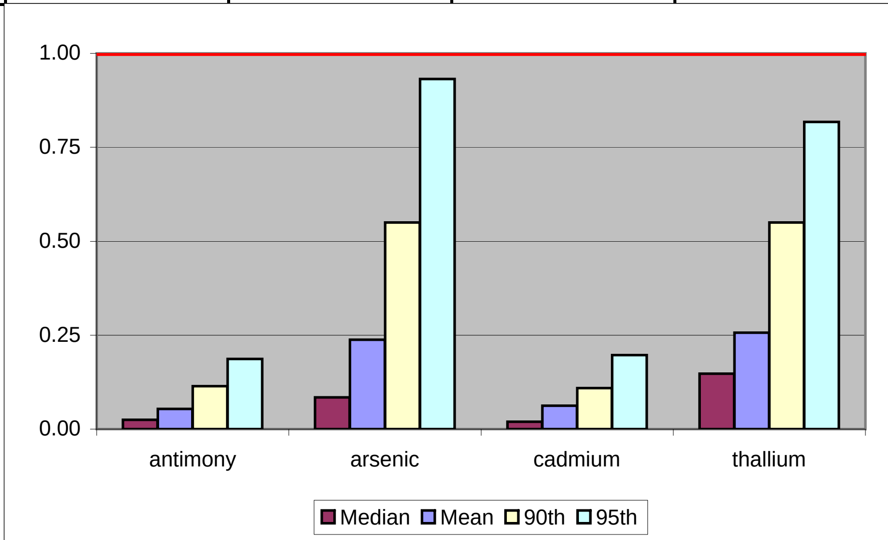


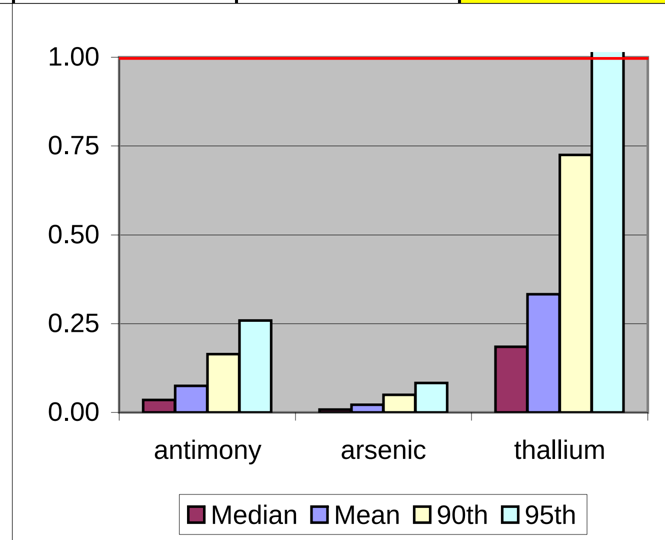
West Trail: Noncancer Hazard

produce soil-dust

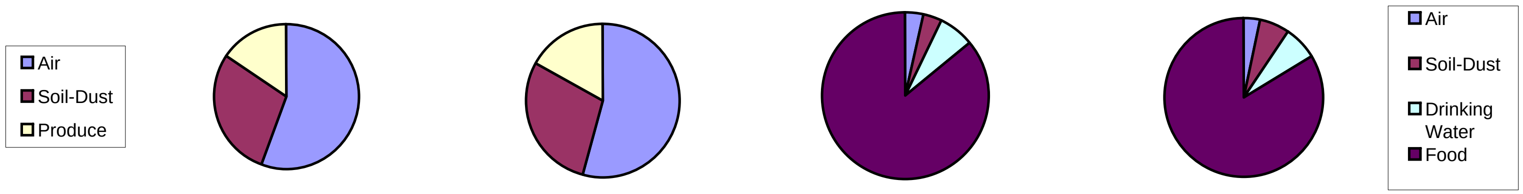


	Adult + Child				Child		
	antimony	arsenic	cadmium	thallium	antimony	arsenic	thallium
95th Percentile HQ							
Soil-Dust	0.09	0.65	0.01	0.06	0.14	0.06	0.09
Produce	0.10	0.13	0.07	0.29	0.13	0.01	0.38
Total HI							
Median	0.02	0.08	0.02	0.15	0.03	0.01	0.18
Mean	0.05	0.24	0.06	0.26	0.08	0.02	0.33
90th	0.11	0.55	0.11	0.55	0.16	0.05	0.73
95th	0.19	0.93	0.20	0.82	0.26	0.08	1.06





Cancer Risk: East Trail (Butler Park) versus Background



	Mean East Trail	95th East Trail	Mean Background	95th Background
Air	1E-05	5E-05	1E-06	3E-06
Soil-Dust	8E-06	3E-05	1E-06	5E-06
Produce	4E-06	2E-05	--	--
Drinking Water	--	--	3E-06	6E-06
Food	--	--	3E-05	7E-05
Total	3E-05	1E-04	4E-05	8E-05

Note that these risks are from arsenic only. Mean and 95th percentile cancer risks via inhalation for Cadmium at Butler Park are 4E-6 and 1E-5, respectively. Background cancer risks for cadmium via inhalation are 5E-7 at the mean and 1E-6 at the 95th percentile.

Cancer Risk: Waneta (Columbia Gardens) versus Background

	Mean Waneta	95th Waneta	Mean Background	95th Background
Air	7E-06	3E-05	1E-06	3E-06
Soil-Dust	3E-06	1E-05	1E-06	5E-06
Produce	2E-06	8E-06	--	--
Drinking Water	--	--	3E-06	6E-06
Food	--	--	3E-05	7E-05
Total	1E-05	5E-05	4E-05	8E-05

Note that these risks are from arsenic only. Mean and 95th percentile cancer risks via inhalation for Cadmium at Columbia Gardens are 2E-6 and 9E-6, respectively. Background cancer risks for cadmium via inhalation are 5E-7 at the mean and 1E-6 at the 95th percentile.

Cancer Risk: West Trail (West Trail) versus Background

	Mean West Trail	95th West Trail	Mean Background	95th Background
Air	9E-06	3E-05	1E-06	3E-06
Soil-Dust	7E-06	3E-05	1E-06	5E-06
Produce	4E-06	2E-05	--	--
Drinking Water	--	--	3E-06	6E-06
Food	--	--	3E-05	7E-05
Total	2E-05	8E-05	4E-05	8E-05

Note that these risks are from arsenic only. Mean and 95th percentile cancer risks via inhalation for Cadmium at West Trail are 3E-6 and 1E-5, respectively. Background cancer risks for cadmium via inhalation are 5E-7 at the mean and 1E-6 at the 95th percentile.

APPENDIX C

CRYSTAL BALL® REPORT FOR PROBABILISTIC ANALYSES (ON CD)

Report C1a - Crystal Ball Report - Custom
Simulation started on 10/31/2007 at 10:42:20
Simulation stopped on 10/31/2007 at 10:43:22

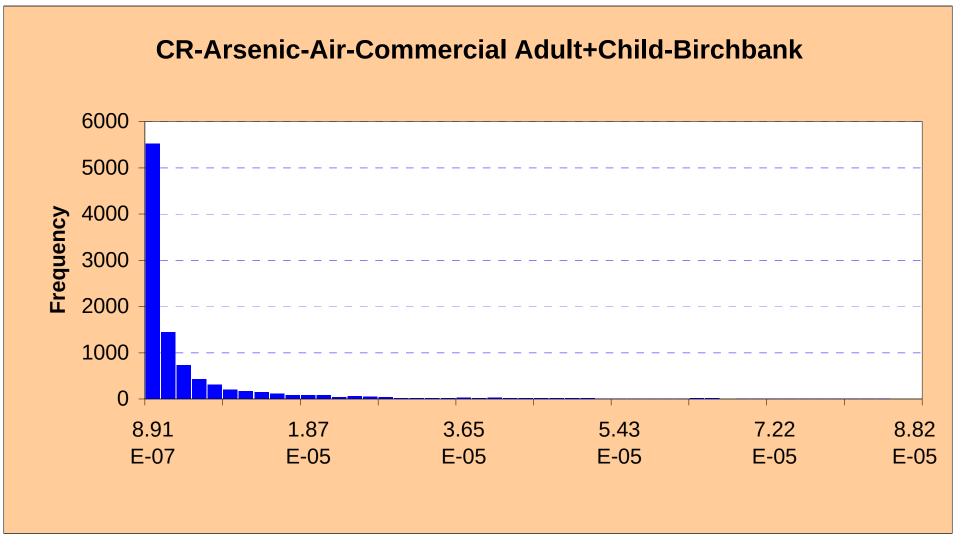
Run preferences:	
Number of trials run	10,000
Monte Carlo	
Random seed	
Precision control on	
Confidence level	95.00%
Run statistics:	
Total running time (sec)	62.79
Trials/second (average)	159
Random numbers per sec	20,864
Crystal Ball data:	
Assumptions	131
Correlations	0
Correlated groups	0
Decision variables	0
Forecasts	154

Forecasts

Worksheet: [C164_air.xls]CR Air

Forecast: CR-Arsenic-Air-Commercial Adult+Child-Birchbank **Cell: D35**

Summary:
Entire range is from 5.80E-10 to 8.52E-04
Base case is 6.20E-06
After 10,000 trials, the std. error of the mean is 2.91E-07



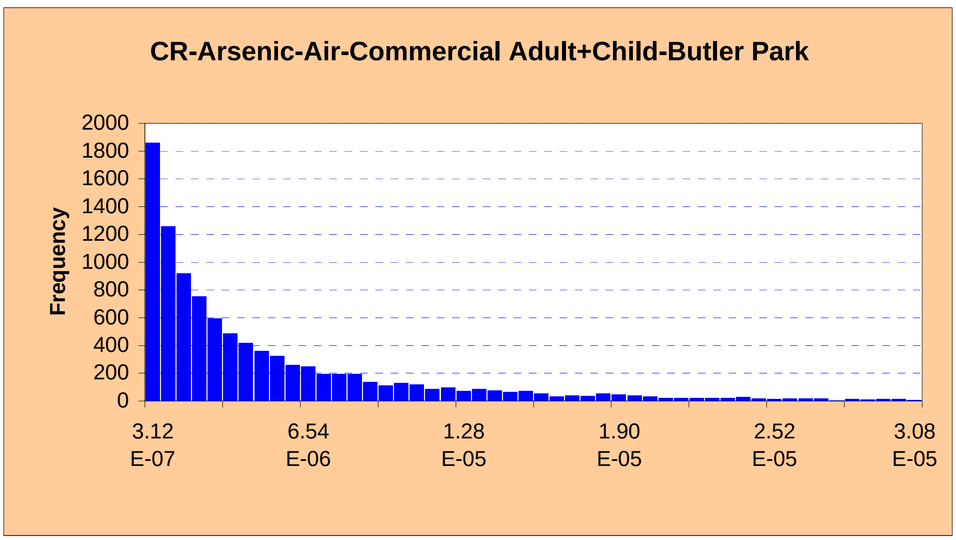
Statistics:	Forecast values
Trials	10,000
Mean	7.74E-06
Median	1.40E-06
Mode	---
Standard Deviation	2.91E-05
Variance	8.44E-10
Skewness	12.19
Kurtosis	216.92
Coeff. of Variability	3.76
Minimum	5.80E-10
Maximum	8.52E-04
Range Width	8.52E-04
Mean Std. Error	2.91E-07

Forecast: CR-Arsenic-Air-Commercial Adult+Child-Birchbank (cont'd) **Cell: D35**

Percentiles:	Forecast values
1%	1.52E-08
5%	5.88E-08
10%	1.22E-07
25%	3.87E-07
50%	1.40E-06
75%	4.83E-06
90%	1.52E-05
95%	2.98E-05
99%	1.12E-04

Forecast: CR-Arsenic-Air-Commercial Adult+Child-Butler Park **Cell: E35**

Summary:
Entire range is from 2.96E-10 to 1.69E-04
Base case is 5.85E-06
After 10,000 trials, the std. error of the mean is 9.06E-08



Forecast: CR-Arsenic-Air-Commercial Adult+Child-Butler Park (cont'd)

Cell: E35

Statistics:	Forecast values
Trials	10,000
Mean	5.80E-06
Median	2.68E-06
Mode	---
Standard Deviation	9.06E-06
Variance	8.20E-11
Skewness	4.50
Kurtosis	38.64
Coeff. of Variability	1.56
Minimum	2.96E-10
Maximum	1.69E-04
Range Width	1.69E-04
Mean Std. Error	9.06E-08

Percentiles:	Forecast values
1%	2.74E-08
5%	1.39E-07
10%	2.92E-07
25%	9.18E-07
50%	2.68E-06
75%	6.91E-06
90%	1.45E-05
95%	2.16E-05
99%	4.42E-05

Forecast: CR-Arsenic-Air-Commercial Adult+Child-Columbia Gardens

Cell: F35

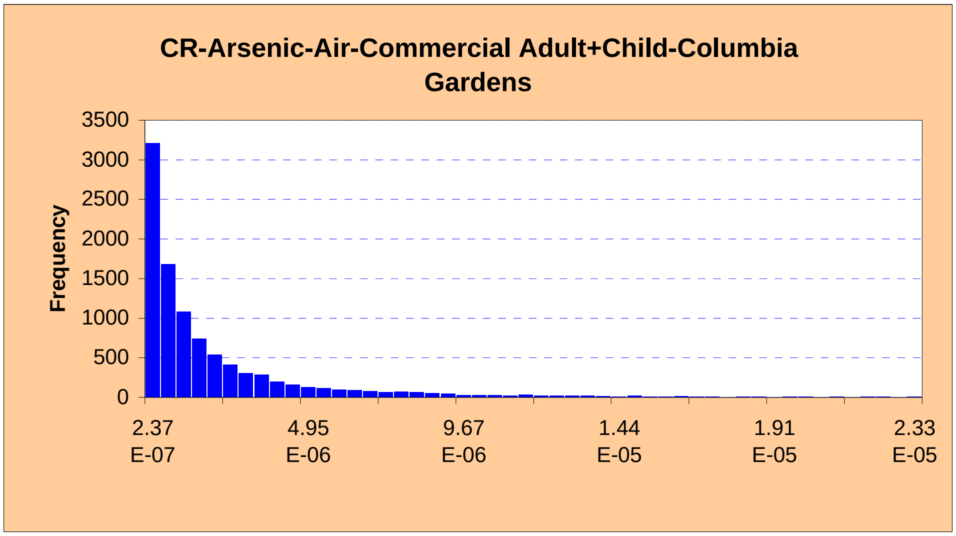
Summary:

Entire range is from 1.40E-09 to 3.34E-04

Base case is 2.78E-06

After 10,000 trials, the std. error of the mean is 7.43E-08

Forecast: CR-Arsenic-Air-Commercial Adult+Child-Columbia Gardens (cont'd) **Cell: F35**

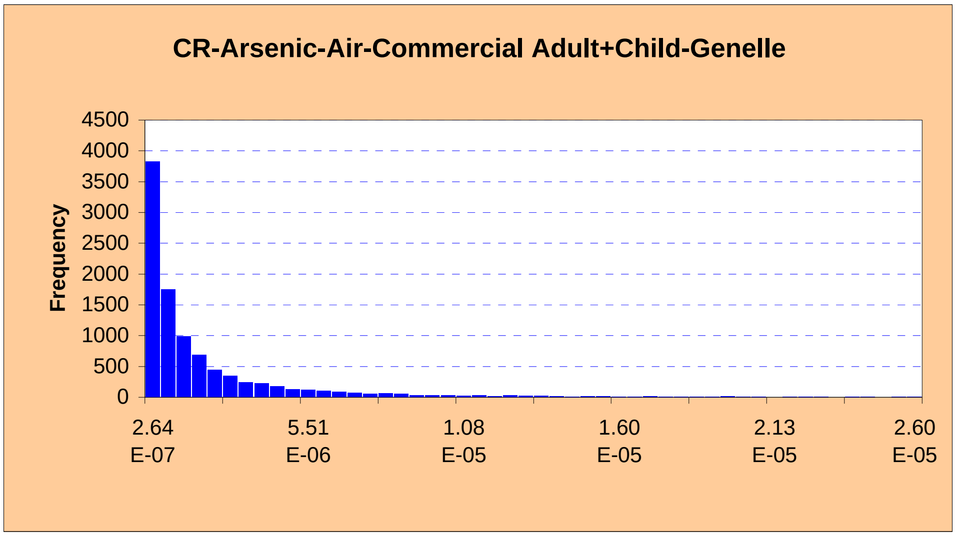


Statistics:	Forecast values
Trials	10,000
Mean	2.78E-06
Median	9.76E-07
Mode	---
Standard Deviation	7.43E-06
Variance	5.52E-11
Skewness	16.87
Kurtosis	541.09
Coeff. of Variability	2.68
Minimum	1.40E-09
Maximum	3.34E-04
Range Width	3.34E-04
Mean Std. Error	7.43E-08

Percentiles:	Forecast values
1%	2.62E-08
5%	7.37E-08
10%	1.35E-07
25%	3.40E-07
50%	9.76E-07
75%	2.63E-06
90%	6.29E-06
95%	1.04E-05
99%	2.77E-05

Forecast: CR-Arsenic-Air-Commercial Adult+Child-Genelle **Cell: G35**

Summary:
Entire range is from 1.52E-09 to 3.24E-04
Base case is 2.70E-06
After 10,000 trials, the std. error of the mean is 8.38E-08



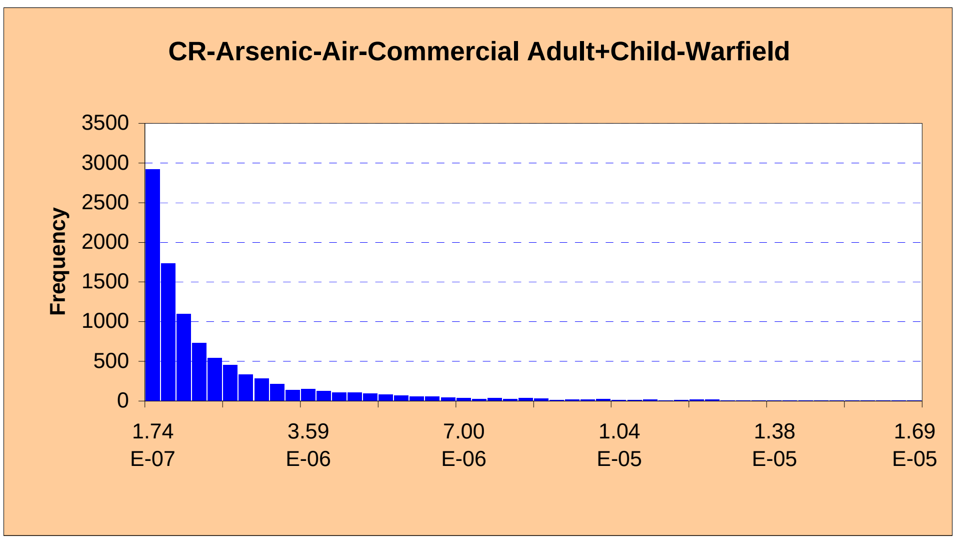
Statistics:	Forecast values
Trials	10,000
Mean	2.76E-06
Median	8.37E-07
Mode	---
Standard Deviation	8.38E-06
Variance	7.03E-11
Skewness	15.14
Kurtosis	383.50
Coeff. of Variability	3.03
Minimum	1.52E-09
Maximum	3.24E-04
Range Width	3.24E-04
Mean Std. Error	8.38E-08

Forecast: CR-Arsenic-Air-Commercial Adult+Child-Genelle (cont'd) **Cell: G35**

Percentiles:	Forecast values
1%	1.90E-08
5%	6.05E-08
10%	1.07E-07
25%	2.90E-07
50%	8.37E-07
75%	2.35E-06
90%	5.97E-06
95%	1.04E-05
99%	3.04E-05

Forecast: CR-Arsenic-Air-Commercial Adult+Child-Warfield **Cell: H35**

Summary:
Entire range is from 3.06E-09 to 1.34E-04
Base case is 2.10E-06
After 10,000 trials, the std. error of the mean is 5.32E-08



Forecast: CR-Arsenic-Air-Commercial Adult+Child-Warfield (cont'd) **Cell: H35**

Statistics:	Forecast values
Trials	10,000
Mean	2.17E-06
Median	7.81E-07
Mode	---
Standard Deviation	5.32E-06
Variance	2.83E-11
Skewness	10.46
Kurtosis	173.74
Coeff. of Variability	2.45
Minimum	3.06E-09
Maximum	1.34E-04
Range Width	1.34E-04
Mean Std. Error	5.32E-08

Percentiles:	Forecast values
1%	2.13E-08
5%	6.21E-08
10%	1.12E-07
25%	2.85E-07
50%	7.80E-07
75%	2.07E-06
90%	4.94E-06
95%	8.24E-06
99%	2.10E-05

Forecast: CR-Arsenic-Air-Commercial Adult+Child-West Trail **Cell: I35**

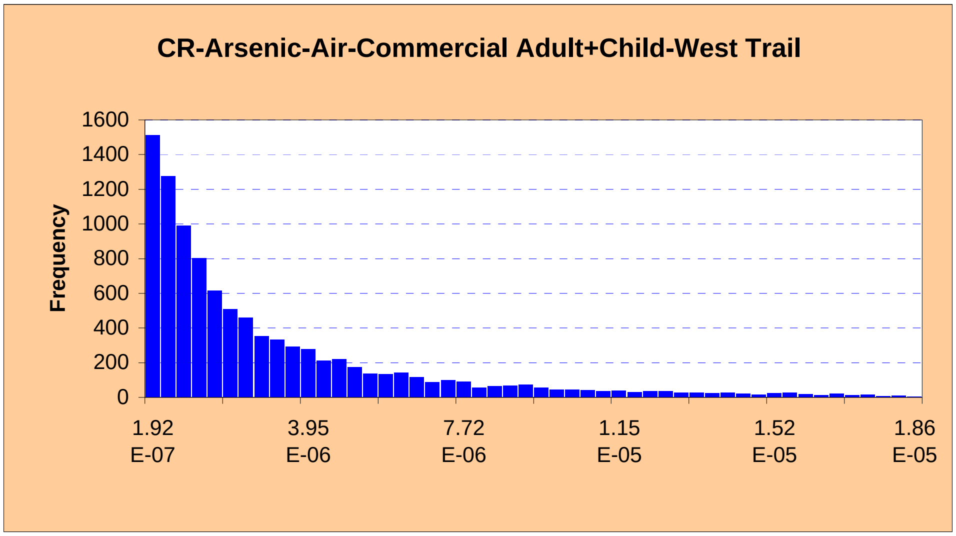
Summary:

Entire range is from 3.46E-09 to 8.50E-05

Base case is 3.64E-06

After 10,000 trials, the std. error of the mean is 5.44E-08

Forecast: CR-Arsenic-Air-Commercial Adult+Child-West Trail (cont'd) **Cell: I35**

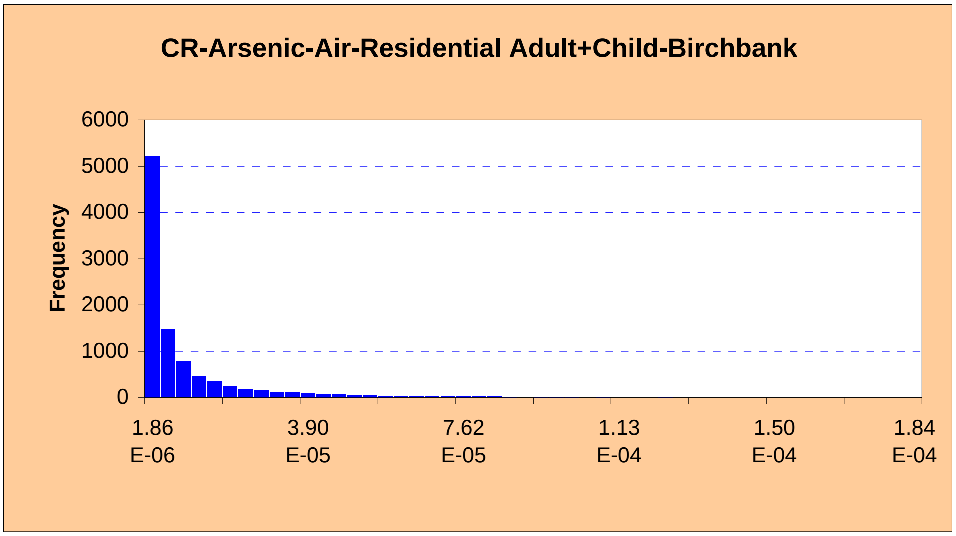


Statistics:	Forecast values
Trials	10,000
Mean	3.59E-06
Median	1.75E-06
Mode	---
Standard Deviation	5.44E-06
Variance	2.96E-11
Skewness	4.47
Kurtosis	35.55
Coeff. of Variability	1.51
Minimum	3.46E-09
Maximum	8.50E-05
Range Width	8.50E-05
Mean Std. Error	5.44E-08

Percentiles:	Forecast values
1%	4.26E-08
5%	1.31E-07
10%	2.49E-07
25%	6.59E-07
50%	1.75E-06
75%	4.27E-06
90%	8.84E-06
95%	1.32E-05
99%	2.52E-05

Forecast: CR-Arsenic-Air-Residential Adult+Child-Birchbank **Cell: D24**

Summary:
Entire range is from 1.05E-09 to 1.49E-03
Base case is 1.41E-05
After 10,000 trials, the std. error of the mean is 6.02E-07



Statistics:	Forecast values
Trials	10,000
Mean	1.71E-05
Median	3.37E-06
Mode	---
Standard Deviation	6.02E-05
Variance	3.63E-09
Skewness	11.37
Kurtosis	187.20
Coeff. of Variability	3.52
Minimum	1.05E-09
Maximum	1.49E-03
Range Width	1.49E-03
Mean Std. Error	6.02E-07

Forecast: CR-Arsenic-Air-Residential Adult+Child-Birchbank (cont'd) — Cell: D24

Percentiles:	Forecast values
1%	3.94E-08
5%	1.52E-07
10%	3.06E-07
25%	9.47E-07
50%	3.36E-06
75%	1.13E-05
90%	3.46E-05
95%	6.68E-05
99%	2.43E-04

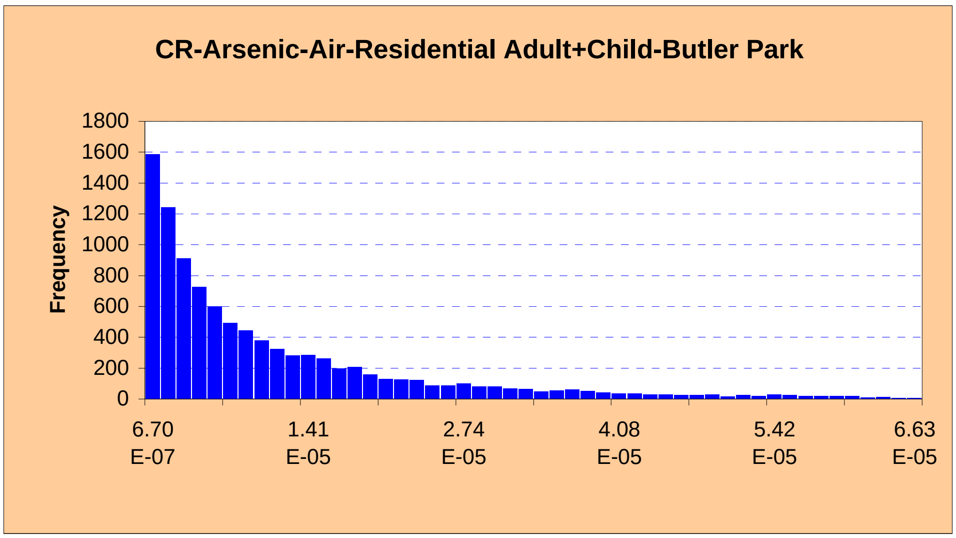
Forecast: CR-Arsenic-Air-Residential Adult+Child-Butler Park — Cell: E24

Summary:

Entire range is from 8.44E-10 to 3.18E-04

Base case is 1.33E-05

After 10,000 trials, the std. error of the mean is 1.92E-07



Forecast: CR-Arsenic-Air-Residential Adult+Child-Butler Park (cont'd) **Cell: E24**

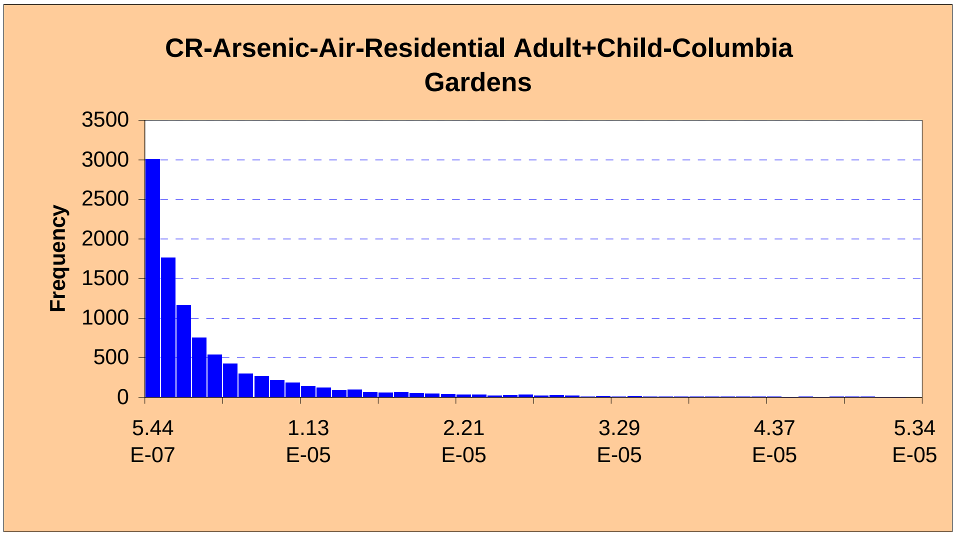
Statistics:	Forecast values
Trials	10,000
Mean	1.30E-05
Median	6.55E-06
Mode	---
Standard Deviation	1.92E-05
Variance	3.70E-10
Skewness	4.27
Kurtosis	35.09
Coeff. of Variability	1.48
Minimum	8.44E-10
Maximum	3.18E-04
Range Width	3.18E-04
Mean Std. Error	1.92E-07

Percentiles:	Forecast values
1%	6.82E-08
5%	3.48E-07
10%	7.50E-07
25%	2.29E-06
50%	6.55E-06
75%	1.59E-05
90%	3.22E-05
95%	4.74E-05
99%	9.30E-05

Forecast: CR-Arsenic-Air-Residential Adult+Child-Columbia Gardens **Cell: F24**

Summary:
Entire range is from 4.37E-09 to 8.32E-04
Base case is 6.33E-06
After 10,000 trials, the std. error of the mean is 1.70E-07

Forecast: CR-Arsenic-Air-Residential Adult+Child-Columbia Gardens (cont'd) **Cell: F24**

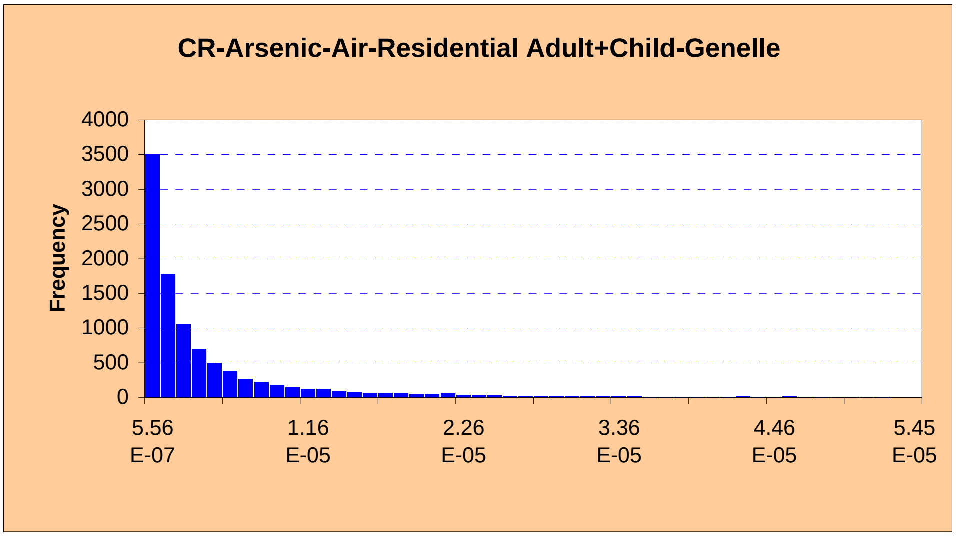


Statistics:	Forecast values
Trials	10,000
Mean	6.27E-06
Median	2.34E-06
Mode	---
Standard Deviation	1.70E-05
Variance	2.90E-10
Skewness	19.70
Kurtosis	718.57
Coeff. of Variability	2.72
Minimum	4.37E-09
Maximum	8.32E-04
Range Width	8.32E-04
Mean Std. Error	1.70E-07

Percentiles:	Forecast values
1%	7.33E-08
5%	1.98E-07
10%	3.46E-07
25%	8.51E-07
50%	2.34E-06
75%	5.98E-06
90%	1.40E-05
95%	2.35E-05
99%	6.03E-05

Forecast: CR-Arsenic-Air-Residential Adult+Child-Genelle **Cell: G24**

Summary:
Entire range is from 5.15E-09 to 5.08E-04
Base case is 6.15E-06
After 10,000 trials, the std. error of the mean is 1.75E-07



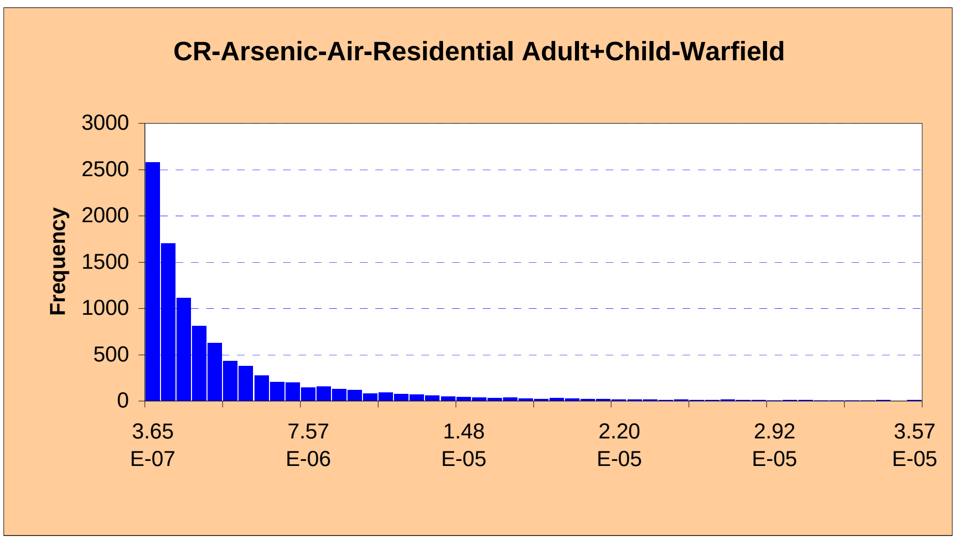
Statistics:	Forecast values
Trials	10,000
Mean	6.17E-06
Median	2.01E-06
Mode	---
Standard Deviation	1.75E-05
Variance	3.05E-10
Skewness	12.40
Kurtosis	240.94
Coeff. of Variability	2.83
Minimum	5.15E-09
Maximum	5.08E-04
Range Width	5.08E-04
Mean Std. Error	1.75E-07

Forecast: CR-Arsenic-Air-Residential Adult+Child-Genelle (cont'd) **Cell: G24**

Percentiles:	Forecast values
1%	5.07E-08
5%	1.56E-07
10%	2.82E-07
25%	7.25E-07
50%	2.01E-06
75%	5.43E-06
90%	1.34E-05
95%	2.26E-05
99%	6.62E-05

Forecast: CR-Arsenic-Air-Residential Adult+Child-Warfield **Cell: H24**

Summary:
Entire range is from 5.09E-09 to 3.96E-04
Base case is 4.76E-06
After 10,000 trials, the std. error of the mean is 1.11E-07



Forecast: CR-Arsenic-Air-Residential Adult+Child-Warfield (cont'd) **Cell: H24**

Statistics:	Forecast values
Trials	10,000
Mean	4.86E-06
Median	1.88E-06
Mode	---
Standard Deviation	1.11E-05
Variance	1.24E-10
Skewness	11.02
Kurtosis	235.41
Coeff. of Variability	2.29
Minimum	5.09E-09
Maximum	3.96E-04
Range Width	3.96E-04
Mean Std. Error	1.11E-07

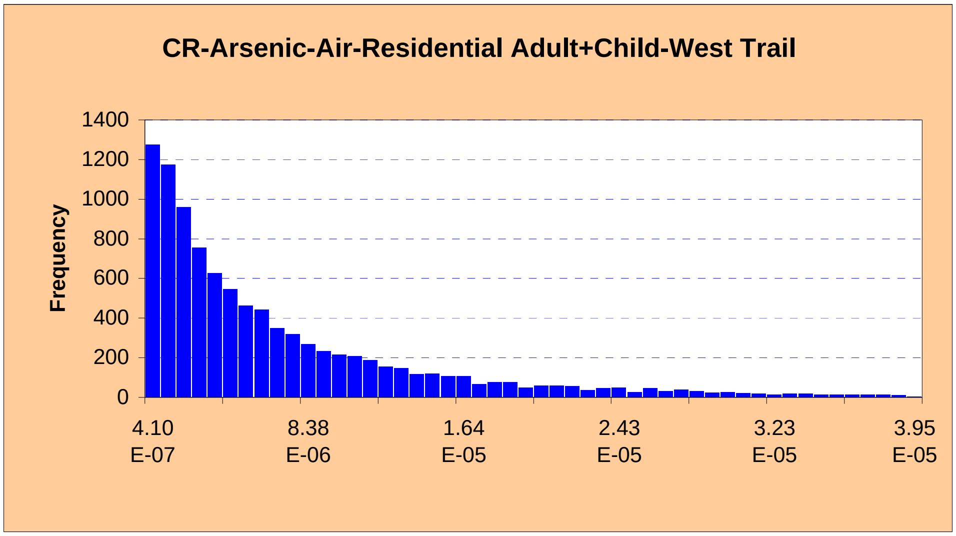
Percentiles:	Forecast values
1%	5.35E-08
5%	1.59E-07
10%	2.84E-07
25%	7.01E-07
50%	1.88E-06
75%	4.73E-06
90%	1.10E-05
95%	1.84E-05
99%	4.51E-05

Forecast: CR-Arsenic-Air-Residential Adult+Child-West Trail **Cell: I24**

Summary:
Entire range is from 1.13E-08 to 1.47E-04
Base case is 8.28E-06
After 10,000 trials, the std. error of the mean is 1.14E-07

Forecast: CR-Arsenic-Air-Residential Adult+Child-West Trail (cont'd)

Cell: I24

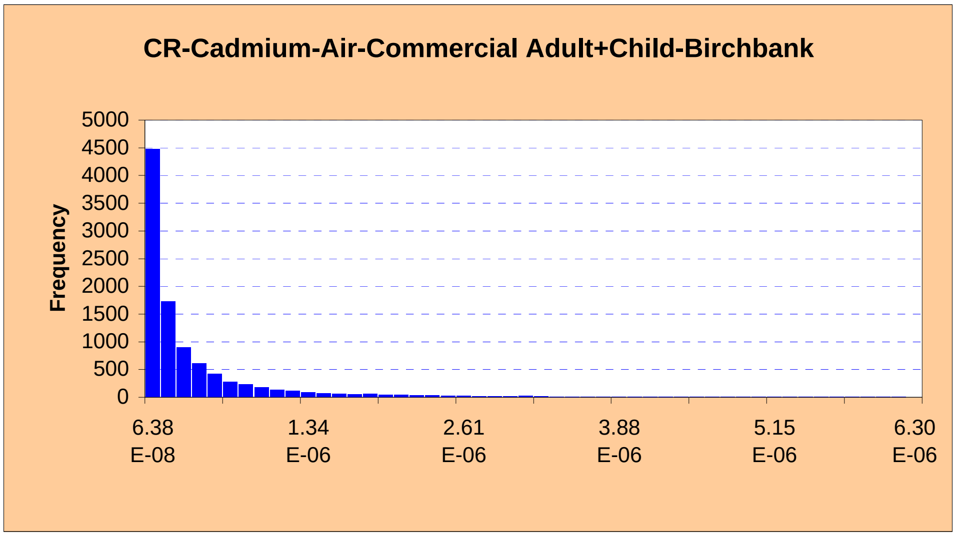


Statistics:	Forecast values
Trials	10,000
Mean	8.03E-06
Median	4.27E-06
Mode	---
Standard Deviation	1.14E-05
Variance	1.29E-10
Skewness	4.09
Kurtosis	30.19
Coeff. of Variability	1.42
Minimum	1.13E-08
Maximum	1.47E-04
Range Width	1.47E-04
Mean Std. Error	1.14E-07

Percentiles:	Forecast values
1%	1.27E-07
5%	3.41E-07
10%	6.31E-07
25%	1.64E-06
50%	4.27E-06
75%	9.91E-06
90%	1.91E-05
95%	2.79E-05
99%	5.54E-05

Forecast: CR-Cadmium-Air-Commercial Adult+Child-Birchbank **Cell: D36**

Summary:
Entire range is from 1.34E-10 to 1.30E-04
Base case is 5.99E-07
After 10,000 trials, the std. error of the mean is 2.08E-08



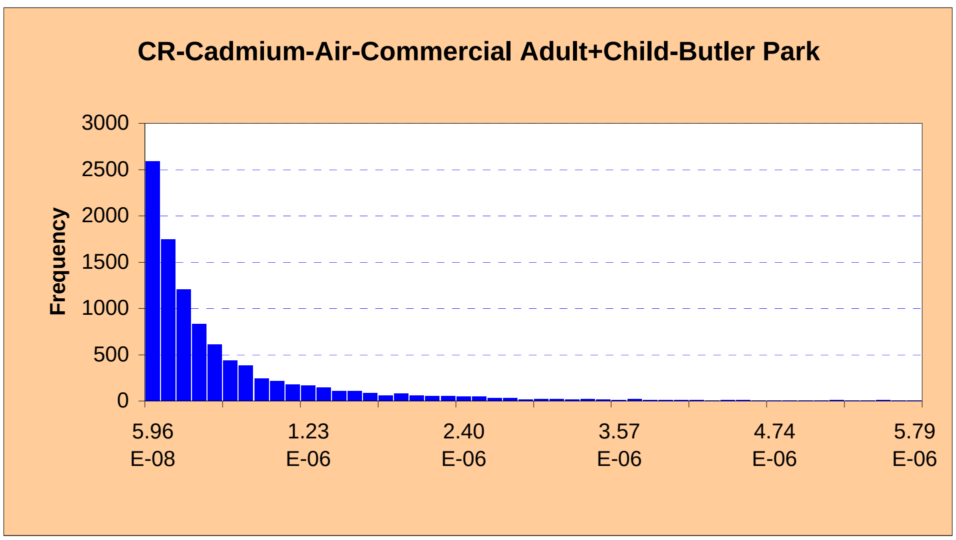
Statistics:	Forecast values
Trials	10,000
Mean	5.37E-07
Median	1.56E-07
Mode	---
Standard Deviation	2.08E-06
Variance	4.33E-12
Skewness	33.31
Kurtosis	1,737.88
Coeff. of Variability	3.87
Minimum	1.34E-10
Maximum	1.30E-04
Range Width	1.30E-04
Mean Std. Error	2.08E-08

Forecast: CR-Cadmium-Air-Commercial Adult+Child-Birchbank (cont'd) **Cell: D36**

Percentiles:	Forecast values
1%	3.41E-09
5%	1.13E-08
10%	1.97E-08
25%	5.50E-08
50%	1.56E-07
75%	4.57E-07
90%	1.16E-06
95%	2.02E-06
99%	5.73E-06

Forecast: CR-Cadmium-Air-Commercial Adult+Child-Butler Park **Cell: E36**

Summary:
Entire range is from 1.10E-09 to 8.35E-05
Base case is 7.45E-07
After 10,000 trials, the std. error of the mean is 1.82E-08



Forecast: CR-Cadmium-Air-Commercial Adult+Child-Butler Park (cont'd) **Cell: E36**

Statistics:	Forecast values
Trials	10,000
Mean	7.47E-07
Median	2.96E-07
Mode	---
Standard Deviation	1.82E-06
Variance	3.32E-12
Skewness	15.84
Kurtosis	518.62
Coeff. of Variability	2.44
Minimum	1.10E-09
Maximum	8.35E-05
Range Width	8.35E-05
Mean Std. Error	1.82E-08

Percentiles:	Forecast values
1%	1.03E-08
5%	2.65E-08
10%	4.60E-08
25%	1.14E-07
50%	2.96E-07
75%	7.26E-07
90%	1.67E-06
95%	2.66E-06
99%	7.21E-06

Forecast: CR-Cadmium-Air-Commercial Adult+Child-Columbia Gardens **Cell: F36**

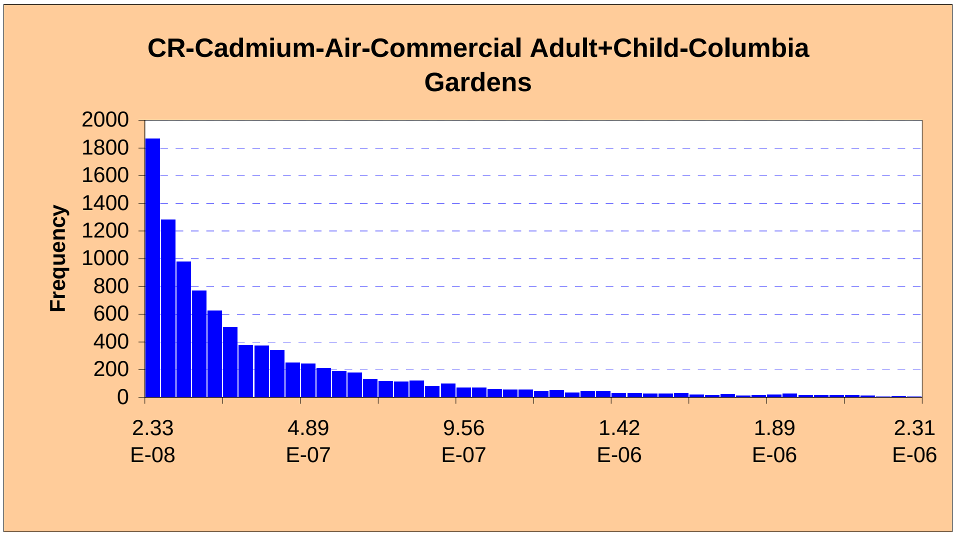
Summary:

Entire range is from 2.50E-11 to 1.39E-05

Base case is 4.17E-07

After 10,000 trials, the std. error of the mean is 6.83E-09

Forecast: CR-Cadmium-Air-Commercial Adult+Child-Columbia Gardens (cont'd) **Cell: F36**

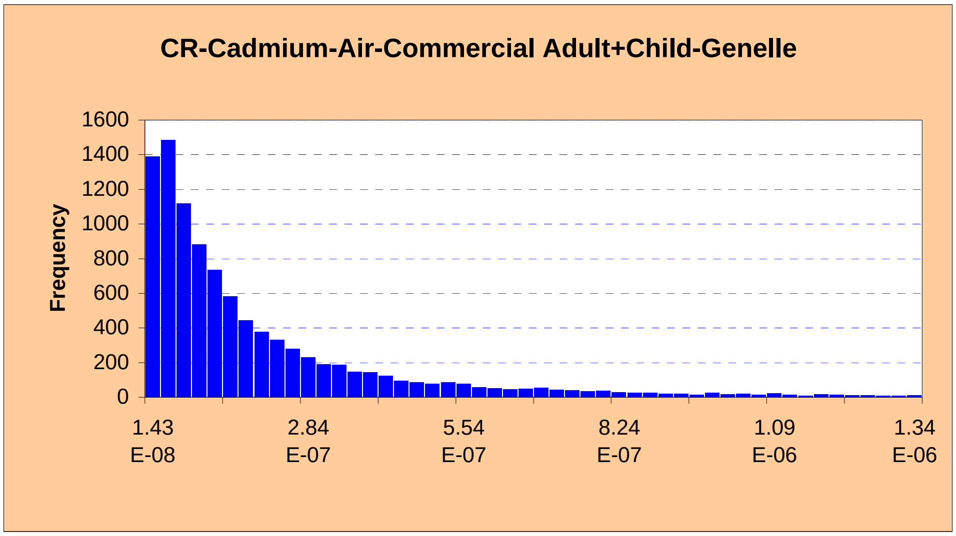


Statistics:	Forecast values
Trials	10,000
Mean	4.17E-07
Median	1.93E-07
Mode	---
Standard Deviation	6.83E-07
Variance	4.67E-13
Skewness	5.44
Kurtosis	56.29
Coeff. of Variability	1.64
Minimum	2.50E-11
Maximum	1.39E-05
Range Width	1.39E-05
Mean Std. Error	6.83E-09

Percentiles:	Forecast values
1%	1.99E-09
5%	1.07E-08
10%	2.18E-08
25%	6.74E-08
50%	1.93E-07
75%	4.89E-07
90%	1.02E-06
95%	1.54E-06
99%	3.15E-06

Forecast: CR-Cadmium-Air-Commercial Adult+Child-Genelle **Cell: G36**

Summary:
Entire range is from 7.92E-10 to 1.06E-05
Base case is 2.35E-07
After 10,000 trials, the std. error of the mean is 3.99E-09



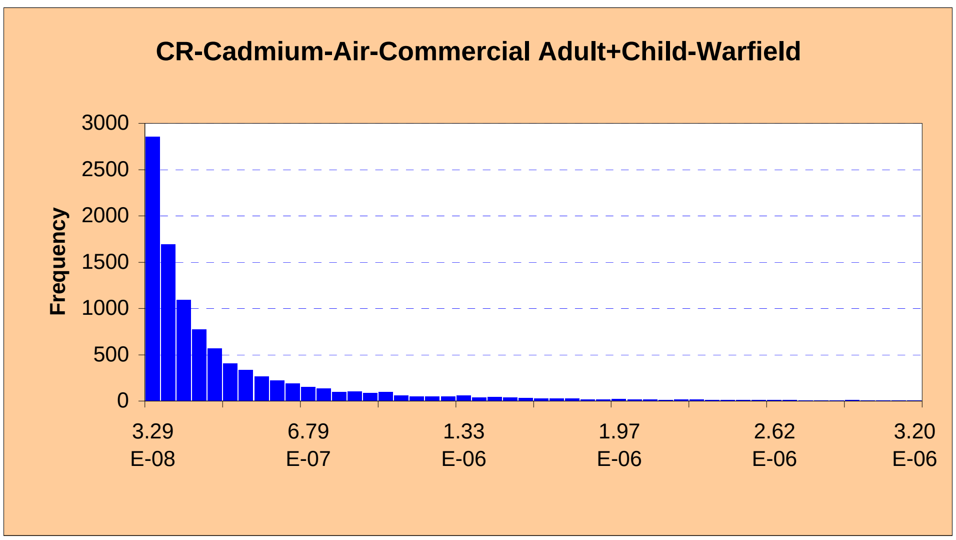
Statistics:	Forecast values
Trials	10,000
Mean	2.32E-07
Median	1.13E-07
Mode	---
Standard Deviation	3.99E-07
Variance	1.59E-13
Skewness	7.58
Kurtosis	114.78
Coeff. of Variability	1.72
Minimum	7.92E-10
Maximum	1.06E-05
Range Width	1.06E-05
Mean Std. Error	3.99E-09

Forecast: CR-Cadmium-Air-Commercial Adult+Child-Genelle (cont'd) **Cell: G36**

Percentiles:	Forecast values
1%	4.59E-09
5%	1.27E-08
10%	2.13E-08
25%	4.79E-08
50%	1.13E-07
75%	2.56E-07
90%	5.45E-07
95%	8.30E-07
99%	1.78E-06

Forecast: CR-Cadmium-Air-Commercial Adult+Child-Warfield **Cell: H36**

Summary:
Entire range is from 5.66E-10 to 2.50E-05
Base case is 4.29E-07
After 10,000 trials, the std. error of the mean is 1.00E-08



Forecast: CR-Cadmium-Air-Commercial Adult+Child-Warfield (cont'd) **Cell: H36**

Statistics:	Forecast values
Trials	10,000
Mean	4.28E-07
Median	1.54E-07
Mode	---
Standard Deviation	1.00E-06
Variance	1.00E-12
Skewness	8.65
Kurtosis	120.27
Coeff. of Variability	2.34
Minimum	5.66E-10
Maximum	2.50E-05
Range Width	2.50E-05
Mean Std. Error	1.00E-08

Percentiles:	Forecast values
1%	3.77E-09
5%	1.24E-08
10%	2.18E-08
25%	5.49E-08
50%	1.54E-07
75%	4.08E-07
90%	9.79E-07
95%	1.61E-06
99%	4.44E-06

Forecast: CR-Cadmium-Air-Commercial Adult+Child-West Trail **Cell: I36**

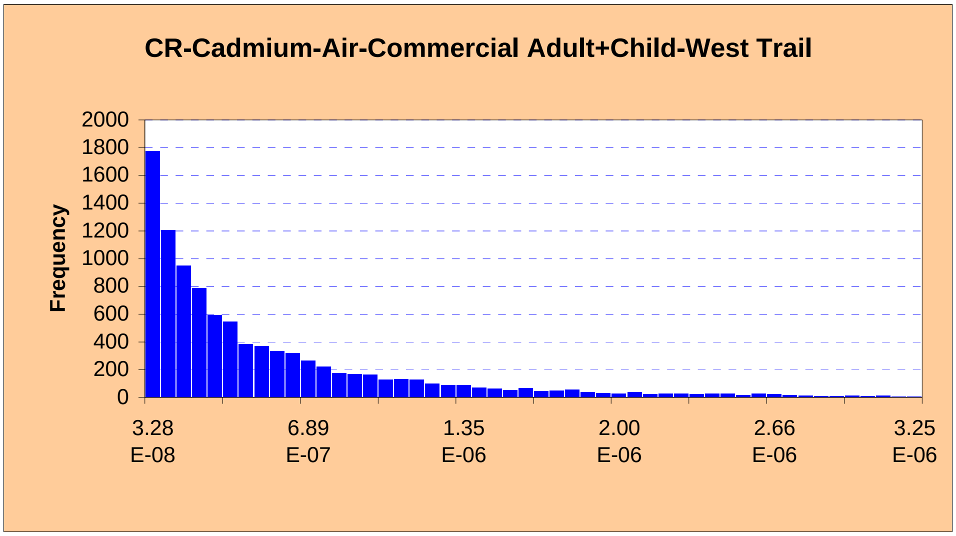
Summary:

Entire range is from 2.03E-11 to 1.44E-05

Base case is 6.36E-07

After 10,000 trials, the std. error of the mean is 9.54E-09

Forecast: CR-Cadmium-Air-Commercial Adult+Child-West Trail (cont'd) **Cell: I36**

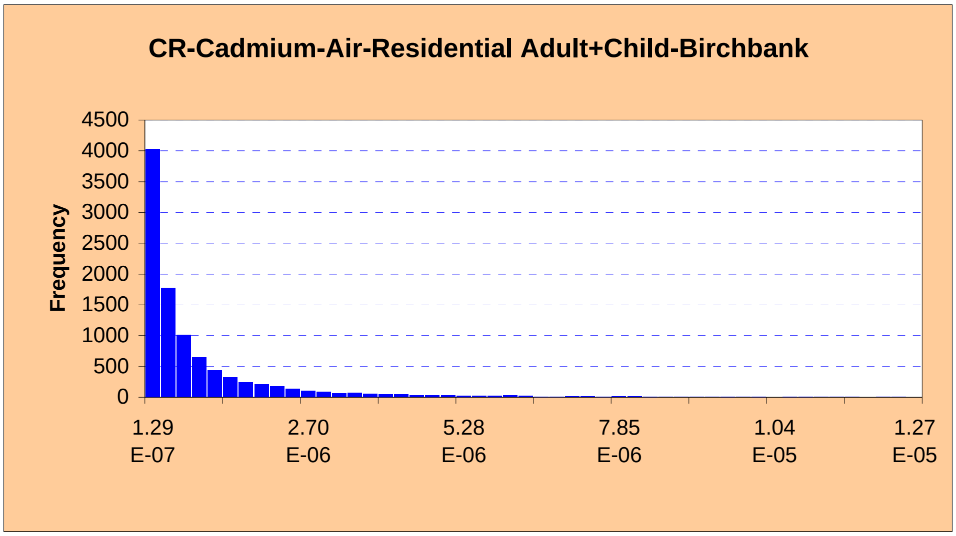


Statistics:	Forecast values
Trials	10,000
Mean	6.10E-07
Median	2.89E-07
Mode	---
Standard Deviation	9.54E-07
Variance	9.11E-13
Skewness	4.40
Kurtosis	33.44
Coeff. of Variability	1.56
Minimum	2.03E-11
Maximum	1.44E-05
Range Width	1.44E-05
Mean Std. Error	9.54E-09

Percentiles:	Forecast values
1%	3.05E-09
5%	1.48E-08
10%	3.30E-08
25%	1.02E-07
50%	2.89E-07
75%	7.14E-07
90%	1.46E-06
95%	2.24E-06
99%	4.92E-06

Forecast: CR-Cadmium-Air-Residential Adult+Child-Birchbank **Cell: D25**

Summary:
Entire range is from 5.68E-10 to 2.62E-04
Base case is 1.36E-06
After 10,000 trials, the std. error of the mean is 4.17E-08



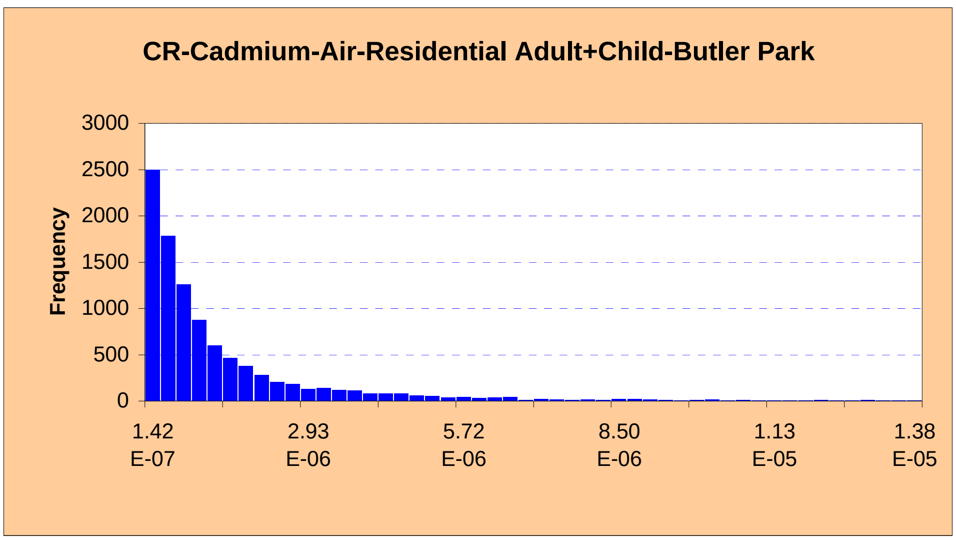
Statistics:	Forecast values
Trials	10,000
Mean	1.21E-06
Median	3.76E-07
Mode	---
Standard Deviation	4.17E-06
Variance	1.74E-11
Skewness	30.76
Kurtosis	1,651.42
Coeff. of Variability	3.45
Minimum	5.68E-10
Maximum	2.62E-04
Range Width	2.62E-04
Mean Std. Error	4.17E-08

Forecast: CR-Cadmium-Air-Residential Adult+Child-Birchbank (cont'd) **Cell: D25**

Percentiles:	Forecast values
1%	9.66E-09
5%	2.87E-08
10%	5.22E-08
25%	1.32E-07
50%	3.76E-07
75%	1.04E-06
90%	2.57E-06
95%	4.45E-06
99%	1.31E-05

Forecast: CR-Cadmium-Air-Residential Adult+Child-Butler Park **Cell: E25**

Summary:
Entire range is from 2.53E-09 to 2.82E-04
Base case is 1.69E-06
After 10,000 trials, the std. error of the mean is 4.38E-08



Forecast: CR-Cadmium-Air-Residential Adult+Child-Butler Park (cont'd) Cell: E25

Statistics:	Forecast values
Trials	10,000
Mean	1.68E-06
Median	7.06E-07
Mode	---
Standard Deviation	4.38E-06
Variance	1.92E-11
Skewness	29.70
Kurtosis	1,717.14
Coeff. of Variability	2.60
Minimum	2.53E-09
Maximum	2.82E-04
Range Width	2.82E-04
Mean Std. Error	4.38E-08

Percentiles:	Forecast values
1%	2.74E-08
5%	7.09E-08
10%	1.16E-07
25%	2.81E-07
50%	7.06E-07
75%	1.68E-06
90%	3.77E-06
95%	6.01E-06
99%	1.53E-05

Forecast: CR-Cadmium-Air-Residential Adult+Child-Columbia Gardens Cell: F25

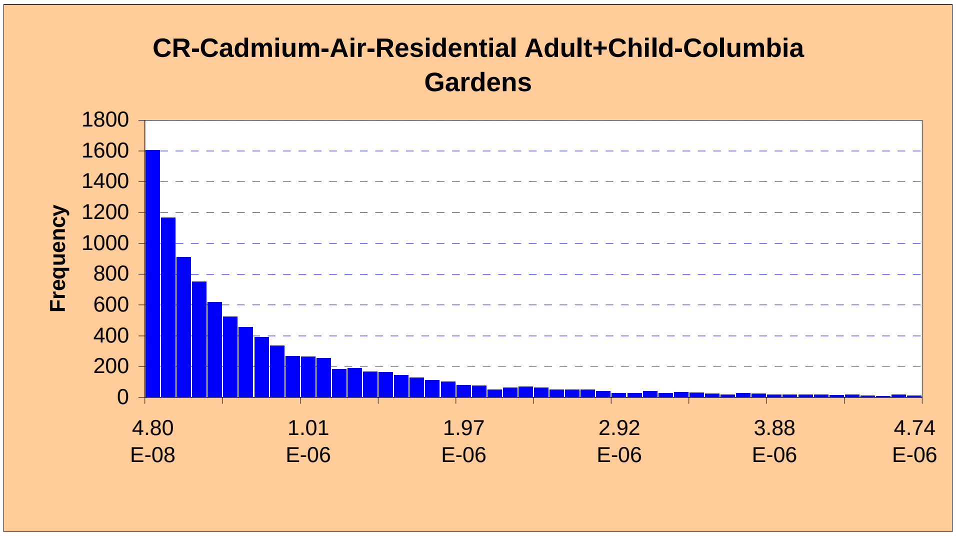
Summary:

Entire range is from 4.28E-11 to 2.30E-05

Base case is 9.47E-07

After 10,000 trials, the std. error of the mean is 1.38E-08

Forecast: CR-Cadmium-Air-Residential Adult+Child-Columbia Gardens (cont'd) **Cell: F25**

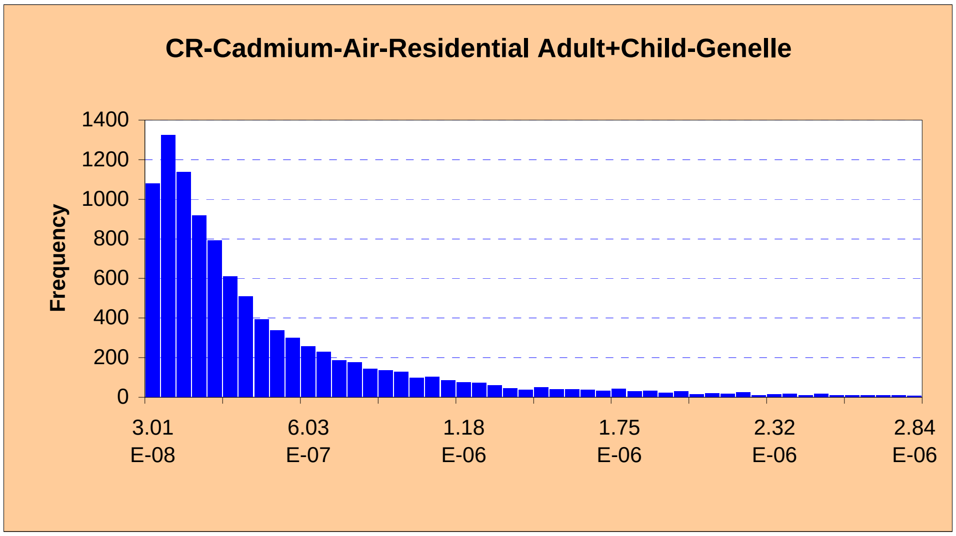


Statistics:	Forecast values
Trials	10,000
Mean	9.28E-07
Median	4.71E-07
Mode	---
Standard Deviation	1.38E-06
Variance	1.90E-12
Skewness	4.44
Kurtosis	36.64
Coeff. of Variability	1.49
Minimum	4.28E-11
Maximum	2.30E-05
Range Width	2.30E-05
Mean Std. Error	1.38E-08

Percentiles:	Forecast values
1%	4.99E-09
5%	2.76E-08
10%	5.55E-08
25%	1.67E-07
50%	4.71E-07
75%	1.13E-06
90%	2.27E-06
95%	3.36E-06
99%	6.45E-06

Forecast: CR-Cadmium-Air-Residential Adult+Child-Genelle **Cell: G25**

Summary:
Entire range is from 1.43E-09 to 1.60E-05
Base case is 5.34E-07
After 10,000 trials, the std. error of the mean is 8.37E-09



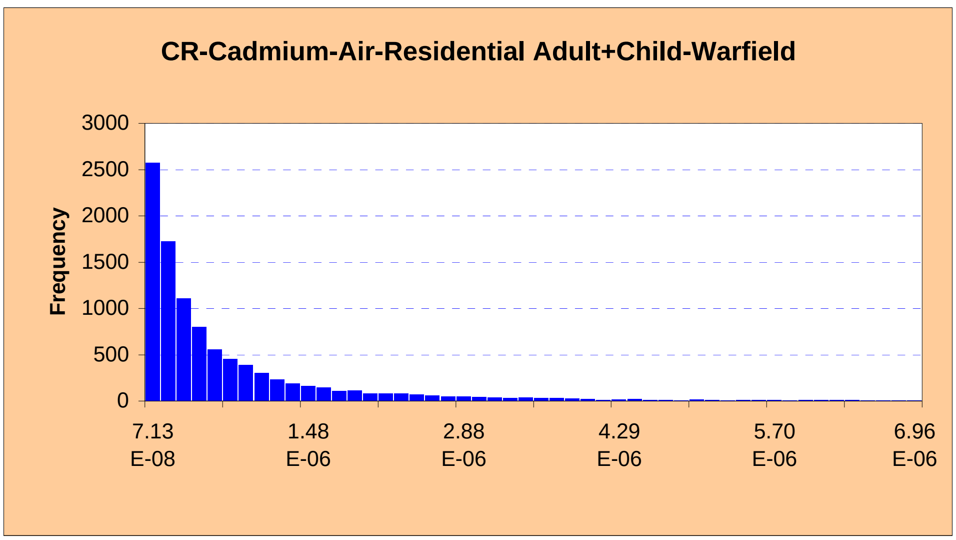
Statistics:	Forecast values
Trials	10,000
Mean	5.20E-07
Median	2.67E-07
Mode	---
Standard Deviation	8.37E-07
Variance	7.01E-13
Skewness	6.45
Kurtosis	74.19
Coeff. of Variability	1.61
Minimum	1.43E-09
Maximum	1.60E-05
Range Width	1.60E-05
Mean Std. Error	8.37E-09

Forecast: CR-Cadmium-Air-Residential Adult+Child-Genelle (cont'd) **Cell: G25**

Percentiles:	Forecast values
1%	1.28E-08
5%	3.37E-08
10%	5.53E-08
25%	1.20E-07
50%	2.67E-07
75%	5.95E-07
90%	1.19E-06
95%	1.80E-06
99%	3.75E-06

Forecast: CR-Cadmium-Air-Residential Adult+Child-Warfield **Cell: H25**

Summary:
Entire range is from 9.84E-10 to 5.46E-05
Base case is 9.74E-07
After 10,000 trials, the std. error of the mean is 2.17E-08



Forecast: CR-Cadmium-Air-Residential Adult+Child-Warfield (cont'd) **Cell: H25**

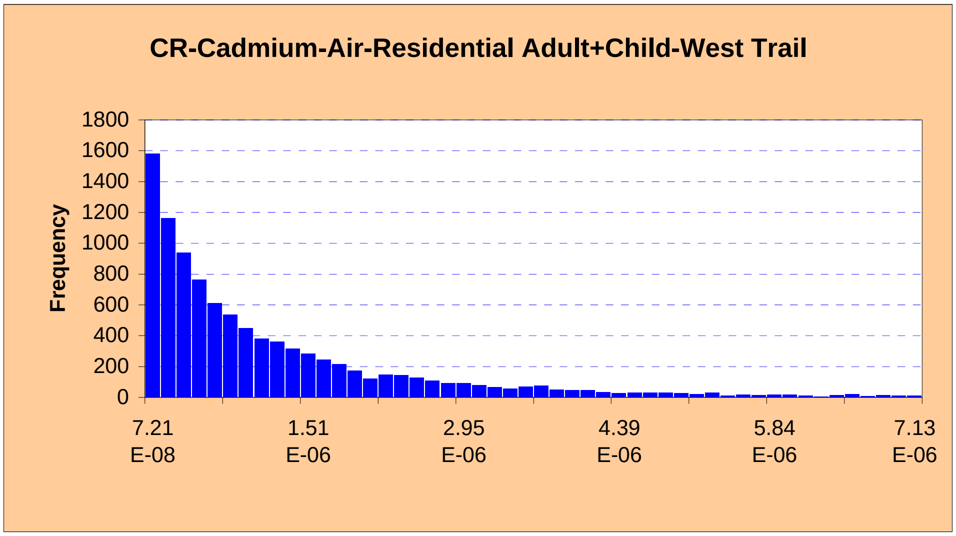
Statistics:	Forecast values
Trials	10,000
Mean	9.63E-07
Median	3.66E-07
Mode	---
Standard Deviation	2.17E-06
Variance	4.70E-12
Skewness	8.72
Kurtosis	126.72
Coeff. of Variability	2.25
Minimum	9.84E-10
Maximum	5.46E-05
Range Width	5.46E-05
Mean Std. Error	2.17E-08

Percentiles:	Forecast values
1%	9.89E-09
5%	3.27E-08
10%	5.67E-08
25%	1.36E-07
50%	3.66E-07
75%	9.47E-07
90%	2.18E-06
95%	3.53E-06
99%	9.81E-06

Forecast: CR-Cadmium-Air-Residential Adult+Child-West Trail **Cell: I25**

Summary:
Entire range is from 5.83E-11 to 3.69E-05
Base case is 1.45E-06
After 10,000 trials, the std. error of the mean is 2.08E-08

Forecast: CR-Cadmium-Air-Residential Adult+Child-West Trail (cont'd) **Cell: I25**



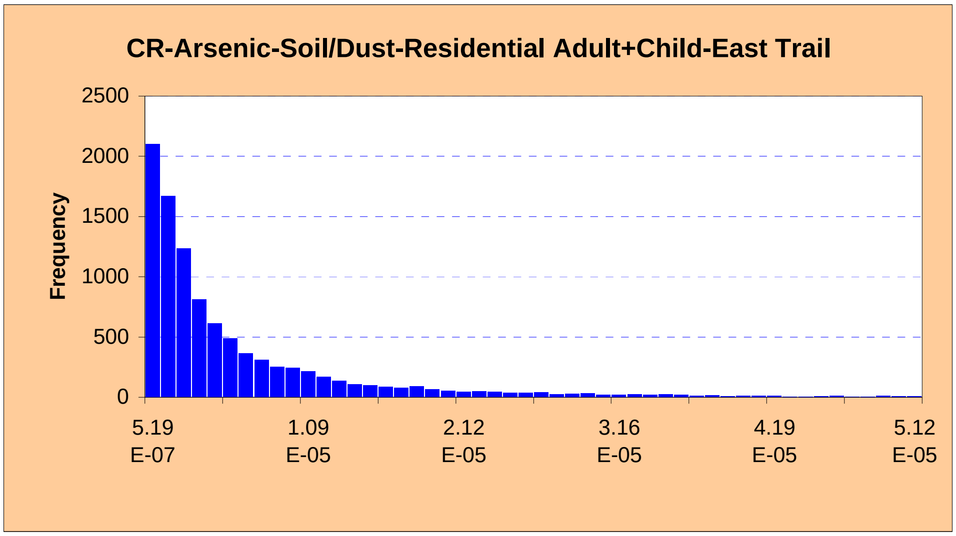
Statistics:	Forecast values
Trials	10,000
Mean	1.38E-06
Median	7.07E-07
Mode	---
Standard Deviation	2.08E-06
Variance	4.33E-12
Skewness	4.93
Kurtosis	47.43
Coeff. of Variability	1.51
Minimum	5.83E-11
Maximum	3.69E-05
Range Width	3.69E-05
Mean Std. Error	2.08E-08

Percentiles:	Forecast values
1%	8.25E-09
5%	4.04E-08
10%	8.51E-08
25%	2.53E-07
50%	7.07E-07
75%	1.65E-06
90%	3.32E-06
95%	4.87E-06
99%	9.94E-06

Worksheet: [C164_Soil_Dust_Produce.xls]CR Ingestion Soil-Dust

Forecast: CR-Arsenic-Soil/Dust-Residential Adult+Child-East Trail **Cell: D35**

Summary:
Entire range is from 1.26E-09 to 3.50E-04
Base case is 8.12E-06
After 10,000 trials, the std. error of the mean is 1.57E-07



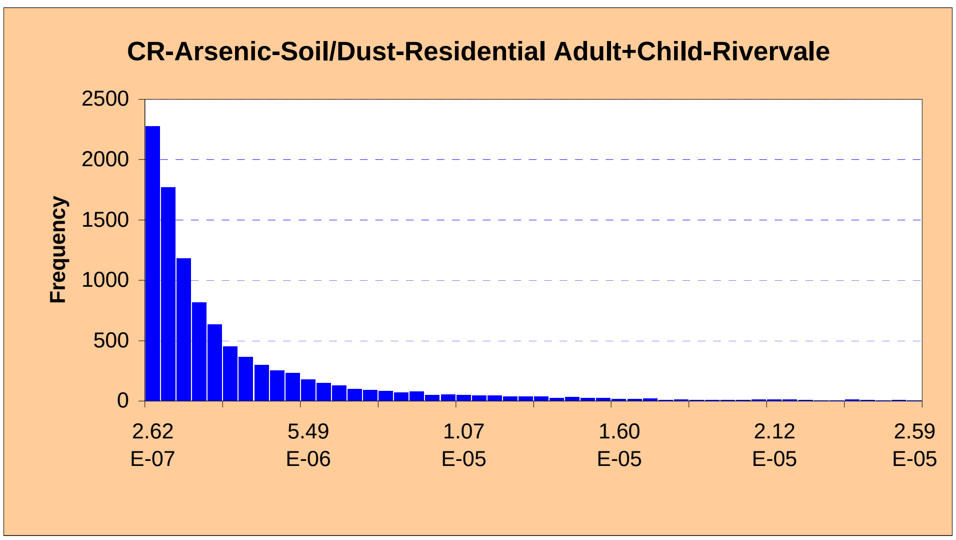
Statistics:	Forecast values
Trials	10,000
Mean	7.69E-06
Median	3.10E-06
Mode	---
Standard Deviation	1.57E-05
Variance	2.48E-10
Skewness	7.61
Kurtosis	97.09
Coeff. of Variability	2.05
Minimum	1.26E-09
Maximum	3.50E-04
Range Width	3.50E-04
Mean Std. Error	1.57E-07

Forecast: CR-Arsenic-Soil/Dust-Residential Adult+Child-East Trail (cont'd) **Cell: D35**

Percentiles:	Forecast values
1%	9.55E-08
5%	2.90E-07
10%	5.12E-07
25%	1.25E-06
50%	3.10E-06
75%	7.93E-06
90%	1.76E-05
95%	2.84E-05
99%	7.46E-05

Forecast: CR-Arsenic-Soil/Dust-Residential Adult+Child-Rivervale **Cell: E35**

Summary:
Entire range is from 5.18E-10 to 2.42E-04
Base case is 3.87E-06
After 10,000 trials, the std. error of the mean is 8.04E-08



Forecast: CR-Arsenic-Soil/Dust-Residential Adult+Child-Rivervale (cont'd) **Cell: E35**

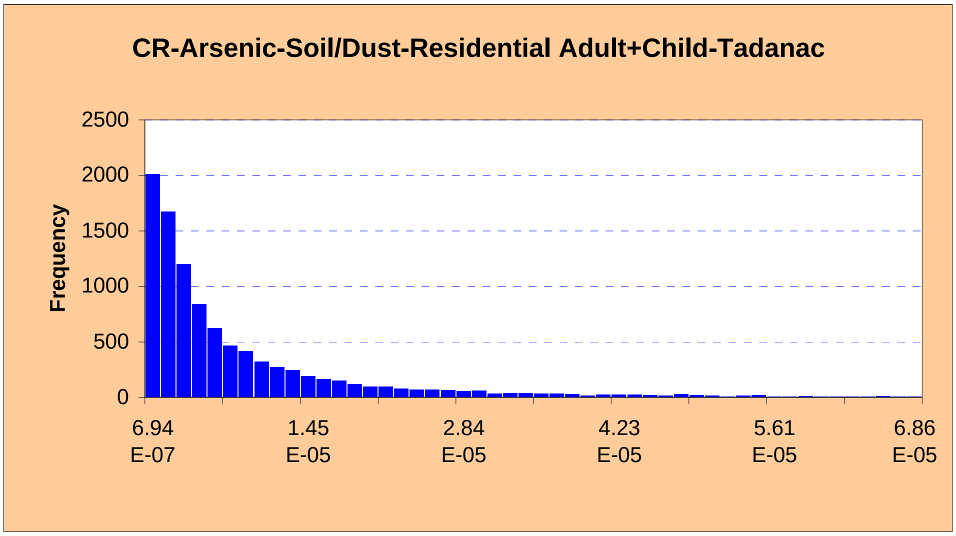
Statistics:	Forecast values
Trials	10,000
Mean	3.65E-06
Median	1.45E-06
Mode	---
Standard Deviation	8.04E-06
Variance	6.46E-11
Skewness	9.58
Kurtosis	162.26
Coeff. of Variability	2.20
Minimum	5.18E-10
Maximum	2.42E-04
Range Width	2.42E-04
Mean Std. Error	8.04E-08

Percentiles:	Forecast values
1%	4.56E-08
5%	1.35E-07
10%	2.38E-07
25%	5.73E-07
50%	1.45E-06
75%	3.67E-06
90%	8.28E-06
95%	1.33E-05
99%	3.51E-05

Forecast: CR-Arsenic-Soil/Dust-Residential Adult+Child-Tadanac **Cell: F35**

Summary:
Entire range is from 1.64E-09 to 4.61E-04
Base case is 1.11E-05
After 10,000 trials, the std. error of the mean is 2.10E-07

Forecast: CR-Arsenic-Soil/Dust-Residential Adult+Child-Tadanac (cont'd) **Cell: F35**

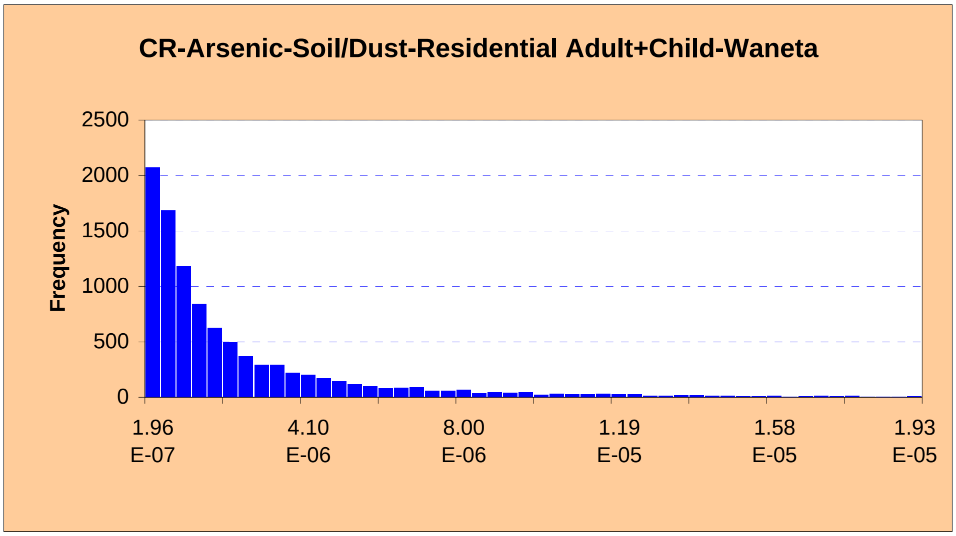


Statistics:	Forecast values
Trials	10,000
Mean	1.05E-05
Median	4.32E-06
Mode	---
Standard Deviation	2.10E-05
Variance	4.40E-10
Skewness	7.31
Kurtosis	90.77
Coeff. of Variability	2.00
Minimum	1.64E-09
Maximum	4.61E-04
Range Width	4.61E-04
Mean Std. Error	2.10E-07

Percentiles:	Forecast values
1%	1.37E-07
5%	4.05E-07
10%	7.18E-07
25%	1.75E-06
50%	4.32E-06
75%	1.09E-05
90%	2.42E-05
95%	3.90E-05
99%	9.85E-05

Forecast: CR-Arsenic-Soil/Dust-Residential Adult+Child-Waneta **Cell: G35**

Summary:
Entire range is from 4.97E-10 to 1.40E-04
Base case is 3.05E-06
After 10,000 trials, the std. error of the mean is 5.93E-08



Statistics:	Forecast values
Trials	10,000
Mean	2.91E-06
Median	1.19E-06
Mode	---
Standard Deviation	5.93E-06
Variance	3.52E-11
Skewness	7.73
Kurtosis	102.09
Coeff. of Variability	2.03
Minimum	4.97E-10
Maximum	1.40E-04
Range Width	1.40E-04
Mean Std. Error	5.93E-08

Forecast: CR-Arsenic-Soil/Dust-Residential Adult+Child-Waneta (cont'd) **Cell: G35**

Percentiles:	Forecast values
1%	3.89E-08
5%	1.13E-07
10%	1.98E-07
25%	4.78E-07
50%	1.19E-06
75%	3.03E-06
90%	6.71E-06
95%	1.08E-05
99%	2.69E-05

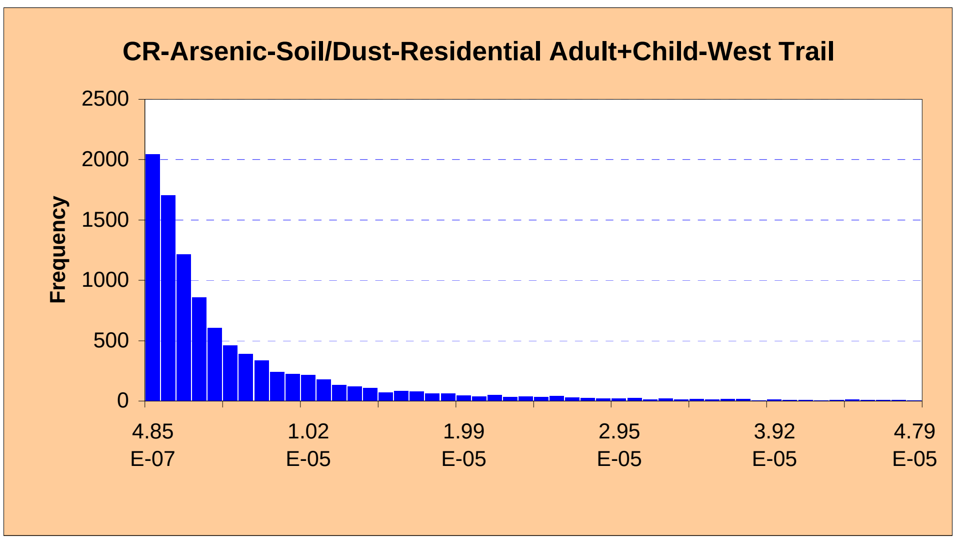
Forecast: CR-Arsenic-Soil/Dust-Residential Adult+Child-West Trail **Cell: H35**

Summary:

Entire range is from 1.13E-09 to 4.13E-04

Base case is 7.61E-06

After 10,000 trials, the std. error of the mean is 1.47E-07



Forecast: CR-Arsenic-Soil/Dust-Residential Adult+Child-West Trail (cont'd) **Cell: H35**

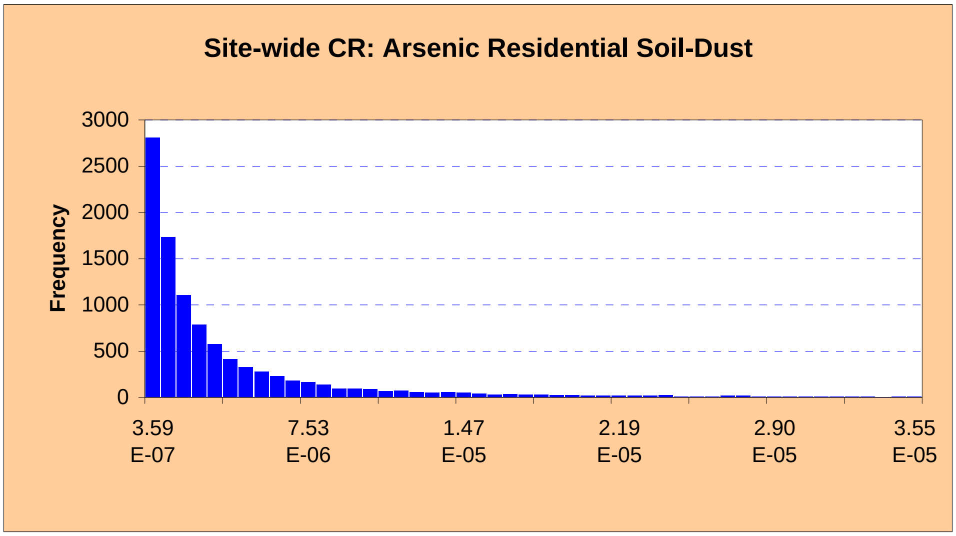
Statistics:	Forecast values
Trials	10,000
Mean	7.16E-06
Median	2.95E-06
Mode	---
Standard Deviation	1.47E-05
Variance	2.17E-10
Skewness	8.68
Kurtosis	139.20
Coeff. of Variability	2.06
Minimum	1.13E-09
Maximum	4.13E-04
Range Width	4.13E-04
Mean Std. Error	1.47E-07

Percentiles:	Forecast values
1%	9.71E-08
5%	2.78E-07
10%	4.88E-07
25%	1.18E-06
50%	2.95E-06
75%	7.38E-06
90%	1.64E-05
95%	2.62E-05
99%	6.38E-05

Forecast: Site-wide CR: Arsenic Residential Soil-Dust **Cell: I35**

Summary:
Entire range is from 1.00E-09 to 4.32E-04
Base case is 4.86E-06
After 10,000 trials, the std. error of the mean is 1.12E-07

Forecast: Site-wide CR: Arsenic Residential Soil-Dust (cont'd) **Cell: I35**



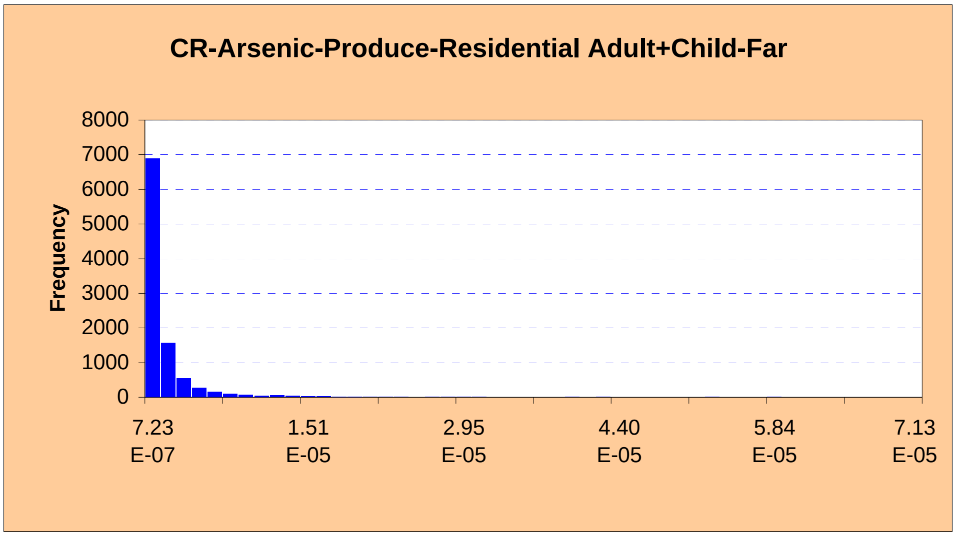
Statistics:	Forecast values
Trials	10,000
Mean	4.60E-06
Median	1.70E-06
Mode	---
Standard Deviation	1.12E-05
Variance	1.25E-10
Skewness	13.52
Kurtosis	348.19
Coeff. of Variability	2.42
Minimum	1.00E-09
Maximum	4.32E-04
Range Width	4.32E-04
Mean Std. Error	1.12E-07

Percentiles:	Forecast values
1%	4.42E-08
5%	1.41E-07
10%	2.55E-07
25%	6.32E-07
50%	1.70E-06
75%	4.44E-06
90%	1.06E-05
95%	1.77E-05
99%	4.23E-05

Worksheet: [C164_Soil_Dust_Produce.xls]HI & CR Ingestion Produce

Forecast: CR-Arsenic-Produce-Residential Adult+Child-Far **Cell: F58**

Summary:
Entire range is from 2.18E-09 to 2.30E-03
Base case is 1.70E-06
After 10,000 trials, the std. error of the mean is 2.48E-07



Statistics:	Forecast values
Trials	10,000
Mean	2.61E-06
Median	8.11E-07
Mode	---
Standard Deviation	2.48E-05
Variance	6.15E-10
Skewness	80.59
Kurtosis	7,366.55
Coeff. of Variability	9.49
Minimum	2.18E-09
Maximum	2.30E-03
Range Width	2.30E-03
Mean Std. Error	2.48E-07

Forecast: CR-Arsenic-Produce-Residential Adult+Child-Far (cont'd) **Cell: F58**

Percentiles:	Forecast values
1%	4.57E-08
5%	1.15E-07
10%	1.86E-07
25%	3.76E-07
50%	8.11E-07
75%	1.80E-06
90%	4.27E-06
95%	7.72E-06
99%	2.87E-05

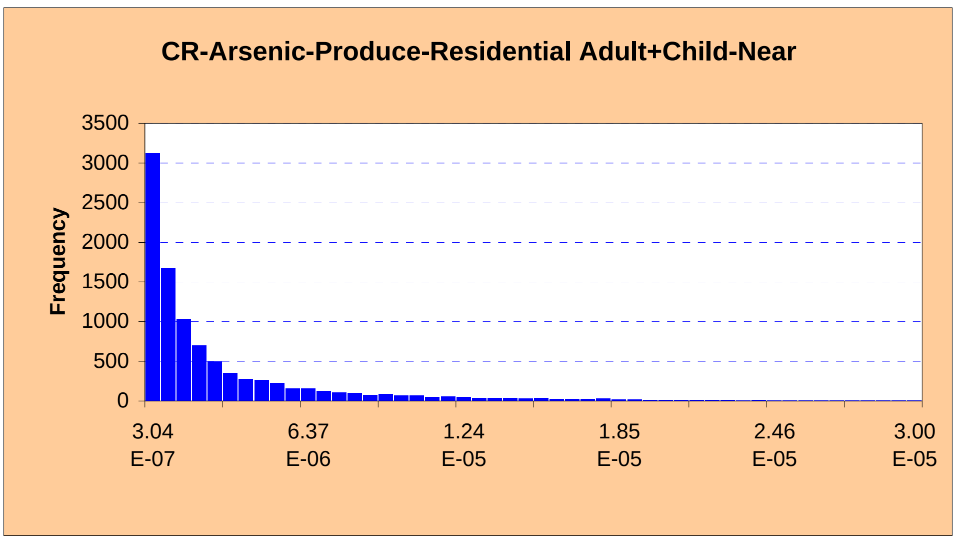
Forecast: CR-Arsenic-Produce-Residential Adult+Child-Near **Cell: E58**

Summary:

Entire range is from 1.12E-09 to 2.39E-04

Base case is 4.20E-06

After 10,000 trials, the std. error of the mean is 9.36E-08



Forecast: CR-Arsenic-Produce-Residential Adult+Child-Near (cont'd) **Cell: E58**

Statistics:	Forecast values
Trials	10,000
Mean	4.09E-06
Median	1.31E-06
Mode	---
Standard Deviation	9.36E-06
Variance	8.77E-11
Skewness	8.71
Kurtosis	139.25
Coeff. of Variability	2.29
Minimum	1.12E-09
Maximum	2.39E-04
Range Width	2.39E-04
Mean Std. Error	9.36E-08

Percentiles:	Forecast values
1%	3.18E-08
5%	9.62E-08
10%	1.76E-07
25%	4.61E-07
50%	1.31E-06
75%	3.87E-06
90%	9.85E-06
95%	1.67E-05
99%	4.34E-05

Forecast: HI-Antimony-Produce-Residential Adult+Child-Far **Cell: F28**

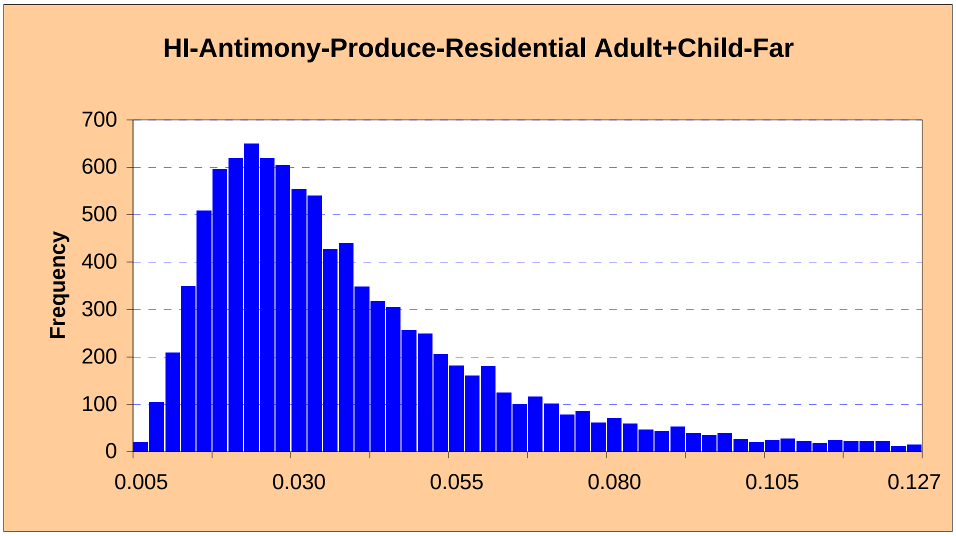
Summary:

Entire range is from 0.004 to 0.492

Base case is 0.032

After 10,000 trials, the std. error of the mean is 0.000

Forecast: HI-Antimony-Produce-Residential Adult+Child-Far (cont'd) **Cell: F28**

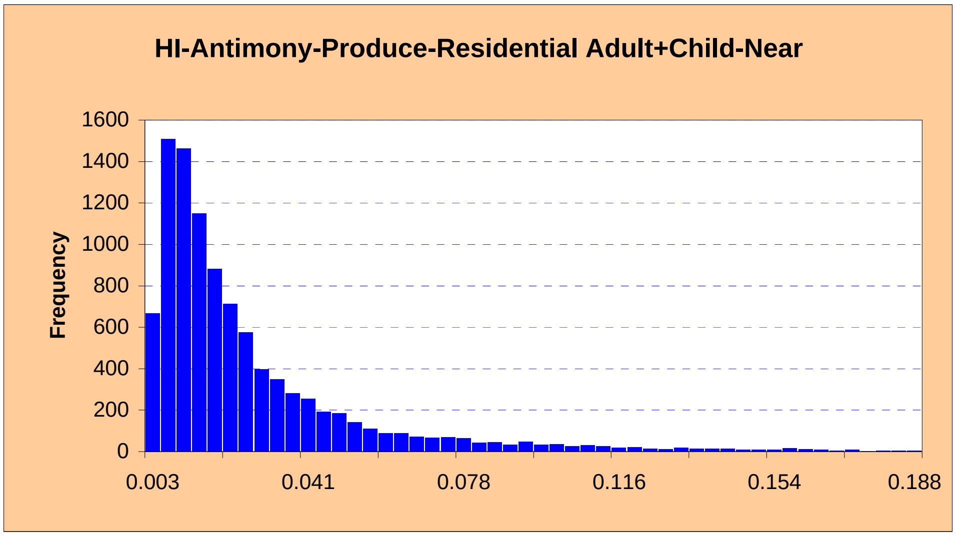


Statistics:	Forecast values
Trials	10,000
Mean	0.041
Median	0.032
Mode	---
Standard Deviation	0.031
Variance	0.001
Skewness	3.17
Kurtosis	20.93
Coeff. of Variability	0.7650
Minimum	0.004
Maximum	0.492
Range Width	0.488
Mean Std. Error	0.000

Percentiles:	Forecast values
1%	0.009
5%	0.013
10%	0.016
25%	0.022
50%	0.032
75%	0.049
90%	0.074
95%	0.098
99%	0.166

Forecast: HI-Antimony-Produce-Residential Adult+Child-Near **Cell: E28**

Summary:
Entire range is from 0.001 to 1.898
Base case is 0.026
After 10,000 trials, the std. error of the mean is 0.001



Statistics:	Forecast values
Trials	10,000
Mean	0.031
Median	0.017
Mode	---
Standard Deviation	0.057
Variance	0.003
Skewness	10.49
Kurtosis	204.73
Coeff. of Variability	1.83
Minimum	0.001
Maximum	1.898
Range Width	1.897
Mean Std. Error	0.001

Forecast: HI-Antimony-Produce-Residential Adult+Child-Near (cont'd) **Cell: E28**

Percentiles:	Forecast values
1%	0.002
5%	0.004
10%	0.006
25%	0.009
50%	0.017
75%	0.033
90%	0.063
95%	0.098
99%	0.249

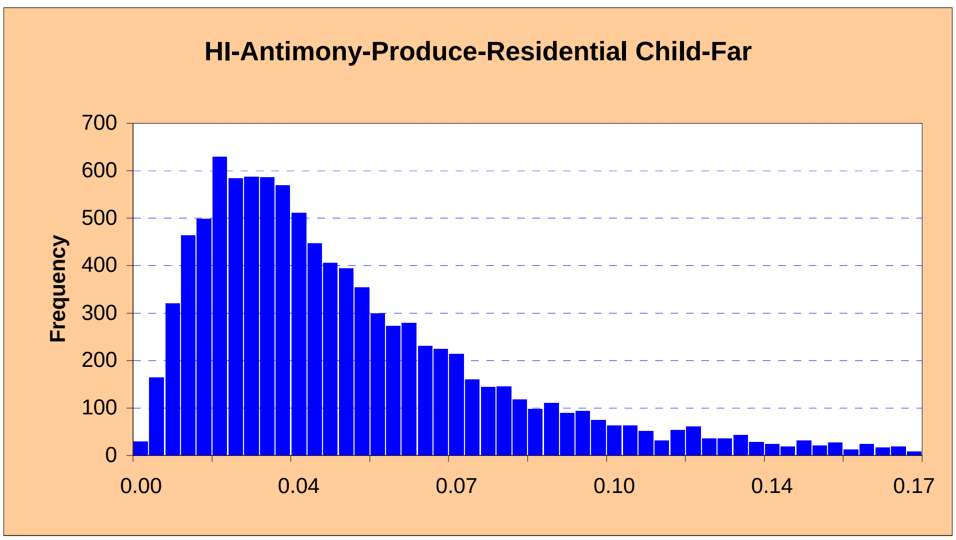
Forecast: HI-Antimony-Produce-Residential Child-Far **Cell: F42**

Summary:

Entire range is from 0.00 to 0.55

Base case is 0.05

After 10,000 trials, the std. error of the mean is 0.00



Forecast: HI-Antimony-Produce-Residential Child-Far (cont'd) **Cell: F42**

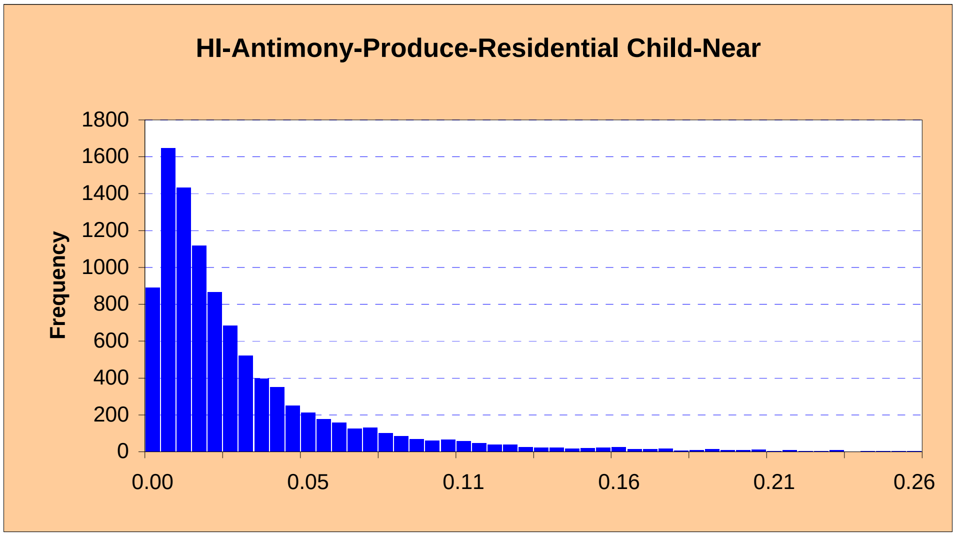
Statistics:	Forecast values
Trials	10,000
Mean	0.05
Median	0.04
Mode	---
Standard Deviation	0.04
Variance	0.00
Skewness	2.84
Kurtosis	17.23
Coeff. of Variability	0.8061
Minimum	0.00
Maximum	0.55
Range Width	0.54
Mean Std. Error	0.00

Percentiles:	Forecast values
1%	0.01
5%	0.01
10%	0.02
25%	0.03
50%	0.04
75%	0.06
90%	0.10
95%	0.13
99%	0.21

Forecast: HI-Antimony-Produce-Residential Child-Near **Cell: E42**

Summary:
Entire range is from 0.00 to 2.49
Base case is 0.04
After 10,000 trials, the std. error of the mean is 0.00

Forecast: HI-Antimony-Produce-Residential Child-Near (cont'd) **Cell: E42**

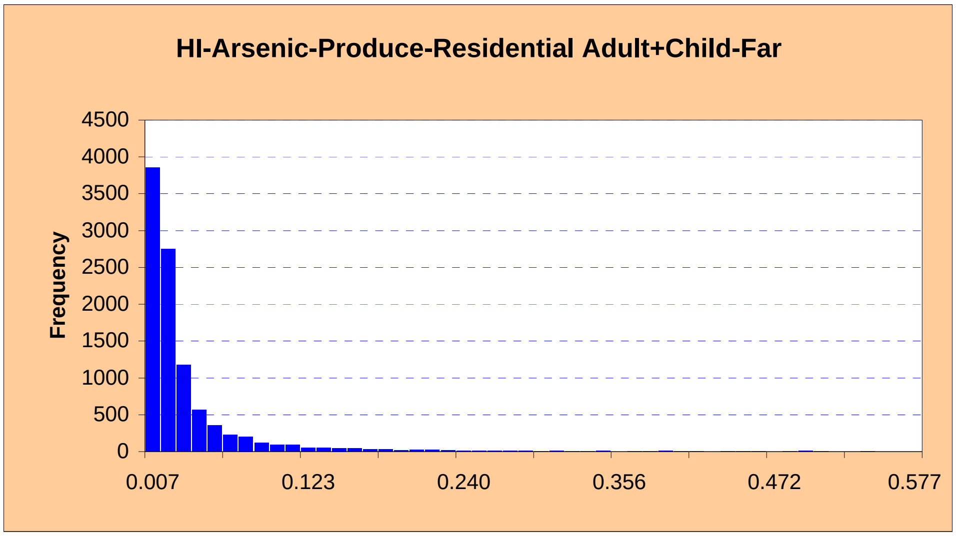


Statistics:	Forecast values
Trials	10,000
Mean	0.04
Median	0.02
Mode	---
Standard Deviation	0.08
Variance	0.01
Skewness	12.33
Kurtosis	263.20
Coeff. of Variability	1.99
Minimum	0.00
Maximum	2.49
Range Width	2.49
Mean Std. Error	0.00

Percentiles:	Forecast values
1%	0.00
5%	0.00
10%	0.01
25%	0.01
50%	0.02
75%	0.04
90%	0.08
95%	0.12
99%	0.32

Forecast: HI-Arsenic-Produce-Residential Adult+Child-Far **Cell: F29**

Summary:
Entire range is from 0.001 to 8.521
Base case is 0.022
After 10,000 trials, the std. error of the mean is 0.002



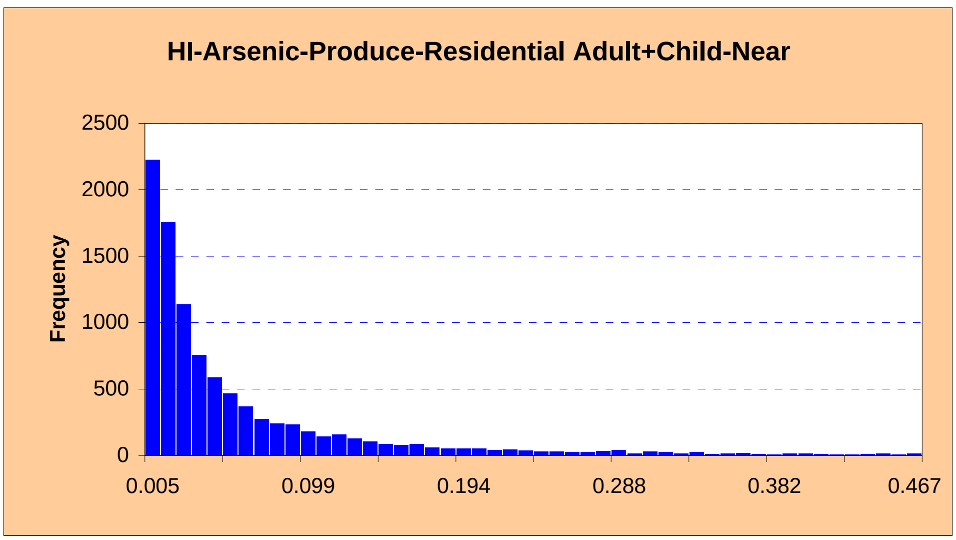
Statistics:	Forecast values
Trials	10,000
Mean	0.043
Median	0.016
Mode	---
Standard Deviation	0.193
Variance	0.037
Skewness	27.90
Kurtosis	1,045.51
Coeff. of Variability	4.49
Minimum	0.001
Maximum	8.521
Range Width	8.520
Mean Std. Error	0.002

Forecast: HI-Arsenic-Produce-Residential Adult+Child-Far (cont'd) **Cell: F29**

Percentiles:	Forecast values
1%	0.003
5%	0.005
10%	0.006
25%	0.009
50%	0.016
75%	0.032
90%	0.074
95%	0.131
99%	0.437

Forecast: HI-Arsenic-Produce-Residential Adult+Child-Near **Cell: E29**

Summary:
Entire range is from 0.000 to 3.316
Base case is 0.056
After 10,000 trials, the std. error of the mean is 0.001



Forecast: HI-Arsenic-Produce-Residential Adult+Child-Near (cont'd) **Cell: E29**

Statistics:	Forecast values
Trials	10,000
Mean	0.072
Median	0.027
Mode	---
Standard Deviation	0.143
Variance	0.020
Skewness	6.54
Kurtosis	76.30
Coeff. of Variability	1.97
Minimum	0.000
Maximum	3.316
Range Width	3.316
Mean Std. Error	0.001

Percentiles:	Forecast values
1%	0.001
5%	0.003
10%	0.005
25%	0.011
50%	0.027
75%	0.073
90%	0.170
95%	0.287
99%	0.700

Forecast: HI-Arsenic-Produce-Residential Child-Far **Cell: F43**

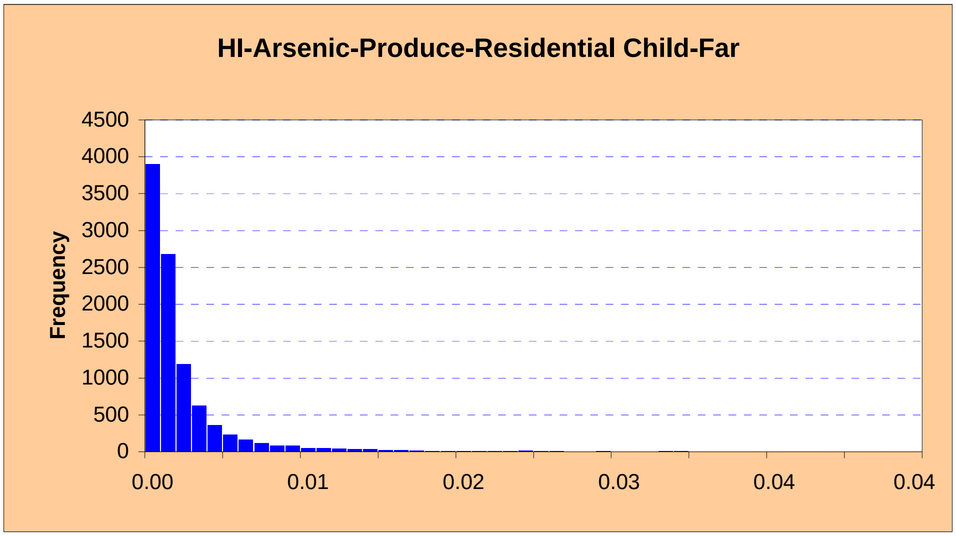
Summary:

Entire range is from 0.00 to 0.81

Base case is 0.00

After 10,000 trials, the std. error of the mean is 0.00

Forecast: HI-Arsenic-Produce-Residential Child-Far (cont'd) **Cell: F43**

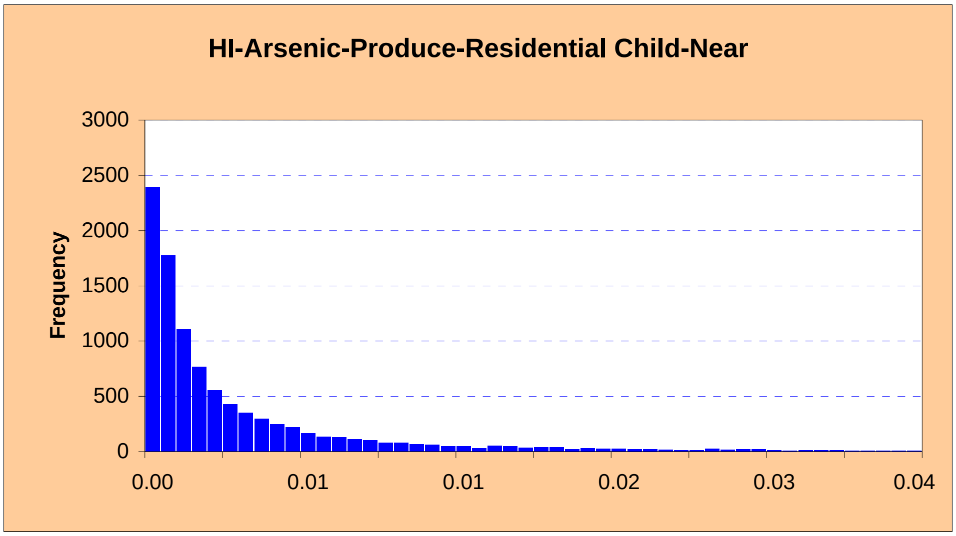


Statistics:	Forecast values
Trials	10,000
Mean	0.00
Median	0.00
Mode	---
Standard Deviation	0.01
Variance	0.00
Skewness	30.89
Kurtosis	1,325.45
Coeff. of Variability	4.58
Minimum	0.00
Maximum	0.81
Range Width	0.81
Mean Std. Error	0.00

Percentiles:	Forecast values
1%	0.00
5%	0.00
10%	0.00
25%	0.00
50%	0.00
75%	0.00
90%	0.01
95%	0.01
99%	0.03

Forecast: HI-Arsenic-Produce-Residential Child-Near **Cell: E43**

Summary:
Entire range is from 0.00 to 0.22
Base case is 0.00
After 10,000 trials, the std. error of the mean is 0.00



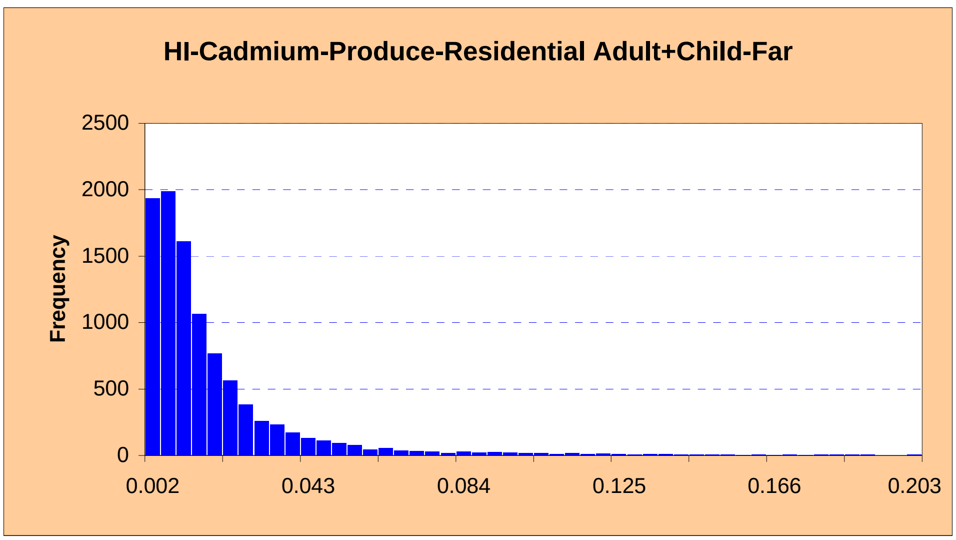
Statistics:	Forecast values
Trials	10,000
Mean	0.01
Median	0.00
Mode	---
Standard Deviation	0.01
Variance	0.00
Skewness	6.15
Kurtosis	62.82
Coeff. of Variability	2.01
Minimum	0.00
Maximum	0.22
Range Width	0.22
Mean Std. Error	0.00

Forecast: HI-Arsenic-Produce-Residential Child-Near (cont'd) **Cell: E43**

Percentiles:	Forecast values
1%	0.00
5%	0.00
10%	0.00
25%	0.00
50%	0.00
75%	0.01
90%	0.01
95%	0.02
99%	0.05

Forecast: HI-Cadmium-Produce-Residential Adult+Child-Far **Cell: F30**

Summary:
Entire range is from 0.000 to 2.436
Base case is 0.020
After 10,000 trials, the std. error of the mean is 0.001



Forecast: HI-Cadmium-Produce-Residential Adult+Child-Far (cont'd) **Cell: F30**

Statistics:	Forecast values
Trials	10,000
Mean	0.023
Median	0.011
Mode	---
Standard Deviation	0.065
Variance	0.004
Skewness	17.34
Kurtosis	456.65
Coeff. of Variability	2.87
Minimum	0.000
Maximum	2.436
Range Width	2.436
Mean Std. Error	0.001

Percentiles:	Forecast values
1%	0.001
5%	0.002
10%	0.003
25%	0.005
50%	0.011
75%	0.022
90%	0.042
95%	0.067
99%	0.203

Forecast: HI-Cadmium-Produce-Residential Adult+Child-Near **Cell: E30**

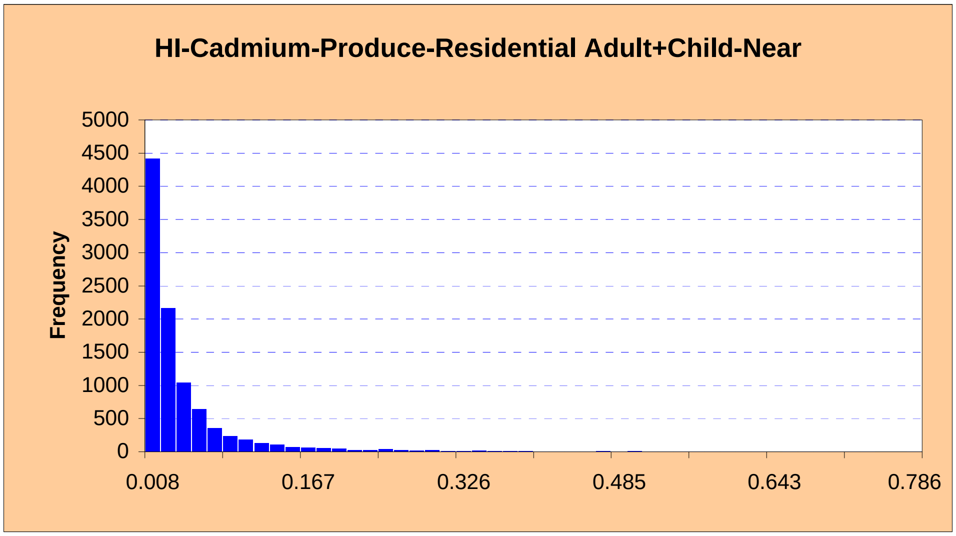
Summary:

Entire range is from 0.000 to 12.193

Base case is 0.045

After 10,000 trials, the std. error of the mean is 0.003

Forecast: HI-Cadmium-Produce-Residential Adult+Child-Near (cont'd) **Cell: E30**

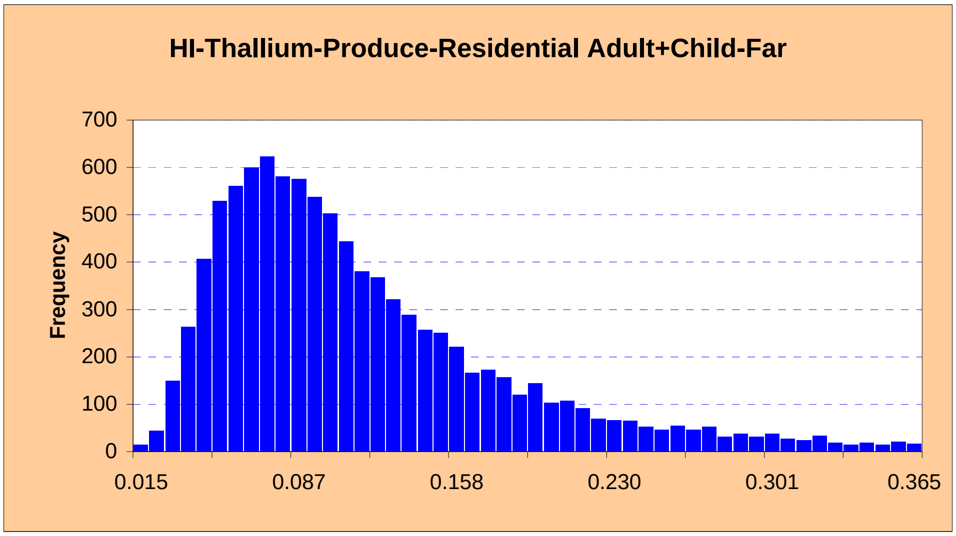


Statistics:	Forecast values
Trials	10,000
Mean	0.060
Median	0.019
Mode	---
Standard Deviation	0.262
Variance	0.069
Skewness	23.98
Kurtosis	825.46
Coeff. of Variability	4.35
Minimum	0.000
Maximum	12.193
Range Width	12.193
Mean Std. Error	0.003

Percentiles:	Forecast values
1%	0.001
5%	0.002
10%	0.004
25%	0.008
50%	0.019
75%	0.045
90%	0.104
95%	0.189
99%	0.714

Forecast: HI-Thallium-Produce-Residential Adult+Child-Far **Cell: F31**

Summary:
Entire range is from 0.012 to 1.124
Base case is 0.096
After 10,000 trials, the std. error of the mean is 0.001



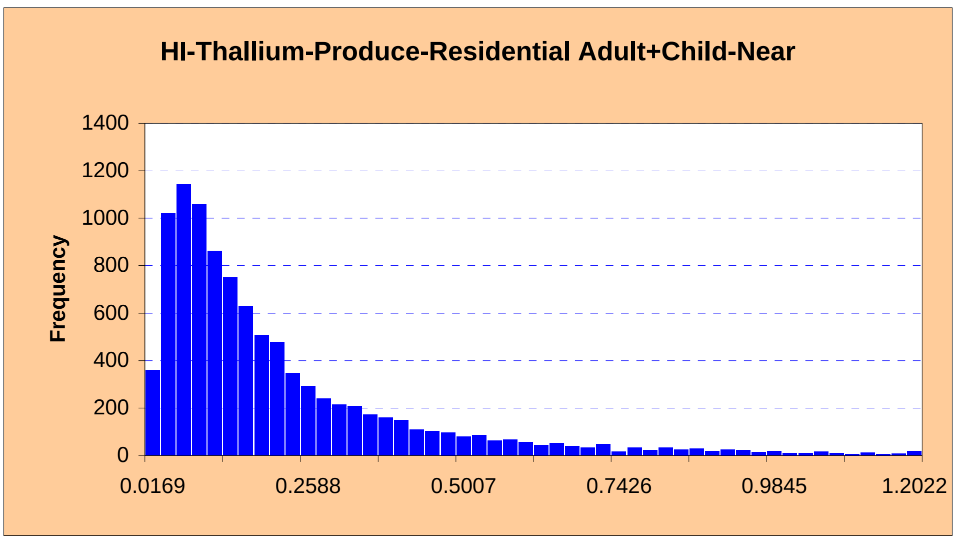
Statistics:	Forecast values
Trials	10,000
Mean	0.123
Median	0.099
Mode	---
Standard Deviation	0.088
Variance	0.008
Skewness	2.68
Kurtosis	14.95
Coeff. of Variability	0.7110
Minimum	0.012
Maximum	1.124
Range Width	1.112
Mean Std. Error	0.001

Forecast: HI-Thallium-Produce-Residential Adult+Child-Far (cont'd) **Cell: F31**

Percentiles:	Forecast values
1%	0.029
5%	0.041
10%	0.049
25%	0.068
50%	0.099
75%	0.149
90%	0.221
95%	0.290
99%	0.478

Forecast: HI-Thallium-Produce-Residential Adult+Child-Near **Cell: E31**

Summary:
Entire range is from 0.0048 to 9.3367
Base case is 0.1931
After 10,000 trials, the std. error of the mean is 0.0035



Forecast: HI-Thallium-Produce-Residential Adult+Child-Near (cont'd) **Cell: E31**

Statistics:	Forecast values
Trials	10,000
Mean	0.2425
Median	0.1428
Mode	---
Standard Deviation	0.3471
Variance	0.1205
Skewness	6.91
Kurtosis	95.72
Coeff. of Variability	1.43
Minimum	0.0048
Maximum	9.3367
Range Width	9.3319
Mean Std. Error	0.0035

Percentiles:	Forecast values
1%	0.0182
5%	0.0329
10%	0.0446
25%	0.0769
50%	0.1428
75%	0.2758
90%	0.5183
95%	0.7611
99%	1.5987

Forecast: HI-Thallium-Produce-Residential Child-Far **Cell: F44**

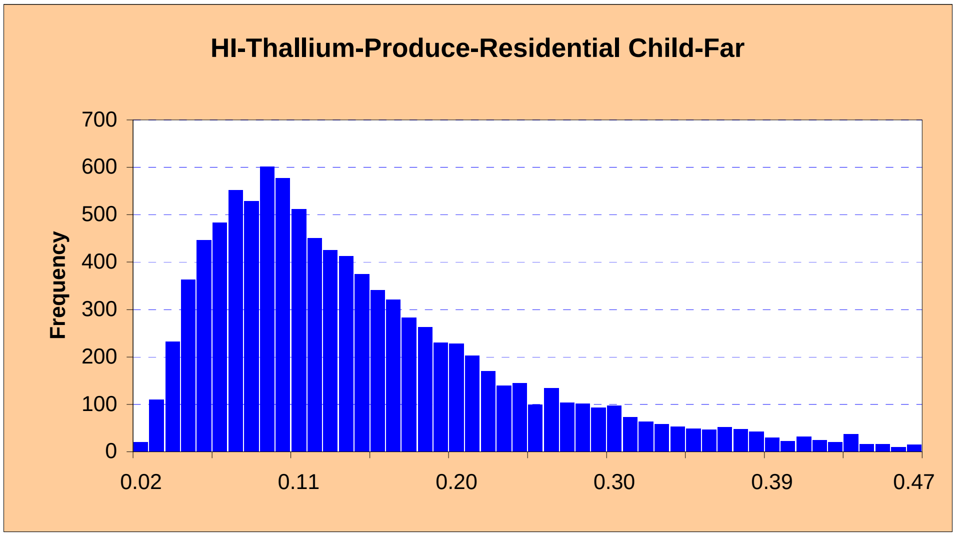
Summary:

Entire range is from 0.01 to 1.38

Base case is 0.15

After 10,000 trials, the std. error of the mean is 0.00

Forecast: HI-Thallium-Produce-Residential Child-Far (cont'd) **Cell: F44**

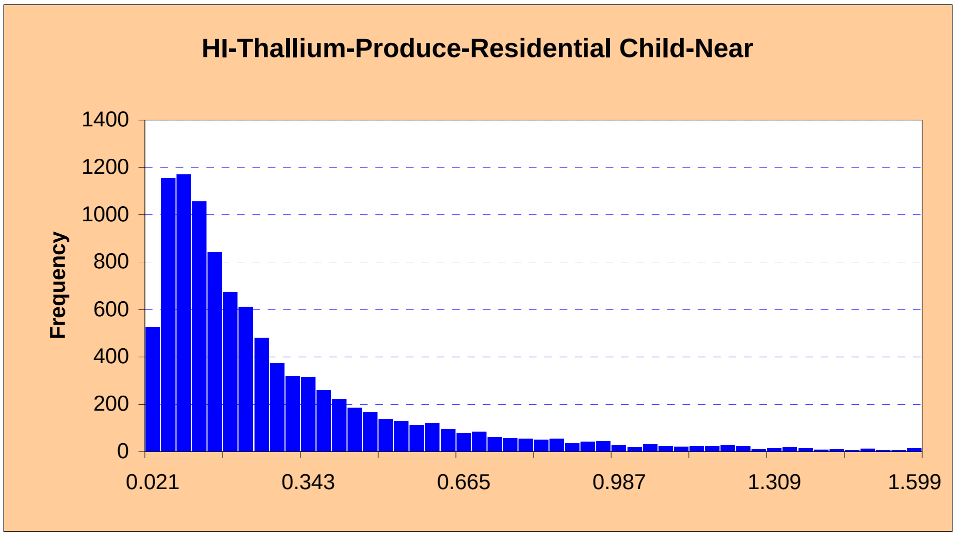


Statistics:	Forecast values
Trials	10,000
Mean	0.16
Median	0.13
Mode	---
Standard Deviation	0.12
Variance	0.01
Skewness	2.28
Kurtosis	11.59
Coeff. of Variability	0.7314
Minimum	0.01
Maximum	1.38
Range Width	1.37
Mean Std. Error	0.00

Percentiles:	Forecast values
1%	0.03
5%	0.04
10%	0.05
25%	0.08
50%	0.13
75%	0.20
90%	0.30
95%	0.38
99%	0.59

Forecast: HI-Thallium-Produce-Residential Child-Near **Cell: E44**

Summary:
Entire range is from 0.005 to 15.302
Base case is 0.298
After 10,000 trials, the std. error of the mean is 0.005



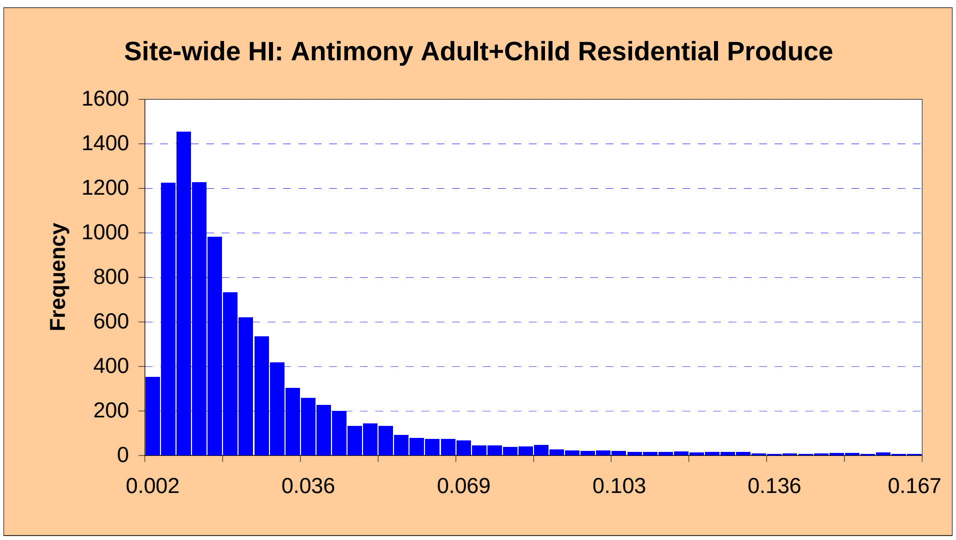
Statistics:	Forecast values
Trials	10,000
Mean	0.310
Median	0.177
Mode	---
Standard Deviation	0.466
Variance	0.217
Skewness	8.73
Kurtosis	176.75
Coeff. of Variability	1.50
Minimum	0.005
Maximum	15.302
Range Width	15.297
Mean Std. Error	0.005

Forecast: HI-Thallium-Produce-Residential Child-Near (cont'd) **Cell: E44**

Percentiles:	Forecast values
1%	0.020
5%	0.036
10%	0.052
25%	0.091
50%	0.177
75%	0.356
90%	0.674
95%	0.977
99%	2.090

Forecast: Site-wide HI: Antimony Adult+Child Residential Produce **Cell: G28**

Summary:
Entire range is from 0.001 to 1.936
Base case is 0.025
After 10,000 trials, the std. error of the mean is 0.000



Forecast: Site-wide HI: Antimony Adult+Child Residential Produce (cont'd) — Cell: G28

Statistics:	Forecast values
Trials	10,000
Mean	0.029
Median	0.017
Mode	---
Standard Deviation	0.050
Variance	0.002
Skewness	12.59
Kurtosis	319.51
Coeff. of Variability	1.74
Minimum	0.001
Maximum	1.936
Range Width	1.935
Mean Std. Error	0.000

Percentiles:	Forecast values
1%	0.003
5%	0.004
10%	0.006
25%	0.009
50%	0.017
75%	0.030
90%	0.056
95%	0.085
99%	0.203

Forecast: Site-wide HI: Antimony Child Residential Produce — Cell: G42

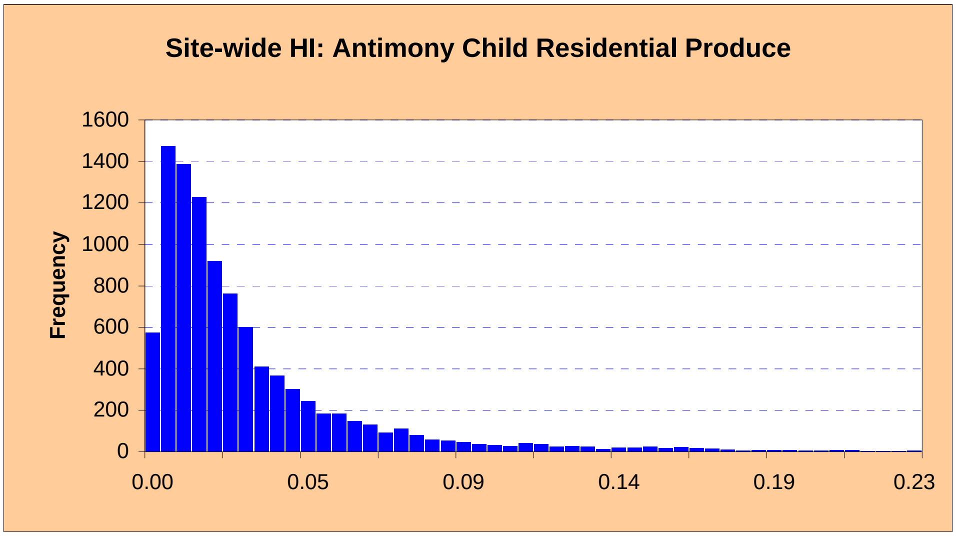
Summary:

Entire range is from 0.00 to 2.27

Base case is 0.04

After 10,000 trials, the std. error of the mean is 0.00

Forecast: Site-wide HI: Antimony Child Residential Produce (cont'd) **Cell: G42**

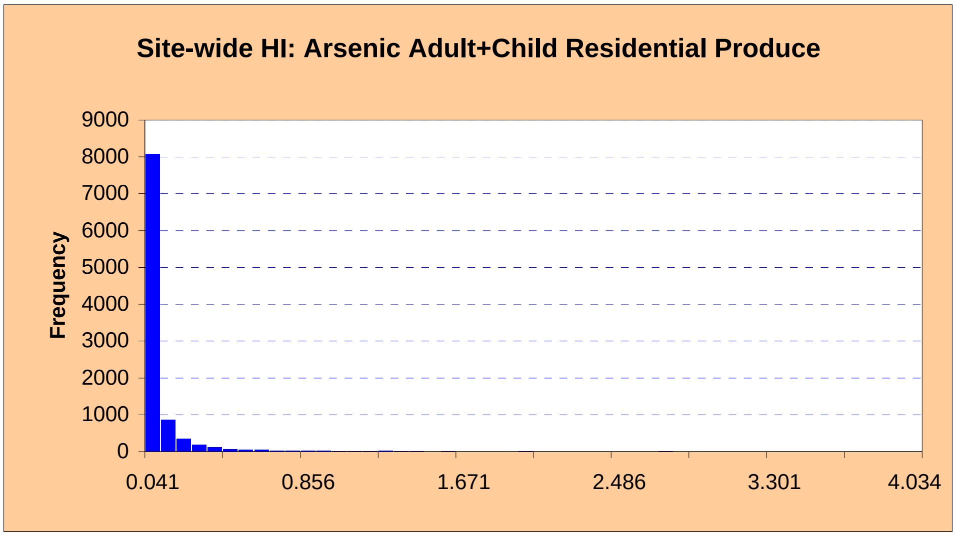


Statistics:	Forecast values
Trials	10,000
Mean	0.04
Median	0.02
Mode	---
Standard Deviation	0.07
Variance	0.00
Skewness	14.11
Kurtosis	342.75
Coeff. of Variability	1.90
Minimum	0.00
Maximum	2.27
Range Width	2.27
Mean Std. Error	0.00

Percentiles:	Forecast values
1%	0.00
5%	0.00
10%	0.01
25%	0.01
50%	0.02
75%	0.04
90%	0.07
95%	0.11
99%	0.25

Forecast: Site-wide HI: Arsenic Adult+Child Residential Produce **Cell: G29**

Summary:
Entire range is from 0.000 to 121.789
Base case is 0.050
After 10,000 trials, the std. error of the mean is 0.014



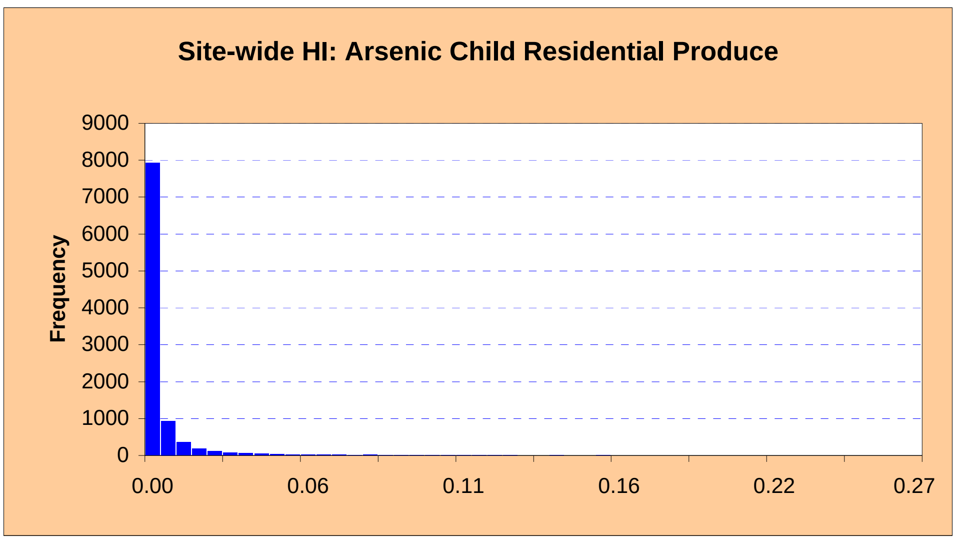
Statistics:	Forecast values
Trials	10,000
Mean	0.125
Median	0.023
Mode	---
Standard Deviation	1.411
Variance	1.990
Skewness	68.10
Kurtosis	5,618.40
Coeff. of Variability	11.26
Minimum	0.000
Maximum	121.789
Range Width	121.789
Mean Std. Error	0.014

Forecast: Site-wide HI: Arsenic Adult+Child Residential Produce (cont'd) **Cell: G29**

Percentiles:	Forecast values
1%	0.002
5%	0.003
10%	0.005
25%	0.010
50%	0.023
75%	0.060
90%	0.171
95%	0.353
99%	1.465

Forecast: Site-wide HI: Arsenic Child Residential Produce **Cell: G43**

Summary:
Entire range is from 0.00 to 7.31
Base case is 0.00
After 10,000 trials, the std. error of the mean is 0.00



Forecast: Site-wide HI: Arsenic Child Residential Produce (cont'd) **Cell: G43**

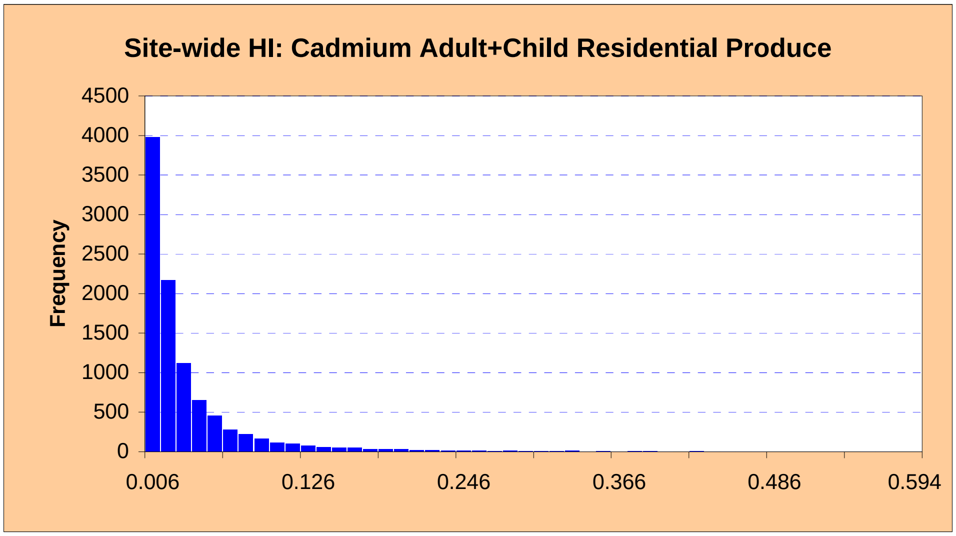
Statistics:	Forecast values
Trials	10,000
Mean	0.01
Median	0.00
Mode	---
Standard Deviation	0.09
Variance	0.01
Skewness	55.87
Kurtosis	4,031.40
Coeff. of Variability	9.87
Minimum	0.00
Maximum	7.31
Range Width	7.31
Mean Std. Error	0.00

Percentiles:	Forecast values
1%	0.00
5%	0.00
10%	0.00
25%	0.00
50%	0.00
75%	0.00
90%	0.01
95%	0.03
99%	0.12

Forecast: Site-wide HI: Cadmium Adult+Child Residential Produce **Cell: G30**

Summary:
Entire range is from 0.000 to 9.360
Base case is 0.041
After 10,000 trials, the std. error of the mean is 0.002

Forecast: Site-wide HI: Cadmium Adult+Child Residential Produce (cont'd) **Cell: G30**

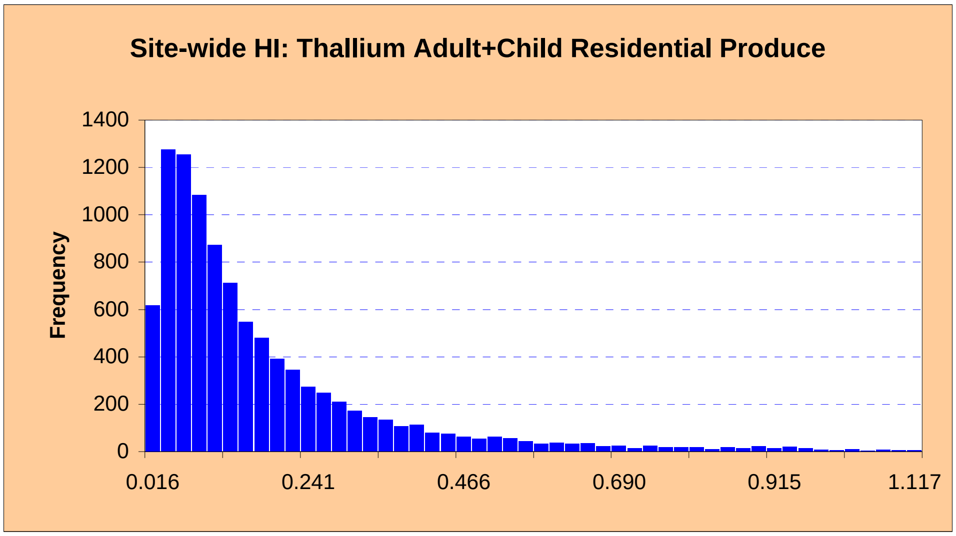


Statistics:	Forecast values
Trials	10,000
Mean	0.051
Median	0.017
Mode	---
Standard Deviation	0.196
Variance	0.039
Skewness	20.86
Kurtosis	698.89
Coeff. of Variability	3.87
Minimum	0.000
Maximum	9.360
Range Width	9.360
Mean Std. Error	0.002

Percentiles:	Forecast values
1%	0.001
5%	0.002
10%	0.003
25%	0.007
50%	0.017
75%	0.040
90%	0.091
95%	0.163
99%	0.599

Forecast: Site-wide HI: Thallium Adult+Child Residential Produce **Cell: G31**

Summary:
Entire range is from 0.005 to 10.969
Base case is 0.164
After 10,000 trials, the std. error of the mean is 0.003



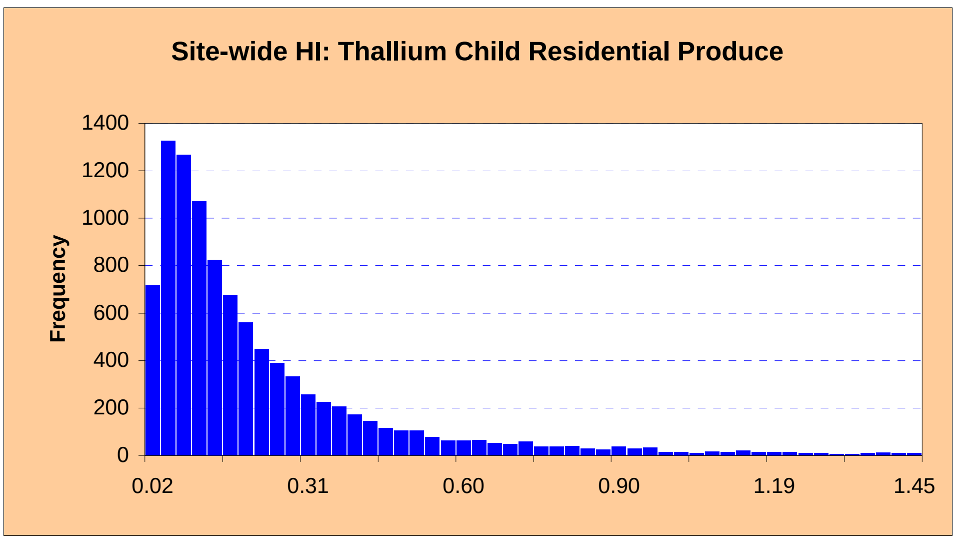
Statistics:	Forecast values
Trials	10,000
Mean	0.200
Median	0.114
Mode	---
Standard Deviation	0.332
Variance	0.110
Skewness	11.65
Kurtosis	259.44
Coeff. of Variability	1.66
Minimum	0.005
Maximum	10.969
Range Width	10.964
Mean Std. Error	0.003

Forecast: Site-wide HI: Thallium Adult+Child Residential Produce (cont'd) **Cell: G31**

Percentiles:	Forecast values
1%	0.013
5%	0.025
10%	0.034
25%	0.060
50%	0.114
75%	0.224
90%	0.413
95%	0.622
99%	1.362

Forecast: Site-wide HI: Thallium Child Residential Produce **Cell: G44**

Summary:
Entire range is from 0.00 to 14.48
Base case is 0.25
After 10,000 trials, the std. error of the mean is 0.00



Forecast: Site-wide HI: Thallium Child Residential Produce (cont'd) **Cell: G44**

Statistics:	Forecast values
Trials	10,000
Mean	0.26
Median	0.14
Mode	---
Standard Deviation	0.43
Variance	0.19
Skewness	11.21
Kurtosis	244.20
Coeff. of Variability	1.69
Minimum	0.00
Maximum	14.48
Range Width	14.47
Mean Std. Error	0.00

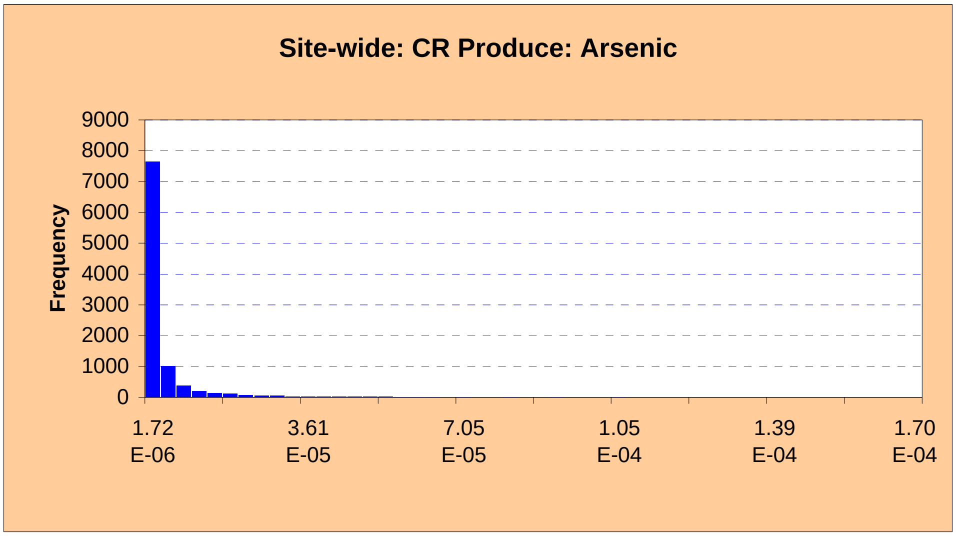
Percentiles:	Forecast values
1%	0.01
5%	0.03
10%	0.04
25%	0.07
50%	0.14
75%	0.29
90%	0.55
95%	0.83
99%	1.80

Forecast: Site-wide: CR Produce: Arsenic **Cell: G58**

Summary:

Entire range is from 2.03E-09 to 3.26E-03
Base case is 3.77E-06
After 10,000 trials, the std. error of the mean is 5.89E-07

Forecast: Site-wide: CR Produce: Arsenic (cont'd) **Cell: G58**



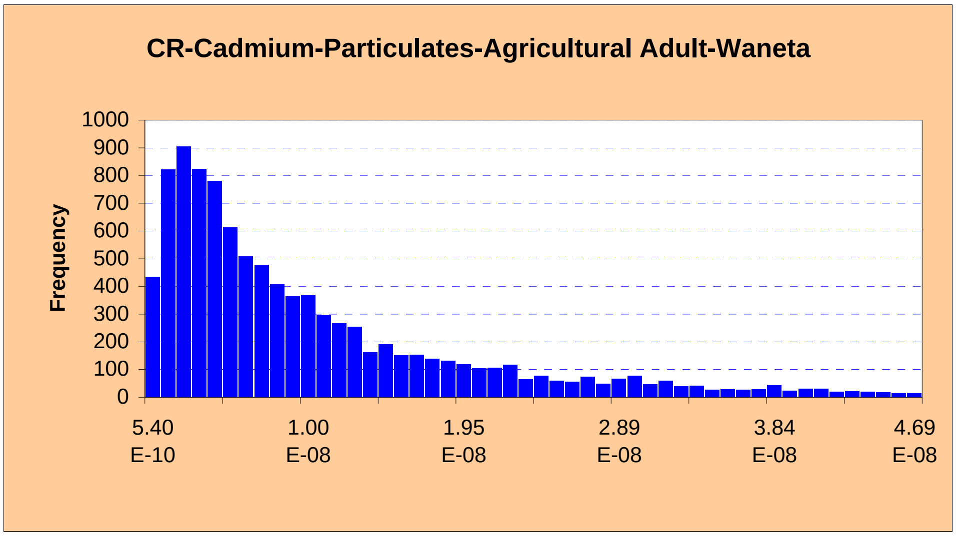
Statistics:	Forecast values
Trials	10,000
Mean	7.14E-06
Median	1.10E-06
Mode	---
Standard Deviation	5.89E-05
Variance	3.47E-09
Skewness	39.18
Kurtosis	1,955.77
Coeff. of Variability	8.25
Minimum	2.03E-09
Maximum	3.26E-03
Range Width	3.26E-03
Mean Std. Error	5.89E-07

Percentiles:	Forecast values
1%	3.58E-08
5%	1.07E-07
10%	1.79E-07
25%	4.19E-07
50%	1.10E-06
75%	3.20E-06
90%	9.90E-06
95%	2.08E-05
99%	9.46E-05

Worksheet: [C164_Soil_Dust_Produce.xls]HI & CR Inhalation Particulates

Forecast: CR-Cadmium-Particulates-Agricultural Adult-Waneta **Cell: C30**

Summary:
Entire range is from 6.70E-11 to 1.34E-07
Base case is 1.24E-08
After 10,000 trials, the std. error of the mean is 1.29E-10



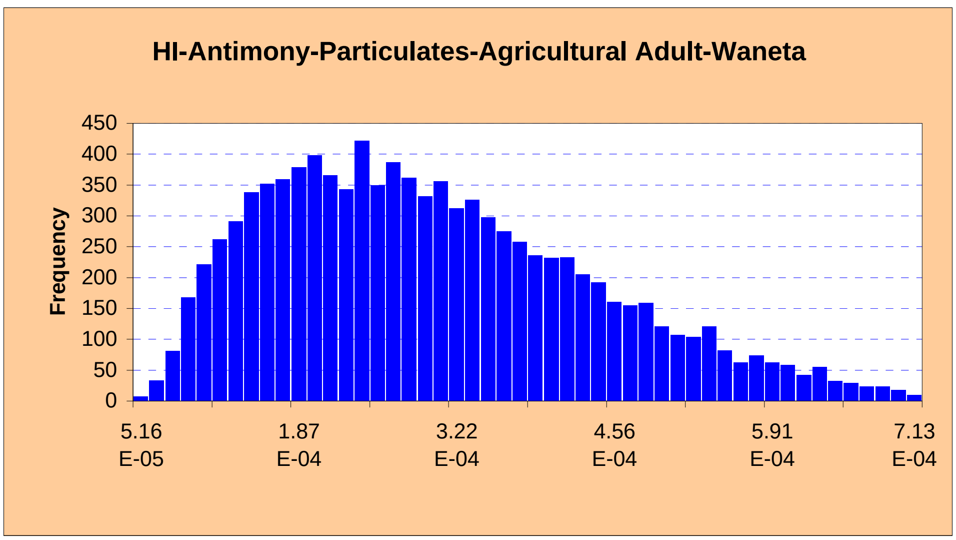
Statistics:	Forecast values
Trials	10,000
Mean	1.13E-08
Median	6.92E-09
Mode	---
Standard Deviation	1.29E-08
Variance	1.66E-16
Skewness	2.72
Kurtosis	13.71
Coeff. of Variability	1.13
Minimum	6.70E-11
Maximum	1.34E-07
Range Width	1.34E-07
Mean Std. Error	1.29E-10

Forecast: CR-Cadmium-Particulates-Agricultural Adult-Waneta (cont'd) **Cell: C30**

Percentiles:	Forecast values
1%	4.87E-10
5%	1.10E-09
10%	1.68E-09
25%	3.29E-09
50%	6.92E-09
75%	1.44E-08
90%	2.73E-08
95%	3.72E-08
99%	6.34E-08

Forecast: HI-Antimony-Particulates-Agricultural Adult-Waneta **Cell: C17**

Summary:
Entire range is from 4.48E-05 to 1.26E-03
Base case is 2.93E-04
After 10,000 trials, the std. error of the mean is 1.48E-06



Forecast: HI-Antimony-Particulates-Agricultural Adult-Waneta (cont'd) **Cell: C17**

Statistics:	Forecast values
Trials	10,000
Mean	3.07E-04
Median	2.83E-04
Mode	---
Standard Deviation	1.48E-04
Variance	2.18E-08
Skewness	0.9041
Kurtosis	4.07
Coeff. of Variability	0.4812
Minimum	4.48E-05
Maximum	1.26E-03
Range Width	1.22E-03
Mean Std. Error	1.48E-06

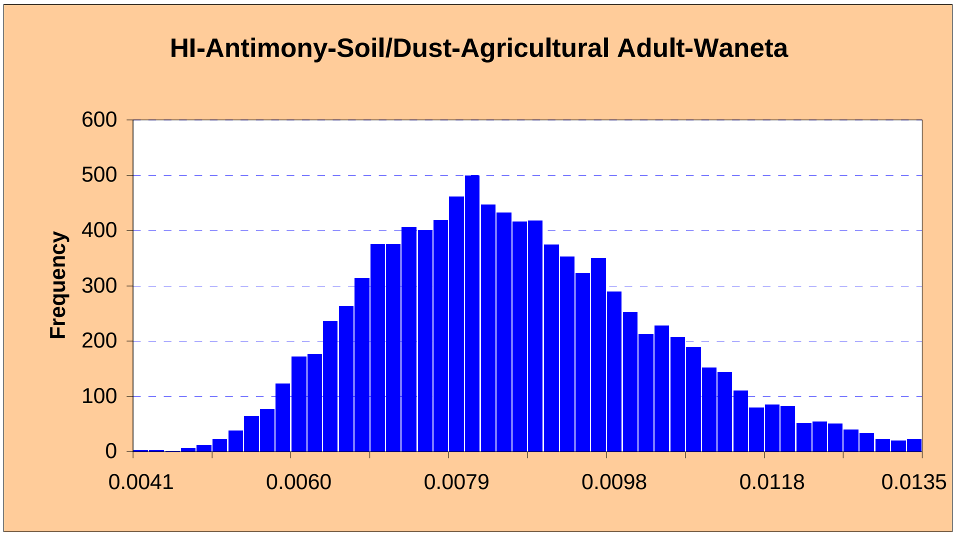
Percentiles:	Forecast values
1%	8.29E-05
5%	1.12E-04
10%	1.36E-04
25%	1.94E-04
50%	2.83E-04
75%	3.95E-04
90%	5.08E-04
95%	5.81E-04
99%	7.40E-04

Worksheet: [C164_Soil_Dust_Produce.xls]HI Ingestion Soil-Dust

Forecast: HI-Antimony-Soil/Dust-Agricultural Adult-Waneta **Cell: D94**

Summary:
Entire range is from 0.0040 to 0.0184
Base case is 0.0083
After 10,000 trials, the std. error of the mean is 0.0000

Forecast: HI-Antimony-Soil/Dust-Agricultural Adult-Waneta (cont'd) **Cell: D94**

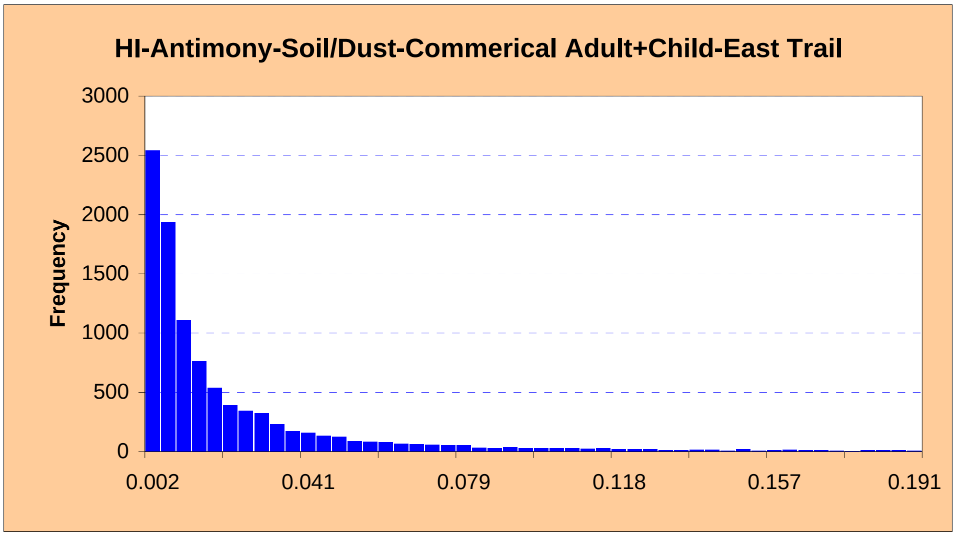


Statistics:	Forecast values
Trials	10,000
Mean	0.0086
Median	0.0084
Mode	---
Standard Deviation	0.0018
Variance	0.0000
Skewness	0.6427
Kurtosis	3.68
Coeff. of Variability	0.2057
Minimum	0.0040
Maximum	0.0184
Range Width	0.0144
Mean Std. Error	0.0000

Percentiles:	Forecast values
1%	0.0053
5%	0.0060
10%	0.0065
25%	0.0073
50%	0.0084
75%	0.0097
90%	0.0110
95%	0.0118
99%	0.0136

Forecast: HI-Antimony-Soil/Dust-Commerical Adult+Child-East Trail **Cell: D74**

Summary:
Entire range is from 0.000 to 2.538
Base case is 0.016
After 10,000 trials, the std. error of the mean is 0.001



Statistics:	Forecast values
Trials	10,000
Mean	0.027
Median	0.009
Mode	---
Standard Deviation	0.060
Variance	0.004
Skewness	12.26
Kurtosis	364.37
Coeff. of Variability	2.24
Minimum	0.000
Maximum	2.538
Range Width	2.538
Mean Std. Error	0.001

Forecast: HI-Antimony-Soil/Dust-Commerical Adult+Child-East Trail (cont'd) **Cell: D74**

Percentiles:	Forecast values
1%	0.000
5%	0.001
10%	0.002
25%	0.004
50%	0.009
75%	0.026
90%	0.061
95%	0.106
99%	0.273

Forecast: HI-Antimony-Soil/Dust-Commerical Child-East Trail **Cell: D84**

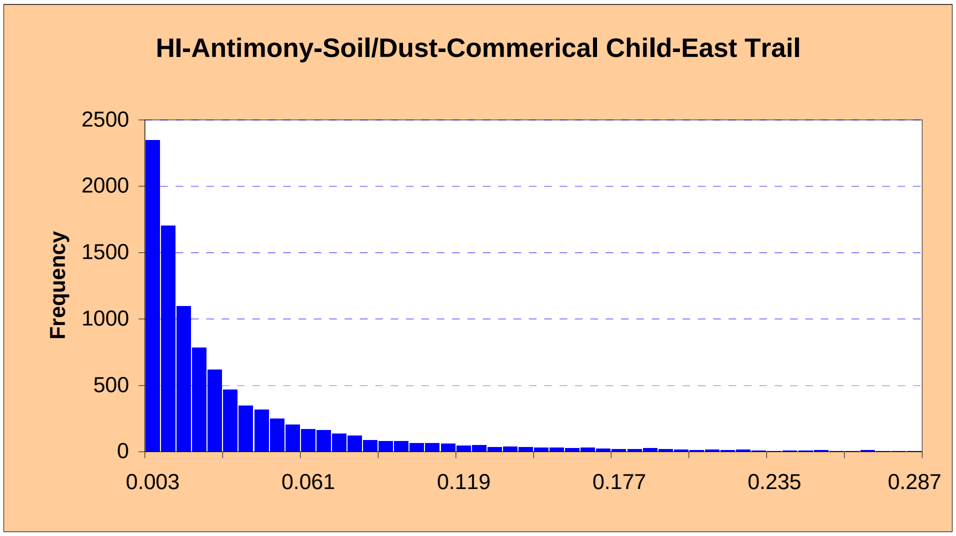
Summary:

Entire range is from 0.000 to 2.537

Base case is 0.041

After 10,000 trials, the std. error of the mean is 0.001

Forecast: HI-Antimony-Soil/Dust-Commerical Child-East Trail (cont'd) **Cell: D84**

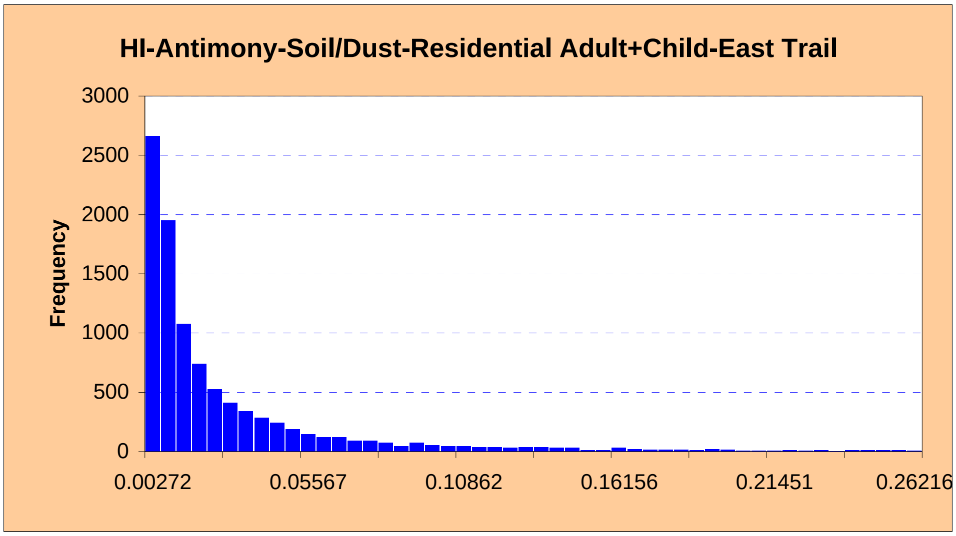


Statistics:	Forecast values
Trials	10,000
Mean	0.042
Median	0.016
Mode	---
Standard Deviation	0.088
Variance	0.008
Skewness	8.37
Kurtosis	132.64
Coeff. of Variability	2.08
Minimum	0.000
Maximum	2.537
Range Width	2.537
Mean Std. Error	0.001

Percentiles:	Forecast values
1%	0.001
5%	0.002
10%	0.003
25%	0.006
50%	0.016
75%	0.043
90%	0.099
95%	0.164
99%	0.409

Forecast: HI-Antimony-Soil/Dust-Residential Adult+Child-East Trail **Cell: D36**

Summary:
Entire range is from 0.00007 to 4.00209
Base case is 0.02128
After 10,000 trials, the std. error of the mean is 0.00082



Forecast: HI-Antimony-Soil/Dust-Residential Adult+Child-East Trail (cont'd) **Cell: D36**

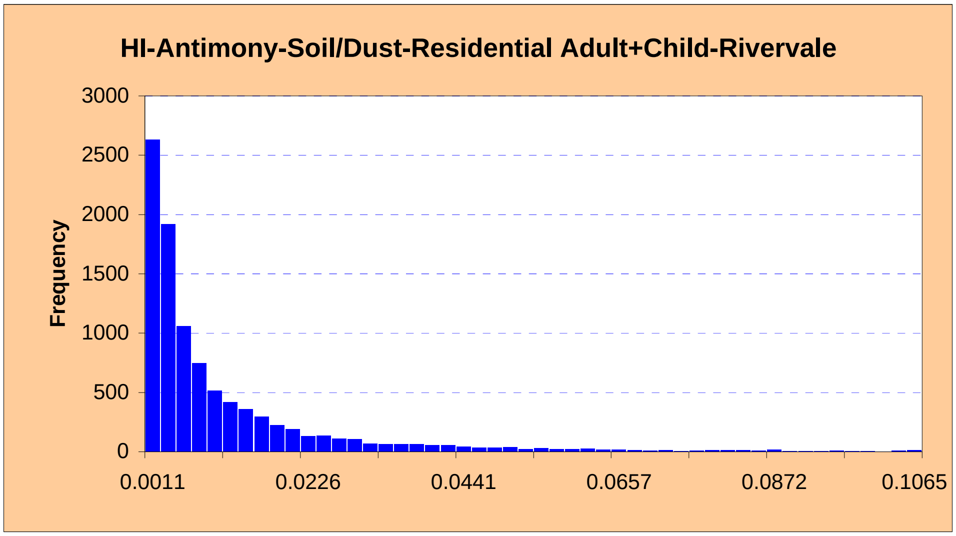
Statistics:	Forecast values
Trials	10,000
Mean	0.03520
Median	0.01241
Mode	---
Standard Deviation	0.08200
Variance	0.00672
Skewness	15.64
Kurtosis	590.12
Coeff. of Variability	2.33
Minimum	0.00007
Maximum	4.00209
Range Width	4.00201
Mean Std. Error	0.00082

Percentiles:	Forecast values
1%	0.00064
5%	0.00149
10%	0.00237
25%	0.00502
50%	0.01241
75%	0.03400
90%	0.08121
95%	0.13890
99%	0.35753

Forecast: HI-Antimony-Soil/Dust-Residential Adult+Child-Rivervale **Cell: E36**

Summary:
Entire range is from 0.0000 to 1.1352
Base case is 0.0089
After 10,000 trials, the std. error of the mean is 0.0003

Forecast: HI-Antimony-Soil/Dust-Residential Adult+Child-Rivervale (cont'd) **Cell: E36**

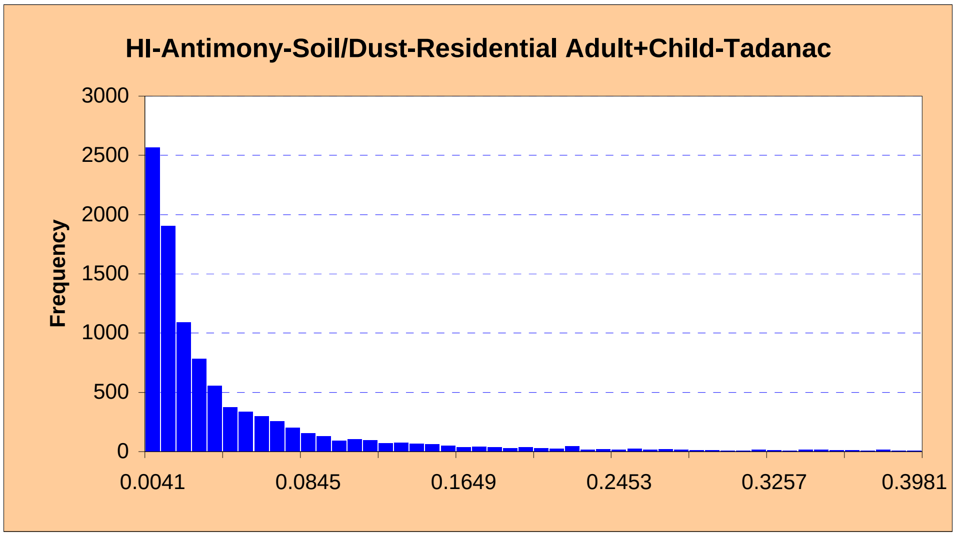


Statistics:	Forecast values
Trials	10,000
Mean	0.0149
Median	0.0051
Mode	---
Standard Deviation	0.0331
Variance	0.0011
Skewness	9.18
Kurtosis	185.10
Coeff. of Variability	2.22
Minimum	0.0000
Maximum	1.1352
Range Width	1.1351
Mean Std. Error	0.0003

Percentiles:	Forecast values
1%	0.0003
5%	0.0006
10%	0.0010
25%	0.0021
50%	0.0051
75%	0.0141
90%	0.0342
95%	0.0595
99%	0.1581

Forecast: HI-Antimony-Soil/Dust-Residential Adult+Child-Tadanac **Cell: F36**

Summary:
Entire range is from 0.0001 to 4.8282
Base case is 0.0336
After 10,000 trials, the std. error of the mean is 0.0012



Statistics:	Forecast values
Trials	10,000
Mean	0.0557
Median	0.0197
Mode	---
Standard Deviation	0.1237
Variance	0.0153
Skewness	10.82
Kurtosis	274.43
Coeff. of Variability	2.22
Minimum	0.0001
Maximum	4.8282
Range Width	4.8281
Mean Std. Error	0.0012

Forecast: HI-Antimony-Soil/Dust-Residential Adult+Child-Tadanac (cont'd) **Cell: F36**

Percentiles:	Forecast values
1%	0.0010
5%	0.0024
10%	0.0037
25%	0.0080
50%	0.0197
75%	0.0538
90%	0.1294
95%	0.2217
99%	0.5737

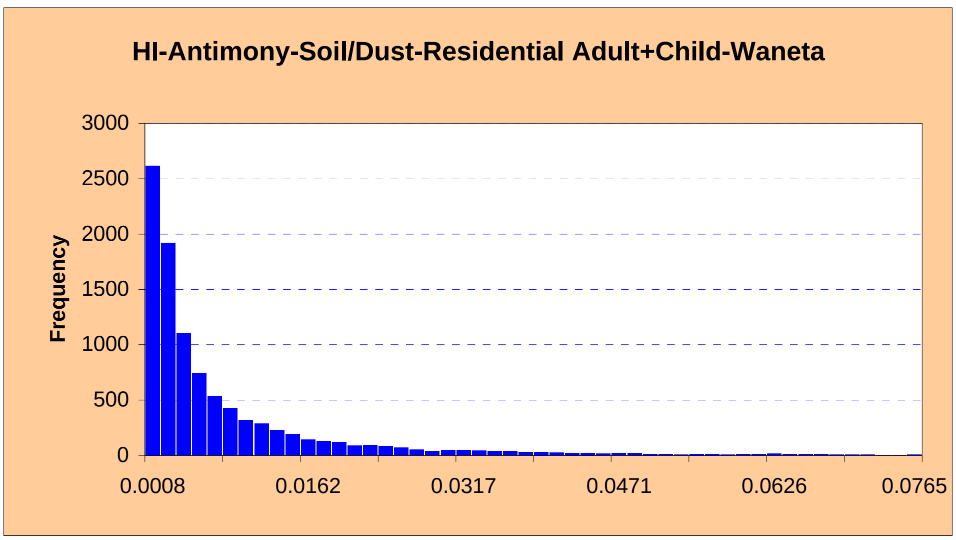
Forecast: HI-Antimony-Soil/Dust-Residential Adult+Child-Waneta **Cell: G36**

Summary:

Entire range is from 0.0000 to 1.0571

Base case is 0.0062

After 10,000 trials, the std. error of the mean is 0.0002



Forecast: HI-Antimony-Soil/Dust-Residential Adult+Child-Waneta (cont'd) **Cell: G36**

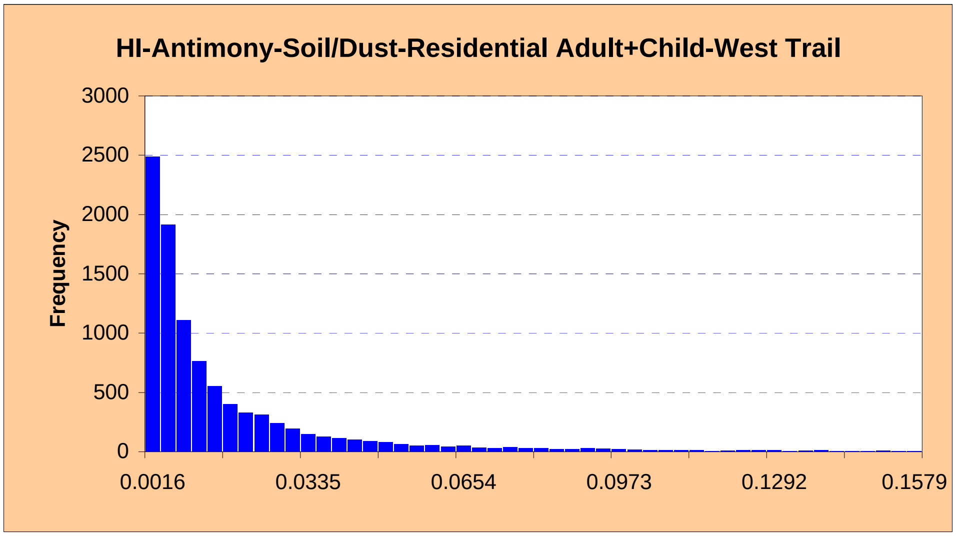
Statistics:	Forecast values
Trials	10,000
Mean	0.0105
Median	0.0037
Mode	---
Standard Deviation	0.0239
Variance	0.0006
Skewness	13.33
Kurtosis	424.46
Coeff. of Variability	2.28
Minimum	0.0000
Maximum	1.0571
Range Width	1.0571
Mean Std. Error	0.0002

Percentiles:	Forecast values
1%	0.0002
5%	0.0004
10%	0.0007
25%	0.0015
50%	0.0037
75%	0.0100
90%	0.0240
95%	0.0408
99%	0.1076

Forecast: HI-Antimony-Soil/Dust-Residential Adult+Child-West Trail **Cell: H36**

Summary:
Entire range is from 0.0000 to 1.8334
Base case is 0.0136
After 10,000 trials, the std. error of the mean is 0.0005

Forecast: HI-Antimony-Soil/Dust-Residential Adult+Child-West Trail (cont'd) **Cell: H36**

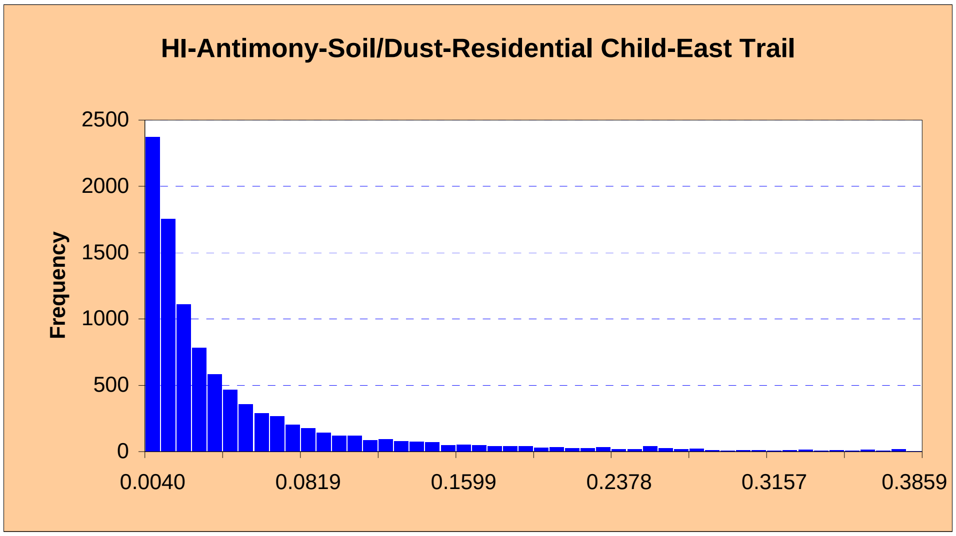


Statistics:	Forecast values
Trials	10,000
Mean	0.0224
Median	0.0079
Mode	---
Standard Deviation	0.0489
Variance	0.0024
Skewness	10.12
Kurtosis	238.78
Coeff. of Variability	2.19
Minimum	0.0000
Maximum	1.8334
Range Width	1.8333
Mean Std. Error	0.0005

Percentiles:	Forecast values
1%	0.0004
5%	0.0010
10%	0.0015
25%	0.0033
50%	0.0079
75%	0.0217
90%	0.0512
95%	0.0895
99%	0.2303

Forecast: HI-Antimony-Soil/Dust-Residential Child-East Trail **Cell: D58**

Summary:
Entire range is from 0.0001 to 4.0009
Base case is 0.0539
After 10,000 trials, the std. error of the mean is 0.0012



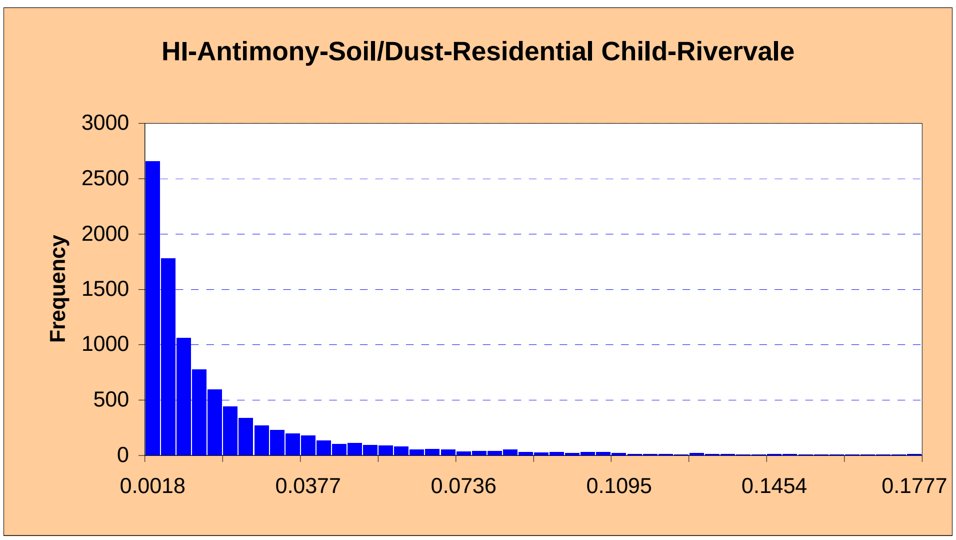
Statistics:	Forecast values
Trials	10,000
Mean	0.0563
Median	0.0216
Mode	---
Standard Deviation	0.1191
Variance	0.0142
Skewness	9.31
Kurtosis	180.06
Coeff. of Variability	2.12
Minimum	0.0001
Maximum	4.0009
Range Width	4.0008
Mean Std. Error	0.0012

Forecast: HI-Antimony-Soil/Dust-Residential Child-East Trail (cont'd) **Cell: D58**

Percentiles:	Forecast values
1%	0.0008
5%	0.0021
10%	0.0035
25%	0.0083
50%	0.0216
75%	0.0565
90%	0.1326
95%	0.2181
99%	0.5283

Forecast: HI-Antimony-Soil/Dust-Residential Child-Rivervale **Cell: E58**

Summary:
Entire range is from 0.0000 to 2.1522
Base case is 0.0226
After 10,000 trials, the std. error of the mean is 0.0006



Forecast: HI-Antimony-Soil/Dust-Residential Child-Rivervale (cont'd) **Cell: E58**

Statistics:	Forecast values
Trials	10,000
Mean	0.0240
Median	0.0089
Mode	---
Standard Deviation	0.0555
Variance	0.0031
Skewness	13.38
Kurtosis	370.90
Coeff. of Variability	2.31
Minimum	0.0000
Maximum	2.1522
Range Width	2.1522
Mean Std. Error	0.0006

Percentiles:	Forecast values
1%	0.0003
5%	0.0008
10%	0.0014
25%	0.0034
50%	0.0089
75%	0.0235
90%	0.0553
95%	0.0912
99%	0.2353

Forecast: HI-Antimony-Soil/Dust-Residential Child-Tadanac **Cell: F58**

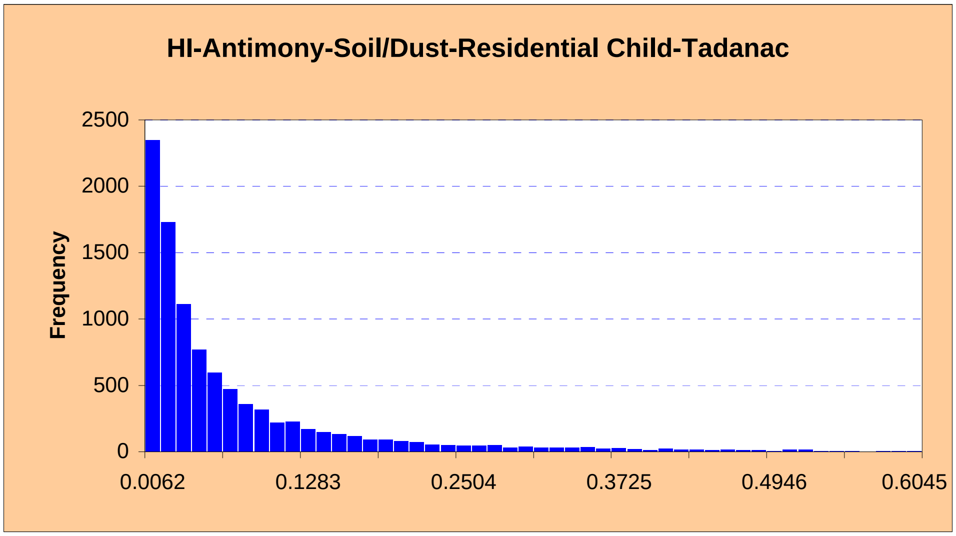
Summary:

Entire range is from 0.0001 to 4.8267

Base case is 0.0852

After 10,000 trials, the std. error of the mean is 0.0019

Forecast: HI-Antimony-Soil/Dust-Residential Child-Tadanac (cont'd) **Cell: F58**

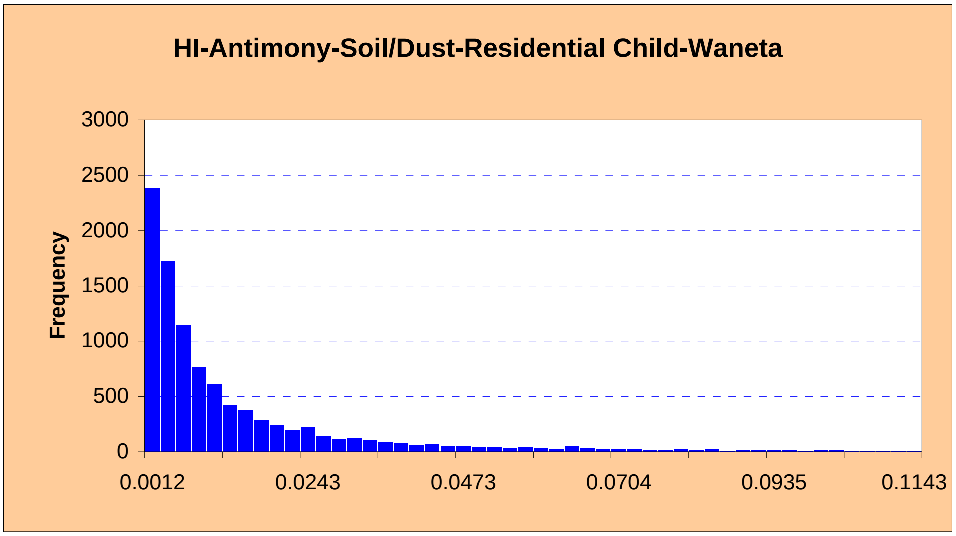


Statistics:	Forecast values
Trials	10,000
Mean	0.0891
Median	0.0342
Mode	---
Standard Deviation	0.1863
Variance	0.0347
Skewness	7.98
Kurtosis	113.01
Coeff. of Variability	2.09
Minimum	0.0001
Maximum	4.8267
Range Width	4.8266
Mean Std. Error	0.0019

Percentiles:	Forecast values
1%	0.0013
5%	0.0032
10%	0.0055
25%	0.0131
50%	0.0342
75%	0.0893
90%	0.2076
95%	0.3451
99%	0.8401

Forecast: HI-Antimony-Soil/Dust-Residential Child-Waneta **Cell: G58**

Summary:
Entire range is from 0.0000 to 1.0568
Base case is 0.0157
After 10,000 trials, the std. error of the mean is 0.0004



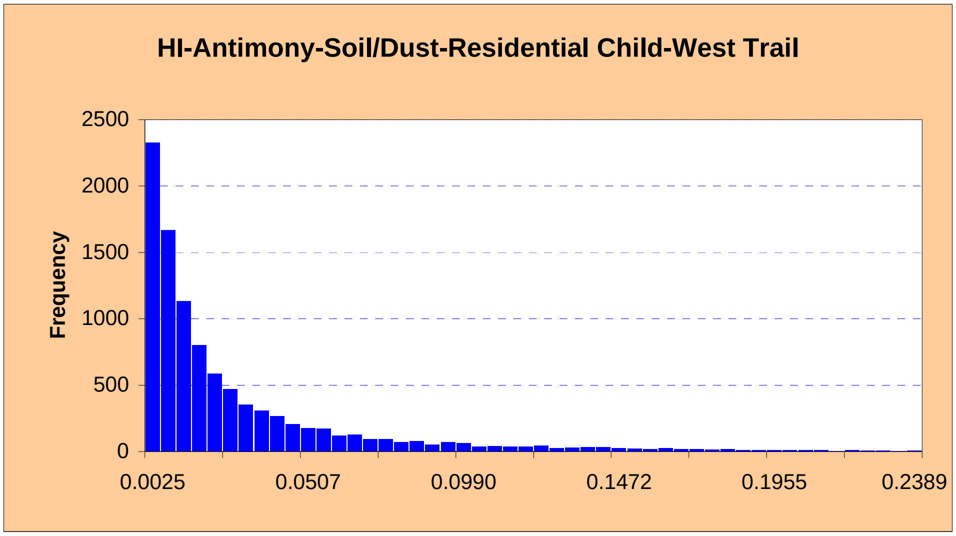
Statistics:	Forecast values
Trials	10,000
Mean	0.0167
Median	0.0064
Mode	---
Standard Deviation	0.0352
Variance	0.0012
Skewness	8.66
Kurtosis	142.66
Coeff. of Variability	2.11
Minimum	0.0000
Maximum	1.0568
Range Width	1.0567
Mean Std. Error	0.0004

Forecast: HI-Antimony-Soil/Dust-Residential Child-Waneta (cont'd) **Cell: G58**

Percentiles:	Forecast values
1%	0.0002
5%	0.0006
10%	0.0010
25%	0.0025
50%	0.0064
75%	0.0167
90%	0.0391
95%	0.0647
99%	0.1625

Forecast: HI-Antimony-Soil/Dust-Residential Child-West Trail **Cell: H58**

Summary:
Entire range is from 0.0000 to 1.8328
Base case is 0.0345
After 10,000 trials, the std. error of the mean is 0.0007



Forecast: HI-Antimony-Soil/Dust-Residential Child-West Trail (cont'd) — Cell: H58

Statistics:	Forecast values
Trials	10,000
Mean	0.0358
Median	0.0139
Mode	---
Standard Deviation	0.0734
Variance	0.0054
Skewness	7.56
Kurtosis	101.58
Coeff. of Variability	2.05
Minimum	0.0000
Maximum	1.8328
Range Width	1.8328
Mean Std. Error	0.0007

Percentiles:	Forecast values
1%	0.0005
5%	0.0013
10%	0.0022
25%	0.0053
50%	0.0139
75%	0.0362
90%	0.0847
95%	0.1393
99%	0.3390

Forecast: HI-Arsenic-Soil/Dust-Residential Adult+Child-East Trail — Cell: D37

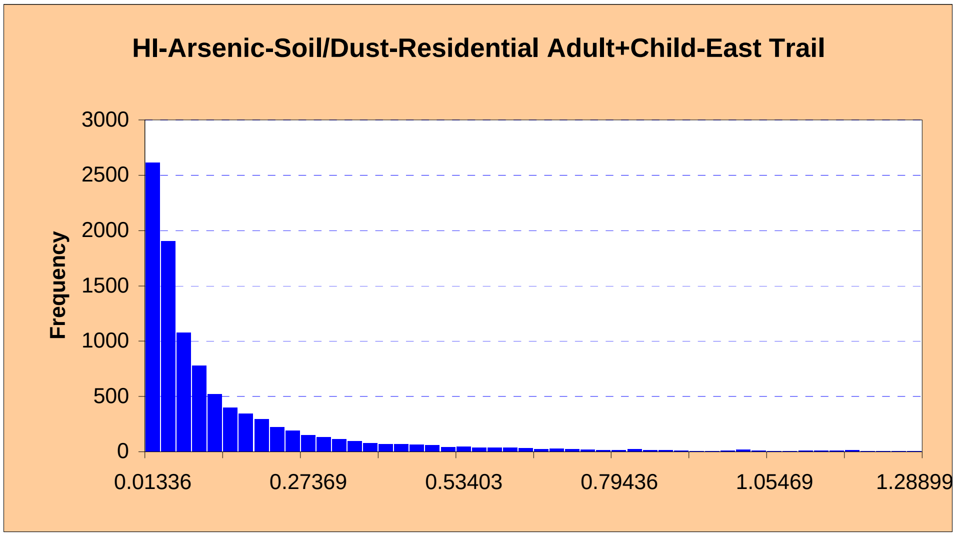
Summary:

Entire range is from 0.00034 to 14.84575

Base case is 0.10743

After 10,000 trials, the std. error of the mean is 0.00401

Forecast: HI-Arsenic-Soil/Dust-Residential Adult+Child-East Trail (cont'd) **Cell: D37**

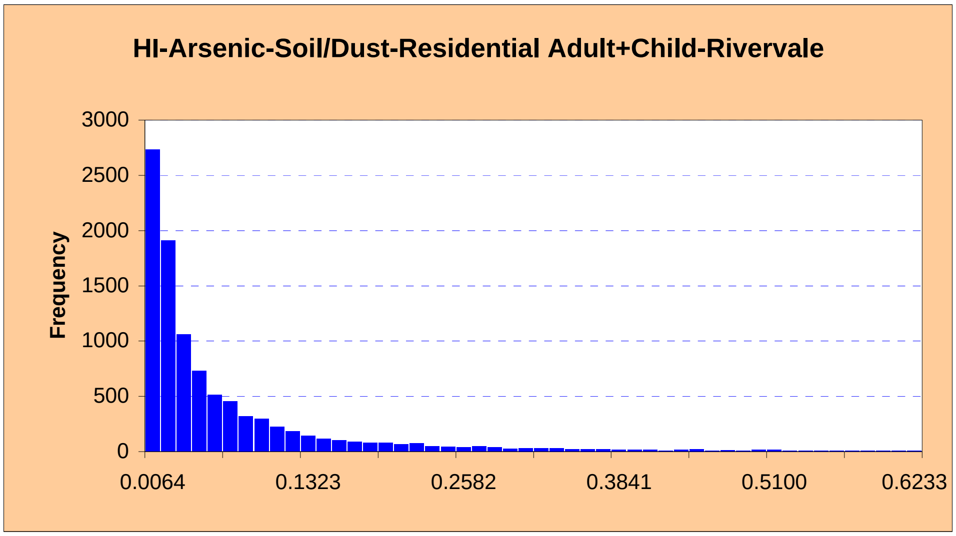


Statistics:	Forecast values
Trials	10,000
Mean	0.17969
Median	0.06266
Mode	---
Standard Deviation	0.40083
Variance	0.16066
Skewness	10.27
Kurtosis	238.50
Coeff. of Variability	2.23
Minimum	0.00034
Maximum	14.84575
Range Width	14.84541
Mean Std. Error	0.00401

Percentiles:	Forecast values
1%	0.00314
5%	0.00751
10%	0.01184
25%	0.02515
50%	0.06265
75%	0.17148
90%	0.41565
95%	0.71322
99%	1.87767

Forecast: HI-Arsenic-Soil/Dust-Residential Adult+Child-Rivervale **Cell: E37**

Summary:
Entire range is from 0.0001 to 5.9676
Base case is 0.0513
After 10,000 trials, the std. error of the mean is 0.0019



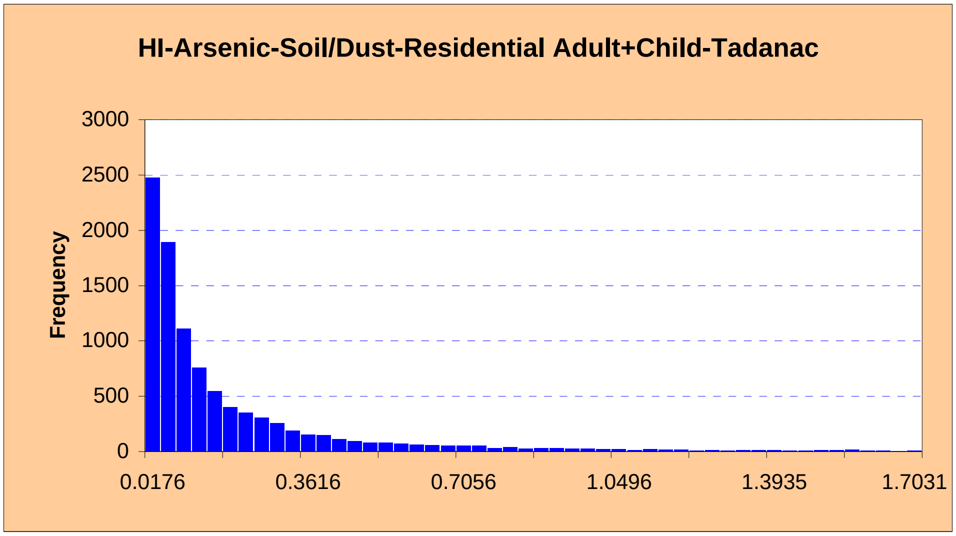
Statistics:	Forecast values
Trials	10,000
Mean	0.0850
Median	0.0287
Mode	---
Standard Deviation	0.1945
Variance	0.0378
Skewness	9.43
Kurtosis	170.99
Coeff. of Variability	2.29
Minimum	0.0001
Maximum	5.9676
Range Width	5.9674
Mean Std. Error	0.0019

Forecast: HI-Arsenic-Soil/Dust-Residential Adult+Child-Rivervale (cont'd) **Cell: E37**

Percentiles:	Forecast values
1%	0.0014
5%	0.0033
10%	0.0054
25%	0.0116
50%	0.0287
75%	0.0797
90%	0.1949
95%	0.3354
99%	0.8869

Forecast: HI-Arsenic-Soil/Dust-Residential Adult+Child-Tadanac **Cell: F37**

Summary:
Entire range is from 0.0004 to 18.2964
Base case is 0.1473
After 10,000 trials, the std. error of the mean is 0.0053



Forecast: HI-Arsenic-Soil/Dust-Residential Adult+Child-Tadanac (cont'd) **Cell: F37**

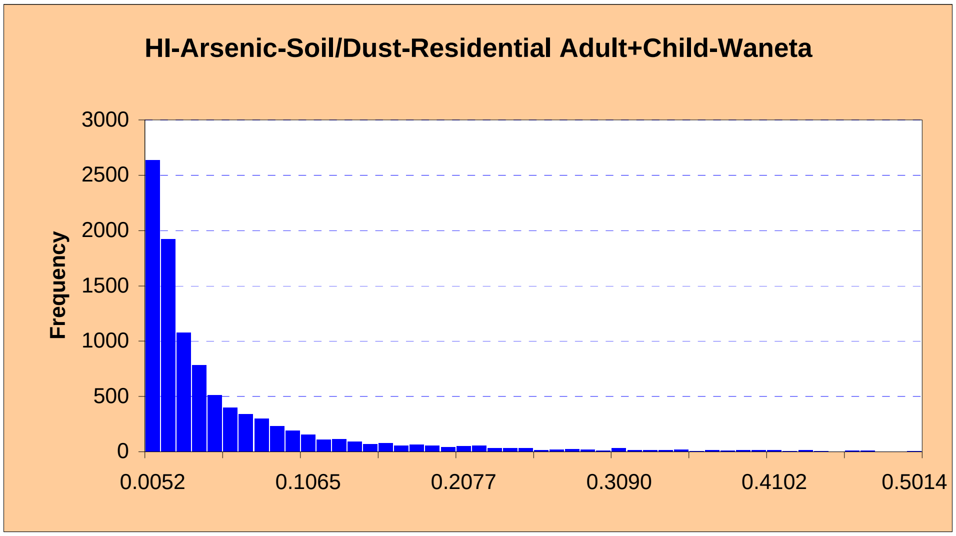
Statistics:	Forecast values
Trials	10,000
Mean	0.2444
Median	0.0863
Mode	---
Standard Deviation	0.5271
Variance	0.2778
Skewness	9.36
Kurtosis	197.75
Coeff. of Variability	2.16
Minimum	0.0004
Maximum	18.2964
Range Width	18.2960
Mean Std. Error	0.0053

Percentiles:	Forecast values
1%	0.0044
5%	0.0103
10%	0.0167
25%	0.0352
50%	0.0863
75%	0.2369
90%	0.5674
95%	0.9651
99%	2.4577

Forecast: HI-Arsenic-Soil/Dust-Residential Adult+Child-Waneta **Cell: G37**

Summary:
Entire range is from 0.0001 to 6.8995
Base case is 0.0403
After 10,000 trials, the std. error of the mean is 0.0016

Forecast: HI-Arsenic-Soil/Dust-Residential Adult+Child-Waneta (cont'd) **Cell: G37**

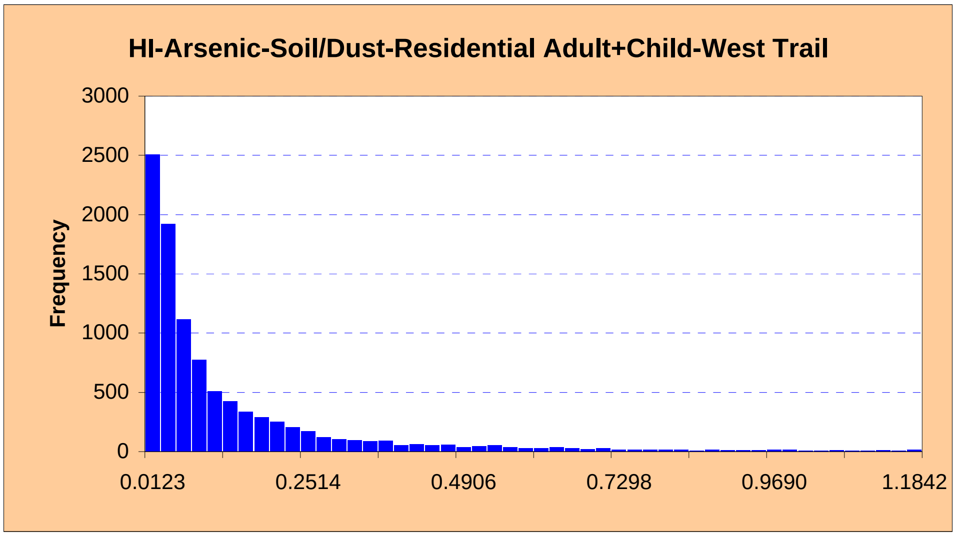


Statistics:	Forecast values
Trials	10,000
Mean	0.0680
Median	0.0239
Mode	---
Standard Deviation	0.1566
Variance	0.0245
Skewness	13.66
Kurtosis	432.37
Coeff. of Variability	2.30
Minimum	0.0001
Maximum	6.8995
Range Width	6.8994
Mean Std. Error	0.0016

Percentiles:	Forecast values
1%	0.0012
5%	0.0029
10%	0.0045
25%	0.0098
50%	0.0239
75%	0.0653
90%	0.1578
95%	0.2720
99%	0.6892

Forecast: HI-Arsenic-Soil/Dust-Residential Adult+Child-West Trail **Cell: H37**

Summary:
Entire range is from 0.0003 to 14.3085
Base case is 0.1007
After 10,000 trials, the std. error of the mean is 0.0037



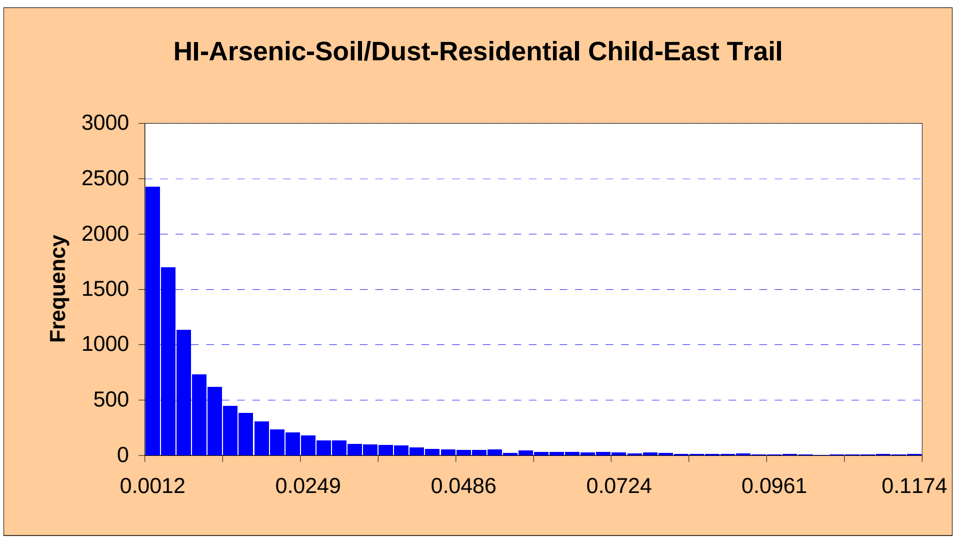
Statistics:	Forecast values
Trials	10,000
Mean	0.1662
Median	0.0585
Mode	---
Standard Deviation	0.3679
Variance	0.1353
Skewness	10.90
Kurtosis	274.84
Coeff. of Variability	2.21
Minimum	0.0003
Maximum	14.3085
Range Width	14.3082
Mean Std. Error	0.0037

Forecast: HI-Arsenic-Soil/Dust-Residential Adult+Child-West Trail (cont'd) **Cell: H37**

Percentiles:	Forecast values
1%	0.0030
5%	0.0071
10%	0.0113
25%	0.0242
50%	0.0585
75%	0.1611
90%	0.3818
95%	0.6512
99%	1.7097

Forecast: HI-Arsenic-Soil/Dust-Residential Child-East Trail **Cell: D59**

Summary:
Entire range is from 0.0000 to 0.8905
Base case is 0.0163
After 10,000 trials, the std. error of the mean is 0.0004



Forecast: HI-Arsenic-Soil/Dust-Residential Child-East Trail (cont'd) **Cell: D59**

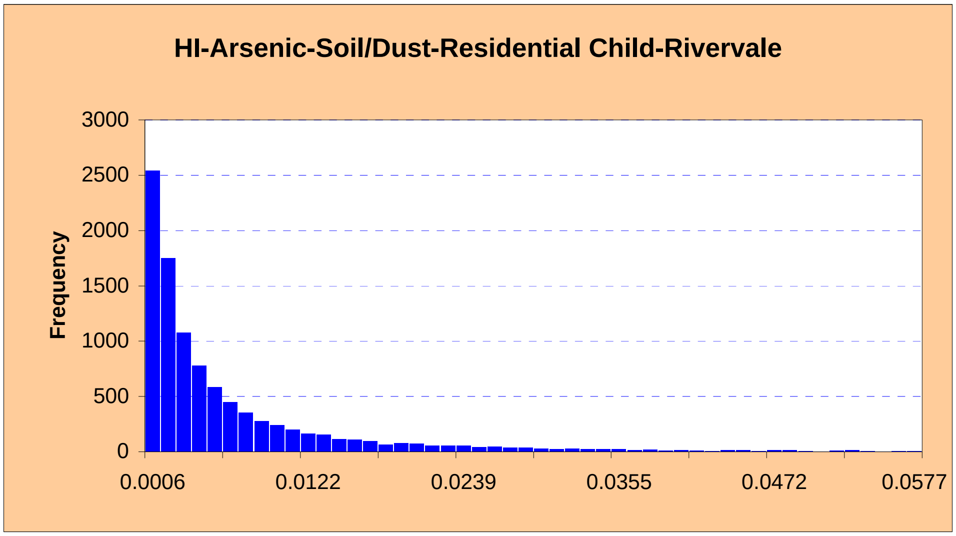
Statistics:	Forecast values
Trials	10,000
Mean	0.0172
Median	0.0065
Mode	---
Standard Deviation	0.0362
Variance	0.0013
Skewness	7.82
Kurtosis	107.24
Coeff. of Variability	2.10
Minimum	0.0000
Maximum	0.8905
Range Width	0.8905
Mean Std. Error	0.0004

Percentiles:	Forecast values
1%	0.0002
5%	0.0006
10%	0.0010
25%	0.0025
50%	0.0065
75%	0.0171
90%	0.0400
95%	0.0666
99%	0.1704

Forecast: HI-Arsenic-Soil/Dust-Residential Child-Rivervale **Cell: E59**

Summary:
Entire range is from 0.0000 to 0.3579
Base case is 0.0078
After 10,000 trials, the std. error of the mean is 0.0002

Forecast: HI-Arsenic-Soil/Dust-Residential Child-Rivervale (cont'd) **Cell: E59**

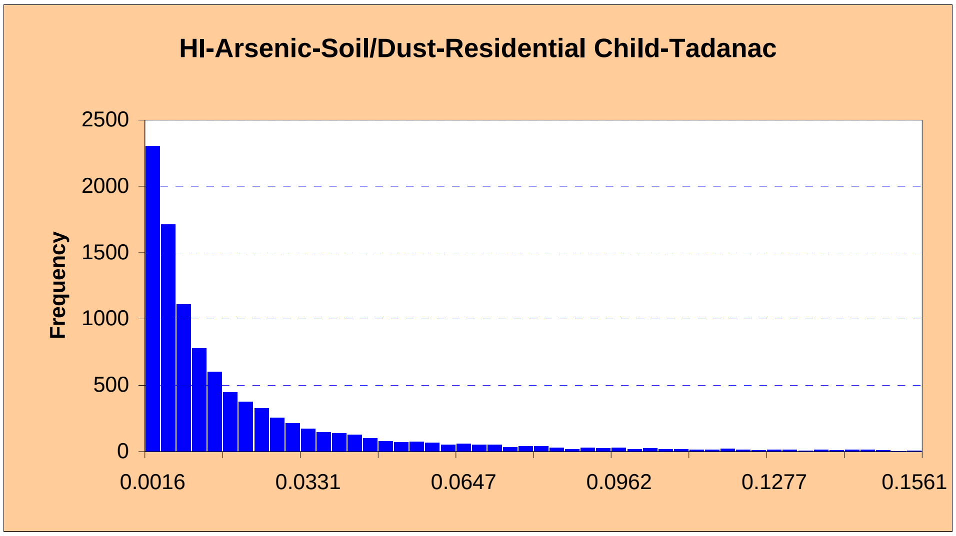


Statistics:	Forecast values
Trials	10,000
Mean	0.0082
Median	0.0030
Mode	---
Standard Deviation	0.0179
Variance	0.0003
Skewness	8.05
Kurtosis	103.17
Coeff. of Variability	2.19
Minimum	0.0000
Maximum	0.3579
Range Width	0.3579
Mean Std. Error	0.0002

Percentiles:	Forecast values
1%	0.0001
5%	0.0003
10%	0.0005
25%	0.0012
50%	0.0030
75%	0.0080
90%	0.0192
95%	0.0305
99%	0.0814

Forecast: HI-Arsenic-Soil/Dust-Residential Child-Tadanac **Cell: F59**

Summary:
Entire range is from 0.0000 to 1.0975
Base case is 0.0224
After 10,000 trials, the std. error of the mean is 0.0005



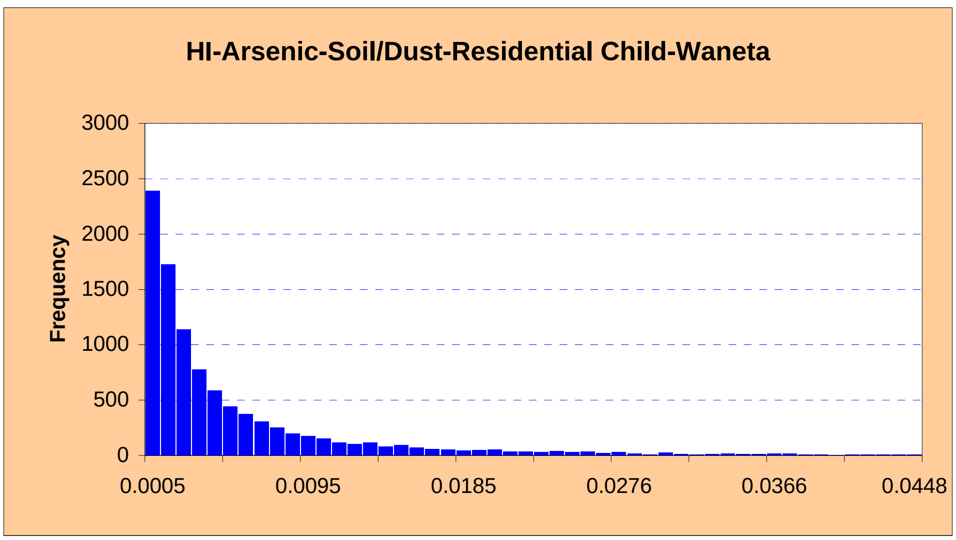
Statistics:	Forecast values
Trials	10,000
Mean	0.0235
Median	0.0090
Mode	---
Standard Deviation	0.0479
Variance	0.0023
Skewness	7.28
Kurtosis	91.75
Coeff. of Variability	2.04
Minimum	0.0000
Maximum	1.0975
Range Width	1.0974
Mean Std. Error	0.0005

Forecast: HI-Arsenic-Soil/Dust-Residential Child-Tadanac (cont'd) **Cell: F59**

Percentiles:	Forecast values
1%	0.0003
5%	0.0009
10%	0.0015
25%	0.0035
50%	0.0090
75%	0.0237
90%	0.0557
95%	0.0915
99%	0.2249

Forecast: HI-Arsenic-Soil/Dust-Residential Child-Waneta **Cell: G59**

Summary:
Entire range is from 0.0000 to 0.4138
Base case is 0.0061
After 10,000 trials, the std. error of the mean is 0.0001



Forecast: HI-Arsenic-Soil/Dust-Residential Child-Waneta (cont'd) **Cell: G59**

Statistics:	Forecast values
Trials	10,000
Mean	0.0065
Median	0.0025
Mode	---
Standard Deviation	0.0138
Variance	0.0002
Skewness	8.63
Kurtosis	142.52
Coeff. of Variability	2.11
Minimum	0.0000
Maximum	0.4138
Range Width	0.4138
Mean Std. Error	0.0001

Percentiles:	Forecast values
1%	0.0001
5%	0.0002
10%	0.0004
25%	0.0010
50%	0.0025
75%	0.0065
90%	0.0152
95%	0.0250
99%	0.0619

Forecast: HI-Arsenic-Soil/Dust-Residential Child-West Trail **Cell: H59**

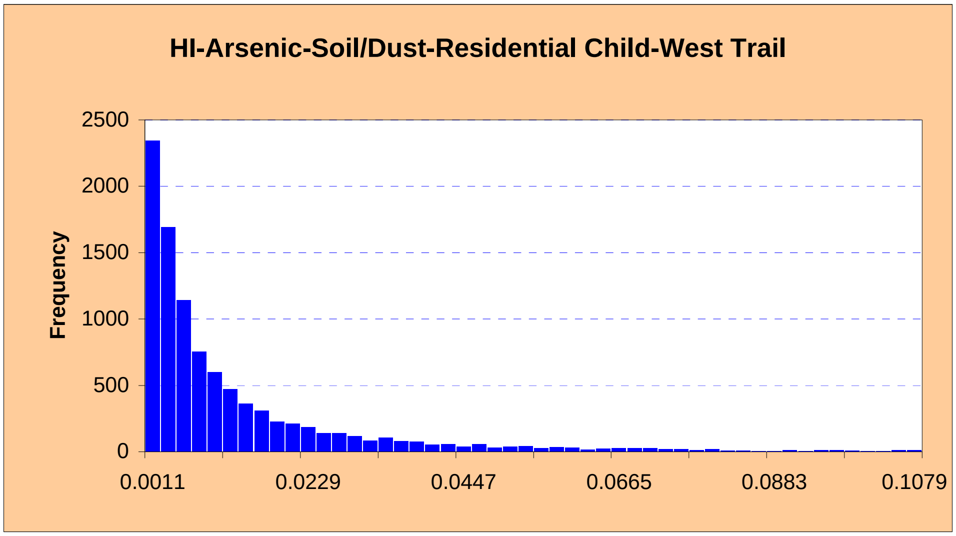
Summary:

Entire range is from 0.0000 to 0.8582

Base case is 0.0153

After 10,000 trials, the std. error of the mean is 0.0003

Forecast: HI-Arsenic-Soil/Dust-Residential Child-West Trail (cont'd) **Cell: H59**

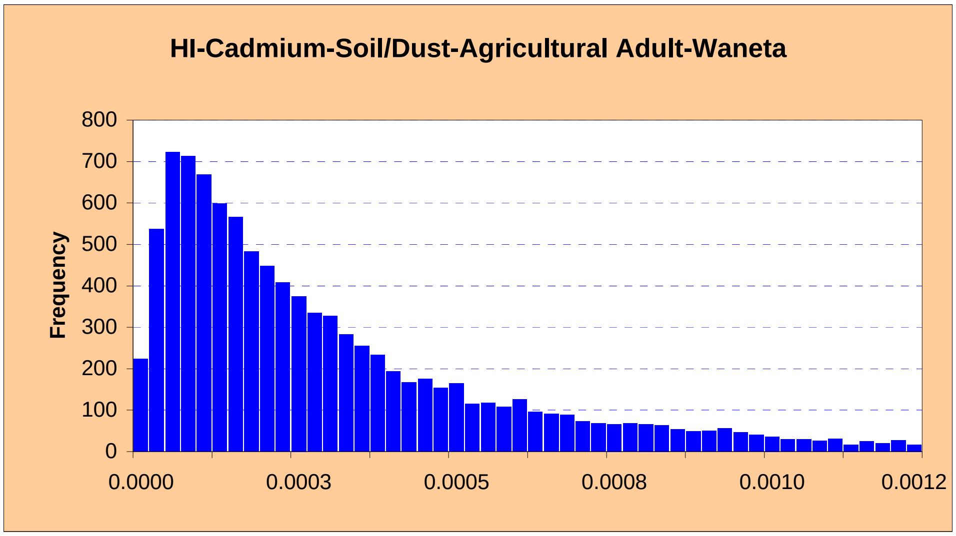


Statistics:	Forecast values
Trials	10,000
Mean	0.0160
Median	0.0062
Mode	---
Standard Deviation	0.0332
Variance	0.0011
Skewness	8.13
Kurtosis	119.95
Coeff. of Variability	2.08
Minimum	0.0000
Maximum	0.8582
Range Width	0.8582
Mean Std. Error	0.0003

Percentiles:	Forecast values
1%	0.0002
5%	0.0006
10%	0.0010
25%	0.0023
50%	0.0062
75%	0.0160
90%	0.0372
95%	0.0616
99%	0.1456

Forecast: HI-Cadmium-Soil/Dust-Agricultural Adult-Waneta **Cell: D95**

Summary:
Entire range is from 0.0000 to 0.0033
Base case is 0.0004
After 10,000 trials, the std. error of the mean is 0.0000



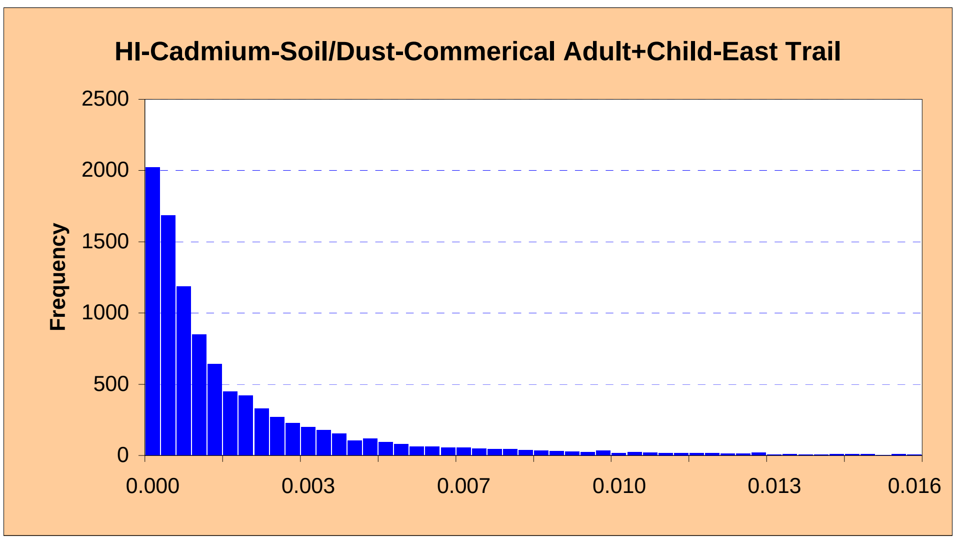
Statistics:	Forecast values
Trials	10,000
Mean	0.0003
Median	0.0002
Mode	---
Standard Deviation	0.0003
Variance	0.0000
Skewness	1.98
Kurtosis	8.14
Coeff. of Variability	0.9587
Minimum	0.0000
Maximum	0.0033
Range Width	0.0033
Mean Std. Error	0.0000

Forecast: HI-Cadmium-Soil/Dust-Agricultural Adult-Waneta (cont'd) **Cell: D95**

Percentiles:	Forecast values
1%	0.0000
5%	0.0000
10%	0.0001
25%	0.0001
50%	0.0002
75%	0.0004
90%	0.0008
95%	0.0010
99%	0.0015

Forecast: HI-Cadmium-Soil/Dust-Commerical Adult+Child-East Trail **Cell: D75**

Summary:
Entire range is from 0.000 to 0.113
Base case is 0.003
After 10,000 trials, the std. error of the mean is 0.000



Forecast: HI-Cadmium-Soil/Dust-Commerical Adult+Child-East Trail (cont'd) **Cell: D75**

Statistics:	Forecast values
Trials	10,000
Mean	0.002
Median	0.001
Mode	---
Standard Deviation	0.005
Variance	0.000
Skewness	7.84
Kurtosis	105.34
Coeff. of Variability	2.02
Minimum	0.000
Maximum	0.113
Range Width	0.113
Mean Std. Error	0.000

Percentiles:	Forecast values
1%	0.000
5%	0.000
10%	0.000
25%	0.000
50%	0.001
75%	0.002
90%	0.005
95%	0.009
99%	0.023

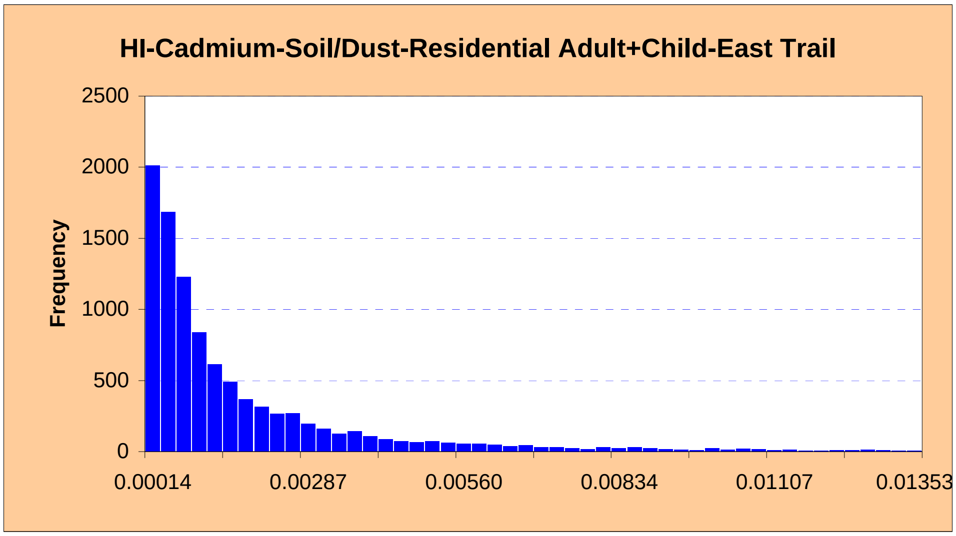
Forecast: HI-Cadmium-Soil/Dust-Residential Adult+Child-East Trail **Cell: D38**

Summary:

Entire range is from 0.00000 to 0.09891

Base case is 0.00221

After 10,000 trials, the std. error of the mean is 0.00004



Statistics:	Forecast values
Trials	10,000
Mean	0.00206
Median	0.00084
Mode	---
Standard Deviation	0.00415
Variance	0.00002
Skewness	7.66
Kurtosis	101.37
Coeff. of Variability	2.01
Minimum	0.00000
Maximum	0.09891
Range Width	0.09891
Mean Std. Error	0.00004

Forecast: HI-Cadmium-Soil/Dust-Residential Adult+Child-East Trail (cont'd) **Cell: D38**

Percentiles:	Forecast values
1%	0.00003
5%	0.00008
10%	0.00014
25%	0.00034
50%	0.00084
75%	0.00214
90%	0.00476
95%	0.00777
99%	0.01955

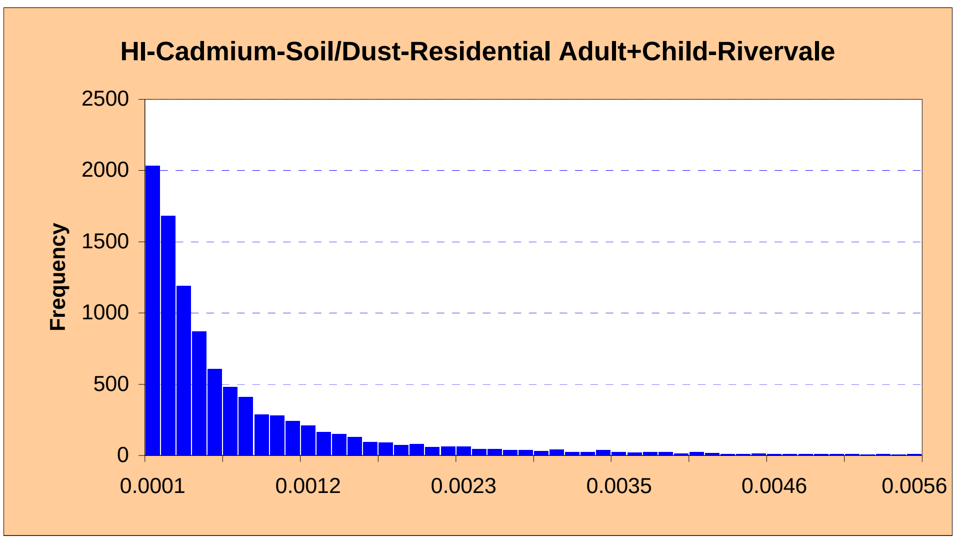
Forecast: HI-Cadmium-Soil/Dust-Residential Adult+Child-Rivervale **Cell: E38**

Summary:

Entire range is from 0.0000 to 0.0452

Base case is 0.0009

After 10,000 trials, the std. error of the mean is 0.0000



Forecast: HI-Cadmium-Soil/Dust-Residential Adult+Child-Rivervale (cont'd) **Cell: E38**

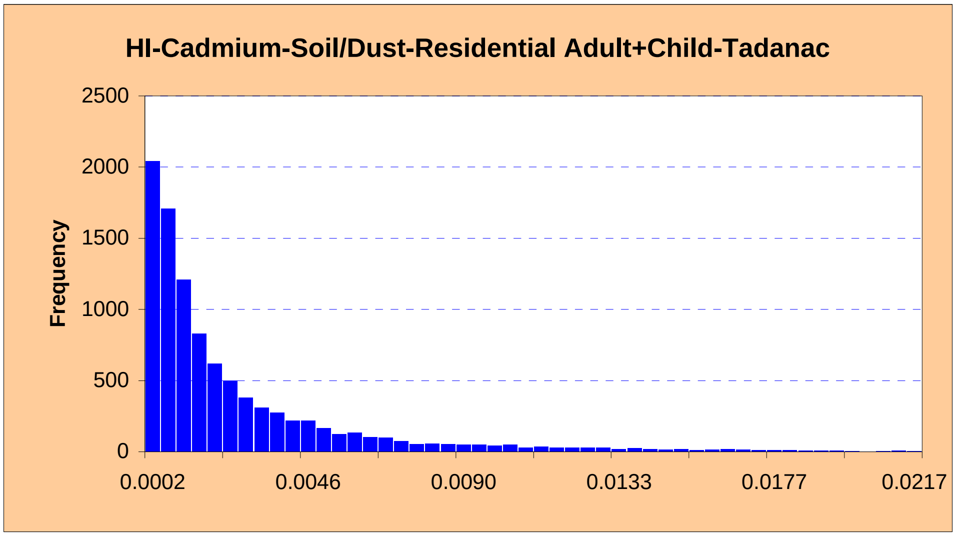
Statistics:	Forecast values
Trials	10,000
Mean	0.0009
Median	0.0004
Mode	---
Standard Deviation	0.0017
Variance	0.0000
Skewness	8.02
Kurtosis	113.79
Coeff. of Variability	2.03
Minimum	0.0000
Maximum	0.0452
Range Width	0.0452
Mean Std. Error	0.0000

Percentiles:	Forecast values
1%	0.0000
5%	0.0000
10%	0.0001
25%	0.0001
50%	0.0004
75%	0.0009
90%	0.0020
95%	0.0032
99%	0.0078

Forecast: HI-Cadmium-Soil/Dust-Residential Adult+Child-Tadanac **Cell: F38**

Summary:
Entire range is from 0.0000 to 0.1627
Base case is 0.0034
After 10,000 trials, the std. error of the mean is 0.0001

Forecast: HI-Cadmium-Soil/Dust-Residential Adult+Child-Tadanac (cont'd) **Cell: F38**

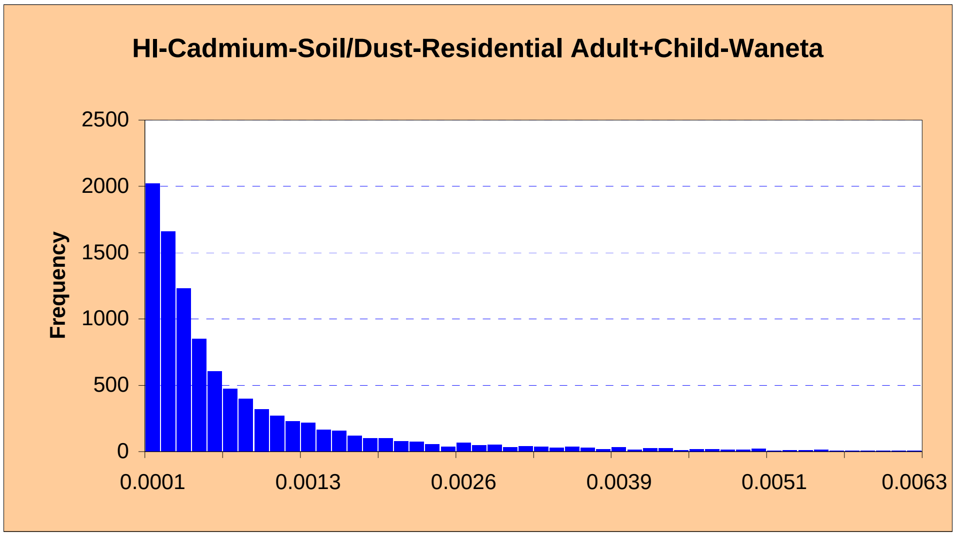


Statistics:	Forecast values
Trials	10,000
Mean	0.0032
Median	0.0013
Mode	---
Standard Deviation	0.0067
Variance	0.0000
Skewness	8.32
Kurtosis	121.56
Coeff. of Variability	2.06
Minimum	0.0000
Maximum	0.1627
Range Width	0.1627
Mean Std. Error	0.0001

Percentiles:	Forecast values
1%	0.0000
5%	0.0001
10%	0.0002
25%	0.0005
50%	0.0013
75%	0.0033
90%	0.0073
95%	0.0120
99%	0.0302

Forecast: HI-Cadmium-Soil/Dust-Residential Adult+Child-Waneta **Cell: G38**

Summary:
Entire range is from 0.0000 to 0.0513
Base case is 0.0010
After 10,000 trials, the std. error of the mean is 0.0000



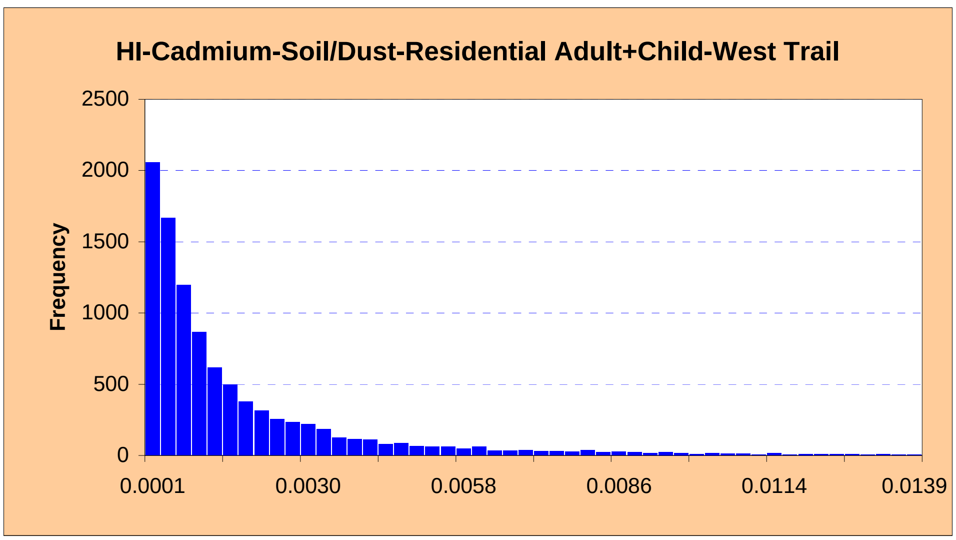
Statistics:	Forecast values
Trials	10,000
Mean	0.0010
Median	0.0004
Mode	---
Standard Deviation	0.0019
Variance	0.0000
Skewness	7.93
Kurtosis	112.60
Coeff. of Variability	2.02
Minimum	0.0000
Maximum	0.0513
Range Width	0.0513
Mean Std. Error	0.0000

Forecast: HI-Cadmium-Soil/Dust-Residential Adult+Child-Waneta (cont'd) **Cell: G38**

Percentiles:	Forecast values
1%	0.0000
5%	0.0000
10%	0.0001
25%	0.0002
50%	0.0004
75%	0.0010
90%	0.0022
95%	0.0035
99%	0.0086

Forecast: HI-Cadmium-Soil/Dust-Residential Adult+Child-West Trail **Cell: H38**

Summary:
Entire range is from 0.0000 to 0.1022
Base case is 0.0023
After 10,000 trials, the std. error of the mean is 0.0000



Forecast: HI-Cadmium-Soil/Dust-Residential Adult+Child-West Trail (cont'd) **Cell: H38**

Statistics:	Forecast values
Trials	10,000
Mean	0.0021
Median	0.0009
Mode	---
Standard Deviation	0.0043
Variance	0.0000
Skewness	8.26
Kurtosis	121.74
Coeff. of Variability	2.04
Minimum	0.0000
Maximum	0.1022
Range Width	0.1022
Mean Std. Error	0.0000

Percentiles:	Forecast values
1%	0.0000
5%	0.0001
10%	0.0001
25%	0.0003
50%	0.0009
75%	0.0022
90%	0.0048
95%	0.0079
99%	0.0194

Forecast: HI-Selenium-Soil/Dust-Residential Adult+Child-East Trail **Cell: D39**

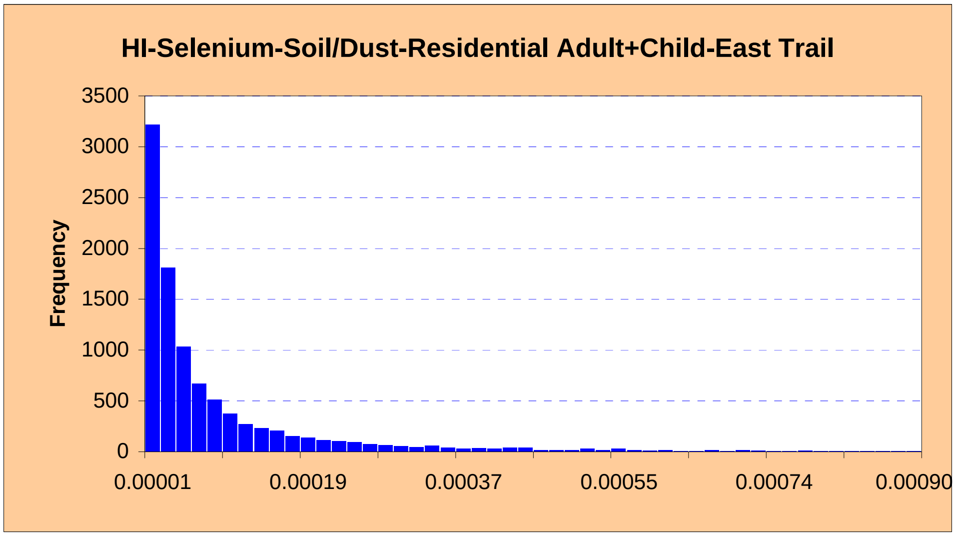
Summary:

Entire range is from 0.00000 to 0.01109

Base case is 0.00007

After 10,000 trials, the std. error of the mean is 0.00000

Forecast: HI-Selenium-Soil/Dust-Residential Adult+Child-East Trail (cont'd) **Cell: D39**

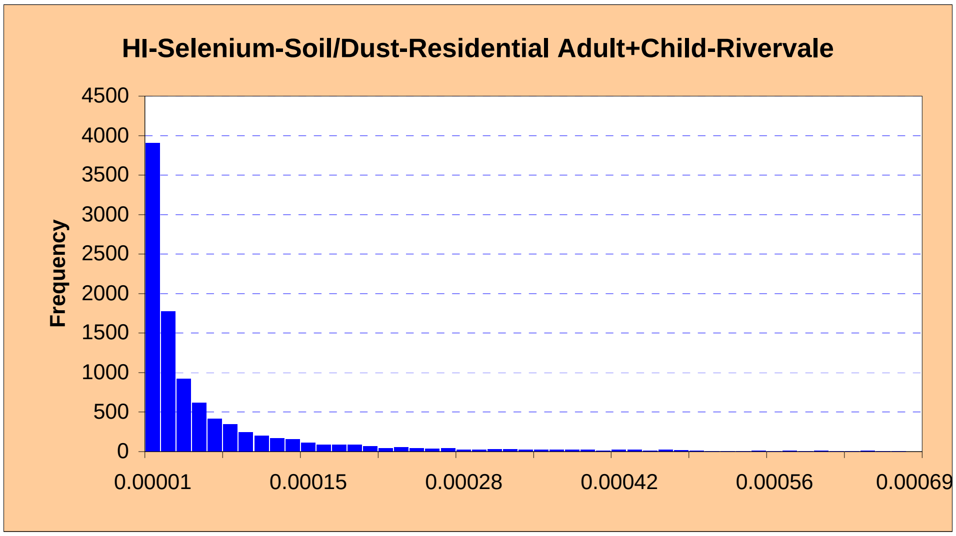


Statistics:	Forecast values
Trials	10,000
Mean	0.00011
Median	0.00004
Mode	---
Standard Deviation	0.00028
Variance	0.00000
Skewness	12.76
Kurtosis	328.76
Coeff. of Variability	2.49
Minimum	0.00000
Maximum	0.01109
Range Width	0.01109
Mean Std. Error	0.00000

Percentiles:	Forecast values
1%	0.00000
5%	0.00000
10%	0.00001
25%	0.00001
50%	0.00004
75%	0.00010
90%	0.00026
95%	0.00046
99%	0.00118

Forecast: HI-Selenium-Soil/Dust-Residential Adult+Child-Rivervale **Cell: E39**

Summary:
Entire range is from 0.00000 to 0.00675
Base case is 0.00005
After 10,000 trials, the std. error of the mean is 0.00000



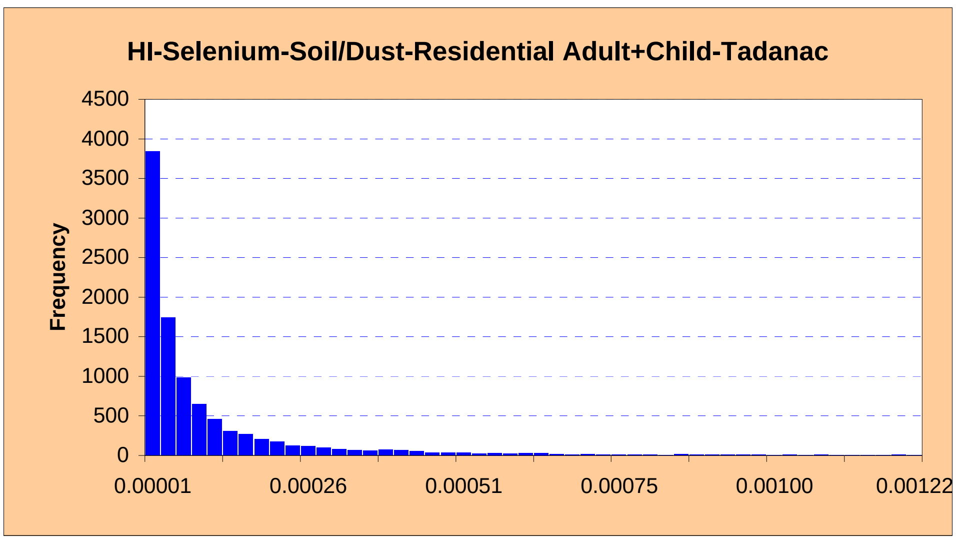
Statistics:	Forecast values
Trials	10,000
Mean	0.00008
Median	0.00002
Mode	---
Standard Deviation	0.00022
Variance	0.00000
Skewness	9.87
Kurtosis	173.08
Coeff. of Variability	2.74
Minimum	0.00000
Maximum	0.00675
Range Width	0.00675
Mean Std. Error	0.00000

Forecast: HI-Selenium-Soil/Dust-Residential Adult+Child-Rivervale (cont'd) **Cell: E39**

Percentiles:	Forecast values
1%	0.00000
5%	0.00000
10%	0.00000
25%	0.00001
50%	0.00002
75%	0.00006
90%	0.00018
95%	0.00033
99%	0.00098

Forecast: HI-Selenium-Soil/Dust-Residential Adult+Child-Tadanac **Cell: F39**

Summary:
Entire range is from 0.00000 to 0.01543
Base case is 0.00007
After 10,000 trials, the std. error of the mean is 0.00000



Forecast: HI-Selenium-Soil/Dust-Residential Adult+Child-Tadanac (cont'd) **Cell: F39**

Statistics:	Forecast values
Trials	10,000
Mean	0.00014
Median	0.00004
Mode	---
Standard Deviation	0.00039
Variance	0.00000
Skewness	13.32
Kurtosis	329.70
Coeff. of Variability	2.87
Minimum	0.00000
Maximum	0.01543
Range Width	0.01543
Mean Std. Error	0.00000

Percentiles:	Forecast values
1%	0.00000
5%	0.00000
10%	0.00001
25%	0.00001
50%	0.00004
75%	0.00011
90%	0.00030
95%	0.00053
99%	0.00156

Forecast: HI-Selenium-Soil/Dust-Residential Adult+Child-Waneta **Cell: G39**

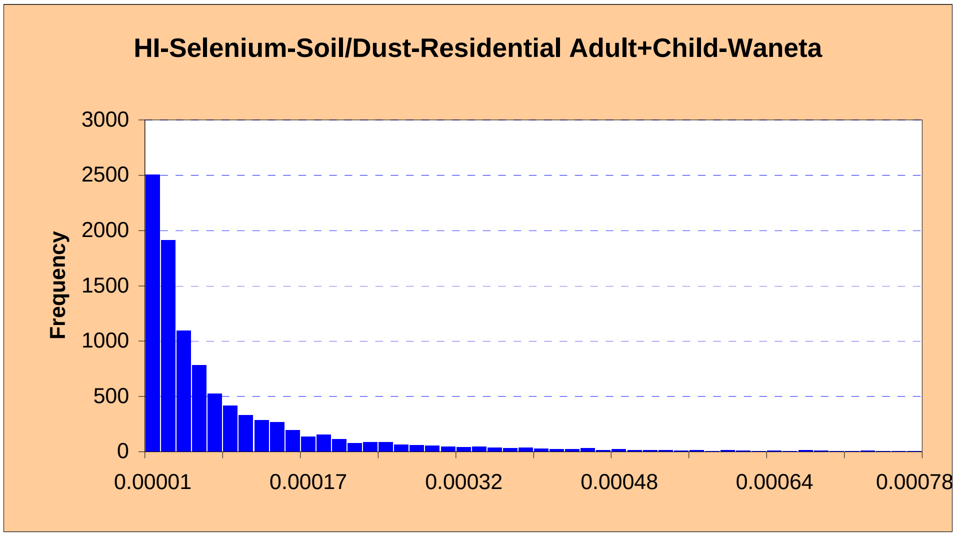
Summary:

Entire range is from 0.00000 to 0.00937

Base case is 0.00007

After 10,000 trials, the std. error of the mean is 0.00000

Forecast: HI-Selenium-Soil/Dust-Residential Adult+Child-Waneta (cont'd) **Cell: G39**

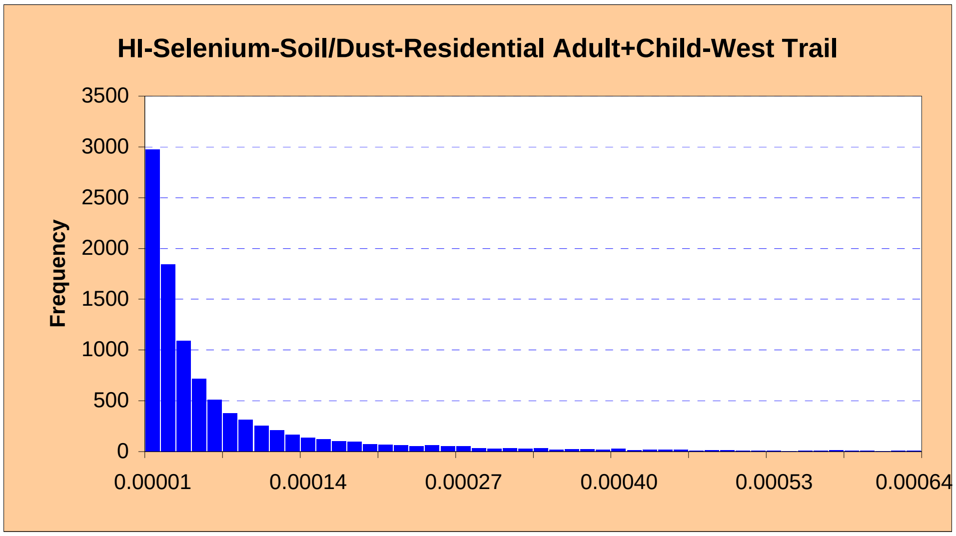


Statistics:	Forecast values
Trials	10,000
Mean	0.00011
Median	0.00004
Mode	---
Standard Deviation	0.00024
Variance	0.00000
Skewness	10.76
Kurtosis	271.82
Coeff. of Variability	2.19
Minimum	0.00000
Maximum	0.00937
Range Width	0.00937
Mean Std. Error	0.00000

Percentiles:	Forecast values
1%	0.00000
5%	0.00000
10%	0.00001
25%	0.00002
50%	0.00004
75%	0.00011
90%	0.00025
95%	0.00044
99%	0.00111

Forecast: HI-Selenium-Soil/Dust-Residential Adult+Child-West Trail **Cell: H39**

Summary:
Entire range is from 0.00000 to 0.00891
Base case is 0.00005
After 10,000 trials, the std. error of the mean is 0.00000



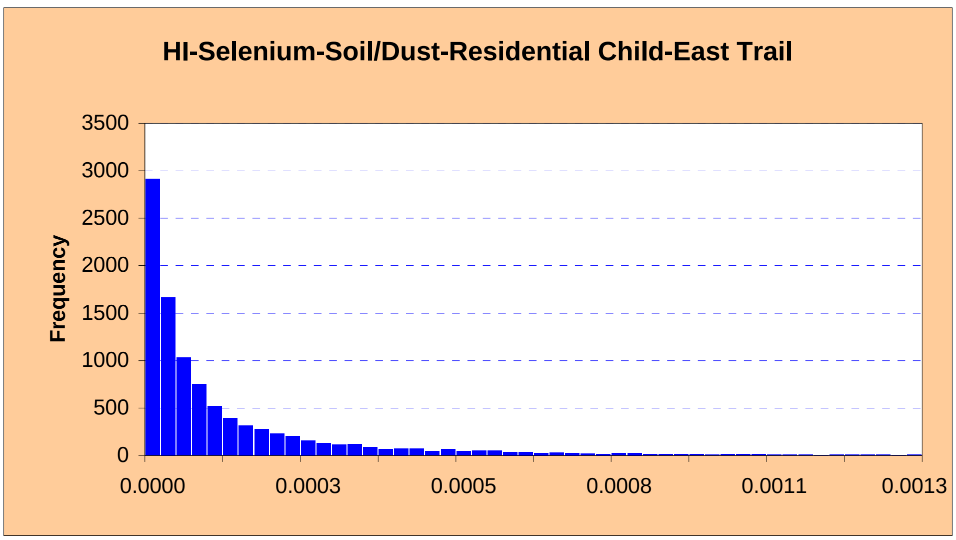
Statistics:	Forecast values
Trials	10,000
Mean	0.00008
Median	0.00003
Mode	---
Standard Deviation	0.00020
Variance	0.00000
Skewness	13.21
Kurtosis	417.66
Coeff. of Variability	2.38
Minimum	0.00000
Maximum	0.00891
Range Width	0.00891
Mean Std. Error	0.00000

Forecast: HI-Selenium-Soil/Dust-Residential Adult+Child-West Trail (cont'd) **Cell: H39**

Percentiles:	Forecast values
1%	0.00000
5%	0.00000
10%	0.00000
25%	0.00001
50%	0.00003
75%	0.00008
90%	0.00020
95%	0.00034
99%	0.00093

Forecast: HI-Selenium-Soil/Dust-Residential Child-East Trail **Cell: D60**

Summary:
Entire range is from 0.0000 to 0.0111
Base case is 0.0002
After 10,000 trials, the std. error of the mean is 0.0000



Forecast: HI-Selenium-Soil/Dust-Residential Child-East Trail (cont'd) **Cell: D60**

Statistics:	Forecast values
Trials	10,000
Mean	0.0002
Median	0.0001
Mode	---
Standard Deviation	0.0004
Variance	0.0000
Skewness	8.15
Kurtosis	116.35
Coeff. of Variability	2.25
Minimum	0.0000
Maximum	0.0111
Range Width	0.0111
Mean Std. Error	0.0000

Percentiles:	Forecast values
1%	0.0000
5%	0.0000
10%	0.0000
25%	0.0000
50%	0.0001
75%	0.0002
90%	0.0004
95%	0.0007
99%	0.0018

Forecast: HI-Selenium-Soil/Dust-Residential Child-Rivervale **Cell: E60**

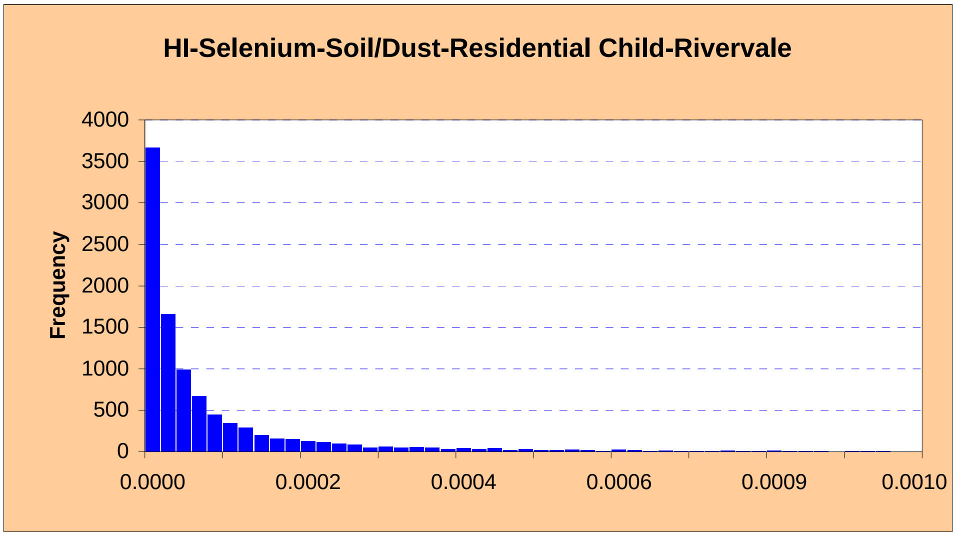
Summary:

Entire range is from 0.0000 to 0.0076

Base case is 0.0001

After 10,000 trials, the std. error of the mean is 0.0000

Forecast: HI-Selenium-Soil/Dust-Residential Child-Rivervale (cont'd) **Cell: E60**

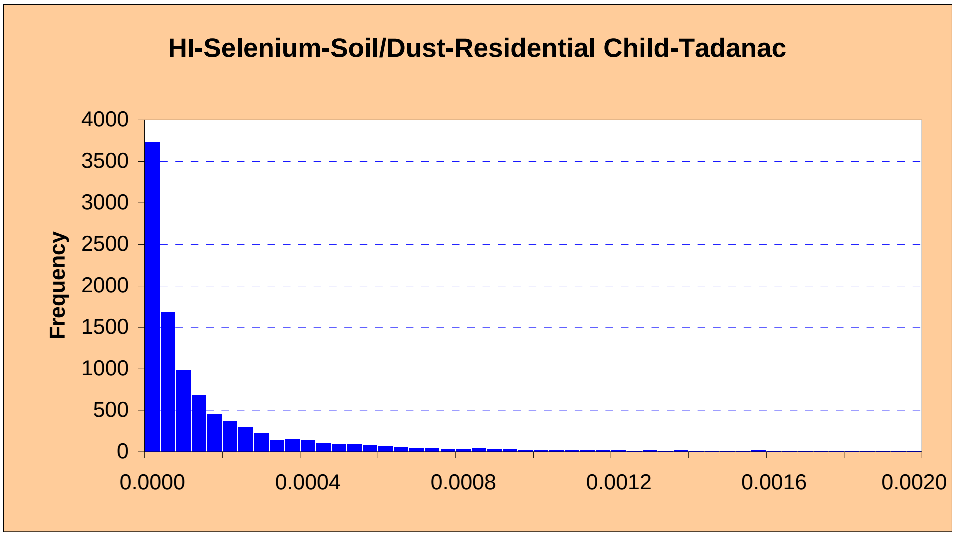


Statistics:	Forecast values
Trials	10,000
Mean	0.0001
Median	0.0000
Mode	---
Standard Deviation	0.0003
Variance	0.0000
Skewness	8.99
Kurtosis	126.70
Coeff. of Variability	2.60
Minimum	0.0000
Maximum	0.0076
Range Width	0.0076
Mean Std. Error	0.0000

Percentiles:	Forecast values
1%	0.0000
5%	0.0000
10%	0.0000
25%	0.0000
50%	0.0000
75%	0.0001
90%	0.0003
95%	0.0005
99%	0.0015

Forecast: HI-Selenium-Soil/Dust-Residential Child-Tadanac **Cell: F60**

Summary:
Entire range is from 0.0000 to 0.0247
Base case is 0.0002
After 10,000 trials, the std. error of the mean is 0.0000



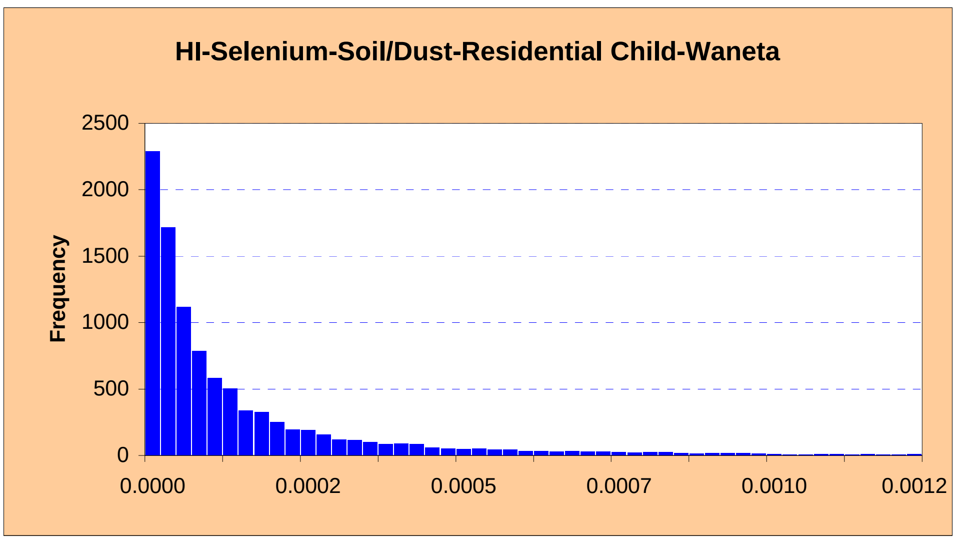
Statistics:	Forecast values
Trials	10,000
Mean	0.0002
Median	0.0001
Mode	---
Standard Deviation	0.0006
Variance	0.0000
Skewness	14.31
Kurtosis	368.02
Coeff. of Variability	2.84
Minimum	0.0000
Maximum	0.0247
Range Width	0.0247
Mean Std. Error	0.0000

Forecast: HI-Selenium-Soil/Dust-Residential Child-Tadanac (cont'd) **Cell: F60**

Percentiles:	Forecast values
1%	0.0000
5%	0.0000
10%	0.0000
25%	0.0000
50%	0.0001
75%	0.0002
90%	0.0005
95%	0.0009
99%	0.0024

Forecast: HI-Selenium-Soil/Dust-Residential Child-Waneta **Cell: G60**

Summary:
Entire range is from 0.0000 to 0.0094
Base case is 0.0002
After 10,000 trials, the std. error of the mean is 0.0000



Forecast: HI-Selenium-Soil/Dust-Residential Child-Waneta (cont'd) **Cell: G60**

Statistics:	Forecast values
Trials	10,000
Mean	0.0002
Median	0.0001
Mode	---
Standard Deviation	0.0004
Variance	0.0000
Skewness	7.74
Kurtosis	108.37
Coeff. of Variability	2.05
Minimum	0.0000
Maximum	0.0094
Range Width	0.0094
Mean Std. Error	0.0000

Percentiles:	Forecast values
1%	0.0000
5%	0.0000
10%	0.0000
25%	0.0000
50%	0.0001
75%	0.0002
90%	0.0004
95%	0.0007
99%	0.0017

Forecast: HI-Selenium-Soil/Dust-Residential Child-West Trail **Cell: H60**

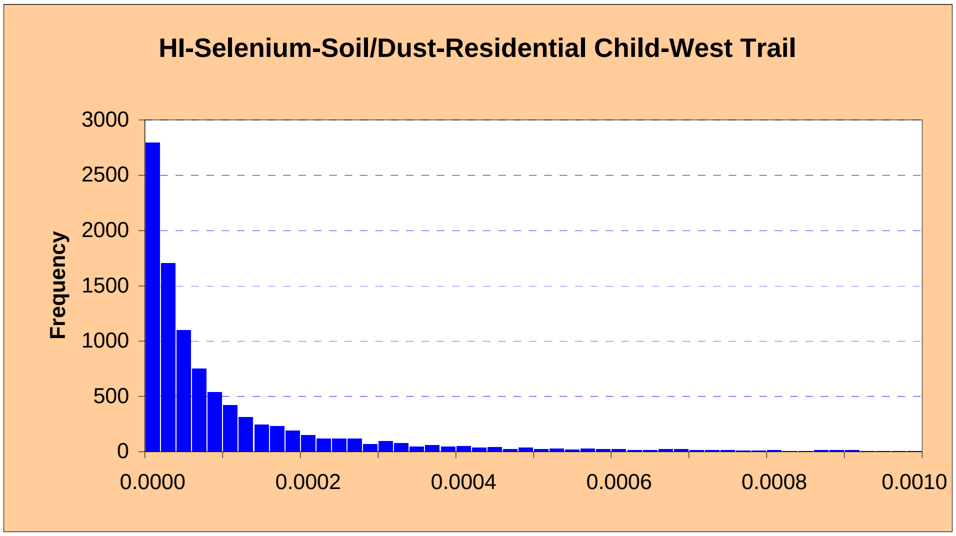
Summary:

Entire range is from 0.0000 to 0.0089

Base case is 0.0001

After 10,000 trials, the std. error of the mean is 0.0000

Forecast: HI-Selenium-Soil/Dust-Residential Child-West Trail (cont'd) **Cell: H60**

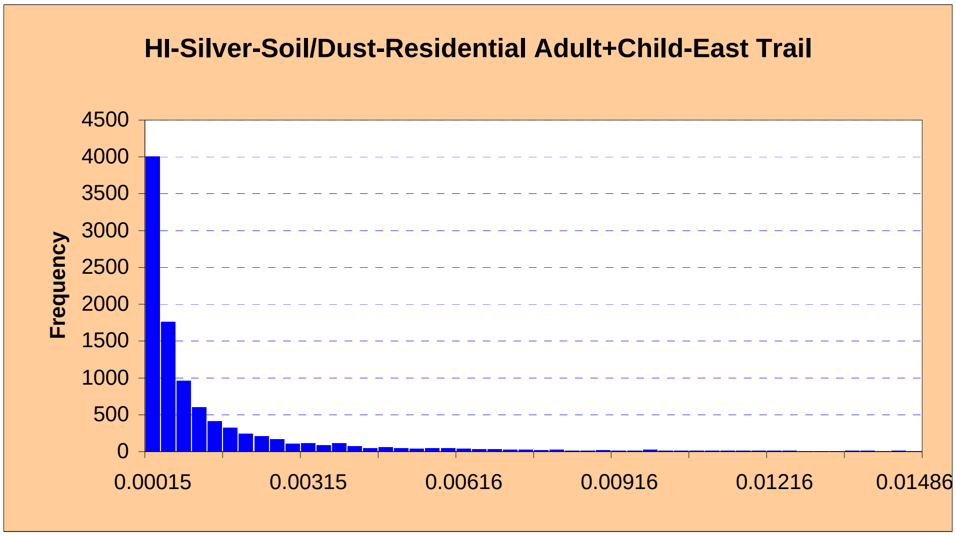


Statistics:	Forecast values
Trials	10,000
Mean	0.0001
Median	0.0000
Mode	---
Standard Deviation	0.0003
Variance	0.0000
Skewness	9.38
Kurtosis	160.66
Coeff. of Variability	2.25
Minimum	0.0000
Maximum	0.0089
Range Width	0.0089
Mean Std. Error	0.0000

Percentiles:	Forecast values
1%	0.0000
5%	0.0000
10%	0.0000
25%	0.0000
50%	0.0000
75%	0.0001
90%	0.0003
95%	0.0006
99%	0.0013

Forecast: HI-Silver-Soil/Dust-Residential Adult+Child-East Trail **Cell: D40**

Summary:
Entire range is from 0.00000 to 0.12350
Base case is 0.00096
After 10,000 trials, the std. error of the mean is 0.00005



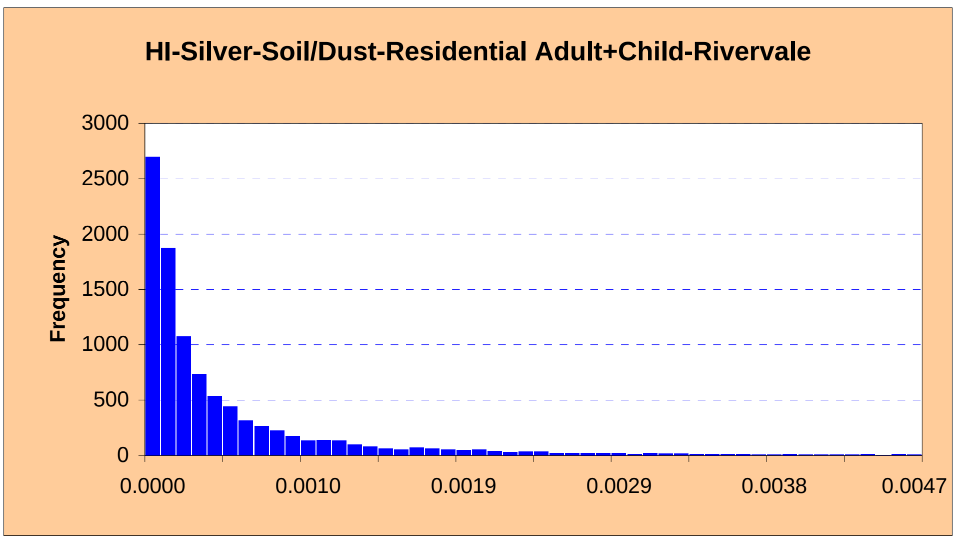
Statistics:	Forecast values
Trials	10,000
Mean	0.00165
Median	0.00044
Mode	---
Standard Deviation	0.00477
Variance	0.00002
Skewness	11.12
Kurtosis	189.67
Coeff. of Variability	2.90
Minimum	0.00000
Maximum	0.12350
Range Width	0.12350
Mean Std. Error	0.00005

Forecast: HI-Silver-Soil/Dust-Residential Adult+Child-East Trail (cont'd) **Cell: D40**

Percentiles:	Forecast values
1%	0.00001
5%	0.00004
10%	0.00007
25%	0.00016
50%	0.00044
75%	0.00131
90%	0.00366
95%	0.00652
99%	0.01969

Forecast: HI-Silver-Soil/Dust-Residential Adult+Child-Rivervale **Cell: E40**

Summary:
Entire range is from 0.0000 to 0.0389
Base case is 0.0004
After 10,000 trials, the std. error of the mean is 0.0000



Forecast: HI-Silver-Soil/Dust-Residential Adult+Child-Rivervale (cont'd) **Cell: E40**

Statistics:	Forecast values
Trials	10,000
Mean	0.0007
Median	0.0002
Mode	---
Standard Deviation	0.0015
Variance	0.0000
Skewness	7.37
Kurtosis	98.81
Coeff. of Variability	2.20
Minimum	0.0000
Maximum	0.0389
Range Width	0.0389
Mean Std. Error	0.0000

Percentiles:	Forecast values
1%	0.0000
5%	0.0000
10%	0.0000
25%	0.0001
50%	0.0002
75%	0.0006
90%	0.0015
95%	0.0027
99%	0.0071

Forecast: HI-Silver-Soil/Dust-Residential Adult+Child-Tadanac **Cell: F40**

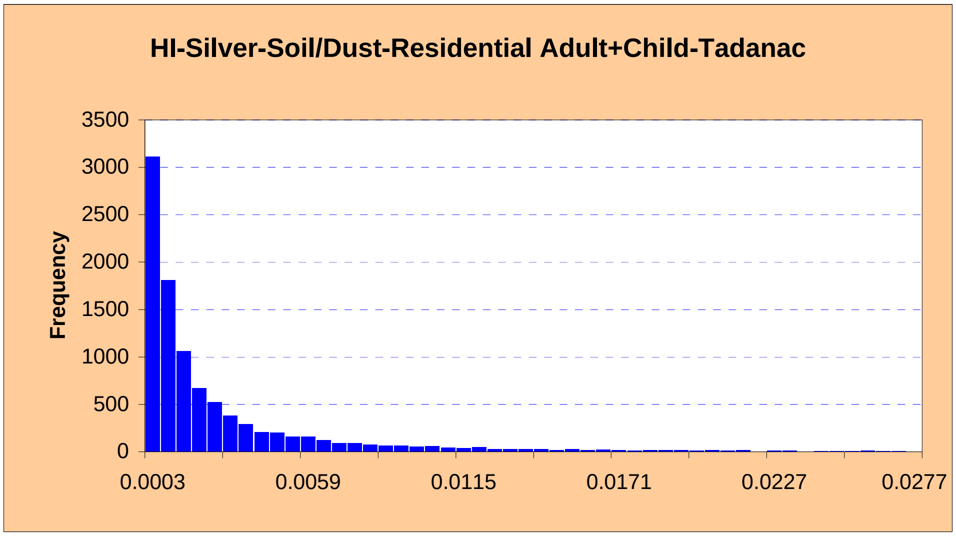
Summary:

Entire range is from 0.0000 to 0.2321

Base case is 0.0021

After 10,000 trials, the std. error of the mean is 0.0001

Forecast: HI-Silver-Soil/Dust-Residential Adult+Child-Tadanac (cont'd) **Cell: F40**

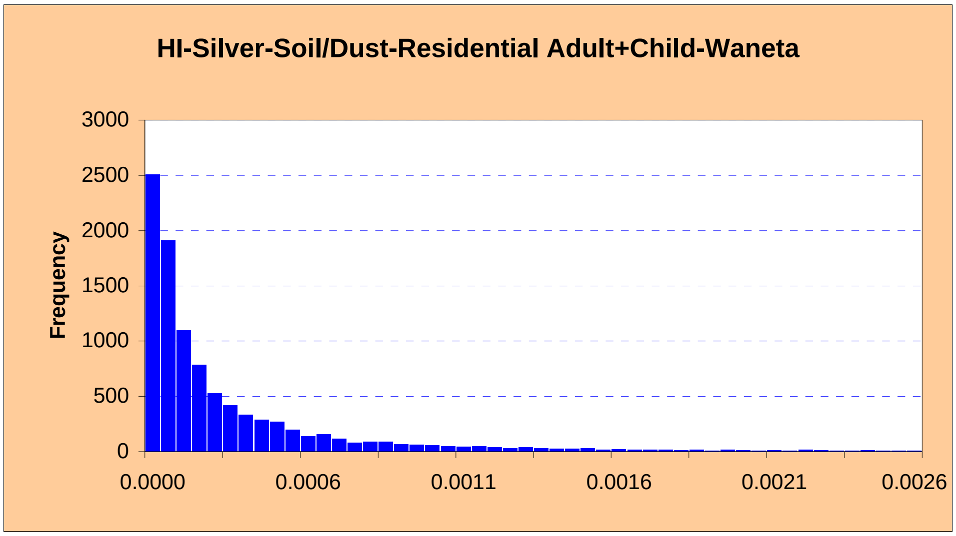


Statistics:	Forecast values
Trials	10,000
Mean	0.0037
Median	0.0012
Mode	---
Standard Deviation	0.0087
Variance	0.0001
Skewness	7.70
Kurtosis	105.76
Coeff. of Variability	2.33
Minimum	0.0000
Maximum	0.2321
Range Width	0.2321
Mean Std. Error	0.0001

Percentiles:	Forecast values
1%	0.0000
5%	0.0001
10%	0.0002
25%	0.0004
50%	0.0012
75%	0.0033
90%	0.0087
95%	0.0154
99%	0.0411

Forecast: HI-Silver-Soil/Dust-Residential Adult+Child-Waneta **Cell: G40**

Summary:
Entire range is from 0.0000 to 0.0312
Base case is 0.0002
After 10,000 trials, the std. error of the mean is 0.0000



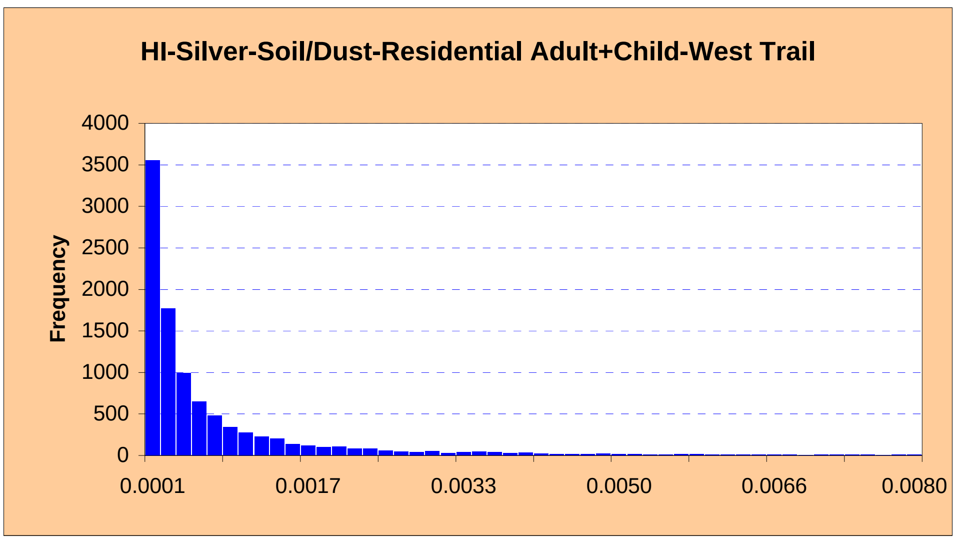
Statistics:	Forecast values
Trials	10,000
Mean	0.0004
Median	0.0001
Mode	---
Standard Deviation	0.0008
Variance	0.0000
Skewness	10.76
Kurtosis	271.82
Coeff. of Variability	2.19
Minimum	0.0000
Maximum	0.0312
Range Width	0.0312
Mean Std. Error	0.0000

Forecast: HI-Silver-Soil/Dust-Residential Adult+Child-Waneta (cont'd) **Cell: G40**

Percentiles:	Forecast values
1%	0.0000
5%	0.0000
10%	0.0000
25%	0.0001
50%	0.0001
75%	0.0004
90%	0.0008
95%	0.0015
99%	0.0037

Forecast: HI-Silver-Soil/Dust-Residential Adult+Child-West Trail **Cell: H40**

Summary:
Entire range is from 0.0000 to 0.1065
Base case is 0.0006
After 10,000 trials, the std. error of the mean is 0.0000



Forecast: HI-Silver-Soil/Dust-Residential Adult+Child-West Trail (cont'd) **Cell: H40**

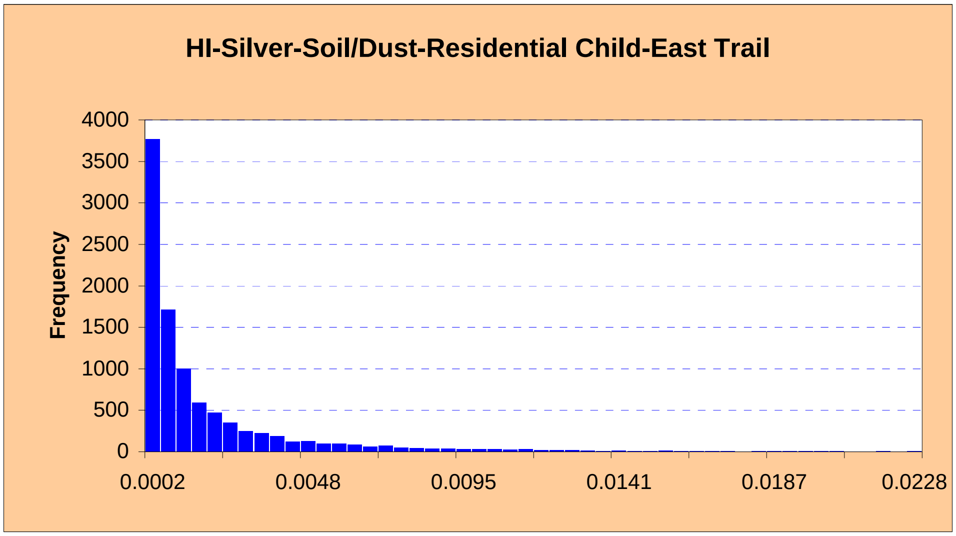
Statistics:	Forecast values
Trials	10,000
Mean	0.0010
Median	0.0003
Mode	---
Standard Deviation	0.0026
Variance	0.0000
Skewness	12.95
Kurtosis	363.84
Coeff. of Variability	2.63
Minimum	0.0000
Maximum	0.1065
Range Width	0.1065
Mean Std. Error	0.0000

Percentiles:	Forecast values
1%	0.0000
5%	0.0000
10%	0.0000
25%	0.0001
50%	0.0003
75%	0.0008
90%	0.0022
95%	0.0039
99%	0.0110

Forecast: HI-Silver-Soil/Dust-Residential Child-East Trail **Cell: D61**

Summary:
Entire range is from 0.0000 to 0.2064
Base case is 0.0024
After 10,000 trials, the std. error of the mean is 0.0001

Forecast: HI-Silver-Soil/Dust-Residential Child-East Trail (cont'd) **Cell: D61**

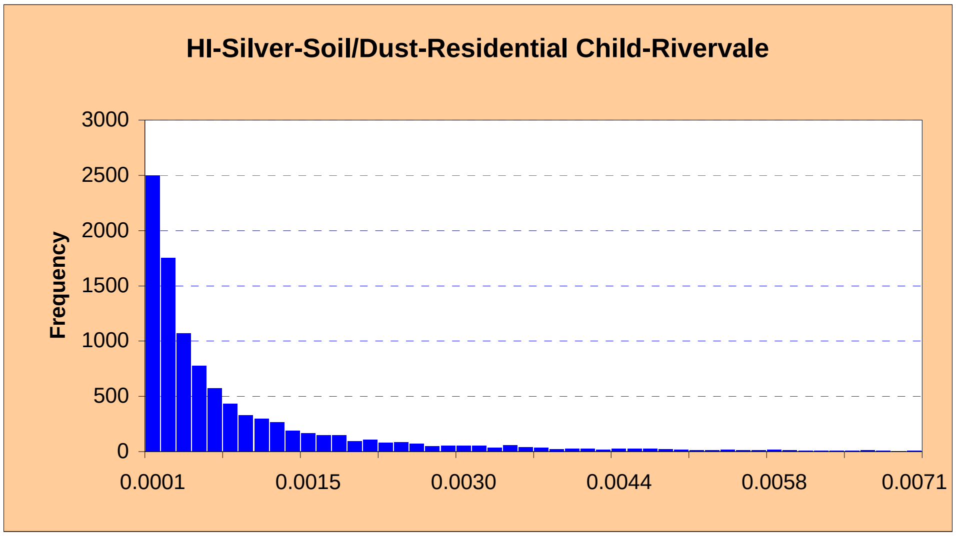


Statistics:	Forecast values
Trials	10,000
Mean	0.0026
Median	0.0008
Mode	---
Standard Deviation	0.0073
Variance	0.0001
Skewness	11.95
Kurtosis	231.47
Coeff. of Variability	2.80
Minimum	0.0000
Maximum	0.2064
Range Width	0.2064
Mean Std. Error	0.0001

Percentiles:	Forecast values
1%	0.0000
5%	0.0001
10%	0.0001
25%	0.0003
50%	0.0008
75%	0.0023
90%	0.0059
95%	0.0104
99%	0.0288

Forecast: HI-Silver-Soil/Dust-Residential Child-Rivervale **Cell: E61**

Summary:
Entire range is from 0.0000 to 0.0545
Base case is 0.0010
After 10,000 trials, the std. error of the mean is 0.0000



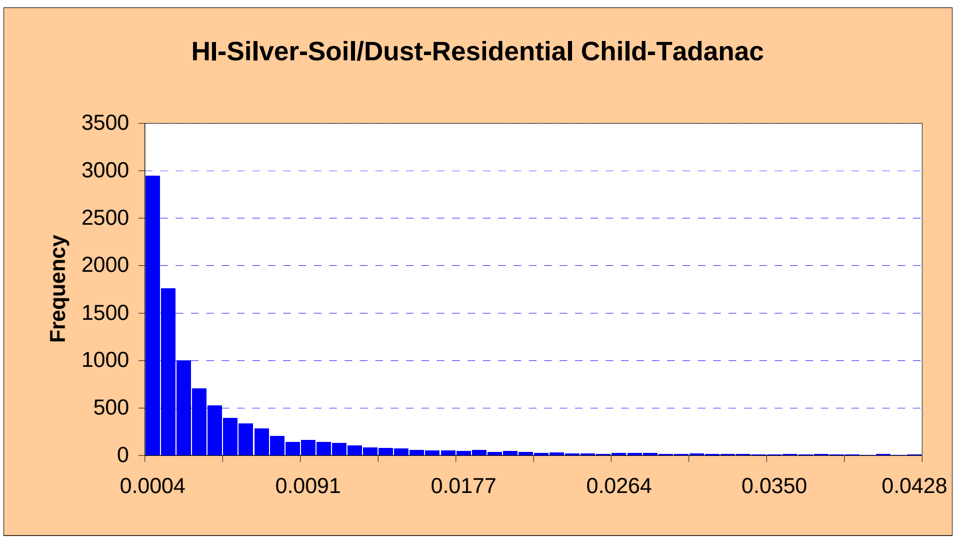
Statistics:	Forecast values
Trials	10,000
Mean	0.0011
Median	0.0004
Mode	---
Standard Deviation	0.0022
Variance	0.0000
Skewness	7.08
Kurtosis	88.83
Coeff. of Variability	2.09
Minimum	0.0000
Maximum	0.0545
Range Width	0.0545
Mean Std. Error	0.0000

Forecast: HI-Silver-Soil/Dust-Residential Child-Rivervale (cont'd) **Cell: E61**

Percentiles:	Forecast values
1%	0.0000
5%	0.0000
10%	0.0001
25%	0.0001
50%	0.0004
75%	0.0010
90%	0.0025
95%	0.0041
99%	0.0108

Forecast: HI-Silver-Soil/Dust-Residential Child-Tadanac **Cell: F61**

Summary:
Entire range is from 0.0000 to 0.2590
Base case is 0.0052
After 10,000 trials, the std. error of the mean is 0.0001



Forecast: HI-Silver-Soil/Dust-Residential Child-Tadanac (cont'd) **Cell: F61**

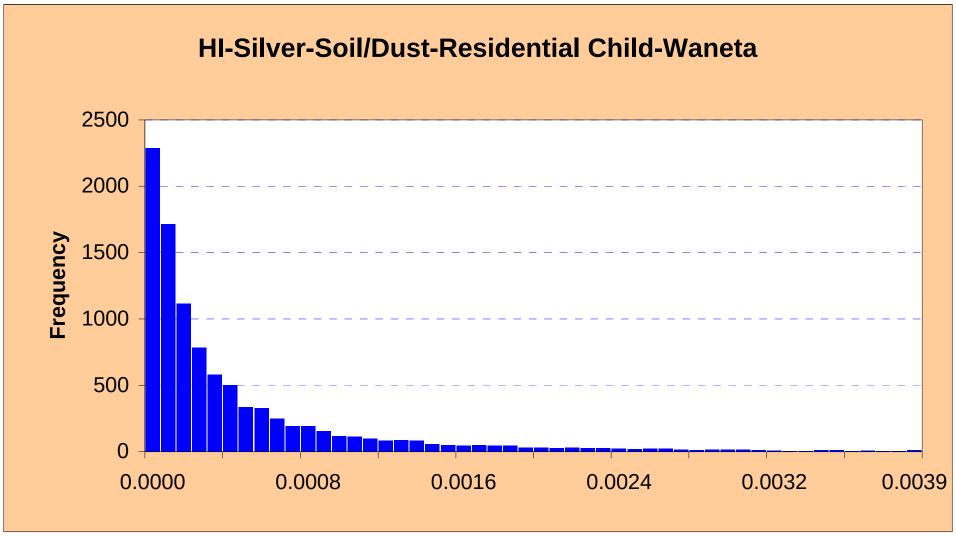
Statistics:	Forecast values
Trials	10,000
Mean	0.0059
Median	0.0020
Mode	---
Standard Deviation	0.0133
Variance	0.0002
Skewness	7.21
Kurtosis	81.78
Coeff. of Variability	2.24
Minimum	0.0000
Maximum	0.2590
Range Width	0.2590
Mean Std. Error	0.0001

Percentiles:	Forecast values
1%	0.0000
5%	0.0002
10%	0.0003
25%	0.0007
50%	0.0020
75%	0.0056
90%	0.0139
95%	0.0237
99%	0.0628

Forecast: HI-Silver-Soil/Dust-Residential Child-Waneta **Cell: G61**

Summary:
Entire range is from 0.0000 to 0.0312
Base case is 0.0006
After 10,000 trials, the std. error of the mean is 0.0000

Forecast: HI-Silver-Soil/Dust-Residential Child-Waneta (cont'd) Cell: G61

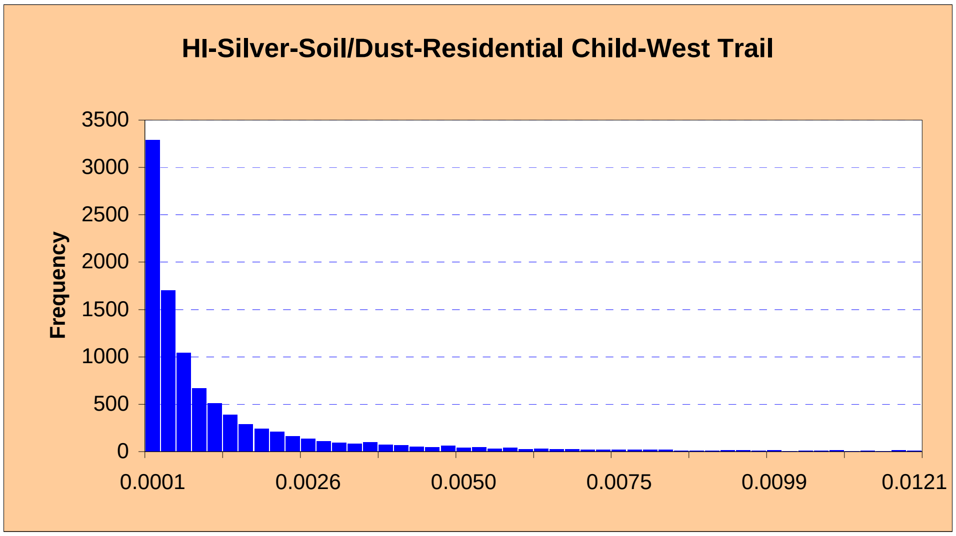


Statistics:	Forecast values
Trials	10,000
Mean	0.0006
Median	0.0002
Mode	---
Standard Deviation	0.0012
Variance	0.0000
Skewness	7.74
Kurtosis	108.37
Coeff. of Variability	2.05
Minimum	0.0000
Maximum	0.0312
Range Width	0.0312
Mean Std. Error	0.0000

Percentiles:	Forecast values
1%	0.0000
5%	0.0000
10%	0.0000
25%	0.0001
50%	0.0002
75%	0.0006
90%	0.0014
95%	0.0023
99%	0.0055

Forecast: HI-Silver-Soil/Dust-Residential Child-West Trail **Cell: H61**

Summary:
Entire range is from 0.0000 to 0.1065
Base case is 0.0015
After 10,000 trials, the std. error of the mean is 0.0000



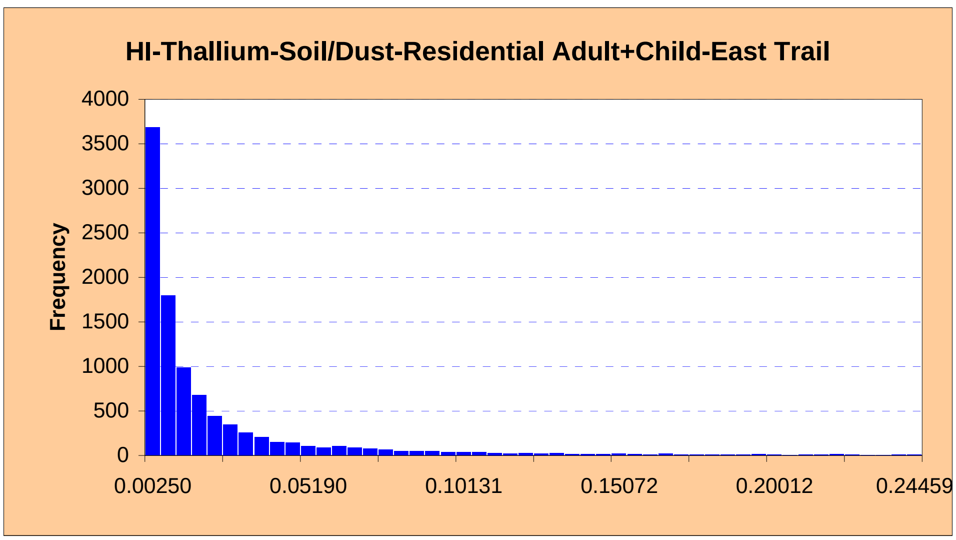
Statistics:	Forecast values
Trials	10,000
Mean	0.0016
Median	0.0005
Mode	---
Standard Deviation	0.0038
Variance	0.0000
Skewness	9.10
Kurtosis	140.09
Coeff. of Variability	2.45
Minimum	0.0000
Maximum	0.1065
Range Width	0.1065
Mean Std. Error	0.0000

Forecast: HI-Silver-Soil/Dust-Residential Child-West Trail (cont'd) **Cell: H61**

Percentiles:	Forecast values
1%	0.0000
5%	0.0000
10%	0.0001
25%	0.0002
50%	0.0005
75%	0.0014
90%	0.0036
95%	0.0061
99%	0.0178

Forecast: HI-Thallium-Soil/Dust-Residential Adult+Child-East Trail **Cell: D41**

Summary:
Entire range is from 0.00003 to 2.24099
Base case is 0.01768
After 10,000 trials, the std. error of the mean is 0.00078



Forecast: HI-Thallium-Soil/Dust-Residential Adult+Child-East Trail (cont'd) **Cell: D41**

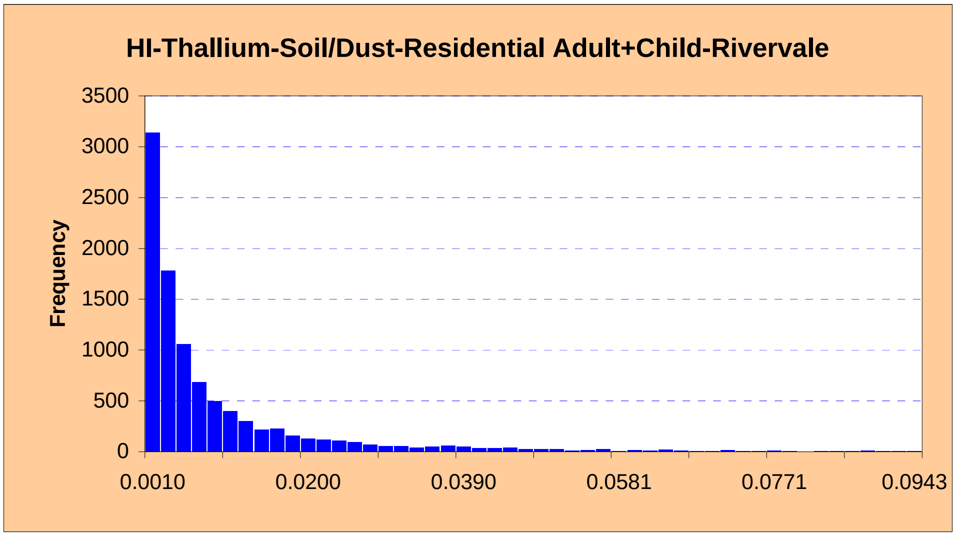
Statistics:	Forecast values
Trials	10,000
Mean	0.02848
Median	0.00824
Mode	---
Standard Deviation	0.07806
Variance	0.00609
Skewness	10.53
Kurtosis	181.83
Coeff. of Variability	2.74
Minimum	0.00003
Maximum	2.24099
Range Width	2.24096
Mean Std. Error	0.00078

Percentiles:	Forecast values
1%	0.00031
5%	0.00082
10%	0.00130
25%	0.00303
50%	0.00823
75%	0.02353
90%	0.06434
95%	0.11192
99%	0.32673

Forecast: HI-Thallium-Soil/Dust-Residential Adult+Child-Rivervale **Cell: E41**

Summary:
Entire range is from 0.0000 to 0.9995
Base case is 0.0077
After 10,000 trials, the std. error of the mean is 0.0003

Forecast: HI-Thallium-Soil/Dust-Residential Adult+Child-Rivervale (cont'd) **Cell: E41**

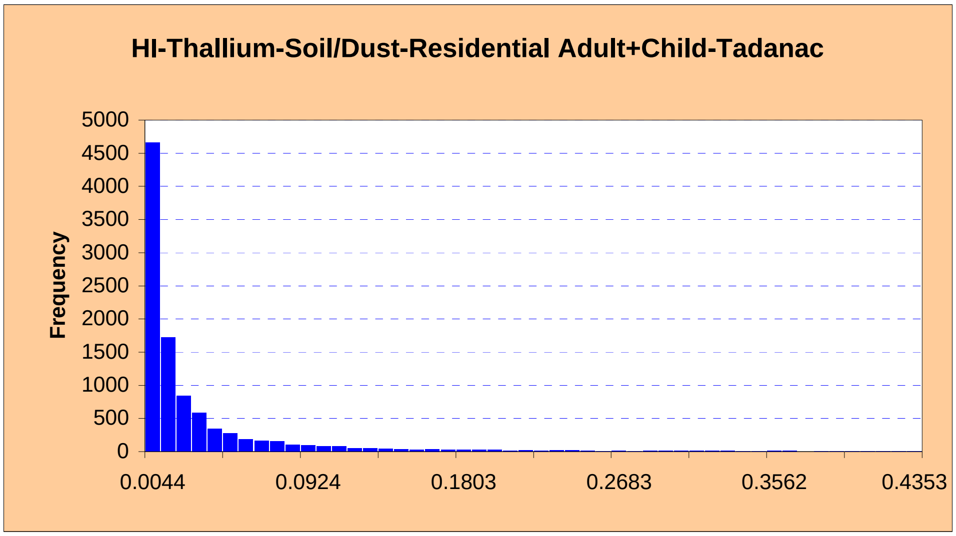


Statistics:	Forecast values
Trials	10,000
Mean	0.0124
Median	0.0039
Mode	---
Standard Deviation	0.0296
Variance	0.0009
Skewness	9.49
Kurtosis	185.42
Coeff. of Variability	2.38
Minimum	0.0000
Maximum	0.9995
Range Width	0.9995
Mean Std. Error	0.0003

Percentiles:	Forecast values
1%	0.0002
5%	0.0004
10%	0.0006
25%	0.0015
50%	0.0039
75%	0.0111
90%	0.0284
95%	0.0505
99%	0.1345

Forecast: HI-Thallium-Soil/Dust-Residential Adult+Child-Tadanac **Cell: F41**

Summary:
Entire range is from 0.0000 to 6.0080
Base case is 0.0229
After 10,000 trials, the std. error of the mean is 0.0014



Statistics:	Forecast values
Trials	10,000
Mean	0.0395
Median	0.0100
Mode	---
Standard Deviation	0.1429
Variance	0.0204
Skewness	18.99
Kurtosis	560.61
Coeff. of Variability	3.62
Minimum	0.0000
Maximum	6.0080
Range Width	6.0080
Mean Std. Error	0.0014

Forecast: HI-Thallium-Soil/Dust-Residential Adult+Child-Tadanac (cont'd) **Cell: F41**

Percentiles:	Forecast values
1%	0.0003
5%	0.0009
10%	0.0015
25%	0.0037
50%	0.0100
75%	0.0299
90%	0.0843
95%	0.1554
99%	0.4343

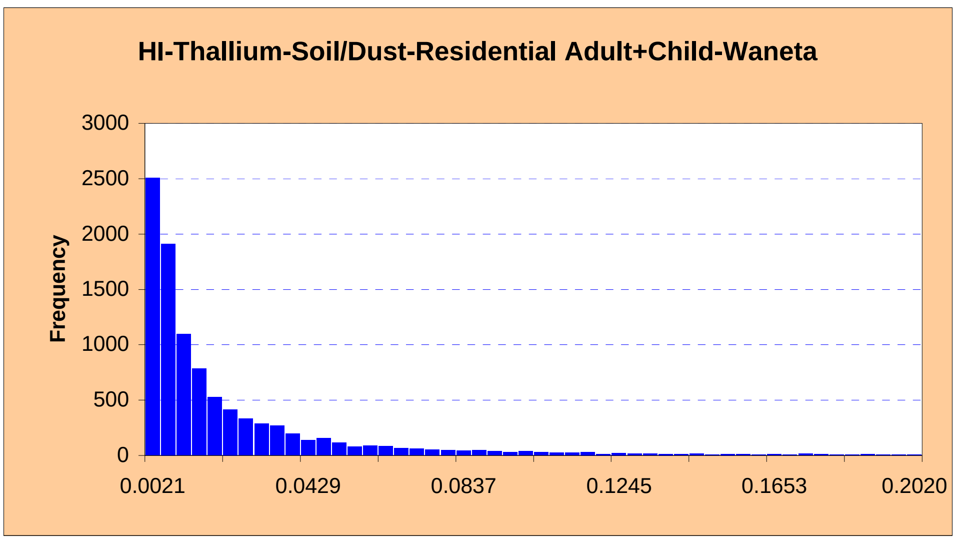
Forecast: HI-Thallium-Soil/Dust-Residential Adult+Child-Waneta **Cell: G41**

Summary:

Entire range is from 0.0001 to 2.4294

Base case is 0.0170

After 10,000 trials, the std. error of the mean is 0.0006



Forecast: HI-Thallium-Soil/Dust-Residential Adult+Child-Waneta (cont'd) **Cell: G41**

Statistics:	Forecast values
Trials	10,000
Mean	0.0286
Median	0.0101
Mode	---
Standard Deviation	0.0627
Variance	0.0039
Skewness	10.76
Kurtosis	271.82
Coeff. of Variability	2.19
Minimum	0.0001
Maximum	2.4294
Range Width	2.4294
Mean Std. Error	0.0006

Percentiles:	Forecast values
1%	0.0005
5%	0.0012
10%	0.0020
25%	0.0041
50%	0.0101
75%	0.0278
90%	0.0658
95%	0.1128
99%	0.2887

Forecast: HI-Thallium-Soil/Dust-Residential Adult+Child-West Trail **Cell: H41**

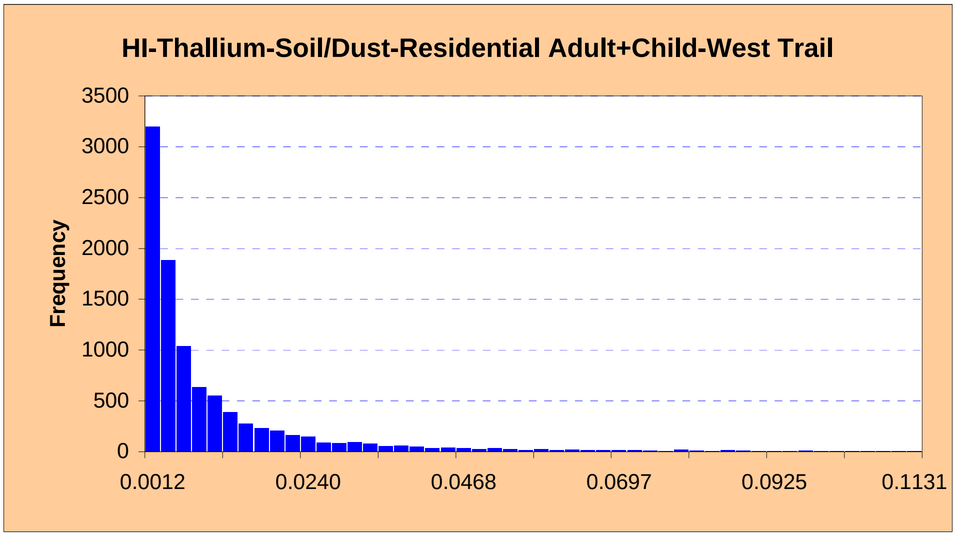
Summary:

Entire range is from 0.0000 to 1.4653

Base case is 0.0083

After 10,000 trials, the std. error of the mean is 0.0004

Forecast: HI-Thallium-Soil/Dust-Residential Adult+Child-West Trail (cont'd) **Cell: H41**

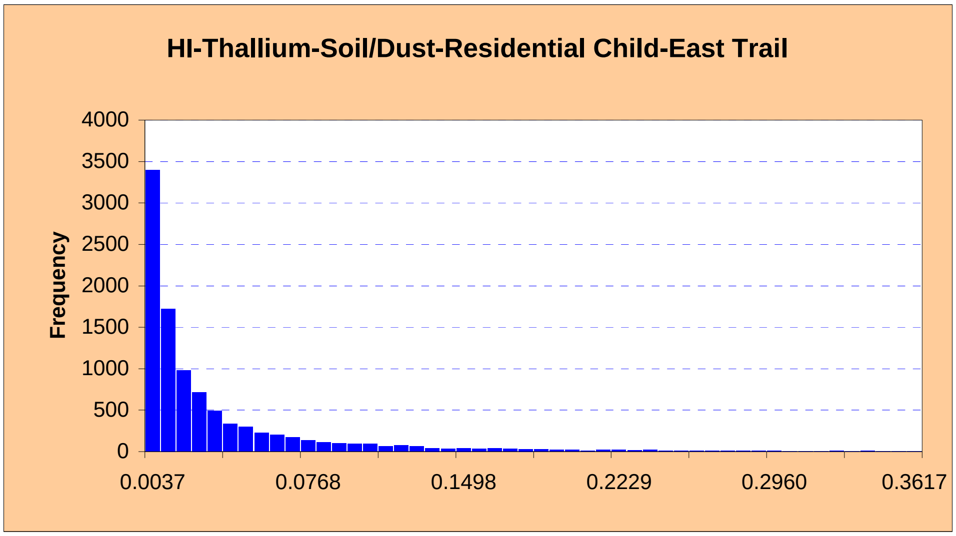


Statistics:	Forecast values
Trials	10,000
Mean	0.0140
Median	0.0045
Mode	---
Standard Deviation	0.0358
Variance	0.0013
Skewness	14.08
Kurtosis	409.32
Coeff. of Variability	2.56
Minimum	0.0000
Maximum	1.4653
Range Width	1.4653
Mean Std. Error	0.0004

Percentiles:	Forecast values
1%	0.0002
5%	0.0005
10%	0.0008
25%	0.0017
50%	0.0045
75%	0.0124
90%	0.0313
95%	0.0569
99%	0.1516

Forecast: HI-Thallium-Soil/Dust-Residential Child-East Trail **Cell: D62**

Summary:
Entire range is from 0.0000 to 2.6237
Base case is 0.0448
After 10,000 trials, the std. error of the mean is 0.0011



Statistics:	Forecast values
Trials	10,000
Mean	0.0452
Median	0.0139
Mode	---
Standard Deviation	0.1144
Variance	0.0131
Skewness	8.90
Kurtosis	123.75
Coeff. of Variability	2.53
Minimum	0.0000
Maximum	2.6237
Range Width	2.6236
Mean Std. Error	0.0011

Forecast: HI-Thallium-Soil/Dust-Residential Child-East Trail (cont'd) **Cell: D62**

Percentiles:	Forecast values
1%	0.0004
5%	0.0011
10%	0.0020
25%	0.0050
50%	0.0139
75%	0.0403
90%	0.1037
95%	0.1740
99%	0.5333

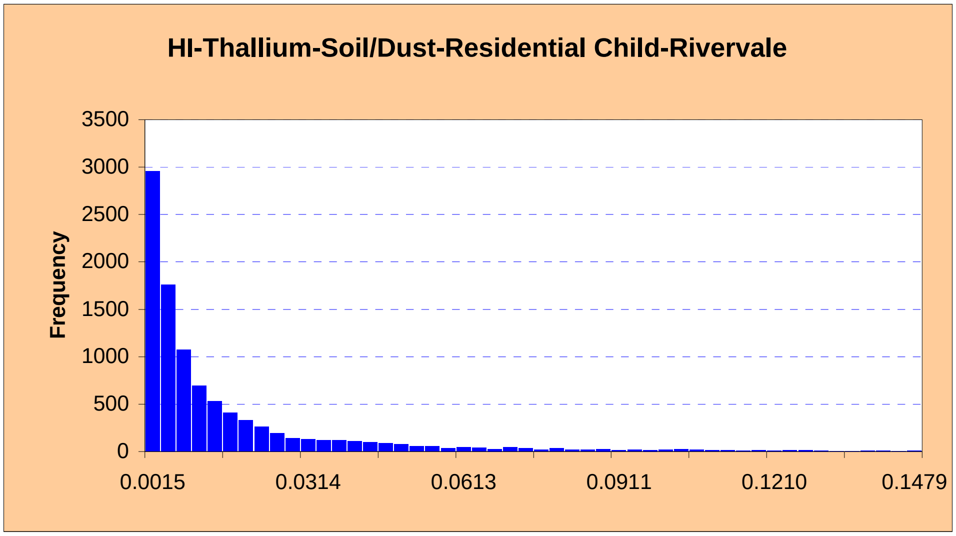
Forecast: HI-Thallium-Soil/Dust-Residential Child-Rivervale **Cell: E62**

Summary:

Entire range is from 0.0000 to 1.4259

Base case is 0.0196

After 10,000 trials, the std. error of the mean is 0.0005



Forecast: HI-Thallium-Soil/Dust-Residential Child-Rivervale (cont'd) **Cell: E62**

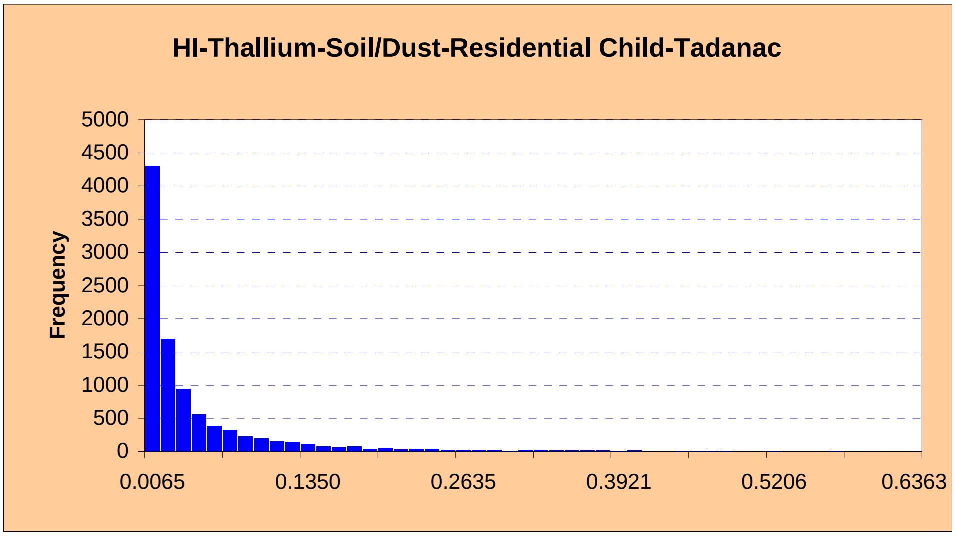
Statistics:	Forecast values
Trials	10,000
Mean	0.0201
Median	0.0067
Mode	---
Standard Deviation	0.0462
Variance	0.0021
Skewness	9.18
Kurtosis	163.28
Coeff. of Variability	2.30
Minimum	0.0000
Maximum	1.4259
Range Width	1.4259
Mean Std. Error	0.0005

Percentiles:	Forecast values
1%	0.0002
5%	0.0005
10%	0.0010
25%	0.0024
50%	0.0067
75%	0.0185
90%	0.0469
95%	0.0814
99%	0.2130

Forecast: HI-Thallium-Soil/Dust-Residential Child-Tadanac **Cell: F62**

Summary:
Entire range is from 0.0000 to 6.5875
Base case is 0.0580
After 10,000 trials, the std. error of the mean is 0.0021

Forecast: HI-Thallium-Soil/Dust-Residential Child-Tadanac (cont'd) **Cell: F62**

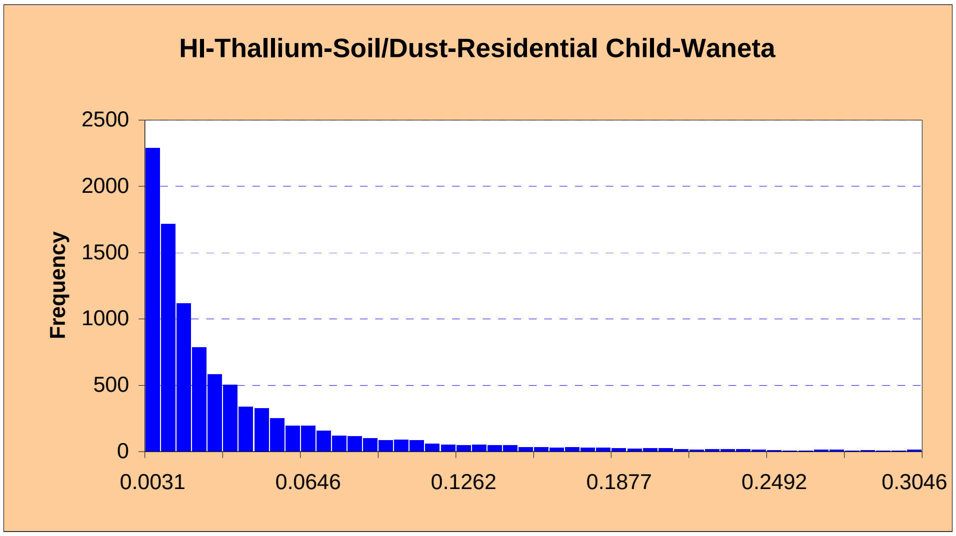


Statistics:	Forecast values
Trials	10,000
Mean	0.0626
Median	0.0169
Mode	---
Standard Deviation	0.2072
Variance	0.0429
Skewness	15.29
Kurtosis	347.41
Coeff. of Variability	3.31
Minimum	0.0000
Maximum	6.5875
Range Width	6.5875
Mean Std. Error	0.0021

Percentiles:	Forecast values
1%	0.0004
5%	0.0013
10%	0.0023
25%	0.0061
50%	0.0169
75%	0.0511
90%	0.1332
95%	0.2359
99%	0.6809

Forecast: HI-Thallium-Soil/Dust-Residential Child-Waneta **Cell: G62**

Summary:
Entire range is from 0.0001 to 2.4287
Base case is 0.0430
After 10,000 trials, the std. error of the mean is 0.0009



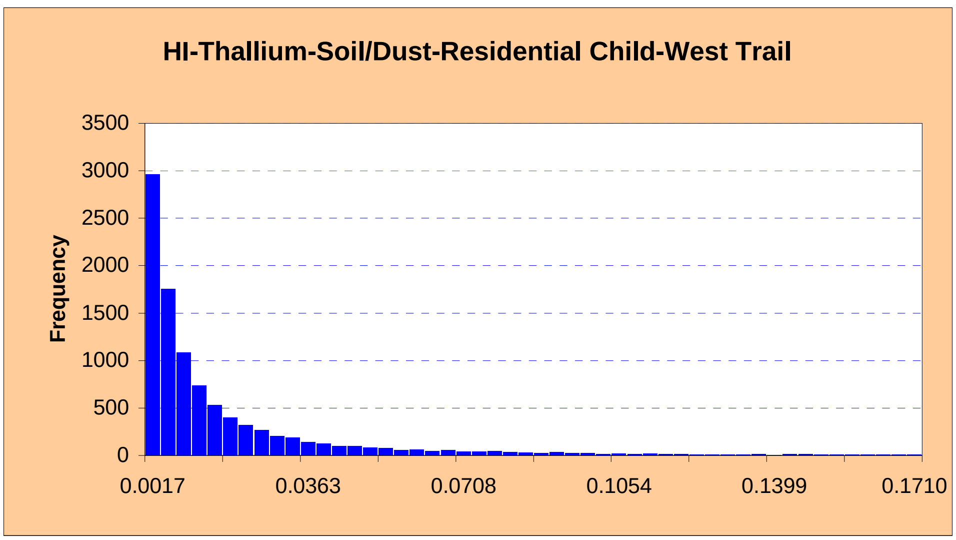
Statistics:	Forecast values
Trials	10,000
Mean	0.0457
Median	0.0177
Mode	---
Standard Deviation	0.0936
Variance	0.0088
Skewness	7.74
Kurtosis	108.37
Coeff. of Variability	2.05
Minimum	0.0001
Maximum	2.4287
Range Width	2.4286
Mean Std. Error	0.0009

Forecast: HI-Thallium-Soil/Dust-Residential Child-Waneta (cont'd) **Cell: G62**

Percentiles:	Forecast values
1%	0.0007
5%	0.0017
10%	0.0029
25%	0.0068
50%	0.0177
75%	0.0464
90%	0.1074
95%	0.1768
99%	0.4287

Forecast: HI-Thallium-Soil/Dust-Residential Child-West Trail **Cell: H62**

Summary:
Entire range is from 0.0000 to 1.4648
Base case is 0.0211
After 10,000 trials, the std. error of the mean is 0.0005



Forecast: HI-Thallium-Soil/Dust-Residential Child-West Trail (cont'd) **Cell: H62**

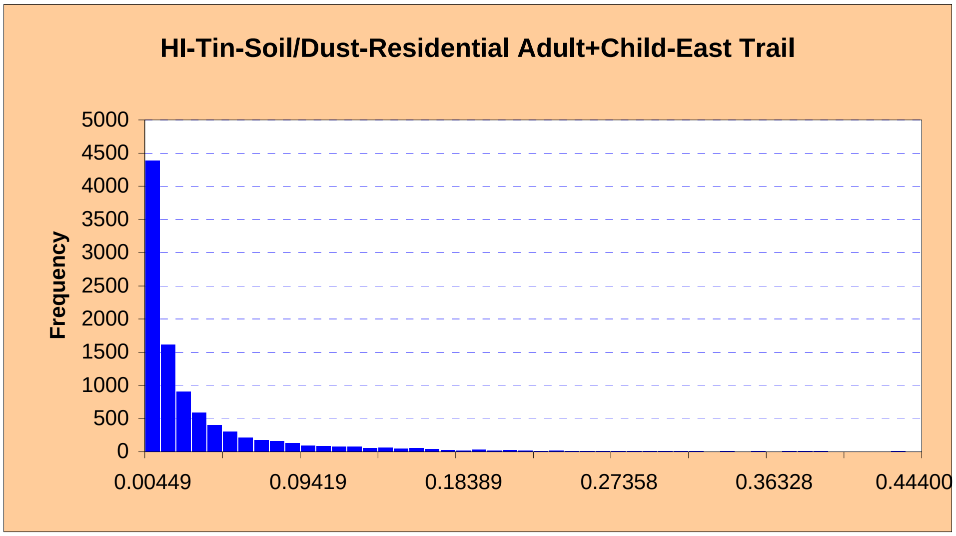
Statistics:	Forecast values
Trials	10,000
Mean	0.0224
Median	0.0078
Mode	---
Standard Deviation	0.0537
Variance	0.0029
Skewness	9.59
Kurtosis	154.73
Coeff. of Variability	2.39
Minimum	0.0000
Maximum	1.4648
Range Width	1.4648
Mean Std. Error	0.0005

Percentiles:	Forecast values
1%	0.0003
5%	0.0007
10%	0.0011
25%	0.0029
50%	0.0078
75%	0.0209
90%	0.0517
95%	0.0867
99%	0.2263

Forecast: HI-Tin-Soil/Dust-Residential Adult+Child-East Trail **Cell: D42**

Summary:
Entire range is from 0.00001 to 6.30879
Base case is 0.02608
After 10,000 trials, the std. error of the mean is 0.00144

Forecast: HI-Tin-Soil/Dust-Residential Adult+Child-East Trail (cont'd) **Cell: D42**

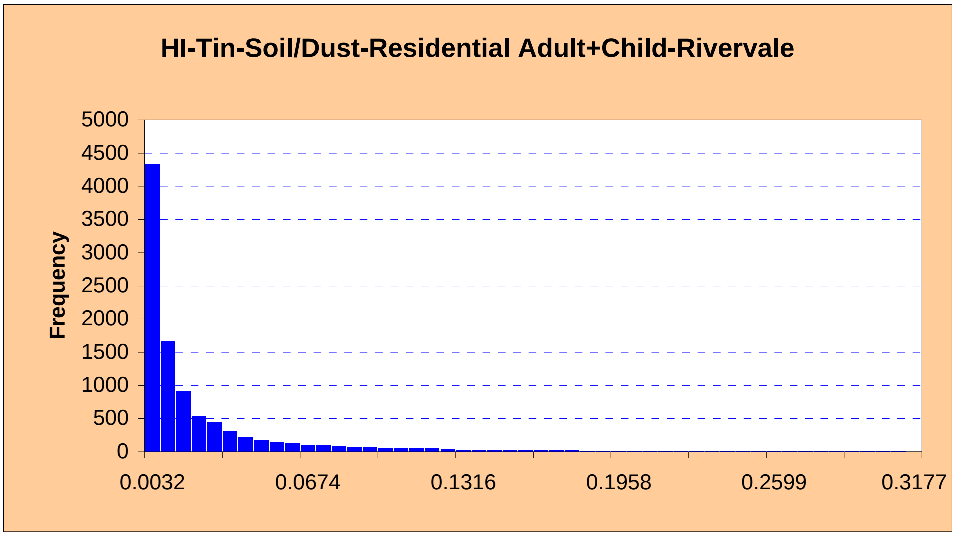


Statistics:	Forecast values
Trials	10,000
Mean	0.04517
Median	0.01165
Mode	---
Standard Deviation	0.14404
Variance	0.02075
Skewness	17.28
Kurtosis	525.64
Coeff. of Variability	3.19
Minimum	0.00001
Maximum	6.30879
Range Width	6.30879
Mean Std. Error	0.00144

Percentiles:	Forecast values
1%	0.00025
5%	0.00077
10%	0.00140
25%	0.00381
50%	0.01165
75%	0.03591
90%	0.10021
95%	0.17688
99%	0.53332

Forecast: HI-Tin-Soil/Dust-Residential Adult+Child-Rivervale **Cell: E42**

Summary:
Entire range is from 0.0000 to 4.3361
Base case is 0.0202
After 10,000 trials, the std. error of the mean is 0.0010



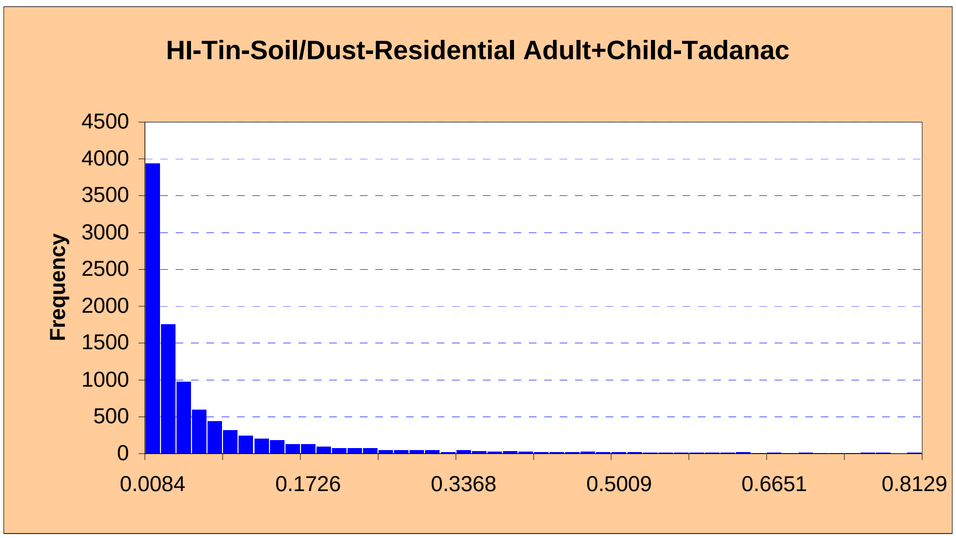
Statistics:	Forecast values
Trials	10,000
Mean	0.0328
Median	0.0085
Mode	---
Standard Deviation	0.1029
Variance	0.0106
Skewness	15.40
Kurtosis	444.03
Coeff. of Variability	3.14
Minimum	0.0000
Maximum	4.3361
Range Width	4.3360
Mean Std. Error	0.0010

Forecast: HI-Tin-Soil/Dust-Residential Adult+Child-Rivervale (cont'd) **Cell: E42**

Percentiles:	Forecast values
1%	0.0003
5%	0.0007
10%	0.0012
25%	0.0029
50%	0.0085
75%	0.0262
90%	0.0709
95%	0.1262
99%	0.4078

Forecast: HI-Tin-Soil/Dust-Residential Adult+Child-Tadanac **Cell: F42**

Summary:
Entire range is from 0.0002 to 8.9565
Base case is 0.0538
After 10,000 trials, the std. error of the mean is 0.0026



Forecast: HI-Tin-Soil/Dust-Residential Adult+Child-Tadanac (cont'd) **Cell: F42**

Statistics:	Forecast values
Trials	10,000
Mean	0.0901
Median	0.0253
Mode	---
Standard Deviation	0.2611
Variance	0.0682
Skewness	13.90
Kurtosis	323.74
Coeff. of Variability	2.90
Minimum	0.0002
Maximum	8.9565
Range Width	8.9563
Mean Std. Error	0.0026

Percentiles:	Forecast values
1%	0.0009
5%	0.0023
10%	0.0039
25%	0.0091
50%	0.0253
75%	0.0735
90%	0.2018
95%	0.3772
99%	0.9769

Forecast: HI-Tin-Soil/Dust-Residential Adult+Child-Waneta **Cell: G42**

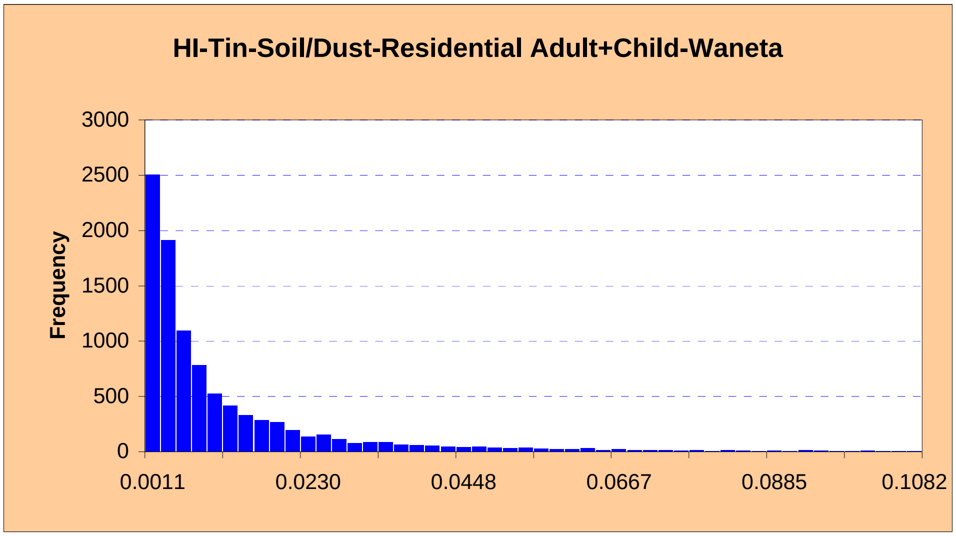
Summary:

Entire range is from 0.0000 to 1.3015

Base case is 0.0091

After 10,000 trials, the std. error of the mean is 0.0003

Forecast: HI-Tin-Soil/Dust-Residential Adult+Child-Waneta (cont'd) **Cell: G42**

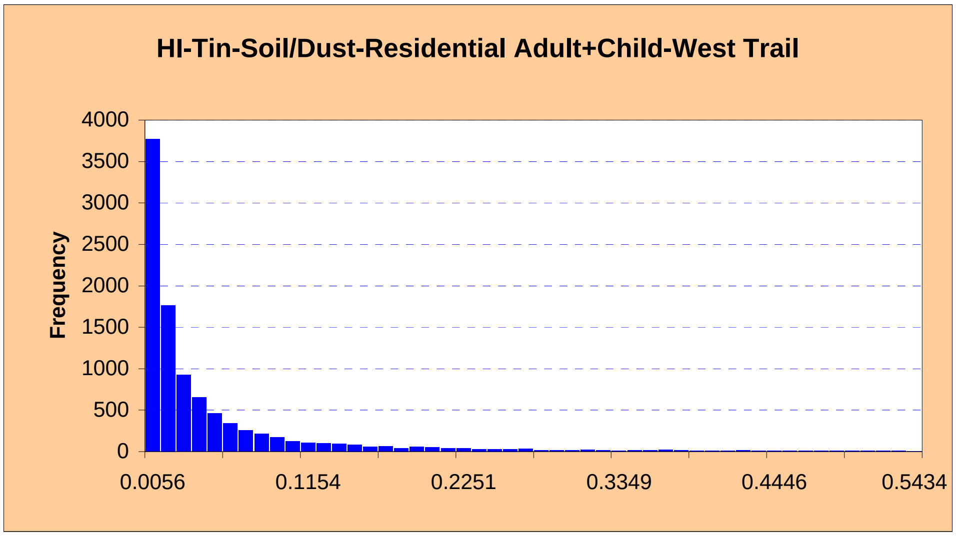


Statistics:	Forecast values
Trials	10,000
Mean	0.0153
Median	0.0054
Mode	---
Standard Deviation	0.0336
Variance	0.0011
Skewness	10.76
Kurtosis	271.82
Coeff. of Variability	2.19
Minimum	0.0000
Maximum	1.3015
Range Width	1.3015
Mean Std. Error	0.0003

Percentiles:	Forecast values
1%	0.0003
5%	0.0007
10%	0.0010
25%	0.0022
50%	0.0054
75%	0.0149
90%	0.0352
95%	0.0604
99%	0.1547

Forecast: HI-Tin-Soil/Dust-Residential Adult+Child-West Trail **Cell: H42**

Summary:
Entire range is from 0.0001 to 5.7721
Base case is 0.0390
After 10,000 trials, the std. error of the mean is 0.0017



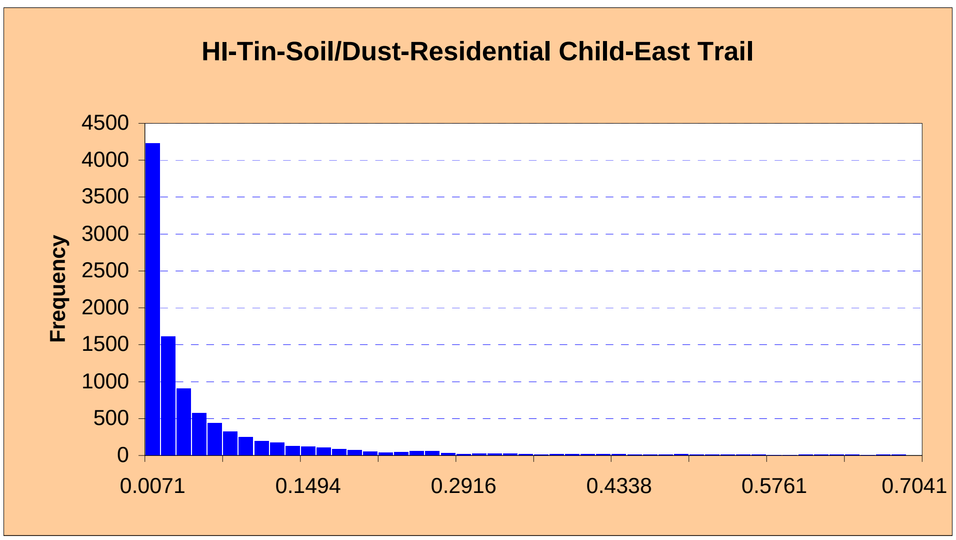
Statistics:	Forecast values
Trials	10,000
Mean	0.0642
Median	0.0180
Mode	---
Standard Deviation	0.1731
Variance	0.0300
Skewness	11.22
Kurtosis	229.91
Coeff. of Variability	2.70
Minimum	0.0001
Maximum	5.7721
Range Width	5.7720
Mean Std. Error	0.0017

Forecast: HI-Tin-Soil/Dust-Residential Adult+Child-West Trail (cont'd) **Cell: H42**

Percentiles:	Forecast values
1%	0.0007
5%	0.0016
10%	0.0027
25%	0.0065
50%	0.0180
75%	0.0530
90%	0.1458
95%	0.2599
99%	0.7331

Forecast: HI-Tin-Soil/Dust-Residential Child-East Trail **Cell: D63**

Summary:
Entire range is from 0.0000 to 7.7140
Base case is 0.0661
After 10,000 trials, the std. error of the mean is 0.0023



Forecast: HI-Tin-Soil/Dust-Residential Child-East Trail (cont'd) **Cell: D63**

Statistics:	Forecast values
Trials	10,000
Mean	0.0735
Median	0.0200
Mode	---
Standard Deviation	0.2278
Variance	0.0519
Skewness	14.27
Kurtosis	318.67
Coeff. of Variability	3.10
Minimum	0.0000
Maximum	7.7140
Range Width	7.7140
Mean Std. Error	0.0023

Percentiles:	Forecast values
1%	0.0003
5%	0.0011
10%	0.0021
25%	0.0062
50%	0.0200
75%	0.0623
90%	0.1616
95%	0.2815
99%	0.7982

Forecast: HI-Tin-Soil/Dust-Residential Child-Rivervale **Cell: E63**

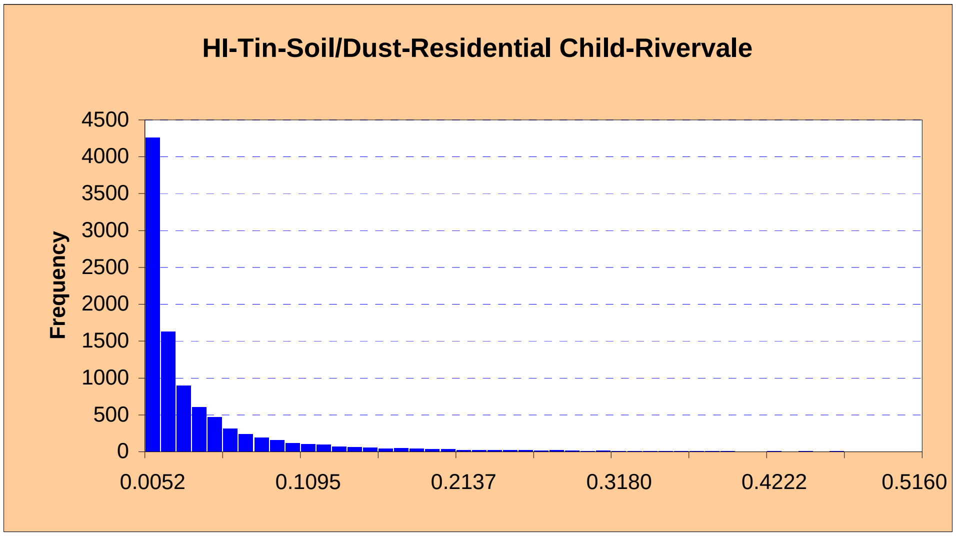
Summary:

Entire range is from 0.0000 to 7.4866

Base case is 0.0512

After 10,000 trials, the std. error of the mean is 0.0017

Forecast: HI-Tin-Soil/Dust-Residential Child-Rivervale (cont'd) **Cell: E63**

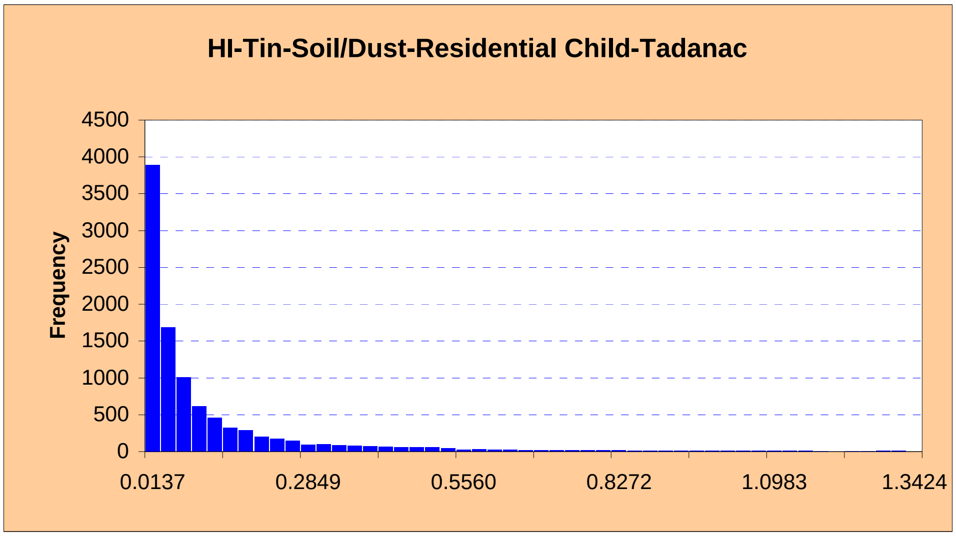


Statistics:	Forecast values
Trials	10,000
Mean	0.0530
Median	0.0142
Mode	---
Standard Deviation	0.1672
Variance	0.0280
Skewness	17.12
Kurtosis	533.13
Coeff. of Variability	3.15
Minimum	0.0000
Maximum	7.4866
Range Width	7.4866
Mean Std. Error	0.0017

Percentiles:	Forecast values
1%	0.0003
5%	0.0010
10%	0.0018
25%	0.0047
50%	0.0142
75%	0.0436
90%	0.1156
95%	0.2093
99%	0.6029

Forecast: HI-Tin-Soil/Dust-Residential Child-Tadanac **Cell: F63**

Summary:
Entire range is from 0.0002 to 15.0478
Base case is 0.1363
After 10,000 trials, the std. error of the mean is 0.0043



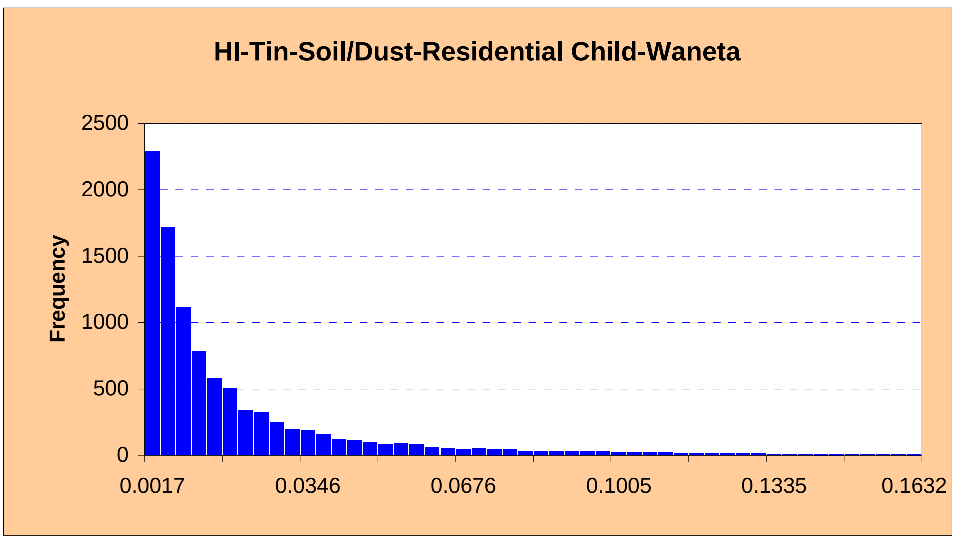
Statistics:	Forecast values
Trials	10,000
Mean	0.1458
Median	0.0430
Mode	---
Standard Deviation	0.4322
Variance	0.1868
Skewness	15.59
Kurtosis	408.80
Coeff. of Variability	2.96
Minimum	0.0002
Maximum	15.0478
Range Width	15.0476
Mean Std. Error	0.0043

Forecast: HI-Tin-Soil/Dust-Residential Child-Tadanac (cont'd) **Cell: F63**

Percentiles:	Forecast values
1%	0.0012
5%	0.0033
10%	0.0060
25%	0.0150
50%	0.0430
75%	0.1262
90%	0.3318
95%	0.5487
99%	1.6389

Forecast: HI-Tin-Soil/Dust-Residential Child-Waneta **Cell: G63**

Summary:
Entire range is from 0.0000 to 1.3011
Base case is 0.0230
After 10,000 trials, the std. error of the mean is 0.0005



Forecast: HI-Tin-Soil/Dust-Residential Child-Waneta (cont'd) **Cell: G63**

Statistics:	Forecast values
Trials	10,000
Mean	0.0245
Median	0.0095
Mode	---
Standard Deviation	0.0501
Variance	0.0025
Skewness	7.74
Kurtosis	108.37
Coeff. of Variability	2.05
Minimum	0.0000
Maximum	1.3011
Range Width	1.3011
Mean Std. Error	0.0005

Percentiles:	Forecast values
1%	0.0004
5%	0.0009
10%	0.0015
25%	0.0037
50%	0.0095
75%	0.0248
90%	0.0575
95%	0.0947
99%	0.2297

Forecast: HI-Tin-Soil/Dust-Residential Child-West Trail **Cell: H63**

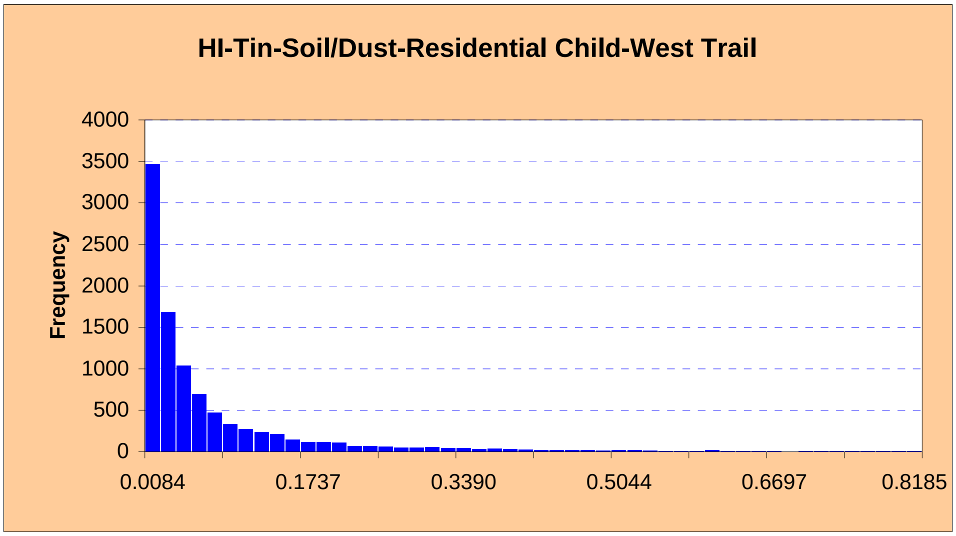
Summary:

Entire range is from 0.0001 to 6.5899

Base case is 0.0987

After 10,000 trials, the std. error of the mean is 0.0026

Forecast: HI-Tin-Soil/Dust-Residential Child-West Trail (cont'd) **Cell: H63**

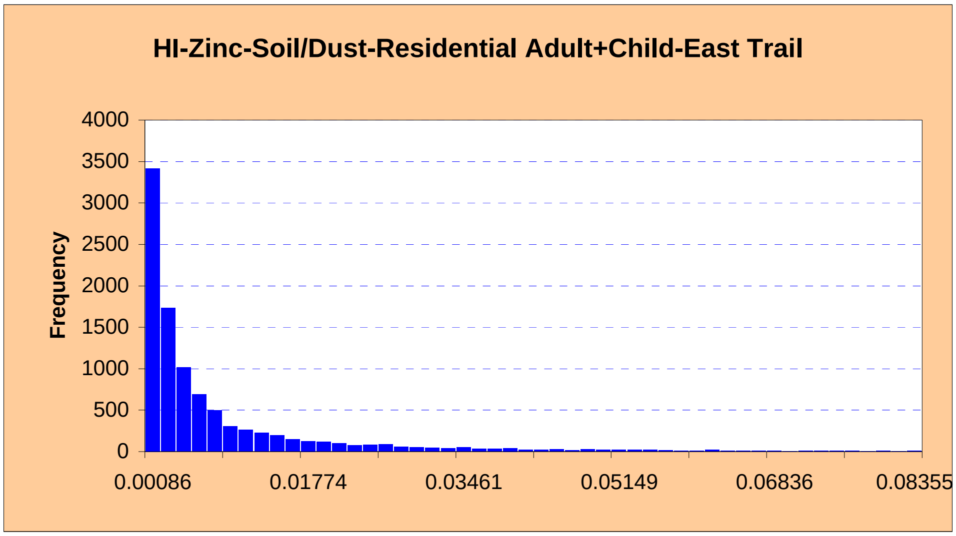


Statistics:	Forecast values
Trials	10,000
Mean	0.1023
Median	0.0313
Mode	---
Standard Deviation	0.2587
Variance	0.0669
Skewness	9.92
Kurtosis	167.45
Coeff. of Variability	2.53
Minimum	0.0001
Maximum	6.5899
Range Width	6.5898
Mean Std. Error	0.0026

Percentiles:	Forecast values
1%	0.0008
5%	0.0023
10%	0.0041
25%	0.0109
50%	0.0313
75%	0.0892
90%	0.2341
95%	0.4136
99%	1.1019

Forecast: HI-Zinc-Soil/Dust-Residential Adult+Child-East Trail **Cell: D43**

Summary:
Entire range is from 0.00002 to 0.87468
Base case is 0.00659
After 10,000 trials, the std. error of the mean is 0.00026



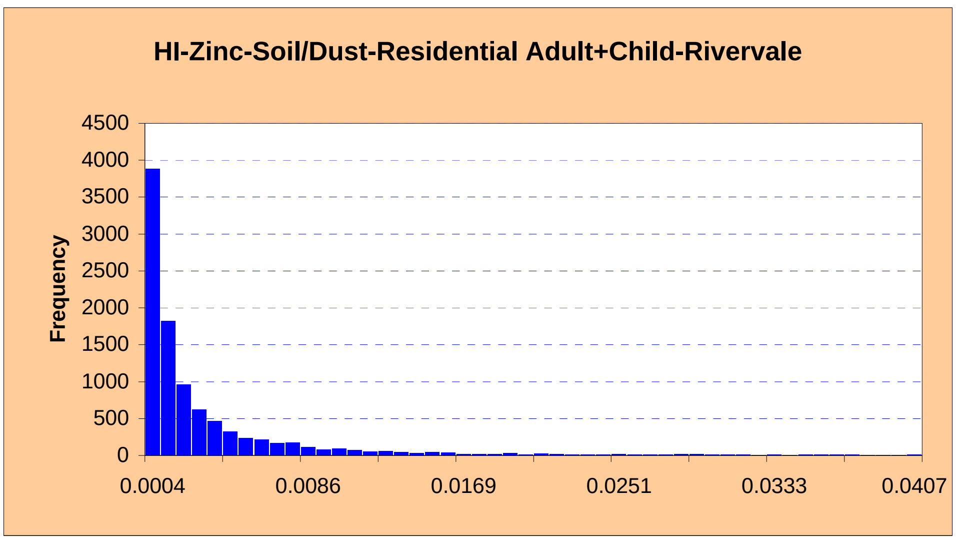
Statistics:	Forecast values
Trials	10,000
Mean	0.01079
Median	0.00321
Mode	---
Standard Deviation	0.02629
Variance	0.00069
Skewness	8.99
Kurtosis	167.30
Coeff. of Variability	2.44
Minimum	0.00002
Maximum	0.87468
Range Width	0.87466
Mean Std. Error	0.00026

Forecast: HI-Zinc-Soil/Dust-Residential Adult+Child-East Trail (cont'd) **Cell: D43**

Percentiles:	Forecast values
1%	0.00010
5%	0.00028
10%	0.00048
25%	0.00115
50%	0.00321
75%	0.00916
90%	0.02531
95%	0.04430
99%	0.12844

Forecast: HI-Zinc-Soil/Dust-Residential Adult+Child-Rivervale **Cell: E43**

Summary:
Entire range is from 0.0000 to 0.8515
Base case is 0.0025
After 10,000 trials, the std. error of the mean is 0.0001



Forecast: HI-Zinc-Soil/Dust-Residential Adult+Child-Rivervale (cont'd) **Cell: E43**

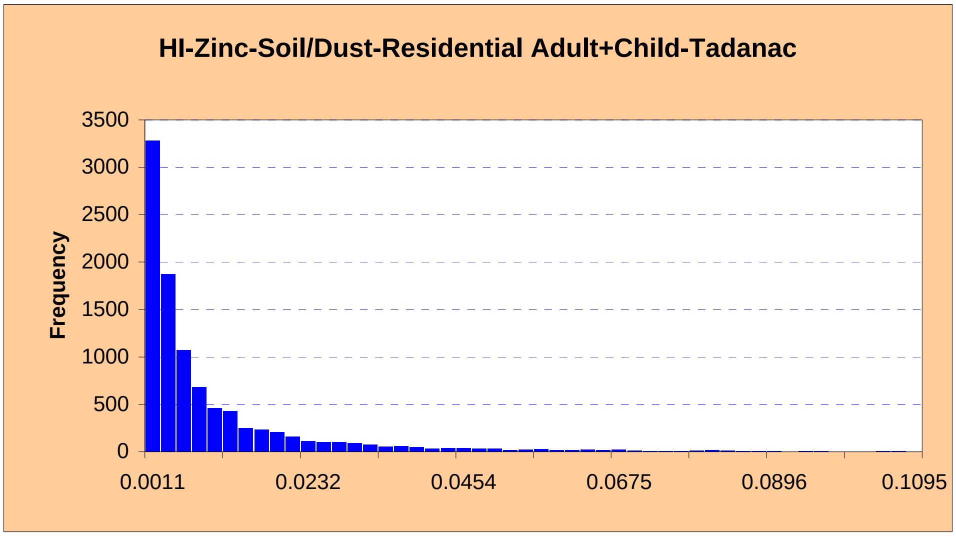
Statistics:	Forecast values
Trials	10,000
Mean	0.0042
Median	0.0012
Mode	---
Standard Deviation	0.0132
Variance	0.0002
Skewness	30.82
Kurtosis	1,767.82
Coeff. of Variability	3.13
Minimum	0.0000
Maximum	0.8515
Range Width	0.8515
Mean Std. Error	0.0001

Percentiles:	Forecast values
1%	0.0001
5%	0.0001
10%	0.0002
25%	0.0005
50%	0.0012
75%	0.0036
90%	0.0093
95%	0.0171
99%	0.0446

Forecast: HI-Zinc-Soil/Dust-Residential Adult+Child-Tadanac **Cell: F43**

Summary:
Entire range is from 0.0000 to 1.3801
Base case is 0.0075
After 10,000 trials, the std. error of the mean is 0.0003

Forecast: HI-Zinc-Soil/Dust-Residential Adult+Child-Tadanac (cont'd) **Cell: F43**

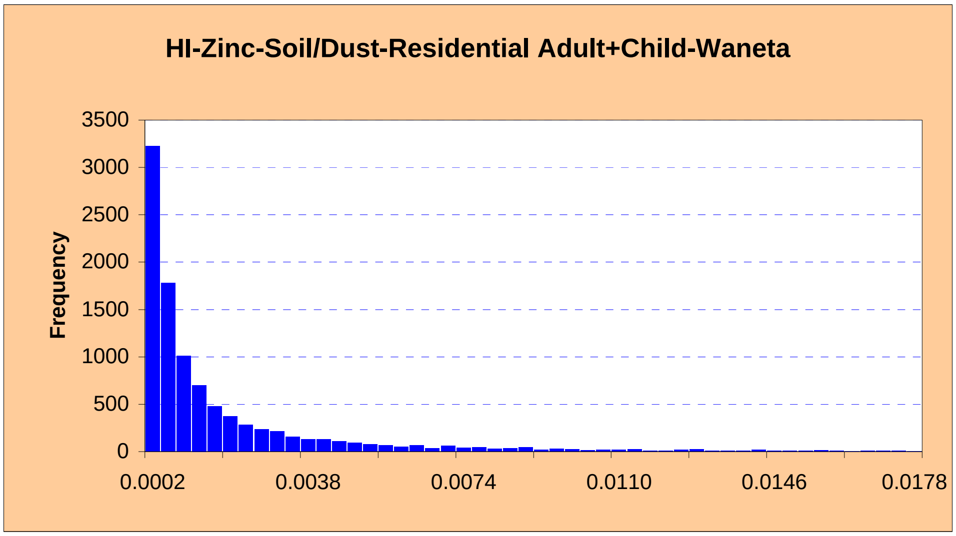


Statistics:	Forecast values
Trials	10,000
Mean	0.0131
Median	0.0042
Mode	---
Standard Deviation	0.0348
Variance	0.0012
Skewness	14.99
Kurtosis	437.13
Coeff. of Variability	2.65
Minimum	0.0000
Maximum	1.3801
Range Width	1.3800
Mean Std. Error	0.0003

Percentiles:	Forecast values
1%	0.0002
5%	0.0004
10%	0.0007
25%	0.0016
50%	0.0042
75%	0.0117
90%	0.0292
95%	0.0521
99%	0.1420

Forecast: HI-Zinc-Soil/Dust-Residential Adult+Child-Waneta **Cell: G43**

Summary:
Entire range is from 0.0000 to 0.2182
Base case is 0.0013
After 10,000 trials, the std. error of the mean is 0.0001



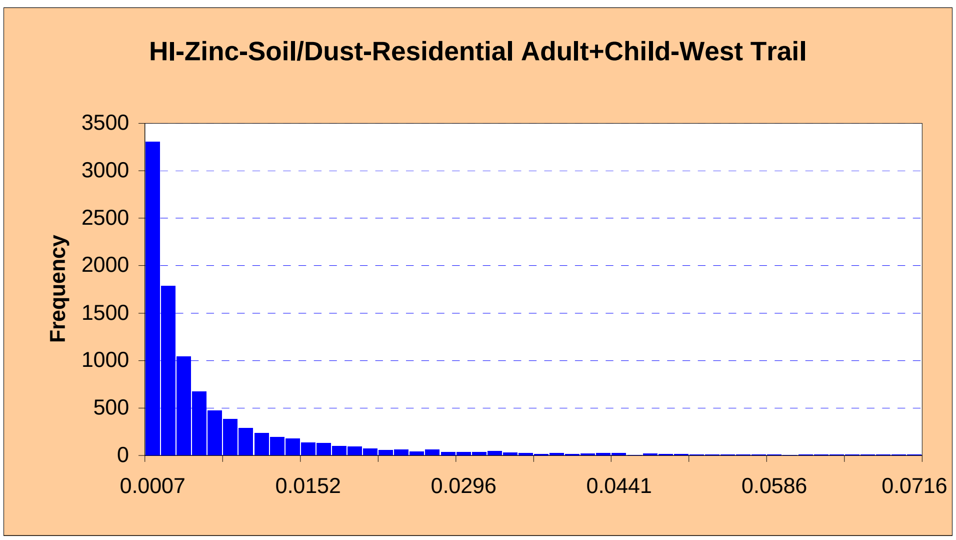
Statistics:	Forecast values
Trials	10,000
Mean	0.0023
Median	0.0007
Mode	---
Standard Deviation	0.0056
Variance	0.0000
Skewness	10.86
Kurtosis	269.95
Coeff. of Variability	2.41
Minimum	0.0000
Maximum	0.2182
Range Width	0.2182
Mean Std. Error	0.0001

Forecast: HI-Zinc-Soil/Dust-Residential Adult+Child-Waneta (cont'd) **Cell: G43**

Percentiles:	Forecast values
1%	0.0000
5%	0.0001
10%	0.0001
25%	0.0003
50%	0.0007
75%	0.0021
90%	0.0054
95%	0.0095
99%	0.0259

Forecast: HI-Zinc-Soil/Dust-Residential Adult+Child-West Trail **Cell: H43**

Summary:
Entire range is from 0.0000 to 0.7663
Base case is 0.0055
After 10,000 trials, the std. error of the mean is 0.0002



Forecast: HI-Zinc-Soil/Dust-Residential Adult+Child-West Trail (cont'd) **Cell: H43**

Statistics:	Forecast values
Trials	10,000
Mean	0.0090
Median	0.0028
Mode	---
Standard Deviation	0.0226
Variance	0.0005
Skewness	10.50
Kurtosis	215.63
Coeff. of Variability	2.51
Minimum	0.0000
Maximum	0.7663
Range Width	0.7663
Mean Std. Error	0.0002

Percentiles:	Forecast values
1%	0.0001
5%	0.0003
10%	0.0004
25%	0.0010
50%	0.0028
75%	0.0080
90%	0.0201
95%	0.0354
99%	0.1040

Forecast: HI-Zinc-Soil/Dust-Residential Child-East Trail **Cell: D64**

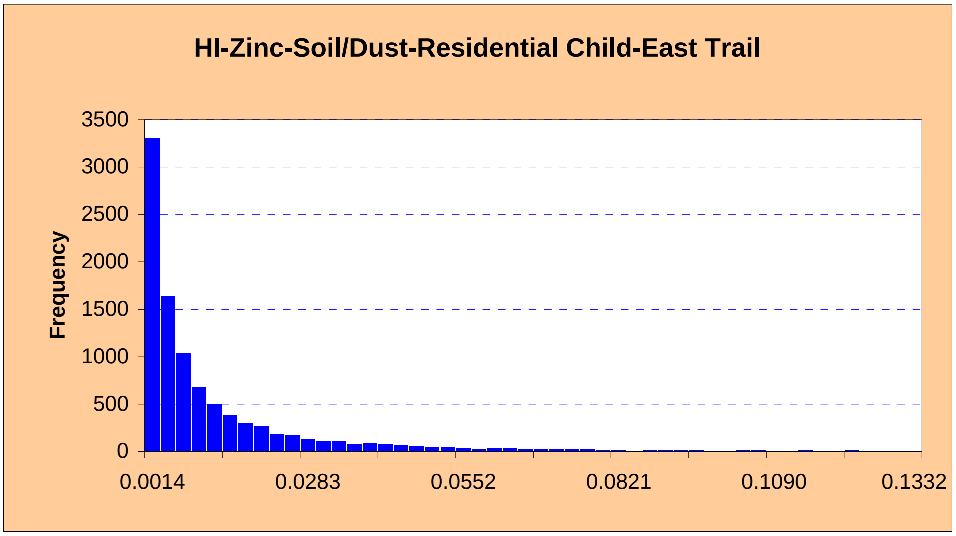
Summary:

Entire range is from 0.0000 to 1.0806

Base case is 0.0167

After 10,000 trials, the std. error of the mean is 0.0004

Forecast: HI-Zinc-Soil/Dust-Residential Child-East Trail (cont'd) **Cell: D64**

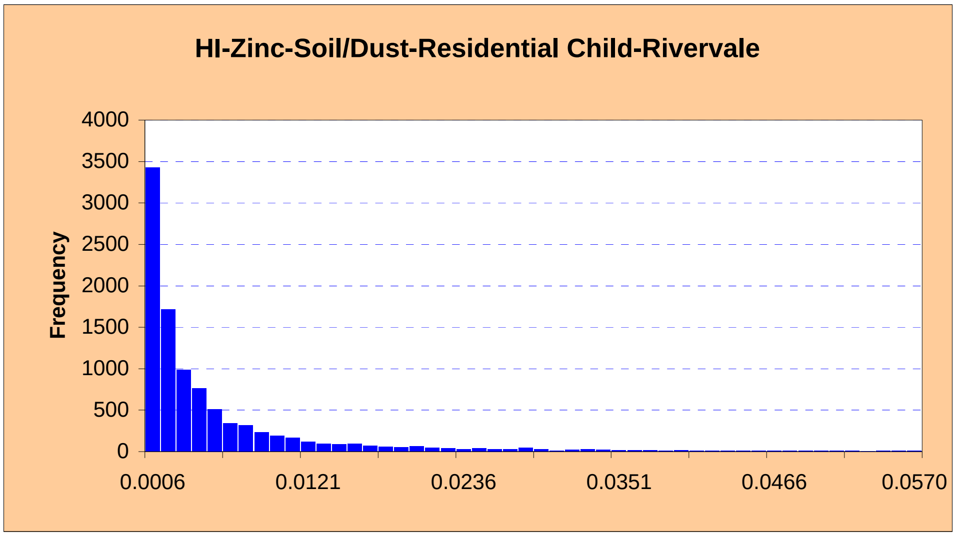


Statistics:	Forecast values
Trials	10,000
Mean	0.0173
Median	0.0055
Mode	---
Standard Deviation	0.0419
Variance	0.0018
Skewness	8.93
Kurtosis	136.89
Coeff. of Variability	2.42
Minimum	0.0000
Maximum	1.0806
Range Width	1.0805
Mean Std. Error	0.0004

Percentiles:	Forecast values
1%	0.0001
5%	0.0004
10%	0.0007
25%	0.0019
50%	0.0055
75%	0.0157
90%	0.0402
95%	0.0697
99%	0.1881

Forecast: HI-Zinc-Soil/Dust-Residential Child-Rivervale **Cell: E64**

Summary:
Entire range is from 0.0000 to 0.8512
Base case is 0.0062
After 10,000 trials, the std. error of the mean is 0.0002



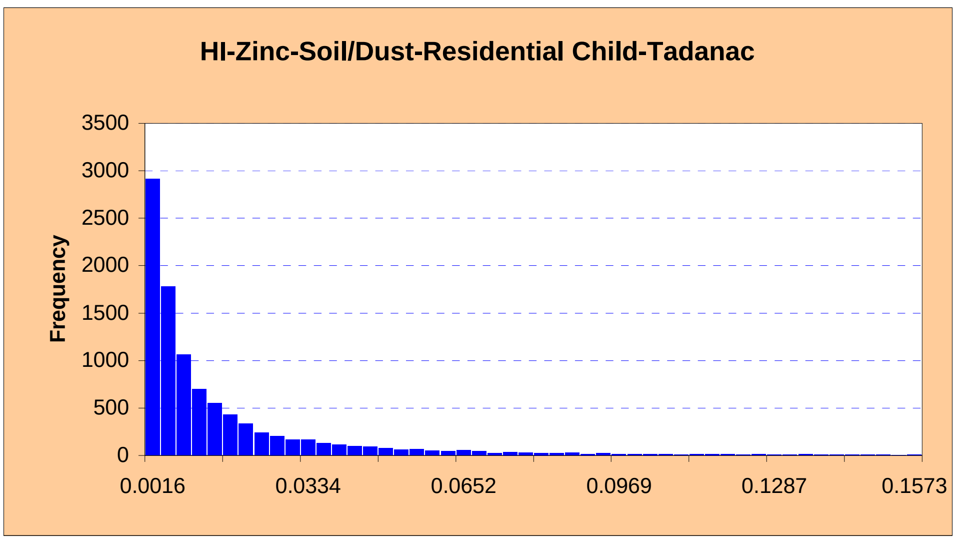
Statistics:	Forecast values
Trials	10,000
Mean	0.0067
Median	0.0022
Mode	---
Standard Deviation	0.0182
Variance	0.0003
Skewness	17.66
Kurtosis	614.93
Coeff. of Variability	2.71
Minimum	0.0000
Maximum	0.8512
Range Width	0.8512
Mean Std. Error	0.0002

Forecast: HI-Zinc-Soil/Dust-Residential Child-Rivervale (cont'd) **Cell: E64**

Percentiles:	Forecast values
1%	0.0001
5%	0.0002
10%	0.0003
25%	0.0008
50%	0.0022
75%	0.0060
90%	0.0156
95%	0.0273
99%	0.0690

Forecast: HI-Zinc-Soil/Dust-Residential Child-Tadanac **Cell: F64**

Summary:
Entire range is from 0.0000 to 1.3796
Base case is 0.0189
After 10,000 trials, the std. error of the mean is 0.0005



Forecast: HI-Zinc-Soil/Dust-Residential Child-Tadanac (cont'd) **Cell: F64**

Statistics:	Forecast values
Trials	10,000
Mean	0.0208
Median	0.0071
Mode	---
Standard Deviation	0.0493
Variance	0.0024
Skewness	10.14
Kurtosis	181.12
Coeff. of Variability	2.37
Minimum	0.0000
Maximum	1.3796
Range Width	1.3796
Mean Std. Error	0.0005

Percentiles:	Forecast values
1%	0.0002
5%	0.0006
10%	0.0011
25%	0.0027
50%	0.0071
75%	0.0196
90%	0.0477
95%	0.0805
99%	0.2086

Forecast: HI-Zinc-Soil/Dust-Residential Child-Waneta **Cell: G64**

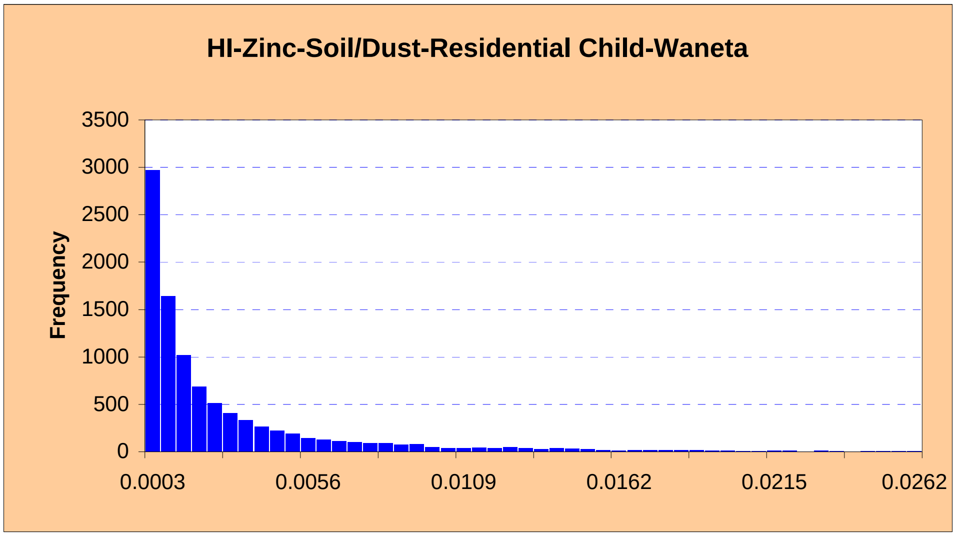
Summary:

Entire range is from 0.0000 to 0.2182

Base case is 0.0033

After 10,000 trials, the std. error of the mean is 0.0001

Forecast: HI-Zinc-Soil/Dust-Residential Child-Waneta (cont'd) **Cell: G64**

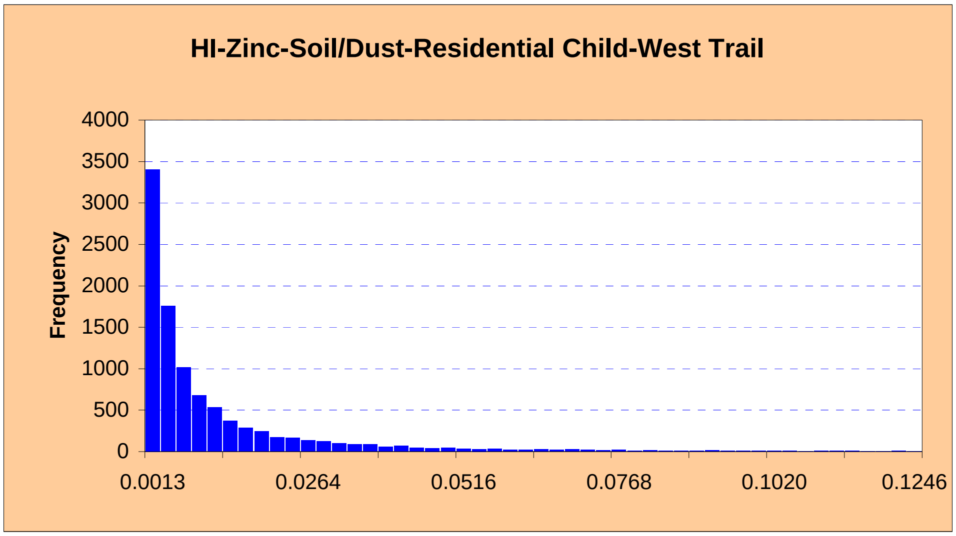


Statistics:	Forecast values
Trials	10,000
Mean	0.0037
Median	0.0012
Mode	---
Standard Deviation	0.0081
Variance	0.0001
Skewness	8.00
Kurtosis	114.65
Coeff. of Variability	2.21
Minimum	0.0000
Maximum	0.2182
Range Width	0.2182
Mean Std. Error	0.0001

Percentiles:	Forecast values
1%	0.0000
5%	0.0001
10%	0.0002
25%	0.0004
50%	0.0012
75%	0.0036
90%	0.0088
95%	0.0146
99%	0.0379

Forecast: HI-Zinc-Soil/Dust-Residential Child-West Trail **Cell: H64**

Summary:
Entire range is from 0.0000 to 2.0719
Base case is 0.0140
After 10,000 trials, the std. error of the mean is 0.0004



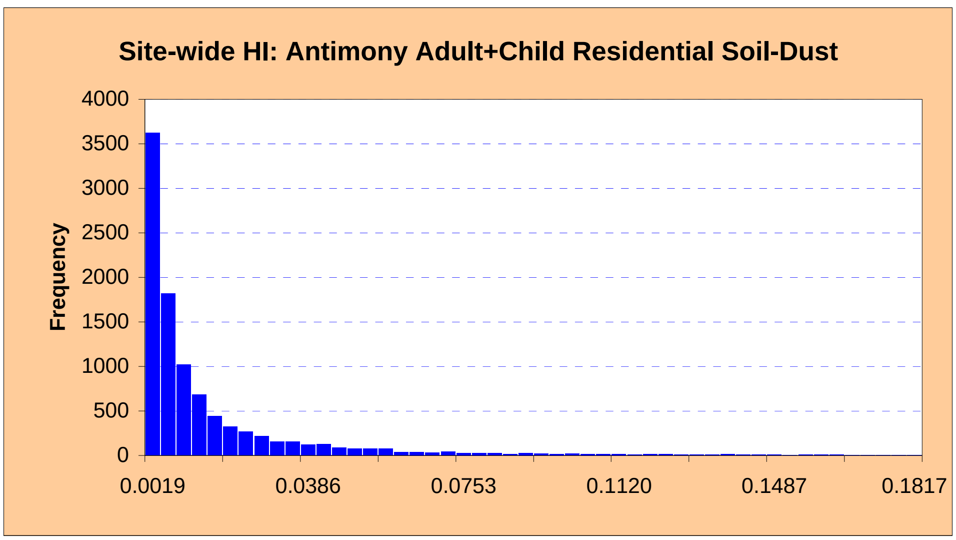
Statistics:	Forecast values
Trials	10,000
Mean	0.0146
Median	0.0047
Mode	---
Standard Deviation	0.0398
Variance	0.0016
Skewness	19.15
Kurtosis	779.50
Coeff. of Variability	2.73
Minimum	0.0000
Maximum	2.0719
Range Width	2.0719
Mean Std. Error	0.0004

Forecast: HI-Zinc-Soil/Dust-Residential Child-West Trail (cont'd) **Cell: H64**

Percentiles:	Forecast values
1%	0.0001
5%	0.0004
10%	0.0006
25%	0.0017
50%	0.0047
75%	0.0133
90%	0.0330
95%	0.0558
99%	0.1566

Forecast: Site-wide HI: Antimony Adult+Child Residential Soil-Dust **Cell: I36**

Summary:
Entire range is from 0.0000 to 3.2674
Base case is 0.0123
After 10,000 trials, the std. error of the mean is 0.0006



Forecast: Site-wide HI: Antimony Adult+Child Residential Soil-Dust (cont'd) **Cell: I36**

Statistics:	Forecast values
Trials	10,000
Mean	0.0204
Median	0.0062
Mode	---
Standard Deviation	0.0582
Variance	0.0034
Skewness	21.83
Kurtosis	1,013.75
Coeff. of Variability	2.85
Minimum	0.0000
Maximum	3.2674
Range Width	3.2674
Mean Std. Error	0.0006

Percentiles:	Forecast values
1%	0.0003
5%	0.0007
10%	0.0011
25%	0.0024
50%	0.0062
75%	0.0175
90%	0.0454
95%	0.0816
99%	0.2398

Forecast: Site-wide HI: Antimony Child Residential Soil-Dust **Cell: I58**

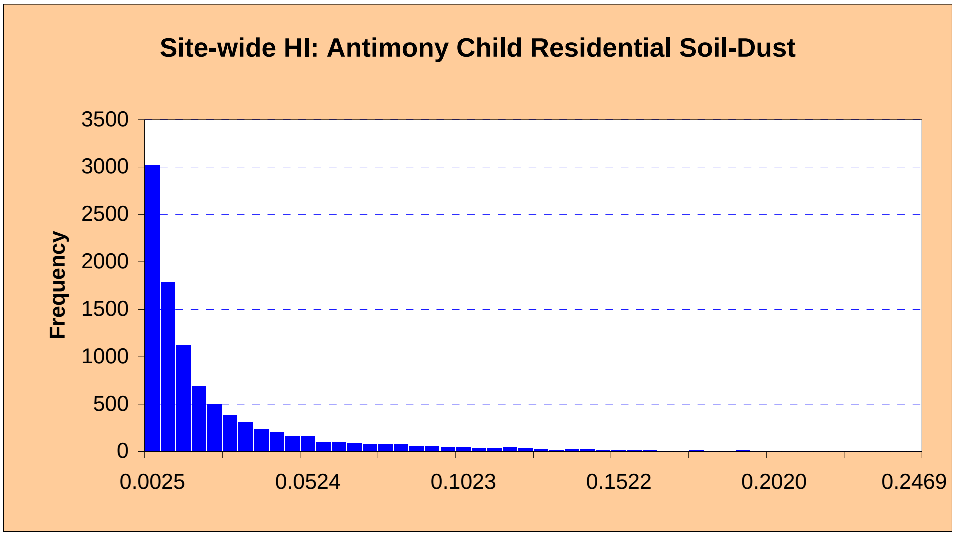
Summary:

Entire range is from 0.0000 to 3.2664

Base case is 0.0310

After 10,000 trials, the std. error of the mean is 0.0008

Forecast: Site-wide HI: Antimony Child Residential Soil-Dust (cont'd) **Cell: I58**

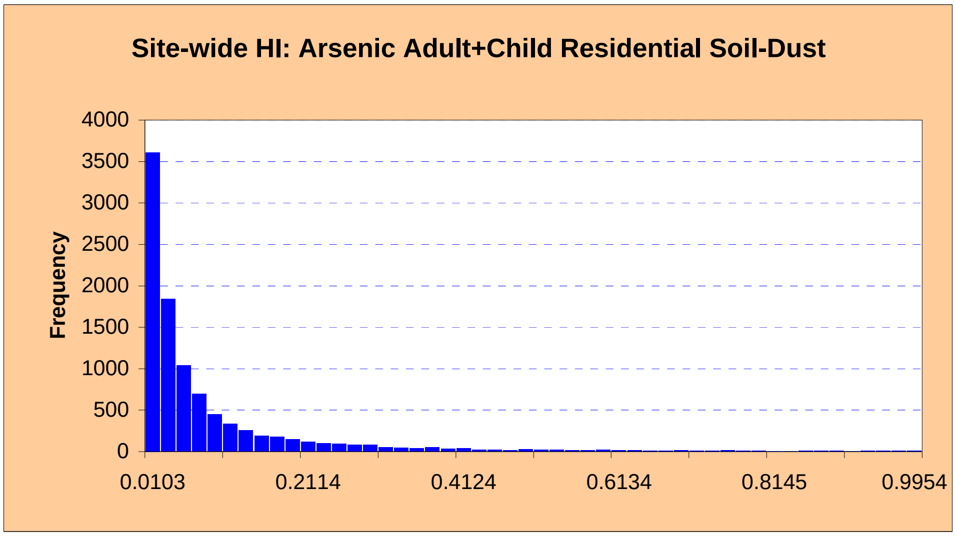


Statistics:	Forecast values
Trials	10,000
Mean	0.0322
Median	0.0107
Mode	---
Standard Deviation	0.0776
Variance	0.0060
Skewness	12.30
Kurtosis	349.18
Coeff. of Variability	2.41
Minimum	0.0000
Maximum	3.2664
Range Width	3.2664
Mean Std. Error	0.0008

Percentiles:	Forecast values
1%	0.0003
5%	0.0009
10%	0.0016
25%	0.0039
50%	0.0107
75%	0.0297
90%	0.0759
95%	0.1238
99%	0.3477

Forecast: Site-wide HI: Arsenic Adult+Child Residential Soil-Dust **Cell: I37**

Summary:
Entire range is from 0.0003 to 20.1633
Base case is 0.0642
After 10,000 trials, the std. error of the mean is 0.0032



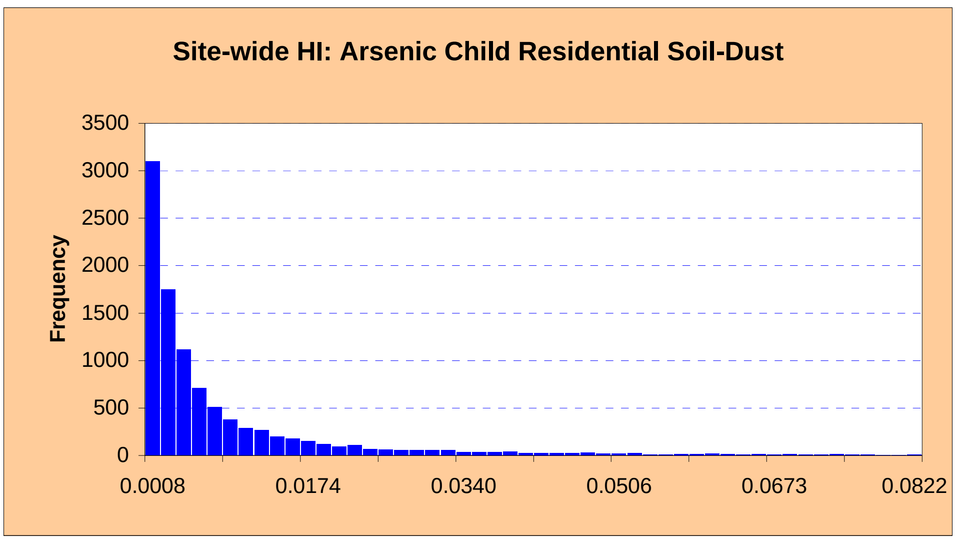
Statistics:	Forecast values
Trials	10,000
Mean	0.1079
Median	0.0342
Mode	---
Standard Deviation	0.3206
Variance	0.1028
Skewness	29.91
Kurtosis	1,646.31
Coeff. of Variability	2.97
Minimum	0.0003
Maximum	20.1633
Range Width	20.1630
Mean Std. Error	0.0032

Forecast: Site-wide HI: Arsenic Adult+Child Residential Soil-Dust (cont'd) **Cell: I37**

Percentiles:	Forecast values
1%	0.0014
5%	0.0036
10%	0.0058
25%	0.0131
50%	0.0342
75%	0.0940
90%	0.2494
95%	0.4337
99%	1.1338

Forecast: Site-wide HI: Arsenic Child Residential Soil-Dust **Cell: I59**

Summary:
Entire range is from 0.0000 to 1.2094
Base case is 0.0098
After 10,000 trials, the std. error of the mean is 0.0003



Forecast: Site-wide HI: Arsenic Child Residential Soil-Dust (cont'd) **Cell: I59**

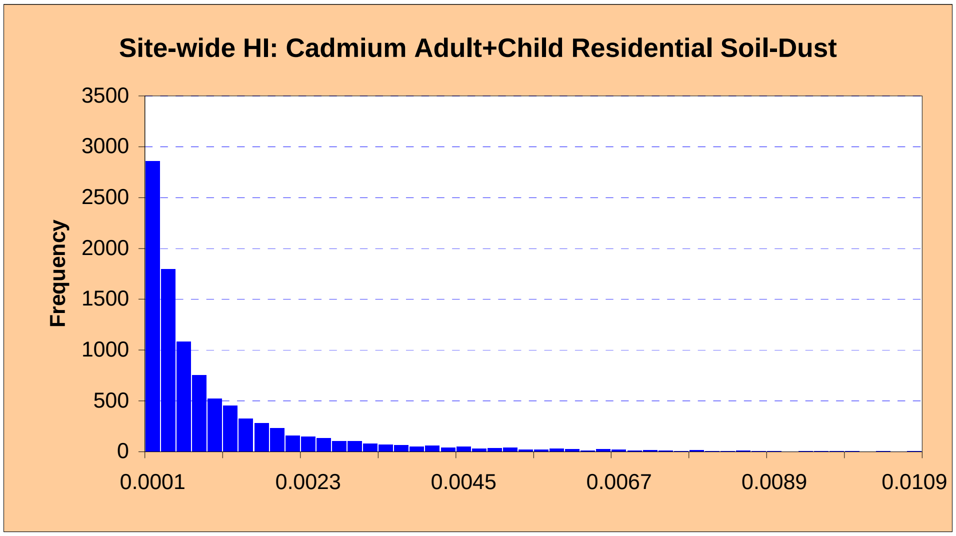
Statistics:	Forecast values
Trials	10,000
Mean	0.0103
Median	0.0035
Mode	---
Standard Deviation	0.0260
Variance	0.0007
Skewness	16.75
Kurtosis	568.11
Coeff. of Variability	2.53
Minimum	0.0000
Maximum	1.2094
Range Width	1.2094
Mean Std. Error	0.0003

Percentiles:	Forecast values
1%	0.0001
5%	0.0003
10%	0.0005
25%	0.0013
50%	0.0035
75%	0.0096
90%	0.0241
95%	0.0417
99%	0.0967

Forecast: Site-wide HI: Cadmium Adult+Child Residential Soil-Dust **Cell: I38**

Summary:
Entire range is from 0.0000 to 0.1126
Base case is 0.0017
After 10,000 trials, the std. error of the mean is 0.0000

Forecast: Site-wide HI: Cadmium Adult+Child Residential Soil-Dust (cont'd) **Cell: I38**

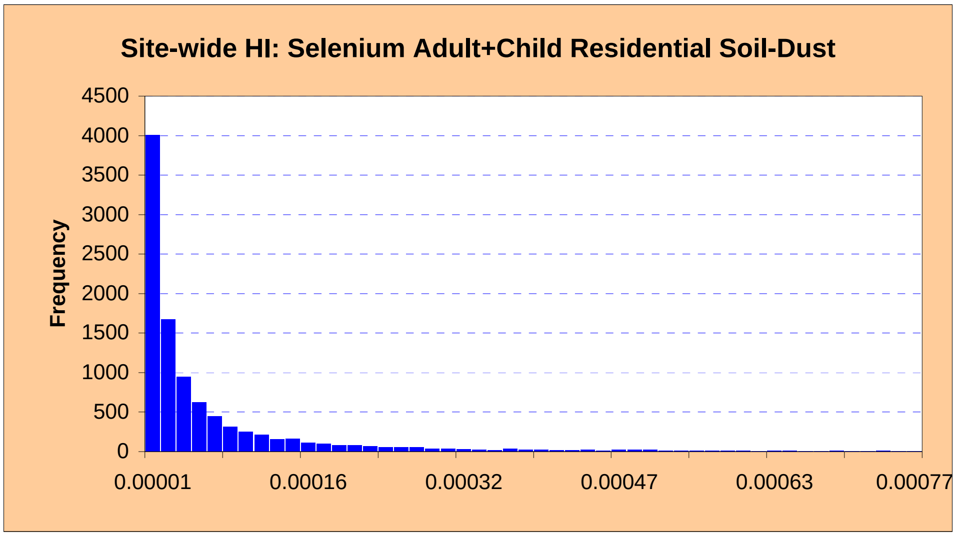


Statistics:	Forecast values
Trials	10,000
Mean	0.0014
Median	0.0005
Mode	---
Standard Deviation	0.0034
Variance	0.0000
Skewness	10.87
Kurtosis	210.83
Coeff. of Variability	2.45
Minimum	0.0000
Maximum	0.1126
Range Width	0.1126
Mean Std. Error	0.0000

Percentiles:	Forecast values
1%	0.0000
5%	0.0000
10%	0.0001
25%	0.0002
50%	0.0005
75%	0.0013
90%	0.0031
95%	0.0052
99%	0.0148

Forecast: Site-wide HI: Selenium Adult+Child Residential Soil-Dust **Cell: I39**

Summary:
Entire range is from 0.00000 to 0.01166
Base case is 0.00005
After 10,000 trials, the std. error of the mean is 0.00000



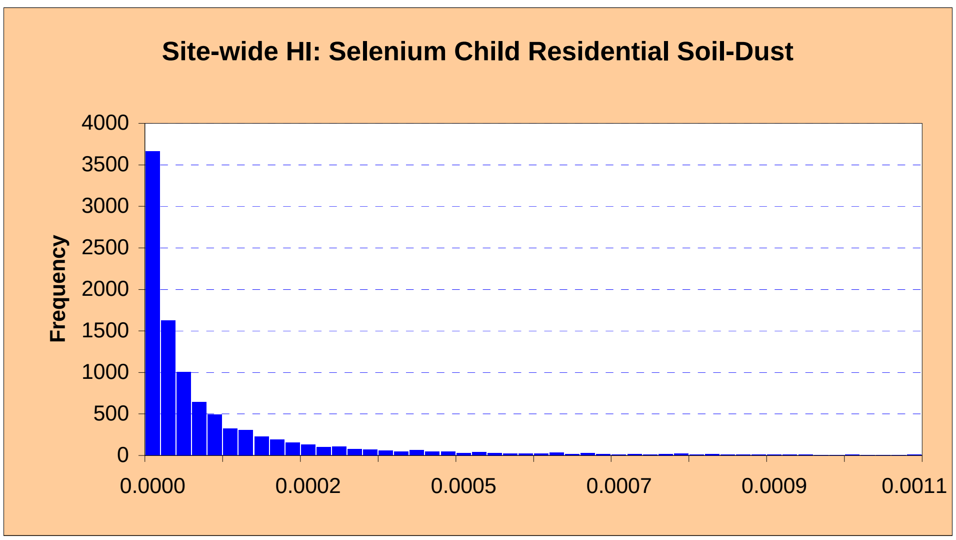
Statistics:	Forecast values
Trials	10,000
Mean	0.00008
Median	0.00002
Mode	---
Standard Deviation	0.00025
Variance	0.00000
Skewness	16.59
Kurtosis	562.63
Coeff. of Variability	2.92
Minimum	0.00000
Maximum	0.01166
Range Width	0.01166
Mean Std. Error	0.00000

Forecast: Site-wide HI: Selenium Adult+Child Residential Soil-Dust (cont'd) **Cell: I39**

Percentiles:	Forecast values
1%	0.00000
5%	0.00000
10%	0.00000
25%	0.00001
50%	0.00002
75%	0.00007
90%	0.00019
95%	0.00034
99%	0.00093

Forecast: Site-wide HI: Selenium Child Residential Soil-Dust **Cell: I60**

Summary:
Entire range is from 0.0000 to 0.0117
Base case is 0.0001
After 10,000 trials, the std. error of the mean is 0.0000



Forecast: Site-wide HI: Selenium Child Residential Soil-Dust (cont'd) **Cell: I60**

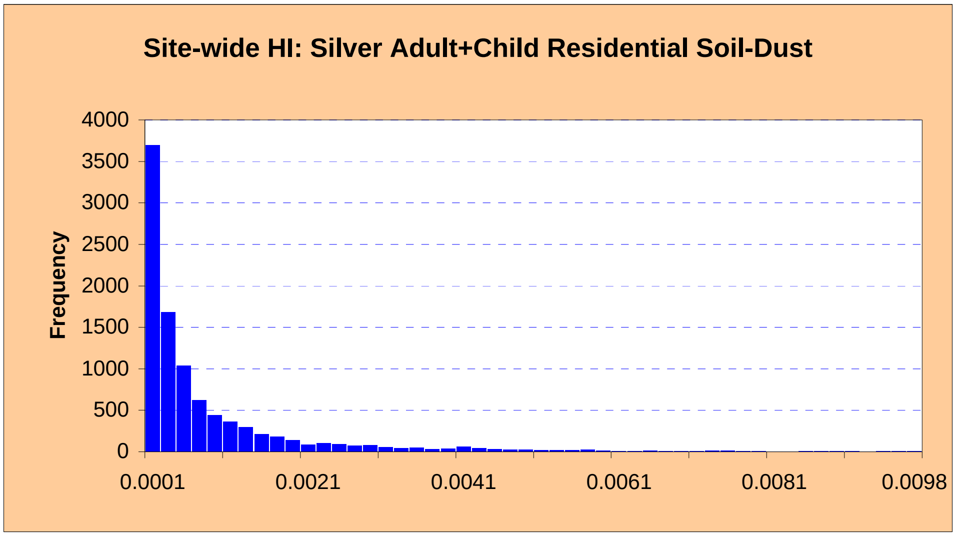
Statistics:	Forecast values
Trials	10,000
Mean	0.0001
Median	0.0000
Mode	---
Standard Deviation	0.0004
Variance	0.0000
Skewness	10.68
Kurtosis	202.70
Coeff. of Variability	2.64
Minimum	0.0000
Maximum	0.0117
Range Width	0.0117
Mean Std. Error	0.0000

Percentiles:	Forecast values
1%	0.0000
5%	0.0000
10%	0.0000
25%	0.0000
50%	0.0000
75%	0.0001
90%	0.0003
95%	0.0006
99%	0.0016

Forecast: Site-wide HI: Silver Adult+Child Residential Soil-Dust **Cell: I40**

Summary:
Entire range is from 0.0000 to 0.0857
Base case is 0.0008
After 10,000 trials, the std. error of the mean is 0.0000

Forecast: Site-wide HI: Silver Adult+Child Residential Soil-Dust (cont'd) **Cell: I40**

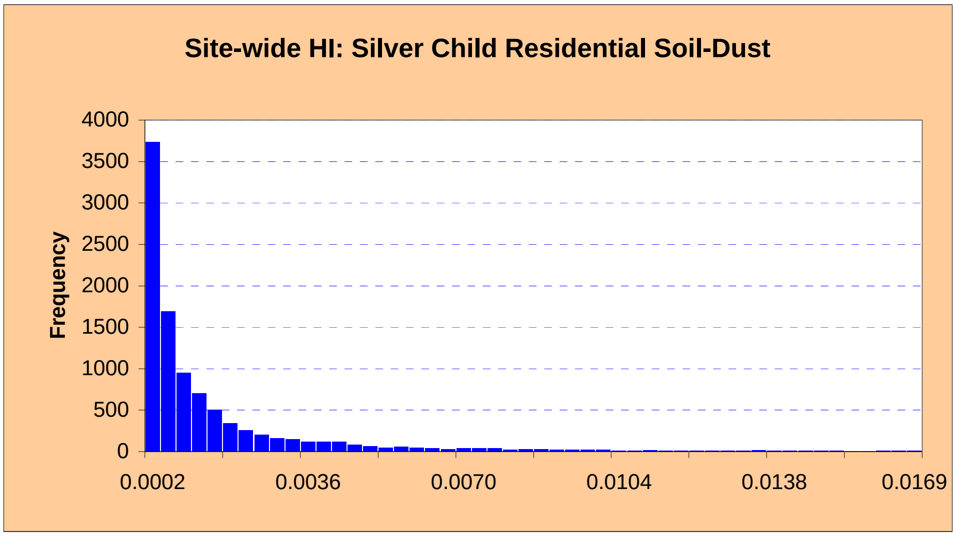


Statistics:	Forecast values
Trials	10,000
Mean	0.0012
Median	0.0003
Mode	---
Standard Deviation	0.0031
Variance	0.0000
Skewness	10.19
Kurtosis	167.36
Coeff. of Variability	2.68
Minimum	0.0000
Maximum	0.0857
Range Width	0.0857
Mean Std. Error	0.0000

Percentiles:	Forecast values
1%	0.0000
5%	0.0000
10%	0.0000
25%	0.0001
50%	0.0003
75%	0.0010
90%	0.0027
95%	0.0047
99%	0.0133

Forecast: Site-wide HI: Silver Child Residential Soil-Dust **Cell: I61**

Summary:
Entire range is from 0.0000 to 0.3226
Base case is 0.0020
After 10,000 trials, the std. error of the mean is 0.0001



Statistics:	Forecast values
Trials	10,000
Mean	0.0019
Median	0.0006
Mode	---
Standard Deviation	0.0054
Variance	0.0000
Skewness	24.75
Kurtosis	1,258.36
Coeff. of Variability	2.89
Minimum	0.0000
Maximum	0.3226
Range Width	0.3226
Mean Std. Error	0.0001

Forecast: Site-wide HI: Silver Child Residential Soil-Dust (cont'd) **Cell: I61**

Percentiles:	Forecast values
1%	0.0000
5%	0.0000
10%	0.0001
25%	0.0002
50%	0.0006
75%	0.0016
90%	0.0043
95%	0.0076
99%	0.0196

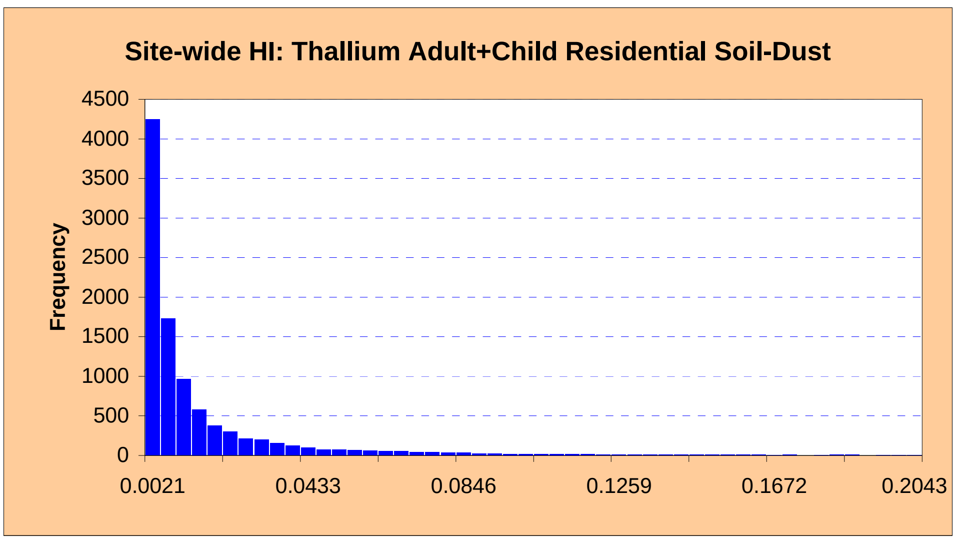
Forecast: Site-wide HI: Thallium Adult+Child Residential Soil-Dust **Cell: I41**

Summary:

Entire range is from 0.0000 to 1.8954

Base case is 0.0123

After 10,000 trials, the std. error of the mean is 0.0007



Forecast: Site-wide HI: Thallium Adult+Child Residential Soil-Dust (cont'd) **Cell: I41**

Statistics:	Forecast values
Trials	10,000
Mean	0.0211
Median	0.0056
Mode	---
Standard Deviation	0.0662
Variance	0.0044
Skewness	11.98
Kurtosis	217.58
Coeff. of Variability	3.13
Minimum	0.0000
Maximum	1.8954
Range Width	1.8954
Mean Std. Error	0.0007

Percentiles:	Forecast values
1%	0.0002
5%	0.0005
10%	0.0008
25%	0.0019
50%	0.0056
75%	0.0163
90%	0.0453
95%	0.0809
99%	0.2554

Forecast: Site-wide HI: Thallium Child Residential Soil-Dust **Cell: I62**

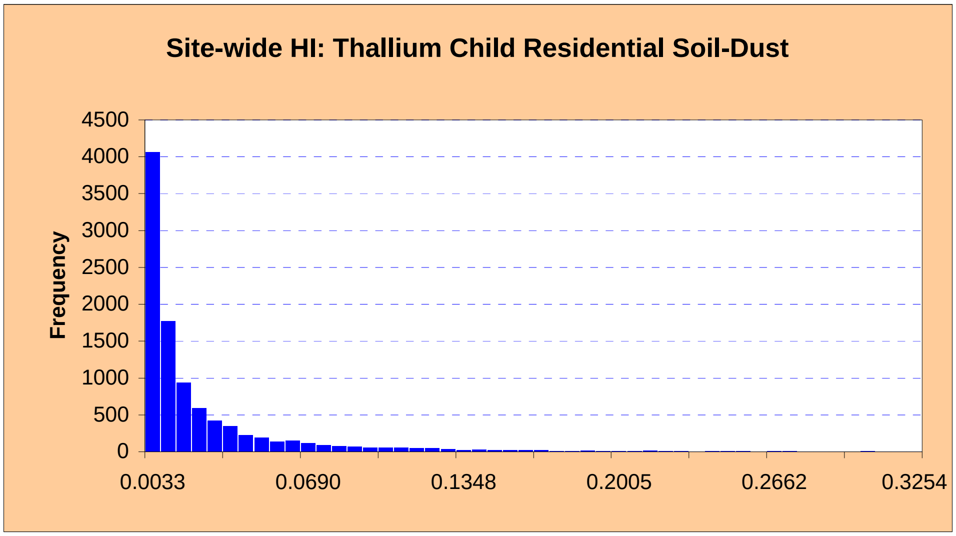
Summary:

Entire range is from 0.0000 to 4.1731

Base case is 0.0311

After 10,000 trials, the std. error of the mean is 0.0011

Forecast: Site-wide HI: Thallium Child Residential Soil-Dust (cont'd) **Cell: I62**

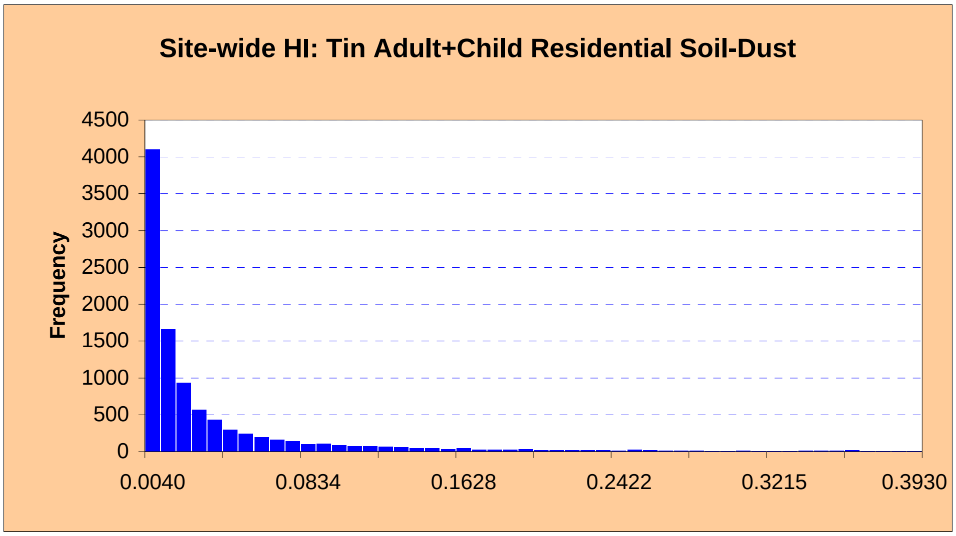


Statistics:	Forecast values
Trials	10,000
Mean	0.0337
Median	0.0095
Mode	---
Standard Deviation	0.1054
Variance	0.0111
Skewness	15.71
Kurtosis	416.36
Coeff. of Variability	3.13
Minimum	0.0000
Maximum	4.1731
Range Width	4.1731
Mean Std. Error	0.0011

Percentiles:	Forecast values
1%	0.0002
5%	0.0007
10%	0.0012
25%	0.0032
50%	0.0095
75%	0.0281
90%	0.0736
95%	0.1282
99%	0.3862

Forecast: Site-wide HI: Tin Adult+Child Residential Soil-Dust **Cell: I42**

Summary:
Entire range is from 0.0000 to 3.8350
Base case is 0.0271
After 10,000 trials, the std. error of the mean is 0.0013



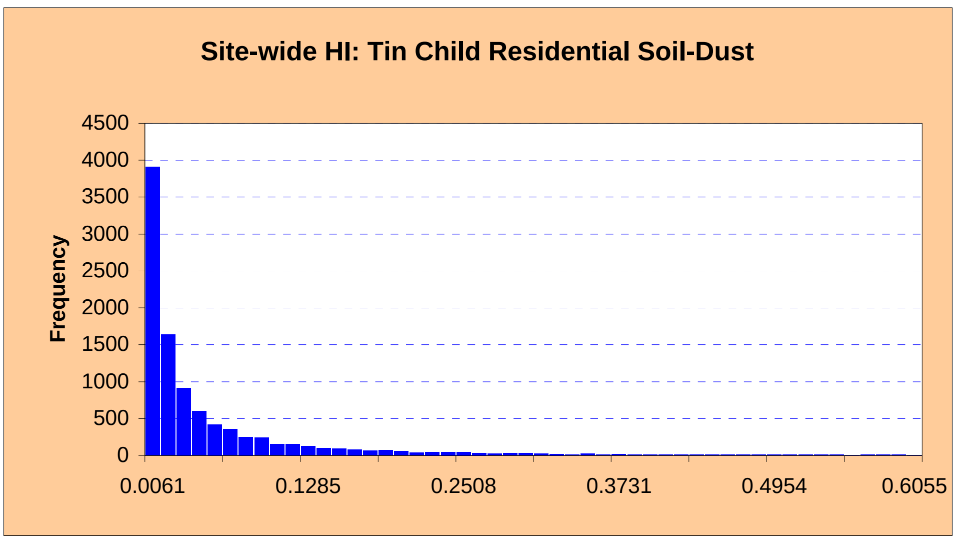
Statistics:	Forecast values
Trials	10,000
Mean	0.0449
Median	0.0116
Mode	---
Standard Deviation	0.1257
Variance	0.0158
Skewness	10.51
Kurtosis	190.28
Coeff. of Variability	2.80
Minimum	0.0000
Maximum	3.8350
Range Width	3.8349
Mean Std. Error	0.0013

Forecast: Site-wide HI: Tin Adult+Child Residential Soil-Dust (cont'd) **Cell: I42**

Percentiles:	Forecast values
1%	0.0002
5%	0.0008
10%	0.0014
25%	0.0038
50%	0.0116
75%	0.0360
90%	0.1005
95%	0.1832
99%	0.5536

Forecast: Site-wide HI: Tin Child Residential Soil-Dust **Cell: I63**

Summary:
Entire range is from 0.0000 to 4.6906
Base case is 0.0687
After 10,000 trials, the std. error of the mean is 0.0019



Forecast: Site-wide HI: Tin Child Residential Soil-Dust (cont'd) **Cell: I63**

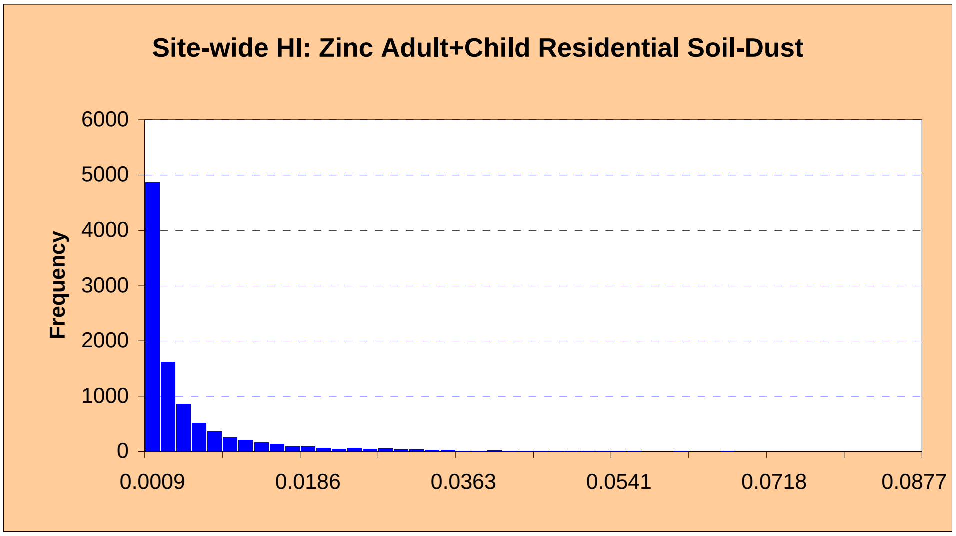
Statistics:	Forecast values
Trials	10,000
Mean	0.0717
Median	0.0191
Mode	---
Standard Deviation	0.1928
Variance	0.0372
Skewness	9.95
Kurtosis	160.23
Coeff. of Variability	2.69
Minimum	0.0000
Maximum	4.6906
Range Width	4.6905
Mean Std. Error	0.0019

Percentiles:	Forecast values
1%	0.0003
5%	0.0011
10%	0.0022
25%	0.0064
50%	0.0191
75%	0.0614
90%	0.1644
95%	0.2869
99%	0.8602

Forecast: Site-wide HI: Zinc Adult+Child Residential Soil-Dust **Cell: I43**

Summary:
Entire range is from 0.0000 to 1.5442
Base case is 0.0041
After 10,000 trials, the std. error of the mean is 0.0003

Forecast: Site-wide HI: Zinc Adult+Child Residential Soil-Dust (cont'd) **Cell: I43**

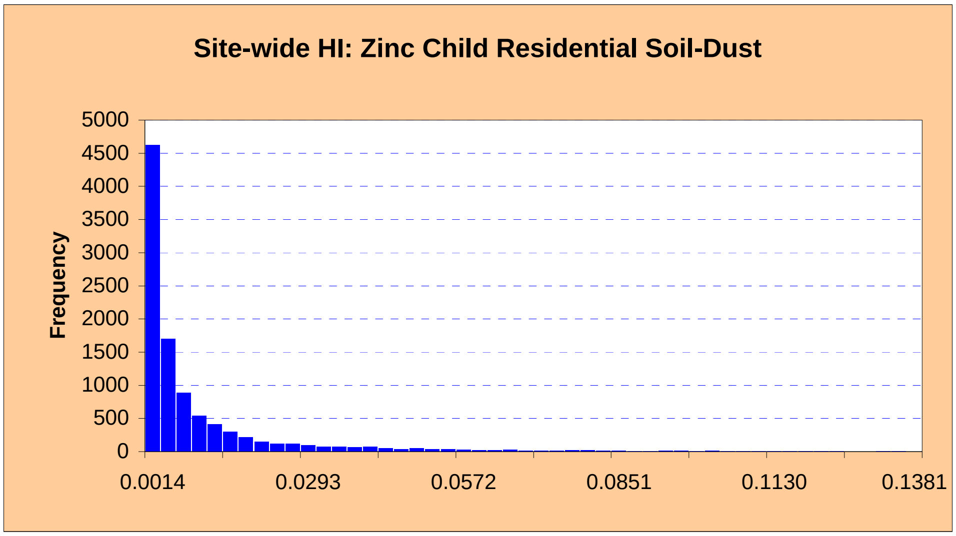


Statistics:	Forecast values
Trials	10,000
Mean	0.0074
Median	0.0019
Mode	---
Standard Deviation	0.0290
Variance	0.0008
Skewness	25.32
Kurtosis	1,029.13
Coeff. of Variability	3.90
Minimum	0.0000
Maximum	1.5442
Range Width	1.5442
Mean Std. Error	0.0003

Percentiles:	Forecast values
1%	0.0001
5%	0.0002
10%	0.0003
25%	0.0007
50%	0.0019
75%	0.0057
90%	0.0156
95%	0.0287
99%	0.0821

Forecast: Site-wide HI: Zinc Child Residential Soil-Dust **Cell: I64**

Summary:
Entire range is from 0.0000 to 3.0630
Base case is 0.0104
After 10,000 trials, the std. error of the mean is 0.0005



Statistics:	Forecast values
Trials	10,000
Mean	0.0117
Median	0.0033
Mode	---
Standard Deviation	0.0456
Variance	0.0021
Skewness	35.75
Kurtosis	2,099.93
Coeff. of Variability	3.90
Minimum	0.0000
Maximum	3.0630
Range Width	3.0630
Mean Std. Error	0.0005

Forecast: Site-wide HI: Zinc Child Residential Soil-Dust (cont'd) **Cell: I64**

Percentiles:	Forecast values
1%	0.0001
5%	0.0002
10%	0.0004
25%	0.0011
50%	0.0033
75%	0.0097
90%	0.0261
95%	0.0452
99%	0.1204

End of Forecasts

Assumptions

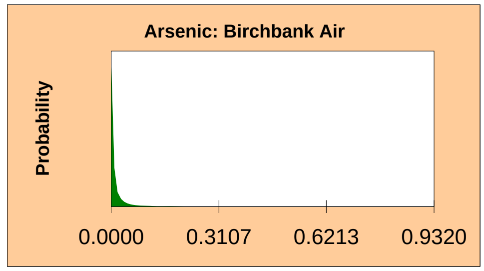
Worksheet: [C164_air.xls]Media Conc

Assumption: Arsenic: Birchbank Air **Cell: B4**

Lognormal distribution with parameters:

Mean	0.0215
Std. Dev.	0.0843

Selected range is from 0.0000 to 100.0000



Statistics:	Assumption values	Distribution
Trials	10,000	---
Mean	0.0215	0.0367
Median	0.0053	0.0053
Mode	---	---
Standard Deviation	0.0691	0.0793
Variance	0.0048	0.0063
Skewness	12.48	33.18
Kurtosis	244.28	2,683.54
Coeff. of Variability	3.22	2.16
Minimum	0.0000	0.0000
Maximum	2.0216	100.0000
Range Width	2.0216	100.0000
Mean Std. Error	0.0007	---

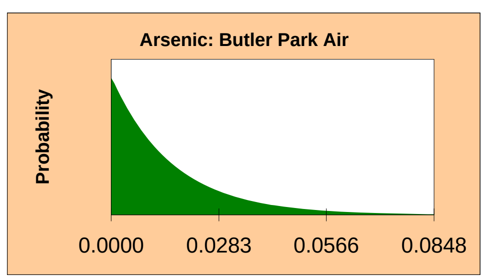
Percentiles:	Assumption values	Distribution
5%	0.0003	0.0003
95%	0.0829	0.0833

Assumption: Arsenic: Butler Park Air **Cell: C4**

Exponential distribution with parameters:

Rate	62.4585

Selected range is from 0.0000 to 100.0000



Assumption: Arsenic: Butler Park Air (cont'd) **Cell: C4**

Statistics:	Assumption values	Distribution
Trials	10,000	---
Mean	0.0161	0.0160
Median	0.0109	0.0111
Mode	---	---
Standard Deviation	0.0164	0.0160
Variance	0.0003	0.0003
Skewness	2.10	2.00
Kurtosis	9.42	8.97
Coeff. of Variability	1.02	0.9997
Minimum	0.0000	0.0000
Maximum	0.1393	100.0000
Range Width	0.1393	100.0000
Mean Std. Error	0.0002	---

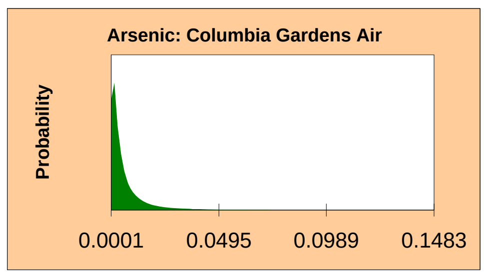
Percentiles:	Assumption values	Distribution
5%	0.0008	0.0008
95%	0.0485	0.0480

Assumption: Arsenic: Columbia Gardens Air **Cell: D4**

Lognormal distribution with parameters:

Mean	0.0075
Std. Dev.	0.0134

Selected range is from 0.0000 to 100.0000



Assumption: Arsenic: Columbia Gardens Air (cont'd) **Cell: D4**

Statistics:	Assumption values	Distribution
Trials	10,000	---
Mean	0.0076	0.0076
Median	0.0037	0.0036
Mode	---	---
Standard Deviation	0.0142	0.0133
Variance	0.0002	0.0002
Skewness	10.03	9.74
Kurtosis	221.63	245.30
Coeff. of Variability	1.86	1.75
Minimum	0.0000	0.0000
Maximum	0.5165	100.0000
Range Width	0.5165	100.0000
Mean Std. Error	0.0001	---

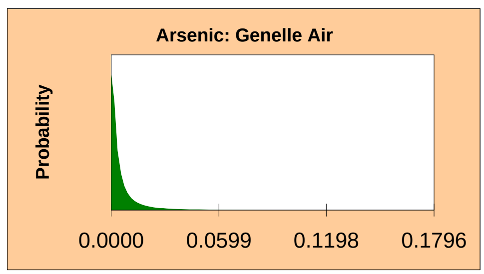
Percentiles:	Assumption values	Distribution
5%	0.0005	0.0005
95%	0.0260	0.0262

Assumption: Arsenic: Genelle Air **Cell: E4**

Lognormal distribution with parameters:

Mean	0.0075
Std. Dev.	0.0158

Selected range is from 0.0000 to 100.0000



Assumption: Arsenic: Genelle Air (cont'd) **Cell: E4**

Statistics:	Assumption values	Distribution
Trials	10,000	---
Mean	0.0075	0.0080
Median	0.0032	0.0032
Mode	---	---
Standard Deviation	0.0168	0.0156
Variance	0.0003	0.0002
Skewness	12.59	12.91
Kurtosis	320.16	434.24
Coeff. of Variability	2.24	1.96
Minimum	0.0000	0.0000
Maximum	0.6732	100.0000
Range Width	0.6732	100.0000
Mean Std. Error	0.0002	---

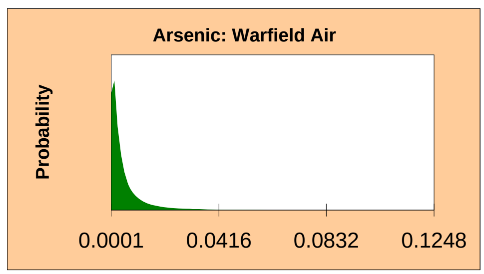
Percentiles:	Assumption values	Distribution
5%	0.0004	0.0004
95%	0.0265	0.0273

Assumption: Arsenic: Warfield Air **Cell: F4**

Lognormal distribution with parameters:

Mean	0.0062
Std. Dev.	0.0112

Selected range is from 0.0000 to 100.0000



Assumption: Arsenic: Warfield Air (cont'd) **Cell: F4**

Statistics:	Assumption values	Distribution
Trials	10,000	---
Mean	0.0061	0.0063
Median	0.0030	0.0030
Mode	---	---
Standard Deviation	0.0115	0.0112
Variance	0.0001	0.0001
Skewness	8.95	10.01
Kurtosis	138.60	259.51
Coeff. of Variability	1.88	1.77
Minimum	0.0000	0.0000
Maximum	0.2667	100.0000
Range Width	0.2667	100.0000
Mean Std. Error	0.0001	---

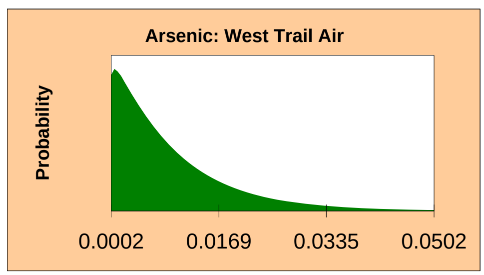
Percentiles:	Assumption values	Distribution
5%	0.0004	0.0004
95%	0.0209	0.0217

Assumption: Arsenic: West Trail Air **Cell: G4**

Gamma distribution with parameters:

Location	0.0002
Scale	0.0092
Shape	1.053034325

Selected range is from 0.0000 to 100.0000



Assumption: Arsenic: West Trail Air (cont'd) **Cell: G4**

Statistics:	Assumption values	Distribution
Trials	10,000	---
Mean	0.0099	0.0099
Median	0.0071	0.0071
Mode	---	---
Standard Deviation	0.0093	0.0095
Variance	0.0001	0.0001
Skewness	1.83	1.95
Kurtosis	7.77	8.67
Coeff. of Variability	0.9360	0.9516
Minimum	0.0002	0.0002
Maximum	0.0866	100.0000
Range Width	0.0863	99.9998
Mean Std. Error	0.0001	---

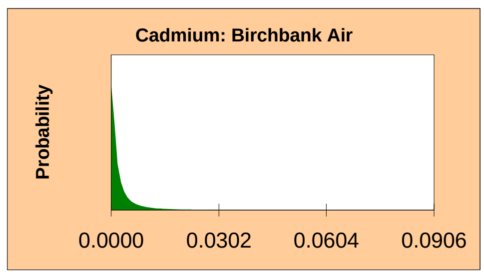
Percentiles:	Assumption values	Distribution
5%	0.0008	0.0008
95%	0.0284	0.0288

Assumption: Cadmium: Birchbank Air **Cell: B5**

Lognormal distribution with parameters:

Mean	0.0035
Std. Dev.	0.0079

Selected range is from 0.0000 to 100.0000



Assumption: Cadmium: Birchbank Air (cont'd) **Cell: B5**

Statistics:	Assumption values	Distribution
Trials	10,000	---
Mean	0.0035	0.0039
Median	0.0014	0.0014
Mode	---	---
Standard Deviation	0.0076	0.0078
Variance	0.0001	0.0001
Skewness	10.13	14.19
Kurtosis	172.29	524.58
Coeff. of Variability	2.18	2.02
Minimum	0.0000	0.0000
Maximum	0.1892	100.0000
Range Width	0.1892	100.0000
Mean Std. Error	0.0001	---

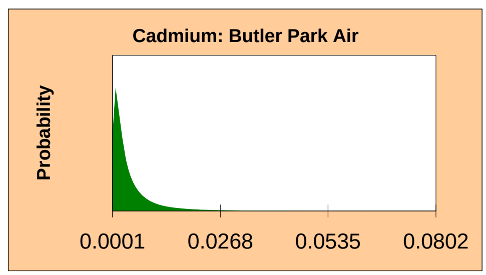
Percentiles:	Assumption values	Distribution
5%	0.0002	0.0002
95%	0.0131	0.0131

Assumption: Cadmium: Butler Park Air **Cell: C5**

Lognormal distribution with parameters:

Mean	0.0048
Std. Dev.	0.0075

Selected range is from 0.0000 to 100.0000



Assumption: Cadmium: Butler Park Air (cont'd) **Cell: C5**

Statistics:	Assumption values	Distribution
Trials	10,000	---
Mean	0.0049	0.0049
Median	0.0026	0.0026
Mode	---	---
Standard Deviation	0.0079	0.0075
Variance	0.0001	0.0001
Skewness	6.86	7.64
Kurtosis	87.14	148.15
Coeff. of Variability	1.60	1.54
Minimum	0.0000	0.0000
Maximum	0.1837	100.0000
Range Width	0.1837	100.0000
Mean Std. Error	0.0001	---

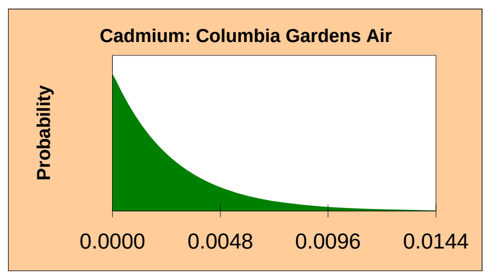
Percentiles:	Assumption values	Distribution
5%	0.0004	0.0004
95%	0.0163	0.0162

Assumption: Cadmium: Columbia Gardens Air **Cell: D5**

Exponential distribution with parameters:

Rate	367.4900

Selected range is from 0.0000 to 100.0000



Assumption: Cadmium: Columbia Gardens Air (cont'd) **Cell: D5**

Statistics:	Assumption values	Distribution
Trials	10,000	---
Mean	0.0027	0.0027
Median	0.0019	0.0019
Mode	---	---
Standard Deviation	0.0028	0.0027
Variance	0.0000	0.0000
Skewness	2.00	2.00
Kurtosis	8.59	8.97
Coeff. of Variability	1.01	0.9997
Minimum	0.0000	0.0000
Maximum	0.0254	100.0000
Range Width	0.0254	100.0000
Mean Std. Error	0.0000	---

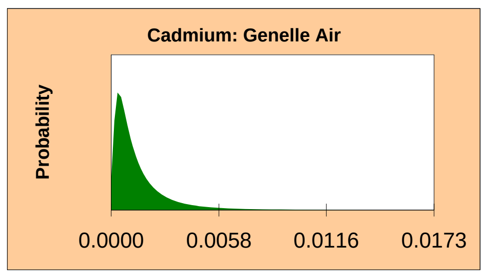
Percentiles:	Assumption values	Distribution
5%	0.0001	0.0001
95%	0.0082	0.0082

Assumption: Cadmium: Genelle Air **Cell: E5**

Lognormal distribution with parameters:

Mean	0.0015
Std. Dev.	0.0018

Selected range is from 0.0000 to 100.0000



Assumption: Cadmium: Genelle Air (cont'd) **Cell: E5**

Statistics:	Assumption values	Distribution
Trials	10,000	---
Mean	0.0015	0.0015
Median	0.0010	0.0010
Mode	---	---
Standard Deviation	0.0018	0.0018
Variance	0.0000	0.0000
Skewness	6.31	4.83
Kurtosis	110.83	56.44
Coeff. of Variability	1.16	1.16
Minimum	0.0000	0.0000
Maximum	0.0510	100.0000
Range Width	0.0509	100.0000
Mean Std. Error	0.0000	---

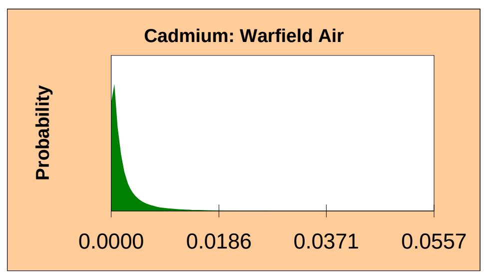
Percentiles:	Assumption values	Distribution
5%	0.0002	0.0002
95%	0.0046	0.0046

Assumption: Cadmium: Warfield Air **Cell: F5**

Lognormal distribution with parameters:

Mean	0.0028
Std. Dev.	0.0050

Selected range is from 0.0000 to 100.0000



Assumption: Cadmium: Warfield Air (cont'd) **Cell: F5**

Statistics:	Assumption values	Distribution
Trials	10,000	---
Mean	0.0028	0.0029
Median	0.0014	0.0014
Mode	---	---
Standard Deviation	0.0050	0.0050
Variance	0.0000	0.0000
Skewness	7.25	9.64
Kurtosis	96.00	240.39
Coeff. of Variability	1.75	1.74
Minimum	0.0000	0.0000
Maximum	0.1127	100.0000
Range Width	0.1127	100.0000
Mean Std. Error	0.0000	---

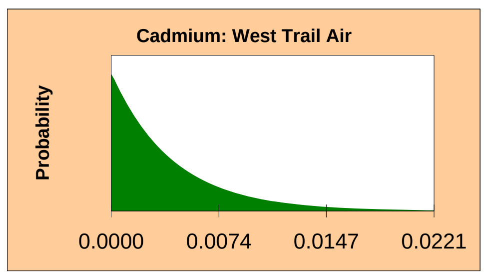
Percentiles:	Assumption values	Distribution
5%	0.0002	0.0002
95%	0.0099	0.0099

Assumption: Cadmium: West Trail Air **Cell: G5**

Exponential distribution with parameters:

Rate	239.9567

Selected range is from 0.0000 to 100.0000



Assumption: Cadmium: West Trail Air (cont'd) **Cell: G5**

Statistics:	Assumption values	Distribution
Trials	10,000	---
Mean	0.0041	0.0042
Median	0.0028	0.0029
Mode	---	---
Standard Deviation	0.0041	0.0042
Variance	0.0000	0.0000
Skewness	2.13	2.00
Kurtosis	10.14	8.97
Coeff. of Variability	1.01	0.9997
Minimum	0.0000	0.0000
Maximum	0.0449	100.0000
Range Width	0.0449	100.0000
Mean Std. Error	0.0000	---

Percentiles:	Assumption values	Distribution
5%	0.0002	0.0002
95%	0.0123	0.0125

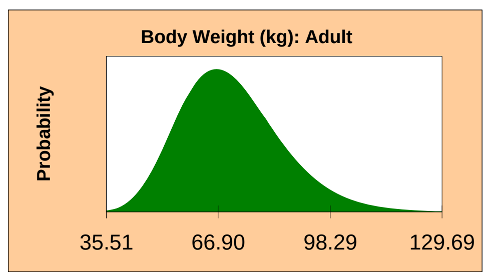
Worksheet: [C164_ExpTox.xls]ExpParam

Assumption: Body Weight (kg): Adult **Cell: C46**

Lognormal distribution with parameters:

Mean	70.70
Std. Dev.	14.50

Selected range is from 0.00 to 200.00



Assumption: Body Weight (kg): Adult (cont'd)

Cell: C46

Statistics:	Assumption values	Distribution
Trials	10,000	---
Mean	70.72	70.70
Median	69.39	69.26
Mode	---	---
Standard Deviation	14.44	14.50
Variance	208.49	210.28
Skewness	0.5607	0.6232
Kurtosis	3.49	3.70
Coeff. of Variability	0.2042	0.2051
Minimum	31.83	0.00
Maximum	147.91	200.00
Range Width	116.08	200.00
Mean Std. Error	0.14	---

Percentiles:	Assumption values	Distribution
5%	49.50	49.60
95%	96.77	96.71

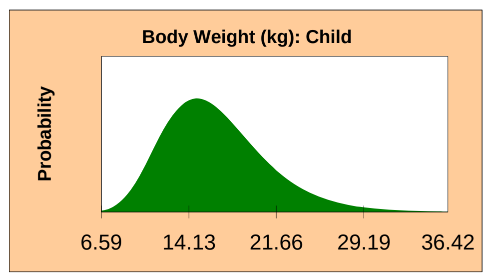
Assumption: Body Weight (kg): Child

Cell: C45

Lognormal distribution with parameters:

Mean	16.50
Std. Dev.	4.50

Selected range is from 0.00 to 100.00



Assumption: Body Weight (kg): Child (cont'd) **Cell: C45**

Statistics:	Assumption values	Distribution
Trials	10,000	---
Mean	16.50	16.50
Median	15.93	15.92
Mode	---	---
Standard Deviation	4.53	4.50
Variance	20.48	20.25
Skewness	0.8420	0.8374
Kurtosis	4.24	4.27
Coeff. of Variability	0.2743	0.2727
Minimum	5.50	0.00
Maximum	47.29	100.00
Range Width	41.78	100.00
Mean Std. Error	0.05	---

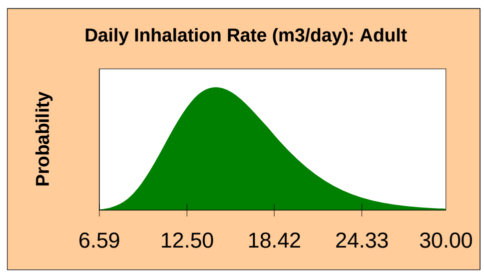
Percentiles:	Assumption values	Distribution
5%	10.13	10.25
95%	24.74	24.73

Assumption: Daily Inhalation Rate (m3/day): Adult **Cell: C18**

Lognormal distribution with parameters:

Mean	15.80
Std. Dev.	3.90

Selected range is from 0.00 to 30.00



Assumption: Daily Inhalation Rate (m3/day): Adult (cont'd) **Cell: C18**

Statistics:	Assumption values	Distribution
Trials	10,000	---
Mean	15.78	15.75
Median	15.41	15.33
Mode	---	---
Standard Deviation	3.80	3.80
Variance	14.43	14.44
Skewness	0.5879	0.6003
Kurtosis	3.32	3.31
Coeff. of Variability	0.2407	0.2412
Minimum	5.61	0.00
Maximum	29.86	30.00
Range Width	24.25	30.00
Mean Std. Error	0.04	---

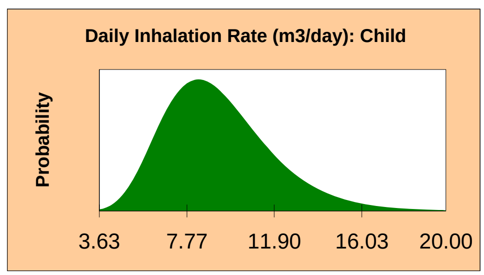
Percentiles:	Assumption values	Distribution
5%	10.26	10.28
95%	22.67	22.74

Assumption: Daily Inhalation Rate (m3/day): Child **Cell: C17**

Lognormal distribution with parameters:

Mean	9.30
Std. Dev.	2.60

Selected range is from 0.00 to 20.00



Assumption: Daily Inhalation Rate (m3/day): Child (cont'd) **Cell: C17**

Statistics:	Assumption values	Distribution
Trials	10,000	---
Mean	9.29	9.28
Median	8.96	8.95
Mode	---	---
Standard Deviation	2.52	2.55
Variance	6.37	6.50
Skewness	0.7402	0.7295
Kurtosis	3.65	3.64
Coeff. of Variability	0.2718	0.2748
Minimum	3.24	0.00
Maximum	19.90	20.00
Range Width	16.66	20.00
Mean Std. Error	0.03	---

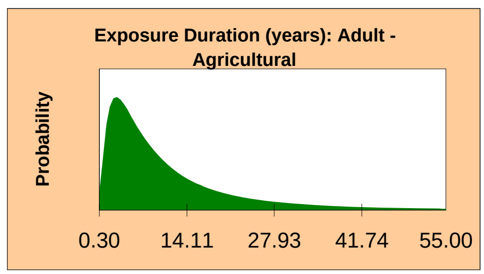
Percentiles:	Assumption values	Distribution
5%	5.76	5.70
95%	13.97	14.00

Assumption: Exposure Duration (years): Adult - Agricultural **Cell: C43**

Lognormal distribution with parameters:

Mean	12.60
Std. Dev.	16.20

Selected range is from 0.00 to 55.00



Assumption: Exposure Duration (years): Adult - Agricultural (cont'd) **Cell: C43**

Statistics:	Assumption values	Distribution
Trials	10,000	---
Mean	10.98	10.85
Median	7.60	7.51
Mode	---	---
Standard Deviation	10.01	9.99
Variance	100.16	99.71
Skewness	1.67	1.76
Kurtosis	5.75	6.20
Coeff. of Variability	0.9114	0.9203
Minimum	0.21	0.00
Maximum	54.95	55.00
Range Width	54.75	55.00
Mean Std. Error	0.10	---

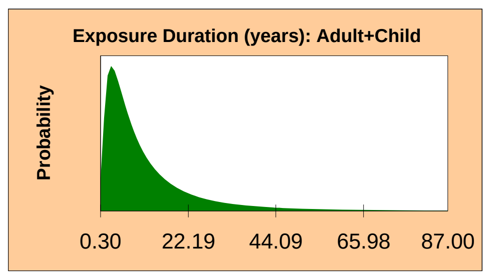
Percentiles:	Assumption values	Distribution
5%	1.50	1.51
95%	32.91	32.67

Assumption: Exposure Duration (years): Adult+Child **Cell: C42**

Lognormal distribution with parameters:

Mean	12.60
Std. Dev.	16.20

Selected range is from 0.00 to 87.00



Assumption: Exposure Duration (years): Adult+Child (cont'd) **Cell: C42**

Statistics:	Assumption values	Distribution
Trials	10,000	---
Mean	11.80	11.78
Median	7.81	7.67
Mode	---	---
Standard Deviation	12.11	12.28
Variance	146.68	150.76
Skewness	2.37	2.41
Kurtosis	10.03	10.33
Coeff. of Variability	1.03	1.04
Minimum	0.19	0.00
Maximum	86.68	87.00
Range Width	86.49	87.00
Mean Std. Error	0.12	---

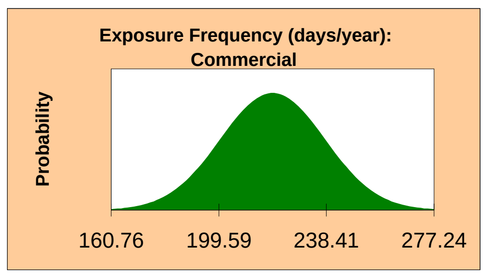
Percentiles:	Assumption values	Distribution
5%	1.58	1.52
95%	36.69	36.92

Assumption: Exposure Frequency (days/year): Commercial **Cell: C8**

Normal distribution with parameters:

Mean	219.00
95%	250.00

Selected range is from 0.00 to 365.00



Assumption: Exposure Frequency (days/year): Commercial (cont'd) **Cell: C8**

Statistics:	Assumption values	Distribution
Trials	10,000	---
Mean	218.89	219.00
Median	218.96	219.00
Mode	---	---
Standard Deviation	18.75	18.85
Variance	351.53	355.24
Skewness	0.0179	0.00
Kurtosis	3.02	3.00
Coeff. of Variability	0.0857	0.0861
Minimum	149.08	0.00
Maximum	289.10	365.00
Range Width	140.02	365.00
Mean Std. Error	0.19	---

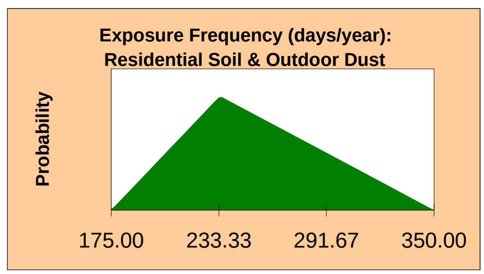
Percentiles:	Assumption values	Distribution
5%	187.64	188.00
95%	249.29	250.00

Assumption: Exposure Frequency (days/year): Residential Soil & Outdoor Dust **Cell: C3**

Triangular distribution with parameters:

Minimum	175.00
Likeliest	234.00
Maximum	350.00

Selected range is from 0.00 to 365.00



Assumption: Exposure Frequency (days/year): Residential Soil & Outdoor Dust (cont'd) **Cell: C3**

Statistics:	Assumption values	Distribution
Trials	10,000	---
Mean	253.57	253.00
Median	249.67	249.25
Mode	---	234.00
Standard Deviation	36.56	36.35
Variance	1,336.72	1,321.17
Skewness	0.2814	0.2994
Kurtosis	2.38	2.40
Coeff. of Variability	0.1442	0.1437
Minimum	175.45	175.00
Maximum	348.21	350.00
Range Width	172.76	175.00
Mean Std. Error	0.37	---

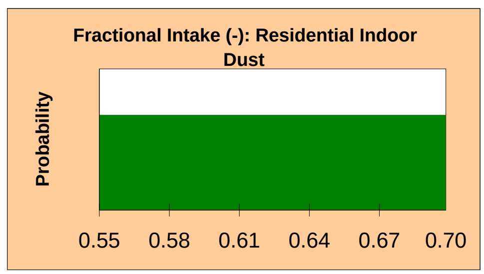
Percentiles:	Assumption values	Distribution
5%	197.60	197.72
95%	319.17	318.14

Assumption: Fractional Intake (-): Residential Indoor Dust **Cell: C11**

Uniform distribution with parameters:

Minimum	0.55
Maximum	0.70

Selected range is from 0.00 to 1.00



Assumption: Fractional Intake (-): Residential Indoor Dust (cont'd) **Cell: C11**

Statistics:	Assumption values	Distribution
Trials	10,000	---
Mean	0.63	0.63
Median	0.63	0.63
Mode	---	---
Standard Deviation	0.04	0.04
Variance	0.00	0.00
Skewness	-0.0160	0.00
Kurtosis	1.80	1.80
Coeff. of Variability	0.0693	0.0693
Minimum	0.55	0.55
Maximum	0.70	0.70
Range Width	0.15	0.15
Mean Std. Error	0.00	---

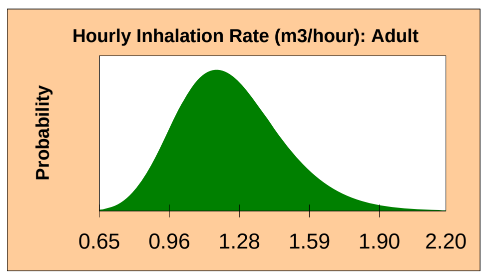
Percentiles:	Assumption values	Distribution
5%	0.56	0.56
95%	0.69	0.69

Assumption: Hourly Inhalation Rate (m3/hour): Adult **Cell: C21**

Lognormal distribution with parameters:

Mean	1.24
Std. Dev.	0.24

Selected range is from 0.00 to 5.00



Assumption: Hourly Inhalation Rate (m3/hour): Adult (cont'd) **Cell: C21**

Statistics:	Assumption values	Distribution
Trials	10,000	---
Mean	1.24	1.24
Median	1.22	1.22
Mode	---	---
Standard Deviation	0.24	0.24
Variance	0.06	0.06
Skewness	0.6173	0.5873
Kurtosis	3.77	3.62
Coeff. of Variability	0.1955	0.1936
Minimum	0.59	0.00
Maximum	2.65	5.00
Range Width	2.06	5.00
Mean Std. Error	0.00	---

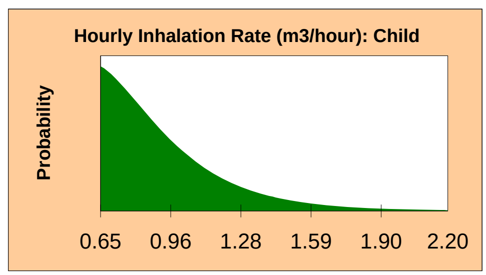
Percentiles:	Assumption values	Distribution
5%	0.88	0.89
95%	1.67	1.67

Assumption: Hourly Inhalation Rate (m3/hour): Child **Cell: C20**

Lognormal distribution with parameters:

Mean	0.75
Std. Dev.	0.32

Selected range is from 0.00 to 4.00



Assumption: Hourly Inhalation Rate (m3/hour): Child (cont'd)

Cell: C20

Statistics:	Assumption values	Distribution
Trials	10,000	---
Mean	0.76	0.75
Median	0.70	0.69
Mode	---	---
Standard Deviation	0.32	0.32
Variance	0.10	0.10
Skewness	1.33	1.35
Kurtosis	6.18	6.30
Coeff. of Variability	0.4249	0.4265
Minimum	0.13	0.00
Maximum	3.21	4.00
Range Width	3.07	4.00
Mean Std. Error	0.00	---

Percentiles:	Assumption values	Distribution
5%	0.36	0.35
95%	1.35	1.35

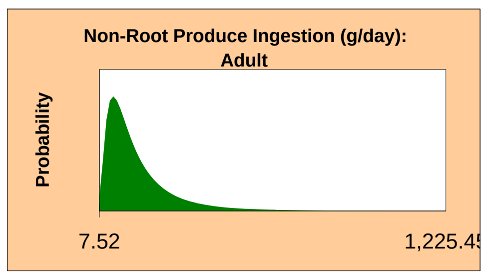
Assumption: Non-Root Produce Ingestion (g/day): Adult

Cell: C57

Lognormal distribution with parameters:

Mean	143.00
Std. Dev.	135.00

Selected range is from 0.00 to 2,000.00



Assumption: Non-Root Produce Ingestion (g/day): Adult (cont'd) **Cell: C57**

Statistics:	Assumption values	Distribution
Trials	10,000	---
Mean	143.38	142.75
Median	104.23	103.97
Mode	---	---
Standard Deviation	132.10	132.76
Variance	17,451.44	17,625.00
Skewness	3.15	3.18
Kurtosis	20.13	20.84
Coeff. of Variability	0.9213	0.9300
Minimum	4.88	0.00
Maximum	1,779.45	2,000.00
Range Width	1,774.57	2,000.00
Mean Std. Error	1.32	---

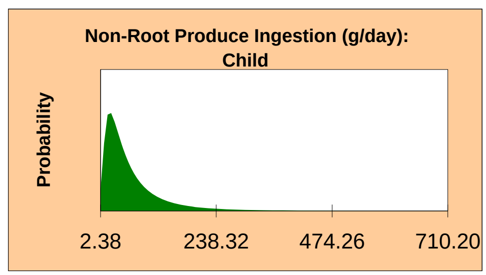
Percentiles:	Assumption values	Distribution
5%	28.45	27.97
95%	388.27	386.25

Assumption: Non-Root Produce Ingestion (g/day): Child **Cell: C56**

Lognormal distribution with parameters:

Mean	67.00
Std. Dev.	74.00

Selected range is from 0.00 to 1,000.00



Assumption: Non-Root Produce Ingestion (g/day): Child (cont'd) **Cell: C56**

Statistics:	Assumption values	Distribution
Trials	10,000	---
Mean	66.56	66.69
Median	45.46	44.96
Mode	---	---
Standard Deviation	68.15	71.17
Variance	4,644.25	5,065.35
Skewness	3.20	3.54
Kurtosis	19.98	23.95
Coeff. of Variability	1.02	1.07
Minimum	1.65	0.00
Maximum	936.86	1,000.00
Range Width	935.21	1,000.00
Mean Std. Error	0.68	---

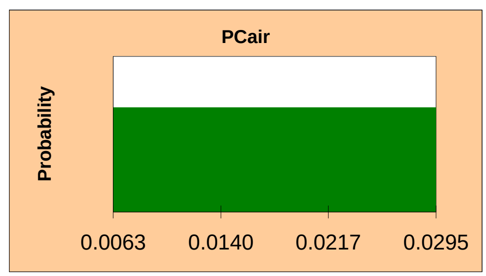
Percentiles:	Assumption values	Distribution
5%	10.44	10.35
95%	191.75	194.94

Assumption: PCair **Cell: C59**

Uniform distribution with parameters:

Minimum	0.0063
Maximum	0.0295

Selected range is from 0.0000 to 2.1016



Assumption: PCair (cont'd) **Cell: C59**

Statistics:	Assumption values	Distribution
Trials	10,000	---
Mean	0.0179	0.0179
Median	0.0179	0.0179
Mode	---	---
Standard Deviation	0.0067	0.0067
Variance	0.0000	0.0000
Skewness	-0.0031	0.00
Kurtosis	1.81	1.80
Coeff. of Variability	0.3722	0.3745
Minimum	0.0063	0.0063
Maximum	0.0295	0.0295
Range Width	0.0232	0.0232
Mean Std. Error	0.0001	---

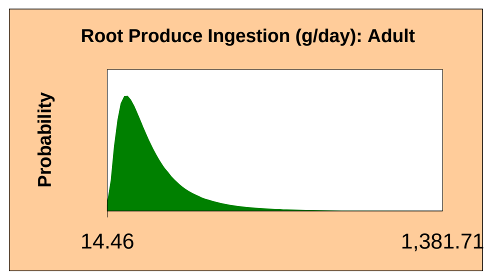
Percentiles:	Assumption values	Distribution
5%	0.0075	0.0074
95%	0.0283	0.0283

Assumption: Root Produce Ingestion (g/day): Adult **Cell: C55**

Lognormal distribution with parameters:

Mean	196.00
Std. Dev.	160.00

Selected range is from 0.00 to 2,000.00



Assumption: Root Produce Ingestion (g/day): Adult (cont'd) **Cell: C55**

Statistics:	Assumption values	Distribution
Trials	10,000	---
Mean	194.77	195.65
Median	150.50	151.81
Mode	---	---
Standard Deviation	158.49	157.51
Variance	25,119.12	24,808.48
Skewness	2.81	2.64
Kurtosis	17.28	14.95
Coeff. of Variability	0.8137	0.8050
Minimum	9.99	0.00
Maximum	1,962.45	2,000.00
Range Width	1,952.46	2,000.00
Mean Std. Error	1.58	---

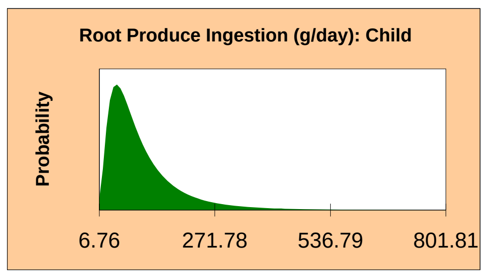
Percentiles:	Assumption values	Distribution
5%	46.54	46.87
95%	485.83	491.37

Assumption: Root Produce Ingestion (g/day): Child **Cell: C54**

Lognormal distribution with parameters:

Mean	105.00
Std. Dev.	91.00

Selected range is from 0.00 to 1,000.00



Assumption: Root Produce Ingestion (g/day): Child (cont'd) **Cell: C54**

Statistics:	Assumption values	Distribution
Trials	10,000	---
Mean	104.78	104.60
Median	79.36	79.32
Mode	---	---
Standard Deviation	89.78	88.34
Variance	8,059.80	7,803.66
Skewness	2.67	2.66
Kurtosis	14.35	14.56
Coeff. of Variability	0.8568	0.8446
Minimum	4.98	0.00
Maximum	980.72	1,000.00
Range Width	975.75	1,000.00
Mean Std. Error	0.90	---

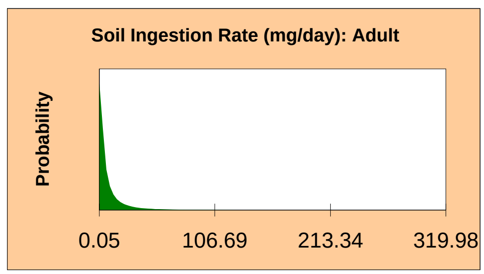
Percentiles:	Assumption values	Distribution
5%	22.30	23.16
95%	275.10	271.12

Assumption: Soil Ingestion Rate (mg/day): Adult **Cell: C14**

Lognormal distribution with parameters:

Mean	11.90
95%	44.30

Selected range is from 0.00 to 2,000.00



Assumption: Soil Ingestion Rate (mg/day): Adult (cont'd) **Cell: C14**

Statistics:	Assumption values	Distribution
Trials	10,000	---
Mean	12.03	12.39
Median	4.67	4.67
Mode	---	---
Standard Deviation	26.61	26.99
Variance	708.31	728.28
Skewness	8.82	12.93
Kurtosis	135.51	371.11
Coeff. of Variability	2.21	2.18
Minimum	0.05	0.00
Maximum	702.54	2,000.00
Range Width	702.49	2,000.00
Mean Std. Error	0.27	---

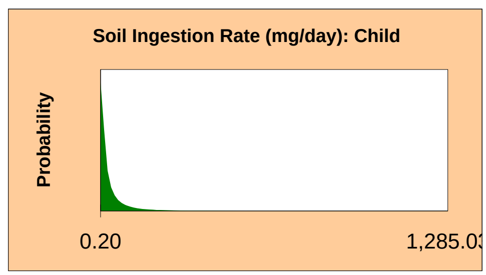
Percentiles:	Assumption values	Distribution
5%	0.51	0.49
95%	44.75	44.30

Assumption: Soil Ingestion Rate (mg/day): Child **Cell: C13**

Lognormal distribution with parameters:

Mean	47.50
95%	177.00

Selected range is from 0.00 to 5,000.00



Assumption: Soil Ingestion Rate (mg/day): Child (cont'd) **Cell: C13**

Statistics:	Assumption values	Distribution
Trials	10,000	---
Mean	45.52	48.12
Median	18.24	18.54
Mode	---	---
Standard Deviation	90.03	105.68
Variance	8,105.78	11,168.09
Skewness	7.34	10.92
Kurtosis	95.55	234.27
Coeff. of Variability	1.98	2.20
Minimum	0.08	0.00
Maximum	2,192.38	5,000.00
Range Width	2,192.30	5,000.00
Mean Std. Error	0.90	---

Percentiles:	Assumption values	Distribution
5%	1.82	1.94
95%	178.01	176.95

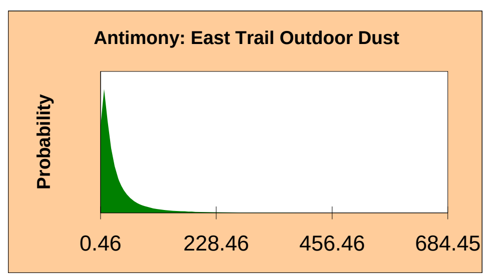
Worksheet: [C164_Soil_Dust_Produce.xls]Media Conc

Assumption: Antimony: East Trail Outdoor Dust **Cell: B7**

Lognormal distribution with parameters:

Mean	38.40
Std. Dev.	63.10

Selected range is from 0.00 to 1,000.00



Assumption: Antimony: East Trail Outdoor Dust (cont'd) **Cell: B7**

Statistics:	Assumption values	Distribution
Trials	10,000	---
Mean	37.12	37.97
Median	19.63	19.95
Mode	---	---
Standard Deviation	56.13	57.58
Variance	3,150.38	3,316.01
Skewness	5.51	5.19
Kurtosis	54.03	46.55
Coeff. of Variability	1.51	1.52
Minimum	0.15	0.00
Maximum	963.44	1,000.00
Range Width	963.30	1,000.00
Mean Std. Error	0.56	---

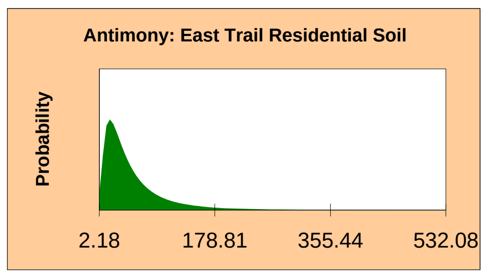
Percentiles:	Assumption values	Distribution
5%	3.00	3.04
95%	126.58	130.59

Assumption: Antimony: East Trail Residential Soil **Cell: B5**

Lognormal distribution with parameters:

Mean	53.79
Std. Dev.	56.45

Selected range is from 0.00 to 1,000.00



Assumption: Antimony: East Trail Residential Soil (cont'd) **Cell: B5**

Statistics:	Assumption values	Distribution
Trials	10,000	---
Mean	53.68	53.71
Median	36.64	37.10
Mode	---	---
Standard Deviation	55.96	55.57
Variance	3,131.18	3,087.69
Skewness	3.97	3.70
Kurtosis	32.52	27.99
Coeff. of Variability	1.04	1.03
Minimum	1.14	0.00
Maximum	829.92	1,000.00
Range Width	828.78	1,000.00
Mean Std. Error	0.56	---

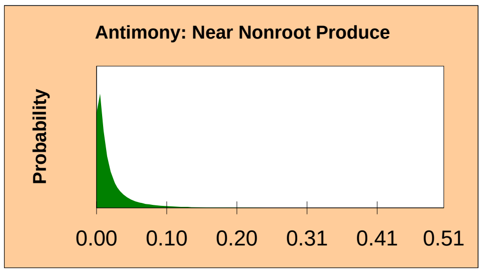
Percentiles:	Assumption values	Distribution
5%	9.01	8.99
95%	151.56	153.04

Assumption: Antimony: Near Nonroot Produce **Cell: G9**

Lognormal distribution with parameters:

Mean	0.03
Std. Dev.	0.05

Selected range is from 0.00 to 100.00



Assumption: Antimony: Near Nonroot Produce (cont'd) **Cell: G9**

Statistics:	Assumption values	Distribution
Trials	10,000	---
Mean	0.03	0.03
Median	0.01	0.01
Mode	---	---
Standard Deviation	0.04	0.05
Variance	0.00	0.00
Skewness	5.36	9.46
Kurtosis	46.18	231.05
Coeff. of Variability	1.65	1.72
Minimum	0.00	0.00
Maximum	0.67	100.00
Range Width	0.67	100.00
Mean Std. Error	0.00	---

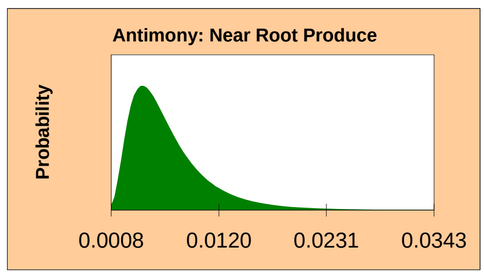
Percentiles:	Assumption values	Distribution
5%	0.00	0.00
95%	0.09	0.09

Assumption: Antimony: Near Root Produce **Cell: G8**

Lognormal distribution with parameters:

Mean	0.0067
Std. Dev.	0.0043

Selected range is from 0.0000 to 100.0000



Assumption: Antimony: Near Root Produce (cont'd) **Cell: G8**

Statistics:	Assumption values	Distribution
Trials	10,000	---
Mean	0.0067	0.0067
Median	0.0057	0.0057
Mode	---	---
Standard Deviation	0.0042	0.0043
Variance	0.0000	0.0000
Skewness	1.98	2.14
Kurtosis	10.01	11.98
Coeff. of Variability	0.6223	0.6336
Minimum	0.0007	0.0000
Maximum	0.0449	100.0000
Range Width	0.0442	100.0000
Mean Std. Error	0.0000	---

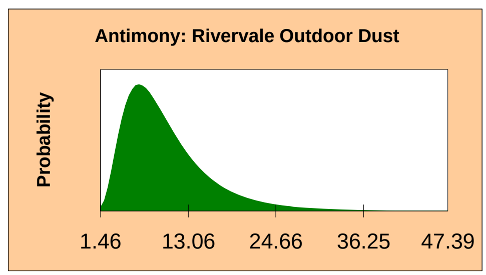
Percentiles:	Assumption values	Distribution
5%	0.0022	0.0022
95%	0.0148	0.0148

Assumption: Antimony: Rivervale Outdoor Dust **Cell: C7**

Lognormal distribution with parameters:

Mean	10.20
Std. Dev.	6.00

Selected range is from 0.00 to 1,000.00



Assumption: Antimony: Rivervale Outdoor Dust (cont'd) **Cell: C7**

Statistics:	Assumption values	Distribution
Trials	10,000	---
Mean	10.13	10.20
Median	8.67	8.79
Mode	---	---
Standard Deviation	5.92	6.00
Variance	35.03	36.01
Skewness	1.85	1.96
Kurtosis	9.03	10.41
Coeff. of Variability	0.5844	0.5883
Minimum	1.24	0.00
Maximum	58.22	1,000.00
Range Width	56.99	1,000.00
Mean Std. Error	0.06	---

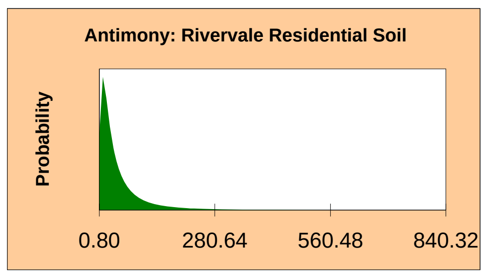
Percentiles:	Assumption values	Distribution
5%	3.54	3.59
95%	21.59	21.55

Assumption: Antimony: Rivervale Residential Soil **Cell: C5**

Lognormal distribution with parameters:

Mean	52.30
Std. Dev.	79.14

Selected range is from 0.00 to 1,000.00



Assumption: Antimony: Rivervale Residential Soil (cont'd) **Cell: C5**

Statistics:	Assumption values	Distribution
Trials	10,000	---
Mean	51.41	51.52
Median	28.75	28.82
Mode	---	---
Standard Deviation	70.37	71.16
Variance	4,952.27	5,063.43
Skewness	4.22	4.38
Kurtosis	30.76	32.84
Coeff. of Variability	1.37	1.38
Minimum	0.27	0.00
Maximum	973.14	1,000.00
Range Width	972.87	1,000.00
Mean Std. Error	0.70	---

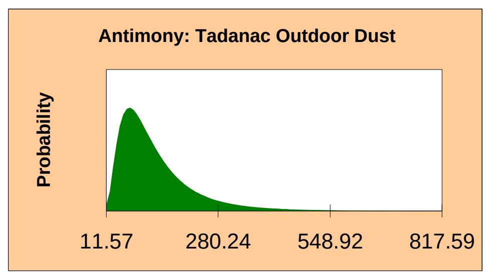
Percentiles:	Assumption values	Distribution
5%	4.73	4.79
95%	170.67	172.57

Assumption: Antimony: Tadanac Outdoor Dust **Cell: D7**

Lognormal distribution with parameters:

Mean	129.90
Std. Dev.	97.30

Selected range is from 0.00 to 1,000.00



Assumption: Antimony: Tadanac Outdoor Dust (cont'd) **Cell: D7**

Statistics:	Assumption values	Distribution
Trials	10,000	---
Mean	128.18	129.53
Median	103.59	103.94
Mode	---	---
Standard Deviation	93.92	95.14
Variance	8,820.52	9,051.81
Skewness	2.27	2.28
Kurtosis	11.52	11.50
Coeff. of Variability	0.7327	0.7345
Minimum	7.01	0.00
Maximum	984.08	1,000.00
Range Width	977.07	1,000.00
Mean Std. Error	0.94	---

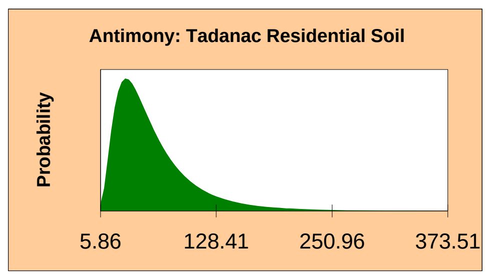
Percentiles:	Assumption values	Distribution
5%	34.45	34.68
95%	308.64	310.96

Assumption: Antimony: Tadanac Residential Soil **Cell: D5**

Lognormal distribution with parameters:

Mean	61.75
Std. Dev.	44.86

Selected range is from 0.00 to 1,000.00



Assumption: Antimony: Tadanac Residential Soil (cont'd) **Cell: D5**

Statistics:	Assumption values	Distribution
Trials	10,000	---
Mean	62.50	61.74
Median	51.04	49.96
Mode	---	---
Standard Deviation	44.65	44.84
Variance	1,993.25	2,010.71
Skewness	2.31	2.53
Kurtosis	12.37	15.59
Coeff. of Variability	0.7144	0.7262
Minimum	3.65	0.00
Maximum	556.18	1,000.00
Range Width	552.52	1,000.00
Mean Std. Error	0.45	---

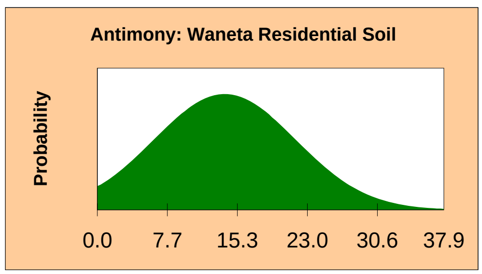
Percentiles:	Assumption values	Distribution
5%	17.37	17.12
95%	146.88	145.76

Assumption: Antimony: Waneta Residential Soil **Cell: E5**

Normal distribution with parameters:

Mean	13.9
Std. Dev.	7.8

Selected range is from 0.0 to 1000.0



Assumption: Antimony: Waneta Residential Soil (cont'd)

Cell: E5

Statistics:	Assumption values	Distribution
Trials	10,000	---
Mean	14.6	14.6
Median	14.4	14.3
Mode	---	---
Standard Deviation	7.2	7.1
Variance	51.2	50.9
Skewness	0.2803	0.2849
Kurtosis	2.73	2.76
Coeff. of Variability	0.4900	0.4893
Minimum	0.0	0.0
Maximum	42.8	1000.0
Range Width	42.8	1000.0
Mean Std. Error	0.1	---

Percentiles:	Assumption values	Distribution
5%	3.3	3.3
95%	26.9	26.8

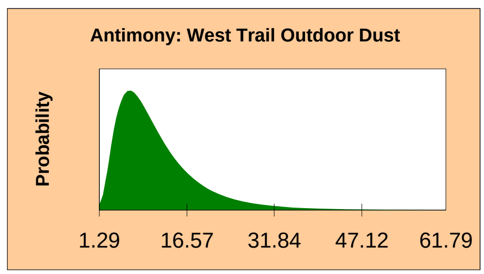
Assumption: Antimony: West Trail Outdoor Dust

Cell: F7

Lognormal distribution with parameters:

Mean	11.40
Std. Dev.	7.60

Selected range is from 0.00 to 1,000.00



Assumption: Antimony: West Trail Outdoor Dust (cont'd) **Cell: F7**

Statistics:	Assumption values	Distribution
Trials	10,000	---
Mean	11.36	11.40
Median	9.39	9.49
Mode	---	---
Standard Deviation	7.70	7.60
Variance	59.27	57.78
Skewness	2.60	2.28
Kurtosis	19.20	13.27
Coeff. of Variability	0.6776	0.6668
Minimum	0.71	0.00
Maximum	137.77	1,000.00
Range Width	137.06	1,000.00
Mean Std. Error	0.08	---

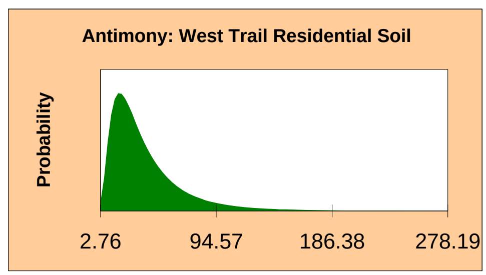
Percentiles:	Assumption values	Distribution
5%	3.48	3.50
95%	25.64	25.72

Assumption: Antimony: West Trail Residential Soil **Cell: F5**

Lognormal distribution with parameters:

Mean	38.67
Std. Dev.	32.05

Selected range is from 0.00 to 1,000.00



Assumption: Antimony: West Trail Residential Soil (cont'd) **Cell: F5**

Statistics:	Assumption values	Distribution
Trials	10,000	---
Mean	38.51	38.66
Median	29.77	29.77
Mode	---	---
Standard Deviation	31.86	32.05
Variance	1,014.97	1,027.11
Skewness	2.83	3.01
Kurtosis	17.43	21.62
Coeff. of Variability	0.8272	0.8289
Minimum	1.88	0.00
Maximum	434.60	1,000.00
Range Width	432.73	1,000.00
Mean Std. Error	0.32	---

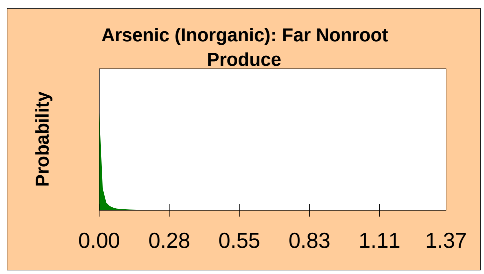
Percentiles:	Assumption values	Distribution
5%	8.75	9.06
95%	96.36	97.81

Assumption: Arsenic (Inorganic): Far Nonroot Produce **Cell: H17**

Lognormal distribution with parameters:

Mean	0.03
Std. Dev.	0.13

Selected range is from 0.00 to 100.00



Assumption: Arsenic (Inorganic): Far Nonroot Produce (cont'd)

Cell: H17

Statistics:	Assumption values	Distribution
Trials	10,000	---
Mean	0.03	0.06
Median	0.01	0.01
Mode	---	---
Standard Deviation	0.12	0.12
Variance	0.02	0.01
Skewness	24.23	38.84
Kurtosis	821.93	3,591.82
Coeff. of Variability	4.42	2.12
Minimum	0.00	0.00
Maximum	5.48	100.00
Range Width	5.48	100.00
Mean Std. Error	0.00	---

Percentiles:	Assumption values	Distribution
5%	0.00	0.00
95%	0.11	0.11

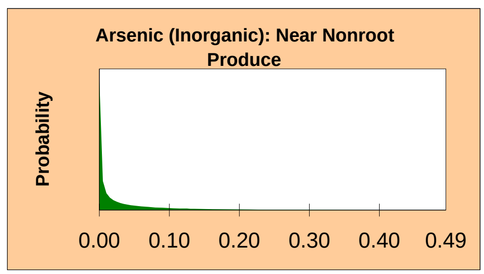
Assumption: Arsenic (Inorganic): Near Nonroot Produce

Cell: G17

Gamma distribution with parameters:

Location	0.00
Scale	0.14
Shape	0.33967704

Selected range is from 0.00 to 100.00



Assumption: Arsenic (Inorganic): Near Nonroot Produce (cont'd) **Cell: G17**

Statistics:	Assumption values	Distribution
Trials	10,000	---
Mean	0.05	0.05
Median	0.01	0.01
Mode	---	---
Standard Deviation	0.09	0.08
Variance	0.01	0.01
Skewness	3.25	3.45
Kurtosis	17.95	20.67
Coeff. of Variability	1.69	1.69
Minimum	0.00	0.00
Maximum	0.92	100.00
Range Width	0.92	100.00
Mean Std. Error	0.00	---

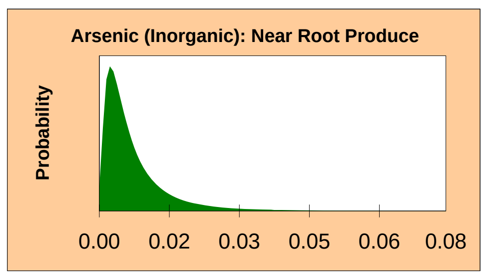
Percentiles:	Assumption values	Distribution
5%	0.00	0.00
95%	0.22	0.22

Assumption: Arsenic (Inorganic): Near Root Produce **Cell: G16**

Lognormal distribution with parameters:

Mean	0.01
Std. Dev.	0.01

Selected range is from 0.00 to 100.00



Assumption: Arsenic (Inorganic): Near Root Produce (cont'd) **Cell: G16**

Statistics:	Assumption values	Distribution
Trials	10,000	---
Mean	0.01	0.01
Median	0.01	0.01
Mode	---	---
Standard Deviation	0.01	0.01
Variance	0.00	0.00
Skewness	5.20	4.07
Kurtosis	70.65	39.65
Coeff. of Variability	1.05	1.03
Minimum	0.00	0.00
Maximum	0.21	100.00
Range Width	0.21	100.00
Mean Std. Error	0.00	---

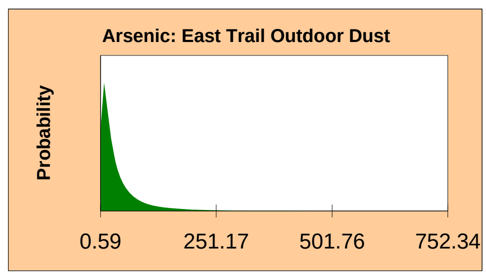
Percentiles:	Assumption values	Distribution
5%	0.00	0.00
95%	0.02	0.02

Assumption: Arsenic: East Trail Outdoor Dust **Cell: B15**

Lognormal distribution with parameters:

Mean	44.20
Std. Dev.	70.00

Selected range is from 0.00 to 1,000.00



Assumption: Arsenic: East Trail Outdoor Dust (cont'd) **Cell: B15**

Statistics:	Assumption values	Distribution
Trials	10,000	---
Mean	43.87	43.64
Median	23.89	23.58
Mode	---	---
Standard Deviation	63.65	63.47
Variance	4,051.30	4,028.31
Skewness	4.73	4.81
Kurtosis	38.05	39.71
Coeff. of Variability	1.45	1.45
Minimum	0.49	0.00
Maximum	947.77	1,000.00
Range Width	947.27	1,000.00
Mean Std. Error	0.64	---

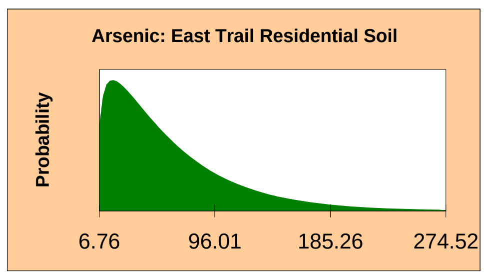
Percentiles:	Assumption values	Distribution
5%	3.76	3.74
95%	149.60	148.37

Assumption: Arsenic: East Trail Residential Soil **Cell: B13**

Gamma distribution with parameters:

Location	6.73
Scale	46.13
Shape	1.217779915

Selected range is from 0.00 to 1,000.00



Assumption: Arsenic: East Trail Residential Soil (cont'd) **Cell: B13**

Statistics:	Assumption values	Distribution
Trials	10,000	---
Mean	63.63	62.91
Median	49.57	48.50
Mode	---	---
Standard Deviation	51.26	50.91
Variance	2,627.37	2,591.89
Skewness	1.89	1.81
Kurtosis	8.62	7.90
Coeff. of Variability	0.8055	0.8092
Minimum	6.75	6.73
Maximum	548.69	1,000.00
Range Width	541.94	993.27
Mean Std. Error	0.51	---

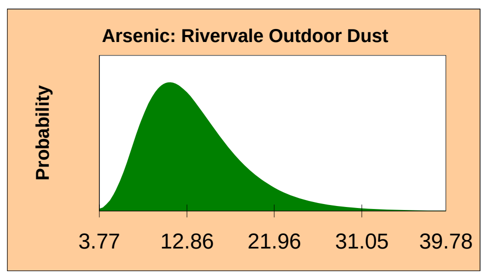
Percentiles:	Assumption values	Distribution
5%	11.67	11.22
95%	165.13	163.83

Assumption: Arsenic: Rivervale Outdoor Dust **Cell: C15**

Lognormal distribution with parameters:

Mean	13.60
Std. Dev.	5.20

Selected range is from 0.00 to 1,000.00



Assumption: Arsenic: Rivervale Outdoor Dust (cont'd) **Cell: C15**

Statistics:	Assumption values	Distribution
Trials	10,000	---
Mean	13.66	13.60
Median	12.82	12.70
Mode	---	---
Standard Deviation	5.18	5.20
Variance	26.86	27.05
Skewness	1.12	1.20
Kurtosis	5.31	5.65
Coeff. of Variability	0.3795	0.3824
Minimum	2.62	0.00
Maximum	57.78	1,000.00
Range Width	55.16	1,000.00
Mean Std. Error	0.05	---

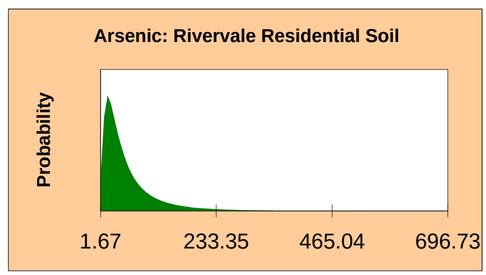
Percentiles:	Assumption values	Distribution
5%	6.89	6.92
95%	23.43	23.32

Assumption: Arsenic: Rivervale Residential Soil **Cell: C13**

Lognormal distribution with parameters:

Mean	58.59
Std. Dev.	70.48

Selected range is from 0.00 to 1,000.00



Assumption: Arsenic: Rivervale Residential Soil (cont'd)

Cell: C13

Statistics:	Assumption values	Distribution
Trials	10,000	---
Mean	58.33	58.26
Median	37.80	37.44
Mode	---	---
Standard Deviation	65.20	67.30
Variance	4,251.10	4,528.72
Skewness	3.51	3.88
Kurtosis	22.83	28.05
Coeff. of Variability	1.12	1.16
Minimum	0.94	0.00
Maximum	822.27	1,000.00
Range Width	821.33	1,000.00
Mean Std. Error	0.65	---

Percentiles:	Assumption values	Distribution
5%	7.80	7.90
95%	175.93	177.12

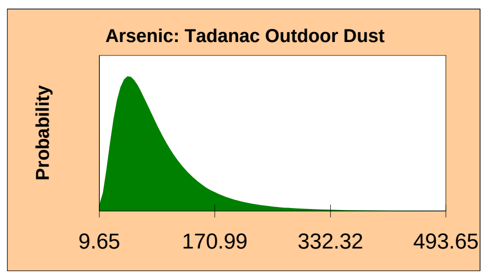
Assumption: Arsenic: Tadanac Outdoor Dust

Cell: D15

Lognormal distribution with parameters:

Mean	88.80
Std. Dev.	60.40

Selected range is from 0.00 to 1,000.00



Assumption: Arsenic: Tadanac Outdoor Dust (cont'd) **Cell: D15**

Statistics:	Assumption values	Distribution
Trials	10,000	---
Mean	89.20	88.79
Median	73.79	73.42
Mode	---	---
Standard Deviation	60.71	60.30
Variance	3,685.83	3,635.94
Skewness	2.55	2.30
Kurtosis	17.68	12.98
Coeff. of Variability	0.6806	0.6791
Minimum	5.23	0.00
Maximum	962.54	1,000.00
Range Width	957.31	1,000.00
Mean Std. Error	0.61	---

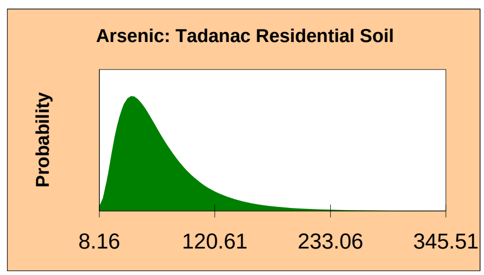
Percentiles:	Assumption values	Distribution
5%	26.41	26.63
95%	204.68	202.45

Assumption: Arsenic: Tadanac Residential Soil **Cell: D13**

Lognormal distribution with parameters:

Mean	66.91
Std. Dev.	42.91

Selected range is from 0.00 to 1,000.00



Assumption: Arsenic: Tadanac Residential Soil (cont'd) **Cell: D13**

Statistics:	Assumption values	Distribution
Trials	10,000	---
Mean	66.84	66.91
Median	55.92	56.32
Mode	---	---
Standard Deviation	43.65	42.92
Variance	1,905.44	1,841.79
Skewness	2.36	2.17
Kurtosis	13.70	12.21
Coeff. of Variability	0.6531	0.6414
Minimum	7.42	0.00
Maximum	562.74	1,000.00
Range Width	555.32	1,000.00
Mean Std. Error	0.44	---

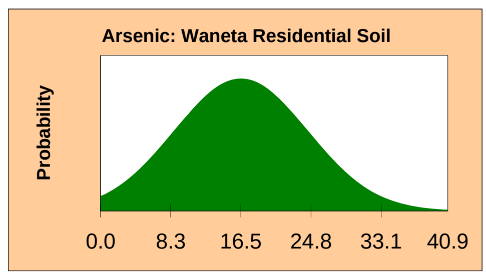
Percentiles:	Assumption values	Distribution
5%	21.67	21.44
95%	148.66	147.90

Assumption: Arsenic: Waneta Residential Soil **Cell: E13**

Normal distribution with parameters:

Mean	16.5
Std. Dev.	7.9

Selected range is from 0.0 to 1000.0



Assumption: Arsenic: Waneta Residential Soil (cont'd) **Cell: E13**

Statistics:	Assumption values	Distribution
Trials	10,000	---
Mean	16.9	16.9
Median	16.7	16.7
Mode	---	---
Standard Deviation	7.4	7.5
Variance	54.8	56.2
Skewness	0.1932	0.1932
Kurtosis	2.71	2.77
Coeff. of Variability	0.4370	0.4437
Minimum	0.0	0.0
Maximum	46.4	1000.0
Range Width	46.4	1000.0
Mean Std. Error	0.1	---

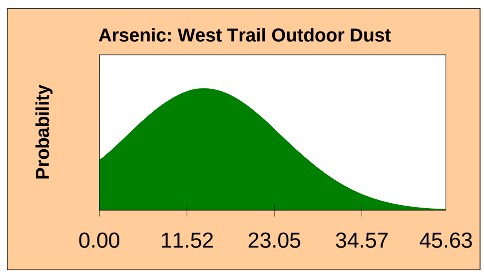
Percentiles:	Assumption values	Distribution
5%	5.1	4.7
95%	29.4	29.6

Assumption: Arsenic: West Trail Outdoor Dust **Cell: F15**

Normal distribution with parameters:

Mean	13.80
Std. Dev.	10.30

Selected range is from 0.00 to 1,000.00



Assumption: Arsenic: West Trail Outdoor Dust (cont'd) **Cell: F15**

Statistics:	Assumption values	Distribution
Trials	10,000	---
Mean	15.62	15.64
Median	14.97	14.97
Mode	---	---
Standard Deviation	8.82	8.79
Variance	77.71	77.30
Skewness	0.4523	0.4531
Kurtosis	2.87	2.84
Coeff. of Variability	0.5642	0.5621
Minimum	0.01	0.00
Maximum	52.39	1,000.00
Range Width	52.38	1,000.00
Mean Std. Error	0.09	---

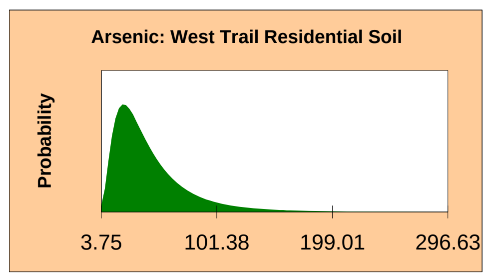
Percentiles:	Assumption values	Distribution
5%	2.33	2.47
95%	31.11	31.21

Assumption: Arsenic: West Trail Residential Soil **Cell: F13**

Lognormal distribution with parameters:

Mean	45.18
Std. Dev.	34.95

Selected range is from 0.00 to 1,000.00



Assumption: Arsenic: West Trail Residential Soil (cont'd) **Cell: F13**

Statistics:	Assumption values	Distribution
Trials	10,000	---
Mean	45.25	45.18
Median	35.36	35.74
Mode	---	---
Standard Deviation	35.14	34.95
Variance	1,234.49	1,221.45
Skewness	2.63	2.75
Kurtosis	15.61	18.29
Coeff. of Variability	0.7765	0.7736
Minimum	1.89	0.00
Maximum	450.01	1,000.00
Range Width	448.12	1,000.00
Mean Std. Error	0.35	---

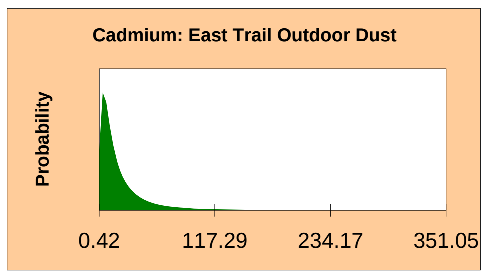
Percentiles:	Assumption values	Distribution
5%	11.61	11.58
95%	112.23	110.24

Assumption: Cadmium: East Trail Outdoor Dust **Cell: B21**

Lognormal distribution with parameters:

Mean	23.50
Std. Dev.	33.60

Selected range is from 0.00 to 1,000.00



Assumption: Cadmium: East Trail Outdoor Dust (cont'd) **Cell: B21**

Statistics:	Assumption values	Distribution
Trials	10,000	---
Mean	22.84	23.47
Median	13.04	13.47
Mode	---	---
Standard Deviation	31.03	33.02
Variance	962.66	1,090.48
Skewness	4.59	5.83
Kurtosis	37.10	70.21
Coeff. of Variability	1.36	1.41
Minimum	0.24	0.00
Maximum	523.74	1,000.00
Range Width	523.50	1,000.00
Mean Std. Error	0.31	---

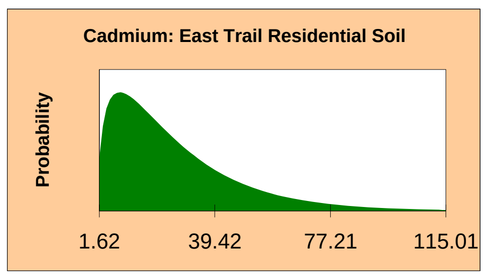
Percentiles:	Assumption values	Distribution
5%	2.35	2.37
95%	75.05	76.38

Assumption: Cadmium: East Trail Residential Soil **Cell: B19**

Gamma distribution with parameters:

Location	1.59
Scale	18.55
Shape	1.357832627

Selected range is from 0.00 to 1,000.00



Assumption: Cadmium: East Trail Residential Soil (cont'd) **Cell: B19**

Statistics:	Assumption values	Distribution
Trials	10,000	---
Mean	26.96	26.78
Median	21.12	20.94
Mode	---	---
Standard Deviation	21.97	21.62
Variance	482.73	467.25
Skewness	1.72	1.71
Kurtosis	7.31	7.39
Coeff. of Variability	0.8150	0.8072
Minimum	1.61	1.59
Maximum	195.48	1,000.00
Range Width	193.87	998.41
Mean Std. Error	0.22	---

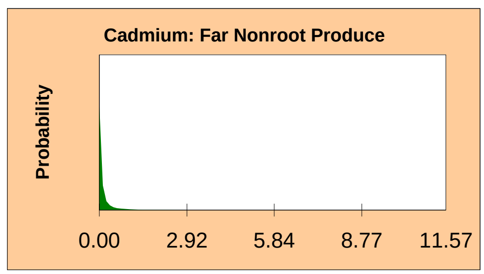
Percentiles:	Assumption values	Distribution
5%	4.05	4.08
95%	70.24	69.44

Assumption: Cadmium: Far Nonroot Produce **Cell: H23**

Lognormal distribution with parameters:

Mean	0.25
Std. Dev.	1.06

Selected range is from 0.00 to 100.00



Assumption: Cadmium: Far Nonroot Produce (cont'd) **Cell: H23**

Statistics:	Assumption values	Distribution
Trials	10,000	---
Mean	0.26	0.33
Median	0.06	0.06
Mode	---	---
Standard Deviation	1.22	0.94
Variance	1.48	0.89
Skewness	50.95	25.17
Kurtosis	3,863.05	1,246.26
Coeff. of Variability	4.68	2.88
Minimum	0.00	0.00
Maximum	95.95	100.00
Range Width	95.95	100.00
Mean Std. Error	0.01	---

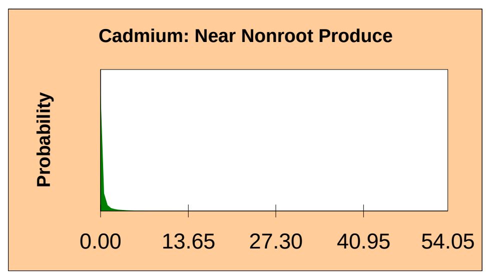
Percentiles:	Assumption values	Distribution
5%	0.00	0.00
95%	1.01	0.97

Assumption: Cadmium: Near Nonroot Produce **Cell: G23**

Lognormal distribution with parameters:

Mean	0.91
Std. Dev.	5.62

Selected range is from 0.00 to 100.00



Assumption: Cadmium: Near Nonroot Produce (cont'd) **Cell: G23**

Statistics:	Assumption values	Distribution
Trials	10,000	---
Mean	0.87	0.90
Median	0.14	0.14
Mode	---	---
Standard Deviation	3.56	3.19
Variance	12.69	10.15
Skewness	13.45	12.82
Kurtosis	246.11	241.90
Coeff. of Variability	4.07	3.53
Minimum	0.00	0.00
Maximum	89.88	100.00
Range Width	89.88	100.00
Mean Std. Error	0.04	---

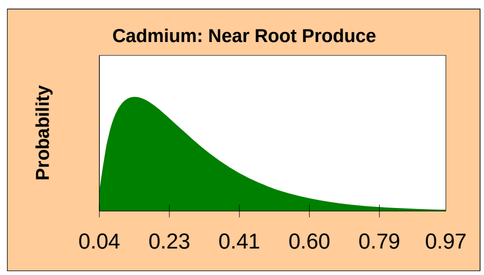
Percentiles:	Assumption values	Distribution
5%	0.01	0.01
95%	3.36	3.37

Assumption: Cadmium: Near Root Produce **Cell: G22**

Gamma distribution with parameters:

Location	0.04
Scale	0.14
Shape	1.698823112

Selected range is from 0.00 to 100.00



Assumption: Cadmium: Near Root Produce (cont'd)

Cell: G22

Statistics:	Assumption values	Distribution
Trials	10,000	---
Mean	0.27	0.27
Median	0.23	0.23
Mode	---	---
Standard Deviation	0.18	0.18
Variance	0.03	0.03
Skewness	1.48	1.53
Kurtosis	6.20	6.51
Coeff. of Variability	0.6517	0.6523
Minimum	0.04	0.04
Maximum	1.75	100.00
Range Width	1.71	99.96
Mean Std. Error	0.00	---

Percentiles:	Assumption values	Distribution
5%	0.07	0.07
95%	0.62	0.62

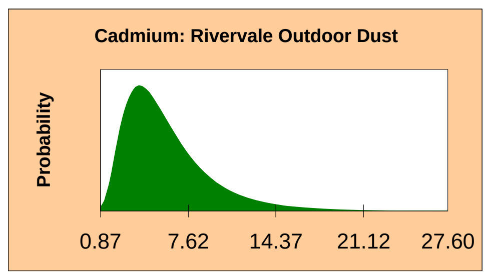
Assumption: Cadmium: Rivervale Outdoor Dust

Cell: C21

Lognormal distribution with parameters:

Mean	6.00
Std. Dev.	3.50

Selected range is from 0.00 to 1,000.00



Assumption: Cadmium: Rivervale Outdoor Dust (cont'd)

Cell: C21

Statistics:	Assumption values	Distribution
Trials	10,000	---
Mean	5.99	6.00
Median	5.20	5.18
Mode	---	---
Standard Deviation	3.49	3.50
Variance	12.16	12.25
Skewness	1.82	1.94
Kurtosis	8.71	10.25
Coeff. of Variability	0.5826	0.5834
Minimum	0.68	0.00
Maximum	37.50	1,000.00
Range Width	36.82	1,000.00
Mean Std. Error	0.03	---

Percentiles:	Assumption values	Distribution
5%	2.14	2.13
95%	12.65	12.62

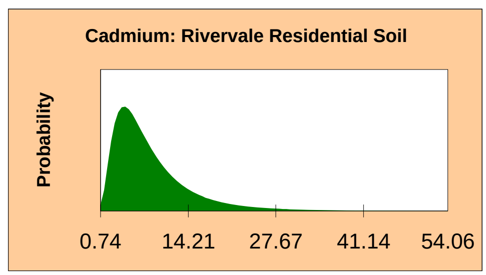
Assumption: Cadmium: Rivervale Residential Soil

Cell: C19

Lognormal distribution with parameters:

Mean	8.49
Std. Dev.	6.42

Selected range is from 0.00 to 1,000.00



Assumption: Cadmium: Rivervale Residential Soil (cont'd) **Cell: C19**

Statistics:	Assumption values	Distribution
Trials	10,000	---
Mean	8.51	8.49
Median	6.83	6.77
Mode	---	---
Standard Deviation	6.32	6.42
Variance	39.94	41.18
Skewness	2.58	2.67
Kurtosis	16.82	17.50
Coeff. of Variability	0.7426	0.7561
Minimum	0.51	0.00
Maximum	104.31	1,000.00
Range Width	103.80	1,000.00
Mean Std. Error	0.06	---

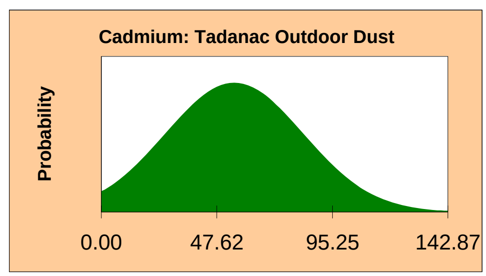
Percentiles:	Assumption values	Distribution
5%	2.25	2.24
95%	20.38	20.46

Assumption: Cadmium: Tadanac Outdoor Dust **Cell: D21**

Normal distribution with parameters:

Mean	54.80
Std. Dev.	28.50

Selected range is from 0.00 to 1,000.00



Assumption: Cadmium: Tadanac Outdoor Dust (cont'd) **Cell: D21**

Statistics:	Assumption values	Distribution
Trials	10,000	---
Mean	56.69	56.64
Median	55.75	55.77
Mode	---	---
Standard Deviation	26.61	26.61
Variance	708.29	708.04
Skewness	0.2437	0.2441
Kurtosis	2.79	2.76
Coeff. of Variability	0.4695	0.4698
Minimum	0.02	0.00
Maximum	155.41	1,000.00
Range Width	155.40	1,000.00
Mean Std. Error	0.27	---

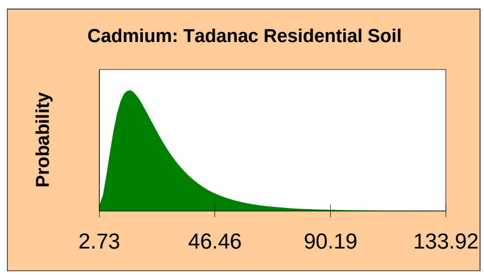
Percentiles:	Assumption values	Distribution
5%	14.06	13.95
95%	101.36	102.06

Assumption: Cadmium: Tadanac Residential Soil **Cell: D19**

Lognormal distribution with parameters:

Mean	24.50
Std. Dev.	16.44

Selected range is from 0.00 to 1,000.00



Assumption: Cadmium: Tadanac Residential Soil (cont'd) **Cell: D19**

Statistics:	Assumption values	Distribution
Trials	10,000	---
Mean	24.32	24.50
Median	20.20	20.34
Mode	---	---
Standard Deviation	16.23	16.45
Variance	263.45	270.48
Skewness	2.15	2.30
Kurtosis	12.55	13.46
Coeff. of Variability	0.6673	0.6714
Minimum	2.37	0.00
Maximum	254.35	1,000.00
Range Width	251.98	1,000.00
Mean Std. Error	0.16	---

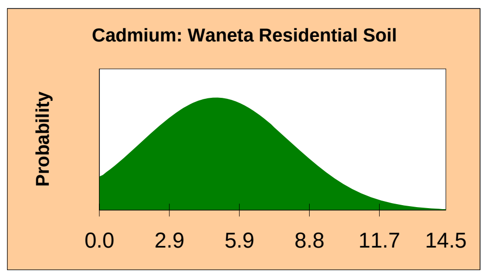
Percentiles:	Assumption values	Distribution
5%	7.29	7.46
95%	55.20	55.46

Assumption: Cadmium: Waneta Residential Soil **Cell: E19**

Normal distribution with parameters:

Mean	4.9
Std. Dev.	3.1

Selected range is from 0.0 to 1000.0



Assumption: Cadmium: Waneta Residential Soil (cont'd) **Cell: E19**

Statistics:	Assumption values	Distribution
Trials	10,000	---
Mean	5.3	5.3
Median	5.2	5.1
Mode	---	---
Standard Deviation	2.8	2.8
Variance	7.7	7.7
Skewness	0.3776	0.3644
Kurtosis	2.88	2.78
Coeff. of Variability	0.5219	0.5250
Minimum	0.0	0.0
Maximum	17.6	1000.0
Range Width	17.6	1000.0
Mean Std. Error	0.0	---

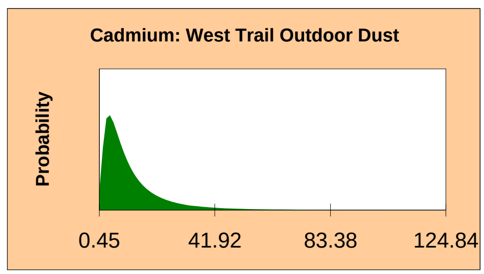
Percentiles:	Assumption values	Distribution
5%	1.0	1.0
95%	10.1	10.1

Assumption: Cadmium: West Trail Outdoor Dust **Cell: F21**

Lognormal distribution with parameters:

Mean	12.10
Std. Dev.	13.10

Selected range is from 0.00 to 1,000.00



Assumption: Cadmium: West Trail Outdoor Dust (cont'd) **Cell: F21**

Statistics:	Assumption values	Distribution
Trials	10,000	---
Mean	12.04	12.10
Median	8.05	8.21
Mode	---	---
Standard Deviation	13.36	13.11
Variance	178.51	171.75
Skewness	4.34	4.38
Kurtosis	37.91	45.95
Coeff. of Variability	1.11	1.08
Minimum	0.33	0.00
Maximum	233.18	1,000.00
Range Width	232.85	1,000.00
Mean Std. Error	0.13	---

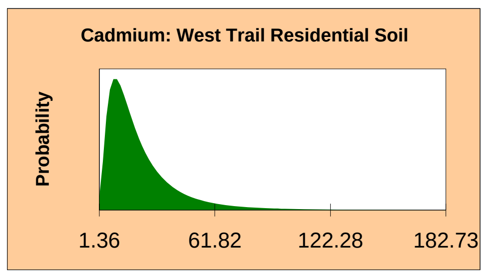
Percentiles:	Assumption values	Distribution
5%	1.84	1.93
95%	35.23	34.95

Assumption: Cadmium: West Trail Residential Soil **Cell: F19**

Lognormal distribution with parameters:

Mean	22.89
Std. Dev.	20.50

Selected range is from 0.00 to 1,000.00



Assumption: Cadmium: West Trail Residential Soil (cont'd)

Cell: F19

Statistics:	Assumption values	Distribution
Trials	10,000	---
Mean	22.50	22.89
Median	16.94	17.05
Mode	---	---
Standard Deviation	19.91	20.51
Variance	396.36	420.59
Skewness	3.33	3.35
Kurtosis	24.98	26.74
Coeff. of Variability	0.8847	0.8961
Minimum	0.97	0.00
Maximum	336.44	1,000.00
Range Width	335.47	1,000.00
Mean Std. Error	0.20	---

Percentiles:	Assumption values	Distribution
5%	4.78	4.82
95%	58.25	60.25

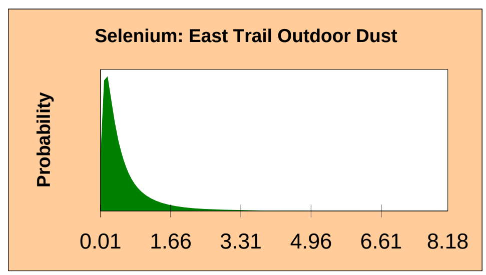
Assumption: Selenium: East Trail Outdoor Dust

Cell: B29

Lognormal distribution with parameters:

Mean	0.60
Std. Dev.	0.80

Selected range is from 0.00 to 1,000.00



Assumption: Selenium: East Trail Outdoor Dust (cont'd) **Cell: B29**

Statistics:	Assumption values	Distribution
Trials	10,000	---
Mean	0.60	0.60
Median	0.37	0.36
Mode	---	---
Standard Deviation	0.81	0.80
Variance	0.65	0.64
Skewness	6.74	5.99
Kurtosis	98.95	88.90
Coeff. of Variability	1.35	1.33
Minimum	0.01	0.00
Maximum	21.14	1,000.00
Range Width	21.13	1,000.00
Mean Std. Error	0.01	---

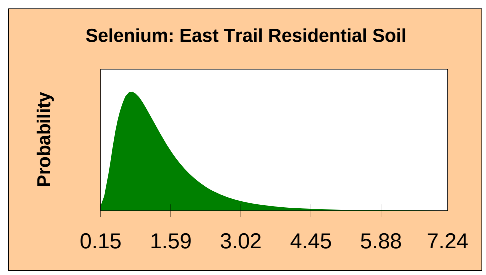
Percentiles:	Assumption values	Distribution
5%	0.07	0.07
95%	1.86	1.90

Assumption: Selenium: East Trail Residential Soil **Cell: B27**

Lognormal distribution with parameters:

Mean	1.35
Std. Dev.	0.89

Selected range is from 0.00 to 1,000.00



Assumption: Selenium: East Trail Residential Soil (cont'd) — Cell: B27

Statistics:	Assumption values	Distribution
Trials	10,000	---
Mean	1.33	1.35
Median	1.11	1.12
Mode	---	---
Standard Deviation	0.89	0.89
Variance	0.79	0.80
Skewness	2.23	2.26
Kurtosis	11.76	13.10
Coeff. of Variability	0.6643	0.6626
Minimum	0.15	0.00
Maximum	10.00	1,000.00
Range Width	9.85	1,000.00
Mean Std. Error	0.01	---

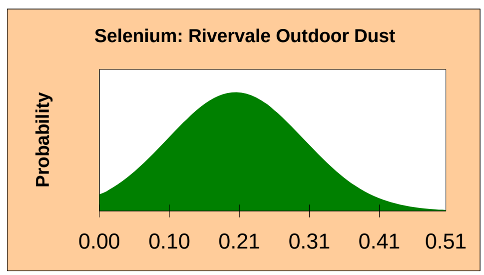
Percentiles:	Assumption values	Distribution
5%	0.42	0.42
95%	3.01	3.03

Assumption: Selenium: Rivervale Outdoor Dust — Cell: C29

Normal distribution with parameters:

Mean	0.20
Std. Dev.	0.10

Selected range is from 0.00 to 1,000.00



Assumption: Selenium: Rivervale Outdoor Dust (cont'd) **Cell: C29**

Statistics:	Assumption values	Distribution
Trials	10,000	---
Mean	0.21	0.21
Median	0.20	0.20
Mode	---	---
Standard Deviation	0.09	0.09
Variance	0.01	0.01
Skewness	0.2213	0.2208
Kurtosis	2.78	2.76
Coeff. of Variability	0.4596	0.4581
Minimum	0.00	0.00
Maximum	0.59	1,000.00
Range Width	0.59	1,000.00
Mean Std. Error	0.00	---

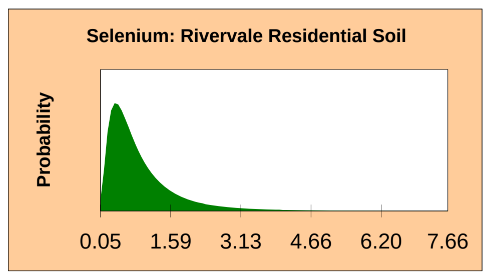
Percentiles:	Assumption values	Distribution
5%	0.05	0.05
95%	0.37	0.37

Assumption: Selenium: Rivervale Residential Soil **Cell: C27**

Lognormal distribution with parameters:

Mean	0.94
Std. Dev.	0.86

Selected range is from 0.00 to 837.72



Assumption: Selenium: Rivervale Residential Soil (cont'd) **Cell: C27**

Statistics:	Assumption values	Distribution
Trials	10,000	---
Mean	0.93	0.94
Median	0.69	0.70
Mode	---	---
Standard Deviation	0.84	0.86
Variance	0.71	0.73
Skewness	3.16	3.42
Kurtosis	21.19	27.91
Coeff. of Variability	0.9028	0.9099
Minimum	0.03	0.00
Maximum	10.66	837.72
Range Width	10.63	837.72
Mean Std. Error	0.01	---

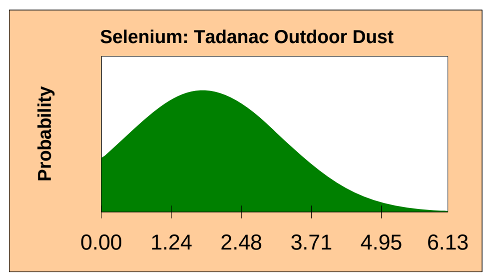
Percentiles:	Assumption values	Distribution
5%	0.19	0.19
95%	2.49	2.49

Assumption: Selenium: Tadanac Outdoor Dust **Cell: D29**

Normal distribution with parameters:

Mean	1.80
Std. Dev.	1.40

Selected range is from 0.00 to 1,000.00



Assumption: Selenium: Tadanac Outdoor Dust (cont'd) **Cell: D29**

Statistics:	Assumption values	Distribution
Trials	10,000	---
Mean	2.07	2.07
Median	1.96	1.97
Mode	---	---
Standard Deviation	1.19	1.18
Variance	1.42	1.40
Skewness	0.4921	0.4746
Kurtosis	2.90	2.86
Coeff. of Variability	0.5751	0.5708
Minimum	0.00	0.00
Maximum	7.48	1,000.00
Range Width	7.48	1,000.00
Mean Std. Error	0.01	---

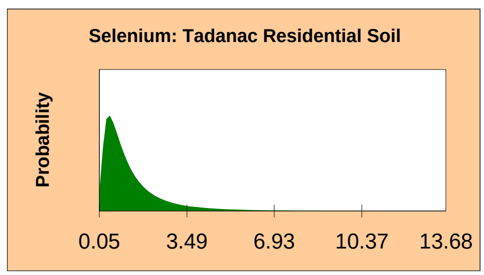
Percentiles:	Assumption values	Distribution
5%	0.31	0.31
95%	4.18	4.17

Assumption: Selenium: Tadanac Residential Soil **Cell: D27**

Lognormal distribution with parameters:

Mean	1.32
Std. Dev.	1.43

Selected range is from 0.00 to 1,000.00



Assumption: Selenium: Tadanac Residential Soil (cont'd) — Cell: D27

Statistics:	Assumption values	Distribution
Trials	10,000	---
Mean	1.32	1.32
Median	0.90	0.90
Mode	---	---
Standard Deviation	1.38	1.43
Variance	1.91	2.06
Skewness	3.43	4.39
Kurtosis	22.09	46.25
Coeff. of Variability	1.05	1.09
Minimum	0.04	0.00
Maximum	17.20	1,000.00
Range Width	17.16	1,000.00
Mean Std. Error	0.01	---

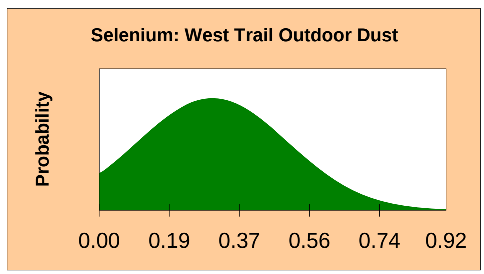
Percentiles:	Assumption values	Distribution
5%	0.21	0.21
95%	3.81	3.82

Assumption: Selenium: West Trail Outdoor Dust — Cell: F29

Normal distribution with parameters:

Mean	0.30
Std. Dev.	0.20

Selected range is from 0.00 to 1,000.00



Assumption: Selenium: West Trail Outdoor Dust (cont'd) **Cell: F29**

Statistics:	Assumption values	Distribution
Trials	10,000	---
Mean	0.33	0.33
Median	0.32	0.32
Mode	---	---
Standard Deviation	0.18	0.18
Variance	0.03	0.03
Skewness	0.4039	0.3909
Kurtosis	2.80	2.80
Coeff. of Variability	0.5425	0.5364
Minimum	0.00	0.00
Maximum	1.01	1,000.00
Range Width	1.01	1,000.00
Mean Std. Error	0.00	---

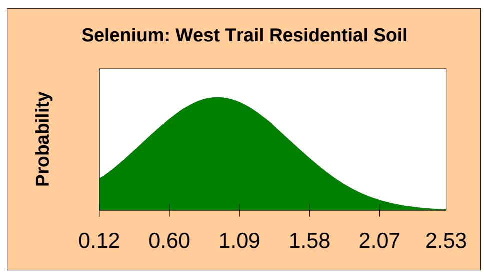
Percentiles:	Assumption values	Distribution
5%	0.06	0.06
95%	0.64	0.64

Assumption: Selenium: West Trail Residential Soil **Cell: F27**

Normal distribution with parameters:

Mean	0.94
Std. Dev.	0.52

Selected range is from 0.12 to 1,030.32



Assumption: Selenium: West Trail Residential Soil (cont'd) **Cell: F27**

Statistics:	Assumption values	Distribution
Trials	10,000	---
Mean	1.00	1.00
Median	0.98	0.98
Mode	---	---
Standard Deviation	0.46	0.46
Variance	0.21	0.21
Skewness	0.3320	0.3536
Kurtosis	2.74	2.78
Coeff. of Variability	0.4559	0.4602
Minimum	0.12	0.12
Maximum	2.85	1,030.32
Range Width	2.74	1,030.20
Mean Std. Error	0.00	---

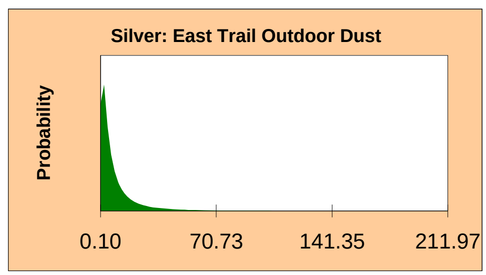
Percentiles:	Assumption values	Distribution
5%	0.29	0.29
95%	1.80	1.80

Assumption: Silver: East Trail Outdoor Dust **Cell: B33**

Lognormal distribution with parameters:

Mean	10.80
Std. Dev.	19.20

Selected range is from 0.00 to 1,000.00



Assumption: Silver: East Trail Outdoor Dust (cont'd) **Cell: B33**

Statistics:	Assumption values	Distribution
Trials	10,000	---
Mean	10.72	10.84
Median	5.40	5.29
Mode	---	---
Standard Deviation	16.79	18.91
Variance	281.92	357.42
Skewness	5.21	8.57
Kurtosis	48.82	164.19
Coeff. of Variability	1.57	1.74
Minimum	0.07	0.00
Maximum	316.78	1,000.00
Range Width	316.71	1,000.00
Mean Std. Error	0.17	---

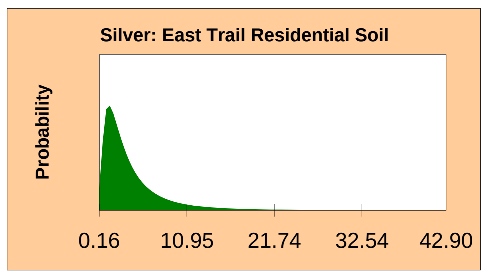
Percentiles:	Assumption values	Distribution
5%	0.74	0.74
95%	37.99	37.74

Assumption: Silver: East Trail Residential Soil **Cell: B31**

Lognormal distribution with parameters:

Mean	4.15
Std. Dev.	4.50

Selected range is from 0.00 to 1,000.00



Assumption: Silver: East Trail Residential Soil (cont'd) **Cell: B31**

Statistics:	Assumption values	Distribution
Trials	10,000	---
Mean	4.17	4.15
Median	2.83	2.82
Mode	---	---
Standard Deviation	4.40	4.50
Variance	19.33	20.27
Skewness	3.74	4.38
Kurtosis	28.34	46.12
Coeff. of Variability	1.06	1.08
Minimum	0.07	0.00
Maximum	67.14	1,000.00
Range Width	67.07	1,000.00
Mean Std. Error	0.04	---

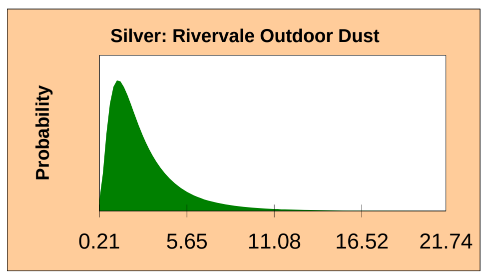
Percentiles:	Assumption values	Distribution
5%	0.67	0.66
95%	12.17	12.00

Assumption: Silver: Rivervale Outdoor Dust **Cell: C33**

Lognormal distribution with parameters:

Mean	3.00
Std. Dev.	2.50

Selected range is from 0.00 to 1,000.00



Assumption: Silver: Rivervale Outdoor Dust (cont'd) **Cell: C33**

Statistics:	Assumption values	Distribution
Trials	10,000	---
Mean	2.98	3.00
Median	2.32	2.30
Mode	---	---
Standard Deviation	2.42	2.50
Variance	5.87	6.25
Skewness	2.70	3.04
Kurtosis	16.15	22.19
Coeff. of Variability	0.8141	0.8336
Minimum	0.14	0.00
Maximum	30.97	1,000.00
Range Width	30.83	1,000.00
Mean Std. Error	0.02	---

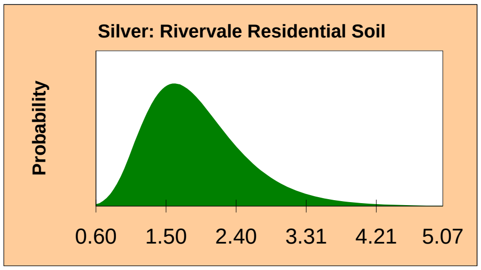
Percentiles:	Assumption values	Distribution
5%	0.70	0.70
95%	7.55	7.61

Assumption: Silver: Rivervale Residential Soil **Cell: C31**

Lognormal distribution with parameters:

Mean	1.90
Std. Dev.	0.66

Selected range is from 0.00 to 1,000.00



Assumption: Silver: Rivervale Residential Soil (cont'd) **Cell: C31**

Statistics:	Assumption values	Distribution
Trials	10,000	---
Mean	1.89	1.90
Median	1.79	1.80
Mode	---	---
Standard Deviation	0.65	0.66
Variance	0.43	0.43
Skewness	1.13	1.07
Kurtosis	5.45	5.10
Coeff. of Variability	0.3444	0.3446
Minimum	0.54	0.00
Maximum	6.42	1,000.00
Range Width	5.87	1,000.00
Mean Std. Error	0.01	---

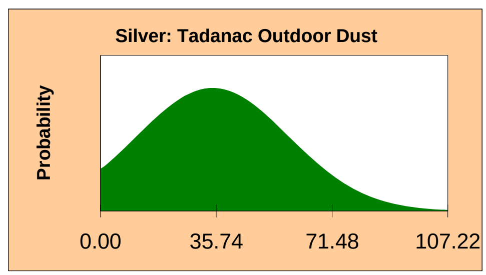
Percentiles:	Assumption values	Distribution
5%	1.03	1.04
95%	3.09	3.12

Assumption: Silver: Tadanac Outdoor Dust **Cell: D33**

Normal distribution with parameters:

Mean	34.60
Std. Dev.	23.50

Selected range is from 0.00 to 1,000.00



Assumption: Silver: Tadanac Outdoor Dust (cont'd) **Cell: D33**

Statistics:	Assumption values	Distribution
Trials	10,000	---
Mean	38.14	38.01
Median	36.79	36.68
Mode	---	---
Standard Deviation	20.67	20.56
Variance	427.44	422.58
Skewness	0.3976	0.4014
Kurtosis	2.78	2.80
Coeff. of Variability	0.5421	0.5408
Minimum	0.00	0.00
Maximum	128.29	1,000.00
Range Width	128.29	1,000.00
Mean Std. Error	0.21	---

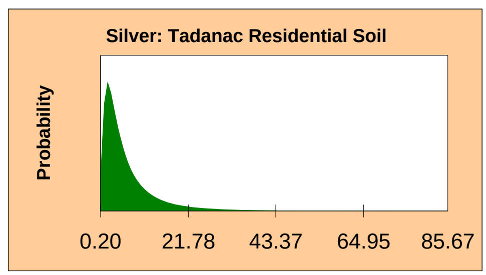
Percentiles:	Assumption values	Distribution
5%	6.74	6.63
95%	74.49	74.08

Assumption: Silver: Tadanac Residential Soil **Cell: D31**

Lognormal distribution with parameters:

Mean	7.10
Std. Dev.	8.63

Selected range is from 0.00 to 1,000.00



Assumption: Silver: Tadanac Residential Soil (cont'd) **Cell: D31**

Statistics:	Assumption values	Distribution
Trials	10,000	---
Mean	7.21	7.09
Median	4.53	4.51
Mode	---	---
Standard Deviation	9.02	8.64
Variance	81.36	74.62
Skewness	6.11	5.20
Kurtosis	91.99	66.00
Coeff. of Variability	1.25	1.22
Minimum	0.13	0.00
Maximum	256.06	1,000.00
Range Width	255.93	1,000.00
Mean Std. Error	0.09	---

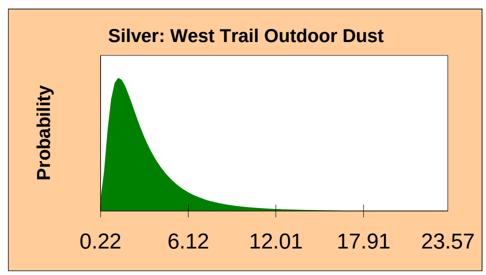
Percentiles:	Assumption values	Distribution
5%	0.96	0.94
95%	22.10	21.61

Assumption: Silver: West Trail Outdoor Dust **Cell: F33**

Lognormal distribution with parameters:

Mean	3.20
Std. Dev.	2.70

Selected range is from 0.00 to 1,000.00



Assumption: Silver: West Trail Outdoor Dust (cont'd)

Cell: F33

Statistics:	Assumption values	Distribution
Trials	10,000	---
Mean	3.24	3.20
Median	2.45	2.45
Mode	---	---
Standard Deviation	2.80	2.70
Variance	7.84	7.29
Skewness	3.27	3.09
Kurtosis	24.60	22.90
Coeff. of Variability	0.8635	0.8440
Minimum	0.16	0.00
Maximum	47.13	1,000.00
Range Width	46.97	1,000.00
Mean Std. Error	0.03	---

Percentiles:	Assumption values	Distribution
5%	0.72	0.73
95%	8.29	8.17

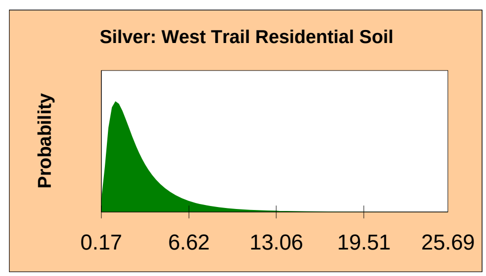
Assumption: Silver: West Trail Residential Soil

Cell: F31

Lognormal distribution with parameters:

Mean	3.09
Std. Dev.	2.85

Selected range is from 0.00 to 904.24



Assumption: Silver: West Trail Residential Soil (cont'd) **Cell: F31**

Statistics:	Assumption values	Distribution
Trials	10,000	---
Mean	3.08	3.09
Median	2.29	2.27
Mode	---	---
Standard Deviation	2.79	2.85
Variance	7.76	8.14
Skewness	3.34	3.50
Kurtosis	24.69	29.12
Coeff. of Variability	0.9047	0.9242
Minimum	0.10	0.00
Maximum	45.33	904.24
Range Width	45.23	904.24
Mean Std. Error	0.03	---

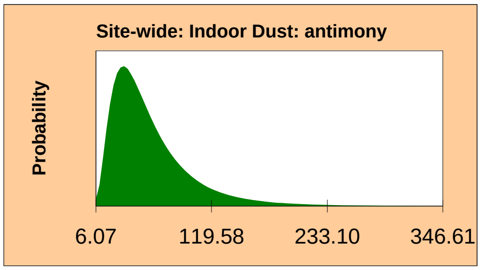
Percentiles:	Assumption values	Distribution
5%	0.64	0.62
95%	8.02	8.25

Assumption: Site-wide: Indoor Dust: antimony **Cell: I6**

Lognormal distribution with parameters:

Mean	59.75
Std. Dev.	42.02

Selected range is from 0.00 to 10,000.00



Assumption: Site-wide: Indoor Dust: antimony (cont'd) — Cell: I6

Statistics:	Assumption values	Distribution
Trials	10,000	---
Mean	60.20	59.75
Median	48.88	48.87
Mode	---	---
Standard Deviation	42.87	42.03
Variance	1,837.91	1,766.40
Skewness	2.41	2.44
Kurtosis	13.31	14.87
Coeff. of Variability	0.7122	0.7034
Minimum	4.34	0.00
Maximum	522.43	10,000.00
Range Width	518.09	10,000.00
Mean Std. Error	0.43	---

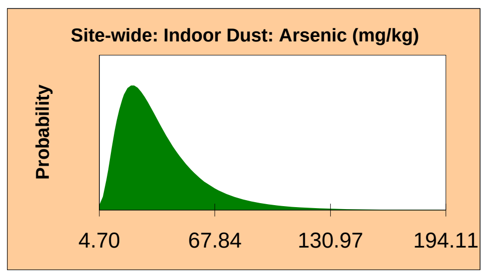
Percentiles:	Assumption values	Distribution
5%	17.17	17.23
95%	140.39	138.65

Assumption: Site-wide: Indoor Dust: Arsenic (mg/kg) — Cell: I14

Lognormal distribution with parameters:

Mean	37.96
Std. Dev.	24.16

Selected range is from 0.00 to 10,000.00



Assumption: Site-wide: Indoor Dust: Arsenic (mg/kg) (cont'd)

Cell: I14

Statistics:	Assumption values	Distribution
Trials	10,000	---
Mean	38.29	37.96
Median	32.05	32.02
Mode	---	---
Standard Deviation	24.95	24.16
Variance	622.30	583.65
Skewness	2.38	2.15
Kurtosis	13.85	12.08
Coeff. of Variability	0.6514	0.6365
Minimum	3.61	0.00
Maximum	327.93	10,000.00
Range Width	324.31	10,000.00
Mean Std. Error	0.25	---

Percentiles:	Assumption values	Distribution
5%	12.20	12.27
95%	83.65	83.56

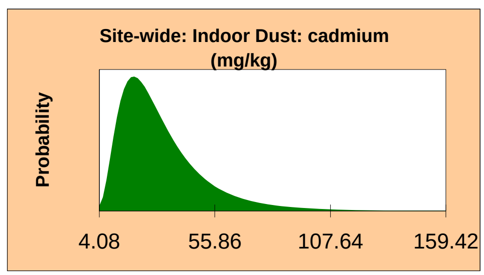
Assumption: Site-wide: Indoor Dust: cadmium (mg/kg)

Cell: I20

Lognormal distribution with parameters:

Mean	31.85
Std. Dev.	19.92

Selected range is from 0.00 to 10,000.00



Assumption: Site-wide: Indoor Dust: cadmium (mg/kg) (cont'd) **Cell: I20**

Statistics:	Assumption values	Distribution
Trials	10,000	---
Mean	31.89	31.85
Median	26.99	27.00
Mode	---	---
Standard Deviation	20.06	19.92
Variance	402.45	396.91
Skewness	2.12	2.11
Kurtosis	11.18	11.68
Coeff. of Variability	0.6291	0.6256
Minimum	3.09	0.00
Maximum	242.34	10,000.00
Range Width	239.25	10,000.00
Mean Std. Error	0.20	---

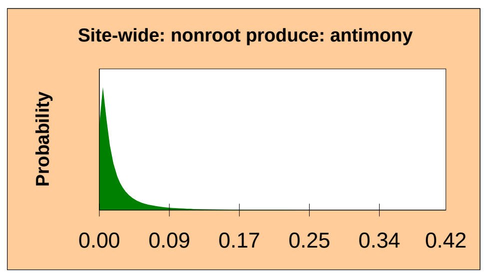
Percentiles:	Assumption values	Distribution
5%	10.64	10.49
95%	70.22	69.48

Assumption: Site-wide: nonroot produce: antimony **Cell: I9**

Lognormal distribution with parameters:

Mean	0.02
Std. Dev.	0.04

Selected range is from 0.00 to 100.00



Assumption: Site-wide: nonroot produce: antimony (cont'd) **Cell: I9**

Statistics:	Assumption values	Distribution
Trials	10,000	---
Mean	0.02	0.02
Median	0.01	0.01
Mode	---	---
Standard Deviation	0.04	0.04
Variance	0.00	0.00
Skewness	11.58	8.35
Kurtosis	362.90	178.56
Coeff. of Variability	1.65	1.62
Minimum	0.00	0.00
Maximum	1.66	100.00
Range Width	1.66	100.00
Mean Std. Error	0.00	---

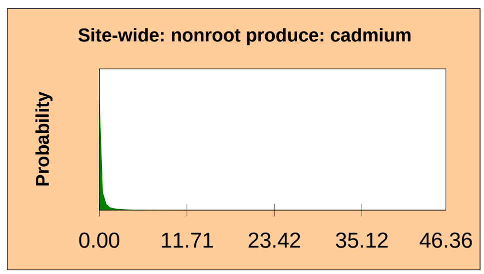
Percentiles:	Assumption values	Distribution
5%	0.00	0.00
95%	0.08	0.08

Assumption: Site-wide: nonroot produce: cadmium **Cell: I23**

Lognormal distribution with parameters:

Mean	0.79
Std. Dev.	4.80

Selected range is from 0.00 to 1000.00



Assumption: Site-wide: nonroot produce: cadmium (cont'd) **Cell: I23**

Statistics:	Assumption values	Distribution
Trials	10,000	---
Mean	0.85	1.76
Median	0.13	0.13
Mode	---	---
Standard Deviation	4.86	4.17
Variance	23.62	17.35
Skewness	32.54	46.15
Kurtosis	1,637.47	4,401.93
Coeff. of Variability	5.74	2.37
Minimum	0.00	0.00
Maximum	298.01	1000.00
Range Width	298.01	1000.00
Mean Std. Error	0.05	---

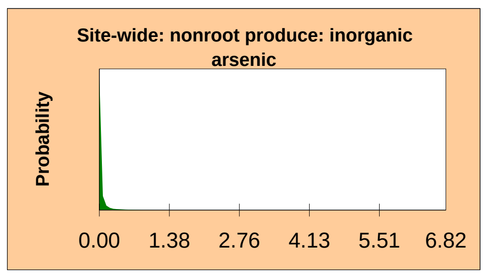
Percentiles:	Assumption values	Distribution
5%	0.01	0.01
95%	3.02	2.94

Assumption: Site-wide: nonroot produce: inorganic arsenic **Cell: I17**

Lognormal distribution with parameters:

Mean	0.10
Std. Dev.	0.83

Selected range is from 0.00 to 100.00



Assumption: Site-wide: nonroot produce: inorganic arsenic (cont'd) **Cell: I17**

Statistics:	Assumption values	Distribution
Trials	10,000	---
Mean	0.09	0.21
Median	0.01	0.01
Mode	---	---
Standard Deviation	0.58	0.62
Variance	0.33	0.38
Skewness	37.75	46.21
Kurtosis	2,072.40	3,798.54
Coeff. of Variability	6.56	2.92
Minimum	0.00	0.00
Maximum	37.90	100.00
Range Width	37.90	100.00
Mean Std. Error	0.01	---

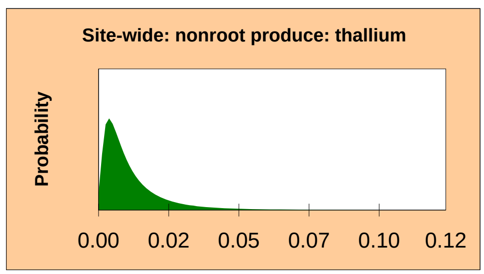
Percentiles:	Assumption values	Distribution
5%	0.00	0.00
95%	0.32	0.33

Assumption: Site-wide: nonroot produce: thallium **Cell: I41**

Lognormal distribution with parameters:

Mean	0.01
Std. Dev.	0.01

Selected range is from 0.00 to 100.00



Assumption: Site-wide: nonroot produce: thallium (cont'd) **Cell: I41**

Statistics:	Assumption values	Distribution
Trials	10,000	---
Mean	0.01	0.01
Median	0.01	0.01
Mode	---	---
Standard Deviation	0.01	0.01
Variance	0.00	0.00
Skewness	4.75	4.22
Kurtosis	50.98	42.72
Coeff. of Variability	1.10	1.06
Minimum	0.00	0.00
Maximum	0.26	100.00
Range Width	0.26	100.00
Mean Std. Error	0.00	---

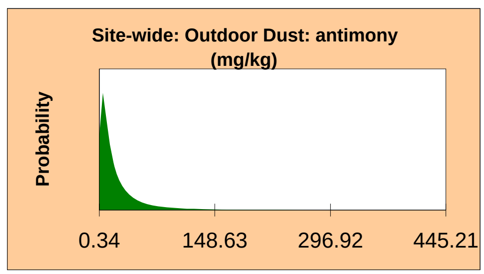
Percentiles:	Assumption values	Distribution
5%	0.00	0.00
95%	0.03	0.03

Assumption: Site-wide: Outdoor Dust: antimony (mg/kg) **Cell: I7**

Lognormal distribution with parameters:

Mean	26.03
Std. Dev.	41.38

Selected range is from 0.00 to 10,000.00



Assumption: Site-wide: Outdoor Dust: antimony (mg/kg) (cont'd) **Cell: I7**

Statistics:	Assumption values	Distribution
Trials	10,000	---
Mean	25.90	26.18
Median	13.86	13.86
Mode	---	---
Standard Deviation	40.91	41.29
Variance	1,673.62	1,704.83
Skewness	6.95	7.94
Kurtosis	95.54	160.94
Coeff. of Variability	1.58	1.58
Minimum	0.14	0.00
Maximum	1,000.05	10,000.00
Range Width	999.90	10,000.00
Mean Std. Error	0.41	---

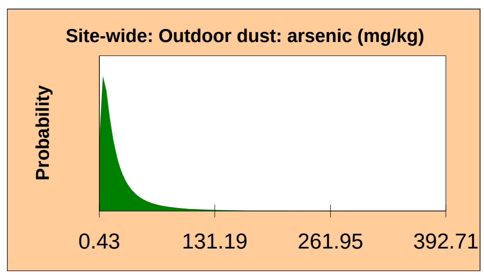
Percentiles:	Assumption values	Distribution
5%	2.18	2.19
95%	85.80	87.86

Assumption: Site-wide: Outdoor dust: arsenic (mg/kg) **Cell: I15**

Lognormal distribution with parameters:

Mean	25.64
Std. Dev.	37.38

Selected range is from 0.00 to 10,000.00



Assumption: Site-wide: Outdoor dust: arsenic (mg/kg) (cont'd) **Cell: I15**

Statistics:	Assumption values	Distribution
Trials	10,000	---
Mean	25.71	25.68
Median	14.64	14.51
Mode	---	---
Standard Deviation	37.11	37.36
Variance	1,376.91	1,395.66
Skewness	6.35	6.90
Kurtosis	82.95	119.69
Coeff. of Variability	1.44	1.45
Minimum	0.27	0.00
Maximum	912.81	10,000.00
Range Width	912.55	10,000.00
Mean Std. Error	0.37	---

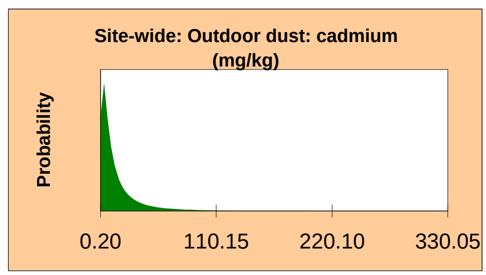
Percentiles:	Assumption values	Distribution
5%	2.52	2.51
95%	83.40	83.96

Assumption: Site-wide: Outdoor dust: cadmium (mg/kg) **Cell: I21**

Lognormal distribution with parameters:

Mean	18.02
Std. Dev.	30.27

Selected range is from 0.00 to 10,000.00



Assumption: Site-wide: Outdoor dust: cadmium (mg/kg) (cont'd) **Cell: I21**

Statistics:	Assumption values	Distribution
Trials	10,000	---
Mean	18.31	18.21
Median	9.33	9.22
Mode	---	---
Standard Deviation	30.56	30.15
Variance	933.73	909.00
Skewness	7.07	8.71
Kurtosis	93.93	194.81
Coeff. of Variability	1.67	1.66
Minimum	0.08	0.00
Maximum	723.34	10,000.00
Range Width	723.25	10,000.00
Mean Std. Error	0.31	---

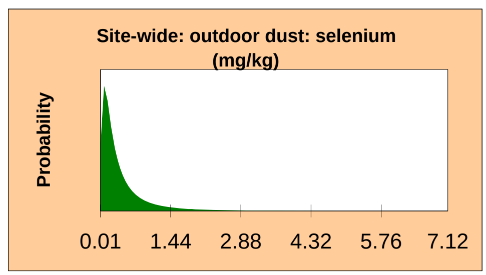
Percentiles:	Assumption values	Distribution
5%	1.38	1.37
95%	63.45	61.90

Assumption: Site-wide: outdoor dust: selenium (mg/kg) **Cell: I29**

Lognormal distribution with parameters:

Mean	0.46
Std. Dev.	0.68

Selected range is from 0.00 to 10,000.00



Assumption: Site-wide: outdoor dust: selenium (mg/kg) (cont'd) **Cell: I29**

Statistics:	Assumption values	Distribution
Trials	10,000	---
Mean	0.46	0.46
Median	0.26	0.26
Mode	---	---
Standard Deviation	0.66	0.68
Variance	0.44	0.46
Skewness	5.75	6.97
Kurtosis	62.82	122.40
Coeff. of Variability	1.45	1.46
Minimum	0.00	0.00
Maximum	15.06	10,000.00
Range Width	15.06	10,000.00
Mean Std. Error	0.01	---

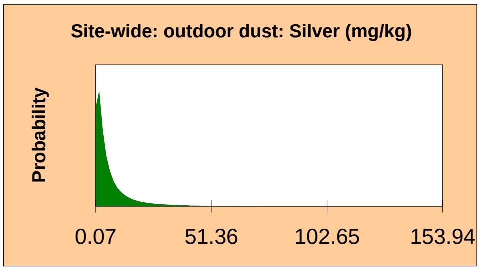
Percentiles:	Assumption values	Distribution
5%	0.05	0.04
95%	1.49	1.51

Assumption: Site-wide: outdoor dust: Silver (mg/kg) **Cell: I33**

Lognormal distribution with parameters:

Mean	7.78
Std. Dev.	13.92

Selected range is from 0.00 to 1,000.00



Assumption: Site-wide: outdoor dust: Silver (mg/kg) (cont'd) **Cell: I33**

Statistics:	Assumption values	Distribution
Trials	10,000	---
Mean	7.80	7.85
Median	3.90	3.79
Mode	---	---
Standard Deviation	13.53	13.79
Variance	183.00	190.09
Skewness	7.42	9.21
Kurtosis	101.68	203.62
Coeff. of Variability	1.73	1.76
Minimum	0.03	0.00
Maximum	317.70	1,000.00
Range Width	317.67	1,000.00
Mean Std. Error	0.14	---

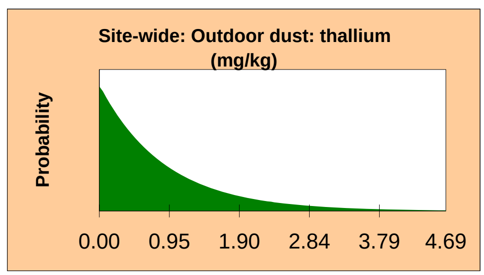
Percentiles:	Assumption values	Distribution
5%	0.52	0.53
95%	26.86	27.23

Assumption: Site-wide: Outdoor dust: thallium (mg/kg) **Cell: I39**

Exponential distribution with parameters:

Rate	1.13

Selected range is from 0.00 to 10,000.00



Assumption: Site-wide: Outdoor dust: thallium (mg/kg) (cont'd) **Cell: I39**

Statistics:	Assumption values	Distribution
Trials	10,000	---
Mean	0.89	0.89
Median	0.62	0.61
Mode	---	---
Standard Deviation	0.88	0.89
Variance	0.77	0.78
Skewness	1.98	2.00
Kurtosis	8.92	8.97
Coeff. of Variability	0.9856	0.9997
Minimum	0.00	0.00
Maximum	8.76	10,000.00
Range Width	8.76	10,000.00
Mean Std. Error	0.01	---

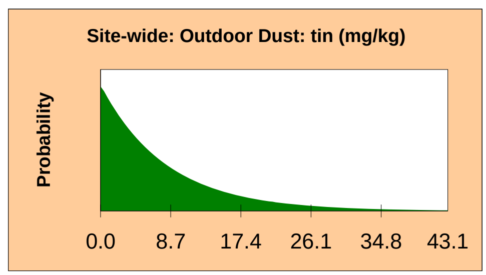
Percentiles:	Assumption values	Distribution
5%	0.05	0.05
95%	2.63	2.65

Assumption: Site-wide: Outdoor Dust: tin (mg/kg) **Cell: I45**

Exponential distribution with parameters:

Rate 0.1

Selected range is from 0.0 to 10000.0



Assumption: Site-wide: Outdoor Dust: tin (mg/kg) (cont'd) **Cell: I45**

Statistics:	Assumption values	Distribution
Trials	10,000	---
Mean	8.2	8.1
Median	5.7	5.6
Mode	---	---
Standard Deviation	8.0	8.1
Variance	64.4	66.2
Skewness	1.86	2.00
Kurtosis	7.83	8.97
Coeff. of Variability	0.9825	0.9997
Minimum	0.0	0.0
Maximum	67.5	10000.0
Range Width	67.5	10000.0
Mean Std. Error	0.1	---

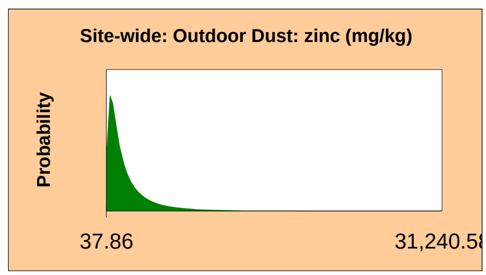
Percentiles:	Assumption values	Distribution
5%	0.4	0.4
95%	24.1	24.4

Assumption: Site-wide: Outdoor Dust: zinc (mg/kg) **Cell: I49**

Lognormal distribution with parameters:

Mean	2,102.67
Std. Dev.	2,993.85

Selected range is from 0.00 to 100,000.00



Assumption: Site-wide: Outdoor Dust: zinc (mg/kg) (cont'd) **Cell: I49**

Statistics:	Assumption values	Distribution
Trials	10,000	---
Mean	2,113.41	2,100.52
Median	1,224.90	1,208.47
Mode	---	---
Standard Deviation	2,886.38	2,955.58
Variance	8,331,215.31	8,735,456.83
Skewness	5.39	5.97
Kurtosis	56.11	75.97
Coeff. of Variability	1.37	1.41
Minimum	13.87	0.00
Maximum	61,443.25	100,000.00
Range Width	61,429.38	100,000.00
Mean Std. Error	28.86	---

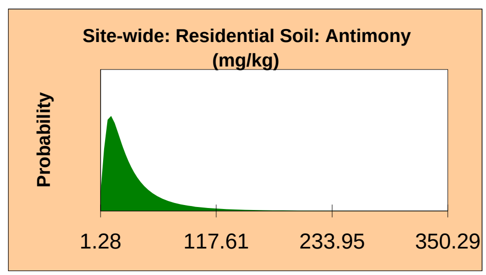
Percentiles:	Assumption values	Distribution
5%	216.62	214.00
95%	6,734.92	6,823.56

Assumption: Site-wide: Residential Soil: Antimony (mg/kg) **Cell: I5**

Lognormal distribution with parameters:

Mean	34.03
Std. Dev.	36.78

Selected range is from 0.00 to 1,000.00



Assumption: Site-wide: Residential Soil: Antimony (mg/kg) (cont'd) **Cell: I5**

Statistics:	Assumption values	Distribution
Trials	10,000	---
Mean	33.63	34.02
Median	22.77	23.11
Mode	---	---
Standard Deviation	36.73	36.60
Variance	1,348.94	1,339.75
Skewness	4.07	4.17
Kurtosis	31.36	38.38
Coeff. of Variability	1.09	1.08
Minimum	1.08	0.00
Maximum	538.95	1,000.00
Range Width	537.87	1,000.00
Mean Std. Error	0.37	---

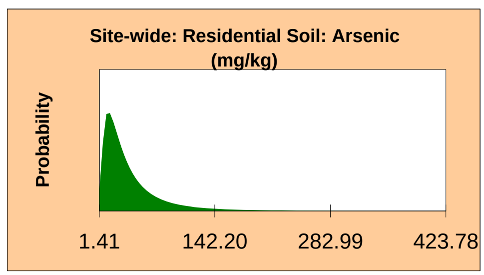
Percentiles:	Assumption values	Distribution
5%	5.38	5.44
95%	95.18	98.21

Assumption: Site-wide: Residential Soil: Arsenic (mg/kg) **Cell: I13**

Lognormal distribution with parameters:

Mean	39.88
Std. Dev.	44.13

Selected range is from 0.00 to 1,000.00



Assumption: Site-wide: Residential Soil: Arsenic (mg/kg) (cont'd) **Cell: I13**

Statistics:	Assumption values	Distribution
Trials	10,000	---
Mean	39.85	39.85
Median	26.34	26.74
Mode	---	---
Standard Deviation	44.65	43.69
Variance	1,993.89	1,908.84
Skewness	4.38	4.15
Kurtosis	37.74	36.29
Coeff. of Variability	1.12	1.10
Minimum	0.67	0.00
Maximum	777.87	1,000.00
Range Width	777.21	1,000.00
Mean Std. Error	0.45	---

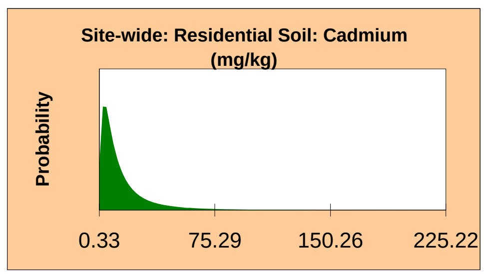
Percentiles:	Assumption values	Distribution
5%	5.98	6.14
95%	114.60	116.35

Assumption: Site-wide: Residential Soil: Cadmium (mg/kg) **Cell: I19**

Lognormal distribution with parameters:

Mean	16.09
Std. Dev.	21.88

Selected range is from 0.00 to 1,000.00



Assumption: Site-wide: Residential Soil: Cadmium (mg/kg) (cont'd) **Cell: I19**

Statistics:	Assumption values	Distribution
Trials	10,000	---
Mean	16.29	16.08
Median	9.47	9.53
Mode	---	---
Standard Deviation	22.21	21.80
Variance	493.16	475.23
Skewness	5.12	5.96
Kurtosis	48.78	82.39
Coeff. of Variability	1.36	1.36
Minimum	0.24	0.00
Maximum	428.06	1,000.00
Range Width	427.82	1,000.00
Mean Std. Error	0.22	---

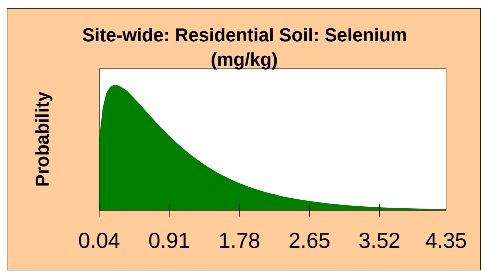
Percentiles:	Assumption values	Distribution
5%	1.74	1.77
95%	52.03	51.30

Assumption: Site-wide: Residential Soil: Selenium (mg/kg) **Cell: I27**

Gamma distribution with parameters:

Location	0.04
Scale	0.73
Shape	1.271746297

Selected range is from 0.00 to 1,000.00



Assumption: Site-wide: Residential Soil: Selenium (mg/kg) (cont'd) **Cell: I27**

Statistics:	Assumption values	Distribution
Trials	10,000	---
Mean	0.97	0.97
Median	0.74	0.74
Mode	---	---
Standard Deviation	0.81	0.82
Variance	0.66	0.67
Skewness	1.68	1.77
Kurtosis	7.26	7.69
Coeff. of Variability	0.8347	0.8490
Minimum	0.04	0.04
Maximum	8.08	1,000.00
Range Width	8.04	999.96
Mean Std. Error	0.01	---

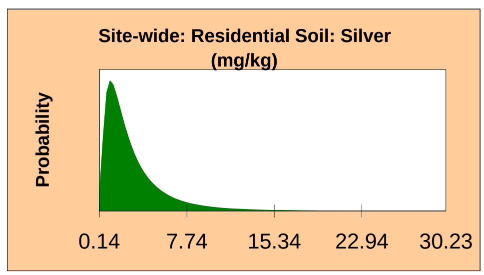
Percentiles:	Assumption values	Distribution
5%	0.12	0.12
95%	2.56	2.59

Assumption: Site-wide: Residential Soil: Silver (mg/kg) **Cell: I31**

Lognormal distribution with parameters:

Mean	3.16
Std. Dev.	3.23

Selected range is from 0.00 to 1,000.00



Assumption: Site-wide: Residential Soil: Silver (mg/kg) (cont'd) **Cell: I31**

Statistics:	Assumption values	Distribution
Trials	10,000	---
Mean	3.07	3.16
Median	2.17	2.20
Mode	---	---
Standard Deviation	3.05	3.24
Variance	9.28	10.47
Skewness	3.48	4.05
Kurtosis	25.33	39.09
Coeff. of Variability	0.9911	1.03
Minimum	0.08	0.00
Maximum	50.00	1,000.00
Range Width	49.92	1,000.00
Mean Std. Error	0.03	---

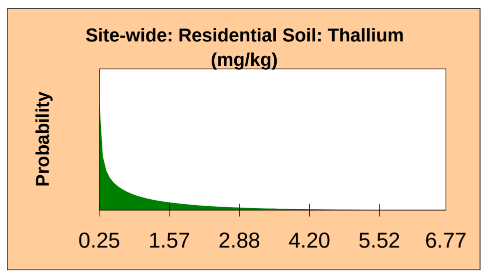
Percentiles:	Assumption values	Distribution
5%	0.54	0.55
95%	8.61	8.88

Assumption: Site-wide: Residential Soil: Thallium (mg/kg) **Cell: I37**

Gamma distribution with parameters:

Location	0.25
Scale	1.50
Shape	0.638375291

Selected range is from 0.00 to 1,000.00



Assumption: Site-wide: Residential Soil: Thallium (mg/kg) (cont'd) **Cell: I37**

Statistics:	Assumption values	Distribution
Trials	10,000	---
Mean	1.22	1.21
Median	0.78	0.77
Mode	---	---
Standard Deviation	1.24	1.19
Variance	1.53	1.43
Skewness	2.67	2.50
Kurtosis	13.83	12.36
Coeff. of Variability	1.02	0.9898
Minimum	0.25	0.25
Maximum	15.34	1,000.00
Range Width	15.09	999.75
Mean Std. Error	0.01	---

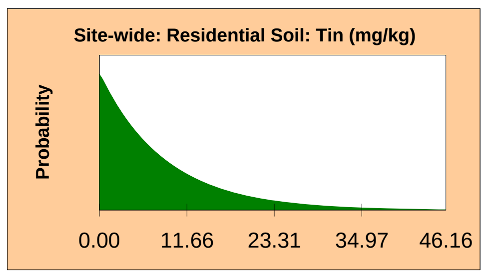
Percentiles:	Assumption values	Distribution
5%	0.26	0.26
95%	3.69	3.61

Assumption: Site-wide: Residential Soil: Tin (mg/kg) **Cell: I43**

Exponential distribution with parameters:

Rate	0.11

Selected range is from 0.00 to 1,000.00



Assumption: Site-wide: Residential Soil: Tin (mg/kg) (cont'd) **Cell: I43**

Statistics:	Assumption values	Distribution
Trials	10,000	---
Mean	8.58	8.71
Median	5.95	6.04
Mode	---	---
Standard Deviation	8.63	8.71
Variance	74.41	75.90
Skewness	2.04	2.00
Kurtosis	9.94	8.97
Coeff. of Variability	1.00	0.9997
Minimum	0.00	0.00
Maximum	111.94	1,000.00
Range Width	111.94	1,000.00
Mean Std. Error	0.09	---

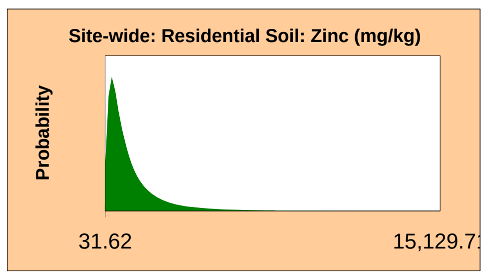
Percentiles:	Assumption values	Distribution
5%	0.44	0.45
95%	25.96	26.10

Assumption: Site-wide: Residential Soil: Zinc (mg/kg) **Cell: I47**

Lognormal distribution with parameters:

Mean	1,216.33
Std. Dev.	1,513.19

Selected range is from 0.00 to 100,000.00



Assumption: Site-wide: Residential Soil: Zinc (mg/kg) (cont'd) **Cell: I47**

Statistics:	Assumption values	Distribution
Trials	10,000	---
Mean	1,217.85	1,215.79
Median	765.30	762.04
Mode	---	---
Standard Deviation	1,519.65	1,513.35
Variance	2,309,321.86	2,290,240.26
Skewness	5.55	5.37
Kurtosis	67.19	69.86
Coeff. of Variability	1.25	1.24
Minimum	29.10	0.00
Maximum	34,037.18	100,000.00
Range Width	34,008.08	100,000.00
Mean Std. Error	15.20	---

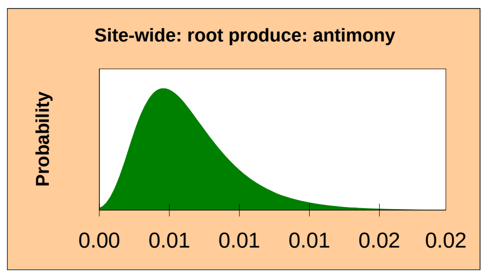
Percentiles:	Assumption values	Distribution
5%	150.12	155.30
95%	3,729.10	3,739.31

Assumption: Site-wide: root produce: antimony **Cell: I8**

Lognormal distribution with parameters:

Mean	0.01
Std. Dev.	0.00

Selected range is from 0.00 to 100.00



Assumption: Site-wide: root produce: antimony (cont'd) **Cell: I8**

Statistics:	Assumption values	Distribution
Trials	10,000	---
Mean	0.01	0.01
Median	0.01	0.01
Mode	---	---
Standard Deviation	0.00	0.00
Variance	0.00	0.00
Skewness	1.31	1.31
Kurtosis	6.38	6.19
Coeff. of Variability	0.4145	0.4146
Minimum	0.00	0.00
Maximum	0.03	100.00
Range Width	0.03	100.00
Mean Std. Error	0.00	---

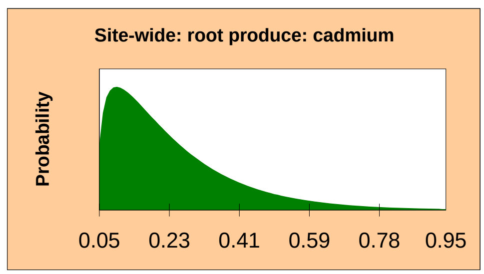
Percentiles:	Assumption values	Distribution
5%	0.00	0.00
95%	0.01	0.01

Assumption: Site-wide: root produce: cadmium **Cell: I22**

Gamma distribution with parameters:

Location	0.05
Scale	0.15
Shape	1.294380334

Selected range is from 0.00 to 100.00



Assumption: Site-wide: root produce: cadmium (cont'd) **Cell: I22**

Statistics:	Assumption values	Distribution
Trials	10,000	---
Mean	0.24	0.24
Median	0.20	0.20
Mode	---	---
Standard Deviation	0.17	0.17
Variance	0.03	0.03
Skewness	1.70	1.76
Kurtosis	7.43	7.61
Coeff. of Variability	0.7003	0.7059
Minimum	0.05	0.05
Maximum	1.82	100.00
Range Width	1.77	99.95
Mean Std. Error	0.00	---

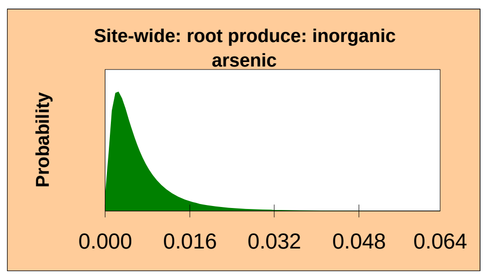
Percentiles:	Assumption values	Distribution
5%	0.06	0.07
95%	0.58	0.58

Assumption: Site-wide: root produce: inorganic arsenic **Cell: I16**

Lognormal distribution with parameters:

Mean	0.007
Std. Dev.	0.007

Selected range is from 0.000 to 100.000



Assumption: Site-wide: root produce: inorganic arsenic (cont'd) **Cell: I16**

Statistics:	Assumption values	Distribution
Trials	10,000	---
Mean	0.007	0.007
Median	0.005	0.005
Mode	---	---
Standard Deviation	0.007	0.007
Variance	0.000	0.000
Skewness	3.34	3.76
Kurtosis	23.82	33.67
Coeff. of Variability	0.9609	0.9736
Minimum	0.000	0.000
Maximum	0.102	100.000
Range Width	0.102	100.000
Mean Std. Error	0.000	---

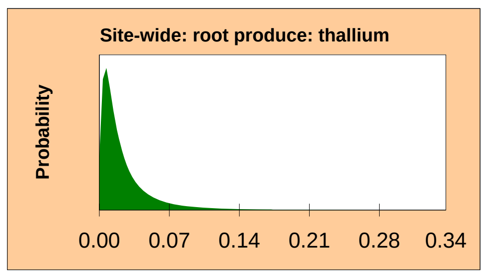
Percentiles:	Assumption values	Distribution
5%	0.001	0.001
95%	0.020	0.020

Assumption: Site-wide: root produce: thallium **Cell: I40**

Lognormal distribution with parameters:

Mean	0.03
Std. Dev.	0.03

Selected range is from 0.00 to 100.00



Assumption: Site-wide: root produce: thallium (cont'd)

Cell: I40

Statistics:	Assumption values	Distribution
Trials	10,000	---
Mean	0.03	0.03
Median	0.02	0.02
Mode	---	---
Standard Deviation	0.03	0.03
Variance	0.00	0.00
Skewness	5.13	5.71
Kurtosis	53.96	80.35
Coeff. of Variability	1.29	1.29
Minimum	0.00	0.00
Maximum	0.63	100.00
Range Width	0.63	100.00
Mean Std. Error	0.00	---

Percentiles:	Assumption values	Distribution
5%	0.00	0.00
95%	0.08	0.08

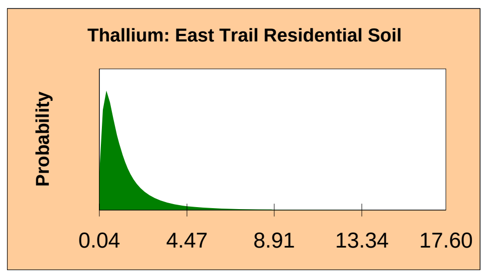
Assumption: Thallium: East Trail Residential Soil

Cell: B37

Lognormal distribution with parameters:

Mean	1.44
Std. Dev.	1.77

Selected range is from 0.00 to 1,000.00



Assumption: Thallium: East Trail Residential Soil (cont'd) **Cell: B37**

Statistics:	Assumption values	Distribution
Trials	10,000	---
Mean	1.45	1.44
Median	0.91	0.91
Mode	---	---
Standard Deviation	1.84	1.77
Variance	3.38	3.13
Skewness	6.04	5.27
Kurtosis	79.36	67.89
Coeff. of Variability	1.26	1.23
Minimum	0.02	0.00
Maximum	45.95	1,000.00
Range Width	45.93	1,000.00
Mean Std. Error	0.02	---

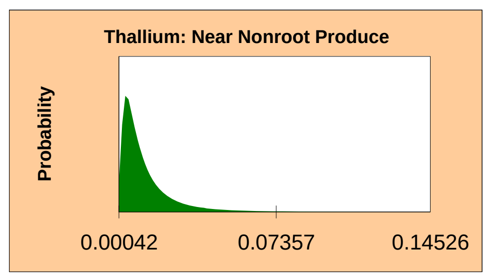
Percentiles:	Assumption values	Distribution
5%	0.18	0.19
95%	4.39	4.40

Assumption: Thallium: Near Nonroot Produce **Cell: G41**

Lognormal distribution with parameters:

Mean	0.01298
Std. Dev.	0.01493

Selected range is from 0.00000 to 100.00000



Assumption: Thallium: Near Nonroot Produce (cont'd) **Cell: G41**

Statistics:	Assumption values	Distribution
Trials	10,000	---
Mean	0.01303	0.01298
Median	0.00864	0.00852
Mode	---	---
Standard Deviation	0.01488	0.01493
Variance	0.00022	0.00022
Skewness	4.42	4.78
Kurtosis	39.87	55.27
Coeff. of Variability	1.14	1.15
Minimum	0.00023	0.00000
Maximum	0.27930	100.00000
Range Width	0.27907	100.00000
Mean Std. Error	0.00015	---

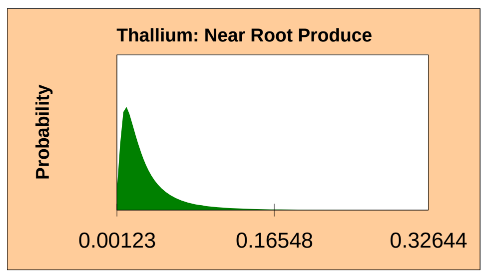
Percentiles:	Assumption values	Distribution
5%	0.00188	0.00188
95%	0.03828	0.03856

Assumption: Thallium: Near Root Produce **Cell: G40**

Lognormal distribution with parameters:

Mean	0.03205
Std. Dev.	0.03437

Selected range is from 0.00000 to 100.00000



Assumption: Thallium: Near Root Produce (cont'd)

Cell: G40

Statistics:	Assumption values	Distribution
Trials	10,000	---
Mean	0.03239	0.03204
Median	0.02167	0.02186
Mode	---	---
Standard Deviation	0.03617	0.03438
Variance	0.00131	0.00118
Skewness	4.66	4.32
Kurtosis	43.97	44.70
Coeff. of Variability	1.12	1.07
Minimum	0.00092	0.00000
Maximum	0.63200	100.00000
Range Width	0.63108	100.00000
Mean Std. Error	0.00036	---

Percentiles:	Assumption values	Distribution
5%	0.00509	0.00518
95%	0.09332	0.09217

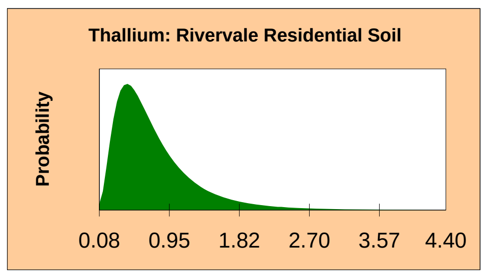
Assumption: Thallium: Rivervale Residential Soil

Cell: C37

Lognormal distribution with parameters:

Mean	0.76
Std. Dev.	0.53

Selected range is from 0.00 to 1000.00



Assumption: Thallium: Rivervale Residential Soil (cont'd) **Cell: C37**

Statistics:	Assumption values	Distribution
Trials	10,000	---
Mean	0.75	0.76
Median	0.61	0.63
Mode	---	---
Standard Deviation	0.53	0.53
Variance	0.28	0.29
Skewness	2.39	2.42
Kurtosis	13.84	14.67
Coeff. of Variability	0.6982	0.6991
Minimum	0.05	0.00
Maximum	7.52	1000.00
Range Width	7.47	1000.00
Mean Std. Error	0.01	---

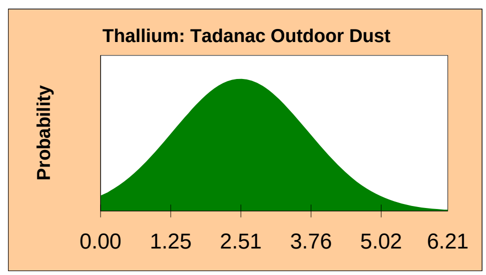
Percentiles:	Assumption values	Distribution
5%	0.22	0.22
95%	1.74	1.77

Assumption: Thallium: Tadanac Outdoor Dust **Cell: D39**

Normal distribution with parameters:

Mean	2.50
Std. Dev.	1.20

Selected range is from 0.00 to 1,000.00



Assumption: Thallium: Tadanac Outdoor Dust (cont'd) **Cell: D39**

Statistics:	Assumption values	Distribution
Trials	10,000	---
Mean	2.57	2.56
Median	2.54	2.53
Mode	---	---
Standard Deviation	1.14	1.14
Variance	1.30	1.30
Skewness	0.1901	0.1971
Kurtosis	2.75	2.77
Coeff. of Variability	0.4434	0.4457
Minimum	0.00	0.00
Maximum	7.25	1,000.00
Range Width	7.25	1,000.00
Mean Std. Error	0.01	---

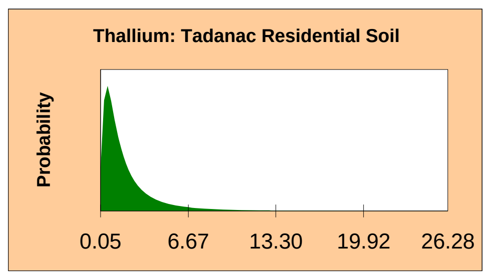
Percentiles:	Assumption values	Distribution
5%	0.70	0.71
95%	4.52	4.48

Assumption: Thallium: Tadanac Residential Soil **Cell: D37**

Lognormal distribution with parameters:

Mean	2.07
Std. Dev.	2.62

Selected range is from 0.00 to 1,000.00



Assumption: Thallium: Tadanac Residential Soil (cont'd) **Cell: D37**

Statistics:	Assumption values	Distribution
Trials	10,000	---
Mean	2.09	2.07
Median	1.28	1.29
Mode	---	---
Standard Deviation	2.70	2.62
Variance	7.29	6.85
Skewness	5.32	5.51
Kurtosis	56.13	74.45
Coeff. of Variability	1.29	1.26
Minimum	0.03	0.00
Maximum	51.48	1,000.00
Range Width	51.45	1,000.00
Mean Std. Error	0.03	---

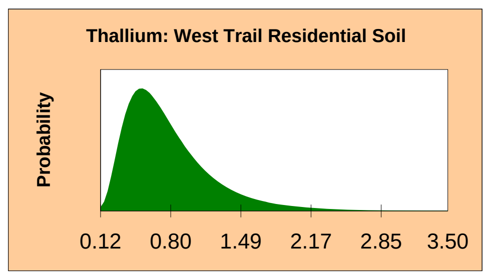
Percentiles:	Assumption values	Distribution
5%	0.25	0.26
95%	6.41	6.41

Assumption: Thallium: West Trail Residential Soil **Cell: F37**

Lognormal distribution with parameters:

Mean	0.79
Std. Dev.	0.45

Selected range is from 0.00 to 1,000.00



Assumption: Thallium: West Trail Residential Soil (cont'd) **Cell: F37**

Statistics:	Assumption values	Distribution
Trials	10,000	---
Mean	0.79	0.79
Median	0.69	0.68
Mode	---	---
Standard Deviation	0.44	0.45
Variance	0.19	0.20
Skewness	1.63	1.88
Kurtosis	7.58	9.77
Coeff. of Variability	0.5525	0.5676
Minimum	0.06	0.00
Maximum	4.39	1,000.00
Range Width	4.32	1,000.00
Mean Std. Error	0.00	---

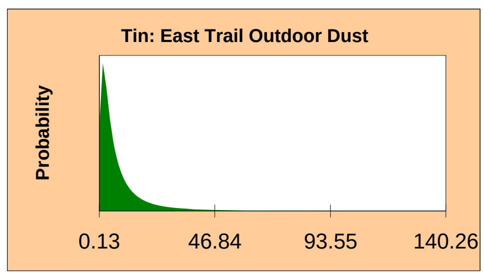
Percentiles:	Assumption values	Distribution
5%	0.29	0.29
95%	1.63	1.63

Assumption: Tin: East Trail Outdoor Dust **Cell: B45**

Lognormal distribution with parameters:

Mean	8.70
Std. Dev.	13.20

Selected range is from 0.00 to 1,000.00



Assumption: Tin: East Trail Outdoor Dust (cont'd) **Cell: B45**

Statistics:	Assumption values	Distribution
Trials	10,000	---
Mean	8.85	8.72
Median	4.89	4.79
Mode	---	---
Standard Deviation	13.21	13.17
Variance	174.62	173.42
Skewness	6.26	7.27
Kurtosis	74.77	130.35
Coeff. of Variability	1.49	1.51
Minimum	0.06	0.00
Maximum	293.31	1,000.00
Range Width	293.26	1,000.00
Mean Std. Error	0.13	---

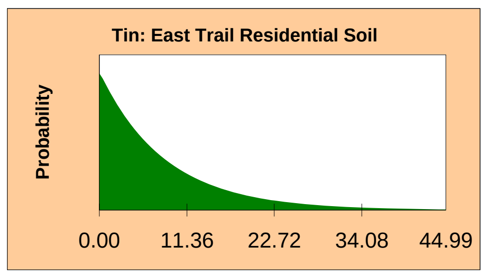
Percentiles:	Assumption values	Distribution
5%	0.83	0.79
95%	28.90	28.90

Assumption: Tin: East Trail Residential Soil **Cell: B43**

Exponential distribution with parameters:

Rate 0.12

Selected range is from 0.00 to 1,000.00



Assumption: Tin: East Trail Residential Soil (cont'd) **Cell: B43**

Statistics:	Assumption values	Distribution
Trials	10,000	---
Mean	8.46	8.49
Median	5.85	5.89
Mode	---	---
Standard Deviation	8.47	8.49
Variance	71.71	72.08
Skewness	1.98	2.00
Kurtosis	8.60	8.97
Coeff. of Variability	1.00	0.9997
Minimum	0.00	0.00
Maximum	79.09	1,000.00
Range Width	79.09	1,000.00
Mean Std. Error	0.08	---

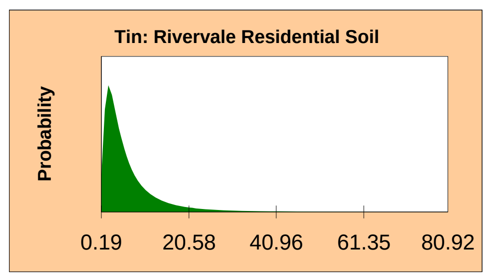
Percentiles:	Assumption values	Distribution
5%	0.44	0.44
95%	25.08	25.44

Assumption: Tin: Rivervale Residential Soil **Cell: C43**

Lognormal distribution with parameters:

Mean	6.82
Std. Dev.	8.19

Selected range is from 0.00 to 1,000.00



Assumption: Tin: Rivervale Residential Soil (cont'd) **Cell: C43**

Statistics:	Assumption values	Distribution
Trials	10,000	---
Mean	6.66	6.82
Median	4.39	4.36
Mode	---	---
Standard Deviation	7.95	8.19
Variance	63.27	67.15
Skewness	5.08	5.10
Kurtosis	52.17	63.38
Coeff. of Variability	1.19	1.20
Minimum	0.09	0.00
Maximum	145.94	1,000.00
Range Width	145.85	1,000.00
Mean Std. Error	0.08	---

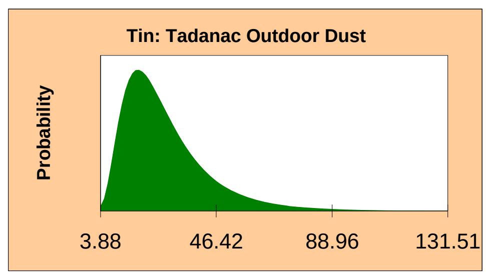
Percentiles:	Assumption values	Distribution
5%	0.90	0.92
95%	19.72	20.65

Assumption: Tin: Tadanac Outdoor Dust **Cell: D45**

Lognormal distribution with parameters:

Mean	27.80
Std. Dev.	16.60

Selected range is from 0.00 to 1,000.00



Assumption: Tin: Tadanac Outdoor Dust (cont'd)

Cell: D45

Statistics:	Assumption values	Distribution
Trials	10,000	---
Mean	27.75	27.80
Median	23.64	23.87
Mode	---	---
Standard Deviation	16.76	16.60
Variance	280.94	275.64
Skewness	1.90	1.99
Kurtosis	9.06	10.70
Coeff. of Variability	0.6041	0.5972
Minimum	2.71	0.00
Maximum	185.98	1,000.00
Range Width	183.27	1,000.00
Mean Std. Error	0.17	---

Percentiles:	Assumption values	Distribution
5%	9.49	9.62
95%	59.96	59.20

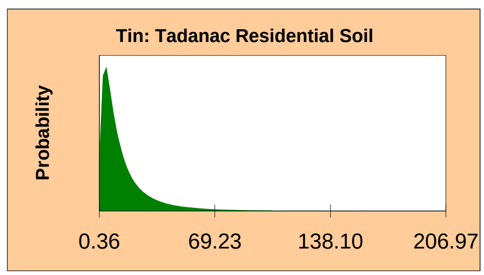
Assumption: Tin: Tadanac Residential Soil

Cell: D43

Lognormal distribution with parameters:

Mean	15.59
Std. Dev.	20.37

Selected range is from 0.00 to 1,000.00



Assumption: Tin: Tadanac Residential Soil (cont'd) **Cell: D43**

Statistics:	Assumption values	Distribution
Trials	10,000	---
Mean	15.73	15.59
Median	9.50	9.48
Mode	---	---
Standard Deviation	20.91	20.33
Variance	437.07	413.31
Skewness	5.72	5.68
Kurtosis	69.59	76.21
Coeff. of Variability	1.33	1.30
Minimum	0.21	0.00
Maximum	509.12	1,000.00
Range Width	508.91	1,000.00
Mean Std. Error	0.21	---

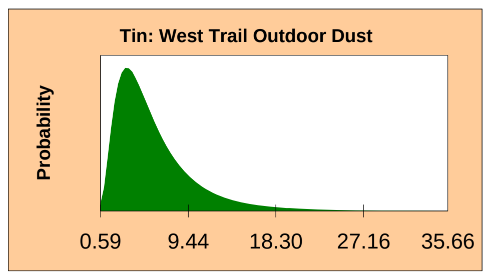
Percentiles:	Assumption values	Distribution
5%	1.80	1.84
95%	49.42	48.93

Assumption: Tin: West Trail Outdoor Dust **Cell: F45**

Lognormal distribution with parameters:

Mean	6.00
Std. Dev.	4.30

Selected range is from 0.00 to 1,000.00



Assumption: Tin: West Trail Outdoor Dust (cont'd) **Cell: F45**

Statistics:	Assumption values	Distribution
Trials	10,000	---
Mean	6.01	6.00
Median	4.86	4.88
Mode	---	---
Standard Deviation	4.29	4.30
Variance	18.37	18.50
Skewness	2.32	2.50
Kurtosis	13.06	15.50
Coeff. of Variability	0.7127	0.7168
Minimum	0.48	0.00
Maximum	59.65	1,000.00
Range Width	59.17	1,000.00
Mean Std. Error	0.04	---

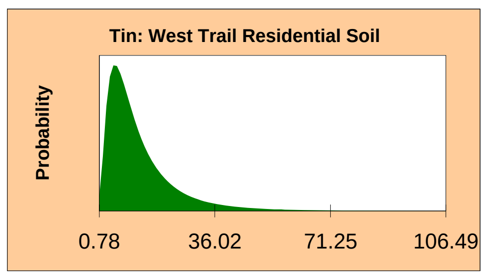
Percentiles:	Assumption values	Distribution
5%	1.73	1.69
95%	14.19	14.06

Assumption: Tin: West Trail Residential Soil **Cell: F43**

Lognormal distribution with parameters:

Mean	13.25
Std. Dev.	11.93

Selected range is from 0.00 to 647.39



Assumption: Tin: West Trail Residential Soil (cont'd) **Cell: F43**

Statistics:	Assumption values	Distribution
Trials	10,000	---
Mean	13.21	13.25
Median	9.78	9.85
Mode	---	---
Standard Deviation	12.14	11.93
Variance	147.43	142.37
Skewness	4.07	3.37
Kurtosis	44.08	27.10
Coeff. of Variability	0.9194	0.9003
Minimum	0.63	0.00
Maximum	280.70	647.39
Range Width	280.07	647.39
Mean Std. Error	0.12	---

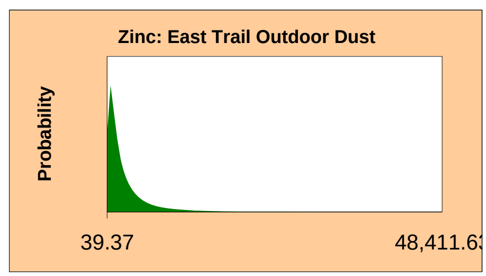
Percentiles:	Assumption values	Distribution
5%	2.72	2.77
95%	35.12	34.98

Assumption: Zinc: East Trail Outdoor Dust **Cell: B49**

Lognormal distribution with parameters:

Mean	2,874.20
Std. Dev.	4,514.10

Selected range is from 0.00 to 100,000.00



Assumption: Zinc: East Trail Outdoor Dust (cont'd) **Cell: B49**

Statistics:	Assumption values	Distribution
Trials	10,000	---
Mean	2,880.34	2,861.74
Median	1,538.70	1,543.50
Mode	---	---
Standard Deviation	4,542.68	4,311.15
Variance	20,635,947.36	18,585,995.63
Skewness	6.24	5.78
Kurtosis	69.71	62.48
Coeff. of Variability	1.58	1.51
Minimum	19.59	0.00
Maximum	95,949.29	100,000.00
Range Width	95,929.70	100,000.00
Mean Std. Error	45.43	---

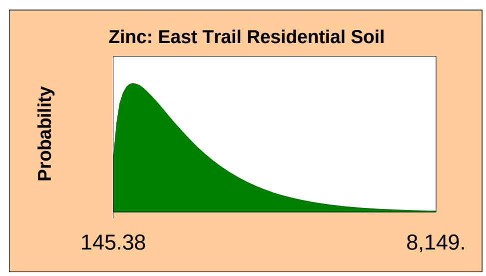
Percentiles:	Assumption values	Distribution
5%	242.00	246.63
95%	9,705.21	9,652.57

Assumption: Zinc: East Trail Residential Soil **Cell: B47**

Gamma distribution with parameters:

Location	143.49
Scale	1,299.67
Shape	1.378846824

Selected range is from 0.00 to 100,000.00



Assumption: Zinc: East Trail Residential Soil (cont'd) **Cell: B47**

Statistics:	Assumption values	Distribution
Trials	10,000	---
Mean	1,923.81	1,935.54
Median	1,523.43	1,525.73
Mode	---	---
Standard Deviation	1,503.63	1,526.20
Variance	2,260,889.48	2,329,281.83
Skewness	1.62	1.70
Kurtosis	6.61	7.33
Coeff. of Variability	0.7816	0.7885
Minimum	145.92	143.49
Maximum	12,393.66	100,000.00
Range Width	12,247.74	99,856.51
Mean Std. Error	15.04	---

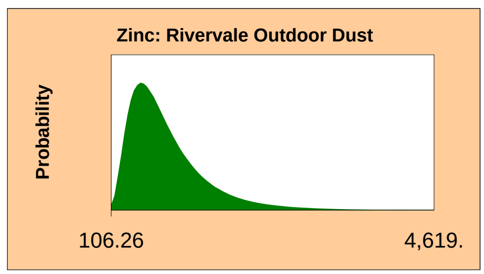
Percentiles:	Assumption values	Distribution
5%	326.92	325.28
95%	4,934.59	4,945.92

Assumption: Zinc: Rivervale Outdoor Dust **Cell: C49**

Lognormal distribution with parameters:

Mean	885.30
Std. Dev.	572.60

Selected range is from 0.00 to 100,000.00



Assumption: Zinc: Rivervale Outdoor Dust (cont'd) **Cell: C49**

Statistics:	Assumption values	Distribution
Trials	10,000	---
Mean	885.56	885.29
Median	735.72	743.36
Mode	---	---
Standard Deviation	579.77	572.69
Variance	336,138.23	327,977.32
Skewness	2.14	2.20
Kurtosis	10.68	12.48
Coeff. of Variability	0.6547	0.6469
Minimum	82.84	0.00
Maximum	6,484.30	100,000.00
Range Width	6,401.46	100,000.00
Mean Std. Error	5.80	---

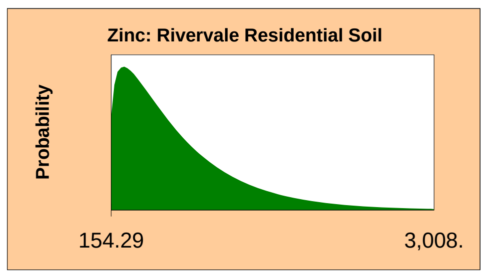
Percentiles:	Assumption values	Distribution
5%	280.40	281.12
95%	1,990.18	1,965.64

Assumption: Zinc: Rivervale Residential Soil **Cell: C47**

Gamma distribution with parameters:

Location	154.01
Scale	491.41
Shape	1.219966999

Selected range is from 0.00 to 100,000.00



Assumption: Zinc: Rivervale Residential Soil (cont'd) **Cell: C47**

Statistics:	Assumption values	Distribution
Trials	10,000	---
Mean	757.88	753.53
Median	603.64	599.96
Mode	---	---
Standard Deviation	545.84	542.78
Variance	297,937.44	294,608.57
Skewness	1.77	1.81
Kurtosis	7.54	7.89
Coeff. of Variability	0.7202	0.7203
Minimum	154.51	154.01
Maximum	5,166.88	100,000.00
Range Width	5,012.37	99,845.99
Mean Std. Error	5.46	---

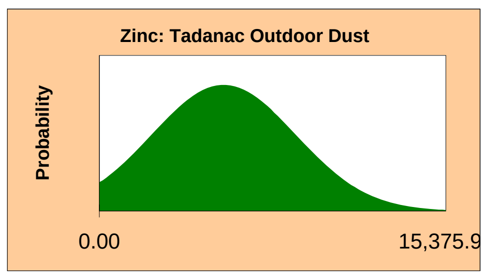
Percentiles:	Assumption values	Distribution
5%	204.25	202.15
95%	1,869.54	1,829.35

Assumption: Zinc: Tadanac Outdoor Dust **Cell: D49**

Normal distribution with parameters:

Mean	5,515.30
Std. Dev.	3,190.90

Selected range is from 0.00 to 100,000.00



Assumption: Zinc: Tadanac Outdoor Dust (cont'd) **Cell: D49**

Statistics:	Assumption values	Distribution
Trials	10,000	---
Mean	5,805.00	5,813.64
Median	5,675.13	5,683.16
Mode	---	---
Standard Deviation	2,894.53	2,906.52
Variance	8,378,317.55	8,447,835.40
Skewness	0.3009	0.3079
Kurtosis	2.74	2.76
Coeff. of Variability	0.4986	0.4999
Minimum	1.46	0.00
Maximum	19,018.15	100,000.00
Range Width	19,016.69	100,000.00
Mean Std. Error	28.95	---

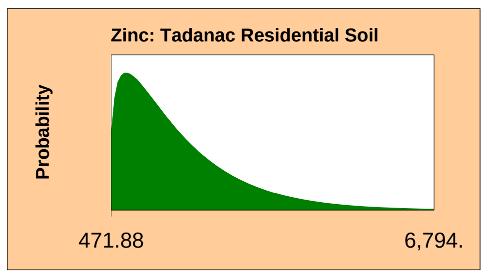
Percentiles:	Assumption values	Distribution
5%	1,257.30	1,234.26
95%	10,861.26	10,829.88

Assumption: Zinc: Tadanac Residential Soil **Cell: D47**

Gamma distribution with parameters:

Location	471.03
Scale	1,067.51
Shape	1.271024982

Selected range is from 0.00 to 100,000.00



Assumption: Zinc: Tadanac Residential Soil (cont'd) **Cell: D47**

Statistics:	Assumption values	Distribution
Trials	10,000	---
Mean	1,825.43	1,827.90
Median	1,494.78	1,493.23
Mode	---	---
Standard Deviation	1,190.08	1,203.55
Variance	1,416,293.59	1,448,527.59
Skewness	1.74	1.77
Kurtosis	7.45	7.69
Coeff. of Variability	0.6519	0.6584
Minimum	471.40	471.03
Maximum	11,643.40	100,000.00
Range Width	11,172.00	99,528.97
Mean Std. Error	11.90	---

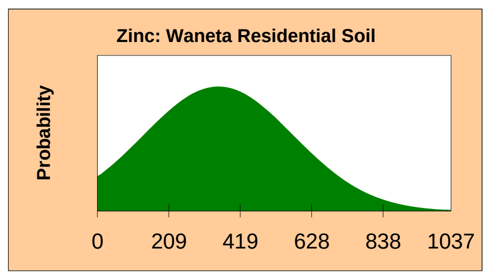
Percentiles:	Assumption values	Distribution
5%	595.48	589.23
95%	4,207.12	4,209.63

Assumption: Zinc: Waneta Residential Soil **Cell: E47**

Normal distribution with parameters:

Mean	355
Std. Dev.	221

Selected range is from 0 to 100000



Assumption: Zinc: Waneta Residential Soil (cont'd) **Cell: E47**

Statistics:	Assumption values	Distribution
Trials	10,000	---
Mean	382	380
Median	373	370
Mode	---	---
Standard Deviation	197	197
Variance	38979	38982
Skewness	0.3329	0.3510
Kurtosis	2.71	2.78
Coeff. of Variability	0.5174	0.5192
Minimum	0	0
Maximum	1141	100000
Range Width	1141	100000
Mean Std. Error	2	---

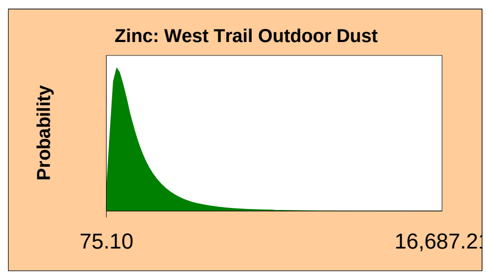
Percentiles:	Assumption values	Distribution
5%	74	74
95%	727	724

Assumption: Zinc: West Trail Outdoor Dust **Cell: F49**

Lognormal distribution with parameters:

Mean	1,744.10
Std. Dev.	1,786.00

Selected range is from 0.00 to 100,000.00



Assumption: Zinc: West Trail Outdoor Dust (cont'd) **Cell: F49**

Statistics:	Assumption values	Distribution
Trials	10,000	---
Mean	1,723.09	1,743.91
Median	1,197.48	1,218.54
Mode	---	---
Standard Deviation	1,720.52	1,786.47
Variance	2,960,189.30	3,191,473.48
Skewness	3.30	4.04
Kurtosis	22.23	38.82
Coeff. of Variability	0.9985	1.02
Minimum	39.39	0.00
Maximum	25,709.75	100,000.00
Range Width	25,670.36	100,000.00
Mean Std. Error	17.21	---

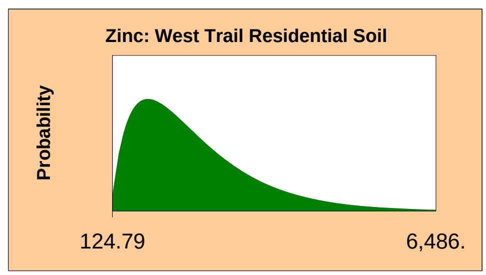
Percentiles:	Assumption values	Distribution
5%	293.63	302.61
95%	4,992.15	4,906.75

Assumption: Zinc: West Trail Residential Soil **Cell: F47**

Gamma distribution with parameters:

Location	118.06
Scale	911.91
Shape	1.774386175

Selected range is from 0.00 to 100,000.00



Assumption: Zinc: West Trail Residential Soil (cont'd) **Cell: F47**

Statistics:	Assumption values	Distribution
Trials	10,000	---
Mean	1,723.15	1,736.12
Median	1,425.51	1,444.39
Mode	---	---
Standard Deviation	1,211.89	1,214.79
Variance	1,468,667.86	1,475,726.24
Skewness	1.52	1.50
Kurtosis	6.54	6.36
Coeff. of Variability	0.7033	0.6997
Minimum	125.51	118.06
Maximum	11,733.39	100,000.00
Range Width	11,607.88	99,881.94
Mean Std. Error	12.12	---

Percentiles:	Assumption values	Distribution
5%	348.86	363.25
95%	4,070.54	4,106.04

End of Assumptions

Report C1b - Crystal Ball Report - Custom
Simulation started on 5/12/2008 at 14:40:24
Simulation stopped on 5/12/2008 at 14:41:01

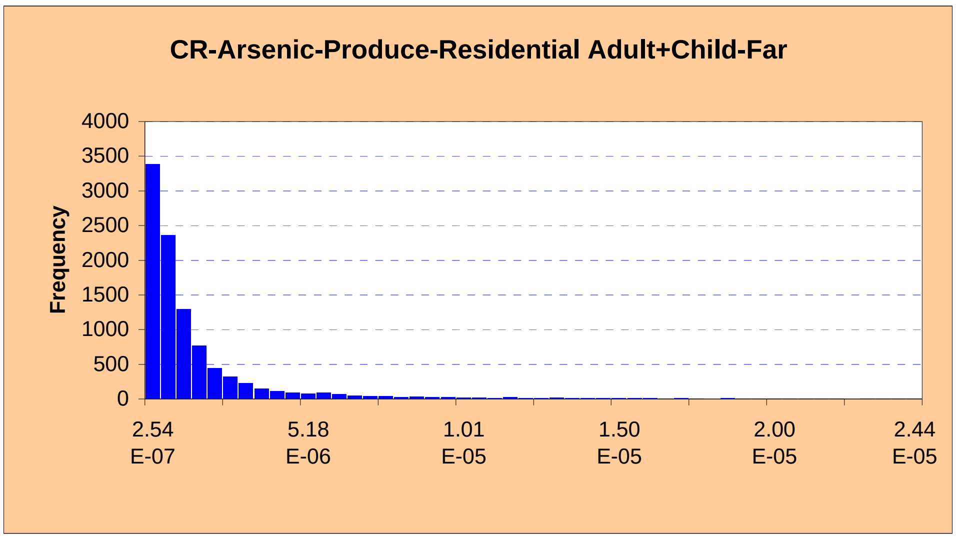
Run preferences:	
Number of trials run	10,000
Monte Carlo	
Random seed	
Precision control on	
Confidence level	95.00%
Run statistics:	
Total running time (sec)	36.26
Trials/second (average)	276
Random numbers per sec	32,815
Crystal Ball data:	
Assumptions	119
Correlations	0
Correlated groups	0
Decision variables	0
Forecasts	130

Forecasts

Worksheet: [C164_Soil_Dust_Produce.xls]HI & CR Ingestion Produce

Forecast: CR-Arsenic-Produce-Residential Adult+Child-Far **Cell: F58**

Summary:
Entire range is from 7.46E-09 to 2.90E-04
Base case is 1.70E-06
After 10,000 trials, the std. error of the mean is 7.96E-08



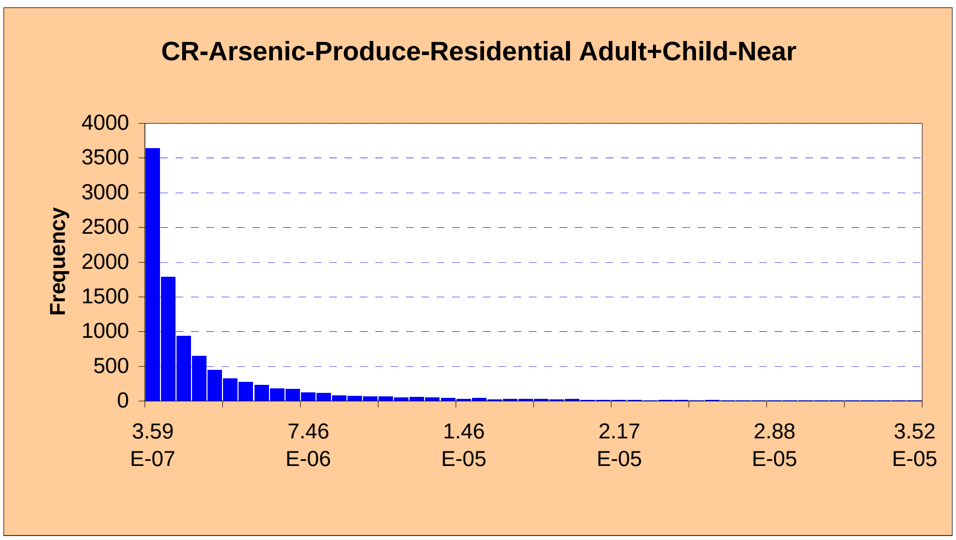
Statistics:	Forecast values
Trials	10,000
Mean	2.36E-06
Median	7.96E-07
Mode	---
Standard Deviation	7.96E-06
Variance	6.34E-11
Skewness	15.86
Kurtosis	395.90
Coeff. of Variability	3.37
Minimum	7.46E-09
Maximum	2.90E-04
Range Width	2.90E-04
Mean Std. Error	7.96E-08

Forecast: CR-Arsenic-Produce-Residential Adult+Child-Far (cont'd) **Cell: F58**

Percentiles:	Forecast values
1%	4.46E-08
5%	1.05E-07
10%	1.71E-07
25%	3.75E-07
50%	7.96E-07
75%	1.76E-06
90%	4.20E-06
95%	7.97E-06
99%	3.05E-05

Forecast: CR-Arsenic-Produce-Residential Adult+Child-Near **Cell: E58**

Summary:
Entire range is from 3.34E-09 to 3.96E-04
Base case is 4.20E-06
After 10,000 trials, the std. error of the mean is 1.12E-07



Forecast: CR-Arsenic-Produce-Residential Adult+Child-Near (cont'd) **Cell: E58**

Statistics:	Forecast values
Trials	10,000
Mean	4.16E-06
Median	1.19E-06
Mode	---
Standard Deviation	1.12E-05
Variance	1.26E-10
Skewness	12.28
Kurtosis	280.02
Coeff. of Variability	2.69
Minimum	3.34E-09
Maximum	3.96E-04
Range Width	3.96E-04
Mean Std. Error	1.12E-07

Percentiles:	Forecast values
1%	3.30E-08
5%	9.47E-08
10%	1.71E-07
25%	4.38E-07
50%	1.19E-06
75%	3.63E-06
90%	9.46E-06
95%	1.68E-05
99%	4.54E-05

Forecast: HI-Arsenic-Produce-Residential Adult+Child-Far **Cell: F29**

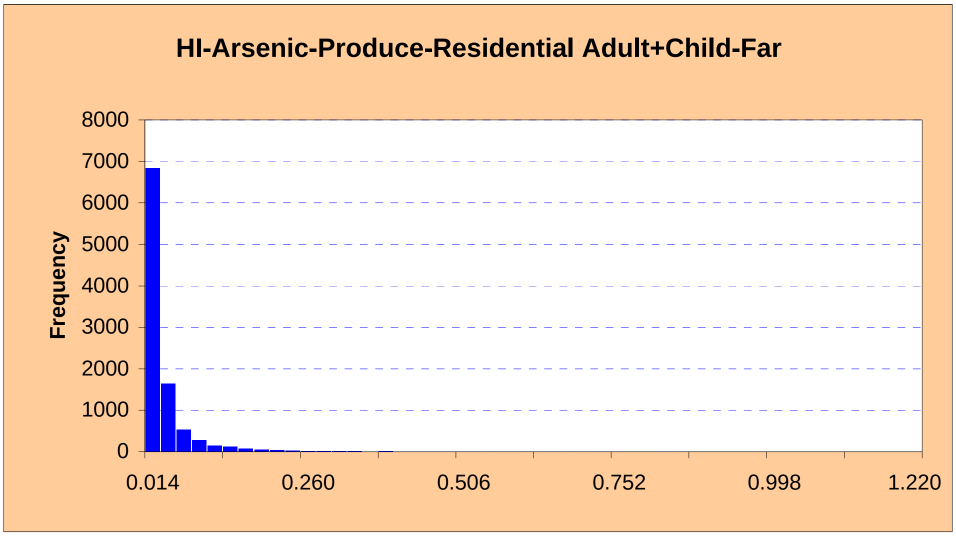
Summary:

Entire range is from 0.001 to 36.609

Base case is 0.022

After 10,000 trials, the std. error of the mean is 0.004

Forecast: HI-Arsenic-Produce-Residential Adult+Child-Far (cont'd) **Cell: F29**

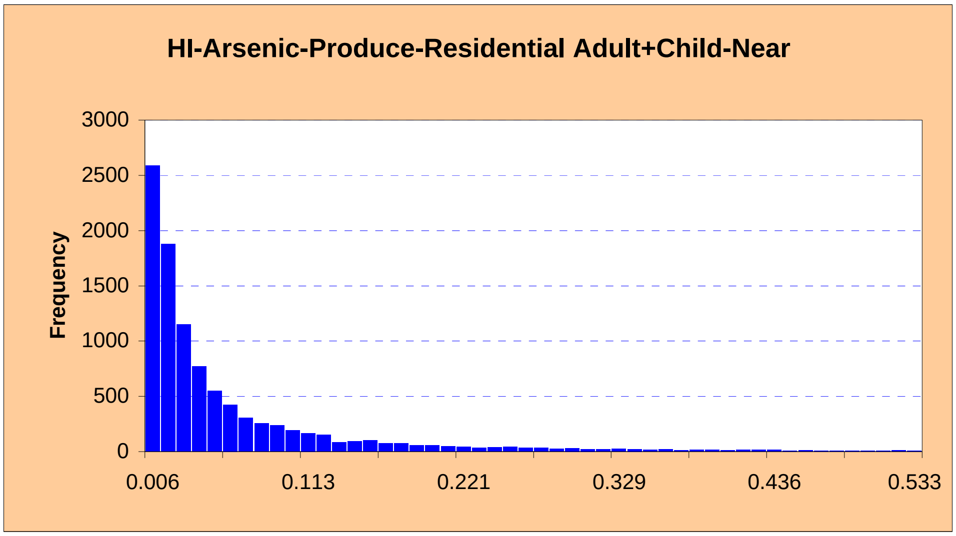


Statistics:	Forecast values
Trials	10,000
Mean	0.047
Median	0.016
Mode	---
Standard Deviation	0.423
Variance	0.179
Skewness	69.24
Kurtosis	5,695.03
Coeff. of Variability	9.01
Minimum	0.001
Maximum	36.609
Range Width	36.608
Mean Std. Error	0.004

Percentiles:	Forecast values
1%	0.003
5%	0.004
10%	0.006
25%	0.009
50%	0.016
75%	0.032
90%	0.074
95%	0.134
99%	0.467

Forecast: HI-Arsenic-Produce-Residential Adult+Child-Near **Cell: E29**

Summary:
Entire range is from 0.000 to 5.759
Base case is 0.056
After 10,000 trials, the std. error of the mean is 0.002



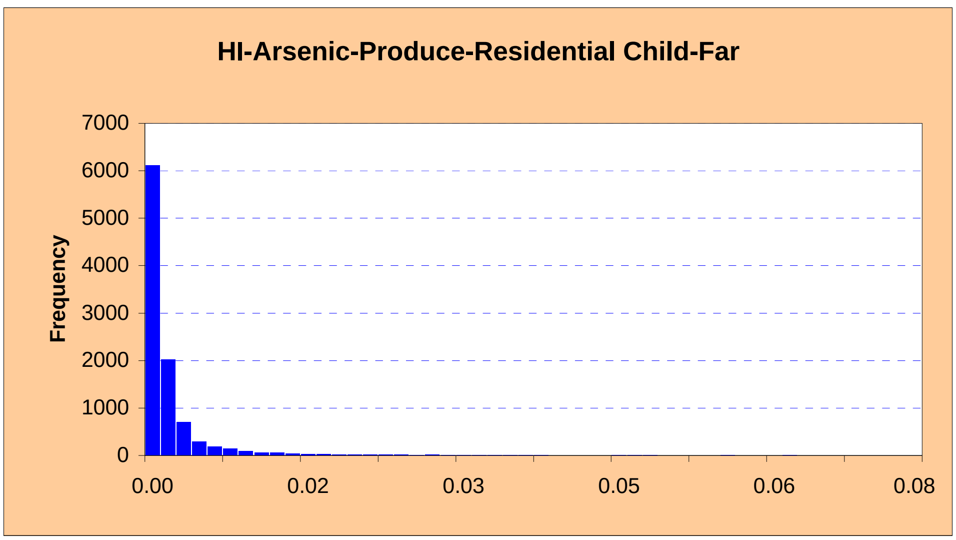
Statistics:	Forecast values
Trials	10,000
Mean	0.072
Median	0.026
Mode	---
Standard Deviation	0.167
Variance	0.028
Skewness	11.55
Kurtosis	242.35
Coeff. of Variability	2.32
Minimum	0.000
Maximum	5.759
Range Width	5.759
Mean Std. Error	0.002

Forecast: HI-Arsenic-Produce-Residential Adult+Child-Near (cont'd) **Cell: E29**

Percentiles:	Forecast values
1%	0.001
5%	0.003
10%	0.005
25%	0.011
50%	0.026
75%	0.069
90%	0.168
95%	0.281
99%	0.650

Forecast: HI-Arsenic-Produce-Residential Child-Far **Cell: F43**

Summary:
Entire range is from 0.00 to 2.20
Base case is 0.00
After 10,000 trials, the std. error of the mean is 0.00



Forecast: HI-Arsenic-Produce-Residential Child-Far (cont'd) **Cell: F43**

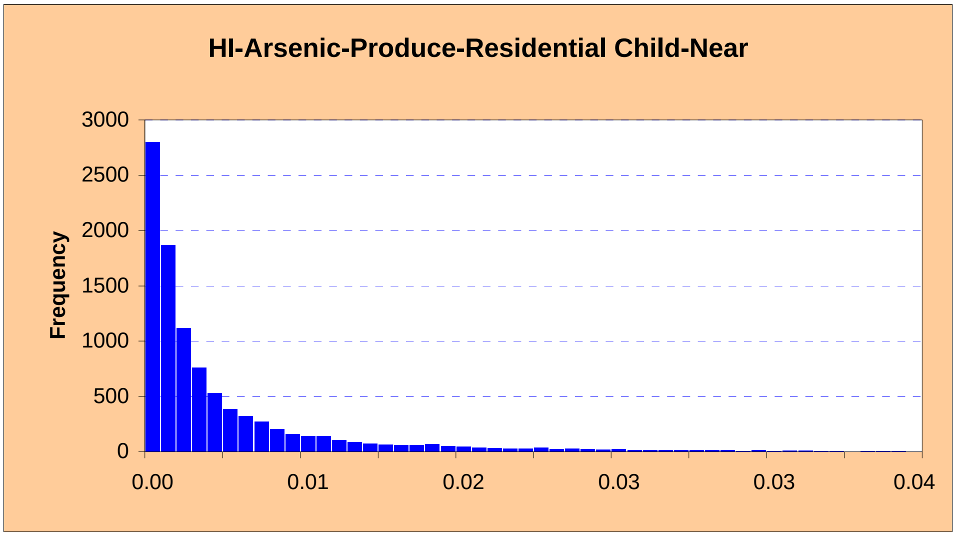
Statistics:	Forecast values
Trials	10,000
Mean	0.00
Median	0.00
Mode	---
Standard Deviation	0.03
Variance	0.00
Skewness	63.59
Kurtosis	5,018.96
Coeff. of Variability	7.55
Minimum	0.00
Maximum	2.20
Range Width	2.20
Mean Std. Error	0.00

Percentiles:	Forecast values
1%	0.00
5%	0.00
10%	0.00
25%	0.00
50%	0.00
75%	0.00
90%	0.01
95%	0.01
99%	0.04

Forecast: HI-Arsenic-Produce-Residential Child-Near **Cell: E43**

Summary:
Entire range is from 0.00 to 0.35
Base case is 0.00
After 10,000 trials, the std. error of the mean is 0.00

Forecast: HI-Arsenic-Produce-Residential Child-Near (cont'd) **Cell: E43**

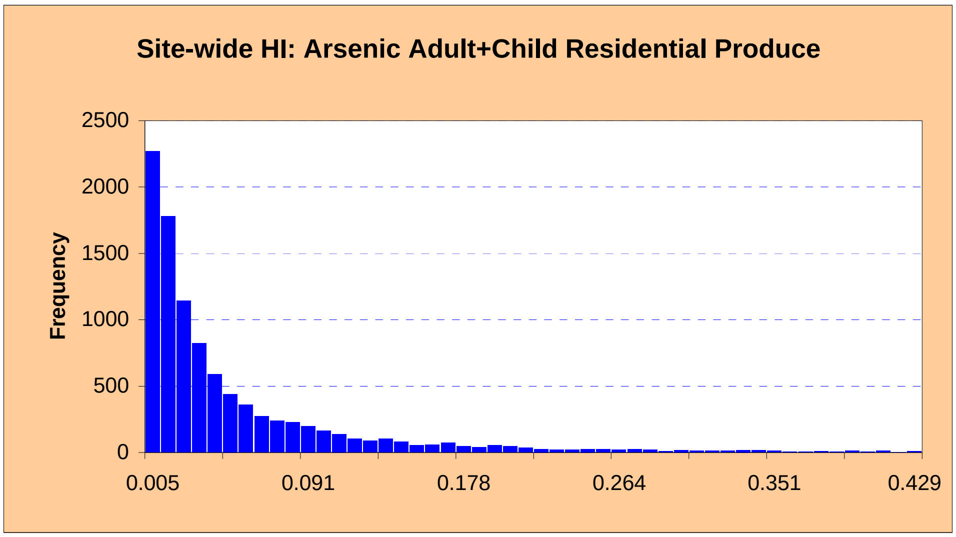


Statistics:	Forecast values
Trials	10,000
Mean	0.01
Median	0.00
Mode	---
Standard Deviation	0.01
Variance	0.00
Skewness	9.40
Kurtosis	141.94
Coeff. of Variability	2.38
Minimum	0.00
Maximum	0.35
Range Width	0.35
Mean Std. Error	0.00

Percentiles:	Forecast values
1%	0.00
5%	0.00
10%	0.00
25%	0.00
50%	0.00
75%	0.01
90%	0.01
95%	0.02
99%	0.05

Forecast: Site-wide HI: Arsenic Adult+Child Residential Produce **Cell: G29**

Summary:
Entire range is from 0.000 to 4.326
Base case is 0.050
After 10,000 trials, the std. error of the mean is 0.001



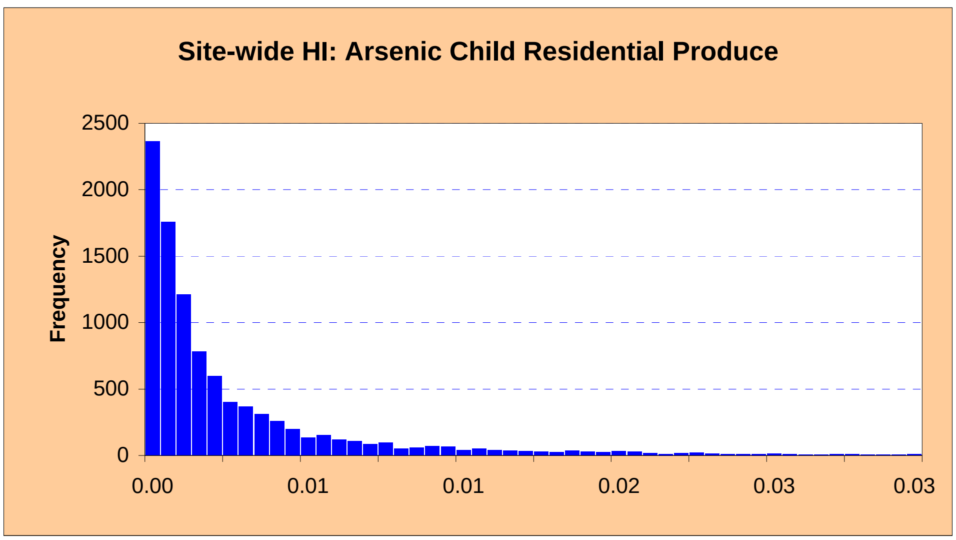
Statistics:	Forecast values
Trials	10,000
Mean	0.063
Median	0.025
Mode	---
Standard Deviation	0.132
Variance	0.017
Skewness	9.15
Kurtosis	168.48
Coeff. of Variability	2.11
Minimum	0.000
Maximum	4.326
Range Width	4.325
Mean Std. Error	0.001

Forecast: Site-wide HI: Arsenic Adult+Child Residential Produce (cont'd) **Cell: G29**

Percentiles:	Forecast values
1%	0.001
5%	0.003
10%	0.005
25%	0.010
50%	0.025
75%	0.064
90%	0.144
95%	0.237
99%	0.581

Forecast: Site-wide HI: Arsenic Child Residential Produce **Cell: G43**

Summary:
Entire range is from 0.00 to 0.26
Base case is 0.00
After 10,000 trials, the std. error of the mean is 0.00



Forecast: Site-wide HI: Arsenic Child Residential Produce (cont'd) **Cell: G43**

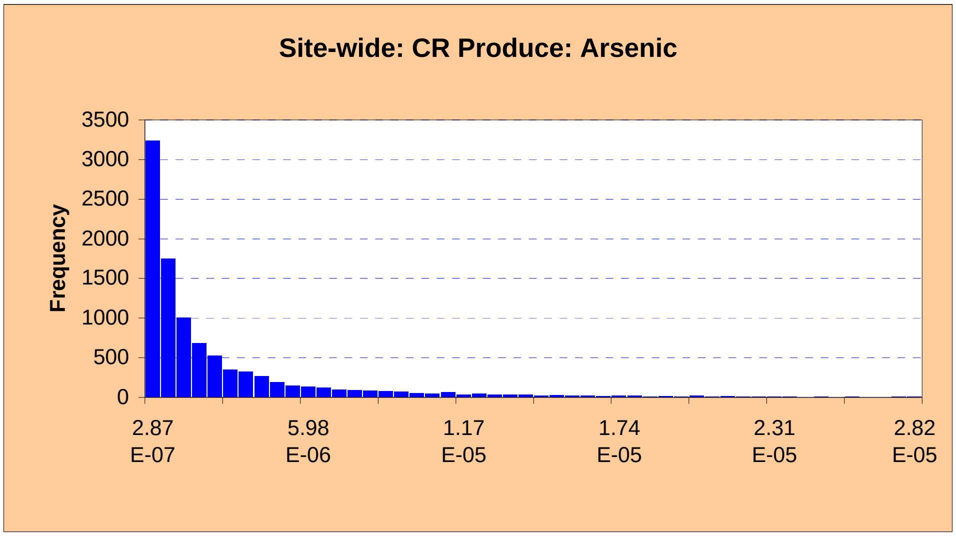
Statistics:	Forecast values
Trials	10,000
Mean	0.00
Median	0.00
Mode	---
Standard Deviation	0.01
Variance	0.00
Skewness	8.08
Kurtosis	113.37
Coeff. of Variability	2.13
Minimum	0.00
Maximum	0.26
Range Width	0.26
Mean Std. Error	0.00

Percentiles:	Forecast values
1%	0.00
5%	0.00
10%	0.00
25%	0.00
50%	0.00
75%	0.00
90%	0.01
95%	0.02
99%	0.04

Forecast: Site-wide: CR Produce: Arsenic **Cell: G58**

Summary:
Entire range is from 1.87E-09 to 3.37E-04
Base case is 3.77E-06
After 10,000 trials, the std. error of the mean is 8.93E-08

Forecast: Site-wide: CR Produce: Arsenic (cont'd) **Cell: G58**



Statistics:	Forecast values
Trials	10,000
Mean	3.47E-06
Median	1.15E-06
Mode	---
Standard Deviation	8.93E-06
Variance	7.98E-11
Skewness	14.76
Kurtosis	387.64
Coeff. of Variability	2.57
Minimum	1.87E-09
Maximum	3.37E-04
Range Width	3.37E-04
Mean Std. Error	8.93E-08

Percentiles:	Forecast values
1%	3.08E-08
5%	8.81E-08
10%	1.58E-07
25%	4.16E-07
50%	1.15E-06
75%	3.32E-06
90%	8.33E-06
95%	1.38E-05
99%	3.26E-05

End of Forecasts

Assumptions

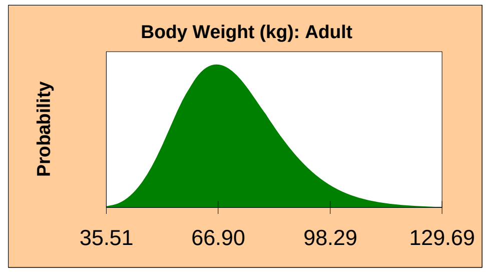
Worksheet: [C164_ExpTox.xls]ExpParam

Assumption: Body Weight (kg): Adult **Cell: C46**

Lognormal distribution with parameters:

Mean	70.70
Std. Dev.	14.50

Selected range is from 0.00 to 200.00



Statistics:	Assumption values	Distribution
Trials	10,000	---
Mean	70.63	70.70
Median	69.21	69.26
Mode	---	---
Standard Deviation	14.45	14.50
Variance	208.80	210.28
Skewness	0.6311	0.6232
Kurtosis	3.76	3.70
Coeff. of Variability	0.2046	0.2051
Minimum	27.96	0.00
Maximum	147.31	200.00
Range Width	119.36	200.00
Mean Std. Error	0.14	---

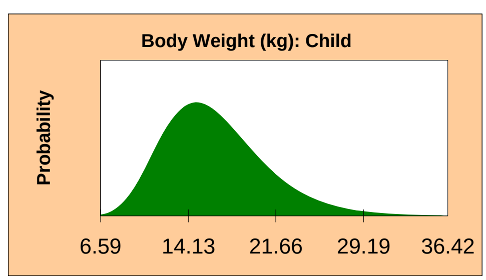
Percentiles:	Assumption values	Distribution
5%	49.49	49.60
95%	96.19	96.71

Assumption: Body Weight (kg): Child **Cell: C45**

Lognormal distribution with parameters:

Mean	16.50
Std. Dev.	4.50

Selected range is from 0.00 to 100.00



Assumption: Body Weight (kg): Child (cont'd) **Cell: C45**

Statistics:	Assumption values	Distribution
Trials	10,000	---
Mean	16.53	16.50
Median	15.92	15.92
Mode	---	---
Standard Deviation	4.51	4.50
Variance	20.32	20.25
Skewness	0.8205	0.8374
Kurtosis	4.17	4.27
Coeff. of Variability	0.2726	0.2727
Minimum	5.68	0.00
Maximum	42.67	100.00
Range Width	37.00	100.00
Mean Std. Error	0.05	---

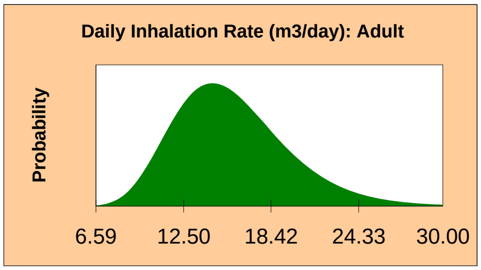
Percentiles:	Assumption values	Distribution
5%	10.29	10.25
95%	24.71	24.73

Assumption: Daily Inhalation Rate (m3/day): Adult **Cell: C18**

Lognormal distribution with parameters:

Mean	15.80
Std. Dev.	3.90

Selected range is from 0.00 to 30.00



Assumption: Daily Inhalation Rate (m3/day): Adult (cont'd) **Cell: C18**

Statistics:	Assumption values	Distribution
Trials	10,000	---
Mean	15.75	15.75
Median	15.32	15.33
Mode	---	---
Standard Deviation	3.82	3.80
Variance	14.61	14.44
Skewness	0.5903	0.6003
Kurtosis	3.25	3.31
Coeff. of Variability	0.2427	0.2412
Minimum	5.69	0.00
Maximum	29.89	30.00
Range Width	24.20	30.00
Mean Std. Error	0.04	---

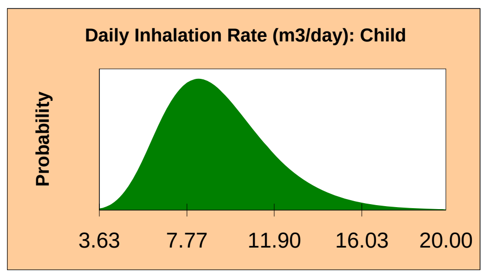
Percentiles:	Assumption values	Distribution
5%	10.26	10.28
95%	22.68	22.74

Assumption: Daily Inhalation Rate (m3/day): Child **Cell: C17**

Lognormal distribution with parameters:

Mean	9.30
Std. Dev.	2.60

Selected range is from 0.00 to 20.00



Assumption: Daily Inhalation Rate (m3/day): Child (cont'd) **Cell: C17**

Statistics:	Assumption values	Distribution
Trials	10,000	---
Mean	9.30	9.28
Median	8.95	8.95
Mode	---	---
Standard Deviation	2.56	2.55
Variance	6.56	6.50
Skewness	0.7585	0.7295
Kurtosis	3.66	3.64
Coeff. of Variability	0.2752	0.2748
Minimum	3.12	0.00
Maximum	19.99	20.00
Range Width	16.87	20.00
Mean Std. Error	0.03	---

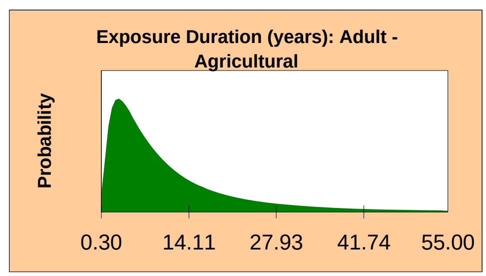
Percentiles:	Assumption values	Distribution
5%	5.74	5.70
95%	14.17	14.00

Assumption: Exposure Duration (years): Adult - Agricultural **Cell: C43**

Lognormal distribution with parameters:

Mean	12.60
Std. Dev.	16.20

Selected range is from 0.00 to 55.00



Assumption: Exposure Duration (years): Adult - Agricultural (cont'd) **Cell: C43**

Statistics:	Assumption values	Distribution
Trials	10,000	---
Mean	11.01	10.85
Median	7.61	7.51
Mode	---	---
Standard Deviation	10.22	9.99
Variance	104.54	99.71
Skewness	1.76	1.76
Kurtosis	6.15	6.20
Coeff. of Variability	0.9283	0.9203
Minimum	0.23	0.00
Maximum	54.97	55.00
Range Width	54.74	55.00
Mean Std. Error	0.10	---

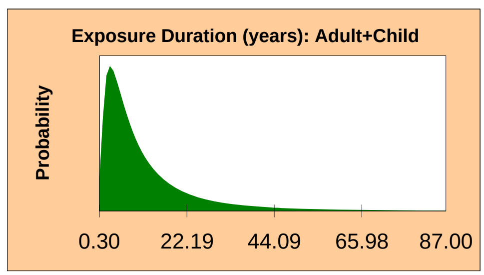
Percentiles:	Assumption values	Distribution
5%	1.48	1.51
95%	33.62	32.67

Assumption: Exposure Duration (years): Adult+Child **Cell: C42**

Lognormal distribution with parameters:

Mean	12.60
Std. Dev.	16.20

Selected range is from 0.00 to 87.00



Assumption: Exposure Duration (years): Adult+Child (cont'd) **Cell: C42**

Statistics:	Assumption values	Distribution
Trials	10,000	---
Mean	11.70	11.78
Median	7.58	7.67
Mode	---	---
Standard Deviation	12.23	12.28
Variance	149.62	150.76
Skewness	2.40	2.41
Kurtosis	10.05	10.33
Coeff. of Variability	1.05	1.04
Minimum	0.16	0.00
Maximum	85.48	87.00
Range Width	85.32	87.00
Mean Std. Error	0.12	---

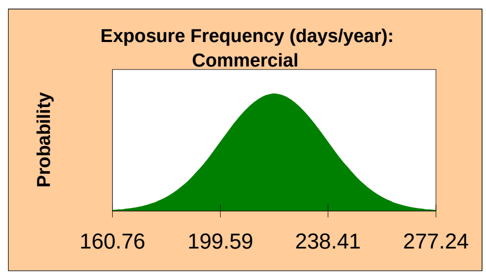
Percentiles:	Assumption values	Distribution
5%	1.53	1.52
95%	37.18	36.92

Assumption: Exposure Frequency (days/year): Commercial **Cell: C8**

Normal distribution with parameters:

Mean	219.00
95%	250.00

Selected range is from 0.00 to 365.00



Assumption: Exposure Frequency (days/year): Commercial (cont'd) **Cell: C8**

Statistics:	Assumption values	Distribution
Trials	10,000	---
Mean	218.96	219.00
Median	218.77	219.00
Mode	---	---
Standard Deviation	18.82	18.85
Variance	354.33	355.24
Skewness	0.0108	0.00
Kurtosis	2.96	3.00
Coeff. of Variability	0.0860	0.0861
Minimum	147.62	0.00
Maximum	285.49	365.00
Range Width	137.87	365.00
Mean Std. Error	0.19	---

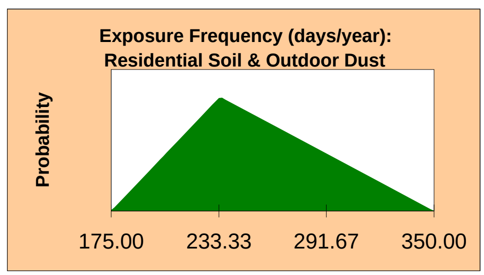
Percentiles:	Assumption values	Distribution
5%	187.97	188.00
95%	249.66	250.00

Assumption: Exposure Frequency (days/year): Residential Soil & Outdoor Dust **Cell: C3**

Triangular distribution with parameters:

Minimum	175.00
Likeliest	234.00
Maximum	350.00

Selected range is from 0.00 to 365.00



Assumption: Exposure Frequency (days/year): Residential Soil & Outdoor Dust (cont'd) **Cell: C3**

Statistics:	Assumption values	Distribution
Trials	10,000	---
Mean	253.09	253.00
Median	249.76	249.25
Mode	---	234.00
Standard Deviation	36.53	36.35
Variance	1,334.59	1,321.17
Skewness	0.2843	0.2994
Kurtosis	2.40	2.40
Coeff. of Variability	0.1443	0.1437
Minimum	175.33	175.00
Maximum	348.25	350.00
Range Width	172.93	175.00
Mean Std. Error	0.37	---

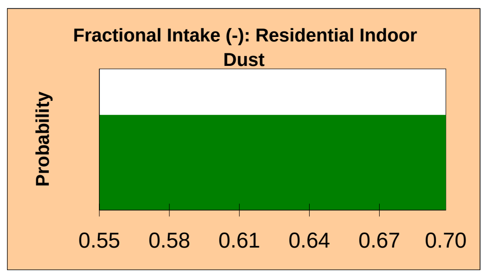
Percentiles:	Assumption values	Distribution
5%	197.53	197.72
95%	318.60	318.14

Assumption: Fractional Intake (-): Residential Indoor Dust **Cell: C11**

Uniform distribution with parameters:

Minimum	0.55
Maximum	0.70

Selected range is from 0.00 to 1.00



Assumption: Fractional Intake (-): Residential Indoor Dust (cont'd) **Cell: C11**

Statistics:	Assumption values	Distribution
Trials	10,000	---
Mean	0.62	0.63
Median	0.63	0.63
Mode	---	---
Standard Deviation	0.04	0.04
Variance	0.00	0.00
Skewness	-0.0050	0.00
Kurtosis	1.83	1.80
Coeff. of Variability	0.0687	0.0693
Minimum	0.55	0.55
Maximum	0.70	0.70
Range Width	0.15	0.15
Mean Std. Error	0.00	---

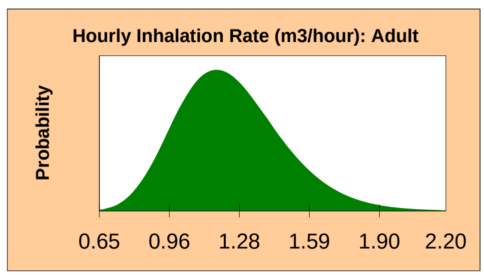
Percentiles:	Assumption values	Distribution
5%	0.56	0.56
95%	0.69	0.69

Assumption: Hourly Inhalation Rate (m3/hour): Adult **Cell: C21**

Lognormal distribution with parameters:

Mean	1.24
Std. Dev.	0.24

Selected range is from 0.00 to 5.00



Assumption: Hourly Inhalation Rate (m3/hour): Adult (cont'd) **Cell: C21**

Statistics:	Assumption values	Distribution
Trials	10,000	---
Mean	1.24	1.24
Median	1.22	1.22
Mode	---	---
Standard Deviation	0.24	0.24
Variance	0.06	0.06
Skewness	0.6052	0.5873
Kurtosis	3.60	3.62
Coeff. of Variability	0.1957	0.1936
Minimum	0.63	0.00
Maximum	2.48	5.00
Range Width	1.85	5.00
Mean Std. Error	0.00	---

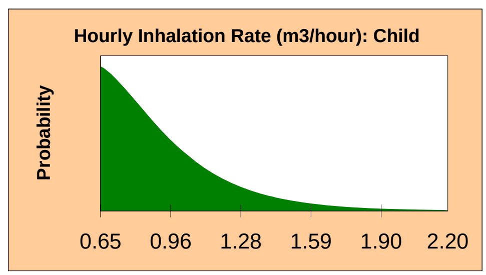
Percentiles:	Assumption values	Distribution
5%	0.89	0.89
95%	1.69	1.67

Assumption: Hourly Inhalation Rate (m3/hour): Child **Cell: C20**

Lognormal distribution with parameters:

Mean	0.75
Std. Dev.	0.32

Selected range is from 0.00 to 4.00



Assumption: Hourly Inhalation Rate (m3/hour): Child (cont'd) **Cell: C20**

Statistics:	Assumption values	Distribution
Trials	10,000	---
Mean	0.75	0.75
Median	0.69	0.69
Mode	---	---
Standard Deviation	0.32	0.32
Variance	0.10	0.10
Skewness	1.29	1.35
Kurtosis	5.78	6.30
Coeff. of Variability	0.4267	0.4265
Minimum	0.13	0.00
Maximum	3.37	4.00
Range Width	3.24	4.00
Mean Std. Error	0.00	---

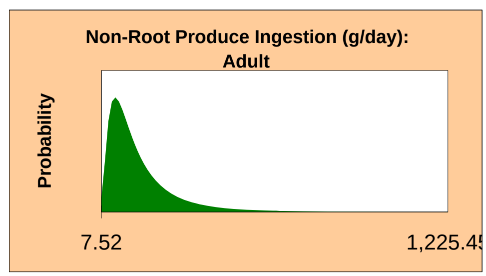
Percentiles:	Assumption values	Distribution
5%	0.36	0.35
95%	1.35	1.35

Assumption: Non-Root Produce Ingestion (g/day): Adult **Cell: C57**

Lognormal distribution with parameters:

Mean	143.00
Std. Dev.	135.00

Selected range is from 0.00 to 2,000.00



Assumption: Non-Root Produce Ingestion (g/day): Adult (cont'd) **Cell: C57**

Statistics:	Assumption values	Distribution
Trials	10,000	---
Mean	142.09	142.75
Median	102.23	103.97
Mode	---	---
Standard Deviation	134.66	132.76
Variance	18,133.01	17,625.00
Skewness	3.38	3.18
Kurtosis	24.00	20.84
Coeff. of Variability	0.9477	0.9300
Minimum	5.07	0.00
Maximum	1,980.42	2,000.00
Range Width	1,975.35	2,000.00
Mean Std. Error	1.35	---

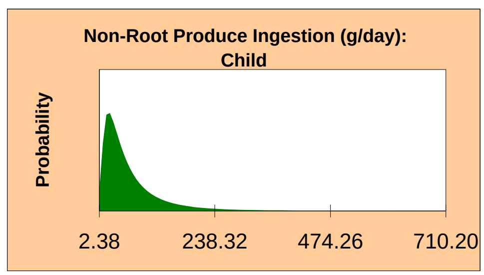
Percentiles:	Assumption values	Distribution
5%	27.94	27.97
95%	389.91	386.25

Assumption: Non-Root Produce Ingestion (g/day): Child **Cell: C56**

Lognormal distribution with parameters:

Mean	67.00
Std. Dev.	74.00

Selected range is from 0.00 to 1,000.00



Assumption: Non-Root Produce Ingestion (g/day): Child (cont'd) **Cell: C56**

Statistics:	Assumption values	Distribution
Trials	10,000	---
Mean	67.16	66.69
Median	45.87	44.96
Mode	---	---
Standard Deviation	70.72	71.17
Variance	5,001.16	5,065.35
Skewness	3.45	3.54
Kurtosis	22.99	23.95
Coeff. of Variability	1.05	1.07
Minimum	1.40	0.00
Maximum	937.37	1,000.00
Range Width	935.97	1,000.00
Mean Std. Error	0.71	---

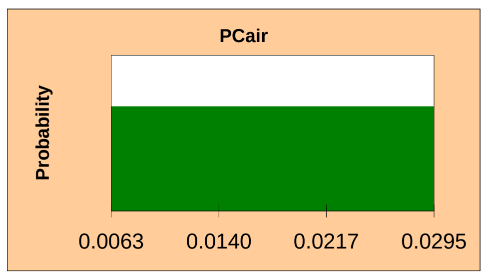
Percentiles:	Assumption values	Distribution
5%	10.22	10.35
95%	200.78	194.94

Assumption: PCair **Cell: C59**

Uniform distribution with parameters:

Minimum	0.0063
Maximum	0.0295

Selected range is from 0.0000 to 2.1016



Assumption: PCair (cont'd) **Cell: C59**

Statistics:	Assumption values	Distribution
Trials	10,000	---
Mean	0.0178	0.0179
Median	0.0178	0.0179
Mode	---	---
Standard Deviation	0.0067	0.0067
Variance	0.0000	0.0000
Skewness	0.0175	0.00
Kurtosis	1.80	1.80
Coeff. of Variability	0.3737	0.3745
Minimum	0.0063	0.0063
Maximum	0.0295	0.0295
Range Width	0.0232	0.0232
Mean Std. Error	0.0001	---

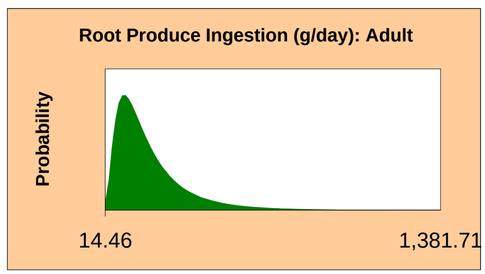
Percentiles:	Assumption values	Distribution
5%	0.0076	0.0074
95%	0.0283	0.0283

Assumption: Root Produce Ingestion (g/day): Adult **Cell: C55**

Lognormal distribution with parameters:

Mean	196.00
Std. Dev.	160.00

Selected range is from 0.00 to 2,000.00



Assumption: Root Produce Ingestion (g/day): Adult (cont'd) **Cell: C55**

Statistics:	Assumption values	Distribution
Trials	10,000	---
Mean	193.63	195.65
Median	151.14	151.81
Mode	---	---
Standard Deviation	155.68	157.51
Variance	24,235.88	24,808.48
Skewness	2.73	2.64
Kurtosis	16.21	14.95
Coeff. of Variability	0.8040	0.8050
Minimum	9.15	0.00
Maximum	1,792.40	2,000.00
Range Width	1,783.25	2,000.00
Mean Std. Error	1.56	---

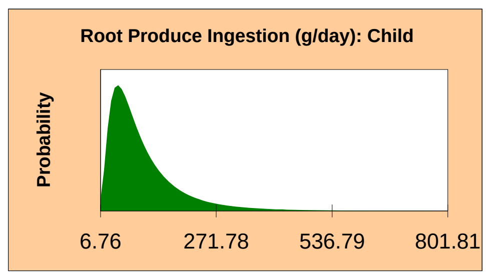
Percentiles:	Assumption values	Distribution
5%	47.37	46.87
95%	483.71	491.37

Assumption: Root Produce Ingestion (g/day): Child **Cell: C54**

Lognormal distribution with parameters:

Mean	105.00
Std. Dev.	91.00

Selected range is from 0.00 to 1,000.00



Assumption: Root Produce Ingestion (g/day): Child (cont'd) **Cell: C54**

Statistics:	Assumption values	Distribution
Trials	10,000	---
Mean	104.01	104.60
Median	77.92	79.32
Mode	---	---
Standard Deviation	88.36	88.34
Variance	7,808.19	7,803.66
Skewness	2.65	2.66
Kurtosis	14.45	14.56
Coeff. of Variability	0.8496	0.8446
Minimum	5.60	0.00
Maximum	970.87	1,000.00
Range Width	965.28	1,000.00
Mean Std. Error	0.88	---

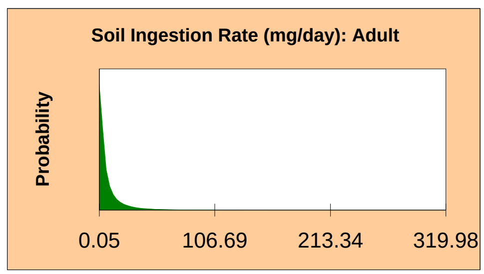
Percentiles:	Assumption values	Distribution
5%	23.35	23.16
95%	272.53	271.12

Assumption: Soil Ingestion Rate (mg/day): Adult **Cell: C14**

Lognormal distribution with parameters:

Mean	11.90
95%	44.30

Selected range is from 0.00 to 2,000.00



Assumption: Soil Ingestion Rate (mg/day): Adult (cont'd) **Cell: C14**

Statistics:	Assumption values	Distribution
Trials	10,000	---
Mean	11.79	12.39
Median	4.72	4.67
Mode	---	---
Standard Deviation	23.63	26.99
Variance	558.26	728.28
Skewness	7.44	12.93
Kurtosis	96.26	371.11
Coeff. of Variability	2.00	2.18
Minimum	0.02	0.00
Maximum	566.71	2,000.00
Range Width	566.69	2,000.00
Mean Std. Error	0.24	---

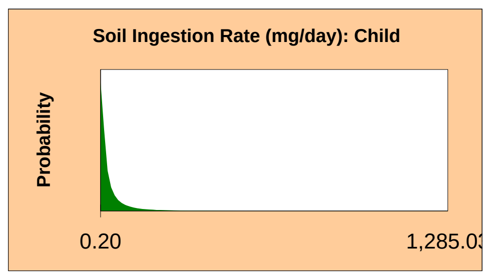
Percentiles:	Assumption values	Distribution
5%	0.50	0.49
95%	44.80	44.30

Assumption: Soil Ingestion Rate (mg/day): Child **Cell: C13**

Lognormal distribution with parameters:

Mean	47.50
95%	177.00

Selected range is from 0.00 to 5,000.00



Assumption: Soil Ingestion Rate (mg/day): Child (cont'd) **Cell: C13**

Statistics:	Assumption values	Distribution
Trials	10,000	---
Mean	47.81	48.12
Median	18.50	18.54
Mode	---	---
Standard Deviation	97.62	105.68
Variance	9,530.29	11,168.09
Skewness	8.15	10.92
Kurtosis	121.29	234.27
Coeff. of Variability	2.04	2.20
Minimum	0.04	0.00
Maximum	2,381.78	5,000.00
Range Width	2,381.74	5,000.00
Mean Std. Error	0.98	---

Percentiles:	Assumption values	Distribution
5%	1.89	1.94
95%	183.71	176.95

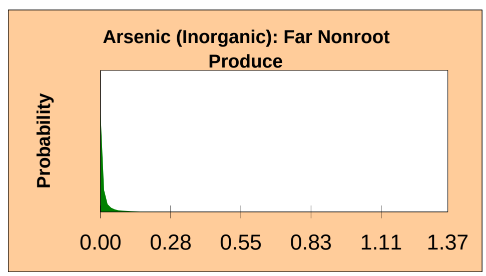
Worksheet: [C164_Soil_Dust_Produce.xls]Media Conc

Assumption: Arsenic (Inorganic): Far Nonroot Produce **Cell: H17**

Lognormal distribution with parameters:

Mean	0.03
Std. Dev.	0.13

Selected range is from 0.00 to 100.00



Assumption: Arsenic (Inorganic): Far Nonroot Produce (cont'd) **Cell: H17**

Statistics:	Assumption values	Distribution
Trials	10,000	---
Mean	0.03	0.06
Median	0.01	0.01
Mode	---	---
Standard Deviation	0.10	0.12
Variance	0.01	0.01
Skewness	15.42	38.84
Kurtosis	364.10	3,591.82
Coeff. of Variability	3.65	2.12
Minimum	0.00	0.00
Maximum	3.46	100.00
Range Width	3.46	100.00
Mean Std. Error	0.00	---

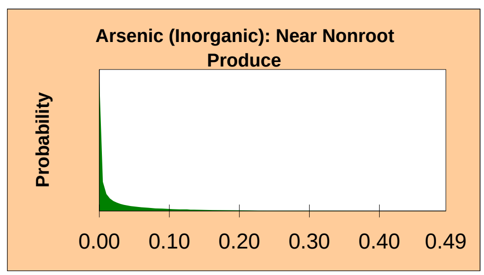
Percentiles:	Assumption values	Distribution
5%	0.00	0.00
95%	0.11	0.11

Assumption: Arsenic (Inorganic): Near Nonroot Produce **Cell: G17**

Gamma distribution with parameters:

Location	0.00
Scale	0.14
Shape	0.33967704

Selected range is from 0.00 to 100.00



Assumption: Arsenic (Inorganic): Near Nonroot Produce (cont'd) **Cell: G17**

Statistics:	Assumption values	Distribution
Trials	10,000	---
Mean	0.05	0.05
Median	0.01	0.01
Mode	---	---
Standard Deviation	0.08	0.08
Variance	0.01	0.01
Skewness	3.17	3.45
Kurtosis	16.73	20.67
Coeff. of Variability	1.71	1.69
Minimum	0.00	0.00
Maximum	0.95	100.00
Range Width	0.95	100.00
Mean Std. Error	0.00	---

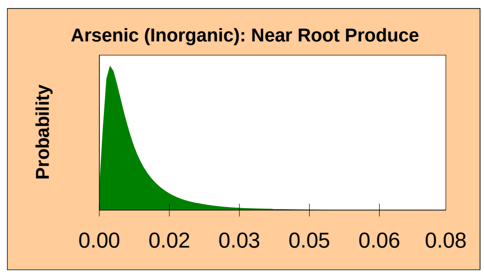
Percentiles:	Assumption values	Distribution
5%	0.00	0.00
95%	0.22	0.22

Assumption: Arsenic (Inorganic): Near Root Produce **Cell: G16**

Lognormal distribution with parameters:

Mean	0.01
Std. Dev.	0.01

Selected range is from 0.00 to 100.00



Assumption: Arsenic (Inorganic): Near Root Produce (cont'd) **Cell: G16**

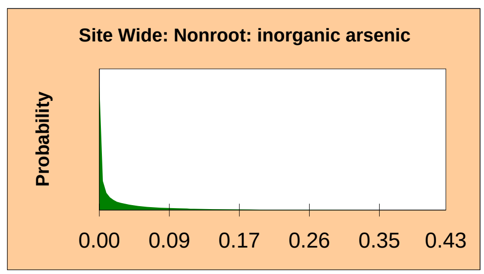
Statistics:	Assumption values	Distribution
Trials	10,000	---
Mean	0.01	0.01
Median	0.01	0.01
Mode	---	---
Standard Deviation	0.01	0.01
Variance	0.00	0.00
Skewness	4.71	4.07
Kurtosis	57.05	39.65
Coeff. of Variability	1.04	1.03
Minimum	0.00	0.00
Maximum	0.19	100.00
Range Width	0.19	100.00
Mean Std. Error	0.00	---

Percentiles:	Assumption values	Distribution
5%	0.00	0.00
95%	0.02	0.02

Assumption: Site Wide: Nonroot: inorganic arsenic **Cell: I17**

Gamma distribution with parameters:

Location	0.00
Scale	0.13
Shape	0.351222431



Assumption: Site Wide: Nonroot: inorganic arsenic (cont'd) **Cell: I17**

Statistics:	Assumption values	Distribution
Trials	10,000	---
Mean	0.04	0.04
Median	0.01	0.01
Mode	---	---
Standard Deviation	0.07	0.07
Variance	0.01	0.01
Skewness	3.59	3.37
Kurtosis	23.07	20.08
Coeff. of Variability	1.70	1.68
Minimum	0.00	0.00
Maximum	1.03	Infinity
Range Width	1.03	---
Mean Std. Error	0.00	---

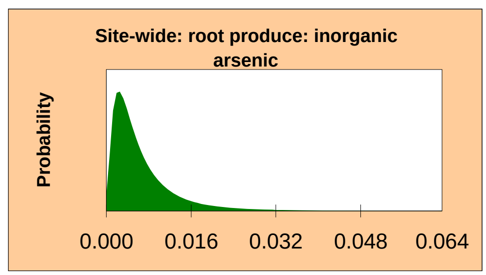
Percentiles:	Assumption values	Distribution
5%	0.00	0.00
95%	0.19	0.19

Assumption: Site-wide: root produce: inorganic arsenic **Cell: I16**

Lognormal distribution with parameters:

Mean	0.007
Std. Dev.	0.007

Selected range is from 0.000 to 100.000



Assumption: Site-wide: root produce: inorganic arsenic (cont'd) **Cell: I16**

Statistics:	Assumption values	Distribution
Trials	10,000	---
Mean	0.007	0.007
Median	0.005	0.005
Mode	---	---
Standard Deviation	0.007	0.007
Variance	0.000	0.000
Skewness	3.04	3.76
Kurtosis	18.65	33.67
Coeff. of Variability	0.9234	0.9736
Minimum	0.000	0.000
Maximum	0.086	100.000
Range Width	0.085	100.000
Mean Std. Error	0.000	---

Percentiles:	Assumption values	Distribution
5%	0.001	0.001
95%	0.019	0.020

End of Assumptions

APPENDIX D

SENSITIVITY ANALYSIS FOR PROBABILISTIC HHRA (ON CD)

CONTENTS

Table D-1. Largest Contributors to Variability in Noncancer Risk Estimates (in decreasing order of importance)

Forecast (Output Distribution)	HI-Antimony-Produce-Residential Adult+Child-Far	HI-Antimony-Produce-Residential Adult+Child-Near	HI-Antimony-Produce-Residential Child-Far	HI-Antimony-Produce-Residential Child-Near	HI-Arsenic-Produce-Residential Adult+Child-Far	HI-Arsenic-Produce-Residential Adult+Child-Near
List of Largest Contributors to Variability	Child nonroot ingestion rate Child root ingestion rate Exposure Duration Child Body Weight Adult nonroot ingestion rate Adult root ingestion rate Adult Body Weight	Antimony in nonroot produce Child nonroot ingestion rate Antimony in root produce Child root ingestion rate Exposure Duration Child Body Weight Adult nonroot ingestion rate Adult root ingestion rate Adult Body Weight	Child nonroot ingestion rate Child root ingestion rate Child Body Weight	Antimony in nonroot produce Child nonroot ingestion rate Child root ingestion rate Antimony in root produce Child Body Weight	Arsenic in nonroot produce Child root ingestion rate Child nonroot ingestion rate Adult root ingestion rate Adult nonroot ingestion rate Adult Body Weight Child Body Weight Exposure Duration	Arsenic in nonroot produce Arsenic in root produce Child nonroot ingestion rate Child root ingestion rate Adult nonroot ingestion rate Adult root ingestion rate Exposure Duration Child Body Weight

Rank correlation data between assumption and forecast

Assumptions	HI-Antimony-Produce-Residential Adult+Child-Far	Absolute Value > 0.03	HI-Antimony-Produce-Residential Adult+Child-Near	Absolute Value > 0.03	HI-Antimony-Produce-Residential Child-Far	Absolute Value > 0.03	HI-Antimony-Produce-Residential Child-Near	Absolute Value > 0.03	HI-Arsenic-Produce-Residential Adult+Child-Far	Absolute Value > 0.03	HI-Arsenic-Produce-Residential Adult+Child-Near	Absolute Value > 0.03
Antimony: East Trail Outdoor Dust	-0.01	N	-0.01	N	0.00	N	0.00	N	-0.01	N	-0.01	N
Antimony: East Trail Residential Soil	0.01	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N
Antimony: Near Nonroot Produce	0.00	N	0.66	Y	0.00	N	0.60	Y	-0.01	N	-0.02	N
Antimony: Near Root Produce	0.00	N	0.29	Y	0.01	N	0.29	Y	-0.01	N	-0.02	N
Antimony: Rivervale Outdoor Dust	0.00	N	0.01	N	0.00	N	0.00	N	0.00	N	-0.01	N
Antimony: Rivervale Residential Soil	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N
Antimony: Tadanac Outdoor Dust	0.01	N	-0.01	N	0.01	N	-0.01	N	0.01	N	0.00	N
Antimony: Tadanac Residential Soil	0.00	N	0.00	N	-0.01	N	-0.01	N	-0.01	N	0.00	N
Antimony: Waneta Residential Soil	0.00	N	0.01	N	0.01	N	0.01	N	0.01	N	0.00	N
Antimony: West Trail Outdoor Dust	0.00	N	0.00	N	0.01	N	0.01	N	0.00	N	0.01	N
Antimony: West Trail Residential Soil	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.01	N
Arsenic (Inorganic): Far Nonroot Produce	-0.01	N	-0.01	N	0.00	N	-0.01	N	0.70	Y	0.00	N
Arsenic (Inorganic): Near Nonroot Produce	0.00	N	-0.01	N	0.01	N	-0.01	N	-0.01	N	0.78	Y
Arsenic (Inorganic): Near Root Produce	0.00	N	0.00	N	0.01	N	0.00	N	0.00	N	0.30	Y
Arsenic: Birchbank Air	-0.02	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N
Arsenic: Butler Park Air	-0.02	N	-0.01	N	-0.02	N	-0.01	N	0.00	N	0.02	N
Arsenic: Columbia Gardens Air	-0.01	N	-0.02	N	-0.01	N	-0.01	N	0.01	N	0.01	N
Arsenic: East Trail Outdoor Dust	0.01	N	0.01	N	0.01	N	0.01	N	0.02	N	0.00	N
Arsenic: East Trail Residential Soil	0.00	N	-0.01	N	0.00	N	0.00	N	0.00	N	-0.01	N
Arsenic: Genelle Air	0.00	N	0.00	N	-0.01	N	-0.01	N	0.00	N	0.00	N
Arsenic: Rivervale Outdoor Dust	0.00	N	0.00	N	-0.01	N	0.00	N	-0.01	N	-0.01	N
Arsenic: Rivervale Residential Soil	0.01	N	0.00	N	0.00	N	0.00	N	0.00	N	0.02	N
Arsenic: Tadanac Outdoor Dust	-0.01	N	0.01	N	-0.01	N	0.00	N	0.01	N	-0.01	N
Arsenic: Tadanac Residential Soil	-0.01	N	0.00	N	0.00	N	0.00	N	0.00	N	-0.01	N
Arsenic: Waneta Residential Soil	0.00	N	-0.01	N	0.00	N	-0.01	N	-0.01	N	0.00	N
Arsenic: Warfield Air	0.02	N	0.02	N	0.01	N	0.02	N	0.01	N	0.01	N

Table D-1. Largest Contributors to Variability in Noncancer Risk Estimates (in decreasing order of importance)

Forecast (Output Distribution)	**HI-Arsenic-Produce-Residential Child-Far**	**HI-Arsenic-Produce-Residential Child-Near**	**HI-Cadmium-Produce-Residential Adult+Child-Far**	**HI-Cadmium-Produce-Residential Adult+Child-Near**	**HI-Thallium-Produce-Residential Adult+Child-Far**	**HI-Thallium-Produce-Residential Adult+Child-Near**
List of Largest Contributors to Variability	Arsenic in nonroot produce Child root ingestion rate Child nonroot ingestion rate Child Body Weight	Arsenic in nonroot produce Arsenic in root produce Child nonroot ingestion rate Child root ingestion rate Child Body Weight	Exposure Duration Cadmium in nonroot produce Child root ingestion rate Child Body Weight Adult root ingestion rate Child nonroot ingestion rate Adult nonroot ingestion rate Adult Body Weight	Exposure Duration Cadmium in nonroot produce Cadmium in root produce Child root ingestion rate Child Body Weight Child nonroot ingestion rate Adult root ingestion rate Adult nonroot ingestion rate Adult Body Weight	Child root ingestion rate Exposure Duration Child nonroot ingestion rate Child Body Weight Adult root ingestion rate Adult nonroot ingestion rate Adult Body Weight	Thallium in root produce Child root ingestion rate Thallium in nonroot produce Exposure Duration Child Body Weight Child nonroot ingestion rate Adult root ingestion rate Adult Body Weight Adult nonroot ingestion rate

Rank correlation data between assumption and forecast

Assumptions	HI-Arsenic-Produce-Residential Child-Far	Absolute Value > 0.03	HI-Arsenic-Produce-Residential Child-Near	Absolute Value > 0.03	HI-Cadmium-Produce-Residential Adult+Child-Far	Absolute Value > 0.03	HI-Cadmium-Produce-Residential Adult+Child-Near	Absolute Value > 0.03	HI-Thallium-Produce-Residential Adult+Child-Far	Absolute Value > 0.03	HI-Thallium-Produce-Residential Adult+Child-Near	Absolute Value > 0.03
Antimony: East Trail Outdoor Dust	-0.01	N	0.00	N	0.01	N	0.01	N	-0.01	N	-0.01	N
Antimony: East Trail Residential Soil	0.00	N	-0.01	N	0.02	N	0.01	N	0.01	N	0.01	N
Antimony: Near Nonroot Produce	-0.01	N	-0.02	N	0.00	N	-0.01	N	0.00	N	0.00	N
Antimony: Near Root Produce	0.00	N	-0.01	N	0.02	N	0.02	N	0.00	N	-0.01	N
Antimony: Rivervale Outdoor Dust	0.00	N	-0.01	N	0.00	N	0.01	N	0.00	N	0.00	N
Antimony: Rivervale Residential Soil	-0.01	N	0.00	N	-0.01	N	0.00	N	0.00	N	-0.02	N
Antimony: Tadanac Outdoor Dust	0.00	N	0.00	N	0.01	N	0.00	N	0.00	N	0.01	N
Antimony: Tadanac Residential Soil	-0.02	N	-0.01	N	-0.02	N	-0.01	N	0.00	N	0.00	N
Antimony: Waneta Residential Soil	0.01	N	0.01	N	0.01	N	0.01	N	0.00	N	0.01	N
Antimony: West Trail Outdoor Dust	0.00	N	0.00	N	0.00	N	0.01	N	0.00	N	-0.01	N
Antimony: West Trail Residential Soil	0.00	N	0.01	N	-0.01	N	-0.01	N	0.00	N	0.00	N
Arsenic (Inorganic): Far Nonroot Produce	0.66	Y	-0.01	N	-0.01	N	0.00	N	0.00	N	0.00	N
Arsenic (Inorganic): Near Nonroot Produce	-0.01	N	0.74	Y	0.00	N	0.00	N	0.01	N	0.02	N
Arsenic (Inorganic): Near Root Produce	0.00	N	0.30	Y	0.01	N	0.02	N	0.01	N	0.01	N
Arsenic: Birchbank Air	-0.01	N	-0.01	N	0.00	N	0.00	N	-0.01	N	-0.02	N
Arsenic: Butler Park Air	0.00	N	0.02	N	0.01	N	0.01	N	-0.01	N	0.00	N
Arsenic: Columbia Gardens Air	0.01	N	0.00	N	0.01	N	0.00	N	-0.01	N	0.01	N
Arsenic: East Trail Outdoor Dust	0.02	N	0.00	N	0.01	N	0.00	N	0.01	N	0.00	N
Arsenic: East Trail Residential Soil	0.00	N	-0.01	N	-0.01	N	0.00	N	-0.01	N	-0.01	N
Arsenic: Genelle Air	-0.01	N	-0.01	N	0.01	N	0.00	N	0.00	N	0.00	N
Arsenic: Rivervale Outdoor Dust	-0.01	N	-0.01	N	0.00	N	0.01	N	0.00	N	-0.01	N
Arsenic: Rivervale Residential Soil	0.00	N	0.02	N	-0.02	N	-0.02	N	0.00	N	0.00	N
Arsenic: Tadanac Outdoor Dust	0.01	N	-0.01	N	-0.01	N	0.00	N	0.00	N	0.00	N
Arsenic: Tadanac Residential Soil	0.00	N	0.00	N	-0.01	N	0.00	N	-0.02	N	-0.01	N
Arsenic: Waneta Residential Soil	-0.01	N	0.00	N	0.01	N	-0.01	N	0.00	N	0.00	N
Arsenic: Warfield Air	0.01	N	0.00	N	0.00	N	0.00	N	0.02	N	0.03	N

Table D-1. Largest Contributors to Variability in Noncancer Risk Estimates (in decreasing order of importance)

Forecast (Output Distribution)	HI-Thallium-Produce-Residential Child-Far	HI-Thallium-Produce-Residential Child-Near	Site-wide HI: Antimony Adult+Child Residential Produce	Site-wide HI: Antimony Child Residential Produce	Site-wide HI: Arsenic Adult+Child Residential Produce	Site-wide HI: Arsenic Child Residential Produce
List of Largest Contributors to Variability	Child root ingestion rate Child nonroot ingestion rate Child Body Weight	Thallium in root produce Child root ingestion rate Child Body Weight Thallium in nonroot produce Child Body Weight	Antimony in nonroot produce Child nonroot ingestion rate Child root ingestion rate Antimony in root produce Exposure Duration Child Body Weight Adult nonroot ingestion rate Adult root ingestion rate Adult Body Weight	Antimony in nonroot produce Child nonroot ingestion rate Child root ingestion rate Antimony in root produce Child Body Weight	Arsenic in nonroot produce Arsenic in root produce Child nonroot ingestion rate Child root ingestion rate Adult nonroot ingestion rate Adult root ingestion rate Adult Body Weight Child Body Weight Exposure Duration	Arsenic in nonroot produce Child nonroot ingestion rate Arsenic in root produce Child root ingestion rate Child Body Weight

Rank correlation data between assumption and forecast

Assumptions	HI-Thallium-Produce-Residential Child-Far	Absolute Value > 0.03	HI-Thallium-Produce-Residential Child-Near	Absolute Value > 0.03	Site-wide HI: Antimony Adult+Child Residential Produce	Absolute Value > 0.03	Site-wide HI: Antimony Child Residential Produce	Absolute Value > 0.03	Site-wide HI: Arsenic Adult+Child Residential Produce	Absolute Value > 0.03	Site-wide HI: Arsenic Child Residential Produce	Absolute Value > 0.03
Antimony: East Trail Outdoor Dust	-0.01	N	-0.01	N	0.00	N	0.00	N	0.01	N	0.01	N
Antimony: East Trail Residential Soil	0.01	N	0.01	N	0.01	N	0.00	N	0.00	N	0.00	N
Antimony: Near Nonroot Produce	0.00	N	0.00	N	0.00	N	0.00	N	0.01	N	0.01	N
Antimony: Near Root Produce	0.01	N	0.00	N	0.01	N	0.01	N	0.01	N	0.02	N
Antimony: Rivervale Outdoor Dust	0.00	N	0.00	N	0.00	N	0.00	N	0.01	N	0.00	N
Antimony: Rivervale Residential Soil	-0.01	N	-0.02	N	0.00	N	-0.01	N	0.00	N	0.00	N
Antimony: Tadanac Outdoor Dust	0.00	N	0.01	N	0.00	N	0.01	N	0.00	N	0.01	N
Antimony: Tadanac Residential Soil	-0.02	N	-0.01	N	0.00	N	-0.01	N	-0.02	N	-0.03	N
Antimony: Waneta Residential Soil	0.00	N	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N
Antimony: West Trail Outdoor Dust	0.01	N	0.00	N	-0.01	N	0.00	N	-0.01	N	0.00	N
Antimony: West Trail Residential Soil	-0.01	N	0.00	N	0.00	N	-0.01	N	0.00	N	0.00	N
Arsenic (Inorganic): Far Nonroot Produce	0.00	N	0.00	N	-0.01	N	0.00	N	-0.01	N	-0.02	N
Arsenic (Inorganic): Near Nonroot Produce	0.01	N	0.02	N	0.00	N	0.00	N	0.00	N	0.00	N
Arsenic (Inorganic): Near Root Produce	0.02	N	0.02	N	0.01	N	0.01	N	-0.01	N	0.00	N
Arsenic: Birchbank Air	-0.01	N	-0.02	N	0.00	N	0.00	N	0.00	N	0.00	N
Arsenic: Butler Park Air	0.00	N	0.00	N	-0.01	N	-0.02	N	-0.02	N	-0.02	N
Arsenic: Columbia Gardens Air	-0.01	N	0.01	N	0.00	N	-0.01	N	0.00	N	0.00	N
Arsenic: East Trail Outdoor Dust	0.01	N	0.01	N	0.01	N	0.01	N	0.00	N	0.00	N
Arsenic: East Trail Residential Soil	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N
Arsenic: Genelle Air	-0.01	N	0.00	N	-0.01	N	-0.01	N	0.00	N	0.00	N
Arsenic: Rivervale Outdoor Dust	0.00	N	-0.01	N	0.00	N	0.00	N	-0.01	N	-0.01	N
Arsenic: Rivervale Residential Soil	-0.01	N	-0.01	N	0.00	N	-0.01	N	-0.01	N	-0.01	N
Arsenic: Tadanac Outdoor Dust	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N
Arsenic: Tadanac Residential Soil	-0.01	N	0.00	N	-0.01	N	0.00	N	-0.01	N	-0.02	N
Arsenic: Waneta Residential Soil	0.00	N	0.00	N	-0.01	N	0.00	N	-0.01	N	-0.01	N
Arsenic: Warfield Air	0.02	N	0.02	N	0.02	N	0.02	N	0.01	N	0.01	N

Table D-1. Largest Contributors to Variability in Noncancer Risk Estimates (in decreasing order of importance)

Forecast (Output Distribution)	Site-wide HI: Cadmium Adult+Child Residential Produce	Site-wide HI: Thallium Adult+Child Residential Produce	Site-wide HI: Thallium Child Residential Produce	HI-Antimony-Particulates-Agricultural Adult-Waneta	HI-Antimony-Soil/Dust-Agricultural Adult-Waneta	HI-Antimony-Soil/Dust-Commerical Adult+Child-East Trail
List of Largest Contributors to Variability	Exposure Duration Cadmium in nonroot produce Cadmium in root produce Child root ingestion rate Child nonroot ingestion rate Child Body Weight Adult root ingestion rate Adult nonroot ingestion rate Adult Body Weight	Thallium in root produce Child root ingestion rate Thallium in nonroot produce Exposure Duration Child nonroot ingestion rate Child Body Weight Adult root ingestion rate Adult nonroot ingestion rate Adult Body Weight	Thallium in root produce Child root ingestion rate Thallium in nonroot produce Child nonroot ingestion rate Child Body Weight	Particulate concentration in air Adult Body Weight Adult Inhalation Rate	Adult Body Weight	Child soil ingestion rate Exposure Duration Child Body Weight Adult SIR Exposure Frequency

Rank correlation data between assumption and forecast

Assumptions	Site-wide HI: Cadmium Adult+Child Residential Produce	Absolute Value > 0.03	Site-wide HI: Thallium Adult+Child Residential Produce	Absolute Value > 0.03	Site-wide HI: Thallium Child Residential Produce	Absolute Value > 0.03	HI-Antimony-Particulates-Agricultural Adult-Waneta	Absolute Value > 0.03	HI-Antimony-Soil/Dust-Agricultural Adult-Waneta	Absolute Value > 0.03	HI-Antimony-Soil/Dust-Commerical Adult+Child-East Trail	Absolute Value > 0.03
Antimony: East Trail Outdoor Dust	0.01	N	0.00	N	0.00	N	0.01	N	0.01	N	0.00	N
Antimony: East Trail Residential Soil	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N
Antimony: Near Nonroot Produce	0.00	N	0.00	N	0.00	N	0.01	N	-0.01	N	0.00	N
Antimony: Near Root Produce	0.02	N	0.01	N	0.01	N	0.00	N	0.01	N	0.01	N
Antimony: Rivervale Outdoor Dust	0.01	N	0.00	N	0.00	N	0.01	N	-0.01	N	0.01	N
Antimony: Rivervale Residential Soil	-0.02	N	0.00	N	-0.01	N	-0.01	N	0.01	N	0.01	N
Antimony: Tadanac Outdoor Dust	0.01	N	0.00	N	0.00	N	0.00	N	0.00	N	-0.01	N
Antimony: Tadanac Residential Soil	0.00	N	0.01	N	0.00	N	0.00	N	0.00	N	0.02	N
Antimony: Waneta Residential Soil	0.00	N	0.00	N	0.00	N	-0.01	N	0.00	N	0.01	N
Antimony: West Trail Outdoor Dust	0.00	N	0.00	N	0.01	N	0.00	N	-0.02	N	0.00	N
Antimony: West Trail Residential Soil	0.00	N	-0.01	N	-0.01	N	0.00	N	0.00	N	-0.01	N
Arsenic (Inorganic): Far Nonroot Produce	0.00	N	0.00	N	0.00	N	0.00	N	0.01	N	-0.01	N
Arsenic (Inorganic): Near Nonroot Produce	0.00	N	-0.01	N	-0.01	N	0.00	N	0.02	N	0.02	N
Arsenic (Inorganic): Near Root Produce	0.00	N	0.01	N	0.02	N	0.01	N	-0.01	N	0.00	N
Arsenic: Birchbank Air	0.00	N	-0.01	N	-0.01	N	0.01	N	-0.01	N	0.00	N
Arsenic: Butler Park Air	0.01	N	-0.01	N	-0.01	N	0.00	N	0.01	N	-0.01	N
Arsenic: Columbia Gardens Air	0.01	N	0.00	N	0.00	N	0.01	N	0.00	N	-0.01	N
Arsenic: East Trail Outdoor Dust	0.00	N	0.01	N	0.01	N	0.00	N	0.00	N	0.02	N
Arsenic: East Trail Residential Soil	-0.01	N	0.01	N	0.01	N	0.00	N	0.01	N	0.02	N
Arsenic: Genelle Air	0.00	N	0.00	N	0.00	N	-0.01	N	0.01	N	0.01	N
Arsenic: Rivervale Outdoor Dust	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N	-0.01	N
Arsenic: Rivervale Residential Soil	-0.02	N	0.00	N	-0.01	N	-0.01	N	0.00	N	0.01	N
Arsenic: Tadanac Outdoor Dust	-0.01	N	0.00	N	-0.01	N	0.00	N	0.00	N	0.00	N
Arsenic: Tadanac Residential Soil	0.01	N	0.00	N	0.00	N	0.00	N	0.00	N	-0.01	N
Arsenic: Waneta Residential Soil	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N
Arsenic: Warfield Air	0.01	N	0.01	N	0.01	N	0.00	N	0.01	N	0.00	N

Table D-1. Largest Contributors to Variability in Noncancer Risk Estimates (in decreasing order of importance)

Forecast (Output Distribution)	HI-Antimony-Soil/Dust-Commerical Child-East Trail	HI-Antimony-Soil/Dust-Residential Adult+Child-East Trail	HI-Antimony-Soil/Dust-Residential Adult+Child-Rivervale	HI-Antimony-Soil/Dust-Residential Adult+Child-Tadanac	HI-Antimony-Soil/Dust-Residential Adult+Child-Waneta	HI-Antimony-Soil/Dust-Residential Adult+Child-West Trail	HI-Antimony-Soil/Dust-Residential Child-East Trail
List of Largest Contributors to Variability	Child soil ingestion rate Child Body Weight Exposure Frequency	Child soil ingestion rate Exposure Duration Child Body Weight Adult SIR Antimony in soil Antimony in outdoor dust Fractional Intake: soil/dust	Child soil ingestion rate Exposure Duration Child Body Weight Adult SIR Antimony in soil	Child soil ingestion rate Exposure Duration Child Body Weight Adult SIR Antimony in soil Antimony in outdoor dust Fractional Intake: soil/dust	Child soil ingestion rate Exposure Duration Child Body Weight Adult SIR Antimony in soil	Child soil ingestion rate Exposure Duration Child Body Weight Adult SIR Antimony in soil Fractional Intake: soil/dust	Child soil ingestion rate Child Body Weight Antimony in soil Antimony in outdoor dust Fractional Intake: soil/dust

Rank correlation data between assumption and forecast

Assumptions	HI-Antimony-Soil/Dust-Commerical Child-East Trail	Absolute Value > 0.03	HI-Antimony-Soil/Dust-Residential Adult+Child-East Trail	Absolute Value > 0.03	HI-Antimony-Soil/Dust-Residential Adult+Child-Rivervale	Absolute Value > 0.03	HI-Antimony-Soil/Dust-Residential Adult+Child-Tadanac	Absolute Value > 0.03	HI-Antimony-Soil/Dust-Residential Adult+Child-Waneta	Absolute Value > 0.03	HI-Antimony-Soil/Dust-Residential Adult+Child-West Trail	Absolute Value > 0.03	HI-Antimony-Soil/Dust-Residential Child-East Trail	Absolute Value > 0.03
Antimony: East Trail Outdoor Dust	0.01	N	0.05	Y	0.00	N	0.00	N	0.00	N	0.00	N	0.05	Y
Antimony: East Trail Residential Soil	0.01	N	0.05	Y	0.01	N	0.00	N	0.01	N	0.01	N	0.05	Y
Antimony: Near Nonroot Produce	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N
Antimony: Near Root Produce	0.02	N	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N	0.02	N
Antimony: Rivervale Outdoor Dust	0.02	N	0.01	N	0.03	N	0.01	N	0.01	N	0.01	N	0.02	N
Antimony: Rivervale Residential Soil	0.01	N	0.01	N	0.13	Y	0.01	N	0.01	N	0.01	N	0.01	N
Antimony: Tadanac Outdoor Dust	-0.01	N	-0.01	N	-0.01	N	0.05	Y	-0.01	N	-0.01	N	-0.01	N
Antimony: Tadanac Residential Soil	0.01	N	0.02	N	0.02	N	0.05	Y	0.02	N	0.02	N	0.01	N
Antimony: Waneta Residential Soil	0.01	N	0.01	N	0.01	N	0.01	N	0.09	Y	0.01	N	0.01	N
Antimony: West Trail Outdoor Dust	0.01	N	0.00	N	0.00	N	0.00	N	0.00	N	0.02	N	0.01	N
Antimony: West Trail Residential Soil	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	0.04	Y	-0.01	N
Arsenic (Inorganic): Far Nonroot Produce	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N
Arsenic (Inorganic): Near Nonroot Produce	0.01	N	0.01	N	0.01	N	0.02	N	0.02	N	0.01	N	0.01	N
Arsenic (Inorganic): Near Root Produce	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N
Arsenic: Birchbank Air	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N
Arsenic: Butler Park Air	0.00	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	0.00	N
Arsenic: Columbia Gardens Air	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N
Arsenic: East Trail Outdoor Dust	0.01	N	0.01	N	0.01	N	0.01	N	0.02	N	0.01	N	0.01	N
Arsenic: East Trail Residential Soil	0.02	N	0.02	N	0.02	N	0.02	N	0.02	N	0.02	N	0.02	N
Arsenic: Genelle Air	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N
Arsenic: Rivervale Outdoor Dust	0.00	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	0.00	N
Arsenic: Rivervale Residential Soil	0.00	N	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N	0.00	N
Arsenic: Tadanac Outdoor Dust	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	-0.01	N
Arsenic: Tadanac Residential Soil	-0.02	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N
Arsenic: Waneta Residential Soil	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N
Arsenic: Warfield Air	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	-0.01	N

Table D-1. Largest Contributors to Variability in Noncancer Risk Estimates (in decreasing order of importance)

Forecast (Output Distribution)	HI-Antimony-Soil/Dust-Residential Child-Rivervale	HI-Antimony-Soil/Dust-Residential Child-Tadanac	HI-Antimony-Soil/Dust-Residential Child-Waneta	HI-Antimony-Soil/Dust-Residential Child-West Trail	HI-Arsenic-Soil/Dust-Residential Adult+Child-East Trail	HI-Arsenic-Soil/Dust-Residential Adult+Child-Rivervale	HI-Arsenic-Soil/Dust-Residential Adult+Child-Tadanac
List of Largest Contributors to Variability	Child soil ingestion rate Child Body Weight Antimony in soil Antimony in outdoor dust	Child soil ingestion rate Child Body Weight Antimony in outdoor dust Antimony in soil Fractional Intake: soil/dust	Child soil ingestion rate Child Body Weight Antimony in soil	Child soil ingestion rate Child Body Weight Antimony in soil Fractional Intake: soil/dust	Child soil ingestion rate Exposure Duration Child Body Weight Adult SIR Arsenic in soil Arsenic in outdoor dust	Child soil ingestion rate Exposure Duration Child Body Weight Adult SIR Arsenic in soil	Child soil ingestion rate Exposure Duration Child Body Weight Adult SIR Arsenic in outdoor dust Arsenic in soil

Rank correlation data between assumption and forecast

Assumptions	HI-Antimony-Soil/Dust-Residential Child-Rivervale	Absolute Value > 0.03	HI-Antimony-Soil/Dust-Residential Child-Tadanac	Absolute Value > 0.03	HI-Antimony-Soil/Dust-Residential Child-Waneta	Absolute Value > 0.03	HI-Antimony-Soil/Dust-Residential Child-West Trail	Absolute Value > 0.03	HI-Arsenic-Soil/Dust-Residential Adult+Child-East Trail	Absolute Value > 0.03	HI-Arsenic-Soil/Dust-Residential Adult+Child-Rivervale	Absolute Value > 0.03	HI-Arsenic-Soil/Dust-Residential Adult+Child-Tadanac	Absolute Value > 0.03
Antimony: East Trail Outdoor Dust	0.01	N	0.01	N	0.01	N	0.01	N	0.00	N	0.00	N	0.00	N
Antimony: East Trail Residential Soil	0.01	N	0.01	N	0.01	N	0.01	N	0.00	N	0.01	N	0.01	N
Antimony: Near Nonroot Produce	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N
Antimony: Near Root Produce	0.02	N	0.02	N	0.02	N	0.02	N	0.01	N	0.01	N	0.01	N
Antimony: Rivervale Outdoor Dust	0.03	Y	0.02	N	0.02	N	0.02	N	0.01	N	0.01	N	0.01	N
Antimony: Rivervale Residential Soil	0.13	Y	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N
Antimony: Tadanac Outdoor Dust	-0.01	N	0.05	Y	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N
Antimony: Tadanac Residential Soil	0.00	N	0.04	Y	0.01	N	0.01	N	0.02	N	0.02	N	0.02	N
Antimony: Waneta Residential Soil	0.01	N	0.01	N	0.09	Y	0.00	N	0.01	N	0.01	N	0.01	N
Antimony: West Trail Outdoor Dust	0.01	N	0.01	N	0.01	N	0.02	N	0.00	N	0.00	N	0.00	N
Antimony: West Trail Residential Soil	-0.01	N	-0.01	N	-0.01	N	0.04	Y	-0.01	N	-0.01	N	-0.01	N
Arsenic (Inorganic): Far Nonroot Produce	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.02	N	-0.01	N
Arsenic (Inorganic): Near Nonroot Produce	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N	0.02	N	0.01	N
Arsenic (Inorganic): Near Root Produce	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N
Arsenic: Birchbank Air	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N
Arsenic: Butler Park Air	0.00	N	0.00	N	0.00	N	0.00	N	-0.01	N	-0.01	N	-0.01	N
Arsenic: Columbia Gardens Air	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N
Arsenic: East Trail Outdoor Dust	0.01	N	0.01	N	0.01	N	0.01	N	0.08	Y	0.02	N	0.01	N
Arsenic: East Trail Residential Soil	0.02	N	0.02	N	0.02	N	0.02	N	0.10	Y	0.02	N	0.02	N
Arsenic: Genelle Air	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N
Arsenic: Rivervale Outdoor Dust	0.00	N	0.00	N	0.00	N	0.00	N	-0.01	N	0.01	N	-0.01	N
Arsenic: Rivervale Residential Soil	0.00	N	0.00	N	0.00	N	0.00	N	0.01	N	0.17	Y	0.01	N
Arsenic: Tadanac Outdoor Dust	-0.01	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.06	Y
Arsenic: Tadanac Residential Soil	-0.02	N	-0.02	N	-0.02	N	-0.02	N	-0.01	N	-0.01	N	0.03	Y
Arsenic: Waneta Residential Soil	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N
Arsenic: Warfield Air	0.00	N	-0.01	N	0.00	N	-0.01	N	0.00	N	0.00	N	0.00	N

Table D-1. Largest Contributors to Variability in Noncancer Risk Estimates (in decreasing order of importance)

Forecast (Output Distribution)	HI-Arsenic-Soil/Dust-Residential Adult+Child-Waneta	HI-Arsenic-Soil/Dust-Residential Adult+Child-West Trail	HI-Arsenic-Soil/Dust-Residential Child-East Trail	HI-Arsenic-Soil/Dust-Residential Child-Rivervale	HI-Arsenic-Soil/Dust-Residential Child-Tadanac	HI-Arsenic-Soil/Dust-Residential Child-Waneta	HI-Arsenic-Soil/Dust-Residential Child-West Trail
List of Largest Contributors to Variability	Child soil ingestion rate Exposure Duration Child Body Weight Adult SIR Arsenic in soil Arsenic in outdoor dust	Child soil ingestion rate Exposure Duration Child Body Weight Adult SIR Fractional intake: soil/dust	Child soil ingestion rate Child Body Weight Arsenic in soil Arsenic in outdoor dust	Child soil ingestion rate Child Body Weight Arsenic in soil	Child soil ingestion rate Child Body Weight Arsenic in outdoor dust	Child soil ingestion rate Child Body Weight Arsenic in soil	Child soil ingestion rate Child Body Weight Fractional intake: soil/dust Arsenic in soil

Rank correlation data between assumption and forecast

Assumptions	HI-Arsenic-Soil/Dust-Residential Adult+Child-Waneta	Absolute Value > 0.03	HI-Arsenic-Soil/Dust-Residential Adult+Child-West Trail	Absolute Value > 0.03	HI-Arsenic-Soil/Dust-Residential Child-East Trail	Absolute Value > 0.03	HI-Arsenic-Soil/Dust-Residential Child-Rivervale	Absolute Value > 0.03	HI-Arsenic-Soil/Dust-Residential Child-Tadanac	Absolute Value > 0.03	HI-Arsenic-Soil/Dust-Residential Child-Waneta	Absolute Value > 0.03	HI-Arsenic-Soil/Dust-Residential Child-West Trail	Absolute Value > 0.03
Antimony: East Trail Outdoor Dust	0.00	N	0.00	N	0.00	N	0.01	N	0.01	N	0.01	N	0.01	N
Antimony: East Trail Residential Soil	0.01	N	0.01	N	0.00	N	0.01	N	0.01	N	0.01	N	0.01	N
Antimony: Near Nonroot Produce	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N
Antimony: Near Root Produce	0.01	N	0.01	N	0.02	N	0.02	N	0.02	N	0.02	N	0.02	N
Antimony: Rivervale Outdoor Dust	0.01	N	0.01	N	0.02	N	0.02	N	0.02	N	0.02	N	0.02	N
Antimony: Rivervale Residential Soil	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N
Antimony: Tadanac Outdoor Dust	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N
Antimony: Tadanac Residential Soil	0.02	N	0.02	N	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N
Antimony: Waneta Residential Soil	0.01	N	0.01	N	0.01	N	0.00	N	0.01	N	0.01	N	0.01	N
Antimony: West Trail Outdoor Dust	0.00	N	0.00	N	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N
Antimony: West Trail Residential Soil	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N
Arsenic (Inorganic): Far Nonroot Produce	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N
Arsenic (Inorganic): Near Nonroot Produce	0.02	N	0.02	N	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N
Arsenic (Inorganic): Near Root Produce	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N
Arsenic: Birchbank Air	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N
Arsenic: Butler Park Air	-0.01	N	-0.01	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N
Arsenic: Columbia Gardens Air	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N
Arsenic: East Trail Outdoor Dust	0.01	N	0.01	N	0.08	Y	0.02	N	0.01	N	0.01	N	0.01	N
Arsenic: East Trail Residential Soil	0.02	N	0.02	N	0.10	Y	0.02	N	0.02	N	0.02	N	0.02	N
Arsenic: Genelle Air	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N
Arsenic: Rivervale Outdoor Dust	-0.01	N	-0.01	N	0.00	N	0.02	N	0.00	N	0.00	N	0.00	N
Arsenic: Rivervale Residential Soil	0.01	N	0.01	N	0.00	N	0.15	Y	0.00	N	0.00	N	0.00	N
Arsenic: Tadanac Outdoor Dust	0.00	N	0.00	N	0.00	N	0.00	N	0.06	Y	0.00	N	0.00	N
Arsenic: Tadanac Residential Soil	-0.01	N	-0.01	N	-0.02	N	-0.02	N	0.03	N	-0.02	N	-0.01	N
Arsenic: Waneta Residential Soil	0.10	Y	0.00	N	0.00	N	0.00	N	0.00	N	0.10	Y	0.00	N
Arsenic: Warfield Air	0.00	N	0.00	N	0.00	N	0.00	N	-0.01	N	-0.01	N	-0.01	N

Table D-1. Largest Contributors to Variability in Noncancer Risk Estimates (in decreasing order of importance)

Forecast (Output Distribution)	**HI-Cadmium-Soil/Dust-Agricultural Adult-Waneta**	**HI-Cadmium-Soil/Dust-Commerical Adult+Child-East Trail**	**HI-Cadmium-Soil/Dust-Residential Adult+Child-East Trail**	**HI-Cadmium-Soil/Dust-Residential Adult+Child-Rivervale**	**HI-Cadmium-Soil/Dust-Residential Adult+Child-Tadanac**	**HI-Cadmium-Soil/Dust-Residential Adult+Child-Waneta**	**HI-Cadmium-Soil/Dust-Residential Adult+Child-West Trail**
List of Largest Contributors to Variability	Exposure Duration Adult Body Weight Cadmium in soil	Child soil ingestion rate Exposure Duration Child Body Weight Adult SIR Exposure Frequency	Child soil ingestion rate Exposure Duration Child Body Weight Adult SIR Cadmium in soil Cadmium in outdoor dust Fractional intake: soil/dust	Child soil ingestion rate Exposure Duration Child Body Weight Adult SIR Cadmium in soil Cadmium in outdoor dust Fractional intake: soil/dust	Child soil ingestion rate Exposure Duration Child Body Weight Adult SIR Cadmium in outdoor dust Fractional intake: soil/dust	Child soil ingestion rate Exposure Duration Child Body Weight Adult SIR Cadmium in soil Fractional intake: soil/dust	Child soil ingestion rate Exposure Duration Child Body Weight Adult SIR Fractional intake: soil/dust Cadmium in outdoor dust

Rank correlation data between assumption and forecast

Assumptions	HI-Cadmium-Soil/Dust-Agricultural Adult-Waneta	Absolute Value > 0.03	HI-Cadmium-Soil/Dust-Commerical Adult+Child-East Trail	Absolute Value > 0.03	HI-Cadmium-Soil/Dust-Residential Adult+Child-East Trail	Absolute Value > 0.03	HI-Cadmium-Soil/Dust-Residential Adult+Child-Rivervale	Absolute Value > 0.03	HI-Cadmium-Soil/Dust-Residential Adult+Child-Tadanac	Absolute Value > 0.03	HI-Cadmium-Soil/Dust-Residential Adult+Child-Waneta	Absolute Value > 0.03	HI-Cadmium-Soil/Dust-Residential Adult+Child-West Trail	Absolute Value > 0.03
Antimony: East Trail Outdoor Dust	0.01	N	0.01	N	0.02	N	0.01	N	0.01	N	0.01	N	0.01	N
Antimony: East Trail Residential Soil	0.00	N	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N
Antimony: Near Nonroot Produce	0.02	N	0.01	N	0.00	N	0.01	N	0.01	N	0.01	N	0.01	N
Antimony: Near Root Produce	0.00	N	0.02	N	0.02	N	0.02	N	0.02	N	0.02	N	0.02	N
Antimony: Rivervale Outdoor Dust	-0.01	N	0.02	N	0.01	N	0.02	N	0.02	N	0.02	N	0.02	N
Antimony: Rivervale Residential Soil	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N
Antimony: Tadanac Outdoor Dust	-0.02	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N
Antimony: Tadanac Residential Soil	-0.01	N	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N
Antimony: Waneta Residential Soil	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N
Antimony: West Trail Outdoor Dust	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N
Antimony: West Trail Residential Soil	0.00	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N
Arsenic (Inorganic): Far Nonroot Produce	-0.01	N	-0.02	N	-0.02	N	-0.02	N	-0.02	N	-0.02	N	-0.02	N
Arsenic (Inorganic): Near Nonroot Produce	-0.01	N	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N
Arsenic (Inorganic): Near Root Produce	0.00	N	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N
Arsenic: Birchbank Air	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N
Arsenic: Butler Park Air	0.01	N	0.00	N	0.01	N	0.01	N	0.00	N	0.00	N	0.00	N
Arsenic: Columbia Gardens Air	0.02	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N
Arsenic: East Trail Outdoor Dust	-0.01	N	0.02	N	0.01	N	0.01	N	0.02	N	0.01	N	0.01	N
Arsenic: East Trail Residential Soil	0.01	N	0.02	N	0.02	N	0.02	N	0.02	N	0.02	N	0.02	N
Arsenic: Genelle Air	-0.01	N	0.02	N	0.02	N	0.02	N	0.02	N	0.02	N	0.02	N
Arsenic: Rivervale Outdoor Dust	0.01	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N
Arsenic: Rivervale Residential Soil	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N
Arsenic: Tadanac Outdoor Dust	0.00	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N
Arsenic: Tadanac Residential Soil	0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N
Arsenic: Waneta Residential Soil	-0.01	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N
Arsenic: Warfield Air	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N

Table D-1. Largest Contributors to Variability in Noncancer Risk Estimates (in decreasing order of importance)

Forecast (Output Distribution)	**HI-Selenium-Soil/Dust-Residential Adult+Child-East Trail**	**HI-Selenium-Soil/Dust-Residential Adult+Child-Rivervale**	**HI-Selenium-Soil/Dust-Residential Adult+Child-Tadanac**	**HI-Selenium-Soil/Dust-Residential Adult+Child-Waneta**	**HI-Selenium-Soil/Dust-Residential Adult+Child-West Trail**	**HI-Selenium-Soil/Dust-Residential Child-East Trail**	**HI-Selenium-Soil/Dust-Residential Child-Rivervale**
List of Largest Contributors to Variability	Child soil ingestion rate Selenium in soil Exposure Duration Child Body Weight Adult SIR Selenium in outdoor dust	Child soil ingestion rate Selenium in soil Exposure Duration Child Body Weight Adult SIR	Child soil ingestion rate Selenium in soil Exposure Duration Child Body Weight Selenium in outdoor dust Adult SIR	Child soil ingestion rate Exposure Duration Child Body Weight Adult SIR	Child soil ingestion rate Exposure Duration Selenium in soil Child Body Weight Adult SIR Selenium in outdoor dust	Child soil ingestion rate Selenium in soil Child Body Weight Selenium in outdoor dust	Child soil ingestion rate Selenium in soil Child Body Weight

Rank correlation data between assumption and forecast

Assumptions	HI-Selenium-Soil/Dust-Residential Adult+Child-East Trail	Absolute Value > 0.03	HI-Selenium-Soil/Dust-Residential Adult+Child-Rivervale	Absolute Value > 0.03	HI-Selenium-Soil/Dust-Residential Adult+Child-Tadanac	Absolute Value > 0.03	HI-Selenium-Soil/Dust-Residential Adult+Child-Waneta	Absolute Value > 0.03	HI-Selenium-Soil/Dust-Residential Adult+Child-West Trail	Absolute Value > 0.03	HI-Selenium-Soil/Dust-Residential Child-East Trail	Absolute Value > 0.03	HI-Selenium-Soil/Dust-Residential Child-Rivervale	Absolute Value > 0.03
Antimony: East Trail Outdoor Dust	0.01	N	0.01	N	0.00	N	0.00	N	0.01	N	0.01	N	0.02	N
Antimony: East Trail Residential Soil	0.00	N	-0.01	N	0.01	N	0.01	N	0.00	N	0.00	N	-0.01	N
Antimony: Near Nonroot Produce	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N
Antimony: Near Root Produce	0.01	N	0.01	N	0.01	N	0.01	N	0.00	N	0.02	N	0.02	N
Antimony: Rivervale Outdoor Dust	0.01	N	0.00	N	0.01	N	0.01	N	0.01	N	0.02	N	0.01	N
Antimony: Rivervale Residential Soil	0.01	N	0.01	N	0.02	N	0.01	N	0.02	N	0.01	N	0.01	N
Antimony: Tadanac Outdoor Dust	0.00	N	-0.01	N	0.00	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N
Antimony: Tadanac Residential Soil	0.02	N	0.01	N	0.02	N	0.02	N	0.02	N	0.01	N	0.00	N
Antimony: Waneta Residential Soil	0.00	N	0.00	N	0.01	N	0.01	N	0.00	N	0.00	N	0.00	N
Antimony: West Trail Outdoor Dust	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.01	N	0.00	N
Antimony: West Trail Residential Soil	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N
Arsenic (Inorganic): Far Nonroot Produce	-0.01	N	-0.01	N	-0.02	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N
Arsenic (Inorganic): Near Nonroot Produce	0.01	N	0.01	N	0.01	N	0.02	N	0.01	N	0.01	N	0.01	N
Arsenic (Inorganic): Near Root Produce	0.00	N	0.01	N	0.01	N	0.00	N	0.01	N	0.00	N	0.00	N
Arsenic: Birchbank Air	0.00	N	0.01	N	0.00	N	0.00	N	0.00	N	0.00	N	0.01	N
Arsenic: Butler Park Air	-0.01	N	0.01	N	0.00	N	-0.01	N	-0.01	N	0.00	N	0.01	N
Arsenic: Columbia Gardens Air	-0.01	N	-0.01	N	0.00	N	-0.01	N	0.00	N	-0.01	N	-0.01	N
Arsenic: East Trail Outdoor Dust	0.00	N	0.01	N	0.01	N	0.02	N	0.00	N	0.00	N	0.01	N
Arsenic: East Trail Residential Soil	0.02	N	0.01	N	0.02	N	0.02	N	0.02	N	0.02	N	0.02	N
Arsenic: Genelle Air	0.01	N	0.02	N	0.01	N	0.01	N	0.01	N	0.01	N	0.02	N
Arsenic: Rivervale Outdoor Dust	-0.01	N	0.00	N	-0.01	N	-0.01	N	-0.02	N	0.00	N	0.00	N
Arsenic: Rivervale Residential Soil	0.00	N	0.01	N	0.00	N	0.01	N	0.01	N	0.00	N	0.00	N
Arsenic: Tadanac Outdoor Dust	0.00	N	0.00	N	-0.01	N	0.00	N	0.00	N	0.00	N	0.00	N
Arsenic: Tadanac Residential Soil	-0.01	N	-0.02	N	-0.01	N	-0.01	N	-0.01	N	-0.02	N	-0.02	N
Arsenic: Waneta Residential Soil	-0.01	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N
Arsenic: Warfield Air	-0.01	N	0.01	N	0.00	N	0.00	N	0.00	N	-0.01	N	0.00	N

Table D-1. Largest Contributors to Variability in Noncancer Risk Estimates (in decreasing order of importance)

Forecast (Output Distribution)	**HI-Selenium-Soil/Dust-Residential Child-Tadanac**	**HI-Selenium-Soil/Dust-Residential Child-Waneta**	**HI-Selenium-Soil/Dust-Residential Child-West Trail**	**HI-Silver-Soil/Dust-Residential Adult+Child-East Trail**	**HI-Silver-Soil/Dust-Residential Adult+Child-Rivervale**	**HI-Silver-Soil/Dust-Residential Adult+Child-Tadanac**	**HI-Silver-Soil/Dust-Residential Adult+Child-Waneta**
List of Largest Contributors to Variability	Child soil ingestion rate Selenium in soil Child Body Weight Selenium in outdoor dust	Child soil ingestion rate Child Body Weight	Child soil ingestion rate Selenium in soil Child Body Weight Selenium in outdoor dust	Child soil ingestion rate Silver in soil Exposure Duration Silver in outdoor dust Child Body Weight Adult SIR Exposure Frequency	Child soil ingestion rate Exposure Duration Silver in soil Child Body Weight Adult SIR Silver in outdoor dust	Child soil ingestion rate Exposure Duration Silver in soil Silver in outdoor dust Child Body Weight Adult SIR Exposure Frequency	Child soil ingestion rate Exposure Duration Child Body Weight Adult SIR

Rank correlation data between assumption and forecast

Assumptions	HI-Selenium-Soil/Dust-Residential Child-Tadanac	Absolute Value > 0.03	HI-Selenium-Soil/Dust-Residential Child-Waneta	Absolute Value > 0.03	HI-Selenium-Soil/Dust-Residential Child-West Trail	Absolute Value > 0.03	HI-Silver-Soil/Dust-Residential Adult+Child-East Trail	Absolute Value > 0.03	HI-Silver-Soil/Dust-Residential Adult+Child-Rivervale	Absolute Value > 0.03	HI-Silver-Soil/Dust-Residential Adult+Child-Tadanac	Absolute Value > 0.03	HI-Silver-Soil/Dust-Residential Adult+Child-Waneta	Absolute Value > 0.03
Antimony: East Trail Outdoor Dust	0.00	N	0.01	N	0.01	N	0.00	N	0.00	N	0.00	N	0.00	N
Antimony: East Trail Residential Soil	0.01	N	0.01	N	0.00	N	0.00	N	0.00	N	0.01	N	0.01	N
Antimony: Near Nonroot Produce	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N
Antimony: Near Root Produce	0.01	N	0.02	N	0.01	N	0.00	N	0.01	N	0.01	N	0.01	N
Antimony: Rivervale Outdoor Dust	0.02	N	0.02	N	0.02	N	0.01	N	0.01	N	0.00	N	0.01	N
Antimony: Rivervale Residential Soil	0.01	N	0.01	N	0.01	N	0.00	N	0.01	N	0.01	N	0.01	N
Antimony: Tadanac Outdoor Dust	0.00	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N
Antimony: Tadanac Residential Soil	0.01	N	0.01	N	0.01	N	0.02	N	0.02	N	0.02	N	0.02	N
Antimony: Waneta Residential Soil	0.01	N	0.01	N	0.00	N	0.01	N	0.01	N	0.01	N	0.01	N
Antimony: West Trail Outdoor Dust	0.01	N	0.01	N	0.00	N	0.00	N	0.00	N	0.01	N	0.00	N
Antimony: West Trail Residential Soil	0.00	N	-0.01	N	0.00	N	-0.01	N	0.00	N	-0.01	N	0.00	N
Arsenic (Inorganic): Far Nonroot Produce	-0.02	N	-0.01	N	-0.01	N	0.00	N	-0.01	N	-0.01	N	-0.01	N
Arsenic (Inorganic): Near Nonroot Produce	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N	0.02	N	0.02	N
Arsenic (Inorganic): Near Root Produce	0.01	N	0.00	N	0.01	N	0.00	N	0.01	N	0.00	N	0.00	N
Arsenic: Birchbank Air	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N
Arsenic: Butler Park Air	0.00	N	0.00	N	0.00	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N
Arsenic: Columbia Gardens Air	0.00	N	-0.01	N	0.00	N	0.00	N	-0.01	N	-0.01	N	-0.01	N
Arsenic: East Trail Outdoor Dust	0.01	N	0.01	N	0.00	N	0.01	N	0.01	N	0.01	N	0.02	N
Arsenic: East Trail Residential Soil	0.02	N	0.02	N	0.03	N	0.01	N	0.02	N	0.02	N	0.02	N
Arsenic: Genelle Air	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N	0.00	N	0.01	N
Arsenic: Rivervale Outdoor Dust	0.00	N	0.00	N	-0.01	N	-0.01	N	-0.01	N	-0.02	N	-0.01	N
Arsenic: Rivervale Residential Soil	-0.01	N	0.00	N	0.00	N	0.00	N	0.01	N	0.00	N	0.01	N
Arsenic: Tadanac Outdoor Dust	-0.01	N	0.00	N	-0.01	N	0.01	N	0.00	N	0.00	N	0.00	N
Arsenic: Tadanac Residential Soil	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N
Arsenic: Waneta Residential Soil	0.00	N	0.00	N	0.01	N	0.00	N	0.00	N	0.01	N	0.00	N
Arsenic: Warfield Air	-0.01	N	-0.01	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N

Table D-1. Largest Contributors to Variability in Noncancer Risk Estimates (in decreasing order of importance)

Forecast (Output Distribution)	**HI-Silver-Soil/Dust-Residential Adult+Child-West Trail**	**HI-Silver-Soil/Dust-Residential Child-East Trail**	**HI-Silver-Soil/Dust-Residential Child-Rivervale**	**HI-Silver-Soil/Dust-Residential Child-Tadanac**	**HI-Silver-Soil/Dust-Residential Child-Waneta**	**HI-Silver-Soil/Dust-Residential Child-West Trail**	**HI-Thallium-Soil/Dust-Residential Adult+Child-East Trail**
List of Largest Contributors to Variability	Child soil ingestion rate Silver in soil Exposure Duration Child Body Weight Adult SIR Silver in outdoor dust	Child soil ingestion rate Silver in soil Child Body Weight Silver in outdoor dust Exposure Frequency	Child soil ingestion rate Silver in soil Child Body Weight Silver in outdoor dust	Child soil ingestion rate Silver in soil Silver in outdoor dust Child Body Weight Exposure Frequency	Child soil ingestion rate Child Body Weight	Child soil ingestion rate Silver in soil Child Body Weight Silver in outdoor dust	Child soil ingestion rate Thallium in soil Exposure Duration Child Body Weight Adult SIR

Rank correlation data between assumption and forecast

Assumptions	HI-Silver-Soil/Dust-Residential Adult+Child-West Trail	Absolute Value > 0.03	HI-Silver-Soil/Dust-Residential Child-East Trail	Absolute Value > 0.03	HI-Silver-Soil/Dust-Residential Child-Rivervale	Absolute Value > 0.03	HI-Silver-Soil/Dust-Residential Child-Tadanac	Absolute Value > 0.03	HI-Silver-Soil/Dust-Residential Child-Waneta	Absolute Value > 0.03	HI-Silver-Soil/Dust-Residential Child-West Trail	Absolute Value > 0.03	HI-Thallium-Soil/Dust-Residential Adult+Child-East Trail	Absolute Value > 0.03
Antimony: East Trail Outdoor Dust	0.00	N	0.01	N	0.01	N	0.00	N	0.01	N	0.00	N	0.00	N
Antimony: East Trail Residential Soil	0.01	N	0.01	N	0.00	N	0.01	N	0.01	N	0.01	N	0.00	N
Antimony: Near Nonroot Produce	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.01	N
Antimony: Near Root Produce	0.01	N	0.01	N	0.02	N	0.02	N	0.02	N	0.02	N	0.01	N
Antimony: Rivervale Outdoor Dust	0.00	N	0.01	N	0.02	N	0.01	N	0.02	N	0.01	N	0.01	N
Antimony: Rivervale Residential Soil	0.01	N	0.00	N	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N
Antimony: Tadanac Outdoor Dust	0.00	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	0.00	N	0.00	N
Antimony: Tadanac Residential Soil	0.02	N	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N	0.02	N
Antimony: Waneta Residential Soil	0.01	N	0.01	N	0.01	N	0.00	N	0.01	N	0.01	N	0.00	N
Antimony: West Trail Outdoor Dust	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N
Antimony: West Trail Residential Soil	-0.01	N	-0.01	N	0.00	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N
Arsenic (Inorganic): Far Nonroot Produce	-0.01	N	0.00	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N
Arsenic (Inorganic): Near Nonroot Produce	0.02	N	0.00	N	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N
Arsenic (Inorganic): Near Root Produce	0.01	N	0.00	N	0.01	N	0.00	N	0.00	N	0.01	N	0.01	N
Arsenic: Birchbank Air	-0.01	N	0.00	N	0.00	N	0.00	N	0.00	N	-0.01	N	0.01	N
Arsenic: Butler Park Air	-0.01	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	-0.01	N
Arsenic: Columbia Gardens Air	-0.01	N	0.00	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	0.00	N
Arsenic: East Trail Outdoor Dust	0.01	N	0.01	N	0.01	N	0.00	N	0.01	N	0.01	N	0.02	N
Arsenic: East Trail Residential Soil	0.02	N	0.01	N	0.02	N	0.02	N	0.02	N	0.02	N	0.02	N
Arsenic: Genelle Air	0.01	N	0.01	N	0.01	N	0.00	N	0.01	N	0.01	N	0.01	N
Arsenic: Rivervale Outdoor Dust	-0.01	N	0.00	N	0.00	N	-0.01	N	0.00	N	0.00	N	-0.02	N
Arsenic: Rivervale Residential Soil	0.01	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.01	N
Arsenic: Tadanac Outdoor Dust	0.00	N	0.01	N	-0.01	N	-0.01	N	0.00	N	0.00	N	-0.01	N
Arsenic: Tadanac Residential Soil	-0.01	N	-0.01	N	-0.02	N	-0.01	N	-0.01	N	-0.02	N	-0.01	N
Arsenic: Waneta Residential Soil	0.00	N	0.00	N	0.00	N	0.01	N	0.00	N	0.00	N	0.00	N
Arsenic: Warfield Air	0.01	N	-0.01	N	0.00	N	-0.01	N	-0.01	N	0.00	N	0.00	N

Table D-1. Largest Contributors to Variability in Noncancer Risk Estimates (in decreasing order of importance)

Forecast (Output Distribution)	HI-Thallium-Soil/Dust-Residential Adult+Child-Rivervale	HI-Thallium-Soil/Dust-Residential Adult+Child-Tadanac	HI-Thallium-Soil/Dust-Residential Adult+Child-Waneta	HI-Thallium-Soil/Dust-Residential Adult+Child-West Trail	HI-Thallium-Soil/Dust-Residential Child-East Trail	HI-Thallium-Soil/Dust-Residential Child-Rivervale	HI-Thallium-Soil/Dust-Residential Child-Tadanac
List of Largest Contributors to Variability	Child soil ingestion rate Thallium in soil Exposure Duration Child Body Weight Adult SIR	Child soil ingestion rate Thallium in soil Exposure Duration Child Body Weight Adult SIR Thallium in outdoor dust	Child soil ingestion rate Exposure Duration Child Body Weight Adult SIR	Child soil ingestion rate Exposure Duration Thallium in soil Child Body Weight Adult SIR	Child soil ingestion rate Thallium in soil Child Body Weight	Child soil ingestion rate Thallium in soil Child Body Weight	Child soil ingestion rate Thallium in soil Child Body Weight Thallium in outdoor dust

Rank correlation data between assumption and forecast

Assumptions	HI-Thallium-Soil/Dust-Residential Adult+Child-Rivervale	Absolute Value > 0.03	HI-Thallium-Soil/Dust-Residential Adult+Child-Tadanac	Absolute Value > 0.03	HI-Thallium-Soil/Dust-Residential Adult+Child-Waneta	Absolute Value > 0.03	HI-Thallium-Soil/Dust-Residential Adult+Child-West Trail	Absolute Value > 0.03	HI-Thallium-Soil/Dust-Residential Child-East Trail	Absolute Value > 0.03	HI-Thallium-Soil/Dust-Residential Child-Rivervale	Absolute Value > 0.03	HI-Thallium-Soil/Dust-Residential Child-Tadanac	Absolute Value > 0.03
Antimony: East Trail Outdoor Dust	0.01	N	0.00	N	0.00	N	0.00	N	0.00	N	0.01	N	0.01	N
Antimony: East Trail Residential Soil	0.00	N	0.00	N	0.01	N	0.01	N	0.00	N	0.00	N	0.01	N
Antimony: Near Nonroot Produce	0.00	N	0.01	N	0.00	N	0.00	N	0.01	N	0.00	N	0.01	N
Antimony: Near Root Produce	0.00	N	0.01	N	0.01	N	0.01	N	0.02	N	0.01	N	0.02	N
Antimony: Rivervale Outdoor Dust	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N	0.02	N	0.01	N
Antimony: Rivervale Residential Soil	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N
Antimony: Tadanac Outdoor Dust	0.00	N	-0.01	N	-0.01	N	-0.01	N	0.00	N	0.00	N	-0.01	N
Antimony: Tadanac Residential Soil	0.03	N	0.02	N	0.02	N	0.02	N	0.01	N	0.02	N	0.01	N
Antimony: Waneta Residential Soil	0.00	N	0.00	N	0.01	N	0.01	N	0.00	N	0.00	N	0.00	N
Antimony: West Trail Outdoor Dust	0.01	N	0.00	N	0.00	N	0.01	N	0.01	N	0.01	N	0.00	N
Antimony: West Trail Residential Soil	0.00	N	0.00	N	0.00	N	0.00	N	-0.01	N	-0.01	N	0.00	N
Arsenic (Inorganic): Far Nonroot Produce	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.02	N	-0.01	N	-0.01	N
Arsenic (Inorganic): Near Nonroot Produce	0.02	N	0.01	N	0.02	N	0.01	N	0.01	N	0.02	N	0.01	N
Arsenic (Inorganic): Near Root Produce	0.00	N	0.01	N	0.00	N	0.00	N	0.01	N	0.00	N	0.01	N
Arsenic: Birchbank Air	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	-0.01	N
Arsenic: Butler Park Air	0.00	N	0.00	N	-0.01	N	-0.01	N	0.00	N	0.00	N	0.00	N
Arsenic: Columbia Gardens Air	-0.01	N	-0.01	N	-0.01	N	-0.01	N	0.00	N	-0.01	N	-0.01	N
Arsenic: East Trail Outdoor Dust	0.02	N	0.02	N	0.02	N	0.02	N	0.02	N	0.02	N	0.02	N
Arsenic: East Trail Residential Soil	0.02	N	0.02	N	0.02	N	0.02	N	0.02	N	0.02	N	0.02	N
Arsenic: Genelle Air	0.00	N	0.01	N	0.01	N	0.00	N	0.01	N	0.01	N	0.01	N
Arsenic: Rivervale Outdoor Dust	-0.01	N	-0.02	N	-0.01	N	-0.01	N	-0.01	N	0.00	N	-0.01	N
Arsenic: Rivervale Residential Soil	0.00	N	0.00	N	0.01	N	0.01	N	0.00	N	0.00	N	-0.01	N
Arsenic: Tadanac Outdoor Dust	0.00	N	0.00	N	0.00	N	0.00	N	-0.01	N	-0.01	N	-0.01	N
Arsenic: Tadanac Residential Soil	-0.01	N	-0.01	N	-0.01	N	-0.02	N	-0.01	N	-0.01	N	-0.02	N
Arsenic: Waneta Residential Soil	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.01	N
Arsenic: Warfield Air	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	-0.01	N	-0.01	N

Table D-1. Largest Contributors to Variability in Noncancer Risk Estimates (in decreasing order of importance)

Forecast (Output Distribution)	HI-Thallium-Soil/Dust-Residential Child-Waneta	HI-Thallium-Soil/Dust-Residential Child-West Trail	HI-Tin-Soil/Dust-Residential Adult+Child-East Trail	HI-Tin-Soil/Dust-Residential Adult+Child-Rivervale	HI-Tin-Soil/Dust-Residential Adult+Child-Tadanac	HI-Tin-Soil/Dust-Residential Adult+Child-Waneta	HI-Tin-Soil/Dust-Residential Adult+Child-West Trail
List of Largest Contributors to Variability	Child soil ingestion rate Child Body Weight	Child soil ingestion rate Thallium in soil Child Body Weight	Child soil ingestion rate Tin in soil Exposure Duration Tin in outdoor dust Child Body Weight Adult SIR	Child soil ingestion rate Tin in soil Exposure Duration Child Body Weight Adult SIR	Child soil ingestion rate Tin in soil Exposure Duration Child Body Weight Adult SIR Tin in outdoor dust	Child soil ingestion rate Exposure Duration Child Body Weight Adult SIR	Child soil ingestion rate Tin in soil Exposure Duration Child Body Weight Adult SIR Tin in outdoor dust

Rank correlation data between assumption and forecast

Assumptions	HI-Thallium-Soil/Dust-Residential Child-Waneta	Absolute Value > 0.03	HI-Thallium-Soil/Dust-Residential Child-West Trail	Absolute Value > 0.03	HI-Tin-Soil/Dust-Residential Adult+Child-East Trail	Absolute Value > 0.03	HI-Tin-Soil/Dust-Residential Adult+Child-Rivervale	Absolute Value > 0.03	HI-Tin-Soil/Dust-Residential Adult+Child-Tadanac	Absolute Value > 0.03	HI-Tin-Soil/Dust-Residential Adult+Child-Waneta	Absolute Value > 0.03	HI-Tin-Soil/Dust-Residential Adult+Child-West Trail	Absolute Value > 0.03
Antimony: East Trail Outdoor Dust	0.01	N	0.01	N	0.00	N	-0.01	N	0.01	N	0.00	N	0.01	N
Antimony: East Trail Residential Soil	0.01	N	0.01	N	0.00	N	0.00	N	0.00	N	0.01	N	0.01	N
Antimony: Near Nonroot Produce	0.00	N	0.00	N	0.01	N	0.00	N	0.00	N	0.00	N	-0.01	N
Antimony: Near Root Produce	0.02	N	0.02	N	0.01	N	0.01	N	0.01	N	0.01	N	0.00	N
Antimony: Rivervale Outdoor Dust	0.02	N	0.02	N	0.01	N	0.01	N	0.00	N	0.01	N	0.00	N
Antimony: Rivervale Residential Soil	0.01	N	0.01	N	0.01	N	0.01	N	0.02	N	0.01	N	0.02	N
Antimony: Tadanac Outdoor Dust	-0.01	N	-0.01	N	0.00	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N
Antimony: Tadanac Residential Soil	0.01	N	0.01	N	0.02	N	0.02	N	0.02	N	0.02	N	0.02	N
Antimony: Waneta Residential Soil	0.01	N	0.01	N	0.02	N	0.00	N	0.01	N	0.01	N	0.00	N
Antimony: West Trail Outdoor Dust	0.01	N	0.01	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N
Antimony: West Trail Residential Soil	-0.01	N	-0.01	N	0.00	N	0.00	N	0.00	N	0.00	N	-0.01	N
Arsenic (Inorganic): Far Nonroot Produce	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N
Arsenic (Inorganic): Near Nonroot Produce	0.01	N	0.01	N	0.02	N	0.02	N	0.01	N	0.02	N	0.01	N
Arsenic (Inorganic): Near Root Produce	0.00	N	0.00	N	0.00	N	0.01	N	0.01	N	0.00	N	0.00	N
Arsenic: Birchbank Air	0.00	N	0.00	N	0.01	N	-0.01	N	0.00	N	0.00	N	0.00	N
Arsenic: Butler Park Air	0.00	N	0.00	N	0.00	N	0.00	N	-0.01	N	-0.01	N	0.01	N
Arsenic: Columbia Gardens Air	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N
Arsenic: East Trail Outdoor Dust	0.01	N	0.02	N	0.01	N	0.01	N	0.01	N	0.02	N	0.01	N
Arsenic: East Trail Residential Soil	0.02	N	0.02	N	0.02	N	0.01	N	0.01	N	0.02	N	0.02	N
Arsenic: Genelle Air	0.01	N	0.01	N	0.02	N	0.01	N	0.01	N	0.01	N	0.01	N
Arsenic: Rivervale Outdoor Dust	0.00	N	0.00	N	0.00	N	-0.01	N	0.00	N	-0.01	N	-0.01	N
Arsenic: Rivervale Residential Soil	0.00	N	0.00	N	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N
Arsenic: Tadanac Outdoor Dust	0.00	N	0.00	N	0.00	N	0.00	N	0.01	N	0.00	N	-0.01	N
Arsenic: Tadanac Residential Soil	-0.01	N	-0.02	N	-0.01	N	-0.02	N	-0.01	N	-0.01	N	0.00	N
Arsenic: Waneta Residential Soil	0.00	N	0.00	N	0.00	N	-0.01	N	-0.01	N	0.00	N	0.00	N
Arsenic: Warfield Air	-0.01	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N

Table D-1. Largest Contributors to Variability in Noncancer Risk Estimates (in decreasing order of importance)

Forecast (Output Distribution)	HI-Tin-Soil/Dust-Residential Child-East Trail	HI-Tin-Soil/Dust-Residential Child-Rivervale	HI-Tin-Soil/Dust-Residential Child-Tadanac	HI-Tin-Soil/Dust-Residential Child-Waneta	HI-Tin-Soil/Dust-Residential Child-West Trail	HI-Zinc-Soil/Dust-Residential Adult+Child-East Trail	HI-Zinc-Soil/Dust-Residential Adult+Child-Rivervale
List of Largest Contributors to Variability	Child soil ingestion rate Tin in soil Child Body Weight Tin in outdoor dust	Child soil ingestion rate Tin in soil Child Body Weight	Child soil ingestion rate Tin in soil Child Body Weight Tin in outdoor dust	Child soil ingestion rate Child Body Weight	Child soil ingestion rate Tin in soil Child Body Weight Tin in outdoor dust	Child soil ingestion rate Zinc in soil Exposure Duration Zinc in outdoor dust Child Body Weight Adult SIR	Child soil ingestion rate Zinc in soil Exposure Duration Child Body Weight Adult SIR Zinc in outdoor dust

Rank correlation data between assumption and forecast

Assumptions	HI-Tin-Soil/Dust-Residential Child-East Trail	Absolute Value > 0.03	HI-Tin-Soil/Dust-Residential Child-Rivervale	Absolute Value > 0.03	HI-Tin-Soil/Dust-Residential Child-Tadanac	Absolute Value > 0.03	HI-Tin-Soil/Dust-Residential Child-Waneta	Absolute Value > 0.03	HI-Tin-Soil/Dust-Residential Child-West Trail	Absolute Value > 0.03	HI-Zinc-Soil/Dust-Residential Adult+Child-East Trail	Absolute Value > 0.03	HI-Zinc-Soil/Dust-Residential Adult+Child-Rivervale	Absolute Value > 0.03
Antimony: East Trail Outdoor Dust	0.00	N	0.00	N	0.01	N	0.01	N	0.01	N	0.00	N	0.00	N
Antimony: East Trail Residential Soil	0.01	N	0.00	N	0.01	N	0.01	N	0.01	N	0.00	N	0.01	N
Antimony: Near Nonroot Produce	0.01	N	0.00	N	0.00	N	0.00	N	-0.01	N	-0.01	N	-0.01	N
Antimony: Near Root Produce	0.01	N	0.01	N	0.02	N	0.02	N	0.01	N	0.01	N	0.00	N
Antimony: Rivervale Outdoor Dust	0.02	N	0.02	N	0.01	N	0.02	N	0.01	N	0.00	N	0.00	N
Antimony: Rivervale Residential Soil	0.01	N	0.00	N	0.01	N	0.01	N	0.01	N	0.00	N	0.01	N
Antimony: Tadanac Outdoor Dust	0.00	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N
Antimony: Tadanac Residential Soil	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N	0.02	N
Antimony: Waneta Residential Soil	0.02	N	0.00	N	0.01	N	0.01	N	0.00	N	0.01	N	0.01	N
Antimony: West Trail Outdoor Dust	0.00	N	0.00	N	0.01	N	0.01	N	0.00	N	0.00	N	0.00	N
Antimony: West Trail Residential Soil	0.00	N	0.00	N	0.00	N	-0.01	N	-0.01	N	0.00	N	-0.01	N
Arsenic (Inorganic): Far Nonroot Produce	0.00	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	0.00	N
Arsenic (Inorganic): Near Nonroot Produce	0.02	N	0.02	N	0.00	N	0.01	N	0.01	N	0.01	N	0.02	N
Arsenic (Inorganic): Near Root Produce	0.00	N	0.00	N	0.01	N	0.00	N	0.00	N	0.01	N	0.01	N
Arsenic: Birchbank Air	0.01	N	-0.01	N	0.00	N	0.00	N	0.00	N	-0.01	N	0.00	N
Arsenic: Butler Park Air	0.01	N	0.01	N	0.00	N	0.00	N	0.01	N	0.00	N	-0.01	N
Arsenic: Columbia Gardens Air	-0.01	N	-0.02	N	-0.01	N	-0.01	N	-0.01	N	0.00	N	-0.01	N
Arsenic: East Trail Outdoor Dust	0.00	N	0.01	N	0.00	N	0.01	N	0.01	N	0.01	N	0.01	N
Arsenic: East Trail Residential Soil	0.02	N	0.01	N	0.01	N	0.02	N	0.02	N	0.02	N	0.02	N
Arsenic: Genelle Air	0.02	N	0.01	N	0.01	N	0.01	N	0.01	N	0.00	N	0.01	N
Arsenic: Rivervale Outdoor Dust	0.01	N	0.00	N	0.00	N	0.00	N	0.00	N	-0.01	N	-0.01	N
Arsenic: Rivervale Residential Soil	0.01	N	0.00	N	0.00	N	0.00	N	0.00	N	0.01	N	0.00	N
Arsenic: Tadanac Outdoor Dust	-0.01	N	0.00	N	0.00	N	0.00	N	-0.01	N	-0.01	N	0.00	N
Arsenic: Tadanac Residential Soil	-0.01	N	-0.02	N	-0.01	N	-0.01	N	0.00	N	-0.02	N	-0.02	N
Arsenic: Waneta Residential Soil	0.00	N	-0.01	N	0.00	N	0.00	N	0.00	N	-0.01	N	0.00	N
Arsenic: Warfield Air	0.00	N	-0.01	N	-0.01	N	-0.01	N	0.00	N	0.00	N	-0.01	N

Table D-1. Largest Contributors to Variability in Noncancer Risk Estimates (in decreasing order of importance)

Forecast (Output Distribution)	HI-Zinc-Soil/Dust-Residential Adult+Child-Tadanac	HI-Zinc-Soil/Dust-Residential Adult+Child-Waneta	HI-Zinc-Soil/Dust-Residential Adult+Child-West Trail	HI-Zinc-Soil/Dust-Residential Child-East Trail	HI-Zinc-Soil/Dust-Residential Child-Rivervale	HI-Zinc-Soil/Dust-Residential Child-Tadanac	HI-Zinc-Soil/Dust-Residential Child-Waneta
List of Largest Contributors to Variability	Child soil ingestion rate Exposure Duration Zinc in soil Child Body Weight Zinc in outdoor dust Adult SIR Exposure Frequency	Child soil ingestion rate Zinc in soil Exposure Duration Child Body Weight Adult SIR	Child soil ingestion rate Zinc in soil Exposure Duration Child Body Weight Adult SIR Zinc in outdoor dust	Child soil ingestion rate Zinc in soil Child Body Weight Zinc in outdoor dust	Child soil ingestion rate Zinc in soil Child Body Weight Zinc in outdoor dust	Child soil ingestion rate Zinc in soil Child Body Weight Zinc in outdoor dust Exposure Frequency	Child soil ingestion rate Zinc in soil Child Body Weight

Rank correlation data between assumption and forecast

Assumptions	HI-Zinc-Soil/Dust-Residential Adult+Child-Tadanac	Absolute Value > 0.03	HI-Zinc-Soil/Dust-Residential Adult+Child-Waneta	Absolute Value > 0.03	HI-Zinc-Soil/Dust-Residential Adult+Child-West Trail	Absolute Value > 0.03	HI-Zinc-Soil/Dust-Residential Child-East Trail	Absolute Value > 0.03	HI-Zinc-Soil/Dust-Residential Child-Rivervale	Absolute Value > 0.03	HI-Zinc-Soil/Dust-Residential Child-Tadanac	Absolute Value > 0.03	HI-Zinc-Soil/Dust-Residential Child-Waneta	Absolute Value > 0.03
Antimony: East Trail Outdoor Dust	0.00	N	0.00	N	0.01	N	0.00	N	0.00	N	0.00	N	0.00	N
Antimony: East Trail Residential Soil	0.00	N	0.00	N	0.00	N	0.00	N	0.01	N	0.01	N	0.00	N
Antimony: Near Nonroot Produce	0.00	N	0.00	N	0.00	N	-0.01	N	0.00	N	0.00	N	0.00	N
Antimony: Near Root Produce	0.01	N	0.00	N	0.01	N	0.02	N	0.01	N	0.01	N	0.01	N
Antimony: Rivervale Outdoor Dust	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N	0.02	N
Antimony: Rivervale Residential Soil	0.01	N	0.01	N	0.01	N	0.00	N	0.01	N	0.01	N	0.00	N
Antimony: Tadanac Outdoor Dust	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N
Antimony: Tadanac Residential Soil	0.02	N	0.02	N	0.02	N	0.01	N	0.01	N	0.01	N	0.01	N
Antimony: Waneta Residential Soil	0.00	N	0.01	N	0.01	N	0.01	N	0.01	N	0.00	N	0.01	N
Antimony: West Trail Outdoor Dust	0.00	N	0.01	N	0.00	N	0.01	N	0.00	N	0.00	N	0.01	N
Antimony: West Trail Residential Soil	-0.01	N	0.00	N	0.00	N	0.00	N	-0.01	N	-0.01	N	0.00	N
Arsenic (Inorganic): Far Nonroot Produce	-0.02	N	0.00	N	-0.01	N	-0.01	N	0.00	N	-0.02	N	0.00	N
Arsenic (Inorganic): Near Nonroot Produce	0.02	N	0.02	N	0.02	N	0.01	N	0.01	N	0.01	N	0.01	N
Arsenic (Inorganic): Near Root Produce	0.00	N	0.00	N	0.00	N	0.01	N	0.00	N	0.00	N	0.00	N
Arsenic: Birchbank Air	0.00	N	-0.01	N	0.00	N	-0.01	N	0.00	N	0.00	N	-0.01	N
Arsenic: Butler Park Air	-0.01	N	-0.01	N	-0.01	N	0.01	N	0.00	N	0.00	N	0.00	N
Arsenic: Columbia Gardens Air	-0.01	N	-0.01	N	-0.01	N	0.00	N	-0.01	N	-0.01	N	-0.01	N
Arsenic: East Trail Outdoor Dust	0.02	N	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N
Arsenic: East Trail Residential Soil	0.02	N	0.01	N	0.02	N	0.02	N	0.02	N	0.03	N	0.01	N
Arsenic: Genelle Air	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N
Arsenic: Rivervale Outdoor Dust	-0.01	N	-0.01	N	-0.01	N	0.00	N	0.00	N	0.00	N	0.00	N
Arsenic: Rivervale Residential Soil	0.01	N	0.01	N	0.01	N	0.00	N	-0.01	N	0.00	N	0.00	N
Arsenic: Tadanac Outdoor Dust	0.01	N	0.00	N	0.00	N	-0.01	N	0.00	N	0.00	N	-0.01	N
Arsenic: Tadanac Residential Soil	-0.01	N	-0.01	N	0.00	N	-0.02	N	-0.02	N	-0.01	N	-0.01	N
Arsenic: Waneta Residential Soil	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.01	N	0.01	N
Arsenic: Warfield Air	0.01	N	0.01	N	0.01	N	-0.01	N	-0.01	N	0.00	N	0.00	N

Table D-1. Largest Contributors to Variability in Noncancer Risk Estimates (in decreasing order of importance)

Forecast (Output Distribution)	**HI-Zinc-Soil/Dust-Residential Child-West Trail**	**Site-wide HI: Antimony Adult+Child Residential Soil-Dust**	**Site-wide HI: Antimony Child Residential Soil-Dust**	**Site-wide HI: Arsenic Adult+Child Residential Soil-Dust**	**Site-wide HI: Arsenic Child Residential Soil-Dust**	**Site-wide HI: Cadmium Adult+Child Residential Soil-Dust**	**Site-wide HI: Selenium Adult+Child Residential Soil-Dust**
List of Largest Contributors to Variability	Child soil ingestion rate	Child soil ingestion rate	Child soil ingestion rate	Child soil ingestion rate	Child soil ingestion rate	Child soil ingestion rate	Child soil ingestion rate
	Zinc in soil	Exposure Duration	Antimony in indoor dust	Exposure Duration	Arsenic in indoor dust	Cadmium in indoor dust	Selenium in soil
	Child Body Weight	Antimony in indoor dust	Child Body Weight	Arsenic in indoor dust	Child Body Weight	Exposure Duration	Exposure Duration
	Zinc in outdoor dust	Child Body Weight	Antimony in soil	Child Body Weight	Arsenic in soil	Child Body Weight	Child Body Weight
		Adult SIR	Antimony in outdoor dust	Adult SIR	Arsenic in outdoor dust	Adult SIR	Adult SIR
		Antimony in soil		Arsenic in soil		Cadmium in outdoor dust	Selenium in outdoor dust
		Antimony in outdoor dust		Arsenic in outdoor dust		Cadmium in soil	
		Fractional intake: soil/dust				Fractional intake: soil/dust	

Rank correlation data between assumption and forecast

Assumptions	HI-Zinc-Soil/Dust-Residential Child-West Trail	Absolute Value > 0.03	Site-wide HI: Antimony Adult+Child Residential Soil Dust	Absolute Value > 0.03	Site-wide HI: Antimony Child Residential Soil Dust	Absolute Value > 0.03	Site-wide HI: Arsenic Adult+Child Residential Soil Dust	Absolute Value > 0.03	Site-wide HI: Arsenic Child Residential Soil Dust	Absolute Value > 0.03	Site-wide HI: Cadmium Adult+Child Residential Soil Dust	Absolute Value > 0.03	Site-wide HI: Selenium Adult+Child Residential Soil Dust	Absolute Value > 0.03
Antimony: East Trail Outdoor Dust	0.01	N	0.00	N	0.01	N	0.00	N	0.00	N	0.01	N	0.00	N
Antimony: East Trail Residential Soil	0.00	N	0.01	N	0.01	N	0.00	N	0.00	N	0.02	N	0.00	N
Antimony: Near Nonroot Produce	0.00	N	0.00	N	-0.01	N	0.00	N	0.00	N	0.00	N	0.00	N
Antimony: Near Root Produce	0.01	N	0.00	N	0.01	N	0.01	N	0.01	N	0.02	N	0.00	N
Antimony: Rivervale Outdoor Dust	0.02	N	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N
Antimony: Rivervale Residential Soil	0.00	N	0.01	N	0.00	N	0.01	N	0.01	N	0.01	N	0.02	N
Antimony: Tadanac Outdoor Dust	-0.01	N	-0.01	N	-0.01	N	0.00	N	0.00	N	0.00	N	0.00	N
Antimony: Tadanac Residential Soil	0.01	N	0.02	N	0.01	N	0.02	N	0.01	N	0.00	N	0.02	N
Antimony: Waneta Residential Soil	0.01	N	0.01	N	0.00	N	0.01	N	0.01	N	0.01	N	-0.01	N
Antimony: West Trail Outdoor Dust	0.01	N	0.01	N	0.01	N	0.00	N	0.01	N	0.01	N	0.00	N
Antimony: West Trail Residential Soil	0.00	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	0.00	N	0.00	N
Arsenic (Inorganic): Far Nonroot Produce	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.02	N	-0.01	N
Arsenic (Inorganic): Near Nonroot Produce	0.01	N	0.01	N	0.00	N	0.01	N	0.01	N	0.01	N	0.01	N
Arsenic (Inorganic): Near Root Produce	0.00	N	0.00	N	0.00	N	0.01	N	0.01	N	0.01	N	0.00	N
Arsenic: Birchbank Air	0.00	N	0.00	N	0.00	N	0.01	N	0.01	N	0.00	N	-0.01	N
Arsenic: Butler Park Air	0.00	N	0.00	N	0.00	N	-0.02	N	-0.01	N	0.00	N	-0.01	N
Arsenic: Columbia Gardens Air	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	0.00	N	-0.01	N
Arsenic: East Trail Outdoor Dust	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N	0.02	N	0.02	N
Arsenic: East Trail Residential Soil	0.02	N	0.02	N	0.02	N	0.02	N	0.02	N	0.01	N	0.02	N
Arsenic: Genelle Air	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N	0.02	N	0.00	N
Arsenic: Rivervale Outdoor Dust	0.00	N	-0.01	N	0.00	N	-0.01	N	0.00	N	0.00	N	-0.01	N
Arsenic: Rivervale Residential Soil	0.00	N	0.01	N	0.00	N	0.01	N	0.00	N	-0.01	N	0.00	N
Arsenic: Tadanac Outdoor Dust	-0.01	N	0.00	N	-0.01	N	0.00	N	-0.01	N	-0.02	N	0.00	N
Arsenic: Tadanac Residential Soil	0.00	N	-0.02	N	-0.02	N	-0.01	N	-0.02	N	-0.01	N	-0.01	N
Arsenic: Waneta Residential Soil	0.00	N	0.00	N	0.01	N	0.00	N	0.00	N	0.00	N	0.00	N
Arsenic: Warfield Air	0.00	N	0.00	N	0.00	N	0.01	N	0.00	N	0.00	N	-0.01	N

Table D-1. Largest Contributors to Variability in Noncancer Risk Estimates (in decreasing order of importance)

Forecast (Output Distribution)	**Site-wide HI: Selenium Child Residential Soil-Dust**	**Site-wide HI: Silver Adult+Child Residential Soil-Dust**	**Site-wide HI: Silver Child Residential Soil-Dust**	**Site-wide HI: Thallium Adult+Child Residential Soil-Dust**	**Site-wide HI: Thallium Child Residential Soil-Dust**	**Site-wide HI: Tin Adult+Child Residential Soil-Dust**	**Site-wide HI: Tin Child Residential Soil-Dust**
List of Largest Contributors to Variability	Child soil ingestion rate Selenium in soil Child Body Weight Selenium in outdoor dust	Child soil ingestion rate Silver in soil Exposure Duration Silver in outdoor dust Child Body Weight Adult SIR	Child soil ingestion rate Exposure Duration Silver in outdoor dust Child Body Weight	Child soil ingestion rate Thallium in soil Exposure Duration Child Body Weight Adult SIR Thallium in outdoor dust	Child soil ingestion rate Thallium in soil Child Body Weight Thallium in outdoor dust	Child soil ingestion rate Tin in soil Exposure Duration Child Body Weight Tin in outdoor dust Adult SIR	Child soil ingestion rate Tin in soil Child Body Weight Tin in outdoor dust

Rank correlation data between assumption and forecast

Assumptions	Site-wide HI: Selenium Child Residential Soil Dust	Absolute Value > 0.03	Site-wide HI: Silver Adult+Child Residential Soil Dust	Absolute Value > 0.03	Site-wide HI: Silver Child Residential Soil Dust	Absolute Value > 0.03	Site-wide HI: Thallium Adult+Child Residential Soil Dust	Absolute Value > 0.03	Site-wide HI: Thallium Child Residential Soil Dust	Absolute Value > 0.03	Site-wide HI: Tin Adult+Child Residential Soil Dust	Absolute Value > 0.03	Site-wide HI: Tin Child Residential Soil Dust	Absolute Value > 0.03
Antimony: East Trail Outdoor Dust	0.00	N	0.00	N	0.01	N	0.00	N	0.01	N	0.00	N	0.01	N
Antimony: East Trail Residential Soil	0.00	N	0.01	N	0.01	N	-0.01	N	0.00	N	0.01	N	0.01	N
Antimony: Near Nonroot Produce	0.01	N	-0.01	N	-0.01	N	0.00	N	0.00	N	0.00	N	0.00	N
Antimony: Near Root Produce	0.01	N	0.01	N	0.02	N	0.00	N	0.01	N	0.00	N	0.00	N
Antimony: Rivervale Outdoor Dust	0.01	N	0.01	N	0.01	N	0.00	N	0.01	N	0.00	N	0.01	N
Antimony: Rivervale Residential Soil	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N	0.00	N
Antimony: Tadanac Outdoor Dust	-0.01	N	-0.01	N	-0.01	N	-0.02	N	-0.02	N	-0.01	N	-0.01	N
Antimony: Tadanac Residential Soil	0.01	N	0.03	N	0.02	N	0.02	N	0.01	N	0.01	N	0.00	N
Antimony: Waneta Residential Soil	-0.01	N	0.01	N	0.01	N	0.01	N	0.01	N	0.00	N	0.00	N
Antimony: West Trail Outdoor Dust	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N
Antimony: West Trail Residential Soil	-0.01	N	0.00	N	0.00	N	-0.01	N	-0.01	N	0.00	N	0.00	N
Arsenic (Inorganic): Far Nonroot Produce	0.00	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	0.00	N	0.00	N
Arsenic (Inorganic): Near Nonroot Produce	0.01	N	0.03	N	0.02	N	0.02	N	0.01	N	0.01	N	0.00	N
Arsenic (Inorganic): Near Root Produce	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.01	N	0.01	N
Arsenic: Birchbank Air	-0.01	N	0.00	N	-0.01	N	-0.01	N	-0.01	N	0.00	N	0.00	N
Arsenic: Butler Park Air	0.00	N	-0.01	N	0.00	N	-0.01	N	0.00	N	-0.01	N	0.00	N
Arsenic: Columbia Gardens Air	-0.01	N	0.00	N	0.00	N	0.00	N	-0.01	N	-0.01	N	-0.01	N
Arsenic: East Trail Outdoor Dust	0.01	N	0.02	N	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N
Arsenic: East Trail Residential Soil	0.02	N	0.02	N	0.02	N	0.01	N	0.01	N	0.02	N	0.02	N
Arsenic: Genelle Air	0.00	N	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N
Arsenic: Rivervale Outdoor Dust	0.00	N	-0.02	N	-0.01	N	-0.02	N	-0.01	N	0.00	N	0.01	N
Arsenic: Rivervale Residential Soil	-0.01	N	0.00	N	-0.01	N	0.00	N	0.00	N	0.00	N	-0.01	N
Arsenic: Tadanac Outdoor Dust	-0.01	N	0.00	N	0.00	N	-0.01	N	-0.01	N	0.01	N	0.01	N
Arsenic: Tadanac Residential Soil	-0.01	N	-0.01	N	-0.02	N	-0.01	N	-0.02	N	-0.01	N	-0.01	N
Arsenic: Waneta Residential Soil	0.00	N	-0.01	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N
Arsenic: Warfield Air	-0.01	N	0.00	N	-0.01	N	0.00	N	-0.01	N	0.00	N	0.00	N

Table D-1. Largest Contributors to Variability in Noncancer Risk Estimates (in decreasing order of importance)

Forecast (Output Distribution)	Site-wide HI: Zinc Adult+Child Residential Soil-Dust	Site-wide HI: Zinc Child Residential Soil-Dust
List of Largest Contributors to Variability	Child soil ingestion rate Zinc in soil Exposure Duration Zinc in outdoor dust Child Body Weight Adult SIR	Child soil ingestion rate Zinc in soil Zinc in outdoor dust Child Body Weight

Rank correlation data between assumption and forecast

Assumptions	Site-wide HI: Zinc Adult+Child Residential Soil Dust	Absolute Value > 0.03	Site-wide HI: Zinc Child Residential Soil Dust	Absolute Value > 0.03
Antimony: East Trail Outdoor Dust	0.00	N	0.00	N
Antimony: East Trail Residential Soil	0.00	N	0.00	N
Antimony: Near Nonroot Produce	0.00	N	0.00	N
Antimony: Near Root Produce	0.02	N	0.02	N
Antimony: Rivervale Outdoor Dust	0.01	N	0.02	N
Antimony: Rivervale Residential Soil	0.01	N	0.00	N
Antimony: Tadanac Outdoor Dust	-0.01	N	-0.01	N
Antimony: Tadanac Residential Soil	0.02	N	0.01	N
Antimony: Waneta Residential Soil	0.01	N	0.01	N
Antimony: West Trail Outdoor Dust	-0.01	N	0.00	N
Antimony: West Trail Residential Soil	0.00	N	-0.01	N
Arsenic (Inorganic): Far Nonroot Produce	-0.01	N	-0.01	N
Arsenic (Inorganic): Near Nonroot Produce	0.02	N	0.01	N
Arsenic (Inorganic): Near Root Produce	0.01	N	0.01	N
Arsenic: Birchbank Air	0.00	N	-0.01	N
Arsenic: Butler Park Air	0.00	N	0.00	N
Arsenic: Columbia Gardens Air	0.00	N	0.00	N
Arsenic: East Trail Outdoor Dust	0.01	N	0.01	N
Arsenic: East Trail Residential Soil	0.02	N	0.02	N
Arsenic: Genelle Air	0.01	N	0.01	N
Arsenic: Rivervale Outdoor Dust	0.00	N	0.00	N
Arsenic: Rivervale Residential Soil	0.01	N	0.00	N
Arsenic: Tadanac Outdoor Dust	0.00	N	-0.01	N
Arsenic: Tadanac Residential Soil	-0.02	N	-0.02	N
Arsenic: Waneta Residential Soil	0.00	N	0.01	N
Arsenic: Warfield Air	0.00	N	-0.01	N

Table D-1. Largest Contributors to Variability in Noncancer Risk Estimates (in decreasing order of importance)

Forecast (Output Distribution)	**HI-Antimony-Produce-Residential Adult+Child-Far**	**HI-Antimony-Produce-Residential Adult+Child-Near**	**HI-Antimony-Produce-Residential Child-Far**	**HI-Antimony-Produce-Residential Child-Near**	**HI-Arsenic-Produce-Residential Adult+Child-Far**	**HI-Arsenic-Produce-Residential Adult+Child-Near**
List of Largest Contributors to Variability	Child nonroot ingestion rate Child root ingestion rate Exposure Duration Child Body Weight Adult nonroot ingestion rate Adult root ingestion rate Adult Body Weight	Antimony in nonroot produce Child nonroot ingestion rate Antimony in root produce Child root ingestion rate Exposure Duration Child Body Weight Adult nonroot ingestion rate Adult root ingestion rate Adult Body Weight	Child nonroot ingestion rate Child root ingestion rate Child Body Weight	Antimony in nonroot produce Child nonroot ingestion rate Child root ingestion rate Antimony in root produce Child Body Weight	Arsenic in nonroot produce Child root ingestion rate Child nonroot ingestion rate Adult root ingestion rate Adult nonroot ingestion rate Adult Body Weight Child Body Weight Exposure Duration	Arsenic in nonroot produce Arsenic in root produce Child nonroot ingestion rate Child root ingestion rate Adult nonroot ingestion rate Adult root ingestion rate Exposure Duration Child Body Weight

Rank correlation data between assumption and forecast

Assumptions	HI-Antimony-Produce-Residential Adult+Child-Far	Absolute Value > 0.03	HI-Antimony-Produce-Residential Adult+Child-Near	Absolute Value > 0.03	HI-Antimony-Produce-Residential Child-Far	Absolute Value > 0.03	HI-Antimony-Produce-Residential Child-Near	Absolute Value > 0.03	HI-Arsenic-Produce-Residential Adult+Child-Far	Absolute Value > 0.03	HI-Arsenic-Produce-Residential Adult+Child-Near	Absolute Value > 0.03
Arsenic: West Trail Air	-0.02	N	0.00	N	0.00	N	0.00	N	-0.02	N	0.00	N
Arsenic: West Trail Outdoor Dust	-0.01	N	-0.01	N	0.01	N	0.00	N	-0.01	N	0.00	N
Arsenic: West Trail Residential Soil	-0.02	N	-0.01	N	-0.02	N	-0.01	N	-0.01	N	0.01	N
Body Weight (kg): Adult	-0.11	Y	-0.06	Y	0.00	N	0.00	N	-0.05	Y	-0.03	N
Body Weight (kg): Child	-0.28	Y	-0.18	Y	-0.36	Y	-0.25	Y	-0.17	Y	-0.14	Y
Cadmium: Birchbank Air	0.00	N	-0.01	N	-0.01	N	-0.01	N	0.00	N	-0.01	N
Cadmium: Butler Park Air	0.00	N	0.01	N	0.01	N	0.02	N	-0.03	N	0.01	N
Cadmium: Columbia Gardens Air	-0.01	N	-0.02	N	-0.01	N	-0.03	N	-0.02	N	-0.01	N
Cadmium: East Trail Outdoor Dust	0.00	N	-0.01	N	0.00	N	-0.02	N	0.01	N	-0.01	N
Cadmium: East Trail Residential Soil	0.00	N	0.00	N	0.00	N	0.00	N	-0.01	N	0.01	N
Cadmium: Far Nonroot Produce	-0.01	N	-0.01	N	-0.01	N	0.00	N	-0.02	N	0.00	N
Cadmium: Genelle Air	0.01	N	0.01	N	0.00	N	0.00	N	0.01	N	-0.01	N
Cadmium: Near Nonroot Produce	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.01	N
Cadmium: Near Root Produce	0.00	N	0.00	N	-0.01	N	0.00	N	0.01	N	0.00	N
Cadmium: Rivervale Outdoor Dust	0.01	N	0.01	N	0.00	N	0.00	N	0.01	N	0.01	N
Cadmium: Rivervale Residential Soil	0.01	N	0.01	N	0.01	N	0.01	N	0.00	N	0.00	N
Cadmium: Tadanac Outdoor Dust	-0.01	N	0.00	N	-0.02	N	0.00	N	0.00	N	0.00	N
Cadmium: Tadanac Residential Soil	-0.02	N	-0.01	N	-0.01	N	0.00	N	-0.02	N	-0.03	N
Cadmium: Waneta Residential Soil	-0.01	N	0.00	N	0.00	N	0.01	N	-0.01	N	-0.01	N
Cadmium: Warfield Air	-0.01	N	0.00	N	0.00	N	0.00	N	-0.01	N	-0.01	N
Cadmium: West Trail Air	-0.02	N	-0.03	N	-0.02	N	-0.02	N	-0.01	N	-0.01	N
Cadmium: West Trail Outdoor Dust	0.00	N	0.00	N	0.00	N	0.00	N	0.02	N	-0.01	N
Cadmium: West Trail Residential Soil	0.00	N	-0.01	N	-0.01	N	-0.01	N	0.00	N	0.01	N
Daily Inhalation Rate (m3/day): Adult	0.01	N	0.01	N	0.02	N	0.02	N	0.01	N	0.00	N
Daily Inhalation Rate (m3/day): Child	0.01	N	0.01	N	-0.01	N	0.00	N	0.01	N	0.00	N
Exposure Duration (years): Adult - Agricultural	-0.01	N	0.01	N	-0.02	N	0.00	N	0.01	N	0.00	N
Exposure Duration (years): Adult+Child	-0.29	Y	-0.19	Y	-0.01	N	-0.01	N	-0.19	Y	-0.12	Y

Table D-1. Largest Contributors to Variability in Noncancer Risk Estimates (in decreasing order of importance)

Forecast (Output Distribution)	HI-Arsenic-Produce-Residential Child-Far	HI-Arsenic-Produce-Residential Child-Near	HI-Cadmium-Produce-Residential Adult+Child-Far	HI-Cadmium-Produce-Residential Adult+Child-Near	HI-Thallium-Produce-Residential Adult+Child-Far	HI-Thallium-Produce-Residential Adult+Child-Near
List of Largest Contributors to Variability	Arsenic in nonroot produce Child root ingestion rate Child nonroot ingestion rate Child Body Weight	Arsenic in nonroot produce Arsenic in root produce Child nonroot ingestion rate Child root ingestion rate Child Body Weight	Exposure Duration Cadmium in nonroot produce Child root ingestion rate Child Body Weight Adult root ingestion rate Child nonroot ingestion rate Adult nonroot ingestion rate Adult Body Weight	Exposure Duration Cadmium in nonroot produce Cadmium in root produce Child root ingestion rate Child Body Weight Child nonroot ingestion rate Adult root ingestion rate Adult nonroot ingestion rate Adult Body Weight	Child root ingestion rate Exposure Duration Child nonroot ingestion rate Child Body Weight Adult root ingestion rate Adult nonroot ingestion rate Adult Body Weight	Thallium in root produce Child root ingestion rate Thallium in nonroot produce Exposure Duration Child Body Weight Child nonroot ingestion rate Adult root ingestion rate Adult Body Weight Adult nonroot ingestion rate

Rank correlation data between assumption and forecast

Assumptions	HI-Arsenic-Produce-Residential Child-Far	Absolute Value > 0.03	HI-Arsenic-Produce-Residential Child-Near	Absolute Value > 0.03	HI-Cadmium-Produce-Residential Adult+Child-Far	Absolute Value > 0.03	HI-Cadmium-Produce-Residential Adult+Child-Near	Absolute Value > 0.03	HI-Thallium-Produce-Residential Adult+Child-Far	Absolute Value > 0.03	HI-Thallium-Produce-Residential Adult+Child-Near	Absolute Value > 0.03
Arsenic: West Trail Air	-0.01	N	0.00	N	0.00	N	0.00	N	-0.02	N	0.00	N
Arsenic: West Trail Outdoor Dust	-0.01	N	0.01	N	0.01	N	0.01	N	-0.01	N	-0.01	N
Arsenic: West Trail Residential Soil	-0.01	N	0.01	N	0.00	N	0.00	N	-0.02	N	-0.01	N
Body Weight (kg): Adult	0.01	N	0.02	N	-0.05	Y	-0.04	Y	-0.11	Y	-0.08	Y
Body Weight (kg): Child	-0.26	Y	-0.20	Y	-0.16	Y	-0.14	Y	-0.30	Y	-0.19	Y
Cadmium: Birchbank Air	0.00	N	-0.01	N	-0.01	N	0.00	N	-0.01	N	-0.03	N
Cadmium: Butler Park Air	-0.02	N	0.01	N	0.01	N	0.01	N	0.00	N	0.02	N
Cadmium: Columbia Gardens Air	-0.02	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N
Cadmium: East Trail Outdoor Dust	0.00	N	-0.01	N	-0.01	N	0.01	N	0.00	N	-0.01	N
Cadmium: East Trail Residential Soil	-0.01	N	0.01	N	-0.01	N	-0.02	N	0.00	N	-0.01	N
Cadmium: Far Nonroot Produce	-0.01	N	0.00	N	0.39	Y	0.00	N	-0.01	N	0.00	N
Cadmium: Genelle Air	0.01	N	-0.01	N	0.00	N	0.00	N	0.00	N	-0.02	N
Cadmium: Near Nonroot Produce	0.01	N	0.01	N	0.02	N	0.50	Y	0.00	N	0.00	N
Cadmium: Near Root Produce	0.01	N	0.00	N	0.01	N	0.32	Y	0.00	N	-0.01	N
Cadmium: Rivervale Outdoor Dust	0.00	N	0.00	N	0.01	N	0.01	N	0.01	N	0.00	N
Cadmium: Rivervale Residential Soil	0.01	N	0.00	N	0.01	N	-0.01	N	0.01	N	-0.01	N
Cadmium: Tadanac Outdoor Dust	0.00	N	0.00	N	0.00	N	0.00	N	-0.02	N	-0.01	N
Cadmium: Tadanac Residential Soil	-0.01	N	-0.02	N	0.01	N	-0.01	N	-0.02	N	-0.01	N
Cadmium: Waneta Residential Soil	0.00	N	0.00	N	0.00	N	0.01	N	-0.01	N	-0.01	N
Cadmium: Warfield Air	0.00	N	0.00	N	0.01	N	0.01	N	0.00	N	-0.01	N
Cadmium: West Trail Air	-0.01	N	-0.01	N	0.01	N	-0.01	N	-0.02	N	-0.01	N
Cadmium: West Trail Outdoor Dust	0.01	N	-0.01	N	0.01	N	0.02	N	0.00	N	-0.01	N
Cadmium: West Trail Residential Soil	-0.01	N	0.01	N	0.00	N	0.00	N	-0.01	N	0.01	N
Daily Inhalation Rate (m3/day): Adult	0.01	N	0.00	N	0.00	N	0.00	N	0.01	N	0.01	N
Daily Inhalation Rate (m3/day): Child	0.00	N	-0.01	N	-0.01	N	-0.02	N	0.01	N	-0.01	N
Exposure Duration (years): Adult - Agricultural	0.00	N	0.00	N	0.01	N	0.01	N	-0.01	N	0.00	N
Exposure Duration (years): Adult+Child	0.02	N	0.01	N	0.68	Y	0.58	Y	-0.34	Y	-0.20	Y

Table D-1. Largest Contributors to Variability in Noncancer Risk Estimates (in decreasing order of importance)

Forecast (Output Distribution)	HI-Thallium-Produce-Residential Child-Far	HI-Thallium-Produce-Residential Child-Near	Site-wide HI: Antimony Adult+Child Residential Produce	Site-wide HI: Antimony Child Residential Produce	Site-wide HI: Arsenic Adult+Child Residential Produce	Site-wide HI: Arsenic Child Residential Produce
List of Largest Contributors to Variability	Child root ingestion rate Child nonroot ingestion rate Child Body Weight	Thallium in root produce Child root ingestion rate Child Body Weight Thallium in nonroot produce Child Body Weight	Antimony in nonroot produce Child nonroot ingestion rate Child root ingestion rate Antimony in root produce Exposure Duration Child Body Weight Adult nonroot ingestion rate Adult root ingestion rate Adult Body Weight	Antimony in nonroot produce Child nonroot ingestion rate Child root ingestion rate Antimony in root produce Child Body Weight	Arsenic in nonroot produce Arsenic in root produce Child nonroot ingestion rate Child root ingestion rate Adult nonroot ingestion rate Adult root ingestion rate Adult Body Weight Child Body Weight Exposure Duration	Arsenic in nonroot produce Child nonroot ingestion rate Arsenic in root produce Child root ingestion rate Child Body Weight

Rank correlation data between assumption and forecast

Assumptions	HI-Thallium-Produce-Residential Child-Far	Absolute Value > 0.03	HI-Thallium-Produce-Residential Child-Near	Absolute Value > 0.03	Site-wide HI: Antimony Adult+Child Residential Produce	Absolute Value > 0.03	Site-wide HI: Antimony Child Residential Produce	Absolute Value > 0.03	Site-wide HI: Arsenic Adult+Child Residential Produce	Absolute Value > 0.03	Site-wide HI: Arsenic Child Residential Produce	Absolute Value > 0.03
Arsenic: West Trail Air	0.00	N	0.00	N	0.00	N	0.01	N	-0.01	N	-0.01	N
Arsenic: West Trail Outdoor Dust	0.00	N	0.00	N	-0.01	N	0.00	N	0.01	N	0.01	N
Arsenic: West Trail Residential Soil	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N
Body Weight (kg): Adult	0.00	N	-0.01	N	-0.07	Y	0.00	N	-0.04	Y	0.01	N
Body Weight (kg): Child	-0.38	Y	-0.26	Y	-0.19	Y	-0.27	Y	-0.14	Y	-0.20	Y
Cadmium: Birchbank Air	-0.01	N	-0.02	N	-0.01	N	-0.02	N	0.00	N	0.00	N
Cadmium: Butler Park Air	0.01	N	0.02	N	-0.02	N	-0.01	N	0.00	N	0.01	N
Cadmium: Columbia Gardens Air	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N
Cadmium: East Trail Outdoor Dust	0.00	N	-0.01	N	0.01	N	0.00	N	-0.02	N	-0.02	N
Cadmium: East Trail Residential Soil	0.00	N	-0.01	N	0.00	N	-0.01	N	-0.01	N	-0.01	N
Cadmium: Far Nonroot Produce	0.00	N	0.00	N	0.01	N	0.01	N	-0.01	N	-0.01	N
Cadmium: Genelle Air	0.00	N	-0.02	N	-0.01	N	-0.01	N	0.00	N	0.00	N
Cadmium: Near Nonroot Produce	0.00	N	0.00	N	-0.01	N	-0.01	N	-0.01	N	0.00	N
Cadmium: Near Root Produce	0.00	N	-0.01	N	0.00	N	0.00	N	0.00	N	0.00	N
Cadmium: Rivervale Outdoor Dust	0.00	N	0.00	N	0.01	N	0.00	N	0.00	N	0.00	N
Cadmium: Rivervale Residential Soil	0.01	N	0.00	N	0.01	N	0.01	N	0.02	N	0.02	N
Cadmium: Tadanac Outdoor Dust	-0.02	N	-0.01	N	-0.01	N	-0.01	N	-0.02	N	-0.02	N
Cadmium: Tadanac Residential Soil	-0.01	N	-0.01	N	-0.03	N	-0.01	N	-0.01	N	-0.01	N
Cadmium: Waneta Residential Soil	0.00	N	0.00	N	-0.01	N	0.00	N	0.00	N	0.01	N
Cadmium: Warfield Air	0.01	N	0.00	N	0.00	N	0.00	N	0.01	N	0.01	N
Cadmium: West Trail Air	-0.02	N	0.00	N	0.00	N	0.00	N	-0.01	N	-0.01	N
Cadmium: West Trail Outdoor Dust	-0.01	N	-0.02	N	0.00	N	0.00	N	0.01	N	0.00	N
Cadmium: West Trail Residential Soil	-0.01	N	0.00	N	0.00	N	-0.01	N	0.00	N	-0.01	N
Daily Inhalation Rate (m3/day): Adult	0.01	N	0.01	N	0.01	N	0.01	N	0.02	N	0.01	N
Daily Inhalation Rate (m3/day): Child	-0.01	N	-0.02	N	-0.01	N	-0.02	N	0.00	N	-0.01	N
Exposure Duration (years): Adult - Agricultural	-0.01	N	0.00	N	-0.02	N	-0.02	N	-0.01	N	-0.01	N
Exposure Duration (years): Adult+Child	-0.01	N	0.00	N	-0.21	Y	-0.01	N	-0.14	Y	-0.01	N

Table D-1. Largest Contributors to Variability in Noncancer Risk Estimates (in decreasing order of importance)

Forecast (Output Distribution)	**Site-wide HI: Cadmium Adult+Child Residential Produce**	**Site-wide HI: Thallium Adult+Child Residential Produce**	**Site-wide HI: Thallium Child Residential Produce**	**HI-Antimony-Particulates-Agricultural Adult-Waneta**	**HI-Antimony-Soil/Dust-Agricultural Adult-Waneta**	**HI-Antimony-Soil/Dust-Commerical Adult+Child-East Trail**
List of Largest Contributors to Variability	Exposure Duration Cadmium in nonroot produce Cadmium in root produce Child root ingestion rate Child nonroot ingestion rate Child Body Weight Adult root ingestion rate Adult nonroot ingestion rate Adult Body Weight	Thallium in root produce Child root ingestion rate Thallium in nonroot produce Exposure Duration Child nonroot ingestion rate Child Body Weight Adult root ingestion rate Adult nonroot ingestion rate Adult Body Weight	Thallium in root produce Child root ingestion rate Thallium in nonroot produce Child nonroot ingestion rate Child Body Weight	Particulate concentration in air Adult Body Weight Adult Inhalation Rate	Adult Body Weight	Child soil ingestion rate Exposure Duration Child Body Weight Adult SIR Exposure Frequency

Rank correlation data between assumption and forecast

Assumptions	Site-wide HI: Cadmium Adult+Child Residential Produce	Absolute Value > 0.03	Site-wide HI: Thallium Adult+Child Residential Produce	Absolute Value > 0.03	Site-wide HI: Thallium Child Residential Produce	Absolute Value > 0.03	HI-Antimony-Particulates-Agricultural Adult-Waneta	Absolute Value > 0.03	HI-Antimony-Soil/Dust-Agricultural Adult-Waneta	Absolute Value > 0.03	HI-Antimony-Soil/Dust-Commerical Adult+Child-East Trail	Absolute Value > 0.03
Arsenic: West Trail Air	-0.02	N	-0.02	N	-0.01	N	0.00	N	0.01	N	0.01	N
Arsenic: West Trail Outdoor Dust	0.01	N	-0.01	N	0.00	N	0.00	N	0.02	N	0.00	N
Arsenic: West Trail Residential Soil	0.01	N	-0.02	N	-0.01	N	0.01	N	0.01	N	-0.02	N
Body Weight (kg): Adult	-0.05	Y	-0.06	Y	0.00	N	-0.38	Y	-1.00	Y	-0.02	N
Body Weight (kg): Child	-0.13	Y	-0.17	Y	-0.24	Y	-0.01	N	-0.01	N	-0.16	Y
Cadmium: Birchbank Air	-0.01	N	0.00	N	0.00	N	-0.01	N	-0.01	N	-0.01	N
Cadmium: Butler Park Air	0.00	N	0.00	N	0.01	N	0.00	N	0.01	N	0.00	N
Cadmium: Columbia Gardens Air	-0.02	N	-0.02	N	-0.02	N	0.00	N	0.00	N	0.00	N
Cadmium: East Trail Outdoor Dust	0.01	N	0.01	N	0.00	N	-0.02	N	0.00	N	-0.02	N
Cadmium: East Trail Residential Soil	0.00	N	0.02	N	0.01	N	0.00	N	0.01	N	0.01	N
Cadmium: Far Nonroot Produce	0.01	N	0.01	N	0.01	N	0.01	N	0.00	N	-0.01	N
Cadmium: Genelle Air	0.00	N	0.01	N	0.01	N	-0.01	N	0.01	N	0.02	N
Cadmium: Near Nonroot Produce	0.00	N	0.00	N	0.00	N	-0.01	N	-0.02	N	-0.01	N
Cadmium: Near Root Produce	0.01	N	0.00	N	0.00	N	-0.01	N	0.00	N	-0.01	N
Cadmium: Rivervale Outdoor Dust	-0.01	N	0.00	N	-0.01	N	0.01	N	0.00	N	0.01	N
Cadmium: Rivervale Residential Soil	0.00	N	-0.01	N	0.00	N	0.00	N	-0.02	N	0.00	N
Cadmium: Tadanac Outdoor Dust	-0.01	N	0.00	N	0.00	N	-0.02	N	-0.03	Y	0.00	N
Cadmium: Tadanac Residential Soil	0.00	N	-0.02	N	-0.01	N	-0.01	N	0.00	N	-0.02	N
Cadmium: Waneta Residential Soil	0.01	N	0.00	N	0.00	N	-0.03	N	-0.02	N	-0.01	N
Cadmium: Warfield Air	0.01	N	0.00	N	0.01	N	-0.03	N	-0.02	N	0.00	N
Cadmium: West Trail Air	0.00	N	-0.01	N	-0.01	N	0.01	N	-0.01	N	0.00	N
Cadmium: West Trail Outdoor Dust	0.00	N	0.00	N	-0.01	N	0.02	N	0.03	N	0.00	N
Cadmium: West Trail Residential Soil	-0.01	N	-0.01	N	-0.02	N	0.01	N	0.00	N	-0.01	N
Daily Inhalation Rate (m3/day): Adult	0.00	N	0.01	N	0.01	N	0.01	N	0.00	N	0.01	N
Daily Inhalation Rate (m3/day): Child	0.00	N	0.01	N	0.00	N	-0.02	N	-0.01	N	-0.02	N
Exposure Duration (years): Adult - Agricultural	0.01	N	-0.03	N	-0.02	N	0.02	N	0.01	N	-0.02	N
Exposure Duration (years): Adult+Child	0.55	Y	-0.19	Y	0.00	N	0.01	N	0.00	N	-0.35	Y

Table D-1. Largest Contributors to Variability in Noncancer Risk Estimates (in decreasing order of importance)

Forecast (Output Distribution)	**HI-Antimony-Soil/Dust-Commerical Child-East Trail**	**HI-Antimony-Soil/Dust-Residential Adult+Child-East Trail**	**HI-Antimony-Soil/Dust-Residential Adult+Child-Rivervale**	**HI-Antimony-Soil/Dust-Residential Adult+Child-Tadanac**	**HI-Antimony-Soil/Dust-Residential Adult+Child-Waneta**	**HI-Antimony-Soil/Dust-Residential Adult+Child-West Trail**	**HI-Antimony-Soil/Dust-Residential Child-East Trail**
List of Largest Contributors to Variability	Child soil ingestion rate Child Body Weight Exposure Frequency	Child soil ingestion rate Exposure Duration Child Body Weight Adult SIR Antimony in soil Antimony in outdoor dust Fractional Intake: soil/dust	Child soil ingestion rate Exposure Duration Child Body Weight Adult SIR Antimony in soil	Child soil ingestion rate Exposure Duration Child Body Weight Adult SIR Antimony in soil Antimony in outdoor dust Fractional Intake: soil/dust	Child soil ingestion rate Exposure Duration Child Body Weight Adult SIR Antimony in soil	Child soil ingestion rate Exposure Duration Child Body Weight Adult SIR Antimony in soil Fractional Intake: soil/dust	Child soil ingestion rate Child Body Weight Antimony in soil Antimony in outdoor dust Fractional Intake: soil/dust

Rank correlation data between assumption and forecast

Assumptions	HI-Antimony-Soil/Dust-Commerical Child-East Trail	Absolute Value > 0.03	HI-Antimony-Soil/Dust-Residential Adult+Child-East Trail	Absolute Value > 0.03	HI-Antimony-Soil/Dust-Residential Adult+Child-Rivervale	Absolute Value > 0.03	HI-Antimony-Soil/Dust-Residential Adult+Child-Tadanac	Absolute Value > 0.03	HI-Antimony-Soil/Dust-Residential Adult+Child-Waneta	Absolute Value > 0.03	HI-Antimony-Soil/Dust-Residential Adult+Child-West Trail	Absolute Value > 0.03	HI-Antimony-Soil/Dust-Residential Child-East Trail	Absolute Value > 0.03
Arsenic: West Trail Air	0.01	N	0.01	N	0.00	N	0.01	N	0.01	N	0.01	N	0.01	N
Arsenic: West Trail Outdoor Dust	0.01	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.01	N
Arsenic: West Trail Residential Soil	-0.02	N	-0.03	N	-0.03	N	-0.03	N	-0.02	N	-0.02	N	-0.02	N
Body Weight (kg): Adult	0.01	N	-0.02	N	-0.02	N	-0.02	N	-0.02	N	-0.02	N	0.01	N
Body Weight (kg): Child	-0.19	Y	-0.16	Y	-0.16	Y	-0.16	Y	-0.16	Y	-0.16	Y	-0.19	Y
Cadmium: Birchbank Air	-0.01	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	-0.01	N
Cadmium: Butler Park Air	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N
Cadmium: Columbia Gardens Air	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N
Cadmium: East Trail Outdoor Dust	-0.02	N	-0.02	N	-0.02	N	-0.02	N	-0.02	N	-0.02	N	-0.02	N
Cadmium: East Trail Residential Soil	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N
Cadmium: Far Nonroot Produce	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N
Cadmium: Genelle Air	0.02	N	0.02	N	0.02	N	0.02	N	0.02	N	0.02	N	0.02	N
Cadmium: Near Nonroot Produce	0.00	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	0.00	N
Cadmium: Near Root Produce	0.00	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	0.00	N
Cadmium: Rivervale Outdoor Dust	0.01	N	0.01	N	0.02	N	0.01	N	0.01	N	0.01	N	0.01	N
Cadmium: Rivervale Residential Soil	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N
Cadmium: Tadanac Outdoor Dust	0.00	N	-0.01	N	0.00	N	-0.01	N	-0.01	N	0.00	N	0.00	N
Cadmium: Tadanac Residential Soil	-0.01	N	-0.02	N	-0.02	N	-0.02	N	-0.02	N	-0.02	N	-0.01	N
Cadmium: Waneta Residential Soil	0.00	N	-0.01	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N
Cadmium: Warfield Air	0.01	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.01	N
Cadmium: West Trail Air	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N
Cadmium: West Trail Outdoor Dust	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N
Cadmium: West Trail Residential Soil	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N
Daily Inhalation Rate (m3/day): Adult	0.00	N	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N	0.00	N
Daily Inhalation Rate (m3/day): Child	-0.02	N	-0.02	N	-0.02	N	-0.02	N	-0.02	N	-0.02	N	-0.02	N
Exposure Duration (years): Adult - Agricultural	-0.02	N	-0.02	N	-0.02	N	-0.02	N	-0.02	N	-0.02	N	-0.02	N
Exposure Duration (years): Adult+Child	-0.01	N	-0.35	Y	-0.35	Y	-0.35	Y	-0.35	Y	-0.35	Y	-0.01	N

Table D-1. Largest Contributors to Variability in Noncancer Risk Estimates (in decreasing order of importance)

Forecast (Output Distribution)	**HI-Antimony-Soil/Dust-Residential Child-Rivervale**	**HI-Antimony-Soil/Dust-Residential Child-Tadanac**	**HI-Antimony-Soil/Dust-Residential Child-Waneta**	**HI-Antimony-Soil/Dust-Residential Child-West Trail**	**HI-Arsenic-Soil/Dust-Residential Adult+Child-East Trail**	**HI-Arsenic-Soil/Dust-Residential Adult+Child-Rivervale**	**HI-Arsenic-Soil/Dust-Residential Adult+Child-Tadanac**
List of Largest Contributors to Variability	Child soil ingestion rate Child Body Weight Antimony in soil Antimony in outdoor dust	Child soil ingestion rate Child Body Weight Antimony in outdoor dust Antimony in soil Fractional Intake: soil/dust	Child soil ingestion rate Child Body Weight Antimony in soil	Child soil ingestion rate Child Body Weight Antimony in soil Fractional Intake: soil/dust	Child soil ingestion rate Exposure Duration Child Body Weight Adult SIR Arsenic in soil Arsenic in outdoor dust	Child soil ingestion rate Exposure Duration Child Body Weight Adult SIR Arsenic in soil	Child soil ingestion rate Exposure Duration Child Body Weight Adult SIR Arsenic in outdoor dust Arsenic in soil

Rank correlation data between assumption and forecast

Assumptions	HI-Antimony-Soil/Dust-Residential Child-Rivervale	Absolute Value > 0.03	HI-Antimony-Soil/Dust-Residential Child-Tadanac	Absolute Value > 0.03	HI-Antimony-Soil/Dust-Residential Child-Waneta	Absolute Value > 0.03	HI-Antimony-Soil/Dust-Residential Child-West Trail	Absolute Value > 0.03	HI-Arsenic-Soil/Dust-Residential Adult+Child-East Trail	Absolute Value > 0.03	HI-Arsenic-Soil/Dust-Residential Adult+Child-Rivervale	Absolute Value > 0.03	HI-Arsenic-Soil/Dust-Residential Adult+Child-Tadanac	Absolute Value > 0.03
Arsenic: West Trail Air	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N
Arsenic: West Trail Outdoor Dust	0.01	N	0.01	N	0.01	N	0.01	N	0.00	N	0.00	N	0.00	N
Arsenic: West Trail Residential Soil	-0.02	N	-0.02	N	-0.02	N	-0.02	N	-0.03	N	-0.02	N	-0.02	N
Body Weight (kg): Adult	0.01	N	0.01	N	0.01	N	0.01	N	-0.02	N	-0.02	N	-0.02	N
Body Weight (kg): Child	-0.19	Y	-0.19	Y	-0.19	Y	-0.19	Y	-0.16	Y	-0.16	Y	-0.16	Y
Cadmium: Birchbank Air	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	0.00	N	0.00	N
Cadmium: Butler Park Air	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N
Cadmium: Columbia Gardens Air	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N
Cadmium: East Trail Outdoor Dust	-0.02	N	-0.03	N	-0.03	N	-0.02	N	-0.02	N	-0.02	N	-0.02	N
Cadmium: East Trail Residential Soil	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N
Cadmium: Far Nonroot Produce	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	0.00	N	-0.01	N
Cadmium: Genelle Air	0.02	N	0.02	N	0.02	N	0.02	N	0.02	N	0.02	N	0.02	N
Cadmium: Near Nonroot Produce	0.00	N	0.00	N	0.00	N	0.00	N	-0.01	N	-0.01	N	-0.01	N
Cadmium: Near Root Produce	0.00	N	0.00	N	0.00	N	0.00	N	-0.01	N	-0.01	N	-0.01	N
Cadmium: Rivervale Outdoor Dust	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N
Cadmium: Rivervale Residential Soil	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N
Cadmium: Tadanac Outdoor Dust	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	-0.01	N	-0.01	N
Cadmium: Tadanac Residential Soil	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.02	N	-0.02	N	-0.02	N
Cadmium: Waneta Residential Soil	0.00	N	0.00	N	0.00	N	0.00	N	-0.01	N	-0.01	N	0.00	N
Cadmium: Warfield Air	0.01	N	0.01	N	0.01	N	0.01	N	0.00	N	0.00	N	0.00	N
Cadmium: West Trail Air	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N
Cadmium: West Trail Outdoor Dust	0.00	N	0.00	N	0.00	N	0.00	N	0.01	N	0.00	N	0.00	N
Cadmium: West Trail Residential Soil	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	0.00	N	-0.01	N
Daily Inhalation Rate (m3/day): Adult	0.00	N	0.00	N	0.00	N	0.00	N	0.01	N	0.01	N	0.01	N
Daily Inhalation Rate (m3/day): Child	-0.02	N	-0.02	N	-0.02	N	-0.02	N	-0.02	N	-0.02	N	-0.02	N
Exposure Duration (years): Adult - Agricultural	-0.02	N	-0.02	N	-0.02	N	-0.02	N	-0.02	N	-0.03	N	-0.02	N
Exposure Duration (years): Adult+Child	-0.02	N	-0.01	N	-0.01	N	-0.01	N	-0.35	Y	-0.35	Y	-0.35	Y

Table D-1. Largest Contributors to Variability in Noncancer Risk Estimates (in decreasing order of importance)

Forecast (Output Distribution)	**HI-Arsenic-Soil/Dust-Residential Adult+Child-Waneta**	**HI-Arsenic-Soil/Dust-Residential Adult+Child-West Trail**	**HI-Arsenic-Soil/Dust-Residential Child-East Trail**	**HI-Arsenic-Soil/Dust-Residential Child-Rivervale**	**HI-Arsenic-Soil/Dust-Residential Child-Tadanac**	**HI-Arsenic-Soil/Dust-Residential Child-Waneta**	**HI-Arsenic-Soil/Dust-Residential Child-West Trail**
List of Largest Contributors to Variability	Child soil ingestion rate Exposure Duration Child Body Weight Adult SIR Arsenic in soil Arsenic in outdoor dust	Child soil ingestion rate Exposure Duration Child Body Weight Adult SIR Fractional intake: soil/dust	Child soil ingestion rate Child Body Weight Arsenic in soil Arsenic in outdoor dust	Child soil ingestion rate Child Body Weight Arsenic in soil	Child soil ingestion rate Child Body Weight Arsenic in outdoor dust	Child soil ingestion rate Child Body Weight Arsenic in soil	Child soil ingestion rate Child Body Weight Fractional intake: soil/dust Arsenic in soil

Rank correlation data between assumption and forecast

Assumptions	HI-Arsenic-Soil/Dust-Residential Adult+Child-Waneta	Absolute Value > 0.03	HI-Arsenic-Soil/Dust-Residential Adult+Child-West Trail	Absolute Value > 0.03	HI-Arsenic-Soil/Dust-Residential Child-East Trail	Absolute Value > 0.03	HI-Arsenic-Soil/Dust-Residential Child-Rivervale	Absolute Value > 0.03	HI-Arsenic-Soil/Dust-Residential Child-Tadanac	Absolute Value > 0.03	HI-Arsenic-Soil/Dust-Residential Child-Waneta	Absolute Value > 0.03	HI-Arsenic-Soil/Dust-Residential Child-West Trail	Absolute Value > 0.03
Arsenic: West Trail Air	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N
Arsenic: West Trail Outdoor Dust	0.00	N	0.02	N	0.01	N	0.01	N	0.01	N	0.01	N	0.02	N
Arsenic: West Trail Residential Soil	-0.02	N	0.03	N	-0.02	N	-0.02	N	-0.02	N	-0.02	N	0.03	Y
Body Weight (kg): Adult	-0.02	N	-0.02	N	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N
Body Weight (kg): Child	-0.16	Y	-0.16	Y	-0.19	Y	-0.19	Y	-0.19	Y	-0.19	Y	-0.19	Y
Cadmium: Birchbank Air	0.00	N	0.00	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N
Cadmium: Butler Park Air	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N
Cadmium: Columbia Gardens Air	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N
Cadmium: East Trail Outdoor Dust	-0.02	N	-0.02	N	-0.03	N	-0.03	N	-0.02	N	-0.03	N	-0.02	N
Cadmium: East Trail Residential Soil	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N
Cadmium: Far Nonroot Produce	0.00	N	-0.01	N	-0.01	N	0.00	N	-0.01	N	-0.01	N	-0.01	N
Cadmium: Genelle Air	0.02	N	0.02	N	0.02	N	0.02	N	0.02	N	0.02	N	0.02	N
Cadmium: Near Nonroot Produce	-0.01	N	-0.01	N	0.00	N	0.00	N	0.00	N	-0.01	N	0.00	N
Cadmium: Near Root Produce	-0.01	N	-0.01	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N
Cadmium: Rivervale Outdoor Dust	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N
Cadmium: Rivervale Residential Soil	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N
Cadmium: Tadanac Outdoor Dust	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N
Cadmium: Tadanac Residential Soil	-0.02	N	-0.02	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N
Cadmium: Waneta Residential Soil	-0.01	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N
Cadmium: Warfield Air	0.00	N	0.00	N	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N
Cadmium: West Trail Air	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N
Cadmium: West Trail Outdoor Dust	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N
Cadmium: West Trail Residential Soil	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N
Daily Inhalation Rate (m3/day): Adult	0.01	N	0.01	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N
Daily Inhalation Rate (m3/day): Child	-0.02	N	-0.02	N	-0.02	N	-0.02	N	-0.02	N	-0.02	N	-0.02	N
Exposure Duration (years): Adult - Agricultural	-0.02	N	-0.02	N	-0.02	N	-0.03	N	-0.02	N	-0.02	N	-0.02	N
Exposure Duration (years): Adult+Child	-0.35	Y	-0.35	Y	-0.01	N	-0.02	N	-0.01	N	-0.01	N	-0.01	N

Table D-1. Largest Contributors to Variability in Noncancer Risk Estimates (in decreasing order of importance)

Forecast (Output Distribution)	HI-Cadmium-Soil/Dust-Agricultural Adult-Waneta	HI-Cadmium-Soil/Dust-Commerical Adult+Child-East Trail	HI-Cadmium-Soil/Dust-Residential Adult+Child-East Trail	HI-Cadmium-Soil/Dust-Residential Adult+Child-Rivervale	HI-Cadmium-Soil/Dust-Residential Adult+Child-Tadanac	HI-Cadmium-Soil/Dust-Residential Adult+Child-Waneta	HI-Cadmium-Soil/Dust-Residential Adult+Child-West Trail
List of Largest Contributors to Variability	Exposure Duration Adult Body Weight Cadmium in soil	Child soil ingestion rate Exposure Duration Child Body Weight Adult SIR Exposure Frequency	Child soil ingestion rate Exposure Duration Child Body Weight Adult SIR Cadmium in soil Cadmium in outdoor dust Fractional intake: soil/dust	Child soil ingestion rate Exposure Duration Child Body Weight Adult SIR Cadmium in soil Cadmium in outdoor dust Fractional intake: soil/dust	Child soil ingestion rate Exposure Duration Child Body Weight Adult SIR Cadmium in outdoor dust Fractional intake: soil/dust	Child soil ingestion rate Exposure Duration Child Body Weight Adult SIR Cadmium in soil Fractional intake: soil/dust	Child soil ingestion rate Exposure Duration Child Body Weight Adult SIR Fractional intake: soil/dust Cadmium in outdoor dust

Rank correlation data between assumption and forecast

Assumptions	HI-Cadmium-Soil/Dust-Agricultural Adult-Waneta	Absolute Value > 0.03	HI-Cadmium-Soil/Dust-Commerical Adult+Child-East Trail	Absolute Value > 0.03	HI-Cadmium-Soil/Dust-Residential Adult+Child-East Trail	Absolute Value > 0.03	HI-Cadmium-Soil/Dust-Residential Adult+Child-Rivervale	Absolute Value > 0.03	HI-Cadmium-Soil/Dust-Residential Adult+Child-Tadanac	Absolute Value > 0.03	HI-Cadmium-Soil/Dust-Residential Adult+Child-Waneta	Absolute Value > 0.03	HI-Cadmium-Soil/Dust-Residential Adult+Child-West Trail	Absolute Value > 0.03
Arsenic: West Trail Air	-0.01	N	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N
Arsenic: West Trail Outdoor Dust	0.00	N	0.02	N	0.02	N	0.02	N	0.02	N	0.02	N	0.02	N
Arsenic: West Trail Residential Soil	0.00	N	-0.01	N	-0.01	N	-0.02	N	-0.01	N	-0.01	N	-0.01	N
Body Weight (kg): Adult	-0.21	Y	-0.02	N	-0.02	N	-0.02	N	-0.01	N	-0.02	N	-0.02	N
Body Weight (kg): Child	0.01	N	-0.16	Y	-0.16	Y	-0.16	Y	-0.16	Y	-0.16	Y	-0.16	Y
Cadmium: Birchbank Air	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N
Cadmium: Butler Park Air	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N
Cadmium: Columbia Gardens Air	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N
Cadmium: East Trail Outdoor Dust	0.02	N	-0.01	N	0.04	Y	-0.01	N	-0.01	N	-0.01	N	-0.01	N
Cadmium: East Trail Residential Soil	0.00	N	0.00	N	0.05	Y	0.00	N	0.00	N	0.00	N	0.00	N
Cadmium: Far Nonroot Produce	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N
Cadmium: Genelle Air	0.00	N	0.02	N	0.02	N	0.02	N	0.02	N	0.02	N	0.02	N
Cadmium: Near Nonroot Produce	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N
Cadmium: Near Root Produce	0.01	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N
Cadmium: Rivervale Outdoor Dust	-0.01	N	0.01	N	0.01	N	0.03	Y	0.01	N	0.01	N	0.01	N
Cadmium: Rivervale Residential Soil	0.00	N	0.00	N	0.00	N	0.03	Y	0.00	N	0.00	N	0.00	N
Cadmium: Tadanac Outdoor Dust	-0.02	N	0.00	N	0.00	N	0.00	N	0.04	Y	0.00	N	0.00	N
Cadmium: Tadanac Residential Soil	0.03	Y	-0.01	N	-0.01	N	-0.01	N	0.02	N	-0.01	N	-0.01	N
Cadmium: Waneta Residential Soil	-0.02	N	0.00	N	0.00	N	0.00	N	0.00	N	0.05	Y	0.00	N
Cadmium: Warfield Air	0.00	N	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N
Cadmium: West Trail Air	-0.02	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N
Cadmium: West Trail Outdoor Dust	-0.01	N	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N	0.03	Y
Cadmium: West Trail Residential Soil	-0.02	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	0.03	N
Daily Inhalation Rate (m3/day): Adult	-0.01	N	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N
Daily Inhalation Rate (m3/day): Child	-0.02	N	-0.03	N	-0.03	N	-0.03	N	-0.03	N	-0.03	N	-0.03	N
Exposure Duration (years): Adult - Agricultural	0.98	Y	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N
Exposure Duration (years): Adult+Child	0.02	N	0.31	Y	0.31	Y	0.31	Y	0.32	Y	0.31	Y	0.31	Y

Table D-1. Largest Contributors to Variability in Noncancer Risk Estimates (in decreasing order of importance)

Forecast (Output Distribution)	**HI-Selenium-Soil/Dust-Residential Adult+Child-East Trail**	**HI-Selenium-Soil/Dust-Residential Adult+Child-Rivervale**	**HI-Selenium-Soil/Dust-Residential Adult+Child-Tadanac**	**HI-Selenium-Soil/Dust-Residential Adult+Child-Waneta**	**HI-Selenium-Soil/Dust-Residential Adult+Child-West Trail**	**HI-Selenium-Soil/Dust-Residential Child-East Trail**	**HI-Selenium-Soil/Dust-Residential Child-Rivervale**
List of Largest Contributors to Variability	Child soil ingestion rate Selenium in soil Exposure Duration Child Body Weight Adult SIR Selenium in outdoor dust	Child soil ingestion rate Selenium in soil Exposure Duration Child Body Weight Adult SIR	Child soil ingestion rate Selenium in soil Exposure Duration Child Body Weight Selenium in outdoor dust Adult SIR	Child soil ingestion rate Exposure Duration Child Body Weight Adult SIR	Child soil ingestion rate Exposure Duration Selenium in soil Child Body Weight Adult SIR Selenium in outdoor dust	Child soil ingestion rate Selenium in soil Child Body Weight Selenium in outdoor dust	Child soil ingestion rate Selenium in soil Child Body Weight

Rank correlation data between assumption and forecast

Assumptions	HI-Selenium-Soil/Dust-Residential Adult+Child-East Trail	Absolute Value > 0.03	HI-Selenium-Soil/Dust-Residential Adult+Child-Rivervale	Absolute Value > 0.03	HI-Selenium-Soil/Dust-Residential Adult+Child-Tadanac	Absolute Value > 0.03	HI-Selenium-Soil/Dust-Residential Adult+Child-Waneta	Absolute Value > 0.03	HI-Selenium-Soil/Dust-Residential Adult+Child-West Trail	Absolute Value > 0.03	HI-Selenium-Soil/Dust-Residential Child-East Trail	Absolute Value > 0.03	HI-Selenium-Soil/Dust-Residential Child-Rivervale	Absolute Value > 0.03
Arsenic: West Trail Air	0.01	N	0.01	N	0.00	N	0.01	N	0.01	N	0.02	N	0.01	N
Arsenic: West Trail Outdoor Dust	0.00	N	0.00	N	-0.01	N	0.00	N	0.00	N	0.00	N	0.01	N
Arsenic: West Trail Residential Soil	-0.02	N	-0.02	N	-0.02	N	-0.02	N	-0.03	N	-0.02	N	-0.01	N
Body Weight (kg): Adult	-0.01	N	-0.02	N	-0.01	N	-0.02	N	-0.02	N	0.01	N	0.00	N
Body Weight (kg): Child	-0.15	Y	-0.13	Y	-0.15	Y	-0.16	Y	-0.15	Y	-0.17	Y	-0.16	Y
Cadmium: Birchbank Air	0.00	N	0.00	N	-0.01	N	0.00	N	0.00	N	-0.01	N	-0.01	N
Cadmium: Butler Park Air	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N
Cadmium: Columbia Gardens Air	0.00	N	-0.01	N	0.00	N	0.00	N	-0.01	N	0.00	N	-0.01	N
Cadmium: East Trail Outdoor Dust	-0.02	N	-0.01	N	-0.01	N	-0.02	N	-0.02	N	-0.02	N	-0.02	N
Cadmium: East Trail Residential Soil	0.01	N	0.01	N	0.00	N	0.01	N	0.01	N	0.01	N	0.01	N
Cadmium: Far Nonroot Produce	-0.01	N	-0.01	N	0.00	N	-0.01	N	0.00	N	-0.01	N	-0.01	N
Cadmium: Genelle Air	0.01	N	0.02	N	0.02	N	0.02	N	0.02	N	0.02	N	0.03	N
Cadmium: Near Nonroot Produce	0.00	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	0.00	N	0.00	N
Cadmium: Near Root Produce	-0.02	N	0.00	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	0.00	N
Cadmium: Rivervale Outdoor Dust	0.02	N	0.01	N	0.02	N	0.01	N	0.02	N	0.01	N	0.00	N
Cadmium: Rivervale Residential Soil	0.00	N	0.00	N	0.01	N	0.00	N	0.00	N	0.00	N	0.00	N
Cadmium: Tadanac Outdoor Dust	0.01	N	0.00	N	-0.01	N	-0.01	N	0.00	N	0.01	N	0.00	N
Cadmium: Tadanac Residential Soil	-0.02	N	-0.02	N	-0.02	N	-0.02	N	-0.02	N	-0.01	N	-0.01	N
Cadmium: Waneta Residential Soil	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	0.00	N	0.00	N
Cadmium: Warfield Air	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.01	N	0.00	N
Cadmium: West Trail Air	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N
Cadmium: West Trail Outdoor Dust	0.00	N	0.01	N	0.00	N	0.00	N	0.00	N	0.00	N	0.01	N
Cadmium: West Trail Residential Soil	0.00	N	-0.01	N	0.00	N	-0.01	N	-0.01	N	-0.01	N	-0.02	N
Daily Inhalation Rate (m3/day): Adult	0.02	N	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N	0.00	N
Daily Inhalation Rate (m3/day): Child	-0.02	N	-0.01	N	-0.02	N	-0.02	N	-0.02	N	-0.02	N	-0.01	N
Exposure Duration (years): Adult - Agricultural	-0.02	N	-0.03	N	-0.02	N	-0.02	N	-0.02	N	-0.02	N	-0.03	N
Exposure Duration (years): Adult+Child	-0.32	Y	-0.31	Y	-0.31	Y	-0.35	Y	-0.33	Y	-0.01	N	-0.01	N

Table D-1. Largest Contributors to Variability in Noncancer Risk Estimates (in decreasing order of importance)

Forecast (Output Distribution)	**HI-Selenium-Soil/Dust-Residential Child-Tadanac**	**HI-Selenium-Soil/Dust-Residential Child-Waneta**	**HI-Selenium-Soil/Dust-Residential Child-West Trail**	**HI-Silver-Soil/Dust-Residential Adult+Child-East Trail**	**HI-Silver-Soil/Dust-Residential Adult+Child-Rivervale**	**HI-Silver-Soil/Dust-Residential Adult+Child-Tadanac**	**HI-Silver-Soil/Dust-Residential Adult+Child-Waneta**
List of Largest Contributors to Variability	Child soil ingestion rate Selenium in soil Child Body Weight Selenium in outdoor dust	Child soil ingestion rate Child Body Weight	Child soil ingestion rate Selenium in soil Child Body Weight Selenium in outdoor dust	Child soil ingestion rate Silver in soil Exposure Duration Silver in outdoor dust Child Body Weight Adult SIR Exposure Frequency	Child soil ingestion rate Exposure Duration Silver in soil Child Body Weight Adult SIR Silver in outdoor dust	Child soil ingestion rate Exposure Duration Silver in soil Silver in outdoor dust Child Body Weight Adult SIR Exposure Frequency	Child soil ingestion rate Exposure Duration Child Body Weight Adult SIR

Rank correlation data between assumption and forecast

Assumptions	HI-Selenium-Soil/Dust-Residential Child-Tadanac	Absolute Value > 0.03	HI-Selenium-Soil/Dust-Residential Child-Waneta	Absolute Value > 0.03	HI-Selenium-Soil/Dust-Residential Child-West Trail	Absolute Value > 0.03	HI-Silver-Soil/Dust-Residential Adult+Child-East Trail	Absolute Value > 0.03	HI-Silver-Soil/Dust-Residential Adult+Child-Rivervale	Absolute Value > 0.03	HI-Silver-Soil/Dust-Residential Adult+Child-Tadanac	Absolute Value > 0.03	HI-Silver-Soil/Dust-Residential Adult+Child-Waneta	Absolute Value > 0.03
Arsenic: West Trail Air	0.01	N	0.01	N	0.01	N	0.00	N	0.01	N	0.00	N	0.01	N
Arsenic: West Trail Outdoor Dust	0.00	N	0.01	N	0.00	N	-0.01	N	0.00	N	0.00	N	0.00	N
Arsenic: West Trail Residential Soil	-0.02	N	-0.02	N	-0.02	N	-0.02	N	-0.03	N	-0.03	N	-0.02	N
Body Weight (kg): Adult	0.01	N	0.01	N	0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.02	N
Body Weight (kg): Child	-0.17	Y	-0.19	Y	-0.18	Y	-0.15	Y	-0.16	Y	-0.15	Y	-0.16	Y
Cadmium: Birchbank Air	-0.02	N	-0.01	N	-0.01	N	0.00	N	0.00	N	-0.01	N	0.00	N
Cadmium: Butler Park Air	0.00	N	0.00	N	0.00	N	0.00	N	-0.01	N	0.00	N	0.00	N
Cadmium: Columbia Gardens Air	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N
Cadmium: East Trail Outdoor Dust	-0.01	N	-0.02	N	-0.02	N	-0.03	N	-0.02	N	-0.03	N	-0.02	N
Cadmium: East Trail Residential Soil	0.00	N	0.01	N	0.01	N	0.02	N	0.01	N	0.01	N	0.01	N
Cadmium: Far Nonroot Produce	-0.01	N	-0.01	N	0.00	N	0.00	N	-0.01	N	-0.01	N	-0.01	N
Cadmium: Genelle Air	0.02	N	0.02	N	0.02	N	0.01	N	0.01	N	0.01	N	0.02	N
Cadmium: Near Nonroot Produce	0.00	N	0.00	N	-0.01	N	0.00	N	-0.01	N	0.00	N	-0.01	N
Cadmium: Near Root Produce	0.00	N	0.00	N	0.00	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N
Cadmium: Rivervale Outdoor Dust	0.01	N	0.01	N	0.02	N	0.01	N	0.02	N	0.01	N	0.01	N
Cadmium: Rivervale Residential Soil	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N
Cadmium: Tadanac Outdoor Dust	0.00	N	0.00	N	0.00	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N
Cadmium: Tadanac Residential Soil	-0.01	N	-0.01	N	-0.01	N	-0.02	N	-0.02	N	-0.02	N	-0.02	N
Cadmium: Waneta Residential Soil	0.00	N	0.00	N	0.00	N	-0.01	N	-0.01	N	0.00	N	-0.01	N
Cadmium: Warfield Air	0.01	N	0.01	N	0.01	N	0.00	N	0.00	N	0.01	N	0.00	N
Cadmium: West Trail Air	0.00	N	0.00	N	0.00	N	0.01	N	0.00	N	0.00	N	0.00	N
Cadmium: West Trail Outdoor Dust	0.00	N	0.00	N	0.00	N	0.01	N	0.01	N	0.00	N	0.00	N
Cadmium: West Trail Residential Soil	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N
Daily Inhalation Rate (m3/day): Adult	0.01	N	0.00	N	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N
Daily Inhalation Rate (m3/day): Child	-0.02	N	-0.02	N	-0.02	N	-0.03	N	-0.02	N	-0.01	N	-0.02	N
Exposure Duration (years): Adult - Agricultural	-0.01	N	-0.02	N	-0.02	N	-0.02	N	-0.03	N	-0.02	N	-0.02	N
Exposure Duration (years): Adult+Child	0.00	N	-0.01	N	-0.01	N	-0.31	Y	-0.34	Y	-0.32	Y	-0.35	Y

Table D-1. Largest Contributors to Variability in Noncancer Risk Estimates (in decreasing order of importance)

Forecast (Output Distribution)	HI-Silver-Soil/Dust-Residential Adult+Child-West Trail	HI-Silver-Soil/Dust-Residential Child-East Trail	HI-Silver-Soil/Dust-Residential Child-Rivervale	HI-Silver-Soil/Dust-Residential Child-Tadanac	HI-Silver-Soil/Dust-Residential Child-Waneta	HI-Silver-Soil/Dust-Residential Child-West Trail	HI-Thallium-Soil/Dust-Residential Adult+Child-East Trail
List of Largest Contributors to Variability	Child soil ingestion rate Silver in soil Exposure Duration Child Body Weight Adult SIR Silver in outdoor dust	Child soil ingestion rate Silver in soil Child Body Weight Silver in outdoor dust Exposure Frequency	Child soil ingestion rate Silver in soil Child Body Weight Silver in outdoor dust	Child soil ingestion rate Silver in soil Silver in outdoor dust Child Body Weight Exposure Frequency	Child soil ingestion rate Child Body Weight	Child soil ingestion rate Silver in soil Child Body Weight Silver in outdoor dust	Child soil ingestion rate Thallium in soil Exposure Duration Child Body Weight Adult SIR

Rank correlation data between assumption and forecast

Assumptions	HI-Silver-Soil/Dust-Residential Adult+Child-West Trail	Absolute Value > 0.03	HI-Silver-Soil/Dust-Residential Child-East Trail	Absolute Value > 0.03	HI-Silver-Soil/Dust-Residential Child-Rivervale	Absolute Value > 0.03	HI-Silver-Soil/Dust-Residential Child-Tadanac	Absolute Value > 0.03	HI-Silver-Soil/Dust-Residential Child-Waneta	Absolute Value > 0.03	HI-Silver-Soil/Dust-Residential Child-West Trail	Absolute Value > 0.03	HI-Thallium-Soil/Dust-Residential Adult+Child-East Trail	Absolute Value > 0.03
Arsenic: West Trail Air	0.02	N	0.00	N	0.01	N	0.00	N	0.01	N	0.02	N	-0.01	N
Arsenic: West Trail Outdoor Dust	0.00	N	0.00	N	0.01	N	0.01	N	0.01	N	0.01	N	0.00	N
Arsenic: West Trail Residential Soil	-0.02	N	-0.01	N	-0.02	N	-0.02	N	-0.02	N	-0.01	N	-0.02	N
Body Weight (kg): Adult	-0.01	N	0.01	N	0.01	N	0.01	N	0.01	N	0.02	N	-0.01	N
Body Weight (kg): Child	-0.15	Y	-0.17	Y	-0.19	Y	-0.18	Y	-0.19	Y	-0.17	Y	-0.15	Y
Cadmium: Birchbank Air	-0.01	N	-0.01	N	-0.01	N	-0.02	N	-0.01	N	-0.01	N	0.00	N
Cadmium: Butler Park Air	0.01	N	0.00	N	0.00	N	0.00	N	0.00	N	0.01	N	-0.01	N
Cadmium: Columbia Gardens Air	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N
Cadmium: East Trail Outdoor Dust	-0.02	N	-0.03	N	-0.02	N	-0.03	N	-0.02	N	-0.02	N	-0.02	N
Cadmium: East Trail Residential Soil	0.01	N	0.02	N	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N
Cadmium: Far Nonroot Produce	0.00	N	0.00	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	0.00	N
Cadmium: Genelle Air	0.01	N	0.02	N	0.02	N	0.02	N	0.02	N	0.02	N	0.01	N
Cadmium: Near Nonroot Produce	-0.01	N	0.00	N	0.00	N	0.01	N	0.00	N	0.00	N	-0.01	N
Cadmium: Near Root Produce	-0.01	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	-0.01	N
Cadmium: Rivervale Outdoor Dust	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N	0.02	N
Cadmium: Rivervale Residential Soil	0.00	N	0.00	N	-0.01	N	0.00	N	0.00	N	0.00	N	0.00	N
Cadmium: Tadanac Outdoor Dust	-0.01	N	-0.01	N	0.00	N	0.00	N	0.00	N	0.00	N	-0.01	N
Cadmium: Tadanac Residential Soil	-0.02	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.02	N
Cadmium: Waneta Residential Soil	-0.01	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N
Cadmium: Warfield Air	0.00	N	0.00	N	0.00	N	0.01	N	0.01	N	0.01	N	0.00	N
Cadmium: West Trail Air	0.00	N	0.01	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N
Cadmium: West Trail Outdoor Dust	0.01	N	0.01	N	0.00	N	0.00	N	0.00	N	0.01	N	0.01	N
Cadmium: West Trail Residential Soil	-0.01	N	-0.01	N	-0.02	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N
Daily Inhalation Rate (m3/day): Adult	0.01	N	0.01	N	0.01	N	0.01	N	0.00	N	0.00	N	0.01	N
Daily Inhalation Rate (m3/day): Child	-0.02	N	-0.02	N	-0.02	N	-0.01	N	-0.02	N	-0.02	N	-0.02	N
Exposure Duration (years): Adult - Agricultural	-0.03	Y	-0.01	N	-0.02	N	-0.02	N	-0.02	N	-0.03	Y	-0.03	N
Exposure Duration (years): Adult+Child	-0.32	Y	-0.01	N	-0.01	N	-0.02	N	-0.01	N	-0.02	N	-0.32	Y

Table D-1. Largest Contributors to Variability in Noncancer Risk Estimates (in decreasing order of importance)

Forecast (Output Distribution)	**HI-Thallium-Soil/Dust-Residential Adult+Child-Rivervale**	**HI-Thallium-Soil/Dust-Residential Adult+Child-Tadanac**	**HI-Thallium-Soil/Dust-Residential Adult+Child-Waneta**	**HI-Thallium-Soil/Dust-Residential Adult+Child-West Trail**	**HI-Thallium-Soil/Dust-Residential Child-East Trail**	**HI-Thallium-Soil/Dust-Residential Child-Rivervale**	**HI-Thallium-Soil/Dust-Residential Child-Tadanac**
List of Largest Contributors to Variability	Child soil ingestion rate Thallium in soil Exposure Duration Child Body Weight Adult SIR	Child soil ingestion rate Thallium in soil Exposure Duration Child Body Weight Adult SIR Thallium in outdoor dust	Child soil ingestion rate Exposure Duration Child Body Weight Adult SIR	Child soil ingestion rate Exposure Duration Thallium in soil Child Body Weight Adult SIR	Child soil ingestion rate Thallium in soil Child Body Weight	Child soil ingestion rate Thallium in soil Child Body Weight	Child soil ingestion rate Thallium in soil Child Body Weight Thallium in outdoor dust

Rank correlation data between assumption and forecast

Assumptions	HI-Thallium-Soil/Dust-Residential Adult+Child-Rivervale	Absolute Value > 0.03	HI-Thallium-Soil/Dust-Residential Adult+Child-Tadanac	Absolute Value > 0.03	HI-Thallium-Soil/Dust-Residential Adult+Child-Waneta	Absolute Value > 0.03	HI-Thallium-Soil/Dust-Residential Adult+Child-West Trail	Absolute Value > 0.03	HI-Thallium-Soil/Dust-Residential Child-East Trail	Absolute Value > 0.03	HI-Thallium-Soil/Dust-Residential Child-Rivervale	Absolute Value > 0.03	HI-Thallium-Soil/Dust-Residential Child-Tadanac	Absolute Value > 0.03
Arsenic: West Trail Air	0.01	N	-0.01	N	0.01	N	0.01	N	0.00	N	0.01	N	0.00	N
Arsenic: West Trail Outdoor Dust	0.00	N	0.01	N	0.00	N	0.00	N	0.01	N	0.00	N	0.01	N
Arsenic: West Trail Residential Soil	-0.02	N	-0.03	Y	-0.02	N	-0.02	N	-0.02	N	-0.02	N	-0.03	N
Body Weight (kg): Adult	-0.02	N	-0.01	N	-0.02	N	-0.02	N	0.01	N	0.01	N	0.01	N
Body Weight (kg): Child	-0.15	Y	-0.14	Y	-0.16	Y	-0.16	Y	-0.17	Y	-0.18	Y	-0.17	Y
Cadmium: Birchbank Air	-0.01	N	-0.01	N	0.00	N	0.00	N	-0.01	N	-0.01	N	-0.02	N
Cadmium: Butler Park Air	0.00	N	0.00	N	0.00	N	-0.01	N	0.00	N	0.00	N	0.00	N
Cadmium: Columbia Gardens Air	-0.01	N	0.00	N	0.00	N	0.00	N	0.00	N	-0.01	N	0.00	N
Cadmium: East Trail Outdoor Dust	-0.02	N	-0.01	N	-0.02	N	-0.02	N	-0.02	N	-0.02	N	-0.02	N
Cadmium: East Trail Residential Soil	0.01	N	0.00	N	0.01	N	0.01	N	0.01	N	0.01	N	0.00	N
Cadmium: Far Nonroot Produce	0.00	N	0.00	N	-0.01	N	0.00	N	0.00	N	0.00	N	-0.01	N
Cadmium: Genelle Air	0.02	N	0.01	N	0.02	N	0.02	N	0.02	N	0.02	N	0.02	N
Cadmium: Near Nonroot Produce	-0.01	N	0.00	N	-0.01	N	0.00	N	0.00	N	-0.01	N	0.00	N
Cadmium: Near Root Produce	-0.01	N	0.00	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	0.01	N
Cadmium: Rivervale Outdoor Dust	0.01	N	0.01	N	0.01	N	0.01	N	0.02	N	0.01	N	0.01	N
Cadmium: Rivervale Residential Soil	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N
Cadmium: Tadanac Outdoor Dust	0.00	N	0.00	N	-0.01	N	-0.01	N	0.00	N	0.00	N	0.00	N
Cadmium: Tadanac Residential Soil	-0.02	N	-0.02	N	-0.02	N	-0.02	N	-0.01	N	-0.01	N	-0.01	N
Cadmium: Waneta Residential Soil	0.00	N	-0.01	N	-0.01	N	0.00	N	0.00	N	0.01	N	0.00	N
Cadmium: Warfield Air	0.01	N	0.01	N	0.00	N	0.00	N	0.01	N	0.01	N	0.02	N
Cadmium: West Trail Air	0.00	N	-0.01	N	0.00	N	0.01	N	0.00	N	0.00	N	-0.01	N
Cadmium: West Trail Outdoor Dust	0.01	N	0.01	N	0.00	N	0.00	N	0.01	N	0.01	N	0.00	N
Cadmium: West Trail Residential Soil	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N
Daily Inhalation Rate (m3/day): Adult	0.00	N	0.01	N	0.01	N	0.00	N	0.00	N	0.00	N	0.00	N
Daily Inhalation Rate (m3/day): Child	-0.02	N	-0.02	N	-0.02	N	-0.02	N	-0.02	N	-0.02	N	-0.02	N
Exposure Duration (years): Adult - Agricultural	-0.02	N	-0.02	N	-0.02	N	-0.02	N	-0.03	N	-0.02	N	-0.02	N
Exposure Duration (years): Adult+Child	-0.32	Y	-0.31	Y	-0.35	Y	-0.33	Y	-0.01	N	-0.01	N	-0.02	N

Table D-1. Largest Contributors to Variability in Noncancer Risk Estimates (in decreasing order of importance)

Forecast (Output Distribution)	**HI-Thallium-Soil/Dust-Residential Child-Waneta**		**HI-Thallium-Soil/Dust-Residential Child-West Trail**		**HI-Tin-Soil/Dust-Residential Adult+Child-East Trail**		**HI-Tin-Soil/Dust-Residential Adult+Child-Rivervale**		**HI-Tin-Soil/Dust-Residential Adult+Child-Tadanac**		**HI-Tin-Soil/Dust-Residential Adult+Child-Waneta**		**HI-Tin-Soil/Dust-Residential Adult+Child-West Trail**	
List of Largest Contributors to Variability	Child soil ingestion rate Child Body Weight		Child soil ingestion rate Thallium in soil Child Body Weight		Child soil ingestion rate Tin in soil Exposure Duration Tin in outdoor dust Child Body Weight Adult SIR		Child soil ingestion rate Tin in soil Exposure Duration Child Body Weight Adult SIR		Child soil ingestion rate Tin in soil Exposure Duration Child Body Weight Adult SIR Tin in outdoor dust		Child soil ingestion rate Exposure Duration Child Body Weight Adult SIR		Child soil ingestion rate Tin in soil Exposure Duration Child Body Weight Adult SIR Tin in outdoor dust	
Rank correlation data between assumption and forecast														
Assumptions	HI-Thallium-Soil/Dust-Residential Child-Waneta	Absolute Value > 0.03	HI-Thallium-Soil/Dust-Residential Child-West Trail	Absolute Value > 0.03	HI-Tin-Soil/Dust-Residential Adult+Child-East Trail	Absolute Value > 0.03	HI-Tin-Soil/Dust-Residential Adult+Child-Rivervale	Absolute Value > 0.03	HI-Tin-Soil/Dust-Residential Adult+Child-Tadanac	Absolute Value > 0.03	HI-Tin-Soil/Dust-Residential Adult+Child-Waneta	Absolute Value > 0.03	HI-Tin-Soil/Dust-Residential Adult+Child-West Trail	Absolute Value > 0.03
Arsenic: West Trail Air	0.01	N	0.01	N	0.01	N	0.00	N	0.01	N	0.01	N	0.00	N
Arsenic: West Trail Outdoor Dust	0.01	N	0.00	N	0.00	N	0.00	N	0.01	N	0.00	N	0.00	N
Arsenic: West Trail Residential Soil	-0.02	N	-0.02	N	-0.02	N	-0.02	N	-0.01	N	-0.02	N	-0.02	N
Body Weight (kg): Adult	0.01	N	0.01	N	-0.01	N	-0.01	N	-0.02	N	-0.02	N	-0.01	N
Body Weight (kg): Child	-0.19	Y	-0.18	Y	-0.12	Y	-0.14	Y	-0.14	Y	-0.16	Y	-0.14	Y
Cadmium: Birchbank Air	-0.01	N	-0.01	N	-0.01	N	0.00	N	0.00	N	0.00	N	0.01	N
Cadmium: Butler Park Air	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N
Cadmium: Columbia Gardens Air	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N
Cadmium: East Trail Outdoor Dust	-0.02	N	-0.02	N	-0.02	N	-0.02	N	-0.02	N	-0.02	N	-0.03	N
Cadmium: East Trail Residential Soil	0.01	N	0.01	N	0.00	N	0.00	N	0.01	N	0.01	N	0.01	N
Cadmium: Far Nonroot Produce	-0.01	N	0.00	N	0.00	N	-0.01	N	-0.01	N	-0.01	N	0.00	N
Cadmium: Genelle Air	0.02	N	0.02	N	0.02	N	0.01	N	0.02	N	0.02	N	0.02	N
Cadmium: Near Nonroot Produce	0.00	N	0.00	N	0.00	N	0.00	N	-0.01	N	-0.01	N	-0.01	N
Cadmium: Near Root Produce	0.00	N	0.00	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	0.00	N
Cadmium: Rivervale Outdoor Dust	0.01	N	0.01	N	0.02	N	0.01	N	0.01	N	0.01	N	0.01	N
Cadmium: Rivervale Residential Soil	0.00	N	0.00	N	-0.01	N	0.00	N	-0.01	N	0.00	N	0.00	N
Cadmium: Tadanac Outdoor Dust	0.00	N	0.00	N	0.00	N	-0.01	N	0.00	N	-0.01	N	-0.01	N
Cadmium: Tadanac Residential Soil	-0.01	N	-0.01	N	-0.01	N	-0.02	N	-0.02	N	-0.02	N	-0.02	N
Cadmium: Waneta Residential Soil	0.00	N	0.00	N	0.00	N	0.00	N	-0.01	N	-0.01	N	-0.01	N
Cadmium: Warfield Air	0.01	N	0.01	N	0.00	N	0.01	N	0.01	N	0.00	N	0.00	N
Cadmium: West Trail Air	0.00	N	0.00	N	-0.01	N	0.00	N	0.00	N	0.00	N	0.00	N
Cadmium: West Trail Outdoor Dust	0.00	N	0.00	N	0.00	N	0.01	N	0.00	N	0.00	N	0.00	N
Cadmium: West Trail Residential Soil	-0.01	N	-0.02	N	-0.01	N	-0.01	N	0.00	N	-0.01	N	0.00	N
Daily Inhalation Rate (m3/day): Adult	0.00	N	0.00	N	0.01	N	0.01	N	0.00	N	0.01	N	0.01	N
Daily Inhalation Rate (m3/day): Child	-0.02	N	-0.02	N	-0.01	N	-0.02	N	-0.02	N	-0.02	N	-0.03	N
Exposure Duration (years): Adult - Agricultural	-0.02	N	-0.02	N	-0.02	N	-0.02	N	-0.02	N	-0.02	N	-0.02	N
Exposure Duration (years): Adult+Child	-0.01	N	-0.01	N	-0.28	Y	-0.30	Y	-0.32	Y	-0.35	Y	-0.32	Y

Table D-1. Largest Contributors to Variability in Noncancer Risk Estimates (in decreasing order of importance)

Forecast (Output Distribution)	**HI-Tin-Soil/Dust-Residential Child-East Trail**	**HI-Tin-Soil/Dust-Residential Child-Rivervale**	**HI-Tin-Soil/Dust-Residential Child-Tadanac**	**HI-Tin-Soil/Dust-Residential Child-Waneta**	**HI-Tin-Soil/Dust-Residential Child-West Trail**	**HI-Zinc-Soil/Dust-Residential Adult+Child-East Trail**	**HI-Zinc-Soil/Dust-Residential Adult+Child-Rivervale**
List of Largest Contributors to Variability	Child soil ingestion rate Tin in soil Child Body Weight Tin in outdoor dust	Child soil ingestion rate Tin in soil Child Body Weight	Child soil ingestion rate Tin in soil Child Body Weight Tin in outdoor dust	Child soil ingestion rate Child Body Weight	Child soil ingestion rate Tin in soil Child Body Weight Tin in outdoor dust	Child soil ingestion rate Zinc in soil Exposure Duration Zinc in outdoor dust Child Body Weight Adult SIR	Child soil ingestion rate Zinc in soil Exposure Duration Child Body Weight Adult SIR Zinc in outdoor dust

Rank correlation data between assumption and forecast

Assumptions	HI-Tin-Soil/Dust-Residential Child-East Trail	Absolute Value > 0.03	HI-Tin-Soil/Dust-Residential Child-Rivervale	Absolute Value > 0.03	HI-Tin-Soil/Dust-Residential Child-Tadanac	Absolute Value > 0.03	HI-Tin-Soil/Dust-Residential Child-Waneta	Absolute Value > 0.03	HI-Tin-Soil/Dust-Residential Child-West Trail	Absolute Value > 0.03	HI-Zinc-Soil/Dust-Residential Adult+Child-East Trail	Absolute Value > 0.03	HI-Zinc-Soil/Dust-Residential Adult+Child-Rivervale	Absolute Value > 0.03
Arsenic: West Trail Air	0.02	N	0.01	N	0.01	N	0.01	N	0.00	N	0.01	N	0.00	N
Arsenic: West Trail Outdoor Dust	0.00	N	0.01	N	0.01	N	0.01	N	0.00	N	0.00	N	0.00	N
Arsenic: West Trail Residential Soil	-0.02	N	-0.02	N	-0.01	N	-0.02	N	-0.01	N	-0.02	N	-0.02	N
Body Weight (kg): Adult	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N	-0.01	N	-0.02	N
Body Weight (kg): Child	-0.15	Y	-0.17	Y	-0.17	Y	-0.19	Y	-0.17	Y	-0.14	Y	-0.15	Y
Cadmium: Birchbank Air	-0.01	N	-0.01	N	-0.01	N	-0.01	N	0.00	N	-0.01	N	0.00	N
Cadmium: Butler Park Air	0.00	N	0.00	N	0.01	N	0.00	N	0.00	N	0.01	N	0.00	N
Cadmium: Columbia Gardens Air	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N
Cadmium: East Trail Outdoor Dust	-0.02	N	-0.02	N	-0.02	N	-0.02	N	-0.03	Y	-0.02	N	-0.02	N
Cadmium: East Trail Residential Soil	0.00	N	0.00	N	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N
Cadmium: Far Nonroot Produce	0.00	N	-0.01	N	-0.02	N	-0.01	N	-0.01	N	0.00	N	-0.01	N
Cadmium: Genelle Air	0.02	N	0.02	N	0.03	N	0.02	N	0.02	N	0.02	N	0.02	N
Cadmium: Near Nonroot Produce	0.00	N	0.00	N	-0.01	N	0.00	N	-0.01	N	0.00	N	-0.02	N
Cadmium: Near Root Produce	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	-0.01	N
Cadmium: Rivervale Outdoor Dust	0.02	N	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N
Cadmium: Rivervale Residential Soil	-0.01	N	0.00	N	-0.01	N	0.00	N	0.00	N	0.00	N	0.00	N
Cadmium: Tadanac Outdoor Dust	0.00	N	-0.01	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N
Cadmium: Tadanac Residential Soil	0.00	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.02	N	-0.01	N
Cadmium: Waneta Residential Soil	0.01	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	-0.01	N
Cadmium: Warfield Air	0.00	N	0.01	N	0.02	N	0.01	N	0.01	N	0.00	N	0.00	N
Cadmium: West Trail Air	-0.01	N	0.00	N	0.00	N	0.00	N	-0.01	N	0.00	N	0.00	N
Cadmium: West Trail Outdoor Dust	0.00	N	0.01	N	0.00	N	0.00	N	0.00	N	0.01	N	0.00	N
Cadmium: West Trail Residential Soil	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	0.00	N
Daily Inhalation Rate (m3/day): Adult	0.00	N	0.00	N	0.00	N	0.00	N	0.01	N	0.01	N	0.01	N
Daily Inhalation Rate (m3/day): Child	-0.01	N	-0.02	N	-0.02	N	-0.02	N	-0.03	N	-0.02	N	-0.02	N
Exposure Duration (years): Adult - Agricultural	-0.02	N	-0.02	N	-0.02	N	-0.02	N	-0.02	N	-0.02	N	-0.02	N
Exposure Duration (years): Adult+Child	0.00	N	-0.01	N	-0.02	N	-0.01	N	-0.01	N	-0.31	Y	-0.33	Y

Table D-1. Largest Contributors to Variability in Noncancer Risk Estimates (in decreasing order of importance)

Forecast (Output Distribution)	**HI-Zinc-Soil/Dust-Residential Adult+Child-Tadanac**	**HI-Zinc-Soil/Dust-Residential Adult+Child-Waneta**	**HI-Zinc-Soil/Dust-Residential Adult+Child-West Trail**	**HI-Zinc-Soil/Dust-Residential Child-East Trail**	**HI-Zinc-Soil/Dust-Residential Child-Rivervale**	**HI-Zinc-Soil/Dust-Residential Child-Tadanac**	**HI-Zinc-Soil/Dust-Residential Child-Waneta**
List of Largest Contributors to Variability	Child soil ingestion rate Exposure Duration Zinc in soil Child Body Weight Zinc in outdoor dust Adult SIR Exposure Frequency	Child soil ingestion rate Zinc in soil Exposure Duration Child Body Weight Adult SIR	Child soil ingestion rate Zinc in soil Exposure Duration Child Body Weight Adult SIR Zinc in outdoor dust	Child soil ingestion rate Zinc in soil Child Body Weight Zinc in outdoor dust	Child soil ingestion rate Zinc in soil Child Body Weight Zinc in outdoor dust	Child soil ingestion rate Zinc in soil Child Body Weight Zinc in outdoor dust Exposure Frequency	Child soil ingestion rate Zinc in soil Child Body Weight

Rank correlation data between assumption and forecast

Assumptions	HI-Zinc-Soil/Dust-Residential Adult+Child-Tadanac	Absolute Value > 0.03	HI-Zinc-Soil/Dust-Residential Adult+Child-Waneta	Absolute Value > 0.03	HI-Zinc-Soil/Dust-Residential Adult+Child-West Trail	Absolute Value > 0.03	HI-Zinc-Soil/Dust-Residential Child-East Trail	Absolute Value > 0.03	HI-Zinc-Soil/Dust-Residential Child-Rivervale	Absolute Value > 0.03	HI-Zinc-Soil/Dust-Residential Child-Tadanac	Absolute Value > 0.03	HI-Zinc-Soil/Dust-Residential Child-Waneta	Absolute Value > 0.03
Arsenic: West Trail Air	0.01	N	0.01	N	0.01	N	0.01	N	0.00	N	0.01	N	0.01	N
Arsenic: West Trail Outdoor Dust	0.00	N	0.00	N	0.01	N	0.00	N	0.01	N	0.01	N	0.00	N
Arsenic: West Trail Residential Soil	-0.02	N	-0.03	N	-0.02	N	-0.01	N	-0.02	N	-0.02	N	-0.02	N
Body Weight (kg): Adult	-0.02	N	-0.01	N	-0.02	N	0.02	N	0.01	N	0.01	N	0.01	N
Body Weight (kg): Child	-0.16	Y	-0.14	Y	-0.15	Y	-0.17	Y	-0.17	Y	-0.18	Y	-0.17	Y
Cadmium: Birchbank Air	0.00	N	0.00	N	-0.01	N	-0.02	N	-0.01	N	-0.01	N	-0.01	N
Cadmium: Butler Park Air	0.01	N	0.00	N	0.00	N	0.01	N	0.00	N	0.01	N	0.00	N
Cadmium: Columbia Gardens Air	0.00	N	0.01	N	0.00	N	0.00	N	0.00	N	0.00	N	0.01	N
Cadmium: East Trail Outdoor Dust	-0.02	N	-0.02	N	-0.01	N	-0.02	N	-0.02	N	-0.02	N	-0.02	N
Cadmium: East Trail Residential Soil	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N
Cadmium: Far Nonroot Produce	-0.01	N	-0.01	N	-0.01	N	0.00	N	-0.01	N	-0.01	N	-0.01	N
Cadmium: Genelle Air	0.01	N	0.01	N	0.01	N	0.02	N	0.02	N	0.02	N	0.02	N
Cadmium: Near Nonroot Produce	-0.02	N	-0.01	N	0.00	N	0.00	N	-0.01	N	-0.01	N	0.00	N
Cadmium: Near Root Produce	0.00	N	-0.01	N	-0.01	N	0.01	N	0.00	N	0.00	N	0.00	N
Cadmium: Rivervale Outdoor Dust	0.01	N	0.01	N	0.01	N	0.00	N	0.01	N	0.01	N	0.01	N
Cadmium: Rivervale Residential Soil	0.00	N	-0.01	N	-0.01	N	0.00	N	0.00	N	0.00	N	-0.01	N
Cadmium: Tadanac Outdoor Dust	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N
Cadmium: Tadanac Residential Soil	-0.02	N	-0.02	N	-0.02	N	-0.02	N	0.00	N	-0.01	N	-0.01	N
Cadmium: Waneta Residential Soil	-0.01	N	-0.01	N	-0.01	N	0.00	N	-0.01	N	0.00	N	0.00	N
Cadmium: Warfield Air	0.00	N	0.00	N	0.00	N	0.00	N	0.01	N	0.01	N	0.00	N
Cadmium: West Trail Air	0.01	N	-0.01	N	0.00	N	0.00	N	0.00	N	0.00	N	-0.01	N
Cadmium: West Trail Outdoor Dust	0.00	N	0.01	N	0.00	N	0.01	N	0.00	N	0.00	N	0.01	N
Cadmium: West Trail Residential Soil	0.00	N	-0.02	N	-0.01	N	-0.02	N	-0.01	N	-0.01	N	-0.02	N
Daily Inhalation Rate (m3/day): Adult	0.00	N	0.01	N	0.01	N	0.00	N	0.01	N	0.00	N	0.00	N
Daily Inhalation Rate (m3/day): Child	-0.02	N	-0.02	N	-0.02	N	-0.01	N	-0.02	N	-0.02	N	-0.02	N
Exposure Duration (years): Adult - Agricultural	-0.02	N	-0.02	N	-0.02	N	-0.02	N	-0.02	N	-0.02	N	-0.02	N
Exposure Duration (years): Adult+Child	-0.33	Y	-0.30	Y	-0.33	Y	-0.01	N	-0.01	N	-0.01	N	0.00	N

Table D-1. Largest Contributors to Variability in Noncancer Risk Estimates (in decreasing order of importance)

Forecast (Output Distribution)	**HI-Zinc-Soil/Dust-Residential Child-West Trail**	**Site-wide HI: Antimony Adult+Child Residential Soil-Dust**	**Site-wide HI: Antimony Child Residential Soil-Dust**	**Site-wide HI: Arsenic Adult+Child Residential Soil-Dust**	**Site-wide HI: Arsenic Child Residential Soil-Dust**	**Site-wide HI: Cadmium Adult+Child Residential Soil-Dust**	**Site-wide HI: Selenium Adult+Child Residential Soil-Dust**
List of Largest Contributors to Variability	Child soil ingestion rate Zinc in soil Child Body Weight Zinc in outdoor dust	Child soil ingestion rate Exposure Duration Antimony in indoor dust Child Body Weight Adult SIR Antimony in soil Antimony in outdoor dust Fractional intake: soil/dust	Child soil ingestion rate Antimony in indoor dust Child Body Weight Antimony in soil Antimony in outdoor dust	Child soil ingestion rate Exposure Duration Arsenic in indoor dust Child Body Weight Adult SIR Arsenic in soil Arsenic in outdoor dust	Child soil ingestion rate Arsenic in indoor dust Child Body Weight Arsenic in soil Arsenic in outdoor dust	Child soil ingestion rate Cadmium in indoor dust Exposure Duration Child Body Weight Adult SIR Cadmium in outdoor dust Cadmium in soil Fractional intake: soil/dust	Child soil ingestion rate Selenium in soil Exposure Duration Child Body Weight Adult SIR Selenium in outdoor dust

Rank correlation data between assumption and forecast

Assumptions	HI-Zinc-Soil/Dust-Residential Child-West Trail	Absolute Value > 0.03	Site-wide HI: Antimony Adult+Child Residential Soil Dust	Absolute Value > 0.03	Site-wide HI: Antimony Child Residential Soil Dust	Absolute Value > 0.03	Site-wide HI: Arsenic Adult+Child Residential Soil Dust	Absolute Value > 0.03	Site-wide HI: Arsenic Child Residential Soil Dust	Absolute Value > 0.03	Site-wide HI: Cadmium Adult+Child Residential Soil Dust	Absolute Value > 0.03	Site-wide HI: Selenium Adult+Child Residential Soil Dust	Absolute Value > 0.03
Arsenic: West Trail Air	0.01	N	0.00	N	0.01	N	0.00	N	0.01	N	0.01	N	-0.01	N
Arsenic: West Trail Outdoor Dust	0.02	N	-0.01	N	0.00	N	0.00	N	0.01	N	0.02	N	-0.01	N
Arsenic: West Trail Residential Soil	-0.02	N	-0.02	N	-0.02	N	-0.02	N	-0.02	N	-0.01	N	-0.02	N
Body Weight (kg): Adult	0.00	N	-0.01	N	0.01	N	-0.02	N	0.01	N	-0.02	N	-0.02	N
Body Weight (kg): Child	-0.18	Y	-0.16	Y	-0.18	Y	-0.15	Y	-0.18	Y	-0.15	Y	-0.14	Y
Cadmium: Birchbank Air	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N
Cadmium: Butler Park Air	0.00	N	0.00	N	0.00	N	-0.01	N	0.00	N	0.01	N	0.00	N
Cadmium: Columbia Gardens Air	0.00	N	-0.01	N	-0.01	N	0.00	N	0.00	N	0.00	N	0.00	N
Cadmium: East Trail Outdoor Dust	-0.02	N	-0.02	N	-0.02	N	-0.02	N	-0.02	N	-0.01	N	-0.01	N
Cadmium: East Trail Residential Soil	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N	0.00	N	0.01	N
Cadmium: Far Nonroot Produce	-0.02	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	0.00	N	0.00	N
Cadmium: Genelle Air	0.02	N	0.02	N	0.02	N	0.02	N	0.02	N	0.02	N	0.01	N
Cadmium: Near Nonroot Produce	0.00	N	0.00	N	0.00	N	-0.01	N	0.00	N	0.00	N	-0.01	N
Cadmium: Near Root Produce	0.00	N	-0.01	N	0.00	N	-0.01	N	-0.01	N	0.00	N	0.00	N
Cadmium: Rivervale Outdoor Dust	0.01	N	0.01	N	0.01	N	0.02	N	0.01	N	0.01	N	0.02	N
Cadmium: Rivervale Residential Soil	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	0.00	N
Cadmium: Tadanac Outdoor Dust	0.00	N	-0.01	N	0.00	N	0.00	N	0.00	N	0.00	N	-0.01	N
Cadmium: Tadanac Residential Soil	-0.01	N	-0.02	N	-0.01	N	-0.03	N	-0.02	N	-0.01	N	-0.02	N
Cadmium: Waneta Residential Soil	0.00	N	-0.01	N	0.00	N	-0.01	N	0.00	N	0.00	N	0.00	N
Cadmium: Warfield Air	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N	0.00	N	0.00	N
Cadmium: West Trail Air	0.00	N	-0.01	N	-0.01	N	0.00	N	0.00	N	0.00	N	0.00	N
Cadmium: West Trail Outdoor Dust	0.00	N	0.00	N	0.01	N	0.00	N	0.00	N	0.01	N	0.00	N
Cadmium: West Trail Residential Soil	-0.02	N	0.00	N	-0.01	N	-0.01	N	-0.01	N	-0.02	N	-0.01	N
Daily Inhalation Rate (m3/day): Adult	0.00	N	0.01	N	0.00	N	0.01	N	0.01	N	0.01	N	0.01	N
Daily Inhalation Rate (m3/day): Child	-0.02	N	-0.02	N	-0.02	N	-0.02	N	-0.02	N	-0.03	N	-0.02	N
Exposure Duration (years): Adult - Agricultural	-0.02	N	-0.02	N	-0.02	N	-0.02	N	-0.03	N	-0.01	N	-0.02	N
Exposure Duration (years): Adult+Child	-0.02	N	-0.33	Y	-0.01	N	-0.33	Y	-0.01	N	0.29	Y	-0.30	Y

Table D-1. Largest Contributors to Variability in Noncancer Risk Estimates (in decreasing order of importance)

Forecast (Output Distribution)	**Site-wide HI: Selenium Child Residential Soil-Dust**	**Site-wide HI: Silver Adult+Child Residential Soil-Dust**	**Site-wide HI: Silver Child Residential Soil-Dust**	**Site-wide HI: Thallium Adult+Child Residential Soil-Dust**	**Site-wide HI: Thallium Child Residential Soil-Dust**	**Site-wide HI: Tin Adult+Child Residential Soil-Dust**	**Site-wide HI: Tin Child Residential Soil-Dust**
List of Largest Contributors to Variability	Child soil ingestion rate Selenium in soil Child Body Weight Selenium in outdoor dust	Child soil ingestion rate Silver in soil Exposure Duration Silver in outdoor dust Child Body Weight Adult SIR	Child soil ingestion rate Exposure Duration Silver in outdoor dust Child Body Weight	Child soil ingestion rate Thallium in soil Exposure Duration Child Body Weight Adult SIR Thallium in outdoor dust	Child soil ingestion rate Thallium in soil Child Body Weight Thallium in outdoor dust	Child soil ingestion rate Tin in soil Exposure Duration Child Body Weight Tin in outdoor dust Adult SIR	Child soil ingestion rate Tin in soil Child Body Weight Tin in outdoor dust

Rank correlation data between assumption and forecast

Assumptions	Site-wide HI: Selenium Child Residential Soil Dust	Absolute Value > 0.03	Site-wide HI: Silver Adult+Child Residential Soil Dust	Absolute Value > 0.03	Site-wide HI: Silver Child Residential Soil Dust	Absolute Value > 0.03	Site-wide HI: Thallium Adult+Child Residential Soil Dust	Absolute Value > 0.03	Site-wide HI: Thallium Child Residential Soil Dust	Absolute Value > 0.03	Site-wide HI: Tin Adult+Child Residential Soil Dust	Absolute Value > 0.03	Site-wide HI: Tin Child Residential Soil Dust	Absolute Value > 0.03
Arsenic: West Trail Air	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.01	N	0.01	N
Arsenic: West Trail Outdoor Dust	0.00	N	0.00	N	0.00	N	0.00	N	0.01	N	0.00	N	0.01	N
Arsenic: West Trail Residential Soil	-0.02	N	-0.02	N	-0.02	N	-0.03	N	-0.02	N	-0.02	N	-0.01	N
Body Weight (kg): Adult	0.01	N	-0.02	N	0.00	N	-0.02	N	0.01	N	-0.01	N	0.01	N
Body Weight (kg): Child	-0.17	Y	-0.14	Y	-0.17	Y	-0.15	Y	-0.17	Y	-0.13	Y	-0.16	Y
Cadmium: Birchbank Air	-0.02	N	0.00	N	0.00	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N
Cadmium: Butler Park Air	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	-0.01	N
Cadmium: Columbia Gardens Air	0.00	N	0.00	N	-0.01	N	-0.01	N	-0.01	N	0.00	N	-0.01	N
Cadmium: East Trail Outdoor Dust	-0.01	N	-0.02	N	-0.02	N	-0.02	N	-0.03	N	-0.02	N	-0.02	N
Cadmium: East Trail Residential Soil	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N	0.00	N	0.00	N
Cadmium: Far Nonroot Produce	-0.01	N	0.00	N	0.00	N	-0.01	N	-0.01	N	-0.02	N	-0.02	N
Cadmium: Genelle Air	0.01	N	0.02	N	0.02	N	0.03	N	0.03	Y	0.02	N	0.02	N
Cadmium: Near Nonroot Produce	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N
Cadmium: Near Root Produce	0.00	N	-0.01	N	0.00	N	-0.01	N	-0.01	N	0.00	N	0.00	N
Cadmium: Rivervale Outdoor Dust	0.01	N	0.02	N	0.01	N	0.01	N	0.01	N	-0.01	N	-0.01	N
Cadmium: Rivervale Residential Soil	0.00	N	0.00	N	0.00	N	0.00	N	-0.01	N	0.01	N	0.01	N
Cadmium: Tadanac Outdoor Dust	-0.01	N	0.00	N	0.01	N	0.00	N	0.00	N	0.00	N	0.00	N
Cadmium: Tadanac Residential Soil	-0.01	N	-0.03	Y	-0.02	N	-0.02	N	-0.01	N	-0.01	N	0.00	N
Cadmium: Waneta Residential Soil	0.01	N	0.00	N	0.01	N	0.00	N	0.01	N	-0.01	N	0.00	N
Cadmium: Warfield Air	0.00	N	0.00	N	0.01	N	0.01	N	0.01	N	0.00	N	0.00	N
Cadmium: West Trail Air	-0.01	N	0.00	N	0.00	N	0.01	N	0.01	N	0.00	N	0.00	N
Cadmium: West Trail Outdoor Dust	0.00	N	0.01	N	0.01	N	0.00	N	0.00	N	0.01	N	0.01	N
Cadmium: West Trail Residential Soil	-0.02	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	0.00	N	0.00	N
Daily Inhalation Rate (m3/day): Adult	0.01	N	0.01	N	0.00	N	0.00	N	0.00	N	0.01	N	0.01	N
Daily Inhalation Rate (m3/day): Child	-0.02	N	-0.02	N	-0.02	N	-0.02	N	-0.02	N	-0.01	N	-0.01	N
Exposure Duration (years): Adult - Agricultural	-0.01	N	-0.03	N	-0.03	N	-0.02	N	-0.02	N	-0.01	N	-0.01	N
Exposure Duration (years): Adult+Child	-0.01	N	-0.31	Y	-0.01	N	-0.30	Y	-0.01	N	-0.29	Y	-0.01	N

Table D-1. Largest Contributors to Variability in Noncancer Risk Estimates (in decreasing order of importance)

Forecast (Output Distribution)	**Site-wide HI: Zinc Adult+Child Residential Soil-Dust**	**Site-wide HI: Zinc Child Residential Soil-Dust**
List of Largest Contributors to Variability	Child soil ingestion rate Zinc in soil Exposure Duration Zinc in outdoor dust Child Body Weight Adult SIR	Child soil ingestion rate Zinc in soil Zinc in outdoor dust Child Body Weight

Rank correlation data between assumption and forecast

Assumptions	Site-wide HI: Zinc Adult+Child Residential Soil Dust	Absolute Value > 0.03	Site-wide HI: Zinc Child Residential Soil Dust	Absolute Value > 0.03
Arsenic: West Trail Air	0.00	N	0.00	N
Arsenic: West Trail Outdoor Dust	0.00	N	0.01	N
Arsenic: West Trail Residential Soil	-0.02	N	-0.02	N
Body Weight (kg): Adult	-0.02	N	0.01	N
Body Weight (kg): Child	-0.14	Y	-0.17	Y
Cadmium: Birchbank Air	0.00	N	-0.01	N
Cadmium: Butler Park Air	0.00	N	0.01	N
Cadmium: Columbia Gardens Air	0.00	N	0.00	N
Cadmium: East Trail Outdoor Dust	-0.01	N	-0.02	N
Cadmium: East Trail Residential Soil	0.02	N	0.02	N
Cadmium: Far Nonroot Produce	-0.01	N	-0.01	N
Cadmium: Genelle Air	0.01	N	0.02	N
Cadmium: Near Nonroot Produce	0.00	N	0.00	N
Cadmium: Near Root Produce	-0.01	N	0.00	N
Cadmium: Rivervale Outdoor Dust	0.02	N	0.02	N
Cadmium: Rivervale Residential Soil	-0.01	N	-0.01	N
Cadmium: Tadanac Outdoor Dust	0.00	N	0.00	N
Cadmium: Tadanac Residential Soil	-0.02	N	-0.01	N
Cadmium: Waneta Residential Soil	0.00	N	0.01	N
Cadmium: Warfield Air	0.00	N	0.01	N
Cadmium: West Trail Air	0.00	N	0.00	N
Cadmium: West Trail Outdoor Dust	0.00	N	0.00	N
Cadmium: West Trail Residential Soil	0.00	N	-0.01	N
Daily Inhalation Rate (m3/day): Adult	0.01	N	0.00	N
Daily Inhalation Rate (m3/day): Child	-0.01	N	-0.01	N
Exposure Duration (years): Adult - Agricultural	-0.02	N	-0.02	N
Exposure Duration (years): Adult+Child	-0.30	Y	-0.02	N

Table D-1. Largest Contributors to Variability in Noncancer Risk Estimates (in decreasing order of importance)

Forecast (Output Distribution)	HI-Antimony-Produce-Residential Adult+Child-Far	HI-Antimony-Produce-Residential Adult+Child-Near	HI-Antimony-Produce-Residential Child-Far	HI-Antimony-Produce-Residential Child-Near	HI-Arsenic-Produce-Residential Adult+Child-Far	HI-Arsenic-Produce-Residential Adult+Child-Near
List of Largest Contributors to Variability	Child nonroot ingestion rate Child root ingestion rate Exposure Duration Child Body Weight Adult nonroot ingestion rate Adult root ingestion rate Adult Body Weight	Antimony in nonroot produce Child nonroot ingestion rate Antimony in root produce Child root ingestion rate Exposure Duration Child Body Weight Adult nonroot ingestion rate Adult root ingestion rate Adult Body Weight	Child nonroot ingestion rate Child root ingestion rate Child Body Weight	Antimony in nonroot produce Child nonroot ingestion rate Child root ingestion rate Antimony in root produce Child Body Weight	Arsenic in nonroot produce Child root ingestion rate Child nonroot ingestion rate Adult root ingestion rate Adult nonroot ingestion rate Adult Body Weight Child Body Weight Exposure Duration	Arsenic in nonroot produce Arsenic in root produce Child nonroot ingestion rate Child root ingestion rate Adult nonroot ingestion rate Adult root ingestion rate Exposure Duration Child Body Weight

Rank correlation data between assumption and forecast

Assumptions	HI-Antimony-Produce-Residential Adult+Child-Far	Absolute Value > 0.03	HI-Antimony-Produce-Residential Adult+Child-Near	Absolute Value > 0.03	HI-Antimony-Produce-Residential Child-Far	Absolute Value > 0.03	HI-Antimony-Produce-Residential Child-Near	Absolute Value > 0.03	HI-Arsenic-Produce-Residential Adult+Child-Far	Absolute Value > 0.03	HI-Arsenic-Produce-Residential Adult+Child-Near	Absolute Value > 0.03
Exposure Frequency (days/year): Commercial	0.01	N	0.00	N	0.01	N	0.00	N	-0.02	N	-0.02	N
Exposure Frequency (days/year): Residential Soil & Outdoor Dust	0.01	N	0.00	N	0.02	N	0.01	N	0.00	N	-0.02	N
Fractional Intake (-): Residential Indoor Dust	0.00	N	-0.01	N	0.00	N	-0.01	N	-0.01	N	0.00	N
Hourly Inhalation Rate (m3/hour): Adult	0.00	N	0.00	N	0.00	N	0.00	N	0.01	N	0.01	N
Hourly Inhalation Rate (m3/hour): Child	0.00	N	0.01	N	0.00	N	0.01	N	0.00	N	0.01	N
Non-Root Produce Ingestion (g/day): Adult	0.27	Y	0.12	Y	-0.01	N	-0.01	N	0.11	Y	0.09	Y
Non-Root Produce Ingestion (g/day): Child	0.60	Y	0.33	Y	0.77	Y	0.45	Y	0.23	Y	0.21	Y
PCair	-0.01	N	0.01	N	0.00	N	0.01	N	-0.01	N	-0.01	N
Root Produce Ingestion (g/day): Adult	0.12	Y	0.10	Y	0.01	N	0.01	N	0.14	Y	0.07	Y
Root Produce Ingestion (g/day): Child	0.32	Y	0.27	Y	0.41	Y	0.36	Y	0.34	Y	0.17	Y
Selenium: East Trail Outdoor Dust	-0.02	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N
Selenium: East Trail Residential Soil	0.01	N	0.01	N	0.01	N	0.01	N	-0.01	N	0.00	N
Selenium: Rivervale Outdoor Dust	0.01	N	-0.01	N	0.00	N	-0.01	N	-0.01	N	-0.01	N
Selenium: Rivervale Residential Soil	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	0.00	N
Selenium: Tadanac Outdoor Dust	-0.01	N	-0.01	N	0.00	N	0.00	N	-0.02	N	-0.01	N
Selenium: Tadanac Residential Soil	0.00	N	0.01	N	0.01	N	0.02	N	-0.01	N	0.00	N
Selenium: West Trail Outdoor Dust	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.01	N
Selenium: West Trail Residential Soil	0.00	N	-0.01	N	0.01	N	-0.01	N	0.01	N	0.00	N
Silver: East Trail Outdoor Dust	0.01	N	-0.01	N	0.01	N	0.00	N	0.00	N	0.01	N
Silver: East Trail Residential Soil	0.02	N	0.02	N	0.01	N	0.01	N	0.02	N	-0.01	N

Table D-1. Largest Contributors to Variability in Noncancer Risk Estimates (in decreasing order of importance)

Forecast (Output Distribution)	HI-Arsenic-Produce-Residential Child-Far	HI-Arsenic-Produce-Residential Child-Near	HI-Cadmium-Produce-Residential Adult+Child-Far	HI-Cadmium-Produce-Residential Adult+Child-Near	HI-Thallium-Produce-Residential Adult+Child-Far	HI-Thallium-Produce-Residential Adult+Child-Near
List of Largest Contributors to Variability	Arsenic in nonroot produce Child root ingestion rate Child nonroot ingestion rate Child Body Weight	Arsenic in nonroot produce Arsenic in root produce Child nonroot ingestion rate Child root ingestion rate Child Body Weight	Exposure Duration Cadmium in nonroot produce Child root ingestion rate Child Body Weight Adult root ingestion rate Child nonroot ingestion rate Adult nonroot ingestion rate Adult Body Weight	Exposure Duration Cadmium in nonroot produce Cadmium in root produce Child root ingestion rate Child Body Weight Child nonroot ingestion rate Adult root ingestion rate Adult nonroot ingestion rate Adult Body Weight	Child root ingestion rate Exposure Duration Child nonroot ingestion rate Child Body Weight Adult root ingestion rate Adult nonroot ingestion rate Adult Body Weight	Thallium in root produce Child root ingestion rate Thallium in nonroot produce Exposure Duration Child Body Weight Child nonroot ingestion rate Adult root ingestion rate Adult Body Weight Adult nonroot ingestion rate

Rank correlation data between assumption and forecast

Assumptions	HI-Arsenic-Produce-Residential Child-Far	Absolute Value > 0.03	HI-Arsenic-Produce-Residential Child-Near	Absolute Value > 0.03	HI-Cadmium-Produce-Residential Adult+Child-Far	Absolute Value > 0.03	HI-Cadmium-Produce-Residential Adult+Child-Near	Absolute Value > 0.03	HI-Thallium-Produce-Residential Adult+Child-Far	Absolute Value > 0.03	HI-Thallium-Produce-Residential Adult+Child-Near	Absolute Value > 0.03
Exposure Frequency (days/year): Commercial	-0.02	N	-0.02	N	0.00	N	0.00	N	0.01	N	0.01	N
Exposure Frequency (days/year): Residential Soil & Outdoor Dust	0.00	N	-0.02	N	0.00	N	0.00	N	0.01	N	0.00	N
Fractional Intake (-): Residential Indoor Dust	-0.01	N	0.00	N	0.01	N	-0.01	N	0.01	N	0.00	N
Hourly Inhalation Rate (m3/hour): Adult	0.01	N	0.01	N	0.00	N	0.01	N	0.00	N	0.00	N
Hourly Inhalation Rate (m3/hour): Child	0.00	N	0.01	N	-0.01	N	0.01	N	-0.01	N	0.00	N
Non-Root Produce Ingestion (g/day): Adult	0.00	N	-0.01	N	0.05	Y	0.06	Y	0.14	Y	0.06	Y
Non-Root Produce Ingestion (g/day): Child	0.33	Y	0.30	Y	0.13	Y	0.14	Y	0.34	Y	0.17	Y
PCair	0.00	N	0.00	N	0.01	N	0.00	N	-0.01	N	0.00	N
Root Produce Ingestion (g/day): Adult	0.00	N	0.00	N	0.15	Y	0.10	Y	0.23	Y	0.16	Y
Root Produce Ingestion (g/day): Child	0.46	Y	0.24	Y	0.35	Y	0.26	Y	0.58	Y	0.40	Y
Selenium: East Trail Outdoor Dust	0.00	N	-0.01	N	0.02	N	0.01	N	-0.02	N	0.00	N
Selenium: East Trail Residential Soil	0.00	N	0.00	N	0.00	N	0.01	N	0.00	N	0.00	N
Selenium: Rivervale Outdoor Dust	-0.01	N	-0.01	N	0.01	N	0.01	N	0.00	N	-0.02	N
Selenium: Rivervale Residential Soil	-0.01	N	0.00	N	-0.01	N	-0.01	N	-0.01	N	-0.02	N
Selenium: Tadanac Outdoor Dust	-0.01	N	-0.01	N	0.01	N	0.01	N	-0.01	N	-0.02	N
Selenium: Tadanac Residential Soil	0.00	N	0.00	N	0.01	N	0.01	N	0.00	N	0.01	N
Selenium: West Trail Outdoor Dust	0.00	N	0.01	N	-0.01	N	-0.02	N	-0.01	N	-0.01	N
Selenium: West Trail Residential Soil	0.02	N	0.00	N	0.01	N	0.00	N	0.00	N	0.00	N
Silver: East Trail Outdoor Dust	0.00	N	0.01	N	0.00	N	-0.01	N	0.00	N	0.01	N
Silver: East Trail Residential Soil	0.02	N	0.00	N	0.01	N	0.01	N	0.02	N	0.00	N

Table D-1. Largest Contributors to Variability in Noncancer Risk Estimates (in decreasing order of importance)

Forecast (Output Distribution)	**HI-Thallium-Produce-Residential Child-Far**	**HI-Thallium-Produce-Residential Child-Near**	**Site-wide HI: Antimony Adult+Child Residential Produce**	**Site-wide HI: Antimony Child Residential Produce**	**Site-wide HI: Arsenic Adult+Child Residential Produce**	**Site-wide HI: Arsenic Child Residential Produce**
List of Largest Contributors to Variability	Child root ingestion rate Child nonroot ingestion rate Child Body Weight	Thallium in root produce Child root ingestion rate Child Body Weight Thallium in nonroot produce Child Body Weight	Antimony in nonroot produce Child nonroot ingestion rate Child root ingestion rate Antimony in root produce Exposure Duration Child Body Weight Adult nonroot ingestion rate Adult root ingestion rate Adult Body Weight	Antimony in nonroot produce Child nonroot ingestion rate Child root ingestion rate Antimony in root produce Child Body Weight	Arsenic in nonroot produce Arsenic in root produce Child nonroot ingestion rate Child root ingestion rate Adult nonroot ingestion rate Adult root ingestion rate Adult Body Weight Child Body Weight Exposure Duration	Arsenic in nonroot produce Child nonroot ingestion rate Arsenic in root produce Child root ingestion rate Child Body Weight

Rank correlation data between assumption and forecast

Assumptions	HI-Thallium-Produce-Residential Child-Far	Absolute Value > 0.03	HI-Thallium-Produce-Residential Child-Near	Absolute Value > 0.03	Site-wide HI: Antimony Adult+Child Residential Produce	Absolute Value > 0.03	Site-wide HI: Antimony Child Residential Produce	Absolute Value > 0.03	Site-wide HI: Arsenic Adult+Child Residential Produce	Absolute Value > 0.03	Site-wide HI: Arsenic Child Residential Produce	Absolute Value > 0.03
Exposure Frequency (days/year): Commercial	0.01	N	0.01	N	0.01	N	0.01	N	-0.01	N	-0.01	N
Exposure Frequency (days/year): Residential Soil & Outdoor Dust	0.02	N	0.01	N	0.00	N	0.01	N	0.00	N	0.00	N
Fractional Intake (-): Residential Indoor Dust	0.01	N	0.00	N	-0.02	N	-0.01	N	-0.01	N	-0.01	N
Hourly Inhalation Rate (m3/hour): Adult	0.00	N	0.01	N	0.01	N	0.01	N	0.00	N	0.01	N
Hourly Inhalation Rate (m3/hour): Child	0.00	N	0.00	N	-0.01	N	-0.01	N	0.01	N	0.01	N
Non-Root Produce Ingestion (g/day): Adult	0.00	N	0.00	N	0.13	Y	-0.01	N	0.10	Y	0.01	N
Non-Root Produce Ingestion (g/day): Child	0.44	Y	0.23	Y	0.33	Y	0.46	Y	0.23	Y	0.32	Y
PCair	0.00	N	0.01	N	0.00	N	0.01	N	-0.02	N	-0.01	N
Root Produce Ingestion (g/day): Adult	0.01	N	0.01	N	0.11	Y	0.01	N	0.08	Y	0.01	N
Root Produce Ingestion (g/day): Child	0.74	Y	0.54	Y	0.29	Y	0.38	Y	0.18	Y	0.26	Y
Selenium: East Trail Outdoor Dust	-0.01	N	0.00	N	-0.03	N	-0.02	N	-0.01	N	-0.01	N
Selenium: East Trail Residential Soil	0.01	N	0.01	N	0.01	N	0.01	N	0.00	N	0.00	N
Selenium: Rivervale Outdoor Dust	-0.01	N	-0.02	N	0.01	N	0.00	N	0.01	N	0.01	N
Selenium: Rivervale Residential Soil	-0.01	N	-0.02	N	0.00	N	0.00	N	-0.01	N	-0.01	N
Selenium: Tadanac Outdoor Dust	0.00	N	-0.01	N	-0.01	N	-0.01	N	0.01	N	0.01	N
Selenium: Tadanac Residential Soil	0.01	N	0.01	N	-0.02	N	-0.01	N	0.00	N	0.01	N
Selenium: West Trail Outdoor Dust	-0.01	N	-0.01	N	0.00	N	-0.01	N	-0.02	N	-0.02	N
Selenium: West Trail Residential Soil	0.01	N	0.01	N	0.00	N	0.01	N	0.01	N	0.01	N
Silver: East Trail Outdoor Dust	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N
Silver: East Trail Residential Soil	0.02	N	0.00	N	0.03	N	0.02	N	0.01	N	0.01	N

Table D-1. Largest Contributors to Variability in Noncancer Risk Estimates (in decreasing order of importance)

Forecast (Output Distribution)	Site-wide HI: Cadmium Adult+Child Residential Produce	Site-wide HI: Thallium Adult+Child Residential Produce	Site-wide HI: Thallium Child Residential Produce	HI-Antimony-Particulates-Agricultural Adult-Waneta	HI-Antimony-Soil/Dust-Agricultural Adult-Waneta	HI-Antimony-Soil/Dust-Commerical Adult+Child-East Trail
List of Largest Contributors to Variability	Exposure Duration Cadmium in nonroot produce Cadmium in root produce Child root ingestion rate Child nonroot ingestion rate Child Body Weight Adult root ingestion rate Adult nonroot ingestion rate Adult Body Weight	Thallium in root produce Child root ingestion rate Thallium in nonroot produce Exposure Duration Child nonroot ingestion rate Child Body Weight Adult root ingestion rate Adult nonroot ingestion rate Adult Body Weight	Thallium in root produce Child root ingestion rate Thallium in nonroot produce Child nonroot ingestion rate Child Body Weight	Particulate concentration in air Adult Body Weight Adult Inhalation Rate	Adult Body Weight	Child soil ingestion rate Exposure Duration Child Body Weight Adult SIR Exposure Frequency

Rank correlation data between assumption and forecast

Assumptions	Site-wide HI: Cadmium Adult+Child Residential Produce	Absolute Value > 0.03	Site-wide HI: Thallium Adult+Child Residential Produce	Absolute Value > 0.03	Site-wide HI: Thallium Child Residential Produce	Absolute Value > 0.03	HI-Antimony-Particulates-Agricultural Adult-Waneta	Absolute Value > 0.03	HI-Antimony-Soil/Dust-Agricultural Adult-Waneta	Absolute Value > 0.03	HI-Antimony-Soil/Dust-Commerical Adult+Child-East Trail	Absolute Value > 0.03
Exposure Frequency (days/year): Commercial	0.02	N	0.01	N	0.01	N	-0.01	N	0.00	N	0.05	Y
Exposure Frequency (days/year): Residential Soil & Outdoor Dust	0.00	N	0.00	N	0.01	N	0.00	N	0.01	N	-0.01	N
Fractional Intake (-): Residential Indoor Dust	-0.01	N	0.01	N	0.01	N	-0.01	N	0.00	N	0.01	N
Hourly Inhalation Rate (m3/hour): Adult	0.01	N	-0.01	N	-0.01	N	0.36	Y	0.01	N	0.00	N
Hourly Inhalation Rate (m3/hour): Child	-0.01	N	0.00	N	0.01	N	0.01	N	0.00	N	-0.01	N
Non-Root Produce Ingestion (g/day): Adult	0.07	Y	0.08	Y	0.02	N	0.01	N	0.01	N	-0.01	N
Non-Root Produce Ingestion (g/day): Child	0.16	Y	0.19	Y	0.25	Y	0.00	N	0.00	N	-0.01	N
PCair	0.01	N	-0.01	N	-0.01	N	0.82	Y	-0.01	N	-0.01	N
Root Produce Ingestion (g/day): Adult	0.12	Y	0.15	Y	0.01	N	0.02	N	0.01	N	0.00	N
Root Produce Ingestion (g/day): Child	0.25	Y	0.38	Y	0.50	Y	0.00	N	0.01	N	-0.01	N
Selenium: East Trail Outdoor Dust	0.01	N	-0.01	N	0.00	N	0.01	N	0.01	N	-0.03	Y
Selenium: East Trail Residential Soil	0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	0.00	N
Selenium: Rivervale Outdoor Dust	0.00	N	0.00	N	0.00	N	-0.01	N	0.00	N	0.00	N
Selenium: Rivervale Residential Soil	-0.01	N	-0.01	N	0.00	N	0.00	N	0.01	N	0.00	N
Selenium: Tadanac Outdoor Dust	0.00	N	0.01	N	0.01	N	0.00	N	-0.01	N	0.00	N
Selenium: Tadanac Residential Soil	0.00	N	-0.01	N	0.01	N	0.00	N	-0.01	N	-0.01	N
Selenium: West Trail Outdoor Dust	0.00	N	0.00	N	-0.01	N	0.02	N	0.01	N	0.00	N
Selenium: West Trail Residential Soil	0.01	N	0.01	N	0.01	N	0.02	N	0.01	N	-0.02	N
Silver: East Trail Outdoor Dust	0.00	N	0.00	N	0.00	N	0.01	N	-0.01	N	0.00	N
Silver: East Trail Residential Soil	0.01	N	0.00	N	0.00	N	0.02	N	0.00	N	-0.01	N

Table D-1. Largest Contributors to Variability in Noncancer Risk Estimates (in decreasing order of importance)

Forecast (Output Distribution)	**HI-Antimony-Soil/Dust-Commerical Child-East Trail**	**HI-Antimony-Soil/Dust-Residential Adult+Child-East Trail**	**HI-Antimony-Soil/Dust-Residential Adult+Child-Rivervale**	**HI-Antimony-Soil/Dust-Residential Adult+Child-Tadanac**	**HI-Antimony-Soil/Dust-Residential Adult+Child-Waneta**	**HI-Antimony-Soil/Dust-Residential Adult+Child-West Trail**	**HI-Antimony-Soil/Dust-Residential Child-East Trail**
List of Largest Contributors to Variability	Child soil ingestion rate Child Body Weight Exposure Frequency	Child soil ingestion rate Exposure Duration Child Body Weight Adult SIR Antimony in soil Antimony in outdoor dust Fractional Intake: soil/dust	Child soil ingestion rate Exposure Duration Child Body Weight Adult SIR Antimony in soil	Child soil ingestion rate Exposure Duration Child Body Weight Adult SIR Antimony in soil Antimony in outdoor dust Fractional Intake: soil/dust	Child soil ingestion rate Exposure Duration Child Body Weight Adult SIR Antimony in soil	Child soil ingestion rate Exposure Duration Child Body Weight Adult SIR Antimony in soil Fractional Intake: soil/dust	Child soil ingestion rate Child Body Weight Antimony in soil Antimony in outdoor dust Fractional Intake: soil/dust

Rank correlation data between assumption and forecast

Assumptions	HI-Antimony-Soil/Dust-Commerical Child-East Trail	Absolute Value > 0.03	HI-Antimony-Soil/Dust-Residential Adult+Child-East Trail	Absolute Value > 0.03	HI-Antimony-Soil/Dust-Residential Adult+Child-Rivervale	Absolute Value > 0.03	HI-Antimony-Soil/Dust-Residential Adult+Child-Tadanac	Absolute Value > 0.03	HI-Antimony-Soil/Dust-Residential Adult+Child-Waneta	Absolute Value > 0.03	HI-Antimony-Soil/Dust-Residential Adult+Child-West Trail	Absolute Value > 0.03	HI-Antimony-Soil/Dust-Residential Child-East Trail	Absolute Value > 0.03
Exposure Frequency (days/year): Commercial	0.06	Y	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	0.00	N
Exposure Frequency (days/year): Residential Soil & Outdoor Dust	-0.01	N	0.00	N	0.01	N	0.01	N	0.01	N	0.00	N	0.00	N
Fractional Intake (-): Residential Indoor Dust	0.01	N	0.04	Y	0.03	N	0.03	Y	0.03	N	0.04	Y	0.04	Y
Hourly Inhalation Rate (m3/hour): Adult	0.01	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.01	N
Hourly Inhalation Rate (m3/hour): Child	-0.01	N	-0.01	N	-0.02	N	-0.01	N	-0.01	N	-0.02	N	-0.01	N
Non-Root Produce Ingestion (g/day): Adult	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N
Non-Root Produce Ingestion (g/day): Child	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N
PCair	0.00	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	0.00	N
Root Produce Ingestion (g/day): Adult	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N
Root Produce Ingestion (g/day): Child	0.00	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	0.00	N
Selenium: East Trail Outdoor Dust	-0.02	N	-0.03	Y	-0.03	Y	-0.03	Y	-0.03	Y	-0.03	Y	-0.02	N
Selenium: East Trail Residential Soil	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N
Selenium: Rivervale Outdoor Dust	0.01	N	0.01	N	0.00	N	0.00	N	0.00	N	0.00	N	0.01	N
Selenium: Rivervale Residential Soil	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N
Selenium: Tadanac Outdoor Dust	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N
Selenium: Tadanac Residential Soil	0.00	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	0.00	N
Selenium: West Trail Outdoor Dust	0.01	N	0.00	N	0.01	N	0.00	N	0.00	N	0.00	N	0.01	N
Selenium: West Trail Residential Soil	-0.02	N	-0.02	N	-0.02	N	-0.02	N	-0.02	N	-0.02	N	-0.02	N
Silver: East Trail Outdoor Dust	0.00	N	0.00	N	-0.01	N	-0.01	N	0.00	N	0.00	N	0.00	N
Silver: East Trail Residential Soil	0.00	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	0.00	N

Table D-1. Largest Contributors to Variability in Noncancer Risk Estimates (in decreasing order of importance)

Forecast (Output Distribution)	HI-Antimony-Soil/Dust-Residential Child-Rivervale	HI-Antimony-Soil/Dust-Residential Child-Tadanac	HI-Antimony-Soil/Dust-Residential Child-Waneta	HI-Antimony-Soil/Dust-Residential Child-West Trail	HI-Arsenic-Soil/Dust-Residential Adult+Child-East Trail	HI-Arsenic-Soil/Dust-Residential Adult+Child-Rivervale	HI-Arsenic-Soil/Dust-Residential Adult+Child-Tadanac
List of Largest Contributors to Variability	Child soil ingestion rate Child Body Weight Antimony in soil Antimony in outdoor dust	Child soil ingestion rate Child Body Weight Antimony in outdoor dust Antimony in soil Fractional Intake: soil/dust	Child soil ingestion rate Child Body Weight Antimony in soil	Child soil ingestion rate Child Body Weight Antimony in soil Fractional Intake: soil/dust	Child soil ingestion rate Exposure Duration Child Body Weight Adult SIR Arsenic in soil Arsenic in outdoor dust	Child soil ingestion rate Exposure Duration Child Body Weight Adult SIR Arsenic in soil	Child soil ingestion rate Exposure Duration Child Body Weight Adult SIR Arsenic in outdoor dust Arsenic in soil

Rank correlation data between assumption and forecast

Assumptions	HI-Antimony-Soil/Dust-Residential Child-Rivervale	Absolute Value > 0.03	HI-Antimony-Soil/Dust-Residential Child-Tadanac	Absolute Value > 0.03	HI-Antimony-Soil/Dust-Residential Child-Waneta	Absolute Value > 0.03	HI-Antimony-Soil/Dust-Residential Child-West Trail	Absolute Value > 0.03	HI-Arsenic-Soil/Dust-Residential Adult+Child-East Trail	Absolute Value > 0.03	HI-Arsenic-Soil/Dust-Residential Adult+Child-Rivervale	Absolute Value > 0.03	HI-Arsenic-Soil/Dust-Residential Adult+Child-Tadanac	Absolute Value > 0.03
Exposure Frequency (days/year): Commercial	0.00	N	0.00	N	0.00	N	0.00	N	-0.01	N	-0.01	N	-0.01	N
Exposure Frequency (days/year): Residential Soil & Outdoor Dust	0.01	N	0.01	N	0.01	N	0.00	N	0.01	N	0.02	N	0.01	N
Fractional Intake (-): Residential Indoor Dust	0.03	N	0.03	Y	0.03	N	0.04	Y	0.03	N	0.02	N	0.02	N
Hourly Inhalation Rate (m3/hour): Adult	0.01	N	0.01	N	0.00	N	0.01	N	0.00	N	0.00	N	0.00	N
Hourly Inhalation Rate (m3/hour): Child	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N
Non-Root Produce Ingestion (g/day): Adult	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N
Non-Root Produce Ingestion (g/day): Child	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N
PCair	-0.01	N	0.00	N	0.00	N	0.00	N	-0.01	N	-0.01	N	-0.01	N
Root Produce Ingestion (g/day): Adult	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N
Root Produce Ingestion (g/day): Child	0.00	N	0.00	N	0.00	N	0.00	N	-0.01	N	-0.01	N	-0.01	N
Selenium: East Trail Outdoor Dust	-0.02	N	-0.02	N	-0.02	N	-0.02	N	-0.03	Y	-0.03	Y	-0.03	Y
Selenium: East Trail Residential Soil	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	-0.01	N	0.00	N
Selenium: Rivervale Outdoor Dust	0.00	N	0.01	N	0.00	N	0.01	N	0.00	N	0.00	N	0.01	N
Selenium: Rivervale Residential Soil	0.00	N	0.00	N	0.00	N	0.01	N	0.00	N	0.00	N	0.00	N
Selenium: Tadanac Outdoor Dust	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N
Selenium: Tadanac Residential Soil	0.00	N	0.00	N	0.00	N	0.00	N	-0.01	N	-0.01	N	-0.01	N
Selenium: West Trail Outdoor Dust	0.01	N	0.00	N	0.01	N	0.01	N	0.00	N	0.00	N	0.00	N
Selenium: West Trail Residential Soil	-0.02	N	-0.02	N	-0.02	N	-0.02	N	-0.02	N	-0.02	N	-0.02	N
Silver: East Trail Outdoor Dust	-0.01	N	0.00	N	0.00	N	0.00	N	-0.01	N	-0.01	N	0.00	N
Silver: East Trail Residential Soil	0.00	N	0.00	N	0.00	N	0.00	N	-0.01	N	-0.01	N	-0.01	N

Table D-1. Largest Contributors to Variability in Noncancer Risk Estimates (in decreasing order of importance)

Forecast (Output Distribution)	HI-Arsenic-Soil/Dust-Residential Adult+Child-Waneta	HI-Arsenic-Soil/Dust-Residential Adult+Child-West Trail	HI-Arsenic-Soil/Dust-Residential Child-East Trail	HI-Arsenic-Soil/Dust-Residential Child-Rivervale	HI-Arsenic-Soil/Dust-Residential Child-Tadanac	HI-Arsenic-Soil/Dust-Residential Child-Waneta	HI-Arsenic-Soil/Dust-Residential Child-West Trail
List of Largest Contributors to Variability	Child soil ingestion rate Exposure Duration Child Body Weight Adult SIR Arsenic in soil Arsenic in outdoor dust	Child soil ingestion rate Exposure Duration Child Body Weight Adult SIR Fractional intake: soil/dust	Child soil ingestion rate Child Body Weight Arsenic in soil Arsenic in outdoor dust	Child soil ingestion rate Child Body Weight Arsenic in soil	Child soil ingestion rate Child Body Weight Arsenic in outdoor dust	Child soil ingestion rate Child Body Weight Arsenic in soil	Child soil ingestion rate Child Body Weight Fractional intake: soil/dust Arsenic in soil

Rank correlation data between assumption and forecast

Assumptions	HI-Arsenic-Soil/Dust-Residential Adult+Child-Waneta	Absolute Value > 0.03	HI-Arsenic-Soil/Dust-Residential Adult+Child-West Trail	Absolute Value > 0.03	HI-Arsenic-Soil/Dust-Residential Child-East Trail	Absolute Value > 0.03	HI-Arsenic-Soil/Dust-Residential Child-Rivervale	Absolute Value > 0.03	HI-Arsenic-Soil/Dust-Residential Child-Tadanac	Absolute Value > 0.03	HI-Arsenic-Soil/Dust-Residential Child-Waneta	Absolute Value > 0.03	HI-Arsenic-Soil/Dust-Residential Child-West Trail	Absolute Value > 0.03
Exposure Frequency (days/year): Commercial	-0.01	N	-0.01	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N
Exposure Frequency (days/year): Residential Soil & Outdoor Dust	0.02	N	0.00	N	0.01	N	0.02	N	0.01	N	0.02	N	0.00	N
Fractional Intake (-): Residential Indoor Dust	0.02	N	0.04	Y	0.03	N	0.02	N	0.02	N	0.02	N	0.04	Y
Hourly Inhalation Rate (m3/hour): Adult	0.00	N	0.00	N	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N
Hourly Inhalation Rate (m3/hour): Child	-0.02	N	-0.02	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N
Non-Root Produce Ingestion (g/day): Adult	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N
Non-Root Produce Ingestion (g/day): Child	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N
PCair	-0.01	N	-0.01	N	0.00	N	-0.01	N	-0.01	N	0.00	N	0.00	N
Root Produce Ingestion (g/day): Adult	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N
Root Produce Ingestion (g/day): Child	-0.01	N	-0.01	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N
Selenium: East Trail Outdoor Dust	-0.03	Y	-0.03	Y	-0.02	N	-0.02	N	-0.02	N	-0.02	N	-0.02	N
Selenium: East Trail Residential Soil	0.00	N	0.00	N	0.00	N	-0.01	N	0.00	N	0.00	N	0.00	N
Selenium: Rivervale Outdoor Dust	0.01	N	0.00	N	0.01	N	0.00	N	0.01	N	0.01	N	0.01	N
Selenium: Rivervale Residential Soil	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.01	N
Selenium: Tadanac Outdoor Dust	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N
Selenium: Tadanac Residential Soil	-0.01	N	-0.01	N	0.00	N	-0.01	N	0.00	N	0.00	N	0.00	N
Selenium: West Trail Outdoor Dust	0.00	N	0.00	N	0.01	N	0.00	N	0.01	N	0.01	N	0.00	N
Selenium: West Trail Residential Soil	-0.02	N	-0.02	N	-0.02	N	-0.02	N	-0.02	N	-0.02	N	-0.02	N
Silver: East Trail Outdoor Dust	0.00	N	-0.01	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N
Silver: East Trail Residential Soil	-0.01	N	-0.01	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N

Table D-1. Largest Contributors to Variability in Noncancer Risk Estimates (in decreasing order of importance)

Forecast (Output Distribution)	**HI-Cadmium-Soil/Dust-Agricultural Adult-Waneta**	**HI-Cadmium-Soil/Dust-Commerical Adult+Child-East Trail**	**HI-Cadmium-Soil/Dust-Residential Adult+Child-East Trail**	**HI-Cadmium-Soil/Dust-Residential Adult+Child-Rivervale**	**HI-Cadmium-Soil/Dust-Residential Adult+Child-Tadanac**	**HI-Cadmium-Soil/Dust-Residential Adult+Child-Waneta**	**HI-Cadmium-Soil/Dust-Residential Adult+Child-West Trail**
List of Largest Contributors to Variability	Exposure Duration Adult Body Weight Cadmium in soil	Child soil ingestion rate Exposure Duration Child Body Weight Adult SIR Exposure Frequency	Child soil ingestion rate Exposure Duration Child Body Weight Adult SIR Cadmium in soil Cadmium in outdoor dust Fractional intake: soil/dust	Child soil ingestion rate Exposure Duration Child Body Weight Adult SIR Cadmium in soil Cadmium in outdoor dust Fractional intake: soil/dust	Child soil ingestion rate Exposure Duration Child Body Weight Adult SIR Cadmium in outdoor dust Fractional intake: soil/dust	Child soil ingestion rate Exposure Duration Child Body Weight Adult SIR Cadmium in soil Fractional intake: soil/dust	Child soil ingestion rate Exposure Duration Child Body Weight Adult SIR Fractional intake: soil/dust Cadmium in outdoor dust

Rank correlation data between assumption and forecast

Assumptions	HI-Cadmium-Soil/Dust-Agricultural Adult-Waneta	Absolute Value > 0.03	HI-Cadmium-Soil/Dust-Commerical Adult+Child-East Trail	Absolute Value > 0.03	HI-Cadmium-Soil/Dust-Residential Adult+Child-East Trail	Absolute Value > 0.03	HI-Cadmium-Soil/Dust-Residential Adult+Child-Rivervale	Absolute Value > 0.03	HI-Cadmium-Soil/Dust-Residential Adult+Child-Tadanac	Absolute Value > 0.03	HI-Cadmium-Soil/Dust-Residential Adult+Child-Waneta	Absolute Value > 0.03	HI-Cadmium-Soil/Dust-Residential Adult+Child-West Trail	Absolute Value > 0.03
Exposure Frequency (days/year): Commercial	0.00	N	0.06	Y	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N
Exposure Frequency (days/year): Residential Soil & Outdoor Dust	-0.01	N	-0.01	N	0.00	N	0.00	N	0.01	N	0.00	N	0.00	N
Fractional Intake (-): Residential Indoor Dust	-0.01	N	0.01	N	0.03	Y	0.04	Y	0.03	Y	0.04	Y	0.04	Y
Hourly Inhalation Rate (m3/hour): Adult	0.00	N	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N
Hourly Inhalation Rate (m3/hour): Child	0.00	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N
Non-Root Produce Ingestion (g/day): Adult	0.00	N	0.00	N	0.00	N	0.00	N	-0.01	N	-0.01	N	0.00	N
Non-Root Produce Ingestion (g/day): Child	-0.02	N	-0.02	N	-0.01	N	-0.02	N	-0.02	N	-0.02	N	-0.02	N
PCair	0.01	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N
Root Produce Ingestion (g/day): Adult	-0.01	N	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N
Root Produce Ingestion (g/day): Child	0.00	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N
Selenium: East Trail Outdoor Dust	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N
Selenium: East Trail Residential Soil	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N
Selenium: Rivervale Outdoor Dust	0.00	N	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N
Selenium: Rivervale Residential Soil	-0.02	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N
Selenium: Tadanac Outdoor Dust	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N
Selenium: Tadanac Residential Soil	0.01	N	0.01	N	0.01	N	0.01	N	0.00	N	0.01	N	0.01	N
Selenium: West Trail Outdoor Dust	0.01	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N
Selenium: West Trail Residential Soil	0.00	N	-0.02	N	-0.02	N	-0.02	N	-0.02	N	-0.02	N	-0.02	N
Silver: East Trail Outdoor Dust	0.00	N	-0.01	N	-0.01	N	0.00	N	-0.01	N	-0.01	N	0.00	N
Silver: East Trail Residential Soil	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N

Table D-1. Largest Contributors to Variability in Noncancer Risk Estimates (in decreasing order of importance)

Forecast (Output Distribution)	**HI-Selenium-Soil/Dust-Residential Adult+Child-East Trail**	**HI-Selenium-Soil/Dust-Residential Adult+Child-Rivervale**	**HI-Selenium-Soil/Dust-Residential Adult+Child-Tadanac**	**HI-Selenium-Soil/Dust-Residential Adult+Child-Waneta**	**HI-Selenium-Soil/Dust-Residential Adult+Child-West Trail**	**HI-Selenium-Soil/Dust-Residential Child-East Trail**	**HI-Selenium-Soil/Dust-Residential Child-Rivervale**
List of Largest Contributors to Variability	Child soil ingestion rate Selenium in soil Exposure Duration Child Body Weight Adult SIR Selenium in outdoor dust	Child soil ingestion rate Selenium in soil Exposure Duration Child Body Weight Adult SIR	Child soil ingestion rate Selenium in soil Exposure Duration Child Body Weight Selenium in outdoor dust Adult SIR	Child soil ingestion rate Exposure Duration Child Body Weight Adult SIR	Child soil ingestion rate Exposure Duration Selenium in soil Child Body Weight Adult SIR Selenium in outdoor dust	Child soil ingestion rate Selenium in soil Child Body Weight Selenium in outdoor dust	Child soil ingestion rate Selenium in soil Child Body Weight

Rank correlation data between assumption and forecast

Assumptions	HI-Selenium-Soil/Dust-Residential Adult+Child-East Trail	Absolute Value > 0.03	HI-Selenium-Soil/Dust-Residential Adult+Child-Rivervale	Absolute Value > 0.03	HI-Selenium-Soil/Dust-Residential Adult+Child-Tadanac	Absolute Value > 0.03	HI-Selenium-Soil/Dust-Residential Adult+Child-Waneta	Absolute Value > 0.03	HI-Selenium-Soil/Dust-Residential Adult+Child-West Trail	Absolute Value > 0.03	HI-Selenium-Soil/Dust-Residential Child-East Trail	Absolute Value > 0.03	HI-Selenium-Soil/Dust-Residential Child-Rivervale	Absolute Value > 0.03
Exposure Frequency (days/year): Commercial	-0.01	N	-0.01	N	0.00	N	-0.01	N	-0.01	N	0.00	N	-0.01	N
Exposure Frequency (days/year): Residential Soil & Outdoor Dust	0.00	N	0.00	N	0.03	N	0.03	N	0.01	N	0.00	N	0.00	N
Fractional Intake (-): Residential Indoor Dust	0.02	N	0.02	N	0.00	N	0.01	N	0.03	N	0.02	N	0.02	N
Hourly Inhalation Rate (m3/hour): Adult	0.01	N	0.01	N	0.00	N	0.00	N	0.01	N	0.01	N	0.01	N
Hourly Inhalation Rate (m3/hour): Child	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	0.00	N
Non-Root Produce Ingestion (g/day): Adult	0.00	N	-0.01	N	-0.01	N	-0.01	N	0.00	N	0.00	N	-0.01	N
Non-Root Produce Ingestion (g/day): Child	0.00	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N
PCair	-0.01	N	-0.01	N	0.00	N	-0.01	N	0.00	N	-0.01	N	-0.01	N
Root Produce Ingestion (g/day): Adult	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N
Root Produce Ingestion (g/day): Child	0.00	N	-0.01	N	0.00	N	-0.01	N	0.00	N	0.00	N	0.00	N
Selenium: East Trail Outdoor Dust	0.03	Y	-0.02	N	-0.03	N	-0.03	Y	-0.03	N	0.04	Y	-0.01	N
Selenium: East Trail Residential Soil	0.35	Y	0.00	N	0.00	N	0.00	N	-0.01	N	0.34	Y	-0.01	N
Selenium: Rivervale Outdoor Dust	0.00	N	0.02	N	0.00	N	0.00	N	0.00	N	0.00	N	0.02	N
Selenium: Rivervale Residential Soil	0.00	N	0.45	Y	0.00	N	0.00	N	0.00	N	0.01	N	0.45	Y
Selenium: Tadanac Outdoor Dust	0.00	N	-0.01	N	0.12	Y	0.00	N	-0.01	N	0.00	N	0.00	N
Selenium: Tadanac Residential Soil	-0.01	N	-0.01	N	0.39	Y	-0.01	N	-0.01	N	0.00	N	0.00	N
Selenium: West Trail Outdoor Dust	0.00	N	0.01	N	0.01	N	0.00	N	0.04	Y	0.00	N	0.01	N
Selenium: West Trail Residential Soil	-0.02	N	-0.03	N	-0.02	N	-0.02	N	0.30	Y	-0.02	N	-0.02	N
Silver: East Trail Outdoor Dust	-0.01	N	0.00	N	0.00	N	0.00	N	0.00	N	-0.01	N	0.00	N
Silver: East Trail Residential Soil	-0.01	N	0.00	N	-0.01	N	-0.01	N	0.00	N	-0.01	N	0.01	N

Table D-1. Largest Contributors to Variability in Noncancer Risk Estimates (in decreasing order of importance)

Forecast (Output Distribution)	**HI-Selenium-Soil/Dust-Residential Child-Tadanac**	**HI-Selenium-Soil/Dust-Residential Child-Waneta**	**HI-Selenium-Soil/Dust-Residential Child-West Trail**	**HI-Silver-Soil/Dust-Residential Adult+Child-East Trail**	**HI-Silver-Soil/Dust-Residential Adult+Child-Rivervale**	**HI-Silver-Soil/Dust-Residential Adult+Child-Tadanac**	**HI-Silver-Soil/Dust-Residential Adult+Child-Waneta**
List of Largest Contributors to Variability	Child soil ingestion rate Selenium in soil Child Body Weight Selenium in outdoor dust	Child soil ingestion rate Child Body Weight	Child soil ingestion rate Selenium in soil Child Body Weight Selenium in outdoor dust	Child soil ingestion rate Silver in soil Exposure Duration Silver in outdoor dust Child Body Weight Adult SIR Exposure Frequency	Child soil ingestion rate Exposure Duration Silver in soil Child Body Weight Adult SIR Silver in outdoor dust	Child soil ingestion rate Exposure Duration Silver in soil Silver in outdoor dust Child Body Weight Adult SIR Exposure Frequency	Child soil ingestion rate Exposure Duration Child Body Weight Adult SIR

Rank correlation data between assumption and forecast

Assumptions	HI-Selenium-Soil/Dust-Residential Child-Tadanac	Absolute Value > 0.03	HI-Selenium-Soil/Dust-Residential Child-Waneta	Absolute Value > 0.03	HI-Selenium-Soil/Dust-Residential Child-West Trail	Absolute Value > 0.03	HI-Silver-Soil/Dust-Residential Adult+Child-East Trail	Absolute Value > 0.03	HI-Silver-Soil/Dust-Residential Adult+Child-Rivervale	Absolute Value > 0.03	HI-Silver-Soil/Dust-Residential Adult+Child-Tadanac	Absolute Value > 0.03	HI-Silver-Soil/Dust-Residential Adult+Child-Waneta	Absolute Value > 0.03
Exposure Frequency (days/year): Commercial	0.01	N	0.00	N	0.00	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N
Exposure Frequency (days/year): Residential Soil & Outdoor Dust	0.03	N	0.03	N	0.02	N	0.03	Y	0.02	N	0.04	Y	0.03	N
Fractional Intake (-): Residential Indoor Dust	0.01	N	0.01	N	0.03	N	0.00	N	0.01	N	-0.01	N	0.01	N
Hourly Inhalation Rate (m3/hour): Adult	0.00	N	0.01	N	0.01	N	0.00	N	0.00	N	0.00	N	0.00	N
Hourly Inhalation Rate (m3/hour): Child	0.00	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N
Non-Root Produce Ingestion (g/day): Adult	-0.01	N	-0.01	N	0.00	N	0.00	N	-0.01	N	-0.01	N	-0.01	N
Non-Root Produce Ingestion (g/day): Child	-0.01	N	-0.01	N	-0.01	N	0.00	N	-0.01	N	-0.01	N	-0.01	N
PCair	0.00	N	0.00	N	0.00	N	0.00	N	-0.01	N	-0.01	N	-0.01	N
Root Produce Ingestion (g/day): Adult	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N
Root Produce Ingestion (g/day): Child	0.00	N	0.00	N	0.00	N	0.00	N	-0.01	N	-0.01	N	-0.01	N
Selenium: East Trail Outdoor Dust	-0.01	N	-0.02	N	-0.02	N	-0.02	N	-0.03	Y	-0.03	N	-0.03	Y
Selenium: East Trail Residential Soil	0.00	N	0.00	N	-0.01	N	-0.01	N	0.00	N	0.00	N	0.00	N
Selenium: Rivervale Outdoor Dust	0.00	N	0.01	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N
Selenium: Rivervale Residential Soil	0.01	N	0.00	N	0.00	N	0.01	N	0.00	N	0.01	N	0.00	N
Selenium: Tadanac Outdoor Dust	0.12	Y	0.00	N	-0.01	N	0.00	N	0.00	N	0.00	N	0.00	N
Selenium: Tadanac Residential Soil	0.39	Y	0.00	N	0.00	N	-0.01	N	-0.01	N	0.00	N	-0.01	N
Selenium: West Trail Outdoor Dust	0.01	N	0.01	N	0.04	Y	0.00	N	0.00	N	0.00	N	0.00	N
Selenium: West Trail Residential Soil	-0.02	N	-0.02	N	0.30	Y	-0.01	N	-0.02	N	-0.02	N	-0.02	N
Silver: East Trail Outdoor Dust	0.00	N	0.00	N	0.00	N	0.22	Y	-0.01	N	0.00	N	0.00	N
Silver: East Trail Residential Soil	-0.01	N	0.00	N	0.00	N	0.37	Y	-0.01	N	-0.01	N	-0.01	N

Table D-1. Largest Contributors to Variability in Noncancer Risk Estimates (in decreasing order of importance)

Forecast (Output Distribution)	HI-Silver-Soil/Dust-Residential Adult+Child-West Trail	HI-Silver-Soil/Dust-Residential Child-East Trail	HI-Silver-Soil/Dust-Residential Child-Rivervale	HI-Silver-Soil/Dust-Residential Child-Tadanac	HI-Silver-Soil/Dust-Residential Child-Waneta	HI-Silver-Soil/Dust-Residential Child-West Trail	HI-Thallium-Soil/Dust-Residential Adult+Child-East Trail
List of Largest Contributors to Variability	Child soil ingestion rate Silver in soil Exposure Duration Child Body Weight Adult SIR Silver in outdoor dust	Child soil ingestion rate Silver in soil Child Body Weight Silver in outdoor dust Exposure Frequency	Child soil ingestion rate Silver in soil Child Body Weight Silver in outdoor dust	Child soil ingestion rate Silver in soil Silver in outdoor dust Child Body Weight Exposure Frequency	Child soil ingestion rate Child Body Weight	Child soil ingestion rate Silver in soil Child Body Weight Silver in outdoor dust	Child soil ingestion rate Thallium in soil Exposure Duration Child Body Weight Adult SIR

Rank correlation data between assumption and forecast

Assumptions	HI-Silver-Soil/Dust-Residential Adult+Child-West Trail	Absolute Value > 0.03	HI-Silver-Soil/Dust-Residential Child-East Trail	Absolute Value > 0.03	HI-Silver-Soil/Dust-Residential Child-Rivervale	Absolute Value > 0.03	HI-Silver-Soil/Dust-Residential Child-Tadanac	Absolute Value > 0.03	HI-Silver-Soil/Dust-Residential Child-Waneta	Absolute Value > 0.03	HI-Silver-Soil/Dust-Residential Child-West Trail	Absolute Value > 0.03	HI-Thallium-Soil/Dust-Residential Adult+Child-East Trail	Absolute Value > 0.03
Exposure Frequency (days/year): Commercial	-0.01	N	0.00	N	0.00	N	0.00	N	0.00	N	-0.01	N	-0.01	N
Exposure Frequency (days/year): Residential Soil & Outdoor Dust	0.03	N	0.03	Y	0.02	N	0.04	Y	0.03	N	0.03	N	0.03	N
Fractional Intake (-): Residential Indoor Dust	0.02	N	0.01	N	0.01	N	-0.02	N	0.01	N	0.02	N	-0.01	N
Hourly Inhalation Rate (m3/hour): Adult	0.00	N	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N
Hourly Inhalation Rate (m3/hour): Child	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	0.00	N	0.00	N
Non-Root Produce Ingestion (g/day): Adult	0.00	N	0.00	N	-0.01	N	-0.01	N	-0.01	N	0.00	N	-0.01	N
Non-Root Produce Ingestion (g/day): Child	-0.01	N	0.00	N	-0.01	N	-0.02	N	-0.01	N	-0.01	N	-0.01	N
PCair	-0.01	N	0.00	N	-0.01	N	0.00	N	0.00	N	-0.01	N	0.00	N
Root Produce Ingestion (g/day): Adult	0.00	N	0.01	N	0.01	N	0.00	N	0.00	N	0.00	N	0.00	N
Root Produce Ingestion (g/day): Child	-0.01	N	0.00	N	0.00	N	0.00	N	0.00	N	-0.01	N	-0.02	N
Selenium: East Trail Outdoor Dust	-0.03	N	-0.01	N	-0.02	N	-0.02	N	-0.02	N	-0.02	N	-0.02	N
Selenium: East Trail Residential Soil	0.00	N	-0.01	N	0.00	N	0.00	N	0.00	N	0.00	N	-0.01	N
Selenium: Rivervale Outdoor Dust	0.01	N	0.00	N	0.01	N	0.00	N	0.01	N	0.01	N	0.00	N
Selenium: Rivervale Residential Soil	-0.01	N	0.01	N	0.00	N	0.01	N	0.00	N	0.00	N	-0.01	N
Selenium: Tadanac Outdoor Dust	-0.01	N	0.00	N	0.00	N	0.00	N	0.00	N	-0.01	N	0.00	N
Selenium: Tadanac Residential Soil	-0.02	N	0.00	N	0.00	N	0.00	N	0.00	N	-0.01	N	0.00	N
Selenium: West Trail Outdoor Dust	0.00	N	0.01	N	0.00	N	0.00	N	0.01	N	0.00	N	0.00	N
Selenium: West Trail Residential Soil	-0.02	N	-0.01	N	-0.02	N	-0.02	N	-0.02	N	-0.01	N	-0.02	N
Silver: East Trail Outdoor Dust	-0.01	N	0.22	Y	0.00	N	0.00	N	0.00	N	-0.01	N	0.00	N
Silver: East Trail Residential Soil	0.00	N	0.36	Y	0.00	N	0.00	N	0.00	N	0.00	N	-0.01	N

Table D-1. Largest Contributors to Variability in Noncancer Risk Estimates (in decreasing order of importance)

Forecast (Output Distribution)	**HI-Thallium-Soil/Dust-Residential Adult+Child-Rivervale**	**HI-Thallium-Soil/Dust-Residential Adult+Child-Tadanac**	**HI-Thallium-Soil/Dust-Residential Adult+Child-Waneta**	**HI-Thallium-Soil/Dust-Residential Adult+Child-West Trail**	**HI-Thallium-Soil/Dust-Residential Child-East Trail**	**HI-Thallium-Soil/Dust-Residential Child-Rivervale**	**HI-Thallium-Soil/Dust-Residential Child-Tadanac**
List of Largest Contributors to Variability	Child soil ingestion rate Thallium in soil Exposure Duration Child Body Weight Adult SIR	Child soil ingestion rate Thallium in soil Exposure Duration Child Body Weight Adult SIR Thallium in outdoor dust	Child soil ingestion rate Exposure Duration Child Body Weight Adult SIR	Child soil ingestion rate Exposure Duration Thallium in soil Child Body Weight Adult SIR	Child soil ingestion rate Thallium in soil Child Body Weight	Child soil ingestion rate Thallium in soil Child Body Weight	Child soil ingestion rate Thallium in soil Child Body Weight Thallium in outdoor dust

Rank correlation data between assumption and forecast

Assumptions	HI-Thallium-Soil/Dust-Residential Adult+Child-Rivervale	Absolute Value > 0.03	HI-Thallium-Soil/Dust-Residential Adult+Child-Tadanac	Absolute Value > 0.03	HI-Thallium-Soil/Dust-Residential Adult+Child-Waneta	Absolute Value > 0.03	HI-Thallium-Soil/Dust-Residential Adult+Child-West Trail	Absolute Value > 0.03	HI-Thallium-Soil/Dust-Residential Child-East Trail	Absolute Value > 0.03	HI-Thallium-Soil/Dust-Residential Child-Rivervale	Absolute Value > 0.03	HI-Thallium-Soil/Dust-Residential Child-Tadanac	Absolute Value > 0.03
Exposure Frequency (days/year): Commercial	-0.01	N	0.00	N	-0.01	N	-0.01	N	0.00	N	0.00	N	0.00	N
Exposure Frequency (days/year): Residential Soil & Outdoor Dust	0.02	N	0.02	N	0.03	N	0.02	N	0.03	N	0.02	N	0.02	N
Fractional Intake (-): Residential Indoor Dust	0.02	N	0.00	N	0.01	N	0.02	N	-0.01	N	0.02	N	0.00	N
Hourly Inhalation Rate (m3/hour): Adult	0.00	N	-0.01	N	0.00	N	0.00	N	0.01	N	0.01	N	-0.01	N
Hourly Inhalation Rate (m3/hour): Child	-0.01	N	-0.02	N	-0.01	N	-0.02	N	0.00	N	-0.01	N	-0.02	N
Non-Root Produce Ingestion (g/day): Adult	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	0.00	N
Non-Root Produce Ingestion (g/day): Child	0.00	N	0.00	N	-0.01	N	0.00	N	-0.01	N	-0.01	N	-0.01	N
PCair	0.00	N	-0.01	N	-0.01	N	-0.01	N	0.00	N	0.00	N	-0.01	N
Root Produce Ingestion (g/day): Adult	0.00	N	-0.01	N	0.00	N	0.00	N	0.00	N	0.00	N	-0.01	N
Root Produce Ingestion (g/day): Child	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	0.00	N
Selenium: East Trail Outdoor Dust	-0.03	Y	-0.02	N	-0.03	Y	-0.03	Y	-0.01	N	-0.02	N	-0.01	N
Selenium: East Trail Residential Soil	0.00	N	0.00	N	0.00	N	0.00	N	-0.01	N	0.00	N	0.00	N
Selenium: Rivervale Outdoor Dust	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N
Selenium: Rivervale Residential Soil	0.00	N	0.01	N	0.00	N	0.00	N	0.00	N	0.01	N	0.01	N
Selenium: Tadanac Outdoor Dust	0.00	N	0.00	N	0.00	N	-0.01	N	0.00	N	0.00	N	0.00	N
Selenium: Tadanac Residential Soil	-0.02	N	-0.01	N	-0.01	N	-0.01	N	0.00	N	-0.01	N	0.00	N
Selenium: West Trail Outdoor Dust	0.00	N	0.01	N	0.00	N	0.00	N	0.01	N	0.01	N	0.01	N
Selenium: West Trail Residential Soil	-0.02	N	-0.03	N	-0.02	N	-0.02	N	-0.02	N	-0.02	N	-0.02	N
Silver: East Trail Outdoor Dust	0.00	N	-0.01	N	0.00	N	-0.01	N	0.00	N	0.00	N	-0.01	N
Silver: East Trail Residential Soil	-0.01	N	-0.01	N	-0.01	N	0.00	N	-0.01	N	0.00	N	0.00	N

Table D-1. Largest Contributors to Variability in Noncancer Risk Estimates (in decreasing order of importance)

Forecast (Output Distribution)	HI-Thallium-Soil/Dust-Residential Child-Waneta	HI-Thallium-Soil/Dust-Residential Child-West Trail	HI-Tin-Soil/Dust-Residential Adult+Child-East Trail	HI-Tin-Soil/Dust-Residential Adult+Child-Rivervale	HI-Tin-Soil/Dust-Residential Adult+Child-Tadanac	HI-Tin-Soil/Dust-Residential Adult+Child-Waneta	HI-Tin-Soil/Dust-Residential Adult+Child-West Trail
List of Largest Contributors to Variability	Child soil ingestion rate Child Body Weight	Child soil ingestion rate Thallium in soil Child Body Weight	Child soil ingestion rate Tin in soil Exposure Duration Tin in outdoor dust Child Body Weight Adult SIR	Child soil ingestion rate Tin in soil Exposure Duration Child Body Weight Adult SIR	Child soil ingestion rate Tin in soil Exposure Duration Child Body Weight Adult SIR Tin in outdoor dust	Child soil ingestion rate Exposure Duration Child Body Weight Adult SIR	Child soil ingestion rate Tin in soil Exposure Duration Child Body Weight Adult SIR Tin in outdoor dust

Rank correlation data between assumption and forecast

Assumptions	HI-Thallium-Soil/Dust-Residential Child-Waneta	Absolute Value > 0.03	HI-Thallium-Soil/Dust-Residential Child-West Trail	Absolute Value > 0.03	HI-Tin-Soil/Dust-Residential Adult+Child-East Trail	Absolute Value > 0.03	HI-Tin-Soil/Dust-Residential Adult+Child-Rivervale	Absolute Value > 0.03	HI-Tin-Soil/Dust-Residential Adult+Child-Tadanac	Absolute Value > 0.03	HI-Tin-Soil/Dust-Residential Adult+Child-Waneta	Absolute Value > 0.03	HI-Tin-Soil/Dust-Residential Adult+Child-West Trail	Absolute Value > 0.03
Exposure Frequency (days/year): Commercial	0.00	N	-0.01	N	0.00	N	-0.01	N	-0.01	N	-0.01	N	0.00	N
Exposure Frequency (days/year): Residential Soil & Outdoor Dust	0.03	N	0.02	N	0.02	N	0.01	N	0.02	N	0.03	N	0.02	N
Fractional Intake (-): Residential Indoor Dust	0.01	N	0.02	N	0.01	N	0.02	N	-0.01	N	0.01	N	0.03	N
Hourly Inhalation Rate (m3/hour): Adult	0.01	N	0.01	N	0.01	N	0.00	N	0.00	N	0.00	N	0.00	N
Hourly Inhalation Rate (m3/hour): Child	-0.01	N	-0.01	N	-0.02	N	-0.02	N	-0.01	N	-0.01	N	-0.01	N
Non-Root Produce Ingestion (g/day): Adult	-0.01	N	-0.01	N	0.00	N	-0.01	N	-0.01	N	-0.01	N	-0.02	N
Non-Root Produce Ingestion (g/day): Child	-0.01	N	-0.01	N	-0.01	N	0.00	N	0.00	N	-0.01	N	-0.01	N
PCair	0.00	N	-0.01	N	0.00	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N
Root Produce Ingestion (g/day): Adult	0.00	N	0.01	N	0.00	N	0.00	N	0.00	N	0.00	N	0.01	N
Root Produce Ingestion (g/day): Child	0.00	N	0.00	N	0.00	N	-0.01	N	0.00	N	-0.01	N	-0.01	N
Selenium: East Trail Outdoor Dust	-0.02	N	-0.02	N	-0.03	N	-0.03	N	-0.03	Y	-0.03	Y	-0.02	N
Selenium: East Trail Residential Soil	0.00	N	0.00	N	0.01	N	-0.01	N	0.01	N	0.00	N	-0.01	N
Selenium: Rivervale Outdoor Dust	0.01	N	0.00	N	-0.01	N	0.00	N	0.00	N	0.00	N	0.01	N
Selenium: Rivervale Residential Soil	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.01	N
Selenium: Tadanac Outdoor Dust	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N
Selenium: Tadanac Residential Soil	0.00	N	0.00	N	-0.01	N	0.00	N	-0.01	N	-0.01	N	-0.01	N
Selenium: West Trail Outdoor Dust	0.01	N	0.00	N	-0.01	N	0.00	N	0.00	N	0.00	N	0.01	N
Selenium: West Trail Residential Soil	-0.02	N	-0.02	N	-0.02	N	-0.02	N	-0.02	N	-0.02	N	-0.01	N
Silver: East Trail Outdoor Dust	0.00	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	0.00	N	0.00	N
Silver: East Trail Residential Soil	0.00	N	0.00	N	0.01	N	0.01	N	-0.01	N	-0.01	N	-0.01	N

Table D-1. Largest Contributors to Variability in Noncancer Risk Estimates (in decreasing order of importance)

Forecast (Output Distribution)	**HI-Tin-Soil/Dust-Residential Child-East Trail**	**HI-Tin-Soil/Dust-Residential Child-Rivervale**	**HI-Tin-Soil/Dust-Residential Child-Tadanac**	**HI-Tin-Soil/Dust-Residential Child-Waneta**	**HI-Tin-Soil/Dust-Residential Child-West Trail**	**HI-Zinc-Soil/Dust-Residential Adult+Child-East Trail**	**HI-Zinc-Soil/Dust-Residential Adult+Child-Rivervale**
List of Largest Contributors to Variability	Child soil ingestion rate Tin in soil Child Body Weight Tin in outdoor dust	Child soil ingestion rate Tin in soil Child Body Weight	Child soil ingestion rate Tin in soil Child Body Weight Tin in outdoor dust	Child soil ingestion rate Child Body Weight	Child soil ingestion rate Tin in soil Child Body Weight Tin in outdoor dust	Child soil ingestion rate Zinc in soil Exposure Duration Zinc in outdoor dust Child Body Weight Adult SIR	Child soil ingestion rate Zinc in soil Exposure Duration Child Body Weight Adult SIR Zinc in outdoor dust

Rank correlation data between assumption and forecast

Assumptions	HI-Tin-Soil/Dust-Residential Child-East Trail	Absolute Value > 0.03	HI-Tin-Soil/Dust-Residential Child-Rivervale	Absolute Value > 0.03	HI-Tin-Soil/Dust-Residential Child-Tadanac	Absolute Value > 0.03	HI-Tin-Soil/Dust-Residential Child-Waneta	Absolute Value > 0.03	HI-Tin-Soil/Dust-Residential Child-West Trail	Absolute Value > 0.03	HI-Zinc-Soil/Dust-Residential Adult+Child-East Trail	Absolute Value > 0.03	HI-Zinc-Soil/Dust-Residential Adult+Child-Rivervale	Absolute Value > 0.03
Exposure Frequency (days/year): Commercial	0.00	N	-0.01	N	0.00	N	0.00	N	0.00	N	-0.01	N	-0.01	N
Exposure Frequency (days/year): Residential Soil & Outdoor Dust	0.02	N	0.01	N	0.02	N	0.03	N	0.02	N	0.01	N	0.02	N
Fractional Intake (-): Residential Indoor Dust	0.01	N	0.01	N	0.00	N	0.01	N	0.02	N	0.01	N	0.01	N
Hourly Inhalation Rate (m3/hour): Adult	0.01	N	0.00	N	0.00	N	0.01	N	0.01	N	0.00	N	0.01	N
Hourly Inhalation Rate (m3/hour): Child	-0.02	N	-0.02	N	-0.01	N	-0.01	N	0.00	N	-0.01	N	-0.02	N
Non-Root Produce Ingestion (g/day): Adult	0.00	N	0.00	N	-0.01	N	-0.01	N	-0.02	N	0.00	N	-0.01	N
Non-Root Produce Ingestion (g/day): Child	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.02	N	-0.01	N	-0.01	N
PCair	0.00	N	-0.01	N	-0.01	N	0.00	N	-0.01	N	-0.01	N	-0.01	N
Root Produce Ingestion (g/day): Adult	0.00	N	0.00	N	0.00	N	0.00	N	0.01	N	-0.01	N	0.00	N
Root Produce Ingestion (g/day): Child	0.00	N	0.00	N	0.01	N	0.00	N	-0.01	N	-0.01	N	-0.01	N
Selenium: East Trail Outdoor Dust	-0.02	N	-0.02	N	-0.02	N	-0.02	N	-0.01	N	-0.03	N	-0.04	Y
Selenium: East Trail Residential Soil	0.00	N	-0.01	N	0.00	N	0.00	N	-0.01	N	0.00	N	-0.01	N
Selenium: Rivervale Outdoor Dust	-0.01	N	0.00	N	0.00	N	0.01	N	0.01	N	0.01	N	0.00	N
Selenium: Rivervale Residential Soil	0.00	N	0.00	N	0.00	N	0.00	N	0.01	N	0.01	N	0.00	N
Selenium: Tadanac Outdoor Dust	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	-0.01	N	0.00	N
Selenium: Tadanac Residential Soil	0.00	N	0.01	N	0.00	N	0.00	N	0.00	N	0.00	N	-0.01	N
Selenium: West Trail Outdoor Dust	-0.01	N	0.00	N	0.00	N	0.01	N	0.01	N	0.00	N	0.00	N
Selenium: West Trail Residential Soil	-0.02	N	-0.01	N	-0.02	N	-0.02	N	-0.01	N	-0.02	N	-0.02	N
Silver: East Trail Outdoor Dust	-0.01	N	-0.01	N	-0.01	N	0.00	N	0.00	N	-0.01	N	0.00	N
Silver: East Trail Residential Soil	0.01	N	0.01	N	-0.01	N	0.00	N	-0.01	N	0.01	N	0.00	N

Table D-1. Largest Contributors to Variability in Noncancer Risk Estimates (in decreasing order of importance)

Forecast (Output Distribution)	HI-Zinc-Soil/Dust-Residential Adult+Child-Tadanac	HI-Zinc-Soil/Dust-Residential Adult+Child-Waneta	HI-Zinc-Soil/Dust-Residential Adult+Child-West Trail	HI-Zinc-Soil/Dust-Residential Child-East Trail	HI-Zinc-Soil/Dust-Residential Child-Rivervale	HI-Zinc-Soil/Dust-Residential Child-Tadanac	HI-Zinc-Soil/Dust-Residential Child-Waneta
List of Largest Contributors to Variability	Child soil ingestion rate Exposure Duration Zinc in soil Child Body Weight Zinc in outdoor dust Adult SIR Exposure Frequency	Child soil ingestion rate Zinc in soil Exposure Duration Child Body Weight Adult SIR	Child soil ingestion rate Zinc in soil Exposure Duration Child Body Weight Adult SIR Zinc in outdoor dust	Child soil ingestion rate Zinc in soil Child Body Weight Zinc in outdoor dust	Child soil ingestion rate Zinc in soil Child Body Weight Zinc in outdoor dust	Child soil ingestion rate Zinc in soil Child Body Weight Zinc in outdoor dust Exposure Frequency	Child soil ingestion rate Zinc in soil Child Body Weight

Rank correlation data between assumption and forecast

Assumptions	HI-Zinc-Soil/Dust-Residential Adult+Child-Tadanac	Absolute Value > 0.03	HI-Zinc-Soil/Dust-Residential Adult+Child-Waneta	Absolute Value > 0.03	HI-Zinc-Soil/Dust-Residential Adult+Child-West Trail	Absolute Value > 0.03	HI-Zinc-Soil/Dust-Residential Child-East Trail	Absolute Value > 0.03	HI-Zinc-Soil/Dust-Residential Child-Rivervale	Absolute Value > 0.03	HI-Zinc-Soil/Dust-Residential Child-Tadanac	Absolute Value > 0.03	HI-Zinc-Soil/Dust-Residential Child-Waneta	Absolute Value > 0.03
Exposure Frequency (days/year): Commercial	-0.01	N	-0.02	N	-0.01	N	0.00	N	0.00	N	0.00	N	-0.01	N
Exposure Frequency (days/year): Residential Soil & Outdoor Dust	0.03	Y	0.02	N	0.01	N	0.01	N	0.02	N	0.03	Y	0.02	N
Fractional Intake (-): Residential Indoor Dust	-0.01	N	0.01	N	0.02	N	0.01	N	0.01	N	-0.01	N	0.01	N
Hourly Inhalation Rate (m3/hour): Adult	0.00	N	0.00	N	0.01	N	0.00	N	0.01	N	0.01	N	0.01	N
Hourly Inhalation Rate (m3/hour): Child	-0.01	N	-0.01	N	0.00	N	0.00	N	-0.01	N	0.00	N	0.00	N
Non-Root Produce Ingestion (g/day): Adult	-0.01	N	-0.01	N	-0.01	N	0.00	N	-0.01	N	-0.01	N	0.00	N
Non-Root Produce Ingestion (g/day): Child	0.00	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.02	N
PCair	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	0.00	N	-0.01	N
Root Produce Ingestion (g/day): Adult	0.00	N	0.01	N	0.00	N	-0.01	N	0.00	N	0.00	N	0.01	N
Root Produce Ingestion (g/day): Child	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	0.00	N	0.00	N
Selenium: East Trail Outdoor Dust	-0.03	Y	-0.03	N	-0.03	Y	-0.02	N	-0.03	N	-0.02	N	-0.02	N
Selenium: East Trail Residential Soil	-0.01	N	-0.01	N	0.00	N	0.00	N	-0.01	N	-0.01	N	0.00	N
Selenium: Rivervale Outdoor Dust	0.00	N	0.01	N	0.00	N	0.01	N	0.00	N	0.00	N	0.01	N
Selenium: Rivervale Residential Soil	0.00	N	0.00	N	0.00	N	0.01	N	0.01	N	0.01	N	0.00	N
Selenium: Tadanac Outdoor Dust	0.00	N	0.00	N	0.00	N	-0.01	N	0.00	N	0.00	N	0.00	N
Selenium: Tadanac Residential Soil	-0.01	N	-0.01	N	-0.01	N	0.01	N	0.00	N	0.00	N	0.00	N
Selenium: West Trail Outdoor Dust	0.00	N	0.00	N	0.01	N	0.00	N	0.00	N	0.00	N	0.01	N
Selenium: West Trail Residential Soil	-0.02	N	-0.01	N	-0.02	N	-0.02	N	-0.02	N	-0.02	N	-0.01	N
Silver: East Trail Outdoor Dust	0.00	N	0.00	N	0.00	N	-0.01	N	0.00	N	0.00	N	0.00	N
Silver: East Trail Residential Soil	-0.01	N	-0.01	N	-0.01	N	0.01	N	0.00	N	-0.01	N	-0.01	N

Table D-1. Largest Contributors to Variability in Noncancer Risk Estimates (in decreasing order of importance)

Forecast (Output Distribution)	**HI-Zinc-Soil/Dust-Residential Child-West Trail**	**Site-wide HI: Antimony Adult+Child Residential Soil-Dust**	**Site-wide HI: Antimony Child Residential Soil-Dust**	**Site-wide HI: Arsenic Adult+Child Residential Soil-Dust**	**Site-wide HI: Arsenic Child Residential Soil-Dust**	**Site-wide HI: Cadmium Adult+Child Residential Soil-Dust**	**Site-wide HI: Selenium Adult+Child Residential Soil-Dust**
List of Largest Contributors to Variability	Child soil ingestion rate Zinc in soil Child Body Weight Zinc in outdoor dust	Child soil ingestion rate Exposure Duration Antimony in indoor dust Child Body Weight Adult SIR Antimony in soil Antimony in outdoor dust Fractional intake: soil/dust	Child soil ingestion rate Antimony in indoor dust Child Body Weight Antimony in soil Antimony in outdoor dust	Child soil ingestion rate Exposure Duration Arsenic in indoor dust Child Body Weight Adult SIR Arsenic in soil Arsenic in outdoor dust	Child soil ingestion rate Arsenic in indoor dust Child Body Weight Arsenic in soil Arsenic in outdoor dust	Child soil ingestion rate Cadmium in indoor dust Exposure Duration Child Body Weight Adult SIR Cadmium in outdoor dust Cadmium in soil Fractional intake: soil/dust	Child soil ingestion rate Selenium in soil Exposure Duration Child Body Weight Adult SIR Selenium in outdoor dust

Rank correlation data between assumption and forecast

Assumptions	HI-Zinc-Soil/Dust-Residential Child-West Trail	Absolute Value > 0.03	Site-wide HI: Antimony Adult+Child Residential Soil Dust	Absolute Value > 0.03	Site-wide HI: Antimony Child Residential Soil Dust	Absolute Value > 0.03	Site-wide HI: Arsenic Adult+Child Residential Soil Dust	Absolute Value > 0.03	Site-wide HI: Arsenic Child Residential Soil Dust	Absolute Value > 0.03	Site-wide HI: Cadmium Adult+Child Residential Soil Dust	Absolute Value > 0.03	Site-wide HI: Selenium Adult+Child Residential Soil Dust	Absolute Value > 0.03
Exposure Frequency (days/year): Commercial	0.00	N	0.00	N	0.00	N	-0.01	N	-0.01	N	-0.01	N	0.00	N
Exposure Frequency (days/year): Residential Soil & Outdoor Dust	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N
Fractional Intake (-): Residential Indoor Dust	0.02	N	0.03	Y	0.03	N	0.02	N	0.02	N	0.03	Y	0.02	N
Hourly Inhalation Rate (m3/hour): Adult	0.01	N	0.00	N	0.00	N	0.00	N	0.00	N	0.01	N	-0.01	N
Hourly Inhalation Rate (m3/hour): Child	0.00	N	-0.02	N	-0.01	N	-0.02	N	-0.01	N	-0.01	N	-0.02	N
Non-Root Produce Ingestion (g/day): Adult	-0.01	N	0.00	N	0.00	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N
Non-Root Produce Ingestion (g/day): Child	-0.01	N	-0.01	N	-0.01	N	0.00	N	-0.01	N	-0.02	N	-0.01	N
PCair	-0.01	N	0.00	N	0.00	N	-0.01	N	-0.01	N	0.00	N	-0.01	N
Root Produce Ingestion (g/day): Adult	0.00	N	0.00	N	0.00	N	0.01	N	0.01	N	0.02	N	0.00	N
Root Produce Ingestion (g/day): Child	0.00	N	-0.01	N	0.00	N	-0.01	N	0.00	N	-0.02	N	-0.01	N
Selenium: East Trail Outdoor Dust	-0.02	N	-0.04	Y	-0.03	N	-0.03	Y	-0.02	N	-0.02	N	-0.03	N
Selenium: East Trail Residential Soil	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	-0.01	N
Selenium: Rivervale Outdoor Dust	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.01	N	0.00	N
Selenium: Rivervale Residential Soil	0.00	N	0.01	N	0.01	N	0.00	N	0.00	N	0.01	N	-0.01	N
Selenium: Tadanac Outdoor Dust	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N
Selenium: Tadanac Residential Soil	-0.01	N	-0.01	N	0.00	N	-0.01	N	0.00	N	0.01	N	-0.02	N
Selenium: West Trail Outdoor Dust	0.01	N	0.00	N	0.01	N	0.01	N	0.01	N	0.00	N	0.00	N
Selenium: West Trail Residential Soil	-0.02	N	-0.01	N	-0.01	N	-0.02	N	-0.02	N	-0.02	N	-0.02	N
Silver: East Trail Outdoor Dust	0.00	N	-0.01	N	-0.01	N	0.00	N	0.00	N	0.00	N	0.00	N
Silver: East Trail Residential Soil	0.00	N	0.00	N	0.00	N	-0.01	N	0.00	N	0.00	N	0.00	N

Table D-1. Largest Contributors to Variability in Noncancer Risk Estimates (in decreasing order of importance)

Forecast (Output Distribution)	Site-wide HI: Selenium Child Residential Soil-Dust	Site-wide HI: Silver Adult+Child Residential Soil-Dust	Site-wide HI: Silver Child Residential Soil-Dust	Site-wide HI: Thallium Adult+Child Residential Soil-Dust	Site-wide HI: Thallium Child Residential Soil-Dust	Site-wide HI: Tin Adult+Child Residential Soil-Dust	Site-wide HI: Tin Child Residential Soil-Dust
List of Largest Contributors to Variability	Child soil ingestion rate Selenium in soil Child Body Weight Selenium in outdoor dust	Child soil ingestion rate Silver in soil Exposure Duration Silver in outdoor dust Child Body Weight Adult SIR	Child soil ingestion rate Exposure Duration Silver in outdoor dust Child Body Weight	Child soil ingestion rate Thallium in soil Exposure Duration Child Body Weight Adult SIR Thallium in outdoor dust	Child soil ingestion rate Thallium in soil Child Body Weight Thallium in outdoor dust	Child soil ingestion rate Tin in soil Exposure Duration Child Body Weight Tin in outdoor dust Adult SIR	Child soil ingestion rate Tin in soil Child Body Weight Tin in outdoor dust

Rank correlation data between assumption and forecast

Assumptions	Site-wide HI: Selenium Child Residential Soil Dust	Absolute Value > 0.03	Site-wide HI: Silver Adult+Child Residential Soil Dust	Absolute Value > 0.03	Site-wide HI: Silver Child Residential Soil Dust	Absolute Value > 0.03	Site-wide HI: Thallium Adult+Child Residential Soil Dust	Absolute Value > 0.03	Site-wide HI: Thallium Child Residential Soil Dust	Absolute Value > 0.03	Site-wide HI: Tin Adult+Child Residential Soil Dust	Absolute Value > 0.03	Site-wide HI: Tin Child Residential Soil Dust	Absolute Value > 0.03
Exposure Frequency (days/year): Commercial	0.00	N	-0.01	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N
Exposure Frequency (days/year): Residential Soil & Outdoor Dust	0.01	N	0.02	N	0.02	N	0.02	N	0.02	N	0.02	N	0.02	N
Fractional Intake (-): Residential Indoor Dust	0.02	N	0.00	N	0.00	N	0.01	N	0.01	N	0.00	N	0.00	N
Hourly Inhalation Rate (m3/hour): Adult	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.01	N	0.01	N
Hourly Inhalation Rate (m3/hour): Child	-0.01	N	-0.01	N	0.00	N	-0.02	N	-0.01	N	-0.01	N	-0.01	N
Non-Root Produce Ingestion (g/day): Adult	-0.01	N	0.00	N	0.00	N	-0.01	N	0.00	N	-0.02	N	-0.02	N
Non-Root Produce Ingestion (g/day): Child	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.02	N	0.00	N	-0.01	N
PCair	0.00	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N
Root Produce Ingestion (g/day): Adult	0.01	N	0.00	N	0.00	N	0.00	N	0.00	N	-0.01	N	-0.01	N
Root Produce Ingestion (g/day): Child	0.00	N	-0.01	N	-0.01	N	-0.01	N	0.00	N	-0.02	N	-0.01	N
Selenium: East Trail Outdoor Dust	-0.02	N	-0.02	N	-0.01	N	-0.02	N	-0.01	N	-0.01	N	0.00	N
Selenium: East Trail Residential Soil	-0.01	N	-0.01	N	-0.01	N	0.00	N	0.00	N	-0.01	N	-0.01	N
Selenium: Rivervale Outdoor Dust	0.00	N	0.00	N	0.01	N	0.00	N	0.00	N	0.01	N	0.01	N
Selenium: Rivervale Residential Soil	0.00	N	0.00	N	0.00	N	0.00	N	0.01	N	-0.01	N	0.00	N
Selenium: Tadanac Outdoor Dust	0.00	N	0.00	N	0.00	N	-0.01	N	-0.01	N	0.00	N	0.00	N
Selenium: Tadanac Residential Soil	-0.01	N	-0.01	N	-0.01	N	-0.01	N	0.00	N	0.00	N	0.00	N
Selenium: West Trail Outdoor Dust	0.01	N	0.00	N	0.01	N	0.00	N	0.01	N	0.01	N	0.01	N
Selenium: West Trail Residential Soil	-0.02	N	-0.02	N	-0.02	N	-0.02	N	-0.02	N	-0.01	N	-0.01	N
Silver: East Trail Outdoor Dust	0.00	N	0.01	N	0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N
Silver: East Trail Residential Soil	0.00	N	-0.01	N	-0.01	N	-0.02	N	-0.02	N	0.00	N	0.00	N

Table D-1. Largest Contributors to Variability in Noncancer Risk Estimates (in decreasing order of importance)

Forecast (Output Distribution)	**Site-wide HI: Zinc Adult+Child Residential Soil-Dust**	**Site-wide HI: Zinc Child Residential Soil-Dust**
List of Largest Contributors to Variability	Child soil ingestion rate Zinc in soil Exposure Duration Zinc in outdoor dust Child Body Weight Adult SIR	Child soil ingestion rate Zinc in soil Zinc in outdoor dust Child Body Weight

Rank correlation data between assumption and forecast

Assumptions	Site-wide HI: Zinc Adult+Child Residential Soil Dust	Absolute Value > 0.03	Site-wide HI: Zinc Child Residential Soil Dust	Absolute Value > 0.03
Exposure Frequency (days/year): Commercial	0.00	N	0.01	N
Exposure Frequency (days/year): Residential Soil & Outdoor Dust	0.03	N	0.03	N
Fractional Intake (-): Residential Indoor Dust	0.00	N	0.00	N
Hourly Inhalation Rate (m3/hour): Adult	0.00	N	0.00	N
Hourly Inhalation Rate (m3/hour): Child	0.00	N	0.00	N
Non-Root Produce Ingestion (g/day): Adult	-0.01	N	-0.01	N
Non-Root Produce Ingestion (g/day): Child	-0.01	N	-0.02	N
PCair	-0.02	N	-0.02	N
Root Produce Ingestion (g/day): Adult	0.01	N	0.01	N
Root Produce Ingestion (g/day): Child	0.00	N	0.01	N
Selenium: East Trail Outdoor Dust	-0.03	N	-0.02	N
Selenium: East Trail Residential Soil	0.00	N	0.00	N
Selenium: Rivervale Outdoor Dust	0.00	N	0.00	N
Selenium: Rivervale Residential Soil	0.00	N	0.00	N
Selenium: Tadanac Outdoor Dust	0.00	N	0.00	N
Selenium: Tadanac Residential Soil	-0.01	N	-0.01	N
Selenium: West Trail Outdoor Dust	0.00	N	0.00	N
Selenium: West Trail Residential Soil	-0.02	N	-0.02	N
Silver: East Trail Outdoor Dust	0.00	N	0.00	N
Silver: East Trail Residential Soil	0.00	N	0.00	N

Table D-1. Largest Contributors to Variability in Noncancer Risk Estimates (in decreasing order of importance)

Forecast (Output Distribution)	HI-Antimony-Produce-Residential Adult+Child-Far	HI-Antimony-Produce-Residential Adult+Child-Near	HI-Antimony-Produce-Residential Child-Far	HI-Antimony-Produce-Residential Child-Near	HI-Arsenic-Produce-Residential Adult+Child-Far	HI-Arsenic-Produce-Residential Adult+Child-Near
List of Largest Contributors to Variability	Child nonroot ingestion rate Child root ingestion rate Exposure Duration Child Body Weight Adult nonroot ingestion rate Adult root ingestion rate Adult Body Weight	Antimony in nonroot produce Child nonroot ingestion rate Antimony in root produce Child root ingestion rate Exposure Duration Child Body Weight Adult nonroot ingestion rate Adult root ingestion rate Adult Body Weight	Child nonroot ingestion rate Child root ingestion rate Child Body Weight	Antimony in nonroot produce Child nonroot ingestion rate Child root ingestion rate Antimony in root produce Child Body Weight	Arsenic in nonroot produce Child root ingestion rate Child nonroot ingestion rate Adult root ingestion rate Adult nonroot ingestion rate Adult Body Weight Child Body Weight Exposure Duration	Arsenic in nonroot produce Arsenic in root produce Child nonroot ingestion rate Child root ingestion rate Adult nonroot ingestion rate Adult root ingestion rate Exposure Duration Child Body Weight

Rank correlation data between assumption and forecast

Assumptions	HI-Antimony-Produce-Residential Adult+Child-Far	Absolute Value > 0.03	HI-Antimony-Produce-Residential Adult+Child-Near	Absolute Value > 0.03	HI-Antimony-Produce-Residential Child-Far	Absolute Value > 0.03	HI-Antimony-Produce-Residential Child-Near	Absolute Value > 0.03	HI-Arsenic-Produce-Residential Adult+Child-Far	Absolute Value > 0.03	HI-Arsenic-Produce-Residential Adult+Child-Near	Absolute Value > 0.03
Silver: Rivervale Outdoor Dust	0.00	N	-0.02	N	0.01	N	-0.02	N	0.00	N	0.00	N
Silver: Rivervale Residential Soil	-0.02	N	-0.01	N	-0.01	N	-0.01	N	-0.02	N	-0.02	N
Silver: Tadanac Outdoor Dust	-0.01	N	0.00	N	-0.01	N	0.00	N	0.01	N	0.00	N
Silver: Tadanac Residential Soil	0.01	N	0.01	N	0.00	N	0.00	N	0.01	N	0.00	N
Silver: West Trail Outdoor Dust	-0.03	N	-0.01	N	-0.01	N	-0.01	N	-0.02	N	-0.01	N
Silver: West Trail Residential Soil	0.00	N	0.00	N	-0.01	N	-0.01	N	-0.01	N	0.01	N
Site-wide: Indoor Dust: antimony	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N	0.00	N
Site-wide: Indoor Dust: Arsenic (mg/kg)	-0.01	N	-0.01	N	-0.01	N	-0.01	N	0.01	N	-0.01	N
Site-wide: Indoor Dust: cadmium (mg/kg)	0.00	N	-0.01	N	0.00	N	-0.01	N	0.01	N	-0.01	N
Site-wide: nonroot produce: antimony	-0.02	N	-0.01	N	-0.01	N	0.00	N	-0.02	N	-0.01	N
Site-wide: nonroot produce: cadmium	-0.01	N	0.00	N	0.00	N	0.01	N	0.00	N	0.01	N
Site-wide: nonroot produce: inorganic arsenic	0.00	N	0.01	N	0.00	N	0.01	N	0.01	N	0.01	N
Site-wide: nonroot produce: thallium	0.00	N	-0.01	N	0.00	N	-0.01	N	0.00	N	0.00	N
Site-wide: Outdoor Dust: antimony (mg/kg)	-0.01	N	-0.01	N	-0.01	N	-0.01	N	0.01	N	-0.02	N
Site-wide: Outdoor dust: arsenic (mg/kg)	0.01	N	0.01	N	0.02	N	0.02	N	0.01	N	0.00	N
Site-wide: Outdoor dust: cadmium (mg/kg)	-0.01	N	-0.01	N	-0.02	N	-0.01	N	-0.01	N	-0.01	N
Site-wide: outdoor dust: selenium (mg/kg)	0.00	N	0.00	N	-0.01	N	-0.01	N	-0.01	N	0.00	N
Site-wide: outdoor dust: Silver (mg/kg)	0.00	N	-0.01	N	0.00	N	-0.01	N	0.00	N	0.01	N
Site-wide: Outdoor dust: thallium (mg/kg)	-0.02	N	-0.01	N	-0.01	N	0.00	N	-0.02	N	-0.01	N

Table D-1. Largest Contributors to Variability in Noncancer Risk Estimates (in decreasing order of importance)

Forecast (Output Distribution)	HI-Arsenic-Produce-Residential Child-Far	HI-Arsenic-Produce-Residential Child-Near	HI-Cadmium-Produce-Residential Adult+Child-Far	HI-Cadmium-Produce-Residential Adult+Child-Near	HI-Thallium-Produce-Residential Adult+Child-Far	HI-Thallium-Produce-Residential Adult+Child-Near
List of Largest Contributors to Variability	Arsenic in nonroot produce Child root ingestion rate Child nonroot ingestion rate Child Body Weight	Arsenic in nonroot produce Arsenic in root produce Child nonroot ingestion rate Child root ingestion rate Child Body Weight	Exposure Duration Cadmium in nonroot produce Child root ingestion rate Child Body Weight Adult root ingestion rate Child nonroot ingestion rate Adult nonroot ingestion rate Adult Body Weight	Exposure Duration Cadmium in nonroot produce Cadmium in root produce Child root ingestion rate Child Body Weight Child nonroot ingestion rate Adult root ingestion rate Adult nonroot ingestion rate Adult Body Weight	Child root ingestion rate Exposure Duration Child nonroot ingestion rate Child Body Weight Adult root ingestion rate Adult nonroot ingestion rate Adult Body Weight	Thallium in root produce Child root ingestion rate Thallium in nonroot produce Exposure Duration Child Body Weight Child nonroot ingestion rate Adult root ingestion rate Adult Body Weight Adult nonroot ingestion rate

Rank correlation data between assumption and forecast

Assumptions	HI-Arsenic-Produce-Residential Child-Far	Absolute Value > 0.03	HI-Arsenic-Produce-Residential Child-Near	Absolute Value > 0.03	HI-Cadmium-Produce-Residential Adult+Child-Far	Absolute Value > 0.03	HI-Cadmium-Produce-Residential Adult+Child-Near	Absolute Value > 0.03	HI-Thallium-Produce-Residential Adult+Child-Far	Absolute Value > 0.03	HI-Thallium-Produce-Residential Adult+Child-Near	Absolute Value > 0.03
Silver: Rivervale Outdoor Dust	0.01	N	0.00	N	0.00	N	0.00	N	0.00	N	0.01	N
Silver: Rivervale Residential Soil	-0.01	N	-0.02	N	0.01	N	0.00	N	-0.02	N	-0.01	N
Silver: Tadanac Outdoor Dust	0.00	N	-0.01	N	0.00	N	0.01	N	0.00	N	0.01	N
Silver: Tadanac Residential Soil	0.01	N	0.00	N	-0.01	N	-0.01	N	0.01	N	0.00	N
Silver: West Trail Outdoor Dust	-0.01	N	-0.01	N	-0.01	N	-0.02	N	-0.02	N	0.00	N
Silver: West Trail Residential Soil	-0.01	N	0.01	N	-0.01	N	-0.01	N	0.00	N	-0.01	N
Site-wide: Indoor Dust: antimony	0.02	N	0.00	N	-0.01	N	0.00	N	0.00	N	0.01	N
Site-wide: Indoor Dust: Arsenic (mg/kg)	0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	0.00	N
Site-wide: Indoor Dust: cadmium (mg/kg)	0.00	N	-0.01	N	0.00	N	0.00	N	0.01	N	0.00	N
Site-wide: nonroot produce: antimony	-0.01	N	-0.01	N	0.00	N	-0.02	N	-0.01	N	0.01	N
Site-wide: nonroot produce: cadmium	0.00	N	0.01	N	0.01	N	-0.01	N	-0.01	N	0.01	N
Site-wide: nonroot produce: inorganic arsenic	0.01	N	0.01	N	0.00	N	0.01	N	0.00	N	0.00	N
Site-wide: nonroot produce: thallium	0.00	N	0.00	N	0.01	N	0.01	N	0.00	N	0.00	N
Site-wide: Outdoor Dust: antimony (mg/kg)	0.00	N	-0.02	N	0.00	N	0.00	N	-0.01	N	0.01	N
Site-wide: Outdoor dust: arsenic (mg/kg)	0.01	N	0.00	N	0.01	N	0.01	N	0.02	N	0.00	N
Site-wide: Outdoor dust: cadmium (mg/kg)	-0.01	N	-0.01	N	0.00	N	-0.01	N	-0.02	N	-0.01	N
Site-wide: outdoor dust: selenium (mg/kg)	-0.02	N	-0.01	N	-0.01	N	-0.01	N	0.00	N	-0.01	N
Site-wide: outdoor dust: Silver (mg/kg)	0.00	N	0.01	N	0.00	N	0.00	N	0.00	N	0.01	N
Site-wide: Outdoor dust: thallium (mg/kg)	-0.01	N	0.00	N	0.01	N	0.01	N	-0.01	N	-0.01	N

Table D-1. Largest Contributors to Variability in Noncancer Risk Estimates (in decreasing order of importance)

Forecast (Output Distribution)	HI-Thallium-Produce-Residential Child-Far	HI-Thallium-Produce-Residential Child-Near	Site-wide HI: Antimony Adult+Child Residential Produce	Site-wide HI: Antimony Child Residential Produce	Site-wide HI: Arsenic Adult+Child Residential Produce	Site-wide HI: Arsenic Child Residential Produce
List of Largest Contributors to Variability	Child root ingestion rate Child nonroot ingestion rate Child Body Weight	Thallium in root produce Child root ingestion rate Child Body Weight Thallium in nonroot produce Child Body Weight	Antimony in nonroot produce Child nonroot ingestion rate Child root ingestion rate Antimony in root produce Exposure Duration Child Body Weight Adult nonroot ingestion rate Adult root ingestion rate Adult Body Weight	Antimony in nonroot produce Child nonroot ingestion rate Child root ingestion rate Antimony in root produce Child Body Weight	Arsenic in nonroot produce Arsenic in root produce Child nonroot ingestion rate Child root ingestion rate Adult nonroot ingestion rate Adult root ingestion rate Adult Body Weight Child Body Weight Exposure Duration	Arsenic in nonroot produce Child nonroot ingestion rate Arsenic in root produce Child root ingestion rate Child Body Weight

Rank correlation data between assumption and forecast

Assumptions	HI-Thallium-Produce-Residential Child-Far	Absolute Value > 0.03	HI-Thallium-Produce-Residential Child-Near	Absolute Value > 0.03	Site-wide HI: Antimony Adult+Child Residential Produce	Absolute Value > 0.03	Site-wide HI: Antimony Child Residential Produce	Absolute Value > 0.03	Site-wide HI: Arsenic Adult+Child Residential Produce	Absolute Value > 0.03	Site-wide HI: Arsenic Child Residential Produce	Absolute Value > 0.03
Silver: Rivervale Outdoor Dust	0.01	N	0.01	N	-0.02	N	-0.01	N	-0.02	N	-0.01	N
Silver: Rivervale Residential Soil	-0.02	N	-0.01	N	0.00	N	0.00	N	0.00	N	0.00	N
Silver: Tadanac Outdoor Dust	0.00	N	0.01	N	0.01	N	0.01	N	-0.03	N	-0.03	N
Silver: Tadanac Residential Soil	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N
Silver: West Trail Outdoor Dust	-0.01	N	0.00	N	-0.02	N	-0.01	N	-0.01	N	-0.01	N
Silver: West Trail Residential Soil	-0.01	N	-0.01	N	-0.01	N	-0.02	N	0.01	N	0.00	N
Site-wide: Indoor Dust: antimony	0.01	N	0.02	N	0.00	N	0.00	N	0.00	N	0.00	N
Site-wide: Indoor Dust: Arsenic (mg/kg)	-0.01	N	0.00	N	0.00	N	0.00	N	-0.01	N	-0.01	N
Site-wide: Indoor Dust: cadmium (mg/kg)	0.00	N	-0.01	N	0.00	N	-0.01	N	0.01	N	0.01	N
Site-wide: nonroot produce: antimony	-0.01	N	0.01	N	0.65	Y	0.60	Y	-0.01	N	-0.01	N
Site-wide: nonroot produce: cadmium	0.00	N	0.01	N	-0.01	N	-0.01	N	-0.02	N	-0.02	N
Site-wide: nonroot produce: inorganic arsenic	0.00	N	0.00	N	0.00	N	0.00	N	0.79	Y	0.75	Y
Site-wide: nonroot produce: thallium	0.00	N	0.00	N	0.00	N	0.00	N	-0.02	N	-0.02	N
Site-wide: Outdoor Dust: antimony (mg/kg)	0.00	N	0.01	N	-0.01	N	-0.01	N	0.00	N	0.00	N
Site-wide: Outdoor dust: arsenic (mg/kg)	0.02	N	0.01	N	0.01	N	0.01	N	0.01	N	0.02	N
Site-wide: Outdoor dust: cadmium (mg/kg)	-0.02	N	-0.01	N	-0.01	N	-0.01	N	0.00	N	0.00	N
Site-wide: outdoor dust: selenium (mg/kg)	-0.01	N	-0.01	N	0.00	N	-0.01	N	0.00	N	0.00	N
Site-wide: outdoor dust: Silver (mg/kg)	0.00	N	0.01	N	0.00	N	0.00	N	0.00	N	0.00	N
Site-wide: Outdoor dust: thallium (mg/kg)	0.00	N	0.00	N	-0.02	N	-0.01	N	0.00	N	0.01	N

Table D-1. Largest Contributors to Variability in Noncancer Risk Estimates (in decreasing order of importance)

Forecast (Output Distribution)	**Site-wide HI: Cadmium Adult+Child Residential Produce**	**Site-wide HI: Thallium Adult+Child Residential Produce**	**Site-wide HI: Thallium Child Residential Produce**	**HI-Antimony-Particulates-Agricultural Adult-Waneta**	**HI-Antimony-Soil/Dust-Agricultural Adult-Waneta**	**HI-Antimony-Soil/Dust-Commerical Adult+Child-East Trail**
List of Largest Contributors to Variability	Exposure Duration Cadmium in nonroot produce Cadmium in root produce Child root ingestion rate Child nonroot ingestion rate Child Body Weight Adult root ingestion rate Adult nonroot ingestion rate Adult Body Weight	Thallium in root produce Child root ingestion rate Thallium in nonroot produce Exposure Duration Child nonroot ingestion rate Child Body Weight Adult root ingestion rate Adult nonroot ingestion rate Adult Body Weight	Thallium in root produce Child root ingestion rate Thallium in nonroot produce Child nonroot ingestion rate Child Body Weight	Particulate concentration in air Adult Body Weight Adult Inhalation Rate	Adult Body Weight	Child soil ingestion rate Exposure Duration Child Body Weight Adult SIR Exposure Frequency

Rank correlation data between assumption and forecast

Assumptions	Site-wide HI: Cadmium Adult+Child Residential Produce	Absolute Value > 0.03	Site-wide HI: Thallium Adult+Child Residential Produce	Absolute Value > 0.03	Site-wide HI: Thallium Child Residential Produce	Absolute Value > 0.03	HI-Antimony-Particulates-Agricultural Adult-Waneta	Absolute Value > 0.03	HI-Antimony-Soil/Dust-Agricultural Adult-Waneta	Absolute Value > 0.03	HI-Antimony-Soil/Dust-Commerical Adult+Child-East Trail	Absolute Value > 0.03
Silver: Rivervale Outdoor Dust	0.01	N	0.00	N	0.00	N	0.01	N	-0.02	N	0.00	N
Silver: Rivervale Residential Soil	0.01	N	-0.02	N	-0.01	N	-0.02	N	-0.02	N	0.01	N
Silver: Tadanac Outdoor Dust	0.02	N	0.01	N	0.01	N	-0.01	N	-0.01	N	-0.01	N
Silver: Tadanac Residential Soil	0.00	N	0.00	N	-0.01	N	0.01	N	0.01	N	0.01	N
Silver: West Trail Outdoor Dust	-0.01	N	-0.02	N	-0.02	N	0.00	N	0.00	N	-0.02	N
Silver: West Trail Residential Soil	-0.01	N	-0.01	N	-0.01	N	0.00	N	-0.01	N	0.00	N
Site-wide: Indoor Dust: antimony	-0.01	N	0.01	N	0.01	N	0.01	N	-0.01	N	-0.01	N
Site-wide: Indoor Dust: Arsenic (mg/kg)	-0.01	N	0.00	N	0.00	N	-0.01	N	0.00	N	0.00	N
Site-wide: Indoor Dust: cadmium (mg/kg)	0.00	N	0.01	N	0.01	N	0.01	N	0.02	N	0.00	N
Site-wide: nonroot produce: antimony	-0.02	N	-0.01	N	0.00	N	0.02	N	0.00	N	0.01	N
Site-wide: nonroot produce: cadmium	0.49	Y	0.00	N	0.00	N	0.00	N	0.00	N	-0.01	N
Site-wide: nonroot produce: inorganic arsenic	-0.01	N	-0.01	N	-0.01	N	0.00	N	0.00	N	0.01	N
Site-wide: nonroot produce: thallium	0.00	N	0.29	Y	0.27	Y	0.01	N	0.00	N	0.01	N
Site-wide: Outdoor Dust: antimony (mg/kg)	0.00	N	0.00	N	0.00	N	0.00	N	0.02	N	-0.01	N
Site-wide: Outdoor dust: arsenic (mg/kg)	0.01	N	0.01	N	0.01	N	0.00	N	-0.01	N	0.01	N
Site-wide: Outdoor dust: cadmium (mg/kg)	0.00	N	0.00	N	-0.01	N	0.00	N	0.00	N	0.00	N
Site-wide: outdoor dust: selenium (mg/kg)	0.00	N	-0.02	N	-0.02	N	0.01	N	0.00	N	-0.01	N
Site-wide: outdoor dust: Silver (mg/kg)	0.00	N	0.01	N	0.01	N	0.00	N	0.00	N	0.00	N
Site-wide: Outdoor dust: thallium (mg/kg)	0.00	N	-0.01	N	-0.01	N	-0.01	N	0.00	N	-0.01	N

Table D-1. Largest Contributors to Variability in Noncancer Risk Estimates (in decreasing order of importance)

Forecast (Output Distribution)	HI-Antimony-Soil/Dust-Commerical Child-East Trail	HI-Antimony-Soil/Dust-Residential Adult+Child-East Trail	HI-Antimony-Soil/Dust-Residential Adult+Child-Rivervale	HI-Antimony-Soil/Dust-Residential Adult+Child-Tadanac	HI-Antimony-Soil/Dust-Residential Adult+Child-Waneta	HI-Antimony-Soil/Dust-Residential Adult+Child-West Trail	HI-Antimony-Soil/Dust-Residential Child-East Trail
List of Largest Contributors to Variability	Child soil ingestion rate Child Body Weight Exposure Frequency	Child soil ingestion rate Exposure Duration Child Body Weight Adult SIR Antimony in soil Antimony in outdoor dust Fractional Intake: soil/dust	Child soil ingestion rate Exposure Duration Child Body Weight Adult SIR Antimony in soil	Child soil ingestion rate Exposure Duration Child Body Weight Adult SIR Antimony in soil Antimony in outdoor dust Fractional Intake: soil/dust	Child soil ingestion rate Exposure Duration Child Body Weight Adult SIR Antimony in soil	Child soil ingestion rate Exposure Duration Child Body Weight Adult SIR Antimony in soil Fractional Intake: soil/dust	Child soil ingestion rate Child Body Weight Antimony in soil Antimony in outdoor dust Fractional Intake: soil/dust

Rank correlation data between assumption and forecast

Assumptions	HI-Antimony-Soil/Dust-Commerical Child-East Trail	Absolute Value > 0.03	HI-Antimony-Soil/Dust-Residential Adult+Child-East Trail	Absolute Value > 0.03	HI-Antimony-Soil/Dust-Residential Adult+Child-Rivervale	Absolute Value > 0.03	HI-Antimony-Soil/Dust-Residential Adult+Child-Tadanac	Absolute Value > 0.03	HI-Antimony-Soil/Dust-Residential Adult+Child-Waneta	Absolute Value > 0.03	HI-Antimony-Soil/Dust-Residential Adult+Child-West Trail	Absolute Value > 0.03	HI-Antimony-Soil/Dust-Residential Child-East Trail	Absolute Value > 0.03
Silver: Rivervale Outdoor Dust	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N
Silver: Rivervale Residential Soil	0.02	N	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N	0.02	N
Silver: Tadanac Outdoor Dust	0.00	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N
Silver: Tadanac Residential Soil	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N
Silver: West Trail Outdoor Dust	-0.02	N	-0.02	N	-0.02	N	-0.02	N	-0.02	N	-0.02	N	-0.02	N
Silver: West Trail Residential Soil	0.00	N	0.00	N	0.00	N	0.00	N	0.01	N	0.00	N	0.00	N
Site-wide: Indoor Dust: antimony	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N
Site-wide: Indoor Dust: Arsenic (mg/kg)	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N
Site-wide: Indoor Dust: cadmium (mg/kg)	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N
Site-wide: nonroot produce: antimony	0.00	N	0.01	N	0.00	N	0.01	N	0.01	N	0.00	N	0.00	N
Site-wide: nonroot produce: cadmium	-0.02	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.02	N
Site-wide: nonroot produce: inorganic arsenic	0.00	N	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N	0.00	N
Site-wide: nonroot produce: thallium	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N
Site-wide: Outdoor Dust: antimony (mg/kg)	-0.02	N	-0.01	N	-0.01	N	-0.01	N	-0.02	N	-0.02	N	-0.02	N
Site-wide: Outdoor dust: arsenic (mg/kg)	0.01	N	0.01	N	0.01	N	0.01	N	0.02	N	0.01	N	0.01	N
Site-wide: Outdoor dust: cadmium (mg/kg)	0.00	N	0.00	N	-0.01	N	0.00	N	-0.01	N	-0.01	N	0.00	N
Site-wide: outdoor dust: selenium (mg/kg)	-0.01	N	-0.01	N	-0.02	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N
Site-wide: outdoor dust: Silver (mg/kg)	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N
Site-wide: Outdoor dust: thallium (mg/kg)	0.00	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N

Table D-1. Largest Contributors to Variability in Noncancer Risk Estimates (in decreasing order of importance)

Forecast (Output Distribution)	HI-Antimony-Soil/Dust-Residential Child-Rivervale	HI-Antimony-Soil/Dust-Residential Child-Tadanac	HI-Antimony-Soil/Dust-Residential Child-Waneta	HI-Antimony-Soil/Dust-Residential Child-West Trail	HI-Arsenic-Soil/Dust-Residential Adult+Child-East Trail	HI-Arsenic-Soil/Dust-Residential Adult+Child-Rivervale	HI-Arsenic-Soil/Dust-Residential Adult+Child-Tadanac
List of Largest Contributors to Variability	Child soil ingestion rate Child Body Weight Antimony in soil Antimony in outdoor dust	Child soil ingestion rate Child Body Weight Antimony in outdoor dust Antimony in soil Fractional Intake: soil/dust	Child soil ingestion rate Child Body Weight Antimony in soil	Child soil ingestion rate Child Body Weight Antimony in soil Fractional Intake: soil/dust	Child soil ingestion rate Exposure Duration Child Body Weight Adult SIR Arsenic in soil Arsenic in outdoor dust	Child soil ingestion rate Exposure Duration Child Body Weight Adult SIR Arsenic in soil	Child soil ingestion rate Exposure Duration Child Body Weight Adult SIR Arsenic in outdoor dust Arsenic in soil

Rank correlation data between assumption and forecast

Assumptions	HI-Antimony-Soil/Dust-Residential Child-Rivervale	Absolute Value > 0.03	HI-Antimony-Soil/Dust-Residential Child-Tadanac	Absolute Value > 0.03	HI-Antimony-Soil/Dust-Residential Child-Waneta	Absolute Value > 0.03	HI-Antimony-Soil/Dust-Residential Child-West Trail	Absolute Value > 0.03	HI-Arsenic-Soil/Dust-Residential Adult+Child-East Trail	Absolute Value > 0.03	HI-Arsenic-Soil/Dust-Residential Adult+Child-Rivervale	Absolute Value > 0.03	HI-Arsenic-Soil/Dust-Residential Adult+Child-Tadanac	Absolute Value > 0.03
Silver: Rivervale Outdoor Dust	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N
Silver: Rivervale Residential Soil	0.02	N	0.02	N	0.02	N	0.02	N	0.01	N	0.01	N	0.01	N
Silver: Tadanac Outdoor Dust	0.00	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N
Silver: Tadanac Residential Soil	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N
Silver: West Trail Outdoor Dust	-0.02	N	-0.02	N	-0.02	N	-0.02	N	-0.02	N	-0.02	N	-0.02	N
Silver: West Trail Residential Soil	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N
Site-wide: Indoor Dust: antimony	-0.02	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N
Site-wide: Indoor Dust: Arsenic (mg/kg)	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N
Site-wide: Indoor Dust: cadmium (mg/kg)	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N
Site-wide: nonroot produce: antimony	0.00	N	0.00	N	0.00	N	0.00	N	0.01	N	0.00	N	0.01	N
Site-wide: nonroot produce: cadmium	-0.02	N	-0.02	N	-0.02	N	-0.02	N	-0.01	N	-0.01	N	-0.01	N
Site-wide: nonroot produce: inorganic arsenic	0.00	N	0.00	N	0.01	N	0.00	N	0.01	N	0.01	N	0.01	N
Site-wide: nonroot produce: thallium	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N
Site-wide: Outdoor Dust: antimony (mg/kg)	-0.02	N	-0.02	N	-0.02	N	-0.02	N	-0.02	N	-0.02	N	-0.02	N
Site-wide: Outdoor dust: arsenic (mg/kg)	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N	0.02	N	0.01	N
Site-wide: Outdoor dust: cadmium (mg/kg)	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	-0.01	N	-0.01	N
Site-wide: outdoor dust: selenium (mg/kg)	-0.02	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N
Site-wide: outdoor dust: Silver (mg/kg)	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N
Site-wide: Outdoor dust: thallium (mg/kg)	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.02	N	-0.01	N	-0.01	N

Table D-1. Largest Contributors to Variability in Noncancer Risk Estimates (in decreasing order of importance)

Forecast (Output Distribution)	**HI-Arsenic-Soil/Dust-Residential Adult+Child-Waneta**	**HI-Arsenic-Soil/Dust-Residential Adult+Child-West Trail**	**HI-Arsenic-Soil/Dust-Residential Child-East Trail**	**HI-Arsenic-Soil/Dust-Residential Child-Rivervale**	**HI-Arsenic-Soil/Dust-Residential Child-Tadanac**	**HI-Arsenic-Soil/Dust-Residential Child-Waneta**	**HI-Arsenic-Soil/Dust-Residential Child-West Trail**
List of Largest Contributors to Variability	Child soil ingestion rate Exposure Duration Child Body Weight Adult SIR Arsenic in soil Arsenic in outdoor dust	Child soil ingestion rate Exposure Duration Child Body Weight Adult SIR Fractional intake: soil/dust	Child soil ingestion rate Child Body Weight Arsenic in soil Arsenic in outdoor dust	Child soil ingestion rate Child Body Weight Arsenic in soil	Child soil ingestion rate Child Body Weight Arsenic in outdoor dust	Child soil ingestion rate Child Body Weight Arsenic in soil	Child soil ingestion rate Child Body Weight Fractional intake: soil/dust Arsenic in soil

Rank correlation data between assumption and forecast

Assumptions	HI-Arsenic-Soil/Dust-Residential Adult+Child-Waneta	Absolute Value > 0.03	HI-Arsenic-Soil/Dust-Residential Adult+Child-West Trail	Absolute Value > 0.03	HI-Arsenic-Soil/Dust-Residential Child-East Trail	Absolute Value > 0.03	HI-Arsenic-Soil/Dust-Residential Child-Rivervale	Absolute Value > 0.03	HI-Arsenic-Soil/Dust-Residential Child-Tadanac	Absolute Value > 0.03	HI-Arsenic-Soil/Dust-Residential Child-Waneta	Absolute Value > 0.03	HI-Arsenic-Soil/Dust-Residential Child-West Trail	Absolute Value > 0.03
Silver: Rivervale Outdoor Dust	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N
Silver: Rivervale Residential Soil	0.01	N	0.01	N	0.02	N	0.02	N	0.02	N	0.02	N	0.02	N
Silver: Tadanac Outdoor Dust	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N
Silver: Tadanac Residential Soil	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N
Silver: West Trail Outdoor Dust	-0.02	N	-0.02	N	-0.02	N	-0.02	N	-0.02	N	-0.02	N	-0.02	N
Silver: West Trail Residential Soil	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N
Site-wide: Indoor Dust: antimony	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N
Site-wide: Indoor Dust: Arsenic (mg/kg)	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N
Site-wide: Indoor Dust: cadmium (mg/kg)	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N
Site-wide: nonroot produce: antimony	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N
Site-wide: nonroot produce: cadmium	-0.01	N	-0.01	N	-0.02	N	-0.02	N	-0.02	N	-0.02	N	-0.02	N
Site-wide: nonroot produce: inorganic arsenic	0.01	N	0.01	N	0.00	N	0.00	N	0.00	N	0.00	N	0.01	N
Site-wide: nonroot produce: thallium	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N
Site-wide: Outdoor Dust: antimony (mg/kg)	-0.01	N	-0.01	N	-0.02	N	-0.02	N	-0.02	N	-0.02	N	-0.02	N
Site-wide: Outdoor dust: arsenic (mg/kg)	0.01	N	0.02	N	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N
Site-wide: Outdoor dust: cadmium (mg/kg)	-0.01	N	-0.01	N	0.00	N	0.00	N	-0.01	N	0.00	N	0.00	N
Site-wide: outdoor dust: selenium (mg/kg)	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N
Site-wide: outdoor dust: Silver (mg/kg)	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N
Site-wide: Outdoor dust: thallium (mg/kg)	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	0.00	N	-0.01	N

Table D-1. Largest Contributors to Variability in Noncancer Risk Estimates (in decreasing order of importance)

Forecast (Output Distribution)	HI-Cadmium-Soil/Dust-Agricultural Adult-Waneta	HI-Cadmium-Soil/Dust-Commerical Adult+Child-East Trail	HI-Cadmium-Soil/Dust-Residential Adult+Child-East Trail	HI-Cadmium-Soil/Dust-Residential Adult+Child-Rivervale	HI-Cadmium-Soil/Dust-Residential Adult+Child-Tadanac	HI-Cadmium-Soil/Dust-Residential Adult+Child-Waneta	HI-Cadmium-Soil/Dust-Residential Adult+Child-West Trail
List of Largest Contributors to Variability	Exposure Duration Adult Body Weight Cadmium in soil	Child soil ingestion rate Exposure Duration Child Body Weight Adult SIR Exposure Frequency	Child soil ingestion rate Exposure Duration Child Body Weight Adult SIR Cadmium in soil Cadmium in outdoor dust Fractional intake: soil/dust	Child soil ingestion rate Exposure Duration Child Body Weight Adult SIR Cadmium in soil Cadmium in outdoor dust Fractional intake: soil/dust	Child soil ingestion rate Exposure Duration Child Body Weight Adult SIR Cadmium in outdoor dust Fractional intake: soil/dust	Child soil ingestion rate Exposure Duration Child Body Weight Adult SIR Cadmium in soil Fractional intake: soil/dust	Child soil ingestion rate Exposure Duration Child Body Weight Adult SIR Fractional intake: soil/dust Cadmium in outdoor dust

Rank correlation data between assumption and forecast

Assumptions	HI-Cadmium-Soil/Dust-Agricultural Adult-Waneta	Absolute Value > 0.03	HI-Cadmium-Soil/Dust-Commerical Adult+Child-East Trail	Absolute Value > 0.03	HI-Cadmium-Soil/Dust-Residential Adult+Child-East Trail	Absolute Value > 0.03	HI-Cadmium-Soil/Dust-Residential Adult+Child-Rivervale	Absolute Value > 0.03	HI-Cadmium-Soil/Dust-Residential Adult+Child-Tadanac	Absolute Value > 0.03	HI-Cadmium-Soil/Dust-Residential Adult+Child-Waneta	Absolute Value > 0.03	HI-Cadmium-Soil/Dust-Residential Adult+Child-West Trail	Absolute Value > 0.03
Silver: Rivervale Outdoor Dust	0.01	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N
Silver: Rivervale Residential Soil	-0.02	N	0.03	N	0.03	N	0.03	N	0.03	N	0.03	N	0.03	N
Silver: Tadanac Outdoor Dust	-0.01	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N
Silver: Tadanac Residential Soil	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N
Silver: West Trail Outdoor Dust	0.00	N	-0.02	N	-0.02	N	-0.02	N	-0.02	N	-0.02	N	-0.02	N
Silver: West Trail Residential Soil	-0.02	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N
Site-wide: Indoor Dust: antimony	0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N
Site-wide: Indoor Dust: Arsenic (mg/kg)	-0.01	N	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N
Site-wide: Indoor Dust: cadmium (mg/kg)	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N
Site-wide: nonroot produce: antimony	-0.01	N	0.01	N	0.00	N	0.01	N	0.01	N	0.01	N	0.01	N
Site-wide: nonroot produce: cadmium	0.01	N	-0.02	N	-0.02	N	-0.02	N	-0.02	N	-0.02	N	-0.02	N
Site-wide: nonroot produce: inorganic arsenic	-0.01	N	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N
Site-wide: nonroot produce: thallium	-0.02	N	0.02	N	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N
Site-wide: Outdoor Dust: antimony (mg/kg)	0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N
Site-wide: Outdoor dust: arsenic (mg/kg)	-0.01	N	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N
Site-wide: Outdoor dust: cadmium (mg/kg)	0.01	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N
Site-wide: outdoor dust: selenium (mg/kg)	0.01	N	-0.02	N	-0.01	N	-0.02	N	-0.02	N	-0.02	N	-0.02	N
Site-wide: outdoor dust: Silver (mg/kg)	-0.01	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N
Site-wide: Outdoor dust: thallium (mg/kg)	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N

Table D-1. Largest Contributors to Variability in Noncancer Risk Estimates (in decreasing order of importance)

Forecast (Output Distribution)	**HI-Selenium-Soil/Dust-Residential Adult+Child-East Trail**	**HI-Selenium-Soil/Dust-Residential Adult+Child-Rivervale**	**HI-Selenium-Soil/Dust-Residential Adult+Child-Tadanac**	**HI-Selenium-Soil/Dust-Residential Adult+Child-Waneta**	**HI-Selenium-Soil/Dust-Residential Adult+Child-West Trail**	**HI-Selenium-Soil/Dust-Residential Child-East Trail**	**HI-Selenium-Soil/Dust-Residential Child-Rivervale**
List of Largest Contributors to Variability	Child soil ingestion rate Selenium in soil Exposure Duration Child Body Weight Adult SIR Selenium in outdoor dust	Child soil ingestion rate Selenium in soil Exposure Duration Child Body Weight Adult SIR	Child soil ingestion rate Selenium in soil Exposure Duration Child Body Weight Selenium in outdoor dust Adult SIR	Child soil ingestion rate Exposure Duration Child Body Weight Adult SIR	Child soil ingestion rate Exposure Duration Selenium in soil Child Body Weight Adult SIR Selenium in outdoor dust	Child soil ingestion rate Selenium in soil Child Body Weight Selenium in outdoor dust	Child soil ingestion rate Selenium in soil Child Body Weight

Rank correlation data between assumption and forecast

Assumptions	HI-Selenium-Soil/Dust-Residential Adult+Child-East Trail	Absolute Value > 0.03	HI-Selenium-Soil/Dust-Residential Adult+Child-Rivervale	Absolute Value > 0.03	HI-Selenium-Soil/Dust-Residential Adult+Child-Tadanac	Absolute Value > 0.03	HI-Selenium-Soil/Dust-Residential Adult+Child-Waneta	Absolute Value > 0.03	HI-Selenium-Soil/Dust-Residential Adult+Child-West Trail	Absolute Value > 0.03	HI-Selenium-Soil/Dust-Residential Child-East Trail	Absolute Value > 0.03	HI-Selenium-Soil/Dust-Residential Child-Rivervale	Absolute Value > 0.03
Silver: Rivervale Outdoor Dust	0.00	N	-0.01	N	0.01	N	0.00	N	0.00	N	0.00	N	-0.01	N
Silver: Rivervale Residential Soil	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N	0.02	N	0.02	N
Silver: Tadanac Outdoor Dust	-0.01	N	0.00	N	0.01	N	-0.01	N	-0.01	N	-0.01	N	0.00	N
Silver: Tadanac Residential Soil	0.01	N	0.02	N	0.02	N	0.01	N	0.02	N	0.01	N	0.01	N
Silver: West Trail Outdoor Dust	-0.02	N	-0.03	N	-0.02	N	-0.02	N	-0.02	N	-0.02	N	-0.02	N
Silver: West Trail Residential Soil	0.01	N	0.00	N	0.00	N	0.00	N	0.01	N	0.00	N	-0.01	N
Site-wide: Indoor Dust: antimony	-0.01	N	-0.01	N	0.00	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N
Site-wide: Indoor Dust: Arsenic (mg/kg)	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N
Site-wide: Indoor Dust: cadmium (mg/kg)	0.00	N	0.01	N	0.01	N	0.00	N	0.00	N	0.00	N	0.01	N
Site-wide: nonroot produce: antimony	0.01	N	0.00	N	0.00	N	0.01	N	0.01	N	0.00	N	0.00	N
Site-wide: nonroot produce: cadmium	-0.01	N	-0.02	N	-0.02	N	-0.01	N	-0.01	N	-0.02	N	-0.02	N
Site-wide: nonroot produce: inorganic arsenic	0.01	N	0.00	N	0.01	N	0.01	N	0.01	N	0.01	N	0.00	N
Site-wide: nonroot produce: thallium	0.01	N	0.01	N	0.00	N	0.01	N	0.01	N	0.01	N	0.01	N
Site-wide: Outdoor Dust: antimony (mg/kg)	-0.01	N	0.00	N	-0.01	N	-0.02	N	-0.01	N	-0.01	N	0.00	N
Site-wide: Outdoor dust: arsenic (mg/kg)	0.01	N	0.02	N	0.01	N	0.01	N	0.01	N	0.00	N	0.01	N
Site-wide: Outdoor dust: cadmium (mg/kg)	-0.01	N	-0.01	N	0.00	N	-0.01	N	-0.01	N	0.00	N	-0.01	N
Site-wide: outdoor dust: selenium (mg/kg)	-0.01	N	-0.01	N	-0.02	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N
Site-wide: outdoor dust: Silver (mg/kg)	0.00	N	0.00	N	-0.01	N	0.00	N	0.00	N	0.00	N	0.00	N
Site-wide: Outdoor dust: thallium (mg/kg)	-0.01	N	-0.01	N	-0.02	N	-0.01	N	-0.02	N	0.00	N	-0.01	N

Table D-1. Largest Contributors to Variability in Noncancer Risk Estimates (in decreasing order of importance)

Forecast (Output Distribution)	**HI-Selenium-Soil/Dust-Residential Child-Tadanac**	**HI-Selenium-Soil/Dust-Residential Child-Waneta**	**HI-Selenium-Soil/Dust-Residential Child-West Trail**	**HI-Silver-Soil/Dust-Residential Adult+Child-East Trail**	**HI-Silver-Soil/Dust-Residential Adult+Child-Rivervale**	**HI-Silver-Soil/Dust-Residential Adult+Child-Tadanac**	**HI-Silver-Soil/Dust-Residential Adult+Child-Waneta**
List of Largest Contributors to Variability	Child soil ingestion rate Selenium in soil Child Body Weight Selenium in outdoor dust	Child soil ingestion rate Child Body Weight	Child soil ingestion rate Selenium in soil Child Body Weight Selenium in outdoor dust	Child soil ingestion rate Silver in soil Exposure Duration Silver in outdoor dust Child Body Weight Adult SIR Exposure Frequency	Child soil ingestion rate Exposure Duration Silver in soil Child Body Weight Adult SIR Silver in outdoor dust	Child soil ingestion rate Exposure Duration Silver in soil Silver in outdoor dust Child Body Weight Adult SIR Exposure Frequency	Child soil ingestion rate Exposure Duration Child Body Weight Adult SIR

Rank correlation data between assumption and forecast

Assumptions	HI-Selenium-Soil/Dust-Residential Child-Tadanac	Absolute Value > 0.03	HI-Selenium-Soil/Dust-Residential Child-Waneta	Absolute Value > 0.03	HI-Selenium-Soil/Dust-Residential Child-West Trail	Absolute Value > 0.03	HI-Silver-Soil/Dust-Residential Adult+Child-East Trail	Absolute Value > 0.03	HI-Silver-Soil/Dust-Residential Adult+Child-Rivervale	Absolute Value > 0.03	HI-Silver-Soil/Dust-Residential Adult+Child-Tadanac	Absolute Value > 0.03	HI-Silver-Soil/Dust-Residential Adult+Child-Waneta	Absolute Value > 0.03
Silver: Rivervale Outdoor Dust	0.01	N	0.00	N	0.00	N	0.00	N	0.10	Y	0.01	N	0.00	N
Silver: Rivervale Residential Soil	0.02	N	0.02	N	0.02	N	0.01	N	0.19	Y	0.00	N	0.01	N
Silver: Tadanac Outdoor Dust	0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	0.21	Y	-0.01	N
Silver: Tadanac Residential Soil	0.02	N	0.01	N	0.01	N	0.02	N	0.01	N	0.28	Y	0.01	N
Silver: West Trail Outdoor Dust	-0.02	N	-0.02	N	-0.02	N	-0.01	N	-0.02	N	-0.02	N	-0.02	N
Silver: West Trail Residential Soil	-0.01	N	0.00	N	0.00	N	0.01	N	0.01	N	0.01	N	0.00	N
Site-wide: Indoor Dust: antimony	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N
Site-wide: Indoor Dust: Arsenic (mg/kg)	0.00	N	0.00	N	0.00	N	0.00	N	-0.01	N	0.00	N	0.00	N
Site-wide: Indoor Dust: cadmium (mg/kg)	0.01	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N
Site-wide: nonroot produce: antimony	0.00	N	0.00	N	0.00	N	0.02	N	0.01	N	0.01	N	0.01	N
Site-wide: nonroot produce: cadmium	-0.02	N	-0.02	N	-0.01	N	-0.01	N	-0.01	N	0.00	N	-0.01	N
Site-wide: nonroot produce: inorganic arsenic	0.01	N	0.00	N	0.01	N	0.01	N	0.01	N	0.00	N	0.01	N
Site-wide: nonroot produce: thallium	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N	0.00	N	0.01	N
Site-wide: Outdoor Dust: antimony (mg/kg)	-0.01	N	-0.02	N	-0.01	N	0.00	N	-0.02	N	-0.01	N	-0.02	N
Site-wide: Outdoor dust: arsenic (mg/kg)	0.00	N	0.01	N	0.01	N	0.01	N	0.01	N	0.02	N	0.01	N
Site-wide: Outdoor dust: cadmium (mg/kg)	0.00	N	0.00	N	-0.01	N	0.00	N	-0.01	N	-0.01	N	-0.01	N
Site-wide: outdoor dust: selenium (mg/kg)	-0.02	N	-0.01	N	-0.01	N	-0.02	N	-0.01	N	-0.02	N	-0.01	N
Site-wide: outdoor dust: Silver (mg/kg)	-0.01	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N
Site-wide: Outdoor dust: thallium (mg/kg)	-0.01	N	-0.01	N	-0.01	N	-0.02	N	-0.01	N	-0.02	N	-0.01	N

Table D-1. Largest Contributors to Variability in Noncancer Risk Estimates (in decreasing order of importance)

Forecast (Output Distribution)	HI-Silver-Soil/Dust-Residential Adult+Child-West Trail	HI-Silver-Soil/Dust-Residential Child-East Trail	HI-Silver-Soil/Dust-Residential Child-Rivervale	HI-Silver-Soil/Dust-Residential Child-Tadanac	HI-Silver-Soil/Dust-Residential Child-Waneta	HI-Silver-Soil/Dust-Residential Child-West Trail	HI-Thallium-Soil/Dust-Residential Adult+Child-East Trail
List of Largest Contributors to Variability	Child soil ingestion rate Silver in soil Exposure Duration Child Body Weight Adult SIR Silver in outdoor dust	Child soil ingestion rate Silver in soil Child Body Weight Silver in outdoor dust Exposure Frequency	Child soil ingestion rate Silver in soil Child Body Weight Silver in outdoor dust	Child soil ingestion rate Silver in soil Silver in outdoor dust Child Body Weight Exposure Frequency	Child soil ingestion rate Child Body Weight	Child soil ingestion rate Silver in soil Child Body Weight Silver in outdoor dust	Child soil ingestion rate Thallium in soil Exposure Duration Child Body Weight Adult SIR

Rank correlation data between assumption and forecast

Assumptions	HI-Silver-Soil/Dust-Residential Adult+Child-West Trail	Absolute Value > 0.03	HI-Silver-Soil/Dust-Residential Child-East Trail	Absolute Value > 0.03	HI-Silver-Soil/Dust-Residential Child-Rivervale	Absolute Value > 0.03	HI-Silver-Soil/Dust-Residential Child-Tadanac	Absolute Value > 0.03	HI-Silver-Soil/Dust-Residential Child-Waneta	Absolute Value > 0.03	HI-Silver-Soil/Dust-Residential Child-West Trail	Absolute Value > 0.03	HI-Thallium-Soil/Dust-Residential Adult+Child-East Trail	Absolute Value > 0.03
Silver: Rivervale Outdoor Dust	0.01	N	0.00	N	0.10	Y	0.01	N	0.00	N	0.01	N	0.00	N
Silver: Rivervale Residential Soil	0.01	N	0.01	N	0.19	Y	0.01	N	0.02	N	0.02	N	0.01	N
Silver: Tadanac Outdoor Dust	0.00	N	-0.01	N	-0.01	N	0.21	Y	-0.01	N	0.00	N	0.00	N
Silver: Tadanac Residential Soil	0.01	N	0.01	N	0.01	N	0.28	Y	0.01	N	0.01	N	0.01	N
Silver: West Trail Outdoor Dust	0.07	Y	-0.01	N	-0.02	N	-0.02	N	-0.02	N	0.07	Y	-0.02	N
Silver: West Trail Residential Soil	0.40	Y	0.00	N	0.00	N	0.00	N	0.00	N	0.38	Y	0.01	N
Site-wide: Indoor Dust: antimony	-0.01	N	-0.01	N	-0.01	N	-0.02	N	-0.01	N	-0.01	N	-0.01	N
Site-wide: Indoor Dust: Arsenic (mg/kg)	0.00	N	0.00	N	-0.01	N	0.00	N	0.00	N	0.00	N	0.00	N
Site-wide: Indoor Dust: cadmium (mg/kg)	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	-0.01	N	0.00	N
Site-wide: nonroot produce: antimony	0.00	N	0.01	N	0.00	N	0.00	N	0.00	N	0.00	N	0.01	N
Site-wide: nonroot produce: cadmium	-0.01	N	-0.01	N	-0.02	N	-0.01	N	-0.02	N	-0.02	N	0.00	N
Site-wide: nonroot produce: inorganic arsenic	0.01	N	0.00	N	0.00	N	0.00	N	0.00	N	0.01	N	0.02	N
Site-wide: nonroot produce: thallium	0.01	N	0.01	N	0.02	N	0.01	N	0.01	N	0.01	N	0.00	N
Site-wide: Outdoor Dust: antimony (mg/kg)	-0.02	N	-0.01	N	-0.02	N	-0.02	N	-0.02	N	-0.02	N	-0.02	N
Site-wide: Outdoor dust: arsenic (mg/kg)	0.02	N	0.01	N	0.01	N	0.02	N	0.01	N	0.01	N	0.01	N
Site-wide: Outdoor dust: cadmium (mg/kg)	0.00	N	0.00	N	-0.01	N	-0.01	N	0.00	N	0.00	N	0.01	N
Site-wide: outdoor dust: selenium (mg/kg)	-0.01	N	-0.02	N	-0.01	N	-0.02	N	-0.01	N	-0.01	N	-0.01	N
Site-wide: outdoor dust: Silver (mg/kg)	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	-0.01	N	0.01	N
Site-wide: Outdoor dust: thallium (mg/kg)	-0.02	N	-0.01	N	0.00	N	-0.01	N	-0.01	N	-0.01	N	0.00	N

Table D-1. Largest Contributors to Variability in Noncancer Risk Estimates (in decreasing order of importance)

Forecast (Output Distribution)	HI-Thallium-Soil/Dust-Residential Adult+Child-Rivervale	HI-Thallium-Soil/Dust-Residential Adult+Child-Tadanac	HI-Thallium-Soil/Dust-Residential Adult+Child-Waneta	HI-Thallium-Soil/Dust-Residential Adult+Child-West Trail	HI-Thallium-Soil/Dust-Residential Child-East Trail	HI-Thallium-Soil/Dust-Residential Child-Rivervale	HI-Thallium-Soil/Dust-Residential Child-Tadanac
List of Largest Contributors to Variability	Child soil ingestion rate Thallium in soil Exposure Duration Child Body Weight Adult SIR	Child soil ingestion rate Thallium in soil Exposure Duration Child Body Weight Adult SIR Thallium in outdoor dust	Child soil ingestion rate Exposure Duration Child Body Weight Adult SIR	Child soil ingestion rate Exposure Duration Thallium in soil Child Body Weight Adult SIR	Child soil ingestion rate Thallium in soil Child Body Weight	Child soil ingestion rate Thallium in soil Child Body Weight	Child soil ingestion rate Thallium in soil Child Body Weight Thallium in outdoor dust

Rank correlation data between assumption and forecast

Assumptions	HI-Thallium-Soil/Dust-Residential Adult+Child-Rivervale	Absolute Value > 0.03	HI-Thallium-Soil/Dust-Residential Adult+Child-Tadanac	Absolute Value > 0.03	HI-Thallium-Soil/Dust-Residential Adult+Child-Waneta	Absolute Value > 0.03	HI-Thallium-Soil/Dust-Residential Adult+Child-West Trail	Absolute Value > 0.03	HI-Thallium-Soil/Dust-Residential Child-East Trail	Absolute Value > 0.03	HI-Thallium-Soil/Dust-Residential Child-Rivervale	Absolute Value > 0.03	HI-Thallium-Soil/Dust-Residential Child-Tadanac	Absolute Value > 0.03
Silver: Rivervale Outdoor Dust	0.00	N	0.01	N	0.00	N	0.00	N	0.00	N	-0.01	N	0.01	N
Silver: Rivervale Residential Soil	0.01	N	0.01	N	0.01	N	0.01	N	0.02	N	0.02	N	0.02	N
Silver: Tadanac Outdoor Dust	-0.01	N	-0.01	N	-0.01	N	0.00	N	0.00	N	0.00	N	0.00	N
Silver: Tadanac Residential Soil	0.01	N	0.02	N	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N
Silver: West Trail Outdoor Dust	-0.02	N	-0.02	N	-0.02	N	-0.03	N	-0.02	N	-0.02	N	-0.02	N
Silver: West Trail Residential Soil	0.01	N	0.00	N	0.00	N	0.01	N	0.00	N	0.00	N	-0.01	N
Site-wide: Indoor Dust: antimony	-0.01	N	0.00	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N
Site-wide: Indoor Dust: Arsenic (mg/kg)	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N
Site-wide: Indoor Dust: cadmium (mg/kg)	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N
Site-wide: nonroot produce: antimony	0.01	N	0.01	N	0.01	N	0.01	N	0.00	N	0.01	N	0.01	N
Site-wide: nonroot produce: cadmium	-0.01	N	0.00	N	-0.01	N	-0.01	N	-0.01	N	-0.02	N	-0.01	N
Site-wide: nonroot produce: inorganic arsenic	0.01	N	0.00	N	0.01	N	0.01	N	0.01	N	0.00	N	-0.01	N
Site-wide: nonroot produce: thallium	0.01	N	0.00	N	0.01	N	0.01	N	0.00	N	0.01	N	0.00	N
Site-wide: Outdoor Dust: antimony (mg/kg)	-0.01	N	-0.02	N	-0.02	N	-0.02	N	-0.02	N	-0.01	N	-0.02	N
Site-wide: Outdoor dust: arsenic (mg/kg)	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N
Site-wide: Outdoor dust: cadmium (mg/kg)	0.00	N	0.00	N	-0.01	N	-0.01	N	0.01	N	0.00	N	0.00	N
Site-wide: outdoor dust: selenium (mg/kg)	-0.01	N	-0.02	N	-0.01	N	-0.02	N	-0.01	N	-0.01	N	-0.02	N
Site-wide: outdoor dust: Silver (mg/kg)	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N
Site-wide: Outdoor dust: thallium (mg/kg)	-0.02	N	-0.01	N	-0.01	N	-0.01	N	0.00	N	-0.01	N	0.00	N

Table D-1. Largest Contributors to Variability in Noncancer Risk Estimates (in decreasing order of importance)

Forecast (Output Distribution)	HI-Thallium-Soil/Dust-Residential Child-Waneta	HI-Thallium-Soil/Dust-Residential Child-West Trail	HI-Tin-Soil/Dust-Residential Adult+Child-East Trail	HI-Tin-Soil/Dust-Residential Adult+Child-Rivervale	HI-Tin-Soil/Dust-Residential Adult+Child-Tadanac	HI-Tin-Soil/Dust-Residential Adult+Child-Waneta	HI-Tin-Soil/Dust-Residential Adult+Child-West Trail
List of Largest Contributors to Variability	Child soil ingestion rate Child Body Weight	Child soil ingestion rate Thallium in soil Child Body Weight	Child soil ingestion rate Tin in soil Exposure Duration Tin in outdoor dust Child Body Weight Adult SIR	Child soil ingestion rate Tin in soil Exposure Duration Child Body Weight Adult SIR	Child soil ingestion rate Tin in soil Exposure Duration Child Body Weight Adult SIR Tin in outdoor dust	Child soil ingestion rate Exposure Duration Child Body Weight Adult SIR	Child soil ingestion rate Tin in soil Exposure Duration Child Body Weight Adult SIR Tin in outdoor dust

Rank correlation data between assumption and forecast

Assumptions	HI-Thallium-Soil/Dust-Residential Child-Waneta	Absolute Value > 0.03	HI-Thallium-Soil/Dust-Residential Child-West Trail	Absolute Value > 0.03	HI-Tin-Soil/Dust-Residential Adult+Child-East Trail	Absolute Value > 0.03	HI-Tin-Soil/Dust-Residential Adult+Child-Rivervale	Absolute Value > 0.03	HI-Tin-Soil/Dust-Residential Adult+Child-Tadanac	Absolute Value > 0.03	HI-Tin-Soil/Dust-Residential Adult+Child-Waneta	Absolute Value > 0.03	HI-Tin-Soil/Dust-Residential Adult+Child-West Trail	Absolute Value > 0.03
Silver: Rivervale Outdoor Dust	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N
Silver: Rivervale Residential Soil	0.02	N	0.02	N	0.00	N	0.00	N	0.00	N	0.01	N	0.00	N
Silver: Tadanac Outdoor Dust	-0.01	N	0.00	N	-0.01	N	0.00	N	0.00	N	-0.01	N	0.00	N
Silver: Tadanac Residential Soil	0.01	N	0.01	N	0.02	N	0.01	N	0.01	N	0.01	N	0.02	N
Silver: West Trail Outdoor Dust	-0.02	N	-0.03	N	-0.02	N	-0.02	N	-0.01	N	-0.02	N	-0.02	N
Silver: West Trail Residential Soil	0.00	N	0.01	N	0.00	N	0.01	N	0.00	N	0.00	N	0.01	N
Site-wide: Indoor Dust: antimony	-0.01	N	-0.02	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N
Site-wide: Indoor Dust: Arsenic (mg/kg)	0.00	N	0.00	N	0.00	N	0.00	N	0.01	N	0.00	N	0.00	N
Site-wide: Indoor Dust: cadmium (mg/kg)	0.00	N	0.00	N	0.01	N	0.00	N	0.00	N	0.00	N	0.00	N
Site-wide: nonroot produce: antimony	0.00	N	0.00	N	0.01	N	0.01	N	0.00	N	0.01	N	0.01	N
Site-wide: nonroot produce: cadmium	-0.02	N	-0.02	N	-0.02	N	-0.01	N	-0.01	N	-0.01	N	0.00	N
Site-wide: nonroot produce: inorganic arsenic	0.00	N	0.00	N	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N
Site-wide: nonroot produce: thallium	0.01	N	0.01	N	0.01	N	0.01	N	0.00	N	0.01	N	0.01	N
Site-wide: Outdoor Dust: antimony (mg/kg)	-0.02	N	-0.02	N	-0.01	N	-0.01	N	-0.01	N	-0.02	N	-0.02	N
Site-wide: Outdoor dust: arsenic (mg/kg)	0.01	N	0.01	N	0.01	N	0.02	N	0.00	N	0.01	N	0.01	N
Site-wide: Outdoor dust: cadmium (mg/kg)	0.00	N	0.00	N	0.00	N	-0.01	N	-0.02	N	-0.01	N	-0.02	N
Site-wide: outdoor dust: selenium (mg/kg)	-0.01	N	-0.02	N	-0.02	N	-0.02	N	-0.01	N	-0.01	N	-0.02	N
Site-wide: outdoor dust: Silver (mg/kg)	0.00	N	0.00	N	0.00	N	-0.01	N	0.01	N	0.00	N	0.00	N
Site-wide: Outdoor dust: thallium (mg/kg)	-0.01	N	0.00	N	-0.01	N	-0.02	N	-0.01	N	-0.01	N	0.00	N

Table D-1. Largest Contributors to Variability in Noncancer Risk Estimates (in decreasing order of importance)

Forecast (Output Distribution)	HI-Tin-Soil/Dust-Residential Child-East Trail	HI-Tin-Soil/Dust-Residential Child-Rivervale	HI-Tin-Soil/Dust-Residential Child-Tadanac	HI-Tin-Soil/Dust-Residential Child-Waneta	HI-Tin-Soil/Dust-Residential Child-West Trail	HI-Zinc-Soil/Dust-Residential Adult+Child-East Trail	HI-Zinc-Soil/Dust-Residential Adult+Child-Rivervale
List of Largest Contributors to Variability	Child soil ingestion rate Tin in soil Child Body Weight Tin in outdoor dust	Child soil ingestion rate Tin in soil Child Body Weight	Child soil ingestion rate Tin in soil Child Body Weight Tin in outdoor dust	Child soil ingestion rate Child Body Weight	Child soil ingestion rate Tin in soil Child Body Weight Tin in outdoor dust	Child soil ingestion rate Zinc in soil Exposure Duration Zinc in outdoor dust Child Body Weight Adult SIR	Child soil ingestion rate Zinc in soil Exposure Duration Child Body Weight Adult SIR Zinc in outdoor dust

Rank correlation data between assumption and forecast

Assumptions	HI-Tin-Soil/Dust-Residential Child-East Trail	Absolute Value > 0.03	HI-Tin-Soil/Dust-Residential Child-Rivervale	Absolute Value > 0.03	HI-Tin-Soil/Dust-Residential Child-Tadanac	Absolute Value > 0.03	HI-Tin-Soil/Dust-Residential Child-Waneta	Absolute Value > 0.03	HI-Tin-Soil/Dust-Residential Child-West Trail	Absolute Value > 0.03	HI-Zinc-Soil/Dust-Residential Adult+Child-East Trail	Absolute Value > 0.03	HI-Zinc-Soil/Dust-Residential Adult+Child-Rivervale	Absolute Value > 0.03
Silver: Rivervale Outdoor Dust	0.00	N	0.01	N	0.00	N	0.00	N	0.00	N	0.01	N	0.00	N
Silver: Rivervale Residential Soil	0.01	N	0.01	N	0.01	N	0.02	N	0.01	N	0.01	N	0.01	N
Silver: Tadanac Outdoor Dust	-0.01	N	0.00	N	0.00	N	-0.01	N	0.00	N	-0.01	N	0.00	N
Silver: Tadanac Residential Soil	0.02	N	0.00	N	0.00	N	0.01	N	0.01	N	0.01	N	0.01	N
Silver: West Trail Outdoor Dust	-0.01	N	-0.02	N	-0.01	N	-0.02	N	-0.01	N	-0.02	N	-0.02	N
Silver: West Trail Residential Soil	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.02	N	0.00	N
Site-wide: Indoor Dust: antimony	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N
Site-wide: Indoor Dust: Arsenic (mg/kg)	0.00	N	0.00	N	0.01	N	0.00	N	0.00	N	-0.01	N	0.00	N
Site-wide: Indoor Dust: cadmium (mg/kg)	0.00	N	-0.01	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N
Site-wide: nonroot produce: antimony	0.00	N	0.00	N	0.00	N	0.00	N	0.01	N	0.01	N	0.00	N
Site-wide: nonroot produce: cadmium	-0.02	N	-0.02	N	-0.01	N	-0.02	N	-0.01	N	0.00	N	-0.01	N
Site-wide: nonroot produce: inorganic arsenic	0.00	N	0.00	N	0.00	N	0.00	N	0.01	N	0.01	N	0.00	N
Site-wide: nonroot produce: thallium	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N
Site-wide: Outdoor Dust: antimony (mg/kg)	-0.01	N	-0.01	N	-0.01	N	-0.02	N	-0.02	N	-0.01	N	-0.01	N
Site-wide: Outdoor dust: arsenic (mg/kg)	0.01	N	0.01	N	0.00	N	0.01	N	0.01	N	0.02	N	0.01	N
Site-wide: Outdoor dust: cadmium (mg/kg)	0.00	N	-0.01	N	-0.01	N	0.00	N	-0.01	N	0.00	N	-0.01	N
Site-wide: outdoor dust: selenium (mg/kg)	-0.02	N	-0.02	N	-0.01	N	-0.01	N	-0.02	N	-0.01	N	-0.01	N
Site-wide: outdoor dust: Silver (mg/kg)	-0.01	N	-0.01	N	0.00	N	0.00	N	0.00	N	-0.01	N	0.00	N
Site-wide: Outdoor dust: thallium (mg/kg)	0.00	N	-0.01	N	0.00	N	-0.01	N	0.01	N	-0.01	N	-0.01	N

Table D-1. Largest Contributors to Variability in Noncancer Risk Estimates (in decreasing order of importance)

Forecast (Output Distribution)	HI-Zinc-Soil/Dust-Residential Adult+Child-Tadanac	HI-Zinc-Soil/Dust-Residential Adult+Child-Waneta	HI-Zinc-Soil/Dust-Residential Adult+Child-West Trail	HI-Zinc-Soil/Dust-Residential Child-East Trail	HI-Zinc-Soil/Dust-Residential Child-Rivervale	HI-Zinc-Soil/Dust-Residential Child-Tadanac	HI-Zinc-Soil/Dust-Residential Child-Waneta
List of Largest Contributors to Variability	Child soil ingestion rate Exposure Duration Zinc in soil Child Body Weight Zinc in outdoor dust Adult SIR Exposure Frequency	Child soil ingestion rate Zinc in soil Exposure Duration Child Body Weight Adult SIR	Child soil ingestion rate Zinc in soil Exposure Duration Child Body Weight Adult SIR Zinc in outdoor dust	Child soil ingestion rate Zinc in soil Child Body Weight Zinc in outdoor dust	Child soil ingestion rate Zinc in soil Child Body Weight Zinc in outdoor dust	Child soil ingestion rate Zinc in soil Child Body Weight Zinc in outdoor dust Exposure Frequency	Child soil ingestion rate Zinc in soil Child Body Weight

Rank correlation data between assumption and forecast

Assumptions	HI-Zinc-Soil/Dust-Residential Adult+Child-Tadanac	Absolute Value > 0.03	HI-Zinc-Soil/Dust-Residential Adult+Child-Waneta	Absolute Value > 0.03	HI-Zinc-Soil/Dust-Residential Adult+Child-West Trail	Absolute Value > 0.03	HI-Zinc-Soil/Dust-Residential Child-East Trail	Absolute Value > 0.03	HI-Zinc-Soil/Dust-Residential Child-Rivervale	Absolute Value > 0.03	HI-Zinc-Soil/Dust-Residential Child-Tadanac	Absolute Value > 0.03	HI-Zinc-Soil/Dust-Residential Child-Waneta	Absolute Value > 0.03
Silver: Rivervale Outdoor Dust	0.00	N	0.00	N	-0.01	N	0.01	N	0.00	N	0.00	N	0.00	N
Silver: Rivervale Residential Soil	0.01	N	0.01	N	0.00	N	0.02	N	0.01	N	0.02	N	0.02	N
Silver: Tadanac Outdoor Dust	-0.01	N	0.00	N	-0.01	N	-0.01	N	0.00	N	0.00	N	0.00	N
Silver: Tadanac Residential Soil	0.00	N	0.01	N	0.01	N	0.01	N	0.01	N	0.00	N	0.01	N
Silver: West Trail Outdoor Dust	-0.02	N	-0.01	N	-0.03	Y	-0.02	N	-0.02	N	-0.02	N	-0.01	N
Silver: West Trail Residential Soil	0.00	N	0.01	N	0.01	N	0.01	N	0.00	N	0.00	N	0.01	N
Site-wide: Indoor Dust: antimony	-0.01	N	0.00	N	-0.02	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N
Site-wide: Indoor Dust: Arsenic (mg/kg)	0.00	N	-0.01	N	0.00	N	-0.01	N	0.00	N	0.00	N	-0.01	N
Site-wide: Indoor Dust: cadmium (mg/kg)	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N
Site-wide: nonroot produce: antimony	0.00	N	0.00	N	0.01	N	0.01	N	0.00	N	0.00	N	0.00	N
Site-wide: nonroot produce: cadmium	-0.02	N	-0.01	N	-0.01	N	-0.01	N	-0.02	N	-0.02	N	-0.01	N
Site-wide: nonroot produce: inorganic arsenic	0.01	N	0.00	N	0.01	N	0.01	N	0.00	N	0.01	N	0.00	N
Site-wide: nonroot produce: thallium	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N	0.02	N	0.01	N
Site-wide: Outdoor Dust: antimony (mg/kg)	-0.01	N	-0.02	N	-0.02	N	-0.01	N	-0.02	N	-0.01	N	-0.02	N
Site-wide: Outdoor dust: arsenic (mg/kg)	0.01	N	0.01	N	0.01	N	0.02	N	0.01	N	0.01	N	0.00	N
Site-wide: Outdoor dust: cadmium (mg/kg)	-0.01	N	-0.01	N	0.00	N	0.00	N	-0.01	N	-0.01	N	0.00	N
Site-wide: outdoor dust: selenium (mg/kg)	-0.02	N	-0.01	N	-0.02	N	-0.01	N	-0.01	N	-0.02	N	-0.01	N
Site-wide: outdoor dust: Silver (mg/kg)	0.00	N	0.01	N	0.00	N	-0.01	N	0.00	N	0.00	N	0.01	N
Site-wide: Outdoor dust: thallium (mg/kg)	-0.01	N	-0.02	N	-0.01	N	0.00	N	0.00	N	-0.01	N	-0.01	N

Table D-1. Largest Contributors to Variability in Noncancer Risk Estimates (in decreasing order of importance)

Forecast (Output Distribution)	HI-Zinc-Soil/Dust-Residential Child-West Trail	Site-wide HI: Antimony Adult+Child Residential Soil-Dust	Site-wide HI: Antimony Child Residential Soil-Dust	Site-wide HI: Arsenic Adult+Child Residential Soil-Dust	Site-wide HI: Arsenic Child Residential Soil-Dust	Site-wide HI: Cadmium Adult+Child Residential Soil-Dust	Site-wide HI: Selenium Adult+Child Residential Soil-Dust
List of Largest Contributors to Variability	Child soil ingestion rate Zinc in soil Child Body Weight Zinc in outdoor dust	Child soil ingestion rate Exposure Duration Antimony in indoor dust Child Body Weight Adult SIR Antimony in soil Antimony in outdoor dust Fractional intake: soil/dust	Child soil ingestion rate Antimony in indoor dust Child Body Weight Antimony in soil Antimony in outdoor dust	Child soil ingestion rate Exposure Duration Arsenic in indoor dust Child Body Weight Adult SIR Arsenic in soil Arsenic in outdoor dust	Child soil ingestion rate Arsenic in indoor dust Child Body Weight Arsenic in soil Arsenic in outdoor dust	Child soil ingestion rate Cadmium in indoor dust Exposure Duration Child Body Weight Adult SIR Cadmium in outdoor dust Cadmium in soil Fractional intake: soil/dust	Child soil ingestion rate Selenium in soil Exposure Duration Child Body Weight Adult SIR Selenium in outdoor dust

Rank correlation data between assumption and forecast

Assumptions	HI-Zinc-Soil/Dust-Residential Child-West Trail	Absolute Value > 0.03	Site-wide HI: Antimony Adult+Child Residential Soil Dust	Absolute Value > 0.03	Site-wide HI: Antimony Child Residential Soil Dust	Absolute Value > 0.03	Site-wide HI: Arsenic Adult+Child Residential Soil Dust	Absolute Value > 0.03	Site-wide HI: Arsenic Child Residential Soil Dust	Absolute Value > 0.03	Site-wide HI: Cadmium Adult+Child Residential Soil Dust	Absolute Value > 0.03	Site-wide HI: Selenium Adult+Child Residential Soil Dust	Absolute Value > 0.03
Silver: Rivervale Outdoor Dust	-0.01	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.01	N
Silver: Rivervale Residential Soil	0.01	N	0.01	N	0.02	N	0.00	N	0.01	N	0.02	N	0.00	N
Silver: Tadanac Outdoor Dust	0.00	N	-0.01	N	-0.01	N	0.00	N	0.00	N	-0.01	N	-0.01	N
Silver: Tadanac Residential Soil	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N	0.00	N	0.01	N
Silver: West Trail Outdoor Dust	-0.03	N	-0.02	N	-0.02	N	-0.02	N	-0.02	N	-0.02	N	-0.02	N
Silver: West Trail Residential Soil	0.00	N	0.01	N	0.00	N	0.00	N	0.00	N	-0.01	N	0.01	N
Site-wide: Indoor Dust: antimony	-0.02	N	0.32	Y	0.31	Y	-0.01	N	-0.01	N	-0.01	N	-0.01	N
Site-wide: Indoor Dust: Arsenic (mg/kg)	0.00	N	0.00	N	0.00	N	0.27	Y	0.27	Y	0.01	N	0.00	N
Site-wide: Indoor Dust: cadmium (mg/kg)	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.30	Y	0.00	N
Site-wide: nonroot produce: antimony	0.01	N	0.00	N	0.00	N	0.01	N	0.01	N	0.00	N	0.00	N
Site-wide: nonroot produce: cadmium	-0.02	N	-0.01	N	-0.02	N	-0.01	N	-0.01	N	-0.02	N	0.00	N
Site-wide: nonroot produce: inorganic arsenic	0.01	N	0.01	N	0.00	N	0.01	N	0.01	N	0.01	N	0.01	N
Site-wide: nonroot produce: thallium	0.01	N	0.02	N	0.02	N	0.01	N	0.01	N	0.02	N	0.00	N
Site-wide: Outdoor Dust: antimony (mg/kg)	-0.02	N	0.05	Y	0.05	Y	-0.01	N	-0.01	N	-0.01	N	-0.01	N
Site-wide: Outdoor dust: arsenic (mg/kg)	0.01	N	0.01	N	0.01	N	0.09	Y	0.08	Y	0.01	N	0.01	N
Site-wide: Outdoor dust: cadmium (mg/kg)	0.00	N	0.00	N	0.00	N	-0.01	N	0.00	N	0.07	Y	0.00	N
Site-wide: outdoor dust: selenium (mg/kg)	-0.02	N	-0.01	N	-0.01	N	-0.02	N	-0.01	N	-0.01	N	0.06	Y
Site-wide: outdoor dust: Silver (mg/kg)	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N
Site-wide: Outdoor dust: thallium (mg/kg)	-0.01	N	-0.01	N	0.00	N	-0.01	N	-0.01	N	0.00	N	-0.01	N

Table D-1. Largest Contributors to Variability in Noncancer Risk Estimates (in decreasing order of importance)

Forecast (Output Distribution)	Site-wide HI: Selenium Child Residential Soil-Dust	Site-wide HI: Silver Adult+Child Residential Soil-Dust	Site-wide HI: Silver Child Residential Soil-Dust	Site-wide HI: Thallium Adult+Child Residential Soil-Dust	Site-wide HI: Thallium Child Residential Soil-Dust	Site-wide HI: Tin Adult+Child Residential Soil-Dust	Site-wide HI: Tin Child Residential Soil-Dust
List of Largest Contributors to Variability	Child soil ingestion rate Selenium in soil Child Body Weight Selenium in outdoor dust	Child soil ingestion rate Silver in soil Exposure Duration Silver in outdoor dust Child Body Weight Adult SIR	Child soil ingestion rate Exposure Duration Silver in outdoor dust Child Body Weight	Child soil ingestion rate Thallium in soil Exposure Duration Child Body Weight Adult SIR Thallium in outdoor dust	Child soil ingestion rate Thallium in soil Child Body Weight Thallium in outdoor dust	Child soil ingestion rate Tin in soil Exposure Duration Child Body Weight Tin in outdoor dust Adult SIR	Child soil ingestion rate Tin in soil Child Body Weight Tin in outdoor dust

Rank correlation data between assumption and forecast

Assumptions	Site-wide HI: Selenium Child Residential Soil Dust	Absolute Value > 0.03	Site-wide HI: Silver Adult+Child Residential Soil Dust	Absolute Value > 0.03	Site-wide HI: Silver Child Residential Soil Dust	Absolute Value > 0.03	Site-wide HI: Thallium Adult+Child Residential Soil Dust	Absolute Value > 0.03	Site-wide HI: Thallium Child Residential Soil Dust	Absolute Value > 0.03	Site-wide HI: Tin Adult+Child Residential Soil Dust	Absolute Value > 0.03	Site-wide HI: Tin Child Residential Soil Dust	Absolute Value > 0.03
Silver: Rivervale Outdoor Dust	0.01	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N
Silver: Rivervale Residential Soil	0.01	N	0.00	N	0.01	N	0.01	N	0.02	N	0.01	N	0.01	N
Silver: Tadanac Outdoor Dust	-0.01	N	0.00	N	0.00	N	0.00	N	0.00	N	-0.01	N	-0.01	N
Silver: Tadanac Residential Soil	0.01	N	0.01	N	0.01	N	0.01	N	0.00	N	0.01	N	0.01	N
Silver: West Trail Outdoor Dust	-0.02	N	-0.02	N	-0.02	N	-0.02	N	-0.03	N	-0.02	N	-0.02	N
Silver: West Trail Residential Soil	0.00	N	0.00	N	0.00	N	-0.01	N	-0.01	N	0.01	N	0.00	N
Site-wide: Indoor Dust: antimony	-0.01	N	-0.01	N	-0.01	N	0.00	N	0.00	N	-0.01	N	-0.01	N
Site-wide: Indoor Dust: Arsenic (mg/kg)	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N
Site-wide: Indoor Dust: cadmium (mg/kg)	0.00	N	0.00	N	0.00	N	0.01	N	0.00	N	-0.01	N	-0.01	N
Site-wide: nonroot produce: antimony	0.00	N	0.01	N	0.00	N	0.01	N	0.00	N	0.00	N	0.00	N
Site-wide: nonroot produce: cadmium	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	0.00	N	-0.01	N
Site-wide: nonroot produce: inorganic arsenic	0.01	N	0.01	N	0.00	N	0.01	N	0.01	N	0.01	N	0.00	N
Site-wide: nonroot produce: thallium	0.01	N	0.00	N	0.00	N	0.01	N	0.01	N	0.01	N	0.02	N
Site-wide: Outdoor Dust: antimony (mg/kg)	-0.01	N	-0.01	N	-0.02	N	-0.01	N	-0.01	N	0.00	N	-0.01	N
Site-wide: Outdoor dust: arsenic (mg/kg)	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N
Site-wide: Outdoor dust: cadmium (mg/kg)	0.00	N	-0.01	N	0.00	N	0.00	N	0.00	N	-0.01	N	-0.01	N
Site-wide: outdoor dust: selenium (mg/kg)	0.06	Y	-0.02	N	-0.02	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N
Site-wide: outdoor dust: Silver (mg/kg)	0.00	N	0.22	Y	0.21	Y	0.01	N	0.00	N	-0.01	N	-0.01	N
Site-wide: Outdoor dust: thallium (mg/kg)	0.00	N	-0.01	N	0.00	N	0.09	Y	0.10	Y	-0.01	N	0.00	N

Table D-1. Largest Contributors to Variability in Noncancer Risk Estimates (in decreasing order of importance)

Forecast (Output Distribution)	**Site-wide HI: Zinc Adult+Child Residential Soil-Dust**	**Site-wide HI: Zinc Child Residential Soil-Dust**
List of Largest Contributors to Variability	Child soil ingestion rate Zinc in soil Exposure Duration Zinc in outdoor dust Child Body Weight Adult SIR	Child soil ingestion rate Zinc in soil Zinc in outdoor dust Child Body Weight

Rank correlation data between assumption and forecast

Assumptions	Site-wide HI: Zinc Adult+Child Residential Soil Dust	Absolute Value > 0.03	Site-wide HI: Zinc Child Residential Soil Dust	Absolute Value > 0.03
Silver: Rivervale Outdoor Dust	0.00	N	0.00	N
Silver: Rivervale Residential Soil	0.00	N	0.01	N
Silver: Tadanac Outdoor Dust	-0.01	N	0.00	N
Silver: Tadanac Residential Soil	0.01	N	0.01	N
Silver: West Trail Outdoor Dust	-0.02	N	-0.02	N
Silver: West Trail Residential Soil	0.01	N	0.01	N
Site-wide: Indoor Dust: antimony	0.00	N	-0.01	N
Site-wide: Indoor Dust: Arsenic (mg/kg)	0.01	N	0.01	N
Site-wide: Indoor Dust: cadmium (mg/kg)	0.00	N	0.00	N
Site-wide: nonroot produce: antimony	0.01	N	0.00	N
Site-wide: nonroot produce: cadmium	0.00	N	-0.01	N
Site-wide: nonroot produce: inorganic arsenic	0.01	N	0.01	N
Site-wide: nonroot produce: thallium	0.01	N	0.01	N
Site-wide: Outdoor Dust: antimony (mg/kg)	-0.01	N	-0.02	N
Site-wide: Outdoor dust: arsenic (mg/kg)	0.01	N	0.01	N
Site-wide: Outdoor dust: cadmium (mg/kg)	0.00	N	0.00	N
Site-wide: outdoor dust: selenium (mg/kg)	-0.02	N	-0.02	N
Site-wide: outdoor dust: Silver (mg/kg)	0.01	N	0.00	N
Site-wide: Outdoor dust: thallium (mg/kg)	-0.01	N	0.00	N

Table D-1. Largest Contributors to Variability in Noncancer Risk Estimates (in decreasing order of importance)

Forecast (Output Distribution)	**HI-Antimony-Produce-Residential Adult+Child-Far**	**HI-Antimony-Produce-Residential Adult+Child-Near**	**HI-Antimony-Produce-Residential Child-Far**	**HI-Antimony-Produce-Residential Child-Near**	**HI-Arsenic-Produce-Residential Adult+Child-Far**	**HI-Arsenic-Produce-Residential Adult+Child-Near**
List of Largest Contributors to Variability	Child nonroot ingestion rate Child root ingestion rate Exposure Duration Child Body Weight Adult nonroot ingestion rate Adult root ingestion rate Adult Body Weight	Antimony in nonroot produce Child nonroot ingestion rate Antimony in root produce Child root ingestion rate Exposure Duration Child Body Weight Adult nonroot ingestion rate Adult root ingestion rate Adult Body Weight	Child nonroot ingestion rate Child root ingestion rate Child Body Weight	Antimony in nonroot produce Child nonroot ingestion rate Child root ingestion rate Antimony in root produce Child Body Weight	Arsenic in nonroot produce Child root ingestion rate Child nonroot ingestion rate Adult root ingestion rate Adult nonroot ingestion rate Adult Body Weight Child Body Weight Exposure Duration	Arsenic in nonroot produce Arsenic in root produce Child nonroot ingestion rate Child root ingestion rate Adult nonroot ingestion rate Adult root ingestion rate Exposure Duration Child Body Weight

Rank correlation data between assumption and forecast

Assumptions	HI-Antimony-Produce-Residential Adult+Child-Far	Absolute Value > 0.03	HI-Antimony-Produce-Residential Adult+Child-Near	Absolute Value > 0.03	HI-Antimony-Produce-Residential Child-Far	Absolute Value > 0.03	HI-Antimony-Produce-Residential Child-Near	Absolute Value > 0.03	HI-Arsenic-Produce-Residential Adult+Child-Far	Absolute Value > 0.03	HI-Arsenic-Produce-Residential Adult+Child-Near	Absolute Value > 0.03
Site-wide: Outdoor Dust: tin (mg/kg)	-0.01	N	-0.01	N	0.00	N	-0.01	N	-0.02	N	0.00	N
Site-wide: Outdoor Dust: zinc (mg/kg)	0.00	N	0.00	N	0.00	N	0.00	N	0.02	N	0.00	N
Site-wide: Residential Soil: Antimony (mg/kg)	0.00	N	-0.02	N	0.00	N	-0.01	N	-0.01	N	0.00	N
Site-wide: Residential Soil: Arsenic (mg/kg)	0.00	N	0.00	N	0.00	N	0.01	N	0.00	N	0.01	N
Site-wide: Residential Soil: Cadmium (mg/kg)	-0.01	N	0.01	N	0.00	N	0.02	N	0.00	N	-0.02	N
Site-wide: Residential Soil: Selenium (mg/kg)	-0.01	N	-0.01	N	-0.01	N	-0.01	N	0.00	N	-0.02	N
Site-wide: Residential Soil: Silver (mg/kg)	0.02	N	0.00	N	0.01	N	-0.01	N	0.01	N	0.02	N
Site-wide: Residential Soil: Thallium (mg/kg)	0.00	N	-0.01	N	0.00	N	0.00	N	0.00	N	0.00	N
Site-wide: Residential Soil: Tin (mg/kg)	0.00	N	-0.01	N	0.00	N	-0.01	N	0.02	N	0.00	N
Site-wide: Residential Soil: Zinc (mg/kg)	0.00	N	0.01	N	0.00	N	0.00	N	0.01	N	0.01	N
Site-wide: root produce: antimony	0.00	N	-0.01	N	0.00	N	-0.01	N	0.01	N	0.00	N
Site-wide: root produce: cadmium	0.02	N	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N
Site-wide: root produce: inorganic arsenic	0.00	N	0.01	N	0.01	N	0.01	N	-0.01	N	0.00	N
Site-wide: root produce: thallium	-0.01	N	0.00	N	-0.01	N	0.00	N	-0.01	N	-0.02	N
Soil Ingestion Rate (mg/day): Adult	0.01	N	0.01	N	0.00	N	0.01	N	0.01	N	0.01	N
Soil Ingestion Rate (mg/day): Child	-0.01	N	0.00	N	-0.01	N	0.00	N	-0.01	N	0.00	N
Thallium: East Trail Residential Soil	-0.01	N	0.01	N	-0.01	N	0.00	N	-0.02	N	0.00	N
Thallium: Near Nonroot Produce	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N
Thallium: Near Root Produce	0.01	N	0.00	N	0.01	N	0.00	N	-0.01	N	0.01	N
Thallium: Rivervale Residential Soil	0.00	N	0.00	N	0.00	N	-0.01	N	0.00	N	0.02	N

Table D-1. Largest Contributors to Variability in Noncancer Risk Estimates (in decreasing order of importance)

Forecast (Output Distribution)	**HI-Arsenic-Produce-Residential Child-Far**	**HI-Arsenic-Produce-Residential Child-Near**	**HI-Cadmium-Produce-Residential Adult+Child-Far**	**HI-Cadmium-Produce-Residential Adult+Child-Near**	**HI-Thallium-Produce-Residential Adult+Child-Far**	**HI-Thallium-Produce-Residential Adult+Child-Near**
List of Largest Contributors to Variability	Arsenic in nonroot produce Child root ingestion rate Child nonroot ingestion rate Child Body Weight	Arsenic in nonroot produce Arsenic in root produce Child nonroot ingestion rate Child root ingestion rate Child Body Weight	Exposure Duration Cadmium in nonroot produce Child root ingestion rate Child Body Weight Adult root ingestion rate Child nonroot ingestion rate Adult nonroot ingestion rate Adult Body Weight	Exposure Duration Cadmium in nonroot produce Cadmium in root produce Child root ingestion rate Child Body Weight Child nonroot ingestion rate Adult root ingestion rate Adult nonroot ingestion rate Adult Body Weight	Child root ingestion rate Exposure Duration Child nonroot ingestion rate Child Body Weight Adult root ingestion rate Adult nonroot ingestion rate Adult Body Weight	Thallium in root produce Child root ingestion rate Thallium in nonroot produce Exposure Duration Child Body Weight Child nonroot ingestion rate Adult root ingestion rate Adult Body Weight Adult nonroot ingestion rate

Rank correlation data between assumption and forecast

Assumptions	HI-Arsenic-Produce-Residential Child-Far	Absolute Value > 0.03	HI-Arsenic-Produce-Residential Child-Near	Absolute Value > 0.03	HI-Cadmium-Produce-Residential Adult+Child-Far	Absolute Value > 0.03	HI-Cadmium-Produce-Residential Adult+Child-Near	Absolute Value > 0.03	HI-Thallium-Produce-Residential Adult+Child-Far	Absolute Value > 0.03	HI-Thallium-Produce-Residential Adult+Child-Near	Absolute Value > 0.03
Site-wide: Outdoor Dust: tin (mg/kg)	-0.01	N	0.01	N	0.00	N	0.02	N	-0.02	N	-0.01	N
Site-wide: Outdoor Dust: zinc (mg/kg)	0.01	N	-0.01	N	0.00	N	0.00	N	0.01	N	0.00	N
Site-wide: Residential Soil: Antimony (mg/kg)	0.00	N	0.01	N	0.02	N	0.02	N	-0.01	N	-0.01	N
Site-wide: Residential Soil: Arsenic (mg/kg)	0.00	N	0.01	N	0.00	N	-0.01	N	0.00	N	0.01	N
Site-wide: Residential Soil: Cadmium (mg/kg)	0.01	N	-0.02	N	-0.01	N	0.00	N	-0.01	N	0.00	N
Site-wide: Residential Soil: Selenium (mg/kg)	0.00	N	-0.02	N	0.00	N	0.00	N	-0.01	N	0.00	N
Site-wide: Residential Soil: Silver (mg/kg)	0.00	N	0.01	N	0.01	N	0.00	N	0.02	N	0.01	N
Site-wide: Residential Soil: Thallium (mg/kg)	0.01	N	-0.01	N	0.00	N	0.00	N	0.00	N	0.00	N
Site-wide: Residential Soil: Tin (mg/kg)	0.01	N	-0.01	N	-0.02	N	-0.01	N	-0.01	N	-0.01	N
Site-wide: Residential Soil: Zinc (mg/kg)	0.01	N	0.01	N	-0.01	N	0.00	N	0.01	N	0.02	N
Site-wide: root produce: antimony	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N
Site-wide: root produce: cadmium	0.00	N	0.01	N	0.01	N	-0.01	N	0.02	N	0.02	N
Site-wide: root produce: inorganic arsenic	-0.01	N	0.00	N	-0.01	N	-0.01	N	0.01	N	0.02	N
Site-wide: root produce: thallium	0.00	N	-0.02	N	0.02	N	0.01	N	-0.01	N	-0.01	N
Soil Ingestion Rate (mg/day): Adult	0.00	N	0.01	N	-0.01	N	-0.02	N	0.00	N	0.00	N
Soil Ingestion Rate (mg/day): Child	-0.01	N	0.00	N	-0.01	N	-0.01	N	0.00	N	-0.01	N
Thallium: East Trail Residential Soil	-0.02	N	0.00	N	-0.01	N	-0.02	N	-0.01	N	-0.01	N
Thallium: Near Nonroot Produce	0.00	N	0.00	N	-0.02	N	0.00	N	0.00	N	0.26	Y
Thallium: Near Root Produce	-0.01	N	0.01	N	0.03	Y	0.01	N	0.01	N	0.67	Y
Thallium: Rivervale Residential Soil	0.00	N	0.01	N	0.01	N	0.00	N	0.00	N	0.00	N

Table D-1. Largest Contributors to Variability in Noncancer Risk Estimates (in decreasing order of importance)

Forecast (Output Distribution)	**HI-Thallium-Produce-Residential Child-Far**	**HI-Thallium-Produce-Residential Child-Near**	**Site-wide HI: Antimony Adult+Child Residential Produce**	**Site-wide HI: Antimony Child Residential Produce**	**Site-wide HI: Arsenic Adult+Child Residential Produce**	**Site-wide HI: Arsenic Child Residential Produce**
List of Largest Contributors to Variability	Child root ingestion rate Child nonroot ingestion rate Child Body Weight	Thallium in root produce Child root ingestion rate Child Body Weight Thallium in nonroot produce Child Body Weight	Antimony in nonroot produce Child nonroot ingestion rate Child root ingestion rate Antimony in root produce Exposure Duration Child Body Weight Adult nonroot ingestion rate Adult root ingestion rate Adult Body Weight	Antimony in nonroot produce Child nonroot ingestion rate Child root ingestion rate Antimony in root produce Child Body Weight	Arsenic in nonroot produce Arsenic in root produce Child nonroot ingestion rate Child root ingestion rate Adult nonroot ingestion rate Adult root ingestion rate Adult Body Weight Child Body Weight Exposure Duration	Arsenic in nonroot produce Child nonroot ingestion rate Arsenic in root produce Child root ingestion rate Child Body Weight

Rank correlation data between assumption and forecast

Assumptions	HI-Thallium-Produce-Residential Child-Far	Absolute Value > 0.03	HI-Thallium-Produce-Residential Child-Near	Absolute Value > 0.03	Site-wide HI: Antimony Adult+Child Residential Produce	Absolute Value > 0.03	Site-wide HI: Antimony Child Residential Produce	Absolute Value > 0.03	Site-wide HI: Arsenic Adult+Child Residential Produce	Absolute Value > 0.03	Site-wide HI: Arsenic Child Residential Produce	Absolute Value > 0.03
Site-wide: Outdoor Dust: tin (mg/kg)	-0.01	N	-0.01	N	0.00	N	0.00	N	-0.01	N	-0.01	N
Site-wide: Outdoor Dust: zinc (mg/kg)	0.00	N	0.00	N	0.01	N	0.00	N	0.00	N	0.00	N
Site-wide: Residential Soil: Antimony (mg/kg)	0.00	N	0.00	N	-0.01	N	0.00	N	0.01	N	0.02	N
Site-wide: Residential Soil: Arsenic (mg/kg)	0.00	N	0.01	N	-0.01	N	0.00	N	0.00	N	0.00	N
Site-wide: Residential Soil: Cadmium (mg/kg)	-0.01	N	-0.01	N	0.00	N	0.01	N	-0.01	N	-0.01	N
Site-wide: Residential Soil: Selenium (mg/kg)	-0.01	N	0.01	N	-0.01	N	-0.01	N	0.00	N	0.00	N
Site-wide: Residential Soil: Silver (mg/kg)	0.00	N	0.00	N	0.02	N	0.01	N	0.00	N	0.00	N
Site-wide: Residential Soil: Thallium (mg/kg)	0.00	N	0.00	N	0.00	N	0.00	N	0.01	N	0.01	N
Site-wide: Residential Soil: Tin (mg/kg)	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N
Site-wide: Residential Soil: Zinc (mg/kg)	0.01	N	0.01	N	0.00	N	0.00	N	0.01	N	0.01	N
Site-wide: root produce: antimony	0.00	N	0.00	N	0.21	Y	0.21	Y	0.00	N	0.00	N
Site-wide: root produce: cadmium	0.01	N	0.01	N	0.02	N	0.01	N	0.01	N	0.01	N
Site-wide: root produce: inorganic arsenic	0.02	N	0.02	N	-0.01	N	-0.01	N	0.27	Y	0.28	Y
Site-wide: root produce: thallium	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N
Soil Ingestion Rate (mg/day): Adult	-0.01	N	-0.01	N	0.02	N	0.01	N	0.00	N	0.00	N
Soil Ingestion Rate (mg/day): Child	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N
Thallium: East Trail Residential Soil	-0.02	N	-0.01	N	0.00	N	0.00	N	0.00	N	0.00	N
Thallium: Near Nonroot Produce	0.00	N	0.24	Y	0.02	N	0.02	N	-0.01	N	-0.01	N
Thallium: Near Root Produce	0.01	N	0.63	Y	0.01	N	0.01	N	0.00	N	0.00	N
Thallium: Rivervale Residential Soil	-0.01	N	-0.01	N	0.01	N	0.00	N	0.00	N	0.00	N

Table D-1. Largest Contributors to Variability in Noncancer Risk Estimates (in decreasing order of importance)

Forecast (Output Distribution)	Site-wide HI: Cadmium Adult+Child Residential Produce	Site-wide HI: Thallium Adult+Child Residential Produce	Site-wide HI: Thallium Child Residential Produce	HI-Antimony-Particulates-Agricultural Adult-Waneta	HI-Antimony-Soil/Dust-Agricultural Adult-Waneta	HI-Antimony-Soil/Dust-Commerical Adult+Child-East Trail
List of Largest Contributors to Variability	Exposure Duration Cadmium in nonroot produce Cadmium in root produce Child root ingestion rate Child nonroot ingestion rate Child Body Weight Adult root ingestion rate Adult nonroot ingestion rate Adult Body Weight	Thallium in root produce Child root ingestion rate Thallium in nonroot produce Exposure Duration Child nonroot ingestion rate Child Body Weight Adult root ingestion rate Adult nonroot ingestion rate Adult Body Weight	Thallium in root produce Child root ingestion rate Thallium in nonroot produce Child nonroot ingestion rate Child Body Weight	Particulate concentration in air Adult Body Weight Adult Inhalation Rate	Adult Body Weight	Child soil ingestion rate Exposure Duration Child Body Weight Adult SIR Exposure Frequency

Rank correlation data between assumption and forecast

Assumptions	Site-wide HI: Cadmium Adult+Child Residential Produce	Absolute Value > 0.03	Site-wide HI: Thallium Adult+Child Residential Produce	Absolute Value > 0.03	Site-wide HI: Thallium Child Residential Produce	Absolute Value > 0.03	HI-Antimony-Particulates-Agricultural Adult-Waneta	Absolute Value > 0.03	HI-Antimony-Soil/Dust-Agricultural Adult-Waneta	Absolute Value > 0.03	HI-Antimony-Soil/Dust-Commerical Adult+Child-East Trail	Absolute Value > 0.03
Site-wide: Outdoor Dust: tin (mg/kg)	0.00	N	0.01	N	0.01	N	0.01	N	0.00	N	-0.02	N
Site-wide: Outdoor Dust: zinc (mg/kg)	0.01	N	0.01	N	0.01	N	-0.02	N	-0.01	N	0.01	N
Site-wide: Residential Soil: Antimony (mg/kg)	0.01	N	-0.01	N	0.00	N	0.01	N	0.02	N	-0.01	N
Site-wide: Residential Soil: Arsenic (mg/kg)	0.01	N	-0.01	N	0.00	N	-0.02	N	-0.01	N	0.00	N
Site-wide: Residential Soil: Cadmium (mg/kg)	-0.02	N	0.00	N	0.00	N	0.02	N	0.02	N	0.00	N
Site-wide: Residential Soil: Selenium (mg/kg)	0.01	N	-0.01	N	-0.01	N	0.00	N	0.01	N	0.00	N
Site-wide: Residential Soil: Silver (mg/kg)	0.02	N	-0.01	N	-0.02	N	-0.02	N	0.00	N	0.00	N
Site-wide: Residential Soil: Thallium (mg/kg)	0.01	N	0.00	N	0.00	N	-0.01	N	-0.01	N	0.00	N
Site-wide: Residential Soil: Tin (mg/kg)	0.00	N	-0.01	N	-0.01	N	0.00	N	0.00	N	0.00	N
Site-wide: Residential Soil: Zinc (mg/kg)	0.00	N	0.02	N	0.02	N	-0.01	N	0.01	N	0.01	N
Site-wide: root produce: antimony	0.00	N	-0.01	N	0.00	N	-0.01	N	-0.01	N	0.02	N
Site-wide: root produce: cadmium	0.34	Y	0.01	N	0.01	N	0.01	N	0.00	N	0.01	N
Site-wide: root produce: inorganic arsenic	0.00	N	0.02	N	0.02	N	-0.02	N	-0.02	N	-0.01	N
Site-wide: root produce: thallium	0.01	N	0.67	Y	0.64	Y	-0.01	N	-0.01	N	-0.01	N
Soil Ingestion Rate (mg/day): Adult	-0.01	N	0.01	N	-0.01	N	0.01	N	0.01	N	0.12	Y
Soil Ingestion Rate (mg/day): Child	-0.02	N	0.00	N	0.00	N	-0.01	N	-0.01	N	0.86	Y
Thallium: East Trail Residential Soil	0.01	N	-0.01	N	-0.02	N	0.01	N	-0.01	N	0.00	N
Thallium: Near Nonroot Produce	0.00	N	-0.01	N	-0.01	N	0.02	N	0.00	N	0.00	N
Thallium: Near Root Produce	0.02	N	0.00	N	0.01	N	0.01	N	0.01	N	-0.01	N
Thallium: Rivervale Residential Soil	0.00	N	0.00	N	0.00	N	0.01	N	0.00	N	0.00	N

Table D-1. Largest Contributors to Variability in Noncancer Risk Estimates (in decreasing order of importance)

Forecast (Output Distribution)	HI-Antimony-Soil/Dust-Commerical Child-East Trail	HI-Antimony-Soil/Dust-Residential Adult+Child-East Trail	HI-Antimony-Soil/Dust-Residential Adult+Child-Rivervale	HI-Antimony-Soil/Dust-Residential Adult+Child-Tadanac	HI-Antimony-Soil/Dust-Residential Adult+Child-Waneta	HI-Antimony-Soil/Dust-Residential Adult+Child-West Trail	HI-Antimony-Soil/Dust-Residential Child-East Trail
List of Largest Contributors to Variability	Child soil ingestion rate Child Body Weight Exposure Frequency	Child soil ingestion rate Exposure Duration Child Body Weight Adult SIR Antimony in soil Antimony in outdoor dust Fractional Intake: soil/dust	Child soil ingestion rate Exposure Duration Child Body Weight Adult SIR Antimony in soil	Child soil ingestion rate Exposure Duration Child Body Weight Adult SIR Antimony in soil Antimony in outdoor dust Fractional Intake: soil/dust	Child soil ingestion rate Exposure Duration Child Body Weight Adult SIR Antimony in soil	Child soil ingestion rate Exposure Duration Child Body Weight Adult SIR Antimony in soil Fractional Intake: soil/dust	Child soil ingestion rate Child Body Weight Antimony in soil Antimony in outdoor dust Fractional Intake: soil/dust

Rank correlation data between assumption and forecast

Assumptions	HI-Antimony-Soil/Dust-Commerical Child-East Trail	Absolute Value > 0.03	HI-Antimony-Soil/Dust-Residential Adult+Child-East Trail	Absolute Value > 0.03	HI-Antimony-Soil/Dust-Residential Adult+Child-Rivervale	Absolute Value > 0.03	HI-Antimony-Soil/Dust-Residential Adult+Child-Tadanac	Absolute Value > 0.03	HI-Antimony-Soil/Dust-Residential Adult+Child-Waneta	Absolute Value > 0.03	HI-Antimony-Soil/Dust-Residential Adult+Child-West Trail	Absolute Value > 0.03	HI-Antimony-Soil/Dust-Residential Child-East Trail	Absolute Value > 0.03
Site-wide: Outdoor Dust: tin (mg/kg)	-0.02	N	-0.02	N	-0.02	N	-0.02	N	-0.02	N	-0.02	N	-0.02	N
Site-wide: Outdoor Dust: zinc (mg/kg)	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N
Site-wide: Residential Soil: Antimony (mg/kg)	0.00	N	0.00	N	-0.01	N	0.00	N	-0.01	N	0.00	N	0.00	N
Site-wide: Residential Soil: Arsenic (mg/kg)	-0.01	N	-0.01	N	-0.01	N	0.00	N	0.00	N	-0.01	N	-0.01	N
Site-wide: Residential Soil: Cadmium (mg/kg)	0.01	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N
Site-wide: Residential Soil: Selenium (mg/kg)	0.01	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.01	N
Site-wide: Residential Soil: Silver (mg/kg)	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N
Site-wide: Residential Soil: Thallium (mg/kg)	0.01	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.01	N
Site-wide: Residential Soil: Tin (mg/kg)	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N
Site-wide: Residential Soil: Zinc (mg/kg)	0.00	N	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N	0.00	N
Site-wide: root produce: antimony	0.01	N	0.02	N	0.02	N	0.02	N	0.02	N	0.02	N	0.01	N
Site-wide: root produce: cadmium	0.00	N	0.00	N	0.00	N	0.01	N	0.01	N	0.01	N	0.00	N
Site-wide: root produce: inorganic arsenic	-0.02	N	0.00	N	-0.01	N	0.00	N	-0.01	N	0.00	N	-0.02	N
Site-wide: root produce: thallium	0.00	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	0.00	N
Soil Ingestion Rate (mg/day): Adult	-0.01	N	0.12	Y	0.11	Y	0.12	Y	0.12	Y	0.12	Y	-0.01	N
Soil Ingestion Rate (mg/day): Child	0.98	Y	0.86	Y	0.86	Y	0.86	Y	0.86	Y	0.86	Y	0.98	Y
Thallium: East Trail Residential Soil	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	-0.01	N
Thallium: Near Nonroot Produce	-0.01	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	-0.01	N
Thallium: Near Root Produce	0.00	N	0.00	N	-0.01	N	0.00	N	-0.01	N	-0.01	N	0.00	N
Thallium: Rivervale Residential Soil	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N

Table D-1. Largest Contributors to Variability in Noncancer Risk Estimates (in decreasing order of importance)

Forecast (Output Distribution)	HI-Antimony-Soil/Dust-Residential Child-Rivervale	HI-Antimony-Soil/Dust-Residential Child-Tadanac	HI-Antimony-Soil/Dust-Residential Child-Waneta	HI-Antimony-Soil/Dust-Residential Child-West Trail	HI-Arsenic-Soil/Dust-Residential Adult+Child-East Trail	HI-Arsenic-Soil/Dust-Residential Adult+Child-Rivervale	HI-Arsenic-Soil/Dust-Residential Adult+Child-Tadanac
List of Largest Contributors to Variability	Child soil ingestion rate Child Body Weight Antimony in soil Antimony in outdoor dust	Child soil ingestion rate Child Body Weight Antimony in outdoor dust Antimony in soil Fractional Intake: soil/dust	Child soil ingestion rate Child Body Weight Antimony in soil	Child soil ingestion rate Child Body Weight Antimony in soil Fractional Intake: soil/dust	Child soil ingestion rate Exposure Duration Child Body Weight Adult SIR Arsenic in soil Arsenic in outdoor dust	Child soil ingestion rate Exposure Duration Child Body Weight Adult SIR Arsenic in soil	Child soil ingestion rate Exposure Duration Child Body Weight Adult SIR Arsenic in outdoor dust Arsenic in soil

Rank correlation data between assumption and forecast

Assumptions	HI-Antimony-Soil/Dust-Residential Child-Rivervale	Absolute Value > 0.03	HI-Antimony-Soil/Dust-Residential Child-Tadanac	Absolute Value > 0.03	HI-Antimony-Soil/Dust-Residential Child-Waneta	Absolute Value > 0.03	HI-Antimony-Soil/Dust-Residential Child-West Trail	Absolute Value > 0.03	HI-Arsenic-Soil/Dust-Residential Adult+Child-East Trail	Absolute Value > 0.03	HI-Arsenic-Soil/Dust-Residential Adult+Child-Rivervale	Absolute Value > 0.03	HI-Arsenic-Soil/Dust-Residential Adult+Child-Tadanac	Absolute Value > 0.03
Site-wide: Outdoor Dust: tin (mg/kg)	-0.02	N	-0.02	N	-0.02	N	-0.02	N	-0.02	N	-0.02	N	-0.02	N
Site-wide: Outdoor Dust: zinc (mg/kg)	0.00	N	0.01	N	0.01	N	0.00	N	0.01	N	0.01	N	0.01	N
Site-wide: Residential Soil: Antimony (mg/kg)	0.00	N	0.00	N	0.00	N	0.00	N	-0.01	N	0.00	N	-0.01	N
Site-wide: Residential Soil: Arsenic (mg/kg)	-0.01	N	-0.01	N	-0.01	N	-0.01	N	0.00	N	0.00	N	0.00	N
Site-wide: Residential Soil: Cadmium (mg/kg)	0.00	N	0.01	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N
Site-wide: Residential Soil: Selenium (mg/kg)	0.01	N	0.01	N	0.00	N	0.01	N	0.00	N	0.00	N	0.00	N
Site-wide: Residential Soil: Silver (mg/kg)	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	-0.01	N	-0.01	N
Site-wide: Residential Soil: Thallium (mg/kg)	0.01	N	0.01	N	0.01	N	0.01	N	0.00	N	0.00	N	0.00	N
Site-wide: Residential Soil: Tin (mg/kg)	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N
Site-wide: Residential Soil: Zinc (mg/kg)	0.00	N	0.00	N	0.00	N	0.00	N	0.01	N	0.01	N	0.01	N
Site-wide: root produce: antimony	0.01	N	0.01	N	0.01	N	0.01	N	0.02	N	0.02	N	0.02	N
Site-wide: root produce: cadmium	0.00	N	0.00	N	0.01	N	0.00	N	0.00	N	0.01	N	0.01	N
Site-wide: root produce: inorganic arsenic	-0.02	N	-0.02	N	-0.02	N	-0.02	N	-0.01	N	0.00	N	-0.01	N
Site-wide: root produce: thallium	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N
Soil Ingestion Rate (mg/day): Adult	-0.01	N	-0.01	N	-0.01	N	-0.01	N	0.11	Y	0.11	Y	0.11	Y
Soil Ingestion Rate (mg/day): Child	0.97	Y	0.98	Y	0.97	Y	0.98	Y	0.86	Y	0.85	Y	0.86	Y
Thallium: East Trail Residential Soil	0.00	N	0.00	N	-0.01	N	-0.01	N	0.00	N	0.00	N	0.00	N
Thallium: Near Nonroot Produce	-0.01	N	-0.01	N	-0.01	N	-0.01	N	0.00	N	0.00	N	0.00	N
Thallium: Near Root Produce	0.00	N	0.00	N	0.00	N	0.00	N	-0.01	N	-0.01	N	-0.01	N
Thallium: Rivervale Residential Soil	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N

Table D-1. Largest Contributors to Variability in Noncancer Risk Estimates (in decreasing order of importance)

Forecast (Output Distribution)	**HI-Arsenic-Soil/Dust-Residential Adult+Child-Waneta**	**HI-Arsenic-Soil/Dust-Residential Adult+Child-West Trail**	**HI-Arsenic-Soil/Dust-Residential Child-East Trail**	**HI-Arsenic-Soil/Dust-Residential Child-Rivervale**	**HI-Arsenic-Soil/Dust-Residential Child-Tadanac**	**HI-Arsenic-Soil/Dust-Residential Child-Waneta**	**HI-Arsenic-Soil/Dust-Residential Child-West Trail**
List of Largest Contributors to Variability	Child soil ingestion rate Exposure Duration Child Body Weight Adult SIR Arsenic in soil Arsenic in outdoor dust	Child soil ingestion rate Exposure Duration Child Body Weight Adult SIR Fractional intake: soil/dust	Child soil ingestion rate Child Body Weight Arsenic in soil Arsenic in outdoor dust	Child soil ingestion rate Child Body Weight Arsenic in soil	Child soil ingestion rate Child Body Weight Arsenic in outdoor dust	Child soil ingestion rate Child Body Weight Arsenic in soil	Child soil ingestion rate Child Body Weight Fractional intake: soil/dust Arsenic in soil

Rank correlation data between assumption and forecast

Assumptions	HI-Arsenic-Soil/Dust-Residential Adult+Child-Waneta	Absolute Value > 0.03	HI-Arsenic-Soil/Dust-Residential Adult+Child-West Trail	Absolute Value > 0.03	HI-Arsenic-Soil/Dust-Residential Child-East Trail	Absolute Value > 0.03	HI-Arsenic-Soil/Dust-Residential Child-Rivervale	Absolute Value > 0.03	HI-Arsenic-Soil/Dust-Residential Child-Tadanac	Absolute Value > 0.03	HI-Arsenic-Soil/Dust-Residential Child-Waneta	Absolute Value > 0.03	HI-Arsenic-Soil/Dust-Residential Child-West Trail	Absolute Value > 0.03
Site-wide: Outdoor Dust: tin (mg/kg)	-0.02	N	-0.02	N	-0.02	N	-0.02	N	-0.02	N	-0.02	N	-0.02	N
Site-wide: Outdoor Dust: zinc (mg/kg)	0.01	N	0.01	N	0.01	N	0.01	N	0.00	N	0.01	N	0.01	N
Site-wide: Residential Soil: Antimony (mg/kg)	-0.01	N	-0.01	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N
Site-wide: Residential Soil: Arsenic (mg/kg)	0.00	N	0.00	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N
Site-wide: Residential Soil: Cadmium (mg/kg)	0.00	N	0.00	N	0.01	N	0.01	N	0.00	N	0.01	N	0.01	N
Site-wide: Residential Soil: Selenium (mg/kg)	0.00	N	0.00	N	0.01	N	0.00	N	0.01	N	0.01	N	0.01	N
Site-wide: Residential Soil: Silver (mg/kg)	0.00	N	-0.01	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N
Site-wide: Residential Soil: Thallium (mg/kg)	0.00	N	0.00	N	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N
Site-wide: Residential Soil: Tin (mg/kg)	0.00	N	0.00	N	0.00	N	-0.01	N	0.00	N	0.00	N	0.00	N
Site-wide: Residential Soil: Zinc (mg/kg)	0.01	N	0.01	N	0.00	N	0.01	N	0.00	N	0.00	N	0.00	N
Site-wide: root produce: antimony	0.02	N	0.02	N	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N
Site-wide: root produce: cadmium	0.00	N	0.01	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N
Site-wide: root produce: inorganic arsenic	0.00	N	-0.01	N	-0.02	N	-0.02	N	-0.02	N	-0.02	N	-0.02	N
Site-wide: root produce: thallium	-0.01	N	-0.01	N	0.00	N	0.00	N	-0.01	N	0.00	N	-0.01	N
Soil Ingestion Rate (mg/day): Adult	0.11	Y	0.12	Y	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N
Soil Ingestion Rate (mg/day): Child	0.86	Y	0.86	Y	0.97	Y	0.96	Y	0.97	Y	0.97	Y	0.98	Y
Thallium: East Trail Residential Soil	0.00	N	0.00	N	0.00	N	0.00	N	-0.01	N	0.00	N	0.00	N
Thallium: Near Nonroot Produce	0.00	N	0.00	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N
Thallium: Near Root Produce	-0.01	N	-0.01	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N
Thallium: Rivervale Residential Soil	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N

Table D-1. Largest Contributors to Variability in Noncancer Risk Estimates (in decreasing order of importance)

Forecast (Output Distribution)	**HI-Cadmium-Soil/Dust-Agricultural Adult-Waneta**	**HI-Cadmium-Soil/Dust-Commerical Adult+Child-East Trail**	**HI-Cadmium-Soil/Dust-Residential Adult+Child-East Trail**	**HI-Cadmium-Soil/Dust-Residential Adult+Child-Rivervale**	**HI-Cadmium-Soil/Dust-Residential Adult+Child-Tadanac**	**HI-Cadmium-Soil/Dust-Residential Adult+Child-Waneta**	**HI-Cadmium-Soil/Dust-Residential Adult+Child-West Trail**
List of Largest Contributors to Variability	Exposure Duration Adult Body Weight Cadmium in soil	Child soil ingestion rate Exposure Duration Child Body Weight Adult SIR Exposure Frequency	Child soil ingestion rate Exposure Duration Child Body Weight Adult SIR Cadmium in soil Cadmium in outdoor dust Fractional intake: soil/dust	Child soil ingestion rate Exposure Duration Child Body Weight Adult SIR Cadmium in soil Cadmium in outdoor dust Fractional intake: soil/dust	Child soil ingestion rate Exposure Duration Child Body Weight Adult SIR Cadmium in outdoor dust Fractional intake: soil/dust	Child soil ingestion rate Exposure Duration Child Body Weight Adult SIR Cadmium in soil Fractional intake: soil/dust	Child soil ingestion rate Exposure Duration Child Body Weight Adult SIR Fractional intake: soil/dust Cadmium in outdoor dust

Rank correlation data between assumption and forecast

Assumptions	HI-Cadmium-Soil/Dust-Agricultural Adult-Waneta	Absolute Value > 0.03	HI-Cadmium-Soil/Dust-Commerical Adult+Child-East Trail	Absolute Value > 0.03	HI-Cadmium-Soil/Dust-Residential Adult+Child-East Trail	Absolute Value > 0.03	HI-Cadmium-Soil/Dust-Residential Adult+Child-Rivervale	Absolute Value > 0.03	HI-Cadmium-Soil/Dust-Residential Adult+Child-Tadanac	Absolute Value > 0.03	HI-Cadmium-Soil/Dust-Residential Adult+Child-Waneta	Absolute Value > 0.03	HI-Cadmium-Soil/Dust-Residential Adult+Child-West Trail	Absolute Value > 0.03
Site-wide: Outdoor Dust: tin (mg/kg)	0.00	N	-0.02	N	-0.02	N	-0.02	N	-0.02	N	-0.02	N	-0.02	N
Site-wide: Outdoor Dust: zinc (mg/kg)	0.01	N	0.00	N	0.01	N	0.00	N	0.00	N	0.00	N	0.00	N
Site-wide: Residential Soil: Antimony (mg/kg)	0.00	N	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N
Site-wide: Residential Soil: Arsenic (mg/kg)	0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N
Site-wide: Residential Soil: Cadmium (mg/kg)	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N
Site-wide: Residential Soil: Selenium (mg/kg)	0.01	N	0.01	N	0.01	N	0.01	N	0.00	N	0.01	N	0.01	N
Site-wide: Residential Soil: Silver (mg/kg)	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N
Site-wide: Residential Soil: Thallium (mg/kg)	0.00	N	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N
Site-wide: Residential Soil: Tin (mg/kg)	0.01	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N
Site-wide: Residential Soil: Zinc (mg/kg)	0.00	N	0.01	N	0.01	N	0.00	N	0.01	N	0.01	N	0.00	N
Site-wide: root produce: antimony	0.00	N	0.02	N	0.02	N	0.02	N	0.02	N	0.02	N	0.02	N
Site-wide: root produce: cadmium	-0.01	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N
Site-wide: root produce: inorganic arsenic	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N
Site-wide: root produce: thallium	-0.02	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N
Soil Ingestion Rate (mg/day): Adult	0.00	N	0.13	Y	0.13	Y	0.13	Y	0.13	Y	0.13	Y	0.13	Y
Soil Ingestion Rate (mg/day): Child	-0.02	N	0.86	Y	0.86	Y	0.86	Y	0.86	Y	0.86	Y	0.86	Y
Thallium: East Trail Residential Soil	-0.02	N	-0.01	N	-0.01	N	0.00	N	-0.01	N	-0.01	N	-0.01	N
Thallium: Near Nonroot Produce	0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N
Thallium: Near Root Produce	0.01	N	0.01	N	0.00	N	0.01	N	0.01	N	0.01	N	0.01	N
Thallium: Rivervale Residential Soil	-0.01	N	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N

Table D-1. Largest Contributors to Variability in Noncancer Risk Estimates (in decreasing order of importance)

Forecast (Output Distribution)	HI-Selenium-Soil/Dust-Residential Adult+Child-East Trail		HI-Selenium-Soil/Dust-Residential Adult+Child-Rivervale		HI-Selenium-Soil/Dust-Residential Adult+Child-Tadanac		HI-Selenium-Soil/Dust-Residential Adult+Child-Waneta		HI-Selenium-Soil/Dust-Residential Adult+Child-West Trail		HI-Selenium-Soil/Dust-Residential Child-East Trail		HI-Selenium-Soil/Dust-Residential Child-Rivervale	
List of Largest Contributors to Variability	Child soil ingestion rate Selenium in soil Exposure Duration Child Body Weight Adult SIR Selenium in outdoor dust		Child soil ingestion rate Selenium in soil Exposure Duration Child Body Weight Adult SIR		Child soil ingestion rate Selenium in soil Exposure Duration Child Body Weight Selenium in outdoor dust Adult SIR		Child soil ingestion rate Exposure Duration Child Body Weight Adult SIR		Child soil ingestion rate Exposure Duration Selenium in soil Child Body Weight Adult SIR Selenium in outdoor dust		Child soil ingestion rate Selenium in soil Child Body Weight Selenium in outdoor dust		Child soil ingestion rate Selenium in soil Child Body Weight	
Rank correlation data between assumption and forecast														
Assumptions	HI-Selenium-Soil/Dust-Residential Adult+Child-East Trail	Absolute Value > 0.03	HI-Selenium-Soil/Dust-Residential Adult+Child-Rivervale	Absolute Value > 0.03	HI-Selenium-Soil/Dust-Residential Adult+Child-Tadanac	Absolute Value > 0.03	HI-Selenium-Soil/Dust-Residential Adult+Child-Waneta	Absolute Value > 0.03	HI-Selenium-Soil/Dust-Residential Adult+Child-West Trail	Absolute Value > 0.03	HI-Selenium-Soil/Dust-Residential Child-East Trail	Absolute Value > 0.03	HI-Selenium-Soil/Dust-Residential Child-Rivervale	Absolute Value > 0.03
Site-wide: Outdoor Dust: tin (mg/kg)	-0.01	N	-0.01	N	-0.01	N	-0.02	N	-0.02	N	-0.01	N	-0.01	N
Site-wide: Outdoor Dust: zinc (mg/kg)	0.02	N	0.00	N	0.00	N	0.01	N	0.01	N	0.02	N	0.00	N
Site-wide: Residential Soil: Antimony (mg/kg)	-0.01	N	0.00	N	-0.01	N	-0.01	N	0.00	N	0.00	N	0.00	N
Site-wide: Residential Soil: Arsenic (mg/kg)	0.00	N	-0.01	N	0.00	N	0.00	N	-0.01	N	0.00	N	-0.01	N
Site-wide: Residential Soil: Cadmium (mg/kg)	-0.01	N	0.01	N	0.00	N	0.00	N	0.00	N	0.00	N	0.01	N
Site-wide: Residential Soil: Selenium (mg/kg)	-0.01	N	-0.01	N	-0.01	N	0.00	N	0.00	N	0.00	N	0.00	N
Site-wide: Residential Soil: Silver (mg/kg)	0.00	N	-0.01	N	-0.01	N	0.00	N	0.00	N	0.00	N	-0.01	N
Site-wide: Residential Soil: Thallium (mg/kg)	0.01	N	0.00	N	0.00	N	0.00	N	0.01	N	0.01	N	0.01	N
Site-wide: Residential Soil: Tin (mg/kg)	-0.01	N	-0.01	N	0.00	N	0.00	N	0.00	N	-0.01	N	-0.01	N
Site-wide: Residential Soil: Zinc (mg/kg)	0.00	N	0.01	N	0.01	N	0.01	N	0.01	N	0.00	N	0.00	N
Site-wide: root produce: antimony	0.01	N	0.02	N	0.01	N	0.02	N	0.02	N	0.01	N	0.02	N
Site-wide: root produce: cadmium	0.01	N	0.01	N	0.00	N	0.01	N	0.00	N	0.01	N	0.01	N
Site-wide: root produce: inorganic arsenic	-0.01	N	0.00	N	0.00	N	0.00	N	-0.01	N	-0.02	N	-0.01	N
Site-wide: root produce: thallium	-0.02	N	-0.01	N	0.00	N	-0.01	N	-0.01	N	-0.01	N	0.00	N
Soil Ingestion Rate (mg/day): Adult	0.12	Y	0.10	Y	0.10	Y	0.12	Y	0.11	Y	0.00	N	-0.02	N
Soil Ingestion Rate (mg/day): Child	0.80	Y	0.76	Y	0.78	Y	0.87	Y	0.81	Y	0.90	Y	0.86	Y
Thallium: East Trail Residential Soil	-0.01	N	-0.01	N	0.00	N	0.00	N	0.00	N	-0.01	N	-0.01	N
Thallium: Near Nonroot Produce	-0.01	N	0.00	N	0.00	N	0.00	N	0.00	N	-0.01	N	-0.01	N
Thallium: Near Root Produce	-0.01	N	-0.01	N	0.00	N	-0.01	N	0.00	N	0.00	N	-0.01	N
Thallium: Rivervale Residential Soil	0.00	N	0.00	N	-0.01	N	0.00	N	0.00	N	0.00	N	0.00	N

Table D-1. Largest Contributors to Variability in Noncancer Risk Estimates (in decreasing order of importance)

Forecast (Output Distribution)	HI-Selenium-Soil/Dust-Residential Child-Tadanac	HI-Selenium-Soil/Dust-Residential Child-Waneta	HI-Selenium-Soil/Dust-Residential Child-West Trail	HI-Silver-Soil/Dust-Residential Adult+Child-East Trail	HI-Silver-Soil/Dust-Residential Adult+Child-Rivervale	HI-Silver-Soil/Dust-Residential Adult+Child-Tadanac	HI-Silver-Soil/Dust-Residential Adult+Child-Waneta
List of Largest Contributors to Variability	Child soil ingestion rate Selenium in soil Child Body Weight Selenium in outdoor dust	Child soil ingestion rate Child Body Weight	Child soil ingestion rate Selenium in soil Child Body Weight Selenium in outdoor dust	Child soil ingestion rate Silver in soil Exposure Duration Silver in outdoor dust Child Body Weight Adult SIR Exposure Frequency	Child soil ingestion rate Exposure Duration Silver in soil Child Body Weight Adult SIR Silver in outdoor dust	Child soil ingestion rate Exposure Duration Silver in soil Silver in outdoor dust Child Body Weight Adult SIR Exposure Frequency	Child soil ingestion rate Exposure Duration Child Body Weight Adult SIR

Rank correlation data between assumption and forecast

Assumptions	HI-Selenium-Soil/Dust-Residential Child-Tadanac	Absolute Value > 0.03	HI-Selenium-Soil/Dust-Residential Child-Waneta	Absolute Value > 0.03	HI-Selenium-Soil/Dust-Residential Child-West Trail	Absolute Value > 0.03	HI-Silver-Soil/Dust-Residential Adult+Child-East Trail	Absolute Value > 0.03	HI-Silver-Soil/Dust-Residential Adult+Child-Rivervale	Absolute Value > 0.03	HI-Silver-Soil/Dust-Residential Adult+Child-Tadanac	Absolute Value > 0.03	HI-Silver-Soil/Dust-Residential Adult+Child-Waneta	Absolute Value > 0.03
Site-wide: Outdoor Dust: tin (mg/kg)	-0.01	N	-0.02	N	-0.02	N	-0.02	N	-0.02	N	-0.02	N	-0.02	N
Site-wide: Outdoor Dust: zinc (mg/kg)	0.00	N	0.01	N	0.00	N	0.01	N	0.01	N	0.01	N	0.01	N
Site-wide: Residential Soil: Antimony (mg/kg)	0.00	N	0.00	N	0.00	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N
Site-wide: Residential Soil: Arsenic (mg/kg)	-0.01	N	-0.01	N	-0.01	N	0.00	N	0.00	N	-0.01	N	0.00	N
Site-wide: Residential Soil: Cadmium (mg/kg)	0.00	N	0.00	N	0.01	N	0.00	N	0.00	N	-0.01	N	0.00	N
Site-wide: Residential Soil: Selenium (mg/kg)	0.00	N	0.01	N	0.01	N	0.00	N	0.00	N	0.00	N	0.00	N
Site-wide: Residential Soil: Silver (mg/kg)	-0.01	N	0.00	N	0.00	N	0.00	N	-0.01	N	0.00	N	0.00	N
Site-wide: Residential Soil: Thallium (mg/kg)	0.01	N	0.01	N	0.01	N	-0.01	N	0.00	N	0.00	N	0.00	N
Site-wide: Residential Soil: Tin (mg/kg)	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N
Site-wide: Residential Soil: Zinc (mg/kg)	0.00	N	0.00	N	0.00	N	0.01	N	0.01	N	0.01	N	0.01	N
Site-wide: root produce: antimony	0.01	N	0.01	N	0.01	N	0.02	N	0.02	N	0.01	N	0.02	N
Site-wide: root produce: cadmium	-0.01	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.01	N
Site-wide: root produce: inorganic arsenic	-0.01	N	-0.02	N	-0.02	N	-0.01	N	-0.01	N	0.00	N	0.00	N
Site-wide: root produce: thallium	0.00	N	-0.01	N	0.00	N	-0.01	N	-0.01	N	0.00	N	-0.01	N
Soil Ingestion Rate (mg/day): Adult	-0.01	N	-0.01	N	-0.01	N	0.10	Y	0.11	Y	0.11	Y	0.12	Y
Soil Ingestion Rate (mg/day): Child	0.88	Y	0.98	Y	0.92	Y	0.75	Y	0.84	Y	0.79	Y	0.87	Y
Thallium: East Trail Residential Soil	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N
Thallium: Near Nonroot Produce	-0.01	N	-0.01	N	-0.01	N	0.00	N	0.00	N	-0.01	N	0.00	N
Thallium: Near Root Produce	0.01	N	0.00	N	0.00	N	-0.01	N	0.00	N	-0.01	N	-0.01	N
Thallium: Rivervale Residential Soil	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N

Table D-1. Largest Contributors to Variability in Noncancer Risk Estimates (in decreasing order of importance)

Forecast (Output Distribution)	**HI-Silver-Soil/Dust-Residential Adult+Child-West Trail**	**HI-Silver-Soil/Dust-Residential Child-East Trail**	**HI-Silver-Soil/Dust-Residential Child-Rivervale**	**HI-Silver-Soil/Dust-Residential Child-Tadanac**	**HI-Silver-Soil/Dust-Residential Child-Waneta**	**HI-Silver-Soil/Dust-Residential Child-West Trail**	**HI-Thallium-Soil/Dust-Residential Adult+Child-East Trail**
List of Largest Contributors to Variability	Child soil ingestion rate Silver in soil Exposure Duration Child Body Weight Adult SIR Silver in outdoor dust	Child soil ingestion rate Silver in soil Child Body Weight Silver in outdoor dust Exposure Frequency	Child soil ingestion rate Silver in soil Child Body Weight Silver in outdoor dust	Child soil ingestion rate Silver in soil Silver in outdoor dust Child Body Weight Exposure Frequency	Child soil ingestion rate Child Body Weight	Child soil ingestion rate Silver in soil Child Body Weight Silver in outdoor dust	Child soil ingestion rate Thallium in soil Exposure Duration Child Body Weight Adult SIR

Rank correlation data between assumption and forecast

Assumptions	HI-Silver-Soil/Dust-Residential Adult+Child-West Trail	Absolute Value > 0.03	HI-Silver-Soil/Dust-Residential Child-East Trail	Absolute Value > 0.03	HI-Silver-Soil/Dust-Residential Child-Rivervale	Absolute Value > 0.03	HI-Silver-Soil/Dust-Residential Child-Tadanac	Absolute Value > 0.03	HI-Silver-Soil/Dust-Residential Child-Waneta	Absolute Value > 0.03	HI-Silver-Soil/Dust-Residential Child-West Trail	Absolute Value > 0.03	HI-Thallium-Soil/Dust-Residential Adult+Child-East Trail	Absolute Value > 0.03
Site-wide: Outdoor Dust: tin (mg/kg)	-0.01	N	-0.02	N	-0.02	N	-0.02	N	-0.02	N	-0.01	N	-0.02	N
Site-wide: Outdoor Dust: zinc (mg/kg)	0.01	N	0.01	N	0.00	N	0.01	N	0.01	N	0.01	N	0.02	N
Site-wide: Residential Soil: Antimony (mg/kg)	-0.01	N	-0.01	N	-0.01	N	-0.01	N	0.00	N	0.00	N	0.00	N
Site-wide: Residential Soil: Arsenic (mg/kg)	0.00	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	0.00	N
Site-wide: Residential Soil: Cadmium (mg/kg)	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.01	N	-0.01	N
Site-wide: Residential Soil: Selenium (mg/kg)	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N	0.00	N
Site-wide: Residential Soil: Silver (mg/kg)	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N
Site-wide: Residential Soil: Thallium (mg/kg)	-0.01	N	0.00	N	0.01	N	0.01	N	0.01	N	0.00	N	0.00	N
Site-wide: Residential Soil: Tin (mg/kg)	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	-0.01	N
Site-wide: Residential Soil: Zinc (mg/kg)	0.01	N	0.01	N	0.00	N	0.00	N	0.00	N	0.01	N	0.01	N
Site-wide: root produce: antimony	0.01	N	0.02	N	0.01	N	0.01	N	0.01	N	0.01	N	0.02	N
Site-wide: root produce: cadmium	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.01	N
Site-wide: root produce: inorganic arsenic	0.00	N	-0.01	N	-0.02	N	-0.01	N	-0.02	N	-0.01	N	-0.01	N
Site-wide: root produce: thallium	-0.01	N	-0.01	N	-0.01	N	0.00	N	-0.01	N	-0.01	N	-0.01	N
Soil Ingestion Rate (mg/day): Adult	0.11	Y	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	0.10	Y
Soil Ingestion Rate (mg/day): Child	0.78	Y	0.85	Y	0.95	Y	0.90	Y	0.98	Y	0.88	Y	0.78	Y
Thallium: East Trail Residential Soil	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.39	Y
Thallium: Near Nonroot Produce	0.00	N	-0.01	N	-0.01	N	-0.02	N	-0.01	N	-0.01	N	0.00	N
Thallium: Near Root Produce	-0.01	N	-0.01	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N
Thallium: Rivervale Residential Soil	0.00	N	0.01	N	0.00	N	0.00	N	0.00	N	0.01	N	0.00	N

Table D-1. Largest Contributors to Variability in Noncancer Risk Estimates (in decreasing order of importance)

Forecast (Output Distribution)	**HI-Thallium-Soil/Dust-Residential Adult+Child-Rivervale**	**HI-Thallium-Soil/Dust-Residential Adult+Child-Tadanac**	**HI-Thallium-Soil/Dust-Residential Adult+Child-Waneta**	**HI-Thallium-Soil/Dust-Residential Adult+Child-West Trail**	**HI-Thallium-Soil/Dust-Residential Child-East Trail**	**HI-Thallium-Soil/Dust-Residential Child-Rivervale**	**HI-Thallium-Soil/Dust-Residential Child-Tadanac**
List of Largest Contributors to Variability	Child soil ingestion rate Thallium in soil Exposure Duration Child Body Weight Adult SIR	Child soil ingestion rate Thallium in soil Exposure Duration Child Body Weight Adult SIR Thallium in outdoor dust	Child soil ingestion rate Exposure Duration Child Body Weight Adult SIR	Child soil ingestion rate Exposure Duration Thallium in soil Child Body Weight Adult SIR	Child soil ingestion rate Thallium in soil Child Body Weight	Child soil ingestion rate Thallium in soil Child Body Weight	Child soil ingestion rate Thallium in soil Child Body Weight Thallium in outdoor dust

Rank correlation data between assumption and forecast

Assumptions	HI-Thallium-Soil/Dust-Residential Adult+Child-Rivervale	Absolute Value > 0.03	HI-Thallium-Soil/Dust-Residential Adult+Child-Tadanac	Absolute Value > 0.03	HI-Thallium-Soil/Dust-Residential Adult+Child-Waneta	Absolute Value > 0.03	HI-Thallium-Soil/Dust-Residential Adult+Child-West Trail	Absolute Value > 0.03	HI-Thallium-Soil/Dust-Residential Child-East Trail	Absolute Value > 0.03	HI-Thallium-Soil/Dust-Residential Child-Rivervale	Absolute Value > 0.03	HI-Thallium-Soil/Dust-Residential Child-Tadanac	Absolute Value > 0.03
Site-wide: Outdoor Dust: tin (mg/kg)	-0.03	N	-0.02	N	-0.02	N	-0.01	N	-0.02	N	-0.02	N	-0.02	N
Site-wide: Outdoor Dust: zinc (mg/kg)	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N
Site-wide: Residential Soil: Antimony (mg/kg)	-0.01	N	-0.01	N	-0.01	N	0.00	N	0.00	N	0.00	N	-0.01	N
Site-wide: Residential Soil: Arsenic (mg/kg)	-0.01	N	0.00	N	0.00	N	0.00	N	-0.01	N	-0.01	N	-0.01	N
Site-wide: Residential Soil: Cadmium (mg/kg)	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N
Site-wide: Residential Soil: Selenium (mg/kg)	0.00	N	0.00	N	0.00	N	0.00	N	0.01	N	0.01	N	0.00	N
Site-wide: Residential Soil: Silver (mg/kg)	0.00	N	-0.01	N	0.00	N	0.00	N	0.00	N	0.00	N	-0.01	N
Site-wide: Residential Soil: Thallium (mg/kg)	0.01	N	0.00	N	0.00	N	0.01	N	0.01	N	0.01	N	0.01	N
Site-wide: Residential Soil: Tin (mg/kg)	0.00	N	0.00	N	0.00	N	0.00	N	-0.01	N	-0.01	N	0.00	N
Site-wide: Residential Soil: Zinc (mg/kg)	0.02	N	0.02	N	0.01	N	0.01	N	0.00	N	0.01	N	0.01	N
Site-wide: root produce: antimony	0.01	N	0.01	N	0.02	N	0.02	N	0.01	N	0.01	N	0.01	N
Site-wide: root produce: cadmium	0.00	N	0.00	N	0.01	N	0.00	N	0.01	N	0.00	N	0.00	N
Site-wide: root produce: inorganic arsenic	0.00	N	-0.01	N	0.00	N	-0.01	N	-0.02	N	-0.01	N	-0.02	N
Site-wide: root produce: thallium	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	0.00	N	0.00	N
Soil Ingestion Rate (mg/day): Adult	0.11	Y	0.10	Y	0.12	Y	0.11	Y	-0.01	N	-0.01	N	-0.01	N
Soil Ingestion Rate (mg/day): Child	0.80	Y	0.76	Y	0.87	Y	0.82	Y	0.89	Y	0.91	Y	0.86	Y
Thallium: East Trail Residential Soil	0.00	N	-0.01	N	0.00	N	0.00	N	0.38	Y	0.00	N	-0.01	N
Thallium: Near Nonroot Produce	-0.01	N	0.00	N	0.00	N	0.00	N	-0.01	N	-0.02	N	-0.01	N
Thallium: Near Root Produce	0.00	N	-0.01	N	-0.01	N	-0.01	N	0.01	N	0.00	N	0.00	N
Thallium: Rivervale Residential Soil	0.35	Y	0.00	N	0.00	N	0.00	N	0.00	N	0.34	Y	0.00	N

Table D-1. Largest Contributors to Variability in Noncancer Risk Estimates (in decreasing order of importance)

Forecast (Output Distribution)	**HI-Thallium-Soil/Dust-Residential Child-Waneta**	**HI-Thallium-Soil/Dust-Residential Child-West Trail**	**HI-Tin-Soil/Dust-Residential Adult+Child-East Trail**	**HI-Tin-Soil/Dust-Residential Adult+Child-Rivervale**	**HI-Tin-Soil/Dust-Residential Adult+Child-Tadanac**	**HI-Tin-Soil/Dust-Residential Adult+Child-Waneta**	**HI-Tin-Soil/Dust-Residential Adult+Child-West Trail**
List of Largest Contributors to Variability	Child soil ingestion rate Child Body Weight	Child soil ingestion rate Thallium in soil Child Body Weight	Child soil ingestion rate Tin in soil Exposure Duration Tin in outdoor dust Child Body Weight Adult SIR	Child soil ingestion rate Tin in soil Exposure Duration Child Body Weight Adult SIR	Child soil ingestion rate Tin in soil Exposure Duration Child Body Weight Adult SIR Tin in outdoor dust	Child soil ingestion rate Exposure Duration Child Body Weight Adult SIR	Child soil ingestion rate Tin in soil Exposure Duration Child Body Weight Adult SIR Tin in outdoor dust

Rank correlation data between assumption and forecast

Assumptions	HI-Thallium-Soil/Dust-Residential Child-Waneta	Absolute Value > 0.03	HI-Thallium-Soil/Dust-Residential Child-West Trail	Absolute Value > 0.03	HI-Tin-Soil/Dust-Residential Adult+Child-East Trail	Absolute Value > 0.03	HI-Tin-Soil/Dust-Residential Adult+Child-Rivervale	Absolute Value > 0.03	HI-Tin-Soil/Dust-Residential Adult+Child-Tadanac	Absolute Value > 0.03	HI-Tin-Soil/Dust-Residential Adult+Child-Waneta	Absolute Value > 0.03	HI-Tin-Soil/Dust-Residential Adult+Child-West Trail	Absolute Value > 0.03
Site-wide: Outdoor Dust: tin (mg/kg)	-0.02	N	-0.01	N	-0.01	N	-0.01	N	-0.02	N	-0.02	N	-0.02	N
Site-wide: Outdoor Dust: zinc (mg/kg)	0.01	N	0.00	N	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N
Site-wide: Residential Soil: Antimony (mg/kg)	0.00	N	0.00	N	-0.02	N	-0.01	N	0.00	N	-0.01	N	-0.01	N
Site-wide: Residential Soil: Arsenic (mg/kg)	-0.01	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N
Site-wide: Residential Soil: Cadmium (mg/kg)	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N
Site-wide: Residential Soil: Selenium (mg/kg)	0.01	N	0.01	N	-0.01	N	0.00	N	0.00	N	0.00	N	0.00	N
Site-wide: Residential Soil: Silver (mg/kg)	0.00	N	0.00	N	-0.01	N	0.00	N	-0.01	N	0.00	N	0.00	N
Site-wide: Residential Soil: Thallium (mg/kg)	0.01	N	0.01	N	0.01	N	0.00	N	0.01	N	0.00	N	0.01	N
Site-wide: Residential Soil: Tin (mg/kg)	0.00	N	0.00	N	0.01	N	0.00	N	0.01	N	0.00	N	0.00	N
Site-wide: Residential Soil: Zinc (mg/kg)	0.00	N	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N
Site-wide: root produce: antimony	0.01	N	0.01	N	0.02	N	0.00	N	0.01	N	0.02	N	0.02	N
Site-wide: root produce: cadmium	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.01	N	0.01	N
Site-wide: root produce: inorganic arsenic	-0.02	N	-0.02	N	-0.01	N	0.00	N	0.00	N	0.00	N	-0.01	N
Site-wide: root produce: thallium	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	0.00	N
Soil Ingestion Rate (mg/day): Adult	-0.01	N	-0.01	N	0.09	Y	0.10	Y	0.11	Y	0.12	Y	0.10	Y
Soil Ingestion Rate (mg/day): Child	0.98	Y	0.93	Y	0.72	Y	0.75	Y	0.76	Y	0.87	Y	0.77	Y
Thallium: East Trail Residential Soil	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N
Thallium: Near Nonroot Produce	-0.01	N	-0.01	N	-0.01	N	0.01	N	0.00	N	0.00	N	-0.01	N
Thallium: Near Root Produce	0.00	N	0.00	N	-0.01	N	0.00	N	-0.01	N	-0.01	N	-0.01	N
Thallium: Rivervale Residential Soil	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N

Table D-1. Largest Contributors to Variability in Noncancer Risk Estimates (in decreasing order of importance)

Forecast (Output Distribution)	**HI-Tin-Soil/Dust-Residential Child-East Trail**	**HI-Tin-Soil/Dust-Residential Child-Rivervale**	**HI-Tin-Soil/Dust-Residential Child-Tadanac**	**HI-Tin-Soil/Dust-Residential Child-Waneta**	**HI-Tin-Soil/Dust-Residential Child-West Trail**	**HI-Zinc-Soil/Dust-Residential Adult+Child-East Trail**	**HI-Zinc-Soil/Dust-Residential Adult+Child-Rivervale**
List of Largest Contributors to Variability	Child soil ingestion rate Tin in soil Child Body Weight Tin in outdoor dust	Child soil ingestion rate Tin in soil Child Body Weight	Child soil ingestion rate Tin in soil Child Body Weight Tin in outdoor dust	Child soil ingestion rate Child Body Weight	Child soil ingestion rate Tin in soil Child Body Weight Tin in outdoor dust	Child soil ingestion rate Zinc in soil Exposure Duration Zinc in outdoor dust Child Body Weight Adult SIR	Child soil ingestion rate Zinc in soil Exposure Duration Child Body Weight Adult SIR Zinc in outdoor dust

Rank correlation data between assumption and forecast

Assumptions	HI-Tin-Soil/Dust-Residential Child-East Trail	Absolute Value > 0.03	HI-Tin-Soil/Dust-Residential Child-Rivervale	Absolute Value > 0.03	HI-Tin-Soil/Dust-Residential Child-Tadanac	Absolute Value > 0.03	HI-Tin-Soil/Dust-Residential Child-Waneta	Absolute Value > 0.03	HI-Tin-Soil/Dust-Residential Child-West Trail	Absolute Value > 0.03	HI-Zinc-Soil/Dust-Residential Adult+Child-East Trail	Absolute Value > 0.03	HI-Zinc-Soil/Dust-Residential Adult+Child-Rivervale	Absolute Value > 0.03
Site-wide: Outdoor Dust: tin (mg/kg)	-0.01	N	-0.01	N	-0.02	N	-0.02	N	-0.02	N	-0.02	N	-0.01	N
Site-wide: Outdoor Dust: zinc (mg/kg)	0.01	N	0.00	N	0.01	N	0.01	N	0.00	N	0.00	N	0.01	N
Site-wide: Residential Soil: Antimony (mg/kg)	-0.01	N	-0.01	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N
Site-wide: Residential Soil: Arsenic (mg/kg)	-0.01	N	-0.01	N	0.00	N	-0.01	N	-0.01	N	0.00	N	0.01	N
Site-wide: Residential Soil: Cadmium (mg/kg)	0.00	N	0.00	N	0.01	N	0.00	N	0.00	N	0.00	N	0.00	N
Site-wide: Residential Soil: Selenium (mg/kg)	0.00	N	0.01	N	0.01	N	0.01	N	0.00	N	0.01	N	0.00	N
Site-wide: Residential Soil: Silver (mg/kg)	0.00	N	0.00	N	-0.01	N	0.00	N	0.00	N	-0.01	N	0.00	N
Site-wide: Residential Soil: Thallium (mg/kg)	0.02	N	0.01	N	0.01	N	0.01	N	0.02	N	0.01	N	0.02	N
Site-wide: Residential Soil: Tin (mg/kg)	0.00	N	0.00	N	0.00	N	0.00	N	-0.01	N	0.01	N	0.00	N
Site-wide: Residential Soil: Zinc (mg/kg)	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.01	N	0.01	N
Site-wide: root produce: antimony	0.01	N	0.00	N	0.00	N	0.01	N	0.02	N	0.02	N	0.02	N
Site-wide: root produce: cadmium	0.00	N	0.00	N	0.00	N	0.00	N	0.01	N	0.01	N	0.00	N
Site-wide: root produce: inorganic arsenic	-0.02	N	-0.01	N	-0.01	N	-0.02	N	-0.02	N	0.00	N	0.00	N
Site-wide: root produce: thallium	0.00	N	-0.01	N	-0.01	N	-0.01	N	0.00	N	-0.01	N	-0.01	N
Soil Ingestion Rate (mg/day): Adult	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	0.11	Y	0.11	Y
Soil Ingestion Rate (mg/day): Child	0.81	Y	0.85	Y	0.87	Y	0.98	Y	0.87	Y	0.77	Y	0.80	Y
Thallium: East Trail Residential Soil	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	-0.01	N	-0.01	N
Thallium: Near Nonroot Produce	-0.02	N	0.00	N	-0.01	N	-0.01	N	-0.02	N	0.00	N	0.00	N
Thallium: Near Root Produce	0.00	N	0.00	N	0.00	N	0.00	N	-0.01	N	0.00	N	0.00	N
Thallium: Rivervale Residential Soil	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N

Table D-1. Largest Contributors to Variability in Noncancer Risk Estimates (in decreasing order of importance)

Forecast (Output Distribution)	HI-Zinc-Soil/Dust-Residential Adult+Child-Tadanac	HI-Zinc-Soil/Dust-Residential Adult+Child-Waneta	HI-Zinc-Soil/Dust-Residential Adult+Child-West Trail	HI-Zinc-Soil/Dust-Residential Child-East Trail	HI-Zinc-Soil/Dust-Residential Child-Rivervale	HI-Zinc-Soil/Dust-Residential Child-Tadanac	HI-Zinc-Soil/Dust-Residential Child-Waneta
List of Largest Contributors to Variability	Child soil ingestion rate Exposure Duration Zinc in soil Child Body Weight Zinc in outdoor dust Adult SIR Exposure Frequency	Child soil ingestion rate Zinc in soil Exposure Duration Child Body Weight Adult SIR	Child soil ingestion rate Zinc in soil Exposure Duration Child Body Weight Adult SIR Zinc in outdoor dust	Child soil ingestion rate Zinc in soil Child Body Weight Zinc in outdoor dust	Child soil ingestion rate Zinc in soil Child Body Weight Zinc in outdoor dust	Child soil ingestion rate Zinc in soil Child Body Weight Zinc in outdoor dust Exposure Frequency	Child soil ingestion rate Zinc in soil Child Body Weight

Rank correlation data between assumption and forecast

Assumptions	HI-Zinc-Soil/Dust-Residential Adult+Child-Tadanac	Absolute Value > 0.03	HI-Zinc-Soil/Dust-Residential Adult+Child-Waneta	Absolute Value > 0.03	HI-Zinc-Soil/Dust-Residential Adult+Child-West Trail	Absolute Value > 0.03	HI-Zinc-Soil/Dust-Residential Child-East Trail	Absolute Value > 0.03	HI-Zinc-Soil/Dust-Residential Child-Rivervale	Absolute Value > 0.03	HI-Zinc-Soil/Dust-Residential Child-Tadanac	Absolute Value > 0.03	HI-Zinc-Soil/Dust-Residential Child-Waneta	Absolute Value > 0.03
Site-wide: Outdoor Dust: tin (mg/kg)	-0.02	N	-0.02	N	-0.02	N	-0.02	N	-0.01	N	-0.02	N	-0.02	N
Site-wide: Outdoor Dust: zinc (mg/kg)	0.01	N	0.00	N	0.00	N	0.00	N	0.01	N	0.00	N	0.00	N
Site-wide: Residential Soil: Antimony (mg/kg)	-0.01	N	0.00	N	-0.01	N	0.00	N	0.00	N	-0.01	N	0.00	N
Site-wide: Residential Soil: Arsenic (mg/kg)	0.00	N	0.00	N	0.00	N	-0.01	N	0.00	N	-0.01	N	0.00	N
Site-wide: Residential Soil: Cadmium (mg/kg)	0.00	N	-0.01	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N
Site-wide: Residential Soil: Selenium (mg/kg)	0.00	N	0.00	N	-0.01	N	0.01	N	0.01	N	0.01	N	0.01	N
Site-wide: Residential Soil: Silver (mg/kg)	0.00	N	0.00	N	0.00	N	-0.01	N	0.00	N	0.00	N	0.00	N
Site-wide: Residential Soil: Thallium (mg/kg)	0.00	N	0.00	N	0.01	N	0.01	N	0.02	N	0.00	N	0.00	N
Site-wide: Residential Soil: Tin (mg/kg)	0.00	N	0.00	N	0.00	N	0.01	N	0.00	N	0.00	N	-0.01	N
Site-wide: Residential Soil: Zinc (mg/kg)	0.01	N	0.01	N	0.02	N	0.00	N	0.00	N	0.00	N	0.00	N
Site-wide: root produce: antimony	0.02	N	0.02	N	0.02	N	0.02	N	0.01	N	0.01	N	0.01	N
Site-wide: root produce: cadmium	0.00	N	0.00	N	0.01	N	0.01	N	0.00	N	0.00	N	0.00	N
Site-wide: root produce: inorganic arsenic	0.00	N	-0.01	N	-0.01	N	-0.02	N	-0.01	N	-0.01	N	-0.02	N
Site-wide: root produce: thallium	-0.01	N	-0.01	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N
Soil Ingestion Rate (mg/day): Adult	0.11	Y	0.12	Y	0.11	Y	-0.01	N	-0.01	N	-0.01	N	0.00	N
Soil Ingestion Rate (mg/day): Child	0.82	Y	0.77	Y	0.78	Y	0.87	Y	0.91	Y	0.93	Y	0.87	Y
Thallium: East Trail Residential Soil	0.00	N	0.00	N	-0.01	N	-0.01	N	-0.01	N	0.00	N	0.00	N
Thallium: Near Nonroot Produce	0.00	N	0.00	N	0.00	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N
Thallium: Near Root Produce	0.00	N	0.00	N	-0.01	N	0.00	N	0.00	N	0.00	N	0.00	N
Thallium: Rivervale Residential Soil	0.00	N	-0.01	N	-0.01	N	0.00	N	0.00	N	0.00	N	-0.01	N

Table D-1. Largest Contributors to Variability in Noncancer Risk Estimates (in decreasing order of importance)

Forecast (Output Distribution)	**HI-Zinc-Soil/Dust-Residential Child-West Trail**	**Site-wide HI: Antimony Adult+Child Residential Soil-Dust**	**Site-wide HI: Antimony Child Residential Soil-Dust**	**Site-wide HI: Arsenic Adult+Child Residential Soil-Dust**	**Site-wide HI: Arsenic Child Residential Soil-Dust**	**Site-wide HI: Cadmium Adult+Child Residential Soil-Dust**	**Site-wide HI: Selenium Adult+Child Residential Soil-Dust**
List of Largest Contributors to Variability	Child soil ingestion rate Zinc in soil Child Body Weight Zinc in outdoor dust	Child soil ingestion rate Exposure Duration Antimony in indoor dust Child Body Weight Adult SIR Antimony in soil Antimony in outdoor dust Fractional intake: soil/dust	Child soil ingestion rate Antimony in indoor dust Child Body Weight Antimony in soil Antimony in outdoor dust	Child soil ingestion rate Exposure Duration Arsenic in indoor dust Child Body Weight Adult SIR Arsenic in soil Arsenic in outdoor dust	Child soil ingestion rate Arsenic in indoor dust Child Body Weight Arsenic in soil Arsenic in outdoor dust	Child soil ingestion rate Cadmium in indoor dust Exposure Duration Child Body Weight Adult SIR Cadmium in outdoor dust Cadmium in soil Fractional intake: soil/dust	Child soil ingestion rate Selenium in soil Exposure Duration Child Body Weight Adult SIR Selenium in outdoor dust

Rank correlation data between assumption and forecast

Assumptions	HI-Zinc-Soil/Dust-Residential Child-West Trail	Absolute Value > 0.03	Site-wide HI: Antimony Adult+Child Residential Soil Dust	Absolute Value > 0.03	Site-wide HI: Antimony Child Residential Soil Dust	Absolute Value > 0.03	Site-wide HI: Arsenic Adult+Child Residential Soil Dust	Absolute Value > 0.03	Site-wide HI: Arsenic Child Residential Soil Dust	Absolute Value > 0.03	Site-wide HI: Cadmium Adult+Child Residential Soil Dust	Absolute Value > 0.03	Site-wide HI: Selenium Adult+Child Residential Soil Dust	Absolute Value > 0.03
Site-wide: Outdoor Dust: tin (mg/kg)	-0.02	N	-0.02	N	-0.02	N	-0.02	N	-0.02	N	-0.02	N	-0.01	N
Site-wide: Outdoor Dust: zinc (mg/kg)	0.00	N	0.01	N	0.01	N	0.01	N	0.01	N	0.00	N	0.01	N
Site-wide: Residential Soil: Antimony (mg/kg)	0.00	N	0.06	Y	0.06	Y	-0.01	N	-0.01	N	0.00	N	0.00	N
Site-wide: Residential Soil: Arsenic (mg/kg)	0.00	N	-0.01	N	-0.01	N	0.10	Y	0.09	Y	0.00	N	-0.01	N
Site-wide: Residential Soil: Cadmium (mg/kg)	0.00	N	0.00	N	0.00	N	0.01	N	0.01	N	0.06	Y	-0.01	N
Site-wide: Residential Soil: Selenium (mg/kg)	0.00	N	0.00	N	0.01	N	0.00	N	0.01	N	0.00	N	0.49	Y
Site-wide: Residential Soil: Silver (mg/kg)	0.00	N	-0.01	N	-0.01	N	-0.01	N	0.00	N	-0.01	N	-0.01	N
Site-wide: Residential Soil: Thallium (mg/kg)	0.01	N	0.00	N	0.01	N	0.00	N	0.01	N	0.01	N	0.00	N
Site-wide: Residential Soil: Tin (mg/kg)	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	-0.01	N	-0.01	N
Site-wide: Residential Soil: Zinc (mg/kg)	0.01	N	0.01	N	0.00	N	0.01	N	0.01	N	0.00	N	0.01	N
Site-wide: root produce: antimony	0.01	N	0.02	N	0.01	N	0.02	N	0.01	N	0.01	N	0.02	N
Site-wide: root produce: cadmium	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.01	N	0.01	N
Site-wide: root produce: inorganic arsenic	-0.02	N	-0.01	N	-0.02	N	-0.01	N	-0.02	N	-0.01	N	0.00	N
Site-wide: root produce: thallium	0.00	N	-0.01	N	-0.01	N	-0.01	N	0.00	N	0.01	N	-0.01	N
Soil Ingestion Rate (mg/day): Adult	-0.01	N	0.11	Y	-0.01	N	0.11	Y	-0.01	N	0.12	Y	0.10	Y
Soil Ingestion Rate (mg/day): Child	0.89	Y	0.80	Y	0.91	Y	0.81	Y	0.92	Y	0.81	Y	0.74	Y
Thallium: East Trail Residential Soil	-0.01	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	-0.01	N
Thallium: Near Nonroot Produce	-0.01	N	0.00	N	-0.01	N	0.00	N	-0.01	N	-0.01	N	0.00	N
Thallium: Near Root Produce	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N
Thallium: Rivervale Residential Soil	-0.01	N	0.00	N	0.01	N	0.00	N	0.00	N	0.00	N	0.00	N

Table D-1. Largest Contributors to Variability in Noncancer Risk Estimates (in decreasing order of importance)

Forecast (Output Distribution)	Site-wide HI: Selenium Child Residential Soil-Dust	Site-wide HI: Silver Adult+Child Residential Soil-Dust	Site-wide HI: Silver Child Residential Soil-Dust	Site-wide HI: Thallium Adult+Child Residential Soil-Dust	Site-wide HI: Thallium Child Residential Soil-Dust	Site-wide HI: Tin Adult+Child Residential Soil-Dust	Site-wide HI: Tin Child Residential Soil-Dust
List of Largest Contributors to Variability	Child soil ingestion rate Selenium in soil Child Body Weight Selenium in outdoor dust	Child soil ingestion rate Silver in soil Exposure Duration Silver in outdoor dust Child Body Weight Adult SIR	Child soil ingestion rate Exposure Duration Silver in outdoor dust Child Body Weight	Child soil ingestion rate Thallium in soil Exposure Duration Child Body Weight Adult SIR Thallium in outdoor dust	Child soil ingestion rate Thallium in soil Child Body Weight Thallium in outdoor dust	Child soil ingestion rate Tin in soil Exposure Duration Child Body Weight Tin in outdoor dust Adult SIR	Child soil ingestion rate Tin in soil Child Body Weight Tin in outdoor dust

Rank correlation data between assumption and forecast

Assumptions	Site-wide HI: Selenium Child Residential Soil Dust	Absolute Value > 0.03	Site-wide HI: Silver Adult+Child Residential Soil Dust	Absolute Value > 0.03	Site-wide HI: Silver Child Residential Soil Dust	Absolute Value > 0.03	Site-wide HI: Thallium Adult+Child Residential Soil Dust	Absolute Value > 0.03	Site-wide HI: Thallium Child Residential Soil Dust	Absolute Value > 0.03	Site-wide HI: Tin Adult+Child Residential Soil Dust	Absolute Value > 0.03	Site-wide HI: Tin Child Residential Soil Dust	Absolute Value > 0.03
Site-wide: Outdoor Dust: tin (mg/kg)	-0.01	N	-0.02	N	-0.02	N	-0.01	N	-0.01	N	0.12	Y	0.12	Y
Site-wide: Outdoor Dust: zinc (mg/kg)	0.00	N	0.00	N	0.00	N	0.01	N	0.01	N	0.01	N	0.00	N
Site-wide: Residential Soil: Antimony (mg/kg)	0.00	N	-0.01	N	0.00	N	-0.01	N	-0.01	N	0.00	N	0.00	N
Site-wide: Residential Soil: Arsenic (mg/kg)	-0.01	N	-0.01	N	-0.01	N	0.00	N	0.00	N	0.00	N	-0.01	N
Site-wide: Residential Soil: Cadmium (mg/kg)	0.00	N	0.00	N	0.00	N	0.00	N	0.01	N	-0.01	N	-0.01	N
Site-wide: Residential Soil: Selenium (mg/kg)	0.48	Y	0.00	N	0.01	N	0.00	N	0.01	N	0.00	N	0.00	N
Site-wide: Residential Soil: Silver (mg/kg)	0.00	N	0.36	Y	0.36	Y	-0.01	N	0.00	N	-0.01	N	-0.01	N
Site-wide: Residential Soil: Thallium (mg/kg)	0.01	N	0.00	N	0.01	N	0.45	Y	0.45	Y	0.02	N	0.02	N
Site-wide: Residential Soil: Tin (mg/kg)	-0.01	N	-0.01	N	-0.01	N	0.01	N	0.01	N	0.53	Y	0.52	Y
Site-wide: Residential Soil: Zinc (mg/kg)	0.00	N	0.01	N	0.01	N	0.02	N	0.01	N	0.00	N	0.00	N
Site-wide: root produce: antimony	0.02	N	0.01	N	0.01	N	0.02	N	0.01	N	0.01	N	0.01	N
Site-wide: root produce: cadmium	0.00	N	0.01	N	0.01	N	0.00	N	0.00	N	0.01	N	0.01	N
Site-wide: root produce: inorganic arsenic	-0.01	N	0.00	N	-0.01	N	0.01	N	0.00	N	0.00	N	-0.01	N
Site-wide: root produce: thallium	-0.01	N	-0.01	N	0.00	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N
Soil Ingestion Rate (mg/day): Adult	-0.01	N	0.10	Y	-0.01	N	0.10	Y	-0.02	N	0.10	Y	-0.01	N
Soil Ingestion Rate (mg/day): Child	0.84	Y	0.76	Y	0.86	Y	0.75	Y	0.85	Y	0.70	Y	0.80	Y
Thallium: East Trail Residential Soil	-0.01	N	0.00	N	0.00	N	0.00	N	0.00	N	-0.01	N	-0.01	N
Thallium: Near Nonroot Produce	-0.01	N	-0.01	N	-0.02	N	0.00	N	-0.01	N	-0.01	N	-0.01	N
Thallium: Near Root Produce	0.01	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N
Thallium: Rivervale Residential Soil	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	-0.01	N	-0.01	N

Table D-1. Largest Contributors to Variability in Noncancer Risk Estimates (in decreasing order of importance)

Forecast (Output Distribution)	Site-wide HI: Zinc Adult+Child Residential Soil-Dust	Site-wide HI: Zinc Child Residential Soil-Dust
List of Largest Contributors to Variability	Child soil ingestion rate Zinc in soil Exposure Duration Zinc in outdoor dust Child Body Weight Adult SIR	Child soil ingestion rate Zinc in soil Zinc in outdoor dust Child Body Weight

Rank correlation data between assumption and forecast

Assumptions	Site-wide HI: Zinc Adult+Child Residential Soil Dust	Absolute Value > 0.03	Site-wide HI: Zinc Child Residential Soil Dust	Absolute Value > 0.03
Site-wide: Outdoor Dust: tin (mg/kg)	-0.02	N	-0.02	N
Site-wide: Outdoor Dust: zinc (mg/kg)	0.19	Y	0.19	Y
Site-wide: Residential Soil: Antimony (mg/kg)	-0.01	N	-0.01	N
Site-wide: Residential Soil: Arsenic (mg/kg)	-0.01	N	-0.01	N
Site-wide: Residential Soil: Cadmium (mg/kg)	-0.01	N	0.00	N
Site-wide: Residential Soil: Selenium (mg/kg)	0.00	N	0.01	N
Site-wide: Residential Soil: Silver (mg/kg)	-0.01	N	-0.01	N
Site-wide: Residential Soil: Thallium (mg/kg)	0.01	N	0.02	N
Site-wide: Residential Soil: Tin (mg/kg)	0.00	N	0.00	N
Site-wide: Residential Soil: Zinc (mg/kg)	0.43	Y	0.42	Y
Site-wide: root produce: antimony	0.01	N	0.00	N
Site-wide: root produce: cadmium	0.01	N	0.00	N
Site-wide: root produce: inorganic arsenic	0.00	N	-0.01	N
Site-wide: root produce: thallium	0.00	N	0.00	N
Soil Ingestion Rate (mg/day): Adult	0.11	Y	0.00	N
Soil Ingestion Rate (mg/day): Child	0.74	Y	0.84	Y
Thallium: East Trail Residential Soil	0.00	N	0.00	N
Thallium: Near Nonroot Produce	0.00	N	-0.01	N
Thallium: Near Root Produce	0.00	N	0.00	N
Thallium: Rivervale Residential Soil	0.01	N	0.01	N

Table D-1. Largest Contributors to Variability in Noncancer Risk Estimates (in decreasing order of importance)

Forecast (Output Distribution)	**HI-Antimony-Produce-Residential Adult+Child-Far**	**HI-Antimony-Produce-Residential Adult+Child-Near**	**HI-Antimony-Produce-Residential Child-Far**	**HI-Antimony-Produce-Residential Child-Near**	**HI-Arsenic-Produce-Residential Adult+Child-Far**	**HI-Arsenic-Produce-Residential Adult+Child-Near**
List of Largest Contributors to Variability	Child nonroot ingestion rate Child root ingestion rate Exposure Duration Child Body Weight Adult nonroot ingestion rate Adult root ingestion rate Adult Body Weight	Antimony in nonroot produce Child nonroot ingestion rate Antimony in root produce Child root ingestion rate Exposure Duration Child Body Weight Adult nonroot ingestion rate Adult root ingestion rate Adult Body Weight	Child nonroot ingestion rate Child root ingestion rate Child Body Weight	Antimony in nonroot produce Child nonroot ingestion rate Child root ingestion rate Antimony in root produce Child Body Weight	Arsenic in nonroot produce Child root ingestion rate Child nonroot ingestion rate Adult root ingestion rate Adult nonroot ingestion rate Adult Body Weight Child Body Weight Exposure Duration	Arsenic in nonroot produce Arsenic in root produce Child nonroot ingestion rate Child root ingestion rate Adult nonroot ingestion rate Adult root ingestion rate Exposure Duration Child Body Weight

Rank correlation data between assumption and forecast

Assumptions	HI-Antimony-Produce-Residential Adult+Child-Far	Absolute Value > 0.03	HI-Antimony-Produce-Residential Adult+Child-Near	Absolute Value > 0.03	HI-Antimony-Produce-Residential Child-Far	Absolute Value > 0.03	HI-Antimony-Produce-Residential Child-Near	Absolute Value > 0.03	HI-Arsenic-Produce-Residential Adult+Child-Far	Absolute Value > 0.03	HI-Arsenic-Produce-Residential Adult+Child-Near	Absolute Value > 0.03
Thallium: Tadanac Outdoor Dust	-0.01	N	-0.02	N	0.00	N	-0.02	N	0.00	N	-0.01	N
Thallium: Tadanac Residential Soil	0.00	N	0.02	N	0.01	N	0.02	N	0.00	N	0.00	N
Thallium: West Trail Residential Soil	0.01	N	0.01	N	0.01	N	0.00	N	0.02	N	0.00	N
Tin: East Trail Outdoor Dust	-0.01	N	0.00	N	0.00	N	0.00	N	0.01	N	-0.01	N
Tin: East Trail Residential Soil	-0.01	N	0.01	N	-0.01	N	0.01	N	-0.01	N	0.00	N
Tin: Rivervale Residential Soil	0.01	N	0.01	N	0.02	N	0.01	N	0.01	N	0.01	N
Tin: Tadanac Outdoor Dust	-0.01	N	-0.01	N	-0.01	N	-0.01	N	0.00	N	0.00	N
Tin: Tadanac Residential Soil	0.01	N	0.00	N	0.01	N	0.01	N	-0.01	N	0.00	N
Tin: West Trail Outdoor Dust	-0.02	N	-0.02	N	-0.01	N	-0.02	N	-0.02	N	-0.02	N
Tin: West Trail Residential Soil	-0.02	N	-0.02	N	-0.03	N	-0.02	N	-0.02	N	-0.01	N
Zinc: East Trail Outdoor Dust	-0.01	N	-0.01	N	-0.01	N	-0.01	N	0.00	N	-0.01	N
Zinc: East Trail Residential Soil	-0.01	N	-0.01	N	-0.01	N	-0.01	N	0.00	N	-0.02	N
Zinc: Rivervale Outdoor Dust	0.00	N	0.01	N	0.00	N	0.01	N	-0.01	N	0.00	N
Zinc: Rivervale Residential Soil	-0.01	N	-0.02	N	-0.01	N	-0.02	N	0.01	N	0.00	N
Zinc: Tadanac Outdoor Dust	-0.01	N	0.00	N	0.00	N	0.00	N	-0.01	N	0.00	N
Zinc: Tadanac Residential Soil	0.01	N	0.00	N	0.01	N	0.01	N	0.00	N	0.00	N
Zinc: Waneta Residential Soil	0.00	N	0.00	N	0.00	N	0.00	N	0.02	N	0.00	N
Zinc: West Trail Outdoor Dust	0.02	N	0.02	N	0.01	N	0.01	N	0.02	N	0.01	N
Zinc: West Trail Residential Soil	-0.01	N	-0.01	N	0.00	N	-0.01	N	0.00	N	0.01	N

Table D-1. Largest Contributors to Variability in Noncancer Risk Estimates (in decreasing order of importance)

Forecast (Output Distribution)	**HI-Arsenic-Produce-Residential Child-Far**	**HI-Arsenic-Produce-Residential Child-Near**	**HI-Cadmium-Produce-Residential Adult+Child-Far**	**HI-Cadmium-Produce-Residential Adult+Child-Near**	**HI-Thallium-Produce-Residential Adult+Child-Far**	**HI-Thallium-Produce-Residential Adult+Child-Near**
List of Largest Contributors to Variability	Arsenic in nonroot produce Child root ingestion rate Child nonroot ingestion rate Child Body Weight	Arsenic in nonroot produce Arsenic in root produce Child nonroot ingestion rate Child root ingestion rate Child Body Weight	Exposure Duration Cadmium in nonroot produce Child root ingestion rate Child Body Weight Adult root ingestion rate Child nonroot ingestion rate Adult nonroot ingestion rate Adult Body Weight	Exposure Duration Cadmium in nonroot produce Cadmium in root produce Child root ingestion rate Child Body Weight Child nonroot ingestion rate Adult root ingestion rate Adult nonroot ingestion rate Adult Body Weight	Child root ingestion rate Exposure Duration Child nonroot ingestion rate Child Body Weight Adult root ingestion rate Adult nonroot ingestion rate Adult Body Weight	Thallium in root produce Child root ingestion rate Thallium in nonroot produce Exposure Duration Child Body Weight Child nonroot ingestion rate Adult root ingestion rate Adult Body Weight Adult nonroot ingestion rate

Rank correlation data between assumption and forecast

Assumptions	HI-Arsenic-Produce-Residential Child-Far	Absolute Value > 0.03	HI-Arsenic-Produce-Residential Child-Near	Absolute Value > 0.03	HI-Cadmium-Produce-Residential Adult+Child-Far	Absolute Value > 0.03	HI-Cadmium-Produce-Residential Adult+Child-Near	Absolute Value > 0.03	HI-Thallium-Produce-Residential Adult+Child-Far	Absolute Value > 0.03	HI-Thallium-Produce-Residential Adult+Child-Near	Absolute Value > 0.03
Thallium: Tadanac Outdoor Dust	0.00	N	-0.01	N	0.01	N	0.01	N	0.00	N	0.00	N
Thallium: Tadanac Residential Soil	0.00	N	0.01	N	0.00	N	0.00	N	0.00	N	0.00	N
Thallium: West Trail Residential Soil	0.01	N	0.00	N	0.01	N	0.00	N	0.01	N	0.00	N
Tin: East Trail Outdoor Dust	0.02	N	-0.01	N	0.02	N	0.01	N	0.00	N	0.00	N
Tin: East Trail Residential Soil	-0.01	N	0.00	N	0.02	N	0.01	N	-0.01	N	-0.01	N
Tin: Rivervale Residential Soil	0.02	N	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N
Tin: Tadanac Outdoor Dust	0.00	N	0.00	N	0.00	N	0.00	N	-0.01	N	0.00	N
Tin: Tadanac Residential Soil	0.00	N	0.00	N	-0.02	N	-0.01	N	0.01	N	0.00	N
Tin: West Trail Outdoor Dust	-0.01	N	-0.02	N	0.01	N	0.01	N	-0.01	N	-0.01	N
Tin: West Trail Residential Soil	-0.02	N	-0.01	N	-0.02	N	-0.01	N	-0.02	N	-0.03	Y
Zinc: East Trail Outdoor Dust	0.00	N	-0.02	N	-0.02	N	-0.01	N	-0.01	N	-0.01	N
Zinc: East Trail Residential Soil	0.00	N	-0.02	N	0.00	N	0.00	N	-0.01	N	0.00	N
Zinc: Rivervale Outdoor Dust	-0.01	N	0.00	N	0.00	N	0.00	N	0.01	N	0.01	N
Zinc: Rivervale Residential Soil	0.01	N	0.00	N	-0.02	N	-0.02	N	-0.01	N	-0.01	N
Zinc: Tadanac Outdoor Dust	-0.01	N	0.00	N	0.01	N	0.00	N	-0.01	N	0.01	N
Zinc: Tadanac Residential Soil	0.00	N	0.00	N	0.01	N	0.00	N	0.00	N	0.00	N
Zinc: Waneta Residential Soil	0.01	N	0.00	N	0.01	N	0.01	N	0.00	N	0.00	N
Zinc: West Trail Outdoor Dust	0.01	N	0.01	N	-0.03	N	-0.01	N	0.02	N	0.01	N
Zinc: West Trail Residential Soil	0.00	N	0.01	N	-0.01	N	0.01	N	0.00	N	0.00	N

Table D-1. Largest Contributors to Variability in Noncancer Risk Estimates (in decreasing order of importance)

Forecast (Output Distribution)	**HI-Thallium-Produce-Residential Child-Far**	**HI-Thallium-Produce-Residential Child-Near**	**Site-wide HI: Antimony Adult+Child Residential Produce**	**Site-wide HI: Antimony Child Residential Produce**	**Site-wide HI: Arsenic Adult+Child Residential Produce**	**Site-wide HI: Arsenic Child Residential Produce**
List of Largest Contributors to Variability	Child root ingestion rate Child nonroot ingestion rate Child Body Weight	Thallium in root produce Child root ingestion rate Child Body Weight Thallium in nonroot produce Child Body Weight	Antimony in nonroot produce Child nonroot ingestion rate Child root ingestion rate Antimony in root produce Exposure Duration Child Body Weight Adult nonroot ingestion rate Adult root ingestion rate Adult Body Weight	Antimony in nonroot produce Child nonroot ingestion rate Child root ingestion rate Antimony in root produce Child Body Weight	Arsenic in nonroot produce Arsenic in root produce Child nonroot ingestion rate Child root ingestion rate Adult nonroot ingestion rate Adult root ingestion rate Adult Body Weight Child Body Weight Exposure Duration	Arsenic in nonroot produce Child nonroot ingestion rate Arsenic in root produce Child root ingestion rate Child Body Weight

Rank correlation data between assumption and forecast

Assumptions	HI-Thallium-Produce-Residential Child-Far	Absolute Value > 0.03	HI-Thallium-Produce-Residential Child-Near	Absolute Value > 0.03	Site-wide HI: Antimony Adult+Child Residential Produce	Absolute Value > 0.03	Site-wide HI: Antimony Child Residential Produce	Absolute Value > 0.03	Site-wide HI: Arsenic Adult+Child Residential Produce	Absolute Value > 0.03	Site-wide HI: Arsenic Child Residential Produce	Absolute Value > 0.03
Thallium: Tadanac Outdoor Dust	0.00	N	0.00	N	-0.01	N	-0.01	N	-0.01	N	0.00	N
Thallium: Tadanac Residential Soil	0.00	N	0.00	N	0.01	N	0.01	N	-0.02	N	-0.01	N
Thallium: West Trail Residential Soil	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N
Tin: East Trail Outdoor Dust	0.01	N	0.00	N	0.01	N	0.01	N	0.00	N	0.00	N
Tin: East Trail Residential Soil	-0.01	N	-0.01	N	-0.01	N	0.00	N	0.00	N	0.00	N
Tin: Rivervale Residential Soil	0.02	N	0.02	N	0.01	N	0.01	N	0.00	N	0.01	N
Tin: Tadanac Outdoor Dust	-0.02	N	-0.01	N	-0.02	N	-0.03	N	-0.02	N	-0.02	N
Tin: Tadanac Residential Soil	0.01	N	0.01	N	0.00	N	0.00	N	0.02	N	0.02	N
Tin: West Trail Outdoor Dust	-0.01	N	-0.01	N	-0.02	N	-0.01	N	-0.01	N	-0.01	N
Tin: West Trail Residential Soil	-0.02	N	-0.03	Y	-0.01	N	-0.01	N	-0.01	N	-0.01	N
Zinc: East Trail Outdoor Dust	-0.01	N	-0.01	N	-0.02	N	-0.02	N	0.00	N	0.01	N
Zinc: East Trail Residential Soil	-0.01	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N
Zinc: Rivervale Outdoor Dust	0.00	N	0.00	N	0.00	N	-0.01	N	-0.02	N	-0.02	N
Zinc: Rivervale Residential Soil	-0.01	N	-0.01	N	-0.01	N	-0.01	N	0.00	N	0.00	N
Zinc: Tadanac Outdoor Dust	0.00	N	0.01	N	-0.01	N	0.00	N	-0.01	N	0.00	N
Zinc: Tadanac Residential Soil	0.01	N	0.00	N	0.00	N	0.01	N	0.01	N	0.01	N
Zinc: Waneta Residential Soil	0.00	N	0.00	N	0.00	N	0.00	N	-0.01	N	-0.02	N
Zinc: West Trail Outdoor Dust	0.00	N	0.00	N	0.01	N	0.01	N	0.01	N	0.00	N
Zinc: West Trail Residential Soil	0.00	N	-0.01	N	0.00	N	0.00	N	-0.01	N	0.00	N

Table D-1. Largest Contributors to Variability in Noncancer Risk Estimates (in decreasing order of importance)

Forecast (Output Distribution)	**Site-wide HI: Cadmium Adult+Child Residential Produce**	**Site-wide HI: Thallium Adult+Child Residential Produce**	**Site-wide HI: Thallium Child Residential Produce**	**HI-Antimony-Particulates-Agricultural Adult-Waneta**	**HI-Antimony-Soil/Dust-Agricultural Adult-Waneta**	**HI-Antimony-Soil/Dust-Commerical Adult+Child-East Trail**
List of Largest Contributors to Variability	Exposure Duration Cadmium in nonroot produce Cadmium in root produce Child root ingestion rate Child nonroot ingestion rate Child Body Weight Adult root ingestion rate Adult nonroot ingestion rate Adult Body Weight	Thallium in root produce Child root ingestion rate Thallium in nonroot produce Exposure Duration Child nonroot ingestion rate Child Body Weight Adult root ingestion rate Adult nonroot ingestion rate Adult Body Weight	Thallium in root produce Child root ingestion rate Thallium in nonroot produce Child nonroot ingestion rate Child Body Weight	Particulate concentration in air Adult Body Weight Adult Inhalation Rate	Adult Body Weight	Child soil ingestion rate Exposure Duration Child Body Weight Adult SIR Exposure Frequency

Rank correlation data between assumption and forecast

Assumptions	Site-wide HI: Cadmium Adult+Child Residential Produce	Absolute Value > 0.03	Site-wide HI: Thallium Adult+Child Residential Produce	Absolute Value > 0.03	Site-wide HI: Thallium Child Residential Produce	Absolute Value > 0.03	HI-Antimony-Particulates-Agricultural Adult-Waneta	Absolute Value > 0.03	HI-Antimony-Soil/Dust-Agricultural Adult-Waneta	Absolute Value > 0.03	HI-Antimony-Soil/Dust-Commerical Adult+Child-East Trail	Absolute Value > 0.03
Thallium: Tadanac Outdoor Dust	0.01	N	-0.02	N	-0.01	N	0.01	N	0.00	N	0.01	N
Thallium: Tadanac Residential Soil	-0.01	N	0.00	N	0.01	N	-0.01	N	0.01	N	0.00	N
Thallium: West Trail Residential Soil	0.00	N	0.01	N	0.00	N	0.01	N	0.02	N	0.01	N
Tin: East Trail Outdoor Dust	0.01	N	0.01	N	0.01	N	0.02	N	0.01	N	0.01	N
Tin: East Trail Residential Soil	0.00	N	0.00	N	-0.01	N	0.01	N	0.00	N	-0.01	N
Tin: Rivervale Residential Soil	0.00	N	-0.01	N	0.00	N	-0.02	N	-0.01	N	0.01	N
Tin: Tadanac Outdoor Dust	-0.01	N	0.01	N	0.00	N	0.00	N	0.00	N	-0.02	N
Tin: Tadanac Residential Soil	0.00	N	-0.01	N	0.00	N	-0.01	N	0.00	N	-0.02	N
Tin: West Trail Outdoor Dust	0.00	N	-0.01	N	-0.01	N	-0.02	N	-0.03	Y	-0.01	N
Tin: West Trail Residential Soil	0.00	N	0.01	N	0.01	N	0.00	N	0.00	N	0.00	N
Zinc: East Trail Outdoor Dust	-0.01	N	0.00	N	-0.01	N	0.01	N	0.01	N	0.02	N
Zinc: East Trail Residential Soil	0.02	N	-0.01	N	-0.01	N	-0.02	N	-0.01	N	-0.01	N
Zinc: Rivervale Outdoor Dust	0.00	N	0.02	N	0.01	N	0.01	N	0.00	N	0.02	N
Zinc: Rivervale Residential Soil	-0.01	N	0.00	N	-0.01	N	0.00	N	0.00	N	0.00	N
Zinc: Tadanac Outdoor Dust	-0.01	N	-0.02	N	-0.01	N	0.00	N	-0.01	N	0.00	N
Zinc: Tadanac Residential Soil	0.00	N	0.01	N	0.01	N	0.01	N	0.01	N	0.00	N
Zinc: Waneta Residential Soil	0.02	N	0.00	N	0.00	N	-0.01	N	-0.01	N	0.00	N
Zinc: West Trail Outdoor Dust	-0.03	N	0.01	N	0.00	N	-0.01	N	-0.01	N	0.01	N
Zinc: West Trail Residential Soil	0.00	N	0.01	N	0.01	N	-0.01	N	0.01	N	-0.01	N

Table D-1. Largest Contributors to Variability in Noncancer Risk Estimates (in decreasing order of importance)

Forecast (Output Distribution)	HI-Antimony-Soil/Dust-Commerical Child-East Trail	HI-Antimony-Soil/Dust-Residential Adult+Child-East Trail	HI-Antimony-Soil/Dust-Residential Adult+Child-Rivervale	HI-Antimony-Soil/Dust-Residential Adult+Child-Tadanac	HI-Antimony-Soil/Dust-Residential Adult+Child-Waneta	HI-Antimony-Soil/Dust-Residential Adult+Child-West Trail	HI-Antimony-Soil/Dust-Residential Child-East Trail
List of Largest Contributors to Variability	Child soil ingestion rate Child Body Weight Exposure Frequency	Child soil ingestion rate Exposure Duration Child Body Weight Adult SIR Antimony in soil Antimony in outdoor dust Fractional Intake: soil/dust	Child soil ingestion rate Exposure Duration Child Body Weight Adult SIR Antimony in soil	Child soil ingestion rate Exposure Duration Child Body Weight Adult SIR Antimony in soil Antimony in outdoor dust Fractional Intake: soil/dust	Child soil ingestion rate Exposure Duration Child Body Weight Adult SIR Antimony in soil	Child soil ingestion rate Exposure Duration Child Body Weight Adult SIR Antimony in soil Fractional Intake: soil/dust	Child soil ingestion rate Child Body Weight Antimony in soil Antimony in outdoor dust Fractional Intake: soil/dust

Rank correlation data between assumption and forecast

Assumptions	HI-Antimony-Soil/Dust-Commerical Child-East Trail	Absolute Value > 0.03	HI-Antimony-Soil/Dust-Residential Adult+Child-East Trail	Absolute Value > 0.03	HI-Antimony-Soil/Dust-Residential Adult+Child-Rivervale	Absolute Value > 0.03	HI-Antimony-Soil/Dust-Residential Adult+Child-Tadanac	Absolute Value > 0.03	HI-Antimony-Soil/Dust-Residential Adult+Child-Waneta	Absolute Value > 0.03	HI-Antimony-Soil/Dust-Residential Adult+Child-West Trail	Absolute Value > 0.03	HI-Antimony-Soil/Dust-Residential Child-East Trail	Absolute Value > 0.03
Thallium: Tadanac Outdoor Dust	0.02	N	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N	0.02	N
Thallium: Tadanac Residential Soil	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N
Thallium: West Trail Residential Soil	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N
Tin: East Trail Outdoor Dust	0.02	N	0.00	N	0.00	N	0.01	N	0.00	N	0.00	N	0.02	N
Tin: East Trail Residential Soil	0.00	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	0.00	N
Tin: Rivervale Residential Soil	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N
Tin: Tadanac Outdoor Dust	-0.02	N	-0.02	N	-0.02	N	-0.02	N	-0.02	N	-0.02	N	-0.02	N
Tin: Tadanac Residential Soil	-0.02	N	-0.02	N	-0.02	N	-0.02	N	-0.02	N	-0.02	N	-0.02	N
Tin: West Trail Outdoor Dust	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N
Tin: West Trail Residential Soil	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.01	N
Zinc: East Trail Outdoor Dust	0.02	N	0.02	N	0.03	N	0.02	N	0.03	N	0.02	N	0.02	N
Zinc: East Trail Residential Soil	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N
Zinc: Rivervale Outdoor Dust	0.02	N	0.02	N	0.02	N	0.01	N	0.02	N	0.01	N	0.02	N
Zinc: Rivervale Residential Soil	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N
Zinc: Tadanac Outdoor Dust	0.01	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.01	N
Zinc: Tadanac Residential Soil	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N
Zinc: Waneta Residential Soil	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N
Zinc: West Trail Outdoor Dust	0.00	N	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N	0.00	N
Zinc: West Trail Residential Soil	-0.02	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.02	N

Table D-1. Largest Contributors to Variability in Noncancer Risk Estimates (in decreasing order of importance)

Forecast (Output Distribution)	**HI-Antimony-Soil/Dust-Residential Child-Rivervale**	**HI-Antimony-Soil/Dust-Residential Child-Tadanac**	**HI-Antimony-Soil/Dust-Residential Child-Waneta**	**HI-Antimony-Soil/Dust-Residential Child-West Trail**	**HI-Arsenic-Soil/Dust-Residential Adult+Child-East Trail**	**HI-Arsenic-Soil/Dust-Residential Adult+Child-Rivervale**	**HI-Arsenic-Soil/Dust-Residential Adult+Child-Tadanac**
List of Largest Contributors to Variability	Child soil ingestion rate Child Body Weight Antimony in soil Antimony in outdoor dust	Child soil ingestion rate Child Body Weight Antimony in outdoor dust Antimony in soil Fractional Intake: soil/dust	Child soil ingestion rate Child Body Weight Antimony in soil	Child soil ingestion rate Child Body Weight Antimony in soil Fractional Intake: soil/dust	Child soil ingestion rate Exposure Duration Child Body Weight Adult SIR Arsenic in soil Arsenic in outdoor dust	Child soil ingestion rate Exposure Duration Child Body Weight Adult SIR Arsenic in soil	Child soil ingestion rate Exposure Duration Child Body Weight Adult SIR Arsenic in outdoor dust Arsenic in soil

Rank correlation data between assumption and forecast

Assumptions	HI-Antimony-Soil/Dust-Residential Child-Rivervale	Absolute Value > 0.03	HI-Antimony-Soil/Dust-Residential Child-Tadanac	Absolute Value > 0.03	HI-Antimony-Soil/Dust-Residential Child-Waneta	Absolute Value > 0.03	HI-Antimony-Soil/Dust-Residential Child-West Trail	Absolute Value > 0.03	HI-Arsenic-Soil/Dust-Residential Adult+Child-East Trail	Absolute Value > 0.03	HI-Arsenic-Soil/Dust-Residential Adult+Child-Rivervale	Absolute Value > 0.03	HI-Arsenic-Soil/Dust-Residential Adult+Child-Tadanac	Absolute Value > 0.03
Thallium: Tadanac Outdoor Dust	0.02	N	0.02	N	0.02	N	0.02	N	0.01	N	0.01	N	0.01	N
Thallium: Tadanac Residential Soil	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N
Thallium: West Trail Residential Soil	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N
Tin: East Trail Outdoor Dust	0.02	N	0.02	N	0.02	N	0.02	N	0.00	N	0.01	N	0.01	N
Tin: East Trail Residential Soil	0.00	N	0.00	N	0.00	N	0.00	N	-0.01	N	-0.01	N	-0.01	N
Tin: Rivervale Residential Soil	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N
Tin: Tadanac Outdoor Dust	-0.02	N	-0.02	N	-0.02	N	-0.02	N	-0.02	N	-0.02	N	-0.02	N
Tin: Tadanac Residential Soil	-0.02	N	-0.02	N	-0.02	N	-0.02	N	-0.02	N	-0.02	N	-0.02	N
Tin: West Trail Outdoor Dust	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N
Tin: West Trail Residential Soil	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N
Zinc: East Trail Outdoor Dust	0.02	N	0.02	N	0.02	N	0.02	N	0.02	N	0.03	N	0.02	N
Zinc: East Trail Residential Soil	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N
Zinc: Rivervale Outdoor Dust	0.02	N	0.02	N	0.02	N	0.02	N	0.01	N	0.01	N	0.02	N
Zinc: Rivervale Residential Soil	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N
Zinc: Tadanac Outdoor Dust	0.01	N	0.01	N	0.01	N	0.01	N	0.00	N	0.00	N	0.00	N
Zinc: Tadanac Residential Soil	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N
Zinc: Waneta Residential Soil	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N
Zinc: West Trail Outdoor Dust	0.00	N	0.00	N	0.00	N	0.00	N	0.01	N	0.01	N	0.01	N
Zinc: West Trail Residential Soil	-0.02	N	-0.02	N	-0.02	N	-0.02	N	-0.01	N	-0.01	N	-0.01	N

Table D-1. Largest Contributors to Variability in Noncancer Risk Estimates (in decreasing order of importance)

Forecast (Output Distribution)	**HI-Arsenic-Soil/Dust-Residential Adult+Child-Waneta**	**HI-Arsenic-Soil/Dust-Residential Adult+Child-West Trail**	**HI-Arsenic-Soil/Dust-Residential Child-East Trail**	**HI-Arsenic-Soil/Dust-Residential Child-Rivervale**	**HI-Arsenic-Soil/Dust-Residential Child-Tadanac**	**HI-Arsenic-Soil/Dust-Residential Child-Waneta**	**HI-Arsenic-Soil/Dust-Residential Child-West Trail**
List of Largest Contributors to Variability	Child soil ingestion rate Exposure Duration Child Body Weight Adult SIR Arsenic in soil Arsenic in outdoor dust	Child soil ingestion rate Exposure Duration Child Body Weight Adult SIR Fractional intake: soil/dust	Child soil ingestion rate Child Body Weight Arsenic in soil Arsenic in outdoor dust	Child soil ingestion rate Child Body Weight Arsenic in soil	Child soil ingestion rate Child Body Weight Arsenic in outdoor dust	Child soil ingestion rate Child Body Weight Arsenic in soil	Child soil ingestion rate Child Body Weight Fractional intake: soil/dust Arsenic in soil

Rank correlation data between assumption and forecast

Assumptions	HI-Arsenic-Soil/Dust-Residential Adult+Child-Waneta	Absolute Value > 0.03	HI-Arsenic-Soil/Dust-Residential Adult+Child-West Trail	Absolute Value > 0.03	HI-Arsenic-Soil/Dust-Residential Child-East Trail	Absolute Value > 0.03	HI-Arsenic-Soil/Dust-Residential Child-Rivervale	Absolute Value > 0.03	HI-Arsenic-Soil/Dust-Residential Child-Tadanac	Absolute Value > 0.03	HI-Arsenic-Soil/Dust-Residential Child-Waneta	Absolute Value > 0.03	HI-Arsenic-Soil/Dust-Residential Child-West Trail	Absolute Value > 0.03
Thallium: Tadanac Outdoor Dust	0.01	N	0.01	N	0.02	N	0.02	N	0.02	N	0.02	N	0.02	N
Thallium: Tadanac Residential Soil	0.00	N	0.00	N	0.00	N	-0.01	N	0.00	N	0.00	N	0.00	N
Thallium: West Trail Residential Soil	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N
Tin: East Trail Outdoor Dust	0.01	N	0.01	N	0.02	N	0.02	N	0.02	N	0.02	N	0.02	N
Tin: East Trail Residential Soil	-0.01	N	-0.01	N	0.00	N	0.00	N	0.00	N	-0.01	N	-0.01	N
Tin: Rivervale Residential Soil	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N
Tin: Tadanac Outdoor Dust	-0.02	N	-0.02	N	-0.02	N	-0.02	N	-0.02	N	-0.02	N	-0.02	N
Tin: Tadanac Residential Soil	-0.02	N	-0.02	N	-0.03	N	-0.02	N	-0.02	N	-0.02	N	-0.02	N
Tin: West Trail Outdoor Dust	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N
Tin: West Trail Residential Soil	0.00	N	0.00	N	0.01	N	0.00	N	0.00	N	0.00	N	0.00	N
Zinc: East Trail Outdoor Dust	0.02	N	0.02	N	0.02	N	0.02	N	0.02	N	0.02	N	0.02	N
Zinc: East Trail Residential Soil	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N
Zinc: Rivervale Outdoor Dust	0.02	N	0.01	N	0.02	N	0.02	N	0.02	N	0.02	N	0.02	N
Zinc: Rivervale Residential Soil	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N
Zinc: Tadanac Outdoor Dust	0.00	N	0.00	N	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N
Zinc: Tadanac Residential Soil	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N
Zinc: Waneta Residential Soil	0.00	N	0.00	N	0.00	N	0.01	N	0.00	N	0.00	N	0.00	N
Zinc: West Trail Outdoor Dust	0.01	N	0.01	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N
Zinc: West Trail Residential Soil	-0.01	N	-0.01	N	-0.02	N	-0.02	N	-0.02	N	-0.02	N	-0.02	N

Table D-1. Largest Contributors to Variability in Noncancer Risk Estimates (in decreasing order of importance)

Forecast (Output Distribution)	**HI-Cadmium-Soil/Dust-Agricultural Adult-Waneta**	**HI-Cadmium-Soil/Dust-Commerical Adult+Child-East Trail**	**HI-Cadmium-Soil/Dust-Residential Adult+Child-East Trail**	**HI-Cadmium-Soil/Dust-Residential Adult+Child-Rivervale**	**HI-Cadmium-Soil/Dust-Residential Adult+Child-Tadanac**	**HI-Cadmium-Soil/Dust-Residential Adult+Child-Waneta**	**HI-Cadmium-Soil/Dust-Residential Adult+Child-West Trail**
List of Largest Contributors to Variability	Exposure Duration Adult Body Weight Cadmium in soil	Child soil ingestion rate Exposure Duration Child Body Weight Adult SIR Exposure Frequency	Child soil ingestion rate Exposure Duration Child Body Weight Adult SIR Cadmium in soil Cadmium in outdoor dust Fractional intake: soil/dust	Child soil ingestion rate Exposure Duration Child Body Weight Adult SIR Cadmium in soil Cadmium in outdoor dust Fractional intake: soil/dust	Child soil ingestion rate Exposure Duration Child Body Weight Adult SIR Cadmium in outdoor dust Fractional intake: soil/dust	Child soil ingestion rate Exposure Duration Child Body Weight Adult SIR Cadmium in soil Fractional intake: soil/dust	Child soil ingestion rate Exposure Duration Child Body Weight Adult SIR Fractional intake: soil/dust Cadmium in outdoor dust

Rank correlation data between assumption and forecast

Assumptions	HI-Cadmium-Soil/Dust-Agricultural Adult-Waneta	Absolute Value > 0.03	HI-Cadmium-Soil/Dust-Commerical Adult+Child-East Trail	Absolute Value > 0.03	HI-Cadmium-Soil/Dust-Residential Adult+Child-East Trail	Absolute Value > 0.03	HI-Cadmium-Soil/Dust-Residential Adult+Child-Rivervale	Absolute Value > 0.03	HI-Cadmium-Soil/Dust-Residential Adult+Child-Tadanac	Absolute Value > 0.03	HI-Cadmium-Soil/Dust-Residential Adult+Child-Waneta	Absolute Value > 0.03	HI-Cadmium-Soil/Dust-Residential Adult+Child-West Trail	Absolute Value > 0.03
Thallium: Tadanac Outdoor Dust	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N
Thallium: Tadanac Residential Soil	0.00	N	0.00	N	-0.01	N	0.00	N	0.00	N	0.00	N	0.00	N
Thallium: West Trail Residential Soil	0.00	N	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N
Tin: East Trail Outdoor Dust	0.00	N	0.02	N	0.02	N	0.02	N	0.02	N	0.02	N	0.02	N
Tin: East Trail Residential Soil	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N
Tin: Rivervale Residential Soil	0.00	N	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N
Tin: Tadanac Outdoor Dust	0.00	N	-0.02	N	-0.01	N	-0.02	N	-0.02	N	-0.02	N	-0.02	N
Tin: Tadanac Residential Soil	0.00	N	-0.02	N	-0.02	N	-0.03	N	-0.02	N	-0.03	N	-0.02	N
Tin: West Trail Outdoor Dust	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N
Tin: West Trail Residential Soil	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N
Zinc: East Trail Outdoor Dust	-0.01	N	0.01	N	0.01	N	0.01	N	0.01	N	0.02	N	0.01	N
Zinc: East Trail Residential Soil	-0.01	N	-0.01	N	0.00	N	-0.01	N	-0.01	N	0.00	N	-0.01	N
Zinc: Rivervale Outdoor Dust	0.01	N	0.02	N	0.02	N	0.02	N	0.02	N	0.01	N	0.02	N
Zinc: Rivervale Residential Soil	-0.01	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N
Zinc: Tadanac Outdoor Dust	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N
Zinc: Tadanac Residential Soil	0.00	N	0.01	N	0.00	N	0.01	N	0.01	N	0.01	N	0.01	N
Zinc: Waneta Residential Soil	0.00	N	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N
Zinc: West Trail Outdoor Dust	0.00	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N
Zinc: West Trail Residential Soil	0.00	N	-0.02	N	-0.02	N	-0.02	N	-0.02	N	-0.02	N	-0.02	N

Table D-1. Largest Contributors to Variability in Noncancer Risk Estimates (in decreasing order of importance)

Forecast (Output Distribution)	**HI-Selenium-Soil/Dust-Residential Adult+Child-East Trail**	**HI-Selenium-Soil/Dust-Residential Adult+Child-Rivervale**	**HI-Selenium-Soil/Dust-Residential Adult+Child-Tadanac**	**HI-Selenium-Soil/Dust-Residential Adult+Child-Waneta**	**HI-Selenium-Soil/Dust-Residential Adult+Child-West Trail**	**HI-Selenium-Soil/Dust-Residential Child-East Trail**	**HI-Selenium-Soil/Dust-Residential Child-Rivervale**
List of Largest Contributors to Variability	Child soil ingestion rate Selenium in soil Exposure Duration Child Body Weight Adult SIR Selenium in outdoor dust	Child soil ingestion rate Selenium in soil Exposure Duration Child Body Weight Adult SIR	Child soil ingestion rate Selenium in soil Exposure Duration Child Body Weight Selenium in outdoor dust Adult SIR	Child soil ingestion rate Exposure Duration Child Body Weight Adult SIR	Child soil ingestion rate Exposure Duration Selenium in soil Child Body Weight Adult SIR Selenium in outdoor dust	Child soil ingestion rate Selenium in soil Child Body Weight Selenium in outdoor dust	Child soil ingestion rate Selenium in soil Child Body Weight

Rank correlation data between assumption and forecast

Assumptions	HI-Selenium-Soil/Dust-Residential Adult+Child-East Trail	Absolute Value > 0.03	HI-Selenium-Soil/Dust-Residential Adult+Child-Rivervale	Absolute Value > 0.03	HI-Selenium-Soil/Dust-Residential Adult+Child-Tadanac	Absolute Value > 0.03	HI-Selenium-Soil/Dust-Residential Adult+Child-Waneta	Absolute Value > 0.03	HI-Selenium-Soil/Dust-Residential Adult+Child-West Trail	Absolute Value > 0.03	HI-Selenium-Soil/Dust-Residential Child-East Trail	Absolute Value > 0.03	HI-Selenium-Soil/Dust-Residential Child-Rivervale	Absolute Value > 0.03
Thallium: Tadanac Outdoor Dust	0.00	N	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N	0.02	N
Thallium: Tadanac Residential Soil	0.00	N	0.01	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N
Thallium: West Trail Residential Soil	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N
Tin: East Trail Outdoor Dust	0.01	N	0.01	N	0.01	N	0.01	N	0.00	N	0.03	N	0.03	N
Tin: East Trail Residential Soil	0.00	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	0.00	N	0.00	N
Tin: Rivervale Residential Soil	0.00	N	0.00	N	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N
Tin: Tadanac Outdoor Dust	-0.01	N	-0.01	N	-0.01	N	-0.02	N	-0.01	N	-0.01	N	-0.01	N
Tin: Tadanac Residential Soil	-0.01	N	-0.02	N	-0.01	N	-0.02	N	-0.02	N	-0.02	N	-0.02	N
Tin: West Trail Outdoor Dust	-0.01	N	-0.02	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N
Tin: West Trail Residential Soil	0.00	N	0.01	N	0.01	N	0.00	N	0.01	N	0.00	N	0.01	N
Zinc: East Trail Outdoor Dust	0.02	N	0.02	N	0.03	N	0.02	N	0.02	N	0.02	N	0.01	N
Zinc: East Trail Residential Soil	0.00	N	0.00	N	0.00	N	-0.01	N	-0.01	N	0.00	N	0.00	N
Zinc: Rivervale Outdoor Dust	0.01	N	0.01	N	0.02	N	0.02	N	0.02	N	0.01	N	0.01	N
Zinc: Rivervale Residential Soil	0.00	N	0.01	N	0.00	N	0.00	N	0.00	N	-0.01	N	0.00	N
Zinc: Tadanac Outdoor Dust	0.00	N	0.00	N	0.01	N	0.00	N	-0.01	N	0.01	N	0.01	N
Zinc: Tadanac Residential Soil	-0.01	N	0.00	N	0.00	N	0.00	N	0.00	N	-0.01	N	0.00	N
Zinc: Waneta Residential Soil	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N
Zinc: West Trail Outdoor Dust	0.01	N	0.01	N	0.00	N	0.01	N	0.00	N	0.00	N	0.00	N
Zinc: West Trail Residential Soil	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.02	N	-0.02	N

Table D-1. Largest Contributors to Variability in Noncancer Risk Estimates (in decreasing order of importance)

Forecast (Output Distribution)	**HI-Selenium-Soil/Dust-Residential Child-Tadanac**	**HI-Selenium-Soil/Dust-Residential Child-Waneta**	**HI-Selenium-Soil/Dust-Residential Child-West Trail**	**HI-Silver-Soil/Dust-Residential Adult+Child-East Trail**	**HI-Silver-Soil/Dust-Residential Adult+Child-Rivervale**	**HI-Silver-Soil/Dust-Residential Adult+Child-Tadanac**	**HI-Silver-Soil/Dust-Residential Adult+Child-Waneta**
List of Largest Contributors to Variability	Child soil ingestion rate Selenium in soil Child Body Weight Selenium in outdoor dust	Child soil ingestion rate Child Body Weight	Child soil ingestion rate Selenium in soil Child Body Weight Selenium in outdoor dust	Child soil ingestion rate Silver in soil Exposure Duration Silver in outdoor dust Child Body Weight Adult SIR Exposure Frequency	Child soil ingestion rate Exposure Duration Silver in soil Child Body Weight Adult SIR Silver in outdoor dust	Child soil ingestion rate Exposure Duration Silver in soil Silver in outdoor dust Child Body Weight Adult SIR Exposure Frequency	Child soil ingestion rate Exposure Duration Child Body Weight Adult SIR

Rank correlation data between assumption and forecast

Assumptions	HI-Selenium-Soil/Dust-Residential Child-Tadanac	Absolute Value > 0.03	HI-Selenium-Soil/Dust-Residential Child-Waneta	Absolute Value > 0.03	HI-Selenium-Soil/Dust-Residential Child-West Trail	Absolute Value > 0.03	HI-Silver-Soil/Dust-Residential Adult+Child-East Trail	Absolute Value > 0.03	HI-Silver-Soil/Dust-Residential Adult+Child-Rivervale	Absolute Value > 0.03	HI-Silver-Soil/Dust-Residential Adult+Child-Tadanac	Absolute Value > 0.03	HI-Silver-Soil/Dust-Residential Adult+Child-Waneta	Absolute Value > 0.03
Thallium: Tadanac Outdoor Dust	0.02	N	0.02	N	0.02	N	0.00	N	0.01	N	0.01	N	0.01	N
Thallium: Tadanac Residential Soil	0.00	N	0.00	N	-0.01	N	0.00	N	0.00	N	0.01	N	0.00	N
Thallium: West Trail Residential Soil	0.01	N	0.01	N	0.00	N	0.01	N	0.01	N	0.01	N	0.01	N
Tin: East Trail Outdoor Dust	0.02	N	0.02	N	0.02	N	0.01	N	0.01	N	0.00	N	0.01	N
Tin: East Trail Residential Soil	-0.01	N	0.00	N	-0.01	N	0.00	N	-0.01	N	0.00	N	-0.01	N
Tin: Rivervale Residential Soil	0.02	N	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N
Tin: Tadanac Outdoor Dust	-0.01	N	-0.02	N	-0.01	N	-0.01	N	-0.02	N	-0.01	N	-0.02	N
Tin: Tadanac Residential Soil	-0.02	N	-0.02	N	-0.03	N	-0.02	N	-0.02	N	-0.02	N	-0.02	N
Tin: West Trail Outdoor Dust	-0.01	N	-0.01	N	-0.01	N	0.00	N	-0.01	N	-0.01	N	-0.01	N
Tin: West Trail Residential Soil	0.01	N	0.00	N	0.01	N	0.01	N	0.00	N	0.01	N	0.00	N
Zinc: East Trail Outdoor Dust	0.02	N	0.02	N	0.02	N	0.03	N	0.03	N	0.02	N	0.02	N
Zinc: East Trail Residential Soil	0.00	N	-0.01	N	-0.01	N	0.00	N	-0.01	N	0.00	N	-0.01	N
Zinc: Rivervale Outdoor Dust	0.02	N	0.02	N	0.02	N	0.01	N	0.02	N	0.02	N	0.02	N
Zinc: Rivervale Residential Soil	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.01	N	0.00	N
Zinc: Tadanac Outdoor Dust	0.01	N	0.01	N	0.00	N	-0.01	N	-0.01	N	-0.01	N	0.00	N
Zinc: Tadanac Residential Soil	0.00	N	0.00	N	0.00	N	-0.01	N	0.00	N	-0.01	N	0.00	N
Zinc: Waneta Residential Soil	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N
Zinc: West Trail Outdoor Dust	-0.01	N	0.00	N	-0.01	N	0.01	N	0.01	N	0.00	N	0.01	N
Zinc: West Trail Residential Soil	-0.02	N	-0.02	N	-0.01	N	-0.01	N	-0.02	N	-0.01	N	-0.01	N

Table D-1. Largest Contributors to Variability in Noncancer Risk Estimates (in decreasing order of importance)

Forecast (Output Distribution)	**HI-Silver-Soil/Dust-Residential Adult+Child-West Trail**	**HI-Silver-Soil/Dust-Residential Child-East Trail**	**HI-Silver-Soil/Dust-Residential Child-Rivervale**	**HI-Silver-Soil/Dust-Residential Child-Tadanac**	**HI-Silver-Soil/Dust-Residential Child-Waneta**	**HI-Silver-Soil/Dust-Residential Child-West Trail**	**HI-Thallium-Soil/Dust-Residential Adult+Child-East Trail**
List of Largest Contributors to Variability	Child soil ingestion rate Silver in soil Exposure Duration Child Body Weight Adult SIR Silver in outdoor dust	Child soil ingestion rate Silver in soil Child Body Weight Silver in outdoor dust Exposure Frequency	Child soil ingestion rate Silver in soil Child Body Weight Silver in outdoor dust	Child soil ingestion rate Silver in soil Silver in outdoor dust Child Body Weight Exposure Frequency	Child soil ingestion rate Child Body Weight	Child soil ingestion rate Silver in soil Child Body Weight Silver in outdoor dust	Child soil ingestion rate Thallium in soil Exposure Duration Child Body Weight Adult SIR

Rank correlation data between assumption and forecast

Assumptions	HI-Silver-Soil/Dust-Residential Adult+Child-West Trail	Absolute Value > 0.03	HI-Silver-Soil/Dust-Residential Child-East Trail	Absolute Value > 0.03	HI-Silver-Soil/Dust-Residential Child-Rivervale	Absolute Value > 0.03	HI-Silver-Soil/Dust-Residential Child-Tadanac	Absolute Value > 0.03	HI-Silver-Soil/Dust-Residential Child-Waneta	Absolute Value > 0.03	HI-Silver-Soil/Dust-Residential Child-West Trail	Absolute Value > 0.03	HI-Thallium-Soil/Dust-Residential Adult+Child-East Trail	Absolute Value > 0.03
Thallium: Tadanac Outdoor Dust	0.01	N	0.02	N	0.02	N	0.02	N	0.02	N	0.02	N	0.01	N
Thallium: Tadanac Residential Soil	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	-0.01	N	0.00	N
Thallium: West Trail Residential Soil	0.02	N	0.01	N	0.01	N	0.01	N	0.01	N	0.02	N	0.01	N
Tin: East Trail Outdoor Dust	0.00	N	0.02	N	0.02	N	0.01	N	0.02	N	0.01	N	0.01	N
Tin: East Trail Residential Soil	-0.01	N	0.01	N	0.00	N	0.00	N	0.00	N	0.00	N	-0.01	N
Tin: Rivervale Residential Soil	0.01	N	0.02	N	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N
Tin: Tadanac Outdoor Dust	-0.01	N	-0.01	N	-0.02	N	-0.01	N	-0.02	N	-0.01	N	-0.01	N
Tin: Tadanac Residential Soil	-0.01	N	-0.03	N	-0.02	N	-0.02	N	-0.02	N	-0.02	N	-0.02	N
Tin: West Trail Outdoor Dust	-0.01	N	0.00	N	-0.01	N	-0.01	N	-0.01	N	-0.02	N	-0.02	N
Tin: West Trail Residential Soil	0.01	N	0.01	N	0.00	N	0.01	N	0.00	N	0.01	N	0.01	N
Zinc: East Trail Outdoor Dust	0.03	N	0.02	N	0.02	N	0.01	N	0.02	N	0.02	N	0.02	N
Zinc: East Trail Residential Soil	0.00	N	0.00	N	-0.01	N	-0.01	N	-0.01	N	0.00	N	-0.01	N
Zinc: Rivervale Outdoor Dust	0.01	N	0.01	N	0.02	N	0.02	N	0.02	N	0.01	N	0.02	N
Zinc: Rivervale Residential Soil	0.01	N	0.00	N	0.00	N	0.01	N	0.00	N	0.00	N	-0.01	N
Zinc: Tadanac Outdoor Dust	-0.01	N	0.00	N	0.00	N	0.00	N	0.01	N	0.00	N	0.00	N
Zinc: Tadanac Residential Soil	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N
Zinc: Waneta Residential Soil	0.01	N	0.00	N	0.01	N	0.01	N	0.00	N	0.01	N	0.00	N
Zinc: West Trail Outdoor Dust	0.01	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.01	N
Zinc: West Trail Residential Soil	-0.01	N	-0.01	N	-0.02	N	-0.01	N	-0.02	N	-0.02	N	-0.01	N

Table D-1. Largest Contributors to Variability in Noncancer Risk Estimates (in decreasing order of importance)

Forecast (Output Distribution)	**HI-Thallium-Soil/Dust-Residential Adult+Child-Rivervale**	**HI-Thallium-Soil/Dust-Residential Adult+Child-Tadanac**	**HI-Thallium-Soil/Dust-Residential Adult+Child-Waneta**	**HI-Thallium-Soil/Dust-Residential Adult+Child-West Trail**	**HI-Thallium-Soil/Dust-Residential Child-East Trail**	**HI-Thallium-Soil/Dust-Residential Child-Rivervale**	**HI-Thallium-Soil/Dust-Residential Child-Tadanac**
List of Largest Contributors to Variability	Child soil ingestion rate Thallium in soil Exposure Duration Child Body Weight Adult SIR	Child soil ingestion rate Thallium in soil Exposure Duration Child Body Weight Adult SIR Thallium in outdoor dust	Child soil ingestion rate Exposure Duration Child Body Weight Adult SIR	Child soil ingestion rate Exposure Duration Thallium in soil Child Body Weight Adult SIR	Child soil ingestion rate Thallium in soil Child Body Weight	Child soil ingestion rate Thallium in soil Child Body Weight	Child soil ingestion rate Thallium in soil Child Body Weight Thallium in outdoor dust

Rank correlation data between assumption and forecast

Assumptions	HI-Thallium-Soil/Dust-Residential Adult+Child-Rivervale	Absolute Value > 0.03	HI-Thallium-Soil/Dust-Residential Adult+Child-Tadanac	Absolute Value > 0.03	HI-Thallium-Soil/Dust-Residential Adult+Child-Waneta	Absolute Value > 0.03	HI-Thallium-Soil/Dust-Residential Adult+Child-West Trail	Absolute Value > 0.03	HI-Thallium-Soil/Dust-Residential Child-East Trail	Absolute Value > 0.03	HI-Thallium-Soil/Dust-Residential Child-Rivervale	Absolute Value > 0.03	HI-Thallium-Soil/Dust-Residential Child-Tadanac	Absolute Value > 0.03
Thallium: Tadanac Outdoor Dust	0.02	N	0.09	Y	0.01	N	0.00	N	0.02	N	0.03	N	0.10	Y
Thallium: Tadanac Residential Soil	0.00	N	0.45	Y	0.00	N	0.00	N	0.00	N	0.00	N	0.43	Y
Thallium: West Trail Residential Soil	0.01	N	0.01	N	0.01	N	0.30	Y	0.01	N	0.01	N	0.01	N
Tin: East Trail Outdoor Dust	0.00	N	0.00	N	0.01	N	0.00	N	0.02	N	0.01	N	0.01	N
Tin: East Trail Residential Soil	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	0.00	N	-0.01	N
Tin: Rivervale Residential Soil	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N
Tin: Tadanac Outdoor Dust	-0.02	N	-0.01	N	-0.02	N	-0.02	N	-0.01	N	-0.01	N	-0.02	N
Tin: Tadanac Residential Soil	-0.01	N	-0.01	N	-0.02	N	-0.01	N	-0.02	N	-0.02	N	-0.02	N
Tin: West Trail Outdoor Dust	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N
Tin: West Trail Residential Soil	0.00	N	0.00	N	0.00	N	0.01	N	0.01	N	0.01	N	0.00	N
Zinc: East Trail Outdoor Dust	0.02	N	0.01	N	0.02	N	0.02	N	0.02	N	0.02	N	0.01	N
Zinc: East Trail Residential Soil	0.00	N	-0.01	N	-0.01	N	-0.01	N	-0.02	N	-0.01	N	-0.01	N
Zinc: Rivervale Outdoor Dust	0.02	N	0.01	N	0.02	N	0.01	N	0.02	N	0.02	N	0.01	N
Zinc: Rivervale Residential Soil	0.00	N	0.00	N	0.00	N	0.00	N	-0.01	N	0.00	N	-0.01	N
Zinc: Tadanac Outdoor Dust	0.00	N	0.00	N	0.00	N	-0.01	N	0.01	N	0.01	N	0.01	N
Zinc: Tadanac Residential Soil	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N
Zinc: Waneta Residential Soil	-0.01	N	0.00	N	0.00	N	0.00	N	0.00	N	-0.01	N	0.00	N
Zinc: West Trail Outdoor Dust	0.00	N	0.01	N	0.01	N	0.01	N	0.00	N	-0.01	N	0.00	N
Zinc: West Trail Residential Soil	-0.02	N	-0.02	N	-0.01	N	-0.01	N	-0.02	N	-0.02	N	-0.02	N

Table D-1. Largest Contributors to Variability in Noncancer Risk Estimates (in decreasing order of importance)

Forecast (Output Distribution)	HI-Thallium-Soil/Dust-Residential Child-Waneta	HI-Thallium-Soil/Dust-Residential Child-West Trail	HI-Tin-Soil/Dust-Residential Adult+Child-East Trail	HI-Tin-Soil/Dust-Residential Adult+Child-Rivervale	HI-Tin-Soil/Dust-Residential Adult+Child-Tadanac	HI-Tin-Soil/Dust-Residential Adult+Child-Waneta	HI-Tin-Soil/Dust-Residential Adult+Child-West Trail
List of Largest Contributors to Variability	Child soil ingestion rate Child Body Weight	Child soil ingestion rate Thallium in soil Child Body Weight	Child soil ingestion rate Tin in soil Exposure Duration Tin in outdoor dust Child Body Weight Adult SIR	Child soil ingestion rate Tin in soil Exposure Duration Child Body Weight Adult SIR	Child soil ingestion rate Tin in soil Exposure Duration Child Body Weight Adult SIR Tin in outdoor dust	Child soil ingestion rate Exposure Duration Child Body Weight Adult SIR	Child soil ingestion rate Tin in soil Exposure Duration Child Body Weight Adult SIR Tin in outdoor dust

Rank correlation data between assumption and forecast

Assumptions	HI-Thallium-Soil/Dust-Residential Child-Waneta	Absolute Value > 0.03	HI-Thallium-Soil/Dust-Residential Child-West Trail	Absolute Value > 0.03	HI-Tin-Soil/Dust-Residential Adult+Child-East Trail	Absolute Value > 0.03	HI-Tin-Soil/Dust-Residential Adult+Child-Rivervale	Absolute Value > 0.03	HI-Tin-Soil/Dust-Residential Adult+Child-Tadanac	Absolute Value > 0.03	HI-Tin-Soil/Dust-Residential Adult+Child-Waneta	Absolute Value > 0.03	HI-Tin-Soil/Dust-Residential Adult+Child-West Trail	Absolute Value > 0.03
Thallium: Tadanac Outdoor Dust	0.02	N	0.01	N	0.01	N	0.00	N	0.00	N	0.01	N	0.01	N
Thallium: Tadanac Residential Soil	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.01	N
Thallium: West Trail Residential Soil	0.01	N	0.29	Y	0.01	N	0.01	N	0.02	N	0.01	N	0.01	N
Tin: East Trail Outdoor Dust	0.02	N	0.02	N	0.14	Y	0.00	N	0.00	N	0.01	N	0.00	N
Tin: East Trail Residential Soil	0.00	N	0.00	N	0.50	Y	-0.01	N	-0.03	N	-0.01	N	-0.02	N
Tin: Rivervale Residential Soil	0.01	N	0.01	N	0.00	N	0.49	Y	0.01	N	0.01	N	0.00	N
Tin: Tadanac Outdoor Dust	-0.02	N	-0.02	N	-0.02	N	-0.01	N	0.10	Y	-0.02	N	-0.01	N
Tin: Tadanac Residential Soil	-0.02	N	-0.02	N	-0.03	Y	-0.01	N	0.40	Y	-0.02	N	-0.02	N
Tin: West Trail Outdoor Dust	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.02	N	-0.01	N	0.04	Y
Tin: West Trail Residential Soil	0.00	N	0.01	N	0.00	N	-0.01	N	0.00	N	0.00	N	0.43	Y
Zinc: East Trail Outdoor Dust	0.02	N	0.01	N	0.02	N	0.02	N	0.01	N	0.02	N	0.02	N
Zinc: East Trail Residential Soil	-0.01	N	-0.01	N	-0.01	N	0.00	N	-0.01	N	-0.01	N	-0.01	N
Zinc: Rivervale Outdoor Dust	0.02	N	0.01	N	0.00	N	0.02	N	0.01	N	0.02	N	0.01	N
Zinc: Rivervale Residential Soil	0.00	N	0.00	N	0.00	N	0.01	N	0.00	N	0.00	N	0.01	N
Zinc: Tadanac Outdoor Dust	0.01	N	0.01	N	-0.01	N	-0.01	N	-0.01	N	0.00	N	-0.01	N
Zinc: Tadanac Residential Soil	0.00	N	0.00	N	0.00	N	0.01	N	0.01	N	0.00	N	-0.01	N
Zinc: Waneta Residential Soil	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N
Zinc: West Trail Outdoor Dust	0.00	N	0.00	N	0.00	N	0.00	N	0.01	N	0.01	N	0.00	N
Zinc: West Trail Residential Soil	-0.02	N	-0.02	N	0.00	N	-0.01	N	-0.02	N	-0.01	N	-0.01	N

Table D-1. Largest Contributors to Variability in Noncancer Risk Estimates (in decreasing order of importance)

Forecast (Output Distribution)	HI-Tin-Soil/Dust-Residential Child-East Trail	HI-Tin-Soil/Dust-Residential Child-Rivervale	HI-Tin-Soil/Dust-Residential Child-Tadanac	HI-Tin-Soil/Dust-Residential Child-Waneta	HI-Tin-Soil/Dust-Residential Child-West Trail	HI-Zinc-Soil/Dust-Residential Adult+Child-East Trail	HI-Zinc-Soil/Dust-Residential Adult+Child-Rivervale
List of Largest Contributors to Variability	Child soil ingestion rate Tin in soil Child Body Weight Tin in outdoor dust	Child soil ingestion rate Tin in soil Child Body Weight	Child soil ingestion rate Tin in soil Child Body Weight Tin in outdoor dust	Child soil ingestion rate Child Body Weight	Child soil ingestion rate Tin in soil Child Body Weight Tin in outdoor dust	Child soil ingestion rate Zinc in soil Exposure Duration Zinc in outdoor dust Child Body Weight Adult SIR	Child soil ingestion rate Zinc in soil Exposure Duration Child Body Weight Adult SIR Zinc in outdoor dust

Rank correlation data between assumption and forecast

Assumptions	HI-Tin-Soil/Dust-Residential Child-East Trail	Absolute Value > 0.03	HI-Tin-Soil/Dust-Residential Child-Rivervale	Absolute Value > 0.03	HI-Tin-Soil/Dust-Residential Child-Tadanac	Absolute Value > 0.03	HI-Tin-Soil/Dust-Residential Child-Waneta	Absolute Value > 0.03	HI-Tin-Soil/Dust-Residential Child-West Trail	Absolute Value > 0.03	HI-Zinc-Soil/Dust-Residential Adult+Child-East Trail	Absolute Value > 0.03	HI-Zinc-Soil/Dust-Residential Adult+Child-Rivervale	Absolute Value > 0.03
Thallium: Tadanac Outdoor Dust	0.02	N	0.01	N	0.01	N	0.02	N	0.02	N	0.01	N	0.00	N
Thallium: Tadanac Residential Soil	-0.01	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N
Thallium: West Trail Residential Soil	0.01	N	0.01	N	0.02	N	0.01	N	0.01	N	0.01	N	0.01	N
Tin: East Trail Outdoor Dust	0.15	Y	0.02	N	0.02	N	0.02	N	0.01	N	0.01	N	0.00	N
Tin: East Trail Residential Soil	0.50	Y	-0.01	N	-0.02	N	0.00	N	-0.01	N	-0.01	N	-0.01	N
Tin: Rivervale Residential Soil	0.01	N	0.48	Y	0.02	N	0.01	N	0.00	N	0.01	N	0.01	N
Tin: Tadanac Outdoor Dust	-0.02	N	-0.01	N	0.10	Y	-0.02	N	-0.01	N	-0.02	N	-0.02	N
Tin: Tadanac Residential Soil	-0.04	Y	-0.02	N	0.38	Y	-0.02	N	-0.03	N	-0.02	N	-0.02	N
Tin: West Trail Outdoor Dust	-0.01	N	-0.01	N	-0.02	N	-0.01	N	0.04	Y	0.00	N	-0.01	N
Tin: West Trail Residential Soil	0.00	N	0.00	N	0.00	N	0.00	N	0.42	Y	0.00	N	0.01	N
Zinc: East Trail Outdoor Dust	0.01	N	0.01	N	0.01	N	0.02	N	0.01	N	0.17	Y	0.02	N
Zinc: East Trail Residential Soil	-0.01	N	0.00	N	-0.01	N	-0.01	N	-0.01	N	0.39	Y	-0.01	N
Zinc: Rivervale Outdoor Dust	0.00	N	0.02	N	0.01	N	0.02	N	0.01	N	0.01	N	0.09	Y
Zinc: Rivervale Residential Soil	-0.01	N	0.01	N	0.00	N	0.00	N	0.00	N	0.00	N	0.35	Y
Zinc: Tadanac Outdoor Dust	0.00	N	0.00	N	0.00	N	0.01	N	0.00	N	0.00	N	0.00	N
Zinc: Tadanac Residential Soil	0.00	N	0.01	N	0.01	N	0.00	N	0.00	N	0.00	N	0.00	N
Zinc: Waneta Residential Soil	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	-0.01	N	0.00	N
Zinc: West Trail Outdoor Dust	-0.01	N	-0.01	N	0.00	N	0.00	N	-0.01	N	0.01	N	0.01	N
Zinc: West Trail Residential Soil	-0.01	N	-0.02	N	-0.02	N	-0.02	N	-0.01	N	-0.01	N	-0.01	N

Table D-1. Largest Contributors to Variability in Noncancer Risk Estimates (in decreasing order of importance)

Forecast (Output Distribution)	**HI-Zinc-Soil/Dust-Residential Adult+Child-Tadanac**	**HI-Zinc-Soil/Dust-Residential Adult+Child-Waneta**	**HI-Zinc-Soil/Dust-Residential Adult+Child-West Trail**	**HI-Zinc-Soil/Dust-Residential Child-East Trail**	**HI-Zinc-Soil/Dust-Residential Child-Rivervale**	**HI-Zinc-Soil/Dust-Residential Child-Tadanac**	**HI-Zinc-Soil/Dust-Residential Child-Waneta**
List of Largest Contributors to Variability	Child soil ingestion rate Exposure Duration Zinc in soil Child Body Weight Zinc in outdoor dust Adult SIR Exposure Frequency	Child soil ingestion rate Zinc in soil Exposure Duration Child Body Weight Adult SIR	Child soil ingestion rate Zinc in soil Exposure Duration Child Body Weight Adult SIR Zinc in outdoor dust	Child soil ingestion rate Zinc in soil Child Body Weight Zinc in outdoor dust	Child soil ingestion rate Zinc in soil Child Body Weight Zinc in outdoor dust	Child soil ingestion rate Zinc in soil Child Body Weight Zinc in outdoor dust Exposure Frequency	Child soil ingestion rate Zinc in soil Child Body Weight

Rank correlation data between assumption and forecast

Assumptions	HI-Zinc-Soil/Dust-Residential Adult+Child-Tadanac	Absolute Value > 0.03	HI-Zinc-Soil/Dust-Residential Adult+Child-Waneta	Absolute Value > 0.03	HI-Zinc-Soil/Dust-Residential Adult+Child-West Trail	Absolute Value > 0.03	HI-Zinc-Soil/Dust-Residential Child-East Trail	Absolute Value > 0.03	HI-Zinc-Soil/Dust-Residential Child-Rivervale	Absolute Value > 0.03	HI-Zinc-Soil/Dust-Residential Child-Tadanac	Absolute Value > 0.03	HI-Zinc-Soil/Dust-Residential Child-Waneta	Absolute Value > 0.03
Thallium: Tadanac Outdoor Dust	0.00	N	0.01	N	0.00	N	0.02	N	0.02	N	0.02	N	0.02	N
Thallium: Tadanac Residential Soil	0.01	N	0.00	N	0.00	N	0.00	N	-0.01	N	0.00	N	0.00	N
Thallium: West Trail Residential Soil	0.01	N	0.01	N	0.01	N	0.01	N	0.00	N	0.01	N	0.01	N
Tin: East Trail Outdoor Dust	0.00	N	0.01	N	0.01	N	0.02	N	0.01	N	0.02	N	0.02	N
Tin: East Trail Residential Soil	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	0.00	N	-0.01	N
Tin: Rivervale Residential Soil	0.01	N	0.01	N	0.01	N	0.02	N	0.02	N	0.01	N	0.01	N
Tin: Tadanac Outdoor Dust	-0.01	N	-0.01	N	-0.01	N	-0.03	N	-0.02	N	-0.01	N	-0.01	N
Tin: Tadanac Residential Soil	-0.01	N	-0.02	N	-0.02	N	-0.03	N	-0.02	N	-0.02	N	-0.02	N
Tin: West Trail Outdoor Dust	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N
Tin: West Trail Residential Soil	0.00	N	0.00	N	0.01	N	0.00	N	0.01	N	0.00	N	0.00	N
Zinc: East Trail Outdoor Dust	0.02	N	0.02	N	0.02	N	0.16	Y	0.01	N	0.02	N	0.02	N
Zinc: East Trail Residential Soil	-0.01	N	-0.01	N	0.00	N	0.38	Y	-0.01	N	-0.01	N	-0.01	N
Zinc: Rivervale Outdoor Dust	0.02	N	0.01	N	0.01	N	0.01	N	0.09	Y	0.02	N	0.02	N
Zinc: Rivervale Residential Soil	0.00	N	0.00	N	0.00	N	0.00	N	0.34	Y	0.00	N	0.00	N
Zinc: Tadanac Outdoor Dust	0.13	Y	0.00	N	0.00	N	0.01	N	0.01	N	0.14	Y	0.01	N
Zinc: Tadanac Residential Soil	0.25	Y	-0.01	N	0.00	N	0.00	N	0.00	N	0.24	Y	0.00	N
Zinc: Waneta Residential Soil	0.00	N	0.41	Y	0.00	N	-0.01	N	0.00	N	0.00	N	0.40	Y
Zinc: West Trail Outdoor Dust	0.01	N	0.00	N	0.10	Y	0.00	N	0.00	N	0.00	N	-0.01	N
Zinc: West Trail Residential Soil	-0.01	N	-0.01	N	0.37	Y	-0.01	N	-0.02	N	-0.02	N	-0.02	N

Table D-1. Largest Contributors to Variability in Noncancer Risk Estimates (in decreasing order of importance)

Forecast (Output Distribution)	HI-Zinc-Soil/Dust-Residential Child-West Trail	Site-wide HI: Antimony Adult+Child Residential Soil-Dust	Site-wide HI: Antimony Child Residential Soil-Dust	Site-wide HI: Arsenic Adult+Child Residential Soil-Dust	Site-wide HI: Arsenic Child Residential Soil-Dust	Site-wide HI: Cadmium Adult+Child Residential Soil-Dust	Site-wide HI: Selenium Adult+Child Residential Soil-Dust
List of Largest Contributors to Variability	Child soil ingestion rate Zinc in soil Child Body Weight Zinc in outdoor dust	Child soil ingestion rate Exposure Duration Antimony in indoor dust Child Body Weight Adult SIR Antimony in soil Antimony in outdoor dust Fractional intake: soil/dust	Child soil ingestion rate Antimony in indoor dust Child Body Weight Antimony in soil Antimony in outdoor dust	Child soil ingestion rate Exposure Duration Arsenic in indoor dust Child Body Weight Adult SIR Arsenic in soil Arsenic in outdoor dust	Child soil ingestion rate Arsenic in indoor dust Child Body Weight Arsenic in soil Arsenic in outdoor dust	Child soil ingestion rate Cadmium in indoor dust Exposure Duration Child Body Weight Adult SIR Cadmium in outdoor dust Cadmium in soil Fractional intake: soil/dust	Child soil ingestion rate Selenium in soil Exposure Duration Child Body Weight Adult SIR Selenium in outdoor dust

Rank correlation data between assumption and forecast

Assumptions	HI-Zinc-Soil/Dust-Residential Child-West Trail	Absolute Value > 0.03	Site-wide HI: Antimony Adult+Child Residential Soil Dust	Absolute Value > 0.03	Site-wide HI: Antimony Child Residential Soil Dust	Absolute Value > 0.03	Site-wide HI: Arsenic Adult+Child Residential Soil Dust	Absolute Value > 0.03	Site-wide HI: Arsenic Child Residential Soil Dust	Absolute Value > 0.03	Site-wide HI: Cadmium Adult+Child Residential Soil Dust	Absolute Value > 0.03	Site-wide HI: Selenium Adult+Child Residential Soil Dust	Absolute Value > 0.03
Thallium: Tadanac Outdoor Dust	0.01	N	0.01	N	0.02	N	0.01	N	0.02	N	0.01	N	0.01	N
Thallium: Tadanac Residential Soil	-0.01	N	0.01	N	0.00	N	0.00	N	0.00	N	-0.01	N	0.00	N
Thallium: West Trail Residential Soil	0.01	N	0.01	N	0.00	N	0.01	N	0.01	N	0.01	N	0.00	N
Tin: East Trail Outdoor Dust	0.02	N	0.01	N	0.02	N	0.00	N	0.01	N	0.02	N	0.01	N
Tin: East Trail Residential Soil	0.00	N	-0.01	N	-0.01	N	-0.01	N	0.00	N	0.00	N	-0.02	N
Tin: Rivervale Residential Soil	0.01	N	0.00	N	0.01	N	0.00	N	0.01	N	0.00	N	0.01	N
Tin: Tadanac Outdoor Dust	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.02	N	-0.02	N
Tin: Tadanac Residential Soil	-0.03	N	-0.01	N	-0.02	N	-0.01	N	-0.02	N	-0.03	N	-0.01	N
Tin: West Trail Outdoor Dust	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	0.00	N
Tin: West Trail Residential Soil	0.01	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N
Zinc: East Trail Outdoor Dust	0.02	N	0.02	N	0.02	N	0.03	N	0.02	N	0.01	N	0.03	N
Zinc: East Trail Residential Soil	0.00	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	0.00	N
Zinc: Rivervale Outdoor Dust	0.01	N	0.01	N	0.01	N	0.02	N	0.02	N	0.01	N	0.02	N
Zinc: Rivervale Residential Soil	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N
Zinc: Tadanac Outdoor Dust	0.01	N	0.00	N	0.01	N	0.00	N	0.01	N	0.01	N	0.00	N
Zinc: Tadanac Residential Soil	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	-0.01	N
Zinc: Waneta Residential Soil	0.00	N	0.01	N	0.01	N	0.00	N	0.00	N	0.00	N	0.00	N
Zinc: West Trail Outdoor Dust	0.09	Y	0.00	N	0.00	N	0.00	N	-0.01	N	-0.01	N	0.01	N
Zinc: West Trail Residential Soil	0.36	Y	-0.02	N	-0.02	N	-0.01	N	-0.01	N	-0.01	N	-0.03	Y

Table D-1. Largest Contributors to Variability in Noncancer Risk Estimates (in decreasing order of importance)

Forecast (Output Distribution)	Site-wide HI: Selenium Child Residential Soil-Dust	Site-wide HI: Silver Adult+Child Residential Soil-Dust	Site-wide HI: Silver Child Residential Soil-Dust	Site-wide HI: Thallium Adult+Child Residential Soil-Dust	Site-wide HI: Thallium Child Residential Soil-Dust	Site-wide HI: Tin Adult+Child Residential Soil-Dust	Site-wide HI: Tin Child Residential Soil-Dust
List of Largest Contributors to Variability	Child soil ingestion rate Selenium in soil Child Body Weight Selenium in outdoor dust	Child soil ingestion rate Silver in soil Exposure Duration Silver in outdoor dust Child Body Weight Adult SIR	Child soil ingestion rate Exposure Duration Silver in outdoor dust Child Body Weight	Child soil ingestion rate Thallium in soil Exposure Duration Child Body Weight Adult SIR Thallium in outdoor dust	Child soil ingestion rate Thallium in soil Child Body Weight Thallium in outdoor dust	Child soil ingestion rate Tin in soil Exposure Duration Child Body Weight Tin in outdoor dust Adult SIR	Child soil ingestion rate Tin in soil Child Body Weight Tin in outdoor dust

Rank correlation data between assumption and forecast

Assumptions	Site-wide HI: Selenium Child Residential Soil Dust	Absolute Value > 0.03	Site-wide HI: Silver Adult+Child Residential Soil Dust	Absolute Value > 0.03	Site-wide HI: Silver Child Residential Soil Dust	Absolute Value > 0.03	Site-wide HI: Thallium Adult+Child Residential Soil Dust	Absolute Value > 0.03	Site-wide HI: Thallium Child Residential Soil Dust	Absolute Value > 0.03	Site-wide HI: Tin Adult+Child Residential Soil Dust	Absolute Value > 0.03	Site-wide HI: Tin Child Residential Soil Dust	Absolute Value > 0.03
Thallium: Tadanac Outdoor Dust	0.01	N	0.00	N	0.01	N	0.01	N	0.02	N	0.00	N	0.01	N
Thallium: Tadanac Residential Soil	-0.01	N	0.00	N	-0.01	N	0.01	N	0.00	N	0.00	N	0.00	N
Thallium: West Trail Residential Soil	0.00	N	0.01	N	0.01	N	0.01	N	0.01	N	0.00	N	0.00	N
Tin: East Trail Outdoor Dust	0.02	N	0.00	N	0.01	N	0.00	N	0.02	N	0.02	N	0.03	Y
Tin: East Trail Residential Soil	-0.01	N	-0.01	N	0.00	N	0.00	N	0.00	N	-0.01	N	0.00	N
Tin: Rivervale Residential Soil	0.01	N	0.00	N	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N
Tin: Tadanac Outdoor Dust	-0.02	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N
Tin: Tadanac Residential Soil	-0.01	N	-0.02	N	-0.03	N	-0.01	N	-0.02	N	-0.01	N	-0.01	N
Tin: West Trail Outdoor Dust	0.00	N	-0.02	N	-0.02	N	-0.01	N	-0.01	N	-0.02	N	-0.02	N
Tin: West Trail Residential Soil	0.00	N	0.00	N	0.00	N	0.02	N	0.02	N	0.00	N	0.00	N
Zinc: East Trail Outdoor Dust	0.03	N	0.03	N	0.02	N	0.03	N	0.02	N	0.03	N	0.02	N
Zinc: East Trail Residential Soil	-0.01	N	-0.02	N	-0.02	N	0.00	N	-0.01	N	0.00	N	0.00	N
Zinc: Rivervale Outdoor Dust	0.02	N	0.00	N	0.01	N	0.01	N	0.02	N	0.02	N	0.02	N
Zinc: Rivervale Residential Soil	0.00	N	0.01	N	0.01	N	0.02	N	0.01	N	0.01	N	0.00	N
Zinc: Tadanac Outdoor Dust	0.01	N	0.00	N	0.01	N	-0.02	N	-0.01	N	0.00	N	0.00	N
Zinc: Tadanac Residential Soil	-0.01	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N
Zinc: Waneta Residential Soil	0.01	N	0.01	N	0.01	N	0.01	N	0.00	N	0.00	N	-0.01	N
Zinc: West Trail Outdoor Dust	0.01	N	0.00	N	0.00	N	0.00	N	0.00	N	0.01	N	0.00	N
Zinc: West Trail Residential Soil	-0.03	Y	0.00	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N

Table D-1. Largest Contributors to Variability in Noncancer Risk Estimates (in decreasing order of importance)

Forecast (Output Distribution)	**Site-wide HI: Zinc Adult+Child Residential Soil-Dust**	**Site-wide HI: Zinc Child Residential Soil-Dust**
List of Largest Contributors to Variability	Child soil ingestion rate Zinc in soil Exposure Duration Zinc in outdoor dust Child Body Weight Adult SIR	Child soil ingestion rate Zinc in soil Zinc in outdoor dust Child Body Weight

Rank correlation data between assumption and forecast

Assumptions	Site-wide HI: Zinc Adult+Child Residential Soil Dust	Absolute Value > 0.03	Site-wide HI: Zinc Child Residential Soil Dust	Absolute Value > 0.03
Thallium: Tadanac Outdoor Dust	0.02	N	0.02	N
Thallium: Tadanac Residential Soil	0.01	N	0.01	N
Thallium: West Trail Residential Soil	0.01	N	0.01	N
Tin: East Trail Outdoor Dust	0.00	N	0.01	N
Tin: East Trail Residential Soil	-0.01	N	0.00	N
Tin: Rivervale Residential Soil	0.00	N	0.01	N
Tin: Tadanac Outdoor Dust	-0.01	N	-0.01	N
Tin: Tadanac Residential Soil	-0.01	N	-0.02	N
Tin: West Trail Outdoor Dust	-0.01	N	-0.01	N
Tin: West Trail Residential Soil	0.00	N	0.00	N
Zinc: East Trail Outdoor Dust	0.02	N	0.02	N
Zinc: East Trail Residential Soil	0.00	N	-0.01	N
Zinc: Rivervale Outdoor Dust	0.01	N	0.01	N
Zinc: Rivervale Residential Soil	0.01	N	0.01	N
Zinc: Tadanac Outdoor Dust	0.00	N	0.01	N
Zinc: Tadanac Residential Soil	-0.01	N	0.00	N
Zinc: Waneta Residential Soil	-0.01	N	0.00	N
Zinc: West Trail Outdoor Dust	0.00	N	-0.01	N
Zinc: West Trail Residential Soil	-0.01	N	-0.01	N

Table D-2. Largest Contributors to Variability in Cancer Risk Estimates (in decreasing order of importance)

Forecast (Output Distribution)	**CR-Arsenic-Air-Commercial Adult+Child-Birchbank**	**CR-Arsenic-Air-Commercial Adult+Child-Butler Park**	**CR-Arsenic-Air-Commercial Adult+Child-Columbia Gardens**	**CR-Arsenic-Air-Commercial Adult+Child-Genelle**	**CR-Arsenic-Air-Commercial Adult+Child-Warfield**	**CR-Arsenic-Air-Commercial Adult+Child-West Trail**	**CR-Arsenic-Air-Residential Adult+Child-Birchbank**	**CR-Arsenic-Air-Residential Adult+Child-Butler Park**
List of Largest Contributors to Variability	Arsenic in air Exposure Duration Child Inhalation Rate Child Body Weight Adult Inhalation Rate Exposure Frequency	Arsenic in air Exposure Duration Child Inhalation Rate Child Body Weight Adult Inhalation Rate Exposure Frequency Adult Body Weight	Arsenic in air Exposure Duration Child Inhalation Rate Child Body Weight Exposure Frequency Adult Inhalation Rate Adult Body Weight	Arsenic in air Exposure Duration Child Inhalation Rate Child Body Weight Exposure Frequency Adult Body Weight	Arsenic in air Exposure Duration Child Inhalation Rate Child Body Weight Exposure Frequency Adult Body Weight Adult Inhalation Rate	Arsenic in air Exposure Duration Child Inhalation Rate Child Body Weight Exposure Frequency Adult Body Weight Adult Inhalation Rate	Arsenic in air Exposure Duration Child Inhalation Rate Child Body Weight Adult Inhalation Rate	Arsenic in air Exposure Duration Child Body Weight Child Inhalation Rate Adult Inhalation Rate Adult Body Weight

Rank correlation data between assumption and forecast

Assumptions	CR-Arsenic-Air-Commercial Adult+Child-Birchbank	Absolute Value > 0.03	CR-Arsenic-Air-Commercial Adult+Child-Butler Park	Absolute Value > 0.03	CR-Arsenic-Air-Commercial Adult+Child-Columbia Gardens	Absolute Value > 0.03	CR-Arsenic-Air-Commercial Adult+Child-Genelle	Absolute Value > 0.03	CR-Arsenic-Air-Commercial Adult+Child-Warfield	Absolute Value > 0.03	CR-Arsenic-Air-Commercial Adult+Child-West Trail	Absolute Value > 0.03	CR-Arsenic-Air-Residential Adult+Child-Birchbank	Absolute Value > 0.03	CR-Arsenic-Air-Residential Adult+Child-Butler Park	Absolute Value > 0.03
Arsenic (Inorganic): Near Root Produce	0.00	N	0.01	N	0.01	N	0.00	N	0.00	N	0.00	N	0.00	N	0.01	N
Site-wide: nonroot produce: inorganic arsenic	0.01	N	-0.01	N	0.00	N	0.00	N	0.02	N	0.01	N	0.01	N	-0.01	N
Arsenic: Birchbank Air	0.88	Y	0.01	N	0.00	N	0.01	N	0.01	N	0.00	N	0.90	Y	0.01	N
Arsenic (Inorganic): Far Nonroot Produce	-0.01	N	0.00	N	0.01	N	-0.01	N	0.00	N	-0.01	N	-0.01	N	0.00	N
Arsenic (Inorganic): Near Nonroot Produce	0.00	N	0.02	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.01	N
Exposure Duration (years): Adult - Agricultural	0.01	N	0.02	N	0.02	N	0.00	N	0.01	N	0.00	N	0.01	N	0.01	N
Exposure Duration (years): Adult+Child	0.39	Y	0.51	Y	0.50	Y	0.48	Y	0.49	Y	0.54	Y	0.36	Y	0.48	Y
Exposure Frequency (days/year): Commercial	0.03	Y	0.05	Y	0.06	Y	0.06	Y	0.06	Y	0.07	Y	-0.01	N	-0.01	N
Exposure Frequency (days/year): Residential Soil & Outdoor Dust	0.02	N	0.01	N	0.01	N	0.00	N	0.01	N	0.01	N	0.02	N	0.00	N
Site-wide: root produce: inorganic arsenic	0.00	N	-0.01	N	0.01	N	-0.01	N	-0.01	N	-0.01	N	0.00	N	-0.01	N
Non-Root Produce Ingestion (g/day): Child	-0.01	N	-0.01	N	0.00	N	0.00	N	0.00	N	0.00	N	-0.02	N	-0.02	N
Root Produce Ingestion (g/day): Child	-0.01	N	0.00	N	-0.01	N	-0.01	N	0.00	N	-0.01	N	-0.01	N	0.01	N
Body Weight (kg): Adult	-0.03	N	-0.05	Y	-0.05	Y	-0.05	Y	-0.05	Y	-0.05	Y	-0.03	N	-0.05	Y
Non-Root Produce Ingestion (g/day): Adult	-0.01	N	0.00	N	0.00	N	0.01	N	0.00	N	0.00	N	-0.01	N	0.00	N
Root Produce Ingestion (g/day): Adult	0.01	N	0.00	N	0.00	N	0.00	N	0.01	N	-0.01	N	0.01	N	0.00	N

Table D-2. Largest Contributors to Variability in Cancer Risk Estimates (in decreasing order of importance)

Forecast (Output Distribution)	CR-Arsenic-Air-Residential Adult+Child-Columbia Gardens	CR-Arsenic-Air-Residential Adult+Child-Genelle	CR-Arsenic-Air-Residential Adult+Child-Warfield	CR-Arsenic-Air-Residential Adult+Child-West Trail	CR-Cadmium-Air-Commercial Adult+Child-Birchbank	CR-Cadmium-Air-Commercial Adult+Child-Butler Park	CR-Cadmium-Air-Commercial Adult+Child-Columbia Gardens	CR-Cadmium-Air-Commercial Adult+Child-Genelle
List of Largest Contributors to Variability	Arsenic in air Exposure Duration Child Inhalation Rate Child Body Weight Adult Inhalation Rate Adult Body Weight	Arsenic in air Exposure Duration Child Inhalation Rate Child Body Weight Adult Inhalation Rate Adult Body Weight	Arsenic in air Exposure Duration Child Inhalation Rate Child Body Weight Adult Inhalation Rate Adult Body Weight	Arsenic in air Exposure Duration Child Inhalation Rate Child Body Weight Adult Body Weight	Cadmium in air Exposure Duration Child Inhalation Rate Child Body Weight Adult Inhalation Rate Adult Body Weight Exposure Frequency	Cadmium in air Exposure Duration Child Inhalation Rate Child Body Weight Exposure Frequency Adult Inhalation Rate Adult Body Weight	Cadmium in air Exposure Duration Child Inhalation Rate Child Body Weight Exposure Frequency Adult Inhalation Rate Adult Body Weight	Cadmium in air Exposure Duration Child Inhalation Rate Child Body Weight Exposure Frequency Adult Inhalation Rate Adult Body Weight

Rank correlation data between assumption and forecast

Assumptions	CR-Arsenic-Air-Residential Adult+Child-Columbia Gardens	Absolute Value > 0.03	CR-Arsenic-Air-Residential Adult+Child-Genelle	Absolute Value > 0.03	CR-Arsenic-Air-Residential Adult+Child-Warfield	Absolute Value > 0.03	CR-Arsenic-Air-Residential Adult+Child-West Trail	Absolute Value > 0.03	CR-Cadmium-Air-Commercial Adult+Child-Birchbank	Absolute Value > 0.03	CR-Cadmium-Air-Commercial Adult+Child-Butler Park	Absolute Value > 0.03	CR-Cadmium-Air-Commercial Adult+Child-Columbia Gardens	Absolute Value > 0.03	CR-Cadmium-Air-Commercial Adult+Child-Genelle	Absolute Value > 0.03
Arsenic (Inorganic): Near Root Produce	0.01	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N
Site-wide: nonroot produce: inorganic arsenic	0.00	N	0.01	N	0.02	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N
Arsenic: Birchbank Air	0.00	N	0.01	N	0.02	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N
Arsenic (Inorganic): Far Nonroot Produce	0.01	N	-0.01	N	0.01	N	-0.01	N	0.00	N	-0.03	N	-0.02	N	0.00	N
Arsenic (Inorganic): Near Nonroot Produce	0.00	N	-0.01	N	0.00	N	0.00	N	-0.01	N	0.01	N	0.00	N	-0.01	N
Exposure Duration (years): Adult - Agricultural	0.02	N	0.00	N	0.01	N	0.00	N	0.00	N	0.01	N	0.01	N	0.01	N
Exposure Duration (years): Adult+Child	0.47	Y	0.45	Y	0.46	Y	0.51	Y	0.46	Y	0.52	Y	0.51	Y	0.58	Y
Exposure Frequency (days/year): Commercial	0.00	N	0.01	N	0.01	N	0.01	N	0.04	Y	0.06	Y	0.05	Y	0.08	Y
Exposure Frequency (days/year): Residential Soil & Outdoor Dust	0.00	N	0.00	N	0.00	N	0.00	N	0.01	N	0.01	N	0.00	N	0.00	N
Site-wide: root produce: inorganic arsenic	0.01	N	-0.01	N	-0.01	N	-0.01	N	0.00	N	0.00	N	0.00	N	0.00	N
Non-Root Produce Ingestion (g/day): Child	0.00	N	0.00	N	-0.01	N	-0.01	N	0.00	N	0.01	N	-0.01	N	0.00	N
Root Produce Ingestion (g/day): Child	-0.01	N	-0.01	N	0.00	N	0.00	N	-0.01	N	0.00	N	-0.02	N	-0.02	N
Body Weight (kg): Adult	-0.04	Y	-0.04	Y	-0.05	Y	-0.05	Y	-0.04	Y	-0.05	Y	-0.04	Y	-0.06	Y
Non-Root Produce Ingestion (g/day): Adult	0.00	N	0.01	N	0.00	N	0.00	N	0.01	N	0.01	N	0.01	N	0.02	N
Root Produce Ingestion (g/day): Adult	-0.01	N	0.00	N	0.01	N	-0.01	N	-0.01	N	0.01	N	0.01	N	0.00	N

Table D-2. Largest Contributors to Variability in Cancer Risk Estimates (in decreasing order of importance)

Forecast (Output Distribution)	**CR-Cadmium-Air-Commercial Adult+Child-Warfield**	**CR-Cadmium-Air-Commercial Adult+Child-West Trail**	**CR-Cadmium-Air-Residential Adult+Child-Birchbank**	**CR-Cadmium-Air-Residential Adult+Child-Butler Park**	**CR-Cadmium-Air-Residential Adult+Child-Columbia Gardens**	**CR-Cadmium-Air-Residential Adult+Child-Genelle**	**CR-Cadmium-Air-Residential Adult+Child-Warfield**	**CR-Cadmium-Air-Residential Adult+Child-West Trail**
List of Largest Contributors to Variability	Cadmium in air Exposure Duration Child Inhalation Rate Child Body Weight Exposure Frequency Adult Inhalation Rate	Cadmium in air Exposure Duration Child Inhalation Rate Child Body Weight Exposure Frequency Adult Inhalation Rate Adult Body Weight	Cadmium in air Exposure Duration Child Body Weight Child Inhalation Rate Adult Inhalation Rate Adult Body Weight	Cadmium in air Exposure Duration Child Body Weight Child Inhalation Rate Adult Inhalation Rate Adult Body Weight	Cadmium in air Exposure Duration Child Body Weight Child Inhalation Rate Adult Inhalation Rate Adult Body Weight	Cadmium in air Exposure Duration Child Body Weight Child Inhalation Rate Adult Inhalation Rate Adult Body Weight	Cadmium in air Exposure Duration Child Body Weight Child Inhalation Rate Adult Inhalation Rate	Cadmium in air Exposure Duration Child Body Weight Child Inhalation Rate Adult Inhalation Rate

Rank correlation data between assumption and forecast

Assumptions	CR-Cadmium-Air-Commercial Adult+Child-Warfield	Absolute Value > 0.03	CR-Cadmium-Air-Commercial Adult+Child-West Trail	Absolute Value > 0.03	CR-Cadmium-Air-Residential Adult+Child-Birchbank	Absolute Value > 0.03	CR-Cadmium-Air-Residential Adult+Child-Butler Park	Absolute Value > 0.03	CR-Cadmium-Air-Residential Adult+Child-Columbia Gardens	Absolute Value > 0.03	CR-Cadmium-Air-Residential Adult+Child-Genelle	Absolute Value > 0.03	CR-Cadmium-Air-Residential Adult+Child-Warfield	Absolute Value > 0.03	CR-Cadmium-Air-Residential Adult+Child-West Trail	Absolute Value > 0.03
Arsenic (Inorganic): Near Root Produce	0.00	N	0.01	N	0.00	N	0.00	N	0.01	N	0.00	N	0.00	N	0.00	N
Site-wide: nonroot produce: inorganic arsenic	0.01	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.01	N	0.00	N
Arsenic: Birchbank Air	0.01	N	0.00	N	0.01	N	0.00	N	0.00	N	0.00	N	0.01	N	0.00	N
Arsenic (Inorganic): Far Nonroot Produce	-0.02	N	-0.01	N	0.00	N	-0.03	N	-0.02	N	0.00	N	-0.02	N	-0.01	N
Arsenic (Inorganic): Near Nonroot Produce	0.00	N	0.00	N	-0.01	N	0.01	N	0.00	N	-0.01	N	0.00	N	-0.01	N
Exposure Duration (years): Adult - Agricultural	0.01	N	0.00	N	0.00	N	0.00	N	0.01	N	0.01	N	0.01	N	0.00	N
Exposure Duration (years): Adult+Child	0.50	Y	0.51	Y	0.43	Y	0.49	Y	0.48	Y	0.56	Y	0.47	Y	0.48	Y
Exposure Frequency (days/year): Commercial	0.06	Y	0.06	Y	-0.01	N	0.00	N	0.00	N	0.01	N	0.01	N	0.00	N
Exposure Frequency (days/year): Residential Soil & Outdoor Dust	0.01	N	0.00	N	0.00	N	0.00	N	0.00	N	-0.01	N	0.01	N	0.00	N
Site-wide: root produce: inorganic arsenic	0.00	N	-0.01	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	-0.01	N
Non-Root Produce Ingestion (g/day): Child	0.00	N	-0.01	N	-0.01	N	0.00	N	-0.01	N	0.00	N	0.00	N	-0.01	N
Root Produce Ingestion (g/day): Child	0.01	N	-0.01	N	0.00	N	0.00	N	-0.01	N	-0.01	N	0.01	N	-0.01	N
Body Weight (kg): Adult	-0.02	N	-0.03	Y	-0.03	Y	-0.05	Y	-0.04	Y	-0.05	Y	-0.02	N	-0.03	N
Non-Root Produce Ingestion (g/day): Adult	0.00	N	0.00	N	0.01	N	0.01	N	0.01	N	0.02	N	0.00	N	0.00	N
Root Produce Ingestion (g/day): Adult	0.00	N	0.00	N	-0.01	N	0.00	N	0.01	N	-0.01	N	0.00	N	0.00	N

Table D-2. Largest Contributors to Variability in Cancer Risk Estimates (in decreasing order of importance)

Forecast (Output Distribution)	**CR-Arsenic-Soil/Dust-Residential Adult+Child-East Trail**	**CR-Arsenic-Soil/Dust-Residential Adult+Child-Rivervale**	**CR-Arsenic-Soil/Dust-Residential Adult+Child-Tadanac**	**CR-Arsenic-Soil/Dust-Residential Adult+Child-Waneta**	**CR-Arsenic-Soil/Dust-Residential Adult+Child-West Trail**	**Site-wide CR: Arsenic Residential Soil-Dust**	**CR-Arsenic-Produce-Residential Adult+Child-Far**	**CR-Arsenic-Produce-Residential Adult+Child-Near**
List of Largest Contributors to Variability	Child soil ingestion rate Exposure Duration Child Body Weight Adult SIR Arsenic in soil Arsenic in outdoor dust	Child soil ingestion rate Exposure Duration Child Body Weight Adult SIR Arsenic in soil	Child soil ingestion rate Exposure Duration Child Body Weight Adult SIR Arsenic in outdoor dust Arsenic in soil	Child soil ingestion rate Exposure Duration Child Body Weight Adult SIR Arsenic in soil	Child soil ingestion rate Exposure Duration Child Body Weight Adult SIR Arsenic in soil Fractional intake: soil/dust Arsenic in outdoor dust	Child soil ingestion rate Exposure Duration Arsenic in indoor dust Child Body Weight Adult SIR Arsenic in soil Arsenic in outdoor dust	Exposure Duration Arsenic in nonroot produce Child Root ingestion rate Child nonroot ingestion rate Adult root ingestion rate Adult nonroot ingestion rate Adult Body Weight Child Body Weight	Arsenic in root produce Exposure Duration Child nonroot ingestion rate Child Root ingestion rate Adult nonroot ingestion rate Adult root ingestion rate Child Body Weight

Rank correlation data between assumption and forecast

Assumptions	CR-Arsenic-Soil/Dust-Residential Adult+Child-East Trail	Absolute Value > 0.03	CR-Arsenic-Soil/Dust-Residential Adult+Child-Rivervale	Absolute Value > 0.03	CR-Arsenic-Soil/Dust-Residential Adult+Child-Tadanac	Absolute Value > 0.03	CR-Arsenic-Soil/Dust-Residential Adult+Child-Waneta	Absolute Value > 0.03	CR-Arsenic-Soil/Dust-Residential Adult+Child-West Trail	Absolute Value > 0.03	Site-wide CR: Arsenic Residential Soil-Dust	Absolute Value > 0.03	CR-Arsenic-Produce-Residential Adult+Child-Far	Absolute Value > 0.03	CR-Arsenic-Produce-Residential Adult+Child-Near	Absolute Value > 0.03
Arsenic (Inorganic): Near Root Produce	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N	0.02	N	-0.01	N	0.67	Y
Site-wide: nonroot produce: inorganic arsenic	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N	-0.01	N	0.00	N
Arsenic: Birchbank Air	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.01	N	0.01	N	0.26	Y
Arsenic (Inorganic): Far Nonroot Produce	-0.01	N	-0.02	N	-0.02	N	-0.02	N	-0.02	N	-0.01	N	0.57	Y	0.00	N
Arsenic (Inorganic): Near Nonroot Produce	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N	0.56	Y	0.00	N
Exposure Duration (years): Adult - Agricultural	-0.01	N	-0.02	N	-0.01	N	-0.01	N	-0.01	N	-0.02	N	0.00	N	0.01	N
Exposure Duration (years): Adult+Child	0.31	Y	0.31	Y	0.31	Y	0.31	Y	0.32	Y	0.30	Y	0.61	Y	0.48	Y
Exposure Frequency (days/year): Commercial	-0.01	N	0.00	N	0.00	N	0.00	N	0.00	N	-0.01	N	-0.01	N	-0.01	N
Exposure Frequency (days/year): Residential Soil & Outdoor Dust	0.01	N	0.02	N	0.02	N	0.02	N	0.00	N	0.01	N	-0.01	N	-0.02	N
Site-wide: root produce: inorganic arsenic	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	0.00	N	0.01	N
Non-Root Produce Ingestion (g/day): Child	-0.02	N	-0.01	N	-0.02	N	-0.02	N	-0.02	N	-0.01	N	0.20	Y	0.19	Y
Root Produce Ingestion (g/day): Child	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	0.24	Y	0.14	Y
Body Weight (kg): Adult	-0.02	N	-0.02	N	-0.02	N	-0.02	N	-0.02	N	-0.02	N	-0.04	Y	-0.02	N
Non-Root Produce Ingestion (g/day): Adult	-0.01	N	0.00	N	0.00	N	0.00	N	0.00	N	-0.01	N	0.08	Y	0.07	Y
Root Produce Ingestion (g/day): Adult	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N	0.02	N	0.10	Y	0.06	Y

Table D-2. Largest Contributors to Variability in Cancer Risk Estimates (in decreasing order of importance)

Forecast (Output Distribution)	**Site-wide: CR Produce: Arsenic**	**CR-Cadmium-Particulates-Agricultural Adult-Waneta**
List of Largest Contributors to Variability	Arsenic in nonroot produce Exposure Duration Arsenic in root produce Child nonroot ingestion rate Child Root ingestion rate Adult nonroot ingestion rate Adult root ingestion rate Child Body Weight	Exposure Duration particulate concentration in air Adult Body Weight Adult Inhalation rate

Rank correlation data between assumption and forecast

Assumptions	Site-wide: CR Produce: Arsenic	Absolute Value > 0.03	CR-Cadmium-Particulates-Agricultural Adult-Waneta	Absolute Value > 0.03
Arsenic (Inorganic): Near Root Produce	0.00	N	0.00	N
Site-wide: nonroot produce: inorganic arsenic	0.68	Y	-0.01	N
Arsenic: Birchbank Air	0.00	N	0.01	N
Arsenic (Inorganic): Far Nonroot Produce	-0.01	N	-0.01	N
Arsenic (Inorganic): Near Nonroot Produce	0.00	N	-0.01	N
Exposure Duration (years): Adult - Agricultural	-0.01	N	0.88	Y
Exposure Duration (years): Adult+Child	0.47	Y	0.02	N
Exposure Frequency (days/year): Commercial	0.00	N	-0.01	N
Exposure Frequency (days/year): Residential Soil & Outdoor Dust	-0.01	N	-0.01	N
Site-wide: root produce: inorganic arsenic	0.24	Y	-0.01	N
Non-Root Produce Ingestion (g/day): Child	0.21	Y	-0.02	N
Root Produce Ingestion (g/day): Child	0.16	Y	0.00	N
Body Weight (kg): Adult	-0.03	N	-0.19	Y
Non-Root Produce Ingestion (g/day): Adult	0.08	Y	0.00	N
Root Produce Ingestion (g/day): Adult	0.07	Y	0.00	N

Table D-2. Largest Contributors to Variability in Cancer Risk Estimates (in decreasing order of importance)

Forecast (Output Distribution)	**CR-Arsenic-Air-Commercial Adult+Child-Birchbank**	**CR-Arsenic-Air-Commercial Adult+Child-Butler Park**	**CR-Arsenic-Air-Commercial Adult+Child-Columbia Gardens**	**CR-Arsenic-Air-Commercial Adult+Child-Genelle**	**CR-Arsenic-Air-Commercial Adult+Child-Warfield**	**CR-Arsenic-Air-Commercial Adult+Child-West Trail**	**CR-Arsenic-Air-Residential Adult+Child-Birchbank**	**CR-Arsenic-Air-Residential Adult+Child-Butler Park**
List of Largest Contributors to Variability	Arsenic in air Exposure Duration Child Inhalation Rate Child Body Weight Adult Inhalation Rate Exposure Frequency	Arsenic in air Exposure Duration Child Inhalation Rate Child Body Weight Adult Inhalation Rate Exposure Frequency Adult Body Weight	Arsenic in air Exposure Duration Child Inhalation Rate Child Body Weight Exposure Frequency Adult Inhalation Rate Adult Body Weight	Arsenic in air Exposure Duration Child Inhalation Rate Child Body Weight Exposure Frequency Adult Body Weight	Arsenic in air Exposure Duration Child Inhalation Rate Child Body Weight Exposure Frequency Adult Body Weight Adult Inhalation Rate	Arsenic in air Exposure Duration Child Inhalation Rate Child Body Weight Exposure Frequency Adult Body Weight Adult Inhalation Rate	Arsenic in air Exposure Duration Child Inhalation Rate Child Body Weight Adult Inhalation Rate	Arsenic in air Exposure Duration Child Body Weight Child Inhalation Rate Adult Inhalation Rate Adult Body Weight

Rank correlation data between assumption and forecast

Assumptions	CR-Arsenic-Air-Commercial Adult+Child-Birchbank	Absolute Value > 0.03	CR-Arsenic-Air-Commercial Adult+Child-Butler Park	Absolute Value > 0.03	CR-Arsenic-Air-Commercial Adult+Child-Columbia Gardens	Absolute Value > 0.03	CR-Arsenic-Air-Commercial Adult+Child-Genelle	Absolute Value > 0.03	CR-Arsenic-Air-Commercial Adult+Child-Warfield	Absolute Value > 0.03	CR-Arsenic-Air-Commercial Adult+Child-West Trail	Absolute Value > 0.03	CR-Arsenic-Air-Residential Adult+Child-Birchbank	Absolute Value > 0.03	CR-Arsenic-Air-Residential Adult+Child-Butler Park	Absolute Value > 0.03
Antimony: East Trail Outdoor Dust	-0.01	N	0.01	N	0.03	N	0.01	N	0.01	N	0.01	N	-0.01	N	0.01	N
Antimony: East Trail Residential Soil	0.01	N	0.01	N	0.01	N	0.02	N	0.02	N	0.01	N	0.00	N	0.01	N
Antimony: Near Nonroot Produce	0.01	N	0.01	N	-0.01	N	0.00	N	0.01	N	0.00	N	0.01	N	0.01	N
Antimony: Near Root Produce	0.00	N	0.00	N	-0.01	N	0.00	N	0.01	N	0.02	N	0.00	N	0.00	N
Antimony: Rivervale Outdoor Dust	-0.01	N	0.00	N	0.02	N	0.00	N	0.02	N	0.01	N	-0.01	N	0.01	N
Antimony: Rivervale Residential Soil	-0.01	N	-0.01	N	0.00	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N
Antimony: Tadanac Outdoor Dust	0.00	N	-0.01	N	0.01	N	0.00	N	0.01	N	0.02	N	0.00	N	0.00	N
Antimony: Tadanac Residential Soil	-0.01	N	0.00	N	-0.02	N	0.01	N	-0.02	N	0.01	N	-0.01	N	0.00	N
Antimony: Waneta Residential Soil	-0.01	N	-0.01	N	0.01	N	0.01	N	0.02	N	0.01	N	-0.01	N	-0.01	N
Antimony: West Trail Outdoor Dust	0.01	N	0.00	N	0.00	N	0.00	N	0.00	N	0.02	N	0.01	N	0.00	N
Antimony: West Trail Residential Soil	-0.01	N	-0.01	N	-0.01	N	-0.01	N	0.00	N	-0.01	N	-0.01	N	-0.01	N
Body Weight (kg): Child	-0.09	Y	-0.12	Y	-0.11	Y	-0.11	Y	-0.13	Y	-0.14	Y	-0.10	Y	-0.13	Y
Arsenic: Butler Park Air	0.02	N	0.79	Y	0.01	N	0.00	N	0.01	N	-0.01	N	0.02	N	0.82	Y
Arsenic: Columbia Gardens Air	0.01	N	0.02	N	0.81	Y	0.01	N	0.03	N	0.02	N	0.00	N	0.01	N
Arsenic: East Trail Outdoor Dust	0.01	N	0.00	N	0.00	N	0.01	N	0.00	N	0.01	N	0.01	N	0.00	N
Arsenic: East Trail Residential Soil	0.01	N	-0.01	N	0.01	N	0.00	N	0.01	N	0.01	N	0.01	N	-0.01	N
Arsenic: Genelle Air	0.01	N	0.01	N	0.01	N	0.82	Y	0.01	N	-0.01	N	0.01	N	0.00	N
Arsenic: Rivervale Outdoor Dust	0.01	N	0.01	N	0.01	N	0.01	N	0.02	N	-0.01	N	0.01	N	0.02	N
Arsenic: Rivervale Residential Soil	-0.01	N	-0.02	N	-0.02	N	-0.01	N	-0.01	N	0.00	N	-0.01	N	-0.01	N
Arsenic: Tadanac Outdoor Dust	0.00	N	-0.01	N	0.00	N	0.01	N	-0.01	N	-0.01	N	0.00	N	-0.01	N
Arsenic: Tadanac Residential Soil	0.01	N	0.00	N	-0.01	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N
Arsenic: Waneta Residential Soil	-0.01	N	0.02	N	0.00	N	0.02	N	0.00	N	0.01	N	-0.01	N	0.02	N
Arsenic: Warfield Air	0.02	N	0.01	N	0.01	N	0.00	N	0.80	Y	-0.01	N	0.02	N	0.01	N
Arsenic: West Trail Air	0.00	N	-0.01	N	0.02	N	-0.01	N	-0.01	N	0.76	Y	0.00	N	-0.02	N
Arsenic: West Trail Outdoor Dust	0.01	N	0.02	N	0.03	N	0.03	Y	0.01	N	0.02	N	0.00	N	0.02	N
Arsenic: West Trail Residential Soil	0.02	N	-0.01	N	0.02	N	0.01	N	0.01	N	0.00	N	0.02	N	-0.01	N
Cadmium: Birchbank Air	0.00	N	-0.01	N	0.01	N	0.00	N	0.00	N	0.00	N	0.01	N	-0.01	N
Cadmium: Butler Park Air	-0.01	N	-0.02	N	0.00	N	-0.01	N	0.00	N	0.01	N	-0.01	N	-0.01	N
Cadmium: Columbia Gardens Air	0.00	N	0.01	N	0.00	N	0.00	N	0.00	N	-0.01	N	0.00	N	0.00	N

Table D-2. Largest Contributors to Variability in Cancer Risk Estimates (in decreasing order of importance)

Forecast (Output Distribution)	**CR-Arsenic-Air-Residential Adult+Child-Columbia Gardens**	**CR-Arsenic-Air-Residential Adult+Child-Genelle**	**CR-Arsenic-Air-Residential Adult+Child-Warfield**	**CR-Arsenic-Air-Residential Adult+Child-West Trail**	**CR-Cadmium-Air-Commercial Adult+Child-Birchbank**	**CR-Cadmium-Air-Commercial Adult+Child-Butler Park**	**CR-Cadmium-Air-Commercial Adult+Child-Columbia Gardens**	**CR-Cadmium-Air-Commercial Adult+Child-Genelle**
List of Largest Contributors to Variability	Arsenic in air Exposure Duration Child Inhalation Rate Child Body Weight Adult Inhalation Rate Adult Body Weight	Arsenic in air Exposure Duration Child Inhalation Rate Child Body Weight Adult Inhalation Rate Adult Body Weight	Arsenic in air Exposure Duration Child Inhalation Rate Child Body Weight Adult Inhalation Rate Adult Body Weight	Arsenic in air Exposure Duration Child Inhalation Rate Child Body Weight Adult Body Weight	Cadmium in air Exposure Duration Child Inhalation Rate Child Body Weight Adult Inhalation Rate Adult Body Weight Exposure Frequency	Cadmium in air Exposure Duration Child Inhalation Rate Child Body Weight Exposure Frequency Adult Inhalation Rate Adult Body Weight	Cadmium in air Exposure Duration Child Inhalation Rate Child Body Weight Exposure Frequency Adult Inhalation Rate Adult Body Weight	Cadmium in air Exposure Duration Child Inhalation Rate Child Body Weight Exposure Frequency Adult Inhalation Rate Adult Body Weight

Rank correlation data between assumption and forecast

Assumptions	CR-Arsenic-Air-Residential Adult+Child-Columbia Gardens	Absolute Value > 0.03	CR-Arsenic-Air-Residential Adult+Child-Genelle	Absolute Value > 0.03	CR-Arsenic-Air-Residential Adult+Child-Warfield	Absolute Value > 0.03	CR-Arsenic-Air-Residential Adult+Child-West Trail	Absolute Value > 0.03	CR-Cadmium-Air-Commercial Adult+Child-Birchbank	Absolute Value > 0.03	CR-Cadmium-Air-Commercial Adult+Child-Butler Park	Absolute Value > 0.03	CR-Cadmium-Air-Commercial Adult+Child-Columbia Gardens	Absolute Value > 0.03	CR-Cadmium-Air-Commercial Adult+Child-Genelle	Absolute Value > 0.03
Antimony: East Trail Outdoor Dust	0.02	N	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N	0.00	N
Antimony: East Trail Residential Soil	0.01	N	0.02	N	0.02	N	0.00	N	0.00	N	0.01	N	0.00	N	0.00	N
Antimony: Near Nonroot Produce	-0.01	N	0.00	N	0.01	N	0.01	N	-0.01	N	0.01	N	-0.01	N	0.00	N
Antimony: Near Root Produce	-0.01	N	0.00	N	0.01	N	0.02	N	0.02	N	0.00	N	-0.01	N	0.00	N
Antimony: Rivervale Outdoor Dust	0.02	N	0.00	N	0.02	N	0.01	N	0.00	N	0.01	N	0.02	N	0.00	N
Antimony: Rivervale Residential Soil	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	0.00	N	0.01	N
Antimony: Tadanac Outdoor Dust	0.01	N	0.00	N	0.01	N	0.02	N	0.02	N	0.01	N	-0.01	N	0.02	N
Antimony: Tadanac Residential Soil	-0.02	N	0.00	N	-0.02	N	0.01	N	-0.01	N	-0.02	N	0.00	N	0.00	N
Antimony: Waneta Residential Soil	0.00	N	0.01	N	0.02	N	0.01	N	0.00	N	0.00	N	0.01	N	0.01	N
Antimony: West Trail Outdoor Dust	0.00	N	0.00	N	0.00	N	0.02	N	0.01	N	-0.02	N	0.00	N	-0.01	N
Antimony: West Trail Residential Soil	-0.01	N	-0.01	N	0.00	N	-0.01	N	0.00	N	0.00	N	-0.01	N	0.01	N
Body Weight (kg): Child	-0.12	Y	-0.12	Y	-0.14	Y	-0.15	Y	-0.12	Y	-0.13	Y	-0.12	Y	-0.16	Y
Arsenic: Butler Park Air	0.01	N	0.01	N	0.01	N	-0.02	N	0.00	N	-0.01	N	0.02	N	0.00	N
Arsenic: Columbia Gardens Air	0.84	Y	0.00	N	0.02	N	0.01	N	0.02	N	0.01	N	0.01	N	0.02	N
Arsenic: East Trail Outdoor Dust	-0.01	N	0.01	N	0.00	N	0.01	N	-0.02	N	0.02	N	0.01	N	0.01	N
Arsenic: East Trail Residential Soil	0.01	N	0.00	N	0.01	N	0.01	N	-0.02	N	0.01	N	0.01	N	0.00	N
Arsenic: Genelle Air	0.00	N	0.85	Y	0.00	N	-0.01	N	0.01	N	0.01	N	0.02	N	0.03	N
Arsenic: Rivervale Outdoor Dust	0.01	N	0.01	N	0.02	N	-0.02	N	0.01	N	0.01	N	0.00	N	0.01	N
Arsenic: Rivervale Residential Soil	-0.01	N	-0.01	N	-0.01	N	0.00	N	-0.01	N	-0.01	N	-0.02	N	-0.01	N
Arsenic: Tadanac Outdoor Dust	0.00	N	0.01	N	-0.01	N	-0.01	N	-0.01	N	0.01	N	-0.01	N	-0.01	N
Arsenic: Tadanac Residential Soil	-0.01	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	-0.01	N	-0.01	N
Arsenic: Waneta Residential Soil	0.00	N	0.02	N	0.00	N	0.01	N	0.00	N	0.00	N	0.00	N	-0.01	N
Arsenic: Warfield Air	0.02	N	0.00	N	0.84	Y	-0.01	N	0.00	N	0.00	N	0.00	N	0.00	N
Arsenic: West Trail Air	0.01	N	-0.01	N	-0.01	N	0.80	Y	0.00	N	0.01	N	0.00	N	0.01	N
Arsenic: West Trail Outdoor Dust	0.03	N	0.03	Y	0.01	N	0.02	N	0.03	N	0.02	N	0.02	N	0.02	N
Arsenic: West Trail Residential Soil	0.02	N	0.01	N	0.01	N	0.00	N	0.03	N	0.01	N	0.01	N	0.01	N
Cadmium: Birchbank Air	0.01	N	0.00	N	0.00	N	0.00	N	0.83	Y	0.00	N	-0.02	N	0.00	N
Cadmium: Butler Park Air	0.01	N	0.00	N	0.00	N	0.01	N	0.00	N	0.77	Y	-0.01	N	0.00	N
Cadmium: Columbia Gardens Air	0.00	N	0.00	N	0.00	N	-0.01	N	-0.02	N	-0.01	N	0.79	Y	0.00	N

Table D-2. Largest Contributors to Variability in Cancer Risk Estimates (in decreasing order of importance)

Forecast (Output Distribution)	**CR-Cadmium-Air-Commercial Adult+Child-Warfield**	**CR-Cadmium-Air-Commercial Adult+Child-West Trail**	**CR-Cadmium-Air-Residential Adult+Child-Birchbank**	**CR-Cadmium-Air-Residential Adult+Child-Butler Park**	**CR-Cadmium-Air-Residential Adult+Child-Columbia Gardens**	**CR-Cadmium-Air-Residential Adult+Child-Genelle**	**CR-Cadmium-Air-Residential Adult+Child-Warfield**	**CR-Cadmium-Air-Residential Adult+Child-West Trail**
List of Largest Contributors to Variability	Cadmium in air Exposure Duration Child Inhalation Rate Child Body Weight Exposure Frequency Adult Inhalation Rate	Cadmium in air Exposure Duration Child Inhalation Rate Child Body Weight Exposure Frequency Adult Inhalation Rate Adult Body Weight	Cadmium in air Exposure Duration Child Body Weight Child Inhalation Rate Adult Inhalation Rate Adult Body Weight	Cadmium in air Exposure Duration Child Body Weight Child Inhalation Rate Adult Inhalation Rate Adult Body Weight	Cadmium in air Exposure Duration Child Body Weight Child Inhalation Rate Adult Inhalation Rate Adult Body Weight	Cadmium in air Exposure Duration Child Body Weight Child Inhalation Rate Adult Inhalation Rate Adult Body Weight	Cadmium in air Exposure Duration Child Body Weight Child Inhalation Rate Adult Inhalation Rate	Cadmium in air Exposure Duration Child Body Weight Child Inhalation Rate Adult Inhalation Rate

Rank correlation data between assumption and forecast

Assumptions	CR-Cadmium-Air-Commercial Adult+Child-Warfield	Absolute Value > 0.03	CR-Cadmium-Air-Commercial Adult+Child-West Trail	Absolute Value > 0.03	CR-Cadmium-Air-Residential Adult+Child-Birchbank	Absolute Value > 0.03	CR-Cadmium-Air-Residential Adult+Child-Butler Park	Absolute Value > 0.03	CR-Cadmium-Air-Residential Adult+Child-Columbia Gardens	Absolute Value > 0.03	CR-Cadmium-Air-Residential Adult+Child-Genelle	Absolute Value > 0.03	CR-Cadmium-Air-Residential Adult+Child-Warfield	Absolute Value > 0.03	CR-Cadmium-Air-Residential Adult+Child-West Trail	Absolute Value > 0.03
Antimony: East Trail Outdoor Dust	0.01	N	0.00	N	0.01	N	0.01	N	0.01	N	0.00	N	0.01	N	0.00	N
Antimony: East Trail Residential Soil	0.00	N	0.00	N	0.00	N	0.01	N	0.00	N	0.00	N	-0.01	N	0.00	N
Antimony: Near Nonroot Produce	0.00	N	-0.01	N	-0.01	N	0.01	N	-0.01	N	0.00	N	0.00	N	-0.01	N
Antimony: Near Root Produce	0.01	N	0.00	N	0.02	N	0.01	N	-0.01	N	0.00	N	0.01	N	0.00	N
Antimony: Rivervale Outdoor Dust	0.00	N	0.00	N	0.00	N	0.01	N	0.02	N	0.00	N	0.00	N	0.00	N
Antimony: Rivervale Residential Soil	0.00	N	-0.01	N	-0.01	N	-0.01	N	0.00	N	0.01	N	0.00	N	-0.01	N
Antimony: Tadanac Outdoor Dust	0.02	N	0.01	N	0.02	N	0.01	N	0.00	N	0.03	Y	0.03	N	0.01	N
Antimony: Tadanac Residential Soil	-0.01	N	0.00	N	-0.01	N	-0.02	N	0.00	N	-0.01	N	-0.01	N	0.00	N
Antimony: Waneta Residential Soil	0.01	N	0.00	N	0.00	N	0.00	N	0.01	N	0.01	N	0.01	N	0.00	N
Antimony: West Trail Outdoor Dust	0.00	N	0.00	N	0.02	N	-0.02	N	0.00	N	-0.01	N	0.00	N	0.00	N
Antimony: West Trail Residential Soil	0.02	N	0.01	N	0.00	N	0.01	N	0.00	N	0.01	N	0.02	N	0.01	N
Body Weight (kg): Child	-0.12	Y	-0.11	Y	-0.13	Y	-0.14	Y	-0.13	Y	-0.18	Y	-0.13	Y	-0.12	Y
Arsenic: Butler Park Air	0.00	N	0.01	N	0.00	N	0.00	N	0.02	N	0.00	N	0.00	N	0.01	N
Arsenic: Columbia Gardens Air	0.01	N	0.00	N	0.02	N	0.01	N	0.00	N	0.02	N	0.01	N	-0.01	N
Arsenic: East Trail Outdoor Dust	-0.01	N	0.02	N	-0.02	N	0.01	N	0.01	N	0.00	N	-0.01	N	0.01	N
Arsenic: East Trail Residential Soil	0.00	N	0.00	N	-0.02	N	0.01	N	0.01	N	0.00	N	0.00	N	0.00	N
Arsenic: Genelle Air	0.01	N	0.01	N	0.01	N	0.00	N	0.02	N	0.02	N	0.01	N	0.00	N
Arsenic: Rivervale Outdoor Dust	0.00	N	0.02	N	0.01	N	0.02	N	0.01	N	0.01	N	0.00	N	0.02	N
Arsenic: Rivervale Residential Soil	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.02	N	-0.01	N	-0.01	N	-0.01	N
Arsenic: Tadanac Outdoor Dust	-0.01	N	-0.01	N	-0.01	N	0.01	N	0.00	N	-0.01	N	-0.01	N	-0.01	N
Arsenic: Tadanac Residential Soil	0.01	N	0.01	N	0.00	N	0.00	N	-0.01	N	-0.01	N	0.00	N	0.01	N
Arsenic: Waneta Residential Soil	0.01	N	-0.02	N	0.00	N	0.00	N	0.00	N	-0.01	N	0.01	N	-0.02	N
Arsenic: Warfield Air	0.00	N	-0.01	N	0.01	N	0.00	N	0.00	N	0.01	N	0.01	N	0.00	N
Arsenic: West Trail Air	0.01	N	0.02	N	0.00	N	0.01	N	0.00	N	0.01	N	0.00	N	0.02	N
Arsenic: West Trail Outdoor Dust	0.01	N	0.02	N	0.02	N	0.02	N	0.01	N	0.02	N	0.00	N	0.02	N
Arsenic: West Trail Residential Soil	0.00	N	0.02	N	0.03	N	0.01	N	0.01	N	0.01	N	0.00	N	0.01	N
Cadmium: Birchbank Air	0.00	N	-0.01	N	0.86	Y	0.00	N	-0.01	N	0.00	N	0.00	N	-0.01	N
Cadmium: Butler Park Air	-0.02	N	0.00	N	0.00	N	0.81	Y	-0.01	N	0.00	N	-0.01	N	0.00	N
Cadmium: Columbia Gardens Air	-0.01	N	0.01	N	-0.02	N	-0.01	N	0.82	Y	0.00	N	-0.01	N	0.01	N

Table D-2. Largest Contributors to Variability in Cancer Risk Estimates (in decreasing order of importance)

Forecast (Output Distribution)	CR-Arsenic-Soil/Dust-Residential Adult+Child-East Trail	CR-Arsenic-Soil/Dust-Residential Adult+Child-Rivervale	CR-Arsenic-Soil/Dust-Residential Adult+Child-Tadanac	CR-Arsenic-Soil/Dust-Residential Adult+Child-Waneta	CR-Arsenic-Soil/Dust-Residential Adult+Child-West Trail	Site-wide CR: Arsenic Residential Soil-Dust	CR-Arsenic-Produce-Residential Adult+Child-Far	CR-Arsenic-Produce-Residential Adult+Child-Near
List of Largest Contributors to Variability	Child soil ingestion rate Exposure Duration Child Body Weight Adult SIR Arsenic in soil Arsenic in outdoor dust	Child soil ingestion rate Exposure Duration Child Body Weight Adult SIR Arsenic in soil	Child soil ingestion rate Exposure Duration Child Body Weight Adult SIR Arsenic in outdoor dust Arsenic in soil	Child soil ingestion rate Exposure Duration Child Body Weight Adult SIR Arsenic in soil	Child soil ingestion rate Exposure Duration Child Body Weight Adult SIR Arsenic in soil Fractional intake: soil/dust Arsenic in outdoor dust	Child soil ingestion rate Exposure Duration Arsenic in indoor dust Child Body Weight Adult SIR Arsenic in soil Arsenic in outdoor dust	Exposure Duration Arsenic in nonroot produce Child Root ingestion rate Child nonroot ingestion rate Adult root ingestion rate Adult nonroot ingestion rate Adult Body Weight Child Body Weight	Arsenic in root produce Exposure Duration Child nonroot ingestion rate Child Root ingestion rate Adult nonroot ingestion rate Adult root ingestion rate Child Body Weight

Rank correlation data between assumption and forecast

Assumptions	CR-Arsenic-Soil/Dust-Residential Adult+Child-East Trail	Absolute Value > 0.03	CR-Arsenic-Soil/Dust-Residential Adult+Child-Rivervale	Absolute Value > 0.03	CR-Arsenic-Soil/Dust-Residential Adult+Child-Tadanac	Absolute Value > 0.03	CR-Arsenic-Soil/Dust-Residential Adult+Child-Waneta	Absolute Value > 0.03	CR-Arsenic-Soil/Dust-Residential Adult+Child-West Trail	Absolute Value > 0.03	Site-wide CR: Arsenic Residential Soil-Dust	Absolute Value > 0.03	CR-Arsenic-Produce-Residential Adult+Child-Far	Absolute Value > 0.03	CR-Arsenic-Produce-Residential Adult+Child-Near	Absolute Value > 0.03
Antimony: East Trail Outdoor Dust	0.01	N	0.02	N	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N
Antimony: East Trail Residential Soil	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N	0.00	N
Antimony: Near Nonroot Produce	0.01	N	0.01	N	0.01	N	0.00	N	0.01	N	0.00	N	-0.01	N	-0.01	N
Antimony: Near Root Produce	0.02	N	0.02	N	0.02	N	0.02	N	0.02	N	0.01	N	0.01	N	-0.01	N
Antimony: Rivervale Outdoor Dust	0.01	N	0.01	N	0.02	N	0.02	N	0.02	N	0.01	N	0.01	N	0.00	N
Antimony: Rivervale Residential Soil	0.01	N	0.01	N	0.01	N	0.00	N	0.01	N	0.00	N	-0.01	N	-0.01	N
Antimony: Tadanac Outdoor Dust	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.01	N	0.00	N
Antimony: Tadanac Residential Soil	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N	-0.01	N	-0.01	N
Antimony: Waneta Residential Soil	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N
Antimony: West Trail Outdoor Dust	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N	0.00	N	0.00	N	0.01	N
Antimony: West Trail Residential Soil	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	0.00	N
Body Weight (kg): Child	-0.16	Y	-0.16	Y	-0.16	Y	-0.16	Y	-0.16	Y	-0.15	Y	-0.15	Y	-0.13	Y
Arsenic: Butler Park Air	0.00	N	0.00	N	0.01	N	0.01	N	0.00	N	-0.01	N	0.01	N	0.02	N
Arsenic: Columbia Gardens Air	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.02	N	0.01	N
Arsenic: East Trail Outdoor Dust	0.09	Y	0.02	N	0.01	N	0.01	N	0.01	N	0.02	N	0.02	N	0.00	N
Arsenic: East Trail Residential Soil	0.10	Y	0.01	N	0.02	N	0.02	N	0.02	N	0.02	N	0.00	N	-0.01	N
Arsenic: Genelle Air	0.02	N	0.02	N	0.02	N	0.02	N	0.02	N	0.02	N	0.01	N	0.01	N
Arsenic: Rivervale Outdoor Dust	0.00	N	0.01	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N
Arsenic: Rivervale Residential Soil	-0.01	N	0.15	Y	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.02	N	0.00	N
Arsenic: Tadanac Outdoor Dust	-0.01	N	-0.01	N	0.05	Y	-0.01	N	-0.01	N	-0.02	N	0.00	N	-0.02	N
Arsenic: Tadanac Residential Soil	-0.01	N	-0.01	N	0.04	Y	-0.01	N	-0.01	N	-0.01	N	0.00	N	0.00	N
Arsenic: Waneta Residential Soil	0.00	N	0.00	N	0.00	N	0.10	Y	0.00	N	0.00	N	0.00	N	0.00	N
Arsenic: Warfield Air	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.01	N	0.00	N
Arsenic: West Trail Air	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N	-0.01	N	0.00	N
Arsenic: West Trail Outdoor Dust	0.02	N	0.02	N	0.02	N	0.02	N	0.03	Y	0.02	N	0.01	N	0.02	N
Arsenic: West Trail Residential Soil	-0.02	N	-0.01	N	-0.01	N	-0.01	N	0.04	Y	-0.02	N	0.00	N	0.02	N
Cadmium: Birchbank Air	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	0.00	N	-0.01	N
Cadmium: Butler Park Air	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	-0.02	N	0.01	N
Cadmium: Columbia Gardens Air	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	-0.01	N	0.00	N

Table D-2. Largest Contributors to Variability in Cancer Risk Estimates (in decreasing order of importance)

Forecast (Output Distribution)	**Site-wide: CR Produce: Arsenic**	**CR-Cadmium-Particulates-Agricultural Adult-Waneta**
List of Largest Contributors to Variability	Arsenic in nonroot produce Exposure Duration Arsenic in root produce Child nonroot ingestion rate Child Root ingestion rate Adult nonroot ingestion rate Adult root ingestion rate Child Body Weight	Exposure Duration particulate concentration in air Adult Body Weight Adult Inhalation rate

Rank correlation data between assumption and forecast

Assumptions	Site-wide: CR Produce: Arsenic	Absolute Value > 0.03	CR-Cadmium-Particulates-Agricultural Adult-Waneta	Absolute Value > 0.03
Antimony: East Trail Outdoor Dust	0.01	N	0.01	N
Antimony: East Trail Residential Soil	0.01	N	0.01	N
Antimony: Near Nonroot Produce	0.01	N	0.02	N
Antimony: Near Root Produce	0.02	N	0.00	N
Antimony: Rivervale Outdoor Dust	0.01	N	0.00	N
Antimony: Rivervale Residential Soil	-0.01	N	0.01	N
Antimony: Tadanac Outdoor Dust	0.01	N	-0.01	N
Antimony: Tadanac Residential Soil	-0.03	N	-0.01	N
Antimony: Waneta Residential Soil	0.01	N	0.00	N
Antimony: West Trail Outdoor Dust	0.00	N	0.01	N
Antimony: West Trail Residential Soil	0.00	N	0.00	N
Body Weight (kg): Child	-0.14	Y	0.00	N
Arsenic: Butler Park Air	-0.01	N	0.01	N
Arsenic: Columbia Gardens Air	0.01	N	0.02	N
Arsenic: East Trail Outdoor Dust	0.00	N	-0.01	N
Arsenic: East Trail Residential Soil	0.00	N	0.01	N
Arsenic: Genelle Air	0.01	N	-0.01	N
Arsenic: Rivervale Outdoor Dust	0.00	N	0.01	N
Arsenic: Rivervale Residential Soil	-0.02	N	-0.01	N
Arsenic: Tadanac Outdoor Dust	-0.01	N	0.00	N
Arsenic: Tadanac Residential Soil	-0.01	N	0.00	N
Arsenic: Waneta Residential Soil	0.00	N	-0.01	N
Arsenic: Warfield Air	0.01	N	0.00	N
Arsenic: West Trail Air	-0.01	N	-0.01	N
Arsenic: West Trail Outdoor Dust	0.02	N	0.00	N
Arsenic: West Trail Residential Soil	0.00	N	0.00	N
Cadmium: Birchbank Air	0.00	N	-0.01	N
Cadmium: Butler Park Air	0.01	N	0.00	N
Cadmium: Columbia Gardens Air	0.00	N	0.00	N

Table D-2. Largest Contributors to Variability in Cancer Risk Estimates (in decreasing order of importance)

Forecast (Output Distribution)	**CR-Arsenic-Air-Commercial Adult+Child-Birchbank**	**CR-Arsenic-Air-Commercial Adult+Child-Butler Park**	**CR-Arsenic-Air-Commercial Adult+Child-Columbia Gardens**	**CR-Arsenic-Air-Commercial Adult+Child-Genelle**	**CR-Arsenic-Air-Commercial Adult+Child-Warfield**	**CR-Arsenic-Air-Commercial Adult+Child-West Trail**	**CR-Arsenic-Air-Residential Adult+Child-Birchbank**	**CR-Arsenic-Air-Residential Adult+Child-Butler Park**
List of Largest Contributors to Variability	Arsenic in air Exposure Duration Child Inhalation Rate Child Body Weight Adult Inhalation Rate Exposure Frequency	Arsenic in air Exposure Duration Child Inhalation Rate Child Body Weight Adult Inhalation Rate Exposure Frequency Adult Body Weight	Arsenic in air Exposure Duration Child Inhalation Rate Child Body Weight Exposure Frequency Adult Inhalation Rate Adult Body Weight	Arsenic in air Exposure Duration Child Inhalation Rate Child Body Weight Exposure Frequency Adult Body Weight	Arsenic in air Exposure Duration Child Inhalation Rate Child Body Weight Exposure Frequency Adult Body Weight Adult Inhalation Rate	Arsenic in air Exposure Duration Child Inhalation Rate Child Body Weight Exposure Frequency Adult Body Weight Adult Inhalation Rate	Arsenic in air Exposure Duration Child Inhalation Rate Child Body Weight Adult Inhalation Rate	Arsenic in air Exposure Duration Child Body Weight Child Inhalation Rate Adult Inhalation Rate Adult Body Weight

Rank correlation data between assumption and forecast

Assumptions	CR-Arsenic-Air-Commercial Adult+Child-Birchbank	Absolute Value > 0.03	CR-Arsenic-Air-Commercial Adult+Child-Butler Park	Absolute Value > 0.03	CR-Arsenic-Air-Commercial Adult+Child-Columbia Gardens	Absolute Value > 0.03	CR-Arsenic-Air-Commercial Adult+Child-Genelle	Absolute Value > 0.03	CR-Arsenic-Air-Commercial Adult+Child-Warfield	Absolute Value > 0.03	CR-Arsenic-Air-Commercial Adult+Child-West Trail	Absolute Value > 0.03	CR-Arsenic-Air-Residential Adult+Child-Birchbank	Absolute Value > 0.03	CR-Arsenic-Air-Residential Adult+Child-Butler Park	Absolute Value > 0.03
Cadmium: East Trail Outdoor Dust	-0.01	N	0.01	N	0.01	N	0.00	N	0.00	N	0.00	N	-0.01	N	0.01	N
Cadmium: East Trail Residential Soil	0.00	N	0.00	N	0.00	N	-0.01	N	-0.01	N	-0.01	N	0.00	N	0.00	N
Cadmium: Far Nonroot Produce	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	0.00	N	-0.01	N	-0.01	N
Cadmium: Genelle Air	0.00	N	0.00	N	0.01	N	0.03	N	0.01	N	0.01	N	0.00	N	0.00	N
Cadmium: Near Nonroot Produce	0.01	N	0.01	N	-0.01	N	0.01	N	0.00	N	0.00	N	0.01	N	0.01	N
Cadmium: Near Root Produce	0.02	N	0.00	N	0.00	N	-0.01	N	0.01	N	0.01	N	0.01	N	-0.01	N
Cadmium: Rivervale Outdoor Dust	0.00	N	-0.01	N	0.00	N	-0.01	N	0.00	N	0.00	N	0.00	N	-0.01	N
Cadmium: Rivervale Residential Soil	-0.01	N	0.00	N	-0.02	N	-0.02	N	-0.01	N	-0.02	N	-0.01	N	0.00	N
Cadmium: Tadanac Outdoor Dust	0.00	N	0.00	N	0.01	N	0.01	N	0.01	N	0.00	N	-0.01	N	-0.01	N
Cadmium: Tadanac Residential Soil	0.02	N	0.00	N	0.01	N	0.01	N	0.00	N	0.02	N	0.02	N	0.00	N
Cadmium: Waneta Residential Soil	-0.01	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N
Cadmium: Warfield Air	0.01	N	0.00	N	0.00	N	0.01	N	0.00	N	0.01	N	0.01	N	0.00	N
Cadmium: West Trail Air	0.00	N	0.00	N	-0.01	N	-0.01	N	-0.01	N	0.01	N	0.00	N	0.00	N
Cadmium: West Trail Outdoor Dust	0.00	N	0.01	N	0.02	N	0.01	N	0.01	N	0.00	N	0.00	N	0.01	N

Table D-2. Largest Contributors to Variability in Cancer Risk Estimates (in decreasing order of importance)

Forecast (Output Distribution)	**CR-Arsenic-Air-Residential Adult+Child-Columbia Gardens**	**CR-Arsenic-Air-Residential Adult+Child-Genelle**	**CR-Arsenic-Air-Residential Adult+Child-Warfield**	**CR-Arsenic-Air-Residential Adult+Child-West Trail**	**CR-Cadmium-Air-Commercial Adult+Child-Birchbank**	**CR-Cadmium-Air-Commercial Adult+Child-Butler Park**	**CR-Cadmium-Air-Commercial Adult+Child-Columbia Gardens**	**CR-Cadmium-Air-Commercial Adult+Child-Genelle**
List of Largest Contributors to Variability	Arsenic in air Exposure Duration Child Inhalation Rate Child Body Weight Adult Inhalation Rate Adult Body Weight	Arsenic in air Exposure Duration Child Inhalation Rate Child Body Weight Adult Inhalation Rate Adult Body Weight	Arsenic in air Exposure Duration Child Inhalation Rate Child Body Weight Adult Inhalation Rate Adult Body Weight	Arsenic in air Exposure Duration Child Inhalation Rate Child Body Weight Adult Body Weight	Cadmium in air Exposure Duration Child Inhalation Rate Child Body Weight Adult Inhalation Rate Adult Body Weight Exposure Frequency	Cadmium in air Exposure Duration Child Inhalation Rate Child Body Weight Exposure Frequency Adult Inhalation Rate Adult Body Weight	Cadmium in air Exposure Duration Child Inhalation Rate Child Body Weight Exposure Frequency Adult Inhalation Rate Adult Body Weight	Cadmium in air Exposure Duration Child Inhalation Rate Child Body Weight Exposure Frequency Adult Inhalation Rate Adult Body Weight

Rank correlation data between assumption and forecast

Assumptions	CR-Arsenic-Air-Residential Adult+Child-Columbia Gardens	Absolute Value > 0.03	CR-Arsenic-Air-Residential Adult+Child-Genelle	Absolute Value > 0.03	CR-Arsenic-Air-Residential Adult+Child-Warfield	Absolute Value > 0.03	CR-Arsenic-Air-Residential Adult+Child-West Trail	Absolute Value > 0.03	CR-Cadmium-Air-Commercial Adult+Child-Birchbank	Absolute Value > 0.03	CR-Cadmium-Air-Commercial Adult+Child-Butler Park	Absolute Value > 0.03	CR-Cadmium-Air-Commercial Adult+Child-Columbia Gardens	Absolute Value > 0.03	CR-Cadmium-Air-Commercial Adult+Child-Genelle	Absolute Value > 0.03
Cadmium: East Trail Outdoor Dust	0.00	N	0.00	N	0.00	N	0.00	N	0.01	N	-0.01	N	0.00	N	0.00	N
Cadmium: East Trail Residential Soil	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.02	N	0.00	N	0.00	N	0.01	N
Cadmium: Far Nonroot Produce	-0.01	N	-0.01	N	-0.01	N	0.00	N	-0.03	N	-0.01	N	-0.01	N	0.00	N
Cadmium: Genelle Air	0.01	N	0.02	N	0.01	N	0.00	N	0.01	N	0.01	N	0.01	N	0.72	Y
Cadmium: Near Nonroot Produce	-0.01	N	0.00	N	-0.01	N	0.00	N	0.01	N	0.01	N	0.00	N	0.00	N
Cadmium: Near Root Produce	-0.01	N	-0.02	N	0.01	N	0.00	N	0.01	N	0.01	N	0.01	N	0.02	N
Cadmium: Rivervale Outdoor Dust	0.00	N	0.00	N	0.00	N	0.00	N	-0.01	N	-0.01	N	0.01	N	-0.01	N
Cadmium: Rivervale Residential Soil	-0.02	N	-0.02	N	-0.02	N	-0.02	N	-0.01	N	-0.01	N	-0.01	N	0.00	N
Cadmium: Tadanac Outdoor Dust	0.00	N	0.00	N	0.01	N	0.00	N	0.00	N	0.00	N	0.00	N	0.01	N
Cadmium: Tadanac Residential Soil	0.01	N	0.01	N	0.00	N	0.03	N	0.02	N	0.01	N	0.01	N	0.01	N
Cadmium: Waneta Residential Soil	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.02	N	-0.01	N	-0.01	N
Cadmium: Warfield Air	0.00	N	0.01	N	0.00	N	0.01	N	0.01	N	-0.01	N	0.00	N	0.01	N
Cadmium: West Trail Air	-0.01	N	-0.01	N	-0.01	N	0.01	N	-0.01	N	0.00	N	0.02	N	-0.01	N
Cadmium: West Trail Outdoor Dust	0.02	N	0.01	N	0.01	N	0.00	N	0.01	N	-0.01	N	0.02	N	-0.01	N

Table D-2. Largest Contributors to Variability in Cancer Risk Estimates (in decreasing order of importance)

Forecast (Output Distribution)	**CR-Cadmium-Air-Commercial Adult+Child-Warfield**	**CR-Cadmium-Air-Commercial Adult+Child-West Trail**	**CR-Cadmium-Air-Residential Adult+Child-Birchbank**	**CR-Cadmium-Air-Residential Adult+Child-Butler Park**	**CR-Cadmium-Air-Residential Adult+Child-Columbia Gardens**	**CR-Cadmium-Air-Residential Adult+Child-Genelle**	**CR-Cadmium-Air-Residential Adult+Child-Warfield**	**CR-Cadmium-Air-Residential Adult+Child-West Trail**
List of Largest Contributors to Variability	Cadmium in air Exposure Duration Child Inhalation Rate Child Body Weight Exposure Frequency Adult Inhalation Rate	Cadmium in air Exposure Duration Child Inhalation Rate Child Body Weight Exposure Frequency Adult Inhalation Rate Adult Body Weight	Cadmium in air Exposure Duration Child Body Weight Child Inhalation Rate Adult Inhalation Rate Adult Body Weight	Cadmium in air Exposure Duration Child Body Weight Child Inhalation Rate Adult Inhalation Rate Adult Body Weight	Cadmium in air Exposure Duration Child Body Weight Child Inhalation Rate Adult Inhalation Rate Adult Body Weight	Cadmium in air Exposure Duration Child Body Weight Child Inhalation Rate Adult Inhalation Rate Adult Body Weight	Cadmium in air Exposure Duration Child Body Weight Child Inhalation Rate Adult Inhalation Rate	Cadmium in air Exposure Duration Child Body Weight Child Inhalation Rate Adult Inhalation Rate

Rank correlation data between assumption and forecast

Assumptions	CR-Cadmium-Air-Commercial Adult+Child-Warfield	Absolute Value > 0.03	CR-Cadmium-Air-Commercial Adult+Child-West Trail	Absolute Value > 0.03	CR-Cadmium-Air-Residential Adult+Child-Birchbank	Absolute Value > 0.03	CR-Cadmium-Air-Residential Adult+Child-Butler Park	Absolute Value > 0.03	CR-Cadmium-Air-Residential Adult+Child-Columbia Gardens	Absolute Value > 0.03	CR-Cadmium-Air-Residential Adult+Child-Genelle	Absolute Value > 0.03	CR-Cadmium-Air-Residential Adult+Child-Warfield	Absolute Value > 0.03	CR-Cadmium-Air-Residential Adult+Child-West Trail	Absolute Value > 0.03
Cadmium: East Trail Outdoor Dust	0.01	N	0.00	N	0.01	N	-0.01	N	0.00	N	-0.01	N	0.01	N	-0.01	N
Cadmium: East Trail Residential Soil	0.00	N	0.00	N	-0.03	N	-0.01	N	0.00	N	0.01	N	-0.01	N	0.00	N
Cadmium: Far Nonroot Produce	0.00	N	0.00	N	-0.02	N	0.00	N	-0.01	N	0.00	N	0.00	N	0.00	N
Cadmium: Genelle Air	0.02	N	0.00	N	0.01	N	0.00	N	0.00	N	0.76	Y	0.02	N	0.00	N
Cadmium: Near Nonroot Produce	0.00	N	0.00	N	0.01	N	0.01	N	0.00	N	0.00	N	-0.01	N	-0.01	N
Cadmium: Near Root Produce	0.01	N	0.01	N	0.00	N	0.00	N	0.00	N	0.01	N	0.00	N	0.00	N
Cadmium: Rivervale Outdoor Dust	0.01	N	0.00	N	-0.01	N	-0.01	N	0.01	N	-0.01	N	0.01	N	0.00	N
Cadmium: Rivervale Residential Soil	0.00	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	0.00	N	0.00	N	-0.01	N
Cadmium: Tadanac Outdoor Dust	0.00	N	0.01	N	-0.01	N	0.00	N	-0.01	N	0.01	N	-0.01	N	0.00	N
Cadmium: Tadanac Residential Soil	0.02	N	0.01	N	0.02	N	0.02	N	0.01	N	0.01	N	0.01	N	0.01	N
Cadmium: Waneta Residential Soil	0.01	N	0.00	N	0.00	N	0.02	N	-0.01	N	-0.01	N	0.01	N	0.00	N
Cadmium: Warfield Air	0.80	Y	0.01	N	0.01	N	-0.01	N	0.00	N	0.01	N	0.83	Y	0.01	N
Cadmium: West Trail Air	0.00	N	0.79	Y	-0.01	N	0.00	N	0.02	N	-0.01	N	0.00	N	0.82	Y
Cadmium: West Trail Outdoor Dust	0.01	N	-0.01	N	0.01	N	-0.01	N	0.02	N	-0.01	N	0.01	N	-0.01	N

Table D-2. Largest Contributors to Variability in Cancer Risk Estimates (in decreasing order of importance)

Forecast (Output Distribution)	**CR-Arsenic-Soil/Dust-Residential Adult+Child-East Trail**	**CR-Arsenic-Soil/Dust-Residential Adult+Child-Rivervale**	**CR-Arsenic-Soil/Dust-Residential Adult+Child-Tadanac**	**CR-Arsenic-Soil/Dust-Residential Adult+Child-Waneta**	**CR-Arsenic-Soil/Dust-Residential Adult+Child-West Trail**	**Site-wide CR: Arsenic Residential Soil-Dust**	**CR-Arsenic-Produce-Residential Adult+Child-Far**	**CR-Arsenic-Produce-Residential Adult+Child-Near**
List of Largest Contributors to Variability	Child soil ingestion rate Exposure Duration Child Body Weight Adult SIR Arsenic in soil Arsenic in outdoor dust	Child soil ingestion rate Exposure Duration Child Body Weight Adult SIR Arsenic in soil	Child soil ingestion rate Exposure Duration Child Body Weight Adult SIR Arsenic in outdoor dust Arsenic in soil	Child soil ingestion rate Exposure Duration Child Body Weight Adult SIR Arsenic in soil	Child soil ingestion rate Exposure Duration Child Body Weight Adult SIR Arsenic in soil Fractional intake: soil/dust Arsenic in outdoor dust	Child soil ingestion rate Exposure Duration Arsenic in indoor dust Child Body Weight Adult SIR Arsenic in soil Arsenic in outdoor dust	Exposure Duration Arsenic in nonroot produce Child Root ingestion rate Child nonroot ingestion rate Adult root ingestion rate Adult nonroot ingestion rate Adult Body Weight Child Body Weight	Arsenic in root produce Exposure Duration Child nonroot ingestion rate Child Root ingestion rate Adult nonroot ingestion rate Adult root ingestion rate Child Body Weight

Rank correlation data between assumption and forecast

Assumptions	CR-Arsenic-Soil/Dust-Residential Adult+Child-East Trail	Absolute Value > 0.03	CR-Arsenic-Soil/Dust-Residential Adult+Child-Rivervale	Absolute Value > 0.03	CR-Arsenic-Soil/Dust-Residential Adult+Child-Tadanac	Absolute Value > 0.03	CR-Arsenic-Soil/Dust-Residential Adult+Child-Waneta	Absolute Value > 0.03	CR-Arsenic-Soil/Dust-Residential Adult+Child-West Trail	Absolute Value > 0.03	Site-wide CR: Arsenic Residential Soil-Dust	Absolute Value > 0.03	CR-Arsenic-Produce-Residential Adult+Child-Far	Absolute Value > 0.03	CR-Arsenic-Produce-Residential Adult+Child-Near	Absolute Value > 0.03
Cadmium: East Trail Outdoor Dust	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	0.01	N	0.00	N
Cadmium: East Trail Residential Soil	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	-0.02	N	0.00	N
Cadmium: Far Nonroot Produce	-0.01	N	0.00	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	0.00	N
Cadmium: Genelle Air	0.02	N	0.02	N	0.02	N	0.02	N	0.02	N	0.02	N	0.01	N	-0.01	N
Cadmium: Near Nonroot Produce	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.02	N	0.01	N
Cadmium: Near Root Produce	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	-0.01	N	0.01	N	0.00	N
Cadmium: Rivervale Outdoor Dust	0.01	N	0.02	N	0.01	N	0.01	N	0.01	N	0.02	N	0.01	N	0.01	N
Cadmium: Rivervale Residential Soil	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	-0.01	N	0.00	N	0.00	N
Cadmium: Tadanac Outdoor Dust	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.01	N	0.00	N
Cadmium: Tadanac Residential Soil	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.02	N	0.00	N	-0.01	N
Cadmium: Waneta Residential Soil	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N
Cadmium: Warfield Air	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N	0.00	N	0.00	N
Cadmium: West Trail Air	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	-0.01	N	-0.01	N
Cadmium: West Trail Outdoor Dust	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N	0.02	N	0.00	N

Table D-2. Largest Contributors to Variability in Cancer Risk Estimates (in decreasing order of importance)

Forecast (Output Distribution)	**Site-wide: CR Produce: Arsenic**	**CR-Cadmium-Particulates-Agricultural Adult-Waneta**
List of Largest Contributors to Variability	Arsenic in nonroot produce Exposure Duration Arsenic in root produce Child nonroot ingestion rate Child Root ingestion rate Adult nonroot ingestion rate Adult root ingestion rate Child Body Weight	Exposure Duration particulate concentration in air Adult Body Weight Adult Inhalation rate

Rank correlation data between assumption and forecast

Assumptions	Site-wide: CR Produce: Arsenic	Absolute Value > 0.03	CR-Cadmium-Particulates-Agricultural Adult-Waneta	Absolute Value > 0.03
Cadmium: East Trail Outdoor Dust	-0.01	N	0.01	N
Cadmium: East Trail Residential Soil	-0.01	N	0.00	N
Cadmium: Far Nonroot Produce	-0.01	N	-0.01	N
Cadmium: Genelle Air	0.00	N	0.00	N
Cadmium: Near Nonroot Produce	0.00	N	0.00	N
Cadmium: Near Root Produce	0.00	N	0.01	N
Cadmium: Rivervale Outdoor Dust	0.00	N	0.00	N
Cadmium: Rivervale Residential Soil	0.01	N	0.00	N
Cadmium: Tadanac Outdoor Dust	-0.01	N	-0.02	N
Cadmium: Tadanac Residential Soil	0.00	N	0.03	N
Cadmium: Waneta Residential Soil	0.00	N	-0.03	N
Cadmium: Warfield Air	0.01	N	-0.01	N
Cadmium: West Trail Air	0.00	N	-0.01	N
Cadmium: West Trail Outdoor Dust	0.01	N	-0.01	N

Table D-2. Largest Contributors to Variability in Cancer Risk Estimates (in decreasing order of importance)

Forecast (Output Distribution)	**CR-Arsenic-Air-Commercial Adult+Child-Birchbank**	**CR-Arsenic-Air-Commercial Adult+Child-Butler Park**	**CR-Arsenic-Air-Commercial Adult+Child-Columbia Gardens**	**CR-Arsenic-Air-Commercial Adult+Child-Genelle**	**CR-Arsenic-Air-Commercial Adult+Child-Warfield**	**CR-Arsenic-Air-Commercial Adult+Child-West Trail**	**CR-Arsenic-Air-Residential Adult+Child-Birchbank**	**CR-Arsenic-Air-Residential Adult+Child-Butler Park**
List of Largest Contributors to Variability	Arsenic in air Exposure Duration Child Inhalation Rate Child Body Weight Adult Inhalation Rate Exposure Frequency	Arsenic in air Exposure Duration Child Inhalation Rate Child Body Weight Adult Inhalation Rate Exposure Frequency Adult Body Weight	Arsenic in air Exposure Duration Child Inhalation Rate Child Body Weight Exposure Frequency Adult Inhalation Rate Adult Body Weight	Arsenic in air Exposure Duration Child Inhalation Rate Child Body Weight Exposure Frequency Adult Body Weight	Arsenic in air Exposure Duration Child Inhalation Rate Child Body Weight Exposure Frequency Adult Body Weight Adult Inhalation Rate	Arsenic in air Exposure Duration Child Inhalation Rate Child Body Weight Exposure Frequency Adult Body Weight Adult Inhalation Rate	Arsenic in air Exposure Duration Child Inhalation Rate Child Body Weight Adult Inhalation Rate	Arsenic in air Exposure Duration Child Body Weight Child Inhalation Rate Adult Inhalation Rate Adult Body Weight

Rank correlation data between assumption and forecast

Assumptions	CR-Arsenic-Air-Commercial Adult+Child-Birchbank	Absolute Value > 0.03	CR-Arsenic-Air-Commercial Adult+Child-Butler Park	Absolute Value > 0.03	CR-Arsenic-Air-Commercial Adult+Child-Columbia Gardens	Absolute Value > 0.03	CR-Arsenic-Air-Commercial Adult+Child-Genelle	Absolute Value > 0.03	CR-Arsenic-Air-Commercial Adult+Child-Warfield	Absolute Value > 0.03	CR-Arsenic-Air-Commercial Adult+Child-West Trail	Absolute Value > 0.03	CR-Arsenic-Air-Residential Adult+Child-Birchbank	Absolute Value > 0.03	CR-Arsenic-Air-Residential Adult+Child-Butler Park	Absolute Value > 0.03
Cadmium: West Trail Residential Soil	-0.01	N	-0.01	N	0.00	N	-0.02	N	-0.01	N	-0.01	N	0.00	N	-0.01	N
Daily Inhalation Rate (m3/day): Adult	0.00	N	0.00	N	0.01	N	0.00	N	0.00	N	-0.02	N	0.03	Y	0.05	Y
Daily Inhalation Rate (m3/day): Child	0.00	N	-0.01	N	0.00	N	-0.03	Y	0.00	N	0.00	N	0.11	Y	0.12	Y
Fractional Intake (-): Residential Indoor Dust	0.00	N	0.00	N	-0.01	N	0.00	N	-0.01	N	-0.01	N	0.00	N	0.00	N
Hourly Inhalation Rate (m3/hour): Adult	0.04	Y	0.05	Y	0.05	Y	0.03	N	0.04	Y	0.03	Y	0.01	N	0.01	N
Hourly Inhalation Rate (m3/hour): Child	0.15	Y	0.18	Y	0.19	Y	0.18	Y	0.18	Y	0.21	Y	0.00	N	0.00	N
PCair	0.01	N	0.00	N	0.02	N	0.00	N	0.01	N	0.01	N	0.01	N	0.00	N
Selenium: East Trail Outdoor Dust	0.00	N	0.01	N	0.00	N	0.01	N	0.02	N	0.03	N	0.00	N	0.01	N
Selenium: East Trail Residential Soil	0.01	N	0.00	N	0.00	N	0.00	N	-0.02	N	0.01	N	0.01	N	0.00	N
Selenium: Rivervale Outdoor Dust	0.00	N	0.01	N	0.02	N	0.00	N	0.01	N	-0.01	N	0.01	N	0.01	N
Selenium: Rivervale Residential Soil	0.02	N	0.02	N	0.00	N	0.01	N	0.01	N	0.01	N	0.02	N	0.02	N
Selenium: Tadanac Outdoor Dust	0.02	N	0.01	N	0.02	N	0.01	N	0.03	N	0.01	N	0.02	N	0.01	N
Selenium: Tadanac Residential Soil	0.01	N	0.02	N	0.02	N	0.01	N	0.01	N	0.01	N	0.01	N	0.02	N
Selenium: West Trail Outdoor Dust	-0.01	N	0.00	N	0.00	N	0.00	N	-0.01	N	-0.01	N	-0.01	N	0.00	N
Selenium: West Trail Residential Soil	0.00	N	0.00	N	0.01	N	-0.01	N	0.00	N	0.01	N	0.00	N	0.00	N
Silver: East Trail Outdoor Dust	0.01	N	-0.01	N	0.00	N	0.00	N	-0.01	N	-0.01	N	0.01	N	-0.02	N
Silver: East Trail Residential Soil	-0.01	N	0.00	N	0.01	N	0.01	N	0.00	N	0.00	N	-0.01	N	0.00	N
Silver: Rivervale Outdoor Dust	0.00	N	0.00	N	-0.01	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N
Silver: Rivervale Residential Soil	0.01	N	0.01	N	0.01	N	0.01	N	0.02	N	0.01	N	0.01	N	0.00	N
Silver: Tadanac Outdoor Dust	-0.01	N	0.01	N	0.00	N	0.01	N	0.00	N	0.00	N	-0.01	N	0.00	N
Silver: Tadanac Residential Soil	0.01	N	0.00	N	0.00	N	-0.01	N	0.00	N	-0.01	N	0.01	N	0.00	N
Silver: West Trail Outdoor Dust	-0.01	N	0.00	N	0.00	N	0.00	N	0.01	N	0.01	N	-0.01	N	0.00	N
Silver: West Trail Residential Soil	-0.01	N	-0.01	N	-0.01	N	0.01	N	0.00	N	0.01	N	-0.01	N	-0.01	N
Site-wide: Indoor Dust: antimony	0.01	N	0.01	N	0.00	N	0.00	N	0.01	N	-0.01	N	0.01	N	0.01	N

Table D-2. Largest Contributors to Variability in Cancer Risk Estimates (in decreasing order of importance)

Forecast (Output Distribution)	CR-Arsenic-Air-Residential Adult+Child-Columbia Gardens	CR-Arsenic-Air-Residential Adult+Child-Genelle	CR-Arsenic-Air-Residential Adult+Child-Warfield	CR-Arsenic-Air-Residential Adult+Child-West Trail	CR-Cadmium-Air-Commercial Adult+Child-Birchbank	CR-Cadmium-Air-Commercial Adult+Child-Butler Park	CR-Cadmium-Air-Commercial Adult+Child-Columbia Gardens	CR-Cadmium-Air-Commercial Adult+Child-Genelle
List of Largest Contributors to Variability	Arsenic in air Exposure Duration Child Inhalation Rate Child Body Weight Adult Inhalation Rate Adult Body Weight	Arsenic in air Exposure Duration Child Inhalation Rate Child Body Weight Adult Inhalation Rate Adult Body Weight	Arsenic in air Exposure Duration Child Inhalation Rate Child Body Weight Adult Inhalation Rate Adult Body Weight	Arsenic in air Exposure Duration Child Inhalation Rate Child Body Weight Adult Body Weight	Cadmium in air Exposure Duration Child Inhalation Rate Child Body Weight Adult Inhalation Rate Adult Body Weight Exposure Frequency	Cadmium in air Exposure Duration Child Inhalation Rate Child Body Weight Exposure Frequency Adult Inhalation Rate Adult Body Weight	Cadmium in air Exposure Duration Child Inhalation Rate Child Body Weight Exposure Frequency Adult Inhalation Rate Adult Body Weight	Cadmium in air Exposure Duration Child Inhalation Rate Child Body Weight Exposure Frequency Adult Inhalation Rate Adult Body Weight

Rank correlation data between assumption and forecast

Assumptions	CR-Arsenic-Air-Residential Adult+Child-Columbia Gardens	Absolute Value > 0.03	CR-Arsenic-Air-Residential Adult+Child-Genelle	Absolute Value > 0.03	CR-Arsenic-Air-Residential Adult+Child-Warfield	Absolute Value > 0.03	CR-Arsenic-Air-Residential Adult+Child-West Trail	Absolute Value > 0.03	CR-Cadmium-Air-Commercial Adult+Child-Birchbank	Absolute Value > 0.03	CR-Cadmium-Air-Commercial Adult+Child-Butler Park	Absolute Value > 0.03	CR-Cadmium-Air-Commercial Adult+Child-Columbia Gardens	Absolute Value > 0.03	CR-Cadmium-Air-Commercial Adult+Child-Genelle	Absolute Value > 0.03
Cadmium: West Trail Residential Soil	0.00	N	-0.02	N	0.00	N	0.00	N	-0.01	N	0.00	N	0.00	N	-0.01	N
Daily Inhalation Rate (m3/day): Adult	0.05	Y	0.04	Y	0.04	Y	0.03	N	0.01	N	0.00	N	0.01	N	0.00	N
Daily Inhalation Rate (m3/day): Child	0.13	Y	0.09	Y	0.13	Y	0.14	Y	-0.01	N	-0.02	N	-0.02	N	-0.01	N
Fractional Intake (-): Residential Indoor Dust	-0.01	N	0.00	N	-0.01	N	-0.01	N	0.00	N	-0.01	N	-0.01	N	0.01	N
Hourly Inhalation Rate (m3/hour): Adult	0.01	N	-0.01	N	0.00	N	-0.01	N	0.05	Y	0.05	Y	0.05	Y	0.06	Y
Hourly Inhalation Rate (m3/hour): Child	0.01	N	0.01	N	0.00	N	0.01	N	0.17	Y	0.18	Y	0.19	Y	0.22	Y
PCair	0.02	N	0.00	N	0.00	N	0.01	N	0.00	N	0.00	N	0.00	N	0.00	N
Selenium: East Trail Outdoor Dust	0.00	N	0.01	N	0.02	N	0.02	N	0.02	N	0.03	N	0.02	N	0.02	N
Selenium: East Trail Residential Soil	0.00	N	0.00	N	-0.02	N	0.01	N	0.00	N	0.01	N	0.02	N	0.00	N
Selenium: Rivervale Outdoor Dust	0.02	N	0.00	N	0.00	N	-0.01	N	0.01	N	0.01	N	0.02	N	0.01	N
Selenium: Rivervale Residential Soil	0.00	N	0.01	N	0.00	N	0.00	N	-0.01	N	0.00	N	-0.01	N	0.01	N
Selenium: Tadanac Outdoor Dust	0.02	N	0.01	N	0.02	N	0.01	N	0.01	N	0.02	N	0.00	N	0.02	N
Selenium: Tadanac Residential Soil	0.02	N	0.01	N	0.01	N	0.00	N	0.00	N	0.01	N	0.02	N	0.02	N
Selenium: West Trail Outdoor Dust	0.00	N	0.00	N	-0.01	N	-0.01	N	0.00	N	0.00	N	-0.02	N	-0.01	N
Selenium: West Trail Residential Soil	0.01	N	0.00	N	0.00	N	0.02	N	0.01	N	0.00	N	0.00	N	0.00	N
Silver: East Trail Outdoor Dust	0.00	N	0.00	N	-0.01	N	-0.02	N	0.01	N	0.00	N	0.01	N	0.00	N
Silver: East Trail Residential Soil	0.01	N	0.01	N	0.00	N	0.00	N	-0.01	N	0.01	N	0.01	N	-0.01	N
Silver: Rivervale Outdoor Dust	-0.02	N	0.00	N	0.00	N	0.00	N	0.01	N	-0.02	N	0.00	N	-0.01	N
Silver: Rivervale Residential Soil	0.01	N	0.01	N	0.02	N	0.01	N	0.02	N	0.01	N	0.02	N	0.01	N
Silver: Tadanac Outdoor Dust	0.00	N	0.01	N	0.00	N	0.00	N	0.00	N	0.00	N	0.01	N	0.01	N
Silver: Tadanac Residential Soil	0.00	N	-0.01	N	0.00	N	-0.01	N	-0.01	N	0.01	N	0.00	N	0.00	N
Silver: West Trail Outdoor Dust	0.00	N	0.01	N	0.01	N	0.01	N	0.00	N	0.01	N	0.00	N	0.00	N
Silver: West Trail Residential Soil	-0.01	N	0.01	N	0.00	N	0.01	N	-0.01	N	0.00	N	0.00	N	-0.01	N
Site-wide: Indoor Dust: antimony	0.00	N	0.00	N	0.01	N	-0.01	N	0.00	N	0.00	N	-0.01	N	0.00	N

Table D-2. Largest Contributors to Variability in Cancer Risk Estimates (in decreasing order of importance)

Forecast (Output Distribution)	CR-Cadmium-Air-Commercial Adult+Child-Warfield	CR-Cadmium-Air-Commercial Adult+Child-West Trail	CR-Cadmium-Air-Residential Adult+Child-Birchbank	CR-Cadmium-Air-Residential Adult+Child-Butler Park	CR-Cadmium-Air-Residential Adult+Child-Columbia Gardens	CR-Cadmium-Air-Residential Adult+Child-Genelle	CR-Cadmium-Air-Residential Adult+Child-Warfield	CR-Cadmium-Air-Residential Adult+Child-West Trail
List of Largest Contributors to Variability	Cadmium in air Exposure Duration Child Inhalation Rate Child Body Weight Exposure Frequency Adult Inhalation Rate	Cadmium in air Exposure Duration Child Inhalation Rate Child Body Weight Exposure Frequency Adult Inhalation Rate Adult Body Weight	Cadmium in air Exposure Duration Child Body Weight Child Inhalation Rate Adult Inhalation Rate Adult Body Weight	Cadmium in air Exposure Duration Child Body Weight Child Inhalation Rate Adult Inhalation Rate Adult Body Weight	Cadmium in air Exposure Duration Child Body Weight Child Inhalation Rate Adult Inhalation Rate Adult Body Weight	Cadmium in air Exposure Duration Child Body Weight Child Inhalation Rate Adult Inhalation Rate Adult Body Weight	Cadmium in air Exposure Duration Child Body Weight Child Inhalation Rate Adult Inhalation Rate	Cadmium in air Exposure Duration Child Body Weight Child Inhalation Rate Adult Inhalation Rate

Rank correlation data between assumption and forecast

Assumptions	CR-Cadmium-Air-Commercial Adult+Child-Warfield	Absolute Value > 0.03	CR-Cadmium-Air-Commercial Adult+Child-West Trail	Absolute Value > 0.03	CR-Cadmium-Air-Residential Adult+Child-Birchbank	Absolute Value > 0.03	CR-Cadmium-Air-Residential Adult+Child-Butler Park	Absolute Value > 0.03	CR-Cadmium-Air-Residential Adult+Child-Columbia Gardens	Absolute Value > 0.03	CR-Cadmium-Air-Residential Adult+Child-Genelle	Absolute Value > 0.03	CR-Cadmium-Air-Residential Adult+Child-Warfield	Absolute Value > 0.03	CR-Cadmium-Air-Residential Adult+Child-West Trail	Absolute Value > 0.03
Cadmium: West Trail Residential Soil	0.00	N	-0.02	N	-0.01	N	0.00	N	0.00	N	0.00	N	0.00	N	-0.01	N
Daily Inhalation Rate (m3/day): Adult	0.00	N	0.00	N	0.05	Y	0.05	Y	0.06	Y	0.05	Y	0.04	Y	0.05	Y
Daily Inhalation Rate (m3/day): Child	-0.01	N	-0.03	N	0.11	Y	0.12	Y	0.11	Y	0.14	Y	0.12	Y	0.11	Y
Fractional Intake (-): Residential Indoor Dust	-0.01	N	0.00	N	0.00	N	-0.01	N	-0.01	N	0.01	N	-0.01	N	0.01	N
Hourly Inhalation Rate (m3/hour): Adult	0.03	Y	0.05	Y	0.01	N	0.00	N	0.01	N	0.01	N	-0.01	N	0.01	N
Hourly Inhalation Rate (m3/hour): Child	0.18	Y	0.18	Y	0.00	N	-0.01	N	0.00	N	0.01	N	-0.01	N	-0.01	N
PCair	0.00	N	0.01	N	0.00	N	0.00	N	0.00	N	-0.01	N	0.00	N	0.01	N
Selenium: East Trail Outdoor Dust	0.01	N	0.02	N	0.02	N	0.03	N	0.02	N	0.02	N	0.00	N	0.02	N
Selenium: East Trail Residential Soil	0.00	N	0.01	N	0.00	N	0.01	N	0.02	N	-0.01	N	0.00	N	0.01	N
Selenium: Rivervale Outdoor Dust	0.01	N	0.00	N	0.00	N	0.01	N	0.02	N	0.00	N	0.01	N	0.00	N
Selenium: Rivervale Residential Soil	-0.01	N	0.00	N	-0.01	N	0.00	N	-0.01	N	0.00	N	-0.01	N	-0.01	N
Selenium: Tadanac Outdoor Dust	0.02	N	0.02	N	0.01	N	0.01	N	0.00	N	0.01	N	0.02	N	0.02	N
Selenium: Tadanac Residential Soil	0.02	N	0.02	N	-0.01	N	0.00	N	0.02	N	0.02	N	0.01	N	0.01	N
Selenium: West Trail Outdoor Dust	0.00	N	-0.01	N	0.00	N	0.00	N	-0.02	N	-0.01	N	0.00	N	-0.01	N
Selenium: West Trail Residential Soil	0.01	N	0.02	N	0.01	N	0.00	N	0.00	N	0.00	N	0.01	N	0.02	N
Silver: East Trail Outdoor Dust	0.00	N	0.00	N	0.00	N	0.00	N	0.01	N	0.00	N	0.00	N	0.00	N
Silver: East Trail Residential Soil	-0.01	N	0.01	N	-0.01	N	0.01	N	0.00	N	-0.01	N	-0.02	N	0.01	N
Silver: Rivervale Outdoor Dust	0.00	N	0.00	N	0.00	N	-0.02	N	0.00	N	-0.01	N	0.00	N	0.00	N
Silver: Rivervale Residential Soil	0.00	N	0.01	N	0.02	N	0.01	N	0.02	N	0.01	N	-0.01	N	0.01	N
Silver: Tadanac Outdoor Dust	0.02	N	0.00	N	0.00	N	-0.01	N	0.00	N	0.01	N	0.01	N	0.00	N
Silver: Tadanac Residential Soil	0.00	N	-0.01	N	-0.01	N	0.01	N	0.00	N	-0.01	N	0.00	N	-0.01	N
Silver: West Trail Outdoor Dust	0.00	N	-0.01	N	0.00	N	0.02	N	0.00	N	0.01	N	0.00	N	-0.01	N
Silver: West Trail Residential Soil	-0.01	N	-0.01	N	-0.01	N	0.00	N	0.00	N	-0.01	N	-0.01	N	-0.02	N
Site-wide: Indoor Dust: antimony	0.01	N	-0.02	N	0.00	N	0.00	N	-0.01	N	0.00	N	0.00	N	-0.02	N

Table D-2. Largest Contributors to Variability in Cancer Risk Estimates (in decreasing order of importance)

Forecast (Output Distribution)	**CR-Arsenic-Soil/Dust-Residential Adult+Child-East Trail**	**CR-Arsenic-Soil/Dust-Residential Adult+Child-Rivervale**	**CR-Arsenic-Soil/Dust-Residential Adult+Child-Tadanac**	**CR-Arsenic-Soil/Dust-Residential Adult+Child-Waneta**	**CR-Arsenic-Soil/Dust-Residential Adult+Child-West Trail**	**Site-wide CR: Arsenic Residential Soil-Dust**	**CR-Arsenic-Produce-Residential Adult+Child-Far**	**CR-Arsenic-Produce-Residential Adult+Child-Near**
List of Largest Contributors to Variability	Child soil ingestion rate Exposure Duration Child Body Weight Adult SIR Arsenic in soil Arsenic in outdoor dust	Child soil ingestion rate Exposure Duration Child Body Weight Adult SIR Arsenic in soil	Child soil ingestion rate Exposure Duration Child Body Weight Adult SIR Arsenic in outdoor dust Arsenic in soil	Child soil ingestion rate Exposure Duration Child Body Weight Adult SIR Arsenic in soil	Child soil ingestion rate Exposure Duration Child Body Weight Adult SIR Arsenic in soil Fractional intake: soil/dust Arsenic in outdoor dust	Child soil ingestion rate Exposure Duration Arsenic in indoor dust Child Body Weight Adult SIR Arsenic in soil Arsenic in outdoor dust	Exposure Duration Arsenic in nonroot produce Child Root ingestion rate Child nonroot ingestion rate Adult root ingestion rate Adult nonroot ingestion rate Adult Body Weight Child Body Weight	Arsenic in root produce Exposure Duration Child nonroot ingestion rate Child Root ingestion rate Adult nonroot ingestion rate Adult root ingestion rate Child Body Weight

Rank correlation data between assumption and forecast

Assumptions	CR-Arsenic-Soil/Dust-Residential Adult+Child-East Trail	Absolute Value > 0.03	CR-Arsenic-Soil/Dust-Residential Adult+Child-Rivervale	Absolute Value > 0.03	CR-Arsenic-Soil/Dust-Residential Adult+Child-Tadanac	Absolute Value > 0.03	CR-Arsenic-Soil/Dust-Residential Adult+Child-Waneta	Absolute Value > 0.03	CR-Arsenic-Soil/Dust-Residential Adult+Child-West Trail	Absolute Value > 0.03	Site-wide CR: Arsenic Residential Soil-Dust	Absolute Value > 0.03	CR-Arsenic-Produce-Residential Adult+Child-Far	Absolute Value > 0.03	CR-Arsenic-Produce-Residential Adult+Child-Near	Absolute Value > 0.03
Cadmium: West Trail Residential Soil	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	0.01	N
Daily Inhalation Rate (m3/day): Adult	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N	0.00	N	-0.01	N
Daily Inhalation Rate (m3/day): Child	-0.03	N	-0.02	N	-0.03	N	-0.03	N	-0.03	N	-0.03	N	-0.01	N	-0.01	N
Fractional Intake (-): Residential Indoor Dust	0.02	N	0.01	N	0.02	N	0.01	N	0.04	Y	0.02	N	-0.01	N	0.00	N
Hourly Inhalation Rate (m3/hour): Adult	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N
Hourly Inhalation Rate (m3/hour): Child	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.02	N	0.00	N	0.01	N
PCair	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N
Selenium: East Trail Outdoor Dust	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	0.02	N	0.01	N
Selenium: East Trail Residential Soil	0.00	N	0.00	N	0.01	N	0.00	N	0.01	N	0.00	N	0.00	N	0.01	N
Selenium: Rivervale Outdoor Dust	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N	0.00	N	0.00	N
Selenium: Rivervale Residential Soil	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	-0.01	N	0.00	N
Selenium: Tadanac Outdoor Dust	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N
Selenium: Tadanac Residential Soil	0.00	N	0.00	N	0.00	N	0.01	N	0.01	N	0.00	N	0.01	N	0.01	N
Selenium: West Trail Outdoor Dust	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.01	N	-0.01	N	0.00	N
Selenium: West Trail Residential Soil	-0.02	N	-0.02	N	-0.02	N	-0.02	N	-0.02	N	-0.02	N	0.01	N	0.00	N
Silver: East Trail Outdoor Dust	-0.01	N	-0.01	N	0.00	N	0.00	N	-0.01	N	0.00	N	0.00	N	0.00	N
Silver: East Trail Residential Soil	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.02	N	0.00	N
Silver: Rivervale Outdoor Dust	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.01	N	0.00	N
Silver: Rivervale Residential Soil	0.03	N	0.03	N	0.02	N	0.02	N	0.03	N	0.02	N	0.01	N	-0.01	N
Silver: Tadanac Outdoor Dust	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.01	N	0.00	N
Silver: Tadanac Residential Soil	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	-0.01	N
Silver: West Trail Outdoor Dust	-0.02	N	-0.02	N	-0.02	N	-0.02	N	-0.02	N	-0.02	N	-0.02	N	-0.01	N
Silver: West Trail Residential Soil	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	0.00	N
Site-wide: Indoor Dust: antimony	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	0.00	N	-0.01	N

Table D-2. Largest Contributors to Variability in Cancer Risk Estimates (in decreasing order of importance)

Forecast (Output Distribution)	Site-wide: CR Produce: Arsenic	CR-Cadmium-Particulates-Agricultural Adult-Waneta
List of Largest Contributors to Variability	Arsenic in nonroot produce Exposure Duration Arsenic in root produce Child nonroot ingestion rate Child Root ingestion rate Adult nonroot ingestion rate Adult root ingestion rate Child Body Weight	Exposure Duration particulate concentration in air Adult Body Weight Adult Inhalation rate

Rank correlation data between assumption and forecast

Assumptions	Site-wide: CR Produce: Arsenic	Absolute Value > 0.03	CR-Cadmium-Particulates-Agricultural Adult-Waneta	Absolute Value > 0.03
Cadmium: West Trail Residential Soil	-0.01	N	-0.01	N
Daily Inhalation Rate (m3/day): Adult	0.01	N	0.00	N
Daily Inhalation Rate (m3/day): Child	-0.01	N	-0.02	N
Fractional Intake (-): Residential Indoor Dust	-0.01	N	-0.01	N
Hourly Inhalation Rate (m3/hour): Adult	0.00	N	0.16	Y
Hourly Inhalation Rate (m3/hour): Child	0.01	N	0.00	N
PCair	-0.01	N	0.38	Y
Selenium: East Trail Outdoor Dust	0.01	N	0.00	N
Selenium: East Trail Residential Soil	0.01	N	0.00	N
Selenium: Rivervale Outdoor Dust	0.02	N	0.00	N
Selenium: Rivervale Residential Soil	-0.01	N	-0.02	N
Selenium: Tadanac Outdoor Dust	0.02	N	0.00	N
Selenium: Tadanac Residential Soil	0.02	N	0.01	N
Selenium: West Trail Outdoor Dust	-0.02	N	0.02	N
Selenium: West Trail Residential Soil	0.01	N	0.01	N
Silver: East Trail Outdoor Dust	0.00	N	0.01	N
Silver: East Trail Residential Soil	0.01	N	0.01	N
Silver: Rivervale Outdoor Dust	-0.02	N	0.01	N
Silver: Rivervale Residential Soil	0.01	N	-0.02	N
Silver: Tadanac Outdoor Dust	-0.02	N	-0.01	N
Silver: Tadanac Residential Soil	0.00	N	0.00	N
Silver: West Trail Outdoor Dust	-0.01	N	0.00	N
Silver: West Trail Residential Soil	0.00	N	-0.02	N
Site-wide: Indoor Dust: antimony	-0.01	N	0.02	N

Table D-2. Largest Contributors to Variability in Cancer Risk Estimates (in decreasing order of importance)

Forecast (Output Distribution)	**CR-Arsenic-Air-Commercial Adult+Child-Birchbank**	**CR-Arsenic-Air-Commercial Adult+Child-Butler Park**	**CR-Arsenic-Air-Commercial Adult+Child-Columbia Gardens**	**CR-Arsenic-Air-Commercial Adult+Child-Genelle**	**CR-Arsenic-Air-Commercial Adult+Child-Warfield**	**CR-Arsenic-Air-Commercial Adult+Child-West Trail**	**CR-Arsenic-Air-Residential Adult+Child-Birchbank**	**CR-Arsenic-Air-Residential Adult+Child-Butler Park**
List of Largest Contributors to Variability	Arsenic in air Exposure Duration Child Inhalation Rate Child Body Weight Adult Inhalation Rate Exposure Frequency	Arsenic in air Exposure Duration Child Inhalation Rate Child Body Weight Adult Inhalation Rate Exposure Frequency Adult Body Weight	Arsenic in air Exposure Duration Child Inhalation Rate Child Body Weight Exposure Frequency Adult Inhalation Rate Adult Body Weight	Arsenic in air Exposure Duration Child Inhalation Rate Child Body Weight Exposure Frequency Adult Body Weight	Arsenic in air Exposure Duration Child Inhalation Rate Child Body Weight Exposure Frequency Adult Body Weight Adult Inhalation Rate	Arsenic in air Exposure Duration Child Inhalation Rate Child Body Weight Exposure Frequency Adult Body Weight Adult Inhalation Rate	Arsenic in air Exposure Duration Child Inhalation Rate Child Body Weight Adult Inhalation Rate	Arsenic in air Exposure Duration Child Body Weight Child Inhalation Rate Adult Inhalation Rate Adult Body Weight

Rank correlation data between assumption and forecast

Assumptions	CR-Arsenic-Air-Commercial Adult+Child-Birchbank	Absolute Value > 0.03	CR-Arsenic-Air-Commercial Adult+Child-Butler Park	Absolute Value > 0.03	CR-Arsenic-Air-Commercial Adult+Child-Columbia Gardens	Absolute Value > 0.03	CR-Arsenic-Air-Commercial Adult+Child-Genelle	Absolute Value > 0.03	CR-Arsenic-Air-Commercial Adult+Child-Warfield	Absolute Value > 0.03	CR-Arsenic-Air-Commercial Adult+Child-West Trail	Absolute Value > 0.03	CR-Arsenic-Air-Residential Adult+Child-Birchbank	Absolute Value > 0.03	CR-Arsenic-Air-Residential Adult+Child-Butler Park	Absolute Value > 0.03
Site-wide: Indoor Dust: Arsenic (mg/kg)	0.02	N	-0.02	N	0.01	N	0.00	N	0.00	N	-0.02	N	0.02	N	-0.01	N
Site-wide: Indoor Dust: cadmium (mg/kg)	0.00	N	0.00	N	-0.01	N	-0.01	N	0.00	N	-0.01	N	0.00	N	0.00	N
Site-wide: nonroot produce: antimony	0.00	N	-0.01	N	-0.01	N	-0.01	N	0.00	N	0.01	N	0.00	N	-0.01	N
Site-wide: nonroot produce: cadmium	0.01	N	0.00	N	-0.01	N	-0.01	N	-0.01	N	-0.03	Y	0.01	N	0.01	N
Site-wide: nonroot produce: thallium	0.00	N	0.03	N	0.00	N	0.01	N	0.00	N	0.00	N	0.00	N	0.03	Y
Site-wide: Outdoor Dust: antimony (mg/kg)	-0.01	N	0.01	N	0.01	N	0.00	N	0.00	N	0.00	N	-0.01	N	0.01	N
Site-wide: Outdoor dust: arsenic (mg/kg)	0.00	N	-0.01	N	-0.03	N	0.02	N	-0.01	N	0.00	N	0.00	N	0.00	N
Site-wide: Outdoor dust: cadmium (mg/kg)	0.00	N	0.00	N	0.02	N	0.01	N	0.01	N	0.01	N	0.00	N	0.00	N
Site-wide: outdoor dust: selenium (mg/kg)	-0.01	N	0.00	N	0.00	N	0.00	N	0.00	N	-0.01	N	-0.01	N	0.00	N

Table D-2. Largest Contributors to Variability in Cancer Risk Estimates (in decreasing order of importance)

Forecast (Output Distribution)	**CR-Arsenic-Air-Residential Adult+Child-Columbia Gardens**	**CR-Arsenic-Air-Residential Adult+Child-Genelle**	**CR-Arsenic-Air-Residential Adult+Child-Warfield**	**CR-Arsenic-Air-Residential Adult+Child-West Trail**	**CR-Cadmium-Air-Commercial Adult+Child-Birchbank**	**CR-Cadmium-Air-Commercial Adult+Child-Butler Park**	**CR-Cadmium-Air-Commercial Adult+Child-Columbia Gardens**	**CR-Cadmium-Air-Commercial Adult+Child-Genelle**
List of Largest Contributors to Variability	Arsenic in air Exposure Duration Child Inhalation Rate Child Body Weight Adult Inhalation Rate Adult Body Weight	Arsenic in air Exposure Duration Child Inhalation Rate Child Body Weight Adult Inhalation Rate Adult Body Weight	Arsenic in air Exposure Duration Child Inhalation Rate Child Body Weight Adult Inhalation Rate Adult Body Weight	Arsenic in air Exposure Duration Child Inhalation Rate Child Body Weight Adult Body Weight	Cadmium in air Exposure Duration Child Inhalation Rate Child Body Weight Adult Inhalation Rate Adult Body Weight Exposure Frequency	Cadmium in air Exposure Duration Child Inhalation Rate Child Body Weight Exposure Frequency Adult Inhalation Rate Adult Body Weight	Cadmium in air Exposure Duration Child Inhalation Rate Child Body Weight Exposure Frequency Adult Inhalation Rate Adult Body Weight	Cadmium in air Exposure Duration Child Inhalation Rate Child Body Weight Exposure Frequency Adult Inhalation Rate Adult Body Weight

Rank correlation data between assumption and forecast

Assumptions	CR-Arsenic-Air-Residential Adult+Child-Columbia Gardens	Absolute Value > 0.03	CR-Arsenic-Air-Residential Adult+Child-Genelle	Absolute Value > 0.03	CR-Arsenic-Air-Residential Adult+Child-Warfield	Absolute Value > 0.03	CR-Arsenic-Air-Residential Adult+Child-West Trail	Absolute Value > 0.03	CR-Cadmium-Air-Commercial Adult+Child-Birchbank	Absolute Value > 0.03	CR-Cadmium-Air-Commercial Adult+Child-Butler Park	Absolute Value > 0.03	CR-Cadmium-Air-Commercial Adult+Child-Columbia Gardens	Absolute Value > 0.03	CR-Cadmium-Air-Commercial Adult+Child-Genelle	Absolute Value > 0.03
Site-wide: Indoor Dust: Arsenic (mg/kg)	0.01	N	0.00	N	0.01	N	-0.01	N	0.00	N	-0.01	N	0.00	N	-0.01	N
Site-wide: Indoor Dust: cadmium (mg/kg)	-0.01	N	-0.01	N	0.00	N	0.00	N	0.01	N	0.00	N	-0.01	N	0.00	N
Site-wide: nonroot produce: antimony	-0.01	N	-0.01	N	0.00	N	0.01	N	-0.01	N	-0.01	N	0.00	N	-0.01	N
Site-wide: nonroot produce: cadmium	-0.01	N	-0.01	N	0.00	N	-0.03	N	-0.02	N	-0.02	N	-0.02	N	-0.01	N
Site-wide: nonroot produce: thallium	0.00	N	0.01	N	0.00	N	0.01	N	0.01	N	0.00	N	0.00	N	-0.01	N
Site-wide: Outdoor Dust: antimony (mg/kg)	0.00	N	0.00	N	0.00	N	-0.01	N	0.01	N	0.01	N	0.00	N	0.00	N
Site-wide: Outdoor dust: arsenic (mg/kg)	-0.03	N	0.02	N	-0.01	N	0.00	N	-0.01	N	-0.02	N	0.00	N	-0.01	N
Site-wide: Outdoor dust: cadmium (mg/kg)	0.02	N	0.00	N	0.00	N	0.00	N	0.01	N	0.01	N	0.01	N	0.01	N
Site-wide: outdoor dust: selenium (mg/kg)	0.00	N	0.00	N	-0.01	N	-0.01	N	0.00	N	0.00	N	0.00	N	0.00	N

Table D-2. Largest Contributors to Variability in Cancer Risk Estimates (in decreasing order of importance)

Forecast (Output Distribution)	CR-Cadmium-Air-Commercial Adult+Child-Warfield	CR-Cadmium-Air-Commercial Adult+Child-West Trail	CR-Cadmium-Air-Residential Adult+Child-Birchbank	CR-Cadmium-Air-Residential Adult+Child-Butler Park	CR-Cadmium-Air-Residential Adult+Child-Columbia Gardens	CR-Cadmium-Air-Residential Adult+Child-Genelle	CR-Cadmium-Air-Residential Adult+Child-Warfield	CR-Cadmium-Air-Residential Adult+Child-West Trail
List of Largest Contributors to Variability	Cadmium in air Exposure Duration Child Inhalation Rate Child Body Weight Exposure Frequency Adult Inhalation Rate	Cadmium in air Exposure Duration Child Inhalation Rate Child Body Weight Exposure Frequency Adult Inhalation Rate Adult Body Weight	Cadmium in air Exposure Duration Child Body Weight Child Inhalation Rate Adult Inhalation Rate Adult Body Weight	Cadmium in air Exposure Duration Child Body Weight Child Inhalation Rate Adult Inhalation Rate Adult Body Weight	Cadmium in air Exposure Duration Child Body Weight Child Inhalation Rate Adult Inhalation Rate Adult Body Weight	Cadmium in air Exposure Duration Child Body Weight Child Inhalation Rate Adult Inhalation Rate Adult Body Weight	Cadmium in air Exposure Duration Child Body Weight Child Inhalation Rate Adult Inhalation Rate	Cadmium in air Exposure Duration Child Body Weight Child Inhalation Rate Adult Inhalation Rate

Rank correlation data between assumption and forecast

Assumptions	CR-Cadmium-Air-Commercial Adult+Child-Warfield	Absolute Value > 0.03	CR-Cadmium-Air-Commercial Adult+Child-West Trail	Absolute Value > 0.03	CR-Cadmium-Air-Residential Adult+Child-Birchbank	Absolute Value > 0.03	CR-Cadmium-Air-Residential Adult+Child-Butler Park	Absolute Value > 0.03	CR-Cadmium-Air-Residential Adult+Child-Columbia Gardens	Absolute Value > 0.03	CR-Cadmium-Air-Residential Adult+Child-Genelle	Absolute Value > 0.03	CR-Cadmium-Air-Residential Adult+Child-Warfield	Absolute Value > 0.03	CR-Cadmium-Air-Residential Adult+Child-West Trail	Absolute Value > 0.03
Site-wide: Indoor Dust: Arsenic (mg/kg)	0.01	N	-0.01	N	0.01	N	0.00	N	0.00	N	0.00	N	0.01	N	-0.01	N
Site-wide: Indoor Dust: cadmium (mg/kg)	-0.01	N	-0.01	N	0.01	N	0.00	N	-0.01	N	0.00	N	-0.01	N	-0.01	N
Site-wide: nonroot produce: antimony	0.00	N	0.01	N	-0.01	N	-0.01	N	0.00	N	-0.01	N	0.00	N	0.01	N
Site-wide: nonroot produce: cadmium	-0.01	N	0.00	N	-0.01	N	-0.01	N	-0.01	N	0.00	N	0.00	N	0.01	N
Site-wide: nonroot produce: thallium	0.01	N	0.00	N	0.01	N	0.01	N	0.00	N	0.00	N	0.02	N	0.00	N
Site-wide: Outdoor Dust: antimony (mg/kg)	0.01	N	0.02	N	0.01	N	0.00	N	0.00	N	0.00	N	0.01	N	0.02	N
Site-wide: Outdoor dust: arsenic (mg/kg)	-0.01	N	0.01	N	-0.01	N	-0.02	N	0.00	N	-0.01	N	-0.01	N	0.01	N
Site-wide: Outdoor dust: cadmium (mg/kg)	0.00	N	0.00	N	0.00	N	0.01	N	0.01	N	0.00	N	0.00	N	0.00	N
Site-wide: outdoor dust: selenium (mg/kg)	0.01	N	0.00	N	0.00	N	-0.01	N	0.00	N	0.00	N	0.00	N	0.00	N

Table D-2. Largest Contributors to Variability in Cancer Risk Estimates (in decreasing order of importance)

Forecast (Output Distribution)	**CR-Arsenic-Soil/Dust-Residential Adult+Child-East Trail**	**CR-Arsenic-Soil/Dust-Residential Adult+Child-Rivervale**	**CR-Arsenic-Soil/Dust-Residential Adult+Child-Tadanac**	**CR-Arsenic-Soil/Dust-Residential Adult+Child-Waneta**	**CR-Arsenic-Soil/Dust-Residential Adult+Child-West Trail**	**Site-wide CR: Arsenic Residential Soil-Dust**	**CR-Arsenic-Produce-Residential Adult+Child-Far**	**CR-Arsenic-Produce-Residential Adult+Child-Near**
List of Largest Contributors to Variability	Child soil ingestion rate Exposure Duration Child Body Weight Adult SIR Arsenic in soil Arsenic in outdoor dust	Child soil ingestion rate Exposure Duration Child Body Weight Adult SIR Arsenic in soil	Child soil ingestion rate Exposure Duration Child Body Weight Adult SIR Arsenic in outdoor dust Arsenic in soil	Child soil ingestion rate Exposure Duration Child Body Weight Adult SIR Arsenic in soil	Child soil ingestion rate Exposure Duration Child Body Weight Adult SIR Arsenic in soil Fractional intake: soil/dust Arsenic in outdoor dust	Child soil ingestion rate Exposure Duration Arsenic in indoor dust Child Body Weight Adult SIR Arsenic in soil Arsenic in outdoor dust	Exposure Duration Arsenic in nonroot produce Child Root ingestion rate Child nonroot ingestion rate Adult root ingestion rate Adult nonroot ingestion rate Adult Body Weight Child Body Weight	Arsenic in root produce Exposure Duration Child nonroot ingestion rate Child Root ingestion rate Adult nonroot ingestion rate Adult root ingestion rate Child Body Weight

Rank correlation data between assumption and forecast

Assumptions	CR-Arsenic-Soil/Dust-Residential Adult+Child-East Trail	Absolute Value > 0.03	CR-Arsenic-Soil/Dust-Residential Adult+Child-Rivervale	Absolute Value > 0.03	CR-Arsenic-Soil/Dust-Residential Adult+Child-Tadanac	Absolute Value > 0.03	CR-Arsenic-Soil/Dust-Residential Adult+Child-Waneta	Absolute Value > 0.03	CR-Arsenic-Soil/Dust-Residential Adult+Child-West Trail	Absolute Value > 0.03	Site-wide CR: Arsenic Residential Soil-Dust	Absolute Value > 0.03	CR-Arsenic-Produce-Residential Adult+Child-Far	Absolute Value > 0.03	CR-Arsenic-Produce-Residential Adult+Child-Near	Absolute Value > 0.03
Site-wide: Indoor Dust: Arsenic (mg/kg)	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N	0.28	Y	0.01	N	0.00	N
Site-wide: Indoor Dust: cadmium (mg/kg)	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	-0.01	N	-0.01	N
Site-wide: nonroot produce: antimony	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N	-0.01	N	-0.01	N
Site-wide: nonroot produce: cadmium	-0.02	N	-0.02	N	-0.02	N	-0.02	N	-0.02	N	-0.02	N	-0.01	N	0.00	N
Site-wide: nonroot produce: thallium	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N	0.00	N	0.01	N
Site-wide: Outdoor Dust: antimony (mg/kg)	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	0.00	N	0.01	N	-0.01	N
Site-wide: Outdoor dust: arsenic (mg/kg)	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N	0.08	Y	0.00	N	-0.01	N
Site-wide: Outdoor dust: cadmium (mg/kg)	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N
Site-wide: outdoor dust: selenium (mg/kg)	-0.02	N	-0.01	N	-0.02	N	-0.02	N	-0.02	N	-0.02	N	-0.01	N	0.00	N

Table D-2. Largest Contributors to Variability in Cancer Risk Estimates (in decreasing order of importance)

Forecast (Output Distribution)	**Site-wide: CR Produce: Arsenic**	**CR-Cadmium-Particulates-Agricultural Adult-Waneta**
List of Largest Contributors to Variability	Arsenic in nonroot produce Exposure Duration Arsenic in root produce Child nonroot ingestion rate Child Root ingestion rate Adult nonroot ingestion rate Adult root ingestion rate Child Body Weight	Exposure Duration particulate concentration in air Adult Body Weight Adult Inhalation rate

Rank correlation data between assumption and forecast

Assumptions	Site-wide: CR Produce: Arsenic	Absolute Value > 0.03	CR-Cadmium-Particulates-Agricultural Adult-Waneta	Absolute Value > 0.03
Site-wide: Indoor Dust: Arsenic (mg/kg)	-0.01	N	-0.02	N
Site-wide: Indoor Dust: cadmium (mg/kg)	0.00	N	0.00	N
Site-wide: nonroot produce: antimony	-0.01	N	0.00	N
Site-wide: nonroot produce: cadmium	-0.02	N	0.01	N
Site-wide: nonroot produce: thallium	-0.01	N	-0.01	N
Site-wide: Outdoor Dust: antimony (mg/kg)	0.00	N	0.00	N
Site-wide: Outdoor dust: arsenic (mg/kg)	0.00	N	0.00	N
Site-wide: Outdoor dust: cadmium (mg/kg)	0.01	N	0.01	N
Site-wide: outdoor dust: selenium (mg/kg)	0.00	N	0.01	N

Table D-2. Largest Contributors to Variability in Cancer Risk Estimates (in decreasing order of importance)

Forecast (Output Distribution)	**CR-Arsenic-Air-Commercial Adult+Child-Birchbank**	**CR-Arsenic-Air-Commercial Adult+Child-Butler Park**	**CR-Arsenic-Air-Commercial Adult+Child-Columbia Gardens**	**CR-Arsenic-Air-Commercial Adult+Child-Genelle**	**CR-Arsenic-Air-Commercial Adult+Child-Warfield**	**CR-Arsenic-Air-Commercial Adult+Child-West Trail**	**CR-Arsenic-Air-Residential Adult+Child-Birchbank**	**CR-Arsenic-Air-Residential Adult+Child-Butler Park**
List of Largest Contributors to Variability	Arsenic in air Exposure Duration Child Inhalation Rate Child Body Weight Adult Inhalation Rate Exposure Frequency	Arsenic in air Exposure Duration Child Inhalation Rate Child Body Weight Adult Inhalation Rate Exposure Frequency Adult Body Weight	Arsenic in air Exposure Duration Child Inhalation Rate Child Body Weight Exposure Frequency Adult Inhalation Rate Adult Body Weight	Arsenic in air Exposure Duration Child Inhalation Rate Child Body Weight Exposure Frequency Adult Body Weight	Arsenic in air Exposure Duration Child Inhalation Rate Child Body Weight Exposure Frequency Adult Body Weight Adult Inhalation Rate	Arsenic in air Exposure Duration Child Inhalation Rate Child Body Weight Exposure Frequency Adult Body Weight Adult Inhalation Rate	Arsenic in air Exposure Duration Child Inhalation Rate Child Body Weight Adult Inhalation Rate	Arsenic in air Exposure Duration Child Body Weight Child Inhalation Rate Adult Inhalation Rate Adult Body Weight

Rank correlation data between assumption and forecast

Assumptions	CR-Arsenic-Air-Commercial Adult+Child-Birchbank	Absolute Value > 0.03	CR-Arsenic-Air-Commercial Adult+Child-Butler Park	Absolute Value > 0.03	CR-Arsenic-Air-Commercial Adult+Child-Columbia Gardens	Absolute Value > 0.03	CR-Arsenic-Air-Commercial Adult+Child-Genelle	Absolute Value > 0.03	CR-Arsenic-Air-Commercial Adult+Child-Warfield	Absolute Value > 0.03	CR-Arsenic-Air-Commercial Adult+Child-West Trail	Absolute Value > 0.03	CR-Arsenic-Air-Residential Adult+Child-Birchbank	Absolute Value > 0.03	CR-Arsenic-Air-Residential Adult+Child-Butler Park	Absolute Value > 0.03
Site-wide: outdoor dust: Silver (mg/kg)	0.00	N	0.00	N	0.00	N	0.01	N	-0.01	N	0.00	N	0.00	N	0.00	N
Site-wide: Outdoor dust: thallium (mg/kg)	0.00	N	0.00	N	0.02	N	0.01	N	0.02	N	0.01	N	0.00	N	0.00	N
Site-wide: Outdoor Dust: tin (mg/kg)	-0.01	N	0.01	N	0.00	N	0.00	N	0.01	N	0.00	N	-0.01	N	0.02	N
Site-wide: Outdoor Dust: zinc (mg/kg)	-0.01	N	-0.01	N	0.00	N	-0.01	N	-0.01	N	-0.01	N	0.00	N	-0.01	N
Site-wide: Residential Soil: Antimony (mg/kg)	0.02	N	0.02	N	0.02	N	0.02	N	0.01	N	0.01	N	0.02	N	0.02	N
Site-wide: Residential Soil: Arsenic (mg/kg)	0.00	N	-0.01	N	-0.02	N	0.00	N	0.01	N	-0.01	N	0.00	N	-0.01	N
Site-wide: Residential Soil: Cadmium (mg/kg)	-0.02	N	0.00	N	0.01	N	0.00	N	-0.02	N	-0.01	N	-0.02	N	0.00	N
Site-wide: Residential Soil: Selenium (mg/kg)	0.00	N	-0.01	N	0.00	N	-0.01	N	0.00	N	-0.01	N	0.00	N	0.00	N
Site-wide: Residential Soil: Silver (mg/kg)	0.00	N	0.00	N	0.01	N	0.00	N	0.00	N	-0.01	N	0.00	N	0.00	N
Site-wide: Residential Soil: Thallium (mg/kg)	-0.01	N	0.00	N	0.01	N	0.00	N	0.00	N	0.00	N	-0.01	N	0.00	N
Site-wide: Residential Soil: Tin (mg/kg)	0.01	N	-0.01	N	0.01	N	0.01	N	0.01	N	0.00	N	0.01	N	-0.01	N
Site-wide: Residential Soil: Zinc (mg/kg)	0.00	N	0.00	N	0.01	N	0.00	N	0.00	N	-0.01	N	-0.01	N	0.00	N
Site-wide: root produce: antimony	0.01	N	-0.01	N	0.02	N	-0.02	N	0.01	N	0.00	N	0.01	N	-0.01	N
Site-wide: root produce: cadmium	0.00	N	0.00	N	0.00	N	-0.01	N	-0.01	N	0.00	N	0.00	N	-0.01	N
Site-wide: root produce: thallium	0.00	N	-0.01	N	0.01	N	0.00	N	0.01	N	0.01	N	0.00	N	-0.01	N
Soil Ingestion Rate (mg/day): Adult	0.00	N	0.00	N	0.00	N	-0.01	N	-0.02	N	-0.01	N	0.01	N	0.00	N
Soil Ingestion Rate (mg/day): Child	-0.01	N	-0.01	N	-0.01	N	0.00	N	-0.01	N	-0.01	N	-0.01	N	0.00	N
Thallium: East Trail Residential Soil	0.01	N	-0.01	N	0.01	N	0.00	N	0.00	N	-0.02	N	0.01	N	-0.01	N
Thallium: Near Nonroot Produce	-0.01	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	-0.02	N	0.00	N

Table D-2. Largest Contributors to Variability in Cancer Risk Estimates (in decreasing order of importance)

Forecast (Output Distribution)	**CR-Arsenic-Air-Residential Adult+Child-Columbia Gardens**	**CR-Arsenic-Air-Residential Adult+Child-Genelle**	**CR-Arsenic-Air-Residential Adult+Child-Warfield**	**CR-Arsenic-Air-Residential Adult+Child-West Trail**	**CR-Cadmium-Air-Commercial Adult+Child-Birchbank**	**CR-Cadmium-Air-Commercial Adult+Child-Butler Park**	**CR-Cadmium-Air-Commercial Adult+Child-Columbia Gardens**	**CR-Cadmium-Air-Commercial Adult+Child-Genelle**
List of Largest Contributors to Variability	Arsenic in air Exposure Duration Child Inhalation Rate Child Body Weight Adult Inhalation Rate Adult Body Weight	Arsenic in air Exposure Duration Child Inhalation Rate Child Body Weight Adult Inhalation Rate Adult Body Weight	Arsenic in air Exposure Duration Child Inhalation Rate Child Body Weight Adult Inhalation Rate Adult Body Weight	Arsenic in air Exposure Duration Child Inhalation Rate Child Body Weight Adult Body Weight	Cadmium in air Exposure Duration Child Inhalation Rate Child Body Weight Adult Inhalation Rate Adult Body Weight Exposure Frequency	Cadmium in air Exposure Duration Child Inhalation Rate Child Body Weight Exposure Frequency Adult Inhalation Rate Adult Body Weight	Cadmium in air Exposure Duration Child Inhalation Rate Child Body Weight Exposure Frequency Adult Inhalation Rate Adult Body Weight	Cadmium in air Exposure Duration Child Inhalation Rate Child Body Weight Exposure Frequency Adult Inhalation Rate Adult Body Weight

Rank correlation data between assumption and forecast

Assumptions	CR-Arsenic-Air-Residential Adult+Child-Columbia Gardens	Absolute Value > 0.03	CR-Arsenic-Air-Residential Adult+Child-Genelle	Absolute Value > 0.03	CR-Arsenic-Air-Residential Adult+Child-Warfield	Absolute Value > 0.03	CR-Arsenic-Air-Residential Adult+Child-West Trail	Absolute Value > 0.03	CR-Cadmium-Air-Commercial Adult+Child-Birchbank	Absolute Value > 0.03	CR-Cadmium-Air-Commercial Adult+Child-Butler Park	Absolute Value > 0.03	CR-Cadmium-Air-Commercial Adult+Child-Columbia Gardens	Absolute Value > 0.03	CR-Cadmium-Air-Commercial Adult+Child-Genelle	Absolute Value > 0.03
Site-wide: outdoor dust: Silver (mg/kg)	0.00	N	0.01	N	-0.01	N	0.00	N	-0.01	N	0.01	N	0.00	N	0.00	N
Site-wide: Outdoor dust: thallium (mg/kg)	0.02	N	0.01	N	0.02	N	0.01	N	0.00	N	0.00	N	0.00	N	0.03	N
Site-wide: Outdoor Dust: tin (mg/kg)	0.00	N	0.00	N	0.01	N	0.00	N	0.00	N	0.00	N	0.02	N	0.00	N
Site-wide: Outdoor Dust: zinc (mg/kg)	0.01	N	-0.01	N	-0.01	N	0.00	N	-0.01	N	0.00	N	0.01	N	-0.01	N
Site-wide: Residential Soil: Antimony (mg/kg)	0.01	N	0.02	N	0.01	N	0.01	N	0.02	N	0.00	N	0.02	N	0.02	N
Site-wide: Residential Soil: Arsenic (mg/kg)	-0.01	N	0.01	N	0.01	N	0.00	N	-0.04	Y	0.00	N	-0.01	N	0.00	N
Site-wide: Residential Soil: Cadmium (mg/kg)	0.01	N	0.00	N	-0.01	N	0.00	N	0.00	N	0.01	N	0.01	N	0.00	N
Site-wide: Residential Soil: Selenium (mg/kg)	0.01	N	-0.01	N	0.00	N	-0.01	N	0.00	N	0.01	N	0.00	N	0.00	N
Site-wide: Residential Soil: Silver (mg/kg)	0.01	N	0.01	N	0.00	N	0.00	N	0.01	N	0.00	N	-0.01	N	0.00	N
Site-wide: Residential Soil: Thallium (mg/kg)	0.01	N	0.00	N	0.01	N	0.01	N	0.00	N	0.02	N	0.00	N	0.02	N
Site-wide: Residential Soil: Tin (mg/kg)	0.00	N	0.01	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.01	N
Site-wide: Residential Soil: Zinc (mg/kg)	0.01	N	0.00	N	-0.01	N	-0.01	N	0.01	N	0.01	N	0.00	N	0.00	N
Site-wide: root produce: antimony	0.02	N	-0.02	N	0.01	N	0.00	N	-0.01	N	-0.01	N	-0.02	N	0.00	N
Site-wide: root produce: cadmium	0.00	N	-0.01	N	-0.02	N	0.00	N	0.01	N	-0.01	N	-0.02	N	-0.01	N
Site-wide: root produce: thallium	0.01	N	0.00	N	0.01	N	0.01	N	0.01	N	0.01	N	0.00	N	0.03	N
Soil Ingestion Rate (mg/day): Adult	0.01	N	0.00	N	-0.01	N	0.00	N	0.00	N	0.00	N	0.00	N	-0.01	N
Soil Ingestion Rate (mg/day): Child	-0.01	N	0.00	N	-0.01	N	0.00	N	-0.02	N	-0.01	N	-0.01	N	0.00	N
Thallium: East Trail Residential Soil	0.01	N	0.00	N	-0.01	N	-0.03	N	0.01	N	0.00	N	0.01	N	0.00	N
Thallium: Near Nonroot Produce	0.00	N	-0.01	N	0.00	N	0.00	N	-0.01	N	0.01	N	-0.01	N	0.00	N

Table D-2. Largest Contributors to Variability in Cancer Risk Estimates (in decreasing order of importance)

Forecast (Output Distribution)	**CR-Cadmium-Air-Commercial Adult+Child-Warfield**	**CR-Cadmium-Air-Commercial Adult+Child-West Trail**	**CR-Cadmium-Air-Residential Adult+Child-Birchbank**	**CR-Cadmium-Air-Residential Adult+Child-Butler Park**	**CR-Cadmium-Air-Residential Adult+Child-Columbia Gardens**	**CR-Cadmium-Air-Residential Adult+Child-Genelle**	**CR-Cadmium-Air-Residential Adult+Child-Warfield**	**CR-Cadmium-Air-Residential Adult+Child-West Trail**
List of Largest Contributors to Variability	Cadmium in air Exposure Duration Child Inhalation Rate Child Body Weight Exposure Frequency Adult Inhalation Rate	Cadmium in air Exposure Duration Child Inhalation Rate Child Body Weight Exposure Frequency Adult Inhalation Rate Adult Body Weight	Cadmium in air Exposure Duration Child Body Weight Child Inhalation Rate Adult Inhalation Rate Adult Body Weight	Cadmium in air Exposure Duration Child Body Weight Child Inhalation Rate Adult Inhalation Rate Adult Body Weight	Cadmium in air Exposure Duration Child Body Weight Child Inhalation Rate Adult Inhalation Rate Adult Body Weight	Cadmium in air Exposure Duration Child Body Weight Child Inhalation Rate Adult Inhalation Rate Adult Body Weight	Cadmium in air Exposure Duration Child Body Weight Child Inhalation Rate Adult Inhalation Rate	Cadmium in air Exposure Duration Child Body Weight Child Inhalation Rate Adult Inhalation Rate

Rank correlation data between assumption and forecast

Assumptions	CR-Cadmium-Air-Commercial Adult+Child-Warfield	Absolute Value > 0.03	CR-Cadmium-Air-Commercial Adult+Child-West Trail	Absolute Value > 0.03	CR-Cadmium-Air-Residential Adult+Child-Birchbank	Absolute Value > 0.03	CR-Cadmium-Air-Residential Adult+Child-Butler Park	Absolute Value > 0.03	CR-Cadmium-Air-Residential Adult+Child-Columbia Gardens	Absolute Value > 0.03	CR-Cadmium-Air-Residential Adult+Child-Genelle	Absolute Value > 0.03	CR-Cadmium-Air-Residential Adult+Child-Warfield	Absolute Value > 0.03	CR-Cadmium-Air-Residential Adult+Child-West Trail	Absolute Value > 0.03
Site-wide: outdoor dust: Silver (mg/kg)	-0.01	N	0.00	N	-0.01	N	0.01	N	0.00	N	0.00	N	-0.01	N	0.00	N
Site-wide: Outdoor dust: thallium (mg/kg)	0.01	N	0.00	N	0.00	N	0.00	N	0.00	N	0.03	N	0.01	N	0.00	N
Site-wide: Outdoor Dust: tin (mg/kg)	0.00	N	0.00	N	0.00	N	0.00	N	0.02	N	0.00	N	0.01	N	0.00	N
Site-wide: Outdoor Dust: zinc (mg/kg)	0.00	N	-0.01	N	-0.01	N	0.00	N	0.01	N	-0.01	N	0.00	N	-0.01	N
Site-wide: Residential Soil: Antimony (mg/kg)	0.01	N	0.03	N	0.02	N	0.00	N	0.02	N	0.02	N	0.01	N	0.02	N
Site-wide: Residential Soil: Arsenic (mg/kg)	-0.01	N	-0.02	N	-0.03	Y	0.00	N	-0.01	N	0.00	N	-0.01	N	-0.02	N
Site-wide: Residential Soil: Cadmium (mg/kg)	0.00	N	-0.01	N	0.00	N	0.01	N	0.01	N	0.00	N	0.00	N	-0.01	N
Site-wide: Residential Soil: Selenium (mg/kg)	-0.01	N	0.00	N	0.00	N	0.01	N	0.00	N	0.00	N	0.00	N	0.01	N
Site-wide: Residential Soil: Silver (mg/kg)	0.00	N	0.00	N	0.01	N	0.00	N	-0.01	N	0.00	N	0.01	N	0.00	N
Site-wide: Residential Soil: Thallium (mg/kg)	0.02	N	0.01	N	0.00	N	0.02	N	0.00	N	0.02	N	0.02	N	0.02	N
Site-wide: Residential Soil: Tin (mg/kg)	0.00	N	0.01	N	-0.01	N	0.00	N	-0.01	N	0.01	N	0.00	N	0.01	N
Site-wide: Residential Soil: Zinc (mg/kg)	0.00	N	0.01	N	0.01	N	0.01	N	0.00	N	-0.01	N	0.00	N	0.00	N
Site-wide: root produce: antimony	0.00	N	0.00	N	-0.01	N	-0.01	N	-0.02	N	0.00	N	0.00	N	0.00	N
Site-wide: root produce: cadmium	0.01	N	0.01	N	0.01	N	-0.01	N	-0.02	N	-0.01	N	0.01	N	0.00	N
Site-wide: root produce: thallium	0.01	N	0.02	N	0.01	N	0.01	N	-0.01	N	0.03	N	0.01	N	0.02	N
Soil Ingestion Rate (mg/day): Adult	-0.02	N	0.00	N	0.00	N	0.01	N	0.01	N	-0.01	N	-0.01	N	0.00	N
Soil Ingestion Rate (mg/day): Child	0.00	N	-0.01	N	-0.02	N	-0.01	N	-0.01	N	0.01	N	0.00	N	-0.01	N
Thallium: East Trail Residential Soil	0.00	N	0.01	N	0.01	N	-0.01	N	0.00	N	-0.01	N	-0.01	N	0.00	N
Thallium: Near Nonroot Produce	-0.02	N	0.02	N	-0.01	N	0.01	N	-0.01	N	-0.01	N	-0.02	N	0.01	N

Table D-2. Largest Contributors to Variability in Cancer Risk Estimates (in decreasing order of importance)

Forecast (Output Distribution)	**CR-Arsenic-Soil/Dust-Residential Adult+Child-East Trail**	**CR-Arsenic-Soil/Dust-Residential Adult+Child-Rivervale**	**CR-Arsenic-Soil/Dust-Residential Adult+Child-Tadanac**	**CR-Arsenic-Soil/Dust-Residential Adult+Child-Waneta**	**CR-Arsenic-Soil/Dust-Residential Adult+Child-West Trail**	**Site-wide CR: Arsenic Residential Soil-Dust**	**CR-Arsenic-Produce-Residential Adult+Child-Far**	**CR-Arsenic-Produce-Residential Adult+Child-Near**
List of Largest Contributors to Variability	Child soil ingestion rate Exposure Duration Child Body Weight Adult SIR Arsenic in soil Arsenic in outdoor dust	Child soil ingestion rate Exposure Duration Child Body Weight Adult SIR Arsenic in soil	Child soil ingestion rate Exposure Duration Child Body Weight Adult SIR Arsenic in outdoor dust Arsenic in soil	Child soil ingestion rate Exposure Duration Child Body Weight Adult SIR Arsenic in soil	Child soil ingestion rate Exposure Duration Child Body Weight Adult SIR Arsenic in soil Fractional intake: soil/dust Arsenic in outdoor dust	Child soil ingestion rate Exposure Duration Arsenic in indoor dust Child Body Weight Adult SIR Arsenic in soil Arsenic in outdoor dust	Exposure Duration Arsenic in nonroot produce Child Root ingestion rate Child nonroot ingestion rate Adult root ingestion rate Adult nonroot ingestion rate Adult Body Weight Child Body Weight	Arsenic in root produce Exposure Duration Child nonroot ingestion rate Child Root ingestion rate Adult nonroot ingestion rate Adult root ingestion rate Child Body Weight

Rank correlation data between assumption and forecast

Assumptions	CR-Arsenic-Soil/Dust-Residential Adult+Child-East Trail	Absolute Value > 0.03	CR-Arsenic-Soil/Dust-Residential Adult+Child-Rivervale	Absolute Value > 0.03	CR-Arsenic-Soil/Dust-Residential Adult+Child-Tadanac	Absolute Value > 0.03	CR-Arsenic-Soil/Dust-Residential Adult+Child-Waneta	Absolute Value > 0.03	CR-Arsenic-Soil/Dust-Residential Adult+Child-West Trail	Absolute Value > 0.03	Site-wide CR: Arsenic Residential Soil-Dust	Absolute Value > 0.03	CR-Arsenic-Produce-Residential Adult+Child-Far	Absolute Value > 0.03	CR-Arsenic-Produce-Residential Adult+Child-Near	Absolute Value > 0.03
Site-wide: outdoor dust: Silver (mg/kg)	0.00	N	0.00	N	0.00	N	-0.01	N	0.00	N	0.00	N	-0.01	N	0.01	N
Site-wide: Outdoor dust: thallium (mg/kg)	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.01	N
Site-wide: Outdoor Dust: tin (mg/kg)	-0.02	N	-0.01	N	-0.02	N	-0.02	N	-0.02	N	-0.01	N	0.00	N	0.01	N
Site-wide: Outdoor Dust: zinc (mg/kg)	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.01	N	-0.01	N
Site-wide: Residential Soil: Antimony (mg/kg)	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N	0.02	N
Site-wide: Residential Soil: Arsenic (mg/kg)	-0.01	N	0.00	N	-0.01	N	-0.01	N	-0.01	N	0.10	Y	-0.01	N	0.00	N
Site-wide: Residential Soil: Cadmium (mg/kg)	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	-0.01	N
Site-wide: Residential Soil: Selenium (mg/kg)	0.01	N	0.00	N	0.00	N	0.01	N	0.01	N	0.01	N	0.01	N	-0.01	N
Site-wide: Residential Soil: Silver (mg/kg)	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	-0.01	N	0.01	N	0.02	N
Site-wide: Residential Soil: Thallium (mg/kg)	0.01	N	0.00	N	0.01	N	0.01	N	0.00	N	0.00	N	0.01	N	0.00	N
Site-wide: Residential Soil: Tin (mg/kg)	0.00	N	-0.01	N	0.00	N	0.00	N	0.00	N	0.00	N	0.01	N	0.00	N
Site-wide: Residential Soil: Zinc (mg/kg)	0.01	N	0.01	N	0.00	N	0.00	N	0.00	N	0.01	N	0.00	N	0.00	N
Site-wide: root produce: antimony	0.01	N	0.02	N	0.02	N	0.02	N	0.02	N	0.01	N	0.00	N	0.00	N
Site-wide: root produce: cadmium	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.01	N
Site-wide: root produce: thallium	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.01	N	-0.01	N
Soil Ingestion Rate (mg/day): Adult	0.12	Y	0.12	Y	0.12	Y	0.12	Y	0.13	Y	0.12	Y	0.00	N	0.01	N
Soil Ingestion Rate (mg/day): Child	0.86	Y	0.85	Y	0.86	Y	0.86	Y	0.86	Y	0.81	Y	-0.02	N	-0.01	N
Thallium: East Trail Residential Soil	-0.01	N	0.00	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N
Thallium: Near Nonroot Produce	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	0.00	N

Table D-2. Largest Contributors to Variability in Cancer Risk Estimates (in decreasing order of importance)

Forecast (Output Distribution)	Site-wide: CR Produce: Arsenic	CR-Cadmium-Particulates-Agricultural Adult-Waneta
List of Largest Contributors to Variability	Arsenic in nonroot produce Exposure Duration Arsenic in root produce Child nonroot ingestion rate Child Root ingestion rate Adult nonroot ingestion rate Adult root ingestion rate Child Body Weight	Exposure Duration particulate concentration in air Adult Body Weight Adult Inhalation rate

Rank correlation data between assumption and forecast

Assumptions	Site-wide: CR Produce: Arsenic	Absolute Value > 0.03	CR-Cadmium-Particulates-Agricultural Adult-Waneta	Absolute Value > 0.03
Site-wide: outdoor dust: Silver (mg/kg)	-0.01	N	-0.01	N
Site-wide: Outdoor dust: thallium (mg/kg)	0.02	N	0.00	N
Site-wide: Outdoor Dust: tin (mg/kg)	0.00	N	0.00	N
Site-wide: Outdoor Dust: zinc (mg/kg)	-0.01	N	-0.01	N
Site-wide: Residential Soil: Antimony (mg/kg)	0.02	N	0.00	N
Site-wide: Residential Soil: Arsenic (mg/kg)	0.00	N	0.01	N
Site-wide: Residential Soil: Cadmium (mg/kg)	0.00	N	0.00	N
Site-wide: Residential Soil: Selenium (mg/kg)	0.01	N	0.01	N
Site-wide: Residential Soil: Silver (mg/kg)	0.00	N	-0.02	N
Site-wide: Residential Soil: Thallium (mg/kg)	0.02	N	0.00	N
Site-wide: Residential Soil: Tin (mg/kg)	-0.01	N	0.00	N
Site-wide: Residential Soil: Zinc (mg/kg)	0.00	N	0.00	N
Site-wide: root produce: antimony	0.00	N	-0.01	N
Site-wide: root produce: cadmium	0.01	N	-0.01	N
Site-wide: root produce: thallium	0.01	N	-0.02	N
Soil Ingestion Rate (mg/day): Adult	0.00	N	0.00	N
Soil Ingestion Rate (mg/day): Child	-0.01	N	-0.02	N
Thallium: East Trail Residential Soil	0.00	N	-0.01	N
Thallium: Near Nonroot Produce	-0.01	N	0.02	N

Table D-2. Largest Contributors to Variability in Cancer Risk Estimates (in decreasing order of importance)

Forecast (Output Distribution)	**CR-Arsenic-Air-Commercial Adult+Child-Birchbank**	**CR-Arsenic-Air-Commercial Adult+Child-Butler Park**	**CR-Arsenic-Air-Commercial Adult+Child-Columbia Gardens**	**CR-Arsenic-Air-Commercial Adult+Child-Genelle**	**CR-Arsenic-Air-Commercial Adult+Child-Warfield**	**CR-Arsenic-Air-Commercial Adult+Child-West Trail**	**CR-Arsenic-Air-Residential Adult+Child-Birchbank**	**CR-Arsenic-Air-Residential Adult+Child-Butler Park**
List of Largest Contributors to Variability	Arsenic in air Exposure Duration Child Inhalation Rate Child Body Weight Adult Inhalation Rate Exposure Frequency	Arsenic in air Exposure Duration Child Inhalation Rate Child Body Weight Adult Inhalation Rate Exposure Frequency Adult Body Weight	Arsenic in air Exposure Duration Child Inhalation Rate Child Body Weight Exposure Frequency Adult Inhalation Rate Adult Body Weight	Arsenic in air Exposure Duration Child Inhalation Rate Child Body Weight Exposure Frequency Adult Body Weight	Arsenic in air Exposure Duration Child Inhalation Rate Child Body Weight Exposure Frequency Adult Body Weight Adult Inhalation Rate	Arsenic in air Exposure Duration Child Inhalation Rate Child Body Weight Exposure Frequency Adult Body Weight Adult Inhalation Rate	Arsenic in air Exposure Duration Child Inhalation Rate Child Body Weight Adult Inhalation Rate	Arsenic in air Exposure Duration Child Body Weight Child Inhalation Rate Adult Inhalation Rate Adult Body Weight

Rank correlation data between assumption and forecast

Assumptions	CR-Arsenic-Air-Commercial Adult+Child-Birchbank	Absolute Value > 0.03	CR-Arsenic-Air-Commercial Adult+Child-Butler Park	Absolute Value > 0.03	CR-Arsenic-Air-Commercial Adult+Child-Columbia Gardens	Absolute Value > 0.03	CR-Arsenic-Air-Commercial Adult+Child-Genelle	Absolute Value > 0.03	CR-Arsenic-Air-Commercial Adult+Child-Warfield	Absolute Value > 0.03	CR-Arsenic-Air-Commercial Adult+Child-West Trail	Absolute Value > 0.03	CR-Arsenic-Air-Residential Adult+Child-Birchbank	Absolute Value > 0.03	CR-Arsenic-Air-Residential Adult+Child-Butler Park	Absolute Value > 0.03
Thallium: Near Root Produce	-0.01	N	0.02	N	0.02	N	0.01	N	0.03	N	0.02	N	-0.01	N	0.01	N
Thallium: Rivervale Residential Soil	0.02	N	0.01	N	0.00	N	-0.01	N	0.00	N	0.01	N	0.02	N	0.02	N
Thallium: Tadanac Outdoor Dust	0.00	N	0.00	N	0.00	N	-0.01	N	0.00	N	-0.01	N	0.00	N	0.00	N
Thallium: Tadanac Residential Soil	-0.02	N	0.00	N	0.01	N	-0.01	N	-0.01	N	-0.03	N	-0.02	N	0.00	N
Thallium: West Trail Residential Soil	-0.01	N	0.01	N	0.00	N	0.00	N	0.00	N	0.00	N	-0.01	N	0.01	N
Tin: East Trail Outdoor Dust	0.02	N	0.01	N	0.01	N	0.02	N	0.01	N	0.01	N	0.02	N	0.01	N
Tin: East Trail Residential Soil	0.00	N	0.00	N	0.00	N	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N
Tin: Rivervale Residential Soil	-0.01	N	0.02	N	-0.01	N	0.00	N	-0.01	N	0.00	N	-0.01	N	0.02	N
Tin: Tadanac Outdoor Dust	0.00	N	0.00	N	0.00	N	0.01	N	-0.01	N	0.01	N	0.00	N	0.00	N
Tin: Tadanac Residential Soil	-0.01	N	-0.01	N	-0.01	N	0.00	N	-0.02	N	-0.01	N	0.00	N	-0.01	N
Tin: West Trail Outdoor Dust	0.01	N	0.00	N	0.00	N	0.01	N	0.00	N	0.00	N	0.01	N	0.00	N
Tin: West Trail Residential Soil	0.00	N	0.02	N	-0.01	N	0.00	N	0.00	N	0.00	N	-0.01	N	0.01	N
Zinc: East Trail Outdoor Dust	-0.02	N	0.00	N	-0.01	N	-0.01	N	0.00	N	0.00	N	-0.01	N	0.00	N
Zinc: East Trail Residential Soil	0.00	N	0.01	N	0.01	N	-0.01	N	-0.01	N	0.01	N	0.00	N	0.01	N
Zinc: Rivervale Outdoor Dust	0.01	N	0.01	N	0.01	N	0.00	N	0.00	N	0.00	N	0.01	N	0.01	N
Zinc: Rivervale Residential Soil	0.00	N	-0.01	N	0.00	N	-0.01	N	-0.02	N	-0.01	N	0.00	N	-0.01	N
Zinc: Tadanac Outdoor Dust	-0.01	N	0.00	N	0.01	N	0.01	N	0.01	N	0.02	N	-0.01	N	0.00	N
Zinc: Tadanac Residential Soil	0.02	N	0.00	N	0.00	N	0.01	N	0.02	N	0.01	N	0.02	N	0.00	N
Zinc: Waneta Residential Soil	-0.01	N	0.00	N	0.00	N	0.01	N	0.02	N	0.01	N	-0.01	N	0.00	N
Zinc: West Trail Outdoor Dust	0.00	N	-0.01	N	-0.01	N	-0.02	N	0.00	N	-0.01	N	0.00	N	-0.01	N
Zinc: West Trail Residential Soil	0.01	N	0.00	N	-0.01	N	0.01	N	0.01	N	0.01	N	0.01	N	-0.01	N

Table D-2. Largest Contributors to Variability in Cancer Risk Estimates (in decreasing order of importance)

Forecast (Output Distribution)	**CR-Arsenic-Air-Residential Adult+Child-Columbia Gardens**	**CR-Arsenic-Air-Residential Adult+Child-Genelle**	**CR-Arsenic-Air-Residential Adult+Child-Warfield**	**CR-Arsenic-Air-Residential Adult+Child-West Trail**	**CR-Cadmium-Air-Commercial Adult+Child-Birchbank**	**CR-Cadmium-Air-Commercial Adult+Child-Butler Park**	**CR-Cadmium-Air-Commercial Adult+Child-Columbia Gardens**	**CR-Cadmium-Air-Commercial Adult+Child-Genelle**
List of Largest Contributors to Variability	Arsenic in air Exposure Duration Child Inhalation Rate Child Body Weight Adult Inhalation Rate Adult Body Weight	Arsenic in air Exposure Duration Child Inhalation Rate Child Body Weight Adult Inhalation Rate Adult Body Weight	Arsenic in air Exposure Duration Child Inhalation Rate Child Body Weight Adult Inhalation Rate Adult Body Weight	Arsenic in air Exposure Duration Child Inhalation Rate Child Body Weight Adult Body Weight	Cadmium in air Exposure Duration Child Inhalation Rate Child Body Weight Adult Inhalation Rate Adult Body Weight Exposure Frequency	Cadmium in air Exposure Duration Child Inhalation Rate Child Body Weight Exposure Frequency Adult Inhalation Rate Adult Body Weight	Cadmium in air Exposure Duration Child Inhalation Rate Child Body Weight Exposure Frequency Adult Inhalation Rate Adult Body Weight	Cadmium in air Exposure Duration Child Inhalation Rate Child Body Weight Exposure Frequency Adult Inhalation Rate Adult Body Weight

Rank correlation data between assumption and forecast

Assumptions	CR-Arsenic-Air-Residential Adult+Child-Columbia Gardens	Absolute Value > 0.03	CR-Arsenic-Air-Residential Adult+Child-Genelle	Absolute Value > 0.03	CR-Arsenic-Air-Residential Adult+Child-Warfield	Absolute Value > 0.03	CR-Arsenic-Air-Residential Adult+Child-West Trail	Absolute Value > 0.03	CR-Cadmium-Air-Commercial Adult+Child-Birchbank	Absolute Value > 0.03	CR-Cadmium-Air-Commercial Adult+Child-Butler Park	Absolute Value > 0.03	CR-Cadmium-Air-Commercial Adult+Child-Columbia Gardens	Absolute Value > 0.03	CR-Cadmium-Air-Commercial Adult+Child-Genelle	Absolute Value > 0.03
Thallium: Near Root Produce	0.02	N	0.01	N	0.03	N	0.02	N	0.00	N	0.02	N	0.00	N	0.00	N
Thallium: Rivervale Residential Soil	0.00	N	-0.01	N	0.00	N	0.00	N	0.00	N	0.01	N	-0.02	N	0.00	N
Thallium: Tadanac Outdoor Dust	0.00	N	-0.01	N	0.00	N	-0.01	N	0.00	N	-0.01	N	0.00	N	0.00	N
Thallium: Tadanac Residential Soil	0.01	N	-0.01	N	-0.01	N	-0.03	N	-0.01	N	-0.02	N	0.00	N	-0.01	N
Thallium: West Trail Residential Soil	0.00	N	0.00	N	0.00	N	-0.01	N	0.01	N	-0.01	N	0.00	N	0.00	N
Tin: East Trail Outdoor Dust	0.01	N	0.02	N	0.01	N	0.01	N	0.00	N	-0.01	N	0.01	N	0.01	N
Tin: East Trail Residential Soil	0.01	N	0.02	N	0.02	N	0.01	N	0.00	N	0.00	N	0.00	N	0.00	N
Tin: Rivervale Residential Soil	-0.01	N	0.00	N	0.00	N	0.00	N	0.00	N	0.01	N	0.01	N	0.00	N
Tin: Tadanac Outdoor Dust	-0.01	N	0.01	N	-0.01	N	0.01	N	0.00	N	0.00	N	0.00	N	0.00	N
Tin: Tadanac Residential Soil	-0.01	N	0.00	N	-0.02	N	-0.01	N	-0.01	N	0.00	N	-0.01	N	0.00	N
Tin: West Trail Outdoor Dust	0.00	N	0.01	N	0.00	N	0.00	N	0.00	N	0.00	N	0.01	N	0.00	N
Tin: West Trail Residential Soil	-0.01	N	0.00	N	-0.01	N	-0.01	N	0.01	N	0.00	N	0.00	N	0.00	N
Zinc: East Trail Outdoor Dust	-0.01	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	-0.01	N	-0.02	N
Zinc: East Trail Residential Soil	0.01	N	-0.01	N	-0.02	N	0.01	N	0.00	N	0.02	N	0.00	N	0.01	N
Zinc: Rivervale Outdoor Dust	0.01	N	0.00	N	0.00	N	0.00	N	-0.02	N	0.00	N	0.00	N	-0.01	N
Zinc: Rivervale Residential Soil	0.00	N	-0.01	N	-0.02	N	-0.01	N	0.00	N	-0.01	N	-0.01	N	0.00	N
Zinc: Tadanac Outdoor Dust	0.01	N	0.00	N	0.00	N	0.01	N	0.01	N	0.02	N	0.01	N	0.01	N
Zinc: Tadanac Residential Soil	0.00	N	0.00	N	0.01	N	0.01	N	0.01	N	0.03	N	0.00	N	0.00	N
Zinc: Waneta Residential Soil	0.00	N	0.01	N	0.02	N	0.01	N	0.01	N	0.00	N	0.02	N	0.01	N
Zinc: West Trail Outdoor Dust	-0.01	N	-0.02	N	0.00	N	-0.02	N	-0.02	N	0.00	N	-0.02	N	-0.01	N
Zinc: West Trail Residential Soil	-0.01	N	0.00	N	0.01	N	0.01	N	-0.01	N	0.01	N	0.01	N	0.00	N

Table D-2. Largest Contributors to Variability in Cancer Risk Estimates (in decreasing order of importance)

Forecast (Output Distribution)	**CR-Cadmium-Air-Commercial Adult+Child-Warfield**	**CR-Cadmium-Air-Commercial Adult+Child-West Trail**	**CR-Cadmium-Air-Residential Adult+Child-Birchbank**	**CR-Cadmium-Air-Residential Adult+Child-Butler Park**	**CR-Cadmium-Air-Residential Adult+Child-Columbia Gardens**	**CR-Cadmium-Air-Residential Adult+Child-Genelle**	**CR-Cadmium-Air-Residential Adult+Child-Warfield**	**CR-Cadmium-Air-Residential Adult+Child-West Trail**
List of Largest Contributors to Variability	Cadmium in air Exposure Duration Child Inhalation Rate Child Body Weight Exposure Frequency Adult Inhalation Rate	Cadmium in air Exposure Duration Child Inhalation Rate Child Body Weight Exposure Frequency Adult Inhalation Rate Adult Body Weight	Cadmium in air Exposure Duration Child Body Weight Child Inhalation Rate Adult Inhalation Rate Adult Body Weight	Cadmium in air Exposure Duration Child Body Weight Child Inhalation Rate Adult Inhalation Rate Adult Body Weight	Cadmium in air Exposure Duration Child Body Weight Child Inhalation Rate Adult Inhalation Rate Adult Body Weight	Cadmium in air Exposure Duration Child Body Weight Child Inhalation Rate Adult Inhalation Rate Adult Body Weight	Cadmium in air Exposure Duration Child Body Weight Child Inhalation Rate Adult Inhalation Rate	Cadmium in air Exposure Duration Child Body Weight Child Inhalation Rate Adult Inhalation Rate

Rank correlation data between assumption and forecast

Assumptions	CR-Cadmium-Air-Commercial Adult+Child-Warfield	Absolute Value > 0.03	CR-Cadmium-Air-Commercial Adult+Child-West Trail	Absolute Value > 0.03	CR-Cadmium-Air-Residential Adult+Child-Birchbank	Absolute Value > 0.03	CR-Cadmium-Air-Residential Adult+Child-Butler Park	Absolute Value > 0.03	CR-Cadmium-Air-Residential Adult+Child-Columbia Gardens	Absolute Value > 0.03	CR-Cadmium-Air-Residential Adult+Child-Genelle	Absolute Value > 0.03	CR-Cadmium-Air-Residential Adult+Child-Warfield	Absolute Value > 0.03	CR-Cadmium-Air-Residential Adult+Child-West Trail	Absolute Value > 0.03
Thallium: Near Root Produce	0.01	N	0.02	N	0.00	N	0.02	N	0.00	N	-0.01	N	0.00	N	0.01	N
Thallium: Rivervale Residential Soil	0.02	N	0.01	N	0.00	N	0.01	N	-0.02	N	0.00	N	0.02	N	0.01	N
Thallium: Tadanac Outdoor Dust	0.01	N	0.00	N	0.00	N	0.00	N	0.00	N	0.01	N	0.02	N	0.00	N
Thallium: Tadanac Residential Soil	0.00	N	-0.02	N	-0.01	N	-0.01	N	0.00	N	-0.01	N	0.01	N	-0.02	N
Thallium: West Trail Residential Soil	0.00	N	0.01	N	0.01	N	-0.01	N	-0.01	N	0.00	N	0.00	N	0.01	N
Tin: East Trail Outdoor Dust	0.02	N	0.00	N	0.00	N	-0.01	N	0.01	N	0.00	N	0.02	N	0.00	N
Tin: East Trail Residential Soil	0.00	N	-0.01	N	0.00	N	0.01	N	0.00	N	0.01	N	0.00	N	-0.01	N
Tin: Rivervale Residential Soil	0.00	N	0.00	N	0.00	N	0.01	N	0.02	N	0.01	N	0.00	N	0.00	N
Tin: Tadanac Outdoor Dust	0.00	N	-0.02	N	-0.01	N	0.00	N	-0.01	N	0.00	N	0.00	N	-0.02	N
Tin: Tadanac Residential Soil	0.00	N	0.00	N	-0.01	N	0.00	N	-0.01	N	0.00	N	0.01	N	0.00	N
Tin: West Trail Outdoor Dust	0.02	N	0.00	N	0.00	N	0.00	N	0.01	N	0.00	N	0.02	N	0.00	N
Tin: West Trail Residential Soil	0.00	N	-0.01	N	0.01	N	-0.01	N	0.00	N	-0.01	N	0.00	N	-0.02	N
Zinc: East Trail Outdoor Dust	-0.02	N	0.00	N	0.00	N	0.00	N	-0.01	N	-0.01	N	-0.02	N	0.00	N
Zinc: East Trail Residential Soil	0.00	N	0.00	N	-0.01	N	0.02	N	0.00	N	0.01	N	0.00	N	0.00	N
Zinc: Rivervale Outdoor Dust	-0.01	N	0.00	N	-0.02	N	0.00	N	0.00	N	-0.01	N	-0.01	N	0.00	N
Zinc: Rivervale Residential Soil	-0.01	N	0.00	N	0.00	N	-0.01	N	-0.01	N	0.00	N	-0.01	N	-0.01	N
Zinc: Tadanac Outdoor Dust	0.00	N	0.01	N	0.00	N	0.01	N	0.01	N	0.01	N	-0.01	N	0.01	N
Zinc: Tadanac Residential Soil	0.01	N	0.02	N	0.00	N	0.02	N	0.00	N	0.00	N	0.00	N	0.01	N
Zinc: Waneta Residential Soil	0.00	N	0.00	N	0.01	N	0.00	N	0.02	N	0.01	N	0.00	N	0.00	N
Zinc: West Trail Outdoor Dust	-0.02	N	-0.01	N	-0.02	N	0.00	N	-0.03	N	-0.01	N	-0.02	N	-0.01	N
Zinc: West Trail Residential Soil	0.00	N	0.00	N	-0.01	N	0.00	N	0.00	N	-0.01	N	0.00	N	0.00	N

Table D-2. Largest Contributors to Variability in Cancer Risk Estimates (in decreasing order of importance)

Forecast (Output Distribution)	**CR-Arsenic-Soil/Dust-Residential Adult+Child-East Trail**	**CR-Arsenic-Soil/Dust-Residential Adult+Child-Rivervale**	**CR-Arsenic-Soil/Dust-Residential Adult+Child-Tadanac**	**CR-Arsenic-Soil/Dust-Residential Adult+Child-Waneta**	**CR-Arsenic-Soil/Dust-Residential Adult+Child-West Trail**	**Site-wide CR: Arsenic Residential Soil-Dust**	**CR-Arsenic-Produce-Residential Adult+Child-Far**	**CR-Arsenic-Produce-Residential Adult+Child-Near**
List of Largest Contributors to Variability	Child soil ingestion rate Exposure Duration Child Body Weight Adult SIR Arsenic in soil Arsenic in outdoor dust	Child soil ingestion rate Exposure Duration Child Body Weight Adult SIR Arsenic in soil	Child soil ingestion rate Exposure Duration Child Body Weight Adult SIR Arsenic in outdoor dust Arsenic in soil	Child soil ingestion rate Exposure Duration Child Body Weight Adult SIR Arsenic in soil	Child soil ingestion rate Exposure Duration Child Body Weight Adult SIR Arsenic in soil Fractional intake: soil/dust Arsenic in outdoor dust	Child soil ingestion rate Exposure Duration Arsenic in indoor dust Child Body Weight Adult SIR Arsenic in soil Arsenic in outdoor dust	Exposure Duration Arsenic in nonroot produce Child Root ingestion rate Child nonroot ingestion rate Adult root ingestion rate Adult nonroot ingestion rate Adult Body Weight Child Body Weight	Arsenic in root produce Exposure Duration Child nonroot ingestion rate Child Root ingestion rate Adult nonroot ingestion rate Adult root ingestion rate Child Body Weight

Rank correlation data between assumption and forecast

Assumptions	CR-Arsenic-Soil/Dust-Residential Adult+Child-East Trail	Absolute Value > 0.03	CR-Arsenic-Soil/Dust-Residential Adult+Child-Rivervale	Absolute Value > 0.03	CR-Arsenic-Soil/Dust-Residential Adult+Child-Tadanac	Absolute Value > 0.03	CR-Arsenic-Soil/Dust-Residential Adult+Child-Waneta	Absolute Value > 0.03	CR-Arsenic-Soil/Dust-Residential Adult+Child-West Trail	Absolute Value > 0.03	Site-wide CR: Arsenic Residential Soil-Dust	Absolute Value > 0.03	CR-Arsenic-Produce-Residential Adult+Child-Far	Absolute Value > 0.03	CR-Arsenic-Produce-Residential Adult+Child-Near	Absolute Value > 0.03
Thallium: Near Root Produce	0.01	N	0.00	N	0.00	N	0.01	N	0.01	N	0.01	N	0.01	N	0.02	N
Thallium: Rivervale Residential Soil	0.01	N	0.00	N	0.01	N	0.01	N	0.01	N	0.00	N	0.01	N	0.02	N
Thallium: Tadanac Outdoor Dust	0.01	N	0.02	N	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N	-0.01	N
Thallium: Tadanac Residential Soil	0.00	N	-0.01	N	0.00	N	0.00	N	0.00	N	0.00	N	-0.01	N	0.00	N
Thallium: West Trail Residential Soil	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N	0.02	N	0.00	N
Tin: East Trail Outdoor Dust	0.02	N	0.02	N	0.02	N	0.02	N	0.02	N	0.02	N	0.02	N	0.00	N
Tin: East Trail Residential Soil	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.01	N	0.01	N
Tin: Rivervale Residential Soil	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N	0.02	N	0.01	N
Tin: Tadanac Outdoor Dust	-0.02	N	-0.02	N	-0.02	N	-0.02	N	-0.01	N	-0.01	N	0.01	N	0.00	N
Tin: Tadanac Residential Soil	-0.03	N	-0.02	N	-0.02	N	-0.03	N	-0.02	N	-0.02	N	-0.02	N	-0.01	N
Tin: West Trail Outdoor Dust	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	-0.01	N
Tin: West Trail Residential Soil	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	-0.02	N	-0.01	N
Zinc: East Trail Outdoor Dust	0.02	N	0.02	N	0.01	N	0.02	N	0.02	N	0.02	N	-0.01	N	-0.02	N
Zinc: East Trail Residential Soil	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	0.00	N	-0.01	N
Zinc: Rivervale Outdoor Dust	0.01	N	0.01	N	0.02	N	0.02	N	0.02	N	0.02	N	-0.01	N	0.00	N
Zinc: Rivervale Residential Soil	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N	0.00	N
Zinc: Tadanac Outdoor Dust	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N	0.00	N	0.01	N
Zinc: Tadanac Residential Soil	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N	0.00	N	0.00	N	0.00	N
Zinc: Waneta Residential Soil	0.01	N	0.01	N	0.01	N	0.01	N	0.01	N	0.00	N	0.02	N	0.00	N
Zinc: West Trail Outdoor Dust	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N	-0.01	N
Zinc: West Trail Residential Soil	-0.02	N	-0.02	N	-0.02	N	-0.02	N	-0.02	N	-0.02	N	0.00	N	0.01	N

Table D-2. Largest Contributors to Variability in Cancer Risk Estimates (in decreasing order of importance)

Forecast (Output Distribution)	**Site-wide: CR Produce: Arsenic**	**CR-Cadmium-Particulates-Agricultural Adult-Waneta**
List of Largest Contributors to Variability	Arsenic in nonroot produce Exposure Duration Arsenic in root produce Child nonroot ingestion rate Child Root ingestion rate Adult nonroot ingestion rate Adult root ingestion rate Child Body Weight	Exposure Duration particulate concentration in air Adult Body Weight Adult Inhalation rate

Rank correlation data between assumption and forecast

Assumptions	Site-wide: CR Produce: Arsenic	Absolute Value > 0.03	CR-Cadmium-Particulates-Agricultural Adult-Waneta	Absolute Value > 0.03
Thallium: Near Root Produce	0.01	N	0.01	N
Thallium: Rivervale Residential Soil	0.01	N	0.00	N
Thallium: Tadanac Outdoor Dust	0.00	N	0.01	N
Thallium: Tadanac Residential Soil	-0.02	N	-0.01	N
Thallium: West Trail Residential Soil	0.00	N	0.00	N
Tin: East Trail Outdoor Dust	0.01	N	0.01	N
Tin: East Trail Residential Soil	0.01	N	0.00	N
Tin: Rivervale Residential Soil	0.01	N	-0.01	N
Tin: Tadanac Outdoor Dust	-0.01	N	0.01	N
Tin: Tadanac Residential Soil	0.01	N	-0.01	N
Tin: West Trail Outdoor Dust	0.00	N	-0.01	N
Tin: West Trail Residential Soil	-0.01	N	0.00	N
Zinc: East Trail Outdoor Dust	0.00	N	-0.01	N
Zinc: East Trail Residential Soil	0.00	N	-0.01	N
Zinc: Rivervale Outdoor Dust	-0.02	N	0.01	N
Zinc: Rivervale Residential Soil	-0.01	N	-0.01	N
Zinc: Tadanac Outdoor Dust	0.00	N	0.02	N
Zinc: Tadanac Residential Soil	0.01	N	0.00	N
Zinc: Waneta Residential Soil	-0.01	N	0.00	N
Zinc: West Trail Outdoor Dust	-0.01	N	0.00	N
Zinc: West Trail Residential Soil	0.00	N	0.00	N

Report D-1a. Crystal Ball Report - Custom
Simulation started on 11/9/2007 at 13:07:14
Simulation stopped on 11/9/2007 at 13:08:17

Crystal Ball Report for Sensitivity Analysis: Alternative Exposure Duration

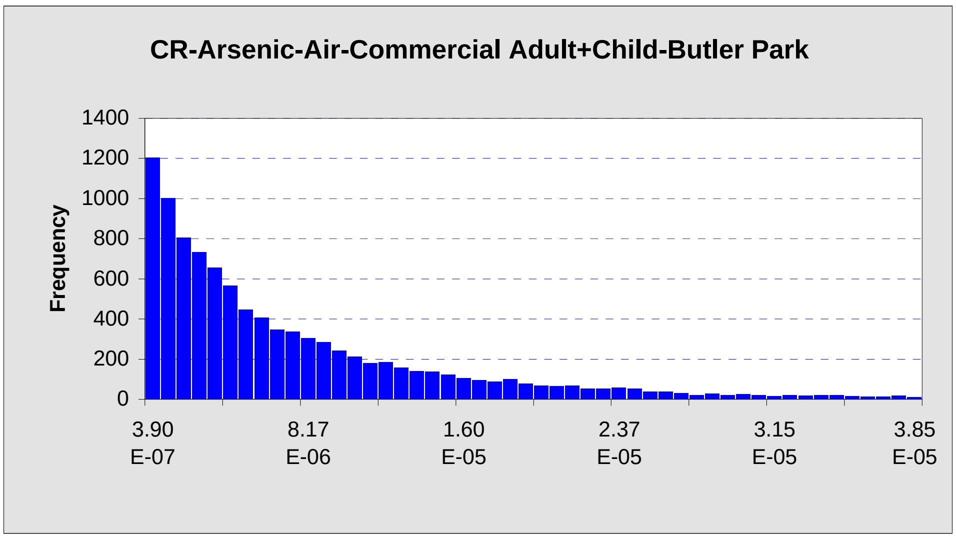
Run preferences:	
Number of trials run	10,000
Monte Carlo	
Random seed	
Precision control on	
Confidence level	95.00%
Run statistics:	
Total running time (sec)	63.57
Trials/second (average)	157
Random numbers per sec	20,607
Crystal Ball data:	
Assumptions	131
Correlations	0
Correlated groups	0
Decision variables	0
Forecasts	154

Forecasts

Worksheet: [C164_air.xls]CR Air

Forecast: CR-Arsenic-Air-Commercial Adult+Child-Butler Park **Cell: E35**

Summary:
Entire range is from 5.30E-10 to 1.89E-04
Base case is 5.85E-06
After 10,000 trials, the std. error of the mean is 1.09E-07



Statistics:	Forecast values
Trials	10,000
Mean	8.34E-06
Median	4.71E-06
Mode	---
Standard Deviation	1.09E-05
Variance	1.19E-10
Skewness	4.05
Kurtosis	35.38
Coeff. of Variability	1.31
Minimum	5.30E-10
Maximum	1.89E-04
Range Width	1.89E-04
Mean Std. Error	1.09E-07

Forecast: CR-Arsenic-Air-Commercial Adult+Child-Butler Park (cont'd)

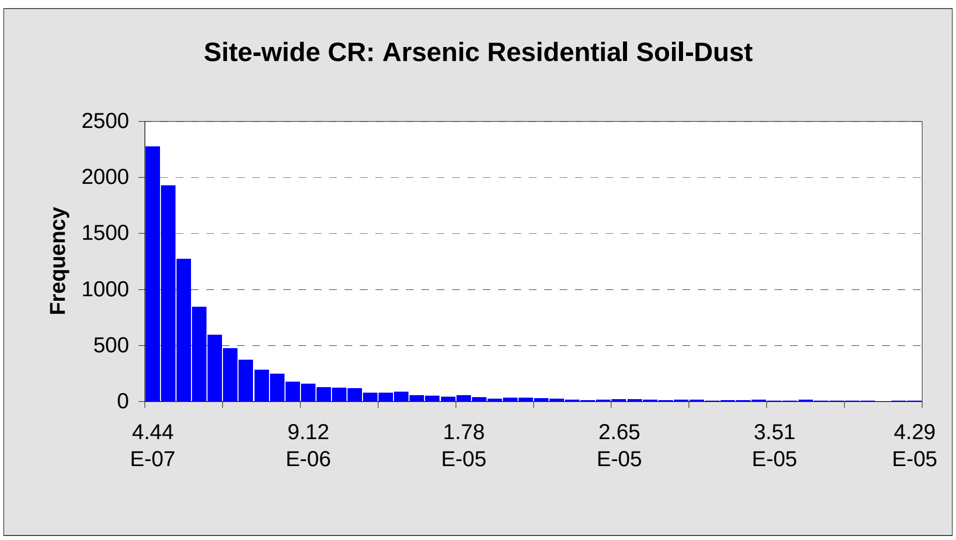
Cell: E35

Percentiles:	Forecast values
1%	5.49E-08
5%	3.08E-07
10%	6.43E-07
25%	1.85E-06
50%	4.71E-06
75%	1.07E-05
90%	1.99E-05
95%	2.77E-05
99%	5.10E-05

Worksheet: [C164_Soil_Dust_Produce.xls]CR Ingestion Soil-Dust

Forecast: Site-wide CR: Arsenic Residential Soil-Dust **Cell: I35**

Summary:
Entire range is from 1.05E-08 to 4.41E-04
Base case is 4.86E-06
After 10,000 trials, the std. error of the mean is 1.35E-07



Forecast: Site-wide CR: Arsenic Residential Soil-Dust (cont'd) **Cell: I35**

Statistics:	Forecast values
Trials	10,000
Mean	5.61E-06
Median	2.27E-06
Mode	---
Standard Deviation	1.35E-05
Variance	1.82E-10
Skewness	12.27
Kurtosis	254.45
Coeff. of Variability	2.41
Minimum	1.05E-08
Maximum	4.41E-04
Range Width	4.41E-04
Mean Std. Error	1.35E-07

Percentiles:	Forecast values
1%	1.27E-07
5%	2.96E-07
10%	4.61E-07
25%	9.58E-07
50%	2.27E-06
75%	5.45E-06
90%	1.22E-05
95%	1.98E-05
99%	5.19E-05

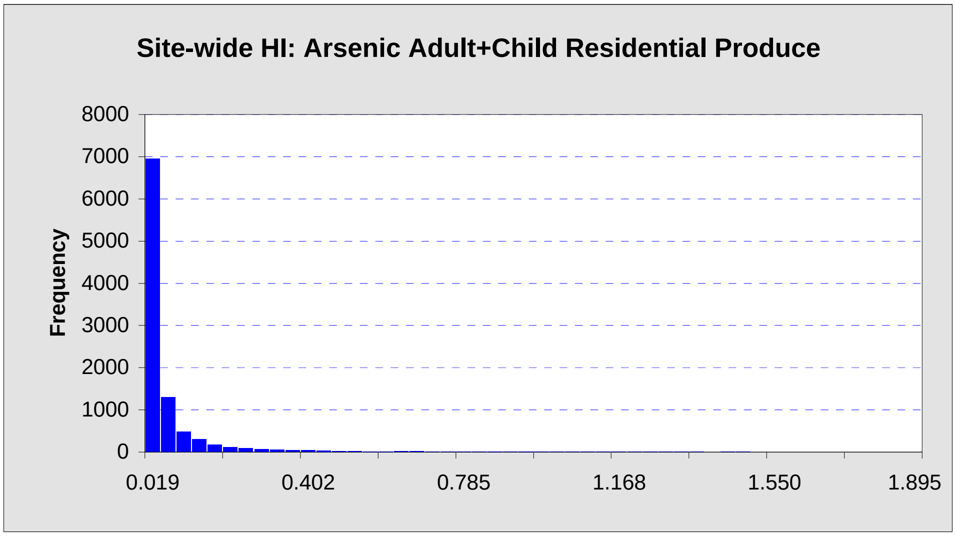
Worksheet: [C164_Soil_Dust_Produce.xls]HI & CR Ingestion Produce

Forecast: Site-wide HI: Arsenic Adult+Child Residential Produce **Cell: G29**

Summary:
Entire range is from 0.000 to 29.305
Base case is 0.050
After 10,000 trials, the std. error of the mean is 0.006

Forecast: Site-wide HI: Arsenic Adult+Child Residential Produce (cont'd)

Cell: G29

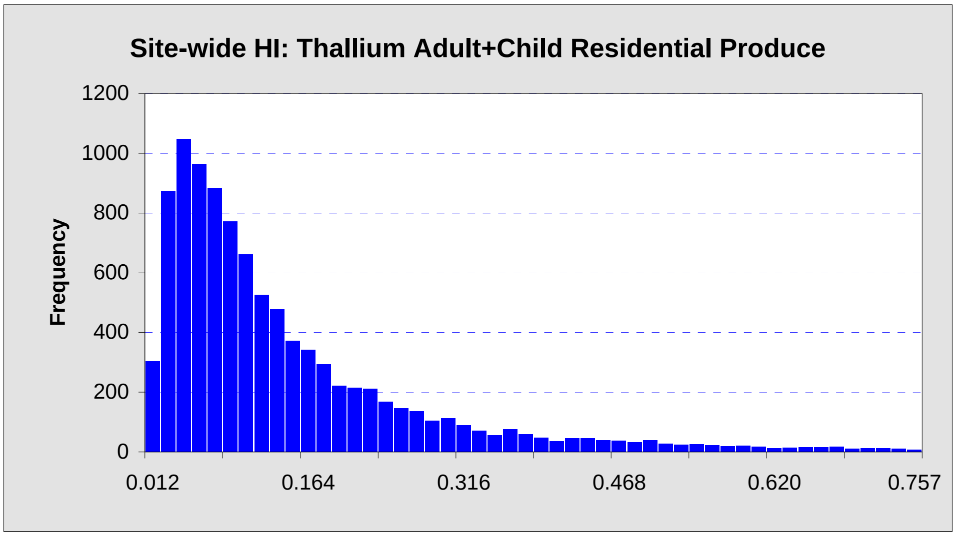


Statistics:	Forecast values
Trials	10,000
Mean	0.099
Median	0.019
Mode	---
Standard Deviation	0.648
Variance	0.420
Skewness	29.69
Kurtosis	1,124.16
Coeff. of Variability	6.57
Minimum	0.000
Maximum	29.305
Range Width	29.304
Mean Std. Error	0.006

Percentiles:	Forecast values
1%	0.002
5%	0.003
10%	0.004
25%	0.009
50%	0.019
75%	0.049
90%	0.145
95%	0.309
99%	1.296

Forecast: Site-wide HI: Thallium Adult+Child Residential Produce **Cell: G31**

Summary:
Entire range is from 0.004 to 4.059
Base case is 0.164
After 10,000 trials, the std. error of the mean is 0.002



Statistics:	Forecast values
Trials	10,000
Mean	0.162
Median	0.099
Mode	---
Standard Deviation	0.215
Variance	0.046
Skewness	5.62
Kurtosis	57.37
Coeff. of Variability	1.33
Minimum	0.004
Maximum	4.059
Range Width	4.055
Mean Std. Error	0.002

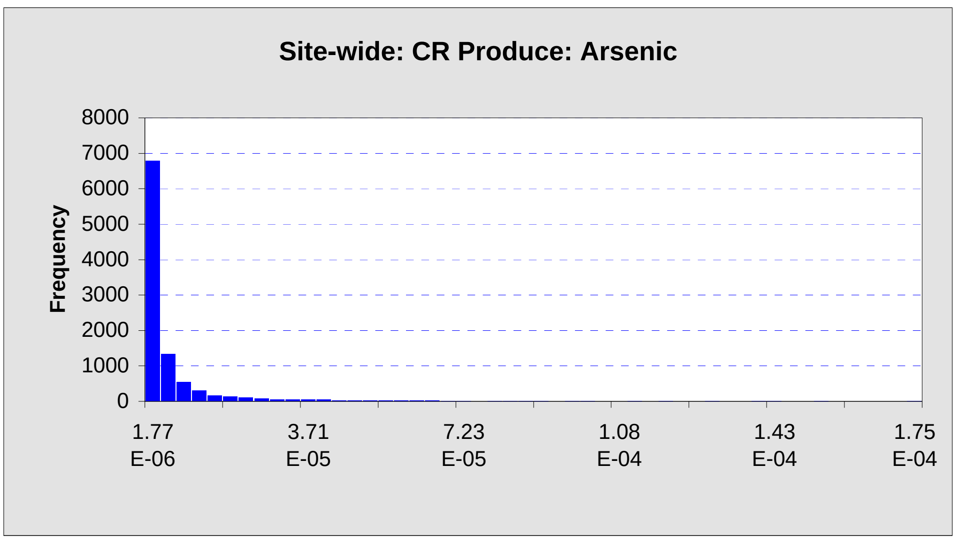
Forecast: Site-wide HI: Thallium Adult+Child Residential Produce (cont'd)

Cell: G31

Percentiles:	Forecast values
1%	0.013
5%	0.023
10%	0.032
25%	0.054
50%	0.099
75%	0.186
90%	0.339
95%	0.499
99%	1.040

Forecast: Site-wide: CR Produce: Arsenic **Cell: G58**

Summary:
Entire range is from 9.05E-09 to 2.72E-03
Base case is 3.77E-06
After 10,000 trials, the std. error of the mean is 5.95E-07



Forecast: Site-wide: CR Produce: Arsenic (cont'd) **Cell: G58**

Statistics:	Forecast values
Trials	10,000
Mean	9.85E-06
Median	1.84E-06
Mode	---
Standard Deviation	5.95E-05
Variance	3.54E-09
Skewness	25.37
Kurtosis	860.12
Coeff. of Variability	6.04
Minimum	9.05E-09
Maximum	2.72E-03
Range Width	2.72E-03
Mean Std. Error	5.95E-07

Percentiles:	Forecast values
1%	1.18E-07
5%	2.60E-07
10%	3.95E-07
25%	8.06E-07
50%	1.84E-06
75%	4.89E-06
90%	1.47E-05
95%	3.22E-05
99%	1.42E-04

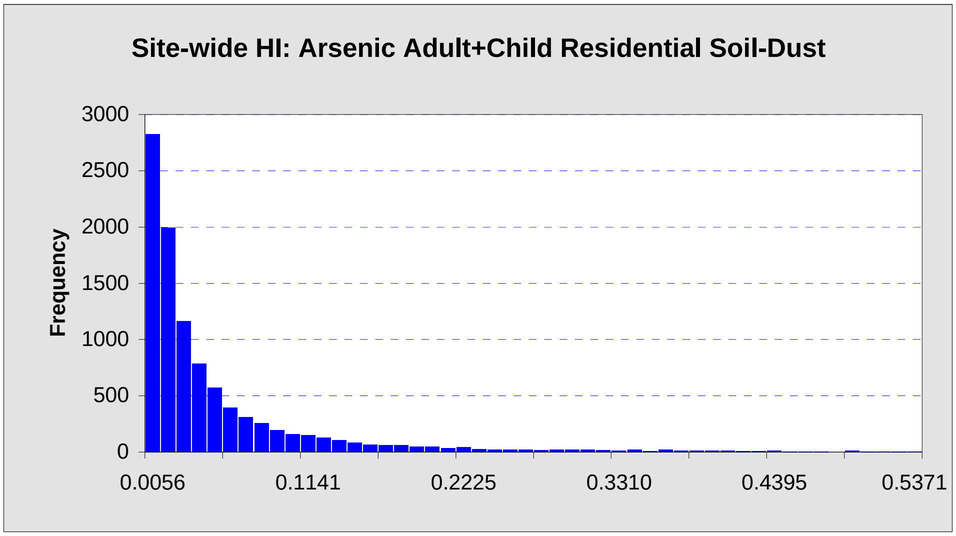
Worksheet: [C164_Soil_Dust_Produce.xls]HI Ingestion Soil-Dust

Forecast: Site-wide HI: Arsenic Adult+Child Residential Soil-Dust **Cell: I37**

Summary:
Entire range is from 0.0002 to 5.1092
Base case is 0.0642
After 10,000 trials, the std. error of the mean is 0.0017

Forecast: Site-wide HI: Arsenic Adult+Child Residential Soil-Dust (cont'd)

Cell: I37

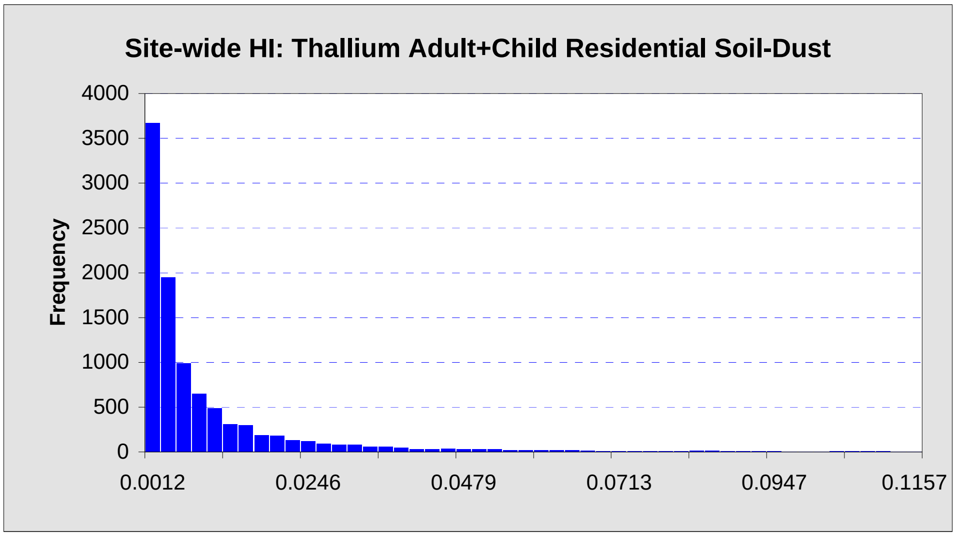


Statistics:	Forecast values
Trials	10,000
Mean	0.0643
Median	0.0233
Mode	---
Standard Deviation	0.1708
Variance	0.0292
Skewness	12.89
Kurtosis	268.74
Coeff. of Variability	2.66
Minimum	0.0002
Maximum	5.1092
Range Width	5.1090
Mean Std. Error	0.0017

Percentiles:	Forecast values
1%	0.0013
5%	0.0030
10%	0.0046
25%	0.0098
50%	0.0233
75%	0.0583
90%	0.1366
95%	0.2290
99%	0.6494

Forecast: Site-wide HI: Thallium Adult+Child Residential Soil-Dust **Cell: I41**

Summary:
Entire range is from 0.0000 to 1.3112
Base case is 0.0123
After 10,000 trials, the std. error of the mean is 0.0004



Statistics:	Forecast values
Trials	10,000
Mean	0.0123
Median	0.0038
Mode	---
Standard Deviation	0.0374
Variance	0.0014
Skewness	15.38
Kurtosis	373.52
Coeff. of Variability	3.04
Minimum	0.0000
Maximum	1.3112
Range Width	1.3112
Mean Std. Error	0.0004

Forecast: Site-wide HI: Thallium Adult+Child Residential Soil-Dust (cont'd)

Cell: I41

Percentiles:	Forecast values
1%	0.0002
5%	0.0004
10%	0.0006
25%	0.0015
50%	0.0038
75%	0.0105
90%	0.0263
95%	0.0469
99%	0.1340

End of Forecasts

Assumptions

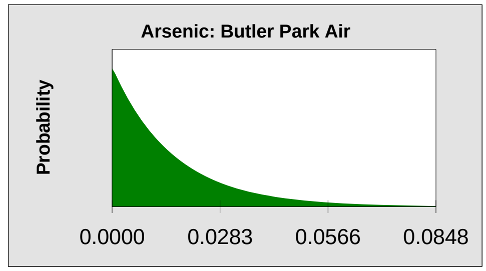
Worksheet: [C164_air.xls]Media Conc

Assumption: Arsenic: Butler Park Air **Cell: C4**

Exponential distribution with parameters:

Rate	62.4585

Selected range is from 0.0000 to 100.0000



Statistics:	Assumption values	Distribution
Trials	10,000	---
Mean	0.0158	0.0160
Median	0.0111	0.0111
Mode	---	---
Standard Deviation	0.0158	0.0160
Variance	0.0002	0.0003
Skewness	1.96	2.00
Kurtosis	8.45	8.97
Coeff. of Variability	0.9965	0.9997
Minimum	0.0000	0.0000
Maximum	0.1378	100.0000
Range Width	0.1378	100.0000
Mean Std. Error	0.0002	---

Percentiles:	Assumption values	Distribution
5%	0.0008	0.0008
95%	0.0473	0.0480

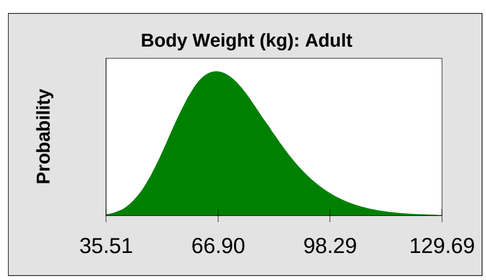
Worksheet: [C164_ExpTox.xls]ExpParam

Assumption: Body Weight (kg): Adult **Cell: C46**

Lognormal distribution with parameters:

Mean	70.70
Std. Dev.	14.50

Selected range is from 0.00 to 200.00



Assumption: Body Weight (kg): Adult (cont'd)

Cell: C46

Statistics:	Assumption values	Distribution
Trials	10,000	---
Mean	70.71	70.70
Median	69.21	69.26
Mode	---	---
Standard Deviation	14.44	14.50
Variance	208.56	210.28
Skewness	0.5663	0.6232
Kurtosis	3.50	3.70
Coeff. of Variability	0.2042	0.2051
Minimum	31.43	0.00
Maximum	150.12	200.00
Range Width	118.69	200.00
Mean Std. Error	0.14	---

Percentiles:	Assumption values	Distribution
5%	49.54	49.60
95%	96.20	96.71

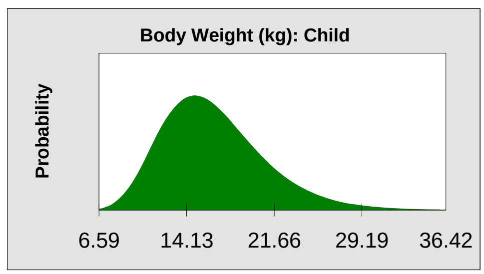
Assumption: Body Weight (kg): Child

Cell: C45

Lognormal distribution with parameters:

Mean	16.50
Std. Dev.	4.50

Selected range is from 0.00 to 100.00



Assumption: Body Weight (kg): Child (cont'd) **Cell: C45**

Statistics:	Assumption values	Distribution
Trials	10,000	---
Mean	16.47	16.50
Median	15.90	15.92
Mode	---	---
Standard Deviation	4.55	4.50
Variance	20.68	20.25
Skewness	0.8866	0.8374
Kurtosis	4.47	4.27
Coeff. of Variability	0.2762	0.2727
Minimum	5.38	0.00
Maximum	44.94	100.00
Range Width	39.55	100.00
Mean Std. Error	0.05	---

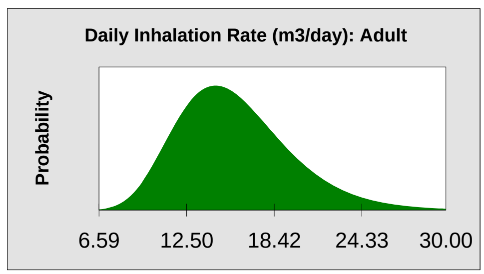
Percentiles:	Assumption values	Distribution
5%	10.21	10.25
95%	24.82	24.73

Assumption: Daily Inhalation Rate (m3/day): Adult **Cell: C18**

Lognormal distribution with parameters:

Mean	15.80
Std. Dev.	3.90

Selected range is from 0.00 to 30.00



Assumption: Daily Inhalation Rate (m3/day): Adult (cont'd) **Cell: C18**

Statistics:	Assumption values	Distribution
Trials	10,000	---
Mean	15.77	15.75
Median	15.40	15.33
Mode	---	---
Standard Deviation	3.77	3.80
Variance	14.20	14.44
Skewness	0.5746	0.6003
Kurtosis	3.33	3.31
Coeff. of Variability	0.2390	0.2412
Minimum	5.51	0.00
Maximum	29.94	30.00
Range Width	24.43	30.00
Mean Std. Error	0.04	---

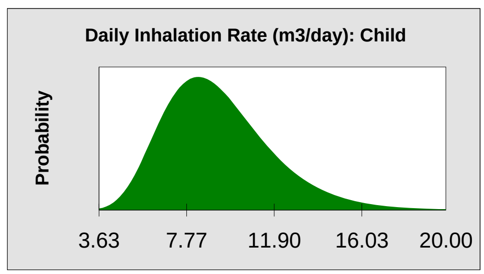
Percentiles:	Assumption values	Distribution
5%	10.29	10.28
95%	22.61	22.74

Assumption: Daily Inhalation Rate (m3/day): Child **Cell: C17**

Lognormal distribution with parameters:

Mean	9.30
Std. Dev.	2.60

Selected range is from 0.00 to 20.00



Assumption: Daily Inhalation Rate (m3/day): Child (cont'd) **Cell: C17**

Statistics:	Assumption values	Distribution
Trials	10,000	---
Mean	9.24	9.28
Median	8.93	8.95
Mode	---	---
Standard Deviation	2.55	2.55
Variance	6.52	6.50
Skewness	0.6867	0.7295
Kurtosis	3.58	3.64
Coeff. of Variability	0.2765	0.2748
Minimum	3.26	0.00
Maximum	19.98	20.00
Range Width	16.72	20.00
Mean Std. Error	0.03	---

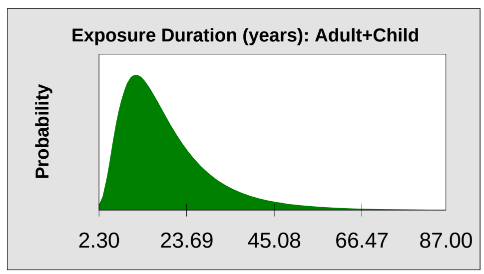
Percentiles:	Assumption values	Distribution
5%	5.59	5.70
95%	13.90	14.00

Assumption: Exposure Duration (years): Adult+Child **Cell: C42**

Lognormal distribution with parameters:

Mean	18.90
Std. Dev.	12.15

Selected range is from 0.00 to 87.00



Assumption: Exposure Duration (years): Adult+Child (cont'd) **Cell: C42**

Statistics:	Assumption values	Distribution
Trials	10,000	---
Mean	18.68	18.73
Median	15.87	15.88
Mode	---	---
Standard Deviation	11.51	11.53
Variance	132.57	132.94
Skewness	1.70	1.67
Kurtosis	7.02	6.93
Coeff. of Variability	0.6163	0.6154
Minimum	1.53	0.00
Maximum	86.93	87.00
Range Width	85.41	87.00
Mean Std. Error	0.12	---

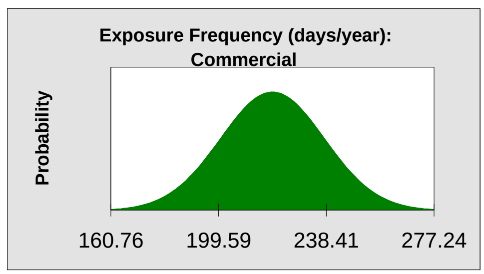
Percentiles:	Assumption values	Distribution
5%	6.08	6.04
95%	41.67	41.40

Assumption: Exposure Frequency (days/year): Commercial **Cell: C8**

Normal distribution with parameters:

Mean	219.00
95%	250.00

Selected range is from 0.00 to 365.00



Assumption: Exposure Frequency (days/year): Commercial (cont'd) **Cell: C8**

Statistics:	Assumption values	Distribution
Trials	10,000	---
Mean	219.20	219.00
Median	219.16	219.00
Mode	---	---
Standard Deviation	18.88	18.85
Variance	356.62	355.24
Skewness	-0.0181	0.00
Kurtosis	3.00	3.00
Coeff. of Variability	0.0862	0.0861
Minimum	136.68	0.00
Maximum	291.77	365.00
Range Width	155.09	365.00
Mean Std. Error	0.19	---

Percentiles:	Assumption values	Distribution
5%	188.27	188.00
95%	250.35	250.00

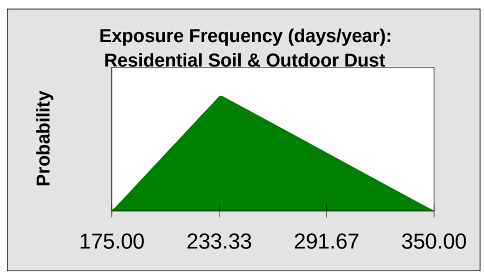
Assumption: Exposure Frequency (days/year): Residential Soil & Outdoor Dust

Cell: C3

Triangular distribution with parameters:

Minimum	175.00
Likeliest	234.00
Maximum	350.00

Selected range is from 0.00 to 365.00



Assumption: Exposure Frequency (days/year): Residential Soil & Outdoor Dust (cont'd)

Cell: C3

Statistics:	Assumption values	Distribution
Trials	10,000	---
Mean	252.78	253.00
Median	248.80	249.25
Mode	---	234.00
Standard Deviation	36.19	36.35
Variance	1,309.78	1,321.17
Skewness	0.3037	0.2994
Kurtosis	2.40	2.40
Coeff. of Variability	0.1432	0.1437
Minimum	175.10	175.00
Maximum	349.25	350.00
Range Width	174.15	175.00
Mean Std. Error	0.36	---

Percentiles:	Assumption values	Distribution
5%	197.51	197.72
95%	317.57	318.14

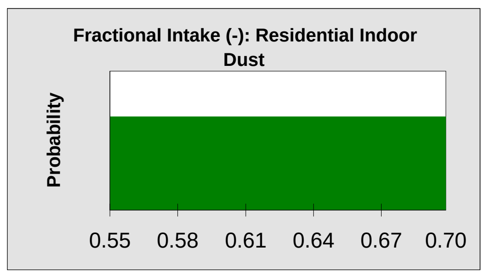
Assumption: Fractional Intake (-): Residential Indoor Dust

Cell: C11

Uniform distribution with parameters:

Minimum	0.55
Maximum	0.70

Selected range is from 0.00 to 1.00



Assumption: Fractional Intake (-): Residential Indoor Dust (cont'd) **Cell: C11**

Statistics:	Assumption values	Distribution
Trials	10,000	---
Mean	0.63	0.63
Median	0.63	0.63
Mode	---	---
Standard Deviation	0.04	0.04
Variance	0.00	0.00
Skewness	-0.0111	0.00
Kurtosis	1.79	1.80
Coeff. of Variability	0.0690	0.0693
Minimum	0.55	0.55
Maximum	0.70	0.70
Range Width	0.15	0.15
Mean Std. Error	0.00	---

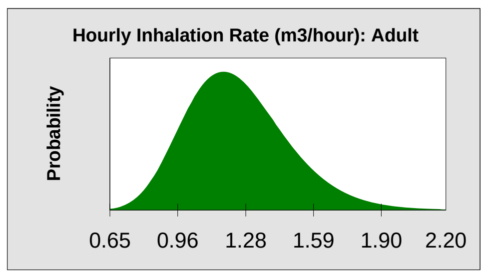
Percentiles:	Assumption values	Distribution
5%	0.56	0.56
95%	0.69	0.69

Assumption: Hourly Inhalation Rate (m3/hour): Adult **Cell: C21**

Lognormal distribution with parameters:

Mean	1.24
Std. Dev.	0.24

Selected range is from 0.00 to 5.00



Assumption: Hourly Inhalation Rate (m3/hour): Adult (cont'd) **Cell: C21**

Statistics:	Assumption values	Distribution
Trials	10,000	---
Mean	1.24	1.24
Median	1.21	1.22
Mode	---	---
Standard Deviation	0.24	0.24
Variance	0.06	0.06
Skewness	0.6578	0.5873
Kurtosis	3.74	3.62
Coeff. of Variability	0.1936	0.1936
Minimum	0.60	0.00
Maximum	2.53	5.00
Range Width	1.93	5.00
Mean Std. Error	0.00	---

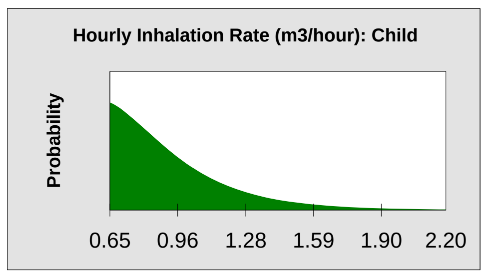
Percentiles:	Assumption values	Distribution
5%	0.89	0.89
95%	1.68	1.67

Assumption: Hourly Inhalation Rate (m3/hour): Child **Cell: C20**

Lognormal distribution with parameters:

Mean	0.75
Std. Dev.	0.32

Selected range is from 0.00 to 4.00



Assumption: Hourly Inhalation Rate (m3/hour): Child (cont'd) **Cell: C20**

Statistics:	Assumption values	Distribution
Trials	10,000	---
Mean	0.75	0.75
Median	0.69	0.69
Mode	---	---
Standard Deviation	0.32	0.32
Variance	0.10	0.10
Skewness	1.29	1.35
Kurtosis	5.79	6.30
Coeff. of Variability	0.4214	0.4265
Minimum	0.14	0.00
Maximum	2.90	4.00
Range Width	2.76	4.00
Mean Std. Error	0.00	---

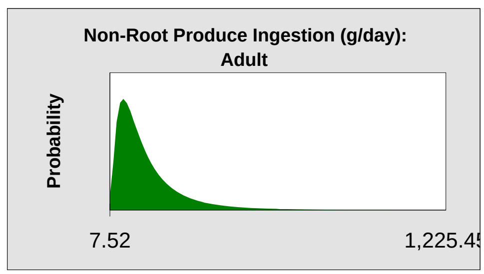
Percentiles:	Assumption values	Distribution
5%	0.35	0.35
95%	1.36	1.35

Assumption: Non-Root Produce Ingestion (g/day): Adult **Cell: C57**

Lognormal distribution with parameters:

Mean	143.00
Std. Dev.	135.00

Selected range is from 0.00 to 2,000.00



Assumption: Non-Root Produce Ingestion (g/day): Adult (cont'd) **Cell: C57**

Statistics:	Assumption values	Distribution
Trials	10,000	---
Mean	142.66	142.75
Median	104.06	103.97
Mode	---	---
Standard Deviation	130.66	132.76
Variance	17,071.77	17,625.00
Skewness	2.98	3.18
Kurtosis	18.49	20.84
Coeff. of Variability	0.9159	0.9300
Minimum	4.28	0.00
Maximum	1,777.86	2,000.00
Range Width	1,773.58	2,000.00
Mean Std. Error	1.31	---

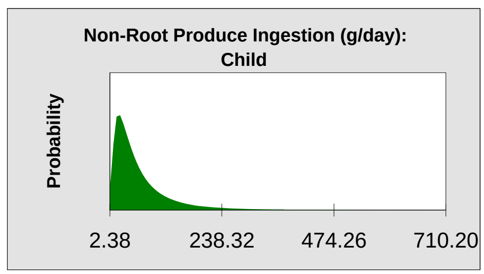
Percentiles:	Assumption values	Distribution
5%	28.61	27.97
95%	388.35	386.25

Assumption: Non-Root Produce Ingestion (g/day): Child **Cell: C56**

Lognormal distribution with parameters:

Mean	67.00
Std. Dev.	74.00

Selected range is from 0.00 to 1,000.00



Assumption: Non-Root Produce Ingestion (g/day): Child (cont'd) **Cell: C56**

Statistics:	Assumption values	Distribution
Trials	10,000	---
Mean	67.60	66.69
Median	45.43	44.96
Mode	---	---
Standard Deviation	74.89	71.17
Variance	5,608.18	5,065.35
Skewness	3.85	3.54
Kurtosis	26.99	23.95
Coeff. of Variability	1.11	1.07
Minimum	1.05	0.00
Maximum	922.66	1,000.00
Range Width	921.61	1,000.00
Mean Std. Error	0.75	---

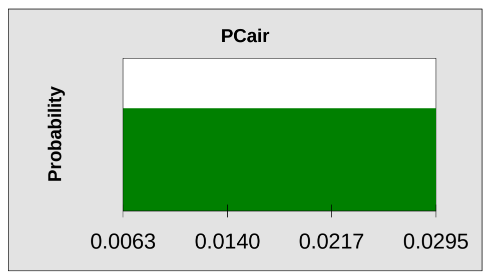
Percentiles:	Assumption values	Distribution
5%	10.47	10.35
95%	200.37	194.94

Assumption: PCair **Cell: C59**

Uniform distribution with parameters:

Minimum	0.0063
Maximum	0.0295

Selected range is from 0.0000 to 2.1016



Assumption: PCair (cont'd) **Cell: C59**

Statistics:	Assumption values	Distribution
Trials	10,000	---
Mean	0.0178	0.0179
Median	0.0178	0.0179
Mode	---	---
Standard Deviation	0.0066	0.0067
Variance	0.0000	0.0000
Skewness	0.0251	0.00
Kurtosis	1.82	1.80
Coeff. of Variability	0.3723	0.3745
Minimum	0.0063	0.0063
Maximum	0.0295	0.0295
Range Width	0.0232	0.0232
Mean Std. Error	0.0001	---

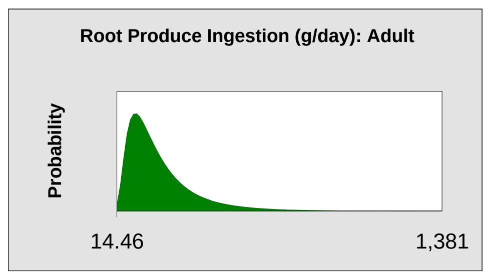
Percentiles:	Assumption values	Distribution
5%	0.0074	0.0074
95%	0.0283	0.0283

Assumption: Root Produce Ingestion (g/day): Adult **Cell: C55**

Lognormal distribution with parameters:

Mean	196.00
Std. Dev.	160.00

Selected range is from 0.00 to 2,000.00



Assumption: Root Produce Ingestion (g/day): Adult (cont'd)

Cell: C55

Statistics:	Assumption values	Distribution
Trials	10,000	---
Mean	196.12	195.65
Median	151.99	151.81
Mode	---	---
Standard Deviation	157.68	157.51
Variance	24,863.72	24,808.48
Skewness	2.62	2.64
Kurtosis	14.72	14.95
Coeff. of Variability	0.8040	0.8050
Minimum	12.98	0.00
Maximum	1,885.63	2,000.00
Range Width	1,872.64	2,000.00
Mean Std. Error	1.58	---

Percentiles:	Assumption values	Distribution
5%	47.96	46.87
95%	493.65	491.37

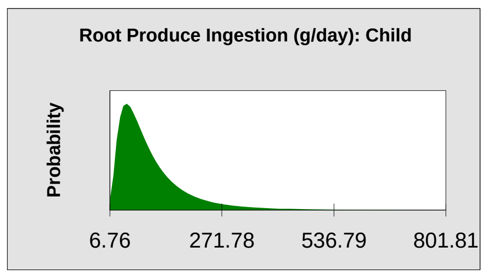
Assumption: Root Produce Ingestion (g/day): Child

Cell: C54

Lognormal distribution with parameters:

Mean	105.00
Std. Dev.	91.00

Selected range is from 0.00 to 1,000.00



Assumption: Root Produce Ingestion (g/day): Child (cont'd) **Cell: C54**

Statistics:	Assumption values	Distribution
Trials	10,000	---
Mean	104.99	104.60
Median	79.81	79.32
Mode	---	---
Standard Deviation	88.66	88.34
Variance	7,861.14	7,803.66
Skewness	2.66	2.66
Kurtosis	14.46	14.56
Coeff. of Variability	0.8445	0.8446
Minimum	5.54	0.00
Maximum	980.24	1,000.00
Range Width	974.70	1,000.00
Mean Std. Error	0.89	---

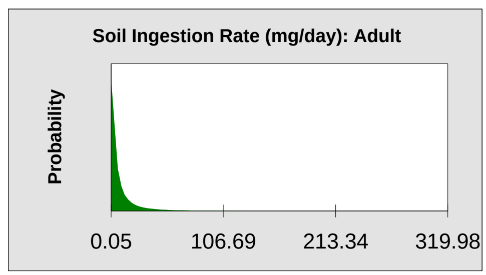
Percentiles:	Assumption values	Distribution
5%	23.05	23.16
95%	270.82	271.12

Assumption: Soil Ingestion Rate (mg/day): Adult **Cell: C14**

Lognormal distribution with parameters:

Mean	11.90
95%	44.30

Selected range is from 0.00 to 2,000.00



Assumption: Soil Ingestion Rate (mg/day): Adult (cont'd) **Cell: C14**

Statistics:	Assumption values	Distribution
Trials	10,000	---
Mean	11.89	12.39
Median	4.60	4.67
Mode	---	---
Standard Deviation	28.72	26.99
Variance	825.00	728.28
Skewness	12.31	12.93
Kurtosis	244.08	371.11
Coeff. of Variability	2.41	2.18
Minimum	0.02	0.00
Maximum	864.43	2,000.00
Range Width	864.41	2,000.00
Mean Std. Error	0.29	---

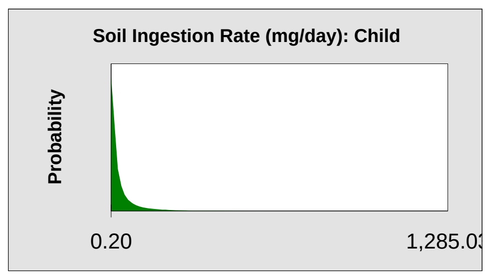
Percentiles:	Assumption values	Distribution
5%	0.52	0.49
95%	42.75	44.30

Assumption: Soil Ingestion Rate (mg/day): Child **Cell: C13**

Lognormal distribution with parameters:

Mean	47.50
95%	177.00

Selected range is from 0.00 to 5,000.00



Assumption: Soil Ingestion Rate (mg/day): Child (cont'd) **Cell: C13**

Statistics:	Assumption values	Distribution
Trials	10,000	---
Mean	47.84	48.12
Median	18.27	18.54
Mode	---	---
Standard Deviation	119.13	105.68
Variance	14,193.01	11,168.09
Skewness	14.27	10.92
Kurtosis	349.52	234.27
Coeff. of Variability	2.49	2.20
Minimum	0.04	0.00
Maximum	4,090.02	5,000.00
Range Width	4,089.99	5,000.00
Mean Std. Error	1.19	---

Percentiles:	Assumption values	Distribution
5%	1.95	1.94
95%	173.46	176.95

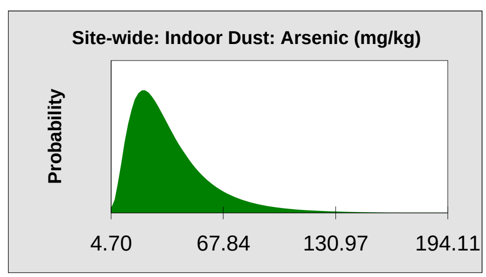
Worksheet: [C164_Soil_Dust_Produce.xls]Media Conc

Assumption: Site-wide: Indoor Dust: Arsenic (mg/kg) **Cell: I14**

Lognormal distribution with parameters:

Mean	37.96
Std. Dev.	24.16

Selected range is from 0.00 to 10,000.00



Assumption: Site-wide: Indoor Dust: Arsenic (mg/kg) (cont'd) **Cell: I14**

Statistics:	Assumption values	Distribution
Trials	10,000	---
Mean	37.88	37.96
Median	31.79	32.02
Mode	---	---
Standard Deviation	24.64	24.16
Variance	607.08	583.65
Skewness	2.49	2.15
Kurtosis	16.41	12.08
Coeff. of Variability	0.6505	0.6365
Minimum	2.88	0.00
Maximum	352.29	10,000.00
Range Width	349.41	10,000.00
Mean Std. Error	0.25	---

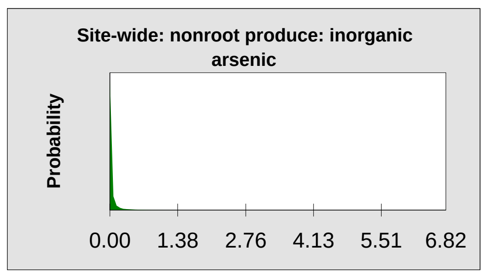
Percentiles:	Assumption values	Distribution
5%	12.27	12.27
95%	83.55	83.56

Assumption: Site-wide: nonroot produce: inorganic arsenic **Cell: I17**

Lognormal distribution with parameters:

Mean	0.10
Std. Dev.	0.83

Selected range is from 0.00 to 100.00



Assumption: Site-wide: nonroot produce: inorganic arsenic (cont'd) **Cell: I17**

Statistics:	Assumption values	Distribution
Trials	10,000	---
Mean	0.08	0.21
Median	0.01	0.01
Mode	---	---
Standard Deviation	0.38	0.62
Variance	0.15	0.38
Skewness	17.74	46.21
Kurtosis	481.14	3,798.54
Coeff. of Variability	4.59	2.92
Minimum	0.00	0.00
Maximum	15.61	100.00
Range Width	15.61	100.00
Mean Std. Error	0.00	---

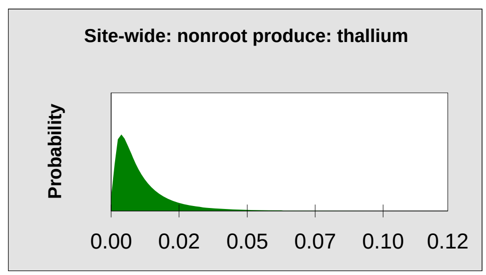
Percentiles:	Assumption values	Distribution
5%	0.00	0.00
95%	0.33	0.33

Assumption: Site-wide: nonroot produce: thallium **Cell: I41**

Lognormal distribution with parameters:

Mean	0.01
Std. Dev.	0.01

Selected range is from 0.00 to 100.00



Assumption: Site-wide: nonroot produce: thallium (cont'd) **Cell: I41**

Statistics:	Assumption values	Distribution
Trials	10,000	---
Mean	0.01	0.01
Median	0.01	0.01
Mode	---	---
Standard Deviation	0.01	0.01
Variance	0.00	0.00
Skewness	3.64	4.22
Kurtosis	27.04	42.72
Coeff. of Variability	1.03	1.06
Minimum	0.00	0.00
Maximum	0.18	100.00
Range Width	0.18	100.00
Mean Std. Error	0.00	---

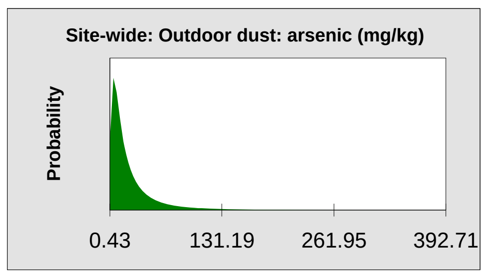
Percentiles:	Assumption values	Distribution
5%	0.00	0.00
95%	0.03	0.03

Assumption: Site-wide: Outdoor dust: arsenic (mg/kg) **Cell: I15**

Lognormal distribution with parameters:

Mean	25.64
Std. Dev.	37.38

Selected range is from 0.00 to 10,000.00



Assumption: Site-wide: Outdoor dust: arsenic (mg/kg) (cont'd) **Cell: I15**

Statistics:	Assumption values	Distribution
Trials	10,000	---
Mean	25.88	25.68
Median	14.47	14.51
Mode	---	---
Standard Deviation	40.16	37.36
Variance	1,613.11	1,395.66
Skewness	8.85	6.90
Kurtosis	156.44	119.69
Coeff. of Variability	1.55	1.45
Minimum	0.13	0.00
Maximum	1,020.16	10,000.00
Range Width	1,020.04	10,000.00
Mean Std. Error	0.40	---

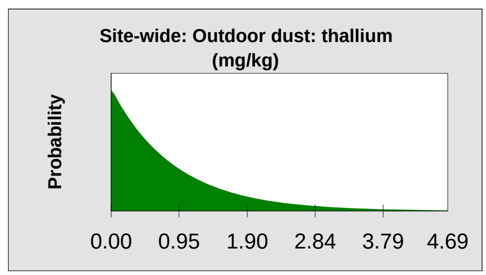
Percentiles:	Assumption values	Distribution
5%	2.54	2.51
95%	83.49	83.96

Assumption: Site-wide: Outdoor dust: thallium (mg/kg) **Cell: I39**

Exponential distribution with parameters:

Rate	1.13

Selected range is from 0.00 to 10,000.00



Assumption: Site-wide: Outdoor dust: thallium (mg/kg) (cont'd) **Cell: I39**

Statistics:	Assumption values	Distribution
Trials	10,000	---
Mean	0.89	0.89
Median	0.62	0.61
Mode	---	---
Standard Deviation	0.88	0.89
Variance	0.77	0.78
Skewness	1.97	2.00
Kurtosis	8.83	8.97
Coeff. of Variability	0.9888	0.9997
Minimum	0.00	0.00
Maximum	8.82	10,000.00
Range Width	8.82	10,000.00
Mean Std. Error	0.01	---

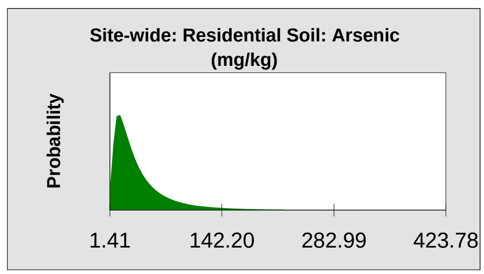
Percentiles:	Assumption values	Distribution
5%	0.04	0.05
95%	2.63	2.65

Assumption: Site-wide: Residential Soil: Arsenic (mg/kg) **Cell: I13**

Lognormal distribution with parameters:

Mean	39.88
Std. Dev.	44.13

Selected range is from 0.00 to 1,000.00



Assumption: Site-wide: Residential Soil: Arsenic (mg/kg) (cont'd) **Cell: I13**

Statistics:	Assumption values	Distribution
Trials	10,000	---
Mean	39.92	39.85
Median	26.49	26.74
Mode	---	---
Standard Deviation	44.92	43.69
Variance	2,018.17	1,908.84
Skewness	4.46	4.15
Kurtosis	39.52	36.29
Coeff. of Variability	1.13	1.10
Minimum	0.82	0.00
Maximum	748.14	1,000.00
Range Width	747.32	1,000.00
Mean Std. Error	0.45	---

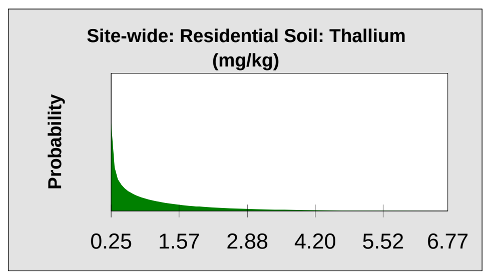
Percentiles:	Assumption values	Distribution
5%	5.94	6.14
95%	117.46	116.35

Assumption: Site-wide: Residential Soil: Thallium (mg/kg) **Cell: I37**

Gamma distribution with parameters:

Location	0.25
Scale	1.50
Shape	0.638375291

Selected range is from 0.00 to 1,000.00



Assumption: Site-wide: Residential Soil: Thallium (mg/kg) (cont'd) **Cell: I37**

Statistics:	Assumption values	Distribution
Trials	10,000	---
Mean	1.21	1.21
Median	0.79	0.77
Mode	---	---
Standard Deviation	1.19	1.19
Variance	1.42	1.43
Skewness	2.49	2.50
Kurtosis	12.51	12.36
Coeff. of Variability	0.9831	0.9898
Minimum	0.25	0.25
Maximum	13.89	1,000.00
Range Width	13.64	999.75
Mean Std. Error	0.01	---

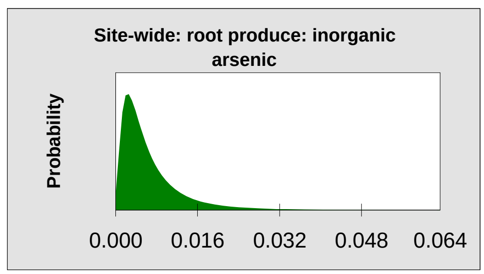
Percentiles:	Assumption values	Distribution
5%	0.26	0.26
95%	3.63	3.61

Assumption: Site-wide: root produce: inorganic arsenic **Cell: I16**

Lognormal distribution with parameters:

Mean	0.007
Std. Dev.	0.007

Selected range is from 0.000 to 100.000



Assumption: Site-wide: root produce: inorganic arsenic (cont'd) **Cell: I16**

Statistics:	Assumption values	Distribution
Trials	10,000	---
Mean	0.007	0.007
Median	0.005	0.005
Mode	---	---
Standard Deviation	0.007	0.007
Variance	0.000	0.000
Skewness	3.66	3.76
Kurtosis	27.62	33.67
Coeff. of Variability	0.9858	0.9736
Minimum	0.000	0.000
Maximum	0.104	100.000
Range Width	0.104	100.000
Mean Std. Error	0.000	---

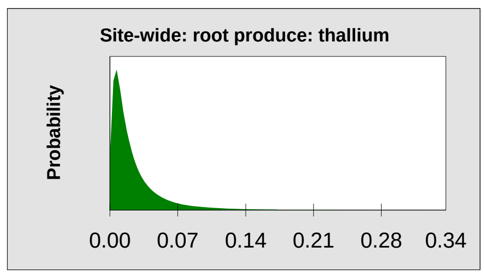
Percentiles:	Assumption values	Distribution
5%	0.001	0.001
95%	0.020	0.020

Assumption: Site-wide: root produce: thallium **Cell: I40**

Lognormal distribution with parameters:

Mean	0.03
Std. Dev.	0.03

Selected range is from 0.00 to 100.00



Assumption: Site-wide: root produce: thallium (cont'd) **Cell: I40**

Statistics:	Assumption values	Distribution
Trials	10,000	---
Mean	0.03	0.03
Median	0.02	0.02
Mode	---	---
Standard Deviation	0.03	0.03
Variance	0.00	0.00
Skewness	4.30	5.71
Kurtosis	35.56	80.35
Coeff. of Variability	1.24	1.29
Minimum	0.00	0.00
Maximum	0.56	100.00
Range Width	0.56	100.00
Mean Std. Error	0.00	---

Percentiles:	Assumption values	Distribution
5%	0.00	0.00
95%	0.08	0.08

End of Assumptions

Report D-1b. Crystal Ball Report Addendum - Custom
Simulation started on 5/13/2008 at 16:06:15
Simulation stopped on 5/13/2008 at 16:06:51

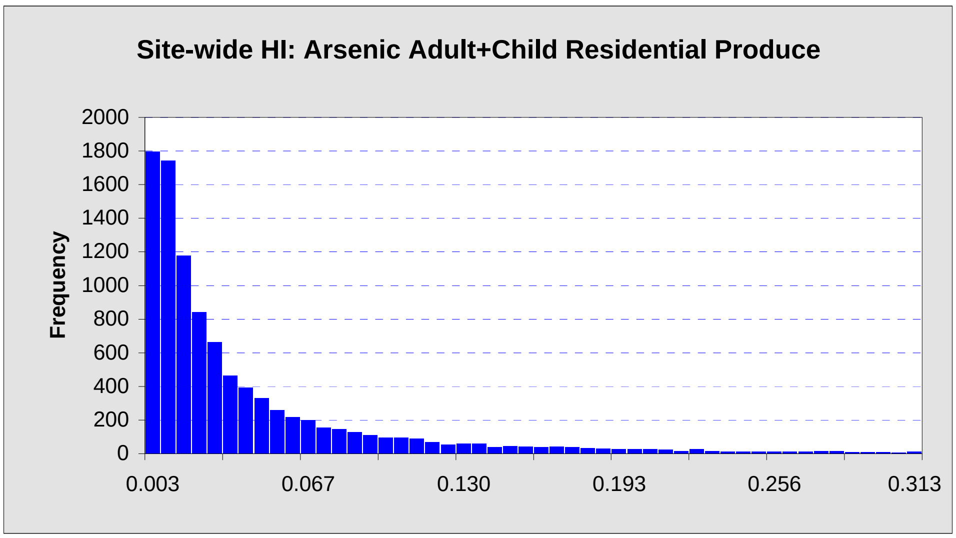
Run preferences:	
Number of trials run	10,000
Monte Carlo	
Random seed	
Precision control on	
Confidence level	95.00%
Run statistics:	
Total running time (sec)	36.10
Trials/second (average)	277
Random numbers per sec	32,965
Crystal Ball data:	
Assumptions	119
Correlations	0
Correlated groups	0
Decision variables	0
Forecasts	130

Forecasts

Worksheet: [C164_Soil_Dust_Produce.xls]HI & CR Ingestion Produce

Forecast: Site-wide HI: Arsenic Adult+Child Residential Produce **Cell: G29**

Summary:
Entire range is from 0.000 to 1.834
Base case is 0.050
After 10,000 trials, the std. error of the mean is 0.001



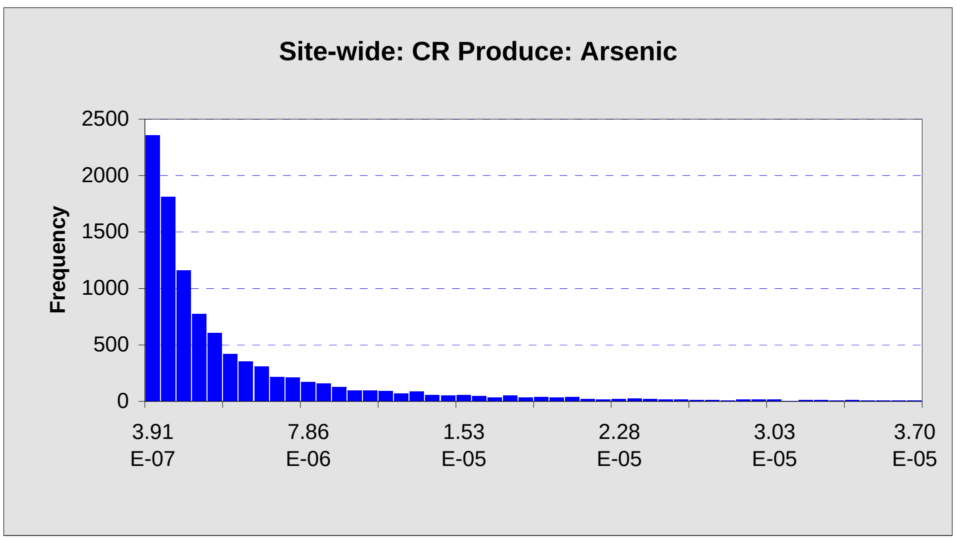
Statistics:	Forecast values
Trials	10,000
Mean	0.051
Median	0.021
Mode	---
Standard Deviation	0.095
Variance	0.009
Skewness	6.08
Kurtosis	63.80
Coeff. of Variability	1.84
Minimum	0.000
Maximum	1.834
Range Width	1.834
Mean Std. Error	0.001

Forecast: Site-wide HI: Arsenic Adult+Child Residential Produce (cont'd) **Cell: G29**

Percentiles:	Forecast values
1%	0.001
5%	0.003
10%	0.004
25%	0.009
50%	0.021
75%	0.053
90%	0.122
95%	0.197
99%	0.457

Forecast: Site-wide: CR Produce: Arsenic **Cell: G58**

Summary:
Entire range is from 1.76E-08 to 2.92E-04
Base case is 3.77E-06
After 10,000 trials, the std. error of the mean is 1.14E-07



Forecast: Site-wide: CR Produce: Arsenic (cont'd) **Cell: G58**

Statistics:	Forecast values
Trials	10,000
Mean	5.34E-06
Median	2.01E-06
Mode	---
Standard Deviation	1.14E-05
Variance	1.31E-10
Skewness	9.15
Kurtosis	151.05
Coeff. of Variability	2.14
Minimum	1.76E-08
Maximum	2.92E-04
Range Width	2.92E-04
Mean Std. Error	1.14E-07

Percentiles:	Forecast values
1%	1.11E-07
5%	2.44E-07
10%	3.76E-07
25%	8.17E-07
50%	2.01E-06
75%	5.32E-06
90%	1.26E-05
95%	2.02E-05
99%	5.15E-05

End of Forecasts

Assumptions

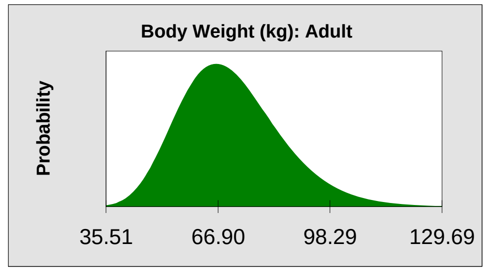
Worksheet: [C164_ExpTox.xls]ExpParam

Assumption: Body Weight (kg): Adult — Cell: C46

Lognormal distribution with parameters:

Mean	70.70
Std. Dev.	14.50

Selected range is from 0.00 to 200.00



Statistics:	Assumption values	Distribution
Trials	10,000	---
Mean	70.71	70.70
Median	69.17	69.26
Mode	---	---
Standard Deviation	14.62	14.50
Variance	213.75	210.28
Skewness	0.6144	0.6232
Kurtosis	3.59	3.70
Coeff. of Variability	0.2068	0.2051
Minimum	31.12	0.00
Maximum	150.78	200.00
Range Width	119.66	200.00
Mean Std. Error	0.15	---

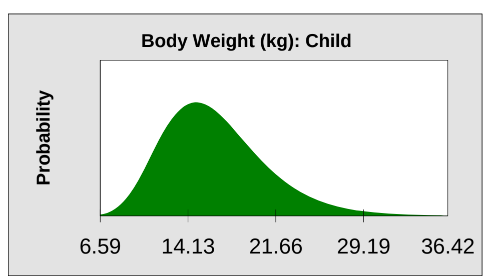
Percentiles:	Assumption values	Distribution
5%	49.46	49.60
95%	97.57	96.71

Assumption: Body Weight (kg): Child — Cell: C45

Lognormal distribution with parameters:

Mean	16.50
Std. Dev.	4.50

Selected range is from 0.00 to 100.00



Assumption: Body Weight (kg): Child (cont'd) **Cell: C45**

Statistics:	Assumption values	Distribution
Trials	10,000	---
Mean	16.51	16.50
Median	15.93	15.92
Mode	---	---
Standard Deviation	4.49	4.50
Variance	20.13	20.25
Skewness	0.8497	0.8374
Kurtosis	4.30	4.27
Coeff. of Variability	0.2718	0.2727
Minimum	5.65	0.00
Maximum	43.42	100.00
Range Width	37.77	100.00
Mean Std. Error	0.04	---

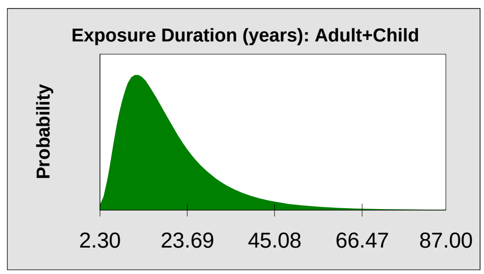
Percentiles:	Assumption values	Distribution
5%	10.32	10.25
95%	24.70	24.73

Assumption: Exposure Duration (years): Adult+Child **Cell: C42**

Lognormal distribution with parameters:

Mean	18.90
Std. Dev.	12.15

Selected range is from 0.00 to 87.00



Assumption: Exposure Duration (years): Adult+Child (cont'd) **Cell: C42**

Statistics:	Assumption values	Distribution
Trials	10,000	---
Mean	18.71	18.73
Median	15.95	15.88
Mode	---	---
Standard Deviation	11.53	11.53
Variance	133.03	132.94
Skewness	1.71	1.67
Kurtosis	7.26	6.93
Coeff. of Variability	0.6164	0.6154
Minimum	1.01	0.00
Maximum	86.34	87.00
Range Width	85.33	87.00
Mean Std. Error	0.12	---

Percentiles:	Assumption values	Distribution
5%	6.01	6.04
95%	41.38	41.40

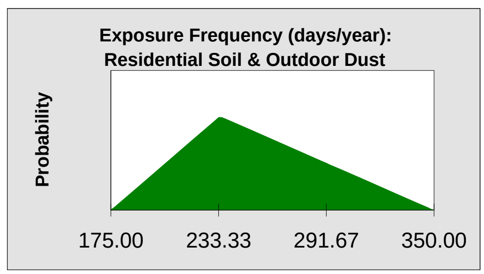
Assumption: Exposure Frequency (days/year): Residential Soil & Outdoor Dust

Cell: C3

Triangular distribution with parameters:

Minimum	175.00
Likeliest	234.00
Maximum	350.00

Selected range is from 0.00 to 365.00



Assumption: Exposure Frequency (days/year): Residential Soil & Outdoor Dust (cont'd)

Cell: C3

Statistics:	Assumption values	Distribution
Trials	10,000	---
Mean	252.94	253.00
Median	249.01	249.25
Mode	---	234.00
Standard Deviation	36.31	36.35
Variance	1,318.51	1,321.17
Skewness	0.2884	0.2994
Kurtosis	2.38	2.40
Coeff. of Variability	0.1436	0.1437
Minimum	175.83	175.00
Maximum	349.52	350.00
Range Width	173.69	175.00
Mean Std. Error	0.36	---

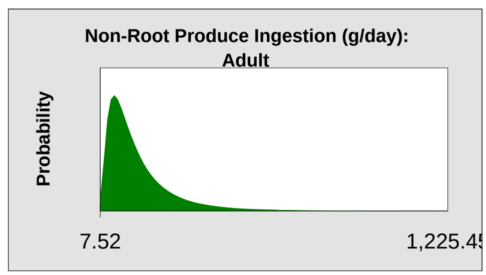
Percentiles:	Assumption values	Distribution
5%	197.83	197.72
95%	317.79	318.14

Assumption: Non-Root Produce Ingestion (g/day): Adult **Cell: C57**

Lognormal distribution with parameters:

Mean	143.00
Std. Dev.	135.00

Selected range is from 0.00 to 2,000.00



Assumption: Non-Root Produce Ingestion (g/day): Adult (cont'd) **Cell: C57**

Statistics:	Assumption values	Distribution
Trials	10,000	---
Mean	142.32	142.75
Median	102.90	103.97
Mode	---	---
Standard Deviation	133.72	132.76
Variance	17,881.21	17,625.00
Skewness	3.20	3.18
Kurtosis	20.43	20.84
Coeff. of Variability	0.9396	0.9300
Minimum	6.20	0.00
Maximum	1,758.05	2,000.00
Range Width	1,751.85	2,000.00
Mean Std. Error	1.34	---

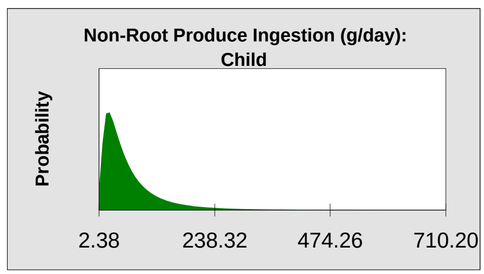
Percentiles:	Assumption values	Distribution
5%	27.32	27.97
95%	387.90	386.25

Assumption: Non-Root Produce Ingestion (g/day): Child **Cell: C56**

Lognormal distribution with parameters:

Mean	67.00
Std. Dev.	74.00

Selected range is from 0.00 to 1,000.00



Assumption: Non-Root Produce Ingestion (g/day): Child (cont'd)

Cell: C56

Statistics:	Assumption values	Distribution
Trials	10,000	---
Mean	66.90	66.69
Median	44.63	44.96
Mode	---	---
Standard Deviation	71.04	71.17
Variance	5,046.86	5,065.35
Skewness	3.56	3.54
Kurtosis	24.44	23.95
Coeff. of Variability	1.06	1.07
Minimum	1.28	0.00
Maximum	942.34	1,000.00
Range Width	941.06	1,000.00
Mean Std. Error	0.71	---

Percentiles:	Assumption values	Distribution
5%	10.45	10.35
95%	192.26	194.94

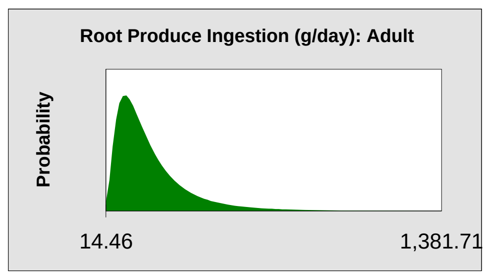
Assumption: Root Produce Ingestion (g/day): Adult

Cell: C55

Lognormal distribution with parameters:

Mean	196.00
Std. Dev.	160.00

Selected range is from 0.00 to 2,000.00



Assumption: Root Produce Ingestion (g/day): Adult (cont'd) **Cell: C55**

Statistics:	Assumption values	Distribution
Trials	10,000	---
Mean	196.51	195.65
Median	152.64	151.81
Mode	---	---
Standard Deviation	159.34	157.51
Variance	25,389.17	24,808.48
Skewness	2.69	2.64
Kurtosis	15.85	14.95
Coeff. of Variability	0.8109	0.8050
Minimum	10.57	0.00
Maximum	1,738.21	2,000.00
Range Width	1,727.65	2,000.00
Mean Std. Error	1.59	---

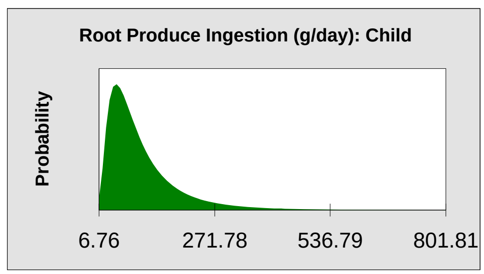
Percentiles:	Assumption values	Distribution
5%	46.30	46.87
95%	494.18	491.37

Assumption: Root Produce Ingestion (g/day): Child **Cell: C54**

Lognormal distribution with parameters:

Mean	105.00
Std. Dev.	91.00

Selected range is from 0.00 to 1,000.00



Assumption: Root Produce Ingestion (g/day): Child (cont'd) **Cell: C54**

Statistics:	Assumption values	Distribution
Trials	10,000	---
Mean	104.63	104.60
Median	79.89	79.32
Mode	---	---
Standard Deviation	88.09	88.34
Variance	7,760.47	7,803.66
Skewness	2.70	2.66
Kurtosis	15.00	14.56
Coeff. of Variability	0.8420	0.8446
Minimum	3.72	0.00
Maximum	995.44	1,000.00
Range Width	991.72	1,000.00
Mean Std. Error	0.88	---

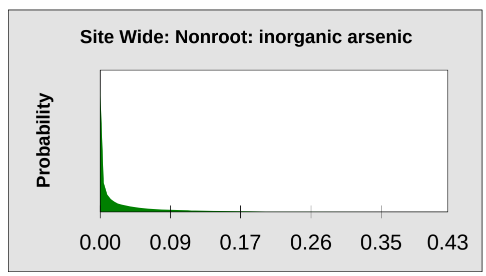
Percentiles:	Assumption values	Distribution
5%	23.23	23.16
95%	274.88	271.12

Worksheet: [C164_Soil_Dust_Produce.xls]Media Conc

Assumption: Site Wide: Nonroot: inorganic arsenic **Cell: I17**

Gamma distribution with parameters:

Location	0.00
Scale	0.13
Shape	0.351222431



Assumption: Site Wide: Nonroot: inorganic arsenic (cont'd) **Cell: I17**

Statistics:	Assumption values	Distribution
Trials	10,000	---
Mean	0.04	0.04
Median	0.01	0.01
Mode	---	---
Standard Deviation	0.07	0.07
Variance	0.01	0.01
Skewness	3.27	3.37
Kurtosis	18.72	20.08
Coeff. of Variability	1.67	1.68
Minimum	0.00	0.00
Maximum	1.02	Infinity
Range Width	1.02	---
Mean Std. Error	0.00	---

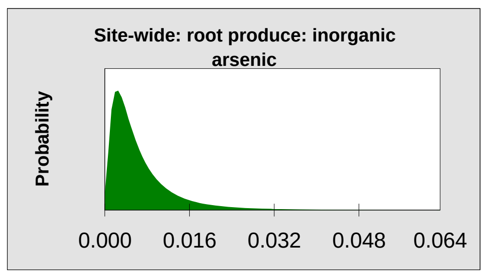
Percentiles:	Assumption values	Distribution
5%	0.00	0.00
95%	0.19	0.19

Assumption: Site-wide: root produce: inorganic arsenic **Cell: I16**

Lognormal distribution with parameters:

Mean	0.007
Std. Dev.	0.007

Selected range is from 0.000 to 100.000



Assumption: Site-wide: root produce: inorganic arsenic (cont'd) **Cell: I16**

Statistics:	Assumption values	Distribution
Trials	10,000	---
Mean	0.007	0.007
Median	0.005	0.005
Mode	---	---
Standard Deviation	0.007	0.007
Variance	0.000	0.000
Skewness	3.86	3.76
Kurtosis	34.49	33.67
Coeff. of Variability	0.9723	0.9736
Minimum	0.000	0.000
Maximum	0.130	100.000
Range Width	0.130	100.000
Mean Std. Error	0.000	---

Percentiles:	Assumption values	Distribution
5%	0.001	0.001
95%	0.019	0.020

End of Assumptions

Report D-2. Crystal Ball Report - Custom

Report D-2. Simulation started on 11/9/2007 at 13:49:26

Simulation stopped on 11/9/2007 at 13:50:25

Crystal Ball Report for Sensitivity Analysis: Child Soil Ingestion Rate

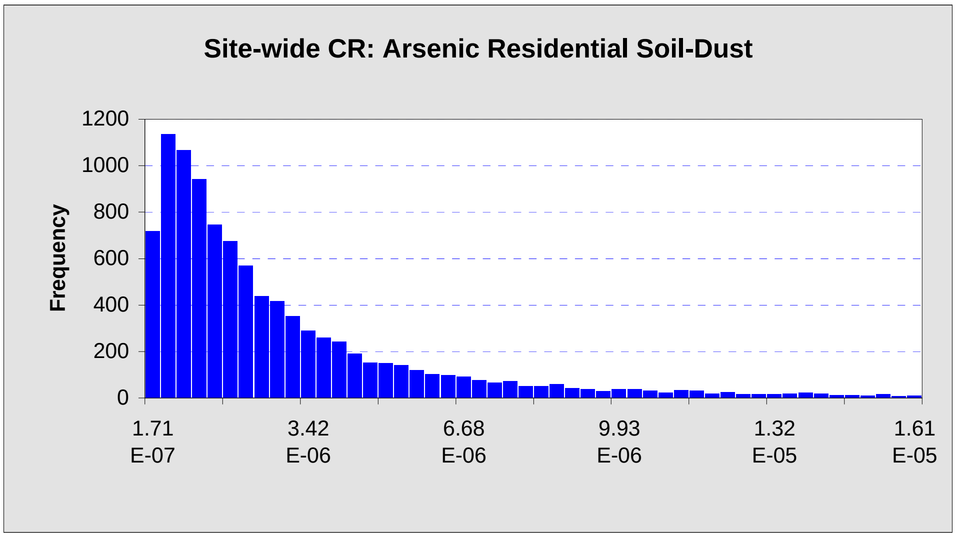
Run preferences:	
Number of trials run	10,000
Monte Carlo	
Random seed	
Precision control on	
Confidence level	95.00%
Run statistics:	
Total running time (sec)	58.82
Trials/second (average)	170
Random numbers per sec	20,231
Crystal Ball data:	
Assumptions	119
Correlations	0
Correlated groups	0
Decision variables	0
Forecasts	130

Forecasts

Worksheet: [C164_Soil_Dust_Produce.xls]CR Ingestion Soil-Dust

Forecast: Site-wide CR: Arsenic Residential Soil-Dust **Cell: I35**

Summary:
Entire range is from 8.78E-09 to 7.47E-05
Base case is 4.86E-06
After 10,000 trials, the std. error of the mean is 4.65E-08



Statistics:	Forecast values
Trials	10,000
Mean	3.24E-06
Median	1.81E-06
Mode	---
Standard Deviation	4.65E-06
Variance	2.17E-11
Skewness	5.15
Kurtosis	46.81
Coeff. of Variability	1.44
Minimum	8.78E-09
Maximum	7.47E-05
Range Width	7.47E-05
Mean Std. Error	4.65E-08

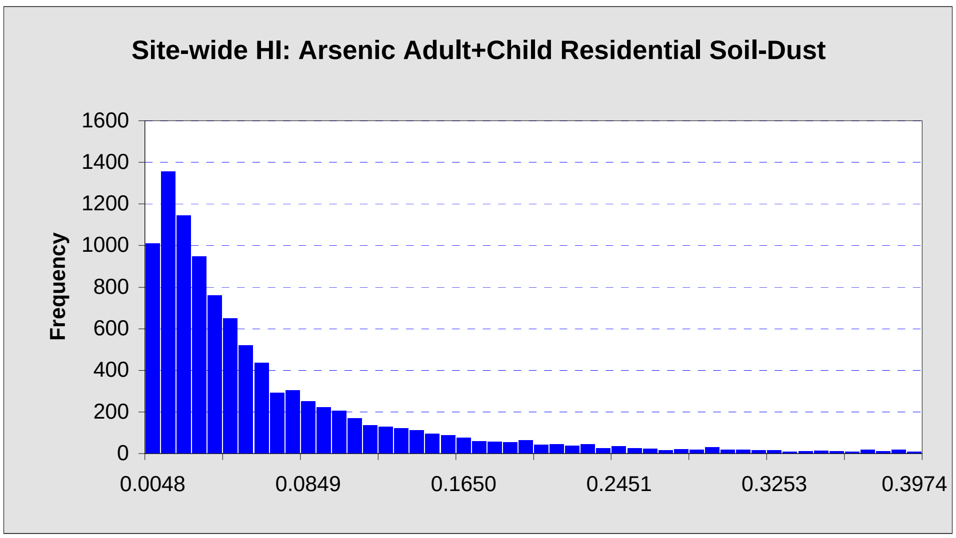
Forecast: Site-wide CR: Arsenic Residential Soil-Dust (cont'd) **Cell: I35**

Percentiles:	Forecast values
1%	1.07E-07
5%	2.68E-07
10%	4.14E-07
25%	8.44E-07
50%	1.81E-06
75%	3.77E-06
90%	7.30E-06
95%	1.09E-05
99%	2.23E-05

Worksheet: [C164_Soil_Dust_Produce.xls]HI Ingestion Soil-Dust

Forecast: Site-wide HI: Arsenic Adult+Child Residential Soil-Dust **Cell: I37**

Summary:
Entire range is from 0.0008 to 2.5670
Base case is 0.0642
After 10,000 trials, the std. error of the mean is 0.0012



Forecast: Site-wide HI: Arsenic Adult+Child Residential Soil-Dust (cont'd)

Cell: I37

Statistics:	Forecast values
Trials	10,000
Mean	0.0740
Median	0.0385
Mode	---
Standard Deviation	0.1169
Variance	0.0137
Skewness	6.26
Kurtosis	76.20
Coeff. of Variability	1.58
Minimum	0.0008
Maximum	2.5670
Range Width	2.5662
Mean Std. Error	0.0012

Percentiles:	Forecast values
1%	0.0029
5%	0.0060
10%	0.0087
25%	0.0177
50%	0.0385
75%	0.0833
90%	0.1674
95%	0.2542
99%	0.5735

Forecast: Site-wide HI: Thallium Adult+Child Residential Soil-Dust

Cell: I41

Summary:

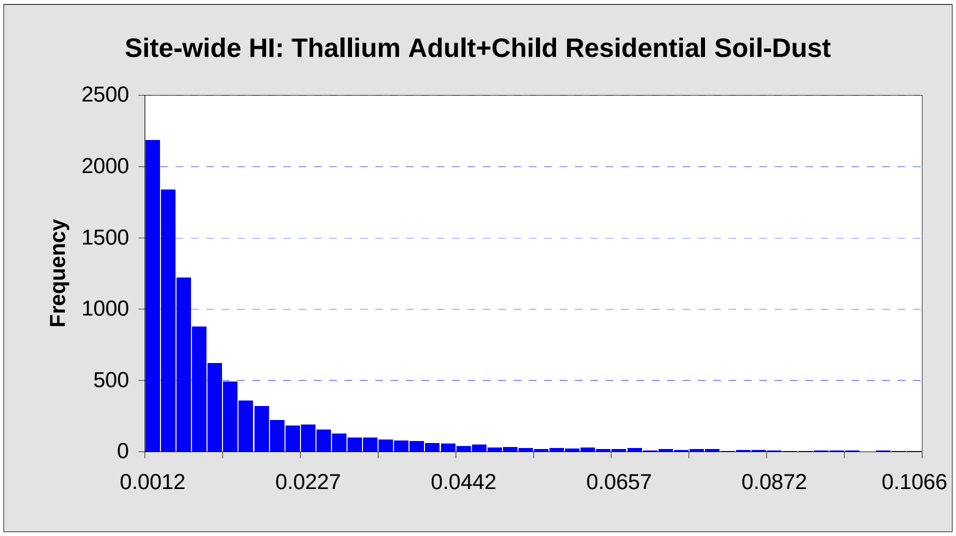
Entire range is from 0.0001 to 1.4758

Base case is 0.0123

After 10,000 trials, the std. error of the mean is 0.0003

Forecast: Site-wide HI: Thallium Adult+Child Residential Soil-Dust (cont'd)

Cell: I41



Statistics:	Forecast values
Trials	10,000
Mean	0.0143
Median	0.0061
Mode	---
Standard Deviation	0.0334
Variance	0.0011
Skewness	17.66
Kurtosis	599.32
Coeff. of Variability	2.34
Minimum	0.0001
Maximum	1.4758
Range Width	1.4757
Mean Std. Error	0.0003

Percentiles:	Forecast values
1%	0.0004
5%	0.0008
10%	0.0012
25%	0.0025
50%	0.0061
75%	0.0145
90%	0.0324
95%	0.0506
99%	0.1258

End of Forecasts

Assumptions

Worksheet: [C164_ExpTox.xls]ExpParam

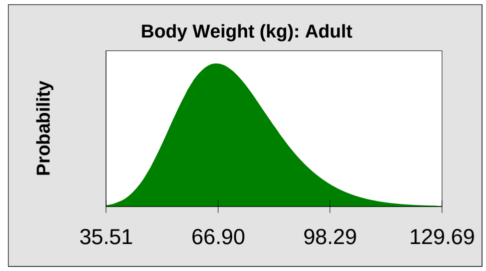
Assumption: Body Weight (kg): Adult

Cell: C46

Lognormal distribution with parameters:

Mean	70.70
Std. Dev.	14.50

Selected range is from 0.00 to 200.00



Statistics:	Assumption values	Distribution
Trials	10,000	---
Mean	70.61	70.70
Median	69.33	69.26
Mode	---	---
Standard Deviation	14.37	14.50
Variance	206.51	210.28
Skewness	0.6415	0.6232
Kurtosis	3.91	3.70
Coeff. of Variability	0.2035	0.2051
Minimum	32.38	0.00
Maximum	175.51	200.00
Range Width	143.13	200.00
Mean Std. Error	0.14	---

Percentiles:	Assumption values	Distribution
5%	49.63	49.60
95%	96.47	96.71

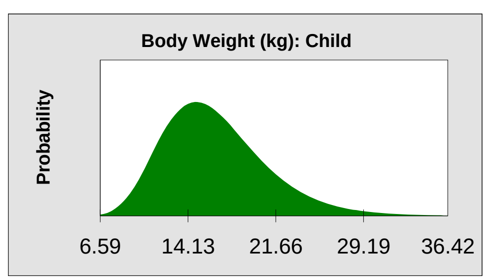
Assumption: Body Weight (kg): Child

Cell: C45

Lognormal distribution with parameters:

Mean	16.50
Std. Dev.	4.50

Selected range is from 0.00 to 100.00



Assumption: Body Weight (kg): Child (cont'd) **Cell: C45**

Statistics:	Assumption values	Distribution
Trials	10,000	---
Mean	16.52	16.50
Median	15.96	15.92
Mode	---	---
Standard Deviation	4.51	4.50
Variance	20.35	20.25
Skewness	0.8724	0.8374
Kurtosis	4.58	4.27
Coeff. of Variability	0.2731	0.2727
Minimum	5.99	0.00
Maximum	44.34	100.00
Range Width	38.35	100.00
Mean Std. Error	0.05	---

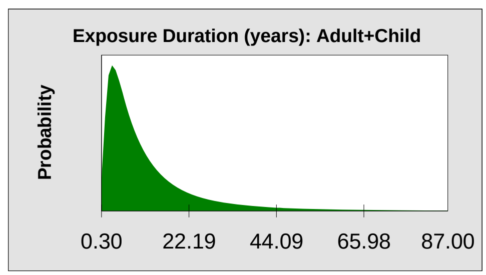
Percentiles:	Assumption values	Distribution
5%	10.18	10.25
95%	24.74	24.73

Assumption: Exposure Duration (years): Adult+Child **Cell: C42**

Lognormal distribution with parameters:

Mean	12.60
Std. Dev.	16.20

Selected range is from 0.00 to 87.00



Assumption: Exposure Duration (years): Adult+Child (cont'd) **Cell: C42**

Statistics:	Assumption values	Distribution
Trials	10,000	---
Mean	11.84	11.78
Median	7.69	7.67
Mode	---	---
Standard Deviation	12.41	12.28
Variance	154.07	150.76
Skewness	2.44	2.41
Kurtosis	10.36	10.33
Coeff. of Variability	1.05	1.04
Minimum	0.11	0.00
Maximum	86.75	87.00
Range Width	86.64	87.00
Mean Std. Error	0.12	---

Percentiles:	Assumption values	Distribution
5%	1.60	1.52
95%	37.47	36.92

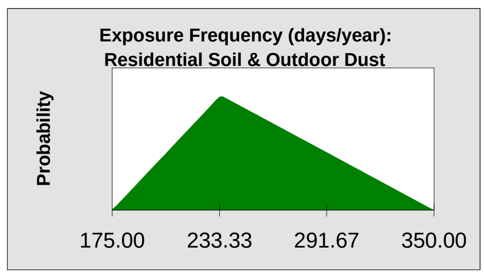
Assumption: Exposure Frequency (days/year): Residential Soil & Outdoor Dust

Cell: C3

Triangular distribution with parameters:

Minimum	175.00
Likeliest	234.00
Maximum	350.00

Selected range is from 0.00 to 365.00



Assumption: Exposure Frequency (days/year): Residential Soil & Outdoor Dust (cont'd)

Cell: C3

Statistics:	Assumption values	Distribution
Trials	10,000	---
Mean	252.78	253.00
Median	249.20	249.25
Mode	---	234.00
Standard Deviation	36.46	36.35
Variance	1,329.32	1,321.17
Skewness	0.3072	0.2994
Kurtosis	2.37	2.40
Coeff. of Variability	0.1442	0.1437
Minimum	176.30	175.00
Maximum	349.35	350.00
Range Width	173.05	175.00
Mean Std. Error	0.36	---

Percentiles:	Assumption values	Distribution
5%	197.70	197.72
95%	318.34	318.14

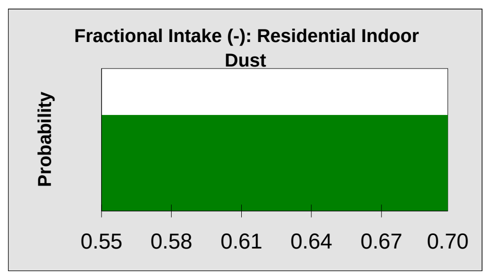
Assumption: Fractional Intake (-): Residential Indoor Dust

Cell: C11

Uniform distribution with parameters:

Minimum	0.55
Maximum	0.70

Selected range is from 0.00 to 1.00



Assumption: Fractional Intake (-): Residential Indoor Dust (cont'd)

Cell: C11

Statistics:	Assumption values	Distribution
Trials	10,000	---
Mean	0.62	0.63
Median	0.62	0.63
Mode	---	---
Standard Deviation	0.04	0.04
Variance	0.00	0.00
Skewness	0.0106	0.00
Kurtosis	1.79	1.80
Coeff. of Variability	0.0694	0.0693
Minimum	0.55	0.55
Maximum	0.70	0.70
Range Width	0.15	0.15
Mean Std. Error	0.00	---

Percentiles:	Assumption values	Distribution
5%	0.56	0.56
95%	0.69	0.69

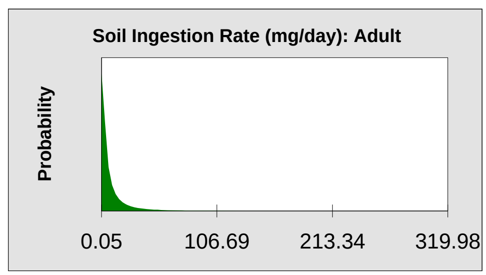
Assumption: Soil Ingestion Rate (mg/day): Adult

Cell: C14

Lognormal distribution with parameters:

Mean	11.90
95%	44.30

Selected range is from 0.00 to 2,000.00



Assumption: Soil Ingestion Rate (mg/day): Adult (cont'd) **Cell: C14**

Statistics:	Assumption values	Distribution
Trials	10,000	---
Mean	11.92	12.39
Median	4.67	4.67
Mode	---	---
Standard Deviation	26.49	26.99
Variance	701.59	728.28
Skewness	10.69	12.93
Kurtosis	220.97	371.11
Coeff. of Variability	2.22	2.18
Minimum	0.02	0.00
Maximum	908.42	2,000.00
Range Width	908.40	2,000.00
Mean Std. Error	0.26	---

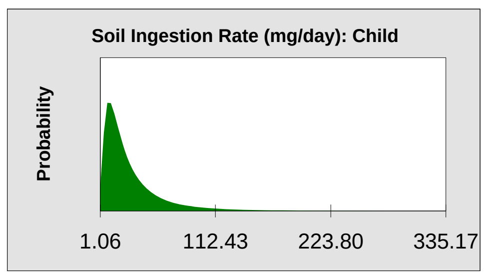
Percentiles:	Assumption values	Distribution
5%	0.47	0.49
95%	43.93	44.30

Assumption: Soil Ingestion Rate (mg/day): Child **Cell: C13**

Lognormal distribution with parameters:

Mean	31.00
95%	91.00

Selected range is from 0.00 to 5,000.00



Assumption: Soil Ingestion Rate (mg/day): Child (cont'd) **Cell: C13**

Statistics:	Assumption values	Distribution
Trials	10,000	---
Mean	31.29	30.99
Median	20.83	20.64
Mode	---	---
Standard Deviation	34.94	34.76
Variance	1,220.82	1,208.32
Skewness	4.60	4.61
Kurtosis	49.44	51.11
Coeff. of Variability	1.12	1.12
Minimum	0.77	0.00
Maximum	813.04	5,000.00
Range Width	812.27	5,000.00
Mean Std. Error	0.35	---

Percentiles:	Assumption values	Distribution
5%	4.62	4.68
95%	90.32	91.00

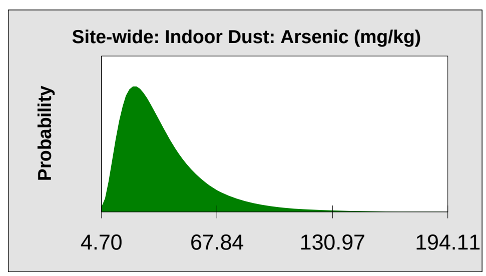
Worksheet: [C164_Soil_Dust_Produce.xls]Media Conc

Assumption: Site-wide: Indoor Dust: Arsenic (mg/kg) **Cell: I14**

Lognormal distribution with parameters:

Mean	37.96
Std. Dev.	24.16

Selected range is from 0.00 to 10,000.00



Assumption: Site-wide: Indoor Dust: Arsenic (mg/kg) (cont'd) **Cell: I14**

Statistics:	Assumption values	Distribution
Trials	10,000	---
Mean	37.71	37.96
Median	31.75	32.02
Mode	---	---
Standard Deviation	24.28	24.16
Variance	589.52	583.65
Skewness	2.27	2.15
Kurtosis	13.43	12.08
Coeff. of Variability	0.6439	0.6365
Minimum	3.36	0.00
Maximum	349.89	10,000.00
Range Width	346.53	10,000.00
Mean Std. Error	0.24	---

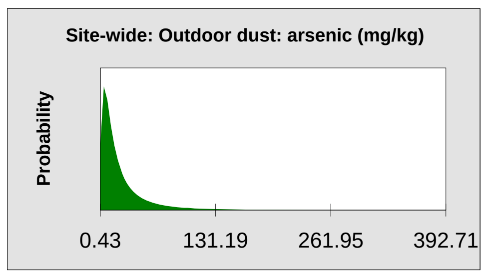
Percentiles:	Assumption values	Distribution
5%	12.20	12.27
95%	83.81	83.56

Assumption: Site-wide: Outdoor dust: arsenic (mg/kg) **Cell: I15**

Lognormal distribution with parameters:

Mean	25.64
Std. Dev.	37.38

Selected range is from 0.00 to 10,000.00



Assumption: Site-wide: Outdoor dust: arsenic (mg/kg) (cont'd) **Cell: I15**

Statistics:	Assumption values	Distribution
Trials	10,000	---
Mean	25.97	25.68
Median	14.52	14.51
Mode	---	---
Standard Deviation	36.99	37.36
Variance	1,368.39	1,395.66
Skewness	5.85	6.90
Kurtosis	70.74	119.69
Coeff. of Variability	1.42	1.45
Minimum	0.09	0.00
Maximum	818.56	10,000.00
Range Width	818.48	10,000.00
Mean Std. Error	0.37	---

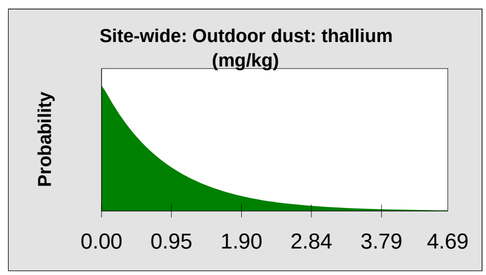
Percentiles:	Assumption values	Distribution
5%	2.57	2.51
95%	85.92	83.96

Assumption: Site-wide: Outdoor dust: thallium (mg/kg) **Cell: I39**

Exponential distribution with parameters:

Rate 1.13

Selected range is from 0.00 to 10,000.00



Assumption: Site-wide: Outdoor dust: thallium (mg/kg) (cont'd) **Cell: I39**

Statistics:	Assumption values	Distribution
Trials	10,000	---
Mean	0.88	0.89
Median	0.61	0.61
Mode	---	---
Standard Deviation	0.86	0.89
Variance	0.75	0.78
Skewness	1.89	2.00
Kurtosis	8.26	8.97
Coeff. of Variability	0.9831	0.9997
Minimum	0.00	0.00
Maximum	8.08	10,000.00
Range Width	8.07	10,000.00
Mean Std. Error	0.01	---

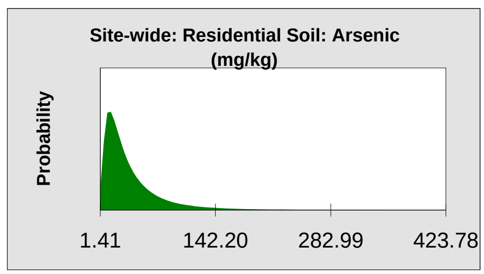
Percentiles:	Assumption values	Distribution
5%	0.04	0.05
95%	2.59	2.65

Assumption: Site-wide: Residential Soil: Arsenic (mg/kg) **Cell: I13**

Lognormal distribution with parameters:

Mean	39.88
Std. Dev.	44.13

Selected range is from 0.00 to 1,000.00



Assumption: Site-wide: Residential Soil: Arsenic (mg/kg) (cont'd)

Cell: I13

Statistics:	Assumption values	Distribution
Trials	10,000	---
Mean	39.99	39.85
Median	26.75	26.74
Mode	---	---
Standard Deviation	43.20	43.69
Variance	1,866.56	1,908.84
Skewness	3.63	4.15
Kurtosis	25.55	36.29
Coeff. of Variability	1.08	1.10
Minimum	0.47	0.00
Maximum	724.52	1,000.00
Range Width	724.06	1,000.00
Mean Std. Error	0.43	---

Percentiles:	Assumption values	Distribution
5%	6.34	6.14
95%	116.84	116.35

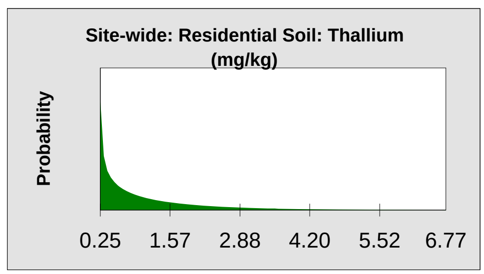
Assumption: Site-wide: Residential Soil: Thallium (mg/kg)

Cell: I37

Gamma distribution with parameters:

Location	0.25
Scale	1.50
Shape	0.638375291

Selected range is from 0.00 to 1,000.00



Assumption: Site-wide: Residential Soil: Thallium (mg/kg) (cont'd)

Cell: I37

Statistics:	Assumption values	Distribution
Trials	10,000	---
Mean	1.19	1.21
Median	0.75	0.77
Mode	---	---
Standard Deviation	1.21	1.19
Variance	1.48	1.43
Skewness	2.62	2.50
Kurtosis	13.40	12.36
Coeff. of Variability	1.02	0.9898
Minimum	0.25	0.25
Maximum	15.49	1,000.00
Range Width	15.24	999.75
Mean Std. Error	0.01	---

Percentiles:	Assumption values	Distribution
5%	0.26	0.26
95%	3.64	3.61

End of Assumptions

Report D-3. Crystal Ball Report - Custom
Simulation started on 11/9/2007 at 13:55:59
Simulation stopped on 11/9/2007 at 13:57:03

Crystal Ball Report for Sensitivity Analysis: Alternative Antimony Soil Concentration

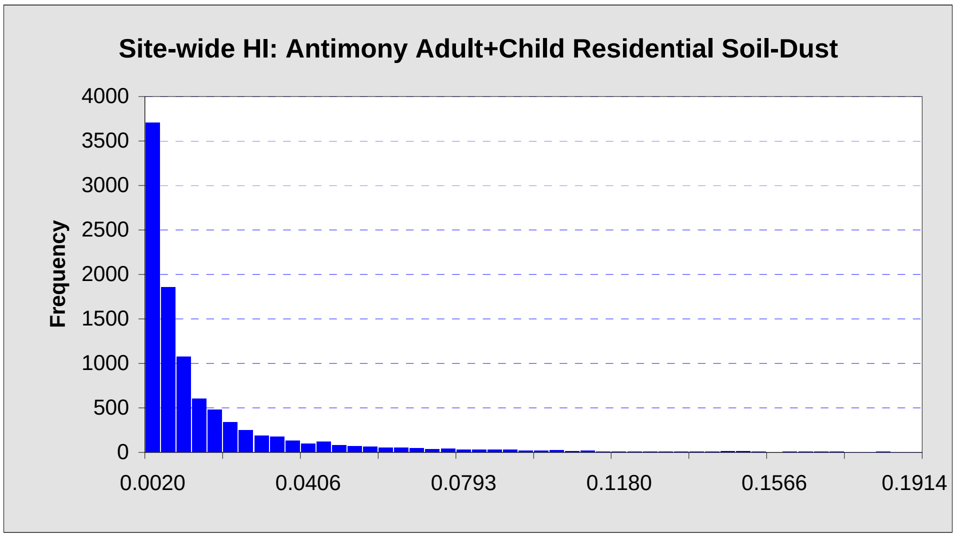
Run preferences:	
Number of trials run	10,000
Monte Carlo	
Random seed	
Precision control on	
Confidence level	95.00%
Run statistics:	
Total running time (sec)	64.67
Trials/second (average)	155
Random numbers per sec	18,401
Crystal Ball data:	
Assumptions	119
Correlations	0
Correlated groups	0
Decision variables	0
Forecasts	130

Forecasts

Worksheet: [C164_Soil_Dust_Produce.xls]HI Ingestion Soil-Dust

Forecast: Site-wide HI: Antimony Adult+Child Residential Soil-Dust **Cell: I36**

Summary:
Entire range is from 0.0000 to 2.2471
Base case is 0.0123
After 10,000 trials, the std. error of the mean is 0.0006



Statistics:	Forecast values
Trials	10,000
Mean	0.0211
Median	0.0063
Mode	---
Standard Deviation	0.0615
Variance	0.0038
Skewness	13.58
Kurtosis	321.04
Coeff. of Variability	2.92
Minimum	0.0000
Maximum	2.2471
Range Width	2.2471
Mean Std. Error	0.0006

Forecast: Site-wide HI: Antimony Adult+Child Residential Soil-Dust (cont'd)

Cell: I36

Percentiles:	Forecast values
1%	0.0003
5%	0.0006
10%	0.0011
25%	0.0024
50%	0.0063
75%	0.0174
90%	0.0457
95%	0.0817
99%	0.2314

End of Forecasts

Assumptions

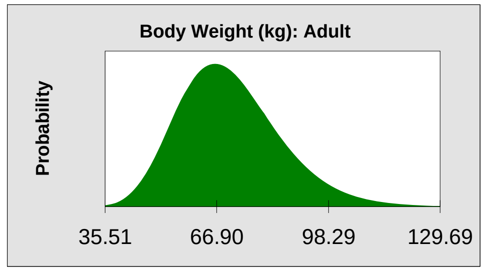
Worksheet: [C164_ExpTox.xls]ExpParam

Assumption: Body Weight (kg): Adult — Cell: C46

Lognormal distribution with parameters:

Mean	70.70
Std. Dev.	14.50

Selected range is from 0.00 to 200.00



Statistics:	Assumption values	Distribution
Trials	10,000	---
Mean	70.69	70.70
Median	69.25	69.26
Mode	---	---
Standard Deviation	14.48	14.50
Variance	209.80	210.28
Skewness	0.6560	0.6232
Kurtosis	3.76	3.70
Coeff. of Variability	0.2049	0.2051
Minimum	31.20	0.00
Maximum	152.33	200.00
Range Width	121.12	200.00
Mean Std. Error	0.14	---

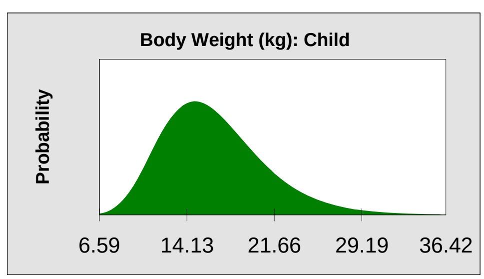
Percentiles:	Assumption values	Distribution
5%	49.96	49.60
95%	96.68	96.71

Assumption: Body Weight (kg): Child — Cell: C45

Lognormal distribution with parameters:

Mean	16.50
Std. Dev.	4.50

Selected range is from 0.00 to 100.00



Assumption: Body Weight (kg): Child (cont'd) **Cell: C45**

Statistics:	Assumption values	Distribution
Trials	10,000	---
Mean	16.54	16.50
Median	15.90	15.92
Mode	---	---
Standard Deviation	4.50	4.50
Variance	20.24	20.25
Skewness	0.8326	0.8374
Kurtosis	4.15	4.27
Coeff. of Variability	0.2719	0.2727
Minimum	5.56	0.00
Maximum	42.31	100.00
Range Width	36.75	100.00
Mean Std. Error	0.04	---

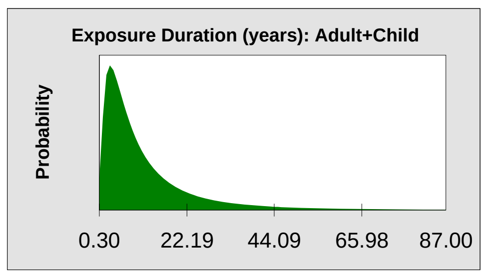
Percentiles:	Assumption values	Distribution
5%	10.29	10.25
95%	24.81	24.73

Assumption: Exposure Duration (years): Adult+Child **Cell: C42**

Lognormal distribution with parameters:

Mean	12.60
Std. Dev.	16.20

Selected range is from 0.00 to 87.00



Assumption: Exposure Duration (years): Adult+Child (cont'd) **Cell: C42**

Statistics:	Assumption values	Distribution
Trials	10,000	---
Mean	11.77	11.78
Median	7.69	7.67
Mode	---	---
Standard Deviation	12.14	12.28
Variance	147.33	150.76
Skewness	2.39	2.41
Kurtosis	10.33	10.33
Coeff. of Variability	1.03	1.04
Minimum	0.23	0.00
Maximum	86.99	87.00
Range Width	86.76	87.00
Mean Std. Error	0.12	---

Percentiles:	Assumption values	Distribution
5%	1.52	1.52
95%	35.89	36.92

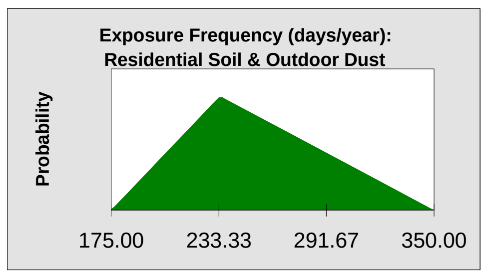
Assumption: Exposure Frequency (days/year): Residential Soil & Outdoor Dust

Cell: C3

Triangular distribution with parameters:

Minimum	175.00
Likeliest	234.00
Maximum	350.00

Selected range is from 0.00 to 365.00



Assumption: Exposure Frequency (days/year): Residential Soil & Outdoor Dust (cont'd)

Cell: C3

Statistics:	Assumption values	Distribution
Trials	10,000	---
Mean	252.68	253.00
Median	248.86	249.25
Mode	---	234.00
Standard Deviation	36.73	36.35
Variance	1,348.81	1,321.17
Skewness	0.3089	0.2994
Kurtosis	2.38	2.40
Coeff. of Variability	0.1453	0.1437
Minimum	176.05	175.00
Maximum	348.70	350.00
Range Width	172.65	175.00
Mean Std. Error	0.37	---

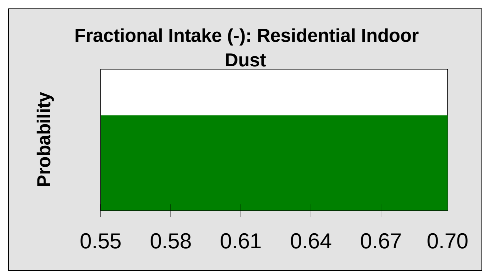
Percentiles:	Assumption values	Distribution
5%	196.99	197.72
95%	318.36	318.14

Assumption: Fractional Intake (-): Residential Indoor Dust **Cell: C11**

Uniform distribution with parameters:

Minimum	0.55
Maximum	0.70

Selected range is from 0.00 to 1.00



Assumption: Fractional Intake (-): Residential Indoor Dust (cont'd) **Cell: C11**

Statistics:	Assumption values	Distribution
Trials	10,000	---
Mean	0.63	0.63
Median	0.63	0.63
Mode	---	---
Standard Deviation	0.04	0.04
Variance	0.00	0.00
Skewness	0.00	0.00
Kurtosis	1.79	1.80
Coeff. of Variability	0.0696	0.0693
Minimum	0.55	0.55
Maximum	0.70	0.70
Range Width	0.15	0.15
Mean Std. Error	0.00	---

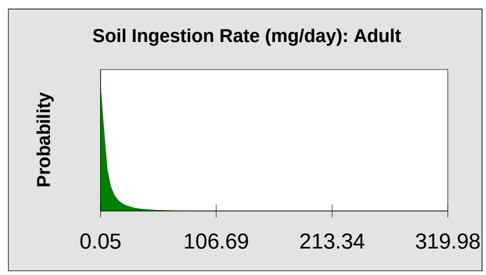
Percentiles:	Assumption values	Distribution
5%	0.56	0.56
95%	0.69	0.69

Assumption: Soil Ingestion Rate (mg/day): Adult **Cell: C14**

Lognormal distribution with parameters:

Mean	11.90
95%	44.30

Selected range is from 0.00 to 2,000.00



Assumption: Soil Ingestion Rate (mg/day): Adult (cont'd) **Cell: C14**

Statistics:	Assumption values	Distribution
Trials	10,000	---
Mean	12.04	12.39
Median	4.60	4.67
Mode	---	---
Standard Deviation	27.50	26.99
Variance	756.08	728.28
Skewness	9.82	12.93
Kurtosis	160.77	371.11
Coeff. of Variability	2.28	2.18
Minimum	0.04	0.00
Maximum	766.21	2,000.00
Range Width	766.17	2,000.00
Mean Std. Error	0.27	---

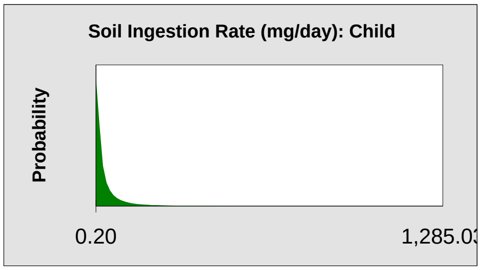
Percentiles:	Assumption values	Distribution
5%	0.51	0.49
95%	43.31	44.30

Assumption: Soil Ingestion Rate (mg/day): Child **Cell: C13**

Lognormal distribution with parameters:

Mean	47.50
95%	177.00

Selected range is from 0.00 to 5,000.00



Assumption: Soil Ingestion Rate (mg/day): Child (cont'd) **Cell: C13**

Statistics:	Assumption values	Distribution
Trials	10,000	---
Mean	47.60	48.12
Median	18.76	18.54
Mode	---	---
Standard Deviation	106.62	105.68
Variance	11,368.88	11,168.09
Skewness	8.31	10.92
Kurtosis	104.51	234.27
Coeff. of Variability	2.24	2.20
Minimum	0.14	0.00
Maximum	2,034.95	5,000.00
Range Width	2,034.81	5,000.00
Mean Std. Error	1.07	---

Percentiles:	Assumption values	Distribution
5%	1.91	1.94
95%	174.87	176.95

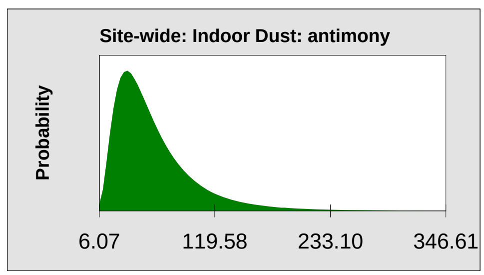
Worksheet: [C164_Soil_Dust_Produce.xls]Media Conc

Assumption: Site-wide: Indoor Dust: antimony **Cell: I6**

Lognormal distribution with parameters:

Mean	59.75
Std. Dev.	42.02

Selected range is from 0.00 to 10,000.00



Assumption: Site-wide: Indoor Dust: antimony (cont'd) **Cell: I6**

Statistics:	Assumption values	Distribution
Trials	10,000	---
Mean	59.19	59.75
Median	48.55	48.87
Mode	---	---
Standard Deviation	41.33	42.03
Variance	1,708.01	1,766.40
Skewness	2.34	2.44
Kurtosis	12.76	14.87
Coeff. of Variability	0.6983	0.7034
Minimum	5.78	0.00
Maximum	489.79	10,000.00
Range Width	484.01	10,000.00
Mean Std. Error	0.41	---

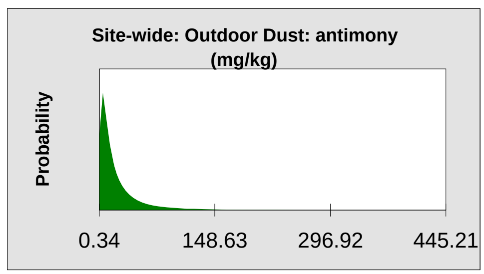
Percentiles:	Assumption values	Distribution
5%	17.19	17.23
95%	135.85	138.65

Assumption: Site-wide: Outdoor Dust: antimony (mg/kg) **Cell: I7**

Lognormal distribution with parameters:

Mean	26.03
Std. Dev.	41.38

Selected range is from 0.00 to 10,000.00



Assumption: Site-wide: Outdoor Dust: antimony (mg/kg) (cont'd) **Cell: I7**

Statistics:	Assumption values	Distribution
Trials	10,000	---
Mean	25.20	26.18
Median	13.54	13.86
Mode	---	---
Standard Deviation	38.42	41.29
Variance	1,476.28	1,704.83
Skewness	6.91	7.94
Kurtosis	105.53	160.94
Coeff. of Variability	1.52	1.58
Minimum	0.29	0.00
Maximum	1,091.02	10,000.00
Range Width	1,090.74	10,000.00
Mean Std. Error	0.38	---

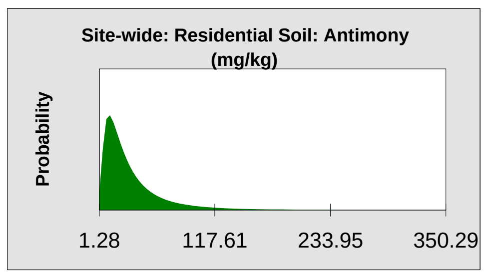
Percentiles:	Assumption values	Distribution
5%	2.19	2.19
95%	86.91	87.86

Assumption: Site-wide: Residential Soil: Antimony (mg/kg) **Cell: I5**

Lognormal distribution with parameters:

Mean	34.03
Std. Dev.	36.78

Selected range is from 0.00 to 1,000.00



Assumption: Site-wide: Residential Soil: Antimony (mg/kg) (cont'd) **Cell: I5**

Statistics:	Assumption values	Distribution
Trials	10,000	---
Mean	34.17	34.02
Median	23.28	23.11
Mode	---	---
Standard Deviation	35.73	36.60
Variance	1,276.65	1,339.75
Skewness	3.65	4.17
Kurtosis	26.57	38.38
Coeff. of Variability	1.05	1.08
Minimum	0.76	0.00
Maximum	511.82	1,000.00
Range Width	511.06	1,000.00
Mean Std. Error	0.36	---

Percentiles:	Assumption values	Distribution
5%	5.52	5.44
95%	98.91	98.21

End of Assumptions

Report D-4. Crystal Ball Report - Custom

Simulation started on 11/9/2007 at 14:05:38

Simulation stopped on 11/9/2007 at 14:05:56

Crystal Ball Report for Sensitivity Analysis: Alternative Arsenic Air Concentration

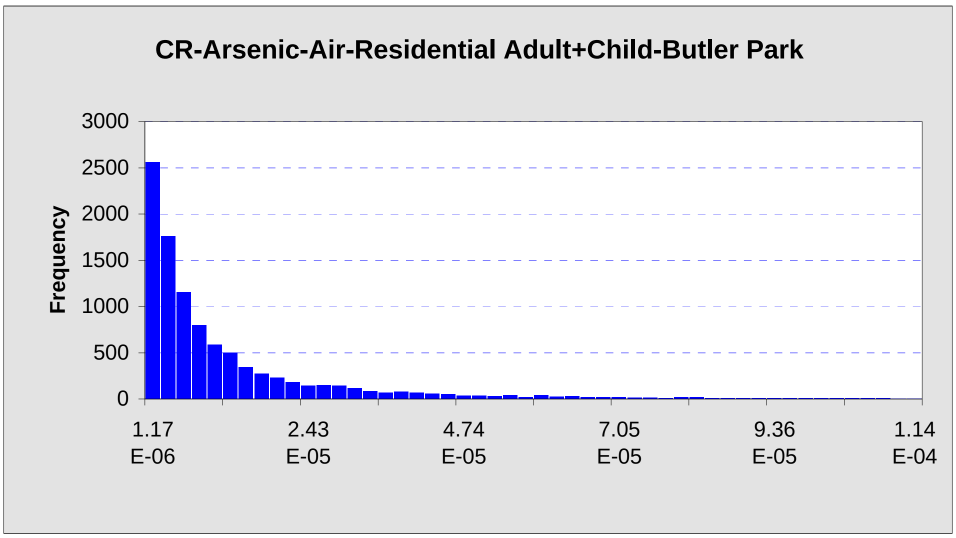
Run preferences:	
Number of trials run	10,000
Monte Carlo	
Random seed	
Precision control on	
Confidence level	95.00%
Run statistics:	
Total running time (sec)	18.30
Trials/second (average)	546
Random numbers per sec	16,389
Crystal Ball data:	
Assumptions	30
Correlations	0
Correlated groups	0
Decision variables	0
Forecasts	24

Forecasts

Worksheet: [C164_air.xls]CR Air

Forecast: CR-Arsenic-Air-Residential Adult+Child-Butler Park **Cell: E24**

Summary:
Entire range is from 9.45E-09 to 1.93E-03
Base case is 1.33E-05
After 10,000 trials, the std. error of the mean is 3.59E-07



Statistics:	Forecast values
Trials	10,000
Mean	1.49E-05
Median	5.88E-06
Mode	---
Standard Deviation	3.59E-05
Variance	1.29E-09
Skewness	19.84
Kurtosis	858.78
Coeff. of Variability	2.41
Minimum	9.45E-09
Maximum	1.93E-03
Range Width	1.93E-03
Mean Std. Error	3.59E-07

Forecast: CR-Arsenic-Air-Residential Adult+Child-Butler Park (cont'd) **Cell: E24**

Percentiles:	Forecast values
1%	2.11E-07
5%	5.75E-07
10%	9.21E-07
25%	2.27E-06
50%	5.88E-06
75%	1.48E-05
90%	3.37E-05
95%	5.61E-05
99%	1.42E-04

End of Forecasts

Assumptions

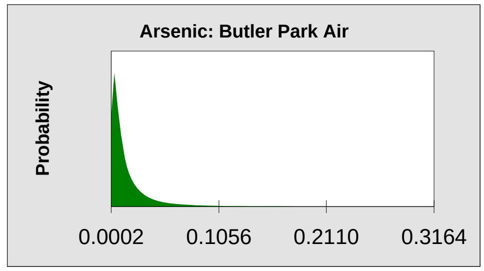
Worksheet: [C164_air.xls]Media Conc

Assumption: Arsenic: Butler Park Air

Cell: C4

Lognormal distribution with parameters:

Mean	0.0180
Std. Dev.	0.0293



Statistics:	Assumption values	Distribution
Trials	10,000	---
Mean	0.0182	0.0180
Median	0.0093	0.0095
Mode	---	0.0026
Standard Deviation	0.0283	0.0293
Variance	0.0008	0.0009
Skewness	5.87	9.15
Kurtosis	66.43	307.26
Coeff. of Variability	1.55	1.62
Minimum	0.0001	0.0000
Maximum	0.6176	Infinity
Range Width	0.6174	---
Mean Std. Error	0.0003	---

Percentiles:	Assumption values	Distribution
5%	0.0015	0.0015
95%	0.0632	0.0613

Worksheet: [C164_ExpTox.xls]ExpParam

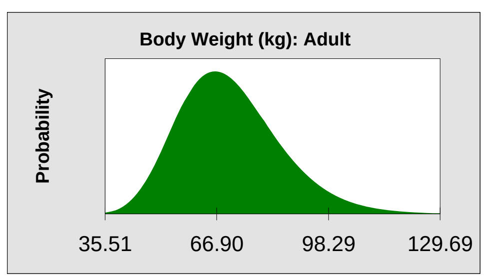
Assumption: Body Weight (kg): Adult

Cell: C46

Lognormal distribution with parameters:

Mean	70.70
Std. Dev.	14.50

Selected range is from 0.00 to 200.00



Assumption: Body Weight (kg): Adult (cont'd) **Cell: C46**

Statistics:	Assumption values	Distribution
Trials	10,000	---
Mean	70.57	70.70
Median	69.27	69.26
Mode	---	---
Standard Deviation	14.41	14.50
Variance	207.56	210.28
Skewness	0.5734	0.6232
Kurtosis	3.60	3.70
Coeff. of Variability	0.2041	0.2051
Minimum	32.99	0.00
Maximum	156.50	200.00
Range Width	123.51	200.00
Mean Std. Error	0.14	---

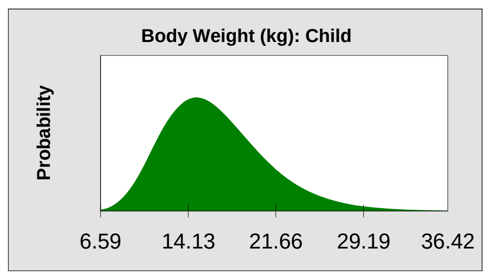
Percentiles:	Assumption values	Distribution
5%	49.40	49.60
95%	96.29	96.71

Assumption: Body Weight (kg): Child **Cell: C45**

Lognormal distribution with parameters:

Mean	16.50
Std. Dev.	4.50

Selected range is from 0.00 to 100.00



Assumption: Body Weight (kg): Child (cont'd) **Cell: C45**

Statistics:	Assumption values	Distribution
Trials	10,000	---
Mean	16.48	16.50
Median	15.94	15.92
Mode	---	---
Standard Deviation	4.48	4.50
Variance	20.05	20.25
Skewness	0.8392	0.8374
Kurtosis	4.47	4.27
Coeff. of Variability	0.2717	0.2727
Minimum	6.22	0.00
Maximum	46.72	100.00
Range Width	40.50	100.00
Mean Std. Error	0.04	---

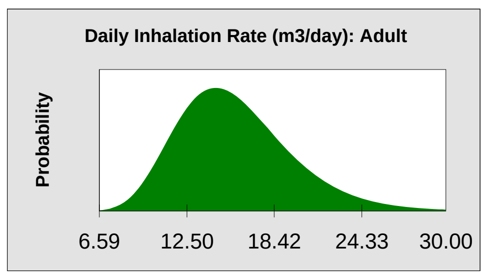
Percentiles:	Assumption values	Distribution
5%	10.22	10.25
95%	24.54	24.73

Assumption: Daily Inhalation Rate (m3/day): Adult **Cell: C18**

Lognormal distribution with parameters:

Mean	15.80
Std. Dev.	3.90

Selected range is from 0.00 to 30.00



Assumption: Daily Inhalation Rate (m3/day): Adult (cont'd)

Cell: C18

Statistics:	Assumption values	Distribution
Trials	10,000	---
Mean	15.71	15.75
Median	15.32	15.33
Mode	---	---
Standard Deviation	3.81	3.80
Variance	14.49	14.44
Skewness	0.5622	0.6003
Kurtosis	3.23	3.31
Coeff. of Variability	0.2423	0.2412
Minimum	6.62	0.00
Maximum	29.93	30.00
Range Width	23.31	30.00
Mean Std. Error	0.04	---

Percentiles:	Assumption values	Distribution
5%	10.22	10.28
95%	22.63	22.74

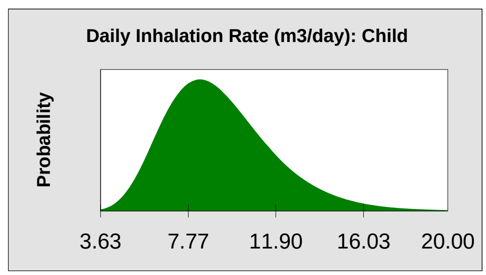
Assumption: Daily Inhalation Rate (m3/day): Child

Cell: C17

Lognormal distribution with parameters:

Mean	9.30
Std. Dev.	2.60

Selected range is from 0.00 to 20.00



Assumption: Daily Inhalation Rate (m3/day): Child (cont'd) — Cell: C17

Statistics:	Assumption values	Distribution
Trials	10,000	---
Mean	9.28	9.28
Median	8.94	8.95
Mode	---	---
Standard Deviation	2.53	2.55
Variance	6.42	6.50
Skewness	0.7489	0.7295
Kurtosis	3.67	3.64
Coeff. of Variability	0.2732	0.2748
Minimum	2.83	0.00
Maximum	19.97	20.00
Range Width	17.14	20.00
Mean Std. Error	0.03	---

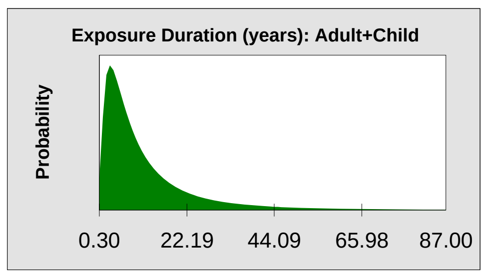
Percentiles:	Assumption values	Distribution
5%	5.75	5.70
95%	14.01	14.00

Assumption: Exposure Duration (years): Adult+Child — Cell: C42

Lognormal distribution with parameters:

Mean	12.60
Std. Dev.	16.20

Selected range is from 0.00 to 87.00



Assumption: Exposure Duration (years): Adult+Child (cont'd) **Cell: C42**

Statistics:	Assumption values	Distribution
Trials	10,000	---
Mean	11.86	11.78
Median	7.58	7.67
Mode	---	---
Standard Deviation	12.54	12.28
Variance	157.20	150.76
Skewness	2.38	2.41
Kurtosis	9.98	10.33
Coeff. of Variability	1.06	1.04
Minimum	0.13	0.00
Maximum	85.62	87.00
Range Width	85.50	87.00
Mean Std. Error	0.13	---

Percentiles:	Assumption values	Distribution
5%	1.44	1.52
95%	38.04	36.92

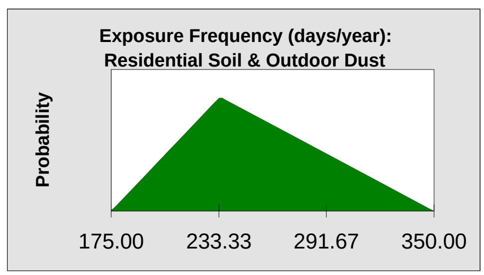
Assumption: Exposure Frequency (days/year): Residential Soil & Outdoor Dust

Cell: C3

Triangular distribution with parameters:

Minimum	175.00
Likeliest	234.00
Maximum	350.00

Selected range is from 0.00 to 365.00



Assumption: Exposure Frequency (days/year): Residential Soil & Outdoor Dust (cont'd)

Cell: C3

Statistics:	Assumption values	Distribution
Trials	10,000	---
Mean	252.14	253.00
Median	247.83	249.25
Mode	---	234.00
Standard Deviation	36.09	36.35
Variance	1,302.17	1,321.17
Skewness	0.3130	0.2994
Kurtosis	2.39	2.40
Coeff. of Variability	0.1431	0.1437
Minimum	175.25	175.00
Maximum	348.38	350.00
Range Width	173.13	175.00
Mean Std. Error	0.36	---

Percentiles:	Assumption values	Distribution
5%	197.42	197.72
95%	316.59	318.14

End of Assumptions

APPENDIX E

TECHNICAL MEMORANDUM: SECONDARY OBJECTIVES FOR HHRA

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MEMORANDUM

To:	Steve Hilts
From:	Dina Johnson and Rosalind Schoof
Date:	April 8, 2008
Subject:	Secondary Objectives for the Phase 4 HHRA
Project No.:	C164 0201

This memorandum presents the secondary objectives for the Phase 4 Human Health Risk Assessment (HHRA) for Offsite Impacts from Trail, B.C. Smelter. Specifically, this memorandum addresses three tasks: 1) describing the thallium biomonitoring studies conducted in Trail in 2001 and 2002 and the implications of those findings relative to the new soil guideline value for thallium; 2) developing recommendations for future biomonitoring in Trail; and 3) developing methods for determining hot spot criteria.

THALLIUM BIOMONITORING STUDY AND NEW SOIL GUIDELINE VALUE

According to the British Columbia Contaminated Sites Regulation (BCE 2007), acceptable risk levels other than those specified may be considered if recommended by the Medical Health Officer after public consultation. Recommended alternate levels may be based on "biometrics" (e.g., blood lead levels), but must be specific numerical risk levels. Biomonitoring studies can be particularly valuable in providing an integrated picture of exposures when residents may be exposed by multiple pathways and locations. This approach is widely accepted as a means of tracking exposures to lead, and is being used in Trail (Trail Lead Program 2001). Biomonitoring studies can also be effective methods of assessing exposures to arsenic, cadmium and thallium, other elements of concern in Trail.

Lead exposures are monitored by measuring lead in the blood. The degree of lead absorption is variable depending on how recently a person has eaten, and once absorbed lead is accumulated in bones. Lead concentrations in the blood, thus reflect both recent exposures and past exposures as some of the stored lead is released to blood from bones. Thallium differs from lead in being well absorbed when in water soluble forms and in being rapidly excreted primarily in the urine. Thus, urinary thallium is a reflection of exposures during the past few days. For this reason, it is important that biomonitoring studies of thallium are designed to include people most likely to be exposed and to include a sufficient number of participants to capture variability in exposures over time.

Measurement of urinary thallium has been included in the U.S. National Health and Nutrition Examination Survey (NHANES) since 1999 (NCEH 2005). This survey is designed to provide data for a representative cross section of the U.S. population and provides a useful point of comparison for studies of other North American populations. Thallium levels in urine for U.S. adults 20 years old and older averaged 0.17 μg/L (geometric mean) during 1999 to 2000 and 0.16 μg/L during 2001 to 2002, with 95th percentile values of 0.45 and 0.44 μg/L during these two periods, respectively. According to NCEH (2005) previous studies have suggested that normal background urinary thallium concentrations are less than 1 μg/L (Schaller et al. 1980; Brockhaus et al. 1981; Minoia et al. 1990; all as cited in NCEH 2005, not seen). NCEH (2005) also cites other population surveys that demonstrated urinary levels of roughly similar magnitude (White and Sabbioni 1998; Minoia et al. 1990; Paschal et al. 1998; all as cited in NCEH 2005, not seen).

The World Health Organization considers that urinary concentrations below 5 μg/L are unlikely to cause adverse health effects (IPCS 1996). This urinary level is associated with a daily intake of 10 μg thallium. The urinary guideline value is based on evaluation of a study of residents living near a thallium-emitting cement plant in Germany. Above approximately 5 μg/L, a clear dose response relationship was seen between urinary thallium and a variety of health effects including headaches, weakness, and nervousness (IPCS 1996). NCEH (2005) describes the study findings in greater detail:

> *Brockhaus et al. (1981) studied 1,265 people living near a thallium-emitting cement plant in Germany. Nearby residents were exposed by eating garden plants on which thallium had been deposited. Seventy-eight percent of the urine specimens in that study contained more than 1 μg/L, with concentrations ranging up to 76.5 μg/L. There was no increase in the prevalence of symptoms at levels less than 20 μg/L and only a slight increase in nonspecific symptoms above 20 μg/L.*

A thallium biomonitoring study of nonworkers was conducted by Kootenay Boundary Health in September 2001 (Teck Cominco 2001). The results for the 15 Trail samples ranged from 0.2 to 4.0 μg/L, while community residents in neighboring Beaver Valley[1] had urinary levels ranging from 0.3 to 1.7 μg/L. The highest result for Trail residents was for the spouse of a smelter employee, who may have been exposed to thallium via a

[1] Beaver Valley is a semi-rural area about 10 km from Trail that served as a control population.

take-home pathway. All results were generally comparable to the control population, and all were below the World Health Organization's guideline value of 5 μg/L.

In 2002, the Trail Health and Environment Committee conducted a larger thallium biomonitoring study for Trail (THEC 2002). Fifty adult Trail residents (78 percent female) participated in the study, which consisted of a phone interview, a questionnaire, and a urine specimen. Of these, 26 (52 percent) were gardeners and 11 (22 percent) were smokers. Participants were also divided into three residential areas: Area 1 (Casino, Oasis, Waneta, and Warfield); Area 2 (Glenmerry, Shavers Bench, and Sunningdale); and Area 3 (East Trail, Rivervale, Tadanac, and West Trail). Of these, two lived in Area 1, 20 lived in Area 2, and 28 lived in Area 3.

As presented in Table E-1, all results were below 2 μg/L (maximum of 1.9 μg/L), and the geometric mean result was 0.25 μg/L. All results were below the World Health Organization guideline value of 5 μg/L. There were no significant differences between gardeners and nongardeners ($p=0.33$), males and females ($p=0.97$), or among residents living in different residential areas ($p=0.18$). Despite the lack of statistical significance, some of the differences were in the expected direction, with the mean value for gardeners being slightly higher than that for nongardeners and with the mean value for Area 3 (closest to the smelter) being higher than that for Area 2. The difference between areas 2 and 3 was close to being statistically significant ($p=0.072$). The mean value for smokers was also greater than that for nonsmokers site wide and was nearly significant (at the 0.05 level)($p=0.056$).

Residential soil data collected for the HHRA was broken into the same categories as above[2]. Only one soil sample was collected in Area 1, so this evaluation focuses on differences between Areas 2 and 3. The average soil concentration in Area 2 was 0.91 mg/kg compared with a value of 1.6 mg/kg for Area 3. At the 0.05 significance level, these areas were found to be statistically different from each other ($p=0.043$). As noted above, the differences in urinary thallium concentrations between areas 2 and 3 approached significance at the 0.05 level. Without collocated soil and biomonitoring samples, however, we cannot draw firm conclusions about any relationship between exposures to thallium in soil and urinary concentrations.

Results for Trail residents from the 2002 study were slightly higher than those from the NHANES conducted in 1999 to 2000 and again in 2001 to 2002 (Table E-2; NCEH 2005). Geometric mean results for Trail were 0.25 μg/L, whereas for NHANES, the geometric mean values were 0.17 μg/L during 1999 to 2000 and 0.16 μg/L during 2001 to 2002. This comparison suggests that residents in Trail may be experiencing slightly higher exposures than those received by the general U.S. population, but overall, exposures are well below those of concern.

[2] This analysis does not include garden soil data collected in August 2007.

The Canadian Council of Ministers of the Environment has developed a thallium guideline value for residential soil of 1 mg/kg. The average and 95th percentile thallium concentrations in Trail soil are 1.6 and 4.4 mg/kg, respectively. Of the 109 residential locations sampled in Trail and analyzed for thallium, 44 (40 percent) are above this guideline value[3]. Although 40 percent of sampled properties are above this guideline value, no participants in the thallium biomonitoring study showed urinary concentrations at or above the WHO level of concern.

ARSENIC BIOMONITORING RECOMMENDATIONS

The results of the HHRA indicate that the risk drivers in Trail are arsenic, cadmium, and thallium. However, the thallium biomonitoring study described above demonstrated that average urinary thallium concentrations in adult Trail residents are only slightly higher than background concentrations in urine of a comparison population (U.S. residents over 20 years old) and are below the WHO level of concern. A similar biomonitoring study for arsenic could illustrate whether urinary arsenic is similar to background concentrations and below levels of concern, as well. Cadmium biomonitoring is not recommended at this time due to the low risk relative to arsenic.

Overview of Arsenic Toxicokinetics and Biomonitoring

Arsenic is widely distributed within the environment and food supply, occurring both naturally and due to anthropogenic releases. Background exposures to arsenic are dominated by arsenic naturally present in food and drinking water (Schoof et al. 1999b). Soil, dust, and air are typically minor contributors to background exposures. In food, arsenic is present in inorganic and organic forms ("species"); however, organic forms are generally considered less toxic to humans than inorganic forms (Schoof et al. 1999a). In particular, organic arsenicals that accumulate in fish and seafood, often referred to as "fish arsenic," are considered essentially nontoxic.

The organic arsenicals from seafood are generally well absorbed and are excreted intact via the urine. Urine is also the principal excretion route for inorganic arsenic, but much of the inorganic arsenic is methylated in the liver to form monomethyl arsenic and dimethyl arsenic. Most of the absorbed arsenic is eliminated within 1 to 2 days (ATSDR 2000).

Urine, toenails, and hair samples have been used to monitor arsenic exposures. Urinary arsenic biomonitoring is generally considered most reliable, but it is representative only of recent exposures. Toenail and hair samples are representative of a longer period of exposure, but are subject to external contamination that can influence reliability of

[3] This analysis does not include garden soil data collected in August 2007.

measurements (Hinmarsh et al. 1999). Some recent studies claim to have resolved problems with external contamination of nails (Karagas et al. 2000), but still have found substantial variability among subjects tested or limited correlations with exposures or urine measurements (Harrington et al. 1978; Hewitt et al. 1995). Hair is also less sensitive to low-level arsenic exposure than urine, as noted in drinking water exposure studies (Valentine 1994).

Measurement of total urinary arsenic is usually unreliable in quantifying environmental exposures to inorganic arsenic because dietary ingestion of nontoxic organic arsenic in seafood causes substantial increases in total arsenic excretion in the urine far in excess of the contributions from most environmental sources (Farmer and Johnson 1990). Therefore, studies focusing on environmental exposures have relied upon measurement of "speciated arsenic" in the urine, which includes inorganic arsenic, monomethyl arsenic and dimethyl arsenic, but excludes the more complex organic arsenicals from seafood. Unlike urine, nails do not appear to accumulate as much organic arsenic from the diet and can be analyzed for total arsenic, suggesting that nails may hold some promise for future biomonitoring studies.

Reference Levels for Arsenic in Urine

As described above, reliance on a biomonitoring study to support alternate acceptable risk levels requires that a numerical target or reference level be available. Total, inorganic, and speciated arsenic may be measured in urine samples. Total arsenic measurements encompass all forms of arsenic including the less toxic, organic forms. Separate analyses for speciated arsenic capture those forms of arsenic most likely to be toxic. Speciated arsenic measurements include inorganic arsenic plus the inorganic arsenic metabolites, monomethylarsenic (MMA) and dimethylarsenic (DMA). According to the Centers for Disease Control and Prevention (CDC), normal total arsenic levels in urine are less than 50 µg/L (CDC 2006a). Typical levels of speciated arsenic (i.e., inorganic arsenic, MMA, and DMA) range from 5 to 20 µg/L (IPCS 2001).

The CDC has used a reference level for total arsenic in urine of 50 µg/L (CDC 2006a). A recent study in Middleport, New York used reference levels for speciated and inorganic arsenic in urine of 40 and 20 µg/L, respectively (Tsuji et al. 2005). Reference levels were selected on the basis of health guidance (e.g., CDC) and levels used by other biomonitoring studies investigating arsenic exposed populations. For both speciated and inorganic arsenic, the lowest level from previous biomonitoring studies was selected. A CDC (2006b) health consultation for Hebbronville, Texas, a community with elevated levels of arsenic in its drinking water, used a reference level for inorganic arsenic in urine of 10 µg/L, or 10 µg/g creatinine. For occupational exposures, the American Conference of Governmental Industrial Hygienists has a standard (biological exposure indicator) for inorganic plus methylated metabolites of 35 μg/L at the end of a work week.

The Role of Arsenic Biomonitoring in Studies of Former and Active Smelter Communities

Studies monitoring urinary arsenic excretion have been successful in providing information regarding site-specific versus background contribution to exposures for a number of communities (Hwang et al. 1997a,b; Hewitt et al. 1995; Pollisar et al. 1987 1990; UCDEH 1997). Natural variation between individuals due to diet, water, and other sources can influence measurements of urine arsenic, generally requiring large populations of exposed individuals to be studied in order to correlate biomonitoring results with environmental sampling data.

At a former copper smelter site in Anaconda, Montana, a statistically significant relationship between speciated urinary arsenic and soil arsenic in bare soil areas of residential yards was identified in children living within the community (Hwang et al. 1997a,b). However, low correlation and substantial individual variation between speciated urinary arsenic and soil arsenic of bare areas in yards suggested that yard soil only comprised a small fractional contribution to total inorganic arsenic exposures in the children tested. A comparison of areas of higher soil concentrations with those of lower soil concentrations, indicated there was, on average, only about a 30 percent increase in the urinary arsenic levels for a 300 mg/kg increase in yard soil concentrations. At another community in the Bingham Creek Channel in Utah, urine arsenic concentrations were not correlated with soil concentrations (UCDEH 1997).

In contrast, at another smelter community in Ruston, Washington where urine samples were collected as smelter operations were being shut down, marked increases in urinary arsenic concentrations were noted in community children with a comparable range of yard soil arsenic concentrations (Pollisar et al. 1987, 1990). The difference in urinary arsenic levels is likely attributable to outdoor dust concentrations affected by fallout from smelter emissions that were as much as ten-fold greater than soil concentrations in Ruston.

Several analyses have been published that attempt to incorporate the biomonitoring data from the Anaconda study into an exposure assessment model (Cohen et al. 1998; Walker and Griffin 1998). Both analyses use the biomonitoring data to support alternate assumptions for exposure parameters such as soil and dust ingestion rates and bioavailability that yield exposure estimates that are more compatible with the observed distribution of urine arsenic values. While the Anaconda study did not include outdoor dust data, the soil samples were taken from the top 2 cm. Since the smelter had not been operating for more than a decade, there was no reason to expect that outdoor dust concentrations would be markedly different from soil concentrations. Thus, it is possible that exposures attributed to arsenic in soil in these analyses could actually have been primarily associated with intake of outdoor dust. It is only possible to distinguish between the contributions of these two media in cases where their concentrations differ. Such differences are only expected to be significant in communities with an operating point source.

The recent biomonitoring study in the Notre Dame neighborhood near a copper smelter in Rouyn-Noranda, Québec provides a useful update on this analysis for a smelter operating with current technology and pollution controls (Agence de la santé et des services sociaux del'Abitibi-Témiscamingue 2007):

- Mean and median urinary arsenic concentrations in the Notre Dame neighborhood were the same as the control population (10 km from the smelter)
- There is no apparent correlation between arsenic in air and arsenic in urine.

This finding was hypothesized to reflect the fact that residents' exposure to airborne arsenic is much lower than indicated by annual average arsenic air concentrations, mainly because of two factors:

- Residents spend considerable time away from home
- There is a substantial outdoor- indoor ratio for atmospheric dust concentration.

This hypothesis was tested by comparing As air levels with As dose levels. Dose is the median As air concentration weighted according to time spent outdoors in the vicinity of the home. Each participant documented his or her time spent indoors and outdoors near the home for each 24 hours of the 4 days preceding the urinary sampling (which was performed on the same day for all 300 participants, including the nonexposed group of 100). Mean time spent outdoors was less than 2 hours/day, while time spent indoors was nearly 17 hours/day. Most of the participants worked or were at school outside their neighborhood during weekdays. Every one of the five samplings included at least one day of the weekend. Thus, the study was able to assess that, even if people stayed at their home for most of the day, their true exposure as measured by urine arsenic concentration was much more correlated to time spent outdoors than to time spent in their home. The study concluded that the hypothesis was correct, and that air concentrations measured with samplers located on the roof of high buildings at a few places in a neighborhood are of very limited use for estimating true exposure of people (air monitoring included seven air samplers evenly distributed over a small area of 1 square kilometer, sampling for 24 hours every 3 days).

These findings may be much more relevant to current operations at Trail and may provide support to the apparent lack of consistent elevation of outdoor dust concentrations in recently collected samples.

Implications for Conducting a Biomonitoring Study at Sites with Active Smelters

A comparison of relationships between arsenic concentrations in soil, outdoor dust, and urinary samples obtained from the Anaconda study with those from the Ruston study reveal the potential importance of information to be provided by arsenic biomonitoring studies. At the Anaconda site, smelter activities had ceased more than 10 years prior to conducting the biomonitoring study, while at the Ruston site, smelter emissions had been more recent. In areas with comparable soil concentrations, urinary arsenic concentrations in children of each community were not comparable. Rather, in Ruston, where recent smelter emissions had occurred, children's urinary arsenic concentrations were much higher than in Anaconda.

These findings confirm the importance of outdoor dust as an exposure medium distinct from soil. Specifically, while arsenic concentrations in soil and outdoor dust at the Anaconda site were similar, arsenic concentrations in outdoor dust in Ruston were approximately 3 to 12 times higher than the soil concentrations. The impact of dustfall from smelter emissions within the Ruston community provides an explanation for this difference in soil versus outdoor dust concentrations. It also indicates that outdoor dust, more so than soil, has a significant influence on arsenic exposures at smelter sites with recent or ongoing emissions. These observations are consistent with older data from Trail, where outdoor surface dust concentrations of lead and arsenic generally exceeded soil concentrations. Close to the smelter, outdoor dust concentrations also generally exceeded indoor dust concentrations. However, collocated soil and outdoor dust data collected in 2006 did not show marked elevations of outdoor dust metal concentrations.

This phenomenon may also be occurring in Rouyn-Noranda, with community outdoor dust concentrations having likely dropped substantially as airborne smelter emissions have been reduced. This decline in dust concentrations would then be responsible for the decline in exposures to within the range of background.

The implication of these findings at sites with ongoing smelter emissions is that design of remediation measures focused on soil contamination is unlikely to result in significant reductions in exposures. Rather, exposure reduction measures that decrease ongoing air emissions and the secondary migration of arsenic in surface dusts are likely to be much more effective.

Implications for Trail

In Trail, marked reductions in lead emissions after the start up of a new lead smelter in 1997 was followed by a rapid decline in blood lead levels among children. Geometric mean lead levels in children between the ages of 6 months and 5 years old were 6.7 μg/dL in 2000 (Trail Lead Program 2001). In 2007, the geometric mean was 5.1 μg/dL. While markedly reduced from the geometric mean of 11.5 μg/dL prior to installation of the new smelter (1996 data, Trail Lead Program 2001), the current mean is still above the geometric mean of 1.7 μg/dL reported for U.S. children of the same ages (NCEH 2005). Due to the difficulty of achieving further emissions reductions, blood lead levels in Trail children are being monitored to assess the need for additional actions, and to help determine what sort of actions might be effective.

Background lead exposures in a community are primarily associated with individual sources within a home such as lead paint or lead leaching into drinking water in a home. In contrast, as described above, background arsenic exposures are primarily due to dietary arsenic. Due to the variability and ubiquity of these dietary exposures, exposures to soil and dust arsenic can be difficult to detect. However, this difficulty also implies that further reductions of the low level arsenic exposures from soil and dust are unlikely to benefit public health.

At present, no arsenic biomonitoring data are available for Trail, and it is unknown if current emissions and soil concentrations are sufficiently elevated to produce a detectable elevation in urine arsenic levels on a community basis. An arsenic biomonitoring study could allow a general determination of whether exposures are sufficient to be detected, and if they are elevated could provide insight into the relative importance of different exposure media. Furthermore, if biomonitoring studies in Trail found that exposures to lead and other site metals were correlated, that could suggest that some of the same factors driving lead exposures are driving exposures to other metals. This analysis could provide insight into the effectiveness of remediation and intervention processes.

In summary, reasons for conducting an arsenic biomonitoring study in Trail include the folowing:

1. Determination of whether exposures are sufficient to be detected
2. Evaluating the relative importance of different media (soil vs. outdoor dust) on arsenic exposures
3. Assessing whether remediation and intervention strategies for lead would be successful for arsenic
4. Determining if a biomonitoring study can provide an alternative assessment of whether or not acceptable risk levels are being exceeded.

HOT SPOT RECOMMENDATIONS

Hilts (2007) describes one method for remediating hot spots for metals in Trail soil. Specifically, this paper proposes a cleanup level for lead concentrations in soil. Due to strong correlations between lead and other site related metals, the use of this cleanup level for lead is expected to address other metals in soil.

Another method that would directly address nonlead metals in soil is the calculation of preliminary remediation goals (PRGs) for all PCOCs. Calculating PRGs for soil is one method for determining which parts of Trail may need to undergo soil cleanup. Probabilistic PRGs were back calculated using exposure assumptions from the HHRA for Trail (Integral 2007). Health Canada (2007) recommends that "…if allowable soil concentrations are determined by back-calculation, a forward calculation be performed to confirm that these concentrations do in fact result in a risk estimate equal to or less than the target risk." Per this recommendation, forward calculations were conducted for all PRGs, and adjustments were made to ensure that reported PRGs resulted in the selected target risk levels.

PRGs were calculated for a noncancer target risk level of 1.0 and cancer target risk levels of $1x10^{-6}$, $1x10^{-5}$, and $1x10^{-4}$. These PRGs did not take into account exposure and risk from ingesting homegrown produce. Median, mean, 5th percentile (representing the 95th percentile risk) and 1st percentile (representing the 99th percentile risk) are presented in Tables E-3 and E-4. These tables also show the percentage of measured soil results in Trail that exceed each PRG site wide and in the context of planned response actions for the site that are based on levels of lead in soil. For the determination of hot spots, we recommend comparison to the 5th percentile results.

For instance, in a draft protocol for classifying site risk levels (British Columbia Ministry of the Environment [BCMoE] 2007), BCMoE proposes an "Upper Cap" concentration for lead (5000 mg/kg) for classifying "high risk sites" for direct BCMoE oversight and review. Areas where soil lead exceeds this upper cap would likely require "immediate response." Assuming those areas were addressed via BCMoE's protocol, the percent of measured soil results exceeding the 5th percentile PRG for arsenic (based on noncancer risk for the adult plus child scenario and a PRG of 76 mg/kg) would be reduced slightly from 12.4 percent site wide to 11.1 percent for areas with soil lead concentrations below the proposed upper cap (Table E-3). For thallium and tin, 0.7 and 6.6 percent, respectively, of site wide results for the child scenario exceed the 5th percentile PRG. For results below the upper cap, the percent of thallium results exceeding this PRG does not change, but tin is reduced slightly from 6.6 to 5.2 percent. For antimony, cadmium, selenium, silver, and zinc, no results exceed corresponding 5th percentile PRGs based on noncancer risk.

Using a target cancer risk of 1x10-5, 60.3 percent of soil arsenic results exceed the 5th percentile PRG (20 mg/kg) for the subset of samples with lead concentrations at or below the upper cap. This represents a slight increase over site wide results and is likely due to a nonlinear relationship between site lead and arsenic levels at high lead soil concentrations. In contrast, at the 5th percentile PRG for arsenic using a target cancer risk of 1x10-4 (186 mg/kg), the percent of soil results exceeding this PRG is reduced from 1.6 percent site wide to 0.4 percent in the subset of samples at or below the upper cap for lead (Table E-4).

Consideration of these PRGs for determining “hot spots” can also be applied in the context of a garden soil replacement program at Trail. For this program, Trail families of children with elevated blood lead levels are offered soil replacement for if soil lead concentrations in their vegetable garden plots exceed 1,000 mg/kg. Based on evaluation of garden soil samples in Phase 4, a total of 24 samples have soil lead concentrations at or below the 1,000 mg/kg soil replacement level. As summarized in Table E-3, for these 24 samples, none of the measured soil results exceed corresponding 5th percentile PRG values for any of the metals based on noncancer risks or at a target cancer risk for arsenic of 1x10-4 (186 mg/kg). At a target cancer risk for arsenic of 1x10-5, the 5th percentile PRG (20 mg/kg) is exceeded in 29 percent of these 24 garden soil samples (Table E-4).

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Table E-1. Summary of Trail Resident Urinary Thallium Levels (µg/L)

	Sample Size	Geometric Mean	Maximum	P-value*
All samples	50	0.25	1.9	
Area 1	2	0.28	0.29	
Area 2	20	0.20	0.59	
Area 3	28	0.29	1.9	
All				0.18
Area 2: Area 3				0.072
Gardeners	26	0.28	1.85	
Non-gardeners	24	0.22	0.72	
				0.33
Smokers	11	0.35	1.85	
Non-smokers	39	0.21	0.72	
				0.056
Males	11	0.25	1.85	
Females	39	0.25	0.72	
				0.97

*assuming lognormally transformed data

Table E-2. Comparison of Urinary Thallium Concentrations: Trail Adults vs. U.S. Adults

	Trail Adults (N = 50) (μg/L)	U.S. Adults (≥ 20 years old)[a] (μg/L)	
		1999-2000 (N = 1380)	2001-2002 (N = 1545)
Geometric Mean	0.25	0.17	0.16
50th Percentile	0.28	0.18	0.19
75th Percentile	0.37	0.29	0.27
90th Percentile	0.49	0.4	0.38
95th Percentile	0.58	0.45	0.44

[a]U.S. data from NCEH (2005)

Table E-3. Summary of Soil Remediation Goal Calculations (mg/kg) based on Noncancer Risk

Hazard Quotient = 1.0

	Arsenic		Antimony		Cadmium	Selenium	
	Noncancer Adult+Child	Noncancer Child	Noncancer Adult+Child	Noncancer Child	Noncancer Adult+Child	Noncancer Adult+Child	Noncancer Child
Median	848	8,060	6,220	3,546	41,980	25,915	14,776
Mean	288	3,073	2,111	1,352	17,245	8,794	5,634
5th	76	835	555	367	4,835	2,312	1,531
1st	27	316	198	139	1,815	824	580
% of Residential samples (site wide) above calculated soil remediation goals							
Median	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Mean	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
5th	12.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1st	46.2%	0.4%	0.4%	2.4%	0.0%	0.0%	0.0%
% of Residential samples (with Pb ≤ 5000 ppm) above calculated soil remediation goals							
Median	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Mean	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
5th	11.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1st	46.6%	0.0%	0.0%	0.8%	0.0%	0.0%	0.0%
% of Residential garden samples (with Pb ≤ 1000 ppm) above calculated soil remediation goals (n=24)							
Median	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Mean	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
5th	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1st	4.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

	Silver		Thallium		Tin		Zinc	
	Noncancer Adult+Child	Noncancer Child	Noncancer Adult+Child	Noncancer Child	Noncancer Adult+Child	Noncancer Child	Noncancer Adult+Child	Noncancer Child
Median	7,775	4,433	140	80	466	266	466,474	265,976
Mean	2,638	1,690	47	30	158	101	158,297	101,404
5th	694	459	12.5	8.3	41.6	28	41,624	27,561
1st	247	174	4.4	3.1	15	10.4	14,831	10,438
% of Residential samples (site wide) above calculated soil remediation goals								
Median	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Mean	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
5th	0.0%	0.0%	0.0%	0.7%	2.9%	6.6%	0.0%	0.0%
1st	0.0%	0.0%	3.7%	8.8%	16.9%	29.4%	0.0%	0.0%
% of Residential samples (with Pb ≤ 5000 ppm) above calculated soil remediation goals								
Median	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Mean	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
5th	0.0%	0.0%	0.0%	0.7%	1.5%	5.2%	0.0%	0.0%
1st	0.0%	0.0%	2.2%	8.2%	13.4%	26.9%	0.0%	0.0%
% of Residential garden samples (with Pb ≤ 1000 ppm) above calculated soil remediation goals (n=24)								
Median	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Mean	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
5th	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
1st	0.0%	0.0%	0.0%	0.0%	0.0%	8.3%	0.0%	0.0%

Table E-4 Summary of Soil Remediation Goal Calculations (mg/kg) based on Cancer Risk: Arsenic

	Target Cancer Risk		
	1.0E-04	1.0E-05	1.0E-06
Median	1,725	169	17
Mean	683	69	6.9
5th	185.7	19.5	1.9
1st	71.2	7.3	0.743
% of Residential samples (site wide) above calculated soil remediation goals			
Median	19.8%	97.3%	95.6%
Mean	1.8%	68.0%	59.8%
5th	0.0%	0.0%	0.0%
1st	0.0%	0.0%	0.0%
% of Residential samples (with Pb ≤ 5000 ppm) above calculated soil remediation goals			
Median	0.0%	0.8%	65.6%
Mean	0.0%	13.6%	96.2%
5th	0.4%	60.3%	99.8%
1st	13.2%	95.6%	99.8%
% of Residential garden samples (with Pb ≤ 1000 ppm) above calculated soil remediation goals (n=24)			
Median	0.0%	0.0%	41.7%
Mean	0.0%	0.0%	95.8%
5th	0.0%	29.2%	100.0%
1st	0.0%	91.7%	100.0%