Appendix A

Risk Assessment Guidance for Superfund, Volume 1, Part D, Tables

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This appendix includes the Rags Part D Tables 1 through 10 series for the non-lead metals. The tables are organized by geographical areas first and second by scenario. The Table 2 series is organized first by CSM unit and second by medium. The summary table on the following page lists the order of the tables from the Table 3 series on. The order of the geographical areas is as follows: Lower Basin, Kingston, Side Gulches, Osburn, Silverton, Wallace, MidGradSeg02, Ninemile, Mullan, Blackwell Island, and all areas (fish and vegetables). Within each geographical area, the receptor order is as follows: residential, neighborhood recreational, public recreational, occupational, and subsistence modern and traditional (for Lower Basin).

Included in the appendix are the following:

1 Table 1 – Selection of Exposure Pathways
19 Table 2's – Occurrence, Distribution, and Selection of COPCs
49 Table 3's – Exposure Point Concentrations
24 Table 4's – Daily Intakes
2 Table 5's – Noncancer Toxicity Data
2 Table 6's – Cancer Toxicity Data
182 Table 7's – Noncancer Hazards
108 Table 8's – Cancer Risks
96 Table 9's – Summary of Noncancer and Cancer Results
61 Table 10's – Summary of Noncancer and Cancer Results for Chemicals and Pathways That Exceed Target Risk/Hazard Goals

Following the Tables 1 through 10 series are the data usability worksheets for field sampling plans (FSPs) 2 through 8 and FSP12. These worksheets provide information about the appropriateness and usability of the data used in the human health risk assessment.

Summary of Part D Table 3 Series by Geographical Area

Table 3 series number is listed in the second column for each geographical area.
The population exposed to a particular media is listed as well as the exposure medium because of the different combinations of data applicable to the different populations, see text (e.g., occupational exposures vs residential exposures).

Lower Basin

1)	3.1.1	Residential Surface Soil
2)	3.1.2	Residential Groundwater (Tap Water)
3)	3.1.3	Neighborhood and Public Recreational Soil/Sediment (Lower CDAR)
4)	3.1.4	Neighborhood and Public Recreational Surface Water (Lower CDAR)
5)	3.1.5	Subsistence Sediment
6)	3.1.6	Subsistence Plant Tissue (Water Potato)
7)	3.1.7	Occupational Soil
8)	3.1.8	Subsistence Surface Soil
9)	3.1.9	Subsistence Undisturbed Surface Water
10)	3.1.10	Subsistence Disturbed Surface Water

Kingston

1)	3.2.1	Residential Surface Soil
2)	3.2.2	Residential Groundwater (Tap Water)
3)	3.2.3	Neighborhood Recreational Sediment (Pine Creek)
4)	3.2.4	Neighborhood Recreational Surface Water (Pine Creek)
5)	3.2.5	Neighborhood and Public Recreational Soil/Sediment (NS Confluence)
6)	3.2.6	Neighborhood and Public Recreational Surface Water (NS Confluence)
7)	3.2.7	Occupational Soil

Side Gulches

1)	3.3.1	Residential Surface Soil
2)	3.3.2	Residential Groundwater (Tap Water)
3)	3.3.3	Neighborhood Recreational Surface Soil (Elk Creek Area)
4)	3.3.4	Neighborhood Recreational Sediment (Elk Creek Pond)
5)	3.3.5	Neighborhood Recreational Surface Water (Elk Creek Pond)

Osburn

1)	3.4.1	Residential Surface Soil
2)	3.4.2	Residential Groundwater (Tap Water)

Silverton

1)	3.5.1	Residential Surface Soil
2)	3.5.2	Residential Groundwater (Tap Water)
3)	3.5.3	Neighborhood and Public Recreational Surface Soil (Upland Parks/Schools)

Wallace

1)	3.6.1	Residential Surface Soil
2)	3.6.2	Residential Groundwater (Tap Water)
3)	3.6.3	Neighborhood and Public Recreational Surface Soil (Upland Parks/Schools)

Osburn, Wallace, and Silverton (MidGradSeg01)

1)	3.7.1	Neighborhood Recreational Sediment (South Fork CDAR)
2)	3.7.2	Neighborhood Recreational Surface Water (South Fork CDAR)
3)	3.7.3	Occupational Soil

Nine Mile

1)	3.8.1	Residential Surface Soil
2)	3.8.2	Residential Groundwater (Tap Water - Current/Future)
3)	3.8.3	Residential Groundwater (Tap Water - Future)
4)	3.8.4	Neighborhood Recreational Surface Soil (Waste Piles)
5)	3.8.5	Neighborhood Recreational Sediment (Nine Mile/Canyon Creek)
6)	3.8.6	Neighborhood Recreational Surface Water (Nine Mile/Canyon Creek)
7)	3.8.7	Occupational Soil

Mullan

1)	3.9.1	Residential Surface Soil
2)	3.9.2	Residential Groundwater (Tap Water)
3)	3.9.3	Neighborhood Recreational Surface Soil (Waste Piles)
4)	3.9.4	Neighborhood Recreational Sediment (South Fork CDAR)
5)	3.9.5	Neighborhood Recreational Surface Water (South Fork CDAR)
6)	3.9.6	Occupational Soil

Blackwell Island

1)	3.10.1	Public Recreational Soil/Sediment (Spokane River)
2)	3.10.2	Public Recreational Surface Water (Spokane River)

All Geographical Areas

1)	3.11.1	Residential Plant Tissue (Homegrown Vegetables)
2)	3.11.2	Recreational and Subsistence Animal Tissue (Fish From Lower CDAR)

DATA USABILITY WORKSHEET

Site: Field Sampling Plans 2 and 3

Medium: Surface water in Canyon, Ninemile, Big, Moon, Beaver and Pine Creeks and the South Fork of the CdA River.
Sediment in Canyon, Ninemile and the South Fork

Requirement	Comment
Field Sampling	
Discuss sampling problems and field conditions that affect data usability.	No substantial sampling problems or adverse filed conditions that might affect data usability were noted.
Are samples representative of receptor exposure for this medium (e.g. sample depth, grab vs composite, filtered vs unfiltered, low flow, etc.)?	Sample locations not selected based on human use patterns. Water sampling occurred at low flow, and samples were unfiltered. Sediment samples were bulk (not sieved), and were composited over depths as great as 4 feet.
Assess the effect of filed QC results on data usability.	Although small concentrations of several common analytes were found in some of the equipment rinseate and field blanks, the overall quality of the data were determined not to be adversely affected.
Summarize the effect of field sampling issues on the risk assessment, if applicable.	No appreciable field sampling issues were identified that might have any impact on the quality of the risk assessment.
Analytical Techniques	
Were the analytical methods appropriate for quantitative risk assessment?	Overall, the methods chosen were appropriate and adequate to provide useable data for a quantitative risk assessment.
Were detection limits adequate?	QAPP specified detection limit goals were met with the exception of some antimony, arsenic, and thallium results. These exceedances did not have a significant impact on the risk assessment.
Summarize the effect of analytical technique issues on the risk assessment , if applicable.	With the possible exception of thallium any changes in analytical technique would not have achieved any greater usability of better detection limits of the analytical data.

DATA USABILITY WORKSHEET (continued)

Site: FSPs 2 and 3

Medium: Surface water and sediment

Requirement	Comment
Data Quality Objectives	
Precision - How were duplicates handled?	Typically, one duplicate sample was collected for each group of 10 samples of a similar matrix type. Additional duplicate samples were collected for analyses as MS/MSDs to determine matrix effects. RPD values were calculated to evaluate precision.
Accuracy - How were split samples handled?	Accuracy was evaluated using calculated percent recoveries from surrogates and matrix spikes as applicable, specified in the analytical methods and the QAPP.
Representativeness - Indicate any problems associated with data representativeness (e.g., trip blank or rinseate blank contamination, COC problems, etc.).	Assessment of the quality control indicators for representativeness revealed no appreciable adverse impact on the data.
Completeness - Indicate any problems associated with data completeness (e.g., incorrect sample analysis, incomplete sample records, problems with field procedures, etc.).	Completeness goals were achieved by obtaining samples required at each location with a sufficient volume to complete the specified analyses. No problems with the QAPP specified goals were identified.
Comparability - Indicate any problems associated with data comparability.	As the Quality of the data from this study have been sufficiently established the data are well suited for comparison with previous or future data sets.
Were the DQOs specified in the QAPP satisfied?	Overall, the data set for this sampling event met the acceptance criteria and DQOs specified in the QAPP.
Summarize the effect of DQO issues on the risk assessment, if applicable.	In general, with the exception of a few detection limit exceedances for antimony, arsenic and thallium, all of the DQOs for this field sampling plan were met as specified in the QAPP. Therefore, the risk assessment was not adversely affected by any DQO issues.

DATA USABILITY WORKSHEET (continued)

Site: FSPs 2 and 3

Medium: Surface water and sediment

Requirement	Comment
Data Validation and Interpretation	
What are the data validation requirements for this region?	The data were validated using the technical guidelines and criteria specified in the individual analytical methods and the USEPA Functional Guidelines for Data Validation.
What method or guidance was used to validate the data?	The criteria set forth in the individual CLP, SW846, or water/waste water methods along with the USEPA Functional Guidelines for Data Validation were used, as applicable, to validate the data.
Was the data validation method consistent with regional guidance? Discuss any discrepancies.	The data validation was consistent with regional guidance and no discrepancies were noted.
Were all data qualifiers defined? Discuss those which were not.	All of the data qualifiers used were defined in the USEPA Functional Guidelines for Data Validation.
Which qualifiers represent usable data?	As specified in the USEPA Functional Guidelines, all data qualifiers, with the exception of "R", represent usable data.
Which qualifiers represent unusable data?	As specified in the USEPA Functional Guidelines, the data qualifier, "R", represents rejected and unusable data..
How are tentatively identified compounds handled?	None of the methods used to analyze this data set report tentatively identified compounds.

DATA USABILITY WORKSHEET (continued)

Site: FSPs 2 and 3

Medium: Surface water and sediment

Requirement	**Comment**
Summarize the effect of data validation and interpretation issues on the risk assessment, if applicable.	Thallium in sediment was not selected as a COPC and the majority of the detection levels exceeded the screening values; however, no impacts to risk assessment conclusions are anticipated, see Section 7.2 and Table 2-2 in the report.
Additional notes:	

Note: The purpose of this Worksheet is to succinctly summarize the data usability analysis and conclusions. Reference specific pages in the Risk Assessment text to further expand on the information presented here.

DATA USABILITY WORKSHEET

Site: Field Sampling Plan 4

Medium: Surface water in Canyon, Ninemile, Big, Moon, Beaver and Pine Creeks and the South Fork of the CdA River.

Requirement	Comment
Field Sampling	
Discuss sampling problems and field conditions that affect data usability.	No substantial sampling problems or adverse field conditions that might affect data usability were noted.
Are samples representative of receptor exposure for this medium (e.g. sample depth, grab vs composite, filtered vs unfiltered, low flow, etc.)?	Samples were collected of unfiltered water at high water flow. Sample locations were not selected based on human use patterns.
Assess the effect of filed QC results on data usability.	Although small concentrations of several common analytes were found in some of the equipment rinseate and field blanks, the overall quality of the data were determined not to be adversely affected.
Summarize the effect of field sampling issues on the risk assessment, if applicable.	No appreciable field sampling issues were identified that might have any impact on the quality of the risk assessment.
Analytical Techniques	
Were the analytical methods appropriate for quantitative risk assessment?	Overall, the methods chosen were appropriate and adequate to provide useable data for a quantitative risk assessment.
Were detection limits adequate?	QAPP specified detection limit goals were met with the exception of some antimony, arsenic, and thallium results. These exceedances did not have a significant impact on the risk assessment.
Summarize the effect of analytical technique issues on the risk assessment , if applicable.	With the possible exception of thallium any changes in analytical technique would not have achieved any greater usability of better detection limits of the analytical data.

DATA USABILITY WORKSHEET (continued)

Site: FSP 4

Medium: Surface water

Requirement	Comment
Data Quality Objectives	
Precision - How were duplicates handled?	Typically, one duplicate sample was collected for each group of 10 samples of a similar matrix type. Additional duplicate samples were collected for analyses as MS/MSDs to determine matrix effects. RPD values were calculated to evaluate precision.
Accuracy - How were split samples handled?	Accuracy was evaluated using calculated percent recoveries from surrogates and matrix spikes as applicable, specified in the analytical methods and the QAPP.
Representativeness - Indicate any problems associated with data representativeness (e.g., trip blank or rinseate blank contamination, COC problems, etc.).	Assessment of the quality control indicators for representativeness revealed no appreciable adverse impact on the data.
Completeness - Indicate any problems associated with data completeness (e.g., incorrect sample analysis, incomplete sample records, problems with field procedures, etc.).	Completeness goals were achieved by obtaining samples required at each location with a sufficient volume to complete the specified analyses. No problems with the QAPP specified goals were identified.
Comparability - Indicate any problems associated with data comparability.	As the Quality of the data from this study have been sufficiently established the data are well suited for comparison with previous or future data sets.
Were the DQOs specified in the QAPP satisfied?	Overall, the data set for this sampling event met the acceptance criteria and DQOs specified in the QAPP.
Summarize the effect of DQO issues on the risk assessment, if applicable.	In general, with the exception of a few detection limit exceedances for antimony, arsenic and thallium, all of the DQOs for this field sampling plan were met as specified in the QAPP. Therefore, the risk assessment was not adversely affected by any DQO issues.

DATA USABILITY WORKSHEET (continued)

Site: FSP 4

Medium: Surface water

Requirement	Comment
Data Validation and Interpretation	
What are the data validation requirements for this region?	The data were validated using the technical guidelines and criteria specified in the individual analytical methods and the USEPA Functional Guidelines for Data Validation.
What method or guidance was used to validate the data?	The criteria set forth in the individual CLP, SW846, or water/waste water methods along with the USEPA Functional Guidelines for Data Validation were used, as applicable, to validate the data.
Was the data validation method consistent with regional guidance? Discuss any discrepancies.	The data validation was consistent with regional guidance and no discrepancies were noted.
Were all data qualifiers defined? Discuss those which were not.	All of the data qualifiers used were defined in the USEPA Functional Guidelines for Data Validation.
Which qualifiers represent usable data?	As specified in the USEPA Functional Guidelines, all data qualifiers, with the exception of "R", represent usable data.
Which qualifiers represent unusable data?	As specified in the USEPA Functional Guidelines, the data qualifier, "R", represents rejected and unusable data..
How are tentatively identified compounds handled?	None of the methods used to analyze this data set report tentatively identified compounds.

DATA USABILITY WORKSHEET (continued)

Site: FSP 4

Medium: Surface water

Requirement	**Comment**
Summarize the effect of data validation and interpretation issues on the risk assessment, if applicable.	none
Additional notes:	

Note: The purpose of this Worksheet is to succinctly summarize the data usability analysis and conclusions. Reference specific pages in the Risk Assessment text to further expand on the information presented here.

DATA USABILITY WORKSHEET

Site: Field Sampling Plan 5

Medium: Soil, sediment, surface and drinking water, Common Use Areas, primarily beaches and upland parks

Requirement	Comment
Field Sampling	
Discuss sampling problems and field conditions that affect data usability.	No substantial sampling problems or adverse field conditions that might affect data usability were noted.
Are samples representative of receptor exposure for this medium (e.g. sample depth, grab vs composite, filtered vs unfiltered, low flow, etc.)?	Sample locations selected based on human use pattterns. Soil/sediment samples were surface composits and were sieved. Water samples were unfiltered and surface water samples were of "disturbed water" containing suspended sediments.
Assess the effect of filed QC results on data usability.	Although small concentrations of several common analytes were found in some of the equipment rinseate and field blanks, the overall quality of the data were determined not to be adversely affected.
Summarize the effect of field sampling issues on the risk assessment, if applicable.	No appreciable field sampling issues were identified that might have any impact on the quality of the risk assessment.
Analytical Techniques	
Were the analytical methods appropriate for quantitative risk assessment?	Overall, the methods chosen were appropriate and adequate to provide useable data for a quantitative risk assessment.
Were detection limits adequate?	QAPP specified detection limit goals were met with the exception of some antimony, arsenic, and thallium results. These exceedances did not have a significant impact on the risk assessment.
Summarize the effect of analytical technique issues on the risk assessment , if applicable.	With the possible exception of thallium any changes in analytical technique would not have achieved any greater usability of better detection limits of the analytical data.

DATA USABILITY WORKSHEET (continued)

Site: FSP 5

Medium: Soil, sediment, surface and drinking water

Requirement	Comment
Data Quality Objectives	
Precision - How were duplicates handled?	Typically, one duplicate sample was collected for each group of 10 samples of a similar matrix type. Additional duplicate samples were collected for analyses as MS/MSDs to determine matrix effects. RPD values were calculated to evaluate precision.
Accuracy - How were split samples handled?	Accuracy was evaluated using calculated percent recoveries from surrogates and matrix spikes as applicable, specified in the analytical methods and the QAPP.
Representativeness - Indicate any problems associated with data representativeness (e.g., trip blank or rinseate blank contamination, COC problems, etc.).	Assessment of the quality control indicators for representativeness revealed no appreciable adverse impact on the data.
Completeness - Indicate any problems associated with data completeness (e.g., incorrect sample analysis, incomplete sample records, problems with field procedures, etc.).	Completeness goals were achieved by obtaining samples required at each location with a sufficient volume to complete the specified analyses. No problems with the QAPP specified goals were identified.
Comparability - Indicate any problems associated with data comparability.	As the Quality of the data from this study have been sufficiently established the data are well suited for comparison with previous or future data sets.
Were the DQOs specified in the QAPP satisfied?	Overall, the data set for this sampling event met the acceptance criteria and DQOs specified in the QAPP.
Summarize the effect of DQO issues on the risk assessment, if applicable.	In general, with the exception of a few detection limit exceedances for antimony, arsenic and thallium, all of the DQOs for this field sampling plan were met as specified in the QAPP. Therefore, the risk assessment was not adversely affected by any DQO issues.

DATA USABILITY WORKSHEET (continued)

Site: FSP 5

Medium: Soil, sediment, surface and drinking water

Requirement	Comment
Data Validation and Interpretation	
What are the data validation requirements for this region?	The data were validated using the technical guidelines and criteria specified in the individual analytical methods and the USEPA Functional Guidelines for Data Validation.
What method or guidance was used to validate the data?	The criteria set forth in the individual CLP, SW846, or water/waste water methods along with the USEPA Functional Guidelines for Data Validation were used, as applicable, to validate the data.
Was the data validation method consistent with regional guidance? Discuss any discrepancies.	The data validation was consistent with regional guidance and no discrepancies were noted.
Were all data qualifiers defined? Discuss those which were not.	All of the data qualifiers used were defined in the USEPA Functional Guidelines for Data Validation.
Which qualifiers represent usable data?	As specified in the USEPA Functional Guidelines, all data qualifiers, with the exception of "R", represent usable data.
Which qualifiers represent unusable data?	As specified in the USEPA Functional Guidelines, the data qualifier, "R", represents rejected and unusable data..
How are tentatively identified compounds handled?	None of the methods used to analyze this data set report tentatively identified compounds.

DATA USABILITY WORKSHEET (continued)

Site: FSP 5

Medium: Soil, sediment, surface and drinking water

Requirement	**Comment**
Summarize the effect of data validation and interpretation issues on the risk assessment, if applicable.	Thallium in soil/sediment was not selected as a COPC and the majority of the samples were non-detects and the majority of the detection limits exceeded the screening values; however, no impacts to risk assessment conclusions are anticipated, see Section 7.2 and Table 2-2 in the report.
Additional notes:	

Note: The purpose of this Worksheet is to succinctly summarize the data usability analysis and conclusions. Reference specific pages in the Risk Assessment text to further expand on the information presented here.

DATA USABILITY WORKSHEET

Site: Field Sampling Plan 6 and 7 - Residential Sampling

Medium: Soil, house dust, tap water and garden vegetables

Requirement	Comment
Field Sampling	
Discuss sampling problems and field conditions that affect data usability.	No substantial sampling problems or adverse field conditions that might affect data usability were noted.
Are samples representative of receptor exposure for this medium (e.g. sample depth, grab vs composite, filtered vs unfiltered, low flow, etc.)?	Home yard soil: composites and discrete surface sampling. Samples sieved to <175 um. House dust sampled by mats and vacuum bags. Tap water: first draw and flushed, unfiltered.
Assess the effect of filed QC results on data usability.	Although small concentrations of several common analytes were found in some of the equipment rinseate and field blanks, the overall quality of the data were determined not to be adversely affected.
Summarize the effect of field sampling issues on the risk assessment, if applicable.	No appreciable field sampling issues were identified that might have any impact on the quality of the risk assessment.
Analytical Techniques	
Were the analytical methods appropriate for quantitative risk assessment?	Overall, the methods chosen were appropriate and adequate to provide useable data for a quantitative risk assessment.
Were detection limits adequate?	QAPP specified detection limit goals were met with the exception of some antimony, arsenic, and thallium results. These exceedances did not have a significant impact on the risk assessment.
Summarize the effect of analytical technique issues on the risk assessment , if applicable.	With the possible exception of thallium any changes in analytical technique would not have achieved any greater usability of better detection limits of the analytical data.

DATA USABILITY WORKSHEET (continued)

Site: FSPs 6 and 7

Medium: Soil, house dust, tap water and garden vegetables

Requirement	Comment
Data Quality Objectives	
Precision - How were duplicates handled?	Typically, one duplicate sample was collected for each group of 10 samples of a similar matrix type. Additional duplicate samples were collected for analyses as MS/MSDs to determine matrix effects. RPD values were calculated to evaluate precision.
Accuracy - How were split samples handled?	Accuracy was evaluated using calculated percent recoveries from surrogates and matrix spikes as applicable, specified in the analytical methods and the QAPP.
Representativeness - Indicate any problems associated with data representativeness (e.g., trip blank or rinseate blank contamination, COC problems, etc.).	Assessment of the quality control indicators for representativeness revealed no appreciable adverse impact on the data.
Completeness - Indicate any problems associated with data completeness (e.g., incorrect sample analysis, incomplete sample records, problems with field procedures, etc.).	Completeness goals were achieved by obtaining samples required at each location with a sufficient volume to complete the specified analyses. No problems with the QAPP specified goals were identified.
Comparability - Indicate any problems associated with data comparability.	As the Quality of the data from this study have been sufficiently established the data are well suited for comparison with previous or future data sets.
Were the DQOs specified in the QAPP satisfied?	Overall, the data set for this sampling event met the acceptance criteria and DQOs specified in the QAPP.
Summarize the effect of DQO issues on the risk assessment, if applicable.	In general, with the exception of a few detection limit exceedances for antimony, arsenic and thallium, all of the DQOs for this field sampling plan were met as specified in the QAPP. Therefore, the risk assessment was not adversely affected by any DQO issues.

DATA USABILITY WORKSHEET (continued)

Site: FSPs 6 and 7

Medium: Soil, house dust, tap water and garden vegetables

Requirement	Comment
Data Validation and Interpretation	
What are the data validation requirements for this region?	The data were validated using the technical guidelines and criteria specified in the individual analytical methods and the USEPA Functional Guidelines for Data Validation.
What method or guidance was used to validate the data?	The criteria set forth in the individual CLP, SW846, or water/waste water methods along with the USEPA Functional Guidelines for Data Validation were used, as applicable, to validate the data.
Was the data validation method consistent with regional guidance? Discuss any discrepancies.	The data validation was consistent with regional guidance and no discrepancies were noted.
Were all data qualifiers defined? Discuss those which were not.	All of the data qualifiers used were defined in the USEPA Functional Guidelines for Data Validation.
Which qualifiers represent usable data?	As specified in the USEPA Functional Guidelines, all data qualifiers, with the exception of "R", represent usable data.
Which qualifiers represent unusable data?	As specified in the USEPA Functional Guidelines, the data qualifier, "R", represents rejected and unusable data..
How are tentatively identified compounds handled?	None of the methods used to analyze this data set report tentatively identified compounds.

DATA USABILITY WORKSHEET (continued)

Site: FSPs 6 and 7

Medium: Soil, house dust, tap water and garden vegetables

Requirement	**Comment**
Summarize the effect of data validation and interpretation issues on the risk assessment, if applicable.	Thallium in soil was not selected as a COPC and the majority of the samples were non-detects and the majority of the detection limits exceeded the screening values; however, no impacts to risk assessment conclusions are anticipated, see Section 7.2 and Table 2-2 in the report. Arsenic in tap water was selected as a COPC, and about half the samples were non-detects. All the detection limits exceeded the screening value which is not technically feasible. Consequently, arsenic concentrations in tap water may be either under or overestimated depending on the actual concentration of the non-detected samples. No impacts to risk assessment conclusions are anticipated, see section 2.5 and Table 2-2 in the report.
Additional notes:	

Note: The purpose of this Worksheet is to succinctly summarize the data usability analysis and conclusions. Reference specific pages in the Risk Assessment text to further expand on the information presented here.

DATA USABILITY WORKSHEET

Site: Field Sampling Plan 8

Medium: Groundwater, waste piles (soil) in Canyon and Ninemile Creeks

Requirement	Comment
Field Sampling	
Discuss sampling problems and field conditions that affect data usability.	No substantial sampling problems or adverse field conditions that might affect data usability were noted.
Are samples representative of receptor exposure for this medium (e.g. sample depth, grab vs composite, filtered vs unfiltered, low flow, etc.)?	Groundwater collected from monitoring wells in shallow aquifer near source areas. Not used as a human water source. Soil: surface soil composites 0-12" depth.
Assess the effect of filed QC results on data usability.	Although small concentrations of several common analytes were found in some of the equipment rinseate and field blanks, the overall quality of the data were determined not to be adversely affected.
Summarize the effect of field sampling issues on the risk assessment, if applicable.	No appreciable field sampling issues were identified that might have any impact on the quality of the risk assessment.
Analytical Techniques	
Were the analytical methods appropriate for quantitative risk assessment?	Overall, the methods chosen were appropriate and adequate to provide useable data for a quantitative risk assessment.
Were detection limits adequate?	QAPP specified detection limit goals were met with the exception of some antimony, arsenic, and thallium results. These exceedances did not have a significant impact on the risk assessment.
Summarize the effect of analytical technique issues on the risk assessment , if applicable.	With the possible exception of thallium any changes in analytical technique would not have achieved any greater usability of better detection limits of the analytical data.

DATA USABILITY WORKSHEET (continued)

Site: FSP 8

Medium: groundwater, waste piles (soil)

Requirement	Comment
Data Quality Objectives	
Precision - How were duplicates handled?	Typically, one duplicate sample was collected for each group of 10 samples of a similar matrix type. Additional duplicate samples were collected for analyses as MS/MSDs to determine matrix effects. RPD values were calculated to evaluate precision.
Accuracy - How were split samples handled?	Accuracy was evaluated using calculated percent recoveries from surrogates and matrix spikes as applicable, specified in the analytical methods and the QAPP.
Representativeness - Indicate any problems associated with data representativeness (e.g., trip blank or rinseate blank contamination, COC problems, etc.).	Assessment of the quality control indicators for representativeness revealed no appreciable adverse impact on the data.
Completeness - Indicate any problems associated with data completeness (e.g., incorrect sample analysis, incomplete sample records, problems with field procedures, etc.).	Completeness goals were achieved by obtaining samples required at each location with a sufficient volume to complete the specified analyses. No problems with the QAPP specified goals were identified.
Comparability - Indicate any problems associated with data comparability.	As the Quality of the data from this study have been sufficiently established the data are well suited for comparison with previous or future data sets.
Were the DQOs specified in the QAPP satisfied?	Overall, the data set for this sampling event met the acceptance criteria and DQOs specified in the QAPP.
Summarize the effect of DQO issues on the risk assessment, if applicable.	In general, with the exception of a few detection limit exceedances for antimony, arsenic and thallium, all of the DQOs for this field sampling plan were met as specified in the QAPP. Therefore, the risk assessment was not adversely affected by any DQO issues.

DATA USABILITY WORKSHEET (continued)

Site: FSP 8

Medium: groundwater, waste piles (soil)

Requirement	Comment
Data Validation and Interpretation	
What are the data validation requirements for this region?	The data were validated using the technical guidelines and criteria specified in the individual analytical methods and the USEPA Functional Guidelines for Data Validation.
What method or guidance was used to validate the data?	The criteria set forth in the individual CLP, SW846, or water/waste water methods along with the USEPA Functional Guidelines for Data Validation were used, as applicable, to validate the data.
Was the data validation method consistent with regional guidance? Discuss any discrepancies.	The data validation was consistent with regional guidance and no discrepancies were noted.
Were all data qualifiers defined? Discuss those which were not.	All of the data qualifiers used were defined in the USEPA Functional Guidelines for Data Validation.
Which qualifiers represent usable data?	As specified in the USEPA Functional Guidelines, all data qualifiers, with the exception of "R", represent usable data.
Which qualifiers represent unusable data?	As specified in the USEPA Functional Guidelines, the data qualifier, "R", represents rejected and unusable data..
How are tentatively identified compounds handled?	None of the methods used to analyze this data set report tentatively identified compounds.

DATA USABILITY WORKSHEET (continued)

Site: FSP 8

Medium: groundwater, waste piles (soil)

Requirement	Comment
Summarize the effect of data validation and interpretation issues on the risk assessment, if applicable.	Thallium in soil was not selected as a COPC and the majority of the samples were non-detects and the majority of the detection limits exceeded the screening values; however, no impacts to risk assessment conclusions are anticipated, see Section 7.2 and Table 2-2 in the report.
Additional notes:	

Note: The purpose of this Worksheet is to succinctly summarize the data usability analysis and conclusions. Reference specific pages in the Risk Assessment text to further expand on the information presented here.

DATA USABILITY WORKSHEET

Site: Field Sampling Plan 12 - Residential Sampling

Medium: Soil, tap water

Requirement	Comment
Field Sampling	
Discuss sampling problems and field conditions that affect data usability.	No substantial sampling problems or adverse field conditions that might affect data usability were noted.
Are samples representative of receptor exposure for this medium (e.g. sample depth, grab vs composite, filtered vs unfiltered, low flow, etc.)?	Soil: composites and discrete surface sampling. Samples sieved to <175 um Tap water: first draw and flused, unfiltered, non-municipal supplies only.
Assess the effect of filed QC results on data usability.	Although small concentrations of several common analytes were found in some of the equipment rinseate and field blanks, the overall quality of the data were determined not to be adversely affected.
Summarize the effect of field sampling issues on the risk assessment, if applicable.	No appreciable field sampling issues were identified that might have any impact on the quality of the risk assessment.
Analytical Techniques	
Were the analytical methods appropriate for quantitative risk assessment?	Overall, the methods chosen were appropriate and adequate to provide useable data for a quantitative risk assessment.
Were detection limits adequate?	QAPP specified detection limit goals were met with the exception of some antimony, arsenic, and thallium results. These exceedances did not have a significant impact on the risk assessment.
Summarize the effect of analytical technique issues on the risk assessment , if applicable.	With the possible exception of thallium any changes in analytical technique would not have achieved any greater usability of better detection limits of the analytical data.

DATA USABILITY WORKSHEET (continued)

Site: FSP 12

Medium: Soil, tap water

Requirement	Comment
Data Quality Objectives	
Precision - How were duplicates handled?	Typically, one duplicate sample was collected for each group of 10 samples of a similar matrix type. Additional duplicate samples were collected for analyses as MS/MSDs to determine matrix effects. RPD values were calculated to evaluate precision.
Accuracy - How were split samples handled?	Accuracy was evaluated using calculated percent recoveries from surrogates and matrix spikes as applicable, specified in the analytical methods and the QAPP.
Representativeness - Indicate any problems associated with data representativeness (e.g., trip blank or rinseate blank contamination, COC problems, etc.).	Assessment of the quality control indicators for representativeness revealed no appreciable adverse impact on the data.
Completeness - Indicate any problems associated with data completeness (e.g., incorrect sample analysis, incomplete sample records, problems with field procedures, etc.).	Completeness goals were achieved by obtaining samples required at each locatior with a sufficient volume to complete the specified analyses. No problems with the QAPP specified goals were identified.
Comparability - Indicate any problems associated with data comparability.	As the Quality of the data from this study have been sufficiently established, the data are well suited for comparison with previous or future data sets.
Were the DQOs specified in the QAPP satisfied?	Overall, the data set for this sampling event met the acceptance criteria and DQOs specified in the QAPP.
Summarize the effect of DQO issues on the risk assessment, if applicable.	In general, with the exception of a few detection limit exceedances for antimony, arsenic and thallium, all of the DQOs for this field sampling plan were met as specified in the QAPP. Therefore, the risk assessment was not adversely affected by any DQO issues.

DATA USABILITY WORKSHEET (continued)

Site: FSP 12

Medium: Soil, tap water

Requirement	Comment
Data Validation and Interpretation	
What are the data validation requirements for this region?	The data were validated using the technical guidelines and criteria specified in the individual analytical methods and the USEPA Functional Guidelines for Data Validation.
What method or guidance was used to validate the data?	The criteria set forth in the individual CLP, SW846, or water/waste water methods along with the USEPA Functional Guidelines for Data Validation were used, as applicable, to validate the data.
Was the data validation method consistent with regional guidance? Discuss any discrepancies.	The data validation was consistent with regional guidance and no discrepancies were noted.
Were all data qualifiers defined? Discuss those which were not.	All of the data qualifiers used were defined in the USEPA Functional Guidelines for Data Validation.
Which qualifiers represent usable data?	As specified in the USEPA Functional Guidelines, all data qualifiers, with the exception of "R", represent usable data.
Which qualifiers represent unusable data?	As specified in the USEPA Functional Guidelines, the data qualifier, "R", represents rejected and unusable data..
How are tentatively identified compounds handled?	None of the methods used to analyze this data set report tentatively identified compounds.

DATA USABILITY WORKSHEET (continued)

Site: FSP 12

Medium: Soil, tap water

Requirement	Comment
Summarize the effect of data validation and interpretation issues on the risk assessment, if applicable.	Thallium in soil was not selected as a COPC and the majority of the samples were non-detects and the majority of the detection limits exceeded the screening values; however, no impacts to risk assessment conclusions are anticipated, see Section 7.2 and Table 2-2 in the report. Arsenic in tap water was selected as a COPC, and about half the samples were non-detects. All the detection limits exceeded the screening value which is not technically feasible. Consequently, arsenic concentrations in tap water may be either under or overestimated depending on the actual concentration of the non-detected samples. No impacts to risk assessment conclusions are anticipated, see section 2.5 and Table 2-2 in the report.
Additional notes:	

Note: The purpose of this Worksheet is to succinctly summarize the data usability analysis and conclusions. Reference specific pages in the Risk Assessment text to further expand on the information presented here.

TABLE 1
SELECTION OF EXPOSURE PATHWAYS
Coeur d'Alene River Basin

Scenario Timeframe	Medium	Exposure Medium	Exposure Point	Receptor Population	Receptor Age	Exposure Route	On-Site/ Off-Site	Type of Analysis	Rationale for Selection or Exclusion of Exposure Pathway
Current	Tailing Deposits and Slag Piles (Soil)	Surface Water (a)	Stream and River Water	Tribal Recreational	Child/Adult	Ingestion Dermal	NA NA	Quant. Qual.	Children/adults may be in direct contact with surface water during intermittent recreational activities. Undisturbed surface water is the main source of drinking water for tribal scenarios.
			Stream and River Sediment	Tribal Recreational	Child/Adult	Ingestion Dermal	NA NA	Quant. Quant.	Children/adults may be in contact with impacted sediments during intermittent recreational activities (swimming and beach play) and tribal activities (fishing, water potato collection, swimming, etc.).
			Native Plants *	Tribal	Child/Adult	Ingestion	NA	Quant.	Consumption of water potatoes growing in surface water and sediments are evaluated for tribal scenarios.
			Cattle (b) *	Residential	Child/Adult	Ingestion	NA	Qual.	Children and adults eat potentially affected cattle that graze on grasses growing in impacted sediment.
			Wild Fowl (b) *	Tribal Recreational	Child/Adult	Ingestion	NA	Qual.	Children and adults hunt and eat potentially affected wild fowl that are found in floodplain.
			Fish from Lower Basin and Spokane River (c)	Tribal Recreational	Child/Adult	Ingestion	NA	Quant.	Children and adults may collect fish that are potentially affected by impacted surface water and sediments; therefore, this pathway will be quantitatively evaluated. The Tribe depends on fish from Lake Coeur d'Alene as a main food source.
		Surface Soil (d)	Surface Soil	Residential Tribal Recreational Occupational	Child/Adult	Ingestion Dermal	NA NA	Quant. Quant.	Children and adults may potentially be in direct contact with impacted surface soils during outdoor activities at their homes, neighborhoods, or parks; therefore, the ingestion and dermal pathways will be quantitatively evaluated. Outdoor workers could be affected by contaminated soils in their day-to-day activities.
			Vegetables *	Residential	Child/Adult	Ingestion	NA	Quant.	Children and adults eat vegetables from gardens potentially containing impacted soils; therefore, this pathway will be evaluated quantitatively. Tribal populations collect native plants growing in impacted soils.
			Native Plants *	Tribal	Child/Adult	Ingestion	NA	Qual.	
			Game (f) *	Tribal Recreational	Child/Adult	Ingestion	NA	Qual.	Game animals (e.g., deer, beaver, and muskrats), except for water fowl, are unlikely to contain significant levels of metals, see text.
			House Dust	Residential	Child/Adult	Ingestion Inhalation	NA	Quant. Qual.	Fugitive dust containing significant levels of metals may be deposited inside housing units and accumulate on funiture, draperies, horizontal window blinds, carpet, and any non-vertical surface (e.g. window sills, shelves, etc.).
		Groundwater (e)	Tap Water	Residential	Child/Adult	Ingestion Dermal	NA NA	Quant. Qual.	Residents currently use groundwater for drinking and for household activities.
		Air	Resuspended Particulates from Surface Soils	Residential Tribal Recreational	Child/Adult	Inhalation	NA	Qual.	The inhalation pathway is likely negligible at the site as compared to the ingestion and dermal contact pathways for soil.

TABLE 1
SELECTION OF EXPOSURE PATHWAYS
Coeur d'Alene River Basin

Scenario Timeframe	Medium	Exposure Medium	Exposure Point	Receptor Population	Receptor Age	Exposure Route	On-Site/ Off-Site	Type of Analysis	Rationale for Selection or Exclusion of Exposure Pathway
Future	Tailing Deposits and Slag Piles (Soil)	Groundwater Surface Soil	Subsurface Soil	Residential	Child/Adult	Ingestion Dermal Inhalation	NA NA NA	Quant. Quant. Qual.	If affected soils below ground surface remain undisturbed, exposures are not likely to occur. However, residents do garden in their yards, potentially digging in the soil. Only the ingestion and dermal pathways will be evaluated quantitatively, since the inhalation pathway is considered negligible.
				Occupational	Adult	Ingestion Dermal Inhalation	NA NA NA	Quant. Qual. Qual.	If affected soils below ground surface remain undisturbed, occupational exposures are likely to be minimal. The occupational exposure pathway is addressed using subsurface and surface soil data for all geographic areas under an intensive soil contact scenario; sediment in the Lower Basin is also used.
		Surface Water (a)	Stream and River Water	Tribal Recreational	Child/Adult	Ingestion Dermal	NA NA	Quant. Qual.	Children/adults may be in direct contact with surface water during intermittent recreational activities. Undisturbed surface water is the main source of drinking water for tribal scenarios.
			Stream and River Sediment	Tribal Recreational	Child/Adult	Ingestion Dermal	NA NA	Quant. Quant.	Children/adults may be in contact with impacted sediments during intermittent recreational activities (swimming and beach play) and tribal activities (fishing, water potato collection, swimming, etc.).
			Fish from Lower Basin and Spokane River (c)	Tribal Recreational	Child/Adult	Ingestion	NA	Quant.	Children and adults may collect fish that are potentially affected by impacted surface water and sediments; therefore, this pathway will be quantitatively evaluated. The Tribe depends on fish from Lake Coeur d'Alene as a main food source.
		Surface Soil (d)	Surface Soil	Residential Tribal Recreational Occupational	Child/Adult	Ingestion Dermal	NA NA	Quant. Quant.	Children and adults may potentially be in direct contact with impacted surface soils during outdoor activities at their homes, neighborhoods, or parks; therefore, the ingestion and dermal pathways will be quantitatively evaluated. Outdoor workers could be affected by contaminated soils in their day-to-day activities.
			House Dust	Residential	Child/Adult	Ingestion Inhalation	NA	Quant. Qual.	Fugitive dust containing significant levels of metals may be deposited inside housing units and accumulate on funiture, draperies, horizontal window blinds, carpet, and any non-vertical surface (e.g. window sills, shelves, etc.).
		Groundwater (e)	Tap Water	Residential	Child/Adult	Ingestion Dermal	NA NA	Quant. Qual.	Groundwater for future scenario is not currently being used as a drinking water source; groundwater identified under the current scenario is being used and will continue to be used.
		Air	Resuspended Particulates from Surface Soils	Residential Tribal Recreational	Child/Adult	Inhalation	NA	Qual.	The inhalation pathway is likely negligible at the site as compared to the ingestion and dermal contact pathways for soil.

NOTES * Pathway will also be evaluated under a future exposure scenario

NA = Not applicable to CdA site; Quant. = quantitative anlaysis in the risk assessment; Qual. = qualitative analysis in the risk assessment; SW = surface water

a) In addition to impacts from surface soil erosion / stormwater runoff / impacted sediment, surface water is also affected by surface seepage of the groundwater.

b) Cattle graze in floodplain on grasses that grow in contaminated sediment. Wild fowl, also found in floodplain, are hunted and eaten by people.

c) In addition to impacts from contaminated surface water, fish are also affected by contaminated sediments.

d) In addition to direct contact with tailing deposits and waste piles, other soils have been impacted by depositions from water- and air- transported materials.

e) In addition to impacts from soil leachate, groundwater is also affected by surface water infiltration.

f) Limited samples have been collected from a variety of terrestrial game animals, e.g., muskrat, beavers, and deer.

TABLE 2.1.1

OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN IN SOIL/SEDIMENT

CSM Unit 1

Scenario Timeframe:	Current
Medium:	Soil/Sediment
Exposure Medium:	Soil/Sediment
Exposure Point:	Soil/Sediment (all depths)

CAS Number	Chemical	Minimum Concentration (1)	Minimum Qualifier	Maximum Concentration (1)	Maximum Qualifier	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening	Background Value (2)	Screening Toxicity Value (3)	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag	Rationale for Contaminant Deletion or Selection (4)
	Inorganics															
7429-90-5	Aluminum	1380		38500		mg/kg	R035	768/768	--	38500	na	7500	na	na	NO	NUT / IFE
7440-36-0	***Antimony***	0.28	J	623		mg/kg	SegBIG04	576/758	0.42 - 9.08	623	5.8	3	na	na	YES	ASL
7440-38-2	***Arsenic***	1.6	J	3610		mg/kg	CC/Tiger	788/800	5.2 - 13.9	3610	22	0.38 c	na	na	YES	ASL
7440-39-3	Barium	16.6	J	2350		mg/kg	R040	768/768	--	2350	1100	520	na	na	NO	IFE
7440-41-7	Beryllium	0.0784	J	1.9		mg/kg	R065	554/768	0.12 - 1.4	1.9	2.1	15	na	na	NO	BSL
7440-43-9	***Cadmium***	0.09		194	J	mg/kg	SegNM04	758/800	0.06 - 2.8	194	2.86	3.7	na	na	YES	ASL
7440-70-2	Calcium	232	J	99200		mg/kg	R035	768/768	--	99200	1	NE	na	na	NO	NUT
7440-47-3	Chromium (5)	0.124	J	198		mg/kg	R065	768/768	--	198	64	210 c	na	na	NO	BSL
7440-48-4	Cobalt	1.2		60.5		mg/kg	R053	767/768	8.5	60.5	20	330	na	na	NO	BSL
7440-50-8	Copper	7.6	J	1710		mg/kg	R065	800/800	--	1710	53	280	na	na	NO	IFE
7439-89-6	***Iron***	3190		147000		mg/kg	R074	768/768	--	147000	65000	2200	na	na	YES	ASL
7439-92-1	***Lead***	17.6		67100		mg/kg	SegCC05	800/800	--	67100	175	400	na	na	YES	ASL
7439-95-4	Magnesium	274	J	9930	J	mg/kg	R080	768/768	--	9930	1.1	NE	na	na	NO	NUT
7439-96-5	***Manganese***	70.8		20200		mg/kg	R086	768/768	--	20200	3600	310	na	na	YES	ASL
7487-94-7	Mercury	0.0474	J	47.3	J	mg/kg	R086	676/800	0.0478 - 0.37	47.3	0.3	2.2	na	na	NO	IFE
7440-02-0	Nickel	1.9		148		mg/kg	R065	751/768	2.7 - 23.9	148	38	150	na	na	NO	BSL
7440-09-7	Potassium	221	J	7170	J	mg/kg	R064	768/768	--	7170	na	NE	na	na	NO	NUT
7782-49-2	Selenium	0.34	J	6.1	J	mg/kg	R085	279/750	0.2 - 2.11	6.1	na	37	na	na	NO	BSL
7440-22-4	Silver	0.226	J	347	J	mg/kg	SegCC02	690/766	0.14 - 3.9	347	1.1	37	na	na	NO	IFE
7440-23-5	Sodium	27.2	J	5690		mg/kg	CC/Tamarack7	754/768	20.7 - 257	5690	na	NE	na	na	NO	NUT
1314-32-5	Thallium (6)	0.24	J	14.4	J	mg/kg	SegUG01	175/768	0.39 - 9.8	14.4	na	0.52	na	na	NO	IFE
7440-62-2	Vanadium	1.7	J	76.7		mg/kg	R053	768/768	--	76.7	154	52	na	na	NO	IFE/BKG
7440-66-6	***Zinc***	32.6		25800		mg/kg	CC/Tamarack7	800/800	--	25800	280	2200	na	na	YES	ASL

NOTES:

Chemicals bolded and italicized exceeded their screening toxicity value.

(1) Minimum/maximum detected concentration.

(2) Background concentrations are the 90th percentile values from "Geochemical-Exploration Studies in the Coeur d'Alene District, Idaho and Montana" (Gott and Cathrall 1980).

(3) Screening toxicity values are 0.1 times the EPA Region 9 Residential Soil PRGs (EPA 1998b) for noncarcinogens. Screening toxicity values for carcinogens, and for lead, are unchanged from the listed soil PRG.

(4) Rationale Codes

Selection Reason:	HIST:	Infrequent Detection but Associated Historically
	FD:	Frequent Detection
	TX:	Toxicity Information Available
	ASL:	Above Screening Levels
Deletion Reason:	IFD:	Infrequent Detection - less than 5 percent
	BKG:	Background Levels
	NTX:	No Toxicity Information
	NUT:	Essential Nutrient
	BSL:	Below Screening Level
	NHIST:	Not Historically Associated with Source
	IFE:	Infrequent Exceedance of STV - less than 10 percent; or Infrequent Exceedance of PRG

(5) STV listed for Total Chromium (1/6 ratio Cr VI/Cr III); a carcinogen.

(6) STV listed for Thallic Oxide (more conservative).

Definitions:

na = not available
-- Compound has a 100% detection frequency
COPC = Chemical of Potential Concern
ARAR/TBC = Applicable or Relevant and Appropriate Requirement/To Be Considered
NE = Not Established
J = Estimated Value
c = Cancer endpoint
N/A = Not Applicable
PRG = Preliminary Remediation Goal
STV = Screening Toxicity Value

TABLE 2.1.2

OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN IN FIRST-RUN TAP WATER

CSM Unit 1

Scenario Timeframe:	Current
Medium:	Groundwater (varies)
Exposure Medium:	Groundwater
Exposure Point:	First-Run Tap Water

CAS Number	Chemical	Minimum (1) Concentration	Minimum Qualifier	Maximum (1) Concentration	Maximum Qualifier	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening	Background (2) Value	Screening (3) Toxicity Value	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag	Rationale for (4) Contaminant Deletion or Selection
	Inorganics															
7429-90-5	Aluminum	23.9		165		ug/L	R050	6/29	22 - 69.5	165	na	3700	50-200	SMCL	NO	BSL/NUT
7440-36-0	Antimony	2.1		7.5		ug/L	R039	3/29	0.049 - 0.82	7.5	na	1.5	6	MCL	NO	HWS / IFE
7440-38-2	***Arsenic***	0.24		7.6		ug/L	R085	10/29	0.2 - 0.79	7.6	na	0.045 c	50	MCL	YES	ASL
7440-39-3	Barium	20.5		71.9		ug/L	R105	10/29	7.2 - 30.5	71.9	na	260	2000	MCL	NO	BSL
7440-41-7	Beryllium	< 0.2	U	< 1	U	ug/L	N/A	0/29	0.2 - 1	< 1	na	7.3	4	MCL	NO	BSL/IFD
7440-43-9	Cadmium	0.1		1.8		ug/L	R042	13/29	0.079 - 1	1.8	na	1.8	5	MCL	NO	BSL/LMCL
7440-70-2	Calcium	4150		46700		ug/L	R105	29/29	--	46700	na	NE	NE	NE	NO	NUT
7440-47-3	Chromium (5)	0.1		0.58		ug/L	R065	13/29	0.058 - 5	0.58	na	18	100	MCL	NO	BSL
7440-48-4	Cobalt	0.12		0.64		ug/L	R037	5/29	0.037 - 5	0.64	na	220	NE	NE	NO	BSL
7440-50-8	Copper	5.7		610		ug/L	R054	29/29	--	610	na	140	1300 / 1000	MCL / SMCL	NO	LMCL/HWS
7439-89-6	Iron	31.4		761		ug/L	R042	8/29	8 - 116	761	na	1100	300	SMCL	NO	BSL/NUT
7439-92-1	***Lead***	0.28		12.4		ug/L	R042	29/29	--	12.4	na	4	15	MCL	YES	ASL
7439-95-4	Magnesium	602		19700		ug/L	R105	29/29	--	19700	na	NE	NE	NE	NO	NUT
7439-96-5	Manganese	1.5		10.7		ug/L	R050	5/29	1.3 - 10.3	10.7	na	170	50	SMCL	NO	BSL
7487-94-7	Mercury	< 0.1	U	< 0.2	U	ug/L	N/A	0/29	0.1 - 0.2	< 0.2	na	1.1	2	MCL	NO	BSL/IFD
7440-02-0	Nickel	6		6		ug/L	R054	1/29	4.4 - 5.7	6	na	73	140	MCL	NO	BSL/IFD
7440-09-7	Potassium	186		3520		ug/L	R105	28/29	115	3520	na	NE	NE	NE	NO	NUT
7782-49-2	Selenium	0.4		0.4		ug/L	R088	1/29	0.34 - 1	0.4	na	18	50	MCL	NO	BSL/IFD
7440-22-4	Silver	< 4.3	U	< 8	U	ug/L	N/A	0/29	4.3 - 8	< 8	na	18	100	SMCL	NO	BSL/IFD
7440-23-5	Sodium	403		22600		ug/L	R085	29/29	--	22600	na	NE	NE	NE	NO	NUT
1314-32-5	Thallium (6)	< 0.03	U	< 0.2	U	ug/L	N/A	0/29	0.03 - 0.2	< 0.2	na	0.26	2	MCL	NO	BSL/IFD
7440-62-2	Vanadium	0.13		0.13		ug/L	R050	1/29	0.053 - 5	0.13	na	26	NE	NE	NO	BSL/IFD
7440-66-6	Zinc	20.6		685		ug/L	R038	29/29	--	685	na	1100	5000	SMCL	NO	BSL

NOTES:

Chemicals bolded and italicized exceeded their screening toxicity value.

(1) Minimum/maximum detected concentration

(2) na - not available

(3) Screening toxicity values are 0.1 times the EPA Region 9 Tap Water PRGs (EPA 1998b) for noncarcinogens (except for lead).
Screening toxicity values for carcinogens are unchanged from the listed Tap Water PRG.

(4) Rationale Codes

Selection Reason:	HIST -	Infrequent Detection but Associated Historically
	FD -	Frequent Detection
	TX -	Toxicity Information Available
	ASL -	Above Screening Levels
Deletion Reason:	IFD -	Infrequent Detection - less than 5 percent
	BKG -	Background Levels
	NTX -	No Toxicity Information
	NUT -	Essential Nutrient
	BSL -	Below Screening Level
	NHIST -	Not Historically Associated with Source
	IFE -	Infrequent Exceedance - less than 10 percent of STV or infrequent exceedance of PRG
	LMCL -	Less Than MCL
	LSMCL -	Less Than Secondary MCL
	HWS -	Home Water Supply is currently being addressed

(5) Tap water STV listed for Chromium VI; no tap water PRG established for Total Chromium

(6) STV listed for Thallic Oxide (more conservative)

Definitions:

< - less than the laboratory method detection limit listed (non-detect)
N/A - Not Applicable
-- Compound has a 100% detection frequency
COPC - Chemical of Potential Concern
ARAR/TBC - Applicable or Relevant and Appropriate Requirement/To Be Considered
MCL - Federal Maximum Contaminant Level
SMCL - Secondary Maximum Contaminant Level
NE - Not Established
U - Compound was analyzed for, but not detected
J - Estimated Value
c - Cancer endpoint
PRG = Preliminary Remediation Goal
STV = Screening Toxicity Value

TABLE 2.1.3

OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN IN FLUSHED TAP WATER

CSM Unit 1

Scenario Timeframe	Current
Medium:	Groundwater (varies)
Exposure Medium:	Groundwater
Exposure Point:	Flushed Tap Water

CAS Number	Chemical	Minimum Concentration (1)	Minimum Qualifier	Maximum Concentration (1)	Maximum Qualifier	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening	Background Value (2)	Screening Toxicity Value (3)	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag	Rationale for Contaminant Deletion or Selection (4)
	Inorganics															
7429-90-5	Aluminum	< 22	U	< 96.1	U	ug/L	N/A	0/29	22 - 96.1	< 96.1	na	3700	50-200	SMCL	NO	NUT/BSL/IFD
7440-36-0	Antimony	1.3		7.9		ug/L	R039	3/29	0.049 - 0.99	7.9	na	1.5	6	MCL	NO	HWS / IFE
7440-38-2	***Arsenic***	0.21		9.2		ug/L	R085	10/29	0.2 - 0.69	9.2	na	0.045 c	50	MCL	YES	ASL
7440-39-3	Barium	20.9		71.2		ug/L	R105	10/29	7.6 - 29.6	71.2	na	260	2000	MCL	NO	BSL
7440-41-7	Beryllium	< 0.2	U	< 1	U	ug/L	N/A	0/29	0.2 - 1	< 1	na	7.3	4	MCL	NO	BSL / IFD
7440-43-9	Cadmium	0.1		0.72		ug/L	R088	5/29	0.079 - 1	0.72	na	1.8	5	MCL	NO	BSL
7440-70-2	Calcium	4150		46400		ug/L	R105	29/29	--	46400	na	NE	NE	NE	NO	NUT
7440-47-3	Chromium (5)	0.1		0.36		ug/L	R086	15/29	0.058 - 5	0.36	na	18	100	MCL	NO	BSL
7440-48-4	Cobalt	< 0.037	U	< 5	U	ug/L	N/A	0/29	0.037 - 5	< 5	na	220	NE	NE	NO	BSL / IFD
7440-50-8	Copper	1.3	J	46.5		ug/L	R054	25/29	0.087 - 5.7	46.5	na	140	1300 / 1000	MCL / SMCL	NO	BSL
7439-89-6	Iron	29.6		128		ug/L	R105	3/29	8 - 86.6	128	na	1100	300	SMCL	NO	BSL / NUT
7439-92-1	***Lead***	0.13		9.5		ug/L	R105	26/29	0.04	9.5	na	4	15	MCL	YES	ASL
7439-95-4	Magnesium	607		19600		ug/L	R105	29/29	--	19600	na	NE	NE	NE	NO	NUT
7439-96-5	Manganese	1.3		22.1		ug/L	R085	3/29	1.3 - 6.9	22.1	na	170	50	SMCL	NO	BSL
7487-94-7	Mercury	< 0.1	U	< 0.2	U	ug/L	N/A	0/29	0.1 - 0.2	< 0.2	na	1.1	2	MCL	NO	BSL / IFD
7440-02-0	Nickel	5.6		5.6		ug/L	R085	1/29	4.4 - 5	5.6	na	73	140	MCL	NO	BSL / IFD
7440-09-7	Potassium	148		3440		ug/L	R105	28/29	115	3440	na	NE	NE	NE	NO	NUT
7782-49-2	Selenium	0.33		2.6		ug/L	R086	2/29	0.36 - 1	2.6	na	18	50	MCL	NO	BSL
7440-22-4	Silver	< 4.3	U	< 6.1	U	ug/L	N/A	0/29	4.3 - 6.1	< 6.1	na	18	100	SMCL	NO	BSL / IFD
7440-23-5	Sodium	456		22100		ug/L	R085	29/29	--	22100	na	NE	NE	NE	NO	NUT
1314-32-5	Thallium (6)	0.3		2.3		ug/L	R074	4/29	0.03 - 0.13	2.3	na	0.26	2	MCL	NO	HWS / IFE
7440-62-2	Vanadium	< 0.053	U	< 5	U	ug/L	N/A	0/29	0.053 - 5	< 5	na	26	NE	NE	NO	BSL / IFD
7440-66-6	Zinc	5.4		214		ug/L	R088	28/29	8.2	214	na	1100	5000	SMCL	NO	BSL

NOTES:

Chemicals bolded and italicized exceeded their screening toxicity value.

(1) Minimum/maximum detected concentration

(2) na - not available

(3) Screening toxicity values are 0.1 times the EPA Region 9 Tap Water PRGs (EPA 1998b) for noncarcinogens (except for lead).
Screening toxicity values for carcinogens are unchanged from the listed Tap Water PRG.

(4) Rationale Codes

Selection Reason:	HIST -	Infrequent Detection but Associated Historically
	FD -	Frequent Detection
	TX -	Toxicity Information Available
	ASL -	Above Screening Levels
Deletion Reason:	IFD -	Infrequent Detection - less than 5 percent
	BKG -	Background Levels
	NTX -	No Toxicity Information
	NUT -	Essential Nutrient
	BSL -	Below Screening Level
	NHIST -	Not Historically Associated with Source
	IFE -	Infrequent Exceedance - less than 10 percent of STV or infrequent exceedance of PRG
	LMCL -	Less Than MCL
	LSMCL -	Less Than Secondary MCL
	HWS -	Home Water Supply is currently being addressed

(5) Tap water STV listed for Chromium VI, no PRG established for Total Chromium.

(6) STV listed for Thallic Oxide (more conservative).

Definitions:

< - less than the laboratory method detection limit listed (non-detect)
N/A - Not Applicable
-- Compound has a 100% detection frequency
COPC - Chemical of Potential Concern
ARAR/TBC - Applicable or Relevant and Appropriate Requirement/To Be Considered
MCL - Federal Maximum Contaminant Level
SMCL - Secondary Maximum Contaminant Level
NE - Not Established
U - Compound was analyzed for, but not detected
J - Estimated Value
c - Cancer endpoint
PRG = Preliminary Remediation Goal
STV = Screening Toxicity Value

TABLE 2.1.4

OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN IN SURFACE WATER

CSM Unit 1

Scenario Timeframe:	Current
Medium:	Soil/Groundwater
Exposure Medium:	Surface Water
Exposure Point:	Rivers & Streams (2)

CAS Number	Chemical	Minimum (1) Conc.	Minimum Qualifier	Maximum (1) Conc.	Maximum Qualifier	Units	Location of Maximum Conc.	Detection Frequency	Range of Detection Limits	Concentration Used for Screening	Background (3) Value	Screening (4) Toxicity Value	Potential ARAR/TBC Value (5)	Potential ARAR/TBC Source	COPC Flag	Rationale for (6) Contaminant Deletion or Selection
	Inorganics															
7429-90-5	Aluminum	3.7		7580	J	ug/L	SegNM02	49/176	11.8 - 160	7580	na	NE	50 - 200	SMCL	NO	NUT
7440-36-0	Antimony	0.2		19		ug/L	SegUG01	72/176	0.032 - 2	19	0.51	NE	6 / 4300	MCL/AWQC	NO	LAWQC / IFE
7440-38-2	***Arsenic***	0.1		10.9		ug/L	SegNM02	59/176	0.16 - 2	10.9	0.65	NE	50 / 0.14	MCL/AWQC	YES	AAWQC
7440-39-3	Barium	1.3		370		ug/L	SegUG01	168/176	3 - 30.3	370	na	NE	2000	MCL	NO	LMCL
7440-41-7	Beryllium	0.39	J	2.4		ug/L	SegNM02	3/176	0.1 - 1	2.4	na	NE	4	MCL	NO	LMCL / IFD
7440-43-9	***Cadmium***	0.16	J	1810	J	ug/L	SegNM02	105/176	0.041 - 0.29	1810	0.09	NE	5	MCL	YES	AMCL
7440-70-2	Calcium	551	J	111000		ug/L	SegUG01	175/176	6650	111000	na	NE	na	na	NO	NUT
7440-47-3	Chromium	5		8.9	J	ug/L	SegNM02	7/176	0.4 - 6	8.9	na	NE	100	MCL	NO	LMCL / IFD
7440-48-4	Cobalt	0.023	J	178		ug/L	SegNM02	11/176	0.023 - 10	178	na	NE	na	na	NO	IFD
7440-50-8	Copper	0.16	J	340		ug/L	SegNM02	83/176	0.06 - 3	340	1.21	NE	1300	MCL	NO	LMCL
7439-89-6	Iron	6.7	J	16600		ug/L	SegNM02	107/176	5 - 106	16600	113	NE	300	SMCL	NO	NUT / IFE
7439-92-1	***Lead***	0.097	J	1650		ug/L	SegNM02	159/176	0.026 - 0.5	1650	1.46	NE	15	MCL	YES	AMCL
7439-95-4	Magnesium	125	J	72200		ug/L	SegUG01	176/176	--	72200	na	NE	na	na	NO	NUT
7439-96-5	***Manganese***	0.4		26800		ug/L	SegNM02	128/176	1 - 23.5	26800	8.28	NE	50 / 100	SMCL/AWQC	YES	ASMCL/AAWQC
7487-94-7	Mercury	0.13	J	0.32		ug/L	SegUG01	6/176	0.1 - 0.35	0.32	0.09	NE	2 / 0.051 (7)	MCL/AWQC	NO	LMCL / IFD
7440-02-0	Nickel	0.26	J	306		ug/L	SegNM02	17/176	0.22 - 20	306	na	NE	140 / 4600	MCL/AWQC	NO	LAWQC / IFE
7440-09-7	Potassium	193	J	8020		ug/L	SegNM02	112/176	200 - 2000	8020	na	NE	na	na	NO	NUT
7782-49-2	Selenium	0.22	J	13.5		ug/L	SegNM02	14/176	0.21 - 2	13.5	na	NE	50 / 11000	MCL / AWQC	NO	LMCL / LAWQC
7440-22-4	Silver	0.61		7.7		ug/L	SegUG01	5/176	0 - 0.35	7.7	0.12	NE	100	SMCL	NO	LSMCL / IFD
7440-23-5	Sodium	392	J	16200		ug/L	SegBIG04	176/176	--	16200	na	NE	na	na	NO	NUT
7440-28-0	Thallium	0.27	J	0.92	J	ug/L	SegUG01	3/176	0.005 - 0.47	0.92	na	NE	2 / 6.3	MCL/AWQC	NO	LMCL/LAWQC/IFD
7440-62-2	Vanadium	0.14		2.5		ug/L	SegUG01	9/174	0.1 - 10	2.5	na	NE	na	na	NO	IFD
7440-66-6	Zinc	0.94	J	540000		ug/L	SegNM02	121/176	5 - 31.8	540000	20.71	NE	5000 / 69000	SMCL/AWQC	NO	IFE

NOTES:

Chemicals bolded and italicized exceeded their screening toxicity value.

(1) Minimum/maximum detected concentration.

(2) Data from the Upper South Fork of the CdA River, Canyon Creek, Ninemile Creek, Big Creek, Moon Creek, Beaver Creek, and Pine Creek.

(3) Background values as calculated by URS, March 2000.

(4) Screening toxicity values not established (NE).

(5) Potential ARARs are the Ambient Water Quality Criteria, human health for consumption of organisms only. EPA 1998c (Vol.63, No.237)

(6) Rationale Codes

Selection Reason:

HIST:	Infrequent Detection but Associated Historically
FD:	Frequent Detection
TX:	Toxicity Information Available
ASL:	Above Screening Levels
AMCL:	Above MCL
ASMCL:	Above Secondary MCL
AAWQC:	Above Ambient Water Quality Criteria

Deletion Reason:

IFD:	Infrequent Detection - less than 10 percent
BKG:	Background Levels
NTX:	No Toxicity Information
NUT:	Essential Nutrient
BSL:	Below Screening Level
NHIST:	Not Historically Associated with Source
IFE:	Infrequent Exceedance - less than 10 percent of MCL/SMCL or infrequent exceedance of AWQC
LMCL:	Less Than MCL
LSMCL:	Less Than Secondary MCL
LAWQC:	Less Than Ambient Water Quality Criteria

Definitions:

< = less than the laboratory method detection limit listed (non-detect)
N/A = Not Applicable
-- Compound has a 100% detection frequency
COPC = Chemical of Potential Concern
ARAR/TBC = Applicable or Relevant and Appropriate Requirement/To Be Considered
AWQC = Ambient Water Quality Criteria Human Health Consumption of 'Organism Only'
J = Estimated Value
U - Compound was analyzed for, but not detected
c = Cancer endpoint
na = not available
MCL - Federal Maximum Contaminant Level
SMCL - Secondary Maximum Contaminant Level
STV = Screening Toxicity Value

(7) AWQC listed for elemental mercury

TABLE 2.1.5

OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN IN GROUNDWATER

CSM Unit 1

Scenario Timeframe:	Future
Medium:	Groundwater *
Exposure Medium:	Groundwater
Exposure Point:	Tap Water

CAS Number	Chemical	Minimum (1) Concentration	Minimum Qualifier	Maximum (1) Concentration	Maximum Qualifier	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening	Background (2) Value	Screening (3) Toxicity Value	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag	Rationale for (4) Contaminant Deletion or Selection
	Inorganics															
7429-90-5	Aluminum	64.2		7680		ug/L	Tamarack # 7	23/84	50 - 68	7680	na	3700	50-200	SMCL	NO	NUT/IFE
7440-36-0	***Antimony***	0.81		18		ug/L	Tiger-Poorman	32/84	0.049 - 1.5	18	na	1.5	6	MCL	YES	ASL/AMCL
7440-38-2	***Arsenic***	0.21		16.1		ug/L	Star Tailings	20/84	0.2 - 1	16.1	na	0.045 c	50	MCL	YES	ASL
7440-39-3	Barium	8.5		435		ug/L	Tamarack # 7	79/84	8.5 - 14.9	435	na	260	2000	MCL	NO	LMCL/IFE
7440-41-7	Beryllium	0.3		1.5		ug/L	Tamarack # 7	5/84	0.28 - 1	1.5	na	7.3	4	MCL	NO	BSL/LMCL
7440-43-9	***Cadmium***	0.1	J	996	J	ug/L	Nine Mile	71/84	0.079 - 1	996	na	1.8	5	MCL	YES	ASL/AMCL
7440-70-2	Calcium	3660		229000		ug/L	Rex # 2	84/84	--	229000	na	NE	NE	NE	NO	NUT
7440-47-3	Chromium (5)	0.098		8		ug/L	Tamarack # 7	23/84	0.058 - 5	8	na	18	100	MCL	NO	BSL/LMCL
7440-48-4	Cobalt	0.12		33.9		ug/L	Nine Mile	28/84	0.037 - 5	33.9	na	220	NE	NE	NO	BSL
7440-50-8	Copper	0.46		573		ug/L	Nine Mile	38/84	0.087 - 5	573	na	140	1300 / 1000	MCL / SMCL	NO	LMCL/IFE
7439-89-6	Iron	7.1		5110		ug/L	Tamarack # 7	31/84	6.9 - 50	5110	na	1100	300	SMCL	NO	NUT/IFE
7439-92-1	***Lead***	0.44		3170		ug/L	Nine Mile	71/84	0.18 - 1	3170	na	4	15	MCL	YES	ASL/AMCL
7439-95-4	Magnesium	900		17600		ug/L	Hecla-Star	84/84	--	17600	na	NE	NE	NE	NO	NUT
7439-96-5	Manganese	1.8		8030		ug/L	Hecla-Star	51/84	1.5 - 5	8030	na	170	50	SMCL	NO	IFE
7487-94-7	Mercury	0.33		0.33		ug/L	Tiger-Poorman	1/84	0.2	0.33	na	1.1	2	MCL	NO	BSL/LMCL/IFD
7440-02-0	Nickel	5.8		19.4		ug/L	Rex # 2	21/84	5 - 5.7	19.4	na	73	140	MCL	NO	BSL/LMCL
7440-09-7	Potassium	451		36500		ug/L	Rex # 2	73/84	491 - 786	36500	na	NE	NE	NE	NO	NUT
7782-49-2	Selenium	0.3		5.8		ug/L	Nine Mile	21/84	0.36 - 1	5.8	na	18	50	MCL	NO	BSL/LMCL
7440-22-4	Silver	4.6		4.6		ug/L	Hecla-Star	1/84	4.5 - 5	4.6	na	18	100	SMCL	NO	BSL/LSMCL/IFD
7440-23-5	Sodium	872	J	18200		ug/L	Canyon Silver	84/84	--	18200	na	NE	NE	NE	NO	NUT
1314-32-5	Thallium (6)	0.11		0.28		ug/L	Tiger-Poorman	11/84	0.03 - 1	0.28	na	0.26	2	MCL	NO	LMCL/IFE
7440-62-2	Vanadium	3.3		4.2		ug/L	Tamarack # 7	2/84	3.2 - 5	4.2	na	26	NE	NE	NO	BSL/IFD
7440-66-6	***Zinc***	2.8		145000		ug/L	Nine Mile	83/84	5	145000	na	1100	5000	SMCL	YES	ASL

NOTES: * Groundwater collected at depths between 2 to 127 feet below ground surface.

Chemicals bolded and italicized exceeded their screening toxicity value.

(1) Minimum/maximum detected concentration

(2) na - not available

(3) Screening toxicity values are 0.1 times the EPA Region 9 Tap Water PRGs (EPA 1998b) for noncarcinogens (except for lead).
Screening toxicity values for carcinogens are unchanged from the listed Tap Water PRG.

(4) Rationale Codes

Selection Reason:

HIST -	Infrequent Detection but Associated Historically
FD -	Frequent Detection
TX -	Toxicity Information Available
ASL -	Above Screening Levels
AMCL:	Above MCL
ASMCL:	Above Secondary MCL

Deletion Reason:

IFD -	Infrequent Detection - less than 10 percent
BKG -	Background Levels
NTX -	No Toxicity Information
NUT -	Essential Nutrient
BSL -	Below Screening Level
NHIST -	Not Historically Associated with Source
IFE -	Infrequent Exceedance - less than 10 percent of STV or infrequent exceedance of PRG
LMCL -	Less Than MCL
LSMCL -	Less Than Secondary MCL

(5) Tap water STV listed for Chromium VI, no PRG established for Total Chromium

(6) STV listed for Thallic Oxide (more conservative)

Definitions:

< - less than the laboratory method detection limit listed (non-detect)
N/A - Not Applicable
-- Compound has a 100% detection frequency
COPC - Chemical of Potential Concern
ARAR/TBC - Applicable or Relevant and Appropriate Requirement/To Be Considered
MCL - Federal Maximum Contaminant Level
SMCL - Secondary Maximum Contaminant Level
NE - Not Established
U - Compound was analyzed for, but not detected
J - Estimated Value
c - Cancer endpoint
PRG = Preliminary Remediation Goal
STV = Screening Toxicity Value

TABLE 2.2.1

OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN IN SOIL/SEDIMENT

CSM Unit 2

Scenario Timeframe:	Current
Medium:	Soil/Sediment
Exposure Medium:	Soil/Sediment
Exposure Point:	Soil/Sediment (all depths)

CAS Number	Chemical	Minimum (1) Concentration	Minimum Qualifier	Maximum (1) Concentration	Maximum Qualifier	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening	Background (2) Value	Screening (3) Toxicity Value	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag	Rationale for (4) Contaminant Deletion or Selection
	Inorganics															
7429-90-5	Aluminum	1190	J	52000		mg/kg	CUA095	2777/2777	--	52000	na	7500	na	na	NO	NUT / IFE
7440-36-0	***Antimony***	0.21	J	299	J	mg/kg	R036	1978/2809	0.2 - 8.52	299	5.8	3	na	na	YES	ASL
7440-38-2	***Arsenic***	0.47	J	1060		mg/kg	CUA091	2929/2939	0.18 - 15.2	1060	22	0.38 c	na	na	YES	ASL
7440-39-3	Barium	23.3		4300		mg/kg	CUA100	2777/2777	--	4300	1100	520	na	na	NO	IFE
7440-41-7	Beryllium	0.1		5.1		mg/kg	R019	2274/2777	0.158 - 1.4	5.1	2.1	15	na	na	NO	BSL
7440-43-9	***Cadmium***	0.06		115		mg/kg	R120	2738/2939	0.06 - 3.6	115	2.86	3.7	na	na	YES	ASL
7440-70-2	Calcium	377		85200	J	mg/kg	R111	2777/2777	--	85200	1	NE	na	na	NO	NUT
7440-47-3	Chromium (5)	1.99	J	187		mg/kg	R104	2777/2777	--	187	64	210 c	na	na	NO	BSL
7440-48-4	Cobalt	2		69.1		mg/kg	CUA099	2777/2777	--	69.1	20	330	na	na	NO	BSL
7440-50-8	Copper	5.1		1390		mg/kg	R019	2939/2939	--	1390	53	280	na	na	NO	IFE
7439-89-6	***Iron***	4780		174000		mg/kg	CUA077	2777/2777	--	174000	65000	2200	na	na	YES	ASL
7439-92-1	***Lead***	9.9		56900		mg/kg	CUA096	2939/2939	--	56900	175	400	na	na	YES	ASL
7439-95-4	Magnesium	513	J	29700		mg/kg	R019	2777/2777	--	29700	1.1	NE	na	na	NO	NUT
7439-96-5	***Manganese***	45.6		18200		mg/kg	CUA096	2777/2777	--	18200	3600	310	na	na	YES	ASL
7487-94-7	Mercury	0.05		31.1		mg/kg	CUA096	2476/2939	0.05 - 0.5	31.1	0.3	2.2	na	na	NO	IFE
7440-02-0	Nickel	3.1		102		mg/kg	R061	2776/2777	9	102	38	150	na	na	NO	BSL
7440-09-7	Potassium	271		9870		mg/kg	R073	2776/2777	1110	9870	na	NE	na	na	NO	NUT
7782-49-2	Selenium	0.38	J	11.4		mg/kg	CUA077	837/2726	0.37 - 2.5	11.4	na	37	na	na	NO	BSL
7440-22-4	Silver	0.27		228		mg/kg	R120	2451/2777	0.38 - 3	228	1.1	37	na	na	NO	IFE
7440-23-5	Sodium	10.8	J	1930		mg/kg	CUA102	2682/2777	20.9 - 489	1930	na	NE	na	na	NO	NUT
1314-32-5	Thallium (6)	0.39	J	9.2		mg/kg	R019	384/2749	0.38 - 6.2	9.2	na	0.52	na	na	NO	IFE / NHIST
7440-62-2	Vanadium	1.7		91.4		mg/kg	R027	2774/2777	17.2 - 19.3	91.4	154	52	na	na	NO	BKG/IFE
7440-66-6	***Zinc***	19.8		24300		mg/kg	R016	2939/2939	--	24300	280	2200	na	na	YES	ASL / HIST

NOTES:

Chemicals bolded and italicized exceeded their screening toxicity value.

(1) Minimum/maximum detected concentration.

(2) Background concentrations are the 90th percentile values from "Geochemical-Exploration Studies in the Coeur d'Alene District, Idaho and Montana" (Gott and Cathrall 1980).

(3) Screening toxicity values are 0.1 times the EPA Region 9 Residential Soil PRGs (EPA 1998b) for noncarcinogens. Screening toxicity values for carcinogens, and for lead, are unchanged from the listed soil PRG.

(4) Rationale Codes

Selection Reason:	HIST:	Infrequent Detection but Associated Historically
	FD:	Frequent Detection
	TX:	Toxicity Information Available
	ASL:	Above Screening Levels
Deletion Reason:	IFD:	Infrequent Detection - less than 10 percent
	BKG:	Background Levels
	NTX:	No Toxicity Information
	NUT:	Essential Nutrient
	BSL:	Below Screening Level
	NHIST:	Not Historically Associated with Source
	IFE:	Infrequent Exceedance of STV - less than 10 percent; or Infrequent Exceedance of PRG

(5) STV listed for Total Chromium (1/6 ratio Cr VI/Cr III); a carcinogen.

(6) STV listed for Thallic Oxide (more conservative)

Definitions:

na = not available
-- Compound has a 100% detection frequency
COPC = Chemical of Potential Concern
ARAR/TBC = Applicable or Relevant and Appropriate Requirement/To Be Considered
NE = Not Established
J = Estimated Value
c = Cancer endpoint
N/A = Not Applicable
PRG = Preliminary Remediation Goal
STV = Screening Toxicity Value

TABLE 2.2.2

OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN IN FIRST-RUN TAP WATER

CSM Unit 2

Scenario Timeframe:	Current
Medium:	Groundwater (varies)
Exposure Medium:	Groundwater
Exposure Point:	First-Run Tap Water

CAS Number	Chemical	Minimum (1) Concentration	Minimum Qualifier	Maximum (1) Concentration	Maximum Qualifier	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening	Background (2) Value	Screening (3) Toxicity Value	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag	Rationale for (4) Contaminant Deletion or Selection
	Inorganics															
7429-90-5	Aluminum	43.5		261		ug/L	R076	4/67	22 - 64.2	261	na	3700	50-200	SMCL	NO	NUT/BSL
7440-36-0	Antimony	0.4		3		ug/L	R032	10/67	0.049 - 1	3	na	1.5	6	MCL	NO	LMCL/HWS/IFE
7440-38-2	***Arsenic***	0.2	J	2.3		ug/L	R072	32/67	0.2 - 1.7	2.3	na	0.045 c	50	MCL	YES	ASL / HWS
7440-39-3	Barium	14.3		72		ug/L	R084	44/67	5.3 - 33.9	72	na	260	2000	MCL	NO	BSL
7440-41-7	Beryllium	0.3		0.3		ug/L	R029	1/67	0.2 - 1	0.3	na	7.3	4	MCL	NO	BSL/IFD
7440-43-9	Cadmium	0.13		33.6		ug/L	R143	29/67	0.079 - 1	33.6	na	1.8	5	MCL	NO	HWS
7440-70-2	Calcium	3840		28500		ug/L	R072	67/67	--	28500	na	NE	NE	NE	NO	NUT
7440-47-3	Chromium (5)	0.096		1.6		ug/L	R090	28/67	0.058 - 5	1.6	na	18	100	MCL	NO	BSL
7440-48-4	Cobalt	0.14		4.1		ug/L	R076	6/67	0.037 - 5	4.1	na	220	NE	NE	NO	BSL
7440-50-8	Copper	3.4	J	2620		ug/L	R145	65/67	0.087 - 0.34	2620	na	140	1300 / 1000	MCL / SMCL	NO	HWS
7439-89-6	Iron	9		6340		ug/L	R029	28/67	8 - 128	6340	na	1100	300	SMCL	NO	NUT/HWS
7439-92-1	***Lead***	0.16		78.5		ug/L	R143	66/67	0.5	78.5	na	4	15	MCL	YES	ASL / HWS
7439-95-4	Magnesium	1140		21100		ug/L	R066/R072	67/67	--	21100	na	NE	NE	NE	NO	NUT
7439-96-5	Manganese	8.8		167		ug/L	R057	12/67	1.3 - 14.3	167	na	170	50	SMCL	NO	BSL
7487-94-7	Mercury	0.12		0.24		ug/L	R076	2/67	0.1 - 0.21	0.24	na	1.1	2	MCL	NO	BSL/IFD
7440-02-0	Nickel	4.9		484		ug/L	R060	9/67	4.4 - 8.7	484	na	73	140	MCL	NO	HWS/IFE
7440-09-7	Potassium	213		1870		ug/L	R143	66/67	115	1870	na	NE	NE	NE	NO	NUT
7782-49-2	Selenium	0.32		0.43		ug/L	R032	5/67	0.34 - 1	0.43	na	18	50	MCL	NO	BSL
7440-22-4	Silver	< 4.3	U	< 7.6	U	ug/L	N/A	0/67	4.3 - 7.6	< 7.6	na	18	100	SMCL	NO	BSL/IFD
7440-23-5	Sodium	786		22800		ug/L	R066	67/67	--	22800	na	NE	NE	NE	NO	NUT
1314-32-5	Thallium (6)	0.1		3.9		ug/L	R024	5/67	0.03 - 0.2	3.9	na	0.26	2	MCL	NO	HWS/IFE
7440-62-2	Vanadium	2.6		2.7		ug/L	R047	2/67	0.053 - 5	2.7	na	26	NE	NE	NO	BSL/IFD
7440-66-6	Zinc	13.2		6630		ug/L	R143	67/67	--	6630	na	1100	5000	SMCL	NO	HWS/IFE

NOTES:

Chemicals bolded and italicized exceeded their screening toxicity value.

(1) Minimum/maximum detected concentration

(2) na - not available

(3) Screening toxicity values are 0.1 times the EPA Region 9 Tap Water PRGs (EPA 1998b) for noncarcinogens (except for lead).
Screening toxicity values for carcinogens are unchanged from the listed Tap Water PRG.

(4) Rationale Codes

Selection Reason:	HIST -	Infrequent Detection but Associated Historically
	FD -	Frequent Detection
	TX -	Toxicity Information Available
	ASL -	Above Screening Levels
Deletion Reason:	IFD -	Infrequent Detection - less than 5 percent
	BKG -	Background Levels
	NTX -	No Toxicity Information
	NUT -	Essential Nutrient
	BSL -	Below Screening Level
	NHIST -	Not Historically Associated with Source
	IFE -	Infrequent Exceedance - less than 10 percent of STV or infrequent exceedance of PRG
	LMCL -	Less Than MCL
	LSMCL -	Less than secondary MCL
	HWS -	Home Water Supply is currently being addressed

(5) Tap water STV listed for Chromium VI, no PRG established for Total Chromium.

(6) STV listed for Thallic Oxide (more conservative).

Definitions:

< - less than the laboratory method detection limit listed (non-detect)
N/A - Not Applicable
-- Compound has a 100% detection frequency
COPC - Chemical of Potential Concern
ARAR/TBC - Applicable or Relevant and Appropriate Requirement/To Be Considered
MCL - Federal Maximum Contaminant Level
SMCL - Secondary Maximum Contaminant Level
NE - Not Established
U - Compound was analyzed for, but not detected
J - Estimated Value
c - Cancer endpoint
PRG = Preliminary Remediation Goal
STV = Screening Toxicity Value

TABLE 2.2.3

OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN IN FLUSHED TAP WATER

CSM Unit 2

Scenario Timeframe:	Current
Medium:	Groundwater (varies)
Exposure Medium:	Groundwater
Exposure Point:	Flushed Tap Water

CAS Number	Chemical	Minimum (1) Concentration	Minimum Qualifier	Maximum (1) Concentration	Maximum Qualifier	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening	Background (2) Value	Screening (3) Toxicity Value	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag	Rationale for (4) Contaminant Deletion or Selection
	Inorganics															
7429-90-5	Aluminum	28.7		164		ug/L	R072	3/67	22 - 67.8	164	na	3700	50-200	SMCL	NO	NUT/BSL/IFD
7440-36-0	Antimony	0.84		2.9		ug/L	R048	8/67	0.049 - 1.2	2.9	na	1.5	6	MCL	NO	HWS/LMCL/IFE
7440-38-2	***Arsenic***	0.2		3.2		ug/L	R066	34/67	0.2 - 0.7	3.2	na	0.045 c	50	MCL	NO	ASL/ HWS /LMCL
7440-39-3	Barium	15.7		66		ug/L	R060	39/67	7.6 - 33.7	66	na	260	2000	MCL	NO	BSL / LMCL
7440-41-7	Beryllium	< 0.2	U	< 1	U	ug/L	N/A	0/67	0.2 - 1	< 1	na	7.3	4	MCL	NO	BSL / IFD
7440-43-9	Cadmium	0.11		29		ug/L	R143	14/67	0.079 - 1	29	na	1.8	5	MCL	NO	ASL / HWS
7440-70-2	Calcium	3410		28400		ug/L	R072	67/67	--	28400	na	NE	NE	NE	NO	NUT
7440-47-3	Chromium (5)	0.096		0.88		ug/L	R084	31/67	0.058 - 5	0.88	na	18	100	MCL	NO	BSL / LMCL
7440-48-4	Cobalt	0.1		0.87		ug/L	R057	2/67	0.037 - 5	0.87	na	220	NE	NE	NO	BSL / IFD
7440-50-8	Copper	0.41	J	184	J	ug/L	R048	53/67	0.087 - 5.6	184	na	140	1300 / 1000	MCL / SMCL	NO	HWS/LMCL/IFE
7439-89-6	Iron	8.5		2170		ug/L	R057	13/67	8 - 102	2170	na	1100	300	SMCL	NO	NUT/IFE/HWS
7439-92-1	Lead	0.1	J	3.4		ug/L	R048	54/67	0.04 - 0.5	3.4	na	4	15	MCL	NO	BSL / LMCL
7439-95-4	Magnesium	1050		21100		ug/L	R072	67/67	--	21100	na	NE	NE	NE	NO	NUT
7439-96-5	Manganese	6.9		182		ug/L	R057	6/67	1.3 - 12.7	182	na	170	50	SMCL	NO	HWS / IFE
7487-94-7	Mercury	0.41		0.41		ug/L	R078	1/67	0.1 - 0.2	0.41	na	1.1	2	MCL	NO	BSL/IFD/LMCL
7440-02-0	Nickel	5.2		5.2		ug/L	R016	1/67	4.4 - 8.5	5.2	na	73	140	MCL	NO	BSL/IFD/LMCL
7440-09-7	Potassium	155		1810		ug/L	R143	67/67	--	1810	na	NE	NE	NE	NO	NUT
7782-49-2	Selenium	0.31		1.8		ug/L	R043	10/67	0.36 - 1	1.8	na	18	50	MCL	NO	BSL/LMCL
7440-22-4	Silver	< 4.3	U	< 6.8		ug/L	N/A	0/67	4.3 - 6.8	< 6.8	na	18	100	SMCL	NO	BSL/IFD/LMCL
7440-23-5	Sodium	768		22200		ug/L	R066	67/67	--	22200	na	NE	NE	NE	NO	NUT
1314-32-5	Thallium (6)	0.1		0.16		ug/L	R069	2/67	0.03 - 0.38	0.16	na	0.26	2	MCL	NO	BSL/IFD/LMCL
7440-62-2	Vanadium	3.1		3.1		ug/L	R024	1/67	0.053 - 5	3.1	na	26	NE	NE	NO	BSL/IFD
7440-66-6	Zinc	4.3		5530		ug/L	R143	63/67	5 - 5.9	5530	na	1100	5000	SMCL	NO	HWS/IFE

NOTES:

Chemicals bolded and italicized exceeded their screening toxicity value.

(1) Minimum/maximum detected concentration

(2) na - not available

(3) Screening toxicity values are 0.1 times the EPA Region 9 Tap Water PRGs (EPA 1998b) for noncarcinogens (except for lead).
Screening toxicity values for carcinogens are unchanged from the listed Tap Water PRG.

(4) Rationale Codes

Selection Reason:	HIST -	Infrequent Detection but Associated Historically
	FD -	Frequent Detection
	TX -	Toxicity Information Available
	ASL -	Above Screening Levels
Deletion Reason:	IFD -	Infrequent Detection - less than 5 percent
	BKG -	Background Levels
	NTX -	No Toxicity Information
	NUT -	Essential Nutrient
	BSL -	Below Screening Level
	NHIST -	Not Historically Associated with Source
	IFE -	Infrequent Exceedance - less than 10 percent of STV or infrequent exceedance of PRG
	LMCL -	Less Than MCL
	LSMCL -	Less than secondary MCL
	HWS -	Home Water Supply is currently being addressed

(5) Tap water STV listed for Chromium VI, no PRG established for Total Chromium.

(6) STV listed for Thallic Oxide (more conservative).

Definitions:

< - less than the laboratory method detection limit listed (non-detect)
N/A - Not Applicable
-- Compound has a 100% detection frequency
COPC - Chemical of Potential Concern
ARAR/TBC - Applicable or Relevant and Appropriate Requirement/To Be Considered
MCL - Federal Maximum Contaminant Level
SMCL - Secondary Maximum Contaminant Level
NE - Not Established
U - Compound was analyzed for, but not detected
J - Estimated Value
c - Cancer endpoint
PRG = Preliminary Remediation Goal
STV = Screening Toxicity Value

TABLE 2.2.4

OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN IN SURFACE WATER

CSM Unit 2

Scenario Timeframe:	Current
Medium:	Soil/Groundwater
Exposure Medium:	Surface Water
Exposure Point:	South Fork of the CdA River and Elk Creek Pond

CAS Number	Chemical	Minimum (1) Conc.	Minimum Qualifier	Maximum (1) Conc.	Maximum Qualifier	Units	Location of Maximum Conc.	Detection Frequency	Range of Detection Limits	Concentration Used for Screening	Background Value (3)	Screening (4) Toxicity Value	Potential ARAR/TBC Value (5)	Potential ARAR/TBC Source	COPC Flag	Rationale for (6) Contaminant Deletion or Selection
	Inorganics															
7429-90-5	Aluminum	8.5	J	18900		ug/L	CUA081	27/74	0.69 - 56.6	18900	na	NE	50 - 200	SMCL	NO	NUT
7440-36-0	Antimony	0.2		36.7		ug/L	CUA077	48/74	0.032 - 7.2	36.7	0.51	NE	6 / 4300	MCL/AWQC	NO	LAWQC
7440-38-2	***Arsenic***	0.2		134	J	ug/L	CUA077	42/74	0.16 - 2	134	0.65	NE	50 / 0.14	MCL/AWQC	YES	AAWQC
7440-39-3	Barium	8.3		343		ug/L	CUA077	72/74	22.9 - 27.7	343	na	NE	2000	MCL	NO	LMCL
7440-41-7	Beryllium	< 0.11	U	< 1.3	U	ug/L	N/A	0/74	0.11 - 1.3	< 1.3	na	NE	4	MCL	NO	IFD/LMCL
7440-43-9	***Cadmium***	0.1	J	83.8		ug/L	CUA077	44/74	0.042 - 0.2	83.8	0.09	NE	5	MCL	YES	AMCL
7440-70-2	Calcium	4040		64300		ug/L	CUA081	74/74	--	64300	na	NE	na	na	NO	NUT
7440-47-3	Chromium	2.4		16.8		ug/L	CUA081	9/74	0.4 - 6	16.8	na	NE	100	MCL	NO	LMCL
7440-48-4	Cobalt	0.042		23.9		ug/L	CUA077	13/74	0.023 - 10	23.9	na	NE	na	na	NO	NTX
7440-50-8	Copper	0.2	J	236		ug/L	CUA077	50/74	0.06 - 3	236	1.21	NE	1300	MCL	NO	LMCL
7439-89-6	Iron	5.8	J	81100		ug/L	CUA077	56/74	5 - 76.8	81100	113	NE	300	SMCL	NO	NUT
7439-92-1	***Lead***	0.16	J	12500	J	ug/L	CUA077	71/74	0.27 - 0.5	12500	1.46	NE	15	MCL	YES	AMCL
7439-95-4	Magnesium	1410		19500		ug/L	CUA081	74/74	--	19500	na	NE	na	na	NO	NUT
7439-96-5	***Manganese***	0.83	J	9470		ug/L	CUA077	59/74	1 - 5	9470	8.28	NE	50 / 100	SMCL/AWQC	YES	AAWQC / ASMCL
7487-94-7	***Mercury***	0.18		4.6		ug/L	CUA077	8/74	0.1 - 0.5	4.6	0.09	NE	2 / 0.051 (7)	MCL/AWQC	YES	AMCL / AAWQC
7440-02-0	Nickel	0.3	J	34.3		ug/L	CUA081	6/74	0.22 - 20	34.3	na	NE	140 / 4600	MCL/AWQC	NO	LMCL / LAWQC
7440-09-7	Potassium	286	J	7040		ug/L	CUA081	52/74	200 - 2000	7040	na	NE	na	na	NO	NUT
7782-49-2	Selenium	0.29	J	2.3		ug/L	CUA077	11/74	0.21 - 2	2.3	na	NE	50 / 11000	MCL / AWQC	NO	LMCL / LAWQC
7440-22-4	Silver	18.5		26		ug/L	CUA081	2/74	0.042 - 5	26	0.12	NE	100	SMCL	NO	LSMCL / IFD
7440-23-5	Sodium	643		37600		ug/L	SegMG01	74/74	--	37600	na	NE	na	na	NO	NUT
7440-28-0	Thallium	0.16	J	0.22	J	ug/L	SegMG01	2/74	0.017 - 0.4	0.22	na	NE	2 / 6.3	MCL/AWQC	NO	IFD/LMCL/LAWQC
7440-62-2	Vanadium	0.12		40.7		ug/L	CUA081	11/74	0.11 - 10	40.7	na	NE	na	na	NO	NTX
7440-66-6	Zinc	1.8	J	9900		ug/L	CUA077	57/74	5 - 27.4	9900	20.71	NE	5000 / 69000	SMCL/AWQC	NO	IFE

NOTES:

Chemicals bolded and italicized exceeded their screening toxicity value.

(1) Minimum/maximum detected concentration.

(2) STV based on using surface water as a drinking water source.

(3) Background Values as calculated by URS, March 2000

(4) Screening toxicity values not established (NE).

(5) Potential ARARs are the Ambient Water Quality Criteria, human health for consumption of organisms only. EPA 1998c (Vol.63, No.237)

(6) Rationale Codes

Selection Reason:	HIST:	Infrequent Detection but Associated Historically
	FD:	Frequent Detection
	TX:	Toxicity Information Available
	ASL:	Above Screening Levels
	AMCL:	Above MCL
	ASMCL:	Above Secondary MCL
	AAWQC:	Above Ambient Water Quality Criteria
Deletion Reason:	IFD:	Infrequent Detection - less than 5 percent
	BKG:	Background Levels
	NTX:	No Toxicity Information
	NUT:	Essential Nutrient
	BSL:	Below Screening Level
	NHIST:	Not Historically Associated with Source
	IFE:	Infrequent Exceedance - less than 5 percent
	LMCL:	Less Than MCL
	LSMCL:	Less than secondary MCL
	LAWQC:	Less Than Ambient Water Quality Criteria

Definitions:

< = less than the laboratory method detection limit listed (non-detect)
N/A = Not Applicable
-- Compound has a 100% detection frequency
COPC = Chemical of Potential Concern
ARAR/TBC = Applicable or Relevant and Appropriate Requirement/To Be Considered
AWQC = Ambient Water Quality Criteria Human Health Consumption of 'Organism Only'
J = Estimated Value
U - Compound was analyzed for, but not detected
c = Cancer endpoint
na = not available
MCL - Federal Maximum Contaminant Level
SMCL - Secondary Maximum Contaminant Level
STV = Screening Toxicity Value

TABLE 2.3.1

OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN IN SOIL/SEDIMENT

CSM Unit 3

Scenario Timeframe:	Current
Medium:	Soil/Sediment
Exposure Medium:	Soil/Sediment
Exposure Point:	Soil/Sediment (all depths)

CAS Number	Chemical	Minimum Concentration (1)	Minimum Qualifier	Maximum Concentration (1)	Maximum Qualifier	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening	Background Value (2)	Screening (3) Toxicity Value	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag	Rationale for (4) Contaminant Deletion or Selection
	Inorganics															
7429-90-5	Aluminum	1330		37300		mg/kg	CUA021	457/457	--	37300	na	7500	na	na	NO	NUT / IFE
7440-36-0	***Antimony***	0.43		73.7		mg/kg	CUA063	412/462	0.2 - 30	73.7	5.8	3	na	na	YES	ASL
7440-38-2	***Arsenic***	1.5		492	J	mg/kg	CUA066	469/469	--	492	22	0.38 c	na	na	YES	ASL
7440-39-3	Barium	30.1		632		mg/kg	CUA049	457/457	--	632	1100	520	na	na	NO	BKG/IFE
7440-41-7	Beryllium	0.11	J	9.7		mg/kg	CUA049	288/457	0.18 - 0.73	9.7	2.1	15	na	na	NO	BSL
7440-43-9	***Cadmium***	0.08		105		mg/kg	CUA057	443/469	0.08 - 0.7	105	2.86	3.7	na	na	YES	ASL
7440-70-2	Calcium	368		12600		mg/kg	CUA018	457/457	--	12600	1	NE	na	na	NO	NUT
7440-47-3	Chromium (5)	0.14	J	45.5		mg/kg	CUA049	415/457	0.14 - 3.9	45.5	64	210 c	na	na	NO	BSL/BKG
7440-48-4	Cobalt	1.1		106		mg/kg	CUA049	455/457	8.4 - 8.7	106	20	330	na	na	NO	BSL
7440-50-8	Copper	2.1		554		mg/kg	CUA063	469/469	--	554	53	280	na	na	NO	IFE
7439-89-6	***Iron***	4450		256000		mg/kg	CUA057	457/457	--	256000	65000	2200	na	na	YES	ASL
7439-92-1	***Lead***	10.9		29200		mg/kg	CUA063	469/469	--	29200	175	400	na	na	YES	ASL
7439-95-4	Magnesium	389		8310		mg/kg	CUA021	457/457	--	8310	1.1	NE	na	na	NO	NUT
7439-96-5	***Manganese***	92.3		26400		mg/kg	CUA058	457/457	--	26400	3600	310	na	na	YES	ASL
7487-94-7	Mercury	0.05		23		mg/kg	CUA063	418/469	0.05 - 0.4	23	0.3	2.2	na	na	NO	IFE
7440-02-0	Nickel	0.9		106		mg/kg	CUA049	456/457	5.8	106	38	150	na	na	NO	BSL
7440-09-7	Potassium	147		4510		mg/kg	CUA021	457/457	--	4510	na	NE	na	na	NO	NUT
7782-49-2	Selenium	0.44	J	6.3		mg/kg	CUA059	66/414	0.43 - 2.6	6.3	na	37	na	na	NO	BSL
7440-22-4	Silver	0.53		97.9		mg/kg	CUA063	400/457	0.39 - 5.7	97.9	1.1	37	na	na	NO	IFE
7440-23-5	Sodium	10.6	J	1430		mg/kg	CUA035	409/457	26.6 - 123	1430	na	NE	na	na	NO	NUT
1314-32-5	Thallium (6)	0.43	J	11.3	J	mg/kg	CUA066	74/381	0.38 - 3	11.3	na	0.52	na	na	NO	IFE
7440-62-2	Vanadium	0.39		106		mg/kg	CUA049	403/457	0.39 - 10.5	106	154	52	na	na	NO	BKG / IFE
7440-66-6	***Zinc***	14.3		21800		mg/kg	CUA057	469/469	--	21800	280	2200	na	na	YES	ASL

NOTES:

Chemicals bolded and italicized exceeded their screening toxicity value.

(1) Minimum/maximum detected concentration.

(2) Background concentrations are the 90th percentile values from "Geochemical-Exploration Studies in the Coeur d'Alene District, Idaho and Montana" (Gott and Cathrall 1980).

(3) Screening toxicity values are 0.1 times the EPA Region 9 Residential Soil PRGs (EPA 1998b) for noncarcinogens. Screening toxicity values for carcinogens, and for lead, are unchanged from the listed soil PRG.

(4) Rationale Codes

Selection Reason:	HIST:	Infrequent Detection but Associated Historically
	FD:	Frequent Detection
	TX:	Toxicity Information Available
	ASL:	Above Screening Levels
Deletion Reason:	IFD:	Infrequent Detection - less than 10 percent
	BKG:	Background Levels
	NTX:	No Toxicity Information
	NUT:	Essential Nutrient
	BSL:	Below Screening Level
	NHIST:	Not Historically Associated with Source
	IFE:	Infrequent Exceedance of STV - less than 10 percent or Infrequent Exceedance of PRG

(5) STV listed for Total Chromium (1/6 ratio Cr VI/Cr III); a carcinogen.

(6) STV listed for Thallic Oxide (more conservative).

Definitions:

-- Compound has a 100% detection frequency
COPC = Chemical of Potential Concern
ARAR/TBC = Applicable or Relevant and Appropriate Requirement/To Be Considered
NE = Not Established
J = Estimated Value
c = Cancer endpoint
na = not available
PRG = Preliminary Remediation Goal
STV = Screening Toxicity Value

TABLE 2.3.2

OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN IN FIRST-RUN TAP WATER

CSM Unit 3

Scenario Timeframe:	Current
Medium:	Groundwater (varies)
Exposure Medium:	Groundwater
Exposure Point:	First-Run Tap Water

CAS Number	Chemical	Minimum (1) Concentration	Minimum Qualifier	Maximum (1) Concentration	Maximum Qualifier	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening	Background (2) Value	Screening (3) Toxicity Value	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag	Rationale for (4) Contaminant Deletion or Selection
	Inorganics															
7429-90-5	Aluminum	1740		1740		ug/L	R144	1/6	22 - 50	1740	na	3700	50-200	SMCL	NO	NUT / BSL
7440-36-0	Antimony	0.52		0.52		ug/L	R115	1/6	0.21 - 0.5	0.52	na	1.5	6	MCL	NO	BSL / LMCL
7440-38-2	***Arsenic***	0.26		4.3		ug/L	CUA050	3/6	0.34 - 1.7	4.3	na	0.045 c	50	MCL	YES	ASL / HWS
7440-39-3	Barium	45.4		80.3		ug/L	R144	4/6	5	80.3	na	260	2000	MCL	NO	BSL / LMCL
7440-41-7	Beryllium	< 0.2	U	< 1	U	ug/L	N/A	0/6	0.2 - 1	< 1	na	7.3	4	MCL	NO	BSL / LMCL / IFD
7440-43-9	Cadmium	0.18		4.2		ug/L	R115	3/6	1	4.2	na	1.8	5	MCL	NO	LMCL / HWS
7440-70-2	Calcium	9340		32800		ug/L	CUA067	6/6	--	32800	na	NE	NE	NE	NO	NUT
7440-47-3	Chromium (5)	0.14		0.14		ug/L	R007	1/6	0.11 - 5	0.14	na	18	100	MCL	NO	BSL / LMCL
7440-48-4	Cobalt	0.97		0.97		ug/L	R025	1/6	0.037 - 5	0.97	na	220	NE	NE	NO	BSL
7440-50-8	Copper	23.6		2430		ug/L	R025	4/6	5	2430	na	140	1300 / 1000	MCL / SMCL	NO	HWS
7439-89-6	Iron	106		2260		ug/L	R144	2/6	8 - 20.9	2260	na	1100	300	SMCL	NO	NUT
7439-92-1	***Lead***	2.2		17.2		ug/L	R144	6/6	--	17.2	na	4	15	MCL	YES	ASL / HWS
7439-95-4	Magnesium	3020		11700		ug/L	CUA067	6/6	--	11700	na	NE	NE	NE	NO	NUT
7439-96-5	Manganese	5.2		82		ug/L	R144	5/6	2.1	82	na	170	50	SMCL	NO	BSL
7487-94-7	Mercury	< 0.1	U	< 0.2	U	ug/L	N/A	0/6	0.1 - 0.2	< 0.2	na	1.1	2	MCL	NO	BSL / IFD / LMCL
7440-02-0	Nickel	51.9		51.9		ug/L	R025	1/6	4.4 - 5	51.9	na	73	140	MCL	NO	BSL / LMCL
7440-09-7	Potassium	755		1950		ug/L	R144	6/6	--	1950	na	NE	NE	NE	NO	NUT
7782-49-2	Selenium	< 0.34	U	< 1	U	ug/L	N/A	0/6	0.34 - 1	< 1	na	18	50	MCL	NO	BSL / IFD / LMCL
7440-22-4	Silver	< 4.3	U	< 5	U	ug/L	N/A	0/6	4.3 - 5	< 5	na	18	100	SMCL	NO	BSL / IFD / LSMCL
7440-23-5	Sodium	1940		18100		ug/L	CUA067	6/6	--	18100	na	NE	NE	NE	NO	NUT
1314-32-5	Thallium (6)	< 0.03	U	< 0.4	U	ug/L	N/A	0/6	0.03 - 0.4	< 0.4	na	0.26	2	MCL	NO	BSL / IFD / LMCL
7440-62-2	Vanadium	< 0.053	U	< 5	U	ug/L	N/A	0/6	0.053 - 5	< 5	na	26	NE	NE	NO	BSL / IFD
7440-66-6	Zinc	184		2810		ug/L	R144	6/6	--	2810	na	1100	5000	SMCL	NO	LSMCL / HWS / IFE

NOTES:

Chemicals bolded and italicized exceeded their screening toxicity value.

(1) Minimum/maximum detected concentration

(2) na - not available

(3) Screening toxicity values are 0.1 times the EPA Region 9 Tap Water PRGs (EPA 1998b) for noncarcinogens (except for lead).
Screening toxicity values for carcinogens are unchanged from the listed Tap Water PRG.

(4) Rationale Codes

Selection Reason:	HIST -	Infrequent Detection but Associated Historically
	FD -	Frequent Detection
	TX -	Toxicity Information Available
	ASL -	Above Screening Levels
Deletion Reason:	IFD -	Infrequent Detection - less than 5 percent
	BKG -	Background Levels
	NTX -	No Toxicity Information
	NUT -	Essential Nutrient
	BSL -	Below Screening Level
	NHIST -	Not Historically Associated with Source
	IFE -	Infrequent Exceedance - less than 10 percent of STV or Infrequent Exceedance of PRG
	LMCL -	Less Than MCL
	LSMCL -	Less Than Secondary MCL
	HWS -	Home Water Supply is currently being addressed

(5) Tap water STV listed for Chromium VI, no PRG established for Total Chromium.

(6) STV listed for Thallic Oxide (more conservative).

Definitions:

< - less than the laboratory method detection limit listed (non-detect)
N/A - Not Applicable
-- Compound has a 100% detection frequency
COPC - Chemical of Potential Concern
ARAR/TBC - Applicable or Relevant and Appropriate Requirement/To Be Considered
MCL - Federal Maximum Contaminant Level
SMCL - Secondary Maximum Contaminant Level
NE - Not Established
U - Compound was analyzed for, but not detected
J - Estimated Value
c - Cancer endpoint
PRG = Preliminary Remediation Goal
STV = Screening Toxicity Value

TABLE 2.3.3

OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN IN FLUSHED TAP WATER

CSM Unit 3

Scenario Timeframe:	Current
Medium:	Groundwater (varies)
Exposure Medium:	Groundwater
Exposure Point:	Flushed Tap Water

CAS Number	Chemical	Minimum (1) Concentration	Minimum Qualifier	Maximum (1) Concentration	Maximum Qualifier	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening	Background (2) Value	Screening (3) Toxicity Value	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag	Rationale for (4) Contaminant Deletion or Selection
	Inorganics															
7429-90-5	Aluminum	2870		2870		ug/L	R144	1/4	22.3 - 50	2870	na	3700	50-200	SMCL	NO	NUT / BSL
7440-36-0	Antimony	2.8		2.8		ug/L	R144	1/4	0.049 - 0.5	2.8	na	1.5	6	MCL	NO	LMCL / HWS / IFE
7440-38-2	***Arsenic***	1.1		1.1		ug/L	R144	1/4	0.2 - 0.5	1.1	na	0.045 c	50	MCL	YES	ASL / HWS
7440-39-3	Barium	44.7		73.5		ug/L	R144	4/4	--	73.5	na	260	2000	MCL	NO	BSL / LMCL
7440-41-7	Beryllium	< 0.2	U	< 1	U	ug/L	N/A	0/4	0.2 - 1	< 1	na	7.3	4	MCL	NO	BSL / LMCL / IFD
7440-43-9	Cadmium	0.17		0.22		ug/L	R025	2/4	1	0.22	na	1.8	5	MCL	NO	BSL / LMCL
7440-70-2	Calcium	8910		13200		ug/L	R115	4/4	--	13200	na	NE	NE	NE	NO	NUT
7440-47-3	Chromium (5)	0.21		0.21		ug/L	R007	1/4	0.31 - 5	0.21	na	18	100	MCL	NO	BSL / LMCL
7440-48-4	Cobalt	< 0.037	U	< 5	U	ug/L	N/A	0/4	0.037 - 5	< 5	na	220	NE	NE	NO	BSL / IFD
7440-50-8	Copper	10.7		86		ug/L	R007	3/4	5	86	na	140	1300 / 1000	MCL / SMCL	NO	BSL / LMCL
7439-89-6	Iron	183		2280		ug/L	R144	2/4	8 - 20	2280	na	1100	300	SMCL	NO	NUT
7439-92-1	***Lead***	0.44		4.6		ug/L	R144	3/4	0.5	4.6	na	4	15	MCL	YES	ASL / HWS
7439-95-4	Magnesium	2940		6500		ug/L	R115	4/4	--	6500	na	NE	NE	NE	NO	NUT
7439-96-5	Manganese	24.2		65.4		ug/L	R144	3/4	2.7	65.4	na	170	50	SMCL	NO	BSL
7487-94-7	Mercury	< 0.1	U	< 0.2	U	ug/L	N/A	0/4	0.1 - 0.2	< 0.2	na	1.1	2	MCL	NO	BSL / IFD / LMCL
7440-02-0	Nickel	< 4.4	U	< 5.1	U	ug/L	N/A	0/4	4.4 - 5.1	< 5.1	na	73	140	MCL	NO	BSL / LMCL
7440-09-7	Potassium	583		2270		ug/L	R144	4/4	--	2270	na	NE	NE	NE	NO	NUT
7782-49-2	Selenium	< 0.36	U	< 1	U	ug/L	N/A	0/4	0.36 - 1	< 1	na	18	50	MCL	NO	BSL / IFD / LMCL
7440-22-4	Silver	< 4.3	U	< 5	U	ug/L	N/A	0/4	4.3 - 5	< 5	na	18	100	SMCL	NO	BSL / IFD / LSMCL
7440-23-5	Sodium	1850		9600		ug/L	R115	4/4	--	9600	na	NE	NE	NE	NO	NUT
1314-32-5	Thallium (6)	< 0.03	U	< 0.2	U	ug/L	N/A	0/4	0.03 - 0.2	< 0.2	na	0.26	2	MCL	NO	BSL / IFD / LMCL
7440-62-2	Vanadium	< 0.053	U	< 5	U	ug/L	N/A	0/4	0.053 - 5	< 5	na	26	NE	NE	NO	BSL / IFD
7440-66-6	Zinc	147		2410		ug/L	R144	4/4	--	2410	na	1100	5000	SMCL	NO	LSMCL/ HWS /IFE

NOTES:

Chemicals bolded and italicized exceeded their screening toxicity value.

(1) Minimum/maximum detected concentration

(2) na - not available

(3) Screening toxicity values are 0.1 times the EPA Region 9 Tap Water PRGs (EPA 1998b) for noncarcinogens (except for lead).
Screening toxicity values for carcinogens are unchanged from the listed Tap Water PRG.

(4) Rationale Codes

Selection Reason:	HIST -	Infrequent Detection but Associated Historically
	FD -	Frequent Detection
	TX -	Toxicity Information Available
	ASL -	Above Screening Levels
Deletion Reason:	IFD -	Infrequent Detection - less than 5 percent
	BKG -	Background Levels
	NTX -	No Toxicity Information
	NUT -	Essential Nutrient
	BSL -	Below Screening Level
	NHIST -	Not Historically Associated with Source
	IFE -	Infrequent Exceedance - less than 10 percent of STV or infrequent exceedance of PRG
	LMCL -	Less Than MCL
	LSMCL -	Less Than Secondary MCL
	HWS -	Home Water Supply is currently being addressed

(5) Tap water STV listed for Chromium VI, no PRG established for Total Chromium.

(6) STV listed for Thallic Oxide (more conservative).

Definitions:

< - less than the laboratory method detection limit listed (non-detect)
N/A - Not Applicable
-- Compound has a 100% detection frequency
COPC - Chemical of Potential Concern
ARAR/TBC - Applicable or Relevant and Appropriate Requirement/To Be Considered
MCL - Federal Maximum Contaminant Level
SMCL - Secondary Maximum Contaminant Level
NE - Not Established
U - Compound was analyzed for, but not detected
J - Estimated Value
c - Cancer endpoint
PRG = Preliminary Remediation Goal
STV = Screening Toxicity Value

TABLE 2.3.4

OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN IN SURFACE WATER

CSM Unit 3

Scenario Timeframe:	Current
Medium:	Groundwater
Exposure Medium:	Surface Water
Exposure Point:	Coeur d'Alene River

CAS Number	Chemical	Minimum (1) Conc.	Minimum Qualifier	Maximum (1) Conc.	Maximum Qualifier	Units	Location of Maximum Conc.	Detection Frequency	Range of Detection Limits	Concentration Used for Screening	Background Value (3)	Screening (4) Toxicity Value	Potential ARAR/TBC Value (5)	Potential ARAR/TBC Source	COPC Flag	Rationale for (6) Contaminant Deletion or Selection
	Inorganics															
7429-90-5	Aluminum	268	J	123000		ug/L	CUA048	129/129	--	123000	na	NE	50 - 200	SMCL	NO	NUT/LSMCL
7440-36-0	Antimony	0.99		39.5	J	ug/L	CUA053	100/129	1.3 - 13.7	39.5	0.51	NE	6 / 4300	MCL / AWQC	NO	LAWQC
7440-38-2	***Arsenic***	2.9		600	J	ug/L	CUA048	129/129	--	600	0.65	NE	50 / 0.14	MCL / AWQC	YES	AMCL/AAWQC
7440-39-3	Barium	13		3280		ug/L	CUA048	129/129	--	3280	na	NE	2000	MCL	NO	IFE
7440-41-7	Beryllium	0.6		9.1		ug/L	CUA048	32/129	0.2 - 1.5	9.1	na	NE	4	MCL	NO	IFE
7440-43-9	***Cadmium***	1.3		1200	J	ug/L	CUA048	125/129	1	1200	0.09	NE	5	MCL	YES	AMCL
7440-70-2	Calcium	5680		50900		ug/L	CUA048	129/129	--	50900	na	NE	na	na	NO	NUT
7440-47-3	Chromium	0.82		151	J	ug/L	CUA048	99/129	0.53 - 5	151	na	NE	100	MCL	NO	IFE
7440-48-4	Cobalt	0.2	J	160	J	ug/L	CUA048	104/129	1.3 - 5	160	na	NE	na	na	NO	NTX
7440-50-8	Copper	3		2810		ug/L	CUA048	126/129	5	2810	1.21	NE	1300	MCL	NO	IFE
7439-89-6	Iron	1650	J	1000000		ug/L	CUA048	129/129	--	1000000	113	NE	300	SMCL	NO	NUT
7439-92-1	***Lead***	107		81500	J	ug/L	CUA048	129/129	--	81500	1.46	NE	15	MCL	YES	AMCL
7439-95-4	Magnesium	2120		62000		ug/L	CUA048	129/129	--	62000	na	NE	na	na	NO	NUT
7439-96-5	***Manganese***	124		84900		ug/L	CUA048	129/129	--	84900	8.28	NE	50 / 100	SMCL / AWQC	YES	ASMCL/AAWQC
7487-94-7	***Mercury***	0.12		43.9		ug/L	CUA048	108/128	0.1 - 0.49	43.9	0.09	NE	2 / 0.051 (7)	MCL / AWQC	YES	AMCL/AAWQC
7440-02-0	Nickel	3.6		219		ug/L	CUA048	80/129	4.4 - 20.4	219	na	NE	140 / 4600	MCL / AWQC	NO	LAWQC
7440-09-7	Potassium	624		8430		ug/L	CUA048	128/129	797	8430	na	NE	na	na	NO	NUT
7782-49-2	Selenium	0.36	J	13.5	J	ug/L	CUA048	54/129	0.32 - 1.1	13.5	na	NE	50 / 11000	MCL / AWQC	NO	LMCL/LAWQC
7440-22-4	Silver	4.4		308		ug/L	CUA048	72/129	4.3 - 5	308	0.12	NE	100	SMCL	NO	IFE
7440-23-5	Sodium	1310		3270		ug/L	CUA051	129/129	--	3270	na	NE	na	na	NO	NUT
7440-28-0	Thallium	0.12		54		ug/L	CUA057	15/129	0.03 - 0.76	54	na	NE	2 / 6.3	MCL / AWQC	NO	IFE
7440-62-2	Vanadium	2.8		172	J	ug/L	CUA048	65/129	2.6 - 25	172	na	NE	na	na	NO	NTX
7440-66-6	Zinc	114		116000		ug/L	CUA048	129/129	--	116000	20.71	NE	5000 / 69000	SMCL / AWQC	NO	IFE

NOTES:

Chemicals bolded and italicized exceeded their screening toxicity value.

(1) Minimum/maximum detected concentration.

(2) STV based on using surface water as a drinking water source.

(3) Background values as calculated by URS, March 2000.

(4) Screening toxicity values not established (NE).

(5) Potential ARARs are the Ambient Water Quality Criteria, human health for consumption of organisms only. EPA 1998c (Vol.63, No.237)

(6) Rationale Codes

Selection Reason:	HIST:	Infrequent Detection but Associated Historically
	FD:	Frequent Detection
	TX:	Toxicity Information Available
	ASL:	Above Screening Levels
	AMCL:	Above MCL
	ASMCL:	Above Secondary MCL
	AAWQC:	Above Ambient Water Quality Criteria
Deletion Reason:	IFD:	Infrequent Detection - less than 5 percent
	BKG:	Background Levels
	NTX:	No Toxicity Information
	NUT:	Essential Nutrient
	BSL:	Below Screening Level
	NHIST:	Not Historically Associated with Source
	IFE:	Infrequent Exceedance - less than 5 percent
	LMCL -	Less Than MCL
	LSMCL -	Less Than Secondary MCL
	LAWQC:	Less Than Ambient Water Quality Criteria

(7) AWQC listed for elemental mercury

Definitions:

< = less than the laboratory method detection limit listed (non-detect)
na = not available
-- Compound has a 100% detection frequency
COPC = Chemical of Potential Concern
ARAR/TBC = Applicable or Relevant and Appropriate Requirement/To Be Considered
AWQC = Ambient Water Quality Criteria Human Health Consumption of 'Organism Only'
NE = Not Established
J = Estimated Value
U - Compound was analyzed for, but not detected
c = Cancer endpoint
N/A = Not Applicable
MCL - Federal Maximum Contaminant Level
SMCL - Secondary Maximum Contaminant Level
STV = Screening Toxicity Value

TABLE 2.3.5
OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN IN WATER POTATOES
CSM Unit 3

Scenario Timeframe:	Current
Medium:	Soil
Exposure Medium:	Surface Soil
Exposure Point:	Water Potatoes

CAS Number	Chemical	Minimum Concentration (1)	Minimum Qualifier	Maximum Concentration (1)	Maximum Qualifier	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening	Background Value	Screening Toxicity Value	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag	Rationale for (2) Contaminant Deletion or Selection
	Inorganics															
with skin																
7429-90-5	Aluminum	3.59		40.72		mg/kg	H1-T6U	94/95	2.30-4.67	40.72	na	na	na	na	NO	NUT
7440-43-9	***Cadmium***	0.07		3.71		mg/kg	MS5-U	87/95	0.05-0.12	3.71	na	na	na	na	YES	TX/FD
7439-89-6	Iron	62.45	J	3133	J	mg/kg	SM4-T11U	95/95	4.60-9.34	3133	na	na	na	na	NO	NUT
7439-92-1	***Lead***	1.48	J	127	J	mg/kg	MS5-U	89/95	0.46-1.87	127	na	na	na	na	YES	TX/FD
7439-96-5	Manganese	1.82	J	152	J	mg/kg	BL11-T9U	95/95	0.18-0.37	152	na	na	na	na	NO	NUT
7440-66-6	Zinc	8.41	J	147	J	mg/kg	MS5-U	95/95	0.46-0.93	147	na	na	na	na	NO	NUT
without skin																
7429-90-5	Aluminum	4.00	J	11.22		mg/kg	SM4-T3S	3/93	2.49-4.08	11.22	na	na	na	na	NO	NUT
7440-43-9	***Cadmium***	0.07	J	2.80		mg/kg	MS5-S	70/93	0.05-0.08	2.80	na	na	na	na	YES	TX/FD
7439-89-6	Iron	5.70		135		mg/kg	SM4-T12S	80/93	4.98-8.16	135	na	na	na	na	NO	NUT
7439-92-1	***Lead***	1.47		1.98		mg/kg	MS5-S	2/93	0.50-1.20	1.98	na	na	na	na	YES	TX/FD
7439-96-5	Manganese	1.43		60.65		mg/kg	MS2-S	93/93	0.20-0.33	60.65	na	na	na	na	NO	NUT
7440-66-6	Zinc	7.30	J	85.46		mg/kg	MS5-S	93/93	0.50-0.82	85.46	na	na	na	na	NO	NUT

NOTES:

Chemicals bolded and italicized exceeded their screening toxicity value.

na not available

(1) Minimum/maximum detected concentration.

(2) Rationale Codes

Selection Reason:
- HIST: Infrequent Detection but Associated Historically
- FD: Frequent Detection
- TX: Toxicity Information Available
- ASL: Above Screening Levels

Deletion Reason:
- IFD: Infrequent Detection - less than 10 percent
- BKG: Background Levels
- NTX: No Toxicity Information
- NUT: Essential Nutrient
- BSL: Below Screening Level
- NHIST: Not Historically Associated with Source
- IFE: Infrequent Exceedance - less than 10 percent

Definitions:
- N/A = Not Applicable
- -- Compound has a 100% detection frequency
- COPC = Chemical of Potential Concern
- ARAR/TBC = Applicable or Relevant and Appropriate Requirement/To Be Considered
- NE = Not Established
- J = Estimated Value
- c = Cancer endpoint
- na = not available
- STV = Screening Toxicity Value

TABLE 2.3.6

OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN IN UNDISTURBED SURFACE WATER

CSM Unit 3

Scenario Timeframe:	Future
Medium:	Groundwater
Exposure Medium:	Undisturbed Surface Water
Exposure Point:	Lower Coeur d'Alene River

CAS Number	Chemical	Minimum (1) Conc.	Minimum Qualifier	Maximum (1) Conc.	Maximum Qualifier	Units	Location of Maximum Conc.	Detection Frequency	Range of Detection Limits	Concentration Used for Screening	Background Value (3)	Screening (4) Toxicity Value	Potential ARAR/TBC Value (5)	Potential ARAR/TBC Source	COPC Flag	Rationale for (6) Contaminant Deletion or Selection
	Inorganics															
7429-90-5	Aluminum	<50	U	<68.7	U	ug/L	N/A	0/2	50-68.7	<68.7	na	NE	50 - 200	SMCL	NO	NUT/LSMCL
7440-36-0	Antimony	0.79		<1.3	U	ug/L	N/A	1/2	1.3	<1.3	0.51	NE	6 / 4300	MCL / AWQC	NO	LMCL/LAWQC
7440-38-2	***Arsenic***	7		20		ug/L	LC2919	4/9	.029-1	20	0.65	NE	50 / 0.14	MCL / AWQC	YES	AAWQC
7440-39-3	Barium	5		24.7		ug/L	LC3	3/5	4	24.7	na	NE	2000	MCL	NO	LMCL
7440-41-7	Beryllium	<0.35	U	<1	U	ug/L	N/A	0/2	0.35-1	<1	na	NE	4	MCL	NO	LMCL
7440-43-9	***Cadmium***	1		21		ug/L	LC2919	92/93	3	21	0.09	NE	5	MCL	YES	AMCL
7440-70-2	Calcium	3100		8070		ug/L	LC3	4/4	--	8070	na	NE	na	na	NO	NUT
7440-47-3	Chromium	17		17		ug/L	LC8257	1/5	6-13	17	na	NE	100	MCL	NO	LMCL
7440-48-4	Cobalt	<5	U	<5	U	ug/L	N/A	0/2	5-Jan	<5	na	NE	na	na	NO	NTX
7440-50-8	Copper	1.4	J	43		ug/L	LC8257	5/9	3-35	43	1.21	NE	1300	MCL	NO	LMCL
7439-89-6	Iron	18		3700		ug/L	LC60	4/7	12-65	3700	113	NE	300	SMCL	NO	NUT
7439-92-1	***Lead***	2		430		ug/L	LC60	91/93	15	430	1.46	NE	15	MCL	YES	AMCL
7439-95-4	Magnesium	1100		2820		ug/L	LC3	4/4	--	2820	na	NE	na	na	NO	NUT
7439-96-5	***Manganese***	6		380		ug/L	LC60	5/7	2	380	8.28	NE	50 / 100	SMCL / AWQC	YES	ASMCL/AAWQC
7487-94-7	***Mercury***	<1	U	<5	U	ug/L	N/A	0/5	0.1-5	<5	0.09	NE	2 / 0.051 (7)	MCL / AWQC	YES	AMCL/AAWQC
7440-02-0	Nickel	<5	U	<20	U	ug/L	N/A	0/5	5-20	<20	na	NE	140 / 4600	MCL / AWQC	NO	LMCL/LAWQC
7440-09-7	Potassium	466		712	J	ug/L	LC3	2/2	--	712	na	NE	na	na	NO	NUT
7782-49-2	Selenium	<0.21	U	<1	U	ug/L	N/A	0/2	0.21-1	<1	na	NE	50 / 11000	MCL / AWQC	NO	LMCL/LAWQC
7440-22-4	Silver	<0.22	U	<0.3	U	ug/L	N/A	0/2	0.22-0.3	<0.3	0.12	NE	100	SMCL	NO	LSMCL
7440-23-5	Sodium	850		2040		ug/L	LC3	4/4	--	2040	na	NE	na	na	NO	NUT
7440-28-0	Thallium	<0.1	U	<0.2	U	ug/L	N/A	0/2	0.1-0.2	<0.2	na	NE	2 / 6.3	MCL / AWQC	NO	LMCL/LAWQC
7440-62-2	Vanadium	<2	U	<5	U	ug/L	N/A	0/2	2-5	<5	na	NE	na	na	NO	NTX
7440-66-6	Zinc	6		690		ug/L	LC55	90/92	3	690	20.71	NE	5000 / 69000	SMCL / AWQC	NO	LSMCL/LAWQC

NOTES:

Chemicals bolded and italicized exceeded their screening toxicity value.

(1) Minimum/maximum detected concentration.

(2) STV based on using surface water as a drinking water source.

(3) Background values as calculated by URS, March 2000.

(4) Screening toxicity values not established (NE).

(5) Potential ARARs are the Ambient Water Quality Criteria, human health for consumption of organisms only. EPA 1998c (Vol.63, No.237)

(6) Rationale Codes

Selection Reason:	HIST:	Infrequent Detection but Associated Historically
	FD:	Frequent Detection
	TX:	Toxicity Information Available
	ASL:	Above Screening Levels
	AMCL:	Above MCL
	ASMCL:	Above Secondary MCL
	AAWQC:	Above Ambient Water Quality Criteria
Deletion Reason:	IFD:	Infrequent Detection - less than 5 percent
	BKG:	Background Levels
	NTX:	No Toxicity Information
	NUT:	Essential Nutrient
	BSL:	Below Screening Level
	NHIST:	Not Historically Associated with Source
	IFE:	Infrequent Exceedance - less than 5 percent
	LMCL -	Less Than MCL
	LSMCL -	Less Than Secondary MCL
	LAWQC:	Less Than Ambient Water Quality Criteria

(7) AWQC listed for elemental mercury

Definitions:

< = less than the laboratory method detection limit listed (non-detect)
na = not available
-- Compound has a 100% detection frequency
COPC = Chemical of Potential Concern
ARAR/TBC = Applicable or Relevant and Appropriate Requirement/To Be Considered
AWQC = Ambient Water Quality Criteria Human Health Consumption of 'Organism Only'
NE = Not Established
J = Estimated Value
U - Compound was analyzed for, but not detected
c = Cancer endpoint
N/A = Not Applicable
MCL - Federal Maximum Contaminant Level
SMCL - Secondary Maximum Contaminant Level
STV = Screening Toxicity Value

TABLE 2.4.1

OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN IN HOUSE DUST

CSM Units 1, 2, and 3

Scenario Timeframe:	Current
Medium:	Soil
Exposure Medium:	Surface Soil
Exposure Point:	House Dust

CAS Number	Chemical	Minimum (1) Concentration	Minimum Qualifier	Maximum (1) Concentration	Maximum Qualifier	Units	Location of Maximum Concentration (7)	Detection Frequency	Range of Detection Limits	Concentration Used for Screening	Background (2) Value	Screening (3) Toxicity Value	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag	Rationale for (4) Contaminant Deletion or Selection
	Inorganics															
7429-90-5	Aluminum	654		22600		mg/kg	R011 / 107	160/160	--	22600	na	7500	na	na	NO	NUT
7440-36-0	***Antimony***	0.56		318		mg/kg	R022 / 207	160/160	--	318	5.8	3	na	na	YES	ASL
7440-38-2	***Arsenic***	1.5		635		mg/kg	R027 / 107	160/160	--	635	22	0.38 c	na	na	YES	ASL
7440-39-3	Barium	19		1110		mg/kg	R042 / 207	145/160	138 - 323	1110	1100	520	na	na	NO	IFE
7440-41-7	Beryllium	1		4		mg/kg	R084 / 107	18/160	1 - 2	4	2.1	15	na	na	NO	BSL
7440-43-9	***Cadmium***	2		375	J	mg/kg	R054 / 107	159/160	1	375	2.86	3.7	na	na	YES	ASL
7440-70-2	Calcium	2210		291000		mg/kg	R010 / 107	160/160	--	291000	1	NE	na	na	NO	NUT
7440-47-3	Chromium (5)	4		145		mg/kg	R031 / 207	160/160	--	145	64	210 c	na	na	NO	BSL
7440-48-4	Cobalt	2		26		mg/kg	R042 / 107	156/160	2 - 4	26	20	330	na	na	NO	BSL
7440-50-8	Copper	18		1040		mg/kg	R008 / 207	160/160	--	1040	53	280	na	na	NO	IFE
7439-89-6	***Iron***	303		60800		mg/kg	R025 / 107	160/160	--	60800	65000	2200	na	na	YES	ASL
7439-92-1	***Lead***	23		59500		mg/kg	R054 / 107	160/160	--	59500	175	400	na	na	YES	ASL
7439-95-4	Magnesium	584		6880		mg/kg	R068 / 207	160/160	--	6880	1.1	NE	na	na	NO	NUT
7439-96-5	***Manganese***	30		5460		mg/kg	R025 / 107	160/160	--	5460	3600	310	na	na	YES	ASL
7487-94-7	Mercury	0.06		21.5	J	mg/kg	R054 / 107	160/160	--	21.5	0.3	2.2	na	na	NO	IFE
7440-02-0	Nickel	10		72		mg/kg	R073 / 207	151/160	10 - 20	72	38	150	na	na	NO	IFE
7440-09-7	Potassium	770		19900		mg/kg	R020 / 207	160/160	--	19900	na	NE	na	na	NO	NUT
7782-49-2	Selenium	0.5		21		mg/kg	R027 / 107	56/160	1 - 2	21	na	37	na	na	NO	BSL
7440-22-4	Silver	2		126		mg/kg	R054 / 107	146/160	2 - 4	126	1.1	37	na	na	NO	IFE
7440-23-5	Sodium	253		841000		mg/kg	R047 / 207	160/160	--	841000	na	NE	na	na	NO	NUT
1314-32-5	Thallium (6)	0.02		1.31		mg/kg	R041 / 107	160/160	--	1.31	na	0.52	na	na	NO	IFE
7440-62-2	Vanadium	2		40		mg/kg	R041 / 107	158/160	2	40	154	52	na	na	NO	IFE
7440-66-6	***Zinc***	60		57500	J	mg/kg	R054 / 107	160/160	--	57500	280	2200	na	na	YES	ASL

NOTES:

Chemicals bolded and italicized exceeded their screening toxicity value.

(1) Minimum/maximum detected concentration.

(2) Background values derived from "Geochemical-Exploration Studies in the Coeur d'Alene District, Idaho and Montana" (Gott and Cathrall, 1980).

(3) Screening toxicity values are 0.1 times the EPA Region 9 Residential Soil PRGs (EPA 1998b) for noncarcinogens. Screening toxicity values for carcinogens, and for lead, are unchanged from the listed soil PRG.

(4) Rationale Codes

Selection Reason:	HIST:	Infrequent Detection but Associated Historically
	FD:	Frequent Detection
	TX:	Toxicity Information Available
	ASL:	Above Screening Levels
Deletion Reason:	IFD:	Infrequent Detection - less than 10 percent
	BKG:	Background Levels
	NTX:	No Toxicity Information
	NUT:	Essential Nutrient
	BSL:	Below Screening Level
	NHIST:	Not Historically Associated with Source
	IFE:	Infrequent Exceedance - less than 10 percent

(5) STV listed for Total Chromium (1/6 ratio Cr VI/Cr III)

(6) STV listed for Thallic Oxide (more conservative)

(7) Location ID 107 = floor mat sample; Location ID 207 = vacuum bag sample

Definitions:

N/A = Not Applicable
-- Compound has a 100% detection frequency
COPC = Chemical of Potential Concern
ARAR/TBC = Applicable or Relevant and Appropriate Requirement/To Be Considered
NE = Not Established
J = Estimated Value
c = Cancer endpoint
na = not available
STV = Screening Toxicity Value

TABLE 2.4.2

OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN IN AIR

CSM Units 1, 2, and 3

Scenario Timeframe:	Current
Medium:	Soil/Sediment
Exposure Medium:	Soil/Sediment
Exposure Point:	Air

CAS Number	Chemical	Minimum (1) Concentration	Minimum Qualifier	Maximum (1) Concentration	Maximum Qualifier	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening	Background (2) Value	Screening (3) Toxicity Value	Potential ARAR/TBC Value ug/m^3	Potential ARAR/TBC Source	COPC Flag	Rationale for (4) Contaminant Deletion or Selection
	Inorganics															
7429-90-5	Aluminum	1190	J	52000		mg/kg	CUA095	4002/4002	--	52000	na	NE	na	na	NO	NUT
7440-36-0	Antimony	0.21	J	623		mg/kg	SegBIG04	2966/4029	0.2 - 30	623	5.8	27,500	na	na	NO	BSL
7440-38-2	Arsenic	0.47	J	3610		mg/kg	CC/Tiger	4186/4208	0.18 - 15.2	3610	22	747	na	na	NO	IFE
7440-39-3	Barium	16.6	J	4300		mg/kg	CUA100	4002/4002	--	4300	1100	68,800	na	na	NO	BSL
7440-41-7	Beryllium	0.0784	J	9.7		mg/kg	CUA049	3116/4002	0.12 - 1.4	9.7	2.1	1340	na	na	NO	BSL
7440-43-9	Cadmium	0.06		194		mg/kg	SegNM04	3939/4208	0.06 - 3.6	194	2.7	1780	na	na	NO	BSL
7440-70-2	Calcium	232		99200		mg/kg	R035	4002/4002	--	99200	1	NE	na	na	NO	NUT
7440-47-3	Chromium (5)	0.124	J	198		mg/kg	R065	3960/4002	0.14 - 3.9	198	64	268	na	na	NO	BSL
7440-48-4	Cobalt	1.1		106		mg/kg	CUA049	3999/4002	8.4 - 8.7	106	20	2,750	na	na	NO	BSL
7440-50-8	Copper	2.1		1710		mg/kg	R065	4208/4208	--	1710	53	NE	na	na	NO	NTX
7439-89-6	Iron	3190		256000		mg/kg	CUA057	4002/4002	--	256000	6.5	NE	na	na	NO	NUT
7439-92-1	***Lead***	9.9		67100		mg/kg	SegCC05	4208/4208	--	67100	171	NE	1.5	NAAQCs	YES	ASL
7439-95-4	Magnesium	274	J	29700		mg/kg	R019	4002/4002	--	29700	1.1	NE	na	na	NO	NUT
7439-96-5	Manganese	45.6		26400		mg/kg	CUA058	4002/4002	--	26400	3600	6,880	na	na	NO	IFE
7487-94-7	Mercury	0.0474	J	47.3		mg/kg	R086	3570/4208	0.0478 - 0.5	47.3	0.3	41,300	na	na	NO	BSL
7440-02-0	Nickel	0.9		148		mg/kg	R065	3983/4002	2.7 - 23.9	148	38	13,400	na	na	NO	BSL
7440-09-7	Potassium	147		9870		mg/kg	R073	4001/4002	1110	9870	na	NE	na	na	NO	NUT
7782-49-2	Selenium	0.34	J	11.4		mg/kg	CUA077	1182/3890	0.2 - 2.6	11.4	na	NE	na	na	NO	NTX
7440-22-4	Silver	0.226	J	347		mg/kg	SegCC02	3541/4000	0.14 - 5.7	347	1.1	NE	na	na	NO	NTX
7440-23-5	Sodium	10.6	J	5690		mg/kg	CC/Tamarack7	3845/4002	20.7 - 489	5690	na	NE	na	na	NO	NUT
1314-32-5	Thallium (6)	0.24	J	14.4		mg/kg	SegUG01	633/3898	0.38 - 9.8	14.4	na	NE	na	na	NO	NTX
7440-62-2	Vanadium	0.39		106		mg/kg	CUA049	3945/4002	0.39 - 19.3	106	154	NE	na	na	NO	BKG / NTX
7440-66-6	Zinc	14.3		25800		mg/kg	CC/Tamarack7	4208/4208	--	25800	280	NE	na	na	NO	NTX

NOTES:

Chemicals bolded and italicized exceeded their screening toxicity value.

(1) Minimum/maximum detected concentration.

(2) Background values derived from "Geochemical-Exploration Studies in the Coeur d'Alene District, Idaho and Montana" (Gott and Cathrall, 1980).

(3) Screening toxicity values were derived using the PEF formula as described in the Soil Screening Guidance (EPA 1996a), see text.

(4) Rationale Codes

Selection Reason:	HIST:	Infrequent Detection but Associated Historically
	FD:	Frequent Detection
	TX:	Toxicity Information Available
	ASL:	Above Screening Levels
Deletion Reason:	IFD:	Infrequent Detection - less than 10 percent
	BKG:	Background Levels
	NTX:	No Toxicity Information
	NUT:	Essential Nutrient
	BSL:	Below Screening Level
	NHIST:	Not Historically Associated with Source
	IFE:	Infrequent Exceedance - less than 10 percent

(5) STV listed for Total Chromium (1/6 ratio Cr VI/Cr III)

(6) STV listed for Thallic Oxide (more conservative)

Definitions:

N/A = Not Applicable
-- Compound has a 100% detection frequency
COPC = Chemical of Potential Concern
ARAR/TBC = Applicable or Relevant and Appropriate Requirement/To Be Considered
NE = Not Established; no inhalation toxicity criteria
J = Estimated Value
c = Cancer endpoint
na = not available
STV = Screening Toxicity Value

TABLE 2.4.3
OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN IN HOME GROWN VEGETABLES
CSM Units 1, 2, and 3

Scenario Timeframe:	Current
Medium:	Soil
Exposure Medium:	Surface Soil
Exposure Point:	Homegrown Vegetables

CAS Number	Chemical	Minimum Concentration (1)	Minimum Qualifier	Maximum Concentration (1)	Maximum Qualifier	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening	Background Value	Screening Toxicity Value	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag	Rationale for Contaminant Deletion or Selection (2)
	Inorganics															
7440-38-2	***Arsenic***	0.01		0.11		mg/kg	R064	19/35	0.002-0.02	0.11	na	na	na	na	YES	TX/FD
7440-43-9	***Cadmium***	0.02		1.85		mg/kg	R062	35/35	--	1.85	na	na	na	na	YES	TX/FD
7439-92-1	***Lead***	0.01		3.71		mg/kg	R022	35/35	--	3.71	na	na	na	na	YES	TX/FD

NOTES:

Chemicals bolded and italicized exceeded their screening toxicity value.

na not available

(1) Minimum/maximum detected concentration.

(2) Rationale Codes

Selection Reason:
- HIST: Infrequent Detection but Associated Historically
- FD: Frequent Detection
- TX: Toxicity Information Available
- ASL: Above Screening Levels

Deletion Reason:
- IFD: Infrequent Detection - less than 10 percent
- BKG: Background Levels
- NTX: No Toxicity Information
- NUT: Essential Nutrient
- BSL: Below Screening Level
- NHIST: Not Historically Associated with Source
- IFE: Infrequent Exceedance - less than 10 percent

Definitions:
- N/A = Not Applicable
- -- Compound has a 100% detection frequency
- COPC = Chemical of Potential Concern
- ARAR/TBC = Applicable or Relevant and Appropriate Requirement/To Be Considered
- NE = Not Established
- J = Estimated Value
- c = Cancer endpoint
- na = not available
- STV = Screening Toxicity Value

TABLE 2.4.4
OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN IN FISH FROM COEUR D'ALENE RIVER
CSM Units 1, 2, and 3

Scenario Timeframe:	Current
Medium:	Surface Water and Sediment
Exposure Medium:	Fish
Exposure Point:	Fish from Coeur d'Alene River

CAS Number	Chemical	Minimum Concentration (1)	Minimum Qualifier	Maximum Concentration (1)	Maximum Qualifier	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening	Background Value	Screening Toxicity Value	Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag	Rationale for (2) Contaminant Deletion or Selection
	Inorganics															
Bullhead																
7440-43-9	***Cadmium***	0.017		0.069		mg/kg	Killarney Lake	18/126	0.005	0.069	na	na	na	na	YES	TX/FD
7487-94-7	***Mercury***	0.05		0.21		mg/kg	Killarney Lake	63/126	0.025-0.03	0.21	na	na	na	na	YES	TX/FD
Northern Pike																
7440-43-9	***Cadmium***	0.011		0.02		mg/kg	Thompson Lake	6/63	0.005	0.02	na	na	na	na	YES	TX/FD
7487-94-7	***Mercury***	0.05		0.48		mg/kg	Thompson Lake	50/63	0.025-0.03	0.48	na	na	na	na	YES	TX/FD
Perch																
7440-43-9	***Cadmium***	0.01		0.169		mg/kg	Killarney Lake	91/123	0.005	0.169	na	na	na	na	YES	TX/FD
7487-94-7	***Mercury***	0.05		0.23		mg/kg	Medicine Lake	84/123	0.025-0.055	0.23	na	na	na	na	YES	TX/FD

NOTES:

Chemicals bolded and italicized exceeded their screening toxicity value.

na not available

(1) Minimum/maximum detected concentration.

(2) Rationale Codes

Selection Reason:
- HIST: Infrequent Detection but Associated Historically
- FD: Frequent Detection
- TX: Toxicity Information Available
- ASL: Above Screening Levels

Deletion Reason:
- IFD: Infrequent Detection - less than 10 percent
- BKG: Background Levels
- NTX: No Toxicity Information
- NUT: Essential Nutrient
- BSL: Below Screening Level
- NHIST: Not Historically Associated with Source
- IFE: Infrequent Exceedance - less than 10 percent

Definitions:
- N/A = Not Applicable
- -- Compound has a 100% detection frequency
- COPC = Chemical of Potential Concern
- ARAR/TBC = Applicable or Relevant and Appropriate Requirement/To Be Considered
- NE = Not Established
- J = Estimated Value
- c = Cancer endpoint
- na = not available
- STV = Screening Toxicity Value

TABLE 3.1.1

MEDIUM-SPECIFIC EXPOSURE POINT CONCENTRATION SUMMARY

Lower Basin - Residential Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Surface Soil
Exposure Point:	Yard Soil

Chemical of Potential Concern	Units	Arithmetic Mean	95% UCL of Normal Data	Maximum Detected Concentration	Maximum Qualifier	EPC Units	Reasonable Maximum Exposure			Central Tendency		
							Medium EPC Value	Medium EPC Statistic	Medium EPC Rationale	Medium EPC Value	Medium EPC Statistic	Medium EPC Rationale
Antimony	mg/kg	5.62	8.17	25.6		mg/kg	8.25	95% UCL-NP	W-Test (1)	5.62	Mean -N	W-Test (1)
Arsenic	mg/kg	35.47	48.03	115		mg/kg	48.53	95% UCL-NP	W-Test (1)	35.47	Mean -N	W-Test (1)
Cadmium	mg/kg	4.97	6.88	15.5		mg/kg	6.87	95% UCL-NP	W-Test (1)	4.97	Mean -N	W-Test (1)
Iron	mg/kg	29992	38186	93000		mg/kg	37703	95% UCL-NP	W-Test (1)	29992	Mean -N	W-Test (1)
Manganese	mg/kg	1639	2342	6620	J	mg/kg	2292	95% UCL-NP	W-Test (1)	1639	Mean -N	W-Test (1)
Zinc	mg/kg	849	1185	2900		mg/kg	1199	95% UCL-NP	W-Test (1)	849	Mean -N	W-Test (1)

NOTES:

For nondetect results, half the sample quantitation limit (SQL) was used as a proxy concentration. For duplicate sample results, the greater detected concentration or the lower SQL was used in the calculatior

W-Test: Developed by Shapiro and Wilk (Supplemental Guidance to RAGs: Calculating the Concentration Term. OSWER Directive 9285.7-081, May 1992).

J: The associated value is an estimated quantity.

Normal UCL values calculated using MTCA Stat *v2.1* .

Non-parametric UCL values calculated using the Bootstrap method in SYSTAT *v9* . This method is discussed in "The Lognormal Distribution in Environmental Applications" (U.S. EPA 1997).

Statistics: Maximum Detected Value (Max)
95% UCL of Normal Data (95% UCL-N)
95% non-parametric UCL (95% UCL-NP)
Mean of Log-transformed Data (Mean-T)
Mean of Normal Data (Mean-N)

(1) Shapiro-Wilks W Test indicates data are neither normally nor lognormally distributed.

TABLE 3.1.2

MEDIUM-SPECIFIC EXPOSURE POINT CONCENTRATION SUMMARY

Lower Basin - Residential Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Groundwater
Exposure Medium:	Groundwater
Exposure Point:	Tap Water

Chemical of Potential Concern	Units	Arithmetic Mean	95% UCL of Normal Data	Maximum Detected Concentration	Maximum Qualifier	EPC Units	Reasonable Maximum Exposure			Central Tendency		
							Medium EPC Value	Medium EPC Statistic	Medium EPC Rationale	Medium EPC Value	Medium EPC Statistic	Medium EPC Rationale
Arsenic	ug/L	0.38	0.84	0.97		ug/L	0.97	Max	(1)	0.38	Mean-N	(2)

NOTES:

For nondetect results, half the sample quantitation limit (SQL) was used as a proxy concentration. For duplicate sample results, the greater detected concentration or the lower SQL was used in the calculation.

Static and purged tap water results were averaged.

Normal UCL values calculated using the formula: average + [t-statistic*(std deviation/count^0.5)]

Statistics: Maximum Detected Value (Max)
95% UCL of Normal Data (95% UCL-N)
95% non-parametric UCL (95% UCL-NP)
Mean of Log-transformed Data (Mean-T)
Mean of Normal Data (Mean-N)

(1) Distribution of the data could not be determined because less than 10 samples were available; therefore, the maximum concentration was used as the Reasonable Maximum Exposure EPC.

(2) Distribution of the data could not be determined because less than 10 samples were available; therefore, the arithmetic mean was used as the Central Tendency EPC.

TABLE 3.1.3

MEDIUM-SPECIFIC EXPOSURE POINT CONCENTRATION SUMMARY

Lower Basin - Neighborhood and Public Recreational Exposure Scenarios

Scenario Timeframe:	Current/Future
Medium:	Soil/Sediment
Exposure Medium:	Soil/Sediment
Exposure Point:	Soil/Sediment at Lower CDAR*

Chemical of Potential Concern	Units	Arithmetic Mean	95% UCL of Normal Data	Maximum Detected Concentration	Maximum Qualifier	EPC Units	Reasonable Maximum Exposure			Central Tendency		
							Medium EPC Value	Medium EPC Statistic	Medium EPC Rationale	Medium EPC Value	Medium EPC Statistic	Medium EPC Rationale
Antimony	mg/kg	22.08	23.22	73.7		mg/kg	23.22	95% UCL-N	D-Test (2)	22.08	Mean-N	D-Test (2)
Arsenic	mg/kg	114.51	119.72	492	J	mg/kg	119.45	95% UCL-NP	D-Test (1)	114.51	Mean-N	D-Test (1)
Cadmium	mg/kg	33.14	35.13	105		mg/kg	35.05	95% UCL-NP	D-Test (1)	33.14	Mean-N	D-Test (1)
Iron	mg/kg	101280	105569	256000		mg/kg	105451	95% UCL-NP	D-Test (1)	101280	Mean-N	D-Test (1)
Manganese	mg/kg	9403	9886	26400		mg/kg	9886	95% UCL-N	D-Test (2)	9403	Mean-N	D-Test (2)
Zinc	mg/kg	5337	5672	21800		mg/kg	5666	95% UCL-NP	D-Test (1)	5337	Mean-N	D-Test (1)

NOTES:

* Floodplain soil and sediment near the Lower Coeur d'Alene River

For nondetect results, half the sample quantitation limit (SQL) was used as a proxy concentration. For duplicate sample results, the greater detected concentration or the lower SQL was used in the calculation.

J: The associated value is an estimated quantity.

D'Agostino's Test (WA State Dept. of Ecology Toxics Cleanup Program: Statistical Guidance for Ecology Site Managers. August 1992; and Statistical Methods for Environmental Pollution Monitoring. Gilbert, 1987).

Normal UCL values calculated using MTCA Stat *v2.1* .

Non-parametric UCL values calculated using the Bootstrap method in SYSTAT *v9* . This method is discussed in "The Lognormal Distribution in Environmental Applications" (U.S. EPA 1997).

Statistics: Maximum Detected Value (Max)
95% UCL of Normal Data (95% UCL-N)
95% non-parametric UCL (95% UCL-NP)
Mean of Log-transformed Data (Mean-T)
Mean of Normal Data (Mean-N)

(1) D'Agostino's Test indicates data are neither normally nor lognormally distributed.

(2) D'Agostino's Test indicates data are normally distributed.

TABLE 3.1.4

MEDIUM-SPECIFIC EXPOSURE POINT CONCENTRATION SUMMARY

Lower Basin - Neighborhood and Public Recreational Exposure Scenarios

Scenario Timeframe:	Current/Future
Medium:	Surface Water
Exposure Medium:	Surface Water
Exposure Point:	Disturbed Surface Water at Lower CDAR

Chemical of Potential Concern	Units	Arithmetic Mean	95% UCL of Normal Data	Maximum Detected Concentration	Maximum Qualifier	EPC Units	Reasonable Maximum Exposure			Central Tendency		
							Medium EPC Value	Medium EPC Statistic	Medium EPC Rationale	Medium EPC Value	Medium EPC Statistic	Medium EPC Rationale
Arsenic	ug/L	68.02	79.08	600	J	ug/L	79.61	95% UCL-NP	D-Test (1)	75.64	Mean-T	D-Test (1)
Cadmium	ug/L	54.82	72.84	1200	J	ug/L	72.9	95% UCL-NP	D-Test (2)	54.82	Mean-N	D-Test (2)
Manganese	ug/L	14678	16878	84900		ug/L	16651	95% UCL-NP	D-Test (1)	21269	Mean-T	D-Test (1)
Mercury	ug/L	3.62	4.5	43.9		ug/L	4.5	95% UCL-NP	D-Test (1)	4.51	Mean-T	D-Test (1)

NOTES:

For nondetect results, half the sample quantitation limit (SQL) was used as a proxy concentration. For duplicate sample results, the greater detected concentration or the lower SQL was used in the calculation.

J: The associated value is an estimated quantity.

D'Agostino's Test (WA State Dept. of Ecology Toxics Cleanup Program: Statistical Guidance for Ecology Site Managers. August 1992; and Statistical Methods for Environmental Pollution Monitoring.Gilbert, 1987).

Normal UCL values calculated using MTCA Stat *v2.1* .

Non-parametric UCL values calculated using the Bootstrap method in SYSTAT *v9* . This method is discussed in "The Lognormal Distribution in Environmental Applications" (U.S. EPA 1997).

Statistics: Maximum Detected Value (Max)
95% UCL of Normal Data (95% UCL-N)
95% non-parametric UCL (95% UCL-NP)
Mean of Log-transformed Data (Mean-T)
Mean of Normal Data (Mean-N)

(1) D'Agostino's Test indicates data are lognormally distributed.

(2) D'Agostino's Test indicates data are neither normally nor lognormally distributed.

TABLE 3.1.5

MEDIUM-SPECIFIC EXPOSURE POINT CONCENTRATION SUMMARY

Lower Basin - Subsistence Exposure Scenerio

Scenario Timeframe:	Future
Medium:	Sediment
Exposure Medium:	Sediment
Exposure Point:	Sediment at Lower CDAR *

Chemical of Potential Concern	Units	Arithmetic Mean	95% UCL of Normal Data	Maximum Detected Concentration	Maximum Qualifier	EPC Units	Reasonable Maximum Exposure			Central Tendency		
							Medium EPC Value	Medium EPC Statistic	Medium EPC Rationale	Medium EPC Value	Medium EPC Statistic	Medium EPC Rationale
Antimony	mg/kg	23.62	25.2	73.7		mg/kg	25.2	95% UCL-N	D-Test (1)	23.62	Mean-N	D-Test (1)
Arsenic	mg/kg	113.77	120.22	375		mg/kg	120.96	95% UCL-NP	D-Test (2)	113.77	Mean-N	D-Test (2)
Cadmium	mg/kg	36.49	39.33	105		mg/kg	39.33	95% UCL-N	D-Test (1)	36.49	Mean-N	D-Test (1)
Iron	mg/kg	107364	113412	256000		mg/kg	113073	95% UCL-NP	D-Test (2)	107364	Mean-N	D-Test (2)
Manganese	mg/kg	10082	10767	26400		mg/kg	10700	95% UCL-NP	D-Test (2)	10082	Mean-N	D-Test (2)
Zinc	mg/kg	5914	6398	21800		mg/kg	6400	95% UCL-NP	D-Test (2)	5914	Mean-N	D-Test (2)

NOTES:

* Sediment along the Lower Coeur d'Alene River

For nondetect results, half the sample quantitation limit (SQL) was used as a proxy concentration. For duplicate sample results, the greater detected concentration or the lower SQL was used in the calculatior

D'Agostino's Test (WA State Dept. of Ecology Toxics Cleanup Program: Statistical Guidance for Ecology Site Managers. August 1992; and Statistical Methods for Environmental Pollution Monitoring.Gilbert, 19

Normal UCL values calculated using MTCA Stat *v2.1* .

Non-parametric UCL values calculated using the Bootstrap method in SYSTAT *v9* . This method is discussed in "The Lognormal Distribution in Environmental Applications" (U.S. EPA 1997).

Statistics: Maximum Detected Value (Max)
95% UCL of Normal Data (95% UCL-N)
95% non-parametric UCL (95% UCL-NP)
Mean of Log-transformed Data (Mean-T)
Mean of Normal Data (Mean-N)

(1) D'Agostino's Test indicates data are normally distributed.

(2) D'Agostino's Test indicates data are neither normally nor lognormally distributed.

TABLE 3.1.6
MEDIUM-SPECIFIC EXPOSURE POINT CONCENTRATION SUMMARY
Lower Basin - Subsistence Exposure Scenario

Scenario Timeframe:	Future
Medium:	Surface Water/Sediment
Exposure Medium:	Plant Tissue
Exposure Point:	Water Potatoes

Chemical of Potential Concern	Units	Arithmetic Mean	95% UCL of Normal Data	Maximum Detected Concentration	Maximum Qualifier	EPC Units	Reasonable Maximum Exposure			Central Tendency		
							Medium EPC Value	Medium EPC Statistic	Medium EPC Rationale	Medium EPC Value	Medium EPC Statistic	Medium EPC Rationale
With Skin												
Cadmium	mg/kg	0.39	0.48	3.7092		mg/kg	0.489	95% UCL-NP	D-Test (1)	0.38	Mean-T	D-Test (1)
Without Skin												
Cadmium	mg/kg	0.23	0.29	2.7978		mg/kg	0.291	95% UCL-NP	D-Test (1)	0.21	Mean-T	D-Test (1)

NOTES:
For ND - 1/2 the sample quantitation limit (SQL) was used as a proxy concentration. For duplicate sample results, the greater detected concentration or the lower SQL was used in the calculation.
D'Agostino's Test (WA State Dept. of Ecology Toxics Cleanup Program: Statistical Guidance for Ecology Site Managers. August 1992; and
Statistical Methods for Environmental Pollution Monitoring.Gilbert, 1987).
Normal UCL values calculated using MTCA Stat v*2.1* .
Non-parametric UCL values calculated using the Bootstrap method in SYSTAT *v9* . This method is discussed in "The Lognormal Distribution in Environmental Applications" (U.S. EPA 1997).

Statistics: Maximum Detected Value (Max)
95% UCL of Normal Data (95% UCL-N)
95% non-parametric UCL (95% UCL-NP)
Mean of Log-transformed Data (Mean-T)
Mean of Normal Data (Mean-N)

(1) D'Agostino's Test indicates data are lognormally distributed.

TABLE 3.1.7

MEDIUM-SPECIFIC EXPOSURE POINT CONCENTRATION SUMMARY

Lower Basin - Occupational Exposure Scenario

Scenario Timeframe:	Current/Future
Medium: Soil	Soil
Exposure Medium:	Surface/Subsurface Soil
Exposure Point:	Construction Site Soil

Chemical of Potential Concern	Units	Arithmetic Mean	95% UCL of Normal Data	Maximum Detected Concentration	Maximum Qualifier	EPC Units	Reasonable Maximum Exposure			Central Tendency		
							Medium EPC Value	Medium EPC Statistic	Medium EPC Rationale	Medium EPC Value	Medium EPC Statistic	Medium EPC Rationale
Antimony	mg/kg	19.98	21.08	73.7		mg/kg	21.08	95% UCL-N	D-Test (1)	19.98	Mean -N	D-Test (1)
Arsenic	mg/kg	104.41	109.4	492	J	mg/kg	108.91	95% UCL-NP	D-Test (2)	104.41	Mean -N	D-Test (2)
Cadmium	mg/kg	29	30.87	105		mg/kg	30.71	95% UCL-NP	D-Test (2)	29	Mean -N	D-Test (2)
Iron	mg/kg	92917	97108	256000		mg/kg	97012	95% UCL-NP	D-Test (2)	92917	Mean -N	D-Test (2)
Manganese	mg/kg	8449	8919	26400		mg/kg	8919	95% UCL-N	D-Test (1)	8449	Mean -N	D-Test (1)
Zinc	mg/kg	4703	5013	21800		mg/kg	4998	95% UCL-NP	D-Test (2)	4703	Mean -N	D-Test (2)

NOTES:

For nondetect results, half the sample quantitation limit (SQL) was used as a proxy concentration. For duplicate sample results, the greater detected concentration or the lower SQL was used in the calculatio

J: The associated value is an estimated quantity.

D'Agostino's Test (WA State Dept. of Ecology Toxics Cleanup Program: Statistical Guidance for Ecology Site Managers. August 1992; and Statistical Methods for Environmental Pollution Monitoring.Gilbert, 19

Normal UCL values calculated using MTCA Stat *v2.1* .

Non-parametric UCL values calculated using the Bootstrap method in SYSTAT *v9* . This method is discussed in "The Lognormal Distribution in Environmental Applications" (U.S. EPA 1997).

Statistics: Maximum Detected Value (Max)
95% UCL of Normal Data (95% UCL-N)
95% non-parametric UCL (95% UCL-NP)
Mean of Normal Data (Mean-N)
Mean of Log-transformed Data (Mean-T)

(1) D'Agostino's Test indicates data are normally distributed.

(2) D'Agostino's Test indicates data are neither normally nor lognormally distributed.

TABLE 3.1.8

MEDIUM-SPECIFIC EXPOSURE POINT CONCENTRATION SUMMARY

Lower Basin - Subsistence Exposure Scenario

Scenario Timeframe:	Future
Medium:	Soil
Exposure Medium:	Surface Soil
Exposure Point:	Lower CDAR

Chemical of Potential Concern	Units	Arithmetic Mean	95% UCL of Normal Data	Maximum Detected Concentration	Maximum Qualifier	EPC Units	Reasonable Maximum Exposure			Central Tendency		
							Medium EPC Value	Medium EPC Statistic	Medium EPC Rationale	Medium EPC Value	Medium EPC Statistic	Medium EPC Rationale
Antimony	mg/kg	19.76	21.31	58.6	J	mg/kg	21.16	95% UCL-NP	D-Test (1)	19.76	Mean -N	D-Test (1)
Arsenic	mg/kg	115.62	124.35	492	J	mg/kg	124.44	95% UCL-NP	D-Test (1)	115.62	Mean -N	D-Test (1)
Cadmium	mg/kg	28.09	30.55	86.4		mg/kg	30.45	95% UCL-NP	D-Test (1)	28.09	Mean -N	D-Test (1)
Iron	mg/kg	92135	97647	222000		mg/kg	97440	95% UCL-NP	D-Test (1)	92135	Mean -N	D-Test (1)
Manganese	mg/kg	8382	8997	25200		mg/kg	8960	95% UCL-NP	D-Test (1)	8382	Mean -N	D-Test (1)
Zinc	mg/kg	4470	4860	14200	J	mg/kg	4856	95% UCL-NP	D-Test (1)	4470	Mean -N	D-Test (1)

NOTES:

For nondetect results, half the sample quantitation limit (SQL) was used as a proxy concentration. For duplicate sample results, the greater detected concentration or the lower SQL was used in the calculation.

D'Agostino's Test (WA State Dept. of Ecology Toxics Cleanup Program: Statistical Guidance for Ecology Site Managers. August 1992; and Statistical Methods for Environmental Pollution Monitoring.Gilbert, 1987).

J: The associated value is an estimated quantity.

Normal UCL values calculated using MTCA Stat *v2.1* .

Non-parametric UCL values calculated using the Bootstrap method in SYSTAT *v9* . This method is discussed in "The Lognormal Distribution in Environmental Applications" (U.S. EPA 1997).

Statistics: Maximum Detected Value (Max)
95% UCL of Normal Data (95% UCL-N)
95% non-parametric UCL (95% UCL-NP)
Mean of Log-transformed Data (Mean-T)
Mean of Normal Data (Mean-N)

(1) D'Agostino's Test indicates data are neither normally nor lognormally distributed.

TABLE 3.1.9

MEDIUM-SPECIFIC EXPOSURE POINT CONCENTRATION SUMMARY

Lower Basin - Subsistence Exposure Scenarios

Scenario Timeframe:	Current/Future
Medium:	Surface Water
Exposure Medium:	Surface Water
Exposure Point:	Undisturbed Surface Water at Lower CDAR

Chemical of Potential Concern	Units	Arithmetic Mean	95% UCL of Normal Data	Maximum Detected Concentration	Maximum Qualifier	EPC Units	Reasonable Maximum Exposure			Central Tendency		
							Medium EPC Value	Medium EPC Statistic	Medium EPC Rationale	Medium EPC Value	Medium EPC Statistic	Medium EPC Rationale
Arsenic	ug/L	11.59	16.06	20		ug/L	20	Max	(2)	11.59	Mean-N	(3)
Cadmium	ug/L	2.66	3.15	21		ug/L	3.23	95% UCL-NP	D-Test (1)	2.66	Mean-N	D-Test (1)
Lead	ug/L	37.96	na	430		ug/L	na	na	D-Test (1)	na	na	D-Test (1)
Manganese	ug/L	109.47	214.05	380		ug/L	380	Max	(2)	109.47	Mean-N	(3)
Mercury	ug/L	1.53	2.8	2.5	U	ug/L	2.5	Max	(2)	1.53	Mean-N	(3)

NOTES:

For nondetect results, half the sample quantitation limit (SQL) was used as a proxy concentration. For duplicate sample results, the greater detected concentration or the lower SQL was used in the calculation.

na - not applicable

U: The analyte was not detected above the reported sample detection limit.

D'Agostino's Test (WA State Dept. of Ecology Toxics Cleanup Program: Statistical Guidance for Ecology Site Managers. August 1992; and Statistical Methods for Environmental Pollution Monitoring.Gilbert, 1987).

Shapiro-Wilks W Test: Developed by Shapiro and Wilk (Supplemental Guidance to RAGS: Calculating the Concentration Term. OSWER Directive 9285.7-081, May 1992).

Normal UCL values calculated using MTCA Stat *v2.1* .

Non-parametric UCL values calculated using the Bootstrap method in SYSTAT *v9* . This method is discussed in "The Lognormal Distribution in Environmental Applications" (U.S. EPA 1997).

Statistics: Maximum Detected Value (Max)
95% UCL of Normal Data (95% UCL-N)
95% non-parametric UCL (95% UCL-NP)
Mean of Log-transformed Data (Mean-T)
Mean of Normal Data (Mean-N)

(1) D'Agostino's Test indicates data are neither normally nor lognormally distributed.

(2) Distribution of the data cannot be determined with accuracy because less than 10 samples were available; therefore, the maximum concentration was used as the Reasonable Maximum Exposure EPC.

(3) Distribution of the data cannot be determined with accuracy because less than 10 samples were available; therefore, the arithmetic mean was used as the Central Tendancy EPC.

TABLE 3.2.1

MEDIUM-SPECIFIC EXPOSURE POINT CONCENTRATION SUMMARY

Kingston - Residential Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Surface Soil
Exposure Point:	Yard Soil

Chemical of Potential Concern	Units	Arithmetic Mean	95% UCL of Normal Data	Maximum Detected Concentration	Maximum Qualifier	EPC Units	Reasonable Maximum Exposure			Central Tendency		
							Medium EPC Value	Medium EPC Statistic	Medium EPC Rationale	Medium EPC Value	Medium EPC Statistic	Medium EPC Rationale
Antimony	mg/kg	3.05	4.03	25.8	J	mg/kg	4.06	95% UCL-NP	D-Test (1)	3.05	Mean -N	D-Test (1)
Arsenic	mg/kg	20.35	24.76	105		mg/kg	25.04	95% UCL-NP	D-Test (1)	20.35	Mean -N	D-Test (1)
Cadmium	mg/kg	3.2	3.94	26		mg/kg	3.92	95% UCL-NP	D-Test (2)	3.59	Mean -T	D-Test (2)
Iron	mg/kg	19198	21585	96300		mg/kg	21971	95% UCL-NP	D-Test (1)	19198	Mean -N	D-Test (1)
Manganese	mg/kg	783	1042	9790		mg/kg	1085	95% UCL-NP	D-Test (1)	783	Mean -N	D-Test (1)
Zinc	mg/kg	506	700	8150		mg/kg	719	95% UCL-NP	D-Test (2)	449	Mean -T	D-Test (2)

NOTES:

For nondetect results, half the sample quantitation limit (SQL) was used as a proxy concentration. For duplicate sample results, the greater detected concentration or the lower SQL was used in the calculation

J: The associated value is an estimated quantity.

D'Agostino's Test (WA State Dept. of Ecology Toxics Cleanup Program: Statistical Guidance for Ecology Site Managers. August 1992; and Statistical Methods for Environmental Pollution Monitoring.Gilbert, 19

Normal UCL values calculated using MTCA Stat *v2.1* .

Non-parametric UCL values calculated using the Bootstrap method in SYSTAT *v9* . This method is discussed in "The Lognormal Distribution in Environmental Applications" (U.S. EPA 1997).

Statistics: Maximum Detected Value (Max)
95% UCL of Normal Data (95% UCL-N)
95% non-parametric UCL (95% UCL-NP)
Mean of Log-transformed Data (Mean-T)
Mean of Normal Data (Mean-N)

(1) D'Agostino's Test indicates data are neither normally nor lognormally distributed.

(2) D'Agostino's Test indicates data are lognormally distributed.

TABLE 3.2.2

MEDIUM-SPECIFIC EXPOSURE POINT CONCENTRATION SUMMARY

Kingston - Residential Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Groundwater
Exposure Medium:	Groundwater
Exposure Point:	Tap Water

Chemical of Potential Concern	Units	Arithmetic Mean	95% UCL of Normal Data	Maximum Detected Concentration	Maximum Qualifier	EPC Units	Reasonable Maximum Exposure			Central Tendency		
							Medium EPC Value	Medium EPC Statistic	Medium EPC Rationale	Medium EPC Value	Medium EPC Statistic	Medium EPC Rationale
Arsenic	ug/L	0.21	0.29	0.405		ug/L	0.405	Max	(1)	0.21	Mean-N	(2)

NOTES:

For nondetect results, half the sample quantitation limit (SQL) was used as a proxy concentration. For duplicate sample results, the greater detected concentration or the lower SQL was used in the calculation.

Static and purged tap water results were averaged.
Normal UCL values calculated using MTCA Stat *v2.1* .

Statistics: Maximum Detected Value (Max)
95% UCL of Normal Data (95% UCL-N)
95% non-parametric UCL (95% UCL-NP)
Mean of Log-transformed Data (Mean-T)
Mean of Normal Data (Mean-N)

(1) Distribution of the data could not be determined because less than 10 samples were available; therefore, the maximum concentration was used as the Reasonable Maximum Exposure EPC.

(2) Distribution of the data could not be determined because less than 10 samples were available; therefore, the arithmetic mean was used as the Central Tendency EPC.

TABLE 3.2.3

MEDIUM-SPECIFIC EXPOSURE POINT CONCENTRATION SUMMARY

Kingston - Neighborhood Recreational Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Sediment
Exposure Medium:	Sediment
Exposure Point:	Sediment at Pine Creek

Chemical of Potential Concern	Units	Arithmetic Mean	95% UCL of Normal Data	Maximum Detected Concentration	Maximum Qualifier	EPC Units	Reasonable Maximum Exposure			Central Tendency		
							Medium EPC Value	Medium EPC Statistic	Medium EPC Rationale	Medium EPC Value	Medium EPC Statistic	Medium EPC Rationale
Antimony	mg/kg	7.05	12.78	31.8	J	mg/kg	12.83	95% UCL-NP	W-Test (1)	7.05	Mean-N	W-Test (1)
Arsenic	mg/kg	15.34	23.23	60.6	J	mg/kg	22.35	95% UCL-NP	W-Test (2)	15.84	Mean-T	W-Test (2)
Cadmium	mg/kg	0.81	0.95	1.25	J	mg/kg	0.92	95% UCL-NP	W-Test (2)	0.82	Mean-T	W-Test (2)
Iron	mg/kg	14559	16678	24200	J	mg/kg	16300	95% UCL-NP	W-Test (2)	14622	Mean-T	W-Test (2)
Manganese	mg/kg	389.08	465.1	739	J	mg/kg	451.62	95% UCL-NP	W-Test (2)	392.21	Mean-T	W-Test (2)
Zinc	mg/kg	284.62	330.6	452	J	mg/kg	320.31	95% UCL-NP	W-Test (2)	285.89	Mean-T	W-Test (2)

NOTES:

For nondetect results, half the sample quantitation limit (SQL) was used as a proxy concentration. For duplicate sample results, the greater detected concentration or the lower SQL was used in the calculatior

J: The associated value is an estimated quantity.

W-Test: Developed by Shapiro and Wilk (Supplemental Guidance to RAGs: Calculating the Concentration Term. OSWER Directive 9285.7-081, May 1992).

Normal UCL values calculated using MTCA Stat *v2.1* .

Non-parametric UCL values calculated using the Bootstrap method in SYSTAT *v9* . This method is discussed in "The Lognormal Distribution in Environmental Applications" (U.S. EPA 1997).

Statistics: Maximum Detected Value (Max)
95% UCL of Normal Data (95% UCL-N)
95% non-parametric UCL (95% UCL-NP)
Mean of Log-transformed Data (Mean-T)
Mean of Normal Data (Mean-N)

(1) Shapiro-Wilks W Test indicates data are neither normally nor lognormally distributed.

(2) Shapiro-Wilk W Test indicates data are lognormally distributed.

TABLE 3.2.4

MEDIUM-SPECIFIC EXPOSURE POINT CONCENTRATION SUMMARY

Kingston - Neighborhood Recreational Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Surface Water
Exposure Medium:	Surface Water
Exposure Point:	Surface Water at Pine Creek

Chemical of Potential Concern	Units	Arithmetic Mean	95% UCL of Normal Data	Maximum Detected Concentration	Maximum Qualifier	EPC Units	Reasonable Maximum Exposure			Central Tendency		
							Medium EPC Value	Medium EPC Statistic	Medium EPC Rationale	Medium EPC Value	Medium EPC Statistic	Medium EPC Rationale
Arsenic	ug/L	0.57	0.78	1		ug/L	0.73	95% UCL-NP	W-Test (2)	0.57	Mean-N	W-Test (2)
Cadmium	ug/L	0.58	1.12	3.7		ug/L	1.08	95% UCL-NP	W-Test (1)	0.58	Mean-T	W-Test (1)
Manganese	ug/L	16.26	37.25	144		ug/L	38.46	95% UCL-NP	W-Test (2)	16.26	Mean-N	W-Test (2)
Mercury	ug/L	0.08	0.09	0.1	U	ug/L	0.09	95% UCL-NP	W-Test (2)	0.08	Mean-N	W-Test (2)

NOTES:

For nondetect results, half the sample quantitation limit (SQL) was used as a proxy concentration. For duplicate sample results, the greater detected concentration or the lower SQL was used in the calcula

U: The analyte was not detected above the reported sample detection limit.

W-Test: Developed by Shapiro and Wilk (Supplemental Guidance to RAGs: Calculating the Concentration Term. OSWER Directive 9285.7-081, May 1992).

Normal UCL values calculated using MTCA Stat *v2.1* .

Non-parametric UCL values calculated using the Bootstrap method in SYSTAT *v9* . This method is discussed in "The Lognormal Distribution in Environmental Applications" (U.S. EPA 1997).

Statistics: Maximum Detected Value (Max)
95% UCL of Normal Data (95% UCL-N)
95% non-parametric UCL (95% UCL-NP)
Mean of Log-transformed Data (Mean-T)
Mean of Normal Data (Mean-N)

(1) Shapiro-Wilk W Test indicates data are lognormally distributed.

(2) Shapiro-Wilks W Test indicates data are neither normally nor lognormally distributed.

TABLE 3.2.5

MEDIUM-SPECIFIC EXPOSURE POINT CONCENTRATION SUMMARY

Kingston - Neighborhood and Public Recreational Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Soil/Sediment
Exposure Medium:	Soil/Sediment
Exposure Point:	Soil/Sediment at NS Confluence*

Chemical of Potential Concern	Units	Arithmetic Mean	95% UCL of Normal Data	Maximum Detected Concentration	Maximum Qualifier	EPC Units	Reasonable Maximum Exposure			Central Tendency		
							Medium EPC Value	Medium EPC Statistic	Medium EPC Rationale	Medium EPC Value	Medium EPC Statistic	Medium EPC Rationale
Antimony	mg/kg	34.33	39.57	64.3		mg/kg	39.78	95% UCL-NP	W-Test (2)	34.47	Mean-T	W-Test (2)
Arsenic	mg/kg	145.15	163.27	266		mg/kg	163.2	95% UCL-NP	W-Test (2)	145.44	Mean-T	W-Test (2)
Cadmium	mg/kg	22.03	26.48	63.3		mg/kg	26.58	95% UCL-NP	W-Test (1)	22.03	Mean-N	W-Test (1)
Iron	mg/kg	89053	100738	174000		mg/kg	100621	95% UCL-NP	W-Test (2)	89354	Mean-T	W-Test (2)
Manganese	mg/kg	7431	8617	14800		mg/kg	8585	95% UCL-NP	W-Test (2)	7467	Mean-T	W-Test (2)
Zinc	mg/kg	3283	3727	6260		mg/kg	3744	95% UCL-NP	W-Test (2)	3286	Mean-T	W-Test (2)

NOTES:

* Surface soil and beach sediments near the confluence of the North and South Forks of the Coeur d'Alene River.

For nondetect results, half the sample quantitation limit (SQL) was used as a proxy concentration. For duplicate sample results, the greater detected concentration or the lower SQL was used in the calculatior

W-Test: Developed by Shapiro and Wilk (Supplemental Guidance to RAGs: Calculating the Concentration Term. OSWER Directive 9285.7-081, May 1992).

Normal UCL values calculated using MTCA Stat *v2.1* .

Non-parametric UCL values calculated using the Bootstrap method in SYSTAT *v9* . This method is discussed in "The Lognormal Distribution in Environmental Applications" (U.S. EPA 1997).

Statistics:
Maximum Detected Value (Max)
95% UCL of Normal Data (95% UCL-N)
95% non-parametric UCL (95% UCL-NP)
Mean of Log-transformed Data (Mean-T)
Mean of Normal Data (Mean-N)

(1) Shapiro-Wilks W-Test indicates data are neither normally nor lognormally distributed.

(2) Shapiro-Wilks W-Test indicates data are lognormally distributed.

TABLE 3.2.6
MEDIUM-SPECIFIC EXPOSURE POINT CONCENTRATION SUMMARY
Kingston - Neighborhood and Public Recreational Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Surface Water
Exposure Medium:	Surface Water
Exposure Point:	Surface Water at NS Confluence*

Chemical of Potential Concern	Units	Arithmetic Mean	95% UCL of Normal Data	Maximum Detected Concentration	Maximum Qualifier	EPC Units	Reasonable Maximum Exposure			Central Tendency		
							Medium EPC Value	Medium EPC Statistic	Medium EPC Rationale	Medium EPC Value	Medium EPC Statistic	Medium EPC Rationale
Arsenic	ug/L	36.4	89.1	134	J	ug/L	134	Max	(1)	36.4	Mean-N	(1)
Cadmium	ug/L	29.5	58.97	83.8		ug/L	83.8	Max	(1)	29.5	Mean-N	(1)
Manganese	ug/L	3145	6613	9470		ug/L	9470	Max	(1)	3145	Mean-N	(1)
Mercury	ug/L	1.3	3.15	4.6		ug/L	4.6	Max	(1)	1.3	Mean-N	(1)

NOTES:

* Surface water at the confluence of the North and South Forks of the Coeur d'Alene River.

For nondetect results, half the sample quantitation limit (SQL) was used as a proxy concentration. For duplicate sample results, the greater detected concentration or the lower SQL was used in the calculation

J: The associated value is an estimated quantity.

Normal UCL values calculated using MTCA Stat *v2.1* .

Statistics: Maximum Detected Value (Max)
95% UCL of Normal Data (95% UCL-N)
95% non-parametric UCL (95% UCL-NP)
Mean of Log-transformed Data (Mean-T)
Mean of Normal Data (Mean-N)

(1) Distribution of the data could not be determinied because only 5 samples were available; therefore, the maximum concentration was used for the EPC.

TABLE 3.2.7
MEDIUM-SPECIFIC EXPOSURE POINT CONCENTRATION SUMMARY
Kingston - Occupational Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Surface/Subsurface Soil
Exposure Point:	Construction Site Soil

Chemical of Potential Concern	Units	Arithmetic Mean	95% UCL of Normal Data	Maximum Detected Concentration	Maximum Qualifier	EPC Units	Reasonable Maximum Exposure			Central Tendency		
							Medium EPC Value	Medium EPC Statistic	Medium EPC Rationale	Medium EPC Value	Medium EPC Statistic	Medium EPC Rationale
Antimony	mg/kg	5.51	6.78	64.3		mg/kg	6.86	95% UCL-NP	D-Test (1)	5.51	Mean -N	D-Test (1)
Arsenic	mg/kg	29.06	33.8	266		mg/kg	34.6	95% UCL-NP	D-Test (1)	29.06	Mean -N	D-Test (1)
Cadmium	mg/kg	4.24	5.01	63.3		mg/kg	5.1	95% UCL-NP	D-Test (2)	5.14	Mean -T	D-Test (2)
Iron	mg/kg	25811	28783	174000		mg/kg	29003	95% UCL-NP	D-Test (1)	25811	Mean -N	D-Test (1)
Manganese	mg/kg	1377	1666	14800		mg/kg	1693	95% UCL-NP	D-Test (1)	1377	Mean -N	D-Test (1)
Zinc	mg/kg	794	1018	24300		mg/kg	1057	95% UCL-NP	D-Test (1)	794	Mean -N	D-Test (1)

NOTES:

For nondetect results, half the sample quantitation limit (SQL) was used as a proxy concentration. For duplicate sample results, the greater detected concentration or the lower SQL was used in the calculation.

D'Agostino's Test (WA State Dept. of Ecology Toxics Cleanup Program: Statistical Guidance for Ecology Site Managers. August 1992; and Statistical Methods for Environmental Pollution Monitoring.Gilbert, 198

Normal UCL values calculated using MTCA Stat *v2.1* .

Non-parametric UCL values calculated using the Bootstrap method in SYSTAT *v9* . This method is discussed in "The Lognormal Distribution in Environmental Applications" (U.S. EPA 1997).

Statistics: Maximum Detected Value (Max)
95% UCL of Normal Data (95% UCL-N)
95% non-parametric UCL (95% UCL-NP)
Mean of Log-transformed Data (Mean-T)
Mean of Normal Data (Mean-N)

(1) D'Agostino's Test indicates data are neither normally nor lognormally distributed.

(2) D'Agostino's Test indicates data are lognormally distributed.

TABLE 3.3.1
MEDIUM-SPECIFIC EXPOSURE POINT CONCENTRATION SUMMARY
Side Gulches - Residential Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Surface Soil
Exposure Point:	Yard Soil

Chemical of Potential Concern	Units	Arithmetic Mean	95% UCL of Normal Data	Maximum Detected Concentration	Maximum Qualifier	EPC Units	Reasonable Maximum Exposure			Central Tendency		
							Medium EPC Value	Medium EPC Statistic	Medium EPC Rationale	Medium EPC Value	Medium EPC Statistic	Medium EPC Rationale
Antimony	mg/kg	10.26	16.41	248	J	mg/kg	15.94	95% UCL-NP	W-Test (1)	10.26	Mean - N	W-Test (1)
Arsenic	mg/kg	39.66	50.76	336		mg/kg	50.74	95% UCL-NP	W-Test (1)	39.66	Mean - N	W-Test (1)
Cadmium	mg/kg	6.95	9.45	115		mg/kg	9.62	95% UCL-NP	W-Test (1)	6.95	Mean - N	W-Test (1)
Iron	mg/kg	24797	27285	95700		mg/kg	27190	95% UCL-NP	W-Test (1)	24797	Mean - N	W-Test (1)
Manganese	mg/kg	1168	1383	7860		mg/kg	1367	95% UCL-NP	W-Test (1)	1168	Mean - N	W-Test (1)
Zinc	mg/kg	844	1281	20400	J	mg/kg	1320	95% UCL-NP	W-Test (2)	844	Mean - T	W-Test (2)

NOTES:

For ND - 1/2 the sample quantitation limit (SQL) was used as a proxy concentration. For duplicate sample results, the greater detected concentration or the lower SQL was used in the calculation.
W-Test: Developed by Shapiro and Wilk (Supplemental Guidance to RAGs: Calculating the Concentration Term. OSWER Directive 9285.7-081, May 1992).
Normal UCL values calculated using MTCA Stat *v2.1* .
Non-parametric UCL values calculated using the Bootstrap method in SYSTAT *v9* . This method is discussed in "The Lognormal Distribution in Environmental Applications" (U.S. EPA 1997).

Statistics: Maximum Detected Value (Max)
95% UCL of Normal Data (95% UCL-N)
95% non-parametric UCL (95% UCL-NP)
Mean of Log-transformed Data (Mean-T)
Mean of Normal Data (Mean-N)

(1) Shapiro-Wilks W-Test indicates data are neither normally nor lognormally distributed.
(2) Shapiro-Wilk W-Test indicates data are lognormally distributed.

TABLE 3.3.2

MEDIUM-SPECIFIC EXPOSURE POINT CONCENTRATION SUMMARY

Side Gulches - Residential Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Groundwater
Exposure Medium:	Groundwater
Exposure Point:	Tap Water

Chemical of Potential Concern	Units	Arithmetic Mean	95% UCL of Normal Data	Maximum Detected Concentration	Maximum Qualifier	EPC Units	Reasonable Maximum Exposure			Central Tendency		
							Medium EPC Value	Medium EPC Statistic	Medium EPC Rationale	Medium EPC Value	Medium EPC Statistic	Medium EPC Rationale
Arsenic	ug/L	1.92	3.78	8.4		ug/L	8.4	Max	(1)	2.18	Mean-T	(2)

NOTES:

For nondetect results, 1/2 the sample quantitation limit (SQL) was used as a proxy concentration. For duplicate sample results, the higher concentration or the lower SQL was used in the calculation.

Static and purged tap water results were averaged.

Normal UCL value calculated using MTCA Stat *v2.1* .

Statistics: Maximum Detected Value (Max)
95% UCL of Normal Data (95% UCL-N)
95% non-parametric UCL (95% UCL-NP)
Mean of Log-transformed Data (Mean-T)
Mean of Normal Data (Mean-N)

(1) Distribution of the data could not be determined because less than 10 samples were available; therefore, the maximum concentration was used as the Reasonable Maximum Exposure EPC.

(2) Distribution of the data could not be determined because less than 10 samples were available; therefore, the lognormal mean was used as the Central Tendency EPC.

TABLE 3.3.3
MEDIUM-SPECIFIC EXPOSURE POINT CONCENTRATION SUMMARY
Side Gulches - Neighborhood Recreational Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Surface Soil
Exposure Point:	Surface Soil at Elk Creek Area

Chemical of Potential Concern	Units	Arithmetic Mean	95% UCL of Normal Data	Maximum Detected Concentration	Maximum Qualifier	EPC Units	Reasonable Maximum Exposure			Central Tendency		
							Medium EPC Value	Medium EPC Statistic	Medium EPC Rationale	Medium EPC Value	Medium EPC Statistic	Medium EPC Rationale
Antimony	mg/kg	46.22	55.54	54.9	J	mg/kg	54.9	Max	(1)	46.22	Mean-N	(1)
Arsenic	mg/kg	79.96	91.9	98.5		mg/kg	98.5	Max	(1)	79.96	Mean-N	(1)
Cadmium	mg/kg	21.8	44.66	64.5		mg/kg	64.5	Max	(1)	21.8	Mean-N	(1)
Iron	mg/kg	85590	96951	99928		mg/kg	99928	Max	(1)	85590	Mean-N	(1)
Manganese	mg/kg	6786	9063	9280		mg/kg	9280	Max	(1)	6786	Mean-N	(1)
Zinc	mg/kg	3328	4919	6130		mg/kg	6130	Max	(1)	3328	Mean-N	(1)

NOTES:

For nondetect results, half the sample quantitation limit (SQL) was used as a proxy concentration. For duplicate sample results, the greater detected concentration or the lower SQL was used in the calculation.

J: The associated value is an estimated quantity.

Normal UCL values calculated using MTCA Stat *v2.1* .

Statistics:
Maximum Detected Value (Max)
95% UCL of Normal Data (95% UCL-N)
95% non-parametric UCL (95% UCL-NP)
Mean of Log-transformed Data (Mean-T)
Mean of Normal Data (Mean-N)

(1) Distribution of the data could not be determined because less than 10 samples were available; therefore, the maximum concentration was used for the EPC.

TABLE 3.3.4

MEDIUM-SPECIFIC EXPOSURE POINT CONCENTRATION SUMMARY

Side Gulches - Neighborhood Recreational Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Sediment
Exposure Medium:	Sediment
Exposure Point:	Sediment at Elk Creek Pond

Chemical of Potential Concern	Units	Arithmetic Mean	95% UCL of Normal Data	Maximum Detected Concentration	Maximum Qualifier	EPC Units	Reasonable Maximum Exposure			Central Tendency		
							Medium EPC Value	Medium EPC Statistic	Medium EPC Rationale	Medium EPC Value	Medium EPC Statistic	Medium EPC Rationale
Antimony	mg/kg	17.68	27.84	47.1	J	mg/kg	27.84	95% UCL-N	W-Test (2)	17.68	Mean-N	W-Test (2)
Arsenic	mg/kg	62.28	79.5	113	J	mg/kg	77.74	95% UCL-NP	W-Test (3)	63.76	Mean-T	W-Test (3)
Cadmium	mg/kg	18.66	39.32	112		mg/kg	38.38	95% UCL-NP	W-Test (3)	42.77	Mean-T	W-Test (3)
Iron	mg/kg	29423	36226	52200		mg/kg	35970	95% UCL-NP	W-Test (1)	29423	Mean-N	W-Test (1)
Manganese	mg/kg	1468	2275	4410		mg/kg	2223	95% UCL-NP	W-Test (3)	1486	Mean-T	W-Test (3)
Zinc	mg/kg	2829	5099	10500		mg/kg	5031	95% UCL-NP	W-Test (3)	4222	Mean-T	W-Test (3)

NOTES:

For nondetect results, half the sample quantitation limit (SQL) was used as a proxy concentration. For duplicate sample results, the greater detected concentration or the lower SQL was used in the calculation.

J: The associated value is an estimated quantity.

W-Test: Developed by Shapiro and Wilk (Supplemental Guidance to RAGs: Calculating the Concentration Term. OSWER Directive 9285.7-081, May 1992).

Normal UCL values calculated using MTCA Stat *v2.1* .

Non-parametric UCL values calculated using the Bootstrap method in SYSTAT *v9* . This method is discussed in "The Lognormal Distribution in Environmental Applications" (U.S. EPA 1997).

Statistics: Maximum Detected Value (Max)
95% UCL of Normal Data (95% UCL-N)
95% non-parametric UCL (95% UCL-NP)
Mean of Log-transformed Data (Mean-T)
Mean of Normal Data (Mean-N)

(1) Shapiro-Wilks W-Test indicates data are neither normally nor lognormally distributed.
(2) Shapiro-Wilks W-Test indicates data are normally distributed.
(3) Shapiro-Wilks W-Test indicates data are lognormally distributed.

TABLE 3.3.5

MEDIUM-SPECIFIC EXPOSURE POINT CONCENTRATION SUMMARY

Side Gulches - Neighborhood Recreational Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Surface Water
Exposure Medium:	Surface Water
Exposure Point:	Surface Water at Elk Creek Pond

Chemical of Potential Concern	Units	Arithmetic Mean	95% UCL of Normal Data	Maximum Detected Concentration	Maximum Qualifier	EPC Units	Reasonable Maximum Exposure			Central Tendency		
							Medium EPC Value	Medium EPC Statistic	Medium EPC Rationale	Medium EPC Value	Medium EPC Statistic	Medium EPC Rationale
Arsenic	ug/L	16.64	27.72	32		ug/L	32	Max	(1)	16.64	Mean-N	(1)
Cadmium	ug/L	26.44	46.96	60.3		ug/L	60.3	Max	(1)	26.44	Mean-N	(1)
Manganese	ug/L	2297	5690	8570		ug/L	8570	Max	(1)	2297	Mean-N	(1)
Mercury	ug/L	0.85	2.27	3.5		ug/L	3.5	Max	(1)	0.85	Mean-N	(1)

NOTES:

For nondetect results, half the sample quantitation limit (SQL) was used as a proxy concentration. For duplicate sample results, the greater detected concentration or the lower SQL was used in the calculation.
Normal UCL values calculated using MTCA Stat *v2.1* .

Statistics: Maximum Detected Value (Max)
95% UCL of Normal Data (95% UCL-N)
95% non-parametric UCL (95% UCL-NP)
Mean of Log-transformed Data (Mean-T)
Mean of Normal Data (Mean-N)

(1) Distribution of the data could not be determined because less than 10 samples were available; therefore, the maximum concentration was used for the EPC.

TABLE 3.4.1
MEDIUM-SPECIFIC EXPOSURE POINT CONCENTRATION SUMMARY
Osburn - Residential Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Surface Soil
Exposure Point:	Yard Soil

Chemical of Potential Concern	Units	Arithmetic Mean	95% UCL of Normal Data	Maximum Detected Concentration	Maximum Qualifier	EPC Units	Reasonable Maximum Exposure			Central Tendency		
							Medium EPC Value	Medium EPC Statistic	Medium EPC Rationale	Medium EPC Value	Medium EPC Statistic	Medium EPC Rationale
Antimony	mg/kg	10.06	12.63	248		mg/kg	12.54	95% UCL-NP	D-Test (1)	10.06	Mean-N	D-Test (1)
Arsenic	mg/kg	38.95	46.39	890		mg/kg	46.74	95% UCL-NP	D-Test (1)	38.95	Mean-N	D-Test (1)
Cadmium	mg/kg	4.81	5.23	26.2		mg/kg	5.25	95% UCL-NP	D-Test (1)	4.81	Mean-N	D-Test (1)
Iron	mg/kg	21454	22496	99200		mg/kg	22488	95% UCL-NP	D-Test (1)	21454	Mean-N	D-Test (1)
Manganese	mg/kg	1122	1202	5950		mg/kg	1199	95% UCL-NP	D-Test (1)	1122	Mean-N	D-Test (1)
Zinc	mg/kg	545	599	3560		mg/kg	597	95% UCL-NP	D-Test (2)	523	Mean-T	D-Test (2)

NOTES:

For ND - 1/2 the sample quantitation limit (SQL) was used as a proxy concentration. For duplicate sample results, the greater detected concentration or the lower SQL was used in the calculation.

D'Agostino's Test (WA State Dept. of Ecology Toxics Cleanup Program: Statistical Guidance for Ecology Site Managers. August 1992; and Statistical Methods for Environmental Pollution Monitoring. Gilbert 1987).

Normal UCL values calculated using MTCA Stat *v2.1* .

Non-parametric UCL values calculated using the Bootstrap method in SYSTAT *v9* . This method is discussed in "The Lognormal Distribution in Environmental Applications" (U.S. EPA 1997).

Statistics: Maximum Detected Value (Max)
95% UCL of Normal Data (95% UCL-N)
95% non-parametric UCL (95% UCL-NP)
Mean of Log-transformed Data (Mean-T)
Mean of Normal Data (Mean-N)

(1) D'Agostino's Test indicates data are neither normally nor lognormally distributed.

(2) D'Agostino's Test indicates data is lognormally distributed.

TABLE 3.4.2

MEDIUM-SPECIFIC EXPOSURE POINT CONCENTRATION SUMMARY

Osburn - Residential Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Groundwater
Exposure Medium:	Groundwater
Exposure Point:	Tap Water

Chemical of Potential Concern	Units	Arithmetic Mean	95% UCL of Normal Data	Maximum Detected Concentration	Maximum Qualifier	EPC Units	Reasonable Maximum Exposure			Central Tendency		
							Medium EPC Value	Medium EPC Statistic	Medium EPC Rationale	Medium EPC Value	Medium EPC Statistic	Medium EPC Rationale
Arsenic	ug/L	0.23	0.28	0.9		ug/L	0.28	95% UCL-NP	W-Test (1)	0.23	Mean-N	W-Test (1)

NOTES:

For nondetect results, half the sample quantitation limit (SQL) was used as a proxy concentration. For duplicate sample results, the greater detected concentration or the lower SQL was used in the calculati

Static and purged tap water results were averaged.

W-Test: Developed by Shapiro and Wilk (Supplemental Guidance to RAGs: Calculating the Concentration Term. OSWER Directive 9285.7-081, May 1992).

Normal UCL values calculated using MTCA Stat *v2.1* .

Non-parametric UCL values calculated using the Bootstrap method in SYSTAT *v9* . This method is discussed in "The Lognormal Distribution in Environmental Applications" (U.S. EPA 1997).

Statistics: Maximum Detected Value (Max)
95% UCL of Normal Data (95% UCL-N)
95% non-parametric UCL (95% UCL-NP)
Mean of Log-transformed Data (Mean-T)
Mean of Normal Data (Mean-N)

(1) Shapiro-Wilks W Test indicates data are neither normally nor lognormally distributed.

TABLE 3.5.1
MEDIUM-SPECIFIC EXPOSURE POINT CONCENTRATION SUMMARY
Silverton - Residential Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Surface Soil
Exposure Point:	Yard Soil

Chemical of Potential Concern	Units	Arithmetic Mean	95% UCL of Normal Data	Maximum Detected Concentration	Maximum Qualifier	EPC Units	Reasonable Maximum Exposure			Central Tendency		
							Medium EPC Value	Medium EPC Statistic	Medium EPC Rationale	Medium EPC Value	Medium EPC Statistic	Medium EPC Rationale
Antimony	mg/kg	5.82	8.72	82.5		mg/kg	8.9	95% UCL-NP	D-Test (1)	4.89	Mean - T	D-Test (1)
Arsenic	mg/kg	16.52	20.62	133		mg/kg	21.46	95% UCL-NP	D-Test (2)	16.52	Mean - N	D-Test (2)
Cadmium	mg/kg	4.4	5.31	23.8		mg/kg	5.44	95% UCL-NP	D-Test (1)	4.41	Mean - T	D-Test (1)
Iron	mg/kg	18361	20176	56700		mg/kg	20198	95% UCL-NP	D-Test (2)	18361	Mean - N	D-Test (2)
Manganese	mg/kg	928	1066	3440		mg/kg	1068	95% UCL-NP	D-Test (2)	928	Mean - N	D-Test (2)
Zinc	mg/kg	595	777	5000		mg/kg	816	95% UCL-NP	D-Test (1)	561	Mean - T	D-Test (1)

NOTES:

For ND - 1/2 the sample quantitation limit (SQL) was used as a proxy concentration. For duplicate sample results, the greater detected concentration or the lower SQL was used in the calculation.

D'Agostino's Test (WA State Dept. of Ecology Toxics Cleanup Program: Statistical Guidance for Ecology Site Managers. August 1992; and Statistical Methods for Environmental Pollution Monitoring. Gilbert 198

Normal UCL values calculated using MTCA Stat *v2.1* .

Non-parametric UCL values calculated using the Bootstrap method in SYSTAT *v9* . This method is discussed in "The Lognormal Distribution in Environmental Applications" (U.S. EPA 1997).

Statistics: Maximum Detected Value (Max)
95% UCL of Normal Data (95% UCL-N)
95% non-parametric UCL (95% UCL-NP)
Mean of Log-transformed Data (Mean-T)
Mean of Normal Data (Mean-N)

(1) D'Agostino's Test indicates data are lognormally distributed.

(2) D'Agostino's Test indicates data are neither normally nor lognormally distributed.

TABLE 3.5.2

MEDIUM-SPECIFIC EXPOSURE POINT CONCENTRATION SUMMARY

Silverton - Residential Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Groundwater
Exposure Medium:	Groundwater
Exposure Point:	Tap Water

Chemical of Potential Concern	Units	Arithmetic Mean	95% UCL of Normal Data	Maximum Detected Concentration	Maximum Qualifier	EPC Units	Reasonable Maximum Exposure			Central Tendency		
							Medium EPC Value	Medium EPC Statistic	Medium EPC Rationale	Medium EPC Value	Medium EPC Statistic	Medium EPC Rationale
Arsenic	ug/L	0.38	0.51	0.545		ug/L	0.545	Max	(1)	0.38	Mean-N	(2)

NOTES:

For nondetect results, half the sample quantitation limit (SQL) was used as a proxy concentration. For duplicate sample results, the greater detected concentration or the lower SQL was used in the calculation.

Static and purged tap water results were averaged.

Normal UCL values calculated using the formula: average + [t-statistic*(std deviation/count^0.5)]

Statistics: Maximum Detected Value (Max)
95% UCL of Normal Data (95% UCL-N)
95% non-parametric UCL (95% UCL-NP)
Mean of Log-transformed Data (Mean-T)
Mean of Normal Data (Mean-N)

(1) Distribution of the data could not be determined because less than 10 samples were available; therefore, the maximum concentration was used as the Reasonable Maximum Exposure EPC.

(2) Distribution of the data could not be determined because less than 10 samples were available; therefore, the arithmetic mean was used as the Central Tendency EPC.

TABLE 3.5.3
MEDIUM-SPECIFIC EXPOSURE POINT CONCENTRATION SUMMARY
Silverton - Neighborhood and Public Recreational Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Surface Soil
Exposure Point:	Upland Parks/Schools

Chemical of Potential Concern	Units	Arithmetic Mean	95% UCL of Normal Data	Maximum Detected Concentration	Maximum Qualifier	EPC Units	Reasonable Maximum Exposure			Central Tendency		
							Medium EPC Value	Medium EPC Statistic	Medium EPC Rationale	Medium EPC Value	Medium EPC Statistic	Medium EPC Rationale
Antimony	mg/kg	5.72	6.86	233		mg/kg	6.94	95% UCL-NP	(1)	4.28	Mean-T	(1)
Arsenic	mg/kg	23.18	27.9	1060		mg/kg	28.44	95% UCL-NP	(1)	16.88	Mean-T	(1)
Cadmium	mg/kg	3.99	4.53	90.8		mg/kg	4.57	95% UCL-NP	(1)	5.10	Mean-T	(1)
Iron	mg/kg	19535	20025	86000		mg/kg	20025	95% UCL-N	(2)	19535	Mean-N	(2)
Manganese	mg/kg	1039	1089	10000		mg/kg	1090	95% UCL-NP	(1)	1035	Mean-T	(1)
Zinc	mg/kg	633	731	18000		mg/kg	739	95% UCL-NP	(1)	537.23	Mean-T	(1)

NOTES:

For ND - 1/2 the sample quantitation limit (SQL) was used as a proxy concentration. For duplicate sample results, the greater detected concentration or the lower SQL was used in the calculation.

Normal UCL values calculated using the formula: average + [t-statistic*(std deviation/count^0.5)]

Non-parametric UCL values calculated using the Bootstrap method in SYSTAT *v9*. This method is discussed in "The Lognormal Distribution in Environmental Applications" (U.S. EPA 1997).

Statistics:
Maximum Detected Value (Max)
95% UCL of Normal Data (95% UCL-N)
95% non-parametric UCL (95% UCL-NP)
Mean of Log-transformed Data (Mean-T)
Mean of Normal Data (Mean-N)

(1) Sample size > 500; however, MTCA Stat checks distribution for sample sizes < 500. Therefore, data plotted on histograms using SYSTATv9. Distribution of the data appear lognormal.

(2) Sample size > 500; distribution of the iron data appear normal based on the histogram generated using SYSTATv9.

TABLE 3.6.1
MEDIUM-SPECIFIC EXPOSURE POINT CONCENTRATION SUMMARY
Wallace - Residential Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Surface Soil
Exposure Point:	Yard Soil

Chemical of Potential Concern	Units	Arithmetic Mean	95% UCL of Normal Data	Maximum Detected Concentration	Maximum Qualifier	EPC Units	Reasonable Maximum Exposure			Central Tendency		
							Medium EPC Value	Medium EPC Statistic	Medium EPC Rationale	Medium EPC Value	Medium EPC Statistic	Medium EPC Rationale
Antimony	mg/kg	8.81	13.35	161		mg/kg	13.7	95% UCL-NP	D-Test (1)	8.81	Mean - N	D-Test (1)
Arsenic	mg/kg	20.38	22.61	66.1		mg/kg	22.57	95% UCL-NP	D-Test (2)	20.32	Mean - T	D-Test (2)
Cadmium	mg/kg	6.46	7.68	46.8		mg/kg	7.63	95% UCL-NP	D-Test (1)	6.46	Mean - N	D-Test (1)
Iron	mg/kg	21149	22281	46700		mg/kg	22240	95% UCL-NP	D-Test (1)	21149	Mean - N	D-Test (1)
Manganese	mg/kg	895	990	3470		mg/kg	989	95% UCL-NP	D-Test (1)	895	Mean - N	D-Test (1)
Zinc	mg/kg	858	975	3150		mg/kg	967	95% UCL-NP	D-Test (2)	858	Mean - T	D-Test (2)

NOTES:

For ND - 1/2 the sample quantitation limit (SQL) was used as a proxy concentration. For duplicate sample results, the greater detected concentration or the lower SQL was used in the calculation.

D'Agostino's Test (WA State Dept. of Ecology Toxics Cleanup Program: Statistical Guidance for Ecology Site Managers. August 1992; and Statistical Methods for Environmental Pollution Monitoring. Gilbert 198

Normal UCL values calculated using MTCA Stat *v2.1* .

Non-parametric UCL values calculated using the Bootstrap method in SYSTAT *v9* . This method is discussed in "The Lognormal Distribution in Environmental Applications" (U.S. EPA 1997).

Statistics: Maximum Detected Value (Max)
95% UCL of Normal Data (95% UCL-N)
95% non-parametric UCL (95% UCL-NP)
Mean of Log-transformed Data (Mean-T)
Mean of Normal Data (Mean-N)

(1) D'Agostino's Test indicates data are neither normally nor lognormally distributed.

(2) D'Agostino's Test indicates data are lognormally distributed.

TABLE 3.6.2

MEDIUM-SPECIFIC EXPOSURE POINT CONCENTRATION SUMMARY

Wallace - Residential Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Groundwater
Exposure Medium:	Groundwater
Exposure Point:	Tap Water

Chemical of Potential Concern	Units	Arithmetic Mean	95% UCL of Normal Data	Maximum Detected Concentration	Maximum Qualifier	EPC Units	Reasonable Maximum Exposure			Central Tendency		
							Medium EPC Value	Medium EPC Statistic	Medium EPC Rationale	Medium EPC Value	Medium EPC Statistic	Medium EPC Rationale
Arsenic	ug/L	0.42	0.5	3.8		ug/L	0.494	95% UCL-NP	W-Test (1)	0.42	Mean-T	W-Test (1)

NOTES:

For nondetect results, half the sample quantitation limit (SQL) was used as a proxy concentration. For duplicate sample results, the greater detected concentration or the lower SQL was used in the calculatior

Static and purged tap water results were averaged.

W-Test: Developed by Shapiro and Wilk (Supplemental Guidance to RAGs: Calculating the Concentration Term. OSWER Directive 9285.7-081, May 1992).

Normal UCL values calculated using MTCA Stat *v2.1* .

Non-parametric UCL values calculated using the Bootstrap method in SYSTAT *v9* . This method is discussed in "The Lognormal Distribution in Environmental Applications" (U.S. EPA 1997).

Statistics: Maximum Detected Value (Max)
95% UCL of Normal Data (95% UCL-N)
95% non-parametric UCL (95% UCL-NP)
Mean of Log-transformed Data (Mean-T)
Mean of Normal Data (Mean-N)

(1) Shapiro-Wilks W-Test indicates data are lognormally distributed.

TABLE 3.6.3
MEDIUM-SPECIFIC EXPOSURE POINT CONCENTRATION SUMMARY
Wallace - Neighborhood and Public Recreational Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Surface Soil
Exposure Point:	Upland Parks/Schools

Chemical of Potential Concern	Units	Arithmetic Mean	95% UCL of Normal Data	Maximum Detected Concentration	Maximum Qualifier	EPC Units	Reasonable Maximum Exposure			Central Tendency		
							Medium EPC Value	Medium EPC Statistic	Medium EPC Rationale	Medium EPC Value	Medium EPC Statistic	Medium EPC Rationale
Antimony	mg/kg	16.03	18.74	261	J	mg/kg	18.22	95% UCL-NP	D-Test (2)	17.83	Mean-T	D-Test (2)
Arsenic	mg/kg	25.8	27.78	168		mg/kg	27.65	95% UCL-NP	D-Test (1)	25.8	Mean-N	D-Test (1)
Cadmium	mg/kg	9.64	10.73	64.1		mg/kg	10.72	95% UCL-NP	D-Test (1)	9.64	Mean-N	D-Test (1)
Iron	mg/kg	27036	28539	152000		mg/kg	28639	95% UCL-NP	D-Test (1)	27036	Mean-N	D-Test (1)
Manganese	mg/kg	1366	1515	18200		mg/kg	1502	95% UCL-NP	D-Test (1)	1366	Mean-N	D-Test (1)
Zinc	mg/kg	1681	1895	14655	J	mg/kg	1921	95% UCL-NP	D-Test (2)	1775	Mean-T	D-Test (2)

NOTES:

For nondetect results, half the sample quantitation limit (SQL) was used as a proxy concentration. For duplicate sample results, the greater detected concentration or the lower SQL was used in the calculatior

J: The associated value is an estimated quantity.

D'Agostino's Test (WA State Dept. of Ecology Toxics Cleanup Program: Statistical Guidance for Ecology Site Managers. August 1992; and Statistical Methods for Environmental Pollution Monitoring.Gilbert, 19

Normal UCL values calculated using MTCA Stat *v2.1* .

Non-parametric UCL values calculated using the Bootstrap method in SYSTAT *v9* . This method is discussed in "The Lognormal Distribution in Environmental Applications" (U.S. EPA 1997).

Statistics:
Maximum Detected Value (Max)
95% UCL of Normal Data (95% UCL-N)
95% non-parametric UCL (95% UCL-NP)
Mean of Log-transformed Data (Mean-T)
Mean of Normal Data (Mean-N)

(1) D'Agostino's Test indicates data are neither normally nor lognormally distributed.
(2) D'Agostino's Test indicates data are lognormally distributed.

TABLE 3.7.1

MEDIUM-SPECIFIC EXPOSURE POINT CONCENTRATION SUMMARY

Osburn, Wallace, and Silverton Combined - Neighborhood Recreational Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Sediment
Exposure Medium:	Sediment
Exposure Point:	Sediment at South Fork CDAR

Chemical of Potential Concern	Units	Arithmetic Mean	95% UCL of Normal Data	Maximum Detected Concentration	Maximum Qualifier	EPC Units	Reasonable Maximum Exposure			Central Tendency		
							Medium EPC Value	Medium EPC Statistic	Medium EPC Rationale	Medium EPC Value	Medium EPC Statistic	Medium EPC Rationale
Antimony	mg/kg	22.03	35.86	174		mg/kg	38.11	95% UCL-NP	W-Test (1)	25.24	Mean-T	W-Test (1)
Arsenic	mg/kg	36.01	52.25	184	J	mg/kg	52.64	95% UCL-NP	W-Test (1)	36.81	Mean-T	W-Test (1)
Cadmium	mg/kg	14.16	19.16	64.4		mg/kg	18.89	95% UCL-NP	W-Test (2)	14.16	Mean-N	W-Test (2)
Iron	mg/kg	38100	42182	57200		mg/kg	41314	95% UCL-NP	W-Test (1)	38174	Mean-T	W-Test (1)
Manganese	mg/kg	3310	3816	6620	J	mg/kg	3755	95% UCL-NP	W-Test (1)	3314	Mean-T	W-Test (1)
Zinc	mg/kg	2551	3426	11500	J	mg/kg	3397	95% UCL-NP	W-Test (2)	2551	Mean-N	W-Test (2)

NOTES:

For nondetect results, half the sample quantitation limit (SQL) was used as a proxy concentration. For duplicate sample results, the greater detected concentration or the lower SQL was used in the calculation.

J: The associated value is an estimated quantity.

W-Test: Developed by Shapiro and Wilk (Supplemental Guidance to RAGs: Calculating the Concentration Term. OSWER Directive 9285.7-081, May 1992).

Normal UCL values calculated using MTCA Stat *v2.1* .

Non-parametric UCL values calculated using the Bootstrap method in SYSTAT *v9* . This method is discussed in "The Lognormal Distribution in Environmental Applications" (U.S. EPA 1997).

Statistics: Maximum Detected Value (Max)
95% UCL of Normal Data (95% UCL-N)
95% non-parametric UCL (95% UCL-NP)
Mean of Log-transformed Data (Mean-T)
Mean of Normal Data (Mean-N)

(1) Shapiro-Wilks W-Test indicates data are lognormally distributed.

(2) Shapiro-Wilks W-Test indicates data are neither normally nor lognormally distributed.

TABLE 3.7.2

MEDIUM-SPECIFIC EXPOSURE POINT CONCENTRATION SUMMARY

Osburn, Wallace, and Silverton Combined - Neighborhood Recreational Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Surface Water
Exposure Medium:	Surface Water
Exposure Point:	Surface Water at South Fork CDAR

Chemical of Potential Concern	Units	Arithmetic Mean	95% UCL of Normal Data	Maximum Detected Concentration	Maximum Qualifier	EPC Units	Reasonable Maximum Exposure			Central Tendency		
							Medium EPC Value	Medium EPC Statistic	Medium EPC Rationale	Medium EPC Value	Medium EPC Statistic	Medium EPC Rationale
Arsenic	ug/L	0.78	1.09	7.3		ug/L	1.096	95% UCL-NP	D-Test (2)	0.78	Mean-N	D-Test (2)
Cadmium	ug/L	3.19	3.99	12.5		ug/L	4.029	95% UCL-NP	D-Test (1)	10.49	Mean-T	D-Test (1)
Manganese	ug/L	25.98	32.31	174		ug/L	32.04	95% UCL-NP	D-Test (1)	39.36	Mean-T	D-Test (1)
Mercury	ug/L	0.1	0.12	0.84	J	ug/L	0.122	95% UCL-NP	D-Test (2)	0.1	Mean-N	D-Test (2)

NOTES:

For nondetect results, half the sample quantitation limit (SQL) was used as a proxy concentration. For duplicate sample results, the greater detected concentration or the lower SQL was used in the calculation.

J: The associated value is an estimated quantity.

D'Agostino's Test (WA State Dept. of Ecology Toxics Cleanup Program: Statistical Guidance for Ecology Site Managers. August 1992; and Statistical Methods for Environmental Pollution Monitoring. Gilbert 1987)

Normal UCL values calculated using MTCA Stat *v2.1* .

Non-parametric UCL values calculated using the Bootstrap method in SYSTAT *v9* . This method is discussed in "The Lognormal Distribution in Environmental Applications" (U.S. EPA 1997).

Statistics: Maximum Detected Value (Max)
95% UCL of Normal Data (95% UCL-N)
95% non-parametric UCL (95% UCL-NP)
Mean of Log-transformed Data (Mean-T)
Mean of Normal Data (Mean-N)

(1) D'Agostino's Test indicates data are lognormally distributed.

(2) D'Agostino's Test indicates data are neither normally nor lognormally distributed.

TABLE 3.7.3

MEDIUM-SPECIFIC EXPOSURE POINT CONCENTRATION SUMMARY

Osburn, Wallace, and Silverton Combined - Occupational Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Surface/Subsurface Soil
Exposure Point:	Construction Site Soil

Chemical of Potential Concern	Units	Arithmetic Mean	95% UCL of Normal Data	Maximum Detected Concentration	Maximum Qualifier	EPC Units	Reasonable Maximum Exposure			Central Tendency		
							Medium EPC Value	Medium EPC Statistic	Medium EPC Rationale	Medium EPC Value	Medium EPC Statistic	Medium EPC Rationale
Antimony	mg/kg	8.36	9.13	299		mg/kg	9.26	95% UCL-NP	(1)	6.69	Mean-T	(1)
Arsenic	mg/kg	25.6	27.55	1060		mg/kg	27.31	95% UCL-NP	(1)	21.87	Mean-T	(1)
Cadmium	mg/kg	4.95	5.2	95		mg/kg	5.21	95% UCL-NP	(1)	6.09	Mean-T	(1)
Iron	mg/kg	21538	21860	152000		mg/kg	21860	95% UCL-N	(2)	21538	Mean-N	(2)
Manganese	mg/kg	1097	1127	18200		mg/kg	1129	95% UCL-NP	(1)	1077	Mean-T	(1)
Zinc	mg/kg	713	754	18000		mg/kg	752	95% UCL-NP	(1)	666	Mean-T	(1)

NOTES:

For nondetect results, half the sample quantitation limit (SQL) was used as a proxy concentration. For duplicate sample results, the greater detected concentration or the lower SQL was used in the calculation

Normal UCL values calculated using the formula: average + [t-statistic*(std deviation/count^0.5)]

Non-parametric UCL values calculated using the Bootstrap method in SYSTAT *v9* . This method is discussed in "The Lognormal Distribution in Environmental Applications" (U.S. EPA 1997).

Statistics: Maximum Detected Value (Max)
95% UCL of Normal Data (95% UCL-N)
95% non-parametric UCL (95% UCL-NP)
Mean of Log-transformed Data (Mean-T)
Mean of Normal Data (Mean-N)

(1) Sample size > 500; however, MTCA Stat checks distribution for sample sizes < 500. Therefore, data plotted on histograms using SYSTATv9. Distribution of the data appear lognormal.

(2) Sample size > 500; distribution of the iron data appear normal based on the histogram generated using SYSTATv9.

TABLE 3.8.1
MEDIUM-SPECIFIC EXPOSURE POINT CONCENTRATION SUMMARY
Nine Mile - Residential Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Surface Soil
Exposure Point:	Yard Soil

Chemical of Potential Concern	Units	Arithmetic Mean	95% UCL of Normal Data	Maximum Detected Concentration	Maximum Qualifier	EPC Units	Reasonable Maximum Exposure			Central Tendency		
							Medium EPC Value	Medium EPC Statistic	Medium EPC Rationale	Medium EPC Value	Medium EPC Statistic	Medium EPC Rationale
Antimony	mg/kg	9.32	11.7	222		mg/kg	11.94	95% UCL-NP	D-Test (1)	8.22	Mean - T	D-Test (1)
Arsenic	mg/kg	31.4	41.7	1150		mg/kg	41.62	95% UCL-NP	D-Test (2)	31.4	Mean - N	D-Test (2)
Cadmium	mg/kg	5.98	6.53	27.1		mg/kg	6.52	95% UCL-NP	D-Test (2)	5.98	Mean - N	D-Test (2)
Iron	mg/kg	21819	23124	123000		mg/kg	23311	95% UCL-NP	D-Test (2)	21819	Mean - N	D-Test (2)
Manganese	mg/kg	1150	1243	7540		mg/kg	1250	95% UCL-NP	D-Test (2)	1150	Mean - N	D-Test (2)
Zinc	mg/kg	1061	1158	4420		mg/kg	1159	95% UCL-NP	D-Test (1)	1104	Mean - T	D-Test (1)

NOTES:

For nondetect results, half the sample quantitation limit (SQL) was used as a proxy concentration. For duplicate sample results, the greater detected concentration or the lower SQL was used in the calculation

D'Agostino's Test (WA State Dept. of Ecology Toxics Cleanup Program: Statistical Guidance for Ecology Site Managers. August 1992; and Statistical Methods for Environmental Pollution Monitoring. Gilbert 198

Normal UCL values calculated using MTCA Stat *v2.1* .

Non-parametric UCL values calculated using the Bootstrap method in SYSTAT *v9* . This method is discussed in "The Lognormal Distribution in Environmental Applications" (U.S. EPA 1997).

Statistics: Maximum Detected Value (Max)
95% UCL of Normal Data (95% UCL-N)
95% non-parametric UCL (95% UCL-NP)
Mean of Log-transformed Data (Mean-T)
Mean of Normal Data (Mean-N)

(1) D'Agostino's Test indicates data are lognormally distributed.

(2) D'Agostino's Test indicates data are neither normally nor lognormally distributed.

TABLE 3.8.2

MEDIUM-SPECIFIC EXPOSURE POINT CONCENTRATION SUMMARY

Nine Mile - Residential Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Groundwater
Exposure Medium:	Groundwater
Exposure Point:	Tap Water

Chemical of Potential Concern	Units	Arithmetic Mean	95% UCL of Normal Data	Maximum Detected Concentration	Maximum Qualifier	EPC Units	Reasonable Maximum Exposure			Central Tendency		
							Medium EPC Value	Medium EPC Statistic	Medium EPC Rationale	Medium EPC Value	Medium EPC Statistic	Medium EPC Rationale
Arsenic	ug/L	0.45	0.73	3.8		ug/L	0.74	95% UCL-NP	W-Test (1)	0.45	Mean-N	W-Test (1)

NOTES:

For nondetect results, half the sample quantitation limit (SQL) was used as a proxy concentration. For duplicate sample results, the greater detected concentration or the lower SQL was used in the calculati

Static and purged tap water results were averaged.

W-Test: Developed by Shapiro and Wilk (Supplemental Guidance to RAGs: Calculating the Concentration Term. OSWER Directive 9285.7-081, May 1992).

Normal UCL values calculated using MTCA Stat *v2.1* .

Non-parametric UCL values calculated using the Bootstrap method in SYSTAT *v9* . This method is discussed in "The Lognormal Distribution in Environmental Applications" (U.S. EPA 1997).

Statistics: Maximum Detected Value (Max)
95% UCL of Normal Data (95% UCL-N)
95% non-parametric UCL (95% UCL-NP)
Mean of Log-transformed Data (Mean-T)
Mean of Normal Data (Mean-N)

(1) Shapiro-Wilks W-Test indicates data are neither normally nor lognormally distributed.

TABLE 3.8.3

MEDIUM-SPECIFIC EXPOSURE POINT CONCENTRATION SUMMARY

Nine Mile - Future Residential Exposure Scenario

Scenario Timeframe:	Future
Medium:	Groundwater
Exposure Medium:	Groundwater
Exposure Point:	Tap Water

Chemical of Potential Concern	Units	Arithmetic Mean	95% UCL of Normal Data	Maximum Detected Concentration	Maximum Qualifier	EPC Units	Reasonable Maximum Exposure			Central Tendency		
							Medium EPC Value	Medium EPC Statistic	Medium EPC Rationale	Medium EPC Value	Medium EPC Statistic	Medium EPC Rationale
Antimony	ug/L	1.6	2.14	18		ug/L	2.1	95% UCL-NP	D-Test (2)	1.67	Mean-T	D-Test (2)
Arsenic	ug/L	0.81	1.23	16.1		ug/L	1.25	95% UCL-NP	D-Test (1)	0.81	Mean-N	D-Test (1)
Cadmium	ug/L	91.79	127	996	J	ug/L	130.85	95% UCL-NP	D-Test (2)	91.79	Mean-N (3)	D-Test (2)
Zinc	ug/L	14239	19372	145000		ug/L	19756	95% UCL-NP	D-Test (2)	14239	Mean-N (3)	D-Test (2)

NOTES:

For nondetect results, half the sample quantitation limit (SQL) was used as a proxy concentration. For duplicate sample results, the greater detected concentration or the lower SQL was used in the calculation.

J: The associated value is an estimated quantity.

D'Agostino's Test (WA State Dept. of Ecology Toxics Cleanup Program: Statistical Guidance for Ecology Site Managers. August 1992; and Statistical Methods for Environmental Pollution Monitoring. Gilbert 1987).
Normal UCL values calculated using MTCA Stat *v2.1* .

Non-parametric UCL values calculated using the Bootstrap method in SYSTAT *v9* . This method is discussed in "The Lognormal Distribution in Environmental Applications" (U.S. EPA 1997).

Statistics:
Maximum Detected Value (Max)
95% UCL of Normal Data (95% UCL-N)
95% non-parametric UCL (95% UCL-NP)
Mean of Log-transformed Data (Mean-T)
Mean of Normal Data (Mean-N)

(1) D'Agostino's Test indicates data are neither normally nor lognormally distributed.

(2) D'Agostino's Test indicates data are lognormally distributed.

(3) The Mean-T value exceeded the 95% UCL-NP for this chemical, likely due to the large variability in the data set (see Attachment B). Therefore, the arithmetic mean was selected as a more appropriate Central Tendency value.

TABLE 3.8.4
MEDIUM-SPECIFIC EXPOSURE POINT CONCENTRATION SUMMARY
Nine Mile - Neighborhood Recreational Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Surface Soil
Exposure Point:	Waste Piles

Chemical of Potential Concern	Units	Arithmetic Mean	95% UCL of Normal Data	Maximum Detected Concentration	Maximum Qualifier	EPC Units	Reasonable Maximum Exposure			Central Tendency		
							Medium EPC Value	Medium EPC Statistic	Medium EPC Rationale	Medium EPC Value	Medium EPC Statistic	Medium EPC Rationale
Antimony	mg/kg	22.74	42.99	242	J	mg/kg	42.34	95% UCL-NP	W-Test (2)	19.81	Mean-T	W-Test (2)
Arsenic	mg/kg	200.19	479.99	3610		mg/kg	518.49	95% UCL-NP	W-Test (2)	95.57	Mean-T	W-Test (2)
Cadmium	mg/kg	19.39	30.79	146		mg/kg	31.67	95% UCL-NP	W-Test (1)	19.39	Mean-N	W-Test (1)
Iron	mg/kg	36673	43654	87900		mg/kg	43032	95% UCL-NP	W-Test (2)	36629	Mean-T	W-Test (2)
Manganese	mg/kg	1445	1772	3360		mg/kg	1721	95% UCL-NP	W-Test (2)	1478	Mean-T	W-Test (2)
Zinc	mg/kg	3983	5975	25800		mg/kg	6196	95% UCL-NP	W-Test (2)	5147	Mean-T	W-Test (2)

NOTES:

For nondetect results, half the sample quantitation limit (SQL) was used as a proxy concentration. For duplicate sample results, the greater detected concentration or the lower SQL was used in the calculatior

J: The associated value is an estimated quantity.

W-Test: Developed by Shapiro and Wilk (Supplemental Guidance to RAGs: Calculating the Concentration Term. OSWER Directive 9285.7-081, May 1992).

Normal UCL values calculated using MTCA Stat *v2.1* .

Non-parametric UCL values calculated using the Bootstrap method in SYSTAT *v9* . This method is discussed in "The Lognormal Distribution in Environmental Applications" (U.S. EPA 1997).

Statistics:
Maximum Detected Value (Max)
95% UCL of Normal Data (95% UCL-N)
95% non-parametric UCL (95% UCL-NP)
Mean of Log-transformed Data (Mean-T)
Mean of Normal Data (Mean-N)

(1) Shapiro-Wilks W-Test indicates data are neither normally nor lognormally distributed.
(2) Shapiro-Wilks W-Test indicates data are lognormally distributed.

TABLE 3.8.5

MEDIUM-SPECIFIC EXPOSURE POINT CONCENTRATION SUMMARY

Nine Mile - Neighborhood Recreational Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Sediment
Exposure Medium:	Sediment
Exposure Point:	Sediment at Nine Mile/Canyon Creek

Chemical of Potential Concern	Units	Arithmetic Mean	95% UCL of Normal Data	Maximum Detected Concentration	Maximum Qualifier	EPC Units	Reasonable Maximum Exposure			Central Tendency		
							Medium EPC Value	Medium EPC Statistic	Medium EPC Rationale	Medium EPC Value	Medium EPC Statistic	Medium EPC Rationale
Antimony	mg/kg	39.39	72.03	288	J	mg/kg	71.25	95% UCL-NP	W-Test (1)	47.54	Mean-T	W-Test (1)
Arsenic	mg/kg	27.7	50.96	216	J	mg/kg	50.62	95% UCL-NP	W-Test (1)	23.12	Mean-T	W-Test (1)
Cadmium	mg/kg	37.35	60.1	194	J	mg/kg	59.2	95% UCL-NP	W-Test (1)	58.8	Mean-T	W-Test (1)
Iron	mg/kg	26882	35949	98700		mg/kg	36476	95% UCL-NP	W-Test (1)	26575	Mean-T	W-Test (1)
Manganese	mg/kg	1874	2720	6830		mg/kg	2626	95% UCL-NP	W-Test (1)	1856	Mean-T	W-Test (1)
Zinc	mg/kg	6037	8982	22400		mg/kg	8883	95% UCL-NP	W-Test (1)	8396	Mean-T	W-Test (1)

NOTES:

For nondetect results, half the sample quantitation limit (SQL) was used as a proxy concentration. For duplicate sample results, the greater detected concentration or the lower SQL was used in the calculatior

W-Test: Developed by Shapiro and Wilk (Supplemental Guidance to RAGs: Calculating the Concentration Term. OSWER Directive 9285.7-081, May 1992).

Normal UCL values calculated using MTCA Stat *v2.1* .

Non-parametric UCL values calculated using the Bootstrap method in SYSTAT *v9* . This method is discussed in "The Lognormal Distribution in Environmental Applications" (U.S. EPA 1997).

Statistics: Maximum Detected Value (Max)
95% UCL of Normal Data (95% UCL-N)
95% non-parametric UCL (95% UCL-NP)
Mean of Log-transformed Data (Mean-T)
Mean of Normal Data (Mean-N)

(1) Shapiro-Wilks W-Test indicates data are lognormally distributed.

TABLE 3.8.6

MEDIUM-SPECIFIC EXPOSURE POINT CONCENTRATION SUMMARY

Nine Mile - Neighborhood Recreational Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Surface Water
Exposure Medium:	Surface Water
Exposure Point:	Surface Water at Nine Mile/Canyon Creek

Chemical of Potential Concern	Units	Arithmetic Mean	95% UCL of Normal Data	Maximum Detected Concentration	Maximum Qualifier	EPC Units	Reasonable Maximum Exposure			Central Tendency		
							Medium EPC Value	Medium EPC Statistic	Medium EPC Rationale	Medium EPC Value	Medium EPC Statistic	Medium EPC Rationale
Arsenic	ug/L	0.77	1.05	10.9		ug/L	1.1	95% UCL-NP	D-Test (1)	0.7	Mean-T	D-Test (1)
Cadmium	ug/L	53.15	101.89	1810	J	ug/L	111.02	95% UCL-NP	D-Test (1)	58.92	Mean-T	D-Test (1)
Manganese	ug/L	748.82	1512	26800		ug/L	1699	95% UCL-NP	D-Test (2)	748.82	Mean-N	D-Test (2)
Mercury	ug/L	0.27	0.31	0.17	J	ug/L	0.31	95% UCL-NP	D-Test (2)	0.27	Mean-N	D-Test (2)

NOTES:

For nondetect results, half the sample quantitation limit (SQL) was used as a proxy concentration. For duplicate sample results, the greater detected concentration or the lower SQL was used in the calculation.

J: The associated value is an estimated quantity.

D'Agostino's Test (WA State Dept. of Ecology Toxics Cleanup Program: Statistical Guidance for Ecology Site Managers. August 1992; and Statistical Methods for Environmental Pollution Monitoring. Gilbert 198

Normal UCL values calculated using MTCA Stat *v2.1* .

Non-parametric UCL values calculated using the Bootstrap method in SYSTAT *v9* . This method is discussed in "The Lognormal Distribution in Environmental Applications" (U.S. EPA 1997).

Statistics: Maximum Detected Value (Max)
95% UCL of Normal Data (95% UCL-N)
95% non-parametric UCL (95% UCL-NP)
Mean of Log-transformed Data (Mean-T)
Mean of Normal Data (Mean-N)

(1) D'Agostino's Test indicates data are lognormally distributed.

(2) D'Agostino's Test indicates data are neither normally nor lognormally distributed.

TABLE 3.8.7
MEDIUM-SPECIFIC EXPOSURE POINT CONCENTRATION SUMMARY
Nine Mile - Occupational Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Surface/Subsurface Soil
Exposure Point:	Construction Site Soil

Chemical of Potential Concern	Units	Arithmetic Mean	95% UCL of Normal Data	Maximum Detected Concentration	Maximum Qualifier	EPC Units	Reasonable Maximum Exposure			Central Tendency		
							Medium EPC Value	Medium EPC Statistic	Medium EPC Rationale	Medium EPC Value	Medium EPC Statistic	Medium EPC Rationale
Antimony	mg/kg	9.46	11.15	256		mg/kg	10.61	95% UCL-NP	(1)	6.89	Mean - T	(1)
Arsenic	mg/kg	21.89	25.68	1150		mg/kg	24.97	95% UCL-NP	(1)	18.16	Mean - T	(1)
Cadmium	mg/kg	6.27	6.74	97		mg/kg	6.54	95% UCL-NP	(1)	7.64	Mean - T	(1)
Iron	mg/kg	21743	22474	123000		mg/kg	21976	95% UCL-NP	(1)	21308	Mean - T	(1)
Manganese	mg/kg	1107	1156	7540		mg/kg	1135	95% UCL-NP	(1)	1115	Mean - T	(1)
Zinc	mg/kg	1037	1100	8090		mg/kg	1070	95% UCL-NP	(1)	1030	Mean - T	(1)

NOTES:
For nondetect results, half the sample quantitation limit (SQL) was used as a proxy concentration. For duplicate sample results, the greater detected concentration or the lower SQL was used in the calculation
Normal UCL values calculated using MTCA Stat *v2.1* .
Non-parametric UCL values calculated using the Bootstrap method in SYSTAT *v9* . This method is discussed in "The Lognormal Distribution in Environmental Applications" (U.S. EPA 1997).

Statistics: Maximum Detected Value (Max)
95% UCL of Normal Data (95% UCL-N)
95% non-parametric UCL (95% UCL-NP)
Mean of Log-transformed Data (Mean-T)
Mean of Normal Data (Mean-N)

(1) Sample size > 500; however, MTCA Stat checks distribution for sample sizes < 500. Therefore, data plotted on histograms using SYSTATv9. Distribution of the data appear lognormal.

TABLE 3.9.1
MEDIUM-SPECIFIC EXPOSURE POINT CONCENTRATION SUMMARY
Mullan - Residential Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Surface Soil
Exposure Point:	Yard Soil

Chemical of Potential Concern	Units	Arithmetic Mean	95% UCL of Normal Data	Maximum Detected Concentration	Maximum Qualifier	EPC Units	Reasonable Maximum Exposure			Central Tendency		
							Medium EPC Value	Medium EPC Statistic	Medium EPC Rationale	Medium EPC Value	Medium EPC Statistic	Medium EPC Rationale
Antimony	mg/kg	13.22	18.64	201		mg/kg	20.05	95% UCL-NP	D-Test (1)	11.04	Mean-T	D-Test (1)
Arsenic	mg/kg	27.3	37.06	433		mg/kg	39.04	95% UCL-NP	D-Test (2)	27.3	Mean -N	D-Test (2)
Cadmium	mg/kg	5.07	6.38	42.5		mg/kg	6.39	95% UCL-NP	D-Test (2)	5.07	Mean -N	D-Test (2)
Iron	mg/kg	22709	24844	70400		mg/kg	24742	95% UCL-NP	D-Test (2)	22709	Mean -N	D-Test (2)
Manganese	mg/kg	1430	1614	4830		mg/kg	1628	95% UCL-NP	D-Test (1)	1412	Mean-T	D-Test (1)
Zinc	mg/kg	1082	1307	6450		mg/kg	1375	95% UCL-NP	D-Test (1)	1049	Mean-T	D-Test (1)

NOTES:

For nondetect results, half the sample quantitation limit (SQL) was used as a proxy concentration. For duplicate sample results, the greater detected concentration or the lower SQL was used in the calculation.

D'Agostino's Test (WA State Dept. of Ecology Toxics Cleanup Program: Statistical Guidance for Ecology Site Managers. August 1992; and Statistical Methods for Environmental Pollution Monitoring. Gilbert 198

Normal UCL values calculated using MTCA Stat *v2.1* .

Non-parametric UCL values calculated using the Bootstrap method in SYSTAT *v9* . This method is discussed in "The Lognormal Distribution in Environmental Applications" (U.S. EPA 1997).

Statistics: Maximum Detected Value (Max)
95% UCL of Normal Data (95% UCL-N)
95% non-parametric UCL (95% UCL-NP)
Mean of Log-transformed Data (Mean-T)
Mean of Normal Data (Mean-N)

(1) D'Agostino's Test indicates data are lognormally distributed.

(2) D'Agostino's Test indicates data are neither normally nor lognormally distributed.

TABLE 3.9.2

MEDIUM-SPECIFIC EXPOSURE POINT CONCENTRATION SUMMARY

Mullan - Residential Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Groundwater
Exposure Medium:	Groundwater
Exposure Point:	Tap Water

Chemical of Potential Concern	Units	Arithmetic Mean	95% UCL of Normal Data	Maximum Detected Concentration	Maximum Qualifier	EPC Units	Reasonable Maximum Exposure			Central Tendency		
							Medium EPC Value	Medium EPC Statistic	Medium EPC Rationale	Medium EPC Value	Medium EPC Statistic	Medium EPC Rationale
Arsenic	ug/L	0.13	0.18	0.25		ug/L	0.25	Max	(1)	0.13	Mean-N	(2)

NOTES:

For nondetect results, half the sample quantitation limit (SQL) was used as a proxy concentration. For duplicate sample results, the greater detected concentration or the lower SQL was used in the calculation.

Static and purged tap water results were averaged.

Normal UCL values calculated using MTCA Stat *v2.1* .

Statistics: Maximum Detected Value (Max)
95% UCL of Normal Data (95% UCL-N)
95% non-parametric UCL (95% UCL-NP)
Mean of Log-transformed Data (Mean-T)
Mean of Normal Data (Mean-N)

(1) Distribution of the data could not be determined because less than 10 samples were available; therefore, the maximum concentration was used as the Reasonable Maximum Exposure EPC.

(2) Distribution of the data could not be determined because less than 10 samples were available; therefore, the arithmetic mean was used as the Central Tendency EPC.

TABLE 3.9.3
MEDIUM-SPECIFIC EXPOSURE POINT CONCENTRATION SUMMARY
Mullan - Neighborhood Recreational Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Surface Soil
Exposure Point:	Waste Piles

Chemical of Potential Concern	Units	Arithmetic Mean	95% UCL of Normal Data	Maximum Detected Concentration	Maximum Qualifier	EPC Units	Reasonable Maximum Exposure			Central Tendency		
							Medium EPC Value	Medium EPC Statistic	Medium EPC Rationale	Medium EPC Value	Medium EPC Statistic	Medium EPC Rationale
Antimony	mg/kg	11.84	21.07	20.3		mg/kg	20.3	Max	(1)	11.84	Mean-N	(1)
Arsenic	mg/kg	23.6	39.5	42.1		mg/kg	42.1	Max	(1)	23.6	Mean-N	(1)
Cadmium	mg/kg	5.57	11.94	13.8		mg/kg	13.8	Max	(1)	5.57	Mean-N	(1)
Iron	mg/kg	22180	31200	33200		mg/kg	33200	Max	(1)	22180	Mean-N	(1)
Manganese	mg/kg	2103	2822	2750		mg/kg	2750	Max	(1)	2103	Mean-N	(1)
Zinc	mg/kg	1042	2239	2880		mg/kg	2880	Max	(1)	1042	Mean-N	(1)

NOTES:

For nondetect results, half the sample quantitation limit (SQL) was used as a proxy concentration. For duplicate sample results, the greater detected concentration or the lower SQL was used in the calculatior
Normal UCL values calculated using MTCA Stat *v2.1* .

Statistics: Maximum Detected Value (Max)
95% UCL of Normal Data (95% UCL-N)
95% non-parametric UCL (95% UCL-NP)
Mean of Log-transformed Data (Mean-T)
Mean of Normal Data (Mean-N)

(1) Distribution of the data could not be determined because less than 10 samples were available; therefore, the maximum concentration was used for the EPC.

TABLE 3.9.4
MEDIUM-SPECIFIC EXPOSURE POINT CONCENTRATION SUMMARY
Mullan - Neighborhood Recreational Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Sediment
Exposure Medium:	Sediment
Exposure Point:	Sediment at South Fork CDAR

Chemical of Potential Concern	Units	Arithmetic Mean	95% UCL of Normal Data	Maximum Detected Concentration	Maximum Qualifier	EPC Units	Reasonable Maximum Exposure			Central Tendency		
							Medium EPC Value	Medium EPC Statistic	Medium EPC Rationale	Medium EPC Value	Medium EPC Statistic	Medium EPC Rationale
Antimony	mg/kg	2.72	4.45	14.7	J	mg/kg	4.46	95% UCL-NP	W-Test (1)	2.61	Mean-T	W-Test (1)
Arsenic	mg/kg	12.87	16.17	28.4	J	mg/kg	15.89	95% UCL-NP	W-Test (1)	13.21	Mean-T	W-Test (1)
Cadmium	mg/kg	9.9	19.91	81	J	mg/kg	19.83	95% UCL-NP	W-Test (1)	9.66	Mean-T	W-Test (1)
Iron	mg/kg	33569	47504	121000		mg/kg	47300	95% UCL-NP	W-Test (1)	34079	Mean-T	W-Test (1)
Manganese	mg/kg	3434	5270	15700		mg/kg	5233	95% UCL-NP	W-Test (1)	3513	Mean-T	W-Test (1)
Zinc	mg/kg	2334	4012	13700	J	mg/kg	4017	95% UCL-NP	W-Test (1)	2208	Mean-T	W-Test (1)

NOTES:

For nondetect results, half the sample quantitation limit (SQL) was used as a proxy concentration. For duplicate sample results, the greater detected concentration or the lower SQL was used in the calculatior

J: The associated value is an estimated quantity.

W-Test: Developed by Shapiro and Wilk (Supplemental Guidance to RAGs: Calculating the Concentration Term. OSWER Directive 9285.7-081, May 1992).

Normal UCL values calculated using MTCA Stat *v2.1* .

Non-parametric UCL values calculated using the Bootstrap method in SYSTAT *v9* . This method is discussed in "The Lognormal Distribution in Environmental Applications" (U.S. EPA 1997).

Statistics: Maximum Detected Value (Max)
95% UCL of Normal Data (95% UCL-N)
95% non-parametric UCL (95% UCL-NP)
Mean of Log-transformed Data (Mean-T)
Mean of Normal Data (Mean-N)

(1) Shapiro-Wilks W Test indicates data are lognormally distributed.

TABLE 3.9.5

MEDIUM-SPECIFIC EXPOSURE POINT CONCENTRATION SUMMARY

Mullan - Neighborhood Recreational Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Surface Water
Exposure Medium:	Surface Water
Exposure Point:	Surface Water at South Fork CDAR

Chemical of Potential Concern	Units	Arithmetic Mean	95% UCL of Normal Data	Maximum Detected Concentration	Maximum Qualifier	EPC Units	Reasonable Maximum Exposure			Central Tendency		
							Medium EPC Value	Medium EPC Statistic	Medium EPC Rationale	Medium EPC Value	Medium EPC Statistic	Medium EPC Rationale
Arsenic	ug/L	0.51	0.59	1.8	J	ug/L	0.6	95% UCL-NP	D-Test (1)	0.54	Mean-T	D-Test (1)
Cadmium	ug/L	0.81	1.29	15.2		ug/L	1.24	95% UCL-NP	D-Test (2)	0.81	Mean-N	D-Test (2)
Manganese	ug/L	13.69	18.73	127		ug/L	18.96	95% UCL-NP	D-Test (1)	13.66	Mean-T	D-Test (1)
Mercury	ug/L	0.08	0.09	0.32		ug/L	0.086	95% UCL-NP	D-Test (2)	0.08	Mean-N	D-Test (2)

NOTES:

For nondetect results, half the sample quantitation limit (SQL) was used as a proxy concentration. For duplicate sample results, the greater detected concentration or the lower SQL was used in the calculation.

J: The associated value is an estimated quantity.

D'Agostino's Test (WA State Dept. of Ecology Toxics Cleanup Program: Statistical Guidance for Ecology Site Managers. August 1992; and Statistical Methods for Environmental Pollution Monitoring. Gilbert 1987).
Normal UCL values calculated using MTCA Stat *v2.1* .

Non-parametric UCL values calculated using the Bootstrap method in SYSTAT *v9* . This method is discussed in "The Lognormal Distribution in Environmental Applications" (U.S. EPA 1997).

Statistics: Maximum Detected Value (Max)
95% UCL of Normal Data (95% UCL-N)
95% non-parametric UCL (95% UCL-NP)
Mean of Log-transformed Data (Mean-T)
Mean of Normal Data (Mean-N)

(1) D'Agostino's Test indicates data are lognormally distributed.

(2) D'Agostino's Test indicates data are neither normally nor lognormally distributed.

TABLE 3.9.6
MEDIUM-SPECIFIC EXPOSURE POINT CONCENTRATION SUMMARY
Mullan - Occupational Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Surface/Subsurface Soil
Exposure Point:	Construction Site Soil

Chemical of Potential Concern	Units	Arithmetic Mean	95% UCL of Normal Data	Maximum Detected Concentration	Maximum Qualifier	EPC Units	Reasonable Maximum Exposure			Central Tendency		
							Medium EPC Value	Medium EPC Statistic	Medium EPC Rationale	Medium EPC Value	Medium EPC Statistic	Medium EPC Rationale
Antimony	mg/kg	14.09	18.31	295		mg/kg	18.68	95% UCL-NP	D-Test (1)	14.09	Mean -N	D-Test (1)
Arsenic	mg/kg	26.48	31.81	433		mg/kg	31.66	95% UCL-NP	D-Test (1)	26.48	Mean -N	D-Test (1)
Cadmium	mg/kg	4.22	4.99	73.4		mg/kg	5.04	95% UCL-NP	D-Test (1)	4.22	Mean -N	D-Test (1)
Iron	mg/kg	24863	27083	147000		mg/kg	26912	95% UCL-NP	D-Test (1)	24863	Mean -N	D-Test (1)
Manganese	mg/kg	1688	1957	20200		mg/kg	1941	95% UCL-NP	D-Test (1)	1688	Mean -N	D-Test (1)
Zinc	mg/kg	833	947	9250		mg/kg	953	95% UCL-NP	D-Test (2)	823	Mean -T	D-Test (2)

NOTES:

For nondetect results, half the sample quantitation limit (SQL) was used as a proxy concentration. For duplicate sample results, the greater detected concentration or the lower SQL was used in the calculation.
D'Agostino's Test (WA State Dept. of Ecology Toxics Cleanup Program: Statistical Guidance for Ecology Site Managers. August 1992; and Statistical Methods for Environmental Pollution Monitoring. Gilbert 198
Normal UCL values calculated using MTCA Stat *v2.1* .
Non-parametric UCL values calculated using the Bootstrap method in SYSTAT *v9* . This method is discussed in "The Lognormal Distribution in Environmental Applications" (U.S. EPA 1997).

Statistics:

Maximum Detected Value (Max)
95% UCL of Normal Data (95% UCL-N)
95% non-parametric UCL (95% UCL-NP)
Mean of Log-transformed Data (Mean-T)
Mean of Normal Data (Mean-N)

(1) D'Agostino's Test indicates data are neither normally nor lognormally distributed.
(2) D'Agostino's Test indicates data are lognormally distributed.

TABLE 3.10.1
MEDIUM-SPECIFIC EXPOSURE POINT CONCENTRATION SUMMARY
Blackwell Island - Public Recreational Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Soil/Sediment
Exposure Medium:	Soil/Sediment
Exposure Point:	Soil/Sediment at Spokane River

Chemical of Potential Concern	Units	Arithmetic Mean	95% UCL of Normal Data	Maximum Detected Concentration	Maximum Qualifier	EPC Units	Reasonable Maximum Exposure			Central Tendency		
							Medium EPC Value	Medium EPC Statistic	Medium EPC Rationale	Medium EPC Value	Medium EPC Statistic	Medium EPC Rationale
Antimony	mg/kg	2.75	3.22	5.5		mg/kg	3.195	95% UCL-NP	W-Test (1)	2.78	Mean-T	W-Test (1)
Arsenic	mg/kg	41.03	50	83.4		mg/kg	50	95% UCL-N	W-Test (2)	41.03	Mean-N	W-Test (2)
Cadmium	mg/kg	11.23	13.4	21.6		mg/kg	13.4	95% UCL-N	W-Test (2)	11.23	Mean-N	W-Test (2)
Iron	mg/kg	43133	49107	66800		mg/kg	48881	95% UCL-NP	W-Test (1)	43485	Mean-T	W-Test (1)
Manganese	mg/kg	2956	3641	7480		mg/kg	3666	95% UCL-NP	W-Test (1)	2996	Mean-T	W-Test (1)
Zinc	mg/kg	1575	1832	2460		mg/kg	1800	95% UCL-NP	W-Test (3)	1575	Mean-N	W-Test (3)

NOTES:

For nondetect results, half the sample quantitation limit (SQL) was used as a proxy concentration. For duplicate sample results, the greater detected concentration or the lower SQL was used in the calculation.

W-Test: Developed by Shapiro and Wilk (Supplemental Guidance to RAGs: Calculating the Concentration Term. OSWER Directive 9285.7-081, May 1992).

Normal UCL values calculated using MTCA Stat *v2.1* .

Non-parametric UCL values calculated using the Bootstrap method in SYSTAT *v9* . This method is discussed in "The Lognormal Distribution in Environmental Applications" (U.S. EPA 1997).

Statistics: Maximum Detected Value (Max)
95% UCL of Normal Data (95% UCL-N)
95% non-parametric UCL (95% UCL-NP)
Mean of Log-transformed Data (Mean-T)
Mean of Normal Data (Mean-N)

(1) Shapiro-Wilks W-Test indicates data are lognormally distributed.
(2) Shapiro-Wilks W-Test indicates data are normally distributed.
(3) Shapiro-Wilks W-Test indicates data are neither normally nor lognormally distributed.

TABLE 3.10.2
MEDIUM-SPECIFIC EXPOSURE POINT CONCENTRATION SUMMARY
Blackwell Island - Public Recreational Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Surface Water
Exposure Medium:	Surface Water
Exposure Point:	Surface Water at Spokane River

Chemical of Potential Concern	Units	Arithmetic Mean	95% UCL of Normal Data	Maximum Detected Concentration	Maximum Qualifier	EPC Units	Reasonable Maximum Exposure			Central Tendency		
							Medium EPC Value	Medium EPC Statistic	Medium EPC Rationale	Medium EPC Value	Medium EPC Statistic	Medium EPC Rationale
Arsenic	ug/L	10.56	14.99	20.8		ug/L	20.8	Max	(1)	10.56	Mean-N	(2)
Cadmium	ug/L	20.01	33.34	47.9		ug/L	47.9	Max	(1)	20.01	Mean-N	(2)
Manganese	ug/L	2792	4781	6980		ug/L	6980	Max	(1)	2792	Mean-N	(2)
Mercury	ug/L	0.09	0.1	0.1	U	ug/L	0.1	Max	(1)	0.09	Mean-N	(2)

NOTES:
For nondetect results, half the sample quantitation limit (SQL) was used as a proxy concentration. For duplicate sample results, the greater detected concentration or the lower SQL was used in the calculatic
U: The analyte was not detected above the reported sample detection limit. All values reported for this analyte were nondetect.
Normal UCL values calculated using MTCA Stat *v2.1* .

Statistics: Maximum Detected Value (Max)
95% UCL of Normal Data (95% UCL-N)
95% non-parametric UCL (95% UCL-NP)
Mean of Log-transformed Data (Mean-T)
Mean of Normal Data (Mean-N)

(1) Distribution of the data could not be determined because less than 10 samples were available; therefore, the maximum concentration was used as the Reasonable Maximum Exposure EPC.

TABLE 3.11.1

MEDIUM-SPECIFIC EXPOSURE POINT CONCENTRATION SUMMARY

All Geographical Areas - Residential Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Plant Tissue
Exposure Point:	Homegrown Vegetables

Chemical of Potential Concern	Units	Arithmetic Mean	95% UCL of Normal Data	Maximum Detected Concentration	Maximum Qualifier	EPC Units	Reasonable Maximum Exposure			Central Tendency		
							Medium EPC Value	Medium EPC Statistic	Medium EPC Rationale	Medium EPC Value	Medium EPC Statistic	Medium EPC Rationale
Arsenic	mg/kg	0.02	0.03	0.1128		mg/kg	0.025	95% UCL-NP	W-Test (1)	0.02	Mean-T	W-Test (1)
Cadmium	mg/kg	0.22	0.32	1.85		mg/kg	0.319	95% UCL-NP	W-Test (1)	0.21	Mean-T	W-Test (1)

NOTES:

For nondetect results, half the sample quantitation limit (SQL) was used as a proxy concentration. For duplicate sample results, the higher concentration or the lower SQL was used in the calculation.

W-Test: Developed by Shapiro and Wilk (Supplemental Guidance to RAGs: Calculating the Concentration Term. OSWER Directive 9285.7-081, May 1992).

Normal UCL values calculated using MTCA Stat *v2.1*.

Non-parametric UCL values calculated using the Bootstrap method in SYSTAT *v9*. This method is discussed in "The Lognormal Distribution in Environmental Applications" (U.S. EPA 1997).

Statistics: Maximum Detected Value (Max)
95% UCL of Normal Data (95% UCL-N)
95% non-parametric UCL (95% UCL-NP)
Mean of Log-transformed Data (Mean-T)
Mean of Normal Data (Mean-N)

(1) Shapiro-Wilks W-Test indicates data are lognormally distributed.

TABLE 3.11.2
MEDIUM-SPECIFIC EXPOSURE POINT CONCENTRATION SUMMARY
All Geographical Areas - Recreational and Subsistence Exposure Scenarios

Scenario Timeframe:	Current/Future
Medium:	Surface Water/Sediment
Exposure Medium:	Animal Tissue
Exposure Point:	Fish from Lower CDAR

Chemical of Potential Concern	Units	Arithmetic Mean	95% UCL of Normal Data	Maximum Detected Concentration	Maximum Qualifier	EPC Units	Reasonable Maximum Exposure			Central Tendency		
							Medium EPC Value	Medium EPC Statistic	Medium EPC Rationale	Medium EPC Value	Medium EPC Statistic	Medium EPC Rationale
Bullhead												
Cadmium	mg/kg	0.01	0.01	0.069		mg/kg	0.008	95% UCL-NP	D-Test (1)	0.01	Mean-N	D-Test (1)
Mercury	mg/kg	0.05	0.05	0.21		mg/kg	0.052	95% UCL-NP	D-Test (1)	0.05	Mean-N	D-Test (1)
Northern Pike												
Cadmium	mg/kg	0.01	0.01	0.02		mg/kg	0.006	95% UCL-NP	D-Test (1)	0.01	Mean-N	D-Test (1)
Mercury	mg/kg	0.11	0.13	0.48		mg/kg	0.133	95% UCL-NP	D-Test (2)	0.12	Mean-T	D-Test (2)
Perch												
Cadmium	mg/kg	0.03	0.04	0.169		mg/kg	0.037	95% UCL-NP	D-Test (2)	0.03	Mean-T	D-Test (2)
Mercury	mg/kg	0.08	0.09	0.23		mg/kg	0.089	95% UCL-NP	D-Test (2)	0.08	Mean-T	D-Test (2)

NOTES:

For nondetect results, half the sample quantitation limit (SQL) was used as a proxy concentration. For duplicate sample results, the greater detected concentration or the lower SQL was used in the calc

D'Agostino's Test (WA State Dept. of Ecology Toxics Cleanup Program: Statistical Guidance for Ecology Site Managers. August 1992; and Statistical Methods for Environmental Pollution Monitoring. Gill

Normal UCL values calculated using MTCA Stat *v2.1* .

Non-parametric UCL values calculated using the Bootstrap method in SYSTAT *v9* . This method is discussed in "The Lognormal Distribution in Environmental Applications" (U.S. EPA 1997).

Statistics:
Maximum Detected Value (Max)
95% UCL of Normal Data (95% UCL-N)
95% non-parametric UCL (95% UCL-NP)
Mean of Log-transformed Data (Mean-T)
Mean of Normal Data (Mean-N)

(1) D'Agostino's Test indicates data are neither normally nor lognormally distributed.

(2) D'Agostino's Test indicates data are lognormally distributed.

TABLE 4.1
VALUES USED FOR DAILY INTAKE CALCULATIONS
Residential Exposure

Scenario Timeframe: Current/Future
Medium: Soil
Exposure Medium: Surface Soil
Exposure Point: Yard Soil
Receptor Population: Residents
Receptor Age: Adults and Children

Exposure Route	Parameter Code	Parameter Definition	Units	RME Value	RME Rationale/ Reference	CT Value	CT Rationale/ Reference	Intake Equation/ Model Name
Ingestion	Csoil	Chemical Concentration in Soil	mg/kg	See Table Series 3	See Table Series 3	See Table Series 3	See Table Series 3	Chronic Daily Intake (CDI) (mg/kg/day) =
	IRSa	Ingestion Rate of Soil (adult)	mg/day	100	USEPA 1991	50	USEPA 1993	
	IRSc	Ingestion Rate of Soil (child)	mg/day	200	USEPA 1991	100	USEPA 1993	For evaluating child exposure to noncarcinogens:
	EF	Exposure Frequency	days/year	350	USEPA 1991	260 (1)	USEPA 1993	= Csoil x IRS x EF x ED x AbsO x CF x 1/BW x 1/AT-N
	EDa	Exposure Duration (adult)	years	24	USEPA 1991	7	USEPA 1993	
	EDc	Exposure Duration (child)	years	6	USEPA 1991	2	USEPA 1993	For evaluating combined adult and child exposures:
	AbsO	Gastrointestinal Absorption	unitless	chemical specific (2)	USEPA 2000	chemical specific (2)	USEPA 2000	
	CF	Conversion Factor	kg/mg	1.0E-06	na	1.0E-06	na	IngFadj =
	BWa	Body Weight (adult)	kilograms	70	USEPA 1991	70	USEPA 1991	[(EDc x IRSc) / BWc] + [(EDa x IRSa) / BWa]
	BWc	Body Weight (child)	kilograms	15	USEPA 1991	15	USEPA 1991	Therefore,
	AT-C	Averaging Time (Cancer)	days	25,550	USEPA 1989	25,550	USEPA 1989	CDIadj = Csoil x IngFadj x EF x AbsO x CF x 1/AT
	AT-N	Averaging Time (Non-cancer)	days	ED x 365	USEPA 1989	ED x 365	USEPA 1989	
Dermal Contact	Csoil	Chemical Concentration in Soil	mg/kg	See Table Series 3	See Table Series 3	See Table Series 3	See Table Series 3	CDI (mg/kg-day) =
	SAa	Surface Area Available for Contact (adult)	cm^2	2,500	USEPA 1998a	2,500	USEPA 1998a	
	SAc	Surface Area Available for Contact (child)	cm^2	2,200	USEPA 1998a	2,200	USEPA 1998a	For evaluating child exposure to noncarcinogens :
	EF	Exposure Frequency	events/year	350	USEPA 1991	260 (1)	USEPA 1993	= Csoil x SA x EF x ED x AF x AbsD x CF x 1/BW x 1/AT-N
	EDa	Exposure Duration (adult)	years	24	USEPA 1991	7	USEPA 1993	
	EDc	Exposure Duration (child)	years	6	USEPA 1991	2	USEPA 1993	For evaluating carcinogens (combined adult and child):
	AFa	Adherence Factor (adult)	mg/cm^2 -event	0.1	USEPA 1998a	0.1	USEPA 1998a	SFSadj =
	AFc	Adherence Factor (child)	mg/cm^2-event	0.2	USEPA 1998a	0.2	USEPA 1998a	= [(EDc x SAc x AFc) / BWc] + [(EDa x SAa x AFa) / BWa]
	AbsD	Dermal Absorption	unitless	As = 0.03; Cd = 0.001	USEPA 1998a	As = 0.03; Cd = 0.001	USEPA 1998a	Therefore,
	CF	Conversion Factor	kg/mg	1.0E-06	na	1.0E-06	na	CDIadj = Csoil x EF x CF x AbsD x SFSadj x 1/AT
	BWa	Body Weight (adult)	kilograms	70	USEPA 1991	70	USEPA 1991	
	BWc	Body Weight (child)	kilograms	15	USEPA 1991	15	USEPA 1991	
	AT-C	Averaging Time (Cancer)	days	25,550	USEPA 1989	25,550	USEPA 1989	
	AT-N	Averaging Time (Non-cancer)	days	ED x 365	USEPA 1989	ED x 365	USEPA 1989	

NOTES: na: not applicable; -- not available

(1) Exposure frequency based on 3 months limited soil exposure due to snow-covered/frozen ground.

(2) Gastrointestinal absorption for arsenic is 60%, for all other chemicals it is assumed to be 100%.

TABLE 4.2
VALUES USED FOR DAILY INTAKE CALCULATIONS
Residential Exposure

Scenario Timeframe: Cuurent/Future
Medium: Groundwater
Exposure Medium: Groundwater
Exposure Point: Tap Water
Receptor Population: Residents
Receptor Age: Adults and Children

Exposure Route	Parameter Code	Parameter Definition	Units	RME Value	RME Rationale/ Reference	CT Value	CT Rationale/ Reference	Intake Equation/ Model Name
Ingestion	CW	Chemical Concentration in Water	µg/l	See Table Series 3	See Table Series 3	See Table Series 3	See Table Series 3	Chronic Daily Intake (CDI) (mg/kg/day) =
	IR-Wa	Ingestion Rate of Water (adult)	liters/day	2	USEPA 1991	1.4	USEPA 1993	
	IR-Wc	Ingestion Rate of Water (child)	liters/day	1	USEPA 1999a	1	USEPA 1999a	For evaluating child exposure to noncarcinogens:
	EF	Exposure Frequency	days/year	350	USEPA 1991	234	USEPA 1993	= CW x IR-W x EF x ED x CF x 1/BW x 1/AT-N
	EDa	Exposure Duration (adult)	years	24 (1)	USEPA 1991	7	USEPA 1993	
	EDc	Exposure Duration (child)	years	6 (1)	USEPA 1991	2	USEPA 1993	For evaluating combined adult and child exposures:
	CF	Conversion Factor	mg/µg	0.001	na	0.001	na	IngFadj =
	BWa	Body Weight (adult)	kilograms	70	USEPA 1991	70	USEPA 1991	= [(EDc x IR-Wc) / BWc] + [(EDa x IR-Wa) / BWa]
	BWc	Body Weight (child)	kilograms	15	USEPA 1991	15	USEPA 1991	Therefore,
	AT-C	Averaging Time (Cancer)	days	25,550	USEPA 1989	25,550	USEPA 1989	CDIadj = CW x EF x CF x IngFadj x 1/AT
	AT-N	Averaging Time (Non-cancer)	days	ED x 365	USEPA 1989	ED x 365	USEPA 1989	

NOTES: na: not applicable; -- not available; * not quantitatively evaluated, see text

(1) USEPA 1991 recommends an adult/child exposure duration of 24/6 years for ingestion of soil; For consistency, an exposure duration of 24/6 years was selected for ingestion of tap water.

TABLE 4.3

VALUES USED FOR DAILY INTAKE CALCULATIONS

Residential Exposure

Scenario Timeframe: Current/Future
Medium: Soil
Exposure Medium: Plant Tissue
Exposure Point: Homegrown Vegetables
Receptor Population: Residents
Receptor Age: Adults and Children

Exposure Route	Parameter Code	Parameter Definition	Units	RME Value	RME Rationale/ Reference	CT Value	CT Rationale/ Reference	Intake Equation/ Model Name
Ingestion	Cveg	Chemical Concentration in Vegetables	mg/kg	See Table 3	See Table 3	See Table 3	See Table 3	Chronic Daily Intake (CDI)(mg/kg/day) =
	IR-veg	Ingestion Rate of Vegetables	g/kg-day	5.04 (1)	USEPA 1997	0.492	USEPA 1997	
	EF	Exposure Frequency	days/year	365 (2)	prof. judgement	365 (2)	prof. judgement	For evaluating exposure to noncarcinogens:
	ED	Exposure Duration	years	30	USEPA 1991	9	USEPA 1993	= Cveg x IR-veg x EF x ED x CF x 1/AT-N
	CF	Conversion Factor	kg/g	1.0E-03	na	1.0E-03	na	
	AT-C	Averaging Time (Cancer)	days	25,550	USEPA 1989	25,550	USEPA 1989	For evaluating exposures to carcinogens:
	AT-N	Averaging Time (Non-cancer)	days	ED x 365	USEPA 1989	ED x 365	USEPA 1989	= Cveg x IR-veg x EF x ED x CF x 1/AT-C

NOTES: na: not applicable; -- not available

(1) Ingestion rate is seasonally adjusted and incorporates the body weights of all participants in the study (children + adults) from EPA 1997.

(2) Ingestion Rate of vegetables is an average daily consumption rate, therefore 365 days/year was selected as the frequency of exposure for both the RME and CT scenarios.

TABLE 4.4
VALUES USED FOR DAILY INTAKE CALCULATIONS
Neighborhood Recreational Exposure

Scenario Timeframe: Current/Future
Medium: Soil
Exposure Medium: Surface Soil
Exposure Point: Waste Piles
Receptor Population: Neighborhood Residents
Receptor Age: Children (4-11 years old)

Exposure Route	Parameter Code	Parameter Definition	Units	RME Value	RME Rationale/ Reference	CT Value	CT Rationale/ Reference	Intake Equation/ Model Name
Ingestion	Csoil	Chemical Concentration in Soil	mg/kg	See Table Series 3	See Table Series 3	--	--	Chronic Daily Intake (CDI) (mg/kg/day) (6) =
	IR-soil	Ingestion Rate of Soil	mg/day	300 (1)	USEPA 1999b	120 (1)	van Wijnen 1990	
	EF	Exposure Frequency	days/year	17 (2)	prof. judgement	8.5(2)	prof. judgement	= Csoil x IR-soil x EF x ED x AbsO x CF x 1/BW x 1/AT
	ED	Exposure Duration	years	7 (3)	prof. judgement	2	USEPA 1993	
	AbsO	Gastrointestinal Absorption	unitless	chemical specific (7)	USEPA 2000	chemical specific (7)	USEPA 2000	
	CF	Conversion Factor	kg/mg	1.0E-06	na	1.0E-06	na	
	BW	Body Weight	kilograms	28 (4)	USEPA 1997	28 (4)	USEPA 1997	
	AT-C	Averaging Time (Cancer)	days	25,550	USEPA 1989	25,550	USEPA 1989	
	AT-N	Averaging Time (Non-cancer)	days	ED x 365	USEPA 1989	ED x 365	USEPA 1989	
Dermal Contact	Csoil	Chemical Concentration in Soil	mg/kg	See Table Series 3	See Table Series 3	See Table Series 3	See Table Series 3	CDI (mg/kg-day) (6) =
	SA	Surface Area Available for Contact	cm^2	5,080	USEPA 1997	5,080	USEPA 1997	
	EF	Exposure Frequency	events/year	34 (5)	prof. judgement	17 (5)	prof. judgement	= Csoil x SA x EF x ED x AF x AbsD x CF x 1/BW x 1/AT
	ED	Exposure Duration	years	7 (3)	prof. judgement	2	USEPA 1993	
	AF	Adherence Factor (child)	mg/cm^2-event	0.2	USEPA 1998a	0.2	USEPA 1998a	
	AbsD	Dermal Absorption	unitless	As = 0.03; Cd = 0.001	USEPA 1998a	As = 0.03; Cd = 0.001	USEPA 1998a	
	CF	Conversion Factor	kg/mg	1.0E-06	na	1.0E-06	na	
	BW	Body Weight	kilograms	28 (4)	USEPA 1997	28 (4)	USEPA 1997	
	AT-C	Averaging Time (Cancer)	days	25,550	USEPA 1989	25,550	USEPA 1989	
	AT-N	Averaging Time (Non-cancer)	days	ED x 365	USEPA 1989	ED x 365	USEPA 1989	

NOTES: na: not applicable; -- not available

(1) 120 mg/day is the mean value of soil intake from study, whereas 300 mg/day is the RME value (90th percentile) from study.

(2) Exposure frequency calculated by: (34 weeks/year x 7 hours/day x 1 day/week) / 14 hours/day = 17 days/year for RME. The 7 hours/day assumes weekend outdoor exposure (EPA 1997).
For CT: (34 weeks/year x 7 hours/day x once every other week, 0.5) / 14 hours/day = 8.5 days/year.

(3) Neighborhood exposures assumes children between the ages of 4 through 11 are playing in the waste piles.

(4) Value is the average of boys and girls, ages 4 - 11, 50th percentile.

(5) Exposure frequency calculated by: 34 weeks/year x 1 event/week = 34 events/year for RME and 34 weeks/year, once every other week = 17 events/year for CT.

(6) The formula is not age-adjusted because adult exposures to this pathway are anticipated to be minimal, and the residential adult soil pathway will be protective of neighborhood exposures.

(7) Gastrointestinal absorption for arsenic is 60%, for all other chemicals it is assumed to be 100%.

TABLE 4.5
VALUES USED FOR DAILY INTAKE CALCULATIONS
Neighborhood Recreational Exposure

Scenario Timeframe: Current/Future
Medium: Soil
Exposure Medium: Surface Soil
Exposure Point: Upland Parks/Schools and Elk Creek Area
Receptor Population: Neighborhood Residents
Receptor Age: Children (4-11 years old)

Exposure Route	Parameter Code	Parameter Definition	Units	RME Value	RME Rationale/ Reference	CT Value	CT Rationale/ Reference	Intake Equation/ Model Name
Ingestion	Csoil	Chemical Concentration in Soil	mg/kg	See Table Series 3	See Table Series 3	See Table Series 3	See Table Series 3	Chronic Daily Intake (CDI) (mg/kg/day) (6) =
	IR-soil	Ingestion Rate of Soil	mg/day	300 (1)	USEPA 1999b	120 (1)	van Wijnen 1990	
	EF	Exposure Frequency	days/year	34 (2)	prof. judgement	17 (2a)	prof. judgement	For evaluating noncarcinogens (child only):
	ED	Exposure Duration	years	7 (3)	prof. judgement	2	EPA 1993	= Csoil x IR-soil x EF x ED x AbsO x CF x 1/BW x 1/AT-N
	AbsO	Gastrointestinal Absorption	unitless	chemical specific (7)	USEPA 2000	chemical specific (7)	USEPA 2000	
	CF	Conversion Factor	kg/mg	1.0E-06	na	1.0E-06	na	
	BW	Body Weight	kilograms	28 (4)	EPA 1997	28 (4)	EPA 1997	For evaluating carcinogens (child only) :
	AT-C	Averaging Time (Cancer)	days	25,550	EPA 1989	25,550	EPA 1989	= Csoil x IR-soil x EF x ED x AbsO x CF x 1/BW x 1/AT-C
	AT-N	Averaging Time (Non-cancer)	days	ED x 365	EPA 1989	ED x 365	EPA 1989	
Dermal Contact	Csoil	Chemical Concentration in Soil	mg/kg	See Table Series 3	See Table Series 3	See Table Series 3	See Table Series 3	CDI (mg/kg-day) (6) =
	SA	Surface Area Available for Contact	cm^2	5,080	EPA 1997	5,080	EPA 1997	
	EF	Exposure Frequency	events/year	68 (5)	prof. judgement	34 (5)	prof. judgement	= Csoil x SA x EF x ED x AF x AbsD x CFx 1/BW x 1/AT-N
	ED	Exposure Duration	years	7 (3)	prof. judgement	2	EPA 1993	
	AF	Adherence Factor (child)	mg/cm^2-event	0.2	EPA 1998a	0.2	EPA 1998a	For evaluating carcinogens (child only) :
	AbsD	Dermal Absorption	unitless	As = 0.03; Cd = 0.001	EPA 1998a	As = 0.03; Cd = 0.001	EPA 1998a	= Csoil x SA x EF x ED x AF x AbsD x CFx 1/BW x 1/AT-C
	CF	Conversion Factor	kg/mg	1.0E-06	na	1.0E-06	na	
	BW	Body Weight	kilograms	28 (4)	EPA 1997	28 (4)	EPA 1997	
	AT-C	Averaging Time (Cancer)	days	25,550	EPA 1989	25,550	EPA 1989	
	AT-N	Averaging Time (Non-cancer)	days	ED x 365	EPA 1989	ED x 365	EPA 1989	

NOTES: na: not applicable; -- not available

(1) 120 mg/day is the mean value of soil intake from study, whereas 300 mg/day is the RME value (90th percentile) from study.

(2) RME Exposure frequency for **child**: (34 wks/yr x 7 hrs/dy x 2 dys/wk) / 14 hrs/dy = 34 dys/yr. The 7 hrs/dy for 2 dys/wk assumes weekend outdoor exposure (EPA 1997).

(2a) CT Exposure frequency for **child**: (34 wks/yr x 7 hrs/day x 1 day/wk) / 14 hrs/day = 17 days/year.

(3) Neighborhood exposures assumes children between the ages of 4 through 11 are playing at parks and schools.

(4) Value is the average of boys and girls, ages 4 - 11, 50th percentile.

(5) Exposure frequency calculated by: 34 weeks/year x 2 event/week = 68 events/year for RME and 34 weeks/year, 1 event/week = 34 events/year for CT.

(6) The formula is not age-adjusted because adult exposures to this pathway are anticipated to be minimal, and the residential adult soil pathway will be protective of neighborhood exposures.

(7) Gastrointestinal absorption for arsenic is 60%, for all other chemicals it is assumed to be 100%.

TABLE 4.6
VALUES USED FOR DAILY INTAKE CALCULATIONS
Neighborhood Recreational Exposures

Scenario Timeframe: Current/Future
Medium: Soil/Sediment
Exposure Medium: Soil/Sediment
Exposure Point: Soil/Sediment at Various Locations
Receptor Population: Neighborhood Residents
Receptor Age: Children (4-11 years old)

Exposure Route	Parameter Code	Parameter Definition	Units	RME Value	RME Rationale/ Reference	CT Value	CT Rationale/ Reference	Intake Equation/ Model Name
Ingestion	Csed	Chemical Concentration in Sediments	mg/kg	See Table Series 3	See Table Series 3	See Table Series 3	See Table Series 3	Chronic Daily Intake (CDI) (mg/kg/day) (6) =
	IR-sed	Ingestion Rate of Sediment	mg/day	300 (1)	USEPA 1999b	120 (1)	van Wijnen 1990	
	EF	Exposure Frequency	days/year	21 (2)	prof. judgement	10 (2a)	prof. judgement	= Csed x IR-sed x EF x ED x AbsO x CF x 1/BW x 1/AT
	ED	Exposure Duration	years	7 (3)	prof. judgement	2	USEPA 1993	
	AbsO	Gastrointestinal Absorption	unitless	chemical specific (8)	USEPA 2000	chemical specific (8)	USEPA 2000	
	CF	Conversion Factor	kg/mg	1.0E-06	na	1.0E-06	na	
	BW	Body Weight	kilograms	28 (4)	USEPA 1997	28 (4)	USEPA 1997	
	AT-C	Averaging Time (Cancer)	days	25,550	USEPA 1989	25,550	USEPA 1989	
	AT-N	Averaging Time (Non-cancer)	days	ED x 365	USEPA 1989	ED x 365	USEPA 1989	
Dermal	Csed	Chemical Concentration in Sediments	mg/kg	See Table Series 3	See Table Series 3	See Table Series 3	See Table Series 3	CDI (mg/kg-day) (6) =
	SA	Surface Area Available for Contact (child)	cm^2	5080 (7)	EPA 1997	5080 (7)	EPA 1997	
	EF	Exposure Frequency	events/year	96 (5)	prof. judgement	48 (5)	prof. judgement	= Csed x SA x EF x ED x AF x AbsD x CF x 1/BW x 1/AT
	ED	Exposure Duration	years	7 (3)	prof. judgement	2	USEPA 1993	
	AF	Adherence Factor (child)	mg/cm^2-event	0.2	USEPA 1998a	0.2	USEPA 1998a	
	AbsD	Dermal Absorption	unitless	As = 0.03; Cd = 0.001	USEPA 1998a	As = 0.03; Cd = 0.001	USEPA 1998a	
	CF	Conversion Factor	kg/mg	1.0E-06	na	1.0E-06	na	
	BW	Body Weight	kilograms	28 (4)	USEPA 1997	28 (4)	USEPA 1997	
	AT-C	Averaging Time (Cancer)	days	25,550	USEPA 1989	25,550	USEPA 1989	
	AT-N	Averaging Time (Non-cancer)	days	ED x 365	USEPA 1989	ED x 365	USEPA 1989	

NOTES: na: not applicable; -- not available

(1) 120 mg/day is the mean value of soil intake from study, whereas 300 mg/day is the RME value (90th percentile) from study.

(2) RME Exposure Frequency calculated by: (24 weeks/year x 3 hours/day x 4 days/week) / 14 hours/day = 21 days/year. The 3 hours/day is the high end of the 50th percentile range (1-3 hours/day) from EPA 1997.

(2a) CT Exposure Frequency calculated by: (24 weeks/year x 3 hours/day x 2 days/week) / 14 hours/day = 10 days/year.

(3) Neighborhood exposures assumes children between the ages of 4 through 11 are playing with creek sediments.

(4) Value is the average of boys and girls, ages 4 - 11, 50th percentile (EPA 1997).

(5) Exposure frequency calculated by: 24 weeks/year x 4 events/week = 96 events/year for RME and 24 weeks/year x 2 events/week = 48 events/year for CT.

(6) The formula is not age-adjusted because adult exposures to this pathway are anticipated to be minimal, and the residential adult soil pathway will be protective of neighborhood exposures.

(7) At Lower Basin and Kingston (North-South Confluence), a skin surface area of 7,960 cm^2 was used to reflect the possibility that swimming and therefore exposiure of the entire body to contaminants in sediment could occur at these locations. It was assumed that swimming would occur during 16 weeks of the year (the warmest months of the year), while wading and playing along the shoreline without swimming would occur during 8 weeks of the year. The median skin surface area for male children age 4-11 is 9,400 cm^2 (USEPA 1997). The skin surface area was calculated as follows: ((16 weeks x 9,400 cm^2) + (8 weeks x 5,080 cm^2)) / 24 weeks = 7,960 cm^2.

(8) Gastrointestinal absorption for arsenic is 60%, for all other chemicals it is assumed to be 100%.

TABLE 4.7
VALUES USED FOR DAILY INTAKE CALCULATIONS
Neighborhood Recreational Exposure

Scenario Timeframe: Current/Future
Medium: Surface Water
Exposure Medium: Surface Water
Exposure Point: Surface Water at Various Locations
Receptor Population: Neighborhood Residents
Receptor Age: Children (4-11 years old)

Exposure Route	Parameter Code	Parameter Definition	Units	RME Value	RME Rationale/ Reference	CT Value	CT Rationale/ Reference	Intake Equation/ Model Name
Incidental	CW	Chemical Concentration in Surface Water	µg/l	See Table Series 3	See Table Series 3	See Table Series 3	See Table Series 3	Chronic Daily Intake (CDI) (mg/kg/day) (4)=
Ingestion	IR-W	Ingestion Rate of Surface Water	mL/hour	30	USEPA 1998b	30	USEPA 1998b	
	EF	Exposure Frequency	events/year	96 (1)	prof. judgement	48 (1a)	prof. judgement	= CW x IR-W x EF x ET x ED x CF1 x CF2 x 1/BW x 1/AT
	ET	Exposure Time	hours/event	1	USEPA 1997	1	USEPA 1997	
	ED	Exposure Duration	years	7 (2)	prof. judgement	2	USEPA 1993	
	CF1	Conversion Factor 1	mg/µg	0.001	na	0.001	na	
	CF2	Conversion Factor 2	L/mL	0.001	na	0.001	na	
	BW	Body Weight	kilograms	28 (3)	USEPA 1997	28 (3)	USEPA 1997	
	AT-C	Averaging Time (Cancer)	days	25,550	USEPA 1989	25,550	USEPA 1989	
	AT-N	Averaging Time (Non-cancer)	days	ED x 365	USEPA 1989	ED x 365	USEPA 1989	

NOTES: na: not applicable; -- not available; * not quantitatively evaluated, see text

(1) RME Exposure Frequency calculated by: 24 weeks/year x 4 events/week= 96 events/year; assumes exposures occur from May through mid-October.

(1a) CT Exposure Frequency calculated by: 24 weeks/year x 2 events/week= 48 events/year; assumes exposures occur from May through mid-October.

(2) Neighborhood exposures assumes children between the ages of 4 through 11 are playing with creek surface water.

(3) Value is the average of boys and girls, ages 4 - 11, 50th percentile (EPA 1997).

(4) The formula is not age-adjusted because adult exposures to this pathway are anticipated to be minimal, and the residential adult soil pathway will be protective of neighborhood exposures.

TABLE 4.8
VALUES USED FOR DAILY INTAKE CALCULATIONS
Public Recreational Exposure

Scenario Timeframe: Current/Future
Medium: Soil
Exposure Medium: Surface Soil
Exposure Point: Upland Parks/Schools
Receptor Population: Recreational Visitors
Receptor Age: Adults and Children

Exposure Route	Parameter Code	Parameter Definition	Units	RME Value	RME Rationale/ Reference	CT Value	CT Rationale/ Reference	Intake Equation/ Model Name
Ingestion	Csoil	Chemical Concentration in Soil	mg/kg	See Table Series 3	See Table Series 3	See Table Series 3	See Table Series 3	Chronic Daily Intake (CDI) (mg/kg/day) =
	IRSa	Ingestion Rate of Soil (adult)	mg/day	100	USEPA 1991	50	USEPA 1993	
	IRSc	Ingestion Rate of Soil (child)	mg/day	300	USEPA 1999b	120 (3)	van Wijnen 1990	For evaluating child exposure to noncarcinogens:
	EFa	Exposure Frequency (adult)	days/year	30 (1)	prof. judgement	15 (1a)	prof. judgement	= Csoil x IRS x EF x ED x AbsO x CF x 1/BW x 1/AT-N
	EFc	Exposure Frequency (child)	days/year	34 (1)	prof. judgement	17 (1a)	prof. judgement	
	EDa	Exposure Duration (adult)	years	24	USEPA 1991	7	USEPA 1993	For evaluating combined adult and child exposures:
	EDc	Exposure Duration (child)	years	6	USEPA 1991	2	USEPA 1993	IngFadj =
	AbsO	Gastrointestinal Absorption	unitless	chemical specific (4)	USEPA 2000	chemical specific (4)	USEPA 2000	
	CF	Conversion Factor	kg/mg	1.0E-06	na	1.0E-06	na	= (EFc x EDc x IRSc / BWc) + (EFa x EDa x IRSa / BWa)
	BWa	Body Weight (adult)	kilograms	70	USEPA 1991	70	USEPA 1991	Therefore,
	BWc	Body Weight (child)	kilograms	15	USEPA 1991	15	USEPA 1991	CDIadj = Csoil x AbsO x CF x IngFadj x 1/AT
	AT-C	Averaging Time (Cancer)	days	25,550	USEPA 1989	25,550	USEPA 1989	
	AT-N	Averaging Time (Non-cancer)	days	ED x 365	USEPA 1989	ED x 365	USEPA 1989	
Dermal Contact	Csoil	Chemical Concentration in Soil	mg/kg	See Table Series 3	See Table Series 3	See Table Series 3	See Table Series 3	CDI (mg/kg-day) =
	SAa	Surface Area Available for Contact (adult)	cm^2	2,500	USEPA 1998a	2,500	USEPA 1998a	
	SAc	Surface Area Available for Contact (child)	cm^2	2,200	USEPA 1998a	2,200	USEPA 1998a	For evaluating child exposure to noncarcinogens:
	EF	Exposure Frequency	events/year	68 (2)	prof. judgement	34 (2)	prof. judgement	= Csoil x SA x EF x ED x AF x AbsD x CFx 1/BW x 1/AT-N
	EDa	Exposure Duration (adult)	years	24	USEPA 1991	7	USEPA 1993	
	EDc	Exposure Duration (child)	years	6	USEPA 1991	2	USEPA 1993	For evaluating combined adult and child exposures:
	AFa	Adherence Factor (adult)	mg/cm^2-event	0.1	USEPA 1998a	0.1	USEPA 1998a	SFSadj =
	AFc	Adherence Factor (child)	mg/cm^2-event	0.2	USEPA 1998a	0.2	USEPA 1998a	= [(EDc x SAc x AFc) / BWc] + [(EDa x SAa x AFa) / BWa]
	AbsD	Dermal Absorption	unitless	As = 0.03; Cd = 0.001	USEPA 1998a	As = 0.03; Cd = 0.001	USEPA 1998a	Therefore,
	CF	Conversion Factor	kg/mg	1.0E-06	na	1.0E-06	na	CDIadj = Csoil x EF x CF x AbsD x SFSadj x 1/AT
	BWa	Body Weight (adult)	kilograms	70	USEPA 1991	70	USEPA 1991	
	BWc	Body Weight (child)	kilograms	15	USEPA 1991	15	USEPA 1991	
	AT-C	Averaging Time (Cancer)	days	25,550	USEPA 1989	25,550	USEPA 1989	
	AT-N	Averaging Time (Non-cancer)	days	ED x 365	USEPA 1989	ED x 365	USEPA 1989	

NOTES: na: not applicable; -- not available

(1) RME Exposure frequency for **adult**: (34 wks/yr x 7 hrs/dy x 2 dys/wk) / 16 hrs/dy = 30 dys/yr; for **child**: (34 wks/yr x 7 hrs/dy x 2 dys/wk) / 14 hrs/dy = 34 dys/yr. The 7 hrs/dy for 2 dys/wk assumes weekend outdoor exposure (EPA 1997).

(1a) CT Exposure frequency for **adult**: (34 wks/yr x 7 hrs/day x 1 day/wk) / 16 hrs/dy = 15 days/yr; for **child**: (34 wks/yr x 7 hrs/day x 1 day/wk) / 14 hrs/day = 17 days/year.

(2) Exposure frequency calculated by: 34 weeks/year x 2 events/week = 68 events/year for RME and 34 weeks/year x 1 event/week = 34 events/year for CT.

(3) 120 mg/day is the mean value of soil intake from study, whereas 300 mg/day is the RME value (90th percentile) from study.

TABLE 4.9
VALUES USED FOR DAILY INTAKE CALCULATIONS
Public Recreational Exposure

Scenario Timeframe: Current/Future
Medium: Soil/Sediment
Exposure Medium: Soil/Sediment
Exposure Point: Soil/Sediment at Various Locations
Receptor Population: Recreational Visitors
Receptor Age: Adults and Children

Exposure Route	Parameter Code	Parameter Definition	Units	RME Value	RME Rationale/ Reference	CT Value	CT Rationale/ Reference	Intake Equation/ Model Name
Ingestion	Csed	Chemical Concentration in Sediments	mg/kg	See Table Series 3	See Table Series 3	See Table Series 3	See Table Series 3	Chronic Daily Intake (CDI) (mg/kg/day) =
	IRa-sed	Ingestion Rate of Sediment (adult)	mg/day	100	EPA 1991	50	EPA 1993	
	IRc-sed	Ingestion Rate of Sediment (child)	mg/day	300 (1)	USEPA 1999b	120 (1)	van Wijnen 1990	For evaluating child exposures to noncarcinogens :
	EF	Exposure Frequency	days/year	32	prof. judgement	16	prof. judgement	= Csed x IR-sed x EF x ED x AbsO x CF x 1/BW x 1/AT-N
	EDa	Exposure Duration (adult)	years	24	USEPA 1991	7	USEPA 1993	
	EDc	Exposure Duration (child)	years	6	USEPA 1991	2	USEPA 1993	For evaluating combined adult and child exposures:
	AbsO	Gastrointestinal Absorption	unitless	chemical specific (2)	USEPA 2000	chemical specific (2)	USEPA 2000	
	CF	Conversion Factor	kg/mg	1.0E-06	na	1.0E-06	na	IngFadj = (IRc-sed x EDc / BWc) + (IRa-sed x EDa / BWa)
	BWa	Body Weight (adult)	kilograms	70	USEPA 1991	70	USEPA 1991	Therefore,
	BWc	Body Weight (child)	kilograms	15	USEPA 1991	15	USEPA 1991	CDIadj = Csed x EF x AbsO x CF x IngFadj x 1/AT
	AT-C	Averaging Time (Cancer)	days	25,550	USEPA 1989	25,550	USEPA 1989	
	AT-N	Averaging Time (Non-cancer)	days	ED x 365	USEPA 1989	ED x 365	USEPA 1989	
Dermal Contact	Csed	Chemical Concentration in Sediments	mg/kg	See Table Series 3	See Table Series 3	See Table Series 3	See Table Series 3	CDI (mg/kg-day) =
	SAa	Surface Area Available for Contact (adult)	cm^2	18,000	USEPA 1998a	18,000	USEPA 1998a	
	SAc	Surface Area Available for Contact (child)	cm^2	6,500	USEPA 1998a	6,500	USEPA 1998a	For evaluating child exposures to noncarcinogens :
	EF	Exposure Frequency	events/year	32	prof. judgement	16	prof. judgement	= Csed x SA x EF x ED x AF x AbsD x CF x 1/BW x 1/AT-N
	EDa	Exposure Duration (adult)	years	24	USEPA 1991	7	USEPA 1993	
	EDc	Exposure Duration (child)	years	6	USEPA 1991	2	USEPA 1993	For evaluating combined adult and child exposures:
	AFa	Adherence Factor (adult)	mg/cm^2-event	0.1	USEPA 1998a	0.1	USEPA 1998a	SFSadj =
	AFc	Adherence Factor (child)	mg/cm^2-event	0.2	USEPA 1998a	0.2	USEPA 1998a	= [(EDc x SAc x AFc) / BWc] + [(EDa x SAa x AFa) / BWa]
	AbsD	Dermal Absorption	unitless	As = 0.03; Cd = 0.001	USEPA 1998a	As = 0.03; Cd = 0.001	USEPA 1998a	Therefore,
	CF	Conversion Factor	kg/mg	1.0E-06	na	1.0E-06	na	CDIadj = Csed x EF x CF x AbsD x SFSadj x 1/AT
	BWa	Body Weight (adult)	kilograms	70	USEPA 1991	70	USEPA 1991	
	BWc	Body Weight (child)	kilograms	15	USEPA 1991	15	USEPA 1991	
	AT-C	Averaging Time (Cancer)	days	25,550	USEPA 1989	25,550	USEPA 1989	
	AT-N	Averaging Time (Non-cancer)	days	ED x 365	USEPA 1989	ED x 365	USEPA 1989	

NOTES: na: not applicable; -- not available

(1) 120 mg/day is the mean value of soil intake from study, whereas 300 mg/day is the RME value (90th percentile) from study.

(2) Gastrointestinal absorption for arsenic is 60%, for all other chemicals it was assumed to be 100%.

TABLE 4.10
VALUES USED FOR DAILY INTAKE CALCULATIONS
Public Recreational Exposure

Scenario Timeframe: Current/Future
Medium: Surface Water
Exposure Medium: Surface Water
Exposure Point: Surface Water at Various Locations
Receptor Population: Recreational Visitors
Receptor Age: Adults and Children

Exposure Route	Parameter Code	Parameter Definition	Units	RME Value	RME Rationale/ Reference	CT Value	CT Rationale/ Reference	Intake Equation/ Model Name
Incidental	CW	Chemical Concentration in Surface Water	µg/l	See Table Series 3	See Table Series 3	See Table Series 3	See Table Series 3	Chronic Daily Intake (CDI) (mg/kg/day) =
Ingestion	IR-W	Ingestion Rate of Surface Water	mL/hour	30	USEPA 1998b	30	USEPA 1998b	
	EF	Exposure Frequency	days/year	32	prof. judgement	16	prof. judgement	For evaluating child exposure to noncarcinogens:
	ET	Exposure Time	hour/day	1	USEPA 1997	1	USEPA 1997	= CW x IR-W x EF x ET x ED x CF1 x CF2 x 1/BW x 1/AT-N
	EDa	Exposure Duration (adult)	years	24 (1)	USEPA 1991	7	USEPA 1993	
	EDc	Exposure Duration (child)	years	6 (1)	USEPA 1991	2	USEPA 1993	For evaluating combined adult and child exposures:
	CF1	Conversion Factor 1	mg/µg	0.001	na	0.001	na	IngFadj = (EDc / BWc) + (EDa / BWa)
	CF2	Conversion Factor 2	L/mL	0.001	na	0.001	na	Therefore,
	BWa	Body Weight (adult)	kilograms	70	USEPA 1991	70	USEPA 1991	CDIadj = CW x IR-W x EF x ET x CF1 x CF2 x IngFadj x 1/AT
	BWc	Body Weight (child)	kilograms	15	USEPA 1991	15	USEPA 1991	
	AT-C	Averaging Time (Cancer)	days	25,550	USEPA 1989	25,550	USEPA 1989	
	AT-N	Averaging Time (Non-cancer)	days	ED x 365	USEPA 1989	ED x 365	USEPA 1989	

NOTES: na: not applicable; -- not available; * not quantitatively evaluated, see text

(1) USEPA 1991 recommends an adult/child exposure duration of 24/6 years for ingestion of soil; For consistency, an exposure duration of 24/6 years was selected for ingestion of surface water.

TABLE 4.11

VALUES USED FOR DAILY INTAKE CALCULATIONS

Public Recreational Exposure

Scenario Timeframe: Current/Future
Medium: Surface Water/Sediment
Exposure Medium: Animal Tissue
Exposure Point: Fish from Lower Coeur d'Alene River
Receptor Population: Recreational Visitors
Receptor Age: Adults

Exposure Route	Parameter Code	Parameter Definition	Units	RME Value	RME Rationale/ Reference	CT Value	CT Rationale/ Reference	Intake Equation/ Model Name
Ingestion	Cfish	Chemical Concentration in Fish	mg/kg	See Table 3	See Table 3	See Table 3	See Table 3	Chronic Daily Intake (CDI)(mg/kg/day) =
	IR-F	Ingestion Rate of Fish	g/day	46	USEPA 1997/ATSDR 1989	25	USEPA 1997	
	EF	Exposure Frequency	days/year	365 (1)	prof. judgement	365 (1)	prof. Judgement	For evaluating noncarcinogens:
	ED	Exposure Duration	years	30	USEPA 1991	9	USEPA 1993	= Cfish x IR-F x EF x ED x CF x 1/BW x 1/AT-N
	CF	Conversion Factor	kg/g	1.0E-03	na	1.0E-03	na	
	BW	Body Weight	kilograms	70	USEPA 1991	70	USEPA 1991	For evaluating carcinogens:
	AT-C	Averaging Time (Cancer)	days	25,550	USEPA 1989	25,550	USEPA 1989	= Cfish x IR-F x EF x ED x CF x 1/BW x 1/AT-C
	AT-N	Averaging Time (Non-cancer)	days	ED x 365	USEPA 1989	ED x 365	USEPA 1989	

NOTES: na: not applicable; -- not available

(1) Ingestion rate of fish is an average daily consumption rate, therefore 365 days/year was selected as the frequency of exposure for both the RME and CT scenarios.

TABLE 4.12
VALUES USED FOR DAILY INTAKE CALCULATIONS
Occupational Exposure

Scenario Timeframe: Current/Future
Medium: Soil
Exposure Medium: Surface/Subsurface Soil
Exposure Point: Construction Site Soil
Receptor Population: Construction Workers
Receptor Age: Adults

Exposure Route	Parameter Code	Parameter Definition	Units	RME Value	RME Rationale/ Reference	CT Value	CT Rationale/ Reference	Intake Equation/ Model Name
Ingestion	Csoil	Chemical Concentration in Soil	mg/kg	See Table Series 3	See Table Series 3	See Table Series 3	See Table Series 3	Chronic Daily Intake (CDI) (mg/kg/day) =
	IR-soil	Ingestion Rate of Soil	mg/day	300	USEPA 1998c	200	USEPA 1998c	
	EF	Exposure Frequency	days/year	195 (1)	prof. judgement	43(1)	prof. Judgement	For evaluating noncarcinogens:
	ED	Exposure Duration	years	25	USEPA 1991	6.6	USEPA 1997	= Csoil x IR-soil x EF x ED x AbsO x CF x 1/BW x 1/AT-N
	AbsO	Gastrointestinal Absorption	unitless	chem-specific (2)	USEPA 2000	chem-specific (2)	USEPA 2000	
	CF	Conversion Factor	kg/mg	1.0E-06	na	1.00E-06	na	
	BW	Body Weight	kilograms	70	USEPA 1991	70	USEPA 1991	For evaluating carcinogens:
	AT-C	Averaging Time (Cancer)	days	25,550	USEPA 1989	25,550	USEPA 1989	= Csoil x IR-soil x EF x ED x AbsO x CF x 1/BW x 1/AT-C
	AT-N	Averaging Time (Non-cancer)	days	ED x 365	USEPA 1989	ED x 365	USEPA 1989	
Dermal Contact	Csoil	Chemical Concentration in Soil	mg/kg	See Table Series 3	See Table Series 3	See Table Series 3	See Table Series 3	CDI (mg/kg-day) =
	SA	Surface Area Available for Contact	cm^2	2,500	USEPA 1998a	2500	USEPA 1998a	
	EF	Exposure Frequency	events/year	195 (1)	prof. judgement	43(1)	prof. Judgement	For evaluating noncarcinogens:
	ED	Exposure Duration	years	25	USEPA 1991	6.6	USEPA 1997	= Csoil x SA x EF x ED x AF x AbsD x CF x 1/BW x 1/AT-N
	AF	Adherence Factor	mg/cm^2-event	0.1	USEPA 1998a	0.1	USEPA 1998a	
	AbsD	Dermal Absorption	unitless	chem-specific	USEPA 1998d	chem-specific	USEPA 1998d	For evaluating carcinogens:
	CF	Conversion Factor	kg/mg	1.0E-06	na	1.0E-06	na	= Csoil x SA x EF x ED x AF x AbsD x CF x 1/BW x 1/AT-C
	BW	Body Weight	kilograms	70	USEPA 1991	70	USEPA 1991	
	AT-C	Averaging Time (Cancer)	days	25,550	USEPA 1989	25,550	USEPA 1989	
	AT-N	Averaging Time (Non-cancer)	days	ED x 365	USEPA 1989	ED x 365	USEPA 1989	

NOTES: na: not applicable; -- not available

(1) Exposure frequency is calculated assuming 9 months of construction work (excluding 3 months of snow cover) for the RME case: 39 weeks/year x 5 days/week = 195 days/year, assumes 2 months of construction work for the CT case.

(2) Gastrointestinal absorption for arsenic is 60%, for all other chemicals it is assumed to be 100%.

TABLE 4.13

VALUES USED FOR DAILY INTAKE CALCULATIONS

Modern Subsistence Exposure

Scenario Timeframe: Future
Medium: Surface Water/Sediment
Exposure Medium: Animal Tissue
Exposure Point: Fish from Lower Coeur d'Alene River
Receptor Population: Tribal Member
Receptor Age: Adults

Exposure Route	Parameter Code	Parameter Definition	Units	RME Value	RME Rationale/ Reference	CT Value	CT Rationale/ Reference	Intake Equation/ Model Name
Ingestion	Cfish	Chemical Concentration in Fish	mg/kg	See Table 3	See Table 3	--	--	Chronic Daily Intake (CDI)(mg/kg/day) =
	IR-F	Ingestion Rate of Fish	g/day	170	USEPA 1997	--	--	
	EF	Exposure Frequency	days/year	365	na	--	--	For evaluating noncarcinogens:
	ED	Exposure Duration	years	70	Lifetime	--	--	= Cfish x IR-F x EF x ED x CF x 1/BW x 1/AT-N
	CF	Conversion Factor	kg/g	1.0E-03	na	--	--	
	BW	Body Weight	kilograms	70	USEPA 1991	--	--	For evaluating carcinogens:
	AT-C	Averaging Time (Cancer)	days	25,550	USEPA 1989	--	--	= Cfish x IR-F x EF x ED x CF x 1/BW x 1/AT-C
	AT-N	Averaging Time (Non-cancer)	days	ED x 365	USEPA 1989	--	--	

NOTES: na: not applicable

TABLE 4.14

VALUES USED FOR DAILY INTAKE CALCULATIONS

Modern Subsistence Exposure

Scenario Timeframe: Future

Medium: Surface Water/Sediment

Exposure Medium: Plant Tissue

Exposure Point: Water Potato from Lower Coeur d'Alene River

Receptor Population: Tribal Member

Receptor Age: Adults and Children

Exposure Route	Parameter Code	Parameter Definition	Units	RME Value	RME Rationale/ Reference	CT Value	CT Rationale/ Reference	Intake Equation/ Model Name
Ingestion	Cpotato	Chemical Concentration in Water Potato	mg/kg	See Table 3	See Table 3	--	--	Chronic Daily Intake (CDI)(mg/kg/day) =
	IR-P	Ingestion Rate of Water Potato	g/kg/day	8.2 (1)	Harris and Harper 1997	--	--	
	FI	Fraction Ingested (2)	unitless	0.2	prof. judgement	--	--	
	EF	Exposure Frequency	days/year	365	na	--	--	For evaluating noncarcinogens:
	ED	Exposure Duration	years	70	Lifetime	--	--	= Cpotato x IR-F x EF x FI x ED x CF x 1/AT-N
	CF	Conversion Factor	kg/g	1.0E-03	na	--	--	
	AT-C	Averaging Time (Cancer)	days	25,550	USEPA 1989	--	--	For evaluating carcinogens:
	AT-N	Averaging Time (Non-cancer)	days	ED x 365	USEPA 1989	--	--	= Cpotato x IR-F x EF x ED x CF x 1/AT-C

NOTES: na: not applicable

(1) Ingestion rate incorporates the body weights of all participants in the study (children and adults) from Harris and Harper 1997.

(2) Assumes twenty percent of the ingested plant tissue is from the impacted floodplain area.

TABLE 4.15
VALUES USED FOR DAILY INTAKE CALCULATIONS
Modern Subsistence Exposure

Scenario Timeframe: Future
Medium: Soil
Exposure Medium: Surface Soil
Exposure Point: Surface Soil at Lower Coeur d'Alene River
Receptor Population: Tribal Member
Receptor Age: Adults and Children

Exposure Route	Parameter Code	Parameter Definition	Units	RME Value	RME Rationale/ Reference	CT Value	CT Rationale/ Reference	Intake Equation/ Model Name
Ingestion	Csoil	Chemical Concentration in Soil	mg/kg	See Table Series 3	See Table Series 3	na	na	Chronic Daily Intake (CDI) (mg/kg/day) =
	IRSa	Ingestion Rate of Soil (adult)	mg/day	300 (1)	USEPA 1999a	na	na	
	IRSc	Ingestion Rate of Soil (child)	mg/day	300 (1)	USEPA 1999a	na	na	For evaluating child exposure to noncarcinogens:
	EF	Exposure Frequency	days/year	60 (2)	Every day	na	na	= Csoil x IRS x EF x ED x AbsO x CF x 1/BW x 1/AT-N
	EDa	Exposure Duration (adult)	years	64	Lifetime (70 years total)	na	na	
	EDc	Exposure Duration (child)	years	6	USEPA 1991	na	na	For evaluating combined adult and child exposures:
	AbsO	Gastrointestinal Absorption	unitless	chemical specific (5)	USEPA 2000	na	na	
	CF	Conversion Factor	kg/mg	1.0E-06	na	na	na	IngFadj =
	BWa	Body Weight (adult)	kilograms	70	USEPA 1991	na	na	[(EDc x IRSc) / BWc] + [(EDa x IRSa) / BWa]
	BWc	Body Weight (child)	kilograms	15	USEPA 1991	na	na	Therefore,
	AT-C	Averaging Time (Cancer)	days	25,550	USEPA 1989	na	na	CDIadj = Csoil x IngFadj x EF x AbsO x CF x 1/AT
	AT-N	Averaging Time (Non-cancer)	days	ED x 365	USEPA 1989	na	na	
Dermal Contact	Csoil	Chemical Concentration in Soil	mg/kg	See Table Series 3	See Table Series 3	na	na	CDI (mg/kg-day) =
	SAa	Surface Area Available for Contact (adult)	cm^2	5700 (3)	USEPA 1999a	na	na	
	SAc	Surface Area Available for Contact (child)	cm^2	2800 (3)	USEPA 1999a	na	na	For evaluating child exposure to noncarcinogens :
	EF	Exposure Frequency	events/year	60 (2)	professional judgement	na	na	= Csoil x SA x EF x ED x AF x AbsD x CF x 1/BW x 1/AT-N
	EDa	Exposure Duration (adult)	years	64	Lifetime (70 years total)	na	na	
	EDc	Exposure Duration (child)	years	6	USEPA 1991	na	na	For evaluating carcinogens (combined adult and child):
	AFa	Adherence Factor (adult)	mg/cm^2-event	0.8 (4)	USEPA 1997	na	na	SFSadj =
	AFc	Adherence Factor (child)	mg/cm^2-event	0.8 (4)	USEPA 1997	na	na	= [(EDc x SAc x AFc) / BWc] + [(EDa x SAa x AFa) / BWa]
	AbsD	Dermal Absorption	unitless	As = 0.03; Cd = 0.001	USEPA 1998a	na	na	Therefore,
	CF	Conversion Factor	kg/mg	1.0E-06	na	na	na	CDIadj = Csoil x EF x CF x AbsD x SFSadj x 1/AT
	BWa	Body Weight (adult)	kilograms	70	USEPA 1991	na	na	
	BWc	Body Weight (child)	kilograms	15	USEPA 1991	na	na	
	AT-C	Averaging Time (Cancer)	days	25,550	USEPA 1989	na	na	
	AT-N	Averaging Time (Non-cancer)	days	ED x 365	USEPA 1989	na	na	

NOTES: na: not applicable
(1) Soil ingestion rate based on a study of children at campgrounds.
(2) Assumes modern tribal members live in the floodplain during the two warmest months of the year (July and August).
(3) Skin surface area for adult represents head, hands, forearms, and lower legs; skin surface area for child represents head, hands, forearms, lower legs, and feet.
(4) Adherence factor for reed gatherers.

TABLE 4.16

VALUES USED FOR DAILY INTAKE CALCULATIONS

Modern Subsistence Exposure

Scenario Timeframe: Future
Medium: Sediment
Exposure Medium: Sediment
Exposure Point: Sediment at Lower Coeur d'Alene River
Receptor Population: Tribal Member
Receptor Age: Adults and Children

Exposure Route	Parameter Code	Parameter Definition	Units	RME Value	RME Rationale/ Reference	CT Value	CT Rationale/ Reference	Intake Equation/ Model Name
Ingestion	Csed	Chemical Concentration in Sediments	mg/kg	See Table Series 3	See Table Series 3	na	na	Chronic Daily Intake (CDI) (mg/kg/day) =
	IRa-sed	Ingestion Rate of Sediment (adult)	mg/day	300 (1)	USEPA 1999a	na	na	
	IRc-sed	Ingestion Rate of Sediment (child)	mg/day	300 (1)	USEPA 1999a	na	na	For evaluating child exposures to noncarcinogens :
	EF	Exposure Frequency	days/year	60 (2)	prof. judgement	na	na	= Csed x IR-sed x EF x ED x AbsO x CF x 1/BW x 1/AT-N
	EDa	Exposure Duration (adult)	years	64	Lifetime (70 years total)	na	na	
	EDc	Exposure Duration (child)	years	6	USEPA 1991	na	na	For evaluating combined adult and child exposures:
	AbsO	Gastrointestinal Absorption	unitless	chemical specific (5)	USEPA 2000	na	na	
	CF	Conversion Factor	kg/mg	1.0E-06	na	na	na	IngFadj = (IRc-sed x EDc / BWc) + (IRa-sed x EDa / BWa)
	BWa	Body Weight (adult)	kilograms	70	USEPA 1991	na	na	Therefore,
	BWc	Body Weight (child)	kilograms	15	USEPA 1991	na	na	CDIadj = Csed x EF x AbsO x CF x IngFadj x 1/AT
	AT-C	Averaging Time (Cancer)	days	25,550	USEPA 1989	na	na	
	AT-N	Averaging Time (Non-cancer)	days	ED x 365	USEPA 1989	na	na	
Dermal Contact	Csed	Chemical Concentration in Sediments	mg/kg	See Table Series 3	See Table Series 3	na	na	CDI (mg/kg-day) =
	SAa	Surface Area Available for Contact (adult)	cm^2	18000 (3)	USEPA 1998a	na	na	
	SAc	Surface Area Available for Contact (child)	cm^2	6500 (3)	USEPA 1998a	na	na	For evaluating child exposures to noncarcinogens :
	EF	Exposure Frequency	events/year	60 (2)	prof. judgement	na	na	= Csed x SA x EF x ED x AF x AbsD x CF x 1/BW x 1/AT-N
	EDa	Exposure Duration (adult)	years	64	Lifetime (70 years total)	na	na	
	EDc	Exposure Duration (child)	years	6	USEPA 1991	na	na	For evaluating combined adult and child exposures:
	AFa	Adherence Factor (adult)	mg/cm^2-event	0.8 (4)	USEPA 1997	na	na	SFSadj =
	AFc	Adherence Factor (child)	mg/cm^2-event	0.8 (4)	USEPA 1997	na	na	= [(EDc x SAc x AFc) / BWc] + [(EDa x SAa x AFa) / BWa]
	AbsD	Dermal Absorption	unitless	As = 0.03; Cd = 0.001	USEPA 1998a	na	na	Therefore,
	CF	Conversion Factor	kg/mg	1.0E-06	na	na	na	CDIadj = Csed x EF x CF x AbsD x SFSadj x 1/AT
	BWa	Body Weight (adult)	kilograms	70	USEPA 1991	na	na	
	BWc	Body Weight (child)	kilograms	15	USEPA 1991	na	na	
	AT-C	Averaging Time (Cancer)	days	25,550	USEPA 1989	na	na	
	AT-N	Averaging Time (Non-cancer)	days	ED x 365	USEPA 1989	na	na	

NOTES: na: not applicable; -- not available

(1) Soil ingestion rate based on a study of children at campgrounds.

(2) Assumes modern subsistence lifestyle involves living near the Lower Coeur d'Alene River for two months of the year (July and August).

(3) Assumes full body exposure.

(4) Adherence factor for reed gatherers.

TABLE 4.17

VALUES USED FOR DAILY INTAKE CALCULATIONS

Modern Subsistence Exposure

Scenario Timeframe: Future
Medium: Surface Water
Exposure Medium: Undisturbed Surface Water
Exposure Point: Undisturbed Surface Water in Lower Coeur d'Alene River
Receptor Population: Tribal Member
Receptor Age: Adults and Children

Exposure Route	Parameter Code	Parameter Definition	Units	RME Value	RME Rationale/ Reference	CT Value	CT Rationale/ Reference	Intake Equation/ Model Name
Ingestion	CW	Chemical Concentration in Water	µg/l	See Table Series 3	See Table Series 3	na	na	Chronic Daily Intake (CDI) (mg/kg/day) =
	IR-Wa	Ingestion Rate of Water (adult)	liters/day	3	Harris and Harper 1997	na	na	
	IR-Wc	Ingestion Rate of Water (child)	liters/day	1.5 (1)	professional judgement	na	na	For evaluating child exposure to noncarcinogens:
	EF	Exposure Frequency	days/year	60 (2)	professional judgement	na	na	= CW x IR-W x EF x ED x CF x 1/BW x 1/AT-N
	EDa	Exposure Duration (adult)	years	64	Lifetime (70 years total)	na	na	
	EDc	Exposure Duration (child)	years	6	USEPA 1991	na	na	For evaluating combined adult and child exposures:
	CF	Conversion Factor	mg/µg	0.001	na	na	na	IngFadj =
	BWa	Body Weight (adult)	kilograms	70	USEPA 1991	na	na	= [(EDc x IR-Wc) / BWc] + [(EDa x IR-Wa) / BWa]
	BWc	Body Weight (child)	kilograms	15	USEPA 1991	na	na	Therefore,
	AT-C	Averaging Time (Cancer)	days	25,550	USEPA 1989	na	na	CDIadj = CW x EF x CF x IngFadj x 1/AT
	AT-N	Averaging Time (Non-cancer)	days	ED x 365	USEPA 1989	na	na	

NOTES: na: not applicable

(1) Since the adult water ingestion rate is 150% of the default value, a child ingestion rate equivalent to 150% of the value used for child residential tap water consumption was used.

(2) Assumes modern subsistence lifestyle involves living near the Lower Coeur d'Alene River for two months of the year (July and August).

TABLE 4.18

VALUES USED FOR DAILY INTAKE CALCULATIONS

Modern Subsistence Exposure

Scenario Timeframe: Future
Medium: Surface Water
Exposure Medium: Disturbed Surface Water
Exposure Point: Disturbed Surface Water in Lower Coeur d'Alene River
Receptor Population: Tribal Member
Receptor Age: Adults and Children

Exposure Route	Parameter Code	Parameter Definition	Units	RME Value	RME Rationale/ Reference	CT Value	CT Rationale/ Reference	Intake Equation/ Model Name
Incidental	CW	Chemical Concentration in Surface Water	µg/l	See Table Series 3	See Table Series 3	na	na	Chronic Daily Intake (CDI) (mg/kg/day) =
Ingestion	IR-W	Ingestion Rate of Surface Water	mL/hour	30	USEPA 1998b	na	na	
	EF	Exposure Frequency	days/year	60 (1)	prof. judgement	na	na	For evaluating child exposure to noncarcinogens:
	ET	Exposure Time	hour/day	1	USEPA 1997	na	na	= CW x IR-W x EF x ET x ED x CF1 x CF2 x 1/BW x 1/AT-N
	EDa	Exposure Duration (adult)	years	64	Lifetime (70 years total)	na	na	
	EDc	Exposure Duration (child)	years	6	USEPA 1991	na	na	For evaluating combined adult and child exposures:
	CF1	Conversion Factor 1	mg/µg	0.001	na	na	na	IngFadj = (EDc / BWc) + (EDa / BWa)
	CF2	Conversion Factor 2	L/mL	0.001	na	na	na	Therefore,
	BWa	Body Weight (adult)	kilograms	70	USEPA 1991	na	na	CDIadj = CW x IR-W x EF x ET x CF1 x CF2 x IngFadj x 1/AT
	BWc	Body Weight (child)	kilograms	15	USEPA 1991	na	na	
	AT-C	Averaging Time (Cancer)	days	25,550	USEPA 1989	na	na	
	AT-N	Averaging Time (Non-cancer)	days	ED x 365	USEPA 1989	na	na	

NOTES: na: not applicable

* not quantitatively evaluated, see text

(1) Assumes modern subsistence lifestyle involves living near the Lower Coeur d'Alene River for two months of the year (July and August).

TABLE 4.19

VALUES USED FOR DAILY INTAKE CALCULATIONS

Traditional Subsistence Exposure

Scenario Timeframe: Future

Medium: Surface Water/Sediment

Exposure Medium: Animal Tissue

Exposure Point: Fish from Lower Coeur d'Alene River

Receptor Population: Tribal Member

Receptor Age: Adults

Exposure Route	Parameter Code	Parameter Definition	Units	RME Value	RME Rationale/ Reference	CT Value	CT Rationale/ Reference	Intake Equation/ Model Name
Ingestion	Cfish	Chemical Concentration in Fish	mg/kg	See Table 3	See Table 3	--	--	Chronic Daily Intake (CDI)(mg/kg/day) =
	IR-F	Ingestion Rate of Fish	g/day	540	Harris & Harper 1997	--	--	
	EF	Exposure Frequency	days/year	365	na	--	--	For evaluating noncarcinogens:
	ED	Exposure Duration	years	70	Lifetime	--	--	= Cfish x IR-F x EF x ED x CF x 1/BW x 1/AT-N
	CF	Conversion Factor	kg/g	1.0E-03	na	--	--	
	BW	Body Weight	kilograms	70	USEPA 1991	--	--	For evaluating carcinogens:
	AT-C	Averaging Time (Cancer)	days	25,550	USEPA 1989	--	--	= Cfish x IR-F x EF x ED x CF x 1/BW x 1/AT-C
	AT-N	Averaging Time (Non-cancer)	days	ED x 365	USEPA 1989	--	--	

NOTES: na: not applicable

TABLE 4.20

VALUES USED FOR DAILY INTAKE CALCULATIONS

Traditional Subsistence Exposure

Scenario Timeframe: Future

Medium: Surface Water/Sediment

Exposure Medium: Plant Tissue

Exposure Point: Water Potato from Lower Coeur d'Alene River

Receptor Population: Tribal Member

Receptor Age: Adults and Children

Exposure Route	Parameter Code	Parameter Definition	Units	RME Value	RME Rationale/ Reference	CT Value	CT Rationale/ Reference	Intake Equation/ Model Name
Ingestion	Cpotato	Chemical Concentration in Water Potato	mg/kg	See Table 3	See Table 3	--	--	Chronic Daily Intake (CDI)(mg/kg/day) =
	IR-F	Ingestion Rate of Water Potato	g/kg/day	8.2 (1)	Harris and Harper 1997	--	--	
	EF	Exposure Frequency	days/year	365	na	--	--	For evaluating noncarcinogens:
	ED	Exposure Duration	years	70	Lifetime	--	--	= Cpotato x IR-F x EF x ED x CF x 1/AT-N
	CF	Conversion Factor	kg/g	1.0E-03	na	--	--	
	AT-C	Averaging Time (Cancer)	days	25,550	USEPA 1989	--	--	For evaluating carcinogens:
	AT-N	Averaging Time (Non-cancer)	days	ED x 365	USEPA 1989	--	--	= Cpotato x IR-F x EF x ED x CF x 1/AT-C

NOTES: na: not applicable

(1) Ingestion rate incorporates the body weights of all participants in the study (children and adults) from Harris and Harper 1997.

TABLE 4.21
VALUES USED FOR DAILY INTAKE CALCULATIONS
Traditional Subsistence Exposure

Scenario Timeframe: Future
Medium: Soil
Exposure Medium: Surface Soil
Exposure Point: Surface Soil at Lower Coeur d'Alene River
Receptor Population: Tribal Member
Receptor Age: Adults and Children

Exposure Route	Parameter Code	Parameter Definition	Units	RME Value	RME Rationale/ Reference	CT Value	CT Rationale/ Reference	Intake Equation/ Model Name
Ingestion	Csoil	Chemical Concentration in Soil	mg/kg	See Table Series 3	See Table Series 3	na	na	Chronic Daily Intake (CDI) (mg/kg/day) =
	IRSa	Ingestion Rate of Soil (adult)	mg/day	300 (1)	USEPA 1999a	na	na	
	IRSc	Ingestion Rate of Soil (child)	mg/day	300 (1)	USEPA 1999a	na	na	For evaluating child exposure to noncarcinogens:
	EF	Exposure Frequency	days/year	365 (2)	Every day	na	na	= Csoil x IRS x EF x ED xAbsO x CF x 1/BW x 1/AT-N
	EDa	Exposure Duration (adult)	years	64	Lifetime (70 years total)	na	na	
	EDc	Exposure Duration (child)	years	6	USEPA 1991	na	na	For evaluating combined adult and child exposures:
	AbsO	Gastrointestinal Absorption	unitless	chemical specific (5)	USEPA 2000	na	na	
	CF	Conversion Factor	kg/mg	1.0E-06	na	na	na	IngFadj =
	BWa	Body Weight (adult)	kilograms	70	USEPA 1991	na	na	[(EDc x IRSc) / BWc] + [(EDa x IRSa) / BWa]
	BWc	Body Weight (child)	kilograms	15	USEPA 1991	na	na	Therefore,
	AT-C	Averaging Time (Cancer)	days	25,550	USEPA 1989	na	na	CDIadj = Csoil x IngFadj x EF x AbsO x CF x 1/AT
	AT-N	Averaging Time (Non-cancer)	days	ED x 365	USEPA 1989	na	na	
Dermal Contact	Csoil	Chemical Concentration in Soil	mg/kg	See Table Series 3	See Table Series 3	na	na	CDI (mg/kg-day) =
	SAa	Surface Area Available for Contact (adult)	cm^2	2500 (3)	USEPA 1998a	na	na	
	SAc	Surface Area Available for Contact (child)	cm^2	2200 (3)	USEPA 1998a	na	na	For evaluating child exposure to noncarcinogens :
	EF	Exposure Frequency	events/year	365	Every day	na	na	= Csoil x SA x EF x ED x AF x AbsD x CF x 1/BW x 1/AT-N
	EDa	Exposure Duration (adult)	years	64	Lifetime (70 years total)	na	na	
	EDc	Exposure Duration (child)	years	6	USEPA 1991	na	na	For evaluating carcinogens (combined adult and child):
	AFa	Adherence Factor (adult)	mg/cm^2-event	0.8 (4)	USEPA 1997	na	na	SFSadj =
	AFc	Adherence Factor (child)	mg/cm^2-event	0.8 (4)	USEPA 1997	na	na	= [(EDc x SAc x AFc) / BWc] + [(EDa x SAa x AFa) / BWa]
	AbsD	Dermal Absorption	unitless	As = 0.03; Cd = 0.001	USEPA 1998a	na	na	Therefore,
	CF	Conversion Factor	kg/mg	1.0E-06	na	na	na	CDIadj = Csoil x EF x CF x AbsD x SFSadj x 1/AT
	BWa	Body Weight (adult)	kilograms	70	USEPA 1991	na	na	
	BWc	Body Weight (child)	kilograms	15	USEPA 1991	na	na	
	AT-C	Averaging Time (Cancer)	days	25,550	USEPA 1989	na	na	
	AT-N	Averaging Time (Non-cancer)	days	ED x 365	USEPA 1989	na	na	

NOTES: na: not applicable
(1) Soil ingestion rate based on a study of children at campgrounds.
(2) Assumes daily exposure throughout lifetime.
(3) Skin surface area for adult represents face, hands, and forearms; skin surface area for child represents face, hands, forearms, lower legs, and feet.
(4) Adherence factor for reed gatherers.

TABLE 4.22

VALUES USED FOR DAILY INTAKE CALCULATIONS

Traditional Subsistence Exposure

Scenario Timeframe: Future
Medium: Sediment
Exposure Medium: Sediment
Exposure Point: Sediment at Lower Coeur d'Alene River
Receptor Population: Tribal Member
Receptor Age: Adults and Children

Exposure Route	Parameter Code	Parameter Definition	Units	RME Value	RME Rationale/ Reference	CT Value	CT Rationale/ Reference	Intake Equation/ Model Name
Ingestion	Csed	Chemical Concentration in Sediments	mg/kg	See Table Series 3	See Table Series 3	na	na	Chronic Daily Intake (CDI) (mg/kg/day) =
	IRa-sed	Ingestion Rate of Sediment (adult)	mg/day	300 (1)	USEPA 1999a	na	na	
	IRc-sed	Ingestion Rate of Sediment (child)	mg/day	300 (1)	USEPA 1999a	na	na	For evaluating child exposures to noncarcinogens :
	EF	Exposure Frequency	days/year	210 (2)	prof. judgement	na	na	= Csed x IR-sed x EF x ED x AbsO x CF x 1/BW x 1/AT-N
	EDa	Exposure Duration (adult)	years	64	Lifetime (70 years total)	na	na	
	EDc	Exposure Duration (child)	years	6	USEPA 1991	na	na	For evaluating combined adult and child exposures:
	AbsO	Gastrointestinal Absorption	unitless	chemical specific (5)	USEPA 2000	na	na	
	CF	Conversion Factor	kg/mg	1.0E-06	na	na	na	IngFadj = (IRc-sed x EDc / BWc) + (IRa-sed x EDa / BWa)
	BWa	Body Weight (adult)	kilograms	70	USEPA 1991	na	na	Therefore,
	BWc	Body Weight (child)	kilograms	15	USEPA 1991	na	na	CDIadj = Csed x EF x AbsO x CF x IngFadj x 1/AT
	AT-C	Averaging Time (Cancer)	days	25,550	USEPA 1989	na	na	
	AT-N	Averaging Time (Non-cancer)	days	ED x 365	USEPA 1989	na	na	
Dermal Contact	Csed	Chemical Concentration in Sediments	mg/kg	See Table Series 3	See Table Series 3	na	na	CDI (mg/kg-day) =
	SAa	Surface Area Available for Contact (adult)	cm^2	18000 (3)	USEPA 1998a	na	na	
	SAc	Surface Area Available for Contact (child)	cm^2	6500 (3)	USEPA 1998a	na	na	For evaluating child exposures to noncarcinogens :
	EF	Exposure Frequency	events/year	210 (2)	prof. judgement	na	na	= Csed x SA x EF x ED x AF x AbsD x CF x 1/BW x 1/AT-N
	EDa	Exposure Duration (adult)	years	64	Lifetime (70 years total)	na	na	
	EDc	Exposure Duration (child)	years	6	USEPA 1991	na	na	For evaluating combined adult and child exposures:
	AFa	Adherence Factor (adult)	mg/cm^2-event	0.8 (4)	USEPA 1997	na	na	SFSadj =
	AFc	Adherence Factor (child)	mg/cm^2-event	0.8 (4)	USEPA 1997	na	na	= [(EDc x SAc x AFc) / BWc] + [(EDa x SAa x AFa) / BWa]
	AbsD	Dermal Absorption	unitless	As = 0.03; Cd = 0.001	USEPA 1998a	na	na	Therefore,
	CF	Conversion Factor	kg/mg	1.0E-06	na	na	na	CDIadj = Csed x EF x CF x AbsD x SFSadj x 1/AT
	BWa	Body Weight (adult)	kilograms	70	USEPA 1991	na	na	
	BWc	Body Weight (child)	kilograms	15	USEPA 1991	na	na	
	AT-C	Averaging Time (Cancer)	days	25,550	USEPA 1989	na	na	
	AT-N	Averaging Time (Non-cancer)	days	ED x 365	USEPA 1989	na	na	

NOTES: na: not applicable; -- not available

(1) Soil ingestion rate based on a study of children at campgrounds.

(2) Assumes water potato harvesting or recreational activities associated with sediment/surface water in the Lower CdA River occurs 7 months of the year (April to October) due to weather constraints.

(3) Assumes full body exposure.

(4) Adherence factor for reed gatherers.

TABLE 4.23

VALUES USED FOR DAILY INTAKE CALCULATIONS

Traditional Subsistence Exposure

Scenario Timeframe: Future
Medium: Surface Water
Exposure Medium: Undisturbed Surface Water
Exposure Point: Undistrubed Surface Water in Lower Coeur d'Alene River
Receptor Population: Tribal Member
Receptor Age: Adults and Children

Exposure Route	Parameter Code	Parameter Definition	Units	RME Value	RME Rationale/ Reference	CT Value	CT Rationale/ Reference	Intake Equation/ Model Name
Ingestion	CW	Chemical Concentration in Water	µg/l	See Table Series 3	See Table Series 3	na	na	Chronic Daily Intake (CDI) (mg/kg/day) =
	IR-Wa	Ingestion Rate of Water (adult)	liters/day	3	Harris and Harper 1997	na	na	
	IR-Wc	Ingestion Rate of Water (child)	liters/day	1.5 (1)	professional judgement	na	na	For evaluating child exposure to noncarcinogens:
	EF	Exposure Frequency	days/year	365	Every day	na	na	= CW x IR-W x EF x ED x CF x 1/BW x 1/AT-N
	EDa	Exposure Duration (adult)	years	64	Lifetime (70 years total)	na	na	
	EDc	Exposure Duration (child)	years	6	USEPA 1991	na	na	For evaluating combined adult and child exposures:
	CF	Conversion Factor	mg/µg	0.001	na	na	na	IngFadj =
	BWa	Body Weight (adult)	kilograms	70	USEPA 1991	na	na	= [(EDc x IR-Wc) / BWc] + [(EDa x IR-Wa) / BWa]
	BWc	Body Weight (child)	kilograms	15	USEPA 1991	na	na	Therefore,
	AT-C	Averaging Time (Cancer)	days	25,550	USEPA 1989	na	na	CDIadj = CW x EF x CF x IngFadj x 1/AT
	AT-N	Averaging Time (Non-cancer)	days	ED x 365	USEPA 1989	na	na	

NOTES: na: not applicable

(1) Since the adult water ingestion rate is 150% of the default value, a child ingestion rate equivalent to 150% of the value used for child residential tap water consumption was used.

TABLE 4.24

VALUES USED FOR DAILY INTAKE CALCULATIONS

Traditional Subsistence Exposure

Scenario Timeframe: Future
Medium: Surface Water
Exposure Medium: Disturbed Surface Water
Exposure Point: Disturbed Surface Water in Lower Coeur d'Alene River
Receptor Population: Tribal Member
Receptor Age: Adults and Children

Exposure Route	Parameter Code	Parameter Definition	Units	RME Value	RME Rationale/ Reference	CT Value	CT Rationale/ Reference	Intake Equation/ Model Name
Incidental	CW	Chemical Concentration in Surface Water	µg/l	See Table Series 3	See Table Series 3	na	na	Chronic Daily Intake (CDI) (mg/kg/day) =
Ingestion	IR-W	Ingestion Rate of Surface Water	mL/hour	30	USEPA 1998b	na	na	
	EF	Exposure Frequency	days/year	210 (1)	prof. judgement	na	na	For evaluating child exposure to noncarcinogens:
	ET	Exposure Time	hour/day	1	USEPA 1997	na	na	= CW x IR-W x EF x ET x ED x CF1 x CF2 x 1/BW x 1/AT-N
	EDa	Exposure Duration (adult)	years	64	Lifetime (70 years total)	na	na	
	EDc	Exposure Duration (child)	years	6	USEPA 1991	na	na	For evaluating combined adult and child exposures:
	CF1	Conversion Factor 1	mg/µg	0.001	na	na	na	IngFadj = (EDc / BWc) + (EDa / BWa)
	CF2	Conversion Factor 2	L/mL	0.001	na	na	na	Therefore,
	BWa	Body Weight (adult)	kilograms	70	USEPA 1991	na	na	CDIadj = CW x IR-W x EF x ET x CF1 x CF2 x IngFadj x 1/AT
	BWc	Body Weight (child)	kilograms	15	USEPA 1991	na	na	
	AT-C	Averaging Time (Cancer)	days	25,550	USEPA 1989	na	na	
	AT-N	Averaging Time (Non-cancer)	days	ED x 365	USEPA 1989	na	na	

NOTES: na: not applicable; -- not available; * not quantitatively evaluated, see text

(1) Assumes recreational activities associated with surface water in the Lower CdA River occurs only seven months of the year due to weather constraints.

Table 4 References

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TABLE 5.1

NON-CANCER TOXICITY DATA -- ORAL/DERMAL

Coeur d'Alene River Basin

Chemical of Potential Concern	Chronic/ Subchronic	Oral RfD Value	Oral RfD Units	Oral to Dermal Adjustment Factor (1)	Adjusted Dermal RfD (2)	Units	Endpoint/ Primary Target Organ	Combined Uncertainty/Modifying Factors	Sources of RfD/ Target Organ	Dates of RfD: Target Organ (MM/DD/YY)
Antimony	Chronic	4.00E-04	mg/kg-day	NA	NA	mg/kg-day	LOAEL/longevity, blood chemistry	1000	IRIS	10/25/99
Arsenic	Chronic	3.00E-04	mg/kg-day	NA	NA	mg/kg-day	NOAEL/skin pigmentation	3	IRIS	10/25/99
Cadmium (food)	Chronic	1.00E-03	mg/kg-day	0.025	2.50E-05	mg/kg-day	NOAEL/proteinuria	10	IRIS	10/25/99
Cadmium (water)	Chronic	5.00E-04	mg/kg-day	NA (3)	NA	NA	NOAEL/proteinuria	10	IRIS	10/25/99
Iron	NS	3.00E-01	mg/kg-day	NA	NA	mg/kg-day	NS	1	Region III RBCs & NCEA	10/25/99
Manganese (food)										
child and child/adult	Chronic	4.70E-02	mg/kg-day	NA	NA	mg/kg-day	NOAEL/Central Nervous System	1	IRIS	10/25/99
adult only	Chronic	1.40E-01	mg/kg-day	NA	NA	mg/kg-day	NOAEL/Central Nervous System	1	IRIS	10/25/99
Manganese (water)	Chronic	4.70E-02	mg/kg-day	NA (3)	NA	mg/kg-day	NOAEL/Central Nervous System	3	IRIS	10/25/99
Mercury	Chronic	3.00E-04	mg/kg-day	NA	NA	mg/kg-day	LOAEL/kidney damage, autoimmunity	1000	IRIS	10/25/99
Methylmercury (fish)	Chronic	1.00E-04	mg/kg-day	NA	NA	mg/kg-day	Benchmark Dose/develpmental neurological effects	10	IRIS	10/25/99
Zinc	Subchronic (10 weeks)	3.00E-01	mg/kg-day	NA	NA	mg/kg-day	LOAEL/enzyme-level effects	3	IRIS	10/25/99

N/A = Not Applicable

NS = Not Specified

NOAEL = No observed adverse effect level

LOAEL = Lowest obeserved adverse effect level

(1) The oral RfD will be adjusted for cadmium (food) only; for all other COPCs, the oral RfD will be used to evaluate dermal exposures (U.S.EPA, 1999, Region 9 PRG Tables).

(2) Adjusted Dermal RfD = oral RfD x Oral to Dermal Adjustment Factor

(3) The dermal pathway will not be evaluated quantitatively for COPCs in water

TABLE 5.2

NON-CANCER TOXICITY DATA -- INHALATION

Coeur d'Alene River Basin

Chemical of Potential Concern	Chronic/ Subchronic	Value Inhalation RfC	Units	Adjusted Inhalation RfD (1)	Units	Primary Target Organ	Combined Uncertainty/Modifying Factors	Sources of RfC:RfD: Target Organ	Dates (MM/DD/YY)
Antimony	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Arsenic	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Cadmium	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Iron	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Manganese	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Mercury	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Zinc	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

N/A = Not Applicable

TABLE 6.1

CANCER TOXICITY DATA -- ORAL/DERMAL

Coeur d'Alene River Basin

Chemical of Potential Concern	Oral Cancer Slope Factor	Oral to Dermal Adjustment Factor (1)	Adjusted Dermal Cancer Slope Factor (2)	Units	Weight of Evidence/ Cancer Guideline Description	Source Target Organ	Date (MM/DD/YY)
Antimony	--	--	--	--	NYR	IRIS	10/25/99
Arsenic	1.50E+00	NA	NA	$(mg/kg\text{-}d)^{-1}$	A	liver, kidney: IRIS	10/25/99
Cadmium	--	--	--	--	NYR	IRIS	10/25/99
Iron	--	--	--	--	NYR	IRIS	10/25/99
Manganese	--	--	--	--	D	IRIS	10/25/99
Mercury	--	--	--	--	C	IRIS	10/25/99
Zinc	--	--	--	--	D	IRIS	10/25/99

--' = no value available

IRIS = Integrated Risk Information System

NYR = not yet rated

NA = not applicable

(1) Gastrointestinal absorption factor (U.S.EPA, 1998)

(2) The oral slope factor will be used to evaluate dermal exposures (U.S.EPA Region 9 PRG Tables)

EPA Group:

A - Human carcinogen

B1 - Probable human carcinogen - indicates that limited human

B2 - Probable human carcinogen - indicates sufficient evidence inadequate or no evidence in humans

C - Possible human carcinogen

D - Not classifiable as a human carcinogen

E - Evidence of noncarcinogenicity

TABLE 6.2

CANCER TOXICITY DATA -- INHALATION

Coeur d'Alene River Basin

Chemical of Potential Concern	Unit Risk	Units	Adjustment (2)	Inhalation Cancer Slope Factor	Units	Weight of Evidence/ Cancer Guideline Description	Source	Date (1) (MM/DD/YY)
Antimony	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Arsenic	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Cadmium	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Iron	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Manganese	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Mercury	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Zinc	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

N/A = Not Applicable

TABLE 7.1.1.RME
CALCULATION OF NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
Lower Basin - Residential Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Surface Soil
Exposure Point:	Yard Soil
Receptor Population:	Residents
Receptor Age:	Child 0-6 years old

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient
Ingestion	Antimony	8.25	mg/kg	8.25	mg/kg	M	1.05E-04	mg/kg-d	4.0E-04	mg/kg-d	N/A	N/A	2.6E-01
	Arsenic	48.53	mg/kg	48.53	mg/kg	M	3.72E-04	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	1.2E+00
	Cadmium	6.87	mg/kg	6.87	mg/kg	M	8.78E-05	mg/kg-d	1.0E-03	mg/kg-d	N/A	N/A	8.8E-02
	Iron	37703	mg/kg	37703	mg/kg	M	4.82E-01	mg/kg-d	3.0E-01	mg/kg-d	N/A	N/A	1.6E+00
	Manganese	2292	mg/kg	2292	mg/kg	M	2.93E-02	mg/kg-d	4.7E-02	mg/kg-d	N/A	N/A	6.2E-01
	Zinc	1199	mg/kg	1199	mg/kg	M	1.53E-02	mg/kg-d	3.0E-01	mg/kg-d	N/A	N/A	5.1E-02
	(Total)												3.9E+00
Dermal	Arsenic	48.53	mg/kg	48.53	mg/kg	M	4.1E-05	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	1.4E-01
	Cadmium	6.87	mg/kg	6.87	mg/kg	M	1.9E-07	mg/kg-d	2.5E-05	mg/kg-d	N/A	N/A	7.7E-03
	(Total)												1.4E-01
												Total Hazard Index Across All Exposure Routes/Pathways	4.0E+00

(1) M = Medium-Specific, R = Route-Specific
N/A = not applicable.

TABLE 7.1.1.CT
CALCULATION OF NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
Lower Basin - Residential Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Surface Soil
Exposure Point:	Yard Soil
Receptor Population:	Residents
Receptor Age:	Child 0-6 years old

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient
Ingestion	Antimony	5.62	mg/kg	5.62	mg/kg	M	2.67E-05	mg/kg-d	4.0E-04	mg/kg-d	N/A	N/A	6.7E-02
	Arsenic	35.47	mg/kg	35.47	mg/kg	M	1.01E-04	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	3.4E-01
	Cadmium	4.97	mg/kg	4.97	mg/kg	M	2.36E-05	mg/kg-d	1.0E-03	mg/kg-d	N/A	N/A	2.4E-02
	Iron	29992	mg/kg	29992	mg/kg	M	1.42E-01	mg/kg-d	3.0E-01	mg/kg-d	N/A	N/A	4.7E-01
	Manganese	1639	mg/kg	1639	mg/kg	M	7.78E-03	mg/kg-d	4.7E-02	mg/kg-d	N/A	N/A	1.7E-01
	Zinc	849	mg/kg	849	mg/kg	M	4.03E-03	mg/kg-d	3.0E-01	mg/kg-d	N/A	N/A	1.3E-02
	(Total)												1.1E+00
Dermal	Arsenic	35.47	mg/kg	35.47	mg/kg	M	2.22E-05	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	7.4E-02
	Cadmium	4.97	mg/kg	4.97	mg/kg	M	1.04E-07	mg/kg-d	2.5E-05	mg/kg-d	N/A	N/A	4.2E-03
	(Total)												7.8E-02
												Total Hazard Index Across All Exposure Routes/Pathways	1.2E+00

(1) M = Medium-Specific, R = Route-Specific
N/A = not applicable.

TABLE 7.1.2.RME
CALCULATION OF NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
Lower Basin - Residential Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Surface Soil
Exposure Point:	Yard Soil
Receptor Population:	Residents
Receptor Age:	Child/Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient
Ingestion	Antimony	8.25	mg/kg	8.25	mg/kg	M	3.01E-05	mg/kg-d	4.0E-04	mg/kg-d	N/A	N/A	7.5E-02
	Arsenic	48.53	mg/kg	48.53	mg/kg	M	1.06E-04	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	3.5E-01
	Cadmium	6.87	mg/kg	6.87	mg/kg	M	2.51E-05	mg/kg-d	1.0E-03	mg/kg-d	N/A	N/A	2.5E-02
	Iron	37703	mg/kg	37703	mg/kg	M	1.38E-01	mg/kg-d	3.0E-01	mg/kg-d	N/A	N/A	4.6E-01
	Manganese	2292	mg/kg	2292	mg/kg	M	8.37E-03	mg/kg-d	4.7E-02	mg/kg-d	N/A	N/A	1.8E-01
	Zinc	1199	mg/kg	1199	mg/kg	M	4.38E-03	mg/kg-d	3.0E-01	mg/kg-d	N/A	N/A	1.5E-02
	(Total)												1.1E+00
Dermal	Arsenic	48.53	mg/kg	48.53	mg/kg	M	1.22E-05	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	4.1E-02
	Cadmium	6.87	mg/kg	6.87	mg/kg	M	5.75E-08	mg/kg-d	2.5E-05	mg/kg-d	N/A	N/A	2.3E-03
	(Total)												4.3E-02
												Total Hazard Index Across All Exposure Routes/Pathways	1.1E+00

(1) M = Medium-Specific, R = Route-Specific
N/A = not applicable.

TABLE 7.1.2.CT
CALCULATION OF NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
Lower Basin - Residential Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Surface Soil
Exposure Point:	Yard Soil
Receptor Population:	Residents
Receptor Age:	Child/Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient
Ingestion	Antimony	5.62	mg/kg	5.62	mg/kg	M	8.15E-06	mg/kg-d	4.0E-04	mg/kg-d	N/A	N/A	2.0E-02
	Arsenic	35.47	mg/kg	35.47	mg/kg	M	3.09E-05	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	1.0E-01
	Cadmium	4.97	mg/kg	4.97	mg/kg	M	7.21E-06	mg/kg-d	1.0E-03	mg/kg-d	N/A	N/A	7.2E-03
	Iron	29992	mg/kg	29992	mg/kg	M	4.35E-02	mg/kg-d	3.0E-01	mg/kg-d	N/A	N/A	1.5E-01
	Manganese	1639	mg/kg	1639	mg/kg	M	2.38E-03	mg/kg-d	4.7E-02	mg/kg-d	N/A	N/A	5.1E-02
	Zinc	849	mg/kg	849	mg/kg	M	1.23E-03	mg/kg-d	3.0E-01	mg/kg-d	N/A	N/A	4.1E-03
	(Total)												3.3E-01
Dermal	Arsenic	35.47	mg/kg	35.47	mg/kg	M	7.05E-06	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	2.3E-02
	Cadmium	4.97	mg/kg	4.97	mg/kg	M	3.29E-08	mg/kg-d	2.5E-05	mg/kg-d	N/A	N/A	1.3E-03
	(Total)												2.5E-02
												Total Hazard Index Across All Exposure Routes/Pathways	3.6E-01

(1) M = Medium-Specific, R = Route-Specific
N/A = not applicable.

TABLE 7.1.3.RME
CALCULATION OF NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
Lower Basin - Residential Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Groundwater
Exposure Medium:	Groundwater
Exposure Point:	Tap water
Receptor Population:	Residents
Receptor Age:	Child 0-6 years old

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient
Ingestion	Arsenic	0.97	ug/L	0.97	ug/L	M	6.20E-05	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	2.1E-01
												Total Hazard Index Across All Exposure Routes/Pathways	2.1E-01

(1) M = Medium-Specific, R = Route-Specific
N/A = not applicable.

TABLE 7.1.3.CT
CALCULATION OF NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
Lower Basin - Residential Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Groundwater
Exposure Medium:	Groundwater
Exposure Point:	Tap water
Receptor Population:	Residents
Receptor Age:	Child 0-6 years old

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient
Ingestion	Arsenic	0.38	ug/L	0.38	ug/L	M	1.62E-05	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	5.4E-02
												Total Hazard Index Across All Exposure Routes/Pathways	5.4E-02

(1) M = Medium-Specific, R = Route-Specific
N/A = not applicable.

TABLE 7.1.4.RME
CALCULATION OF NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
Lower Basin - Residential Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Groundwater
Exposure Medium:	Groundwater
Exposure Point:	Tap water
Receptor Population:	Residents
Receptor Age:	Child/Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient
Ingestion	Arsenic	0.97	ug/L	0.97	ug/L	M	3.37E-05	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	1.1E-01
												Total Hazard Index Across All Exposure Routes/Pathways	1.1E-01

(1) M = Medium-Specific, R = Route-Specific
N/A = not applicable.

TABLE 7.1.4.CT
CALCULATION OF NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
Lower Basin - Residential Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Groundwater
Exposure Medium:	Groundwater
Exposure Point:	Tap water
Receptor Population:	Residents
Receptor Age:	Child/Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient
Ingestion	Arsenic	0.38	ug/L	0.38	ug/L	M	7.40E-06	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	2.5E-02
												Total Hazard Index Across All Exposure Routes/Pathways	2.5E-02

(1) M = Medium-Specific, R = Route-Specific
N/A = not applicable.

TABLE 7.1.5.RME
CALCULATION OF NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
Lower Basin - Neighborhood Recreational Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Soil/sediment
Exposure Medium:	Soil/sediment
Exposure Point:	Lower CDAR
Receptor Population:	Neighborhood residents
Receptor Age:	Child 4-11 years old

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient
Ingestion	Antimony	23.22	mg/kg	23.22	mg/kg	M	1.43E-05	mg/kg-d	4.0E-04	mg/kg-d	N/A	N/A	3.6E-02
	Arsenic	119.45	mg/kg	119.45	mg/kg	M	4.42E-05	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	1.5E-01
	Cadmium	35.05	mg/kg	35.05	mg/kg	M	2.16E-05	mg/kg-d	1.0E-03	mg/kg-d	N/A	N/A	2.2E-02
	Iron	105451	mg/kg	105451	mg/kg	M	6.50E-02	mg/kg-d	3.0E-01	mg/kg-d	N/A	N/A	2.2E-01
	Manganese	9886	mg/kg	9886	mg/kg	M	6.09E-03	mg/kg-d	4.7E-02	mg/kg-d	N/A	N/A	1.3E-01
	Zinc	5666	mg/kg	5666	mg/kg	M	3.49E-03	mg/kg-d	3.0E-01	mg/kg-d	N/A	N/A	1.2E-02
	(Total)												5.6E-01
Dermal	Arsenic	119.45	mg/kg	119.45	mg/kg	M	5.36E-05	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	1.8E-01
	Cadmium	35.05	mg/kg	35.05	mg/kg	M	5.24E-07	mg/kg-d	2.5E-05	mg/kg-d	N/A	N/A	2.1E-02
	(Total)												2.0E-01
												Total Hazard Index Across All Exposure Routes/Pathways	7.6E-01

(1) M = Medium-Specific, R = Route-Specific
N/A = not applicable.

TABLE 7.1.5.CT
CALCULATION OF NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
Lower Basin - Neighborhood Recreational Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Soil/sediment
Exposure Medium:	Soil/sediment
Exposure Point:	Lower CDAR
Receptor Population:	Neighborhood residents
Receptor Age:	Child 4-11 years old

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient
Ingestion	Antimony	22.08	mg/kg	22.08	mg/kg	M	2.59E-06	mg/kg-d	4.0E-04	mg/kg-d	N/A	N/A	6.5E-03
	Arsenic	114.51	mg/kg	114.51	mg/kg	M	8.07E-06	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	2.7E-02
	Cadmium	33.14	mg/kg	33.14	mg/kg	M	3.89E-06	mg/kg-d	1.0E-03	mg/kg-d	N/A	N/A	3.9E-03
	Iron	101280	mg/kg	101280	mg/kg	M	1.19E-02	mg/kg-d	3.0E-01	mg/kg-d	N/A	N/A	4.0E-02
	Manganese	9403	mg/kg	9403	mg/kg	M	1.10E-03	mg/kg-d	4.7E-02	mg/kg-d	N/A	N/A	2.3E-02
	Zinc	5337	mg/kg	5337	mg/kg	M	6.27E-04	mg/kg-d	3.0E-01	mg/kg-d	N/A	N/A	2.1E-03
	(Total)												1.0E-01
Dermal	Arsenic	114.51	mg/kg	114.51	mg/kg	M	2.57E-05	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	8.6E-02
	Cadmium	33.14	mg/kg	33.14	mg/kg	M	2.48E-07	mg/kg-d	2.5E-05	mg/kg-d	N/A	N/A	9.9E-03
	(Total)												9.6E-02
												Total Hazard Index Across All Exposure Routes/Pathways	2.0E-01

(1) M = Medium-Specific, R = Route-Specific
N/A = not applicable.

TABLE 7.1.6.RME
CALCULATION OF NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
Lower Basin - Neighborhood Recreational Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Surface water
Exposure Medium:	Disturbed Surface water
Exposure Point:	Lower CDAR
Receptor Population:	Neighborhood residents
Receptor Age:	Child 4-11 years old

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient
Ingestion	Arsenic	79.61	ug/L	79.61	ug/L	M	2.24E-05	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	7.5E-02
	Cadmium	72.9	ug/L	72.9	ug/L	M	2.05E-05	mg/kg-d	5.0E-04	mg/kg-d	N/A	N/A	4.1E-02
	Manganese	16651	ug/L	16651	ug/L	M	4.69E-03	mg/kg-d	4.7E-02	mg/kg-d	N/A	N/A	1.0E-01
	Mercury	4.5	ug/L	4.5	ug/L	M	1.27E-06	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	4.2E-03
												Total Hazard Index Across All Exposure Routes/Pathways	2.2E-01

(1) M = Medium-Specific, R = Route-Specific
N/A = not applicable.

TABLE 7.1.6.CT
CALCULATION OF NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
Lower Basin - Neighborhood Recreational Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Surface water
Exposure Medium:	Disturbed Surface water
Exposure Point:	Lower CDAR
Receptor Population:	Neighborhood residents
Receptor Age:	Child 4-11 years old

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient
Ingestion	Arsenic	75.64	ug/L	75.64	ug/L	M	1.07E-05	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	3.6E-02
	Cadmium	54.82	ug/L	54.82	ug/L	M	7.72E-06	mg/kg-d	5.0E-04	mg/kg-d	N/A	N/A	1.5E-02
	Manganese	21269	ug/L	21269	ug/L	M	3.00E-03	mg/kg-d	4.7E-02	mg/kg-d	N/A	N/A	6.4E-02
	Mercury	4.51	ug/L	4.51	ug/L	M	6.35E-07	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	2.1E-03
												Total Hazard Index Across All Exposure Routes/Pathways	1.2E-01

(1) M = Medium-Specific, R = Route-Specific
N/A = not applicable.

TABLE 7.1.7.RME
CALCULATION OF NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
Lower Basin - Public Recreational Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Soil/sediment
Exposure Medium:	Soil/sediment
Exposure Point:	Lower CDAR
Receptor Population:	Visitor
Receptor Age:	Child 0-6 years old

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient
Ingestion	Antimony	23.22	mg/kg	23.22	mg/kg	M	4.07E-05	mg/kg-d	4.0E-04	mg/kg-d	N/A	N/A	1.0E-01
	Arsenic	119.45	mg/kg	119.45	mg/kg	M	1.26E-04	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	4.2E-01
	Cadmium	35.05	mg/kg	35.05	mg/kg	M	6.15E-05	mg/kg-d	1.0E-03	mg/kg-d	N/A	N/A	6.1E-02
	Iron	105451	mg/kg	105451	mg/kg	M	1.85E-01	mg/kg-d	3.0E-01	mg/kg-d	N/A	N/A	6.2E-01
	Manganese	9886	mg/kg	9886	mg/kg	M	1.73E-02	mg/kg-d	4.7E-02	mg/kg-d	N/A	N/A	3.7E-01
	Zinc	5666	mg/kg	5666	mg/kg	M	9.93E-03	mg/kg-d	3.0E-01	mg/kg-d	N/A	N/A	3.3E-02
	(Total)												1.6E+00
Dermal	Arsenic	119.45	mg/kg	119.45	mg/kg	M	2.72E-05	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	9.1E-02
	Cadmium	35.05	mg/kg	35.05	mg/kg	M	2.66E-07	mg/kg-d	2.5E-05	mg/kg-d	N/A	N/A	1.1E-02
	(Total)												1.0E-01
												Total Hazard Index Across All Exposure Routes/Pathways	1.7E+00

(1) M = Medium-Specific, R = Route-Specific
N/A = not applicable.

TABLE 7.1.7.CT
CALCULATION OF NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
Lower Basin - Public Recreational Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Soil/sediment
Exposure Medium:	Soil/sediment
Exposure Point:	Lower CDAR
Receptor Population:	Visitor
Receptor Age:	Child 0-6 years old

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient
Ingestion	Antimony	22.08	mg/kg	22.08	mg/kg	M	7.74E-06	mg/kg-d	4.0E-04	mg/kg-d	N/A	N/A	1.9E-02
	Arsenic	114.51	mg/kg	114.51	mg/kg	M	2.41E-05	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	8.0E-02
	Cadmium	33.14	mg/kg	33.14	mg/kg	M	1.16E-05	mg/kg-d	1.0E-03	mg/kg-d	N/A	N/A	1.2E-02
	Iron	101280	mg/kg	101280	mg/kg	M	3.55E-02	mg/kg-d	3.0E-01	mg/kg-d	N/A	N/A	1.2E-01
	Manganese	9403	mg/kg	9403	mg/kg	M	3.30E-03	mg/kg-d	4.7E-02	mg/kg-d	N/A	N/A	7.0E-02
	Zinc	5337	mg/kg	5337	mg/kg	M	1.87E-03	mg/kg-d	3.0E-01	mg/kg-d	N/A	N/A	6.2E-03
	(Total)												3.1E-01
Dermal	Arsenic	114.51	mg/kg	114.51	mg/kg	M	1.31E-05	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	4.4E-02
	Cadmium	33.14	mg/kg	33.14	mg/kg	M	1.26E-07	mg/kg-d	2.5E-05	mg/kg-d	N/A	N/A	5.0E-03
	(Total)												4.9E-02
												Total Hazard Index Across All Exposure Routes/Pathways	7.2E-01

(1) M = Medium-Specific, R = Route-Specific
N/A = not applicable.

TABLE 7.1.8.RME
CALCULATION OF NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
Lower Basin - Public Recreational Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Soil/sediment
Exposure Medium:	Soil/sediment
Exposure Point:	Lower CDAR
Receptor Population:	Visitor
Receptor Age:	Child/Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient
Ingestion	Antimony	23.22	mg/kg	23.22	mg/kg	M	1.05E-05	mg/kg-d	4.0E-04	mg/kg-d	N/A	N/A	2.6E-02
	Arsenic	119.45	mg/kg	119.45	mg/kg	M	3.23E-05	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	1.1E-01
	Cadmium	35.05	mg/kg	35.05	mg/kg	M	1.58E-05	mg/kg-d	1.0E-03	mg/kg-d	N/A	N/A	1.6E-02
	Iron	105451	mg/kg	105451	mg/kg	M	4.75E-02	mg/kg-d	3.0E-01	mg/kg-d	N/A	N/A	1.6E-01
	Manganese	9886	mg/kg	9886	mg/kg	M	4.46E-03	mg/kg-d	4.7E-02	mg/kg-d	N/A	N/A	9.5E-02
	Zinc	5666	mg/kg	5666	mg/kg	M	2.55E-03	mg/kg-d	3.0E-01	mg/kg-d	N/A	N/A	8.5E-03
	(Total)												4.1E-01
Dermal	Arsenic	119.45	mg/kg	119.45	mg/kg	M	1.19E-05	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	4.0E-02
	Cadmium	35.05	mg/kg	35.05	mg/kg	M	1.16E-07	mg/kg-d	2.5E-05	mg/kg-d	N/A	N/A	4.7E-03
	(Total)												4.4E-02
												Total Hazard Index Across All Exposure Routes/Pathways	4.6E-01

(1) M = Medium-Specific, R = Route-Specific
N/A = not applicable.

TABLE 7.1.8.CT
CALCULATION OF NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
Lower Basin - Public Recreational Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Soil/sediment
Exposure Medium:	Soil/sediment
Exposure Point:	Lower CDAR
Receptor Population:	Visitor
Receptor Age:	Child/Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient
Ingestion	Antimony	22.08	mg/kg	22.08	mg/kg	M	2.26E-06	mg/kg-d	4.0E-04	mg/kg-d	N/A	N/A	5.6E-03
	Arsenic	114.51	mg/kg	114.51	mg/kg	M	7.03E-06	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	2.3E-02
	Cadmium	33.14	mg/kg	33.14	mg/kg	M	3.39E-06	mg/kg-d	1.0E-03	mg/kg-d	N/A	N/A	3.4E-03
	Iron	101280	mg/kg	101280	mg/kg	M	1.04E-02	mg/kg-d	3.0E-01	mg/kg-d	N/A	N/A	3.5E-02
	Manganese	9403	mg/kg	9403	mg/kg	M	9.62E-04	mg/kg-d	4.7E-02	mg/kg-d	N/A	N/A	2.0E-02
	Zinc	5337	mg/kg	5337	mg/kg	M	5.46E-04	mg/kg-d	3.0E-01	mg/kg-d	N/A	N/A	1.8E-03
	(Total)												8.9E-02
Dermal	Arsenic	114.51	mg/kg	114.51	mg/kg	M	5.91E-06	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	2.0E-02
	Cadmium	33.14	mg/kg	33.14	mg/kg	M	5.70E-08	mg/kg-d	2.5E-05	mg/kg-d	N/A	N/A	2.3E-03
	(Total)												2.2E-02
												Total Hazard Index Across All Exposure Routes/Pathways	1.1E-01

(1) M = Medium-Specific, R = Route-Specific
N/A = not applicable.

TABLE 7.1.9.RME
CALCULATION OF NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
Lower Basin - Public Recreational Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Surface water
Exposure Medium:	Disturbed Surface water
Exposure Point:	Lower CDAR
Receptor Population:	Visitor
Receptor Age:	Child 0-6 years old

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient
Ingestion	Arsenic	79.61	ug/L	79.61	ug/L	M	1.40E-05	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	4.7E-02
	Cadmium	72.9	ug/L	72.9	ug/L	M	1.28E-05	mg/kg-d	5.0E-04	mg/kg-d	N/A	N/A	2.6E-02
	Manganese	16651	ug/L	16651	ug/L	M	2.92E-03	mg/kg-d	4.7E-02	mg/kg-d	N/A	N/A	6.2E-02
	Mercury	4.5	ug/L	4.5	ug/L	M	7.89E-07	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	2.6E-03
												Total Hazard Index Across All Exposure Routes/Pathways	1.4E-01

(1) M = Medium-Specific, R = Route-Specific
N/A = not applicable.

TABLE 7.1.9.CT
CALCULATION OF NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
Lower Basin - Public Recreational Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Surface water
Exposure Medium:	Disturbed Surface water
Exposure Point:	Lower CDAR
Receptor Population:	Visitor
Receptor Age:	Child 0-6 years old

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient
Ingestion	Arsenic	75.64	ug/L	75.64	ug/L	M	6.63E-06	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	2.2E-02
	Cadmium	54.82	ug/L	54.82	ug/L	M	4.81E-06	mg/kg-d	5.0E-04	mg/kg-d	N/A	N/A	9.6E-03
	Manganese	21269	ug/L	21269	ug/L	M	1.86E-03	mg/kg-d	4.7E-02	mg/kg-d	N/A	N/A	4.0E-02
	Mercury	4.51	ug/L	4.51	ug/L	M	3.95E-07	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	1.3E-03
												Total Hazard Index Across All Exposure Routes/Pathways	7.3E-02

(1) M = Medium-Specific, R = Route-Specific
N/A = not applicable.

TABLE 7.1.10.RME
CALCULATION OF NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
Lower Basin - Public Recreational Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Surface water
Exposure Medium:	Disturbed Surface water
Exposure Point:	Lower CDAR
Receptor Population:	Visitor
Receptor Age:	Child/Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient
Ingestion	Arsenic	79.61	ug/L	79.61	ug/L	M	5.18E-06	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	1.7E-02
	Cadmium	72.9	ug/L	72.9	ug/L	M	4.75E-06	mg/kg-d	5.0E-04	mg/kg-d	N/A	N/A	9.5E-03
	Manganese	16651	ug/L	16651	ug/L	M	1.08E-03	mg/kg-d	4.7E-02	mg/kg-d	N/A	N/A	2.3E-02
	Mercury	4.5	ug/L	4.5	ug/L	M	2.93E-07	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	9.8E-04
												Total Hazard Index Across All Exposure Routes/Pathways	5.1E-02

(1) M = Medium-Specific, R = Route-Specific
N/A = not applicable.

TABLE 7.1.10.CT
CALCULATION OF NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
Lower Basin - Public Recreational Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Surface water
Exposure Medium:	Disturbed Surface water
Exposure Point:	Lower CDAR
Receptor Population:	Visitor
Receptor Age:	Child/Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient
Ingestion	Arsenic	75.64	ug/L	75.64	ug/L	M	2.58E-06	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	8.6E-03
	Cadmium	54.82	ug/L	54.82	ug/L	M	1.87E-06	mg/kg-d	5.0E-04	mg/kg-d	N/A	N/A	3.7E-03
	Manganese	21269	ug/L	21269	ug/L	M	7.25E-04	mg/kg-d	4.7E-02	mg/kg-d	N/A	N/A	1.5E-02
	Mercury	4.51	ug/L	4.51	ug/L	M	1.54E-07	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	5.1E-04
												Total Hazard Index Across All Exposure Routes/Pathways	2.83E-02

(1) M = Medium-Specific, R = Route-Specific
N/A = not applicable.

TABLE 7.1.11.RME
CALCULATION OF NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
Lower Basin - Occupational Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Surface/subsurface soil
Exposure Point:	Construction site soil
Receptor Population:	Construction worker
Receptor Age:	Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient
Ingestion	Antimony	21.08	mg/kg	21.08	mg/kg	M	4.83E-05	mg/kg-d	4.0E-04	mg/kg-d	N/A	N/A	1.2E-01
	Arsenic	108.91	mg/kg	108.91	mg/kg	M	1.05E-04	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	5.0E-01
	Cadmium	30.71	mg/kg	30.71	mg/kg	M	7.03E-05	mg/kg-d	1.0E-03	mg/kg-d	N/A	N/A	7.0E-02
	Iron	97012	mg/kg	97012	mg/kg	M	2.22E-01	mg/kg-d	3.0E-01	mg/kg-d	N/A	N/A	7.4E-01
	Manganese	8919	mg/kg	8919	mg/kg	M	2.04E-02	mg/kg-d	1.4E-01	mg/kg-d	N/A	N/A	1.5E-01
	Zinc	4998	mg/kg	4998	mg/kg	M	1.14E-02	mg/kg-d	3.0E-01	mg/kg-d	N/A	N/A	3.8E-02
	(Total)												1.6E+00
Dermal	Arsenic	108.91	mg/kg	108.91	mg/kg	M	6.23E-06	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	2.1E-02
	Cadmium	30.71	mg/kg	30.71	mg/kg	M	5.86E-08	mg/kg-d	2.5E-05	mg/kg-d	N/A	N/A	2.3E-03
	(Total)												2.3E-02
												Total Hazard Index Across All Exposure Routes/Pathways	1.6E+00

(1) M = Medium-Specific, R = Route-Specific
N/A = not applicable.

TABLE 7.1.11.CT
CALCULATION OF NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
Lower Basin - Occupational Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Surface/subsurface soil
Exposure Point:	Construction site soil
Receptor Population:	Construction worker
Receptor Age:	Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient
Ingestion	Antimony	19.98	mg/kg	19.98	mg/kg	M	6.73E-06	mg/kg-d	4.0E-04	mg/kg-d	N/A	N/A	1.7E-02
	Arsenic	104.41	mg/kg	104.41	mg/kg	M	2.11E-05	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	7.0E-02
	Cadmium	29	mg/kg	29	mg/kg	M	9.76E-06	mg/kg-d	1.0E-03	mg/kg-d	N/A	N/A	9.8E-03
	Iron	92917	mg/kg	92917	mg/kg	M	3.13E-02	mg/kg-d	3.0E-01	mg/kg-d	N/A	N/A	1.0E-01
	Manganese	8449	mg/kg	8449	mg/kg	M	2.84E-03	mg/kg-d	1.4E-01	mg/kg-d	N/A	N/A	2.0E-02
	Zinc	4703	mg/kg	4703	mg/kg	M	1.58E-03	mg/kg-d	3.0E-01	mg/kg-d	N/A	N/A	5.3E-03
	(Total)												2.3E-01
Dermal	Arsenic	104.41	mg/kg	104.41	mg/kg	M	1.32E-06	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	4.4E-03
	Cadmium	29	mg/kg	29	mg/kg	M	1.22E-08	mg/kg-d	2.5E-05	mg/kg-d	N/A	N/A	4.9E-04
	(Total)												4.9E-03
												Total Hazard Index Across All Exposure Routes/Pathways	2.3E-01

(1) M = Medium-Specific, R = Route-Specific
N/A = not applicable.

TABLE 7.1.12 RME
CALCULATION OF NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
Lower Basin - Modern Subsistence Exposure Scenario

Scenario Timeframe:	Future
Medium:	Surface Water/Sediment
Exposure Medium:	Plant Tissue
Exposure Point:	Water Potatoes from the Lower CDAR
Receptor Population:	Tribal Members
Receptor Age:	Child/Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient
Ingestion													
(With Skin)	Cadmium	0.489	mg/kg	0.489	mg/kg	M	8.02E-04	mg/kg-d	1.0E-03	mg/kg-d	N/A	N/A	8.0E-01
(Without Skin)	Cadmium	0.291	mg/kg	0.291	mg/kg	M	4.77E-04	mg/kg-d	1.0E-03	mg/kg-d	N/A	N/A	4.8E-01

(1) M = Medium-Specific, R = Route-Specific
N/A = not applicable.

TABLE 7.1.13 RME
CALCULATION OF NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
Lower Basin - Modern Subsistence Exposure Scenario

Scenario Timeframe:	Future
Medium:	Soil
Exposure Medium:	Surface Soil
Exposure Point:	Lower CDAR
Receptor Population:	Tribal Members
Receptor Age:	Child 0-6 years old

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient
Ingestion	Antimony	21.16	mg/kg	21.16	mg/kg	M	6.96E-05	mg/kg-d	4.0E-04	mg/kg-d	N/A	N/A	1.7E-01
	Arsenic	124.44	mg/kg	124.44	mg/kg	M	2.45E-04	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	8.2E-01
	Cadmium	30.45	mg/kg	30.45	mg/kg	M	1.00E-04	mg/kg-d	1.0E-03	mg/kg-d	N/A	N/A	1.0E-01
	Iron	97440	mg/kg	97440	mg/kg	M	3.20E-01	mg/kg-d	3.0E-01	mg/kg-d	N/A	N/A	1.1E+00
	Manganese	8960	mg/kg	8960	mg/kg	M	2.95E-02	mg/kg-d	4.7E-02	mg/kg-d	N/A	N/A	6.3E-01
	Zinc	4856	mg/kg	4856	mg/kg	M	1.60E-02	mg/kg-d	3.0E-01	mg/kg-d	N/A	N/A	5.3E-02
	(Total)												2.8E+00
Dermal	Arsenic	124.44	mg/kg	124.44	mg/kg	M	9.16E-05	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	3.1E-01
	Cadmium	30.45	mg/kg	30.45	mg/kg	M	7.47E-07	mg/kg-d	2.5E-05	mg/kg-d	N/A	N/A	3.0E-02
	(Total)												3.4E-01
												Total Hazard Index Across All Exposure Routes/Pathways	3.2E+00

(1) M = Medium-Specific, R = Route-Specific
N/A = not applicable.

TABLE 7.1.14 RME
CALCULATION OF NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
Lower Basin - Modern Subsistence Exposure Scenario

Scenario Timeframe:	Future
Medium:	Soil
Exposure Medium:	Surface Soil
Exposure Point:	Lower CDAR
Receptor Population:	Tribal Members
Receptor Age:	Child/Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient
Ingestion	Antimony	21.16	mg/kg	21.16	mg/kg	M	1.96E-05	mg/kg-d	4.0E-04	mg/kg-d	N/A	N/A	4.90E-02
	Arsenic	124.44	mg/kg	124.44	mg/kg	M	6.91E-05	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	2.30E-01
	Cadmium	30.45	mg/kg	30.45	mg/kg	M	2.82E-05	mg/kg-d	1.0E-03	mg/kg-d	N/A	N/A	2.82E-02
	Iron	97440	mg/kg	97440	mg/kg	M	9.02E-02	mg/kg-d	3.0E-01	mg/kg-d	N/A	N/A	3.01E-01
	Manganese	8960	mg/kg	8960	mg/kg	M	8.30E-03	mg/kg-d	4.7E-02	mg/kg-d	N/A	N/A	1.8E-01
	Zinc	4856	mg/kg	4856	mg/kg	M	4.50E-03	mg/kg-d	3.0E-01	mg/kg-d	N/A	N/A	1.50E-02
	(Total)												8.0E-01
Dermal	Arsenic	124.44	mg/kg	124.44	mg/kg	M	4.44E-05	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	1.5E-01
	Cadmium	30.45	mg/kg	30.45	mg/kg	M	3.62E-07	mg/kg-d	2.5E-05	mg/kg-d	N/A	N/A	1.4E-02
	(Total)												1.6E-01
												Total Hazard Index Across All Exposure Routes/Pathways	9.6E-01

(1) M = Medium-Specific, R = Route-Specific
N/A = not applicable.

TABLE 7.1.15 RME
CALCULATION OF NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
Lower Basin - Modern Subsistence Exposure Scenario

Scenario Timeframe:	Future
Medium:	Sediment
Exposure Medium:	Sediment
Exposure Point:	Lower CDAR
Receptor Population:	Tribal Member
Receptor Age:	Child 0-6 years old

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient
Ingestion	Antimony	25.20	mg/kg	25.20	mg/kg	M	8.28E-05	mg/kg-d	4.0E-04	mg/kg-d	N/A	N/A	2.1E-01
	Arsenic	120.96	mg/kg	120.96	mg/kg	M	2.39E-04	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	8.0E-01
	Cadmium	39.33	mg/kg	39.33	mg/kg	M	1.29E-04	mg/kg-d	1.0E-03	mg/kg-d	N/A	N/A	1.3E-01
	Iron	113073	mg/kg	113073	mg/kg	M	3.72E-01	mg/kg-d	3.0E-01	mg/kg-d	N/A	N/A	1.2E+00
	Manganese	10700	mg/kg	10700	mg/kg	M	3.52E-02	mg/kg-d	4.7E-02	mg/kg-d	N/A	N/A	7.5E-01
	Zinc	6400	mg/kg	6400	mg/kg	M	2.10E-02	mg/kg-d	3.0E-01	mg/kg-d	N/A	N/A	7.0E-02
	(Total)												3.2E+00
Dermal	Arsenic	120.96	mg/kg	120.96	mg/kg	M	2.07E-04	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	6.9E-01
	Cadmium	39.33	mg/kg	39.33	mg/kg	M	2.24E-06	mg/kg-d	2.5E-05	mg/kg-d	N/A	N/A	9.0E-02
	(Total)												7.8E-01
												Total Hazard Index Across All Exposure Routes/Pathways	4.0E+00

(1) M = Medium-Specific, R = Route-Specific
N/A = not applicable.

TABLE 7.1.16 RME
CALCULATION OF NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
Lower Basin - Modern Subsistence Exposure Scenario

Scenario Timeframe:	Future
Medium:	Sediment
Exposure Medium:	Sediment
Exposure Point:	Lower CDAR
Receptor Population:	Tribal Member
Receptor Age:	Child/Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient
Ingestion	Antimony	25.20	mg/kg	25.20	mg/kg	M	2.33E-05	mg/kg-d	4.0E-04	mg/kg-d	N/A	N/A	5.8E-02
	Arsenic	120.96	mg/kg	120.96	mg/kg	M	6.72E-05	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	2.2E-01
	Cadmium	39.33	mg/kg	39.33	mg/kg	M	3.64E-05	mg/kg-d	1.0E-03	mg/kg-d	N/A	N/A	3.6E-02
	Iron	113073	mg/kg	113073	mg/kg	M	1.05E-01	mg/kg-d	3.0E-01	mg/kg-d	N/A	N/A	3.5E-01
	Manganese	10700	mg/kg	10700	mg/kg	M	9.91E-03	mg/kg-d	4.7E-02	mg/kg-d	N/A	N/A	2.1E-01
	Zinc	6400	mg/kg	6400	mg/kg	M	5.93E-03	mg/kg-d	3.0E-01	mg/kg-d	N/A	N/A	2.0E-02
	(Total)												9.0E-01
Dermal	Arsenic	120.96	mg/kg	120.96	mg/kg	M	1.30E-04	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	4.3E-01
	Cadmium	39.33	mg/kg	39.33	mg/kg	M	1.41E-06	mg/kg-d	2.5E-05	mg/kg-d	N/A	N/A	5.6E-02
	(Total)												4.9E-01
												Total Hazard Index Across All Exposure Routes/Pathways	1.4E+00

(1) M = Medium-Specific, R = Route-Specific
N/A = not applicable.

TABLE 7.1.17 RME
CALCULATION OF NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
Lower Basin - Modern Subsistence Exposure Scenario

Scenario Timeframe:	Future
Medium:	Surface water
Exposure Medium:	Undisturbed Surface water
Exposure Point:	Lower CDAR
Receptor Population:	Tribal Member
Receptor Age:	Child 0-6 years old

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient
Ingestion	Arsenic	20.00	ug/L	20.00	ug/L	M	3.29E-04	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	1.1E+00
	Cadmium	3.2	ug/L	3.2	ug/L	M	5.31E-05	mg/kg-d	5.0E-04	mg/kg-d	N/A	N/A	1.1E-01
	Manganese	380	ug/L	380	ug/L	M	6.25E-03	mg/kg-d	4.7E-02	mg/kg-d	N/A	N/A	1.3E-01
	Mercury	2.5	ug/L	2.5	ug/L	M	4.11E-05	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	1.4E-01
												Total Hazard Index Across All Exposure Routes/Pathways	1.5E+00

(1) M = Medium-Specific, R = Route-Specific
N/A = not applicable.

TABLE 7.1.18 RME
CALCULATION OF NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
Lower Basin - Modern Subsistence Exposure Scenario

Scenario Timeframe:	Future
Medium:	Surface water
Exposure Medium:	Undisturbed Surface water
Exposure Point:	Lower CDAR
Receptor Population:	Tribal Member
Receptor Age:	Child/Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient
Ingestion	Arsenic	20.00	ug/L	20.00	ug/L	M	1.57E-04	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	5.2E-01
	Cadmium	3.2	ug/L	3.2	ug/L	M	2.54E-05	mg/kg-d	5.0E-04	mg/kg-d	N/A	N/A	5.1E-02
	Manganese	380	ug/L	380	ug/L	M	2.98E-03	mg/kg-d	4.7E-02	mg/kg-d	N/A	N/A	6.3E-02
	Mercury	2.5	ug/L	2.5	ug/L	M	1.96E-05	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	6.5E-02
												Total Hazard Index Across All Exposure Routes/Pathways	7.0E-01

(1) M = Medium-Specific, R = Route-Specific
N/A = not applicable.

TABLE 7.1.19 RME
CALCULATION OF NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
Lower Basin - Modern Subsistence Exposure Scenario

Scenario Timeframe:	Future
Medium:	Surface water
Exposure Medium:	Disturbed Surface water
Exposure Point:	Lower CDAR
Receptor Population:	Tribal Member
Receptor Age:	Child 0-6 years old

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient
Ingestion	Arsenic	79.61	ug/L	79.61	ug/L	M	2.62E-05	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	8.7E-02
	Cadmium	72.9	ug/L	72.9	ug/L	M	2.40E-05	mg/kg-d	5.0E-04	mg/kg-d	N/A	N/A	4.8E-02
	Manganese	16651	ug/L	16651	ug/L	M	5.47E-03	mg/kg-d	4.7E-02	mg/kg-d	N/A	N/A	1.2E-01
	Mercury	4.5	ug/L	4.5	ug/L	M	1.48E-06	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	4.9E-03
												Total Hazard Index Across All Exposure Routes/Pathways	2.6E-01

(1) M = Medium-Specific, R = Route-Specific
N/A = not applicable.

TABLE 7.1.20 RME
CALCULATION OF NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
Lower Basin - Modern Subsistence Exposure Scenario

Scenario Timeframe:	Future
Medium:	Surface water
Exposure Medium:	Disturbed Surface water
Exposure Point:	Lower CDAR
Receptor Population:	Tribal Member
Receptor Age:	Child/Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient
Ingestion	Arsenic	79.61	ug/L	79.61	ug/L	M	7.37E-06	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	2.5E-02
	Cadmium	72.9	ug/L	72.9	ug/L	M	6.75E-06	mg/kg-d	5.0E-04	mg/kg-d	N/A	N/A	1.3E-02
	Manganese	16651	ug/L	16651	ug/L	M	1.54E-03	mg/kg-d	4.7E-02	mg/kg-d	N/A	N/A	3.3E-02
	Mercury	4.5	ug/L	4.5	ug/L	M	4.17E-07	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	1.4E-03
												Total Hazard Index Across All Exposure Routes/Pathways	7.2E-02

(1) M = Medium-Specific, R = Route-Specific
N/A = not applicable.

TABLE 7.1.21 RME
CALCULATION OF NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
Lower Basin - Traditional Subsistence Exposure Scenario

Scenario Timeframe:	Future
Medium:	Surface Water/Sediment
Exposure Medium:	Plant Tissue
Exposure Point:	Water Potatoes from the Lower CDAR
Receptor Population:	Tribal Members
Receptor Age:	Child/Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient
Ingestion													
(With Skin)	Cadmium	0.489	mg/kg	0.489	mg/kg	M	4.01E-03	mg/kg-d	1.0E-03	mg/kg-d	N/A	N/A	4.0E+00
(Without Skin)	Cadmium	0.291	mg/kg	0.291	mg/kg	M	2.39E-03	mg/kg-d	1.0E-03	mg/kg-d	N/A	N/A	2.4E+00

(1) M = Medium-Specific, R = Route-Specific
N/A = not applicable.

TABLE 7.1.22 RME
CALCULATION OF NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
Lower Basin - Traditional Subsistence Exposure Scenario

Scenario Timeframe:	Future
Medium:	Soil
Exposure Medium:	Surface Soil
Exposure Point:	Lower CDAR
Receptor Population:	Tribal Members
Receptor Age:	Child 0-6 years old

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient
Ingestion	Antimony	21.16	mg/kg	21.16	mg/kg	M	4.23E-04	mg/kg-d	4.0E-04	mg/kg-d	N/A	N/A	1.1E+00
	Arsenic	124.44	mg/kg	124.44	mg/kg	M	1.49E-03	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	5.0E+00
	Cadmium	30.45	mg/kg	30.45	mg/kg	M	6.09E-04	mg/kg-d	1.0E-03	mg/kg-d	N/A	N/A	6.1E-01
	Iron	97440	mg/kg	97440	mg/kg	M	1.95E+00	mg/kg-d	3.0E-01	mg/kg-d	N/A	N/A	6.5E+00
	Manganese	8960	mg/kg	8960	mg/kg	M	1.79E-01	mg/kg-d	4.7E-02	mg/kg-d	N/A	N/A	3.8E+00
	Zinc	4856	mg/kg	4856	mg/kg	M	9.71E-02	mg/kg-d	3.0E-01	mg/kg-d	N/A	N/A	3.2E-01
	(Total)												1.7E+01
Dermal	Arsenic	124.44	mg/kg	124.44	mg/kg	M	4.38E-04	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	1.50E+00
	Cadmium	30.45	mg/kg	30.45	mg/kg	M	3.57E-06	mg/kg-d	2.5E-05	mg/kg-d	N/A	N/A	1.40E-01
	(Total)												1.6E+00
												Total Hazard Index Across All Exposure Routes/Pathways	1.9E+01

(1) M = Medium-Specific, R = Route-Specific
N/A = not applicable.

TABLE 7.1.23 RME
CALCULATION OF NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
Lower Basin - Traditional Subsistence Exposure Scenario

Scenario Timeframe:	Future
Medium:	Soil
Exposure Medium:	Surface Soil
Exposure Point:	Lower CDAR
Receptor Population:	Tribal Members
Receptor Age:	Child/Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient
Ingestion	Antimony	21.16	mg/kg	21.16	mg/kg	M	1.19E-04	mg/kg-d	4.0E-04	mg/kg-d	N/A	N/A	3.0E-01
	Arsenic	124.44	mg/kg	124.44	mg/kg	M	4.21E-04	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	1.4E+00
	Cadmium	30.45	mg/kg	30.45	mg/kg	M	1.72E-04	mg/kg-d	1.0E-03	mg/kg-d	N/A	N/A	1.7E-01
	Iron	97440	mg/kg	97440	mg/kg	M	5.49E-01	mg/kg-d	3.0E-01	mg/kg-d	N/A	N/A	1.8E+00
	Manganese	8960	mg/kg	8960	mg/kg	M	5.05E-02	mg/kg-d	4.7E-02	mg/kg-d	N/A	N/A	1.1E+00
	Zinc	4856	mg/kg	4856	mg/kg	M	2.74E-02	mg/kg-d	3.0E-01	mg/kg-d	N/A	N/A	9.1E-02
	(Total)												4.9E+00
Dermal	Arsenic	124.44	mg/kg	124.44	mg/kg	M	1.35E-04	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	4.5E-01
	Cadmium	30.45	mg/kg	30.45	mg/kg	M	1.10E-06	mg/kg-d	2.5E-05	mg/kg-d	N/A	N/A	4.4E-02
	(Total)												4.9E-01
												Total Hazard Index Across All Exposure Routes/Pathways	5.4E+00

(1) M = Medium-Specific, R = Route-Specific
N/A = not applicable.

TABLE 7.1.24 RME
CALCULATION OF NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
Lower Basin - Traditional Subsistence Exposure Scenario

Scenario Timeframe:	Future
Medium:	Sediment
Exposure Medium:	Sediment
Exposure Point:	Lower CDAR
Receptor Population:	Tribal Member
Receptor Age:	Child 0-6 years old

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient
Ingestion	Antimony	25.20	mg/kg	25.20	mg/kg	M	2.90E-04	mg/kg-d	4.0E-04	mg/kg-d	N/A	N/A	7.2E-01
	Arsenic	120.96	mg/kg	120.96	mg/kg	M	8.35E-04	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	2.8E+00
	Cadmium	39.33	mg/kg	39.33	mg/kg	M	4.53E-04	mg/kg-d	1.0E-03	mg/kg-d	N/A	N/A	4.5E-01
	Iron	113073	mg/kg	113073	mg/kg	M	1.30E+00	mg/kg-d	3.0E-01	mg/kg-d	N/A	N/A	4.3E+00
	Manganese	10700	mg/kg	10700	mg/kg	M	1.23E-01	mg/kg-d	4.7E-02	mg/kg-d	N/A	N/A	2.6E+00
	Zinc	6400	mg/kg	6400	mg/kg	M	7.36E-02	mg/kg-d	3.0E-01	mg/kg-d	N/A	N/A	2.5E-01
	(Total)												1.1E+01
Dermal	Arsenic	120.96	mg/kg	120.96	mg/kg	M	7.24E-04	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	2.4E+00
	Cadmium	39.33	mg/kg	39.33	mg/kg	M	7.84E-06	mg/kg-d	2.5E-05	mg/kg-d	N/A	N/A	3.1E-01
	(Total)												2.7E+00
												Total Hazard Index Across All Exposure Routes/Pathways	1.4E+01

(1) M = Medium-Specific, R = Route-Specific
N/A = not applicable.

TABLE 7.1.25 RME
CALCULATION OF NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
Lower Basin - Traditional Subsistence Exposure Scenario

Scenario Timeframe:	Future
Medium:	Sediment
Exposure Medium:	Sediment
Exposure Point:	Lower CDAR
Receptor Population:	Tribal Member
Receptor Age:	Child/Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient
Ingestion	Antimony	25.20	mg/kg	25.20	mg/kg	M	8.17E-05	mg/kg-d	4.0E-04	mg/kg-d	N/A	N/A	2.0E-01
	Arsenic	120.96	mg/kg	120.96	mg/kg	M	2.35E-04	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	7.8E-01
	Cadmium	39.33	mg/kg	39.33	mg/kg	M	1.27E-04	mg/kg-d	1.0E-03	mg/kg-d	N/A	N/A	1.3E-01
	Iron	113073	mg/kg	113073	mg/kg	M	3.66E-01	mg/kg-d	3.0E-01	mg/kg-d	N/A	N/A	1.2E+00
	Manganese	10700	mg/kg	10700	mg/kg	M	3.47E-02	mg/kg-d	4.7E-02	mg/kg-d	N/A	N/A	7.4E-01
	Zinc	6400	mg/kg	6400	mg/kg	M	2.07E-02	mg/kg-d	3.0E-01	mg/kg-d	N/A	N/A	6.9E-02
	(Total)												3.1E+00
Dermal	Arsenic	120.96	mg/kg	120.96	mg/kg	M	4.55E-04	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	1.5E+00
	Cadmium	39.33	mg/kg	39.33	mg/kg	M	4.93E-06	mg/kg-d	2.5E-05	mg/kg-d	N/A	N/A	2.0E-01
	(Total)												1.7E+00
												Total Hazard Index Across All Exposure Routes/Pathways	4.8E+00

(1) M = Medium-Specific, R = Route-Specific
N/A = not applicable.

TABLE 7.1.26 RME
CALCULATION OF NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
Lower Basin - Traditional Subsistence Exposure Scenario

Scenario Timeframe:	Future
Medium:	Surface water
Exposure Medium:	Undisturbed Surface water
Exposure Point:	Lower CDAR
Receptor Population:	Tribal Member
Receptor Age:	Child 0-6 years old

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient
Ingestion	Arsenic	20.00	ug/L	20.00	ug/L	M	2.00E-03	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	6.7E+00
	Cadmium	3.2	ug/L	3.2	ug/L	M	3.23E-04	mg/kg-d	5.0E-04	mg/kg-d	N/A	N/A	6.5E-01
	Manganese	380	ug/L	380	ug/L	M	3.80E-02	mg/kg-d	4.7E-02	mg/kg-d	N/A	N/A	8.1E-01
	Mercury	2.5	ug/L	2.5	ug/L	M	2.50E-04	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	8.3E-01
												Total Hazard Index Across All Exposure Routes/Pathways	9.0E+00

(1) M = Medium-Specific, R = Route-Specific
N/A = not applicable.

TABLE 7.1.27 RME
CALCULATION OF NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
Lower Basin - Traditional Subsistence Exposure Scenario

Scenario Timeframe:	Future
Medium:	Surface water
Exposure Medium:	Undisturbed Surface water
Exposure Point:	Lower CDAR
Receptor Population:	Tribal Member
Receptor Age:	Child/Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient
Ingestion	Arsenic	20.00	ug/L	20.00	ug/L	M	9.55E-04	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	3.2E+00
	Cadmium	3.2	ug/L	3.2	ug/L	M	1.54E-04	mg/kg-d	5.0E-04	mg/kg-d	N/A	N/A	3.1E-01
	Manganese	380	ug/L	380	ug/L	M	1.81E-02	mg/kg-d	4.7E-02	mg/kg-d	N/A	N/A	3.9E-01
	Mercury	2.5	ug/L	2.5	ug/L	M	1.19E-04	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	4.0E-01
												Total Hazard Index Across All Exposure Routes/Pathways	4.3E+00

(1) M = Medium-Specific, R = Route-Specific
N/A = not applicable.

TABLE 7.1.28 RME
CALCULATION OF NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
Lower Basin - Traditional Subsistence Exposure Scenario

Scenario Timeframe:	Future
Medium:	Surface water
Exposure Medium:	Disturbed Surface water
Exposure Point:	Lower CDAR
Receptor Population:	Tribal Member
Receptor Age:	Child 0-6 years old

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient
Ingestion	Arsenic	79.61	ug/L	79.61	ug/L	M	9.16E-05	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	3.1E-01
	Cadmium	72.9	ug/L	72.9	ug/L	M	8.39E-05	mg/kg-d	5.0E-04	mg/kg-d	N/A	N/A	1.7E-01
	Manganese	16651	ug/L	16651	ug/L	M	1.92E-02	mg/kg-d	4.7E-02	mg/kg-d	N/A	N/A	4.1E-01
	Mercury	4.5	ug/L	4.5	ug/L	M	5.18E-06	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	1.7E-02
												Total Hazard Index Across All Exposure Routes/Pathways	9.0E-01

(1) M = Medium-Specific, R = Route-Specific
N/A = not applicable.

TABLE 7.1.29 RME
CALCULATION OF NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
Lower Basin - Traditional Subsistence Exposure Scenario

Scenario Timeframe:	Future
Medium:	Surface water
Exposure Medium:	Disturbed Surface water
Exposure Point:	Lower CDAR
Receptor Population:	Tribal Member
Receptor Age:	Child/Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient
Ingestion	Arsenic	79.61	ug/L	79.61	ug/L	M	2.58E-05	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	8.6E-02
	Cadmium	72.9	ug/L	72.9	ug/L	M	2.36E-05	mg/kg-d	5.0E-04	mg/kg-d	N/A	N/A	4.7E-02
	Manganese	16651	ug/L	16651	ug/L	M	5.40E-03	mg/kg-d	4.7E-02	mg/kg-d	N/A	N/A	1.1E-01
	Mercury	4.5	ug/L	4.5	ug/L	M	1.46E-06	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	4.9E-03
												Total Hazard Index Across All Exposure Routes/Pathways	2.5E-01

(1) M = Medium-Specific, R = Route-Specific
N/A = not applicable.

TABLE 7.2.1.RME
CALCULATION OF NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
Kingston - Residential Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Surface Soil
Exposure Point:	Yard Soil
Receptor Population:	Residents
Receptor Age:	Child 0-6 years old

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient
Ingestion	Antimony	4.06	mg/kg	4.06	mg/kg	M	5.19E-05	mg/kg-d	4.0E-04	mg/kg-d	N/A	N/A	1.3E-01
	Arsenic	25.04	mg/kg	25.04	mg/kg	M	1.92E-04	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	6.4E-01
	Cadmium	3.92	mg/kg	3.92	mg/kg	M	5.01E-05	mg/kg-d	1.0E-03	mg/kg-d	N/A	N/A	5.0E-02
	Iron	21971	mg/kg	21971	mg/kg	M	2.81E-01	mg/kg-d	3.0E-01	mg/kg-d	N/A	N/A	9.4E-01
	Manganese	1085	mg/kg	1085	mg/kg	M	1.39E-02	mg/kg-d	4.7E-02	mg/kg-d	N/A	N/A	3.0E-01
	Zinc	719	mg/kg	719	mg/kg	M	9.19E-03	mg/kg-d	3.0E-01	mg/kg-d	N/A	N/A	3.1E-02
	(Total)												2.1E+00
Dermal	Arsenic	25.04	mg/kg	25.04	mg/kg	M	2.11E-05	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	7.0E-02
	Cadmium	3.92	mg/kg	3.92	mg/kg	M	1.10E-07	mg/kg-d	2.5E-05	mg/kg-d	N/A	N/A	4.4E-03
	(Total)												7.5E-02
												Total Hazard Index Across All Exposure Routes/Pathways	2.2E+00

(1) M = Medium-Specific, R = Route-Specific
N/A = not applicable.

TABLE 7.2.1.CT
CALCULATION OF NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
Kingston - Residential Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Surface Soil
Exposure Point:	Yard Soil
Receptor Population:	Residents
Receptor Age:	Child 0-6 years old

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient
Ingestion	Antimony	3.05	mg/kg	3.05	mg/kg	M	1.45E-05	mg/kg-d	4.0E-04	mg/kg-d	N/A	N/A	3.6E-02
	Arsenic	20.35	mg/kg	20.35	mg/kg	M	5.80E-05	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	1.9E-01
	Cadmium	3.59	mg/kg	3.59	mg/kg	M	1.70E-05	mg/kg-d	1.0E-03	mg/kg-d	N/A	N/A	1.7E-02
	Iron	19198	mg/kg	19198	mg/kg	M	9.12E-02	mg/kg-d	3.0E-01	mg/kg-d	N/A	N/A	3.0E-01
	Manganese	783	mg/kg	783	mg/kg	M	3.72E-03	mg/kg-d	4.7E-02	mg/kg-d	N/A	N/A	7.9E-02
	Zinc	449	mg/kg	449	mg/kg	M	2.13E-03	mg/kg-d	3.0E-01	mg/kg-d	N/A	N/A	7.1E-03
	(Total)												6.37E-01
Dermal	Arsenic	20.35	mg/kg	20.35	mg/kg	M	1.28E-05	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	4.3E-02
	Cadmium	3.59	mg/kg	3.59	mg/kg	M	7.50E-08	mg/kg-d	2.5E-05	mg/kg-d	N/A	N/A	3.0E-03
	(Total)												4.6E-02
												Total Hazard Index Across All Exposure Routes/Pathways	6.83E-01

(1) M = Medium-Specific, R = Route-Specific
N/A = not applicable.

TABLE 7.2.2.RME
CALCULATION OF NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
Kingston - Residential Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Surface Soil
Exposure Point:	Yard Soil
Receptor Population:	Residents
Receptor Age:	Child/Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient
Ingestion	Antimony	4.06	mg/kg	4.06	mg/kg	M	1.48E-05	mg/kg-d	4.0E-04	mg/kg-d	N/A	N/A	3.7E-02
	Arsenic	25.04	mg/kg	25.04	mg/kg	M	5.49E-05	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	1.8E-01
	Cadmium	3.92	mg/kg	3.92	mg/kg	M	1.43E-05	mg/kg-d	1.0E-03	mg/kg-d	N/A	N/A	1.4E-02
	Iron	21971	mg/kg	21971	mg/kg	M	8.03E-02	mg/kg-d	3.0E-01	mg/kg-d	N/A	N/A	2.7E-01
	Manganese	1085	mg/kg	1085	mg/kg	M	3.96E-03	mg/kg-d	4.7E-02	mg/kg-d	N/A	N/A	8.4E-02
	Zinc	719	mg/kg	719	mg/kg	M	2.63E-03	mg/kg-d	3.0E-01	mg/kg-d	N/A	N/A	8.8E-03
	(Total)												5.9E-01
Dermal	Arsenic	25.04	mg/kg	25.04	mg/kg	M	6.28E-06	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	2.1E-02
	Cadmium	3.92	mg/kg	3.92	mg/kg	M	3.28E-08	mg/kg-d	2.5E-05	mg/kg-d	N/A	N/A	1.3E-03
	(Total)												2.2E-02
												Total Hazard Index Across All Exposure Routes/Pathways	6.2E-01

(1) M = Medium-Specific, R = Route-Specific
N/A = not applicable.

TABLE 7.2.2.CT
CALCULATION OF NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
Kingston - Residential Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Surface Soil
Exposure Point:	Yard Soil
Receptor Population:	Residents
Receptor Age:	Child/Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient
Ingestion	Antimony	3.05	mg/kg	3.05	mg/kg	M	4.43E-06	mg/kg-d	4.0E-04	mg/kg-d	N/A	N/A	1.1E-02
	Arsenic	20.35	mg/kg	20.35	mg/kg	M	1.77E-05	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	5.9E-02
	Cadmium	3.59	mg/kg	3.59	mg/kg	M	5.21E-06	mg/kg-d	1.0E-03	mg/kg-d	N/A	N/A	5.2E-03
	Iron	19198	mg/kg	19198	mg/kg	M	2.79E-02	mg/kg-d	3.0E-01	mg/kg-d	N/A	N/A	9.3E-02
	Manganese	783	mg/kg	783	mg/kg	M	1.14E-03	mg/kg-d	4.7E-02	mg/kg-d	N/A	N/A	2.4E-02
	Zinc	449	mg/kg	449	mg/kg	M	6.52E-04	mg/kg-d	3.0E-01	mg/kg-d	N/A	N/A	2.2E-03
	(Total)												1.9E-01
Dermal	Arsenic	20.35	mg/kg	20.35	mg/kg	M	4.04E-06	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	1.3E-02
	Cadmium	3.59	mg/kg	3.59	mg/kg	M	2.38E-08	mg/kg-d	2.5E-05	mg/kg-d	N/A	N/A	9.5E-04
	(Total)												1.4E-02
												Total Hazard Index Across All Exposure Routes/Pathways	2.1E-01

(1) M = Medium-Specific, R = Route-Specific
N/A = not applicable.

TABLE 7.2.3.RME
CALCULATION OF NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
Kingston - Residential Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Groundwater
Exposure Medium:	Groundwater
Exposure Point:	Tap water
Receptor Population:	Residents
Receptor Age:	Child 0-6 years old

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient
Ingestion	Arsenic	0.405	ug/L	0.405	ug/L	M	2.59E-05	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	8.6E-02
												Total Hazard Index Across All Exposure Routes/Pathways	8.6E-02

(1) M = Medium-Specific, R = Route-Specific
N/A = not applicable.

TABLE 7.2.3.CT
CALCULATION OF NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
Kingston - Residential Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Groundwater
Exposure Medium:	Groundwater
Exposure Point:	Tap water
Receptor Population:	Residents
Receptor Age:	Child 0-6 years old

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient
Ingestion	Arsenic	0.21	ug/L	0.21	ug/L	M	8.98E-06	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	3.0E-02
												Total Hazard Index Across All Exposure Routes/Pathways	3.0E-02

(1) M = Medium-Specific, R = Route-Specific
N/A = not applicable.

TABLE 7.2.4.RME
CALCULATION OF NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
Kingston - Residential Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Groundwater
Exposure Medium:	Groundwater
Exposure Point:	Tap water
Receptor Population:	Residents
Receptor Age:	Child/Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient
Ingestion	Arsenic	0.405	ug/L	0.405	ug/L	M	1.41E-05	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	4.7E-02
												Total Hazard Index Across All Exposure Routes/Pathways	4.7E-02

(1) M = Medium-Specific, R = Route-Specific
N/A = not applicable.

TABLE 7.2.4.CT
CALCULATION OF NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
Kingston - Residential Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Groundwater
Exposure Medium:	Groundwater
Exposure Point:	Tap water
Receptor Population:	Residents
Receptor Age:	Child/Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient
Ingestion	Arsenic	0.21	ug/L	0.21	ug/L	M	4.09E-06	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	1.4E-02
												Total Hazard Index Across All Exposure Routes/Pathways	1.4E-02

(1) M = Medium-Specific, R = Route-Specific
N/A = not applicable.

TABLE 7.2.5.RME
CALCULATION OF NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
Kingston - Neighborhood Recreational Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Sediment
Exposure Medium:	Sediment
Exposure Point:	Pine Creek
Receptor Population:	Neighboorhood residents
Receptor Age:	Child 4-11 years old

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient
Ingestion	Antimony	12.83	mg/kg	12.83	mg/kg	M	7.91E-06	mg/kg-d	4.0E-04	mg/kg-d	N/A	N/A	2.0E-02
	Arsenic	22.35	mg/kg	22.35	mg/kg	M	8.27E-06	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	2.8E-02
	Cadmium	0.92	mg/kg	0.92	mg/kg	M	5.67E-07	mg/kg-d	1.0E-03	mg/kg-d	N/A	N/A	5.7E-04
	Iron	16300	mg/kg	16300	mg/kg	M	1.00E-02	mg/kg-d	3.0E-01	mg/kg-d	N/A	N/A	3.3E-02
	Manganese	451.62	mg/kg	451.62	mg/kg	M	2.78E-04	mg/kg-d	4.7E-02	mg/kg-d	N/A	N/A	5.9E-03
	Zinc	320.31	mg/kg	320.31	mg/kg	M	1.97E-04	mg/kg-d	3.0E-01	mg/kg-d	N/A	N/A	6.6E-04
	(Total)												8.8E-02
Dermal	Arsenic	22.35	mg/kg	22.35	mg/kg	M	6.40E-06	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	2.1E-02
	Cadmium	0.92	mg/kg	0.92	mg/kg	M	8.78E-09	mg/kg-d	2.5E-05	mg/kg-d	N/A	N/A	3.5E-04
	(Total)												2.2E-02
												Total Hazard Index Across All Exposure Routes/Pathways	1.1E-01

(1) M = Medium-Specific, R = Route-Specific
N/A = not applicable.

TABLE 7.2.5.CT
CALCULATION OF NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
Kingston - Neighborhood Recreational Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Sediment
Exposure Medium:	Sediment
Exposure Point:	Pine Creek
Receptor Population:	Neighboorhood residents
Receptor Age:	Child 4-11 years old

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient
Ingestion	Antimony	7.05	mg/kg	7.05	mg/kg	M	8.28E-07	mg/kg-d	4.0E-04	mg/kg-d	N/A	N/A	2.1E-03
	Arsenic	15.84	mg/kg	15.84	mg/kg	M	1.12E-06	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	3.7E-03
	Cadmium	0.82	mg/kg	0.82	mg/kg	M	9.63E-08	mg/kg-d	1.0E-03	mg/kg-d	N/A	N/A	9.6E-05
	Iron	14622	mg/kg	14622	mg/kg	M	1.72E-03	mg/kg-d	3.0E-01	mg/kg-d	N/A	N/A	5.7E-03
	Manganese	392.21	mg/kg	392.21	mg/kg	M	4.61E-05	mg/kg-d	4.7E-02	mg/kg-d	N/A	N/A	9.8E-04
	Zinc	285.89	mg/kg	285.89	mg/kg	M	3.36E-05	mg/kg-d	3.0E-01	mg/kg-d	N/A	N/A	1.1E-04
	(Total)												1.3E-02
Dermal	Arsenic	15.84	mg/kg	15.84	mg/kg	M	2.27E-06	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	7.6E-03
	Cadmium	0.82	mg/kg	0.82	mg/kg	M	3.91E-09	mg/kg-d	2.5E-05	mg/kg-d	N/A	N/A	1.6E-04
	(Total)												7.7E-03
												Total Hazard Index Across All Exposure Routes/Pathways	2.0E-02

(1) M = Medium-Specific, R = Route-Specific
N/A = not applicable.

TABLE 7.2.6.RME
CALCULATION OF NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
Kingston - Neighborhood Recreational Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Soil/sediment
Exposure Medium:	Soil/sediment
Exposure Point:	NS Confluence
Receptor Population:	Neighboorhood residents
Receptor Age:	Child 4-11 years old

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient
Ingestion	Antimony	39.78	mg/kg	39.78	mg/kg	M	2.45E-05	mg/kg-d	4.0E-04	mg/kg-d	N/A	N/A	6.1E-02
	Arsenic	163.2	mg/kg	163.2	mg/kg	M	6.04E-05	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	2.0E-01
	Cadmium	26.58	mg/kg	26.58	mg/kg	M	1.64E-05	mg/kg-d	1.0E-03	mg/kg-d	N/A	N/A	1.6E-02
	Iron	100621	mg/kg	100621	mg/kg	M	6.20E-02	mg/kg-d	3.0E-01	mg/kg-d	N/A	N/A	2.1E-01
	Manganese	8585	mg/kg	8585	mg/kg	M	5.29E-03	mg/kg-d	4.7E-02	mg/kg-d	N/A	N/A	1.1E-01
	Zinc	3744	mg/kg	3744	mg/kg	M	2.31E-03	mg/kg-d	3.0E-01	mg/kg-d	N/A	N/A	7.7E-03
	(Total)												6.1E-01
Dermal	Arsenic	163.2	mg/kg	163.2	mg/kg	M	7.32E-05	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	2.4E-01
	Cadmium	26.58	mg/kg	26.58	mg/kg	M	3.97E-07	mg/kg-d	2.5E-05	mg/kg-d	N/A	N/A	1.6E-02
	(Total)												2.6E-01
												Total Hazard Index Across All Exposure Routes/Pathways	8.7E-01

(1) M = Medium-Specific, R = Route-Specific
N/A = not applicable.

TABLE 7.2.6.CT
CALCULATION OF NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
Kingston - Neighborhood Recreational Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Soil/sediment
Exposure Medium:	Soil/sediment
Exposure Point:	NS Confluence
Receptor Population:	Neighboorhood residents
Receptor Age:	Child 4-11 years old

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient
Ingestion	Antimony	34.47	mg/kg	34.47	mg/kg	M	4.05E-06	mg/kg-d	4.0E-04	mg/kg-d	N/A	N/A	1.0E-02
	Arsenic	145.44	mg/kg	145.44	mg/kg	M	1.02E-05	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	3.4E-02
	Cadmium	22.03	mg/kg	22.03	mg/kg	M	2.59E-06	mg/kg-d	1.0E-03	mg/kg-d	N/A	N/A	2.6E-03
	Iron	89354	mg/kg	89354	mg/kg	M	1.05E-02	mg/kg-d	3.0E-01	mg/kg-d	N/A	N/A	3.5E-02
	Manganese	7467	mg/kg	7467	mg/kg	M	8.77E-04	mg/kg-d	4.7E-02	mg/kg-d	N/A	N/A	1.9E-02
	Zinc	3286	mg/kg	3286	mg/kg	M	3.86E-04	mg/kg-d	3.0E-01	mg/kg-d	N/A	N/A	1.3E-03
	(Total)												1.0E-01
Dermal	Arsenic	145.44	mg/kg	145.44	mg/kg	M	3.26E-05	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	1.1E-01
	Cadmium	22.03	mg/kg	22.03	mg/kg	M	1.65E-07	mg/kg-d	2.5E-05	mg/kg-d	N/A	N/A	6.6E-03
	(Total)												1.2E-01
												Total Hazard Index Across All Exposure Routes/Pathways	2.2E-01

(1) M = Medium-Specific, R = Route-Specific
N/A = not applicable.

TABLE 7.2.7.RME
CALCULATION OF NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
Kingston - Neighborhood Recreational Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Surface water
Exposure Medium:	Surface water
Exposure Point:	Pine Creek
Receptor Population:	Neighborhood residents
Receptor Age:	Child 4-11 years old

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient
Ingestion	Arsenic	0.73	ug/L	0.73	ug/L	M	2.06E-07	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	6.9E-04
	Cadmium	1.08	ug/L	1.08	ug/L	M	3.04E-07	mg/kg-d	5.0E-04	mg/kg-d	N/A	N/A	6.1E-04
	Manganese	38.46	ug/L	38.46	ug/L	M	1.08E-05	mg/kg-d	4.7E-02	mg/kg-d	N/A	N/A	2.3E-04
	Mercury	0.09	ug/L	0.09	ug/L	M	2.54E-08	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	8.5E-05
												Total Hazard Index Across All Exposure Routes/Pathways	1.6E-03

(1) M = Medium-Specific, R = Route-Specific
N/A = not applicable.

TABLE 7.2.7.CT
CALCULATION OF NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
Kingston - Neighborhood Recreational Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Surface water
Exposure Medium:	Surface water
Exposure Point:	Pine Creek
Receptor Population:	Neighborhood residents
Receptor Age:	Child 4-11 years old

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient
Ingestion	Arsenic	0.57	ug/L	0.57	ug/L	M	8.03E-08	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	2.7E-04
	Cadmium	0.58	ug/L	0.58	ug/L	M	8.17E-08	mg/kg-d	5.0E-04	mg/kg-d	N/A	N/A	1.6E-04
	Manganese	16.26	ug/L	16.26	ug/L	M	2.29E-06	mg/kg-d	4.7E-02	mg/kg-d	N/A	N/A	4.9E-05
	Mercury	0.08	ug/L	0.08	ug/L	M	1.13E-08	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	3.8E-05
												Total Hazard Index Across All Exposure Routes/Pathways	5.2E-04

(1) M = Medium-Specific, R = Route-Specific
N/A = not applicable.

TABLE 7.2.8.RME
CALCULATION OF NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
Kingston - Neighborhood Recreational Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Surface water
Exposure Medium:	Surface water
Exposure Point:	NS Confluence
Receptor Population:	Neighborhood residents
Receptor Age:	Child 4-11 years old

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient
Ingestion	Arsenic	134	ug/L	134	ug/L	M	3.78E-05	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	1.3E-01
	Cadmium	83.8	ug/L	83.8	ug/L	M	2.36E-05	mg/kg-d	5.0E-04	mg/kg-d	N/A	N/A	4.7E-02
	Manganese	9470	ug/L	9470	ug/L	M	2.67E-03	mg/kg-d	4.7E-02	mg/kg-d	N/A	N/A	5.7E-02
	Mercury	4.6	ug/L	4.6	ug/L	M	1.30E-06	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	4.3E-03
												Total Hazard Index Across All Exposure Routes/Pathways	2.3E-01

(1) M = Medium-Specific, R = Route-Specific
N/A = not applicable.

TABLE 7.2.8.CT
CALCULATION OF NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
Kingston - Neighborhood Recreational Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Surface water
Exposure Medium:	Surface water
Exposure Point:	NS Confluence
Receptor Population:	Neighborhood residents
Receptor Age:	Child 4-11 years old

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient
Ingestion	Arsenic	36.4	ug/L	36.4	ug/L	M	5.13E-06	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	1.7E-02
	Cadmium	29.5	ug/L	29.5	ug/L	M	4.16E-06	mg/kg-d	5.0E-04	mg/kg-d	N/A	N/A	8.3E-03
	Manganese	3145	ug/L	3145	ug/L	M	4.43E-04	mg/kg-d	4.7E-02	mg/kg-d	N/A	N/A	9.4E-03
	Mercury	1.3	ug/L	1.3	ug/L	M	1.83E-07	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	6.1E-04
												Total Hazard Index Across All Exposure Routes/Pathways	3.5E-02

(1) M = Medium-Specific, R = Route-Specific
N/A = not applicable.

TABLE 7.2.9.RME
CALCULATION OF NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
Kingston - Public Recreational Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Soil/sediment
Exposure Medium:	Soil/sediment
Exposure Point:	NS Confluence
Receptor Population:	Visitor
Receptor Age:	Child 0-6 years old

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient
Ingestion	Antimony	39.78	mg/kg	39.78	mg/kg	M	6.98E-05	mg/kg-d	4.0E-04	mg/kg-d	N/A	N/A	1.7E-01
	Arsenic	163.2	mg/kg	163.2	mg/kg	M	1.72E-04	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	5.7E-01
	Cadmium	26.58	mg/kg	26.58	mg/kg	M	4.66E-05	mg/kg-d	1.0E-03	mg/kg-d	N/A	N/A	4.7E-02
	Iron	100621	mg/kg	100621	mg/kg	M	1.76E-01	mg/kg-d	3.0E-01	mg/kg-d	N/A	N/A	5.9E-01
	Manganese	8585	mg/kg	8585	mg/kg	M	1.51E-02	mg/kg-d	4.7E-02	mg/kg-d	N/A	N/A	3.2E-01
	Zinc	3744	mg/kg	3744	mg/kg	M	6.56E-03	mg/kg-d	3.0E-01	mg/kg-d	N/A	N/A	2.2E-02
	(Total)												1.7E+00
Dermal	Arsenic	163.2	mg/kg	163.2	mg/kg	M	3.72E-05	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	1.2E-01
	Cadmium	26.58	mg/kg	26.58	mg/kg	M	2.02E-07	mg/kg-d	2.5E-05	mg/kg-d	N/A	N/A	8.1E-03
	(Total)												1.3E-01
												Total Hazard Index Across All Exposure Routes/Pathways	1.9E+00

(1) M = Medium-Specific, R = Route-Specific
N/A = not applicable.

TABLE 7.2.9.CT
CALCULATION OF NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
Kingston - Public Recreational Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Soil/sediment
Exposure Medium:	Soil/sediment
Exposure Point:	NS Confluence
Receptor Population:	Visitor
Receptor Age:	Child 0-6 years old

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient
Ingestion	Antimony	34.47	mg/kg	34.47	mg/kg	M	1.21E-05	mg/kg-d	4.0E-04	mg/kg-d	N/A	N/A	3.0E-02
	Arsenic	145.44	mg/kg	145.44	mg/kg	M	3.06E-05	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	1.0E-01
	Cadmium	22.03	mg/kg	22.03	mg/kg	M	7.73E-06	mg/kg-d	1.0E-03	mg/kg-d	N/A	N/A	7.7E-03
	Iron	89354	mg/kg	89354	mg/kg	M	3.13E-02	mg/kg-d	3.0E-01	mg/kg-d	N/A	N/A	1.0E-01
	Manganese	7467	mg/kg	7467	mg/kg	M	2.62E-03	mg/kg-d	4.7E-02	mg/kg-d	N/A	N/A	5.6E-02
	Zinc	3286	mg/kg	3286	mg/kg	M	1.15E-03	mg/kg-d	3.0E-01	mg/kg-d	N/A	N/A	3.8E-03
	(Total)												3.0E-01
Dermal	Arsenic	145.44	mg/kg	145.44	mg/kg	M	1.66E-05	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	5.5E-02
	Cadmium	22.03	mg/kg	22.03	mg/kg	M	8.37E-08	mg/kg-d	2.5E-05	mg/kg-d	N/A	N/A	3.3E-03
	(Total)												5.9E-02
												Total Hazard Index Across All Exposure Routes/Pathways	3.6E-01

(1) M = Medium-Specific, R = Route-Specific
N/A = not applicable.

TABLE 7.2.10.RME
CALCULATION OF NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
Kingston - Public Recreational Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Soil/sediment
Exposure Medium:	Soil/sediment
Exposure Point:	NS Confluence
Receptor Population:	Visitor
Receptor Age:	Child/Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient
Ingestion	Antimony	39.78	mg/kg	39.78	mg/kg	M	1.79E-05	mg/kg-d	4.0E-04	mg/kg-d	N/A	N/A	4.5E-02
	Arsenic	163.2	mg/kg	163.2	mg/kg	M	4.42E-05	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	1.5E-01
	Cadmium	26.58	mg/kg	26.58	mg/kg	M	1.20E-05	mg/kg-d	1.0E-03	mg/kg-d	N/A	N/A	1.2E-02
	Iron	100621	mg/kg	100621	mg/kg	M	4.54E-02	mg/kg-d	3.0E-01	mg/kg-d	N/A	N/A	1.5E-01
	Manganese	8585	mg/kg	8585	mg/kg	M	3.87E-03	mg/kg-d	4.7E-02	mg/kg-d	N/A	N/A	8.2E-02
	Zinc	3744	mg/kg	3744	mg/kg	M	1.69E-03	mg/kg-d	3.0E-01	mg/kg-d	N/A	N/A	5.6E-03
	(Total)												4.4E-01
Dermal	Arsenic	163.2	mg/kg	163.2	mg/kg	M	1.63E-05	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	4.4E-01
	Cadmium	26.58	mg/kg	26.58	mg/kg	M	8.83E-08	mg/kg-d	2.5E-05	mg/kg-d	N/A	N/A	3.5E-03
	(Total)												5.8E-02
												Total Hazard Index Across All Exposure Routes/Pathways	5.0E-01

(1) M = Medium-Specific, R = Route-Specific
N/A = not applicable.

TABLE 7.2.10.CT
CALCULATION OF NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
Kingston - Public Recreational Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Soil/sediment
Exposure Medium:	Soil/sediment
Exposure Point:	NS Confluence
Receptor Population:	Visitor
Receptor Age:	Child/Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient
Ingestion	Antimony	34.47	mg/kg	34.47	mg/kg	M	3.53E-06	mg/kg-d	4.0E-04	mg/kg-d	N/A	N/A	8.8E-03
	Arsenic	145.44	mg/kg	145.44	mg/kg	M	8.93E-06	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	3.0E-02
	Cadmium	22.03	mg/kg	22.03	mg/kg	M	2.25E-06	mg/kg-d	1.0E-03	mg/kg-d	N/A	N/A	2.3E-03
	Iron	89354	mg/kg	89354	mg/kg	M	9.14E-03	mg/kg-d	3.0E-01	mg/kg-d	N/A	N/A	3.0E-02
	Manganese	7467	mg/kg	7467	mg/kg	M	7.64E-04	mg/kg-d	4.7E-02	mg/kg-d	N/A	N/A	1.6E-02
	Zinc	3286	mg/kg	3286	mg/kg	M	3.36E-04	mg/kg-d	3.0E-01	mg/kg-d	N/A	N/A	1.1E-03
	(Total)												8.9E-02
Dermal	Arsenic	145.44	mg/kg	145.44	mg/kg	M	7.51E-06	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	2.5E-02
	Cadmium	22.03	mg/kg	22.03	mg/kg	M	3.79E-08	mg/kg-d	2.5E-05	mg/kg-d	N/A	N/A	1.5E-03
	(Total)												2.7E-02
												Total Hazard Index Across All Exposure Routes/Pathways	1.2E-01

(1) M = Medium-Specific, R = Route-Specific
N/A = not applicable.

TABLE 7.2.11.RME
CALCULATION OF NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
Kingston - Public Recreational Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Surface water
Exposure Medium:	Surface water
Exposure Point:	NS Confluence
Receptor Population:	Visitor
Receptor Age:	Child 0-6 years old

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient
Ingestion	Arsenic	134	ug/L	134	ug/L	M	2.35E-05	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	7.8E-02
	Cadmium	83.8	ug/L	83.8	ug/L	M	1.47E-05	mg/kg-d	5.0E-04	mg/kg-d	N/A	N/A	2.9E-02
	Manganese	9470	ug/L	9470	ug/L	M	1.66E-03	mg/kg-d	4.7E-02	mg/kg-d	N/A	N/A	3.5E-02
	Mercury	4.6	ug/L	4.6	ug/L	M	8.07E-07	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	2.7E-03
												Total Hazard Index Across All Exposure Routes/Pathways	1.5E-01

(1) M = Medium-Specific, R = Route-Specific
N/A = not applicable.

TABLE 7.2.11.CT
CALCULATION OF NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
Kingston - Public Recreational Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Surface water
Exposure Medium:	Surface water
Exposure Point:	NS Confluence
Receptor Population:	Visitor
Receptor Age:	Child 0-6 years old

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient
Ingestion	Arsenic	36.4	ug/L	36.4	ug/L	M	3.19E-06	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	1.1E-02
	Cadmium	29.5	ug/L	29.5	ug/L	M	2.59E-06	mg/kg-d	5.0E-04	mg/kg-d	N/A	N/A	5.2E-03
	Manganese	3145	ug/L	3145	ug/L	M	2.76E-04	mg/kg-d	4.7E-02	mg/kg-d	N/A	N/A	5.9E-03
	Mercury	1.3	ug/L	1.3	ug/L	M	1.14E-07	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	3.8E-04
												Total Hazard Index Across All Exposure Routes/Pathways	2.2E-02

(1) M = Medium-Specific, R = Route-Specific
N/A = not applicable.

TABLE 7.2.12.RME
CALCULATION OF NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
Kingston - Public Recreational Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Surface water
Exposure Medium:	Surface water
Exposure Point:	NS Confluence
Receptor Population:	Visitor
Receptor Age:	Child/Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient
Ingestion	Arsenic	134	ug/L	134	ug/L	M	8.73E-06	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	2.9E-02
	Cadmium	83.8	ug/L	83.8	ug/L	M	5.46E-06	mg/kg-d	5.0E-04	mg/kg-d	N/A	N/A	1.1E-02
	Manganese	9470	ug/L	9470	ug/L	M	6.17E-04	mg/kg-d	4.7E-02	mg/kg-d	N/A	N/A	1.3E-02
	Mercury	4.6	ug/L	4.6	ug/L	M	3.00E-07	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	1.0E-03
												Total Hazard Index Across All Exposure Routes/Pathways	5.4E-02

(1) M = Medium-Specific, R = Route-Specific
N/A = not applicable.

TABLE 7.2.12.CT
CALCULATION OF NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
Kingston - Public Recreational Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Surface water
Exposure Medium:	Surface water
Exposure Point:	NS Confluence
Receptor Population:	Visitor
Receptor Age:	Child/Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient
Ingestion	Arsenic	36.4	ug/L	36.4	ug/L	M	1.24E-06	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	4.1E-03
	Cadmium	29.5	ug/L	29.5	ug/L	M	1.01E-06	mg/kg-d	5.0E-04	mg/kg-d	N/A	N/A	2.0E-03
	Manganese	3145	ug/L	3145	ug/L	M	1.07E-04	mg/kg-d	4.7E-02	mg/kg-d	N/A	N/A	2.3E-03
	Mercury	1.3	ug/L	1.3	ug/L	M	4.43E-08	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	1.5E-04
												Total Hazard Index Across All Exposure Routes/Pathways	8.6E-03

(1) M = Medium-Specific, R = Route-Specific
N/A = not applicable.

TABLE 7.2.13.RME
CALCULATION OF NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
Kingston - Occupational Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Surface/subsurface soil
Exposure Point:	Construction site soil
Receptor Population:	Construction worker
Receptor Age:	Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient
Ingestion	Antimony	6.86	mg/kg	6.86	mg/kg	M	1.57E-05	mg/kg-d	4.0E-04	mg/kg-d	N/A	N/A	3.9E-02
	Arsenic	34.6	mg/kg	34.6	mg/kg	M	4.75E-05	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	1.6E-01
	Cadmium	5.1	mg/kg	5.1	mg/kg	M	1.17E-05	mg/kg-d	1.0E-03	mg/kg-d	N/A	N/A	1.2E-02
	Iron	29003	mg/kg	29003	mg/kg	M	6.64E-02	mg/kg-d	3.0E-01	mg/kg-d	N/A	N/A	2.2E-01
	Manganese	1693	mg/kg	1693	mg/kg	M	3.88E-03	mg/kg-d	1.4E-01	mg/kg-d	N/A	N/A	2.8E-02
	Zinc	1057	mg/kg	1057	mg/kg	M	2.42E-03	mg/kg-d	3.0E-01	mg/kg-d	N/A	N/A	8.1E-03
	(Total)												4.7E-01
Dermal	Arsenic	34.6	mg/kg	34.6	mg/kg	M	1.98E-06	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	6.6E-03
	Cadmium	5.1	mg/kg	5.1	mg/kg	M	9.73E-09	mg/kg-d	2.5E-05	mg/kg-d	N/A	N/A	3.9E-04
	(Total)												7.0E-03
												Total Hazard Index Across All Exposure Routes/Pathways	4.7E-01

(1) M = Medium-Specific, R = Route-Specific
N/A = not applicable.

TABLE 7.2.13.CT
CALCULATION OF NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
Kingston - Occupational Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Surface/subsurface soil
Exposure Point:	Construction site soil
Receptor Population:	Construction worker
Receptor Age:	Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient
Ingestion	Antimony	5.51	mg/kg	5.51	mg/kg	M	1.85E-06	mg/kg-d	4.0E-04	mg/kg-d	N/A	N/A	4.6E-03
	Arsenic	29.06	mg/kg	29.06	mg/kg	M	5.87E-06	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	2.0E-02
	Cadmium	5.14	mg/kg	5.14	mg/kg	M	1.73E-06	mg/kg-d	1.0E-03	mg/kg-d	N/A	N/A	1.7E-03
	Iron	25811	mg/kg	25811	mg/kg	M	8.69E-03	mg/kg-d	3.0E-01	mg/kg-d	N/A	N/A	2.9E-02
	Manganese	1377	mg/kg	1377	mg/kg	M	4.63E-04	mg/kg-d	1.4E-01	mg/kg-d	N/A	N/A	3.3E-03
	Zinc	794	mg/kg	794	mg/kg	M	2.67E-04	mg/kg-d	3.0E-01	mg/kg-d	N/A	N/A	8.9E-04
	(Total)												5.9E-02
Dermal	Arsenic	29.06	mg/kg	29.06	mg/kg	M	3.67E-07	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	1.2E-03
	Cadmium	5.14	mg/kg	5.14	mg/kg	M	2.16E-09	mg/kg-d	2.5E-05	mg/kg-d	N/A	N/A	8.7E-05
	(Total)												1.3E-03
												Total Hazard Index Across All Exposure Routes/Pathways	6.0E-02

(1) M = Medium-Specific, R = Route-Specific
N/A = not applicable.

TABLE 7.3.1.RME
CALCULATION OF NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
Side Gulches - Residential Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Surface Soil
Exposure Point:	Yard Soil
Receptor Population:	Residents
Receptor Age:	Child 0-6 years old

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient
Ingestion	Antimony	15.94	mg/kg	15.94	mg/kg	M	2.04E-04	mg/kg-d	4.0E-04	mg/kg-d	N/A	N/A	5.1E-01
	Arsenic	50.74	mg/kg	50.74	mg/kg	M	3.89E-04	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	1.3E+00
	Cadmium	9.62	mg/kg	9.62	mg/kg	M	1.23E-04	mg/kg-d	1.0E-03	mg/kg-d	N/A	N/A	1.2E-01
	Iron	27190	mg/kg	27190	mg/kg	M	3.48E-01	mg/kg-d	3.0E-01	mg/kg-d	N/A	N/A	1.2E+00
	Manganese	1367	mg/kg	1367	mg/kg	M	1.75E-02	mg/kg-d	4.7E-02	mg/kg-d	N/A	N/A	3.7E-01
	Zinc	1320	mg/kg	1320	mg/kg	M	1.69E-02	mg/kg-d	3.0E-01	mg/kg-d	N/A	N/A	5.6E-02
	(Total)												3.5E+00
Dermal	Arsenic	50.74	mg/kg	50.74	mg/kg	M	4.28E-05	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	1.4E-01
	Cadmium	9.62	mg/kg	9.62	mg/kg	M	2.71E-07	mg/kg-d	2.5E-05	mg/kg-d	N/A	N/A	1.1E-02
	(Total)												1.5E-01
												Total Hazard Index Across All Exposure Routes/Pathways	3.7E+00

(1) M = Medium-Specific, R = Route-Specific
N/A = not applicable.

TABLE 7.3.1.CT
CALCULATION OF NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
Side Gulches - Residential Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Surface Soil
Exposure Point:	Yard Soil
Receptor Population:	Residents
Receptor Age:	Child 0-6 years old

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient
Ingestion	Antimony	10.26	mg/kg	10.26	mg/kg	M	4.87E-05	mg/kg-d	4.0E-04	mg/kg-d	N/A	N/A	1.2E-01
	Arsenic	39.66	mg/kg	39.66	mg/kg	M	1.13E-04	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	3.8E-01
	Cadmium	6.95	mg/kg	6.95	mg/kg	M	3.30E-05	mg/kg-d	1.0E-03	mg/kg-d	N/A	N/A	3.3E-02
	Iron	24797	mg/kg	24797	mg/kg	M	1.18E-01	mg/kg-d	3.0E-01	mg/kg-d	N/A	N/A	3.9E-01
	Manganese	1168	mg/kg	1168	mg/kg	M	5.55E-03	mg/kg-d	4.7E-02	mg/kg-d	N/A	N/A	1.2E-01
	Zinc	844	mg/kg	844	mg/kg	M	4.01E-03	mg/kg-d	3.0E-01	mg/kg-d	N/A	N/A	1.3E-02
	(Total)												1.1E+00
Dermal	Arsenic	39.66	mg/kg	39.66	mg/kg	M	2.49E-05	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	8.3E-02
	Cadmium	6.95	mg/kg	6.95	mg/kg	M	1.45E-07	mg/kg-d	2.5E-05	mg/kg-d	N/A	N/A	5.8E-03
	(Total)												8.9E-02
												Total Hazard Index Across All Exposure Routes/Pathways	1.1E+00

(1) M = Medium-Specific, R = Route-Specific
N/A = not applicable.

TABLE 7.3.2.RME
CALCULATION OF NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
Side Gulches - Residential Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Surface Soil
Exposure Point:	Yard Soil
Receptor Population:	Residents
Receptor Age:	Child/Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient
Ingestion	Antimony	15.94	mg/kg	15.94	mg/kg	M	5.82E-05	mg/kg-d	4.0E-04	mg/kg-d	N/A	N/A	1.5E-01
	Arsenic	50.74	mg/kg	50.74	mg/kg	M	1.11E-04	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	3.7E-01
	Cadmium	9.62	mg/kg	9.62	mg/kg	M	3.51E-05	mg/kg-d	1.0E-03	mg/kg-d	N/A	N/A	3.5E-02
	Iron	27190	mg/kg	27190	mg/kg	M	9.93E-02	mg/kg-d	3.0E-01	mg/kg-d	N/A	N/A	3.3E-01
	Manganese	1367	mg/kg	1367	mg/kg	M	4.99E-03	mg/kg-d	4.7E-02	mg/kg-d	N/A	N/A	1.1E-01
	Zinc	1320	mg/kg	1320	mg/kg	M	4.82E-03	mg/kg-d	3.0E-01	mg/kg-d	N/A	N/A	1.6E-02
	(Total)												1.0E+00
Dermal	Arsenic	50.74	mg/kg	50.74	mg/kg	M	1.27E-05	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	4.2E-02
	Cadmium	9.62	mg/kg	9.62	mg/kg	M	8.05E-08	mg/kg-d	2.5E-05	mg/kg-d	N/A	N/A	3.2E-03
	(Total)												4.6E-02
												Total Hazard Index Across All Exposure Routes/Pathways	1.1E+00

(1) M = Medium-Specific, R = Route-Specific
N/A = not applicable.

TABLE 7.3.2.CT
CALCULATION OF NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
Side Gulches - Residential Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Surface Soil
Exposure Point:	Yard Soil
Receptor Population:	Residents
Receptor Age:	Child/Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient
Ingestion	Antimony	10.26	mg/kg	10.26	mg/kg	M	1.49E-05	mg/kg-d	4.0E-04	mg/kg-d	N/A	N/A	3.7E-02
	Arsenic	39.66	mg/kg	39.66	mg/kg	M	3.45E-05	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	1.2E-01
	Cadmium	6.95	mg/kg	6.95	mg/kg	M	1.01E-05	mg/kg-d	1.0E-03	mg/kg-d	N/A	N/A	1.0E-02
	Iron	24797	mg/kg	24797	mg/kg	M	3.60E-02	mg/kg-d	3.0E-01	mg/kg-d	N/A	N/A	1.2E-01
	Manganese	1168	mg/kg	1168	mg/kg	M	1.69E-03	mg/kg-d	4.7E-02	mg/kg-d	N/A	N/A	3.6E-02
	Zinc	844	mg/kg	844	mg/kg	M	1.22E-03	mg/kg-d	3.0E-01	mg/kg-d	N/A	N/A	4.1E-03
	(Total)												3.2E-01
Dermal	Arsenic	39.66	mg/kg	39.66	mg/kg	M	7.88E-06	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	2.6E-02
	Cadmium	6.95	mg/kg	6.95	mg/kg	M	4.60E-08	mg/kg-d	2.5E-05	mg/kg-d	N/A	N/A	1.8E-03
	(Total)												2.8E-02
												Total Hazard Index Across All Exposure Routes/Pathways	3.5E-01

(1) M = Medium-Specific, R = Route-Specific
N/A = not applicable.

TABLE 7.3.3.RME
CALCULATION OF NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
Side Gulches - Residential Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Groundwater
Exposure Medium:	Groundwater
Exposure Point:	Tap water
Receptor Population:	Residents
Receptor Age:	Child 0-6 years old

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient
Ingestion	Arsenic	8.4	ug/L	8.4	ug/L	M	5.37E-04	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	1.8E+00
												Total Hazard Index Across All Exposure Routes/Pathways	1.8E+00

(1) M = Medium-Specific, R = Route-Specific
N/A = not applicable.

TABLE 7.3.3.CT
CALCULATION OF NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
Side Gulches - Residential Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Groundwater
Exposure Medium:	Groundwater
Exposure Point:	Tap water
Receptor Population:	Residents
Receptor Age:	Child 0-6 years old

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient
Ingestion	Arsenic	1.92	ug/L	1.92	ug/L	M	8.21E-05	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	2.7E-01
												Total Hazard Index Across All Exposure Routes/Pathways	2.7E-01

(1) M = Medium-Specific, R = Route-Specific
N/A = not applicable.

TABLE 7.3.4.RME
CALCULATION OF NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
Side Gulches - Residential Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Groundwater
Exposure Medium:	Groundwater
Exposure Point:	Tap water
Receptor Population:	Residents
Receptor Age:	Child/Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient
Ingestion	Arsenic	8.4	ug/L	8.4	ug/L	M	2.92E-04	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	9.7E-01
												Total Hazard Index Across All Exposure Routes/Pathways	9.7E-01

(1) M = Medium-Specific, R = Route-Specific
N/A = not applicable.

TABLE 7.3.4.CT
CALCULATION OF NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
Side Gulches - Residential Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Groundwater
Exposure Medium:	Groundwater
Exposure Point:	Tap water
Receptor Population:	Residents
Receptor Age:	Child/Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient
Ingestion	Arsenic	1.92	ug/L	1.92	ug/L	M	3.74E-05	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	1.2E-01
												Total Hazard Index Across All Exposure Routes/Pathways	1.2E-01

(1) M = Medium-Specific, R = Route-Specific
N/A = not applicable.

TABLE 7.3.5.RME
CALCULATION OF NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
Side Gulches - Neighborhood Recreational Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Surface Soil
Exposure Point:	Elk Creek Area
Receptor Population:	Neighborhood residents
Receptor Age:	Child 4-11 years old

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient
Ingestion	Antimony	54.9	mg/kg	54.9	mg/kg	M	5.48E-05	mg/kg-d	4.0E-04	mg/kg-d	N/A	N/A	1.4E-01
	Arsenic	98.5	mg/kg	98.5	mg/kg	M	5.90E-05	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	2.0E-01
	Cadmium	64.5	mg/kg	64.5	mg/kg	M	6.44E-05	mg/kg-d	1.0E-03	mg/kg-d	N/A	N/A	6.4E-02
	Iron	99928	mg/kg	99928	mg/kg	M	9.97E-02	mg/kg-d	3.0E-01	mg/kg-d	N/A	N/A	3.3E-01
	Manganese	9280	mg/kg	9280	mg/kg	M	9.26E-03	mg/kg-d	4.7E-02	mg/kg-d	N/A	N/A	2.0E-01
	Zinc	6130	mg/kg	6130	mg/kg	M	6.12E-03	mg/kg-d	3.0E-01	mg/kg-d	N/A	N/A	2.0E-02
	(Total)												9.5E-01
Dermal	Arsenic	98.5	mg/kg	98.5	mg/kg	M	2.00E-05	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	6.7E-02
	Cadmium	64.5	mg/kg	64.5	mg/kg	M	4.36E-07	mg/kg-d	2.5E-05	mg/kg-d	N/A	N/A	1.7E-02
	(Total)												8.4E-02
												Total Hazard Index Across All Exposure Routes/Pathways	1.0E+00

(1) M = Medium-Specific, R = Route-Specific
N/A = not applicable.

TABLE 7.3.5.CT
CALCULATION OF NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
Side Gulches - Neighborhood Recreational Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Surface Soil
Exposure Point:	Elk Creek Area
Receptor Population:	Neighborhood residents
Receptor Age:	Child 4-11 years old

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient
Ingestion	Antimony	46.22	mg/kg	46.22	mg/kg	M	9.23E-06	mg/kg-d	4.0E-04	mg/kg-d	N/A	N/A	2.3E-02
	Arsenic	79.96	mg/kg	79.96	mg/kg	M	9.58E-06	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	3.2E-02
	Cadmium	21.8	mg/kg	21.8	mg/kg	M	4.35E-06	mg/kg-d	1.0E-03	mg/kg-d	N/A	N/A	4.4E-03
	Iron	85590	mg/kg	85590	mg/kg	M	1.71E-02	mg/kg-d	3.0E-01	mg/kg-d	N/A	N/A	5.7E-02
	Manganese	6786	mg/kg	6786	mg/kg	M	1.35E-03	mg/kg-d	4.7E-02	mg/kg-d	N/A	N/A	2.9E-02
	Zinc	3328	mg/kg	3328	mg/kg	M	6.64E-04	mg/kg-d	3.0E-01	mg/kg-d	N/A	N/A	2.2E-03
	(Total)												1.5E-01
Dermal	Arsenic	79.96	mg/kg	79.96	mg/kg	M	8.11E-06	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	2.7E-02
	Cadmium	21.8	mg/kg	21.8	mg/kg	M	7.37E-08	mg/kg-d	2.5E-05	mg/kg-d	N/A	N/A	2.9E-03
	(Total)												3.0E-02
												Total Hazard Index Across All Exposure Routes/Pathways	1.8E-01

(1) M = Medium-Specific, R = Route-Specific
N/A = not applicable.

TABLE 7.3.6.RME
CALCULATION OF NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
Side Gulches - Neighborhood Recreational Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Sediment
Exposure Medium:	Sediment
Exposure Point:	Elk Creek Pond
Receptor Population:	Neighboorhood residents
Receptor Age:	Child 4-11 years old

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient
Ingestion	Antimony	27.84	mg/kg	27.84	mg/kg	M	1.72E-05	mg/kg-d	4.0E-04	mg/kg-d	N/A	N/A	4.3E-02
	Arsenic	77.74	mg/kg	77.74	mg/kg	M	2.88E-05	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	9.6E-02
	Cadmium	38.38	mg/kg	38.38	mg/kg	M	2.37E-05	mg/kg-d	1.0E-03	mg/kg-d	N/A	N/A	2.4E-02
	Iron	35970	mg/kg	35970	mg/kg	M	2.22E-02	mg/kg-d	3.0E-01	mg/kg-d	N/A	N/A	7.4E-02
	Manganese	2223	mg/kg	2223	mg/kg	M	1.37E-03	mg/kg-d	4.7E-02	mg/kg-d	N/A	N/A	2.9E-02
	Zinc	5031	mg/kg	5031	mg/kg	M	3.10E-03	mg/kg-d	3.0E-01	mg/kg-d	N/A	N/A	1.0E-02
	(Total)												2.8E-01
Dermal	Arsenic	77.74	mg/kg	77.74	mg/kg	M	2.23E-05	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	7.4E-02
	Cadmium	38.38	mg/kg	38.38	mg/kg	M	3.66E-07	mg/kg-d	2.5E-05	mg/kg-d	N/A	N/A	1.5E-02
	(Total)												8.9E-02
												Total Hazard Index Across All Exposure Routes/Pathways	3.6E-01

(1) M = Medium-Specific, R = Route-Specific
N/A = not applicable.

TABLE 7.3.6.CT
CALCULATION OF NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
Side Gulches - Neighborhood Recreational Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Sediment
Exposure Medium:	Sediment
Exposure Point:	Elk Creek Pond
Receptor Population:	Neighboorhood residents
Receptor Age:	Child 4-11 years old

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient
Ingestion	Antimony	17.68	mg/kg	17.68	mg/kg	M	2.08E-06	mg/kg-d	4.0E-04	mg/kg-d	N/A	N/A	5.2E-03
	Arsenic	63.76	mg/kg	63.76	mg/kg	M	4.49E-06	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	1.5E-02
	Cadmium	42.77	mg/kg	42.77	mg/kg	M	5.02E-06	mg/kg-d	1.0E-03	mg/kg-d	N/A	N/A	5.0E-03
	Iron	29423	mg/kg	29423	mg/kg	M	3.45E-03	mg/kg-d	3.0E-01	mg/kg-d	N/A	N/A	1.2E-02
	Manganese	1486	mg/kg	1486	mg/kg	M	1.74E-04	mg/kg-d	4.7E-02	mg/kg-d	N/A	N/A	3.7E-03
	Zinc	4222	mg/kg	4222	mg/kg	M	4.96E-04	mg/kg-d	3.0E-01	mg/kg-d	N/A	N/A	1.7E-03
	(Total)												4.2E-02
Dermal	Arsenic	63.76	mg/kg	63.76	mg/kg	M	9.13E-06	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	3.0E-02
	Cadmium	42.77	mg/kg	42.77	mg/kg	M	2.04E-07	mg/kg-d	2.5E-05	mg/kg-d	N/A	N/A	8.2E-03
	(Total)												3.9E-02
												Total Hazard Index Across All Exposure Routes/Pathways	8.1E-02

(1) M = Medium-Specific, R = Route-Specific
N/A = not applicable.

TABLE 7.3.7.RME
CALCULATION OF NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
Side Gulches - Neighborhood Recreational Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Surface water
Exposure Medium:	Surface water
Exposure Point:	Elk Creek Pond
Receptor Population:	Neighborhood residents
Receptor Age:	Child 4-11 years old

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient
Ingestion	Arsenic	32	ug/L	32	ug/L	M	9.02E-06	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	3.0E-02
	Cadmium	60.3	ug/L	60.3	ug/L	M	1.70E-05	mg/kg-d	5.0E-04	mg/kg-d	N/A	N/A	3.4E-02
	Manganese	8570	ug/L	8570	ug/L	M	2.42E-03	mg/kg-d	4.7E-02	mg/kg-d	N/A	N/A	5.1E-02
	Mercury	3.5	ug/L	3.5	ug/L	M	9.86E-07	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	3.3E-03
												Total Hazard Index Across All Exposure Routes/Pathways	1.2E-01

(1) M = Medium-Specific, R = Route-Specific
N/A = not applicable.

TABLE 7.3.7.CT
CALCULATION OF NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
Side Gulches - Neighborhood Recreational Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Surface water
Exposure Medium:	Surface water
Exposure Point:	Elk Creek Pond
Receptor Population:	Neighborhood residents
Receptor Age:	Child 4-11 years old

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient
Ingestion	Arsenic	16.64	ug/L	16.64	ug/L	M	2.34E-06	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	7.8E-03
	Cadmium	26.44	ug/L	26.44	ug/L	M	3.73E-06	mg/kg-d	5.0E-04	mg/kg-d	N/A	N/A	7.5E-03
	Manganese	2297	ug/L	2297	ug/L	M	3.24E-04	mg/kg-d	4.7E-02	mg/kg-d	N/A	N/A	6.9E-03
	Mercury	0.85	ug/L	0.85	ug/L	M	1.20E-07	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	4.0E-04
												Total Hazard Index Across All Exposure Routes/Pathways	2.3E-02

(1) M = Medium-Specific, R = Route-Specific
N/A = not applicable.

TABLE 7.4.1.RME
CALCULATION OF NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
Osburn - Residential Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Surface Soil
Exposure Point:	Yard Soil
Receptor Population:	Residents
Receptor Age:	Child 0-6 years old

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient
Ingestion	Antimony	12.54	mg/kg	12.54	mg/kg	M	1.60E-04	mg/kg-d	4.0E-04	mg/kg-d	N/A	N/A	4.0E-01
	Arsenic	46.74	mg/kg	46.74	mg/kg	M	3.59E-04	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	1.2E+00
	Cadmium	5.25	mg/kg	5.25	mg/kg	M	6.71E-05	mg/kg-d	1.0E-03	mg/kg-d	N/A	N/A	6.7E-02
	Iron	22488	mg/kg	22488	mg/kg	M	2.88E-01	mg/kg-d	3.0E-01	mg/kg-d	N/A	N/A	9.6E-01
	Manganese	1199	mg/kg	1199	mg/kg	M	1.53E-02	mg/kg-d	4.7E-02	mg/kg-d	N/A	N/A	3.3E-01
	Zinc	597	mg/kg	597	mg/kg	M	7.63E-03	mg/kg-d	3.0E-01	mg/kg-d	N/A	N/A	2.5E-02
	(Total)												3.0E+00
Dermal	Arsenic	46.74	mg/kg	46.74	mg/kg	M	3.94E-05	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	1.3E-01
	Cadmium	5.25	mg/kg	5.25	mg/kg	M	1.48E-07	mg/kg-d	2.5E-05	mg/kg-d	N/A	N/A	5.9E-03
	(Total)												1.4E-01
												Total Hazard Index Across All Exposure Routes/Pathways	3.1E+00

(1) M = Medium-Specific, R = Route-Specific
N/A = not applicable.

TABLE 7.4.1.CT
CALCULATION OF NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
Osburn - Residential Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Surface Soil
Exposure Point:	Yard Soil
Receptor Population:	Residents
Receptor Age:	Child 0-6 years old

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient
Ingestion	Antimony	10.06	mg/kg	10.06	mg/kg	M	4.78E-05	mg/kg-d	4.0E-04	mg/kg-d	N/A	N/A	1.2E-01
	Arsenic	38.95	mg/kg	38.95	mg/kg	M	1.11E-04	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	3.7E-01
	Cadmium	4.81	mg/kg	4.81	mg/kg	M	2.28E-05	mg/kg-d	1.0E-03	mg/kg-d	N/A	N/A	2.3E-02
	Iron	21454	mg/kg	21454	mg/kg	M	1.02E-01	mg/kg-d	3.0E-01	mg/kg-d	N/A	N/A	3.4E-01
	Manganese	1122	mg/kg	1122	mg/kg	M	5.33E-03	mg/kg-d	4.7E-02	mg/kg-d	N/A	N/A	1.1E-01
	Zinc	523	mg/kg	523	mg/kg	M	2.48E-03	mg/kg-d	3.0E-01	mg/kg-d	N/A	N/A	8.3E-03
	(Total)												9.7E-01
Dermal	Arsenic	38.95	mg/kg	38.95	mg/kg	M	2.44E-05	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	8.1E-02
	Cadmium	4.81	mg/kg	4.81	mg/kg	M	1.01E-07	mg/kg-d	2.5E-05	mg/kg-d	N/A	N/A	4.0E-03
	(Total)												8.5E-02
												Total Hazard Index Across All Exposure Routes/Pathways	1.1E+00

(1) M = Medium-Specific, R = Route-Specific
N/A = not applicable.

TABLE 7.4.2.RME
CALCULATION OF NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
Osburn - Residential Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Surface Soil
Exposure Point:	Yard Soil
Receptor Population:	Residents
Receptor Age:	Child/Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient
Ingestion	Antimony	12.54	mg/kg	12.54	mg/kg	M	4.58E-05	mg/kg-d	4.0E-04	mg/kg-d	N/A	N/A	1.1E-01
	Arsenic	46.74	mg/kg	46.74	mg/kg	M	1.02E-04	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	3.4E-01
	Cadmium	5.25	mg/kg	5.25	mg/kg	M	1.92E-05	mg/kg-d	1.0E-03	mg/kg-d	N/A	N/A	1.9E-02
	Iron	22488	mg/kg	22488	mg/kg	M	8.21E-02	mg/kg-d	3.0E-01	mg/kg-d	N/A	N/A	2.7E-01
	Manganese	1199	mg/kg	1199	mg/kg	M	4.38E-03	mg/kg-d	4.7E-02	mg/kg-d	N/A	N/A	9.3E-02
	Zinc	597	mg/kg	597	mg/kg	M	2.18E-03	mg/kg-d	3.0E-01	mg/kg-d	N/A	N/A	7.3E-03
	(Total)												8.5E-01
Dermal	Arsenic	46.74	mg/kg	46.74	mg/kg	M	1.17E-05	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	3.9E-02
	Cadmium	5.25	mg/kg	5.25	mg/kg	M	4.39E-08	mg/kg-d	2.5E-05	mg/kg-d	N/A	N/A	1.8E-03
	(Total)												4.1E-02
												Total Hazard Index Across All Exposure Routes/Pathways	8.9E-01

(1) M = Medium-Specific, R = Route-Specific
N/A = not applicable.

TABLE 7.4.2.CT
CALCULATION OF NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
Osburn - Residential Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Surface Soil
Exposure Point:	Yard Soil
Receptor Population:	Residents
Receptor Age:	Child/Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient
Ingestion	Antimony	10.06	mg/kg	10.06	mg/kg	M	1.46E-05	mg/kg-d	4.0E-04	mg/kg-d	N/A	N/A	3.6E-02
	Arsenic	38.95	mg/kg	38.95	mg/kg	M	3.39E-05	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	1.1E-01
	Cadmium	4.81	mg/kg	4.81	mg/kg	M	6.98E-06	mg/kg-d	1.0E-03	mg/kg-d	N/A	N/A	7.0E-03
	Iron	21454	mg/kg	21454	mg/kg	M	3.11E-02	mg/kg-d	3.0E-01	mg/kg-d	N/A	N/A	1.0E-01
	Manganese	1122	mg/kg	1122	mg/kg	M	1.63E-03	mg/kg-d	4.7E-02	mg/kg-d	N/A	N/A	3.5E-02
	Zinc	523	mg/kg	523	mg/kg	M	7.59E-04	mg/kg-d	3.0E-01	mg/kg-d	N/A	N/A	2.5E-03
	(Total)												3.0E-01
Dermal	Arsenic	38.95	mg/kg	38.95	mg/kg	M	7.74E-06	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	2.6E-02
	Cadmium	4.81	mg/kg	4.81	mg/kg	M	3.19E-08	mg/kg-d	2.5E-05	mg/kg-d	N/A	N/A	1.3E-03
	(Total)												2.7E-02
												Total Hazard Index Across All Exposure Routes/Pathways	3.2E-01

(1) M = Medium-Specific, R = Route-Specific
N/A = not applicable.

TABLE 7.4.3.RME
CALCULATION OF NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
Osburn - Residential Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Groundwater
Exposure Medium:	Groundwater
Exposure Point:	Tap water
Receptor Population:	Residents
Receptor Age:	Child 0-6 years old

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient
Ingestion	Arsenic	0.28	ug/L	0.28	ug/L	M	1.79E-05	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	6.0E-02
												Total Hazard Index Across All Exposure Routes/Pathways	6.0E-02

(1) M = Medium-Specific, R = Route-Specific
N/A = not applicable.

TABLE 7.4.3.CT
CALCULATION OF NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
Osburn - Residential Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Groundwater
Exposure Medium:	Groundwater
Exposure Point:	Tap water
Receptor Population:	Residents
Receptor Age:	Child 0-6 years old

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient
Ingestion	Arsenic	0.23	ug/L	0.23	ug/L	M	9.83E-06	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	3.3E-02
												Total Hazard Index Across All Exposure Routes/Pathways	3.3E-02

(1) M = Medium-Specific, R = Route-Specific
N/A = not applicable.

TABLE 7.4.4.RME
CALCULATION OF NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
Osburn - Residential Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Groundwater
Exposure Medium:	Groundwater
Exposure Point:	Tap water
Receptor Population:	Residents
Receptor Age:	Child/Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient
Ingestion	Arsenic	0.28	ug/L	0.28	ug/L	M	9.72E-06	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	3.2E-02
												Total Hazard Index Across All Exposure Routes/Pathways	3.2E-02

(1) M = Medium-Specific, R = Route-Specific
N/A = not applicable.

TABLE 7.4.4.CT
CALCULATION OF NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
Osburn - Residential Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Groundwater
Exposure Medium:	Groundwater
Exposure Point:	Tap water
Receptor Population:	Residents
Receptor Age:	Child/Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient
Ingestion	Arsenic	0.23	ug/L	0.23	ug/L	M	4.48E-06	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	1.5E-02
												Total Hazard Index Across All Exposure Routes/Pathways	1.5E-02

(1) M = Medium-Specific, R = Route-Specific
N/A = not applicable.

TABLE 7.5.1.RME
CALCULATION OF NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
Silverton - Residential Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Surface Soil
Exposure Point:	Yard Soil
Receptor Population:	Residents
Receptor Age:	Child 0-6 years old

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient
Ingestion	Antimony	8.9	mg/kg	8.9	mg/kg	M	1.14E-04	mg/kg-d	4.0E-04	mg/kg-d	N/A	N/A	2.8E-01
	Arsenic	21.46	mg/kg	21.46	mg/kg	M	1.65E-04	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	5.5E-01
	Cadmium	5.44	mg/kg	5.44	mg/kg	M	6.96E-05	mg/kg-d	1.0E-03	mg/kg-d	N/A	N/A	7.0E-02
	Iron	20198	mg/kg	20198	mg/kg	M	2.58E-01	mg/kg-d	3.0E-01	mg/kg-d	N/A	N/A	8.6E-01
	Manganese	1068	mg/kg	1068	mg/kg	M	1.37E-02	mg/kg-d	4.7E-02	mg/kg-d	N/A	N/A	2.9E-01
	Zinc	816	mg/kg	816	mg/kg	M	1.04E-02	mg/kg-d	3.0E-01	mg/kg-d	N/A	N/A	3.5E-02
	(Total)												2.1E+00
Dermal	Arsenic	21.46	mg/kg	21.46	mg/kg	M	1.81E-05	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	6.0E-02
	Cadmium	5.44	mg/kg	5.44	mg/kg	M	1.53E-07	mg/kg-d	2.5E-05	mg/kg-d	N/A	N/A	6.1E-03
	(Total)												6.6E-02
												Total Hazard Index Across All Exposure Routes/Pathways	2.2E+00

(1) M = Medium-Specific, R = Route-Specific
N/A = not applicable.

TABLE 7.5.1.CT
CALCULATION OF NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
Silverton - Residential Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Surface Soil
Exposure Point:	Yard Soil
Receptor Population:	Residents
Receptor Age:	Child 0-6 years old

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient
Ingestion	Antimony	4.89	mg/kg	4.89	mg/kg	M	2.32E-05	mg/kg-d	4.0E-04	mg/kg-d	N/A	N/A	5.8E-02
	Arsenic	16.52	mg/kg	16.52	mg/kg	M	4.71E-05	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	1.6E-01
	Cadmium	4.41	mg/kg	4.41	mg/kg	M	2.09E-05	mg/kg-d	1.0E-03	mg/kg-d	N/A	N/A	2.1E-02
	Iron	18361	mg/kg	18361	mg/kg	M	8.72E-02	mg/kg-d	3.0E-01	mg/kg-d	N/A	N/A	2.9E-01
	Manganese	928	mg/kg	928	mg/kg	M	4.41E-03	mg/kg-d	4.7E-02	mg/kg-d	N/A	N/A	9.4E-02
	Zinc	561	mg/kg	561	mg/kg	M	2.66E-03	mg/kg-d	3.0E-01	mg/kg-d	N/A	N/A	8.9E-03
	(Total)												6.3E-01
Dermal	Arsenic	16.52	mg/kg	16.52	mg/kg	M	1.04E-05	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	3.5E-02
	Cadmium	4.41	mg/kg	4.41	mg/kg	M	9.21E-08	mg/kg-d	2.5E-05	mg/kg-d	N/A	N/A	3.7E-03
	(Total)												3.8E-02
												Total Hazard Index Across All Exposure Routes/Pathways	6.7E-01

(1) M = Medium-Specific, R = Route-Specific
N/A = not applicable.

TABLE 7.5.2.RME
CALCULATION OF NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
Silverton - Residential Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Surface Soil
Exposure Point:	Yard Soil
Receptor Population:	Residents
Receptor Age:	Child/Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient
Ingestion	Antimony	8.9	mg/kg	8.9	mg/kg	M	3.25E-05	mg/kg-d	4.0E-04	mg/kg-d	N/A	N/A	8.1E-02
	Arsenic	21.46	mg/kg	21.46	mg/kg	M	4.70E-05	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	1.6E-01
	Cadmium	5.44	mg/kg	5.44	mg/kg	M	1.99E-05	mg/kg-d	1.0E-03	mg/kg-d	N/A	N/A	2.0E-02
	Iron	20198	mg/kg	20198	mg/kg	M	7.38E-02	mg/kg-d	3.0E-01	mg/kg-d	N/A	N/A	2.5E-01
	Manganese	1068	mg/kg	1068	mg/kg	M	3.90E-03	mg/kg-d	4.7E-02	mg/kg-d	N/A	N/A	8.3E-02
	Zinc	816	mg/kg	816	mg/kg	M	2.98E-03	mg/kg-d	3.0E-01	mg/kg-d	N/A	N/A	9.9E-03
	(Total)												6.0E-01
Dermal	Arsenic	21.46	mg/kg	21.46	mg/kg	M	5.39E-06	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	1.8E-02
	Cadmium	5.44	mg/kg	5.44	mg/kg	M	4.55E-08	mg/kg-d	2.5E-05	mg/kg-d	N/A	N/A	1.8E-03
	(Total)												2.0E-02
												Total Hazard Index Across All Exposure Routes/Pathways	6.2E-01

(1) M = Medium-Specific, R = Route-Specific
N/A = not applicable.

TABLE 7.5.2.CT
CALCULATION OF NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
Silverton - Residential Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Surface Soil
Exposure Point:	Yard Soil
Receptor Population:	Residents
Receptor Age:	Child/Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient
Ingestion	Antimony	4.89	mg/kg	4.89	mg/kg	M	7.10E-06	mg/kg-d	4.0E-04	mg/kg-d	N/A	N/A	1.8E-02
	Arsenic	16.52	mg/kg	16.52	mg/kg	M	1.44E-05	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	4.8E-02
	Cadmium	4.41	mg/kg	4.41	mg/kg	M	6.40E-06	mg/kg-d	1.0E-03	mg/kg-d	N/A	N/A	6.4E-03
	Iron	18361	mg/kg	18361	mg/kg	M	2.66E-02	mg/kg-d	3.0E-01	mg/kg-d	N/A	N/A	8.9E-02
	Manganese	928	mg/kg	928	mg/kg	M	1.35E-03	mg/kg-d	4.7E-02	mg/kg-d	N/A	N/A	2.9E-02
	Zinc	561	mg/kg	561	mg/kg	M	8.14E-04	mg/kg-d	3.0E-01	mg/kg-d	N/A	N/A	2.7E-03
	(Total)												1.9E-01
Dermal	Arsenic	16.52	mg/kg	16.52	mg/kg	M	3.28E-06	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	1.1E-02
	Cadmium	4.41	mg/kg	4.41	mg/kg	M	2.92E-08	mg/kg-d	2.5E-05	mg/kg-d	N/A	N/A	1.2E-03
	(Total)												1.2E-02
												Total Hazard Index Across All Exposure Routes/Pathways	2.0E-01

(1) M = Medium-Specific, R = Route-Specific
N/A = not applicable.

TABLE 7.5.3.RME
CALCULATION OF NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
Silverton - Residential Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Groundwater
Exposure Medium:	Groundwater
Exposure Point:	Tap water
Receptor Population:	Residents
Receptor Age:	Child 0-6 years old

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient
Ingestion	Arsenic	0.545	ug/L	0.545	ug/L	M	3.48E-05	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	1.2E-01
												Total Hazard Index Across All Exposure Routes/Pathways	1.2E-01

(1) M = Medium-Specific, R = Route-Specific
N/A = not applicable.

TABLE 7.5.3.CT
CALCULATION OF NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
Silverton - Residential Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Groundwater
Exposure Medium:	Groundwater
Exposure Point:	Tap water
Receptor Population:	Residents
Receptor Age:	Child 0-6 years old

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient
Ingestion	Arsenic	0.38	ug/L	0.38	ug/L	M	1.62E-05	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	5.4E-02
												Total Hazard Index Across All Exposure Routes/Pathways	5.4E-02

(1) M = Medium-Specific, R = Route-Specific
N/A = not applicable.

TABLE 7.5.4.RME
CALCULATION OF NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
Silverton - Residential Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Groundwater
Exposure Medium:	Groundwater
Exposure Point:	Tap water
Receptor Population:	Residents
Receptor Age:	Child/Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient
Ingestion	Arsenic	0.545	ug/L	0.545	ug/L	M	1.89E-05	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	6.3E-02
												Total Hazard Index Across All Exposure Routes/Pathways	6.3E-02

(1) M = Medium-Specific, R = Route-Specific
N/A = not applicable.

TABLE 7.5.4.CT
CALCULATION OF NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
Silverton - Residential Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Groundwater
Exposure Medium:	Groundwater
Exposure Point:	Tap water
Receptor Population:	Residents
Receptor Age:	Child/Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient
Ingestion	Arsenic	0.38	ug/L	0.38	ug/L	M	7.40E-06	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	2.5E-02
												Total Hazard Index Across All Exposure Routes/Pathways	2.5E-02

(1) M = Medium-Specific, R = Route-Specific
N/A = not applicable.

TABLE 7.5.5.RME
CALCULATION OF NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
Silverton - Neighborhood Recreational Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Surface soil
Exposure Point:	Upland parks/schools
Receptor Population:	Neighborhood residents
Receptor Age:	Child 4-11 years old

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient
Ingestion	Antimony	6.94	mg/kg	6.94	mg/kg	M	6.93E-06	mg/kg-d	4.0E-04	mg/kg-d	N/A	N/A	1.7E-02
	Arsenic	28.44	mg/kg	28.44	mg/kg	M	1.70E-05	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	5.7E-02
	Cadmium	4.57	mg/kg	4.57	mg/kg	M	4.56E-06	mg/kg-d	1.0E-03	mg/kg-d	N/A	N/A	4.6E-03
	Iron	20025	mg/kg	20025	mg/kg	M	2.00E-02	mg/kg-d	3.0E-01	mg/kg-d	N/A	N/A	6.7E-02
	Manganese	1090	mg/kg	1090	mg/kg	M	1.09E-03	mg/kg-d	4.7E-02	mg/kg-d	N/A	N/A	2.3E-02
	Zinc	739	mg/kg	739	mg/kg	M	7.38E-04	mg/kg-d	3.0E-01	mg/kg-d	N/A	N/A	2.5E-03
	(Total)												1.7E-01
Dermal	Arsenic	28.44	mg/kg	28.44	mg/kg	M	5.77E-06	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	1.9E-02
	Cadmium	4.57	mg/kg	4.57	mg/kg	M	3.09E-08	mg/kg-d	2.5E-05	mg/kg-d	N/A	N/A	1.2E-03
	(Total)												2.0E-02
												Total Hazard Index Across All Exposure Routes/Pathways	1.9E-01

(1) M = Medium-Specific, R = Route-Specific
N/A = not applicable.

TABLE 7.5.5.CT
CALCULATION OF NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
Silverton - Neighborhood Recreational Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Surface soil
Exposure Point:	Upland parks/schools
Receptor Population:	Neighborhood residents
Receptor Age:	Child 4-11 years old

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient
Ingestion	Antimony	4.28	mg/kg	4.28	mg/kg	M	8.54E-07	mg/kg-d	4.0E-04	mg/kg-d	N/A	N/A	2.1E-03
	Arsenic	16.88	mg/kg	16.88	mg/kg	M	2.02E-06	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	6.7E-03
	Cadmium	5.1	mg/kg	5.1	mg/kg	M	1.02E-06	mg/kg-d	1.0E-03	mg/kg-d	N/A	N/A	1.0E-03
	Iron	19535	mg/kg	19535	mg/kg	M	3.90E-03	mg/kg-d	3.0E-01	mg/kg-d	N/A	N/A	1.3E-02
	Manganese	1035	mg/kg	1035	mg/kg	M	2.07E-04	mg/kg-d	4.7E-02	mg/kg-d	N/A	N/A	4.4E-03
	Zinc	537.23	mg/kg	537.23	mg/kg	M	1.07E-04	mg/kg-d	3.0E-01	mg/kg-d	N/A	N/A	3.6E-04
	(Total)												2.8E-02
Dermal	Arsenic	16.88	mg/kg	16.88	mg/kg	M	1.71E-06	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	5.7E-03
	Cadmium	5.1	mg/kg	5.1	mg/kg	M	1.72E-08	mg/kg-d	2.5E-05	mg/kg-d	N/A	N/A	6.9E-04
	(Total)												6.4E-03
												Total Hazard Index Across All Exposure Routes/Pathways	3.4E-02

(1) M = Medium-Specific, R = Route-Specific
N/A = not applicable.

TABLE 7.5.6.RME
CALCULATION OF NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
Silverton - Public Recreational Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Surface soil
Exposure Point:	Upland parks/schools
Receptor Population:	Visitor
Receptor Age:	Child 0-6 years old

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient
Ingestion	Antimony	6.94	mg/kg	6.94	mg/kg	M	1.29E-05	mg/kg-d	4.0E-04	mg/kg-d	N/A	N/A	3.2E-02
	Arsenic	28.44	mg/kg	28.44	mg/kg	M	3.18E-05	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	1.1E-01
	Cadmium	4.57	mg/kg	4.57	mg/kg	M	8.51E-06	mg/kg-d	1.0E-03	mg/kg-d	N/A	N/A	8.5E-03
	Iron	20025	mg/kg	20025	mg/kg	M	3.73E-02	mg/kg-d	3.0E-01	mg/kg-d	N/A	N/A	1.2E-01
	Manganese	1090	mg/kg	1090	mg/kg	M	2.03E-03	mg/kg-d	4.7E-02	mg/kg-d	N/A	N/A	4.3E-02
	Zinc	739	mg/kg	739	mg/kg	M	1.38E-03	mg/kg-d	3.0E-01	mg/kg-d	N/A	N/A	4.6E-03
	(Total)												3.2E-01
Dermal	Arsenic	28.44	mg/kg	28.44	mg/kg	M	4.66E-06	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	1.6E-02
	Cadmium	4.57	mg/kg	4.57	mg/kg	M	2.50E-08	mg/kg-d	2.5E-05	mg/kg-d	N/A	N/A	1.0E-03
	(Total)												1.7E-02
												Total Hazard Index Across All Exposure Routes/Pathways	3.4E-01

(1) M = Medium-Specific, R = Route-Specific
N/A = not applicable.

TABLE 7.5.6.CT
CALCULATION OF NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
Silverton - Public Recreational Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Surface soil
Exposure Point:	Upland parks/schools
Receptor Population:	Visitor
Receptor Age:	Child 0-6 years old

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient
Ingestion	Antimony	4.28	mg/kg	4.28	mg/kg	M	1.59E-06	mg/kg-d	4.0E-04	mg/kg-d	N/A	N/A	4.0E-03
	Arsenic	16.88	mg/kg	16.88	mg/kg	M	3.77E-06	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	1.3E-02
	Cadmium	5.1	mg/kg	5.1	mg/kg	M	1.90E-06	mg/kg-d	1.0E-03	mg/kg-d	N/A	N/A	1.9E-03
	Iron	19535	mg/kg	19535	mg/kg	M	7.28E-03	mg/kg-d	3.0E-01	mg/kg-d	N/A	N/A	2.4E-02
	Manganese	1035	mg/kg	1035	mg/kg	M	3.86E-04	mg/kg-d	4.7E-02	mg/kg-d	N/A	N/A	8.2E-03
	Zinc	537.23	mg/kg	537.23	mg/kg	M	2.00E-04	mg/kg-d	3.0E-01	mg/kg-d	N/A	N/A	6.7E-04
	(Total)												5.2E-02
Dermal	Arsenic	16.88	mg/kg	16.88	mg/kg	M	1.38E-06	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	4.6E-03
	Cadmium	5.1	mg/kg	5.1	mg/kg	M	1.39E-08	mg/kg-d	2.5E-05	mg/kg-d	N/A	N/A	5.6E-04
	(Total)												5.2E-03
												Total Hazard Index Across All Exposure Routes/Pathways	5.7E-02

(1) M = Medium-Specific, R = Route-Specific
N/A = not applicable.

TABLE 7.5.7.RME
CALCULATION OF NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
Silverton - Public Recreational Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Surface soil
Exposure Point:	Upland parks/schools
Receptor Population:	Visitor
Receptor Age:	Child/Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient
Ingestion	Antimony	6.94	mg/kg	6.94	mg/kg	M	3.24E-06	mg/kg-d	4.0E-04	mg/kg-d	N/A	N/A	8.1E-03
	Arsenic	28.44	mg/kg	28.44	mg/kg	M	7.96E-06	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	2.7E-02
	Cadmium	4.57	mg/kg	4.57	mg/kg	M	2.13E-06	mg/kg-d	1.0E-03	mg/kg-d	N/A	N/A	2.1E-03
	Iron	20025	mg/kg	20025	mg/kg	M	9.34E-03	mg/kg-d	3.0E-01	mg/kg-d	N/A	N/A	3.1E-02
	Manganese	1090	mg/kg	1090	mg/kg	M	5.09E-04	mg/kg-d	4.7E-02	mg/kg-d	N/A	N/A	1.1E-02
	Zinc	739	mg/kg	739	mg/kg	M	3.45E-04	mg/kg-d	3.0E-01	mg/kg-d	N/A	N/A	1.1E-03
	(Total)												8.0E-02
Dermal	Arsenic	28.44	mg/kg	28.44	mg/kg	M	1.39E-06	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	4.6E-03
	Cadmium	4.57	mg/kg	4.57	mg/kg	M	7.43E-09	mg/kg-d	2.5E-05	mg/kg-d	N/A	N/A	3.0E-04
	(Total)												4.9E-03
												Total Hazard Index Across All Exposure Routes/Pathways	8.5E-02

(1) M = Medium-Specific, R = Route-Specific
N/A = not applicable.

TABLE 7.5.7.CT
CALCULATION OF NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
Silverton - Public Recreational Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Surface soil
Exposure Point:	Upland parks/schools
Receptor Population:	Visitor
Receptor Age:	Child/Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient
Ingestion	Antimony	4.28	mg/kg	4.28	mg/kg	M	4.52E-07	mg/kg-d	4.0E-04	mg/kg-d	N/A	N/A	1.1E-03
	Arsenic	16.88	mg/kg	16.88	mg/kg	M	1.07E-06	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	3.6E-03
	Cadmium	5.1	mg/kg	5.1	mg/kg	M	5.39E-07	mg/kg-d	1.0E-03	mg/kg-d	N/A	N/A	5.4E-04
	Iron	19535	mg/kg	19535	mg/kg	M	2.06E-03	mg/kg-d	3.0E-01	mg/kg-d	N/A	N/A	6.9E-03
	Manganese	1035	mg/kg	1035	mg/kg	M	1.09E-04	mg/kg-d	4.7E-02	mg/kg-d	N/A	N/A	2.3E-03
	Zinc	537.23	mg/kg	537.23	mg/kg	M	5.67E-05	mg/kg-d	3.0E-01	mg/kg-d	N/A	N/A	1.9E-04
	(Total)												1.5E-02
Dermal	Arsenic	16.88	mg/kg	16.88	mg/kg	M	4.39E-07	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	1.5E-03
	Cadmium	5.1	mg/kg	5.1	mg/kg	M	4.42E-09	mg/kg-d	2.5E-05	mg/kg-d	N/A	N/A	1.8E-04
	(Total)												1.6E-03
												Total Hazard Index Across All Exposure Routes/Pathways	1.6E-02

(1) M = Medium-Specific, R = Route-Specific
N/A = not applicable.

TABLE 7.6.1.RME
CALCULATION OF NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
Wallace - Residential Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Surface Soil
Exposure Point:	Yard Soil
Receptor Population:	Residents
Receptor Age:	Child 0-6 years old

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient
Ingestion	Antimony	13.7	mg/kg	13.7	mg/kg	M	1.75E-04	mg/kg-d	4.0E-04	mg/kg-d	N/A	N/A	4.4E-01
	Arsenic	22.57	mg/kg	22.57	mg/kg	M	1.73E-04	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	5.8E-01
	Cadmium	7.63	mg/kg	7.63	mg/kg	M	9.76E-05	mg/kg-d	1.0E-03	mg/kg-d	N/A	N/A	9.8E-02
	Iron	22240	mg/kg	22240	mg/kg	M	2.84E-01	mg/kg-d	3.0E-01	mg/kg-d	N/A	N/A	9.5E-01
	Manganese	989	mg/kg	989	mg/kg	M	1.26E-02	mg/kg-d	4.7E-02	mg/kg-d	N/A	N/A	2.7E-01
	Zinc	967	mg/kg	967	mg/kg	M	1.24E-02	mg/kg-d	3.0E-01	mg/kg-d	N/A	N/A	4.1E-02
	(Total)												2.4E+00
Dermal	Arsenic	22.57	mg/kg	22.57	mg/kg	M	1.90E-05	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	6.3E-02
	Cadmium	7.63	mg/kg	7.63	mg/kg	M	2.15E-07	mg/kg-d	2.5E-05	mg/kg-d	N/A	N/A	8.6E-03
	(Total)												7.2E-02
												Total Hazard Index Across All Exposure Routes/Pathways	2.4E+00

(1) M = Medium-Specific, R = Route-Specific
N/A = not applicable.

TABLE 7.6.1.CT
CALCULATION OF NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
Wallace - Residential Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Surface Soil
Exposure Point:	Yard Soil
Receptor Population:	Residents
Receptor Age:	Child 0-6 years old

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient
Ingestion	Antimony	8.81	mg/kg	8.81	mg/kg	M	4.18E-05	mg/kg-d	4.0E-04	mg/kg-d	N/A	N/A	1.0E-01
	Arsenic	20.32	mg/kg	20.32	mg/kg	M	5.79E-05	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	1.9E-01
	Cadmium	6.46	mg/kg	6.46	mg/kg	M	3.07E-05	mg/kg-d	1.0E-03	mg/kg-d	N/A	N/A	3.1E-02
	Iron	21149	mg/kg	21149	mg/kg	M	1.00E-01	mg/kg-d	3.0E-01	mg/kg-d	N/A	N/A	3.3E-01
	Manganese	895	mg/kg	895	mg/kg	M	4.25E-03	mg/kg-d	4.7E-02	mg/kg-d	N/A	N/A	9.0E-02
	Zinc	860	mg/kg	860	mg/kg	M	4.08E-03	mg/kg-d	3.0E-01	mg/kg-d	N/A	N/A	1.4E-02
	(Total)												7.7E-01
Dermal	Arsenic	20.32	mg/kg	20.32	mg/kg	M	1.27E-05	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	4.2E-02
	Cadmium	6.46	mg/kg	6.46	mg/kg	M	1.35E-07	mg/kg-d	2.5E-05	mg/kg-d	N/A	N/A	5.4E-03
	(Total)												4.8E-02
												Total Hazard Index Across All Exposure Routes/Pathways	8.2E-01

(1) M = Medium-Specific, R = Route-Specific
N/A = not applicable.

TABLE 7.6.2.RME
CALCULATION OF NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
Wallace - Residential Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Surface Soil
Exposure Point:	Yard Soil
Receptor Population:	Residents
Receptor Age:	Child/Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient
Ingestion	Antimony	13.7	mg/kg	13.7	mg/kg	M	5.00E-05	mg/kg-d	4.0E-04	mg/kg-d	N/A	N/A	1.3E-01
	Arsenic	22.57	mg/kg	22.57	mg/kg	M	4.95E-05	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	1.6E-01
	Cadmium	7.63	mg/kg	7.63	mg/kg	M	2.79E-05	mg/kg-d	1.0E-03	mg/kg-d	N/A	N/A	2.8E-02
	Iron	22240	mg/kg	22240	mg/kg	M	8.12E-02	mg/kg-d	3.0E-01	mg/kg-d	N/A	N/A	2.7E-01
	Manganese	989	mg/kg	989	mg/kg	M	3.61E-03	mg/kg-d	4.7E-02	mg/kg-d	N/A	N/A	7.7E-02
	Zinc	967	mg/kg	967	mg/kg	M	3.53E-03	mg/kg-d	3.0E-01	mg/kg-d	N/A	N/A	1.2E-02
	(Total)												6.8E-01
Dermal	Arsenic	22.57	mg/kg	22.57	mg/kg	M	5.66E-06	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	1.9E-02
	Cadmium	7.63	mg/kg	7.63	mg/kg	M	6.38E-08	mg/kg-d	2.5E-05	mg/kg-d	N/A	N/A	2.6E-03
	(Total)												2.1E-02
												Total Hazard Index Across All Exposure Routes/Pathways	7.0E-01

(1) M = Medium-Specific, R = Route-Specific
N/A = not applicable.

TABLE 7.6.2.CT
CALCULATION OF NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
Wallace - Residential Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Surface Soil
Exposure Point:	Yard Soil
Receptor Population:	Residents
Receptor Age:	Child/Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient
Ingestion	Antimony	8.81	mg/kg	8.81	mg/kg	M	1.28E-05	mg/kg-d	4.0E-04	mg/kg-d	N/A	N/A	3.2E-02
	Arsenic	20.32	mg/kg	20.32	mg/kg	M	1.77E-05	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	5.9E-02
	Cadmium	6.46	mg/kg	6.46	mg/kg	M	9.37E-06	mg/kg-d	1.0E-03	mg/kg-d	N/A	N/A	9.4E-03
	Iron	21149	mg/kg	21149	mg/kg	M	3.07E-02	mg/kg-d	3.0E-01	mg/kg-d	N/A	N/A	1.0E-01
	Manganese	895	mg/kg	895	mg/kg	M	1.30E-03	mg/kg-d	4.7E-02	mg/kg-d	N/A	N/A	2.8E-02
	Zinc	860	mg/kg	860	mg/kg	M	1.25E-03	mg/kg-d	3.0E-01	mg/kg-d	N/A	N/A	4.2E-03
	(Total)												2.3E-01
Dermal	Arsenic	20.32	mg/kg	20.32	mg/kg	M	4.04E-06	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	1.3E-02
	Cadmium	6.46	mg/kg	6.46	mg/kg	M	4.28E-08	mg/kg-d	2.5E-05	mg/kg-d	N/A	N/A	1.7E-03
	(Total)												1.5E-02
												Total Hazard Index Across All Exposure Routes/Pathways	2.5E-01

(1) M = Medium-Specific, R = Route-Specific
N/A = not applicable.

TABLE 7.6.3.RME
CALCULATION OF NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
Wallace - Residential Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Groundwater
Exposure Medium:	Groundwater
Exposure Point:	Tap water
Receptor Population:	Residents
Receptor Age:	Child 0-6 years old

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient
Ingestion	Arsenic	0.49	ug/L	0.49	ug/L	M	3.16E-05	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	1.1E-01
												Total Hazard Index Across All Exposure Routes/Pathways	1.1E-01

(1) M = Medium-Specific, R = Route-Specific
N/A = not applicable.

TABLE 7.6.3.CT
CALCULATION OF NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
Wallace - Residential Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Groundwater
Exposure Medium:	Groundwater
Exposure Point:	Tap water
Receptor Population:	Residents
Receptor Age:	Child 0-6 years old

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient
Ingestion	Arsenic	0.42	ug/L	0.42	ug/L	M	1.80E-05	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	6.0E-02
												Total Hazard Index Across All Exposure Routes/Pathways	6.0E-02

(1) M = Medium-Specific, R = Route-Specific
N/A = not applicable.

TABLE 7.6.4.RME
CALCULATION OF NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
Wallace - Residential Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Groundwater
Exposure Medium:	Groundwater
Exposure Point:	Tap water
Receptor Population:	Residents
Receptor Age:	Child/Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient
Ingestion	Arsenic	0.49	ug/L	0.49	ug/L	M	1.71E-05	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	5.7E-02
												Total Hazard Index Across All Exposure Routes/Pathways	5.7E-02

(1) M = Medium-Specific, R = Route-Specific
N/A = not applicable.

TABLE 7.6.4.CT
CALCULATION OF NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
Wallace - Residential Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Groundwater
Exposure Medium:	Groundwater
Exposure Point:	Tap water
Receptor Population:	Residents
Receptor Age:	Child/Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient
Ingestion	Arsenic	0.42	ug/L	0.42	ug/L	M	8.18E-06	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	2.7E-02
												Total Hazard Index Across All Exposure Routes/Pathways	2.7E-02

(1) M = Medium-Specific, R = Route-Specific
N/A = not applicable.

TABLE 7.6.5.RME
CALCULATION OF NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
Wallace - Neighborhood Recreational Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Surface soil
Exposure Point:	Upland parks/schools
Receptor Population:	Neighborhood residents
Receptor Age:	Child 4-11 years old

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient
Ingestion	Antimony	18.22	mg/kg	18.22	mg/kg	M	1.82E-05	mg/kg-d	4.0E-04	mg/kg-d	N/A	N/A	4.5E-02
	Arsenic	27.65	mg/kg	27.65	mg/kg	M	1.66E-05	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	5.5E-02
	Cadmium	10.72	mg/kg	10.72	mg/kg	M	1.07E-05	mg/kg-d	1.0E-03	mg/kg-d	N/A	N/A	1.1E-02
	Iron	28639	mg/kg	28639	mg/kg	M	2.86E-02	mg/kg-d	3.0E-01	mg/kg-d	N/A	N/A	9.5E-02
	Manganese	1502	mg/kg	1502	mg/kg	M	1.50E-03	mg/kg-d	4.7E-02	mg/kg-d	N/A	N/A	3.2E-02
	Zinc	1921	mg/kg	1921	mg/kg	M	1.92E-03	mg/kg-d	3.0E-01	mg/kg-d	N/A	N/A	6.4E-03
	(Total)												2.4E-01
Dermal	Arsenic	27.65	mg/kg	27.65	mg/kg	M	5.61E-06	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	1.9E-02
	Cadmium	10.72	mg/kg	10.72	mg/kg	M	7.25E-08	mg/kg-d	2.5E-05	mg/kg-d	N/A	N/A	2.9E-03
	(Total)												2.2E-02
												Total Hazard Index Across All Exposure Routes/Pathways	2.7E-01

(1) M = Medium-Specific, R = Route-Specific
N/A = not applicable.

TABLE 7.6.5.CT
CALCULATION OF NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
Wallace - Neighborhood Recreational Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Surface soil
Exposure Point:	Upland parks/schools
Receptor Population:	Neighborhood residents
Receptor Age:	Child 4-11 years old

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient
Ingestion	Antimony	17.83	mg/kg	17.83	mg/kg	M	3.56E-06	mg/kg-d	4.0E-04	mg/kg-d	N/A	N/A	8.9E-03
	Arsenic	25.8	mg/kg	25.8	mg/kg	M	3.09E-06	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	1.0E-02
	Cadmium	9.64	mg/kg	9.64	mg/kg	M	1.92E-06	mg/kg-d	1.0E-03	mg/kg-d	N/A	N/A	1.9E-03
	Iron	27036	mg/kg	27036	mg/kg	M	5.40E-03	mg/kg-d	3.0E-01	mg/kg-d	N/A	N/A	1.8E-02
	Manganese	1366	mg/kg	1366	mg/kg	M	2.73E-04	mg/kg-d	4.7E-02	mg/kg-d	N/A	N/A	5.8E-03
	Zinc	1775	mg/kg	1775	mg/kg	M	3.54E-04	mg/kg-d	3.0E-01	mg/kg-d	N/A	N/A	1.2E-03
	(Total)												4.6E-02
Dermal	Arsenic	25.8	mg/kg	25.8	mg/kg	M	2.62E-06	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	8.7E-03
	Cadmium	9.64	mg/kg	9.64	mg/kg	M	3.26E-08	mg/kg-d	2.5E-05	mg/kg-d	N/A	N/A	1.3E-03
	(Total)												1.0E-02
												Total Hazard Index Across All Exposure Routes/Pathways	5.6E-02

(1) M = Medium-Specific, R = Route-Specific
N/A = not applicable.

TABLE 7.6.6.RME
CALCULATION OF NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
Wallace - Public Recreational Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Surface soil
Exposure Point:	Upland parks/schools
Receptor Population:	Visitor
Receptor Age:	Child 0-6 years old

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient
Ingestion	Antimony	18.22	mg/kg	18.22	mg/kg	M	3.39E-05	mg/kg-d	4.0E-04	mg/kg-d	N/A	N/A	8.5E-02
	Arsenic	27.65	mg/kg	27.65	mg/kg	M	3.09E-05	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	1.0E-01
	Cadmium	10.72	mg/kg	10.72	mg/kg	M	2.00E-05	mg/kg-d	1.0E-03	mg/kg-d	N/A	N/A	2.0E-02
	Iron	28639	mg/kg	28639	mg/kg	M	5.34E-02	mg/kg-d	3.0E-01	mg/kg-d	N/A	N/A	1.8E-01
	Manganese	1502	mg/kg	1502	mg/kg	M	2.80E-03	mg/kg-d	4.7E-02	mg/kg-d	N/A	N/A	6.0E-02
	Zinc	1921	mg/kg	1921	mg/kg	M	3.58E-03	mg/kg-d	3.0E-01	mg/kg-d	N/A	N/A	1.2E-02
	(Total)												4.6E-01
Dermal	Arsenic	27.65	mg/kg	27.65	mg/kg	M	4.53E-06	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	1.5E-02
	Cadmium	10.72	mg/kg	10.72	mg/kg	M	5.86E-08	mg/kg-d	2.5E-05	mg/kg-d	N/A	N/A	2.3E-03
	(Total)												1.7E-02
												Total Hazard Index Across All Exposure Routes/Pathways	4.7E-01

(1) M = Medium-Specific, R = Route-Specific
N/A = not applicable.

TABLE 7.6.6.CT
CALCULATION OF NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
Wallace - Public Recreational Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Surface soil
Exposure Point:	Upland parks/schools
Receptor Population:	Visitor
Receptor Age:	Child 0-6 years old

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient
Ingestion	Antimony	17.83	mg/kg	17.83	mg/kg	M	6.64E-06	mg/kg-d	4.0E-04	mg/kg-d	N/A	N/A	1.7E-02
	Arsenic	25.8	mg/kg	25.8	mg/kg	M	5.77E-06	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	1.9E-02
	Cadmium	9.64	mg/kg	9.64	mg/kg	M	3.59E-06	mg/kg-d	1.0E-03	mg/kg-d	N/A	N/A	3.6E-03
	Iron	27036	mg/kg	27036	mg/kg	M	1.01E-02	mg/kg-d	3.0E-01	mg/kg-d	N/A	N/A	3.4E-02
	Manganese	1366	mg/kg	1366	mg/kg	M	5.09E-04	mg/kg-d	4.7E-02	mg/kg-d	N/A	N/A	1.1E-02
	Zinc	1775	mg/kg	1775	mg/kg	M	6.61E-04	mg/kg-d	3.0E-01	mg/kg-d	N/A	N/A	2.2E-03
	(Total)												8.6E-02
Dermal	Arsenic	25.8	mg/kg	25.8	mg/kg	M	2.11E-06	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	7.0E-03
	Cadmium	9.64	mg/kg	9.64	mg/kg	M	2.63E-08	mg/kg-d	2.5E-05	mg/kg-d	N/A	N/A	1.1E-03
	(Total)												8.1E-03
												Total Hazard Index Across All Exposure Routes/Pathways	9.4E-02

(1) M = Medium-Specific, R = Route-Specific
N/A = not applicable.

TABLE 7.6.7.RME
CALCULATION OF NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
Wallace - Public Recreational Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Surface soil
Exposure Point:	Upland parks/schools
Receptor Population:	Visitor
Receptor Age:	Child/Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient
Ingestion	Antimony	18.22	mg/kg	18.22	mg/kg	M	8.50E-06	mg/kg-d	4.0E-04	mg/kg-d	N/A	N/A	2.1E-02
	Arsenic	27.65	mg/kg	27.65	mg/kg	M	7.74E-06	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	2.6E-02
	Cadmium	10.72	mg/kg	10.72	mg/kg	M	5.00E-06	mg/kg-d	1.0E-03	mg/kg-d	N/A	N/A	5.0E-03
	Iron	28639	mg/kg	28639	mg/kg	M	1.34E-02	mg/kg-d	3.0E-01	mg/kg-d	N/A	N/A	4.5E-02
	Manganese	1502	mg/kg	1502	mg/kg	M	7.01E-04	mg/kg-d	4.7E-02	mg/kg-d	N/A	N/A	1.5E-02
	Zinc	1921	mg/kg	1921	mg/kg	M	8.96E-04	mg/kg-d	3.0E-01	mg/kg-d	N/A	N/A	3.0E-03
	(Total)												1.1E-01
Dermal	Arsenic	27.65	mg/kg	27.65	mg/kg	M	1.35E-06	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	4.5E-03
	Cadmium	10.72	mg/kg	10.72	mg/kg	M	1.74E-08	mg/kg-d	2.5E-05	mg/kg-d	N/A	N/A	7.0E-04
	(Total)												5.2E-03
												Total Hazard Index Across All Exposure Routes/Pathways	1.2E-01

(1) M = Medium-Specific, R = Route-Specific
N/A = not applicable.

TABLE 7.6.7.CT
CALCULATION OF NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
Wallace - Public Recreational Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Surface soil
Exposure Point:	Upland parks/schools
Receptor Population:	Visitor
Receptor Age:	Child/Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient
Ingestion	Antimony	17.83	mg/kg	17.83	mg/kg	M	1.88E-06	mg/kg-d	4.0E-04	mg/kg-d	N/A	N/A	4.7E-03
	Arsenic	25.8	mg/kg	25.8	mg/kg	M	1.64E-06	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	5..5E-03
	Cadmium	9.64	mg/kg	9.64	mg/kg	M	1.02E-06	mg/kg-d	1.0E-03	mg/kg-d	N/A	N/A	1.0E-03
	Iron	27036	mg/kg	27036	mg/kg	M	2.86E-03	mg/kg-d	3.0E-01	mg/kg-d	N/A	N/A	9.5E-03
	Manganese	1366	mg/kg	1366	mg/kg	M	1.44E-04	mg/kg-d	4.7E-02	mg/kg-d	N/A	N/A	3.1E-03
	Zinc	1775	mg/kg	1775	mg/kg	M	1.87E-04	mg/kg-d	3.0E-01	mg/kg-d	N/A	N/A	6.2E-04
	(Total)												2.4E-02
Dermal	Arsenic	25.8	mg/kg	25.8	mg/kg	M	6.70E-07	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	2.2E-03
	Cadmium	9.64	mg/kg	9.64	mg/kg	M	8.35E-09	mg/kg-d	2.5E-05	mg/kg-d	N/A	N/A	3.3E-04
	(Total)												2.6E-03
												Total Hazard Index Across All Exposure Routes/Pathways	2.7E-02

(1) M = Medium-Specific, R = Route-Specific
N/A = not applicable.

TABLE 7.7.1.RME
CALCULATION OF NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
OWS - Neighborhood Recreational Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Sediment
Exposure Medium:	Sediment
Exposure Point:	SFCDAR
Receptor Population:	Neighboorhood residents
Receptor Age:	Child 4-11 years old

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient
Ingestion	Antimony	38.11	mg/kg	38.11	mg/kg	M	2.35E-05	mg/kg-d	4.0E-04	mg/kg-d	N/A	N/A	5.9E-02
	Arsenic	52.64	mg/kg	52.64	mg/kg	M	1.95E-05	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	6.5E-02
	Cadmium	18.89	mg/kg	18.89	mg/kg	M	1.16E-05	mg/kg-d	1.0E-03	mg/kg-d	N/A	N/A	1.2E-02
	Iron	41314	mg/kg	41314	mg/kg	M	2.55E-02	mg/kg-d	3.0E-01	mg/kg-d	N/A	N/A	8.5E-02
	Manganese	3755	mg/kg	3755	mg/kg	M	2.31E-03	mg/kg-d	4.7E-02	mg/kg-d	N/A	N/A	4.9E-02
	Zinc	3397	mg/kg	3397	mg/kg	M	2.09E-03	mg/kg-d	3.0E-01	mg/kg-d	N/A	N/A	7.0E-03
	(Total)												2.8E-01
Dermal	Arsenic	52.64	mg/kg	52.64	mg/kg	M	1.51E-05	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	5.0E-02
	Cadmium	18.89	mg/kg	18.89	mg/kg	M	1.80E-07	mg/kg-d	2.5E-05	mg/kg-d	N/A	N/A	7.2E-03
	(Total)												5.7E-02
												Total Hazard Index Across All Exposure Routes/Pathways	3.3E-01

(1) M = Medium-Specific, R = Route-Specific
N/A = not applicable.

TABLE 7.7.1.CT
CALCULATION OF NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
OWS - Neighborhood Recreational Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Sediment
Exposure Medium:	Sediment
Exposure Point:	SFCDAR
Receptor Population:	Neighboorhood residents
Receptor Age:	Child 4-11 years old

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient
Ingestion	Antimony	25.24	mg/kg	25.24	mg/kg	M	2.96E-06	mg/kg-d	4.0E-04	mg/kg-d	N/A	N/A	7.4E-03
	Arsenic	36.81	mg/kg	36.81	mg/kg	M	2.59E-06	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	8.6E-03
	Cadmium	14.16	mg/kg	14.16	mg/kg	M	1.66E-06	mg/kg-d	1.0E-03	mg/kg-d	N/A	N/A	1.7E-03
	Iron	38174	mg/kg	38174	mg/kg	M	4.48E-03	mg/kg-d	3.0E-01	mg/kg-d	N/A	N/A	1.5E-02
	Manganese	3314	mg/kg	3314	mg/kg	M	3.89E-04	mg/kg-d	4.7E-02	mg/kg-d	N/A	N/A	8.3E-03
	Zinc	2551	mg/kg	2551	mg/kg	M	3.00E-04	mg/kg-d	3.0E-01	mg/kg-d	N/A	N/A	1.0E-03
	(Total)												4.2E-02
Dermal	Arsenic	36.81	mg/kg	36.81	mg/kg	M	5.27E-06	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	1.8E-02
	Cadmium	14.16	mg/kg	14.16	mg/kg	M	6.76E-08	mg/kg-d	2.5E-05	mg/kg-d	N/A	N/A	2.7E-03
	(Total)												2.0E-02
												Total Hazard Index Across All Exposure Routes/Pathways	6.2E-02

(1) M = Medium-Specific, R = Route-Specific
N/A = not applicable.

TABLE 7.7.2.RME
CALCULATION OF NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
OWS - Neighborhood Recreational Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Surface water
Exposure Medium:	Surface water
Exposure Point:	SFCDAR
Receptor Population:	Neighborhood residents
Receptor Age:	Child 4-11 years old

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient
Ingestion	Arsenic	1.096	ug/L	1.096	ug/L	M	3.09E-07	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	1.0E-03
	Cadmium	4.029	ug/L	4.029	ug/L	M	1.14E-06	mg/kg-d	5.0E-04	mg/kg-d	N/A	N/A	2.3E-03
	Manganese	32.04	ug/L	32.04	ug/L	M	9.03E-06	mg/kg-d	4.7E-02	mg/kg-d	N/A	N/A	1.9E-04
	Mercury	0.122	ug/L	0.122	ug/L	M	3.44E-08	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	1.1E-04
												Total Hazard Index Across All Exposure Routes/Pathways	3.6E-03

(1) M = Medium-Specific, R = Route-Specific
N/A = not applicable.

TABLE 7.7.2.CT
CALCULATION OF NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
OWS - Neighborhood Recreational Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Surface water
Exposure Medium:	Surface water
Exposure Point:	SFCDAR
Receptor Population:	Neighborhood residents
Receptor Age:	Child 4-11 years old

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient
Ingestion	Arsenic	0.78	ug/L	0.78	ug/L	M	1.10E-07	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	3.7E-04
	Cadmium	10.49	ug/L	10.49	ug/L	M	1.48E-06	mg/kg-d	5.0E-04	mg/kg-d	N/A	N/A	3.0E-03
	Manganese	39.36	ug/L	39.36	ug/L	M	5.55E-06	mg/kg-d	4.7E-02	mg/kg-d	N/A	N/A	1.2E-04
	Mercury	0.1	ug/L	0.1	ug/L	M	1.41E-08	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	4.7E-05
												Total Hazard Index Across All Exposure Routes/Pathways	3.5E-03

(1) M = Medium-Specific, R = Route-Specific
N/A = not applicable.

TABLE 7.7.3.RME
CALCULATION OF NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
OWS - Occupational Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Surface/subsurface soil
Exposure Point:	Construction site soil
Receptor Population:	Construction worker
Receptor Age:	Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient
Ingestion	Antimony	9.26	mg/kg	9.26	mg/kg	M	2.12E-05	mg/kg-d	4.0E-04	mg/kg-d	N/A	N/A	5.3E-02
	Arsenic	27.31	mg/kg	27.31	mg/kg	M	3.75E-05	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	1.3E-01
	Cadmium	5.21	mg/kg	5.21	mg/kg	M	1.19E-05	mg/kg-d	1.0E-03	mg/kg-d	N/A	N/A	1.2E-02
	Iron	21860	mg/kg	21860	mg/kg	M	5.01E-02	mg/kg-d	3.0E-01	mg/kg-d	N/A	N/A	1.7E-01
	Manganese	1129	mg/kg	1129	mg/kg	M	2.58E-03	mg/kg-d	1.4E-01	mg/kg-d	N/A	N/A	1.8E-02
	Zinc	752	mg/kg	752	mg/kg	M	1.72E-03	mg/kg-d	3.0E-01	mg/kg-d	N/A	N/A	5.7E-03
	(Total)												3.8E-01
Dermal	Arsenic	27.31	mg/kg	27.31	mg/kg	M	1.56E-06	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	5.2E-03
	Cadmium	5.21	mg/kg	5.21	mg/kg	M	9.94E-09	mg/kg-d	2.5E-05	mg/kg-d	N/A	N/A	4.0E-04
	(Total)												5.6E-03
												Total Hazard Index Across All Exposure Routes/Pathways	3.9E-01

(1) M = Medium-Specific, R = Route-Specific
N/A = not applicable.

TABLE 7.7.3.CT
CALCULATION OF NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
OWS - Occupational Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Surface/subsurface soil
Exposure Point:	Construction site soil
Receptor Population:	Construction worker
Receptor Age:	Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient
Ingestion	Antimony	6.69	mg/kg	6.69	mg/kg	M	2.25E-06	mg/kg-d	4.0E-04	mg/kg-d	N/A	N/A	5.6E-03
	Arsenic	21.87	mg/kg	21.87	mg/kg	M	4.42E-06	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	1.5E-02
	Cadmium	6.09	mg/kg	6.09	mg/kg	M	2.05E-06	mg/kg-d	1.0E-03	mg/kg-d	N/A	N/A	2.0E-03
	Iron	21538	mg/kg	21538	mg/kg	M	7.25E-03	mg/kg-d	3.0E-01	mg/kg-d	N/A	N/A	2.4E-02
	Manganese	1077	mg/kg	1077	mg/kg	M	3.63E-04	mg/kg-d	1.4E-01	mg/kg-d	N/A	N/A	2.6E-03
	Zinc	666	mg/kg	666	mg/kg	M	2.24E-04	mg/kg-d	3.0E-01	mg/kg-d	N/A	N/A	7.5E-04
	(Total)												5.0E-02
Dermal	Arsenic	21.87	mg/kg	21.87	mg/kg	M	2.76E-07	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	9.2E-04
	Cadmium	6.09	mg/kg	6.09	mg/kg	M	2.56E-09	mg/kg-d	2.5E-05	mg/kg-d	N/A	N/A	1.0E-04
	(Total)												1.0E-03
												Total Hazard Index Across All Exposure Routes/Pathways	5.1E-02

(1) M = Medium-Specific, R = Route-Specific
N/A = not applicable.

TABLE 7.8.1.RME
CALCULATION OF NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
Nine Mile - Residential Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Surface Soil
Exposure Point:	Yard Soil
Receptor Population:	Residents
Receptor Age:	Child 0-6 years old

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient
Ingestion	Antimony	11.94	mg/kg	11.94	mg/kg	M	1.53E-04	mg/kg-d	4.0E-04	mg/kg-d	N/A	N/A	3.8E-01
	Arsenic	41.62	mg/kg	41.62	mg/kg	M	3.14E-04	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	1.1E+00
	Cadmium	6.52	mg/kg	6.52	mg/kg	M	8.34E-05	mg/kg-d	1.0E-03	mg/kg-d	N/A	N/A	8.3E-02
	Iron	23311	mg/kg	23311	mg/kg	M	2.98E-01	mg/kg-d	3.0E-01	mg/kg-d	N/A	N/A	9.9E-01
	Manganese	1250	mg/kg	1250	mg/kg	M	1.60E-02	mg/kg-d	4.7E-02	mg/kg-d	N/A	N/A	3.4E-01
	Zinc	1159	mg/kg	1159	mg/kg	M	1.48E-02	mg/kg-d	3.0E-01	mg/kg-d	N/A	N/A	4.9E-02
	(Total)												2.9E+00
Dermal	Arsenic	41.62	mg/kg	41.62	mg/kg	M	3.51E-05	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	1.2E-01
	Cadmium	6.52	mg/kg	6.52	mg/kg	M	1.83E-07	mg/kg-d	2.5E-05	mg/kg-d	N/A	N/A	7.3E-03
	(Total)												1.2E-01
												Total Hazard Index Across All Exposure Routes/Pathways	3.0E+00

(1) M = Medium-Specific, R = Route-Specific
N/A = not applicable.

TABLE 7.8.1.CT
CALCULATION OF NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
Nine Mile - Residential Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Surface Soil
Exposure Point:	Yard Soil
Receptor Population:	Residents
Receptor Age:	Child 0-6 years old

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient
Ingestion	Antimony	8.21	mg/kg	8.21	mg/kg	M	3.90E-05	mg/kg-d	4.0E-04	mg/kg-d	N/A	N/A	9.7E-02
	Arsenic	31.58	mg/kg	31.58	mg/kg	M	9.00E-05	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	3.0E-01
	Cadmium	6	mg/kg	6	mg/kg	M	2.85E-05	mg/kg-d	1.0E-03	mg/kg-d	N/A	N/A	2.8E-02
	Iron	21868	mg/kg	21868	mg/kg	M	1.04E-01	mg/kg-d	3.0E-01	mg/kg-d	N/A	N/A	3.5E-01
	Manganese	1154	mg/kg	1154	mg/kg	M	5.48E-03	mg/kg-d	4.7E-02	mg/kg-d	N/A	N/A	1.2E-01
	Zinc	1112	mg/kg	1112	mg/kg	M	5.28E-03	mg/kg-d	3.0E-01	mg/kg-d	N/A	N/A	1.8E-02
	(Total)												9.1E-01
Dermal	Arsenic	31.58	mg/kg	31.58	mg/kg	M	1.98E-05	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	6.6E-02
	Cadmium	6	mg/kg	6	mg/kg	M	1.25E-07	mg/kg-d	2.5E-05	mg/kg-d	N/A	N/A	5.0E-03
	(Total)												7.1E-02
												Total Hazard Index Across All Exposure Routes/Pathways	9.8E-01

(1) M = Medium-Specific, R = Route-Specific
N/A = not applicable.

TABLE 7.8.2.RME
CALCULATION OF NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
Nine Mile - Residential Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Surface Soil
Exposure Point:	Yard Soil
Receptor Population:	Residents
Receptor Age:	Child/Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient
Ingestion	Antimony	11.94	mg/kg	11.94	mg/kg	M	4.36E-05	mg/kg-d	4.0E-04	mg/kg-d	N/A	N/A	1.1E-01
	Arsenic	41.62	mg/kg	41.62	mg/kg	M	9.12E-05	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	3.0E-01
	Cadmium	6.52	mg/kg	6.52	mg/kg	M	2.38E-05	mg/kg-d	1.0E-03	mg/kg-d	N/A	N/A	2.4E-02
	Iron	23311	mg/kg	23311	mg/kg	M	8.52E-02	mg/kg-d	3.0E-01	mg/kg-d	N/A	N/A	2.8E-01
	Manganese	1250	mg/kg	1250	mg/kg	M	4.57E-03	mg/kg-d	4.7E-02	mg/kg-d	N/A	N/A	9.7E-02
	Zinc	1159	mg/kg	1159	mg/kg	M	4.23E-03	mg/kg-d	3.0E-01	mg/kg-d	N/A	N/A	1.4E-02
	(Total)												8.3E-01
Dermal	Arsenic	41.62	mg/kg	41.62	mg/kg	M	1.04E-05	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	3.5E-02
	Cadmium	6.52	mg/kg	6.52	mg/kg	M	5.45E-08	mg/kg-d	2.5E-05	mg/kg-d	N/A	N/A	2.2E-03
	(Total)												3.7E-02
												Total Hazard Index Across All Exposure Routes/Pathways	8.7E-01

(1) M = Medium-Specific, R = Route-Specific
N/A = not applicable.

TABLE 7.8.2.CT
CALCULATION OF NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
Nine Mile - Residential Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Surface Soil
Exposure Point:	Yard Soil
Receptor Population:	Residents
Receptor Age:	Child/Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient
Ingestion	Antimony	8.21	mg/kg	8.21	mg/kg	M	1.19E-05	mg/kg-d	4.0E-04	mg/kg-d	N/A	N/A	3.0E-02
	Arsenic	31.58	mg/kg	31.58	mg/kg	M	2.75E-05	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	9.2E-02
	Cadmium	6	mg/kg	6	mg/kg	M	8.71E-06	mg/kg-d	1.0E-03	mg/kg-d	N/A	N/A	8.7E-03
	Iron	21868	mg/kg	21868	mg/kg	M	3.17E-02	mg/kg-d	3.0E-01	mg/kg-d	N/A	N/A	1.1E-01
	Manganese	1154	mg/kg	1154	mg/kg	M	1.67E-03	mg/kg-d	4.7E-02	mg/kg-d	N/A	N/A	3.6E-02
	Zinc	1112	mg/kg	1112	mg/kg	M	1.61E-03	mg/kg-d	3.0E-01	mg/kg-d	N/A	N/A	5.4E-03
	(Total)												2.8E-01
Dermal	Arsenic	31.58	mg/kg	31.58	mg/kg	M	6.27E-06	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	2.1E-02
	Cadmium	6	mg/kg	6	mg/kg	M	3.97E-08	mg/kg-d	2.5E-05	mg/kg-d	N/A	N/A	1.6E-03
	(Total)												2.3E-02
												Total Hazard Index Across All Exposure Routes/Pathways	3.0E-01

(1) M = Medium-Specific, R = Route-Specific
N/A = not applicable.

TABLE 7.8.3.RME
CALCULATION OF NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
Nine Mile - Residential Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Groundwater
Exposure Medium:	Groundwater
Exposure Point:	Tap water
Receptor Population:	Residents
Receptor Age:	Child 0-6 years old

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient
Ingestion	Arsenic	0.74	ug/L	0.74	ug/L	M	4.73E-05	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	1.6E-01
												Total Hazard Index Across All Exposure Routes/Pathways	1.6E-01

(1) M = Medium-Specific, R = Route-Specific
N/A = not applicable.

TABLE 7.8.3.CT
CALCULATION OF NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
Nine Mile - Residential Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Groundwater
Exposure Medium:	Groundwater
Exposure Point:	Tap water
Receptor Population:	Residents
Receptor Age:	Child 0-6 years old

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient
Ingestion	Arsenic	0.45	ug/L	0.45	ug/L	M	1.92E-05	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	6.4E-02
												Total Hazard Index Across All Exposure Routes/Pathways	6.4E-02

(1) M = Medium-Specific, R = Route-Specific
N/A = not applicable.

TABLE 7.8.4.RME
CALCULATION OF NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
Nine Mile - Residential Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Groundwater
Exposure Medium:	Groundwater
Exposure Point:	Tap water
Receptor Population:	Residents
Receptor Age:	Child/Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient
Ingestion	Arsenic	0.74	ug/L	0.74	ug/L	M	2.57E-05	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	8.6E-02
												Total Hazard Index Across All Exposure Routes/Pathways	8.6E-02

(1) M = Medium-Specific, R = Route-Specific
N/A = not applicable.

TABLE 7.8.4.CT
CALCULATION OF NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
Nine Mile - Residential Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Groundwater
Exposure Medium:	Groundwater
Exposure Point:	Tap water
Receptor Population:	Residents
Receptor Age:	Child/Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient
Ingestion	Arsenic	0.45	ug/L	0.45	ug/L	M	8.76E-06	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	2.9E-02
												Total Hazard Index Across All Exposure Routes/Pathways	2.9E-02

(1) M = Medium-Specific, R = Route-Specific
N/A = not applicable.

TABLE 7.8.5.RME
CALCULATION OF NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
Nine Mile - Residential Exposure Scenario

Scenario Timeframe:	Future
Medium:	Groundwater
Exposure Medium:	Groundwater
Exposure Point:	Tap water
Receptor Population:	Residents
Receptor Age:	Child 0-6 years old

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient
Ingestion	Antimony	2.1	ug/L	2.1	ug/L	M	1.34E-04	mg/kg-d	4.0E-04	mg/kg-d	N/A	N/A	3.4E-01
	Arsenic	1.25	ug/L	1.25	ug/L	M	7.99E-05	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	2.7E-01
	Cadmium	130.85	ug/L	130.85	ug/L	M	8.36E-03	mg/kg-d	5.0E-04	mg/kg-d	N/A	N/A	1.7E+01
	Zinc	19756	ug/L	19756	ug/L	M	1.26E+00	mg/kg-d	3.0E-01	mg/kg-d	N/A	N/A	4.2E+00
												Total Hazard Index Across All Exposure Routes/Pathways	2.2E+01

(1) M = Medium-Specific, R = Route-Specific
N/A = not applicable.

TABLE 7.8.5.CT
CALCULATION OF NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
Nine Mile - Residential Exposure Scenario

Scenario Timeframe:	Future
Medium:	Groundwater
Exposure Medium:	Groundwater
Exposure Point:	Tap water
Receptor Population:	Residents
Receptor Age:	Child 0-6 years old

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient
Ingestion	Antimony	1.67	ug/L	1.67	ug/L	M	7.14E-05	mg/kg-d	4.0E-04	mg/kg-d	N/A	N/A	1.8E-01
	Arsenic	0.81	ug/L	0.81	ug/L	M	3.46E-05	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	1.2E-01
	Cadmium	91.79	ug/L	91.79	ug/L	M	3.92E-03	mg/kg-d	5.0E-04	mg/kg-d	N/A	N/A	7.8E+00
	Zinc	14239	ug/L	14239	ug/L	M	6.09E-01	mg/kg-d	3.0E-01	mg/kg-d	N/A	N/A	2.0E+00
												Total Hazard Index Across All Exposure Routes/Pathways	1.0E+01

(1) M = Medium-Specific, R = Route-Specific
N/A = not applicable.

TABLE 7.8.6.RME
CALCULATION OF NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
Nine Mile - Residential Exposure Scenario

Scenario Timeframe:	Future
Medium:	Groundwater
Exposure Medium:	Groundwater
Exposure Point:	Tap water
Receptor Population:	Residents
Receptor Age:	Child/Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient
Ingestion	Antimony	2.1	ug/L	2.1	ug/L	M	7.29E-05	mg/kg-d	4.0E-04	mg/kg-d	N/A	N/A	1.8E-01
	Arsenic	1.25	ug/L	1.25	ug/L	M	4.34E-05	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	1.4E-01
	Cadmium	130.85	ug/L	130.85	ug/L	M	4.54E-03	mg/kg-d	5.0E-04	mg/kg-d	N/A	N/A	9.1E+00
	Zinc	19756	ug/L	19756	ug/L	M	6.86E-01	mg/kg-d	3.0E-01	mg/kg-d	N/A	N/A	2.3E+00
												Total Hazard Index Across All Exposure Routes/Pathways	1.2E+01

(1) M = Medium-Specific, R = Route-Specific
N/A = not applicable.

TABLE 7.8.6.CT
CALCULATION OF NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
Nine Mile - Residential Exposure Scenario

Scenario Timeframe:	Future
Medium:	Groundwater
Exposure Medium:	Groundwater
Exposure Point:	Tap water
Receptor Population:	Residents
Receptor Age:	Child/Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient
Ingestion	Antimony	1.67	ug/L	1.67	ug/L	M	3.25E-05	mg/kg-d	4.0E-04	mg/kg-d	N/A	N/A	8.1E-02
	Arsenic	0.81	ug/L	0.81	ug/L	M	1.58E-05	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	5.3E-02
	Cadmium	91.79	ug/L	91.79	ug/L	M	1.79E-03	mg/kg-d	5.0E-04	mg/kg-d	N/A	N/A	3.6E+00
	Zinc	14239	ug/L	14239	ug/L	M	2.77E-01	mg/kg-d	3.0E-01	mg/kg-d	N/A	N/A	9.2E-01
												Total Hazard Index Across All Exposure Routes/Pathways	4.6E+00

(1) M = Medium-Specific, R = Route-Specific
N/A = not applicable.

TABLE 7.8.7.RME
CALCULATION OF NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
Nine Mile - Neighborhood Recreational Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Surface soil
Exposure Point:	Waste piles
Receptor Population:	Neighborhood residents
Receptor Age:	Child 4-11 years old

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient
Ingestion	Antimony	42.34	mg/kg	42.34	mg/kg	M	2.11E-05	mg/kg-d	4.0E-04	mg/kg-d	N/A	N/A	5.3E-02
	Arsenic	518.49	mg/kg	518.49	mg/kg	M	1.55E-04	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	5.2E-01
	Cadmium	31.67	mg/kg	31.67	mg/kg	M	1.58E-05	mg/kg-d	1.0E-03	mg/kg-d	N/A	N/A	1.6E-02
	Iron	43032	mg/kg	43032	mg/kg	M	2.15E-02	mg/kg-d	3.0E-01	mg/kg-d	N/A	N/A	7.2E-02
	Manganese	1721	mg/kg	1721	mg/kg	M	8.59E-04	mg/kg-d	4.7E-02	mg/kg-d	N/A	N/A	1.8E-02
	Zinc	6196	mg/kg	6196	mg/kg	M	3.09E-03	mg/kg-d	3.0E-01	mg/kg-d	N/A	N/A	1.0E-02
	(Total)												6.9E-01
Dermal	Arsenic	518.49	mg/kg	518.49	mg/kg	M	5.26E-05	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	1.8E-01
	Cadmium	31.67	mg/kg	31.67	mg/kg	M	1.07E-07	mg/kg-d	2.5E-05	mg/kg-d	N/A	N/A	4.3E-03
	(Total)												1.8E-01
												Total Hazard Index Across All Exposure Routes/Pathways	8.7E-01

(1) M = Medium-Specific, R = Route-Specific
N/A = not applicable.

TABLE 7.8.7.CT
CALCULATION OF NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
Nine Mile - Neighborhood Recreational Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Surface soil
Exposure Point:	Waste piles
Receptor Population:	Neighborhood residents
Receptor Age:	Child 4-11 years old

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient
Ingestion	Antimony	19.81	mg/kg	19.81	mg/kg	M	1.98E-06	mg/kg-d	4.0E-04	mg/kg-d	N/A	N/A	4.9E-03
	Arsenic	95.57	mg/kg	95.57	mg/kg	M	5.72E-06	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	1.9E-02
	Cadmium	19.39	mg/kg	19.39	mg/kg	M	1.94E-06	mg/kg-d	1.0E-03	mg/kg-d	N/A	N/A	1.9E-03
	Iron	36629	mg/kg	36629	mg/kg	M	3.66E-03	mg/kg-d	3.0E-01	mg/kg-d	N/A	N/A	1.2E-02
	Manganese	1478	mg/kg	1478	mg/kg	M	1.48E-04	mg/kg-d	4.7E-02	mg/kg-d	N/A	N/A	3.1E-03
	Zinc	5147	mg/kg	5147	mg/kg	M	5.14E-04	mg/kg-d	3.0E-01	mg/kg-d	N/A	N/A	1.7E-03
	(Total)												4.3E-02
Dermal	Arsenic	95.57	mg/kg	95.57	mg/kg	M	4.85E-06	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	1.6E-02
	Cadmium	19.39	mg/kg	19.39	mg/kg	M	3.28E-08	mg/kg-d	2.5E-05	mg/kg-d	N/A	N/A	1.3E-03
	(Total)												1.7E-02
												Total Hazard Index Across All Exposure Routes/Pathways	6.0E-02

(1) M = Medium-Specific, R = Route-Specific
N/A = not applicable.

TABLE 7.8.8.RME
CALCULATION OF NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
Nine Mile - Neighborhood Recreational Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Sediment
Exposure Medium:	Sediment
Exposure Point:	Nine Mile/Canyon Creek
Receptor Population:	Neighborhood residents
Receptor Age:	Child 4-11 years old

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient
Ingestion	Antimony	71.25	mg/kg	71.25	mg/kg	M	4.39E-05	mg/kg-d	4.0E-04	mg/kg-d	N/A	N/A	1.1E-01
	Arsenic	50.62	mg/kg	50.62	mg/kg	M	1.87E-05	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	6.2E-02
	Cadmium	59.2	mg/kg	59.2	mg/kg	M	3.65E-05	mg/kg-d	1.0E-03	mg/kg-d	N/A	N/A	3.6E-02
	Iron	36476	mg/kg	36476	mg/kg	M	2.25E-02	mg/kg-d	3.0E-01	mg/kg-d	N/A	N/A	7.5E-02
	Manganese	2626	mg/kg	2626	mg/kg	M	1.62E-03	mg/kg-d	4.7E-02	mg/kg-d	N/A	N/A	3.4E-02
	Zinc	8883	mg/kg	8883	mg/kg	M	5.48E-03	mg/kg-d	3.0E-01	mg/kg-d	N/A	N/A	1.8E-02
	(Total)												3.4E-01
Dermal	Arsenic	50.62	mg/kg	50.62	mg/kg	M	1.45E-05	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	4.8E-02
	Cadmium	59.2	mg/kg	59.2	mg/kg	M	5.65E-07	mg/kg-d	2.5E-05	mg/kg-d	N/A	N/A	2.3E-02
	(Total)												7.1E-02
												Total Hazard Index Across All Exposure Routes/Pathways	4.1E-01

(1) M = Medium-Specific, R = Route-Specific
N/A = not applicable.

TABLE 7.8.8.CT
CALCULATION OF NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
Nine Mile - Neighborhood Recreational Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Sediment
Exposure Medium:	Sediment
Exposure Point:	Nine Mile/Canyon Creek
Receptor Population:	Neighborhood residents
Receptor Age:	Child 4-11 years old

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient
Ingestion	Antimony	47.54	mg/kg	47.54	mg/kg	M	5.58E-06	mg/kg-d	4.0E-04	mg/kg-d	N/A	N/A	1.4E-02
	Arsenic	23.12	mg/kg	23.12	mg/kg	M	1.63E-06	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	5.4E-03
	Cadmium	58.8	mg/kg	58.8	mg/kg	M	6.90E-06	mg/kg-d	1.0E-03	mg/kg-d	N/A	N/A	6.9E-03
	Iron	26575	mg/kg	26575	mg/kg	M	3.12E-03	mg/kg-d	3.0E-01	mg/kg-d	N/A	N/A	1.0E-02
	Manganese	1856	mg/kg	1856	mg/kg	M	2.18E-04	mg/kg-d	4.7E-02	mg/kg-d	N/A	N/A	4.6E-03
	Zinc	8396	mg/kg	8396	mg/kg	M	9.86E-04	mg/kg-d	3.0E-01	mg/kg-d	N/A	N/A	3.3E-03
	(Total)												4.5E-02
Dermal	Arsenic	23.12	mg/kg	23.12	mg/kg	M	3.31E-06	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	1.1E-02
	Cadmium	58.8	mg/kg	58.8	mg/kg	M	2.81E-07	mg/kg-d	2.5E-05	mg/kg-d	N/A	N/A	1.1E-02
	(Total)												2.2E-02
												Total Hazard Index Across All Exposure Routes/Pathways	6.7E-02

(1) M = Medium-Specific, R = Route-Specific
N/A = not applicable.

TABLE 7.8.9.RME
CALCULATION OF NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
Nine Mile - Neighborhood Recreational Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Surface water
Exposure Medium:	Surface water
Exposure Point:	Nine Mile/Canyon Creek
Receptor Population:	Neighborhood residents
Receptor Age:	Child 4-11 years old

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient
Ingestion	Arsenic	1.1	ug/L	1.1	ug/L	M	3.10E-07	mg/kg-d	4.0E-04	mg/kg-d	N/A	N/A	1.0E-03
	Cadmium	111.02	ug/L	111.02	ug/L	M	3.13E-05	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	6.3E-02
	Manganese	1699	ug/L	1699	ug/L	M	4.79E-04	mg/kg-d	5.0E-04	mg/kg-d	N/A	N/A	1.0E-02
	Mercury	0.31	ug/L	0.31	ug/L	M	8.74E-08	mg/kg-d	3.0E-01	mg/kg-d	N/A	N/A	2.9E-04
												Total Hazard Index Across All Exposure Routes/Pathways	7.4E-02

(1) M = Medium-Specific, R = Route-Specific
N/A = not applicable.

TABLE 7.8.9.CT
CALCULATION OF NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
Nine Mile - Neighborhood Recreational Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Surface water
Exposure Medium:	Surface water
Exposure Point:	Nine Mile/Canyon Creek
Receptor Population:	Neighborhood residents
Receptor Age:	Child 4-11 years old

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient
Ingestion	Arsenic	0.7	ug/L	0.7	ug/L	M	9.86E-08	mg/kg-d	4.0E-04	mg/kg-d	N/A	N/A	3.3E-04
	Cadmium	58.92	ug/L	58.92	ug/L	M	8.30E-06	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	1.7E-02
	Manganese	748.82	ug/L	748.82	ug/L	M	1.06E-04	mg/kg-d	5.0E-04	mg/kg-d	N/A	N/A	2.2E-03
	Mercury	0.27	ug/L	0.27	ug/L	M	3.80E-08	mg/kg-d	3.0E-01	mg/kg-d	N/A	N/A	1.3E-04
												Total Hazard Index Across All Exposure Routes/Pathways	1.9E-02

(1) M = Medium-Specific, R = Route-Specific
N/A = not applicable.

TABLE 7.8.10.RME
CALCULATION OF NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
Nine Mile - Occupational Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Surface/subsurface soil
Exposure Point:	Construction site soil
Receptor Population:	Construction worker
Receptor Age:	Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient
Ingestion	Antimony	10.61	mg/kg	10.61	mg/kg	M	2.43E-05	mg/kg-d	4.0E-04	mg/kg-d	N/A	N/A	6.1E-02
	Arsenic	24.97	mg/kg	24.97	mg/kg	M	3.43E-05	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	1.1E-01
	Cadmium	6.54	mg/kg	6.54	mg/kg	M	1.50E-05	mg/kg-d	1.0E-03	mg/kg-d	N/A	N/A	1.5E-02
	Iron	21976	mg/kg	21976	mg/kg	M	5.03E-02	mg/kg-d	3.0E-01	mg/kg-d	N/A	N/A	1.7E-01
	Manganese	1135	mg/kg	1135	mg/kg	M	2.60E-03	mg/kg-d	1.4E-01	mg/kg-d	N/A	N/A	1.9E-02
	Zinc	1070	mg/kg	1070	mg/kg	M	2.45E-03	mg/kg-d	3.0E-01	mg/kg-d	N/A	N/A	8.2E-03
	(Total)												3.8E-01
Dermal	Arsenic	24.97	mg/kg	24.97	mg/kg	M	1.43E-06	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	4.8E-03
	Cadmium	6.54	mg/kg	6.54	mg/kg	M	1.25E-08	mg/kg-d	2.5E-05	mg/kg-d	N/A	N/A	5.0E-04
	(Total)												5.3E-03
												Total Hazard Index Across All Exposure Routes/Pathways	3.9E-01

(1) M = Medium-Specific, R = Route-Specific
N/A = not applicable.

TABLE 7.8.10.CT
CALCULATION OF NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
Nine Mile - Occupational Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Surface/subsurface soil
Exposure Point:	Construction site soil
Receptor Population:	Construction worker
Receptor Age:	Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient
Ingestion	Antimony	8.94	mg/kg	8.94	mg/kg	M	3.01E-06	mg/kg-d	4.0E-04	mg/kg-d	N/A	N/A	7.5E-03
	Arsenic	21.24	mg/kg	21.24	mg/kg	M	4.29E-06	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	1.4E-02
	Cadmium	6.06	mg/kg	6.06	mg/kg	M	2.04E-06	mg/kg-d	1.0E-03	mg/kg-d	N/A	N/A	2.0E-03
	Iron	21336	mg/kg	21336	mg/kg	M	7.18E-03	mg/kg-d	3.0E-01	mg/kg-d	N/A	N/A	2.4E-02
	Manganese	1092	mg/kg	1092	mg/kg	M	3.68E-04	mg/kg-d	1.4E-01	mg/kg-d	N/A	N/A	2.6E-03
	Zinc	1000	mg/kg	1000	mg/kg	M	3.37E-04	mg/kg-d	3.0E-01	mg/kg-d	N/A	N/A	1.1E-03
	(Total)												5.2E-02
Dermal	Arsenic	21.24	mg/kg	21.24	mg/kg	M	2.68E-07	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	8.9E-04
	Cadmium	6.06	mg/kg	6.06	mg/kg	M	2.55E-09	mg/kg-d	2.5E-05	mg/kg-d	N/A	N/A	1.0E-04
	(Total)												1.0E-03
												Total Hazard Index Across All Exposure Routes/Pathways	5.3E-02

(1) M = Medium-Specific, R = Route-Specific
N/A = not applicable.

TABLE 7.9.1.RME
CALCULATION OF NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
Mullan - Residential Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Surface Soil
Exposure Point:	Yard Soil
Receptor Population:	Residents
Receptor Age:	Child 0-6 years old

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient
Ingestion	Antimony	20.05	mg/kg	20.05	mg/kg	M	2.56E-04	mg/kg-d	4.0E-04	mg/kg-d	N/A	N/A	6.4E-01
	Arsenic	39.04	mg/kg	39.04	mg/kg	M	2.99E-04	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	1.0E-+00
	Cadmium	6.39	mg/kg	6.39	mg/kg	M	8.17E-05	mg/kg-d	1.0E-03	mg/kg-d	N/A	N/A	8.2E-02
	Iron	24742	mg/kg	24742	mg/kg	M	3.16E-01	mg/kg-d	3.0E-01	mg/kg-d	N/A	N/A	1.1E+00
	Manganese	1628	mg/kg	1628	mg/kg	M	2.08E-02	mg/kg-d	4.7E-02	mg/kg-d	N/A	N/A	4.4E-01
	Zinc	1375	mg/kg	1375	mg/kg	M	1.76E-02	mg/kg-d	3.0E-01	mg/kg-d	N/A	N/A	5.9E-02
	(Total)												3.3E+00
Dermal	Arsenic	39.04	mg/kg	39.04	mg/kg	M	3.29E-05	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	1.1E-01
	Cadmium	6.39	mg/kg	6.39	mg/kg	M	1.80E-07	mg/kg-d	2.5E-05	mg/kg-d	N/A	N/A	7.2E-03
	(Total)												1.2E-01
												Total Hazard Index Across All Exposure Routes/Pathways	3.4E+00

(1) M = Medium-Specific, R = Route-Specific
N/A = not applicable.

TABLE 7.9.1.CT
CALCULATION OF NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
Mullan - Residential Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Surface Soil
Exposure Point:	Yard Soil
Receptor Population:	Residents
Receptor Age:	Child 0-6 years old

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient
Ingestion	Antimony	11.04	mg/kg	11.04	mg/kg	M	5.24E-05	mg/kg-d	4.0E-04	mg/kg-d	N/A	N/A	1.3E-01
	Arsenic	27.3	mg/kg	27.3	mg/kg	M	7.78E-05	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	2.6E-01
	Cadmium	5.07	mg/kg	5.07	mg/kg	M	2.41E-05	mg/kg-d	1.0E-03	mg/kg-d	N/A	N/A	2.4E-02
	Iron	22709	mg/kg	22709	mg/kg	M	1.08E-01	mg/kg-d	3.0E-01	mg/kg-d	N/A	N/A	3.6E-01
	Manganese	1412	mg/kg	1412	mg/kg	M	6.71E-03	mg/kg-d	4.7E-02	mg/kg-d	N/A	N/A	1.4E-01
	Zinc	1049	mg/kg	1049	mg/kg	M	4.98E-03	mg/kg-d	3.0E-01	mg/kg-d	N/A	N/A	1.7E-02
	(Total)												9.3E-01
Dermal	Arsenic	27.3	mg/kg	27.3	mg/kg	M	1.71E-05	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	5.7E-02
	Cadmium	5.07	mg/kg	5.07	mg/kg	M	1.06E-07	mg/kg-d	2.5E-05	mg/kg-d	N/A	N/A	4.2E-03
	(Total)												6.1E-02
												Total Hazard Index Across All Exposure Routes/Pathways	9.9E-01

(1) M = Medium-Specific, R = Route-Specific
N/A = not applicable.

TABLE 7.9.2.RME
CALCULATION OF NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
Mullan - Residential Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Surface Soil
Exposure Point:	Yard Soil
Receptor Population:	Residents
Receptor Age:	Child/Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient
Ingestion	Antimony	20.05	mg/kg	20.05	mg/kg	M	7.32E-05	mg/kg-d	4.0E-04	mg/kg-d	N/A	N/A	1.8E-01
	Arsenic	39.04	mg/kg	39.04	mg/kg	M	8.56E-05	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	2.9E-01
	Cadmium	6.39	mg/kg	6.39	mg/kg	M	2.33E-05	mg/kg-d	1.0E-03	mg/kg-d	N/A	N/A	2.3E-02
	Iron	24742	mg/kg	24742	mg/kg	M	9.04E-02	mg/kg-d	3.0E-01	mg/kg-d	N/A	N/A	3.0E-01
	Manganese	1628	mg/kg	1628	mg/kg	M	5.95E-03	mg/kg-d	4.7E-02	mg/kg-d	N/A	N/A	1.3E-01
	Zinc	1375	mg/kg	1375	mg/kg	M	5.02E-03	mg/kg-d	3.0E-01	mg/kg-d	N/A	N/A	1.7E-02
	(Total)												9.4E-01
Dermal	Arsenic	39.04	mg/kg	39.04	mg/kg	M	9.80E-06	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	3.3E-02
	Cadmium	6.39	mg/kg	6.39	mg/kg	M	5.35E-08	mg/kg-d	2.5E-05	mg/kg-d	N/A	N/A	2.1E-03
	(Total)												3.5E-02
												Total Hazard Index Across All Exposure Routes/Pathways	9.7E-01

(1) M = Medium-Specific, R = Route-Specific
N/A = not applicable.

TABLE 7.9.2.CT
CALCULATION OF NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
Mullan - Residential Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Surface Soil
Exposure Point:	Yard Soil
Receptor Population:	Residents
Receptor Age:	Child/Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient
Ingestion	Antimony	11.04	mg/kg	11.04	mg/kg	M	1.60E-05	mg/kg-d	4.0E-04	mg/kg-d	N/A	N/A	4.0E-02
	Arsenic	27.3	mg/kg	27.3	mg/kg	M	2.38E-05	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	7.9E-02
	Cadmium	5.07	mg/kg	5.07	mg/kg	M	7.36E-06	mg/kg-d	1.0E-03	mg/kg-d	N/A	N/A	7.4E-03
	Iron	22709	mg/kg	22709	mg/kg	M	3.30E-02	mg/kg-d	3.0E-01	mg/kg-d	N/A	N/A	1.1E-01
	Manganese	1412	mg/kg	1412	mg/kg	M	2.05E-03	mg/kg-d	4.7E-02	mg/kg-d	N/A	N/A	4.4E-02
	Zinc	1049	mg/kg	1049	mg/kg	M	1.52E-03	mg/kg-d	3.0E-01	mg/kg-d	N/A	N/A	5.1E-03
	(Total)												2.9E-01
Dermal	Arsenic	27.3	mg/kg	27.3	mg/kg	M	5.42E-06	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	1.8E-02
	Cadmium	5.07	mg/kg	5.07	mg/kg	M	3.36E-08	mg/kg-d	2.5E-05	mg/kg-d	N/A	N/A	1.3E-03
	(Total)												1.9E-02
												Total Hazard Index Across All Exposure Routes/Pathways	3.0E-01

(1) M = Medium-Specific, R = Route-Specific
N/A = not applicable.

TABLE 7.9.3.RME
CALCULATION OF NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
Mullan - Residential Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Groundwater
Exposure Medium:	Groundwater
Exposure Point:	Tap water
Receptor Population:	Residents
Receptor Age:	Child 0-6 years old

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient
Ingestion	Arsenic	0.25	ug/L	0.25	ug/L	M	1.60E-05	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	5.3E-02
												Total Hazard Index Across All Exposure Routes/Pathways	5.3E-02

(1) M = Medium-Specific, R = Route-Specific
N/A = not applicable.

TABLE 7.9.3.CT
CALCULATION OF NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
Mullan - Residential Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Groundwater
Exposure Medium:	Groundwater
Exposure Point:	Tap water
Receptor Population:	Residents
Receptor Age:	Child 0-6 years old

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient
Ingestion	Arsenic	0.13	ug/L	0.13	ug/L	M	5.56E-06	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	1.9E-02
												Total Hazard Index Across All Exposure Routes/Pathways	1.9E-02

(1) M = Medium-Specific, R = Route-Specific
N/A = not applicable.

TABLE 7.9.4.RME
CALCULATION OF NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
Mullan - Residential Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Groundwater
Exposure Medium:	Groundwater
Exposure Point:	Tap water
Receptor Population:	Residents
Receptor Age:	Child/Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient
Ingestion	Arsenic	0.25	ug/L	0.25	ug/L	M	8.68E-06	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	2.9E-02
												Total Hazard Index Across All Exposure Routes/Pathways	2.9E-02

(1) M = Medium-Specific, R = Route-Specific
N/A = not applicable.

TABLE 7.9.4.CT
CALCULATION OF NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
Mullan - Residential Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Groundwater
Exposure Medium:	Groundwater
Exposure Point:	Tap water
Receptor Population:	Residents
Receptor Age:	Child/Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient
Ingestion	Arsenic	0.13	ug/L	0.13	ug/L	M	2.53E-06	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	8.4E-03
												Total Hazard Index Across All Exposure Routes/Pathways	8.4E-03

(1) M = Medium-Specific, R = Route-Specific
N/A = not applicable.

TABLE 7.9.5.RME
CALCULATION OF NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
Mullan - Neighborhood Recreational Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Surface soil
Exposure Point:	Waste piles
Receptor Population:	Neighborhood residents
Receptor Age:	Child 4-11 years old

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient
Ingestion	Antimony	20.3	mg/kg	20.3	mg/kg	M	1.01E-05	mg/kg-d	4.0E-04	mg/kg-d	N/A	N/A	2.5E-02
	Arsenic	42.1	mg/kg	42.1	mg/kg	M	1.26E-05	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	4.2E-02
	Cadmium	13.8	mg/kg	13.8	mg/kg	M	6.89E-06	mg/kg-d	1.0E-03	mg/kg-d	N/A	N/A	6.9E-03
	Iron	33200	mg/kg	33200	mg/kg	M	1.66E-02	mg/kg-d	3.0E-01	mg/kg-d	N/A	N/A	5.5E-02
	Manganese	2750	mg/kg	2750	mg/kg	M	1.37E-03	mg/kg-d	4.7E-02	mg/kg-d	N/A	N/A	2.9E-02
	Zinc	2880	mg/kg	2880	mg/kg	M	1.44E-03	mg/kg-d	3.0E-01	mg/kg-d	N/A	N/A	4.8E-03
	(Total)												1.6E-01
Dermal	Arsenic	42.1	mg/kg	42.1	mg/kg	M	4.27E-06	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	1.4E-02
	Cadmium	13.8	mg/kg	13.8	mg/kg	M	4.66E-08	mg/kg-d	2.5E-05	mg/kg-d	N/A	N/A	1.9E-03
	(Total)												1.6E-02
												Total Hazard Index Across All Exposure Routes/Pathways	1.8E-01

(1) M = Medium-Specific, R = Route-Specific
N/A = not applicable.

TABLE 7.9.5.CT
CALCULATION OF NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
Mullan - Neighborhood Recreational Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Surface soil
Exposure Point:	Waste piles
Receptor Population:	Neighborhood residents
Receptor Age:	Child 4-11 years old

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient
Ingestion	Antimony	11.84	mg/kg	11.84	mg/kg	M	1.18E-06	mg/kg-d	4.0E-04	mg/kg-d	N/A	N/A	3.0E-03
	Arsenic	23.6	mg/kg	23.6	mg/kg	M	1.41E-06	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	4.7E-03
	Cadmium	5.57	mg/kg	5.57	mg/kg	M	5.56E-07	mg/kg-d	1.0E-03	mg/kg-d	N/A	N/A	5.6E-04
	Iron	22180	mg/kg	22180	mg/kg	M	2.21E-03	mg/kg-d	3.0E-01	mg/kg-d	N/A	N/A	7.4E-03
	Manganese	2103	mg/kg	2103	mg/kg	M	2.10E-04	mg/kg-d	4.7E-02	mg/kg-d	N/A	N/A	4.5E-03
	Zinc	1042	mg/kg	1042	mg/kg	M	1.04E-04	mg/kg-d	3.0E-01	mg/kg-d	N/A	N/A	3.5E-04
	(Total)												2.0E-02
Dermal	Arsenic	23.6	mg/kg	23.6	mg/kg	M	1.20E-06	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	4.0E-03
	Cadmium	5.57	mg/kg	5.57	mg/kg	M	9.41E-09	mg/kg-d	2.5E-05	mg/kg-d	N/A	N/A	3.8E-04
	(Total)												4.4E-03
												Total Hazard Index Across All Exposure Routes/Pathways	2.5E-02

(1) M = Medium-Specific, R = Route-Specific
N/A = not applicable.

TABLE 7.9.6.RME
CALCULATION OF NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
Mullan - Neighborhood Recreational Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Sediment
Exposure Medium:	Sediment
Exposure Point:	SFCDAR
Receptor Population:	Neighborhood residents
Receptor Age:	Child 4-11 years old

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient
Ingestion	Antimony	4.46	mg/kg	4.46	mg/kg	M	2.75E-06	mg/kg-d	4.0E-04	mg/kg-d	N/A	N/A	6.9E-03
	Arsenic	15.89	mg/kg	15.89	mg/kg	M	5.88E-06	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	2.0E-02
	Cadmium	19.83	mg/kg	19.83	mg/kg	M	1.22E-05	mg/kg-d	1.0E-03	mg/kg-d	N/A	N/A	1.2E-02
	Iron	47300	mg/kg	47300	mg/kg	M	2.92E-02	mg/kg-d	3.0E-01	mg/kg-d	N/A	N/A	9.7E-02
	Manganese	5233	mg/kg	5233	mg/kg	M	3.23E-03	mg/kg-d	4.7E-02	mg/kg-d	N/A	N/A	6.9E-02
	Zinc	4017	mg/kg	4017	mg/kg	M	2.48E-03	mg/kg-d	3.0E-01	mg/kg-d	N/A	N/A	8.3E-03
	(Total)												2.1E-01
Dermal	Arsenic	15.89	mg/kg	15.89	mg/kg	M	4.55E-06	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	1.5E-02
	Cadmium	19.83	mg/kg	19.83	mg/kg	M	1.89E-07	mg/kg-d	2.5E-05	mg/kg-d	N/A	N/A	7.6E-03
	(Total)												2.3E-02
												Total Hazard Index Across All Exposure Routes/Pathways	2.4E-01

(1) M = Medium-Specific, R = Route-Specific
N/A = not applicable.

TABLE 7.9.6.CT
CALCULATION OF NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
Mullan - Neighborhood Recreational Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Sediment
Exposure Medium:	Sediment
Exposure Point:	SFCDAR
Receptor Population:	Neighborhood residents
Receptor Age:	Child 4-11 years old

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient
Ingestion	Antimony	2.61	mg/kg	2.61	mg/kg	M	3.06E-07	mg/kg-d	4.0E-04	mg/kg-d	N/A	N/A	7.7E-04
	Arsenic	13.21	mg/kg	13.21	mg/kg	M	9.31E-07	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	3.1E-03
	Cadmium	9.66	mg/kg	9.66	mg/kg	M	1.13E-06	mg/kg-d	1.0E-03	mg/kg-d	N/A	N/A	1.1E-03
	Iron	34079	mg/kg	34079	mg/kg	M	4.00E-03	mg/kg-d	3.0E-01	mg/kg-d	N/A	N/A	1.3E-02
	Manganese	3513	mg/kg	3513	mg/kg	M	4.12E-04	mg/kg-d	4.7E-02	mg/kg-d	N/A	N/A	8.8E-03
	Zinc	2208	mg/kg	2208	mg/kg	M	2.59E-04	mg/kg-d	3.0E-01	mg/kg-d	N/A	N/A	8.6E-04
	(Total)												2.8E-02
Dermal	Arsenic	13.21	mg/kg	13.21	mg/kg	M	1.89E-06	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	6.3E-03
	Cadmium	9.66	mg/kg	9.66	mg/kg	M	4.61E-08	mg/kg-d	2.5E-05	mg/kg-d	N/A	N/A	1.8E-03
	(Total)												8.1E-03
												Total Hazard Index Across All Exposure Routes/Pathways	3.6E-02

(1) M = Medium-Specific, R = Route-Specific
N/A = not applicable.

TABLE 7.9.7.RME
CALCULATION OF NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
Mullan - Neighborhood Recreational Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Surface water
Exposure Medium:	Surface water
Exposure Point:	SFCDAR
Receptor Population:	Neighborhood residents
Receptor Age:	Child 4-11 years old

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient
Ingestion	Arsenic	0.6	ug/L	0.6	ug/L	M	1.69E-07	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	5.6E-04
	Cadmium	1.24	ug/L	1.24	ug/L	M	3.49E-07	mg/kg-d	5.0E-04	mg/kg-d	N/A	N/A	7.0E-04
	Manganese	18.96	ug/L	18.96	ug/L	M	5.34E-06	mg/kg-d	4.7E-02	mg/kg-d	N/A	N/A	1.1E-04
	Mercury	0.086	ug/L	0.086	ug/L	M	2.42E-08	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	8.1E-05
												Total Hazard Index Across All Exposure Routes/Pathways	1.5E-03

(1) M = Medium-Specific, R = Route-Specific
N/A = not applicable.

TABLE 7.9.7.CT
CALCULATION OF NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
Mullan - Neighborhood Recreational Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Surface water
Exposure Medium:	Surface water
Exposure Point:	SFCDAR
Receptor Population:	Neighborhood residents
Receptor Age:	Child 4-11 years old

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient
Ingestion	Arsenic	0.54	ug/L	0.54	ug/L	M	7.61E-08	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	2.5E-04
	Cadmium	0.81	ug/L	0.81	ug/L	M	1.14E-07	mg/kg-d	5.0E-04	mg/kg-d	N/A	N/A	2.3E-04
	Manganese	13.66	ug/L	13.66	ug/L	M	1.92E-06	mg/kg-d	4.7E-02	mg/kg-d	N/A	N/A	4.1E-05
	Mercury	0.08	ug/L	0.08	ug/L	M	1.13E-08	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	3.8E-05
												Total Hazard Index Across All Exposure Routes/Pathways	5.6E-04

(1) M = Medium-Specific, R = Route-Specific
N/A = not applicable.

TABLE 7.9.8.RME
CALCULATION OF NON-CANCER HAZARDS
REASONABLE MAXIMUM EXPOSURE
Mullan - Occupational Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Surface/subsurface soil
Exposure Point:	Construction site soil
Receptor Population:	Construction worker
Receptor Age:	Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient
Ingestion	Antimony	18.68	mg/kg	18.68	mg/kg	M	4.28E-05	mg/kg-d	4.0E-04	mg/kg-d	N/A	N/A	1.1E-01
	Arsenic	31.66	mg/kg	31.66	mg/kg	M	4.35E-05	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	1.4E-01
	Cadmium	5.04	mg/kg	5.04	mg/kg	M	1.15E-05	mg/kg-d	1.0E-03	mg/kg-d	N/A	N/A	1.2E-02
	Iron	26912	mg/kg	26912	mg/kg	M	6.16E-02	mg/kg-d	3.0E-01	mg/kg-d	N/A	N/A	2.1E-01
	Manganese	1941	mg/kg	1941	mg/kg	M	4.44E-03	mg/kg-d	1.4E-01	mg/kg-d	N/A	N/A	3.2E-02
	Zinc	953	mg/kg	953	mg/kg	M	2.18E-03	mg/kg-d	3.0E-01	mg/kg-d	N/A	N/A	7.3E-03
	(Total)												5.1E-01
Dermal	Arsenic	31.66	mg/kg	31.66	mg/kg	M	1.81E-06	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	6.0E-03
	Cadmium	5.04	mg/kg	5.04	mg/kg	M	9.62E-09	mg/kg-d	2.5E-05	mg/kg-d	N/A	N/A	3.8E-04
	(Total)												6.4E-03
												Total Hazard Index Across All Exposure Routes/Pathways	5.1E-01

(1) M = Medium-Specific, R = Route-Specific
N/A = not applicable.

TABLE 7.9.8.CT
CALCULATION OF NON-CANCER HAZARDS
CENTRAL TENDENCY EXPOSURE
Mullan - Occupational Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Surface/subsurface soil
Exposure Point:	Construction site soil
Receptor Population:	Construction worker
Receptor Age:	Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Hazard Calculation (1)	Intake (Non-Cancer)	Intake (Non-Cancer) Units	Reference Dose	Reference Dose Units	Reference Concentration	Reference Concentration Units	Hazard Quotient
Ingestion	Antimony	14.09	mg/kg	14.09	mg/kg	M	4.74E-06	mg/kg-d	4.0E-04	mg/kg-d	N/A	N/A	1.2E-02
	Arsenic	26.48	mg/kg	26.48	mg/kg	M	5.35E-06	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	1.8E-02
	Cadmium	4.22	mg/kg	4.22	mg/kg	M	1.42E-06	mg/kg-d	1.0E-03	mg/kg-d	N/A	N/A	1.4E-03
	Iron	24863	mg/kg	24863	mg/kg	M	8.37E-03	mg/kg-d	3.0E-01	mg/kg-d	N/A	N/A	2.8E-02
	Manganese	1688	mg/kg	1688	mg/kg	M	5.68E-04	mg/kg-d	1.4E-01	mg/kg-d	N/A	N/A	4.1E-03
	Zinc	823	mg/kg	823	mg/kg	M	2.77E-04	mg/kg-d	3.0E-01	mg/kg-d	N/A	N/A	9.2E-04
	(Total)												6.4E-02
Dermal	Arsenic	26.48	mg/kg	26.48	mg/kg	M	3.34E-07	mg/kg-d	3.0E-04	mg/kg-d	N/A	N/A	1.1E-03
	Cadmium	4.22	mg/kg	4.22	mg/kg	M	1.78E-09	mg/kg-d	2.5E-05	mg/kg-d	N/A	N/A	7.1E-05
	(Total)												1.2E-03
												Total Hazard Index Across All Exposure Routes/Pathways	6.5E-02

(1) M = Medium-Specific, R = Route-Specific
N/A = not applicable.

TABLE 8.1.1.RME
CALCULATION OF CANCER RISKS
REASONABLE MAXIMUM EXPOSURE
Lower Basin - Residential Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Surface soil
Exposure Point:	Yard soil
Receptor Population:	Residents
Receptor Age:	Child/Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Risk Calculation (1)	Intake (Cancer)	Intake (Cancer) Units	Cancer Slope Factor	Cancer Slope Factor Units	Cancer Risk
Ingestion	Arsenic	48.53	mg/kg	48.53	mg/kg	M	4.56E-05	mg/kg-d	1.5	$(mg/kg\text{-}d)^{-1}$	6.8E-05
Dermal	Arsenic	48.53	mg/kg	48.53	mg/kg	M	5.22E-06	mg/kg-d	1.5	$(mg/kg\text{-}d)^{-1}$	7.8E-06
										Total Risk Across All Exposure Routes/Pathways	7.6E-05

(1) M = Medium-Specific, R = Route-Specific

TABLE 8.1.1.CT
CALCULATION OF CANCER RISKS
CENTRAL TENDENCY EXPOSURE
Lower Basin - Residential Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Surface soil
Exposure Point:	Yard soil
Receptor Population:	Residents
Receptor Age:	Child/Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Risk Calculation (1)	Intake (Cancer)	Intake (Cancer) Units	Cancer Slope Factor	Cancer Slope Factor Units	Cancer Risk
Ingestion	Arsenic	35.47	mg/kg	35.47	mg/kg	M	3.97E-06	mg/kg-d	1.5	$(mg/kg\text{-}d)^{-1}$	6.0E-06
Dermal	Arsenic	35.47	mg/kg	35.47	mg/kg	M	9.06E-07	mg/kg-d	1.5	$(mg/kg\text{-}d)^{-1}$	1.4E-06
										Total Risk Across All Exposure Routes/Pathways	7.3E-06

(1) M = Medium-Specific, R = Route-Specific

TABLE 8.1.2.RME
CALCULATION OF CANCER RISKS
REASONABLE MAXIMUM EXPOSURE
Lower Basin - Residential Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Groundwater
Exposure Medium:	Groundwater
Exposure Point:	Tap water
Receptor Population:	Residents
Receptor Age:	Child/Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Risk Calculation (1)	Intake (Cancer)	Intake (Cancer) Units	Cancer Slope Factor	Cancer Slope Factor Units	Cancer Risk
Ingestion	Arsenic	0.97	ug/L	0.97	ug/L	M	1.44E-05	mg/kg-d	1.5	$(mg/kg\text{-}d)^{-1}$	2.2E-05
										Total Risk Across All Exposure Routes/Pathways	2.2E-05

(1) M = Medium-Specific, R = Route-Specific

TABLE 8.1.2.CT
CALCULATION OF CANCER RISKS
CENTRAL TENDENCY EXPOSURE
Lower Basin - Residential Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Groundwater
Exposure Medium:	Groundwater
Exposure Point:	Tap water
Receptor Population:	Residents
Receptor Age:	Child/Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Risk Calculation (1)	Intake (Cancer)	Intake (Cancer) Units	Cancer Slope Factor	Cancer Slope Factor Units	Cancer Risk
Ingestion	Arsenic	0.38	ug/L	0.38	ug/L	M	9.51E-07	mg/kg-d	1.5	$(mg/kg\text{-}d)^{-1}$	1.4E-06
										Total Risk Across All Exposure Routes/Pathways	1.4E-06

(1) M = Medium-Specific, R = Route-Specific

TABLE 8.1.3.RME
CALCULATION OF CANCER RISKS
REASONABLE MAXIMUM EXPOSURE
Lower Basin - Neighborhood Recreational Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Soil/sediment
Exposure Medium:	Soil/sediment
Exposure Point:	Lower CDAR
Receptor Population:	Neighborhood residents
Receptor Age:	Child 4-11 years old

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Risk Calculation (1)	Intake (Cancer)	Intake (Cancer) Units	Cancer Slope Factor	Cancer Slope Factor Units	Cancer Risk
Ingestion	Arsenic	119.45	mg/kg	119.45	mg/kg	M	4.42E-06	mg/kg-d	1.5	$(mg/kg\text{-}d)^{-1}$	6.6E-06
Dermal	Arsenic	119.45	mg/kg	119.45	mg/kg	M	5.36E-06	mg/kg-d	1.5	$(mg/kg\text{-}d)^{-1}$	8.0E-06
										Total Risk Across All Exposure Routes/Pathways	1.5E-05

(1) M = Medium-Specific, R = Route-Specific

TABLE 8.1.3.CT
CALCULATION OF CANCER RISKS
CENTRAL TENDENCY EXPOSURE
Lower Basin - Neighborhood Recreational Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Soil/sediment
Exposure Medium:	Soil/sediment
Exposure Point:	Lower CDAR
Receptor Population:	Neighborhood residents
Receptor Age:	Child 4-11 years old

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Risk Calculation (1)	Intake (Cancer)	Intake (Cancer) Units	Cancer Slope Factor	Cancer Slope Factor Units	Cancer Risk
Ingestion	Arsenic	114.51	mg/kg	114.51	mg/kg	M	2.30E-07	mg/kg-d	1.5	$(mg/kg\text{-}d)^{-1}$	3.5E-07
Dermal	Arsenic	114.51	mg/kg	114.51	mg/kg	M	7.34E-07	mg/kg-d	1.5	$(mg/kg\text{-}d)^{-1}$	1.1E-06
										Total Risk Across All Exposure Routes/Pathways	1.4E-06

(1) M = Medium-Specific, R = Route-Specific

TABLE 8.1.4.RME
CALCULATION OF CANCER RISKS
REASONABLE MAXIMUM EXPOSURE
Lower Basin - Neighborhood Recreational Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Surface water
Exposure Medium:	Disturbed surface water
Exposure Point:	Lower CDAR
Receptor Population:	Neighborhood residents
Receptor Age:	Child 4-11 years old

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Risk Calculation (1)	Intake (Cancer)	Intake (Cancer) Units	Cancer Slope Factor	Cancer Slope Factor Units	Cancer Risk
Ingestion	Arsenic	79.61	ug/L	79.61	ug/L	M	2.24E-06	mg/kg-d	1.5	$(mg/kg\text{-}d)^{-1}$	3.4E-06
										Total Risk Across All Exposure Routes/Pathways	3.4E-06

(1) M = Medium-Specific, R = Route-Specific

TABLE 8.1.4.CT
CALCULATION OF CANCER RISKS
CENTRAL TENDENCY EXPOSURE
Lower Basin - Neighborhood Recreational Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Surface water
Exposure Medium:	Disturbed surface water
Exposure Point:	Lower CDAR
Receptor Population:	Neighborhood residents
Receptor Age:	Child 4-11 years old

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Risk Calculation (1)	Intake (Cancer)	Intake (Cancer) Units	Cancer Slope Factor	Cancer Slope Factor Units	Cancer Risk
Ingestion	Arsenic	75.64	ug/L	75.64	ug/L	M	3.05E-07	mg/kg-d	1.5	$(mg/kg\text{-}d)^{-1}$	4.6E-07
										Total Risk Across All Exposure Routes/Pathways	4.6E-07

(1) M = Medium-Specific, R = Route-Specific

TABLE 8.1.5.RME
CALCULATION OF CANCER RISKS
REASONABLE MAXIMUM EXPOSURE
Lower Basin - Public Recreational Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Soil/sediment
Exposure Medium:	Soil/sediment
Exposure Point:	Lower CDAR
Receptor Population:	Visitors
Receptor Age:	Child/Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Risk Calculation (1)	Intake (Cancer)	Intake (Cancer) Units	Cancer Slope Factor	Cancer Slope Factor Units	Cancer Risk
Ingestion	Arsenic	119.45	mg/kg	119.45	mg/kg	M	1.38E-05	mg/kg-d	1.5	$(mg/kg\text{-}d)^{-1}$	2.1E-05
Dermal	Arsenic	119.45	mg/kg	119.45	mg/kg	M	5.10E-06	mg/kg-d	1.5	$(mg/kg\text{-}d)^{-1}$	7.7E-06
										Total Risk Across All Exposure Routes/Pathways	2.8E-05

(1) M = Medium-Specific, R = Route-Specific

TABLE 8.1.5.CT
CALCULATION OF CANCER RISKS
CENTRAL TENDENCY EXPOSURE
Lower Basin - Public Recreational Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Soil/sediment
Exposure Medium:	Soil/sediment
Exposure Point:	Lower CDAR
Receptor Population:	Visitors
Receptor Age:	Child/Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Risk Calculation (1)	Intake (Cancer)	Intake (Cancer) Units	Cancer Slope Factor	Cancer Slope Factor Units	Cancer Risk
Ingestion	Arsenic	114.51	mg/kg	114.51	mg/kg	M	9.04E-07	mg/kg-d	1.5	$(mg/kg\text{-}d)^{-1}$	1.4E-06
Dermal	Arsenic	114.51	mg/kg	114.51	mg/kg	M	7.60E-07	mg/kg-d	1.5	$(mg/kg\text{-}d)^{-1}$	1.1E-06
										Total Risk Across All Exposure Routes/Pathways	2.5E-06

(1) M = Medium-Specific, R = Route-Specific

TABLE 8.1.6.RME
CALCULATION OF CANCER RISKS
REASONABLE MAXIMUM EXPOSURE
Lower Basin - Public Recreational Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Surface water
Exposure Medium:	Disturbed surface water
Exposure Point:	Lower CDAR
Receptor Population:	Visitors
Receptor Age:	Child/Adult years old

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Risk Calculation (1)	Intake (Cancer)	Intake (Cancer) Units	Cancer Slope Factor	Cancer Slope Factor Units	Cancer Risk
Ingestion	Arsenic	79.61	ug/L	79.61	ug/L	M	2.22E-06	mg/kg-d	1.5	$(mg/kg\text{-}d)^{-1}$	3.3E-06
										Total Risk Across All Exposure Routes/Pathways	3.3E-06

(1) M = Medium-Specific, R = Route-Specific

TABLE 8.1.6.CT
CALCULATION OF CANCER RISKS
CENTRAL TENDENCY EXPOSURE
Lower Basin - Public Recreational Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Surface water
Exposure Medium:	Disturbed surface water
Exposure Point:	Lower CDAR
Receptor Population:	Visitors
Receptor Age:	Child/Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Risk Calculation (1)	Intake (Cancer)	Intake (Cancer) Units	Cancer Slope Factor	Cancer Slope Factor Units	Cancer Risk
Ingestion	Arsenic	75.64	ug/L	75.64	ug/L	M	3.32E-07	mg/kg-d	1.5	$(mg/kg\text{-}d)^{-1}$	5.0E-07
										Total Risk Across All Exposure Routes/Pathways	5.0E-07

(1) M = Medium-Specific, R = Route-Specific

TABLE 8.1.7.RME
CALCULATION OF CANCER RISKS
REASONABLE MAXIMUM EXPOSURE
Lower Basin - Occupational Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Surface/subsurface soil
Exposure Point:	Construction site soil
Receptor Population:	Construction worker
Receptor Age:	Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Risk Calculation (1)	Intake (Cancer)	Intake (Cancer) Units	Cancer Slope Factor	Cancer Slope Factor Units	Cancer Risk
Ingestion	Arsenic	108.91	mg/kg	108.91	mg/kg	M	5.34E-05	mg/kg-d	1.5	$(mg/kg\text{-}d)^{-1}$	8.0E-05
Dermal	Arsenic	108.91	mg/kg	108.91	mg/kg	M	2.23E-06	mg/kg-d	1.5	$(mg/kg\text{-}d)^{-1}$	3.3E-06
										Total Risk Across All Exposure Routes/Pathways	8.3E-05

(1) M = Medium-Specific, R = Route-Specific

TABLE 8.1.7.CT
CALCULATION OF CANCER RISKS
CENTRAL TENDENCY EXPOSURE
Lower Basin - Occupational Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Surface/subsurface soil
Exposure Point:	Construction site soil
Receptor Population:	Construction worker
Receptor Age:	Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Risk Calculation (1)	Intake (Cancer)	Intake (Cancer) Units	Cancer Slope Factor	Cancer Slope Factor Units	Cancer Risk
Ingestion	Arsenic	104.41	mg/kg	104.41	mg/kg	M	1.99E-06	mg/kg-d	1.5	$(mg/kg\text{-}d)^{-1}$	3.0E-06
Dermal	Arsenic	104.41	mg/kg	104.41	mg/kg	M	1.24E-07	mg/kg-d	1.5	$(mg/kg\text{-}d)^{-1}$	1.9E-07
										Total Risk Across All Exposure Routes/Pathways	3.2E-06

(1) M = Medium-Specific, R = Route-Specific

TABLE 8.1.8.RME
CALCULATION OF CANCER RISKS
REASONABLE MAXIMUM EXPOSURE
Lower Basin - Modern Subsistence Exposure Scenario

Scenario Timeframe:	Future
Medium:	Soil
Exposure Medium:	Surface Soil
Exposure Point:	Lower CDAR
Receptor Population:	Tribal Member
Receptor Age:	Child/Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Risk Calculation (1)	Intake (Cancer)	Intake (Cancer) Units	Cancer Slope Factor	Cancer Slope Factor Units	Cancer Risk
Ingestion	Arsenic	124.44	mg/kg	124.44	mg/kg	M	6.91E-05	mg/kg-d	1.5	$(mg/kg\text{-}d)^{-1}$	1.0E-04
Dermal	Arsenic	124.44	mg/kg	124.44	mg/kg	M	4.44E-05	mg/kg-d	1.5	$(mg/kg\text{-}d)^{-1}$	6.7E-05
										Total Risk Across All Exposure Routes/Pathways	1.7E-04

(1) M = Medium-Specific, R = Route-Specific

TABLE 8.1.9.RME
CALCULATION OF CANCER RISKS
REASONABLE MAXIMUM EXPOSURE
Lower Basin - Modern Subsistence Exposure Scenario

Scenario Timeframe:	Future
Medium:	Sediment
Exposure Medium:	Sediment
Exposure Point:	Lower CDAR
Receptor Population:	Tribal Member
Receptor Age:	Child/Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Risk Calculation (1)	Intake (Cancer)	Intake (Cancer) Units	Cancer Slope Factor	Cancer Slope Factor Units	Cancer Risk
Ingestion	Arsenic	120.96	mg/kg	120.96	mg/kg	M	6.72E-05	mg/kg-d	1.5	$(mg/kg\text{-}d)^{-1}$	1.0E-04
Dermal	Arsenic	120.96	mg/kg	120.96	mg/kg	M	1.30E-04	mg/kg-d	1.5	$(mg/kg\text{-}d)^{-1}$	1.9E-04
										Total Risk Across All Exposure Routes/Pathways	3.0E-04

(1) M = Medium-Specific, R = Route-Specific

TABLE 8.1.10.RME
CALCULATION OF CANCER RISKS
REASONABLE MAXIMUM EXPOSURE
Lower Basin - Modern Subsistence Exposure Scenario

Scenario Timeframe:	Future
Medium:	Surface water
Exposure Medium:	Undisturbed surface water
Exposure Point:	Lower CDAR
Receptor Population:	Tribal Member
Receptor Age:	Child/Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Risk Calculation (1)	Intake (Cancer)	Intake (Cancer) Units	Cancer Slope Factor	Cancer Slope Factor Units	Cancer Risk
Ingestion	Arsenic	20	ug/L	20	ug/L	M	1.57E-04	mg/kg-d	1.5	$(mg/kg\text{-}d)^{-1}$	2.4E-04
										Total Risk Across All Exposure Routes/Pathways	2.4E-04

(1) M = Medium-Specific, R = Route-Specific

TABLE 8.1.11.RME
CALCULATION OF CANCER RISKS
REASONABLE MAXIMUM EXPOSURE
Lower Basin - Modern Subsistence Exposure Scenario

Scenario Timeframe:	Future
Medium:	Surface water
Exposure Medium:	Disturbed surface water
Exposure Point:	Lower CDAR
Receptor Population:	Tribal Member
Receptor Age:	Child/Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Risk Calculation (1)	Intake (Cancer)	Intake (Cancer) Units	Cancer Slope Factor	Cancer Slope Factor Units	Cancer Risk
Ingestion	Arsenic	79.61	ug/L	79.61	ug/L	M	7.37E-06	mg/kg-d	1.5	$(mg/kg\text{-}d)^{-1}$	1.1E-05
										Total Risk Across All Exposure Routes/Pathways	1.1E-05

(1) M = Medium-Specific, R = Route-Specific

TABLE 8.1.12.RME
CALCULATION OF CANCER RISKS
REASONABLE MAXIMUM EXPOSURE
Lower Basin - Traditional Subsistence Exposure Scenario

Scenario Timeframe:	Future
Medium:	Soil
Exposure Medium:	Surface Soil
Exposure Point:	Lower CDAR
Receptor Population:	Tribal Member
Receptor Age:	Child/Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Risk Calculation (1)	Intake (Cancer)	Intake (Cancer) Units	Cancer Slope Factor	Cancer Slope Factor Units	Cancer Risk
Ingestion	Arsenic	124.44	mg/kg	124.44	mg/kg	M	4.21E-04	mg/kg-d	1.5	$(mg/kg\text{-}d)^{-1}$	6.3E-04
Dermal	Arsenic	124.44	mg/kg	124.44	mg/kg	M	1.35E-04	mg/kg-d	1.5	$(mg/kg\text{-}d)^{-1}$	2.0E-04
										Total Risk Across All Exposure Routes/Pathways	8.3E-04

(1) M = Medium-Specific, R = Route-Specific

TABLE 8.1.13.RME
CALCULATION OF CANCER RISKS
REASONABLE MAXIMUM EXPOSURE
Lower Basin - Traditional Subsistence Exposure Scenario

Scenario Timeframe:	Future
Medium:	Sediment
Exposure Medium:	Sediment
Exposure Point:	Lower CDAR
Receptor Population:	Tribal Member
Receptor Age:	Child/Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Risk Calculation (1)	Intake (Cancer)	Intake (Cancer) Units	Cancer Slope Factor	Cancer Slope Factor Units	Cancer Risk
Ingestion	Arsenic	120.96	mg/kg	120.96	mg/kg	M	2.35E-04	mg/kg-d	1.5	$(mg/kg\text{-}d)^{-1}$	3.5E-04
Dermal	Arsenic	120.96	mg/kg	120.96	mg/kg	M	4.55E-04	mg/kg-d	1.5	$(mg/kg\text{-}d)^{-1}$	6.8E-04
										Total Risk Across All Exposure Routes/Pathways	1.0E-03

(1) M = Medium-Specific, R = Route-Specific

TABLE 8.1.14.RME
CALCULATION OF CANCER RISKS
REASONABLE MAXIMUM EXPOSURE
Lower Basin - Traditional Subsistence Exposure Scenario

Scenario Timeframe:	Future
Medium:	Surface water
Exposure Medium:	Undisturbed surface water
Exposure Point:	Lower CDAR
Receptor Population:	Tribal Member
Receptor Age:	Child/Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Risk Calculation (1)	Intake (Cancer)	Intake (Cancer) Units	Cancer Slope Factor	Cancer Slope Factor Units	Cancer Risk
Ingestion	Arsenic	20	ug/L	20	ug/L	M	9.55E-04	mg/kg-d	1.5	$(mg/kg\text{-}d)^{-1}$	1.4E-03
										Total Risk Across All Exposure Routes/Pathways	1.4E-03

(1) M = Medium-Specific, R = Route-Specific

TABLE 8.1.15.RME
CALCULATION OF CANCER RISKS
REASONABLE MAXIMUM EXPOSURE
Lower Basin - Traditional Subsistence Exposure Scenario

Scenario Timeframe:	Future
Medium:	Surface water
Exposure Medium:	Disturbed surface water
Exposure Point:	Lower CDAR
Receptor Population:	Tribal Member
Receptor Age:	Child/Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Risk Calculation (1)	Intake (Cancer)	Intake (Cancer) Units	Cancer Slope Factor	Cancer Slope Factor Units	Cancer Risk
Ingestion	Arsenic	79.61	ug/L	79.61	ug/L	M	2.58E-04	mg/kg-d	1.5	$(mg/kg\text{-}d)^{-1}$	3.9E-05
										Total Risk Across All Exposure Routes/Pathways	3.9E-05

(1) M = Medium-Specific, R = Route-Specific

TABLE 8.2.1.RME
CALCULATION OF CANCER RISKS
REASONABLE MAXIMUM EXPOSURE
Kingston - Residential Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Surface soil
Exposure Point:	Yard soil
Receptor Population:	Residents
Receptor Age:	Child/Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Risk Calculation (1)	Intake (Cancer)	Intake (Cancer) Units	Cancer Slope Factor	Cancer Slope Factor Units	Cancer Risk
Ingestion	Arsenic	25.04	mg/kg	25.04	mg/kg	M	2.35E-05	mg/kg-d	1.5	$(mg/kg\text{-}d)^{-1}$	3.5E-05
Dermal	Arsenic	25.04	mg/kg	25.04	mg/kg	M	2.69E-06	mg/kg-d	1.5	$(mg/kg\text{-}d)^{-1}$	4.0E-06
										Total Risk Across All Exposure Routes/Pathways	3.9E-05

(1) M = Medium-Specific, R = Route-Specific

TABLE 8.2.1.CT
CALCULATION OF CANCER RISKS
CENTRAL TENDENCY EXPOSURE
Kingston - Residential Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Surface soil
Exposure Point:	Yard soil
Receptor Population:	Residents
Receptor Age:	Child/Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Risk Calculation (1)	Intake (Cancer)	Intake (Cancer) Units	Cancer Slope Factor	Cancer Slope Factor Units	Cancer Risk
Ingestion	Arsenic	20.35	mg/kg	20.35	mg/kg	M	2.28E-06	mg/kg-d	1.5	$(mg/kg\text{-}d)^{-1}$	3.4E-06
Dermal	Arsenic	20.35	mg/kg	20.35	mg/kg	M	5.20E-07	mg/kg-d	1.5	$(mg/kg\text{-}d)^{-1}$	7.8E-07
										Total Risk Across All Exposure Routes/Pathways	4.2E-06

(1) M = Medium-Specific, R = Route-Specific

TABLE 8.2.2.RME
CALCULATION OF CANCER RISKS
REASONABLE MAXIMUM EXPOSURE
Kingston - Residential Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Groundwater
Exposure Medium:	Groundwater
Exposure Point:	Tap water
Receptor Population:	Residents
Receptor Age:	Child/Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Risk Calculation (1)	Intake (Cancer)	Intake (Cancer) Units	Cancer Slope Factor	Cancer Slope Factor Units	Cancer Risk
Ingestion	Arsenic	0.405	ug/L	0.405	ug/L	M	6.02E-06	mg/kg-d	1.5	$(mg/kg\text{-}d)^{-1}$	9.0E-06
										Total Risk Across All Exposure Routes/Pathways	9.0E-06

(1) M = Medium-Specific, R = Route-Specific

TABLE 8.2.2.CT
CALCULATION OF CANCER RISKS
CENTRAL TENDENCY EXPOSURE
Kingston - Residential Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Groundwater
Exposure Medium:	Groundwater
Exposure Point:	Tap water
Receptor Population:	Residents
Receptor Age:	Child/Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Risk Calculation (1)	Intake (Cancer)	Intake (Cancer) Units	Cancer Slope Factor	Cancer Slope Factor Units	Cancer Risk
Ingestion	Arsenic	0.21	ug/L	0.21	ug/L	M	5.26E-07	mg/kg-d	1.5	$(mg/kg\text{-}d)^{-1}$	7.9E-07
										Total Risk Across All Exposure Routes/Pathways	7.9E-07

(1) M = Medium-Specific, R = Route-Specific

TABLE 8.2.3.RME
CALCULATION OF CANCER RISKS
REASONABLE MAXIMUM EXPOSURE
Kingston - Neighborhood Recreational Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Sediment
Exposure Medium:	Sediment
Exposure Point:	Pine Creek
Receptor Population:	Neighborhood residents
Receptor Age:	Child 4-11 years old

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Risk Calculation (1)	Intake (Cancer)	Intake (Cancer) Units	Cancer Slope Factor	Cancer Slope Factor Units	Cancer Risk
Ingestion	Arsenic	22.35	mg/kg	22.35	mg/kg	M	8.27E-07	mg/kg-d	1.5	$(mg/kg\text{-}d)^{-1}$	1.2E-06
Dermal	Arsenic	22.35	mg/kg	22.35	mg/kg	M	6.40E-07	mg/kg-d	1.5	$(mg/kg\text{-}d)^{-1}$	9.6E-07
										Total Risk Across All Exposure Routes/Pathways	2.2E-06

(1) M = Medium-Specific, R = Route-Specific

TABLE 8.2.3.CT
CALCULATION OF CANCER RISKS
CENTRAL TENDENCY EXPOSURE
Kingston - Neighborhood Recreational Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Sediment
Exposure Medium:	Sediment
Exposure Point:	Pine Creek
Receptor Population:	Neighborhood residents
Receptor Age:	Child 4-11 years old

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Risk Calculation (1)	Intake (Cancer)	Intake (Cancer) Units	Cancer Slope Factor	Cancer Slope Factor Units	Cancer Risk
Ingestion	Arsenic	15.84	mg/kg	15.84	mg/kg	M	3.19E-08	mg/kg-d	1.5	$(mg/kg\text{-}d)^{-1}$	4.8E-08
Dermal	Arsenic	15.84	mg/kg	15.84	mg/kg	M	6.48E-08	mg/kg-d	1.5	$(mg/kg\text{-}d)^{-1}$	9.7E-08
										Total Risk Across All Exposure Routes/Pathways	1.5E-07

(1) M = Medium-Specific, R = Route-Specific

TABLE 8.2.4.RME
CALCULATION OF CANCER RISKS
REASONABLE MAXIMUM EXPOSURE
Kingston - Neighborhood Recreational Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Soil/sediment
Exposure Medium:	Soil/sediment
Exposure Point:	NS Confluence
Receptor Population:	Neighborhood residents
Receptor Age:	Child 4-11 years old

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Risk Calculation (1)	Intake (Cancer)	Intake (Cancer) Units	Cancer Slope Factor	Cancer Slope Factor Units	Cancer Risk
Ingestion	Arsenic	163.2	mg/kg	163.2	mg/kg	M	6.04E-06	mg/kg-d	1.5	$(mg/kg\text{-}d)^{-1}$	9.1E-06
Dermal	Arsenic	163.2	mg/kg	163.2	mg/kg	M	7.32E-06	mg/kg-d	1.5	$(mg/kg\text{-}d)^{-1}$	1.1E-05
										Total Risk Across All Exposure Routes/Pathways	2.0E-05

(1) M = Medium-Specific, R = Route-Specific

TABLE 8.2.4.CT
CALCULATION OF CANCER RISKS
CENTRAL TENDENCY EXPOSURE
Kingston - Neighborhood Recreational Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Soil/sediment
Exposure Medium:	Soil/sediment
Exposure Point:	NS Confluence
Receptor Population:	Neighborhood residents
Receptor Age:	Child 4-11 years old

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Risk Calculation (1)	Intake (Cancer)	Intake (Cancer) Units	Cancer Slope Factor	Cancer Slope Factor Units	Cancer Risk
Ingestion	Arsenic	145.44	mg/kg	145.44	mg/kg	M	2.93E-07	mg/kg-d	1.5	$(mg/kg\text{-}d)^{-1}$	4.4E-07
Dermal	Arsenic	145.44	mg/kg	145.44	mg/kg	M	9.32E-07	mg/kg-d	1.5	$(mg/kg\text{-}d)^{-1}$	1.4E-06
										Total Risk Across All Exposure Routes/Pathways	1.8E-06

(1) M = Medium-Specific, R = Route-Specific

TABLE 8.2.5.RME
CALCULATION OF CANCER RISKS
REASONABLE MAXIMUM EXPOSURE
Kingston - Neighborhood Recreational Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Surface water
Exposure Medium:	Surface water
Exposure Point:	Pine Creek
Receptor Population:	Neighborhood residents
Receptor Age:	Child 4-11 years old

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Risk Calculation (1)	Intake (Cancer)	Intake (Cancer) Units	Cancer Slope Factor	Cancer Slope Factor Units	Cancer Risk
Ingestion	Arsenic	0.73	ug/L	0.73	ug/L	M	2.06E-08	mg/kg-d	1.5	$(mg/kg\text{-}d)^{-1}$	3.1E-08
										Total Risk Across All Exposure Routes/Pathways	3.1E-08

(1) M = Medium-Specific, R = Route-Specific

TABLE 8.2.5.CT
CALCULATION OF CANCER RISKS
CENTRAL TENDENCY EXPOSURE
Kingston - Neighborhood Recreational Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Surface water
Exposure Medium:	Surface water
Exposure Point:	Pine Creek
Receptor Population:	Neighborhood residents
Receptor Age:	Child 4-11 years old

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Risk Calculation (1)	Intake (Cancer)	Intake (Cancer) Units	Cancer Slope Factor	Cancer Slope Factor Units	Cancer Risk
Ingestion	Arsenic	0.57	ug/L	0.57	ug/L	M	2.29E-09	mg/kg-d	1.5	$(mg/kg\text{-}d)^{-1}$	3.4E-09
										Total Risk Across All Exposure Routes/Pathways	3.4E-09

(1) M = Medium-Specific, R = Route-Specific

TABLE 8.2.6.RME
CALCULATION OF CANCER RISKS
REASONABLE MAXIMUM EXPOSURE
Kingston - Neighborhood Recreational Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Surface water
Exposure Medium:	Surface water
Exposure Point:	NS Confluence
Receptor Population:	Neighborhood residents
Receptor Age:	Child 4-11 years old

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Risk Calculation (1)	Intake (Cancer)	Intake (Cancer) Units	Cancer Slope Factor	Cancer Slope Factor Units	Cancer Risk
Ingestion	Arsenic	134	ug/L	134	ug/L	M	3.78E-06	mg/kg-d	1.5	$(mg/kg\text{-}d)^{-1}$	5.7E-06
										Total Risk Across All Exposure Routes/Pathways	5.7E-06

(1) M = Medium-Specific, R = Route-Specific

TABLE 8.2.6.CT
CALCULATION OF CANCER RISKS
CENTRAL TENDENCY EXPOSURE
Kingston - Neighborhood Recreational Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Surface water
Exposure Medium:	Surface water
Exposure Point:	NS Confluence
Receptor Population:	Neighborhood residents
Receptor Age:	Child 4-11 years old

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Risk Calculation (1)	Intake (Cancer)	Intake (Cancer) Units	Cancer Slope Factor	Cancer Slope Factor Units	Cancer Risk
Ingestion	Arsenic	36.4	ug/L	36.4	ug/L	M	1.47E-07	mg/kg-d	1.5	$(mg/kg\text{-}d)^{-1}$	2.2E-07
										Total Risk Across All Exposure Routes/Pathways	2.2E-07

(1) M = Medium-Specific, R = Route-Specific

TABLE 8.2.7.RME
CALCULATION OF CANCER RISKS
REASONABLE MAXIMUM EXPOSURE
Kingston - Public Recreational Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Soil/sediment
Exposure Medium:	Soil/sediment
Exposure Point:	NS Confluence
Receptor Population:	Visitors
Receptor Age:	Child/Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Risk Calculation (1)	Intake (Cancer)	Intake (Cancer) Units	Cancer Slope Factor	Cancer Slope Factor Units	Cancer Risk
Ingestion	Arsenic	163.2	mg/kg	163.2	mg/kg	M	1.89E-05	mg/kg-d	1.5	$(mg/kg\text{-}d)^{-1}$	2.8E-05
Dermal	Arsenic	163.2	mg/kg	163.2	mg/kg	M	6.97E-06	mg/kg-d	1.5	$(mg/kg\text{-}d)^{-1}$	1.0E-05
										Total Risk Across All Exposure Routes/Pathways	3.9E-05

(1) M = Medium-Specific, R = Route-Specific

TABLE 8.2.7.CT
CALCULATION OF CANCER RISKS
CENTRAL TENDENCY EXPOSURE
Kingston - Public Recreational Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Soil/sediment
Exposure Medium:	Soil/sediment
Exposure Point:	NS Confluence
Receptor Population:	Visitors
Receptor Age:	Child/Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Risk Calculation (1)	Intake (Cancer)	Intake (Cancer) Units	Cancer Slope Factor	Cancer Slope Factor Units	Cancer Risk
Ingestion	Arsenic	145.44	mg/kg	145.44	mg/kg	M	1.15E-06	mg/kg-d	1.5	$(mg/kg\text{-}d)^{-1}$	1.7E-06
Dermal	Arsenic	145.44	mg/kg	145.44	mg/kg	M	9.65E-07	mg/kg-d	1.5	$(mg/kg\text{-}d)^{-1}$	1.4E-06
										Total Risk Across All Exposure Routes/Pathways	3.2E-06

(1) M = Medium-Specific, R = Route-Specific

TABLE 8.2.8.RME
CALCULATION OF CANCER RISKS
REASONABLE MAXIMUM EXPOSURE
Kingston - Public Recreational Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Surface water
Exposure Medium:	Surface water
Exposure Point:	NS Confluence
Receptor Population:	Visitors
Receptor Age:	Child/Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Risk Calculation (1)	Intake (Cancer)	Intake (Cancer) Units	Cancer Slope Factor	Cancer Slope Factor Units	Cancer Risk
Ingestion	Arsenic	134	ug/L	134	ug/L	M	3.74E-06	mg/kg-d	1.5	$(mg/kg\text{-}d)^{-1}$	5.6E-06
										Total Risk Across All Exposure Routes/Pathways	5.6E-06

(1) M = Medium-Specific, R = Route-Specific

TABLE 8.2.8.CT
CALCULATION OF CANCER RISKS
CENTRAL TENDENCY EXPOSURE
Kingston - Public Recreational Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Surface water
Exposure Medium:	Surface water
Exposure Point:	NS Confluence
Receptor Population:	Visitors
Receptor Age:	Child/Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Risk Calculation (1)	Intake (Cancer)	Intake (Cancer) Units	Cancer Slope Factor	Cancer Slope Factor Units	Cancer Risk
Ingestion	Arsenic	36.4	ug/L	36.4	ug/L	M	1.60E-07	mg/kg-d	1.5	$(mg/kg\text{-}d)^{-1}$	2.4E-07
										Total Risk Across All Exposure Routes/Pathways	2.4E-07

(1) M = Medium-Specific, R = Route-Specific

TABLE 8.2.9.RME
CALCULATION OF CANCER RISKS
REASONABLE MAXIMUM EXPOSURE
Kingston - Occupational Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Surface/subsurface soil
Exposure Point:	Construction site soil
Receptor Population:	Construction worker
Receptor Age:	Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Risk Calculation (1)	Intake (Cancer)	Intake (Cancer) Units	Cancer Slope Factor	Cancer Slope Factor Units	Cancer Risk
Ingestion	Arsenic	34.6	mg/kg	34.6	mg/kg	M	1.70E-05	mg/kg-d	1.5	$(mg/kg\text{-}d)^{-1}$	2.5E-05
Dermal	Arsenic	34.6	mg/kg	34.6	mg/kg	M	7.07E-07	mg/kg-d	1.5	$(mg/kg\text{-}d)^{-1}$	1.1E-06
										Total Risk Across All Exposure Routes/Pathways	2.7E-05

(1) M = Medium-Specific, R = Route-Specific

TABLE 8.2.9.CT
CALCULATION OF CANCER RISKS
CENTRAL TENDENCY EXPOSURE
Kingston - Occupational Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Surface/subsurface soil
Exposure Point:	Construction site soil
Receptor Population:	Construction worker
Receptor Age:	Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Risk Calculation (1)	Intake (Cancer)	Intake (Cancer) Units	Cancer Slope Factor	Cancer Slope Factor Units	Cancer Risk
Ingestion	Arsenic	29.06	mg/kg	29.06	mg/kg	M	5.53E-07	mg/kg-d	1.5	$(mg/kg\text{-}d)^{-1}$	8.3E-07
Dermal	Arsenic	29.06	mg/kg	29.06	mg/kg	M	3.46E-08	mg/kg-d	1.5	$(mg/kg\text{-}d)^{-1}$	5.2E-08
										Total Risk Across All Exposure Routes/Pathways	8.8E-07

(1) M = Medium-Specific, R = Route-Specific

TABLE 8.3.1.RME
CALCULATION OF CANCER RISKS
REASONABLE MAXIMUM EXPOSURE
Side Gulches - Residential Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Surface soil
Exposure Point:	Yard soil
Receptor Population:	Residents
Receptor Age:	Child/Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Risk Calculation (1)	Intake (Cancer)	Intake (Cancer) Units	Cancer Slope Factor	Cancer Slope Factor Units	Cancer Risk
Ingestion	Arsenic	50.74	mg/kg	50.74	mg/kg	M	4.77E-05	mg/kg-d	1.5	$(mg/kg\text{-}d)^{-1}$	7.1E-05
Dermal	Arsenic	50.74	mg/kg	50.74	mg/kg	M	5.46E-06	mg/kg-d	1.5	$(mg/kg\text{-}d)^{-1}$	8.2E-06
										Total Risk Across All Exposure Routes/Pathways	8.0E-05

(1) M = Medium-Specific, R = Route-Specific

TABLE 8.3.1.CT
CALCULATION OF CANCER RISKS
CENTRAL TENDENCY EXPOSURE
Side Gulches - Residential Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Surface soil
Exposure Point:	Yard soil
Receptor Population:	Residents
Receptor Age:	Child/Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Risk Calculation (1)	Intake (Cancer)	Intake (Cancer) Units	Cancer Slope Factor	Cancer Slope Factor Units	Cancer Risk
Ingestion	Arsenic	39.66	mg/kg	39.66	mg/kg	M	4.44E-06	mg/kg-d	1.5	$(mg/kg\text{-}d)^{-1}$	6.7E-06
Dermal	Arsenic	39.66	mg/kg	39.66	mg/kg	M	1.01E-06	mg/kg-d	1.5	$(mg/kg\text{-}d)^{-1}$	1.5E-06
										Total Risk Across All Exposure Routes/Pathways	8.2E-06

(1) M = Medium-Specific, R = Route-Specific

TABLE 8.3.2.RME
CALCULATION OF CANCER RISKS
REASONABLE MAXIMUM EXPOSURE
Side Gulches - Residential Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Groundwater
Exposure Medium:	Groundwater
Exposure Point:	Tap water
Receptor Population:	Residents
Receptor Age:	Child/Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Risk Calculation (1)	Intake (Cancer)	Intake (Cancer) Units	Cancer Slope Factor	Cancer Slope Factor Units	Cancer Risk
Ingestion	Arsenic	8.4	ug/L	8.4	ug/L	M	1.25E-04	mg/kg-d	1.5	$(mg/kg\text{-}d)^{-1}$	1.9E-04
										Total Risk Across All Exposure Routes/Pathways	1.9E-04

(1) M = Medium-Specific, R = Route-Specific

TABLE 8.3.2.CT
CALCULATION OF CANCER RISKS
CENTRAL TENDENCY EXPOSURE
Side Gulches - Residential Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Groundwater
Exposure Medium:	Groundwater
Exposure Point:	Tap water
Receptor Population:	Residents
Receptor Age:	Child/Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Risk Calculation (1)	Intake (Cancer)	Intake (Cancer) Units	Cancer Slope Factor	Cancer Slope Factor Units	Cancer Risk
Ingestion	Arsenic	1.92	ug/L	1.92	ug/L	M	4.81E-06	mg/kg-d	1.5	$(mg/kg\text{-}d)^{-1}$	7.2E-06
										Total Risk Across All Exposure Routes/Pathways	7.2E-06

(1) M = Medium-Specific, R = Route-Specific

TABLE 8.3.3.RME
CALCULATION OF CANCER RISKS
REASONABLE MAXIMUM EXPOSURE
Side Gulches - Neighborhood Recreational Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Surface soil
Exposure Point:	Elk Creek area
Receptor Population:	Neighborhood residents
Receptor Age:	Child 4-11 years old

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Risk Calculation (1)	Intake (Cancer)	Intake (Cancer) Units	Cancer Slope Factor	Cancer Slope Factor Units	Cancer Risk
Ingestion	Arsenic	98.5	mg/kg	98.5	mg/kg	M	5.90E-06	mg/kg-d	1.5	$(mg/kg\text{-}d)^{-1}$	8.8E-06
Dermal	Arsenic	98.5	mg/kg	98.5	mg/kg	M	2.00E-06	mg/kg-d	1.5	$(mg/kg\text{-}d)^{-1}$	3.0E-06
										Total Risk Across All Exposure Routes/Pathways	1.2E-05

(1) M = Medium-Specific, R = Route-Specific

TABLE 8.3.3.CT
CALCULATION OF CANCER RISKS
CENTRAL TENDENCY EXPOSURE
Side Gulches - Neighborhood Recreational Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Surface soil
Exposure Point:	Elk Creek area
Receptor Population:	Neighborhood residents
Receptor Age:	Child 4-11 years old

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Risk Calculation (1)	Intake (Cancer)	Intake (Cancer) Units	Cancer Slope Factor	Cancer Slope Factor Units	Cancer Risk
Ingestion	Arsenic	79.96	mg/kg	79.96	mg/kg	M	2.74E-07	mg/kg-d	1.5	$(mg/kg\text{-}d)^{-1}$	4.1E-07
Dermal	Arsenic	79.96	mg/kg	79.96	mg/kg	M	2.32E-07	mg/kg-d	1.5	$(mg/kg\text{-}d)^{-1}$	3.5E-07
										Total Risk Across All Exposure Routes/Pathways	7.6E-07

(1) M = Medium-Specific, R = Route-Specific

TABLE 8.3.4.RME
CALCULATION OF CANCER RISKS
REASONABLE MAXIMUM EXPOSURE
Side Gulches - Neighborhood Recreational Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Sediment
Exposure Medium:	Sediment
Exposure Point:	Elk Creek Pond
Receptor Population:	Neighborhood residents
Receptor Age:	Child 4-11 years old

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Risk Calculation (1)	Intake (Cancer)	Intake (Cancer) Units	Cancer Slope Factor	Cancer Slope Factor Units	Cancer Risk
Ingestion	Arsenic	77.74	mg/kg	77.74	mg/kg	M	2.88E-06	mg/kg-d	1.5	$(mg/kg\text{-}d)^{-1}$	4.3E-06
Dermal	Arsenic	77.74	mg/kg	77.74	mg/kg	M	2.23E-06	mg/kg-d	1.5	$(mg/kg\text{-}d)^{-1}$	3.3E-06
										Total Risk Across All Exposure Routes/Pathways	7.7E-06

(1) M = Medium-Specific, R = Route-Specific

TABLE 8.3.4.CT
CALCULATION OF CANCER RISKS
CENTRAL TENDENCY EXPOSURE
Side Gulches - Neighborhood Recreational Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Sediment
Exposure Medium:	Sediment
Exposure Point:	Elk Creek Pond
Receptor Population:	Neighborhood residents
Receptor Age:	Child 4-11 years old

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Risk Calculation (1)	Intake (Cancer)	Intake (Cancer) Units	Cancer Slope Factor	Cancer Slope Factor Units	Cancer Risk
Ingestion	Arsenic	63.76	mg/kg	63.76	mg/kg	M	1.28E-07	mg/kg-d	1.5	$(mg/kg\text{-}d)^{-1}$	1.9E-07
Dermal	Arsenic	63.76	mg/kg	63.76	mg/kg	M	2.61E-07	mg/kg-d	1.5	$(mg/kg\text{-}d)^{-1}$	3.9E-07
										Total Risk Across All Exposure Routes/Pathways	5.8E-07

(1) M = Medium-Specific, R = Route-Specific

TABLE 8.3.5.RME
CALCULATION OF CANCER RISKS
REASONABLE MAXIMUM EXPOSURE
Side Gulches - Neighborhood Recreational Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Surface water
Exposure Medium:	Surface water
Exposure Point:	Elk Creek Pond
Receptor Population:	Neighborhood residents
Receptor Age:	Child 4-11 years old

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Risk Calculation (1)	Intake (Cancer)	Intake (Cancer) Units	Cancer Slope Factor	Cancer Slope Factor Units	Cancer Risk
Ingestion	Arsenic	32	ug/L	32	ug/L	M	9.02E-07	mg/kg-d	1.5	$(mg/kg\text{-}d)^{-1}$	1.4E-06
										Total Risk Across All Exposure Routes/Pathways	1.4E-06

(1) M = Medium-Specific, R = Route-Specific

TABLE 8.3.5.CT
CALCULATION OF CANCER RISKS
CENTRAL TENDENCY EXPOSURE
Side Gulches - Neighborhood Recreational Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Surface water
Exposure Medium:	Surface water
Exposure Point:	Elk Creek Pond
Receptor Population:	Neighborhood residents
Receptor Age:	Child 4-11 years old

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Risk Calculation (1)	Intake (Cancer)	Intake (Cancer) Units	Cancer Slope Factor	Cancer Slope Factor Units	Cancer Risk
Ingestion	Arsenic	16.64	ug/L	16.64	ug/L	M	6.70E-08	mg/kg-d	1.5	$(mg/kg\text{-}d)^{-1}$	1.0E-07
										Total Risk Across All Exposure Routes/Pathways	1.0E-07

(1) M = Medium-Specific, R = Route-Specific

TABLE 8.4.1.RME
CALCULATION OF CANCER RISKS
REASONABLE MAXIMUM EXPOSURE
Osburn - Residential Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Surface soil
Exposure Point:	Yard soil
Receptor Population:	Residents
Receptor Age:	Child/Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Risk Calculation (1)	Intake (Cancer)	Intake (Cancer) Units	Cancer Slope Factor	Cancer Slope Factor Units	Cancer Risk
Ingestion	Arsenic	46.74	mg/kg	46.74	mg/kg	M	4.39E-05	mg/kg-d	1.5	$(mg/kg\text{-}d)^{-1}$	6.6E-05
Dermal	Arsenic	46.74	mg/kg	46.74	mg/kg	M	5.03E-06	mg/kg-d	1.5	$(mg/kg\text{-}d)^{-1}$	7.5E-06
										Total Risk Across All Exposure Routes/Pathways	7.3E-05

(1) M = Medium-Specific, R = Route-Specific

TABLE 8.4.1.CT
CALCULATION OF CANCER RISKS
CENTRAL TENDENCY EXPOSURE
Osburn - Residential Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Surface soil
Exposure Point:	Yard soil
Receptor Population:	Residents
Receptor Age:	Child/Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Risk Calculation (1)	Intake (Cancer)	Intake (Cancer) Units	Cancer Slope Factor	Cancer Slope Factor Units	Cancer Risk
Ingestion	Arsenic	38.95	mg/kg	38.95	mg/kg	M	4.36E-06	mg/kg-d	1.5	$(mg/kg\text{-}d)^{-1}$	6.5E-06
Dermal	Arsenic	38.95	mg/kg	38.95	mg/kg	M	9.95E-07	mg/kg-d	1.5	$(mg/kg\text{-}d)^{-1}$	1.5E-06
										Total Risk Across All Exposure Routes/Pathways	8.0E-06

(1) M = Medium-Specific, R = Route-Specific

TABLE 8.4.2.RME
CALCULATION OF CANCER RISKS
REASONABLE MAXIMUM EXPOSURE
Osburn - Residential Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Groundwater
Exposure Medium:	Groundwater
Exposure Point:	Tap water
Receptor Population:	Residents
Receptor Age:	Child/Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Risk Calculation (1)	Intake (Cancer)	Intake (Cancer) Units	Cancer Slope Factor	Cancer Slope Factor Units	Cancer Risk
Ingestion	Arsenic	0.28	ug/L	0.28	ug/L	M	4.16E-06	mg/kg-d	1.5	$(mg/kg\text{-}d)^{-1}$	6.2E-06
										Total Risk Across All Exposure Routes/Pathways	6.2E-06

(1) M = Medium-Specific, R = Route-Specific

TABLE 8.4.2.CT
CALCULATION OF CANCER RISKS
CENTRAL TENDENCY EXPOSURE
Osburn - Residential Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Groundwater
Exposure Medium:	Groundwater
Exposure Point:	Tap water
Receptor Population:	Residents
Receptor Age:	Child/Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Risk Calculation (1)	Intake (Cancer)	Intake (Cancer) Units	Cancer Slope Factor	Cancer Slope Factor Units	Cancer Risk
Ingestion	Arsenic	0.23	ug/L	0.23	ug/L	M	5.76E-07	mg/kg-d	1.5	$(mg/kg\text{-}d)^{-1}$	8.6E-07
										Total Risk Across All Exposure Routes/Pathways	8.6E-07

(1) M = Medium-Specific, R = Route-Specific

TABLE 8.5.1.RME
CALCULATION OF CANCER RISKS
REASONABLE MAXIMUM EXPOSURE
Silverton - Residential Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Surface soil
Exposure Point:	Yard soil
Receptor Population:	Residents
Receptor Age:	Child/Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Risk Calculation (1)	Intake (Cancer)	Intake (Cancer) Units	Cancer Slope Factor	Cancer Slope Factor Units	Cancer Risk
Ingestion	Arsenic	21.46	mg/kg	21.46	mg/kg	M	2.02E-05	mg/kg-d	1.5	$(mg/kg\text{-}d)^{-1}$	3.0E-05
Dermal	Arsenic	21.46	mg/kg	21.46	mg/kg	M	2.31E-06	mg/kg-d	1.5	$(mg/kg\text{-}d)^{-1}$	3.5E-06
										Total Risk Across All Exposure Routes/Pathways	3.4E-05

(1) M = Medium-Specific, R = Route-Specific

TABLE 8.5.1.CT
CALCULATION OF CANCER RISKS
CENTRAL TENDENCY EXPOSURE
Silverton - Residential Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Surface soil
Exposure Point:	Yard soil
Receptor Population:	Residents
Receptor Age:	Child/Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Risk Calculation (1)	Intake (Cancer)	Intake (Cancer) Units	Cancer Slope Factor	Cancer Slope Factor Units	Cancer Risk
Ingestion	Arsenic	16.52	mg/kg	16.52	mg/kg	M	1.85E-06	mg/kg-d	1.5	$(mg/kg\text{-}d)^{-1}$	2.8E-06
Dermal	Arsenic	16.52	mg/kg	16.52	mg/kg	M	4.22E-07	mg/kg-d	1.5	$(mg/kg\text{-}d)^{-1}$	6.3E-07
										Total Risk Across All Exposure Routes/Pathways	3.4E-06

(1) M = Medium-Specific, R = Route-Specific

TABLE 8.5.2.RME
CALCULATION OF CANCER RISKS
REASONABLE MAXIMUM EXPOSURE
Silverton - Residential Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Groundwater
Exposure Medium:	Groundwater
Exposure Point:	Tap water
Receptor Population:	Residents
Receptor Age:	Child/Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Risk Calculation (1)	Intake (Cancer)	Intake (Cancer) Units	Cancer Slope Factor	Cancer Slope Factor Units	Cancer Risk
Ingestion	Arsenic	0.545	ug/L	0.545	ug/L	M	8.11E-06	mg/kg-d	1.5	$(mg/kg\text{-}d)^{-1}$	1.2E-05
										Total Risk Across All Exposure Routes/Pathways	1.2E-05

(1) M = Medium-Specific, R = Route-Specific

TABLE 8.5.2.CT
CALCULATION OF CANCER RISKS
CENTRAL TENDENCY EXPOSURE
Siverton - Residential Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Groundwater
Exposure Medium:	Groundwater
Exposure Point:	Tap water
Receptor Population:	Residents
Receptor Age:	Child/Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Risk Calculation (1)	Intake (Cancer)	Intake (Cancer) Units	Cancer Slope Factor	Cancer Slope Factor Units	Cancer Risk
Ingestion	Arsenic	0.38	ug/L	0.38	ug/L	M	9.51E-07	mg/kg-d	1.5	$(mg/kg\text{-}d)^{-1}$	1.4E-06
										Total Risk Across All Exposure Routes/Pathways	1.4E-06

(1) M = Medium-Specific, R = Route-Specific

TABLE 8.5.3.RME
CALCULATION OF CANCER RISKS
REASONABLE MAXIMUM EXPOSURE
Silverton - Neighborhood Recreational Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Surface soil
Exposure Point:	Upland parks/schools
Receptor Population:	Neighborhood residents
Receptor Age:	Child 4-11 years old

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Risk Calculation (1)	Intake (Cancer)	Intake (Cancer) Units	Cancer Slope Factor	Cancer Slope Factor Units	Cancer Risk
Ingestion	Arsenic	28.44	mg/kg	28.44	mg/kg	M	1.70E-06	mg/kg-d	1.5	$(mg/kg\text{-}d)^{-1}$	2.6E-06
Dermal	Arsenic	28.44	mg/kg	28.44	mg/kg	M	5.77E-07	mg/kg-d	1.5	(mg/kg-d)-1	8.7E-07
										Total Risk Across All Exposure Routes/Pathways	3.4E-06

(1) M = Medium-Specific, R = Route-Specific

TABLE 8.5.3.CT
CALCULATION OF CANCER RISKS
CENTRAL TENDENCY EXPOSURE
Silverton - Neighborhood Recreational Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Surface soil
Exposure Point:	Upland parks/schools
Receptor Population:	Neighborhood residents
Receptor Age:	Child 4-11 years old

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Risk Calculation (1)	Intake (Cancer)	Intake (Cancer) Units	Cancer Slope Factor	Cancer Slope Factor Units	Cancer Risk
Ingestion	Arsenic	16.88	mg/kg	16.88	mg/kg	M	5.78E-08	mg/kg-d	1.5	$(mg/kg\text{-}d)^{-1}$	8.7E-08
Dermal	Arsenic	16.88	mg/kg	16.88	mg/kg	M	4.89E-08	mg/kg-d	1.5	$(mg/kg\text{-}d)^{-1}$	7.3E-08
										Total Risk Across All Exposure Routes/Pathways	1.6E-07

(1) M = Medium-Specific, R = Route-Specific

TABLE 8.5.4.RME
CALCULATION OF CANCER RISKS
REASONABLE MAXIMUM EXPOSURE
Silverton - Public Recreational Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Surface soil
Exposure Point:	Upland parks/schools
Receptor Population:	Visitors
Receptor Age:	Child/Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Risk Calculation (1)	Intake (Cancer)	Intake (Cancer) Units	Cancer Slope Factor	Cancer Slope Factor Units	Cancer Risk
Ingestion	Arsenic	28.44	mg/kg	28.44	mg/kg	M	3.41E-06	mg/kg-d	1.5	$(mg/kg\text{-}d)^{-1}$	5.1E-06
Dermal	Arsenic	28.44	mg/kg	28.44	mg/kg	M	5.94E-07	mg/kg-d	1.5	(mg/kg-d)-1	8.9E-07
										Total Risk Across All Exposure Routes/Pathways	6.0E-06

(1) M = Medium-Specific, R = Route-Specific

TABLE 8.5.4.CT
CALCULATION OF CANCER RISKS
CENTRAL TENDENCY EXPOSURE
Silverton - Public Recreational Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Surface soil
Exposure Point:	Upland parks/schools
Receptor Population:	Visitors
Receptor Age:	Child/Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Risk Calculation (1)	Intake (Cancer)	Intake (Cancer) Units	Cancer Slope Factor	Cancer Slope Factor Units	Cancer Risk
Ingestion	Arsenic	16.88	mg/kg	16.88	mg/kg	M	1.38E-07	mg/kg-d	1.5	$(mg/kg\text{-}d)^{-1}$	2.1E-07
Dermal	Arsenic	16.88	mg/kg	16.88	mg/kg	M	5.64E-08	mg/kg-d	1.5	(mg/kg-d)-1	8.5E-08
										Total Risk Across All Exposure Routes/Pathways	2.9E-07

(1) M = Medium-Specific, R = Route-Specific

TABLE 8.6.1.RME
CALCULATION OF CANCER RISKS
REASONABLE MAXIMUM EXPOSURE
Wallace - Residential Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Surface soil
Exposure Point:	Yard soil
Receptor Population:	Residents
Receptor Age:	Child/Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Risk Calculation (1)	Intake (Cancer)	Intake (Cancer) Units	Cancer Slope Factor	Cancer Slope Factor Units	Cancer Risk
Ingestion	Arsenic	22.57	mg/kg	22.57	mg/kg	M	2.12E-05	mg/kg-d	1.5	$(mg/kg\text{-}d)^{-1}$	3.2E-05
Dermal	Arsenic	22.57	mg/kg	22.57	mg/kg	M	2.43E-06	mg/kg-d	1.5	$(mg/kg\text{-}d)^{-1}$	3.6E-06
										Total Risk Across All Exposure Routes/Pathways	3.5E-05

(1) M = Medium-Specific, R = Route-Specific

TABLE 8.6.1.CT
CALCULATION OF CANCER RISKS
CENTRAL TENDENCY EXPOSURE
Wallace - Residential Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Surface soil
Exposure Point:	Yard soil
Receptor Population:	Residents
Receptor Age:	Child/Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Risk Calculation (1)	Intake (Cancer)	Intake (Cancer) Units	Cancer Slope Factor	Cancer Slope Factor Units	Cancer Risk
Ingestion	Arsenic	20.32	mg/kg	20.32	mg/kg	M	2.27E-06	mg/kg-d	1.5	$(mg/kg\text{-}d)^{-1}$	3.4E-06
Dermal	Arsenic	20.32	mg/kg	20.32	mg/kg	M	5.19E-07	mg/kg-d	1.5	$(mg/kg\text{-}d)^{-1}$	7.8E-07
										Total Risk Across All Exposure Routes/Pathways	4.2E-06

(1) M = Medium-Specific, R = Route-Specific

TABLE 8.6.2.RME
CALCULATION OF CANCER RISKS
REASONABLE MAXIMUM EXPOSURE
Wallace - Residential Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Groundwater
Exposure Medium:	Groundwater
Exposure Point:	Tap water
Receptor Population:	Residents
Receptor Age:	Child/Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Risk Calculation (1)	Intake (Cancer)	Intake (Cancer) Units	Cancer Slope Factor	Cancer Slope Factor Units	Cancer Risk
Ingestion	Arsenic	0.494	ug/L	0.494	ug/L	M	7.35E-06	mg/kg-d	1.5	$(mg/kg\text{-}d)^{-1}$	1.1E-05
										Total Risk Across All Exposure Routes/Pathways	1.1E-05

(1) M = Medium-Specific, R = Route-Specific

TABLE 8.6.2.CT
CALCULATION OF CANCER RISKS
CENTRAL TENDENCY EXPOSURE
Wallace - Residential Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Groundwater
Exposure Medium:	Groundwater
Exposure Point:	Tap water
Receptor Population:	Residents
Receptor Age:	Child/Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Risk Calculation (1)	Intake (Cancer)	Intake (Cancer) Units	Cancer Slope Factor	Cancer Slope Factor Units	Cancer Risk
Ingestion	Arsenic	0.42	ug/L	0.42	ug/L	M	1.05E-06	mg/kg-d	1.5	$(mg/kg\text{-}d)^{-1}$	1.6E-06
										Total Risk Across All Exposure Routes/Pathways	1.6E-06

(1) M = Medium-Specific, R = Route-Specific

TABLE 8.6.3.RME
CALCULATION OF CANCER RISKS
REASONABLE MAXIMUM EXPOSURE
Wallace - Neighborhood Recreational Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Surface soil
Exposure Point:	Upland parks/schools
Receptor Population:	Neighborhood residents
Receptor Age:	Child 4-11 years old

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Risk Calculation (1)	Intake (Cancer)	Intake (Cancer) Units	Cancer Slope Factor	Cancer Slope Factor Units	Cancer Risk
Ingestion	Arsenic	27.65	mg/kg	27.65	mg/kg	M	1.66E-06	mg/kg-d	1.5	$(mg/kg\text{-}d)^{-1}$	2.5E-06
Dermal	Arsenic	27.65	mg/kg	27.65	mg/kg	M	5.61E-07	mg/kg-d	1.5	$(mg/kg\text{-}d)^{-1}$	8.4E-07
										Total Risk Across All Exposure Routes/Pathways	3.3E-06

(1) M = Medium-Specific, R = Route-Specific

TABLE 8.6.3.CT
CALCULATION OF CANCER RISKS
CENTRAL TENDENCY EXPOSURE
Wallace - Neighborhood Recreational Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Surface soil
Exposure Point:	Upland parks/schools
Receptor Population:	Neighborhood residents
Receptor Age:	Child 4-11 years old

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Risk Calculation (1)	Intake (Cancer)	Intake (Cancer) Units	Cancer Slope Factor	Cancer Slope Factor Units	Cancer Risk
Ingestion	Arsenic	25.8	mg/kg	25.8	mg/kg	M	8.83E-08	mg/kg-d	1.5	$(mg/kg\text{-}d)^{-1}$	1.3E-07
Dermal	Arsenic	25.8	mg/kg	25.8	mg/kg	M	7.47E-08	mg/kg-d	1.5	$(mg/kg\text{-}d)^{-1}$	1.1E-07
										Total Risk Across All Exposure Routes/Pathways	2.4E-07

(1) M = Medium-Specific, R = Route-Specific

TABLE 8.6.4.RME
CALCULATION OF CANCER RISKS
REASONABLE MAXIMUM EXPOSURE
Wallace - Public Recreational Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Surface soil
Exposure Point:	Upland parks/schools
Receptor Population:	Visitors
Receptor Age:	Child/Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Risk Calculation (1)	Intake (Cancer)	Intake (Cancer) Units	Cancer Slope Factor	Cancer Slope Factor Units	Cancer Risk
Ingestion	Arsenic	27.65	mg/kg	27.65	mg/kg	M	3.32E-06	mg/kg-d	1.5	$(mg/kg\text{-}d)^{-1}$	5.0E-06
Dermal	Arsenic	27.65	mg/kg	27.65	mg/kg	M	5.78E-07	mg/kg-d	1.5	$(mg/kg\text{-}d)^{-1}$	8.7E-07
										Total Risk Across All Exposure Routes/Pathways	5.8E-06

(1) M = Medium-Specific, R = Route-Specific

TABLE 8.6.4.CT
CALCULATION OF CANCER RISKS
CENTRAL TENDENCY EXPOSURE
Wallace - Public Recreational Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Surface soil
Exposure Point:	Upland parks/schools
Receptor Population:	Visitors
Receptor Age:	Child/Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Risk Calculation (1)	Intake (Cancer)	Intake (Cancer) Units	Cancer Slope Factor	Cancer Slope Factor Units	Cancer Risk
Ingestion	Arsenic	25.8	mg/kg	25.8	mg/kg	M	2.10E-07	mg/kg-d	1.5	$(mg/kg\text{-}d)^{-1}$	3.2E-07
Dermal	Arsenic	25.8	mg/kg	25.8	mg/kg	M	8.62E-08	mg/kg-d	1.5	$(mg/kg\text{-}d)^{-1}$	1.3E-07
										Total Risk Across All Exposure Routes/Pathways	4.4E-07

(1) M = Medium-Specific, R = Route-Specific

TABLE 8.7.1.RME
CALCULATION OF CANCER RISKS
REASONABLE MAXIMUM EXPOSURE
Osburn-Wallace-Silverton - Neighborhood Recreational Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Sediment
Exposure Medium:	Sediment
Exposure Point:	SFCDAR
Receptor Population:	Neighborhood residents
Receptor Age:	Child 4-11 years old

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Risk Calculation (1)	Intake (Cancer)	Intake (Cancer) Units	Cancer Slope Factor	Cancer Slope Factor Units	Cancer Risk
Ingestion	Arsenic	52.64	mg/kg	52.64	mg/kg	M	1.95E-06	mg/kg-d	1.5	$(mg/kg\text{-}d)^{-1}$	2.9E-06
Dermal	Arsenic	52.64	mg/kg	52.64	mg/kg	M	1.51E-06	mg/kg-d	1.5	$(mg/kg\text{-}d)^{-1}$	2.3E-06
										Total Risk Across All Exposure Routes/Pathways	5.2E-06

(1) M = Medium-Specific, R = Route-Specific

TABLE 8.7.1.CT
CALCULATION OF CANCER RISKS
CENTRAL TENDENCY EXPOSURE
Osburn-Wallace-Silverton - Neighborhood Recreational Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Sediment
Exposure Medium:	Sediment
Exposure Point:	SFCDAR
Receptor Population:	Neighborhood residents
Receptor Age:	Child 4-11 years old

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Risk Calculation (1)	Intake (Cancer)	Intake (Cancer) Units	Cancer Slope Factor	Cancer Slope Factor Units	Cancer Risk
Ingestion	Arsenic	36.81	mg/kg	36.81	mg/kg	M	7.41E-08	mg/kg-d	1.5	$(mg/kg\text{-}d)^{-1}$	1.1E-07
Dermal	Arsenic	36.81	mg/kg	36.81	mg/kg	M	1.51E-07	mg/kg-d	1.5	$(mg/kg\text{-}d)^{-1}$	2.3E-07
										Total Risk Across All Exposure Routes/Pathways	3.4E-07

(1) M = Medium-Specific, R = Route-Specific

TABLE 8.7.2.RME
CALCULATION OF CANCER RISKS
REASONABLE MAXIMUM EXPOSURE
Osburn-Wallace-Silverton - Neighborhood Recreational Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Surface water
Exposure Medium:	Surface water
Exposure Point:	SFCDAR
Receptor Population:	Neighborhood residents
Receptor Age:	Child 4-11 years old

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Risk Calculation (1)	Intake (Cancer)	Intake (Cancer) Units	Cancer Slope Factor	Cancer Slope Factor Units	Cancer Risk
Ingestion	Arsenic	1.096	ug/L	1.096	ug/L	M	3.09E-08	mg/kg-d	1.5	$(mg/kg\text{-}d)^{-1}$	4.6E-08
										Total Risk Across All Exposure Routes/Pathways	4.6E-08

(1) M = Medium-Specific, R = Route-Specific

TABLE 8.7.2.CT
CALCULATION OF CANCER RISKS
CENTRAL TENDENCY EXPOSURE
Osburn-Wallace-Silverton - Neighborhood Recreational Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Surface water
Exposure Medium:	Surface water
Exposure Point:	SFCDAR
Receptor Population:	Neighborhood residents
Receptor Age:	Child 4-11 years old

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Risk Calculation (1)	Intake (Cancer)	Intake (Cancer) Units	Cancer Slope Factor	Cancer Slope Factor Units	Cancer Risk
Ingestion	Arsenic	0.78	ug/L	0.78	ug/L	M	3.14E-09	mg/kg-d	1.5	$(mg/kg\text{-}d)^{-1}$	4.7E-09
										Total Risk Across All Exposure Routes/Pathways	4.7E-09

(1) M = Medium-Specific, R = Route-Specific

TABLE 8.7.3.RME
CALCULATION OF CANCER RISKS
REASONABLE MAXIMUM EXPOSURE
Osburn-Wallace-Silverton - Occupational Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Surface/subsurface soil
Exposure Point:	Construction site soil
Receptor Population:	Construction worker
Receptor Age:	Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Risk Calculation (1)	Intake (Cancer)	Intake (Cancer) Units	Cancer Slope Factor	Cancer Slope Factor Units	Cancer Risk
Ingestion	Arsenic	27.31	mg/kg	27.31	mg/kg	M	1.34E-05	mg/kg-d	1.5	$(mg/kg\text{-}d)^{-1}$	2.0E-05
Dermal	Arsenic	27.31	mg/kg	27.31	mg/kg	M	5.58E-07	mg/kg-d	1.5	$(mg/kg\text{-}d)^{-1}$	8.4E-07
										Total Risk Across All Exposure Routes/Pathways	2.1E-05

(1) M = Medium-Specific, R = Route-Specific

TABLE 8.7.3.CT
CALCULATION OF CANCER RISKS
CENTRAL TENDENCY EXPOSURE
Osburn-Wallace-Silverton - Occupational Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Surface/subsurface soil
Exposure Point:	Construction site soil
Receptor Population:	Construction worker
Receptor Age:	Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Risk Calculation (1)	Intake (Cancer)	Intake (Cancer) Units	Cancer Slope Factor	Cancer Slope Factor Units	Cancer Risk
Ingestion	Arsenic	21.87	mg/kg	21.87	mg/kg	M	4.16E-07	mg/kg-d	1.5	$(mg/kg\text{-}d)^{-1}$	6.2E-07
Dermal	Arsenic	21.87	mg/kg	21.87	mg/kg	M	2.60E-08	mg/kg-d	1.5	$(mg/kg\text{-}d)^{-1}$	3.9E-08
										Total Risk Across All Exposure Routes/Pathways	6.6E-07

(1) M = Medium-Specific, R = Route-Specific

TABLE 8.8.1.RME
CALCULATION OF CANCER RISKS
REASONABLE MAXIMUM EXPOSURE
Nine Mile - Residential Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Surface soil
Exposure Point:	Yard soil
Receptor Population:	Residents
Receptor Age:	Child/Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Risk Calculation (1)	Intake (Cancer)	Intake (Cancer) Units	Cancer Slope Factor	Cancer Slope Factor Units	Cancer Risk
Ingestion	Arsenic	41.62	mg/kg	41.62	mg/kg	M	3.91E-05	mg/kg-d	1.5	$(mg/kg\text{-}d)^{-1}$	5.9E-05
Dermal	Arsenic	41.62	mg/kg	41.62	mg/kg	M	4.48E-06	mg/kg-d	1.5	$(mg/kg\text{-}d)^{-1}$	6.7E-06
										Total Risk Across All Exposure Routes/Pathways	6.5E-05

(1) M = Medium-Specific, R = Route-Specific

TABLE 8.8.1.CT
CALCULATION OF CANCER RISKS
CENTRAL TENDENCY EXPOSURE
Nine Mile - Residential Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Surface soil
Exposure Point:	Yard soil
Receptor Population:	Residents
Receptor Age:	Child/Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Risk Calculation (1)	Intake (Cancer)	Intake (Cancer) Units	Cancer Slope Factor	Cancer Slope Factor Units	Cancer Risk
Ingestion	Arsenic	31.58	mg/kg	31.58	mg/kg	M	3.53E-06	mg/kg-d	1.5	$(mg/kg\text{-}d)^{-1}$	5.3E-06
Dermal	Arsenic	31.58	mg/kg	31.58	mg/kg	M	8.07E-07	mg/kg-d	1.5	$(mg/kg\text{-}d)^{-1}$	1.2E-06
										Total Risk Across All Exposure Routes/Pathways	6.5E-06

(1) M = Medium-Specific, R = Route-Specific

TABLE 8.8.2.RME
CALCULATION OF CANCER RISKS
REASONABLE MAXIMUM EXPOSURE
Nine Mile - Residential Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Groundwater
Exposure Medium:	Groundwater
Exposure Point:	Tap water
Receptor Population:	Residents
Receptor Age:	Child/Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Risk Calculation (1)	Intake (Cancer)	Intake (Cancer) Units	Cancer Slope Factor	Cancer Slope Factor Units	Cancer Risk
Ingestion	Arsenic	0.74	ug/L	0.74	ug/L	M	1.10E-05	mg/kg-d	1.5	$(mg/kg\text{-}d)^{-1}$	1.7E-05
										Total Risk Across All Exposure Routes/Pathways	1.7E-05

(1) M = Medium-Specific, R = Route-Specific

TABLE 8.8.2.CT
CALCULATION OF CANCER RISKS
CENTRAL TENDENCY EXPOSURE
Nine Mile - Residential Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Groundwater
Exposure Medium:	Groundwater
Exposure Point:	Tap water
Receptor Population:	Residents
Receptor Age:	Child/Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Risk Calculation (1)	Intake (Cancer)	Intake (Cancer) Units	Cancer Slope Factor	Cancer Slope Factor Units	Cancer Risk
Ingestion	Arsenic	0.45	ug/L	0.45	ug/L	M	1.13E-06	mg/kg-d	1.5	$(mg/kg\text{-}d)^{-1}$	1.7E-06
										Total Risk Across All Exposure Routes/Pathways	1.7E-06

(1) M = Medium-Specific, R = Route-Specific

TABLE 8.8.3.RME
CALCULATION OF CANCER RISKS
REASONABLE MAXIMUM EXPOSURE
Nine Mile - Residential Exposure Scenario

Scenario Timeframe:	Future
Medium:	Groundwater
Exposure Medium:	Groundwater
Exposure Point:	Tap water
Receptor Population:	Residents
Receptor Age:	Child/Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Risk Calculation (1)	Intake (Cancer)	Intake (Cancer) Units	Cancer Slope Factor	Cancer Slope Factor Units	Cancer Risk
Ingestion	Arsenic	1.25	ug/L	1.25	ug/L	M	1.86E-05	mg/kg-d	1.5	$(mg/kg\text{-}d)^{-1}$	2.8E-05
										Total Risk Across All Exposure Routes/Pathways	2.8E-05

(1) M = Medium-Specific, R = Route-Specific

TABLE 8.8.3.CT
CALCULATION OF CANCER RISKS
CENTRAL TENDENCY EXPOSURE
Nine Mile - Residential Exposure Scenario

Scenario Timeframe:	Future
Medium:	Groundwater
Exposure Medium:	Groundwater
Exposure Point:	Tap water
Receptor Population:	Residents
Receptor Age:	Child/Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Risk Calculation (1)	Intake (Cancer)	Intake (Cancer) Units	Cancer Slope Factor	Cancer Slope Factor Units	Cancer Risk
Ingestion	Arsenic	0.81	ug/L	0.81	ug/L	M	2.03E-06	mg/kg-d	1.5	$(mg/kg\text{-}d)^{-1}$	3.0E-06
										Total Risk Across All Exposure Routes/Pathways	3.0E-06

(1) M = Medium-Specific, R = Route-Specific

TABLE 8.8.4.RME
CALCULATION OF CANCER RISKS
REASONABLE MAXIMUM EXPOSURE
Nine Mile - Neighborhood Recreational Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Surface soil
Exposure Point:	Waste piles
Receptor Population:	Neighborhood residents
Receptor Age:	Child 4-11 years old

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Risk Calculation (1)	Intake (Cancer)	Intake (Cancer) Units	Cancer Slope Factor	Cancer Slope Factor Units	Cancer Risk
Ingestion	Arsenic	518.49	mg/kg	518.49	mg/kg	M	1.55E-05	mg/kg-d	1.5	$(mg/kg\text{-}d)^{-1}$	2.3E-05
Dermal	Arsenic	518.49	mg/kg	518.49	mg/kg	M	5.26E-06	mg/kg-d	1.5	$(mg/kg\text{-}d)^{-1}$	7.9E-06
										Total Risk Across All Exposure Routes/Pathways	3.1E-05

(1) M = Medium-Specific, R = Route-Specific

TABLE 8.8.4.CT
CALCULATION OF CANCER RISKS
CENTRAL TENDENCY EXPOSURE
Nine Mile - Neighborhood Recreational Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Surface soil
Exposure Point:	Waste piles
Receptor Population:	Neighborhood residents
Receptor Age:	Child 4-11 years old

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Risk Calculation (1)	Intake (Cancer)	Intake (Cancer) Units	Cancer Slope Factor	Cancer Slope Factor Units	Cancer Risk
Ingestion	Arsenic	95.57	mg/kg	95.57	mg/kg	M	1.64E-07	mg/kg-d	1.5	$(mg/kg\text{-}d)^{-1}$	2.5E-07
Dermal	Arsenic	95.57	mg/kg	95.57	mg/kg	M	1.38E-07	mg/kg-d	1.5	$(mg/kg\text{-}d)^{-1}$	2.1E-07
										Total Risk Across All Exposure Routes/Pathways	4.5E-07

(1) M = Medium-Specific, R = Route-Specific

TABLE 8.8.5.RME
CALCULATION OF CANCER RISKS
REASONABLE MAXIMUM EXPOSURE
Nine Mile - Neighborhood Recreational Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Sediment
Exposure Medium:	Sediment
Exposure Point:	Nine Mile/Canyon Creek
Receptor Population:	Neighborhood residents
Receptor Age:	Child 4-11 years old

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Risk Calculation (1)	Intake (Cancer)	Intake (Cancer) Units	Cancer Slope Factor	Cancer Slope Factor Units	Cancer Risk
Ingestion	Arsenic	50.62	mg/kg	50.62	mg/kg	M	1.87E-06	mg/kg-d	1.5	$(mg/kg\text{-}d)^{-1}$	2.8E-06
Dermal	Arsenic	50.62	mg/kg	50.62	mg/kg	M	1.45E-06	mg/kg-d	1.5	$(mg/kg\text{-}d)^{-1}$	2.2E-06
										Total Risk Across All Exposure Routes/Pathways	5.0E-06

(1) M = Medium-Specific, R = Route-Specific

TABLE 8.8.5.CT
CALCULATION OF CANCER RISKS
CENTRAL TENDENCY EXPOSURE
Nine Mile - Neighborhood Recreational Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Sediment
Exposure Medium:	Sediment
Exposure Point:	Nine Mile/Canyon Creek
Receptor Population:	Neighborhood residents
Receptor Age:	Child 4-11 years old

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Risk Calculation (1)	Intake (Cancer)	Intake (Cancer) Units	Cancer Slope Factor	Cancer Slope Factor Units	Cancer Risk
Ingestion	Arsenic	23.12	mg/kg	23.12	mg/kg	M	4.65E-08	mg/kg-d	1.5	$(mg/kg\text{-}d)^{-1}$	7.0E-08
Dermal	Arsenic	23.12	mg/kg	23.12	mg/kg	M	9.46E-08	mg/kg-d	1.5	$(mg/kg\text{-}d)^{-1}$	1.4E-07
										Total Risk Across All Exposure Routes/Pathways	2.1E-07

(1) M = Medium-Specific, R = Route-Specific

TABLE 8.8.6.RME
CALCULATION OF CANCER RISKS
REASONABLE MAXIMUM EXPOSURE
Nine Mile - Neighborhood Recreational Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Surface water
Exposure Medium:	Surface water
Exposure Point:	Nine Mile/Canyon Creek
Receptor Population:	Neighborhood residents
Receptor Age:	Child 4-11 years old

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Risk Calculation (1)	Intake (Cancer)	Intake (Cancer) Units	Cancer Slope Factor	Cancer Slope Factor Units	Cancer Risk
Ingestion	Arsenic	1.1	ug/L	1.1	ug/L	M	3.10E-08	mg/kg-d	1.5	$(mg/kg\text{-}d)^{-1}$	4.6E-08
										Total Risk Across All Exposure Routes/Pathways	4.6E-08

(1) M = Medium-Specific, R = Route-Specific

TABLE 8.8.6.CT
CALCULATION OF CANCER RISKS
CENTRAL TENDENCY EXPOSURE
Nine Mile - Neighborhood Recreational Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Surface water
Exposure Medium:	Surface water
Exposure Point:	Nine Mile/Canyon Creek
Receptor Population:	Neighborhood residents
Receptor Age:	Child 4-11 years old

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Risk Calculation (1)	Intake (Cancer)	Intake (Cancer) Units	Cancer Slope Factor	Cancer Slope Factor Units	Cancer Risk
Ingestion	Arsenic	0.7	ug/L	0.7	ug/L	M	2.82E-09	mg/kg-d	1.5	$(mg/kg\text{-}d)^{-1}$	4.2E-09
										Total Risk Across All Exposure Routes/Pathways	4.2E-09

(1) M = Medium-Specific, R = Route-Specific

TABLE 8.8.7.RME
CALCULATION OF CANCER RISKS
REASONABLE MAXIMUM EXPOSURE
Nine Mile - Occupational Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Surface/subsurface soil
Exposure Point:	Construction site soil
Receptor Population:	Construction worker
Receptor Age:	Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Risk Calculation (1)	Intake (Cancer)	Intake (Cancer) Units	Cancer Slope Factor	Cancer Slope Factor Units	Cancer Risk
Ingestion	Arsenic	24.97	mg/kg	24.97	mg/kg	M	1.23E-05	mg/kg-d	1.5	$(mg/kg\text{-}d)^{-1}$	1.8E-05
Dermal	Arsenic	24.97	mg/kg	24.97	mg/kg	M	5.10E-07	mg/kg-d	1.5	$(mg/kg\text{-}d)^{-1}$	7.7E-07
										Total Risk Across All Exposure Routes/Pathways	1.9E-05

(1) M = Medium-Specific, R = Route-Specific

TABLE 8.8.7.CT
CALCULATION OF CANCER RISKS
CENTRAL TENDENCY EXPOSURE
Nine Mile - Occupational Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Surface/subsurface soil
Exposure Point:	Construction site soil
Receptor Population:	Construction worker
Receptor Age:	Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Risk Calculation (1)	Intake (Cancer)	Intake (Cancer) Units	Cancer Slope Factor	Cancer Slope Factor Units	Cancer Risk
Ingestion	Arsenic	21.24	mg/kg	21.24	mg/kg	M	4.04E-07	mg/kg-d	1.5	$(mg/kg\text{-}d)^{-1}$	6.1E-07
Dermal	Arsenic	21.24	mg/kg	21.24	mg/kg	M	2.53E-08	mg/kg-d	1.5	$(mg/kg\text{-}d)^{-1}$	3.8E-08
										Total Risk Across All Exposure Routes/Pathways	6.4E-07

(1) M = Medium-Specific, R = Route-Specific

TABLE 8.9.1.RME
CALCULATION OF CANCER RISKS
REASONABLE MAXIMUM EXPOSURE
Mullan - Residential Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Surface soil
Exposure Point:	Yard soil
Receptor Population:	Residents
Receptor Age:	Child/Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Risk Calculation (1)	Intake (Cancer)	Intake (Cancer) Units	Cancer Slope Factor	Cancer Slope Factor Units	Cancer Risk
Ingestion	Arsenic	39.04	mg/kg	39.04	mg/kg	M	3.67E-05	mg/kg-d	1.5	$(mg/kg\text{-}d)^{-1}$	5.5E-05
Dermal	Arsenic	39.04	mg/kg	39.04	mg/kg	M	4.20E-06	mg/kg-d	1.5	$(mg/kg\text{-}d)^{-1}$	6.3E-06
										Total Risk Across All Exposure Routes/Pathways	6.1E-05

(1) M = Medium-Specific, R = Route-Specific

TABLE 8.9.1.CT
CALCULATION OF CANCER RISKS
CENTRAL TENDENCY EXPOSURE
Mullan - Residential Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Surface soil
Exposure Point:	Yard soil
Receptor Population:	Residents
Receptor Age:	Child/Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Risk Calculation (1)	Intake (Cancer)	Intake (Cancer) Units	Cancer Slope Factor	Cancer Slope Factor Units	Cancer Risk
Ingestion	Arsenic	27.3	mg/kg	27.3	mg/kg	M	3.06E-06	mg/kg-d	1.5	$(mg/kg\text{-}d)^{-1}$	4.6E-06
Dermal	Arsenic	27.3	mg/kg	27.3	mg/kg	M	6.97E-07	mg/kg-d	1.5	$(mg/kg\text{-}d)^{-1}$	1.0E-06
										Total Risk Across All Exposure Routes/Pathways	5.6E-06

(1) M = Medium-Specific, R = Route-Specific

TABLE 8.9.2.RME
CALCULATION OF CANCER RISKS
REASONABLE MAXIMUM EXPOSURE
Mullan - Residential Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Groundwater
Exposure Medium:	Groundwater
Exposure Point:	Tap water
Receptor Population:	Residents
Receptor Age:	Child/Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Risk Calculation (1)	Intake (Cancer)	Intake (Cancer) Units	Cancer Slope Factor	Cancer Slope Factor Units	Cancer Risk
Ingestion	Arsenic	0.25	ug/L	0.25	ug/L	M	3.72E-06	mg/kg-d	1.5	$(mg/kg\text{-}d)^{-1}$	5.6E-06
										Total Risk Across All Exposure Routes/Pathways	5.6E-06

(1) M = Medium-Specific, R = Route-Specific

TABLE 8.9.2.CT
CALCULATION OF CANCER RISKS
CENTRAL TENDENCY EXPOSURE
Mullan - Residential Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Groundwater
Exposure Medium:	Groundwater
Exposure Point:	Tap water
Receptor Population:	Residents
Receptor Age:	Child/Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Risk Calculation (1)	Intake (Cancer)	Intake (Cancer) Units	Cancer Slope Factor	Cancer Slope Factor Units	Cancer Risk
Ingestion	Arsenic	0.13	ug/L	0.13	ug/L	M	3.25E-07	mg/kg-d	1.5	$(mg/kg\text{-}d)^{-1}$	4.9E-07
										Total Risk Across All Exposure Routes/Pathways	4.9E-07

(1) M = Medium-Specific, R = Route-Specific

TABLE 8.9.3.RME
CALCULATION OF CANCER RISKS
REASONABLE MAXIMUM EXPOSURE
Mullan - Neighborhood Recreational Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Surface soil
Exposure Point:	Waste piles
Receptor Population:	Neighborhood residents
Receptor Age:	Child 4-11 years old

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Risk Calculation (1)	Intake (Cancer)	Intake (Cancer) Units	Cancer Slope Factor	Cancer Slope Factor Units	Cancer Risk
Ingestion	Arsenic	42.1	mg/kg	42.1	mg/kg	M	1.26E-06	mg/kg-d	1.5	$(mg/kg\text{-}d)^{-1}$	1.9E-06
Dermal	Arsenic	42.1	mg/kg	42.1	mg/kg	M	4.27E-07	mg/kg-d	1.5	$(mg/kg\text{-}d)^{-1}$	6.4E-07
										Total Risk Across All Exposure Routes/Pathways	2.5E-06

(1) M = Medium-Specific, R = Route-Specific

TABLE 8.9.3.CT
CALCULATION OF CANCER RISKS
CENTRAL TENDENCY EXPOSURE
Mullan - Neighborhood Recreational Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Surface soil
Exposure Point:	Waste piles
Receptor Population:	Neighborhood residents
Receptor Age:	Child 4-11 years old

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Risk Calculation (1)	Intake (Cancer)	Intake (Cancer) Units	Cancer Slope Factor	Cancer Slope Factor Units	Cancer Risk
Ingestion	Arsenic	23.6	mg/kg	23.6	mg/kg	M	4.04E-08	mg/kg-d	1.5	$(mg/kg\text{-}d)^{-1}$	6.1E-08
Dermal	Arsenic	23.6	mg/kg	23.6	mg/kg	M	3.42E-08	mg/kg-d	1.5	$(mg/kg\text{-}d)^{-1}$	5.1E-08
										Total Risk Across All Exposure Routes/Pathways	1.1E-07

(1) M = Medium-Specific, R = Route-Specific

TABLE 8.9.4.RME
CALCULATION OF CANCER RISKS
REASONABLE MAXIMUM EXPOSURE
Mullan - Neighborhood Recreational Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Sediment
Exposure Medium:	Sediment
Exposure Point:	SFCDAR
Receptor Population:	Neighborhood residents
Receptor Age:	Child 4-11 years old

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Risk Calculation (1)	Intake (Cancer)	Intake (Cancer) Units	Cancer Slope Factor	Cancer Slope Factor Units	Cancer Risk
Ingestion	Arsenic	15.89	mg/kg	15.89	mg/kg	M	5.88E-07	mg/kg-d	1.5	$(mg/kg\text{-}d)^{-1}$	8.8E-07
Dermal	Arsenic	15.89	mg/kg	15.89	mg/kg	M	4.55E-07	mg/kg-d	1.5	$(mg/kg\text{-}d)^{-1}$	6.8E-07
										Total Risk Across All Exposure Routes/Pathways	1.6E-06

(1) M = Medium-Specific, R = Route-Specific

TABLE 8.9.4.CT
CALCULATION OF CANCER RISKS
CENTRAL TENDENCY EXPOSURE
Mullan - Neighborhood Recreational Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Sediment
Exposure Medium:	Sediment
Exposure Point:	SFCDAR
Receptor Population:	Neighborhood residents
Receptor Age:	Child 4-11 years old

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Risk Calculation (1)	Intake (Cancer)	Intake (Cancer) Units	Cancer Slope Factor	Cancer Slope Factor Units	Cancer Risk
Ingestion	Arsenic	13.21	mg/kg	13.21	mg/kg	M	2.66E-08	mg/kg-d	1.5	$(mg/kg\text{-}d)^{-1}$	4.0E-08
Dermal	Arsenic	13.21	mg/kg	13.21	mg/kg	M	5.40E-08	mg/kg-d	1.5	$(mg/kg\text{-}d)^{-1}$	8.1E-08
										Total Risk Across All Exposure Routes/Pathways	1.2E-07

(1) M = Medium-Specific, R = Route-Specific

TABLE 8.9.5.RME
CALCULATION OF CANCER RISKS
REASONABLE MAXIMUM EXPOSURE
Mullan - Neighborhood Recreational Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Surface water
Exposure Medium:	Surface water
Exposure Point:	SFCDAR
Receptor Population:	Neighborhood residents
Receptor Age:	Child 4-11 years old

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Risk Calculation (1)	Intake (Cancer)	Intake (Cancer) Units	Cancer Slope Factor	Cancer Slope Factor Units	Cancer Risk
Ingestion	Arsenic	0.6	ug/L	0.6	ug/L	M	1.69E-08	mg/kg-d	1.5	$(mg/kg\text{-}d)^{-1}$	2.5E-08
										Total Risk Across All Exposure Routes/Pathways	2.5E-08

(1) M = Medium-Specific, R = Route-Specific

TABLE 8.9.5.CT
CALCULATION OF CANCER RISKS
CENTRAL TENDENCY EXPOSURE
Mullan - Neighborhood Recreational Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Surface water
Exposure Medium:	Surface water
Exposure Point:	SFCDAR
Receptor Population:	Neighborhood residents
Receptor Age:	Child 4-11 years old

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Risk Calculation (1)	Intake (Cancer)	Intake (Cancer) Units	Cancer Slope Factor	Cancer Slope Factor Units	Cancer Risk
Ingestion	Arsenic	0.54	ug/L	0.54	ug/L	M	2.17E-09	mg/kg-d	1.5	$(mg/kg\text{-}d)^{-1}$	3.3E-09
										Total Risk Across All Exposure Routes/Pathways	3.3E-09

(1) M = Medium-Specific, R = Route-Specific

TABLE 8.9.6.RME
CALCULATION OF CANCER RISKS
REASONABLE MAXIMUM EXPOSURE
Mullan - Occupational Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Surface/subsurface soil
Exposure Point:	Construction site soil
Receptor Population:	Construction worker
Receptor Age:	Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Risk Calculation (1)	Intake (Cancer)	Intake (Cancer) Units	Cancer Slope Factor	Cancer Slope Factor Units	Cancer Risk
Ingestion	Arsenic	31.66	mg/kg	31.66	mg/kg	M	1.55E-05	mg/kg-d	1.5	$(mg/kg\text{-}d)^{-1}$	2.3E-05
Dermal	Arsenic	31.66	mg/kg	31.66	mg/kg	M	6.47E-07	mg/kg-d	1.5	$(mg/kg\text{-}d)^{-1}$	9.7E-07
										Total Risk Across All Exposure Routes/Pathways	2.4E-05

(1) M = Medium-Specific, R = Route-Specific

TABLE 8.9.6.CT
CALCULATION OF CANCER RISKS
CENTRAL TENDENCY EXPOSURE
Mullan - Occupational Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Surface/subsurface soil
Exposure Point:	Construction site soil
Receptor Population:	Construction worker
Receptor Age:	Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Risk Calculation (1)	Intake (Cancer)	Intake (Cancer) Units	Cancer Slope Factor	Cancer Slope Factor Units	Cancer Risk
Ingestion	Arsenic	26.48	mg/kg	26.48	mg/kg	M	5.04E-07	mg/kg-d	1.5	$(mg/kg\text{-}d)^{-1}$	7.6E-07
Dermal	Arsenic	26.48	mg/kg	26.48	mg/kg	M	3.15E-08	mg/kg-d	1.5	$(mg/kg\text{-}d)^{-1}$	4.7E-08
										Total Risk Across All Exposure Routes/Pathways	8.0E-07

(1) M = Medium-Specific, R = Route-Specific

TABLE 8.10.1.RME
CALCULATION OF CANCER RISKS
REASONABLE MAXIMUM EXPOSURE
Blackwell Island - Public Recreational Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Soil/sediment
Exposure Medium:	Soil/sediment
Exposure Point:	Spokane River
Receptor Population:	Visitors
Receptor Age:	Child/Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Risk Calculation (1)	Intake (Cancer)	Intake (Cancer) Units	Cancer Slope Factor	Cancer Slope Factor Units	Cancer Risk
Ingestion	Arsenic	50	mg/kg	50	mg/kg	M	5.80E-06	mg/kg-d	1.5	$(mg/kg\text{-}d)^{-1}$	8.7E-06
Dermal	Arsenic	50	mg/kg	50	mg/kg	M	2.14E-06	mg/kg-d	1.5	$(mg/kg\text{-}d)^{-1}$	3.2E-06
										Total Risk Across All Exposure Routes/Pathways	1.2E-05

(1) M = Medium-Specific, R = Route-Specific

TABLE 8.10.1.CT
CALCULATION OF CANCER RISKS
CENTRAL TENDENCY EXPOSURE
Blackwell Island - Public Recreational Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Soil/sediment
Exposure Medium:	Soil/sediment
Exposure Point:	Spokane River
Receptor Population:	Visitors
Receptor Age:	Child/Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Risk Calculation (1)	Intake (Cancer)	Intake (Cancer) Units	Cancer Slope Factor	Cancer Slope Factor Units	Cancer Risk
Ingestion	Arsenic	41.03	mg/kg	41.03	mg/kg	M	3.24E-07	mg/kg-d	1.5	$(mg/kg\text{-}d)^{-1}$	4.9E-07
Dermal	Arsenic	41.03	mg/kg	41.03	mg/kg	M	2.72E-07	mg/kg-d	1.5	$(mg/kg\text{-}d)^{-1}$	4.1E-07
										Total Risk Across All Exposure Routes/Pathways	8.9E-07

(1) M = Medium-Specific, R = Route-Specific

TABLE 8.10.2.RME
CALCULATION OF CANCER RISKS
REASONABLE MAXIMUM EXPOSURE
Blackwell Island - Public Recreational Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Surface water
Exposure Medium:	Surface water
Exposure Point:	Spokane River
Receptor Population:	Visitors
Receptor Age:	Child/Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Risk Calculation (1)	Intake (Cancer)	Intake (Cancer) Units	Cancer Slope Factor	Cancer Slope Factor Units	Cancer Risk
Ingestion	Arsenic	20.8	ug/L	20.8	ug/L	M	5.81E-07	mg/kg-d	1.5	$(mg/kg\text{-}d)^{-1}$	8.7E-07
										Total Risk Across All Exposure Routes/Pathways	8.7E-07

(1) M = Medium-Specific, R = Route-Specific

TABLE 8.10.2.CT
CALCULATION OF CANCER RISKS
CENTRAL TENDENCY EXPOSURE
Blackwell Island - Public Recreational Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Surface water
Exposure Medium:	Surface water
Exposure Point:	Spokane River
Receptor Population:	Visitors
Receptor Age:	Child/Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Risk Calculation (1)	Intake (Cancer)	Intake (Cancer) Units	Cancer Slope Factor	Cancer Slope Factor Units	Cancer Risk
Ingestion	Arsenic	10.56	ug/L	10.56	ug/L	M	4.63E-08	mg/kg-d	1.5	$(mg/kg\text{-}d)^{-1}$	6.9E-08
										Total Risk Across All Exposure Routes/Pathways	6.9E-08

(1) M = Medium-Specific, R = Route-Specific

TABLE 8.11.1.RME
CALCULATION OF CANCER RISKS
REASONABLE MAXIMUM EXPOSURE
All Areas Combined - Residential Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Plant Tissue
Exposure Point:	Homegrown vegetables
Receptor Population:	Residents
Receptor Age:	Child/Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Risk Calculation (1)	Intake (Cancer)	Intake (Cancer) Units	Cancer Slope Factor	Cancer Slope Factor Units	Cancer Risk
Ingestion	Arsenic	0.025	mg/kg	0.025	mg/kg	M	5.40E-05	mg/kg-d	1.5	$(mg/kg\text{-}d)^{-1}$	8.1E-05
										Total Risk Across All Exposure Routes/Pathways	8.1E-05

(1) M = Medium-Specific, R = Route-Specific

TABLE 8.11.1.CT
CALCULATION OF CANCER RISKS
CENTRAL TENDENCY EXPOSURE
All Areas Combined - Residential Exposure Scenario

Scenario Timeframe:	Current/Future
Medium:	Soil
Exposure Medium:	Plant Tissue
Exposure Point:	Homegrown vegetables
Receptor Population:	Residents
Receptor Age:	Child/Adult

Exposure Route	Chemical of Potential Concern	Medium EPC Value	Medium EPC Units	Route EPC Value	Route EPC Units	EPC Selected for Risk Calculation (1)	Intake (Cancer)	Intake (Cancer) Units	Cancer Slope Factor	Cancer Slope Factor Units	Cancer Risk
Ingestion	Arsenic	0.02	mg/kg	0.02	mg/kg	M	1.27E-06	mg/kg-d	1.5	$(mg/kg\text{-}d)^{-1}$	1.9E-06
										Total Risk Across All Exposure Routes/Pathways	1.9E-06

(1) M = Medium-Specific, R = Route-Specific

TABLE 9.1.1.RME

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

REASONABLE MAXIMUM EXPOSURE

Lower Basin

Scenario Timeframe:	Current/Future
Receptor Population:	Residents
Receptor Age:	Child 0-6 years old

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ (1)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface soil	Yard soil											
			Arsenic	N/A	N/A	N/A	N/A	Antimony	longevity, glucose/ cholesterol--blood	2.6E-01	N/A	N/A	2.6E-01
								Arsenic	NOAEL/skin pigmentation	1.2E+00	N/A	1.4E-01	1.3E+00
								Cadmium	NOAEL/proteinuria--kidney	8.8E-02	N/A	7.7E-03	9.6E-02
								Iron	hematology--blood	1.6E+00	N/A	N/A	1.6E+00
								Manganese	NOAEL/Central Nervous System	6.2E-01	N/A	N/A	6.2E-01
								Zinc	enzyme effects--blood	5.1E-02	N/A	N/A	5.1E-02
			(Total)	N/A	N/A	N/A	N/A	(Total)		3.9E+00	N/A	1.4E-01	4.0E+00
Groundwater	Groundwater	Tap water											
			Arsenic	N/A	N/A	N/A	N/A	Arsenic	NOAEL/skin pigmentation	2.1E-01	N/A	N/A	2.1E-01

Total Risk Across Soil	N/A
Total Risk Across Groundwater	N/A
Total Risk Across All Media and All Exposure Routes	N/A
Total Hazard Index Across All Media and All Exposure Routes	4.2E+00

(1) Total organ Hazard Indices were not calculated because the effects on each target organ differs, and are therefore not additive. Specifically, although the effects of antimony, iron, and zinc can all be measured in blood, each chemical affects blood chemistry in a different and unrelated way (serum glucose/cholesterol, serum ferritin and percent transferrin saturation, and serum superoxide dismutase activity for antimony, iron, and zinc, respectively).

N/A = not applicable

TABLE 9.1.1.CT

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

CENTRAL TENDENCY EXPOSURE

Lower Basin

Scenario Timeframe:	Current/Future
Receptor Population:	Residents
Receptor Age:	Child 0-6 years old

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ (1)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface soil	Yard soil											
			Arsenic	N/A	N/A	N/A	N/A	Antimony	longevity, glucose/ cholesterol--blood	6.7E-02	N/A	N/A	6.7E-02
								Arsenic	NOAEL/skin pigmentation	3.4E-01	N/A	7.4E-02	4.1E-01
								Cadmium	NOAEL/proteinuria--kidney	2.4E-02	N/A	4.2E-03	2.8E-02
								Iron	hematology--blood	4.7E-01	N/A	N/A	4.7E-01
								Manganese	NOAEL/Central Nervous System	1.7E-01	N/A	N/A	1.7E-01
								Zinc	enzyme effects--blood	1.3E-02	N/A	N/A	1.3E-02
			(Total)	N/A	N/A	N/A	N/A	(Total)		1.1E+00	N/A	7.8E-02	1.2E+00
Groundwater	Groundwater	Tap water											
			Arsenic	N/A	N/A	N/A	N/A	Arsenic	NOAEL/skin pigmentation	5.4E-02	N/A	N/A	5.4E-02

Total Risk Across Soil	N/A
Total Risk Across Groundwater	N/A
Total Risk Across All Media and All Exposure Routes	N/A
Total Hazard Index Across All Media and All Exposure Routes	1.2E+00

(1) Total organ Hazard Indices were not calculated because the effects on each target organ differs, and are therefore not additive. Specifically, although the effects of antimony, iron, and zinc can all be measured in blood, each chemical affects blood chemistry in a different and unrelated way (serum glucose/cholesterol, serum ferritin and percent transferrin saturation, and serum superoxide dismutase activity for antimony, iron, and zinc, respectively).

N/A = not applicable

TABLE 9.1.2.RME

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

REASONABLE MAXIMUM EXPOSURE

Lower Basin

Scenario Timeframe: Current/Future
Receptor Population: Residents
Receptor Age: Child/Adult

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ (1)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface soil	Yard soil	Arsenic	6.8E-05	N/A	7.8E-06	7.6E-05	Antimony	longevity, glucose/ cholesterol--blood	7.5E-02	N/A	N/A	7.5E-02
								Arsenic	NOAEL/skin pigmentation	3.5E-01	N/A	4.1E-02	3.9E-01
								Cadmium	NOAEL/proteinuria--kidney	2.5E-02	N/A	2.3E-03	2.7E-02
								Iron	hematology--blood	4.6E-01	N/A	N/A	4.6E-01
								Manganese	NOAEL/Central Nervous System	1.8E-01	N/A	N/A	1.8E-01
								Zinc	enzyme effects--blood	1.5E-02	N/A	N/A	1.5E-02
			(Total)	6.8E-05	N/A	7.8E-06	7.6E-05	(Total)		1.1E+00	N/A	4.3E-02	1.1E+00
Groundwater	Groundwater	Tap water	Arsenic	2.2E-05	N/A	N/A	2.2E-05	Arsenic	NOAEL/skin pigmentation	1.1E-01	N/A	N/A	1.1E-01
						Total Risk Across Soil	7.6E-05					Total Hazard Index Across All Media and All Exposure Routes	1.3E+00
						Total Risk Across Groundwater	2.2E-05						
						Total Risk Across All Media and All Exposure Routes	9.8E-05						

(1) Total organ Hazard Indices were not calculated because the effects on each target organ differs, and are therefore not additive. Specifically, although the effects of antimony, iron, and zinc can all be measured in blood, each chemical affects blood chemistry in a different and unrelated way (serum glucose/cholesterol, serum ferritin and percent transferrin saturation, and serum superoxide dismutase activity for antimony, iron, and zinc, respectively).

N/A = not applicable

TABLE 9.1.2.CT

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

CENTRAL TENDENCY EXPOSURE

Lower Basin

Scenario Timeframe:	Current/Future
Receptor Population:	Residents
Receptor Age:	Child/Adult

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ (1)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface soil	Yard soil	Arsenic	6.0E-06	N/A	1.4E-06	7.3E-06	Antimony	longevity, glucose/ cholesterol--blood	2.0E-02	N/A	N/A	2.0E-02
								Arsenic	NOAEL/skin pigmentation	1.0E-01	N/A	2.3E-02	1.2E-01
								Cadmium	NOAEL/proteinuria--kidney	7.2E-03	N/A	1.3E-03	8.5E-03
								Iron	hematology--blood	1.5E-01	N/A	N/A	1.5E-01
								Manganese	NOAEL/Central Nervous System	5.1E-02	N/A	N/A	5.1E-02
								Zinc	enzyme effects--blood	4.1E-03	N/A	N/A	4.1E-03
			(Total)	6.0E-06	N/A	1.4E-06	7.3E-06	(Total)		3.3E-01	N/A	2.5E-02	3.6E-01
Groundwater	Groundwater	Tap water	Arsenic	1.4E-06	N/A	N/A	1.4E-06	Arsenic	NOAEL/skin pigmentation	2.5E-02	N/A	N/A	2.5E-02

Total Risk Across Soil	7.3E-06
Total Risk Across Groundwater	1.4E-06
Total Risk Across All Media and All Exposure Routes	8.7E-06
Total Hazard Index Across All Media and All Exposure Routes	3.8E-01

(1) Total organ Hazard Indices were not calculated because the effects on each target organ differs, and are therefore not additive. Specifically, although the effects of antimony, iron, and zinc can all be measured in blood, each chemical affects blood chemistry in a different and unrelated way (serum glucose/cholesterol, serum ferritin and percent transferrin saturation, and serum superoxide dismutase activity for antimony, iron, and zinc, respectively).

N/A = not applicable

TABLE 9.1.3.RME

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

REASONABLE MAXIMUM EXPOSURE

Lower Basin

Scenario Timeframe:	Current/Future
Receptor Population:	Neighborhood residents
Receptor Age:	Child 4-11 years old

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ (1)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil/Sediment	Soil/sediment	Lower CDAR	Arsenic	6.6E-06	N/A	8.0E-06	1.5E-05	Antimony	longevity, glucose/ cholesterol--blood	3.6E-02	N/A	N/A	3.6E-02
								Arsenic	NOAEL/skin pigmentation	1.5E-01	N/A	1.8E-01	3.3E-01
								Cadmium	NOAEL/proteinuria--kidney	2.2E-02	N/A	2.1E-02	4.3E-02
								Iron	hematology--blood	2.2E-01	N/A	N/A	2.2E-01
								Manganese	NOAEL/Central Nervous System	1.3E-01	N/A	N/A	1.3E-01
								Zinc	enzyme effects--blood	1.2E-02	N/A	N/A	1.2E-02
			(Total)	6.6E-06	N/A	8.0E-06	1.5E-05	(Total)		5.6E-01	N/A	2.0E-01	7.6E-01
Surface Water	Disturbed surface water	Lower CDAR	Arsenic	3.4E-06	N/A	N/A	3.4E-06	Arsenic	NOAEL/skin pigmentation	7.5E-02	N/A	N/A	7.5E-02
								Cadmium	NOAEL/proteinuria--kidney	4.1E-02	N/A	N/A	4.1E-02
								Manganese	NOAEL/Central Nervous System	1.0E-01	N/A	N/A	1.0E-01
								Mercury	autoimmunity	4.2E-03	N/A	N/A	4.2E-03
			(Total)	3.4E-06	N/A	N/A	3.4E-06	(Total)		2.2E-01	N/A	N/A	2.2E-01

Total Risk Across Soil/sediment	1.5E-05
Total Risk Across Surface water	3.4E-06
Total Risk Across All Media and All Exposure Routes	1.8E-05
Total Hazard Index Across All Media and All Exposure Routes	9.8E-01

(1) Total organ Hazard Indices were not calculated because the effects on each target organ differs, and are therefore not additive. Specifically, although the effects of antimony, iron, and zinc can all be measured in blood, each chemical affects blood chemistry in a different and unrelated way (serum glucose/cholesterol, serum ferritin and percent transferrin saturation, and serum superoxide dismutase activity for antimony, iron, and zinc, respectively).

N/A = not applicable

TABLE 9.1.3.CT

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

CENTRAL TENDENCY EXPOSURE

Lower Basin

Scenario Timeframe:	Current/Future
Receptor Population:	Neighborhood residents
Receptor Age:	Child 4-11 years old

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ (1)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil/Sediment	Soil/sediment	Lower CDAR	Arsenic	3.5E-07	N/A	1.1E-06	1.4E-06	Antimony	longevity, glucose/ cholesterol--blood	6.5E-03	N/A	N/A	6.5E-03
								Arsenic	NOAEL/skin pigmentation	2.7E-02	N/A	8.6E-02	1.1E-01
								Cadmium	NOAEL/proteinuria--kidney	3.9E-03	N/A	9.9E-03	1.4E-02
								Iron	hematology--blood	4.0E-02	N/A	N/A	4.0E-02
								Manganese	NOAEL/Central Nervous System	2.3E-02	N/A	N/A	2.3E-02
								Zinc	enzyme effects--blood	2.1E-03	N/A	N/A	2.1E-03
			(Total)	3.5E-07	N/A	1.1E-06	1.4E-06	(Total)		1.0E-01	N/A	9.6E-02	2.0E-01
Surface Water	Disturbed surface water	Lower CDAR	Arsenic	4.6E-07	N/A	N/A	4.6E-07	Arsenic	NOAEL/skin pigmentation	3.6E-02	N/A	N/A	3.6E-02
								Cadmium	NOAEL/proteinuria--kidney	1.5E-02	N/A	N/A	1.5E-02
								Manganese	NOAEL/Central Nervous System	6.4E-02	N/A	N/A	6.4E-02
								Mercury	autoimmunity	2.1E-03	N/A	N/A	2.1E-03
			(Total)	4.6E-07	N/A	N/A	4.6E-07	(Total)		1.2E-01	N/A	N/A	1.2E-01

Total Risk Across Soil/sediment	1.4E-06
Total Risk Across Surface water	4.6E-07
Total Risk Across All Media and All Exposure Routes	1.9E-06
Total Hazard Index Across All Media and All Exposure Routes	3.1E-01

(1) Total organ Hazard Indices were not calculated because the effects on each target organ differs, and are therefore not additive. Specifically, although the effects of antimony, iron, and zinc can all be measured in blood, each chemical affects blood chemistry in a different and unrelated way (serum glucose/cholesterol, serum ferritin and percent transferrin saturation, and serum superoxide dismutase activity for antimony, iron, and zinc, respectively).

N/A = not applicable

TABLE 9.1.4.RME

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

REASONABLE MAXIMUM EXPOSURE

Lower Basin

Scenario Timeframe:	Current/Future
Receptor Population:	Visitors
Receptor Age:	Child 0-6 years old

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ (1)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil/Sediment	Soil/sediment	Lower CDAR	Arsenic	N/A	N/A	N/A	N/A	Antimony	longevity, glucose/ cholesterol--blood	1.0E-01	N/A	N/A	1.0E-01
								Arsenic	NOAEL/skin pigmentation	4.2E-01	N/A	9.1E-02	5.1E-01
								Cadmium	NOAEL/proteinuria--kidney	6.1E-02	N/A	1.1E-02	7.2E-02
								Iron	hematology--blood	6.2E-01	N/A	N/A	6.2E-01
								Manganese	NOAEL/Central Nervous System	3.7E-01	N/A	N/A	3.7E-01
								Zinc	enzyme effects--blood	3.3E-02	N/A	N/A	3.3E-02
			(Total)	N/A	N/A	N/A	N/A	(Total)		1.6E+00	N/A	1.0E-01	1.7E+00
Surface Water	Disturbed surface water	Lower CDAR	Arsenic	N/A	N/A	N/A	N/A	Arsenic	NOAEL/skin pigmentation	4.7E-02	N/A	N/A	4.7E-02
								Cadmium	NOAEL/proteinuria--kidney	2.6E-02	N/A	N/A	2.6E-02
								Manganese	NOAEL/Central Nervous System	6.2E-02	N/A	N/A	6.2E-02
								Mercury	autoimmunity	2.6E-03	N/A	N/A	2.6E-03
			(Total)	N/A	N/A	N/A	N/A	(Total)		1.4E-01	N/A	N/A	1.4E-01

Total Risk Across Soil/sediment	N/A
Total Risk Across Surface water	N/A
Total Risk Across All Media and All Exposure Routes	N/A
Total Hazard Index Across All Media and All Exposure Routes	1.8E+00

(1) Total organ Hazard Indices were not calculated because the effects on each target organ differs, and are therefore not additive. Specifically, although the effects of antimony, iron, and zinc can all be measured in blood, each chemical affects blood chemistry in a different and unrelated way (serum glucose/cholesterol, serum ferritin and percent transferrin saturation, and serum superoxide dismutase activity for antimony, iron, and zinc, respectively).

N/A = not applicable

TABLE 9.1.4.CT

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

CENTRAL TENDENCY EXPOSURE

Lower Basin

Scenario Timeframe:	Current/Future
Receptor Population:	Visitors
Receptor Age:	Child 0-6 years old

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ (1)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil/Sediment	Soil/sediment	Lower CDAR	Arsenic	N/A	N/A	N/A	N/A	Antimony	longevity, glucose/ cholesterol--blood	1.9E-02	N/A	N/A	1.9E-02
								Arsenic	NOAEL/skin pigmentation	8.0E-02	N/A	4.4E-02	1.2E-01
								Cadmium	NOAEL/proteinuria--kidney	1.2E-02	N/A	5.0E-03	1.7E-02
								Iron	hematology--blood	1.2E-01	N/A	N/A	1.2E-01
								Manganese	NOAEL/Central Nervous System	7.0E-02	N/A	N/A	7.0E-02
								Zinc	enzyme effects--blood	6.2E-03	N/A	N/A	6.2E-03
			(Total)	N/A	N/A	N/A	N/A	(Total)		3.1E-01	N/A	4.9E-02	3.5E-01
Surface Water	Disturbed surface water	Lower CDAR	Arsenic	N/A	N/A	N/A	N/A	Arsenic	NOAEL/skin pigmentation	2.2E-02	N/A	N/A	2.2E-02
								Cadmium	NOAEL/proteinuria--kidney	9.6E-03	N/A	N/A	9.6E-03
								Manganese	NOAEL/Central Nervous System	4.0E-02	N/A	N/A	4.0E-02
								Mercury	autoimmunity	1.3E-03	N/A	N/A	1.3E-03
			(Total)	N/A	N/A	N/A	N/A	(Total)		7.3E-02	N/A	N/A	7.3E-02

Total Risk Across Soil/sediment	N/A
Total Risk Across Surface water	N/A
Total Risk Across All Media and All Exposure Routes	N/A
Total Hazard Index Across All Media and All Exposure Routes	4.3E-01

(1) Total organ Hazard Indices were not calculated because the effects on each target organ differs, and are therefore not additive. Specifically, although the effects of antimony, iron, and zinc can all be measured in blood, each chemical affects blood chemistry in a different and unrelated way (serum glucose/cholesterol, serum ferritin and percent transferrin saturation, and serum superoxide dismutase activity for antimony, iron, and zinc, respectively).

N/A = not applicable

TABLE 9.1.5.RME

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

REASONABLE MAXIMUM EXPOSURE

Lower Basin

Scenario Timeframe:	Current/Future
Receptor Population:	Visitors
Receptor Age:	Child/Adult

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ (1)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil/Sediment	Soil/sediment	Lower CDAR	Arsenic	2.1E-05	N/A	7.7E-06	2.8E-05	Antimony	longevity, glucose/ cholesterol--blood	2.6E-02	N/A	N/A	2.6E-02
								Arsenic	NOAEL/skin pigmentation	1.1E-01	N/A	4.0E-02	1.5E-01
								Cadmium	NOAEL/proteinuria--kidney	1.6E-02	N/A	4.7E-03	2.0E-02
								Iron	hematology--blood	1.6E-01	N/A	N/A	1.6E-01
								Manganese	NOAEL/Central Nervous System	9.5E-02	N/A	N/A	9.5E-02
								Zinc	enzyme effects--blood	8.5E-03	N/A	N/A	8.5E-03
			(Total)	2.1E-05	N/A	7.7E-06	2.8E-05	(Total)		4.1E-01	N/A	4.4E-02	4.6E-01
Surface Water	Disturbed surface water	Lower CDAR	Arsenic	3.3E-06	N/A	N/A	3.3E-06	Arsenic	NOAEL/skin pigmentation	1.7E-02	N/A	N/A	1.7E-02
								Cadmium	NOAEL/proteinuria--kidney	9.5E-03	N/A	N/A	9.5E-03
								Manganese	NOAEL/Central Nervous System	2.3E-02	N/A	N/A	2.3E-02
								Mercury	autoimmunity	9.8E-04	N/A	N/A	9.8E-04
			(Total)	3.3E-06	N/A	N/A	3.3E-06	(Total)		5.1E-02	N/A	N/A	5.1E-02

Total Risk Across Soil/sediment	2.8E-05
Total Risk Across Surface water	3.3E-06
Total Risk Across All Media and All Exposure Routes	3.2E-05
Total Hazard Index Across All Media and All Exposure Routes	5.1E-01

(1) Total organ Hazard Indices were not calculated because the effects on each target organ differs, and are therefore not additive. Specifically, although the effects of antimony, iron, and zinc can all be measured in blood, each chemical affects blood chemistry in a different and unrelated way (serum glucose/cholesterol, serum ferritin and percent transferrin saturation, and serum superoxide dismutase activity for antimony, iron, and zinc, respectively).

N/A = not applicable

TABLE 9.1.5.CT

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

CENTRAL TENDENCY EXPOSURE

Lower Basin

Scenario Timeframe:	Current/Future
Receptor Population:	Visitors
Receptor Age:	Child/Adult

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ (1)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil/Sediment	Soil/sediment	Lower CDAR	Arsenic	1.4E-06	N/A	1.1E-06	2.5E-06	Antimony	longevity, glucose/ cholesterol--blood	5.6E-03	N/A	N/A	5.6E-03
								Arsenic	NOAEL/skin pigmentation	2.3E-02	N/A	2.0E-02	4.3E-02
								Cadmium	NOAEL/proteinuria--kidney	3.4E-03	N/A	2.3E-03	5.7E-03
								Iron	hematology--blood	3.5E-02	N/A	N/A	3.5E-02
								Manganese	NOAEL/Central Nervous System	2.0E-02	N/A	N/A	2.0E-02
								Zinc	enzyme effects--blood	1.8E-03	N/A	N/A	1.8E-03
			(Total)	1.4E-06	N/A	1.1E-06	2.5E-06	(Total)		8.9E-02	N/A	2.2E-02	1.1E-01
Surface Water	Disturbed surface water	Lower CDAR	Arsenic	5.0E-07	N/A	N/A	5.0E-07	Arsenic	NOAEL/skin pigmentation	8.6E-03	N/A	N/A	8.6E-03
								Cadmium	NOAEL/proteinuria--kidney	3.7E-03	N/A	N/A	3.7E-03
								Manganese	NOAEL/Central Nervous System	1.5E-02	N/A	N/A	1.5E-02
								Mercury	autoimmunity	5.1E-04	N/A	N/A	5.1E-04
			(Total)	5.0E-07	N/A	N/A	5.0E-07	(Total)		2.8E-02	N/A	N/A	2.8E-02
						Total Risk Across Soil/sediment	2.5E-06					Total Hazard Index Across All Media and All Exposure Routes	1.4E-01
						Total Risk Across Surface water	5.0E-07						
						Total Risk Across All Media and All Exposure Routes	3.0E-06						

(1) Total organ Hazard Indices were not calculated because the effects on each target organ differs, and are therefore not additive. Specifically, although the effects of antimony, iron, and zinc can all be measured in blood, each chemical affects blood chemistry in a different and unrelated way (serum glucose/cholesterol, serum ferritin and percent transferrin saturation, and serum superoxide dismutase activity for antimony, iron, and zinc, respectively).

N/A = not applicable

TABLE 9.1.6.RME

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

REASONABLE MAXIMUM EXPOSURE

Lower Basin

Scenario Timeframe:	Current/Future
Receptor Population:	Construction Workers
Receptor Age:	Adult

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ (1)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Subsurface/surface soil	Construction site soil	Arsenic	8.0E-05	N/A	3.3E-06	8.3E-05	Antimony	longevity, glucose/ cholesterol--blood	1.2E-01	N/A	N/A	1.2E-01
								Arsenic	NOAEL/skin pigmentation	5.0E-01	N/A	2.1E-02	5.2E-01
								Cadmium	NOAEL/proteinuria--kidney	7.0E-02	N/A	2.3E-03	7.3E-02
								Iron	hematology--blood	7.4E-01	N/A	N/A	7.4E-01
								Manganese	NOAEL/Central Nervous System	1.5E-01	N/A	N/A	1.5E-01
								Zinc	enzyme effects--blood	3.8E-02	N/A	N/A	3.8E-02
			(Total)	8.0E-05	N/A	3.3E-06	8.3E-05	(Total)		1.6E+00	N/A	2.3E-02	1.6E+00
						Total Risk Across Soil	8.3E-05					Total Hazard Index Across All Media and All Exposure Routes	1.6E+00
						Total Risk Across All Media and All Exposure Routes	8.3E-05						

(1) Total organ Hazard Indices were not calculated because the effects on each target organ differs, and are therefore not additive. Specifically, although the effects of antimony, iron, and zinc can all be measured in blood, each chemical affects blood chemistry in a different and unrelated way (serum glucose/cholesterol, serum ferritin and percent transferrin saturation, and serum superoxide dismutase activity for antimony, iron, and zinc, respectively).

N/A = not applicable

TABLE 9.1.6.CT

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

CENTRAL TENDENCY EXPOSURE

Lower Basin

Scenario Timeframe:	Current/Future
Receptor Population:	Construction workers
Receptor Age:	Adult

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ (1)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Subsurface/surface soil	Construction site soil	Arsenic	3.0E-06	N/A	1.9E-07	3.2E-06	Antimony	longevity, glucose/ cholesterol--blood	1.7E-02	N/A	N/A	1.7E-02
								Arsenic	NOAEL/skin pigmentation	7.0E-02	N/A	4.4E-03	7.5E-02
								Cadmium	NOAEL/proteinuria--kidney	9.8E-03	N/A	4.9E-04	1.0E-02
								Iron	hematology--blood	1.0E-01	N/A	N/A	1.0E-01
								Manganese	NOAEL/Central Nervous System	2.0E-02	N/A	N/A	2.0E-02
								Zinc	enzyme effects--blood	5.3E-03	N/A	N/A	5.3E-03
			(Total)	3.0E-06	N/A	1.9E-07	3.2E-06	(Total)		2.3E-01	N/A	4.9E-03	2.3E-01
						Total Risk Across Soil	3.2E-06					Total Hazard Index Across All Media and All Exposure Routes	2.3E-01
						Total Risk Across All Media and All Exposure Routes	3.2E-06						

(1) Total organ Hazard Indices were not calculated because the effects on each target organ differs, and are therefore not additive. Specifically, although the effects of antimony, iron, and zinc can all be measured in blood, each chemical affects blood chemistry in a different and unrelated way (serum glucose/cholesterol, serum ferritin and percent transferrin saturation, and serum superoxide dismutase activity for antimony, iron, and zinc, respectively).

N/A = not applicable

TABLE 9.1.7.RME

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

REASONABLE MAXIMUM EXPOSURE

Lower Basin - Modern Subsistence Exposure Scenario

Scenario Timeframe:	Future
Receptor Population:	Tribal Member
Receptor Age:	Child/Adult

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ (1)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Water/Sediment	Plant Tissue	Water Potato (With Skin)	N/A	N/A	N/A	N/A	N/A	Cadmium	NOAEL/proteinuria--kidney	8.0E-01	N/A	N/A	8.0E-01
			(Total)	N/A	N/A	N/A	N/A	(Total)		8.0E-01	N/A	0.0E+00	8.0E-01
				Total Risk Across All Media and All Exposure Routes			N/A		Total Hazard Index Across All Media and All Exposure Routes				8.0E-01

(1) Total organ Hazard Indices were not calculated because the effects on each target organ differs, and are therefore not additive. Specifically, although the effects of antimony, iron, and zinc can all be measured in blood, each chemical affects blood chemistry in a different and unrelated way (serum glucose/cholesterol, serum ferritin and percent transferrin saturation, and serum superoxide dismutase activity for antimony, iron, and zinc, respectively).

N/A = not applicable

TABLE 9.1.8.RME

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

REASONABLE MAXIMUM EXPOSURE

Lower Basin - Modern Subsistence Exposure Scenario

Scenario Timeframe:	Future
Receptor Population:	Tribal Member
Receptor Age:	Child 0-6 years old

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ (1)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface soil	Lower CDAR	Arsenic	N/A	N/A	N/A	N/A	Antimony	longevity, glucose/ cholesterol--blood	1.7E-01	N/A	N/A	1.7E-01
								Arsenic	NOAEL/skin pigmentation	8.2E-01	N/A	3.1E-01	1.1E+00
								Cadmium	NOAEL/proteinuria--kidney	1.0E-01	N/A	3.0E-02	1.3E-01
								Iron	hematology--blood	1.1E+00	N/A	N/A	1.1E+00
								Manganese	NOAEL/Central Nervous System	6.3E-01	N/A	N/A	6.3E-01
								Zinc	enzyme effects--blood	5.3E-02	N/A	N/A	5.3E-02
			(Total)	N/A	N/A	N/A	N/A	(Total)		2.8E+00	N/A	3.4E-01	3.2E+00
Sediment	Sediment	Lower CDAR	Arsenic	N/A	N/A	N/A	N/A	Antimony	longevity, glucose/ cholesterol--blood	2.1E-01	N/A	N/A	2.1E-01
								Arsenic	NOAEL/skin pigmentation	8.0E-01	N/A	6.9E-01	1.5E+00
								Cadmium	NOAEL/proteinuria--kidney	1.3E-01	N/A	9.0E-02	2.2E-01
								Iron	hematology--blood	1.2E+00	N/A	N/A	1.2E+00
								Manganese	NOAEL/Central Nervous System	7.5E-01	N/A	N/A	7.5E-01
								Zinc	enzyme effects--blood	7.0E-02	N/A	N/A	7.0E-02
			(Total)	N/A	N/A	N/A	N/A	(Total)		3.2E+00	N/A	7.8E-01	4.0E+00

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ (1)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Undisturbed Surface Water	Udisturbed Surface Water	Lower CDAR											
			Arsenic	N/A	N/A	N/A	N/A	Arsenic	NOAEL/skin pigmentation	1.1E+00	N/A	N/A	1.1E+00
								Cadmium	NOAEL/proteinuria--kidney	1.1E-01	N/A	N/A	1.1E-01
								Manganese	NOAEL/Central Nervous System	1.3E-01	N/A	N/A	1.3E-01
								Mercury		1.4E-01	N/A	N/A	1.4E-01
			(Total)	N/A	N/A	N/A	N/A	(Total)		1.5E+00	N/A	N/A	1.5E+00
Disturbed Surface Water	Disturbed Surface Water	Lower CDAR											
			Arsenic	N/A	N/A	N/A	N/A	Arsenic	NOAEL/skin pigmentation	8.72E-02	N/A	N/A	8.7E-02
								Cadmium	NOAEL/proteinuria--kidney	4.8E-02	N/A	N/A	4.8E-02
								Manganese	NOAEL/Central Nervous System	1.2E-01	N/A	N/A	1.2E-01
								Mercury		4.9E-03	N/A	N/A	4.9E-03
			(Total)	N/A	N/A	N/A	N/A	(Total)		2.6E-01	N?A	N/A	2.6E-01
							Total Risk Across Soil						Total Risk Across Soil
							N/A						3.2E+00
							Total Risk Across Sediment						Total Risk Across Sediment
							N/A						4.0E+00
							Total Risk Across Undisturbed Surface Water						Total Risk Across Undisturbed Surface Water
							N/A						1.5E+00
							Total Risk Across Disturbed Surface Water						Total Risk Across Disturbed Surface Water
							N/A						2.6E-01
							Total Risk Across All Media and All Exposure Routes						Total Risk Across All Media and All Exposure Routes
							N/A						8.6E+00

(1) Total organ Hazard Indices were not calculated because the effects on each target organ differs, and are therefore not additive. Specifically, although the effects of antimony, iron, and zinc can all be measured in blood, each chemical affects blood chemistry in a different and unrelated way (serum glucose/cholesterol, serum ferritin and percent transferrin saturation, and serum superoxide dismutase activity for antimony, iron, and zinc, respectively).

N/A = not applicable

TABLE 9.1.9.RME

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

REASONABLE MAXIMUM EXPOSURE

Lower Basin - Modern Subsistence Exposure Scenario

Scenario Timeframe:	Future
Receptor Population:	Tribal Member
Receptor Age:	Child/Adult

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ (1)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface soil	Lower CDAR											
			Arsenic	1.0E-04	N/A	6.7E-05	1.7E-04	Antimony	longevity, glucose/ cholesterol--blood	4.9E-02	N/A	N/A	4.9E-02
								Arsenic	NOAEL/skin pigmentation	2.3E-01	N/A	1.5E-01	3.8E-01
								Cadmium	NOAEL/proteinuria--kidney	2.8E-02	N/A	1.4E-02	4.3E-02
								Iron	hematology--blood	3.0E-01	N/A	N/A	3.0E-01
								Manganese	NOAEL/Central Nervous System	1.8E-01	N/A	N/A	1.8E-01
								Zinc	enzyme effects--blood	1.5E-02	N/A	N/A	1.5E-02
			(Total)	1.0E-04	N/A	6.7E-05	1.7E-04	(Total)		8.0E-01	N/A	1.6E-01	9.6E-01
Sediment	Sediment	Lower CDAR											
			Arsenic	1.0E-04	N/A	1.9E-04	3.0E-04	Antimony	longevity, glucose/ cholesterol--blood	5.8E-02	N/A	N/A	5.8E-02
								Arsenic	NOAEL/skin pigmentation	2.2E-01	N/A	4.3E-01	6.5E-01
								Cadmium	NOAEL/proteinuria--kidney	3.6E-02	N/A	5.6E-02	9.3E-02
								Iron	hematology--blood	3.5E-01	N/A	N/A	3.5E-01
								Manganese	NOAEL/Central Nervous System	2.1E-01	N/A	N/A	2.1E-01
								Zinc	enzyme effects--blood	2.0E-02	N/A	N/A	2.0E-02
			(Total)	1.0E-04	N/A	1.9E-04	3.0E-04	(Total)		9.0E-01	N/A	4.9E-01	1.4E+00

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ (1)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Undisturbed Surface Water	Udisturbed Surface Water	Lower CDAR	Arsenic	2.4E-04	N/A	N/A	2.4E-04	Arsenic	NOAEL/skin pigmentation	5.2E-01	N/A	N/A	5.2E-01
								Cadmium	NOAEL/proteinuria--kidney	5.1E-02	N/A	N/A	5.1E-02
								Manganese	NOAEL/Central Nervous System	6.3E-02	N/A	N/A	6.3E-02
								Mercury		6.5E-02	N/A	N/A	6.5E-02
			(Total)	2.36E-04	N/A	N/A	2.4E-04	(Total)		7.0E-01	N/A	N/A	7.0E-01
Disturbed Surface Water	Disturbed Surface Water	Lower CDAR	Arsenic	1.11E-05	N/A	N/A	1.1E-05	Arsenic	NOAEL/skin pigmentation	2.46E-02	N/A	N/A	2.5E-02
								Cadmium	NOAEL/proteinuria--kidney	1.3E-02	N/A	N/A	1.3E-02
								Manganese	NOAEL/Central Nervous System	3.3E-02	N/A	N/A	3.3E-02
								Mercury		1.4E-03	N/A	N/A	1.4E-03
			(Total)	1.1E-05	N/A	N/A	1.1E-05	(Total)		7.2E-02	N/A	N/A	7.2E-02
						Total Risk Across Soil	1.7E-04					Total Risk Across Soil	9.6E-01
						Total Risk Across Sediment	3.0E-04					Total Risk Across Sediment	1.4E+00
						Total Risk Across Undisturbed Surface Water	2.4E-04					Total Risk Across Undisturbed Surface Water	7.0E-01
						Total Risk Across Disturbed Surface Water	1.1E-05					Total Risk Across Disturbed Surface Water	7.2E-02
						Total Risk Across All Media and All Exposure Routes	7.1E-04					Total Risk Across All Media and All Exposure Routes	3.1E+00

(1) Total organ Hazard Indices were not calculated because the effects on each target organ differs, and are therefore not additive. Specifically, although the effects of antimony, iron, and zinc can all be measured in blood, each chemical affects blood chemistry in a different and unrelated way (serum glucose/cholesterol, serum ferritin and percent transferrin saturation, and serum superoxide dismutase activity for antimony, iron, and zinc, respectively).

N/A = not applicable

TABLE 9.1.10.RME

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

REASONABLE MAXIMUM EXPOSURE

Lower Basin - Traditional Subsistence Exposure Scenario

Scenario Timeframe:	Future
Receptor Population:	Tribal Member
Receptor Age:	Child/Adult

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ (1)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Water/Sediment	Plant Tissue	Water Potato (With Skin)	N/A	N/A	N/A	N/A	N/A	Cadmium	NOAEL/proteinuria--kidney	4.0E+00	N/A	N/A	4.0E+00
			(Total)	N/A	N/A	N/A	N/A	(Total)		4.0E+00	N/A	0.0E+00	4.0E+00
						Total Risk Across All Media and All Exposure Routes	N/A					Total Hazard Index Across All Media and All Exposure Routes	4.0E+00

(1) Total organ Hazard Indices were not calculated because the effects on each target organ differs, and are therefore not additive. Specifically, although the effects of antimony, iron, and zinc can all be measured in blood, each chemical affects blood chemistry in a different and unrelated way (serum glucose/cholesterol, serum ferritin and percent transferrin saturation, and serum superoxide dismutase activity for antimony, iron, and zinc, respectively).

N/A = not applicable

TABLE 9.1.11.RME

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

REASONABLE MAXIMUM EXPOSURE

Lower Basin - Traditional Subsistence Exposure Scenario

Scenario Timeframe:	Future
Receptor Population:	Tribal Member
Receptor Age:	Child 0-6 years old

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ (1)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface soil	Lower CDAR	Arsenic	N/A	N/A	N/A	N/A	Antimony	longevity, glucose/ cholesterol--blood	1.1E+00	N/A	N/A	1.1E+00
								Arsenic	NOAEL/skin pigmentation	5.0E+00	N/A	1.5E+00	6.5E+00
								Cadmium	NOAEL/proteinuria--kidney	6.1E-01	N/A	1.4E-01	7.5E-01
								Iron	hematology--blood	6.5E+00	N/A	N/A	6.5E+00
								Manganese	NOAEL/Central Nervous System	3.8E+00	N/A	N/A	3.8E+00
								Zinc	enzyme effects--blood	3.2E-01	N/A	N/A	3.2E-01
			(Total)	N/A	N/A	N/A	N/A	(Total)		1.7E+01	N/A	1.6E+00	1.9E+01
Sediment	Sediment	Lower CDAR	Arsenic	N/A	N/A	N/A	N/A	Antimony	longevity, glucose/ cholesterol--blood	7.2E-01	N/A	N/A	7.2E-01
								Arsenic	NOAEL/skin pigmentation	2.8E+00	N/A	2.4E+00	5.2E+00
								Cadmium	NOAEL/proteinuria--kidney	4.5E-01	N/A	3.1E-01	7.7E-01
								Iron	hematology--blood	4.3E+00	N/A	N/A	4.3E+00
								Manganese	NOAEL/Central Nervous System	2.6E+00	N/A	N/A	2.6E+00
								Zinc	enzyme effects--blood	2.5E-01	N/A	N/A	2.5E-01
			(Total)	N/A	N/A	N/A	N/A	(Total)		1.1E+01	N/A	2.7E+00	1.4E+01

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ (1)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Undisturbed Surface Water	Udisturbed Surface Water	Lower CDAR	Arsenic	N/A	N/A	N/A	N/A	Arsenic	NOAEL/skin pigmentation	6.7E+00	N/A	N/A	6.7E+00
								Cadmium	NOAEL/proteinuria--kidney	6.5E-01	N/A	N/A	6.5E-01
								Manganese	NOAEL/Central Nervous System	8.1E-01	N/A	N/A	8.1E-01
								Mercury		8.3E-01	N/A	N/A	8.3E-01
			(Total)	N/A	N/A	N/A	N/A	(Total)		9.0E+00	N/A	N/A	9.0E+00
Disturbed Surface Water	Disturbed Surface Water	Lower CDAR	Arsenic	N/A	N/A	N/A	N/A	Arsenic	NOAEL/skin pigmentation	3.05E-01	N/A	N/A	3.1E-01
								Cadmium	NOAEL/proteinuria--kidney	1.7E-01	N/A	N/A	1.7E-01
								Manganese	NOAEL/Central Nervous System	4.1E-01	N/A	N/A	4.1E-01
								Mercury		1.7E-02	N/A	N/A	1.7E-02
			(Total)	N/A	N/A	N/A	N/A	(Total)		9.0E-01	N?A	N/A	9.0E-01
						Total Risk Across Soil	N/A					Total Risk Across Soil	1.9E+01
						Total Risk Across Sediment	N/A					Total Risk Across Sediment	1.4E+01
						Total Risk Across Undisturbed Surface Water	N/A					Total Risk Across Undisturbed Surface Water	9.0E+00
						Total Risk Across Disturbed Surface Water	N/A					Total Risk Across Disturbed Surface Water	9.0E-01
						Total Risk Across All Media and All Exposure Routes	N/A					Total Risk Across All Media and All Exposure Routes	4.3E+01

(1) Total organ Hazard Indices were not calculated because the effects on each target organ differs, and are therefore not additive. Specifically, although the effects of antimony, iron, and zinc can all be measured in blood, each chemical affects blood chemistry in a different and unrelated way (serum glucose/cholesterol, serum ferritin and percent transferrin saturation, and serum superoxide dismutase activity for antimony, iron, and zinc, respectively).

N/A = not applicable

TABLE 9.1.12.RME

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

REASONABLE MAXIMUM EXPOSURE

Lower Basin - Traditional Subsistence Exposure Scenario

Scenario Timeframe:	Future
Receptor Population:	Tribal Member
Receptor Age:	Child/Adult

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ (1)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface soil	Lower CDAR											
			Arsenic	6.3E-04	N/A	2.0E-04	8.3E-04	Antimony	longevity, glucose/ cholesterol--blood	3.0E-01	N/A	N/A	3.0E-01
								Arsenic	NOAEL/skin pigmentation	1.4E+00	N/A	4.5E-01	1.9E+00
								Cadmium	NOAEL/proteinuria--kidney	1.7E-01	N/A	4.4E-02	2.2E-01
								Iron	hematology--blood	1.8E+00	N/A	N/A	1.8E+00
								Manganese	NOAEL/Central Nervous System	1.1E+00	N/A	N/A	1.1E+00
								Zinc	enzyme effects--blood	9.1E-02	N/A	N/A	9.1E-02
			(Total)	6.3E-04	N/A	2.0E-04	8.3E-04	(Total)		4.9E+00	N/A	4.9E-01	5.4E+00
Sediment	Sediment	Lower CDAR											
			Arsenic	3.5E-04	N/A	6.8E-04	1.0E-03	Antimony	longevity, glucose/ cholesterol--blood	2.0E-01	N/A	N/A	2.0E-01
								Arsenic	NOAEL/skin pigmentation	7.8E-01	N/A	1.5E+00	2.3E+00
								Cadmium	NOAEL/proteinuria--kidney	1.3E-01	N/A	2.0E-01	3.2E-01
								Iron	hematology--blood	1.2E+00	N/A	N/A	1.2E+00
								Manganese	NOAEL/Central Nervous System	7.4E-01	N/A	N/A	7.4E-01
								Zinc	enzyme effects--blood	6.9E-02	N/A	N/A	6.9E-02
			(Total)	3.5E-04	N/A	6.8E-04	1.0E-03	(Total)		3.1E+00	N/A	1.7E+00	4.9E+00

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ (1)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Undisturbed Surface Water	Udisturbed Surface Water	Lower CDAR	Arsenic	1.4E-03	N/A	N/A	1.4E-03	Arsenic	NOAEL/skin pigmentation	3.2E+00	N/A	N/A	3.2E+00
								Cadmium	NOAEL/proteinuria--kidney	3.1E-01	N/A	N/A	3.1E-01
								Manganese	NOAEL/Central Nervous System	3.9E-01	N/A	N/A	3.9E-01
								Mercury		4.0E-01	N/A	N/A	4.0E-01
			(Total)	1.43E-03	N/A	N/A	1.4E-03	(Total)		4.3E+00	N/A	N/A	4.3E+00
Disturbed Surface Water	Disturbed Surface Water	Lower CDAR	Arsenic	3.87E-05	N/A	N/A	3.9E-05	Arsenic	NOAEL/skin pigmentation	8.60E-02	N/A	N/A	8.6E-02
								Cadmium	NOAEL/proteinuria--kidney	4.7E-02	N/A	N/A	4.7E-02
								Manganese	NOAEL/Central Nervous System	1.1E-01	N/A	N/A	1.1E-01
								Mercury		4.9E-03	N/A	N/A	4.9E-03
			(Total)	3.9E-05	N/A	N/A	3.9E-05	(Total)		2.5E-01	N?A	N/A	2.5E-01
						Total Risk Across Soil	8.3E-04					Total Risk Across Soil	5.4E+00
						Total Risk Across Sediment	1.0E-03					Total Risk Across Sediment	4.9E+00
						Total Risk Across Undisturbed Surface Water	1.4E-03					Total Risk Across Undisturbed Surface Water	4.3E+00
						Total Risk Across Disturbed Surface Water	3.9E-05					Total Risk Across Disturbed Surface Water	2.5E-01
						Total Risk Across All Media and All Exposure Routes	3.3E-03					Total Hazard Index Across All Media and All Exposure Routes	1.5E+01

(1) Total organ Hazard Indices were not calculated because the effects on each target organ differs, and are therefore not additive. Specifically, although the effects of antimony, iron, and zinc can all be measured in blood, each chemical affects blood chemistry in a different and unrelated way (serum glucose/cholesterol, serum ferritin and percent transferrin saturation, and serum superoxide dismutase activity for antimony, iron, and zinc, respectively).

N/A = not applicable

TABLE 9.10.1.RME

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

REASONABLE MAXIMUM EXPOSURE

Blackwell Island

Scenario Timeframe:	Current/Future
Receptor Population:	Visitors
Receptor Age:	Child 0-6 years old

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ (1)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil/Sediment	Soil/sediment	Spokane River	Arsenic	N/A	N/A	N/A	N/A	Antimony	longevity, glucose/ cholesterol--blood	1.4E-02	N/A	N/A	1.4E-02
								Arsenic	NOAEL/skin pigmentation	1.8E-01	N/A	3.8E-02	2.1E-01
								Cadmium	NOAEL/proteinuria--kidney	2.3E-02	N/A	4.1E-03	2.8E-02
								Iron	hematology--blood	2.9E-01	N/A	N/A	2.9E-01
								Manganese	NOAEL/Central Nervous System	1.4E-01	N/A	N/A	1.4E-01
								Zinc	enzyme effects--blood	1.1E-02	N/A	N/A	1.1E-02
			(Total)	N/A	N/A	N/A	N/A	(Total)		6.5E-01	N/A	4.2E-02	6.9E-01
Surface Water	Surface water	Spokane River	Arsenic	N/A	N/A	N/A	N/A	Arsenic	NOAEL/skin pigmentation	1.2E-02	N/A	N/A	1.2E-02
								Cadmium	NOAEL/proteinuria--kidney	1.7E-02	N/A	N/A	1.7E-02
								Manganese	NOAEL/Central Nervous System	2.6E-02	N/A	N/A	2.6E-02
								Mercury	autoimmunity	5.8E-05	N/A	N/A	5.8E-05
			(Total)	N/A	N/A	N/A	N/A	(Total)		5.5E-02	N/A	N/A	5.5E-02
						Total Risk Across Soil/sediment	N/A					Total Hazard Index Across All Media and All Exposure Routes	7.4E-01
						Total Risk Across Surface water	N/A						
						Total Risk Across All Media and All Exposure Routes	N/A						

(1) Total organ Hazard Indices were not calculated because the effects on each target organ differs, and are therefore not additive. Specifically, although the effects of antimony, iron, and zinc can all be measured in blood, each chemical affects blood chemistry in a different and unrelated way (serum glucose/cholesterol, serum ferritin and percent transferrin saturation, and serum superoxide dismutase activity for antimony, iron, and zinc, respectively).

N/A = not applicable

TABLE 9.10.1.CT

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

CENTRAL TENDENCY EXPOSURE

Blackwell Island

Scenario Timeframe:	Current/Future
Receptor Population:	Visitors
Receptor Age:	Child 0-6 years old

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ (1)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil/Sediment	Soil/sediment	Spokane River	Arsenic	N/A	N/A	N/A	N/A	Antimony	longevity, glucose/ cholesterol--blood	2.4E-03	N/A	N/A	2.4E-03
								Arsenic	NOAEL/skin pigmentation	2.9E-02	N/A	1.6E-02	4.5E-02
								Cadmium	NOAEL/proteinuria--kidney	3.9E-03	N/A	1.7E-03	5.6E-03
								Iron	hematology--blood	5.1E-02	N/A	N/A	5.1E-02
								Manganese	NOAEL/Central Nervous System	2.2E-02	N/A	N/A	2.2E-02
								Zinc	enzyme effects--blood	1.8E-03	N/A	N/A	1.8E-03
			(Total)	N/A	N/A	N/A	N/A	(Total)		1.1E-01	N/A	1.7E-02	1.3E-01
Surface Water	Surface water	Spokane River	Arsenic	N/A	N/A	N/A	N/A	Arsenic	NOAEL/skin pigmentation	3.1E-03	N/A	N/A	3.1E-03
								Cadmium	NOAEL/proteinuria--kidney	3.5E-03	N/A	N/A	3.5E-03
								Manganese	NOAEL/Central Nervous System	5.2E-03	N/A	N/A	5.2E-03
								Mercury	autoimmunity	2.6E-05	N/A	N/A	2.6E-05
			(Total)	N/A	N/A	N/A	N/A	(Total)		1.2E-02	N/A	N/A	1.2E-02

Total Risk Across Soil/sediment	N/A
Total Risk Across Surface water	N/A
Total Risk Across All Media and All Exposure Routes	N/A
Total Hazard Index Across All Media and All Exposure Routes	1.4E-01

(1) Total organ Hazard Indices were not calculated because the effects on each target organ differs, and are therefore not additive. Specifically, although the effects of antimony, iron, and zinc can all be measured in blood, each chemical affects blood chemistry in a different and unrelated way (serum glucose/cholesterol, serum ferritin and percent transferrin saturation, and serum superoxide dismutase activity for antimony, iron, and zinc, respectively).

N/A = not applicable

TABLE 9.10.2.RME

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

REASONABLE MAXIMUM EXPOSURE

Blackwell Island

Scenario Timeframe:	Current/Future
Receptor Population:	Visitors
Receptor Age:	Child/Adult

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ (1)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil/Sediment	Soil/sediment	Spokane River											
			Arsenic	8.7E-06	N/A	3.2E-06	1.2E-05	Antimony	longevity, glucose/ cholesterol--blood	3.6E-03	N/A	N/A	3.6E-03
								Arsenic	NOAEL/skin pigmentation	4.5E-02	N/A	1.7E-02	6.2E-02
								Cadmium	NOAEL/proteinuria--kidney	6.0E-03	N/A	1.8E-03	7.8E-03
								Iron	hematology--blood	7.3E-02	N/A	N/A	7.3E-02
								Manganese	NOAEL/Central Nervous System	3.5E-02	N/A	N/A	3.5E-02
								Zinc	enzyme effects--blood	2.7E-03	N/A	N/A	2.7E-03
			(Total)	8.7E-06	N/A	3.2E-06	1.2E-05	(Total)		1.7E-01	N/A	1.8E-02	1.8E-01
Surface Water	Surface water	Spokane River											
			Arsenic	8.7E-07	N/A	N/A	8.7E-07	Arsenic	NOAEL/skin pigmentation	4.5E-03	N/A	N/A	4.5E-03
								Cadmium	NOAEL/proteinuria--kidney	6.2E-03	N/A	N/A	6.2E-03
								Manganese	NOAEL/Central Nervous System	9.7E-03	N/A	N/A	9.7E-03
								Mercury	autoimmunity	2.2E-05	N/A	N/A	2.2E-05
			(Total)	8.7E-07	N/A	N/A	8.7E-07	(Total)		2.0E-02	N/A	N/A	2.0E-02
						Total Risk Across Soil/sediment	1.2E-05					Total Hazard Index Across All Media and All Exposure Routes	2.0E-01
						Total Risk Across Surface water	8.7E-07						
						Total Risk Across All Media and All Exposure Routes	1.3E-05						

(1) Total organ Hazard Indices were not calculated because the effects on each target organ differs, and are therefore not additive. Specifically, although the effects of antimony, iron, and zinc can all be measured in blood, each chemical affects blood chemistry in a different and unrelated way (serum glucose/cholesterol, serum ferritin and percent transferrin saturation, and serum superoxide dismutase activity for antimony, iron, and zinc, respectively).

N/A = not applicable

TABLE 9.10.2.CT

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

CENTRAL TENDENCY EXPOSURE

Blackwell Island

Scenario Timeframe:	Current/Future
Receptor Population:	Visitors
Receptor Age:	Child/Adult

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ (1)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil/Sediment	Soil/sediment	Spokane River	Arsenic	4.9E-07	N/A	4.1E-07	8.9E-07	Antimony	longevity, glucose/ cholesterol--blood	7.1E-04	N/A	N/A	7.1E-04
								Arsenic	NOAEL/skin pigmentation	8.4E-03	N/A	7.1E-03	1.5E-02
								Cadmium	NOAEL/proteinuria--kidney	1.1E-03	N/A	7.7E-04	1.9E-03
								Iron	hematology--blood	1.5E-02	N/A	N/A	1.5E-02
								Manganese	NOAEL/Central Nervous System	6.5E-03	N/A	N/A	6.5E-03
								Zinc	enzyme effects--blood	5.4E-04	N/A	N/A	5.4E-04
			(Total)	4.9E-07	N/A	4.1E-07	8.9E-07	(Total)		3.2E-02	N/A	7.8E-03	4.0E-02
Surface Water	Surface water	Spokane River	Arsenic	6.9E-08	N/A	N/A	6.9E-08	Arsenic	NOAEL/skin pigmentation	1.2E-03	N/A	N/A	1.2E-03
								Cadmium	NOAEL/proteinuria--kidney	1.4E-03	N/A	N/A	1.4E-03
								Manganese	NOAEL/Central Nervous System	2.0E-03	N/A	N/A	2.0E-03
								Mercury	autoimmunity	1.0E-05	N/A	N/A	1.0E-05
			(Total)	6.9E-08	N/A	N/A	6.9E-08	(Total)		4.6E-03	N/A	N/A	4.6E-03
						Total Risk Across Soil/sediment	8.9E-07					Total Hazard Index Across All Media and All Exposure Routes	4.5E-02
						Total Risk Across Surface water	6.9E-08						
						Total Risk Across All Media and All Exposure Routes	9.6E-07						

(1) Total organ Hazard Indices were not calculated because the effects on each target organ differs, and are therefore not additive. Specifically, although the effects of antimony, iron, and zinc can all be measured in blood, each chemical affects blood chemistry in a different and unrelated way (serum glucose/cholesterol, serum ferritin and percent transferrin saturation, and serum superoxide dismutase activity for antimony, iron, and zinc, respectively).

N/A = not applicable

TABLE 9.11.1.RME

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

REASONABLE MAXIMUM EXPOSURE

Vegetable Ingestion in Residential Areas

Scenario Timeframe:	Current/Future
Receptor Population:	Residents
Receptor Age:	Child 0-6 years old

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Plant tissue	Homegrown vegetables	Arsenic	N/A	N/A	N/A	N/A	Arsenic	NOAEL/skin pigmentation	4.2E-01	N/A	N/A	4.2E-01
								Cadmium	NOAEL/proteinuria--kidney	1.6E+00	N/A	N/A	1.6E+00
								(Total)		2.0E+00	N/A	N/A	2.0E+00
							Total Risk Across Soil						Total Hazard Index Across All Media and All Exposure Routes
							N/A						2.0E+00
							Total Risk Across All Media and All Exposure Routes						
							N/A						

N/A = not applicable

TABLE 9.11.1.CT

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

CENTRAL TENDENCY EXPOSURE

Vegetable Ingestion in Residential Areas

Scenario Timeframe:	Current/Future
Receptor Population:	Residents
Receptor Age:	Child 0-6 years old

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Plant tissue	Homegrown vegetables	Arsenic	N/A	N/A	N/A	N/A	Arsenic	NOAEL/skin pigmentation	3.3E-02	N/A	N/A	3.3E-02
								Cadmium	NOAEL/proteinuria--kidney	1.0E-01	N/A	N/A	1.0E-01
								(Total)		1.4E-01	N/A	N/A	1.4E-01
							Total Risk Across Soil						Total Hazard Index Across All Media and All Exposure Routes
							N/A						1.4E-01
							Total Risk Across All Media and All Exposure Routes						
							N/A						

N/A = not applicable

TABLE 9.11.2.RME

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

REASONABLE MAXIMUM EXPOSURE

Vegetable Ingestion in Residential Areas

Scenario Timeframe:	Current/Future
Receptor Population:	Residents
Receptor Age:	Child/Adult

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Plant tissue	Homegrown vegetables	Arsenic	8.1E-05	N/A	N/A	8.1E-05	Arsenic	NOAEL/skin pigmentation	4.2E-01	N/A	N/A	4.2E-01
								Cadmium	NOAEL/proteinuria--kidney	1.6E+00	N/A	N/A	1.6E+00
			(Total)	8.1E-05	N/A	N/A	8.1E-05	(Total)		2.0E+00	N/A	N/A	2.0E+00
						Total Risk Across Soil	8.1E-05					Total Hazard Index Across All Media and All Exposure Routes	2.0E+00
						Total Risk Across All Media and All Exposure Routes	8.1E-05						

N/A = not applicable

TABLE 9.11.2.CT

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

CENTRAL TENDENCY EXPOSURE

Vegetable Ingestion in Residential Areas

Scenario Timeframe:	Current/Future
Receptor Population:	Residents
Receptor Age:	Child/Adult

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Plant tissue	Homegrown vegetables	Arsenic	1.9E-06	N/A	N/A	1.9E-06	Arsenic	NOAEL/skin pigmentation	3.3E-02	N/A	N/A	3.3E-02
								Cadmium	NOAEL/proteinuria--kidney	1.0E-01	N/A	N/A	1.0E-01
			(Total)	1.9E-06	N/A	N/A	1.9E-06	(Total)		1.4E-01	N/A	N/A	1.4E-01
						Total Risk Across Soil	1.9E-06					Total Hazard Index Across All Media and All Exposure Routes	1.4E-01
						Total Risk Across All Media and All Exposure Routes	1.9E-06						

N/A = not applicable

TABLE 9.11.3.RME

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

REASONABLE MAXIMUM EXPOSURE

Lower Basin

Scenario Timeframe:	Current/Future
Receptor Population:	Visitors
Receptor Age:	Adult

Medium	Exposure Medium	Exposure Point (1)	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface water/sediment	Animal Tissue	Pike (fish) in Lower CDAR	N/A	N/A	N/A	N/A	N/A	Cadmium	NOAEL/proteinuria--kidney	3.9E-03	N/A	N/A	3.9E-03
								Mercury	autoimmunity	8.7E-01	N/A	N/A	8.7E-01
								(Total)		8.8E-01	N/A	N/A	8.8E-01
						Total Risk Across Surface water/sediment	N/A					Total Hazard Index Across All Media and All Exposure Routes	8.8E-01
						Total Risk Across All Media and All Exposure Routes	N/A						

(1) Ingestion of fish tissue as shown assumes all fish ingested are pike. Pike was selected over perch and bullhead because the greatest risk due to fish tissue ingestion was associated with pike. Risks would be less for ingestion of perch or bullhead.

N/A = not applicable

TABLE 9.11.3.CT

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

CENTRAL TENDENCY EXPOSURE

Lower Basin

Scenario Timeframe:	Current/Future
Receptor Population:	Visitors
Receptor Age:	Adult

Medium	Exposure Medium	Exposure Point (1)	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface water/sediment	Animal Tissue	Pike (fish) in the Lower CDAR	N/A	N/A	N/A	N/A	N/A	Cadmium	NOAEL/proteinuria--kidney	3.6E-03	N/A	N/A	3.6E-03
								Mercury	autoimmunity	4.3E-01	N/A	N/A	4.3E-01
								(Total)		4.3E-01	N/A	N/A	4.3E-01
						Total Risk Across Surface water/sediment	N/A					Total Hazard Index Across All Media and All Exposure Routes	4.3E-01
						Total Risk Across All Media and All Exposure Routes	N/A						

(1) Ingestion of fish tissue as shown assumes all fish ingested are pike. Pike was selected over perch and bullhead because the greatest risk due to fish tissue ingestion was associated with pike. Risks would be less for ingestion of perch or bullhead.

N/A = not applicable

TABLE 9.11.4.RME

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

REASONABLE MAXIMUM EXPOSURE

Modern Subsistence Exposure Scenario - Fish Ingestion

Scenario Timeframe:	Future
Receptor Population:	Tribal Member
Receptor Age:	Adult

Medium	Exposure Medium	Exposure Point (1)	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface water/sediment	Animal Tissue	Pike (fish) in Lower CDAR	N/A	N/A	N/A	N/A	N/A	Cadmium	NOAEL/proteinuria--kidney	1.5E-02	N/A	N/A	1.5E-02
								Mercury	autoimmunity	3.2E+00	N/A	N/A	3.2E+00
								(Total)		3.2E+00	N/A	N/A	3.2E+00
						Total Risk Across Surface water/sediment	N/A					Total Hazard Index Across All Media and All Exposure Routes	3.2E+00
						Total Risk Across All Media and All Exposure Routes	N/A						

(1) Ingestion of fish tissue as shown assumes all fish ingested are pike. Pike was selected over perch and bullhead because the greatest risk due to fish tissue ingestion was associated with pike. Risks would be less for ingestion of perch or bullhead.

N/A = Not Applicable

TABLE 9.11.5.RME

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

REASONABLE MAXIMUM EXPOSURE

Traditional Subsistence Exposure Scenario - Fish Ingestion

Scenario Timeframe:	Future
Receptor Population:	Tribal Member
Receptor Age:	Adult

Medium	Exposure Medium	Exposure Point (1)	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface water/sediment	Animal Tissue	Pike (fish) in Lower CDAR	N/A	N/A	N/A	N/A	N/A	Cadmium	NOAEL/proteinuria--kidney	4.6E-02	N/A	N/A	4.6E-02
								Mercury	autoimmunity	1.0E+01	N/A	N/A	1.0E+01
								(Total)		1.0E+01	N/A	N/A	1.0E+01
						Total Risk Across Surface water/sediment	N/A					Total Hazard Index Across All Media and All Exposure Routes	1.0E+01
						Total Risk Across All Media and All Exposure Routes	N/A						

(1) Ingestion of fish tissue as shown assumes all fish ingested are pike. Pike was selected over perch and bullhead because the greatest risk due to fish tissue ingestion was associated with pike. Risks would be less for ingestion of perch or bullhead.

N/A = not applicable

TABLE 9.2.1.RME

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

REASONABLE MAXIMUM EXPOSURE

Kingston

Scenario Timeframe:	Current/Future
Receptor Population:	Residents
Receptor Age:	Child 0-6 years old

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ (1)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface soil	Yard soil	Arsenic	N/A	N/A	N/A	N/A	Antimony	longevity, glucose/ cholesterol--blood	1.3E-01	N/A	N/A	1.3E-01
								Arsenic	NOAEL/skin pigmentation	6.4E-01	N/A	7.0E-02	7.1E-01
								Cadmium	NOAEL/proteinuria--kidney	5.0E-02	N/A	4.4E-03	5.5E-02
								Iron	hematology--blood	9.4E-01	N/A	N/A	9.4E-01
								Manganese	NOAEL/Central Nervous System	3.0E-01	N/A	N/A	3.0E-01
								Zinc	enzyme effects--blood	3.1E-02	N/A	N/A	3.1E-02
			(Total)	N/A	N/A	N/A	N/A	(Total)		2.1E+00	N/A	7.5E-02	2.2E+00
Groundwater	Groundwater	Tap water	Arsenic	N/A	N/A	N/A	N/A	Arsenic	NOAEL/skin pigmentation	8.6E-02	N/A	N/A	8.6E-02

Total Risk Across Soil	N/A
Total Risk Across Groundwater	N/A
Total Risk Across All Media and All Exposure Routes	N/A
Total Hazard Index Across All Media and All Exposure Routes	2.2E+00

(1) Total organ Hazard Indices were not calculated because the effects on each target organ differs, and are therefore not additive. Specifically, although the effects of antimony, iron, and zinc can all be measured in blood, each chemical affects blood chemistry in a different and unrelated way (serum glucose/cholesterol, serum ferritin and percent transferrin saturation, and serum superoxide dismutase activity for antimony, iron, and zinc, respectively).

N/A = not applicable

TABLE 9.2.1.CT

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

CENTRAL TENDENCY EXPOSURE

Kingston

Scenario Timeframe:	Current/Future
Receptor Population:	Residents
Receptor Age:	Child 0-6 years old

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ (1)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface soil	Yard soil											
			Arsenic	N/A	N/A	N/A	N/A	Antimony	longevity, glucose/ cholesterol--blood	3.6E-02	N/A	N/A	3.6E-02
								Arsenic	NOAEL/skin pigmentation	1.9E-01	N/A	4.3E-02	2.4E-01
								Cadmium	NOAEL/proteinuria--kidney	1.7E-02	N/A	3.0E-03	2.0E-02
								Iron	hematology--blood	3.0E-01	N/A	N/A	3.0E-01
								Manganese	NOAEL/Central Nervous System	7.9E-02	N/A	N/A	7.9E-02
								Zinc	enzyme effects--blood	7.1E-03	N/A	N/A	7.1E-03
			(Total)	N/A	N/A	N/A	N/A	(Total)		6.4E-01	N/A	4.6E-02	6.8E-01
Groundwater	Groundwater	Tap water											
			Arsenic	N/A	N/A	N/A	N/A	Arsenic	NOAEL/skin pigmentation	3.0E-02	N/A	N/A	3.0E-02

Total Risk Across Soil	N/A
Total Risk Across Groundwater	N/A
Total Risk Across All Media and All Exposure Routes	N/A
Total Hazard Index Across All Media and All Exposure Routes	7.1E-01

(1) Total organ Hazard Indices were not calculated because the effects on each target organ differs, and are therefore not additive. Specifically, although the effects of antimony, iron, and zinc can all be measured in blood, each chemical affects blood chemistry in a different and unrelated way (serum glucose/cholesterol, serum ferritin and percent transferrin saturation, and serum superoxide dismutase activity for antimony, iron, and zinc, respectively).

N/A = not applicable

TABLE 9.2.2.RME

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

REASONABLE MAXIMUM EXPOSURE

Kingston

Scenario Timeframe:	Current/Future
Receptor Population:	Residents
Receptor Age:	Child/Adult

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ (1)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface soil	Yard soil	Arsenic	3.5E-05	N/A	4.0E-06	3.9E-05	Antimony	longevity, glucose/ cholesterol--blood	3.7E-02	N/A	N/A	3.7E-02
								Arsenic	NOAEL/skin pigmentation	1.8E-01	N/A	2.1E-02	2.0E-01
								Cadmium	NOAEL/proteinuria--kidney	1.4E-02	N/A	1.3E-03	1.6E-02
								Iron	hematology--blood	2.7E-01	N/A	N/A	2.7E-01
								Manganese	NOAEL/Central Nervous System	8.4E-02	N/A	N/A	8.4E-02
								Zinc	enzyme effects--blood	8.8E-03	N/A	N/A	8.8E-03
			(Total)	3.5E-05	N/A	4.0E-06	3.9E-05	(Total)		5.9E-01	N/A	2.2E-02	6.2E-01
Groundwater	Groundwater	Tap water	Arsenic	9.0E-06	N/A	N/A	9.0E-06	Arsenic	NOAEL/skin pigmentation	4.7E-02	N/A	N/A	4.7E-02

Total Risk Across Soil	
Total Risk Across Groundwater	9.0E-06
Total Risk Across All Media and All Exposure Routes	4.8E-05

Total Hazard Index Across All Media and All Exposure Routes	6.6E-01

(1) Total organ Hazard Indices were not calculated because the effects on each target organ differs, and are therefore not additive. Specifically, although the effects of antimony, iron, and zinc can all be measured in blood, each chemical affects blood chemistry in a different and unrelated way (serum glucose/cholesterol, serum ferritin and percent transferrin saturation, and serum superoxide dismutase activity for antimony, iron, and zinc, respectively).

N/A = not applicable

TABLE 9.2.2.CT

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

CENTRAL TENDENCY EXPOSURE

Kingston

Scenario Timeframe:	Current/Future
Receptor Population:	Residents
Receptor Age:	Child/Adult

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ (1)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface soil	Yard soil	Arsenic	3.4E-06	N/A	7.8E-07	4.2E-06	Antimony	longevity, glucose/ cholesterol--blood	1.1E-02	N/A	N/A	1.1E-02
								Arsenic	NOAEL/skin pigmentation	5.9E-02	N/A	1.3E-02	7.2E-02
								Cadmium	NOAEL/proteinuria--kidney	5.2E-03	N/A	9.5E-04	6.2E-03
								Iron	hematology--blood	9.3E-02	N/A	N/A	9.3E-02
								Manganese	NOAEL/Central Nervous System	2.4E-02	N/A	N/A	2.4E-02
								Zinc	enzyme effects--blood	2.2E-03	N/A	N/A	2.2E-03
			(Total)	3.4E-06	N/A	7.8E-07	4.2E-06	(Total)		1.9E-01	N/A	1.4E-02	2.1E-01
Groundwater	Groundwater	Tap water	Arsenic	7.9E-07	N/A	N/A	7.9E-07	Arsenic	NOAEL/skin pigmentation	1.4E-02	N/A	N/A	1.4E-02

Total Risk Across Soil	4.2E-06
Total Risk Across Groundwater	7.9E-07
Total Risk Across All Media and All Exposure Routes	5.0E-06
Total Hazard Index Across All Media and All Exposure Routes	2.2E-01

(1) Total organ Hazard Indices were not calculated because the effects on each target organ differs, and are therefore not additive. Specifically, although the effects of antimony, iron, and zinc can all be measured in blood, each chemical affects blood chemistry in a different and unrelated way (serum glucose/cholesterol, serum ferritin and percent transferrin saturation, and serum superoxide dismutase activity for antimony, iron, and zinc, respectively).

N/A = not applicable

TABLE 9.2.3.RME

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

REASONABLE MAXIMUM EXPOSURE

Kingston

Scenario Timeframe:	Current/Future
Receptor Population:	Neighborhood residents
Receptor Age:	Child 4-11 years old

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ (1)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil/Sediment	Soil/sediment	NS Confluence (2)											
			Arsenic	9.1E-06	N/A	1.1E-05	2.0E-05	Antimony	longevity, glucose/ cholesterol--blood	6.1E-02	N/A	N/A	6.1E-02
								Arsenic	NOAEL/skin pigmentation	2.0E-01	N/A	2.4E-01	4.4E-01
								Cadmium	NOAEL/proteinuria--kidney	1.6E-02	N/A	1.6E-02	3.2E-02
								Iron	hematology--blood	2.1E-01	N/A	N/A	2.1E-01
								Manganese	NOAEL/Central Nervous System	1.1E-01	N/A	N/A	1.1E-01
								Zinc	enzyme effects--blood	7.7E-03	N/A	N/A	7.7E-03
			(Total)	9.1E-06	N/A	1.1E-05	2.0E-05	(Total)		6.1E-01	N/A	2.6E-01	8.7E-01
Surface Water	Surface water	NS Confluence (2)											
			Arsenic	5.7E-06	N/A	N/A	5.7E-06	Arsenic	NOAEL/skin pigmentation	1.3E-01	N/A	N/A	1.3E-01
								Cadmium	NOAEL/proteinuria--kidney	4.7E-02	N/A	N/A	4.7E-02
								Manganese	NOAEL/Central Nervous System	5.7E-02	N/A	N/A	5.7E-02
								Mercury	autoimmunity	4.3E-03	N/A	N/A	4.3E-03
								(Total)		2.3E-01	N/A	N/A	2.3E-01

Total Risk Across Soil/sediment	2.0E-05
Total Risk Across Surface water	5.7E-06
Total Risk Across All Media and All Exposure Routes	2.6E-05
Total Hazard Index Across All Media and All Exposure Routes	1.1E+00

(1) Total organ Hazard Indices were not calculated because the effects on each target organ differs, and are therefore not additive. Specifically, although the effects of antimony, iron, and zinc can all be measured in blood, each chemical affects blood chemistry in a different and unrelated way (serum glucose/cholesterol, serum ferritin and percent transferrin saturation, and serum superoxide dismutase activity for antimony, iron, and zinc, respectively).

(2) Both Pine Creek and NS Confluence were sampled and risks calculated. When determining total risk across media and across all media and exposure routes, it was assumed that all exposure occurred at the NS Confluence because it posed a greater risk tha Therefore, total risk estimates across media and across all media and exposure routes for this receptor scenario are higher (more conservative) than those associated with exposure to Pine Creek sediment and water.

N/A = not applicable

TABLE 9.2.3.CT

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

CENTRAL TENDENCY EXPOSURE

Kingston

Scenario Timeframe:	Current/Future
Receptor Population:	Neighborhood residents
Receptor Age:	Child 4-11 years old

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ (1)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil/Sediment	Soil/sediment	NS Confluence (2)											
			Arsenic	4.4E-07	N/A	1.4E-06	1.8E-06	Antimony	longevity, glucose/ cholesterol--blood	1.0E-02	N/A	N/A	1.0E-02
								Arsenic	NOAEL/skin pigmentation	3.4E-02	N/A	1.1E-01	1.4E-01
								Cadmium	NOAEL/proteinuria--kidney	2.6E-03	N/A	6.6E-03	9.2E-03
								Iron	hematology--blood	3.5E-02	N/A	N/A	3.5E-02
								Manganese	NOAEL/Central Nervous System	1.9E-02	N/A	N/A	1.9E-02
								Zinc	enzyme effects--blood	1.3E-03	N/A	N/A	1.3E-03
			(Total)	4.4E-07	N/A	1.4E-06	1.8E-06	(Total)		1.0E-01	N/A	1.2E-01	2.2E-01
Surface Water	Surface water	NS Confluence (2)											
			Arsenic	2.2E-07	N/A	N/A	2.2E-07	Arsenic	NOAEL/skin pigmentation	1.7E-02	N/A	N/A	1.7E-02
								Cadmium	NOAEL/proteinuria--kidney	8.3E-03	N/A	N/A	8.3E-03
								Manganese	NOAEL/Central Nervous System	9.4E-03	N/A	N/A	9.4E-03
								Mercury	autoimmunity	6.1E-04	N/A	N/A	6.1E-04
			(Total)	2.2E-07	N/A	N/A	2.2E-07	(Total)		3.5E-02	N/A	N/A	3.5E-02
						Total Risk Across Soil/sediment	1.8E-06					Total Hazard Index Across All Media and All Exposure Routes	2.5E-01
						Total Risk Across Surface water	2.2E-07						
						Total Risk Across All Media and All Exposure Routes	2.1E-06						

(1) Total organ Hazard Indices were not calculated because the effects on each target organ differs, and are therefore not additive. Specifically, although the effects of antimony, iron, and zinc can all be measured in blood, each chemical affects blood chemistry in a different and unrelated way (serum glucose/cholesterol, serum ferritin and percent transferrin saturation, and serum superoxide dismutase activity for antimony, iron, and zinc, respectively).

(2) Both Pine Creek and NS Confluence were sampled and risks calculated. When determining total risk across media and across all media and exposure routes, it was assumed that all exposure occurred at the NS Confluence because it posed a greater risk tha Therefore, total risk estimates across media and across all media and exposure routes for this receptor scenario are higher (more conservative) than those associated with exposure to Pine Creek sediment and water.

N/A = not applicable

TABLE 9.2.4.RME

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

REASONABLE MAXIMUM EXPOSURE

Kingston

Scenario Timeframe:	Current/Future
Receptor Population:	Visitors
Receptor Age:	Child 0-6 years old

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ (1)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil/Sediment	Soil/sediment	NS Confluence	Arsenic	N/A	N/A	N/A	N/A	Antimony	longevity, glucose/ cholesterol--blood	1.7E-01	N/A	N/A	1.7E-01
								Arsenic	NOAEL/skin pigmentation	5.7E-01	N/A	1.2E-01	6.9E-01
								Cadmium	NOAEL/proteinuria--kidney	4.7E-02	N/A	8.1E-03	5.5E-02
								Iron	hematology--blood	5.9E-01	N/A	N/A	5.9E-01
								Manganese	NOAEL/Central Nervous System	3.2E-01	N/A	N/A	3.2E-01
								Zinc	enzyme effects--blood	2.2E-02	N/A	N/A	2.2E-02
			(Total)	N/A	N/A	N/A	N/A	(Total)		1.7E+00	N/A	1.3E-01	1.9E+00
Surface Water	Surface water	NS Confluence	Arsenic	N/A	N/A	N/A	N/A	Arsenic	NOAEL/skin pigmentation	7.8E-02	N/A	N/A	7.8E-02
								Cadmium	NOAEL/proteinuria--kidney	2.9E-02	N/A	N/A	2.9E-02
								Manganese	NOAEL/Central Nervous System	3.5E-02	N/A	N/A	3.5E-02
								Mercury	autoimmunity	2.7E-03	N/A	N/A	2.7E-03
			(Total)	N/A	N/A	N/A	N/A	(Total)		1.5E-01	N/A	N/A	1.5E-01
						Total Risk Across Soil/sediment	N/A					Total Hazard Index Across All Media and All Exposure Routes	2.0E+00
						Total Risk Across Surface water	N/A						
						Total Risk Across All Media and All Exposure Routes	N/A						

(1) Total organ Hazard Indices were not calculated because the effects on each target organ differs, and are therefore not additive. Specifically, although the effects of antimony, iron, and zinc can all be measured in blood, each chemical affects blood chemistry in a different and unrelated way (serum glucose/cholesterol, serum ferritin and percent transferrin saturation, and serum superoxide dismutase activity for antimony, iron, and zinc, respectively).

N/A = not applicable

TABLE 9.2.4.CT

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

CENTRAL TENDENCY EXPOSURE

Kingston

Scenario Timeframe:	Current/Future
Receptor Population:	Visitors
Receptor Age:	Child 0-6 years old

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ (1)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil/Sediment	Soil/sediment	NS Confluence	Arsenic	N/A	N/A	N/A	N/A	Antimony	longevity, glucose/ cholesterol--blood	3.0E-02	N/A	N/A	3.0E-02
								Arsenic	NOAEL/skin pigmentation	1.0E-01	N/A	5.5E-02	1.6E-01
								Cadmium	NOAEL/proteinuria--kidney	7.7E-03	N/A	3.3E-03	1.1E-02
								Iron	hematology--blood	1.0E-01	N/A	N/A	1.0E-01
								Manganese	NOAEL/Central Nervous System	5.6E-02	N/A	N/A	5.6E-02
								Zinc	enzyme effects--blood	3.8E-03	N/A	N/A	3.8E-03
			(Total)	N/A	N/A	N/A	N/A	(Total)		3.0E-01	N/A	5.9E-02	3.6E-01
Surface Water	Surface water	NS Confluence	Arsenic	N/A	N/A	N/A	N/A	Arsenic	NOAEL/skin pigmentation	1.1E-02	N/A	N/A	1.1E-02
								Cadmium	NOAEL/proteinuria--kidney	5.2E-03	N/A	N/A	5.2E-03
								Manganese	NOAEL/Central Nervous System	5.9E-03	N/A	N/A	5.9E-03
								Mercury	autoimmunity	3.8E-04	N/A	N/A	3.8E-04
			(Total)	N/A	N/A	N/A	N/A	(Total)		2.2E-02	N/A	N/A	2.2E-02

Total Risk Across Soil/sediment	N/A
Total Risk Across Surface water	N/A
Total Risk Across All Media and All Exposure Routes	N/A
Total Hazard Index Across All Media and All Exposure Routes	3.8E-01

(1) Total organ Hazard Indices were not calculated because the effects on each target organ differs, and are therefore not additive. Specifically, although the effects of antimony, iron, and zinc can all be measured in blood, each chemical affects blood chemistry in a different and unrelated way (serum glucose/cholesterol, serum ferritin and percent transferrin saturation, and serum superoxide dismutase activity for antimony, iron, and zinc, respectively).

N/A = not applicable

TABLE 9.2.5.RME

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

REASONABLE MAXIMUM EXPOSURE

Kingston

Scenario Timeframe:	Current/Future
Receptor Population:	Visitors
Receptor Age:	Child/Adult

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ (1)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil/Sediment	Soil/sediment	NS Confluence	Arsenic	2.8E-05	N/A	1.0E-05	3.9E-05	Antimony	longevity, glucose/ cholesterol--blood	4.5E-02	N/A	N/A	4.5E-02
								Arsenic	NOAEL/skin pigmentation	1.5E-01	N/A	5.4E-02	2.0E-01
								Cadmium	NOAEL/proteinuria--kidney	1.2E-02	N/A	3.5E-03	1.6E-02
								Iron	hematology--blood	1.5E-01	N/A	N/A	1.5E-01
								Manganese	NOAEL/Central Nervous System	8.2E-02	N/A	N/A	8.2E-02
								Zinc	enzyme effects--blood	5.6E-03	N/A	N/A	5.6E-03
			(Total)	2.8E-05	N/A	1.0E-05	3.9E-05	(Total)		4.4E-01	N/A	5.8E-02	5.0E-01
Surface Water	Surface water	NS Confluence	Arsenic	5.6E-06	N/A	N/A	5.6E-06	Arsenic	NOAEL/skin pigmentation	2.9E-02	N/A	N/A	2.9E-02
								Cadmium	NOAEL/proteinuria--kidney	1.1E-02	N/A	N/A	1.1E-02
								Manganese	NOAEL/Central Nervous System	1.3E-02	N/A	N/A	1.3E-02
								Mercury	autoimmunity	1.0E-03	N/A	N/A	1.0E-03
			(Total)	5.6E-06	N/A	N/A	5.6E-06	(Total)		5.4E-02	N/A	N/A	5.4E-02
						Total Risk Across Soil/sediment	3.9E-05					Total Hazard Index Across All Media and All Exposure Routes	5.6E-01
						Total Risk Across Surface water	5.6E-06						
						Total Risk Across All Media and All Exposure Routes	4.4E-05						

(1) Total organ Hazard Indices were not calculated because the effects on each target organ differs, and are therefore not additive. Specifically, although the effects of antimony, iron, and zinc can all be measured in blood, each chemical affects blood chemistry in a different and unrelated way (serum glucose/cholesterol, serum ferritin and percent transferrin saturation, and serum superoxide dismutase activity for antimony, iron, and zinc, respectively).

N/A = not applicable

TABLE 9.2.5.CT

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

CENTRAL TENDENCY EXPOSURE

Kingston

Scenario Timeframe:	Current/Future
Receptor Population:	Visitors
Receptor Age:	Child/Adult

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ (1)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil/Sediment	Soil/sediment	NS Confluence	Arsenic	1.7E-06	N/A	1.4E-06	3.2E-06	Antimony	longevity, glucose/ cholesterol--blood	8.8E-03	N/A	N/A	8.8E-03
								Arsenic	NOAEL/skin pigmentation	3.0E-02	N/A	2.5E-02	5.5E-02
								Cadmium	NOAEL/proteinuria--kidney	2.3E-03	N/A	1.5E-03	3.8E-03
								Iron	hematology--blood	3.0E-02	N/A	N/A	3.0E-02
								Manganese	NOAEL/Central Nervous System	1.6E-02	N/A	N/A	1.6E-02
								Zinc	enzyme effects--blood	1.1E-03	N/A	N/A	1.1E-03
			(Total)	1.7E-06	N/A	1.4E-06	3.2E-06	(Total)		8.9E-02	N/A	2.7E-02	1.2E-01
Surface Water	Surface water	NS Confluence	Arsenic	2.4E-07	N/A	N/A	2.4E-07	Arsenic	NOAEL/skin pigmentation	4.1E-03	N/A	N/A	4.1E-03
								Cadmium	NOAEL/proteinuria--kidney	2.0E-03	N/A	N/A	2.0E-03
								Manganese	NOAEL/Central Nervous System	2.3E-03	N/A	N/A	2.3E-03
								Mercury	autoimmunity	1.5E-04	N/A	N/A	1.5E-04
			(Total)	2.4E-07	N/A	N/A	2.4E-07	(Total)		8.6E-03	N/A	N/A	8.6E-03
						Total Risk Across Soil/sediment	3.2E-06					Total Hazard Index Across All Media and All Exposure Routes	1.2E-01
						Total Risk Across Surface water	2.4E-07						
						Total Risk Across All Media and All Exposure Routes	3.4E-06						

(1) Total organ Hazard Indices were not calculated because the effects on each target organ differs, and are therefore not additive. Specifically, although the effects of antimony, iron, and zinc can all be measured in blood, each chemical affects blood chemistry in a different and unrelated way (serum glucose/cholesterol, serum ferritin and percent transferrin saturation, and serum superoxide dismutase activity for antimony, iron, and zinc, respectively).

N/A = not applicable

TABLE 9.2.6.RME

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

REASONABLE MAXIMUM EXPOSURE

Kingston

Scenario Timeframe:	Current/Future
Receptor Population:	Construction Workers
Receptor Age:	Adult

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ (1)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Subsurface/surface soil	Construction site soil	Arsenic	2.5E-05	N/A	1.1E-06	2.7E-05	Antimony	longevity, glucose/ cholesterol--blood	3.9E-02	N/A	N/A	3.9E-02
								Arsenic	NOAEL/skin pigmentation	1.6E-01	N/A	6.6E-03	1.7E-01
								Cadmium	NOAEL/proteinuria--kidney	1.2E-02	N/A	3.9E-04	1.2E-02
								Iron	hematology--blood	2.2E-01	N/A	N/A	2.2E-01
								Manganese	NOAEL/Central Nervous System	2.8E-02	N/A	N/A	2.8E-02
								Zinc	enzyme effects--blood	8.1E-03	N/A	N/A	8.1E-03
			(Total)	2.5E-05	N/A	1.1E-06	2.7E-05	(Total)		4.7E-01	N/A	7.0E-03	4.7E-01
						Total Risk Across Soil	2.7E-05					Total Hazard Index Across All Media and All Exposure Routes	4.7E-01
						Total Risk Across All Media and All Exposure Routes	2.7E-05						

(1) Total organ Hazard Indices were not calculated because the effects on each target organ differs, and are therefore not additive. Specifically, although the effects of antimony, iron, and zinc can all be measured in blood, each chemical affects blood chemistry in a different and unrelated way (serum glucose/cholesterol, serum ferritin and percent transferrin saturation, and serum superoxide dismutase activity for antimony, iron, and zinc, respectively).

N/A = not applicable

TABLE 9.2.6.CT

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

CENTRAL TENDENCY EXPOSURE

Kingston

Scenario Timeframe:	Current/Future
Receptor Population:	Construction workers
Receptor Age:	Adult

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ (1)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Subsurface/surface soil	Construction site soil	Arsenic	8.3E-07	N/A	5.2E-08	8.8E-07	Antimony	longevity, glucose/ cholesterol--blood	4.6E-03	N/A	N/A	4.6E-03
								Arsenic	NOAEL/skin pigmentation	2.0E-02	N/A	1.2E-03	2.1E-02
								Cadmium	NOAEL/proteinuria--kidney	1.7E-03	N/A	8.7E-05	1.8E-03
								Iron	hematology--blood	2.9E-02	N/A	N/A	2.9E-02
								Manganese	NOAEL/Central Nervous System	3.3E-03	N/A	N/A	3.3E-03
								Zinc	enzyme effects--blood	8.9E-04	N/A	N/A	8.9E-04
			(Total)	8.3E-07	N/A	5.2E-08	8.8E-07	(Total)		5.9E-02	N/A	1.3E-03	6.0E-02
						Total Risk Across Soil	8.8E-07					Total Hazard Index Across All Media and All Exposure Routes	6.0E-02
						Total Risk Across All Media and All Exposure Routes	8.8E-07						

(1) Total organ Hazard Indices were not calculated because the effects on each target organ differs, and are therefore not additive. Specifically, although the effects of antimony, iron, and zinc can all be measured in blood, each chemical affects blood chemistry in a different and unrelated way (serum glucose/cholesterol, serum ferritin and percent transferrin saturation, and serum superoxide dismutase activity for antimony, iron, and zinc, respectively).

N/A = not applicable

TABLE 9.3.1.RME

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

REASONABLE MAXIMUM EXPOSURE

Side Gulches

Scenario Timeframe:	Current/Future
Receptor Population:	Residents
Receptor Age:	Child 0-6 years old

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ (1)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface soil	Yard soil											
			Arsenic	N/A	N/A	N/A	N/A	Antimony	longevity, glucose/ cholesterol--blood	5.1E-01	N/A	N/A	5.1E-01
								Arsenic	NOAEL/skin pigmentation	1.3E+00	N/A	1.4E-01	1.4E+00
								Cadmium	NOAEL/proteinuria--kidney	1.2E-01	N/A	1.1E-02	1.3E-01
								Iron	hematology--blood	1.2E+00	N/A	N/A	1.2E+00
								Manganese	NOAEL/Central Nervous System	3.7E-01	N/A	N/A	3.7E-01
								Zinc	enzyme effects--blood	5.6E-02	N/A	N/A	5.6E-02
			(Total)	N/A	N/A	N/A	N/A	(Total)		3.5E+00	N/A	1.5E-01	3.7E+00
Groundwater	Groundwater	Tap water											
			Arsenic	N/A	N/A	N/A	N/A	Arsenic	NOAEL/skin pigmentation	1.8E+00	N/A	N/A	1.8E+00

Total Risk Across Soil	N/A
Total Risk Across Groundwater	N/A
Total Risk Across All Media and All Exposure Routes	N/A
Total Hazard Index Across All Media and All Exposure Routes	5.5E+00

(1) Total organ Hazard Indices were not calculated because the effects on each target organ differs, and are therefore not additive. Specifically, although the effects of antimony, iron, and zinc can all be measured in blood, each chemical affects blood chemistry in a different and unrelated way (serum glucose/cholesterol, serum ferritin and percent transferrin saturation, and serum superoxide dismutase activity for antimony, iron, and zinc, respectively).

N/A = not applicable

TABLE 9.3.1.CT

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

CENTRAL TENDENCY EXPOSURE

Side Gulches

Scenario Timeframe:	Current/Future
Receptor Population:	Residents
Receptor Age:	Child 0-6 years old

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ (1)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface soil	Yard soil											
			Arsenic	N/A	N/A	N/A	N/A	Antimony	longevity, glucose/ cholesterol--blood	1.2E-01	N/A	N/A	1.2E-01
								Arsenic	NOAEL/skin pigmentation	3.8E-01	N/A	8.3E-02	4.6E-01
								Cadmium	NOAEL/proteinuria--kidney	3.3E-02	N/A	5.8E-03	3.9E-02
								Iron	hematology--blood	3.9E-01	N/A	N/A	3.9E-01
								Manganese	NOAEL/Central Nervous System	1.2E-01	N/A	N/A	1.2E-01
								Zinc	enzyme effects--blood	1.3E-02	N/A	N/A	1.3E-02
			(Total)	N/A	N/A	N/A	N/A	(Total)		1.1E+00	N/A	8.9E-02	1.1E+00
Groundwater	Groundwater	Tap water											
			Arsenic	N/A	N/A	N/A	N/A	Arsenic	NOAEL/skin pigmentation	2.7E-01	N/A	N/A	2.7E-01

Total Risk Across Soil	N/A
Total Risk Across Groundwater	N/A
Total Risk Across All Media and All Exposure Routes	N/A
Total Hazard Index Across All Media and All Exposure Routes	1.4E+00

(1) Total organ Hazard Indices were not calculated because the effects on each target organ differs, and are therefore not additive. Specifically, although the effects of antimony, iron, and zinc can all be measured in blood, each chemical affects blood chemistry in a different and unrelated way (serum glucose/cholesterol, serum ferritin and percent transferrin saturation, and serum superoxide dismutase activity for antimony, iron, and zinc, respectively).

N/A = not applicable

TABLE 9.3.2.RME

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

REASONABLE MAXIMUM EXPOSURE

Side Gulches

Scenario Timeframe:	Current/Future
Receptor Population:	Residents
Receptor Age:	Child/Adult

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ (1)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface soil	Yard soil											
			Arsenic	7.1E-05	N/A	8.2E-06	8.0E-05	Antimony	longevity, glucose/ cholesterol--blood	1.5E-01	N/A	N/A	1.5E-01
								Arsenic	NOAEL/skin pigmentation	3.7E-01	N/A	4.2E-02	4.1E-01
								Cadmium	NOAEL/proteinuria--kidney	3.5E-02	N/A	3.2E-03	3.8E-02
								Iron	hematology--blood	3.3E-01	N/A	N/A	3.3E-01
								Manganese	NOAEL/Central Nervous System	1.1E-01	N/A	N/A	1.1E-01
								Zinc	enzyme effects--blood	1.6E-02	N/A	N/A	1.6E-02
			(Total)	7.1E-05	N/A	8.2E-06	8.0E-05	(Total)		1.0E+00	N/A	4.6E-02	1.1E+00
Groundwater	Groundwater	Tap water											
			Arsenic	1.9E-04	N/A	N/A	1.9E-04	Arsenic	NOAEL/skin pigmentation	9.7E-01	N/A	N/A	9.7E-01

Total Risk Across Soil	8.0E-05
Total Risk Across Groundwater	1.9E-04
Total Risk Across All Media and All Exposure Routes	2.7E-04

Total Hazard Index Across All Media and All Exposure Routes	2.0E+00

(1) Total organ Hazard Indices were not calculated because the effects on each target organ differs, and are therefore not additive. Specifically, although the effects of antimony, iron, and zinc can all be measured in blood, each chemical affects blood chemistry in a different and unrelated way (serum glucose/cholesterol, serum ferritin and percent transferrin saturation, and serum superoxide dismutase activity for antimony, iron, and zinc, respectively).

N/A = not applicable

TABLE 9.3.2.CT

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

CENTRAL TENDENCY EXPOSURE

Side Gulches

Scenario Timeframe:	Current/Future
Receptor Population:	Residents
Receptor Age:	Child/Adult

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ (1)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface soil	Yard soil	Arsenic	6.7E-06	N/A	1.5E-06	8.2E-06	Antimony	longevity, glucose/ cholesterol--blood	3.7E-02	N/A	N/A	3.7E-02
								Arsenic	NOAEL/skin pigmentation	1.2E-01	N/A	2.6E-02	1.4E-01
								Cadmium	NOAEL/proteinuria--kidney	1.0E-02	N/A	1.8E-03	1.2E-02
								Iron	hematology--blood	1.2E-01	N/A	N/A	1.2E-01
								Manganese	NOAEL/Central Nervous System	3.6E-02	N/A	N/A	3.6E-02
								Zinc	enzyme effects--blood	4.1E-03	N/A	N/A	4.1E-03
			(Total)	6.7E-06	N/A	1.5E-06	8.2E-06	(Total)		3.2E-01	N/A	2.8E-02	3.5E-01
Groundwater	Groundwater	Tap water	Arsenic	7.2E-06	N/A	N/A	7.2E-06	Arsenic	NOAEL/skin pigmentation	1.2E-01	N/A	N/A	1.2E-01

Total Risk Across Soil	8.2E-06
Total Risk Across Groundwater	7.2E-06
Total Risk Across All Media and All Exposure Routes	1.5E-05
Total Hazard Index Across All Media and All Exposure Routes	4.8E-01

(1) Total organ Hazard Indices were not calculated because the effects on each target organ differs, and are therefore not additive. Specifically, although the effects of antimony, iron, and zinc can all be measured in blood, each chemical affects blood chemistry in a different and unrelated way (serum glucose/cholesterol, serum ferritin and percent transferrin saturation, and serum superoxide dismutase activity for antimony, iron, and zinc, respectively).

N/A = not applicable

TABLE 9.3.3.RME

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

REASONABLE MAXIMUM EXPOSURE

Side Gulches

Scenario Timeframe:	Current/Future
Receptor Population:	Neighborhood residents
Receptor Age:	Child 4-11 years old

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ (1)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface soil	Elk Creek Area	Arsenic	8.8E-06	N/A	3.0E-06	1.2E-05	Antimony	longevity, glucose/ cholesterol--blood	1.4E-01	N/A	N/A	1.4E-01
								Arsenic	NOAEL/skin pigmentation	2.0E-01	N/A	6.7E-02	2.6E-01
								Cadmium	NOAEL/proteinuria--kidney	6.4E-02	N/A	1.7E-02	8.2E-02
								Iron	hematology--blood	3.3E-01	N/A	N/A	3.3E-01
								Manganese	NOAEL/Central Nervous System	2.0E-01	N/A	N/A	2.0E-01
								Zinc	enzyme effects--blood	2.0E-02	N/A	N/A	2.0E-02
			(Total)	8.8E-06	N/A	3.0E-06	1.2E-05	(Total)		9.5E-01	N/A	8.4E-02	1.0E+00
Sediment	Sediment	Elk Creek Pond	Arsenic	4.3E-06	N/A	3.3E-06	7.7E-06	Antimony	longevity, glucose/ cholesterol--blood	4.3E-02	N/A	N/A	4.3E-02
								Arsenic	NOAEL/skin pigmentation	9.6E-02	N/A	7.4E-02	1.7E-01
								Cadmium	NOAEL/proteinuria--kidney	2.4E-02	N/A	1.5E-02	3.8E-02
								Iron	hematology--blood	7.4E-02	N/A	N/A	7.4E-02
								Manganese	NOAEL/Central Nervous System	2.9E-02	N/A	N/A	2.9E-02
								Zinc	enzyme effects--blood	1.0E-02	N/A	N/A	1.0E-02
			(Total)	4.3E-06	N/A	3.3E-06	7.7E-06	(Total)		2.8E-01	N/A	8.9E-02	3.6E-01
Surface Water	Surface water	Elk Creek Pond	Arsenic	1.4E-06	N/A	N/A	1.4E-06	Arsenic	NOAEL/skin pigmentation	3.0E-02	N/A	N/A	3.0E-02
								Cadmium	NOAEL/proteinuria--kidney	3.4E-02	N/A	N/A	3.4E-02
								Manganese	NOAEL/Central Nervous System	5.1E-02	N/A	N/A	5.1E-02
								Mercury	autoimmunity	3.3E-03	N/A	N/A	3.3E-03
			(Total)	1.4E-06	N/A	N/A	1.4E-06	(Total)		1.2E-01	N/A	N/A	1.2E-01

Total Risk Across Soil	1.2E-05
Total Risk Across Sediment	7.7E-06
Total Risk Across Surface water	1.4E-06
Total Risk Across All Media and All Exposure Routes	2.1E-05

Total Hazard Index Across All Media and All Exposure Routes	1.5E+00

(1) Total organ Hazard Indices were not calculated because the effects on each target organ differs, and are therefore not additive. Specifically, although the effects of antimony, iron, and zinc can all be measured in blood, each chemical affects blood chemistry in a different and unrelated way (serum glucose/cholesterol, serum ferritin and percent transferrin saturation, and serum superoxide dismutase activity for antimony, iron, and zinc, respectively).

N/A = not applicable

TABLE 9.3.3.CT

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

CENTRAL TENDENCY EXPOSURE

Side Gulches

Scenario Timeframe:	Current/Future
Receptor Population:	Neighborhood residents
Receptor Age:	Child 4-11 years old

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ (1)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface soil	Elk Creek Area											
			Arsenic	4.1E-07	N/A	3.5E-07	7.6E-07	Antimony	longevity, glucose/ cholesterol--blood	2.3E-02	N/A	N/A	2.3E-02
								Arsenic	NOAEL/skin pigmentation	3.2E-02	N/A	2.7E-02	5.9E-02
								Cadmium	NOAEL/proteinuria--kidney	4.4E-03	N/A	2.9E-03	7.3E-03
								Iron	hematology--blood	5.7E-02	N/A	N/A	5.7E-02
								Manganese	NOAEL/Central Nervous System	2.9E-02	N/A	N/A	2.9E-02
								Zinc	enzyme effects--blood	2.2E-03	N/A	N/A	2.2E-03
			(Total)	4.1E-07	N/A	3.5E-07	7.6E-07	(Total)		1.5E-01	N/A	3.0E-02	1.8E-01
Sediment	Sediment	Elk Creek Pond											
			Arsenic	1.9E-07	N/A	3.9E-07	5.8E-07	Antimony	longevity, glucose/ cholesterol--blood	5.2E-03	N/A	N/A	5.2E-03
								Arsenic	NOAEL/skin pigmentation	1.5E-02	N/A	3.0E-02	4.5E-02
								Cadmium	NOAEL/proteinuria--kidney	5.0E-03	N/A	8.2E-03	1.3E-02
								Iron	hematology--blood	1.2E-02	N/A	N/A	1.2E-02
								Manganese	NOAEL/Central Nervous System	3.7E-03	N/A	N/A	3.7E-03
								Zinc	enzyme effects--blood	1.7E-03	N/A	N/A	1.7E-03
			(Total)	1.9E-07	N/A	3.9E-07	5.8E-07	(Total)		4.2E-02	N/A	3.9E-02	8.1E-02
Surface Water	Surface water	Elk Creek Pond											
			Arsenic	1.0E-07	N/A	N/A	1.0E-07	Arsenic	NOAEL/skin pigmentation	7.8E-03	N/A	N/A	7.8E-03
								Cadmium	NOAEL/proteinuria--kidney	7.5E-03	N/A	N/A	7.5E-03
								Manganese	NOAEL/Central Nervous System	6.9E-03	N/A	N/A	6.9E-03
								Mercury	autoimmunity	4.0E-04	N/A	N/A	4.0E-04
			(Total)	1.0E-07	N/A	N/A	1.0E-07	(Total)		2.3E-02	N/A	N/A	2.3E-02

Total Risk Across Soil	7.6E-07
Total Risk Across Sediment	5.8E-07
Total Risk Across Surface water	1.0E-07
Total Risk Across All Media and All Exposure Routes	1.4E-06

Total Hazard Index Across All Media and All Exposure Routes	2.8E-01

(1) Total organ Hazard Indices were not calculated because the effects on each target organ differs, and are therefore not additive. Specifically, although the effects of antimony, iron, and zinc can all be measured in blood, each chemical affects blood chemistry in a different and unrelated way (serum glucose/cholesterol, serum ferritin and percent transferrin saturation, and serum superoxide dismutase activity for antimony, iron, and zinc, respectively).

N/A = not applicable

TABLE 9.4.1.RME

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

REASONABLE MAXIMUM EXPOSURE

Osburn

Scenario Timeframe:	Current/Future
Receptor Population:	Residents
Receptor Age:	Child 0-6 years old

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ (1)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface soil	Yard soil											
			Arsenic	N/A	N/A	N/A	N/A	Antimony	longevity, glucose/ cholesterol--blood	4.0E-01	N/A	N/A	4.0E-01
								Arsenic	NOAEL/skin pigmentation	1.2E+00	N/A	1.3E-01	1.3E+00
								Cadmium	NOAEL/proteinuria--kidney	6.7E-02	N/A	5.9E-03	7.3E-02
								Iron	hematology--blood	9.6E-01	N/A	N/A	9.6E-01
								Manganese	NOAEL/Central Nervous System	3.3E-01	N/A	N/A	3.3E-01
								Zinc	enzyme effects--blood	2.5E-02	N/A	N/A	2.5E-02
			(Total)	N/A	N/A	N/A	N/A	(Total)		3.0E+00	N/A	1.4E-01	3.1E+00
Groundwater	Groundwater	Tap water											
			Arsenic	N/A	N/A	N/A	N/A	Arsenic	NOAEL/skin pigmentation	6.0E-02	N/A	N/A	6.0E-02

Total Risk Across Soil	N/A
Total Risk Across Groundwater	N/A
Total Risk Across All Media and All Exposure Routes	N/A
Total Hazard Index Across All Media and All Exposure Routes	3.2E+00

(1) Total organ Hazard Indices were not calculated because the effects on each target organ differs, and are therefore not additive. Specifically, although the effects of antimony, iron, and zinc can all be measured in blood, each chemical affects blood chemistry in a different and unrelated way (serum glucose/cholesterol, serum ferritin and percent transferrin saturation, and serum superoxide dismutase activity for antimony, iron, and zinc, respectively).

N/A = not applicable

TABLE 9.4.1.CT

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

CENTRAL TENDENDCY EXPOSURE

Osburn

Scenario Timeframe:	Current/Future
Receptor Population:	Residents
Receptor Age:	Child 0-6 years old

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ (1)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface soil	Yard soil											
			Arsenic	N/A	N/A	N/A	N/A	Antimony	longevity, glucose/ cholesterol--blood	1.2E-01	N/A	N/A	1.2E-01
								Arsenic	NOAEL/skin pigmentation	3.7E-01	N/A	8.1E-02	4.5E-01
								Cadmium	NOAEL/proteinuria--kidney	2.3E-02	N/A	4.0E-03	2.7E-02
								Iron	hematology--blood	3.4E-01	N/A	N/A	3.4E-01
								Manganese	NOAEL/Central Nervous System	1.1E-01	N/A	N/A	1.1E-01
								Zinc	enzyme effects--blood	8.3E-03	N/A	N/A	8.3E-03
			(Total)	N/A	N/A	N/A	N/A	(Total)		9.7E-01	N/A	8.5E-02	1.1E+00
Groundwater	Groundwater	Tap water											
			Arsenic	N/A	N/A	N/A	N/A	Arsenic	NOAEL/skin pigmentation	3.3E-02	N/A	N/A	3.3E-02

Total Risk Across Soil	N/A
Total Risk Across Groundwater	N/A
Total Risk Across All Media and All Exposure Routes	N/A
Total Hazard Index Across All Media and All Exposure Routes	1.1E+00

(1) Total organ Hazard Indices were not calculated because the effects on each target organ differs, and are therefore not additive. Specifically, although the effects of antimony, iron, and zinc can all be measured in blood, each chemical affects blood chemistry in a different and unrelated way (serum glucose/cholesterol, serum ferritin and percent transferrin saturation, and serum superoxide dismutase activity for antimony, iron, and zinc, respectively).

N/A = not applicable

TABLE 9.4.2.RME

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

REASONABLE MAXIMUM EXPOSURE

Osburn

Scenario Timeframe:	Current/Future
Receptor Population:	Residents
Receptor Age:	Child/Adult

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ (1)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface soil	Yard soil	Arsenic	6.6E-05	N/A	7.5E-06	7.3E-05	Antimony	longevity, glucose/ cholesterol--blood	1.1E-01	N/A	N/A	1.1E-01
								Arsenic	NOAEL/skin pigmentation	3.4E-01	N/A	3.9E-02	3.8E-01
								Cadmium	NOAEL/proteinuria--kidney	1.9E-02	N/A	1.8E-03	2.1E-02
								Iron	hematology--blood	2.7E-01	N/A	N/A	2.7E-01
								Manganese	NOAEL/Central Nervous System	9.3E-02	N/A	N/A	9.3E-02
								Zinc	enzyme effects--blood	7.3E-03	N/A	N/A	7.3E-03
			(Total)	6.6E-05	N/A	7.5E-06	7.3E-05	(Total)		8.5E-01	N/A	4.1E-02	8.9E-01
Groundwater	Groundwater	Tap water	Arsenic	6.2E-06	N/A	N/A	6.2E-06	Arsenic	NOAEL/skin pigmentation	3.2E-02	N/A	N/A	3.2E-02

Total Risk Across Soil	7.3E-05
Total Risk Across Groundwater	6.2E-06
Total Risk Across All Media and All Exposure Routes	8.0E-05
Total Hazard Index Across All Media and All Exposure Routes	9.2E-01

(1) Total organ Hazard Indices were not calculated because the effects on each target organ differs, and are therefore not additive. Specifically, although the effects of antimony, iron, and zinc can all be measured in blood, each chemical affects blood chemistry in a different and unrelated way (serum glucose/cholesterol, serum ferritin and percent transferrin saturation, and serum superoxide dismutase activity for antimony, iron, and zinc, respectively).

N/A = not applicable

TABLE 9.4.2.CT

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

CENTRAL TENDENDCY EXPOSURE

Osburn

Scenario Timeframe:	Current/Future
Receptor Population:	Residents
Receptor Age:	Child/Adult

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ (1)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface soil	Yard soil	Arsenic	6.5E-06	N/A	1.5E-06	8.0E-06	Antimony	longevity, glucose/ cholesterol--blood	3.6E-02	N/A	N/A	3.6E-02
								Arsenic	NOAEL/skin pigmentation	1.1E-01	N/A	2.6E-02	1.4E-01
								Cadmium	NOAEL/proteinuria--kidney	7.0E-03	N/A	1.3E-03	8.3E-03
								Iron	hematology--blood	1.0E-01	N/A	N/A	1.0E-01
								Manganese	NOAEL/Central Nervous System	3.5E-02	N/A	N/A	3.5E-02
								Zinc	enzyme effects--blood	2.5E-03	N/A	N/A	2.5E-03
			(Total)	6.5E-06	N/A	1.5E-06	8.0E-06	(Total)		3.0E-01	N/A	2.7E-02	3.2E-01
Groundwater	Groundwater	Tap water	Arsenic	8.6E-07	N/A	N/A	8.6E-07	Arsenic	NOAEL/skin pigmentation	1.5E-02	N/A	N/A	1.5E-02

Total Risk Across Soil	8.0E-06
Total Risk Across Groundwater	8.6E-07
Total Risk Across All Media and All Exposure Routes	8.9E-06
Total Hazard Index Across All Media and All Exposure Routes	3.4E-01

(1) Total organ Hazard Indices were not calculated because the effects on each target organ differs, and are therefore not additive. Specifically, although the effects of antimony, iron, and zinc can all be measured in blood, each chemical affects blood chemistry in a different and unrelated way (serum glucose/cholesterol, serum ferritin and percent transferrin saturation, and serum superoxide dismutase activity for antimony, iron, and zinc, respectively).

N/A = not applicable

TABLE 9.5.1.RME

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

REASONABLE MAXIMUM EXPOSURE

Silverton

Scenario Timeframe:	Current/Future
Receptor Population:	Residents
Receptor Age:	Child 0-6 years old

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ (1)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface soil	Yard soil	Arsenic	N/A	N/A	N/A	N/A	Antimony	longevity, glucose/ cholesterol--blood	2.8E-01	N/A	N/A	2.8E-01
								Arsenic	NOAEL/skin pigmentation	5.5E-01	N/A	6.0E-02	6.1E-01
								Cadmium	NOAEL/proteinuria--kidney	7.0E-02	N/A	6.1E-03	7.6E-02
								Iron	hematology--blood	8.6E-01	N/A	N/A	8.6E-01
								Manganese	NOAEL/Central Nervous System	2.9E-01	N/A	N/A	2.9E-01
								Zinc	enzyme effects--blood	3.5E-02	N/A	N/A	3.5E-02
			(Total)	N/A	N/A	N/A	N/A	(Total)		2.1E+00	N/A	6.6E-02	2.2E+00
Groundwater	Groundwater	Tap water	Arsenic	N/A	N/A	N/A	N/A	Arsenic	NOAEL/skin pigmentation	1.2E-01	N/A	N/A	1.2E-01

Total Risk Across Soil	N/A
Total Risk Across Groundwater	N/A
Total Risk Across All Media and All Exposure Routes	N/A
Total Hazard Index Across All Media and All Exposure Routes	2.3E+00

(1) Total organ Hazard Indices were not calculated because the effects on each target organ differs, and are therefore not additive. Specifically, although the effects of antimony, iron, and zinc can all be measured in blood, each chemical affects blood chemistry in a different and unrelated way (serum glucose/cholesterol, serum ferritin and percent transferrin saturation, and serum superoxide dismutase activity for antimony, iron, and zinc, respectively).

N/A = not applicable

TABLE 9.5.1.CT

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

CENTRAL TENDENCY EXPOSURE

Silverton

Scenario Timeframe:	Current/Future
Receptor Population:	Residents
Receptor Age:	Child 0-6 years old

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ (1)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface soil	Yard soil											
			Arsenic	N/A	N/A	N/A	N/A	Antimony	longevity, glucose/ cholesterol--blood	5.8E-02	N/A	N/A	5.8E-02
								Arsenic	NOAEL/skin pigmentation	1.6E-01	N/A	3.5E-02	1.9E-01
								Cadmium	NOAEL/proteinuria--kidney	2.1E-02	N/A	3.7E-03	2.5E-02
								Iron	hematology--blood	2.9E-01	N/A	N/A	2.9E-01
								Manganese	NOAEL/Central Nervous System	9.4E-02	N/A	N/A	9.4E-02
								Zinc	enzyme effects--blood	8.9E-03	N/A	N/A	8.9E-03
			(Total)	N/A	N/A	N/A	N/A	(Total)		6.3E-01	N/A	3.8E-02	6.7E-01
Groundwater	Groundwater	Tap water											
			Arsenic	N/A	N/A	N/A	N/A	Arsenic	NOAEL/skin pigmentation	5.4E-02	N/A	N/A	5.4E-02

Total Risk Across Soil	N/A
Total Risk Across Groundwater	N/A
Total Risk Across All Media and All Exposure Routes	N/A
Total Hazard Index Across All Media and All Exposure Routes	7.2E-01

(1) Total organ Hazard Indices were not calculated because the effects on each target organ differs, and are therefore not additive. Specifically, although the effects of antimony, iron, and zinc can all be measured in blood, each chemical affects blood chemistry in a different and unrelated way (serum glucose/cholesterol, serum ferritin and percent transferrin saturation, and serum superoxide dismutase activity for antimony, iron, and zinc, respectively).

N/A = not applicable

TABLE 9.5.2.RME

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

REASONABLE MAXIMUM EXPOSURE

Silverton

Scenario Timeframe:	Current/Future
Receptor Population:	Residents
Receptor Age:	Child/Adult

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ (1)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface soil	Yard soil											
			Arsenic	3.0E-05	N/A	3.5E-06	3.4E-05	Antimony	longevity, glucose/ cholesterol--blood	8.1E-02	N/A	N/A	8.1E-02
								Arsenic	NOAEL/skin pigmentation	1.6E-01	N/A	1.8E-02	1.7E-01
								Cadmium	NOAEL/proteinuria--kidney	2.0E-02	N/A	1.8E-03	2.2E-02
								Iron	hematology--blood	2.5E-01	N/A	N/A	2.5E-01
								Manganese	NOAEL/Central Nervous System	8.3E-02	N/A	N/A	8.3E-02
								Zinc	enzyme effects--blood	9.9E-03	N/A	N/A	9.9E-03
			(Total)	3.0E-05	N/A	3.5E-06	3.4E-05	(Total)		6.0E-01	N/A	2.0E-02	6.2E-01
Groundwater	Groundwater	Tap water											
			Arsenic	1.2E-05	N/A	N/A	1.2E-05	Arsenic	NOAEL/skin pigmentation	6.3E-02	N/A	N/A	6.3E-02

Total Risk Across Soil	3.4E-05
Total Risk Across Groundwater	1.2E-05
Total Risk Across All Media and All Exposure Routes	4.7E-05
Total Hazard Index Across All Media and All Exposure Routes	6.8E-01

(1) Total organ Hazard Indices were not calculated because the effects on each target organ differs, and are therefore not additive. Specifically, although the effects of antimony, iron, and zinc can all be measured in blood, each chemical affects blood chemistry in a different and unrelated way (serum glucose/cholesterol, serum ferritin and percent transferrin saturation, and serum superoxide dismutase activity for antimony, iron, and zinc, respectively).

N/A = not applicable

TABLE 9.5.2.CT

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

CENTRAL TENDENCY EXPOSURE

Silverton

Scenario Timeframe:	Current/Future
Receptor Population:	Residents
Receptor Age:	Child/Adult

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ (1)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface soil	Yard soil	Arsenic	2.8E-06	N/A	6.3E-07	3.4E-06	Antimony	longevity, glucose/ cholesterol--blood	1.8E-02	N/A	N/A	1.8E-02
								Arsenic	NOAEL/skin pigmentation	4.8E-02	N/A	1.1E-02	5.9E-02
								Cadmium	NOAEL/proteinuria--kidney	6.4E-03	N/A	1.2E-03	7.6E-03
								Iron	hematology--blood	8.9E-02	N/A	N/A	8.9E-02
								Manganese	NOAEL/Central Nervous System	2.9E-02	N/A	N/A	2.9E-02
								Zinc	enzyme effects--blood	2.7E-03	N/A	N/A	2.7E-03
			(Total)	2.8E-06	N/A	6.3E-07	3.4E-06	(Total)		1.9E-01	N/A	1.2E-02	2.0E-01
Groundwater	Groundwater	Tap water	Arsenic	1.4E-06	N/A	N/A	1.4E-06	Arsenic	NOAEL/skin pigmentation	2.5E-02	N/A	N/A	2.5E-02
						Total Risk Across Soil	3.4E-06					Total Hazard Index Across All Media and All Exposure Routes	2.3E-01
						Total Risk Across Groundwater	1.4E-06						
						Total Risk Across All Media and All Exposure Routes	4.8E-06						

(1) Total organ Hazard Indices were not calculated because the effects on each target organ differs, and are therefore not additive. Specifically, although the effects of antimony, iron, and zinc can all be measured in blood, each chemical affects blood chemistry in a different and unrelated way (serum glucose/cholesterol, serum ferritin and percent transferrin saturation, and serum superoxide dismutase activity for antimony, iron, and zinc, respectively).

N/A = not applicable

TABLE 9.5.3.RME

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

REASONABLE MAXIMUM EXPOSURE

Silverton

Scenario Timeframe:	Current/Future
Receptor Population:	Neighborhood residents
Receptor Age:	Child 4-11 years old

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ (1)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface soil	Upland parks/schools	Arsenic	2.6E-06	N/A	8.7E-07	3.4E-06	Antimony	longevity, glucose/ cholesterol--blood	1.7E-02	N/A	N/A	1.7E-02
								Arsenic	NOAEL/skin pigmentation	5.7E-02	N/A	1.9E-02	7.6E-02
								Cadmium	NOAEL/proteinuria--kidney	4.6E-03	N/A	1.2E-03	5.8E-03
								Iron	hematology--blood	6.7E-02	N/A	N/A	6.7E-02
								Manganese	NOAEL/Central Nervous System	2.3E-02	N/A	N/A	2.3E-02
								Zinc	enzyme effects--blood	2.5E-03	N/A	N/A	2.5E-03
			(Total)	2.6E-06	N/A	8.7E-07	3.4E-06	(Total)		1.7E-01	N/A	2.0E-02	1.9E-01
						Total Risk Across Soil	3.4E-06					Total Hazard Index Across All Media and All Exposure Routes	1.9E-01
						Total Risk Across All Media and All Exposure Routes	3.4E-06						

(1) Total organ Hazard Indices were not calculated because the effects on each target organ differs, and are therefore not additive. Specifically, although the effects of antimony, iron, and zinc can all be measured in blood, each chemical affects blood chemistry in a different and unrelated way (serum glucose/cholesterol, serum ferritin and percent transferrin saturation, and serum superoxide dismutase activity for antimony, iron, and zinc, respectively).

N/A = not applicable

TABLE 9.5.3.CT

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

CENTRAL TENDENCY EXPOSURE

Silverton

Scenario Timeframe:	Current/Future
Receptor Population:	Neighborhood Residents
Receptor Age:	Child 4-11 years old

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ (1)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface soil	Upland parks/schools											
			Arsenic	8.7E-08	N/A	7.3E-08	1.6E-07	Antimony	longevity, glucose/ cholesterol--blood	2.1E-03	N/A	N/A	2.1E-03
								Arsenic	NOAEL/skin pigmentation	6.7E-03	N/A	5.7E-03	1.2E-02
								Cadmium	NOAEL/proteinuria--kidney	1.0E-03	N/A	6.9E-04	1.7E-03
								Iron	hematology--blood	1.3E-02	N/A	N/A	1.3E-02
								Manganese	NOAEL/Central Nervous System	4.4E-03	N/A	N/A	4.4E-03
								Zinc	enzyme effects--blood	3.6E-04	N/A	N/A	3.6E-04
			(Total)	8.7E-08	N/A	7.3E-08	1.6E-07	(Total)		2.8E-02	N/A	6.4E-03	3.4E-02
							Total Risk Across Soil						Total Hazard Index Across All Media and All Exposure Routes
							1.6E-07						3.4E-02
							Total Risk Across All Media and All Exposure Routes						
							1.6E-07						

(1) Total organ Hazard Indices were not calculated because the effects on each target organ differs, and are therefore not additive. Specifically, although the effects of antimony, iron, and zinc can all be measured in blood, each chemical affects blood chemistry in a different and unrelated way (serum glucose/cholesterol, serum ferritin and percent transferrin saturation, and serum superoxide dismutase activity for antimony, iron, and zinc, respectively).

N/A = not applicable

TABLE 9.5.4.RME

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

REASONABLE MAXIMUM EXPOSURE

Silverton

Scenario Timeframe:	Current/Future
Receptor Population:	Visitors
Receptor Age:	Child 0-6 years old

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ (1)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface soil	Upland parks/schools	Arsenic	N/A	N/A	N/A	N/A	Antimony	longevity, glucose/ cholesterol--blood	3.2E-02	N/A	N/A	3.2E-02
								Arsenic	NOAEL/skin pigmentation	1.1E-01	N/A	1.6E-02	1.2E-01
								Cadmium	NOAEL/proteinuria--kidney	8.5E-03	N/A	1.0E-03	9.5E-03
								Iron	hematology--blood	1.2E-01	N/A	N/A	1.2E-01
								Manganese	NOAEL/Central Nervous System	4.3E-02	N/A	N/A	4.3E-02
								Zinc	enzyme effects--blood	4.6E-03	N/A	N/A	4.6E-03
			(Total)	N/A	N/A	N/A	N/A	(Total)		3.2E-01	N/A	1.7E-02	3.4E-01
							Total Risk Across Soil						Total Hazard Index Across All Media and All Exposure Routes
							N/A						3.4E-01
							Total Risk Across All Media and All Exposure Routes						
							N/A						

(1) Total organ Hazard Indices were not calculated because the effects on each target organ differs, and are therefore not additive. Specifically, although the effects of antimony, iron, and zinc can all be measured in blood, each chemical affects blood chemistry in a different and unrelated way (serum glucose/cholesterol, serum ferritin and percent transferrin saturation, and serum superoxide dismutase activity for antimony, iron, and zinc, respectively).

N/A = not applicable

TABLE 9.5.4.CT

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

CENTRAL TENDENCY EXPOSURE

Silverton

Scenario Timeframe:	Current/Future
Receptor Population:	Visitors
Receptor Age:	Child 0-6 years old

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ (1)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface soil	Upland parks/schools	Arsenic	N/A	N/A	N/A	N/A	Antimony	longevity, glucose/ cholesterol--blood	4.0E-03	N/A	N/A	4.0E-03
								Arsenic	NOAEL/skin pigmentation	1.3E-02	N/A	4.6E-03	1.7E-02
								Cadmium	NOAEL/proteinuria--kidney	1.9E-03	N/A	5.6E-04	2.5E-03
								Iron	hematology--blood	2.4E-02	N/A	N/A	2.4E-02
								Manganese	NOAEL/Central Nervous System	8.2E-03	N/A	N/A	8.2E-03
								Zinc	enzyme effects--blood	6.7E-04	N/A	N/A	6.7E-04
			(Total)	N/A	N/A	N/A	N/A	(Total)		5.2E-02	N/A	5.2E-03	5.7E-02
							Total Risk Across Soil					Total Hazard Index Across All Media and All Exposure Routes	5.7E-02
							Total Risk Across All Media and All Exposure Routes						
							N/A						

(1) Total organ Hazard Indices were not calculated because the effects on each target organ differs, and are therefore not additive. Specifically, although the effects of antimony, iron, and zinc can all be measured in blood, each chemical affects blood chemistry in a different and unrelated way (serum glucose/cholesterol, serum ferritin and percent transferrin saturation, and serum superoxide dismutase activity for antimony, iron, and zinc, respectively).

N/A = not applicable

TABLE 9.5.5.RME

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

REASONABLE MAXIMUM EXPOSURE

Silverton

Scenario Timeframe:	Current/Future
Receptor Population:	Visitors
Receptor Age:	Child/Adult

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ (1)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface soil	Upland parks/schools	Arsenic	5.1E-06	N/A	8.9E-07	6.0E-06	Antimony	longevity, glucose/ cholesterol--blood	8.1E-03	N/A	N/A	8.1E-03
								Arsenic	NOAEL/skin pigmentation	2.7E-02	N/A	4.6E-03	7.3E-02
								Cadmium	NOAEL/proteinuria--kidney	2.1E-03	N/A	3.0E-04	2.4E-03
								Iron	hematology--blood	3.1E-02	N/A	N/A	3.1E-02
								Manganese	NOAEL/Central Nervous System	1.1E-02	N/A	N/A	1.1E-02
								Zinc	enzyme effects--blood	1.1E-03	N/A	N/A	1.1E-03
			(Total)	5.1E-06	N/A	8.9E-07	6.0E-06	(Total)		8.0E-02	N/A	4.9E-03	8.5E-02
						Total Risk Across Soil	6.0E-06					Total Hazard Index Across All Media and All Exposure Routes	8.5E-02
						Total Risk Across All Media and All Exposure Routes	6.0E-06						

(1) Total organ Hazard Indices were not calculated because the effects on each target organ differs, and are therefore not additive. Specifically, although the effects of antimony, iron, and zinc can all be measured in blood, each chemical affects blood chemistry in a different and unrelated way (serum glucose/cholesterol, serum ferritin and percent transferrin saturation, and serum superoxide dismutase activity for antimony, iron, and zinc, respectively).

N/A = not applicable

TABLE 9.5.5.CT

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

CENTRAL TENDENCY EXPOSURE

Silverton

Scenario Timeframe:	Current/Future
Receptor Population:	Visitors
Receptor Age:	Child/Adult

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ (1)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface soil	Upland parks/schools	Arsenic	2.1E-07	N/A	8.5E-08	2.9E-07	Antimony	longevity, glucose/ cholesterol--blood	1.1E-03	N/A	N/A	1.1E-03
								Arsenic	NOAEL/skin pigmentation	3.6E-03	N/A	1.5E-03	5.1E-03
								Cadmium	NOAEL/proteinuria--kidney	5.4E-04	N/A	1.8E-04	7.2E-04
								Iron	hematology--blood	6.9E-03	N/A	N/A	6.9E-03
								Manganese	NOAEL/Central Nervous System	2.3E-03	N/A	N/A	2.3E-03
								Zinc	enzyme effects--blood	1.9E-04	N/A	N/A	1.9E-04
			(Total)	2.1E-07	N/A	8.5E-08	2.9E-07	(Total)		1.5E-02	N/A	1.6E-03	1.6E-02
						Total Risk Across Soil	2.9E-07					Total Hazard Index Across All Media and All Exposure Routes	1.6E-02
						Total Risk Across All Media and All Exposure Routes	2.9E-07						

(1) Total organ Hazard Indices were not calculated because the effects on each target organ differs, and are therefore not additive. Specifically, although the effects of antimony, iron, and zinc can all be measured in blood, each chemical affects blood chemistry in a different and unrelated way (serum glucose/cholesterol, serum ferritin and percent transferrin saturation, and serum superoxide dismutase activity for antimony, iron, and zinc, respectively).

N/A = not applicable

TABLE 9.6.1.RME

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

REASONABLE MAXIMUM EXPOSURE

Wallace

Scenario Timeframe:	Current/Future
Receptor Population:	Residents
Receptor Age:	Child 0-6 years old

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ (1)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface soil	Yard soil											
			Arsenic	N/A	N/A	N/A	N/A	Antimony	longevity, glucose/ cholesterol--blood	4.4E-01	N/A	N/A	4.4E-01
								Arsenic	NOAEL/skin pigmentation	5.8E-01	N/A	6.3E-02	6.4E-01
								Cadmium	NOAEL/proteinuria--kidney	9.8E-02	N/A	8.6E-03	1.1E-01
								Iron	hematology--blood	9.5E-01	N/A	N/A	9.5E-01
								Manganese	NOAEL/Central Nervous System	2.7E-01	N/A	N/A	2.7E-01
								Zinc	enzyme effects--blood	4.1E-02	N/A	N/A	4.1E-02
			(Total)	N/A	N/A	N/A	N/A	(Total)		2.4E+00	N/A	7.2E-02	2.4E+00
Groundwater	Groundwater	Tap water											
			Arsenic	N/A	N/A	N/A	N/A	Arsenic	NOAEL/skin pigmentation	1.1E-01	N/A	N/A	1.1E-01

Total Risk Across Soil	N/A
Total Risk Across Groundwater	N/A
Total Risk Across All Media and All Exposure Routes	N/A
Total Hazard Index Across All Media and All Exposure Routes	2.5E+00

(1) Total organ Hazard Indices were not calculated because the effects on each target organ differs, and are therefore not additive. Specifically, although the effects of antimony, iron, and zinc can all be measured in blood, each chemical affects blood chemistry in a different and unrelated way (serum glucose/cholesterol, serum ferritin and percent transferrin saturation, and serum superoxide dismutase activity for antimony, iron, and zinc, respectively).

N/A = not applicable

TABLE 9.6.1.CT

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

CENTRAL TENDENCY EXPOSURE

Wallace

Scenario Timeframe:	Current/Future
Receptor Population:	Residents
Receptor Age:	Child 0-6 years old

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ (1)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface soil	Yard soil											
			Arsenic	N/A	N/A	N/A	N/A	Antimony	longevity, glucose/ cholesterol--blood	1.0E-01	N/A	N/A	1.0E-01
								Arsenic	NOAEL/skin pigmentation	1.9E-01	N/A	4.2E-02	2.3E-01
								Cadmium	NOAEL/proteinuria--kidney	3.1E-02	N/A	5.4E-03	3.6E-02
								Iron	hematology--blood	3.3E-01	N/A	N/A	3.3E-01
								Manganese	NOAEL/Central Nervous System	9.0E-02	N/A	N/A	9.0E-02
								Zinc	enzyme effects--blood	1.4E-02	N/A	N/A	1.4E-02
			(Total)	N/A	N/A	N/A	N/A	(Total)		7.7E-01	N/A	4.8E-02	8.1E-01
Groundwater	Groundwater	Tap water											
			Arsenic	N/A	N/A	N/A	N/A	Arsenic	NOAEL/skin pigmentation	6.0E-02	N/A	N/A	6.0E-02

Total Risk Across Soil	N/A
Total Risk Across Groundwater	N/A
Total Risk Across All Media and All Exposure Routes	N/A
Total Hazard Index Across All Media and All Exposure Routes	8.7E-01

(1) Total organ Hazard Indices were not calculated because the effects on each target organ differs, and are therefore not additive. Specifically, although the effects of antimony, iron, and zinc can all be measured in blood, each chemical affects blood chemistry in a different and unrelated way (serum glucose/cholesterol, serum ferritin and percent transferrin saturation, and serum superoxide dismutase activity for antimony, iron, and zinc, respectively).

N/A = not applicable

TABLE 9.6.2.RME

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

REASONABLE MAXIMUM EXPOSURE

Wallace

Scenario Timeframe:	Current/Future
Receptor Population:	Residents
Receptor Age:	Child/Adult

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ (1)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface soil	Yard soil											
			Arsenic	3.2E-05	N/A	3.6E-06	3.5E-05	Antimony	longevity, glucose/ cholesterol--blood	1.3E-01	N/A	N/A	1.3E-01
								Arsenic	NOAEL/skin pigmentation	1.6E-01	N/A	1.9E-02	1.8E-01
								Cadmium	NOAEL/proteinuria--kidney	2.8E-02	N/A	2.6E-03	3.0E-02
								Iron	hematology--blood	2.7E-01	N/A	N/A	2.7E-01
								Manganese	NOAEL/Central Nervous System	7.7E-02	N/A	N/A	7.7E-02
								Zinc	enzyme effects--blood	1.2E-02	N/A	N/A	1.2E-02
			(Total)	3.2E-05	N/A	3.6E-06	3.5E-05	(Total)		6.8E-01	N/A	2.1E-02	7.0E-01
Groundwater	Groundwater	Tap water											
			Arsenic	1.1E-05	N/A	N/A	1.1E-05	Arsenic	NOAEL/skin pigmentation	5.7E-02	N/A	N/A	5.7E-02

Total Risk Across Soil	3.5E-05
Total Risk Across Groundwater	1.1E-05
Total Risk Across All Media and All Exposure Routes	4.7E-05
Total Hazard Index Across All Media and All Exposure Routes	7.6E-01

(1) Total organ Hazard Indices were not calculated because the effects on each target organ differs, and are therefore not additive. Specifically, although the effects of antimony, iron, and zinc can all be measured in blood, each chemical affects blood chemistry in a different and unrelated way (serum glucose/cholesterol, serum ferritin and percent transferrin saturation, and serum superoxide dismutase activity for antimony, iron, and zinc, respectively).

N/A = not applicable

TABLE 9.6.2.CT

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

CENTRAL TENDENCY EXPOSURE

Wallace

Scenario Timeframe:	Current/Future
Receptor Population:	Residents
Receptor Age:	Child/Adult

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ (1)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface soil	Yard soil	Arsenic	3.4E-06	N/A	7.8E-07	4.2E-06	Antimony	longevity, glucose/ cholesterol--blood	3.2E-02	N/A	N/A	3.2E-02
								Arsenic	NOAEL/skin pigmentation	5.9E-02	N/A	1.3E-02	7.2E-02
								Cadmium	NOAEL/proteinuria--kidney	9.4E-03	N/A	1.7E-03	1.1E-02
								Iron	hematology--blood	1.0E-01	N/A	N/A	1.0E-01
								Manganese	NOAEL/Central Nervous System	2.8E-02	N/A	N/A	2.8E-02
								Zinc	enzyme effects--blood	4.2E-03	N/A	N/A	4.2E-03
			(Total)	3.4E-06	N/A	7.8E-07	4.2E-06	(Total)		2.3E-01	N/A	1.5E-02	2.5E-01
Groundwater	Groundwater	Tap water	Arsenic	1.6E-06	N/A	N/A	1.6E-06	Arsenic	NOAEL/skin pigmentation	2.7E-02	N/A	N/A	2.7E-02

Total Risk Across Soil	4.2E-06
Total Risk Across Groundwater	1.6E-06
Total Risk Across All Media and All Exposure Routes	5.8E-06
Total Hazard Index Across All Media and All Exposure Routes	2.8E-01

(1) Total organ Hazard Indices were not calculated because the effects on each target organ differs, and are therefore not additive. Specifically, although the effects of antimony, iron, and zinc can all be measured in blood, each chemical affects blood chemistry in a different and unrelated way (serum glucose/cholesterol, serum ferritin and percent transferrin saturation, and serum superoxide dismutase activity for antimony, iron, and zinc, respectively).

N/A = not applicable

TABLE 9.6.3.RME

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

REASONABLE MAXIMUM EXPOSURE

Wallace

Scenario Timeframe:	Current/Future
Receptor Population:	Neighborhood residents
Receptor Age:	Child 4-11 years old

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ (1)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface soil	Upland parks/schools	Arsenic	2.5E-06	N/A	8.4E-07	3.3E-06	Antimony	longevity, glucose/ cholesterol--blood	4.5E-02	N/A	N/A	4.5E-02
								Arsenic	NOAEL/skin pigmentation	5.5E-02	N/A	1.9E-02	7.4E-02
								Cadmium	NOAEL/proteinuria--kidney	1.1E-02	N/A	2.9E-03	1.4E-02
								Iron	hematology--blood	9.5E-02	N/A	N/A	9.5E-02
								Manganese	NOAEL/Central Nervous System	3.2E-02	N/A	N/A	3.2E-02
								Zinc	enzyme effects--blood	6.4E-03	N/A	N/A	6.4E-03
			(Total)	2.5E-06			3.3E-06	(Total)		2.4E-01	N/A	2.2E-02	2.7E-01
						Total Risk Across Soil	3.3E-06					Total Hazard Index Across All Media and All Exposure Routes	2.7E-01
						Total Risk Across All Media and All Exposure Routes	3.3E-06						

(1) Total organ Hazard Indices were not calculated because the effects on each target organ differs, and are therefore not additive. Specifically, although the effects of antimony, iron, and zinc can all be measured in blood, each chemical affects blood chemistry in a different and unrelated way (serum glucose/cholesterol, serum ferritin and percent transferrin saturation, and serum superoxide dismutase activity for antimony, iron, and zinc, respectively).

N/A = not applicable

TABLE 9.6.3.CT

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

CENTRAL TENDENCY EXPOSURE

Wallace

Scenario Timeframe:	Current/Future
Receptor Population:	Neighborhood Residents
Receptor Age:	Child 4-11 years old

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ (1)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface soil	Upland parks/schools	Arsenic	1.3E-07	N/A	1.1E-07	2.4E-07	Antimony	longevity, glucose/ cholesterol--blood	8.9E-03	N/A	N/A	8.9E-03
								Arsenic	NOAEL/skin pigmentation	1.0E-02	N/A	8.7E-03	1.9E-02
								Cadmium	NOAEL/proteinuria--kidney	1.9E-03	N/A	1.3E-03	3.2E-03
								Iron	hematology--blood	1.8E-02	N/A	N/A	1.8E-02
								Manganese	NOAEL/Central Nervous System	5.8E-03	N/A	N/A	5.8E-03
								Zinc	enzyme effects--blood	1.2E-03	N/A	N/A	1.2E-03
			(Total)	1.3E-07			2.4E-07	(Total)		4.6E-02	N/A	1.0E-02	5.6E-02
						Total Risk Across Soil	2.4E-07					Total Hazard Index Across All Media and All Exposure Routes	5.6E-02
						Total Risk Across All Media and All Exposure Routes	2.4E-07						

(1) Total organ Hazard Indices were not calculated because the effects on each target organ differs, and are therefore not additive. Specifically, although the effects of antimony, iron, and zinc can all be measured in blood, each chemical affects blood chemistry in a different and unrelated way (serum glucose/cholesterol, serum ferritin and percent transferrin saturation, and serum superoxide dismutase activity for antimony, iron, and zinc, respectively).

N/A = not applicable

TABLE 9.6.4.RME

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

REASONABLE MAXIMUM EXPOSURE

Wallace

Scenario Timeframe:	Current/Future
Receptor Population:	Visitors
Receptor Age:	Child 0-6 years old

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ (1)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface soil	Upland parks/schools	Arsenic	N/A	N/A	N/A	N/A	Antimony	longevity, glucose/ cholesterol--blood	8.5E-02	N/A	N/A	8.5E-02
								Arsenic	NOAEL/skin pigmentation	1.0E-01	N/A	1.5E-02	1.2E-01
								Cadmium	NOAEL/proteinuria--kidney	2.0E-02	N/A	2.3E-03	2.2E-02
								Iron	hematology--blood	1.8E-01	N/A	N/A	1.8E-01
								Manganese	NOAEL/Central Nervous System	6.0E-02	N/A	N/A	6.0E-02
								Zinc	enzyme effects--blood	1.2E-02	N/A	N/A	1.2E-02
			(Total)	N/A	N/A	N/A	N/A	(Total)		4.6E-01	N/A	1.7E-02	4.7E-01
							Total Risk Across Soil					Total Hazard Index Across All Media and All Exposure Routes	4.7E-01
							Total Risk Across All Media and All Exposure Routes						
							N/A						

(1) Total organ Hazard Indices were not calculated because the effects on each target organ differs, and are therefore not additive. Specifically, although the effects of antimony, iron, and zinc can all be measured in blood, each chemical affects blood chemistry in a different and unrelated way (serum glucose/cholesterol, serum ferritin and percent transferrin saturation, and serum superoxide dismutase activity for antimony, iron, and zinc, respectively).

N/A = not applicable

TABLE 9.6.4.CT

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

CENTRAL TENDENCY EXPOSURE

Wallace

Scenario Timeframe:	Current/Future
Receptor Population:	Visitors
Receptor Age:	Child 0-6 years old

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ (1)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface soil	Upland parks/schools	Arsenic	N/A	N/A	N/A	N/A	Antimony	longevity, glucose/ cholesterol--blood	1.7E-02	N/A	N/A	1.7E-02
								Arsenic	NOAEL/skin pigmentation	1.9E-02	N/A	7.0E-03	2.6E-02
								Cadmium	NOAEL/proteinuria--kidney	3.6E-03	N/A	1.1E-03	4.6E-03
								Iron	hematology--blood	3.4E-02	N/A	N/A	3.4E-02
								Manganese	NOAEL/Central Nervous System	1.1E-02	N/A	N/A	1.1E-02
								Zinc	enzyme effects--blood	2.2E-03	N/A	N/A	2.2E-03
			(Total)	N/A	N/A	N/A	N/A	(Total)		8.6E-02	N/A	8.1E-03	9.4E-02
							Total Risk Across Soil					Total Hazard Index Across All Media and All Exposure Routes	9.4E-02
							Total Risk Across All Media and All Exposure Routes						
							N/A						

(1) Total organ Hazard Indices were not calculated because the effects on each target organ differs, and are therefore not additive. Specifically, although the effects of antimony, iron, and zinc can all be measured in blood, each chemical affects blood chemistry in a different and unrelated way (serum glucose/cholesterol, serum ferritin and percent transferrin saturation, and serum superoxide dismutase activity for antimony, iron, and zinc, respectively).

N/A = not applicable

TABLE 9.6.5.RME

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

REASONABLE MAXIMUM EXPOSURE

Wallace

Scenario Timeframe:	Current/Future
Receptor Population:	Visitors
Receptor Age:	Child/Adult

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ (1)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface soil	Upland parks/schools	Arsenic	5.0E-06	N/A	8.7E-07	5.8E-06	Antimony	longevity, glucose/ cholesterol--blood	2.1E-02	N/A	N/A	2.1E-02
								Arsenic	NOAEL/skin pigmentation	2.6E-02	N/A	4.5E-03	3.0E-02
								Cadmium	NOAEL/proteinuria--kidney	5.0E-03	N/A	7.0E-04	5.7E-03
								Iron	hematology--blood	4.5E-02	N/A	N/A	4.5E-02
								Manganese	NOAEL/Central Nervous System	1.5E-02	N/A	N/A	1.5E-02
								Zinc	enzyme effects--blood	3.0E-03	N/A	N/A	3.0E-03
			(Total)	5.0E-06	N/A	8.7E-07	5.8E-06	(Total)		1.1E-01	N/A	5.2E-03	1.2E-01
						Total Risk Across Soil	5.8E-06					Total Hazard Index Across All Media and All Exposure Routes	1.2E-01
						Total Risk Across All Media and All Exposure Routes	5.8E-06						

(1) Total organ Hazard Indices were not calculated because the effects on each target organ differs, and are therefore not additive. Specifically, although the effects of antimony, iron, and zinc can all be measured in blood, each chemical affects blood chemistry in a different and unrelated way (serum glucose/cholesterol, serum ferritin and percent transferrin saturation, and serum superoxide dismutase activity for antimony, iron, and zinc, respectively).

N/A = not applicable

TABLE 9.6.5.CT

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

CENTRAL TENDENCY EXPOSURE

Wallace

Scenario Timeframe:	Current/Future
Receptor Population:	Visitors
Receptor Age:	Child/Adult

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ (1)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface soil	Upland parks/schools	Arsenic	3.2E-07	N/A	1.3E-07	4.4E-07	Antimony	longevity, glucose/ cholesterol--blood	4.7E-03	N/A	N/A	4.7E-03
								Arsenic	NOAEL/skin pigmentation	5.5E-03	N/A	2.2E-03	7.7E-03
								Cadmium	NOAEL/proteinuria--kidney	1.0E-03	N/A	3.3E-04	1.4E-03
								Iron	hematology--blood	9.5E-03	N/A	N/A	9.5E-03
								Manganese	NOAEL/Central Nervous System	3.1E-03	N/A	N/A	3.1E-03
								Zinc	enzyme effects--blood	6.2E-04	N/A	N/A	6.2E-04
			(Total)	3.2E-07	N/A	1.3E-07	4.4E-07	(Total)		2.4E-02	N/A	2.6E-03	2.7E-02
						Total Risk Across Soil	4.4E-07					Total Hazard Index Across All Media and All Exposure Routes	2.7E-02
						Total Risk Across All Media and All Exposure Routes	4.4E-07						

(1) Total organ Hazard Indices were not calculated because the effects on each target organ differs, and are therefore not additive. Specifically, although the effects of antimony, iron, and zinc can all be measured in blood, each chemical affects blood chemistry in a different and unrelated way (serum glucose/cholesterol, serum ferritin and percent transferrin saturation, and serum superoxide dismutase activity for antimony, iron, and zinc, respectively).

N/A = not applicable

TABLE 9.7.1.RME

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

REASONABLE MAXIMUM EXPOSURE

Osburn, Wallace, and Silverton Combined

Scenario Timeframe:	Current/Future
Receptor Population:	Neighborhood residents
Receptor Age:	Child 4-11 years old

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ (1)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Sediment	Sediment	SFCDAR	Arsenic	2.9E-06	N/A	2.3E-06	5.2E-06	Antimony	longevity, glucose/ cholesterol--blood	5.9E-02	N/A	N/A	5.9E-02
								Arsenic	NOAEL/skin pigmentation	6.5E-02	N/A	5.0E-02	1.1E-01
								Cadmium	NOAEL/proteinuria--kidney	1.2E-02	N/A	7.2E-03	1.9E-02
								Iron	hematology--blood	8.5E-02	N/A	N/A	8.5E-02
								Manganese	NOAEL/Central Nervous System	4.9E-02	N/A	N/A	4.9E-02
								Zinc	enzyme effects--blood	7.0E-03	N/A	N/A	7.0E-03
			(Total)	2.9E-06	N/A	2.3E-06	5.2E-06	(Total)		2.8E-01	N/A	5.7E-02	3.3E-01
Surface Water	Surface water	SFCDAR	Arsenic	4.6E-08	N/A	N/A	4.6E-08	Arsenic	NOAEL/skin pigmentation	1.0E-03	N/A	N/A	1.0E-03
								Cadmium	NOAEL/proteinuria--kidney	2.3E-03	N/A	N/A	2.3E-03
								Manganese	NOAEL/Central Nervous System	1.9E-04	N/A	N/A	1.9E-04
								Mercury	autoimmunity	1.1E-04	N/A	N/A	1.1E-04
			(Total)	4.6E-08	N/A	N/A	4.6E-08	(Total)		3.6E-03	N/A	N/A	3.6E-03
						Total Risk Across Soil/sediment	5.2E-06					Total Hazard Index Across All Media and All Exposure Routes	3.4E-01
						Total Risk Across Surface water	4.6E-08						
						Total Risk Across All Media and All Exposure Routes	5.2E-06						

(1) Total organ Hazard Indices were not calculated because the effects on each target organ differs, and are therefore not additive. Specifically, although the effects of antimony, iron, and zinc can all be measured in blood, each chemical affects blood chemistry in a different and unrelated way (serum glucose/cholesterol, serum ferritin and percent transferrin saturation, and serum superoxide dismutase activity for antimony, iron, and zinc, respectively).

N/A = not applicable

TABLE 9.7.1.CT

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

CENTRAL TENDENCY EXPOSURE

Osburn, Wallace, and Silverton Combined

Scenario Timeframe:	Current/Future
Receptor Population:	Neighborhood residents
Receptor Age:	Child 4-11 years old

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ (1)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Sediment	Sediment	SFCDAR											
			Arsenic	1.1E-07	N/A	2.3E-07	3.4E-07	Antimony	longevity, glucose/ cholesterol--blood	7.4E-03	N/A	N/A	7.4E-03
								Arsenic	NOAEL/skin pigmentation	8.6E-03	N/A	1.8E-02	2.7E-02
								Cadmium	NOAEL/proteinuria--kidney	1.7E-03	N/A	2.7E-03	4.4E-03
								Iron	hematology--blood	1.5E-02	N/A	N/A	1.5E-02
								Manganese	NOAEL/Central Nervous System	8.3E-03	N/A	N/A	8.3E-03
								Zinc	enzyme effects--blood	1.0E-03	N/A	N/A	1.0E-03
			(Total)	1.1E-07	N/A	2.3E-07	3.4E-07	(Total)		4.2E-02	N/A	2.0E-02	6.2E-02
Surface Water	Surface water	SFCAR											
			Arsenic	4.7E-09	N/A	N/A	4.7E-09	Arsenic	NOAEL/skin pigmentation	3.7E-04	N/A	N/A	3.7E-04
								Cadmium	NOAEL/proteinuria--kidney	3.0E-03	N/A	N/A	3.0E-03
								Manganese	NOAEL/Central Nervous System	1.2E-04	N/A	N/A	1.2E-04
								Mercury	autoimmunity	4.7E-05	N/A	N/A	4.7E-05
			(Total)	4.7E-09	N/A	N/A	4.7E-09	(Total)		3.5E-03	N/A	N/A	3.5E-03
						Total Risk Across Soil/sediment	3.4E-07					Total Hazard Index Across All Media and All Exposure Routes	6.6E-02
						Total Risk Across Surface water	4.7E-09						
						Total Risk Across All Media and All Exposure Routes	3.4E-07						

(1) Total organ Hazard Indices were not calculated because the effects on each target organ differs, and are therefore not additive. Specifically, although the effects of antimony, iron, and zinc can all be measured in blood, each chemical affects blood chemistry in a different and unrelated way (serum glucose/cholesterol, serum ferritin and percent transferrin saturation, and serum superoxide dismutase activity for antimony, iron, and zinc, respectively).

N/A = not applicable

TABLE 9.7.2.RME

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

REASONABLE MAXIMUM EXPOSURE

Osburn, Wallace, and Silverton Combined

Scenario Timeframe:	Current/Future
Receptor Population:	Construction Workers
Receptor Age:	Adult

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ (1)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Subsurface/surface soil	Construction site soil	Arsenic	2.0E-05	N/A	8.4E-07	2.1E-05	Antimony	longevity, glucose/ cholesterol--blood	5.3E-02	N/A	N/A	5.3E-02
								Arsenic	NOAEL/skin pigmentation	1.3E-01	N/A	5.2E-03	1.3E-01
								Cadmium	NOAEL/proteinuria--kidney	1.2E-02	N/A	4.0E-04	1.2E-02
								Iron	hematology--blood	1.7E-01	N/A	N/A	1.7E-01
								Manganese	NOAEL/Central Nervous System	1.8E-02	N/A	N/A	1.8E-02
								Zinc	enzyme effects--blood	5.7E-03	N/A	N/A	5.7E-03
			(Total)	2.0E-05	N/A	8.4E-07	2.1E-05	(Total)		3.8E-01	N/A	5.6E-03	3.9E-01
						Total Risk Across Soil	2.1E-05					Total Hazard Index Across All Media and All Exposure Routes	3.9E-01
						Total Risk Across All Media and All Exposure Routes	2.1E-05						

(1) Total organ Hazard Indices were not calculated because the effects on each target organ differs, and are therefore not additive. Specifically, although the effects of antimony, iron, and zinc can all be measured in blood, each chemical affects blood chemistry in a different and unrelated way (serum glucose/cholesterol, serum ferritin and percent transferrin saturation, and serum superoxide dismutase activity for antimony, iron, and zinc, respectively).

N/A = not applicable

TABLE 9.7.2.CT

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

CENTRAL TENDENCY EXPOSURE

Osburn, Wallace, and Silverton Combined

Scenario Timeframe:	Current/Future
Receptor Population:	Construction workers
Receptor Age:	Adult

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ (1)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Subsurface/surface soil	Construction site soil	Arsenic	6.2E-07	N/A	3.9E-08	6.6E-07	Antimony	longevity, glucose/ cholesterol--blood	5.6E-03	N/A	N/A	5.6E-03
								Arsenic	NOAEL/skin pigmentation	1.5E-02	N/A	9.2E-04	1.6E-02
								Cadmium	NOAEL/proteinuria--kidney	2.0E-03	N/A	1.0E-04	2.2E-03
								Iron	hematology--blood	2.4E-02	N/A	N/A	2.4E-02
								Manganese	NOAEL/Central Nervous System	2.6E-03	N/A	N/A	2.6E-03
								Zinc	enzyme effects--blood	7.5E-04	N/A	N/A	7.5E-04
			(Total)	6.2E-07	N/A	3.9E-08	6.6E-07	(Total)		5.0E-02	N/A	1.0E-03	5.1E-02
						Total Risk Across Soil	6.6E-07					Total Hazard Index Across All Media and All Exposure Routes	5.1E-02
						Total Risk Across All Media and All Exposure Routes	6.6E-07						

(1) Total organ Hazard Indices were not calculated because the effects on each target organ differs, and are therefore not additive. Specifically, although the effects of antimony, iron, and zinc can all be measured in blood, each chemical affects blood chemistry in a different and unrelated way (serum glucose/cholesterol, serum ferritin and percent transferrin saturation, and serum superoxide dismutase activity for antimony, iron, and zinc, respectively).

N/A = not applicable

TABLE 9.8.1.RME

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

REASONABLE MAXIMUM EXPOSURE

Nine Mile

Scenario Timeframe:	Current/Future
Receptor Population:	Residents
Receptor Age:	Child 0-6 years old

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ (1)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface soil	Yard soil											
			Arsenic	N/A	N/A	N/A	N/A	Antimony	longevity, glucose/ cholesterol--blood	3.8E-01	N/A	N/A	3.8E-01
								Arsenic	NOAEL/skin pigmentation	1.1E+00	N/A	1.2E-01	1.2E+00
								Cadmium	NOAEL/proteinuria--kidney	8.3E-02	N/A	7.3E-03	9.1E-02
								Iron	hematology--blood	9.9E-01	N/A	N/A	9.9E-01
								Manganese	NOAEL/Central Nervous System	3.4E-01	N/A	N/A	3.4E-01
								Zinc	enzyme effects--blood	4.9E-02	N/A	N/A	4.9E-02
			(Total)	N/A	N/A	N/A	N/A	(Total)		2.9E+00	N/A	1.2E-01	3.0E+00
Groundwater	Groundwater	Tap water											
			Arsenic	N/A	N/A	N/A	N/A	Arsenic	NOAEL/skin pigmentation	1.6E-01	N/A	N/A	1.6E-01

Total Risk Across Soil	N/A
Total Risk Across Groundwater	N/A
Total Risk Across All Media and All Exposure Routes	N/A
Total Hazard Index Across All Media and All Exposure Routes	3.2E+00

(1) Total organ Hazard Indices were not calculated because the effects on each target organ differs, and are therefore not additive. Specifically, although the effects of antimony, iron, and zinc can all be measured in blood, each chemical affects blood chemistry in a different and unrelated way (serum glucose/cholesterol, serum ferritin and percent transferrin saturation, and serum superoxide dismutase activity for antimony, iron, and zinc, respectively).

N/A = not applicable

TABLE 9.8.1.CT

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

CENTRAL TENDENCY EXPOSURE

Nine Mile

Scenario Timeframe:	Current/Future
Receptor Population:	Residents
Receptor Age:	Child 0-6 years old

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ (1)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface soil	Yard soil											
			Arsenic	N/A	N/A	N/A	N/A	Antimony	longevity, glucose/ cholesterol--blood	9.7E-02	N/A	N/A	9.7E-02
								Arsenic	NOAEL/skin pigmentation	3.0E-01	N/A	6.6E-02	3.7E-01
								Cadmium	NOAEL/proteinuria--kidney	2.8E-02	N/A	5.0E-03	3.4E-02
								Iron	hematology--blood	3.5E-01	N/A	N/A	3.5E-01
								Manganese	NOAEL/Central Nervous System	1.2E-01	N/A	N/A	1.2E-01
								Zinc	enzyme effects--blood	1.8E-02	N/A	N/A	1.8E-02
			(Total)	N/A	N/A	N/A	N/A	(Total)		9.1E-01	N/A	7.1E-02	9.8E-01
Groundwater	Groundwater	Tap water											
			Arsenic	N/A	N/A	N/A	N/A	Arsenic	NOAEL/skin pigmentation	6.4E-02	N/A	N/A	6.4E-02

Total Risk Across Soil	N/A
Total Risk Across Groundwater	N/A
Total Risk Across All Media and All Exposure Routes	N/A
Total Hazard Index Across All Media and All Exposure Routes	1.0E+00

(1) Total organ Hazard Indices were not calculated because the effects on each target organ differs, and are therefore not additive. Specifically, although the effects of antimony, iron, and zinc can all be measured in blood, each chemical affects blood chemistry in a different and unrelated way (serum glucose/cholesterol, serum ferritin and percent transferrin saturation, and serum superoxide dismutase activity for antimony, iron, and zinc, respectively).

N/A = not applicable

TABLE 9.8.2.RME

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

REASONABLE MAXIMUM EXPOSURE

Nine Mile

Scenario Timeframe:	Current/Future
Receptor Population:	Residents
Receptor Age:	Child/Adult

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ (1)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface soil	Yard soil											
			Arsenic	5.9E-05	N/A	6.7E-06	6.5E-05	Antimony	longevity, glucose/ cholesterol--blood	1.1E-01	N/A	N/A	1.1E-01
								Arsenic	NOAEL/skin pigmentation	3.0E-01	N/A	3.5E-02	3.4E-01
								Cadmium	NOAEL/proteinuria--kidney	2.4E-02	N/A	2.2E-03	2.6E-02
								Iron	hematology--blood	2.8E-01	N/A	N/A	2.8E-01
								Manganese	NOAEL/Central Nervous System	9.7E-02	N/A	N/A	9.7E-02
								Zinc	enzyme effects--blood	1.4E-02	N/A	N/A	1.4E-02
			(Total)	5.9E-05	N/A	6.7E-06	6.5E-05	(Total)		8.3E-01	N/A	3.7E-02	8.7E-01
Groundwater	Groundwater	Tap water											
			Arsenic	1.7E-05	N/A	N/A	1.7E-05	Arsenic	NOAEL/skin pigmentation	8.6E-02	N/A	N/A	8.6E-02

Total Risk Across Soil	6.5E-05
Total Risk Across Groundwater	1.7E-05
Total Risk Across All Media and All Exposure Routes	8.2E-05
Total Hazard Index Across All Media and All Exposure Routes	9.5E-01

(1) Total organ Hazard Indices were not calculated because the effects on each target organ differs, and are therefore not additive. Specifically, although the effects of antimony, iron, and zinc can all be measured in blood, each chemical affects blood chemistry in a different and unrelated way (serum glucose/cholesterol, serum ferritin and percent transferrin saturation, and serum superoxide dismutase activity for antimony, iron, and zinc, respectively).

N/A = not applicable

TABLE 9.8.2.CT

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

CENTRAL TENDENCY EXPOSURE

Nine Mile

Scenario Timeframe:	Current/Future
Receptor Population:	Residents
Receptor Age:	Child/Adult

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ (1)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface soil	Yard soil	Arsenic	5.3E-06	N/A	1.2E-06	6.5E-06	Antimony	longevity, glucose/ cholesterol--blood	3.0E-02	N/A	N/A	3.0E-02
								Arsenic	NOAEL/skin pigmentation	9.2E-02	N/A	2.1E-02	1.1E-01
								Cadmium	NOAEL/proteinuria--kidney	8.7E-03	N/A	1.6E-03	1.0E-02
								Iron	hematology--blood	1.1E-01	N/A	N/A	1.1E-01
								Manganese	NOAEL/Central Nervous System	3.6E-02	N/A	N/A	3.6E-02
								Zinc	enzyme effects--blood	5.4E-03	N/A	N/A	5.4E-03
			(Total)	5.3E-06	N/A	1.2E-06	6.5E-06	(Total)		2.8E-01	N/A	2.3E-02	3.0E-01
Groundwater	Groundwater	Tap water	Arsenic	1.7E-06	N/A	N/A	1.7E-06	Arsenic	NOAEL/skin pigmentation	2.9E-02	N/A	N/A	2.9E-02

Total Risk Across Soil	6.5E-06
Total Risk Across Groundwater	1.7E-06
Total Risk Across All Media and All Exposure Routes	6.1E-06
Total Hazard Index Across All Media and All Exposure Routes	3.3E-01

(1) Total organ Hazard Indices were not calculated because the effects on each target organ differs, and are therefore not additive. Specifically, although the effects of antimony, iron, and zinc can all be measured in blood, each chemical affects blood chemistry in a different and unrelated way (serum glucose/cholesterol, serum ferritin and percent transferrin saturation, and serum superoxide dismutase activity for antimony, iron, and zinc, respectively).

N/A = not applicable

TABLE 9.8.3.RME

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

REASONABLE MAXIMUM EXPOSURE

Nine Mile

Scenario Timeframe:	Future
Receptor Population:	Residents
Receptor Age:	Child 0-6 years old

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ (1)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Groundwater	Groundwater	Tap water	Arsenic	N/A	N/A	N/A	N/A	Antimony	longevity, glucose/ cholesterol--blood	3.4E-01	N/A	N/A	3.4E-01
								Arsenic	NOAEL/skin pigmentation	2.7E-01	N/A	N/A	2.7E-01
								Cadmium	NOAEL/proteinuria--kidney	1.7E+01	N/A	N/A	1.7E+01
								Zinc	enzyme effects--blood	4.2E+00	N/A	N/A	4.2E+00
			(Total)	N/A	N/A	N/A	N/A	(Total)		2.2E+01	N/A	N/A	2.2E+01
							Total Risk Across Groundwater						Total Hazard Index Across All Media and All Exposure Routes
							N/A						2.2E+01
							Total Risk Across All Media and All Exposure Routes						
							N/A						

(1) Total organ Hazard Indices were not calculated because the effects on each target organ differs, and are therefore not additive. Specifically, although the effects of antimony and zinc can all be measured in blood, each chemical affects blood chemistry in a different and unrelated way (serum glucose/cholesterol and serum superoxide dismutase activity for antimony and zinc, respectively).

N/A = not applicable

TABLE 9.8.3.CT

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

CENTRAL TENDENCY EXPOSURE

Nine Mile

Scenario Timeframe:	Future
Receptor Population:	Residents
Receptor Age:	Child 0-6 years old

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ (1)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Groundwater	Groundwater	Tap water	Arsenic	N/A	N/A	N/A	N/A	Antimony	longevity, glucose/ cholesterol--blood	1.8E-01	N/A	N/A	1.8E-01
								Arsenic	NOAEL/skin pigmentation	1.2E-01	N/A	N/A	1.2E-01
								Cadmium	NOAEL/proteinuria--kidney	7.8E+00	N/A	N/A	7.8E+00
								Zinc	enzyme effects--blood	2.0E+00	N/A	N/A	2.0E+00
			(Total)	N/A	N/A	N/A	N/A	(Total)		1.0E+01	N/A	N/A	1.0E+01
							Total Risk Across Groundwater						Total Hazard Index Across All Media and All Exposure Routes
							N/A						1.0E+01
							Total Risk Across All Media and All Exposure Routes						
							N/A						

(1) Total organ Hazard Indices were not calculated because the effects on each target organ differs, and are therefore not additive. Specifically, although the effects of antimony and zinc can all be measured in blood, each chemical affects blood chemistry in a different and unrelated way (serum glucose/cholesterol and serum superoxide dismutase activity for antimony and zinc, respectively).

N/A = not applicable

TABLE 9.8.4.RME

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

REASONABLE MAXIMUM EXPOSURE

Nine Mile

Scenario Timeframe:	Future
Receptor Population:	Residents
Receptor Age:	Child/Adult

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ (1)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Groundwater	Groundwater	Tap water	Arsenic	2.8E-05	N/A	N/A	2.8E-05	Antimony	longevity, glucose/ cholesterol--blood	1.8E-01	N/A	N/A	1.8E-01
								Arsenic	NOAEL/skin pigmentation	1.4E-01	N/A	N/A	1.4E-01
								Cadmium	NOAEL/proteinuria--kidney	9.1E+00	N/A	N/A	9.1E+00
								Zinc	enzyme effects--blood	2.3E+00	N/A	N/A	2.3E+00
			(Total)	2.8E-05	N/A	N/A	2.8E-05	(Total)		1.2E+01	N/A	N/A	1.2E+01
						Total Risk Across Groundwater	2.8E-05					Total Hazard Index Across All Media and All Exposure Routes	1.2E+01
						Total Risk Across All Media and All Exposure Routes	2.8E-05						

(1) Total organ Hazard Indices were not calculated because the effects on each target organ differs, and are therefore not additive. Specifically, although the effects of antimony and zinc can all be measured in blood, each chemical affects blood chemistry in a different and unrelated way (serum glucose/cholesterol and serum superoxide dismutase activity for antimony and zinc, respectively).

N/A = not applicable

TABLE 9.8.4.CT

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

CENTRAL TENDENCY EXPOSURE

Nine Mile

Scenario Timeframe:	Future
Receptor Population:	Residents
Receptor Age:	Child/Adult

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ (1)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Groundwater	Groundwater	Tap water	Arsenic	3.0E-06	N/A	N/A	3.0E-06	Antimony	longevity, glucose/ cholesterol--blood	8.1E-02	N/A	N/A	8.1E-02
								Arsenic	NOAEL/skin pigmentation	5.3E-02	N/A	N/A	5.3E-02
								Cadmium	NOAEL/proteinuria--kidney	3.6E+00	N/A	N/A	3.6E+00
								Zinc	enzyme effects--blood	9.2E-01	N/A	N/A	9.2E-01
			(Total)	3.0E-06	N/A	N/A	3.0E-06	(Total)		4.6E+00	N/A	N/A	4.6E+00
						Total Risk Across Groundwater	3.0E-06					Total Hazard Index Across All Media and All Exposure Routes	4.6E+00
						Total Risk Across All Media and All Exposure Routes	3.0E-06						

(1) Total organ Hazard Indices were not calculated because the effects on each target organ differs, and are therefore not additive. Specifically, although the effects of antimony and zinc can all be measured in blood, each chemical affects blood chemistry in a different and unrelated way (serum glucose/cholesterol and serum superoxide dismutase activity for antimony and zinc, respectively).

N/A = not applicable

TABLE 9.8.5.RME

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

REASONABLE MAXIMUM EXPOSURE

Nine Mile

Scenario Timeframe:	Current/Future
Receptor Population:	Neighborhood residents
Receptor Age:	Child 4-11 years old

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ (1)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface soil	Waste piles	Arsenic	2.3E-05	N/A	7.9E-06	3.1E-05	Antimony	longevity, glucose/ cholesterol--blood	5.3E-02	N/A	N/A	5.3E-02
								Arsenic	NOAEL/skin pigmentation	5.2E-01	N/A	1.8E-01	7.0E-01
								Cadmium	NOAEL/proteinuria--kidney	1.6E-02	N/A	4.3E-03	2.0E-02
								Iron	hematology--blood	7.2E-02	N/A	N/A	7.2E-02
								Manganese	NOAEL/Central Nervous System	1.8E-02	N/A	N/A	1.8E-02
								Zinc	enzyme effects--blood	1.0E-02	N/A	N/A	1.0E-02
			(Total)	2.3E-05	N/A	7.9E-06	3.1E-05	(Total)		6.9E-01	N/A	1.8E-01	8.7E-01
Sediment	Sediment	Nine Mile/Canyon Creek	Arsenic	2.8E-06	N/A	2.2E-06	5.0E-06	Antimony	longevity, glucose/ cholesterol--blood	1.1E-01	N/A	N/A	1.1E-01
								Arsenic	NOAEL/skin pigmentation	6.2E-02	N/A	4.8E-02	1.1E-01
								Cadmium	NOAEL/proteinuria--kidney	3.6E-02	N/A	2.3E-02	5.9E-02
								Iron	hematology--blood	7.5E-02	N/A	N/A	7.5E-02
								Manganese	NOAEL/Central Nervous System	3.4E-02	N/A	N/A	3.4E-02
								Zinc	enzyme effects--blood	1.8E-02	N/A	N/A	1.8E-02
			(Total)	2.8E-06	N/A	2.2E-06	5.0E-06	(Total)		3.4E-01	N/A	7.1E-02	4.1E-01
Surface Water	Surface water	Nine Mile/Canyon Creek	Arsenic	4.6E-08	N/A	N/A	4.6E-08	Arsenic	NOAEL/skin pigmentation	1.0E-03	N/A	N/A	1.0E-03
								Cadmium	NOAEL/proteinuria--kidney	6.3E-02	N/A	N/A	6.3E-02
								Manganese	NOAEL/Central Nervous System	1.0E-02	N/A	N/A	1.0E-02
								Mercury	autoimmunity	2.9E-04	N/A	N/A	2.9E-04
			(Total)	4.6E-08	N/A	N/A	4.6E-08	(Total)		7.4E-02	N/A	N/A	7.4E-02

Total Risk Across Soil	3.1E-05
Total Risk Across Sediment	5.0E-06
Total Risk Across Surface water	4.6E-08
Total Risk Across All Media and All Exposure Routes	3.6E-05

Total Hazard Index Across All Media and All Exposure Routes	1.3E+00

(1) Total organ Hazard Indices were not calculated because the effects on each target organ differs, and are therefore not additive. Specifically, although the effects of antimony, iron, and zinc can all be measured in blood, each chemical affects blood chemistry in a different and unrelated way (serum glucose/cholesterol, serum ferritin and percent transferrin saturation, and serum superoxide dismutase activity for antimony, iron, and zinc, respectively).

N/A = not applicable

TABLE 9.8.5.CT

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

CENTRAL TENDENCY EXPOSURE

Nine Mile

Scenario Timeframe:	Current/Future
Receptor Population:	Neighborhood residents
Receptor Age:	Child 4-11 years old

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ (1)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface soil	Waste piles											
			Arsenic	2.5E-07	N/A	2.1E-07	4.5E-07	Antimony	longevity, glucose/ cholesterol--blood	4.9E-03	N/A	N/A	4.9E-03
								Arsenic	NOAEL/skin pigmentation	1.9E-02	N/A	1.6E-02	3.9E-02
								Cadmium	NOAEL/proteinuria--kidney	1.9E-03	N/A	1.3E-03	3.2E-03
								Iron	hematology--blood	1.2E-02	N/A	N/A	1.2E-02
								Manganese	NOAEL/Central Nervous System	3.1E-03	N/A	N/A	3.1E-03
								Zinc	enzyme effects--blood	1.7E-03	N/A	N/A	1.7E-03
			(Total)	2.5E-07	N/A	2.1E-07	4.5E-07	(Total)		4.3E-02	N/A	1.7E-02	6.0E-02
Sediment	Sediment	Nine Mile/Canyon Creek											
			Arsenic	7.0E-08	N/A	1.4E-07	2.1E-07	Antimony	longevity, glucose/ cholesterol--blood	1.4E-02	N/A	N/A	1.4E-02
								Arsenic	NOAEL/skin pigmentation	5.4E-03	N/A	1.1E-02	1.6E-02
								Cadmium	NOAEL/proteinuria--kidney	6.9E-03	N/A	1.1E-02	1.8E-02
								Iron	hematology--blood	1.0E-02	N/A	N/A	1.0E-02
								Manganese	NOAEL/Central Nervous System	4.6E-03	N/A	N/A	4.6E-03
								Zinc	enzyme effects--blood	3.3E-03	N/A	N/A	3.3E-03
			(Total)	7.0E-08	N/A	1.4E-07	2.1E-07	(Total)		4.5E-02	N/A	2.2E-02	6.7E-02
Surface Water	Surface water	Nine Mile/Canyon Creek											
			Arsenic	4.2E-09	N/A	N/A	4.2E-09	Arsenic	NOAEL/skin pigmentation	3.3E-04	N/A	N/A	3.3E-04
								Cadmium	NOAEL/proteinuria--kidney	1.7E-02	N/A	N/A	1.7E-02
								Manganese	NOAEL/Central Nervous System	2.2E-03	N/A	N/A	2.2E-03
								Mercury	autoimmunity	1.3E-04	N/A	N/A	1.3E-04
			(Total)	4.2E-09	N/A	N/A	4.2E-09	(Total)		1.9E-02	N/A	N/A	1.9E-02

Total Risk Across Soil	4.5E-07
Total Risk Across Sediment	2.1E-07
Total Risk Across Surface water	4.2E-09
Total Risk Across All Media and All Exposure Routes	6.7E-07
Total Hazard Index Across All Media and All Exposure Routes	1.5E-01

(1) Total organ Hazard Indices were not calculated because the effects on each target organ differs, and are therefore not additive. Specifically, although the effects of antimony, iron, and zinc can all be measured in blood, each chemical affects blood chemistry in a different and unrelated way (serum glucose/cholesterol, serum ferritin and percent transferrin saturation, and serum superoxide dismutase activity for antimony, iron, and zinc, respectively).

N/A = not applicable

TABLE 9.8.6.RME

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

REASONABLE MAXIMUM EXPOSURE

Nine Mile

Scenario Timeframe:	Current/Future
Receptor Population:	Construction Workers
Receptor Age:	Adult

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ (1)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Subsurface/surface soil	Construction site soil	Arsenic	1.8E-05	N/A	7.7E-07	1.9E-05	Antimony	longevity, glucose/ cholesterol--blood	6.1E-02	N/A	N/A	6.1E-02
								Arsenic	NOAEL/skin pigmentation	1.1E-01	N/A	4.8E-03	1.2E-01
								Cadmium	NOAEL/proteinuria--kidney	1.5E-02	N/A	5.0E-04	1.5E-02
								Iron	hematology--blood	1.7E-01	N/A	N/A	1.7E-01
								Manganese	NOAEL/Central Nervous System	1.9E-02	N/A	N/A	1.9E-02
								Zinc	enzyme effects--blood	8.2E-03	N/A	N/A	8.2E-03
			(Tota)	1.8E-05	N/A	7.7E-07	1.9E-05		(Total)	3.8E-01	N/A	5.3E-03	3.9E-01
						Total Risk Across Soil	1.9E-05					Total Hazard Index Across All Media and All Exposure Routes	3.9E-01
						Total Risk Across All Media and All Exposure Routes	1.9E-05						

(1) Total organ Hazard Indices were not calculated because the effects on each target organ differs, and are therefore not additive. Specifically, although the effects of antimony, iron, and zinc can all be measured in blood, each chemical affects blood chemistry in a different and unrelated way (serum glucose/cholesterol, serum ferritin and percent transferrin saturation, and serum superoxide dismutase activity for antimony, iron, and zinc, respectively).

N/A = not applicable

TABLE 9.8.6.CT

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

CENTRAL TENDENCY EXPOSURE

Nine Mile

Scenario Timeframe:	Current/Future
Receptor Population:	Construction workers
Receptor Age:	Adult

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ (1)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Subsurface/surface soil	Construction site soil	Arsenic	6.1E-07	N/A	3.8E-08	6.4E-07	Antimony	longevity, glucose/ cholesterol--blood	7.5E-03	N/A	N/A	7.5E-03
								Arsenic	NOAEL/skin pigmentation	1.4E-02	N/A	8.9E-04	1.5E-02
								Cadmium	NOAEL/proteinuria--kidney	2.0E-03	N/A	1.0E-04	2.1E-03
								Iron	hematology--blood	2.4E-02	N/A	N/A	2.4E-02
								Manganese	NOAEL/Central Nervous System	2.6E-03	N/A	N/A	2.6E-03
								Zinc	enzyme effects--blood	1.1E-03	N/A	N/A	1.1E-03
			(Total)	6.1E-07	N/A	3.8E-08	6.4E-07	(Total)		5.2E-02	N/A	1.0E-03	5.3E-02
						Total Risk Across Soil	6.4E-07					Total Hazard Index Across All Media and All Exposure Routes	5.3E-02
						Total Risk Across All Media and All Exposure Routes	6.4E-07						

(1) Total organ Hazard Indices were not calculated because the effects on each target organ differs, and are therefore not additive. Specifically, although the effects of antimony, iron, and zinc can all be measured in blood, each chemical affects blood chemistry in a different and unrelated way (serum glucose/cholesterol, serum ferritin and percent transferrin saturation, and serum superoxide dismutase activity for antimony, iron, and zinc, respectively).

N/A = not applicable

TABLE 9.9.1.RME

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

REASONABLE MAXIMUM EXPOSURE

Mullan

Scenario Timeframe:	Current/Future
Receptor Population:	Residents
Receptor Age:	Child 0-6 years old

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ (1)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface soil	Yard soil											
			Arsenic	N/A	N/A	N/A	N/A	Antimony	longevity, glucose/ cholesterol--blood	6.4E-01	N/A	N/A	6.4E-01
								Arsenic	NOAEL/skin pigmentation	1.0E+00	N/A	1.1E-01	1.1E+00
								Cadmium	NOAEL/proteinuria--kidney	8.2E-02	N/A	7.2E-03	8.9E-02
								Iron	hematology--blood	1.1E+00	N/A	N/A	1.1E+00
								Manganese	NOAEL/Central Nervous System	4.4E-01	N/A	N/A	4.4E-01
								Zinc	enzyme effects--blood	5.9E-02	N/A	N/A	5.9E-02
			(Total)	N/A	N/A	N/A	N/A	(Total)		3.3E+00	N/A	1.2E-01	3.4E+00
Groundwater	Groundwater	Tap water											
			Arsenic	N/A	N/A	N/A	N/A	Arsenic	NOAEL/skin pigmentation	5.3E-02	N/A	N/A	5.3E-02

Total Risk Across Soil	N/A
Total Risk Across Groundwater	N/A
Total Risk Across All Media and All Exposure Routes	N/A
Total Hazard Index Across All Media and All Exposure Routes	3.4E+00

(1) Total organ Hazard Indices were not calculated because the effects on each target organ differs, and are therefore not additive. Specifically, although the effects of antimony, iron, and zinc can all be measured in blood, each chemical affects blood chemistry in a different and unrelated way (serum glucose/cholesterol, serum ferritin and percent transferrin saturation, and serum superoxide dismutase activity for antimony, iron, and zinc, respectively).

N/A = not applicable

TABLE 9.9.1.CT

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

CENTRAL TENDENCY EXPOSURE

Mullan

Scenario Timeframe:	Current/Future
Receptor Population:	Residents
Receptor Age:	Child 0-6 years old

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ (1)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface soil	Yard soil											
			Arsenic	N/A	N/A	N/A	N/A	Antimony	longevity, glucose/ cholesterol--blood	1.3E-01	N/A	N/A	1.3E-01
								Arsenic	NOAEL/skin pigmentation	2.6E-01	N/A	5.7E-02	3.2E-01
								Cadmium	NOAEL/proteinuria--kidney	2.4E-02	N/A	4.2E-03	2.8E-02
								Iron	hematology--blood	3.6E-01	N/A	N/A	3.6E-01
								Manganese	NOAEL/Central Nervous System	1.4E-01	N/A	N/A	1.4E-01
								Zinc	enzyme effects--blood	1.7E-02	N/A	N/A	1.7E-02
			(Total)	N/A	N/A	N/A	N/A	(Total)		9.3E-01	N/A	6.1E-02	9.9E-01
Groundwater	Groundwater	Tap water											
			Arsenic	N/A	N/A	N/A	N/A	Arsenic	NOAEL/skin pigmentation	1.9E-02	N/A	N/A	1.9E-02

Total Risk Across Soil	N/A
Total Risk Across Groundwater	N/A
Total Risk Across All Media and All Exposure Routes	N/A
Total Hazard Index Across All Media and All Exposure Routes	1.0E+00

(1) Total organ Hazard Indices were not calculated because the effects on each target organ differs, and are therefore not additive. Specifically, although the effects of antimony, iron, and zinc can all be measured in blood, each chemical affects blood chemistry in a different and unrelated way (serum glucose/cholesterol, serum ferritin and percent transferrin saturation, and serum superoxide dismutase activity for antimony, iron, and zinc, respectively).

N/A = not applicable

TABLE 9.9.2.RME

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

REASONABLE MAXIMUM EXPOSURE

Mullan

Scenario Timeframe:	Current/Future
Receptor Population:	Residents
Receptor Age:	Child/Adult

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ (1)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface soil	Yard soil											
			Arsenic	5.5E-05	N/A	6.3E-06	6.1E-05	Antimony	longevity, glucose/ cholesterol--blood	1.8E-01	N/A	N/A	1.8E-01
								Arsenic	NOAEL/skin pigmentation	2.9E-01	N/A	3.3E-02	3.2E-01
								Cadmium	NOAEL/proteinuria--kidney	2.3E-02	N/A	2.1E-03	2.5E-02
								Iron	hematology--blood	3.0E-01	N/A	N/A	3.0E-01
								Manganese	NOAEL/Central Nervous System	1.3E-01	N/A	N/A	1.3E-01
								Zinc	enzyme effects--blood	1.7E-02	N/A	N/A	1.7E-02
			(Total)	5.5E-05	N/A	6.3E-06	6.1E-05	(Total)		9.4E-01	N/A	3.5E-02	9.7E-01
Groundwater	Groundwater	Tap water											
			Arsenic	5.6E-06	N/A	N/A	5.6E-06	Arsenic	NOAEL/skin pigmentation	2.9E-02	N/A	N/A	2.9E-02

Total Risk Across Soil	6.1E-05
Total Risk Across Groundwater	5.6E-06
Total Risk Across All Media and All Exposure Routes	6.7E-05
Total Hazard Index Across All Media and All Exposure Routes	1.0E+00

(1) Total organ Hazard Indices were not calculated because the effects on each target organ differs, and are therefore not additive. Specifically, although the effects of antimony, iron, and zinc can all be measured in blood, each chemical affects blood chemistry in a different and unrelated way (serum glucose/cholesterol, serum ferritin and percent transferrin saturation, and serum superoxide dismutase activity for antimony, iron, and zinc, respectively).

N/A = not applicable

TABLE 9.9.2.CT

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

CENTRAL TENDENCY EXPOSURE

Mullan

Scenario Timeframe:	Current/Future
Receptor Population:	Residents
Receptor Age:	Child/Adult

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ (1)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface soil	Yard soil	Arsenic	4.6E-06	N/A	1.0E-06	5.6E-06	Antimony	longevity, glucose/ cholesterol--blood	4.0E-02	N/A	N/A	4.0E-02
								Arsenic	NOAEL/skin pigmentation	7.9E-02	N/A	1.8E-02	9.7E-02
								Cadmium	NOAEL/proteinuria--kidney	7.4E-03	N/A	1.3E-03	8.7E-03
								Iron	hematology--blood	1.1E-01	N/A	N/A	1.1E-01
								Manganese	NOAEL/Central Nervous System	4.4E-02	N/A	N/A	4.4E-02
								Zinc	enzyme effects--blood	5.1E-03	N/A	N/A	5.1E-03
			(Total)	4.6E-06	N/A	1.0E-06	5.6E-06	(Total)		2.9E-01	N/A	1.9E-02	3.0E-01
Groundwater	Groundwater	Tap water	Arsenic	4.9E-07	N/A	N/A	4.9E-07	Arsenic	NOAEL/skin pigmentation	8.4E-03	N/A	N/A	8.4E-03
						Total Risk Across Soil	5.6E-06					Total Hazard Index Across All Media and All Exposure Routes	3.1E-01
						Total Risk Across Groundwater	4.9E-07						
						Total Risk Across All Media and All Exposure Routes	6.1E-06						

(1) Total organ Hazard Indices were not calculated because the effects on each target organ differs, and are therefore not additive. Specifically, although the effects of antimony, iron, and zinc can all be measured in blood, each chemical affects blood chemistry in a different and unrelated way (serum glucose/cholesterol, serum ferritin and percent transferrin saturation, and serum superoxide dismutase activity for antimony, iron, and zinc, respectively).

N/A = not applicable

TABLE 9.9.3.RME

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

REASONABLE MAXIMUM EXPOSURE

Mullan

Scenario Timeframe:	Current/Future
Receptor Population:	Neighborhood residents
Receptor Age:	Child 4-11 years old

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ (1)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface soil	Waste piles	Arsenic	1.9E-06	N/A	6.4E-07	2.5E-06	Antimony	longevity, glucose/ cholesterol--blood	2.5E-02	N/A	N/A	2.5E-02
								Arsenic	NOAEL/skin pigmentation	4.2E-02	N/A	1.4E-02	5.6E-02
								Cadmium	NOAEL/proteinuria--kidney	6.9E-03	N/A	1.9E-03	8.8E-03
								Iron	hematology--blood	5.5E-02	N/A	N/A	5.5E-02
								Manganese	NOAEL/Central Nervous System	2.9E-02	N/A	N/A	2.9E-02
								Zinc	enzyme effects--blood	4.8E-03	N/A	N/A	4.8E-03
			(Total)	1.9E-06	N/A	6.4E-07	2.5E-06	(Total)		1.6E-01	N/A	1.6E-02	1.8E-01
Sediment	Sediment	SFCDAR	Arsenic	8.8E-07	N/A	6.8E-07	1.6E-06	Antimony	longevity, glucose/ cholesterol--blood	6.9E-03	N/A	N/A	6.9E-03
								Arsenic	NOAEL/skin pigmentation	2.0E-02	N/A	1.5E-02	3.5E-02
								Cadmium	NOAEL/proteinuria--kidney	1.2E-02	N/A	7.6E-03	2.0E-02
								Iron	hematology--blood	9.7E-02	N/A	N/A	9.7E-02
								Manganese	NOAEL/Central Nervous System	6.9E-02	N/A	N/A	6.9E-02
								Zinc	enzyme effects--blood	8.3E-03	N/A	N/A	8.3E-03
			(Total)	8.8E-07	N/A	6.8E-07	1.6E-06	(Total)		2.1E-01	N/A	2.3E-02	2.4E-01
Surface Water	Surface water	SFCDAR	Arsenic	2.5E-08	N/A	N/A	2.5E-08	Arsenic	NOAEL/skin pigmentation	5.6E-04	N/A	N/A	5.6E-04
								Cadmium	NOAEL/proteinuria--kidney	7.0E-04	N/A	N/A	7.0E-04
								Manganese	NOAEL/Central Nervous System	1.1E-04	N/A	N/A	1.1E-04
								Mercury	autoimmunity	8.1E-05	N/A	N/A	8.1E-05
			(Total)	2.5E-08	N/A	N/A	2.5E-08	(Total)		1.5E-03	N/A	N/A	1.5E-03

Total Risk Across Soil	2.5E-06
Total Risk Across Sediment	1.6E-06
Total Risk Across Surface water	2.5E-08
Total Risk Across All Media and All Exposure Routes	4.1E-06
Total Hazard Index Across All Media and All Exposure Routes	4.2E-01

(1) Total organ Hazard Indices were not calculated because the effects on each target organ differs, and are therefore not additive. Specifically, although the effects of antimony, iron, and zinc can all be measured in blood, each chemical affects blood chemistry in a different and unrelated way (serum glucose/cholesterol, serum ferritin and percent transferrin saturation, and serum superoxide dismutase activity for antimony, iron, and zinc, respectively).

N/A = not applicable

TABLE 9.9.3.CT

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

CENTRAL TENDENCY EXPOSURE

Mullan

Scenario Timeframe:	Current/Future
Receptor Population:	Neighborhood residents
Receptor Age:	Child 4-11 years old

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ (1)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface soil	Waste piles											
			Arsenic	6.1E-08	N/A	5.1E-08	1.1E-07	Antimony	longevity, glucose/ cholesterol--blood	3.0E-03	N/A	N/A	3.0E-03
								Arsenic	NOAEL/skin pigmentation	4.7E-03	N/A	4.0E-03	8.7E-03
								Cadmium	NOAEL/proteinuria--kidney	5.6E-04	N/A	3.8E-04	9.3E-04
								Iron	hematology--blood	7.4E-03	N/A	N/A	7.4E-03
								Manganese	NOAEL/Central Nervous System	4.5E-03	N/A	N/A	4.5E-03
								Zinc	enzyme effects--blood	3.5E-04	N/A	N/A	3.5E-04
			(Total)	6.1E-08	N/A	5.1E-08	1.1E-07	(Total)		2.0E-02	N/A	4.4E-03	2.5E-02
Sediment	Sediment	SFCDAR											
			Arsenic	4.0E-08	N/A	8.1E-08	1.2E-07	Antimony	longevity, glucose/ cholesterol--blood	7.7E-04	N/A	N/A	7.7E-04
								Arsenic	NOAEL/skin pigmentation	3.1E-03	N/A	6.3E-03	9.4E-03
								Cadmium	NOAEL/proteinuria--kidney	1.1E-03	N/A	1.8E-03	3.0E-03
								Iron	hematology--blood	1.3E-02	N/A	N/A	1.3E-02
								Manganese	NOAEL/Central Nervous System	8.8E-03	N/A	N/A	8.8E-03
								Zinc	enzyme effects--blood	8.6E-04	N/A	N/A	8.6E-04
			(Total)	4.0E-08	N/A	8.1E-08	1.2E-07	(Total)		2.8E-02	N/A	8.1E-03	3.6E-02
Surface Water	Surface water	SFCDAR											
			Arsenic	3.3E-09	N/A	N/A	3.3E-09	Arsenic	NOAEL/skin pigmentation	2.5E-04	N/A	N/A	2.5E-04
								Cadmium	NOAEL/proteinuria--kidney	2.3E-04	N/A	N/A	2.3E-04
								Manganese	NOAEL/Central Nervous System	4.1E-05	N/A	N/A	4.1E-05
								Mercury	autoimmunity	3.8E-05	N/A	N/A	3.8E-05
			(Total)	3.3E-09	N/A	N/A	3.3E-09	(Total)		5.6E-04	N/A	N/A	5.6E-04

Total Risk Across Soil	1.1E-07
Total Risk Across Sediment	1.2E-07
Total Risk Across Surface water	3.3E-09
Total Risk Across All Media and All Exposure Routes	2.4E-07
Total Hazard Index Across All Media and All Exposure Routes	6.1E-02

(1) Total organ Hazard Indices were not calculated because the effects on each target organ differs, and are therefore not additive. Specifically, although the effects of antimony, iron, and zinc can all be measured in blood, each chemical affects blood chemistry in a different and unrelated way (serum glucose/cholesterol, serum ferritin and percent transferrin saturation, and serum superoxide dismutase activity for antimony, iron, and zinc, respectively).

N/A = not applicable

TABLE 9.9.4.RME

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

REASONABLE MAXIMUM EXPOSURE

Mullan

Scenario Timeframe:	Current/Future
Receptor Population:	Construction Workers
Receptor Age:	Adult

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ (1)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Subsurface/surface soil	Construction site soil	Arsenic	2.3E-05	N/A	9.7E-07	2.4E-05	Antimony	longevity, glucose/ cholesterol--blood	1.1E-01	N/A	N/A	1.1E-01
								Arsenic	NOAEL/skin pigmentation	1.4E-01	N/A	6.0E-03	1.5E-01
								Cadmium	NOAEL/proteinuria--kidney	1.2E-02	N/A	3.8E-04	1.2E-02
								Iron	hematology--blood	2.1E-01	N/A	N/A	2.1E-01
								Manganese	NOAEL/Central Nervous System	3.2E-02	N/A	N/A	3.2E-02
								Zinc	enzyme effects--blood	7.3E-03	N/A	N/A	7.3E-03
			(Total)	2.3E-05	N/A	9.7E-07	2.4E-05	(Total)		5.1E-01	N/A	6.4E-03	5.1E-01
						Total Risk Across Soil	2.4E-05					Total Hazard Index Across All Media and All Exposure Routes	5.1E-01
						Total Risk Across All Media and All Exposure Routes	2.4E-05						

(1) Total organ Hazard Indices were not calculated because the effects on each target organ differs, and are therefore not additive. Specifically, although the effects of antimony, iron, and zinc can all be measured in blood, each chemical affects blood chemistry in a different and unrelated way (serum glucose/cholesterol, serum ferritin and percent transferrin saturation, and serum superoxide dismutase activity for antimony, iron, and zinc, respectively).

N/A = not applicable

TABLE 9.9.4.CT

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

CENTRAL TENDENCY EXPOSURE

Mullan

Scenario Timeframe:	Current/Future
Receptor Population:	Construction workers
Receptor Age:	Adult

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ (1)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Subsurface/surface soil	Construction site soil	Arsenic	7.6E-07	N/A	4.7E-08	8.0E-07	Antimony	longevity, glucose/ cholesterol--blood	1.2E-02	N/A	N/A	1.2E-02
								Arsenic	NOAEL/skin pigmentation	1.8E-02	N/A	1.1E-03	1.9E-02
								Cadmium	NOAEL/proteinuria--kidney	1.4E-03	N/A	7.1E-05	1.5E-03
								Iron	hematology--blood	2.8E-02	N/A	N/A	2.8E-02
								Manganese	NOAEL/Central Nervous System	4.1E-03	N/A	N/A	4.1E-03
								Zinc	enzyme effects--blood	9.2E-04	N/A	N/A	9.2E-04
			(Total)	7.6E-07	N/A	4.7E-08	8.0E-07	(Total)		6.4E-02	N/A	1.2E-03	6.5E-02
						Total Risk Across Soil	8.0E-07					Total Hazard Index Across All Media and All Exposure Routes	6.5E-02
						Total Risk Across All Media and All Exposure Routes	8.0E-07						

(1) Total organ Hazard Indices were not calculated because the effects on each target organ differs, and are therefore not additive. Specifically, although the effects of antimony, iron, and zinc can all be measured in blood, each chemical affects blood chemistry in a different and unrelated way (serum glucose/cholesterol, serum ferritin and percent transferrin saturation, and serum superoxide dismutase activity for antimony, iron, and zinc, respectively).

N/A = not applicable

TABLE 10.1.1.RME

RISK ASSESSMENT SUMMARY

REASONABLE MAXIMUM EXPOSURE

Lower Basin

Scenario Timeframe:	Current/Future
Receptor Population:	Residents
Receptor Age:	Child 0-6 years old

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface soil	Yard soil						Arsenic	NOAEL/skin pigmentation	1.2E+00	N/A	1.4E-01	1.4E+00
								Iron	hematology--blood	1.6E+00	N/A	N/A	1.6E+00
			N/A	N/A	N/A	N/A	N/A	(Total)		2.8E+00	N/A	1.4E-01	3.0E+00
							Total Risk Across Soil					Total Hazard Index Across All Media and All Exposure Routes	3.0E+00
							Total Risk Across All Media and All Exposure Routes						
							N/A						

Total skin HI =	1.4E+00
Total blood HI =	1.6E+00

N/A = not applicable

TABLE 10.1.2.CT

RISK ASSESSMENT SUMMARY

CENTRAL TENDENCY EXPOSURE

Lower Basin

Scenario Timeframe:	Current/Future
Receptor Population:	Residents
Receptor Age:	Child/Adult

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface soil	Yard soil	Arsenic	6.0E-06	N/A	1.4E-06	7.3E-06	N/A	N/A	N/A	N/A	N/A	N/A
Groundwater	Groundwater	Tap water	Arsenic	1.4E-06	N/A	N/A	1.4E-06	N/A	N/A	N/A	N/A	N/A	N/A
						Total Risk Across Soil	7.3E-06	Total Hazard Index Across All Media and All Exposure Routes					N/A
						Total Risk Across Groundwater	1.4E-06						
						Total Risk Across All Media and All Exposure Routes	8.7E-06						

N/A = not applicable

TABLE 10.1.2.RME

RISK ASSESSMENT SUMMARY

REASONABLE MAXIMUM EXPOSURE

Lower Basin

Scenario Timeframe:	Current/Future
Receptor Population:	Residents
Receptor Age:	Child/Adult

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface soil	Yard soil	Arsenic	6.8E-05	N/A	7.8E-06	7.6E-05	N/A	N/A	N/A	N/A	N/A	N/A
Groundwater	Groundwater	Tap water	Arsenic	2.2E-05	N/A	N/A	2.2E-05	N/A	N/A	N/A	N/A	N/A	N/A
						Total Risk Across Soil	7.6E-05	Total Hazard Index Across All Media and All Exposure Routes					N/A
						Total Risk Across Groundwater	2.2E-05						
						Total Risk Across All Media and All Exposure Routes	9.8E-05						

N/A = not applicable

TABLE 10.1.3.CT

RISK ASSESSMENT SUMMARY

CENTRAL TENDENCY EXPOSURE

Lower Basin

Scenario Timeframe:	Current/Future
Receptor Population:	Neighborhood residents
Receptor Age:	Child 4-11 years old

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil/Sediment	Soil/sediment	Lower CDAR	Arsenic	3.5E-07	N/A	1.1E-06	1.4E-06	N/A	N/A	N/A	N/A	N/A	N/A
						Total Risk Across Soil/sediment	1.4E-06		Total Hazard Index Across All Media and All Exposure Routes				N/A
						Total Risk Across All Media and All Exposure Routes	1.4E-06						

N/A = not applicable

TABLE 10.1.3.RME

RISK ASSESSMENT SUMMARY

REASONABLE MAXIMUM EXPOSURE

Lower Basin

Scenario Timeframe:	Current/Future
Receptor Population:	Neighborhood residents
Receptor Age:	Child 4-11 years old

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil/Sediment	Soil/sediment	Lower CDAR	Arsenic	6.6E-06	N/A	8.0E-06	1.5E-05	N/A	N/A	N/A	N/A	N/A	N/A
Surface Water	Disturbed surface water	Lower CDAR	Arsenic	3.4E-06	N/A	N/A	3.4E-06	N/A	N/A	N/A	N/A	N/A	N/A
						Total Risk Across Soil/sediment	1.5E-05	Total Hazard Index Across All Media and All Exposure Routes					N/A
						Total Risk Across Surface water	3.4E-06						
						Total Risk Across All Media and All Exposure Routes	1.8E-05						

N/A = not applicable

TABLE 10.1.4.CT

RISK ASSESSMENT SUMMARY

CENTRAL TENDENCY EXPOSURE

Lower Basin

Scenario Timeframe:	Current/Future
Receptor Population:	Visitors
Receptor Age:	Child/Adult

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil/Sediment	Soil/sediment	Lower CDAR	Arsenic	1.4E-06	N/A	1.1E-06	2.5E-06	N/A	N/A	N/A	N/A	N/A	N/A
						Total Risk Across Soil/sediment	2.5E-06	Total Hazard Index Across All Media and All Exposure Routes					N/A
						Total Risk Across All Media and All Exposure Routes	2.5E-06						

N/A = not applicable

TABLE 10.1.4.RME

RISK ASSESSMENT SUMMARY

REASONABLE MAXIMUM EXPOSURE

Lower Basin

Scenario Timeframe:	Current/Future
Receptor Population:	Visitors
Receptor Age:	Child/Adult

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil/Sediment	Soil/sediment	Lower CDAR	Arsenic	2.1E-05	N/A	7.7E-06	2.8E-05	N/A	N/A	N/A	N/A	N/A	N/A
Surface Water	Disturbed surface water	Lower CDAR	Arsenic	3.3E-06	N/A	N/A	3.3E-06	N/A	N/A	N/A	N/A	N/A	N/A
						Total Risk Across Soil/sediment	2.8E-05	Total Hazard Index Across All Media and All Exposure Routes					N/A
						Total Risk Across Surface water	3.3E-06						
						Total Risk Across All Media and All Exposure Routes	3.2E-05						

N/A = not applicable

TABLE 10.1.5.CT

RISK ASSESSMENT SUMMARY

CENTRAL TENDENCY EXPOSURE

Lower Basin

Scenario Timeframe:	Current/Future
Receptor Population:	Construction workers
Receptor Age:	Adult

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Subsurface/surface soil	Construction site soil	Arsenic	3.0E-06	N/A	1.9E-07	3.2E-06	N/A	N/A	N/A	N/A	N/A	N/A
						Total Risk Across Soil	3.2E-06	Total Hazard Index Across All Media and All Exposure Routes					N/A
						Total Risk Across All Media and All Exposure Routes	3.2E-06						

N/A = not applicable

TABLE 10.1.5.RME

RISK ASSESSMENT SUMMARY

REASONABLE MAXIMUM EXPOSURE

Lower Basin

Scenario Timeframe:	Current/Future
Receptor Population:	Construction Workers
Receptor Age:	Adult

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Subsurface/surface soil	Construction site soil	Arsenic	8.0E-05	N/A	3.3E-06	8.3E-05	N/A	N/A	N/A	N/A	N/A	N/A
						Total Risk Across Soil	8.3E-05	Total Hazard Index Across All Media and All Exposure Routes					N/A
						Total Risk Across All Media and All Exposure Routes	8.3E-05						

N/A = not applicable

TABLE 10.1.6

RISK ASSESSMENT SUMMARY

MODERN SUBSISTENCE - REASONABLE MAXIMUM EXPOSURE

Lower Basin

Scenario Timeframe:	Future
Receptor Population:	Tribal Member
Receptor Age:	Child 0-6 years old

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface soil	Lower CDAR	N/A	N/A	N/A	N/A	N/A	Arsenic	NOAEL/skin pigmentation	8.2E-01	N/A	3.1E-01	1.1E+00
								Iron	hematology--blood	1.1E+00	N/A	N/A	1.1E+00
			(Total)	N/A	N/A	N/A	N/A	(Total)		1.9E+00	N/A	3.1E-01	2.2E+00
Sediment	Sediment	Lower CDAR	N/A	N/A	N/A	N/A	N/A	Arsenic	NOAEL/skin pigmentation	8.0E-01	N/A	6.9E-01	1.5E+00
								Iron	hematology--blood	1.2E+00	N/A	N/A	1.2E+00
			(Total)	N/A	N/A	N/A	N/A	(Total)		2.0E+00	N/A	6.9E-01	2.7E+00
Undisturbed Surface Water	Undisturbed Surface Water	Lower CDAR	N/A	N/A	N/A	N/A	N/A	Arsenic	NOAEL/skin pigmentation	1.1E+00	N/A	N/A	1.1E+00
			(Total)	N/A	N/A	N/A	N/A	(Total)		1.1E+00	N/A	N/A	1.1E+00
Disturbed Surface Water	Disturbed Surface Water	Lower CDAR	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
			(Total)	N/A	N/A	N/A	N/A	(Total)		N/A	N/A	N/A	N/A

Total Risk Across Soil	N/A
Total Risk Across Sediment	N/A
Total Risk Across Undisturbed Surface Water	N/A
Total Risk Across Disturbed Surface Water	N/A
Total Risk Across All Media and All Exposure Routes	N/A

Total Hazard Index Across All Media and All Exposure Routes	6.0E+00
Total skin HI =	3.7E+00
Total blood HI =	2.3E+00

N/A = not applicable

TABLE 10.1.7

Risk Assessment Summary

MODERN SUBSISTENCE - REASONABLE MAXIMUM EXPOSURE

Lower Basin

Scenario Timeframe:	Future
Receptor Population:	Tribal Member
Receptor Age:	Child/Adult

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface soil	Lower CDAR	Arsenic	1.0E-04	N/A	6.7E-05	1.7E-04	N/A	N/A	N/A	N/A	N/A	N/A
			(Total)	1.0E-04	N/A	6.7E-05	1.7E-04	(Total)		N/A	N/A	N/A	N/A
Sediment	Sediment	Lower CDAR	Arsenic	1.0E-04	N/A	1.9E-04	3.0E-04	Arsenic	NOAEL/skin pigmentation	2.2E-01	N/A	4.3E-01	6.6E-01
								Iron	hematology--blood	3.5E-01	N/A	N/A	3.5E-01
			(Total)	1.0E-04	N/A	1.9E-04	3.0E-04	(Total)		5.7E-01	N/A	4.3E-01	1.0E+00
Undisturbed Surface Water	Undisturbed Surface Water	Lower CDAR	Arsenic	2.4E-04	N/A	N/A	2.4E-04	Arsenic	NOAEL/skin pigmentation	5.2E-01	N/A	N/A	5.2E-01
			(Total)	2.4E-04	N/A	N/A	2.4E-04	(Total)		5.2E-01	N/A	N/A	5.2E-01
Disturbed Surface Water	Disturbed Surface Water	Lower CDAR	Arsenic	1.11E-05	N/A	N/A	1.1E-05	N/A	N/A	N/A	N/A	N/A	N/A
			(Total)	1.11E-05	N/A	N/A	1.1E-05	(Total)		N/A	N/A	N/A	N/A

Total Risk Across Soil	1.7E-04
Total Risk Across Sediment	3.0E-04
Total Risk Across Undisturbed Surface Water	2.4E-04
Total Risk Across Disturbed Surface Water	1.1E-05
Total Risk Across All Media and All Exposure Routes	7.1E-04

Total Hazard Index Across All Media and All Exposure Routes	1.5E+00
Total skin HI =	1.2E+00
Total blood HI =	3.5E-01

N/A = not applicable

TABLE 10.1.8

RISK ASSESSMENT SUMMARY

TRADITIONAL SUBSISTENCE - REASONABLE MAXIMUM EXPOSURE

Lower Basin

Scenario Timeframe:	Future
Receptor Population:	Tribal Member
Receptor Age:	Child/Adult

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ (1)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface Water/Sediment	Plant Tissue	Water Potato (With Skin)	N/A	N/A	N/A	N/A	N/A	Cadmium	NOAEL/proteinuria--kidney	4.0E+00	N/A	N/A	4.0E+00
			(Total)	N/A	N/A	N/A	N/A	(Total)		4.0E+00	N/A	0.0E+00	4.0E+00
			Total Risk Across All Media and All Exposure Routes				N/A	Total Hazard Index Across All Media and All Exposure Routes					4.0E+00

(1) Total organ Hazard Indices were not calculated because the effects on each target organ differs, and are therefore not additive. Specifically, although the effects of antimony, iron, and zinc can all be measured in blood, each chemical affects blood chemistry in a different and unrelated way (serum glucose/cholesterol, serum ferritin and percent transferrin saturation, and serum superoxide dismutase activity for antimony, iron, and zinc, respectively).

N/A = not applicable

TABLE 10.1.9

RISK ASSESSMENT SUMMARY

TRADITIONAL SUBSISTENCE - REASONABLE MAXIMUM EXPOSURE

Lower Basin

Scenario Timeframe:	Future
Receptor Population:	Tribal Member
Receptor Age:	Child 0-6 years old

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface soil	Lower CDAR	N/A	N/A	N/A	N/A	N/A	Antimony	longevity, glucose/ cholesterol--blood	1.1E+00	N/A	N/A	1.1E+00
								Arsenic	NOAEL/skin pigmentation	5.0E+00	N/A	1.5E+00	6.4E+00
								Iron	hematology--blood	6.5E+00	N/A	N/A	6.5E+00
								Manganese	NOAEL/Central Nervous System	3.8E+00	N/A	N/A	3.8E+00
			(Total)	N/A	N/A	N/A	N/A	(Total)		1.6E+01	N/A	1.5E+00	1.8E+01
Sediment	Sediment	Lower CDAR	N/A	N/A	N/A	N/A	N/A	Arsenic	NOAEL/skin pigmentation	2.8E+00	N/A	2.4E+00	5.2E+00
								Iron	hematology--blood	4.3E+00	N/A	N/A	4.3E+00
			(Total)	N/A	N/A	N/A	N/A	(Total)		7.1E+00	N/A	2.4E+00	9.5E+00
Undisturbed Surface Water	Undisturbed Surface Water	Lower CDAR	N/A	N/A	N/A	N/A	N/A	Arsenic	NOAEL/skin pigmentation	6.7E+00	N/A	N/A	6.7E+00
			(Total)	N/A	N/A	N/A	N/A	(Total)		6.7E+00	N/A	N/A	6.7E+00
Disturbed Surface Water	Disturbed Surface Water	Lower CDAR	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
			(Total)	N/A	N/A	N/A	N/A	(Total)	N/A	N/A	N/A	N/A	N/A

Total Risk Across Soil	N/A
Total Risk Across Sediment	N/A
Total Risk Across Undisturbed Surface Water	N/A
Total Risk Across Disturbed Surface Water	N/A
Total Risk Across All Media and All Exposure Routes	N/A

Total Hazard Index Across All Media and All Exposure Routes	3.4E+01
Total skin HI =	1.8E+01
Total blood HI =	1.2E+01
Total CNS =	3.8E+00

N/A = not applicable

TABLE 10.1.10

RISK ASSESSMENT SUMMARY

TRADITIONAL SUBSISTENCE - REASONABLE MAXIMUM EXPOSURE

Lower Basin

Scenario Timeframe:	Future
Receptor Population:	Tribal Member
Receptor Age:	Child/Adult

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface soil	Lower CDAR	Arsenic	6.3E-04	N/A	2.0E-04	8.3E-04	Arsenic	NOAEL/skin pigmentation	1.4E+00	N/A	4.5E-01	1.9E+00
								Iron	hematology--blood	1.8E+00	N/A	N/A	1.8E+00
			(Total)	6.3E-04	N/A	2.0E-04	8.3E-04	(Total)		3.2E+00	N/A	4.5E-01	3.7E+00
Sediment	Sediment	Lower CDAR	Arsenic	3.5E-04	N/A	6.8E-04	1.0E-03	Arsenic	NOAEL/skin pigmentation	7.8E-01	N/A	1.5E+00	2.3E+00
								Iron	hematology--blood	1.2E+00	N/A	N/A	1.2E+00
			(Total)	3.5E-04	N/A	6.8E-04	1.0E-03	(Total)		2.0E+00	N/A	1.5E+00	3.5E+00
Undisturbed Surface Water	Undisturbed Surface Water	Lower CDAR	Arsenic	1.4E-03	N/A	N/A	1.4E-03	Arsenic	NOAEL/skin pigmentation	3.2E+00	N/A	N/A	3.2E+00
			(Total)	1.43E-03	N/A	N/A	1.4E-03	(Total)		3.2E+00	N/A	N/A	3.2E+00
Disturbed Surface Water	Disturbed Surface Water	Lower CDAR	Arsenic	3.87E-05	N/A	N/A	3.9E-05	N/A	N/A	N/A	N/A	N/A	N/A
			(Total)	3.9E-05	N/A	N/A	3.9E-05	(Total)		N/A	N?A	N/A	N/A

Total Risk Across Soil	8.3E-04
Total Risk Across Sediment	1.0E-03
Total Risk Across Undisturbed Surface Water	1.4E-03
Total Risk Across Disturbed Surface Water	3.9E-05
Total Risk Across All Media and All Exposure Routes	3.3E-03

Total Hazard Index Across All Media and All Exposure Routes	1.0E+01
Total skin HI =	7.3E+00
Total blood HI =	3.1E+00

N/A = not applicable

TABLE10.2.1.RME

RISK ASSESSMENT SUMMARY

REASONABLE MAXIMUM EXPOSURE

Kingston

Scenario Timeframe:	Current/Future
Receptor Population:	Residents
Receptor Age:	Child 0-6 years old

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface soil	Yard soil	N/A	N/A	N/A	N/A	N/A	Arsenic	NOAEL/skin pigmentation	6.4E-01	N/A	7.0E-02	7.1E-01
						Total Risk Across Soil	N/A					Total Hazard Index Across All Media and All Exposure Routes	7.1E-01
						Total Risk Across Groundwater	N/A						
						Total Risk Across All Media and All Exposure Routes	N/A					Total skin HI =	7.1E-01

N/A = not applicable

TABLE 10.2.2.CT

RISK ASSESSMENT SUMMARY

CENTRAL TENDENCY EXPOSURE

Kingston

Scenario Timeframe:	Current/Future
Receptor Population:	Residents
Receptor Age:	Child/Adult

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface soil	Yard soil	Arsenic	3.4E-06	N/A	7.8E-07	4.2E-06	N/A	N/A	N/A	N/A	N/A	N/A
						Total Risk Across Soil	4.2E-06	Total Hazard Index Across All Media and All Exposure Routes					N/A
						Total Risk Across All Media and All Exposure Routes	4.2E-06						

N/A = not applicable

TABLE 10.2.2.RME

RISK ASSESSMENT SUMMARY

REASONABLE MAXIMUM EXPOSURE

Kingston

Scenario Timeframe:	Current/Future
Receptor Population:	Residents
Receptor Age:	Child/Adult

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface soil	Yard soil	Arsenic	3.5E-05	N/A	4.0E-06	3.9E-05	N/A	N/A	N/A	N/A	N/A	N/A
Groundwater	Groundwater	Tap water	Arsenic	9.0E-06	N/A	N/A	9.0E-06	N/A	N/A	N/A	N/A	N/A	N/A
						Total Risk Across Soil	3.9E-05	Total Hazard Index Across All Media and All Exposure Routes					N/A
						Total Risk Across Groundwater	9.0E-06						
						Total Risk Across All Media and All Exposure Routes	4.8E-05						

N/A = not applicable

TABLE 10.2.3.CT

RISK ASSESSMENT SUMMARY

CENTRAL TENDENCY EXPOSURE

Kingston

Scenario Timeframe:	Current/Future
Receptor Population:	Neighborhood residents
Receptor Age:	Child 4-11 years old

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil/Sediment	Soil/sediment	NS Confluence (1)	Arsenic	4.4E-07	N/A	1.4E-06	1.8E-06	N/A	N/A	N/A	N/A	N/A	N/A
						Total Risk Across Soil/sediment	1.8E-06	Total Hazard Index Across All Media and All Exposure Routes					N/A
						Total Risk Across All Media and All Exposure Routes	1.8E-06						

(1) Both Pine Creek and NS Confluence were sampled and risks calculated. When determining total risk across media and across all media and exposure routes, it was assumed that all exposure occurred at the NS Confluence be
Therefore, total risk estimates across media and across all media and exposure routes for this receptor scenario are higher (more conservative) than those associated with exposure to Pine Creek sediment and water.

N/A = not applicable

TABLE 10.2.3.RME

RISK ASSESSMENT SUMMARY

REASONABLE MAXIMUM EXPOSURE

Kingston

Scenario Timeframe:	Current/Future
Receptor Population:	Neighborhood residents
Receptor Age:	Child 4-11 years old

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil/Sediment	Soil/sediment	NS Confluence (1)	Arsenic	9.1E-06	N/A	1.1E-05	2.0E-05	N/A	N/A	N/A	N/A	N/A	N/A
Surface Water	Surface water	NS Confluence (1)	Arsenic	5.7E-06	N/A	N/A	5.7E-06	N/A	N/A	N/A	N/A	N/A	N/A
						Total Risk Across Soil/sediment	2.0E-05	Total Hazard Index Across All Media and All Exposure Routes					N/A
						Total Risk Across Surface water	5.7E-06						
						Total Risk Across All Media and All Exposure Routes	2.6E-05						

N/A = not applicable

TABLE 10.2.4.RME

RISK ASSESSMENT SUMMARY

REASONABLE MAXIMUM EXPOSURE

Kingston

Scenario Timeframe:	Current/Future
Receptor Population:	Visitors
Receptor Age:	Child 0-6 years old

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil/Sediment	Soil/sediment	NS Confluence	N/A	N/A	N/A	N/A	N/A	Arsenic	NOAEL/skin pigmentation	5.7E-01	N/A	1.2E-01	7.0E-01
						Total Risk Across Soil/sediment	NA					Total Hazard Index Across All Media and All Exposure Routes	7.0E-01
						Total Risk Across Surface water	N/A						
						Total Risk Across All Media and All Exposure Routes	N/A					Total skin HI =	7.0E-01

N/A = not applicable

TABLE 10.2.5.CT

RISK ASSESSMENT SUMMARY

CENTRAL TENDENCY EXPOSURE

Kingston

Scenario Timeframe:	Current/Future
Receptor Population:	Visitors
Receptor Age:	Child/Adult

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil/Sediment	Soil/sediment	NS Confluence	Arsenic	1.7E-06	N/A	1.4E-06	3.2E-06	N/A	N/A	N/A	N/A	N/A	N/A
						Total Risk Across Soil/sediment	3.2E-06	Total Hazard Index Across All Media and All Exposure Routes					N/A
						Total Risk Across All Media and All Exposure Routes	3.2E-06						

N/A = not applicable

TABLE 10.2.5.RME

RISK ASSESSMENT SUMMARY

REASONABLE MAXIMUM EXPOSURE

Kingston

Scenario Timeframe:	Current/Future
Receptor Population:	Visitors
Receptor Age:	Child/Adult

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil/Sediment	Soil/sediment	NS Confluence	Arsenic	2.8E-05	N/A	1.0E-05	3.9E-05	N/A	N/A	N/A	N/A	N/A	N/A
Surface Water	Surface water	NS Confluence	Arsenic	5.6E-06	N/A	N/A	5.6E-06	N/A	N/A	N/A	N/A	N/A	N/A
						Total Risk Across Soil/sediment	3.9E-05	Total Hazard Index Across All Media and All Exposure Routes					N/A
						Total Risk Across Surface water	5.6E-06						
						Total Risk Across All Media and All Exposure Routes	4.4E-05						

N/A = not applicable

TABLE 10.2.6.RME

RISK ASSESSMENT SUMMARY

REASONABLE MAXIMUM EXPOSURE

Kingston

Scenario Timeframe:	Current/Future
Receptor Population:	Construction Workers
Receptor Age:	Adult

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Subsurface/surface soil	Construction site soil	Arsenic	2.5E-05	N/A	1.1E-06	2.7E-05	N/A	N/A	N/A	N/A	N/A	N/A
						Total Risk Across Soil	2.7E-05	Total Hazard Index Across All Media and All Exposure Routes					N/A
						Total Risk Across All Media and All Exposure Routes	2.7E-05						

N/A = not applicable

TABLE 10.3.1.RME

RISK ASSESSMENT SUMMARY

REASONABLE MAXIMUM EXPOSURE

Side Gulches

Scenario Timeframe:	Current/Future
Receptor Population:	Residents
Receptor Age:	Child 0-6 years old

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface soil	Yard soil						Arsenic	NOAEL/skin pigmentation	1.3E+00	N/A	1.4E-01	1.4E+00
								Iron	hematology--blood	1.2E+00	N/A	N/A	1.2E+00
			N/A	N/A	N/A	N/A	N/A	(Total)		2.5E+00	N/A	1.4E-01	2.6E+00
Groundwater	Groundwater	Tap water											
			N/A	N/A	N/A	N/A	N/A	Arsenic	NOAEL/skin pigmentation	1.8E+00	N/A	N/A	1.8E+00

Total Risk Across Soil	N/A
Total Risk Across Groundwater	N/A
Total Risk Across All Media and All Exposure Routes	N/A
Total Hazard Index Across All Media and All Exposure Routes	4.4E+00
Total skin HI =	3.2E+00
Total blood HI =	1.2E+00

N/A = not applicable

TABLE 10.3.2.CT

RISK ASSESSMENT SUMMARY

CENTRAL TENDENCY EXPOSURE

Side Gulches

Scenario Timeframe:	Current/Future
Receptor Population:	Residents
Receptor Age:	Child/Adult

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface soil	Yard soil	Arsenic	6.7E-06	N/A	1.5E-06	8.2E-06	N/A	N/A	N/A	N/A	N/A	N/A
Groundwater	Groundwater	Tap water	Arsenic	7.2E-06	N/A	N/A	7.2E-06	N/A	N/A	N/A	N/A	N/A	N/A
						Total Risk Across Soil	8.2E-06	Total Hazard Index Across All Media and All Exposure Routes					N/A
						Total Risk Across Groundwater	7.2E-06						
						Total Risk Across All Media and All Exposure Routes	1.5E-05						

N/A = not applicable

TABLE 10.3.2.RME

RISK ASSESSMENT SUMMARY

REASONABLE MAXIMUM EXPOSURE

Side Gulches

Scenario Timeframe:	Current/Future
Receptor Population:	Residents
Receptor Age:	Child/Adult

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface soil	Yard soil	Arsenic	7.1E-05	N/A	8.2E-06	8.0E-05	N/A	N/A	N/A	N/A	N/A	N/A
Groundwater	Groundwater	Tap water	Arsenic	1.9E-04	N/A	N/A	1.9E-04	N/A	N/A	N/A	N/A	N/A	N/A
						Total Risk Across Soil	8.0E-05	Total Hazard Index Across All Media and All Exposure Routes					N/A
						Total Risk Across Groundwater	1.9E-04						
						Total Risk Across All Media and All Exposure Routes	2.7E-04						

N/A = not applicable

TABLE 10.3.3.RME

RISK ASSESSMENT SUMMARY

REASONABLE MAXIMUM EXPOSURE

Side Gulches

Scenario Timeframe:	Current/Future
Receptor Population:	Neighborhood residents
Receptor Age:	Child 4-11 years old

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface soil	Elk Creek Area	Arsenic	8.8E-06	N/A	3.0E-06	1.2E-05	N/A	N/A	N/A	N/A	N/A	N/A
Sediment	Sediment	Elk Creek Pond	Arsenic	4.3E-06	N/A	3.3E-06	7.7E-06	N/A	N/A	N/A	N/A	N/A	N/A
Surface Water	Surface water	Elk Creek Pond	Arsenic	1.4E-06	N/A	N/A	1.4E-06	N/A	N/A	N/A	N/A	N/A	N/A

Total Risk Across Soil	1.2E-05
Total Risk Across Sediment	7.7E-06
Total Risk Across Surface water	1.4E-06
Total Risk Across All Media and All Exposure Routes	2.1E-05

Total Hazard Index Across All Media and All Exposure Routes	N/A

N/A = not applicable

TABLE 10.4.1.RME

RISK ASSESSMENT SUMMARY

REASONABLE MAXIMUM EXPOSURE

Osburn

Scenario Timeframe:	Current/Future
Receptor Population:	Residents
Receptor Age:	Child 0-6 years old

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface soil	Yard soil	N/A	N/A	N/A	N/A	N/A	Arsenic	NOAEL/skin pigmentation	1.2E+00	N/A	1.3E-01	1.3E+00
						Total Risk Across Soil	N/A					Total Hazard Index Across All Media and All Exposure Routes	1.3E+00
						Total Risk Across All Media and All Exposure Routes	N/A						
												Total skin HI =	1.3E+00

N/A = not applicable

TABLE 10.4.2.CT

RISK ASSESSMENT SUMMARY

CENTRAL TENDENDCY EXPOSURE

Osburn

Scenario Timeframe:	Current/Future
Receptor Population:	Residents
Receptor Age:	Child/Adult

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface soil	Yard soil	Arsenic	6.5E-06	N/A	1.5E-06	8.0E-06	N/A	N/A	N/A	N/A	N/A	N/A
						Total Risk Across Soil	8.0E-06	Total Hazard Index Across All Media and All Exposure Routes					N/A
						Total Risk Across All Media and All Exposure Routes	8.0E-06						

N/A = not applicable

TABLE 10.4.2.RME

RISK ASSESSMENT SUMMARY

REASONABLE MAXIMUM EXPOSURE

Osburn

Scenario Timeframe:	Current/Future
Receptor Population:	Residents
Receptor Age:	Child/Adult

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface soil	Yard soil	Arsenic	6.6E-05	N/A	7.5E-06	7.3E-05	N/A	N/A	N/A	N/A	N/A	N/A
Groundwater	Groundwater	Tap water	Arsenic	6.2E-06	N/A	N/A	6.2E-06	N/A	N/A	N/A	N/A	N/A	N/A

Total Risk Across Soil	7.3E-05
Total Risk Across Groundwater	6.2E-06
Total Risk Across All Media and All Exposure Routes	8.0E-05

Total Hazard Index Across All Media and All Exposure Routes	N/A

N/A = not applicable

TABLE 10.5.1.CT

RISK ASSESSMENT SUMMARY

CENTRAL TENDENCY EXPOSURE

Silverton

Scenario Timeframe:	Current/Future
Receptor Population:	Residents
Receptor Age:	Child/Adult

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface soil	Yard soil	Arsenic	2.8E-06	N/A	6.3E-07	3.4E-06	N/A	N/A	N/A	N/A	N/A	N/A
Groundwater	Groundwater	Tap water	Arsenic	1.4E-06	N/A	N/A	1.4E-06	N/A	N/A	N/A	N/A	N/A	N/A
						Total Risk Across Soil	3.4E-06	Total Hazard Index Across All Media and All Exposure Routes					N/A
						Total Risk Across Groundwater	1.4E-06						
						Total Risk Across All Media and All Exposure Routes	4.8E-06						

N/A = not applicable

TABLE 10.5.1.RME

RISK ASSESSMENT SUMMARY

REASONABLE MAXIMUM EXPOSURE

Silverton

Scenario Timeframe:	Current/Future
Receptor Population:	Residents
Receptor Age:	Child/Adult

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface soil	Yard soil	Arsenic	3.0E-05	N/A	3.5E-06	3.4E-05	N/A	N/A	N/A	N/A	N/A	N/A
Groundwater	Groundwater	Tap water	Arsenic	1.2E-05	N/A	N/A	1.2E-05	N/A	N/A	N/A	N/A	N/A	N/A
						Total Risk Across Soil	3.4E-05	Total Hazard Index Across All Media and All Exposure Routes					N/A
						Total Risk Across Groundwater	1.2E-05						
						Total Risk Across All Media and All Exposure Routes	4.6E-05						

N/A = not applicable

TABLE 10.5.2.RME

RISK ASSESSMENT SUMMARY

REASONABLE MAXIMUM EXPOSURE

Silverton

Scenario Timeframe:	Current/Future
Receptor Population:	Neighborhood residents
Receptor Age:	Child 4-11 years old

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface soil	Upland parks/schools	Arsenic	2.6E-06	N/A	8.7E-07	3.4E-06	N/A	N/A	N/A	N/A	N/A	N/A
						Total Risk Across Soil	3.4E-06		Total Hazard Index Across All Media and All Exposure Routes				N/A
						Total Risk Across All Media and All Exposure Routes	3.4E-06						

N/A = not applicable

TABLE 10.5.3.RME

RISK ASSESSMENT SUMMARY

REASONABLE MAXIMUM EXPOSURE

Silverton

Scenario Timeframe:	Current/Future
Receptor Population:	Visitors
Receptor Age:	Child/Adult

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface soil	Upland parks/schools	Arsenic	5.1E-06	N/A	8.9E-07	6.0E-06	N/A	N/A	N/A	N/A	N/A	N/A
						Total Risk Across Soil	6.0E-06	Total Hazard Index Across All Media and All Exposure Routes					N/A
						Total Risk Across All Media and All Exposure Routes	6.0E-06						

N/A = not applicable

TABLE 10.6.1.RME

RISK ASSESSMENT SUMMARY

REASONABLE MAXIMUM EXPOSURE

Wallace

Scenario Timeframe:	Current/Future
Receptor Population:	Residents
Receptor Age:	Child 0-6 years old

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ (1)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface soil	Yard soil	N/A	N/A	N/A	N/A	N/A	Arsenic	NOAEL/skin pigmentation	5.8E-01	N/A	6.3E-02	6.4E-01
						Total Risk Across Soil	N/A					Total Hazard Index Across All Media and All Exposure Routes	6.4E-01
						Total Risk Across All Media and All Exposure Routes	N/A						
												Total skin HI =	6.4E-01

N/A = not applicable

TABLE 10.6.2.CT

RISK ASSESSMENT SUMMARY

CENTRAL TENDENCY EXPOSURE

Wallace

Scenario Timeframe:	Current/Future
Receptor Population:	Residents
Receptor Age:	Child/Adult

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface soil	Yard soil	Arsenic	3.4E-06	N/A	7.8E-07	4.2E-06	N/A	N/A	N/A	N/A	N/A	N/A
Groundwater	Groundwater	Tap water	Arsenic	1.6E-06	N/A	N/A	1.6E-06	N/A	N/A	N/A	N/A	N/A	N/A
						Total Risk Across Soil	4.2E-06	Total Hazard Index Across All Media and All Exposure Routes					N/A
						Total Risk Across Groundwater	1.6E-06						
						Total Risk Across All Media and All Exposure Routes	5.8E-06						

N/A = not applicable

TABLE 10.6.2.RME

RISK ASSESSMENT SUMMARY

REASONABLE MAXIMUM EXPOSURE

Wallace

Scenario Timeframe:	Current/Future
Receptor Population:	Residents
Receptor Age:	Child/Adult

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface soil	Yard soil	Arsenic	3.2E-05	N/A	3.6E-06	3.5E-05	N/A	N/A	N/A	N/A	N/A	N/A
Groundwater	Groundwater	Tap water	Arsenic	1.1E-05	N/A	N/A	1.1E-05	N/A	N/A	N/A	N/A	N/A	N/A
						Total Risk Across Soil	3.5E-05	Total Hazard Index Across All Media and All Exposure Routes					N/A
						Total Risk Across Groundwater	1.1E-05						
						Total Risk Across All Media and All Exposure Routes	4.6E-05						

N/A = not applicable

TABLE 10.6.3.RME

RISK ASSESSMENT SUMMARY

REASONABLE MAXIMUM EXPOSURE

Wallace

Scenario Timeframe:	Current/Future
Receptor Population:	Neighborhood residents
Receptor Age:	Child 4-11 years old

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface soil	Upland parks/schools	Arsenic	2.5E-06	N/A	8.4E-07	3.3E-06	N/A	N/A	N/A	N/A	N/A	N/A
						Total Risk Across Soil	3.3E-06		Total Hazard Index Across All Media and All Exposure Routes				N/A
						Total Risk Across All Media and All Exposure Routes	3.3E-06						

N/A = not applicable

TABLE 10.6.4.RME

RISK ASSESSMENT SUMMARY

REASONABLE MAXIMUM EXPOSURE

Wallace

Scenario Timeframe:	Current/Future
Receptor Population:	Visitors
Receptor Age:	Child/Adult

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface soil	Upland parks/schools	Arsenic	5.0E-06	N/A	8.7E-07	5.8E-06	N/A	N/A	N/A	N/A	N/A	N/A
						Total Risk Across Soil	5.8E-06		Total Hazard Index Across All Media and All Exposure Routes				N/A
						Total Risk Across All Media and All Exposure Routes	5.8E-06						

N/A = not applicable

TABLE 10.7.1.RME

RISK ASSESSMENT SUMMARY

REASONABLE MAXIMUM EXPOSURE

Osburn, Wallace, and Silverton Combined

Scenario Timeframe:	Current/Future
Receptor Population:	Neighborhood residents
Receptor Age:	Child 4-11 years old

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Sediment	Sediment	SFCDAR	Arsenic	2.9E-06	N/A	2.3E-06	5.2E-06	N/A	N/A	N/A	N/A	N/A	N/A
						Total Risk Across Soil/sediment	5.2E-06					Total Hazard Index Across All Media and All Exposure Routes	N/A
						Total Risk Across All Media and All Exposure Routes	5.2E-06						

N/A = not applicable

TABLE 10.7.2.RME

RISK ASSESSMENT SUMMARY

REASONABLE MAXIMUM EXPOSURE

Osburn, Wallace, and Silverton Combined

Scenario Timeframe:	Current/Future
Receptor Population:	Construction Workers
Receptor Age:	Adult

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Subsurface/surface soil	Construction site soil	Arsenic	2.0E-05	N/A	8.4E-07	2.1E-05	N/A	N/A	N/A	N/A	N/A	N/A
						Total Risk Across Soil	2.1E-05		Total Hazard Index Across All Media and All Exposure Routes				N/A
						Total Risk Across All Media and All Exposure Routes	2.1E-05						

N/A = not applicable

TABLE 10.8.1.RME

RISK ASSESSMENT SUMMARY

REASONABLE MAXIMUM EXPOSURE

Nine Mile

Scenario Timeframe:	Current/Future
Receptor Population:	Residents
Receptor Age:	Child 0-6 years old

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface soil	Yard soil	N/A	N/A	N/A	N/A	N/A	Arsenic	NOAEL/skin pigmentation	1.1E+00	N/A	1.2E-01	1.2E+00
						Total Risk Across Soil	N/A					Total Hazard Index Across All Media and All Exposure Routes	1.2E+00
						Total Risk Across All Media and All Exposure Routes	N/A						
												Total skin HI =	1.2E+00

N/A = not applicable

TABLE 10.8.2.CT

RISK ASSESSMENT SUMMARY

CENTRAL TENDENCY EXPOSURE

Nine Mile

Scenario Timeframe:	Current/Future
Receptor Population:	Residents
Receptor Age:	Child/Adult

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface soil	Yard soil	Arsenic	5.3E-06	N/A	1.2E-06	6.5E-06	N/A	N/A	N/A	N/A	N/A	N/A
Groundwater	Groundwater	Tap water	Arsenic	1.7E-06	N/A	N/A	1.7E-06	N/A	N/A	N/A	N/A	N/A	N/A
						Total Risk Across Soil	6.5E-06	Total Hazard Index Across All Media and All Exposure Routes					N/A
						Total Risk Across Groundwater	1.7E-06						
						Total Risk Across All Media and All Exposure Routes	8.2E-06						

N/A = not applicable

TABLE 10.8.2.RME

RISK ASSESSMENT SUMMARY

REASONABLE MAXIMUM EXPOSURE

Nine Mile

Scenario Timeframe:	Current/Future
Receptor Population:	Residents
Receptor Age:	Child/Adult

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface soil	Yard soil	Arsenic	5.9E-05	N/A	6.7E-06	6.5E-05	N/A	N/A	N/A	N/A	N/A	N/A
Groundwater	Groundwater	Tap water	Arsenic	1.7E-05	N/A	N/A	1.7E-05	N/A	N/A	N/A	N/A	N/A	N/A
						Total Risk Across Soil	6.5E-05	Total Hazard Index Across All Media and All Exposure Routes					N/A
						Total Risk Across Groundwater	1.7E-05						
						Total Risk Across All Media and All Exposure Routes	8.2E-05						

N/A = not applicable

TABLE 10.8.3.CT

RISK ASSESSMENT SUMMARY

CENTRAL TENDENCY EXPOSURE

Nine Mile

Scenario Timeframe:	Future
Receptor Population:	Residents
Receptor Age:	Child 0-6 years old

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Groundwater	Groundwater	Tap water						Cadmium	NOAEL/proteinuria--kidney	7.8E+00	N/A	N/A	7.8E+00
								Zinc	enzyme effects--blood	2.0E+00	N/A	N/A	2.0E+00
			N/A	N/A	N/A	N/A	N/A	(Total)		9.9E+00	N/A	N/A	9.9E+00
						Total Risk Across Groundwater	N/A					Total Hazard Index Across All Media and All Exposure Routes	9.9E+00
						Total Risk Across All Media and All Exposure Routes	N/A						

Total kidney HI =	7.8E+00
Total blood HI =	2.0E+00

N/A = not applicable

TABLE 10.8.3.RME

RISK ASSESSMENT SUMMARY

REASONABLE MAXIMUM EXPOSURE

Nine Mile

Scenario Timeframe:	Future
Receptor Population:	Residents
Receptor Age:	Child 0-6 years old

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Groundwater	Groundwater	Tap water						Cadmium	NOAEL/proteinuria--kidney	1.7E+01	N/A	N/A	1.7E+01
								Zinc	enzyme effects--blood	4.2E+00	N/A	N/A	4.2E+00
			N/A	N/A	N/A	N/A	N/A	(Total)		2.1E+01	N/A	N/A	2.1E+01
							Total Risk Across Groundwater: N/A						Total Hazard Index Across All Media and All Exposure Routes: 2.1E+01
							Total Risk Across All Media and All Exposure Routes: N/A						

Total kidney HI = 1.7E+01

Total blood HI = 4.2E+00

N/A = not applicable

TABLE 10.8.4.CT

RISK ASSESSMENT SUMMARY

CENTRAL TENDENCY EXPOSURE

Nine Mile

Scenario Timeframe:	Future
Receptor Population:	Residents
Receptor Age:	Child/Adult

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Groundwater	Groundwater	Tap water	Arsenic	3.0E-06	N/A	N/A	3.0E-06	Cadmium	NOAEL/proteinuria--kidney	3.6E+00	N/A	N/A	3.6E+00
						Total Risk Across Groundwater	3.0E-06					Total Hazard Index Across All Media and All Exposure Routes	3.6E+00
						Total Risk Across All Media and All Exposure Routes	3.0E-06						
												Total kidney HI =	3.6E+00

N/A = not applicable

TABLE 10.8.4.RME

RISK ASSESSMENT SUMMARY

REASONABLE MAXIMUM EXPOSURE

Nine Mile

Scenario Timeframe:	Future
Receptor Population:	Residents
Receptor Age:	Child/Adult

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Groundwater	Groundwater	Tap water	Arsenic	2.8E-05	N/A	N/A	2.8E-05	Cadmium	NOAEL/proteinuria--kidney	9.1E+00	N/A	N/A	9.1E+00
								Zinc	enzyme effects--blood	2.3E+00	N/A	N/A	2.3E+00
			(Total)	2.8E-05	N/A	N/A	2.8E-05	(Total)		1.1E+01	N/A	N/A	1.1E+01
						Total Risk Across Groundwater	2.8E-05					Total Hazard Index Across All Media and All Exposure Routes	1.1E+01
						Total Risk Across All Media and All Exposure Routes	2.8E-05						

Total kidney HI =	9.1E+00
Total blood HI =	2.3E+00

N/A = not applicable

TABLE 10.8.5.RME

RISK ASSESSMENT SUMMARY

REASONABLE MAXIMUM EXPOSURE

Nine Mile

Scenario Timeframe:	Current/Future
Receptor Population:	Neighborhood residents
Receptor Age:	Child 4-11 years old

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ (1)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface soil	Waste piles	Arsenic	2.3E-05	N/A	7.9E-06	3.1E-05	Arsenic	NOAEL/skin pigmentation	5.2E-01	N/A	1.8E-01	6.9E-01
Sediment	Sediment	Nine Mile/Canyon Creek	Arsenic	2.8E-06	N/A	2.2E-06	5.0E-06	N/A	N/A	N/A	N/A	N/A	N/A
						Total Risk Across Soil	3.1E-05					Total Hazard Index Across All Media and All Exposure Routes	6.9E-01
						Total Risk Across Sediment	5.0E-06						
						Total Risk Across All Media and All Exposure Routes	3.6E-05					Total skin HI =	6.9E-01

N/A = not applicable

TABLE 10.8.6.RME

RISK ASSESSMENT SUMMARY

REASONABLE MAXIMUM EXPOSURE

Nine Mile

Scenario Timeframe:	Current/Future
Receptor Population:	Construction Workers
Receptor Age:	Adult

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Subsurface/surface soil	Construction site soil	Arsenic	1.8E-05	N/A	7.7E-07	1.9E-05	N/A	N/A	N/A	N/A	N/A	N/A
						Total Risk Across Soil	1.9E-05	Total Hazard Index Across All Media and All Exposure Routes					N/A
						Total Risk Across All Media and All Exposure Routes	1.9E-05						

N/A = not applicable

TABLE 10.9.1.RME

RISK ASSESSMENT SUMMARY

REASONABLE MAXIMUM EXPOSURE

Mullan

Scenario Timeframe:	Current/Future
Receptor Population:	Residents
Receptor Age:	Child 0-6 years old

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface soil	Yard soil						Arsenic	NOAEL/skin pigmentation	1.0E+00	N/A	1.1E-01	1.1E+00
								Iron	hematology--blood	1.1E+00	N/A	N/A	1.1E+00
			N/A	N/A	N/A	N/A	N/A	(Total)		2.1E+00	N/A	1.1E-01	2.2E+00
							Total Risk Across Soil					Total Hazard Index Across All Media and All Exposure Routes	2.2E+00
							Total Risk Across All Media and All Exposure Routes						
							N/A						

Total skin HI = 1.1E+00

Total blood HI = 1.1E+00

N/A = not applicable

TABLE 10.9.2.CT

RISK ASSESSMENT SUMMARY

CENTRAL TENDENCY EXPOSURE

Mullan

Scenario Timeframe:	Current/Future
Receptor Population:	Residents
Receptor Age:	Child/Adult

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface soil	Yard soil	Arsenic	4.6E-06	N/A	1.0E-06	5.6E-06	N/A	N/A	N/A	N/A	N/A	N/A
						Total Risk Across Soil	5.6E-06	Total Hazard Index Across All Media and All Exposure Routes					N/A
						Total Risk Across All Media and All Exposure Routes	5.6E-06						

N/A = not applicable

TABLE 10.9.2.RME

RISK ASSESSMENT SUMMARY

REASONABLE MAXIMUM EXPOSURE

Mullan

Scenario Timeframe:	Current/Future
Receptor Population:	Residents
Receptor Age:	Child/Adult

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface soil	Yard soil	Arsenic	5.5E-05	N/A	6.3E-06	6.1E-05	N/A	N/A	N/A	N/A	N/A	N/A
Groundwater	Groundwater	Tap water	Arsenic	5.6E-06	N/A	N/A	5.6E-06	N/A	N/A	N/A	N/A	N/A	N/A
						Total Risk Across Soil	6.1E-05	Total Hazard Index Across All Media and All Exposure Routes					N/A
						Total Risk Across Groundwater	5.6E-06						
						Total Risk Across All Media and All Exposure Routes	6.7E-05						

N/A = not applicable

TABLE 10.9.3.RME

RISK ASSESSMENT SUMMARY

REASONABLE MAXIMUM EXPOSURE

Mullan

Scenario Timeframe:	Current/Future
Receptor Population:	Neighborhood residents
Receptor Age:	Child 4-11 years old

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface soil	Waste piles	Arsenic	1.9E-06	N/A	6.4E-07	2.5E-06	N/A	N/A	N/A	N/A	N/A	N/A
Sediment	Sediment	SFCDAR	Arsenic	8.8E-07	N/A	6.8E-07	1.6E-06	N/A	N/A	N/A	N/A	N/A	N/A
						Total Risk Across Soil	2.5E-06	Total Hazard Index Across All Media and All Exposure Routes					N/A
						Total Risk Across Sediment	1.6E-06						
						Total Risk Across All Media and All Exposure Routes	4.1E-06						

N/A = not applicable

TABLE 10.9.4.RME

RISK ASSESSMENT SUMMARY

REASONABLE MAXIMUM EXPOSURE

Mullan

Scenario Timeframe:	Current/Future
Receptor Population:	Construction Workers
Receptor Age:	Adult

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Subsurface/surface soil	Construction site soil	Arsenic	2.3E-05	N/A	9.7E-07	2.4E-05	N/A	N/A	N/A	N/A	N/A	N/A
						Total Risk Across Soil	2.4E-05	Total Hazard Index Across All Media and All Exposure Routes					N/A
						Total Risk Across All Media and All Exposure Routes	2.4E-05						

N/A = not applicable

TABLE 10.10.1.RME

RISK ASSESSMENT SUMMARY

REASONABLE MAXIMUM EXPOSURE

Blackwell Island

Scenario Timeframe:	Current/Future
Receptor Population:	Visitors
Receptor Age:	Child/Adult

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil/Sediment	Soil/sediment	Spokane River	Arsenic	8.7E-06	N/A	3.2E-06	1.2E-05	N/A	N/A	N/A	N/A	N/A	N/A
						Total Risk Across Soil/sediment	1.2E-05	Total Hazard Index Across All Media and All Exposure Routes					N/A
						Total Risk Across All Media and All Exposure Routes	1.2E-05						

N/A = not applicable

TABLE 10.11.1.RME

RISK ASSESSMENT SUMMARY

REASONABLE MAXIMUM EXPOSURE

Vegetable Ingestion in Residential Areas

Scenario Timeframe:	Current/Future
Receptor Population:	Residents
Receptor Age:	Child 0-6 years old

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Plant tissue	Homegrown vegetables	N/A	N/A	N/A	N/A	N/A	Cadmium	NOAEL/proteinuria--kidney	1.6E+00	N/A	N/A	1.6E+00
						Total Risk Across Soil	N/A					Total Hazard Index Across All Media and All Exposure Routes	1.6E+00
						Total Risk Across All Media and All Exposure Routes	N/A						
												Total kidney HI =	1.6E+00

N/A = not applicable

TABLE 10.11.2.CT

RISK ASSESSMENT SUMMARY

CENTRAL TENDENCY EXPOSURE

Vegetable Ingestion in Residential Areas

Scenario Timeframe:	Current/Future
Receptor Population:	Residents
Receptor Age:	Child/Adult

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Plant tissue	Homegrown vegetables	Arsenic	1.9E-06	N/A	N/A	1.9E-06	N/A	N/A	N/A	N/A	N/A	N/A
						Total Risk Across Soil	1.9E-06	Total Hazard Index Across All Media and All Exposure Routes					N/A
						Total Risk Across All Media and All Exposure Routes	1.9E-06						

N/A = not applicable

TABLE 10.11.2.RME

RISK ASSESSMENT SUMMARY

REASONABLE MAXIMUM EXPOSURE

Vegetable Ingestion in Residential Areas

Scenario Timeframe:	Current/Future
Receptor Population:	Residents
Receptor Age:	Child/Adult

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Plant tissue	Homegrown vegetables	Arsenic	8.1E-05	N/A	N/A	8.1E-05	Cadmium	NOAEL/proteinuria--kidney	1.6E+00	N/A	N/A	1.6E+00
						Total Risk Across Soil	8.1E-05					Total Hazard Index Across All Media and All Exposure Routes	1.6E+00
						Total Risk Across All Media and All Exposure Routes	8.1E-05						
												Total kidney HI =	1.6E+00

N/A = not applicable

TABLE 10.11.3

RISK ASSESSMENT SUMMARY

MODERN SUBSISTENCE - REASONABLE MAXIMUM EXPOSURE

Lower Basin

Scenario Timeframe:	Future
Receptor Population:	Tribal Member
Receptor Age:	Adult

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface water/sediment	Animal Tissue	Fish in Lower CDAR Nothern Pike	N/A	N/A	N/A	N/A	N/A	Mercury	autoimmunity	1.1E+00	N/A	N/A	3.2E+00
								(Total)		1.1E+00	N/A	N/A	3.2E+00
						Total Risk Across Surface water/sediment	N/A					Total Hazard Index Across All Media and All Exposure Routes	3.2E+00
						Total Risk Across All Media and All Exposure Routes	N/A						
												Total autoimmunity HI=	3.2E+00

N/A = Not Applicable

TABLE 10.11.4

RISK ASSESSMENT SUMMARY

TRADITIONAL SUBSISTENCE - REASONABLE MAXIMUM EXPOSURE

Lower Basin

Scenario Timeframe:	Future
Receptor Population:	Tribal Member
Receptor Age:	Adult

Medium	Exposure Medium	Exposure Point	Chemical	Carcinogenic Risk				Chemical	Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total		Primary Target Organ	Ingestion	Inhalation	Dermal	Exposure Routes Total
Surface water/sediment	Animal Tissue	Fish in Lower CDAR Nothern Pike	N/A	N/A	N/A	N/A	N/A	Mercury	autoimmunity	1.0E+01	N/A	N/A	1.0E+01
								(Total)		1.0E+01	N/A	N/A	1.0E+01
						Total Risk Across Surface water/sediment	N/A					Total Hazard Index Across All Media and All Exposure Routes	1.0E+01
						Total Risk Across All Media and All Exposure Routes	N/A						
												Total autoimmunity HI =	1.0E+01

N/A = not applicable