



THE MEMPHIS DEPOT TENNESSEE

ADMINISTRATIVE RECORD COVER SHEET

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Defense Distribution Depot Memphis, Tennessee

FINAL

Preliminary Risk Evaluation

Prepared by



CH2MHILL

151 Lafayette Drive
Suite 110
Oak Ridge, TN 37830

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Acronyms

BCT	BRAC Cleanup Team
BRAC	Base Realignment and Closure
COPC	chemical of potential concern
CEHNC	U.S. Army Corps of Engineers, Huntsville
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CERFA	Community Environmental Response Facilitation Act
DDE	dichlorodiphenyldichloroethylene
DDMT	Defense Distribution Depot Memphis, Tennessee
DDT	dichlorodiphenyltrichloroethane
DQO	data quality objective
DRMO	Defense Reutilization Marketing Office
EPA	U.S. Environmental Protection Agency
FOSL	Finding of Suitability to Lease
FRA	Further Risk Assessment
IRA	Interim Remedial Action
MCL	maximum contaminant level
NFA	No Further Assessment
NPL	National Priorities List
OHM	O. H. Materials Company
OU	Operable Unit
PAH	polycyclic aromatic hydrocarbon
PCB	polychlorinated biphenyl
PCP	pentachlorophenol
PDO	Purchase Disposal Order
POL	petroleum, oil, and lubricants
ppb	parts per billion
ppm	parts per million

PRE	Preliminary Risk Evaluation
RBC	Risk-Based Concentration
RI	Remedial Investigation
RI/FS	Remedial Investigation/Feasibility Study
SSE	Screening Sites Evaluation
SVOC	semivolatile organic compound
TDEC	Tennessee Department of Environment and Conservation
USAEHA	U.S. Army Environmental Hygiene Agency
UCL95	95 percent Upper Confidence Level
UST	underground storage tank
VOC	volatile organic compound
ZnO	zinc oxide

Executive Summary

The Defense Distribution Depot Memphis, Tennessee (DDMT) is currently in the process of transferring property, defined as Base Realignment and Closure (BRAC) parcels and subparcels, from government control to other public- and private-sector uses. DDMT is currently on the National Priorities List (NPL) and thus numerous sites contained within BRAC parcels are under the jurisdiction of Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) regulations. Environmental characterization has been performed on many of these properties to support the characterization requirements of CERCLA as well as the property transfer requirements of BRAC. Soil, surface water, sediment, and groundwater data were collected from 28 BRAC Parcels and 39 CERCLA sites during the fall and winter of 1996 and 1997.

Environmental data collected at CERCLA sites and BRAC parcels have been evaluated by the BRAC Cleanup Team (BCT) composed of representatives from the DDMT, the U.S. Environmental Protection Agency (EPA) Region IV, and the Tennessee Department of Environment and Conservation. The evaluation process consisted of comparing individual contaminant levels to screening criteria, generally the U.S. EPA Region III risk-based screening criteria. The BCT also evaluated parcels according to the requirements of the Community Environmental Response Facilitation Act (CERFA) and assigned each evaluated parcel a CERFA BRAC property category (CERFA categories 1 through 7).

The BCT required a more comprehensive and conservative risk-based approach to evaluate environmental data. EPA Region IV has published guidance on performing a Preliminary Risk Evaluation (PRE) to determine the suitability to lease parcels in accordance with their known or suspected environmental condition (EPA, November 1994). The PRE methodology was used to calculate a risk associated with each CERCLA site or BRAC parcel. The risk assigned to each parcel or site was based on the maximum risk observed at an individual sampling station. Each sample station risk consisted of the summed risk presented by each constituent that exceeded background levels or RBCs. Risks were calculated for carcinogenic compounds, and risk ratios were provided for noncarcinogenic compounds. Evaluation of risks at each parcel or site culminated into one of the following recommendations in accordance with surface soil data:

1. No Further Assessment (NFA). Further assessment or remedial action is not necessary to protect human health and the environment, in accordance with available data.
2. Further Risk Assessment (RA). Further risk evaluation or data collection may be needed to determine less conservative, more realistic risks.
3. Interim Remedial Action (IRA). Removals or other appropriate remedial actions may be necessary to protect human health and the environment.

Sixty-four sites and parcels were evaluated. Under the residential land use scenario, 34 sites were recommended for NFA, 29 for RA, and one for IRA. Under the industrial land use scenario, 36 sites were recommended for NFA and 28 sites were recommended for RA.

CERFA BRAC property categories assigned by the BCT were also evaluated relative to the findings of the PRE. Changes in the BCT conclusions are proposed within this document; however, additional evaluation by the BCT should be performed before accepting the recommendations as final.

Groundwater data were also evaluated using the PRE methodology. Groundwater has been characterized and evaluated at DDMT on a facility-wide rather than a site-specific basis. As a result, within the DDMT Main Installation, there is a low spatial correlation between sites/parcels and individual groundwater wells. Only six sites can be assigned to specific wells and therefore well-specific groundwater risks calculated by the PRE. Groundwater flowing offsite from the Main Installation flows is channeled through a northwest trending feature that exits the Main Installation near the northwest corner, in the vicinity of the western boundary of Dunn Field. Groundwater samples from two wells located in this area are representative of chemical characteristics in the groundwater within the Main Installation that is discharging offsite. Risks from these two wells are one to two orders of magnitude below risk-based levels of concern (10^{-4}).

1. Introduction

Defense Distribution Depot Memphis, Tennessee (DDMT) Main Installation is currently undergoing a dynamic process wherein properties defined as Base Realignment and Closure (BRAC) Parcels are being leased from government control to other private- and public-sector uses. Transfer of BRAC parcels is governed by the Community Environmental Response Facilitation Act (CERFA) as amended to the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) (42 United States Code, Section 9620(h), Public Law 102-426). DDMT is currently on the National Priorities List (NPL), and thus numerous sites contained within BRAC parcels are also under the jurisdiction of the CERCLA regulations. Early risk-based evaluation of BRAC Parcel and CERCLA Site environmental data is needed to establish a Finding of Suitability to Lease (FOSL), which permits transfer of parcels and buildings.

The purpose of this Preliminary Risk Evaluation (PRE) is to conduct a preliminary evaluation of environmental data and thereby provide input into the risk management decisions for the BRAC Cleanup Team (BCT). The BCT, which consists of representatives from (1) DDMT, (2) the U.S. Environmental Protection Agency (EPA) Region IV, and (3) the Tennessee Department of Environment and Conservation (TDEC), with support from (4) the U.S. Army Corps of Engineers, Huntsville (CEHNC), and (5) CH2M HILL—evaluated the data during three meetings held in August, September, and October 1997. Data were compared with screening criteria, generally consisting of EPA Region III Risk-Based Criteria and background criteria. Preliminary risk considerations indicated that elevated concentrations of dieldrin, lead, arsenic, and other constituents detected in many surface soil samples across the Main Installation of DDMT were well above risk-based criteria for both residential and industrial land uses.

EPA Region IV has published guidance on performing a PRE to determine the suitability to lease parcels based on their known or suspected environmental condition (EPA, November 1994). The PRE methodology discussed in Section 3.0 was followed in the preparation of this analysis. The PRE calculation and evaluation were performed for all BRAC Parcels, Screening Sites, and Remedial Investigation (RI) Sites sampled. The PRE methodology results in a conservative risk calculation. The PRE results are summarized by generally categorizing sites into one of the following three categories:

1. No Further Assessment (NFA). PRE-based site risks are below 1×10^{-4} . Conservative PRE risk calculations indicate that no additional actions are necessary to protect human health and the environment based on existing data.
2. Further Risk Assessment (RA). PRE-based site risks exceed 1×10^{-4} but are below 1×10^{-3} . A baseline risk assessment may be needed to determine less conservative, more realistic risks. Additional data collection may also be required.
3. Interim Remedial Action (IRA). PRE-based site risks exceed 1×10^{-3} . Removal or other appropriate interim action may be necessary to protect human health and the environment.

This PRE document is organized as follows:

Section 2 provides an overview of the scope of the BRAC Parcel and Screening and RI Site sampling programs. Section 3 discusses the PRE methodology. The results of the PRE are presented in summary format and site- and sample-specific tabulation in Section 4. Section 5 summarizes the Parcel and Site recommendations. Section 6 is a listing of the references, presented as Works Cited. Appendix A is composed of a set of tables presenting Station-Specific Risk Calculations; and Appendix B is a Dieldrin Technical Memorandum referenced herein.

2. Overview of Environmental Sampling

Environmental samples were collected over the DDMT Main Installation in three separate sampling efforts conducted during the winter and spring of 1996 and 1997. The first sampling effort characterized property parcels as defined under CERFA for lease and transfer to other industrial or municipal users. Two other sampling campaigns were required by CERCLA to evaluate the nature and extent at RI Sites and to determine releases that may have occurred at Screening Sites (SS) that required further remedial investigation.

2.1 BRAC Parcel Sampling

BRAC data were collected to support the Base Relocation and Closure Process and to determine a FOSL. The *Draft Sampling and Analyses Recommendations* (Woodward-Clyde, June 1996) were used as the basis for the BRAC sampling plan. Sampling was conducted in areas where data gaps exist and where sampling and analyses are required to verify the environmental condition of the property. Seventy surface, 62 subsurface, and 3 sediment samples were taken from 28 parcels during October 1996.

2.2 Screening Site Sampling

Screening sites are CERCLA-governed sites where contaminated materials were known or suspected to be handled, but releases to the environment have not been confirmed. The rationale for specific sampling locations is provided in the *Screening Sites Field Sampling Plan* (CH2M HILL, September 1995). Sampling was conducted for areas where data gaps exist and where sampling and analyses are required to determine whether past activities have resulted in releases from the site that would require further investigation. The sampling locations were not established to define the extent of contamination, but rather the presence of it. Four hundred fifty-one soil, 24 surface water, and 32 sediment samples were collected from 29 Screening Sites during December 1996 and January 1997.

2.3 RI Sampling

RI sites are CERCLA-governed sites where releases to the environment were known to have occurred. The *Operable Unit 2 Field Sampling Plan*, *Operable Unit 3 Field Sampling Plan*, and *Operable Unit 4 Field Sampling Plan* (CH2M HILL, September 1995) were used as the basis for the RI Sampling Program. The sampling was designed to assess the nature and extent of soil and surface water contamination attributable to past operations, to gather data to evaluate the feasibility of remedial actions for the sites, and to evaluate the risk to human health and the environment. As a result, RI sites typically have more environmental data than BRAC parcels or Screening Sites. Sixty-five surface soil, 68 subsurface soil, and 31 surface water samples were collected from 10 RI Sites during January 1997.

2.4 Data Collection

Data sets from SS, BRAC, and RI sampling events are compared with background concentrations and human health, ecological, and groundwater protection criteria. The detected chemicals were compared with the criteria to assess which comparison criteria were exceeded.

The sample identification numbers are assigned to represent the sampling medium and the location within an RI or SS. For example, SS36A represents a surface soil sample collected from Site 36. The following media-specific designations are used for the samples collected during earlier sampling events:

Designation	Description
SS	Surface soil sample
SB	Soil-boring sample
GW	Groundwater sample
SD	Sediment sample
SW	Surface water sample

BRAC samples followed a different sample numbering convention. Main Installation parcels were numbered from 1 to 35. Each BRAC parcel was further subdivided into subparcels representing individual buildings, facilities, or open areas within the larger parcel. Subparcel identities follow the parcel number and are separated by a decimal point. All BRAC data were collected as surface soils in the zero to 1 foot depth interval. BRAC sampling locations within a subparcel were identified by single letters of the alphabet. Thus, for example, A(5.1) is the first surface soil sample taken from the Subparcel 5.1 of Parcel 5. Likewise, C(3.5) is the third surface soil sample taken from Subparcel 3.5 in Parcel 3.

3. Preliminary Risk Evaluation Methodology

3.1 Introduction

Initial draft letter reports, which included a screening evaluation of the data collected, were prepared for all sites identified at the DDMT. These data included samples collected as part of the SS, BRAC, and RI Site characterization efforts. The purpose of this evaluation was to evaluate whether sites have contamination at levels that would require further investigations for protection of human health and the environment. During the BCT meetings, EPA and TDEC suggested using a risk evaluation methodology from the PRE guidance (EPA, 1994) to reach FOSL conclusions at these sites. This document presents the findings of the PRE as well as recommendations concerning whether the site can be used for industrial, residential, or other purposes while being protective of human receptors. Ecological receptors do not drive the site management decisions at this site due to the highly industrialized and urbanized nature of DDMT and the surrounding South Memphis Area. Ecological risk assessments were therefore not performed as part of this PRE. However, the surface water and sediment samples were compared against the EPA Region IV sediment and surface water screening values.

3.2 PRE Methodology and Screening Criteria Selection

The PRE methodology (EPA, 1994) identifies a screening protocol to evaluate sites, which is accomplished by preparation of tables that compare the site concentrations with designated screening concentrations, generally the Region III risk-based concentration values. The tables also present a risk ratio between the maximum concentration reported and the screening values. For carcinogens, these ratios are multiplied by 10^4 , thus providing a risk estimate. For systemic toxicants, the risk ratios provide an estimate of the non-cancer hazard. The risks calculated for the individual chemicals are summed to estimate the aggregate risk at each sample station.

This guidance was applied to the DDMT sites as follows:

- The criteria used for PRE were selected from the EPA Region III Risk-Based Concentration (RBC) tables (EPA, March 1997).
- A PRE was conducted for each sampling point at a site. The maximum sample-station-specific risk associated with a site was used in the risk evaluation. In addition, the average of the sample risks was provided for each site.
- Maps of sample-specific PRE values were prepared that provided geographical distribution of the contamination across each site as well as across the entire DDMT Main Installation. Sediments and surface water ratios were also calculated using EPA Region IV ecological screening values. These are presented only in Appendix A, and are not included in the site discussions.

- Both industrial worker exposure-based and residential exposure-based PRE risks were calculated.

A risk ratio was not calculated (assumed to be "0") where a chemical was detected below the background concentrations (see Section 3.3.1).

There is no potable groundwater use at the site. There are no known groundwater users of the uppermost aquifer in the downgradient areas of the site. The risk ratios based on comparisons of groundwater concentrations with conservative potable water criteria are used because the screening level effort is designed to provide a conservative screening evaluation.

Because most of the DDMT facility is well developed and has been industrial for a long period of time, there are no ecologically sensitive habitats present within the Main Installation of the facility. Thus only human health protection-based evaluations were conducted for the PRE evaluation discussion in Section 4.

3.2.1 Methodology for Groundwater PRE

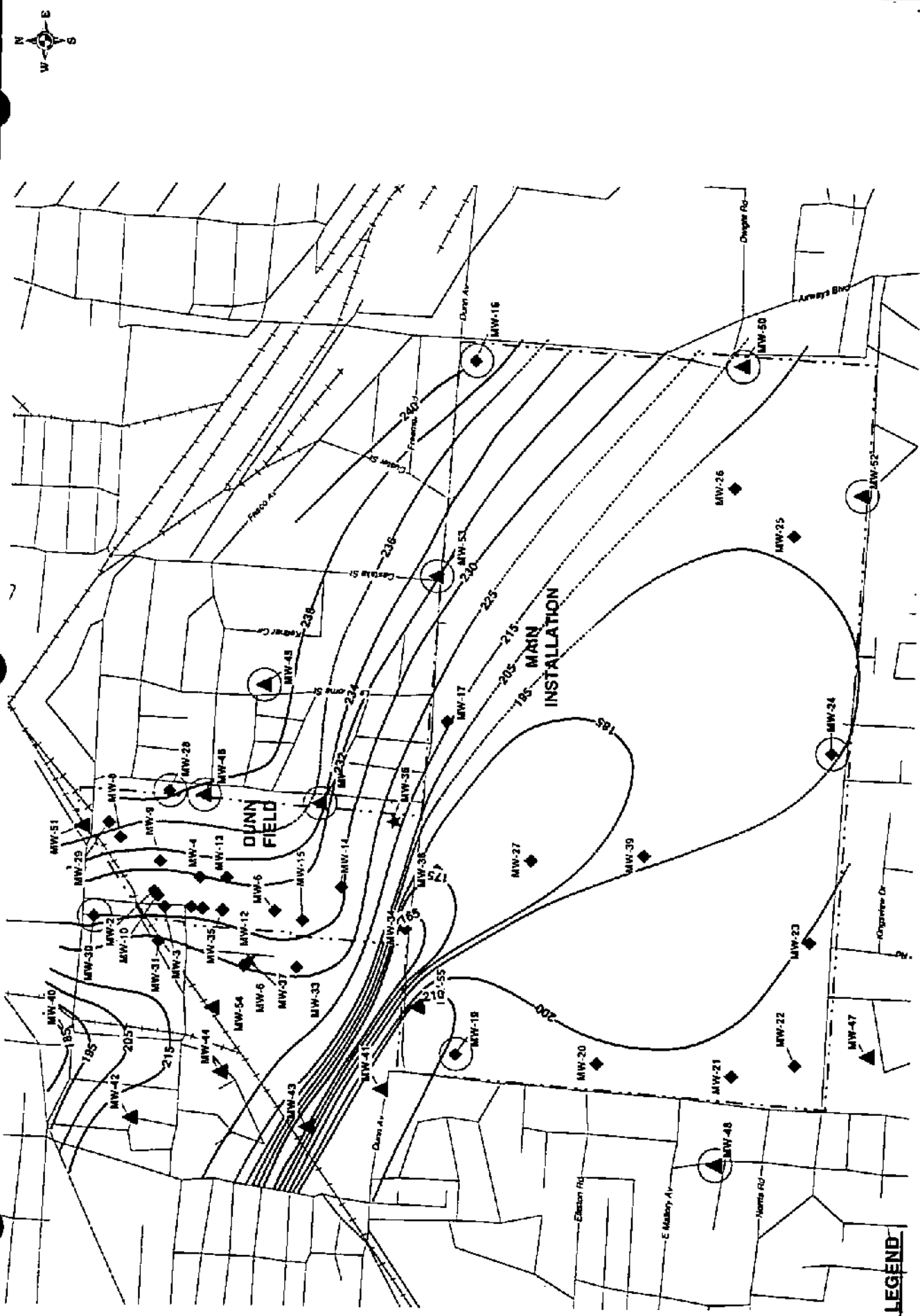
The groundwater system underlying the Main Installation of DDMT is described in the *Final Groundwater Characterization Data Report* (CH2M HILL, August, 1997). The uppermost aquifer at DDMT, termed the Fluvial Aquifer, is unconfined within Fluvial Deposits that underlie 20 to 30 feet (ft) of surficial loess deposits. The base of the Fluvial Aquifer consists of high plasticity clay within the Jackson Formation/Upper Claiborne Group. The depth to the base of the Fluvial Aquifer is between approximately 80 and 100 ft over most of the Main Installation.

However, there is a northwest-to-southeast trending depression in the clay surface in the vicinity of monitoring wells MW-38 and MW-34. Because groundwater flow within the Fluvial Aquifer is generally dominated by the topography of the confining unit clay, flow across the Main Installation is controlled by the gradients induced by this feature. The potentiometric surface shown in Figure 3-1 indicates that groundwater flows from the perimeter of the DDMT Main Installation toward wells MW-38 and MW-34. It is not clear whether this feature consists of an erosional surface in the clay, a gap in the clay, or is fault-related (CH2M HILL, August, 1997). Wells MW-38 and MW-34 effectively monitor groundwater that flows offsite from the DDMT Main Installation.

The groundwater monitoring network at DDMT is designed to monitor groundwater flow and contamination on a sitewide scale (*DO 4 Field Sampling Plan*, CH2M HILL, September 1995). Monitoring wells were placed predominantly around the perimeter of the DDMT Main Installation (see Figure 3-1) to characterize groundwater flow directions and confirm the previous assumption that groundwater flows radially inward toward the depressed feature. As a result, there is a low degree of correspondence between well placement and groundwater quality monitored at specific CERCLA sites.

Well and site locations were evaluated to identify those wells that were clearly hydrologically downgradient of specific BRAC, Screening Site, and RI Site sample locations. Figure 3-2 presents well and site locations together with groundwater flow directions within the Main Installation. In accordance with this configuration, the only sites associated with downgradient groundwater monitoring wells are listed below.

FIGURE 3-1
GROUNDWATER MONITORING WELL LOCATIONS
 Defense Distribution Depot, Memphis Tennessee



LEGEND

- ▲ ALLUVIAL AQUIFER WELL/BOREHOLE (INSTALLED 1996)
 - ◆ PREVIOUS INSTALLED WELL/BOREHOLE
 - ★ MEMPHIS SAND WELL
 - BACKGROUND WELL
- MAP SCALE: 1" = 1200'

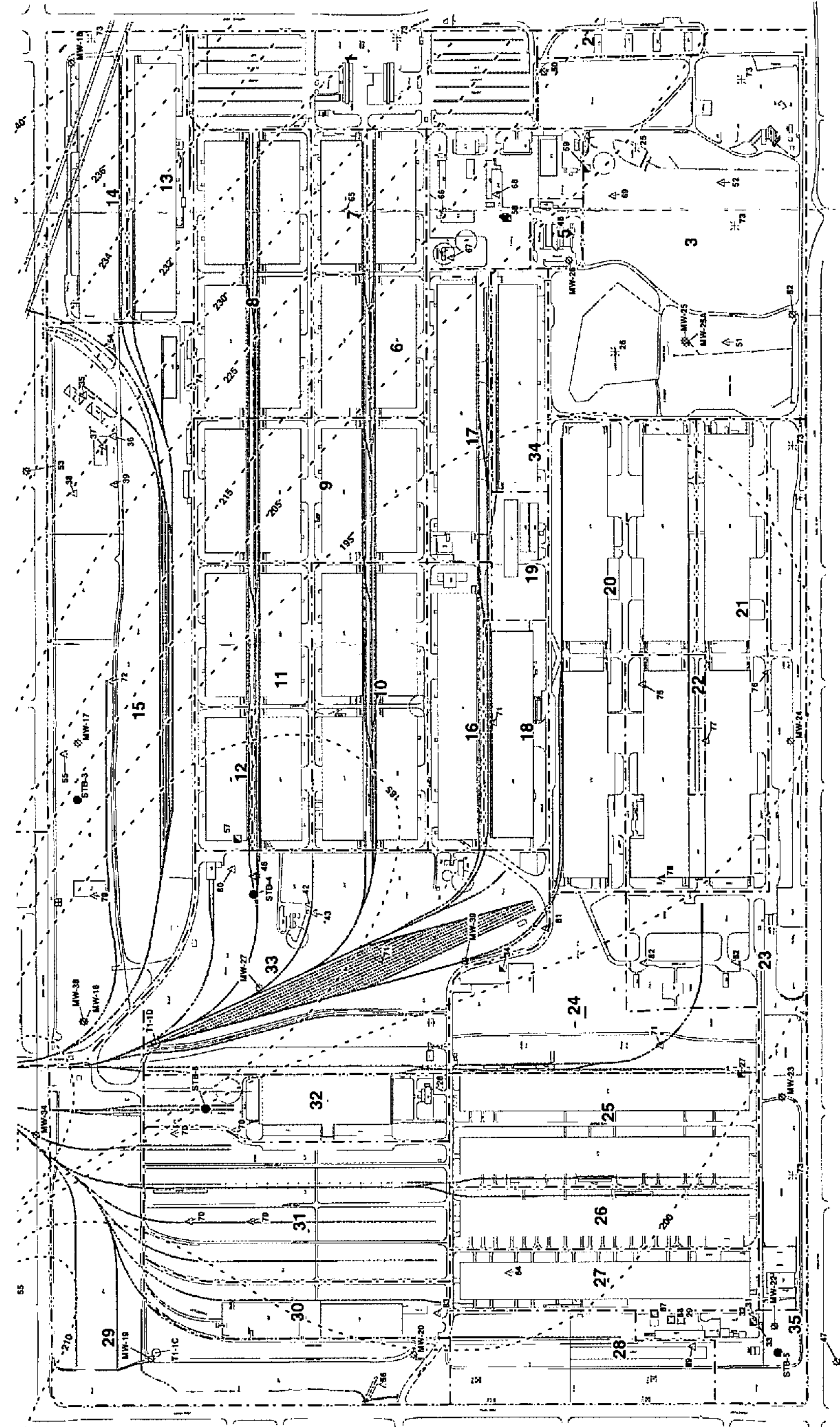


FIGURE 3-2

WELLS AND CERCLA/BRAC LOCATIONS
Defense Distribution Depot, Memphis, Tennessee

Groundwater Monitoring Wells Downgradient of DDMT CERCLA Sites	
CERCLA Site	Downgradient Well
Site 34—Building 770 Underground Oil Storage Tanks	MW-39
Site 51—Lake Danielson Outlet Ditch	MW-25
Site 69—2,4-D, M2A1, and M4 flame-thrower liquid fuels	MW-26
Site 32—Sandblasting Waste Accumulation Area	MW-38
Site 59—Building T-273 (Former Pesticide Storage Area)	MW-26
Site 48—Former Transformer Storage Area	MW-26

Figure 3-1 shows that wells MW-34 and MW-38 are positioned in the clay depression feature. Well construction and lithologic logs (Law Environmental, August 1990) indicate that both wells are completed at the base of the Fluvial Aquifer, just above the clay confining layer. Across the Main Installation, groundwater flow within the Fluvial Aquifer follows the topography of the confining unit clay and drains into the northwest trending depression in the base of the Fluvial Aquifer. At this time, the existence of a connection between the Fluvial Aquifer and the underlying confined sand aquifer has not been conclusively established. As indicated by the potentiometric surface presented in Figure 3-1, groundwater within the Main Installation flows toward and converges through this depression. The two wells are positioned in an area that effectively monitors most, if not all, of the groundwater leaving the Main Installation. The Fluvial Aquifer is currently not a source of drinking water in the Memphis Area. Groundwater concentrations monitored at wells MW-34 and MW-38 are higher than would be expected by downgradient users because the chemical concentrations have not been reduced by dilution and attenuation that would take place between the Main Installation and potential downgradient users. Therefore, risk calculations associated with these wells are higher relative to those expected by potential downgradient users of the Fluvial groundwater.

Well-specific groundwater risk was calculated using the most recent round of quarterly groundwater data taken during the last week of September 1997. To provide a comprehensive evaluation of PRE risks associated with groundwater, calculations were performed for all DDMT wells, including offsite and Dunn field wells that are not associated with potential contaminant sources on the Main Installation. All samples were unfiltered for metals analysis.

3.2.2 Background Criteria

The background criteria for inorganic constituents are the two-times mean values estimated in the Background Sampling Program Technical Memorandum (CH2M HILL, September 1996). All of the sample results were compared with background values for the naturally occurring inorganic constituents. The background values were obtained from the corresponding media, and the detected concentrations were statistically evaluated to estimate the mean concentration.

Some of the background values included in this draft report have since been modified to account for more conservative evaluation of the background. The modified values were calculated by eliminating outliers in the data sets or removing background samples taken from the DDMT perimeter. The DDMT perimeter samples may be influenced by pesticide

application, which would bias the natural background levels to higher values. The new background values have been proposed to the BCT, and the values subsequently approved by the BCT were used as the background values in this report. A PRE risk ratio value was not calculated when a chemical did not exceed the background.

According to EPA Region IV guidance, two times the mean, or upper 95 percent concentration (only for selected organic chemicals) was considered as the background concentration and used for comparison with sample-specific detected concentrations at each site and for soil and groundwater.

A chlorinated hydrocarbon pesticide, dieldrin, was detected across the site at DDMT as well as in some of the offsite background samples. A technical memorandum was prepared for the BCT review, analyzing the statistical significance of the detected dieldrin compared to the background (see Appendix B). All data from the site were divided into three sub-groups based on the type of land use and compared against the background. In accordance with this statistical evaluation, dieldrin was not a chemical of potential concern (COPC) in the railroad tracks and open storage areas of the site. It was a COPC at all other areas of the site including the Golf Course and surrounding areas, and warehouse areas. A more recent dieldrin criteria review meeting resulted in a dieldrin criteria of 0.36 mg/kg, which is based on protection of a worker under industrial exposure conditions. A concentration above 0.36 milligram per kilogram (mg/kg) across DDMT indicates an exceedance above an industrial worker protection level. As a conservative measure, 0.36 mg/kg is used as a cut-off point in this screening level effort. The site-specific discussion is included in Section 4.0.

3.2.3 Residential RBCs

Residential RBCs are the target screening criteria protective of human health under residential exposure assumptions. These values are calculated by EPA Region III to be protective against ingestion intake only. Each detected surface soil concentration was compared against these criteria. A carcinogenic and noncarcinogenic ratio was calculated in separate tables in accordance with the PRE guidance. An average risk per site and a sample representing the maximum risk at a site are presented in these tables. The groundwater RBCs are the values selected from EPA Region III RBC tables. Data from each individual well were compared with these criteria.

3.2.4 Industrial RBCs

Industrial RBCs are the target screening values protective of industrial worker exposures. These values are calculated by EPA Region III; however, U.S. EPA (1994) Region IV prescribes use of these risk-based criteria in the PRE calculation. Detected chemicals from surface soil were compared against these criteria. Detected chemicals from each sample were also compared with these worker protection criteria for risk management decisions at sites that will continue to be used as industrial facilities. Both carcinogenic risk ratios and noncarcinogenic PRE ratios were calculated separately following PRE guidance.

A well-specific risk ratio and noncarcinogenic PRE ratio were calculated for groundwater as per the guidance. An industrial scenario was evaluated using the residential water RBC values divided by 0.25 for volatile organic compounds (VOCs), 0.5 for all other chemicals.

3.2.5 Data Evaluation

The above listed criteria were used for comparison with the site concentrations. In summary, constituents that were detected at a site, but not exceeding the background or PRE risk ratio above 1 in a million (10^{-6}) or a ratio of 1.0 for systemic toxicants are considered not significant (unimportant).

Additionally, the interior areas of the DDMT property are evaluated by comparing site concentrations against industrial worker protection-based criteria; whereas areas near the fence line or near the housing area are evaluated for the potential residential use. Thus the site management decisions for these areas are based on a residential use.

Whenever an inorganic chemical is presenting a risk ratio above 1 in a million or a Hazard Index (an HI) above a value of 1.0, yet the chemical is naturally occurring and the observed concentrations are close to background levels, the ratio exceedance was not considered critical for the following reasons:

- These chemicals are naturally occurring and the concentration ranges could be similar to the site concentration ranges, and a point comparison cannot account for the upper levels in the background, which can be similar in concentrations to the site
- Several of these chemicals are not very toxic and are nutritionally essential to human health
- No apparent site-related activities involving these chemicals—and/or—
- Ratios were exceeded only for the residential scenario

An additional data interpretation not strictly based on the risk ratios is used for dieldrin at the site. Dieldrin was statistically evaluated for its distribution across the site compared to the background (see Appendix B). It is considered a COPC in the Golf Course area and its surrounding parcels, and in the other parcels, if concentrations exceed 0.36 mg/kg.

Inorganic chemical, lead does not have an existing toxicity factor. It is regulated by EPA based on blood lead uptake in the exposed individuals, which accounts for multiple sources for exposure (e.g., from food) in addition to the environmental media. Lead levels are considered "safe" by most regulatory agencies under residential exposure conditions at 200 to 400 mg/kg, and under industrial exposure conditions at 1,000 mg/kg. The drinking water action level for lead is 15 micrograms per liter ($\mu\text{g/L}$). Therefore because lead is not classified as either a carcinogenic or noncarcinogenic chemical, lead concentrations from DDMT are compared with these criteria and PRE ratios are included in both carcinogenic and noncarcinogenic tables.

4. Risk Evaluation Results

This section provides the results of the PRE, which was performed according to the protocols described in Section 3. This evaluation first presents an overview of the entire data set and the results found for the DDMT Installation, followed by discussions of each Parcel and subsections, as appropriate, which address the BRAC data, Screening Sites, and RI sites.

4.1 Overview

This overview—presented in two subsections—is a general discussion of the findings of the detailed PRE for each Parcel and site. First is an overview of the surface soil results as presented graphically. The second is a tabular presentation of the conclusions for the individual data sets. Groundwater PRE calculations are provided in Section 4.2.1.

4.1.1 Sitewide Risk Ratio Distributions

The sample-specific risks were calculated and the results shown in the following figures:

- Figure 4-1 Industrial risk ratios for noncarcinogens
- Figure 4-2 Residential risk ratios for noncarcinogens
- Figure 4-3 Industrial risk estimates for carcinogens
- Figure 4-4 Residential risk estimates for carcinogens

These figures show the risk ranges for the detected concentrations, which are distinguished from the values below background or where no constituents were detected. For those locations with one or more constituents above background, the cumulative risk value is plotted. Sample location identification numbers are provided in Figure 4-5. Subparcel configurations are provided in Figure 4-6.

In all cases, because the industrial criteria are less stringent, more areas in the industrial land use scenarios show values below the conservative screening levels than for the corresponding residential scenario. Although decisions may be made according to parcel and sites, this presentation of the results provides a means for mapping subparcels or other buildings and areas to representative sample locations.

For the noncarcinogenic risks under the industrial scenario, few locations were identified that exceeded a risk ratio of 1. These sample locations were located on the western portion of the facility, with one exceedance to the north in Parcel 15, Site 79A. Risk management considerations may include the density of the exceedances as well as the magnitude of the value above 1.0. While the PRE protocol guides decisions based on the maximum values for each site, risk assessments would estimate risks based on an estimate of the average concentrations over the exposure unit. Therefore, isolated exceedances may not indicate potential adverse impacts, but clustered locations may suggest a localized problem.

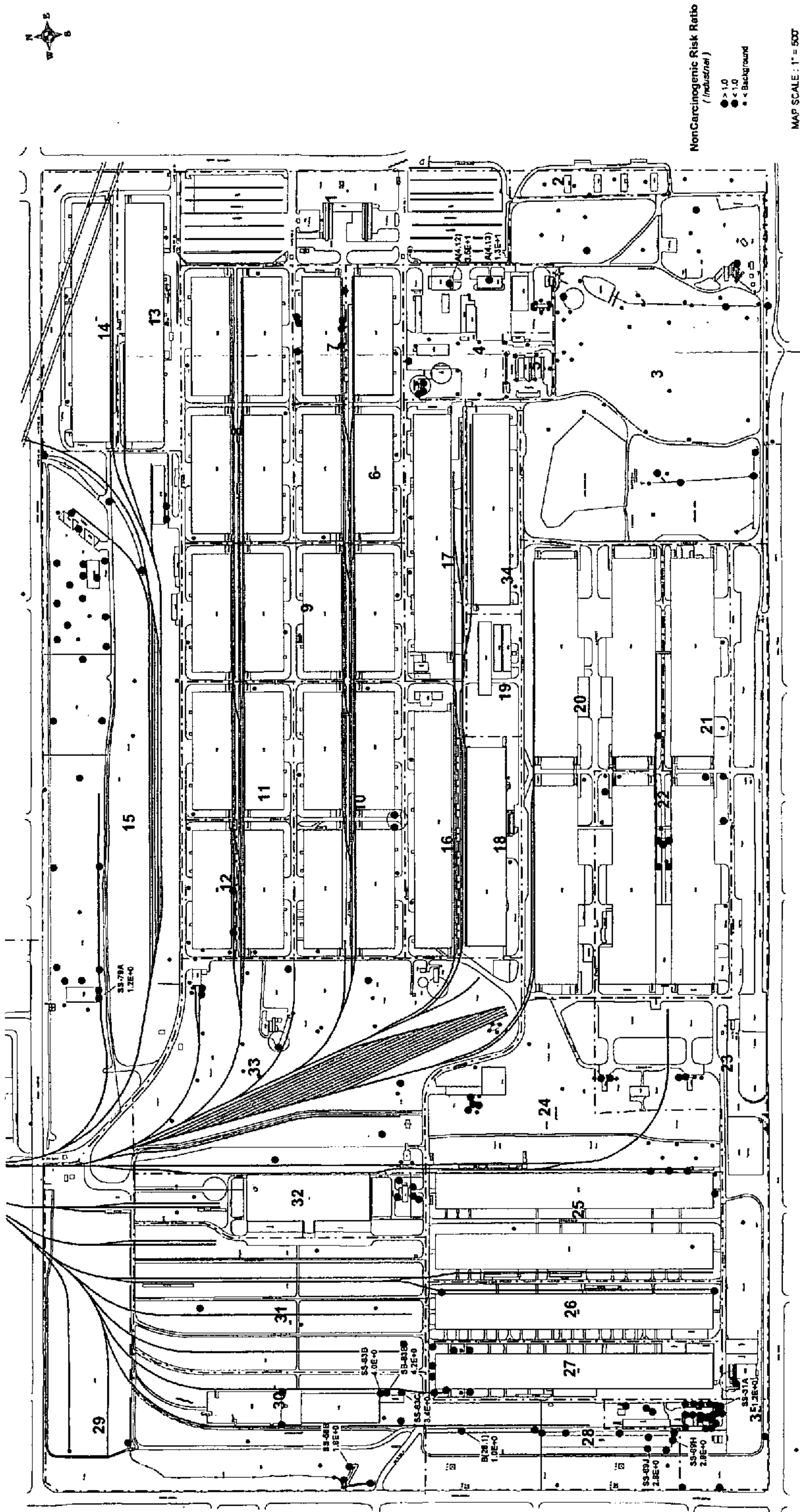


FIGURE 4-1
DISTRIBUTION OF NONCARCINOGENIC RISKS IN
AN INDUSTRIAL LAND USE SCENARIO
IN SURFACE SOIL

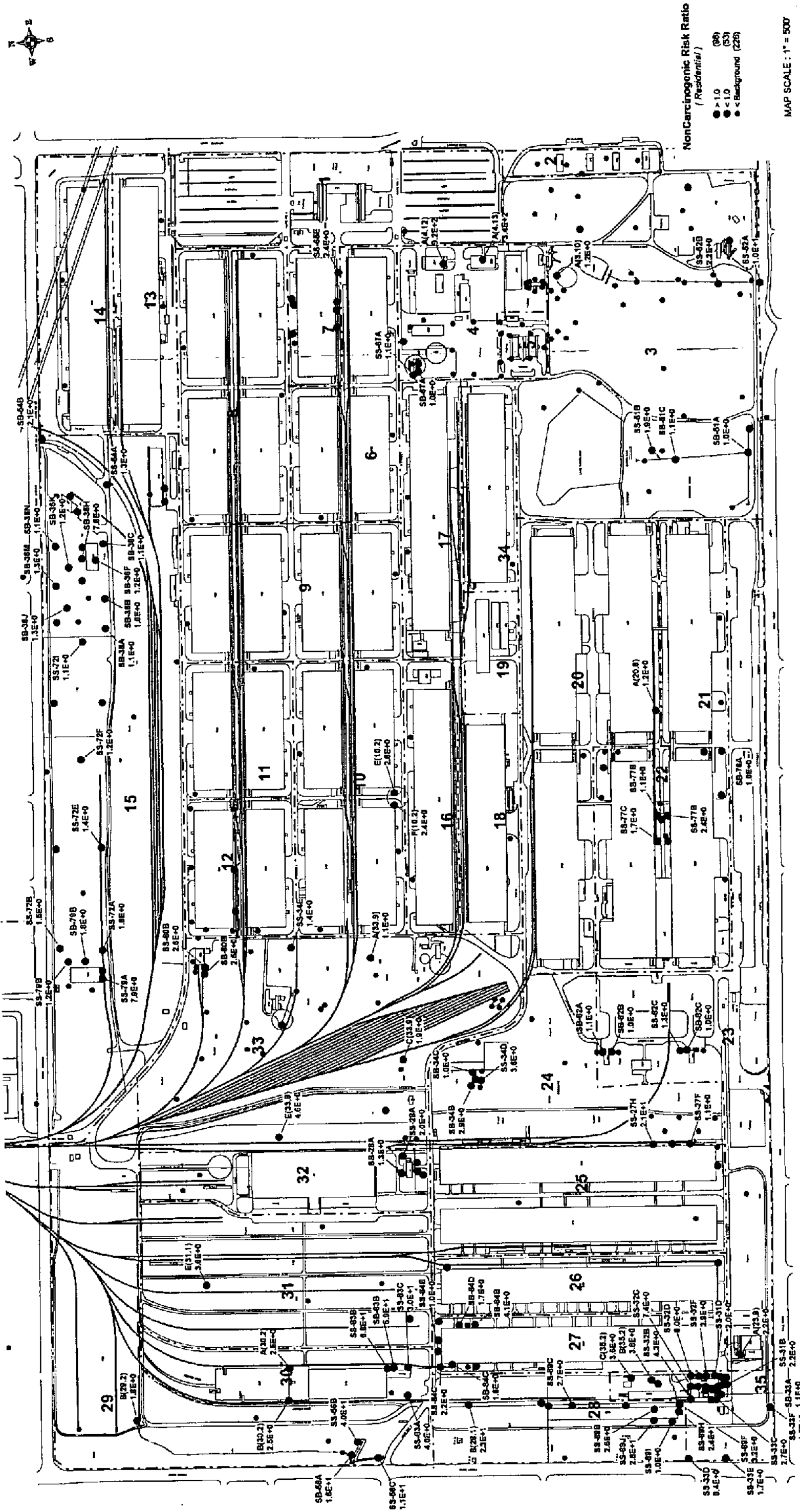
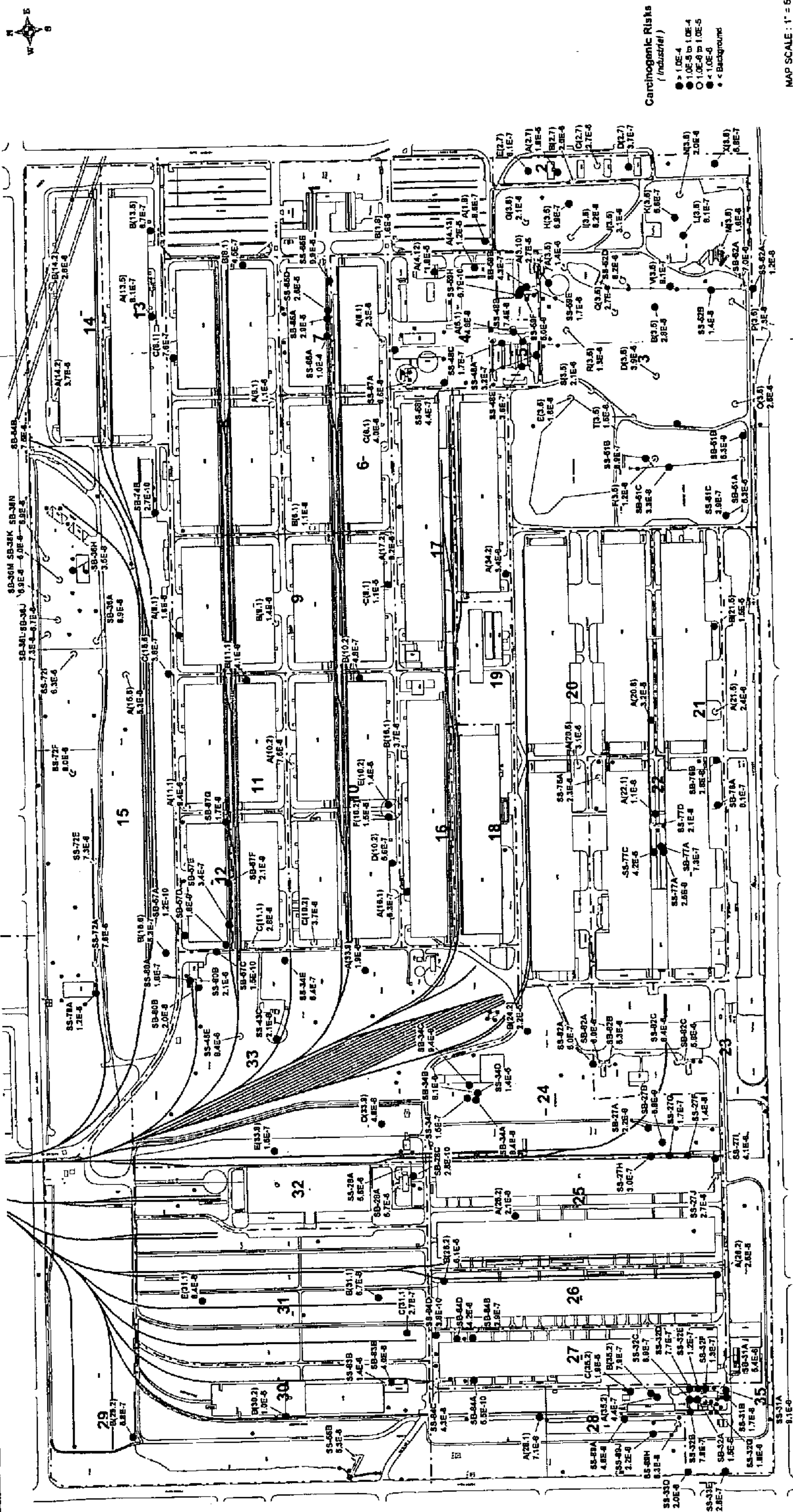


FIGURE 4-2
DISTRIBUTION OF NONCARCINOGENIC RISKS IN
A RESIDENTIAL LAND USE SCENARIO
IN SURFACE SOIL



CH2MHILL

MAP SCALE: 1" = 500'

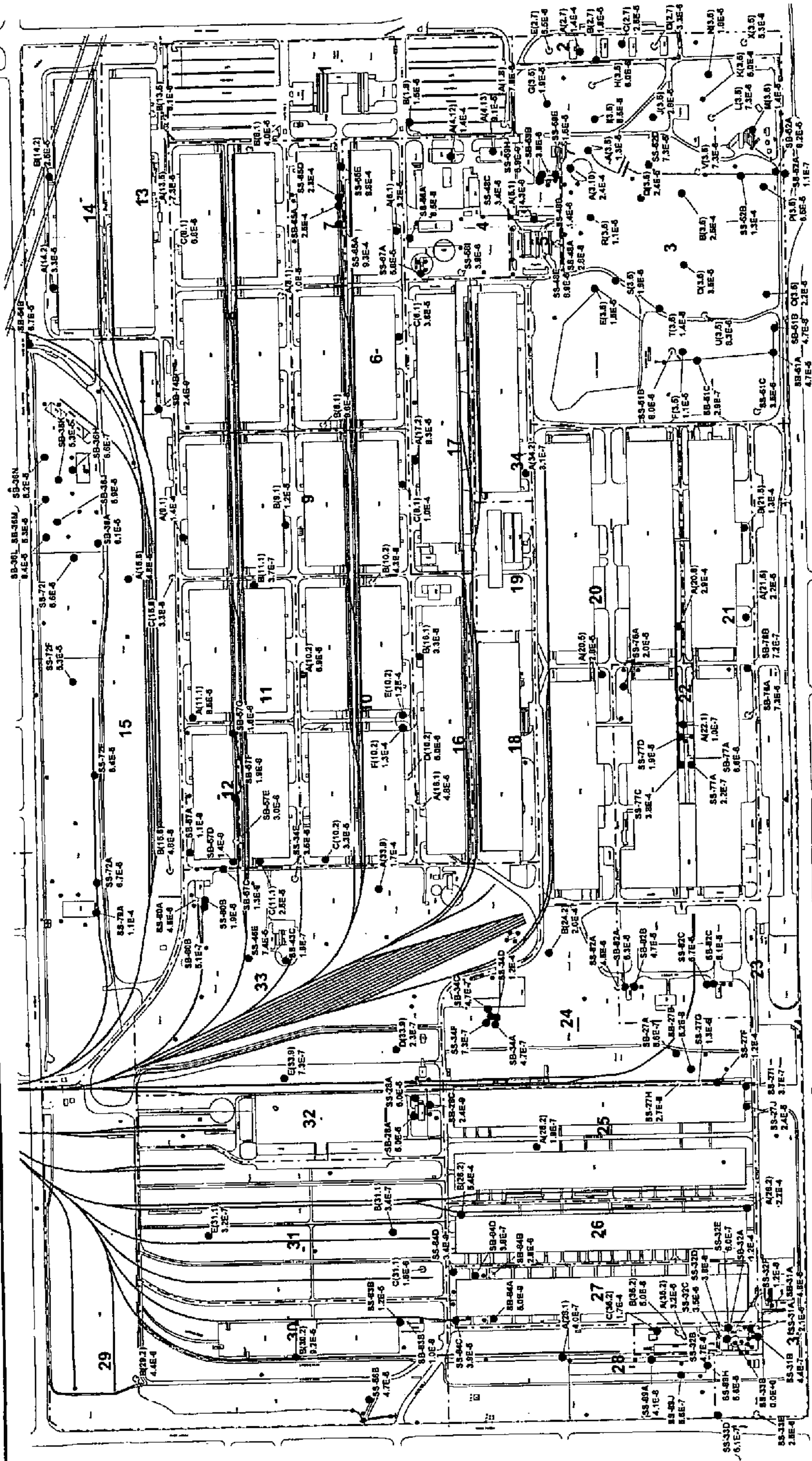


FIGURE 4-4
DISTRIBUTION OF CARCINOGENIC RISKS IN
A RESIDENTIAL LAND USE SCENARIO
IN SURFACE SOIL



SEE VIEW -B- SHEET 2

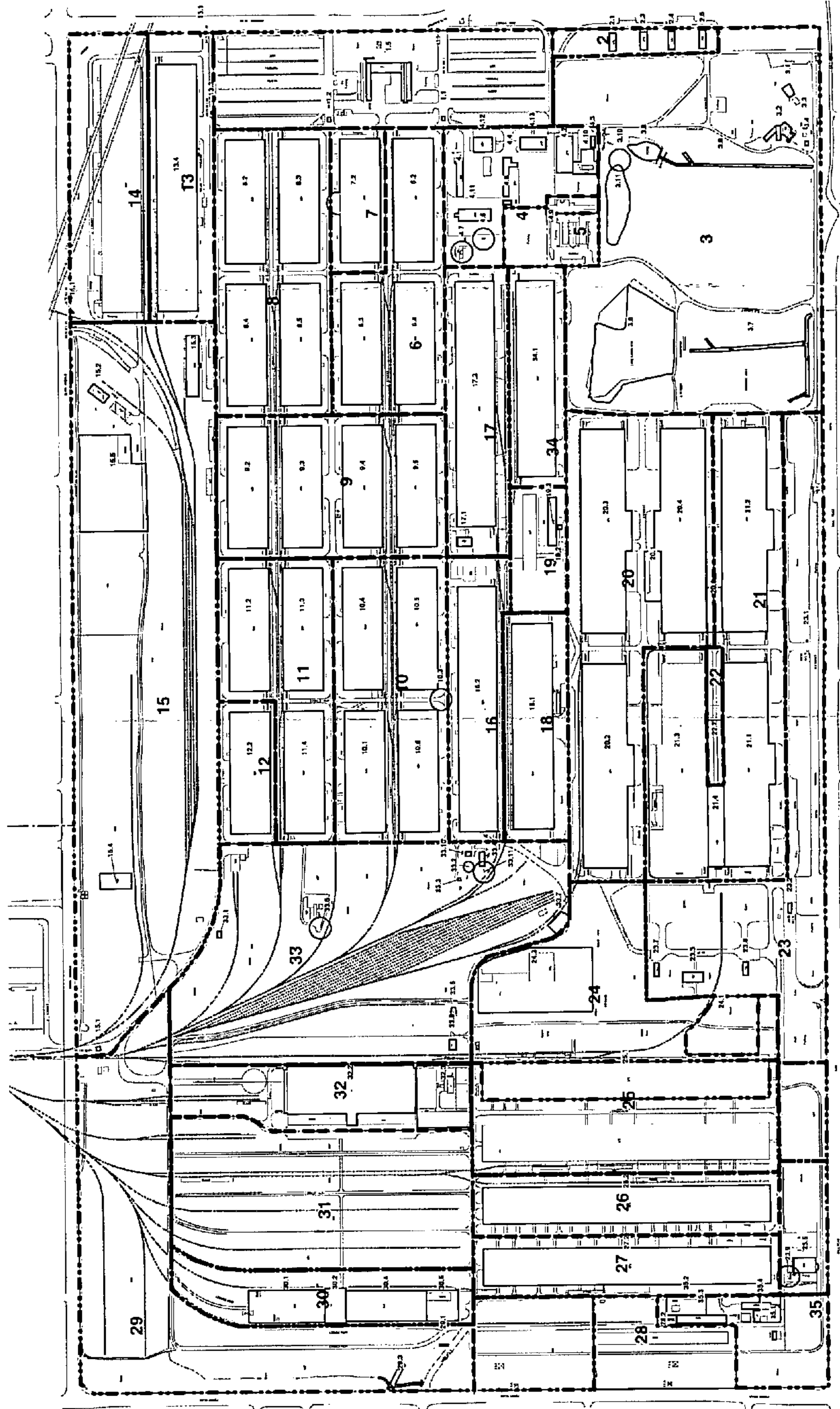
SEE VIEW -A- SHEET 2

LEGEND

- Soil Boring Location
- Surface Soil Sample Location
- ▣ Sediment Sample Location
- Surface Water Sample Location

MAP SCALE: 1" = 50'

FIGURE 4-5
SURFACE SOIL, SURFACE WATER, AND
SEDIMENT SAMPLE LOCATIONS
SHEET 1 OF 2
Defense Distribution Depot, Memphis Tennessee



LEGEND

- DDMT PROPERTY BOUNDARY
- PARCEL BOUNDARY
- SUB-PARCEL BOUNDARY

MAP SCALE: 1" = 500'

FIGURE 4-6

DDMT PARCEL & SUB-PARCEL CONFIGURATIONS

Defense Distribution Depot, Memphis, Tennessee

The samples with a noncarcinogenic risk above 1 in the western portion of the site are attributed to metals.

For the residential noncarcinogenic risk scenario, more locations were identified with values exceeding the screening value of 1.0. Most of these additional locations show the cumulative value at or near 1. The magnitude of the exceedance is also greater (by a factor of approximately 25) for locations identified as potentially problematic in the industrial scenario.

Industrial noncarcinogenic PRE risks are clustered in three main areas: (1) the southwest corner of the Main Installation (BRAC Parcel 35) associated with sandblasting operations (Sites 35 and 36) and the former paint spray booth (Site 31); (2) the west-central area of the Main Installation associated with dried paint disposal area (Site 83), Building 972 (Site 84), and the west gate storm water drainage canal (Site 56); and (3) the north-central area associated with fuels, liquid, wood, and paper storage (Site 79) and the Defense Reutilization Marketing Office (DRMO) Drum Storage Yard (Site 36) located in Parcel 15. However, other noncarcinogenic risk ratios exceeding unity (1.0) are observed across the Main Installation at sites including the drainages for Lake Danielson and Golf course pond, flammable storage in Buildings 783 and 793 (Site 82), unknown waste near Buildings 689 and 690 (Site 77), underground waste oil storage at Building 770 (Site 34), and Building 865 (Site 28).

For the carcinogenic risk analysis in the industrial scenario, the data suggest that most locations are below the 10^{-5} risk estimate. Only one sample location at Building 249 (Site 65) equals 10^{-4} risk. Clusters of sample stations exceeding a risk estimate of 10^{-5} are located at Building 249 (Site 65), flammable liquid storage at Buildings 783 and 793 (Site 82), and sandblasting operations in the southwest portion of the facility (Sites 31, 32, and 33). In addition to these clusters, isolated occurrences of industrial scenario carcinogenic risk between 10^{-5} and 10^{-4} are located throughout the Main Installation.

Residential scenario carcinogenic risks follow a distribution similar to that for industrial land use. Areas exceeding 10^{-4} risk include Building 249 (Site 65), Parcel 22, samples along the Golf course pond drainage (Site 52), and sandblasting operations in the southwest portion of the facility (Sites 31, 32, and 33). Other isolated sample locations have carcinogenic risk exceeding 10^{-4} and there are additional clusters of risk between 10^{-5} and 10^{-4} risk levels, notably the DRMO Drum Storage Yard (Site 36) and the flammable liquid storage at Buildings 783 and 793 (Site 82).

4.1.2 Risk Result Summary

Table 4-1 provides a summary of the PRE findings based on land use for each BRAC Parcel, Screening Site, or RI Site reported within this document. While the detailed data presentation and analysis is presented in the subsequent sections, this overview is presented here to assist in understanding the overall results of the PRE.

Final recommendations will be based on the BCT review of each of these sites, results, and summaries. The data sets and uncertainties for risk analysis are complex, and the algorithms used to guide the interpretation of the results are not considered the final

Table 4-1

Summary of Parcel and Site Risks and Recommendations
Preliminary Risk Evaluation
Defense Distribution Depot Memphis Tennessee

Parcel	Parcel Description	Site	PRE Results	Comment	Recommendation	
					Residential Land Use	Industrial Land Use
1	East-central portion of Main Installation, incl. parking areas, entrance to Gates 1 and 2, and Administrative Building 144	BRAC Parcel Data	Carcinogenic risk for the industrial scenario is within the range of 10^{-4} risk level and for the residential scenario is elevated above 10^{-4} . No noncarcinogens within the two samples.	Dieldrin is elevated in one of the samples above 0.36 mg/kg levels, which should be further sampled to define the extent.	Dieldrin Issue	Dieldrin Issue
2	Located in the eastern portion of the Installation, incl. housing quarters	BRAC Parcel Data	Carcinogenic risk for both residential and industrial scenario are elevated above 10^{-4} . No noncarcinogens within the two samples.	IRA recommended since residential land use is expected.	IRA	Dieldrin Issue
		BRAC Parcel Data	Carcinogenic risks are above 10^{-4} and noncarcinogenic ratios are near or less than 1.	Dieldrin and arsenic are elevated at the site.	RA	RA
			Risks are slightly above 10^{-6} due to arsenic. Low-level arsenic should be further evaluated for documentation of non-exceedance compared to background.			
			Ecological criteria for sediments and surface water were slightly exceeded for metals. No organic contaminants.	Further technical evaluation of the inorganics compared to background	NFA	NFA
		SS 51-Lake Danielson Outlet Drainage Ditch	Carcinogenic risks slightly above 10^{-4} . Noncarcinogenic ratios exceeded. Sediment and surface water screened for ecological criteria indicated lead in SW and DDD, DDE, and dieldrin in sediment above criteria.	DDD, DDE, Dieldrin, arsenic, chromium, and manganese are elevated at the site. Lead in the surface water.	RA	RA
		SS 52-Golf Course Pond Outlet Ditch	No risks calculated due to absence of contaminant levels above background.	No site-related issues.	NFA	NFA
		SS 59-Flame-thrower Liquid Fuel Application	No risks calculated due to absence of contaminant levels above background.	No site-related issues.	NFA	NFA
		RI Site 25-Golf Course Pond	No risks calculated due to absence of contaminant levels above background.	No site-related issues.	NFA	NFA
3	Located in the southeastern portion of the Installation, incl. Golf Course, Lake Danielson, Golf Course Pond, and drainages	RI Site 26-Lake Danielson	No risks calculated due to absence of contaminant levels above background. Only surface water samples collected from the outlets indicated presence of slightly elevated lead above the screening criteria.	No site-related issues.	NFA	NFA
4	Located in the east-central portion of the Installation, incl. several small buildings (251-257, 260-265, 270, 271, and 273 and parking areas)	BRAC Parcel Data	Carcinogenic risks slightly above 10^{-4} . Noncarcinogenic ratios exceeded.	Additional evaluation for lead and PAHs.	RA	RA

Table 4-1

Summary of Parcel and Site Risks and Recommendations
Preliminary Risk Evaluation
Defense Distribution Depot Memphis Tennessee

Parcel	Parcel Description	Site	PRE Results	Comment	Recommendation	
					Residential Land Use	Industrial Land Use
4	Located in the east-central portion of the installation, incl. several small buildings (251-257, 260-265, 270, 271, and 273 and parking areas)	SS 66-Petroleum, Oil, and Lubricants (POL) Building 253	Risks slightly above 10^{-6} primarily due to PAHs.	Elevated PAHs.	RA for PAHs	RA for PAHs
		SS 67-Installation Gas Station, Building 257	Carcinogenic risks of about 1×10^{-6} for Industrial scenario and 1×10^{-6} for residential scenario. Total noncarcinogenic ratios slightly exceed 1.	Low level arsenic that is slightly above 20 mg/kg, but within the same range as background	NFA	NFA
		SS 68-POL Building 263	No surface soil samples.		None	None
		RI 58-Pad 267	Due to dieldrin, industrial carcinogenic risk ratio well below 10^{-4} , residential 4×10^{-6} . Dieldrin is at 0.098 mg/kg, below 0.36 mg/kg from background critical value.	Dieldrin at levels below the critical value of 0.36 mg/kg.	RA	NFA
5	Located in the eastern portion between Parcels 3 and 4, incl. Buildings 272 and 274, and parking areas	RI 59-Building 273	Industrial carcinogenic risk ratio below 10^{-4} ; residential 1.9×10^{-6}	Dieldrin is slightly elevated.	RA	NFA
		BRAC Parcel Data	Risk ratios for both scenarios were below 10^{-4} , and no NC chemicals.	No site-related issues identified.	NFA	NFA
6	Located in the east-central portion of the installation, incl. Warehouse Buildings 250, 349, and 350, and railroad tracks	RI 48-Former PCB Transformer Storage Area	PCB Aroclor 1260 causes residential carcinogenic risk of 1.5×10^{-5} . Industrial risks below 10^{-4} .	PCBs above industrial criteria.	NFA/RA	NFA
7	Smaller parcel located north of Parcel 6, incl. Warehouse Building 249	BRAC Parcel Data	Slightly elevated risk for industrial and elevated risks from chlorinated pesticides for the residential scenario.	Dieldrin and PCBs require further evaluation.	Focused RA	Focused RA
8	Located in the north-central portion of the installation, incl. Warehouses 229, 230, 329, and 330, and railroad tracks	SS 65-XXCC-3, Building 249	Carcinogenic risk ratios are 4×10^{-4} for industrial and 2×10^{-3} for residential scenarios. Noncarcinogenic ratios exceed 1 for residential.	Elevated PAHs.	RA for PAHs	RA for PAHs
9	Located in the north-central portion of the installation, incl. Warehouses 429, 430, 449, and 450, and railroad tracks	BRAC Parcel Data	Resulting risk is slightly above for residential and is within the range for an industrial worker exposure of 1 in a million (10^{-6}).	Dieldrin levels are below critical value of 0.36 mg/kg.	NFA	NFA
		BRAC Parcel Data	Resulting risk is above for residential and industrial worker exposure scenarios of 1 in a million (10^{-6}).	Dieldrin ranging between 0.47 and 5.6 mg/kg, above 0.36 mg/kg.	Dieldrin Issue	Dieldrin Issue

303

34

Table 4-1
Summary of Parcel and Site Risks and Recommendations
Preliminary Risk Evaluation
Defense Distribution Depot Memphis Tennessee

Parcel	Parcel Description	Site	PRE Results	Comment	Recommendation	
					Residential Land Use	Industrial Land Use
10	Located in the central portion of the Installation, incl. Buildings 549, 550, 549, and 650, and railroad tracks	BRAC Parcel Data	Carcinogen risks are above 10^{-6} for residential and industrial worker scenarios.	Dieldrin ranging between 0.16 and 1.4 mg/kg, above 0.36 mg/kg.	Dieldrin Issue	Dieldrin Issue
11	Located in central portion of the Installation, north of Parcel 10; incl. Buildings 529, 530, and 630, and railroad tracks	BRAC Parcel Data	Carcinogen risks are above 10^{-6} for residential and industrial worker scenarios.	Dieldrin ranging between 0.98 and 3.4 mg/kg, above 0.5 mg/kg.	Dieldrin Issue	Dieldrin Issue
12	Located in the northern section of the warehouse area of the Installation, incl. Building 629	RI 57-Building 629	Slightly elevated risk of 1×10^{-4} industrial and 3×10^{-3} residential at one sample location.	DDT and DDE - low level exceedance	NFA/RA	NFA/RA
13	Located in the northeastern corner of the Installation, south of Parcel 14; incl. Building 210; western half of the parcel has railroad tracks	BRAC Parcel Data	Risk ratios slightly exceed 10^{-6} for residential land use, but are below 10^{-6} for industrial scenario.	Low (0.24 and 0.28 mg/kg) dieldrin levels (<0.36 mg/kg).	NFA	NFA
14	Located in the northeastern corner of the Installation, north of Parcel 13; incl. Building 209 and railroad tracks across the parcel	BRAC Parcel Data	Risk ratios slightly exceed 10^{-6} for residential land use, but are below 10^{-6} for industrial scenario.	Dieldrin ranging between 1.0 and 1.3 mg/kg, above 0.36 mg/kg	Dieldrin Issue	Dieldrin Issue
		BRAC Parcel Data	Risk ratios slightly exceed 10^{-6} for residential land use, but are below 10^{-6} for industrial scenario.	Low (0.19 and 1.9 mg/kg) dieldrin levels, statistical comparisons were not significant.	Dieldrin Issue	Dieldrin Issue
		SS 35-Defense Reutilization Marketing Office (DRMO) Building T-308; Hazardous Waste Storage	No carcinogenic or noncarcinogenic risks.	No site-related issues identified	NFA	NFA
		SS 36 through 39-DRMO Drum Storage	Arsenic above background results in residential and industrial carcinogenic risks of 6.4×10^{-6} and 7.0×10^{-6} , respectively. Noncarcinogenic ratio slightly above 1 for residential.	Low level arsenic that is slightly above 20 mg/kg, but within the same range as background. Further evaluation for arsenic is needed, but NFA is expected.	NFA - low level metals issue	NFA - low level metals issue
15	One of the large parcels located in the north-central portion of the Installation; consists mostly of storage yards with small buildings (Buildings 308, 309, 319, 416, 417, etc.) and railroad tracks	SS 54-DRMO East Storm Water Runoff Area	No carcinogenic or noncarcinogenic risks. Arsenic was slightly above background. Sediment samples had DDD, DDE, and dieldrin and metals (chromium and lead) above ecological criteria.	Low level arsenic that is slightly above 20 mg/kg, but within the same range as background. Further evaluation for arsenic is needed, but NFA is expected.	NFA - low level metals issue	NFA - low level metals issue

Table 4-1

Summary of Parcel and Site Risks and Recommendations
Preliminary Risk Evaluation
Defense Distribution Depot Memphis Tennessee

Parcel	Parcel Description	Site	PRE Results	Comment	Recommendation	
					Residential Land Use	Industrial Land Use
		SS 55-ORMO North Storm Water Runoff Area	No carcinogenic or noncarcinogenic risks. Ecological criteria were exceeded for DDD and DDE in sediments.	No site-related issues identified	NFA	NFA
		SS 72-Waste Oil (PDO Yard) Surface Application for Dust Control	Arsenic just above background results in industrial and residential risks of 7.6×10^{-6} and 2.3×10^{-6} , respectively. No organic constituents of concern.	Low level arsenic that is slightly above 20 mg/kg, but within the same range as background	NFA - low level metals issue	NFA - low level metals issue
		SS 74-Flammables and Toxics (West End Building 319)	Cardiogenic risks are below 10^{-6} and noncarcinogenic ratios are less than 1.	No site-related issues identified	NFA	NFA
15	One of the large parcels located in the north-central portion of the installation; consists mostly of storage yards with small buildings (Buildings 308, 309, 319, 416, 417, etc.) and railroad tracks	SS 78-Fuels, Miscellaneous Liquids, Wood, and Paper	Risks exceed 1×10^{-6} for industrial and residential scenarios due to PAHs and arsenic. Noncarcinogenic ratios exceed 1.	PAHs and arsenic	RA	RA
16	Located in the central portion of the installation south of Parcel 10; incl. Buildings 558 and 559, and railroad tracks	BRAC Parcel Data	Risk ratios slightly exceed 10^{-6} for residential land use, but are below 10^{-6} for industrial scenario.	Dieldrin ranging between 0.19 and 1.3 mg/kg, above 0.36 mg/kg in one sample	Dieldrin issue	Dieldrin issue
17	Located east of Parcel 16, in the east central portion of the installation, incl. Building 359 and railroad tracks	BRAC Parcel Data	Risk ratios slightly exceed 10^{-6} for residential land use, but are below 10^{-6} for industrial scenario.	Dieldrin was at 3.3 mg/kg, above 0.36 mg/kg in one sample.	Dieldrin issue	Dieldrin issue
18	Located in the central portion of the installation, south of Parcel 16; incl. Buildings 560 and railroad tracks	BRAC Parcel Data	No chemicals above background levels. Therefore, no risk or noncarcinogenic PRE ratios calculated.	No site-related issues identified	NFA	NFA
19	Located in the central portion of the installation, incl. Buildings 465, 467-469	BRAC Parcel Data	No BRAC data.	None	None	None
20	Larger parcel located in the south-central portion of the installation, incl. Warehouses 470, 489, and 670 and railroad tracks in the northern portion of the parcel	BRAC Parcel Data	Carcinogenic risks are above 10^{-6} for residential and industrial worker scenarios.	Dieldrin and PAHs elevated, and extent needs to be defined	RA	RA
21	Located in the south-central portion of the installation, south of Parcel 20; incl. Warehouses 490, 685, 689, and 690	BRAC Parcel Data	Risk ratios exceeding 10^{-6} for both residential and industrial land use.	Dieldrin above critical values of 0.36 mg/kg	Dieldrin issue	Dieldrin issue

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Table 4-1

Summary of Parcel and Site Risks and Recommendations
Preliminary Risk Evaluation
Defense Distribution Depot Memphis Tennessee

Parcel	Parcel Description	Site	PRE Results	Comment	Recommendation	
					Residential Land Use	Industrial Land Use
21	Located in the south-central portion of the Installation, south of Parcel 20; incl. Warehouses 490, 685, 689, and 690	SS 75-Unknown Wastes near Building 689	The PRE carcinogenic risk ratio is exceeded for both industrial and residential scenarios.	PAHs elevated	RA for PAHs	RA for PAHs
		SS 76-Unknown Wastes near Building 690	Carcinogenic risks are below 10^{-6} and noncarcinogenic ratios are less than 1.	No site-related issues identified	NFA	NFA
		SS 78-Alcohol, Acetone, Toluene, and Hydrofluoric Acid Area, Building 689	No surface soil data.		None	None
		BRAC Parcel Data	Carcinogenic risks are below 10^{-6} and noncarcinogenic ratios are less than 1.	No site-related issues identified	NFA	NFA
22	Small parcel located within Parcel 21, in the south-central portion of the Installation	SS Site 77-Unknown Waste near Buildings 689 and 690	The PRE carcinogenic risk ratios were excessive for both industrial and residential scenarios due to the presence of PAHs in three of the four surface soils collected from the site. Noncarcinogenic risks exceeded 1 for residential scenario.	Elevated PAHs	RA	RA
23	Located in the southernmost part of the Installation, incl. several grass-, gravel-, and asphalt-covered areas and small buildings, roads, and railroad tracks	BRAC Parcel Data	PRE carcinogenic risks are below 10^{-6} and noncarcinogenic ratios slightly exceed 1 for natural parameters.	Chromium, selenium, and vanadium, slightly above background. Low level metals should be statistically evaluated for significance compared to background levels	NFA - low level metals issue	NFA - low level metals issue
		SS 82-Flammables (Buildings 783 and 793)	PRE carcinogenic risks are above 10^{-6} due to arsenic just above background levels. Residential noncarcinogenic risks above unity due to natural parameters.	Arsenic slightly above 20 mg/kg - low level metals issue	NFA - low level metals issue	NFA - low level metals issue
		BRAC Parcel Data	PRE carcinogenic risk ratios exceed 10^{-6} for both industrial and residential scenarios due to arsenic in one surface soil sample.	Arsenic slightly above 20 mg/kg - low level metals issue	NFA - low level metals issue	NFA - low level metals issue
		RI 27-Former Recoupment Area (Building S-873)	PAHs result in residential and industrial PRE carcinogenic risks exceeding 10^{-6} . Residential noncarcinogenic risks exceeded 1 for PAHs and metals.	Elevated PAHs and metals	RA	RA
24	Located in the west-central portion of the Installation south of Parcel 33; incl. storage yard, gravel-covered areas, and railroad tracks	RI 34-Underground Waste Oil Storage Tanks at Building 770	PAHs result in residential and industrial PRE carcinogenic risks exceeding 10^{-6} . Residential noncarcinogenic risks slightly exceeded 1 for PAHs and metals.	PAHs and low level metals	RA	RA

Table 4-1

Summary of Parcel and Site Risks and Recommendations
Preliminary Risk Evaluation
Defense Distribution Depot Memphis Tennessee

Parcel	Parcel Description	Site	PRE Results	Comment	Recommendation	
					Residential Land Use	Industrial Land Use
25	Located in the southwestern portion of the Installation, incl. Warehouses 873, and 875, and railroad tracks	BRAC Parcel Data	Carcinogenic risks are below 10^{-5} and noncarcinogenic ratios less than 1.	No site-related issues identified	NFA	NFA
		RI 27-Former Recoupment Area (Building S-873)	PAHs result in residential and industrial PRE carcinogenic risks exceeding 10^{-4} . Residential noncarcinogenic risks slightly exceeded 1 for PAHs.	Elevated PAHs	RA for PAHs	RA for PAHs
26	Located in the west central portion of the Installation, incl. Building 870 and railroad tracks	BRAC Parcel Data	PAHs result in residential and industrial PRE carcinogenic risks exceeding 10^{-4} . Residential noncarcinogenic risks exceeded 1 for PAHs.	Elevated PAHs	RA for PAHs	RA for PAHs
27	Located west of Parcel 26, in the western portion of the Installation; incl. Warehouse 972	SS 84-Building 972	PAHs result in residential and industrial PRE carcinogenic risks exceeding 10^{-4} . Residential noncarcinogenic risks exceeded 1 for PAHs.	Elevated PAHs	RA for PAHs	RA for PAHs
28	Located in the southwestern portion of the Installation, incl. Warehouse 1089, railroad tracks, and electrical substation (TVA) structures	BRAC Parcel Data	Carcinogenic PRE risk ratio was well within 10^{-5} for both industrial and residential scenarios. Non-carcinogenic PRE ratios were exceeded for both an industrial and residential scenario primarily from iron and aluminum.	Low metal concentrations exceed background. Statistical comparisons with background needed.	NFA - pending metals analysis	NFA - pending metals analysis
		SS 89-Building 1089	Carcinogenic PRE risk ratio exceeds 10^{-5} due to arsenic slightly above background. Noncarcinogenic ratios exceed 1 for industrial and residential scenarios.	Lead, chromium and Zinc are elevated due to paint/sand blasting operations	Focused IR	Focused IR
29	Located in the northwestern corner of the Installation, incl. storage yard (X30), several roads, and offsite drainage north of Gate 8	BRAC Parcel Data	Carcinogenic PRE risk ratio below 10^{-5} for industrial scenario, but exceeds 10^{-5} in residential due to single dieldrin detection. Noncarcinogenic ratio below 1 for industrial but slightly exceeds 1 due to naturally occurring elements.	Dieldrin at 0.13 mg/kg < 0.36 mg/kg. Also low level metals are present.	NFA-low level metals issue	NFA-low level metals issue
		SS 55-West Gate Storm Water Drainage Canal	Carcinogenic PRE risk ratios are above 10^{-5} for both residential and industrial scenarios due to arsenic just above background levels. Noncarcinogenic ratios also exceed 1 for both land use scenarios due to naturally occurring metals. Sediments had DDD, DDE, and dieldrin above sediment-screening criteria.	Slightly elevated metals above background	NFA - pending metals and pesticides in sediments analysis	NFA - pending metals and pesticides in sediments analysis
30	Located in the northwestern portion of the Installation, east and south of Parcel 29; incl. Buildings 925, 949, and open storage yard X23, and railroad tracks	BRAC Parcel Data	Carcinogenic PRE risk ratio below 10^{-4} for industrial scenario, but exceeds 10^{-5} in residential due to low level PAHs.	Low level PAHs	RA for PAHs	RA for PAHs

Table 4-1

Summary of Parcel and Site Risks and Recommendations
Preliminary Risk Evaluation
Defense Distribution Depot Memphis Tennessee

Parcel	Parcel Description	Site	PRE Results	Comment	Recommendation	
					Residential Land Use	Industrial Land Use
30	Located in the northwest portion of the Installation, east and south of Parcel 29; incl. Buildings 825, 949, and open storage yard X23, and railroad tracks	SS Site 83-Dried Paint Disposal Area	The carcinogenic PRE risk ratio is above 10^{-4} for both industrial and residential scenarios, due to the presence of PAHs and other chlorinated pesticides. Noncarcinogenic ratios were above 1 due to metals.	Slightly elevated metals above background. Could be from site operations	RA - low level metals issue	RA - low level metals issue
31	Located in the northwest portion of the Installation, east of Parcel 30; incl. several open storage yards X17, X19, X20, and X21, and railroad tracks	BRAC Parcel Data	Lead (208 mg/kg) slightly above the screening criteria (200 mg/kg) in one sample.	Lead could be site-related, however at low concentrations	NFA	NFA
32	Located in the north-central portion of the Installation, west of Parcel 33; incl. storage yards X02, X13, and X15 and Buildings 835, 865, and concrete-paved areas	SS Site 28-Building 865	The PRE risk ratios for both industrial and residential scenarios are above 10^{-4} , due to arsenic slightly above background levels.	Slightly elevated metals above background. Could be from site operations	NFA - pending analysis of metals	NFA - pending analysis of metals
		BRAC Parcel Data	The PRE risk ratios exceed 10^{-4} for the residential scenario, but not the industrial. PRE noncarcinogenic risks exceed 1 for residential scenario due to antimony, chromium, and barium.	Slightly elevated metals above background. Could be from site operations	RA - low level metals issue	NFA
		SS 42-Former PCP Dip Vat Area	Carcinogenic PRE risk ratios do not exceed 10^{-4} for either land use scenario.	Diethylm slightly elevated	NFA	NFA
		SS 43-Former Underground PCP Tank Area	Carcinogenic risks are below 10^{-4} and noncarcinogenic ratios are less than 1.	No. Site related issues identified	NFA	NFA
		SS Site 46-Pallet Drying Area	Carcinogenic PRE risk ratios were above 10^{-4} level for industrial and residential scenarios due to arsenic, chlordane, and DDT/DDE.	Arsenic and chlorinated pesticides are presenting excessive risk ratios.	RA	RA
		SS 80-Fuel and Cleaner Dispensing, Building 72	Carcinogenic PRE risk ratios were slightly above 10^{-4} for both land use scenarios due to PCBs and PAHs. Residential noncarcinogenic ratios exceeded 1 due to PAHs and metals.	PCBs, PAHs, and low level metals.	RA	RA
33	Large parcel encompassing main railroad track confluence; incl. several storage yards and smaller buildings	SS 81-Fuel Oil Building 765	Carcinogenic risks are below 10^{-4} and noncarcinogenic ratios are less than 1.	No site-related issues identified	NFA	NFA
34	Located south of Parcel 17 and north of Parcel 3.	BRAC Parcel Data	Carcinogenic risks are below 10^{-4} and noncarcinogenic ratios are less than 1.	No site-related issues identified	NFA	NFA

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Table 4-1
Summary of Parcel and Site Risks and Recommendations
Preliminary Risk Evaluation
Defense Distribution Depot Memphis Tennessee

Parcel	Parcel Description	Site	PRE Results	Comment	Recommendation	
					Residential Land Use	Industrial Land Use
35	Located in the southwestern corner of the Installation, incl. several small buildings for paint operations	BRAC Parcel Data	Industrial and residential PRE carcinogenic risks are above 10^{-4} and residential noncarcinogenic ratios slightly exceed 1. Residential PRE carcinogenic risks are above 10^{-4} due to single arsenic detection just above background. Residential and noncarcinogenic risk ratios exceed 1 due to low-level metals.	Low level arsenic that is slightly above 20 mg/kg, and other carcinogenic metals above background but within the same range as background.	NFA/RA	NFA/RA
		SS 31-Former Spray Paint Booth		Low level metals, could be related to site operations	RA	NFA
		SS 33-Sandblasting Waste Drum Storage	Carcinogenic risks are below 10^{-4} and noncarcinogenic ratios are less than 1 for industrial and slightly above 1 for residential scenario.	Low level metals, could be related to site operations	NFA/RA	NFA/RA
		SS 32-Sandblasting Waste Accumulation Area	Industrial and residential PRE carcinogenic risks are above 10^{-4} due to arsenic and PAHs detections. Noncarcinogenic risk ratios exceed 1 due to metals.	Low level metals, could be related to site operations	NFA/RA	NFA

management decision. Other factors like background, average concentrations, and future land uses will be considered in the management decisions.

The general conclusions are based on the CERCLA process. This preliminary assessment places each site into a potential risk management category as follows:

- No Further Assessment (NFA). Conservative PRE risk calculations indicate that no additional risk evaluation or data collection is necessary to protect human health and the environment.
- Further Risk Assessment (FRA). Additional risk evaluation, along with any additional data collection, should be performed in the RI Report.
- Interim Remedial Action (IRA). Risks are elevated above 10^{-4} , indicating the interim remedial action (e.g., removal action) may be necessary to protect human health and the environment. Because the land use across most of the Main Installation is expected to be industrial, IRAs were not recommended under the residential land use scenario, except where the land use was designated as residential (Parcel 2, Residential Areas).

A summary of the results is presented in the tables in the following sections, while chemical and sample-specific PRE ratios are presented in Appendix A. Thus, whenever a carcinogenic risk ratio or a non-carcinogenic ratio exceeds an acceptable level, refer to the appendix for a detailed account of the concentration and chemical-specific information for proper interpretation of the results.

The site has been industrial and the future use being considered during this BRAC process is primarily for industrial/commercial purposes. Thus, application of the industrial worker-based PRE ratios is more appropriate for evaluation of most of the parcels/sites. When both the residential and industrial scenarios indicate no human health concerns, the results for the residential comparison were included in the conclusions to identify the least restrictive potential future use.

4.1.3 Groundwater Calculations

Table 4-2 presents the well-specific groundwater PRE risk ratio calculations for carcinogenic and noncarcinogenic parameters. The data are organized into the following location groups: Dunn Field, the Main Installation, Offsite, and Memphis Sand wells. Wells with the highest groundwater exposure risk are located in Dunn Field. Two wells, MW-12 and MW-06, have residential land use PRE carcinogenic risk ratios that exceed 1×10^{-4} . Ten other wells in Dunn Field have carcinogenic groundwater exposure risks that exceed 1×10^{-6} . Industrial exposure PRE carcinogenic risk ratios are generally of the same order of magnitude as the residential risk ratios, but typically a factor of two to four lower.

Carcinogenic PRE risk ratios associated with the Main Installation are much lower than those associated with Dunn Field. Only one well, MW-21, has a residential PRE carcinogenic risk ratio that exceeds 1×10^{-6} . Carcinogenic risks associated with groundwater flowing from the Main Installation, as monitored at wells MW-34 and MW-38, are low—with carcinogenic PRE risk ratios for residential land use ranging from 3.3×10^{-9} to 5.32×10^{-8} .

Offsite wells with elevated residential and industrial PRE carcinogenic risk ratios are associated with the groundwater contamination at Dunn Field. The PRE carcinogenic risk

Table 4-2
Summary of Groundwater PRE Risk Calculations
Preliminary Risk Evaluation
Defense Distribution Depot Memphis Tennessee

Well	Residential PRE Carcinogenic Risk	Residential PRE Noncarcinogenic Ratio	Industrial PRE Carcinogenic Risk	Industrial PRE Noncarcinogenic Ratio
Dunn Field				
MW12	6.71E-04	0.00E+00	2.88E-04	0.00E+00
MW06	2.34E-04	1.21E-02	1.14E-04	6.07E-03
MW11	6.14E-05	0.00E+00	2.76E-05	0.00E+00
MW10	1.06E-05	0.00E+00	3.15E-06	0.00E+00
MW15	1.00E-05	7.67E-05	3.21E-06	3.83E-05
MW35	9.67E-06	0.00E+00	3.67E-06	0.00E+00
MW07	3.27E-06	0.00E+00	8.25E-07	0.00E+00
MW05	2.50E-06	0.00E+00	6.28E-07	0.00E+00
MW04	1.72E-06	0.00E+00	4.32E-07	0.00E+00
MW03	1.66E-06	0.00E+00	4.16E-07	0.00E+00
MW29	1.48E-06	0.00E+00	3.70E-07	0.00E+00
MW08	1.19E-06	0.00E+00	2.98E-07	0.00E+00
MW51	7.30E-07	0.00E+00	1.83E-07	0.00E+00
MW09	2.14E-07	0.00E+00	6.20E-08	0.00E+00
MW13	1.60E-07	0.00E+00	4.01E-08	0.00E+00
MW14	7.05E-08	7.91E-03	2.27E-08	3.95E-03
MW02	9.25E-09	0.00E+00	4.63E-09	0.00E+00
MW28	2.00E-10	0.00E+00	1.00E-10	0.00E+00
MW49	1.58E-10	0.00E+00	7.92E-11	0.00E+00
MW46	5.67E-11	0.00E+00	2.83E-11	0.00E+00
Minimum	5.67E-11	0.00E+00	2.83E-11	0.00E+00
Average	5.05E-05	1.01E-03	2.21E-05	5.03E-04
Maximum	6.71E-04	1.21E-02	2.88E-04	6.07E-03
Main Installation				
MW21	1.84E-06	7.79E-07	4.60E-07	3.89E-07
MW26	6.05E-07	0.00E+00	2.23E-07	0.00E+00
MW47	5.80E-07	3.62E-03	1.45E-07	1.81E-03
MW39	5.80E-07	1.02E-06	1.45E-07	5.12E-07
MW25	2.61E-07	6.67E-05	7.53E-08	3.33E-05
MW22	2.41E-07	0.00E+00	6.06E-08	0.00E+00
MW20	9.42E-08	5.21E-06	4.71E-08	2.61E-06
MW38	5.32E-08	6.98E-07	1.41E-08	3.49E-07
MW52	4.09E-08	0.00E+00	1.05E-08	0.00E+00
MW19	1.14E-08	1.00E-06	5.72E-09	5.01E-07
MW24	7.56E-09	5.62E-07	3.78E-09	2.81E-07
MW34	3.33E-09	0.00E+00	1.67E-09	0.00E+00
MW23	1.20E-09	7.88E-07	6.00E-10	3.94E-07
MW16	5.83E-10	0.00E+00	2.92E-10	0.00E+00
MW50	5.50E-10	7.14E-07	2.75E-10	3.57E-07
MW55	1.48E-10	0.00E+00	7.42E-11	0.00E+00
Minimum	1.48E-10	0.00E+00	7.42E-11	0.00E+00
Average	2.70E-07	2.31E-04	7.46E-08	1.16E-04
Maximum	1.84E-06	3.62E-03	4.60E-07	1.81E-03

Table 4-2
Summary of Groundwater PRE Risk Calculations
Preliminary Risk Evaluation
Defense Distribution Depot Memphis Tennessee

Well	Residential PRE Carcinogenic Risk	Residential PRE Noncarcinogenic Ratio	Industrial PRE Carcinogenic Risk	Industrial PRE Noncarcinogenic Ratio
Memphis Sand				
MW36	4.50E-10	1.68E-06	2.25E-10	8.42E-07
MW37	0.00E+00	2.17E-02	0.00E+00	1.08E-02
Minimum	0.00E+00	1.68E-06	0.00E+00	8.42E-07
Average	2.25E-10	1.08E-02	1.13E-10	5.41E-03
Maximum	4.50E-10	2.17E-02	2.25E-10	1.08E-02
Offsite				
MW32	1.15E-04	0.00E+00	5.65E-05	0.00E+00
MW31	2.36E-05	0.00E+00	8.52E-06	0.00E+00
MW54	7.57E-06	0.00E+00	1.90E-06	0.00E+00
MW44	6.05E-07	6.26E-07	2.40E-07	3.13E-07
MW42	7.33E-10	1.31E-06	3.67E-10	6.55E-07
MW41	3.00E-10	0.00E+00	1.50E-10	0.00E+00
MW40	1.50E-10	1.08E-02	7.50E-11	5.39E-03
MW45	3.67E-11	0.00E+00	1.83E-11	0.00E+00
MW33	2.33E-11	0.00E+00	1.17E-11	0.00E+00
MW48	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Minimum	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Average	1.47E-05	1.08E-03	6.71E-06	5.39E-04
Maximum	1.15E-04	1.08E-02	5.65E-05	5.39E-03

Notes:

Bold and Italic indicates wells exceeded 10^{-4} residential carcinogenic risk.

Italic indicates wells exceeding 10^{-6} but below 10^{-4} residential carcinogenic risk.

Shaded cells represent risk from Main Installation groundwater flowing to potential offsite receptors.

ratio for residential land use at MW-32, located just west of Dunn Field, exceeds 1×10^{-4} . In two other wells west of Dunn Field, MW-31 and MW-54, PRE carcinogenic risk ratios for residential and industrial land use exceed 1×10^{-6} . All other offsite wells are below 1×10^{-6} .

PRE carcinogenic risk ratios at two wells that monitor the Memphis Sand Aquifer, which is hydrologically separated from the overlying Fluvial Aquifer, are very low (4.5×10^{-10} or less). The Memphis Sand Aquifer is a regional aquifer supplying the City of Memphis. There are no residential or industrial users of the Fluvial Aquifer groundwater in the DDMT area.

PRE noncarcinogenic risk ratios for groundwater residential and industrial land use are all below 1, indicating that there is no potential exposure risk associated with noncarcinogenic parameters. Carcinogenic and noncarcinogenic risks associated with sites with downgradient wells are summarized in Table 4-3.

Table 4-3 DDMT CERCLA Site Groundwater Risks Preliminary Risk Evaluation Defense Distribution Depot Memphis, Tennessee					
Site	Well	Residential PRE Carcinogenic Risk Ratio	Residential PRE Non- carcinogenic Ratio	Industrial PRE Carcinogenic Risk Ratio	Industrial PRE Non- carcinogenic Ratio
Site 34—Building 770 Underground Oil Storage Tanks	MW39	5.8×10^{-7}	1.02×10^{-6}	1.45×10^{-7}	5.12×10^{-7}
Site 51—Lake Danielson Outlet Ditch	MW25	2.61×10^{-7}	6.67×10^{-8}	7.53×10^{-8}	3.33×10^{-8}
Site 69—2,4-D, M2A1, and M4 flame-thrower liquid fuels	MW26	6.05×10^{-7}	0	2.23×10^{-7}	0
Site 32—Sandblasting Waste Accumulation Area	MW38	5.32×10^{-8}	6.98×10^{-7}	1.41×10^{-8}	3.49×10^{-7}
Site 59—Building T-273 (Former Pesticide Storage Area)	MW26	6.05×10^{-7}	0	2.23×10^{-7}	0
Site 48—Former Transformer Storage Area	MW26	6.05×10^{-7}	0	2.23×10^{-7}	0
Potential Offsite Receptors	MW34	3.33×10^{-8}	0	1.67×10^{-8}	0
Potential Offsite Receptors	MW38	5.32×10^{-8}	6.98×10^{-7}	1.41×10^{-8}	3.49×10^{-7}

4.1.4 Sediment and Surface Water Data Evaluation

Sample-specific sediment analytical data were compared against EPA Region IV's Sediment (chronic) and (freshwater) Surface Water Screening Criteria (EPA, November 1995). Additionally, Tennessee state surface water quality Organisms Only Criteria (CBC Expertise, 1998) Electronic Law Library (Section 3.0: Criteria for Water Uses, from online Internet source, 1998) were also included in these comparisons.

Any criteria for the chemicals detected above background levels were included as a potential exceedance. These comparisons were based on individual samples, and the chemicals, for which a ratio was above 1.0, were included as potential exceedances.

4.2 Parcel 1

The chart below presents location and status information for this parcel.

Parcel	Building Number	Label	CERFA Map Location	RI/FS OU	Site No.	CERCLA Status
1	144	1.8	32,8	3	N/A	N/A

Parcel 1 is a 784,602 square foot (ft²) parcel in the east central part of the Main Installation, in Operable Unit (OU)-3. Parcel 1 consists of the administration building (Building 144) and the parking lots located north and south of Building 144. According to the *Environmental Baseline Survey Report* (Woodward-Clyde, November 1996), the southern parking lot in this parcel was the location of former housing units, which have since been demolished.

Soil sampling was conducted at Label 1.8. "Label" is a term used in the *Environmental Baseline Survey Report* (Woodward-Clyde, November 1996) to describe a group of facilities or an area of concern, such as a spill location, that was sampled during the BRAC field sampling effort. A label is a sub-area of a parcel, and a label may contain one or several sample locations. Label 1.8 is associated with the southern parking lot within this parcel. Sampling was performed to provide information on the presence of pesticides and polychlorinated biphenyls (PCBs) in surface soil. The surface soil surrounding the buildings at the installation may contain pesticides resulting from routine pesticide application at the facility. For this phase of the program, only surface and subsurface soil samples are collected and analyzed.

In addition, this parcel is associated with two previously reported petroleum, oil, and lubricants (POL) spills. A 4-gallon motor oil spill was reported on March 22, 1995, at the Gate 1 parking lot. In addition, a minor diesel spill was reported on October 28, 1993, in the street at Gate 1 (Defense Logistics Agency, DDMT 1995 Spill Response Checklist, 1993 Spill Response Summary as cited in Woodward-Clyde, November 1996). The precise locations of the spills are unknown. Application of absorbent was sufficient to contain the spills, and no further remedial action was deemed necessary. Therefore, the current sampling activities are not in response to these remediated spills.

4.2.1 Parcel 1 Risk

Because there are no RI or SS sites within this parcel, risks are based on the BRAC data only. The risk ratio and the systemic toxicity ratios are presented in Table 4-4. The resulting risk for residential exposure is above—and for an industrial worker exposure is within—the range of 1 in a million (10^{-6}). The estimated risk is primarily from dieldrin detected at 0.31mg/kg and 0.59 mg/kg, which exceed a dieldrin critical value of 0.36 mg/kg at one of the samples (see appendix Table A-1). Dieldrin in one of the two samples is elevated above the critical value.

There are no noncarcinogenic chemicals detected in the BRAC samples from Parcel 1.

In summary, dieldrin at Parcel 1 presents slightly elevated risk for the residential scenario. There are no noncarcinogenic PRE ratios above acceptable levels for the applicable land use scenario (industrial) at Parcel 1. This site should be further evaluated for dieldrin by further defining the extent of dieldrin distribution.

4.3 Parcel 2

The chart below presents location and status information for this parcel.

Parcel	Building Numbers	Label	CERFA Map Location	RI/FS OU	Site No.	CERCLA Status
2	176, 179, 181, 184	2.7	33,6	3	N/A	N/A

Parcel 2 is a 103,733 ft² parcel in the southeast corner of the Main Installation in OU-3. Parcel 2 consists of the four housing units known as Buildings 176, 179, 181, and 184.

Soil sampling was conducted at Label 2.7, which is associated with Buildings 176, 179, 181, and 184. The surface soil surrounding buildings at the installation may contain pesticides resulting from routine pesticide application at the facility. Sampling was performed to provide information on the presence of pesticides and PCBs in surface soil. For this phase of the program, only surface and subsurface soil samples are collected and analyzed.

4.3.1 Parcel 2 Risk

Parcel 2 includes residential housing and the samples are collected from the grass-covered areas between housing units. Because there are no RI or SS sites within this parcel, risks are based on the BRAC data only. The risk ratio and the systemic toxicity ratios are presented in Table 4-5. The resulting risk for residential exposure at three of the four sample locations is above 1 in a million (10^{-6}); for an industrial worker exposure at one of the four sample locations, the risk is also above 1 in a million (10^{-6}). The estimated risk is primarily from chlorinated hydrocarbon pesticides, dieldrin, dichlorodiphenyldichloroethylene (DDE)/dichlorodiphenyltrichloroethane (DDT), and gamma-chlordane. The dieldrin concentration in three samples ranged between 0.72 and 5.5 mg/kg, which is elevated above the critical value (see appendix Table A-1).

There are no noncarcinogenic chemicals in the BRAC samples from Parcel 2.

Table 4-4
Parcel 1 Noncarcinogenic and Carcinogenic Station-Specific Soil Risk
Preliminary Risk Evaluation
Defense Distribution Depot Memphis, TN

Parcel	Station	Residential Land Use Risk	Industrial Land Use Risk
Noncarcinogenic			
1	A(1.8) Total	0.00E+00	0.00E+00
	B(1.8) Total	0.00E+00	0.00E+00
Max		0.00E+00	0.00E+00
Count	2		
Average		0.00E+00	0.00E+00
Carcinogenic			
1	A(1.8) Total	7.75E-06	8.61E-07
	B(1.8) Total	1.48E-05	1.64E-06
Max		1.48E-05	1.64E-06
Count	2		
Average		1.13E-05	1.25E-06
Note: A calculated risk value of zero indicates all chemicals in the sample were below background concentrations.			

Table 4-5
Parcel 2 Noncarcinogenic and Carcinogenic Station-Specific Soil Risk
Preliminary Risk Evaluation
Defense Distribution Depot Memphis, TN

Parcel	Station	Residential Land Use Risk	Industrial Land Use Risk
Noncarcinogenic			
2	A(2.7) Total	0.00E+00	0.00E+00
	B(2.7) Total	0.00E+00	0.00E+00
	C(2.7) Total	0.00E+00	0.00E+00
	D(2.7) Total	0.00E+00	0.00E+00
Max		0.00E+00	0.00E+00
Count	4		
Average		0.00E+00	0.00E+00
Carcinogenic			
2	A(2.7) Total	1.41E-04	1.56E-05
	B(2.7) Total	1.80E-05	2.00E-06
	C(2.7) Total	2.45E-05	2.72E-06
	D(2.7) Total	3.30E-06	3.68E-07
Max		1.41E-04	1.56E-05
Count	4		
Average		4.66E-05	5.18E-06
Note: A calculated risk value of zero indicates all chemicals in the sample were below background concentrations.			

In summary, dieldrin at Parcel 2 presents slightly elevated risk for the industrial scenario; and all of the chlorinated pesticides present slightly elevated risk for the residential scenario. There are no noncarcinogenic PRE ratios above acceptable levels for the applicable land use scenario (industrial) at Parcel 2. This site should be further evaluated for dieldrin and other chlorinated pesticides by further defining the extent of dieldrin distribution and conducting focused risk evaluation. Interim action may be necessary if the site is returned to residential land use.

4.4 Parcel 3

Parcel 3 is a 2,163,177 ft² parcel in the southeastern corner of the Main Installation in OU-3. Parcel 3 consists of the golf course, Lake Danielson, the golf course pond, and Buildings 188, 189, 192, 193, 194, 195, 196, 197, and 198.

Parcel 3 contains Screening Site 51, the Lake Danielson outlet drainage ditch; Screening Site 52, the golf course pond outlet ditch; Screening Site 69, flame-thrower liquid fuel application; RI Site 25, the golf course pond; and RI Site 26, Lake Danielson.

4.4.1 Parcel 3 Risk

The risk ratio and the systemic toxicity ratios are presented in Table 4-6. The resulting risk is slightly above for residential exposure and is within for an industrial worker exposure value of 1 in a million (10^{-6}). The estimated risk is primarily from arsenic (101 mg/kg and 21.8 mg/kg compared to a background level of 20 mg/kg) or dieldrin (0.44 mg/kg to 10 mg/kg) in each of the samples (see Appendix A). All other chemicals have risk levels at least an order of magnitude below 1 in a million risk level ($<10^{-7}$). Dieldrin and arsenic are elevated in some of the samples at this parcel.

The carcinogenic ratios for all of the samples are below a ratio of 1.0 for residential and industrial worker receptors at Parcel 3. The only exception is one sample that has a ratio of 1.25 for the residential receptor, primarily from the presence of low levels of the metals chromium, copper, and zinc—present slightly above background.

In summary, at Parcel 3 arsenic, dieldrin, and gamma-chlordane are presenting excess cancer risks above 1 in a million for both industrial and residential scenarios. There are no noncarcinogenic PRE ratios above acceptable levels for the applicable land use scenario (industrial) at Parcel 3. This site should be further evaluated for arsenic, dieldrin, and chlordane.

4.4.2 Screening Site 51—Lake Danielson Outlet Drainage Ditch

The chart below presents the location and status information for this screening site.

Parcel	Building Number	RI/FS OU	Site No.	CERCLA Status
3	SW Golf Course	3	51	Screening

Site 51 is a 3-foot-wide, concrete channel originating at the southern end of Lake Danielson and running approximately 600 feet (ft) south to the fence line. Originally, the channel was

Table 4-6
Parcel 3 Noncarcinogenic and Carcinogenic Station-Specific Soil Risk
Preliminary Risk Evaluation
Defense Distribution Depot Memphis, TN

Parcel	Station	Residential Land Use Risk	Industrial Land Use Risk
Noncarcinogenic			
3	A(3.10) Total	1.25E+00	4.84E-02
	A(3.5) Total	0.00E+00	0.00E+00
	B(3.5) Total	0.00E+00	0.00E+00
	C(3.5) Total	0.00E+00	0.00E+00
	D(3.5) Total	0.00E+00	0.00E+00
	E(3.5) Total	0.00E+00	0.00E+00
	F(3.5) Total	0.00E+00	0.00E+00
	G(3.5) Total	0.00E+00	0.00E+00
	H(3.5) Total	0.00E+00	0.00E+00
	I(3.5) Total	2.10E-02	8.20E-04
	J(3.5) Total	0.00E+00	0.00E+00
	K(3.5) Total	0.00E+00	0.00E+00
	K(3.5B) Total	0.00E+00	0.00E+00
	L(3.5) Total	0.00E+00	0.00E+00
	M(3.5) Total	5.52E-04	2.08E-05
	N(3.5) Total	1.79E-01	6.76E-03
Max		1.25+00	4.84x10⁻²
Count		16	
Average		9.06E-02	3.50E-03
Carcinogenic			
3	A(3.10) Total	2.36E-04	2.67E-05
	A(3.5) Total	1.27E-05	1.41E-06
	B(3.5) Total	2.50E-04	2.78E-05
	C(3.5) Total	0.00E+00	0.00E+00
	D(3.5) Total	3.50E-05	3.89E-06
	E(3.5) Total	1.45E-05	1.61E-06
	F(3.5) Total	1.12E-05	1.24E-06
	G(3.5) Total	0.00E+00	0.00E+00
	H(3.5) Total	2.43E-07	4.86E-08
	I(3.5) Total	5.07E-05	5.74E-06
	J(3.5) Total	0.00E+00	0.00E+00
	K(3.5) Total	0.00E+00	0.00E+00
	K(3.5B) Total	0.00E+00	0.00E+00
	L(3.5) Total	0.00E+00	0.00E+00
	M(3.5) Total	5.63E-09	6.21E-10
	N(3.5) Total	3.44E-07	6.88E-08
Max		2.50E-04	2.78E-05
Count		16	
Average		3.82E-05	4.28E-06

Note:

A calculated risk value of zero indicates all chemicals in the sample were below background concentrations.

an unlined ditch. Storm water runoff from the surrounding areas constitutes most of the flow through this ditch. The ditch is normally dry and receives only intermittent flow from the lake and surrounding areas during periods of excessive precipitation. The lake was originally constructed to store water for fire-fighting purposes.

4.4.2.1 Screening Site 51 Risk—Human Health

Carcinogenic and noncarcinogenic risks for Screening Site 51 are presented in Table 4-7. Detailed chemical-specific estimates are presented in Appendix A.

Based on industrial worker exposure estimates, the sample-specific carcinogenic PRE risk ratio was estimated to be a 1 in a million risk level across the site for all samples. Residential exposure-based levels were slightly above 1 in a million risk levels in one of the samples due to the presence of arsenic at 20.1 mg/kg as compared to a background level of 20 mg/kg. Thus there are no significant risks at Site 51.

The noncarcinogenic PRE ratios were well below a value of 1.0 for industrial worker exposures. A residential exposure indicated the ratio at a value of 1.0, primarily from low-level metals.

No human health risks are expected from this site. However arsenic should be further evaluated to technically document that it is not elevated at the site.

4.4.2.2 Screening Site—Ecological Screening Evaluation

Site data were compared against the sediment and surface water screening criteria from EPA Region IV. One surface water sample (SW12) had lead at 0.1 mg/L, compared to the background concentration at 0.019 mg/L and the Ambient Water Quality Criteria (AWQC) at 0.0032 mg/L. However, the samples in the downstream area did not have lead above the criteria. Also, due to the low solubility of lead, the observed concentrations could be associated with sediment particles in the sample. No organic chemicals were reported above detection limits in the surface water samples. (See Appendix C2 for ratios for surface water locations.)

Three sediment samples were collected from site 51 (SE51A, B, and C). Samples A and B had detected chemicals within the background levels. Sample SE51C had low-level arsenic slightly above background (13.8 mg/kg compared to the background level of 12 mg/kg, which are both above the sediment screening criterion of 7.24 mg/kg). No organic chemicals were detected. Thus, observed sediment and surface water constituents are naturally occurring and are within the range of naturally occurring levels. (See Appendix C1 for ratios for sediment sample locations.)

4.4.3 Screening Site 52—Golf Course Pond Outlet Ditch

The chart below presents the location and status information for this screening site.

Parcel	Building Number	RI/FS OU	Site No.	CERCLA Status
3	SE Golf Course	3	52	Screening

Table 4-7 Screening Site 51 - Lake Danielson Outlet Draining Ditch Station-Specific Surface Soil Risk Preliminary Risk Evaluation Defense Distribution Depot Memphis, TN				
Site	Parcel	Station	Residential Land Use Risk	Industrial Land Use Risk
Noncarcinogenic				
51	3	SB51A Total	1.04E+00	9.14E-02
		SB51B Total	3.11E-01	6.22E-02
		SB51C Total	1.07E+00	4.16E-02
		SS51A Total	0.00E+00	0.00E+00
		SS51B Total	1.90E+00	1.85E-01
		SS51C Total	0.00E+00	0.00E+00
Max			1.90E+00	1.85E-01
Count		6		
Average			7.20E-01	6.34E-02
Carcinogenic				
51	3	SB51A Total	4.67E-05	5.29E-06
		SB51B Total	4.74E-08	5.29E-09
		SB51C Total	2.95E-07	3.29E-08
		SS51A Total	0.00E+00	0.00E+00
		SS51B Total	8.04E-06	8.93E-07
		SS51C Total	3.50E-06	3.89E-07
Max			4.67E-05	5.29E-06
Count		6		
Average			9.77E-06	1.10E-06
Note: A calculated risk value of zero indicates all chemicals in the sample were below background concentrations.				

Site 52 is a 3-foot-wide concrete channel, approximately 700 ft long, that runs south from the Golf course pond to the installation's boundary. It is normally dry, receiving intermittent flow during periods of heavy precipitation.

4.4.3.1 Screening Site 52—Human Health Risk

Carcinogenic and noncarcinogenic risks for Screening Site 52 are presented in Table 4-8.

The PRE risk ratio estimates indicate that industrial worker-based risk estimates are above 1 in a million risk levels, due to the presence of arsenic, dieldrin, and DDE/DDT. The highest risk is associated with arsenic, which is detected at two times the background level. Dieldrin also presents a risk ratio slightly above a level of 1 in a million.

The systemic toxicity-based PRE ratios exceeded a value of 1.0 due to the presence of manganese and chromium. Further risk assessment is recommended for Site 52.

4.4.3.2 Screening Site 52—Ecological Risk

Site 52 data were compared against the sediment and surface water screening criteria from EPA Region IV. One surface water sample (SW11) had lead at 0.05 mg/L, compared to the background concentration at 0.019 mg/L and the AWQC at 0.0032 mg/L. No organic chemicals were reported above detection limits in the surface water samples.

Sediment sample SE52A had low levels of chlorinated pesticides DDD (0.077 mg/kg), DDE (0.016 mg/kg), and dieldrin (0.024 mg/kg) compared to a screening criterion of 0.0033mg/kg for each of three pesticides. This could be from the surface runoff of the surface-soil low-level chlorinated pesticides observed across the installation. (See Appendix C1 for ratios for sediment sample locations and Appendix C2 for ratios for surface water locations.)

4.4.4 Screening Site 69—Flame-Thrower Liquid Fuel Application

The chart below presents the location and status information for this screening site.

Parcel	Building Number	RI/FS OU	Site No.	CERCLA Status
3	NE Golf Course Area	3	69	Screening

Site 69 was primarily used to test flame-thrower fuels. Flame-throwers were tested using diesel fuel. Fire fighting techniques also were practiced at this site after surface ignition of the fuel. The site currently is used as a golf course. It is located on the eastern side of the installation, approximately 100 ft east of Lake Danielson. The sample locations were selected on the basis of past knowledge of the locations where flame-throwing activities were conducted.

4.4.4.1 Screening Site 69 Risk

Carcinogenic and noncarcinogenic risks for Screening Site 69 are presented in Table 4-9.

Due to the absence of any contaminant levels above background, no risks or systemic toxicity ratios were estimated. Therefore no further action is recommended at this site.

Table 4-8 Screening Site 52 - Golf Course Pond Outlet Ditch Station-Specific Surface Soil Risk Preliminary Risk Evaluation Defense Distribution Depot Memphis, TN				
Site	Parcel	Station	Residential Land Use Risk	Industrial Land Use Risk
Carcinogenic				
52	3	SB52A Total	6.16E-05	6.95E-06
		SB52B Total	0.00E+00	0.00E+00
		SS52A Total	1.11E-07	1.24E-08
		SS52B Total	1.27E-04	1.43E-05
		SS52C Total	0.00E+00	0.00E+00
		SS52D Total	7.26E-05	8.21E-06
		SS52E Total	0.00E+00	0.00E+00
Max			1.27E-04	1.43E-05
Count		7		
Average			3.73E-05	4.22E-06
Noncarcinogenic				
52	3	SB52A Total	0.00E+00	0.00E+00
		SB52B Total	0.00E+00	0.00E+00
		SS52A Total	1.03E+01	3.96E-01
		SS52B Total	2.17E+00	2.05E-01
		SS52C Total	0.00E+00	0.00E+00
		SS52D Total	0.00E+00	0.00E+00
		SS52E Total	0.00E+00	0.00E+00
Max			1.03E+01	3.96E-01
Count		7		
Average			1.79E+00	6.58E-02
Note: A calculated risk value of zero indicates all chemicals in the sample were below background concentrations.				

Table 4-9 Screening Site 69 - Flamethrower Liquid Fuel Application Station-Specific Surface Soil Risk Preliminary Risk Evaluation Defense Distribution Depot Memphis, TN				
Site	Parcel	Station	Residential Land Use Risk	Industrial Land Use Risk
Noncarcinogenic				
69	3	SB69A Total	0.00E+00	0.00E+00
		SB69B Total	0.00E+00	0.00E+00
		SS69A Total	0.00E+00	0.00E+00
		SS69B Total	0.00E+00	0.00E+00
		SS69C Total	0.00E+00	0.00E+00
		SS69D Total	0.00E+00	0.00E+00
Max			0.00E+00	0.00E+00
Count		6		
Average			0.00E+00	0.00E+00
Carcinogenic				
69	3	SB69A Total	0.00E+00	0.00E+00
		SB69B Total	0.00E+00	0.00E+00
		SS69A Total	0.00E+00	0.00E+00
		SS69B Total	0.00E+00	0.00E+00
		SS69C Total	0.00E+00	0.00E+00
		SS69D Total	0.00E+00	0.00E+00
Max			0.00E+00	0.00E+00
Count		6		
Average			0.00E+00	0.00E+00
Note: A calculated risk value of zero indicates all chemicals in the sample were below background concentrations.				

4.4.5 RI Site 25—Golf course pond

The chart below presents the location and status information for this site.

Parcel	Building Number	RI/FS OU	Site No.	CERCLA Status
3	Golf course pond	3	25	RI

The golf course pond is an unlined, man-made pond approximately 75 ft wide and 125 ft long with an earthen dam. The pond is located in the northeastern corner of the DDMT golf course and has been in existence since the 1940s. The pond receives surface water runoff from the golf course and the southeastern portion of the facility. Storm water enters the pond through overland flow and from two storm water drainage pipes (one 8-inch-diameter pipe and one 36-inch-diameter pipe). Overflow from the pond flows to an open, concrete-lined storm drain that eventually drains into Nonconnah Creek, a tributary of the Mississippi River.

Previous surface water samples collected from the pond indicated that the pond water was generally free of the tested analytes. However, metals and pesticides were detected in sediment from the pond, and fish tissue samples exhibited pesticide and PCB residues.

For this phase of the sampling program, surface water samples were collected from storm water runoff entering the pond to assess the potential that contaminants would be transported into the pond by storm water.

4.4.5.1 RI Site 25 Risk

No risk ratios or systemic toxicity ratios are estimated because all of the detected chemicals were below background levels. Therefore, no further action is recommended at this site.

4.4.6 RI Site 26—Lake Danielson

The chart below presents the location and status information for this site.

Parcel	Building Number	RI/FS OU	Site No.	CERCLA Status
3	Lake Danielson	3	26	FS

Lake Danielson is an unlined, man-made pond approximately 4 acres in area with an earthen dam. The pond is located in the northwestern corner of the DDMT golf course, just east of Buildings 470 and 489. The lake receives runoff from the central portion of DDMT (approximately 65 acres), which contains the majority of the warehouses at the site. Storm water from this area enters the lake through a 48-inch-diameter concrete pipe located at the northwestern corner of the lake. A smaller amount of storm water flow enters the lake by overland flow from areas immediately surrounding the lake. Overflow from the pond flows to an open, concrete-lined storm drain that eventually drains into Nonconnah Creek.

Previous uses of Lake Danielson include fire tank truck testing and recreation. Fire tank truck testing consisted of fire trucks withdrawing water from the lake to test various

equipment (pumps, hoses, instruments) and then discharging the water back into the lake. Recreational use (fishing) was discontinued in 1986 after pesticides and PCBs were detected in fish tissue from the lake.

Previous surface water, sediment, and fish tissue samples have been collected from the lake by the U.S. Army Environmental Hygiene Agency (USAEHA) in 1986 and during the 1990 RI. DDT was detected in storm water entering the lake from the 48-inch-diameter storm water pipe in 1986, but was not detected in a sample collected in the same location in 1990. Pesticides and metals were detected in sediment from the lake in both studies. Fish tissue (catfish) samples collected from the lake in 1986 indicated the presence of pesticides and PCBs.

For this phase of the sampling program, surface water samples were collected from storm water runoff entering the pond to assess the potential of contaminant transport into the pond by storm water.

4.4.6.1 RI Site 26—Human Health Risk

No risks or systemic toxicity ratios were estimated because of the absence of contaminant levels above background. Therefore, no further action is recommended at this site.

4.4.6.2 RI Site 26—Ecological Evaluation

Surface water was sampled from Lake Danielson outlet ditches by Law Environmental. Three of the eight samples had slightly elevated lead near the storm-water outfall area to the lake. The observed lead concentrations were similar to the background concentrations and could be from suspended sediment particles. No sediment sampling was performed during the RI efforts. (See Appendix C2 for ratios for surface water locations.)

4.5 Parcel 4

Parcel 4 is a 432,120 ft² parcel in the southeastern/eastern corner of the Main Installation in OU-3. Parcel 4 consists of Buildings 251, 252, 253, 254, 256, 257, 260, 261, 263, 265, 270, 271, and 273.

Parcel 4 contains Screening Site 66, POL Building 253; Screening Site 67, installation gas station, Building 257; Screening Site 68, POL Building 263; RI Site 58, Pad 267; and RI Site 59, Building 273.

4.5.1 Parcel 4 Risk

Two surface soil samples were collected from this parcel; the PRE risk ratios are summarized below. The risk ratio and the systemic toxicity ratios are presented in Table 4-10. The resulting risk is above acceptable levels for residential and industrial worker scenarios of 1 in a million (10⁻⁶). The resulting risks for both samples are primarily from PAHs and elevated metals. Several of the metals are elevated well above background levels (e.g., lead 7,130 mg/kg) (see Appendix A).

The noncarcinogenic PRE ratios are well above a value of 1.0 for both industrial worker and residential scenarios at Parcel 4, from PAHs and metals.

Table 4-10
Parcel 4 Noncarcinogenic and Carcinogenic Station-Specific Soil Risk
Preliminary Risk Evaluation
Defense Distribution Depot Memphis Tennessee

Parcel	Station	Residential Land Use Risk	Industrial Land Use Risk
Noncarcinogenic			
4	A(4.12)	9.21E+02	3.48E+01
	A(4.13)	3.39E+02	1.29E+01
Max		9.21E+02	3.48E+01
Count	2		
Average		6.30E+02	2.38E+01
Carcinogenic			
4	A(4.12)	1.42E-04	1.79E-05
	A(4.13)	9.08E-05	1.19E-05
Max		1.42E-04	1.79E-05
Count	2		
Average		1.16E-04	1.49E-05

Note:

A calculated risk value of zero indicates all chemicals in the sample were below background concentrations.

In summary, Parcel 4 has elevated risk ratios for the residential and industrial worker exposure scenarios, from PAHs and metals. The noncarcinogenic PRE ratios were well above a value of 1.0 for both industrial workers and residents at Parcel 4. Therefore, PAHs and metals should be further evaluated at this parcel.

4.5.2 Screening Site 66—Petroleum, Oil, and Lubricants (POL) Building 253

The chart below presents the location and status information for this screening site.

Parcel	Building Number	RI/FS OU	Site No.	CERCLA Status
4	253	3	66	Screening

Operations at Building 253 consisted mainly of motor pool services (minor maintenance, oil changes, steam cleaning, cold solvent degreasing, washing, and lubrication). Additionally, a 5,000-gallon underground storage tank (UST) containing No. 4 fuel oil was located at this site.

This building, approximately 50 by 125 ft, is located in the Facility Engineering maintenance yard. No previous sampling data existed for this site.

4.5.2.1 Screening Site 66 Risk

The carcinogenic risk ratios and the systemic toxicity ratios for Screening Site 69 are presented in Table 4-11.

Carcinogenic risk ratios from individual chemicals within sample SS66A are below a value of 1 in a million for an industrial worker. However, total risk from all of the chemicals (mostly polycyclic aromatic hydrocarbons [PAHs]) is slightly above a 1 in a million risk level for both a resident and an industrial worker.

The noncarcinogenic (systemic) toxicity ratio is below a value of 1.0.

The only COPCs are PAHs in one of the surface soils. There are no systemic toxicity concerns at this site. Therefore, further action is recommended for PAHs.

4.5.3 Screening Site 67—Installation Gas Station, Building 257

The chart below presents the location and status information for this screening site.

Parcel	Building Number	RI/FS OU	Site No.	CERCLA Status
4	257	3	67	Screening

Since 1942, fuel dispensing and storage have been ongoing at Site 67. The original steel USTs were removed in 1984 (two tanks) and 1989 (one tank) and replaced with fiberglass tanks in 1985. All tanks stored gasoline (leaded and unleaded).

Building 257 is east of Building 359 at the intersection of G and 2nd Streets.

Table 4-11 Screening Site 66 - Petroleum, Oil, and Lubricants (POL) Building 253 Station-Specific Surface Soil Risk Preliminary Risk Evaluation Defense Distribution Depot Memphis, TN				
Site	Parcel	Station	Residential Land Use Risk	Industrial Land Use Risk
Carcinogenic				
66	4	SB66B Total	0.00E+00	0.00E+00
		SB66C Total	0.00E+00	0.00E+00
		SS66A Total	9.54E-05	1.08E-05
Max			9.54E-05	1.08E-05
Count		3		
			3.18E-05	3.59E-06
Noncarcinogenic				
66	4	SB66B Total	0.00E+00	0.00E+00
		SB66C Total	0.00E+00	0.00E+00
		SS66A Total	8.26E-01	8.56E-02
Max			8.26E-01	8.56E-02
Count		3		
			2.75E-01	2.85E-02
Note: A calculated risk value of zero indicates all chemicals in the sample were below background concentrations.				

According to the *Remedial Investigation at DDMT, Final Report* (Law Environmental, August 1990), one surface soil sample (SS-25) taken west of Building 257 indicated the presence of PAHs, dieldrin, and metals (see Table B-7 and Figure 4-17 in *Screening Sites Field Sampling Plan*, CH2M HILL, September 1995).

The sample locations reported herein were chosen on the basis of previous sampling results and fuel dispensing activities conducted at vehicle fueling areas and UST filling areas within the site.

4.5.3.1 Screening Site 67 Risk

Carcinogenic and noncarcinogenic risks for Screening Site 67 are presented in Table 4-12. Detailed chemical-specific estimates are presented in Appendix A.

The only carcinogenic chemical identified at this site is arsenic, which is present at 25.1 mg/kg, compared to a background level of 20 mg/kg. The resulting risk ratio is a 1 in a million level for a worker and a 10 in a million risk level for a resident.

The noncancer ratios from inorganic chemicals for this site are below a value of 1.0 for an industrial worker and slightly above 1.0 for a resident. No individual chemical exceeds the ratio of 1.0.

In accordance with the available analytical data, no chemicals of potential concern and no significant human health concerns exist at this site. Therefore, no further action is recommended at this site.

4.5.4 Screening Site 68—POL Building 263

The chart below presents the location and status information for this screening site.

Parcel	Building Number	RI/FS OU	Site No.	CERCLA Status
4	263	3	68	Screening

Building 263 has been used as an attendants' room for the dispensing of POL to vehicles since the 1940s.

The site is located 500 ft southwest of Gate 1 and 900 ft north of the southern installation boundary. Building 263 is approximately 20 ft by 40 ft and is surrounded on all sides by a large expanse of asphalt pavement.

No previous sampling data exist specifically for this site. The site historically has been used for the storage of small containers of lubricants and oils. These materials are dispensed to the POL staff and are not used in the Building 263 area. Because (1) materials were stored inside, (2) the building is surrounded by asphalt pavement, and (3) no releases are known to have occurred, there is little potential for contamination resulting from past practices at this site.

Table 4-12
Screening Site 67 - Installation Gas Station, Building 257
Station-Specific Surface Soil Risk
Preliminary Risk Evaluation
Defense Distribution Depot Memphis, TN

Site	Parcel	Station	Residential Land Use Risk	Industrial Land Use Risk
Noncarcinogenic				
67	4	SB67A Total	1.00E+00	3.90E-02
		SB67B Total	0.00E+00	0.00E+00
		SS67A Total	1.13E+00	4.40E-02
		SS67B Total	5.07E-01	6.12E-02
Max			1.13E+00	6.12E-02
Count		4		
Average			6.61E-01	3.61E-02
Carcinogenic				
67	4	SB67A Total	0.00E+00	0.00E+00
		SB67B Total	0.00E+00	0.00E+00
		SS67A Total	5.84E-05	6.61E-06
		SS67B Total	0.00E+00	0.00E+00
Max			5.84E-05	6.61E-06
Count		4		
Average			1.46E-05	1.65E-06
Note: A calculated risk value of zero indicates all chemicals in the sample were below background concentrations.				

4.5.4.1 Screening Site 68 Risk

No surface soil sampling was conducted at this site because most of the surrounding area is paved. Therefore, no surface soils were collected, and no risks to human health from direct exposure are expected from this site.

4.5.5 RI Site 58—Pad 267

The chart below presents the location and status information for this site.

Parcel	Building Number	RI/FS OU	Site No.	CERCLA Status
4	T-267	3	58	RI

Pad 267 refers to the area that was formerly the site of Building T-267, the Pesticide Shop. This 150- by 200-foot building was previously located north of current Building 274. The area is now a paved parking lot.

Building T-267 was formerly used for storage and mixing of pesticides and herbicides that were applied to the DDMT grounds by DDMT Entomology Division personnel. The dates of operation of the shop are unknown, but are estimated to have been from the 1940s until the mid-1980s. The Installation Assessment conducted during March 1981 documented that rinse water from pesticide and herbicide spraying operations was dumped on the ground near the facility until 1980. The specific location where rinse water was dumped is unknown.

No previous soil sampling data exist for this site.

For this phase of the sampling program, surface soil samples were collected to assess the horizontal extent of the potential soil contamination from past activities at the site. Site 58 is located in Parcel 4 at DDMT. However, some of the surface soil samples associated with Site 58 were located and collected in Parcel 5.

4.5.5.1 RI Site 58 Risk

Carcinogenic and noncarcinogenic risks for RI Site 58 are presented in Table 4-13. Detailed chemical-specific estimates are presented in Appendix A.

The carcinogenic risk ratio for an industrial worker is well below a risk level of 1 in a million. The risk ratio for a resident from dieldrin, in one of the nine samples collected at this site, is a risk level of 4 in a million.

There are no noncarcinogenic chemicals at this site.

Thus, there are no significant health concerns for this site under industrial land use conditions. The only COPC is dieldrin; however, the concentration is at 0.098 mg/kg, which is well below the identified critical concentration of 0.36 mg/kg. Therefore, no further action is recommended at Site 58 under the industrial land use scenario. Further assessment is required under the residential land use scenario.

Table 4-13
RI Site 58 - (Pad 267)
Noncarcinogenic and Carcinogenic Station-Specific Soil Risk
Preliminary Risk Evaluation
Defense Distribution Depot Memphis, TN

Site	Parcel	Station	Residential Land Use Risk	Industrial Land Use Risk
Noncarcinogenic				
58	4	SS58A Total	0.00E+00	0.00E+00
		SS58B Total	0.00E+00	0.00E+00
		SS58C Total	0.00E+00	0.00E+00
		SS58D Total	0.00E+00	0.00E+00
		SS58E Total	0.00E+00	0.00E+00
		SS58F Total	0.00E+00	0.00E+00
		SS58G Total	0.00E+00	0.00E+00
		SS58H Total	0.00E+00	0.00E+00
		SS58I Total	0.00E+00	0.00E+00
		Max	0.00E+00	0.00E+00
		Count	9	
		Average	0.00E+00	0.00E+00
Carcinogenic				
58	4	SS58A Total	0.00E+00	0.00E+00
		SS58B Total	0.00E+00	0.00E+00
		SS58C Total	0.00E+00	0.00E+00
		SS58D Total	0.00E+00	0.00E+00
		SS58E Total	0.00E+00	0.00E+00
		SS58F Total	0.00E+00	0.00E+00
		SS58G Total	0.00E+00	0.00E+00
		SS58H Total	0.00E+00	0.00E+00
		SS58I Total	3.94E-06	4.38E-07
		Max	3.94E-06	4.38E-07
		Count	9	
		Average	4.37E-07	4.87E-08
Note: A calculated risk value of zero indicates all chemicals in the sample were below background concentrations.				

4.5.6 RI Site 59—Building 273

The chart below presents the location and status information for this site.

Parcel	Building Number	RI/FS OU	Site No.	CERCLA Status
4	T-273	3	59	RI

Building T-273 is a 10- by 50-foot metal building located north of the DDMT golf course. This building reportedly was used as a mixing area for golf course pesticide and herbicide spray operations. Dates of these operations are unknown but are believed to have occurred from the 1940s to the mid-1980s.

Two surface soil samples were collected at this site during the 1990 RI. The samples detected VOCs, PAHs, and pesticides. The pesticide concentrations that were detected generally indicate that either minor spillage or disposal of pesticide rinse water may have occurred in this area.

For this phase of the sampling program, surface soil and subsurface soil samples were collected to assess the vertical and horizontal extent of soil contamination from past activities at the site.

4.5.6.1 RI Site 59 Risk

Carcinogenic and noncarcinogenic risks for RI Site 59 are presented in Table 4-14. Detailed chemical-specific estimates are presented in Appendix A.

The carcinogenic risk ratio for an industrial worker is a risk level of 1 in a million. The risk ratio for a resident from dieldrin, in two of the 10 samples collected at this site, is a risk level of 19 in a million.

There are no noncarcinogenic chemicals at this site.

Thus, the only COPC at this site is dieldrin. No other carcinogenic or noncarcinogenic ratios are exceeded. Further risk assessment is necessary for the residential land use, but no further action is necessary under the industrial land use scenario.

4.6 Parcel 5

Parcel 5 is a 87,170 ft² parcel in the southeastern part of the Main Installation, in OU-3. Parcel 5 consists of Buildings 272 and 274.

Parcel 5 contains RI Site 48, former PCB transformer storage area and RI Site 58, Pad 267.

4.6.1 Parcel 5 Risk

Carcinogenic risks and noncarcinogenic ratios for Parcel 5 are presented in Table 4-15. Detailed chemical-specific estimates are presented in Appendix A.

The carcinogenic risk ratio for an industrial worker and a resident are well below a risk level of 1 in a million. There are no noncarcinogenic chemicals at this site.

Table 4-14
RI Site 59 -(Building 273)
Noncarcinogenic and Carcinogenic Station-Specific Soil Risk
Preliminary Risk Evaluation
Defense Distribution Depot Memphis, TN

Site	Parcel	Station	Residential Land Use Risk	Industrial Land Use Risk
Noncarcinogenic				
59	4	SB59A Total	0.00E+00	0.00E+00
		SB59B Total	0.00E+00	0.00E+00
		SS59C Total	0.00E+00	0.00E+00
		SS59D Total	0.00E+00	0.00E+00
		SS59E Total	0.00E+00	0.00E+00
		SS59F Total	0.00E+00	0.00E+00
		SS59G Total	0.00E+00	0.00E+00
		SS59H Total	0.00E+00	0.00E+00
		SS59I Total	0.00E+00	0.00E+00
		Grand Total	8.94E+01	3.45E+00
Max		8.94E+01	3.45E+00	
Count		10		
Average		8.94E+00	3.45E-01	
Carcinogenic				
59	4	SB59A Total	0.00E+00	0.00E+00
		SB59B Total	3.89E-06	4.32E-07
		SS59C Total	0.00E+00	0.00E+00
		SS59D Total	0.00E+00	0.00E+00
		SS59E Total	1.54E-05	1.71E-06
		SS59F Total	4.47E-08	5.00E-09
		SS59G Total	0.00E+00	0.00E+00
		SS59H Total	5.93E-09	6.67E-10
		SS59I Total	0.00E+00	0.00E+00
		Grand Total	6.83E-04	8.06E-05
Max		6.83E-04	8.06E-05	
Count		10		
Average		7.03E-05	8.27E-06	

Note:

A calculated risk value of zero indicates all chemicals in the sample were below background concentrations.

Table 4-15
Parcel 5 Noncarcinogenic and Carcinogenic Station-Specific Soil Risk
Preliminary Risk Evaluation
Defense Distribution Depot Memphis, TN

Parcel	Station	Residential Land Use Risk	Industrial Land Use Risk
Noncarcinogenic			
5	A(5.1) Total	0.00E+00	0.00E+00
Total		0.00E+00	0.00E+00
Count	1		
Average		0.00E+00	0.00E+00
Carcinogenic			
5	A(5.1) Total	4.26E-08	4.76E-09
Max		4.26E-08	4.76E-09
Count	1		
Average		4.26E-08	4.76E-09

Note:

A calculated risk value of zero indicates all chemicals in the sample were below background concentrations.

Thus, in accordance with the PRE of the available analytical data, there are no human health concerns at this site. Therefore, no further action associated with the BRAC data is necessary at Parcel 5.

4.6.2 RI Site 48—Former PCB Transformer Storage Area

The chart below presents the location and status information for this site.

Parcel	Building Number	RI/FS OU	Site No.	CERCLA Status
5	274	3	48	RI

Site 48 was the former storage location of at least two electrical transformers that were discovered during the Installation Assessment conducted in March 1981. Testing of the fluid from the transformers indicated less than 50 parts per million (ppm) of PCBs. Building 274 ("J" Street Cafeteria), which was constructed in the mid-1980s after transformer storage had ceased, is now located at this site.

Two surface soil samples were collected at this site during the 1990 RI. These samples detected PAHs and pesticides, but no PCBs were detected.

For this phase of the sampling program, surface soil samples were collected to assess the horizontal extent of the potential soil contamination from past activities at the site.

4.6.2.1 RI Site 48 Risk

Carcinogenic risks and noncarcinogenic ratios for Parcel 5 are presented in Table 4-16. Detailed chemical-specific estimates are presented in Appendix A.

Carcinogenic risk ratios for an industrial worker are below a risk level of 1 in a million. A residential exposure-based risk ratio was 15 in a million. The risks are due to the presence of (1) PCB Aroclor 1260 in three of the samples and (2) dieldrin in one sample from the site.

There are no noncarcinogenic ratios exceeding a value of 1.0 for either a residential or an industrial scenario.

Thus, the COPCs for this site are PCBs. The dieldrin concentration (0.11 mg/kg) is below a critical value of 0.36 mg/kg.

4.6.3 RI Site 58—Pad 267

Site 58 is located in Parcel 4 at DDMT. However, some of the surface soil samples associated with Site 58 were collected in Parcel 5. A description of activities at Site 58 also is included in the Parcel 4 report.

The chart below presents location and status information for this site.

Parcel	Building Number	RI/FS OU	Site No.	CERCLA Status
5	T-267	3	58	RI

Table 4-16
RI Site 48 - (Former PCB Transformer Storage Area)
Noncarcinogenic and Carcinogenic Station-Specific Soil Risk
Preliminary Risk Evaluation
Defense Distribution Depot Memphis, TN

Site	Parcel	Station	Residential Land Use Risk	Industrial Land Use Risk
Noncarcinogenic				
48	5	SS48A Total	0.00E+00	0.00E+00
		SS48B Total	0.00E+00	0.00E+00
		SS48C Total	0.00E+00	0.00E+00
		SS48D Total	7.23E-06	3.40E-07
		SS48E Total	0.00E+00	0.00E+00
Max			3.60E+00	1.40E-01
Count		5		
Average			1.64E+00	6.38E-02
Carcinogenic				
48	5	SS48A Total	2.84E-06	3.16E-07
		SS48B Total	1.40E-06	7.45E-08
		SS48C Total	3.38E-06	1.73E-07
		SS48D Total	0.00E+00	0.00E+00
		SS48E Total	8.91E-06	3.59E-07
Max			8.91E-06	3.59E-07
Count		5		
Average			3.31E-06	1.84E-07
Note:				
A calculated risk value of zero indicates all chemicals in the sample were below background concentrations.				

Pad 267 refers to the area that was formerly the site of Building T-267, the Pesticide Shop. This 150- by 200-foot building previously was located north of the current Building 274. The area is now a paved parking lot.

Building T-267 was formerly used for storage and mixing of pesticides and herbicides that were applied to DDMT grounds by DDMT Entomology Division personnel. The dates of operation of the shop are unknown, but are estimated to have been from the 1940s until the mid-1980s. The Installation Assessment documented that rinse water from pesticide and herbicide spraying operations was dumped on the ground near the facility until 1980. The specific location where rinse water was dumped is unknown.

No previous soil sampling data exist for this site. For this phase of the sampling program, surface soil samples were collected to assess the horizontal extent of the potential soil contamination from past activities at the site.

4.6.3.1 RI Site 58 Risk

RI Site 58 is included in both Parcels 4 and 5. Carcinogenic risks and noncarcinogenic ratios for Parcel 5 are presented in Table 4-12. Detailed chemical-specific estimates are presented in Appendix A.

The carcinogenic risk ratio for an industrial worker is well below a risk level of 1 in a million. The risk ratio for a resident from dieldrin, in one of the nine samples collected at this site, is a risk level of 4 in a million.

There are no noncarcinogenic chemicals at this site.

Thus, there are no significant health concerns for this site under industrial land use conditions. The only COPC is dieldrin; however, the concentration is at 0.098 mg/kg, which is well below the identified critical concentration of 0.36 mg/kg. Therefore, no further action is necessary at Site 58 under the industrial land use scenario. Additional risk assessment is necessary under the residential land use scenario.

4.7 Parcel 6

The chart below presents location and status information for this parcel.

Parcel	Building Numbers	Label	CERFA Map Location	RI/FS OU	Site No.	CERCLA Status
6	250, 349, 350	6.1	29,10	3	N/A	N/A

Parcel 6 is a 594,584 ft² parcel in the central east part of the Main Installation in OU-3. Parcel 6 consists of Buildings 250, 349, 350 and the adjacent railroad tracks.

Soil sampling was conducted at Label 6.1, which is associated with Buildings 250, 349, and 350. The surface soil surrounding buildings at the installation may contain pesticides because of routine pesticide application at the facility. In addition, this parcel contains railroad tracks that were historically sprayed with pesticides, herbicides, and waste oil containing pentachlorophenol (PCP). The railroad tracks, also known as Screening Sites

70/71, are to be sampled during the Screening Sites field effort. For this phase of the program, only surface and subsurface soil samples are collected and analyzed.

4.7.1 Parcel 6 Risk

Because there are no RI or SS sites within this parcel, risks are based on the BRAC data only. In accordance with these BRAC data, the PRE risk ratio at Parcel 6 is summarized below. The risk ratio and the systemic toxicity ratios are presented in Table 4-17. The resulting risk is above 1 in a million (10^6) for the residential scenario and is within the acceptable range for an industrial worker exposure. The estimated risk is primarily from dieldrin and PCBs. Although other chlorinated pesticides were detected, none present risk ratios above 1 in a million. Dieldrin concentration in these samples ranged between 0.38 and 2.9 mg/kg, which is elevated above the critical value in all of the three samples (see Appendix A). PCBs were detected in one sample.

There are no noncarcinogenic chemicals in the BRAC samples from Parcel 6.

In summary, dieldrin and PCBs at Parcel 6 present a slightly elevated risk for the industrial scenario; and all of the chlorinated pesticides present a slightly elevated risk for the residential scenario. There are no noncarcinogenic PRE ratios above acceptable industrial use levels at Parcel 6. This site should be further evaluated for dieldrin and PCBs by further defining the extent of distribution and conducting focused risk evaluation.

4.8 Parcel 7

Parcel 7 is a 190,791 ft² parcel in the east-central part of the Main Installation in OU-3. Parcel 7 consists of Building 249 and the associated railroad tracks.

Parcel 7 contains Screening Site 65, XXCC-3, Building 249.

4.8.1 Parcel 7 Risk

No BRAC sampling has been performed at this site; therefore, no risk and systemic toxicity ratios were estimated.

4.8.2 Screening Site 65-XXCC-3, Building 249

The chart below presents the location and status information for this screening site.

Parcel	Building Number	RI/FS OU	Site No.	CERCLA Status
7	249	3	65	Screening

Building 249 formerly was used as a storage facility for clothing treated with impregnate, a chemical used as a preventive to the effects of chemical warfare agents on skin. The impregnate (XXCC-3) was produced by mixing CC-2, a chemical produced by E. I. DuPont de Nemours during the 1940s and 1950s, with zinc oxide (ZnO). CC-2 is an unstable organic compound that is difficult to measure analytically because of its instability.

Table 4-17
Parcel 6 Noncarcinogenic and Carcinogenic Station-Specific Soil Risk
Preliminary Risk Evaluation
Defense Distribution Depot Memphis, TN

Parcel	Station	Residential Land Use Risk	Industrial Land Use Risk
Noncarcinogenic			
6	A(6.1) Total	0.00E+00	0.00E+00
	B(6.1) Total	0.00E+00	0.00E+00
	C(6.1) Total	0.00E+00	0.00E+00
Total		0.00E+00	0.00E+00
Count	3		
Average		0.00E+00	0.00E+00
Carcinogenic			
6	A(6.1) Total	3.23E-05	2.28E-06
	B(6.1) Total	9.65E-06	1.07E-06
	C(6.1) Total	3.56E-05	3.95E-06
Max		3.56E-05	3.95E-06
Count	3		
Average		2.58E-05	2.44E-06
Note: A calculated risk value of zero indicates all chemicals in the sample were below background concentrations.			

Building 249 is situated between 1st and 2nd Streets and between E and F Streets. No known releases have occurred at this site.

4.8.2.1 Screening Site 65 Risk

Carcinogenic and noncarcinogenic risks for Screening Site 65 are presented in Table 4-18. Detailed chemical-specific estimates are presented in Appendix A.

The PRE carcinogenic risk ratios for an industrial worker are 400 in a million, and the residential risk ratios are 2,000 in a million, which are both above a risk level of 1 in a million. The risks are primarily due to PAHs in several surface soil samples collected from the railroad tracks adjacent to this site.

The noncarcinogenic ratios were below a value 1.0 for a worker, and are 4 for a residential receptor, primarily from PAHs.

In summary, PAHs are elevated at this site, possibly, from the railroad tracks. Further risk evaluation is necessary at Site 65.

4.9 Parcel 8

The chart below presents location and status information for this parcel.

Parcel	Building Numbers	Label	CERFA Map Location	RI/FS OU	Site No.	CERCLA Status
8	229, 230, 329, 330	8.1	28,13	3	N/A	N/A

Parcel 8 is a 799,765 ft² parcel in the northeast portion of the Main Installation in OU-3. Parcel 8 consists of Buildings 229, 230, 329, 330 and the adjacent railroad tracks.

Soil sampling was conducted at Label 8.1, which consists of Buildings 229, 230, 329, and 330. The surface soil surrounding buildings at the installation may contain pesticides resulting from routine pesticide application at the facility. Sampling was performed to provide information on the presence of pesticides and PCBs in surface soil. In addition, this parcel contains railroad tracks that were historically sprayed with pesticides, herbicides, and waste oil containing PCP. The railroad tracks, also known as Screening Sites 70/71, are to be sampled during the Screening Sites field effort. For this phase of the program, only surface and subsurface soil samples are collected and analyzed.

4.9.1 Parcel 8 Risk

Because there are no RI or SS sites within this parcel, risks are based on the BRAC data only. In accordance with these BRAC data, the PRE risk ratio at Parcel 8 is summarized below. The risk ratio and the systemic toxicity ratios are presented in Table 4-19. The resulting risk is slightly above for residential and is within the range for an industrial worker exposure of 1 in a million (10⁻⁶). The estimated risk is primarily from dieldrin. Although other chlorinated pesticides were detected, none present risk ratios above 1 in a million. Dieldrin concentration in these samples ranged between 0.16 and 0.4 mg/kg, which is

Table 4-18
Screening Site 65 - XXCC-3, Building 249
Station-Specific Surface Soil Risk
Preliminary Risk Evaluation
Defense Distribution Depot Memphis, TN

Site	Parcel	Station	Residential Land Use Risk	Industrial Land Use Risk
Noncarcinogenic				
65	7	SB65A Total	3.18E-01	1.20E-02
		SB65B Total	8.52E-02	3.21E-03
		SB65C Total	5.83E-02	2.20E-03
		SS65A Total	8.36E-01	3.16E-02
		SS65B Total	0.00E+00	0.00E+00
		SS65C Total	5.70E-02	2.15E-03
		SS65D Total	3.48E-01	1.31E-02
		SS65E Total	2.44E+00	1.72E-01
Max		2.44E+00	1.72E-01	
Count	8			
Average		5.17E-01	2.96E-02	
Carcinogenic				
65	7	SB65A Total	2.53E-04	2.86E-05
		SB65B Total	0.00E+00	0.00E+00
		SB65C Total	0.00E+00	0.00E+00
		SS65A Total	9.30E-04	1.05E-04
		SS65B Total	0.00E+00	0.00E+00
		SS65C Total	0.00E+00	0.00E+00
		SS65D Total	2.32E-04	2.61E-05
		SS65E Total	8.77E-04	9.89E-05
Max		9.30E-04	1.05E-04	
Count	8			
Average		2.87E-04	3.23E-05	
Note: A calculated risk value of zero indicates all chemicals in the sample were below background concentrations.				

Table 4-19
Parcel 8 Noncarcinogenic and Carcinogenic Station-Specific Soil Risk
Preliminary Risk Evaluation
Defense Distribution Depot Memphis, TN

Parcel	Station	Residential Land Use Risk	Industrial Land Use Risk
Noncarcinogenic			
8	A(8.1) Total	0.00E+00	0.00E+00
	B(8.1) Total	0.00E+00	0.00E+00
	C(8.1) Total	0.00E+00	0.00E+00
	D(8.1) Total	0.00E+00	0.00E+00
Total		0.00E+00	0.00E+00
Count	4		
Average		0.00E+00	0.00E+00
Carcinogenic			
8	A(8.1) Total	1.00E-05	1.11E-06
	B(8.1) Total	4.04E-06	4.49E-07
	C(8.1) Total	6.83E-06	7.59E-07
	D(8.1) Total	0.00E+00	0.00E+00
Max		1.00E-05	1.11E-06
Count	4		
Average		5.22E-06	5.80E-07
Note:			
A calculated risk value of zero indicates all chemicals in the sample were below background concentrations.			

below the critical value of 0.36 mg/kg in three of the four samples and above in one of the four samples (see Appendix A).

There are no noncarcinogenic chemicals in the BRAC samples from Parcel 8.

In summary, dieldrin at Parcel 8 presents slightly elevated risk for the residential scenario; however, dieldrin levels are slightly above the critical value of 0.36 mg/kg in one of the four samples. There are no noncarcinogenic PRE ratios above acceptable levels for the applicable land use scenario (industrial) at Parcel 8. Therefore, only dieldrin requires further evaluation at this site.

4.10 Parcel 9

The chart below presents location and status information for this parcel.

Parcel	Building Numbers	Label	CERFA Map Location	RI/FS OU	Site No.	CERCLA Status
9	429, 430, 449, 450	9.1	22,15	3	N/A	N/A

Parcel 9 is a 795,387 ft² parcel in the central part of the Main Installation in OU-3. Parcel 9 consists of Buildings 429, 430, 449, and 450 and the adjacent railroad tracks.

Soil sampling was conducted at Label 9.1, which consists of Buildings 429, 430, 449, and 450. The surface soil surrounding buildings at the installation may contain pesticides resulting from routine pesticide application at the facility. Sampling was performed to provide information on the presence of pesticides and PCBs in surface soil. For this phase of the program, only surface and subsurface soil samples are collected and analyzed.

4.10.1 Parcel 9 Risk

Because there are no RI or SS sites within this parcel, risks are based on the BRAC data only. In accordance with these BRAC data, the PRE risk ratio at Parcel 9 is summarized below. The risk ratio and the systemic toxicity ratios are presented in Table 4-20. The resulting risk is primarily from dieldrin, and is above the acceptable levels for residential and industrial worker land use scenarios of 1 in a million (10⁻⁶). Although other chlorinated pesticides DDE/DDT were detected, risk ratios were well below 1 in a million. Dieldrin concentration in these samples ranged between 0.47 and 5.6 mg/kg, which is above the critical value of 0.36 mg/kg (see Appendix A).

There are no noncarcinogenic chemicals in the BRAC samples from Parcel 9.

In summary, dieldrin at Parcel 9 presents elevated risk for the residential and industrial scenarios, with levels above the critical value of 0.36 mg/kg. There are no noncarcinogenic PRE ratios above acceptable levels for the applicable land use scenario (industrial) at Parcel 9. This site should be further evaluated for dieldrin.

4.11 Parcel 10

The chart below presents location and status information for this parcel.

Table 4-20
Parcel 9 Noncarcinogenic and Carcinogenic Station-Specific Soil Risk
Preliminary Risk Evaluation
Defense Distribution Depot Memphis, TN

Parcel	Station	Residential Land Use Risk	Industrial Land Use Risk
Noncarcinogenic			
9	A(9.1) Total	0.00E+00	0.00E+00
	B(9.1) Total	0.00E+00	0.00E+00
	C(9.1) Total	0.00E+00	0.00E+00
Total		0.00E+00	0.00E+00
Count	3		
Average		0.00E+00	0.00E+00
Carcinogenic			
9	A(9.1) Total	1.40E-04	1.56E-05
	B(9.1) Total	1.23E-05	1.37E-06
	C(9.1) Total	1.00E-04	1.11E-05
Max		1.40E-04	1.56E-05
Count	3		
Average		8.41E-05	9.35E-06

Note:

A calculated risk value of zero indicates all chemicals in the sample were below background concentrations.

Parcel	Building Numbers	Label	CERFA Map Location	RI/FS OU	Site No.	CERCLA Status
10	549, 550, 649, 650	10.2	19,13	Bldg. 549, 550 - 3 Bldg. 649, 650 - 4	N/A	N/A

Parcel 10 is a 788,919 ft² parcel in the central part of the Main Installation in OUs 3 and 4. Parcel 10 consists of Buildings 549, 550, 649, 650 and the adjacent railroad tracks. The surface soil surrounding buildings at the installation may contain pesticides resulting from routine pesticide application at the facility.

Soil sampling was performed to provide information on the presence of pesticides and PCBs in surface soil. In addition, this parcel contains railroad tracks that were historically sprayed with pesticides, herbicides, and waste oil containing PCP. The railroad tracks, also known as Screening Sites 70/71, are to be sampled during the Screening Sites field effort. For this phase of the program, only surface and subsurface soil samples are collected and analyzed.

4.11.1 Parcel 10 Risk

Because there are no RI or SS sites within this parcel, risks are based on the BRAC data only. In accordance with these BRAC data, the PRE risk ratio at Parcel 10 is summarized below. The risk ratio and the systemic toxicity ratios are presented in Table 4-21. The resulting risk is primarily from dieldrin, and is above the acceptable levels for the residential and industrial worker scenarios of 1 in a million (10⁻⁶). Although other chlorinated pesticides DDE/DDT were detected, the risk ratios are well below 1 in a million. Dieldrin concentration in these samples ranged between 0.16 and 4 mg/kg, which is above the critical value of 0.36 mg/kg (see Appendix A).

Only antimony was slightly above background; it was, however, within the same range as the background. There are no noncarcinogenic chemicals in the BRAC samples from Parcel 10.

In summary, dieldrin at Parcel 10 presents slightly elevated risk for the residential scenario, with levels above the critical value of 0.36 mg/kg. Sample E(10.2) also had PAHs slightly above background levels. There are no noncarcinogenic PRE ratios above acceptable land use levels (industrial) at Parcel 10. Therefore, dieldrin and PAHs should be further evaluated at this parcel.

4.12 Parcel 11

The chart below presents location and status information for this parcel.

Parcel	Building Numbers	Label	CERFA Map Location	RI/FS OU	Site No.	CERCLA Status
11	529, 530, 630	11.1	18,15	Bldgs. 529, 530 - 3 Bldg. 630 - 4	N/A	N/A

Table 4-21
Parcel 10 Noncarcinogenic and Carcinogenic Station-Specific Soil Risk
Preliminary Risk Evaluation
Defense Distribution Depot Memphis, TN

Parcel	Station	Residential Land Use Risk	Industrial Land Use Risk
Noncarcinogenic			
10	A(10.2) Total	0.00E+00	0.00E+00
	B(10.2) Total	0.00E+00	0.00E+00
	C(10.2) Total	0.00E+00	0.00E+00
	D(10.2) Total	0.00E+00	0.00E+00
Total		0.00E+00	0.00E+00
Count		4	
Average		0.00E+00	0.00E+00
Carcinogenic			
10	A(10.2) Total	6.88E-05	7.64E-06
	B(10.2) Total	4.32E-06	4.80E-07
	C(10.2) Total	3.31E-05	3.68E-06
	D(10.2) Total	5.00E-06	5.56E-07
Total		6.88E-05	7.64E-06
Count		4	
Average		2.78E-05	3.09E-06
Note:			
A calculated risk value of zero indicates all chemicals in the sample were below background concentrations.			

Parcel 11 is a 602,447 ft² parcel in the north central part of the Main Installation in OUs 3 and 4. Parcel 11 consists of Buildings 529, 530, 630 and the adjacent railroad tracks.

Soil sampling was conducted at Label 11.1, which consists of Buildings 529, 530, and 630. The surface soil surrounding buildings at the installation may contain pesticides resulting from routine pesticide application at the facility. Sampling was performed to provide information on the presence of pesticides and PCBs in surface soil. In addition, this parcel contains railroad tracks that were historically sprayed with pesticides, herbicides, and waste oil containing PCP. The railroad tracks, also known as Screening Sites 70/71, are to be sampled during the Screening Sites field effort. For this phase of the program, only surface and subsurface soil samples are collected and analyzed.

4.12.1 Parcel 11 Risk

Because there are no RI or SS sites within this parcel, risks are based on the BRAC data only. In accordance with these BRAC data, the PRE risk ratio at Parcel 11 is summarized below. The risk ratio and the systemic toxicity ratios are presented in Table 4-22. The resulting risk, primarily from dieldrin, is above acceptable levels for residential and industrial worker scenarios of 1 in a million (10^{-6}). Although other chlorinated pesticides DDE/DDT were detected, risk ratios were well below 1 in a million. Dieldrin concentration in these samples ranged between 0.98 and 3.4 mg/kg, which is above the critical value of 0.36 mg/kg (see Appendix A).

There are no noncarcinogenic chemicals in the BRAC samples from Parcel 11.

In summary, dieldrin at Parcel 11 presents slightly elevated risk for the residential and industrial scenarios, with levels above the critical value of 0.36 mg/kg. There are no noncarcinogenic PRE ratios above the acceptable land use scenario (industrial) at Parcel 11. Therefore, dieldrin should be further evaluated at this parcel.

4.13 Parcel 12

Parcel 12 is a 193,644 ft² parcel in the north-central portion of the Main Installation, in OU-4. Parcel 12 consists of Building 629 and the associated railroad tracks. Samples were collected at Site 57 in this parcel during the RI sampling.

Parcel contains RI Site 57, Building 629.

4.13.1 Parcel 12 Risk

No BRAC samples were collected from this parcel; therefore, no risk ratios were estimated.

4.13.2 RI Site 57-Building 629

The chart below presents the location and status information for this site.

Parcel	Building Number	RI/FS OU	Site No.	CERCLA Status
12	629	4	57	RI

Table 4-22
Parcel 11 Noncarcinogenic and Carcinogenic Station-Specific Soil Risk
Preliminary Risk Evaluation
Defense Distribution Depot Memphis, TN

Parcel	Station	Residential Land Use Risk	Industrial Land Use Risk
Noncarcinogenic			
11	A(11.1) Total	0.00E+00	0.00E+00
	B(11.1) Total	0.00E+00	0.00E+00
	C(11.1) Total	0.00E+00	0.00E+00
Total		0.00E+00	0.00E+00
Count	3		
Average		0.00E+00	0.00E+00
Carcinogenic			
11	A(11.1) Total	8.50E-05	9.44E-06
	B(11.1) Total	3.68E-07	4.12E-08
	C(11.1) Total	2.48E-05	2.76E-06
Total		8.50E-05	9.44E-06
Count	3		
Average		3.67E-05	4.08E-06

Note:

A calculated risk value of zero indicates all chemicals in the sample were below background concentrations.

Building 629 is the former hazardous materials storage building that has been used to store DDT, herbicides, solvents, oxidizers, and other toxic and corrosive materials. Past spills may have occurred in this area, including a documented spill of an unknown amount of hydrofluoric acid.

Four surface soil samples were collected at this site during the 1990 RI in areas where past spills may have occurred. PAHs, pesticides, VOCs, and metals were detected in these samples.

For this phase of the sampling program, subsurface soil samples were collected to assess potential contaminant concentrations in the shallow subsurface soil at the site.

4.13.2.1 RI Site 57 Risk

Carcinogenic and noncarcinogenic risks for RI Site 57 are presented in Table 4-23. Detailed chemical-specific estimates are presented in Appendix A.

The PRE carcinogenic risk ratios were within a 1 in a million risk level for an industrial worker and 3 in a million for a residential receptor, primarily from DDE and DDT at sampling location SB-57E.

The noncarcinogenic ratio was below a value of 1.0 for both industrial and residential receptors.

Thus, in accordance with the PRE, there are no significant carcinogenic or noncarcinogenic human health impacts of concern at this site. It is likely that Site 57 will not require further action, but further risk assessment is necessary to confirm this.

4.14 Parcel 13

The chart below presents location and status information for this parcel.

Parcel	Building Number	Label	CERFA Map Location	RI/FS OU	Site No.	CERCLA Status
13	210	13.5	30,16	4	N/A	N/A

Parcel 13 is a 449,078 ft² parcel in the northeast corner of the Main Installation in OU-4. Parcel 13 consists of Building 210 and the adjacent railroad tracks.

Soil sampling was conducted at Label 13.5, which consists of Building 210. The surface soil surrounding buildings at the installation may contain pesticides resulting from routine pesticide application at the facility. Sampling was performed to provide information on the presence of pesticides and PCBs in surface soil. In addition, this parcel contains railroad tracks that were historically sprayed with pesticides, herbicides, and waste oil containing PCP. The railroad tracks, also known as Screening Sites 70/71, are to be sampled during the Screening Sites field effort. For this phase of the program, only surface and subsurface soil samples are collected and analyzed.

Table 4-23
RI Site 57 - (Building 629)
Noncarcinogenic and Carcinogenic Station-Specific Soil Risk
Preliminary Risk Evaluation
Defense Distribution Depot Memphis, TN

Site	Parcel	Station	Residential Land Use Risk	Industrial Land Use Risk
Noncarcinogenic				
57	12	SB57A Total	0.00E+00	0.00E+00
		SB57B Total	0.00E+00	0.00E+00
		SB57C Total	0.00E+00	0.00E+00
		SB57D Total	0.00E+00	0.00E+00
		SB57E Total	1.48E-01	5.59E-03
		SB57F Total	4.91E-02	1.85E-03
		SB57G Total	0.00E+00	0.00E+00
		SB57H Total	0.00E+00	0.00E+00
		SB57I Total	0.00E+00	0.00E+00
Max		1.48E-01	5.59E-03	
Count	9			
Average		2.19E-02	8.27E-04	
Carcinogenic				
57	12	SB57A Total	1.05E-09	1.18E-10
		SB57B Total	0.00E+00	0.00E+00
		SB57C Total	1.32E-09	1.47E-10
		SB57D Total	1.44E-08	1.61E-09
		SB57E Total	2.96E-06	3.45E-07
		SB57F Total	1.89E-08	2.12E-09
		SB57G Total	1.55E-08	1.74E-09
		SB57H Total	0.00E+00	0.00E+00
		SB57I Total	0.00E+00	0.00E+00
Max		2.96E-06	3.45E-07	
Count	9			
Average		3.34E-07	3.90E-08	

Note:

A calculated risk value of zero indicates all chemicals in the sample were below background concentrations.

4.14.1 Parcel 13 Risk

Because there are no RI or SS sites within this parcel, risks are based on the BRAC data only. In accordance with these BRAC data, the PRE risk ratios at Parcel 13 are summarized below. The risk ratio and the systemic toxicity ratios are presented in Table 4-24. The resulting risk, primarily from dieldrin, is slightly above acceptable levels for the residential scenario and within acceptable levels for the industrial worker scenario of 1 in a million (10^{-6}). Although other chlorinated pesticides, DDT and chlordane, were detected the risk ratios were well below 1 in a million. Dieldrin concentrations in these samples ranged between 0.24 and 0.28 mg/kg, which are below the critical value of 0.36 mg/kg (see Appendix A).

There are no noncarcinogenic chemicals in the BRAC samples from Parcel 13.

In summary, dieldrin at Parcel 13 presents slightly elevated risk for the residential and industrial scenarios, with levels above the critical value of 0.36 mg/kg. There are no noncarcinogenic PRE ratios above acceptable land use levels (industrial) at Parcel 13. Therefore, no further evaluation is recommended for this parcel.

4.15 Parcel 14

The chart below presents location and status information for this parcel.

Parcel	Building Number	Label	CERFA Map Location	RI/FS OU	Site No.	CERCLA Status
14	S209	14.2	28,18	4	N/A	N/A

Parcel 14 is a 540,274 ft² parcel in the northeast corner of the Main Installation, in OU-4. Parcel 14 consists of Building 209 and the adjacent railroad tracks.

Soil sampling was conducted at Label 14.2, which is associated with Building 209. The surface soil surrounding buildings at the installation may contain pesticides resulting from routine pesticide application at the facility. Sampling was performed to provide information on the presence of pesticides and PCBs in surface soil. In addition, this parcel contains railroad tracks that were historically sprayed with pesticides, herbicides, and waste oil containing PCP. The railroad tracks, also known as Screening Sites 70/71, are to be sampled during the Screening Sites field effort. For this phase of the program, only surface and subsurface soil samples are collected and analyzed.

4.15.1 Parcel 14 Risk

Because there are no RI or SS sites within this parcel, risks are based on the BRAC data only. In accordance with these BRAC data, the PRE risk ratios at Parcel 14 are summarized below. The risk ratio and the systemic toxicity ratios are presented in Table 4-25. The resulting risk, primarily from dieldrin, is slightly above for residential and within the range for the industrial worker scenario of 1 in a million (10^{-6}). Although other chlorinated pesticides, DDT and chlordane, were detected the risk ratios were well below 1 in a million. Dieldrin concentrations in these samples ranged between 1.0 and 1.3 mg/kg, which are above a critical value of 0.36 mg/kg (see Appendix A).

There are no noncarcinogenic chemicals in the BRAC samples from Parcel 14.

Table 4-24
Parcel 13 Noncarcinogenic and Carcinogenic Station-Specific Soil Risk
Preliminary Risk Evaluation
Defense Distribution Depot Memphis, TN

Parcel	Station	Residential Land Use Risk	Industrial Land Use Risk
Noncarcinogenic			
13	A(13.5) Total	0.00E+00	0.00E+00
	B(13.5) Total	0.00E+00	0.00E+00
Total		0.00E+00	0.00E+00
Count	2		
Average		0.00E+00	0.00E+00
14	A(14.2) Total	0.00E+00	0.00E+00
Carcinogenic			
13	A(13.5) Total	7.27E-06	8.08E-07
	B(13.5) Total	6.07E-06	6.74E-07
Max		7.27E-06	8.08E-07
Count	2		
Average		6.67E-06	7.41E-07
Note: A calculated risk value of zero indicates all chemicals in the sample were below background concentrations.			

Table 4-25
Parcel 14 Noncarcinogenic and Carcinogenic Station-Specific Soil Risk
Preliminary Risk Evaluation
Defense Distribution Depot Memphis, TN

Parcel	Station	Residential Land Use Risk	Industrial Land Use Risk
Noncarcinogenic			
14	B(14.2) Total	0.00E+00	0.00E+00
Total		0.00E+00	0.00E+00
Count	1		
Average		0.00E+00	0.00E+00
Carcinogenic			
14	A(14.2) Total	3.29E-05	3.66E-06
	B(14.2) Total	2.53E-05	2.81E-06
Max		3.29E-05	3.66E-06
Count	2		
Average		2.91E-05	3.23E-06

Note:

A calculated risk value of zero indicates all chemicals in the sample were below background concentrations.

In summary, dieldrin at Parcel 14 presents slightly elevated risk for the residential exposure scenario, with levels above the critical value of 0.36 mg/kg. There are no noncarcinogenic PRE ratios above acceptable land use levels (industrial) at Parcel 14. Therefore, a focused evaluation of dieldrin should be conducted at this parcel.

4.16 Parcel 15

Parcel 15 is a 2,727,748 ft² parcel in the north-central part of the Main Installation, in OU-4. Parcel 15 consists of Buildings 308, 309, 319, 416, 417, and 702; the open storage areas X09, Y10, and Y50; and the adjacent railroad tracks.

Parcel 15 contains Screening Site 35, DRMO Building T-308, hazardous waste storage; Screening Sites 36 through 39, DRMO drum storage; Screening Site 54, DRMO east storm water runoff canal; Screening Site 55, DRMO north storm water runoff area; Screening Site 72, waste oil (Purchase Disposal Order [PDO] Yard) surface application for dust control; Screening Site 74, flammables and toxics (West End Building 319); and Screening Site 79, fuels, miscellaneous liquids, wood, and paper.

4.16.1 Parcel 15—Human Health Risk

Carcinogenic risks and noncarcinogenic ratios for Parcel 15 are presented in Table 4-26. Detailed chemical-specific estimates are presented in Appendix A.

The PRE carcinogenic risk ratio for an industrial worker is 5.3 in a million and for a residential receptor is 47.5 in a million, due to the presence of dieldrin in one of the surface soils at location A (15.6). On the basis of the statistical evaluation performed, the dieldrin is not a COPC for this part of the site (see Appendix B). However, dieldrin was above a critical value of 0.36 mg/kg and, therefore, will be further evaluated.

4.16.2 Screening Site 35—Defense Reutilization Marketing Office (DRMO) Building T-308: Hazardous Waste Storage

The chart below presents the location and status information for this screening site.

Parcel	Building Number	RI/FS OU	Site No.	CERCLA Status
15	T-308	4	35	Screening

Site 35 is in the northeastern corner of the Main Installation, south of Dunn Avenue. Building T-308 is a roofed, tin-sided shed with a concrete floor. It has a 2-foot-high concrete berm/foundation on all four sides with 3-inch concrete or asphalt dikes at the entrances. Wastes are segregated and stored on pallets; however, there is no berming between waste types.

According to the *Remedial Investigation at DDMT, Final Report* (Law Environmental, August 1990), a surface soil sample (SS-4) was collected about 100 ft downslope from this site. The sample indicated the presence of PAHs, dieldrin, and metals (see Table B-9 and Figure 4-24 in the *Screening Sites Field Sampling Plan*, CH2M HILL, September 1995). The sampling

Table 4-26
Parcel 15 Noncarcinogenic and Carcinogenic Station-Specific Soil Risk
Preliminary Risk Evaluation
Defense Distribution Depot Memphis, TN

Parcel	Station	Residential Land Use Risk	Industrial Land Use Risk
Noncarcinogenic			
15	A(15.6) Total	0.00E+00	0.00E+00
	B(15.6) Total	0.00E+00	0.00E+00
Total		0.00E+00	0.00E+00
Count	2		
Average		0.00E+00	0.00E+00
Carcinogenic			
15	A(15.6) Total	4.75E-05	5.28E-06
	B(15.6) Total	4.75E-06	5.28E-07
Max		4.75E-05	5.28E-06
Count	2		
Average		2.61E-05	2.90E-06

Note:

A calculated risk value of zero indicates all chemicals in the sample were below background concentrations.

locations in this phase of the investigation were selected on the basis of areas used for waste storage and in accordance with previous sampling results.

4.16.2.1 Screening Site 35 Risk

Carcinogenic and noncarcinogenic risks for Screening Site 35 are presented in Table 4-27. Detailed chemical-specific estimates are presented in Appendix A.

There are no carcinogenic chemicals above background at this site. The noncarcinogenic ratios for an industrial worker and an industrial receptor were below a value of 1.0.

Therefore, in accordance with the PRE evaluation, Screening Site 35 does not pose a human health concern for workers or residents. Therefore, no further action is necessary at Site 35.

4.16.3 Screening Sites 36 through 39-DRMO Drum Storage

The chart below presents the location and status information for this screening site.

Parcel	Building Number	RI/FS OU	Site No.	CERCLA Status
15	East DRMO	4	36-39	Screening

Sites 36, 37, 38, and 39 are located in the northeastern section of the Main Installation and make up an area of approximately 2.5 acres. Drums containing hazardous materials were stored at these sites until shipment to a licensed hazardous waste disposal facility occurred. Some areas were used to store empty, damaged drums that may contain hazardous waste and POL residues.

According to the *Remedial Investigation at DDMT, Final Report* (Law Environmental, August 1990), one surface soil sample (5S-5) was collected adjacent to the concrete pad at Site 36. The sample indicated the presence of PAHs, dieldrin, and metals (see Table B-9 and Figure 4-24 in the *Screening Sites Field Sampling Plan*, CH2M HILL, September 1995).

4.16.3.1 Screening Site 36 through 39 Risk

Carcinogenic risks and noncarcinogenic ratios for Screening Sites 36 through 39 are presented in Table 4-28. Detailed chemical-specific estimates are presented in Appendix A. Note that all samples from this group of sites are designated as Site 36.

The PRE risk ratio was estimated at a maximum of 7 in a million for an industrial worker and 64 in a million for a residential receptor. All carcinogenic risks are from the presence of arsenic in soil samples at a concentration ranging between 22.4 and 27.7 mg/kg, compared to a background level of 20 mg/kg. A total of 14 samples were collected from Sites 36 through 39. Six samples had these reported arsenic levels; all others were within background levels. Thus, the observed arsenic could be the naturally occurring levels for the site.

The noncarcinogenic ratio was below a value of 1.0 for an industrial worker and is above a value of 1.0 for several of the samples for a residential receptor. While no individual chemical exceeded a ratio of 1.0, each sample exceeded a value of 1.0, due to the presence of

Table 4-27 Screening Site 35 - Defense Reutilization Marketing Office Building T-308: Hazardous Waste Storage Station-Specific Surface Soil Risk Preliminary Risk Evaluation Defense Distribution Depot Memphis, TN				
Site	Parcel	Station	Residential Land Use Risk	Industrial Land Use Risk
Noncarcinogenic				
35	15	SB35A Total	0.00E+00	0.00E+00
		SB35B Total	9.62E-01	3.74E-02
		SB35C Total	2.10E-01	8.20E-03
Max			9.62E-01	3.74E-02
Count		3		
Average			3.91E-01	1.52E-02
Carcinogenic				
35	15	SB35A Total	0.00E+00	0.00E+00
		SB35B Total	0.00E+00	0.00E+00
		SB35C Total	0.00E+00	0.00E+00
Max			0.00E+00	0.00E+00
Count		3		
Average			0.00E+00	0.00E+00
Note: A calculated risk value of zero indicates all chemicals in the sample were below background concentrations.				

Table 4-28
Screening Sites 36 through 39 - DRMO Drum Storage
Station-Specific Surface Soil Risk
Preliminary Risk Evaluation
Defense Distribution Depot Memphis, TN

Site	Parcel	Station	Residential Land Use Risk	Industrial Land Use Risk
Noncarcinogenic				
36	15	SB36A Total	1.10E+00	4.28E-02
		SB36B Total	1.01E+00	3.91E-02
		SB36C Total	1.13E+00	4.41E-02
		SB36D Total	0.00E+00	0.00E+00
		SB36E Total	0.00E+00	0.00E+00
		SB36F Total	1.18E+00	4.60E-02
		SB36G Total	9.52E-01	3.71E-02
		SB36H Total	7.59E+00	3.94E-01
		SB36I Total	8.52E-01	3.32E-02
		SB36J Total	1.30E+00	5.05E-02
		SB36K Total	1.21E+00	4.70E-02
		SB36L Total	8.71E-01	3.40E-02
		SB36M Total	1.32E+00	5.11E-02
		SB36N Total	1.15E+00	4.47E-02
Max			7.59E+00	3.94E-01
Count		14		
Average			1.41E+00	6.17E-02
Carcinogenic				
36	15	SB36A Total	6.07E-05	6.87E-06
		SB36B Total	0.00E+00	0.00E+00
		SB36C Total	0.00E+00	0.00E+00
		SB36D Total	0.00E+00	0.00E+00
		SB36E Total	0.00E+00	0.00E+00
		SB36F Total	0.00E+00	0.00E+00
		SB36G Total	0.00E+00	0.00E+00
		SB36H Total	6.60E-07	3.45E-08
		SB36I Total	0.00E+00	0.00E+00
		SB36J Total	5.88E-05	6.66E-06
		SB36K Total	5.33E-05	6.03E-06
		SB36L Total	6.44E-05	7.29E-06
		SB36M Total	5.26E-05	5.95E-06
		SB36N Total	5.21E-05	5.89E-06
Max			6.44E-05	7.29E-06
Count		14		
Average			2.45E-05	2.77E-06
Note: A calculated risk value of zero indicates all chemicals in the sample were below background concentrations.				

low levels of the inorganic chemicals chromium, copper, nickel, antimony (1 out of 14 samples), lead, and zinc.

There are no organic chemicals of interest at this site. Several naturally occurring inorganic chemicals are present at levels that are slightly above background levels.

No further action is expected at these sites, although future evaluation is necessary.

4.16.4 Screening Site 54—DRMO East Storm Water Runoff Canal

The chart below presents the location and status information for this screening site.

Parcel	Building Number	RI/FS OU	Site No.	CERCLA Status
15	DRMO East Canal	4	54	Screening

Site 54 is a canal that collects the storm water runoff from the DRMO yard (and associated sites) and other DDMT facilities. This site is located near the northeastern part of the Main Installation. The canal is approximately 930 ft long.

No previous sampling data exist for the site. Therefore, a biased sampling approach was implemented to evaluate the presence of contamination at the site.

4.16.4.1 Screening Site 54 Risk

Carcinogenic risks and noncarcinogenic ratios for Screening Site 54 are presented in Table 4-29. Detailed chemical-specific estimates are presented in Appendix A.

The maximum PRE carcinogenic risk ratio for an industrial worker scenario is 7.5 in a million and the residential scenario is 67 in a million, which is from arsenic at 27.3 mg/kg compared to a background level of 20 mg/kg.

The noncarcinogenic ratio for an industrial worker is below a value of 1.0 and for a residential receptor is slightly above a value of 1.0, mostly from lead and other metals.

Because of the lack of organic contamination, there are no significant risks to human health at this site. Low-levels of metals could be related to the historical background and do not indicate site-related impacts. No further action is recommended at Site 54.

4.16.4.2 Screening Site 54—Ecological Evaluation

Three of the sediment samples (SE54A, B, and C) had low-level chlorinated pesticides (DDD, DDE, and dieldrin) and metals (chromium and lead) above sediment screening levels (see Appendixes C1 and C2). This site will be further evaluated during the RI, for potential offsite releases.

4.16.5 Screening Site 55—DRMO North Storm Water Runoff Area

The chart below presents the location and status information for this screening site.

Table 4-29 Screening Site 54 - DRMO East Storm Water Runoff Canal Station-Specific Surface Soil Risk Preliminary Risk Evaluation Defense Distribution Depot Memphis, TN				
Site	Parcel	Station	Residential Land Use Risk	Industrial Land Use Risk
Noncarcinogenic				
54	15	SB54A Total	9.90E-02	3.78E-03
		SB54B Total	2.10E+00	2.53E-01
		SS54A Total	1.26E+00	9.92E-02
Max			2.10E+00	2.53E-01
Count		3		
Average			1.15E+00	1.19E-01
Carcinogenic				
54	15	SB54A Total	0.00E+00	0.00E+00
		SB54B Total	6.71E-05	7.54E-06
		SS54A Total	0.00E+00	0.00E+00
Max			6.71E-05	7.54E-06
Count		3		
Average			2.24E-05	2.51E-06
Note: A calculated risk value of zero indicates all chemicals in the sample were below background concentrations.				

Parcel	Building Number	RI/FS OU	Site No.	CERCLA Status
15	DRMO North Runoff	4	55	Screening

The storm water runoff from the DRMO yard and the Main Installation is collected at Site 55, which is located at the northern end of the Main Installation adjacent to Perimeter Road. No previous sampling data exist for the site. Sample locations were selected at the inlet of the storm water drain that carries runoff across the northern DDMT boundary.

4.16.5.1 Screening Site 55 Risk

Carcinogenic risks and noncarcinogenic ratios for Screening Site 55 are presented in Table 4-30. Detailed chemical-specific estimates are presented in Appendix A.

The PRE carcinogenic risk and noncarcinogenic ratios were not estimated because no chemicals were reported above detection limits at this site. No further action is recommended at Site 55.

4.16.5.2 Screening Site—Ecological Risk

One surface water sample (SW55A) had lead slightly above background and the AWQC criterion. Sediment sample SE55A had chlorinated pesticides DDD and DDE detected above background and sediment quality screening criteria. The surface water sample from SW55A had a slightly elevated lead concentration above screening criteria and the background levels. There are no downstream samples beyond this point. (See Appendix C1 for ratios for sediment sample locations and Appendix C2 for ratios for surface water locations.)

4.16.6 Screening Site 72—Waste Oil (PDO Yard) Surface Application for Dust Control

The chart below presents the location and status information for this screening site.

Parcel	Building Number	RI/FS OU	Site No.	CERCLA Status
15	PDO Yard	4	72	Screening

Waste oils mixed with PCP were applied to the soil surface in the PDO Yard for dust and weed control purposes. Site 72, located in the northern section of the Main Installation, is north of B Street.

Table B-9 and Figure 4-31, in the *Screening Sites Field Sampling Plan* (CH2M HILL, September 1995), present the historical data for the site. One surface soil sample (SS-41) located at the center of the site indicated the presence of toluene, PAHs, pesticides, and metals (Figure 4-31).

Surface samples were selected based on the fact that waste oil has been applied directly to the surface soils, and therefore, surface soil contamination is probable.

Table 4-30 Screening Site 55 - DRMO North Storm Water Runoff Area Station-Specific Surface Soil Risk Preliminary Risk Evaluation Defense Distribution Depot Memphis, TN				
Site	Parcel	Station	Residential Land Use Risk	Industrial Land Use Risk
Noncarcinogenic				
55	15	SB55A Total	0.00E+00	0.00E+00
Max			0.00E+00	0.00E+00
Count		1		
Average			0.00E+00	0.00E+00
Carcinogenic				
55	15	SB55A Total	0.00E+00	0.00E+00
Max			0.00E+00	0.00E+00
Count		1		
Average			0.00E+00	0.00E+00
Note: A calculated risk value of zero indicates all chemicals in the sample were below background concentrations.				

4.16.6.1 Screening Site 72 Risk

Carcinogenic risks and noncarcinogenic ratios for Screening Site 72 are presented in Table 4-31. Detailed chemical-specific estimates are presented in Appendix A.

The PRE carcinogenic risk ratio for an industrial worker is 7.6 in a million and a residential receptor is 67 in a million, primarily from arsenic at concentrations ranging between 22.8 and 29 mg/kg.

The noncarcinogenic ratio was below a value of 1.0 for an industrial worker scenario and is slightly above a value of 1.0 for a residential scenario. The average ratio is below 1.0.

In summary, there are no organic contaminants of concern at this site. The observed inorganic chemicals are naturally occurring, are nutritionally essential, and are within the same range as background concentrations. Thus, there are no significant human health concerns from Site 72-related contamination and, therefore, no further action is expected at Site 72; however further risk evaluation is needed.

4.16.7 Screening Site 74—Flammables and Toxics (West End Building 319)

The chart below presents the location and status information for this screening site.

Parcel	Building Number	RI/FS OU	Site No.	CERCLA Status
15	319	4	74	Screening

Site 74 is situated on the western end of Building 319, off of C Street. Site 74 historically has been used for the storage of flammable and toxic materials. No sampling data exist for this site.

Sampling locations were selected on the basis of activities conducted at the storage area, such as loading and unloading areas, and on surface water drainage pathways. Twenty-foot soil borings were selected because shallow and surface soil contamination is probable.

4.16.7.1 Screening Site 74 Risk

Carcinogenic risks and noncarcinogenic ratios for Screening Site 74 are presented in Table 4-32. Detailed chemical-specific PRE estimates are presented in Appendix A.

There are no PRE carcinogenic risk ratios above 1 in a million for industrial or residential scenarios. The noncarcinogenic ratios were also below a value of 1.0 for both the industrial and residential scenarios. No further action is recommended for Site 74.

4.16.8 Screening Site 79—Fuels, Miscellaneous Liquids, Wood, and Paper

The chart below presents the location and status information for this screening site.

Parcel	Building Number	RI/FS OU	Site No.	CERCLA Status
15	302	4	79	Screening

Table 4-31 Screening Site 72 - Waste Oil (PDO Yard) Surface Application for Dust Station-Specific Surface Soil Risk Preliminary Risk Evaluation Defense Distribution Depot Memphis, TN				
Site	Parcel	Station	Residential Land Use Risk	Industrial Land Use Risk
Noncarcinogenic				
72	15	SS72A Total	1.86E+00	1.51E-01
		SS72B Total	1.47E+00	1.38E-01
		SS72C Total	0.00E+00	0.00E+00
		SS72D Total	7.33E-01	2.86E-02
		SS72E Total	1.45E+00	9.37E-02
		SS72F Total	1.17E+00	4.55E-02
		SS72G Total	3.08E-02	1.20E-03
		SS72H Total	9.62E-01	7.44E-02
		SS72I Total	1.16E+00	4.46E-02
Max			1.86E+00	1.51E-01
Count		9		
Average			9.81E-01	6.41E-02
Carcinogenic				
72	15	SS72A Total	6.74E-05	7.63E-06
		SS72B Total	0.00E+00	0.00E+00
		SS72C Total	0.00E+00	0.00E+00
		SS72D Total	0.00E+00	0.00E+00
		SS72E Total	6.44E-05	7.29E-06
		SS72F Total	5.30E-05	6.00E-06
		SS72G Total	0.00E+00	0.00E+00
		SS72H Total	0.00E+00	0.00E+00
		SS72I Total	5.58E-05	6.32E-06
Max			6.74E-05	7.63E-06
Count		9		
Average			2.67E-05	3.03E-06
Note: A calculated risk value of zero indicates all chemicals in the sample were below background concentrations				

Table 4-32
Screening Site 74 - Flammables and Toxics (West Ending Building 319)
Station-Specific Surface Soil Risk
Preliminary Risk Evaluation
Defense Distribution Depot Memphis, TN

Site	Parcel	Station	Residential Land Use Risk	Industrial Land Use Risk
Noncarcinogenic				
74	15	SB74A Total	0.00E+00	0.00E+00
		SB74B Total	6.54E-01	2.55E-02
		SB74C Total	7.58E-01	2.95E-02
Max			7.58E-01	2.95E-02
Count		3		
Average			4.71E-01	1.83E-02
Carcinogenic				
74	15	SB74A Total	0.00E+00	0.00E+00
		SB74B Total	2.44E-09	2.69E-10
		SB74C Total	0.00E+00	0.00E+00
Max			2.44E-09	2.69E-10
Count		3		
Average			8.13E-10	8.97E-11
Note: A calculated risk value of zero indicates all chemicals in the sample were below background concentrations.				

Site 79 is located adjacent to Building 702, approximately 2,400 ft from the western boundary and 200 ft from the northern boundary of the Main Installation. No previous sampling data exist for this site.

Sample locations were selected on the basis of activities conducted at the building such as waste loading, unloading, and storage areas. Twenty-foot soil borings were selected because shallow and surface soil contamination is probable.

4.16.8.1 Screening Site 79 Risk

Carcinogenic risks and noncarcinogenic ratios for Screening Site 79 are presented in Table 4-33. Detailed chemical-specific estimates are presented in Appendix A.

The PRE carcinogenic ratios were above a 1 in a million risk level for both industrial and residential scenarios, due to the presence of PAHs and arsenic.

The noncarcinogenic PRE ratios were above a value of 1.0 for both scenarios, due to the presence of PAHs and metals.

The PAHs and metals levels present a potential human health risk concern and may need to be further evaluated.

4.17 Parcel 16

The chart below presents location and status information for this parcel.

Parcel	Building Number	Label	CERFA Map Location	RI/FS OU	Site No.	CERCLA Status
16	558, 559	16.1	16,10	3	N/A	N/A

Parcel 16 is a 395,177 ft² parcel in the center of the Main Installation, in OU-3. Parcel 16 consists of Buildings 558 and 559 and the adjacent railroad tracks.

Soil sampling was conducted at Label 16.1, which consists of Building 559. The surface soil surrounding buildings at the installation may contain pesticides resulting from routine pesticide application at the facility. Sampling was performed to provide information on the presence of pesticides and PCBs in surface soil. In addition, this parcel contains railroad tracks that were historically sprayed with pesticides, herbicides, and waste oil containing PCP. The railroad tracks, also known as Screening Sites 70/71, are to be sampled during the Screening Sites field effort. For this phase of the program, only surface and subsurface soil samples are collected and analyzed.

4.17.1 Parcel 16 Risk

Because there are no RI or SS sites within this parcel, risks are based on the BRAC data only. In accordance with these BRAC data, the PRE risk ratios at Parcel 16 are summarized below. The risk ratio and the systemic toxicity ratios are presented in Table 4-34. The resulting risk, primarily from dieldrin, is slightly above for the residential scenario and within the range for the industrial worker scenario of 1 in a million (10⁻⁶). Although other chlorinated pesticides, DDT and chlordane, were detected the risk ratios were well below 1 in a million.

Table 4-33 Screening Site 79 - Fuels, Miscellaneous Liquids, Wood, and Paper Station-Specific Surface Soil Risk - Noncarcinogenic Preliminary Risk Evaluation Defense Distribution Depot Memphis, TN				
Site	Parcel	Station	Residential Land Use Risk	Industrial Land Use Risk
Noncarcinogenic				
79	15	SB79A Total	1.15E-01	4.35E-03
		SB79B Total	1.76E+00	2.36E-01
		SB79C Total	0.00E+00	0.00E+00
		SS79A Total	7.92E+00	1.16E+00
		SS79B Total	1.24E+00	1.33E-01
		SS79C Total	0.00E+00	0.00E+00
Max			7.92E+00	1.16E+00
Count		6		
Average			1.84E+00	2.56E-01
Carcinogenic				
79	15	SB79A Total	0.00E+00	0.00E+00
		SB79B Total	0.00E+00	0.00E+00
		SB79C Total	0.00E+00	0.00E+00
		SS79A Total	1.05E-04	1.19E-05
		SS79B Total	0.00E+00	0.00E+00
		SS79C Total	0.00E+00	0.00E+00
Max			1.05E-04	1.19E-05
Count		6		
Average			1.76E-05	1.98E-06
Note: A calculated risk value of zero indicates all chemicals in the sample were below background concentrations.				

Table 4-34
Parcel 16 Noncarcinogenic and Carcinogenic Station-Specific Soil Risk
Preliminary Risk Evaluation
Defense Distribution Depot Memphis, TN

Parcel	Station	Residential Land Use Risk	Industrial Land Use Risk
Noncarcinogenic			
16	A(16.1) Total	0.00E+00	0.00E+00
	B(16.1) Total	0.00E+00	0.00E+00
Max		0.00E+00	0.00E+00
Count	2		
Average		0.00E+00	0.00E+00
Carcinogenic			
16	A(16.1) Total	4.79E-06	5.32E-07
	B(16.1) Total	3.29E-05	3.66E-06
Max		3.29E-05	3.66E-06
Count	2		
Average		1.89E-05	2.10E-06

Note:

A calculated risk value of zero indicates all chemicals in the sample were below background concentrations.

Dieldrin concentration in the two samples are 0.19 and 1.3 mg/kg, where the latter sample is above a critical value of 0.36 mg/kg (see Appendix A).

There are no noncarcinogenic chemicals in the BRAC samples from Parcel 16.

In summary, dieldrin at Parcel 16 presents a slightly elevated risk for the residential exposure scenario, with levels above the critical value of 0.36 mg/kg. There are no noncarcinogenic PRE ratios above acceptable land use levels (industrial) at Parcel 16. Therefore, a focused evaluation of dieldrin should be conducted at this parcel.

4.18 Parcel 17

The chart below presents location and status information for this parcel.

Parcel	Building Numbers	Label	CERFA Map Location	RI/FS OU	Site No.	CERCLA Status
17	359, 459	17.2	24,10	3	N/A	N/A

Parcel 17 is a 448,439ft² parcel in the east central part of the Main Installation, in OU-3. Parcel 17 consists of Buildings 359, 459 and the adjacent railroad tracks.

Soil sampling was conducted at Label 17.2, which consists of Building 359. The surface soil surrounding buildings at the installation may contain pesticides resulting from routine pesticide application at the facility. Sampling was performed to provide information on the presence of pesticides and PCBs in surface soil. In addition, this parcel contains railroad tracks that were historically sprayed with pesticides, herbicides, and waste oil containing PCP. The railroad tracks, also known as Screening Sites 70/71, are to be sampled during the Screening Sites field effort. For this phase of the program, only surface and subsurface soil samples are collected and analyzed.

In addition, this parcel is associated with the following tanks:

- A 12,000-gallon and a 500-gallon fuel oil tank that were located at Building 359 and were closed in place in July 1994 and September 1995, respectively (The Pickering Firm, Inc., 1993 Storage Tank Survey as cited in Woodward-Clyde, November 1996).
- A 1,000-gallon fuel oil tank and a 500-gallon diesel tank that were located at Building 359, but were removed in 1993 (The Pickering Firm, Inc., 1993 Storage Tank Survey; Facilities Engineering Division, DDMT 1993 as cited in Woodward-Clyde, November 1996). A 12,000-gallon and a 500-gallon fuel oil tank that were located at Building 359, but were removed in 1993 (The Pickering Firm, Inc., 1993 Storage Tank Survey; Facilities Engineering Division, DDMT 1993 as cited in Woodward-Clyde, November 1996).

There have been no documented releases associated with these tanks, and no evidence was found of disposal or migration of hazardous substances or petroleum products from an adjacent property. Therefore the current sampling activities are not associated with these tanks.

4.18.1 Parcel 17 Risk

Because there are no RI or SS sites within this parcel, risks are based on the BRAC data only. In accordance with these BRAC data, the PRE risk ratios at Parcel 17 are summarized below. The risk ratio and the systemic toxicity ratios are presented in Table 4-35. The resulting risk, primarily from dieldrin, is slightly above for residential and within the range for the industrial worker scenario of 1 in a million (10^{-6}). Although other chlorinated pesticides, DDE/DDT, were detected, the risk ratios were well below 1 in a million. Dieldrin concentration in one of the samples is 3.3 mg/kg, which is above a critical value of 0.36 mg/kg (see Appendix A).

There are no noncarcinogenic chemicals in the BRAC samples from Parcel 17.

In summary, dieldrin at Parcel 17 in one sample presents slightly elevated risk for the residential exposure scenario, with levels above the critical value of 0.36 mg/kg. There are no noncarcinogenic PRE ratios above acceptable land use levels (industrial) at Parcel 17. Therefore, a focused evaluation of dieldrin should be conducted at this parcel.

4.19 Parcel 18

The chart below presents location and status information for this parcel.

Parcel	Building Number	Label	CERFA Map Location	RI/FS OU	Site No.	CERCLA Status
18	560	18.2	17.8	3	N/A	N/A

Parcel 18 is a 358,600 ft² parcel in the center of the Main Installation, in OU-3. Parcel 18 consists of Building 560 and the adjacent railroad tracks.

Soil sampling was conducted at Label 18.2, which consists of Building 560. The surface soil surrounding buildings at the installation may contain pesticides resulting from routine pesticide application at the facility. Sampling was performed to provide information on the presence of pesticides and PCBs in surface soil. In addition, this parcel contains railroad tracks that were historically sprayed with pesticides, herbicides, and waste oil containing PCB. The railroad tracks, also known as Screening Sites 70/71, are to be sampled during the Screening Sites field effort. For this phase of the program, only surface and subsurface soil samples are collected and analyzed.

4.19.1 Parcel 18 Risk

Because there are no RI or SS sites within this parcel, risks are based on the BRAC data only. In accordance with these BRAC data, the PRE risk ratios at Parcel 18 are summarized below. The risk ratio and the systemic toxicity ratios are presented in Table 4-36. There were no chemicals detected above background levels in this parcel, therefore, no risk ratios or noncarcinogenic PRE ratios were included in this report (see Appendix A).

Due to lack of contamination, based on the one BRAC sample, no further evaluation is recommended for Parcel 18

Table 4-35
Parcel 17 Noncarcinogenic and Carcinogenic Station-Specific Soil Risk
Preliminary Risk Evaluation
Defense Distribution Depot Memphis, TN

Parcel	Station	Residential Land Use Risk	Industrial Land Use Risk
Noncarcinogenic			
17	A(17.2) Total	0.00E+00	0.00E+00
	B(17.2) Total	0.00E+00	0.00E+00
Max		0.00E+00	0.00E+00
Count	2		
Average		0.00E+00	0.00E+00
Carcinogenic			
17	A(17.2) Total	8.28E-05	8.28E-05
	B(17.2) Total	0.00E+00	0.00E+00
Max		8.28E-05	8.28E-05
Count	2		
Average		4.14E-05	4.14E-05

Note:

A calculated risk value of zero indicates all chemicals in the sample were below background concentrations.

Table 4-36
Parcel 18 Noncarcinogenic and Carcinogenic Station-Specific Soil Risk
Preliminary Risk Evaluation
Defense Distribution Depot Memphis, TN

Parcel	Station	Residential Land Use Risk	Industrial Land Use Risk
Noncarcinogenic			
18	A(18.2) Total	0.00E+00	0.00E+00
Max		0.00E+00	0.00E+00
Count	1		
Average		0.00E+00	0.00E+00
Carcinogenic			
18	A(18.2) Total	0.00E+00	0.00E+00
Max		0.00E+00	0.00E+00
Count	1		
Average		0.00E+00	0.00E+00

Note:

A calculated risk value of zero indicates all chemicals in the sample were below background concentrations.

4.20 Parcel 19

Because Parcel 19 contains no BRAC, Screening Site, or RI Site sample locations, it will not be discussed in this PRE.

4.20.1 Parcel 19 Risk

No BRAC sampling was performed within this parcel; therefore, no risk ratio estimates are presented.

4.21 Parcel 20

The chart below presents location and status information for this parcel.

Parcel	Building Numbers	Labels	CERFA Map Location	RI/FS OU	Site No.	CERCLA Status
20	470, 489, 670	20.5, 20.6	19,6 and 20,4	3	N/A	N/A

Parcel 20 is a 1,260,303 ft² parcel in the south central part of the Main Installation, in OU-3. Parcel 20 consists of Buildings 470, 489, 670 and the adjacent railroad tracks.

Soil sampling was conducted at Labels 20.5 and 20.6.

Label 20.5 is associated with Building 670, and Label 20.6 is associated with Building 489. The surface soil surrounding buildings at the installation may contain pesticides resulting from routine pesticide application at the facility. Sampling was performed to provide information on the presence of pesticides and PCBs in surface soil. Label 20.6 is associated with the location of a sulfuric acid spill that was reported on June 10, 1993, between Buildings 489 and 490 (Defense Logistics Agency, DDMT 1993 Spill Response Summary as cited in Woodward-Clyde, November 1996). The precise location of the spill, the action taken, and the quantity of the spill are unknown. Current sampling activities are associated with this spill. In addition, this parcel contains railroad tracks that were historically sprayed with pesticides, herbicides, and waste oil containing PCB. The railroad tracks, also known as Screening Sites 70/71, are to be sampled during the Screening Sites field effort. For this phase of the program, only surface and subsurface soil samples are collected and analyzed.

4.21.1 Parcel 20 Risk

Because there are no RI or SS sites within this parcel, risks are based on the BRAC data only. In accordance with these BRAC data, the PRE risk ratios at Parcel 20 are summarized below. The risk ratio and the systemic toxicity ratios are presented in Table 4-37. The resulting risk is above accepted levels for residential and industrial worker scenarios of 1 in a million (10⁻⁶). The resulting risks are primarily from dieldrin and PAHs in the two samples collected. Dieldrin was at 1.1 mg/kg, which is above a critical value of 0.36 mg/kg (see Appendix A).

The noncarcinogenic PRE ratio was within a value of 1.0 for industrial worker scenario and slightly exceeded for a resident at Parcel 20, from PAHs and low-level metals.

Table 4-37
Parcel 20 Noncarcinogenic and Carcinogenic Station-Specific Soil Risk
Preliminary Risk Evaluation
Defense Distribution Depot Memphis, TN

Parcel	Station	Residential Land Use Risk	Industrial Land Use Risk
Noncarcinogenic			
20	A(20.5) Total	0.00E+00	0.00E+00
	A(20.6) Total	1.23E+00	4.75E-02
Max		1.23E+00	4.75E-02
Count	2		
Average		6.17E-01	2.38E-02
Carcinogenic			
20	A(20.5) Total	2.75E-06	3.06E-06
	A(20.6) Total	2.88E-04	3.23E-05
Max		2.88E-04	3.23E-05
Count	2		
Average		1.58E-04	1.77E-05

Note:

A calculated risk value of zero indicates all chemicals in the sample were below background concentrations.

In summary, dieldrin and PAHs at Parcel 20 present elevated risk ratios for the residential and industrial worker exposure scenarios, with dieldrin levels above the critical value of 0.36 mg/kg and elevated PAHs. The noncarcinogenic PRE ratios were within acceptable land use levels for industrial workers and slightly above 1.0 for residents at Parcel 20. Therefore, dieldrin and PAHs should be further evaluated at this parcel.

4.22 Parcel 21

Parcel 21 is a 1,138,414 ft² parcel in the south-central part of the Main Installation, in OU-3. Parcel 21 consists of Buildings 490, 685, 689, and 690.

Parcel 21 contains Screening Site 75, unknown wastes near Building 689; Screening Site 76, unknown wastes near Building 690; and Screening Site 78, alcohol, acetone, toluene, and hydrofluoric acid area, Building 689.

4.22.1 Parcel 21 Risk

Carcinogenic risks and non-carcinogenic ratios for Screening Site 72 are presented in Table 4-38. Detailed chemical-specific estimates are presented in Appendix A.

The PRE carcinogenic risk ratios were above a level of 1 in a million for both industrial and residential receptors due to the presence of dieldrin in soils at two sampling locations with concentrations ranging between 0.86 and 5.3 mg/kg.

There are no noncarcinogens identified in the soil samples at this site.

Thus, the human health concerns for this site are associated with dieldrin in the soils, and further sampling may be required to determine the extent of dieldrin distribution at this parcel.

4.22.2 Screening Site 75—Unknown Wastes near Building 689

The chart below presents the location and status information for this screening site.

Parcel	Building Number	RI/F5 OU	Site No.	CERCLA Status
21	689	3	75	Screening

Building 689 was a temporary storage facility for flammable liquids such as alcohol, ketones, aromatics, and esters. The area was not bermed and is adjacent to a storm sewer inlet. Site 75 is situated in the southern portion of the Main Installation between Buildings 689 and 670, off K Street.

No past sampling data exist specifically for this site. The sample locations were selected based on the loading and unloading areas around the building and on the storm water drainage pathways. These locations are most likely to show the presence of contamination, if present.

Table 4-38
Parcel 21 Noncarcinogenic and Carcinogenic Station-Specific Soil Risk
Preliminary Risk Evaluation
Defense Distribution Depot Memphis, TN

Parcel	Station	Residential Land Use Risk	Industrial Land Use Risk
Noncarcinogenic			
21	A(21.5) Total	0.00E+00	0.00E+00
	B(21.5) Total	0.00E+00	0.00E+00
Max		0.00E+00	0.00E+00
Count	2		
Average		0.00E+00	0.00E+00
Carcinogenic			
21	A(21.5) Total	2.15E-05	2.39E-05
	B(21.5) Total	1.33E-04	1.47E-05
Max		1.33E-04	1.47E-05
Count	2		
Average		7.70E-05	8.56E-06
Note: A calculated risk value of zero indicates all chemicals in the sample were below background concentrations.			

4.22.2.1 Screening Site 75 Risk

Carcinogenic risks and noncarcinogenic ratios for Screening Site 75 are presented in Table 4-39. Detailed chemical-specific estimates are presented in Appendix A.

The PRE carcinogenic risk ratio is exceeded for both industrial and residential scenarios due to the presence of PAHs in sample SS-75A.

The noncarcinogenic ratios were not exceeded for either the industrial or residential scenario.

Thus, PAHs are the only COPCs that may require further investigation, to better characterize the human health risks from the site.

4.22.3 Screening Site 76—Unknown Wastes near Building 690

The chart below presents the location and status information for this screening site.

Parcel	Building Number	RI/FS OU	Site No.	CERCLA Status
21	690	3	76	Screening

In the past, this warehouse has been used to store hazardous materials before shipment. Building 690 is located in the southwestern portion of OU-3, near 5th and M Streets.

No previous sampling data exist for this site. The sample locations were selected based on activities conducted around the building, such as loading and unloading operations, and on storm water drainage areas.

4.22.3.1 Screening Site 76 Risk

Carcinogenic risks and noncarcinogenic ratios for Screening Site 76 are presented in Table 4-40. Detailed chemical-specific estimates are presented in Appendix A.

The PRE carcinogenic risk ratios for an industrial worker and for a residential scenario are both within a risk range of 1 in a million.

The noncarcinogenic PRE ratios were within the acceptable value of 1.0.

In accordance with the PRE, there are no human health risks of concern from this site. No further action is recommended at Site 76.

4.22.4 Screening Site 78—Alcohol, Acetone, Toluene, and Hydrofluoric Acid Area, Building 689

The chart below presents the location and status information for this screening site.

Parcel	Building Number	RI/FS OU	Site No.	CERCLA Status
21	689	3	78	Screening

Table 4-39 Screening Site 75 - Unknown Wastes near Building 689 Station-Specific Surface Soil Risk Preliminary Risk Evaluation Defense Distribution Depot Memphis, TN				
Site	Parcel	Station	Residential Land Use Risk	Industrial Land Use Risk
Noncarcinogenic				
75	22	SB75A Total	0.00E+00	0.00E+00
		SB75B Total	0.00E+00	0.00E+00
		SS75A Total	3.50E-02	1.32E-03
		SS75B Total	0.00E+00	0.00E+00
Max			3.50E-02	1.32E-03
Count		4		
Average			8.75E-03	3.30E-04
Carcinogenic				
75	22	SB75A Total	0.00E+00	0.00E+00
		SB75B Total	0.00E+00	0.00E+00
		SS75A Total	2.05E-05	2.31E-06
		SS75B Total	0.00E+00	0.00E+00
Max			2.05E-05	2.31E-06
Count		4		
Average			5.12E-06	5.78E-07
Note: A calculated risk value of zero indicates all chemicals in the sample were below background concentrations.				

Table 4-40
Screening Site 76 - Unknown Wastes near
Building 690
Station-Specific Surface Soil Risk
Preliminary Risk Evaluation
Defense Distribution Depot Memphis, TN

Site	Parcel	Station	Residential Land Use Risk	Industrial Land Use Risk
Noncarcinogenic				
76	21	SB76A Total	1.01E+00	3.93E-02
		SB76B Total	8.46E-01	3.30E-02
		SB76C Total	8.97E-01	3.50E-02
Max			1.01E+00	3.93E-02
Count		3		
Average			9.17E-01	3.58E-02
Carcinogenic				
76	21	SB76A Total	7.25E-06	8.06E-07
		SB76B Total	7.18E-07	2.80E-08
		SB76C Total	0.00E+00	0.00E+00
Max			7.25E-06	8.06E-07
Count		3		
Average			2.66E-06	2.78E-07
Note: A calculated risk value of zero indicates all chemicals in the sample were below background concentrations.				

Building 689 historically has stored alcohol, acetone, toluene, and hydrofluoric acid before transport. Site 78 is located on the eastern side of OU-3 at the intersection of 6th and K Streets.

No previous sampling data exist for this site. The sample locations were selected based on activities conducted around the building, such as loading and unloading operations, and on storm water drainage areas.

4.22.4.1 Screening Site 78 Risk

Data at Screening Site 78 consist of surface soil. No risks were calculated.

4.23 Parcel 22

Parcel 22 is a 54,192 ft² parcel in the south-central part of the Main Installation, in OU-3. Parcel 22 consists of an area between Buildings 689 and 690.

Parcel 22 contains Screening Site 77, unknown waste near Buildings 689 and 690.

4.23.1 Parcel 22 Risk

Carcinogenic risks and noncarcinogenic ratios for Parcel 22 are presented in Table 4-41. Detailed chemical-specific estimates are presented in Appendix A.

No significant risk ratios are associated with the sample collected from this parcel. The noncarcinogenic PRE ratios were also well within a value of 1.0.

Therefore, on the basis of this PRE evaluation, there are no significant human health concerns from this parcel, and no further action is recommended.

4.23.2 Screening Site 77-Unknown Waste near Buildings 689 and 690

The chart below presents the location and status information for this screening site.

Parcel	Building Number	RI/FS OU	Site No.	CERCLA Status
22	689 and 690	3	77	Screening

This site is located between Buildings 689 and 690 off L Street. This warehouse may have stored or shipped hazardous materials in the past. Also, a battery recoupment area exists immediately within the area between the two buildings.

No previous sampling data exist for this site. Samples were collected at biased locations to evaluate whether contamination at the site is present due to past practices.

4.23.2.1 Screening Site 77 Risk

Carcinogenic risks and noncarcinogenic ratios for Screening Site 77 are presented in Table 4-42.

Table 4-41
Parcel 22 Noncarcinogenic and Carcinogenic Station-Specific Soil Risk
Preliminary Risk Evaluation
Defense Distribution Depot Memphis, TN

Parcel	Station	Residential Land Use Risk	Industrial Land Use Risk
Noncarcinogenic			
22	A(22.1) Total	0.00E+00	0.00E+00
Max		0.00E+00	0.00E+00
Count	1		
Average		0.00E+00	0.00E+00
Carcinogenic			
22	A(22.1) Total	1.00E-07	1.12E-08
Max		1.00E-07	1.12E-08
Count	1		
Average		1.00E-07	1.12E-08
Note: A calculated risk value of zero indicates all chemicals in the sample were below background concentrations.			

Table 4-42
Screening Site 77 - Unknown Waste near Buildings 689 and 690
Station-Specific Surface Soil Risk
Preliminary Site Evaluation
Defense Distribution Depot Memphis, TN

Site	Parcel	Station	Residential Land Use Risk	Industrial Land Use Risk
Noncarcinogenic				
77	22	SB77A Total	0.00E+00	0.00E+00
		SB77B Total	1.06E+00	4.11E-02
		SS77A Total	3.74E-04	1.41E-05
		SS77B Total	2.39E+00	9.02E-02
		SS77C Total	1.73E+00	1.24E-01
		SS77D Total	2.77E-02	1.04E-03
Max			2.39E+00	1.24E-01
Count		6		
Average			8.67E-01	4.27E-02
Carcinogenic				
77	22	SB77A Total	6.61E-06	7.35E-07
		SB77B Total	0.00E+00	0.00E+00
		SS77A Total	2.22E-07	2.48E-08
		SS77B Total	0.00E+00	0.00E+00
		SS77C Total	3.77E-04	4.25E-05
		SS77D Total	1.90E-05	2.14E-06
Max			3.77E-04	4.25E-05
Count		6		
Average			6.71E-05	7.57E-06
Note: A calculated risk value of zero indicates all chemicals in the sample were below background concentrations.				

The PRE carcinogenic risk ratios were excessive for both industrial and residential scenarios due to the presence of PAHs in three of the four surface soil samples collected from the site.

The noncarcinogenic PRE ratio was less than a value of 1.0 for an industrial worker, but was above a value of 1.0 for a resident, primarily from naturally occurring antimony.

The PAHs at the site may require further characterization for human health impacts.

4.24 Parcel 23

Parcel 23 is a 1,266,614 ft² parcel in the southwestern portion of the Main Installation, in OU-2. Parcel 23 consists of Buildings 783, 787, 793, and 995, open storage area X01, and the adjacent railroad tracks.

Parcel 23 contains Screening Site 82, flammables (Buildings 783 and 793).

4.24.1 Parcel 23 Risk

Carcinogenic risks and noncarcinogenic ratios for Parcel 23 are presented in Table 4-43. Detailed chemical-specific PRE estimates are presented in Appendix A.

There are no carcinogenic chemicals reported above detection limits for this parcel; therefore, risk ratios were not calculated.

The noncarcinogenic PRE ratios for an industrial worker were not above a value of 1.0, but were slightly above a value of 1.0 for a residential exposure ratio. These values are primarily from chromium, selenium, and vanadium at low levels, where chromium and vanadium are similar to background levels.

Thus, on the basis of this PRE, there are no potential excessive human health impacts at this site, and therefore no further action is required at Parcel 23.

4.24.2 Screening Site 82-Flammables (Buildings 783 and 793)

The chart below presents the location and status information for this screening site.

Parcel	Building Number	RI/FS OU	Site No.	CERCLA Status
23	783 and 793	2	82	N/A

The site, consisting of Buildings 783 and 793, is situated at the southwestern intersection of K Street and 9th Street. Buildings 783 and 793 (igloos) were previously designated for the storage of flammable items and ordnance material and are the location of the former DDMT recoupment facility. The interior floors of Buildings 783 and 793 (approximately 400 ft south of Building 783) are constructed of concrete and slope to the north and south walls. Along these walls are drains that lead to the exterior of the buildings (on the eastern side).

No previous sampling data exist for this site. Therefore, a biased sampling approach was selected to assess the presence of contamination. Because a wide range of materials was managed at the site, there is a significant potential for contamination. According to facility

Table 4-43
Parcel 23 Noncarcinogenic and Carcinogenic Station-Specific Soil Risk
Preliminary Risk Evaluation
Defense Distribution Depot Memphis, TN

Parcel	Station	Residential Land Use Risk	Industrial Land Use Risk
Noncarcinogenic			
23	A(23.10) Total	0.00E+00	0.00E+00
	A(23.6) Total	0.00E+00	0.00E+00
	A(23.9) Total	2.16E+00	8.43E-02
	B(23.6) Total	0.00E+00	0.00E+00
Max		2.16E+00	8.43E-02
Count	4		
Average		5.39E-01	2.11E-02
Carcinogenic			
23	A(23.10) Total	0.00E+00	0.00E+00
	A(23.6) Total	0.00E+00	0.00E+00
	A(23.9) Total	0.00E+00	0.00E+00
	B(23.6) Total	0.00E+00	0.00E+00
Max		0.00E+00	0.00E+00
Count	4		
Average		0.00E+00	0.00E+00
Note: A calculated risk value of zero indicates all chemicals in the sample were below background concentrations.			

records, flammables, explosives, and dioxin-laden soils were known to have been stored in the igloos.

4.24.2.1 Screening Site 82 Risk

Carcinogenic risks and noncarcinogenic ratios for Screening Site 82 are presented in Table 4-44. Detailed chemical-specific PRE estimates are presented in Appendix A.

The PRE carcinogenic risk ratio for both industrial worker and residential receptor scenarios is above a 1 in a million risk level due to the presence of arsenic ranging between 20.2 and 24.3 mg/kg, compared to the background level of 20 mg/kg.

The noncarcinogenic PRE ratio for a worker is well below a value of 1.0, but is above 1 for a resident due to the presence of low levels of naturally occurring metals.

Thus, there are no human health concerns at this site from site-related contamination. No further action is recommended at Site 82.

4.25 Parcel 24

Parcel 24 is a 805,512 ft² parcel in the southwestern part of the Main Installation, in OU-2. Parcel 24 consists of Buildings 770 and 771, open storage area X03, the adjacent railroad tracks, and the gravel parking area east of Building S-873.

Parcel 24 contains RI Site 27, former recoupment area (Building S-873) and RI Site 34, underground waste oil storage tanks at Building 770.

4.25.1 Parcel 24 Risk

Carcinogenic risks and noncarcinogenic ratios for Parcel 24 are presented in Table 4-45. Detailed chemical-specific PRE estimates are presented in Appendix A.

The carcinogenic risk ratios were above 1 in a million for both industrial and residential scenarios, due to arsenic in one surface soil sample.

There are no noncarcinogenic chemicals above background at this parcel.

Thus, based on this PRE, there are no excessive human health concerns at this parcel, and therefore no further action is necessary with Parcel 24 BRAC data.

4.25.2 RI Site 27—Former Recoupment Area (Building S-873)

The chart below presents the location and status information for this site.

Parcel	Building Number	RI/FS OU	Site No.	CERCLA Status
24	Parking Area East of S-873	2	27	RI

Building S-873 is an open-sided, metal-roofed shed that served as the DDMT recoupment area over the estimated time period of 1942 to 1986. This site was formerly used for packing and repacking hazardous and nonhazardous materials from damaged and leaking

Table 4-44 Screening Site 82 - Flammables (Buildings 783 and 793) Station-Specific Surface Soil Risk Preliminary Risk Evaluation Defense Distribution Depot Memphis, TN				
Site	Parcel	Station	Residential Land Use Risk	Industrial Land Use Risk
Noncarcinogenic				
82	23	SB82A Total	1.12E+00	4.35E-02
		SB82B Total	1.04E+00	4.05E-02
		SB82C Total	1.02E+00	3.97E-02
		SB82D Total	0.00E+00	0.00E+00
		SS82A Total	0.00E+00	0.00E+00
		SS82B Total	0.00E+00	0.00E+00
		SS82C Total	1.31E+00	9.19E-02
		SS82D Total	0.00E+00	0.00E+00
Max			1.31E+00	9.19E-02
Count		8		
Average			5.62E-01	2.69E-02
Carcinogenic				
82	23	SB82A Total	5.33E-05	6.03E-06
		SB82B Total	4.70E-05	5.32E-06
		SB82C Total	5.14E-05	5.82E-06
		SB82D Total	0.00E+00	0.00E+00
		SS82A Total	4.50E-06	5.00E-07
		SS82B Total	0.00E+00	0.00E+00
		SS82C Total	5.65E-05	6.39E-06
		SS82D Total	0.00E+00	0.00E+00
Max			5.65E-05	6.39E-06
Count		8		
Average			2.66E-05	3.01E-06
Note: A calculated risk value of zero indicates all chemicals in the sample were below background concentrations.				

Table 4-45
Parcel 24 Noncarcinogenic and Carcinogenic Station-Specific Soil Risk
Preliminary Risk Evaluation
Defense Distribution Depot Memphis, TN

Parcel	Station	Residential Land Use Risk	Industrial Land Use Risk
Noncarcinogenic			
24	A(24.2) Total	0.00E+00	0.00E+00
	B(24.2) Total	0.00E+00	0.00E+00
Max		0.00E+00	0.00E+00
Count	2		
Average		0.00E+00	0.00E+00
Carcinogenic			
24	A(24.2) Total	0.00E+00	0.00E+00
24	B(24.2) Total	1.96E-04	2.22E-05
Max		1.96E-04	2.22E-05
Count	2		
Average		9.79E-05	1.11E-05

Note:

A calculated risk value of zero indicates all chemicals in the sample were below background concentrations.

containers. The specific boundaries of the site are unknown; however, it is known that recouplement activities were conducted in the southeastern corner of the building and in the gravel parking area to the east of the building. The gravel parking area east of the building is the only part of this site located in Parcel 24. The southeastern corner of Building S-873 is located in Parcel 25. Sampling activities at Site 27 conducted in Parcel 25 are described in the Parcel 25 report.

Remediation of soil contamination from previous spills of the pesticides DDE, DDT, and aldrin has been performed previously at this location, resulting in the removal and disposal of contaminated soils. Approximately the upper 0.5 to 1 foot of soil in this area was removed and disposed of by DDMT in 1985.

For this phase of the sampling program, surface soil and subsurface soil samples were collected to assess the vertical and horizontal extent of soil contamination from past activities at the site.

4.25.2.1 RI Site 27 Risk

Carcinogenic risks and noncarcinogenic ratios for RI Site 27 are presented in Table 4-46. Detailed chemical-specific PRE estimates are presented in Appendix A.

The PRE carcinogenic risk ratios were well above a level of 1 in a million, due to the presence of PAHs in surface soils in all of the samples.

The noncarcinogenic PRE ratios were not above a value of 1.0 for industrial workers, but were above 1 for the residential scenario, due to PAHs and metals in the soil.

As indicated by this PRE, the site may require further investigation for PAHs and metals present at levels of potential concern to human health.

4.25.3 RI Site 34—Underground Waste Oil Storage Tanks at Building 770

The chart below presents the location and status information for this site.

Parcel	Building Number	RI/FS OU	Site No.	CERCLA Status
24	770	2	34	RI

Site 34 consists of two former 1,000-gallon steel USTs previously located west of the vehicle maintenance shop (Building 770). The tanks were used from the 1960s until their removal in 1989 to store waste motor oil from vehicles. Prior to 1969, Building 770 also was used for cleaning and preserving heavy equipment before shipment overseas. Previous surface soil samples collected in the vicinity of the waste oil tanks have indicated the presence of PAHs, VOCs, pesticides, and metals.

For this phase of the sampling program, surface soil and subsurface soil samples were collected to assess the vertical and horizontal extent of soil contamination from past activities at the site.

Table 4-46
RI Site 27 - [Former Recoupment Area (Building S-873)]
Noncarcinogenic and Carcinogenic Station-Specific Soil Risk
Preliminary Risk Evaluation
Defense Distribution Depot Memphis, TN

Site	Parcel	Station	Residential Land Use Risk	Industrial Land Use Risk
Noncarcinogenic				
27	25	SB27A Total	0.00E+00	0.00E+00
		SB27B Total	0.00E+00	0.00E+00
		SB27C Total	0.00E+00	0.00E+00
		SB27D Total	0.00E+00	0.00E+00
		SB27E Total	0.00E+00	0.00E+00
		SS27F Total	2.21E+00	8.53E-02
		SS27G Total	3.46E-01	1.31E-02
		SS27H Total	2.10E+01	7.94E-01
		SS27I Total	0.00E+00	0.00E+00
		SS27J Total	5.92E-02	2.23E-03
Max		2.10E+01	7.94E-01	
Count	10			
Average		2.34E+00	8.95E-02	
Carcinogenic				
27	25	SB27A Total	1.13E-06	4.40E-08
		SB27B Total	1.04E-07	1.16E-08
		SB27C Total	0.00E+00	0.00E+00
		SB27D Total	0.00E+00	0.00E+00
		SB27E Total	0.00E+00	0.00E+00
		SS27F Total	2.45E-04	2.77E-05
		SS27G Total	2.52E-06	3.34E-07
		SS27H Total	5.33E-06	6.00E-07
		SS27I Total	7.33E-07	8.16E-08
		SS27J Total	4.72E-05	5.32E-06
Max		2.45E-04	2.77E-05	
Count	10			
Average		3.02E-05	3.41E-06	
Note: A calculated risk value of zero indicates all chemicals in the sample were below background concentrations.				

4.25.3.1 RI Site 34 Risk

Carcinogenic risks and noncarcinogenic ratios for RI Site 34 are presented in Table 4-47. Detailed chemical-specific PRE estimates are presented in Appendix A.

The carcinogenic risk ratios were exceeded for both industrial and residential receptors from PAHs and arsenic in soil samples.

The noncarcinogenic PRE ratio was not exceeded above a value of 1.0 for an industrial worker; however, the noncarcinogenic PRE ratio was slightly above 1.0 for the residential scenario.

The levels of PAHs should be further characterized at this site to assess potential human health risks.

4.26 Parcel 25

Parcel 25 is a 830,835 ft² parcel in the southwestern part of the Main Installation, in OU-2. Parcel 25 consists of Buildings 873 and 875 and the adjacent railroad tracks. Samples were collected at Site 27 in this parcel during the RI sampling. Sampling activities at this site are described below.

Parcel 25 contains RI Site 27, former recoupment area (Building S-873).

4.26.1 Parcel 25 Risk

Carcinogenic risks and noncarcinogenic ratios for Parcel 25 are presented in Table 4-48. Detailed chemical-specific PRE estimates are presented in Appendix A.

The PRE risk ratios were less than 1 in a million for both industrial and residential receptors at the site.

Because there were no noncarcinogenic chemicals, PRE ratios were not estimated.

Based on this PRE, there are no human health concerns at this RI site. Therefore, no further action is recommended for Parcel 25 BRAC data.

4.26.2 RI Site 27—Former Recoupment Area (Building S-873)

The chart below presents the location and status information for this site.

Parcel	Building Number	RI/FS OU	Site No.	CERCLA Status
25	S-873	2	27	RI

Building S-873 is an open-sided, metal-roofed shed that served as the DDMT recoupment area over the estimated time period of 1942 to 1986. This site was formerly used for packing and repacking hazardous and nonhazardous materials from damaged and leaking containers. The specific boundaries of the site are unknown; however, it is known that recoupment activities were conducted in the southeastern corner of the building and in the gravel parking area to the east of the building. The southeastern corner of Building S-873 is

Table 4-47
RI Site 34 - (Underground Waste Oil Storage Tanks at Building 770)
Noncarcinogenic and Carcinogenic Station-Specific Soil Risk
Preliminary Risk Evaluation
Defense Distribution Depot Memphis, TN

Site	Parcel	Station	Residential Land Use Risk	Industrial Land Use Risk
Noncarcinogenic				
34	24	SB34A Total	0.00E+00	0.00E+00
		SB34B Total	2.91E+00	1.13E-01
		SB34C Total	1.03E+00	4.02E-02
		SS34D Total	3.60E+00	1.40E-01
		SS34E Total	1.40E+00	5.45E-02
		SS34F Total	8.93E-01	3.48E-02
Max			3.60E+00	1.40E-01
Count		6		
Average			1.64E+00	6.38E-02
Carcinogenic				
34	24	SB34A Total	4.71E-07	9.41E-08
		SB34B Total	6.84E-05	8.05E-06
		SB34C Total	4.68E-07	9.36E-08
		SS34D Total	1.21E-04	1.41E-05
		SS34E Total		5.43E-07
		SS34F Total	7.25E-07	1.45E-07
Max			1.21E-04	1.41E-05
Count		6		
Average			3.82E-05	3.84E-06

Note:
A calculated risk value of zero indicates all chemicals in the sample were below background concentrations.

Table 4-48
Parcel 25 Non-Carcinogenic and Carcinogenic Station-Specific Soil Risk
Preliminary Risk Evaluation
Defense Distribution Depot Memphis, TN

Parcel	Station	Residential Land Use Risk	Industrial Land Use Risk
Noncarcinogenic			
25	A(25.2) Total	0.00E+00	0.00E+00
Max		0.00E+00	0.00E+00
Count	1		
Average		0.00E+00	0.00E+00
Carcinogenic			
25	A(25.2) Total	1.88E-07	2.09E-08
Max		1.88E-07	2.09E-08
Count	1		
Average		1.88E-07	2.09E-08

Note:

A calculated risk value of zero indicates all chemicals in the sample were below background concentrations.

the only part of Site 27 located in Parcel 25. The gravel parking area east of the building is located in Parcel 24. Sampling activities conducted in the parking area are described in the Parcel 24 report.

Remediation of soil contamination from previous spills of the pesticides DDE, DDT, and aldrin has been performed previously at this location, resulting in the removal and disposal of contaminated soils. Approximately the upper 0.5 to 1 foot of soil in this area was removed and disposed of by DDMT in 1985.

For this phase of the sampling program, surface soil and subsurface soil samples were collected to assess the vertical and horizontal extent of soil contamination from past activities at the site.

4.26.2.1 RI Site 27 Risk

Carcinogenic risks and noncarcinogenic ratios for RI Site 27 are presented in Table 4-46. Detailed chemical-specific PRE estimates are presented in Appendix A.

The PRE risk ratios were well above a 1 in a million risk level for industrial worker and residential scenarios due to the presence of PAHs across the site in all the samples.

The noncarcinogenic PRE ratios were within a value of 1.0 for the industrial worker scenario, but were exceeded for a residential scenario due to the presence of PAHs and metals.

The PAHs should be further characterized at this site.

4.27 Parcel 26

Parcel 26 is approximately the same size as Parcel 27, a 461,168 ft² parcel in the southwestern portion of the Main Installation, in OU-2. Parcel 26 consists of Building 970.

NO SS or RI sites are associated with this parcel, except for a portion of the railroad tracks that run through it. Two BRAC samples, A(26.2) and B(26.2), were collected from this parcel.

4.27.1 Parcel 26 Risk

Both surface soil samples had PAHs above background and the screening criteria.

The carcinogenic risk to a residential receptor and an industrial worker receptor are above 1 in a million due to the PAHs (see Table 4-49).

4.28 Parcel 27

Parcel 27 is a 461,168 ft² parcel in the southwestern portion of the Main Installation, in OU-2. Parcel 27 consists of Building 972.

Parcel 27 contains Screening Site 84, Building 972.

4.28.1 Parcel 27 Risk

No BRAC samples were collected from this parcel; therefore, no PRE ratios were estimated.

Table 4-49
Parcel 26 Noncarcinogenic and Carcinogenic Station-Specific Soil Risk
Preliminary Risk Evaluation
Defense Distribution Depot Memphis, TN

Parcel	Station	Residential Land Use Risk	Industrial Land Use Risk
Noncarcinogenic			
26	A(26.2) Total	0.00E+00	0.00E+00
	B(26.2) Total	0.00E+00	0.00E+00
Max		0.00E+00	0.00E+00
Count	2		
Average		0.00E+00	0.00E+00
Carcinogenic			
26	A(26.2) Total	2.20E-04	2.48E-05
	B(26.2) Total	5.42E-04	6.11E-05
Max		5.42E-04	6.11E-05
Count	2		
Average		3.81E-04	4.30E-05
Note: A calculated risk value of zero indicates all chemicals in the sample were below background concentrations.			

4.28.2 Screening Site 84—Building 972

The chart below presents the location and status information for this screening site.

Parcel	Building Number	RI/FS OU	Site No.	CERCLA Status
27	972	2	84	Screening

Site 84 (Building 972) is situated in the southwestern portion of the Main Installation. Building 972 is located between 25th and 21st Streets. In the past, the northernmost end of Building 972 has been a storage area for flammable substances, solvents, waste oil, and other raw materials. No samples associated with this site have previously been collected. Six surface soil and three subsurface locations were selected at this site. The biased sample locations were selected at probable pad runoff locations and near storm water inlets because surface water flow may transport contaminants and cause them to accumulate in areas where surface water may pond. Surface and subsurface sampling locations are located just outside the large metal bay doors at the northernmost extreme end of the building.

4.28.2.1 Screening Site 84 Risk

Carcinogenic risks and noncarcinogenic ratios for Screening Site 84 are presented in Table 4-50. Detailed chemical-specific PRE estimates are presented in Appendix A.

The PRE risk ratios were above a 1 in a million risk level for both industrial worker and residential scenarios due to the low PAHs present in the surface soil at the site.

The noncarcinogenic PRE ratios did not exceed 1.0 for an industrial worker scenario, but did exceed unity for a residential scenario.

The PAHs may require further investigation for evaluation of the human health impact.

4.29 Parcel 28

Parcel 28 is a 536,349 ft² parcel in the southwestern part of the Main Installation, in OU-2. Parcel 28 consists of Building 1089, open storage area X04, and the adjacent railroad tracks.

Parcel 28 contains Screening Site 89, Building 1089.

4.29.1 Parcel 28 Risk

Carcinogenic risks and noncarcinogenic ratios for Parcel 28 are presented in Table 4-51. Detailed chemical-specific PRE estimates are presented in Appendix A.

The carcinogenic PRE risk ratio was well within a level of 1 in a million for both the industrial and residential scenarios.

The noncarcinogenic PRE ratios were exceeded for both the industrial and residential scenarios, primarily from the inorganic chemicals iron and aluminum.

Table 4-50
Screening Site 84 - Building 972
Station-Specific Surface Soil Risk
Preliminary Risk Evaluation
Defense Distribution Depot Memphis, TN

Site	Parcel	Station	Residential Land Use Risk	Industrial Land Use Risk
Noncarcinogenic				
84	27	SB84A Total	8.84E-01	3.45E-02
		SB84B Total	4.08E+00	2.18E-01
		SB84C Total	1.61E+00	1.47E-01
		SB84D Total	1.67E+00	1.30E-01
		SS84A Total	0.00E+00	0.00E+00
		SS84B Total	0.00E+00	0.00E+00
		SS84C Total	2.16E+00	1.20E-01
		SS84D Total	3.13E-04	1.18E-05
		SS84E Total	1.05E+00	8.97E-02
		SS84F Total	9.59E-01	3.74E-02
Max			4.08E+00	2.18E-01
Count		10		
Average			1.24E+00	7.77E-02
Carcinogenic				
84	27	SB84A Total	5.00E-09	5.52E-10
		SB84B Total	2.64E-06	2.94E-07
		SB84C Total	0.00E+00	0.00E+00
		SB84D Total	3.75E-07	4.18E-08
		SS84A Total	0.00E+00	0.00E+00
		SS84B Total	0.00E+00	0.00E+00
		SS84C Total	3.85E-05	4.35E-06
		SS84D Total	3.44E-09	3.79E-10
		SS84E Total	0.00E+00	0.00E+00
		SS84F Total	0.00E+00	0.00E+00
Max			3.85E-05	4.35E-06
Count		10		
Average			4.16E-06	4.68E-07
Note: A calculated risk value of zero indicates all chemicals in the sample were below background concentrations.				

Table 4-51
Parcel 28 Noncarcinogenic and Carcinogenic Station-Specific Soil Risk
Preliminary Risk Evaluation
Defense Distribution Depot Memphis, TN

Parcel	Station	Residential Land Use Risk	Industrial Land Use Risk
Noncarcinogenic			
28	A(28.1) Total	8.04E-02	3.03E-03
	B(28.1) Total	2.32E+01	1.00E+00
Total		2.32E+01	1.01E+00
Count	2		
Average		1.16E+01	5.04E-01
Carcinogenic			
28	A(28.1) Total	3.99E-07	7.06E-08
	B(28.1) Total	0.00E+00	0.00E+00
Max		3.99E-07	7.06E-08
Count	2		
Average		2.00E-07	3.53E-08
Note: A calculated risk value of zero indicates all chemicals in the sample were below background concentrations.			

There are no site-related organic contaminants. The observed naturally occurring inorganic chemicals could be sampling and analysis artifacts. No further action is recommended associated with Parcel 28 BRAC data.

4.29.2 Screening Site 89—Building 1089

The chart below presents the location and status information for this screening site.

Parcel	Building Number	RI/FS OU	Site No.	CERCLA Status
28	1089	2	89	Screening

Site 89, which includes Building 1089 and the immediate surrounding area, is located on the western boundary of OU-2. Past uses of Building 1089 included storage of various acids. According to the *Remedial Investigation at DDMT, Final Report* (Law Environmental, August 1990), spills have reportedly occurred at this site; however, specific spill information (such as location, date, and amount spilled) has not been identified to date. In addition to acid storage, the *Installation Assessment of Defense Depot Memphis, Tennessee* (U.S. Army Toxic and Hazardous Materials Agency, July 1982) indicated that sandblasting operations had been performed in the northern portion of this building.

Previous investigations did not characterize potential soil contamination at this site. However, an analysis of surface soils at SS-45 (in Appendix B, Table B-4 of *Screening Sites Field Sampling Plan*, CH2M HILL, September 1995) as part of the Site 32 investigation did show elevated concentrations of metals just south of Building 1089.

Acid spills at the site may have leached metals into the subsurface; therefore, metals are a concern. Sandblasting operations also could release metals from equipment being cleaned. VOCs would not typically be included, but results from MW-21 indicated tetrachloroethene above maximum contaminant levels (MCLs), and the source is unknown.

4.29.2.1 Screening Site 89 Risk

Carcinogenic risks and noncarcinogenic ratios for Screening Site 89 are presented in Table 4-52. Detailed chemical-specific PRE estimates are presented in Appendix A.

The PRE risk ratio for carcinogenic chemicals indicated a risk of above 1 in a million due to the presence of arsenic in one sample at 23.9 mg/kg, compared to a background level of 20 mg/kg.

The noncarcinogenic PRE ratio was above a value of 1.0 for both industrial and residential exposure scenarios, primarily from excessive concentrations of the inorganic chemicals chromium, copper, lead, and zinc.

The inorganic constituent levels should be further evaluated prior to leasing the property.

4.30 Parcel 29

Parcel 29 is a 1,305,477 ft² parcel in the northwestern corner of the Main Installation, in OU-4. Parcel 29 consists of open storage areas X27 and X30, and the adjacent railroad tracks.

Table 4-52
Screening Site 89 - Building 1089
Station-Specific Surface Soil Risk
Preliminary Site Evaluation
Defense Distribution Depot Memphis, TN

Site	Parcel	Station	Residential Land Use Risk	Industrial Land Use Risk
Noncarcinogenic				
89	28	SS89A Total	2.25E-01	8.60E-03
		SS89B Total	2.47E+00	2.07E-01
		SS89C Total	2.67E+00	2.87E-01
		SS89D Total	2.29E-01	8.64E-03
		SS89F Total	3.19E+00	3.15E-01
		SS89H Total	2.45E+01	2.94E+00
		SS89I Total	1.03E+00	4.00E-02
		SS89J Total	2.63E+01	2.83E+00
Max			2.63E+01	2.94E+00
Count		8		
Average			7.57E+00	8.30E-01
Carcinogenic				
89	28	SS89A Total	4.11E-08	4.59E-09
		SS89B Total	0.00E+00	0.00E+00
		SS89C Total	0.00E+00	0.00E+00
		SS89D Total	0.00E+00	0.00E+00
		SS89F Total	0.00E+00	0.00E+00
		SS89H Total	5.56E-05	6.29E-06
		SS89I Total	0.00E+00	0.00E+00
		SS89J Total	5.64E-07	2.20E-08
Grand Total		4.58E-03	5.16E-04	
Max			4.58E-03	5.16E-04
Count		9		
Average			5.15E-04	5.80E-05
Note: A calculated risk value of zero indicates all chemicals in the sample were below background concentrations.				

Parcel 29 contains Screening Site 56, west gate storm water drainage canal.

4.30.1 Parcel 29 Risk

Carcinogenic risks and noncarcinogenic ratios for Parcel 29 are presented in Table 4-53. Detailed chemical-specific PRE estimates are presented in Appendix A.

The carcinogenic PRE risk ratios are within a 1 in a million risk level for an industrial worker scenario but is exceeded for a residential receptor primarily from dieldrin at low levels (0.083 mg/kg) in one sample. Low-level PAHs detected at the site are within the background levels.

The noncarcinogenic PRE ratios were not above a value of 1.0 for an industrial worker scenario but was slightly exceeded for a residential scenario, due to the presence of low levels of chromium, selenium, and zinc—all of which are naturally occurring and nutritionally essential elements.

There are no excessive human health PRE ratios at this site from site-related contamination. Therefore, no further action is expected at this site. However, noncarcinogenic PRE ratios above unity may require additional risk assessment to confirm the no further action determination.

4.30.2 Screening Site 56—West Gate Storm Water Drainage Canal

The chart below presents the location and status information for this screening site.

Parcel	Building Number	RI/FS OU	Site No.	CERCLA Status
29	West Gate Canal	4	56	Screening

This site collects the storm water runoff from the PCP tank areas and the western portion of the Main Installation. Site 56 is situated on the western side of the Main Installation, adjacent to Perry Road and north of Gate 9.

According to the *Remedial Investigations at DDMT, Final Report* (Law Environmental, August 1990), surface water samples (SW-2 and SW-14) indicated the presence of 2-Butanone and metals. Table B-6 and Figure 4-29 in the *Screening Sites Field Sampling Plan* (CH2M HILL, September 1995) present the historical data for the site.

4.30.2.1 Screening Site 56—Human Health Risk

Carcinogenic risks and noncarcinogenic ratios for Screening Site 56 are presented Table 4-54. Detailed chemical-specific PRE estimates are presented in Appendix A.

The PRE risk ratios are above a level of 1 in a million for both industrial and residential scenarios, from arsenic at 20.2 mg/kg concentration, compared to a background level at 20 mg/kg.

The noncarcinogenic PRE ratio was above a value of 1.0 for both industrial and residential scenarios due to the presence of several metals in the soils.

Table 4-53
Parcel 29 Noncarcinogenic and Carcinogenic Station-Specific Soil Risk
Preliminary Risk Evaluation
Defense Distribution Depot Memphis, TN

Parcel	Station	Residential Land Use Risk	Industrial Land Use Risk
Noncarcinogenic			
29	A(29.2) Total	0.00E+00	0.00E+00
	B(29.2) Total	1.79E+00	6.97E-02
Max		1.79E+00	6.97E-02
Count	2		
Average		8.95E-01	3.48E-02
Carcinogenic			
29	A(29.2) Total	0.00E+00	0.00E+00
	B(29.2) Total	4.37E-06	5.84E-07
Max		4.37E-06	5.84E-07
Count	2		
Average		2.18E-06	2.92E-07
Note: A calculated risk value of zero indicates all chemicals in the sample were below background concentrations.			

Table 4-54
Screening Site 56 - West Gate Storm Water Drainage Canal
Station-Specific Surface Soil Risk
Preliminary Risk Evaluation
Defense Distribution Depot Memphis, TN

Site	Parcel	Station	Residential Land Use Risk	Industrial Land Use Risk
Noncarcinogenic				
56	29	SB56A Total	1.61E+01	7.58E-01
		SS56A Total	0.00E+00	0.00E+00
		SS56B Total	4.05E+01	1.78E+00
		SS56C Total	1.06E+01	4.45E-01
Max		4.05E+01	1.78E+00	
Count		4		
Average			1.68E+01	7.47E-01
Carcinogenic				
56	29	SB56A Total	0.00E+00	0.00E+00
		SS56A Total	0.00E+00	0.00E+00
		SS56B Total	4.70E-05	5.32E-06
		SS56C Total	0.00E+00	0.00E+00
Max		4.70E-05	5.32E-06	
Count		4		
Average			1.17E-05	1.33E-06
Note: A calculated risk value of zero indicates all chemicals in the sample were below background concentrations.				

No site-related chemicals are present at the site. Several naturally occurring nutritionally essential metals were observed in the site soils. No further characterization/investigations are suggested for this site; however, additional analysis for metals is necessary.

4.30.2.2 Screening Site 56—Ecological Evaluation

Sediment samples SE56A, B, and C had low levels of chlorinated pesticides (DDD, DDE, and dieldrin) slightly above background levels and the sediment screening criteria levels (see Appendix C1). Surface water from the site had low levels of dissolved selenium (but not the total selenium) slightly above screening criteria and background, indicating this could be an analytical artifact (see Appendix C2).

4.31 Parcel 30

Parcel 30 is a 400,699 ft² parcel in the northwestern portion of the Main Installation, in OU-4. Parcel 30 consists of Buildings 925 and 949 and the adjacent railroad tracks.

Parcel 30 contains Screening Site 83, dried paint disposal area.

4.31.1 Parcel 30 Risk

One of the BRAC samples had PAHs above residential screening criteria. Risks to industrial receptors were below a level of 1 in a million (see Table 4-55). These low-level PAHs will be further evaluated as part of the RI.

4.31.2 Screening Site 83—Dried Paint Disposal Area

The chart below presents the location and status information for this screening site.

Parcel	Building Number	RI/FS OU	Site No.	CERCLA Status
30	Dried Paint Disposal Area	4	83	Screening

This location was apparently used to dispose of dried paint residues. Site 83 is adjacent to the south side of Building 949.

Table B-8 and Figure 4-36 in the *Screening Sites Field Sampling Plan* (CH2M HILL, September 1995) present the historical data for the site. One sample was previously collected adjacent to the site. This surface soil sample (SS-20) detected metals, pesticides, VOCs, and semivolatile organic compounds (SVOCs).

Sampling locations were selected based on the areas where the wastes were disposed of and on previous sampling results. A boring depth of 10 ft was selected because the site had been a surface disposal area, and surface and shallow soil contamination was probable.

4.31.2.1 Screening Site 83 Risk

Carcinogenic risks and noncarcinogenic ratios for Screening Site 83 are presented in Table 4-56. Detailed chemical-specific PRE estimates are presented in Appendix A.

Table 4-55 Parcel 30 Noncarcinogenic and Carcinogenic Station-Specific Soil Risk Preliminary Risk Evaluation Defense Distribution Depot Memphis, TN			
Parcel	Station	Residential Land Use Risk	Industrial Land Use Risk
Noncarcinogenic			
30	A(30.2) Total	0.00E+00	0.00E+00
	B(30.2) Total	0.00E+00	0.00E+00
Max		0.00E+00	0.00E+00
Count	2		
Average		0.00E+00	0.00E+00
Carcinogenic			
30	A(30.2) Total	0.00E+00	0.00E+00
	B(30.2) Total	1.08E-04	1.22E-05
Max		1.08E-04	1.22E-05
Count	2		
Average		5.40E-05	6.10E-06
Note: A calculated risk value of zero indicates all chemicals in the sample were below background concentrations.			

Table 4-56 Screening Site 83 - Dried Paint Disposal Area Station-Specific Surface Soil Risk Preliminary Risk Evaluation Defense Distribution Depot Memphis, TN				
Site	Parcel	Station	Residential Land Use Risk	Industrial Land Use Risk
Noncarcinogenic				
83	30	SB83A Total	0.00E+00	0.00E+00
		SB83B Total	5.88E+01	4.25E+00
		SS83A Total	3.97E+00	2.09E-01
		SS83B Total	6.78E+01	4.00E+00
		SS83C Total	3.01E+01	3.43E+00
Max			6.78E+01	4.25E+00
Count		5		
Average			3.21E+01	2.38E+00
Carcinogenic				
83	30	SB83A Total	0.00E+00	0.00E+00
		SB83B Total	1.03E-06	4.00E-08
		SS83A Total	0.00E+00	0.00E+00
		SS83B Total	1.23E-05	1.38E-06
		SS83C Total	0.00E+00	0.00E+00
Max			1.23E-05	1.38E-06
Count		5		
Average			2.67E-06	2.83E-07
Note: A calculated risk value of zero indicates all chemicals in the sample were below background concentrations.				

The carcinogenic PRE risk ratio is above 1 in a million level for both industrial and residential scenarios, from the presence of PAHs and low level chlorinated pesticides in the soil samples.

The non-carcinogenic PRE ratios were above a value of 1.0 for both industrial and residential scenarios, primarily due to metals lead, iron, chromium and zinc.

The past paint operations may have impacted the surrounding soil, indicating presence of high levels of metals in the soils, which should be further evaluated.

4.32 Parcel 31

The chart below presents location and status information for this parcel.

Parcel	Facility Numbers	Label	CERFA Map Location	RI/FS OU	Site No.	CERCLA Status
31	X17, X19, X20, X21	31.1	7,12	4	N/A	N/A

Parcel 31 is a 1,033,072 ft² parcel in the northwest portion of the Main Installation, in OU-4. Parcel 31 consists of open storage areas X17, X19, X20, X21, and the adjacent railroad tracks.

Soil sampling was conducted at Label 31.1, which consists of open storage area X17. According to the *Environmental Baseline Survey Report* (Woodward-Clyde, November 1996), the open storage areas have the potential for hazardous materials to have been released. In addition, this parcel contains railroad tracks that were historically sprayed with pesticides, herbicides, and waste oil containing PCP. The railroad tracks, also known as Screening Sites 70/71, are to be sampled during the Screening Sites field effort. For this phase of the program, only surface and subsurface soil samples are collected and analyzed.

4.32.1 Parcel 31 Risk

Because there are no RI or SS sites within this parcel, risks are based on the BRAC data only. In accordance with these BRAC data, the PRE risk ratios at Parcel 31 are summarized below. The risk ratio and the systemic toxicity ratios are presented in Table 4-57. There were no chemicals detected above background levels in this parcel; therefore, no risk ratios or noncarcinogenic PRE ratios are included in this report (see Appendix A).

Due to lack of contamination, based on the one BRAC sample, no further evaluation is recommended for Parcel 31.

4.33 Parcel 32

Parcel 32 is a 453,549 ft² parcel in the northwestern portion of the Main Installation, in OU-4. Parcel 32 consists of Buildings 835 and 865; open storage areas X02, X13, and X15; and the adjacent railroad tracks.

Parcel 32 contains Screening Site 28, Building 865.

Table 4-57
Parcel 31 Noncarcinogenic and Carcinogenic Station-Specific Soil Risk
Preliminary Risk Evaluation
Defense Distribution Depot Memphis, TN

Parcel	Station	Residential Land Use Risk	Industrial Land Use Risk
Noncarcinogenic			
31	A(31.1) Total	0.00E+00	0.00E+00
Max		0.00E+00	0.00E+00
Count	1		
Average		0.00E+00	0.00E+00
Carcinogenic			
31	A(31.1) Total	0.00E+00	0.00E+00
Max		0.00E+00	0.00E+00
Count	1		
Average		0.00E+00	0.00E+00

Note:

A calculated risk value of zero indicates all chemicals in the sample were below background concentrations.

4.33.1 Parcel 32 Risk

There are no chemicals above background levels in the two samples collected from this parcel, thus no PRE ratios were estimated.

4.33.2 Screening Site 28—Building 865

The chart below presents the location and status information for this screening site.

Parcel	Building Number	RI/FS OU	Site No.	CERCLA Status
32	865	4	28	Screening

The Recoup Area Building, Building 865, is a hazardous materials and waste handling area. The area, which is used to transfer materials from damaged or leaking containers into undamaged containers, has been in continual use since 1986. The area north of Building 865 historically has been used as an open storage area.

Site 28 is situated 115 ft west of 10th Street and 180 ft north of G Street. Building 865 is constructed of concrete block, with a poured concrete floor that has a chemical-resistant coating. The materials are placed in separate bays for segregation; bays are bermed to contain spills during repackaging or from leaking containers.

No previous sampling data exist for this site. The sample locations were selected based on activities conducted at the building such as loading, unloading, and repackaging areas.

4.33.2.1 Screening Site 28 Risk

Carcinogenic risks and noncarcinogenic ratios for Screening Site 28 are presented in Table 4-58. Detailed chemical-specific PRE estimates are presented in Appendix A.

The PRE risk ratios for carcinogenic chemicals were above risk levels of 1 in a million due to arsenic in the soils at a level of 21.1 and 21.5 mg/kg, compared to a background level of 20 mg/kg.

The noncarcinogenic PRE ratio was less than 1.0 for an industrial worker scenario but was slightly exceeded for a residential scenario due to several inorganic chemicals present at low levels.

Due to the lack of site-related chemical contamination and concentrations of arsenic very close to the background levels, no further evaluation is suggested for this site; however, additional analysis of metals data is warranted.

4.34 Parcel 33

Parcel 33 is a 1,732,081 ft² parcel in the northwestern portion of the Main Installation, in OU-4. Parcel 33 consists of Buildings 720, 737, 753, 754, 755, 756, 765, 860, and 863; open storage areas X05, X06, X07, X08, X10, X11, and X12; and the adjacent railroad tracks.

Table 4-58
Screening Site 28 - Building 865
Station-Specific Surface Soil Risk
Preliminary Risk Evaluation
Defense Distribution Depot Memphis, TN

Site	Parcel	Station	Residential Land Use Risk	Industrial Land Use Risk
Noncarcinogenic				
28	32	SB28A Total	1.27E+00	8.45E-02
		SB28B Total	6.49E-01	2.53E-02
		SB28C Total	7.85E-01	3.06E-02
		SS28A Total	2.02E+00	1.15E-01
		SS28B Total	9.73E-01	7.29E-02
Max			2.02E+00	1.15E-01
Count		5		
Average			1.14E+00	6.56E-02
Carcinogenic				
28	32	SB28A Total	5.00E-05	5.66E-06
		SB28B Total	0.00E+00	0.00E+00
		SB28C Total	2.38E-09	2.62E-10
		SS28A Total	4.99E-05	5.61E-06
		SS28B Total	0.00E+00	0.00E+00
Max			5.00E-05	5.66E-06
Count		5		
Average			2.00E-05	2.25E-06

Note:

A calculated risk value of zero indicates all chemicals in the sample were below background concentrations.

Parcel 33 contains Screening Site 42, former PCP dip vat area; Screening Site 43, former underground PCP tank area; Screening Site 46, pallet drying area; Screening Site 80, fuel and cleaner dispensing, Building 72; and Screening Site 81, fuel oil Building 765.

4.34.1 Parcel 33 Risk

Carcinogenic risks and noncarcinogenic ratios for Parcel 33 are presented in Table 4-59. Detailed chemical-specific PRE estimates are presented in Appendix A.

Carcinogenic risks exceeded 1 in a million for the residential land use and slightly exceeded 1 in a million for the industrial land use. Carcinogenic exceedances were primarily due to arsenic and benzopyrene detections at one sample location—A(33.9).

Noncarcinogenic risks exceeded 1.0 for the residential land use—but not the industrial land use—due to detections of barium, chromium, and copper at C(33.9) and antimony and chromium at E(33.9).

Further evaluation at Parcel 33 is recommended for the residential land use scenario, but no further action is recommended for the industrial scenario.

4.34.2 Screening Site 42—Former PCP Dip Vat Area

The chart below presents the location and status information for this screening site.

Parcel	Building Number	RI/FS OU	Site No.	CERCLA Status
33	Dip Vat Area	4	42	Screening

The vat at Site 42 was used to hold PCP for treating wood pallets. The site is located near Building 737 and is 275 ft west of 6th Street. PCP inherently contains dioxins as a by-product of manufacturing.

During 1985, O. H. Materials (OHM) conducted soil sampling around the vat (*Summary Report, Onsite Remedial Activities at the Defense Depot Memphis*, OHM, February 1986). A longitudinal sampling grid was constructed underneath the dip vat area. Samples were taken at 5-foot intervals up to a depth of 35 ft. Additionally, soil borings were installed around the Building 737 area.

Correspondence with facility personnel by OHM and USAHEA representatives revealed that PCP liquid had been mixed with waste oil in past years and sprayed on the grounds for dust control. The soil samples from each individual area were composited and analyzed. All six areas showed PCP and dioxin contamination. Furthermore, soil exceeding the 200 parts per billion (ppb) cleanup level for total dioxins and furans currently remains below the 10-foot excavation depth for the vat. Table B-10 and Figure 4-26 in the *Screening Sites Field Sampling Plan* (CH2M HILL, September 1995) present the historical data for the site. Also, pesticides have been used extensively in this area. The sampling locations were selected based on the location of the dip vat and on previous sampling results.

Table 4-59
Parcel 33 Noncarcinogenic and Carcinogenic Station-Specific Soil Risk
Preliminary Risk Evaluation
Defense Distribution Depot Memphis, TN

Parcel	Station	Residential Land Use Risk	Industrial Land Use Risk
Noncarcinogenic			
33	A(33.9) Total	1.15E+00	4.51E-02
	B(33.9) Total	0.00E+00	0.00E+00
	C(33.9) Total	1.93E+00	7.53E-02
	D(33.9) Total	2.56E-01	1.00E-02
	E(33.9) Total	4.55E+00	1.74E-01
Max		4.55E+00	1.74E-01
Count		5	
Average		1.58E+00	6.08E-02
Carcinogenic			
33	A(33.9) Total	1.66E-04	1.88E-05
	B(33.9) Total	0.00E+00	0.00E+00
	C(33.9) Total	0.00E+00	0.00E+00
	D(33.9) Total	2.30E-07	4.59E-08
	E(33.9) Total	7.25E-07	1.45E-07
Max		1.66E-04	1.88E-05
Count		5	
Average		3.34E-05	3.80E-06

Note:

A calculated risk value of zero indicates all chemicals in the sample were below background concentrations.

4.34.2.1 Screening Site 42 Risk

Carcinogenic risks and noncarcinogenic ratios for Screening Site 42 are presented in Table 4-60. Detailed chemical-specific PRE estimates are presented in Appendix A.

The carcinogenic PRE risk ratio was below a risk level of 1 in a million for both industrial and residential scenarios. Dieldrin was detected, but below background values.

No noncarcinogenic chemicals were detected in the soil samples, therefore, a ratio was not estimated.

No further action is necessary at Site 42.

4.34.3 Screening Site 43—Former Underground PCP Tank Area

The chart below presents the location and status information for this screening site.

Parcel	Building Number	R/FS OU	Site No.	CERCLA Status
33	PCP UST Area	4	43	Screening

Site 43 contained a UST that stored PCP. PCP, formerly used for treating pallets at the facility, was mixed with waste oil and applied to the ground surface for dust control purposes. Site 43 is located near the center of the Main Installation, south of Building 737.

During 1985, OHM conducted the tank removal and soil sampling around the excavated tank (*Summary Report, Onsite Remedial Activities at the Defense Depot Memphis*, OHM, February 1986). The structural integrity of the tank was sound. However, leakage was discovered at six joints between the pump house and tank, and between the pump house and dipping vat. The tank was removed, and soils were removed until the excavation pit was approximately 15 ft deep, 20 ft wide, and 22 ft long.

The samples that contained more than 200 ppb total dioxins and furans were packed in roll-off containment vessels. Thirty-nine roll-off vessels were stored in the vicinity of former Building 737 and were covered with tarps for weather protection. The roll-offs were subsequently removed from the facility. The excavation was then filled with 650 cubic ft of native soil and 489 tons of crushed stone (see Table B-10 and Figure 4-27 in the *Screening Sites Field Sampling Plan*, CH2M HILL, September 1995). Pesticides have been used extensively in this area.

A biased sampling approach was selected for the site. Sampling locations were selected based on the former tank location and areas where dioxin and furan contamination was detected.

4.34.3.1 Screening Site 43 Risk

Carcinogenic risks and noncarcinogenic ratios for Screening Site 43 are presented in Table 4-61. Detailed chemical-specific PRE estimates are presented in Appendix A.

The carcinogenic PRE risk ratio was well below a risk level of 1 in a million for both industrial and residential receptors at this site.

Table 4-60 Screening Site 42 - Former PCP Dip Vat Area Station-Specific Surface Soil Risk Preliminary Risk Evaluation Defense Distribution Depot Memphis, TN				
Site	Parcel	Station	Residential Land Use Risk	Industrial Land Use Risk
Noncarcinogenic				
42	33	SS42A Total	0.00E+00	0.00E+00
		SS42B Total	0.00E+00	0.00E+00
		SS42C Total	0.00E+00	0.00E+00
		SS42D Total	0.00E+00	0.00E+00
		SS42E Total	0.00E+00	0.00E+00
Max			0.00E+00	0.00E+00
Count		5		
Average			0.00E+00	0.00E+00
Carcinogenic				
42	33	SS42D Total	0.00E+00	0.00E+00
Max			0.00E+00	0.00E+00
Count		1		
Average			0.00E+00	0.00E+00
Note: A calculated risk value of zero indicates all chemicals in the sample were below background concentrations.				

Table 4-61
Screening Site 43 - Former Underground PCP Tank Area
Station-Specific Surface Soil Risk
Preliminary Risk Evaluation
Defense Distribution Depot Memphis, TN

Site	Parcel	Station	Residential Land Use Risk	Industrial Land Use Risk
Noncarcinogenic				
43	33	SS43A Total	0.00E+00	0.00E+00
		SS43B Total	0.00E+00	0.00E+00
		SS43C Total	1.24E-01	4.70E-03
		SS43D Total	0.00E+00	0.00E+00
		SS43E Total	0.00E+00	0.00E+00
Max			1.24E-01	4.70E-03
Count		5		
Average			2.48E-02	9.39E-04
Carcinogenic				
43	33	SS43C Total	1.86E-07	2.08E-08
Max			1.86E-07	2.08E-08
Count		1		
Average			1.86E-07	2.08E-08
Note: A calculated risk value of zero indicates all chemicals in the sample were below background concentrations.				

The noncarcinogenic ratio was below a value of 1.0 for both industrial and residential receptors at this site.

Therefore, there are no human health concerns associated with this site, and no further action is recommended.

4.34.4 Screening Site 46—Pallet Drying Area

The chart below presents the location and status information for this screening site.

Parcel	Building Number	RI/FS OU	Site No.	CERCLA Status
33	Pallet Drying Area	4	46	Screening

Site 46 was used to dry pallets after the PCP treating operation that occurred at Sites 42 and 43. The site is located near the center of the Main Installation, 115 ft south of Building 720 and 125 ft west of 6th Street.

Results of a soil boring (STB-4), located 75 ft west of Site 46, revealed soils contaminated with 2-Butanone. Table B-11 and Figure 4-26 in the *Screening Sites Field Sampling Plan* (CH2M HILL, September 1995) present the historical data for the site.

The soil sampling locations were selected based on the knowledge of the pallet drying area and the previous soil boring sampling results. The samples were collected from within the pallet drying area.

4.34.4.1 Screening Site 46 Risk

Carcinogenic risks and noncarcinogenic ratios for Screening Site 46 are presented in Table 4-62. Detailed chemical-specific PRE estimates are presented in Appendix A.

The carcinogenic PRE risk ratios were above a risk level of 1 in a million for industrial and residential receptor scenarios from arsenic, chlordane, and DDE/DDT.

The noncarcinogenic PRE ratio values were well below a value of 1.0 for both industrial worker and residential receptor pathways.

The detected chlorinated pesticides, which are present at low levels, are not related to site operations, but could be from historical site applications. Further assessment is recommended at this site due to detections of pesticides and arsenic.

4.34.5 Screening Site 80—Fuel and Cleaner Dispensing, Building 72

The chart below presents the location and status information for this screening site.

Parcel	Building Number	RI/FS OU	Site No.	CERCLA Status
33	720	4	80	Screening

Building 720 contains one 12,000-gallon, aboveground diesel fuel storage tank that is scheduled for replacement. Cleaners also are stored and dispensed in Building 720. Site 80 is

Table 4-62
Screening Site 46 - Pallet Drying Area
Station-Specific Surface Soil Risk
Preliminary Risk Evaluation
Defense Distribution Depot Memphis, TN

Site	Parcel	Station	Residential Land Use Risk	Industrial Land Use Risk
Noncarcinogenic				
46	33	SS46A Total	0.00E+00	0.00E+00
		SS46B Total	0.00E+00	0.00E+00
		SS46C Total	0.00E+00	0.00E+00
		SS46D Total	0.00E+00	0.00E+00
		SS46E Total	0.00E+00	0.00E+00
Max			0.00E+00	0.00E+00
Count		5		
Average			0.00E+00	0.00E+00
Carcinogenic				
46	33	SS46A Total	0.00E+00	0.00E+00
		SS46B Total	0.00E+00	0.00E+00
		SS46C Total	0.00E+00	0.00E+00
		SS46D Total	0.00E+00	0.00E+00
		SS46E Total	7.43E-05	8.38E-06
Max			7.43E-05	8.38E-06
Count		5		
Average			1.49E-05	1.68E-06
Note: A calculated risk value of zero indicates all chemicals in the sample were below background concentrations.				

located approximately 2,000 ft east of the western boundary and 700 ft south of the northern boundary of the Main Installation.

According to the *Remedial Investigations at DDMT, Final Report* (Law Environmental, August 1990), one surface soil sample (SS-29) taken adjacent to Building 720 indicated the presence of VOCs, PAHs, DDT, and metals. Table B-12 and Figure 4-26 in the *Screening Sites Field Sampling Plan* (CH2M HILL, September 1995) present the historical data for the site.

Sample locations were selected based on the location of the storage tank and the loading and unloading area around the railroad tracks that enter the building on the south side. Because the tank is above ground and surface spills are the probable condition, boring depths of 20 ft were selected.

4.34.5.1 Screening Site 80 Risk

Carcinogenic risks and noncarcinogenic ratios for Screening Site 80 are presented in Table 4-63. Detailed chemical-specific PRE estimates are presented in Appendix A.

The PRE risk ratios for carcinogens were slightly above a risk level of 1 in a million for both industrial and residential scenarios, due to the presence of PAHs and PCBs.

The noncarcinogenic PRE ratios were below a value of 1.0 for a worker, but were exceeded for the residential scenario from the presence of PAHs and metals.

The presence of PAHs and PCBs should be further investigated for human health evaluation.

4.34.6 Screening Site 81—Fuel Oil Building 765

The chart below presents the location and status information for this screening site.

Parcel	Building Number	RI/FS OU	Site No.	CERCLA Status
33	765	4	81	Screening

Building 765 contains an aboveground fuel oil storage tank that is scheduled for removal under a separate action by DDMT.

Site 81 is approximately 2,200 ft east of the western boundary and 1,350 ft south of the northern boundary of the installation.

No sampling data exist for this site. Sampling locations were selected on the basis of the tank location.

4.34.6.1 Screening Site 81 Risk

Carcinogenic risks and noncarcinogenic ratios for Screening Site 81 are presented in Table 4-64. Detailed chemical-specific PRE estimates are presented in Appendix A.

The PRE risk ratios were well below a risk level of 1 in a million for both industrial and residential scenarios at the site, as none of the chemicals exceeded the background.

Table 4-63
Screening Site 80 - Fuel and Cleaner Dispensing, Building 72
Station-Specific Surface Soil Risk
Preliminary Risk Evaluation
Defense Distribution Depot Memphis, TN

Site	Parcel	Station	Residential Land Use Risk	Industrial Land Use Risk
Noncarcinogenic				
80	33	SB80A Total	2.13E-06	1.00E-07
		SB80B Total	2.45E+00	1.88E-01
		SS80A Total	0.00E+00	0.00E+00
		SS80B Total	2.59E+00	2.91E-01
		SS80C Total	0.00E+00	0.00E+00
Max			2.59E+00	2.91E-01
Count		5		
Average			1.01E+00	9.58E-02
Carcinogenic				
80	33	SB80A Total	0.00E+00	0.00E+00
		SB80B Total	5.13E-07	2.00E-08
		SS80A Total	4.63E-06	1.80E-07
		SS80B Total	1.89E-05	2.13E-06
		SS80C Total	0.00E+00	0.00E+00
Max			1.89E-05	2.13E-06
Count		5		
Average			4.81E-06	4.67E-07

Note:

A calculated risk value of zero indicates all chemicals in the sample were below background concentrations.

Table 4-64 Screening Site 81 - Fuel Oil Building 765 Station-Specific Surface Soil Risk Preliminary Risk Evaluation Defense Distribution Depot Memphis, TN				
Site	Parcel	Station	Residential Land Use Risk	Industrial Land Use Risk
Noncarcinogenic				
81	24	SB81A Total	0.00E+00	0.00E+00
		SS81A Total	0.00E+00	0.00E+00
		SS81B Total	0.00E+00	0.00E+00
		SS81C Total	0.00E+00	0.00E+00
Max			0.00E+00	0.00E+00
Count		4		
Average			0.00E+00	0.00E+00
Carcinogenic				
81	24	SB81A Total	0.00E+00	0.00E+00
		SS81A Total	0.00E+00	0.00E+00
		SS81B Total	0.00E+00	0.00E+00
		SS81C Total	0.00E+00	0.00E+00
Max			0.00E+00	0.00E+00
Count		4		
Average			0.00E+00	0.00E+00
Note: A calculated risk value of zero indicates all chemicals in the sample were below background concentrations.				

The noncarcinogenic ratios were also not significant, as all of the chemicals are below background levels.

Thus, due to the absence of contamination, the site has no significant human health concerns. No further action is recommended at Site 81.

4.35 Parcel 34

The chart below presents location and status information for this parcel.

Parcel	Building Number	Label	CERFA Map Location	RI/FS OU	Site No.	CERCLA Status
34	360	34.2	24,7	3	N/A	N/A

Parcel 34 is a 302,166 ft² parcel in the southeast part of the Main Installation, in OU-3. Parcel 34 consists of Building 360 and the adjacent railroad tracks.

Soil sampling was conducted at Label 34.2, which consists of Building 360. The surface soil surrounding buildings at the installation may contain pesticides resulting from routine pesticide application at the facility. Sampling was performed to provide information on the presence of pesticides and PCBs in surface soil. In addition, this parcel contains railroad tracks that were historically sprayed with pesticides, herbicides, and waste oil containing PCP. The railroad tracks, also known as Screening Sites 70/71, are to be sampled during the Screening Sites field effort. For this phase of the program, only surface and subsurface soil samples are collected and analyzed.

4.35.1 Parcel 34 Risk

Because there are no RI or SS sites within this parcel, risks are based on the BRAC data only. In accordance with these BRAC data, the PRE risk ratios at Parcel 34 is summarized below. The risk ratio and the systemic toxicity ratios are presented in Table 4-65. The resulting risk is well below acceptable levels for both residential and industrial worker scenarios of 1 in a million (see Appendix A). Thus there are no significant risks from the detected gamma-chlordane at this site, which is below background. No other chemicals were detected above background levels.

The noncarcinogenic PRE ratio were below background levels at Parcel 34.

At Parcel 34, risk ratios and noncarcinogenic PRE ratios are within acceptable levels for industrial workers and residents. Therefore, based on the available data for this parcel, no further assessments are recommended.

4.36 Parcel 35

Parcel 35 is a 262,545 ft² parcel in the southwestern corner of the Main Installation, in OU-2. Parcel 35 consists of Buildings 1084, 1086, 1087, 1088, 1090, and 1091.

Parcel 35 contains Screening Site 31, former spray paint booth; Screening Site 33, sandblasting waste drum storage; and Site 32, the sandblasting waste accumulation area.

Table 4-65
Parcel 34 Noncarcinogenic and Carcinogenic Station-Specific Soil Risk
Preliminary Risk Evaluation
Defense Distribution Depot Memphis, TN

Parcel	Station	Residential Land Use Risk	Industrial Land Use Risk
Noncarcinogenic			
34	A(34.2) Total	0.00E+00	0.00E+00
Total		0.00E+00	0.00E+00
Count	1		
Average		0.00E+00	0.00E+00
Carcinogenic			
34	A(34.2) Total	3.06E-07	3.41E-08
Max		3.06E-07	3.41E-08
Count	1		
Average		3.06E-07	3.41E-08
Note: A calculated risk value of zero indicates all chemicals in the sample were below background concentrations.			

4.36.1 Parcel 35—Human Health Risk

Carcinogenic risks and noncarcinogenic ratios for Parcel 35 are presented in Table 4-66. Detailed chemical-specific PRE estimates are presented in Appendix A.

The PRE carcinogenic risk ratio is above a risk level of 1 in a million from the presence of arsenic and dieldrin. However, in accordance with conclusions of the statistical evaluation (presented in Appendix B), dieldrin is not a COPC for this site due to low concentrations.

The noncarcinogenic PRE ratios were below a value of 1.0 for an industrial worker and are above a value of 1.0 for a residential scenario from the presence of chromium, copper, and zinc at concentrations slightly above background.

No significant human health concerns are expected for this site. Therefore, no further investigations are recommended.

4.36.2 Parcel 35—Ecological Evaluation

Sediment sample A(35.3), which appears to be a surface soil sample, had several of the metals above screening criteria (see Appendix C1).

4.36.3 Screening Site 31—Former Spray Paint Booth

The chart below presents the location and status information for this screening site.

Parcel	Building Number	RI/FS OU	Site No.	CERCLA Status
35	1087	2	31	N/A

Site 31 is located in the southwestern quadrant of the Main Installation. The site is the former location of a drive-through, water cascade spray paint booth and drying oven that was used to conduct major stock primer and enamel spray painting operations. Site 31 was estimated to be used from the 1950s through 1985. The water cascade booth in Building 1087 was replaced in late 1985 with a dry filter spray paint booth located in Building 1086, as described in *Environmental Audit No. 43-1-1387-86* (USAEHA, 1985).

Surface and subsurface soil samples were collected at the southern end of Building 1087. Samples were collected from either side (east and west) of an existing concrete pad and are located downgradient from the building's foundation.

4.36.3.1 Screening Site 31 Risk

Carcinogenic risks and noncarcinogenic ratios for Screening Site 31 are presented in Table 4-67. Detailed chemical-specific PRE estimates are presented in Appendix A.

The PRE risk ratio was above a risk level of 1 in a million for the residential scenario, from arsenic, dieldrin, cadmium, and lead detected above background at Site 35. Lead was detected at concentrations ranging between 201 to 744 mg/kg, all of which are below the industrial criterion of 1,000 mg/kg; however, these concentrations were above the residential criterion. Arsenic was detected at about 3 times the background concentration.

Table 4-66
Parcel 35 Noncarcinogenic and Carcinogenic Station-Specific Soil Risk
Preliminary Risk Evaluation
Defense Distribution Depot Memphis, TN

Parcel	Station	Residential Land Use Risk	Industrial Land Use Risk
Noncarcinogenic			
35	A(35.2) Total	9.72E-01	3.76E-02
	B(35.2) Total	3.83E+00	1.49E-01
	C(35.2) Total	3.60E+00	1.40E-01
	Grand Total	4.62E+01	1.90E+00
Total		5.45E+01	2.22E+00
Count	4	--	
Average		1.36E+01	5.55E-01
Carcinogenic			
35	A(35.2) Total	3.16E-06	4.40E-07
	B(35.2) Total	4.98E-06	7.93E-07
	C(35.2) Total	1.70E-04	1.94E-05
	Grand Total	2.65E-03	2.96E-04
Max		2.65E-03	2.96E-04
Count	4		
Average		7.07E-04	7.92E-05
Note: A calculated risk value of zero indicates all chemicals in the sample were below background concentrations.			

Table 4-67 Screening Site 31 - Former Spray Paint Booth Station-Specific Surface Soil Risk Preliminary Risk Evaluation Defense Distribution Depot Memphis, TN				
Site	Parcel	Station	Residential Land Use Risk	Industrial Land Use Risk
Noncarcinogenic				
31	35	SB31A Total	1.46E+00	9.84E-02
		SB31B Total	7.64E-01	2.98E-02
		SS31A Total	1.77E+01	1.22E+00
		SS31B Total	2.22E+00	1.55E-01
		SS31C Total	1.55E+00	1.29E-01
		SS31D Total	1.98E+00	2.42E-01
		Max	1.77E+01	1.22E+00
Count		6		
Average			4.28E+00	3.13E-01
Carcinogenic				
31	35	SB31A Total	4.79E-05	5.42E-06
		SB31B Total	0.00E+00	0.00E+00
		SS31A Total	2.08E-06	8.10E-08
		SS31B Total	4.36E-07	1.70E-08
		SS31C Total	0.00E+00	0.00E+00
		SS31D Total	0.00E+00	0.00E+00
		Max	4.79E-05	5.42E-06
Count		6		
Average			8.40E-06	9.20E-07
Note: A calculated risk value of zero indicates all chemicals in the sample were below background concentrations.				

These elevated metals could be related to the onsite paint operations elsewhere within the DDMT.

The noncarcinogenic PRE ratios were above a value of 1.0 for both industrial worker and residential scenarios from the presence of chromium and lead.

Because the observed PRE risk and non-carcinogenic ratios are only from the presence of low levels of inorganic chemicals that are naturally occurring and just above background, no significant human health concerns are anticipated from this site under the industrial use scenario.

4.36.4 Screening Site 33—Sandblasting Waste Drum Storage

The chart below presents the location and status information for this screening site.

Parcel	Building Number	RI/FS OU	Site No.	CERCLA Status
35	1088	2	33	N/A

Site 33 is in the southwestern corner of the Main Installation, adjacent to Building 1088. The site is located approximately 150 ft from the western boundary and approximately 360 ft from the southern boundary of the installation.

Site 33 consists of an open-sided, metal-roofed shed with a gravel floor. Historically, 55-gallon drums containing spent sandblasting material have been stored at this site. As of 1990, the existing drums at this site were in good condition, and there was no evidence of any container failures.

OHM obtained one sample from sandblasting material located at the sandblasting area in 1985 and conducted a toxic metals analysis. No contamination above detectable limits was found. A surface soil sample (SS-15) was taken adjacent to the site, as described in *Remedial Investigation at DDMT, Final Report* (Law Environmental, August 1990); this sample indicated the presence of toluene, PAHs, pesticides, PCBs, and metals. A monitoring well (MW-22) located 90 ft south of the site was sampled during Phase I and Phase II of the 1990 RI at DDMT. This well indicated the presence of tetrachloroethene and metals. Figure 4-7 and Tables B-4 and B-5 in the *Screening Sites Field Sampling Plan* (CH2M HILL, September 1995) present the results of previous sampling.

4.36.4.1 Screening Site 33 Risk

Carcinogenic risks and noncarcinogenic ratios for Screening Site 33 are presented in Table 4-68. Detailed chemical-specific PRE estimates are presented in Appendix A.

The PRE risk ratio is well below an accepted level of 1 in a million for both industrial and residential scenarios.

The noncarcinogenic PRE ratio was below a value of 1.0 for an industrial worker, however the ratio is above 1 for a residential receptor, primarily from chromium and lead that is slightly elevated above background.

Based on the metals concentrations, additional risk evaluation is recommended.

Table 4-68 Screening Site 33 - Sandblasting Waste Drum Storage Station-Specific Surface Soil Risk - Noncarcinogenic Preliminary Risk Evaluation Defense Distribution Depot Memphis, TN				
Site	Parcel	Station	Residential Land Use Risk	Industrial Land Use Risk
Noncarcinogenic				
33	35	SB33A Total	1.06E+00	7.91E-02
		SB33B Total	9.16E-01	3.57E-02
		SB33C Total	9.64E-01	3.76E-02
		SS33A Total	1.92E+00	1.79E-01
		SS33B Total	3.94E+00	4.12E-01
		SS33C Total	2.66E+00	2.65E-01
		SS33D Total	8.41E+00	9.32E-01
		SS33E Total	1.73E+00	1.80E-01
		SS33F Total	1.53E+00	1.24E-01
Max			8.41E+00	9.32E-01
Count		9		
Average			2.57E+00	2.49E-01
Carcinogenic				
33	35	SB33A Total	0.00E+00	0.00E+00
		SB33B Total	0.00E+00	0.00E+00
		SB33C Total	0.00E+00	0.00E+00
		SS33A Total	0.00E+00	0.00E+00
		SS33B Total	0.00E+00	0.00E+00
		SS33C Total	0.00E+00	0.00E+00
		SS33D Total	5.13E-07	2.00E-08
		SS33E Total	2.50E-06	2.78E-07
		SS33F Total	0.00E+00	0.00E+00
Max			2.50E-06	2.78E-07
Count		9		
Average			3.35E-07	3.31E-08
Note: A calculated risk value of zero indicates all chemicals in the sample were below background concentrations.				

4.36.5 RI Site 32--Sandblasting Waste Accumulation Area

The chart below presents the location and status information for this site.

Parcel	Building Number	RI/FS OU	Site No.	CERCLA Status
35	1088	2	32	RI

Site 32 consists of a corrugated steel shed with a gravel floor located next to Building 1088 (sandblasting area). Three hoppers collect dust from the sandblasting operations and deposit it into 55-gallon drums. The site has been in service since the 1950s. Before Building 1088 and the hopper system were used, sandblasting was conducted on the open ground in the general vicinity of Building 1087. Surface soil samples collected previously in the vicinity of Site 32 have indicated the presence of metals, pesticides, PCBs, and PAHs.

For this phase of the sampling program, surface soil and subsurface soil samples were collected to assess the vertical and horizontal extent of soil contamination from past activities at the site. Sampling was focused around the northern end of Buildings 1087 and 1088, because the area near the southern end of these buildings was investigated during the screening sites sampling.

4.36.5.1 RI Site 32 Risk

Carcinogenic risks and noncarcinogenic ratios for RI Site 32 are presented in Table 4-69. Detailed chemical-specific PRE estimates are presented in Appendix A.

The PRE risk ratios were well above 1 in a million for the residential scenario and just above 1 in a million for the industrial scenario.

The noncarcinogenic PRE ratio was below a value of 1.0 for the industrial scenario and was above for a residential scenario. Several metals were detected as elevated above background levels at this site.

The observed metals were related to the site operations of painting/sand blasting. However, the concentrations remaining are not high enough to warrant further action. No further evaluation may be needed, if the future use is industrial.

Table 4-69
RI Site 32-(Sandblasting Waste Accumulation Area)
Noncarcinogenic and Carcinogenic Station-Specific Soil Risk
Preliminary Risk Evaluation
Defense Distribution Depot Memphis, TN

Site	Parcel	Station	Residential Land Use Risk	Industrial Land Use Risk
Noncarcinogenic				
32	35	SB32A Total	2.54E+01	9.89E-01
		SS32B Total	4.28E+00	1.66E-01
		SS32C Total	7.43E+00	2.89E-01
		SS32D Total	6.01E+00	2.34E-01
		SS32E Total	6.83E-01	2.66E-02
		SS32F Total	2.90E+00	1.11E-01
		SS32G Total	9.07E+00	3.53E-01
Max			2.54E+01	9.89E-01
Count		7		
Average			7.97E+00	3.10E-01
Carcinogenic				
32	35	SB32A Total	1.21E-04	1.54E-05
		SS32B Total	4.71E-06	7.91E-07
		SS32C Total	3.47E-06	6.93E-07
		SS32D Total	3.83E-06	7.66E-07
		SS32E Total	6.00E-07	1.20E-07
		SS32F Total	1.17E-06	1.30E-07
		SS32G Total	8.45E-06	1.60E-06
Max			1.21E-04	1.54E-05
Count		7		
Average			2.05E-05	2.79E-06
Note: A calculated risk value of zero indicates all chemicals in the sample were below background concentrations.				

5. Site Recommendations

The PRE results summary was presented in Section 4.0. In accordance with the preliminary recommendations in Section 4.0, sites are grouped into one of the following three categories.

- **No Further Assessment (NFA).** Conservative PRE risk calculations indicate that no additional actions are necessary to protect human health and the environment based on the existing data.
- **Further Risk Assessment (RA).** Additional risk evaluation, along with any additional data collection, should be performed in the RI Report.
- **Interim Remedial Action (IRA).** Risk ratios are elevated above 10^4 indicating the interim remedial action (e.g., removal action) may be necessary to protect human health and the environment. IRAs will only be recommended under the industrial land use scenario, because it is the expected land use at the Main Installation sites (with the exception of Parcel 2, Residential Areas).

This section will compare the PRE results and recommendations, summarized in Section 4.0, with the Community Environmental Response Facilitation Act (CERFA) [PL 102-426, amending Section 120(h) of CERCLA] BRAC property categories. CERFA categorizations define the state of the property relative to environmental concerns and are used to help establish whether a property can be leased or transferred. Table 5-1 defines current CERFA BRAC property categories.

Table 5-1 CERFA BRAC Property Category Descriptions Preliminary Risk Evaluation Defense Distribution Depot Memphis, Tennessee	
CERFA Category Number	CERFA BRAC Property Description
1	Areas where no storage, release, or disposal of hazardous substances or petroleum products have occurred (including no migration of these substances from adjacent areas)
2	Areas where only storage of hazardous substances has occurred (but no release, disposal, or migration from adjacent areas)
3	Areas where storage, release, disposal, and/or migration of hazardous substances have occurred, but at concentrations that do not require a removal or remedial action
4	Areas where storage, release, disposal, and/or migration of hazardous substances have occurred, and all remedial actions necessary to protect human health and the environment have been taken
5	Areas where storage, release, disposal, and/or migration of hazardous substances have occurred; removal and/or remedial actions are under way; but all required remedial actions have not yet been taken
6	Areas where storage, release, disposal, and/or migration of hazardous substances have occurred, but required response actions have not yet been implemented
7	Areas that are unevaluated or require additional evaluation

CERFA BRAC property categories were established during monthly BCT Meetings held at DDMT during August, September, and October 1997. BCT members from DDMT, EPA Region IV, and TDEC; together with staff from DDMT; CEHNC; and CH2M HILL used background and risk-based screening criteria to provide a preliminary CERFA categorization. Table 5-2 summarizes the BCT CERFA categorization for each PRE site. Proposed PRE-based CERFA BRAC property categories are also listed in Table 5-2. In most cases, the proposed PRE-based category changes an unknown category (CERFA 7) to a category based on low risk (CERFA 3) or the need for further assessment or remedial action (CERFA 7). The basis for changing the BCT CERFA BRAC property category, in accordance with the proposed PRE-based category, is summarized in Table 5-3. Most, but not all, of the proposed changes are listed in Table 5-3.

Sixty-four site and parcel recommendations were made by the BCT and evaluated in this PRE. From these 64 PRE-based CERFA property category evaluations, changes to the BCT CERFA property categories are summarized as follows:

- Nineteen CERFA categories did not change. However, nine of these are expected to become category 3 after risk evaluation for dieldrin.
- Twenty-one sites or parcels changed from CERFA 7 to a CERFA 6. Two of these are based on dieldrin.
- Seventeen sites or parcels changed from CERFA 7 to CERFA 3.
- Two sites or parcels changed from CERFA 7 to CERFA 1.
- One of each of the following changes occurred: CERFA 1 to CERFA 6, CERFA 6 to CERFA 7, CERFA 1 to CERFA 7, CERFA 4 to CERFA 7, and CERFA 4 to CERFA 2.

CERFA category changes proposed in Table 5-2 are recommended only on the concentration of constituents that may or may not present a risk as determined by the PRE. The presence and, if applicable, the type of hazardous material managed in the site or parcel were not considered in the PRE recommendation. Additional evaluation of the type of operations conducted in the site or parcel should be considered before finalizing the PRE-based CERFA BRAC property category recommendations.

Table 5-2

Comparison of BCT and PRE-based Site Recommendations
Preliminary Risk Evaluation
Defense Distribution Depot Memphis Tennessee

Parcel	Parcel Description	Site	PRE Results	Recommendations		BCT CERFA Categorization	Proposed PRE-Based CERFA Category
				Residential Land Use	Industrial Land Use		
1	East-central portion of Main Installation, incl. parking areas, entrance to Gates 1 and 2, and Administrative Building 144	BRAC Parcel Data	Carcinogenic risk for the industrial scenario is within the range of 10^{-4} risk level and for the residential scenario is elevated above 10^{-4} . No noncarcinogens within the two samples.	Dieldrin Issue	Dieldrin Issue	Subparcels 1.1 through 1.7 are CERFA 1. Subparcel 1.8, open areas and Bldg. 145, is CERFA 7.	Remain CERFA 7. Dieldrin due to sitewide, not parcel, application
2	Located in the eastern portion of the Installation, incl. housing quarters	BRAC Parcel Data	Carcinogenic risk for both residential and industrial scenario are elevated above 10^{-4} . No noncarcinogens within the two samples.	IRA	Dieldrin Issue	Subparcels 2.1 through 2.6 CERFA 1. Subparcel 2.7, open areas, CERFA 6.	PRE results agree with CERFA 6 for open areas IRA for residential area.
		BRAC Parcel Data	Carcinogenic risks are above 10^{-4} and noncarcinogenic ratios are near or less than 1.	RA	RA	Subparcels 3.1 through 3.3 CERFA 1.	No spatial correlation of samples to subparcels 3.1 through 3.2.
		SS 51-Lake Danielson Outlet Drainage Ditch	Risks are slightly above 10^{-4} due to arsenic. Low-level arsenic should be further evaluated for documentation of non-exceedance compared to background. Ecological criteria for sediments and surface water were slightly exceeded for metals. No organic contaminants.	NFA	NFA	CERFA 7	Expect NFA, but keep CERFA 7 until RA is complete
		SS 52-Golf Course Pond Outlet Ditch	Carcinogenic risks slightly above 10^{-4} . Noncarcinogenic ratios exceeded. Sediment and surface water screened for ecological criteria indicated load in SW and DDO, DDE, and dieldrin in sediment above criteria.	RA	RA	CERFA 7	CERFA 6
		SS 69-Flamethrower Liquid Fuel Application	No risks calculated due to absence of contaminant levels above background.	NFA	NFA	CERFA 7	CERFA 3
		RI Site 25-Golf Course Pond	No risks calculated due to absence of contaminant levels above background.	NFA	NFA	CERFA 7	CERFA 3
3	Located in the southeast portion of the Installation, incl. Golf Course, Lake Danielson, Golf Course Pond, and drainages	RI Site 26-Lake Danielson	No risks calculated due to absence of contaminant levels above background. Only surface water samples collected from the outfalls indicated presence of slightly elevated lead above the screening criteria.	NFA	NFA	CERFA 7	CERFA 3
4	Located in the east-central portion of the Installation, incl. several small buildings (251-257, 260-265, 270, 271, and 273 and parking areas)	BRAC Parcel Data	Carcinogenic risks slightly above 10^{-4} . Noncarcinogenic ratios exceeded.	RA	RA	NA	CERFA 8

Table 5-2
Comparison of BCT and PRE-based Site Recommendations
Preliminary Risk Evaluation
Defense Distribution Depot Memphis Tennessee

Parcel	Parcel Description	Site	PRE Results	Recommendations		BCT CERFA Categorization	Proposed PRE-Based CERFA Category
				Residential Land Use	Industrial Land Use		
4	Located in the east-central portion of the Installation, incl. several small buildings (251-257, 260-265, 270, 271, and 273 and parking areas)	SS 66-Petroleum, Oil, and Lubricants (POL) Building 253	Risks slightly above 10^{-6} primarily due to PAHs.	RA for PAHs	RA for PAHs	CERFA 7	CERFA 8
		SS 67-Installation Gas Station, Building 257	Carcinogenic risks of about 1×10^{-6} for industrial scenario and 1×10^{-6} for residential scenario. Total noncarcinogenic ratios slightly exceed 1.	Inorganic chemicals issue	Inorganic chemicals issue	CERFA 8	CERFA 8
		SS 68-POL Building 263	No surface soil samples.	None	None	CERFA 7	CERFA 7
		RI 58-Pad 267	Due to dieldrin, industrial carcinogenic risk ratio well below 10^{-6} ; residential 4×10^{-6} . Dieldrin is at 0.098 mg/kg, below 0.36 mg/kg from background critical value.	RA	NFA	CERFA 7	CERFA 8 for residential, CERFA 3 for industrial.
5	Located in the eastern portion between Parcels 3 and 4, incl. Buildings 272 and 274, and parking areas	RI 59-Building 273	Industrial carcinogenic risk ratio below 10^{-6} ; residential 1.5×10^{-6} .	RA	NFA	CERFA 7	CERFA 8 for residential, CERFA 3 for industrial.
		BRAC Parcel Data	Risk ratios for both scenarios were below 10^{-6} , and no NC chemicals.	NFA	NFA	NA	NA
6	Located in the east-central portion of the Installation, incl. Warehouse Buildings 250, 349, and 350, and railroad tracks	RI 48-Farmer PCB Transformer Storage Area	PCB Aroclor 1260 causes residential carcinogenic risk of 1.5×10^{-6} . Industrial risks below 10^{-6} .	NFA/RA	NFA	CERFA 6 - Early removal candidate	CERFA 6
		BRAC Parcel Data	Slightly elevated risk for industrial and elevated risks from chlorinated pesticides for the residential scenario.	Focused RA	Focused RA	CERFA 7 for all subparcels	CERFA 6 for Subparcel B.1, Open Areas
7	Smaller parcel located north of Parcel 6, incl. Warehouse Building 249	SS 65-XXCC-3, Building 249	Carcinogenic risk ratios are 4×10^{-4} for industrial and 2×10^{-3} for residential scenarios. Noncarcinogenic ratios exceed 1 for residential.	RA for PAHs	RA for PAHs	CERFA 7	CERFA 6
		BRAC Parcel Data	Resulting risk is slightly above for residential and is within the range for an industrial worker exposure of 1 in a million (10^{-6}).	Dieldrin issue	Dieldrin issue	CERFA 7 for all subparcels	CERFA 8 for Subparcel 8.1, Open Areas due to dieldrin
8	Located in the north-central portion of the Installation, incl. Warehouse 228, 230, 329, and 330, and railroad tracks	BRAC Parcel Data	Resulting risk is above for residential and industrial worker exposure scenarios of 1 in a million (10^{-6}).	Dieldrin issue	Dieldrin issue	CERFA 7 for all subparcels	CERFA 6 for Subparcel 9.1, Open Areas due to dieldrin
		BRAC Parcel Data	Resulting risk is above for residential and industrial worker exposure scenarios of 1 in a million (10^{-6}).	Dieldrin issue	Dieldrin issue	CERFA 7 for all subparcels	CERFA 6 for Subparcel 9.1, Open Areas due to dieldrin

Table 5-2

Comparison of BCT and PRE-based Site Recommendations
Preliminary Risk Evaluation
Defense Distribution Depot Memphis Tennessee

Parcel	Parcel Description	Site	PRE Results	Recommendations			BCT CERFA Categorization	Proposed PRE-Based CERFA Category
				Residential Land Use	Industrial Land Use			
10	Located in the central portion of the Installation, incl. Buildings 549, 550, 649, and 650, and railroad tracks	BRAC Parcel Data	Carcinogen risks are above 10^{-4} for residential and industrial worker scenarios.	Dieldrin Issue	Dieldrin Issue		CERFA 3 for Subparcel 10.1, Hazardous Materials Storage Area. CERFA 7 for remaining subparcels.	CERFA 6 for Subparcel 10.1, Open Areas, due to dieldrin
11	Located in central portion of the Installation, north of Parcel 10; incl. Buildings 529, 530, and 630, and railroad tracks	BRAC Parcel Data	Carcinogen risks are above 10^{-4} for residential and industrial worker scenarios.	Dieldrin Issue	Dieldrin Issue		CERFA 7 for all subparcels	CERFA 6 for Subparcel 11.1, Open Areas due to dieldrin
12	Located in the northern section of the warehouse area of the Installation, incl. Building 629	RI 57-Building 629	Slightly elevated risk of 1×10^{-4} industrial and 3×10^{-5} residential at one sample location. Risk ratios slightly exceed 10^{-4} for residential land use, but are below 10^{-4} for industrial scenario.	NFA/RA	NFA/RA		CERFA 7 - Early removal candidate.	CERFA 3 is expected, but keep at CERFA 7 pending RA.
13	Installation, south of Parcel 14; incl. Building 210; western half of the parcel has railroad tracks	BRAC Parcel Data	Risk ratios slightly exceed 10^{-4} for residential land use, but are below 10^{-4} for industrial scenario.	NFA	NFA		Subparcel 13.5, Open Areas, CERFA 7	Subparcel, 13.5, Open Areas, CERFA 1
14	Located in the northeastern corner of the Installation, north of Parcel 13; incl. Building 209 and railroad tracks across the parcel	BRAC Parcel Data	Risk ratios slightly exceed 10^{-4} for residential land use, but are below 10^{-4} for industrial scenario.	Dieldrin Issue	Dieldrin Issue		CERFA 1 for Sentry Gate and CERFA 2 for Warehouses	CERFA 6 for Warehouses due to dieldrin
		BRAC Parcel Data	Risk ratios slightly exceed 10^{-4} for residential land use, but are below 10^{-4} for industrial scenario.	Dieldrin Issue	Dieldrin Issue		CERFA 7 for Subparcel 15.6, Open Areas.	CERFA 1 for Subparcel 15.6, Open Areas
		SS 35-Defense Reutilization Marketing Office (DRMO) Building T-308; Hazardous Waste Storage	No carcinogenic or noncarcinogenic risks. Arsenic above background results in residential and industrial carcinogenic risks of 6.4×10^{-4} and 7.0×10^{-4} , respectively. Noncarcinogenic ratio slightly above 1 for residential.	NFA	NFA		CERFA 7	CERFA 3
		SS 36 through 39-DRMO Drum Storage		NFA/RA Low level metals issue	NFA/RA Low level metals issue		CERFA 8	CERFA 3 expected, but keep at CERFA 7 pending RA.
15	One of the large parcels located in the north-central portion of the Installation; consists mostly of storage yards with small buildings (Buildings 308, 309, 319, 416, 417, etc.) and railroad tracks	SS 54-DRMO East Storm Water Runoff Area	No carcinogenic or noncarcinogenic risks. Arsenic was slightly above background. Sediment samples had DDD, DDE, and dieldrin and metals (chromium and lead) above ecological criteria.	NFA. Low level metals issue	NFA. Low level metals issue		CERFA 7	CERFA 3

Table S-2

**Comparison of BCT and PRE-based Site Recommendations
Preliminary Risk Evaluation
Defense Distribution Depot Memphis Tennessee**

Parcel	Parcel Description	Site	PRE Results	Recommendations		BCT CERFA Categorization	Proposed PRE-based CERFA Category
				Residential Land Use	Industrial Land Use		
		SS 55-ORMO North Storm Water Runoff Area	No carcinogenic or noncarcinogenic risks. Ecological criteria were exceeded for DDD and DDE in sediments.	NFA	NFA	CERFA 7	CERFA 3
		SS 72-Waste Oil (PDO Yard) Surface Application for Dust Control	Arsenic just above background results in industrial and residential risks of 7.6×10^{-6} and 2.3×10^{-6} , respectively. No organic constituents of concern.	NFA/RA. Low level metals issue	NFA/RA. Low level metals issue	CERFA 7	CERFA 3 expected, but CERFA 7 pending RA.
		SS 74-Flammables and Toxics (West End Building 319)	Carcinogenic risks are below 10^{-6} and noncarcinogenic ratios are less than 1.	NFA	NFA	CERFA 7	CERFA 3
15	One of the large parcels located in the north-central portion of the Installation; consists mostly of storage yards with small buildings (Buildings 308, 309, 319, 416, 417, etc.) and railroad tracks	SS 79-Fuels, Miscellaneous Liquids, Wood, and Paper	Risks exceed 1×10^{-6} for industrial and residential scenarios due to PAHs and arsenic. Noncarcinogenic ratios exceed 1.	RA	RA	CERFA 1	CERFA 3 expected, but keep at CERFA 7 pending RA.
16	Located in the central portion of the Installation south of Parcel 10; incl. Buildings 558 and 559, and railroad tracks	BRAC Parcel Data	Risk ratios slightly exceed 10^{-6} for residential land use, but are below 10^{-6} for industrial scenario.	Dieldrin Issue	Dieldrin Issue	CERFA 7 for Subparcel 16.1, Open Areas.	CERFA 6 due to dieldrin
17	Located east of Parcel 16, in the east central portion of the Installation, incl. Building 359 and railroad tracks	BRAC Parcel Data	Risk ratios slightly exceed 10^{-6} for residential land use, but are below 10^{-6} for industrial scenario.	Dieldrin Issue	Dieldrin Issue	CERFA 7 for Subparcel 17.2, Area Surrounding Bldg 359.	CERFA 6 due to dieldrin
18	Located in the central portion of the Installation, south of Parcel 16; incl. Buildings 560 and railroad tracks	BRAC Parcel Data	No chemicals above background levels. Therefore, no risk or noncarcinogenic PRE ratios calculated.	NFA	NFA	CERFA 3 for Subparcel 18.2, Open Areas.	CERFA 3
19	Located in the central portion of the Installation, incl. Buildings 465, 467-469	BRAC Parcel Data	No BRAC data.	None	None	NA	NA
20	Larger parcel located in the south-central portion of the Installation, incl. Warehouses 470, 489, and 670 and railroad tracks in the northern portion of the parcel	BRAC Parcel Data	Carcinogenic risks are above 10^{-6} for residential and industrial worker scenarios.	RA	RA	CERFA 7 for Subparcels 20.5 and 20.6, Open Areas	CERFA 6

Table 5-2

Comparison of BCT and PRE-based Site Recommendations
Preliminary Risk Evaluation
Defense Distribution Depot Memphis Tennessee

Parcel	Parcel Description	Site	PRE Results	Recommendations		BCT CERFA Categorization	Proposed PRE-Based CERFA Category
				Residential Land Use	Industrial Land Use		
21	Located in the south-central portion of the Installation, south of Parcel 20; incl. Warehouses 490, 685, 689, and 690	BRAC Parcel Data	Risk ratios exceeding 10^{-4} for both residential and industrial land use.	Dieldrin issue	Dieldrin issue	CERFA 7 for Subparcel 21.5, Open Areas	CERFA 6 due to dieldrin
		SS 75—Unknown Wastes near Building 689	The PRE carcinogenic risk ratio is exceeded for both industrial and residential scenarios.	RA for PAHs	RA for PAHs	Parcel 21.5, Open Areas, CERFA 7 (equivalent to Site 75)	CERFA 6
		SS 76—Unknown Wastes near Building 690	Carcinogenic risks are below 10^{-4} and noncarcinogenic ratios are less than 1.	NFA	NFA	Parcel 21.5, Open Areas, CERFA 7 (equivalent to Site 76)	CERFA 3
		SS 78—Alcohol, Acetone, Toluene, and Hydrofluoric Acid Area, Building 689	No surface soil data.	None	None	NA	NA
22	Small parcel located within Parcel 21, in the south-central portion of the Installation	BRAC Parcel Data	Carcinogenic risks are below 10^{-4} and noncarcinogenic ratios are less than 1.	NFA	NFA	CERFA 7 for Subparcels 22.1 and 22.2, Open Areas	CERFA 3
		SS Site 77—Unknown Waste near Buildings 689 and 690	The PRE carcinogenic risk ratios were excessive for both industrial and residential scenarios due to the presence of PAHs in three of the four surface soils collected from the site. Noncarcinogenic risks exceeded 10^{-4} for residential scenario.	RA	RA	CERFA 7	CERFA 6
		BRAC Parcel Data	PRE carcinogenic risks are below 10^{-4} and noncarcinogenic ratios slightly exceed 10^{-4} for natural parameters.	NFA - low level metals issue	NFA - low level metals issue	CERFA 7	CERFA 3
23	Located in the southernmost part of the Installation, incl. several grass-, gravel-, and asphalt-covered areas and small buildings, roads, and railroad tracks	SS 82—Flammables (Buildings 763 and 793)	PRE carcinogenic risks are above 10^{-4} due to arsenic just above background levels. Residential noncarcinogenic risks above unity due to natural parameters.	NFA - low level metals issue	NFA - low level metals issue	CERFA 7	CERFA 3
		BRAC Parcel Data	PRE carcinogenic risk ratios exceed 10^{-4} for both industrial and residential scenarios due to arsenic in one surface soil sample.	NFA/RA - low level metals issue	NFA/RA - low level metals issue	CERFA 7	CERFA 3 expected, but keep at CERFA 7 pending RA.
24	Located in the west-central portion of the Installation south of Parcel 33; incl. storage yard, gravel-covered areas, and railroad tracks	RI 27—Former Recoupment Area (Building S-873)	PAHs result in residential and industrial PRE carcinogenic risks exceeding 10^{-4} . Residential noncarcinogenic risks exceeded 10^{-4} for PAHs and metals.	RA	RA	CERFA 6 - Early Removal Candidate	CERFA 6

Table 5-2
Comparison of BCT and PRE-based Site Recommendations
Preliminary Risk Evaluation
Defense Distribution Depot Memphis Tennessee

Parcel	Parcel Description	Site	PRE Results	Recommendations		BCT CERFA Categorization	Proposed PRE-Based CERFA Category
				Residential Land Use	Industrial Land Use		
24	Located in the west-central portion of the Installation south of Parcel 33; incl. storage yard, gravel-covered areas, and railroad tracks	RI 34-Underground Waste Oil Storage Tanks at Building 770	PAHs result in residential and industrial PRE carcinogenic risks exceeding 10^{-4} . Residential noncarcinogenic risks slightly exceeded 1 for PAHs and metals.	RA	RA	CERFA 7	CERFA 8
		BRAC Parcel Data	Carcinogenic risks are below 10^{-4} and noncarcinogenic ratios less than 1.	NFA of BRAC Data	NFA of BRAC Data	CERFA 4	CERFA 2
25	Located in the southwestern portion of the Installation, incl. Warehouses 873, and 875, and railroad tracks	RI 27-Former Recoupment Area (Building S-873)	PAHs result in residential and industrial PRE carcinogenic risks exceeding 10^{-4} . Residential noncarcinogenic risks slightly exceeded 1 for PAHs.	RA for PAHs	RA for PAHs	CERFA 6 - Early Removal Candidate	CERFA 6
26	Located in the west central portion of the Installation, incl. Building 970 and railroad tracks	BRAC Parcel	carcinogenic risks exceeding 10^{-4} . Residential noncarcinogenic risks exceeded 1 for PAHs.	None	None	NA	NA
27	Located west of Parcel 28, in the western portion of the Installation; incl. Warehouse 972	SS 84-Building 972	PAHs result in residential and industrial PRE carcinogenic risks exceeding 10^{-4} . Residential noncarcinogenic risks exceeded 1 for PAHs.	RA for PAHs	RA for PAHs	CERFA 4	CERFA 3 expected, but CERFA 7 pending RA.
		BRAC Parcel Data	Carcinogenic PRE risk ratio was well within 10^{-4} for both industrial and residential scenarios. Non-carcinogenic PRE ratios were exceeded for both an industrial and residential scenario primarily from iron and aluminum.	NFA - pending metals analysis	NFA - pending metals analysis	CERFA 7	CERFA 3
28	Located in the southwestern portion of the Installation, incl. Warehouse 1089, railroad tracks, and electrical substation (TVA) structures	SS 89-Building 1089	Carcinogenic PRE risk ratio exceeds 10^{-4} due to arsenic slightly above background. Noncarcinogenic ratios exceed 1 for industrial and residential scenarios.	Focused IR	Focused IR	CERFA 6 - Early Removal Candidate	CERFA 6
29	Located in the northwestern corner of the Installation, incl. storage yard (X30), several roads, and offsite drainage north of Gate 9	BRAC Parcel Data	Carcinogenic PRE risk ratio below 10^{-4} for industrial scenario, but exceeds 10^{-3} in residential due to single dieldrin detection. Noncarcinogenic ratio below 1 for industrial but slightly exceeds 1 due to naturally occurring elements.	NFA-low level metals issue	NFA-low level metals issue	CERFA 7	CERFA 3

Table 5-2
Comparison of BCT and PRE-based Site Recommendations
Preliminary Risk Evaluation
Defense Distribution Depot Memphis Tennessee

Parcel	Parcel Description	Site	PRE Results	Recommendations		BCT CERFA Categorization	Proposed PRE-Based CERFA Category
				Residential Land Use	Industrial Land Use		
29	Located in the northwestern corner of the installation, incl. storage yard (X30), several roads, and offsite drainage north of Gate 9	SS 56-West Gate Storm Water Drainage Canal	Carcinogenic PRE risk ratios are above 10^{-4} for both residential and industrial scenarios due to arsenic just above background levels. Noncarcinogenic ratios also exceed 1 for both land use scenarios due to naturally occurring metals. Sediments had DDD, DDE, and dieldrin above sediment-screening criteria.	NFA - pending metals analysis	NFA - pending metals analysis	CERFA 7	CERFA 3 expected, but keep at CERFA 7 pending RA.
30	Located in the northwestern portion of the installation, east and south of Parcel 29; incl. Buildings 925, 949, and open storage yard X23, and railroad tracks	BRAC Parcel	Carcinogenic PRE risk ratio below 10^{-4} for industrial scenario, but exceeds 10^{-4} in residential due to low level PAHs.	None	None	NA	NA
31	Located in the northwestern portion of the installation, east of Parcel 30; incl. several open storage yards X17, X19, X20, and X21, and railroad tracks	SS Site 83-Dried Paint Disposal Area	The carcinogenic PRE risk ratio is above 10^{-4} for both industrial and residential scenarios, due to the presence of PAHs and other chlorinated pesticides. Noncarcinogenic ratios were above 1 due to metals.	NFA/RA - low level metals issue	NFA/RA - low level metals issue	CERFA 7	CERFA 3 expected, but keep at CERFA 7 pending RA.
32	Located in the north-central portion of the installation, west of Parcel 33; incl. storage yards X02, X13, and X15 and Buildings 835, 865, and concrete-paved areas	SS Site 28-Building 865	Lead (208 mg/kg) slightly above the screening criteria (200 mg/kg) in one sample.				
			The PRE risk ratios for both industrial and residential scenarios are above 10^{-4} , due to arsenic slightly above background levels.	NFA - pending analysis of metals	NFA - pending analysis of metals	CERFA 7	CERFA 6
33	Large parcel encompassing main railroad track confluence; incl. several storage yards and smaller buildings	BRAC Parcel Data SS 42-Former PCP Dip Val Area SS 43-Former Underground PCP Tank Area	The PRE risk ratios exceed 10^{-4} for the residential scenario, but not the industrial. PRE noncarcinogenic risks exceed 1 for residential scenario due to antimony, chromium, and barium. Carcinogenic PRE risk ratios do not exceed 10^{-4} for either land use scenario.	RA - low level metals issue	RA - low level metals issue	CERFA 7 for Subpanel 33.9, Open Areas.	CERFA 6
			Carcinogenic risks are below 10^{-4} and noncarcinogenic ratios are less than 1.	NFA	NFA	CERFA 7	CERFA 3
				NFA	NFA	CERFA 7	CERFA 3

Table 3-2

Comparison of BCT and PRE-based Site Recommendations
Preliminary Risk Evaluation
Defense Distribution Depot Memphis Tennessee

Parcel	Parcel Description	Site	PRE Results	Recommendations		BCT CERFA Categorization	Proposed PRE-based CERFA Category
				Residential Land Use	Industrial Land Use		
33	Large parcel encompassing main railroad track confluence; incl. several storage yards and smaller buildings Located south of Parcel 17 and north of Parcel 3.	SS Site 48-Pallet Drying Area	Carcinogenic PRE risk ratios were above 10^{-6} level for industrial and residential scenarios due to arsenic, chlordane, and DDT/DDE.	RA	RA	CERFA 7	CERFA 6
		SS 80-Fuel and Cleaner Dispensing, Building 72	Carcinogenic PRE risk ratios were slightly above 10^{-6} for both land use scenarios due to PCBs and PAHs. Residential noncarcinogenic ratios exceeded 1 due to PAHs and metals.	RA	RA	CERFA 7	CERFA 6
		SS 81-Fuel Oil Building 765	Carcinogenic risks are below 10^{-4} and noncarcinogenic ratios are less than 1.	NFA	NFA	CERFA 7	CERFA 3
34		BRAC Parcel Data	Carcinogenic risks are below 10^{-4} and noncarcinogenic ratios are less than 1.				
35	Located in the southwestern corner of the installation, incl. several small buildings for paint operations		Industrial and residential PRE carcinogenic risks are above 10^{-4} and residential noncarcinogenic ratios slightly exceed 1.	NFA/RA	NFA/RA	CERFA 7	CERFA 3 expected, but keep at CERFA 7 pending RA.
		SS 31-Former Spray Paint Booth	Residential PRE carcinogenic risks are above 10^{-4} due to single arsenic detection just above background. Residential and noncarcinogenic risk ratios exceed 1 due to low-level metals.	RA	RA	CERFA 7	CERFA 7 pending RA.
		SS 33-Sandblasting Waste Drum Storage	Carcinogenic risks are below 10^{-4} and noncarcinogenic ratios are less than 1 for industrial and slightly above 1 for residential scenario.	NFA/RA	NFA/RA	CERFA 7	CERFA 3 expected, but keep at CERFA 7 pending RA.
		SS 32-Sandblasting Waste Accumulation Area	Industrial and residential PRE carcinogenic risks are above 10^{-4} due to arsenic and PAHs detections. Noncarcinogenic risk ratios exceed 1 due to metals.	NFA/RA	NFA	CERFA 7	CERFA 3 expected, but keep at CERFA 7 pending RA.

Notes: RA = Additional Risk Assessment

NFA = No Further Assessment

NFA/RA = No Further Assessment likely,

but RA needed to confirm.

NA = Not available

Table 5-3
Basis for Proposed CERFA Category Changes in Accordance with PRE Results
Preliminary Risk Evaluation
Defense Distribution Depot Memphis, Tennessee

BCT Category	PRE Category	Basis for Proposed CERFA Category Change
CERFA 7	CERFA 3	Risk status of site not determined by BCT (CERFA 7). PRE results indicate that if a release had occurred, concentrations of constituents are below levels of concern (CERFA 3)
CERFA 7	CERFA 6	Risk status of site not determined by BCT (CERFA 7). PRE results indicate that a release has occurred that requires a response action, additional assessment, or remedial action (CERFA 6). The response action has not yet occurred
CERFA 7	CERFA 3 (expected), but keep at CERFA 7 (pending RA)	Risk status of site not determined by BCT (CERFA 7). Based on conservative PRE calculations, risks are low and expected to be below remedial action criteria (CERFA 3). However, additional risk assessment is necessary to confirm this; therefore the site remains unevaluated (CERFA 7) pending completion of the RA
CERFA 7	CERFA 6 due to dieldrin	Risk status of site not determined by BCT (CERFA 7). The pesticide dieldrin requires additional risk evaluation or removal action (CERFA 6).

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Appendix A—Station-Specific Risk Calculations

Table A-1 - Carcinogenic Risk Calculation for BRAC Parcels

Table A-2 - Carcinogenic Risk Calculations for Screening Sites

Table A-3 - Carcinogenic Risk Calculations for RI Sites

Table A-4 - Noncarcinogenic Risk Calculation for BRAC Parcels

Table A-5 - Noncarcinogenic Risk Calculations for Screening Sites

Table A-6 - Noncarcinogenic Risk Calculations for RI Sites

Table A-7 - Well-Specific Groundwater PRE Carcinogenic Risk Ratios

Table A-8 - Well-Specific Groundwater PRE Noncarcinogenic Risk Ratios

Table A-1
Carcinogenic Risk Calculation for BRAC Parcels (mg/kg)

Parcel	StationID	Parameter	Concentration	Background	Residential Land Use Criteria	Industrial Land Use Criteria	Residential Pre-Carc. Risk Ratio	Industrial Pre-Carc. Risk Ratio
1	A(1.8)	DIELDRIN	0.31	.086	.04	.36	7.75E-06	8.61E-07
	A(1.8) Total						7.75E-06	8.61E-07
1	B(1.8)	DIELDRIN	0.59	.086	.04	.36	1.48E-05	1.64E-06
	B(1.8) Total						1.48E-05	1.64E-06
2	A(2.7)	DDE	2.3	.16	1.9	.17	1.21E-06	1.35E-07
2	A(2.7)	DDT	3.5	.074	1.9	.17	1.84E-06	2.06E-07
2	A(2.7)	DIELDRIN	5.5	.086	.04	.36	1.38E-04	1.53E-05
	A(2.7) Total						1.41E-04	1.56E-05
2	B(2.7)	DIELDRIN	0.72	.086	.04	.36	1.80E-05	2.00E-06
	B(2.7) Total						1.80E-05	2.00E-06
2	C(2.7)	DIELDRIN	0.98	.086	.04	.36	2.45E-05	2.72E-06
	C(2.7) Total						2.45E-05	2.72E-06
2	D(2.7)	DDT	2	.074	1.9	.17	1.05E-06	1.18E-07
2	D(2.7)	GAMMA-CHLORDANE	1.1	.026	0.49	4.4	2.24E-06	2.50E-07
	D(2.7) Total						3.30E-06	3.68E-07
3	A(3.10)	ARSENIC	101	.20	.43	3.8	2.35E-04	2.66E-05
3	A(3.10)	DDE	0.019	.16	1.9	.17		
3	A(3.10)	DDT	0.023	.074	1.9	.17		
3	A(3.10)	DIELDRIN	0.06	.086	.04	.36		
3	A(3.10)	LEAD	167	.43	200	1000	8.35E-07	1.67E-07
	A(3.10) Total						2.36E-04	2.67E-05
3	A(3.5)	DDE	0.26	.16	1.9	.17	1.37E-07	1.53E-08
3	A(3.5)	DDT	0.13	.074	1.9	.17	6.84E-08	7.65E-09
3	A(3.5)	DIELDRIN	0.5	.086	.04	.36	1.25E-05	1.39E-06
3	A(3.5)	GAMMA-CHLORDANE	0.023	.026	0.49	4.4		
	A(3.5) Total						1.27E-05	1.41E-06
3	B(3.5)	DIELDRIN	10	.086	.04	.36	2.50E-04	2.78E-05
	B(3.5) Total						2.50E-04	2.78E-05
3	C(3.5)	DIELDRIN	0.068	.086	.04	.36		
	C(3.5) Total						0.00E+00	0.00E+00
3	D(3.5)	DIELDRIN	1.4	.086	.04	.36	3.50E-05	3.89E-06
	D(3.5) Total						3.50E-05	3.89E-06
3	E(3.5)	DDE	0.53	.16	1.9	.17	2.79E-07	3.12E-08
3	E(3.5)	DIELDRIN	0.57	.086	.04	.36	1.43E-05	1.58E-06
	E(3.5) Total						1.45E-05	1.61E-06
3	F(3.5)	DDE	0.17	.16	1.9	.17	8.95E-08	1.00E-08
3	F(3.5)	DDT	0.14	.074	1.9	.17	7.37E-08	8.24E-09
3	F(3.5)	DIELDRIN	0.44	.086	.04	.36	1.10E-05	1.22E-06
	F(3.5) Total						1.12E-05	1.24E-06
3	G(3.5)	ARSENIC	10.5	.20	.43	3.8		
3	G(3.5)	BERYLLIUM	0.53	1.1	.15	1.3		
3	G(3.5)	CADMIUM	0.39	1.4	3.9	100		
3	G(3.5)	LEAD	12.2	.43	200	1000		
	G(3.5) Total						0.00E+00	0.00E+00
3	H(3.5)	ARSENIC	16	.20	.43	3.8		
3	H(3.5)	BENZO(a)ANTHRACENE	0.076	.71	.88	7.8		
3	H(3.5)	BENZO(a)PYRENE	0.082	.96	.088	.78		
3	H(3.5)	BENZO(b)FLUORANTHENE	0.089	.9	.88	7.8		
3	H(3.5)	BENZO(k)FLUORANTHENE	0.084	.78	8.8	78		
3	H(3.5)	BERYLLIUM	0.39	1.1	.15	1.3		
3	H(3.5)	CADMIUM	0.39	1.4	3.9	100		
3	H(3.5)	CHRYSENE	0.094	.94	88	780		
3	H(3.5)	INDENO(1,2,3-c,d)PYRENE	0.066	.7	.88	7.8		

Table A-1
Carcinogenic Risk Calculation for BRAC Parcels (mg/kg)

Parcel	StationID	Parameter	Concentration	Background	Residential Land Use Criteria	Industrial Land Use Criteria	Residential PRE Carc. Risk Ratio	Industrial PRE Carc. Risk Ratio
3	H(3.5)	LEAD	48.6	43	200	1000	2.43E-07	4.86E-08
	H(3.5) Total						2.43E-07	4.86E-08
3	I(3.5)	ARSENIC	21.8	20	43	3.8	5.07E-05	5.74E-06
3	I(3.5)	BERYLLIUM	0.57	1.1	15	1.3		
3	I(3.5)	CADMIUM	0.44	1.4	3.9	100		
3	I(3.5)	LEAD	16.8	43	200	1000		
	I(3.5) Total						5.07E-05	5.74E-06
3	J(3.5)	ARSENIC	13	20	43	3.8		
3	J(3.5)	BERYLLIUM	0.66	1.1	15	1.3		
3	J(3.5)	CADMIUM	0.49	1.4	3.9	100		
3	J(3.5)	LEAD	14.6	43	200	1000		
	J(3.5) Total						0.00E+00	0.00E+00
3	K(3.5)	ARSENIC	12.4	20	43	3.8		
3	K(3.5)	BERYLLIUM	0.73	1.1	15	1.3		
3	K(3.5)	CADMIUM	0.41	1.4	3.9	100		
3	K(3.5)	LEAD	15.6	43	200	1000		
	K(3.5) Total						0.00E+00	0.00E+00
3	K(3.5B)	ARSENIC	14.2	20	43	3.8		
3	K(3.5B)	BERYLLIUM	0.56	1.1	15	1.3		
3	K(3.5B)	CADMIUM	0.61	1.4	3.9	100		
3	K(3.5B)	LEAD	18.6	43	200	1000		
	K(3.5B) Total						0.00E+00	0.00E+00
3	L(3.5)	ARSENIC	12.3	20	43	3.8		
3	L(3.5)	BERYLLIUM	0.56	1.1	15	1.3		
3	L(3.5)	CADMIUM	0.41	1.4	3.9	100		
3	L(3.5)	LEAD	20	43	200	1000		
	L(3.5) Total						0.00E+00	0.00E+00
3	M(3.5)	ARSENIC	9.6	20	43	3.8		
3	M(3.5)	BENZO(a)ANTHRACENE	0.57	71	88	7.8		
3	M(3.5)	BENZO(a)PYRENE	0.44	96	888	7.8		
3	M(3.5)	BENZO(b)FLUORANTHENE	0.46	9	88	7.8		
3	M(3.5)	BENZO(k)FLUORANTHENE	0.4	78	8.8	7.8		
3	M(3.5)	BERYLLIUM	0.46	1.1	15	1.3		
3	M(3.5)	CADMIUM	0.35	1.4	3.9	100		
3	M(3.5)	CARBAZOLE	0.18	067	32	290	5.63E-09	6.21E-10
3	M(3.5)	CHRYSENE	0.62	94	88	780		
3	M(3.5)	DIBENZ(a,h)ANTHRACENE	0.083	26	888	7.8		
3	M(3.5)	INDENO(1,2,3-c,d)PYRENE	0.26	7	88	7.8		
3	M(3.5)	LEAD	38.1	43	200	1000		
	M(3.5) Total						5.63E-09	6.21E-10
3	N(3.5)	ARSENIC	19.4	20	43	3.8		
3	N(3.5)	BERYLLIUM	0.58	1.1	15	1.3		
3	N(3.5)	CADMIUM	0.54	1.4	3.9	100		
3	N(3.5)	CHRYSENE	0.049	94	88	780		
3	N(3.5)	LEAD	68.8	43	200	1000	3.44E-07	6.88E-08
	N(3.5) Total						3.44E-07	6.88E-08
5	A(5.1)	DDE	0.039	16	1.9	17		
5	A(5.1)	DDT	0.081	074	1.9	17	4.26E-08	4.76E-09
	A(5.1) Total						4.26E-08	4.76E-09
6	A(6.1)	DDE	0.82	16	1.9	17	4.32E-07	4.82E-08
6	A(6.1)	DDT	0.45	074	1.9	17	2.37E-07	2.65E-08
6	A(6.1)	DIELDRIN	0.54	086	04	36	1.35E-05	1.50E-06
6	A(6.1)	PCB-1260 (AROCHLOR 1260)	2.9	11	16	4.1	1.81E-05	7.07E-07

Table A-1
Carcinogenic Risk Calculation for BRAC Parcels (mg/kg)

Parcel	StationID	Parameter	Concentration	Background	Residential Land Use Criteria	Industrial Land Use Criteria	Residential Pre-Carc. Risk Ratio	Industrial Pre-Carc. Risk Ratio
	A(6.1) Total						3.23E-05	2.28E-06
6	B(6.1)	DDE	0.18 .16		1.9	17	9.47E-08	1.06E-08
6	B(6.1)	DDT	0.098 .074		1.9	17	5.16E-08	5.76E-09
6	B(6.1)	DIELDRIN	0.38 .086		.04	.36	9.50E-06	1.06E-06
	B(6.1) Total						9.65E-06	1.07E-06
6	C(6.1)	DDE	0.24 .16		1.9	17	1.26E-07	1.41E-08
6	C(6.1)	DDT	0.83 .074		1.9	17	4.37E-07	4.88E-08
6	C(6.1)	DIELDRIN	1.4 .086		.04	.36	3.50E-05	3.89E-06
	C(6.1) Total						3.56E-05	3.95E-06
8	A(8.1)	DDE	0.06 .16		1.9	17		
8	A(8.1)	DIELDRIN	0.4 .086		.04	.36	1.00E-05	1.11E-06
	A(8.1) Total						1.00E-05	1.11E-06
8	B(8.1)	DDE	0.047 .16		1.9	17		
8	B(8.1)	DDT	0.078 .074		1.9	17	4.11E-08	4.59E-09
8	B(8.1)	DIELDRIN	0.16 .086		.04	.36	4.00E-06	4.44E-07
	B(8.1) Total						4.04E-06	4.49E-07
8	C(8.1)	DDE	0.098 .16		1.9	17		
8	C(8.1)	DDT	0.16 .074		1.9	17	8.42E-08	9.41E-09
8	C(8.1)	DIELDRIN	0.27 .086		.04	.36	6.75E-06	7.50E-07
	C(8.1) Total						6.83E-06	7.59E-07
8	D(8.1)	DDE	0.045 .16		1.9	17		
8	D(8.1)	DDT	0.046 .074		1.9	17		
8	D(8.1)	DIELDRIN	0.052 .086		.04	.36		
	D(8.1) Total						0.00E+00	0.00E+00
9	A(9.1)	DIELDRIN	5.6 .086		.04	.36	1.40E-04	1.56E-05
	A(9.1) Total						1.40E-04	1.56E-05
9	B(9.1)	DDE	0.7 .16		1.9	17	3.68E-07	4.12E-08
9	B(9.1)	DDT	0.37 .074		1.9	17	1.95E-07	2.18E-08
9	B(9.1)	DIELDRIN	0.47 .086		.04	.36	1.18E-05	1.31E-06
	B(9.1) Total						1.23E-05	1.37E-06
9	C(9.1)	DIELDRIN	4 .086		.04	.36	1.00E-04	1.11E-05
	C(9.1) Total						1.00E-04	1.11E-05
10	A(10.2)	DDE	1.4 .16		1.9	17	7.37E-07	8.24E-08
10	A(10.2)	DDT	0.99 .074		1.9	17	5.21E-07	5.82E-08
10	A(10.2)	DIELDRIN	2.7 .086		.04	.36	6.75E-05	7.50E-06
	A(10.2) Total						6.88E-05	7.64E-06
10	B(10.2)	DDE	0.37 .16		1.9	17	1.95E-07	2.18E-08
10	B(10.2)	DDT	0.24 .074		1.9	17	1.26E-07	1.41E-08
10	B(10.2)	DIELDRIN	0.16 .086		.04	.36	4.00E-06	4.44E-07
	B(10.2) Total						4.32E-06	4.80E-07
10	C(10.2)	DDE	0.62 .16		1.9	17	3.26E-07	3.65E-08
10	C(10.2)	DDT	0.52 .074		1.9	17	2.74E-07	3.06E-08
10	C(10.2)	DIELDRIN	1.3 .086		.04	.36	3.25E-05	3.61E-06
	C(10.2) Total						3.31E-05	3.68E-06
10	D(10.2)	DDE	0.075 .16		1.9	17		
10	D(10.2)	DDT	0.062 .074		1.9	17		
10	D(10.2)	DIELDRIN	0.2 .086		.04	.36	5.00E-06	5.56E-07
	D(10.2) Total						5.00E-06	5.56E-07
11	A(11.1)	DIELDRIN	3.4 .086		.04	.36	8.50E-05	9.44E-06
	A(11.1) Total						8.50E-05	9.44E-06
11	B(11.1)	DDE	0.44 .16		1.9	17	2.32E-07	2.59E-08
11	B(11.1)	DDT	0.26 .074		1.9	17	1.37E-07	1.53E-08
	B(11.1) Total						3.68E-07	4.12E-08

Table A-1
Carcinogenic Risk Calculation for BRAC Parcels (mg/kg)

Parcel	StationID	Parameter	Concentration	Background	Residential Land Use Criteria	Industrial Land Use Criteria	Residential PRE Carc. Risk Ratio	Industrial PRE Carc. Risk Ratio
11	C(11.1)	DDE	0.34	.16	1.9	17	1.79E-07	2.00E-08
11	C(11.1)	DDT	0.24	.074	1.9	17	1.26E-07	1.41E-08
11	C(11.1)	DIELDRIN	0.98	.086	.04	.36	2.45E-05	2.72E-06
	C(11.1) Total						2.48E-05	2.76E-06
13	A(13.5)	DDE	0.12	.16	1.9	17		
13	A(13.5)	DDT	0.17	.074	1.9	17	8.95E-08	1.00E-08
13	A(13.5)	DIELDRIN	0.28	.086	.04	.36	7.00E-06	7.78E-07
	A(13.5) Total		0.088	.026	0.49	4.4	1.80E-07	2.00E-08
13	B(13.5)	DIELDRIN	0.24	.086	.04	.36	7.27E-06	8.08E-07
13	B(13.5)	GAMMA-CHLORDANE	0.034	.026	0.49	4.4	6.00E-06	6.67E-07
	B(13.5) Total						6.07E-06	6.74E-07
14	A(14.2)	DDE	0.39	.16	1.9	17	2.05E-07	2.29E-08
14	A(14.2)	DDT	0.44	.074	1.9	17	2.32E-07	2.59E-08
14	A(14.2)	DIELDRIN	1.3	.086	.04	.36	3.25E-05	3.61E-06
	A(14.2) Total						3.29E-05	3.66E-06
14	B(14.2)	DDE	0.085	.16	1.9	17		
14	B(14.2)	DDT	0.16	.074	1.9	17	8.42E-08	9.41E-09
14	B(14.2)	DIELDRIN	1	.086	.04	.36	2.50E-05	2.78E-06
	B(14.2) Total		0.098	.026	0.49	4.4	2.00E-07	2.23E-08
15	A(15.6)	DIELDRIN	1.9	.086	.04	.36	2.53E-05	2.81E-06
	A(15.6) Total						4.75E-05	5.28E-06
15	B(15.6)	DIELDRIN	0.19	.086	.04	.36	4.75E-06	5.28E-07
	B(15.6) Total						4.75E-06	5.28E-07
16	A(16.1)	DDE	0.067	.16	1.9	17		
16	A(16.1)	DDT	0.076	.074	1.9	17	4.00E-08	4.47E-09
16	A(16.1)	DIELDRIN	0.19	.086	.04	.36	4.75E-06	5.28E-07
	A(16.1) Total		0.02	.026	0.49	4.4		
16	B(16.1)	DDE	0.42	.16	1.9	17	4.79E-06	5.32E-07
16	B(16.1)	DDT	0.41	.074	1.9	17	2.21E-07	2.47E-08
16	B(16.1)	DIELDRIN	1.3	.086	.04	.36	2.16E-07	2.41E-08
	B(16.1) Total						3.25E-05	3.61E-06
17	A(17.2)	DDE	0.27	.16	1.9	17	3.29E-05	3.66E-06
17	A(17.2)	DDT	0.33	.074	1.9	17	1.42E-07	1.59E-08
17	A(17.2)	DIELDRIN	3.3	.086	.04	.36	1.74E-07	1.94E-08
	A(17.2) Total						8.25E-05	9.17E-06
17	B(17.2)	DDE	0.047	.16	1.9	17	8.28E-05	9.20E-06
17	B(17.2)	DDT	0.071	.074	1.9	17		
17	B(17.2)	DIELDRIN	0.083	.086	.04	.36		
	B(17.2) Total						0.00E+00	0.00E+00
18	A(18.2)	DDE	0.0038	.16	1.9	17		
18	A(18.2)	DDT	0.012	.074	1.9	17		
18	A(18.2)	DIELDRIN	0.028	.086	.04	.36		
	A(18.2) Total						0.00E+00	0.00E+00
20	A(20.5)	DIELDRIN	1.1	.086	.04	.36	2.75E-05	3.06E-06
	A(20.5) Total						2.75E-05	3.06E-06
20	A(20.6)	ARSENIC	26.4	.20	.43	3.8	6.14E-05	6.95E-06
20	A(20.6)	BENZO(a)ANTHRACENE	13	.71	.88	7.8	1.48E-05	1.67E-06
20	A(20.6)	BENZO(a)PYRENE	12	.96	.088	.78	1.36E-04	1.54E-05
20	A(20.6)	BENZO(b)FLUORANTHENE	12	.9	.88	7.8	1.36E-04	1.54E-05
20	A(20.6)	BENZO(k)FLUORANTHENE	11	.78	8.8	78	1.25E-06	1.41E-07

Table A-1
Carcinogenic Risk Calculation for BRAC Parcels (mg/kg)

Carcinogenic Risk Calculation for BRAC Parcels (mg/kg)								
Parcel	StationID	Parameter	Concentration	Background	Residential Land Use Criteria	Industrial Land Use Criteria	Residential Pre Carc. Risk Ratio	Industrial Pre Carc. Risk Ratio
20	A(20.6)	CADMIUM	121.4	3.9	100		3.08E-06	1.20E-07
20	A(20.6)	CARBAZOLE	4.067	32	290		1.25E-07	1.38E-08
20	A(20.6)	CHRYSENE	15.94	88	780		1.70E-07	1.92E-08
20	A(20.6)	DIBENZ(a,h)ANTHRACENE	4.26	.088	.78		4.55E-05	5.13E-06
20	A(20.6)	INDENO(1,2,3-c,d)PYRENE	9.7	.88	7.8		1.02E-05	1.15E-06
20	A(20.6)	LEAD	217.43	200	1000		1.09E-06	2.17E-07
	A(20.6) Total						2.88E-04	3.23E-05
21	A(21.5)	DIELDRIN	0.86	.086	.04	.36	2.15E-05	2.39E-06
	A(21.5) Total						2.15E-05	2.39E-06
21	B(21.5)	DIELDRIN	5.3	.086	.04	.36	1.33E-04	1.47E-05
	B(21.5) Total						1.33E-04	1.47E-05
22	A(22.1)	DDE	0.039	.16	1.9	17		
22	A(22.1)	DDT	0.19	.074	1.9	17	1.00E-07	1.12E-08
	A(22.1) Total						1.00E-07	1.12E-08
23	A(23.10)	DDE	0.02	.16	1.9	17		
23	A(23.10)	DDT	0.049	.074	1.9	17		
23	A(23.10)	DIELDRIN	0.024	.086	.04	.36		
	A(23.10) Total						0.00E+00	0.00E+00
23	A(23.9)	LEAD	22.1	.43	200	1000		
	A(23.9) Total						0.00E+00	0.00E+00
23	B(23.6)	DDE	0.014	.16	1.9	17		
23	B(23.6)	DDT	0.047	.074	1.9	17		
23	B(23.6)	DIELDRIN	0.0074	.086	.04	.36		
	B(23.6) Total						0.00E+00	0.00E+00
24	A(24.2)	ARSENIC	4.1	.20	.43	3.8		
24	A(24.2)	BENZO(a)ANTHRACENE	0.3	.71	.88	7.8		
24	A(24.2)	BENZO(a)PYRENE	0.3	.96	.088	.78		
24	A(24.2)	BENZO(b)FLUORANTHENE	0.23	.9	.88	7.8		
24	A(24.2)	BENZO(k)FLUORANTHENE	0.34	.78	8.8	78		
24	A(24.2)	BENZYL BUTYL PHTHALATE	0.2	NA	1600	41000		
24	A(24.2)	BERYLLIUM	0.29	1.1	.15	1.3		
24	A(24.2)	CHRYSENE	0.35	.94	88	780		
24	A(24.2)	LEAD	39.6	.43	200	1000		
	A(24.2) Total						0.00E+00	0.00E+00
24	B(24.2)	ARSENIC	84.2	.20	.43	3.8	1.96E-04	2.22E-05
24	B(24.2)	DDT	0.011	.074	1.9	17		
24	B(24.2)	DIELDRIN	0.0027	.086	.04	.36		
24	B(24.2)	LEAD	10	.43	200	1000		
24	B(24.2)	PENTACHLOROPHENOL	0.094	NA	5.3	.48	1.96E-04	2.22E-05
	B(24.2) Total							
25	A(25.2)	ARSENIC	2.4	.20	.43	3.8		
25	A(25.2)	BENZO(a)ANTHRACENE	0.082	.71	.88	7.8		
25	A(25.2)	BENZO(a)PYRENE	0.088	.96	.088	.78		
25	A(25.2)	BENZO(b)FLUORANTHENE	0.084	.9	.88	7.8		
25	A(25.2)	BENZO(k)FLUORANTHENE	0.098	.78	8.8	78		
25	A(25.2)	CHRYSENE	0.12	.94	88	780		
25	A(25.2)	GAMMA-CHLORDANE	0.092	.026	0.49	4.4	1.88E-07	2.09E-08
25	A(25.2)	INDENO(1,2,3-c,d)PYRENE	0.052	.7	.88	7.8		
25	A(25.2)	LEAD	2.8	.43	200	1000		
	A(25.2) Total						1.88E-07	2.09E-08
28	A(28.1)	ARSENIC	6.2	.20	.43	3.8		
28	A(28.1)	BENZO(a)ANTHRACENE	0.056	.71	.88	7.8		
28	A(28.1)	BENZO(a)PYRENE	0.065	.96	.088	.78		

Table A-1
Carcinogenic Risk Calculation for BRAC Parcels (mg/kg)

Parcel	StationID	Parameter	Concentration	Background	Residential Land Use Criteria	Industrial Land Use Criteria	Residential PRE Carc. Risk Ratio	Industrial PRE Carc. Risk Ratio
28	A(28.1)	BENZO(b)FLUORANTHENE	0.083	.9	.88	7.8		
28	A(28.1)	BENZO(k)FLUORANTHENE	0.077	.78	.88	78		
28	A(28.1)	BERYLLIUM	0.16	1.1	.15	1.3		
28	A(28.1)	CADMIUM	0.7	1.4	3.9	100		
28	A(28.1)	CHRYSENE	0.088	.94	.88	780		
28	A(28.1)	DDE	0.04	.16	1.9	17		
28	A(28.1)	DDT	0.2	.074	1.9	17	1.05E-07	1.18E-08
28	A(28.1)	INDENO(1,2,3-c,d)PYRENE	0.068	.7	.88	7.8		
28	A(28.1)	LEAD	58.8	.43	200	1000	2.94E-07	5.88E-08
	A(28.1) Total						3.99E-07	7.06E-08
28	B(28.1)	ARSENIC	17.6	.20	.43	3.8		
28	B(28.1)	BERYLLIUM	0.95	1.1	.15	1.3		
28	B(28.1)	LEAD	28.7	.43	200	1000		
	B(28.1) Total						0.00E+00	0.00E+00
29	A(29.2)	ARSENIC	3.2	.20	.43	3.8		
29	A(29.2)	BENZYL BUTYL PHTHALATE	0.7	NA	1600	41000		
29	A(29.2)	LEAD	29.7	.43	200	1000		
	A(29.2) Total						0.00E+00	0.00E+00
29	B(29.2)	ARSENIC	12.8	.20	.43	3.8		
29	B(29.2)	BENZO(a)ANTHRACENE	0.043	.71	.88	7.8		
29	B(29.2)	BENZO(a)PYRENE	0.069	.96	.088	.78		
29	B(29.2)	BENZO(b)FLUORANTHENE	0.1	.9	.88	7.8		
29	B(29.2)	BENZO(k)FLUORANTHENE	0.1	.78	.88	78		
29	B(29.2)	CHRYSENE	0.08	.94	.88	780		
29	B(29.2)	DDT	0.043	.074	1.9	17		
29	B(29.2)	DIELDRIN	0.13	.086	.04	.36	3.25E-06	3.61E-07
29	B(29.2)	GAMMA-CHLORDANE	0.017	.026	0.49	4.4		
29	B(29.2)	LEAD	223	.43	200	1000	1.12E-06	2.23E-07
29	B(29.2)	METHYLENE CHLORIDE	0.032	NA	.85	760		
	B(29.2) Total						4.37E-06	5.84E-07
31	A(31.1)	DDT	0.0092	.074	1.9	17		
31	A(31.1)	LEAD	22.4	.43	200	1000		
	A(31.1) Total						0.00E+00	0.00E+00
32	B(32.1)	ARSENIC	14.8	.20	.43	3.8		
32	B(32.1)	DDT	0.044	.074	1.9	17		
32	B(32.1)	LEAD	13.6	.43	200	1000		
	B(32.1) Total						0.00E+00	0.00E+00
33	A(33.9)	ARSENIC	63.1	.20	.43	3.8	1.47E-04	1.66E-05
33	A(33.9)	BENZO(a)ANTHRACENE	1.2	.71	.88	7.8	1.36E-06	1.54E-07
33	A(33.9)	BENZO(a)PYRENE	1.4	.96	.088	.78	1.59E-05	1.79E-06
33	A(33.9)	BENZO(b)FLUORANTHENE	1.5	.9	.88	7.8	1.70E-06	1.92E-07
33	A(33.9)	BENZO(k)FLUORANTHENE	1.4	.78	.88	78	1.59E-07	1.79E-08
33	A(33.9)	CARBAZOLE	0.21	.067	32	290	6.56E-09	7.24E-10
33	A(33.9)	CHRYSENE	1.7	.94	.88	780	1.93E-08	2.18E-09
33	A(33.9)	LEAD	47.4	.43	200	1000	2.37E-07	4.74E-08
	A(33.9) Total						1.66E-04	1.88E-05
33	B(33.9)	ARSENIC	8.5	.20	.43	3.8		
33	B(33.9)	BENZO(a)PYRENE	0.042	.96	.088	.78		
33	B(33.9)	BENZO(b)FLUORANTHENE	0.054	.9	.88	7.8		
33	B(33.9)	BENZO(k)FLUORANTHENE	0.049	.78	.88	78		
33	B(33.9)	CHRYSENE	0.046	.94	.88	780		
33	B(33.9)	LEAD	19.9	.43	200	1000		
	B(33.9) Total						0.00E+00	0.00E+00

Table A-1
Carcinogenic Risk Calculation for BRAC Parcels (mg/kg)

Carcinogenic Risk Calculation for BAC Parcels (mg/kg)								
Parcel	StationID	Parameter	Concentration	Background	Residential Land Use Criteria	Industrial Land Use Criteria	Residential PPE Carc. Risk Ratio	Industrial PPE Carc. Risk Ratio
33	C(33.9)	ARSENIC	9.20	.43	3.8			
33	C(33.9)	LEAD	22.143	200	1000		0.00E+00	0.00E+00
	C(33.9) Total							
33	D(33.9)	BENZO(a)ANTHRACENE	0.15.71	.88	7.8			
33	D(33.9)	BENZO(a)PYRENE	0.12.96	.088	.78			
33	D(33.9)	BENZO(b)FLUORANTHENE	0.12.9	.88	7.8			
33	D(33.9)	BENZO(k)FLUORANTHENE	0.13.78	8.8	78			
33	D(33.9)	CHRYSENE	0.16.94	88	780			
33	D(33.9)	DDE	0.012.16	1.9	17			
33	D(33.9)	DDT	0.045.074	1.9	17			
33	D(33.9)	LEAD	45.943	200	1000	2.30E-07	4.59E-08	
	D(33.9) Total						2.30E-07	4.59E-08
33	E(33.9)	ARSENIC	4.420	.43	3.8			
33	E(33.9)	DDT	0.024.074	1.9	17			
33	E(33.9)	LEAD	145.43	200	1000	7.25E-07	1.45E-07	
	E(33.9) Total						7.25E-07	1.45E-07
34	A(34.2)	GAMMA-CHLORDANE	0.15.026	0.49	4.4		3.06E-07	3.41E-08
	A(34.2) Total						3.06E-07	3.41E-08
35	A(35.2)	ARSENIC	8.320	.43	3.8			
35	A(35.2)	bis(2-ETHYLHEXYL) PHTHALATE	16.NA	46	410			
35	A(35.2)	CADMIUM	1.11.4	3.9	100			
35	A(35.2)	DDE	0.045.16	1.9	17			
35	A(35.2)	DDT	0.074.074	1.9	17			
35	A(35.2)	DIELDRIN	0.086.086	.04	.36		2.15E-06	2.39E-07
35	A(35.2)	LEAD	201.43	200	1000		1.01E-06	2.01E-07
	A(35.2) Total						3.16E-06	4.40E-07
35	B(35.2)	ARSENIC	6.620	.43	3.8			
35	B(35.2)	BENZO(b)FLUORANTHENE	0.042.9	.88	7.8			
35	B(35.2)	CADMIUM	4.91.4	3.9	100		1.26E-06	4.90E-08
35	B(35.2)	DIELDRIN	0.025.086	.04	.36		3.72E-06	7.44E-07
35	B(35.2)	LEAD	744.43	200	1000		4.98E-06	7.93E-07
	B(35.2) Total						1.67E-04	1.88E-05
35	C(35.2)	ARSENIC	71.620	.43	3.8			
35	C(35.2)	BENZO(a)PYRENE	0.04.96	.088	.78			
35	C(35.2)	BENZO(b)FLUORANTHENE	0.058.9	.88	7.8			
35	C(35.2)	BENZO(k)FLUORANTHENE	0.043.78	8.8	78			
35	C(35.2)	CADMIUM	1.81.4	3.9	100		4.62E-07	1.80E-08
35	C(35.2)	CHRYSENE	0.044.94	88	780			
35	C(35.2)	DDE	0.066.16	1.9	17			
35	C(35.2)	DDT	0.15.074	1.9	17		7.89E-08	8.82E-09
35	C(35.2)	LEAD	550.43	200	1000		2.75E-06	5.50E-07

Table A-2
Carcinogenic Risk Calculations for Screening Sites
Units are mg/kg

Site	Parcel	Station ID	Parameter	Concentration	Background	Residential Land Use Criteria	Industrial Land Use Criteria	Residential PRC Carc. Risk Ratio	Industrial PRC Carc. Risk Ratio
28	32	SB28A	ARSENIC	21.5	20	.43	3.8	5.00E-05	5.66E-04
28	32	SB28A	bis(2-ETHYLHEXYL) PHTHALATE	0.053	NA	.46	410		
28	32	SB28A	METHYLENE CHLORIDE	0.002	NA	.85	760	0.00E+00	0.00E+00
		SB28A							
28	32	SB28B	ARSENIC	15.7	20	.43	3.8		
28	32	SB28B	DIELDRIN	0.0067	.086	.04	.36		
28	32	SB28B	METHYLENE CHLORIDE	0.003	NA	.85	760	0.00E+00	0.00E+00
		SB28B							
28	32	SB28C	ALPHA-CHLORDANE	0.0017	.029	0.49	4.4		
28	32	SB28C	ARSENIC	5.9	20	.43	3.8		
28	32	SB28C	BENZO(a)ANTHRACENE	0.2	.71	.88	7.8		
28	32	SB28C	BENZO(a)PYRENE	0.19	.96	.088	.78		
28	32	SB28C	BENZO(b)FLUORANTHENE	0.21	.9	.88	7.8		
28	32	SB28C	BENZO(k)FLUORANTHENE	0.18	.78	.88	7.8		
28	32	SB28C	bis(2-ETHYLHEXYL) PHTHALATE	0.04	NA	.46	410		
28	32	SB28C	CARBAZOLE	0.076	.067	.32	290	2.38E-09	2.62E-10
28	32	SB28C	CHRYSENE	0.24	.94	.88	780		
28	32	SB28C	DIBENZ(a,h)ANTHRACENE	0.061	.26	.088	.78		
28	32	SB28C	DIELDRIN	0.006	.086	.04	.36		
28	32	SB28C	GAMMA-CHLORDANE	0.0047	.026	0.49	4.4		
28	32	SB28C	INDENO(1,2,3-c,d)PYRENE	0.13	.7	.88	7.8		
28	32	SB28C	p,p'-DDT	0.006	.074	1.9	17	2.38E-09	2.62E-10
		SB28C						1.47E-07	1.64E-08
28	32	SS28A	ALPHA-CHLORDANE	0.072	.029	0.49	4.4	4.91E-05	5.55E-04
28	32	SS28A	ARSENIC	21.1	20	.43	3.8		
28	32	SS28A	BENZO(b)FLUORANTHENE	0.054	.9	.88	7.8		
28	32	SS28A	bis(2-ETHYLHEXYL) PHTHALATE	0.27	NA	.46	410		
28	32	SS28A	CADMIUM	1.8	1.4	3.9	100	4.62E-07	1.80E-08
28	32	SS28A	GAMMA-CHLORDANE	0.11	.026	0.49	4.4	2.24E-07	2.50E-08
		SS28A						4.99E-05	5.61E-04
28	32	SS28B	ALPHA-CHLORDANE	0.0086	.029	0.49	4.4		
28	32	SS28B	ARSENIC	14.3	20	.43	3.8		
28	32	SS28B	BENZO(a)ANTHRACENE	0.05	.71	.88	7.8		
28	32	SS28B	BENZO(a)PYRENE	0.059	.96	.088	.78		
28	32	SS28B	BENZO(b)FLUORANTHENE	0.076	.9	.88	7.8		
28	32	SS28B	BENZO(k)FLUORANTHENE	0.073	.78	.88	7.8		
28	32	SS28B	CHRYSENE	0.073	.94	.88	780		
28	32	SS28B	DIELDRIN	0.02	.086	.04	.36		
28	32	SS28B	GAMMA-CHLORDANE	0.012	.026	0.49	4.4		
28	32	SS28B	INDENO(1,2,3-c,d)PYRENE	0.043	.7	.88	7.8		
28	32	SS28B	p,p'-DDE	0.011	.16	1.9	17		
28	32	SS28B	p,p'-DDT	0.028	.074	1.9	17	0.00E+00	0.00E+00
		SS28B						4.79E-05	5.42E-04
31	35	SB31A	ARSENIC	20.6	20	.43	3.8	4.79E-05	5.42E-04
		SB31A							
31	35	SB31B	ARSENIC	14.9	20	.43	3.8	0.00E+00	0.00E+00
		SB31B							
31	35	SS31A	ARSENIC	10.7	20	.43	3.8		
31	35	SS31A	BENZO(a)ANTHRACENE	0.34	.71	.88	7.8		
31	35	SS31A	BENZO(a)PYRENE	0.33	.96	.088	.78		
31	35	SS31A	BENZO(b)FLUORANTHENE	0.29	.9	.88	7.8		
31	35	SS31A	BENZO(k)FLUORANTHENE	0.26	.78	.88	7.8		
31	35	SS31A	CADMIUM	8.1	1.4	3.9	100	2.08E-06	8.10E-08
31	35	SS31A	CHRYSENE	0.34	.94	.88	780		

Table A-2
Carcinogenic Risk Calculations for Screening Sites
Units are mg/kg

Site	Parcel	Station ID	Parameter	Concentration	Background	Residential Land Use Criteria	Industrial Land Use Criteria	Residential PCE Carc. Risk Ratio	Industrial PCE Carc. Risk Ratio
31	35	SS31A	INDENO(1,2,3-c,d)PYRENE	0.21	7	.88	7.8		
31	35	SS31A	METHYLENE CHLORIDE	0.004	NA	.85	760		
		SS31A						2.08E-06	8.10E-08
31	35	SS31B	ARSENIC	4.2	20	.43	3.8		
31	35	SS31B	BENZO(a)ANTHRACENE	0.067	.71	.86	7.8		
31	35	SS31B	CADMIUM	1.7	1.4	3.9	100	4.36E-07	1.70E-08
31	35	SS31B	CHRYSENE	0.058	.94	.88	780		
31	35	SS31B	METHYLENE CHLORIDE	0.002	NA	.85	760		
		SS31B						4.36E-07	1.70E-08
31	35	SS31C	ARSENIC	12.6	20	.43	3.8		
31	35	SS31C	METHYLENE CHLORIDE	0.004	NA	.85	760		
		SS31C						0.00E+00	0.00E+00
31	35	SS31D	ARSENIC	6.2	20	.43	3.8		
31	35	SS31D	BENZO(a)ANTHRACENE	0.084	.71	.88	7.8		
31	35	SS31D	BENZO(a)PYRENE	0.079	.96	.088	.78		
31	35	SS31D	BENZO(b)FLUORANTHENE	0.11	.9	.88	7.8		
31	35	SS31D	BENZO(k)FLUORANTHENE	0.049	.78	.8.8	78		
31	35	SS31D	BERYLLIUM	0.72	1.1	.15	1.3		
31	35	SS31D	CADMIUM	0.51	1.4	3.9	100		
31	35	SS31D	CHRYSENE	0.13	.94	.88	780		
31	35	SS31D	INDENO(1,2,3-c,d)PYRENE	0.054	.7	.88	7.8		
		SS31D						0.00E+00	0.00E+00
33	35	SB33A	ARSENIC	10.2	20	.43	3.8		
		SB33A						0.00E+00	0.00E+00
33	35	SB33B	ARSENIC	9.9	20	.43	3.8		
33	35	SB33B	BERYLLIUM	0.95	1.1	.15	1.3		
33	35	SB33B	METHYLENE CHLORIDE	0.003	NA	.85	760		
		SB33B						0.00E+00	0.00E+00
33	35	SB33C	ARSENIC	8.7	20	.43	3.8		
33	35	SB33C	BERYLLIUM	0.99	1.1	.15	1.3		
33	35	SB33C	CADMIUM	1.2	1.4	3.9	100		
33	35	SB33C	METHYLENE CHLORIDE	0.002	NA	.85	760		
		SB33C						0.00E+00	0.00E+00
33	35	SS33A	ARSENIC	8.1	20	.43	3.8		
		SS33A						0.00E+00	0.00E+00
33	35	SS33B	ARSENIC	8.2	20	.43	3.8		
33	35	SS33B	BENZO(b)FLUORANTHENE	0.038	.9	.88	7.8		
33	35	SS33B	BERYLLIUM	0.14	1.1	.15	1.3		
33	35	SS33B	CADMIUM	0.97	1.4	3.9	100		
33	35	SS33B	CHRYSENE	0.053	.94	.88	780		
33	35	SS33B	p,p'-DDT	0.0065	.074	1.9	17		
		SS33B						0.00E+00	0.00E+00
33	35	SS33C	ARSENIC	11.8	20	.43	3.8		
		SS33C						0.00E+00	0.00E+00
33	35	SS33D	ARSENIC	19.6	20	.43	3.8		
33	35	SS33D	CADMIUM	2	1.4	3.9	100	5.13E-07	2.00E-08
		SS33D						5.13E-07	2.00E-08
33	35	SS33E	ARSENIC	13.8	20	.43	3.8		
33	35	SS33E	BENZO(a)ANTHRACENE	0.11	.71	.88	7.8		
33	35	SS33E	BENZO(a)PYRENE	0.13	.96	.088	.78		
33	35	SS33E	BENZO(b)FLUORANTHENE	0.14	.9	.88	7.8		
33	35	SS33E	BENZO(k)FLUORANTHENE	0.14	.78	.8.8	78		
33	35	SS33E	BERYLLIUM	0.45	1.1	.15	1.3		
33	35	SS33E	Di(2-ETHYLHEXYL) PHTHALATE	0.041	NA	.46	410		

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Table A-2
Carcinogenic Risk Calculations for Screening Sites
Units are mg/kg

Site	Parcel	Station ID	Parameter	Concentration	Background	Residential Land Use Criteria	Industrial Land Use Criteria	Residential PRC Carc. Risk Ratio	Industrial PRC Carc. Risk Ratio
33	35	SS33E	CHRYSENE	0.16	.94	.88	780	2.50E-06	2.78E-07
33	35	SS33E	DIELDRIN	0.1	.086	.04	.36		
33	35	SS33E	INDENO(1,2,3-c,d)PYRENE	0.064	.7	.88	7.8		
33	35	SS33E	p,p'-DDT	0.021	.074	1.9	17	2.50E-06	2.78E-07
		SS33E							
33	35	SS33F	ARSENIC	18.4	20	.43	3.8	0.00E+00	0.00E+00
		SS33F							
35	15	SB35A	ARSENIC	9.2	20	.43	3.8		
35	15	SB35A	BENZO(a)ANTHRACENE	0.11	.71	.88	7.8		
35	15	SB35A	BENZO(a)PYRENE	0.12	.96	.088	.78		
35	15	SB35A	BENZO(b)FLUORANTHENE	0.14	.9	.88	7.8		
35	15	SB35A	BENZO(k)FLUORANTHENE	0.14	.78	.8.8	78		
35	15	SB35A	BERYLLIUM	0.47	1.1	.15	1.3		
35	15	SB35A	CHRYSENE	0.14	.94	.88	780		
35	15	SB35A	INDENO(1,2,3-c,d)PYRENE	0.094	.7	.88	7.8		
35	15	SB35A	p,p'-DDT	0.0041	.074	1.9	17	0.00E+00	0.00E+00
		SB35A							
35	15	SB35B	ARSENIC	15.9	20	.43	3.8		
35	15	SB35B	BENZO(a)ANTHRACENE	0.16	.71	.88	7.8		
35	15	SB35B	BENZO(a)PYRENE	0.15	.96	.088	.78		
35	15	SB35B	BENZO(b)FLUORANTHENE	0.14	.9	.88	7.8		
35	15	SB35B	BENZO(k)FLUORANTHENE	0.14	.78	.8.8	78		
35	15	SB35B	BERYLLIUM	0.95	1.1	.15	1.3		
35	15	SB35B	bis(2-ETHYLHEXYL) PHTHALATE	0.12	NA	46	410		
35	15	SB35B	CHRYSENE	0.2	.94	.88	780		
35	15	SB35B	INDENO(1,2,3-c,d)PYRENE	0.094	.7	.88	7.8	0.00E+00	0.00E+00
		SB35B							
35	15	SB35C	ARSENIC	17.3	20	.43	3.8		
35	15	SB35C	bis(2-ETHYLHEXYL) PHTHALATE	0.094	NA	46	410	0.00E+00	0.00E+00
		SB35C							
36	15	SB36A	ARSENIC	26.1	20	.43	3.8	6.07E-05	6.87E-06
		SB36A						6.07E-05	6.87E-06
36	15	SB36B	ARSENIC	18.5	20	.43	3.8		
36	15	SB36B	bis(2-ETHYLHEXYL) PHTHALATE	0.066	NA	46	410		
36	15	SB36B	DIELDRIN	0.0014	.086	.04	.36	0.00E+00	0.00E+00
		SB36B							
36	15	SB36C	ARSENIC	19.6	20	.43	3.8		
36	15	SB36C	BERYLLIUM	1	1.1	.15	1.3		
36	15	SB36C	bis(2-ETHYLHEXYL) PHTHALATE	3	NA	46	410		
36	15	SB36C	DIELDRIN	0.0012	.086	.04	.36	0.00E+00	0.00E+00
		SB36C							
36	15	SB36D	ARSENIC	11.4	20	.43	3.8		
36	15	SB36D	BERYLLIUM	0.38	1.1	.15	1.3	0.00E+00	0.00E+00
		SB36D							
36	15	SB36E	ARSENIC	13.5	20	.43	3.8		
36	15	SB36E	BERYLLIUM	0.45	1.1	.15	1.3		
36	15	SB36E	p,p'-DDE	0.0013	.16	1.9	17		
36	15	SB36E	p,p'-DDT	0.0039	.074	1.9	17	0.00E+00	0.00E+00
		SB36E							
36	15	SB36F	ARSENIC	18.4	20	.43	3.8		
36	15	SB36F	bis(2-ETHYLHEXYL) PHTHALATE	0.07	NA	46	410		
36	15	SB36F	DIELDRIN	0.0019	.086	.04	.36		
36	15	SB36F	METHYLENE CHLORIDE	0.001	NA	85	760	0.00E+00	0.00E+00
		SB36F							

Table A-2
Carcinogenic Risk Calculations for Screening Sites
Units are mg/kg

Site	Parcel	Station ID	Parameter	Concentration	Background	Residential Land Use Criteria	Industrial Land Use Criteria	Residential PRC Conc. Risk Ratio	Industrial PRC Conc. Risk Ratio
36	15	SB36G	ARSENIC	18.1	20	.43	3.8		
36	15	SB36G	bis(2-ETHYLHEXYL) PHTHALATE	0.065	NA	.46	410		
		SB36G						0.00E+00	0.00E+00
36	15	SB36H	ALPHA-CHLORDANE	0.011	.029	0.49	4.4		
36	15	SB36H	ARSENIC	17.8	20	.43	3.8		
36	15	SB36H	BENZO(a)ANTHRACENE	0.042	.71	.88	7.8		
36	15	SB36H	BENZO(a)PYRENE	0.048	.96	.088	.78		
36	15	SB36H	BENZO(b)FLUORANTHENE	0.056	.9	.88	7.8		
36	15	SB36H	BENZO(k)FLUORANTHENE	0.061	.78	8.8	78		
36	15	SB36H	bis(2-ETHYLHEXYL) PHTHALATE	0.36	NA	.46	410		
36	15	SB36H	CADMIUM	2.1	1.4	3.9	100	5.38E-07	2.10E-08
36	15	SB36H	CHRYSENE	0.063	.94	88	780		
36	15	SB36H	GAMMA-CHLORDANE	0.015	.086	.04	.36		
36	15	SB36H	INDENO(1,2,3-c,d)PYRENE	0.02	.026	0.49	4.4		
36	15	SB36H	p,p'-DDE	0.045	.7	.88	7.8		
36	15	SB36H	p,p'-DDT	0.038	.16	1.9	17		
36	15	SB36H	PENTACHLOROPHENOL	0.23	.074	1.9	17	1.21E-07	1.35E-08
		SB36H		0.11	NA	5.3	48		
		SB36H						6.60E-07	3.45E-08
36	15	SB36I	ARSENIC	16.4	20	.43	3.8		
36	15	SB36I	bis(2-ETHYLHEXYL) PHTHALATE	0.5	NA	.46	410		
36	15	SB36I	METHYLENE CHLORIDE	0.01	NA	85	760		
		SB36I						0.00E+00	0.00E+00
36	15	SB36J	ARSENIC	25.3	20	.43	3.8	5.88E-05	6.66E-06
36	15	SB36J	bis(2-ETHYLHEXYL) PHTHALATE	0.051	NA	.46	410		
36	15	SB36J	METHYLENE CHLORIDE	0.007	NA	85	760		
		SB36J						5.88E-05	6.66E-06
36	15	SB36K	ALPHA-CHLORDANE	0.0016	.029	0.49	4.4		
36	15	SB36K	ARSENIC	22.9	20	.43	3.8	5.33E-05	6.03E-06
36	15	SB36K	bis(2-ETHYLHEXYL) PHTHALATE	0.14	NA	.46	410		
36	15	SB36K	GAMMA-CHLORDANE	0.0024	.026	0.49	4.4		
36	15	SB36K	p,p'-DDT	0.037	.074	1.9	17		
		SB36K						5.33E-05	6.03E-06
36	15	SB36L	ARSENIC	27.7	20	.43	3.8	6.44E-05	7.29E-06
		SB36L						6.44E-05	7.29E-06
36	15	SB36M	ARSENIC	22.6	20	.43	3.8	5.26E-05	5.95E-06
36	15	SB36M	BERYLLIUM	1	1.1	.15	1.3		
		SB36M						5.26E-05	5.95E-06
36	15	SB36N	ARSENIC	22.4	20	.43	3.8	5.21E-05	5.89E-06
36	15	SB36N	bis(2-ETHYLHEXYL) PHTHALATE	0.082	NA	.46	410		
36	15	SB36N	p,p'-DDT	0.0052	.074	1.9	17		
		SB36N						5.21E-05	5.89E-06
42	33	SS42D	ARSENIC	12.5	20	.43	3.8		
42	33	SS42D	BERYLLIUM	0.43	1.1	.15	1.3		
42	33	SS42D	DIELDRIN	0.026	.086	.04	.36		
		SS42D						0.00E+00	0.00E+00
43	33	SS43C	ARSENIC	9.9	20	.43	3.8		
43	33	SS43C	BENZO(a)ANTHRACENE	0.076	.71	.88	7.8		
43	33	SS43C	BENZO(a)PYRENE	0.09	.96	.088	.78		
43	33	SS43C	BENZO(b)FLUORANTHENE	0.098	.9	.88	7.8		
43	33	SS43C	BENZO(k)FLUORANTHENE	0.083	.78	8.8	78		
43	33	SS43C	BERYLLIUM	0.69	1.1	.15	1.3		
43	33	SS43C	CHRYSENE	0.11	.94	88	780		
43	33	SS43C	INDENO(1,2,3-c,d)PYRENE	0.042	.7	.88	7.8		

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Table A-2
Carcinogenic Risk Calculations for Screening Sites
Units are mg/kg

Site	Parcel	Station ID	Parameter	Concentration	Background	Residential Land Use Criteria	Industrial Land Use Criteria	Residential PRC Carc. Risk Ratio	Industrial PRC Carc. Risk Ratio
43	33	SS43C	p,p'-DDD	0.033	.0067	2.7	24	1.22E-08	1.38E-09
43	33	SS43C	p,p'-DDE	0.15	.16	1.9	17		
43	33	SS43C	p,p'-DDT	0.33	.074	1.9	17	1.74E-07	1.94E-08
		SS43C						1.86E-07	2.08E-08
46	33	SS46D	METHYLENE CHLORIDE	0.001	NA	85	760		
		SS46D						0.00E+00	0.00E+00
46	33	SS46E	ARSENIC	25	20	.43	3.8	5.81E-05	6.58E-06
46	33	SS46E	BENZO(a)FLUORANTHENE	0.43	.78	8.8	78		
46	33	SS46E	BERYLLIUM	0.34	1.1	.15	1.3		
46	33	SS46E	GAMMA-CHLORDANE	3.3	.026	0.49	4.4	6.73E-06	7.50E-07
46	33	SS46E	p,p'-DDE	1.6	.16	1.9	17	8.42E-07	9.41E-08
46	33	SS46E	p,p'-DDT	3.1	.074	1.9	17	1.63E-06	1.82E-07
		SS46E						7.43E-05	8.38E-06
51	3	SB51A	ARSENIC	20.1	20	.43	3.8	4.67E-05	5.29E-06
51	3	SB51A	BENZO(a)ANTHRACENE	0.25	.71	.88	7.8		
51	3	SB51A	BENZO(a)PYRENE	0.24	.96	.088	.78		
51	3	SB51A	BENZO(b)FLUORANTHENE	0.31	.9	.88	7.8		
51	3	SB51A	BENZO(k)FLUORANTHENE	0.35	.78	8.8	78		
51	3	SB51A	bis(2-ETHYLHEXYL) PHTHALATE	0.15	NA	46	410		
51	3	SB51A	CADMIUM	1.3	1.4	3.9	100		
51	3	SB51A	CARBAZOLE	0.15	.067	32	290	4.69E-09	5.17E-10
51	3	SB51A	CHRYSENE	0.26	.94	.88	780		
51	3	SB51A	DIELDRIN	0.025	.086	.04	.36		
51	3	SB51A	INDENO(1,2,3-c,d)PYRENE	0.19	.7	.88	7.8		
51	3	SB51A	METHYLENE CHLORIDE	0.002	NA	85	760		
51	3	SB51A	p,p'-DDE	0.044	.16	1.9	17		
51	3	SB51A	p,p'-DDT	0.044	.074	1.9	17		
		SB51A						4.67E-05	5.29E-06
51	3	SB51B	ARSENIC	14.5	20	.43	3.8		
51	3	SB51B	BENZO(a)ANTHRACENE	0.059	.71	.88	7.8		
51	3	SB51B	CHRYSENE	0.059	.94	.88	780		
51	3	SB51B	DIELDRIN	0.048	.086	.04	.36		
51	3	SB51B	p,p'-DDE	0.08	.16	1.9	17		
51	3	SB51B	p,p'-DDT	0.09	.074	1.9	17	4.74E-08	5.29E-09
		SB51B						4.74E-08	5.29E-09
51	3	SB51C	ARSENIC	17.1	20	.43	3.8		
51	3	SB51C	bis(2-ETHYLHEXYL) PHTHALATE	0.23	NA	46	410		
51	3	SB51C	DIELDRIN	0.063	.086	.04	.36		
51	3	SB51C	p,p'-DDE	0.038	.16	1.9	17		
51	3	SB51C	p,p'-DDT	0.56	.074	1.9	17	2.95E-07	3.29E-08
		SB51C						2.95E-07	3.29E-08
51	3	SS51A	ARSENIC	1.7	20	.43	3.8		
51	3	SS51A	DIELDRIN	0.021	.086	.04	.36		
51	3	SS51A	p,p'-DDE	0.022	.16	1.9	17		
51	3	SS51A	p,p'-DDT	0.043	.074	1.9	17		
		SS51A						0.00E+00	0.00E+00
51	3	SS51B	ARSENIC	17.4	20	.43	3.8		
51	3	SS51B	BERYLLIUM	1.1	1.1	.15	1.3		
51	3	SS51B	bis(2-ETHYLHEXYL) PHTHALATE	0.078	NA	46	410		
51	3	SS51B	DIELDRIN	0.32	.086	.04	.36	8.00E-06	8.89E-07
51	3	SS51B	METHYLENE CHLORIDE	0.003	NA	85	760		
51	3	SS51B	p,p'-DDE	0.1	.16	1.9	17		
51	3	SS51B	p,p'-DDT	0.077	.074	1.9	17	4.05E-08	4.53E-09
51	3	SS51B	PENTACHLOROPHENOL	0.054	NA	5.3	48		

Table A-2
Carcinogenic Risk Calculations for Screening Sites
Units are mg/kg

Site	Parcel	Station ID	Parameter	Concentration	Background	Residential Land Use Criteria	Industrial Land Use Criteria	Residential PRC Carc. Risk Ratio	Industrial PRC Carc. Risk Ratio
		SS51B							
51	3	SS51C	ARSENIC	15.7	20	.43	3.8	8.04E-06	8.93E-07
51	3	SS51C	BENZO(a)ANTHRACENE	0.054	.71	.88	7.8		
51	3	SS51C	BENZO(a)PYRENE	0.057	.96	.088	.78		
51	3	SS51C	BENZO(b)FLUORANTHENE	0.052	.9	.88	7.8		
51	3	SS51C	BENZO(k)FLUORANTHENE	0.048	.78	8.8	78		
51	3	SS51C	BERYLLIUM	0.27	1.1	.15	1.3		
51	3	SS51C	CADMIUM	0.47	1.4	3.9	100		
51	3	SS51C	CHRYSENE	0.074	.94	88	780		
51	3	SS51C	DIELDRIN	0.14	.086	.04	.36	3.50E-06	3.89E-07
51	3	SS51C	p,p'-DDE	0.039	.16	1.9	17		
		SS51C						3.50E-06	3.89E-07
52	3	SB52A	ARSENIC	23.2	20	.43	3.8	5.40E-05	6.11E-06
52	3	SB52A	BERYLLIUM	0.29	1.1	.15	1.3		
52	3	SB52A	DIELDRIN	0.29	.086	.04	.36	7.25E-06	8.06E-07
52	3	SB52A	p,p'-DDE	0.43	.16	1.9	17	2.26E-07	2.53E-08
52	3	SB52A	p,p'-DDT	0.24	.074	1.9	17	1.26E-07	1.41E-08
		SB52A						6.16E-05	6.95E-06
52	3	SB52B	ARSENIC	11.9	20	.43	3.8		
52	3	SB52B	p,p'-DDE	0.0043	.16	1.9	17		
52	3	SB52B	p,p'-DDT	0.0052	.074	1.9	17		
		SB52B						0.00E+00	0.00E+00
52	3	SS52A	ARSENIC	12	20	.43	3.8		
52	3	SS52A	BERYLLIUM	0.39	1.1	.15	1.3		
52	3	SS52A	CHRYSENE	0.046	.94	88	780		
52	3	SS52A	DIELDRIN	0.038	.086	.04	.36		
52	3	SS52A	p,p'-DDE	0.025	.16	1.9	17		
52	3	SS52A	p,p'-DDT	0.21	.074	1.9	17	1.11E-07	1.24E-08
		SS52A						1.11E-07	1.24E-08
52	3	SS52B	ARSENIC	45.1	20	.43	3.8	1.05E-04	1.19E-05
52	3	SS52B	BENZO(a)ANTHRACENE	0.24	.71	.88	7.8		
52	3	SS52B	BENZO(a)PYRENE	0.26	.96	.088	.78		
52	3	SS52B	BENZO(b)FLUORANTHENE	0.24	.9	.88	7.8		
52	3	SS52B	BENZO(k)FLUORANTHENE	0.2	.78	8.8	78		
52	3	SS52B	CHRYSENE	0.26	.94	88	780		
52	3	SS52B	DIELDRIN	0.75	.086	.04	.36	1.88E-05	2.08E-06
52	3	SS52B	p,p'-DDT	6.7	.074	1.9	17	3.53E-06	3.94E-07
		SS52B						1.27E-04	1.43E-05
52	3	SS52C	ARSENIC	19.7	20	.43	3.8		
52	3	SS52C	BENZO(a)ANTHRACENE	0.09	.71	.88	7.8		
52	3	SS52C	BENZO(a)PYRENE	0.058	.96	.088	.78		
52	3	SS52C	BENZO(b)FLUORANTHENE	0.078	.9	.88	7.8		
52	3	SS52C	BENZO(k)FLUORANTHENE	0.064	.78	8.8	78		
52	3	SS52C	CHRYSENE	0.066	.94	88	780		
52	3	SS52C	DIELDRIN	0.033	.086	.04	.36		
52	3	SS52C	p,p'-DDE	0.03	.16	1.9	17		
52	3	SS52C	p,p'-DDT	0.073	.074	1.9	17		
		SS52C						0.00E+00	0.00E+00
52	3	SS52D	ARSENIC	31.2	20	.43	3.8	7.26E-05	8.21E-06
52	3	SS52D	BENZO(a)ANTHRACENE	0.069	.71	.88	7.8		
52	3	SS52D	CHRYSENE	0.057	.94	88	780		
52	3	SS52D	DIELDRIN	0.021	.086	.04	.36		
52	3	SS52D	p,p'-DDE	0.0064	.16	1.9	17		
52	3	SS52D	p,p'-DDT	0.0069	.074	1.9	17		

Table A-2
Carcinogenic Risk Calculations for Screening Sites
Units are mg/kg

Site	Parcel	Station ID	Parameter	Concentration	Background	Residential Land Use Criteria	Industrial Land Use Criteria	Residential PRE Carc. Risk Ratio	Industrial PRE Carc. Risk Ratio
		SS52D						7.26E-05	8.21E-06
52	3	SS52E	ARSENIC	14.8	20	.43	3.8		
52	3	SS52E	p,p'-DDE	0.039	.16	1.9	17		
52	3	SS52E	p,p'-DDT	0.042	.074	1.9	17		
		SS52E						0.00E+00	0.00E+00
54	15	SB54A	ARSENIC	15.8	20	.43	3.8		
54	15	SB54A	p,p'-DDE	0.005	.16	1.9	17		
54	15	SB54A	p,p'-DDT	0.0056	.074	1.9	17		
		SB54A						0.00E+00	0.00E+00
54	15	SB54B	ARSENIC	27.3	20	.43	3.8	6.35E-05	7.18E-06
54	15	SB54B	BENZO(a)ANTHRACENE	0.2	.71	.88	7.8		
54	15	SB54B	BENZO(a)PYRENE	0.24	.96	.088	.78		
54	15	SB54B	BENZO(b)FLUORANTHENE	0.3	.9	.88	7.8		
54	15	SB54B	BENZO(k)FLUORANTHENE	0.23	.78	.88	7.8		
54	15	SB54B	bis(2-ETHYLHEXYL) PHTHALATE	1.4	NA	.46	410		
54	15	SB54B	CADMIUM	2.4	1.4	3.9	100	6.15E-07	2.40E-08
54	15	SB54B	CHRYSENE	0.29	.94	.88	780		
54	15	SB54B	DIBENZ(a,h)ANTHRACENE	0.079	.26	.088	.78		
54	15	SB54B	DIELDRIN	0.12	.086	.04	.36	3.00E-06	3.33E-07
54	15	SB54B	INDENO(1,2,3-c,d)PYRENE	0.18	.7	.88	7.8		
54	15	SB54B	p,p'-DDE	0.014	.16	1.9	17		
		SB54B						6.71E-05	7.54E-06
54	15	SS54A	ARSENIC	18.4	20	.43	3.8		
54	15	SS54A	BENZO(a)ANTHRACENE	0.05	.71	.88	7.8		
54	15	SS54A	BENZO(a)PYRENE	0.052	.96	.088	.78		
54	15	SS54A	BENZO(b)FLUORANTHENE	0.059	.9	.88	7.8		
54	15	SS54A	BENZO(k)FLUORANTHENE	0.054	.78	.88	7.8		
54	15	SS54A	CHRYSENE	0.064	.94	.88	780		
54	15	SS54A	DIELDRIN	0.0034	.086	.04	.36		
54	15	SS54A	p,p'-DDE	0.0029	.16	1.9	17		
54	15	SS54A	p,p'-DDT	0.0042	.074	1.9	17		
		SS54A						0.00E+00	0.00E+00
55	15	SB55A	ALPHA-CHLORDANE	0.00075	.029	0.49	4.4		
55	15	SB55A	ARSENIC	8.8	20	.43	3.8		
55	15	SB55A	BENZO(a)ANTHRACENE	0.04	.71	.88	7.8		
55	15	SB55A	BENZO(a)PYRENE	0.058	.96	.088	.78		
55	15	SB55A	BENZO(b)FLUORANTHENE	0.093	.9	.88	7.8		
55	15	SB55A	BENZO(k)FLUORANTHENE	0.084	.78	.88	7.8		
55	15	SB55A	BERYLLIUM	0.14	1.1	.15	1.3		
55	15	SB55A	CADMIUM	0.43	1.4	3.9	100		
55	15	SB55A	CHRYSENE	0.064	.94	.88	780		
55	15	SB55A	DIELDRIN	0.0016	.086	.04	.36		
55	15	SB55A	GAMMA-CHLORDANE	0.00097	.026	0.49	4.4		
55	15	SB55A	p,p'-DDE	0.0031	.16	1.9	17		
55	15	SB55A	p,p'-DDT	0.0088	.074	1.9	17		
		SB55A						0.00E+00	0.00E+00
56	29	SB56A	ARSENIC	10.5	20	.43	3.8		
56	29	SB56A	bis(2-ETHYLHEXYL) PHTHALATE	0.058	NA	.46	410		
		SB56A						0.00E+00	0.00E+00
56	29	SS56A	ARSENIC	10.5	20	.43	3.8		
56	29	SS56A	BERYLLIUM	0.36	1.1	.15	1.3		
56	29	SS56A	DIELDRIN	0.0027	.086	.04	.36		
		SS56A						0.00E+00	0.00E+00
56	29	SS56B	ARSENIC	20.2	20	.43	3.8	4.70E-05	5.32E-06

Table A-2
Carcinogenic Risk Calculations for Screening Sites
Units are mg/kg

Site	Parcel	Station ID	Parameter	Concentration	Background	Residential Land Use Criteria	Industrial Land Use Criteria	Residential PDE Carc. Risk Ratio	Industrial PDE Carc. Risk Ratio
56	29	SS56B	bis(2-ETHYLHEXYL) PHTHALATE	0.13	NA	46	410		
		SS56B						4.70E-05	5.32E-06
56	29	SS56C	ARSENIC	18.3	20	43	3.8		
		SS56C						0.00E+00	0.00E+00
65	7	SB65A	BENZO(a)ANTHRACENE	15.71		.88	7.8	1.70E-05	1.92E-06
65	7	SB65A	BENZO(a)PYRENE	17.96		.088	.78	1.93E-04	2.18E-05
65	7	SB65A	BENZO(b)FLUORANTHENE	21.9		.88	7.8	2.39E-05	2.69E-06
65	7	SB65A	BENZO(k)FLUORANTHENE	15.78		8.8	78	1.70E-06	1.92E-07
65	7	SB65A	CARBAZOLE	2.7	.067	32	290	8.44E-08	9.31E-09
65	7	SB65A	CHRYSENE	22.94		88	780	2.50E-07	2.82E-08
65	7	SB65A	INDENO(1,2,3-c,d)PYRENE	15.7		.88	7.8	1.70E-05	1.92E-06
		SB65A						2.53E-04	2.86E-05
65	7	SB65B	BENZO(a)ANTHRACENE	0.19	.71	.88	7.8		
65	7	SB65B	BENZO(a)PYRENE	0.19	.96	.088	.78		
65	7	SB65B	BENZO(b)FLUORANTHENE	0.21	.9	.88	7.8		
65	7	SB65B	BENZO(k)FLUORANTHENE	0.17	.78	8.8	78		
65	7	SB65B	bis(2-ETHYLHEXYL) PHTHALATE	0.31	NA	46	410		
65	7	SB65B	CARBAZOLE	0.053	.067	32	290		
65	7	SB65B	CHRYSENE	0.24	.94	88	780		
65	7	SB65B	INDENO(1,2,3-c,d)PYRENE	0.11	.7	.88	7.8		
		SB65B						0.00E+00	0.00E+00
65	7	SB65C	BENZO(a)ANTHRACENE	0.16	.71	.88	7.8		
65	7	SB65C	BENZO(a)PYRENE	0.15	.96	.088	.78		
65	7	SB65C	BENZO(b)FLUORANTHENE	0.14	.78	8.8	78		
65	7	SB65C	CHRYSENE	0.19	.94	88	780		
65	7	SB65C	INDENO(1,2,3-c,d)PYRENE	0.087	.7	.88	7.8		
		SB65C						0.00E+00	0.00E+00
65	7	SS65A	BENZO(a)ANTHRACENE	37.71		.88	7.8	4.20E-05	4.74E-06
65	7	SS65A	BENZO(a)PYRENE	67.96		.088	.78	7.61E-04	8.59E-05
65	7	SS65A	BENZO(b)FLUORANTHENE	65.9		.88	7.8	7.39E-05	8.33E-06
65	7	SS65A	BENZO(k)FLUORANTHENE	71.78		8.8	78	8.07E-06	9.10E-07
65	7	SS65A	CARBAZOLE	1.6	.067	32	290	5.00E-08	5.52E-09
65	7	SS65A	CHRYSENE	47.94		88	780	5.34E-07	6.03E-08
65	7	SS65A	INDENO(1,2,3-c,d)PYRENE	39.7		.88	7.8	4.43E-05	5.00E-06
		SS65A						9.30E-04	1.05E-04
65	7	SS65B	BENZO(a)ANTHRACENE	0.085	.71	.88	7.8		
65	7	SS65B	BENZO(a)PYRENE	0.081	.96	.088	.78		
65	7	SS65B	BENZO(b)FLUORANTHENE	0.098	.9	.88	7.8		
65	7	SS65B	BENZO(k)FLUORANTHENE	0.073	.78	8.8	78		
65	7	SS65B	CHRYSENE	0.11	.94	88	780		
65	7	SS65B	INDENO(1,2,3-c,d)PYRENE	0.056	.7	.88	7.8		
		SS65B						0.00E+00	0.00E+00
65	7	SS65C	BENZO(a)ANTHRACENE	0.16	.71	.88	7.8		
65	7	SS65C	BENZO(a)PYRENE	0.16	.96	.088	.78		
65	7	SS65C	BENZO(b)FLUORANTHENE	0.14	.9	.88	7.8		
65	7	SS65C	BENZO(k)FLUORANTHENE	0.16	.78	8.8	78		
65	7	SS65C	bis(2-ETHYLHEXYL) PHTHALATE	0.1	NA	46	410		
65	7	SS65C	CARBAZOLE	0.048	.067	32	290		
65	7	SS65C	CHRYSENE	0.21	.94	88	780		
65	7	SS65C	INDENO(1,2,3-c,d)PYRENE	0.096	.7	.88	7.8		
		SS65C						0.00E+00	0.00E+00
65	7	SS65D	BENZO(a)ANTHRACENE	16.71		.88	7.8	1.82E-05	2.05E-06
65	7	SS65D	BENZO(a)PYRENE	16.96		.088	.78	1.82E-04	2.05E-05
65	7	SS65D	BENZO(b)FLUORANTHENE	15.9		.88	7.8	1.70E-05	1.92E-06
65	7	SS65D	BENZO(k)FLUORANTHENE	16.78		8.8	78	1.82E-06	2.05E-07
65	7	SS65D	CARBAZOLE	2.9	.067	32	290	9.06E-08	1.00E-08
65	7	SS65D	CHRYSENE	21.94		88	780	2.39E-07	2.69E-08
65	7	SS65D	INDENO(1,2,3-c,d)PYRENE	11.7		.88	7.8	1.25E-05	1.41E-06
		SS65D						2.32E-04	2.61E-05

Table A-2
Carcinogenic Risk Calculations for Screening Sites
Units are mg/kg

Site	Parcel	Station ID	Parameter	Concentration	Background	Residential Land Use Criteria	Industrial Land Use Criteria	Residential PRC Carc. Risk Ratio	Industrial PRC Carc. Risk Ratio
65	7	SS65E	ARSENIC	4.20		.43	3.8		
65	7	SS65E	BENZO(a)ANTHRACENE	55.71		.88	7.8	6.25E-05	7.05E-06
65	7	SS65E	BENZO(b)FLUORANTHENE	62.9		.88	7.8	7.05E-05	7.95E-06
65	7	SS65E	BENZO(k)FLUORANTHENE	51.78		.88	7.8	5.80E-06	6.54E-07
65	7	SS65E	BERYLLIUM	0.27	1.1	.15	1.3		
65	7	SS65E	CADMIUM	4.1	1.4	3.9	100	1.05E-06	4.10E-08
65	7	SS65E	CARBAZOLE	12.067		32	290	3.75E-07	4.14E-08
65	7	SS65E	CHRYSENE	68.94		.88	7.8	7.73E-07	8.72E-08
65	7	SS65E	INDENO(1,2,3-c,d)PYRENE	44.7		.88	7.8	5.00E-05	5.64E-06
65	7	SS65E	p,p'-DDE	2.8	.16	1.9	17	1.47E-06	1.65E-07
65	7	SS65E	p,p'-DDT	5.1	.074	1.9	17	2.68E-06	3.00E-07
		SS65E						8.77E-04	9.89E-05
66	4	SS66A	ARSENIC	3.6	20	.43	3.8		
66	4	SS66A	BENZO(a)ANTHRACENE	5.4	.71	.88	7.8	6.14E-06	6.92E-07
66	4	SS66A	BENZO(a)PYRENE	6.3	.96	.088	.78	7.16E-05	8.08E-06
66	4	SS66A	BENZO(b)FLUORANTHENE	8.1	.9	.88	7.8	9.20E-06	1.04E-06
66	4	SS66A	BENZO(k)FLUORANTHENE	7.4	.78	.88	7.8	8.41E-07	9.49E-08
66	4	SS66A	BERYLLIUM	0.23	1.1	.15	1.3		
66	4	SS66A	CARBAZOLE	1.5	.067	32	290	4.69E-08	5.17E-09
66	4	SS66A	CHRYSENE	9.2	.94	.88	7.8	1.05E-07	1.18E-08
66	4	SS66A	INDENO(1,2,3-c,d)PYRENE	6.2	.7	.88	7.8	7.05E-06	7.95E-07
66	4	SS66A	p,p'-DDD	0.12	.0067	2.7	24	4.44E-08	5.00E-09
66	4	SS66A	p,p'-DDE	0.22	.16	1.9	17	1.16E-07	1.29E-08
66	4	SS66A	p,p'-DDT	0.57	.074	1.9	17	3.00E-07	3.35E-08
		SS66A						9.54E-05	1.08E-05
67	4	SB67A	ARSENIC	16.9	20	.43	3.8		
		SB67A						0.00E+00	0.00E+00
67	4	SB67B	ARSENIC	9.1	20	.43	3.8		
67	4	SB67B	BERYLLIUM	0.35	1.1	.15	1.3		
		SB67B						0.00E+00	0.00E+00
67	4	SS67A	ARSENIC	25.1	20	.43	3.8	5.84E-05	6.61E-06
67	4	SS67A	METHYLENE CHLORIDE	0.005	NA	.85	760		
		SS67A						5.84E-05	6.61E-06
67	4	SS67B	ARSENIC	12.5	20	.43	3.8		
67	4	SS67B	BERYLLIUM	0.43	1.1	.15	1.3		
67	4	SS67B	CADMIUM	0.62	1.4	3.9	100		
67	4	SS67B	DIELDRIN	0.056	.086	.04	.36		
67	4	SS67B	p,p'-DDE	0.01	.16	1.9	17		
67	4	SS67B	p,p'-DDT	0.064	.074	1.9	17		
		SS67B						0.00E+00	0.00E+00
69	3	SB69B	BENZO(a)ANTHRACENE	0.14	.71	.88	7.8		
69	3	SB69B	BENZO(a)PYRENE	0.12	.96	.088	.78		
69	3	SB69B	BENZO(b)FLUORANTHENE	0.16	.9	.88	7.8		
69	3	SB69B	BENZO(k)FLUORANTHENE	0.1	.78	.88	7.8		
69	3	SB69B	CHRYSENE	0.13	.94	.88	7.8		
		SB69B						0.00E+00	0.00E+00
69	3	SS69A	ARSENIC	13.5	20	.43	3.8		
69	3	SS69A	BERYLLIUM	0.45	1.1	.15	1.3		
69	3	SS69A	DIELDRIN	0.042	.086	.04	.36		
		SS69A						0.00E+00	0.00E+00
69	3	SS69B	BENZO(a)ANTHRACENE	0.1	.71	.88	7.8		
69	3	SS69B	BENZO(a)PYRENE	0.086	.96	.088	.78		
69	3	SS69B	BENZO(b)FLUORANTHENE	0.12	.9	.88	7.8		
69	3	SS69B	BENZO(k)FLUORANTHENE	0.071	.78	.88	7.8		

Table A-2
Carcinogenic Risk Calculations for Screening Sites
Units are mg/kg

Site	Parcel	Station ID	Parameter	Concentration	Background	Residential Land Use Criteria	Industrial Land Use Criteria	Residential PRC Carc. Risk Ratio	Industrial PRC Carc. Risk Ratio
69	3	SS69B	BENZO(k)FLUORANTHENE	0.12	.9	.88	7.8		
69	3	SS69B	BENZO(k)FLUORANTHENE	0.071	.78	.88	78		
69	3	SS69B	INDENO(1,2,3-c,d)PYRENE	0.092	.7	.88	7.8		
		SS69B						0.00E+00	0.00E+00
69	3	SS69D	BENZO(a)ANTHRACENE	0.081	.71	.88	7.8		
69	3	SS69D	BENZO(a)PYRENE	0.054	.96	.088	.78		
69	3	SS69D	BENZO(b)FLUORANTHENE	0.059	.9	.88	7.8		
69	3	SS69D	BENZO(k)FLUORANTHENE	0.05	.78	.88	78		
69	3	SS69D	CHRYSENE	0.069	.94	.88	780		
		SS69D						0.00E+00	0.00E+00
72	15	SS72A	ARSENIC	29	20	.43	3.8	6.74E-05	7.63E-06
72	15	SS72A	BENZO(a)ANTHRACENE	0.12	.71	.88	7.8		
72	15	SS72A	BENZO(a)PYRENE	0.14	.96	.088	.78		
72	15	SS72A	BENZO(b)FLUORANTHENE	0.2	.9	.88	7.8		
72	15	SS72A	BENZO(k)FLUORANTHENE	0.18	.78	.88	78		
72	15	SS72A	CHRYSENE	0.17	.94	.88	780		
72	15	SS72A	INDENO(1,2,3-c,d)PYRENE	0.083	.7	.88	7.8		
		SS72A						6.74E-05	7.63E-06
72	15	SS72B	ARSENIC	17.4	20	.43	3.8		
72	15	SS72B	BENZO(a)ANTHRACENE	0.21	.71	.88	7.8		
72	15	SS72B	BENZO(a)PYRENE	0.19	.96	.088	.78		
72	15	SS72B	BENZO(b)FLUORANTHENE	0.18	.9	.88	7.8		
72	15	SS72B	BENZO(k)FLUORANTHENE	0.25	.78	.88	78		
72	15	SS72B	CHRYSENE	0.2	.94	.88	780		
72	15	SS72B	INDENO(1,2,3-c,d)PYRENE	0.17	.7	.88	7.8		
		SS72B						0.00E+00	0.00E+00
72	15	SS72C	ARSENIC	13.3	20	.43	3.8		
72	15	SS72C	BERYLLIUM	0.56	1.1	.15	1.3		
72	15	SS72C	p,p'-DDE	0.0036	.16	1.9	17		
72	15	SS72C	p,p'-DDT	0.013	.074	1.9	17		
		SS72C						0.00E+00	0.00E+00
72	15	SS72D	ARSENIC	18.1	20	.43	3.8		
		SS72D						0.00E+00	0.00E+00
72	15	SS72E	ARSENIC	27.7	20	.43	3.8	6.44E-05	7.29E-06
72	15	SS72E	BENZO(a)ANTHRACENE	0.26	.71	.88	7.8		
72	15	SS72E	BENZO(a)PYRENE	0.29	.96	.088	.78		
72	15	SS72E	BENZO(b)FLUORANTHENE	0.32	.9	.88	7.8		
72	15	SS72E	BENZO(k)FLUORANTHENE	0.3	.78	.88	78		
72	15	SS72E	CHRYSENE	0.28	.94	.88	780		
72	15	SS72E	INDENO(1,2,3-c,d)PYRENE	0.26	.7	.88	7.8		
		SS72E						6.44E-05	7.29E-06
72	15	SS72F	ARSENIC	22.8	20	.43	3.8	5.30E-05	6.00E-06
72	15	SS72F	BENZO(a)ANTHRACENE	0.076	.71	.88	7.8		
72	15	SS72F	BENZO(a)PYRENE	0.069	.96	.088	.78		
72	15	SS72F	BENZO(b)FLUORANTHENE	0.079	.9	.88	7.8		
72	15	SS72F	BENZO(k)FLUORANTHENE	0.087	.78	.88	78		
72	15	SS72F	CHRYSENE	0.079	.94	.88	780		
72	15	SS72F	INDENO(1,2,3-c,d)PYRENE	0.075	.7	.88	7.8		
		SS72F						5.30E-05	6.00E-06
72	15	SS72G	ARSENIC	17.2	20	.43	3.8		
		SS72G						0.00E+00	0.00E+00
72	15	SS72H	ARSENIC	15.9	20	.43	3.8		
		SS72H						0.00E+00	0.00E+00
72	15	SS72I	ARSENIC	24	20	.43	3.8	5.58E-05	6.32E-06

Table A-2
Carcinogenic Risk Calculations for Screening Sites
Units are mg/kg

Site	Parcel	Station ID	Parameter	Concentration	Background	Residential Land Use Criteria	Industrial Land Use Criteria	Residential PRC Carc. Risk Ratio	Industrial PRC Carc. Risk Ratio
		SS72L						5.58E-05	6.32E-06
74	15	SB74A	ARSENIC	11.9	20	.43	3.8		
74	15	SB74A	BERYLLIUM	0.42	1.1	.15	1.3		
		SB74A						0.00E+00	0.00E+00
74	15	SB74B	ARSENIC	13.7	20	.43	3.8		
74	15	SB74B	BENZO(a)ANTHRACENE	0.17	.71	.88	7.8		
74	15	SB74B	BENZO(a)PYRENE	0.13	.96	.088	.78		
74	15	SB74B	BENZO(b)FLUORANTHENE	0.17	.9	.88	7.8		
74	15	SB74B	BENZO(k)FLUORANTHENE	0.16	.78	.88	7.8		
74	15	SB74B	bis(2-ETHYLHEXYL) PHTHALATE	0.13	NA	.48	410		
74	15	SB74B	CARBAZOLE	0.078	.067	.32	290	2.44E-09	2.69E-10
74	15	SB74B	CHRYSENE	0.25	.94	.88	780		
74	15	SB74B	DIELDRIN	0.0031	.086	.04	.36		
74	15	SB74B	INDENO(1,2,3-c,d)PYRENE	0.1	.7	.88	7.8		
		SB74B						2.44E-09	2.69E-10
74	15	SB74C	ARSENIC	13.5	20	.43	3.8		
74	15	SB74C	bis(2-ETHYLHEXYL) PHTHALATE	0.063	NA	.46	410		
74	15	SB74C	DIELDRIN	0.0015	.086	.04	.36		
		SB74C						0.00E+00	0.00E+00
75	22	SB75A	ARSENIC	10.5	20	.43	3.8		
75	22	SB75A	BERYLLIUM	0.35	1.1	.15	1.3		
75	22	SB75A	DIELDRIN	0.006	.086	.04	.36		
75	22	SB75A	p,p'-DDE	0.015	.16	1.9	17		
75	22	SB75A	p,p'-DDT	0.036	.074	1.9	17		
		SB75A						0.00E+00	0.00E+00
75	22	SS75A	BENZO(a)ANTHRACENE	1.3	.71	.88	7.8	1.48E-06	1.67E-07
75	22	SS75A	BENZO(a)PYRENE	1.4	.96	.088	.78	1.59E-05	1.79E-06
75	22	SS75A	BENZO(b)FLUORANTHENE	1.6	.9	.88	7.8	1.82E-06	2.05E-07
75	22	SS75A	BENZO(k)FLUORANTHENE	1.2	.78	.88	7.8	1.36E-07	1.54E-08
75	22	SS75A	bis(2-ETHYLHEXYL) PHTHALATE	0.1	NA	.46	410		
75	22	SS75A	CARBAZOLE	0.43	.067	.32	290	1.34E-08	1.48E-09
75	22	SS75A	CHRYSENE	1.9	.94	.88	780	2.15E-08	2.44E-09
75	22	SS75A	INDENO(1,2,3-c,d)PYRENE	0.98	.7	.88	7.8	1.11E-06	1.26E-07
		SS75A						2.05E-05	2.31E-06
75	22	SS75B	BENZO(a)ANTHRACENE	0.15	.71	.88	7.8		
75	22	SS75B	BENZO(a)PYRENE	0.19	.96	.088	.78		
75	22	SS75B	BENZO(b)FLUORANTHENE	0.21	.9	.88	7.8		
75	22	SS75B	BENZO(k)FLUORANTHENE	0.16	.78	.88	7.8		
75	22	SS75B	CHRYSENE	0.21	.94	.88	780		
75	22	SS75B	INDENO(1,2,3-c,d)PYRENE	0.13	.7	.88	7.8		
75	22	SS75B	METHYLENE CHLORIDE	0.006	NA	.85	760		
		SS75B						0.00E+00	0.00E+00
76	21	SB76A	ARSENIC	12	20	.43	3.8		
76	21	SB76A	DIELDRIN	0.29	.086	.04	.36	7.25E-06	8.06E-07
		SB76A						7.25E-06	8.06E-07
76	21	SB76B	ARSENIC	13.4	20	.43	3.8		
76	21	SB76B	CADMIUM	2.8	1.4	3.9	100	7.18E-07	2.80E-08
76	21	SB76B	DIELDRIN	0.0041	.086	.04	.36		
76	21	SB76B	p,p'-DDE	0.0044	.16	1.9	17		
76	21	SB76B	p,p'-DDT	0.0099	.074	1.9	17		
		SB76B						7.18E-07	2.80E-08
76	21	SB76C	ARSENIC	13.2	20	.43	3.8		
76	21	SB76C	DIELDRIN	0.0069	.086	.04	.36		
76	21	SB76C	p,p'-DDE	0.015	.16	1.9	17		

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Table A-2
Carcinogenic Risk Calculations for Screening Sites
Units are mg/kg

Site	Parcel	Station ID	Parameter	Concentration	Background	Residential Land Use Criteria	Industrial Land Use Criteria	Residential PRC Carc. Risk Ratio	Industrial PRC Carc. Risk Ratio
77	22	SB77A	ARSENIC	11.5	20	.43	3.8		
77	22	SB77A	bis(2-ETHYLHEXYL) PHTHALATE	250	NA	.46	410		
77	22	SB77A	DIELDRIN	0.26	.086	.04	.36	6.50E-06	7.22E-07
77	22	SB77A	p,p'-DDE	0.077	.16	1.9	17		
77	22	SB77A	p,p'-DDT	0.21	.074	1.9	17	1.11E-07	1.24E-08
		SB77A						6.61E-06	7.35E-07
77	22	SB77B	ARSENIC	18.7	20	.43	3.8		
77	22	SB77B	METHYLENE CHLORIDE	0.003	NA	.85	760		
77	22	SB77B	p,p'-DDT	0.0022	.074	1.9	17		
		SB77B						0.00E+00	0.00E+00
77	22	SS77A	ALPHA-CHLORDANE	0.024	.029	0.49	4.4		
77	22	SS77A	ARSENIC	8.3	20	.43	3.8		
77	22	SS77A	BENZO(a)ANTHRACENE	0.54	.71	.88	7.8		
77	22	SS77A	BENZO(a)PYRENE	0.56	.96	.088	.78		
77	22	SS77A	BENZO(b)FLUORANTHENE	0.65	.9	.88	7.8		
77	22	SS77A	BENZO(k)FLUORANTHENE	0.39	.78	.88	7.8		
77	22	SS77A	BERYLLIUM	0.32	1.1	.15	1.3		
77	22	SS77A	CADMIUM	0.45	1.4	3.9	100		
77	22	SS77A	CARBAZOLE	0.12	.067	32	290	3.75E-09	4.14E-10
77	22	SS77A	CHRYSENE	0.67	.94	.88	780		
77	22	SS77A	DIELDRIN	0.032	.086	.04	.36		
77	22	SS77A	GAMMA-CHLORDANE	0.04	.026	0.49	4.4	8.16E-08	9.09E-09
77	22	SS77A	INDENO(1,2,3-c,d)PYRENE	0.4	.7	.88	7.8		
77	22	SS77A	p,p'-DDE	0.061	.16	1.9	17	1.37E-07	1.53E-08
77	22	SS77A	p,p'-DDT	0.26	.074	1.9	17	2.22E-07	2.48E-08
		SS77A							
77	22	SS77B	ALPHA-CHLORDANE	0.0027	.029	0.49	4.4		
77	22	SS77B	ARSENIC	14.8	20	.43	3.8		
77	22	SS77B	BENZO(a)ANTHRACENE	0.086	.71	.88	7.8		
77	22	SS77B	BENZO(a)PYRENE	0.11	.96	.088	.78		
77	22	SS77B	BENZO(b)FLUORANTHENE	0.13	.9	.88	7.8		
77	22	SS77B	BENZO(k)FLUORANTHENE	0.11	.78	.88	7.8		
77	22	SS77B	CHRYSENE	0.12	.94	.88	780		
77	22	SS77B	GAMMA-CHLORDANE	0.0036	.026	0.49	4.4		
77	22	SS77B	INDENO(1,2,3-c,d)PYRENE	0.093	.7	.88	7.8		
77	22	SS77B	METHYLENE CHLORIDE	0.003	NA	.85	760		
77	22	SS77B	p,p'-DDT	0.013	.074	1.9	17		
		SS77B						0.00E+00	0.00E+00
77	22	SS77C	ARSENIC	11.4	20	.43	3.8		
77	22	SS77C	BENZO(a)ANTHRACENE	26	.71	.88	7.8	2.95E-05	3.33E-06
77	22	SS77C	BENZO(a)PYRENE	26	.96	.088	.78	2.95E-04	3.33E-05
77	22	SS77C	BENZO(b)FLUORANTHENE	26	.9	.88	7.8	2.95E-05	3.33E-06
77	22	SS77C	BENZO(k)FLUORANTHENE	20	.78	.88	7.8	2.27E-06	2.56E-07
77	22	SS77C	CARBAZOLE	4	.067	32	290	1.25E-07	1.38E-08
77	22	SS77C	CHRYSENE	30	.94	.88	780	3.41E-07	3.85E-08
77	22	SS77C	INDENO(1,2,3-c,d)PYRENE	17	.7	.88	7.8	1.93E-05	2.18E-06
77	22	SS77C	METHYLENE CHLORIDE	0.003	NA	.85	760		
		SS77C						3.77E-04	4.25E-05
77	22	SS77D	ARSENIC	9.4	20	.43	3.8		
77	22	SS77D	BENZO(a)ANTHRACENE	1.2	.71	.88	7.8	1.36E-06	1.54E-07
77	22	SS77D	BENZO(a)PYRENE	1.3	.96	.088	.78	1.48E-05	1.67E-06
77	22	SS77D	BENZO(b)FLUORANTHENE	1.5	.9	.88	7.8	1.70E-06	1.92E-07
77	22	SS77D	BENZO(k)FLUORANTHENE	0.96	.78	.88	7.8	1.09E-07	1.23E-08
77	22	SS77D	BERYLLIUM	0.36	1.1	.15	1.3		

Table A-2
Carcinogenic Risk Calculations for Screening Sites
Units are mg/kg

Site	Parcel	Station ID	Parameter	Concentration	Background	Residential Land Use Criteria	Industrial Land Use Criteria	Residential PRC Conc. Risk Ratio	Industrial PRC Conc. Risk Ratio
77	22	SS77D	CARBAZOLE	0.2	.067	32	290	6.25E-09	6.90E-10
77	22	SS77D	CHRYSENE	1.5	.94	88	780	1.70E-08	1.92E-09
77	22	SS77D	INDENO(1,2,3-c,d)PYRENE	0.91	.7	88	7.8	1.03E-06	1.17E-07
77	22	SS77D	p,p'-DDE	0.013	.16	1.9	17		
77	22	SS77D	p,p'-DDT	0.029	.074	1.9	17		
77	22	SS77D	PENTACHLOROPHENOL	0.32	NA	5.3	48		
		SS77D						1.90E-05	2.14E-06
79	15	SB79A	ARSENIC	15.8	20	.43	3.8		
		SB79A						0.00E+00	0.00E+00
79	15	SB79B	ALPHA-CHLORDANE	0.0025	.029	0.49	4.4		
79	15	SB79B	ARSENIC	7.6	20	.43	3.8		
79	15	SB79B	BERYLLIUM	0.34	1.1	.15	1.3		
79	15	SB79B	CADMIUM	0.88	1.4	3.9	100		
79	15	SB79B	GAMMA-CHLORDANE	0.0028	.026	0.49	4.4		
79	15	SB79B	p,p'-DDT	0.005	.074	1.9	17		
		SB79B						0.00E+00	0.00E+00
79	15	SB79C	ARSENIC	8.5	20	.43	3.8		
		SB79C						0.00E+00	0.00E+00
79	15	SS79A	ALPHA-CHLORDANE	0.098	.029	0.49	4.4	2.00E-07	2.23E-08
79	15	SS79A	ARSENIC	37.7	20	.43	3.8	8.77E-05	9.92E-06
79	15	SS79A	BENZO(a)ANTHRACENE	1.71		.88	7.8	1.14E-06	1.28E-07
79	15	SS79A	BENZO(a)PYRENE	1.96		.088	.78	1.14E-06	1.28E-06
79	15	SS79A	BENZO(b)FLUORANTHENE	1.5	.9	.88	7.8	1.70E-06	1.92E-07
79	15	SS79A	BENZO(k)FLUORANTHENE	1.4	.78	8.8	78	1.59E-07	1.79E-08
79	15	SS79A	CADMIUM	1.6	1.4	3.9	100	4.10E-07	1.60E-08
79	15	SS79A	CARBAZOLE	0.074	.067	32	290	2.31E-09	2.55E-10
79	15	SS79A	CHRYSENE	1.7	.94	88	780	1.93E-08	2.18E-09
79	15	SS79A	DIBENZ(a,h)ANTHRACENE	0.23	.26	.088	.78		
79	15	SS79A	DIELDRIN	0.1	.086	.04	.36	2.50E-06	2.78E-07
79	15	SS79A	GAMMA-CHLORDANE	0.12	.026	0.49	4.4	2.45E-07	2.73E-08
79	15	SS79A	INDENO(1,2,3-c,d)PYRENE	0.6	.7	.88	7.8		
79	15	SS79A	p,p'-DDT	0.063	.074	1.9	17		
79	15	SS79A	PENTACHLOROPHENOL	0.3	NA	5.3	48		
		SS79A						1.05E-04	1.19E-05
79	15	SS79B	ARSENIC	10.5	20	.43	3.8		
79	15	SS79B	BENZO(a)ANTHRACENE	0.057	.71	.88	7.8		
79	15	SS79B	BENZO(a)PYRENE	0.067	.96	.088	.78		
79	15	SS79B	BENZO(b)FLUORANTHENE	0.073	.9	.88	7.8		
79	15	SS79B	BENZO(k)FLUORANTHENE	0.05	.78	8.8	78		
79	15	SS79B	bis(2-ETHYLHEXYL) PHTHALATE	0.045	NA	46	410		
79	15	SS79B	CHRYSENE	0.088	.94	88	780		
79	15	SS79B	DIELDRIN	0.009	.086	.04	.36		
79	15	SS79B	INDENO(1,2,3-c,d)PYRENE	0.053	.7	.88	7.8		
79	15	SS79B	p,p'-DDT	0.0081	.074	1.9	17		
		SS79B						0.00E+00	0.00E+00
79	15	SS79C	ARSENIC	10.6	20	.43	3.8		
79	15	SS79C	BERYLLIUM	0.37	1.1	.15	1.3		
		SS79C						0.00E+00	0.00E+00
80	33	SB80A	ARSENIC	8.9	20	.43	3.8		
80	33	SB80A	BERYLLIUM	0.4	1.1	.15	1.3		
		SB80A						0.00E+00	0.00E+00
80	33	SB80B	ARSENIC	8.9	20	.43	3.8		
80	33	SB80B	BERYLLIUM	0.98	1.1	.15	1.3		
80	33	SB80B	CADMIUM	2	1.4	3.9	100	5.13E-07	2.00E-08

Table A-2
Carcinogenic Risk Calculations for Screening Sites
Units are mg/kg

Site	Parcel	Station ID	Parameter	Concentration	Background	Residential Land Use Criteria	Industrial Land Use Criteria	Residential PPE Carc. Risk Ratio	Industrial PPE Carc. Risk Ratio
		SB80B						5.13E-07	2.00E-08
80	33	SS80A	ARSENIC	19.2	20	.43	3.8		
80	33	SS80A	BENZO(a)ANTHRACENE	0.055	.71	.88	7.8		
80	33	SS80A	BENZO(a)PYRENE	0.086	.96	.088	.78		
80	33	SS80A	BERYLLIUM	0.14	1.1	.15	1.3		
80	33	SS80A	CADMIUM	0.57	1.4	3.9	100		
80	33	SS80A	CHRYSENE	0.087	.94	.88	780		
80	33	SS80A	INDENO(1,2,3-c,d)PYRENE	0.045	.7	.88	7.8		
80	33	SS80A	PCB-1260 (AROCHLOR 1260)	0.74	.11	.16	4.1	4.63E-06	1.80E-07
		SS80A						4.63E-06	1.80E-07
80	33	SS80B	ARSENIC	17.2	20	.43	3.8		
80	33	SS80B	BENZO(a)ANTHRACENE	1.3	.71	.88	7.8	1.48E-06	1.67E-07
80	33	SS80B	BENZO(a)PYRENE	1.4	.96	.088	.78	1.59E-05	1.79E-06
80	33	SS80B	BENZO(b)FLUORANTHENE	1.2	.9	.88	7.8	1.36E-06	1.54E-07
80	33	SS80B	BENZO(k)FLUORANTHENE	1.3	.78	8.8	78	1.48E-07	1.67E-08
80	33	SS80B	CHRYSENE	1.3	.94	.88	780	1.48E-08	1.67E-09
80	33	SS80B	METHYLENE CHLORIDE	0.003	NA	85	760		
		SS80B						1.89E-05	2.13E-06
80	33	SS80C	ARSENIC	15.9	20	.43	3.8		
80	33	SS80C	BENZO(a)ANTHRACENE	0.1	.71	.88	7.8		
80	33	SS80C	BENZO(a)PYRENE	0.1	.96	.088	.78		
80	33	SS80C	BENZO(b)FLUORANTHENE	0.1	.9	.88	7.8		
80	33	SS80C	BENZO(k)FLUORANTHENE	0.078	.78	8.8	78		
80	33	SS80C	CHRYSENE	0.1	.94	.88	780		
		SS80C						0.00E+00	0.00E+00
81	24	SB81A	bis(2-ETHYLHEXYL) PHTHALATE	0.056	NA	46	410		
		SB81A						0.00E+00	0.00E+00
81	24	SS81A	BENZO(a)ANTHRACENE	0.36	.71	.88	7.8		
81	24	SS81A	BENZO(a)PYRENE	0.4	.96	.088	.78		
81	24	SS81A	BENZO(b)FLUORANTHENE	0.37	.9	.88	7.8		
81	24	SS81A	BENZO(k)FLUORANTHENE	0.33	.78	8.8	78		
81	24	SS81A	bis(2-ETHYLHEXYL) PHTHALATE	0.052	NA	46	410		
81	24	SS81A	CHRYSENE	0.39	.94	.88	780		
81	24	SS81A	INDENO(1,2,3-c,d)PYRENE	0.32	.7	.88	7.8		
81	24	SS81A	PENTACHLOROPHENOL	0.08	NA	5.3	48		
		SS81A						0.00E+00	0.00E+00
81	24	SS81B	ARSENIC	10.3	20	.43	3.8		
81	24	SS81B	BENZO(a)PYRENE	0.044	.96	.088	.78		
81	24	SS81B	BENZO(b)FLUORANTHENE	0.048	.9	.88	7.8		
81	24	SS81B	BERYLLIUM	0.62	1.1	.15	1.3		
81	24	SS81B	CHRYSENE	0.054	.94	.88	780		
81	24	SS81B	p,p'-DDE	0.014	.16	1.9	17		
81	24	SS81B	p,p'-DDT	0.011	.074	1.9	17		
		SS81B						0.00E+00	0.00E+00
81	24	SS81C	bis(2-ETHYLHEXYL) PHTHALATE	0.048	NA	46	410		
81	24	SS81C	CARBAZOLE	0.061	.067	32	290		
81	24	SS81C	PENTACHLOROPHENOL	0.11	NA	5.3	48		
		SS81C						0.00E+00	0.00E+00
82	23	SB82A	ARSENIC	22.9	20	.43	3.8	5.33E-05	6.03E-06
82	23	SB82A	bis(2-ETHYLHEXYL) PHTHALATE	0.1	NA	46	410		
		SB82A						5.33E-05	6.03E-06
82	23	SB82B	ARSENIC	20.2	20	.43	3.8	4.70E-05	5.32E-06
		SB82B						4.70E-05	5.32E-06
82	23	SB82C	ARSENIC	22.1	20	.43	3.8	5.14E-05	5.82E-06

Table A-2
Carcinogenic Risk Calculations for Screening Sites
Units are mg/kg

Site	Parcel	Station ID	Parameter	Concentration	Background	Residential Land Use Criteria	Industrial Land Use Criteria	Residential PPE Carc. Risk Ratio	Industrial PPE Carc. Risk Ratio
82	23	SB82C	bis(2-ETHYLHEXYL) PHTHALATE	0.17	NA	.46	410		
82	23	SB82C	DIELDRIN	0.0038	.086	.04	.36		
		SB82C						5.14E-06	5.82E-06
82	23	SB82D	ARSENIC	10.7	20	.43	3.8		
82	23	SS82A	ARSENIC	11.5	20	.43	3.8		
82	23	SS82A	BERYLLIUM	0.41	1.1	.15	1.3		
82	23	SS82A	bis(2-ETHYLHEXYL) PHTHALATE	0.92	NA	.46	410		
82	23	SS82A	DIELDRIN	0.18	.086	.04	.36	4.50E-06	5.00E-07
		SS82A						4.50E-06	5.00E-07
82	23	SS82B	ARSENIC	9	20	.43	3.8		
82	23	SS82B	BENZO(a)ANTHRACENE	0.044	.71	.88	7.8		
82	23	SS82B	BENZO(a)PYRENE	0.07	.96	.088	.78		
82	23	SS82B	BENZO(b)FLUORANTHENE	0.059	.9	.88	7.8		
82	23	SS82B	BENZO(k)FLUORANTHENE	0.06	.78	.88	7.8		
82	23	SS82B	BERYLLIUM	0.34	1.1	.15	1.3		
82	23	SS82B	CHRYSENE	0.062	.94	.88	780		
82	23	SS82B	DIELDRIN	0.015	.086	.04	.36		
82	23	SS82B	INDENO(1,2,3-c,d)PYRENE	0.05	.7	.88	7.8		
		SS82B						0.00E+00	0.00E+00
82	23	SS82C	ARSENIC	24.3	20	.43	3.8	5.65E-05	6.39E-06
82	23	SS82C	BENZO(a)PYRENE	0.044	.96	.088	.78		
82	23	SS82C	BENZO(k)FLUORANTHENE	0.051	.78	.88	7.8		
82	23	SS82C	BENZYL BUTYL PHTHALATE	0.083	NA	1600	41000		
82	23	SS82C	bis(2-ETHYLHEXYL) PHTHALATE	0.055	NA	.46	410		
82	23	SS82C	CHRYSENE	0.048	.94	.88	780		
82	23	SS82C	DIELDRIN	0.033	.086	.04	.36		
82	23	SS82C	METHYLENE CHLORIDE	0.003	NA	.85	760		
		SS82C						5.65E-05	6.39E-06
82	23	SS82D	ARSENIC	9.1	20	.43	3.8		
82	23	SS82D	BENZO(a)PYRENE	0.042	.96	.088	.78		
82	23	SS82D	BERYLLIUM	0.24	1.1	.15	1.3		
82	23	SS82D	CHRYSENE	0.046	.94	.88	780		
82	23	SS82D	DIELDRIN	0.066	.086	.04	.36		
		SS82D						0.00E+00	0.00E+00
83	30	SB83A	ARSENIC	8.9	20	.43	3.8		
83	30	SB83A	bis(2-ETHYLHEXYL) PHTHALATE	0.062	NA	.46	410		
		SB83A						0.00E+00	0.00E+00
83	30	SB83B	ARSENIC	8.7	20	.43	3.8		
83	30	SB83B	bis(2-ETHYLHEXYL) PHTHALATE	0.16	NA	.46	410		
83	30	SB83B	CADMIUM	4	1.4	3.9	100	1.03E-06	4.00E-08
83	30	SB83B	METHYLENE CHLORIDE	0.003	NA	.85	760		
		SB83B						1.03E-06	4.00E-08
83	30	SS83A	ARSENIC	8.9	20	.43	3.8		
83	30	SS83A	bis(2-ETHYLHEXYL) PHTHALATE	0.094	NA	.46	410		
83	30	SS83A	METHYLENE CHLORIDE	0.002	NA	.85	760		
		SS83A						0.00E+00	0.00E+00
83	30	SS83B	ARSENIC	2.6	20	.43	3.8		
83	30	SS83B	BERYLLIUM	1.6	1.1	.15	1.3	1.07E-06	1.23E-06
83	30	SS83B	CADMIUM	2	1.4	3.9	100	5.13E-07	2.00E-08
83	30	SS83B	p,p'-DDE	0.44	.16	1.9	17	2.32E-07	2.59E-08
83	30	SS83B	p,p'-DDT	1.7	.074	1.9	17	8.95E-07	1.00E-07
		SS83B						1.23E-06	1.38E-06
83	30	SS83C	ARSENIC	7.7	20	.43	3.8		

Table A-2
Carcinogenic Risk Calculations for Screening Sites
Units are mg/kg

Site	Parcel	Station ID	Parameter	Concentration	Background	Residential Land Use Criteria	Industrial Land Use Criteria	Residential PRC Carc. Risk Ratio	Industrial PRC Carc. Risk Ratio
83	30	SS83C	bis(2-ETHYLHEXYL) PHTHALATE	0.038	NA	46	410		
83	30	SS83C	METHYLENE CHLORIDE	0.004	NA	85	760		
		SS83C						0.00E+00	0.00E+00
84	27	SB84A	ARSENIC	17.8	20	43	3.8		
84	27	SB84A	BENZO(a)ANTHRACENE	0.44	.71	.88	7.8		
84	27	SB84A	BENZO(a)PYRENE	0.36	.96	.088	.78		
84	27	SB84A	BENZO(b)FLUORANTHENE	0.42	.9	.88	7.8		
84	27	SB84A	BENZO(k)FLUORANTHENE	0.38	.78	8.8	78		
84	27	SB84A	bis(2-ETHYLHEXYL) PHTHALATE	0.07	NA	46	410		
84	27	SB84A	CARBAZOLE	0.16	.067	32	290	5.00E-09	5.52E-10
84	27	SB84A	CHRYSENE	0.62	.94	88	780		
84	27	SB84A	INDENO(1,2,3-c,d)PYRENE	0.31	.7	.88	7.8		
		SB84A						5.00E-09	5.52E-10
84	27	SB84B	ALPHA-CHLORDANE	0.61	.029	0.49	4.4	1.24E-06	1.39E-07
84	27	SB84B	ARSENIC	15.5	20	.43	3.8		
84	27	SB84B	BENZO(a)ANTHRACENE	0.47	.71	.88	7.8		
84	27	SB84B	BENZO(a)PYRENE	0.44	.96	.088	.78		
84	27	SB84B	BENZO(b)FLUORANTHENE	0.43	.9	.88	7.8		
84	27	SB84B	BENZO(k)FLUORANTHENE	0.39	.78	8.8	78		
84	27	SB84B	bis(2-ETHYLHEXYL) PHTHALATE	1.1	NA	46	410		
84	27	SB84B	CARBAZOLE	0.08	.067	32	290	2.50E-09	2.76E-10
84	27	SB84B	CHRYSENE	0.57	.94	88	780		
84	27	SB84B	GAMMA-CHLORDANE	0.58	.026	0.49	4.4	1.18E-06	1.32E-07
84	27	SB84B	INDENO(1,2,3-c,d)PYRENE	0.27	.7	.88	7.8		
84	27	SB84B	p,p'-DDE	0.15	.16	1.9	17		
84	27	SB84B	p,p'-DDT	0.4	.074	1.9	17	2.11E-07	2.35E-08
		SB84B						2.64E-06	2.94E-07
84	27	SB84C	ARSENIC	9.7	20	.43	3.8		
84	27	SB84C	BENZO(a)ANTHRACENE	0.28	.71	.88	7.8		
84	27	SB84C	BENZO(a)PYRENE	0.24	.96	.088	.78		
84	27	SB84C	BENZO(b)FLUORANTHENE	0.25	.9	.88	7.8		
84	27	SB84C	BENZO(k)FLUORANTHENE	0.26	.78	8.8	78		
84	27	SB84C	bis(2-ETHYLHEXYL) PHTHALATE	5.6	NA	46	410		
84	27	SB84C	CHRYSENE	0.4	.94	88	780		
84	27	SB84C	INDENO(1,2,3-c,d)PYRENE	0.16	.7	.88	7.8		
		SB84C						0.00E+00	0.00E+00
84	27	SB84D	ALPHA-CHLORDANE	0.072	.029	0.49	4.4	1.47E-07	1.64E-08
84	27	SB84D	ARSENIC	8.9	20	.43	3.8		
84	27	SB84D	BENZO(a)ANTHRACENE	0.046	.71	.88	7.8		
84	27	SB84D	BENZO(b)FLUORANTHENE	0.043	.9	.88	7.8		
84	27	SB84D	bis(2-ETHYLHEXYL) PHTHALATE	0.04	NA	46	410		
84	27	SB84D	CHRYSENE	0.052	.94	88	780		
84	27	SB84D	GAMMA-CHLORDANE	0.081	.026	0.49	4.4	1.65E-07	1.84E-08
84	27	SB84D	p,p'-DDT	0.12	.074	1.9	17	6.32E-08	7.06E-09
		SB84D						3.75E-07	4.18E-08
84	27	SS84A	ARSENIC	9.9	20	.43	3.8		
84	27	SS84A	BERYLLIUM	0.45	1.1	.15	1.3		
		SS84A						0.00E+00	0.00E+00
84	27	SS84B	ALPHA-CHLORDANE	0.0014	.029	0.49	4.4		
84	27	SS84B	ARSENIC	10.1	20	.43	3.8		
84	27	SS84B	BERYLLIUM	0.4	1.1	.15	1.3		
84	27	SS84B	GAMMA-CHLORDANE	0.0017	.026	0.49	4.4		
84	27	SS84B	p,p'-DDT	0.002	.074	1.9	17		
		SS84B						0.00E+00	0.00E+00

Table A-2
Carcinogenic Risk Calculations for Screening Sites
Units are mg/kg

Site	Parcel	Station ID	Parameter	Concentration	Background	Residential Land Use Criteria	Industrial Land Use Criteria	Residential PRC Carc. Risk Ratio	Industrial PRC Carc. Risk Ratio
84	27	SS84C	ALPHA-CHLORDANE	0.072	.029	0.49	4.4	1.47E-07	1.64E-08
84	27	SS84C	ARSENIC	15.8	20	.43	3.8		
84	27	SS84C	BENZO(a)ANTHRACENE	2.9	.71	.88	7.8	3.30E-06	3.72E-07
84	27	SS84C	BENZO(a)PYRENE	2.6	.96	.088	.78	2.95E-05	3.33E-06
84	27	SS84C	BENZO(b)FLUORANTHENE	2.2	.9	.88	7.8	2.50E-06	2.82E-07
84	27	SS84C	BENZO(k)FLUORANTHENE	2.7	.78	8.8	78	3.07E-07	3.46E-08
84	27	SS84C	CARBAZOLE	1.1	.067	32	290	3.44E-08	3.79E-09
84	27	SS84C	CHRYSENE	3.4	.94	88	780	3.86E-08	4.36E-09
84	27	SS84C	GAMMA-CHLORDANE	0.084	.026	0.49	4.4	1.71E-07	1.91E-08
84	27	SS84C	INDENO(1,2,3-c,d)PYRENE	2.2	.7	.88	7.8	2.50E-06	2.82E-07
		SS84C						3.85E-05	4.35E-06
84	27	SS84D	ALPHA-CHLORDANE	0.017	.029	0.49	4.4		
84	27	SS84D	ARSENIC	14.6	20	.43	3.8		
84	27	SS84D	BENZO(a)ANTHRACENE	0.49	.71	.88	7.8		
84	27	SS84D	BENZO(a)PYRENE	0.45	.96	.088	.78		
84	27	SS84D	BENZO(b)FLUORANTHENE	0.5	.9	.88	7.8		
84	27	SS84D	BENZO(k)FLUORANTHENE	0.44	.78	8.8	78		
84	27	SS84D	dis(2-ETHYLHEXYL) PHTHALATE	0.89	NA	46	410		
84	27	SS84D	CARBAZOLE	0.11	.067	32	290	3.44E-09	3.79E-10
84	27	SS84D	CHRYSENE	0.62	.94	88	780		
84	27	SS84D	GAMMA-CHLORDANE	0.019	.026	0.49	4.4		
84	27	SS84D	INDENO(1,2,3-c,d)PYRENE	0.32	.7	.88	7.8		
84	27	SS84D	p,p'-DDT	0.014	.074	1.9	17		
		SS84D						3.44E-09	3.79E-10
84	27	SS84E	ALPHA-CHLORDANE	0.011	.029	0.49	4.4		
84	27	SS84E	ARSENIC	9.6	20	.43	3.8		
84	27	SS84E	BENZO(a)ANTHRACENE	0.22	.71	.88	7.8		
84	27	SS84E	BENZO(a)PYRENE	0.2	.96	.088	.78		
84	27	SS84E	BENZO(b)FLUORANTHENE	0.26	.9	.88	7.8		
84	27	SS84E	BENZO(k)FLUORANTHENE	0.21	.78	8.8	78		
84	27	SS84E	CHRYSENE	0.29	.94	88	780		
84	27	SS84E	GAMMA-CHLORDANE	0.013	.026	0.49	4.4		
84	27	SS84E	INDENO(1,2,3-c,d)PYRENE	0.14	.7	.88	7.8		
84	27	SS84E	p,p'-DDT	0.016	.074	1.9	17		
		SS84E						0.00E+00	0.00E+00
84	27	SS84F	ALPHA-CHLORDANE	0.01	.029	0.49	4.4		
84	27	SS84F	ARSENIC	10.5	20	.43	3.8		
84	27	SS84F	BENZO(a)ANTHRACENE	0.094	.71	.88	7.8		
84	27	SS84F	BENZO(a)PYRENE	0.086	.96	.088	.78		
84	27	SS84F	BENZO(b)FLUORANTHENE	0.09	.9	.88	7.8		
84	27	SS84F	BENZO(k)FLUORANTHENE	0.098	.78	8.8	78		
84	27	SS84F	dis(2-ETHYLHEXYL) PHTHALATE	0.045	NA	46	410		
84	27	SS84F	CHRYSENE	0.12	.94	88	780		
84	27	SS84F	GAMMA-CHLORDANE	0.011	.026	0.49	4.4		
84	27	SS84F	INDENO(1,2,3-c,d)PYRENE	0.054	.7	.88	7.8		
84	27	SS84F	p,p'-DDT	0.016	.074	1.9	17		
		SS84F						0.00E+00	0.00E+00
89	28	SS89A	BERYLLIUM	0.13	1.1	.15	1.3		
89	28	SS89A	CADMIUM	0.41	1.4	3.9	100		
89	28	SS89A	p,p'-DDE	0.091	.16	1.9	17		
89	28	SS89A	p,p'-DDT	0.078	.074	1.9	17	4.11E-08	4.59E-09
		SS89A						4.11E-08	4.59E-09
89	28	SS89B	ARSENIC	5.7	20	.43	3.8		
89	28	SS89B	BERYLLIUM	0.21	1.1	.15	1.3		

Table A-2
Carcinogenic Risk Calculations for Screening Sites
Units are mg/kg

Site	Parcel	Station ID	Parameter	Concentration	Background	Residential Land Use Criteria	Industrial Land Use Criteria	Residential PRE Carc. Risk Ratio	Industrial PRE Carc. Risk Ratio
89	28	SS89B	CADMIUM	1.1	1.4	3.9	100	0.00E+00	0.00E+00
		SS89B							
89	28	SS89C	ARSENIC	4.6	20	.43	3.8	0.00E+00	0.00E+00
		SS89C							
89	28	SS89D	ARSENIC	2.7	20	.43	3.8		
89	28	SS89D	CADMIUM	1.2	1.4	3.9	100		
89	28	SS89D	METHYLENE CHLORIDE	0.001	NA	85	760	0.00E+00	0.00E+00
		SS89D							
89	28	SS89F	ARSENIC	10.5	20	.43	3.8		
89	28	SS89F	METHYLENE CHLORIDE	0.002	NA	85	760	0.00E+00	0.00E+00
		SS89F							
89	28	SS89H	ARSENIC	23.9	20	.43	3.8	5.56E-05	6.29E-06
89	28	SS89H	CADMIUM	1.4	1.4	3.9	100		
89	28	SS89H	METHYLENE CHLORIDE	0.002	NA	85	760		
		SS89H						5.56E-05	6.29E-06
89	28	SS89I	ARSENIC	12.5	20	.43	3.8		
89	28	SS89I	METHYLENE CHLORIDE	0.003	NA	85	760	0.00E+00	0.00E+00
		SS89I							
89	28	SS89J	ARSENIC	10.2	20	.43	3.8		
89	28	SS89J	CADMIUM	2.2	1.4	3.9	100	5.64E-07	2.20E-08
89	28	SS89J	METHYLENE CHLORIDE	0.003	NA	85	760		

Table A-3
Carcinogenic Risk Calculations for RI Sites
Units are mg/kg

Site	Parcel	Station ID	Parameter	Concentration	Back-ground	Residential Land Use Criteria	Industrial Land Use Criteria	Residential PRE Carc. Risk Ratio	Industrial PRE Carc. Risk Ratio
27	25	SB27A	ARSENIC	5.1	20	.43	3.8		
27	25	SB27A	ARSENIC	5.1	20	.43	3.8		
27	25	SB27A	ARSENIC	11.1	17	.43	3.8		
27	25	SB27A	ARSENIC	11.1	17	.43	3.8		
27	25	SB27A	CADMIUM	2.2	1.4	3.9	100	5.64E-07	2.20E-08
27	25	SB27A	CADMIUM	2.2	1.4	3.9	100	5.64E-07	2.20E-08
27	25	SB27A	DDE	0.005	.16	1.9	17		
27	25	SB27A	DDE	0.005	.16	1.9	17		
27	25	SB27A	DDT	0.018	.074	1.9	17		
27	25	SB27A	DDT	0.018	.074	1.9	17		
27	25	SB27A	LEAD	11.9	43	200	1000		
27	25	SB27A	LEAD	11.9	43	200	1000		
27	25	SB27A	LEAD	12	24	200	1000		
27	25	SB27A	LEAD	12	24	200	1000		
27	25	SB27A	METHYLENE CHLORIDE	0.002	NA	85	760		
27	25	SB27A	METHYLENE CHLORIDE	0.002	NA	85	760		
		SB27A						1.13E-06	4.40E-08
27	25	SB27B	ARSENIC	4.1	20	.43	3.8		
27	25	SB27B	ARSENIC	4.1	20	.43	3.8		
27	25	SB27B	ARSENIC	11.5	17	.43	3.8		
27	25	SB27B	ARSENIC	11.5	17	.43	3.8		
27	25	SB27B	DDE	0.013	.16	1.9	17		
27	25	SB27B	DDE	0.013	.16	1.9	17		
27	25	SB27B	DDT	0.099	.074	1.9	17	5.21E-08	5.82E-09
27	25	SB27B	DDT	0.099	.074	1.9	17	5.21E-08	5.82E-09
27	25	SB27B	LEAD	15.8	24	200	1000		
27	25	SB27B	LEAD	15.8	24	200	1000		
27	25	SB27B	LEAD	16.1	43	200	1000		
27	25	SB27B	LEAD	16.1	43	200	1000		
27	25	SB27B	METHYLENE CHLORIDE	0.002	NA	85	760		
27	25	SB27B	METHYLENE CHLORIDE	0.002	NA	85	760		
27	25	SB27B	METHYLENE CHLORIDE	0.002	NA	85	760		
27	25	SB27B	METHYLENE CHLORIDE	0.002	NA	85	760		
		SB27B						1.04E-07	1.16E-08
27	25	SB27C	ARSENIC	3.6	20	.43	3.8		
27	25	SB27C	ARSENIC	3.6	20	.43	3.8		
27	25	SB27C	ARSENIC	10	17	.43	3.8		
27	25	SB27C	ARSENIC	10	17	.43	3.8		
27	25	SB27C	DDE	0.0037	.16	1.9	17		
27	25	SB27C	DDE	0.0037	.16	1.9	17		
27	25	SB27C	DDT	0.013	.074	1.9	17		
27	25	SB27C	DDT	0.013	.074	1.9	17		
27	25	SB27C	LEAD	7.6	43	200	1000		
27	25	SB27C	LEAD	7.6	43	200	1000		
27	25	SB27C	LEAD	11.2	24	200	1000		
27	25	SB27C	LEAD	11.2	24	200	1000		
27	25	SB27C	METHYLENE CHLORIDE	0.002	NA	85	760		
27	25	SB27C	METHYLENE CHLORIDE	0.002	NA	85	760		
27	25	SB27C	METHYLENE CHLORIDE	0.004	NA	85	760		
27	25	SB27C	METHYLENE CHLORIDE	0.004	NA	85	760		
		SB27C						0.00E+00	0.00E+00
27	25	SB27D	ALPHA-CHLORDANE	0.0023	.029	0.49	4.4		
27	25	SB27D	ALPHA-CHLORDANE	0.0023	.029	0.49	4.4		
27	25	SB27D	ARSENIC	1.9	20	.43	3.8		

Table A-3
Carcinogenic Risk Calculations for RI Sites
Units are mg/kg

Site	Parcel	Station ID	Parameter	Concentration	Back-ground	Residential Land Use Criteria	Industrial Land Use Criteria	Residential Pre Carc. Risk Ratio	Industrial Pre Carc. Risk Ratio
27	25	SB27D	ARSENIC	1.9	20	.43	3.8		
27	25	SB27D	ARSENIC	8.7	17	.43	3.8		
27	25	SB27D	ARSENIC	8.7	17	.43	3.8		
27	25	SB27D	DDE	0.0044	.16	1.9	17		
27	25	SB27D	DDE	0.0044	.16	1.9	17		
27	25	SB27D	DDT	0.012	.074	1.9	17		
27	25	SB27D	DDT	0.012	.074	1.9	17		
27	25	SB27D	GAMMA-CHLORDANE	0.002	.026	0.49	4.4		
27	25	SB27D	GAMMA-CHLORDANE	0.002	.026	0.49	4.4		
27	25	SB27D	LEAD	9.3	24	200	1000		
27	25	SB27D	LEAD	9.3	24	200	1000		
27	25	SB27D	LEAD	9.7	43	200	1000		
27	25	SB27D	LEAD	9.7	43	200	1000		
27	25	SB27D	METHYLENE CHLORIDE	0.003	NA	85	760		
27	25	SB27D	METHYLENE CHLORIDE	0.003	NA	85	760		
27	25	SB27D	METHYLENE CHLORIDE	0.004	NA	85	760		
27	25	SB27D	METHYLENE CHLORIDE	0.004	NA	85	760		
		SB27D						0.00E+00	0.00E+00
27	25	SB27E	ARSENIC	2.8	20	.43	3.8		
27	25	SB27E	ARSENIC	2.8	20	.43	3.8		
27	25	SB27E	ARSENIC	8.7	17	.43	3.8		
27	25	SB27E	ARSENIC	8.7	17	.43	3.8		
27	25	SB27E	DDE	0.019	.16	1.9	17		
27	25	SB27E	DDE	0.019	.16	1.9	17		
27	25	SB27E	DDT	0.036	.074	1.9	17		
27	25	SB27E	DDT	0.036	.074	1.9	17		
27	25	SB27E	LEAD	9.7	24	200	1000		
27	25	SB27E	LEAD	9.7	24	200	1000		
27	25	SB27E	LEAD	25	43	200	1000		
27	25	SB27E	LEAD	25	43	200	1000		
		SB27E						0.00E+00	0.00E+00
27	25	SS27F	ALPHA-CHLORDANE	0.059	.029	0.49	4.4	1.20E-07	1.34E-08
27	25	SS27F	ALPHA-CHLORDANE	0.059	.029	0.49	4.4	1.20E-07	1.34E-08
27	25	SS27F	ARSENIC	5	20	.43	3.8		
27	25	SS27F	ARSENIC	5	20	.43	3.8		
27	25	SS27F	ARSENIC	9.5	17	.43	3.8		
27	25	SS27F	ARSENIC	9.5	17	.43	3.8		
27	25	SS27F	BENZO(a)ANTHRACENE	9	.71	.88	7.8	1.02E-05	1.15E-06
27	25	SS27F	BENZO(a)ANTHRACENE	9	.71	.88	7.8	1.02E-05	1.15E-06
27	25	SS27F	BENZO(a)PYRENE	8	.96	.088	.78	9.09E-05	1.03E-05
27	25	SS27F	BENZO(a)PYRENE	8	.96	.088	.78	9.09E-05	1.03E-05
27	25	SS27F	BENZO(b)FLUORANTHENE	10	.9	.88	7.8	1.14E-05	1.28E-06
27	25	SS27F	BENZO(b)FLUORANTHENE	10	.9	.88	7.8	1.14E-05	1.28E-06
27	25	SS27F	BENZO(k)FLUORANTHENE	12	.78	.88	.78	1.36E-06	1.54E-07
27	25	SS27F	BENZO(k)FLUORANTHENE	12	.78	.88	.78	1.36E-06	1.54E-07
27	25	SS27F	CADMIUM	2.1	1.4	3.9	100	5.38E-07	2.10E-08
27	25	SS27F	CADMIUM	2.1	1.4	3.9	100	5.38E-07	2.10E-08
27	25	SS27F	CHRYSENE	11	.94	.88	780	1.25E-07	1.41E-08
27	25	SS27F	CHRYSENE	11	.94	.88	780	1.25E-07	1.41E-08
27	25	SS27F	GAMMA-CHLORDANE	0.12	.026	0.49	4.4	2.45E-07	2.73E-08
27	25	SS27F	GAMMA-CHLORDANE	0.12	.026	0.49	4.4	2.45E-07	2.73E-08
27	25	SS27F	INDENO(1,2,3-c,d)PYRENE	6.2	.7	.88	7.8	7.05E-06	7.95E-07
27	25	SS27F	INDENO(1,2,3-c,d)PYRENE	6.2	.7	.88	7.8	7.05E-06	7.95E-07
27	25	SS27F	LEAD	10.5	24	200	1000		

Site	Parcel	Station ID	Parameter	Concentration	Back-ground	Residential Land Use Criteria	Industrial Land Use Criteria	Residential PRE Carc. Risk Ratio	Industrial PRE Carc. Risk Ratio
27	25	SS27F	LEAD	10.5	24	200	1000		
27	25	SS27F	LEAD	156	43	200	1000	7.80E-07	1.56E-07
27	25	SS27F	LEAD	156	43	200	1000	7.80E-07	1.56E-07
27	25	SS27F	METHYLENE CHLORIDE	0.002	NA	85	760		
27	25	SS27F	METHYLENE CHLORIDE	0.002	NA	85	760		
		SS27F						2.45E-04	2.77E-05
27	25	SS27G	ALPHA-CHLORDANE	0.23	.029	0.49	4.4	4.69E-07	5.23E-08
27	25	SS27G	ALPHA-CHLORDANE	0.23	.029	0.49	4.4	4.69E-07	5.23E-08
27	25	SS27G	ARSENIC	4.9	20	.43	3.8		
27	25	SS27G	ARSENIC	4.9	20	.43	3.8		
27	25	SS27G	ARSENIC	9.8	17	.43	3.8		
27	25	SS27G	ARSENIC	9.8	17	.43	3.8		
27	25	SS27G	BENZO(a)ANTHRACENE	0.55	.71	.88	7.8		
27	25	SS27G	BENZO(a)ANTHRACENE	0.55	.71	.88	7.8		
27	25	SS27G	BENZO(a)PYRENE	0.6	.96	.088	.78		
27	25	SS27G	BENZO(a)PYRENE	0.6	.96	.088	.78		
27	25	SS27G	BENZO(b)FLUORANTHENE	0.89	.9	.88	7.8		
27	25	SS27G	BENZO(b)FLUORANTHENE	0.89	.9	.88	7.8		
27	25	SS27G	BENZO(k)FLUORANTHENE	0.75	.78	.88	7.8		
27	25	SS27G	BENZO(k)FLUORANTHENE	0.75	.78	.88	7.8		
27	25	SS27G	BERYLLIUM	0.11	1.1	.15	1.3		
27	25	SS27G	BERYLLIUM	0.11	1.1	.15	1.3		
27	25	SS27G	CADMIUM	0.36	1.4	3.9	100		
27	25	SS27G	CADMIUM	0.36	1.4	3.9	100		
27	25	SS27G	CHRYSENE	0.55	.94	.88	7.80		
27	25	SS27G	CHRYSENE	0.55	.94	.88	7.80		
27	25	SS27G	GAMMA-CHLORDANE	0.24	.026	0.49	4.4	4.90E-07	5.45E-08
27	25	SS27G	GAMMA-CHLORDANE	0.24	.026	0.49	4.4	4.90E-07	5.45E-08
27	25	SS27G	INDENO(1,2,3-c,d)PYRENE	0.49	.7	.88	7.8		
27	25	SS27G	INDENO(1,2,3-c,d)PYRENE	0.49	.7	.88	7.8		
27	25	SS27G	LEAD	10.9	24	200	1000		
27	25	SS27G	LEAD	10.9	24	200	1000		
27	25	SS27G	LEAD	60.3	43	200	1000	3.02E-07	6.03E-08
27	25	SS27G	LEAD	60.3	43	200	1000	3.02E-07	6.03E-08
27	25	SS27G	p,p'-DDT	0.062	.074	1.9	17		
		SS27G						2.52E-06	3.34E-07
27	25	SS27H	ALPHA-CHLORDANE	0.11	.029	0.49	4.4	2.24E-07	2.50E-08
27	25	SS27H	ALPHA-CHLORDANE	0.11	.029	0.49	4.4	2.24E-07	2.50E-08
27	25	SS27H	ARSENIC	4.6	20	.43	3.8		
27	25	SS27H	ARSENIC	4.6	20	.43	3.8		
27	25	SS27H	ARSENIC	9.9	17	.43	3.8		
27	25	SS27H	ARSENIC	9.9	17	.43	3.8		
27	25	SS27H	BENZO(a)ANTHRACENE	0.42	.71	.88	7.8		
27	25	SS27H	BENZO(a)ANTHRACENE	0.42	.71	.88	7.8		
27	25	SS27H	BENZO(a)PYRENE	0.7	.96	.088	.78		
27	25	SS27H	BENZO(a)PYRENE	0.7	.96	.088	.78		
27	25	SS27H	BENZO(b)FLUORANTHENE	1.1	.9	.88	7.8	1.25E-06	1.41E-07
27	25	SS27H	BENZO(b)FLUORANTHENE	1.1	.9	.88	7.8	1.25E-06	1.41E-07
27	25	SS27H	BENZO(k)FLUORANTHENE	1	.78	.88	7.8	1.14E-07	1.28E-08
27	25	SS27H	BENZO(k)FLUORANTHENE	1	.78	.88	7.8	1.14E-07	1.28E-08
27	25	SS27H	BERYLLIUM	0.33	1.1	.15	1.3		
27	25	SS27H	BERYLLIUM	0.33	1.1	.15	1.3		
27	25	SS27H	CADMIUM	0.62	1.4	3.9	100		
27	25	SS27H	CADMIUM	0.62	1.4	3.9	100		

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Site	Parcel	Station ID	Parameter	Concen-tration	Back-ground	Residential Land Use Criteria	Industrial Land Use Criteria	Residential PRE Carc. Risk Ratio	Industrial PRE Carc. Risk Ratio
27	25	SS27H	CARBAZOLE	0.13	.067	32	290	4.06E-09	4.48E-10
27	25	SS27H	CHRYSENE	0.77	.94	88	780		
27	25	SS27H	CHRYSENE	0.77	.94	88	780		
27	25	SS27H	GAMMA-CHLORDANE	0.12	.026	0.49	4.4	2.45E-07	2.73E-08
27	25	SS27H	GAMMA-CHLORDANE	0.12	.026	0.49	4.4	2.45E-07	2.73E-08
27	25	SS27H	INDENO(1,2,3-c,d)PYRENE	0.73	.7	.88	7.8	8.30E-07	9.36E-08
27	25	SS27H	INDENO(1,2,3-c,d)PYRENE	0.73	.7	.88	7.8	8.30E-07	9.36E-08
27	25	SS27H	LEAD	10.4	24	200	1000		
27	25	SS27H	LEAD	10.4	24	200	1000		
27	25	SS27H	LEAD	40.5	43	200	1000		
27	25	SS27H	LEAD	40.5	43	200	1000		
27	25	SS27H	p,p'-DDT	0.04	.074	1.9	17		
27	25	SS27H	PENTACHLOROPHENOL	0.68	NA	5.3	48		
		SS27H						5.33E-06	6.00E-07
27	25	SS27I	ALPHA-CHLORDANE	0.0048	.0026	0.49	4.4	9.80E-09	1.09E-09
27	25	SS27I	ALPHA-CHLORDANE	0.0048	.0026	0.49	4.4	9.80E-09	1.09E-09
27	25	SS27I	ALPHA-CHLORDANE	0.083	.029	0.49	4.4	1.69E-07	1.89E-08
27	25	SS27I	ALPHA-CHLORDANE	0.083	.029	0.49	4.4	1.69E-07	1.89E-08
27	25	SS27I	ARSENIC	9.3	17	.43	3.8		
27	25	SS27I	ARSENIC	9.3	17	.43	3.8		
27	25	SS27I	ARSENIC	9.8	20	.43	3.8		
27	25	SS27I	ARSENIC	9.8	20	.43	3.8		
27	25	SS27I	GAMMA-CHLORDANE	0.0048	.0022	0.49	4.4	9.80E-09	1.09E-09
27	25	SS27I	GAMMA-CHLORDANE	0.0048	.0022	0.49	4.4	9.80E-09	1.09E-09
27	25	SS27I	GAMMA-CHLORDANE	0.087	.026	0.49	4.4	1.78E-07	1.98E-08
27	25	SS27I	GAMMA-CHLORDANE	0.087	.026	0.49	4.4	1.78E-07	1.98E-08
27	25	SS27I	LEAD	9.9	24	200	1000		
27	25	SS27I	LEAD	9.9	24	200	1000		
27	25	SS27I	LEAD	12.6	43	200	1000		
27	25	SS27I	LEAD	12.6	43	200	1000		
		SS27I						7.33E-07	8.16E-08
27	25	SS27J	ALPHA-CHLORDANE	0.012	.0026	0.49	4.4	2.45E-08	2.73E-09
27	25	SS27J	ALPHA-CHLORDANE	0.012	.0026	0.49	4.4	2.45E-08	2.73E-09
27	25	SS27J	ALPHA-CHLORDANE	0.2	.029	0.49	4.4	4.08E-07	4.55E-08
27	25	SS27J	ALPHA-CHLORDANE	0.2	.029	0.49	4.4	4.08E-07	4.55E-08
27	25	SS27J	ARSENIC	2.1	20	.43	3.8		
27	25	SS27J	ARSENIC	2.1	20	.43	3.8		
27	25	SS27J	ARSENIC	9.3	17	.43	3.8		
27	25	SS27J	ARSENIC	9.3	17	.43	3.8		
27	25	SS27J	BENZO(a)ANTHRACENE	1.7	.71	.88	7.8	1.93E-06	2.18E-07
27	25	SS27J	BENZO(a)ANTHRACENE	1.7	.71	.88	7.8	1.93E-06	2.18E-07
27	25	SS27J	BENZO(a)PYRENE	1.5	.96	.088	.78	1.70E-05	1.92E-06
27	25	SS27J	BENZO(a)PYRENE	1.5	.96	.088	.78	1.70E-05	1.92E-06
27	25	SS27J	BENZO(b)FLUORANTHENE	1.7	.9	.88	7.8	1.93E-06	2.18E-07
27	25	SS27J	BENZO(b)FLUORANTHENE	1.7	.9	.88	7.8	1.93E-06	2.18E-07
27	25	SS27J	BENZO(k)FLUORANTHENE	1.6	.78	8.8	78	1.82E-07	2.05E-08
27	25	SS27J	BENZO(k)FLUORANTHENE	1.6	.78	8.8	78	1.82E-07	2.05E-08
27	25	SS27J	CADMIUM	0.76	1.4	3.9	100		
27	25	SS27J	CADMIUM	0.76	1.4	3.9	100		
27	25	SS27J	CHRYSENE	1.8	.94	88	780	2.05E-08	2.31E-09
27	25	SS27J	CHRYSENE	1.8	.94	88	780	2.05E-08	2.31E-09
27	25	SS27J	GAMMA-CHLORDANE	0.011	.0022	0.49	4.4	2.24E-08	2.50E-09
27	25	SS27J	GAMMA-CHLORDANE	0.011	.0022	0.49	4.4	2.24E-08	2.50E-09
27	25	SS27J	GAMMA-CHLORDANE	0.22	.026	0.49	4.4	4.49E-07	5.00E-08

Table A-3
Carcinogenic Risk Calculations for RI Sites
Units are mg/kg

Site	Parcel	Station ID	Parameter	Concentration	Back-ground	Residential Land Use Criteria	Industrial Land Use Criteria	Residential PRE Carc. Risk Ratio	Industrial PRE Carc. Risk Ratio
27	25	SS27J	GAMMA-CHLORDANE	0.22	.026	0.49	4.4	4.49E-07	5.00E-08
27	25	SS27J	INDENO(1,2,3-c,d)PYRENE	1.4	.7	.88	7.8	1.59E-06	1.79E-07
27	25	SS27J	INDENO(1,2,3-c,d)PYRENE	1.4	.7	.88	7.8	1.59E-06	1.79E-07
27	25	SS27J	LEAD	9.4	24	200	1000		
27	25	SS27J	LEAD	9.4	24	200	1000		
27	25	SS27J	LEAD	27.5	43	200	1000		
27	25	SS27J	LEAD	27.5	43	200	1000		
27	25	SS27J	METHYLENE CHLORIDE	0.002	NA	85	760		
27	25	SS27J	METHYLENE CHLORIDE	0.002	NA	85	760		
		SS27J						4.72E-05	5.32E-06
32	35	SB32A	ARSENIC	42.5	17	.43	3.8	9.88E-05	1.12E-05
32	35	SB32A	BENZO(a)ANTHRACENE	0.15	NA	.88	7.8		
32	35	SB32A	BENZO(a)PYRENE	0.16	NA	.088	.78		
32	35	SB32A	BENZO(b)FLUORANTHENE	0.14	NA	.88	7.8		
32	35	SB32A	BENZO(k)FLUORANTHENE	0.13	NA	.88	7.8		
32	35	SB32A	CADMIUM	5.8	1.4	3.9	100	1.49E-06	5.80E-08
32	35	SB32A	CHRYSENE	0.17	NA	.88	780		
32	35	SB32A	DDE	0.038	.0015	1.9	17	2.00E-08	2.24E-09
32	35	SB32A	DDT	0.15	.0072	1.9	17	7.89E-08	8.82E-09
32	35	SB32A	DIELDRIN	0.059	.37	.04	.36		
32	35	SB32A	INDENO(1,2,3-c,d)PYRENE	0.15	NA	.88	7.8		
32	35	SB32A	LEAD	4150	24	200	1000	2.08E-05	4.15E-06
		SB32A						1.21E-04	1.54E-05
32	35	SS32B	ARSENIC	14.9	20	.43	3.8		
32	35	SS32B	BENZO(a)ANTHRACENE	0.73	.71	.88	7.8	8.30E-07	9.36E-08
32	35	SS32B	BENZO(a)PYRENE	0.61	.96	.088	.78		
32	35	SS32B	BENZO(b)FLUORANTHENE	0.73	.9	.88	7.8		
32	35	SS32B	BENZO(k)FLUORANTHENE	0.72	.78	.88	7.8		
32	35	SS32B	CADMIUM	1.9	1.4	3.9	100	4.87E-07	1.90E-08
32	35	SS32B	CHRYSENE	0.8	.94	.88	780		
32	35	SS32B	INDENO(1,2,3-c,d)PYRENE	0.46	.7	.88	7.8		
32	35	SS32B	LEAD	678	43	200	1000	3.39E-06	6.78E-07
		SS32B						4.71E-06	7.91E-07
32	35	SS32C	ARSENIC	11	20	.43	3.8		
32	35	SS32C	BENZO(a)ANTHRACENE	0.073	.71	.88	7.8		
32	35	SS32C	BENZO(a)PYRENE	0.07	.96	.088	.78		
32	35	SS32C	BENZO(b)FLUORANTHENE	0.057	.9	.88	7.8		
32	35	SS32C	BENZO(k)FLUORANTHENE	0.057	.78	.88	7.8		
32	35	SS32C	DDE	0.0037	.16	1.9	17		
32	35	SS32C	DDT	0.0071	.074	1.9	17		
32	35	SS32C	LEAD	693	43	200	1000	3.47E-06	6.93E-07
		SS32C						3.47E-06	6.93E-07
32	35	SS32D	ARSENIC	14.6	20	.43	3.8		
32	35	SS32D	BENZO(a)ANTHRACENE	0.12	.71	.88	7.8		
32	35	SS32D	BENZO(a)PYRENE	0.13	.96	.088	.78		
32	35	SS32D	BENZO(b)FLUORANTHENE	0.1	.9	.88	7.8		
32	35	SS32D	BENZO(k)FLUORANTHENE	0.11	.78	.88	7.8		
32	35	SS32D	CHRYSENE	0.12	.94	.88	780		
32	35	SS32D	DDE	0.011	.16	1.9	17		
32	35	SS32D	DDT	0.022	.074	1.9	17		
32	35	SS32D	DIELDRIN	0.032	.086	.04	.36		
32	35	SS32D	INDENO(1,2,3-c,d)PYRENE	0.11	.7	.88	7.8		
32	35	SS32D	LEAD	766	43	200	1000	3.83E-06	7.66E-07
		SS32D						3.83E-06	7.66E-07

Site	Parcel	Station ID	Parameter	Concentration	Back-ground	Residential Land Use Criteria	Industrial Land Use Criteria	Residential Pre-Carc. Risk Ratio	Industrial Pre-Carc. Risk Ratio
32	35	SS32E	ARSENIC	7.7	20	.43	3.8		
32	35	SS32E	BENZO(a)ANTHRACENE	0.5	.71	.88	7.8		
32	35	SS32E	BENZO(a)PYRENE	0.38	.96	.088	.78		
32	35	SS32E	BENZO(b)FLUORANTHENE	0.39	.9	.88	7.8		
32	35	SS32E	BENZO(k)FLUORANTHENE	0.39	.78	8.8	78		
32	35	SS32E	CADMIUM	0.43	1.4	3.9	100		
32	35	SS32E	CARBAZOLE	0.16	.067	32	290	5.00E-09	5.52E-10
32	35	SS32E	CHRYSENE	0.5	.94	88	780		
32	35	SS32E	DIELDRIN	0.013	.086	.04	.36		
32	35	SS32E	INDENO(1,2,3-c,d)PYRENE	0.24	.7	.88	7.8		
32	35	SS32E	LEAD	119	43	200	1000	5.95E-07	1.19E-07
		SS32E						6.00E-07	1.20E-07
32	35	SS32F	ARSENIC	8.2	20	.43	3.8		
32	35	SS32F	BENZO(a)ANTHRACENE	0.14	.71	.88	7.8		
32	35	SS32F	BENZO(a)PYRENE	0.15	.96	.088	.78		
32	35	SS32F	BENZO(b)FLUORANTHENE	0.14	.9	.88	7.8		
32	35	SS32F	BENZO(k)FLUORANTHENE	0.18	.78	8.8	78		
32	35	SS32F	CADMIUM	2.5	1.4	3.9	100	6.41E-07	2.50E-08
32	35	SS32F	CHRYSENE	0.15	.94	88	780		
32	35	SS32F	DDE	0.005	.16	1.9	17		
32	35	SS32F	DDT	0.013	.074	1.9	17		
32	35	SS32F	DIELDRIN	0.022	.086	.04	.36		
32	35	SS32F	INDENO(1,2,3-c,d)PYRENE	0.14	.7	.88	7.8		
32	35	SS32F	LEAD	105	43	200	1000	5.25E-07	1.05E-07
		SS32F						1.12E-06	1.30E-07
32	35	SS32G	ARSENIC	17.1	20	.43	3.8		
32	35	SS32G	CADMIUM	2	1.4	3.9	100	5.13E-07	2.00E-08
32	35	SS32G	DDE	0.021	.16	1.9	17		
32	35	SS32G	DDT	0.077	.074	1.9	17	4.05E-08	4.53E-09
32	35	SS32G	DIELDRIN	0.062	.086	.04	.36		
32	35	SS32G	INDENO(1,2,3-c,d)PYRENE	0.088	.7	.88	7.8		
32	35	SS32G	LEAD	1580	43	200	1000	7.90E-06	1.58E-06
		SS32G						8.45E-06	1.60E-06
34	24	SB34A	ARSENIC	1.7	20	.43	3.8		
34	24	SB34A	BENZO(a)ANTHRACENE	0.49	.71	.88	7.8		
34	24	SB34A	BENZO(a)PYRENE	0.48	.96	.088	.78		
34	24	SB34A	BENZO(b)FLUORANTHENE	0.54	.9	.88	7.8		
34	24	SB34A	BENZO(k)FLUORANTHENE	0.52	.78	8.8	78		
34	24	SB34A	CADMIUM	0.59	1.4	3.9	100		
34	24	SB34A	CHRYSENE	0.58	.94	88	780		
34	24	SB34A	INDENO(1,2,3-c,d)PYRENE	0.61	.7	.88	7.8		
34	24	SB34A	LEAD	94.1	43	200	1000	4.71E-07	9.41E-08
		SB34A						4.71E-07	9.41E-08
34	24	SB34B	ARSENIC	8.8	20	.43	3.8		
34	24	SB34B	BENZO(a)ANTHRACENE	4.1	.71	.88	7.8	4.66E-06	5.26E-07
34	24	SB34B	BENZO(a)PYRENE	3.4	.96	.088	.78	3.86E-05	4.36E-06
34	24	SB34B	BENZO(b)FLUORANTHENE	3.3	.9	.88	7.8	3.75E-06	4.23E-07
34	24	SB34B	BENZO(k)FLUORANTHENE	3.1	.78	8.8	78	3.52E-07	3.97E-08
34	24	SB34B	BERYLLIUM	2	1.1	.15	1.3	1.33E-05	1.54E-06
34	24	SB34B	CHRYSENE	3.8	.94	88	780	4.32E-08	4.87E-09
34	24	SB34B	INDENO(1,2,3-c,d)PYRENE	3.6	.7	.88	7.8	4.09E-06	4.62E-07
34	24	SB34B	LEAD	702	43	200	1000	3.51E-06	7.02E-07
		SB34B						6.84E-05	8.05E-06
34	24	SB34C	ARSENIC	8.5	20	.43	3.8		

Table A-3 Carcinogenic Risk Calculations for RI Sites Units are mg/kg									
Site	Parcel	Station ID	Parameter	Concentration	Back-ground	Residential Land Use Criteria	Industrial Land Use Criteria	Residential PRE Carc. Risk Ratio	Industrial PRE Carc. Risk Ratio
34	24	SB34C	BENZO(a)ANTHRACENE	0.55	.71	.88	7.8		
34	24	SB34C	BENZO(a)PYRENE	0.49	.96	.088	.78		
34	24	SB34C	BENZO(b)FLUORANTHENE	0.46	.9	.88	7.8		
34	24	SB34C	BENZO(k)FLUORANTHENE	0.46	.78	8.8	78		
34	24	SB34C	CHRYSENE	0.52	.94	88	780		
34	24	SB34C	INDENO(1,2,3-c,d)PYRENE	0.48	.7	.88	7.8		
34	24	SB34C	LEAD	93.6	43	200	1000	4.68E-07	9.36E-08
34	24	SB34C	METHYLENE CHLORIDE	0.002	NA	85	760		
34		SB34C						4.68E-07	9.36E-08
34	24	SS34D	ARSENIC	49.2	20	.43	3.8	1.14E-04	1.29E-05
34	24	SS34D	BENZO(a)ANTHRACENE	0.83	.71	.88	7.8	9.43E-07	1.06E-07
34	24	SS34D	BENZO(a)PYRENE	0.92	.96	.088	.78		
34	24	SS34D	BENZO(b)FLUORANTHENE	0.83	.9	.88	7.8		
34	24	SS34D	BENZO(k)FLUORANTHENE	0.73	.78	8.8	78		
34	24	SS34D	CHRYSENE	0.83	.94	88	780		
34	24	SS34D	INDENO(1,2,3-c,d)PYRENE	0.81	.7	.88	7.8	9.20E-07	1.04E-07
34	24	SS34D	LEAD	960	43	200	1000	4.80E-06	9.60E-07
34	24	SS34D	METHYLENE CHLORIDE	0.002	NA	85	760		
34		SS34D						1.21E-04	1.41E-05
34	24	SS34E	ARSENIC	10.9	20	.43	3.8		
34	24	SS34E	BENZO(a)ANTHRACENE	0.85	.71	.88	7.8	9.66E-07	1.09E-07
34	24	SS34E	BENZO(a)PYRENE	0.73	.96	.088	.78		
34	24	SS34E	BENZO(b)FLUORANTHENE	0.66	.9	.88	7.8		
34	24	SS34E	BENZO(k)FLUORANTHENE	0.68	.78	8.8	78		
34	24	SS34E	CHRYSENE	0.76	.94	88	780		
34	24	SS34E	INDENO(1,2,3-c,d)PYRENE	0.73	.7	.88	7.8	8.30E-07	9.36E-08
34	24	SS34E	LEAD	340	43	200	1000	1.70E-06	3.40E-07
34	24	SS34E	METHYLENE CHLORIDE	0.001	NA	85	760		
34		SS34E						3.50E-06	5.43E-07
34	24	SS34F	ARSENIC	4.3	20	.43	3.8		
34	24	SS34F	BENZO(a)ANTHRACENE	0.62	.71	.88	7.8		
34	24	SS34F	BENZO(a)PYRENE	0.62	.96	.088	.78		
34	24	SS34F	BENZO(b)FLUORANTHENE	0.64	.9	.88	7.8		
34	24	SS34F	BENZO(k)FLUORANTHENE	0.62	.78	8.8	78		
34	24	SS34F	CHRYSENE	0.82	.94	88	780		
34	24	SS34F	DIBENZ(a,h)ANTHRACENE	0.21	.26	.088	.78		
34	24	SS34F	INDENO(1,2,3-c,d)PYRENE	0.57	.7	.88	7.8		
34	24	SS34F	LEAD	145	43	200	1000	7.25E-07	1.45E-07
34	24	SS34F	METHYLENE CHLORIDE	0.002	NA	85	760		
34		SS34F						7.25E-07	1.45E-07
48	5	SS48A	ARSENIC	13.2	20	.43	3.8		
48	5	SS48A	BENZO(a)ANTHRACENE	0.045	.71	.88	7.8		
48	5	SS48A	BENZO(a)PYRENE	0.052	.96	.088	.78		
48	5	SS48A	BENZO(b)FLUORANTHENE	0.069	.9	.88	7.8		
48	5	SS48A	BENZO(k)FLUORANTHENE	0.067	.78	8.8	78		
48	5	SS48A	CADMIUM	0.31	1.4	3.9	100		
48	5	SS48A	CHRYSENE	0.068	.94	88	780		
48	5	SS48A	DIELDRIN	0.11	.086	.04	.36	2.75E-06	3.06E-07
48	5	SS48A	INDENO(1,2,3-c,d)PYRENE	0.047	.7	.88	7.8		
48	5	SS48A	LEAD	22.1	43	200	1000		
48	5	SS48A	p,p'-DDE	0.14	.16	1.9	17		
48	5	SS48A	p,p'-DDT	0.18	.074	1.9	17	9.47E-08	1.06E-08
48		SS48A						2.84E-06	3.16E-07
48	5	SS48B	ALPHA-CHLORDANE	0.019	.029	0.49	4.4		

Site	Parcel	Station ID	Parameter	Concen-tration	Back-ground	Residential Land Use Criteria	Industrial Land Use Criteria	Residential PRE Carc. Risk Ratio	Industrial PRE Carc. Risk Ratio
48	5	SS48B	DDE	0.13	.16	1.9	17		
48	5	SS48B	DDT	0.52	.074	1.9	17	2.74E-07	3.06E-08
48	5	SS48B	DIELDRIN	0.021	.086	.04	.36		
48	5	SS48B	GAMMA-CHLORDANE	0.013	.026	0.49	4.4		
48	5	SS48B	PCB-1260 (AROCHLOR 1260)	0.18	.11	.16	4.1	1.13E-06	4.39E-08
		SS48B						1.40E-06	7.45E-08
48	5	SS48C	ALPHA-CHLORDANE	0.027	.029	0.49	4.4		
48	5	SS48C	DDE	0.47	.16	1.9	17	2.47E-07	2.76E-08
48	5	SS48C	DDT	0.6	.074	1.9	17	3.16E-07	3.53E-08
48	5	SS48C	GAMMA-CHLORDANE	0.02	.026	0.49	4.4		
48	5	SS48C	PCB-1260 (AROCHLOR 1260)	0.45	.11	.16	4.1	2.81E-06	1.10E-07
		SS48C						3.38E-06	1.73E-07
48	5	SS48D	ALPHA-CHLORDANE	0.0046	.029	0.49	4.4		
48	5	SS48D	DDE	0.015	.16	1.9	17		
48	5	SS48D	DDT	0.035	.074	1.9	17		
48	5	SS48D	GAMMA-CHLORDANE	0.0044	.026	0.49	4.4		
48	5	SS48D	PCB-1260 (AROCHLOR 1260)	0.026	.11	.16	4.1		
		SS48D						0.00E+00	0.00E+00
48	5	SS48E	ALPHA-CHLORDANE	0.0077	.029	0.49	4.4		
48	5	SS48E	DDE	0.079	.16	1.9	17		
48	5	SS48E	DDT	0.3	.074	1.9	17	1.58E-07	1.76E-08
48	5	SS48E	DIELDRIN	0.013	.086	.04	.36		
48	5	SS48E	GAMMA-CHLORDANE	0.0063	.026	0.49	4.4		
48	5	SS48E	PCB-1260 (AROCHLOR 1260)	1.4	.11	.16	4.1	8.75E-06	3.41E-07
		SS48E						8.91E-06	3.59E-07
57	12	SB57A	ARSENIC	10.1	.17	.43	3.8		
57	12	SB57A	bis(2-ETHYLHEXYL) PHTHALATE	0.13	NA	46	410		
57	12	SB57A	DDE	0.002	.0015	1.9	17	1.05E-09	1.18E-10
57	12	SB57A	DDT	0.0035	.0072	1.9	17		
57	12	SB57A	DIELDRIN	0.005	.37	.04	.36		
57	12	SB57A	LEAD	10.5	24	200	1000		
		SB57A						1.05E-09	1.18E-10
57	12	SB57B	ARSENIC	9.3	.17	.43	3.8		
57	12	SB57B	bis(2-ETHYLHEXYL) PHTHALATE	1.7	NA	46	410		
57	12	SB57B	LEAD	10.4	24	200	1000		
		SB57B						0.00E+00	0.00E+00
57	12	SB57C	ARSENIC	11.6	.17	.43	3.8		
57	12	SB57C	bis(2-ETHYLHEXYL) PHTHALATE	0.064	NA	46	410		
57	12	SB57C	DDE	0.0025	.0015	1.9	17	1.32E-09	1.47E-10
57	12	SB57C	LEAD	13.7	24	200	1000		
		SB57C						1.32E-09	1.47E-10
57	12	SB57D	ARSENIC	13.7	.17	.43	3.8		
57	12	SB57D	CADMIUM	0.29	1.4	3.9	100		
57	12	SB57D	LEAD	16	24	200	1000		
57	12	SB57D	p,p'-DDE	0.0063	.0015	1.9	17	3.32E-09	3.71E-10
57	12	SB57D	p,p'-DDT	0.021	.0072	1.9	17	1.11E-08	1.24E-09
		SB57D						1.44E-08	1.61E-09
57	12	SB57E	ARSENIC	2.5	.17	.43	3.8		
57	12	SB57E	BENZO(a)ANTHRACENE	9.9	NA	.88	7.8		
57	12	SB57E	BENZO(a)PYRENE	8.9	NA	.088	.78		
57	12	SB57E	BENZO(b)FLUORANTHENE	10	NA	.88	7.8		
57	12	SB57E	BENZO(k)FLUORANTHENE	10	NA	8.8	78		
57	12	SB57E	CADMIUM	1.2	1.4	3.9	100		
57	12	SB57E	CHRYSENE	11	NA	88	780		

Table A-3
Carcinogenic Risk Calculations for RI Sites
Units are mg/kg

Site	Parcel	Station ID	Parameter	Concentration	Back-ground	Residential Land Use Criteria	Industrial Land Use Criteria	Residential PRE Carc. Risk Ratio	Industrial PRE Carc. Risk Ratio
57	12	SB57E	DDE	2.3	.0015	1.9	17	1.21E-06	1.35E-07
57	12	SB57E	DDT	3	.0072	1.9	17	1.58E-06	1.76E-07
57	12	SB57E	INDENO(1,2,3-c,d)PYRENE	4.4	NA	.88	7.8		
57	12	SB57E	LEAD	33.2	24	200	1000	1.66E-07	3.32E-08
		SB57E						2.96E-06	3.45E-07
57	12	SB57F	ARSENIC	10.6	17	.43	3.8		
57	12	SB57F	CADMIUM	0.27	1.4	3.9	100		
57	12	SB57F	LEAD	11.7	24	200	1000		
57	12	SB57F	p,p'-DDE	0.014	.0015	1.9	17	7.37E-09	8.24E-10
57	12	SB57F	p,p'-DDT	0.022	.0072	1.9	17	1.16E-08	1.29E-09
		SB57F						1.89E-08	2.12E-09
57	12	SB57G	ARSENIC	8.7	17	.43	3.8		
57	12	SB57G	bis(2-ETHYLHEXYL) PHTHALATE	0.096	NA	46	410		
57	12	SB57G	DDE	0.0075	.0015	1.9	17	3.95E-09	4.41E-10
57	12	SB57G	DDT	0.022	.0072	1.9	17	1.16E-08	1.29E-09
57	12	SB57G	LEAD	14.2	24	200	1000		
		SB57G						1.55E-08	1.74E-09
57	12	SB57H	ARSENIC	9.3	17	.43	3.8		
57	12	SB57H	DDT	0.0024	.0072	1.9	17		
57	12	SB57H	LEAD	19.8	24	200	1000		
57	12	SB57H	METHYLENE CHLORIDE	0.001	NA	85	760		
		SB57H						0.00E+00	0.00E+00
57	12	SB57I	ARSENIC	6.2	17	.43	3.8		
57	12	SB57I	LEAD	7.3	24	200	1000		
		SB57I						0.00E+00	0.00E+00
58	4	SS58A	ALPHA-CHLORDANE	0.0032	.029	0.49	4.4		
58	4	SS58A	DDE	0.011	.16	1.9	17		
58	4	SS58A	DDT	0.014	.074	1.9	17		
58	4	SS58A	DIELDRIN	0.02	.086	.04	.36		
58	4	SS58A	GAMMA-CHLORDANE	0.0037	.026	0.49	4.4		
		SS58A						0.00E+00	0.00E+00
58	4	SS58C	ARSENIC	8.4	20	.43	3.8		
58	4	SS58C	LEAD	11.5	43	200	1000		
		SS58C						0.00E+00	0.00E+00
58	4	SS58G	DDE	0.0086	.16	1.9	17		
58	4	SS58G	DDT	0.0068	.074	1.9	17		
		SS58G						0.00E+00	0.00E+00
58	4	SS58I	ALPHA-CHLORDANE	0.049	.029	0.49	4.4	1.00E-07	1.11E-08
58	4	SS58I	DDE	0.62	.16	1.9	17	3.26E-07	3.65E-08
58	4	SS58I	DDT	1.8	.074	1.9	17	9.47E-07	1.06E-07
58	4	SS58I	DIELDRIN	0.098	.086	.04	.36	2.45E-06	2.72E-07
58	4	SS58I	GAMMA-CHLORDANE	0.055	.026	0.49	4.4	1.12E-07	1.25E-08
		SS58I						3.94E-06	4.38E-07
59	4	SB59B	ALPHA-CHLORDANE	0.022	.029	0.49	4.4		
59	4	SB59B	BENZO(a)ANTHRACENE	0.14	.71	.88	7.8		
59	4	SB59B	BENZO(a)PYRENE	0.14	.96	.088	.78		
59	4	SB59B	BENZO(b)FLUORANTHENE	0.13	.9	.88	7.8		
59	4	SB59B	BENZO(k)FLUORANTHENE	0.16	.78	.88	7.8		
59	4	SB59B	CHRYSENE	0.14	.94	.88	780		
59	4	SB59B	DDE	0.44	.16	1.9	17	2.32E-07	2.59E-08
59	4	SB59B	DDT	0.77	.074	1.9	17	4.05E-07	4.53E-08
59	4	SB59B	DIELDRIN	0.13	.086	.04	.36	3.25E-06	3.61E-07
59	4	SB59B	GAMMA-CHLORDANE	0.016	.026	0.49	4.4		
59	4	SB59B	INDENO(1,2,3-c,d)PYRENE	0.12	.7	.88	7.8		

Table A-3 Carcinogenic Risk Calculations for RI Sites Units are mg/kg									
Site	Parcel	Station ID	Parameter	Concentration	Back-ground	Residential Land Use Criteria	Industrial Land Use Criteria	Residential PRE Carc. Risk Ratio	Industrial PRE Carc. Risk Ratio
		SS59B						3.89E-06	4.32E-07
59	4	SS59C	DDE	0.015	.16	1.9	17		
59	4	SS59C	DDT	0.0028	.074	1.9	17		
		SS59C						0.00E+00	0.00E+00
59	4	SS59D	DDE	0.002	.16	1.9	17		
59	4	SS59D	DDT	0.0017	.074	1.9	17		
		SS59D						0.00E+00	0.00E+00
59	4	SS59E	ALPHA-CHLORDANE	0.08	.029	0.49	4.4	1.63E-07	1.82E-08
59	4	SS59E	BENZO(a)ANTHRACENE	0.21	.71	.88	7.8		
59	4	SS59E	BENZO(a)PYRENE	0.2	.96	.088	.78		
59	4	SS59E	BENZO(b)FLUORANTHENE	0.2	.9	.88	7.8		
59	4	SS59E	BENZO(k)FLUORANTHENE	0.14	.78	8.8	78		
59	4	SS59E	CHRYSENE	0.2	.94	88	780		
59	4	SS59E	DDE	0.69	.16	1.9	17	3.63E-07	4.06E-08
59	4	SS59E	DDT	0.38	.074	1.9	17	2.00E-07	2.24E-08
59	4	SS59E	DIELDRIN	0.58	.086	.04	.36	1.45E-05	1.61E-06
59	4	SS59E	GAMMA-CHLORDANE	0.061	.026	0.49	4.4	1.24E-07	1.39E-08
		SS59E						1.54E-05	1.71E-06
59	4	SS59F	ALPHA-CHLORDANE	0.015	.029	0.49	4.4		
59	4	SS59F	DDE	0.036	.16	1.9	17		
59	4	SS59F	DDT	0.085	.074	1.9	17	4.47E-08	5.00E-09
59	4	SS59F	DIELDRIN	0.016	.086	.04	.36		
59	4	SS59F	GAMMA-CHLORDANE	0.015	.026	0.49	4.4		
		SS59F						4.47E-08	5.00E-09
59	4	SS59G	DDE	0.0082	.16	1.9	17		
59	4	SS59G	DDT	0.01	.074	1.9	17		
		SS59G						0.00E+00	0.00E+00
59	4	SS59H	ARSENIC	11.6	.20	.43	3.8		
59	4	SS59H	LEAD	14.9	.43	200	1000		
59	4	SS59H	p,p'-DDD	0.016	.0067	2.7	24	5.93E-09	6.67E-10
59	4	SS59H	p,p'-DDE	0.011	.16	1.9	17		
59	4	SS59H	p,p'-DDT	0.0084	.074	1.9	17		
		SS59H						5.93E-09	6.67E-10
59	4	SS59I	DDE	0.0028	.16	1.9	17		

Table A-4
Noncarcinogenic Risk Calculations for BRAC Parcels (mg/kg)

Parcel	Station ID	Parameter	Concentration	Background	Residential Land Use Criteria	Industrial/Land Use Criteria	Residential PDE Noncarc. Risk Rfda	Industrial PDE Noncarc. Risk Rfda
3	A(3.10)	ALUMINUM	17100	24000	7800	100000		
3	A(3.10)	BARIUM	202	234	550	14000		
3	A(3.10)	CALCIUM	4260	5840	NA	NA		
3	A(3.10)	CHROMIUM, TOTAL	39.3	24.8	39	1000	1.01E+00	3.93E-02
3	A(3.10)	COBALT	14.3	18.3	470	12000		
3	A(3.10)	COPPER	51.9	33	310	8200	1.67E-01	6.33E-03
3	A(3.10)	IRON	28400	37000	2300	61000		
3	A(3.10)	MAGNESIUM	3370	4600	NA	NA		
3	A(3.10)	MANGANESE	1070	1300	180	4700		
3	A(3.10)	NICKEL	27	30	160	4100		
3	A(3.10)	POTASSIUM	2770	2025	NA	NA		
3	A(3.10)	VANADIUM	43.2	48.4	55	1400		
3	A(3.10)	ZINC	170	130	2300	61000	7.39E-02	2.79E-03
	A(3.10)						1.25E+00	4.84E-02
3	G(3.5)	ALUMINUM	11900	24000	7800	100000		
3	G(3.5)	BARIUM	160	234	550	14000		
3	G(3.5)	CALCIUM	2010	5840	NA	NA		
3	G(3.5)	CHROMIUM, TOTAL	13.6	24.8	39	1000		
3	G(3.5)	COBALT	7.4	18.3	470	12000		
3	G(3.5)	COPPER	19	33	310	8200		
3	G(3.5)	IRON	20000	37000	2300	61000		
3	G(3.5)	MAGNESIUM	2530	4600	NA	NA		
3	G(3.5)	MANGANESE	520	1300	180	4700		
3	G(3.5)	MERCURY	0.05	.43	2.3	61		
3	G(3.5)	NICKEL	18.9	30	160	4100		
3	G(3.5)	POTASSIUM	2620	2025	NA	NA		
3	G(3.5)	VANADIUM	28.2	48.4	55	1400		
3	G(3.5)	ZINC	58.6	130	2300	61000		
	G(3.5) Total						0.00E+00	0.00E+00
3	H(3.5)	ALUMINUM	8310	24000	7800	100000		
3	H(3.5)	ANTIMONY	0.48	7	3.1	82		
3	H(3.5)	BARIUM	112	234	550	14000		
3	H(3.5)	BENZO(a,h,i)PERYLENE	0.045	.82	230	6100		
3	H(3.5)	CALCIUM	2130	5840	NA	NA		
3	H(3.5)	CHROMIUM, TOTAL	18.9	24.8	39	1000		
3	H(3.5)	COBALT	8.5	18.3	470	12000		
3	H(3.5)	COPPER	25.4	33	310	8200		
3	H(3.5)	FLUORANTHENE	0.16	1.6	310	8200		
3	H(3.5)	IRON	13800	37000	2300	61000		
3	H(3.5)	MAGNESIUM	1570	4600	NA	NA		
3	H(3.5)	MANGANESE	666	1300	180	4700		
3	H(3.5)	MERCURY	0.06	.43	2.3	61		
3	H(3.5)	NICKEL	13.7	30	160	4100		
3	H(3.5)	PHENANTHRENE	0.072	.61	2300	61000		
3	H(3.5)	POTASSIUM	2160	2025	NA	NA		
3	H(3.5)	PYRENE	0.17	1.5	230	6100		
3	H(3.5)	SELENIUM	0.56	.81	39	1000		
3	H(3.5)	VANADIUM	21	48.4	55	1400		
3	H(3.5)	ZINC	65.4	130	2300	61000		
	H(3.5) Total						0.00E+00	0.00E+00
3	I(3.5)	ALUMINUM	12000	24000	7800	100000		
3	I(3.5)	ANTIMONY	0.74	7	3.1	82		
3	I(3.5)	BARIUM	163	234	550	14000		
3	I(3.5)	CALCIUM	2230	5840	NA	NA		

Table A-4
Noncarcinogenic Risk Calculations for BRAC Parcels (mg/kg)

Parcel	Station ID	Parameter	Concentration	Background	Residential Land Use Criteria	Industrial/Land Use Criteria	Residential PRC Noncancer Risk Ratio	Industrial PRC Noncancer Risk Ratio
3	I(3.5)	CHROMIUM, TOTAL	14.2	24.8	39	1000		
3	I(3.5)	COBALT	7.8	18.3	470	12000		
3	I(3.5)	COPPER	20	33	310	8200		
3	I(3.5)	FLUORANTHENE	0.054	1.6	310	8200		
3	I(3.5)	IRON	20700	37000	2300	61000		
3	I(3.5)	MAGNESIUM	2490	4600	NA	NA		
3	I(3.5)	MANGANESE	689	1300	180	4700		
3	I(3.5)	NICKEL	20	30	160	4100		
3	I(3.5)	POTASSIUM	3060	2025	NA	NA		
3	I(3.5)	PYRENE	0.046	1.5	230	6100		
3	I(3.5)	SELENIUM	0.82	.81	39	1000	2.10E-02	8.20E-04
3	I(3.5)	VANADIUM	29.4	48.4	55	1400		
3	I(3.5)	ZINC	62.2	130	2300	61000		
	I(3.5) Total						2.10E-02	8.20E-04
3	J(3.5)	ALUMINUM	15900	24000	7800	100000		
3	J(3.5)	ANTIMONY	0.49	7	3.1	82		
3	J(3.5)	BARIUM	183	234	550	14000		
3	J(3.5)	CALCIUM	2140	5840	NA	NA		
3	J(3.5)	CHROMIUM, TOTAL	16.3	24.8	39	1000		
3	J(3.5)	COBALT	10.7	18.3	470	12000		
3	J(3.5)	COPPER	23.5	33	310	8200		
3	J(3.5)	IRON	23000	37000	2300	61000		
3	J(3.5)	MAGNESIUM	3000	4600	NA	NA		
3	J(3.5)	MANGANESE	970	1300	180	4700		
3	J(3.5)	MERCURY	0.06	.43	2.3	61		
3	J(3.5)	NICKEL	20.6	30	160	4100		
3	J(3.5)	POTASSIUM	3360	2025	NA	NA		
3	J(3.5)	VANADIUM	37.2	48.4	55	1400		
3	J(3.5)	ZINC	68.1	130	2300	61000		
	J(3.5) Total						0.00E+00	0.00E+00
3	K(3.5)	ALUMINUM	13500	24000	7800	100000		
3	K(3.5)	BARIUM	200	234	550	14000		
3	K(3.5)	CALCIUM	1880	5840	NA	NA		
3	K(3.5)	CHROMIUM, TOTAL	15.3	24.8	39	1000		
3	K(3.5)	COBALT	8.8	18.3	470	12000		
3	K(3.5)	COPPER	23.2	33	310	8200		
3	K(3.5)	IRON	22000	37000	2300	61000		
3	K(3.5)	MAGNESIUM	2810	4600	NA	NA		
3	K(3.5)	MANGANESE	899	1300	180	4700		
3	K(3.5)	MERCURY	0.05	.43	2.3	61		
3	K(3.5)	NICKEL	21.1	30	160	4100		
3	K(3.5)	POTASSIUM	3300	2025	NA	NA		
3	K(3.5)	SELENIUM	0.43	.81	39	1000		
3	K(3.5)	VANADIUM	32.9	48.4	55	1400		
3	K(3.5)	ZINC	73.9	130	2300	61000		
	K(3.5) Total						0.00E+00	0.00E+00
3	K(3.5B)	ALUMINUM	12400	24000	7800	100000		
3	K(3.5B)	ANTIMONY	0.69	7	3.1	82		
3	K(3.5B)	BARIUM	126	234	550	14000		
3	K(3.5B)	CALCIUM	2210	5840	NA	NA		
3	K(3.5B)	CHROMIUM, TOTAL	14	24.8	39	1000		
3	K(3.5B)	COBALT	8.9	18.3	470	12000		
3	K(3.5B)	COPPER	19	33	310	8200		
3	K(3.5B)	IRON	19700	37000	2300	61000		

Table A-4
Noncarcinogenic Risk Calculations for BRAC Parcels (mg/kg)

Parcel	Station ID	Parameter	Concentration	Background	Residential Land Use Criteria	Industrial/Land Use Criteria	Residential PRE Noncanc. Risk Ratio	Industrial PRE Noncanc. Risk Ratio
3	K(3.5B)	MAGNESIUM	2200	4600	NA	NA		
3	K(3.5B)	MANGANESE	752	1300	180	4700		
3	K(3.5B)	NICKEL	17.9	30	160	4100		
3	K(3.5B)	POTASSIUM	2810	2025	NA	NA		
3	K(3.5B)	SELENIUM	0.64	.81	39	1000		
3	K(3.5B)	VANADIUM	29.8	48.4	55	1400		
3	K(3.5B)	ZINC	64.2	130	2300	61000		
	K(3.5B)						0.00E+00	0.00E+00
3	L(3.5)	ALUMINUM	13800	24000	7800	100000		
3	L(3.5)	ANTIMONY	0.57	7	3.1	82		
3	L(3.5)	BARIUM	112	234	550	14000		
3	L(3.5)	CALCIUM	1830	5840	NA	NA		
3	L(3.5)	CHROMIUM, TOTAL	16.3	24.8	39	1000		
3	L(3.5)	COBALT	7.5	18.3	470	12000		
3	L(3.5)	COPPER	21.7	33	310	8200		
3	L(3.5)	FLUORANTHENE	0.046	1.6	310	8200		
3	L(3.5)	IRON	21600	37000	2300	61000		
3	L(3.5)	MAGNESIUM	2410	4600	NA	NA		
3	L(3.5)	MANGANESE	432	1300	180	4700		
3	L(3.5)	MERCURY	0.07	.43	2.3	61		
3	L(3.5)	NICKEL	18.2	30	160	4100		
3	L(3.5)	POTASSIUM	2870	2025	NA	NA		
3	L(3.5)	VANADIUM	32.5	48.4	55	1400		
3	L(3.5)	ZINC	63.7	130	2300	61000		
	L(3.5) Total						0.00E+00	0.00E+00
3	M(3.5)	ACENAPHTHENE	0.13	NA	470	12000		
3	M(3.5)	ALUMINUM	9060	24000	7800	100000		
3	M(3.5)	ANTHRACENE	0.27	.096	2300	61000	1.17E-04	4.43E-06
3	M(3.5)	ANTIMONY	0.87	7	3.1	82		
3	M(3.5)	BARIUM	107	234	550	14000		
3	M(3.5)	BENZO(a,h,i)PERYLENE	0.29	.82	230	6100		
3	M(3.5)	CALCIUM	1840	5840	NA	NA		
3	M(3.5)	CHROMIUM, TOTAL	12	24.8	39	1000		
3	M(3.5)	COBALT	8.4	18.3	470	12000		
3	M(3.5)	COPPER	15.8	33	310	8200		
3	M(3.5)	DIBENZOFURAN	0.056	NA	31	820		
3	M(3.5)	FLUORANTHENE	1.2	1.6	310	8200		
3	M(3.5)	FLUORENE	0.14	NA	310	8200		
3	M(3.5)	IRON	15300	37000	2300	61000		
3	M(3.5)	MAGNESIUM	1610	4600	NA	NA		
3	M(3.5)	MANGANESE	612	1300	180	4700		
3	M(3.5)	MERCURY	0.06	.43	2.3	61		
3	M(3.5)	NICKEL	13.8	30	160	4100		
3	M(3.5)	PHENANTHRENE	1	.61	2300	61000	4.35E-04	1.64E-05
3	M(3.5)	POTASSIUM	2080	2025	NA	NA		
3	M(3.5)	PYRENE	1.1	1.5	230	6100		
3	M(3.5)	SELENIUM	0.42	.81	39	1000		
3	M(3.5)	VANADIUM	23.5	48.4	55	1400		
3	M(3.5)	ZINC	49.7	130	2300	61000		
	M(3.5)						5.52E-04	2.08E-05
3	N(3.5)	ALUMINUM	10800	24000	7800	100000		
3	N(3.5)	ANTIMONY	1.7	7	3.1	82		
3	N(3.5)	BARIUM	137	234	550	14000		
3	N(3.5)	CALCIUM	2340	5840	NA	NA		

Table A-4
Noncarcinogenic Risk Calculations for BRAC Parcels (mg/kg)

Parcel	Station ID	Parameter	Concentration	Background	Residential Land Use Criteria	Industrial/Land Use Criteria	Residential PRE Noncarc. Risk Ratio	Industrial PRE Noncarc. Risk Ratio
3	N(3.5)	CHROMIUM, TOTAL	13.7	24.8	39	1000		
3	N(3.5)	COBALT	7.6	18.3	470	12000		
3	N(3.5)	COPPER	55.4	33	310	8200	1.79E-01	6.76E-03
3	N(3.5)	FLUORANTHENE	0.061	1.6	310	8200		
3	N(3.5)	IRON	19300	37000	2300	61000		
3	N(3.5)	MAGNESIUM	2070	4600	NA	NA		
3	N(3.5)	MANGANESE	561	1300	180	4700		
3	N(3.5)	MERCURY	0.08	.43	2.3	61		
3	N(3.5)	NICKEL	18.9	30	160	4100		
3	N(3.5)	PHENANTHRENE	0.072	.61	2300	61000		
3	N(3.5)	POTASSIUM	2570	2025	NA	NA		
3	N(3.5)	PYRENE	0.067	1.5	230	6100		
3	N(3.5)	SELENIUM	0.56	.81	39	1000		
3	N(3.5)	VANADIUM	28.3	48.4	55	1400		
3	N(3.5)	ZINC	83.5	130	2300	61000		
	N(3.5) Total						1.79E-01	6.76E-03
20	A(20.6)	ACENAPHTHENE	3.1	NA	470	12000		
20	A(20.6)	ALUMINUM	3910	24000	7800	100000		
20	A(20.6)	ANTHRACENE	4.7	.096	2300	61000	2.04E-03	7.70E-05
20	A(20.6)	BARIUM	43.9	234	550	14000		
20	A(20.6)	BENZO(a,h,i)PERYLENE	9.1	.82	230	6100	3.96E-02	1.49E-03
20	A(20.6)	CALCIUM	79600	5840	NA	NA		
20	A(20.6)	CHROMIUM, TOTAL	29.6	24.8	39	1000	7.59E-01	2.96E-02
20	A(20.6)	COBALT	6.7	18.3	470	12000		
20	A(20.6)	COPPER	38.3	33	310	8200	1.24E-01	4.67E-03
20	A(20.6)	DIBENZOFURAN	1.2	NA	31	820		
20	A(20.6)	FLUORANTHENE	33	1.6	310	8200	1.06E-01	4.02E-03
20	A(20.6)	FLUORENE	2.2	NA	310	8200		
20	A(20.6)	IRON	12900	37000	2300	61000		
20	A(20.6)	MAGNESIUM	2320	4600	NA	NA		
20	A(20.6)	MANGANESE	87.4	1300	180	4700		
20	A(20.6)	NAPHTHALENE	1.4	NA	310	8200		
20	A(20.6)	NICKEL	8.3	30	160	4100		
20	A(20.6)	PHENANTHRENE	23	.61	2300	61000	1.00E-02	3.77E-04
20	A(20.6)	PYRENE	26	1.5	230	6100	1.13E-01	4.26E-03
20	A(20.6)	TOLUENE	0.001	.002	1600	41000		
20	A(20.6)	VANADIUM	14.4	48.4	55	1400		
20	A(20.6)	ZINC	184	130	2300	61000	8.00E-02	3.02E-03
	A(20.6) Total						1.23E+00	4.75E-02
23	A(23.9)	ALUMINUM	19700	24000	7800	100000		
23	A(23.9)	BARIUM	156	234	550	14000		
23	A(23.9)	CALCIUM	35600	5840	NA	NA		
23	A(23.9)	CHROMIUM, TOTAL	29.5	24.8	39	1000	7.56E-01	2.95E-02
23	A(23.9)	COBALT	14.7	18.3	470	12000		
23	A(23.9)	COPPER	20.6	33	310	8200		
23	A(23.9)	DI-n-BUTYL PHTHALATE	0.26	NA	780	20000		
23	A(23.9)	IRON	26100	37000	2300	61000		
23	A(23.9)	MAGNESIUM	4620	4600	NA	NA		
23	A(23.9)	MANGANESE	941	1300	180	4700		
23	A(23.9)	NICKEL	27.6	30	160	4100		
23	A(23.9)	POTASSIUM	1390	2025	NA	NA		
23	A(23.9)	SELENIUM	18.9	.81	39	1000	4.85E-01	1.89E-02
23	A(23.9)	VANADIUM	50.3	48.4	55	1400	9.15E-01	3.59E-02
23	A(23.9)	ZINC	74.9	130	2300	61000		

Table A-4
Noncarcinogenic Risk Calculations for BRAC Parcels (mg/kg)

Parcel	Station ID	Parameter	Concentration	Background	Residential Land Use Criteria	Industrial/Land Use Criteria	Residential PRE Noncarc. Risk Ratio	Industrial PRE Noncarc. Risk Ratio
	A(23.9)						2.16E+00	8.43E-02
24	A(24.2)	ALUMINUM	6960	24000	7800	100000		
24	A(24.2)	BARIUM	63.9	234	550	14000		
24	A(24.2)	CALCIUM	19000	5840	NA	NA		
24	A(24.2)	CHROMIUM, TOTAL	10.6	24.8	39	1000		
24	A(24.2)	COBALT	4.9	18.3	470	12000		
24	A(24.2)	COPPER	10.5	33	310	8200		
24	A(24.2)	DI-n-BUTYL PHTHALATE	0.51	NA	780	20000		
24	A(24.2)	FLUORANTHENE	0.52	1.6	310	8200		
24	A(24.2)	IRON	11100	37000	2300	61000		
24	A(24.2)	MAGNESIUM	2230	4600	NA	NA		
24	A(24.2)	MANGANESE	485	1300	180	4700		
24	A(24.2)	NICKEL	10.6	30	160	4100		
24	A(24.2)	PHENANTHRENE	0.27	.61	2300	61000		
24	A(24.2)	POTASSIUM	656	2025	NA	NA		
24	A(24.2)	PYRENE	0.56	1.5	230	6100		
24	A(24.2)	VANADIUM	15.2	48.4	55	1400		
24	A(24.2)	ZINC	42	130	2300	61000		
	A(24.2)						0.00E+00	0.00E+00
24	B(24.2)	ALUMINUM	10800	24000	7800	100000		
24	B(24.2)	BARIUM	22.9	234	550	14000		
24	B(24.2)	CALCIUM	9100	5840	NA	NA		
24	B(24.2)	CHROMIUM, TOTAL	11.3	24.8	39	1000		
24	B(24.2)	COBALT	2.2	18.3	470	12000		
24	B(24.2)	COPPER	5.8	33	310	8200		
24	B(24.2)	DI-n-BUTYL PHTHALATE	0.17	NA	780	20000		
24	B(24.2)	IRON	9730	37000	2300	61000		
24	B(24.2)	MAGNESIUM	553	4600	NA	NA		
24	B(24.2)	MANGANESE	68.7	1300	180	4700		
24	B(24.2)	NICKEL	4.6	30	160	4100		
24	B(24.2)	POTASSIUM	887	2025	NA	NA		
24	B(24.2)	VANADIUM	17.5	48.4	55	1400		
24	B(24.2)	ZINC	11.2	130	2300	61000		
	B(24.2)						0.00E+00	0.00E+00
25	A(25.2)	ALUMINUM	4180	24000	7800	100000		
25	A(25.2)	BARIUM	33.7	234	550	14000		
25	A(25.2)	BENZO(a,h,i)PERYLENE	0.048	.82	230	6100		
25	A(25.2)	CALCIUM	31200	5840	NA	NA		
25	A(25.2)	CHROMIUM, TOTAL	5.5	24.8	39	1000		
25	A(25.2)	COBALT	1.6	18.3	470	12000		
25	A(25.2)	DI-n-BUTYL PHTHALATE	0.075	NA	780	20000		
25	A(25.2)	FLUORANTHENE	0.16	1.6	310	8200		
25	A(25.2)	IRON	5220	37000	2300	61000		
25	A(25.2)	MAGNESIUM	1850	4600	NA	NA		
25	A(25.2)	MANGANESE	66.3	1300	180	4700		
25	A(25.2)	MERCURY	0.02	.43	2.3	61		
25	A(25.2)	NICKEL	3.5	30	160	4100		
25	A(25.2)	PHENANTHRENE	0.092	.61	2300	61000		
25	A(25.2)	POTASSIUM	190	2025	NA	NA		
25	A(25.2)	PYRENE	0.18	1.5	230	6100		
25	A(25.2)	VANADIUM	8.9	48.4	55	1400		
25	A(25.2)	ZINC	23.4	130	2300	61000		
	A(25.2)						0.00E+00	0.00E+00
28	A(28.1)	ALUMINUM	3690	24000	7800	100000		

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Table A-4
Noncarcinogenic Risk Calculations for BRAC Parcels (mg/kg)

Parcel	Station ID	Parameter	Concentration	Background	Residential Land Use Criteria	Industrial/Land Use Criteria	Residential PRC Noncarc. Risk Ratio	Industrial PRC Noncarc. Risk Ratio
28	A(28.1)	BARIUM	63.1	234	550	14000		
28	A(28.1)	BENZO(a,h,i)PERYLENE	0.072	.82	230	6100		
28	A(28.1)	CALCIUM	104000	5840	NA	NA		
28	A(28.1)	CHROMIUM, TOTAL	19.9	24.8	39	1000		
28	A(28.1)	COBALT	2.6	18.3	470	12000		
28	A(28.1)	COPPER	15.5	33	310	8200		
28	A(28.1)	DI-n-BUTYL PHTHALATE	0.21	NA	780	20000		
28	A(28.1)	FLUORANTHENE	0.14	1.6	310	8200		
28	A(28.1)	IRON	9180	37000	2300	61000		
28	A(28.1)	MAGNESIUM	4700	4600	NA	NA		
28	A(28.1)	MANGANESE	186	1300	180	4700		
28	A(28.1)	NICKEL	13.2	30	160	4100		
28	A(28.1)	PHENANTHRENE	0.07	.61	2300	61000		
28	A(28.1)	POTASSIUM	496	2025	NA	NA		
28	A(28.1)	PYRENE	0.13	1.5	230	6100		
28	A(28.1)	TOLUENE	0.001	.002	1600	41000		
28	A(28.1)	VANADIUM	9.4	48.4	55	1400		
28	A(28.1)	ZINC	185	130	2300	61000	8.04E-02	3.03E-03
	A(28.1)						8.04E-02	3.03E-03
28	B(28.1)	ALUMINUM	24700	24000	7800	100000	3.17E+00	2.47E-01
28	B(28.1)	BARIUM	246	234	550	14000	4.47E-01	1.76E-02
28	B(28.1)	CALCIUM	24600	5840	NA	NA		
28	B(28.1)	CHROMIUM, TOTAL	26.1	24.8	39	1000	6.69E-01	2.61E-02
28	B(28.1)	COBALT	13.7	18.3	470	12000		
28	B(28.1)	COPPER	34.5	33	310	8200	1.11E-01	4.21E-03
28	B(28.1)	DI-n-BUTYL PHTHALATE	0.099	NA	780	20000		
28	B(28.1)	IRON	38400	37000	2300	61000	1.67E+01	6.30E-01
28	B(28.1)	MAGNESIUM	7200	4600	NA	NA		
28	B(28.1)	MANGANESE	1100	1300	180	4700		
28	B(28.1)	MERCURY	2.13	.43	2.3	61	9.26E-01	3.49E-02
28	B(28.1)	NICKEL	37.4	30	160	4100	2.34E-01	9.12E-03
28	B(28.1)	POTASSIUM	2650	2025	NA	NA		
28	B(28.1)	VANADIUM	49.8	48.4	55	1400	9.05E-01	3.56E-02
28	B(28.1)	ZINC	128	130	2300	61000		
	B(28.1)						2.32E+01	1.00E+00
29	A(29.2)	ALUMINUM	3670	24000	7800	100000		
29	A(29.2)	BARIUM	17.3	234	550	14000		
29	A(29.2)	CALCIUM	479	5840	NA	NA		
29	A(29.2)	CHROMIUM, TOTAL	13.2	24.8	39	1000		
29	A(29.2)	COBALT	2.3	18.3	470	12000		
29	A(29.2)	COPPER	4.8	33	310	8200		
29	A(29.2)	DI-n-BUTYL PHTHALATE	0.13	NA	780	20000		
29	A(29.2)	IRON	8980	37000	2300	61000		
29	A(29.2)	MAGNESIUM	122	4600	NA	NA		
29	A(29.2)	MANGANESE	113	1300	180	4700		
29	A(29.2)	NICKEL	5	30	160	4100		
29	A(29.2)	POTASSIUM	99.1	2025	NA	NA		
29	A(29.2)	VANADIUM	12.4	48.4	55	1400		
29	A(29.2)	ZINC	23.4	130	2300	61000		
	A(29.2)						0.00E+00	0.00E+00
29	B(29.2)	ALUMINUM	9240	24000	7800	100000		
29	B(29.2)	BARIUM	142	234	550	14000		
29	B(29.2)	BENZO(a,h,i)PERYLENE	0.056	.82	230	6100		
29	B(29.2)	CALCIUM	6690	5840	NA	NA		

Table A-4 Noncarcinogenic Risk Calculations for BRAC Parcels (mg/kg)								
Parcel	Station ID	Parameter	Concentration	Background	Residential Land Use Criteria	Industrial/Land Use Criteria	Residential PPE Noncarc. Risk Ratio	Industrial PPE Noncarc. Risk Ratio
29	B(29.2)	CHROMIUM, TOTAL	54.7	24.8	39	1000	1.40E+00	5.47E-02
29	B(29.2)	COBALT	8.7	18.3	470	12000		
29	B(29.2)	COPPER	25.3	33	310	8200		
29	B(29.2)	FLUORANTHENE	0.12	1.6	310	8200		
29	B(29.2)	IRON	20800	37000	2300	61000		
29	B(29.2)	MAGNESIUM	2110	4600	NA	NA		
29	B(29.2)	MANGANESE	601	1300	180	4700		
29	B(29.2)	NICKEL	15.5	30	160	4100		
29	B(29.2)	PHENANTHRENE	0.044	6.1	2300	61000		
29	B(29.2)	POTASSIUM	911	2025	NA	NA		
29	B(29.2)	PYRENE	0.11	1.5	230	6100		
29	B(29.2)	SELENIUM	12.5	8.1	39	1000	3.21E-01	1.25E-02
29	B(29.2)	VANADIUM	27.4	48.4	55	1400		
29	B(29.2)	ZINC	152	130	2300	61000	6.61E-02	2.49E-03
	B(29.2)						1.79E+00	6.97E-02
31	A(31.1)	ALUMINUM	7150	24000	7800	100000		
31	A(31.1)	BARIUM	32.5	234	550	14000		
31	A(31.1)	CALCIUM	32400	5840	NA	NA		
31	A(31.1)	CHROMIUM, TOTAL	15.4	24.8	39	1000		
31	A(31.1)	COBALT	2.2	18.3	470	12000		
31	A(31.1)	COPPER	4.8	33	310	8200		
31	A(31.1)	IRON	12300	37000	2300	61000		
31	A(31.1)	MAGNESIUM	984	4600	NA	NA		
31	A(31.1)	MANGANESE	106	1300	180	4700		
31	A(31.1)	NICKEL	7.3	30	160	4100		
31	A(31.1)	POTASSIUM	293	2025	NA	NA		
31	A(31.1)	TOLUENE	0.002	0.02	1600	41000		
31	A(31.1)	VANADIUM	19.8	48.4	55	1400		
31	A(31.1)	ZINC	25.2	130	2300	61000		
	A(31.1)						0.00E+00	0.00E+00
32	A(32.1)	ALUMINUM	3940	24000	7800	100000		
32	A(32.1)	BARIUM	9.3	234	550	14000		
32	A(32.1)	CHROMIUM, TOTAL	6.3	24.8	39	1000		
32	A(32.1)	COPPER	7.3	33	310	8200		
32	A(32.1)	IRON	6400	37000	2300	61000		
32	A(32.1)	MAGNESIUM	126	4600	NA	NA		
32	A(32.1)	MANGANESE	43.6	1300	180	4700		
32	A(32.1)	NICKEL	3.8	30	160	4100		
32	A(32.1)	VANADIUM	9.2	48.4	55	1400		
32	A(32.1)	ZINC	9.5	130	2300	61000		
	A(32.1)						0.00E+00	0.00E+00
32	B(32.1)	ALUMINUM	7720	24000	7800	100000		
32	B(32.1)	BARIUM	22.2	234	550	14000		
32	B(32.1)	CALCIUM	22400	5840	NA	NA		
32	B(32.1)	CHROMIUM, TOTAL	22.7	24.8	39	1000		
32	B(32.1)	COBALT	2.2	18.3	470	12000		
32	B(32.1)	COPPER	7.5	33	310	8200		
32	B(32.1)	IRON	16000	37000	2300	61000		
32	B(32.1)	MAGNESIUM	719	4600	NA	NA		
32	B(32.1)	MANGANESE	93.7	1300	180	4700		
32	B(32.1)	NICKEL	15.3	30	160	4100		
32	B(32.1)	POTASSIUM	246	2025	NA	NA		
32	B(32.1)	VANADIUM	26.5	48.4	55	1400		
32	B(32.1)	ZINC	16.5	130	2300	61000		

Table A-4
Noncarcinogenic Risk Calculations for BRAC Parcels (mg/kg)

Parcel	Station ID	Parameter	Concentration	Background	Residential Land Use Criteria	Industrial/Land Use Criteria	Residential PEE Noncarc. Risk Ratio	Industrial PEE Noncarc. Risk Ratio
	B(32.1)						0.00E+00	0.00E+00
33	A(33.9)	ALUMINUM	22500	24000	7800	100000		
33	A(33.9)	BARIUM	189	234	550	14000		
33	A(33.9)	CALCIUM	3710	5840	NA	NA		
33	A(33.9)	CHROMIUM, TOTAL	24.4	24.8	39	1000		
33	A(33.9)	COBALT	14.8	18.3	470	12000		
33	A(33.9)	COPPER	31.2	33	310	8200		
33	A(33.9)	DI-n-BUTYL PHTHALATE	0.23	NA	780	20000		
33	A(33.9)	FLUORANTHENE	2.4	1.6	310	8200	7.74E-03	2.93E-04
33	A(33.9)	IRON	32600	37000	2300	61000		
33	A(33.9)	MAGNESIUM	3680	4600	NA	NA		
33	A(33.9)	MANGANESE	948	1300	180	4700		
33	A(33.9)	NICKEL	30.5	30	160	4100	1.91E-01	7.44E-03
33	A(33.9)	PHENANTHRENE	1.4	.61	2300	61000	6.09E-04	2.30E-05
33	A(33.9)	POTASSIUM	3000	2025	NA	NA		
33	A(33.9)	PYRENE	2.3	1.5	230	6100	1.00E-02	3.77E-04
33	A(33.9)	VANADIUM	51.7	48.4	55	1400	9.40E-01	3.69E-02
33	A(33.9)	ZINC	104	130	2300	61000		
	A(33.9)						1.15E+00	4.51E-02
33	B(33.9)	ALUMINUM	7460	24000	7800	100000		
33	B(33.9)	BARIUM	50.2	234	550	14000		
33	B(33.9)	CALCIUM	22900	5840	NA	NA		
33	B(33.9)	CHROMIUM, TOTAL	12.7	24.8	39	1000		
33	B(33.9)	COBALT	3.3	18.3	470	12000		
33	B(33.9)	COPPER	17.2	33	310	8200		
33	B(33.9)	DI-n-BUTYL PHTHALATE	0.21	NA	780	20000		
33	B(33.9)	FLUORANTHENE	0.055	1.6	310	8200		
33	B(33.9)	IRON	11800	37000	2300	61000		
33	B(33.9)	MAGNESIUM	2990	4600	NA	NA		
33	B(33.9)	MANGANESE	106	1300	180	4700		
33	B(33.9)	NICKEL	7.4	30	160	4100		
33	B(33.9)	PYRENE	0.054	1.5	230	6100		
33	B(33.9)	VANADIUM	22.2	48.4	55	1400		
33	B(33.9)	ZINC	33.2	130	2300	61000		
	B(33.9)						0.00E+00	0.00E+00
33	C(33.9)	ALUMINUM	22800	24000	7800	100000		
33	C(33.9)	BARIUM	258	234	550	14000	4.69E-01	1.84E-02
33	C(33.9)	CALCIUM	2110	5840	NA	NA		
33	C(33.9)	CHROMIUM, TOTAL	24.9	24.8	39	1000	6.38E-01	2.49E-02
33	C(33.9)	COBALT	9.4	18.3	470	12000		
33	C(33.9)	COPPER	38.5	33	310	8200	1.24E-01	4.70E-03
33	C(33.9)	DI-n-BUTYL PHTHALATE	0.22	NA	780	20000		
33	C(33.9)	IRON	31900	37000	2300	61000		
33	C(33.9)	MAGNESIUM	3940	4600	NA	NA		
33	C(33.9)	MANGANESE	297	1300	180	4700		
33	C(33.9)	NICKEL	28.8	30	160	4100		
33	C(33.9)	POTASSIUM	2130	2025	NA	NA		
33	C(33.9)	SELENIUM	22.4	.81	39	1000	5.74E-01	2.24E-02
33	C(33.9)	VANADIUM	47.8	48.4	55	1400		
33	C(33.9)	ZINC	295	130	2300	61000	1.28E-01	4.84E-03
	C(33.9)						1.93E+00	7.53E-02
33	D(33.9)	ALUMINUM	4480	24000	7800	100000		
33	D(33.9)	ANTHRACENE	0.057	.096	2300	61000		
33	D(33.9)	BARIUM	26.1	234	550	14000		

Table A-4 Noncarcinogenic Risk Calculations for BRAC Parcels (mg/kg)								
Parcel	Station ID	Parameter	Concentration	Background	Residential Land Use Criteria	Industrial/Land Use Criteria	Residential PPE Noncanc. Risk Ratio	Industrial PPE Noncanc. Risk Ratio
33	D(33.9)	CALCIUM	4450	5840	NA	NA		
33	D(33.9)	CHROMIUM, TOTAL	19.3	24.8	39	1000		
33	D(33.9)	COBALT	4.8	18.3	470	12000		
33	D(33.9)	COPPER	8.7	33	310	8200		
33	D(33.9)	DI-n-BUTYL PHTHALATE	0.25	NA	780	20000		
33	D(33.9)	FLUORANTHENE	0.27	1.6	310	8200		
33	D(33.9)	IRON	11300	37000	2300	61000		
33	D(33.9)	MAGNESIUM	383	4600	NA	NA		
33	D(33.9)	MANGANESE	125	1300	180	4700		
33	D(33.9)	NICKEL	6.1	30	160	4100		
33	D(33.9)	PHENANTHRENE	0.27	.61	2300	61000		
33	D(33.9)	PYRENE	0.24	1.5	230	6100		
33	D(33.9)	SELENIUM	10	.81	39	1000	2.56E-01	1.00E-02
33	D(33.9)	VANADIUM	16.4	48.4	55	1400		
33	D(33.9)	ZINC	52.5	130	2300	61000		
	D(33.9)						2.56E-01	1.00E-02
33	E(33.9)	ALUMINUM	10000	24000	7800	100000		
33	E(33.9)	ANTIMONY	9.6	7	3.1	82	3.10E+00	1.17E-01
33	E(33.9)	BARIUM	72.5	234	550	14000		
33	E(33.9)	CALCIUM	38200	5840	NA	NA		
33	E(33.9)	CHROMIUM, TOTAL	41.5	24.8	39	1000	1.06E+00	4.15E-02
33	E(33.9)	COBALT	4.3	18.3	470	12000		
33	E(33.9)	COPPER	28.2	33	310	8200		
33	E(33.9)	DI-n-BUTYL PHTHALATE	0.26	NA	780	20000		
33	E(33.9)	IRON	21100	37000	2300	61000		
33	E(33.9)	MAGNESIUM	1450	4600	NA	NA		
33	E(33.9)	MANGANESE	111	1300	180	4700		
33	E(33.9)	NICKEL	9.6	30	160	4100		
33	E(33.9)	SELENIUM	15.3	.81	39	1000	3.92E-01	1.53E-02
33	E(33.9)	VANADIUM	30.9	48.4	55	1400		
33	E(33.9)	ZINC	118	130	2300	61000		
	E(33.9)						4.55E+00	1.74E-01
35	A(35.2)	ALUMINUM	2840	24000	7800	100000		
35	A(35.2)	ANTIMONY	2.5	7	3.1	82		
35	A(35.2)	BARIUM	31.5	234	550	14000		
35	A(35.2)	CALCIUM	5700	5840	NA	NA		
35	A(35.2)	CHROMIUM, TOTAL	27.3	24.8	39	1000	7.00E-01	2.73E-02
35	A(35.2)	COBALT	2.7	18.3	470	12000		
35	A(35.2)	COPPER	55.8	33	310	8200	1.80E-01	6.80E-03
35	A(35.2)	IRON	7730	37000	2300	61000		
35	A(35.2)	MAGNESIUM	1420	4600	NA	NA		
35	A(35.2)	MANGANESE	86	1300	180	4700		
35	A(35.2)	MERCURY	0.03	.43	2.3	.61		
35	A(35.2)	NICKEL	4.2	30	160	4100		
35	A(35.2)	POTASSIUM	302	2025	NA	NA		
35	A(35.2)	VANADIUM	11.1	48.4	55	1400		
35	A(35.2)	ZINC	212	130	2300	61000	9.22E-02	3.48E-03
	A(35.2)						9.72E-01	3.76E-02
35	B(35.2)	ALUMINUM	8650	24000	7800	100000		
35	B(35.2)	BARIUM	479	234	550	14000	8.71E-01	3.42E-02
35	B(35.2)	CALCIUM	5470	5840	NA	NA		
35	B(35.2)	CHROMIUM, TOTAL	98	24.8	39	1000	2.51E+00	9.80E-02
35	B(35.2)	COBALT	5.3	18.3	470	12000		
35	B(35.2)	COPPER	95.2	33	310	8200	3.07E-01	1.16E-02

Table A-4 Noncarcinogenic Risk Calculations for BRAC Parcels (mg/kg)								
Parcel	Station ID	Parameter	Concentration	Background	Residential Land Use Criteria	Industrial/Land Use Criteria	Residential PCE Noncarc. Risk Ratio	Industrial PCE Noncarc. Risk Ratio
35	B(35.2)	DI-n-BUTYL PHTHALATE	0.13	NA	780	20000		
35	B(35.2)	IRON	20200	37000	2300	61000		
35	B(35.2)	MAGNESIUM	1350	4600	NA	NA		
35	B(35.2)	MANGANESE	228	1300	180	4700		
35	B(35.2)	MERCURY	0.28	.43	2.3	61		
35	B(35.2)	NICKEL	13.6	30	160	4100		
35	B(35.2)	PHENANTHRENE	0.043	.61	2300	61000		
35	B(35.2)	POTASSIUM	754	2025	NA	NA		
35	B(35.2)	VANADIUM	27.1	48.4	55	1400		
35	B(35.2)	ZINC	311	130	2300	61000	1.35E-01	5.10E-03
	B(35.2)						3.83E+00	1.49E-01
35	C(35.2)	ALUMINUM	13600	24000	7800	100000		
35	C(35.2)	BARIUM	115	234	550	14000		
35	C(35.2)	CALCIUM	60200	5840	NA	NA		
35	C(35.2)	CHROMIUM, TOTAL	122	24.8	39	1000	3.13E+00	1.22E-01
35	C(35.2)	COBALT	5.6	18.3	470	12000		
35	C(35.2)	COPPER	83.3	33	310	8200	2.69E-01	1.02E-02
35	C(35.2)	DI-n-BUTYL PHTHALATE	0.18	NA	780	20000		
35	C(35.2)	FLUORANTHENE	0.056	1.6	310	8200		
35	C(35.2)	IRON	24500	37000	2300	61000		
35	C(35.2)	MAGNESIUM	2400	4600	NA	NA		
35	C(35.2)	MANGANESE	534	1300	180	4700		
35	C(35.2)	NICKEL	21.3	30	160	4100		
35	C(35.2)	POTASSIUM	1090	2025	NA	NA		
35	C(35.2)	PYRENE	0.05	1.5	230	6100		
35	C(35.2)	VANADIUM	25.2	48.4	55	1400		
35	C(35.2)	ZINC	463	130	2300	61000	2.01E-01	7.59E-03

Table A-5
Noncarcinogenic Risk Calculations for Screening Sites
Units are mg/kg

Site	Parcel	Station ID	Parameter	Concentration	Background	Residential Land Use Criteria	Industrial Land Use Criteria	Residential PDE Noncancer Risk Ratio	Industrial PDE Noncancer Risk Ratio
28	32	SB28A	ACETONE	0.011	NA	780	20000		
28	32	SB28A	CHROMIUM, TOTAL	29	24.8	39	1000	7.44E-01	2.90E-02
28	32	SB28A	COPPER	36.4	33	310	8200	1.17E-01	4.44E-03
28	32	SB28A	DI-n-BUTYL PHTHALATE	0.041	NA	780	20000		
28	32	SB28A	LEAD	43.5	43	200	1000	2.18E-01	4.35E-02
28	32	SB28A	NICKEL	30.9	30	160	4100	1.93E-01	7.54E-03
28	32	SB28A	ZINC	114	130	2300	61000		
		SB28A Total						1.27E+00	8.45E-02
28	32	SB28B	ACETONE	0.078	NA	780	20000		
28	32	SB28B	CHROMIUM, TOTAL	25.3	24.8	39	1000	6.49E-01	2.53E-02
28	32	SB28B	COPPER	30.7	33	310	8200		
28	32	SB28B	LEAD	39.1	43	200	1000		
28	32	SB28B	METHYL ETHYL KETONE (2-BUTANONE)	0.01	002	4700	100000	2.13E-06	1.00E-07
28	32	SB28B	NICKEL	29.8	30	160	4100		
28	32	SB28B	ZINC	114	130	2300	61000		
		SB28B Total						6.49E-01	2.53E-02
28	32	SB28C	ACENAPHTHENE	0.041	NA	470	12000		
28	32	SB28C	ANTHRACENE	0.094	096	2300	61000		
28	32	SB28C	BENZO(a,h,i)PERYLENE	0.14	82	230	6100		
28	32	SB28C	CHROMIUM, TOTAL	30.6	24.8	39	1000	7.85E-01	3.06E-02
28	32	SB28C	COPPER	8.9	33	310	8200		
28	32	SB28C	FLUORANTHENE	0.56	1.6	310	8200		
28	32	SB28C	FLUORENE	0.04	NA	310	8200		
28	32	SB28C	LEAD	28.2	43	200	1000		
28	32	SB28C	NICKEL	12.7	30	160	4100		
28	32	SB28C	PHENANTHRENE	0.4	61	2300	61000		
28	32	SB28C	PYRENE	0.32	1.5	230	6100		
28	32	SB28C	ZINC	45.1	130	2300	61000		
		SB28C Total						7.85E-01	3.06E-02
28	32	SS28A	ACETONE	0.003	NA	780	20000		
28	32	SS28A	CHROMIUM, TOTAL	30.8	24.8	39	1000	7.90E-01	3.08E-02
28	32	SS28A	COPPER	38.4	33	310	8200	1.24E-01	4.68E-03
28	32	SS28A	LEAD	45.8	43	200	1000	2.29E-01	4.58E-02
28	32	SS28A	NICKEL	34.3	30	160	4100	2.14E-01	8.37E-03
28	32	SS28A	ZINC	1530	130	2300	61000	6.65E-01	2.51E-02
		SS28A Total						2.02E+00	1.15E-01
28	32	SS28B	ACETONE	0.004	NA	780	20000		
28	32	SS28B	BENZO(a,h,i)PERYLENE	0.049	82	230	6100		
28	32	SS28B	CHROMIUM, TOTAL	29.5	24.8	39	1000	7.56E-01	2.95E-02
28	32	SS28B	COPPER	16.9	33	310	8200		
28	32	SS28B	FLUORANTHENE	0.098	1.6	310	8200		
28	32	SS28B	LEAD	43.4	43	200	1000	2.17E-01	4.34E-02
28	32	SS28B	NICKEL	17.2	30	160	4100		
28	32	SS28B	PHENANTHRENE	0.038	61	2300	61000		
28	32	SS28B	PYRENE	0.097	1.5	230	6100		
28	32	SS28B	ZINC	80.9	130	2300	61000		
		SS28B Total						9.73E-01	7.29E-02
31	35	SB31A	CHROMIUM, TOTAL	38.7	24.8	39	1000	9.92E-01	3.87E-02
31	35	SB31A	COPPER	32	33	310	8200		
31	35	SB31A	LEAD	51.4	43	200	1000	2.57E-01	5.14E-02
31	35	SB31A	NICKEL	34	30	160	4100	2.13E-01	8.29E-03
31	35	SB31A	ZINC	118	130	2300	61000		
		SB31A Total						1.46E+00	9.84E-02
31	35	SB31B	CHROMIUM, TOTAL	29.8	24.8	39	1000	7.64E-01	2.98E-02

Table A-5
Noncarcinogenic Risk Calculations for Screening Sites
Units are mg/kg

Site	Parcel	Station ID	Parameter	Concen- tration	Back- ground	Residential Land Use Criteria	Industrial Land Use Criteria	Residential PTE Noncarc. Risk Ratio	Industrial PTE Noncarc. Risk Ratio
31	35	SB31B	COPPER	26.7	33	310	8200		
31	35	SB31B	LEAD	37.3	43	200	1000		
31	35	SB31B	NICKEL	26.9	30	160	4100		
31	35	SB31B	ZINC	104	130	2300	61000		
		SB31B Total						7.64E-01	2.98E-02
31	35	SS31A	BENZO(a,h)PERYLENE	0.25	.82	230	6100		
31	35	SS31A	CHROMIUM, TOTAL	530	24.8	39	1000	1.36E+01	5.30E-01
31	35	SS31A	COPPER	33.5	33	310	8200	1.08E-01	4.09E-03
31	35	SS31A	FLUORANTHENE	0.52	1.6	310	8200		
31	35	SS31A	LEAD	664	43	200	1000	3.32E+00	6.64E-01
31	35	SS31A	NICKEL	26.4	30	160	4100		
31	35	SS31A	PHENANTHRENE	0.37	.61	2300	61000		
31	35	SS31A	PYRENE	0.43	1.5	230	6100		
31	35	SS31A	ZINC	1560	130	2300	61000	6.78E-01	2.56E-02
		SS31A Total						1.77E+01	1.22E+00
31	35	SS31B	CHROMIUM, TOTAL	66.1	24.8	39	1000	1.69E+00	6.61E-02
31	35	SS31B	COPPER	11.6	33	310	8200		
31	35	SS31B	FLUORANTHENE	0.095	1.6	310	8200		
31	35	SS31B	LEAD	85.5	43	200	1000	4.28E-01	8.55E-02
31	35	SS31B	NICKEL	20	30	160	4100		
31	35	SS31B	PHENANTHRENE	0.071	.61	2300	61000		
31	35	SS31B	PYRENE	0.053	1.5	230	6100		
31	35	SS31B	ZINC	221	130	2300	61000	9.61E-02	3.62E-03
		SS31B Total						2.22E+00	1.55E-01
31	35	SS31C	CHROMIUM, TOTAL	39.4	24.8	39	1000	1.01E+00	3.94E-02
31	35	SS31C	COPPER	25.5	33	310	8200		
31	35	SS31C	LEAD	84.6	43	200	1000	4.23E-01	8.46E-02
31	35	SS31C	NICKEL	27	30	160	4100		
31	35	SS31C	ZINC	275	130	2300	61000	1.20E-01	4.51E-03
		SS31C Total						1.55E+00	1.29E-01
31	35	SS31D	ALUMINUM	6600	24000	7800	100000		
31	35	SS31D	BARIUM	109	234	550	14000		
31	35	SS31D	CALCIUM	7100	5840	NA	NA		
31	35	SS31D	CHROMIUM, TOTAL	37.4	24.8	39	1000	9.59E-01	3.74E-02
31	35	SS31D	COBALT	6.8	18.3	470	12000		
31	35	SS31D	COPPER	24.3	33	310	8200		
31	35	SS31D	FLUORANTHENE	0.16	1.6	310	8200		
31	35	SS31D	IRON	14900	37000	2300	61000		
31	35	SS31D	LEAD	205	43	200	1000	1.03E+00	2.05E-01
31	35	SS31D	MAGNESIUM	885	4600	NA	NA		
31	35	SS31D	MANGANESE	410	1300	180	4700		
31	35	SS31D	NAPHTHALENE	0.1	NA	310	8200		
31	35	SS31D	NICKEL	16.3	30	160	4100		
31	35	SS31D	PHENANTHRENE	0.23	.61	2300	61000		
31	35	SS31D	POTASSIUM	651	2025	NA	NA		
31	35	SS31D	PYRENE	0.19	1.5	230	6100		
31	35	SS31D	SILVER	0.31	2	39	1000		
31	35	SS31D	SODIUM	336	NA	NA	NA		
31	35	SS31D	VANADIUM	17.6	48.4	55	1400		
31	35	SS31D	ZINC	99.2	130	2300	61000		
		SS31D Total						1.98E+00	2.42E-01
33	35	SB33A	CHROMIUM, TOTAL	32.2	24.8	39	1000	8.26E-01	3.22E-02
33	35	SB33A	COPPER	26.1	33	310	8200		
33	35	SB33A	LEAD	46.9	43	200	1000	2.35E-01	4.69E-02

Table A-5
Noncarcinogenic Risk Calculations for Screening Sites
Units are mg/kg

Site	Parcel	Station ID	Parameter	Concentration	Background	Residential Land Use Criteria	Industrial Land Use Criteria	Residential PRC Noncarc. Risk Ratio	Industrial PRC Noncarc. Risk Ratio
33	35	SB33A	NICKEL	27.5	30	160	4100		
33	35	SB33A	ZINC	93.3	130	2300	61000		
		SB33A Total						1.06E+00	7.91E-02
33	35	SB33B	CHROMIUM, TOTAL	28.3	24.8	39	1000	7.26E-01	2.83E-02
33	35	SB33B	COPPER	22	33	310	8200		
33	35	SB33B	LEAD	20.1	43	200	1000		
33	35	SB33B	NICKEL	30.5	30	160	4100	1.91E-01	7.44E-03
33	35	SB33B	TOLUENE	0.001	0.02	1600	41000		
33	35	SB33B	ZINC	79.7	130	2300	61000		
		SB33B Total						9.16E-01	3.57E-02
33	35	SB33C	ACETONE	0.003	NA	780	20000		
33	35	SB33C	CHROMIUM, TOTAL	37.6	24.8	39	1000	9.64E-01	3.76E-02
33	35	SB33C	COPPER	17.1	33	310	8200		
33	35	SB33C	LEAD	16.1	43	200	1000		
33	35	SB33C	NICKEL	25.6	30	160	4100		
33	35	SB33C	ZINC	68.1	130	2300	61000		
		SB33C Total						9.64E-01	3.76E-02
33	35	SS33A	ACETONE	0.005	NA	780	20000		
33	35	SS33A	CHROMIUM, TOTAL	44.9	24.8	39	1000	1.15E+00	4.49E-02
33	35	SS33A	COPPER	39.8	33	310	8200	1.28E-01	4.85E-03
33	35	SS33A	LEAD	129	43	200	1000	6.45E-01	1.29E-01
33	35	SS33A	NICKEL	16.7	30	160	4100		
33	35	SS33A	ZINC	91.6	130	2300	61000		
		SS33A Total						1.92E+00	1.79E-01
33	35	SS33B	ALUMINUM	4140	24000	7800	100000		
33	35	SS33B	ANTIMONY	2.7	7	3.1	82		
33	35	SS33B	BARIUM	77.2	234	550	14000		
33	35	SS33B	CALCIUM	1240	5840	NA	NA		
33	35	SS33B	CHROMIUM, TOTAL	77.1	24.8	39	1000	1.98E+00	7.71E-02
33	35	SS33B	COBALT	4.2	18.3	470	12000		
33	35	SS33B	COPPER	84.8	33	310	8200	2.74E-01	1.03E-02
33	35	SS33B	FLUORANTHENE	0.057	1.6	310	8200		
33	35	SS33B	IRON	27900	37000	2300	61000		
33	35	SS33B	LEAD	321	43	200	1000	1.61E+00	3.21E-01
33	35	SS33B	MAGNESIUM	380	4600	NA	NA		
33	35	SS33B	MANGANESE	201	1300	180	4700		
33	35	SS33B	NICKEL	21.8	30	160	4100		
33	35	SS33B	PHENANTHRENE	0.072	61	2300	61000		
33	35	SS33B	POTASSIUM	284	2025	NA	NA		
33	35	SS33B	PYRENE	0.066	1.5	230	6100		
33	35	SS33B	VANADIUM	14	48.4	55	1400		
33	35	SS33B	ZINC	194	130	2300	61000	8.43E-02	3.18E-03
		SS33B Total						3.94E+00	4.12E-01
33	35	SS33C	CHROMIUM, TOTAL	53.8	24.8	39	1000	1.38E+00	5.38E-02
33	35	SS33C	COPPER	62.8	33	310	8200	2.03E-01	7.66E-03
33	35	SS33C	LEAD	200	43	200	1000	1.00E+00	2.00E-01
33	35	SS33C	NICKEL	29.1	30	160	4100		
33	35	SS33C	ZINC	187	130	2300	61000	8.13E-02	3.07E-03
		SS33C Total						2.66E+00	2.65E-01
33	35	SS33D	ACETONE	0.004	NA	780	20000		
33	35	SS33D	CHROMIUM, TOTAL	158	24.8	39	1000	4.05E+00	1.58E-01
33	35	SS33D	COPPER	41.5	33	310	8200	1.34E-01	5.06E-03
33	35	SS33D	LEAD	751	43	200	1000	3.76E+00	7.51E-01
33	35	SS33D	NICKEL	27.6	30	160	4100		

Table A-5
Noncarcinogenic Risk Calculations for Screening Sites
Units are mg/kg

Site	Parcel	Station ID	Parameter	Concentration	Background	Residential Land Use Criteria	Industrial Land Use Criteria	Residential PDE Noncarc. Risk Ratio	Industrial PDE Noncarc. Risk Ratio
33	35	SS33D	ZINC	1090	130	2300	61000	4.74E-01	1.79E-02
		SS33D Total						8.41E+00	9.32E-01
33	35	SS33E	ALUMINUM	7410	24000	7800	100000		
33	35	SS33E	ANTIMONY	27		3.1	82		
33	35	SS33E	BARIUM	432	234	550	14000	7.85E-01	3.09E-02
33	35	SS33E	BENZO(a,h,i)PERYLENE	0.082	82	230	6100		
33	35	SS33E	CALCIUM	7360	5840	NA	NA		
33	35	SS33E	CHROMIUM, TOTAL	22.5	24.8	39	1000		
33	35	SS33E	COBALT	3.8	18.3	470	12000		
33	35	SS33E	COPPER	14.7	33	310	8200		
33	35	SS33E	FLUORANTHENE	0.21	1.6	310	8200		
33	35	SS33E	IRON	9280	37000	2300	61000		
33	35	SS33E	LEAD	140	43	200	1000	7.00E-01	1.40E-01
33	35	SS33E	MAGNESIUM	1380	4600	NA	NA		
33	35	SS33E	MANGANESE	291	1300	160	4700		
33	35	SS33E	NICKEL	7.5	30	160	4100		
33	35	SS33E	PHENANTHRENE	0.15	61	2300	61000		
33	35	SS33E	POTASSIUM	582	2025	NA	NA		
33	35	SS33E	PYRENE	0.32	1.5	230	6100		
33	35	SS33E	SODIUM	261	NA	NA	NA		
33	35	SS33E	VANADIUM	15.1	48.4	55	1400		
33	35	SS33E	ZINC	551	130	2300	61000	2.40E-01	9.03E-03
		SS33E Total						1.73E+00	1.80E-01
33	35	SS33F	ACETONE	0.004	NA	780	20000		
33	35	SS33F	CHROMIUM, TOTAL	40.8	24.8	39	1000	1.05E+00	4.08E-02
33	35	SS33F	COPPER	30.7	33	310	8200		
33	35	SS33F	LEAD	79.3	43	200	1000	3.97E-01	7.93E-02
33	35	SS33F	NICKEL	26.5	30	160	4100		
33	35	SS33F	ZINC	211	130	2300	61000	9.17E-02	3.46E-03
		SS33F Total						1.53E+00	1.24E-01
35	15	SB35A	ANTIMONY	2.4	7	3.1	82		
35	15	SB35A	BENZO(a,h,i)PERYLENE	0.093	82	230	6100		
35	15	SB35A	CHROMIUM, TOTAL	14.6	24.8	39	1000		
35	15	SB35A	COPPER	18.2	33	310	8200		
35	15	SB35A	FLUORANTHENE	0.35	1.6	310	8200		
35	15	SB35A	LEAD	10.6	43	200	1000		
35	15	SB35A	NICKEL	21	30	160	4100		
35	15	SB35A	PHENANTHRENE	0.18	61	2300	61000		
35	15	SB35A	PYRENE	0.25	1.5	230	6100		
35	15	SB35A	ZINC	57.9	130	2300	61000		
		SB35A Total						0.00E+00	0.00E+00
35	15	SB35B	BENZO(a,h,i)PERYLENE	0.1	82	230	6100		
35	15	SB35B	CHROMIUM, TOTAL	26.8	24.8	39	1000	6.87E-01	2.68E-02
35	15	SB35B	COPPER	29.3	33	310	8200		
35	15	SB35B	DI-n-BUTYL PHTHALATE	0.089	NA	780	20000		
35	15	SB35B	FLUORANTHENE	0.46	1.6	310	8200		
35	15	SB35B	LEAD	22.4	43	200	1000		
35	15	SB35B	NICKEL	33.9	30	160	4100	2.12E-01	8.27E-03
35	15	SB35B	PHENANTHRENE	0.33	61	2300	61000		
35	15	SB35B	PYRENE	0.31	1.5	230	6100		
35	15	SB35B	ZINC	144	130	2300	61000	6.26E-02	2.36E-03
		SB35B Total						9.62E-01	3.74E-02
35	15	SB35C	CHROMIUM, TOTAL	24.3	24.8	39	1000		
35	15	SB35C	COPPER	31	33	310	8200		

Table A-5
Noncarcinogenic Risk Calculations for Screening Sites
Units are mg/kg

Site	Parcel	Station ID	Parameter	Concentration	Background	Residential Land Use Criteria	Industrial Land Use Criteria	Residential PRC Noncarc. Risk Ratio	Industrial PRC Noncarc. Risk Ratio
35	15	SB35C	DI-n-BUTYL PHTHALATE	0.11	NA	780	20000		
35	15	SB35C	LEAD	20.3	43	200	1000		
35	15	SB35C	NICKEL	33.6	30	160	4100	2.10E-01	8.20E-03
35	15	SB35C	ZINC	102	130	2300	61000		
		SB35C Total						2.10E-01	8.20E-03
36	15	SB36A	CHROMIUM, TOTAL	27.7	24.8	39	1000	7.10E-01	2.77E-02
36	15	SB36A	COPPER	40.9	33	310	8200	1.32E-01	4.99E-03
36	15	SB36A	DI-n-BUTYL PHTHALATE	0.069	NA	780	20000		
36	15	SB36A	LEAD	34.6	43	200	1000		
36	15	SB36A	NICKEL	41.3	30	160	4100	2.58E-01	1.01E-02
36	15	SB36A	ZINC	130	130	2300	61000		
		SB36A Total						1.10E+00	4.28E-02
36	15	SB36B	CHROMIUM, TOTAL	25.1	24.8	39	1000	6.44E-01	2.51E-02
36	15	SB36B	COPPER	35.1	33	310	8200	1.13E-01	4.28E-03
36	15	SB36B	LEAD	23.8	43	200	1000		
36	15	SB36B	NICKEL	39.9	30	160	4100	2.49E-01	9.73E-03
36	15	SB36B	ZINC	112	130	2300	61000		
		SB36B Total						1.01E+00	3.91E-02
36	15	SB36C	CHROMIUM, TOTAL	30.8	24.8	39	1000	7.90E-01	3.08E-02
36	15	SB36C	COPPER	34.3	33	310	8200	1.11E-01	4.18E-03
36	15	SB36C	LEAD	24.4	43	200	1000		
36	15	SB36C	NICKEL	37.2	30	160	4100	2.33E-01	9.07E-03
36	15	SB36C	ZINC	123	130	2300	61000		
		SB36C Total						1.13E+00	4.41E-02
36	15	SB36D	ANTIMONY	2	7	3.1	82		
36	15	SB36D	CHROMIUM, TOTAL	12.4	24.8	39	1000		
36	15	SB36D	COPPER	17.9	33	310	8200		
36	15	SB36D	LEAD	13.6	43	200	1000		
36	15	SB36D	NICKEL	18.7	30	160	4100		
36	15	SB36D	SILVER	0.63	2	39	1000		
36	15	SB36D	ZINC	64	130	2300	61000		
		SB36D Total						0.00E+00	0.00E+00
36	15	SB36E	CHROMIUM, TOTAL	18.9	24.8	39	1000		
36	15	SB36E	COPPER	17.8	33	310	8200		
36	15	SB36E	LEAD	13.1	43	200	1000		
36	15	SB36E	NICKEL	16.4	30	160	4100		
36	15	SB36E	ZINC	57.2	130	2300	61000		
		SB36E Total						0.00E+00	0.00E+00
36	15	SB36F	ACETONE	0.007	NA	780	20000		
36	15	SB36F	CHROMIUM, TOTAL	28.2	24.8	39	1000	7.23E-01	2.82E-02
36	15	SB36F	COPPER	34.7	33	310	8200	1.12E-01	4.23E-03
36	15	SB36F	LEAD	21.2	43	200	1000		
36	15	SB36F	NICKEL	43.2	30	160	4100	2.70E-01	1.05E-02
36	15	SB36F	ZINC	183	130	2300	61000	7.96E-02	3.00E-03
		SB36F Total						1.18E+00	4.60E-02
36	15	SB36G	CHROMIUM, TOTAL	28.1	24.8	39	1000	7.21E-01	2.81E-02
36	15	SB36G	COPPER	31.3	33	310	8200		
36	15	SB36G	LEAD	24	43	200	1000		
36	15	SB36G	NICKEL	37	30	160	4100	2.31E-01	9.02E-03
36	15	SB36G	ZINC	117	130	2300	61000		
		SB36G Total						9.52E-01	3.71E-02
36	15	SB36H	ANTIMONY	18	27	3.1	82	5.87E+00	2.22E-01
36	15	SB36H	BENZO(g,h,i)PERYLENE	0.044	82	230	6100		
36	15	SB36H	CHROMIUM, TOTAL	28.5	24.8	39	1000	7.31E-01	2.85E-02

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Table A-5
Noncarcinogenic Risk Calculations for Screening Sites
Units are mg/kg

Site	Parcel	Station ID	Parameter	Concentration	Background	Residential Land Use Criteria	Industrial Land Use Criteria	Residential PPE Noncarc. Risk Ratio	Industrial PPE Noncarc. Risk Ratio
36	15	SB36H	COPPER	86	33	310	8200	2.77E-01	1.05E-02
36	15	SB36H	FLUORANTHENE	0.11	1.6	310	8200		
36	15	SB36H	LEAD	131	43	200	1000	6.55E-01	1.31E-01
36	15	SB36H	NICKEL	25.6	30	160	4100		
36	15	SB36H	PHENANTHRENE	0.053	.61	2300	61000		
36	15	SB36H	PYRENE	0.086	1.5	230	6100		
36	15	SB36H	ZINC	133	130	2300	61000	5.78E-02	2.18E-03
		SB36H Total						7.59E+00	3.94E-01
36	15	SB36I	ACETONE	0.013	NA	780	20000		
36	15	SB36I	CHROMIUM, TOTAL	24.9	24.8	39	1000	6.38E-01	2.49E-02
36	15	SB36I	COPPER	30.3	33	310	8200		
36	15	SB36I	LEAD	20.5	43	200	1000		
36	15	SB36I	NICKEL	34.2	30	160	4100	2.14E-01	8.34E-03
36	15	SB36I	ZINC	101	130	2300	61000		
		SB36I Total						8.52E-01	3.32E-02
36	15	SB36J	CHROMIUM, TOTAL	32	24.8	39	1000	8.21E-01	3.20E-02
36	15	SB36J	COPPER	40.2	33	310	8200	1.30E-01	4.90E-03
36	15	SB36J	LEAD	26.7	43	200	1000		
36	15	SB36J	NICKEL	38	30	160	4100	2.38E-01	9.27E-03
36	15	SB36J	ZINC	266	130	2300	61000	1.16E-01	4.36E-03
		SB36J Total						1.30E+00	5.05E-02
36	15	SB36K	CHROMIUM, TOTAL	30.3	24.8	39	1000	7.77E-01	3.03E-02
36	15	SB36K	COPPER	33.9	33	310	8200	1.09E-01	4.13E-03
36	15	SB36K	LEAD	25.9	43	200	1000		
36	15	SB36K	NICKEL	35.9	30	160	4100	2.24E-01	8.76E-03
36	15	SB36K	SELENIUM	1.5	.81	39	1000	3.85E-02	1.50E-03
36	15	SB36K	ZINC	143	130	2300	61000	6.22E-02	2.34E-03
		SB36K Total						1.21E+00	4.70E-02
36	15	SB36L	CHROMIUM, TOTAL	25.2	24.8	39	1000	6.46E-01	2.52E-02
36	15	SB36L	COPPER	32.5	33	310	8200		
36	15	SB36L	LEAD	33.6	43	200	1000		
36	15	SB36L	NICKEL	36	30	160	4100	2.25E-01	8.78E-03
36	15	SB36L	ZINC	128	130	2300	61000		
		SB36L Total						8.71E-01	3.40E-02
36	15	SB36M	CHROMIUM, TOTAL	32	24.8	39	1000	8.21E-01	3.20E-02
36	15	SB36M	COPPER	54.5	33	310	8200	1.76E-01	6.66E-03
36	15	SB36M	LEAD	26.1	43	200	1000		
36	15	SB36M	NICKEL	37.1	30	160	4100	2.32E-01	9.05E-03
36	15	SB36M	SELENIUM	1.2	.81	39	1000	3.08E-02	1.20E-03
36	15	SB36M	ZINC	137	130	2300	61000	5.96E-02	2.25E-03
		SB36M Total						1.32E+00	5.11E-02
36	15	SB36N	CHROMIUM, TOTAL	29.9	24.8	39	1000	7.67E-01	2.99E-02
36	15	SB36N	COPPER	36	33	310	8200	1.16E-01	4.39E-03
36	15	SB36N	DI-n-BUTYL PHTHALATE	0.12	NA	780	20000		
36	15	SB36N	LEAD	24.5	43	200	1000		
36	15	SB36N	NICKEL	35.7	30	160	4100	2.23E-01	8.71E-03
36	15	SB36N	SELENIUM	1.7	.81	39	1000	4.36E-02	1.70E-03
36	15	SB36N	ZINC	121	130	2300	61000		
		SB36N Total						1.15E+00	4.47E-02
42	33	SS42A	1,2,3,4,6,7,8-HEPTACHLORODIBENZO-p-	0.006944	.00039				
42	33	SS42A	OCTACHLORODIBENZO-p-DIOXIN	0.035622	.01				
42	33	SS42A	OCTACHLORODIBENZOFURAN	0.005737	.00039				
42	33	SS42A	TCDD Equivalent	0.000041359	.00001				
		SS42A Total						0.00E+00	0.00E+00

Table A-5
Noncarcinogenic Risk Calculations for Screening Sites
 Units are mg/kg

Site	Parcel	Station ID	Parameter	Concen- tration	Back- ground	Residential Land Use Criteria	Industrial Land Use Criteria	Residential PDE Noncarc. Risk Ratio	Industrial PDE Noncarc. Risk Ratio
42	33	SS42B	1,2,3,4,6,7,8-HEPTACHLORODIBENZO-p-	0.001569	.00039				
42	33	SS42B	OCTACHLORODIBENZO-p-DIOXIN	0.009298	.01				
42	33	SS42B	OCTACHLORODIBENZOFURAN	0.001113	.00039				
42	33	SS42B	TCDD Equivalent	0.000010411	.00001				
		SS42B Total						0.00E+00	0.00E+00
42	33	SS42C	1,2,3,4,6,7,8-HEPTACHLORODIBENZO-p-	0.000482	.00039				
42	33	SS42C	OCTACHLORODIBENZO-p-DIOXIN	0.007685	.01				
42	33	SS42C	OCTACHLORODIBENZOFURAN	0.000248	.00039				
42	33	SS42C	TCDD Equivalent	0.000007933	.00001				
		SS42C Total						0.00E+00	0.00E+00
42	33	SS42D	1,2,3,4,6,7,8-HEPTACHLORODIBENZO-p-	0.000039	.00039				
42	33	SS42D	ALUMINUM	16200	24000	7800	100000		
42	33	SS42D	BARIUM	119	234	550	14000		
42	33	SS42D	CALCIUM	1420	5840	NA	NA		
42	33	SS42D	CHROMIUM, TOTAL	15.2	24.8	39	1000		
42	33	SS42D	COBALT	9.3	18.3	470	12000		
42	33	SS42D	COPPER	18.5	33	310	8200		
42	33	SS42D	IRON	23200	37000	2300	61000		
42	33	SS42D	LEAD	14.9	43	200	1000		
42	33	SS42D	MAGNESIUM	2830	4600	NA	NA		
42	33	SS42D	MANGANESE	621	1300	180	4700		
42	33	SS42D	NICKEL	20.3	30	160	4100		
42	33	SS42D	OCTACHLORODIBENZO-p-DIOXIN	0.003734	.01				
42	33	SS42D	OCTACHLORODIBENZOFURAN	0.002149	.00039				
42	33	SS42D	POTASSIUM	1270	2025	NA	NA		
42	33	SS42D	PYRENE	0.05	1.5	230	6100		
42	33	SS42D	TCDD Equivalent	0.000005883	.00001				
42	33	SS42D	VANADIUM	32.1	48.4	55	1400		
42	33	SS42D	ZINC	64.9	130	2300	61000		
		SS42D Total						0.00E+00	0.00E+00
42	33	SS42E	1,2,3,4,6,7,8-HEPTACHLORODIBENZO-p-	0.000194	.00039				
42	33	SS42E	OCTACHLORODIBENZO-p-DIOXIN	0.003596	.01				
42	33	SS42E	OCTACHLORODIBENZOFURAN	0.000078	.00039				
42	33	SS42E	TCDD Equivalent	0.000003674	.00001				
		SS42E Total						0.00E+00	0.00E+00
43	33	SS43A	1,2,3,4,6,7,8-HEPTACHLORODIBENZO-p-	0.000807	.00039				
43	33	SS43A	OCTACHLORODIBENZO-p-DIOXIN	0.007129	.01				
43	33	SS43A	OCTACHLORODIBENZOFURAN	0.000771	.00039				
43	33	SS43A	TCDD Equivalent	0.0000079	.00001				
		SS43A Total						0.00E+00	0.00E+00
43	33	SS43B	1,2,3,4,6,7,8-HEPTACHLORODIBENZO-p-	0.019812	.00039				
43	33	SS43B	OCTACHLORODIBENZO-p-DIOXIN	0.072102	.01				
43	33	SS43B	OCTACHLORODIBENZOFURAN	0.026781	.00039				
43	33	SS43B	TCDD Equivalent	0.000083017	.00001				
		SS43B Total						0.00E+00	0.00E+00
43	33	SS43C	1,2,3,4,6,7,8-HEPTACHLORODIBENZO-p-	0.00063	.00039				
43	33	SS43C	ALUMINUM	8190	24000	7800	100000		
43	33	SS43C	BARIUM	84.4	234	550	14000		
43	33	SS43C	BENZO(a,h,i)PERYLENE	0.059	.82	230	6100		
43	33	SS43C	CALCIUM	3640	5840	NA	NA		
43	33	SS43C	CHROMIUM, TOTAL	11.7	24.8	39	1000		
43	33	SS43C	COBALT	6.7	18.3	470	12000		
43	33	SS43C	COPPER	38.5	33	310	8200	1.24E-01	4.70E-03
43	33	SS43C	DIBENZOFURAN	0.05	NA	31	820		

Table A-5
Noncarcinogenic Risk Calculations for Screening Sites
Units are mg/kg

Site	Parcel	Station ID	Parameter	Concentration	Background	Residential Land Use Criteria	Industrial Land Use Criteria	Residential Noncarc. Risk Ratio	Industrial Noncarc. Risk Ratio
43	33	SS43C	FLUORANTHENE	0.13	1.6	310	8200		
43	33	SS43C	IRON	19400	37000	2300	61000		
43	33	SS43C	LEAD	33.1	43	200	1000		
43	33	SS43C	MAGNESIUM	1180	4600	NA	NA		
43	33	SS43C	MANGANESE	303	1300	180	4700		
43	33	SS43C	NAPHTHALENE	0.045	NA	310	8200		
43	33	SS43C	NICKEL	14.1	30	160	4100		
43	33	SS43C	OCTACHLORODIBENZO-p-DIOXIN	0.008666	.01				
43	33	SS43C	OCTACHLORODIBENZOFURAN	0.000344	.00039				
43	33	SS43C	PHENANTHRENE	0.22	.61	2300	61000		
43	33	SS43C	POTASSIUM	771	2025	NA	NA		
43	33	SS43C	PYRENE	0.19	1.5	230	6100		
43	33	SS43C	SELENIUM	0.66	.81	39	1000		
43	33	SS43C	SODIUM	277	NA	NA	NA		
43	33	SS43C	TCDD Equivalent	0.00000901	.00001				
43	33	SS43C	VANADIUM	23.1	48.4	55	1400		
43	33	SS43C	ZINC	67.7	130	2300	61000		
		SS43C Total						1.24E-01	4.70E-03
43	33	SS43D	1,2,3,4,6,7,8-HEPTACHLORODIBENZO-p-	0.000281	.00039				
43	33	SS43D	OCTACHLORODIBENZO-p-DIOXIN	0.001916	.01				
43	33	SS43D	OCTACHLORODIBENZOFURAN	0.000523	.00039				
43	33	SS43D	TCDD Equivalent	0.000002439	.00001				
		SS43D Total						0.00E+00	0.00E+00
43	33	SS43E	1,2,3,4,6,7,8-HEPTACHLORODIBENZO-p-	0.000617	.00039				
43	33	SS43E	OCTACHLORODIBENZO-p-DIOXIN	0.006838	.01				
43	33	SS43E	OCTACHLORODIBENZOFURAN	0.000433	.00039				
43	33	SS43E	TCDD Equivalent	0.000007271	.00001				
		SS43E Total						0.00E+00	0.00E+00
46	33	SS46A	1,2,3,4,6,7,8-HEPTACHLORODIBENZO-p-	0.004972	.00039				
46	33	SS46A	OCTACHLORODIBENZO-p-DIOXIN	0.035032	.01				
46	33	SS46A	OCTACHLORODIBENZOFURAN	0.003419	.00039				
46	33	SS46A	TCDD Equivalent	0.000038451	.00001				
		SS46A Total						0.00E+00	0.00E+00
46	33	SS46B	1,2,3,4,6,7,8-HEPTACHLORODIBENZO-p-	0.004306	.00039				
46	33	SS46B	ACETONE	0.005	NA	780	20000		
46	33	SS46B	OCTACHLORODIBENZO-p-DIOXIN	0.02651	.01				
46	33	SS46B	OCTACHLORODIBENZOFURAN	0.002403	.00039				
46	33	SS46B	TCDD Equivalent	0.000028913	.00001				
		SS46B Total						0.00E+00	0.00E+00
46	33	SS46C	1,2,3,4,6,7,8-HEPTACHLORODIBENZO-p-	0.005012	.00039				
46	33	SS46C	OCTACHLORODIBENZO-p-DIOXIN	0.031852	.01				
46	33	SS46C	OCTACHLORODIBENZOFURAN	0.002837	.00039				
46	33	SS46C	TCDD Equivalent	0.000034689	.00001				
		SS46C Total						0.00E+00	0.00E+00
46	33	SS46D	ACETONE	0.005	NA	780	20000		
46	33	SS46D	OCTACHLORODIBENZOFURAN	0.03227	.00039				
46	33	SS46D	TCDD Equivalent	0.00004577	.00001				
		SS46D Total						0.00E+00	0.00E+00
46	33	SS46E	1,2,3,4,6,7,8-HEPTACHLORODIBENZO-p-	0.023402	.00039				
46	33	SS46E	ALUMINIUM	4480	24000	7800	100000		
46	33	SS46E	BARIUM	69	234	550	14000		
46	33	SS46E	CALCIUM	24100	5840	NA	NA		
46	33	SS46E	CHROMIUM, TOTAL	9.2	24.8	39	1000		
46	33	SS46E	COBALT	5.5	18.3	470	12000		

Table A-5
Noncarcinogenic Risk Calculations for Screening Sites
 Units are mg/kg

Site	Parcel	Station ID	Parameter	Concen- tration	Back- ground	Residential Land Use Criteria	Industrial Land Use Criteria	Residential PPE Noncarc. Risk Ratio	Industrial PPE Noncarc. Risk Ratio
46	33	SS46E	COPPER	17.9	33	310	8200		
46	33	SS46E	IRON	13900	37000	2300	61000		
46	33	SS46E	LEAD	26	43	200	1000		
46	33	SS46E	MAGNESIUM	1860	4600	NA	NA		
46	33	SS46E	MANGANESE	206	1300	180	4700		
46	33	SS46E	NICKEL	12.5	30	160	4100		
46	33	SS46E	OCTACHLORODIBENZOFURAN	0.008431	0.00039				
46	33	SS46E	POTASSIUM	484	2025	NA	NA		
46	33	SS46E	PYRENE	0.93	1.5	230	6100		
46	33	SS46E	SELENIUM	0.44	.81	39	1000		
46	33	SS46E	TCDD Equivalent	0.000016031	0.00001				
46	33	SS46E	VANADIUM	18.4	48.4	55	1400		
46	33	SS46E	ZINC	52.8	130	2300	61000		
		SS46E Total						0.00E+00	0.00E+00
51	3	SB51A	ACETONE	0.006	NA	780	20000		
51	3	SB51A	BENZO(a,h,i)PERYLENE	0.25	.82	230	6100		
51	3	SB51A	CHROMIUM, TOTAL	25.8	24.8	39	1000	6.62E-01	2.58E-02
51	3	SB51A	COPPER	28.9	33	310	8200		
51	3	SB51A	FLUORANTHENE	0.45	1.6	310	8200		
51	3	SB51A	LEAD	63.2	43	200	1000	3.16E-01	6.32E-02
51	3	SB51A	NICKEL	29.9	30	160	4100		
51	3	SB51A	PHENANTHRENE	0.23	.61	2300	61000		
51	3	SB51A	PYRENE	0.21	1.5	230	6100		
51	3	SB51A	ZINC	146	130	2300	61000	6.35E-02	2.39E-03
		SB51A Total						1.04E+00	9.14E-02
51	3	SB51B	ACENAPHTHENE	0.066	NA	470	12000		
51	3	SB51B	ANTHRACENE	0.066	.096	2300	61000		
51	3	SB51B	CHROMIUM, TOTAL	21.8	24.8	39	1000		
51	3	SB51B	COPPER	28.2	33	310	8200		
51	3	SB51B	FLUORANTHENE	0.1	1.6	310	8200		
51	3	SB51B	FLUORENE	0.078	NA	310	8200		
51	3	SB51B	LEAD	62.2	43	200	1000	3.11E-01	6.22E-02
51	3	SB51B	NICKEL	27.8	30	160	4100		
51	3	SB51B	PHENANTHRENE	0.12	.61	2300	61000		
51	3	SB51B	PYRENE	0.08	1.5	230	6100		
51	3	SB51B	ZINC	95.8	130	2300	61000		
		SB51B Total						3.11E-01	6.22E-02
51	3	SB51C	ACETONE	0.007	NA	780	20000		
51	3	SB51C	CHROMIUM, TOTAL	27.6	24.8	39	1000	7.08E-01	2.76E-02
51	3	SB51C	COPPER	32.6	33	310	8200		
51	3	SB51C	LEAD	41.5	43	200	1000		
51	3	SB51C	NICKEL	57.6	30	160	4100	3.60E-01	1.40E-02
51	3	SB51C	ZINC	127	130	2300	61000		
		SB51C Total						1.07E+00	4.16E-02
51	3	SS51A	CHROMIUM, TOTAL	7.6	24.8	39	1000		
51	3	SS51A	COPPER	3.3	33	310	8200		
51	3	SS51A	LEAD	2.8	43	200	1000		
51	3	SS51A	NICKEL	3.9	30	160	4100		
51	3	SS51A	ZINC	10.8	130	2300	61000		
		SS51A Total						0.00E+00	0.00E+00
51	3	SS51B	ACETONE	0.004	NA	780	20000		
51	3	SS51B	CHROMIUM, TOTAL	29.4	24.8	39	1000	7.54E-01	2.94E-02
51	3	SS51B	COPPER	37.2	33	310	8200	1.20E-01	4.54E-03
51	3	SS51B	FLUORANTHENE	0.077	1.6	310	8200		

Table A-5
Noncarcinogenic Risk Calculations for Screening Sites
Units are mg/kg

Site	Parcel	Station ID	Parameter	Concentration	Background	Residential land Use Criteria	Industrial land Use Criteria	Residential PPE Noncarc. Risk Ratio	Industrial PPE Noncarc. Risk Ratio
51	3	SS51B	LEAD	138	43	200	1000	6.90E-01	1.38E-01
51	3	SS51B	NICKEL	34.9	30	160	4100	2.18E-01	8.51E-03
51	3	SS51B	SELENIUM	2.1	81	39	1000	5.38E-02	2.10E-03
51	3	SS51B	ZINC	142	130	2300	61000	6.17E-02	2.33E-03
		SS51B Total						1.90E+00	1.85E-01
51	3	SS51C	ALUMINUM	8940	24000	7800	100000		
51	3	SS51C	BARIUM	106	234	550	14000		
51	3	SS51C	BENZO(g,h,i)PERYLENE	0.05	82	230	6100		
51	3	SS51C	CALCIUM	1920	5840	NA	NA		
51	3	SS51C	CHROMIUM, TOTAL	11.3	24.8	39	1000		
51	3	SS51C	COBALT	8.2	18.3	470	12000		
51	3	SS51C	COPPER	16	33	310	8200		
51	3	SS51C	FLUORANTHENE	0.14	1.6	310	8200		
51	3	SS51C	IRON	16000	37000	2300	61000		
51	3	SS51C	LEAD	22.1	43	200	1000		
51	3	SS51C	MAGNESIUM	1710	4600	NA	NA		
51	3	SS51C	MANGANESE	604	1300	180	4700		
51	3	SS51C	NICKEL	13.9	30	160	4100		
51	3	SS51C	PHENANTHRENE	0.066	61	2300	61000		
51	3	SS51C	POTASSIUM	1090	2025	NA	NA		
51	3	SS51C	PYRENE	0.12	1.5	230	6100		
51	3	SS51C	SODIUM	218	NA	NA	NA		
51	3	SS51C	VANADIUM	21.1	48.4	55	1400		
51	3	SS51C	ZINC	58.1	130	2300	61000		
		SS51C Total						0.00E+00	0.00E+00
52	3	SB52A	CHROMIUM, TOTAL	12.6	24.8	39	1000		
52	3	SB52A	COPPER	12	33	310	8200		
52	3	SB52A	LEAD	24.4	43	200	1000		
52	3	SB52A	NICKEL	12.9	30	160	4100		
52	3	SB52A	ZINC	58	130	2300	61000		
		SB52A Total						0.00E+00	0.00E+00
52	3	SB52B	CHROMIUM, TOTAL	22.5	24.8	39	1000		
52	3	SB52B	COPPER	19.4	33	310	8200		
52	3	SB52B	NICKEL	24.1	30	160	4100		
52	3	SB52B	ZINC	75.7	130	2300	61000		
		SB52B Total						0.00E+00	0.00E+00
52	3	SS52A	ALUMINUM	10900	24000	7800	100000		
52	3	SS52A	BARIUM	152	234	550	14000		
52	3	SS52A	CALCIUM	3190	5840	NA	NA		
52	3	SS52A	CHROMIUM, TOTAL	13.1	24.8	39	1000		
52	3	SS52A	COBALT	12.6	18.3	470	12000		
52	3	SS52A	COPPER	13.8	33	310	8200		
52	3	SS52A	IRON	15400	37000	2300	61000		
52	3	SS52A	LEAD	18.5	43	200	1000		
52	3	SS52A	MAGNESIUM	1650	4600	NA	NA		
52	3	SS52A	MANGANESE	1860	1300	180	4700	1.03E+01	3.96E-01
52	3	SS52A	NICKEL	14.8	30	160	4100		
52	3	SS52A	POTASSIUM	901	2025	NA	NA		
52	3	SS52A	PYRENE	0.055	1.5	230	6100		
52	3	SS52A	SELENIUM	0.58	81	39	1000		
52	3	SS52A	VANADIUM	24.8	48.4	55	1400		
52	3	SS52A	ZINC	75	130	2300	61000		
		SS52A Total						1.03E+01	3.96E-01
52	3	SS52B	BENZO(g,h,i)PERYLENE	0.21	82	230	6100		

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Table A-5
Noncarcinogenic Risk Calculations for Screening Sites
Units are mg/kg

Site	Parcel	Station ID	Parameter	Concentration	Background	Residential Land Use Criteria	Industrial Land Use Criteria	Residential PDE Noncarc. Risk Ratio	Industrial PDE Noncarc. Risk Ratio
52	3	SS52B	CHROMIUM, TOTAL	40.3	24.8	39	1000	1.03E+00	4.03E-02
52	3	SS52B	COPPER	30.5	33	310	8200		
52	3	SS52B	FLUORANTHENE	0.42	1.6	310	8200		
52	3	SS52B	LEAD	150	43	200	1000	7.50E-01	1.50E-01
52	3	SS52B	NICKEL	31.8	30	160	4100	1.99E-01	7.76E-03
52	3	SS52B	PHENANTHRENE	0.22	.61	2300	61000		
52	3	SS52B	PYRENE	0.33	1.5	230	6100		
52	3	SS52B	ZINC	426	130	2300	61000	1.85E-01	6.98E-03
		SS52B Total						2.17E+00	2.05E-01
52	3	SS52C	CHROMIUM, TOTAL	20.3	24.8	39	1000		
52	3	SS52C	COPPER	21.3	33	310	8200		
52	3	SS52C	FLUORANTHENE	0.094	1.6	310	8200		
52	3	SS52C	LEAD	32.2	43	200	1000		
52	3	SS52C	NICKEL	25.3	30	160	4100		
52	3	SS52C	PHENANTHRENE	0.075	.61	2300	61000		
52	3	SS52C	PYRENE	0.084	1.5	230	6100		
52	3	SS52C	ZINC	85.3	130	2300	61000		
		SS52C Total						0.00E+00	0.00E+00
52	3	SS52D	CHROMIUM, TOTAL	17.5	24.8	39	1000		
52	3	SS52D	COPPER	19.3	33	310	8200		
52	3	SS52D	FLUORANTHENE	0.08	1.6	310	8200		
52	3	SS52D	LEAD	33.8	43	200	1000		
52	3	SS52D	NICKEL	26.3	30	160	4100		
52	3	SS52D	PHENANTHRENE	0.065	.61	2300	61000		
52	3	SS52D	PYRENE	0.061	1.5	230	6100		
52	3	SS52D	ZINC	71.1	130	2300	61000		
		SS52D Total						0.00E+00	0.00E+00
52	3	SS52E	CHROMIUM, TOTAL	21	24.8	39	1000		
52	3	SS52E	COPPER	28.3	33	310	8200		
52	3	SS52E	LEAD	29.9	43	200	1000		
52	3	SS52E	NICKEL	24.9	30	160	4100		
52	3	SS52E	ZINC	91.3	130	2300	61000		
		SS52E Total						0.00E+00	0.00E+00
54	15	SB54A	1,2,3,4,6,7,8-HEPTACHLORODIBENZO-p-	0.009934	0.0039				
54	15	SB54A	CHROMIUM, TOTAL	18.8	24.8	39	1000		
54	15	SB54A	COPPER	27.9	33	310	8200		
54	15	SB54A	LEAD	26.1	43	200	1000		
54	15	SB54A	NICKEL	29.4	30	160	4100		
54	15	SB54A	OCTACHLORODIBENZOFURAN	0.039746	0.0039				
54	15	SB54A	SELENIUM	1.3	.81	39	1000	3.33E-02	1.30E-03
54	15	SB54A	TCDD Equivalent	0.000039746	0.0001				
54	15	SB54A	ZINC	151	130	2300	61000	6.57E-02	2.48E-03
		SB54A Total						9.90E-02	3.78E-03
54	15	SB54B	1,2,3,4,6,7,8-HEPTACHLORODIBENZO-p-	0.005241	0.0039				
54	15	SB54B	BENZO(a,h,i)PERYLENE	0.21	.82	230	6100		
54	15	SB54B	CHROMIUM, TOTAL	27.1	24.8	39	1000	6.95E-01	2.71E-02
54	15	SB54B	COPPER	78.8	33	310	8200	2.54E-01	9.61E-03
54	15	SB54B	FLUORANTHENE	0.56	1.6	310	8200		
54	15	SB54B	LEAD	213	43	200	1000	1.07E+00	2.13E-01
54	15	SB54B	NICKEL	19.2	30	160	4100		
54	15	SB54B	OCTACHLORODIBENZO-p-DIOXIN	0.056155	.01				
54	15	SB54B	OCTACHLORODIBENZOFURAN	0.003805	0.0039				
54	15	SB54B	PHENANTHRENE	0.29	.61	2300	61000		
54	15	SB54B	PYRENE	0.45	1.5	230	6100		

Table A-5
Noncarcinogenic Risk Calculations for Screening Sites
Units are mg/kg

Site	Parcel	Station ID	Parameter	Concen- tration	Back- ground	Residential Land Use Criteria	Industrial Land Use Criteria	Residential PCE Noncarc. Risk Ratio	Industrial PCE Noncarc. Risk Ratio
54	15	SB54B	TCDD Equivalent	0.00005996	0.0001				
54	15	SB54B	ZINC	203	130	2300	61000	8.83E-02	3.33E-03
		SB54B Total						2.10E+00	2.53E-01
54	15	SS54A	1,2,3,4,6,7,8-HEPTACHLORODIBENZO-p-	0.007504	0.0039				
54	15	SS54A	ACETONE	0.31	NA	780	20000		
54	15	SS54A	BENZO(a,h,i)PERYLENE	0.045	82	230	6100		
54	15	SS54A	CHROMIUM, TOTAL	32.5	24.8	39	1000	8.33E-01	3.25E-02
54	15	SS54A	COPPER	34.6	33	310	8200	1.12E-01	4.22E-03
54	15	SS54A	FLUORANTHENE	0.15	1.6	310	8200		
54	15	SS54A	LEAD	62.5	43	200	1000	3.13E-01	6.25E-02
54	15	SS54A	NICKEL	29.3	30	160	4100		
54	15	SS54A	OCTACHLORODIBENZO-p-DIOXIN	0.053754	.01				
54	15	SS54A	OCTACHLORODIBENZOFURAN	0.017604	0.0039				
54	15	SS54A	PHENANTHRENE	0.068	.61	2300	61000		
54	15	SS54A	PYRENE	0.095	1.5	230	6100		
54	15	SS54A	TCDD Equivalent	0.000071358	0.0001				
54	15	SS54A	ZINC	118	130	2300	61000		
		SS54A Total						1.26E+00	9.92E-02
55	15	SB55A	1,2,3,4,6,7,8-HEPTACHLORODIBENZO-p-	0.00165	0.0039				
55	15	SB55A	ALUMINUM	6040	24000	7800	100000		
55	15	SB55A	BARIUM	50.4	234	550	14000		
55	15	SB55A	BENZO(a,h,i)PERYLENE	0.048	82	230	6100		
55	15	SB55A	CALCIUM	5050	5840	NA	NA		
55	15	SB55A	CHROMIUM, TOTAL	11.9	24.8	39	1000		
55	15	SB55A	COBALT	4.4	18.3	470	12000		
55	15	SB55A	COPPER	11	33	310	8200		
55	15	SB55A	FLUORANTHENE	0.077	1.6	310	8200		
55	15	SB55A	IRON	8330	37000	2300	61000		
55	15	SB55A	LEAD	10.3	43	200	1000		
55	15	SB55A	MAGNESIUM	554	4600	NA	NA		
55	15	SB55A	MANGANESE	138	1300	180	4700		
55	15	SB55A	NICKEL	6	30	160	4100		
55	15	SB55A	OCTACHLORODIBENZO-p-DIOXIN	0.010859	.01				
55	15	SB55A	OCTACHLORODIBENZOFURAN	0.000553	0.0039				
55	15	SB55A	PYRENE	0.07	1.5	230	6100		
55	15	SB55A	TCDD Equivalent	0.000011412	0.0001				
55	15	SB55A	VANADIUM	19.4	48.4	55	1400		
55	15	SB55A	ZINC	24.9	130	2300	61000		
		SB55A Total						0.00E+00	0.00E+00
56	29	SB56A	1,2,3,4,6,7,8-HEPTACHLORODIBENZO-p-	0.000018	0.0039				
56	29	SB56A	ALUMINUM	27600	24000	7800	100000	3.54E+00	2.76E-01
56	29	SB56A	BARIUM	161	234	550	14000		
56	29	SB56A	CALCIUM	1460	5840	NA	NA		
56	29	SB56A	CHROMIUM, TOTAL	24.7	24.8	39	1000		
56	29	SB56A	COBALT	18.9	18.3	470	12000	4.02E-02	1.58E-03
56	29	SB56A	COPPER	26.3	33	310	8200		
56	29	SB56A	IRON	29400	37000	2300	61000		
56	29	SB56A	LEAD	23.7	43	200	1000		
56	29	SB56A	MAGNESIUM	3270	4600	NA	NA		
56	29	SB56A	MANGANESE	2260	1300	180	4700	1.26E+01	4.81E-01
56	29	SB56A	NICKEL	24.4	30	160	4100		
56	29	SB56A	OCTACHLORODIBENZO-p-DIOXIN	0.004557	.01				
56	29	SB56A	OCTACHLORODIBENZOFURAN	0.000003	0.0039				
56	29	SB56A	POTASSIUM	1700	2025	NA	NA		

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Table A-5
Noncarcinogenic Risk Calculations for Screening Sites
 Units are mg/kg

Site	Parcel	Station ID	Parameter	Concentration	Background	Residential Land Use Criteria	Industrial Land Use Criteria	Residential PPE Noncarc. Risk Ratio	Industrial PPE Noncarc. Risk Ratio
56	29	SB56A	SODIUM	384	NA	NA	NA		
56	29	SB56A	TCDD Equivalent	0.00000456	0.0001				
56	29	SB56A	VANADIUM	44.9	48.4	55	1400		
56	29	SB56A	ZINC	105	130	2300	61000		
		SB56A Total						1.61E+01	7.58E-01
56	29	SS56A	ALUMINUM	11000	24000	7800	100000		
56	29	SS56A	BARIUM	117	234	550	14000		
56	29	SS56A	CALCIUM	1800	5840	NA	NA		
56	29	SS56A	CHROMIUM, TOTAL	11.9	24.8	39	1000		
56	29	SS56A	COBALT	8.7	18.3	470	12000		
56	29	SS56A	COPPER	18.5	33	310	8200		
56	29	SS56A	IRON	19100	37000	2300	61000		
56	29	SS56A	LEAD	21.4	43	200	1000		
56	29	SS56A	MAGNESIUM	2120	4600	NA	NA		
56	29	SS56A	MANGANESE	611	1300	180	4700		
56	29	SS56A	NICKEL	15.7	30	160	4100		
56	29	SS56A	OCTACHLORODIBENZO-p-DIOXIN	0.005337	.01				
56	29	SS56A	OCTACHLORODIBENZOFURAN	0.000006	0.00039				
56	29	SS56A	POTASSIUM	826	2025	NA	NA		
56	29	SS56A	SODIUM	175	NA	NA	NA		
56	29	SS56A	TCDD Equivalent	0.000005343	0.0001				
56	29	SS56A	VANADIUM	24.3	48.4	55	1400		
56	29	SS56A	ZINC	59.8	130	2300	61000		
		SS56A Total						0.00E+00	0.00E+00
56	29	SS56B	ACETONE	0.013	NA	780	20000		
56	29	SS56B	ALUMINUM	16700	24000	7800	100000		
56	29	SS56B	BARIUM	200	234	550	14000		
56	29	SS56B	CALCIUM	63500	5840	NA	NA		
56	29	SS56B	CHROMIUM, TOTAL	71.6	24.8	39	1000	1.84E+00	7.16E-02
56	29	SS56B	COBALT	17.8	18.3	470	12000		
56	29	SS56B	COPPER	78.4	33	310	8200	2.53E-01	9.56E-03
56	29	SS56B	IRON	66100	37000	2300	61000	2.87E+01	1.08E+00
56	29	SS56B	LEAD	308	43	200	1000	1.54E+00	3.08E-01
56	29	SS56B	MAGNESIUM	5360	4600	NA	NA		
56	29	SS56B	MANGANESE	1400	1300	180	4700	7.78E+00	2.98E-01
56	29	SS56B	NICKEL	43.8	30	160	4100	2.74E-01	1.07E-02
56	29	SS56B	OCTACHLORODIBENZO-p-DIOXIN	0.001078	.01				
56	29	SS56B	POTASSIUM	1120	2025	NA	NA		
56	29	SS56B	SODIUM	402	NA	NA	NA		
56	29	SS56B	TCDD Equivalent	0.000001078	0.0001				
56	29	SS56B	VANADIUM	39.2	48.4	55	1400		
56	29	SS56B	ZINC	158	130	2300	61000	6.87E-02	2.59E-03
		SS56B Total						4.05E+01	1.78E+00
56	29	SS56C	1,2,3,4,6,7,8-HEPTACHLORODIBENZO-p-	0.000421	0.00039				
56	29	SS56C	ACETONE	0.006	NA	780	20000		
56	29	SS56C	ALUMINUM	23300	24000	7800	100000		
56	29	SS56C	BARIUM	238	234	550	14000	4.33E-01	1.70E-02
56	29	SS56C	CALCIUM	6990	5840	NA	NA		
56	29	SS56C	CHROMIUM, TOTAL	27.3	24.8	39	1000	7.00E-01	2.73E-02
56	29	SS56C	COBALT	16.9	18.3	470	12000		
56	29	SS56C	COPPER	31.2	33	310	8200		
56	29	SS56C	IRON	34800	37000	2300	61000		
56	29	SS56C	LEAD	44.9	43	200	1000	2.25E-01	4.49E-02
56	29	SS56C	MAGNESIUM	4250	4600	NA	NA		

Table A-5
Noncarcinogenic Risk Calculations for Screening Sites
Units are mg/kg

Site	Parcel	Station ID	Parameter	Concen- tration	Back- ground	Residential Land Use Criteria	Industrial Land Use Criteria	Residential PPE Noncarc. Risk Ratio	Industrial PPE Noncarc. Risk Ratio
56	29	SS56C	MANGANESE	1500	1300	180	4700	8.33E+00	3.19E-01
56	29	SS56C	NICKEL	30	30	160	4100		
56	29	SS56C	OCTACHLORODIBENZO-p-DIOXIN	0.002664	.01				
56	29	SS56C	OCTACHLORODIBENZOFURAN	0.000161	.00039				
56	29	SS56C	POTASSIUM	2450	2025	NA	NA		
56	29	SS56C	TCDD Equivalent	0.000002825	.00001				
56	29	SS56C	VANADIUM	50.9	48.4	55	1400	9.25E-01	3.64E-02
56	29	SS56C	ZINC	119	130	2300	61000		
		SS56C Total						1.06E+01	4.45E-01
65	7	SB65A	ACENAPHTHENE	1.1	NA	470	12000		
65	7	SB65A	ANTHRACENE	2.8	.096	2300	61000	1.22E-03	4.59E-05
65	7	SB65A	BENZO(a,h,i)PERYLENE	16	.82	230	6100	6.96E-02	2.62E-03
65	7	SB65A	FLUORANTHENE	39	1.6	310	8200	1.26E-01	4.76E-03
65	7	SB65A	FLUORENE	1.1	NA	310	8200		
65	7	SB65A	PHENANTHRENE	20	.61	2300	61000	8.70E-03	3.28E-04
65	7	SB65A	PYRENE	26	1.5	230	6100	1.13E-01	4.26E-03
65	7	SB65A	ZINC	95	130	2300	61000		
		SB65A Total						3.18E-01	1.20E-02
65	7	SB65B	ANTHRACENE	0.048	.096	2300	61000		
65	7	SB65B	BENZO(a,h,i)PERYLENE	0.12	.82	230	6100		
65	7	SB65B	FLUORANTHENE	0.48	1.6	310	8200		
65	7	SB65B	PHENANTHRENE	0.33	.61	2300	61000		
65	7	SB65B	PYRENE	0.46	1.5	230	6100		
65	7	SB65B	ZINC	196	130	2300	61000	8.52E-02	3.21E-03
		SB65B Total						8.52E-02	3.21E-03
65	7	SB65C	BENZO(a,h,i)PERYLENE	0.098	.82	230	6100		
65	7	SB65C	FLUORANTHENE	0.38	1.6	310	8200		
65	7	SB65C	PHENANTHRENE	0.26	.61	2300	61000		
65	7	SB65C	PYRENE	0.39	1.5	230	6100		
65	7	SB65C	ZINC	134	130	2300	61000	5.83E-02	2.20E-03
		SB65C Total						5.83E-02	2.20E-03
65	7	SS65A	ACENAPHTHYLENE	9.5	.19				
65	7	SS65A	ANTHRACENE	3.5	.096	2300	61000	1.52E-03	5.74E-05
65	7	SS65A	BENZO(a,h,i)PERYLENE	42	.82	230	6100	1.83E-01	6.89E-03
65	7	SS65A	FLUORANTHENE	44	1.6	310	8200	1.42E-01	5.37E-03
65	7	SS65A	PHENANTHRENE	7.3	.61	2300	61000	3.17E-03	1.20E-04
65	7	SS65A	PYRENE	52	1.5	230	6100	2.26E-01	8.52E-03
65	7	SS65A	ZINC	646	130	2300	61000	2.81E-01	1.06E-02
		SS65A Total						8.36E-01	3.15E-02
65	7	SS65B	BENZO(a,h,i)PERYLENE	0.062	.82	230	6100		
65	7	SS65B	FLUORANTHENE	0.26	1.6	310	8200		
65	7	SS65B	PHENANTHRENE	0.18	.61	2300	61000		
65	7	SS65B	PYRENE	0.2	1.5	230	6100		
65	7	SS65B	ZINC	64.9	130	2300	61000		
		SS65B Total						0.00E+00	0.00E+00
65	7	SS65C	ANTHRACENE	0.051	.096	2300	61000		
65	7	SS65C	BENZO(a,h,i)PERYLENE	0.11	.82	230	6100		
65	7	SS65C	DI-n-BUTYL PHTHALATE	0.056	NA	780	20000		
65	7	SS65C	FLUORANTHENE	0.44	1.6	310	8200		
65	7	SS65C	PHENANTHRENE	0.27	.61	2300	61000		
65	7	SS65C	PYRENE	0.35	1.5	230	6100		
65	7	SS65C	ZINC	131	130	2300	61000	5.70E-02	2.15E-03
		SS65C Total						5.70E-02	2.15E-03
65	7	SS65D	ACENAPHTHENE	1.1	NA	470	12000		

Table A-5
Noncarcinogenic Risk Calculations for Screening Sites
Units are mg/kg

Site	Parcel	Station ID	Parameter	Concentration	Background	Residential Land Use Criteria	Industrial Land Use Criteria	Residential PDE Noncarc. Risk Ratio	Industrial PDE Noncarc. Risk Ratio
65	7	SS65D	ANTHRACENE	2.9	0.96	2300	61000	1.26E-03	4.75E-05
65	7	SS65D	BENZO(a,h,i)PERYLENE	12	.82	230	6100	5.22E-02	1.97E-03
65	7	SS65D	FLUORANTHENE	42	1.6	310	8200	1.35E-01	5.12E-03
65	7	SS65D	FLUORENE	0.82	NA	310	8200		
65	7	SS65D	PHENANTHRENE	16	.61	2300	61000	6.96E-03	2.62E-04
65	7	SS65D	PYRENE	35	1.5	230	6100	1.52E-01	5.74E-03
65	7	SS65D	ZINC	96.3	130	2300	61000		
		SS65D Total						3.48E-01	1.31E-02
65	7	SS65E	ACENAPHTHENE	5.7	NA	470	12000		
65	7	SS65E	ALUMINUM	3950	24000	7800	100000		
65	7	SS65E	ANTHRACENE	12	0.96	2300	61000	5.22E-03	1.97E-04
65	7	SS65E	BARIUM	81.2	234	550	14000		
65	7	SS65E	BENZO(a,h,i)PERYLENE	48	.82	230	6100	2.09E-01	7.87E-03
65	7	SS65E	CALCIUM	134000	5840	NA	NA		
65	7	SS65E	CHROMIUM, TOTAL	29.9	24.8	39	1000	7.67E-01	2.99E-02
65	7	SS65E	COBALT	4.5	18.3	470	12000		
65	7	SS65E	COPPER	20.5	33	310	8200		
65	7	SS65E	DIBENZOFURAN	1.9	NA	31	820		
65	7	SS65E	FLUORANTHENE	130	1.6	310	8200	4.19E-01	1.59E-02
65	7	SS65E	FLUORENE	5.2	NA	310	8200		
65	7	SS65E	IRON	8280	37000	2300	61000		
65	7	SS65E	LEAD	97.7	43	200	1000	4.89E-01	9.77E-02
65	7	SS65E	MAGNESIUM	9590	4600	NA	NA		
65	7	SS65E	MANGANESE	162	1300	180	4700		
65	7	SS65E	NAPHTHALENE	0.66	NA	310	8200		
65	7	SS65E	NICKEL	11.3	30	160	4100		
65	7	SS65E	PHENANTHRENE	61	.61	2300	61000	2.65E-02	1.00E-03
65	7	SS65E	POTASSIUM	808	2025	NA	NA		
65	7	SS65E	PYRENE	120	1.5	230	6100	5.22E-01	1.97E-02
65	7	SS65E	SODIUM	294	NA	NA	NA		
65	7	SS65E	VANADIUM	10.7	48.4	55	1400		
65	7	SS65E	ZINC	116	130	2300	61000		
		SS65E Total						2.44E+00	1.72E-01
66	4	SB66B	FLUORANTHENE	0.078	1.6	310	8200		
66	4	SB66B	PHENANTHRENE	0.078	.61	2300	61000		
66	4	SB66B	PYRENE	0.044	1.5	230	6100		
		SB66B Total						0.00E+00	0.00E+00
66	4	SB66C	DI-n-BUTYL PHTHALATE	0.044	NA	780	20000		
		SB66C Total						0.00E+00	0.00E+00
66	4	SS66A	ALUMINUM	5120	24000	7800	100000		
66	4	SS66A	ANTIMONY	2.9	7	3.1	82		
66	4	SS66A	BARIUM	98.7	234	550	14000		
66	4	SS66A	BENZO(a,h,i)PERYLENE	6.8	.82	230	6100	2.96E-02	1.11E-03
66	4	SS66A	CALCIUM	33800	5840	NA	NA		
66	4	SS66A	CHROMIUM, TOTAL	22.8	24.8	39	1000		
66	4	SS66A	COBALT	17.1	18.3	470	12000		
66	4	SS66A	COPPER	39.1	33	310	8200	1.26E-01	4.77E-03
66	4	SS66A	FLUORANTHENE	14	1.6	310	8200	4.52E-02	1.71E-03
66	4	SS66A	IRON	24700	37000	2300	61000		
66	4	SS66A	LEAD	67.1	43	200	1000	3.36E-01	6.71E-02
66	4	SS66A	MAGNESIUM	3630	4600	NA	NA		
66	4	SS66A	MANGANESE	242	1300	180	4700		
66	4	SS66A	METHYL ETHYL KETONE (2-BUTANONE)	0.016	.002	4700	100000	3.40E-06	1.60E-07
66	4	SS66A	NICKEL	16.2	30	160	4100		

Table A-5
Noncarcinogenic Risk Calculations for Screening Sites
Units are mg/kg

Site	Parcel	Station ID	Parameter	Concentration	Back-ground	Residential Land Use Criteria	Industrial Land Use Criteria	Residential PRE Noncarc. Risk Ratio	Industrial PRE Noncarc. Risk Ratio
66	4	SS66A	PHENANTHRENE	6.61	2300	61000		2.61E-03	9.84E-03
66	4	SS66A	POTASSIUM	401	2025	NA	NA		
66	4	SS66A	PYRENE	121	1.5	230	6100	5.22E-02	1.97E-03
66	4	SS66A	SODIUM	152	NA	NA	NA		
66	4	SS66A	VANADIUM	27.2	48.4	55	1400		
66	4	SS66A	ZINC	541	130	2300	61000	2.35E-01	8.87E-03
		SS66A Total						8.26E-01	8.56E-02
67	4	SB67A	CHROMIUM, TOTAL	25.2	24.8	39	1000	6.46E-01	2.52E-02
67	4	SB67A	COPPER	33.1	33	310	8200	1.07E-01	4.04E-03
67	4	SB67A	LEAD	20.5	43	200	1000		
67	4	SB67A	NICKEL	40	30	160	4100	2.50E-01	9.76E-03
67	4	SB67A	ZINC	113	130	2300	61000		
		SB67A Total						1.00E+00	3.90E-02
67	4	SB67B	CHROMIUM, TOTAL	13	24.8	39	1000		
67	4	SB67B	LEAD	11.9	43	200	1000		
67	4	SB67B	NICKEL	18.8	30	160	4100		
67	4	SB67B	ZINC	57.1	130	2300	61000		
		SB67B Total						0.00E+00	0.00E+00
67	4	SS67A	CHROMIUM, TOTAL	27.7	24.8	39	1000	7.10E-01	2.77E-02
67	4	SS67A	COPPER	40.1	33	310	8200	1.29E-01	4.89E-03
67	4	SS67A	LEAD	38.4	43	200	1000		
67	4	SS67A	NICKEL	37.8	30	160	4100	2.36E-01	9.22E-03
67	4	SS67A	ZINC	133	130	2300	61000	5.78E-02	2.18E-03
		SS67A Total						1.13E+00	4.40E-02
67	4	SS67B	ALUMINUM	12200	24000	7800	100000		
67	4	SS67B	BARIUM	163	234	550	14000		
67	4	SS67B	CALCIUM	2100	5840	NA	NA		
67	4	SS67B	CHROMIUM, TOTAL	15.7	24.8	39	1000		
67	4	SS67B	COBALT	8.1	18.3	470	12000		
67	4	SS67B	COPPER	50.7	33	310	8200	1.64E-01	6.18E-03
67	4	SS67B	IRON	20100	37000	2300	61000		
67	4	SS67B	LEAD	51.9	43	200	1000	2.60E-01	5.19E-02
67	4	SS67B	MAGNESIUM	2410	4600	NA	NA		
67	4	SS67B	MANGANESE	601	1300	180	4700		
67	4	SS67B	NICKEL	17.9	30	160	4100		
67	4	SS67B	POTASSIUM	976	2025	NA	NA		
67	4	SS67B	VANADIUM	26.8	48.4	55	1400		
67	4	SS67B	ZINC	193	130	2300	61000	8.39E-02	3.16E-03
		SS67B Total						5.07E-01	6.12E-02
69	3	SB69A	FLUORANTHENE	0.073	1.6	310	8200		
		SB69A Total						0.00E+00	0.00E+00
69	3	SB69B	FLUORANTHENE	0.19	1.6	310	8200		
69	3	SB69B	PHENANTHRENE	0.1	61	2300	61000		
69	3	SB69B	PYRENE	0.16	1.5	230	6100		
		SB69B Total						0.00E+00	0.00E+00
69	3	SS69A	ALUMINUM	11500	24000	7800	100000		
69	3	SS69A	BARIUM	114	234	550	14000		
69	3	SS69A	CALCIUM	1700	5840	NA	NA		
69	3	SS69A	CHROMIUM, TOTAL	12.6	24.8	39	1000		
69	3	SS69A	COBALT	7	18.3	470	12000		
69	3	SS69A	COPPER	16.8	33	310	8200		
69	3	SS69A	IRON	19700	37000	2300	61000		
69	3	SS69A	LEAD	11.4	43	200	1000		
69	3	SS69A	MAGNESIUM	2140	4600	NA	NA		

Table A-5
Noncarcinogenic Risk Calculations for Screening Sites
 Units are mg/kg

Site	Parcel	Station ID	Parameter	Concentration	Background	Residential Land Use Criteria	Industrial Land Use Criteria	Residential PCE Noncarc. Risk Ratio	Industrial PCE Noncarc. Risk Ratio
69	3	SS69A	MANGANESE	371	1300	180	4700		
69	3	SS69A	NICKEL	15.6	30	160	4100		
69	3	SS69A	POTASSIUM	1190	2025	NA	NA		
69	3	SS69A	VANADIUM	26.1	48.4	55	1400		
69	3	SS69A	ZINC	57.8	130	2300	61000		
		SS69A Total						0.00E+00	0.00E+00
69	3	SS69B	BENZO(a,h,i)PERYLENE	0.086	.82	230	6100		
69	3	SS69B	FLUORANTHENE	0.21	1.6	310	8200		
69	3	SS69B	PHENANTHRENE	0.16	.61	2300	61000		
69	3	SS69B	PYRENE	0.16	1.5	230	6100		
		SS69B Total						0.00E+00	0.00E+00
69	3	SS69D	FLUORANTHENE	0.14	1.6	310	8200		
69	3	SS69D	PHENANTHRENE	0.098	.61	2300	61000		
69	3	SS69D	PYRENE	0.12	1.5	230	6100		
		SS69D Total						0.00E+00	0.00E+00
72	15	SS72A	BENZO(a,h,i)PERYLENE	0.11	.82	230	6100		
72	15	SS72A	CHROMIUM, TOTAL	31.5	24.8	39	1000	8.08E-01	3.15E-02
72	15	SS72A	COPPER	70.7	33	310	8200	2.28E-01	8.62E-03
72	15	SS72A	FLUORANTHENE	0.21	1.6	310	8200		
72	15	SS72A	LEAD	98.2	43	200	1000	4.91E-01	9.82E-02
72	15	SS72A	NICKEL	40.2	30	160	4100	2.51E-01	9.80E-03
72	15	SS72A	PHENANTHRENE	0.094	.61	2300	61000		
72	15	SS72A	PYRENE	0.16	1.5	230	6100		
72	15	SS72A	ZINC	186	130	2300	61000	8.09E-02	3.05E-03
		SS72A Total						1.86E+00	1.51E-01
72	15	SS72B	BENZO(a,h,i)PERYLENE	0.14	.82	230	6100		
72	15	SS72B	CHROMIUM, TOTAL	27.9	24.8	39	1000	7.15E-01	2.79E-02
72	15	SS72B	COPPER	29.4	33	310	8200		
72	15	SS72B	FLUORANTHENE	0.42	1.6	310	8200		
72	15	SS72B	LEAD	100	43	200	1000	5.00E-01	1.00E-01
72	15	SS72B	NICKEL	30.4	30	160	4100	1.90E-01	7.41E-03
72	15	SS72B	PHENANTHRENE	0.23	.61	2300	61000		
72	15	SS72B	PYRENE	0.37	1.5	230	6100		
72	15	SS72B	ZINC	160	130	2300	61000	6.96E-02	2.62E-03
		SS72B Total						1.47E+00	1.38E-01
72	15	SS72C	ALUMINUM	17100	24000	7800	100000		
72	15	SS72C	BARIUM	152	234	550	14000		
72	15	SS72C	CALCIUM	1020	5840	NA	NA		
72	15	SS72C	CHROMIUM, TOTAL	15.8	24.8	39	1000		
72	15	SS72C	COBALT	12.2	18.3	470	12000		
72	15	SS72C	COPPER	23.8	33	310	8200		
72	15	SS72C	IRON	25300	37000	2300	61000		
72	15	SS72C	LEAD	15.1	43	200	1000		
72	15	SS72C	MAGNESIUM	3180	4600	NA	NA		
72	15	SS72C	MANGANESE	950	1300	180	4700		
72	15	SS72C	NICKEL	22.9	30	160	4100		
72	15	SS72C	POTASSIUM	1460	2025	NA	NA		
72	15	SS72C	SELENIUM	0.65	.81	39	1000		
72	15	SS72C	VANADIUM	33.8	48.4	55	1400		
72	15	SS72C	ZINC	78	130	2300	61000		
		SS72C Total						0.00E+00	0.00E+00
72	15	SS72D	CHROMIUM, TOTAL	28.6	24.8	39	1000	7.33E-01	2.86E-02
72	15	SS72D	COPPER	30.1	33	310	8200		
72	15	SS72D	FLUORANTHENE	0.12	1.6	310	8200		

Table A-5
Noncarcinogenic Risk Calculations for Screening Sites
 Units are mg/kg

Site	Parcel	Station ID	Parameter	Concentration	Background	Residential Land Use Criteria	Industrial Land Use Criteria	Residential PDE Noncarc. Risk Ratio	Industrial PDE Noncarc. Risk Ratio
72	15	SS72D	LEAD	33.1	43	200	1000		
72	15	SS72D	NICKEL	29.3	30	160	4100		
72	15	SS72D	PHENANTHRENE	0.064	.61	2300	61000		
72	15	SS72D	PYRENE	0.079	1.5	230	6100		
72	15	SS72D	ZINC	99.5	130	2300	61000		
		SS72D Total						7.33E-01	2.86E-02
72	15	SS72E	BENZO(a,h,i)PERYLENE	0.19	.82	230	6100		
72	15	SS72E	CHROMIUM, TOTAL	29.6	24.8	39	1000	7.59E-01	2.96E-02
72	15	SS72E	COPPER	47.6	33	310	8200	1.54E-01	5.80E-03
72	15	SS72E	FLUORANTHENE	0.33	1.6	310	8200		
72	15	SS72E	LEAD	46.5	43	200	1000	2.33E-01	4.65E-02
72	15	SS72E	NICKEL	39.2	30	160	4100	2.45E-01	9.56E-03
72	15	SS72E	PYRENE	0.32	1.5	230	6100		
72	15	SS72E	ZINC	137	130	2300	61000	5.96E-02	2.25E-03
		SS72E Total						1.45E+00	9.37E-02
72	15	SS72F	BENZO(a,h,i)PERYLENE	0.064	.82	230	6100		
72	15	SS72F	CHROMIUM, TOTAL	31	24.8	39	1000	7.95E-01	3.10E-02
72	15	SS72F	COPPER	34.7	33	310	8200	1.12E-01	4.23E-03
72	15	SS72F	FLUORANTHENE	0.16	1.6	310	8200		
72	15	SS72F	LEAD	33.5	43	200	1000		
72	15	SS72F	NICKEL	37.2	30	160	4100	2.33E-01	9.07E-03
72	15	SS72F	PHENANTHRENE	0.087	.61	2300	61000		
72	15	SS72F	PYRENE	0.11	1.5	230	6100		
72	15	SS72F	SELENIUM	1.2	.81	39	1000	3.08E-02	1.20E-03
72	15	SS72F	ZINC	127	130	2300	61000		
		SS72F Total						1.17E+00	4.55E-02
72	15	SS72G	CHROMIUM, TOTAL	23.5	24.8	39	1000		
72	15	SS72G	COPPER	26.7	33	310	8200		
72	15	SS72G	LEAD	28	43	200	1000		
72	15	SS72G	NICKEL	27.6	30	160	4100		
72	15	SS72G	SELENIUM	1.2	.81	39	1000	3.08E-02	1.20E-03
72	15	SS72G	ZINC	107	130	2300	61000		
		SS72G Total						3.08E-02	1.20E-03
72	15	SS72H	CHROMIUM, TOTAL	24.9	24.8	39	1000	6.38E-01	2.49E-02
72	15	SS72H	COPPER	25.1	33	310	8200		
72	15	SS72H	LEAD	45.9	43	200	1000	2.30E-01	4.59E-02
72	15	SS72H	NICKEL	29.7	30	160	4100		
72	15	SS72H	SELENIUM	1.3	.81	39	1000	3.33E-02	1.30E-03
72	15	SS72H	ZINC	140	130	2300	61000	6.09E-02	2.30E-03
		SS72H Total						9.62E-01	7.44E-02
72	15	SS72I	CHROMIUM, TOTAL	28.9	24.8	39	1000	7.41E-01	2.89E-02
72	15	SS72I	COPPER	34.9	33	310	8200	1.13E-01	4.26E-03
72	15	SS72I	LEAD	31.3	43	200	1000		
72	15	SS72I	NICKEL	40.9	30	160	4100	2.56E-01	9.98E-03
72	15	SS72I	SELENIUM	1.5	.81	39	1000	3.85E-02	1.50E-03
72	15	SS72I	ZINC	126	130	2300	61000		
		SS72I Total						1.15E+00	4.46E-02
74	15	SB74A	ANTIMONY	2.1	7	3.1	82		
74	15	SB74A	CHROMIUM, TOTAL	16.9	24.8	39	1000		
74	15	SB74A	COPPER	17.7	33	310	8200		
74	15	SB74A	DI-n-BUTYL PHTHALATE	0.052	NA	780	20000		
74	15	SB74A	LEAD	13.6	43	200	1000		
74	15	SB74A	NICKEL	20.2	30	160	4100		
74	15	SB74A	ZINC	61.7	130	2300	61000		

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Table A-5
Noncarcinogenic Risk Calculations for Screening Sites
 Units are mg/kg

Site	Parcel	Station ID	Parameter	Concentration	Background	Residential Land Use Criteria	Industrial Land Use Criteria	Residential PRC Noncancer Risk Ratio	Industrial PRC Noncancer Risk Ratio
		SB74A Total						0.00E+00	0.00E+00
74	15	SB74B	ACETONE	0.004	NA	780	20000		
74	15	SB74B	ANTHRACENE	0.048	0.096	2300	61000		
74	15	SB74B	BENZO(a,h,i)PERYLENE	0.11	.82	230	6100		
74	15	SB74B	CHROMIUM, TOTAL	25.5	24.8	39	1000	6.54E-01	2.55E-02
74	15	SB74B	COPPER	24.7	33	310	8200		
74	15	SB74B	DI-n-BUTYL PHTHALATE	0.1	NA	780	20000		
74	15	SB74B	FLUORANTHENE	0.48	1.6	310	8200		
74	15	SB74B	LEAD	26	43	200	1000		
74	15	SB74B	NICKEL	29.9	30	160	4100		
74	15	SB74B	PHENANTHRENE	0.37	.61	2300	61000		
74	15	SB74B	PYRENE	0.31	1.5	230	6100		
74	15	SB74B	ZINC	110	130	2300	61000		
		SB74B Total						6.54E-01	2.55E-02
74	15	SB74C	ACETONE	0.005	NA	780	20000		
74	15	SB74C	CHROMIUM, TOTAL	26.6	24.8	39	1000	6.82E-01	2.66E-02
74	15	SB74C	COPPER	25.2	33	310	8200		
74	15	SB74C	DI-n-BUTYL PHTHALATE	0.13	NA	780	20000		
74	15	SB74C	LEAD	32.5	43	200	1000		
74	15	SB74C	NICKEL	22.7	30	160	4100		
74	15	SB74C	ZINC	174	130	2300	61000	7.57E-02	2.85E-03
		SB74C Total						7.58E-01	2.95E-02
75	22	SB75A	ALUMINUM	9110	24000	7800	100000		
75	22	SB75A	BARIUM	122	234	550	14000		
75	22	SB75A	CALCIUM	3110	5840	NA	NA		
75	22	SB75A	CHROMIUM, TOTAL	13	24.8	39	1000		
75	22	SB75A	COBALT	12.4	18.3	470	12000		
75	22	SB75A	COPPER	16.4	33	310	8200		
75	22	SB75A	FLUORANTHENE	0.068	1.6	310	8200		
75	22	SB75A	IRON	16000	37000	2300	61000		
75	22	SB75A	LEAD	9.7	43	200	1000		
75	22	SB75A	MAGNESIUM	2360	4600	NA	NA		
75	22	SB75A	MANGANESE	386	1300	180	4700		
75	22	SB75A	NICKEL	19.8	30	160	4100		
75	22	SB75A	PHENANTHRENE	0.055	.61	2300	61000		
75	22	SB75A	POTASSIUM	743	2025	NA	NA		
75	22	SB75A	PYRENE	0.06	1.5	230	6100		
75	22	SB75A	VANADIUM	24.7	48.4	55	1400		
75	22	SB75A	ZINC	49.8	130	2300	61000		
		SB75A Total						0.00E+00	0.00E+00
75	22	SB75B	FLUORANTHENE	0.059	1.6	310	8200		
75	22	SB75B	PYRENE	0.046	1.5	230	6100		
		SB75B Total						0.00E+00	0.00E+00
75	22	SS75A	ACENAPHTHENE	0.23	NA	470	12000		
75	22	SS75A	ANTHRACENE	0.36	0.096	2300	61000	1.57E-04	5.90E-06
75	22	SS75A	BENZO(a,h,i)PERYLENE	1	.82	230	6100	4.35E-03	1.64E-04
75	22	SS75A	DIBENZOFURAN	0.11	NA	31	820		
75	22	SS75A	FLUORANTHENE	4.2	1.6	310	8200	1.35E-02	5.12E-04
75	22	SS75A	FLUORENE	0.19	NA	310	8200		
75	22	SS75A	PHENANTHRENE	3	.61	2300	61000	1.30E-03	4.92E-05
75	22	SS75A	PYRENE	3.6	1.5	230	6100	1.57E-02	5.90E-04
		SS75A Total						3.50E-02	1.32E-03
75	22	SS75B	BENZO(a,h,i)PERYLENE	0.14	.82	230	6100		
75	22	SS75B	FLUORANTHENE	0.45	1.6	310	8200		

Table A-5
Noncarcinogenic Risk Calculations for Screening Sites
 Units are mg/kg

Site	Parcel	Station ID	Parameter	Concentration	Background	Residential Land Use Criteria	Industrial Land Use Criteria	Residential Noncarc. Risk Ratio	Industrial Noncarc. Risk Ratio
75	22	SS75B	PHENANTHRENE	0.23	.61	2300	61000		
75	22	SS75B	PYRENE	0.33	1.5	230	6100		
		SS75B Total						0.00E+00	0.00E+00
76	21	SB76A	ACETONE	0.004	NA	780	20000		
76	21	SB76A	CHROMIUM, TOTAL	31.1	24.8	39	1000	7.97E-01	3.11E-02
76	21	SB76A	COPPER	26.2	33	310	8200		
76	21	SB76A	LEAD	17.5	43	200	1000		
76	21	SB76A	NICKEL	33.7	30	160	4100	2.11E-01	8.22E-03
76	21	SB76A	ZINC	83.8	130	2300	61000		
		SB76A Total						1.01E+00	3.93E-02
76	21	SB76B	ACETONE	0.005	NA	780	20000		
76	21	SB76B	CHROMIUM, TOTAL	33	24.8	39	1000	8.46E-01	3.30E-02
76	21	SB76B	COPPER	30	33	310	8200		
76	21	SB76B	LEAD	37.3	43	200	1000		
76	21	SB76B	NICKEL	29	30	160	4100		
76	21	SB76B	ZINC	91	130	2300	61000		
		SB76B Total						8.46E-01	3.30E-02
76	21	SB76C	ACETONE	0.004	NA	780	20000		
76	21	SB76C	CHROMIUM, TOTAL	35	24.8	39	1000	8.97E-01	3.50E-02
76	21	SB76C	COPPER	22.4	33	310	8200		
76	21	SB76C	LEAD	25.3	43	200	1000		
76	21	SB76C	NICKEL	24.2	30	160	4100		
76	21	SB76C	ZINC	72.6	130	2300	61000		
		SB76C Total						8.97E-01	3.50E-02
77	22	SB77A	ACETONE	0.004	NA	780	20000		
77	22	SB77A	CHROMIUM, TOTAL	19	24.8	39	1000		
77	22	SB77A	COPPER	29	33	310	8200		
77	22	SB77A	LEAD	38.1	43	200	1000		
77	22	SB77A	NICKEL	14.4	30	160	4100		
77	22	SB77A	ZINC	73.5	130	2300	61000		
		SB77A Total						0.00E+00	0.00E+00
77	22	SB77B	CHROMIUM, TOTAL	27.1	24.8	39	1000	6.95E-01	2.71E-02
77	22	SB77B	COPPER	36.3	33	310	8200	1.17E-01	4.43E-03
77	22	SB77B	LEAD	20.9	43	200	1000		
77	22	SB77B	NICKEL	39.3	30	160	4100	2.46E-01	9.59E-03
77	22	SB77B	ZINC	108	130	2300	61000		
		SB77B Total						1.06E+00	4.11E-02
77	22	SS77A	ACENAPHTHENE	0.086	NA	470	12000		
77	22	SS77A	ANTHRACENE	0.14	.096	2300	61000	6.09E-05	2.30E-06
77	22	SS77A	BENZO(a,h)PERYLENE	0.45	.82	230	6100		
77	22	SS77A	CHROMIUM, TOTAL	12.4	24.8	39	1000		
77	22	SS77A	COPPER	15.3	33	310	8200		
77	22	SS77A	FLUORANTHENE	1.2	1.6	310	8200		
77	22	SS77A	FLUORENE	0.061	NA	310	8200		
77	22	SS77A	LEAD	14.2	43	200	1000		
77	22	SS77A	NICKEL	17	30	160	4100		
77	22	SS77A	PHENANTHRENE	0.72	.61	2300	61000	3.13E-04	1.18E-05
77	22	SS77A	PYRENE	1.3	1.5	230	6100		
77	22	SS77A	ZINC	53.5	130	2300	61000		
		SS77A Total						3.74E-04	1.41E-05
77	22	SS77B	ANTIMONY	7.4	7	3.1	82	2.39E+00	9.02E-02
77	22	SS77B	BENZO(a,h)PERYLENE	0.1	.82	230	6100		
77	22	SS77B	CHROMIUM, TOTAL	24.6	24.8	39	1000		
77	22	SS77B	COPPER	26.1	33	310	8200		

Table A-5
Noncarcinogenic Risk Calculations for Screening Sites
Units are mg/kg

Site	Parcel	Station ID	Parameter	Concentration	Background	Residential Land Use Criteria	Industrial Land Use Criteria	Residential PPE Noncanc. Risk Ratio	Industrial PPE Noncanc. Risk Ratio
77	22	SS77B	FLUORANTHENE	0.21	1.6	310	8200		
77	22	SS77B	LEAD	32.8	43	200	1000		
77	22	SS77B	NICKEL	26.8	30	160	4100		
77	22	SS77B	PHENANTHRENE	0.1	.61	2300	61000		
77	22	SS77B	PYRENE	0.2	1.5	230	6100		
77	22	SS77B	ZINC	83.1	130	2300	61000		
		SS77B Total						2.39E+00	9.02E-02
77	22	SS77C	ACENAPHTHENE	4.1	NA	470	12000		
77	22	SS77C	ANTHRACENE	6.7	.096	2300	61000	2.91E-03	1.10E-04
77	22	SS77C	BENZO(a,h,i)PERYLENE	18	.82	230	6100	7.83E-02	2.95E-03
77	22	SS77C	CHROMIUM, TOTAL	25.3	24.8	39	1000	6.49E-01	2.53E-02
77	22	SS77C	COPPER	51.6	33	310	8200	1.66E-01	6.29E-03
77	22	SS77C	FLUORANTHENE	67	1.6	310	8200	2.16E-01	8.17E-03
77	22	SS77C	FLUORENE	2.6	NA	310	8200		
77	22	SS77C	LEAD	71.3	43	200	1000	3.57E-01	7.13E-02
77	22	SS77C	MERCURY	0.14	.43	2.3	61		
77	22	SS77C	NICKEL	15.1	30	160	4100		
77	22	SS77C	PHENANTHRENE	36	.61	2300	61000	1.57E-02	5.90E-04
77	22	SS77C	PYRENE	56	1.5	230	6100	2.43E-01	9.18E-03
77	22	SS77C	ZINC	104	130	2300	61000		
		SS77C Total						1.73E+00	1.24E-01
77	22	SS77D	ACENAPHTHENE	0.16	NA	470	12000		
77	22	SS77D	ALUMINUM	10100	24000	7800	100000		
77	22	SS77D	ANTHRACENE	0.24	.096	2300	61000	1.04E-04	3.93E-06
77	22	SS77D	BARIUM	114	234	550	14000		
77	22	SS77D	BENZO(a,h,i)PERYLENE	0.98	.82	230	6100	4.26E-03	1.61E-04
77	22	SS77D	CALCIUM	2020	5840	NA	NA		
77	22	SS77D	CHROMIUM, TOTAL	12.5	24.8	39	1000		
77	22	SS77D	COBALT	8.8	18.3	470	12000		
77	22	SS77D	COPPER	15.6	33	310	8200		
77	22	SS77D	FLUORANTHENE	3	1.6	310	8200	9.68E-03	3.66E-04
77	22	SS77D	FLUORENE	0.082	NA	310	8200		
77	22	SS77D	IRON	18300	37000	2300	61000		
77	22	SS77D	LEAD	12.4	43	200	1000		
77	22	SS77D	MAGNESIUM	2290	4600	NA	NA		
77	22	SS77D	MANGANESE	552	1300	180	4700		
77	22	SS77D	NICKEL	18.1	30	160	4100		
77	22	SS77D	PHENANTHRENE	1.3	.61	2300	61000	5.65E-04	2.13E-05
77	22	SS77D	POTASSIUM	939	2025	NA	NA		
77	22	SS77D	PYRENE	3	1.5	230	6100	1.30E-02	4.92E-04
77	22	SS77D	SODIUM	192	NA	NA	NA		
77	22	SS77D	VANADIUM	24.5	48.4	55	1400		
77	22	SS77D	ZINC	51.4	130	2300	61000		
		SS77D Total						2.77E-02	1.04E-03
79	15	SB79A	CHROMIUM, TOTAL	23.9	24.8	39	1000		
79	15	SB79A	COPPER	35.7	33	310	8200	1.15E-01	4.35E-03
79	15	SB79A	LEAD	32.9	43	200	1000		
79	15	SB79A	NICKEL	25.3	30	160	4100		
79	15	SB79A	ZINC	117	130	2300	61000		
		SB79A Total						1.15E-01	4.35E-03
79	15	SB79B	CHROMIUM, TOTAL	28	24.8	39	1000	7.18E-01	2.80E-02
79	15	SB79B	COPPER	15.8	33	310	8200		
79	15	SB79B	LEAD	208	43	200	1000	1.04E+00	2.08E-01
79	15	SB79B	NICKEL	15.2	30	160	4100		

Table A-5
Noncarcinogenic Risk Calculations for Screening Sites
 Units are mg/kg

Site	Parcel	Station ID	Parameter	Concentration	Background	Residential Land Use Criteria	Industrial Land Use Criteria	Residential PRC Noncarc. Risk Ratio	Industrial PRC Noncarc. Risk Ratio
79	15	SB79B	ZINC	82.4	130	2300	61000		
		SB79B Total						1.76E+00	2.36E-01
79	15	SB79C	CHROMIUM, TOTAL	23.8	24.8	39	1000		
79	15	SB79C	COPPER	15.4	33	310	8200		
79	15	SB79C	LEAD	27.1	43	200	1000		
79	15	SB79C	NICKEL	5.3	30	160	4100		
79	15	SB79C	ZINC	46.4	130	2300	61000		
		SB79C Total						0.00E+00	0.00E+00
79	15	SS79A	ACENAPHTHYLENE	0.2	19				
79	15	SS79A	ANTHRACENE	0.12	096	2300	61000	5.22E-05	1.97E-06
79	15	SS79A	BENZO(a,h,i)PERYLENE	0.54	82	230	6100		
79	15	SS79A	CHROMIUM, TOTAL	78.1	24.8	39	1000	2.00E+00	7.81E-02
79	15	SS79A	COPPER	65.6	33	310	8200	2.12E-01	8.00E-03
79	15	SS79A	FLUORANTHENE	1.8	1.6	310	8200	5.81E-03	2.20E-04
79	15	SS79A	LEAD	1060	43	200	1000	5.30E+00	1.06E+00
79	15	SS79A	NICKEL	30.4	30	160	4100	1.90E-01	7.41E-03
79	15	SS79A	PHENANTHRENE	0.24	61	2300	61000		
79	15	SS79A	PYRENE	1.9	1.5	230	6100	8.26E-03	3.11E-04
79	15	SS79A	SELENIUM	2.3	81	39	1000	5.90E-02	2.30E-03
79	15	SS79A	ZINC	331	130	2300	61000	1.44E-01	5.43E-03
		SS79A Total						7.92E+00	1.16E+00
79	15	SS79B	BENZO(a,h,i)PERYLENE	0.064	82	230	6100		
79	15	SS79B	CHROMIUM, TOTAL	27.7	24.8	39	1000	7.10E-01	2.77E-02
79	15	SS79B	COPPER	18.7	33	310	8200		
79	15	SS79B	FLUORANTHENE	0.09	1.6	310	8200		
79	15	SS79B	LEAD	105	43	200	1000	5.25E-01	1.05E-01
79	15	SS79B	NICKEL	22.6	30	160	4100		
79	15	SS79B	PHENANTHRENE	0.049	61	2300	61000		
79	15	SS79B	PYRENE	0.15	1.5	230	6100		
79	15	SS79B	ZINC	78.8	130	2300	61000		
		SS79B Total						1.24E+00	1.33E-01
79	15	SS79C	ALUMINUM	12000	24000	7800	100000		
79	15	SS79C	ANTIMONY	2.3	7	3.1	82		
79	15	SS79C	BARIUM	78.6	234	550	14000		
79	15	SS79C	CALCIUM	725	5640	NA	NA		
79	15	SS79C	CHROMIUM, TOTAL	12.2	24.8	39	1000		
79	15	SS79C	COBALT	10.2	18.3	470	12000		
79	15	SS79C	COPPER	16.8	33	310	8200		
79	15	SS79C	IRON	20700	37000	2300	61000		
79	15	SS79C	LEAD	12.2	43	200	1000		
79	15	SS79C	MAGNESIUM	2340	4600	NA	NA		
79	15	SS79C	MANGANESE	609	1300	180	4700		
79	15	SS79C	NICKEL	17	30	160	4100		
79	15	SS79C	POTASSIUM	852	2025	NA	NA		
79	15	SS79C	SILVER	0.45	2	39	1000		
79	15	SS79C	SODIUM	104	NA	NA	NA		
79	15	SS79C	VANADIUM	25.5	48.4	55	1400		
79	15	SS79C	ZINC	55.3	130	2300	61000		
		SS79C Total						0.00E+00	0.00E+00
80	33	SB80A	ANTIMONY	2.4	7	3.1	82		
80	33	SB80A	CHROMIUM, TOTAL	12.8	24.8	39	1000		
80	33	SB80A	COPPER	18.3	33	310	8200		
80	33	SB80A	LEAD	10.5	43	200	1000		
80	33	SB80A	METHYL ETHYL KETONE (2-BUTANONE)	0.01	002	4700	100000	2.13E-06	1.00E-07

Table A-5 Noncarcinogenic Risk Calculations for Screening Sites Units are mg/kg									
Site	Parcel	Station ID	Parameter	Concen- tration	Back- ground	Industrial Land Use Criteria	Residential Land Use Criteria	Residential PPE Noncarc. Risk Ratio	Industrial PPE Noncarc. Risk Ratio
80	33	SB80A	NICKEL	20.7	30	160	4100		
80	33	SB80A	Total Xylenes	0.002	.009				
80	33	SB80A	ZINC	56.4	130	2300	61000		
		SB80A Total						2.13E-06	1.00E-07
80	33	SB80B	ACETONE	0.004	NA	780	20000		
80	33	SB80B	CHROMIUM, TOTAL	57.3	24.8	39	1000	1.47E+00	5.73E-02
80	33	SB80B	COPPER	95.6	33	310	8200	3.08E-01	1.17E-02
80	33	SB80B	LEAD	115	43	200	1000	5.75E-01	1.15E-01
80	33	SB80B	NICKEL	12.9	30	160	4100		
80	33	SB80B	ZINC	230	130	2300	61000	1.00E-01	3.77E-03
		SB80B Total						2.45E+00	1.88E-01
80	33	SS80A	ALUMINUM	3470	24000	7800	100000		
80	33	SS80A	BARIUM	37.6	234	550	14000		
80	33	SS80A	BENZO(a,h,i)PERYLENE	0.059	.82	230	6100		
80	33	SS80A	CHROMIUM, TOTAL	9.9	24.8	39	1000		
80	33	SS80A	COBALT	2.3	18.3	470	12000		
80	33	SS80A	COPPER	22.6	33	310	8200		
80	33	SS80A	FLUORANTHRENE	0.11	1.6	310	8200		
80	33	SS80A	IRON	7030	37000	2300	61000		
80	33	SS80A	LEAD	23.2	43	200	1000		
80	33	SS80A	MAGNESIUM	7020	4600	NA	NA		
80	33	SS80A	MANGANESE	154	1300	180	4700		
80	33	SS80A	NICKEL	5.5	30	160	4100		
80	33	SS80A	PHENANTHRENE	0.09	.61	2300	61000		
80	33	SS80A	POTASSIUM	360	2025	NA	NA		
80	33	SS80A	PYRENE	0.17	1.5	230	6100		
80	33	SS80A	Total Xylenes	0.001	.009				
80	33	SS80A	VANADIUM	9.2	48.4	55	1400		
80	33	SS80A	ZINC	87.4	130	2300	61000		
		SS80A Total						0.00E+00	0.00E+00
80	33	SS80B	ACETONE	0.011	NA	780	20000		
80	33	SS80B	CHROMIUM, TOTAL	39	24.8	39	1000	1.00E+00	3.90E-02
80	33	SS80B	COPPER	63.7	33	310	8200	2.05E-01	7.77E-03
80	33	SS80B	FLUORANTHRENE	2.3	1.6	310	8200	7.42E-03	2.80E-04
80	33	SS80B	LEAD	237	43	200	1000	1.19E+00	2.37E-01
80	33	SS80B	NICKEL	27.7	30	160	4100		
80	33	SS80B	PHENANTHRENE	1.4	.61	2300	61000	6.09E-04	2.30E-05
80	33	SS80B	PYRENE	1.7	1.5	230	6100	7.39E-03	2.79E-04
80	33	SS80B	SELENIUM	2	.81	39	1000	5.13E-02	2.00E-03
80	33	SS80B	Total Xylenes	0.002	.009				
80	33	SS80B	ZINC	308	130	2300	61000	1.34E-01	5.06E-03
		SS80B Total						2.59E+00	2.91E-01
80	33	SS80C	CHROMIUM, TOTAL	21.9	24.8	39	1000		
80	33	SS80C	COPPER	27.4	33	310	8200		
80	33	SS80C	FLUORANTHRENE	0.15	1.6	310	8200		
80	33	SS80C	LEAD	34.6	43	200	1000		
80	33	SS80C	NICKEL	18.4	30	160	4100		
80	33	SS80C	PHENANTHRENE	0.11	.61	2300	61000		
80	33	SS80C	PYRENE	0.12	1.5	230	6100		
80	33	SS80C	ZINC	78.6	130	2300	61000		
		SS80C Total						0.00E+00	0.00E+00
81	24	SS81A	BENZO(a,h,i)PERYLENE	0.28	.82	230	6100		
81	24	SS81A	FLUORANTHRENE	0.74	1.6	310	8200		
81	24	SS81A	PHENANTHRENE	0.36	.61	2300	61000		

Table A-5
Noncarcinogenic Risk Calculations for Screening Sites
Units are mg/kg

Site	Parcel	Station ID	Parameter	Concentration	Background	Residential Land Use Criteria	Industrial Land Use Criteria	Residential PPE Noncarc. Risk Ratio	Industrial PPE Noncarc. Risk Ratio
81	24	SS81A	PYRENE	0.56	1.5	230	6100		
		SS81A Total						0.00E+00	0.00E+00
81	24	SS81B	ALUMINUM	9490	24000	7800	100000		
81	24	SS81B	BARIUM	82	234	550	14000		
81	24	SS81B	BENZO(a,h,i)PERYLENE	0.049	.82	230	6100		
81	24	SS81B	CALCIUM	32100	5840	NA	NA		
81	24	SS81B	CHROMIUM, TOTAL	12.6	24.8	39	1000		
81	24	SS81B	COBALT	7.6	18.3	470	12000		
81	24	SS81B	COPPER	14.3	33	310	8200		
81	24	SS81B	FLUORANTHENE	0.078	1.6	310	8200		
81	24	SS81B	IRON	17900	37000	2300	61000		
81	24	SS81B	LEAD	15.2	43	200	1000		
81	24	SS81B	MAGNESIUM	7060	4600	NA	NA		
81	24	SS81B	MANGANESE	467	1300	180	4700		
81	24	SS81B	NICKEL	13	30	160	4100		
81	24	SS81B	PHENANTHRENE	0.045	.61	2300	61000		
81	24	SS81B	POTASSIUM	836	2025	NA	NA		
81	24	SS81B	PYRENE	0.09	1.5	230	6100		
81	24	SS81B	SODIUM	254	NA	NA	NA		
81	24	SS81B	VANADIUM	44.9	48.4	55	1400		
81	24	SS81B	ZINC	49.4	130	2300	61000		
		SS81B Total						0.00E+00	0.00E+00
82	23	SB82A	CHROMIUM, TOTAL	25.8	24.8	39	1000	6.62E-01	2.58E-02
82	23	SB82A	COPPER	35.8	33	310	8200	1.15E-01	4.37E-03
82	23	SB82A	LEAD	26.2	43	200	1000		
82	23	SB82A	NICKEL	39	30	160	4100	2.44E-01	9.51E-03
82	23	SB82A	OCTACHLORODIBENZO-p-DIOXIN	0.002772	.01				
82	23	SB82A	OCTACHLORODIBENZOFURAN	0.000007	.00039				
82	23	SB82A	TCDD Equivalent	0.000002779	.00001				
82	23	SB82A	ZINC	234	130	2300	61000	1.02E-01	3.84E-03
		SB82A Total						1.12E+00	4.35E-02
82	23	SB82B	CHROMIUM, TOTAL	26.3	24.8	39	1000	6.74E-01	2.63E-02
82	23	SB82B	COPPER	34.5	33	310	8200	1.11E-01	4.21E-03
82	23	SB82B	LEAD	22.9	43	200	1000		
82	23	SB82B	NICKEL	40.8	30	160	4100	2.55E-01	9.95E-03
82	23	SB82B	OCTACHLORODIBENZO-p-DIOXIN	0.003241	.009				
82	23	SB82B	TCDD Equivalent	0.000003247	.000006				
82	23	SB82B	ZINC	128	130	2300	61000		
		SB82B Total						1.04E+00	4.05E-02
82	23	SB82C	CHROMIUM, TOTAL	26.8	24.8	39	1000	6.87E-01	2.68E-02
82	23	SB82C	COPPER	35.3	33	310	8200	1.14E-01	4.30E-03
82	23	SB82C	LEAD	33.5	43	200	1000		
82	23	SB82C	NICKEL	35.2	30	160	4100	2.20E-01	8.59E-03
82	23	SB82C	OCTACHLORODIBENZO-p-DIOXIN	0.003767	.01				
82	23	SB82C	OCTACHLORODIBENZOFURAN	0.000081	.00039				
82	23	SB82C	TCDD Equivalent	0.000003848	.00001				
82	23	SB82C	ZINC	119	130	2300	61000		
		SB82C Total						1.02E+00	3.97E-02
82	23	SB82D	CHROMIUM, TOTAL	14.2	24.8	39	1000		
82	23	SB82D	COPPER	20.9	33	310	8200		
82	23	SB82D	LEAD	13.9	43	200	1000		
82	23	SB82D	NICKEL	23.2	30	160	4100		
82	23	SB82D	OCTACHLORODIBENZO-p-DIOXIN	0.006168	.01				
82	23	SB82D	OCTACHLORODIBENZO-p-DIOXIN	0.006168	.01				

Table A-5
Noncarcinogenic Risk Calculations for Screening Sites
Units are mg/kg

Site	Parcel	Station ID	Parameter	Concentration	Background	Residential Land Use Criteria	Industrial Land Use Criteria	Residential PRC Noncarc. Risk Ratio	Industrial PRC Noncarc. Risk Ratio
82	23	SB82D	OCTACHLORODIBENZO-p-DIOXIN	0.007275	.01				
82	23	SB82D	OCTACHLORODIBENZO-p-DIOXIN	0.007275	.01				
82	23	SB82D	OCTACHLORODIBENZOFURAN	0.000479	.00039				
82	23	SB82D	OCTACHLORODIBENZOFURAN	0.000479	.00039				
82	23	SB82D	OCTACHLORODIBENZOFURAN	0.000697	.00039				
82	23	SB82D	OCTACHLORODIBENZOFURAN	0.000697	.00039				
82	23	SB82D	TCDD Equivalent	0.000006647	.00001				
82	23	SB82D	TCDD Equivalent	0.000006647	.00001				
82	23	SB82D	TCDD Equivalent	0.000007972	.00001				
82	23	SB82D	TCDD Equivalent	0.000007972	.00001				
82	23	SB82D	ZINC	79.1	130	2300	61000		
		SB82D Total						0.00E+00	0.00E+00
82	23	SS82A	CHROMIUM, TOTAL	13.7	24.8	39	1000		
82	23	SS82A	COPPER	17.3	33	310	8200		
82	23	SS82A	LEAD	19.2	43	200	1000		
82	23	SS82A	NICKEL	17.9	30	160	4100		
82	23	SS82A	OCTACHLORODIBENZO-p-DIOXIN	0.01025	.01				
82	23	SS82A	OCTACHLORODIBENZOFURAN	0.00001	.00039				
82	23	SS82A	TCDD Equivalent	0.00001026	.00001				
82	23	SS82A	ZINC	61.8	130	2300	61000		
		SS82A Total						0.00E+00	0.00E+00
82	23	SS82B	ALUMINUM	9930	24000	7800	100000		
82	23	SS82B	BARIUM	119	234	550	14000		
82	23	SS82B	BENZO(a,h,i)PERYLENE	0.054	.82	230	6100		
82	23	SS82B	CALCIUM	1850	5840	NA	NA		
82	23	SS82B	CHROMIUM, TOTAL	11.3	24.8	39	1000		
82	23	SS82B	COBALT	7.6	18.3	470	12000		
82	23	SS82B	COPPER	14.7	33	310	8200		
82	23	SS82B	FLUORANTHENE	0.066	1.6	310	8200		
82	23	SS82B	IRON	17100	37000	2300	61000		
82	23	SS82B	LEAD	24.3	43	200	1000		
82	23	SS82B	MAGNESIUM	2070	4600	NA	NA		
82	23	SS82B	MANGANESE	575	1300	180	4700		
82	23	SS82B	NICKEL	16.5	30	160	4100		
82	23	SS82B	POTASSIUM	899	2025	NA	NA		
82	23	SS82B	PYRENE	0.068	1.5	230	6100		
82	23	SS82B	SODIUM	94.5	NA	NA	NA		
82	23	SS82B	VANADIUM	22.3	48.4	55	1400		
82	23	SS82B	ZINC	60.7	130	2300	61000		
		SS82B Total						0.00E+00	0.00E+00
82	23	SS82C	CHROMIUM, TOTAL	25.9	24.8	39	1000	6.64E-01	2.59E-02
82	23	SS82C	COPPER	33.2	33	310	8200	1.07E-01	4.05E-03
82	23	SS82C	FLUORANTHENE	0.052	1.6	310	8200		
82	23	SS82C	LEAD	50.8	43	200	1000	2.54E-01	5.08E-02
82	23	SS82C	NICKEL	35.5	30	160	4100	2.22E-01	8.66E-03
82	23	SS82C	PYRENE	0.044	1.5	230	6100		
82	23	SS82C	ZINC	152	130	2300	61000	6.61E-02	2.49E-03
		SS82C Total						1.31E+00	9.19E-02
82	23	SS82D	ALUMINUM	9630	24000	7800	100000		
82	23	SS82D	BARIUM	101	234	550	14000		
82	23	SS82D	CALCIUM	1180	5840	NA	NA		
82	23	SS82D	CHROMIUM, TOTAL	19.4	24.8	39	1000		
82	23	SS82D	COBALT	4.4	18.3	470	12000		
82	23	SS82D	COPPER	9.9	33	310	8200		

Table A-5
Noncarcinogenic Risk Calculations for Screening Sites
 Units are mg/kg

Site	Parcel	Station ID	Parameter	Concentration	Background	Residential Land Use Criteria	Industrial Land Use Criteria	Residential PRE Noncarc. Risk Ratio	Industrial PRE Noncarc. Risk Ratio
82	23	SS82D	FLUORANTHENE	0.04	1.6	310	8200		
82	23	SS82D	IRON	15500	37000	2300	61000		
82	23	SS82D	LEAD	11.8	43	200	1000		
82	23	SS82D	MAGNESIUM	779	4600	NA	NA		
82	23	SS82D	MANGANESE	481	1300	180	4700		
82	23	SS82D	NICKEL	9.5	30	160	4100		
82	23	SS82D	POTASSIUM	526	2025	NA	NA		
82	23	SS82D	PYRENE	0.043	1.5	230	6100		
82	23	SS82D	SODIUM	129	NA	NA	NA		
82	23	SS82D	VANADIUM	25.9	48.4	55	1400		
82	23	SS82D	ZINC	25.7	130	2300	61000		
		SS82D Total						0.00E+00	0.00E+00
83	30	SB83A	ACETONE	0.007	NA	780	20000		
83	30	SB83A	CHROMIUM, TOTAL	22	24.8	39	1000		
83	30	SB83A	COPPER	10.2	33	310	8200		
83	30	SB83A	DI-n-BUTYL PHTHALATE	0.048	NA	780	20000		
83	30	SB83A	LEAD	14.7	43	200	1000		
83	30	SB83A	NICKEL	7.6	30	160	4100		
83	30	SB83A	ZINC	25.4	130	2300	61000		
		SB83A Total						0.00E+00	0.00E+00
83	30	SB83B	ACETONE	0.03	NA	780	20000		
83	30	SB83B	CHROMIUM, TOTAL	1750	24.8	39	1000	4.49E+01	1.75E+00
83	30	SB83B	COPPER	51	33	310	8200	1.65E-01	6.22E-03
83	30	SB83B	LEAD	2430	43	200	1000	1.22E+01	2.43E+00
83	30	SB83B	NICKEL	41	30	160	4100	2.56E-01	1.00E-02
83	30	SB83B	ZINC	3030	130	2300	61000	1.32E+00	4.97E-02
		SB83B Total						5.88E+01	4.25E+00
83	30	SS83A	CHROMIUM, TOTAL	131	24.8	39	1000	3.36E+00	1.31E-01
83	30	SS83A	COPPER	15.4	33	310	8200		
83	30	SS83A	LEAD	67.5	43	200	1000	3.38E-01	6.75E-02
83	30	SS83A	NICKEL	30.2	30	160	4100	1.89E-01	7.37E-03
83	30	SS83A	ZINC	193	130	2300	61000	8.39E-02	3.16E-03
		SS83A Total						3.97E+00	2.09E-01
83	30	SS83B	ALUMINUM	16700	24000	7800	100000		
83	30	SS83B	ANTIMONY	4.3	7	3.1	82		
83	30	SS83B	BARIUM	366	234	550	14000	6.65E-01	2.61E-02
83	30	SS83B	CALCIUM	19400	5840	NA	NA		
83	30	SS83B	CHROMIUM, TOTAL	1310	24.8	39	1000	3.36E+01	1.31E+00
83	30	SS83B	COBALT	16.2	18.3	470	12000		
83	30	SS83B	COPPER	39.4	33	310	8200	1.27E-01	4.80E-03
83	30	SS83B	IRON	54500	37000	2300	61000	2.37E+01	8.93E-01
83	30	SS83B	LEAD	1720	43	200	1000	8.60E+00	1.72E+00
83	30	SS83B	MAGNESIUM	1540	4600	NA	NA		
83	30	SS83B	MANGANESE	282	1300	180	4700		
83	30	SS83B	NICKEL	28.3	30	160	4100		
83	30	SS83B	POTASSIUM	2370	2025	NA	NA		
83	30	SS83B	SODIUM	1080	NA	NA	NA		
83	30	SS83B	VANADIUM	29.2	48.4	55	1400		
83	30	SS83B	ZINC	2630	130	2300	61000	1.14E+00	4.31E-02
		SS83B Total						6.78E+01	4.00E+00
83	30	SS83C	CHROMIUM, TOTAL	610	24.8	39	1000	1.56E+01	6.10E-01
83	30	SS83C	COPPER	17.8	33	310	8200		
83	30	SS83C	LEAD	2800	43	200	1000	1.40E+01	2.80E+00
83	30	SS83C	NICKEL	15.2	30	160	4100		

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Table A-5
Noncarcinogenic Risk Calculations for Screening Sites
Units are mg/kg

Site	Parcel	Station ID	Parameter	Concentration	Background	Residential Land Use Criteria	Industrial Land Use Criteria	Residential PCE Noncarc. Risk Ratio	Industrial PCE Noncarc. Risk Ratio
83	30	SS83C	ZINC	1000	130	2300	61000	4.35E-01	1.64E-02
		SS83C Total						3.01E+01	3.43E+00
84	27	SB84A	ACENAPHTHENE	0.071	NA	470	12000		
84	27	SB84A	ACETONE	0.072	NA	780	20000		
84	27	SB84A	ANTHRACENE	0.17	.096	2300	61000	7.39E-05	2.79E-06
84	27	SB84A	BENZO(a,h,i)PERYLENE	0.047	.82	230	6100		
84	27	SB84A	CHROMIUM, TOTAL	25.5	24.8	39	1000	6.54E-01	2.55E-02
84	27	SB84A	COPPER	32.5	33	310	8200		
84	27	SB84A	FLUORANTHENE	1.1	1.6	310	8200		
84	27	SB84A	FLUORENE	0.079	NA	310	8200		
84	27	SB84A	LEAD	21.5	43	200	1000		
84	27	SB84A	METHYL ETHYL KETONE (2-BUTANONE)	0.018	.002	4700	100000	3.83E-06	1.80E-07
84	27	SB84A	NICKEL	36.6	30	160	4100	2.30E-01	8.98E-03
84	27	SB84A	PHENANTHRENE	0.98	.61	2300	61000	4.26E-04	1.61E-05
84	27	SB84A	PYRENE	1	1.5	230	6100		
84	27	SB84A	ZINC	108	130	2300	61000		
		SB84A Total						8.84E-01	3.45E-02
84	27	SB84B	ACETONE	0.013	NA	780	20000		
84	27	SB84B	ANTHRACENE	0.1	.096	2300	61000	4.35E-05	1.64E-06
84	27	SB84B	BENZO(a,h,i)PERYLENE	0.31	.82	230	6100		
84	27	SB84B	CHROMIUM, TOTAL	145	24.8	39	1000	3.72E+00	1.45E-01
84	27	SB84B	COPPER	25.6	33	310	8200		
84	27	SB84B	FLUORANTHENE	1.1	1.6	310	8200		
84	27	SB84B	LEAD	72.8	43	200	1000	3.64E-01	7.28E-02
84	27	SB84B	NICKEL	21.3	30	160	4100		
84	27	SB84B	PHENANTHRENE	0.52	.61	2300	61000		
84	27	SB84B	PYRENE	0.82	1.5	230	6100		
84	27	SB84B	ZINC	95.7	130	2300	61000		
		SB84B Total						4.08E+00	2.18E-01
84	27	SB84C	ACETONE	0.031	NA	780	20000		
84	27	SB84C	BENZO(a,h,i)PERYLENE	0.18	.82	230	6100		
84	27	SB84C	CHROMIUM, TOTAL	41.3	24.8	39	1000	1.06E+00	4.13E-02
84	27	SB84C	COPPER	16.4	33	310	8200		
84	27	SB84C	FLUORANTHENE	0.71	1.6	310	8200		
84	27	SB84C	LEAD	104	43	200	1000	5.20E-01	1.04E-01
84	27	SB84C	NICKEL	16.2	30	160	4100		
84	27	SB84C	PHENANTHRENE	0.42	.61	2300	61000		
84	27	SB84C	PYRENE	0.66	1.5	230	6100		
84	27	SB84C	SELENIUM	1.4	.81	39	1000	3.59E-02	1.40E-03
84	27	SB84C	ZINC	115	130	2300	61000		
		SB84C Total						1.61E+00	1.47E-01
84	27	SB84D	ACETONE	0.007	NA	780	20000		
84	27	SB84D	CHROMIUM, TOTAL	49.3	24.8	39	1000	1.26E+00	4.93E-02
84	27	SB84D	COPPER	15.4	33	310	8200		
84	27	SB84D	FLUORANTHENE	0.099	1.6	310	8200		
84	27	SB84D	LEAD	81	43	200	1000	4.05E-01	8.10E-02
84	27	SB84D	NICKEL	9.9	30	160	4100		
84	27	SB84D	PHENANTHRENE	0.051	.61	2300	61000		
84	27	SB84D	PYRENE	0.094	1.5	230	6100		
84	27	SB84D	ZINC	56.9	130	2300	61000		
		SB84D Total						1.67E+00	1.30E-01
84	27	SS84A	ANTIMONY	3.1	7	3.1	82		
84	27	SS84A	CHROMIUM, TOTAL	14.5	24.8	39	1000		
84	27	SS84A	COPPER	17.1	33	310	8200		

Table A-5
Noncarcinogenic Risk Calculations for Screening Sites
 Units are mg/kg

Site	Parcel	Station ID	Parameter	Concentration	Background	Residential Land Use Criteria	Industrial Land Use Criteria	Residential PPE Noncarc. Risk Ratio	Industrial PPE Noncarc. Risk Ratio
84	27	SS84A	FLUORANTHENE	0.056	1.6	310	8200		
84	27	SS84A	LEAD	12.5	43	200	1000		
84	27	SS84A	NICKEL	18.3	30	160	4100		
84	27	SS84A	PYRENE	0.048	1.5	230	6100		
84	27	SS84A	ZINC	59.7	130	2300	61000		
		SS84A Total						0.00E+00	0.00E+00
84	27	SS84B	ALUMINUM	13600	24000	7800	100000		
84	27	SS84B	ANTIMONY	1.9	7	3.1	82		
84	27	SS84B	BARIUM	121	234	550	14000		
84	27	SS84B	CALCIUM	10300	5840	NA	NA		
84	27	SS84B	CHROMIUM, TOTAL	13.2	24.8	39	1000		
84	27	SS84B	COBALT	8.7	18.3	470	12000		
84	27	SS84B	COPPER	15.4	33	310	8200		
84	27	SS84B	IRON	20800	37000	2300	61000		
84	27	SS84B	LEAD	12	43	200	1000		
84	27	SS84B	MAGNESIUM	2910	4600	NA	NA		
84	27	SS84B	MANGANESE	634	1300	180	4700		
84	27	SS84B	NICKEL	16.8	30	160	4100		
84	27	SS84B	POTASSIUM	1050	2025	NA	NA		
84	27	SS84B	VANADIUM	27.5	48.4	55	1400		
84	27	SS84B	ZINC	57.1	130	2300	61000		
		SS84B Total						0.00E+00	0.00E+00
84	27	SS84C	ACENAPHTHENE	0.82	NA	470	12000		
84	27	SS84C	ACETONE	0.005	NA	780	20000		
84	27	SS84C	ANTHRACENE	1.5	0.96	2300	61000	6.52E-04	2.46E-05
84	27	SS84C	BENZO(a,h,i)PERYLENE	2	82	230	6100	8.70E-03	3.28E-04
84	27	SS84C	CHROMIUM, TOTAL	56.4	24.8	39	1000	1.45E+00	5.64E-02
84	27	SS84C	COPPER	36.6	33	310	8200	1.18E-01	4.46E-03
84	27	SS84C	FLUORANTHENE	8.2	1.6	310	8200	2.65E-02	1.00E-03
84	27	SS84C	FLUORENE	0.56	NA	310	8200		
84	27	SS84C	LEAD	45.5	43	200	1000	2.28E-01	4.55E-02
84	27	SS84C	NICKEL	37.2	30	160	4100	2.33E-01	9.07E-03
84	27	SS84C	PHENANTHRENE	5.1	61	2300	61000	2.22E-03	8.36E-05
84	27	SS84C	PYRENE	5.8	1.5	230	6100	2.52E-02	9.51E-04
84	27	SS84C	ZINC	159	130	2300	61000	6.91E-02	2.61E-03
		SS84C Total						2.16E+00	1.20E-01
84	27	SS84D	ACENAPHTHENE	0.047	NA	470	12000		
84	27	SS84D	ACETONE	0.006	NA	780	20000		
84	27	SS84D	ANTHRACENE	0.1	0.96	2300	61000	4.35E-05	1.64E-06
84	27	SS84D	BENZO(a,h,i)PERYLENE	0.3	82	230	6100		
84	27	SS84D	CHROMIUM, TOTAL	24.5	24.8	39	1000		
84	27	SS84D	COPPER	25.8	33	310	8200		
84	27	SS84D	FLUORANTHENE	1	1.6	310	8200		
84	27	SS84D	FLUORENE	0.041	NA	310	8200		
84	27	SS84D	LEAD	26.7	43	200	1000		
84	27	SS84D	NICKEL	29.7	30	160	4100		
84	27	SS84D	PHENANTHRENE	0.62	61	2300	61000	2.70E-04	1.02E-05
84	27	SS84D	PYRENE	0.68	1.5	230	6100		
84	27	SS84D	ZINC	107	130	2300	61000		
		SS84D Total						3.13E-04	1.18E-05
84	27	SS84E	BENZO(a,h,i)PERYLENE	0.15	82	230	6100		
84	27	SS84E	CHROMIUM, TOTAL	28.9	24.8	39	1000	7.41E-01	2.89E-02
84	27	SS84E	COPPER	16.8	33	310	8200		
84	27	SS84E	FLUORANTHENE	0.4	1.6	310	8200		

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Table A-5
Noncarcinogenic Risk Calculations for Screening Sites
 Units are mg/kg

Site	Parcel	Station ID	Parameter	Concen- tration	Back- ground	Residential Land Use Criteria	Industrial Land Use Criteria	Residential PEE Noncarc. Risk Ratio	Industrial PEE Noncarc. Risk Ratio
84	27	SS84E	LEAD	60.8	43	200	1000	3.04E-01	6.08E-02
84	27	SS84E	NICKEL	13.7	30	160	4100		
84	27	SS84E	PHENANTHRENE	0.19	.61	2300	61000		
84	27	SS84E	PYRENE	0.31	1.5	230	6100		
84	27	SS84E	ZINC	65.5	130	2300	61000		
		SS84E Total						1.05E+00	8.97E-02
84	27	SS84F	ACETONE	0.005	NA	780	20000		
84	27	SS84F	BENZO(a,h,i)PERYLENE	0.052	.82	230	6100		
84	27	SS84F	CHROMIUM, TOTAL	37.4	24.8	39	1000	9.59E-01	3.74E-02
84	27	SS84F	COPPER	17.4	33	310	8200		
84	27	SS84F	FLUORANTHENE	0.19	1.6	310	8200		
84	27	SS84F	LEAD	31	43	200	1000		
84	27	SS84F	NICKEL	20.2	30	160	4100		
84	27	SS84F	PHENANTHRENE	0.14	.61	2300	61000		
84	27	SS84F	PYRENE	0.13	1.5	230	6100		
84	27	SS84F	ZINC	67.8	130	2300	61000		
		SS84F Total						9.59E-01	3.74E-02
89	28	SS89A	ALUMINUM	3240	24000	7800	100000		
89	28	SS89A	BARIUM	30.5	234	550	14000		
89	28	SS89A	CALCIUM	164000	5840	NA	NA		
89	28	SS89A	CHROMIUM, TOTAL	14.5	24.8	39	1000		
89	28	SS89A	COBALT	2.7	18.3	470	12000		
89	28	SS89A	IRON	8140	37000	2300	61000		
89	28	SS89A	LEAD	24.6	43	200	1000		
89	28	SS89A	MAGNESIUM	4760	4600	NA	NA		
89	28	SS89A	MANGANESE	154	1300	180	4700		
89	28	SS89A	NICKEL	9.3	30	160	4100		
89	28	SS89A	SELENIUM	3.8	.81	39	1000	9.74E-02	3.80E-03
89	28	SS89A	VANADIUM	11.2	48.4	55	1400		
89	28	SS89A	ZINC	293	130	2300	61000	1.27E-01	4.80E-03
		SS89A Total						2.25E-01	8.60E-03
89	28	SS89B	CHROMIUM, TOTAL	43.8	24.8	39	1000	1.12E+00	4.38E-02
89	28	SS89B	COPPER	23.1	33	310	8200		
89	28	SS89B	LEAD	139	43	200	1000	6.95E-01	1.39E-01
89	28	SS89B	NICKEL	12.9	30	160	4100		
89	28	SS89B	ZINC	1500	130	2300	61000	6.52E-01	2.46E-02
		SS89B Total						2.47E+00	2.07E-01
89	28	SS89C	CHROMIUM, TOTAL	56.1	24.8	39	1000	1.44E+00	5.61E-02
89	28	SS89C	COPPER	16.2	33	310	8200		
89	28	SS89C	LEAD	227	43	200	1000	1.14E+00	2.27E-01
89	28	SS89C	NICKEL	19.1	30	160	4100		
89	28	SS89C	ZINC	226	130	2300	61000	9.83E-02	3.70E-03
		SS89C Total						2.67E+00	2.87E-01
89	28	SS89D	CHROMIUM, TOTAL	15.5	24.8	39	1000		
89	28	SS89D	COPPER	8.1	33	310	8200		
89	28	SS89D	LEAD	14.9	43	200	1000		
89	28	SS89D	NICKEL	9.4	30	160	4100		
89	28	SS89D	ZINC	527	130	2300	61000	2.29E-01	8.64E-03
		SS89D Total						2.29E-01	8.64E-03
89	28	SS89F	CHROMIUM, TOTAL	67.5	24.8	39	1000	1.73E+00	6.75E-02
89	28	SS89F	COPPER	34.2	33	310	8200	1.10E-01	4.17E-03
89	28	SS89F	LEAD	237	43	200	1000	1.19E+00	2.37E-01
89	28	SS89F	NICKEL	27.9	30	160	4100		
89	28	SS89F	ZINC	388	130	2300	61000	1.69E-01	6.36E-03

Table A-5
Noncarcinogenic Risk Calculations for Screening Sites
Units are mg/kg

Site	Parcel	Station ID	Parameter	Concen- tration	Back- ground	Residential Land Use Criteria	Industrial Land Use Criteria	Residential PPE Noncarc. Risk Ratio	Industrial PPE Noncarc. Risk Ratio
		SS89F Total						3.19E+00	3.15E-01
89	28	SS89H	CHROMIUM, TOTAL	443	24.8	39	1000	1.14E+01	4.43E-01
89	28	SS89H	COPPER	73.2	33	310	8200	2.36E-01	8.93E-03
89	28	SS89H	LEAD	2470	43	200	1000	1.24E+01	2.47E+00
89	28	SS89H	NICKEL	38.6	30	160	4100	2.41E-01	9.41E-03
89	28	SS89H	ZINC	666	130	2300	61000	2.90E-01	1.09E-02
		SS89H Total						2.45E+01	2.94E+00
89	28	SS89I	CHROMIUM, TOTAL	29	24.8	39	1000	7.44E-01	2.90E-02
89	28	SS89I	COPPER	29.9	33	310	8200		
89	28	SS89I	LEAD	30.2	43	200	1000		
89	28	SS89I	NICKEL	35.4	30	160	4100	2.21E-01	8.63E-03
89	28	SS89I	ZINC	147	130	2300	61000	6.39E-02	2.41E-03
		SS89I Total						1.03E+00	4.00E-02
89	28	SS89J	CHROMIUM, TOTAL	539	24.8	39	1000	1.38E+01	5.39E-01
89	28	SS89J	COPPER	88.6	33	310	8200	2.86E-01	1.08E-02
89	28	SS89J	LEAD	2250	43	200	1000	1.13E+01	2.25E+00
89	28	SS89J	NICKEL	45.6	30	160	4100	2.85E-01	1.11E-02
89	28	SS89J	ZINC	1460	130	2300	61000	6.35E-01	2.39E-02

Table A-6
Noncarcinogenic Risk Calculations for RI Sites
Units are mg/kg

Site	Parcel	Station ID	Parameter	Concentration	Back-ground	Residential Land Use Criteria	Industrial Land Use Criteria	Residential Risk Noncarc. Risk Ratio	Industrial Risk Noncarc. Risk Ratio
27	25	SB27A	ACETONE	0.022	NA	780	20000		
27	25	SB27A	ACETONE	0.022	NA	780	20000		
27	25	SB27A	ACETONE	0.03	NA	780	20000		
27	25	SB27A	ACETONE	0.03	NA	780	20000		
27	25	SB27A	CHROMIUM, TOTAL	13.6	26	39	1000		
27	25	SB27A	CHROMIUM, TOTAL	13.6	26	39	1000		
27	25	SB27A	CHROMIUM, TOTAL	13.8	24.8	39	1000		
27	25	SB27A	CHROMIUM, TOTAL	13.8	24.8	39	1000		
27	25	SB27A	COPPER	8.2	33	310	8200		
27	25	SB27A	COPPER	8.2	33	310	8200		
27	25	SB27A	COPPER	18.8	33	310	8200		
27	25	SB27A	COPPER	18.8	33	310	8200		
27	25	SB27A	NICKEL	6.6	30	160	4100		
27	25	SB27A	NICKEL	6.6	30	160	4100		
27	25	SB27A	NICKEL	19.2	37	160	4100		
27	25	SB27A	NICKEL	19.2	37	160	4100		
27	25	SB27A	ZINC	25.4	130	2300	61000		
27	25	SB27A	ZINC	25.4	130	2300	61000		
27	25	SB27A	ZINC	74.8	110	2300	61000		
27	25	SB27A	ZINC	74.8	110	2300	61000		
		SB27A						0.00E+00	0.00E+00
27	25	SB27B	ACETONE	0.023	NA	780	20000		
27	25	SB27B	ACETONE	0.023	NA	780	20000		
27	25	SB27B	ACETONE	0.028	NA	780	20000		
27	25	SB27B	ACETONE	0.028	NA	780	20000		
27	25	SB27B	CHROMIUM, TOTAL	12.5	26	39	1000		
27	25	SB27B	CHROMIUM, TOTAL	12.5	26	39	1000		
27	25	SB27B	CHROMIUM, TOTAL	15.8	24.8	39	1000		
27	25	SB27B	CHROMIUM, TOTAL	15.8	24.8	39	1000		
27	25	SB27B	COPPER	6.1	33	310	8200		
27	25	SB27B	COPPER	6.1	33	310	8200		
27	25	SB27B	COPPER	18.9	33	310	8200		
27	25	SB27B	COPPER	18.9	33	310	8200		
27	25	SB27B	NICKEL	4.4	30	160	4100		
27	25	SB27B	NICKEL	4.4	30	160	4100		
27	25	SB27B	NICKEL	17.3	37	160	4100		
27	25	SB27B	NICKEL	17.3	37	160	4100		
27	25	SB27B	ZINC	29.2	130	2300	61000		
27	25	SB27B	ZINC	29.2	130	2300	61000		
27	25	SB27B	ZINC	64.8	110	2300	61000		
27	25	SB27B	ZINC	64.8	110	2300	61000		
		SB27B						0.00E+00	0.00E+00
27	25	SB27C	ACETONE	0.023	NA	780	20000		
27	25	SB27C	ACETONE	0.023	NA	780	20000		
27	25	SB27C	ACETONE	0.03	NA	780	20000		
27	25	SB27C	ACETONE	0.03	NA	780	20000		
27	25	SB27C	CHROMIUM, TOTAL	10.8	24.8	39	1000		
27	25	SB27C	CHROMIUM, TOTAL	10.8	24.8	39	1000		
27	25	SB27C	CHROMIUM, TOTAL	12.3	26	39	1000		
27	25	SB27C	CHROMIUM, TOTAL	12.3	26	39	1000		
27	25	SB27C	COPPER	5.4	33	310	8200		
27	25	SB27C	COPPER	5.4	33	310	8200		
27	25	SB27C	COPPER	17.4	33	310	8200		
27	25	SB27C	COPPER	17.4	33	310	8200		
27	25	SB27C	FLUORANTHENE	0.12	1.6	310	8200		

Table A-6
Noncarcinogenic Risk Calculations for RI Sites
Units are mg/kg

Site	Parcel	Station ID	Parameter	Concentration	Back-ground	Residential Land Use Criteria	Industrial Land Use Criteria	Residential Noncarc. Risk Ratio	Industrial Noncarc. Risk Ratio
27	25	SB27C	FLUORANTHENE	0.12	1.6	310	8200		
27	25	SB27C	FLUORENE	0.14	NA	310	8200		
27	25	SB27C	FLUORENE	0.14	NA	310	8200		
27	25	SB27C	NICKEL	3.3	30	160	4100		
27	25	SB27C	NICKEL	3.3	30	160	4100		
27	25	SB27C	NICKEL	18.4	37	160	4100		
27	25	SB27C	NICKEL	18.4	37	160	4100		
27	25	SB27C	PHENANTHRENE	0.16	.61	2300	61000		
27	25	SB27C	PHENANTHRENE	0.16	.61	2300	61000		
27	25	SB27C	PYRENE	0.1	1.5	230	6100		
27	25	SB27C	PYRENE	0.1	1.5	230	6100		
27	25	SB27C	ZINC	40.2	130	2300	61000		
27	25	SB27C	ZINC	40.2	130	2300	61000		
27	25	SB27C	ZINC	58.1	110	2300	61000		
27	25	SB27C	ZINC	58.1	110	2300	61000		
		SB27C						0.00E+00	0.00E+00
27	25	SB27D	ACETONE	0.02	NA	780	20000		
27	25	SB27D	ACETONE	0.02	NA	780	20000		
27	25	SB27D	ACETONE	0.026	NA	780	20000		
27	25	SB27D	ACETONE	0.026	NA	780	20000		
27	25	SB27D	CHROMIUM, TOTAL	6.8	24.8	39	1000		
27	25	SB27D	CHROMIUM, TOTAL	6.8	24.8	39	1000		
27	25	SB27D	CHROMIUM, TOTAL	12.8	26	39	1000		
27	25	SB27D	CHROMIUM, TOTAL	12.8	26	39	1000		
27	25	SB27D	COPPER	4.2	33	310	8200		
27	25	SB27D	COPPER	4.2	33	310	8200		
27	25	SB27D	COPPER	15.3	33	310	8200		
27	25	SB27D	COPPER	15.3	33	310	8200		
27	25	SB27D	NICKEL	3.2	30	160	4100		
27	25	SB27D	NICKEL	3.2	30	160	4100		
27	25	SB27D	NICKEL	17.2	37	160	4100		
27	25	SB27D	NICKEL	17.2	37	160	4100		
27	25	SB27D	ZINC	23.1	130	2300	61000		
27	25	SB27D	ZINC	23.1	130	2300	61000		
27	25	SB27D	ZINC	78.2	110	2300	61000		
27	25	SB27D	ZINC	78.2	110	2300	61000		
		SB27D						0.00E+00	0.00E+00
27	25	SB27E	ACETONE	0.006	NA	780	20000		
27	25	SB27E	ACETONE	0.006	NA	780	20000		
27	25	SB27E	CHROMIUM, TOTAL	12.5	26	39	1000		
27	25	SB27E	CHROMIUM, TOTAL	12.5	26	39	1000		
27	25	SB27E	CHROMIUM, TOTAL	12.7	24.8	39	1000		
27	25	SB27E	CHROMIUM, TOTAL	12.7	24.8	39	1000		
27	25	SB27E	COPPER	7.3	33	310	8200		
27	25	SB27E	COPPER	7.3	33	310	8200		
27	25	SB27E	COPPER	16.1	33	310	8200		
27	25	SB27E	COPPER	16.1	33	310	8200		
27	25	SB27E	NICKEL	4.3	30	160	4100		
27	25	SB27E	NICKEL	4.3	30	160	4100		
27	25	SB27E	NICKEL	17.2	37	160	4100		
27	25	SB27E	NICKEL	17.2	37	160	4100		
27	25	SB27E	ZINC	20.9	130	2300	61000		
27	25	SB27E	ZINC	20.9	130	2300	61000		
27	25	SB27E	ZINC	61.9	110	2300	61000		
27	25	SB27E	ZINC	61.9	110	2300	61000		

Table A-5
Noncarcinogenic Risk Calculations for RI Sites
 Units are mg/kg

Site	Parcel	Station ID	Parameter	Concentration	Back-ground	Residential Land Use Criteria	Industrial Land Use Criteria	Residential PRE Noncarc. Risk Ratio	Industrial PRE Noncarc. Risk Ratio
		SB27E						0.00E+00	0.00E+00
27	25	SS27F	ACENAPHTHENE	1.7	NA	470	12000		
27	25	SS27F	ACENAPHTHENE	1.7	NA	470	12000		
27	25	SS27F	ACETONE	0.004	NA	780	20000		
27	25	SS27F	ACETONE	0.004	NA	780	20000		
27	25	SS27F	ACETONE	0.029	NA	780	20000		
27	25	SS27F	ACETONE	0.029	NA	780	20000		
27	25	SS27F	ANTHRACENE	1.8	.096	2300	61000	7.83E-04	2.95E-05
27	25	SS27F	ANTHRACENE	1.8	.096	2300	61000	7.83E-04	2.95E-05
27	25	SS27F	BENZO(a,h,i)PERYLENE	4.9	.82	230	6100	2.13E-02	8.03E-04
27	25	SS27F	BENZO(a,h,i)PERYLENE	4.9	.82	230	6100	2.13E-02	8.03E-04
27	25	SS27F	CHROMIUM, TOTAL	13.5	26	39	1000		
27	25	SS27F	CHROMIUM, TOTAL	13.5	26	39	1000		
27	25	SS27F	CHROMIUM, TOTAL	27	24.8	39	1000	6.92E-01	2.70E-02
27	25	SS27F	CHROMIUM, TOTAL	27	24.8	39	1000	6.92E-01	2.70E-02
27	25	SS27F	COPPER	15.9	33	310	8200		
27	25	SS27F	COPPER	15.9	33	310	8200		
27	25	SS27F	COPPER	34.8	33	310	8200	1.12E-01	4.24E-03
27	25	SS27F	COPPER	34.8	33	310	8200	1.12E-01	4.24E-03
27	25	SS27F	FLUORANTHENE	14	1.6	310	8200	4.52E-02	1.71E-03
27	25	SS27F	FLUORANTHENE	14	1.6	310	8200	4.52E-02	1.71E-03
27	25	SS27F	FLUORENE	2	NA	310	8200		
27	25	SS27F	FLUORENE	2	NA	310	8200		
27	25	SS27F	NICKEL	9	30	160	4100		
27	25	SS27F	NICKEL	9	30	160	4100		
27	25	SS27F	NICKEL	16.7	37	160	4100		
27	25	SS27F	NICKEL	16.7	37	160	4100		
27	25	SS27F	PHENANTHRENE	8.2	.61	2300	61000	3.57E-03	1.34E-04
27	25	SS27F	PHENANTHRENE	8.2	.61	2300	61000	3.57E-03	1.34E-04
27	25	SS27F	PYRENE	12	1.5	230	6100	5.22E-02	1.97E-03
27	25	SS27F	PYRENE	12	1.5	230	6100	5.22E-02	1.97E-03
27	25	SS27F	ZINC	59.4	110	2300	61000		
27	25	SS27F	ZINC	59.4	110	2300	61000		
27	25	SS27F	ZINC	412	130	2300	61000	1.79E-01	6.75E-03
27	25	SS27F	ZINC	412	130	2300	61000	1.79E-01	6.75E-03
		SS27F						2.21E+00	8.53E-02
27	25	SS27G	ACETONE	0.011	NA	780	20000		
27	25	SS27G	ACETONE	0.011	NA	780	20000		
27	25	SS27G	ANTIMONY	27		3.1	82		
27	25	SS27G	ANTIMONY	27		3.1	82		
27	25	SS27G	BENZO(a,h,i)PERYLENE	0.61	.82	230	6100		
27	25	SS27G	BENZO(a,h,i)PERYLENE	0.61	.82	230	6100		
27	25	SS27G	CHROMIUM, TOTAL	13.2	26	39	1000		
27	25	SS27G	CHROMIUM, TOTAL	13.2	26	39	1000		
27	25	SS27G	CHROMIUM, TOTAL	13.6	24.8	39	1000		
27	25	SS27G	CHROMIUM, TOTAL	13.6	24.8	39	1000		
27	25	SS27G	COPPER	19.3	33	310	8200		
27	25	SS27G	COPPER	19.3	33	310	8200		
27	25	SS27G	COPPER	53.6	33	310	8200	1.73E-01	6.54E-03
27	25	SS27G	COPPER	53.6	33	310	8200	1.73E-01	6.54E-03
27	25	SS27G	FLUORANTHENE	0.93	1.6	310	8200		
27	25	SS27G	FLUORANTHENE	0.93	1.6	310	8200		
27	25	SS27G	NICKEL	8.5	30	160	4100		
27	25	SS27G	NICKEL	8.5	30	160	4100		
27	25	SS27G	NICKEL	16.9	37	160	4100		

Table A-6
Noncarcinogenic Risk Calculations for RI Sites
Units are mg/kg

Site	Parcel	Station ID	Parameter	Concentration	Back-ground	Residential Land Use Criteria	Industrial Land Use Criteria	Residential PPE Noncarc. Risk Ratio	Industrial PPE Noncarc. Risk Ratio
27	25	SS27G	NICKEL	16.9	37	160	4100		
27	25	SS27G	PHENANTHRENE	0.6	.61	2300	61000		
27	25	SS27G	PHENANTHRENE	0.6	.61	2300	61000		
27	25	SS27G	PYRENE	0.73	1.5	230	6100		
27	25	SS27G	PYRENE	0.73	1.5	230	6100		
27	25	SS27G	ZINC	44.3	130	2300	61000		
27	25	SS27G	ZINC	44.3	130	2300	61000		
27	25	SS27G	ZINC	58.3	110	2300	61000		
27	25	SS27G	ZINC	58.3	110	2300	61000		
		SS27G						3.46E-01	1.31E-02
27	25	SS27H	ACENAPHTHENE	0.73	NA	470	12000		
27	25	SS27H	ACENAPHTHENE	0.73	NA	470	12000		
27	25	SS27H	ACENAPHTHYLENE	0.088	.19				
27	25	SS27H	ACENAPHTHYLENE	0.088	.19				
27	25	SS27H	ACETONE	0.008	NA	780	20000		
27	25	SS27H	ACETONE	0.008	NA	780	20000		
27	25	SS27H	ALUMINUM	11100	24000	7800	100000		
27	25	SS27H	ANTHRACENE	0.41	.096	2300	61000	1.78E-04	6.72E-06
27	25	SS27H	ANTHRACENE	0.41	.096	2300	61000	1.78E-04	6.72E-06
27	25	SS27H	ANTIMONY	1.7	7	3.1	82		
27	25	SS27H	ANTIMONY	1.7	7	3.1	82		
27	25	SS27H	BARIUM	80.2	234	550	14000		
27	25	SS27H	BENZO(a,h,i)PERYLENE	0.69	.82	230	6100		
27	25	SS27H	BENZO(a,h,i)PERYLENE	0.69	.82	230	6100		
27	25	SS27H	CALCIUM	4970	5840	NA	NA		
27	25	SS27H	CHROMIUM, TOTAL	10	26	39	1000		
27	25	SS27H	CHROMIUM, TOTAL	10	26	39	1000		
27	25	SS27H	CHROMIUM, TOTAL	18.9	24.8	39	1000		
27	25	SS27H	CHROMIUM, TOTAL	18.9	24.8	39	1000		
27	25	SS27H	COBALT	5	18.3	470	12000		
27	25	SS27H	COPPER	16.7	33	310	8200		
27	25	SS27H	COPPER	16.7	33	310	8200		
27	25	SS27H	COPPER	41.1	33	310	8200	1.33E-01	5.01E-03
27	25	SS27H	COPPER	41.1	33	310	8200	1.33E-01	5.01E-03
27	25	SS27H	DIBENZOFURAN	0.49	NA	31	820		
27	25	SS27H	FLUORANTHENE	1.5	1.6	310	8200		
27	25	SS27H	FLUORANTHENE	1.5	1.6	310	8200		
27	25	SS27H	FLUORENE	0.59	NA	310	8200		
27	25	SS27H	FLUORENE	0.59	NA	310	8200		
27	25	SS27H	IRON	44500	37000	2300	61000	1.93E+01	7.30E-01
27	25	SS27H	MAGNESIUM	929	4600	NA	NA		
27	25	SS27H	MANGANESE	150	1300	180	4700		
27	25	SS27H	NAPHTHALENE	0.085	NA	310	8200		
27	25	SS27H	NAPHTHALENE	0.085	NA	310	8200		
27	25	SS27H	NICKEL	14.5	30	160	4100		
27	25	SS27H	NICKEL	14.5	30	160	4100		
27	25	SS27H	NICKEL	17.9	37	160	4100		
27	25	SS27H	NICKEL	17.9	37	160	4100		
27	25	SS27H	PHENANTHRENE	1.6	.61	2300	61000	6.96E-04	2.62E-05
27	25	SS27H	PHENANTHRENE	1.6	.61	2300	61000	6.96E-04	2.62E-05
27	25	SS27H	POTASSIUM	2220	2025	NA	NA		
27	25	SS27H	PYRENE	1.1	1.5	230	6100		
27	25	SS27H	PYRENE	1.1	1.5	230	6100		
27	25	SS27H	VANADIUM	76.7	48.4	55	1400	1.39E+00	5.48E-02
27	25	SS27H	ZINC	56.6	110	2300	61000		

Table A-6
Noncarcinogenic Risk Calculations for RI Sites
Units are mg/kg

Site	Parcel	Station ID	Parameter	Concen-tration	Back-ground	Residential Land Use Critic	Industrial Land Use Critic	Residential PRE Noncarc Risk Ratio	Industrial PRE Noncarc. Risk Ratio
27	25	SS27H	ZINC	55.6	110	2300	61000		
27	25	SS27H	ZINC	65.8	130	2300	61000		
27	25	SS27H	ZINC	65.8	130	2300	61000		
		SS27H						2.10E+01	7.94E-01
27	25	SS27I	ACETONE	0.004	NA	780	20000		
27	25	SS27I	ACETONE	0.004	NA	780	20000		
27	25	SS27I	ACETONE	0.005	NA	780	20000		
27	25	SS27I	ACETONE	0.005	NA	780	20000		
27	25	SS27I	CHROMIUM, TOTAL	11.6	24.8	39	1000		
27	25	SS27I	CHROMIUM, TOTAL	11.6	24.8	39	1000		
27	25	SS27I	CHROMIUM, TOTAL	12.5	26	39	1000		
27	25	SS27I	CHROMIUM, TOTAL	12.5	26	39	1000		
27	25	SS27I	COPPER	15	33	310	8200		
27	25	SS27I	COPPER	15	33	310	8200		
27	25	SS27I	COPPER	17.9	33	310	8200		
27	25	SS27I	COPPER	17.9	33	310	8200		
27	25	SS27I	NICKEL	16.4	30	160	4100		
27	25	SS27I	NICKEL	16.4	30	160	4100		
27	25	SS27I	NICKEL	18.3	37	160	4100		
27	25	SS27I	NICKEL	18.3	37	160	4100		
27	25	SS27I	ZINC	47.8	110	2300	61000		
27	25	SS27I	ZINC	47.8	110	2300	61000		
27	25	SS27I	ZINC	62.6	130	2300	61000		
27	25	SS27I	ZINC	62.6	130	2300	61000		
		SS27I						0.00E+00	0.00E+00
27	25	SS27J	ACENAPHTHENE	0.58	NA	470	12000		
27	25	SS27J	ACENAPHTHENE	0.58	NA	470	12000		
27	25	SS27J	ACETONE	0.003	NA	780	20000		
27	25	SS27J	ACETONE	0.003	NA	780	20000		
27	25	SS27J	ACETONE	0.006	NA	780	20000		
27	25	SS27J	ACETONE	0.006	NA	780	20000		
27	25	SS27J	ANTHRACENE	0.58	0.96	2300	61000	2.52E-04	9.51E-06
27	25	SS27J	ANTHRACENE	0.58	0.96	2300	61000	2.52E-04	9.51E-06
27	25	SS27J	BENZO(a,h,i)PERYLENE	1.1	.82	230	6100	4.78E-03	1.80E-04
27	25	SS27J	BENZO(a,h,i)PERYLENE	1.1	.82	230	6100	4.78E-03	1.80E-04
27	25	SS27J	CHROMIUM, TOTAL	9.9	24.8	39	1000		
27	25	SS27J	CHROMIUM, TOTAL	9.9	24.8	39	1000		
27	25	SS27J	CHROMIUM, TOTAL	13.1	26	39	1000		
27	25	SS27J	CHROMIUM, TOTAL	13.1	26	39	1000		
27	25	SS27J	COPPER	4.1	33	310	8200		
27	25	SS27J	COPPER	4.1	33	310	8200		
27	25	SS27J	COPPER	16	33	310	8200		
27	25	SS27J	COPPER	16	33	310	8200		
27	25	SS27J	FLUORANTHENE	3.6	1.6	310	8200	1.16E-02	4.39E-04
27	25	SS27J	FLUORANTHENE	3.6	1.6	310	8200	1.16E-02	4.39E-04
27	25	SS27J	FLUORENE	0.66	NA	310	8200		
27	25	SS27J	FLUORENE	0.66	NA	310	8200		
27	25	SS27J	NICKEL	5.5	30	160	4100		
27	25	SS27J	NICKEL	5.5	30	160	4100		
27	25	SS27J	NICKEL	17.3	37	160	4100		
27	25	SS27J	NICKEL	17.3	37	160	4100		
27	25	SS27J	PHENANTHRENE	2.8	.61	2300	61000	1.22E-03	4.59E-05
27	25	SS27J	PHENANTHRENE	2.8	.61	2300	61000	1.22E-03	4.59E-05
27	25	SS27J	PYRENE	2.7	1.5	230	6100	1.17E-02	4.43E-04
27	25	SS27J	PYRENE	2.7	1.5	230	6100	1.17E-02	4.43E-04

Table A-6
Noncarcinogenic Risk Calculations for RI Sites
Units are mg/kg

Site	Parcel	Station ID	Parameter	Concentration	Back-ground	Residential Land Use Cilefic	Industrial Land Use Cilefic	Residential PRE Noncarc. Risk Ratio	Industrial PRE Noncarc. Risk Ratio
27	25	SS27J	ZINC	41.9	130	2300	61000		
27	25	SS27J	ZINC	41.9	130	2300	61000		
27	25	SS27J	ZINC	55.8	110	2300	61000		
27	25	SS27J	ZINC	55.8	110	2300	61000		
		SS27J						5.92E-02	2.23E-03
32	35	SB32A	BENZO(a,h,i)PERYLENE	0.14	NA	230	6100		
32	35	SB32A	CHROMIUM, TOTAL	915	26	39	1000	2.35E+01	9.15E-01
32	35	SB32A	COPPER	235	33	310	8200	7.58E-01	2.87E-02
32	35	SB32A	FLUORANTHENE	0.37	0.45	310	8200	1.19E-03	4.51E-05
32	35	SB32A	NICKEL	76.3	37	160	4100	4.77E-01	1.86E-02
32	35	SB32A	PHENANTHRENE	0.38	NA	2300	61000		
32	35	SB32A	PYRENE	0.26	0.42	230	6100	1.13E-03	4.26E-05
32	35	SB32A	SILVER	2.5	98	39	1000	6.41E-02	2.50E-03
32	35	SB32A	ZINC	1460	110	2300	61000	6.35E-01	2.39E-02
		SB32A						2.54E+01	9.89E-01
32	35	SS32B	ACENAPHTHYLENE	0.14	19				
32	35	SS32B	BENZO(a,h,i)PERYLENE	0.57	82	230	6100		
32	35	SS32B	CHROMIUM, TOTAL	138	24.8	39	1000	3.54E+00	1.38E-01
32	35	SS32B	COPPER	86	33	310	8200	2.77E-01	1.05E-02
32	35	SS32B	FLUORANTHENE	1.2	1.6	310	8200		
32	35	SS32B	NICKEL	38.7	30	160	4100	2.42E-01	9.44E-03
32	35	SS32B	PHENANTHRENE	0.32	.61	2300	61000		
32	35	SS32B	PYRENE	1.1	1.5	230	6100		
32	35	SS32B	ZINC	519	130	2300	61000	2.26E-01	8.51E-03
		SS32B						4.28E+00	1.66E-01
32	35	SS32C	CHROMIUM, TOTAL	275	24.8	39	1000	7.05E+00	2.75E-01
32	35	SS32C	COPPER	49.8	33	310	8200	1.61E-01	6.07E-03
32	35	SS32C	FLUORANTHENE	0.11	1.6	310	8200		
32	35	SS32C	NICKEL	27.2	30	160	4100		
32	35	SS32C	PHENANTHRENE	0.093	.61	2300	61000		
32	35	SS32C	PYRENE	0.087	1.5	230	6100		
32	35	SS32C	ZINC	507	130	2300	61000	2.20E-01	8.31E-03
		SS32C						7.43E+00	2.89E-01
32	35	SS32D	BENZO(a,h,i)PERYLENE	0.089	.82	230	6100		
32	35	SS32D	CHROMIUM, TOTAL	207	24.8	39	1000	5.31E+00	2.07E-01
32	35	SS32D	COPPER	103	33	310	8200	3.32E-01	1.26E-02
32	35	SS32D	FLUORANTHENE	0.23	1.6	310	8200		
32	35	SS32D	NICKEL	30.3	30	160	4100	1.89E-01	7.39E-03
32	35	SS32D	PHENANTHRENE	0.16	.61	2300	61000		
32	35	SS32D	PYRENE	0.16	1.5	230	6100		
32	35	SS32D	ZINC	416	130	2300	61000	1.81E-01	6.82E-03
		SS32D						6.01E+00	2.34E-01
32	35	SS32E	ACENAPHTHENE	0.089	NA	470	12000		
32	35	SS32E	ALUMINUM	6390	24000	7800	100000		
32	35	SS32E	ANTHRACENE	0.2	.096	2300	61000	8.70E-05	3.28E-06
32	35	SS32E	BARIUM	128	234	550	14000		
32	35	SS32E	BENZO(a,h,i)PERYLENE	0.24	.82	230	6100		
32	35	SS32E	CALCIUM	11100	5840	NA	NA		
32	35	SS32E	CHROMIUM, TOTAL	26.6	24.8	39	1000	6.82E-01	2.66E-02
32	35	SS32E	COBALT	5.7	18.3	470	12000		
32	35	SS32E	COPPER	20.3	33	310	8200		
32	35	SS32E	FLUORANTHENE	1.3	1.6	310	8200		
32	35	SS32E	FLUORENE	0.086	NA	310	8200		
32	35	SS32E	IRON	12800	37000	2300	61000		
32	35	SS32E	MAGNESIUM	1530	4600	NA	NA		

Table A-6
Noncarcinogenic Risk Calculations for RI Sites
 Units are mg/kg

Site	Parcel	Station ID	Parameter	Concentration	Back-ground	Residential Land Use Criteria	Industrial Land Use Criteria	Residential PRE Noncarc. Risk Ratio	Industrial PRE Noncarc. Risk Ratio
32	35	SS32E	MANGANESE	475	1300	180	4700		
32	35	SS32E	NICKEL	10.8	30	160	4100		
32	35	SS32E	PHENANTHRENE	0.88	.61	2300	61000	3.83E-04	1.44E-05
32	35	SS32E	POTASSIUM	1230	2025	NA	NA		
32	35	SS32E	PYRENE	0.89	1.5	230	6100		
32	35	SS32E	VANADIUM	17.9	48.4	55	1400		
32	35	SS32E	ZINC	72.1	130	2300	61000		
		SS32E						6.83E-01	2.66E-02
32	35	SS32F	BENZO(a,h,i)PERYLENE	0.13	.82	230	6100		
32	35	SS32F	CHROMIUM, TOTAL	45.2	24.8	39	1000	1.16E+00	4.52E-02
32	35	SS32F	COPPER	24	33	310	8200		
32	35	SS32F	FLUORANTHENE	0.29	1.6	310	8200		
32	35	SS32F	NICKEL	18.2	30	160	4100		
32	35	SS32F	PHENANTHRENE	0.17	.61	2300	61000		
32	35	SS32F	PYRENE	0.24	1.5	230	6100		
32	35	SS32F	ZINC	4000	130	2300	61000	1.74E+00	6.56E-02
		SS32F						2.90E+00	1.11E-01
32	35	SS32G	ANTIMONY	7	7	3.1	82		
32	35	SS32G	BENZO(a,h,i)PERYLENE	0.073	.82	230	6100		
32	35	SS32G	CHROMIUM, TOTAL	336	24.8	39	1000	8.62E+00	3.36E-01
32	35	SS32G	COPPER	48.9	33	310	8200	1.58E-01	5.96E-03
32	35	SS32G	FLUORANTHENE	0.1	1.6	310	8200		
32	35	SS32G	NICKEL	16.4	30	160	4100		
32	35	SS32G	PHENANTHRENE	0.089	.61	2300	61000		
32	35	SS32G	PYRENE	0.076	1.5	230	6100		
32	35	SS32G	ZINC	693	130	2300	61000	3.01E-01	1.14E-02
		SS32G						9.07E+00	3.53E-01
34	24	SB34A	BENZO(a,h,i)PERYLENE	0.41	.82	230	6100		
34	24	SB34A	CHROMIUM, TOTAL	18.8	24.8	39	1000		
34	24	SB34A	COPPER	7.1	33	310	8200		
34	24	SB34A	FLUORANTHENE	0.99	1.6	310	8200		
34	24	SB34A	NICKEL	4.6	30	160	4100		
34	24	SB34A	PHENANTHRENE	0.41	.61	2300	61000		
34	24	SB34A	PYRENE	0.94	1.5	230	6100		
34	24	SB34A	TOLUENE	0.002	.002	1600	41000		
34	24	SB34A	Total Xylenes	0.002	.009				
34	24	SB34A	ZINC	42.1	130	2300	61000		
		SB34A						0.00E+00	0.00E+00
34	24	SB34B	ACETONE	0.035	NA	780	20000		
34	24	SB34B	ANTHRACENE	1.4	.096	2300	61000	6.09E-04	2.30E-05
34	24	SB34B	BENZO(a,h,i)PERYLENE	2.6	.82	230	6100	1.13E-02	4.26E-04
34	24	SB34B	CHROMIUM, TOTAL	107	24.8	39	1000	2.74E+00	1.07E-01
34	24	SB34B	COPPER	18.2	33	310	8200		
34	24	SB34B	FLUORANTHENE	8.1	1.6	310	8200	2.61E-02	9.88E-04
34	24	SB34B	FLUORENE	1.6	NA	310	8200		
34	24	SB34B	NICKEL	7.6	30	160	4100		
34	24	SB34B	PHENANTHRENE	5.3	.61	2300	61000	2.30E-03	8.69E-05
34	24	SB34B	PYRENE	6.2	1.5	230	6100	2.70E-02	1.02E-03
34	24	SB34B	ZINC	234	130	2300	61000	1.02E-01	3.84E-03
		SB34B						2.91E+00	1.13E-01
34	24	SB34C	ACETONE	0.016	NA	780	20000		
34	24	SB34C	BENZO(a,h,i)PERYLENE	0.41	.82	230	6100		
34	24	SB34C	CHROMIUM, TOTAL	40.2	24.8	39	1000	1.03E+00	4.02E-02
34	24	SB34C	COPPER	12	33	310	8200		
34	24	SB34C	FLUORANTHENE	1.2	1.6	310	8200		

Table A-6
Noncarcinogenic Risk Calculations for RI Sites
Units are mg/kg

Site	Parcel	Station ID	Parameter	Concentration	Back-ground	Residential Land Use Criteria	Industrial Land Use Criteria	Residential PPE Noncarc. Risk Ratio	Industrial PPE Noncarc. Risk Ratio
34	24	SB34C	NICKEL	10.4	30	160	4100		
34	24	SB34C	PHENANTHRENE	0.96	.61	2300	61000	4.17E-04	1.57E-05
34	24	SB34C	PYRENE	0.95	1.5	230	6100		
34	24	SB34C	ZINC	50.5	130	2300	61000		
		SB34C						1.03E+00	4.02E-02
34	24	SS34D	ACETONE	0.003	NA	780	20000		
34	24	SS34D	BENZO(a,h,i)PERYLENE	0.59	.82	230	6100		
34	24	SS34D	CHROMIUM, TOTAL	124	24.8	39	1000	3.18E+00	1.24E-01
34	24	SS34D	COPPER	51.5	33	310	8200	1.66E-01	6.28E-03
34	24	SS34D	FLUORANTHENE	1.7	1.6	310	8200	5.48E-03	2.07E-04
34	24	SS34D	NICKEL	15.7	30	160	4100		
34	24	SS34D	PHENANTHRENE	0.97	.61	2300	61000	4.22E-04	1.59E-05
34	24	SS34D	PYRENE	1.3	1.5	230	6100		
34	24	SS34D	ZINC	577	130	2300	61000	2.51E-01	9.46E-03
		SS34D						3.60E+00	1.40E-01
34	24	SS34E	ACENAPHTHENE	0.26	NA	470	12000		
34	24	SS34E	ACETONE	0.002	NA	780	20000		
34	24	SS34E	ANTHRACENE	0.32	.096	2300	61000	1.39E-04	5.25E-06
34	24	SS34E	BENZO(a,h,i)PERYLENE	0.49	.82	230	6100		
34	24	SS34E	CHROMIUM, TOTAL	51.3	24.8	39	1000	1.32E+00	5.13E-02
34	24	SS34E	COPPER	27.9	33	310	8200		
34	24	SS34E	FLUORANTHENE	1.8	1.6	310	8200	5.81E-03	2.20E-04
34	24	SS34E	FLUORENE	0.3	NA	310	8200		
34	24	SS34E	NICKEL	16.3	30	160	4100		
34	24	SS34E	PHENANTHRENE	1.2	.61	2300	61000	5.22E-04	1.97E-05
34	24	SS34E	PYRENE	1.3	1.5	230	6100		
34	24	SS34E	ZINC	182	130	2300	61000	7.91E-02	2.98E-03
		SS34E						1.40E+00	5.45E-02
34	24	SS34F	ACENAPHTHENE	0.11	NA	470	12000		
34	24	SS34F	ACETONE	0.002	NA	780	20000		
34	24	SS34F	ANTHRACENE	0.13	.096	2300	61000	5.66E-05	2.13E-06
34	24	SS34F	BENZO(a,h,i)PERYLENE	0.47	.82	230	6100		
34	24	SS34F	CHROMIUM, TOTAL	34.8	24.8	39	1000	8.92E-01	3.48E-02
34	24	SS34F	COPPER	12.6	33	310	8200		
34	24	SS34F	FLUORANTHENE	1.3	1.6	310	8200		
34	24	SS34F	FLUORENE	0.14	NA	310	8200		
34	24	SS34F	NICKEL	6.3	30	160	4100		
34	24	SS34F	PHENANTHRENE	0.71	.61	2300	61000	3.09E-04	1.16E-05
34	24	SS34F	PYRENE	1	1.5	230	6100		
34	24	SS34F	ZINC	61.5	130	2300	61000		
		SS34F						8.93E-01	3.48E-02
48	5	SS48A	ALUMINUM	13700	24000	7800	100000		
48	5	SS48A	BARIUM	168	234	550	14000		
48	5	SS48A	BENZO(a,h,i)PERYLENE	0.052	.82	230	6100		
48	5	SS48A	CALCIUM	1740	5840	NA	NA		
48	5	SS48A	CHROMIUM, TOTAL	16	24.8	39	1000		
48	5	SS48A	COBALT	8.3	18.3	470	12000		
48	5	SS48A	COPPER	21.1	33	310	8200		
48	5	SS48A	FLUORANTHENE	0.1	1.6	310	8200		
48	5	SS48A	IRON	21800	37000	2300	61000		
48	5	SS48A	MAGNESIUM	2630	4600	NA	NA		
48	5	SS48A	MANGANESE	483	1300	180	4700		
48	5	SS48A	NICKEL	17.6	30	160	4100		
48	5	SS48A	POTASSIUM	3090	2025	NA	NA		
48	5	SS48A	PYRENE	0.098	1.5	230	6100		

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Table A-6
Noncarcinogenic Risk Calculations for RI Sites
 Units are mg/kg

Site	Parcel	Station ID	Parameter	Concentration	Back-ground	Residential Land Use Criteria	Industrial Land Use Criteria	Residential PRE Noncarc. Risk Ratio	Industrial PRE Noncarc. Risk Ratio
48	5	SS48A	VANADIUM	32	48.4	55	1400		
48	5	SS48A	ZINC	75	130	2300	61000		
		SS48A						0.00E+00	0.00E+00
48	5	SS48B	ACETONE	0.006	NA	780	20000	0.00E+00	0.00E+00
		SS48B						0.00E+00	0.00E+00
48	5	SS48C	ACETONE	0.005	NA	780	20000	0.00E+00	0.00E+00
		SS48C						0.00E+00	0.00E+00
48	5	SS48D	ACETONE	0.033	NA	780	20000		
48	5	SS48D	METHYL ETHYL KETONE (2-	0.034	0.002	4700	100000	7.23E-06	3.40E-07
		SS48D						7.23E-06	3.40E-07
48	5	SS48E	ACETONE	0.005	NA	780	20000		
		SS48E						0.00E+00	0.00E+00
57	12	SB57A	ACETONE	0.011	NA	780	20000		
57	12	SB57A	CHROMIUM, TOTAL	11.8	26	39	1000		
57	12	SB57A	COPPER	16.4	33	310	8200		
57	12	SB57A	NICKEL	16.2	37	160	4100		
57	12	SB57A	ZINC	51.1	110	2300	61000		
		SB57A						0.00E+00	0.00E+00
57	12	SB57B	ACETONE	0.078	NA	780	20000		
57	12	SB57B	CARBON DISULFIDE	0.001	0.002	780	20000		
57	12	SB57B	CHROMIUM, TOTAL	11.3	26	39	1000		
57	12	SB57B	COPPER	16	33	310	8200		
57	12	SB57B	METHYL ETHYL KETONE (2-	0.01	NA	4700	100000		
57	12	SB57B	NICKEL	16.7	37	160	4100		
57	12	SB57B	ZINC	50	110	2300	61000		
		SB57B						0.00E+00	0.00E+00
57	12	SB57C	ACETONE	0.007	NA	780	20000		
57	12	SB57C	BROMOMETHANE	0.002	NA	11	290		
57	12	SB57C	CHROMIUM, TOTAL	11.2	26	39	1000		
57	12	SB57C	COPPER	20.5	33	310	8200		
57	12	SB57C	NICKEL	19.5	37	160	4100		
57	12	SB57C	ZINC	66.5	110	2300	61000		
		SB57C						0.00E+00	0.00E+00
57	12	SB57D	CHROMIUM, TOTAL	17.8	26	39	1000		
57	12	SB57D	COPPER	21.4	33	310	8200		
57	12	SB57D	NICKEL	20.9	37	160	4100		
57	12	SB57D	ZINC	75.2	110	2300	61000		
		SB57D						0.00E+00	0.00E+00
57	12	SB57E	ACETONE	0.007	NA	780	20000		
57	12	SB57E	BENZO(a,h,i)PERYLENE	5	NA	230	6100		
57	12	SB57E	CHROMIUM, TOTAL	9.9	26	39	1000		
57	12	SB57E	COPPER	7.8	33	310	8200		
57	12	SB57E	FLUORANTHENE	23	0.45	310	8200	7.42E-02	2.80E-03
57	12	SB57E	NICKEL	4.4	37	160	4100		
57	12	SB57E	PHENANTHRENE	11	NA	2300	61000		
57	12	SB57E	PYRENE	17	0.42	230	6100	7.39E-02	2.79E-03
57	12	SB57E	ZINC	99.6	110	2300	61000		
		SB57E						1.48E-01	5.59E-03
57	12	SB57F	CHROMIUM, TOTAL	14.1	26	39	1000		
57	12	SB57F	COPPER	17.7	33	310	8200		
57	12	SB57F	NICKEL	18	37	160	4100		
57	12	SB57F	ZINC	113	110	2300	61000	4.91E-02	1.85E-03
		SB57F						4.91E-02	1.85E-03
57	12	SB57G	ACETONE	0.017	NA	780	20000		
57	12	SB57G	CHROMIUM, TOTAL	11.9	26	39	1000		

Table A-6
Noncarcinogenic Risk Calculations for RI Sites
Units are mg/kg

Site	Parcel	Station ID	Parameter	Concentration	Back-ground	Residential Land Use Criteria	Industrial Land Use Criteria	Residential PPE Noncarc. Risk Ratio	Industrial PPE Noncarc. Risk Ratio
57	12	SB57G	COPPER	15.7	33	310	8200		
57	12	SB57G	NICKEL	17.2	37	160	4100		
57	12	SB57G	ZINC	54	110	2300	61000		
		SB57G						0.00E+00	0.00E+00
57	12	SB57H	ACETONE	0.019	NA	780	20000		
57	12	SB57H	CHROMIUM, TOTAL	15.9	26	39	1000		
57	12	SB57H	COPPER	21.4	33	310	8200		
57	12	SB57H	NICKEL	17.2	37	160	4100		
57	12	SB57H	ZINC	68.9	110	2300	61000		
		SB57H						0.00E+00	0.00E+00
57	12	SB57I	CHROMIUM, TOTAL	11.1	26	39	1000		
57	12	SB57I	COPPER	11.5	33	310	8200		
57	12	SB57I	NICKEL	11.2	37	160	4100		
57	12	SB57I	ZINC	35.4	110	2300	61000		
		SB57I						0.00E+00	0.00E+00
58	4	SS58C	ALUMINUM	12700	24000	7800	100000		
58	4	SS58C	BARIUM	93.8	234	550	14000		
58	4	SS58C	CALCIUM	954	5840	NA	NA		
58	4	SS58C	CHROMIUM, TOTAL	12.5	24.8	39	1000		
58	4	SS58C	COBALT	7.7	18.3	470	12000		
58	4	SS58C	COPPER	14.4	33	310	8200		
58	4	SS58C	IRON	16400	37000	2300	61000		
58	4	SS58C	MAGNESIUM	2100	4600	NA	NA		
58	4	SS58C	MANGANESE	481	1300	180	4700		
58	4	SS58C	NICKEL	14.2	30	160	4100		
58	4	SS58C	POTASSIUM	1780	2025	NA	NA		
58	4	SS58C	VANADIUM	24.5	48.4	55	1400		
58	4	SS58C	ZINC	61.3	130	2300	61000		
		SS58C						0.00E+00	0.00E+00
59	4	SB59B	BENZO(a,h,i)PERYLENE	0.1	82	230	6100		
59	4	SB59B	FLUORANTHENE	0.28	1.6	310	8200		
59	4	SB59B	PHENANTHRENE	0.22	61	2300	61000		
59	4	SB59B	PYRENE	0.2	1.5	230	6100		
		SB59B						0.00E+00	0.00E+00
59	4	SS59E	FLUORANTHENE	0.37	1.6	310	8200		
59	4	SS59E	PHENANTHRENE	0.24	61	2300	61000		
59	4	SS59E	PYRENE	0.27	1.5	230	6100		
		SS59E						0.00E+00	0.00E+00
59	4	SS59F	FLUORANTHENE	0.08	1.6	310	8200		
59	4	SS59F	PHENANTHRENE	0.076	61	2300	61000		
59	4	SS59F	PYRENE	0.064	1.5	230	6100		
		SS59F						0.00E+00	0.00E+00
59	4	SS59H	ALUMINUM	15600	24000	7800	100000		
59	4	SS59H	BARIUM	103	234	550	14000		
59	4	SS59H	CALCIUM	986	5840	NA	NA		
59	4	SS59H	CARBON DISULFIDE	0.002	0.02	780	20000		
59	4	SS59H	CHROMIUM, TOTAL	16.1	24.8	39	1000		
59	4	SS59H	COBALT	6.4	18.3	470	12000		
59	4	SS59H	COPPER	18.5	33	310	8200		
59	4	SS59H	IRON	21300	37000	2300	61000		
59	4	SS59H	MAGNESIUM	2590	4600	NA	NA		
59	4	SS59H	MANGANESE	499	1300	180	4700		
59	4	SS59H	NICKEL	17	30	160	4100		
59	4	SS59H	POTASSIUM	2060	2025	NA	NA		
59	4	SS59H	VANADIUM	30.9	48.4	55	1400		

Table A-6 Noncarcinogenic Risk Calculations for RI Sites Units are mg/kg								
Site	Parcel	Station ID	Parameter	Concen-tration	Back-ground	Residential Land Use Criteria	Industrial Land Use Criteria	Industrial/Pre Noncarc. Risk Ratio
59	4	SS59H	ZINC	63.3	130	2300	61000	
		SS59H						0.00E+00
59	4	SS59I	ACENAPHTHENE	0.059	NA	470	12000	0.00E+00

Table A.7
Well-Specific Groundwater PRE Carcinogenic Risk Ratios
Units are mg/L

Well	Parameter	Concentration	Background	Residential Land Use Criteria	Industrial Land Use Criteria	Residential PRE Carc. Risk Ratio	Industrial PRE Carc. Risk Ratio
MW02	CADMIUM	0.0011	0.6	12		1.83E-10	9.17E-11
MW02	LEAD	0.0136	0.0094	1.5	3	9.07E-09	4.53E-08
MW02 Total						9.25E-09	4.63E-08
MW03	1,1-DICHLOROETHENE	0.017	0.002	NA	NA	0.00E+00	0.00E+00
MW03	BERYLLIUM	0.001	0.00056	180	360	5.56E-12	2.78E-12
MW03	CHLOROFORM	0.002	0.3	.6		6.67E-09	3.33E-08
MW03	LEAD	0.0075	0.0094	1.5	3	0.00E+00	0.00E+00
MW03	TETRACHLOROETHYLENE(PCE)	0.04	0.05	0.2		8.00E-07	2.00E-07
MW03	TRICHLOROETHYLENE (TCE)	0.017	0.02	0.08		8.50E-07	2.13E-07
MW03 Total						1.66E-06	4.16E-07
MW04	ARSENIC	0.0091	0.15	30		6.07E-10	3.03E-10
MW04	BERYLLIUM	0.0013	0.00056	180	360	7.22E-12	3.61E-12
MW04	LEAD	0.0123	0.0094	1.5	3	8.20E-09	4.10E-08
MW04	TETRACHLOROETHYLENE(PCE)	0.078	0.05	0.2		1.56E-06	3.90E-07
MW04	TRICHLOROETHYLENE (TCE)	0.003	0.02	0.08		1.50E-07	3.75E-08
MW04 Total						1.72E-06	4.32E-07
MW05	CHLOROFORM	0.005	0.3	.6		1.67E-08	8.33E-09
MW05	TETRACHLOROETHYLENE(PCE)	0.089	0.05	0.2		1.78E-06	4.45E-07
MW05	TRICHLOROETHYLENE (TCE)	0.014	0.02	0.08		7.00E-07	1.75E-07
MW05 Total						2.50E-06	6.28E-07
MW06	1,1,2,2-TETRACHLOROETHANE	0.22	0.001	.002		2.20E-04	1.10E-04
MW06	1,1,2-TRICHLOROETHANE	0.009	0.01	.02		9.00E-07	4.50E-07
MW06	CADMIUM	0.00073	0.6	12		1.22E-10	6.08E-11
MW06	CARBON TETRACHLORIDE	0.037	0.03	.06		1.23E-06	6.17E-07
MW06	CHLOROFORM	0.014	0.3	.6		4.67E-08	2.33E-08
MW06	LEAD	0.0027	0.0094	1.5	3	0.00E+00	0.00E+00
MW06	TETRACHLOROETHYLENE(PCE)	0.003	0.05	0.2		6.00E-08	1.50E-08
MW06	TRICHLOROETHYLENE (TCE)	0.24	0.02	0.08		1.20E-05	3.00E-06
MW06 Total						2.34E-04	1.14E-04
MW07	1,1-DICHLOROETHANE	0.002	0.11	22		1.82E-10	9.09E-11
MW07	1,1-DICHLOROETHENE	0.05	0.002	NA	NA	0.00E+00	0.00E+00
MW07	CHLOROFORM	0.009	0.3	.6		3.00E-08	1.50E-08
MW07	TETRACHLOROETHYLENE(PCE)	0.082	0.05	0.2		1.64E-06	4.10E-07
MW07	TRICHLOROETHYLENE (TCE)	0.032	0.02	0.08		1.60E-06	4.00E-07
MW07 Total						3.27E-06	8.25E-07
MW08	1,1-DICHLOROETHANE	0.001	0.11	22		9.09E-11	4.55E-11
MW08	1,1-DICHLOROETHENE	0.02	0.002	NA	NA	0.00E+00	0.00E+00
MW08	TETRACHLOROETHYLENE(PCE)	0.027	0.05	0.2		5.40E-07	1.35E-07
MW08	TRICHLOROETHYLENE (TCE)	0.013	0.02	0.08		6.50E-07	1.63E-07
MW08 Total						1.19E-06	2.98E-07
MW09	1,1-DICHLOROETHENE	0.001	0.002	NA	NA	0.00E+00	0.00E+00

Table A.7
Well-Specific Groundwater PRE Carcinogenic Risk Ratios
 Units are mg/L

Well	Parameter	Concentration	Background	Residential Land Use Criteria	Industrial Land Use Criteria	Residential PRE Carc. Risk Ratio	Industrial PRE Carc. Risk Ratio
MW09	CADMIUM	0.0041	0.6	12		6.83E-10	3.42E-10
MW09	CARBON TETRACHLORIDE	0.001	0.03	.06		3.33E-08	1.67E-08
MW09	LEAD	0.0018	0.0094	1.5	3	0.00E+00	0.00E+00
MW09	TETRACHLOROETHYLENE(PCE)	0.004	0.05	0.2		8.00E-08	2.00E-08
MW09	TRICHLOROETHYLENE (TCE)	0.002	0.02	0.08		1.00E-07	2.50E-08
MW09 Total						2.14E-07	6.20E-08
MW10	1,1,2,2-TETRACHLOROETHANE	0.002	0.001	.002		2.00E-06	1.00E-06
MW10	1,1-DICHLOROETHANE	0.003	0.11	22		2.73E-10	1.36E-10
MW10	1,1-DICHLOROETHENE	0.072	0.002	NA	NA	0.00E+00	0.00E+00
MW10	1,2-DICHLOROETHANE	0.002	0	NA	NA	0.00E+00	0.00E+00
MW10	CADMIUM	0.001	0.6	12		1.67E-10	8.33E-11
MW10	LEAD	0.0018	0.0094	1.5	3	0.00E+00	0.00E+00
MW10	TETRACHLOROETHYLENE(PCE)	0.18	0.05	0.2		3.60E-06	9.00E-07
MW10	TRICHLOROETHYLENE (TCE)	0.1	0.02	0.08		5.00E-06	1.25E-06
MW10 Total						1.06E-05	3.15E-06
MW11	1,1,2,2-TETRACHLOROETHANE	0.049	0.001	.002		4.90E-05	2.45E-05
MW11	CADMIUM	0.00042	0.6	12		7.00E-11	3.50E-11
MW11	CHLOROFORM	0.004	0.3	.6		1.33E-08	6.67E-09
MW11	TETRACHLOROETHYLENE(PCE)	0.019	0.05	0.2		3.80E-07	9.50E-08
MW11	TRICHLOROETHYLENE (TCE)	0.24	0.02	0.08		1.20E-05	3.00E-06
MW11 Total						6.14E-05	2.76E-05
MW12	1,1,2,2-TETRACHLOROETHANE	0.48	0.001	.002		4.80E-04	2.40E-04
MW12	TETRACHLOROETHYLENE(PCE)	0.044	0.05	0.2		8.80E-07	2.20E-07
MW12	TRICHLOROETHYLENE (TCE)	3.6	0.02	0.08		1.90E-04	4.75E-05
MW12 Total						6.71E-04	2.88E-04
MW13	CADMIUM	0.0013	0.6	12		2.17E-10	1.08E-10
MW13	TETRACHLOROETHYLENE(PCE)	0.008	0.05	0.2		1.60E-07	4.00E-08
MW13 Total						1.60E-07	4.01E-08
MW14	BERYLLIUM	0.00099	0.00056	180	360	5.50E-12	2.75E-12
MW14	CADMIUM	0.0135	0.6	12		2.25E-09	1.13E-09
MW14	LEAD	0.0273	0.0094	1.5	3	1.82E-08	9.10E-09
MW14	TRICHLOROETHYLENE (TCE)	0.001	0.02	0.08		5.00E-08	1.25E-08
MW14 Total						7.05E-08	2.27E-08
MW15	ARSENIC	0.011	0.15	30		7.33E-10	3.67E-10
MW15	BERYLLIUM	0.00069	0.00056	180	360	3.83E-12	1.92E-12
MW15	CADMIUM	0.00016	0.6	12		2.67E-11	1.33E-11
MW15	CARBON TETRACHLORIDE	0.046	0.03	.06		1.53E-06	7.67E-07
MW15	CHLOROFORM	0.38	0.3	.6		1.27E-06	6.33E-07
MW15	LEAD	0.0136	0.0094	1.5	3	9.07E-09	4.53E-09
MW15	TETRACHLOROETHYLENE(PCE)	0.012	0.05	0.2		2.40E-07	6.00E-08
MW15	TRICHLOROETHYLENE (TCE)	0.14	0.02	0.08		7.00E-06	1.75E-06

Table A.7
Well-Specific Groundwater PRE Carcinogenic Risk Ratios
 Units are mg/L

Well	Parameter	Concentration	Background	Residential Land Use Criteria	Industrial Land Use Criteria	Residential PRE Carc. Risk Ratio	Industrial PRE Carc. Risk Ratio
MW15 Total						1.00E-05	3.21E-06
MW16	CADMIUM	0.0035	0.6	12		5.83E-10	2.92E-10
MW16	LEAD	0.0038	0.0094	1.5	3	0.00E+00	0.00E+00
MW16 Total						5.83E-10	2.92E-10
MW19	ARSENIC	0.0144	0.15	30		9.60E-10	4.80E-10
MW19	BERYLLIUM	0.00061	0.00056	180	360	3.39E-12	1.69E-12
MW19	CADMIUM	0.0057	0.6	12		9.50E-10	4.75E-10
MW19	LEAD	0.0143	0.0094	1.5	3	9.53E-09	4.77E-09
MW19 Total						1.14E-08	5.72E-09
MW20	ARSENIC	0.0905	0.15	30		6.03E-09	3.02E-09
MW20	BERYLLIUM	0.0059	0.00056	180	360	3.28E-11	1.64E-11
MW20	CADMIUM	0.0846	0.6	12		1.41E-08	7.05E-09
MW20	LEAD	0.111	0.0094	1.5	3	7.40E-08	3.70E-08
MW20 Total						9.42E-08	4.71E-08
MW21	CADMIUM	0.0023	0.6	12		3.83E-10	1.82E-10
MW21	LEAD	0.0059	0.0094	1.5	3	0.00E+00	0.00E+00
MW21	TETRACHLOROETHYLENE(PCE)	0.062	0.05	0.2		1.24E-06	3.10E-07
MW21	TRICHLOROETHYLENE (TCE)	0.012	0.02	0.08		6.00E-07	1.50E-07
MW21 Total						1.84E-06	4.60E-07
MW22	ARSENIC	0.0025	0.15	30		1.67E-10	8.33E-11
MW22	BERYLLIUM	0.0002	0.00056	180	360	0.00E+00	0.00E+00
MW22	CADMIUM	0.0056	0.6	12		9.33E-10	4.67E-10
MW22	LEAD	0.0091	0.0094	1.5	3	0.00E+00	0.00E+00
MW22	TETRACHLOROETHYLENE(PCE)	0.002	0.05	0.2		4.00E-08	1.00E-08
MW22	TRICHLOROETHYLENE (TCE)	0.004	0.02	0.08		2.00E-07	5.00E-08
MW22 Total						2.41E-07	6.06E-08
MW23	CADMIUM	0.0012	0.6	12		2.00E-10	1.00E-10
MW23	CHRYSENE	0.001	0.1	2		1.00E-09	5.00E-10
MW23	LEAD	0.0013	0.0094	1.5	3	0.00E+00	0.00E+00
MW23 Total						1.20E-09	6.00E-10
MW24	BERYLLIUM	0.0017	0.00056	180	360	9.44E-12	4.72E-12
MW24	CADMIUM	0.0033	0.6	12		5.50E-10	2.75E-10
MW24	LEAD	0.0105	0.0094	1.5	3	7.00E-09	3.50E-09
MW24 Total						7.56E-09	3.78E-09
MW25	BERYLLIUM	0.00021	0.00056	180	360	0.00E+00	0.00E+00
MW25	CADMIUM	0.0024	0.6	12		4.00E-10	2.00E-10
MW25	CARBON TETRACHLORIDE	0.001	0.03	0.06		3.33E-08	1.67E-08
MW25	LEAD	0.0104	0.0094	1.5	3	6.93E-09	3.47E-09
MW25	TETRACHLOROETHYLENE(PCE)	0.011	0.05	0.2		2.20E-07	5.50E-08
MW25 Total						2.61E-07	7.53E-08
MW26	BERYLLIUM	0.00028	0.00056	180	360	0.00E+00	0.00E+00

Table A.7
Well-Specific Groundwater PRE Carcinogenic Risk Ratios
Units are mg/L

Well	Parameter	Concentration	Background	Residential Land Use Criteria	Industrial Land Use Criteria	Residential PRE Carc. Risk Ratio	Industrial PRE Carc. Risk Ratio
MW26	CADMIUM	0.00094	0.6	12		1.57E-10	7.83E-11
MW26	CARBON TETRACHLORIDE	0.004	0.03	.06		1.33E-07	6.67E-08
MW26	CHLOROMETHANE	0.001	0.0066	.0132		1.52E-07	7.58E-08
MW26	LEAD	0.0042	0.0094	1.5	3	0.00E+00	0.00E+00
MW26	TETRACHLOROETHYLENE(PCE)	0.011	0.05	0.2		2.20E-07	5.50E-08
MW26	TRICHLOROETHYLENE (TCE)	0.002	0.02	0.08		1.00E-07	2.50E-08
MW26 Total						6.05E-07	2.23E-07
MW28	CADMIUM	0.0012	0.6	12		2.00E-10	1.00E-10
MW28	LEAD	0.0031	0.0094	1.5	3	0.00E+00	0.00E+00
MW28 Total						2.00E-10	1.00E-10
MW29	1,1-DICHLOROETHANE	0.002	0.11	22		1.82E-10	9.09E-11
MW29	1,1-DICHLOROETHENE	0.029	0.002	NA	NA	0.00E+00	0.00E+00
MW29	CADMIUM	0.00049	0.6	12		8.17E-11	4.08E-11
MW29	LEAD	0.0012	0.0094	1.5	3	0.00E+00	0.00E+00
MW29	TETRACHLOROETHYLENE(PCE)	0.029	0.05	0.2		5.80E-07	1.45E-07
MW29	TRICHLOROETHYLENE (TCE)	0.018	0.02	0.08		9.00E-07	2.25E-07
MW29 Total						1.48E-06	3.70E-07
MW31	1,1,2,2-TETRACHLOROETHANE	0.01	0.001	.002		1.00E-05	5.00E-06
MW31	1,1-DICHLOROETHENE	0.047	0.002	NA	NA	0.00E+00	0.00E+00
MW31	CARBON TETRACHLORIDE	0.008	0.03	.06		2.67E-07	1.33E-07
MW31	CHLOROFORM	0.049	0.3	.6		1.63E-07	8.17E-08
MW31	TETRACHLOROETHYLENE(PCE)	0.11	0.05	0.2		2.20E-06	5.50E-07
MW31	TRICHLOROETHYLENE (TCE)	0.22	0.02	0.08		1.10E-05	2.75E-06
MW31 Total						2.36E-05	5.52E-06
MW32	1,1,2,2-TETRACHLOROETHANE	0.11	0.001	.002		1.10E-04	5.50E-05
MW32	1,1,2-TRICHLOROETHANE	0.005	0.01	.02		5.00E-07	2.50E-07
MW32	CADMIUM	0.0012	0.6	12		2.00E-10	1.00E-10
MW32	CARBON TETRACHLORIDE	0.016	0.03	.06		5.33E-07	2.67E-07
MW32	CHLOROFORM	0.006	0.3	.6		2.00E-08	1.00E-08
MW32	LEAD	0.0018	0.0094	1.5	3	0.00E+00	0.00E+00
MW32	TETRACHLOROETHYLENE(PCE)	0.001	0.05	0.2		2.00E-08	5.00E-09
MW32	TRICHLOROETHYLENE (TCE)	0.076	0.02	0.08		3.80E-06	9.50E-07
MW32 Total						1.15E-04	5.65E-05
MW33	CADMIUM	0.00014	0.6	12		2.33E-11	1.17E-11
MW33	LEAD	0.0016	0.0094	1.5	3	0.00E+00	0.00E+00
MW33 Total						2.33E-11	1.17E-11
MW34	CHLOROFORM	0.001	0.3	.6		3.33E-09	1.67E-09
MW34	LEAD	0.0011	0.0094	1.5	3	0.00E+00	0.00E+00
MW34 Total						3.33E-09	1.67E-09
MW35	1,1,2,2-TETRACHLOROETHANE	0.005	0.001	.002		5.00E-06	2.50E-06
MW35	TETRACHLOROETHYLENE(PCE)	0.001	0.05	0.2		2.00E-08	5.00E-09

Table A.7
Well-Specific Groundwater PRE Carcinogenic Risk Ratios
 Units are mg/L

Well	Parameter	Concentration	Background	Residential Land Use Criteria	Industrial Land Use Criteria	Residential PRE Carc. Risk Ratio	Industrial PRE Carc. Risk Ratio
MW35	TRICHLOROETHYLENE (TCE)	0.093	0.02	0.02	0.08	4.65E-06	1.16E-06
MW35 Total						9.67E-06	3.67E-06
MW36	CADMIUM	0.0027	0.6	12	12	4.50E-10	2.25E-10
MW36	LEAD	0.0018	0.0094	1.5	3	0.00E+00	0.00E+00
MW36 Total						4.50E-10	2.25E-10
MW37	BENZYL BUTYL PHTHALATE	0.004	4.68	136	136	0.00E+00	0.00E+00
MW37 Total						0.00E+00	0.00E+00
MW38	CADMIUM	0.0192	0.6	12	12	3.20E-09	1.60E-09
MW38	LEAD	0.0043	0.0094	1.5	3	0.00E+00	0.00E+00
MW38	TRICHLOROETHYLENE (TCE)	0.001	0.02	0.02	0.08	5.00E-08	1.25E-08
MW38 Total						5.32E-08	1.41E-08
MW39	CADMIUM	0.0014	0.6	12	12	2.33E-10	1.17E-10
MW39	LEAD	0.0074	0.0094	1.5	3	0.00E+00	0.00E+00
MW39	TETRACHLOROETHYLENE(PCE)	0.009	0.005	0.2	0.2	1.80E-07	4.50E-08
MW39	TRICHLOROETHYLENE (TCE)	0.008	0.02	0.02	0.08	4.00E-07	1.00E-07
MW39 Total						5.80E-07	1.45E-07
MW40	CADMIUM	0.0009	0.6	12	12	1.50E-10	7.50E-11
MW40	LEAD	0.0011	0.0094	1.5	3	0.00E+00	0.00E+00
MW40 Total						1.50E-10	7.50E-11
MW41	CADMIUM	0.0018	0.6	12	12	3.00E-10	1.50E-10
MW41 Total						3.00E-10	1.50E-10
MW42	CADMIUM	0.0044	0.6	12	12	7.33E-10	3.87E-10
MW42	LEAD	0.0018	0.0094	1.5	3	0.00E+00	0.00E+00
MW42 Total						7.33E-10	3.87E-10
MW44	ARSENIC	0.0374	0.15	30	30	2.49E-09	1.25E-09
MW44	CADMIUM	0.0057	0.6	12	12	9.50E-10	4.75E-10
MW44	CARBON TETRACHLORIDE	0.006	0.03	0.06	0.06	2.00E-07	1.00E-07
MW44	CHLOROMETHANE	0.001	0.0066	0.132	0.132	1.52E-07	7.58E-08
MW44	LEAD	0.0022	0.0094	1.5	3	0.00E+00	0.00E+00
MW44	TRICHLOROETHYLENE (TCE)	0.005	0.02	0.02	0.08	2.50E-07	6.25E-08
MW44 Total						6.05E-07	2.40E-07
MW45	1,1-DICHLOROETHENE	0.001	0.002	NA	NA	0.00E+00	0.00E+00
MW45	CADMIUM	0.00022	0.6	12	12	3.67E-11	1.83E-11
MW45	LEAD	0.002	0.0094	1.5	3	0.00E+00	0.00E+00
MW45 Total						3.67E-11	1.83E-11
MW46	CADMIUM	0.00034	0.6	12	12	5.87E-11	2.83E-11
MW46 Total						5.87E-11	2.83E-11
MW47	CADMIUM	0.0025	0.6	12	12	4.17E-10	2.08E-10
MW47	LEAD	0.0048	0.0094	1.5	3	0.00E+00	0.00E+00
MW47	TETRACHLOROETHYLENE(PCE)	0.014	0.005	0.2	0.2	2.80E-07	7.00E-08
MW47	TRICHLOROETHYLENE (TCE)	0.006	0.02	0.02	0.08	3.00E-07	7.50E-08

Table A.7
Well-Specific Groundwater PRE Carcinogenic Risk Ratios
 Units are mg/L

Well	Parameter	Concentration	Background	Residential Land Use Criteria	Industrial Land Use Criteria	Residential PRE Carc. Risk Ratio	Industrial PRE Carc. Risk Ratio
MW47 Total						5.80E-07	1.45E-07
MW48	LEAD	0.0013	0.0094	1.5	3	0.00E+00	0.00E+00
MW48 Total						0.00E+00	0.00E+00
MW49	CADMIUM	0.00095	0.6	12	12	1.58E-10	7.92E-11
MW49	LEAD	0.0024	0.0094	1.5	3	0.00E+00	0.00E+00
MW49 Total						1.58E-10	7.92E-11
MW50	CADMIUM	0.0033	0.6	12	12	5.50E-10	2.75E-10
MW50	LEAD	0.001	0.0094	1.5	3	0.00E+00	0.00E+00
MW50 Total						5.50E-10	2.75E-10
MW51	1,1-DICHLOROETHENE	0.023	0.002	NA	NA	0.00E+00	0.00E+00
MW51	CADMIUM	0.00087	0.6	12	12	1.45E-10	7.25E-11
MW51	LEAD	0.0011	0.0094	1.5	3	0.00E+00	0.00E+00
MW51	TETRACHLOROETHYLENE(PCE)	0.004	0.05	0.2	0.2	8.00E-08	2.00E-08
MW51	TRICHLOROETHYLENE (TCE)	0.013	0.02	0.08	0.08	6.50E-07	1.63E-07
MW51 Total						7.30E-07	1.83E-07
MW52	ARSENIC	0.0097	0.15	30	30	6.47E-10	3.23E-10
MW52	CADMIUM	0.0018	0.6	12	12	3.00E-10	1.50E-10
MW52	TETRACHLOROETHYLENE(PCE)	0.002	0.05	0.2	0.2	4.00E-08	1.00E-08
MW52 Total						4.09E-08	1.05E-08
MW54	CADMIUM	0.00095	0.6	12	12	1.58E-10	7.92E-11
MW54	CARBON TETRACHLORIDE	0.001	0.03	0.06	0.06	3.33E-08	1.67E-08
MW54	LEAD	0.002	0.0094	1.5	3	0.00E+00	0.00E+00
MW54	TETRACHLOROETHYLENE(PCE)	0.002	0.05	0.2	0.2	4.00E-08	1.00E-08
MW54	TRICHLOROETHYLENE (TCE)	0.15	0.02	0.08	0.08	7.50E-06	1.88E-06
MW54 Total						7.57E-06	1.90E-06
MW55	CADMIUM	0.00089	0.6	12	12	1.48E-10	7.42E-11
MW55	LEAD	0.0045	0.0094	1.5	3	0.00E+00	0.00E+00
MW55 Total						1.48E-10	7.42E-11

Table A.8
Well-Specific Groundwater PRE Noncarcinogenic Risk Ratios
 Units are mg/L

Well	Parameter	Concentration	Background	Residential Land Use Criteria	Industrial Land Use Criteria	Residential PRE Noncarc. Ratio	Industrial PRE Noncarc. Ratio
MW02	ALUMINUM	15.5	1.7984	NA	NA	0.00E+00	0.00E+00
MW02	BARIUM	0.173	0.22375	32	64	0.00E+00	0.00E+00
MW02	CALCIUM	56.3	52.875	NA	NA	0.00E+00	0.00E+00
MW02	CHROMIUM, TOTAL	0.018	0.0543	19	38	0.00E+00	0.00E+00
MW02	COBALT	0.007	0.02472	NA	NA	0.00E+00	0.00E+00
MW02	COPPER	0.0109	0.1626	NA	NA	0.00E+00	0.00E+00
MW02	IRON	15.9	6.728	NA	NA	0.00E+00	0.00E+00
MW02	MAGNESIUM	27.6	26.045	NA	NA	0.00E+00	0.00E+00
MW02	MANGANESE	0.967	0.560073	NA	NA	0.00E+00	0.00E+00
MW02	NICKEL	0.0119	0.0314	21	42	0.00E+00	0.00E+00
MW02	POTASSIUM	4.24	3.495333	NA	NA	0.00E+00	0.00E+00
MW02	SODIUM	18.4	106.65	NA	NA	0.00E+00	0.00E+00
MW02	VANADIUM	0.0309	0.0145	NA	NA	0.00E+00	0.00E+00
MW02 Total						0.00E+00	0.00E+00
MW03	1,1,1-TRICHLOROETHANE	0.001	0.001		NA	0.00E+00	0.00E+00
MW03	ALUMINUM	6.91	1.7984	NA	NA	0.00E+00	0.00E+00
MW03	BARIUM	0.133	0.22375	32	64	0.00E+00	0.00E+00
MW03	CALCIUM	23.3	52.875	NA	NA	0.00E+00	0.00E+00
MW03	CHLORIDE (AS CL)	13.7	0		NA	0.00E+00	0.00E+00
MW03	COBALT	0.0126	0.02472	NA	NA	0.00E+00	0.00E+00
MW03	COPPER	0.008	0.1626	NA	NA	0.00E+00	0.00E+00
MW03	IRON	34	6.728	NA	NA	0.00E+00	0.00E+00
MW03	MAGNESIUM	11.7	26.045	NA	NA	0.00E+00	0.00E+00
MW03	MANGANESE	0.116	0.560073	NA	NA	0.00E+00	0.00E+00
MW03	NICKEL	0.0102	0.0314	21	42	0.00E+00	0.00E+00
MW03	NITRITE	2.92	0		NA	0.00E+00	0.00E+00
MW03	POTASSIUM	3.39	3.495333	NA	NA	0.00E+00	0.00E+00
MW03	SODIUM	19	106.65	NA	NA	0.00E+00	0.00E+00
MW03	SULFATE (AS SO4)	34.4	0		NA	0.00E+00	0.00E+00
MW03	TOTAL ORGANIC CARBON	1.9	0		NA	0.00E+00	0.00E+00
MW03	VANADIUM	0.0345	0.0145	NA	NA	0.00E+00	0.00E+00
MW03 Total						0.00E+00	0.00E+00
MW04	ALUMINUM	8.85	1.7984	NA	NA	0.00E+00	0.00E+00
MW04	BARIUM	0.074	0.22375	32	64	0.00E+00	0.00E+00
MW04	CALCIUM	13.1	52.875	NA	NA	0.00E+00	0.00E+00
MW04	CHLORIDE (AS CL)	40.1	0		NA	0.00E+00	0.00E+00
MW04	CHROMIUM, TOTAL	0.0232	0.0543	19	38	0.00E+00	0.00E+00
MW04	COBALT	0.0161	0.02472	NA	NA	0.00E+00	0.00E+00
MW04	COPPER	0.0135	0.1626	NA	NA	0.00E+00	0.00E+00
MW04	IRON	41.7	6.728	NA	NA	0.00E+00	0.00E+00

Table A.8
Well-Specific Groundwater PRE Noncarcinogenic Risk Ratios
 Units are mg/L

Well	Parameter	Concentration	Background	Residential Land Use Criteria	Industrial Land Use Criteria	Residential PRE Noncarc. Ratio	Industrial PRE Noncarc. Ratio
MW04	MAGNESIUM	7.05	26.045	NA	NA	0.00E+00	0.00E+00
MW04	MANGANESE	0.148	0.560073	NA	NA	0.00E+00	0.00E+00
MW04	NICKEL	0.0104	0.0314	21	42	0.00E+00	0.00E+00
MW04	POTASSIUM	3.89	3.495333	NA	NA	0.00E+00	0.00E+00
MW04	SODIUM	19.9	106.65	NA	NA	0.00E+00	0.00E+00
MW04	SULFATE (AS SO4)	38.8	0		NA	0.00E+00	0.00E+00
MW04	VANADIUM	0.034	0.0145	NA	NA	0.00E+00	0.00E+00
MW04 Total						0.00E+00	0.00E+00
MW05	BARIUM	0.0592	0.22375	32	64	0.00E+00	0.00E+00
MW05	CALCIUM	16.6	52.875	NA	NA	0.00E+00	0.00E+00
MW05	IRON	0.133	6.728	NA	NA	0.00E+00	0.00E+00
MW05	MAGNESIUM	8.7	26.045	NA	NA	0.00E+00	0.00E+00
MW05	POTASSIUM	1.06	3.495333	NA	NA	0.00E+00	0.00E+00
MW05	SODIUM	38	106.65	NA	NA	0.00E+00	0.00E+00
MW05	DICHLOROETHENE	0.002	0		NA	0.00E+00	0.00E+00
MW05 Total						0.00E+00	0.00E+00
MW06	ALUMINUM	1.48	1.7984	NA	NA	0.00E+00	0.00E+00
MW06	BARIUM	0.383	0.22375	32	64	1.20E-02	5.98E-03
MW06	CALCIUM	176	52.875	NA	NA	0.00E+00	0.00E+00
MW06	COPPER	0.00077	0.1626	NA	NA	0.00E+00	0.00E+00
MW06	HARDNESS (AS CaCO3)	804	0		NA	0.00E+00	0.00E+00
MW06	IRON	4.73	6.728	NA	NA	0.00E+00	0.00E+00
MW06	MAGNESIUM	31.8	26.045	NA	NA	0.00E+00	0.00E+00
MW06	MANGANESE	5.5	0.560073	NA	NA	0.00E+00	0.00E+00
MW06	MERCURY	0.00052	0.3		8	1.73E-04	8.67E-05
MW06	POTASSIUM	4.79	3.495333	NA	NA	0.00E+00	0.00E+00
MW06	SODIUM	30.8	106.65	NA	NA	0.00E+00	0.00E+00
MW06	DICHLOROETHENE	0.38	0		NA	0.00E+00	0.00E+00
MW06	VANADIUM	0.0047	0.0145	NA	NA	0.00E+00	0.00E+00
MW06 Total						1.21E-02	6.07E-03
MW07	1,1,1-TRICHLOROETHANE	0.002	0.001		NA	0.00E+00	0.00E+00
MW07	ALUMINUM	0.358	1.7984	NA	NA	0.00E+00	0.00E+00
MW07	BARIUM	0.0759	0.22375	32	64	0.00E+00	0.00E+00
MW07	CALCIUM	19.3	52.875	NA	NA	0.00E+00	0.00E+00
MW07	IRON	2.7	6.728	NA	NA	0.00E+00	0.00E+00
MW07	MAGNESIUM	9.51	26.045	NA	NA	0.00E+00	0.00E+00
MW07	MANGANESE	0.0155	0.560073	NA	NA	0.00E+00	0.00E+00
MW07	POTASSIUM	1.37	3.495333	NA	NA	0.00E+00	0.00E+00
MW07	SODIUM	22.1	106.65	NA	NA	0.00E+00	0.00E+00
MW07	VANADIUM	0.0027	0.0145	NA	NA	0.00E+00	0.00E+00

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Table A.8
Well-Specific Groundwater PRE Noncarcinogenic Risk Ratios
 Units are mg/L

Well	Parameter	Concentration	Background	Residential Land Use Criteria	Industrial Land Use Criteria	Residential PRE Noncarc. Ratio	Industrial PRE Noncarc. Ratio
MW07 Total						0.00E+00	0.00E+00
MW08	1,1,1-TRICHLOROETHANE	0.002	0.001		NA	0.00E+00	0.00E+00
MW08	ALUMINUM	0.982	1.7984	NA	NA	0.00E+00	0.00E+00
MW08	BARIUM	0.0639	0.22375	32	64	0.00E+00	0.00E+00
MW08	CALCIUM	15.5	52.875	NA	NA	0.00E+00	0.00E+00
MW08	CHLORIDE (AS CL)	17.3	0		NA	0.00E+00	0.00E+00
MW08	HARDNESS (AS CaCO3)	76	0		NA	0.00E+00	0.00E+00
MW08	IRON	2.53	6.728	NA	NA	0.00E+00	0.00E+00
MW08	MAGNESIUM	7.4	26.045	NA	NA	0.00E+00	0.00E+00
MW08	MANGANESE	0.012	0.560073	NA	NA	0.00E+00	0.00E+00
MW08	NITRITE	1.64	0		NA	0.00E+00	0.00E+00
MW08	POTASSIUM	1.44	3.495333	NA	NA	0.00E+00	0.00E+00
MW08	SODIUM	28.8	106.65	NA	NA	0.00E+00	0.00E+00
MW08	SULFATE (AS SO4)	35.9	0		NA	0.00E+00	0.00E+00
MW08	TOTAL ORGANIC CARBON	1.3	0		NA	0.00E+00	0.00E+00
MW08	VANADIUM	0.0026	0.0145	NA	NA	0.00E+00	0.00E+00
MW08 Total						0.00E+00	0.00E+00
MW09	ALUMINUM	0.683	1.7984	NA	NA	0.00E+00	0.00E+00
MW09	BARIUM	0.0636	0.22375	32	64	0.00E+00	0.00E+00
MW09	CALCIUM	17.3	52.875	NA	NA	0.00E+00	0.00E+00
MW09	CHROMIUM, TOTAL	0.003	0.0543	19	38	0.00E+00	0.00E+00
MW09	COBALT	0.0033	0.02472	NA	NA	0.00E+00	0.00E+00
MW09	IRON	1.34	6.728	NA	NA	0.00E+00	0.00E+00
MW09	MAGNESIUM	6.03	26.045	NA	NA	0.00E+00	0.00E+00
MW09	MANGANESE	0.113	0.560073	NA	NA	0.00E+00	0.00E+00
MW09	POTASSIUM	17.6	3.495333	NA	NA	0.00E+00	0.00E+00
MW09	SODIUM	13.3	106.65	NA	NA	0.00E+00	0.00E+00
MW09	VANADIUM	0.0021	0.0145	NA	NA	0.00E+00	0.00E+00
MW09 Total						0.00E+00	0.00E+00
MW10	1,1,1-TRICHLOROETHANE	0.004	0.001		NA	0.00E+00	0.00E+00
MW10	ALUMINUM	0.215	1.7984	NA	NA	0.00E+00	0.00E+00
MW10	BARIUM	0.102	0.22375	32	64	0.00E+00	0.00E+00
MW10	CALCIUM	25.1	52.875	NA	NA	0.00E+00	0.00E+00
MW10	CHLORIDE (AS CL)	16	0		NA	0.00E+00	0.00E+00
MW10	HARDNESS (AS CaCO3)	138	0		NA	0.00E+00	0.00E+00
MW10	IRON	0.784	6.728	NA	NA	0.00E+00	0.00E+00
MW10	MAGNESIUM	11.9	26.045	NA	NA	0.00E+00	0.00E+00
MW10	MANGANESE	0.0438	0.560073	NA	NA	0.00E+00	0.00E+00
MW10	NICKEL	0.0013	0.0314	21	42	0.00E+00	0.00E+00
MW10	NITRITE	3.94	0		NA	0.00E+00	0.00E+00

Table A.8
Well-Specific Groundwater PRE Noncarcinogenic Risk Ratios
 Units are mg/L

Well	Parameter	Concentration	Background	Residential Land Use Criteria	Industrial Land Use Criteria	Residential PRE Noncarc. Ratio	Industrial PRE Noncarc. Ratio
MW10	POTASSIUM	1.74	3.495333	NA	NA	0.00E+00	0.00E+00
MW10	SODIUM	23.3	106.65	NA	NA	0.00E+00	0.00E+00
MW10	SULFATE (AS SO ₄)	49.1	0		NA	0.00E+00	0.00E+00
MW10	DICHLOROETHENE	0.01	0		NA	0.00E+00	0.00E+00
MW10	TOTAL ORGANIC CARBON	2.4	0		NA	0.00E+00	0.00E+00
MW10	VANADIUM	0.00065	0.0145	NA	NA	0.00E+00	0.00E+00
MW10 Total						0.00E+00	0.00E+00
MW11	ALUMINUM	0.158	1.7984	NA	NA	0.00E+00	0.00E+00
MW11	BARIUM	0.0655	0.22375	32	64	0.00E+00	0.00E+00
MW11	CALCIUM	13.8	52.875	NA	NA	0.00E+00	0.00E+00
MW11	IRON	0.589	6.728	NA	NA	0.00E+00	0.00E+00
MW11	MAGNESIUM	7.11	26.045	NA	NA	0.00E+00	0.00E+00
MW11	MANGANESE	0.021	0.560073	NA	NA	0.00E+00	0.00E+00
MW11	POTASSIUM	0.807	3.495333	NA	NA	0.00E+00	0.00E+00
MW11	SODIUM	17.3	106.65	NA	NA	0.00E+00	0.00E+00
MW11	DICHLOROETHENE	0.2	0		NA	0.00E+00	0.00E+00
MW11 Total						0.00E+00	0.00E+00
MW12	ALUMINUM	0.101	1.7984	NA	NA	0.00E+00	0.00E+00
MW12	BARIUM	0.0529	0.22375	32	64	0.00E+00	0.00E+00
MW12	CALCIUM	14.4	52.875	NA	NA	0.00E+00	0.00E+00
MW12	IRON	0.465	6.728	NA	NA	0.00E+00	0.00E+00
MW12	MAGNESIUM	7.81	26.045	NA	NA	0.00E+00	0.00E+00
MW12	MANGANESE	0.0101	0.560073	NA	NA	0.00E+00	0.00E+00
MW12	SODIUM	16.6	106.65	NA	NA	0.00E+00	0.00E+00
MW12	DICHLOROETHENE	0.22	0		NA	0.00E+00	0.00E+00
MW12 Total						0.00E+00	0.00E+00
MW13	ALUMINUM	0.109	1.7984	NA	NA	0.00E+00	0.00E+00
MW13	BARIUM	0.0376	0.22375	32	64	0.00E+00	0.00E+00
MW13	CALCIUM	11.9	52.875	NA	NA	0.00E+00	0.00E+00
MW13	CHLORIDE (AS CL)	8.6	0		NA	0.00E+00	0.00E+00
MW13	IRON	0.276	6.728	NA	NA	0.00E+00	0.00E+00
MW13	MAGNESIUM	6.05	26.045	NA	NA	0.00E+00	0.00E+00
MW13	MANGANESE	0.0042	0.560073	NA	NA	0.00E+00	0.00E+00
MW13	NITRITE	6.15	0		NA	0.00E+00	0.00E+00
MW13	SODIUM	17.3	106.65	NA	NA	0.00E+00	0.00E+00
MW13	SULFATE (AS SO ₄)	34.6	0		NA	0.00E+00	0.00E+00
MW13	VANADIUM	0.00039	0.0145	NA	NA	0.00E+00	0.00E+00
MW13 Total						0.00E+00	0.00E+00
MW14	ALUMINUM	14.2	1.7984	NA	NA	0.00E+00	0.00E+00
MW14	BARIUM	0.253	0.22375	32	64	7.91E-03	3.95E-03

Table A.8
Well-Specific Groundwater PRE Noncarcinogenic Risk Ratios
 Units are mg/L

Well	Parameter	Concentration	Background	Residential Land Use Criteria	Industrial Land Use Criteria	Residential PRE Noncarc. Ratio	Industrial PRE Noncarc. Ratio
MW14	CALCIUM	19.5	52.875	NA	NA	0.00E+00	0.00E+00
MW14	CHLORIDE (AS CL)	10.2	0		NA	0.00E+00	0.00E+00
MW14	CHROMIUM, TOTAL	0.0369	0.0543	19	38	0.00E+00	0.00E+00
MW14	COBALT	0.0428	0.02472	NA	NA	0.00E+00	0.00E+00
MW14	COPPER	0.0267	0.1626	NA	NA	0.00E+00	0.00E+00
MW14	IRON	52.6	6.728	NA	NA	0.00E+00	0.00E+00
MW14	MAGNESIUM	9.13	26.045	NA	NA	0.00E+00	0.00E+00
MW14	MANGANESE	0.979	0.560073	NA	NA	0.00E+00	0.00E+00
MW14	BUTANONE)	0.002	0	NA	NA	0.00E+00	0.00E+00
MW14	NICKEL	0.017	0.0314	21	42	0.00E+00	0.00E+00
MW14	NITRITE	4.67	0		NA	0.00E+00	0.00E+00
MW14	POTASSIUM	1.56	3.495333	NA	NA	0.00E+00	0.00E+00
MW14	SODIUM	12.5	106.65	NA	NA	0.00E+00	0.00E+00
MW14	SULFATE (AS SO4)	38.2	0		NA	0.00E+00	0.00E+00
MW14	TOTAL ORGANIC CARBON	2.6	0		NA	0.00E+00	0.00E+00
MW14	VANADIUM	0.0586	0.0145	NA	NA	0.00E+00	0.00E+00
MW14	ZINC	0.075	0	42000	84000	1.79E-06	8.93E-07
MW14 Total						7.91E-03	3.95E-03
MW15	ALUMINUM	12	1.7984	NA	NA	0.00E+00	0.00E+00
MW15	BARIUM	0.13	0.22375	32	64	0.00E+00	0.00E+00
MW15	CALCIUM	15	52.875	NA	NA	0.00E+00	0.00E+00
MW15	CHROMIUM, TOTAL	0.0272	0.0543	19	38	0.00E+00	0.00E+00
MW15	COBALT	0.02	0.02472	NA	NA	0.00E+00	0.00E+00
MW15	COPPER	0.0153	0.1626	NA	NA	0.00E+00	0.00E+00
MW15	IRON	39.7	6.728	NA	NA	0.00E+00	0.00E+00
MW15	MAGNESIUM	7.6	26.045	NA	NA	0.00E+00	0.00E+00
MW15	MANGANESE	0.279	0.560073	NA	NA	0.00E+00	0.00E+00
MW15	MERCURY	0.00023	0	3	6	7.67E-05	3.83E-05
MW15	NICKEL	0.0111	0.0314	21	42	0.00E+00	0.00E+00
MW15	POTASSIUM	4.48	3.495333	NA	NA	0.00E+00	0.00E+00
MW15	SODIUM	18	106.65	NA	NA	0.00E+00	0.00E+00
MW15	DICHLOROETHENE	0.012	0		NA	0.00E+00	0.00E+00
MW15	VANADIUM	0.0525	0.0145	NA	NA	0.00E+00	0.00E+00
MW15 Total						7.67E-05	3.83E-05
MW16	ALUMINUM	1.38	1.7984	NA	NA	0.00E+00	0.00E+00
MW16	BARIUM	0.053	0.22375	32	64	0.00E+00	0.00E+00
MW16	CALCIUM	31.5	52.875	NA	NA	0.00E+00	0.00E+00
MW16	COPPER	0.0492	0.1626	NA	NA	0.00E+00	0.00E+00
MW16	IRON	1.94	6.728	NA	NA	0.00E+00	0.00E+00
MW16	MAGNESIUM	12.2	26.045	NA	NA	0.00E+00	0.00E+00

Table A.8 Well-Specific Groundwater PRE Noncarcinogenic Risk Ratios Units are mg/L							
Well	Parameter	Concentration	Background	Residential Land Use Criteria	Industrial Land Use Criteria	Residential PRE Noncarc. Ratio	Industrial PRE Noncarc. Ratio
MW16	MANGANESE	0.257	0.560073	NA	NA	0.00E+00	0.00E+00
MW16	BUTANONE	0.002	0	NA	NA	0.00E+00	0.00E+00
MW16	NICKEL	0.005	0.0314	21	42	0.00E+00	0.00E+00
MW16	POTASSIUM	5.08	3.495333	NA	NA	0.00E+00	0.00E+00
MW16	SODIUM	29.1	106.65	NA	NA	0.00E+00	0.00E+00
MW16	VANADIUM	0.0036	0.0145	NA	NA	0.00E+00	0.00E+00
MW16 Total						0.00E+00	0.00E+00
MW19	ALUMINUM	15.1	1.7984	NA	NA	0.00E+00	0.00E+00
MW19	BARIIUM	0.219	0.22375	32	64	0.00E+00	0.00E+00
MW19	CALCIUM	15.1	52.875	NA	NA	0.00E+00	0.00E+00
MW19	CHROMIUM, TOTAL	0.0303	0.0543	19	38	0.00E+00	0.00E+00
MW19	COBALT	0.0078	0.02472	NA	NA	0.00E+00	0.00E+00
MW19	COPPER	0.0318	0.1626	NA	NA	0.00E+00	0.00E+00
MW19	IRON	33.9	6.728	NA	NA	0.00E+00	0.00E+00
MW19	MAGNESIUM	6.18	26.045	NA	NA	0.00E+00	0.00E+00
MW19	MANGANESE	0.314	0.560073	NA	NA	0.00E+00	0.00E+00
MW19	NICKEL	0.0113	0.0314	21	42	0.00E+00	0.00E+00
MW19	POTASSIUM	3.77	3.495333	NA	NA	0.00E+00	0.00E+00
MW19	SODIUM	10.1	106.65	NA	NA	0.00E+00	0.00E+00
MW19	VANADIUM	0.0447	0.0145	NA	NA	0.00E+00	0.00E+00
MW19	ZINC	0.0421	0	42000	84000	1.00E-06	5.01E-07
MW19 Total						1.00E-06	5.01E-07
MW20	ALUMINUM	126	1.7984	NA	NA	0.00E+00	0.00E+00
MW20	BARIIUM	0.393	0.22375	32	64	1.23E-02	6.14E-03
MW20	CALCIUM	27.4	52.875	NA	NA	0.00E+00	0.00E+00
MW20	CHROMIUM, TOTAL	0.147	0.0543	19	38	7.74E-03	3.87E-03
MW20	COBALT	0.038	0.02472	NA	NA	0.00E+00	0.00E+00
MW20	COPPER	0.147	0.1626	NA	NA	0.00E+00	0.00E+00
MW20	IRON	136	6.728	NA	NA	0.00E+00	0.00E+00
MW20	MAGNESIUM	14.3	26.045	NA	NA	0.00E+00	0.00E+00
MW20	MANGANESE	1.4	0.560073	NA	NA	0.00E+00	0.00E+00
MW20	NICKEL	0.0587	0.0314	21	42	3.27E-03	1.64E-03
MW20	POTASSIUM	13.9	3.495333	NA	NA	0.00E+00	0.00E+00
MW20	SELENIUM	0.0041	0.0058	3	6	0.00E+00	0.00E+00
MW20	SODIUM	10.8	106.65	NA	NA	0.00E+00	0.00E+00
MW20	VANADIUM	0.262	0.0145	NA	NA	0.00E+00	0.00E+00
MW20	ZINC	0.267	0	42000	84000	6.36E-06	3.18E-06
MW20 Total						2.33E-02	1.16E-02
MW21	ALUMINUM	3.84	1.7984	NA	NA	0.00E+00	0.00E+00
MW21	BARIIUM	0.0607	0.22375	32	64	0.00E+00	0.00E+00

Table A.8
Well-Specific Groundwater PRE Noncarcinogenic Risk Ratios
Units are mg/L

Well	Parameter	Concentration	Background	Residential Land Use Criteria	Industrial Land Use Criteria	Residential PRE Noncarc. Ratio	Industrial PRE Noncarc. Ratio
MW21	CALCIUM	14.1	52.875	NA	NA	0.00E+00	0.00E+00
MW21	CHLORIDE (AS CL)	17.3	0		NA	0.00E+00	0.00E+00
MW21	COBALT	0.0029	0.02472	NA	NA	0.00E+00	0.00E+00
MW21	COPPER	0.005	0.1626	NA	NA	0.00E+00	0.00E+00
MW21	IRON	2.22	6.728	NA	NA	0.00E+00	0.00E+00
MW21	IRON	2.22	6.728	NA	NA	0.00E+00	0.00E+00
MW21	IRON	8.52	6.728	NA	NA	0.00E+00	0.00E+00
MW21	IRON	8.52	6.728	NA	NA	0.00E+00	0.00E+00
MW21	MAGNESIUM	7.18	26.045	NA	NA	0.00E+00	0.00E+00
MW21	MANGANESE	0.0598	0.560073	NA	NA	0.00E+00	0.00E+00
MW21	NITRITE	3.21	0		NA	0.00E+00	0.00E+00
MW21	POTASSIUM	2.06	3.495333	NA	NA	0.00E+00	0.00E+00
MW21	SODIUM	15.1	106.65	NA	NA	0.00E+00	0.00E+00
MW21	TOTAL ORGANIC CARBON	2.7	0		NA	0.00E+00	0.00E+00
MW21	VANADIUM	0.0158	0.0145	NA	NA	0.00E+00	0.00E+00
MW21	ZINC	0.218	0.42000	84000	84000	5.21E-06	2.61E-06
MW21 Total						5.21E-06	2.61E-06
MW22	ALUMINUM	7.91	1.7984	NA	NA	0.00E+00	0.00E+00
MW22	BARIUM	0.123	0.22375	32	64	0.00E+00	0.00E+00
MW22	CALCIUM	27.8	52.875	NA	NA	0.00E+00	0.00E+00
MW22	CHLORIDE (AS CL)	35	0		NA	0.00E+00	0.00E+00
MW22	CHROMIUM, TOTAL	0.0257	0.0543	19	38	0.00E+00	0.00E+00
MW22	COBALT	0.0021	0.02472	NA	NA	0.00E+00	0.00E+00
MW22	COPPER	0.0178	0.1626	NA	NA	0.00E+00	0.00E+00
MW22	IRON	19.7	6.728	NA	NA	0.00E+00	0.00E+00
MW22	MAGNESIUM	14.4	26.045	NA	NA	0.00E+00	0.00E+00
MW22	MANGANESE	0.0717	0.560073	NA	NA	0.00E+00	0.00E+00
MW22	NICKEL	0.0072	0.0314	21	42	0.00E+00	0.00E+00
MW22	NITRITE	7.33	0		NA	0.00E+00	0.00E+00
MW22	POTASSIUM	4.5	3.495333	NA	NA	0.00E+00	0.00E+00
MW22	SODIUM	41.4	106.65	NA	NA	0.00E+00	0.00E+00
MW22	SULFATE (AS SO4)	25.5	0		NA	0.00E+00	0.00E+00
MW22	TOTAL ORGANIC CARBON	4.5	0		NA	0.00E+00	0.00E+00
MW22	VANADIUM	0.0164	0.0145	NA	NA	0.00E+00	0.00E+00
MW22	ZINC	0.0327	0.42000	84000	84000	7.79E-07	3.89E-07
MW22 Total						7.79E-07	3.89E-07
MW23	ALUMINUM	0.471	1.7984	NA	NA	0.00E+00	0.00E+00
MW23	BARIUM	0.0309	0.22375	32	64	0.00E+00	0.00E+00
MW23	CALCIUM	116	52.875	NA	NA	0.00E+00	0.00E+00
MW23	CHLORIDE (AS CL)	14.5	0		NA	0.00E+00	0.00E+00

Table A.8
Well-Specific Groundwater PRE Noncarcinogenic Risk Ratios
 Units are mg/L

Well	Parameter	Concentration	Background	Residential Land Use Criteria	Industrial Land Use Criteria	Residential PRE Noncarc. Ratio	Industrial PRE Noncarc. Ratio
MW23	IRON	0.757	5.728	NA	NA	0.00E+00	0.00E+00
MW23	MAGNESIUM	18.7	26.045	NA	NA	0.00E+00	0.00E+00
MW23	MANGANESE	0.0184	0.560073	NA	NA	0.00E+00	0.00E+00
MW23	NITRITE	4.87	0		NA	0.00E+00	0.00E+00
MW23	POTASSIUM	4.3	3.495333	NA	NA	0.00E+00	0.00E+00
MW23	SODIUM	10.5	106.65	NA	NA	0.00E+00	0.00E+00
MW23	SULFATE (AS SO ₄)	148	0		NA	0.00E+00	0.00E+00
MW23	TOTAL ORGANIC CARBON	2.6	0		NA	0.00E+00	0.00E+00
MW23	VANADIUM	0.0018	0.0145	NA	NA	0.00E+00	0.00E+00
MW23 Total						0.00E+00	0.00E+00
MW24	ALUMINUM	9.19	1.7984	NA	NA	0.00E+00	0.00E+00
MW24	BARIUM	0.0862	0.22375	32	84	0.00E+00	0.00E+00
MW24	CALCIUM	13.8	52.875	NA	NA	0.00E+00	0.00E+00
MW24	CHROMIUM, TOTAL	0.0114	0.0543	19	38	0.00E+00	0.00E+00
MW24	COBALT	0.0136	0.02472	NA	NA	0.00E+00	0.00E+00
MW24	COPPER	0.0088	0.1626	NA	NA	0.00E+00	0.00E+00
MW24	IRON	52.1	6.728	NA	NA	0.00E+00	0.00E+00
MW24	MAGNESIUM	6.13	26.045	NA	NA	0.00E+00	0.00E+00
MW24	MANGANESE	0.127	0.560073	NA	NA	0.00E+00	0.00E+00
MW24	NICKEL	0.0051	0.0314	21	42	0.00E+00	0.00E+00
MW24	POTASSIUM	2.31	3.495333	NA	NA	0.00E+00	0.00E+00
MW24	SODIUM	21.4	106.65	NA	NA	0.00E+00	0.00E+00
MW24	VANADIUM	0.0232	0.0145	NA	NA	0.00E+00	0.00E+00
MW24	ZINC	0.0331	0	42000	84000	7.88E-07	3.94E-07
MW24 Total						7.88E-07	3.94E-07
MW25	ALUMINUM	7.23	1.7984	NA	NA	0.00E+00	0.00E+00
MW25	BARIUM	0.167	0.22375	32	84	0.00E+00	0.00E+00
MW25	CALCIUM	17.7	52.875	NA	NA	0.00E+00	0.00E+00
MW25	CHROMIUM, TOTAL	0.0135	0.0543	19	38	0.00E+00	0.00E+00
MW25	COBALT	0.0159	0.02472	NA	NA	0.00E+00	0.00E+00
MW25	COPPER	0.027	0.1626	NA	NA	0.00E+00	0.00E+00
MW25	IRON	25.8	6.728	NA	NA	0.00E+00	0.00E+00
MW25	MAGNESIUM	9.2	26.045	NA	NA	0.00E+00	0.00E+00
MW25	MANGANESE	0.895	0.560073	NA	NA	0.00E+00	0.00E+00
MW25	NICKEL	0.0068	0.0314	21	42	0.00E+00	0.00E+00
MW25	POTASSIUM	3.21	3.495333	NA	NA	0.00E+00	0.00E+00
MW25	SODIUM	17	106.65	NA	NA	0.00E+00	0.00E+00
MW25	VANADIUM	0.0372	0.0145	NA	NA	0.00E+00	0.00E+00
MW25	ZINC	0.0236	0	42000	84000	5.62E-07	2.81E-07
MW25 Total						5.62E-07	2.81E-07

Table A.8
Well-Specific Groundwater PRE Noncarcinogenic Risk Ratios
 Units are mg/L

Well	Parameter	Concentration	Background	Residential Land Use Criteria	Industrial Land Use Criteria	Residential PRE Noncarc. Ratio	Industrial PRE Noncarc. Ratio
MW25	ALUMINUM	3.39	1.7984	NA	NA	0.00E+00	0.00E+00
MW26	BARIUM	0.215	0.22375	32	64	0.00E+00	0.00E+00
MW26	CALCIUM	21.7	52.875	NA	NA	0.00E+00	0.00E+00
MW26	CHROMIUM, TOTAL	0.0062	0.0543	19	38	0.00E+00	0.00E+00
MW26	COBALT	0.0044	0.02472	NA	NA	0.00E+00	0.00E+00
MW26	IRON	14.8	6.728	NA	NA	0.00E+00	0.00E+00
MW26	MAGNESIUM	10.8	26.045	NA	NA	0.00E+00	0.00E+00
MW26	MANGANESE	0.176	0.560073	NA	NA	0.00E+00	0.00E+00
MW26	MERCURY	0.0002	0.3	8	8	6.67E-05	3.33E-05
MW26	POTASSIUM	3.18	3.495333	NA	NA	0.00E+00	0.00E+00
MW26	SODIUM	31.5	106.65	NA	NA	0.00E+00	0.00E+00
MW25	VANADIUM	0.0239	0.0145	NA	NA	0.00E+00	0.00E+00
MW26 Total						6.67E-05	3.33E-05
MW28	ALUMINUM	5.21	1.7984	NA	NA	0.00E+00	0.00E+00
MW28	BARIUM	0.0911	0.22375	32	64	0.00E+00	0.00E+00
MW28	CALCIUM	14.6	52.875	NA	NA	0.00E+00	0.00E+00
MW28	CHROMIUM, TOTAL	0.0102	0.0543	19	38	0.00E+00	0.00E+00
MW28	COBALT	0.0183	0.02472	NA	NA	0.00E+00	0.00E+00
MW28	IRON	11.8	6.728	NA	NA	0.00E+00	0.00E+00
MW28	MAGNESIUM	7.8	26.045	NA	NA	0.00E+00	0.00E+00
MW28	MANGANESE	0.259	0.560073	NA	NA	0.00E+00	0.00E+00
MW28	NICKEL	0.0054	0.0314	21	42	0.00E+00	0.00E+00
MW28	SODIUM	16.1	106.65	NA	NA	0.00E+00	0.00E+00
MW28	VANADIUM	0.0164	0.0145	NA	NA	0.00E+00	0.00E+00
MW28 Total						0.00E+00	0.00E+00
MW29	1,1,1-TRICHLOROETHANE	0.007	0.001		NA	0.00E+00	0.00E+00
MW29	ALUMINUM	2.11	1.7984	NA	NA	0.00E+00	0.00E+00
MW29	BARIUM	0.109	0.22375	32	64	0.00E+00	0.00E+00
MW29	CALCIUM	26	52.875	NA	NA	0.00E+00	0.00E+00
MW29	CHROMIUM, TOTAL	0.0059	0.0543	19	38	0.00E+00	0.00E+00
MW29	IRON	6.82	6.728	NA	NA	0.00E+00	0.00E+00
MW29	MAGNESIUM	12.5	26.045	NA	NA	0.00E+00	0.00E+00
MW29	MANGANESE	0.0227	0.560073	NA	NA	0.00E+00	0.00E+00
MW29	POTASSIUM	2.37	3.495333	NA	NA	0.00E+00	0.00E+00
MW29	SODIUM	28.2	106.65	NA	NA	0.00E+00	0.00E+00
MW29	VANADIUM	0.0077	0.0145	NA	NA	0.00E+00	0.00E+00
MW29 Total						0.00E+00	0.00E+00
MW30	ALUMINUM	0.314	1.7984	NA	NA	0.00E+00	0.00E+00
MW30	BARIUM	0.133	0.22375	32	64	0.00E+00	0.00E+00
MW30	CALCIUM	25.2	52.875	NA	NA	0.00E+00	0.00E+00

Table A.8
Well-Specific Groundwater PRE Noncarcinogenic Risk Ratios
 Units are mg/L

Well	Parameter	Concentration	Background	Residential Land Use Criteria	Industrial Land Use Criteria	Residential PRE Noncarc. Ratio	Industrial PRE Noncarc. Ratio
MW30	CHLORIDE (AS CL)	30.5	0		NA	0.00E+00	0.00E+00
MW30	IRON	1.15	6.728	NA	NA	0.00E+00	0.00E+00
MW30	MAGNESIUM	12.7	26.045	NA	NA	0.00E+00	0.00E+00
MW30	NITRITE	2.51	0		NA	0.00E+00	0.00E+00
MW30	SODIUM	19.8	106.65	NA	NA	0.00E+00	0.00E+00
MW30	SULFATE (AS SO4)	28.2	0		NA	0.00E+00	0.00E+00
MW30	TOTAL ORGANIC CARBON	2.7	0		NA	0.00E+00	0.00E+00
MW30	VANADIUM	0.0011	0.0145	NA	NA	0.00E+00	0.00E+00
MW30 Total						0.00E+00	0.00E+00
MW31	1,1,1-TRICHLOROETHANE	0.002	0.001		NA	0.00E+00	0.00E+00
MW31	ALUMINUM	0.13	1.7984	NA	NA	0.00E+00	0.00E+00
MW31	BARIUM	0.13	0.22375	32	64	0.00E+00	0.00E+00
MW31	CALCIUM	24.3	52.875	NA	NA	0.00E+00	0.00E+00
MW31	CHLORIDE (AS CL)	16	0		NA	0.00E+00	0.00E+00
MW31	IRON	0.894	6.728	NA	NA	0.00E+00	0.00E+00
MW31	MAGNESIUM	11.8	26.045	NA	NA	0.00E+00	0.00E+00
MW31	MANGANESE	0.0051	0.560073	NA	NA	0.00E+00	0.00E+00
MW31	NITRITE	2.34	0		NA	0.00E+00	0.00E+00
MW31	SODIUM	25.1	106.65	NA	NA	0.00E+00	0.00E+00
MW31	SULFATE (AS SO4)	52	0		NA	0.00E+00	0.00E+00
MW31	DICHLOROETHENE	0.14	0		NA	0.00E+00	0.00E+00
MW31	TOTAL ORGANIC CARBON	2	0		NA	0.00E+00	0.00E+00
MW31	VANADIUM	0.00065	0.0145	NA	NA	0.00E+00	0.00E+00
MW31 Total						0.00E+00	0.00E+00
MW32	ALUMINUM	2.02	1.7984	NA	NA	0.00E+00	0.00E+00
MW32	BARIUM	0.193	0.22375	32	64	0.00E+00	0.00E+00
MW32	BICARBONATE	38	0		NA	0.00E+00	0.00E+00
MW32	CALCIUM	68	52.875	NA	NA	0.00E+00	0.00E+00
MW32	CHLORIDE (AS CL)	185	0		NA	0.00E+00	0.00E+00
MW32	COPPER	0.0016	0.1626	NA	NA	0.00E+00	0.00E+00
MW32	HARDNESS (AS CaCO3)	274	0		NA	0.00E+00	0.00E+00
MW32	IRON	8.02	6.728	NA	NA	0.00E+00	0.00E+00
MW32	MAGNESIUM	15.6	26.045	NA	NA	0.00E+00	0.00E+00
MW32	MANGANESE	2	0.560073	NA	NA	0.00E+00	0.00E+00
MW32	NITROGEN, NITRATE (AS N)	4.29	0		NA	0.00E+00	0.00E+00
MW32	NITRITE	4.16	0		NA	0.00E+00	0.00E+00
MW32	POTASSIUM	3.97	3.495333	NA	NA	0.00E+00	0.00E+00
MW32	SODIUM	22	106.65	NA	NA	0.00E+00	0.00E+00
MW32	SULFATE (AS SO4)	11.6	0		NA	0.00E+00	0.00E+00
MW32	DICHLOROETHENE	0.088	0		NA	0.00E+00	0.00E+00

Table A.8
Well-Specific Groundwater PRE Noncarcinogenic Risk Ratios
 Units are mg/L

Well	Parameter	Concentration	Background	Residential Land Use Criteria	Industrial Land Use Criteria	Residential PRE Noncarc. Ratio	Industrial PRE Noncarc. Ratio
MW32	(RESIDUE, FILTERABLE)	709	0		NA	0.00E+00	0.00E+00
MW32	TOTAL ORGANIC CARBON	8.5	0		NA	0.00E+00	0.00E+00
MW32	VANADIUM	0.0111	0.0145	NA	NA	0.00E+00	0.00E+00
MW32 Total						0.00E+00	0.00E+00
MW33	ALUMINUM	0.585	1.7984	NA	NA	0.00E+00	0.00E+00
MW33	BARIUM	0.0598	0.22375	32	64	0.00E+00	0.00E+00
MW33	CALCIUM	9.93	52.875	NA	NA	0.00E+00	0.00E+00
MW33	IRON	2.05	6.728	NA	NA	0.00E+00	0.00E+00
MW33	MAGNESIUM	4.85	26.045	NA	NA	0.00E+00	0.00E+00
MW33	MANGANESE	0.0208	0.560073	NA	NA	0.00E+00	0.00E+00
MW33	POTASSIUM	1.07	3.495333	NA	NA	0.00E+00	0.00E+00
MW33	SODIUM	20.2	106.65	NA	NA	0.00E+00	0.00E+00
MW33	VANADIUM	0.002	0.0145	NA	NA	0.00E+00	0.00E+00
MW33 Total						0.00E+00	0.00E+00
MW34	ALUMINUM	0.162	1.7984	NA	NA	0.00E+00	0.00E+00
MW34	BARIUM	0.129	0.22375	32	64	0.00E+00	0.00E+00
MW34	CALCIUM	12.9	52.875	NA	NA	0.00E+00	0.00E+00
MW34	CHLORIDE (AS CL)	10.4	0		NA	0.00E+00	0.00E+00
MW34	CHROMIUM, TOTAL	0.0032	0.0543	19	38	0.00E+00	0.00E+00
MW34	IRON	0.808	6.728	NA	NA	0.00E+00	0.00E+00
MW34	MAGNESIUM	5.95	26.045	NA	NA	0.00E+00	0.00E+00
MW34	MANGANESE	0.0024	0.560073	NA	NA	0.00E+00	0.00E+00
MW34	NITRITE	5.92	0		NA	0.00E+00	0.00E+00
MW34	POTASSIUM	1.53	3.495333	NA	NA	0.00E+00	0.00E+00
MW34	SODIUM	9.35	106.65	NA	NA	0.00E+00	0.00E+00
MW34	SULFATE (AS SO4)	9.7	0		NA	0.00E+00	0.00E+00
MW34	TOTAL ORGANIC CARBON	2	0		NA	0.00E+00	0.00E+00
MW34	VANADIUM	0.0016	0.0145	NA	NA	0.00E+00	0.00E+00
MW34 Total						0.00E+00	0.00E+00
MW35	BARIUM	0.119	0.22375	32	64	0.00E+00	0.00E+00
MW35	BICARBONATE	54	0		NA	0.00E+00	0.00E+00
MW35	CALCIUM	14.4	52.875	NA	NA	0.00E+00	0.00E+00
MW35	CHLORIDE (AS CL)	10.7	0		NA	0.00E+00	0.00E+00
MW35	HARDNESS (AS CaCO3)	72	0		NA	0.00E+00	0.00E+00
MW35	IRON	0.162	6.728	NA	NA	0.00E+00	0.00E+00
MW35	MAGNESIUM	7.04	26.045	NA	NA	0.00E+00	0.00E+00
MW35	NITROGEN, NITRATE (AS N)	4.19	0		NA	0.00E+00	0.00E+00
MW35	NITRITE	4.15	0		NA	0.00E+00	0.00E+00
MW35	SODIUM	15.8	106.65	NA	NA	0.00E+00	0.00E+00
MW35	SULFATE (AS SO4)	20.2	0		NA	0.00E+00	0.00E+00

Table A.8
Well-Specific Groundwater PRE Noncarcinogenic Risk Ratios
 Units are mg/L

Well	Parameter	Concentration	Background	Residential Land Use Criteria	Industrial Land Use Criteria	Residential PRE Noncarc. Ratio	Industrial PRE Noncarc. Ratio
MW35	DICHLOROETHENE	0.004	0		NA	0.00E+00	0.00E+00
MW35	(RESIDUE, FILTERABLE)	172	0		NA	0.00E+00	0.00E+00
MW35	TOTAL ORGANIC CARBON	1.9	0		NA	0.00E+00	0.00E+00
MW35 Total						0.00E+00	0.00E+00
MW36	ALUMINUM	0.439	1.7984	NA	NA	0.00E+00	0.00E+00
MW36	BARIUM	0.0498	0.22375	32	64	0.00E+00	0.00E+00
MW36	CALCIUM	20.4	52.875	NA	NA	0.00E+00	0.00E+00
MW36	CHROMIUM, TOTAL	0.0091	0.0543	19	38	0.00E+00	0.00E+00
MW36	COPPER	0.0118	0.1626	NA	NA	0.00E+00	0.00E+00
MW36	IRON	0.507	6.728	NA	NA	0.00E+00	0.00E+00
MW36	MAGNESIUM	1.03	26.045	NA	NA	0.00E+00	0.00E+00
MW36	MANGANESE	0.0096	0.560073	NA	NA	0.00E+00	0.00E+00
MW36	NICKEL	0.0066	0.0314	21	42	0.00E+00	0.00E+00
MW36	POTASSIUM	2.53	3.495333	NA	NA	0.00E+00	0.00E+00
MW36	SODIUM	1.01	106.65	NA	NA	0.00E+00	0.00E+00
MW36	VANADIUM	0.0023	0.0145	NA	NA	0.00E+00	0.00E+00
MW36	ZINC	0.0707	0	42000	84000	1.68E-06	8.42E-07
MW36 Total						1.68E-06	8.42E-07
MW37	ALUMINUM	0.352	1.7984	NA	NA	0.00E+00	0.00E+00
MW37	BARIUM	0.693	0.22375	32	64	2.17E-02	1.08E-02
MW37	BICARBONATE	9	0		NA	0.00E+00	0.00E+00
MW37	CALCIUM	36.5	52.875	NA	NA	0.00E+00	0.00E+00
MW37	CHLORIDE (AS CL)	2.5	0		NA	0.00E+00	0.00E+00
MW37	HARDNESS (AS CaCO3)	198	0		NA	0.00E+00	0.00E+00
MW37	IRON	4.97	6.728	NA	NA	0.00E+00	0.00E+00
MW37	MAGNESIUM	14.7	26.045	NA	NA	0.00E+00	0.00E+00
MW37	MANGANESE	0.188	0.560073	NA	NA	0.00E+00	0.00E+00
MW37	POTASSIUM	7.38	3.495333	NA	NA	0.00E+00	0.00E+00
MW37	SODIUM	7.09	106.65	NA	NA	0.00E+00	0.00E+00
MW37	SULFATE (AS SO4)	4.6	0		NA	0.00E+00	0.00E+00
MW37	(RESIDUE, FILTERABLE)	200	0		NA	0.00E+00	0.00E+00
MW37	TOTAL ORGANIC CARBON	1.4	0		NA	0.00E+00	0.00E+00
MW37 Total						2.17E-02	1.08E-02
MW38	ALUMINUM	0.562	1.7984	NA	NA	0.00E+00	0.00E+00
MW38	BARIUM	0.0561	0.22375	32	64	0.00E+00	0.00E+00
MW38	CALCIUM	20.3	52.875	NA	NA	0.00E+00	0.00E+00
MW38	CHROMIUM, TOTAL	0.0139	0.0543	19	38	0.00E+00	0.00E+00
MW38	COBALT	0.0011	0.02472	NA	NA	0.00E+00	0.00E+00
MW38	COPPER	0.0122	0.1626	NA	NA	0.00E+00	0.00E+00
MW38	IRON	0.998	6.728	NA	NA	0.00E+00	0.00E+00

Table A.8
Well-Specific Groundwater PRE Noncarcinogenic Risk Ratios
 Units are mg/L

Well	Parameter	Concentration	Background	Residential Land Use Criteria	Industrial Land Use Criteria	Residential PRE Noncarc. Ratio	Industrial PRE Noncarc. Ratio
MW38	MAGNESIUM	3.93	26.045	NA	NA	0.00E+00	0.00E+00
MW38	MANGANESE	0.0202	0.560073	NA	NA	0.00E+00	0.00E+00
MW38	NICKEL	0.0114	0.0314	21	42	0.00E+00	0.00E+00
MW38	POTASSIUM	2.96	3.495333	NA	NA	0.00E+00	0.00E+00
MW38	SODIUM	7.07	106.65	NA	NA	0.00E+00	0.00E+00
MW38	VANADIUM	0.0016	0.0145	NA	NA	0.00E+00	0.00E+00
MW38	ZINC	0.0293	0	42000	84000	6.98E-07	3.49E-07
MW38 Total						6.98E-07	3.49E-07
MW39	ALUMINUM	1.73	1.7984	NA	NA	0.00E+00	0.00E+00
MW39	BARIUM	0.079	0.22375	32	64	0.00E+00	0.00E+00
MW39	CALCIUM	25.9	52.875	NA	NA	0.00E+00	0.00E+00
MW39	CHROMIUM, TOTAL	0.0054	0.0543	19	38	0.00E+00	0.00E+00
MW39	COBALT	0.0029	0.02472	NA	NA	0.00E+00	0.00E+00
MW39	IRON	2.74	6.728	NA	NA	0.00E+00	0.00E+00
MW39	MAGNESIUM	9.37	26.045	NA	NA	0.00E+00	0.00E+00
MW39	MANGANESE	0.179	0.560073	NA	NA	0.00E+00	0.00E+00
MW39	POTASSIUM	2.51	3.495333	NA	NA	0.00E+00	0.00E+00
MW39	SODIUM	23.5	106.65	NA	NA	0.00E+00	0.00E+00
MW39	VANADIUM	0.0024	0.0145	NA	NA	0.00E+00	0.00E+00
MW39	ZINC	0.043	0	42000	84000	1.02E-06	5.12E-07
MW39 Total						1.02E-06	5.12E-07
MW40	BARIUM	0.345	0.22375	32	64	1.08E-02	5.39E-03
MW40	CALCIUM	45.9	52.875	NA	NA	0.00E+00	0.00E+00
MW40	COBALT	0.0048	0.02472	NA	NA	0.00E+00	0.00E+00
MW40	IRON	0.0988	6.728	NA	NA	0.00E+00	0.00E+00
MW40	MAGNESIUM	23.2	26.045	NA	NA	0.00E+00	0.00E+00
MW40	MANGANESE	1.12	0.560073	NA	NA	0.00E+00	0.00E+00
MW40	NITROGEN, AMMONIA (AS N)	2.6	0		NA	0.00E+00	0.00E+00
MW40	NITRITE	0.38	0		NA	0.00E+00	0.00E+00
MW40	POTASSIUM	6.82	3.495333	NA	NA	0.00E+00	0.00E+00
MW40	SODIUM	68.7	106.65	NA	NA	0.00E+00	0.00E+00
MW40	TOTAL ORGANIC CARBON	4.7	0		NA	0.00E+00	0.00E+00
MW40	VANADIUM	0.00061	0.0145	NA	NA	0.00E+00	0.00E+00
MW40 Total						1.08E-02	5.39E-03
MW41	COPPER	0.0068	0.1626	NA	NA	0.00E+00	0.00E+00
MW41 Total						0.00E+00	0.00E+00
MW42	COPPER	0.0038	0.1626	NA	NA	0.00E+00	0.00E+00
MW42	ZINC	0.055	0	42000	84000	1.31E-06	6.55E-07
MW42 Total						1.31E-06	6.55E-07
MW44	ALUMINUM	3.93	1.7984	NA	NA	0.00E+00	0.00E+00

Table A.8
Well-Specific Groundwater PRE Noncarcinogenic Risk Ratios
 Units are mg/L

Well	Parameter	Concentration	Background	Residential Land Use Criteria	Industrial Land Use Criteria	Residential PRE Noncarc. Ratio	Industrial PRE Noncarc. Ratio
MW44	BARIUM	0.066	0.22375	32	64	0.00E+00	0.00E+00
MW44	CALCIUM	22.1	52.875	NA	NA	0.00E+00	0.00E+00
MW44	CHROMIUM, TOTAL	0.0055	0.0543	19	38	0.00E+00	0.00E+00
MW44	COBALT	0.00066	0.02472	NA	NA	0.00E+00	0.00E+00
MW44	IRON	7.93	6.728	NA	NA	0.00E+00	0.00E+00
MW44	MAGNESIUM	9.62	26.045	NA	NA	0.00E+00	0.00E+00
MW44	MANGANESE	0.02	0.560073	NA	NA	0.00E+00	0.00E+00
MW44	NICKEL	0.0043	0.0314	21	42	0.00E+00	0.00E+00
MW44	POTASSIUM	2.5	3.495333	NA	NA	0.00E+00	0.00E+00
MW44	SODIUM	18.8	106.65	NA	NA	0.00E+00	0.00E+00
MW44	DICHLOROETHENE	0.002	0		NA	0.00E+00	0.00E+00
MW44	VANADIUM	0.0073	0.0145	NA	NA	0.00E+00	0.00E+00
MW44	ZINC	0.0263	0	42000	84000	6.26E-07	3.13E-07
MW44 Total						6.26E-07	3.13E-07
MW45	ALUMINUM	0.234	1.7984	NA	NA	0.00E+00	0.00E+00
MW45	BARIUM	0.0724	0.22375	32	64	0.00E+00	0.00E+00
MW45	CALCIUM	28.3	52.875	NA	NA	0.00E+00	0.00E+00
MW45	IRON	1.38	6.728	NA	NA	0.00E+00	0.00E+00
MW45	MAGNESIUM	14.9	26.045	NA	NA	0.00E+00	0.00E+00
MW45	MANGANESE	0.0031	0.560073	NA	NA	0.00E+00	0.00E+00
MW45	POTASSIUM	1.88	3.495333	NA	NA	0.00E+00	0.00E+00
MW45	SODIUM	16.6	106.65	NA	NA	0.00E+00	0.00E+00
MW45	VANADIUM	0.0012	0.0145	NA	NA	0.00E+00	0.00E+00
MW45 Total						0.00E+00	0.00E+00
MW46	ALUMINUM	0.746	1.7984	NA	NA	0.00E+00	0.00E+00
MW46	BARIUM	0.0628	0.22375	32	64	0.00E+00	0.00E+00
MW46	CALCIUM	14.5	52.875	NA	NA	0.00E+00	0.00E+00
MW46	IRON	2.62	6.728	NA	NA	0.00E+00	0.00E+00
MW46	MAGNESIUM	6.99	26.045	NA	NA	0.00E+00	0.00E+00
MW46	MANGANESE	0.0106	0.560073	NA	NA	0.00E+00	0.00E+00
MW46	SODIUM	22	106.65	NA	NA	0.00E+00	0.00E+00
MW46	VANADIUM	0.0025	0.0145	NA	NA	0.00E+00	0.00E+00
MW46 Total						0.00E+00	0.00E+00
MW47	ALUMINUM	4.78	1.7984	NA	NA	0.00E+00	0.00E+00
MW47	BARIUM	0.124	0.22375	32	64	0.00E+00	0.00E+00
MW47	CALCIUM	27.1	52.875	NA	NA	0.00E+00	0.00E+00
MW47	CHLORIDE (AS CL)	28.6	0		NA	0.00E+00	0.00E+00
MW47	CHROMIUM, TOTAL	0.0686	0.0543	19	38	3.61E-03	1.81E-03
MW47	COBALT	0.0027	0.02472	NA	NA	0.00E+00	0.00E+00
MW47	COPPER	0.0096	0.1626	NA	NA	0.00E+00	0.00E+00

Table A.8
Well-Specific Groundwater PRE Noncarcinogenic Risk Ratios
 Units are mg/L

Well	Parameter	Concentration	Background	Residential Land Use Criteria	Industrial Land Use Criteria	Residential PRE Noncarc. Ratio	Industrial PRE Noncarc. Ratio
MW47	DIETHYL PHTHALATE	0.001	0	110	220	9.09E-06	4.55E-06
MW47	IRON	20.2	6.728	NA	NA	0.00E+00	0.00E+00
MW47	MAGNESIUM	14.1	26.045	NA	NA	0.00E+00	0.00E+00
MW47	MANGANESE	0.0895	0.560073	NA	NA	0.00E+00	0.00E+00
MW47	NICKEL	0.0071	0.0314	21	42	0.00E+00	0.00E+00
MW47	NITRITE	5.81	0		NA	0.00E+00	0.00E+00
MW47	POTASSIUM	3.82	3.495333	NA	NA	0.00E+00	0.00E+00
MW47	SODIUM	23.7	106.65	NA	NA	0.00E+00	0.00E+00
MW47	SULFATE (AS SO4)	22.1	0		NA	0.00E+00	0.00E+00
MW47	DICHLOROETHENE	0.006	0		NA	0.00E+00	0.00E+00
MW47	TOTAL ORGANIC CARBON	1.7	0		NA	0.00E+00	0.00E+00
MW47	VANADIUM	0.0196	0.0145	NA	NA	0.00E+00	0.00E+00
MW47 Total						3.62E-03	1.81E-03
MW48	ALUMINUM	0.116	1.7984	NA	NA	0.00E+00	0.00E+00
MW48	BARIUM	0.089	0.22375	32	64	0.00E+00	0.00E+00
MW48	CALCIUM	15.9	52.875	NA	NA	0.00E+00	0.00E+00
MW48	CHLORIDE (AS CL)	14.4	0		NA	0.00E+00	0.00E+00
MW48	CHROMIUM, TOTAL	0.003	0.0543	19	38	0.00E+00	0.00E+00
MW48	IRON	0.301	6.728	NA	NA	0.00E+00	0.00E+00
MW48	MAGNESIUM	8.19	26.045	NA	NA	0.00E+00	0.00E+00
MW48	MANGANESE	0.0031	0.560073	NA	NA	0.00E+00	0.00E+00
MW48	NICKEL	0.0031	0.0314	21	42	0.00E+00	0.00E+00
MW48	NITRITE	7.28	0		NA	0.00E+00	0.00E+00
MW48	POTASSIUM	1.03	3.495333	NA	NA	0.00E+00	0.00E+00
MW48	SODIUM	21.5	106.65	NA	NA	0.00E+00	0.00E+00
MW48	SULFATE (AS SO4)	13.1	0		NA	0.00E+00	0.00E+00
MW48	TOTAL ORGANIC CARBON	5.7	0		NA	0.00E+00	0.00E+00
MW48	TURBIDITY	8.1	0		NA	0.00E+00	0.00E+00
MW48	VANADIUM	0.00035	0.0145	NA	NA	0.00E+00	0.00E+00
MW48 Total						0.00E+00	0.00E+00
MW49	ALUMINUM	3.62	1.7984	NA	NA	0.00E+00	0.00E+00
MW49	BARIUM	0.0432	0.22375	32	64	0.00E+00	0.00E+00
MW49	CALCIUM	13.1	52.875	NA	NA	0.00E+00	0.00E+00
MW49	CHROMIUM, TOTAL	0.0172	0.0543	19	38	0.00E+00	0.00E+00
MW49	IRON	9.84	6.728	NA	NA	0.00E+00	0.00E+00
MW49	MAGNESIUM	6.05	26.045	NA	NA	0.00E+00	0.00E+00
MW49	MANGANESE	0.0294	0.560073	NA	NA	0.00E+00	0.00E+00
MW49	NICKEL	0.0042	0.0314	21	42	0.00E+00	0.00E+00
MW49	POTASSIUM	2.02	3.495333	NA	NA	0.00E+00	0.00E+00
MW49	SODIUM	11.4	106.65	NA	NA	0.00E+00	0.00E+00

Table A.8
Well-Specific Groundwater PRE Noncarcinogenic Risk Ratios
 Units are mg/L

Well	Parameter	Concentration	Background	Residential Land Use Criteria	Industrial Land Use Criteria	Residential PRE Noncarc. Ratio	Industrial PRE Noncarc. Ratio
MW49	VANADIUM	0.014	0.0145	NA	NA	0.00E+00	0.00E+00
MW49 Total						0.00E+00	0.00E+00
MW50	ALUMINUM	0.675	1.7984	NA	NA	0.00E+00	0.00E+00
MW50	BARIUM	0.152	0.22375	32	64	0.00E+00	0.00E+00
MW50	BENZO(g,h,i)PERYLENE	0.001	0.1400		2800	7.14E-07	3.57E-07
MW50	CALCIUM	32.3	52.875	NA	NA	0.00E+00	0.00E+00
MW50	IRON	2.5	6.728	NA	NA	0.00E+00	0.00E+00
MW50	MAGNESIUM	11.6	26.045	NA	NA	0.00E+00	0.00E+00
MW50	MANGANESE	0.0172	0.560073	NA	NA	0.00E+00	0.00E+00
MW50	POTASSIUM	2.02	3.495333	NA	NA	0.00E+00	0.00E+00
MW50	SODIUM	33.2	106.65	NA	NA	0.00E+00	0.00E+00
MW50	VANADIUM	0.0028	0.0145	NA	NA	0.00E+00	0.00E+00
MW50 Total						7.14E-07	3.57E-07
MW51	1,1,1-TRICHLOROETHANE	0.002	0.001		NA	0.00E+00	0.00E+00
MW51	ALUMINUM	4.75	1.7984	NA	NA	0.00E+00	0.00E+00
MW51	BARIUM	0.0997	0.22375	32	64	0.00E+00	0.00E+00
MW51	CALCIUM	22.3	52.875	NA	NA	0.00E+00	0.00E+00
MW51	IRON	14.5	6.728	NA	NA	0.00E+00	0.00E+00
MW51	MAGNESIUM	10.6	26.045	NA	NA	0.00E+00	0.00E+00
MW51	MANGANESE	0.0317	0.560073	NA	NA	0.00E+00	0.00E+00
MW51	POTASSIUM	2.66	3.495333	NA	NA	0.00E+00	0.00E+00
MW51	SODIUM	18.4	106.65	NA	NA	0.00E+00	0.00E+00
MW51	VANADIUM	0.0169	0.0145	NA	NA	0.00E+00	0.00E+00
MW51 Total						0.00E+00	0.00E+00
MW52	ALUMINUM	0.216	1.7984	NA	NA	0.00E+00	0.00E+00
MW52	BARIUM	0.119	0.22375	32	64	0.00E+00	0.00E+00
MW52	CALCIUM	28.6	52.875	NA	NA	0.00E+00	0.00E+00
MW52	COPPER	0.0079	0.1626	NA	NA	0.00E+00	0.00E+00
MW52	IRON	0.702	6.728	NA	NA	0.00E+00	0.00E+00
MW52	MAGNESIUM	11.6	26.045	NA	NA	0.00E+00	0.00E+00
MW52	MANGANESE	0.0072	0.560073	NA	NA	0.00E+00	0.00E+00
MW52	POTASSIUM	7.8	3.495333	NA	NA	0.00E+00	0.00E+00
MW52	SODIUM	39.8	106.65	NA	NA	0.00E+00	0.00E+00
MW52	VANADIUM	0.0016	0.0145	NA	NA	0.00E+00	0.00E+00
MW52 Total						0.00E+00	0.00E+00
MW53	BARIUM	0.0681	0.22375	32	64	0.00E+00	0.00E+00
MW53	CALCIUM	30.7	52.875	NA	NA	0.00E+00	0.00E+00
MW53	IRON	0.91	6.728	NA	NA	0.00E+00	0.00E+00
MW53	MAGNESIUM	16.7	26.045	NA	NA	0.00E+00	0.00E+00
MW53	MANGANESE	0.0156	0.560073	NA	NA	0.00E+00	0.00E+00

Table A.8
Well-Specific Groundwater PRE Noncarcinogenic Risk Ratios
 Units are mg/L

Well	Parameter	Concentration	Background	Residential Land Use Criteria	Industrial Land Use Criteria	Residential PRE Noncarc. Ratio	Industrial PRE Noncarc. Ratio
MW53	POTASSIUM	1.76	3.495333	NA	NA	0.00E+00	0.00E+00
MW53	SELENIUM	0.004	0.0058	3	6	0.00E+00	0.00E+00
MW53	SODIUM	32.3	106.65	NA	NA	0.00E+00	0.00E+00
MW53	THALLIUM	0.0036	0.4		.8	9.00E-03	4.50E-03
MW53	VANADIUM	0.0006	0.0145	NA	NA	0.00E+00	0.00E+00
MW53 Total						9.00E-03	4.50E-03
MW54	ALUMINUM	1.98	1.7984	NA	NA	0.00E+00	0.00E+00
MW54	BARIUM	0.107	0.22375	32	64	0.00E+00	0.00E+00
MW54	CALCIUM	13.9	52.875	NA	NA	0.00E+00	0.00E+00
MW54	CHROMIUM, TOTAL	0.0152	0.0543	19	38	0.00E+00	0.00E+00
MW54	IRON	9.96	6.728	NA	NA	0.00E+00	0.00E+00
MW54	MAGNESIUM	7.07	26.045	NA	NA	0.00E+00	0.00E+00
MW54	MANGANESE	0.014	0.560073	NA	NA	0.00E+00	0.00E+00
MW54	POTASSIUM	1.62	3.495333	NA	NA	0.00E+00	0.00E+00
MW54	SODIUM	16.9	106.65	NA	NA	0.00E+00	0.00E+00
MW54	DICHLOROETHENE	0.01	0		NA	0.00E+00	0.00E+00
MW54	VANADIUM	0.0075	0.0145	NA	NA	0.00E+00	0.00E+00
MW54 Total						0.00E+00	0.00E+00
MW55	ALUMINUM	2.22	1.7984	NA	NA	0.00E+00	0.00E+00
MW55	BARIUM	0.0667	0.22375	32	64	0.00E+00	0.00E+00
MW55	BICARBONATE	42	0		NA	0.00E+00	0.00E+00
MW55	CALCIUM	12.6	52.875	NA	NA	0.00E+00	0.00E+00
MW55	CHLORIDE (AS CL)	21	0		NA	0.00E+00	0.00E+00
MW55	CHROMIUM, TOTAL	0.0082	0.0543	19	38	0.00E+00	0.00E+00
MW55	COBALT	0.0032	0.02472	NA	NA	0.00E+00	0.00E+00
MW55	COPPER	0.0197	0.1626	NA	NA	0.00E+00	0.00E+00
MW55	HARDNESS (AS CaCO3)	70	0		NA	0.00E+00	0.00E+00
MW55	IRON	4.24	6.728	NA	NA	0.00E+00	0.00E+00
MW55	MAGNESIUM	5.37	26.045	NA	NA	0.00E+00	0.00E+00
MW55	MANGANESE	0.119	0.560073	NA	NA	0.00E+00	0.00E+00
MW55	NICKEL	0.0055	0.0314	21	42	0.00E+00	0.00E+00
MW55	NITROGEN, NITRATE (AS N)	5.44	0		NA	0.00E+00	0.00E+00
MW55	POTASSIUM	3.46	3.495333	NA	NA	0.00E+00	0.00E+00
MW55	SODIUM	18.9	106.65	NA	NA	0.00E+00	0.00E+00
MW55	SULFATE (AS SO4)	20.8	0		NA	0.00E+00	0.00E+00
MW55	(RESIDUE, FILTERABLE)	166	0		NA	0.00E+00	0.00E+00
MW55	TURBIDITY	200	0		NA	0.00E+00	0.00E+00
MW55	VANADIUM	0.0062	0.0145	NA	NA	0.00E+00	0.00E+00
MW55 Total						0.00E+00	0.00E+00

Statistical Comparisons of Dieldrin in Site Data with Background Data

Introduction

Surface soil samples were collected during three separate sampling efforts conducted during the winter and spring of 1996 and 1997. The first sampling effort characterized property parcels as defined under the Base Realignment and Closure (BRAC) efforts for lease and transfer to other industrial or municipal users. Two other sampling campaigns were required by the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) to evaluate the nature and extent at Remedial Investigation Sites (RI) and determine if releases occurred at Screening Sites (SS) that required further remedial investigation. The Base Cleanup Team (BCT)—consisting of representatives of (1) the Defense Distribution Depot Memphis, Tennessee (DDMT), (2) the U.S. Environmental Protection Agency (EPA) Region IV, and (3) the Tennessee Department of Environment and Conservation (TDEC), with support from (4) the U.S. Army Corps of Engineers, Huntsville, and (5) CH2M HILL—evaluated the data during three meetings held in August, September, and October 1997. Preliminary risk considerations indicated the elevated concentrations of dieldrin detected in many surface soil samples across the Main Installation of DDMT were well above risk-based criteria for both residential and industrial land uses.

A total of 198 surface soil samples were collected during the three sampling programs. The locations of sampling stations are presented in Figure 1. In addition, 22 background surface soil samples were collected during the summer of 1995. Eleven of these background samples were taken at offsite locations such as surrounding schools, cemeteries, and parks. The remaining 11 background samples were taken along the perimeter of DDMT to represent background concentrations of dieldrin from DDMT areas not impacted by waste management operations. The background sampling program is further described in the Draft Background Characterization Technical Memorandum (CEHNC, 1997).

Most of the detected concentrations in the site samples as well as background are above health-based screening levels. However, dieldrin has not been in use at DDMT since the 1970s, when it was banned for surface applications within the U.S. Thus observed concentrations are from historical rather than current pesticide application. Because concentrations of dieldrin remain elevated for approximately 20 years after application, dieldrin is persistent in the environment. The biological effectiveness of the dieldrin present in exposed soils for long periods of time is unknown. Discussions with EPA Region IV and the BCT have resulted in utilization of a statistical approach to determine the significance of dieldrin concentrations relative to site background.

Statistical Approach

The general approach in evaluating the DDMT dieldrin data is outlined as follows:

1. Evaluate the background data set and remove outliers.
2. Group the DDMT surface soil samples based on sampled areas that likely represent unique methods of pesticide application.
3. Using statistical population testing procedures, compare each onsite group sample population with the background population to determine if there is a statistically significant difference between the groups.
4. If the statistical tests indicate that the DDMT sample group population is significantly elevated above the background population, remove the highest DDMT onsite data until the onsite and background populations are statistically equivalent.
5. Data removed in the preceding step indicate areas significantly above the background population that are impacted by application of pesticides.

Background Data Set Evaluation

Attachment 1 presents the rank order of the dieldrin background data. Inspection of the data indicates that the highest background concentrations are associated with the perimeter dataset (11 samples), while the lowest detected concentrations and most of the nondetects are associated with the offsite data set (11 samples). Population testing using the Wilcoxon Rank Sum Test (see below) and nonparametric analysis of variance (ANOVA) established that the perimeter data and offsite data represented two distinct populations of dieldrin concentrations. A statistical procedure described in Hill and Dixon (1982) was used to trim 15 percent (3 values) of the highest and lowest dieldrin concentrations from the combined data set. This effectively removed high outliers from the perimeter population and low outliers from the offsite population, thus providing a better estimate of the true background population mean. After the trim removed 6 values, the combined data set followed a normal distribution and the parametric ANOVA ($p=0.19$), nonparametric ANOVA ($p=0.19$), and Wilcoxon ($p=0.14$) tests all indicate that there was no statistical difference between the remaining perimeter and offsite group data at a 95% confidence level (see Attachment 1). The mean of the background data set is 33.4 parts per billion (ppb).

The following procedure was used in trimming the background dieldrin data set (Hill and Dixon, 1982).

1. Calculate the number of data points to be trimmed as:

$$t = \text{the integer portion of } np$$

where:

t = the number of data points to be trimmed from both extremes of the ordered data

n = the number of values in the original data set

p = the proportion to be trimmed ($0 < p < 0.5$)

2. Order the data points from lowest to highest.
3. Remove the lowest t values and the highest t values. The number of data points remaining is:

$$n_1 = n - 2t$$

4. Calculate the trimmed mean:

$$\bar{x} = (1/n_1) \sum_{i=1}^{n_1} x_i$$

Definition of DDMT Main Installation Dieldrin Sample Groups

The site data were divided into three data sets depending on the nature of the site operations within the area. One hundred ninety eight (198) surface soil samples were divided into the following three onsite areas of concern:

- Set 1. Golf Course. This area consists of 35 samples (one high non-detect excluded from statistical analysis) taken from an area of about 53 acres including Lake Danielson and the area south to the facility boundary and east to the boundary including the residential area. Dieldrin was expected to be broadcast sprayed in this area to keep down insect populations across the golf course and park. The mean dieldrin concentration is 676 ppb and the maximum concentration is 10,000 ppb.
- Set 2. The Warehouses. The warehouse group consists of 116 samples taken adjacent to various warehouses across the DDMT Main Installation. Within this area, dieldrin was expected to be applied by sprayer around the perimeter of the buildings to keep insects from entering storage areas. The mean dieldrin concentration is 368 ppb and the maximum concentration is 5,600 ppb.
- Set 3. Railroad Tracks and Open Storage Areas. This group consists of 47 samples taken adjacent to railroad tracks and grassy areas not associated with a specific warehouse or building. The mean dieldrin concentration is 90 ppb and the maximum concentration is 1,900 ppb.

Onsite data records are contained in Attachments 2 through 4. Onsite summary statistics are provided in Table 1.

Table 1 DDMT Dieldrin Summary Statistics					
Data Set	N	%Nd*	Minimum mg/kg	Maximum mg/kg	Mean mg/kg
Background*	16	38	0.004	0.11	0.0334
Onsite					
Golf Course (Set 1)*	35	21	0.004	10	0.676
Warehouses (Set 2)	116	50	0.003	5.6	0.368
RR Tracks and Open Storage Areas	47	64	0.001	1.9	0.090
*% of samples with reported concentration below detection limit					
†15 % Trimmed					
‡Non-detect of 1.8 parts per million (ppm) not included in analysis					

Onsite Sample Group and Background Population Testing

Onsite data were compared to background using the non-parametric Wilcoxon Rank Sum Test, which makes no assumptions about underlying data distributions. Attachments 5 through 7 present the Wilcoxon Rank Sum test outputs. Results and a summary of the statistical comparisons are presented in Exhibit 2. The population of dieldrin concentrations at two of the three areas—Golf Course and Warehouses—were statistically higher than the background population at a 95% confidence level.

To identify potential "hot-spots," high concentration samples were removed from the Golf Course and Warehouse data sets until the group of remaining samples was not statistically different from background. Results of this analysis are summarized in Table 2 and the analysis is presented in Attachments 8 and 9.

Table 2 Results of Wilcoxon Rank Sum Comparison of Background and Onsite Areas							
Data Set	Initial Comparison to Background		Results of Removing Highest Concentration Sample Points				
	p (0.05)*	On-post Significantly Higher?	# Removed	Revised p (0.05)	Maximum Removed (ppm)	Minimum Removed (ppm)	Revised Mean (ppm)
Golf Course (Set 1)	0.003	Yes	9	0.06	10	0.5	0.079
Warehouses (Set 2)	0.027	Yes	10	0.056	5.6	1.3	0.124
RR Tracks & Storage Areas (Set 3)	0.87	No	na	na	na	na	na
*The critical P value at 95% confidence is 0.05. If the calculated P exceeds 0.05, then it cannot be determined that the two populations being tested are different.							
Notes:							
na = Not applicable							

Nine potential "hot-spots" (concentrations from 10,000 to 500 ppb) were identified in the Golf Course area. A tenth concentration exceeded the 500 ppb criteria, but it was an elevated non-detect (1,800 µg/kg).

Warehouse areas have consistently elevated detections across the site. As the statistical approach implemented indicates, 10 of the samples are elevated significantly above background, thus indicating potential "hot spots." The minimum of the dieldrin detections removed from the Warehouse Area was 1,300 ppb. However, as an added level of conservatism to the background evaluation, the comparison was also made to the minimum dieldrin concentration removed from either the Warehouse or the Golf Course Area; which was the 500 ppb detection at the Golf Course Area. Comparison to the 500 ppb criteria resulted in the removal of seven additional samples from the Warehouse Area data set. Thus, a total of 17 potential "hot-spots" (concentrations from 540 to 5,600 ppb) are identified in the Warehouse area. Fourteen of these locations are within the "twenty-typical" warehouse area.

There were no significant differences at a 95% confidence level between the background and Railroad Tracks and Open Storage Area. If comparison with a conservative criterion of 500 ppb is made, two samples appear to be above this concentration. One of these is an elevated non-detect. All of these elevated concentration areas are identified in Figure 1.

Some of the data included in the golf course data set (Set 1) were collected from the residential area located east of the DDMT facility. All of the samples collected within this residential area have elevated dieldrin detections, which were above 500 ppb ($\mu\text{g}/\text{kg}$)

Wilcoxon Test Discussion

The Wilcoxon Rank Sum Test is a nonparametric test for differences between two population means. It makes no assumption that the underlying population distributions are normal, but it does require that the data being tested are independent random samples and that the populations have equal variance.

Assumptions:

- Population 1 with m data points $x_1, x_2, \dots, x_m$
 - Population 2 with n data points $y_1, y_2, \dots, y_n$
 - The null hypothesis (H_0): that the mean of Population 1 is equal to the mean of Population 2
 - The alternative hypothesis (H_A): that the populations have different means
1. Treat all data from both populations as one data set. List all data values in order from low to high, retaining the population identity (Population 1 or Population 2) of each value.
 2. Assign ranks to each value, beginning with 1 for the lowest value. Average ranks for tied values. For example, if the values in ranked positions 2 and 3 are equal, each receives a rank of 0.5 (2.5 each).
 3. Calculate W as the sum of the rank scores for Population 1.

4. Calculate the appropriate test statistic based on the number of samples in each population:
 - a. If Population 1 has ≤ 10 data points and Population 2 has ≤ 10 data points, W is the appropriate test statistic and may be compared directly to critical values for W_α in tables such as Critical Values for the Rank Sum Test, $\alpha = 0.05$ (USEPA, 1995). If W is $\leq W_\alpha$, reject the null hypothesis and conclude that the population means are different.
 - b. If either population has more than 10 samples, compute the Z statistic as follows:

$$Z = \frac{W - m(m+n+1)/2}{\{mn(m+n+1)/12\}^{1/2}}$$

Compare the calculated Z statistic to Z values in the table of Percentiles of the Standard Normal Distribution at the desired probability (α) level (see USEPA, 1995). If Z is $\leq -Z_{1-\alpha/2}$, reject the null hypothesis and conclude that the population means are different.

The Wilcoxon Rank Sum test was implemented using the SAS Procedure NPAR1WAY.

Recommendations

The elevated detections within the Golf Course Area are isolated with no definition of extent. Thus, the distribution of dieldrin around the highest detected concentrations should be further defined by collecting additional samples. A set of eight additional samples is recommended for the Golf Course area, between the pond and the residential area. An additional four (two each on north and south ends) samples need to be collected from the north and south portions of the residential area: Buildings 176, 179, 181, and 184.

Warehouses in the east-central portion of DDMT have elevated dieldrin, and the extent is well defined. Thus, no further sampling is recommended for this area.

Railroad tracks within the Parcel 15 area have an isolated detection, which should be further sampled to determine the extent of elevated dieldrin distribution. Two additional samples are recommended for this area, to define the extent.

Proposed sampling locations are provided in Figure 3.¹

¹ Since the original submittal of this TM on November 14, 1997, the additional sampling discussed above has been completed. The data points and dieldrin concentrations are presented in Figures 1 and 2. However, the data are not included in the statistical evaluation. All of the dieldrin data will be evaluated in the upcoming Main Installation RI.

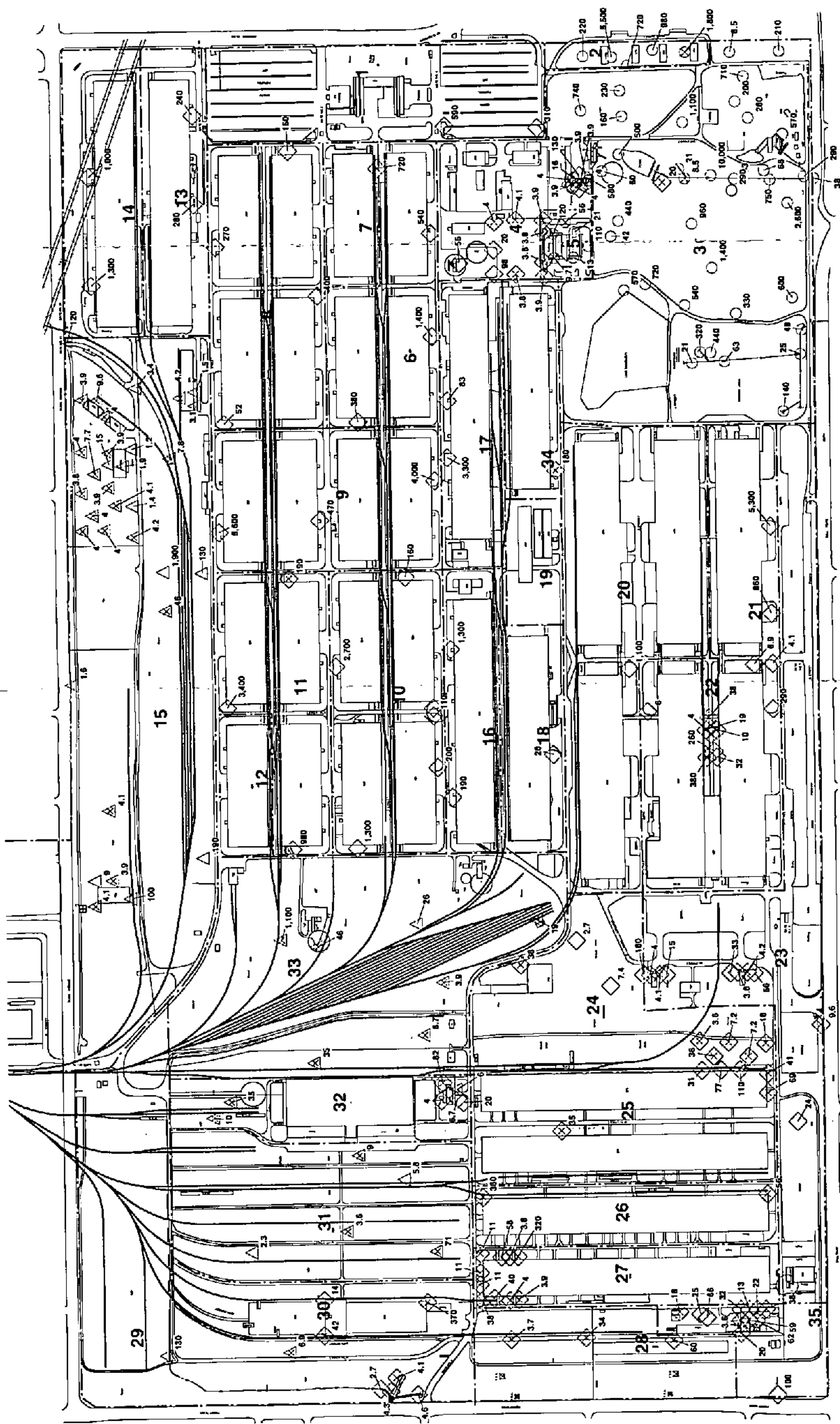
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- MAP SCALE: 1" = 500'

FIGURE 1
DIELDRIN SAMPLE LOCATIONS AND GROUPS
DEFENSE DISTRIBUTION DEPOT MEMPHIS, TENNESSEE



LEGEND

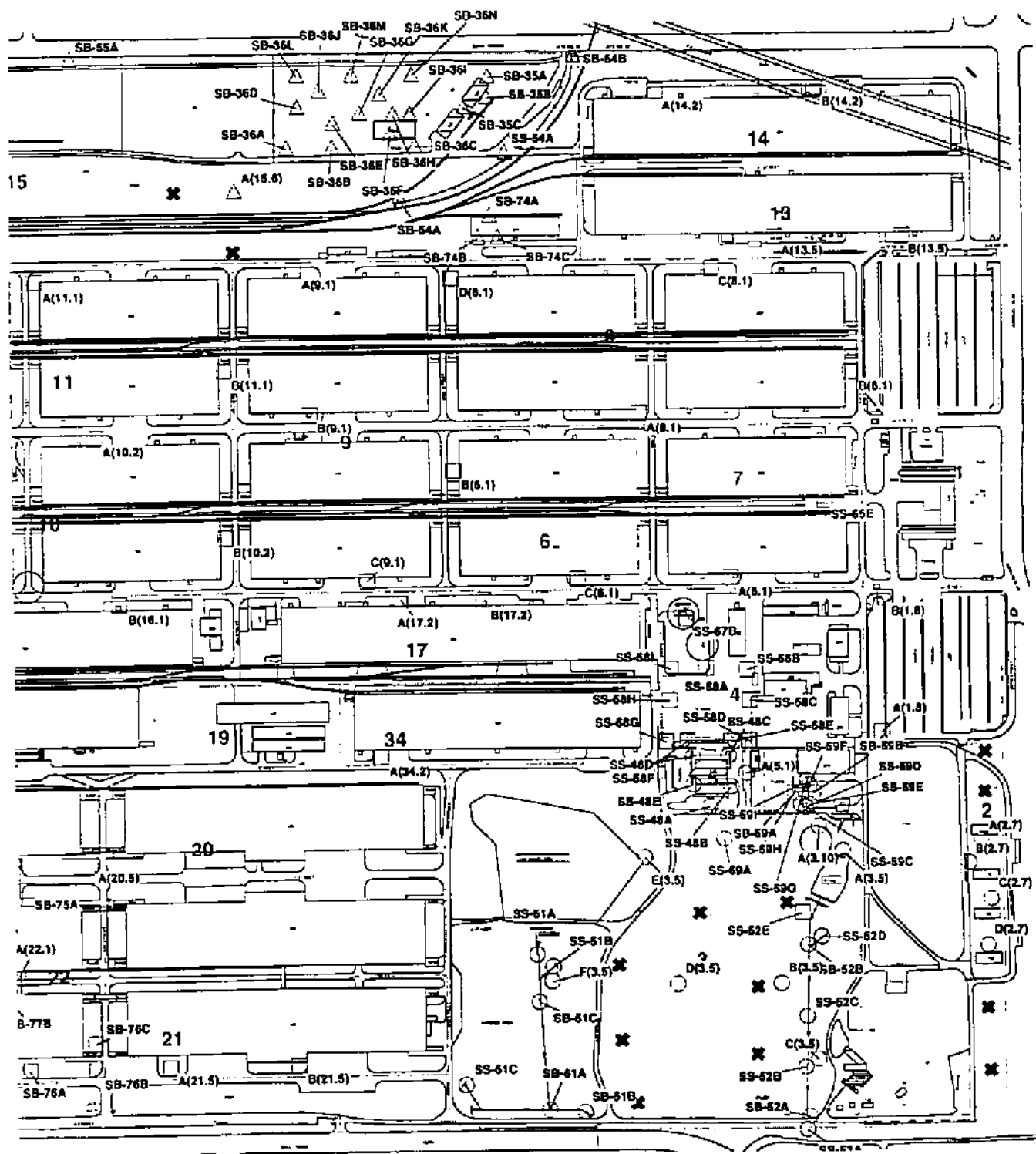
- GOLF COURSE AREA
- △ RR TRACKS & OPEN AREA
- ◇ WAREHOUSE AREA
- NON-DETECT DIELDRIN LOCATION
- 293 DIELDRIN CONCENTRATION (ug/kg)

MAP SCALE: 1" = 500'

FIGURE 2

DIELDRIN CONCENTRATIONS IN SURFACE SOIL

DEFENSE DISTRIBUTION DEPOT MEMPHIS, TENNESSEE



LEGEND

PROPOSED SURFACE SOIL
SAMPLE LOCATION



SCALE: 1" = 500'

FIGURE. 3

PROPOSED DIELDRIN SAMPLING LOCATIONS
DEFENSE DISTRIBUTION DEPOT - MEMPHIS, TENNESSEE



DDMT Dieldrin Background Data

Original Data Set

Background Area	Concentration (µg/kg)	Detected ?	Trimmed ?
Perimeter	530	Yes	Yes
Perimeter	360	Yes	Yes
Perimeter	190	Yes	Yes
Perimeter	110	Yes	No
Offsite	86	Yes	No
Perimeter	84	Yes	No
Perimeter	73	Yes	No
Perimeter	66	Yes	No
Offsite	53	Yes	No
Perimeter	24	Yes	No
Offsite	9.1	No	No
Perimeter	4.9	Yes	No
Perimeter	4.4	Yes	No
Offsite	3.7	No	No
Offsite	3.7	No	No
Perimeter	3.6	Yes	No
Offsite	3.6	No	No
Offsite	3.6	No	No
Offsite	3.6	No	No
Offsite	3.5	No	Yes
Offsite	3.5	No	Yes
Offsite	3.3	Yes	Yes

DDMT Background Dataset

Detect?	Source	Concentration (ppb)
Yes	Perim	110.0
Yes	Offsite	86.0
Yes	Perim	84.0
Yes	Perim	73.0
Yes	Perim	66.0
Yes	Offsite	53.0
Yes	Perim	24.0
No	Offsite	9.1
Yes	Perim	4.9
Yes	Perim	4.4
No	Offsite	3.7
No	Offsite	3.7
Yes	Perim	3.6
No	Offsite	3.6
No	Offsite	3.6
No	Offsite	3.6

DDMT Dielddrin Background Trimmed Datasets
Non-Parametric Comparison of Offsite vs Perimeter Samples

N P A R 1 W A Y P R O C E D U R E

Analysis of Variance for Variable CONC
Classified by Variable SMALAREA

SMALAREA	N	Mean	Among MS	Within MS
Perim	8	46.2375000	2590.81000	1376.22768
Offsite	8	20.7875000	F Value	Prob > F
			1.883	0.1916

Average Scores were used for Ties

DDMT Dielddrin Background Trimmed Datasets
Non-Parametric Comparison of Offsite vs Perimeter Samples

N P A R 1 W A Y P R O C E D U R E

Wilcoxon Scores (Rank Sums) for Variable CONC
Classified by Variable SMALAREA

SMALAREA	N	Sum of Scores	Expected Under H0	Std Dev Under H0	Mean Score
Perim	8	82.5000000	68.0	9.44457516	10.3125000
Offsite	8	53.5000000	68.0	9.44457516	6.6875000

Average Scores were used for Ties

Wilcoxon 2-Sample Test (Normal Approximation)
(with Continuity Correction of .5)

S= 82.5000 Z= 1.48233 Prob > |Z| = 0.1383

T-Test approx. Significance = 0.1590

Kruskal-Wallis Test (Chi-Square Approximation)

CHISQ= 2.3571 DF= 1 Prob > CHISQ= 0.1247

DDMT Dielddrin Background Trimmed Datasets
Non-Parametric Comparison of Offsite vs Perimeter Samples

N P A R 1 W A Y P R O C E D U R E

Median Scores (Number of Points above Median)
for Variable CONC
Classified by Variable SMALAREA

SMALAREA	N	Sum of Scores	Expected Under H0	Std Dev Under H0	Mean Score
Perim	8	5.0	4.0	1.03279556	0.625000000
Offsite	8	3.0	4.0	1.03279556	0.375000000

Average Scores were used for Ties

Median 2-Sample Test (Normal Approximation)

S= 5.00000 Z= 0.968246 Prob > |Z| = 0.3329

Median 1-Way Analysis (Chi-Square Approximation)

CHISQ= 0.93750 DF= 1 Prob > CHISQ= 0.3329

DDMT Dieldrin Records
SET 1 - Golf Course

Sorted by Descending Concentration

Station ID	Concentration (µg/kg)	Qualifier	Detect?	Purpose
B(3.5)	10000.0	=	Yes	BRAC
A(2.7)	5500.0	=	Yes	BRAC
D(2.7)	1800.0	U	No	BRAC
D(3.5)	1400.0	=	Yes	BRAC
C(2.7)	980.0	=	Yes	BRAC
SS52B	750.0	J	Yes	Screening
B(2.7)	720.0	=	Yes	BRAC
SS59E	580.0	=	Yes	RI
E(3.5)	570.0	=	Yes	BRAC
A(3.5)	500.0	=	Yes	BRAC
F(3.5)	440.0	=	Yes	BRAC
SS51B	320.0	=	Yes	Screening
SB52A	290.0	J	Yes	Screening
SS51C	140.0	=	Yes	Screening
SS48C	120.0	U	No	RI
SS48A	110.0	=	Yes	RI
C(3.5)	68.0	=	Yes	BRAC
SB51C	63.0	J	Yes	Screening
A(3.10)	60.0	=	Yes	BRAC
A(5.1)	56.0	U	No	BRAC
SB51B	48.0	=	Yes	Screening
SS69A	42.0	=	Yes	Screening
SS52A	38.0	J	Yes	Screening
SS52C	33.0	=	Yes	Screening
SB51A	25.0	J	Yes	Screening
SS48B	21.0	J	Yes	RI
SS51A	21.0	=	Yes	Screening
SS52D	21.0	=	Yes	Screening
SS59F	16.0	J	Yes	RI
SS48E	13.0	J	Yes	RI
SS48D	9.7	U	No	RI
SB52B	8.5	U	No	Screening
SS59D	4.0	U	No	RI
SS59G	4.0	U	No	RI
SS59C	3.9	U	No	RI

DDMT Dieldrin Records

SET 2 - Warehouses

Sorted by Descending Concentration

Station ID	Concentration (µg/kg)	Qualifier	Detect?	Purpose
A(9.1)	5600.0	=	Yes	BRAC
B(21.5)	5300.0	=	Yes	BRAC
C(9.1)	4000.0	=	Yes	BRAC
A(11.1)	3400.0	=	Yes	BRAC
A(17.2)	3300.0	=	Yes	BRAC
A(10.2)	2700.0	=	Yes	BRAC
C(6.1)	1400.0	=	Yes	BRAC
A(14.2)	1300.0	=	Yes	BRAC
B(16.1)	1300.0	=	Yes	BRAC
C(10.2)	1300.0	=	Yes	BRAC
A(20.5)	1100.0	=	Yes	BRAC
B(14.2)	1000.0	=	Yes	BRAC
C(11.1)	980.0	=	Yes	BRAC
A(21.5)	860.0	=	Yes	BRAC
SS65E	720.0	U	No	Screening
B(1.8)	590.0	=	Yes	BRAC
A(6.1)	540.0	=	Yes	BRAC
B(9.1)	470.0	=	Yes	BRAC
A(8.1)	400.0	=	Yes	BRAC
B(6.1)	380.0	=	Yes	BRAC
SS77C	380.0	U	No	Screening
SS83B	370.0	U	No	Screening
SB84B	320.0	U	No	Screening
A(1.8)	310.0	=	Yes	BRAC
SB76A	290.0	=	Yes	Screening
A(13.5)	280.0	=	Yes	BRAC
C(8.1)	270.0	=	Yes	BRAC
SB77A	260.0	=	Yes	Screening
B(13.5)	240.0	=	Yes	BRAC
D(10.2)	200.0	=	Yes	BRAC
B(11.1)	190.0	U	No	BRAC
A(34.2)	180.0	U	No	BRAC
SS82A	180.0	=	Yes	Screening
B(10.2)	160.0	=	Yes	BRAC
B(8.1)	160.0	=	Yes	BRAC
SS66A	140.0	UJ	No	Screening
SB59B	130.0	=	Yes	RI
SS27F	110.0	U	No	RI
SS33E	100.0	=	Yes	Screening
SS58I	98.0	J	Yes	RI
A(35.2)	86.0	=	Yes	BRAC
B(17.2)	83.0	=	Yes	BRAC
SS28A	82.0	U	No	Screening
SS27G	77.0	UJ	No	RI
SS27J	69.0	U	No	RI
SS82D	66.0	=	Yes	Screening
SS32G	62.0	=	Yes	RI
SS89A	60.0	U	No	Screening
SB32A	59.0	=	Yes	RI
SB84D	58.0	U	No	Screening
SS67B	56.0	=	Yes	Screening

DDMT Dieldrin Records

SET 2 - Warehouses

Sorted by Descending Concentration

Station ID	Concentration (µg/kg)	Qualifier	Detect?	Purpose
D(8.1)	52.0	=	Yes	BRAC
SS27I	41.0	U	No	RI
SB84C	40.0	U	No	Screening
A(22.1)	38.0	U	No	BRAC
A(24.2)	38.0	U	No	BRAC
SS31D	38.0	U	No	Screening
SS84C	38.0	U	No	Screening
SB27B	36.0	U	No	RI
A(28.1)	34.0	U	No	BRAC
SS82C	33.0	=	Yes	Screening
SS32D	32.0	=	Yes	RI
SS77A	32.0	J	Yes	Screening
SS27H	31.0	U	No	RI
A(18.2)	28.0	=	Yes	BRAC
B(35.2)	25.0	=	Yes	BRAC
A(23.10)	24.0	=	Yes	BRAC
SS32F	22.0	=	Yes	RI
SS28B	20.0	=	Yes	Screening
SS32B	20.0	U	No	RI
SS52E	20.0	U	No	Screening
SS58A	20.0	=	Yes	RI
SS77D	19.0	U	No	Screening
C(35.2)	18.0	U	No	BRAC
SB27E	18.0	U	No	RI
SS82B	15.0	=	Yes	Screening
SS32E	13.0	=	Yes	RI
SS84D	11.0	U	No	Screening
SS84E	11.0	U	No	Screening
SS84F	11.0	U	No	Screening
SS77B	10.0	U	No	Screening
A(23.6)	9.6	U	No	BRAC
B(23.6)	7.4	J	Yes	BRAC
SB27C	7.2	U	No	RI
SB27D	7.2	U	No	RI
SB76C	6.9	J	Yes	Screening
SB28B	6.7	J	Yes	Screening
SB75A	6.0	J	Yes	Screening
SS56C	4.6	U	No	Screening
SB56A	4.3	U	No	Screening
SB82D	4.2	U	No	Screening
SB76B	4.1	=	Yes	Screening
SB82B	4.1	U	No	Screening
SS56B	4.1	U	No	Screening
SS58C	4.1	U	No	RI
SB28A	4.0	U	No	Screening
SB77B	4.0	U	No	Screening
SB82A	4.0	U	No	Screening
SS58B	4.0	U	No	RI
SS59H	4.0	U	No	RI
SS84A	4.0	U	No	Screening
SB59A	3.9	U	No	RI

DDMT Dieldrin Records

SET 2 - Warehouses

Sorted by Descending Concentration

Station ID	Concentration (µg/kg)	Qualifier	Detect?	Purpose
SB84A	3.9	U	No	Screening
SS58D	3.9	U	No	RI
SS58G	3.9	U	No	RI
SS59I	3.9	U	No	RI
SB82C	3.8	J	Yes	Screening
SS58E	3.8	U	No	RI
SS58F	3.8	U	No	RI
SS58H	3.8	U	No	RI
SS84B	3.8	U	No	Screening
B(28.1)	3.7	U	No	BRAC
SB27A	3.6	U	No	RI
SS32C	3.6	U	No	RI
B(24.2)	2.7	J	Yes	BRAC
SS56A	2.7	J	Yes	Screening

DDMT Dieldrin Records

SET 3 - Railroad Tracks and Open Storage Areas

Sorted by Descending Concentration

Station ID	Concentration (µg/kg)	Qualifier	Detect?	Purpose
A(15.6)	1900.0	=	Yes	BRAC
SS46E	1100.0	U	No	Screening
A(16.1)	190.0	=	Yes	BRAC
B(15.6)	190.0	=	Yes	BRAC
SS80A	140.0	U	No	Screening
B(29.2)	130.0	=	Yes	BRAC
SB54B	120.0	=	Yes	Screening
SS79A	100.0	=	Yes	Screening
SS43C	46.0	U	No	Screening
A(25.2)	35.0	U	No	BRAC
B(32.1)	35.0	U	No	BRAC
E(33.9)	35.0	U	No	BRAC
SS42D	26.0	=	Yes	Screening
SS81B	19.0	U	No	Screening
SB36H	15.0	J	Yes	Screening
A(32.1)	10.0	U	No	BRAC
SB35B	9.8	U	No	Screening
A(31.1)	9.0	U	No	BRAC
SS79B	9.0	J	Yes	Screening
D(33.9)	8.7	U	No	BRAC
SB54A	7.8	U	No	Screening
SB36K	7.7	U	No	Screening
A(29.2)	6.9	U	No	BRAC
SB28C	6.0	J	Yes	Screening
SB36A	4.2	U	No	Screening
SB74A	4.2	U	No	Screening
SB36E	4.1	U	No	Screening
SS72C	4.1	U	No	Screening
SS79C	4.1	U	No	Screening
SB35C	4.0	U	No	Screening
SB36D	4.0	U	No	Screening
SB36J	4.0	U	No	Screening
SB36L	4.0	U	No	Screening
SB36N	4.0	U	No	Screening
C(33.9)	3.9	U	No	BRAC
SB35A	3.9	U	No	Screening
SB36G	3.9	U	No	Screening
SB36I	3.9	U	No	Screening
SB79B	3.9	U	No	Screening
SB36M	3.8	U	No	Screening
SS54A	3.4	J	Yes	Screening
SB74B	3.1	J	Yes	Screening
SB36F	1.9	J	Yes	Screening
SB55A	1.6	J	Yes	Screening
SB74C	1.5	J	Yes	Screening
SB36B	1.4	J	Yes	Screening
SB36C	1.2	J	Yes	Screening

DDMT

SET1 - GOLF COURSE

N P A R I W A Y P R O C E D U R E

Wilcoxon Scores (Rank Sums) for Variable CONC
Classified by Variable BIGAREA

BIGAREA	N	Sum of Scores	Expected Under H0	Std Dev Under H0	Mean Score
BG	16	265.50000	408.0	48.0636313	16.5937500
OP	34	1009.50000	867.0	48.0636313	29.6911765

Average Scores were used for Ties

Wilcoxon 2-Sample Test (Normal Approximation)
(with Continuity Correction of .5)

S= 265.500 Z= -2.95442 Prob > |Z| = 0.0031

T-Test approx. Significance = 0.0048

DDMT

SET1 - GOLF COURSE

N P A R I W A Y P R O C E D U R E

Kruskal-Wallis Test (Chi-Square Approximation)

CHISQ= 8.7902 DF= 1 Prob > CHISQ= 0.0030

DDMT
SET2 - WAREHOUSES

N P A R 1 W A Y P R O C E D U R E

Wilcoxon Scores (Rank Sums) for Variable CONC
Classified by Variable BIGAREA

BIGAREA	N	Sum of Scores	Expected Under H0	Std Dev Under H0	Mean Score
OP	116	8046.0	7714.0	143.395401	69.3620690
BG	16	732.0	1064.0	143.395401	45.7500000

Average Scores were used for Ties

Wilcoxon 2-Sample Test (Normal Approximation)
(with Continuity Correction of .5)

S= 732.000 Z= -2.31179 Prob > |Z| = 0.0208

T-Test approx. Significance = 0.0223

DDMT
SET2 - WAREHOUSES

N P A R 1 W A Y P R O C E D U R E

Kruskal-Wallis Test (Chi-Square Approximation)

CHISQ= 5.3605 DF= 1 Prob > CHISQ= 0.0206

DDMT
SET3 - RR TRACKS AND OPEN STORAGE AREAS

N P A R 1 W A Y P R O C E D U R E

Wilcoxon Scores (Rank Sums) for Variable CONC
Classified by Variable BIGAREA

BIGAREA	N	Sum of Scores	Expected Under H0	Std Dev Under H0	Mean Score
OP	47	1493.0	1504.0	63.2826865	31.7659574
BG	16	523.0	512.0	63.2826865	32.6875000

Average Scores were used for Ties
Wilcoxon 2-Sample Test (Normal Approximation)
(with Continuity Correction of .5)

S= 523.000 Z= 0.165922 Prob > |Z| = 0.8682

T-Test approx. Significance = 0.8688

DDMT
SET3 - RR TRACKS AND OPEN STORAGE AREAS

N P A R 1 W A Y P R O C E D U R E

Kruskal-Wallis Test (Chi-Square Approximation)
CHISQ= 0.03021 DF= 1 Prob > CHISQ= 0.8620

DDMT
SET1 - GOLF COURSE
HIGHEST 9 SAMPLE VALUES REMOVED

N P A R 1 W A Y P R O C E D U R E

Wilcoxon Scores (Rank Sums) for Variable CONC
Classified by Variable BIGAREA

BIGAREA	N	Sum of Scores	Expected Under H0	Std Dev Under H0	Mean Score
BG	16	265.500000	336.0	37.3888597	16.5937500
OP	25	595.500000	525.0	37.3888597	23.8200000

Average Scores were used for Ties
Wilcoxon 2-Sample Test (Normal Approximation)
(with Continuity Correction of .5)

S= 265.500 Z= -1.87222 Prob > |Z| = 0.0612

DDMT
SET1 - GOLF COURSE
HIGHEST 9 SAMPLE VALUES REMOVED

N P A R 1 W A Y P R O C E D U R E

T-Test approx. Significance = 0.0685

Kruskal-Wallis Test (Chi-Square Approximation)
CHISQ= 3.5554 DF= 1 Prob > CHISQ= 0.0594

DDMT
SET2 - WAREHOUSES
HIGHEST 10 SAMPLE VALUES REMOVED

N P A R 1 W A Y P R O C E D U R E

Wilcoxon Scores (Rank Sums) for Variable CONC
Classified by Variable BIGAREA

BIGAREA	N	Sum of Scores	Expected Under H0	Std Dev Under H0	Mean Score
OP	106	6771.0	6519.0	131.815063	63.8773585
BG	16	732.0	984.0	131.815063	45.7500000

Average Scores were used for Ties
Wilcoxon 2-Sample Test (Normal Approximation)
(with Continuity Correction of .5)

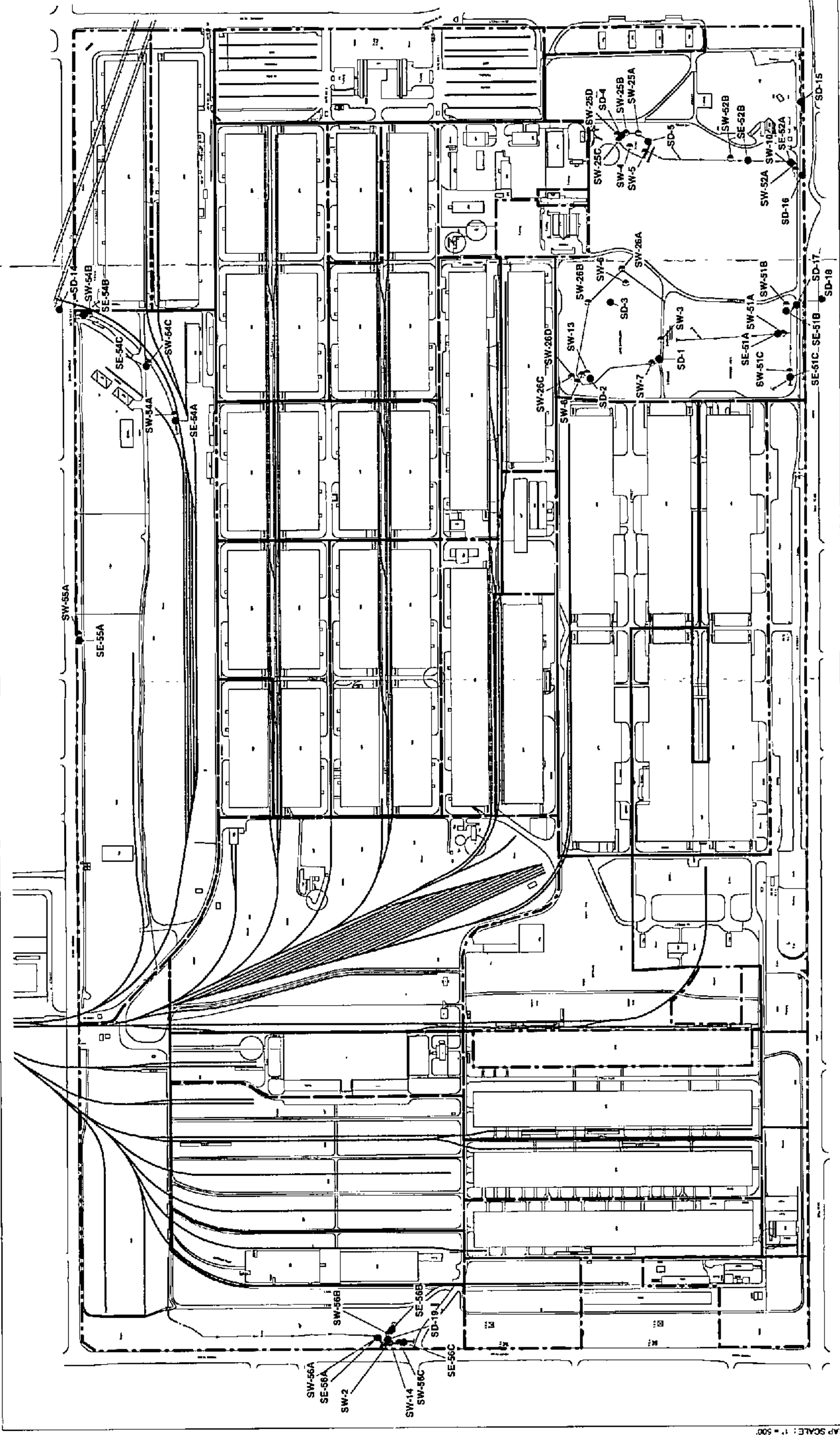
S= 732.000 Z= -1.90798 Prob > |Z| = 0.0564

DDMT
SET2 - WAREHOUSES
HIGHEST 10 SAMPLE VALUES REMOVED

N P A R 1 W A Y P R O C E D U R E

T-Test approx. Significance = 0.0588

Kruskal-Wallis Test (Chi-Square Approximation)
CHISQ= 3.6549 DF= 1 Prob > CHISQ= 0.0559



MAP SCALE: 1" = 500'

- Sediment Sample Location
- Surface Water Sample Location

Defense Distribution Depot, Memphis Tennessee

4/26/98

Ratios for Sediment Sample Locations

Comments: $\text{RatioAll} = \text{AnaValue} / \text{Crit}$
 $\text{RatioExc} = \text{RatioAll}$ for those values where $\text{AnaValue} > \text{Bkgd}$

Crit = EPA Region 4 Sediment Screening Criteria or, if not available, then EPA Region 3 Sediment Screening Criteria

SedRatio_Summary has the totals for each location.

SedRatio_Detail sheet has all the data for each location and parameter.

DocID field codes are:

BACKGROUND = Background sampling event

BRAC = Brac sampling events

LAW = Law Engineering data

RI = RI Sites event

SS = Screening Sites event

SS (EarthTech) = EarthTech sediment data

Appendix C1: Table 1- Comparison of Sediment Data with Sediment Screening Criteria Protective of Aquatic Organisms
Ecological Evaluation Summary

StationID	RatioAll	RatioExc	DocID	BRACParcel	ScreeningSite	RISite
A(35.3)	1.26E+03	6.34E+02	BRAC	35		
BW01	6.12E-01	0.00E+00	BACKGROUND			
BW02	2.97E+00	0.00E+00	BACKGROUND			
BW03	5.39E-01	0.00E+00	BACKGROUND			
BW04	1.91E+00	0.00E+00	BACKGROUND			
BW05	7.81E-01	0.00E+00	BACKGROUND			
BW06	1.60E+00	1.45E+00	BACKGROUND			
BW07	1.12E+02	1.04E+02	BACKGROUND			
BW08	1.42E+02	5.91E+01	BACKGROUND			
BW09	8.50E+01	1.87E+01	BACKGROUND			
BW10	8.49E+00	0.00E+00	BACKGROUND			
BW11	9.80E+00	0.00E+00	BACKGROUND			
BW12	3.25E+00	0.00E+00	BACKGROUND			
BW13	7.40E+00	0.00E+00	BACKGROUND			
BW14	1.15E+01	0.00E+00	BACKGROUND			
BW15	3.90E+00	0.00E+00	BACKGROUND			
BW16	7.68E+00	2.18E+00	BACKGROUND			
BW17	4.17E+00	0.00E+00	BACKGROUND			
BW18	2.62E+03	3.33E+00	BACKGROUND			
BW19	5.21E+00	0.00E+00	BACKGROUND			
BW20	7.03E+01	2.86E+01	BACKGROUND			
BW21	1.30E+01	6.90E+00	BACKGROUND			
BW22	7.59E+01	6.82E+01	BACKGROUND			
M-SD01	1.09E+02	1.58E+01	SS (EarthTech)	ODP		
M-SD02	4.74E+01	2.45E+00	SS (EarthTech)	ODP		
M-SD03	4.71E+01	4.24E+00	SS (EarthTech)	ODP		
M-SD04	2.71E+01	2.09E+01	SS (EarthTech)	ODP		
M-SD05	2.09E+02	1.61E+02	SS (EarthTech)	ODP		
M-SD06	1.66E+02	1.14E+02	SS (EarthTech)	ODP		
M-SD07	2.42E+01	1.79E+01	SS (EarthTech)	ODP		
M-SD08	4.73E+01	4.06E+01	SS (EarthTech)	ODP		
M-SD09	1.55E+02	9.66E+01	SS (EarthTech)	ODP		
M-SD10	1.22E+02	5.69E+01	SS (EarthTech)	ODP		
M-SD11	1.21E+02	4.59E+01	SS (EarthTech)	ODP		
M-SD12	3.40E+01	2.06E+01	SS (EarthTech)	ODP		
M-SD14	1.14E+03	9.35E+02	SS (EarthTech)	ODP		
M-SD15	1.59E+02	1.14E+02	SS (EarthTech)	ODP		
M-SD16	1.08E+02	5.67E+01	SS (EarthTech)	ODP		
M-SD17	1.11E+02	9.25E+01	SS (EarthTech)	ODP		
M-SD18	1.52E+01	1.27E+00	SS (EarthTech)	ODP		
M-SD19	1.32E+00	0.00E+00	SS (EarthTech)	ODP		
SD-1-9	6.48E+00	3.13E+00	LAW	3	26	
SD-1-SS	3.53E+01	2.81E+01	LAW	3	26	
SD-2-9	5.53E+00	2.91E+00	LAW	3	26	
SD-2-SS	1.24E+01	3.19E+00	LAW	3	26	
SD-3-9	9.30E+00	3.52E+00	LAW	3	26	
SD-3-SS	7.36E+01	5.11E+01	LAW	3	26	
SD-4-9	1.10E+02	1.08E+02	LAW	3	25	
SD-4-SS	9.27E+01	8.21E+01	LAW	3	25	
SD-5-9	5.22E+02	2.97E+02	LAW	3	25	

E00 0.0

SD-5-SS	2.00E+03	1.06E+03	LAW
SE51A	2.96E+00	0.00E+00	SS
SE51B	5.09E+00	0.00E+00	SS
SE51C	4.36E+00	1.91E+00	SS
SE52A	4.67E+01	3.54E+01	SS
SE52B	8.42E+00	0.00E+00	SS
SE54A	3.00E+01	1.80E+01	SS
SE54B	1.21E+03	4.26E+02	SS
SE54C	2.26E+02	1.36E+02	SS
SE55A	5.36E+01	1.88E+01	SS
SE56A	5.62E+01	2.33E+01	SS
SE56B	1.51E+02	3.32E+01	SS
SE56C	7.25E+01	1.15E+01	SS

3		25
3	51	
3	51	
3	51	
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Appendix C1: Table 2 - Comparison of Sediment Data with Sediment Screening Criteria Protective of Aquatic Organisms

A(35.3)	2,4-DIMETHYLPHENOL	16	1.00E+05	2.90E-02	TRUE	0.52E+02	
A(35.3)	2-METHYLNAPHTHALENE	8.2	1.00E+05	3.30E-01	TRUE	0.24E+01	
A(35.3)	ACENAPHTHENE	0.39	7.70E-01	3.30E-01	TRUE	0.11E+00	
A(35.3)	ALUMINUM	7090	1.00E+04	NA	TRUE	0	
A(35.3)	ANTHRACENE	0.51	1.60E+00	3.30E-01	TRUE	0.15E+00	
A(35.3)	ANTIMONY	56.7	7.60E+00	1.20E+01	TRUE	-1.47E+00	4.73E+00
A(35.3)	ARSENIC	11.7	1.20E+01	7.24E+00	TRUE	0	
A(35.3)	BARIUM	2240	1.18E+02	NA	TRUE	-1	
A(35.3)	BENZO(G)ANTHRACENE	1.2	2.90E+00	3.30E-01	TRUE	0.36E+00	
A(35.3)	BENZO(G)PYRENE	0.84	2.50E+00	3.30E-01	TRUE	0.25E+00	
A(35.3)	BENZO(B)FLUORANTHENE	1.4	2.20E+00	3.30E-01	TRUE	0.42E+00	
A(35.3)	BENZO(K)FLUORANTHENE	1.1	2.30E+00	3.30E-01	TRUE	0.33E+00	
A(35.3)	BIS(2-ETHYLHEXYL) PHTHALATE	12	4.80E-01	1.82E-01	TRUE	-1.65E+01	6.59E+01
A(35.3)	CADMIUM	168	2.90E+01	1.00E+00	TRUE	-1.68E+02	1.68E+02
A(35.3)	CALCIUM	31800	1.50E+04	NA	TRUE	-1	
A(35.3)	CARBAZOLE	0.4	1.10E+00	NA	TRUE	0	
A(35.3)	CHROMIUM	3400	2.00E+01	5.23E+01	TRUE	-1.650E+01	6.50E+01
A(35.3)	CHRYSENE	1.6	3.20E+00	3.30E-01	TRUE	0	
A(35.3)	COBALT	88.7	1.40E+01	NA	TRUE	-1	
A(35.3)	COPPER	305	5.80E+01	1.87E+01	TRUE	-1.63E+01	1.63E+01
A(35.3)	DIBUTYL PHTHALATE	0.3	1.00E+05	1.40E+00	TRUE	0.214E-01	
A(35.3)	FLUORANTHENE	2.4	7.10E+00	3.30E-01	TRUE	0.727E+00	
A(35.3)	FLUORENE	0.7	1.69E+00	3.30E-01	TRUE	0.212E+00	
A(35.3)	IRON	49300	2.30E+04	NA	TRUE	-1	
A(35.3)	ISOPHTHORENE	0.4	1.00E+05	NA	TRUE	0	
A(35.3)	LEAD	7640	3.52E+01	3.02E+01	TRUE	-1	2.53E+02
A(35.3)	MAGNESIUM	3180	2.40E+03	NA	TRUE	-1	
A(35.3)	MANGANESE	448	8.70E+02	NA	TRUE	0	
A(35.3)	NAPHTHALENE	5.5	1.63E+00	3.30E-01	TRUE	-1.67E+01	1.67E+01
A(35.3)	NICKEL	59.5	3.00E+01	1.59E+01	TRUE	-1	3.74E+00
A(35.3)	PETROLEUM HYDROCARBONS	5980	1.00E+05	NA	TRUE	0	
A(35.3)	PHENANTHRENE	3.1	6.90E+00	3.30E-01	TRUE	0.93E+00	
A(35.3)	PYRENE	2.2	2.90E+00	3.30E-01	TRUE	0.67E+00	
A(35.3)	SODIUM	2660	2.40E+02	NA	TRUE	-1	
A(35.3)	ZINC	5100	7.97E+02	1.24E+02	TRUE	-1	4.11E+01
BW01	1,2,3,4,6,7,8-	0.061	NA	NA	TRUE	0	
BW01	2,3,7,8-TETRACHLORODIBENZO-P-	0.076	NA	NA	TRUE	0	
BW01	ALUMINUM	1490	1.00E+04	NA	TRUE	0	
BW01	ARSENIC	1.5	1.20E+01	7.24E+00	TRUE	0.207E-01	
BW01	BARIUM	17.9	1.18E+02	NA	TRUE	0	
BW01	CALCIUM	290	1.50E+04	NA	TRUE	0	
BW01	CHROMIUM	4.1	2.00E+01	5.23E+01	TRUE	0.784E-02	

BW01	IRON	3330	2.30E+04	NA	TRUE	0	0	0	0
BW01	LEAD	3.2	3.52E+01	3.02E+01	TRUE	0	0	0	1.06E-01
BW01	MAGNESIUM	211	2.40E+03	NA	TRUE	0	0	0	0
BW01	MANGANESE	108	8.70E+02	NA	TRUE	0	0	0	0
BW01	PHENOL	0.051	1.62E+00	4.20E-01	TRUE	0	0	0	1.21E-01
BW01	VANADIUM	4.7	3.00E+01	NA	TRUE	0	0	0	0
BW01	ZINC	12.3	7.97E+02	1.24E+02	TRUE	0	0	0	9.92E-02
BW02	1,2,3,4,6,7,8- 2,3,7,8-TETRACHLORODIBENZO-P- ALUMINUM	0.091	NA	NA	TRUE	0	0	0	0
BW02	ALUMINUM	0.068	NA	NA	TRUE	0	0	0	0
BW02	ARSENIC	553	1.00E+04	NA	TRUE	0	0	0	0
BW02	BARIUM	1.6	1.20E+01	7.24E+00	TRUE	0	0	0	2.21E-01
BW02	BENZO(a)ANTHRACENE	6.8	1.18E+02	NA	TRUE	0	0	0	0
BW02	BENZO(a)PYRENE	0.065	2.90E+00	3.30E-01	TRUE	0	0	0	1.97E-01
BW02	BENZO(b)FLUORANTHENE	0.044	2.50E+00	3.30E-01	TRUE	0	0	0	1.94E-01
BW02	BENZO(k)FLUORANTHENE	0.059	2.20E+00	3.30E-01	TRUE	0	0	0	1.79E-01
BW02	BENZO(g,h,i)PERYLENE	0.048	1.80E+00	3.30E-01	TRUE	0	0	0	1.45E-01
BW02	BENZO(k)FLUORANTHENE	0.075	2.30E+00	3.30E-01	TRUE	0	0	0	2.27E-01
BW02	CALCIUM	426	1.50E+04	NA	TRUE	0	0	0	0
BW02	CHROMIUM	5.5	2.00E+01	5.23E+01	TRUE	0	0	0	1.05E-01
BW02	CHRYSENE	0.088	3.20E+00	3.30E-01	TRUE	0	0	0	2.67E-01
BW02	D,n-OCTYLPHTHALATE	0.047	1.66E+00	6.20E+00	TRUE	0	0	0	7.58E-03
BW02	FLUORANTHENE	0.15	7.10E+00	3.30E-01	TRUE	0	0	0	4.55E-01
BW02	INDENOC(1,2,3-c,d)PYRENE	0.042	1.70E+00	3.30E-01	TRUE	0	0	0	1.27E-01
BW02	IRON	3480	2.30E+04	NA	TRUE	0	0	0	0
BW02	LEAD	1.7	3.52E+01	3.02E+01	TRUE	0	0	0	5.63E-02
BW02	MAGNESIUM	101	2.40E+03	NA	TRUE	0	0	0	0
BW02	MANGANESE	73.3	8.70E+02	NA	TRUE	0	0	0	0
BW02	PHENANTHRENE	0.048	6.90E+00	3.30E-01	TRUE	0	0	0	2.06E-01
BW02	PYRENE	0.15	2.90E+00	3.30E-01	TRUE	0	0	0	4.55E-01
BW02	VANADIUM	4.9	3.00E+01	NA	TRUE	0	0	0	0
BW02	ZINC	15.6	7.97E+02	1.24E+02	TRUE	0	0	0	1.26E-01
BW03	1,2,3,4,6,7,8- 2,3,7,8-TETRACHLORODIBENZO-P- ALUMINUM	0.053	NA	NA	TRUE	0	0	0	0
BW03	ALUMINUM	0.043	NA	NA	TRUE	0	0	0	0
BW03	BARIUM	592	1.00E+04	NA	TRUE	0	0	0	0
BW03	CHROMIUM	4.7	1.18E+02	NA	TRUE	0	0	0	0
BW03	COBALT	5.6	2.00E+01	5.23E+01	TRUE	0	0	0	1.07E-01
BW03	COPPER	1.2	1.40E+01	NA	TRUE	0	0	0	0
BW03	IRON	1.7	5.80E+01	1.87E+01	TRUE	0	0	0	9.09E-02
BW03	LEAD	5410	2.30E+04	NA	TRUE	0	0	0	0
BW03	MAGNESIUM	2.3	3.52E+01	3.02E+01	TRUE	0	0	0	7.62E-02
BW03	MANGANESE	51.2	2.40E+03	NA	TRUE	0	0	0	0
BW03	PHENOL	70.2	8.70E+02	NA	TRUE	0	0	0	0
BW03	ZINC	0.076	1.62E+00	4.20E-01	TRUE	0	0	0	1.81E-01

BW03	VANADIUM	4.4	3.00E+01	NA	TRUE	0	0	0	0
BW03	ZINC	10.4	7.97E+02	1.24E+02	TRUE	0	0	8.39E-02	0
BW04	1,2,3,4,6,7,8-	0.043	NA	NA	TRUE	0	0	0	0
BW04	2,3,7,8-TETRACHLORODIBENZO-P-	0.081	NA	NA	TRUE	0	0	0	0
BW04	ALUMINUM	653	8949	1.00E+04	TRUE	0	0	0	0
BW04	ANTIMONY	3.9	7.60E+00	1.20E+01	TRUE	0	0	3.25E-01	0
BW04	CALCIUM	2787	0756	1.50E+04	TRUE	0	0	0	0
BW04	CHROMIUM	10.8938	2.00E+01	5.23E+01	TRUE	0	0	2.08E-01	0
BW04	IRON	9177	9693	2.30E+04	TRUE	0	0	0	0
BW04	LEAD	2.9	3.52E+01	3.02E+01	TRUE	0	0	9.60E-02	0
BW04	MANGANESE	100.6725	8.70E+02	NA	TRUE	0	0	0	0
BW04	PHENOL	0.2	1.62E+00	4.20E-01	TRUE	0	0	4.76E-01	0
BW04	VANADIUM	5.6	3.00E+01	NA	TRUE	0	0	0	0
BW04	ZINC	31.9825	7.97E+02	1.24E+02	TRUE	0	0	2.58E-01	0
BW05	1,2,3,4,6,7,8-	0.06	NA	NA	TRUE	0	0	0	0
BW05	2,3,7,8-TETRACHLORODIBENZO-P-	0.062	NA	NA	TRUE	0	0	0	0
BW05	ALUMINUM	637	1.00E+04	NA	TRUE	0	0	0	0
BW05	BARIUM	4.9	1.18E+02	NA	TRUE	0	0	0	0
BW05	CHROMIUM	14.1	2.00E+01	5.23E+01	TRUE	0	0	2.70E-01	0
BW05	FLUORANTHENE	0.06	7.10E+00	3.30E-01	TRUE	0	0	1.82E-01	0
BW05	IRON	4980	2.30E+04	NA	TRUE	0	0	0	0
BW05	MAGNESIUM	54.7	2.40E+03	NA	TRUE	0	0	0	0
BW05	MANGANESE	61	8.70E+02	NA	TRUE	0	0	0	0
BW05	PHENOL	0.051	1.62E+00	4.20E-01	TRUE	0	0	1.21E-01	0
BW05	PYRENE	0.043	2.90E+00	3.30E-01	TRUE	0	0	1.30E-01	0
BW05	VANADIUM	9.2	3.00E+01	NA	TRUE	0	0	0	0
BW05	ZINC	9.7	7.97E+02	1.24E+02	TRUE	0	0	7.82E-02	0
BW06	1,2,3,4,6,7,8-	0.078	NA	NA	TRUE	0	0	0	0
BW06	2,3,7,8-TETRACHLORODIBENZO-P-	0.067	NA	NA	TRUE	0	0	0	0
BW06	ALUMINUM	490	1.00E+04	NA	TRUE	0	0	0	0
BW06	BARIUM	7.7	1.18E+02	NA	TRUE	0	0	0	0
BW06	CALCIUM	289	1.50E+04	NA	TRUE	0	0	0	0
BW06	CHROMIUM	4.1	2.00E+01	5.23E+01	TRUE	0	0	7.84E-02	0
BW06	IRON	4080	2.30E+04	NA	TRUE	0	0	0	0
BW06	LEAD	43.8	3.52E+01	3.02E+01	TRUE	0	0	1.45E+00	0
BW06	MAGNESIUM	66.6	2.40E+03	NA	TRUE	0	0	0	0
BW06	MANGANESE	99.1	8.70E+02	NA	TRUE	0	0	0	0
BW06	VANADIUM	4.5	3.00E+01	NA	TRUE	0	0	6.77E-02	0
BW06	ZINC	8.4	7.97E+02	1.24E+02	TRUE	0	0	0	0
BW07	1,2,3,4,6,7,8-	0.056	NA	NA	TRUE	0	0	0	0
BW07	2,3,7,8-TETRACHLORODIBENZO-P-	0.076	NA	NA	TRUE	0	0	0	0
BW07	ALUMINUM	796	1.00E+04	NA	TRUE	0	0	0	0
BW07	ARSENIC	3.8	1.20E+01	7.24E+00	TRUE	0	0	5.25E-01	0

BW07	BARIIUM	23.1	1.18E+02	NA	TRUE	0	0	1.94E-01	
BW07	BENZO(a)ANTHRACENE	0.004	2.90E+00	3.30E-01	TRUE	0	0	2.27E-01	
BW07	BENZO(a)PYRENE	0.075	2.50E+00	3.30E-01	TRUE	0	0	2.48E-01	
BW07	BENZO(b)FLUORANTHENE	0.082	2.20E+00	3.30E-01	TRUE	0	0	2.09E-01	
BW07	BENZO(k,h,i)PERYLENE	0.049	1.80E+00	3.30E-01	TRUE	0	0	2.45E-01	
BW07	BENZO(k)FLUORANTHENE	0.081	2.30E+00	3.30E-01	TRUE	0	0	3.82E+01	
BW07	CADMIUM	38.2	2.90E+01	1.00E+00	TRUE	0	0		
BW07	CALCIUM	2000	1.50E+04	NA	TRUE	0	0		
BW07	CHROMIUM	11.4	2.00E+01	5.23E+01	TRUE	0	0	2.18E-01	
BW07	CHRYSENE	0.11	3.20E+00	3.30E-01	TRUE	0	0	3.33E-01	
BW07	COBALT	7	1.40E+01	NA	TRUE	0	0		
BW07	COPPER	21.7	5.80E+01	1.87E+01	TRUE	0	0	1.15E+00	
BW07	DIELDRIN	0.011	1.10E-02	3.30E-03	TRUE	0	0	3.33E+00	
BW07	FLUORANTHENE	0.18	7.10E+00	3.30E-01	TRUE	0	0	5.45E-01	
BW07	INDENO(1,2,3-c,d)PYRENE	0.054	1.70E+00	3.30E-01	TRUE	0	0	1.64E-01	
BW07	IRON	16700	2.30E+04	NA	TRUE	0	0		
BW07	LEAD	133	3.62E+01	3.02E+01	TRUE	0	0	4.40E+00	
BW07	MAGNESIUM	803	2.40E+03	NA	TRUE	0	0		
BW07	MANGANESE	2610	8.70E+02	NA	TRUE	0	0		
BW07	OCTACHLORODIBENZO-p-DIOXIN	0.00043	8.60E-03	NA	TRUE	0	0		
BW07	PHENANTHRENE	0.087	6.90E+00	3.30E-01	TRUE	0	0	2.64E-01	
BW07	PYRENE	0.17	2.90E+00	3.30E-01	TRUE	0	0	5.15E-01	
BW07	VANADIUM	7.5	3.00E+01	NA	TRUE	0	0		
BW07	ZINC	7630	7.97E+02	1.24E+02	TRUE	0	0	6.15E+01	
BW08	1,2,3,4,6,7,8-	0.08	NA	NA	TRUE	0	0		
BW08	2,3,7,8-TETRACHLORODIBENZO-p-	0.077	NA	NA	TRUE	0	0		
BW08	ACENAPHTHENE	0.77	7.70E-01	3.30E-01	TRUE	0	0	2.33E+00	
BW08	ALPHA-CHLORDANE	0.0043	2.40E+00	1.70E-03	TRUE	0	0	2.53E+00	
BW08	ALUMINIUM	879	1.00E+04	NA	TRUE	0	0		
BW08	ANTHRACENE	1.6	1.60E+00	3.30E-01	TRUE	0	0	4.85E+00	
BW08	ARSENIC	4.9	1.20E+01	7.24E+00	TRUE	0	0	6.77E-01	
BW08	BARIIUM	18.2	1.18E+02	NA	TRUE	0	0		
BW08	BENZO(a)ANTHRACENE	2.9	2.90E+00	3.30E-01	TRUE	0	0	8.79E+00	
BW08	BENZO(b)PYRENE	2.5	2.50E+00	3.30E-01	TRUE	0	0	7.58E+00	
BW08	BENZO(k)FLUORANTHENE	2.6	2.20E+00	3.30E-01	TRUE	0	0	7.88E+00	
BW08	BENZO(k,h,i)PERYLENE	1.8	1.80E+00	3.30E-01	TRUE	0	0	5.45E+00	
BW08	BENZO(k)FLUORANTHENE	2.3	2.30E+00	3.30E-01	TRUE	0	0	6.97E+00	
BW08	CALCIUM	14200	1.50E+04	NA	TRUE	0	0		
BW08	CARRAZOLE	1.1	1.10E+00	NA	TRUE	0	0		
BW08	CHROMIUM	9.8	2.00E+01	5.23E+01	TRUE	0	0	1.87E-01	
BW08	CHRYSENE	3.2	3.20E+00	3.30E-01	TRUE	0	0	9.70E+00	
BW08	COBALT	4.2	1.40E+01	NA	TRUE	0	0		
BW08	COPPER	7.1	5.80E+01	1.87E+01	TRUE	0	0	3.80E-01	

BW08	DDD	0.0061	6.10E-03	3.30E-03	TRUE	0	1.85E+00	2.12E+00
BW08	DIBENZ(a,h)ANTHRACENE	0.7	7.00E-01	3.30E-01	TRUE	-1	2.12E+00	2.12E+00
BW08	DIBENZOFURAN	0.38	1.64E+00	5.40E-01	TRUE	0	7.04E-01	2.15E+01
BW08	FLUORANTHENE	7.1	7.10E+00	3.30E-01	TRUE	-1	2.15E+01	2.15E+01
BW08	FLUORENE	0.87	1.69E+00	3.30E-01	TRUE	0	2.64E+00	
BW08	GAMMA-CHLORDANE	0.013	2.00E+00	1.70E-03	TRUE	0	7.65E+00	
BW08	INDENO(1,2,3-c,d)PYRENE	1.7	1.70E+00	3.30E-01	TRUE	0	5.15E+00	
BW08	IRON	13400	2.30E+04	NA	TRUE	0	5.46E-01	
BW08	LEAD	16.5	3.52E+01	3.02E+01	TRUE	0	5.46E-01	
BW08	MAGNESIUM	812	2.40E+03	NA	TRUE	0		
BW08	MANGANESE	422	8.70E+02	NA	TRUE	0		
BW08	NAPHTHALENE	0.13	1.63E+00	3.30E-01	TRUE	0	3.94E-01	
BW08	OCTACHLORODIBENZO-P-DIOXIN	0.000483	8.60E-03	NA	TRUE	0		
BW08	PHENANTHRENE	6.9	6.90E+00	3.30E-01	TRUE	0	2.09E+01	
BW08	PYRENE	6.8	2.90E+00	3.30E-01	TRUE	-1	2.06E+01	2.06E+01
BW08	SELENIUM	0.37	1.70E+00	NA	TRUE	0		
BW08	VANADIUM	6.1	3.00E+01	NA	TRUE	0	7.25E-01	
BW08	ZINC	89.9	7.97E+02	1.24E+02	TRUE	0		
BW09	1,2,3,4,6,7,8- 2,3,7,8-TETRACHLORODIBENZO-P- ACENAPHTHENE	0.063	NA	NA	TRUE	0		
BW09	ALPHA-CHLORDANE	0.059	7.70E-01	3.30E-01	TRUE	0	1.79E-01	
BW09	ALUMINIUM	0.0052	2.40E+00	1.70E-03	TRUE	0	3.06E+00	
BW09	ANTHRACENE	1220	1.00E+04	NA	TRUE	0		
BW09	ANTIMONY	0.31	1.60E+00	3.30E-01	TRUE	0	9.39E-01	
BW09	ARSENIC	3.7	7.60E+00	1.20E+01	TRUE	0	3.08E-01	
BW09	BARIUM	3.4	1.20E+01	7.24E+00	TRUE	0	4.70E-01	
BW09	BENZO(a)ANTHRACENE	30.6	1.18E+02	NA	TRUE	0		
BW09	BENZO(a)PYRENE	0.77	2.90E+00	3.30E-01	TRUE	0	2.33E+00	
BW09	BENZO(b)FLUORANTHENE	0.59	2.50E+00	3.30E-01	TRUE	0	1.79E+00	
BW09	BENZO(g,h,i)PERYLENE	0.53	2.20E+00	3.30E-01	TRUE	0	1.61E+00	
BW09	BENZO(k)FLUORANTHENE	0.32	1.80E+00	3.30E-01	TRUE	0	9.70E-01	
BW09	CADMIUM	0.59	2.30E+00	3.30E-01	TRUE	0	1.79E+00	
BW09	CALCIUM	1.3	2.90E+01	1.00E+00	TRUE	0	1.30E+00	
BW09	CARBAZOLE	27800	1.50E+04	NA	TRUE	-1		
BW09	CHLOROMETHANE	0.083	1.10E+00	NA	TRUE	0		
BW09	CHROMIUM	0.003	2.00E-02	NA	TRUE	0		
BW09	CHRYSENE	39.7	2.00E+01	5.23E+01	TRUE	-1	7.59E-01	7.59E-01
BW09	COBALT	0.83	3.20E+00	3.30E-01	TRUE	0	2.52E+00	
BW09	COPPER	5.3	1.40E+01	NA	TRUE	0		
BW09	DIBENZ(a,h)ANTHRACENE	112	5.80E+01	1.87E+01	TRUE	-1	5.99E+00	5.99E+00
BW09	DIBENZOFURAN	0.13	7.00E-01	3.30E-01	TRUE	0	3.94E-01	
BW09	FLUORANTHENE	0.042	1.64E+00	5.40E-01	TRUE	0	7.78E-02	
BW09		1.5	7.10E+00	3.30E-01	TRUE	0	4.55E+00	

BW09	FLUORENE	0.13	1.69E+00	3.30E-01	TRUE	0	3.94E-01	
BW09	GAMMA-CHLORDANE	0.058	2.00E+00	1.70E-03	TRUE	0	3.41E+01	
BW09	INDENOX(1,2,3-C-D)PYRENE	0.36	1.70E+00	3.30E-01	TRUE	0	1.09E+00	
BW09	IRON	30700	2.30E+04	NA	TRUE	-1		
BW09	LEAD	291	3.52E+01	3.02E+01	TRUE	-1	9.64E+00	
BW09	MAGNESIUM	1730	2.40E+03	NA	TRUE	0		
BW09	MANGANESE	213	8.70E+02	NA	TRUE	0		
BW09	METHYL ETHYL KETONE	0.001	1.00E-02	NA	TRUE	0		
BW09	NICKEL	37.4	3.00E+01	1.59E+01	TRUE	-1	2.35E+00	
BW09	PHENANTHRENE	1.1	6.90E+00	3.30E-01	TRUE	0	3.33E+00	
BW09	PHENOL	0.051	1.62E+00	4.20E-01	TRUE	0	1.21E-01	
BW09	PYRENE	1.4	2.90E+00	3.30E-01	TRUE	0	4.24E+00	
BW09	VANADIUM	8.6	3.00E+01	NA	TRUE	0		
BW09	ZINC	90.5	7.97E+02	1.24E+02	TRUE	0	7.30E-01	
BW10	1,2,3,4,6,7,8-	0.087	NA	NA	TRUE	0		
BW10	2,3,7,8-TETRACHLORODIBENZO-p-	0.073	NA	NA	TRUE	0		
BW10	ALUMINIUM	11600	1.00E+04	NA	TRUE	-1		
BW10	ARSENIC	7.1	1.20E+01	7.24E+00	TRUE	0	9.81E-01	
BW10	BARIUM	126	1.18E+02	NA	TRUE	-1		
BW10	BERYLLIUM	0.7	1.30E+00	NA	TRUE	0		
BW10	Di(2-ETHYLHEXYL) PHTHALATE	0.48	4.80E-01	1.82E-01	TRUE	0	2.64E+00	
BW10	CALCIUM	3060	1.50E+04	NA	TRUE	0		
BW10	CHROMIUM	16.1	2.00E+01	5.23E+01	TRUE	0	3.08E-01	
BW10	COBALT	10.8	1.40E+01	NA	TRUE	0		
BW10	COPPER	26.6	5.80E+01	1.87E+01	TRUE	0	1.42E+00	
BW10	IRON	19300	2.30E+04	NA	TRUE	0		
BW10	LEAD	25.5	3.52E+01	3.02E+01	TRUE	0	8.44E-01	
BW10	MAGNESIUM	2530	2.40E+03	NA	TRUE	-1		
BW10	MANGANESE	566	8.70E+02	NA	TRUE	0		
BW10	METHYL ETHYL KETONE	0.007	1.00E-02	NA	TRUE	0		
BW10	NICKEL	18.1	3.00E+01	1.59E+01	TRUE	0	1.14E+00	
BW10	OCTACHLORODIBENZO-p-DIOXIN	0.000761	8.60E-03	NA	TRUE	0		
BW10	POTASSIUM	1080	1.54E+03	NA	TRUE	0		
BW10	SELENIUM	1.9	1.70E+00	NA	TRUE	0		
BW10	SILVER	0.89	1.80E+00	2.00E+00	TRUE	0	4.45E-01	
BW10	VANADIUM	31.5	3.00E+01	NA	TRUE	-1		
BW10	ZINC	87.9	7.97E+02	1.24E+02	TRUE	0	7.09E-01	
BW11	1,2,3,4,6,7,8-	0.069	NA	NA	TRUE	0		
BW11	2,3,7,8-TETRACHLORODIBENZO-p-	0.088	NA	NA	TRUE	0		
BW11	ALPHA-CHLORDANE	0.0049	2.40E+00	1.70E-03	TRUE	0	2.88E+00	
BW11	ALUMINIUM	6580	1.00E+04	NA	TRUE	0		
BW11	ARSENIC	5.7	1.20E+01	7.24E+00	TRUE	0	7.87E-01	
BW11	BARIUM	70.9	1.18E+02	NA	TRUE	0		

BW11	CALCIUM	1680	1.50E+04	NA	TRUE	0	0	0	0
BW11	CHROMIUM	9.8	2.00E+01	5.23E+01	TRUE	0	0	1.87E-01	0
BW11	COBALT	6.9	1.40E+01	NA	TRUE	0	0	0	0
BW11	COPPER	13.9	5.80E+01	1.87E+01	TRUE	0	0	7.43E-01	0
BW11	GAMMA-CHLORDANE	0.0061	2.00E+00	1.70E-03	TRUE	0	0	3.59E+00	0
BW11	IRON	12000	2.30E+04	NA	TRUE	0	0	0	0
BW11	LEAD	10.6	3.52E+01	3.02E+01	TRUE	0	0	3.51E-01	0
BW11	MAGNESIUM	1240	2.40E+03	NA	TRUE	0	0	0	0
BW11	MANGANESE	328	8.70E+02	NA	TRUE	0	0	0	0
BW11	METHYL ETHYL KETONE	0.004	1.00E-02	NA	TRUE	0	0	0	0
BW11	NICKEL	12.4	3.00E+01	1.59E+01	TRUE	0	0	7.80E-01	0
BW11	OCTACHLORODIBENZO-P-DIOXIN	0.001484	8.60E-03	NA	TRUE	0	0	0	0
BW11	POTASSIUM	494	1.56E+03	NA	TRUE	0	0	0	0
BW11	VANADIUM	18.9	3.00E+01	NA	TRUE	0	0	0	0
BW11	ZINC	59.4	7.97E+02	1.24E+02	TRUE	0	0	4.79E-01	0
BW12	1,2,3,4,6,7,8-	0.079	NA	NA	TRUE	0	0	0	0
BW12	2,3,7,8-TETRACHLORODIBENZO-P-	0.068	NA	NA	TRUE	0	0	0	0
BW12	ALUMINUM	10100	1.00E+04	NA	TRUE	0	0	0	0
BW12	ARSENIC	3.9	1.20E+01	7.24E+00	TRUE	0	0	5.39E-01	0
BW12	BARIUM	119	1.18E+02	NA	TRUE	0	0	0	0
BW12	BERYLLIUM	0.52	1.30E+00	NA	TRUE	0	0	0	0
BW12	CALCIUM	1160	1.50E+04	NA	TRUE	0	0	0	0
BW12	CHROMIUM	14.2	2.00E+01	5.23E+01	TRUE	0	0	2.72E-01	0
BW12	COBALT	9.7	1.40E+01	NA	TRUE	0	0	0	0
BW12	COPPER	14.2	5.80E+01	1.87E+01	TRUE	0	0	7.59E-01	0
BW12	IRON	16300	2.30E+04	NA	TRUE	0	0	0	0
BW12	LEAD	12.2	3.52E+01	3.02E+01	TRUE	0	0	4.04E-01	0
BW12	MAGNESIUM	1930	2.40E+03	NA	TRUE	0	0	0	0
BW12	MANGANESE	406	8.70E+02	NA	TRUE	0	0	0	0
BW12	METHYL ETHYL KETONE	0.01	1.00E-02	NA	TRUE	0	0	0	0
BW12	NICKEL	14	3.00E+01	1.59E+01	TRUE	0	0	8.81E-01	0
BW12	POTASSIUM	1040	1.56E+03	NA	TRUE	0	0	0	0
BW12	VANADIUM	25.3	3.00E+01	NA	TRUE	0	0	0	0
BW12	ZINC	49.4	7.97E+02	1.24E+02	TRUE	0	0	3.98E-01	0
BW13	1,2,3,4,6,7,8-	0.078	NA	NA	TRUE	0	0	0	0
BW13	2,3,7,8-TETRACHLORODIBENZO-P-	0.074	NA	NA	TRUE	0	0	0	0
BW13	ALUMINUM	9840	1.00E+04	NA	TRUE	0	0	0	0
BW13	ARSENIC	5.1	1.20E+01	7.24E+00	TRUE	0	0	7.04E-01	0
BW13	BARIUM	119	1.18E+02	NA	TRUE	0	0	0	0
BW13	BERYLLIUM	0.77	1.30E+00	NA	TRUE	0	0	0	0
BW13	CALCIUM	1340	1.50E+04	NA	TRUE	0	0	0	0
BW13	CHROMIUM	15.7	2.00E+01	5.23E+01	TRUE	0	0	3.00E-01	0
BW13	COBALT	9.4	1.40E+01	NA	TRUE	0	0	0	0

BW13	COPPER	16.5	5.60E+01	1.87E+01	TRUE	0	8.82E-01	
BW13	DDD	0.008	6.10E-03	3.30E-03	TRUE	0	1.82E+00	
BW13	DDE	0.0058	7.20E-03	3.30E-03	TRUE	0	1.76E+00	
BW13	IRON	19500	2.30E+04	NA	TRUE	0	4.11E-01	
BW13	LEAD	12.4	3.52E+01	3.02E+01	TRUE	0	1.30E+00	
BW13	MAGNESIUM	1860	2.40E+03	NA	TRUE	0	1.06E+00	
BW13	MANGANESE	618	8.70E+02	NA	TRUE	0	1.06E+00	
BW13	METHYL ETHYL KETONE	0.007	1.00E-02	NA	TRUE	0	1.04E+00	
BW13	NICKEL	16.6	3.00E+01	1.59E+01	TRUE	0	1.04E+00	
BW13	POTASSIUM	812	1.56E+03	NA	TRUE	0	1.04E+00	
BW13	SELENIUM	1.1	1.70E+00	NA	TRUE	0	1.04E+00	
BW13	VANADIUM	31	3.00E+01	NA	TRUE	0	1.04E+00	
BW13	ZINC	59.9	7.97E+02	1.24E+02	TRUE	0	1.04E+00	
BW14	1,2,3,4,6,7,8-	0.07	NA	NA	TRUE	0	1.04E+00	
BW14	2,3,7,8-TETRACHLORODIBENZO-P-	0.0036	2.40E+00	1.70E-03	TRUE	0	1.04E+00	
BW14	ALPHA-CHLORDANE	1440	1.00E+04	NA	TRUE	0	1.04E+00	
BW14	ALUMINUM	2.4	1.20E+01	7.24E+00	TRUE	0	1.04E+00	
BW14	ARSENIC	25.9	1.18E+02	NA	TRUE	0	1.04E+00	
BW14	BARIUM	56800	1.50E+04	NA	TRUE	0	1.04E+00	
BW14	CALCIUM	11.5	2.00E+01	5.23E+01	TRUE	0	1.04E+00	
BW14	CHROMIUM	0.23	2.0E+00	3.30E-01	TRUE	0	1.04E+00	
BW14	CHRYSENE	3.5	1.40E+01	NA	TRUE	0	1.04E+00	
BW14	COBALT	2.8	5.80E+01	1.87E+01	TRUE	0	1.04E+00	
BW14	COPPER	0.22	7.10E+00	3.30E-01	TRUE	0	1.04E+00	
BW14	FLUORANTHENE	0.0079	2.00E+00	1.70E-03	TRUE	0	1.04E+00	
BW14	GAMMA-CHLORDANE	8210	2.30E+04	NA	TRUE	0	1.04E+00	
BW14	IRON	8.6	3.52E+01	3.02E+01	TRUE	0	1.04E+00	
BW14	LEAD	2420	2.40E+03	NA	TRUE	0	1.04E+00	
BW14	MAGNESIUM	853	8.70E+02	NA	TRUE	0	1.04E+00	
BW14	MANGANESE	0.002	1.00E-02	NA	TRUE	0	1.04E+00	
BW14	METHYL ETHYL KETONE	5.3	3.00E+01	1.59E+01	TRUE	0	1.04E+00	
BW14	NICKEL	0.26	2.90E+00	3.30E-01	TRUE	0	1.04E+00	
BW14	PYRENE	13.4	3.00E+01	NA	TRUE	0	1.04E+00	
BW14	VANADIUM	161	7.97E+02	1.24E+02	TRUE	0	1.04E+00	
BW14	ZINC	0.07	NA	NA	TRUE	0	1.04E+00	
BW15	1,2,3,4,6,7,8-	0.057	NA	NA	TRUE	0	1.04E+00	
BW15	2,3,7,8-TETRACHLORODIBENZO-P-	12100	1.00E+04	NA	TRUE	0	1.04E+00	
BW15	ALUMINUM	7.6	1.20E+01	7.24E+00	TRUE	0	1.04E+00	
BW15	ARSENIC	104	1.18E+02	NA	TRUE	0	1.04E+00	
BW15	BARIUM	0.65	1.30E+00	NA	TRUE	0	1.04E+00	
BW15	BERYLLIUM	1480	1.50E+04	NA	TRUE	0	1.04E+00	
BW15	CALCIUM	15.4	2.00E+01	5.23E+01	TRUE	0	1.04E+00	
BW15	CHROMIUM				TRUE	0	1.04E+00	

BW15	COBALT	7.6	1.40E+01	NA	TRUE	0	0	0	0
BW15	COPPER	12.6	5.80E+01	1.87E+01	TRUE	0	0	0	6.74E-01
BW15	IRON	18100	2.30E+04	NA	TRUE	0	0	0	0
BW15	LEAD	19	3.52E+01	3.02E+01	TRUE	0	0	0	6.29E-01
BW15	MAGNESIUM	1610	2.40E+03	NA	TRUE	0	0	0	0
BW15	MANGANESE	651	8.70E+02	NA	TRUE	0	0	0	0
BW15	NICKEL	13.9	3.00E+01	1.50E+01	TRUE	0	0	0	8.74E-01
BW15	OCTACHLORODIBENZO-P-DIOXIN	0.0011	8.60E-03	NA	TRUE	0	0	0	0
BW15	POTASSIUM	838	1.56E+03	NA	TRUE	0	0	0	0
BW15	THALLIUM	0.52	1.10E+00	NA	TRUE	0	0	0	0
BW15	VANADIUM	27.8	3.00E+01	NA	TRUE	0	0	0	0
BW15	ZINC	46.8	7.97E+02	1.24E+02	TRUE	0	0	0	3.77E-01
BW16	1,2,3,4,6,7,8-	0.081	NA	NA	TRUE	0	0	0	0
BW16	1,2,3,4,6,7,8-	0.000067	5.80E-04	NA	TRUE	0	0	0	0
BW16	2,3,7,8-TETRACHLORODIBENZO-P-	0.071	NA	NA	TRUE	0	0	0	0
BW16	ALUMINUM	9460	1.00E+04	NA	TRUE	0	0	0	0
BW16	ARSENIC	11.1	1.20E+01	7.24E+00	TRUE	0	0	0	1.53E+00
BW16	BARIUM	119	1.18E+02	NA	TRUE	0	0	0	0
BW16	CALCIUM	1900	1.50E+04	NA	TRUE	0	0	0	0
BW16	CHROMIUM	10.4	2.00E+01	5.23E+01	TRUE	0	0	0	1.99E-01
BW16	COBALT	7.8	1.40E+01	NA	TRUE	0	0	0	0
BW16	COPPER	12.1	5.80E+01	1.87E+01	TRUE	0	0	0	6.47E-01
BW16	DDD	0.0028	6.10E-03	3.30E-03	TRUE	0	0	0	8.48E-01
BW16	DDE	0.0072	7.20E-03	3.30E-03	TRUE	0	0	0	2.18E+00
BW16	IRON	12900	2.30E+04	NA	TRUE	0	0	0	0
BW16	LEAD	29.2	3.52E+01	3.02E+01	TRUE	0	0	0	9.67E-01
BW16	MAGNESIUM	1430	2.40E+03	NA	TRUE	0	0	0	0
BW16	MANGANESE	587	8.70E+02	NA	TRUE	0	0	0	0
BW16	METHYL ETHYL KETONE	0.004	1.00E-02	NA	TRUE	0	0	0	0
BW16	NICKEL	13.9	3.00E+01	1.50E+01	TRUE	0	0	0	8.74E-01
BW16	OCTACHLORODIBENZO-P-DIOXIN	0.003655	8.60E-03	NA	TRUE	0	0	0	0
BW16	POTASSIUM	811	1.56E+03	NA	TRUE	0	0	0	0
BW16	VANADIUM	19.9	3.00E+01	NA	TRUE	0	0	0	0
BW16	ZINC	53.5	7.97E+02	1.24E+02	TRUE	0	0	0	4.31E-01
BW17	1,2,3,4,6,7,8-	0.078	NA	NA	TRUE	0	0	0	0
BW17	1,2,3,4,6,7,8-	0.000064	5.80E-04	NA	TRUE	0	0	0	0
BW17	2,3,7,8-TETRACHLORODIBENZO-P-	0.063	NA	NA	TRUE	0	0	0	0
BW17	ALUMINUM	3300	1.00E+04	NA	TRUE	0	0	0	0
BW17	BARIUM	40.7	1.18E+02	NA	TRUE	0	0	0	0
BW17	BENZO(a)PYRENE	0.084	2.50E+00	3.30E-01	TRUE	0	0	0	2.55E-01
BW17	BENZO(b)FLUORANTHENE	0.35	2.20E+00	3.30E-01	TRUE	0	0	0	1.06E+00
BW17	BENZO(g,h,i)PERYLENE	0.14	1.80E+00	3.30E-01	TRUE	0	0	0	4.24E-01
BW17	BENZO(k)FLUORANTHENE	0.2	2.30E+00	3.30E-01	TRUE	0	0	0	6.04E-01

BW17	CALCIUM	1150	1.50E+04	NA	TRUE	0	
BW17	CHROMIUM	8.8	2.00E+01	5.23E+01	TRUE	0	1.68E-01
BW17	CHRYSENE	0.092	3.20E+00	3.30E-01	TRUE	0	2.79E-01
BW17	COBALT	4.7	1.40E+01	NA	TRUE	0	
BW17	INDENO(1,2,3-c,d)PYRENE	0.13	1.70E+00	3.30E-01	TRUE	0	3.94E-01
BW17	IRON	7920	2.30E+04	NA	TRUE	0	
BW17	LEAD	14	3.52E+01	3.02E+01	TRUE	0	4.64E-01
BW17	MAGNESIUM	474	2.40E+03	NA	TRUE	0	
BW17	MANGANESE	227	8.70E+02	NA	TRUE	0	
BW17	METHYL ETHYL KETONE	0.003	1.00E-02	NA	TRUE	0	
BW17	NICKEL	5.8	3.00E+01	1.59E+01	TRUE	0	3.65E-01
BW17	OCTACHLOROIBENZO-P-DIOXIN	0.002536	8.60E-03	NA	TRUE	0	
BW17	POTASSIUM	269	1.58E+03	NA	TRUE	0	
BW17	THALLIUM	0.56	1.10E+00	NA	TRUE	0	
BW17	VANADIUM	13.7	3.00E+01	NA	TRUE	0	
BW17	ZINC	19.5	7.97E+02	1.24E+02	TRUE	0	1.57E-01
BW18	1,2,3,4,6,7,8-	0.088	NA	NA	TRUE	0	
BW18	1,2,3,4,6,7,8-	0.000583	5.80E-04	NA	TRUE	-1	
BW18	2,3,4,7,8-	0.000002	2.00E-06	NA	TRUE	0	
BW18	2,3,7,8-TETRACHLORODIBENZO-P-	0.068	NA	NA	TRUE	0	
BW18	ALPHA-CHLORDANE	2.4	2.40E+00	1.70E-03	TRUE	0	1.41E+03
BW18	ALUMINIUM	8720	1.00E+04	NA	TRUE	0	
BW18	ARSENIC	10.8	1.20E+01	7.24E+00	TRUE	0	1.49E+00
BW18	BARIUM	137	1.18E+02	NA	TRUE	-1	
BW18	BENZO(a)ANTHRACENE	0.13	2.90E+00	3.30E-01	TRUE	0	3.94E-01
BW18	BENZO(a)PYRENE	0.13	2.50E+00	3.30E-01	TRUE	0	3.94E-01
BW18	BENZO(b)FLUORANTHENE	0.12	2.20E+00	3.30E-01	TRUE	0	3.64E-01
BW18	BENZO(g,h,i)PERYLENE	0.11	1.80E+00	3.30E-01	TRUE	0	3.33E-01
BW18	BENZO(k)FLUORANTHENE	0.14	2.30E+00	3.30E-01	TRUE	0	4.24E-01
BW18	CADMIUM	3.9	2.90E+01	1.00E+00	TRUE	0	3.90E+00
BW18	CALCIUM	980	1.50E+04	NA	TRUE	0	
BW18	CHROMIUM	174	2.00E+01	5.23E+01	TRUE	-1	3.33E+00
BW18	CHRYSENE	0.16	3.20E+00	3.30E-01	TRUE	0	4.85E-01
BW18	COBALT	8.4	1.40E+01	NA	TRUE	0	
BW18	COPPER	19.1	5.80E+01	1.87E+01	TRUE	0	1.02E+00
BW18	FLUORANTHENE	0.33	7.10E+00	3.30E-01	TRUE	0	1.00E+00
BW18	GAMMA-CHLORDANE	2	2.00E+00	1.70E-03	TRUE	0	1.18E+03
BW18	HEPTACHLOR EPOXIDE	0.23	2.30E-01	NA	TRUE	0	
BW18	INDENO(1,2,3-c,g)PYRENE	0.092	1.70E+00	3.30E-01	TRUE	0	2.79E-01
BW18	IRON	11800	2.30E+04	NA	TRUE	0	
BW18	LEAD	31.5	3.52E+01	3.02E+01	TRUE	0	1.04E+00
BW18	MAGNESIUM	1380	2.40E+03	NA	TRUE	0	
BW18	MANGANESE	667	8.70E+02	NA	TRUE	0	

BW18	MERCURY	2.40E+00	1.30E-01	TRUE	0.154E+01	
BW18	METHYL ETHYL KETONE	0.009	NA	TRUE	0	
BW18	NICKEL	14.5	1.59E+01	TRUE	0.912E-01	
BW18	OCTACHLORODIBENZO-P-DIOXIN	0.007707	NA	TRUE	0	
BW18	PHENANTHRENE	0.15	3.30E-01	TRUE	0.455E-01	
BW18	POTASSIUM	674	NA	TRUE	0	
BW18	PYRENE	0.3	3.30E-01	TRUE	0.909E-01	
BW18	TOLUENE	0.002	NA	TRUE	0	
BW18	VANADIUM	18.8	NA	TRUE	0	
BW18	ZINC	78.1	1.24E+02	TRUE	0.630E-01	
BW19	1,2,3,4,6,7,8-	0.079	NA	TRUE	0	
BW19	1,2,3,4,6,7,8-	0.000043	NA	FALSE	0	
BW19	2,3,7,8-TETRACHLORODIBENZO-P-	0.058	NA	TRUE	0	
BW19	ALUMINIUM	14200	NA	TRUE	0	
BW19	ARSENIC	10	7.24E+00	TRUE	0.138E+00	
BW19	BARIUM	92.2	NA	TRUE	0	
BW19	CALCIUM	710	NA	TRUE	0	
BW19	CHROMIUM	14.2	5.23E+01	TRUE	0.272E-01	
BW19	COBALT	8.8	NA	TRUE	0	
BW19	COPPER	13.5	1.87E+01	TRUE	0.722E-01	
BW19	IRON	18755.042	NA	TRUE	0	
BW19	LEAD	14.6	3.02E+01	TRUE	0.483E-01	
BW19	MAGNESIUM	2060	NA	TRUE	0	
BW19	MANGANESE	450.9216	NA	TRUE	0	
BW19	NICKEL	19.1	1.59E+01	TRUE	0.120E+00	
BW19	OCTACHLORODIBENZO-P-DIOXIN	0.011654	NA	TRUE	0	
BW19	POTASSIUM	997	NA	TRUE	0	
BW19	SELENIUM	0.37	NA	TRUE	0	
BW19	VANADIUM	28.9	NA	TRUE	0	
BW19	ZINC	44.7255	1.24E+02	TRUE	0.361E-01	
BW20	1,2,3,4,6,7,8-	0.053	NA	TRUE	0	
BW20	2,3,7,8-TETRACHLORODIBENZO-P-	0.058	NA	TRUE	0	
BW20	ALUMINIUM	6920	NA	TRUE	0	
BW20	ARSENIC	7.8	7.24E+00	TRUE	0.108E+00	
BW20	BARIUM	96	NA	TRUE	0	
BW20	BENZO(a)ANTHRACENE	0.99	3.30E-01	TRUE	0.300E+00	
BW20	BENZO(a)PYRENE	0.98	3.30E-01	TRUE	0.297E+00	
BW20	BENZO(b)FLUORANTHENE	0.94	3.30E-01	TRUE	0.285E+00	
BW20	BENZO(g,h,i)PERYLENE	0.68	3.30E-01	TRUE	0.206E+00	
BW20	BENZO(k)FLUORANTHENE	0.98	3.30E-01	TRUE	0.297E+00	
BW20	CALCIUM	3450	NA	TRUE	0	
BW20	CHROMIUM	9	5.23E+01	TRUE	0.172E-01	
BW20	CHRYSENE	1.2	3.30E-01	TRUE	0.364E+00	

BW20	COPPER	512	5.80E+01	1.87E+01	TRUE	-1.274E+01	2.74E+01
BW20	FLUORANTHENE	2.5	7.10E+00	3.30E-01	TRUE	0	7.58E+00
BW20	INDENO(1,2,3-c,d)PYRENE	0.62	1.70E+00	3.30E-01	TRUE	0	1.88E+00
BW20	IRON	7950	2.30E+04	NA	TRUE	0	1.19E+00
BW20	LEAD	35.9	3.52E+01	3.02E+01	TRUE	-1	1.19E+00
BW20	MAGNESIUM	1370	2.40E+03	NA	TRUE	0	1.19E+00
BW20	MANGANESE	221	8.70E+02	NA	TRUE	0	1.19E+00
BW20	NICKEL	8.1	3.00E+01	1.59E+01	TRUE	0	5.09E-01
BW20	OCTACHLORODIBENZO-P-DIOXIN	0.001608	8.60E-03	NA	TRUE	0	5.09E-01
BW20	PHENANTHRENE	1.6	6.90E+00	3.30E-01	TRUE	0	4.85E+00
BW20	PYRENE	2.5	2.90E+00	3.30E-01	TRUE	0	7.58E+00
BW20	VANADIUM	17.3	3.00E+01	NA	TRUE	0	5.94E-01
BW20	ZINC	73.7	7.97E+02	1.24E+02	TRUE	0	5.94E-01
BW21	1,2,3,4,6,7,8-	0.065	NA	NA	TRUE	0	1.11E-01
BW21	2,3,7,8-TETRACHLORODIBENZO-P-	0.063	NA	NA	TRUE	0	1.11E-01
BW21	ALUMINUM	1140	1.00E+04	NA	TRUE	0	1.11E-01
BW21	ARSENIC	4.7	1.20E+01	7.24E+00	TRUE	0	6.49E-01
BW21	BARIUM	14.3	1.18E+02	NA	TRUE	0	6.49E-01
BW21	CALCIUM	7650	1.50E+04	NA	TRUE	0	1.11E-01
BW21	CHROMIUM	5.8	2.00E+01	5.23E+01	TRUE	0	1.11E-01
BW21	COPPER	129	5.80E+01	1.87E+01	TRUE	-1	6.90E+00
BW21	FLUORANTHENE	0.4	7.10E+00	3.30E-01	TRUE	0	1.21E+00
BW21	IRON	3790	2.30E+04	NA	TRUE	0	1.21E+00
BW21	LEAD	7.3	3.52E+01	3.02E+01	TRUE	0	2.42E-01
BW21	MAGNESIUM	2950	2.40E+03	NA	TRUE	0	2.42E-01
BW21	MANGANESE	59.3	8.70E+02	NA	TRUE	0	2.42E-01
BW21	METHYLETHYL KETONE	0.005	1.00E-02	NA	TRUE	0	3.64E+00
BW21	PYRENE	1.2	2.90E+00	3.30E-01	TRUE	0	3.64E+00
BW21	TOLUENE	0.014	1.40E-02	NA	TRUE	0	3.64E+00
BW21	VANADIUM	6.4	3.00E+01	NA	TRUE	0	3.64E+00
BW21	ZINC	27.8	7.97E+02	1.24E+02	TRUE	0	2.24E-01
BW22	1,2,3,4,6,7,8-	0.076	NA	NA	TRUE	0	2.24E-01
BW22	2,3,7,8-TETRACHLORODIBENZO-P-	0.073	NA	NA	TRUE	0	2.24E-01
BW22	ALUMINUM	8460	1.00E+04	NA	TRUE	0	2.24E-01
BW22	ARSENIC	10.3	1.20E+01	7.24E+00	TRUE	0	1.42E+00
BW22	BARIUM	115	1.18E+02	NA	TRUE	0	1.42E+00
BW22	CALCIUM	4120	1.50E+04	NA	TRUE	0	1.42E+00
BW22	CHROMIUM	9.6	2.00E+01	5.23E+01	TRUE	0	1.84E-01
BW22	COPPER	1250	5.80E+01	1.87E+01	TRUE	-1	6.88E+01
BW22	FLUORANTHENE	0.5	7.10E+00	3.30E-01	TRUE	0	1.52E+00
BW22	IRON	9520	2.30E+04	NA	TRUE	0	1.52E+00
BW22	LEAD	43	3.52E+01	3.02E+01	TRUE	-1	1.42E+00
BW22	MAGNESIUM	1610	2.40E+03	NA	TRUE	0	1.42E+00

BW22	MANGANESE	210	8.70E+02	NA	TRUE	0	0	1.20E+00	
BW22	NICKEL	19.1	3.00E+01	1.59E+01	TRUE	0	0	1.20E+00	
BW22	OCTACHLORODIBENZO-P-DIOXIN	0.000498	8.60E-03	NA	TRUE	0	0	2.36E+00	
BW22	PYRENE	0.78	2.90E+00	3.30E-01	TRUE	0	0	2.36E+00	
BW22	SODIUM	120	2.40E+02	NA	TRUE	0	0	2.36E+00	
BW22	TOLUENE	0.01	1.40E-02	NA	TRUE	0	0	2.36E+00	
BW22	VANADIUM	22.1	3.00E+01	NA	TRUE	0	0	2.36E+00	
BW22	ZINC	129	2.97E+02	1.24E+02	TRUE	0	0	1.04E+00	
M-SD01	1,2,3,4,6,7,8-	0.000556	1.00E+05	NA	TRUE	0	0	1.04E+00	
M-SD01	1,2,3,4,6,7,8-	0.000644	5.80E-04	NA	TRUE	-1	0	1.04E+00	
M-SD01	1,2,3,6,7,8-HEXACHLORODIBENZO-P	0.0000929	1.00E+05	NA	TRUE	0	0	1.04E+00	
M-SD01	1,2,3,7,8,9-HEXACHLORODIBENZO-P	0.000146	1.00E+05	NA	TRUE	0	0	1.04E+00	
M-SD01	2-METHYLNAPHTHALENE	0.018	1.00E+05	3.30E-01	TRUE	0	0	5.45E-02	
M-SD01	ACENAPHTHENE	0.059	7.70E-01	3.30E-01	TRUE	0	0	1.79E-01	
M-SD01	ACENAPHTHYLENE	0.058	1.00E+05	3.30E-01	TRUE	0	0	1.76E-01	
M-SD01	ACETONE	0.007	1.00E+05	NA	TRUE	0	0	1.76E-01	
M-SD01	ALPHA-CHLORDANE	0.014	2.40E+00	1.70E-03	TRUE	0	0	8.24E+00	
M-SD01	ALUMINUM	2170	1.00E+04	NA	TRUE	0	0	8.24E+00	
M-SD01	ANTHRACENE	0.2	1.60E+00	3.30E-01	TRUE	0	0	6.06E-01	
M-SD01	ARSENIC	2	1.20E+01	7.24E+00	TRUE	0	0	2.76E-01	
M-SD01	BARIUM	24.1	1.18E+02	NA	TRUE	0	0	2.76E-01	
M-SD01	BENZO(O)ANTHRACENE	0.89	2.90E+00	3.30E-01	TRUE	0	0	2.70E+00	
M-SD01	BENZO(G)PYRENE	0.96	2.50E+00	3.30E-01	TRUE	0	0	2.91E+00	
M-SD01	BENZO(G)FLUORANTHENE	1.3	2.20E+00	3.30E-01	TRUE	0	0	3.94E+00	
M-SD01	BENZO(G,H)PERYLENE	0.77	1.80E+00	3.30E-01	TRUE	0	0	2.33E+00	
M-SD01	BENZO(G)FLUORANTHENE	0.72	2.30E+00	3.30E-01	TRUE	0	0	2.18E+00	
M-SD01	BERYLLIUM	0.23	1.30E+00	NA	TRUE	0	0	2.18E+00	
M-SD01	BIS(2-ETHYLHEXYL) PHTHALATE	0.082	4.80E-01	1.82E-01	TRUE	0	0	4.51E-01	
M-SD01	CADMIUM	0.38	2.90E+01	1.00E+00	TRUE	0	0	3.80E-01	
M-SD01	CALCIUM	19200	1.50E+04	NA	TRUE	-1	0	3.80E-01	
M-SD01	CARBAZOLE	0.17	1.10E+00	NA	TRUE	0	0	3.80E-01	
M-SD01	CARBON TETRACHLORIDE	0.007	1.00E+05	NA	TRUE	0	0	3.80E-01	
M-SD01	CHROMIUM	8.4	2.00E+01	5.23E+01	TRUE	0	0	1.61E-01	
M-SD01	CHRYSENE	1	3.20E+00	3.30E-01	TRUE	0	0	3.03E+00	
M-SD01	COBALT	0.76	1.40E+01	NA	TRUE	0	0	3.03E+00	
M-SD01	COPPER	11.9	5.80E+01	1.87E+01	TRUE	0	0	6.34E-01	
M-SD01	DDD	0.011	6.10E-03	3.30E-03	TRUE	-1	0	3.33E+00	
M-SD01	DDE	0.029	7.20E-03	3.30E-03	TRUE	-1	0	8.79E+00	
M-SD01	DDT	0.093	1.00E+05	3.30E-03	TRUE	0	0	2.82E+01	
M-SD01	DIBENZ(G,H)ANTHRACENE	0.25	7.00E-01	3.30E-01	TRUE	0	0	7.58E-01	
M-SD01	DIBENZOFURAN	0.073	1.64E+00	5.40E-01	TRUE	0	0	1.35E-01	
M-SD01	DIELDRIN	0.012	1.10E-02	3.30E-03	TRUE	-1	0	3.64E+00	
M-SD01	DI-N-BUTYL PHTHALATE	0.023	1.00E+05	1.40E+00	TRUE	0	0	1.64E-02	

M-SD01	ENDRIN	0.014	NA	3.30E-03	TRUE	0.424E+00	
M-SD01	FLUORANTHENE	1.8	7.10E+00	3.30E-01	TRUE	0.545E+00	
M-SD01	FLUORENE	0.1	1.69E+00	3.30E-01	TRUE	0.303E-01	
M-SD01	GAMMA-CHLORDANE	0.018	2.00E+00	1.70E-03	TRUE	0.106E+01	
M-SD01	HEPTACHLOR	0.0018	NA	NA	TRUE	0	
M-SD01	HEPTACHLOR EPOXIDE	0.0037	2.30E-01	NA	TRUE	0	
M-SD01	HEPTACHLORINATED	0.00198	NA	NA	TRUE	0	
M-SD01	HEPTACHLORINATED DIBENZO-P-	0.0123	NA	NA	TRUE	0	
M-SD01	HEXACHLORINATED	0.000495	NA	NA	TRUE	0	
M-SD01	HEXACHLORINATED DIBENZO-P-	0.00103	NA	NA	TRUE	0	
M-SD01	INDENO(1,2,3-c,d)PYRENE	0.771	1.70E+00	3.30E-01	TRUE	0.233E+00	
M-SD01	IRON	3470	2.30E+04	NA	TRUE	0	
M-SD01	LEAD	17.7	3.52E+01	3.02E+01	TRUE	0.586E-01	
M-SD01	MAGNESIUM	884	2.40E+03	NA	TRUE	0	
M-SD01	MANGANESE	74	8.70E+02	NA	TRUE	0	
M-SD01	NAPHTHALENE	0.072	1.63E+00	3.30E-01	TRUE	0.218E-01	
M-SD01	NICKEL	2.3	3.00E+01	1.59E+01	TRUE	0.145E-01	
M-SD01	OCTACHLORODIBENZOFURAN	0.00236	1.00E+05	NA	TRUE	0	
M-SD01	OCTACHLORODIBENZO-P-DIOXIN	0.051	8.40E-03	NA	TRUE	-1	
M-SD01	PENTACHLORINATED	0.000104	NA	NA	TRUE	0	
M-SD01	PENTACHLORINATED DIBENZO-P-	0.0000128	NA	NA	TRUE	0	
M-SD01	PHENANTHRENE	1.5	6.90E+00	3.30E-01	TRUE	0.455E+00	
M-SD01	POTASSIUM	180	1.56E+03	NA	TRUE	0	
M-SD01	PYRENE	2.5	2.90E+00	3.30E-01	TRUE	0.758E+00	
M-SD01	SELENIUM	0.71	1.70E+00	NA	TRUE	0	
M-SD01	SODIUM	57.5	2.40E+02	NA	TRUE	0	
M-SD01	TCDD Equivalent	0.0005336	5.40E-06	NA	TRUE	-1	
M-SD01	TETRACHLORINATED	0.0000123	NA	NA	TRUE	0	
M-SD01	VANADIUM	6.9	3.00E+01	NA	TRUE	0	
M-SD01	ZINC	33	7.97E+02	1.24E+02	TRUE	0.266E-01	
M-SD02	1,2,3,4,6,7,8-	0.000307	1.00E+05	NA	TRUE	0	
M-SD02	1,2,3,4,6,7,8-	0.00131	5.80E-04	NA	TRUE	-1	
M-SD02	ACENAPHTHENE	0.027	7.70E-01	3.30E-01	TRUE	0.818E-02	
M-SD02	ACENAPHTHYLENE	0.066	1.00E+05	3.30E-01	TRUE	0.200E-01	
M-SD02	ALPHA ENDOSULFAN	0.0076	NA	NA	TRUE	0	
M-SD02	ALPHA-CHLORDANE	0.0095	2.40E+00	1.70E-03	TRUE	0.59E+00	
M-SD02	ALUMINUM	6580	1.00E+04	NA	TRUE	0	
M-SD02	ANTHRACENE	0.057	1.60E+00	3.30E-01	TRUE	0.173E-01	
M-SD02	ARSENIC	1.7	1.20E+01	7.24E+00	TRUE	0.235E-01	
M-SD02	BARIUM	142	1.18E+02	NA	TRUE	-1	
M-SD02	BENZO(G)ANTHRACENE	0.67	2.90E+00	3.30E-01	TRUE	0.203E+00	
M-SD02	BENZO(G)PYRENE	0.55	2.50E+00	3.30E-01	TRUE	0.167E+00	
M-SD02	BENZO(G)FLUORANTHENE	1.2	2.20E+00	3.30E-01	TRUE	0.364E+00	

M-SD02	BENZO(g,h,i)PERYLENE	0.44	1.80E+00	3.30E-01	TRUE	0	1.33E+00	
M-SD02	BERYLLIUM	1.2	1.30E+00	NA	TRUE	0		
M-SD02	Di(2-ETHYLHEXYL) PHTHALATE	0.29	4.80E-01	1.82E-01	TRUE	0	1.59E+00	
M-SD02	CADMIUM	1.2	2.50E+01	1.00E+00	TRUE	0	1.20E+00	
M-SD02	CALCIUM	37900	1.50E+04	NA	TRUE	-1		
M-SD02	CARBAZOLE	0.072	1.10E+00	NA	TRUE	0		
M-SD02	CARBON TETRACHLORIDE	0.11	1.00E+05	NA	TRUE	0		
M-SD02	CHROMIUM	5.1	2.00E+01	5.23E+01	TRUE	0	9.75E-02	
M-SD02	CHRYSENE	0.51	3.20E+00	3.30E-01	TRUE	0	1.55E+00	
M-SD02	COBALT	0.8	1.40E+01	NA	TRUE	0		
M-SD02	COPPER	6.9	5.80E+01	1.87E+01	TRUE	0	3.69E-01	
M-SD02	DDD	0.0058	6.10E-03	3.30E-03	TRUE	0	1.76E+00	
M-SD02	DDE	0.0081	7.20E-03	3.30E-03	TRUE	-1	2.45E+00	2.45E+00
M-SD02	DIBENZO(a,h)ANTHRACENE	0.12	7.00E-01	3.30E-01	TRUE	0	3.64E-01	
M-SD02	DIELDRIN	0.0063	1.10E-02	3.30E-03	TRUE	0	1.91E+00	
M-SD02	DIETHYL PHTHALATE	0.027	1.00E+05	2.00E-01	TRUE	0	1.35E-01	
M-SD02	Di-n-BUTYL PHTHALATE	0.044	1.00E+05	1.40E+00	TRUE	0	3.14E-02	
M-SD02	ENDRIN	0.015	NA	3.30E-03	TRUE	0	4.55E+00	
M-SD02	ENDRIN ALDEHYDE	0.019	NA	NA	TRUE	0		
M-SD02	FLUORANTHENE	0.83	7.10E+00	3.30E-01	TRUE	0	2.52E+00	
M-SD02	FLUORENE	0.039	1.99E+00	3.30E-01	TRUE	0	1.18E-01	
M-SD02	GAMMA-CHLORDANE	0.011	2.00E+00	1.70E-03	TRUE	0	6.47E+00	
M-SD02	HEPTACHLORINATED	0.000883	NA	NA	TRUE	0		
M-SD02	HEPTACHLORINATED DIBENZO-p-	0.00262	NA	NA	TRUE	0		
M-SD02	HEXACHLORINATED	0.000345	NA	NA	TRUE	0		
M-SD02	HEXACHLORINATED DIBENZO-p-	0.00017	NA	NA	TRUE	0		
M-SD02	INDENO(1,2,3-c,d)PYRENE	0.62	1.70E+00	3.30E-01	TRUE	0	1.88E+00	
M-SD02	IRON	2470	2.30E+04	NA	TRUE	0		
M-SD02	LEAD	19.9	3.52E+01	3.02E+01	TRUE	0	6.59E-01	
M-SD02	MAGNESIUM	5830	2.40E+03	NA	TRUE	-1		
M-SD02	MANGANESE	232	8.70E+02	NA	TRUE	0		
M-SD02	METHYLENE CHLORIDE	0.001	NA	NA	TRUE	0		
M-SD02	NICKEL	2.2	3.00E+01	1.59E+01	TRUE	0	1.38E-01	
M-SD02	OCTACHLORODIBENZOFURAN	0.00106	1.00E+05	NA	TRUE	0		
M-SD02	OCTACHLORODIBENZO-p-DIOXIN	0.0154	8.60E-03	NA	TRUE	-1		
M-SD02	PENTACHLORINATED	0.0000342	NA	NA	TRUE	0		
M-SD02	PHENANTHRENE	0.46	6.90E+00	3.30E-01	TRUE	0	1.39E+00	
M-SD02	POTASSIUM	1150	1.56E+03	NA	TRUE	0		
M-SD02	PYRENE	0.9	2.90E+00	3.30E-01	TRUE	0	2.73E+00	
M-SD02	SELENIUM	0.79	1.70E+00	NA	TRUE	0		
M-SD02	SODIUM	282	2.40E+02	NA	TRUE	-1		
M-SD02	TCDD Equivalent	0.00001646	5.40E-06	NA	TRUE	-1		
M-SD02	VANADIUM	4.7	3.00E+01	NA	TRUE	0		

M-SD02	ZINC	66.9	7.97E+02	1.24E+02	TRUE	0	5.40E-01	
M-SD03	1,2,3,4,6,7,8-	0.000226	1.00E+05	NA	TRUE	0		
M-SD03	1,2,3,4,6,7,8-	0.00063	5.80E-04	NA	TRUE	0		
M-SD03	1,2,3,6,7,8-HEXACHLORODIBENZO-P	0.000175	1.00E+05	NA	TRUE	0		
M-SD03	1,2,3,7,8,9-HEXACHLORODIBENZO-P	0.0000236	1.00E+05	NA	TRUE	0		
M-SD03	ACENAPHTHENE	0.096	7.70E-01	3.30E-01	TRUE	0	2.91E-01	
M-SD03	ACENAPHTHYLENE	0.029	1.00E+05	3.30E-01	TRUE	0	8.70E-02	
M-SD03	ALPHA-CHLORODANE	0.0045	NA	NA	TRUE	0		
M-SD03	ALPHA-CHLORODANE	0.0043	2.40E+00	1.70E-03	TRUE	0	2.53E+00	
M-SD03	ALUMINUM	2420	1.00E+04	NA	TRUE	0		
M-SD03	ANTHRACENE	0.16	1.60E+00	3.30E-01	TRUE	0	4.85E-01	
M-SD03	ANTIMONY	0.44	7.60E+00	1.20E+01	TRUE	0	3.67E-02	
M-SD03	ARSENIC	1.8	1.20E+01	7.24E+00	TRUE	0	2.49E-01	
M-SD03	BARIUM	53	1.18E+02	NA	TRUE	0		
M-SD03	BENZO(a)ANTHRACENE	0.82	2.90E+00	3.30E-01	TRUE	0	2.48E+00	
M-SD03	BENZO(a)PYRENE	0.71	2.50E+00	3.30E-01	TRUE	0	2.15E+00	
M-SD03	BENZO(b)FLUORANTHENE	1.4	2.20E+00	3.30E-01	TRUE	0	4.24E+00	
M-SD03	BENZO(g,h,i)PERYLENE	0.46	1.80E+00	3.30E-01	TRUE	0	1.39E+00	
M-SD03	BERYLLIUM	0.22	1.30E+00	NA	TRUE	0		
M-SD03	Bis(2-ETHYLHEXYL) PHTHALATE	0.3	4.80E-01	1.82E-01	TRUE	0	1.65E+00	
M-SD03	CADMIUM	2.4	2.90E+01	1.00E+00	TRUE	0	2.40E+00	
M-SD03	CALCIUM	148000	1.50E+04	NA	TRUE	0		
M-SD03	CARBAZOLE	0.19	1.10E+00	NA	TRUE	0		
M-SD03	CARBON TETRACHLORIDE	0.005	1.00E+05	NA	TRUE	0		
M-SD03	CHROMIUM	10.7	2.00E+01	5.23E+01	TRUE	0	2.05E-01	
M-SD03	CHRYSENE	0.88	3.20E+00	3.30E-01	TRUE	0	2.67E+00	
M-SD03	COBALT	1.5	1.40E+01	NA	TRUE	0		
M-SD03	COPPER	15.4	5.80E+01	1.87E+01	TRUE	0	8.24E-01	
M-SD03	DDT	0.0053	1.00E+05	3.30E-03	TRUE	0	1.61E+00	
M-SD03	DIBENZ(a,h)ANTHRACENE	0.18	7.00E-01	3.30E-01	TRUE	0	5.45E-01	
M-SD03	DIBENZOFURAN	0.022	1.64E+00	5.40E-01	TRUE	0	4.07E-02	
M-SD03	DIELDRIN	0.014	1.10E-02	3.30E-03	TRUE	0	1.424E+00	
M-SD03	Di-n-BUTYL PHTHALATE	0.022	1.00E+05	1.40E+00	TRUE	0	1.57E-02	
M-SD03	ENDRIN	0.01	NA	3.30E-03	TRUE	0	3.03E+00	
M-SD03	ENDRIN ALDEHYDE	0.0097	NA	NA	TRUE	0		
M-SD03	FLUORANTHENE	1.2	7.10E+00	3.30E-01	TRUE	0	3.64E+00	
M-SD03	FLUORENE	0.084	1.69E+00	3.30E-01	TRUE	0	2.55E-01	
M-SD03	GAMMA-CHLORDANE	0.0051	2.00E+00	1.70E-03	TRUE	0	3.00E+00	
M-SD03	HEPTACHLORINATED	0.00078	NA	NA	TRUE	0		
M-SD03	HEPTACHLORINATED DIBENZO-P	0.00145	NA	NA	TRUE	0		
M-SD03	HEXACHLORINATED	0.000289	NA	NA	TRUE	0		
M-SD03	HEXACHLORINATED DIBENZO-P	0.000178	NA	NA	TRUE	0		
M-SD03	INDENO(1,2,3-c,d)PYRENE	0.47	1.70E+00	3.30E-01	TRUE	0	1.42E+00	

M-SD04	MAGNESIUM	786	2.40E+03	NA	TRUE	0	0	
M-SD04	MANGANESE	160	8.70E+02	NA	TRUE	0	0	
M-SD04	METHYLENE CHLORIDE	0.004	NA	NA	TRUE	0	0	
M-SD04	NICKEL	26.2	3.00E+01	1.59E+01	TRUE	0	1.65E+00	
M-SD04	OCTACHLORODIBENZOFURAN	0.000117	1.00E+05	NA	TRUE	0	0	
M-SD04	OCTACHLORODIBENZO-P-DIOXIN	0.0043	8.60E-03	NA	TRUE	0	0	
M-SD04	POTASSIUM	271	1.56E+03	NA	TRUE	0	0	
M-SD04	PYRENE	0.056	2.90E+00	3.30E-01	TRUE	0	1.70E-01	
M-SD04	SILVER	9.1	1.80E+00	2.00E+00	TRUE	-1	4.55E+00	4.55E+00
M-SD04	SODIUM	45.7	2.40E+02	NA	TRUE	0	0	
M-SD04	TCDD Equivalent	0.000004417	5.40E-06	NA	TRUE	0	0	
M-SD04	VANADIUM	6.7	3.00E+01	NA	TRUE	0	0	
M-SD04	ZINC	1170	7.97E+02	1.24E+02	TRUE	-1	9.44E+00	9.44E+00
M-SD05	1,2,3,4,6,7,8-	0.00045	1.00E+05	NA	TRUE	0	0	
M-SD05	1,2,3,4,6,7,8-	0.0021	5.80E-04	NA	TRUE	-1	0	
M-SD05	ACENAPHTHENE	0.26	7.70E-01	3.30E-01	TRUE	0	7.88E-01	
M-SD05	ACETONE	0.023	1.00E+05	NA	TRUE	0	0	
M-SD05	ALPHA-CHLORDANE	0.0054	2.40E+00	1.70E-03	TRUE	0	3.18E+00	
M-SD05	ALUMINUM	6320	1.00E+04	NA	TRUE	0	0	
M-SD05	ANTHRACENE	0.62	1.60E+00	3.30E-01	TRUE	0	1.88E+00	
M-SD05	ARSENIC	3.1	1.20E+01	7.24E+00	TRUE	0	4.28E-01	
M-SD05	BARIUM	47.6	1.18E+02	NA	TRUE	0	0	
M-SD05	BENZO(G)ANTHRACENE	3.8	2.50E+00	3.30E-01	TRUE	-1	1.15E+01	1.15E+01
M-SD05	BENZO(G)PYRENE	4.1	2.50E+00	3.30E-01	TRUE	-1	1.24E+01	1.24E+01
M-SD05	BENZO(B)FLUORANTHENE	4.9	2.20E+00	3.30E-01	TRUE	-1	1.48E+01	1.48E+01
M-SD05	BENZO(G,H)PERYLENE	3	1.80E+00	3.30E-01	TRUE	-1	9.09E+00	9.09E+00
M-SD05	BENZO(K)FLUORANTHENE	4.6	2.30E+00	3.30E-01	TRUE	-1	1.39E+01	1.39E+01
M-SD05	BERYLLIUM	0.27	1.30E+00	NA	TRUE	0	0	
M-SD05	CADMIUM	0.4	2.90E+01	1.00E+00	TRUE	0	4.00E-01	
M-SD05	CALCIUM	43100	1.50E+04	NA	TRUE	-1	0	
M-SD05	CARBAZOLE	0.66	1.10E+00	NA	TRUE	0	0	
M-SD05	CHROMIUM	16.7	2.00E+01	5.23E+01	TRUE	0	3.19E-01	
M-SD05	CHRYSENE	4.6	3.20E+00	3.30E-01	TRUE	-1	1.39E+01	1.39E+01
M-SD05	COBALT	2.6	1.40E+01	NA	TRUE	0	0	
M-SD05	COPPER	7.4	5.80E+01	1.87E+01	TRUE	0	3.94E-01	
M-SD05	CYANIDE	0.34	NA	NA	TRUE	0	0	
M-SD05	DDD	0.006	6.10E-03	3.30E-03	TRUE	0	1.82E+00	
M-SD05	DDE	0.015	7.20E-03	3.30E-03	TRUE	-1	4.55E+00	4.55E+00
M-SD05	DDT	0.044	1.00E+05	3.30E-03	TRUE	0	1.33E+01	
M-SD05	DIBENZ(A,H)ANTHRACENE	0.48	7.00E-01	3.30E-01	TRUE	0	1.45E+00	
M-SD05	DIELDRIN	0.038	1.10E-02	3.30E-03	TRUE	-1	1.15E+01	1.15E+01
M-SD05	ENDRIN	0.018	NA	3.30E-03	TRUE	0	5.45E+00	
M-SD05	FLUORANTHENE	9.9	7.10E+00	3.30E-01	TRUE	-1	3.00E+01	3.00E+01

M-SD05	FLUORENE	0.22	1.69E+00	3.30E-01	TRUE	0	6.67E-01	
M-SD05	GAMMA-CHLORDANE	0.0048	2.00E+00	1.70E-03	TRUE	0	2.82E+00	
M-SD05	HEPTACHLORINATED	0.0013	NA	NA	TRUE	0		
M-SD05	HEPTACHLORINATED DIBENZO-P	0.0043	NA	NA	TRUE	0		
M-SD05	INDENO(1,2,3-c,d)PYRENE	3.2	1.70E+00	3.30E-01	TRUE	-1	9.70E+00	9.70E+00
M-SD05	IRON	4700	2.30E+04	NA	TRUE	0		
M-SD05	LEAD	42.6	3.52E+01	3.02E+01	TRUE	-1	1.41E+00	1.41E+00
M-SD05	MAGNESIUM	9390	2.40E+03	NA	TRUE	-1		
M-SD05	MANGANESE	6978	7.0E+02	NA	TRUE	0		
M-SD05	METHYLENE CHLORIDE	0.015	NA	NA	TRUE	0		
M-SD05	NICKEL	4.8	3.00E+01	1.59E+01	TRUE	0	3.02E-01	
M-SD05	OCTACHLORODIBENZOFURAN	0.0024	1.00E+05	NA	TRUE	0		
M-SD05	OCTACHLORODIBENZO-P-DIOXIN	0.028	6.0E-03	NA	TRUE	-1		
M-SD05	PHENANTHRENE	4.7	6.90E+00	3.30E-01	TRUE	0	1.42E+01	
M-SD05	POTASSIUM	375	1.50E+03	NA	TRUE	0		
M-SD05	PYRENE	9.3	2.90E+00	3.30E-01	TRUE	-1	2.82E+01	2.82E+01
M-SD05	SODIUM	68.8	2.40E+02	NA	TRUE	0		
M-SD05	TCDD Equivalent	0.0000224	5.40E-06	NA	TRUE	-1		
M-SD05	VANADIUM	12.9	3.00E+01	NA	TRUE	0		
M-SD05	ZINC	69.6	7.97E+02	1.24E+02	TRUE	0	5.61E-01	
M-SD06	1,2,3,4,6,7,8-	0.003	5.80E-04	NA	TRUE	-1		
M-SD06	ACENAPHTHENE	0.27	7.70E-01	3.30E-01	TRUE	0	8.18E-01	
M-SD06	ACETONE	0.012	1.00E+05	NA	TRUE	0		
M-SD06	ALUMINUM	18400	1.00E+04	NA	TRUE	-1		
M-SD06	ANTHRACENE	0.75	1.60E+00	3.30E-01	TRUE	0	2.27E+00	
M-SD06	ARSENIC	8.7	1.20E+01	7.24E+00	TRUE	0	1.20E+00	
M-SD06	BARIUM	98.4	1.18E+02	NA	TRUE	0		
M-SD06	BENZO(a)ANTHRACENE	2.3	2.90E+00	3.30E-01	TRUE	0	6.97E+00	8.79E+00
M-SD06	BENZO(a)PYRENE	2.9	2.50E+00	3.30E-01	TRUE	-1	8.79E+00	1.42E+01
M-SD06	BENZO(b)FLUORANTHENE	4.7	2.20E+00	3.30E-01	TRUE	-1	1.42E+01	8.48E+00
M-SD06	BENZO(g,h,i)PERYLENE	2.8	1.80E+00	3.30E-01	TRUE	-1	1.06E+01	1.06E+01
M-SD06	BENZO(k)FLUORANTHENE	3.5	2.30E+00	3.30E-01	TRUE	0		
M-SD06	BERYLLIUM	0.44	1.30E+00	NA	TRUE	0	2.80E-01	
M-SD06	CADMIUM	0.28	2.90E+01	1.00E+00	TRUE	-1		
M-SD06	CALCIUM	15500	1.50E+04	NA	TRUE	0		
M-SD06	CARBAZOLE	0.54	1.10E+00	NA	TRUE	0		
M-SD06	CHROMIUM	17.7	2.00E+01	5.23E+01	TRUE	0	3.38E-01	
M-SD06	CHRYSENE	3.4	3.20E+00	3.30E-01	TRUE	-1	1.03E+01	1.03E+01
M-SD06	COBALT	8.1	1.40E+01	NA	TRUE	0		
M-SD06	COPPER	14.9	5.80E+01	1.87E+01	TRUE	0	7.97E-01	
M-SD06	CYANIDE	0.18	NA	NA	TRUE	0		
M-SD06	DDE	0.018	7.20E-03	3.30E-03	TRUE	-1	5.45E+00	5.45E+00
M-SD06	DDT	0.039	1.00E+05	3.30E-03	TRUE	0	1.18E+01	

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M-SD06	DIBENZOFURAN	0.1	1.64E+00	5.40E-01	TRUE	0	1.85E-01	2.61E+01
M-SD06	DIELDRIN	0.086	1.10E-02	3.30E-03	TRUE	-1	2.61E+01	
M-SD06	FLUORANTHENE	4.6	7.10E+00	3.30E-01	TRUE	0	1.39E+01	
M-SD06	FLUORENE	0.18	1.69E+00	3.30E-01	TRUE	0	5.45E-01	
M-SD06	HEPTACHLORINATED DIBENZO-P- INDENO(1,2,3-c,d)PYRENE	0.0063	NA	NA	TRUE	0		8.18E+00
M-SD06	IRON	2.7	1.70E+00	3.30E-01	TRUE	-1	1.81E+00	
M-SD06	LEAD	13600	2.30E+04	NA	TRUE	0		
M-SD06	MAGNESIUM	29.4	3.52E+01	3.02E+01	TRUE	0	9.74E-01	
M-SD06	MANGANESE	2410	2.40E+03	NA	TRUE	-1		
M-SD06	METHYLENE CHLORIDE	908	8.70E+02	NA	TRUE	-1		
M-SD06	NICKEL	0.022	NA	NA	TRUE	0		
M-SD06	OCTACHLORODIBENZOFURAN	11	3.00E+01	1.59E+01	TRUE	0	6.92E-01	
M-SD06	OCTACHLORODIBENZO-P-DIOXIN	0.0021	1.00E+05	NA	TRUE	0		
M-SD06	PHENANTHRENE	0.02	8.40E-03	NA	TRUE	-1		
M-SD06	POTASSIUM	3.5	6.90E+00	3.30E-01	TRUE	0	1.06E+01	
M-SD06	PYRENE	900	1.56E+03	NA	TRUE	0		2.21E+01
M-SD06	SELENIUM	7.3	2.90E+00	3.30E-01	TRUE	-1	2.21E+01	
M-SD06	SODIUM	0.5	1.70E+00	NA	TRUE	0		
M-SD06	TCDD Equivalent	62.9	2.40E+02	NA	TRUE	0		
M-SD06	VANADIUM	0.0000221	5.40E-06	NA	TRUE	-1		
M-SD06	ZINC	27.9	3.00E+01	NA	TRUE	0		
M-SD07	1,2,3,4,6,7,8-	69.3	7.97E+02	1.24E+02	TRUE	0	5.59E-01	
M-SD07	1,2,3,4,6,7,8-	0.00001	1.00E+05	NA	TRUE	0		
M-SD07	1,2,3,4,7,8,9-	0.000103	5.80E-04	NA	TRUE	0		
M-SD07	ACETONE	0.0000028	1.00E+05	NA	TRUE	0		
M-SD07	ALUMINUM	0.028	1.00E+05	NA	TRUE	0		
M-SD07	ARSENIC	6210	1.00E+04	NA	TRUE	0		
M-SD07	BARIUM	8.2	1.20E+01	7.24E+00	TRUE	0	1.13E+00	
M-SD07	BENZO(a)ANTHRACENE	97.8	1.18E+02	NA	TRUE	0		
M-SD07	BENZO(b)PYRENE	0.077	2.90E+00	3.30E-01	TRUE	0	2.33E-01	
M-SD07	BENZO(k)FLUORANTHENE	0.068	2.50E+00	3.30E-01	TRUE	0	2.06E-01	
M-SD07	BERYLLIUM	0.16	2.20E+00	3.30E-01	TRUE	0	4.85E-01	
M-SD07	DIS(2-ETHYLHEXYL) PHTHALATE	0.48	1.30E+00	NA	TRUE	0		
M-SD07	CALCIUM	0.063	4.80E-01	1.82E-01	TRUE	0	3.46E-01	
M-SD07	CHROMIUM	1160	1.50E+04	NA	TRUE	0		
M-SD07	CHRYSENE	10.2	2.00E+01	5.23E+01	TRUE	0	1.95E-01	
M-SD07	COBALT	0.1	3.20E+00	3.30E-01	TRUE	0	3.03E-01	
M-SD07	COPPER	7.6	1.40E+01	NA	TRUE	0		
M-SD07	CYANIDE	19.1	5.80E+01	1.87E+01	TRUE	0	1.02E+00	
M-SD07	DIELDRIN	0.31	NA	NA	TRUE	0		
M-SD07	FLUORANTHENE	0.052	1.10E-02	3.30E-03	TRUE	-1	1.58E+01	1.58E+01
M-SD07	HEPTACHLORINATED	0.14	7.10E+00	3.30E-01	TRUE	0	4.24E-01	
M-SD07		0.0000216	NA	NA	TRUE	0		

M-SD08	IRON		15200	2.30E+04	NA	TRUE	0	1.17E+00	1.17E+00
M-SD08	LEAD		35.4	3.52E+01	3.02E+01	TRUE	-1	1.17E+00	1.17E+00
M-SD08	MAGNESIUM		1550	2.40E+03	NA	TRUE	0		
M-SD08	MANGANESE		359	8.70E+02	NA	TRUE	0		
M-SD08	METHYLENE CHLORIDE		0.028	NA	NA	TRUE	0		
M-SD08	NICKEL		10.8	3.00E+01	1.59E+01	TRUE	0	6.79E-01	
M-SD08	OCTACHLORODIBENZOFURAN		0.000068	1.00E+05	NA	TRUE	0		
M-SD08	OCTACHLORODIBENZO-p-DIOXIN		0.00576	8.60E-03	NA	TRUE	0		
M-SD08	PENTACHLORINATED		0.00000127	NA	NA	TRUE	0		
M-SD08	PHENANTHRENE		0.095	6.90E+00	3.30E-01	TRUE	0	2.88E-01	
M-SD08	POTASSIUM		810	1.56E+03	NA	TRUE	0		
M-SD08	PYRENE		0.25	2.90E+00	3.30E-01	TRUE	0	7.58E-01	
M-SD08	SELENIUM		0.85	1.70E+00	NA	TRUE	0		
M-SD08	SODIUM		37.4	2.40E+02	NA	TRUE	0		
M-SD08	TCDD Equivalent		0.000006826	5.40E-06	NA	TRUE	-1		
M-SD08	TETRACHLORINATED		0.00000168	NA	NA	TRUE	0		
M-SD08	VANADIUM		21.8	3.00E+01	NA	TRUE	0		
M-SD08	ZINC		68.8	7.97E+02	1.24E+02	TRUE	0	5.55E-01	
M-SD09	1,2,3,4,6,7,8-		0.000306	1.00E+05	NA	TRUE	0		
M-SD09	1,2,3,4,6,7,8-		0.000351	5.80E-04	NA	TRUE	0		
M-SD09	1,2,3,4,7,8-		0.000583	1.00E+05	NA	TRUE	0		
M-SD09	1,2,3,6,7,8-		0.0000284	1.00E+05	NA	TRUE	0		
M-SD09	1,2,3,6,7,8-HEXACHLORODIBENZO-P		0.0000133	1.00E+05	NA	TRUE	0		
M-SD09	2,3,7,8-		0.0000292	1.00E+05	NA	TRUE	0		
M-SD09	ACETONE		0.024	1.00E+05	NA	TRUE	0		
M-SD09	ALUMINUM		6700	1.00E+04	NA	TRUE	0		
M-SD09	ANTHRACENE		0.061	1.60E+00	3.30E-01	TRUE	0	1.85E-01	
M-SD09	ANTIMONY		0.67	7.60E+00	1.20E+01	TRUE	0	5.58E-02	
M-SD09	ARSENIC		10.6	1.20E+01	7.24E+00	TRUE	0	1.46E+00	
M-SD09	BARIUM		142	1.18E+02	NA	TRUE	-1		
M-SD09	BENZO(a)ANTHRACENE		0.21	2.90E+00	3.30E-01	TRUE	0	6.36E-01	
M-SD09	BENZO(b)FLUORANTHENE		0.53	2.20E+00	3.30E-01	TRUE	0	1.61E+00	
M-SD09	BERYLLIUM		0.58	1.30E+00	NA	TRUE	0		
M-SD09	Bis(2-ETHYLHEXYL) PHTHALATE		0.37	4.80E-01	1.82E-01	TRUE	0	2.03E+00	
M-SD09	CADMIUM		1.2	2.90E+01	1.00E+00	TRUE	0	1.20E+00	
M-SD09	CALCIUM		4190	1.50E+04	NA	TRUE	0		
M-SD09	CARBAZOLE		0.028	1.10E+00	NA	TRUE	0		
M-SD09	CHROMIUM		12	2.00E+01	5.23E+01	TRUE	0	2.29E-01	
M-SD09	CHRYSENE		0.35	3.20E+00	3.30E-01	TRUE	0	1.06E+00	
M-SD09	COBALT		9.4	1.40E+01	NA	TRUE	0		
M-SD09	COPPER		83.7	5.80E+01	1.87E+01	TRUE	-1	4.48E+00	4.48E+00
M-SD09	CYANIDE		0.59	NA	NA	TRUE	0		
M-SD09	DDE		0.025	7.20E-03	3.30E-03	TRUE	-1	7.58E+00	7.58E+00

M-SD09	DDT	0.14	1.00E+05	3.30E-03	TRUE	0.424E+01	7.88E+01
M-SD09	DIELDRIN	0.26	1.10E+02	3.30E-03	TRUE	1.788E+01	7.88E+01
M-SD09	D-1-BUTYL PHTHALATE	0.05	1.00E+05	1.40E+00	TRUE	0.357E+02	
M-SD09	FLUORANTHENE	0.2	7.10E+00	3.30E-01	TRUE	0.606E-01	
M-SD09	HEPTACHLORINATED	0.000384	NA	NA	TRUE	0	
M-SD09	HEPTACHLORINATED DIBENZO-P-	0.000745	NA	NA	TRUE	0	
M-SD09	HEXACHLORINATED	0.000231	NA	NA	TRUE	0	
M-SD09	HEXACHLORINATED DIBENZO-P-	0.000192	NA	NA	TRUE	0	
M-SD09	IRON	17000	2.30E+04	3.02E+01	TRUE	-1.573E+00	5.73E+00
M-SD09	LEAD	173	3.52E+01	NA	TRUE	0	
M-SD09	MAGNESIUM	2040	2.40E+03	NA	TRUE	0	
M-SD09	MANGANESE	746	8.70E+02	NA	TRUE	0	
M-SD09	MERCURY	0.25	4.00E+00	1.30E-01	TRUE	0.192E+00	
M-SD09	METHYLENE CHLORIDE	0.019	NA	NA	TRUE	0	
M-SD09	NICKEL	13.4	3.00E+01	1.59E+01	TRUE	0.843E-01	
M-SD09	OCTACHLORODIBENZOFURAN	0.000401	1.00E+05	NA	TRUE	0	
M-SD09	OCTACHLORODIBENZO-P-DIOXIN	0.00738	8.60E-03	NA	TRUE	0	
M-SD09	PENTACHLORINATED	0.000128	NA	NA	TRUE	0	
M-SD09	PENTACHLORINATED DIBENZO-P-	0.000022	NA	NA	TRUE	0	
M-SD09	PHENANTHRENE	0.11	6.90E+03	3.30E-01	TRUE	0.333E-01	
M-SD09	POTASSIUM	793	1.56E+03	NA	TRUE	0	
M-SD09	PYRENE	0.66	2.90E+00	3.30E-01	TRUE	0.200E+00	
M-SD09	SELENIUM	0.98	1.70E+00	NA	TRUE	0	
M-SD09	SODIUM	74.7	2.40E+02	NA	TRUE	0	
M-SD09	TCDD Equivalent	0.000010701	5.40E-06	NA	TRUE	-1	
M-SD09	TETRACHLORINATED	0.0000756	NA	NA	TRUE	0	
M-SD09	TETRACHLORINATED DIBENZO-P-	0.0000098	NA	NA	TRUE	0	
M-SD09	VANADIUM	20.7	3.00E+01	NA	TRUE	0	
M-SD09	ZINC	217	7.97E+02	1.24E+02	TRUE	0.175E+00	
M-SD10	1,2,3,4,6,7,8-	0.000366	1.00E+05	NA	TRUE	0	
M-SD10	1,2,3,4,6,7,8-	0.00191	5.80E-04	NA	TRUE	-1	
M-SD10	1,2,3,4,7,8-HEXACHLORODIBENZO-P	0.000571	1.00E+05	NA	TRUE	0	
M-SD10	1,2,3,7,8,9-HEXACHLORODIBENZO-P	0.0000664	1.00E+05	NA	TRUE	0	
M-SD10	ACENAPHTHENE	0.036	7.70E-01	3.30E-01	TRUE	0.115E-01	
M-SD10	ALPHA-ENDOSULFAN	0.0033	NA	NA	TRUE	0	
M-SD10	ALPHA-CHLORDANE	0.024	2.40E+00	1.70E-03	TRUE	0.141E+01	
M-SD10	ALUMINUM	3420	1.00E+04	NA	TRUE	0	
M-SD10	ANTHRACENE	0.12	1.50E+00	3.30E-01	TRUE	0.364E-01	
M-SD10	ARSENIC	6.3	1.20E+01	7.24E+00	TRUE	0.870E-01	
M-SD10	BARIUM	77.3	1.18E+02	NA	TRUE	0	
M-SD10	BENZO(a)ANTHRACENE	0.55	2.90E+00	3.30E-01	TRUE	0.167E+00	
M-SD10	BENZO(b)PYRENE	0.53	2.50E+00	3.30E-01	TRUE	0.161E+00	
M-SD10	BENZO(d)FLUORANTHENE	1	2.20E+00	3.30E-01	TRUE	0.303E+00	

M-SD10	BENZO(G,H,I)PERYLENE	0.26	1.80E+00	3.30E-01	TRUE	0	7.88E-01	
M-SD10	BENZYL BUTYL PHTHALATE	0.078	1.00E+05	6.30E-02	TRUE	0	1.24E+00	
M-SD10	BERYLLIUM	0.35	1.30E+00	NA	TRUE	0		
M-SD10	BIS(2-ETHYLHEXYL) PHTHALATE	1.4	4.80E-01	1.82E-01	TRUE	-1	7.69E+00	7.69E+00
M-SD10	CADMIUM	0.49	2.90E+01	1.00E+00	TRUE	0	4.90E-01	
M-SD10	CALCIUM	17600	1.50E+04	NA	TRUE	-1		
M-SD10	CARBAZOLE	0.099	1.10E+00	NA	TRUE	0		
M-SD10	CARBON TETRACHLORIDE	0.089	1.00E+05	NA	TRUE	0		
M-SD10	CHROMIUM	8.4	2.00E+01	5.23E+01	TRUE	0	1.61E-01	
M-SD10	CHRYSENE	0.63	3.20E+00	3.30E-01	TRUE	0	1.82E+00	
M-SD10	COBALT	5.4	1.40E+01	NA	TRUE	0		
M-SD10	COPPER	14.3	5.80E+01	1.87E+01	TRUE	0	7.65E-01	
M-SD10	CYANIDE	0.26	NA	NA	TRUE	0		
M-SD10	DDD	0.012	6.10E-03	3.30E-03	TRUE	-1	3.64E+00	3.64E+00
M-SD10	DDE	0.012	7.20E-03	3.30E-03	TRUE	-1	3.64E+00	3.64E+00
M-SD10	DDT	0.039	1.00E+05	3.30E-03	TRUE	0	1.18E+01	
M-SD10	DIBENZ(G,H)ANTHRACENE	0.12	7.00E-01	3.30E-01	TRUE	0	3.64E-01	
M-SD10	DIELDRIN	0.13	1.10E-02	3.30E-03	TRUE	-1	3.94E+01	3.94E+01
M-SD10	DIETHYL PHTHALATE	0.03	1.00E+05	2.00E-01	TRUE	0	1.50E-01	
M-SD10	DI-n-BUTYL PHTHALATE	0.045	1.00E+05	1.40E+00	TRUE	0	3.21E-02	
M-SD10	ENDRIN	0.013	NA	3.30E-03	TRUE	0	3.94E+00	
M-SD10	ENDRIN ALDEHYDE	0.027	NA	NA	TRUE	0		
M-SD10	FLUORANTHENE	1.1	7.10E+00	3.30E-01	TRUE	0	3.33E+00	
M-SD10	FLUORENE	0.038	1.69E+00	3.30E-01	TRUE	0	1.15E-01	
M-SD10	GAMMA-CHLORDANE	0.02	2.00E+00	1.70E-03	TRUE	0	1.18E+01	
M-SD10	HEPTACHLOR EPOXIDE	0.0026	2.30E-01	NA	TRUE	0		
M-SD10	HEPTACHLORINATED	0.00146	NA	NA	TRUE	0		
M-SD10	HEPTACHLORINATED DIBENZO-P-	0.00384	NA	NA	TRUE	0		
M-SD10	HEXACHLORINATED	0.000529	NA	NA	TRUE	0		
M-SD10	HEXACHLORINATED DIBENZO-P-	0.000736	NA	NA	TRUE	0		
M-SD10	INDENOX(1,2,3-c,g)PYRENE	0.26	1.70E+00	3.30E-01	TRUE	0	7.88E-01	
M-SD10	IRON	9820	2.30E+04	NA	TRUE	0		
M-SD10	LEAD	76.7	3.52E+01	3.02E+01	TRUE	-1	2.54E+00	2.54E+00
M-SD10	MAGNESIUM	1680	2.40E+03	NA	TRUE	0		
M-SD10	MANGANESE	526	8.70E+02	NA	TRUE	0		
M-SD10	NICKEL	8.8	3.00E+01	1.59E+01	TRUE	0	5.53E-01	
M-SD10	OCTACHLORODIBENZOFURAN	0.00127	1.00E+05	NA	TRUE	0		
M-SD10	OCTACHLORODIBENZO-P-DIOXIN	0.0186	8.60E-03	NA	TRUE	-1		
M-SD10	PENTACHLORINATED	0.000112	NA	NA	TRUE	0		
M-SD10	PHENANTHRENE	0.61	6.90E+00	3.30E-01	TRUE	0	1.85E+00	
M-SD10	POTASSIUM	404	1.56E+03	NA	TRUE	0		
M-SD10	PYRENE	0.84	2.90E+00	3.30E-01	TRUE	0	2.55E+00	
M-SD10	SELENIUM	0.74	1.70E+00	NA	TRUE	0		

M-SD10	SODIUM	61.3	2.40E+02	NA	TRUE	0		
M-SD10	TCDD Equivalent	0.0001987	5.40E-06	NA	TRUE	-1		
M-SD10	TETRACHLORINATED	0.000124	NA	NA	TRUE	0		
M-SD10	VANADIUM	12.2	3.00E+01	NA	TRUE	0		
M-SD10	ZINC	154	7.97E+02	1.24E+02	TRUE	0	1.24E+00	
M-SD11	1,2,3,4,6,7,8-	0.000134	1.00E+05	NA	TRUE	0		
M-SD11	1,2,3,4,6,7,8-	0.000783	5.80E-04	NA	TRUE	-1		
M-SD11	ACENAPHTHENE	0.086	7.70E-01	3.30E-01	TRUE	0	2.61E-01	
M-SD11	ACENAPHTHYLENE	0.024	1.00E+05	3.30E-01	TRUE	0	7.27E-02	
M-SD11	ALPHA ENDOSULFAN	0.011	NA	NA	TRUE	0		
M-SD11	ALPHA-CHLORDANE	0.0094	2.40E+00	1.70E-03	TRUE	0	5.53E+00	
M-SD11	ALUMINUM	2750	1.00E+04	NA	TRUE	0		
M-SD11	ANTHRACENE	0.27	1.60E+03	3.30E-01	TRUE	0	8.18E-01	
M-SD11	ANTIMONY	0.82	7.60E+00	1.20E+01	TRUE	0	6.83E-02	
M-SD11	ARSENIC	2.8	1.20E+01	7.24E+00	TRUE	0	3.87E-01	
M-SD11	BARIUM	68.1	1.18E+02	NA	TRUE	0		
M-SD11	BENZO(O)ANTHRACENE	1.2	2.90E+00	3.30E-01	TRUE	0	3.64E+00	
M-SD11	BENZO(O)PYRENE	1.4	2.50E+00	3.30E-01	TRUE	0	4.24E+00	
M-SD11	BENZO(F)FLUORANTHENE	2.3	2.20E+00	3.30E-01	TRUE	-1	6.97E+00	6.97E+00
M-SD11	BENZO(G,H)PERYLENE	0.73	1.80E+00	3.30E-01	TRUE	0	2.21E+00	
M-SD11	BENZYL BUTYL PHTHALATE	0.21	1.00E+05	6.30E-02	TRUE	0	3.33E+00	
M-SD11	BERYLLIUM	0.29	1.30E+00	NA	TRUE	0		
M-SD11	BETA BHC	0.0036	1.00E+05	3.30E-03	TRUE	0	1.09E+00	
M-SD11	bis(2-ETHYLHEXYL) PHTHALATE	2.9	4.80E-01	1.82E-01	TRUE	-1	1.59E+01	1.59E+01
M-SD11	CADMIUM	1.1	2.90E+01	1.00E+00	TRUE	0	1.10E+00	
M-SD11	CALCIUM	15000	1.50E+04	NA	TRUE	0		
M-SD11	CARBAZOLE	0.21	1.10E+00	NA	TRUE	0		
M-SD11	CHROMIUM	12.1	2.00E+01	5.23E+01	TRUE	0	2.31E-01	
M-SD11	CHRYSENE	1.4	3.20E+00	3.30E-01	TRUE	0	4.24E+00	
M-SD11	COBALT	3.2	1.40E+01	NA	TRUE	0		
M-SD11	COPPER	41.5	5.80E+01	1.87E+01	TRUE	0	2.22E+00	
M-SD11	CYANIDE	0.28	NA	NA	TRUE	0		
M-SD11	DOD	0.0059	6.10E-03	3.30E-03	TRUE	0	1.79E+00	
M-SD11	DDE	0.0068	7.20E-03	3.30E-03	TRUE	0	2.04E+00	
M-SD11	DDT	0.019	1.00E+05	3.30E-03	TRUE	0	5.76E+00	
M-SD11	DIBENZ(G,H)ANTHRACENE	0.31	7.00E-01	3.30E-01	TRUE	0	9.39E-01	
M-SD11	DIBENZOFURAN	0.04	1.64E+00	5.40E-01	TRUE	0	7.41E-02	
M-SD11	DIELDRIN	0.06	1.10E-02	3.30E-03	TRUE	-1	1.82E+01	1.82E+01
M-SD11	DIETHYL PHTHALATE	0.046	1.00E+05	2.00E-01	TRUE	0	2.30E-01	
M-SD11	Di-n-BUTYL PHTHALATE	0.064	1.00E+05	1.40E+00	TRUE	0	4.57E-02	
M-SD11	ENDRIN	0.01	NA	3.30E-03	TRUE	0	3.03E+00	
M-SD11	ENDRIN ALDEHYDE	0.011	NA	NA	TRUE	0		
M-SD11	FLUORANTHENE	2.6	7.10E+00	3.30E-01	TRUE	0	7.88E+00	

M-SD11	FLUORENE	0.068	1.59E+00	3.30E-01	TRUE	0	2.06E-01	
M-SD11	GAMMA-CHLORDANE	0.012	2.00E+00	1.70E-03	TRUE	0	7.06E+00	
M-SD11	HEPTACHLORINATED	0.000134	NA	NA	TRUE	0		
M-SD11	HEPTACHLORINATED DIBENZO-P-	0.0013	NA	NA	TRUE	0		
M-SD11	HEXACHLORINATED	0.0000675	NA	NA	TRUE	0		
M-SD11	INDENO(1,2,3-c,d)PYRENE	0.73	1.70E+00	3.30E-01	TRUE	0	2.21E+00	
M-SD11	IRON	8100	2.30E+04	NA	TRUE	0		
M-SD11	LEAD	146	3.52E+01	3.02E+01	TRUE	-1	4.83E+00	4.83E+00
M-SD11	MAGNESIUM	2400	2.40E+03	NA	TRUE	0		
M-SD11	MANGANESE	216	8.70E+02	NA	TRUE	0		
M-SD11	NICKEL	11.4	3.00E+01	1.59E+01	TRUE	0	7.17E-01	
M-SD11	OCTACHLORODIBENZOFURAN	0.000252	1.00E+05	NA	TRUE	0		
M-SD11	OCTACHLORODIBENZO-P-DIOXIN	0.00466	8.60E-03	NA	TRUE	0		
M-SD11	PHENANTHRENE	1.5	6.90E+00	3.30E-01	TRUE	0	4.55E+00	
M-SD11	POTASSIUM	313	1.50E+03	NA	TRUE	0		
M-SD11	PYRENE	2.2	2.90E+00	3.30E-01	TRUE	0	6.67E+00	
M-SD11	SELENIUM	0.64	1.70E+00	NA	TRUE	0		
M-SD11	SODIUM	56.4	2.40E+02	NA	TRUE	0		
M-SD11	TCDD Equivalent	0.000004912	5.40E-06	NA	TRUE	0		
M-SD11	VANADIUM	11.2	3.00E+01	NA	TRUE	0		
M-SD11	ZINC	247	7.97E+02	1.24E+02	TRUE	0	1.99E+00	
M-SD12	1,2,3,4,6,7,8-	0.0000439	1.00E+05	NA	TRUE	0		
M-SD12	1,2,3,4,6,7,8-	0.000175	5.80E-04	NA	TRUE	0		
M-SD12	ALPHA-CHLORDANE	0.0057	2.40E+00	1.70E-03	TRUE	0	3.35E+00	
M-SD12	ALUMINUM	8660	1.00E+04	NA	TRUE	0		
M-SD12	ARSENIC	5.9	1.20E+01	7.24E+00	TRUE	0	8.15E-01	
M-SD12	BARIUM	86.7	1.18E+02	NA	TRUE	0		
M-SD12	BENZO(a)ANTHRACENE	0.066	2.90E+00	3.30E-01	TRUE	0	2.00E-01	
M-SD12	BENZO(a)PYRENE	0.069	2.50E+00	3.30E-01	TRUE	0	2.09E-01	
M-SD12	BENZO(b)FLUORANTHENE	0.12	2.20E+00	3.30E-01	TRUE	0	3.64E-01	
M-SD12	BENZO(g,h,i)PERYLENE	0.04	1.80E+00	3.30E-01	TRUE	0	1.21E-01	
M-SD12	BERYLLIUM	0.49	1.30E+00	NA	TRUE	0		
M-SD12	Bis(2-ETHYLHEXYL) PHTHALATE	0.085	4.80E-01	1.82E-01	TRUE	0	4.67E-01	
M-SD12	CALCIUM	3140	1.50E+04	NA	TRUE	0		
M-SD12	CHROMIUM	10.6	2.00E+01	5.23E+01	TRUE	0	2.03E-01	
M-SD12	CHRYSENE	0.073	3.20E+00	3.30E-01	TRUE	0	2.21E-01	
M-SD12	COBALT	8.3	1.40E+01	NA	TRUE	0		
M-SD12	COPPER	20.9	5.80E+01	1.87E+01	TRUE	0	1.12E+00	
M-SD12	DIELDRIN	0.058	1.10E-02	3.30E-03	TRUE	-1	1.76E+01	1.76E+01
M-SD12	DIETHYL PHTHALATE	0.033	1.00E+05	2.00E-01	TRUE	0	1.65E-01	
M-SD12	DI-n-BUTYL PHTHALATE	0.022	1.00E+05	1.40E+00	TRUE	0	1.57E-02	
M-SD12	FLUORANTHENE	0.11	7.10E+00	3.30E-01	TRUE	0	3.33E-01	
M-SD12	GAMMA-CHLORDANE	0.0062	2.00E+00	1.70E-03	TRUE	0	3.65E+00	

M-SD12	HEPTACHLORINATED	0.000439	NA	NA	TRUE	0	0	2.95E+00	2.95E+00
M-SD12	HEPTACHLORINATED DIBENZO-P-	0.000175	NA	NA	TRUE	0	0		
M-SD12	HEXACHLORINATED	0.0000741	NA	NA	TRUE	0	0		
M-SD12	HEXACHLORINATED DIBENZO-P-	0.0000892	NA	NA	TRUE	0	0		
M-SD12	INDENO(1,2,3-c,g)PYRENE	0.039	1.70E+00	3.30E-01	TRUE	0	1.18E-01		
M-SD12	IRON	12900	2.30E+04	NA	TRUE	0	0		
M-SD12	LEAD	89	3.52E+01	3.02E+01	TRUE	-1	2.95E+00		
M-SD12	MAGNESIUM	1860	2.40E+03	NA	TRUE	0	0		
M-SD12	MANGANESE	207	8.70E+02	NA	TRUE	0	0		
M-SD12	METHYLENE CHLORIDE	0.002	NA	NA	TRUE	0	0		
M-SD12	NICKEL	15.4	3.00E+01	1.59E+01	TRUE	0	9.69E-01		
M-SD12	OCTACHLORODIBENZOFURAN	0.0000968	1.00E+05	NA	TRUE	0	0		
M-SD12	OCTACHLORODIBENZO-P-DIOXIN	0.0025	8.60E-03	NA	TRUE	0	0		
M-SD12	PENTACHLORINATED	0.0000156	NA	NA	TRUE	0	0		
M-SD12	PHENANTHRENE	0.041	6.90E+00	3.30E-01	TRUE	0	1.24E-01		
M-SD12	POTASSIUM	667	1.50E+03	NA	TRUE	0	0		
M-SD12	PYRENE	0.081	2.90E+00	3.30E-01	TRUE	0	2.45E-01		
M-SD12	SELENIUM	0.74	1.70E+00	NA	TRUE	0	0		
M-SD12	SODIUM	76.5	2.40E+02	NA	TRUE	0	0		
M-SD12	TCDD Equivalent	2.568E-06	5.40E-06	NA	TRUE	0	0		
M-SD12	VANADIUM	20.6	3.00E+01	NA	TRUE	0	0		
M-SD12	ZINC	92.1	7.97E+02	1.24E+02	TRUE	0	7.43E-01		
M-SD14	1,2,3,4,6,7,8-	0.0019	1.00E+05	NA	TRUE	0	0		
M-SD14	1,2,3,4,6,7,8-	0.0054	5.80E-04	NA	TRUE	-1	0		
M-SD14	2-METHYLNAPHTHALENE	10	1.00E+05	3.30E-01	TRUE	0	3.03E+01		
M-SD14	ACETONE	0.025	1.00E+05	NA	TRUE	0	0		
M-SD14	ALPHA-CHLORDANE	0.036	2.40E+00	1.70E-03	TRUE	0	2.12E+01		
M-SD14	ALUMINUM	3180	1.00E+04	NA	TRUE	0	0		
M-SD14	ANTHRACENE	6.9	1.60E+00	3.30E-01	TRUE	-1	2.09E+01		2.09E+01
M-SD14	ANTIMONY	1.3	7.60E+00	1.20E+01	TRUE	0	1.08E-01		
M-SD14	ARSENIC	9.1	1.20E+01	7.24E+00	TRUE	0	1.20E+00		
M-SD14	BARIUM	76.2	1.18E+02	NA	TRUE	0	0		
M-SD14	BENZO(a)ANTHRACENE	20	2.90E+00	3.30E-01	TRUE	-1	6.06E+01		6.06E+01
M-SD14	BENZO(b)PYRENE	19	2.50E+00	3.30E-01	TRUE	-1	5.76E+01		5.76E+01
M-SD14	BENZO(k)FLUORANTHENE	26	2.20E+00	3.30E-01	TRUE	-1	7.88E+01		7.88E+01
M-SD14	BENZO(k)FLUORANTHENE	25	2.30E+00	3.30E-01	TRUE	-1	7.58E+01		7.58E+01
M-SD14	BERYLLIUM	0.32	1.30E+00	NA	TRUE	0	0		
M-SD14	Di(2-ETHYLHEXYL) PHTHALATE	1.5	4.80E-01	1.82E-01	TRUE	-1	8.24E+00		8.24E+00
M-SD14	CADMIUM	2.6	2.90E+01	1.00E+00	TRUE	0	2.60E+00		
M-SD14	CALCIUM	24800	1.50E+04	NA	TRUE	-1	0		
M-SD14	CARBAZOLE	2.4	1.10E+00	NA	TRUE	-1	0		
M-SD14	CHROMIUM	36.2	2.00E+01	5.23E+01	TRUE	-1	6.92E-01		6.92E-01
M-SD14	CHRYSENE	30	3.20E+00	3.30E-01	TRUE	-1	9.09E+01		9.09E+01

M-SD15	CHRYSENE	0.14	3.20E+00	3.30E-01	TRUE	0	4.24E-01	
M-SD15	COBALT	2.5	1.40E+01	NA	TRUE	0		
M-SD15	COPPER	9.6	5.80E+01	1.87E+01	TRUE	0	5.13E-01	
M-SD15	DDD	0.066	6.10E-03	3.30E-03	TRUE	-1	2.00E+01	2.00E+01
M-SD15	DDE	0.13	7.20E-03	3.30E-03	TRUE	-1	3.94E+01	3.94E+01
M-SD15	DDT	0.036	1.00E+05	3.30E-03	TRUE	0	1.09E+01	
M-SD15	DIELDRIN	0.16	1.10E-02	3.30E-03	TRUE	-1	4.85E+01	4.85E+01
M-SD15	DIETHYL PHTHALATE	0.52	1.00E+05	2.00E-01	TRUE	0	2.60E+00	
M-SD15	DI-n-BUTYL PHTHALATE	0.026	1.00E+05	1.40E+00	TRUE	0	1.86E-02	
M-SD15	ENDRIN	0.011	NA	3.30E-03	TRUE	0	3.33E+00	
M-SD15	ENDRIN ALDEHYDE	0.0082	NA	NA	TRUE	0		
M-SD15	FLUORANTHENE	0.28	7.10E+00	3.30E-01	TRUE	0	8.48E-01	
M-SD15	GAMMA-CHLORDANE	0.017	2.00E+00	1.70E-03	TRUE	0	1.00E+01	
M-SD15	IRON	3100	2.30E+04	NA	TRUE	0		
M-SD15	LEAD	7.7	3.52E+01	3.02E+01	TRUE	0	2.55E-01	
M-SD15	MAGNESIUM	714	2.40E+03	NA	TRUE	0		
M-SD15	MANGANESE	23.6	8.70E+02	NA	TRUE	0		
M-SD15	NICKEL	3.4	3.00E+01	1.59E+01	TRUE	0	2.14E-01	
M-SD15	PHENANTHRENE	0.14	6.90E+00	3.30E-01	TRUE	0	4.24E-01	
M-SD15	POTASSIUM	100	1.50E+03	NA	TRUE	0		
M-SD15	PYRENE	0.42	2.90E+00	3.30E-01	TRUE	0	1.27E+00	
M-SD15	SODIUM	40.6	2.40E+02	NA	TRUE	0		
M-SD15	VANADIUM	5.8	3.00E+01	NA	TRUE	0		
M-SD15	ZINC	42.5	7.97E+02	1.24E+02	TRUE	0	3.43E-01	
M-SD16	ALPHA ENDOSULFAN	0.0081	NA	NA	TRUE	0		
M-SD16	ALPHA-CHLORDANE	0.02	2.40E+00	1.70E-03	TRUE	0	1.18E+01	
M-SD16	ALUMINIUM	662	1.00E+04	NA	TRUE	0		
M-SD16	ANTHRACENE	0.019	1.60E+00	3.30E-01	TRUE	0	5.76E-02	
M-SD16	ARSENIC	2.1	1.20E+01	7.24E+00	TRUE	0	2.90E-01	
M-SD16	BARIUM	16.7	1.18E+02	NA	TRUE	0		
M-SD16	BENZO(a)ANTHRACENE	0.15	2.90E+00	3.30E-01	TRUE	0	4.56E-01	
M-SD16	BENZO(b)PYRENE	0.17	2.50E+00	3.30E-01	TRUE	0	5.15E-01	
M-SD16	BENZO(b)FLUORANTHENE	0.26	2.20E+00	3.30E-01	TRUE	0	7.88E-01	
M-SD16	BENZO(g,h,i)PERYLENE	0.091	1.80E+00	3.30E-01	TRUE	0	2.76E-01	
M-SD16	BENZYL BUTYL PHTHALATE	0.084	1.00E+05	6.30E-02	TRUE	0	1.33E+00	
M-SD16	bis(2-ETHYLHEXYL) PHTHALATE	0.19	4.80E-01	1.82E-01	TRUE	0	1.04E+00	
M-SD16	CADMIUM	0.26	2.90E+01	1.00E+00	TRUE	0	2.60E-01	
M-SD16	CALCIUM	158000	1.50E+04	NA	TRUE	-1		
M-SD16	CHROMIUM	5.6	2.00E+01	5.23E+01	TRUE	0	1.07E-01	
M-SD16	CHRYSENE	0.17	3.20E+00	3.30E-01	TRUE	0	5.15E-01	
M-SD16	COBALT	1.6	1.40E+01	NA	TRUE	0		
M-SD16	COPPER	7.1	5.80E+01	1.87E+01	TRUE	0	3.80E-01	
M-SD16	DDD	0.13	6.10E-03	3.30E-03	TRUE	-1	3.94E+01	3.94E+01

M-SD16	DDE		0.026	7.20E-03	3.30E-03	TRUE	-1	7.88E+00	7.88E+00
M-SD16	DDT		0.042	1.00E+05	3.30E-03	TRUE	0	1.27E+01	
M-SD16	DIBENZO(h,j)ANTHRACENE		0.028	7.00E-01	3.30E-01	TRUE	0	8.48E-02	
M-SD16	DIELDRIN		0.031	1.10E-02	3.30E-03	TRUE	-1	9.39E+00	9.39E+00
M-SD16	DIETHYL PHTHALATE		0.026	1.00E+05	2.00E-01	TRUE	0	1.30E-01	
M-SD16	DI-n-BUTYL PHTHALATE		0.021	1.00E+05	1.40E+00	TRUE	0	1.43E-02	
M-SD16	DI-n-OCTYL PHTHALATE		0.021	1.66E+00	6.20E+00	TRUE	0	3.39E-03	
M-SD16	ENDRIN		0.014	NA	3.30E-03	TRUE	0	4.24E+00	
M-SD16	ENDRIN ALDEHYDE		0.004	NA	NA	TRUE	0		
M-SD16	FLUORANTHENE		0.18	7.10E+00	3.30E-01	TRUE	0	5.45E-01	
M-SD16	GAMMA-CHLORDANE		0.023	2.00E+00	1.70E-03	TRUE	0	1.35E+01	
M-SD16	INDENO(1,2,3-c,d)PYRENE		0.092	1.70E+00	3.30E-01	TRUE	0	2.79E-01	
M-SD16	IRON		3340	2.30E+04	NA	TRUE	0		
M-SD16	LEAD		9.3	3.52E+01	3.02E+01	TRUE	0	3.08E-01	
M-SD16	MAGNESIUM		3930	2.40E+03	NA	TRUE	-1		
M-SD16	MANGANESE		112	8.70E+02	NA	TRUE	0		
M-SD16	METHYLENE CHLORIDE		0.008	NA	NA	TRUE	0		
M-SD16	NICKEL		3.7	3.00E+01	1.59E+01	TRUE	0	2.33E-01	
M-SD16	PHENANTHRENE		0.043	6.90E+00	3.30E-01	TRUE	0	1.91E-01	
M-SD16	POTASSIUM		126	1.56E+03	NA	TRUE	0		
M-SD16	PYRENE		0.15	2.90E+00	3.30E-01	TRUE	0	4.55E-01	
M-SD16	SODIUM		149	2.40E+02	NA	TRUE	0		
M-SD16	VANADIUM		4.6	3.00E+01	NA	TRUE	0		
M-SD16	ZINC		66.9	7.97E+02	1.24E+02	TRUE	0	5.40E-01	
M-SD17	ALDRIN		0.0092	1.00E+05	NA	TRUE	0		
M-SD17	ALPHA-CHLORDANE		0.0099	2.40E+00	1.70E-03	TRUE	0	5.82E+00	
M-SD17	ALUMINIUM		4270	1.00E+04	NA	TRUE	0		
M-SD17	ARSENIC		6	1.20E+01	7.24E+00	TRUE	0	8.29E-01	
M-SD17	BARIUM		62.8	1.18E+02	NA	TRUE	0		
M-SD17	BENZO(a)PYRENE		0.084	2.50E+00	3.30E-01	TRUE	0	2.55E-01	
M-SD17	BENZO(b)FLUORANTHENE		0.12	2.20E+00	3.30E-01	TRUE	0	3.64E-01	
M-SD17	BERYLLIUM		0.4	1.30E+00	NA	TRUE	0		
M-SD17	bis(2-ETHYLHEXYL) PHTHALATE		0.21	4.80E-01	1.82E-01	TRUE	0	1.15E+00	
M-SD17	CADMIUM		0.46	2.90E+01	1.00E+00	TRUE	0	4.60E-01	
M-SD17	CALCIUM		1820	1.50E+04	NA	TRUE	0		
M-SD17	CHROMIUM		7.8	2.00E+01	5.23E+01	TRUE	0	1.49E-01	
M-SD17	CHRYSENE		0.064	3.20E+00	3.30E-01	TRUE	0	1.94E-01	
M-SD17	COBALT		6.8	1.40E+01	NA	TRUE	0		
M-SD17	COPPER		15.3	5.80E+01	1.87E+01	TRUE	0	8.18E-01	
M-SD17	DDD		0.23	6.10E-03	3.30E-03	TRUE	-1	6.97E+01	6.97E+01
M-SD17	DDE		0.029	7.20E-03	3.30E-03	TRUE	-1	8.79E+00	8.79E+00
M-SD17	DDT		0.047	1.00E+05	3.30E-03	TRUE	0	1.42E+00	
M-SD17	DIELDRIN		0.038	1.10E-02	3.30E-03	TRUE	-1	1.15E+01	1.15E+01

M-SD17	DIETHYL PHTHALATE	0.076	1.00E+05	2.00E-01	TRUE	0	3.80E-01	
M-SD17	DI-n-BUTYL PHTHALATE	0.045	1.00E+05	1.40E+00	TRUE	0	3.21E-02	
M-SD17	DI-n-OCTYL PHTHALATE	0.09	1.66E+00	6.20E+00	TRUE	0	1.45E-02	
M-SD17	GAMMA-CHLORDANE	0.0075	2.00E+00	1.70E-03	TRUE	0	4.41E+00	
M-SD17	INDENO(1,2,3-c,d)PYRENE	0.028	1.70E+00	3.30E-01	TRUE	0	8.48E-02	
M-SD17	IRON	9090	2.30E+04	NA	TRUE	0		
M-SD17	LEAD	75	3.52E+01	3.02E+01	TRUE	0	2.48E+00	2.48E+00
M-SD17	MAGNESIUM	1030	2.40E+03	NA	TRUE	0		
M-SD17	MANGANESE	218	8.70E+02	NA	TRUE	0		
M-SD17	NICKEL	9.9	3.00E+01	1.59E+01	TRUE	0	6.23E-01	
M-SD17	PHENANTHRENE	0.029	5.90E+00	3.30E-01	TRUE	0	8.79E-02	
M-SD17	POTASSIUM	498	1.56E+03	NA	TRUE	0		
M-SD17	PYRENE	0.039	2.90E+00	3.30E-01	TRUE	0	1.18E-01	
M-SD17	SODIUM	74	2.40E+02	NA	TRUE	0		
M-SD17	VANADIUM	13.1	3.00E+01	NA	TRUE	0		
M-SD17	ZINC	135	7.97E+02	1.24E+02	TRUE	0	1.09E+00	
M-SD18	ACETONE	0.013	1.00E+05	NA	TRUE	0		
M-SD18	ALUMINUM	5340	1.00E+04	NA	TRUE	0		
M-SD18	ANTHRACENE	0.025	1.60E+00	3.30E-01	TRUE	0	7.58E-02	
M-SD18	ARSENIC	3	1.20E+01	7.24E+00	TRUE	0	4.14E-01	
M-SD18	BARIUM	145	1.18E+02	NA	TRUE	-1		
M-SD18	BENZO(a)ANTHRACENE	0.063	2.90E+00	3.30E-01	TRUE	0	1.91E-01	
M-SD18	BENZO(a)PYRENE	0.041	2.50E+00	3.30E-01	TRUE	0	1.24E-01	
M-SD18	BENZO(b)FLUORANTHENE	0.056	2.20E+00	3.30E-01	TRUE	0	1.70E-01	
M-SD18	BENZO(g,h,i)PERYLENE	0.034	1.80E+00	3.30E-01	TRUE	0	1.03E-01	
M-SD18	BENZO(k)FLUORANTHENE	0.041	2.30E+00	3.30E-01	TRUE	0	1.24E-01	
M-SD18	BERYLLIUM	0.62	1.30E+00	NA	TRUE	0		
M-SD18	BIS(2-ETHYLHEXYL) PHTHALATE	0.13	4.80E-01	1.82E-01	TRUE	0	7.14E-01	
M-SD18	CALCIUM	1620	1.50E+04	NA	TRUE	0		
M-SD18	CARBAZOLE	0.023	1.10E+00	NA	TRUE	0		
M-SD18	CARBON TETRACHLORIDE	0.044	1.00E+05	NA	TRUE	0		
M-SD18	CHROMIUM	10.7	2.00E+01	5.23E+01	TRUE	0	2.05E-01	
M-SD18	CHRYSENE	0.065	3.20E+00	3.30E-01	TRUE	0	1.97E-01	
M-SD18	COBALT	6.3	1.40E+01	NA	TRUE	0		
M-SD18	COPPER	11.2	5.80E+01	1.87E+01	TRUE	0	5.99E-01	
M-SD18	DDD	0.0061	6.10E-03	3.30E-03	TRUE	0	1.85E+00	
M-SD18	DDE	0.0055	7.20E-03	3.30E-03	TRUE	0	1.67E+00	
M-SD18	DIELDRIN	0.0048	1.10E-02	3.30E-03	TRUE	0	1.39E+00	
M-SD18	DIETHYL PHTHALATE	0.38	1.00E+05	2.00E-01	TRUE	0	1.90E+00	
M-SD18	DIMETHYL PHTHALATE	0.11	1.00E+05	7.10E-02	TRUE	0	1.55E+00	
M-SD18	DI-n-BUTYL PHTHALATE	0.034	1.00E+05	1.40E+00	TRUE	0	2.43E-02	
M-SD18	FLUORANTHENE	0.15	7.10E+00	3.30E-01	TRUE	0	4.55E-01	
M-SD18	FLUORENE	0.029	1.69E+00	3.30E-01	TRUE	0	8.79E-02	

SD-1-9	COPPER	23	5.80E+01	1.87E+01	TRUE	0	1.23E+00	
SD-1-9	FLUORANTHENE	0.071	7.10E+00	3.30E-01	TRUE	0	2.15E-01	
SD-1-9	MERCURY	0.05	4.00E+00	1.30E-01	TRUE	0	3.85E-01	
SD-1-9	METHYL ETHYL KETONE	0.003	1.00E-02	NA	TRUE	0		
SD-1-9	METHYLENE CHLORIDE	0.038	NA	NA	TRUE	0		
SD-1-9	NICKEL	14	3.00E+01	1.59E+01	TRUE	0	8.81E-01	
SD-1-9	Total Polynuclear Aromatic	0.071	NA	NA	TRUE	0		
SD-1-9	ZINC	47.8	7.97E+02	1.24E+02	TRUE	0	3.85E-01	
SD-1-SS	ACETONE	0.071	1.00E+05	NA	TRUE	0		
SD-1-SS	BARIUM	76	1.18E+02	NA	TRUE	0		
SD-1-SS	BENZOIC ACID	0.46	NA	NA	TRUE	0		
SD-1-SS	Bis(2-ETHYLHEXYL) PHTHALATE	0.55	4.80E-01	1.82E-01	TRUE	-1	1.30E+00	3.02E+00
SD-1-SS	CADMIUM	0.7	2.90E+01	1.00E+00	TRUE	0	7.00E-01	
SD-1-SS	CHROMIUM	13	2.00E+01	5.23E+01	TRUE	0	2.49E-01	
SD-1-SS	COPPER	20	5.80E+01	1.87E+01	TRUE	0	1.07E+00	
SD-1-SS	DDD	0.047	6.10E-03	3.30E-03	TRUE	-1	1.42E+01	1.42E+01
SD-1-SS	DDE	0.036	7.20E-03	3.30E-03	TRUE	-1	1.09E+01	1.09E+01
SD-1-SS	FLUORANTHENE	0.074	7.10E+00	3.30E-01	TRUE	0	2.24E-01	
SD-1-SS	MERCURY	0.04	4.00E+00	1.30E-01	TRUE	0	3.08E-01	
SD-1-SS	METHYLENE CHLORIDE	0.042	NA	NA	TRUE	0		
SD-1-SS	NICKEL	11	3.00E+01	1.59E+01	TRUE	0	6.92E-01	
SD-1-SS	N-NITROSODIPHENYLAMINE	0.1	1.00E+05	2.80E-02	TRUE	0	3.57E+00	
SD-1-SS	Total Polynuclear Aromatic	0.074	NA	NA	TRUE	0		
SD-1-SS	ZINC	44.5	7.97E+02	1.24E+02	TRUE	0	3.59E-01	
SD-2-9	ACETONE	0.051	1.00E+05	NA	TRUE	0		
SD-2-9	BARIUM	110	1.18E+02	NA	TRUE	0		
SD-2-9	BENZOIC ACID	0.59	NA	NA	TRUE	0		
SD-2-9	Bis(2-ETHYLHEXYL) PHTHALATE	0.53	4.80E-01	1.82E-01	TRUE	-1	2.91E+00	2.91E+00
SD-2-9	CHROMIUM	10	2.00E+01	5.23E+01	TRUE	0	1.91E-01	
SD-2-9	COPPER	17	5.80E+01	1.87E+01	TRUE	0	9.09E-01	
SD-2-9	MERCURY	0.05	4.00E+00	1.30E-01	TRUE	0	3.85E-01	
SD-2-9	METHYLENE CHLORIDE	0.022	NA	NA	TRUE	0		
SD-2-9	NICKEL	12	3.00E+01	1.59E+01	TRUE	0	7.55E-01	
SD-2-9	ZINC	47.6	7.97E+02	1.24E+02	TRUE	0	3.84E-01	
SD-2-SS	ACETONE	0.046	1.00E+05	NA	TRUE	0		
SD-2-SS	BARIUM	122	1.18E+02	NA	TRUE	-1		
SD-2-SS	BENZOIC ACID	0.3	NA	NA	TRUE	0		
SD-2-SS	Bis(2-ETHYLHEXYL) PHTHALATE	0.58	4.80E-01	1.82E-01	TRUE	-1	3.19E+00	3.19E+00
SD-2-SS	CHROMIUM	12	2.00E+01	5.23E+01	TRUE	0	2.99E-01	
SD-2-SS	COPPER	18	5.80E+01	1.87E+01	TRUE	0	9.63E-01	
SD-2-SS	FLUORANTHENE	0.1	7.10E+00	3.30E-01	TRUE	0	3.03E-01	
SD-2-SS	MERCURY	0.05	4.00E+00	1.30E-01	TRUE	0	3.85E-01	
SD-2-SS	METHYL ETHYL KETONE	0.001	1.00E-02	NA	TRUE	0		

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SD-4-9	COPPER	16	5.80E+01	1.87E+01	TRUE	0.856E-01	8.48E+01
SD-4-9	DDD	0.28	6.10E-03	3.30E-03	TRUE	-1	1.94E+01
SD-4-9	DDE	0.004	7.20E-03	3.30E-03	TRUE	-1	1.94E+01
SD-4-9	LEAD	63	5.2E+01	3.02E+01	TRUE	0	3.08E-01
SD-4-9	MERCURY	0.04	4.00E+00	1.30E-01	TRUE	0	3.08E-01
SD-4-9	METHYL ETHYL KETONE	0.005	1.00E-02	NA	TRUE	0	
SD-4-9	METHYLENE CHLORIDE	0.029	NA	NA	TRUE	0	
SD-4-9	NICKEL	13	3.00E+01	1.59E+01	TRUE	0	8.18E-01
SD-4-9	ZINC	43.2	7.97E+02	1.24E+02	TRUE	0	3.48E-01
SD-4-SS	ACETONE	0.17	1.00E+05	NA	TRUE	0	
SD-4-SS	BARIUM	94	1.18E+02	NA	TRUE	0	
SD-4-SS	BENZOIC ACID	0.68	NA	NA	TRUE	0	
SD-4-SS	bis(2-ETHYLHEXYL) PHTHALATE	0.71	4.80E-01	1.82E-01	TRUE	-1	3.90E+00
SD-4-SS	CHROMIUM	13	2.00E+01	5.23E+01	TRUE	0	2.49E-01
SD-4-SS	COPPER	15	5.80E+01	1.87E+01	TRUE	0	8.02E-01
SD-4-SS	DDD	0.19	6.10E-03	3.30E-03	TRUE	-1	5.76E+01
SD-4-SS	DDE	0.068	7.20E-03	3.30E-03	TRUE	-1	2.06E+01
SD-4-SS	FLUORANTHENE	0.13	7.10E+00	3.30E-01	TRUE	0	3.94E-01
SD-4-SS	LEAD	53	5.2E+01	3.02E+01	TRUE	0	1.66E-01
SD-4-SS	MERCURY	0.03	4.00E+00	1.30E-01	TRUE	0	3.85E-01
SD-4-SS	METHYL ETHYL KETONE	0.006	1.00E-02	NA	TRUE	0	
SD-4-SS	METHYLENE CHLORIDE	0.027	NA	NA	TRUE	0	
SD-4-SS	NICKEL	13	3.00E+01	1.59E+01	TRUE	0	8.18E-01
SD-4-SS	N-NITROSDIPHENYLAMINE	0.19	1.00E+05	2.80E-02	TRUE	0	6.79E+00
SD-4-SS	PHENANTHRENE	0.1	6.90E+00	3.30E-01	TRUE	0	3.03E-01
SD-4-SS	PYRENE	0.1	2.90E+00	3.30E-01	TRUE	0	3.03E-01
SD-4-SS	Total Polynuclear Aromatic	0.33	NA	NA	TRUE	0	
SD-4-SS	ZINC	44.7	7.97E+02	1.24E+02	TRUE	0	3.60E-01
SD-5-9	ACENAPHTHENE	0.14	7.70E-01	3.30E-01	TRUE	0	4.24E-01
SD-5-9	ACETONE	0.024	1.00E+05	NA	TRUE	0	
SD-5-9	ANTHRACENE	0.2	1.60E+00	3.30E-01	TRUE	0	6.06E-01
SD-5-9	BARIUM	104	1.18E+02	NA	TRUE	0	
SD-5-9	BENZO(a)ANTHRACENE	0.68	2.90E+00	3.30E-01	TRUE	0	2.04E+00
SD-5-9	BENZO(b)PYRENE	0.5	2.50E+00	3.30E-01	TRUE	0	1.52E+00
SD-5-9	BENZO(b)FLUORANTHENE	0.69	2.20E+00	3.30E-01	TRUE	0	2.09E+00
SD-5-9	BENZO(g,h,i)PERYLENE	0.39	1.80E+00	3.30E-01	TRUE	0	1.18E+00
SD-5-9	BENZO(k)FLUORANTHENE	0.69	2.30E+00	3.30E-01	TRUE	0	2.09E+00
SD-5-9	BENZOIC ACID	0.97	NA	NA	TRUE	0	
SD-5-9	bis(2-ETHYLHEXYL) PHTHALATE	0.71	4.80E-01	1.82E-01	TRUE	-1	3.90E+00
SD-5-9	CHROMIUM	21	2.00E+01	5.23E+01	TRUE	-1	4.02E-01
SD-5-9	CHRYSENE	0.75	3.20E+00	3.30E-01	TRUE	0	2.27E+00
SD-5-9	COPPER	26	5.80E+01	1.87E+01	TRUE	0	1.39E+00
SD-5-9	DDD	0.96	6.10E-03	3.30E-03	TRUE	-1	2.91E+02

SD-5-9	DDT	0.62	1.00E+05	3.30E-03	TRUE	0.188E+02	
SD-5-9	DIBENZ(a,h)ANTHRACENE	0.14	7.00E-01	3.30E-01	TRUE	0.424E-01	
SD-5-9	FLUORANTHENE	1.7	7.10E+00	3.30E-01	TRUE	0.515E+00	
SD-5-9	FLUORENE	0.15	1.69E+00	3.30E-01	TRUE	0.455E-01	
SD-5-9	INDENOX(1,2,3-c,d)PYRENE	0.35	1.70E+00	3.30E-01	TRUE	0.106E+00	
SD-5-9	LEAD	55	3.52E+01	3.02E+01	TRUE	-1.182E+00	1.82E+00
SD-5-9	MERCURY	0.04	4.00E+00	1.30E-01	TRUE	0.308E-01	
SD-5-9	METHYLENE CHLORIDE	0.025	NA	NA	TRUE	0	
SD-5-9	NICKEL	14	3.00E+01	1.59E+01	TRUE	0.881E-01	
SD-5-9	N-NITROSODIPHENYLAMINE	0.19	1.00E+05	2.80E-02	TRUE	0.679E+00	
SD-5-9	PHENANTHRENE	1.2	6.90E+00	3.30E-01	TRUE	0.364E+00	
SD-5-9	PYRENE	1.4	2.90E+00	3.30E-01	TRUE	0.424E+00	
SD-5-9	TOLUENE	0.002	1.40E-02	NA	TRUE	0	
SD-5-9	Total Polynuclear Aromatic	5.98	NA	NA	TRUE	0	
SD-5-9	ZINC	66.8	7.97E+02	1.24E+02	TRUE	0.539E-01	
SD-5-SS	ACENAPHTHENE	0.11	7.70E-01	3.30E-01	TRUE	0.333E-01	
SD-5-SS	ACETONE	0.021	1.00E+05	NA	TRUE	0	
SD-5-SS	ALPHA ENDOSULFAN	0.2	NA	NA	TRUE	0	
SD-5-SS	ANTHRACENE	0.2	1.60E+00	3.30E-01	TRUE	0.604E-01	
SD-5-SS	BARIUM	101	1.18E+02	NA	TRUE	0	
SD-5-SS	BENZO(a)ANTHRACENE	1.1	2.90E+00	3.30E-01	TRUE	0.333E+00	
SD-5-SS	BENZO(a)PYRENE	1.3	2.50E+00	3.30E-01	TRUE	0.394E+00	
SD-5-SS	BENZO(b)FLUORANTHENE	1.8	2.20E+00	3.30E-01	TRUE	0.545E+00	
SD-5-SS	BENZO(k,h)PERYLENE	0.94	1.80E+00	3.30E-01	TRUE	0.285E+00	
SD-5-SS	BENZO(k)FLUORANTHENE	1.6	2.30E+00	3.30E-01	TRUE	0.485E+00	
SD-5-SS	BENZOIC ACID	1.2	NA	NA	TRUE	0	
SD-5-SS	BIS(2-ETHYLHEXYL) PHTHALATE	0.71	4.80E-01	1.82E-01	TRUE	-1.390E+00	3.90E+00
SD-5-SS	CADMIUM	0.9	2.90E+01	1.00E+00	TRUE	0.900E-01	
SD-5-SS	CHROMIUM	28	2.00E+01	5.23E+01	TRUE	-1.535E-01	5.35E-01
SD-5-SS	CHRYSENE	1.4	3.20E+00	3.30E-01	TRUE	0.424E+00	
SD-5-SS	COPPER	28	5.80E+01	1.87E+01	TRUE	0.150E+00	
SD-5-SS	DDD	3	6.10E-03	3.30E-03	TRUE	-1.900E+02	9.09E+02
SD-5-SS	DDE	0.46	7.20E-03	3.30E-03	TRUE	-1.39E+02	1.39E+02
SD-5-SS	DDT	2.9	1.00E+05	3.30E-03	TRUE	0.879E+02	
SD-5-SS	DIBENZ(a,h)ANTHRACENE	0.33	7.00E-01	3.30E-01	TRUE	0.100E+00	
SD-5-SS	FLUORANTHENE	3	7.10E+00	3.30E-01	TRUE	0.909E+00	
SD-5-SS	FLUORENE	0.12	1.69E+00	3.30E-01	TRUE	0.364E-01	
SD-5-SS	INDENOX(1,2,3-c,d)PYRENE	0.9	1.70E+00	3.30E-01	TRUE	0.273E+00	
SD-5-SS	LEAD	91	3.52E+01	3.02E+01	TRUE	-1.301E+00	3.01E+00
SD-5-SS	MERCURY	0.06	4.00E+00	1.30E-01	TRUE	0.462E-01	
SD-5-SS	METHYLENE CHLORIDE	0.014	NA	NA	TRUE	0	
SD-5-SS	NICKEL	14	3.00E+01	1.59E+01	TRUE	0.881E-01	
SD-5-SS	N-NITROSODIPHENYLAMINE	0.28	1.00E+05	2.80E-02	TRUE	0.100E+01	

SD-5-SS	PENTACHLOROPHENOL	0.27	1.00E+05	3.60E-01	TRUE	0	7.50E-01	
SD-5-SS	PHENANTHRENE	1.3	6.90E+00	3.30E-01	TRUE	0	3.94E+00	
SD-5-SS	PYRENE	2.4	2.90E+00	3.30E-01	TRUE	0	7.27E+00	
SD-5-SS	Total Polynuclear Aromatic	16.5	NA	NA	TRUE	0		
SD-5-SS	ZINC	80.9	7.97E+02	1.24E+02	TRUE	0	6.52E-01	
SE51A	ARSENIC	6.7	1.20E+01	7.24E+00	TRUE	0	9.25E-01	
SE51A	BERYLLIUM	0.32	1.30E+00	NA	TRUE	0		
SE51A	CHROMIUM	9.8	2.00E+01	5.23E+01	TRUE	0	1.87E-01	
SE51A	COPPER	8.8	5.80E+01	1.87E+01	TRUE	0	4.71E-01	
SE51A	LEAD	9.9	3.52E+01	3.02E+01	TRUE	0	3.28E-01	
SE51A	NICKEL	11.7	3.00E+01	1.59E+01	TRUE	0	7.36E-01	
SE51A	ZINC	39	7.97E+02	1.24E+02	TRUE	0	3.15E-01	
SE51B	ARSENIC	6.7	1.20E+01	7.24E+00	TRUE	0	9.25E-01	
SE51B	BERYLLIUM	0.43	1.30E+00	NA	TRUE	0		
SE51B	CHROMIUM	17.6	2.00E+01	5.23E+01	TRUE	0	3.37E-01	
SE51B	COPPER	16.5	5.80E+01	1.87E+01	TRUE	0	8.82E-01	
SE51B	DDD	0.0044	6.10E-03	3.30E-03	TRUE	0	1.33E+00	
SE51B	LEAD	10.8	3.52E+01	3.02E+01	TRUE	0	3.58E-01	
SE51B	NICKEL	14.5	3.00E+01	1.59E+01	TRUE	0	9.12E-01	
SE51B	ZINC	42.7	7.97E+02	1.24E+02	TRUE	0	3.44E-01	
SE51C	ARSENIC	13.8	1.20E+01	7.24E+00	TRUE	-1	1.91E+00	1.91E+00
SE51C	BERYLLIUM	0.25	1.30E+00	NA	TRUE	0		
SE51C	CHROMIUM	11.4	2.00E+01	5.23E+01	TRUE	0	2.18E-01	
SE51C	COPPER	13.6	5.80E+01	1.87E+01	TRUE	0	7.27E-01	
SE51C	LEAD	10.3	3.52E+01	3.02E+01	TRUE	0	3.41E-01	
SE51C	METHYL ETHYL KETONE	0.004	1.00E-02	NA	TRUE	0		
SE51C	NICKEL	12.6	3.00E+01	1.59E+01	TRUE	0	7.92E-01	
SE51C	ZINC	46.2	7.97E+02	1.24E+02	TRUE	0	3.73E-01	
SE52A	ALDRIN	0.01	1.00E+05	NA	TRUE	0		
SE52A	ARSENIC	10.1	1.20E+01	7.24E+00	TRUE	0	1.40E+00	
SE52A	BERYLLIUM	0.29	1.30E+00	NA	TRUE	0		
SE52A	CHROMIUM	11.2	2.00E+01	5.23E+01	TRUE	0	2.14E-01	
SE52A	COPPER	12.8	5.80E+01	1.87E+01	TRUE	0	6.84E-01	
SE52A	DDD	0.077	6.10E-03	3.30E-03	TRUE	-1	2.33E+01	2.33E+01
SE52A	DDE	0.016	7.20E-03	3.30E-03	TRUE	-1	4.85E+00	4.85E+00
SE52A	DDT	0.025	1.00E+05	3.30E-03	TRUE	0	7.58E+00	
SE52A	DIELDRIN	0.024	1.10E-02	3.30E-03	TRUE	-1	7.27E+00	7.27E+00
SE52A	LEAD	10.4	3.52E+01	3.02E+01	TRUE	0	3.44E-01	
SE52A	NICKEL	11.9	3.00E+01	1.59E+01	TRUE	0	7.48E-01	
SE52A	ZINC	40.1	7.97E+02	1.24E+02	TRUE	0	3.23E-01	
SE52B	ARSENIC	9.8	1.20E+01	7.24E+00	TRUE	0	1.35E+00	
SE52B	BERYLLIUM	0.57	1.30E+00	NA	TRUE	0		
SE52B	CADMIUM	0.52	2.90E+01	1.00E+00	TRUE	0	5.20E-01	

SE52B	CHROMIUM	14.7	2.00E+01	5.23E+01	TRUE	0	2.81E-01	
SE52B	COPPER	11.6	5.80E+01	1.87E+01	TRUE	0	6.20E-01	
SE52B	DDD	0.0046	6.10E-03	3.30E-03	TRUE	0	1.39E+00	
SE52B	DDE	0.0021	7.20E-03	3.30E-03	TRUE	0	6.36E-01	
SE52B	DDT	0.0037	1.00E+05	3.30E-03	TRUE	0	1.12E+00	
SE52B	DIELDRIN	0.0028	1.10E-02	3.30E-03	TRUE	0	8.48E-01	
SE52B	LEAD	15.5	3.52E+01	3.02E+01	TRUE	0	5.13E-01	
SE52B	NICKEL	11.1	3.00E+01	1.59E+01	TRUE	0	6.98E-01	
SE52B	SELENIUM	0.98	1.70E+00	NA	TRUE	0		
SE52B	SILVER	0.28	1.80E+00	2.00E+00	TRUE	0	1.40E-01	
SE52B	ZINC	38.1	7.97E+02	1.24E+02	TRUE	0	3.07E-01	
SE54A	1,2,3,4,6,7,8-	0.000293	1.00E+05	NA	TRUE	0		
SE54A	1,2,3,4,6,7,8-	0.001253	5.80E-04	NA	TRUE	-1		
SE54A	1,2,3,4,7,8-	0.00001	1.00E+05	NA	TRUE	0		
SE54A	1,2,3,4,7,8-HEXACHLORODIBENZO-P	0.000008	1.00E+05	NA	TRUE	0		
SE54A	1,2,3,6,7,8-	0.000004	1.00E+05	NA	TRUE	0		
SE54A	1,2,3,6,7,8-HEXACHLORODIBENZO-P	0.00002	1.00E+05	NA	TRUE	0		
SE54A	1,2,3,7,8,9-HEXACHLORODIBENZO-P	0.000015	1.00E+05	NA	TRUE	0		
SE54A	ARSENIC	4	1.20E+01	7.24E+00	TRUE	0	5.52E-01	
SE54A	BENZO(a)ANTHRACENE	0.06	2.90E+00	3.30E-01	TRUE	0	1.82E-01	
SE54A	BENZO(a)PYRENE	0.085	2.50E+00	3.30E-01	TRUE	0	2.58E-01	
SE54A	BENZO(b)FLUORANTHENE	0.18	2.20E+00	3.30E-01	TRUE	0	5.45E-01	
SE54A	BENZO(g,h,i)PERYLENE	0.11	1.80E+00	3.30E-01	TRUE	0	3.33E-01	
SE54A	BENZO(k)FLUORANTHENE	0.12	2.30E+00	3.30E-01	TRUE	0	3.64E-01	
SE54A	BERYLLIUM	0.09	1.30E+00	NA	TRUE	0		
SE54A	CHROMIUM	68.5	2.00E+01	5.23E+01	TRUE	-1	1.31E+00	1.31E+00
SE54A	CHRYSENE	0.16	3.20E+00	3.30E-01	TRUE	0	4.85E-01	
SE54A	COPPER	4.5	5.80E+01	1.87E+01	TRUE	0	2.41E-01	
SE54A	DDE	0.015	7.20E-03	3.30E-03	TRUE	-1	4.55E+00	4.55E+00
SE54A	DDT	0.022	1.00E+05	3.30E-03	TRUE	0	6.67E+00	
SE54A	DIELDRIN	0.04	1.10E-02	3.30E-03	TRUE	-1	1.21E+01	1.21E+01
SE54A	FLUORANTHENE	0.16	7.10E+00	3.30E-01	TRUE	0	4.85E-01	
SE54A	INDENOX(1,2,3-c,d)PYRENE	0.1	1.70E+00	3.30E-01	TRUE	0	3.03E-01	
SE54A	LEAD	13.8	3.52E+01	3.02E+01	TRUE	0	4.57E-01	
SE54A	NICKEL	4.8	3.00E+01	1.59E+01	TRUE	0	3.02E-01	
SE54A	OCTACHLORODIBENZO-FURAN	0.000707	1.00E+05	NA	TRUE	0		
SE54A	OCTACHLORODIBENZO-P-DIOXIN	0.007954	8.60E-03	NA	TRUE	0		
SE54A	PHENANTHRENE	0.068	5.90E+00	3.30E-01	TRUE	0	2.06E-01	
SE54A	PYRENE	0.13	2.90E+00	3.30E-01	TRUE	0	3.94E-01	
SE54A	TCDD Equivalent	0.000008661	5.40E-06	NA	TRUE	-1		
SE54A	ZINC	36.5	7.97E+02	1.24E+02	TRUE	0	2.94E-01	
SE54B	1,2,3,4,6,7,8-	0.006989	1.00E+05	NA	TRUE	0		
SE54B	1,2,3,4,6,7,8-	0.02338	5.80E-04	NA	TRUE	-1		

SE54B	1,2,3,4,7,8,9	0.000111	1.00E+05	NA	TRUE	0	
SE54B	1,2,3,4,7,8	0.000074	1.00E+05	NA	TRUE	0	
SE54B	1,2,3,6,7,8	0.000079	1.00E+05	NA	TRUE	0	
SE54B	1,2,3,6,7,8-HEXACHLORODIBENZO-P	0.000026	1.00E+05	NA	TRUE	0	
SE54B	1,2,3,7,8,9-HEXACHLORODIBENZO-P	0.00015	1.00E+05	NA	TRUE	0	
SE54B	ACENAPHTHENE	0.001	7.70E-01	3.30E-01	TRUE	0	1.85E-01
SE54B	ALPHA-CHLORDANE	0.63	2.40E+00	1.70E-03	TRUE	0	3.12E+02
SE54B	ANTHRACENE	0.13	1.60E+00	3.30E-01	TRUE	0	3.94E-01
SE54B	ARSENIC	7.6	1.20E+01	7.24E+00	TRUE	0	1.06E+00
SE54B	BENZO(a)ANTHRACENE	0.33	2.90E+00	3.30E-01	TRUE	0	1.00E+00
SE54B	BENZO(a)PYRENE	0.33	2.50E+00	3.30E-01	TRUE	0	1.06E+00
SE54B	BENZO(b)FLUORANTHENE	0.46	2.20E+00	3.30E-01	TRUE	0	1.39E+00
SE54B	BENZO(g,h,i)PERYLENE	0.25	1.80E+00	3.30E-01	TRUE	0	7.58E-01
SE54B	BENZO(k)FLUORANTHENE	0.38	2.30E+00	3.30E-01	TRUE	0	1.15E+00
SE54B	BERYLLIUM	0.09	1.30E+00	NA	TRUE	0	
SE54B	CADMIUM	1.3	2.90E+01	1.00E+00	TRUE	0	1.30E+00
SE54B	CARBAZOLE	0.1	1.10E+00	NA	TRUE	0	
SE54B	CHROMIUM	16.5	2.00E+01	5.23E+01	TRUE	0	3.15E-01
SE54B	CHRYSENE	0.47	3.20E+00	3.30E-01	TRUE	0	1.42E+00
SE54B	COPPER	49.9	5.80E+01	1.87E+01	TRUE	0	2.67E+00
SE54B	DDD	0.99	6.10E-03	3.30E-03	TRUE	-1	3.00E+02
SE54B	DDE	0.12	7.20E-03	3.30E-03	TRUE	-1	3.64E+01
SE54B	DDT	0.21	1.00E+05	3.30E-03	TRUE	0	6.36E+01
SE54B	DIBENZ(a,h)ANTHRACENE	0.09	7.00E-01	3.30E-01	TRUE	0	2.73E-01
SE54B	DIELDRIN	0.29	1.10E-02	3.30E-03	TRUE	-1	8.79E+01
SE54B	FLUORANTHENE	0.64	7.10E+01	3.30E-01	TRUE	0	1.94E+00
SE54B	FLUORENE	0.066	1.69E+00	3.30E-01	TRUE	0	2.00E-01
SE54B	GAMMA-CHLORDANE	0.65	2.00E+00	1.70E-03	TRUE	0	3.82E+02
SE54B	INDENO(1,2,3-c,d)PYRENE	0.24	1.70E+00	3.30E-01	TRUE	0	7.27E-01
SE54B	LEAD	63.9	3.52E+01	3.02E+01	TRUE	-1	2.12E+00
SE54B	MERCURY	0.1	4.00E+00	1.30E-01	TRUE	0	7.65E-01
SE54B	NICKEL	4.6	3.00E+01	1.59E+01	TRUE	0	2.89E-01
SE54B	OCTACHLORODIBENZOFURAN	0.014863	1.00E+05	NA	TRUE	0	
SE54B	OCTACHLORODIBENZO-P-DIOXIN	0.114256	8.60E-03	NA	TRUE	-1	
SE54B	PENTACHLOROPHENOL	0.26	1.00E+05	3.60E-01	TRUE	0	7.22E-01
SE54B	PHENANTHRENE	0.5	6.90E+00	3.30E-01	TRUE	0	1.52E+00
SE54B	PYRENE	0.72	2.90E+00	3.30E-01	TRUE	0	2.18E+00
SE54B	ICDD Equivalent	0.000129119	5.40E-06	NA	TRUE	-1	
SE54B	ZINC	68.4	7.97E+02	1.24E+02	TRUE	0	5.52E-01
SE54C	1,2,3,4,6,7,8-	0.000506	1.00E+05	NA	TRUE	0	
SE54C	1,2,3,4,7,8,9-	0.000057	1.00E+05	NA	TRUE	0	
SE54C	1,2,3,4,7,8-	0.000042	1.00E+05	NA	TRUE	0	
SE54C	1,2,3,4,7,8-HEXACHLORODIBENZO-P	0.000013	1.00E+05	NA	TRUE	0	

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SE54C	1,2,3,6,7,8-	0.000014	1.00E+05	NA	TRUE	0		
SE54C	1,2,3,6,7,8-HEXACHLORODIBENZO-P-	0.000044	1.00E+05	NA	TRUE	0		
SE54C	2,3,4,6,7,8-	0.000022	1.00E+05	NA	TRUE	0		
SE54C	ARSENIC	7.3	1.20E+01	7.24E+00	TRUE	0	1.01E+00	
SE54C	BENZO(a)ANTHRACENE	0.14	2.90E+00	3.30E-01	TRUE	0	4.24E-01	
SE54C	BENZO(a)PYRENE	0.23	2.50E+00	3.30E-01	TRUE	0	6.97E-01	
SE54C	BENZO(b)FLUORANTHENE	0.34	2.20E+00	3.30E-01	TRUE	0	1.03E+00	
SE54C	BENZO(g,h,i)PERYLENE	0.095	1.80E+00	3.30E-01	TRUE	0	2.88E-01	
SE54C	BENZO(k)FLUORANTHENE	0.28	2.30E+00	3.30E-01	TRUE	0	8.48E-01	
SE54C	CHROMIUM	6.6	2.00E+01	5.23E+01	TRUE	0	1.20E+01	
SE54C	CHRYSENE	0.35	3.20E+00	3.30E-01	TRUE	0	1.04E+00	
SE54C	COPPER	2.9	5.80E+01	1.87E+01	TRUE	0	1.55E-01	
SE54C	DDD	0.089	6.10E-03	3.30E-03	TRUE	-1	2.70E+01	2.70E+01
SE54C	DDE	0.25	7.20E-03	3.30E-03	TRUE	-1	7.58E+01	7.58E+01
SE54C	DDT	0.27	1.00E+05	3.30E-03	TRUE	0	8.18E+01	
SE54C	DIELDRIN	0.11	1.10E-02	3.30E-03	TRUE	-1	3.33E+01	3.33E+01
SE54C	FLUORANTHENE	0.2	7.10E+00	3.30E-01	TRUE	0	6.06E-01	
SE54C	INDENO(1,2,3-c,d)PYRENE	0.11	1.70E+00	3.30E-01	TRUE	0	3.33E-01	
SE54C	LEAD	7.2	3.52E+01	3.02E+01	TRUE	0	2.38E-01	
SE54C	NICKEL	3	3.00E+01	1.59E+01	TRUE	0	1.89E-01	
SE54C	OCTACHLORODIBENZO-FURAN	0.002252	1.00E+05	NA	TRUE	0		
SE54C	OCTACHLORODIBENZO-P-DIOXIN	0.016838	8.60E-03	NA	TRUE	-1		
SE54C	PYRENE	0.41	2.90E+00	3.30E-01	TRUE	0	1.24E+00	
SE54C	TCDD Equivalent	0.00001909	5.40E-06	NA	TRUE	-1		
SE54C	ZINC	16.2	7.97E+02	1.24E+02	TRUE	0	1.31E-01	
SE55A	1,2,3,4,6,7,8-	0.000468	1.00E+05	NA	TRUE	0		
SE55A	1,2,3,4,6,7,8-	0.002523	5.80E-04	NA	TRUE	-1		
SE55A	4-METHYLPHENOL	0.17	1.00E+05	6.70E-01	TRUE	0	2.54E-01	
SE55A	ALPHA-CHLORDANE	0.0032	2.40E+00	1.70E-03	TRUE	0	1.88E+00	
SE55A	ALUMINUM	1200	1.00E+04	NA	TRUE	0		
SE55A	ARSENIC	0.28	1.20E+01	7.24E+00	TRUE	0	3.59E-02	
SE55A	BARIUM	8.8	1.18E+02	NA	TRUE	0		
SE55A	BENZO(a)ANTHRACENE	0.11	2.90E+00	3.30E-01	TRUE	0	3.33E-01	
SE55A	BENZO(a)PYRENE	0.13	2.50E+00	3.30E-01	TRUE	0	3.94E-01	
SE55A	BENZO(b)FLUORANTHENE	0.22	2.20E+00	3.30E-01	TRUE	0	6.67E-01	
SE55A	BENZO(g,h,i)PERYLENE	0.11	1.80E+00	3.30E-01	TRUE	0	3.33E-01	
SE55A	BENZO(k)FLUORANTHENE	0.2	2.30E+00	3.30E-01	TRUE	0	6.06E-01	
SE55A	CADMIUM	2.7	2.90E+01	1.00E+00	TRUE	0	2.70E+00	
SE55A	CALCIUM	232000	1.50E+04	NA	TRUE	-1		
SE55A	CHROMIUM	13.5	2.00E+01	5.23E+01	TRUE	0	2.58E-01	
SE55A	CHRYSENE	0.19	3.20E+00	3.30E-01	TRUE	0	5.76E-01	
SE55A	COBALT	1.5	1.40E+01	NA	TRUE	0		
SE55A	COPPER	27.3	5.80E+01	1.87E+01	TRUE	0	1.46E+00	

SE55A	DDD	0.03	6.10E-03	3.30E-03	TRUE	-1	9.09E+00	9.09E+00
SE55A	DDE	0.032	7.20E-03	3.30E-03	TRUE	-1	9.70E+00	9.70E+00
SE55A	DDT	0.068	1.00E-05	3.30E-03	TRUE	0	2.06E-01	
SE55A	FLUORANTHENE	0.21	7.10E+00	3.30E-01	TRUE	0	6.36E-01	
SE55A	GAMMA-CHLORDANE	0.0038	2.00E+00	1.70E-03	TRUE	0	2.24E+00	
SE55A	INDENO(1,2,3-c,d)PYRENE	0.11	1.70E+00	3.30E-01	TRUE	0	3.33E-01	
SE55A	IRON	2960	2.30E+04	NA	TRUE	0		
SE55A	LEAD	11.6	3.52E+01	3.02E+01	TRUE	0	3.84E-01	
SE55A	MAGNESIUM	5170	2.40E+03	NA	TRUE	-1		
SE55A	MANGANESE	53.2	8.70E+02	NA	TRUE	0		
SE55A	OCTACHLORODIBENZOFURAN	0.001063	1.00E+05	NA	TRUE	0		
SE55A	OCTACHLORODIBENZO-P-DIOXIN	0.017994	8.60E-03	NA	TRUE	-1		
SE55A	PHENANTHRENE	0.063	6.90E+00	3.30E-01	TRUE	0	1.91E-01	
SE55A	POTASSIUM	222	1.56E+03	NA	TRUE	0		
SE55A	PYRENE	0.18	2.90E+00	3.30E-01	TRUE	0	5.45E-01	
SE55A	SODIUM	158	2.40E+02	NA	TRUE	0		
SE55A	TCD Equivalent	0.000018757	5.40E-06	NA	TRUE	-1		
SE55A	VANADIUM	4.5	3.00E+01	NA	TRUE	0		
SE55A	ZINC	47.6	7.97E+02	1.24E+02	TRUE	0	3.84E-01	
SE56A	1,2,3,4,6,7,8-	0.0014	1.00E+05	NA	TRUE	0		
SE56A	1,2,3,4,6,7,8-	0.007862	5.80E-04	NA	TRUE	-1		
SE56A	1,2,3,4,7,8,9-	0.000021	1.00E+05	NA	TRUE	0		
SE56A	1,2,3,4,7,8-	0.000018	1.00E+05	NA	TRUE	0		
SE56A	1,2,3,4,7,8-	0.000014	1.00E+05	NA	TRUE	0		
SE56A	1,2,3,4,7,8-HEXACHLORODIBENZO-P	0.000012	1.00E+05	NA	TRUE	0		
SE56A	1,2,3,6,7,8-HEXACHLORODIBENZO-P	0.000007	1.00E+05	NA	TRUE	0		
SE56A	1,2,3,7,8,9-HEXACHLORODIBENZO-P	0.000025	1.00E+05	NA	TRUE	0		
SE56A	ACENAPHTHYLENE	0.038	1.00E+05	3.30E-01	TRUE	0	1.15E-01	
SE56A	ALUMINUM	1960	1.00E+04	NA	TRUE	0		
SE56A	ANTHRACENE	0.094	1.60E+00	3.30E-01	TRUE	0	2.85E-01	
SE56A	ARSENIC	3.9	1.20E+01	7.24E+00	TRUE	0	5.39E-01	
SE56A	BARIUM	24.6	1.18E+02	NA	TRUE	0		
SE56A	BENZO(a)ANTHRACENE	0.53	2.90E+00	3.30E-01	TRUE	0	1.61E+00	
SE56A	BENZO(b)PYRENE	0.32	2.50E+00	3.30E-01	TRUE	0	9.70E-01	
SE56A	BENZO(k)FLUORANTHENE	0.83	2.20E+00	3.30E-01	TRUE	0	2.52E+00	
SE56A	BENZO(g,h,i)PERYLENE	0.18	1.80E+00	3.30E-01	TRUE	0	5.45E-01	
SE56A	BENZO(k)FLUORANTHENE	0.64	2.30E+00	3.30E-01	TRUE	0	1.94E+00	
SE56A	BERYLLIUM	0.07	1.30E+00	NA	TRUE	0		
SE56A	CALCIUM	25000	1.50E+04	NA	TRUE	-1		
SE56A	CARBAZOLE	0.18	1.10E+00	NA	TRUE	0		
SE56A	CHROMIUM	12.1	2.00E+01	5.23E+01	TRUE	0	2.31E-01	
SE56A	CHRYSENE	1	3.20E+00	3.30E-01	TRUE	0	3.03E+00	
SE56A	COBALT	2.1	1.40E+01	NA	TRUE	0		

SE56A	COPPER		6.8	5.80E+01	1.87E+01	TRUE	0	3.64E-01	
SE56A	DDT		0.034	1.00E+05	3.30E-03	TRUE	0	1.03E+01	
SE56A	DIELDRIN		0.077	1.10E-02	3.30E-03	TRUE	-1	2.33E+01	2.33E+01
SE56A	FLUORANTHENE		1.2	7.10E+00	3.30E-01	TRUE	0	3.64E+00	
SE56A	INDENO(1,2,3-c,d)PYRENE		0.21	1.70E+00	3.30E-01	TRUE	0	6.36E-01	
SE56A	IRON		6080	2.30E+04	NA	TRUE	0		
SE56A	LEAD		25.6	3.52E+01	3.02E+01	TRUE	0	8.48E-01	
SE56A	MAGNESIUM		1620	2.40E+03	NA	TRUE	0		
SE56A	MANGANESE		72.5	8.70E+02	NA	TRUE	0		
SE56A	NICKEL		4.4	3.00E+01	1.59E+01	TRUE	0	2.77E-01	
SE56A	OCTACHLORODIBENZOFURAN		0.002989	1.00E+05	NA	TRUE	0		
SE56A	OCTACHLORODIBENZO-p-DIOXIN		0.06677	8.40E-03	NA	TRUE	-1		
SE56A	PENTACHLOROPHENOL		0.08	1.00E+05	3.60E-01	TRUE	0	2.22E-01	
SE56A	PHENANTHRENE		0.29	6.90E+00	3.30E-01	TRUE	0	8.79E-01	
SE56A	POTASSIUM		267	1.56E+03	NA	TRUE	0		
SE56A	PYRENE		1.2	2.90E+00	3.30E-01	TRUE	0	3.64E+00	
SE56A	SODIUM		136	2.40E+02	NA	TRUE	0		
SE56A	TCDD Equivalent		0.000069759	5.40E-06	NA	TRUE	-1		
SE56A	VANADIUM		8.2	3.00E+01	NA	TRUE	0		
SE56A	ZINC		37.1	7.97E+02	1.24E+02	TRUE	0	2.99E-01	
SE56B	1,2,3,4,6,7,8-		0.000092	1.00E+05	NA	TRUE	0		
SE56B	1,2,3,4,6,7,8-		0.000384	5.80E-04	NA	TRUE	0		
SE56B	ALPHA-CHLORDANE		0.032	2.40E+00	1.70E-03	TRUE	0	1.88E+01	
SE56B	ALUMINIUM		2180	1.00E+04	NA	TRUE	0		
SE56B	ARSENIC		3.1	1.20E+01	7.24E+00	TRUE	0	4.28E-01	
SE56B	BARIUM		71.2	1.18E+02	NA	TRUE	0		
SE56B	BENZO(a)ANTHRACENE		0.44	2.90E+00	3.30E-01	TRUE	0	1.33E+00	
SE56B	BENZO(a)PYRENE		0.4	2.50E+00	3.30E-01	TRUE	0	1.21E+00	
SE56B	BENZO(b)FLUORANTHENE		0.5	2.20E+00	3.30E-01	TRUE	0	1.52E+00	
SE56B	BENZO(b,h,i)PERYLENE		0.27	1.80E+00	3.30E-01	TRUE	0	8.18E-01	
SE56B	BENZO(k)FLUORANTHENE		0.45	2.30E+00	3.30E-01	TRUE	0	1.36E+00	
SE56B	BERYLLIUM		0.05	1.30E+00	NA	TRUE	0		
SE56B	CALCIUM		243000	1.50E+04	NA	TRUE	-1		
SE56B	CHROMIUM		26.5	2.00E+01	5.23E+01	TRUE	-1	5.07E-01	5.07E-01
SE56B	CHRYSENE		0.72	3.20E+00	3.30E-01	TRUE	0	2.18E+00	
SE56B	COBALT		2.3	1.40E+01	NA	TRUE	0		
SE56B	COPPER		22.8	5.80E+01	1.87E+01	TRUE	0	1.22E+00	
SE56B	DDD		0.061	6.10E-03	3.30E-03	TRUE	-1	1.85E+01	1.85E+01
SE56B	DDE		0.047	7.20E-03	3.30E-03	TRUE	-1	1.42E+01	1.42E+01
SE56B	DDT		0.16	1.00E+05	3.30E-03	TRUE	0	4.85E+01	
SE56B	FLUORANTHENE		1	7.10E+00	3.30E-01	TRUE	0	3.03E+00	
SE56B	GAMMA-CHLORDANE		0.048	2.00E+00	1.70E-03	TRUE	0	2.82E+01	
SE56B	INDENO(1,2,3-c,d)PYRENE		0.31	1.70E+00	3.30E-01	TRUE	0	9.39E-01	

SE56B	IRON	9770	2.30E+04	NA	TRUE	0	0	
SE56B	LEAD	33.3	3.52E+01	3.02E+01	TRUE	0	0	1.10E+00
SE56B	MAGNESIUM	7780	2.40E+03	NA	TRUE	-1		
SE56B	MANGANESE	160	8.70E+02	NA	TRUE	0		
SE56B	MERCURY	0.12	4.00E+00	1.30E-01	TRUE	0	0	9.23E-01
SE56B	NICKEL	19.1	3.00E+01	1.59E+01	TRUE	0	0	1.20E+00
SE56B	OCTACHLORODIBENZOFURAN	0.000153	1.00E+05	NA	TRUE	0		
SE56B	OCTACHLORODIBENZO-P-DIOXIN	0.005248	8.60E-03	NA	TRUE	0		
SE56B	PHENANTHRENE	0.57	6.90E+00	3.30E-01	TRUE	0	0	1.73E+00
SE56B	POTASSIUM	419	1.56E+03	NA	TRUE	0		
SE56B	PYRENE	0.89	2.90E+00	3.30E-01	TRUE	0	0	2.70E+00
SE56B	SODIUM	149	2.40E+02	NA	TRUE	0		
SE56B	ICDD Equivalent	0.00005401	5.40E-06	NA	TRUE	-1		
SE56B	VANADIUM	17.5	3.00E+01	NA	TRUE	0		
SE56B	ZINC	117	7.97E+02	1.24E+02	TRUE	0	0	9.44E-01
SE56C	1,2,3,4,6,7,8	0.00018	5.80E-04	NA	TRUE	0		
SE56C	ALUMINUM	1630	1.00E+04	NA	TRUE	0		
SE56C	ANTHRACENE	1.1	1.60E+00	3.30E-01	TRUE	0	0	3.33E+00
SE56C	ARSENIC	2	1.20E+01	7.24E+00	TRUE	0	0	2.76E-01
SE56C	BARIUM	171	1.18E+02	NA	TRUE	0		
SE56C	BENZO[ANTHRACENE]	0.9	2.90E+00	3.30E-01	TRUE	0	0	2.73E+00
SE56C	BENZO[PYRENE]	0.72	2.50E+00	3.30E-01	TRUE	0	0	2.18E+00
SE56C	BENZO[FLUORANTHENE]	1.1	2.20E+00	3.30E-01	TRUE	0	0	3.33E+00
SE56C	BENZO[CHLOROPERYLENE]	0.32	1.80E+00	3.30E-01	TRUE	0	0	9.70E-01
SE56C	BENZO[FLUORANTHENE]	0.94	2.30E+00	3.30E-01	TRUE	0	0	2.85E+00
SE56C	CALCIUM	51400	1.50E+04	NA	TRUE	-1		
SE56C	CARBAZOLE	0.33	1.10E+00	NA	TRUE	0		
SE56C	CHROMIUM	16.7	2.00E+01	5.23E+01	TRUE	0	0	3.19E-01
SE56C	CHRYSENE	1.63	2.00E+00	3.30E-01	TRUE	0	0	4.85E+00
SE56C	COBALT	3.3	1.40E+01	NA	TRUE	0		
SE56C	COPPER	5	8.00E+01	1.87E+01	TRUE	0	0	2.67E-01
SE56C	DDT	0.071	1.00E+05	3.30E-03	TRUE	0	0	2.15E+01
SE56C	DIELDRIN	0.038	1.10E-02	3.30E-03	TRUE	-1		1.15E+01
SE56C	FLUORANTHENE	2.2	7.10E+00	3.30E-01	TRUE	0	0	6.67E+00
SE56C	INDENOX[1,2,3-c, d]PYRENE	0.39	1.70E+00	3.30E-01	TRUE	0	0	1.16E+00
SE56C	IRON	4880	2.30E+04	NA	TRUE	0		
SE56C	LEAD	23.6	3.52E+01	3.02E+01	TRUE	0	0	7.81E-01
SE56C	MAGNESIUM	1930	2.40E+03	NA	TRUE	0		
SE56C	MANGANESE	64.9	8.70E+02	NA	TRUE	0		
SE56C	NICKEL	3.6	3.00E+01	1.59E+01	TRUE	0	0	2.26E-01
SE56C	OCTACHLORODIBENZO-P-DIOXIN	0.002808	8.60E-03	NA	TRUE	0		
SE56C	PHENANTHRENE	16	90E+00	3.30E-01	TRUE	0	0	3.03E+00
SE56C	POTASSIUM	194	1.56E+03	NA	TRUE	0		

SE56C	PYRENE		2.29E+00	3.30E-01	TRUE	0.606E+00	
SE56C	TCDD Equivalent	0.000002896	5.40E-06	NA	TRUE	0	
SE56C	VANADIUM	7.4	3.00E+01	NA	TRUE	0	
SE56C	ZINC	53.8	7.97E+02	1.24E+02	TRUE	0.434E-01	

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29	56		5GB021	=	MG/KG	SS
29	56		5GB021	=	MG/KG	SS
29	56		5GB021	J	MG/KG	SS

500 3.8

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Ratios for Surface Water Locations

Comments: $\text{RatioAll} = \text{AnaValue} / \text{Crit}$
 $\text{RatioExc} = \text{RatioAll}$ for those values where $\text{AnaValue} > \text{Bkgd}$

$\text{Crit} = \text{AWQC-AO}$ or, if not available, then AWQC-HH or, if not available, then TN State SW value.

SurfWater_Summary has the totals for each location.

SurfWater_Detail sheet has all the data for each location and parameter.

DocID field codes are:

BACKGROUND = Background sampling event

BRAC = Brac sampling events

LAW = Law Engineering data

RI = RI Sites event

SS = Screening Sites event

SS (EarthTech) = EarthTech sediment data

Appendix C2: Table 1 - Comparison of Surface water Data with Water Quality Screening Criteria Protective of Aquatic Organisms
Sample and Chemical Specific Ecological Evaluation

StationID	RatioAll	RatioExc	DocID	BRACParcel	ScreeningSite	RI Site
BW01	6.06E+00	6.32E-01	BACKGROUND			
BW02	8.10E+00	0.00E+00	BACKGROUND			
BW03	7.69E+00	0.00E+00	BACKGROUND			
BW04	3.23E+00	1.03E-01	BACKGROUND			
BW05	5.72E-01	0.00E+00	BACKGROUND			
BW06	4.31E+00	0.00E+00	BACKGROUND			
BW07	1.22E+01	2.78E+00	BACKGROUND			
BW08	1.90E+00	2.74E-01	BACKGROUND			
BW09	1.34E+01	0.00E+00	BACKGROUND			
BW10	7.62E+01	7.22E+01	BACKGROUND			
BW11	7.19E+01	7.00E+01	BACKGROUND			
BW12	8.63E+01	8.18E+01	BACKGROUND			
BW13	2.30E+02	2.21E+02	BACKGROUND			
BW14	2.26E+02	7.41E+01	BACKGROUND			
BW15	6.85E+00	0.00E+00	BACKGROUND			
BW16	1.59E+02	0.00E+00	BACKGROUND			
BW17	5.63E+00	0.00E+00	BACKGROUND			
BW18	7.29E+00	0.00E+00	BACKGROUND			
BW19	1.05E+01	0.00E+00	BACKGROUND			
BW20	6.12E+00	0.00E+00	BACKGROUND			
BW21	5.72E+00	0.00E+00	BACKGROUND			
BW22	6.66E+00	0.00E+00	BACKGROUND			
ID01	1.90E+02	1.77E+02	BACKGROUND			
SW1	7.56E+00	0.00E+00	LAW	NA	50	
SW10	2.77E+02	0.00E+00	LAW	3	152	
SW11	1.92E+03	1.56E+01	LAW	3	52	
SW12	2.26E+03	3.15E+01	LAW	3	51	
SW13	3.88E+00	0.00E+00	LAW	3	51	25
SW14	2.95E+00	0.00E+00	LAW	29	56	
SW15	1.44E+01	1.25E+01	LAW	NA	64	
SW16	6.97E+00	0.00E+00	LAW	NA	50	
SW2	6.94E+00	0.00E+00	LAW	29	56	
SW25A1	5.39E+00	0.00E+00	RI			25
SW25B1	1.94E+00	0.00E+00	RI			25
SW25B2	2.13E+00	2.53E-01	RI			25
SW25C1	1.97E+00	0.00E+00	RI			25
SW25C2	8.22E-01	0.00E+00	RI			25
SW25D1	2.36E+00	0.00E+00	RI			25
SW25D2	5.85E+00	0.00E+00	RI			25
SW26A1	4.99E+01	0.00E+00	RI			26
SW26A2	3.92E+00	0.00E+00	RI			26
SW26B1	7.90E+00	1.92E-01	RI			26
SW26B2	1.98E+00	2.19E-01	RI			26
SW26C1	1.64E+02	0.00E+00	RI			26
SW26C2	1.02E+01	4.25E+00	RI			26
SW26D1	6.78E+01	8.64E+00	RI			26
SW26D2	1.30E+01	7.62E+00	RI			26

SW3	4.55E+00	0.00E+00	LAW	3	51	26
SW4	5.71E+00	0.00E+00	LAW	3	52	25
SW5	5.55E+00	0.00E+00	LAW	3	52	25
SW51A	1.71E+00	0.00E+00	SS	3	51	
SW51B	8.23E+00	0.00E+00	SS	3	51	
SW51C	3.00E+01	2.84E+01	SS	3	51	
SW52A	1.78E+00	0.00E+00	SS	3	52	
SW52B	1.04E+00	0.00E+00	SS	3	52	
SW54A	7.29E+01	0.00E+00	SS	15	54	
SW54B	6.96E+01	0.00E+00	SS	15	54	
SW54C	8.65E+01	6.37E+02	SS	15	54	
SW55A	2.71E+02	1.25E+01	SS	15	55	
SW56A	9.36E+00	0.00E+00	SS	29	56	
SW56B	9.17E+00	2.49E+00	SS	29	56	
SW56C	1.61E+01	2.23E+01	SS	29	56	
SW6	2.66E+00	2.53E-01	LAW	3	51	26
SW7	3.35E+00	2.16E-01	LAW	3	51	26
SW8	3.80E+00	1.95E-01	LAW	3	51	26
SW9	1.35E+03	9.61E+01	LAW	3	51	

Appendix C2: Table 2 - Comparison of Surface water Data with Water Quality Screening Criteria Protective of Aquatic Organisms

Sample ID	Location	Parameter	Concentration	Unit	Screening Criteria	Comparison	Result	Notes	SW17	SW18	SW19	SW20	SW21	SW22	SW23	SW24	SW25	SW26	SW27	SW28	SW29	SW30	SW31	SW32	SW33	SW34	SW35	SW36	SW37	SW38	SW39	SW40	SW41	SW42	SW43	SW44	SW45	SW46	SW47	SW48	SW49	SW50	SW51	SW52	SW53	SW54	SW55	SW56	SW57	SW58	SW59	SW60	SW61	SW62	SW63	SW64	SW65	SW66	SW67	SW68	SW69	SW70	SW71	SW72	SW73	SW74	SW75	SW76	SW77	SW78	SW79	SW80	SW81	SW82	SW83	SW84	SW85	SW86	SW87	SW88	SW89	SW90	SW91	SW92	SW93	SW94	SW95	SW96	SW97	SW98	SW99	SW100	SW101	SW102	SW103	SW104	SW105	SW106	SW107	SW108	SW109	SW110	SW111	SW112	SW113	SW114	SW115	SW116	SW117	SW118	SW119	SW120	SW121	SW122	SW123	SW124	SW125	SW126	SW127	SW128	SW129	SW130	SW131	SW132	SW133	SW134	SW135	SW136	SW137	SW138	SW139	SW140	SW141	SW142	SW143	SW144	SW145	SW146	SW147	SW148	SW149	SW150	SW151	SW152	SW153	SW154	SW155	SW156	SW157	SW158	SW159	SW160	SW161	SW162	SW163	SW164	SW165	SW166	SW167	SW168	SW169	SW170	SW171	SW172	SW173	SW174	SW175	SW176	SW177	SW178	SW179	SW180	SW181	SW182	SW183	SW184	SW185	SW186	SW187	SW188	SW189	SW190	SW191	SW192	SW193	SW194	SW195	SW196	SW197	SW198	SW199	SW200	SW201	SW202	SW203	SW204	SW205	SW206	SW207	SW208	SW209	SW210	SW211	SW212	SW213	SW214	SW215	SW216	SW217	SW218	SW219	SW220	SW221	SW222	SW223	SW224	SW225	SW226	SW227	SW228	SW229	SW230	SW231	SW232	SW233	SW234	SW235	SW236	SW237	SW238	SW239	SW240	SW241	SW242	SW243	SW244	SW245	SW246	SW247	SW248	SW249	SW250	SW251	SW252	SW253	SW254	SW255	SW256	SW257	SW258	SW259	SW260	SW261	SW262	SW263	SW264	SW265	SW266	SW267	SW268	SW269	SW270	SW271	SW272	SW273	SW274	SW275	SW276	SW277	SW278	SW279	SW280	SW281	SW282	SW283	SW284	SW285	SW286	SW287	SW288	SW289	SW290	SW291	SW292	SW293	SW294	SW295	SW296	SW297	SW298	SW299	SW300	SW301	SW302	SW303	SW304	SW305	SW306	SW307	SW308	SW309	SW310	SW311	SW312	SW313	SW314	SW315	SW316	SW317	SW318	SW319	SW320	SW321	SW322	SW323	SW324	SW325	SW326	SW327	SW328	SW329	SW330	SW331	SW332	SW333	SW334	SW335	SW336	SW337	SW338	SW339	SW340	SW341	SW342	SW343	SW344	SW345	SW346	SW347	SW348	SW349	SW350	SW351	SW352	SW353	SW354	SW355	SW356	SW357	SW358	SW359	SW360	SW361	SW362	SW363	SW364	SW365	SW366	SW367	SW368	SW369	SW370	SW371	SW372	SW373	SW374	SW375	SW376	SW377	SW378	SW379	SW380	SW381	SW382	SW383	SW384	SW385	SW386	SW387	SW388	SW389	SW390	SW391	SW392	SW393	SW394	SW395	SW396	SW397	SW398	SW399	SW400	SW401	SW402	SW403	SW404	SW405	SW406	SW407	SW408	SW409	SW410	SW411	SW412	SW413	SW414	SW415	SW416	SW417	SW418	SW419	SW420	SW421	SW422	SW423	SW424	SW425	SW426	SW427	SW428	SW429	SW430	SW431	SW432	SW433	SW434	SW435	SW436	SW437	SW438	SW439	SW440	SW441	SW442	SW443	SW444	SW445	SW446	SW447	SW448	SW449	SW450	SW451	SW452	SW453	SW454	SW455	SW456	SW457	SW458	SW459	SW460	SW461	SW462	SW463	SW464	SW465	SW466	SW467	SW468	SW469	SW470	SW471	SW472	SW473	SW474	SW475	SW476	SW477	SW478	SW479	SW480	SW481	SW482	SW483	SW484	SW485	SW486	SW487	SW488	SW489	SW490	SW491	SW492	SW493	SW494	SW495	SW496	SW497	SW498	SW499	SW500	SW501	SW502	SW503	SW504	SW505	SW506	SW507	SW508	SW509	SW510	SW511	SW512	SW513	SW514	SW515	SW516	SW517	SW518	SW519	SW520	SW521	SW522	SW523	SW524	SW525	SW526	SW527	SW528	SW529	SW530	SW531	SW532	SW533	SW534	SW535	SW536	SW537	SW538	SW539	SW540	SW541	SW542	SW543	SW544	SW545	SW546	SW547	SW548	SW549	SW550	SW551	SW552	SW553	SW554	SW555	SW556	SW557	SW558	SW559	SW560	SW561	SW562	SW563	SW564	SW565	SW566	SW567	SW568	SW569	SW570	SW571	SW572	SW573	SW574	SW575	SW576	SW577	SW578	SW579	SW580	SW581	SW582	SW583	SW584	SW585	SW586	SW587	SW588	SW589	SW590	SW591	SW592	SW593	SW594	SW595	SW596	SW597	SW598	SW599	SW600	SW601	SW602	SW603	SW604	SW605	SW606	SW607	SW608	SW609	SW610	SW611	SW612	SW613	SW614	SW615	SW616	SW617	SW618	SW619	SW620	SW621	SW622	SW623	SW624	SW625	SW626	SW627	SW628	SW629	SW630	SW631	SW632	SW633	SW634	SW635	SW636	SW637	SW638	SW639	SW640	SW641	SW642	SW643	SW644	SW645	SW646	SW647	SW648	SW649	SW650	SW651	SW652	SW653	SW654	SW655	SW656	SW657	SW658	SW659	SW660	SW661	SW662	SW663	SW664	SW665	SW666	SW667	SW668	SW669	SW670	SW671	SW672	SW673	SW674	SW675	SW676	SW677	SW678	SW679	SW680	SW681	SW682	SW683	SW684	SW685	SW686	SW687	SW688	SW689	SW690	SW691	SW692	SW693	SW694	SW695	SW696	SW697	SW698	SW699	SW700	SW701	SW702	SW703	SW704	SW705	SW706	SW707	SW708	SW709	SW710	SW711	SW712	SW713	SW714	SW715	SW716	SW717	SW718	SW719	SW720	SW721	SW722	SW723	SW724	SW725	SW726	SW727	SW728	SW729	SW730	SW731	SW732	SW733	SW734	SW735	SW736	SW737	SW738	SW739	SW740	SW741	SW742	SW743	SW744	SW745	SW746	SW747	SW748	SW749	SW750	SW751	SW752	SW753	SW754	SW755	SW756	SW757	SW758	SW759	SW760	SW761	SW762	SW763	SW764	SW765	SW766	SW767	SW768	SW769	SW770	SW771	SW772	SW773	SW774	SW775	SW776	SW777	SW778	SW779	SW780	SW781	SW782	SW783	SW784	SW785	SW786	SW787	SW788	SW789	SW790	SW791	SW792	SW793	SW794	SW795	SW796	SW797	SW798	SW799	SW800	SW801	SW802	SW803	SW804	SW805	SW806	SW807	SW808	SW809	SW810	SW811	SW812	SW813	SW814	SW815	SW816	SW817	SW818	SW819	SW820	SW821	SW822	SW823	SW824	SW825	SW826	SW827	SW828	SW829	SW830	SW831	SW832	SW833	SW834	SW835	SW836	SW837	SW838	SW839	SW840	SW841	SW842	SW843	SW844	SW845	SW846	SW847	SW848	SW849	SW850	SW851	SW852	SW853	SW854	SW855	SW856	SW857	SW858	SW859	SW860	SW861	SW862	SW863	SW864	SW865	SW866	SW867	SW868	SW869	SW870	SW871	SW872	SW873	SW874	SW875	SW876	SW877	SW878	SW879	SW880	SW881	SW882	SW883	SW884	SW885	SW886	SW887	SW888	SW889	SW890	SW891	SW892	SW893	SW894	SW895	SW896	SW897	SW898	SW899	SW900	SW901	SW902	SW903	SW904	SW905	SW906	SW907	SW908	SW909	SW910	SW911	SW912	SW913	SW914	SW915	SW916	SW917	SW918	SW919	SW920	SW921	SW922	SW923	SW924	SW925	SW926	SW927	SW928	SW929	SW930	SW931	SW932	SW933	SW934	SW935	SW936	SW937	SW938	SW939	SW940	SW941	SW942	SW943	SW944	SW945	SW946	SW947	SW948	SW949	SW950	SW951	SW952	SW953	SW954	SW955	SW956	SW957	SW958	SW959	SW960	SW961	SW962	SW963	SW964	SW965	SW966	SW967	SW968	SW969	SW970	SW971	SW972	SW973	SW974	SW975	SW976	SW977	SW978	SW979	SW980	SW981	SW982	SW983	SW984	SW985	SW986	SW987	SW988	SW989	SW990	SW991	SW992	SW993	SW994	SW995	SW996	SW997	SW998	SW999	SW1000	SW1001	SW1002	SW1003	SW1004	SW1005	SW1006	SW1007	SW1008	SW1009	SW1010	SW1011	SW1012	SW1013	SW1014	SW1015	SW1016	SW1017	SW1018	SW1019	SW1020	SW1021	SW1022	SW1023	SW1024	SW1025	SW1026	SW1027	SW1028	SW1029	SW1030	SW1031	SW1032	SW1033	SW1034	SW1035	SW1036	SW1037	SW1038	SW1039	SW1040	SW1041	SW1042	SW1043	SW1044	SW1045	SW1046	SW1047	SW1048	SW1049	SW1050	SW1051	SW1052	SW1053	SW1054	SW1055	SW1056	SW1057	SW1058	SW1059	SW1060	SW1061	SW1062	SW1063	SW1064	SW1065	SW1066	SW1067	SW1068	SW1069	SW1070	SW1071	SW1072	SW1073	SW1074	SW1075	SW1076	SW1077	SW1078	SW1079	SW1080	SW1081	SW1082	SW1083	SW1084	SW1085	SW1086	SW1087	SW1088	SW1089	SW1090	SW1091	SW1092	SW1093	SW1094	SW1095	SW1096	SW1097	SW1098	SW1099	SW1100	SW1101	SW1102	SW1103	SW1104	SW1105	SW1106	SW1107	SW1108	SW1109	SW1110	SW1111	SW1112	SW1113	SW1114	SW1115	SW1116	SW1117	SW1118	SW1119	SW1120	SW1121	SW1122	SW1123	SW1124	SW1125	SW1126	SW1127	SW1128	SW1129	SW1130	SW1131	SW1132	SW1133	SW1134	SW1135	SW1136	SW1137	SW1138	SW1139	SW1140	SW1141	SW1142	SW1143	SW1144	SW1145	SW1146	SW1147	SW1148	SW1149	SW1150	SW1151	SW1152	SW1153	SW1154	SW1155	SW1156	SW1157	SW1158	SW1159	SW1160	SW1161	SW1162	SW1163	SW1164	SW1165	SW1166	SW1167	SW1168	SW1169	SW1170	SW1171	SW1172	SW1173	SW1174	SW1175	SW1176	SW1177	SW1178	SW1179	SW1180	SW1181	SW1182	SW1183	SW1184	SW1185	SW1186	SW1187	SW1188	SW1189	SW1190	SW1191	SW1192	SW1193	SW1194	SW1195	SW1196	SW1197	SW1198	SW1199	SW1200	SW1201	SW1202	SW1203	SW1204	SW1205	SW1206	SW1207	SW1208	SW1209	SW1210	SW1211	SW1212	SW1213	SW1214	SW1215	SW1216	SW1217	SW1218	SW1219	SW1220	SW1221	SW1222	SW1223	SW1224	SW1225	SW1226	SW1227	SW1228	SW1229	SW1230	SW1231	SW1232	SW1233	SW1234	SW1235	SW1236	SW1237	SW1238	SW1239	SW1240	SW1241	SW1242	SW1243	SW1244	SW1245	SW1246	SW1247	SW1248	SW1249	SW1250	SW1251	SW1252	SW1253	SW1254	SW1255	SW1256	SW1257	SW1258	SW1259	SW1260	SW1261	SW1262	SW1263	SW1264	SW1265	SW1266	SW1267	SW1268	SW1269	SW1270	SW1271	SW1272	SW1273	SW1274	SW1275	SW1276	SW1277	SW1278	SW1279	SW1280	SW1281	SW1282	SW1283	SW1284	SW1285	SW1286	SW1287	SW1288	SW1289	SW1290	SW1291	SW1292	SW1293	SW1294	SW1295	SW1296	SW1297	SW1298	SW1299	SW1300	SW1301	SW1302	SW1303	SW1304	SW1305	SW1306	SW1307	SW1308	SW1309	SW1310	SW1311	SW1312	SW1313	SW1314	SW1315	SW1316	SW1317	SW1318	SW1319	SW1320	SW1321	SW1322	SW1323	SW1324	SW1325	SW1326	SW1327	SW1328	SW1329	SW1330	SW1331	SW1332	SW1333	SW1334	SW1335	SW1336	SW1337	SW1338	SW1339	SW1340	SW1341	SW1342	SW1343	SW1344	SW1345	SW1346

BW03	SODIUM	14.92.10E+01	NA	TRUE	0		BACKGROUN	SW19	MG/L
BW03	Sodium, Dissolved	13.42.20E+01	NA	TRUE	0		BACKGROUN	WSSW19	MG/L
BW04	1,2,3,4,6,7,8-	0.00107/NA	NA	TRUE	0		BACKGROUN	SW20	MG/L
BW04	2,3,7,8-TETRACHLORODIBENZO-P-	0.00105/NA	NA	TRUE	0		BACKGROUN	SW20	MG/L
BW04	Aluminum, Dissolved	0.00662	0.71E-01	TRUE	0	4.21E-01	BACKGROUN	SW20	MG/L
BW04	Antimony, Dissolved	0.0164	1.54E-02	TRUE	-1	1.03E-01	BACKGROUN	WSSW20	MG/L
BW04	ARSENIC	0.00402	1.80E-02	TRUE	0	2.12E-02	BACKGROUN	SW20	MG/L
BW04	Arsenic, Dissolved	0.00154	1.20E-02	TRUE	0	8.11E-03	BACKGROUN	SW20	MG/L
BW04	BARIUM	0.0694	1.30E-01	TRUE	0	5.94E-02	BACKGROUN	SW20	MG/L
BW04	Boron, Dissolved	0.06502	8.74E-01	TRUE	0	5.40E-02	BACKGROUN	SW20	MG/L
BW04	Boron, Dissolved	0.0664	8.74E-01	TRUE	0	5.66E-02	BACKGROUN	WSSW20	MG/L
BW04	CALCIUM	27.93.20E+01	NA	TRUE	0		BACKGROUN	SW20	MG/L
BW04	Calcium, Dissolved	27.2068	3.03E+01	TRUE	0		BACKGROUN	SW20	MG/L
BW04	Calcium, Dissolved	27.53	3.03E+01	TRUE	0		BACKGROUN	WSSW20	MG/L
BW04	Chromium, Dissolved	0.0167	3.30E-02	TRUE	0	1.52E+00	BACKGROUN	WSSW20	MG/L
BW04	Chromium, Dissolved	0.00249	1.00E+05	TRUE	0	2.08E-01	BACKGROUN	SW20	MG/L
BW04	Copper, Dissolved	0.628	6.10E+00	TRUE	0	6.28E-01	BACKGROUN	SW20	MG/L
BW04	IRON	0.07592	1.20E+01	TRUE	0	7.59E-02	BACKGROUN	SW20	MG/L
BW04	Iron, Dissolved	6.71416	7.70E+00	TRUE	0		BACKGROUN	SW20	MG/L
BW04	MAGNESIUM	6.51541	6.90E+00	TRUE	0		BACKGROUN	SW20	MG/L
BW04	Magnesium, Dissolved	6.51541	6.90E+00	TRUE	0		BACKGROUN	WSSW20	MG/L
BW04	Magnesium, Dissolved	0.0624	6.60E-01	TRUE	0		BACKGROUN	SW20	MG/L
BW04	MANGANESE	0.0624	6.60E-01	TRUE	0		BACKGROUN	SW20	MG/L
BW04	Manganese19, Dissolved	0.04977	3.50E-01	TRUE	0		BACKGROUN	SW20	MG/L
BW04	Manganese, Dissolved	0.0483	3.50E-01	TRUE	0		BACKGROUN	WSSW20	MG/L
BW04	OCTACHLORODIBENZO-P-DIOXIN	2.54E-07	1.23E-06	TRUE	0		BACKGROUN	SW20	MG/L
BW04	POTASSIUM	3.07	7.30E+00	TRUE	0		BACKGROUN	SW20	MG/L
BW04	Potassium, Dissolved	3.43141	6.70E+00	TRUE	0		BACKGROUN	SW20	MG/L
BW04	Potassium, Dissolved	3.43	6.70E+00	TRUE	0		BACKGROUN	WSSW20	MG/L
BW04	SODIUM	17.92.10E+01	NA	TRUE	0		BACKGROUN	SW20	MG/L
BW04	Sodium, Dissolved	17.33457	2.20E+01	TRUE	0		BACKGROUN	SW20	MG/L
BW04	Sodium, Dissolved	17.52	2.20E+01	TRUE	0		BACKGROUN	WSSW20	MG/L
BW04	Zinc, Dissolved	0.00818	4.10E-01	TRUE	0	7.44E-02	BACKGROUN	SW20	MG/L
BW04	1,2,3,4,6,7,8-	0.000067/NA	NA	TRUE	0		BACKGROUN	SW21	MG/L
BW05	2,3,7,8-TETRACHLORODIBENZO-P-	0.000067/NA	NA	TRUE	0		BACKGROUN	SW21	MG/L
BW05	BARIUM	0.0568	1.30E-01	TRUE	0	5.80E-02	BACKGROUN	SW21	MG/L
BW05	Barium, Dissolved	0.0505	8.74E-01	TRUE	0	5.35E-02	BACKGROUN	WSSW21	MG/L
BW05	CALCIUM	26.63.20E+01	NA	TRUE	0		BACKGROUN	SW21	MG/L
BW05	Calcium, Dissolved	26.63	3.03E+01	TRUE	0	4.60E-01	BACKGROUN	WSSW21	MG/L
BW05	IRON	0.484	6.10E+00	TRUE	0		BACKGROUN	SW21	MG/L
BW05	MAGNESIUM	6.57	7.70E+00	TRUE	0		BACKGROUN	SW21	MG/L
BW05	Magnesium, Dissolved	6.27	6.90E+00	TRUE	0		BACKGROUN	WSSW21	MG/L
BW05	MANGANESE	0.0465	6.60E-01	TRUE	0		BACKGROUN	SW21	MG/L
BW05	Manganese, Dissolved	0.0403	3.50E-01	TRUE	0		BACKGROUN	SW21	MG/L
BW05	POTASSIUM	3.13	7.30E+00	TRUE	0		BACKGROUN	WSSW21	MG/L
BW05	Potassium, Dissolved	3.12	6.70E+00	TRUE	0		BACKGROUN	SW21	MG/L
BW05	SODIUM	17.22.10E+01	NA	TRUE	0		BACKGROUN	WSSW21	MG/L
BW05	Sodium, Dissolved	16.22	2.20E+01	TRUE	0		BACKGROUN	SW21	MG/L
BW06	1,2,3,4,6,7,8-	0.000068/NA	NA	TRUE	0		BACKGROUN	WSSW21	MG/L
BW06	2,3,7,8-TETRACHLORODIBENZO-P-	0.00007/NA	NA	TRUE	0		BACKGROUN	SW22	MG/L
BW06	ALUMINUM	0.266	5.10E+00	TRUE	0	3.06E+00	BACKGROUN	SW22	MG/L
BW06	BARIUM	0.0687	1.30E-01	TRUE	0	6.87E-02	BACKGROUN	SW22	MG/L
BW06	Boron, Dissolved	0.0624	6.74E-01	TRUE	0	6.24E-02	BACKGROUN	SW22	MG/L
BW06	CALCIUM	27.33.20E+01	NA	TRUE	0		BACKGROUN	WSSW22	MG/L
BW06	Calcium, Dissolved	26.23	3.03E+01	TRUE	0		BACKGROUN	SW22	MG/L

BW06	IRON	0.80E+00	1	TRUE	0	8.08E-01	BACKGROUN	SW22	MG/L
BW06	MAGNESIUM	6.947.70E+00	NA	TRUE	0	0	BACKGROUN	SW22	MG/L
BW06	Magnesium, Dissolved	6.176.90E+00	NA	TRUE	0	0	BACKGROUN	WSSW22	MG/L
BW06	MANGANESE	0.304.60E-01	NA	TRUE	0	0	BACKGROUN	SW22	MG/L
BW06	Manganese, Dissolved	0.03193.50E-01	NA	TRUE	0	0	BACKGROUN	WSSW22	MG/L
BW06	POTASSIUM	2.797.30E+00	NA	TRUE	0	0	BACKGROUN	SW22	MG/L
BW06	Potassium, Dissolved	3.226.70E+00	NA	TRUE	0	0	BACKGROUN	WSSW22	MG/L
BW06	Selenium, Dissolved	0.00163.00E-03	005	TRUE	0	3.20E-01	BACKGROUN	SW22	MG/L
BW06	SODIUM	17.2.10E+01	NA	TRUE	0	0	BACKGROUN	WSSW22	MG/L
BW06	Sodium, Dissolved	16.2.20E+01	NA	TRUE	0	0	BACKGROUN	SW22	MG/L
BW07	1,2,3,4,6,7,8-	0.000067. NA	NA	TRUE	0	0	BACKGROUN	WSSW22	MG/L
BW07	2,3,7,8-TETRACHLORODIBENZO-P-	0.0000567. NA	NA	TRUE	0	0	BACKGROUN	SW22	MG/L
BW07	ALUMINIUM, Dissolved	0.284.71E-01	087	TRUE	0	3.72E+00	BACKGROUN	WSSW22	MG/L
BW07	ARSENIC	0.00068. 1.80E-02	19	TRUE	0	3.59E-02	BACKGROUN	SW22	MG/L
BW07	Arsenic, Dissolved	0.00741. 2.0E-02	19	TRUE	0	3.89E-02	BACKGROUN	WSSW22	MG/L
BW07	BARIUM	0.06402. 1.30E-01	1	TRUE	0	5.47E-02	BACKGROUN	SW22	MG/L
BW07	Barium, Dissolved	0.06949. 9.7E-01	1	TRUE	0	9.94E-02	BACKGROUN	WSSW22	MG/L
BW07	CALCIUM	33.4.1.20E+01	NA	TRUE	1	0	BACKGROUN	SW22	MG/L
BW07	Calcium, Dissolved	34.2.3.00E+01	NA	TRUE	1	0	BACKGROUN	WSSW22	MG/L
BW07	IRON	0.346.6.10E+00	1	TRUE	0	3.46E-01	BACKGROUN	SW22	MG/L
BW07	Iron, Dissolved	2.041.20E-01	0032	TRUE	0	2.04E+00	BACKGROUN	WSSW22	MG/L
BW07	Lead, Dissolved	0.01133. 3.0E-02	NA	TRUE	0	0	BACKGROUN	SW22	MG/L
BW07	MAGNESIUM	4.141.70E+00	NA	TRUE	0	0	BACKGROUN	WSSW22	MG/L
BW07	Magnesium, Dissolved	4.196.90E+00	NA	TRUE	0	0	BACKGROUN	SW22	MG/L
BW07	MANGANESE	0.1346.60E-01	NA	TRUE	0	0	BACKGROUN	WSSW22	MG/L
BW07	Manganese, Dissolved	0.713.3.00E-01	NA	TRUE	0	0	BACKGROUN	SW22	MG/L
BW07	METHYL ETHYL KETONE	0.002.2.00E-03	NA	TRUE	0	0	BACKGROUN	WSSW22	MG/L
BW07	Nickel, Dissolved	0.118.1.67E-02	19	TRUE	0	7.37E-01	BACKGROUN	SW22	MG/L
BW07	POTASSIUM	6.287.30E+00	NA	TRUE	0	0	BACKGROUN	WSSW22	MG/L
BW07	Potassium, Dissolved	6.33.6.70E+00	NA	TRUE	0	0	BACKGROUN	SW22	MG/L
BW07	Selenium, Dissolved	0.00143. 0.00E-03	005	TRUE	0	2.80E-01	BACKGROUN	WSSW22	MG/L
BW07	SODIUM	12.4.2.10E+01	NA	TRUE	0	0	BACKGROUN	SW22	MG/L
BW07	Sodium, Dissolved	12.2.2.20E+01	NA	TRUE	0	0	BACKGROUN	WSSW22	MG/L
BW07	Zinc, Dissolved	0.205.4.10E-01	11	TRUE	0	1.86E+00	BACKGROUN	SW22	MG/L
BW08	1,2,3,4,6,7,8-	0.000096. NA	NA	TRUE	0	0	BACKGROUN	WSSW22	MG/L
BW08	2,3,7,8-TETRACHLORODIBENZO-P-	0.000077. NA	NA	TRUE	0	0	BACKGROUN	SW22	MG/L
BW08	ARSENIC	0.00841. 1.00E-02	19	TRUE	0	4.42E-02	BACKGROUN	WSSW22	MG/L
BW08	Arsenic, Dissolved	0.0071. 1.20E-02	19	TRUE	0	3.68E-02	BACKGROUN	SW22	MG/L
BW08	BARIUM	0.0812. 1.30E-01	1	TRUE	0	8.12E-02	BACKGROUN	WSSW22	MG/L
BW08	Barium, Dissolved	0.04868. 7.6E-01	1	TRUE	0	4.86E-02	BACKGROUN	SW22	MG/L
BW08	CALCIUM	33.6.3.20E+01	NA	TRUE	1	0	BACKGROUN	WSSW22	MG/L
BW08	Calcium, Dissolved	30.8.3.00E+01	NA	TRUE	1	1.42E+00	BACKGROUN	SW22	MG/L
BW08	IRON	1.426.10E+00	1	TRUE	0	2.74E-01	BACKGROUN	WSSW22	MG/L
BW08	Iron, Dissolved	0.2741. 2.0E-01	0	TRUE	0	0	BACKGROUN	SW22	MG/L
BW08	MAGNESIUM	4.187.70E+00	NA	TRUE	0	0	BACKGROUN	WSSW22	MG/L
BW08	Magnesium, Dissolved	3.98.6.90E+00	NA	TRUE	0	0	BACKGROUN	SW22	MG/L
BW08	MANGANESE	0.308.6.00E-01	NA	TRUE	0	0	BACKGROUN	WSSW22	MG/L
BW08	Manganese, Dissolved	0.137.3.50E-01	NA	TRUE	0	0	BACKGROUN	SW22	MG/L
BW08	METHYL ETHYL KETONE	0.002.2.00E-03	NA	TRUE	0	0	BACKGROUN	WSSW22	MG/L
BW08	POTASSIUM	6.31.7.30E+00	NA	TRUE	0	0	BACKGROUN	SW22	MG/L
BW08	Potassium, Dissolved	5.78.6.70E+00	NA	TRUE	0	0	BACKGROUN	WSSW22	MG/L
BW08	SODIUM	12.3.2.10E+01	NA	TRUE	0	0	BACKGROUN	SW22	MG/L
BW08	Sodium, Dissolved	11.6.2.20E+01	NA	TRUE	0	0	BACKGROUN	WSSW22	MG/L
BW09	1,2,3,4,6,7,8-	0.000003. NA	NA	TRUE	0	0	BACKGROUN	SW25	MG/L

BW09	1,2,3,4,6,7,8-HEPTACHLORODIBENZO-P-	8.8E-08	1.84E-07	NA	TRUE	0			BACKGROUN		SW26	MG/L
BW09	2,3,7,8-TETRACHLORODIBENZO-P-	0.00049	NA	NA	TRUE	0	6.31E+00		BACKGROUN		SW26	MG/L
BW09	ALUMINUM	0.509	5.10E+00	0.87	TRUE	0	5.05E-07		BACKGROUN		SW26	MG/L
BW09	ARSENIC	0.0096	1.80E-02	19	TRUE	0	3.74E-02		BACKGROUN		WSSW25	MG/L
BW09	Arsenic, Dissolved	0.0072	1.20E-02	19	TRUE	0	9.59E-02		BACKGROUN		SW26	MG/L
BW09	BARIUM	0.0095	1.30E-01	1	TRUE	0	5.09E-02		BACKGROUN		WSSW25	MG/L
BW09	Barium, Dissolved	0.0069	8.76E-01	1	TRUE	0			BACKGROUN		SW26	MG/L
BW09	CALCIUM	34.8	3.20E+01	NA	TRUE	1			BACKGROUN		WSSW25	MG/L
BW09	Calcium, Dissolved	32.4	3.00E+01	NA	TRUE	1			BACKGROUN		WSSW25	MG/L
BW09	IRON	1.99	6.10E+00	1	TRUE	0	1.99E+00		BACKGROUN		SW26	MG/L
BW09	LEAD	0.0137	1.90E-02	0032	TRUE	0	4.28E+00		BACKGROUN		SW26	MG/L
BW09	MAGNESIUM	4.36	7.70E+00	NA	TRUE	0			BACKGROUN		SW26	MG/L
BW09	Magnesium, Dissolved	4.06	6.90E+00	NA	TRUE	0			BACKGROUN		WSSW25	MG/L
BW09	MANGANESE	0.303	6.60E-01	NA	TRUE	0			BACKGROUN		SW26	MG/L
BW09	Manganese, Dissolved	0.156	3.90E-01	NA	TRUE	0			BACKGROUN		WSSW25	MG/L
BW09	METHYL ETHYL KETONE	0.0012	0.00E-03	NA	TRUE	0			BACKGROUN		SW26	MG/L
BW09	POTASSIUM	6.73	7.30E+00	NA	TRUE	0			BACKGROUN		WSSW25	MG/L
BW09	Potassium, Dissolved	6.45	6.70E+00	NA	TRUE	0			BACKGROUN		SW26	MG/L
BW09	SODIUM	12.4	1.20E+01	NA	TRUE	0			BACKGROUN		WSSW25	MG/L
BW09	Sodium, Dissolved	11.9	2.20E+01	NA	TRUE	0			BACKGROUN		SW26	MG/L
BW09	TOTAL XYLENES	0.001	1.00E-03	2.2	TRUE	0	4.55E-04		BACKGROUN		SW26	MG/L
BW09	ZINC	0.004	2.90E-01	11	TRUE	0	5.92E-01		BACKGROUN		SW26	MG/L
BW10	1,2,3,4,6,7,8-HEPTACHLORODIBENZO-P-	0.00045	NA	NA	TRUE	0			BACKGROUN		SW26	MG/L
BW10	2,3,7,8-TETRACHLORODIBENZO-P-	5.64	5.10E+00	0.87	TRUE	0	6.48E-01		BACKGROUN		SW26	MG/L
BW10	ALUMINUM	0.0031	1.80E-02	19	TRUE	0	4.24E-02		BACKGROUN		WSSW25	MG/L
BW10	ARSENIC	0.0004	1.30E-01	1	TRUE	0	8.04E-02		BACKGROUN		SW26	MG/L
BW10	BARIUM	0.0048	8.76E-01	1	TRUE	0	3.48E-02		BACKGROUN		WSSW25	MG/L
BW10	Barium, Dissolved	8.83	3.20E+01	NA	TRUE	0			BACKGROUN		SW26	MG/L
BW10	CALCIUM	7.73	3.00E+01	NA	TRUE	0			BACKGROUN		WSSW25	MG/L
BW10	Calcium, Dissolved	0.0181	3.60E-02	011	TRUE	0	1.65E-03		BACKGROUN		SW26	MG/L
BW10	CHROMIUM	7.35	6.10E+00	1	TRUE	0	7.35E+00		BACKGROUN		SW26	MG/L
BW10	IRON	0.0048	1.90E-02	0032	TRUE	0	2.13E+00		BACKGROUN		SW26	MG/L
BW10	LEAD	3.3	7.70E+00	NA	TRUE	0			BACKGROUN		SW26	MG/L
BW10	MAGNESIUM	2.44	6.90E+00	NA	TRUE	0			BACKGROUN		WSSW25	MG/L
BW10	Magnesium, Dissolved	0.744	6.60E-01	NA	TRUE	0			BACKGROUN		SW26	MG/L
BW10	MANGANESE	0.309	3.90E-01	NA	TRUE	0			BACKGROUN		WSSW25	MG/L
BW10	Manganese, Dissolved	0.0119	2.30E-02	15	TRUE	0	7.44E-02		BACKGROUN		SW26	MG/L
BW10	NICKEL	6.45	0.71E-02	15	TRUE	0			BACKGROUN		SW26	MG/L
BW10	OCTACHLORODIBENZO-P-DIOXIN	0.0004	NA	NA	TRUE	0			BACKGROUN		SW26	MG/L
BW10	POTASSIUM	3.19	7.30E+00	NA	TRUE	0			BACKGROUN		WSSW25	MG/L
BW10	Potassium, Dissolved	2.52	6.70E+00	NA	TRUE	0			BACKGROUN		SW26	MG/L
BW10	VANADIUM	0.015	3.90E-02	NA	TRUE	0			BACKGROUN		WSSW25	MG/L
BW11	1,2,3,4,6,7,8-HEPTACHLORODIBENZO-P-	0.0004	NA	NA	TRUE	0			BACKGROUN		SW26	MG/L
BW11	2,3,7,8-TETRACHLORODIBENZO-P-	1.1E-06	3.10E-08	NA	TRUE	0			BACKGROUN		SW26	MG/L
BW11	ALUMINUM	0.00061	NA	NA	TRUE	0			BACKGROUN		WSSW25	MG/L
BW11	ARSENIC	5.47	5.10E+00	0.87	TRUE	0	6.29E-01		BACKGROUN		SW26	MG/L
BW11	BARIUM	0.011	1.80E-02	19	TRUE	0	5.79E-02		BACKGROUN		WSSW25	MG/L
BW11	Barium, Dissolved	0.0719	1.30E-01	1	TRUE	0	7.19E-02		BACKGROUN		SW26	MG/L
BW11	CALCIUM	0.0348	8.76E-01	1	TRUE	0	3.48E-02		BACKGROUN		WSSW25	MG/L
BW11	Calcium, Dissolved	8.83	3.20E+01	NA	TRUE	0			BACKGROUN		SW26	MG/L
BW11	IRON	7.86	3.00E+01	NA	TRUE	0	6.82E+00		BACKGROUN		WSSW25	MG/L
BW11	IRON, Dissolved	0.272	1.20E-01	1	TRUE	0	2.72E-01		BACKGROUN		SW26	MG/L
BW11	LEAD	0.0065	1.90E-02	0032	TRUE	0	1.72E+00		BACKGROUN		WSSW25	MG/L

[illegible]

BW13	VANADIUM	0.0394	3.90E-02	NA	TRUE	-1			BACKGROUND			SW29	MG/L
BW13	ZINC	0.146	2.90E-01	11	TRUE	0	1.33E+00		BACKGROUND			SW29	MG/L
BW14	1,2,3,4,6,7,8- TETRACHLORODIBENZO-P-	0.00053	NA	NA	TRUE	0			BACKGROUND			SW30	MG/L
BW14	ALUMINUM	0.00054	NA	NA	TRUE	0			BACKGROUND			SW30	MG/L
BW14	ARSENIC	5.76	5.10E-00	087	TRUE	-1	6.60E+01	6.60E+01	BACKGROUND			SW30	MG/L
BW14	BARIUM	0.0108	1.81E-02	19	TRUE	0	5.49E-02		BACKGROUND			SW30	MG/L
BW14	BARIUM, Dissolved	0.0324	1.30E-01	1	TRUE	0	8.26E-02		BACKGROUND			SW30	MG/L
BW14	CALCIUM	8.81	3.20E-01	NA	TRUE	0	3.57E-02		BACKGROUND			WSSW30	MG/L
BW14	Calcium, Dissolved	7.38	3.03E-01	NA	TRUE	0			BACKGROUND			WSSW30	MG/L
BW14	IRON	7.47	6.10E-00	1	TRUE	-1	7.47E+00	7.47E+00	BACKGROUND			WSSW30	MG/L
BW14	LEAD	0.0065	1.90E-02	0332	TRUE	0	2.03E+00		BACKGROUND			SW30	MG/L
BW14	MAGNESIUM	3.26	7.70E-00	NA	TRUE	0			BACKGROUND			SW30	MG/L
BW14	Magnesium, Dissolved	2.31	6.90E-00	NA	TRUE	0			BACKGROUND			WSSW30	MG/L
BW14	MANGANESE	0.659	6.60E-01	NA	TRUE	0			BACKGROUND			WSSW30	MG/L
BW14	Manganese, Dissolved	0.288	3.50E-01	NA	TRUE	0	5.04E-02		BACKGROUND			WSSW30	MG/L
BW14	NICKEL	0.0281	2.30E-02	16	TRUE	0			BACKGROUND			SW30	MG/L
BW14	OCTACHLORODIBENZO-P-DIOXIN	8.45E-07	1.25E-06	NA	TRUE	0			BACKGROUND			SW30	MG/L
BW14	POTASSIUM	3.59	7.30E-00	NA	TRUE	0			BACKGROUND			SW30	MG/L
BW14	SILVER	0.0018	NA	000012	TRUE	0	1.50E+00		BACKGROUND			SW30	MG/L
BW14	VANADIUM	0.0152	3.90E-02	NA	TRUE	0			BACKGROUND			SW30	MG/L
BW15	1,2,3,4,6,7,8- TETRACHLORODIBENZO-P-	0.00061	NA	NA	TRUE	0			BACKGROUND			SW31	MG/L
BW15	ALUMINUM	0.00052	NA	NA	TRUE	0			BACKGROUND			SW31	MG/L
BW15	BARIUM	0.527	5.10E-00	087	TRUE	0	6.06E+00		BACKGROUND			SW31	MG/L
BW15	BARIUM, Dissolved	0.0331	1.30E-01	1	TRUE	0	3.31E-02		BACKGROUND			WSSW31	MG/L
BW15	CALCIUM	0.023	8.74E-01	1	TRUE	0	2.30E-02		BACKGROUND			WSSW31	MG/L
BW15	Calcium, Dissolved	6.3	3.20E+01	NA	TRUE	0			BACKGROUND			WSSW31	MG/L
BW15	IRON	0.734	6.10E+00	1	TRUE	0	7.34E+01		BACKGROUND			SW31	MG/L
BW15	MAGNESIUM	2.95	7.70E+00	NA	TRUE	0			BACKGROUND			WSSW31	MG/L
BW15	Magnesium, Dissolved	2.52	6.90E+00	NA	TRUE	0			BACKGROUND			WSSW31	MG/L
BW15	MANGANESE	0.0582	6.60E-01	NA	TRUE	0			BACKGROUND			WSSW31	MG/L
BW15	Manganese, Dissolved	0.0399	3.50E-01	NA	TRUE	0			BACKGROUND			WSSW31	MG/L
BW15	OCTACHLORODIBENZO-P-DIOXIN	2.06E-07	1.25E-06	NA	TRUE	0			BACKGROUND			WSSW31	MG/L
BW15	POTASSIUM	0.733	7.30E+00	NA	TRUE	0			BACKGROUND			WSSW31	MG/L
BW15	Potassium, Dissolved	1.06	6.70E+00	NA	TRUE	0			BACKGROUND			WSSW31	MG/L
BW15	SODIUM	8.85	2.10E+01	NA	TRUE	0			BACKGROUND			WSSW31	MG/L
BW15	Sodium, Dissolved	9.19	2.20E+01	NA	TRUE	0			BACKGROUND			WSSW31	MG/L
BW16	1,2,3,4,6,7,8- TETRACHLORODIBENZO-P-	0.00075	NA	NA	TRUE	0			BACKGROUND			SW32	MG/L
BW16	ALUMINUM	2.7E-08	5.70E-08	NA	TRUE	0			BACKGROUND			SW32	MG/L
BW16	ARSENIC	2.4E-08	5.10E-08	NA	TRUE	0			BACKGROUND			SW32	MG/L
BW16	BARIUM	1.3E-08	3.10E-08	NA	TRUE	0			BACKGROUND			SW32	MG/L
BW16	BARIUM, Dissolved	0.0008	NA	NA	TRUE	0			BACKGROUND			SW32	MG/L
BW16	CALCIUM	0.009	5.10E+01	087	TRUE	0	7.69E+00		BACKGROUND			SW32	MG/L
BW16	Calcium, Dissolved	0.0159	1.30E-01	1	TRUE	0	3.57E-02		BACKGROUND			WSSW32	MG/L
BW16	IRON	0.0268	8.74E-01	1	TRUE	0	2.65E-02		BACKGROUND			WSSW32	MG/L
BW16	LEAD	6.5	3.20E+01	NA	TRUE	0			BACKGROUND			SW32	MG/L
BW16	MAGNESIUM	0.83	6.10E+00	1	TRUE	0	8.30E-01		BACKGROUND			SW32	MG/L
BW16	Magnesium, Dissolved	2.74	7.70E+00	NA	TRUE	0			BACKGROUND			WSSW32	MG/L
BW16	MANGANESE	2.54	6.90E+00	NA	TRUE	0			BACKGROUND			WSSW32	MG/L
BW16	Manganese, Dissolved	0.0816	6.60E-01	NA	TRUE	0			BACKGROUND			WSSW32	MG/L
BW16	OCTACHLORODIBENZO-P-DIOXIN	0.0324	1.50E-01	NA	TRUE	0			BACKGROUND			WSSW32	MG/L
BW16	POTASSIUM	2.37E-07	1.25E-06	NA	TRUE	0			BACKGROUND			SW32	MG/L

BW16	POTASSIUM	1.73E+00	NA	TRUE	0	1.50E+02	BACKGROUND	SW32	MG/L
BW16	SILVER	0.0018 NA	0.0012	TRUE	0	1.50E+02	BACKGROUND	SW32	MG/L
BW16	SODIUM	8.942.10E+01	NA	TRUE	0	1.50E+02	BACKGROUND	SW32	MG/L
BW16	Sodium, Dissolved	9.032.20E+01	NA	TRUE	0	1.50E+02	BACKGROUND	WSSW32	MG/L
BW17	1,2,3,4,6,7,8-HEPTACHLORODIBENZO-P	0.00173 NA	NA	TRUE	0	1.50E+02	BACKGROUND	SW33	MG/L
BW17	1,2,3,4,6,7,8-HEPTACHLORODIBENZO-P	1.84E-01	NA	TRUE	0	1.50E+02	BACKGROUND	SW33	MG/L
BW17	1,2,3,7,8-PENTACHLORODIBENZO-P	3.7E-08	NA	TRUE	0	1.50E+02	BACKGROUND	SW33	MG/L
BW17	1,2,3,7,8-PENTACHLORODIBENZO-P	4.6E-08	NA	TRUE	0	1.50E+02	BACKGROUND	SW33	MG/L
BW17	2,3,4,7,8-TETRACHLORODIBENZO-P	0.0000045	NA	TRUE	0	1.50E+02	BACKGROUND	SW33	MG/L
BW17	2,3,7,8-TETRACHLORODIBENZO-P	3.1E-08	NA	TRUE	0	1.50E+02	BACKGROUND	SW33	MG/L
BW17	2,3,7,8-TETRACHLORODIBENZO-P	0.00006 NA	NA	TRUE	0	1.50E+02	BACKGROUND	SW33	MG/L
BW17	ALUMINUM	0.39E+01	0.67	TRUE	0	1.50E+02	BACKGROUND	SW33	MG/L
BW17	BARIUM	0.0275	1.30E-01	TRUE	0	1.50E+02	BACKGROUND	SW33	MG/L
BW17	CALCIUM	4.41	3.20E+01	TRUE	0	1.50E+02	BACKGROUND	SW33	MG/L
BW17	Calcium, Dissolved	4.23	3.20E+01	TRUE	0	1.50E+02	BACKGROUND	SW33	MG/L
BW17	IRON	1.0E+00	1.0E+00	TRUE	0	1.50E+02	BACKGROUND	SW33	MG/L
BW17	MAGNESIUM	1.37	7.0E+00	TRUE	0	1.50E+02	BACKGROUND	SW33	MG/L
BW17	Magnesium, Dissolved	1.5	6.0E+00	TRUE	0	1.50E+02	BACKGROUND	WSSW33	MG/L
BW17	MANGANESE	0.192	6.0E-01	TRUE	0	1.50E+02	BACKGROUND	SW33	MG/L
BW17	OCTACHLORODIBENZO-P-DIOXIN	1.13E-04	1.23E-06	TRUE	0	1.50E+02	BACKGROUND	SW33	MG/L
BW17	POTASSIUM	2.53	2.0E+00	TRUE	0	1.50E+02	BACKGROUND	SW33	MG/L
BW17	Potassium, Dissolved	1.33	6.0E+00	TRUE	0	1.50E+02	BACKGROUND	WSSW33	MG/L
BW17	SODIUM	6.98	2.0E+01	TRUE	0	1.50E+02	BACKGROUND	SW33	MG/L
BW17	Sodium, Dissolved	7.16	2.0E+01	TRUE	0	1.50E+02	BACKGROUND	WSSW33	MG/L
BW18	1,2,3,4,6,7,8-HEPTACHLORODIBENZO-P	0.00071	NA	TRUE	0	1.50E+02	BACKGROUND	SW34	MG/L
BW18	1,2,3,4,6,7,8-HEPTACHLORODIBENZO-P	0.184E-07	NA	TRUE	0	1.50E+02	BACKGROUND	SW34	MG/L
BW18	2,3,7,8-TETRACHLORODIBENZO-P	0.000001	3.0E-08	TRUE	0	1.50E+02	BACKGROUND	SW34	MG/L
BW18	2,3,7,8-TETRACHLORODIBENZO-P	0.00006 NA	NA	TRUE	0	1.50E+02	BACKGROUND	SW34	MG/L
BW18	ALUMINUM	0.37	5.0E+00	TRUE	0	1.50E+02	BACKGROUND	SW34	MG/L
BW18	BARIUM	0.0262	1.30E-01	TRUE	0	1.50E+02	BACKGROUND	SW34	MG/L
BW18	CALCIUM	4.44	3.20E+01	TRUE	0	1.50E+02	BACKGROUND	SW34	MG/L
BW18	Calcium, Dissolved	3.71	3.0E+01	TRUE	0	1.50E+02	BACKGROUND	WSSW34	MG/L
BW18	IRON	0.999	6.0E+00	TRUE	0	1.50E+02	BACKGROUND	SW34	MG/L
BW18	MAGNESIUM	1.47	7.0E+00	TRUE	0	1.50E+02	BACKGROUND	SW34	MG/L
BW18	Magnesium, Dissolved	1.22	6.0E+00	TRUE	0	1.50E+02	BACKGROUND	WSSW34	MG/L
BW18	MANGANESE	0.197	6.0E-01	TRUE	0	1.50E+02	BACKGROUND	SW34	MG/L
BW18	Manganese, Dissolved	0.0387	3.0E-01	TRUE	0	1.50E+02	BACKGROUND	WSSW34	MG/L
BW18	OCTACHLORODIBENZO-P-DIOXIN	6.69E-07	1.23E-06	TRUE	0	1.50E+02	BACKGROUND	SW34	MG/L
BW18	POTASSIUM	1.98	2.0E+00	TRUE	0	1.50E+02	BACKGROUND	SW34	MG/L
BW18	Potassium, Dissolved	1.76	6.0E+00	TRUE	0	1.50E+02	BACKGROUND	WSSW34	MG/L
BW18	SODIUM	6.77	2.0E+01	TRUE	0	1.50E+02	BACKGROUND	SW34	MG/L
BW18	Sodium, Dissolved	6.72	2.0E+01	TRUE	0	1.50E+02	BACKGROUND	WSSW34	MG/L
BW18	ZINC	0.221	2.0E-01	TRUE	0	1.50E+02	BACKGROUND	SW34	MG/L
BW19	1,2,3,4,6,7,8-HEPTACHLORODIBENZO-P	0.00007 NA	NA	TRUE	0	1.50E+02	BACKGROUND	SW35	MG/L
BW19	2,3,7,8-TETRACHLORODIBENZO-P	0.00006 NA	NA	TRUE	0	1.50E+02	BACKGROUND	SW35	MG/L
BW19	ALUMINUM	0.648	3.0E+00	TRUE	0	1.50E+02	BACKGROUND	SW35	MG/L
BW19	Aluminum, Dissolved	0.0701	4.71E-01	TRUE	0	1.50E+02	BACKGROUND	WSSW35	MG/L
BW19	ARSENIC	0.00355	1.0E-02	TRUE	0	1.50E+02	BACKGROUND	SW35	MG/L
BW19	Arsenic, Dissolved	0.0016	1.30E-02	TRUE	0	1.50E+02	BACKGROUND	WSSW35	MG/L
BW19	BARIUM	0.0313	1.30E-01	TRUE	0	1.50E+02	BACKGROUND	SW35	MG/L
BW19	CALCIUM	4.50241	3.20E+01	TRUE	0	1.50E+02	BACKGROUND	SW35	MG/L
BW19	Calcium, Dissolved	3.93	3.0E+01	TRUE	0	1.50E+02	BACKGROUND	WSSW35	MG/L
BW19	IRON	1.51	6.0E+00	TRUE	0	1.50E+02	BACKGROUND	SW35	MG/L
BW19	MAGNESIUM	1.5367	7.0E+00	TRUE	0	1.50E+02	BACKGROUND	WSSW35	MG/L

BW19	Magnesium, Dissolved	1.33	6.9E-03	NA	TRUE	0			BACKGROUND			WSSW35	MG/L
BW19	MANGANESE	0.22409	6.0E-01	NA	TRUE	0			BACKGROUND			SW35	MG/L
BW19	Manganese, Dissolved	0.0364	3.5E-01	NA	TRUE	0			BACKGROUND			WSSW35	MG/L
BW19	OCTACHLORODIBENZO-P-DIOXIN	9.44E-07	7.3E-06	NA	TRUE	0			BACKGROUND			SW35	MG/L
BW19	POTASSIUM	2.32	7.3E-00	NA	TRUE	0			BACKGROUND			WSSW35	MG/L
BW19	Potassium, Dissolved	2.1157	6.7E+00	NA	TRUE	0			BACKGROUND			SW35	MG/L
BW19	SODIUM	6.8997	2.1E+01	NA	TRUE	0			BACKGROUND			WSSW35	MG/L
BW19	Sodium, Dissolved	6.75762	2.0E+01	NA	TRUE	0			BACKGROUND			SW35	MG/L
BW19	ZINC	0.07764	2.0E-01	11	TRUE	0	7.0E-01		BACKGROUND			WSSW35	MG/L
BW20	1,2,3,4,5,7,8	0.00051	NA	NA	TRUE	0			BACKGROUND			SW36	MG/L
BW20	2,3,7,8-TETRACHLORODIBENZO-P	0.00053	NA	087	TRUE	0			BACKGROUND			SW36	MG/L
BW20	ALUMINUM	0.371	5.1E+00	087	TRUE	0	4.2E+00		BACKGROUND			SW36	MG/L
BW20	ARSENIC	0.0066	1.8E-02	19	TRUE	0	3.47E-02		BACKGROUND			WSSW36	MG/L
BW20	Arsenic, Dissolved	0.0501	1.2E-02	19	TRUE	0	2.6E-02		BACKGROUND			SW36	MG/L
BW20	BARIUM	0.0404	1.3E-01	1	TRUE	0	4.04E-02		BACKGROUND			WSSW36	MG/L
BW20	Barium, Dissolved	0.0332	8.7E-01	1	TRUE	0	3.32E-02		BACKGROUND			SW36	MG/L
BW20	CALCIUM	9.17	3.2E+01	NA	TRUE	0			BACKGROUND			WSSW36	MG/L
BW20	Calcium, Dissolved	8.72	3.0E+01	NA	TRUE	0	9.17E-01		BACKGROUND			SW36	MG/L
BW20	COPPER	0.011	7.5E-02	012	TRUE	0	8.03E-01		BACKGROUND			SW36	MG/L
BW20	IRON	0.803	6.1E+00	1	TRUE	0			BACKGROUND			WSSW36	MG/L
BW20	MAGNESIUM	3.17	7.1E+00	NA	TRUE	0			BACKGROUND			SW36	MG/L
BW20	Magnesium, Dissolved	3.04	6.9E+00	NA	TRUE	0			BACKGROUND			WSSW36	MG/L
BW20	MANGANESE	0.125	6.0E-01	NA	TRUE	0			BACKGROUND			SW36	MG/L
BW20	Manganese, Dissolved	0.0669	3.5E-01	NA	TRUE	0			BACKGROUND			WSSW36	MG/L
BW20	OCTACHLORODIBENZO-P-DIOXIN	2.99E-07	1.2E-06	NA	TRUE	0			BACKGROUND			SW36	MG/L
BW20	SODIUM	8.05	2.1E+01	NA	TRUE	0			BACKGROUND			WSSW36	MG/L
BW20	Sodium, Dissolved	7.21	2.2E+01	NA	TRUE	0			BACKGROUND			SW36	MG/L
BW21	1,2,3,4,6,7,8	0.00356	NA	NA	TRUE	0			BACKGROUND			SW37	MG/L
BW21	2,3,7,8-TETRACHLORODIBENZO-P	0.00054	NA	087	TRUE	0	3.92E+00		BACKGROUND			SW37	MG/L
BW21	ALUMINUM	0.341	5.1E+00	087	TRUE	0			BACKGROUND			SW37	MG/L
BW21	ARSENIC	0.0068	1.8E-02	19	TRUE	0	3.68E-02		BACKGROUND			WSSW37	MG/L
BW21	Arsenic, Dissolved	0.0052	1.2E-02	19	TRUE	0	2.74E-02		BACKGROUND			SW37	MG/L
BW21	BARIUM	0.0402	1.3E-01	1	TRUE	0	4.02E-02		BACKGROUND			WSSW37	MG/L
BW21	Barium, Dissolved	0.0338	8.7E-01	1	TRUE	0	3.30E-02		BACKGROUND			SW37	MG/L
BW21	CALCIUM	9.22	3.2E+01	NA	TRUE	0			BACKGROUND			WSSW37	MG/L
BW21	Calcium, Dissolved	8.95	3.0E+01	NA	TRUE	0			BACKGROUND			SW37	MG/L
BW21	COPPER	0.0104	7.5E-02	012	TRUE	0	8.67E-01		BACKGROUND			SW37	MG/L
BW21	IRON	0.792	6.1E+00	1	TRUE	0	7.92E-01		BACKGROUND			WSSW37	MG/L
BW21	MAGNESIUM	3.28	7.1E+00	NA	TRUE	0			BACKGROUND			SW37	MG/L
BW21	Magnesium, Dissolved	3.08	6.9E+00	NA	TRUE	0			BACKGROUND			WSSW37	MG/L
BW21	MANGANESE	0.119	6.0E-01	NA	TRUE	0			BACKGROUND			SW37	MG/L
BW21	Manganese, Dissolved	0.0751	3.5E-01	NA	TRUE	0			BACKGROUND			WSSW37	MG/L
BW21	METHYL ETHYL KETONE	0.001	2.0E-03	NA	TRUE	0			BACKGROUND			SW37	MG/L
BW21	OCTACHLORODIBENZO-P-DIOXIN	3.74E-07	1.2E-06	NA	TRUE	0			BACKGROUND			WSSW37	MG/L
BW21	SODIUM	7.25	2.1E+01	NA	TRUE	0			BACKGROUND			SW37	MG/L
BW21	Sodium, Dissolved	7.23	2.2E+01	NA	TRUE	0			BACKGROUND			WSSW37	MG/L
BW22	1,2,3,4,6,7,8	0.00053	NA	NA	TRUE	0			BACKGROUND			SW38	MG/L
BW22	2,3,7,8-TETRACHLORODIBENZO-P	0.00055	NA	087	TRUE	0	4.47E+00		BACKGROUND			SW38	MG/L
BW22	ALUMINUM	0.369	5.1E+00	087	TRUE	0	4.6E-02		BACKGROUND			WSSW38	MG/L
BW22	ARSENIC	0.0071	1.8E-02	19	TRUE	0	2.79E-02		BACKGROUND			SW38	MG/L
BW22	Arsenic, Dissolved	0.0053	1.2E-02	19	TRUE	0	4.09E-02		BACKGROUND			WSSW38	MG/L
BW22	BARIUM	0.0403	1.3E-01	1	TRUE	0	3.23E-02		BACKGROUND			SW38	MG/L
BW22	Barium, Dissolved	0.0323	8.7E-01	1	TRUE	0			BACKGROUND			WSSW38	MG/L
BW22	CALCIUM	9.38	3.2E+01	NA	TRUE	0			BACKGROUND			SW38	MG/L

BW22	Calcium, Dissolved	8.8	3.00E+01	NA	TRUE	0	1.53E+02	1.53E+02	BACKGROUN	WSSW38	MG/L
BW22	COPPER	0.0124	7.50E-02	012	TRUE	0	1.08E+00	1.08E+00	BACKGROUN	SW38	MG/L
BW22	IRON	0.847	6.10E+00	1	TRUE	0	8.47E+01	8.47E+01	BACKGROUN	SW38	MG/L
BW22	Iron, Dissolved	0.118	1.20E-01	1	TRUE	0	1.18E+01	1.18E+01	BACKGROUN	WSSW38	MG/L
BW22	MAGNESIUM	3.21	7.70E+00	NA	TRUE	0			BACKGROUN	SW38	MG/L
BW22	Magnesium, Dissolved	3.03	6.90E+00	NA	TRUE	0			BACKGROUN	WSSW38	MG/L
BW22	MANGANESE	0.131	6.60E-01	NA	TRUE	0			BACKGROUN	SW38	MG/L
BW22	Manganese, Dissolved	0.0932	3.50E-01	NA	TRUE	0			BACKGROUN	WSSW38	MG/L
BW22	OCTACHLORODIBENZO-P-DIOXIN	2.67E-01	1.20E-05	NA	TRUE	0			BACKGROUN	SW38	MG/L
BW22	SODIUM	7.46	2.10E+01	NA	TRUE	0			BACKGROUN	WSSW38	MG/L
BW22	Sodium, Dissolved	7.23	2.20E+01	NA	TRUE	0			BACKGROUN	SW38	MG/L
DO1	1,2,3,4,7,8-	0.000035	NA	NA	TRUE	0			BACKGROUN	WSSW38	MG/L
DO1	2,3,7,8-TETRACHLORODIBENZO-P	0.000056	NA	NA	TRUE	0			BACKGROUN	SW38	MG/L
DO1	ALUMINUM	13.3	5.10E+00	087	TRUE	0	1.53E+02	1.53E+02	BACKGROUN	WSSW38	MG/L
DO1	ARSENIC	0.0089	1.80E-02	19	TRUE	0	4.88E-02	4.88E-02	BACKGROUN	SW38	MG/L
DO1	BARIUM	0.153	1.50E-01	1	TRUE	0	1.53E+01	1.53E+01	BACKGROUN	DO1	MG/L
DO1	CALCIUM	12.43	2.0E+01	NA	TRUE	0			BACKGROUN	DO1	MG/L
DO1	CHROMIUM	0.0168	1.50E-02	011	TRUE	0	1.53E+00	1.53E+00	BACKGROUN	DO1	MG/L
DO1	COPPER	0.0473	7.50E-02	012	TRUE	0	3.94E+00	3.94E+00	BACKGROUN	DO1	MG/L
DO1	DIETHYL PHTHALATE	0.001	NA	521	TRUE	0	1.99E+03	1.99E+03	BACKGROUN	DO1	MG/L
DO1	IRON	23.8	6.10E+00	1	TRUE	0	2.38E+01	2.38E+01	BACKGROUN	DO1	MG/L
DO1	LEAD	0.0178	1.90E-02	0132	TRUE	0	5.56E+00	5.56E+00	BACKGROUN	DO1	MG/L
DO1	MAGNESIUM	5.19	7.70E+00	NA	TRUE	0			BACKGROUN	DO1	MG/L
DO1	MANGANESE	0.091	6.60E-01	NA	TRUE	0			BACKGROUN	DO1	MG/L
DO1	METHYL ETHYL KETONE	0.001	2.00E-03	NA	TRUE	0			BACKGROUN	DO1	MG/L
DO1	METHYL ISOBUTYL KETONE	0.004	NA	NA	TRUE	0			BACKGROUN	DO1	MG/L
DO1	OCTACHLORODIBENZO-P-DIOXIN	6.036E-04	1.20E-05	NA	TRUE	0			BACKGROUN	DO1	MG/L
DO1	POTASSIUM	6.54	2.30E+00	NA	TRUE	0			BACKGROUN	DO1	MG/L
DO1	SODIUM	20.5	2.10E+01	NA	TRUE	0			BACKGROUN	DO1	MG/L
DO1	VANADIUM	0.0287	3.00E-02	NA	TRUE	0			BACKGROUN	DO1	MG/L
DO1	ZINC	0.191	2.00E-01	11	TRUE	0	1.74E+00	1.74E+00	BACKGROUN	DO1	MG/L
SW1	ACETONE	0.007	NA	NA	TRUE	0			LAW	DO1	MG/L
SW1	BARIUM	0.091	1.30E-01	NA	TRUE	0	9.10E-02	9.10E-02	LAW	LAWSW1	MG/L
SW1	CADMIUM	0.004	NA	0111	TRUE	0	5.45E+00	5.45E+00	LAW	LAWSW1	MG/L
SW1	COPPER	0.018	7.50E-02	012	TRUE	0	1.50E+00	1.50E+00	LAW	LAWSW1	MG/L
SW1	DIELDRIN	0.00013	1.00E-05	NA	TRUE	0			LAW	LAWSW1	MG/L
SW1	METHYLENE CHLORIDE	0.001	NA	193	TRUE	0	5.18E-04	5.18E-04	LAW	LAWSW1	MG/L
SW1	ZINC	0.067	2.00E-01	11	TRUE	0	5.18E-01	5.18E-01	LAW	LAWSW1	MG/L
SW10	ACETONE	0.001	NA	NA	TRUE	0			LAW	LAWSW10	MG/L
SW10	BARIUM	0.026	1.30E-01	1	TRUE	0	2.60E-02	2.60E-02	LAW	LAWSW10	MG/L
SW10	DI(2-ETHYLHEXYL) PHTHALATE	0.007	1.00E-05	0118	TRUE	0	3.99E+00	3.99E+00	LAW	LAWSW10	MG/L
SW10	COPPER	0.025	7.50E-02	012	TRUE	0	2.08E+00	2.08E+00	LAW	LAWSW10	MG/L
SW10	DDE	0.00014	NA	0105	TRUE	0	1.33E+02	1.33E+02	LAW	LAWSW10	MG/L
SW10	DDT	0.00027	1.00E-05	000011	TRUE	0	2.70E+02	2.70E+02	LAW	LAWSW10	MG/L
SW10	Di-n-BUTYL PHTHALATE	0.003	NA	0024	TRUE	0	3.19E-01	3.19E-01	LAW	LAWSW10	MG/L
SW10	Di-n-OCTYL PHTHALATE	0.003	NA	NA	TRUE	0			LAW	LAWSW10	MG/L
SW10	N-NITRODIPENTYLAMINE	0.002	NA	0585	TRUE	0	3.42E+02	3.42E+02	LAW	LAWSW10	MG/L
SW10	PHRENE	0.003	NA	06	TRUE	0	3.15E+02	3.15E+02	LAW	LAWSW10	MG/L
SW10	ZINC	0.081	2.00E-01	11	TRUE	0	7.35E-01	7.35E-01	LAW	LAWSW10	MG/L
SW11	ACETONE	0.004	NA	NA	TRUE	0			LAW	LAWSW11	MG/L
SW11	BARIUM	0.055	1.30E-01	1	TRUE	0	5.50E-02	5.50E-02	LAW	LAWSW11	MG/L
SW11	BENZYL BUTYL PHTHALATE	0.010	NA	022	TRUE	0	1.35E-01	1.35E-01	LAW	LAWSW11	MG/L
SW11	DI(2-ETHYLHEXYL) PHTHALATE	0.010	1.00E-05	0118	TRUE	0	1.67E+00	1.67E+00	LAW	LAWSW11	MG/L
SW11	COPPER	0.03	7.50E-02	012	TRUE	0	2.50E+00	2.50E+00	LAW	LAWSW11	MG/L

SW11	DOE	0.0008 NA	0.05	TRUE	0	8.3E-02	LAW	3	52	LAWSW11	MG/L
SW11	DOT	0.0019 1.0E-05	0.00001	TRUE	0	1.90E-03	LAW	3	52	LAWSW11	MG/L
SW11	FLUORANTHENE	0.002 NA	0.090	TRUE	0	5.03E-02	LAW	3	52	LAWSW11	MG/L
SW11	LEAD	0.05 1.90E-02	0.032	TRUE	-1	1.50E+01	LAW	3	52	LAWSW11	MG/L
SW11	PYRENE	0.003 NA	96	TRUE	0	3.13E-03	LAW	3	52	LAWSW11	MG/L
SW11	TOTAL XYLENES	0.001 1.00E-03	2.2	TRUE	0	4.55E-04	LAW	3	52	LAWSW11	MG/L
SW11	ZINC	0.11 2.90E-01	1.1	TRUE	0	1.00E+00	LAW	3	52	LAWSW11	MG/L
SW12	ACETONE	0.004 NA	NA	TRUE	0	1.58E-01	LAW	3	51	LAWSW12	MG/L
SW12	ARSENIC	0.03 1.80E-02	19	TRUE	-1	9.80E-02	LAW	3	51	LAWSW12	MG/L
SW12	BARIUM	0.098 1.30E-01	NA	TRUE	0	1.67E+00	LAW	3	51	LAWSW12	MG/L
SW12	BENZOIC ACID	0.003 NA	0.018	TRUE	0	1.73E+01	LAW	3	51	LAWSW12	MG/L
SW12	BIS(2-ETHYLHEXYL) PHTHALATE	0.003 1.0E-05	0.011	TRUE	0	1.82E+00	LAW	3	51	LAWSW12	MG/L
SW12	CADMIUM	0.019 NA	0.011	TRUE	0	1.67E+00	LAW	3	51	LAWSW12	MG/L
SW12	CHROMIUM	0.02 3.60E-02	0.12	TRUE	0	6.19E-02	LAW	3	51	LAWSW12	MG/L
SW12	COPPER	0.02 7.50E-02	0.15	TRUE	0	2.20E+03	LAW	3	51	LAWSW12	MG/L
SW12	DDE	0.0005 NA	0.00001	TRUE	0	3.13E+01	LAW	3	51	LAWSW12	MG/L
SW12	DDT	0.0022 1.00E-05	0.032	TRUE	-1	1.20E-01	LAW	3	51	LAWSW12	MG/L
SW12	LEAD	0.1 1.90E-02	0.063	TRUE	0	6.03E-02	LAW	3	51	LAWSW12	MG/L
SW12	N-NITROSODIPHENYLAMINE	0.007 NA	1.1	TRUE	0	3.35E+00	LAW	3	51	LAWSW12	MG/L
SW12	ZINC	0.15 2.90E-01	0.063	TRUE	0	4.91E-01	LAW	3	51	LAWSW12	MG/L
SW13	BARIUM	0.08 1.30E-01	NA	TRUE	0	4.20E-02	LAW	3	56	LAWSW13	MG/L
SW13	BENZOIC ACID	0.006 NA	NA	TRUE	0	1.67E+00	LAW	3	56	LAWSW13	MG/L
SW13	BIS(2-ETHYLHEXYL) PHTHALATE	0.003 1.0E-05	0.018	TRUE	0	9.09E-01	LAW	3	56	LAWSW13	MG/L
SW13	CHROMIUM	0.01 3.60E-02	0.11	TRUE	0	3.27E-01	LAW	3	56	LAWSW13	MG/L
SW13	METHYL ETHYL KETONE	0.004 2.00E-03	NA	TRUE	0	7.70E-02	LAW	3	56	LAWSW13	MG/L
SW13	ZINC	0.036 2.90E-01	1.1	TRUE	0	6.33E-01	LAW	3	56	LAWSW13	MG/L
SW14	ACETONE	0.018 NA	NA	TRUE	0	1.25E-01	LAW	3	56	LAWSW13	MG/L
SW14	BARIUM	0.024 1.30E-01	1	TRUE	0	1.00E-02	LAW	3	56	LAWSW13	MG/L
SW14	BENZOIC ACID	0.003 NA	NA	TRUE	0	5.00E-02	LAW	3	56	LAWSW13	MG/L
SW14	BIS(2-ETHYLHEXYL) PHTHALATE	0.003 1.0E-05	0.018	TRUE	0	5.56E-02	LAW	3	56	LAWSW13	MG/L
SW14	CHROMIUM	0.01 3.60E-02	0.11	TRUE	0	8.58E-02	LAW	3	56	LAWSW13	MG/L
SW14	METHYL ETHYL KETONE	0.004 2.00E-03	NA	TRUE	0	1.27E-02	LAW	3	56	LAWSW13	MG/L
SW14	ZINC	0.036 2.90E-01	1.1	TRUE	0	2.64E-01	LAW	3	56	LAWSW13	MG/L
SW15	ACETONE	0.018 NA	NA	TRUE	0	7.60E-02	LAW	3	56	LAWSW13	MG/L
SW15	BARIUM	0.077 1.30E-01	1	TRUE	0	6.33E-01	LAW	3	56	LAWSW13	MG/L
SW15	COPPER	0.01 7.50E-02	0.12	TRUE	0	1.25E-01	LAW	3	56	LAWSW13	MG/L
SW15	DIELDRIN	0.0001 1.00E-05	NA	TRUE	0	1.00E-02	LAW	3	56	LAWSW13	MG/L
SW15	LEAD	0.04 1.90E-02	0.032	TRUE	-1	1.25E-01	LAW	3	56	LAWSW13	MG/L
SW15	ZINC	0.11 2.90E-01	1.1	TRUE	0	1.00E-02	LAW	3	56	LAWSW13	MG/L
SW16	ACETONE	0.002 NA	NA	TRUE	0	5.00E-02	LAW	3	56	LAWSW13	MG/L
SW16	BARIUM	0.056 1.30E-01	1	TRUE	0	5.56E-02	LAW	3	56	LAWSW13	MG/L
SW16	BENZOIC ACID	0.003 NA	NA	TRUE	0	8.58E-02	LAW	3	56	LAWSW13	MG/L
SW16	BIS(2-ETHYLHEXYL) PHTHALATE	0.01 1.00E-05	0.018	TRUE	0	1.27E-02	LAW	3	56	LAWSW13	MG/L
SW16	CHROMIUM	0.008 NA	0.063	TRUE	0	2.64E-01	LAW	3	56	LAWSW13	MG/L
SW16	N-NITROSODIPHENYLAMINE	0.014 2.90E-01	1.1	TRUE	0	2.64E-01	LAW	3	56	LAWSW13	MG/L
SW2	ACETONE	0.008 NA	NA	TRUE	0	2.64E-01	LAW	3	56	LAWSW13	MG/L
SW2	ALPHA ENDOSULFAN	0.00016 NA	0.00056	TRUE	0	7.60E-02	LAW	3	56	LAWSW13	MG/L
SW2	BARIUM	0.018 1.30E-01	1	TRUE	0	6.33E-01	LAW	3	56	LAWSW13	MG/L
SW2	CHROMIUM	0.02 3.60E-02	0.12	TRUE	0	1.25E-01	LAW	3	56	LAWSW13	MG/L
SW2	COPPER	0.029 7.50E-02	0.12	TRUE	0	1.00E-02	LAW	3	56	LAWSW13	MG/L
SW2	METHYLENE CHLORIDE	0.001 NA	1.93	TRUE	0	5.18E-04	LAW	3	56	LAWSW13	MG/L
SW2	ZINC	0.029 2.90E-01	1.1	TRUE	0	2.64E-01	LAW	3	56	LAWSW13	MG/L
SW25A1	ARSENIC	0.013 1.90E-02	19	TRUE	0	6.84E-02	LAW	3	56	LAWSW13	MG/L
SW25A1	ARSENIC Dissolved	0.0084 1.20E-02	19	TRUE	0	4.42E-02	LAW	3	56	LAWSW13	MG/L
SW25A1	DIELDRIN	0.00043 1.0E-05	NA	TRUE	0	5.28E-02	LAW	3	56	LAWSW13	MG/L
SW25A1	LEAD	0.0169 1.90E-02	0.032	TRUE	0	5.28E-02	LAW	3	56	LAWSW13	MG/L

STATION 1 _____

SW26A1	DELDIN	0.00093	1.0E-05	NA	TRUE	0				RHA105	MGL
SW26A1	LEAD	0.0089	1.9E-02	0032	TRUE	0	2.78E+00			RHA105	MGL
SW26A1	SUSPENDED SOLIDS	106	NA	NA	TRUE	0				RHA105	MGL
SW26A1	TOTAL ORGANIC CARBON	13.5	NA	NA	TRUE	0				RHA105	MGL
SW26A2	ARSENIC	0.0123	1.8E-02	19	TRUE	0	6.47E-02			RHA113	MGL
SW26A2	ANTHRACENE, Dissolved	0.0099	1.2E-02	19	TRUE	0	5.21E-02			WSRHA113	MGL
SW26A2	CHROMIUM	0.014	3.6E-02	011	TRUE	0	1.27E+00			RHA113	MGL
SW26A2	DELDIN	0.0001	1.0E-05	NA	TRUE	0	2.53E+00			RHA113	MGL
SW26A2	LEAD	0.0081	1.9E-02	0032	TRUE	0				RHA113	MGL
SW26A2	SUSPENDED SOLIDS	262	NA	NA	TRUE	0				RHA113	MGL
SW26A2	TOTAL ORGANIC CARBON	15	NA	NA	TRUE	0				RHA113	MGL
SW26B1	ARSENIC	0.0064	1.8E-02	19	TRUE	0	1.92E-01			RHA105	MGL
SW26B1	ANTHRACENE, Dissolved	0.0099	1.2E-02	19	TRUE	0	5.05E-02			WSRHA105	MGL
SW26B1	CHROMIUM	0.0101	3.6E-02	011	TRUE	0	9.18E-01			RHA105	MGL
SW26B1	DELDIN	0.00035	1.0E-05	NA	TRUE	0	2.76E-03			RHA105	MGL
SW26B1	LEAD	0.0184	1.9E-02	0032	TRUE	0	5.88E+00			RHA105	MGL
SW26B1	NICKEL	0.0117	2.3E-02	16	TRUE	0	7.31E-02			RHA105	MGL
SW26B1	SUSPENDED SOLIDS	304	NA	NA	TRUE	0				RHA105	MGL
SW26B1	TOTAL ORGANIC CARBON	10.4	NA	NA	TRUE	0				RHA105	MGL
SW26B2	ARSENIC	0.0037	2.9E-01	11	TRUE	0	7.79E-01			RHA114	MGL
SW26B2	ANTHRACENE, Dissolved	0.0223	1.8E-02	19	TRUE	0	1.17E-01			WSRHA114	MGL
SW26B2	CHROMIUM	0.0103	1.2E-02	19	TRUE	0	1.02E-01			RHA114	MGL
SW26B2	LEAD	0.0037	1.9E-02	0032	TRUE	0	1.16E+00			RHA114	MGL
SW26B2	SUSPENDED SOLIDS	14	NA	NA	TRUE	0				RHA114	MGL
SW26B2	TOTAL ORGANIC CARBON	10	NA	NA	TRUE	0				RHA114	MGL
SW26B2	ZINC	0.0058	2.9E-01	11	TRUE	0	5.98E-01			RHA114	MGL
SW26C1	ALUMINUM	0.578	5.10E+00	087	TRUE	0	6.42E+00			RHA107	MGL
SW26C1	ANTHRACENE, Dissolved	0.0274	1.2E-02	19	TRUE	0	1.26E-02			WSRHA107	MGL
SW26C1	CALCIUM	4.2	3.2E+01	NA	TRUE	0				RHA107	MGL
SW26C1	Calcium, Dissolved	3.34	3.0E+01	NA	TRUE	0				RHA107	MGL
SW26C1	DDE	0.000056	NA	0105	TRUE	0	5.52E-03			WSRHA107	MGL
SW26C1	DDT	0.00015	1.0E+05	01001	TRUE	0	1.50E+02			RHA107	MGL
SW26C1	IRON	0.835	6.10E+00	1	TRUE	0	8.35E-01			RHA107	MGL
SW26C1	LEAD	0.0111	1.9E-02	0032	TRUE	0	3.44E+00			RHA107	MGL
SW26C1	MAGNESIUM	0.358	7.7E+00	NA	TRUE	0				RHA107	MGL
SW26C1	Magnesium, Dissolved	0.213	6.9E+00	NA	TRUE	0				RHA107	MGL
SW26C1	MANGANESE	0.0401	6.60E-01	NA	TRUE	0				WSRHA107	MGL
SW26C1	Manganese, Dissolved	0.0207	3.50E-01	NA	TRUE	0				RHA107	MGL
SW26C1	Potassium, Dissolved	0.751	6.70E+00	NA	TRUE	0				WSRHA107	MGL
SW26C1	SODIUM	0.9752	2.10E+01	NA	TRUE	0				RHA107	MGL
SW26C1	SUSPENDED SOLIDS	7.4	NA	NA	TRUE	0				WSRHA107	MGL
SW26C1	TOTAL ORGANIC CARBON	0.184	2.9E-01	11	TRUE	0	1.67E+00			RHA107	MGL
SW26C1	ZINC	0.145	4.10E-01	11	TRUE	0	1.32E+00			RHA107	MGL
SW26C2	ALUMINUM	0.118	5.10E+00	087	TRUE	0	1.36E+00			WSRHA107	MGL
SW26C2	Calcium, Dissolved	0.0814	6.71E-01	087	TRUE	0	9.36E-01			RHA115	MGL
SW26C2	CALCIUM	9.08	3.20E+01	NA	TRUE	0				RHA115	MGL
SW26C2	Calcium, Dissolved	9.08	3.0E+01	NA	TRUE	0				RHA115	MGL
SW26C2	MAGNESIUM	1.26	2.70E+00	NA	TRUE	0				WSRHA115	MGL
SW26C2	Magnesium, Dissolved	1.4	6.9E+00	NA	TRUE	0				RHA115	MGL
SW26C2	MANGANESE	0.0064	6.6E-01	NA	TRUE	0				RHA115	MGL
SW26C2	Manganese, Dissolved	0.0074	3.5E-01	NA	TRUE	0				WSRHA115	MGL
SW26C2	POTASSIUM	1.91	2.30E+00	NA	TRUE	0				RHA115	MGL

SW	Sample Name	Concentration	Unit	Method	Result	Limit
SW26C2	Potassium, Dissolved	1.43	mg/L	70E-00	TRUE	NA
SW26C2	SODIUM	0.93	mg/L	1.0E+01	TRUE	NA
SW26C2	Sodium, Dissolved	0.907	mg/L	2.0E+01	TRUE	NA
SW26C2	SUSPENDED SOLIDS	6	mg/L	NA	TRUE	NA
SW26C2	TOTAL ORGANIC CARBON	1.6	mg/L	NA	TRUE	NA
SW26C2	ZINC	0.467	mg/L	2.0E-01	TRUE	1.1
SW26C2	Zinc, Dissolved	0.404	mg/L	1.0E-01	TRUE	1.1
SW26D1	ARSENIC	0.0624	mg/L	1.8E-02	TRUE	1.9
SW26D1	Arsenic, Dissolved	0.0216	mg/L	1.0E-02	TRUE	1.9
SW26D1	CHROMIUM	0.0128	mg/L	3.0E-02	TRUE	0.11
SW26D1	COPPER	0.0213	mg/L	7.5E-02	TRUE	0.12
SW26D1	DDE	0.00004	mg/L	NA	TRUE	0.05
SW26D1	DDT	0.000364	mg/L	1.0E+05	TRUE	0.00001
SW26D1	LEAD	0.0262	mg/L	1.9E-02	TRUE	0.032
SW26D1	Lead, Dissolved	0.0001	mg/L	2.3E-02	TRUE	0.032
SW26D1	NICKEL	0.016	mg/L	2.3E-02	TRUE	1.6
SW26D1	SUSPENDED SOLIDS	1180	mg/L	NA	TRUE	NA
SW26D1	TOTAL ORGANIC CARBON	12.4	mg/L	NA	TRUE	NA
SW26D1	ZINC	0.124	mg/L	2.9E-01	TRUE	1.1
SW26D2	ARSENIC	0.0724	mg/L	1.8E-02	TRUE	1.9
SW26D2	Arsenic, Dissolved	0.0463	mg/L	1.0E-02	TRUE	1.9
SW26D2	CHROMIUM	0.0184	mg/L	3.8E-02	TRUE	0.11
SW26D2	COPPER	0.0216	mg/L	7.5E-02	TRUE	0.12
SW26D2	DIELDRIN	0.00028	mg/L	1.0E+05	TRUE	0.032
SW26D2	LEAD	0.0224	mg/L	1.9E-02	TRUE	1.6
SW26D2	NICKEL	0.0173	mg/L	2.3E-02	TRUE	1.6
SW26D2	SUSPENDED SOLIDS	600	mg/L	NA	TRUE	NA
SW26D2	TOTAL ORGANIC CARBON	9.4	mg/L	NA	TRUE	NA
SW26D2	ZINC	0.199	mg/L	2.9E-01	TRUE	1.1
SW3	ACETONE	0.003	mg/L	NA	TRUE	NA
SW3	BARIUM	0.015	mg/L	1.3E-01	TRUE	1
SW3	DIG-ETHYLHEXYL PHTHALATE	0.003	mg/L	1.0E+05	TRUE	0.018
SW3	COPPER	0.027	mg/L	7.5E-02	TRUE	0.12
SW3	METHYLENE CHLORIDE	0.001	mg/L	NA	TRUE	1.93
SW3	ZINC	0.048	mg/L	2.9E-01	TRUE	1.1
SW4	ACETONE	0.002	mg/L	NA	TRUE	NA
SW4	BARIUM	0.014	mg/L	1.3E-01	TRUE	1
SW4	DIG-ETHYLHEXYL PHTHALATE	0.003	mg/L	1.0E+05	TRUE	0.018
SW4	COPPER	0.048	mg/L	7.5E-02	TRUE	0.12
SW4	ZINC	0.022	mg/L	2.9E-01	TRUE	1.1
SW5	ACETONE	0.002	mg/L	NA	TRUE	NA
SW5	BARIUM	0.014	mg/L	1.3E-01	TRUE	1
SW5	DIG-ETHYLHEXYL PHTHALATE	0.003	mg/L	1.0E+05	TRUE	0.018
SW5	COPPER	0.001	mg/L	7.5E-02	TRUE	0.12
SW5	N-NITROSODIPHENYLAMINE	0.003	mg/L	NA	TRUE	0.665
SW5	ZINC	0.022	mg/L	2.9E-01	TRUE	1.1
SW5A	DIELDRIN	0.00022	mg/L	1.0E+05	TRUE	NA
SW5A	LEAD	0.0022	mg/L	1.9E-02	TRUE	0.032
SW5A	NICKEL	0.0061	mg/L	2.3E-02	TRUE	1.6
SW5A	ZINC	0.048	mg/L	2.9E-01	TRUE	1.1
SW5A	Zinc, Dissolved	0.0432	mg/L	1.0E-01	TRUE	NA
SW5B	LEAD	0.0168	mg/L	1.9E-02	TRUE	0.032
SW5B	Lead, Dissolved	0.004	mg/L	2.3E-02	TRUE	0.032
SW5B	ZINC	0.043	mg/L	2.9E-01	TRUE	1.1

SW51B	Zinc, Dissolved	0.045	1.0E-01	11	TRUE	0	4.09E-01	18.6E+01	3	51	WSGB015	MG/L
SW51C	ARSENIC	0.004	1.0E-02	19	TRUE	0	3.16E-02	9.78E+00	3	51	SGB016	MG/L
SW51C	ARSENIC, Dissolved	0.0038	1.2E-02	19	TRUE	0	1.89E-02		3	51	WSGB016	MG/L
SW51C	DIETHYLIN	0.0001	1.0E+05	NA	TRUE	0			3	51	SGB016	MG/L
SW51C	LEAD	0.0094	1.0E-02	0032	TRUE	0	1.86E+01		3	51	SGB016	MG/L
SW51C	Lead, Dissolved	0.0313	2.3E-02	0032	TRUE	0	9.78E+00		3	51	WSGB016	MG/L
SW51C	NICKEL	0.0077	2.3E-02	19	TRUE	0	4.38E-02		3	51	SGB016	MG/L
SW51C	ZINC	0.0008	2.3E-02	11	TRUE	0	8.25E-01		3	51	WSGB016	MG/L
SW51C	ZINC, Dissolved	0.0763	4.1E-01	11	TRUE	0	6.94E-01		3	51	WSGB016	MG/L
SW52A	ARSENIC	0.0027	1.0E-02	19	TRUE	0	1.42E-02		3	52	SGB016	MG/L
SW52A	ARSENIC, Dissolved	0.0043	1.2E-02	19	TRUE	0	2.26E-02		3	52	WSGB016	MG/L
SW52A	COPPER	0.0046	7.5E-02	012	TRUE	0	3.83E-01		3	52	WSGB016	MG/L
SW52A	DIETHYLIN	0.00066	1.0E+05	NA	TRUE	0			3	52	SGB016	MG/L
SW52A	LEAD	0.003	1.0E-02	0032	TRUE	0	9.37E-01		3	52	SGB016	MG/L
SW52A	ZINC	0.0196	2.3E-01	11	TRUE	0	1.78E-01		3	52	SGB016	MG/L
SW52A	ZINC, Dissolved	0.0271	4.1E-01	11	TRUE	0	2.46E-01		3	52	WSGB016	MG/L
SW52B	ARSENIC	0.0041	1.0E-02	19	TRUE	0	2.16E-02		3	52	SGB016	MG/L
SW52B	ARSENIC, Dissolved	0.0033	1.2E-02	19	TRUE	0	1.74E-02		3	52	WSGB016	MG/L
SW52B	LEAD	0.0023	1.0E-02	0032	TRUE	0	7.19E-01		3	52	SGB016	MG/L
SW52B	ZINC	0.0035	2.3E-01	11	TRUE	0	2.77E-01		3	52	SGB016	MG/L
SW54A	1,2,3,4,6,7,8	1.04E-07	1.0E+05	NA	TRUE	0	2.47E-02		15	54	SGB016	MG/L
SW54A	ARSENIC	0.0046	1.0E-02	19	TRUE	0	2.71E-02		15	54	WSGB016	MG/L
SW54A	ARSENIC, Dissolved	0.0042	1.2E-02	19	TRUE	0	2.82E-01		15	54	SGB016	MG/L
SW54A	CHROMIUM	0.0031	3.0E-02	011	TRUE	0	6.80E-01		15	54	WSGB016	MG/L
SW54A	DOT	0.00024	1.0E+05	00001	TRUE	0			15	54	SGB016	MG/L
SW54A	DIETHYLIN	0.00024	1.0E+05	NA	TRUE	0			15	54	WSGB016	MG/L
SW54A	LEAD	0.0114	1.0E-02	0032	TRUE	0	3.50E+01		15	54	SGB016	MG/L
SW54A	NICKEL	0.0094	2.3E-02	19	TRUE	0	5.88E-02		15	54	WSGB016	MG/L
SW54A	OCTACHLORODIBENZOFURAN	1.33E-07	1.0E+05	NA	TRUE	0			15	54	SGB016	MG/L
SW54A	OCTACHLORODIBENZOP-DIOXIN	3.17E-06	1.2E-06	NA	TRUE	0			15	54	WSGB016	MG/L
SW54A	PENTACHLOROPHENOL	0.007	1.0E+05	013	TRUE	0	5.38E-01		15	54	SGB016	MG/L
SW54A	TCDD Equivalent	3.30E-09	8.2E-09	NA	TRUE	0			15	54	WSGB016	MG/L
SW54A	ZINC	0.0475	2.3E-01	11	TRUE	0	4.32E-01		15	54	SGB016	MG/L
SW54B	ARSENIC	0.0058	1.0E-02	19	TRUE	0	3.05E-02		15	54	WSGB016	MG/L
SW54B	ARSENIC, Dissolved	0.0058	1.2E-02	19	TRUE	0	3.05E-02		15	54	SGB016	MG/L
SW54B	CHROMIUM	0.0029	3.0E-02	011	TRUE	0	2.44E-01		15	54	WSGB016	MG/L
SW54B	DOT	0.00066	1.0E+05	00001	TRUE	0	6.00E-01		15	54	SGB016	MG/L
SW54B	DIETHYLIN	0.0023	1.0E+05	NA	TRUE	0			15	54	WSGB016	MG/L
SW54B	LEAD	0.0082	1.0E-02	0032	TRUE	0	2.56E+00		15	54	SGB016	MG/L
SW54B	NICKEL	0.0062	2.3E-02	19	TRUE	0	3.87E-02		15	54	WSGB016	MG/L
SW54B	OCTACHLORODIBENZOFURAN	2.21E-07	1.0E+05	NA	TRUE	0			15	54	SGB016	MG/L
SW54B	OCTACHLORODIBENZOP-DIOXIN	3.86E-06	1.2E-06	NA	TRUE	0			15	54	WSGB016	MG/L
SW54B	PENTACHLOROPHENOL	0.004	1.0E+05	013	TRUE	0	4.62E-01		15	54	SGB016	MG/L
SW54B	TCDD Equivalent	4.08E-09	8.2E-09	NA	TRUE	0			15	54	WSGB016	MG/L
SW54B	ZINC	0.0286	2.3E-01	11	TRUE	0	2.60E-01		15	54	SGB016	MG/L
SW54C	1,2,3,7,8,9	0.0000006	1.0E+05	NA	TRUE	0			15	54	WSGB016	MG/L
SW54C	2,3,4,6,7,8	1.93E-06	1.0E+05	NA	TRUE	0	6.58E-02		15	54	SGB016	MG/L
SW54C	ARSENIC	0.0125	1.0E-02	19	TRUE	0	0.37E-02		15	54	WSGB016	MG/L
SW54C	ARSENIC, Dissolved	0.0121	1.2E-02	19	TRUE	0	8.00E-01		15	54	SGB016	MG/L
SW54C	DOT	0.00066	1.0E+05	00001	TRUE	0			15	54	WSGB016	MG/L
SW54C	OCTACHLORODIBENZOFURAN	8.1E-08	1.0E+05	NA	TRUE	0			15	54	SGB016	MG/L
SW54C	OCTACHLORODIBENZOP-DIOXIN	2.01E-06	1.2E-06	NA	TRUE	0			15	54	WSGB016	MG/L
SW54C	TCDD Equivalent	2.1E-09	8.2E-09	NA	TRUE	0			15	54	SGB016	MG/L
SW54C	ZINC	0.0053	2.3E-01	11	TRUE	0	3.21E-01		15	54	WSGB016	MG/L

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SW55C	NICKEL	0.012	2.30E-02	16	TRUE	0	7.54E-02	SS	29	56	SG8024	MG/L
SW55C	OCTACHLORODIBENZO-p-DIOXIN	1.51E-07	1.23E-06	NA	TRUE	0		SS	29	56	SG8024	MG/L
SW55C	POTASSIUM	1.7	7.50E+00	NA	TRUE	0		SS	29	56	SG8024	MG/L
SW55C	Potassium, Dissolved	1.59	6.70E+00	NA	TRUE	0		SS	29	56	WS8024	MG/L
SW55C	SODIUM	0.584	2.10E+01	NA	TRUE	0		SS	29	56	WS8024	MG/L
SW55C	Sodium, Dissolved	0.601	2.20E+01	NA	TRUE	0		SS	29	56	WS8024	MG/L
SW55C	ICDD Equivalent	1.51E-10	8.20E-09	NA	TRUE	0		SS	29	56	SG8024	MG/L
SW55C	ZINC	0.0334	2.90E-01	11	TRUE	0		SS	29	56	SG8024	MG/L
SW55C	Zinc, Dissolved	0.0508	4.10E-01	11	TRUE	0	5.74E+05	SS	29	56	SG8024	MG/L
SW6	ARSENIC	0.048	1.80E-02	19	TRUE	-1	5.35E-01	LAW	3	51	WS8024	MG/L
SW6	BARIUM	0.017	1.30E-01	1	TRUE	0	1.70E-02	LAW	3	51	LAWSW6	MG/L
SW6	COPPER	0.024	7.50E-02	012	TRUE	0	2.00E+00	LAW	3	51	LAWSW6	MG/L
SW6	DDE	0.00021	NA	0106	TRUE	0	2.00E-02	LAW	3	51	LAWSW6	MG/L
SW6	ZINC	0.041	2.90E-01	11	TRUE	0	3.70E-01	LAW	3	51	LAWSW6	MG/L
SW7	ACETONE	0.002	NA	NA	TRUE	0		LAW	3	51	LAWSW7	MG/L
SW7	ARSENIC	0.041	1.80E-02	19	TRUE	-1	2.16E-01	LAW	3	51	LAWSW7	MG/L
SW7	BARIUM	0.019	1.30E-01	1	TRUE	0	1.50E-02	LAW	3	51	LAWSW7	MG/L
SW7	Di(2-ETHYLHEXYL) PHTHALATE	0.024	1.00E+05	0018	TRUE	0	1.11E+00	LAW	3	51	LAWSW7	MG/L
SW7	COPPER	0.027	7.50E-02	012	TRUE	0	1.67E+00	LAW	3	51	LAWSW7	MG/L
SW7	METHYLENE CHLORIDE	0.002	NA	193	TRUE	0	1.04E-03	LAW	3	51	LAWSW7	MG/L
SW7	N-NITROSODIPHENYLAMINE	0.003	NA	0685	TRUE	0	5.13E-02	LAW	3	51	LAWSW7	MG/L
SW7	ZINC	0.032	2.90E-01	11	TRUE	0	2.91E-01	LAW	3	51	LAWSW7	MG/L
SW8	ACETONE	0.002	NA	NA	TRUE	0		LAW	3	51	LAWSW8	MG/L
SW8	ARSENIC	0.037	1.80E-02	19	TRUE	-1	1.95E-01	LAW	3	51	LAWSW8	MG/L
SW8	BARIUM	0.015	1.30E-01	1	TRUE	0	1.50E-02	LAW	3	51	LAWSW8	MG/L
SW8	Di(2-ETHYLHEXYL) PHTHALATE	0.003	1.00E+05	0018	TRUE	0	1.67E+00	LAW	3	51	LAWSW8	MG/L
SW8	COPPER	0.019	7.50E-02	012	TRUE	0	1.58E+00	LAW	3	51	LAWSW8	MG/L
SW8	METHYLENE CHLORIDE	0.001	NA	193	TRUE	0	5.18E-04	LAW	3	51	LAWSW8	MG/L
SW8	ZINC	0.037	2.90E-01	11	TRUE	0	3.34E-01	LAW	3	51	LAWSW8	MG/L
SW9	ACETONE	0.018	NA	NA	TRUE	0		LAW	3	51	LAWSW9	MG/L
SW9	ARSENIC	0.047	1.80E-02	19	TRUE	-1	2.47E-01	LAW	3	51	LAWSW9	MG/L
SW9	BARIUM	0.04	1.30E-01	1	TRUE	0	6.00E-02	LAW	3	51	LAWSW9	MG/L
SW9	Di(2-ETHYLHEXYL) PHTHALATE	0.012	1.00E+05	0018	TRUE	0	6.67E+00	LAW	3	51	LAWSW9	MG/L
SW9	CADMIUM	0.006	NA	0011	TRUE	0	4.55E+00	LAW	3	51	LAWSW9	MG/L
SW9	COPPER	0.008	7.50E-02	012	TRUE	0	5.67E+00	LAW	3	51	LAWSW9	MG/L
SW9	DOT	0.00016	1.00E+05	00001	TRUE	0	1.60E+02	LAW	3	51	LAWSW9	MG/L
SW9	LEAD	0.206	1.90E-02	0002	TRUE	-1	9.22E+01	LAW	3	51	LAWSW9	MG/L
SW9	METHYLENE CHLORIDE	0.013	NA	193	TRUE	0	5.18E-04	LAW	3	51	LAWSW9	MG/L
SW9	SILVER	0.013	NA	000012	TRUE	0	1.08E+03	LAW	3	51	LAWSW9	MG/L
SW9	ZINC	0.4	2.90E-01	11	TRUE	-1	3.64E+00	LAW	3	51	LAWSW9	MG/L

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