ATTACHMENT 10A

THERMAL TREATMENT UNIT
ECOLOGICAL RISK ASSESSMENT

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Acronyms and Abbreviations

AUF	area use factor
BAF	bioaccumulation factor
BCF	bioconcentration factor
COPEC	contaminant of potential ecological concern
EPA	U.S. Environmental Protection Agency
EPC	exposure point concentration
ERA	ecological risk assessment
HAFB	Hill Air Force Base
HI	hazard index
HQ	hazard quotient
LD	lethal dose
LOAEL	lowest observed adverse effect level
LOEC	lowest observed effect concentration
NOAEL	no observed adverse effect level
NOEC	no observed effect concentration
OB/OD	open burn/open detonation
ORNL	Oak Ridge National Laboratory
PAH	polycyclic aromatic hydrocarbon
PCB	polychlorinated biphenyl
RCRA	Resource Conservation and Recovery Act
SLERA	screening-level ecological risk assessment
SVOC	semi-volatile organic compound
TCE	Trichloroethylene
TPH	total petroleum hydrocarbons
TRV	toxicity reference value
TSD	Treatment, Storage, and Disposal
TTU	Thermal Treatment Unit
UCL	upper confidence limit

UTTR	Utah Training and Test Range
VOC	volatile organic compound
WRS	Wilcoxon Rank Sum

ECOLOGICAL RISK SCREEN

1.0 Introduction

In 1987, Hill Air Force Base (HAFB) applied for a Treatment, Storage, and Disposal (TSD) facility permit for the Thermal Treatment Unit (TTU) located at the Utah Test and Training Range (UTTR). The Utah Department of Environmental Quality (State) issued the final permit February 13, 2003. Several attachments listed in the permit are to be updated and resubmitted to the State. An ecological risk assessment (ERA) is one of those required attachments. This ecological risk assessment addresses comments issued by the State on the previously submitted final report (October 2004) and is submitted as a *revised* final report. This document will serve to meet the requirements of the Resource Conservation and Recovery Act (RCRA) Hazardous Waste Permit for the UTTR TTU.

The screening-level ecological risk assessment (SLERA) uses procedures outlined in the *Ecological Risk Assessment Guidance for Superfund: Process for Designing and Conducting Ecological Risk Assessments* (U.S. Environmental Protection Agency [EPA], 1997). The assessment is based on the analysis of historical site data collected between 1989 and December 2004.

The risk assessment is conducted in two parts. The first is an initial, conservative screen using maximum concentrations and no-effect levels (to differentiate between analytes that clearly present no risk and analytes that may present a risk). The second is a refined screen in which more realistic exposure and effects assumptions are employed to better define whether analytes that failed the initial screen require additional evaluation. Where the potential for risks could not be excluded for contaminants of potential ecological concern (COPECs) in the refined analysis, a further step was made where only the samples collected from ecological habitat areas, excluding the open burn/open detonation (OB/OD) areas, were characterized. All other assumptions and calculations remained the same as in the refined analysis.

1.1 Project Background

The *Integrated Natural Resources Management Plan, Hill Air Force Base* (Blood, 2001) was used as a reference document during the development of the SLERA for the TTU. Marcus Blood (primary author of *Integrated Natural Resources Management Plan, Hill Air Force Base*) reviewed and approved the *Draft Ecological Screening Evaluation for the Utah Test and Training Range-North* before it was sent to the State for comment. In addition, Marcus Blood accompanied CH2M HILL staff on a site visit to discuss receptor selection and site goals.

1.2 Approach

The primary guidance utilized in completing the SLERA is the *Ecological Risk Assessment Guidance for Superfund* (EPA, 1997). The initial assessment of the SLERA is consistent with and focuses on the first two steps outlined in the guidance, and the refined risk evaluation begins the initial part of Step 3 as outlined in EPA (1997). This SLERA is also consistent with the following guidance documents:

- *Framework for Ecological Risk Assessment* (EPA, 1992)
- *Ecological Risk Assessment Guidance for Superfund: Process for Designing and Conducting Ecological Risk Assessments* (EPA, 1997)
- *Final Guidelines for Ecological Risk Assessment* (EPA, 1998)
- *ECO Updates*, Volume 1, Numbers 1 through 5 (EPA, 1991a; 1991b; 1992a; 1992b; and 1992c)
- *ECO Updates*, Volume 2, Numbers 1 through 4 (EPA, 1994a; 1994b; 1994c; and 1994d)
- *ECO Updates*, Volume 3, Numbers 1 and 2 (EPA, 1996a and 1996b)
- *Final Guidelines for Ecological Risk Assessment* (EPA, 1998)
- *Ecological Risk Assessment and Risk Management Principles for Superfund Sites* (EPA, 1999)
- *The Role of Screening-Level Risk Assessments and Refining Contaminants of Concern in Baseline Ecological Risk Assessments* (EPA, 2001a)

Ecological risks were evaluated based on conservative assumptions, utilizing the maximum media concentration. Maximum non-detected concentrations were also screened to determine the potential for risk due to analytes with concentrations below detection limits. Failure to pass the screening assessment does not indicate the presence of risk. Rather, these results indicate that available data are insufficient to support a conclusion that ecological risks are absent and further evaluation may be required.

The results of this SLERA are intended for use to determine whether treatment activities at the TTU site have the potential to adversely affect ecological receptors at the site. Soil data collected from set locations on an annual basis at the completion of each set of burns/detonations (i.e., at the end of each sampling season) will continue to be added to the existing SLERA data. These combined data will be used to update the SLERA as required by the RCRA permit. As the monitoring database develops, concentrations in soil and site activity (i.e., volume of material destroyed) can be associated to estimate future contaminant levels, and predictive models of risks may be developed based on previously existing trends.

1.3 Current Evaluation

This SLERA was originally completed in 2005 and incorporated into the TTU Permit in 2006. Biennial evaluations of the SLERA were conducted in 2007, 2009, and 2011. The 2011 Ecological Risk Screen Evaluation is attached as Appendix C. It summarizes the findings of the previous evaluations and incorporates new sampling data acquired since the initial SLERA was conducted.

2.0 Problem Formulation

2.1 Environmental Setting

The TTU is strictly an arid upland site, and no wetlands are present at the location. In addition, no state or federal special status species are known to use the site. Two soil types exist at the TTU. The majority of the soils at the TTU are comprised of the Timpie-Tooele complex. Outlying areas near the southeast corner of the TTU contain the Amtoft-Rock outcrop complex. Further discussion of land use and the location of areas for those uses are presented in the *Integrated Natural Resource Management Plan for Hill AFB* (Blood, 2001). Specific details regarding the ecological resources at the site are also provided in the same document.

Samples were collected from within OB/OD areas that do not contain plants or wildlife habitat in addition to areas surrounding the OB/OD areas that do contain potential habitat for wildlife.

2.2 Fate and Transport

Analytes may be mobile in the environment through various pathways that are dependent on individual chemical properties. A summary of the fate mechanisms and transport processes for detected chemicals at the TTU is presented in Table 1.

2.3 Mechanisms of Ecotoxicity

The potential for adverse effects to ecological receptors in the environment is a function of the chemical exposure (dose) and the mechanism of toxicity for each chemical or class of chemicals with similar modes of action. The mechanisms of toxicity for inorganic, organic analytes, and explosives detected in on-site soils are summarized and presented in Table 2.

2.4 Complete Exposure Pathways

An exposure pathway is the course that an analyte takes from a source to an organism (receptor). For an exposure to occur, complete exposure pathways must exist. Ecological resources at the TTU site could potentially be exposed to analytes through different exposure routes. Several trophic guilds have been identified as having complete exposure pathways to site-related contaminants in soil. Eight of these guilds were identified for evaluation in this screening assessment. Figure 1 presents a food web diagram indicating complete exposure pathways for the site. The primary exposure pathways consist of the following:

- Direct exposure to contaminants in site soils
- Ingestion of prey items that have accumulated site contaminants
- Incidental ingestion of soil

Direct exposure occurs primarily for plants, insects, and burrow-dwelling birds and mammals. Second-order guilds and higher receive exposure primarily through ingestion of prey and incidental soil. Figure 2 is a conceptual model indicating the exposure pathways evaluated for each receptor guild. Samples originating within OB/OD areas do not represent media with a complete exposure pathway for wildlife, as the surface is barren and provides no habitat for ecological receptors. However, all samples collected from the TTU area, including those from the OB/OD areas, were evaluated in this SLERA as a conservative measure of exposure.

2.5 Summary of Available Site-Specific Data

Data used for this risk assessment included historical data and data collected in 1989, 1991, 2002, and December 2004. Summary statistics for the site data used in this screening assessment are shown in Table 3. As part of the initial, conservative screen, the maximum detected concentration from this data set was used as an exposure point concentration (EPC), the representative concentration for exposure estimates to plants, soil invertebrates, birds, and mammals. Half of the maximum detection limit was evaluated as the EPC for analytes with concentrations below detection limits in all samples. In the refined screen, exposure for plants and soil invertebrates was evaluated on a point-by-point basis, whereas exposure for wildlife was calculated as the best statistical estimate of an upper bound on the average exposure concentrations, in accordance with EPA guidance for statistical analysis of monitoring data (EPA, 1989; EPA, 2002).

2.6 Identification of Contaminants of Potential Ecological Concern

COPECs in soil were identified following guidance presented in EPA (1997). All inorganic and organic chemicals detected in soil were retained as COPECs for the initial conservative screen. In addition, to determine the adequacy of analytical detection limits, the maximum non-detected concentration of any analyte that was not detected in any sample was screened. Analytes (either detected or not detected) that lacked screening values were retained as uncertainties.

Chemicals considered to be essential nutrients (calcium, chloride, potassium, and sodium) were excluded from the risk evaluation because these essential nutrients have low toxicity, especially by the dermal and inhalation intake routes. Additionally, general chemical parameters used for the nature and extent of contamination evaluation (e.g., sulfate) were excluded from the risk evaluation due to a lack of toxicity values and expected low toxicity associated with exposures to these chemicals.

2.7 Measures of Exposure and Effects

Evaluation of ecological risks requires the definition of measures that will be considered. These are termed measures of exposure and effects (EPA, 1998) and consist of assessment and measurement endpoints.

2.7.1 Assessment Endpoints

Assessment endpoints describe the environmental resources to be protected and help to focus the SLERA on the most relevant trophic guilds and receptors for evaluation. Assessment endpoints for the site are described below and presented in Table 4. At this site, they are developed to protect ecological resources, i.e., plants (primary producers) in the terrestrial environment and the prey of wildlife communities that might come in contact with contamination on the site.

Assessment endpoints and representative receptors for the TTU were selected based on one or more of the following criteria:

- Receptor is a special-status species (e.g., federally listed as threatened or endangered)
- Receptor has a small home range
- Receptor is representative of an ecological guild
- Receptor is susceptible to bioaccumulation or biomagnification of COPECs (e.g., higher trophic-level predators)
- Receptor is likely to be exposed to contaminants

- Receptor occurs at the site
- Receptor is known or suspected to be sensitive to contaminants
- Receptor has a small body size such that food ingestion (and exposure) is maximized
- Receptor has a diet composition representing high proportions of food types representing specific bioaccumulation pathways (i.e., plants, soil invertebrates, or vertebrates) such that pathway-specific exposure and risk are maximized

For purposes of this screening-level assessment, current conditions are assumed to continue into the future and assessment endpoints apply under current and future scenarios. Eight assessment endpoints were identified to protect the following components of terrestrial habitats at the site:

1. Terrestrial plant community
2. Soil invertebrate community
3. Herbivorous mammals
4. Insectivorous mammals
5. Carnivorous mammals
6. Herbivorous birds
7. Insectivorous birds
8. Carnivorous birds

Table 5 documents the applicable selection criteria for each of the eight assessment endpoints (and their associated representative receptor), which are also listed below. No resident special status or federal sensitive species were identified at the site (Blood, 2001) and are, therefore, not specifically considered in this SLERA. The eight assessment endpoints are discussed below.

1. Protection of the terrestrial plant community from direct toxic effects on survival, reproduction, and growth due to chemicals in soil.

The first assessment endpoint reflects the potential presence of elevated concentrations of chemicals in site soils and the bioavailability, accumulation, and direct toxicity of chemicals to plants. The plant community is important as a component of habitat (cover and breeding sites) and as a food source for wildlife.

2. Protection of the soil invertebrate community from direct toxic effects on survival, reproduction, and growth due to chemicals in soil.

The second assessment endpoint is based on the potential presence of elevated concentrations of chemicals in site soils, and the bioavailability, accumulation, and direct toxicity of chemicals to the soil invertebrate community. The soil invertebrate community is an important component of the terrestrial ecosystem at the site. It contributes to soil conditions that promote plant growth and maintenance of the terrestrial plant community and provides food for wildlife.

3. Protection of populations of herbivorous small mammals from toxic effects on survival, reproduction, and growth due to chemicals in soil and plants.

The third assessment endpoint addresses the exposure of herbivorous small mammal populations to elevated concentrations of chemicals in site soils and waste materials and indirectly through consumption of plants. These animals are important components of the wildlife community, and serve as prey for higher trophic-level carnivorous birds and mammals. They may be sensitive to adverse effects on survival, reproduction, and growth from exposure to contaminants in soil and plants that live in site soils.

4. Protection of populations of insectivorous small mammals from toxic effects on survival, reproduction, and growth due to chemicals in soil and invertebrates.

The fourth assessment endpoint addresses the exposure of insectivorous small mammal populations to elevated concentrations of chemicals in site soils and waste materials and indirectly through consumption of terrestrial invertebrates. These animals are important components of the wildlife community, and serve as prey for higher trophic-level carnivorous birds and mammals. They may be sensitive to adverse effects on survival, reproduction, and growth from exposure to contaminants in soil and invertebrates that live in site soils.

5. Protection of populations of upper trophic-level species of carnivorous mammals from toxic effects on survival, reproduction, and growth due to chemicals in soil and prey.

The fifth assessment endpoint addresses the exposure of top-level carnivorous mammals to elevated concentrations of contaminants in site soils and indirectly through consumption of invertebrates and lower trophic-level vertebrate prey organisms that live on the site. These mammals are susceptible to uptake and direct toxic effects on survival, reproduction, and growth from exposure to contaminants in soil and bioaccumulation and related toxic effects of contaminants in invertebrates, small mammals, and birds that live on the site.

6. Protection of populations of herbivorous birds from toxic effects on survival, reproduction, and growth due to chemicals in soil and plants.

The sixth assessment endpoint addresses the exposure of herbivorous bird populations to elevated concentrations of chemicals in site soils and waste materials and indirectly through consumption of plants. These animals are important components of the wildlife community, and serve as prey for higher trophic-level carnivorous birds and mammals. They may be sensitive to adverse effects on survival, reproduction, and growth from exposure to contaminants in soil and plants that live in site soils.

7. Protection of populations of insectivorous birds from toxic effects on survival, reproduction, and growth due to chemicals in soil and prey.

The seventh assessment endpoint addresses the exposure of insectivorous birds to elevated concentrations of site contaminants in soils and indirectly through consumption of invertebrates and other material. These animals are primarily insectivorous, but may consume some plant material, and are important components of the wildlife community. They serve as prey for higher trophic-level carnivorous birds and mammals. They may be sensitive to toxic effects on survival, reproduction, and growth from exposure to contaminants in soil, invertebrates, and plants that live in site soils.

8. Protection of populations of wide-ranging carnivorous birds from toxic effects on survival, reproduction, and growth due to chemicals in soil, plants, and prey.

The eighth assessment endpoint addresses the exposure of carnivorous birds to elevated concentrations of contaminants in site soils and indirectly through consumption of small mammals and reptiles and lower that live on and adjacent to the site. These vertebrates are susceptible to uptake and direct toxic effects on survival, reproduction, and growth from exposure to contaminants in soil and sediment, and bioaccumulation and related toxic effects from exposure to contaminants.

Reptiles were not selected as assessment endpoints for the TTU. Although they are present at the site, of interest and worthy of protection, both data and methods to estimate exposure and to evaluate toxicity are limited. As a consequence, reptiles are assumed to be protected if other vertebrate wildlife assessment endpoints are protected. In addition, no special status species were present at the TTU site; thus, they are not included among the final assessment endpoints.

2.7.2 Testable Hypotheses

The following paragraphs present the testable hypotheses for the assessment endpoints described above and the refined measurement endpoints described below. The benchmarks mentioned here represent measures of effects and refer to promulgated standards and published ecological screening benchmark values that, when available, represent the no-effect level and lowest-effect level for the representative ecological receptors.

The following hypotheses are related to exposure to COPECs in soils at the site:

- The concentrations of COPECs in soil are not greater than soil benchmarks protective of plants (Assessment Endpoint No. 1).
- The concentrations of COPECs in soil are not greater than soil benchmarks protective of soil invertebrates (Assessment Endpoint No. 2).
- The concentrations of chemicals in soil and biota are not sufficient to cause direct toxic effects, reduced growth, or reproductive impairment in populations of herbivorous small mammals that inhabit or forage at the site (Assessment Endpoint No. 3).
- The concentrations of chemicals in soil and biota are not sufficient to cause direct toxic effects, reduced growth, or reproductive impairment in populations of insectivorous small mammals that inhabit or forage at the site (Assessment Endpoint No. 4).
- The concentrations of chemicals in soil and biota are not sufficient to cause direct toxic effects, reduced growth, or reproductive impairment in populations of carnivorous mammals that inhabit or forage at the site (Assessment Endpoint No. 5).
- The concentrations of chemicals in soil and biota are not sufficient to cause direct toxic effects, reduced growth, or reproductive impairment in populations of herbivorous birds that inhabit or forage at the site (Assessment Endpoint No. 6).
- The concentrations of chemicals in soil and biota are not sufficient to cause direct toxic effects, reduced growth, or reproductive impairment in populations of insectivorous birds that inhabit or forage at the site (Assessment Endpoint No. 7).
- The concentrations of chemicals in soil and biota are not sufficient to cause direct toxic effects, reduced growth, or reproductive impairment in populations of carnivorous birds that inhabit or forage at the site (Assessment Endpoint No. 8).

2.7.3 Measurement Endpoints

Measurement endpoints are ecological characteristics related to an assessment endpoint by the route of exposure and mechanism of toxicity; they are used in the evaluation of testable hypotheses developed for each assessment endpoint (EPA, 1997). Measurement endpoints for the site are described below and presented in Table 4.

Measures of exposure can be an EPC of a chemical in an environmental medium or food item, or a related dose estimate. In the initial screening assessment, maximum detected or non-detected (if all samples were non-detects) concentrations were used as the EPC for all receptors. A point-by-point evaluation of all analytes retained from the initial screen was conducted for immobile receptors in the refined screening assessment. For mobile receptors (i.e., birds and mammals), the EPC was represented by the upper confidence limit (UCL) 95 (UCL95) for each retained analyte.

Measures of effects include media-specific ecological benchmarks and toxicity reference values (TRVs). Because site-related chemicals can induce ecotoxicological effects in exposed receptors if present at sufficiently high concentrations, ecotoxicity-based benchmarks and TRVs are also measurement endpoints. In the initial screen, TRVs were represented by literature-based, no observed effect concentrations (NOECs) and no observed adverse effect levels (NOAELs). In the refined screen, NOECs and NOAELs as well as lowest observed effect concentrations (LOECs) and lowest observed adverse effect levels (LOAELs) were used.

Direct comparison of the EPC of a chemical to an ecotoxicity-based benchmark for plants and invertebrates provides a measure of the possible effects attributable to direct exposure. If the EPCs fall below the concentration benchmarks estimated to be protective of direct toxicity, and if chemicals are not bioaccumulative, then it can be inferred that no adverse ecological effect is likely to occur. For mammals and birds, a food-chain exposure is calculated and compared to exposure dose-based TRVs. If the food-chain exposure doses fall below the NOAEL-based TRVs, then it can be inferred that no adverse effect is likely to occur through indirect (food-chain) exposure. If the calculated doses fall above the NOAEL-based TRV but below the LOAEL-based TRV, it is uncertain whether individuals would be adversely affected, and population-level effects are unlikely.

3.0 Exposure Assessment

This section provides the assumptions and equations used for developing initial exposure estimates for the receptors selected to represent the trophic guilds potentially exposed at this site. These estimates are used in the risk calculations developed for identifying contaminants requiring further evaluation.

3.1 Exposure Estimates for Receptors Exposed in Lower Order Trophic Guilds

Less mobile, lower trophic-level organisms (plants and invertebrates) are exposed to more localized concentrations of contaminants than are higher trophic-level receptors. As a measure of conservatism for the initial screen, potential toxicity of site-related chemicals to these receptors was evaluated by using the maximum detected concentration as the EPC, the concentration to which receptors are assumed to be exposed. The EPC used for plants and soil invertebrates included data from the top 6 inches. The highest concentrations of COPECs are expected to reside at or near the soil surface due to aerial deposition of potential contaminants at the TTU. Precipitation at the site is limited, resulting in limited infiltration. Assuming exposure for plants to be represented by concentrations in the top 6 inches of soil is both representative and protective. For these trophic guilds, it was also conservatively assumed that chemicals in sampled media are 100 percent bioavailable and that they remain at a steady concentration (i.e., decomposition rates are not considered).

3.2 Exposure Estimates for Higher Order Trophic Guilds

Selected receptor species were chosen to represent the bird and mammal feeding guilds that are expected at the site. These include the Ord's kangaroo rat (*Dipodomys ordii*), Townsend's ground squirrel (*Spermophilus townsendii*), black-tailed jackrabbit (*Lepus californicus*), Northern grasshopper mouse (*Onychomys leucogaster*), pronghorn (*Antilocapra americana*), coyote (*Canis latrans*), sage sparrow (*Amphispiza belli*), loggerhead shrike (*Lanius ludovicianus*), western meadowlark (*Sturnella neglecta*), and burrowing owl (*Speotyto cunicularia*). The species-specific exposure parameters used to estimate wildlife exposure doses include EPCs, body weight, food intake rate, diet composition, and percent of diet as soil. The exposure factor parameters and dietary compositions used for each bird and mammal receptor are provided in Table 6. The sources of these parameters for each of the selected endpoint species for the site include the Wildlife Exposure Factors Handbook (EPA, 1993), Oak Ridge National Laboratory's Toxicological Benchmarks for Wildlife (Sample et al., 1996), Oak Ridge National Laboratory's Methods and Tools for Estimation of the Exposure of Terrestrial Wildlife to Contaminants (Sample et al., 1997), and other available studies (as cited). In some cases, dietary compositions were simplified by lumping comparable food types to facilitate calculation of exposure estimates. Lumping allows for the use of existing bioaccumulation models to estimate COPEC concentrations in food items. Data from the top 6 inches were used to calculate the EPC for incidental media ingestion of all receptors and for exposure to prey items. Assuming exposure for burrowing animals is represented by concentrations in the top 6 inches of soil is both representative and protective because the release mechanism at the TTU is aerial deposition and precipitation is limited. Thus, infiltration will be limited, resulting in the highest concentrations remaining at the surface.

For the initial screen, the most conservative exposure assumptions were used. These assumptions included the use of maximum exposure concentrations, 100 percent site use, and 100 percent bioavailability of analytes. As a conservative measure of dietary exposure to contaminants, it was also assumed that 100 percent of the receptor diet was obtained from the primary food group.

For the refined screen, biologically more realistic assumptions were employed. These included the use of the 95 percent UCL as the EPC and area use factors (AUFs—weighting site use as a fraction of home-range size). AUFs based on species-specific average home range values are presented in Table 7. Allometric equations based on average body weights were used to estimate food ingestion rates. The taxonomically most specific allometric equation that was appropriate was used in all cases (e.g., the equation for passerines was used for the northern shrike instead of the equation for all birds).

Site-specific concentrations of contaminants in wildlife foods were not available for the TTU site. Bioaccumulation values and models derived from published literature were therefore used to estimate concentrations in food items based on media concentrations (Tables 8 and 9). Because bioaccumulation is a non-linear process, log-linear regression models were used if available. These log-linear bioaccumulation regression models for wildlife (Sample et al., 1998a), soil invertebrates (Sample et al., 1998b), and plant tissues (Bechtel Jacobs, 1998) were used to estimate the uptake of several metals into invertebrate tissues (Table 9). Calculated bioconcentration factors (BCFs) for each analyte were considered representative for all prey items from that food group. In the absence of these models, the 90th percentiles of bioaccumulation factors (BAFs) were used for determining uptake of inorganic contaminants into receptors from these or other sources (Oak Ridge National Laboratory [ORNL], 2000; Beyer and Stafford, 1993; and CH2M HILL, 2001). For organic contaminants, BAFs from the peer-reviewed literature were selected preferentially to calculating BAFs. In the absence of BAFs in the literature, they were calculated from log Kow-based models (EPA, 2003 and 2005).

Soil-to-invertebrate transfer factors were derived using:

$$BTF=10^{(\log Kow - 0.6)}/[f_{oc}*10^{(0.983\log Kow + 0.00028)}]$$

Soil-to-mammal transfer factors for organics were derived using:

$$BAF=10^{(0.338-0.145*\log Kow)}$$

Soil-to-plant (rinsed foliage) transfer factors for organics were derived using:

$$BTF=10^{(1.781-0.4057*\log Kow)}$$

To be conservative, and in the absence of site specific data, the fraction of organic carbon (foc) used in these equations was 1 percent (EPA, 2005). If a BAF or other bioaccumulation model was unavailable from the literature or databases, a value of 1.0 was assumed for the screening calculations.

Exposure estimates were generated for the COPECs for each receptor species using the following exposure model:

$$E_t = [Soil * P_s * FIR] + \left[\sum_{i=1}^{N} B_i * P_i * FIR\right]$$

where:

E_t	=	total exposure (mg/kg/d)
Soil	=	chemical concentration in soil (mg/kg dry weight)
P_s	=	soil ingestion rate as proportion of diet
FIR	=	food ingestion rate (kg food/kg body weight/d)
B_i	=	chemical concentration in biota type (i) (mg/kg wet weight)
P_i	=	proportion of biota type (i) in diet

The following additional assumptions were incorporated into the exposure modeling:

- Exposure to total petroleum hydrocarbons (TPH) is only from abiotic media (soil and water); thus, there is no food component associated with exposure to TPH (Albers, 1995).

- In contrast, exposure to polycyclic aromatic hydrocarbons (PAHs) may be from both abiotic and biotic sources.

4.0 Ecological Effects Assessment

This section focuses on the ecological effects of COPECs found in site soils.

4.1 Screening for Ecological Effects from Direct Exposure to Contaminated Soil

Ecological benchmarks are used to evaluate the potential for direct toxicity of contaminants to ecological receptors but do not account for bioaccumulation potential and consequent exposure of higher trophic-level animals.

Soil screening values representing NOECs and LOECs in soil were extracted from multiple published literature sources (Tables 10 and 11). In the absence of a chemical-specific soil screening value, values for a similar, related chemical were used as a surrogate. Instances where a surrogate value was used are noted in Tables 10 and 11.

4.2 Screening Toxicity Reference Values for Wildlife

A literature review of toxicity information for COPECs was conducted to identify appropriate TRVs for mammals and birds. TRVs that represent doses for mammals and birds have been selected in accordance with the guidelines presented in EPA (1997). TRV evaluation included consideration of ecological relevance, study duration, effect level, study endpoints, test species, form of chemical, whether effect concentrations are bounded, and exposure routes. When available, studies representing NOAELs were selected over LOAELs and lethal dose to 50 percent of the test population (LD50s). LOAELs and LD50s were normalized to NOAELs through the use of uncertainty factors if no suitable NOAEL existed. When available, chronic studies were selected over subchronic and acute studies. In addition, chronic studies were selected that represented oral exposure routes because the oral route is being quantitatively evaluated in the effects assessment.

The endpoints for the TRVs for both the mammals and birds were not always population-level effects. When TRVs were not available for population-level effects, studies with behavioral endpoints (avoidance response, activity levels, impaired response, etc.) were used. Population-level NOAELs, had they been available, would likely present higher values for NOAELs and LOAELs.

Table 12 presents a matrix of the different TRVs for mammals, by chemical, that were reviewed, and shows the NOAEL and LOAEL (if available) TRVs that were selected for each chemical. Table 13 presents a similar matrix of TRVs for birds. Uncertainty factors were applied as needed. In the absence of chemical-specific bird or mammal toxicity values, values for a similar, related chemical were used as a surrogate. Instances where a surrogate value was used are summarized in Tables 12 and 13.

Appendix A presents summaries of the toxicity studies, including uncertainties and assumptions used to develop NOAEL and LOAEL reference values used in this SLERA.

5.0 Initial Risk Characterization

This section presents the initial characterization of risks at the TTU. In the risk characterization, exposure and effects data are compared to draw conclusions concerning the presence, nature, and magnitude of effects that may exist at the site. Risks were evaluated based on the ratio of exposure doses to TRVs, resulting in hazard quotients (HQs), and are described by the following equation:

$$HQ = ED/TRV \text{ or } C/TRV$$

where:

HQ = Ecological hazard quotient (unitless)
ED = Maximum estimated chemical intake (dose) by receptor (mg/kg-day)
C = Maximum soil concentration (mg/kg)
TRV = Toxicity reference value (soil concentration-based effect level [mg/kg] or measured or estimated dietary dose [mg/kg-day] both representing no-effect levels)

An HQ value less than 1.0 indicates that adverse effects associated with exposure to a given analyte are unlikely (EPA, 1997a). These analytes were not considered to present any risk and were excluded from further evaluation. If the estimated daily intake for any COPEC equals or exceeds the TRV, the HQ will equal or exceed unity. An HQ greater than or equal to 1.0 indicates data are insufficient to exclude the potential for risk, but does not indicate that risks are actually present. Chemicals where the HQ exceeded 1.0 were retained for a more detailed evaluation in the refinement stage. Thus, the outcome of the initial step was to generate a list of preliminary COPECs for each media or a conclusion of no unacceptable risk.

When cumulative effects to a receptor are expected due to exposure to more than one chemical with similar toxicological effects, an ecological hazard index (HI) was calculated for detected analytes within a chemical class. An ecological HI is the sum of all hazard quotients from detected COPECs with similar toxicological mechanisms. This was based on the assumption that the effects are additive for COPECs that have the same toxic mechanism, which is typically only considered true for PAHs and polychlorinated biphenyls (PCBs). However, HIs were also calculated for total detected energetics, inorganics, petroleum products, semi-volatile organic compounds (SVOCs), and volatile organic compounds (VOCs) for each receptor as a conservative measure of potential risk. Only HQs for detected analytes were summed in the HI calculation. This excluded the uncertainty associated with non-detected concentrations contributing to this estimation of potential for risk. If an HI exceeded 1.0 then all detected COPECs within the HI class were retained for the refined screening evaluation.

The risk characterization was conducted in two phases: an initial conservative phase and a refined phase. The initial phase employed maximum concentrations, no effect levels, and conservative assumptions to differentiate analytes that may present a risk from those that clearly do not. The refined phase evaluated the analytes retained in the initial phase in more detail using biologically more realistic assumptions and lowest effect levels in addition to no effect levels. Results of the initial and refined screens are presented below.

5.1 Terrestrial Plants

Table 14 presents a summary of the comparison of site soil data to NOEC-based media screening benchmarks for direct toxicity to plants. Screening values were found for 38 of the 87 analytes detected in at least one sample at the site, and for 40 of the 64 analytes below detection limits in all samples. No screening values could be identified for 49 detected analytes and 24 non-detected analytes. Consequently, these analytes were retained as uncertainties.

HIs, the sum of all HQs for chemicals within each chemical class (energetics, inorganics, PAHs, petroleum products, SVOCs, and VOCs), were based only on detected analytes, and ranged from 0.013 for VOCs to more than 14,700 for inorganics. HIs did not exceed 1.0 for the energetic, VOC, and SVOC contaminant classes. Five energetics exceeded their respective NOEC-TRVs, although these exceedances were also based on detection limits (i.e., analytes were not detected in any samples). Eleven non-detected SVOCs also had HQs greater than 1.0. In the VOC chemical class, only non-detected 2-chlorophenol (HQ=15) and non-detected phenol (HQ=1.5) concentrations exceeded their NOEC-TRVs. The remaining 11 energetics, three SVOCs and eight VOCs with screening values did not exceed their TRVs and were determined to pose no risk to terrestrial plants. All non-detected analytes with HQs greater than 1.0 and all detected analytes from the inorganic, PAH, and petroleum product classes (HQs greater than 1.0) were retained for further analysis in the refined screening assessment.

NOEC-TRVs were exceeded for 17 of 20 inorganic COPECs with available TRVs. Only beryllium, cobalt, and perchlorate did not have HQs greater than 1.0 and were determined to not pose a risk to terrestrial plants at the site. Six analytes (carbon disulfide, iron, magnesium, nitrate, phosphorus, and strontium) did not have screening values; thus, they were retained as uncertainties. The NOEC-based HQ for aluminum was the greatest at 10,800. NOEC-based HQs for antimony (330), chromium (550), copper (1,800), lead (436), vanadium (129), and zinc (460) were also high. Barium, manganese, molybdenum, nickel, selenium, and silver all had NOEC-based HQs that ranged from 10 to 100. The remaining four inorganics (arsenic, cadmium, mercury, and thallium) had HQs greater than 1.0, but less than 10.

Fifteen of 17 PAHs exceeded their NOEC-TRVs for a HI sum of 851. The greatest HQs were for 2-methylnaphthalene (567) and naphthalene (177), while only two others (fluorene and phenanthrene), both detected, had HQs between 10 and 100. Only detected fluoranthene and non-detected acenaphthene did not exceed their screening values.

The HI for petroleum products (5.9) was only comprised of TPH. This detected COPEC was retained for further analysis in the refined screening assessment.

Analytes that exceeded their NOEC-TRV, or those that contributed to an HI exceeding 1, could not be excluded from presenting a potential risk to terrestrial plants at the site, and were retained as COPECs for the refined screening assessment. This included all detected inorganics, PAHs, and petroleum products. The analytes not exceeding the NOEC-based

TRVs, and where the contaminant class HI did not exceed 1, included 11 non-detected and 12 detected chemicals that are not considered to pose a potential risk to terrestrial plants at the HAFB – TTU site.

5.2 Soil Invertebrates

Table 15 presents a summary of the comparison of site soil data to NOEC-based media screening benchmarks for direct toxicity to invertebrates. Screening values were found for 53 of the 87 analytes detected at the site, and for 39 of the 64 analytes not found at concentrations greater than the detection limit. The remaining 34 detected analytes and 25 non-detected analytes without screening values were retained as uncertainties.

The HI for energetic compounds was 16. This was driven by the one detected analyte in this class (HMX) that exceeded its NOEC screening value. Two of the four detected analytes did not have screening values for soil invertebrates (picric acid and nitroguanidine), and were retained as uncertainties. The remaining detected energetic (2,4-dinitrotoluene) did not exceed its NOEC screening value (HQ=0.06). Only four of the 13 non-detected analytes with TRVs exceeded their respective NOECs, with HQs ranging from 2.6 (nitrobenzene) to 71 (4-nitrophenol and 2,4-dinitrophenol).

The highest HI score (5,150) was for the inorganic class of COPECs. There were 25 of 26 detected analytes in this chemical class. Only selenium was not detected in any sample (n=48), and concentrations did not exceed the NOEC. Eleven did not have screening values and, therefore, were retained as uncertainties. Screening values were exceeded by 10 of the remaining 14 detected analytes, with a NOEC-HQ of 3,600 (copper) driving the HI above 1. HQs were also high for chromium (1,383), zinc (115), and lead (28) while HQs for antimony, arsenic, barium, mercury, nickel, and perchlorate were less than 10. Screening values for beryllium, cadmium, cobalt, and thallium were not exceeded by detected analytes.

Five of the six detected PAHs (2-methylnaphthalene, anthracene, fluorene, naphthalene, and phenanthrene) exceeded their NOEC screening values and had HQs ranging from 7.2 (anthracene) to 57 (2-methylnaphthalene). These exceedances contributed to an HI of 177 for PAHs. Detected fluoranthene did not exceed its screening value. Two of the 10 non-detected PAHs also exceeded their respective screening values, with NOEC-based HQs of 4.6 (acenaphthylene) and 8.1 (pyrene).

The HI for petroleum products (67) was only comprised of TPH. This detected COPEC was retained for further analysis in the refined screening assessment.

A total of 14 SVOCs were evaluated against NOEC-TRVs for soil invertebrates. Only two of these were detected analytes (bis[2-ethylhexyl]phthalate and dibenzofuran) and only the dibenzofuran HQ exceeded 1.0 (8.6), to drive an HI greater than 1.0. Thus, both detected SVOCs were retained for the refined screening assessment. Seven of the 12 non-detected analytes that were screened against NOEC values had HQs greater than 1.0 and were also retained.

HIs exceeded 1.0 for all chemical classes except for VOCs. HQs did not exceed 1.0 for any of the 28 VOCs that were detected and had screening values. NOEC-TRVs were not found for the other 20 detected VOCs. Only two of eight non-detected VOCs with TRVs had potential soil concentrations that exceeded their NOEC screening values, although 2-chlorophenol (10.5) was the only one where the HQ exceeded 10.

Analytes that exceeded the NOEC-TRV could not be excluded from presenting a potential risk to soil invertebrates at the site and were retained as COPECs for the refined screening assessment. This included all detected energetics, inorganics, PAHs, petroleum products, and SVOCs in addition to non-detected analytes where the HQ exceeded 1. The analytes not exceeding the NOEC-based TRVs included nine non-detected energetics, selenium, five non-detected PAHs, nine non-detected SVOCs, and 28 detected VOCs that are not considered to pose a potential risk to soil invertebrates at the HAFB – TTU site.

5.3 Mammals

Table 16 presents initial screening evaluation HQs calculated for mammalian wildlife receptors foraging across the site. Analytes found to exceed NOAEL-based TRVs in the initial screening assessment were retained for additional analysis in the refined screening assessment. NOEC-TRVs were found for 65 of the 87 detected COPECs at the site, and for 39 of the 64 non-detected COPECs at the site. The remaining 22 detected analytes and 25 non-detected analytes without TRVs were retained as uncertainties. Analytes were divided into six classes, of which there were 24 energetics, 26 inorganics, 17 PAHs, one TPH, 27 SVOCs, and 56 VOCs. All detected analytes within a class of analytes were also retained for the refined screening assessment when the HI exceeded 1.0. A summary of these results for all receptors is presented in Table 17.

All mammalian receptors (Ord's kangaroo rat, Townsend's ground squirrel, black-tailed jackrabbit, pronghorn, grasshopper mouse, and coyote) had NOAEL-based TRV exceedances for energetics, inorganics, and PAHs that led to HIs greater than 1.0 for these classes of COPECs. All mammalian receptors, except for the coyote, also had maximum estimated exposures to detected VOCs greater than NOAEL-based TRVs, driving HIs above 1.0. Only the grasshopper mouse had an HI for TPH greater than 1.0. No receptors had any detected COPECs that exceeded the NOAEL-based TRVs for SVOCs; thus, these compounds were determined not to pose a risk to mammalian wildlife receptors at the site.

All mammalian wildlife receptors had HIs for energetics that exceeded 1. Exposures exceeded TRVs for 1,3-dinitrobenzene, 2,4-dinitrotoluene, 2,6-dinitrotoluene, HMX, RDX, and tetryl, with HQs ranging from 1.0 (1,3- dinitrobenzene; pronghorn) to 13 (1,3-dinitrobenzene; grasshopper mouse); however, HMX and 2,4-dinitrotoluene were the only energetic analytes with detected concentrations in soil. HMX doses were greater than the NOAEL-based TRVs for all receptors, ranging from 2.5 (coyote) to 9.8 (kangaroo rat). Only grasshopper mouse exposure to 2,4-dinitrotoluene exceeded the NOAEL (HQ=1.3).

Inorganic HIs ranged from 90 (pronghorn) to 6,580 (grasshopper mouse). Aluminum, antimony, copper, and lead doses exceeded the NOAEL-based TRVs for each receptor within the inorganic class of contaminants. Lead and aluminum contributed greatest to each HI. NOAEC-based HQs also exceeded 1.0 in at least one receptor for all other metals except beryllium, cobalt, manganese, nitrate, and strontium. Except for non-detected selenium exposure to the ground squirrel, pronghorn, and coyote where HQs were less than 1.0, all inorganics were evaluated further in the refined screening evaluation for all mammalian receptors due to HIs greater than 1.0.

Similarly, all mammalian wildlife receptors had HIs for PAHs that exceeded 1.0. The only PAH that failed the NOEC-based TRV screen for all receptors was 2-methylnaphthalene. However, NOAEL-based HQs for 2-methylnaphthalene were generally less than 10, and ranged from 1.0 (coyote) to 7.1 (kangaroo rat) for all receptors except the grasshopper mouse (250). All detected PAHs and eight non-detected were retained for further evaluation in the refined screening assessment.

Only the grasshopper mouse had a TPH HQ greater than 1.0 (1.5), and it was retained for further characterization in the refined screening assessment. Petroleum products were determined not to pose a risk to all other mammalian wildlife receptors at the site.

Five of the six mammalian wildlife receptors (all except coyote) had HIs for VOCs that exceeded 1.0. In all cases, these HIs were driven by exposure to acetone exceeding the TRV doses. HQs for acetone ranged from 6.2 (pronghorn) to 20 (kangaroo rat). The exposure dose for phenol also exceeded the TRV for the grasshopper mouse (HQ=4.4); however, this was driven by non-detects.

Overall, HIs exceeded 1.0 in all species for energetics, inorganics, and PAHs; VOC HIs were also greater than 1.0 for all receptors except the coyote; and, only the grasshopper mouse had an HI greater than 1.0 for petroleum products. Detected COPECs from these classes were retained for further characterization in the refined assessment. The black-tailed jackrabbit, grasshopper mouse, and Ord’s kangaroo rat were the most sensitive showing the highest HQs, while the pronghorn and coyote were less sensitive with lower HQs. A total of 21 non-detected COPECs with available TRVs had HQs greater than 1.0. These were also retained for further characterization in the refinement.

5.4 Birds

Table 16 also presents HQs calculated for avian wildlife receptors foraging across the site. NOAEL-TRVs were found for 62 of the 87 detected COPECs at the site, and for 34 of the 64 non-detected COPECs at the site. The remaining 25 detected analytes and 30 non-detected analytes without TRVs were retained as uncertainties. COPECs were divided into six classes of compounds and there were 24 energetics, 26 inorganics, 17 PAHs, one TPH, 27 SVOCs, and 56 VOCs. All detected analytes within a class were retained for the refined screening assessment when the HI exceeded 1.0 for the class, in addition to non-detected analytes where exposures exceeded the TRV. A summary of these results is presented in Table 17.

The only detected energetic compound that exceeded its TRV was 2,4-dinitrotoluene. Exceedances of 2.9 (western meadowlark), 3.3 (loggerhead shrike), and 3.5 (burrowing owl) were drivers for HIs greater than 1.0 for these three receptors. Several non-detected energetic compounds also exceeded their NOAEL-based TRVs, ranging in HQs from 1.0 (2-amino-4,6-dinitrotoluene; sage sparrow) to 99 (nitrobenzene; loggerhead shrike); however, these exceedances were all based on detection limits and have a high uncertainty.

All avian receptors (sage sparrow, loggerhead shrike, western meadowlark, and burrowing owl) had NOAEL-based TRV exceedances for inorganics that led to HIs exceeding 1.0 for this class. All detected inorganics, and non-detects greater than TRVs, were retained for further characterization in the refined screening evaluation. Inorganic HIs for each avian receptor ranged from 850 (sage sparrow) to 4,600 (owl). Lead and phosphorus were the dominant drivers for these high exceedances (greater than or equal to 98 percent of the HI) with phosphorus accounting for up to 80 percent of the inorganic HI score (sage sparrow) and lead contributing up to 50 percent (meadowlark). Other inorganics that exceeded their NOAEL-based TRVs included perchlorate in the sparrow (HQ=1.3). Aluminum, cadmium, chromium, and zinc in the shrike, meadowlark, and owl, and copper in the owl, also had HQs between 1.0 and 20.

Only one detected PAH (2-methylnaphthalene) exceeded its NOAEL-based TRV and was the primary HI driver. Exceedances ranged from 3.6 (meadowlark) to 4.1 (shrike). The sparrow did not exceed any single TRV for PAHs, but the HI still exceeded 1.0. Thus, all detected PAHs for these three receptors were retained for analysis in the refined screening assessment. PAH exposure to the owl did not exceed any TRV or HI. No non-detected PAHs had HQs greater than 1.0.

None of the receptors had any detected COPECs that exceeded the NOAEL-based TRVs in the petroleum product class of chemicals; thus, TPH was determined not to pose a risk to avian wildlife receptors at the site.

Shrike exposure to bis(2-ethylhexyl)phthalate was the only detected SVOC to exceed a NOAEL-based TRV (HQ=1.0). None of the other avian receptors had detected COPEC exposures greater than TRVs, and SVOC HIs for the sparrow, meadowlark, and owl were less than 1.0. Individual chemical HQs for non-detected SVOCs that also exceeded the NOAEL-based TRVs ranged from 1.1 for butyl benzylphthalate (owl) to 83 for butyl benzylphthalate (shrike). These non-detected COPECs were retained for further characterization in the refined screening assessment.

Sparrow exposure to acetone was the only detected VOC to exceed a NOAEL-based TRV (HQ=1.2). None of the other avian receptors had detected COPEC exposures greater than TRVs, and VOC HIs for the shrike, meadowlark, and owl were less than 1.0. Individual chemical exposures for non-detected VOCs were all less than their NOAEL-based TRV. Therefore, exposure to the sage sparrow from all detected VOCs was evaluated further in the refined screening assessment. All other COPECs were determined to pose no potential for risk to avian wildlife in the TTU site.

The HIs for inorganics exceeded 1.0 for all avian receptors. Lower-magnitude HIs were also calculated for energetics (shrike, meadowlark, and owl), PAHs (sparrow, shrike, and meadowlark), SVOCs (shrike), and VOCs (sparrow). Thus, all detected COPECs from these classes were evaluated further in the refined screening assessment, in addition to non-detected COPECs with exposures greater than their TRV. The burrowing owl was the most sensitive avian receptor showing the highest HQs.

6.0 Refined Risk Characterization

COPECs in soil that were retained following the initial screening evaluation were evaluated further in the refined screening assessment. The refined screen was conducted to better clarify which analytes retained following the initial screen are present at concentrations that may present potential risks to ecological receptors. Refinements to the risk characterization take into account background concentrations, frequency of detection, frequency of exceedance, lowest effects levels, and more realistic exposure assumptions to provide a more detailed evaluation. Analytes retained at the conclusion of the refined screen may be the focus of risk management activities or may be subject to further more definitive risk evaluation.

6.1 Risk Characterization Refinements

Multiple refinements to the exposure and effects analyses were incorporated. These are described below.

6.1.1 Background Screen

Soil data from the TTU were compared to background soil data collected in 1997, 1998, 2000, and 2004 for the purpose of excluding inorganic COPECs whose concentrations are not elevated due to on-site activities. COPECs with concentrations that do not exceed background are not likely to be site-associated, and are, therefore, unlikely to present a risk to ecological receptors. Background data for the TTU (URS, 2001) represent two soil formations that exist in the UTTR-North area (which includes the TTU): the combined amtoft, skumpah, and timpie-tooele soil formations and the playa-salt air soil formation. In accordance with EPA guidance (EPA 2002), data from these soil formations were statistically compared to site concentrations using the non-parametric Wilcoxon Rank Sum (WRS) test. If the null hypothesis was accepted (i.e., there was no significant [$p>0.05$] difference between background and site data), then it was concluded that the analyte was not elevated relative to background and it was dropped from further consideration as a COPEC for all receptors. COPECs significantly greater than background concentrations were retained for further characterization in the refined screening evaluation.

6.1.2 Lowest Observed Effect Concentrations and Levels

In the initial evaluation, no-effect levels were conservatively assumed as the effect endpoints for plant, soil invertebrate, and wildlife HQ calculations. No-effect levels do not clearly indicate the lowest level of exposure at which effects are evident and, therefore, do not necessarily indicate that risks are present or impacts are occurring. In this refined evaluation, LOECs and LOAELs were identified or derived for plants, soil invertebrates, and wildlife for all COPECs where available (Tables 10 through 13).

6.1.3 Point-by-Point Exceedance Evaluation

In the initial site-wide evaluation for plants and soil invertebrates, the maximum site-wide concentrations in soil were evaluated against NOEC-based TRVs. This approach serves to eliminate those chemicals that clearly do not present risks, but does not address specific areas or the nature of potential risks associated with retained analytes. In the refined screen, a point-by-point evaluation of concentrations of retained analytes was conducted. The relative risk presented by each retained analyte was judged based on the frequency of detection of the analyte and the frequency and magnitude of exceedances of available TRVs. Depending on the screening value(s) exceeded, each exposure point estimate was grouped into one of the following three HQ categories:

$HQ_{NOEC}<1$: no adverse effect

$HQ_{NOEC} >1> HQ_{LOEC}$: possible adverse effect

HQ_{LOEC} >1: probable adverse effect

Because the NOEC represents the highest dose at which no effects were observed and the LOEC is the lowest dose at which effects were evident, there is uncertainty regarding whether adverse effects will occur when the exposure concentration falls between the NOEC and LOEC. In this situation, the potential for risk cannot be excluded but is not considered likely.

The frequency with which environmental concentrations exceeded toxicity values (percentage of HQs in each HQ category for each media-receptor combination for each location) provides an estimate of the likelihood of adverse effects in the point-by-point analyses. The maximum acceptable adverse effect level generally selected for the assessment endpoints is a 20 percent reduction in the measured attribute (Suter et al., 2000). Thus, if 80 percent or more of a population is not affected, then the risk is not considered biologically significant. This level is consistent with current EPA regulatory practices (e.g., development of the National Ambient Water Quality Criteria [NAWQC] and effluent discharges regulated by the National Pollutant Discharge Elimination System [NPDES]) and measurement limits for many field and laboratory tests. For example, aquatic subchronic toxicity tests are not reliable at detecting reductions at less than 20 percent adverse effect responses of the test organism; LOECs for avian reproduction tests correspond to a 20 percent reduction; and 20 percent reduction in community is the limit of detection for assessing aquatic communities using EPA rapid bioassessment procedures (Suter et al., 2000). Using available methods, changes in natural populations of less than 20 percent cannot generally be differentiated from “noise” measurements.

Consequently, an effect level of 20 percent was selected for plants and soil invertebrates. Assuming that the total samples provided an adequate spatial representation the area, if fewer than 20 percent of samples possess concentrations that exceeded the LOEC-based TRV, it was assumed that adverse effects to the assessment endpoint were not significant. Both detected and non-detected concentrations retained for additional evaluation after the initial risk characterization were evaluated based on this criterion. However, the potential for adverse effects indicated by TRV exceedances from non-detected concentrations suggest insufficiently low detection limits and represent uncertainties.

6.1.4 Exposure Point Concentrations

Maximum, site-wide concentrations were used as the EPCs in the initial evaluation for wildlife receptors. However, birds and mammals are mobile organisms and it is over-protective to consider that they are exposed to the maximum detected concentrations at all times. In addition, each area of the site provides a different set of potential exposures. Therefore, the EPCs were refined to the 95th percent UCL of the mean environmental media concentrations (UCL95) for each analyte (Table 3). The maximum detected concentration was used as the EPC when the calculated UCL95 was greater than the maximum detected value. All EPCs were calculated using the most recent version of ProUCL (Version 3.0; EPA 2004) and the distributional basis for calculating each UCL95 are reported in Table 3. One-half the detection limit was used as a surrogate for non-detects in calculating the UCL95.

This EPC refinement provides a more realistic estimate of COPEC exposures to wildlife. For these trophic guilds, it was also conservatively assumed that chemicals in sampled media are

100 percent bioavailable and that they remain at a steady concentration (i.e., decomposition rates were not considered).

6.1.5 Samples from Within Habitat

The entire area of the TTU does not provide habitat suitable for ecological receptors. Open Burning and Open Detonation (OB/OD) of missile motors and waste munitions results in the disturbance and elimination of habitat in the immediate vicinity. Land cover immediately adjacent and within operational areas (labeled as OB/OD areas) are barren and devoid of habitat and, therefore, represent an incomplete exposure pathway for ecological receptors. Consequently, a further refinement was developed in which only data from samples collected within areas that provide habitat at the site were considered. Samples falling within habitat and OB/OD areas are listed in Table 18 and are displayed in Figure 3. New summary statistics and EPCs were calculated based only on the habitat dataset (i.e., all OB/OD samples were excluded) and are presented in Table 19. Additional refined screening analyses were performed for all receptors for the purpose of evaluating relative contribution of samples from OB/OD areas and habitat areas to overall risks within the TTU.

6.1.6 Area Use Factors

In the initial screening assessment it was conservatively assumed that the area each wildlife receptor was exposed to was equal to the home range of each receptor. However, wildlife may forage over distances that exceed the exposure area offered by the site. Home-range information for each receptor was evaluated against each area of potential exposure in the refined exposure analysis. These foraging ranges were compared against the areas of each potential exposure location at the site as a conservative measure of the potential for use at these locations. The resulting ratio of site area (220 acres) to home range area for each receptor (Table 7) was used to determine the proportion of diet and media exposure that would be derived from each area of concern.

6.1.7 Bioaccumulation Factors

Bioaccumulation models for retained COPEC metals were based on log-linear regression models for all metals except iron. The BAF regression models used to estimate the concentration of COPECs in prey were updated to be based on the refined EPCs instead of maximum detected concentrations. The conservative use of 90th percentile uptake factors for inorganic COPECs without log-linear regression calculations for calculating uptake factors were replaced with more ecologically relevant median uptake factors in the refined wildlife exposure analysis (Table 20). BAFs for most organic COPECs were calculated based on log Kow equations and remained the same as in the initial screening assessment.

6.2 Refined Risk Characterization

The refined risk characterizations for all retained COPECs are described below.

6.2.1 Background Screen

The result of background comparison statistics are summarized in Table 21, and detailed in Appendix B. Nine analytes had concentrations in all samples that were not significantly different from background (aluminum, beryllium, chromium, iron, manganese, mercury, nickel, phosphorus, and thallium). In the case of aluminum, not only were concentrations within the background range, but the pH of TTU soils is neutral to basic (7.4 to 8.9; Table 3). At these pHs, aluminum is unlikely to be in a bioavailable form (EPA 2003). An additional six inorganic analytes were significantly greater in concentration in background samples than on-site samples (arsenic, barium, cobalt, magnesium, strontium, and vanadium). These 15 analytes were not considered to be site-associated COPECs and were eliminated from further characterization and analysis.

Phosphorus is of special consideration due to differences between forms. Pure elemental phosphorus (white phosphorus) is used as an incendiary in munitions. Burned phosphorus products, containing very little white phosphorus, remain after munitions are spent. Munitions containing white phosphorus are minimal at the TTU. White phosphorus also does not persist in soil (3-7 day half-life) (ATSDR 1997e). Screening level NOAEL-HQs for avian wildlife were high (>500) based on the maximum detected phosphorus concentration in soil (990 mg/kg). An uncertainty associated with this exposure calculation is that the TRV was based on test species (mallard duck) exposure to white phosphorus (Sparling et al. 1997). Another uncertainty is that the total phosphorus measured in soil is likely comprised of forms other than pure elemental phosphorus. Ultimately, it is not considered a site-related contaminant because site concentrations were not significantly different from background.

The remaining eight metals (antimony, cadmium, copper, lead, molybdenum, selenium, silver, and zinc) were retained through the refined risk characterization to determine if they posed a potential for risk in the screening assessment.

Further evaluation of the data for COPECs where the site concentrations were greater than background revealed that the samples driving these differences were generally driven by samples collected from operational areas (OB/OD) within the TTU site (Appendix B). This bias is discussed as part of an additional component of the refined risk characterization. This component differentiates between samples collected within habitat areas and those from the OB/OD areas, and determines which samples from which area are responsible for estimates of potential for risk over the TTU site.

6.2.2 Terrestrial Plants

A point-by-point evaluation of the frequency of exceedance of NOAC- and LOEC-TRVs for plants by concentrations of retained analytes in TTU soils is presented in Table 22. Detected concentrations of analytes in the energetics, SVOCs, and VOC chemical classes did not exceed NOEC- or LOAC-TRVs for any analyte. Multiple exceedances of NOEC- or LOEC-based plant screening values were observed for non-detected concentrations. These exceedances indicate insufficiently low detection limits and represent uncertainties. The frequency of these non-detected concentrations exceeding either NOECs or LOECs never exceeded 12 percent among energetics, SVOCs, and VOCs. Even if it is assumed that reanalyses with lower detection limits would still result in NOEC or LOEC exceedances for all of these analytes (a conservative assumption), the frequency of exceedances are insufficient to suggest the potential for adverse effects (i.e., less than 20 percent). Consequently, it was concluded that all analytes in the energetics, SVOC, and VOC chemical classes pose no risk to terrestrial plants at the site.

Seven of the nine retained inorganic COPECs had concentrations (detected or not detected) in at least one sample that exceeded their LOEC-TRV. Only two inorganic COPECs did not have concentrations in excess of LOEC-TRVs (cadmium and perchlorate) and NOEC exceedances (cadmium) were infrequent (2 percent). Thus, neither cadmium nor perchlorate pose risks to plants at the TTU. Antimony, copper, lead, molybdenum, and silver all had samples with concentrations that exceeded LOECs; however, these COPECs are not considered likely to present risks to plants because the frequency of LOEC exceedances were low for each (less than 10 percent). Antimony, copper, molybdenum, and silver had high frequencies of detected or non-detected concentrations exceeding the NOEC, and the potential for adverse effects at these concentrations is possible, but uncertain because NOEC exceedances represent concentrations lower than those where adverse effects are initially observed. These NOEC exceedances indicate that adverse effects are possible, but the lack of LOEC exceedances in samples from ecological habitat areas suggests the absence of adverse effects to the plant community (Table 23). Selenium exceeded the LOEC with high frequency (66 percent). Because these exceedances were due to inadequate detection limits (i.e., all were due to non-detected concentrations), actual presence of selenium risks to plants are uncertain. Only one inorganic, zinc, had detected concentrations that exceeded the LOEC with a high frequency (67 percent). Consideration of only those samples from within areas that provide habitat within the TTU reduces the frequency of LOEC exceedances by zinc to 57 percent (Table 23), a value that still exceeds the probable risk threshold. Zinc did not exceed the LOEC by a high magnitude (LOEC-HQmax = 1.3), but these elevated concentrations were consistently found at five locations in 1991 (SS-16 to SS-20), five sample locations in 2002 (NR-229, NR-230, NR-232, NR-234, and NR-235), and two locations in 2004 (NR-527 and NR-529), as shown in Figure 3. Consequently, potential for risks to plants from zinc cannot be excluded.

Only five of 16 PAHs (2-methylnaphthalene, anthracene, fluorene, naphthalene, and phenanthrene) had detected concentrations that exceeded NOECs or LOECs (Table 22). The frequency of exceedances for both NOECs and LOECs by detected and non-detected concentrations never exceeded 15 percent. Therefore, these analytes were not considered to present any significant risks to the terrestrial plant community. Among the remaining 11 PAHs, no detected concentrations exceeded TRVs, and because non-detected concentrations in only four of 28 samples (14 percent) exceeded LOECs, the likelihood of potential adverse effects is considered negligible. Consideration of the habitat area of the TTU indicates the lack of NOEC exceedances for any PAH (Table 23). Consequently, there is no risk to plants in ecological habitat areas of the site from PAHs.

TPH was detected in all six TTU soil samples in which it was analyzed, and exceeded the LOEC-TRV in three of these (50 percent). Despite the small sample size and uncertainty concerning the applicability of the toxicity data to the TPH form at the site, the high frequency of exceedances suggests that the potential for adverse effects to plants from TPH cannot be excluded. TPH was analyzed in one sample from outside the OB/OD areas and representing potential habitat for plants. This sample did not exceed the plant NOEC and indicates samples driving the potential for risk were mostly associated with OB/OD areas and do not represent the potential for risks in the surrounding habitat areas of the site. Therefore, there is no potential for risk to plants from TPH in habitat areas at the TTU.

6.2.3 Soil Invertebrates

A summary of the point-by-point refined soil invertebrate screen is presented in Table 24. Similar to plants, there were no exceedances of LOEC-TRVs by detected concentrations for any analytes in the VOC chemical class. The few and infrequent LOEC exceedances (13 percent of samples) that did occur (2-chlorophenol) were based on insufficient detection limits. Therefore, the potential for risks from VOCs to soil invertebrates at the site are unlikely.

Only one of six retained energetics (HMX) had detected concentrations that exceeded the NOEC or LOEC (Table 24). Although 20 percent of samples had detected concentrations that exceeded the NOEC, only one of 42 samples exceeded the LOEC (2 percent). Non-detected concentrations of 2,4-dinitrophenol, 2-nitrophenol, and 4-nitrophenol also exceeded the LOEC with low frequency (less than or equal to 14 percent). Non-detected concentrations of nitrobenzene exceeded the NOEC-TRV in fewer than 7 percent of the samples. Neither the single detected concentration, nor any non-detected concentrations, exceeded the NOEC for 2,4-dinitrotoluene. Because all exceedances of NOECs and LOECs by energetics, whether detected or not, did not exceed 20 percent, potential risks from energetics to soil invertebrates at the site are not considered significant. Further, when only samples from within habitat areas of the TTU are considered, no energetic LOEC exceedances were observed (Table 25), and NOEC exceedances for HMX are low (11 percent). This indicates that samples driving any potential for risk were mostly associated with OB/OD areas and do not represent the potential for risks in the surrounding habitat areas of the site. Therefore, the conclusion is that there is no significant potential for risk to soil invertebrates from energetics at the TTU.

Cadmium was the only inorganic that did not exceed the NOEC or LOEC in any samples (detected or non-detected). Therefore, the potential for risks to soil invertebrates from this COPEC is excluded. Antimony and perchlorate had single detected concentrations greater than the NOEC and are not considered to pose any significant risk. The potential for adverse effects from copper, lead, and zinc were considered low due to the low frequency of LOEC-TRV exceedances (19, 2, and 8 percent, respectively). Copper and zinc, however, did have high frequency of NOEC exceedances by detected concentrations (85 and 100 percent, respectively). The potential for adverse effects at these concentrations is possible, but uncertain because these NOEC exceedances represent concentrations lower than those where adverse effects are initially observed. When only samples from within habitat areas of the TTU are considered, no LOEC exceedances are observed for lead and zinc, and only one of 21 (5 percent) samples exceeded the copper LOEC (Table 25). This indicates that samples driving the potential for risk were mostly associated with OB/OD areas and do not represent any potential for risks in the surrounding habitat areas of the site. Therefore, the conclusion is that there is no significant potential for risk to soil invertebrates from inorganics at habitat areas of the TTU.

Four of eight retained PAHs (2-methylnaphthalene, fluorene, naphthalene, and phenanthrene) had detected concentrations that exceeded LOECs (Table 24). The frequency of exceedances of LOECs for these PAHs was low (less than or equal to 14 percent). Non-detected or detected concentrations of the remaining four PAHs (acenaphthylene, anthracene, fluoranthene, and pyrene) also exceeded the NOEC or LOEC with low frequency (less than or equal to 14 percent). Because all exceedances of LOECs by PAHs, whether detected or not, did not exceed 20 percent, risks from PAHs to soil invertebrates at the site are unlikely to be significant. Further, when only samples from within habitat areas of the TTU are considered, no PAH NOEC or LOEC exceedances were observed (Table 25). This indicates that samples driving any potential for risk were mostly associated with OB/OD areas and do not represent the potential for risks in the surrounding habitat areas of the site. Therefore, the conclusion is that there is no potential for risk from PAHs at habitat areas of the TTU.

TPH, detected in all six TTU soil samples in which it was measured, exceeded the LOEC-TRV in four. Despite the small sample size and the uncertainty concerning the applicability of the toxicity data to the TPH form at the site, the high frequency of exceedances (67 percent) indicates that the potential for adverse effects to soil invertebrates from TPH cannot be excluded. TPH was analyzed in one sample from outside the OB/OD areas and representing potential habitat for invertebrates. This sample did not exceed the NOEC and indicates no potential for risk to soil invertebrates from TPH in habitat areas of the TTU.

Only one of nine retained SVOCs (dibenzofuran) had detected concentrations that exceeded NOECs or LOECs (Table 24). The frequency of LOEC exceedance for dibenzofuran was low (11 percent). Non-detected concentrations of 2,4,5-trichlorophenol, 2,4,6-trichlorophenol, and 2,4-dichlorophenol also exceeded the LOEC with low frequency (less than or equal to 14 percent). Non-detected concentrations in few (less than 14 percent) samples of the remaining five SVOC COPECs exceed the NOEC-TRV. Because all LOEC exceedance by SVOCs, whether detected or not, did not exceed 20 percent, significant risks from SVOCs to soil invertebrates at the site are unlikely. Further, when only samples from within habitat areas of the TTU are considered, no SVOC LOEC exceedances were observed (Table 25). Only one sample concentration exceeded a NOEC (2,4,5-trichlorophenol) in samples from habitat areas. This indicates that samples driving any potential for risk were mostly associated with OB/OD areas and do not represent the potential for risks in the surrounding habitat areas of the site. Therefore, the conclusion is that there is no potential for risk to soil invertebrates from SVOCs at habitat areas of the TTU.

6.2.4 Mammals

The refined screening assessment for wildlife resulted in a reduced number of COPECs that pose a potential risk to mammals at the TTU (Tables 26 and 27). Table 28 shows a summary of the refined screening evaluation results. Analyte groups considered in the refined screen included energetics, inorganics, PAHs, petroleum products, SVOCs, and VOCs.

Refined estimates of exposure to five energetic compounds exceeded NOAELs for at least one receptor: 1,3-dinitrobenzene, 2,6-dinitrotoluene, HMX, RDX, and tetryl (Table 26). These NOAEL-HQs were generally of low magnitude and only exceeded 10 for the grasshopper mouse (1,3-dinitrobenzene and RDX). With the exception of HMX, these exceedances were also based on non-detected concentrations, indicating significant uncertainty regarding the possible potential for risk from these energetic COPECs. LOAELs were exceeded for only two of the six species, Ord’s kangaroo rat and the grasshopper mouse. These exceedances were for four analytes: detected concentrations of HMX for the kangaroo rat (HQ=1.1) and non-detected concentrations of RDX, 1,3-dinitrobenzene, and 2,6-dinitrotoluene for the grasshopper mouse (HQs less than 3.0). When only samples from the habitat area of the TTU are considered (Table 27), HMX and 2,6-dinitrotoluene no longer drive estimated exposures in excess of the LOAEL for the kangaroo rat and grasshopper mouse, respectively. However, LOAEL exceedances based on non-detected RDX (HQ=1.1) and 1,3-dinitrobenzene (HQ=2.7) for the grasshopper mouse remain. The potential for risk from non-detected COPECs is uncertain and cannot be excluded, but the low magnitude of LOAEL exceedances suggests that the likelihood of adverse effects to mammals from energetic COPECs is low. LOAEL HIs for energetics were less than 1.0 for all receptors except the kangaroo rat (HI = 1.1). There is low confidence that this HI indicates a potential for risk because the mode of toxic action for this class of contaminants is not known to be additive. Therefore, the conclusion is that energetics present no risk to five of six mammal species at the TTU. Risks to insectivorous mammals from RDX and 1,3-dinitrobenzene cannot be definitively excluded because they are based on non-detects, and are retained as uncertainties.

Refined exposure estimates resulted in exceedances of NOAELs or LOAELs for seven inorganics for at least one receptor: antimony, cadmium, copper, lead, molybdenum, perchlorate, and selenium (Table 26). All except selenium were detected and represent possible potential for risks to mammalian wildlife. The greatest number of inorganic LOAEL exceedances was for the grasshopper mouse (five: antimony, cadmium, copper, lead, and selenium), followed by the kangaroo rat (three: lead, perchlorate, and selenium) and jackrabbit (three: copper, lead, and perchlorate). Lead and perchlorate were the only inorganics to produce exposure estimates in excess of the LOAELs for ground squirrels and pronghorn (HQs less than 3.0), driving HIs above 1.0 for these receptors. Cadmium, copper, and lead EPCs were driven by a few very high concentrations collected within OB/OD areas. There were no LOAEL exceedances for coyotes, and the low magnitude of NOAEL-HQs for antimony (3.3) and lead (1.2) indicates the potential for adverse effects to mammalian carnivores is unlikely.

When only samples from the habitat area of the TTU are considered (Table 27), no exposure estimates for any inorganic exceed NOAELs for the ground squirrel, pronghorn, or coyote. NOAELs were only exceeded for non-detected selenium (kangaroo rat, jackrabbit, and grasshopper mouse) and detected antimony, cadmium, lead, and molybdenum for the grasshopper mouse. NOAEL-HQs for all inorganics in ecological habitat were less than 5.0. These differences between exposure modeling with all site data and wildlife habitat data indicate that samples driving any potential for risk were mostly associated with OB/OD areas and do not represent the potential for risks in the surrounding wildlife habitat areas of the site. LOAELs were only exceeded for cadmium (HQ=1.8) and selenium (HQ=2.8) for the grasshopper mouse, and selenium (HQ=1.0) for the kangaroo rat. The selenium LOAEL exceedances are based on non-detected concentrations, and the potential for risk from these selenium values is uncertain. Cadmium was detected in 62 percent of samples collected from habitat areas. The magnitude of this exposure exceeding the LOAEL is low, but even excluding a sample with a concentration three times higher than the others, collected at the roadside near Site 3 (sample SS-16) in 1991 (shown in Figure 3), does not reduce the cadmium exposure below the LOEAL (HQ=1.01). Therefore, the potential for risk to insectivorous mammals is low, but cannot be excluded due to cadmium exposure exceeding the LOAEL.

Due to the individual COPEC exceedances, the LOAEL HIs for inorganics were greater than 1.0 for all receptors except the coyote when considering all site data. These exceedances suggest that the cumulative potential for adverse effects from inorganics cannot be excluded. When only potential receptor habitat was considered in the refined exposure analysis, the LOAEL HIs for inorganic COPECs was only exceeded for the grasshopper mouse (HI=3.2) (Table 26). Therefore, the potential for risk from inorganic COPECs is much lower in potential habitat areas of the site than when including the OB/OD areas. Calculated HIs for inorganics are a conservative approach to risk characterization; however, the mechanisms of toxicity are not the same for all inorganic compounds, and inorganic HIs are not entirely appropriate. Rather, the potential for risk from inorganics can be best described for individual COPECs.

The conclusion for inorganics is that there is no potential for risk to four of six mammal species in habitat areas of the TTU. Potential risks to kangaroo rats and grasshopper mice from selenium cannot be excluded because they are based on non-detects and are retained as uncertainties. The potential for risk to insectivorous mammals from cadmium also cannot be excluded. It should be noted, however, that the LOAEL exceedence for cadmium is low (HQ=1.8).

NOAEL-based TRV exceedances by 10 PAHs (2-methylnaphthalene, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(g,h,i)perylene, benzo(k)fluoranthene, chrysene, dibenzo(a,h)anthracene, fluorene, and indeno(1,2,3-cd)pyrene) were observed for at least one COPEC for each mammalian receptor except the coyote. Therefore, the potential for risk to coyote from PAHs was excluded. The NOAEL-HQs were generally of low magnitude and only exceeded 10 for the grasshopper mouse (2-methylnaphthalene NOAEL-HQ=114). Benzo(g,h,i)perylene exceeded the NOAEL for all mammalian receptors (except the coyote), but was driven by non-detects. NOAEL exceedances based on detected concentrations occurred for all receptors (except coyote) for 2-methylnaphthalene. LOAEL-based TRV exceedances by PAHs were observed for only two COPECs in two species. Fluorene exposure to the kangaroo rat exceeded the LOAEL (HQ=1.4), and 2-methylnapthalene exposure to the grasshopper mouse exceeded the LOAEL (HQ=14) (Table 26). In addition to these two COPECs driving HIs for PAHs above 1.0 for the kangaroo rat and grasshopper mouse, the LOAEL-HI for PAH exposure to the jackrabbit also exceeded 1.0 (HI=1.2). However, when only samples from the habitat area of the TTU are considered, neither the NOAEL nor LOAEL-HI for PAHs is greater than 1.0 for any mammalian receptor. The conclusion is that samples that drive the potential for risk from PAHs are associated with OB/OD areas and do not represent the potential for risks in the surrounding wildlife habitat areas of the site. PAHs present no risk to mammals in ecological habitat areas of the TTU.

Refined exposure modeling for TPH was only conducted for the grasshopper mouse, and the NOAEL-TRV exceedance persisted (HQ=1.5) (Table 26). However, the LOAEL-TRV was not exceeded. The potential for adverse effects at these concentrations is possible, but uncertain, because NOEC exceedances represent concentrations lower than those where adverse effects are initially observed. The NOEC for TPH was not exceeded when considering only concentrations in wildlife habitat areas of the TTU (Table 27). Thus, petroleum products were determined not to pose a potential risk to mammalian wildlife in habitat areas of the site, and only a possible potential for risk in the entire TTU.

SVOCs were retained in the focused screen for three mammalian receptors (jackrabbit, grasshopper mouse, and coyote). However, all of the COPECs driving the refined mammalian wildlife screen for SVOCs were below detection. Seven of these non-detected SVOCs exceeded both the NOAEL and LOAEL for the grasshopper mouse (Table 26). Only one NOAEL exceedance from 2,4,5-trichlorophenol was observed for jackrabbits, and none for coyotes. Samples driving the potential for risk from SVOCs are associated with OB/OD areas and do not represent the potential for risks in the surrounding wildlife habitat areas of the site. Only the 2,4,5-trichlorophenol LOAEL is exceeded (HQ=3.3) for the grasshopper mouse when only areas of the TTU that provide wildlife habitat are considered (Table 27). NOAEL exceedances for the grasshopper mouse were less than 10 for the six additional non-detected SVOCs (2,4,6-trichlorophenol, 2,4-dichlorophenol, hexachlorobenzene, hexachlorocyclopentadiene, hexachloroethane, and pentachlorophenol), and SVOCs did not exceed the NOAEL for the jackrabbit or coyote. Because these COPECs exceed NOAELs but not LOAELs where effects are first observed, the potential for risks is considered possible but not likely. Therefore, the conclusion is that potential risk to insectivorous mammals from 2,4,5-trichlorophenol cannot be excluded, but is retained as an uncertainty because it is based on non-detects. SVOCs present no risk to all other mammals in ecological habitat areas of the TTU.

Of the 33 VOCs retained for additional evaluation for mammals, only acetone and phenol produced exposure estimates that exceeded NOAELs (Table 26). Detected acetone exceeded the NOAEL by low magnitude (HQs less than 10) for all mammalian receptors except the coyote, while non-detected phenol only exceeded the NOAEL for the grasshopper mouse (HQ=4.4). LOAEL exceedances were also of low magnitude for each of three species: the kangaroo rat (HQ=1.9), jackrabbit (HQ=1.2), the grasshopper mouse (HQ=1.4). However, when only areas of the TTU that provide habitat are considered, neither NOAEL nor LOAEL exceedances occur for any VOC (Table 27). The conclusion is that samples driving the potential for risk from VOCs are associated with OB/OD areas and do not represent the potential for risks in the surrounding wildlife habitat areas of the site. VOCs, therefore, present no risk to mammals in ecological habitat areas of the TTU.

6.2.5 Birds

The refined screening assessment for wildlife resulted in a reduced number of COPECs that pose a potential risk to birds at the TTU (Tables 26 and 27). Table 28 shows a summary of the refined screening evaluation results. Petroleum products were not considered in the refined screening assessment for birds because they were eliminated as presenting risk for all avian receptors during the initial screen. Analyte groups considered in the refined screen included energetics, inorganics, PAHs, SVOCs, and VOCs.

Refined estimates of exposure for four (for the sage sparrow and burrowing owl) to as many as eight (for the shrike and meadowlark) energetic COPECs exceeded avian NOAELs (Table 26). However, the only detected COPEC in this group was 2,4-dinitrotoluene, which did not exceed the LOAEL. There is a possible potential for adverse effects to these receptors from COPECs with NOAEL exceedances, but this potential is low when the LOAEL is not also exceeded. LOAELs were exceeded for only two of four species, the loggerhead shrike and western meadowlark. These exceedances were for two analytes: non-detected concentrations of RDX for shrikes and nitrobenzene for both species. LOAEL-HQs were less than 5.0. None of the LOAEL-HIs for energetics exceeded 1.0 for any avian receptor. When only samples from habitat areas of the TTU are considered (Table 27), nitrobenzene drops out as producing estimated exposures in excess of the LOAEL for both species. The LOAEL exceedance based on non-detected RDX for the shrike persists with low magnitude (HQ=1.1). Samples driving the potential for risk to birds from energetics are mainly associated with OB/OD areas. The conclusion is that energetics present no risk to three of four bird species at the TTU. Risk to insectivorous birds from RDX cannot be excluded, because it is based on non-detected concentrations, and is retained as an uncertainty.

Refined estimates of exposure for inorganics exceeded NOAELs and LOAELs for all avian receptors (Table 26). These exceedances were driven by cadmium, lead, perchlorate, and zinc. NOAEL-HQs ranged from 1.2 for zinc exposure for the owl to 360 for lead exposure for the owl. While there is a possible potential for adverse effects to these receptors from COPECs with NOAEL exceedances, this potential is low when the LOAEL is not also exceeded. Lead exceeded the LOAEL for all avian receptors, with HQs ranging from 3.9 (sparrow) to 39 (owl). Cadmium exceeded the LOAEL for the shrike and meadowlark, with HQs less than 2.0. These exceedances drove HIs above 1.0 for all avian receptors, ranging from 4 (sage sparrow) to 40 (owl). Cadmium and lead EPCs driving HI exceedances were also influenced by a few very high concentrations collected within OB/OD areas. When only samples from the habitat area of the TTU are considered (Table 27), no exposure estimates for any inorganic exceeded LOAELs for any species. NOAEL exceedances for inorganic COPECs in habitat areas were low for cadmium in the shrike (HQ=1.4) and meadowlark (HQ=1.0), and lead in the owl (HQ=2.9). The conclusion is that potential risks from inorganics are associated with OB/OD areas and do not represent the potential for risks in the surrounding wildlife habitat areas of the site. Inorganics present no significant risk to any of the four bird species in ecological habitat areas of the TTU.

PAHs were evaluated in the refined risk characterization for all bird receptor species except the owl. Although screening level HIs for PAHs were greater than 1.0 for the sparrow, shrike, and meadowlark, only 2-methylnaphthalene exposure exceeded the shrike and meadowlark NOAELs in the refinement. These NOAEL-HQs were less than 2.0, and modeled exposures did not exceed the LOAELs. While there is a possible potential for adverse effects to these receptors from COPECs with NOAEL exceedances, this potential is low when the LOAEL is not also exceeded. The lack of LOAEL exceedances resulted in the conclusion that the potential for adverse effects in avian wildlife from PAHs is not likely. PAHs in samples representing habitat areas within the TTU did not exceed NOAELs. Therefore, there is a low potential for risk to avian receptors from PAHs at the TTU.

One detected SVOC (bis[2-ethylhexyl]phthalate) exceeded the NOAEL (HQ=1.0) for one receptor (shrike) in the refined screening assessment. Non-detected SVOCs exceeded their NOAEL-TRVs for all species. Exposure to four of these non-detected COPECs (2,4,5-trichlorophenol, hexachlorobenzene, hexachlorocylopentadiene, and hexachloroethane) also exceeded LOAELs for the shrike and meadowlark, with LOAEL-HQs less than 5. While the potential for risk from non-detected COPECs is uncertain, it cannot be excluded. The LOAEL HI for the loggerhead shrike, the only avian receptor with detected SVOC COPECs retained, was below 1.0. When only samples from habitat area of the TTU are considered (Table 26), no exposure estimates for any SVOC exceed LOAELs for any species. Several non-detected phthalates continued to exceed their NOAELs for exposure to the shrike (butyl benzylphthalate, diethylphthalate, dimethylphthalate, di-n-butylphthalate, and di-n-octylphthalate) and meadowlark (butyl benzylphthalate, diethylphthalate, di-n-butylphthalate, and di-n-octylphthalate) in habitat areas. However, these NOAEL-HQs were all less than 1.5 and were based on non-detected concentrations. Uncertainty associated with phthalate exposure estimates is high. Phthalate exposures are likely overestimated due to the log Kows, ranging from 3.6 to 10.6, driving the large estimated biotransfer factor (using the Kow-based equation). Further, phthalate esters are rapidly broken down in the environment by photolysis and biodegradation (Staples et al., 1997). Biotransformation limits bioaccumulation of phthalate esters with increasing trophic level and general bioaccumulation models do not consider these chemical specific variances. It is, therefore, likely that the Kow BCF model contributes to overestimating exposure. The risk conclusion for avian exposure to SVOCs is that potential for adverse effects are uncertain in OB/OD areas and are not present in the surrounding wildlife habitat areas of the site. SVOCs present a low potential for risk to avian receptors in ecological habitat areas of the TTU.

The NOAEL-HI for VOC exposure to the sage sparrow was greater than 1.0 in the initial screening assessment, but did not exceed 1.0 in the refined screening assessment. Sparrow exposure to all VOCs was less than NOAELs. Therefore, there is no potential for adverse effects from VOCs to any avian wildlife receptor at the site.

7.0 Uncertainties

Uncertainties are inherent in all risk assessments. The nature and magnitude of uncertainties depend on the amount and quality of data available, the degree of knowledge concerning site conditions, and the assumptions made to perform the assessment. A qualitative evaluation of the major uncertainties associated with this screening assessment, in no particular order of importance, is outlined below.

- No avian and mammalian life history data specific to the site were available; therefore, exposure parameters were either modeled based on allometric relationships (e.g., food ingestion rates) or were based on data from these same species in other portions of their range. Because diet composition as well as food, water, and soil ingestion rates can differ among individuals and locations, published parameter values may not accurately reflect individuals present at the site. As a consequence, risk may be either overestimated or underestimated.
- No site-specific data on concentrations in terrestrial plants, invertebrates, or small mammals were available. Therefore, concentrations in these prey items were estimated using literature-derived bioaccumulation models. The suitability of these models is unknown. As a consequence, concentrations of COPECs in actual prey may be either higher or lower than the data used in this screen.
- BCFs for estimating chemical specific tissue concentrations in plants were calculated using a Kow-specific regression model from EPA (2005). These models were used when chemical-specific BCFs were not available and provide the best available tool for estimating the uptake of organic compounds into tissues. However, these models are less accurate at predicting tissue concentrations for chemicals with Kow values outside of the range for which they were developed (3-8). For these and other reasons,

exposure doses and potential risks to wildlife may be either overestimated or underestimated.

- BCFs for estimating chemical-specific tissue concentrations in wildlife was estimated using a Kow-specific regression model developed by Travis and Arms (1988). This model was used only when chemical-specific BCFs were not available and is the best available tool for estimating the uptake of organic compounds into tissues. However, there are limitations to the Travis and Arms (1988) model that are described in Birak et al. (2001). Essentially, the model is less accurate at predicting BCFs for chemicals with Kow values outside of those used in the model development (6-6.9). For these and other reasons, exposure doses and potential risks to wildlife may be overestimated or underestimated.
- Assumptions that chemicals and organisms are at a steady state, that none of the chemicals are metabolized, and that BCFs are consistent in all ingested media may not be accurate. For these and other reasons, exposure doses and potential risks to wildlife may be overestimated or underestimated.
- Concentrations in many samples were below detection limits. Concentrations in these samples were estimated to be one-half the detection limit. If an analyte was never detected in any sample, it was assumed not to be present, which may lead to an underestimation of risk. In contrast, if an analyte was detected in at least one sample, summary statistics were based on the one-half detection limit assumption, leading to an overestimation of risk.
- Literature-derived toxicity data based on laboratory studies were the only available toxicity data used to evaluate risk to all receptor groups. It was assumed that effects observed in laboratory species were indicative of effects that would occur in wild species. The suitability of this assumption is unknown. Consequently, risk may be either overestimated or underestimated. In addition, due to the limited availability of toxicity data, confidence in the quality of some of the screening values (as defined by the authors of these values) was low. This was particularly the case with the plant and soil invertebrate screening values. These values may, therefore, overestimate toxicity and risk.
- The exposure dose estimates in this screening risk assessment assume that 100 percent of the chemical concentrations to which receptors are exposed are in the bioavailable form. Most chemicals will not be 100 percent bioavailable. In the cases where bioavailability is less than 100 percent, risk is overestimated.
- Adequate toxicity information is not available for some constituents that were detected in environmental media to quantify ecological risks. In some cases, data for surrogate chemicals were used. The use of surrogate toxicity information to quantify toxicity for these contaminants might lead to overestimates or underestimates of risk to ecological receptors. For some contaminants, there is no information available from which to develop TRVs and these constituents could not be evaluated.
- Dietary compositions were simplified for the site receptors to estimate concentrations in food items using bioaccumulation models. It was assumed concentrations were similar in comparable food types. The suitability of this assumption is unknown. Consequently, risk may be either overestimated or underestimated.
- Few analyte-specific avian toxicity values were available for energetic compounds. As a consequence, available data were often used as surrogates. Similarly,

bioaccumulation data for energetic compounds exist from EPA (2005) for TNT and RDX, and for HMX and dinitrotoluenes (U.S. Army, 2005), but are otherwise lacking. Further, only four energetics were detected in TTU soils, with frequencies of detection of 32 percent or less. The analytes estimated to exceed LOAELs (nitrobenzene and RDX) were below the detection limit in all samples analyzed. These factors indicate uncertainty in the evaluation of risks from energetics to birds and risks may be overestimated or underestimated.

- Because toxicity data specific for bird and mammal species at the site were not available, it was necessary to extrapolate toxicity values from test species to site receptor species. Therefore, risk may be either overestimated or underestimated.
- In this screen, risks for most chemicals were each considered independently. Because chemicals may interact in an additive, antagonistic, or synergistic manner, evaluation of single-chemical risk may either underestimate or overestimate risk associated with chemical mixtures. The risks from inorganic, energetic, PAH, TPH, VOC, and SVOC chemical classes were each summed to estimate the combined risk. The suitability of the assumption of additive toxicity is not known; consequently, risk may be either overestimated or underestimated.
- Toxicity data was not available to evaluate the effects of all COPECs for all receptors. The COPECs for which there is no toxicological information and the potential for causing risks to ecological receptors is uncertain are summarized below:

7.1 Chemical Uncertainties for Plants

1,1,1,2-Tetrachloroethane, 1,1,1-Trichloroethane, 1,1,2,2-Tetrachloroethane, 1,1,2-Trichloroethane, 1,1-Dichloroethane, 1,1-Dichloroethene, 1,2,3-Trichlorobenzene, 1,2,3-Trichloropropane, 1,2,4-Trichlorobenzene, 1,2-Dibromo-3-chloropropane, 1,2-Dichlorobenzene, 1,2-Dichloroethane, 1,2-Dichloropropane, 1,2-Ethylene Dibromide, 1,3-Dichlorobenzene, 1,4-Dichlorobenzene, 2,4-Dimethylphenol, 2-Butanone, 2-ChloroethylVinylEther, 2-Chloronaphthalene, 2-Hexanone, 2-Methylphenol, 2-Nitroaniline, 3,3-Dichlorobenzidine, 3-Nitroaniline, 4,6-Dinitro-2-methylphenol, 4-Bromophenylphenylether, 4-Chloro-3-methylphenol, 4-Chlorophenylphenylether, 4-Methyl-2-pentanone, 4-Methylphenol, 4-Nitroaniline, Acetone, Benzoic acid, Benzylalcohol, Bis(2-chloroethoxy)methane, Bis(2-chloroethyl)ether, Bis(2-chloroisopropyl)ether, Bromodichloromethane, Bromoform, Bromomethane, Carbon disulfide, Carbon tetrachloride, Chloroethane, Chloroform, Chloromethane, cis-1,2-Dichloroethene, cis-1,3-Dichloropropane, Dibenzofuran, Dibromochloromethane, Dibromomethane, Dichlorodifluoromethane, Hexachloroethane, Iron, Isophorone, Magnesium, Methylene chloride, Nitrate, Nitroglycerin, Nitroguanidine, n-Nitroso-di-n-propylamine, n-Nitrosodiphenylamine, PETN, Phosphorus, Picric Acid, Strontium, tert-ButylMethylEther, Trans-1,2-Dichloroethene, Trans-1,3-Dichloropropene, Trichloroethylene (TCE), Trichlorofluoromethane, Vinyl Acetate, Vinyl chloride

7.2 Chemical Uncertainties for Soil Invertebrates

1,2-Dibromo-3-chloropropane, 1,2-Ethylene Dibromide, 2,4-Dimethylphenol, 2-Butanone, 2-ChloroethylVinylEther, 2-Chloronaphthalene, 2-Hexanone, 2-Methylphenol, 2-Nitroaniline, 3,3-Dichlorobenzidine, 3-Nitroaniline, 4,6-Dinitro-2-methylphenol, 4-Bromophenylphenylether, 4-Chloro-3-methylphenol, 4-Chlorophenylphenylether, 4-Methyl-

2-pentanone, 4-Methylphenol, 4-Nitroaniline, Acetone, Aluminum, Benzoic acid, Benzylalcohol, Bis(2-chloroethoxy)methane, bis(2-chloroethyl)ether, bis(2-chloroisopropyl)ether, Bromodichloromethane, Bromoform, Bromomethane, Carbon disulfide, Carbon tetrachloride, Dibromochloromethane, Dibromomethane, Dichlorodifluoromethane, Hexachlorobenzene, Hexachlorobutadiene, Hexachlorocyclopentadiene, Hexachloroethane, Iron, Isophorone, Magnesium, Manganese, Methylene chloride, Molybdenum, Nitrate, Nitroglycerin, Nitroguanidine, PETN, Phosphorus, Picric acid, Silver, Strontium, tert-ButylMethylEther, Tetrachloroethene, Tetryl, Trichloroethylene (TCE), Trichlorofluoromethane, Vanadium, Vinyl Acetate, Vinyl chloride

7.3 Uncertainties for Mammals

1,2,3-Trichlorobenzene, 1,2,4-Trichlorobenzene, 1,2-Dibromo-3-chloropropane, 1,2Dichlorobenzene, 1,2-Ethylene Dibromide, 1,3-Dichlorobenzene, 1,4-Dichlorobenzene, 2,4-Dimethylphenol, 2,4-Dinitrophenol, 2-ChloroethylVinylEther, 2-Chloronaphthalene, 2-Chlorophenol, 2-Nitroaniline, 2-Nitrophenol, 3,3-Dichlorobenzidine, 3-Nitroaniline, 4,6-Dinitro-2-methylphenol, 4-Bromophenylphenylether, 4-Chloro-3-methylphenol, 4-Chloroaniline, 4-Chlorophenylphenylether, 4-Nitroaniline, 4-Nitrophenol, Benzoic acid, Benzylalcohol, Bis(2-chloroethoxy)methane, bis(2-chloroethyl)ether, bis(2-chloroisopropyl)ether, Bromodichloromethane, Calcium, Carbon disulfide, Chloride, Dibenzofuran, Dibromochloromethane, Dibromomethane, Dichlorodifluoromethane, Iron, Isophorone, Magnesium, Nitrobenzene, Nitroguanidine, n-Nitroso-di-n-propylamine, n-Nitrosodiphenylamine, Phosphorus, Picric acid, Potassium, Sodium, Styrene, Sulfate, tert-ButylMethylEther, Trichlorofluoromethane, Vinyl Acetate

7.4 Uncertainties for Birds

1,2-Dibromo-3-chloropropane, 1,2-Ethylene Dibromide, 2,4-Dimethylphenol, 2,4-Dinitrophenol, 2-ChloroethylVinylEther, 2-Chloronaphthalene, 2-Methylphenol, 2-Nitroaniline, 2-Nitrophenol, 3,3-Dichlorobenzidine, 3-Nitroaniline, 4,6-Dinitro-2-methylphenol, 4-Bromophenylphenylether, 4-Chloro-3-methylphenol, 4-Chloroaniline, 4-Chlorophenylphenylether, 4-Methylphenol, 4-Nitroaniline, 4-Nitrophenol, Antimony, Benzylalcohol, Beryllium, bis(2-chloroethoxy)methane, bis(2-chloroethyl)ether, bis(2-hloroisopropyl)ether, Bromodichloromethane, Bromoform, Bromomethane, Calcium, Carbon disulfide, Carbon tetrachloride, Chloride, Chloroform, Chrysene, Dibenzofuran, Iron, Isophorone, Magnesium, Methylene chloride, Nitrate, Nitroglycerin, Nitroguanidine, n-Nitroso-di-n-propylamine, n-Nitrosodiphenylamine, PETN, Phenol, Picric acid, Potassium, Pyrene, Silver, Sodium, Strontium, Styrene, Sulfate, tert-ButylMethylEther, Tetryl, Trichloroethylene (TCE), Trichlorofluoromethane, Vinyl acetate, Vinyl chloride

8.0 Conclusions

A SLERA for the Hill AFB TTU site was conducted in two parts: an initial conservative site-wide screen followed by a refined evaluation. The initial site-wide screen employed conservative assumptions, and used the maximum detected concentration coupled with no-effect thresholds to differentiate between analytes that clearly presented no risk and those for which insufficient data were available to permit their exclusion (e.g., retained analytes). The refined screen employed biologically more realistic exposure and effects assumptions, and focused only on retained analytes. Key conclusions of potential risk are described below and are summarized in Table 28.

8.1 Background Comparison

Nine analytes had concentrations in all samples that were not significantly different from background (aluminum, beryllium, chromium, iron, manganese, mercury, nickel, phosphorus, and thallium). An additional six inorganic analytes were significantly greater in concentration in background samples than on-site samples (arsenic, barium, cobalt, magnesium, strontium, and vanadium). These 15 analytes were not considered to be site-associated COPECs and were eliminated from further characterization and analysis.

8.2 Plants

Analytes not exceeding the NOEC-based TRVs included 11 non-detected and 16 detected chemicals that are not considered to pose a potential risk to terrestrial plants at the Hill AFB – TTU site. No TRVs could be identified for 49 detected analytes and 24 non-detected analytes. Consequently, these analytes were retained as uncertainties.

There were no exceedances of either NOEC or LOEC-TRVs by any detected analytes in the energetics, SVOCs, and VOC chemical classes. The few and infrequent TRV exceedances that did occur in these classes were based on detection limits for analytes that were not detected. Therefore, it was concluded that all analytes in the energetics, SVOC, and VOC chemical classed do not pose a risk to terrestrial plants at the site.

Of the 30 analytes displaying concentrations in excess of LOECs, the likelihood of potential effects to the plant community was considered to be low. This was due to exceedances being driven by non-detected concentrations for 18 COPECs and the low frequency of exceedances by all detected and non-detected COPECs except zinc and TPH. The frequencies of LOEC exceedances for five PAHs in site samples were also low. The potential for risk was mostly associated with OB/OD areas and does not represent the potential for risks in the surrounding habitat areas of the site. Only metal COPECs showed any NOEC and LOEC exceedances in ecological habitat. Detected concentrations of antimony, copper, and molybdenum exceeded the NOEC with a high frequency in ecological habitat areas. These NOEC exceedances (less than or equal to 87 percent) indicate that adverse effects are possible, but the lack of LOEC exceedances suggests that adverse effects to the plant community are unlikely. Selenium exceeded the LOEC with high frequency (67 percent); however, these exceedances were due to inadequate detection limits (i.e., all were due to non-detected concentrations), and the actual risks to plants from selenium are uncertain. The potential for adverse effects to plants cannot be excluded for zinc due to the high frequency of LOEC-TRV exceedances in both OB/OD and habitat samples.

8.3 Soil Invertebrates

Screening values were found for 53 of the 87 analytes detected at the site, and for 39 of the 64 analytes not found at concentrations greater than the detection limit. The remaining 34 detected analytes and 25 non-detected analytes without TRVs were retained as uncertainties. The analytes not exceeding the NOEC-based TRVs included 24 non-detected and 35 detected chemicals that are not considered to pose a potential risk to soil invertebrates at the Hill AFB – TTU site.

There were no exceedances of either LOEC-TRVs by any detected analytes in the VOC chemical classes. The few and infrequent (less than 13 percent of samples) NOEC or LOEC exceedances that did occur in these classes were based on detection limits. Therefore, these classes of chemicals are not considered to pose a risk to terrestrial soil invertebrates at the site.

Of the 20 analytes displaying concentrations in excess of LOECs, the likelihood of potential effects to the soil invertebrate community was considered to be low. This was due to exceedances being driven by non-detected concentrations for 10 COPECs and the low frequency of exceedances by all detected and non-detected COPECs except TPH. Detected concentrations of HMX, copper, lead, zinc, 2-methylnaphthalene, fluorene, naphthalene, phenanthrene, and dibenzofuran each exceeded the LOEC in fewer than 20 percent of site-wide samples. These low frequencies of LOEC exceedances suggest the absence of adverse effects to the soil invertebrate community even when OB/OD samples are considered. No PAH, TPH, VOC, or SVOCs exceed NOECs or LOECs when only samples from within habitat areas of the TTU are considered. Only HMX and two metal COPECs showed NOEC (HMX and zinc) and LOEC (copper) exceedances in ecological habitat areas by detected concentrations, indicating that samples driving the potential for risk were mostly associated with OB/OD areas and do not represent the potential for risks in the surrounding habitat areas of the site. HMX exceeded the NOEC by a low frequency of samples (10 percent) and is not considered to pose a significant risk to invertebrate communities. Detected concentrations of copper and zinc exceeded the NOEC with a high frequency in ecological habitat areas. These NOEC exceedances (less than or equal to 100 percent) indicate that adverse effects are possible, but the lack of LOEC exceedances for zinc, and low LOEC exceedance frequency for copper (5 percent), suggests the likelihood of significant community-level effects is low.

8.4 Mammals

NOEC-TRVs were found for 65 of the 87 detected COPECs at the site, and for 39 of the 64 non-detected COPECs at the site. The remaining 22 detected analytes and 25 non-detected analytes without TRVs were retained as uncertainties. Overall, NOAEL-based HIs exceeded 1.0 in all species for energetics and inorganics, and in some species for PAHs, petroleum products, SVOCs, and VOCs.

NOAEL exceedances by five energetics were generally of low magnitude and based on non-detected concentrations for all except HMX. LOAELs were exceeded at a low magnitude by only four energetic COPECs (HMX, RDX, 1,3-dinitrobenzene, and 2,6-dinitrotoluene) for two mammalian receptors (Ord’s kangaroo rat and the grasshopper mouse). However, when only samples from the habitat area of the TTU are considered, only LOAEL exceedances based on non-detected RDX and 1,3-dinitrobenzene for the grasshopper mouse remain. Therefore, the potential for risks from energetics to five of the six mammalian receptor species in wildlife habitat areas of the TTU is considered unlikely. Risks to mammalian insectivores (grasshopper mice) from RDX and 1,3-dinitrobenzene cannot be excluded, but are retained as uncertainties because they are based on non-detects.

Refined exposure estimates resulted in exceedances of NOAELs or LOAELs for antimony, cadmium, copper, lead, molybdenum, perchlorate, and selenium in at least one receptor. All were detected except selenium, and represent possible potential for risks to mammalian wildlife. Samples driving any potential for risk were mostly associated with OB/OD areas and do not represent the potential for risks in the surrounding wildlife habitat areas. When only samples from the habitat area of the TTU are considered, no exposure estimates for any inorganic exceed NOAELs for the coyote, ground squirrel, or pronghorn. NOAELs were only exceeded for non-detected selenium (kangaroo rat, jackrabbit, and grasshopper mouse) and detected antimony, cadmium, lead, and molybdenum for the grasshopper mouse. LOAELs were only exceeded (HQs less than 3.0) for cadmium and selenium for the grasshopper mouse, and selenium for the kangaroo rat; therefore, there is no potential for significant risk to four of six mammal species in habitat areas of the TTU. Potential risks to small mammalian herbivores (kangaroo rats) and mammalian insectivores (grasshopper mice) from selenium cannot be excluded because they are based on non-detects and are retained as uncertainties; and, potential for risk to mammalian insectivores from cadmium also cannot be excluded.

NOAEL-based TRV exceedances by 10 PAHs were observed for at least one COPEC in each mammalian receptor, except the coyote. LOAEL exceedances were also observed for fluorene (kangaroo rat) and 2-methylnaphthalene (grasshopper mouse). However, PAHs are associated with OB/OD areas and do not represent the potential for risks in the surrounding wildlife habitat areas of the site. The NOAEL-HI for PAHs is less than 1.0 for all mammalian receptors when only samples from the habitat area of the TTU are considered. Therefore, PAHs present no risk to mammals in ecological habitat areas of the TTU.

Screening exposure estimates for TPH only exceeded NOAELs for the grasshopper mouse. Therefore, petroleum products do not pose a potential for risk to the five other mammalian receptors at the TTU. The refined exposure estimate for the grasshopper mouse exceeded the NOAEL, but not when considering concentrations only from wildlife habitat areas of the TTU. Thus, petroleum products were determined not to pose a potential risk to mammalian wildlife in habitat areas of the site, and only a possible potential for risk for the grasshopper mouse over the entire TTU.

SVOCs did not exceed initial screening exposure NOAEL-HIs for any mammalian receptor, although several non-detected COPECs did exceed individual NOAELs for the jackrabbit, grasshopper mouse, and coyote. These samples driving the potential for risk from SVOCs are associated with OB/OD areas and do not represent the potential for risks in the surrounding wildlife habitat areas of the site. Potential risk to mammalian insectivores (grasshopper mice) from non-detected 2,4,5-trichlorophenol cannot be excluded, but is retained as an uncertainty. Otherwise SVOCs present no risk to all other mammals in ecological habitat areas of the TTU.

Acetone and phenol were the only VOCs that exceeded NOAELs in the refined exposure estimates. However, the samples driving the potential for risk from VOCs are associated with OB/OD areas and do not represent the potential for risks in the surrounding wildlife habitat areas of the site. When only areas of the TTU that provide habitat are considered, NOAELs were not exceeded by any VOC. The conclusion is that VOCs present no risk to mammals in ecological habitat areas of the TTU.

8.5 Birds

NOAEL-TRVs were found for 62 of the 87 detected COPECs at the site, and for 34 of the 64 non-detected COPECs at the site. The remaining 25 detected analytes and 30 non-detected analytes without TRVs were retained as uncertainties. Neither detected nor non-detects petroleum products or VOCs exceeded their NOAELs for any avian receptor species. Thus, the potential for risk to birds from these chemical classes is excluded. Refined estimates of potential exposure identified NOAEL-based HIs greater than 1.0 in all species for inorganics, and in at least one species for energetics, PAHs, and SVOCs.

Refined estimates of exposure for eight energetic COPECs exceeded NOAELs for all four avian receptors. These exceedances were based on detected 2,4-dinitrotoluene, which did not exceed its LOAEL, and on non-detected COPECs where the potential for risks are uncertain. Samples driving the potential for risk to birds from energetics are mainly associated with OB/OD areas. No detected energetic COPEC exceeded the NOAEL for any avian receptor based on samples collected in habitat areas of the TTU. Eight COPECs continue to exceed NOAELs in habitat samples, but only non-detected RDX poses a potential for risk to shrikes, based on the only LOAEL exceedance. The potential for risk to all avian receptors from all other non-detected energetics exceeding only NOAEL exposures are uncertain. Therefore, energetics do not present a potential for significant risk to three of four bird species in wildlife habitat areas of the TTU. Risk to avian insectivores (loggerhead shrikes) from RDX cannot be excluded because it is based on non-detects, and is retained as an uncertainty.

LOAEL-based HIs for inorganic COPECs were greater than 1.0 for all receptors, ranging from 5 (sparrow) to 39 (owl). The primary risk drivers for inorganic HIs were cadmium and lead. Perchlorate and zinc also exceeded shrike and owl NOAELs, but the possible potential for adverse effects to these receptors is low because the LOAELs were not exceeded. Cadmium, lead, perchlorate, and zinc EPCs driving NOEAL and LOAEL exceedances were also influenced by a few very high concentrations collected within OB/OD areas, primarily at the inactive burn pan site. When only samples from the habitat area of the TTU are considered, no exposure estimates for any inorganic COPEC exceed the LOAEL for any species. NOAEL exceedances for cadmium and lead in habitat areas were also of low magnitude (HQs less than 3.0). The conclusion is that potential risks from inorganics are associated with OB/OD areas and do not represent the potential for risks in the surrounding wildlife habitat areas of the site. Inorganics do not present a significant risk to any of the four bird species in ecological habitat areas of the TTU.

Screening exposure estimates for PAHs did not exceed burrowing owl NOAELs. Although screening-level HIs for PAHs were greater than 1.0 for the sparrow, shrike, and meadowlark, only detected 2-methylnaphthalene exposures exceeded the shrike and meadowlark NOAELs in the refinement (HQs less than 3.0). PAHs in samples representing habitat areas within the TTU did not exceed NOAELs. Therefore, there is no potential for risk to avian receptors from PAHs in habitat areas at the TTU.

Screening exposure estimates for SVOC did not exceed NOAEL-HIs for the sparrow, meadowlark, or owl. While the screening-level HI for the shrike exceeded 1.0, the refined exposure estimate was equal to 1.0. Bis(2-ethylhexyl)phthalate exposure to the shrike was equal to the NOAEL. No LOAEL was available for comparison to the exposure dose, but the low magnitude of this exceedance indicates that the likelihood of adverse effects is low. Otherwise, only non-detected SVOCs exceeded their NOAELs or LOAELs in the refined screening assessment. No exposure estimate for any SVOC exceeded a LOAEL for any species due to samples from habitat area of the TTU. Non-detected phthalates continue to exceed NOAELs for phthalate exposure to the shrike and meadowlark in wildlife habitat samples. However, the potential for possible adverse effects from these COPECs is considered low due to rapid environmental degradation, biotransformation, and inappropriate bioaccumulation modeling. The conclusion is that potential risks from SVOCs are uncertain in OB/OD areas and are not significant in the surrounding wildlife habitat areas of the site.

8.6 Possible Actions to Reduce Potential Risks

The potential for risks over the entire TTU site could not be excluded for zinc to plants; TPHs to plants and invertebrates; and HMX, antimony, cadmium, copper, lead, perchlorate, 2-methylnaphthalene, fluorene, total-PAHs, and acetone to one or more wildlife receptors. Samples driving the potential for risks to receptors are generally associated with OB/OD areas, primarily at the inactive burn pan site, and do not represent the potential for risks in the surrounding wildlife habitat areas of the site due to incomplete exposure pathways.

In an effort to reduce potential risk at the TTU, several ongoing actions are in place to assist in the continual assessment and refinement of risk to receptors. These actions include: 1) the continued collection of chemical data and refinement of the risk assessment, including the revised soil sampling strategy for 2005, aimed at characterizing average chemical concentrations within the operational areas of the TTU; and 2) continued control and documentation of materials treated at the TTU, in accordance with the RCRA Part B permit, to prevent the introduction of unknown or excess environmental hazards. These items are addressed as part of the RCRA Part B Permit compliance activities that include the periodic review of both the human health and ecological risk assessments and the preparation of the Waste Characterization Technical Memorandum.

Remediation of OB/OD areas, once operations have ceased, will eliminate or reduce any significant potential for risk to receptors at the TTU. The only detected COPECs to pose a potential for adverse effects to receptors in habitat areas were cadmium for the grasshopper mouse (LOAEL-HQ = 1.8) and zinc for plants (LOEC exceedances = 57 percent; LOEC-HQmax = 1.3). These risk conclusions are based solely on literature-based toxicity, life history, and bioaccumulation data and, therefore, may not accurately reflect site conditions. When operations at the TTU have ceased and remedial plans are being developed for the OB/OD areas of the site, more detailed analyses, to include site-specific bioassays and bioaccumulation studies, may be considered to address retained risks from cadmium and zinc in the habitat areas of the site. Site-specific data developed from these studies could result in a more definitive risk determination and would support the development of site-specific remedial goals.

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Tables

Table 1
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Chemical	Environmental Fate	Reference
Aluminum	Aluminum has only one oxidation state (3+); thus, its fate and transport in the environment depends upon its coordination chemistry and the characteristics of the local environmental system. Aluminum does not exist as a free metal in nature due to its reactivity; it partitions between the solid and liquid phases by reacting with water, chloride, fluoride, sulfate, nitrate, phosphate, humic materials, and clay. The greater the mineral content of the soil, the lower the mobility of aluminum. In water, aluminum forms relatively water-insoluble complexes, or is found as a water-soluble complex. Aluminum undergoes hydrolysis to form hydroxy aluminum species and pH determines the hydrolysis products that are formed. Aluminum adsorbs to suspended solids and sediment. At a pH greater than 5.5, aluminum compounds exist predominantly in undissolved forms. Decreasing pH generally results in an increase in mobility for monomeric forms of aluminum.	Bodek et al., 1988; and others in TOXNET
Antimony	Antimony usually occurs with the valence of 3+ and occasionally of 5+. Antimony binds to soil particles, particularly those containing iron, manganese, or aluminum. In water, antimony is oxidized when exposed to atmospheric oxygen.	TOXNET (http://toxnet.nlm.nih.gov/)
Arsenic	The physical characteristics of the soil matrix determine the dominant form of arsenic and its transport. Insoluble arsenic compounds bind tightly to organic matter in soil or sediment. Various forms of arsenic in soil are interconverted by chemical reactions and microbial activity. The bioavailability of arsenic in soil is inversely proportional to the organic carbon and clay content of the soil matrix. Arsenic in soil is directly taken up by plants and soil microbes and invertebrates, and indirectly taken up by terrestrial receptors via ingestion. In surface water, soluble inorganic arsenate (As5+) predominates under normal conditions and is more stable than arsenite. Movement and partitioning of arsenic in water depends on the chemical form of arsenic and on interactions with other materials present. Soluble forms of arsenic remain dissolved in the water column or adsorb onto sediments or soils, especially those containing clays, iron oxides, aluminum hydroxides, manganese compounds, and organic matter. Sediment bound arsenic is released back into the water by chemical or biological interconversions and is influenced by the oxidation-reduction potential, pH, temperature, other metals, salinity, and biota. Uptake by plants from soil is influenced by soil elements, temperature and plant species. Aquatic organisms accumulate arsenic but do not biomagnify it. Arsenic is accumulated by aquatic organisms primarily through dietary exposure. Bioavailability is not dependent on the concentration of acid-volatile sulfides (AVS). Sediments are the major source of arsenic to infaunal organisms.	Callahan et al., 1979; NRCC, 1978; Woolson, 1975; and others in TOXNET
Barium	In water, barium precipitates out of solution as an insoluble salt or adsorbs to suspended particulate matter. Barium in sediments is found mostly in the form of barium sulfate. Barium is not very mobile in most soil systems. The rate of transportation of barium in soil is dependent on soil characteristics such as cation exchange capacity and calcium carbonate content. Barium naturally forms compounds in the 2+ oxidation state. Only trace amounts of barium dissolve in surface water. In general, the solubility of barium compounds increases with decreasing pH.	Bodek et al., 1988; Kabata-Pendias and Pendias, 1984; and others in TOXNET
Cadmium	Cadmium exists primarily in the 2+ oxidation state. Cadmium in the water column can partition to dissolved and particulate organic carbon. Cadmium speciation yields primarily the divalent form (2+) between pH conc of 4.0 and 7.0 and it is this divalent form that is believed to be responsible for observed biological effects. Cadmium compounds in soil are stable and are not subject to degradation. Compounds can be transformed by precipitation, dissolution, complexation, and ion exchange. In aquatic environments, cadmium compounds are not affected by photolysis, volatilization, or biological methylation. Precipitation and sorption to mineral surfaces and organic materials are important removal processes. Concentrations are generally higher in sediments than in overlying water. Cadmium readily bioconcentrates in *Daphnia sp.* , aquatic insects, mollusks, and crayfish. Fish uptake occurs through both water and diet, however water is the primary uptake source. In mammals and birds, cadmium accumulates in the livers and kidneys following ingestion. The concentration of AVS is an important factor controlling the toxicity and bioaccumulation of cadmium in sediments.	ATSDR, 1990a; Callahan et al., 1979; and others in TOXNET

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Chromium	In soil, chromium 3+ is readily hydrolyzed and precipitated as chromium hydroxide. It exists in soil primarily as insoluble oxide with very limited mobility. In water, chromium 6+ can occur in the soluble state. It can be adsorbed onto clay-like materials, organics, or iron oxides. chromium 6+ persists in water for 140 days, but is eventually reduced to chromium 3+ by organic matter or other reducing agents in water. Plants can bioaccumulate and reduce chromium. In aqueous solutions, within a pH range of 6 to 8, hexavalent chromium is distributed between two species: monovalent hydrochromate anion and divalent chromate anion. A log bioconcentration factor (BCF) of 2.74 was reported for Daphnia magna. Hexavalent chromium tends to accumulate in the gills of fish following exposure.	TOXNET (http://toxnet.nlm.nih.gov/)
Copper	Copper occurs naturally in many organisms and is an essential micronutrient. Copper may exist in two oxidation states: 1+ or 2+. Copper (1+) is unstable and oxidizes to the 2+ state in many aerated waters within the pH range of 6 to 8. In the aquatic environment, the fate of copper is determined by the formation of complexes. Copper concentrations remaining in solution depend on water chemistry, such as pH and temperature, and the concentration of other chemical species. The majority of copper released to surface waters settles out or adsorbs to sediments. Some copper complexes with both inorganic and organic ligand. As an essential nutrient, copper is strongly bioaccumulated by plants and animals. All organisms have active transport mechanisms for it, but it does not biomagnify. Biogenic ligands play an important role in complexing copper (which affects precipitation and sorption behavior), an biological activity is a major factor in determining the distribution and occurrence of copper in the ecosystem. Free copper ions are the most bioavailable inorganic forms. The amount of bioavailable copper in sediment is controlled mostly by the concentration of AVS and organic matter. Copper is accumulated by aquatic organisms primarily through dietary exposure.	Callahan et al., 1979; and others in TOXNET
Iron	In the hydrosphere, iron minerals in igneous and metamorphic rocks are the primary sources of iron. Mobilization and redistribution occur with chemical weathering. Iron mobilizes mostly as dissolved Fe(II) in reducing conditions and as particulate Fe(III) oxyhydroxides in oxygenated conditions. In reducing conditions, Fe(II) is soluble and mobile below ~ pH 7 to 8. In oxidized surface waters and sediment, dissolved iron, Fe 3+ and Fe (III) inorganic complexes, are mobile below ~ pH 3 to 4. Fe (III) as ferric-organic complexes, are also mobile in many soils and in surface and groundwaters up to ~ pH 5 to 6; as colloidal ferric oxyhydroxides between ~ pH 3 to 8.	TOXNET (http://toxnet.nlm.nih.gov/
Lead	In water, lead is most soluble and bioavailable under conditions of low pH, low organic content, low suspended sediment concentrations, and low concentrations of salts of other metals. Therefore, the solubility in water is low. Most lead in natural waters is precipitated to sediment as carbonates and hydroxides. Lead is readily precipitated by many common anions. In sediments, lead is mobilized and released during sharp decreases in pH. In soils, the major sink for lead, is relatively immobile and can persist for long periods of time in numerous forms. Adsorption or precipitation of in soils is promoted by presence of organic matter, carbonates, and phosphate minerals. It usually accumulates in topsoil due to complexation with organic matter and the transformation of soluble lead compounds to relatively insoluble sulfate or phosphate derivatives. The efficient fixation of lead by most soils greatly limits the transfer of lead to aquatic systems and also inhibits absorption of lead by plants. However, leaching of lead can be relatively rapid from some soils, especially at highly contaminated sites or landfills. Aquatic biota (invertebrate and vertebrate) can bioconcentrate lead at levels greater than in water, and sometimes similar to those in sediments. Concentrations of lead tend to decrease with increasing aquatic trophic levels. However, lead does not appear to bioconcentrate significantly in fish but does in some shellfish such as mussels. Lead is accumulated by aquatic organisms equally from water and through dietary exposure. Bioaccumulation of organolead compounds is rapid and high and concentrated in the fatty tissues of aquatic organisms. Log BCFs of 5.15 (cladoceran) and 3.56 (midge) were reported in the literature.	Hodson et al., 1984; and others in TOXNET

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Chemical	Environmental Fate	Reference
Manganese	Manganese transport and partitioning is controlled by the solubility of the chemical form present, which is determined by pH, oxidation-reduction potential, and the characteristics of available anions. Manganese may exist in water in any of four oxidation states (2+, 3+, 4+, or 7+). Mn 24 is most common in waters (pH 4-7) but may become oxidized at pH greater than 8 or 9. Adsorption to soil and sediment may be highly variable because adsorption depends on the cation exchange capacity and the organic composition of the substrate. Manganese in water may undergo oxidation at high pH or oxidation-reduction potential and is also subject to microbial activity.	Kabata-Pendias and Pendias, 1984; and others in TOXNET
Mercury	In soil, mercury exists in the mercuric (Hg^{+2}) and mercurous (Hg^{+1}) states. Mercury adsorbs to soil or is converted to volatile forms. Mercury can migrate by volatilization from aquatic and terrestrial sources through the reduction of metallic mercury to complex species. Atmospheric transport is a major environmental distribution pathway. Mercury 2+ is the predominant form of mercury in surface waters. Nonvolatile mercury in surface water binds to organic matter and sediment particles. Where mercury is found in soil, water and sediment methylmercury may also be found since it is both produced and destroyed by microbial processes involving mercury compounds. Fish and other aquatic orgamanisms readily bioconcentrate methyl mercury either directly through water or through components of the food chain. Subsequently, fish eating birds tend to show the highest concentrations. Factors which affect the observed levels of mercury in plants and animals at different trophic levels include age, surface area, metabolism, habitat, and activity. There is an inverse relationship between total mercury and percent methylmercury in tissues of various avian species. Among mammals, mercury burdens are higher in fish-eating species than in herbivorous ones. Bioconcentration factors for methylmercury are highly variable. Log BCFs for methylmercury in brook trout range from 4.84 to 5.80. Bioaccumulation factors increased with higher levels in both the pelagic and benthic components of aquatic food webs. Fish bioconcentrate methylmercury directly from water by uptake across the gills and piscivores readily accumulate mercury from dietary sources. Mercury is accumulated by all trophic levels with biomagnification occurring up the food web. The transfer of mercury through the food web is affected by the form of mercury. Although inorganic mercury is the dominant form in the environment and easily accumulated, it is also depurated quickly. Methylmercury accumulates quickly, depurates very slowly, and therefore has a greater potential to biomagnify in higher trophic-level species.	Callahan et al. 1979; ATSDR, 1994; Eisler, 2000; and others in TOXNET
Nickel	Most nickel released into waterways is associated with particulate matter. Nickel is strongly adsorbed at mineral surfaces such as oxides and hydrous oxides of iron, manganese, and aluminum. It is strongly adsorbed by soil. Soil pH and clay content most influence nickel sorption. The 2+ valence is the predominant species in solution. Nickel BCFs ranging from 40-100 suggest that the potential for bioconcentration in aquatic organisms is low to moderate. Although aquatic organisms may accumulate nickel from their surroundings, there is little evidence for significant biomagnification along the food chain. Water-soluble nickel compounds, such as the chloride and sulfate compounds, are poorly absorbed by most living organisms. The uptake of nickel by plants depends upon the extractable nickel content of a soil which is a function of physical, chemical and biological factors of the soil environment. Higher nickel concentrations have been observed in shellfish and crustacea than in fish. Bioaccumulation of nickel is most pronounced in sediments when the ratio of simultaneously extracted metals to acid-volatile sulfide (SEM/AVS) is greater than 1. Although nickel concentrations in animals from sediments with SEM/AVS ratios >1 were approximately 2- to 10-fold greater than nickel concentrations in benthic organisms from sediments with SEM/AVS <1, nickel uptake (tissue concentration) was proportional to the concentration in sediment.	SRC, 2000; and others in TOXNET

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Chemical	Environmental Fate	Reference
Silver	Transport and partitioning is influenced by the particular form of the compound. Under oxidizing conditions, the primary silver compounds would be bromides, chlorides, and iodides, while under reducing conditions the free metal and silver sulfide would predominate. Mobility in soils is affected by oxidation-reduction potential, pH, and the presence of organic matter. In fresh water, silver often forms complex ions with chlorides, ammonium, and sulfates; forms soluble organic compounds; and adsorbs onto humic complexes and suspended particulates. Silver tends to form complexes with inorganic chemicals and humic substances in soil.	TOXNET (http://toxnet.nlm.nih.gov/
Thallium	In soil, thallium exists in either the monovalent (thallous) or trivalent (thallic) form. The monovalent form is more common and stable. Thallium is reactive with air and moisture. Moisture increases the oxidation of thallium. Thallium adsorbs to soil and is not transformed or biodegraded. Elemental thallium is relatively insoluble in water.	Callahan et al., 1979; and others in TOXNET
Zinc	Zinc occurs naturally in the 2+ oxidation state. Sorption to suspended and bed sediments is the dominant reaction involving zinc. The relative mobility of zinc in soil and aquatic systems is determined by factors such as the solubility of the compound, pH, redox potential, and salinity. Zinc generally remains as a free ion at low pH conc.s. It partitions to sediments or suspended solids in surface water through sorption onto hydrous iron and manganese oxides, clay minerals, and organic material. Zinc tends to sorb more readily at a high pH (pH>7) than at a low pH. Zinc sorbs strongly onto soil particulates and its mobility depends on the solubility of the speciated forms of the element and on soil properties such as cation exchange capacity, pH, redox potential, and the chemical species present in soil. Zinc compounds have low mobility in soils and are absorbed by plants and vegetables. Adsorbtion to suspended solids and sediments is expected. Studies indicate that zinc is not a highly mobile element in most aquatic habitats. In fish, zinc tends to accumulates in the gills, liver, kidney and opercular bone, but not the muscle. A log BCF of 2.90 was determined for the midge *Chironomus riparius.*	Callahan et al., 1979; and others in TOXNET
Polynuclear Aromatic Hydrocarbons (PAHs)	Polynuclear aromatic hydrocarbons are a diverse group of organic molecules composed of two or more fused aromatic (benzene) rings. They are moderately persistent in the environment. In general, as the number of rings increases, mobility and volatility decrease. Because of these physical-chemical properties, PAHs have low solubility, low volatility, and a high tendency to sorb to organic matter. In water, PAHs have high boiling points and are insoluble. When oil is spilled in water, PAH in the oil can enter the water column in dispersed form or be absorbed on organic and inorganic compounds. In the terrestrial environment, PAHs tend to be associated with soil particulates and have low mobility in soil. PAHs generally do not biomagnify in food chains despite high lipid solubility, because they are rapidly metabolized. However, some PAHs can be detected in tissues of aquatic organisms and wildlife at high concentrations immediately following exposure. In general, biodegradation rates are inversely related to the number of fused benzene rings and are further slowed by substitutions, including alkylation. Bioaccumulation and metabolism vary greatly among clams, invertebrates, shrimp, and fish. Bioaccumulation was substantially higher for amphipods than for clams, shrimp, or fish. Clams unable to metabolize PAHs had higher concentration levels of PAHs than amphipods, shrimp, and fish.	Eisler, 2000; and others in TOXNET
Bis(2-Ethylhexyl)Phthalate	In the environment, bis(2-ethylhexyl)phthalate undergoes biodegradation in water and soil. It is predicted to react with hydroxyl radicals in the atmosphere. It has an estimated half-life of 12 hours in the air, 10 - 20 days in soil, and days to weeks in water. The half-life of the molecule, due to evaporation from bodies of water, is about 15 years. Bis(2-ethylhexyl)phthalate rapidly degrades in the marine environment by experimental microcosms. This chemical has been found to bind organic acids in the soil and water, resulting in an increase in its solubility and mobility in the environment. It also absorbs to both freshwater and marine sediments.	Callahan et al., USEPA, 1987; and others in TOXNET

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Chemical	Environmental Fate	Reference
Dibenzofuran	In the atmosphere, dibenzofuran exists primarily in the gas-phase and sometimes in the particulate -phase. As a gas, this chemical reacts with photochemically - produced hydroxyl radicals and has a half-life of 4.1 days. As a particulate, wet and dry deposition are expected to be the dominant tropospheric removal process. In soil, this chemical has very low mobility. It is biodegraded in areas where populations of adapted microorganisms are present. In an aquatic environment, dibenzofuran is expected to strongly absorb to particulates and sediment. Dissolved dibenzofuran may volatilize from water. Adapted microbes supplied with sufficient oxygen can readily biodegrade dibenzofuran.	SRC, 2000; and others in TOXNET
2,4-DNT	If released to air, 2,4-dinitrotoluene will exist solely as a vapor in the ambient atmosphere. Vapor-phase 2,4-dinitrotoluene will be degraded in the atmosphere by reaction with photochemically-produced hydroxyl radicals; the half-life for this reaction in air is estimated to be 75 days. If released to soil, it is expected to have moderate mobility based upon an estimated KOC of 360. Volatilization from moist soil surfaces is not expected to be an important fate process based upon an estimated Henry's Law constant of 1.3X10-7 atm-cu m/mole. 2,4-Dinitrotoluene may undergo direct photolysis in soil, based on the rapid rate of photolysis of 2,4-dinitrotoluene in water. If released into water, 2,4-dinitrotoluene is expected to adsorb to suspended solids and sediment in water based upon the estimated KOC. Volatilization from water surfaces is not an important fate process based upon this compound's estimated Henry's Law constant. An estimated BCF of 7 suggests the potential for bioconcentration in aquatic organisms is low.	SRC, 2000
HMX	When found in water, photolysis was found to be the dominant transformation process with half-lives ranging from 17 to 7900 days depending on the water body. Major photolytic transformation products were nitrate, nitrite, and formaldehyde. Poor light trasmission in rivers was found to inhibit photolytic processes. One study suggests that HMX will be persistent in water with dilution serving as the major factor in reducing concentrations. Biotransformation of HMX may occur under both anaerobic and aerobic conditions resulting in mono-through tetra-nitroso derivatives of HMX as metabolites which are eventually metabolized to 1,1-dimethylhydrazine. Studies show that HMX is likely to move from soil into groundwater, particularly in sandy soils though this movement is expected to be slow.	ATSDR, 1997a (Public Health Statement)
Nitroguanidine	If released to air, 1-nitroguanidine will exist solely in the vapor phase in the ambient atmosphere. Vapor-phase 1-nitroguanidine will be degraded in the atmosphere by reaction with photochemically-produced hydroxyl radicals; the half-life for this reaction in air is estimated to be 18 hrs. If released to soil, this chemical is expected to have very high mobility based upon an estimated Koc of 25. Volatilization from moist soil surfaces is not expected to be an important fate process based upon an estimated Henry's Law constant of 4.4X10-12 atm-cu m/mole. If released into water,it is not expected to adsorb to suspended solids and sediment in water based upon the estimated Koc. Volatilization from water surfaces is not expected to be an important fate process based upon this compound's estimated Henry's Law constant. An estimated BCF of 3.2 suggests the potential for bioconcentration in aquatic organisms is low.	SRC, 2000

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Chemical	Environmental Fate	Reference
Picric Acid	If released to air, Picric acid otherwise known as 2,4,6-trinitrophenol, will exist in both the vapor and particulate phases in the ambient atmosphere. Vapor-phase 2,4,6-trinitrophenol will be degraded in the atmosphere by reaction with photochemically-produced hydroxyl radicals; the half-life for this reaction in air is an estimated 433 days. Particulate-phase 2,4,6-trinitrophenol may be removed from the air by wet and dry deposition. If released to soil, this acid is expected to have high mobility based upon an estimated Koc value of 130. This compound will exist primarily as an anion in moist soil surfaces and anions are expected to have very high mobility in soils. Volatilization of 2,4,6-trinitrophenol from moist soil surfaces is not expected to be an important fate process since the anion will not volatilize and the neutral species has a Henry's Law constant of 1.7X10-8 atm-cu m/mole at 25 deg C. 2,4,6-Trinitrophenol is not expected to volatilize from dry soil surfaces based upon its vapor pressure. If released into water, 2,4,6-trinitrophenol is not expected to adsorb to suspended solids and sediment in the water column based on the KOC values. A BCF value of less than 2.4 measured in carp suggests bioconcentration in aquatic organisms is low.	SRC, 2000
TPH	When TPH is released directly to water through spills or leaks, certain TPH fractions will float in water and form thin surface films. Other heavier fractions will accumulate in the sediment at the bottom of the water, which may affect bottom-feeding fish and organisms. Some organisms found in the water (primarily bacteria and fungi) may break down some of the TPH fractions. TPH released to the soil may move through the soil to the groundwater. Individual compounds may then separate from the original mixture, depending on the chemical properties of the compound. Some of these compounds will evaporate into the air and others will dissolve into the groundwater and move away from the release area. Other compounds will attach to particles in the soil and may stay in the soil for a long period of time, while others will be broken down by organisms found in the soil.	ATSDR, 1999 (Public Health Statement)
Nitrate	Nitrate (NO_3^-) is one of the many essential compounds in the nitrogen cycle. Nitrate is the preferred form of nitrogen as a macro-nutrient for most organisms. Nitrate is produced as a bi-product of nitrification from NH_3 and NH_4^+, with NO2- as an intermediary. Nitrate is nor held well in soils and consequently leaches readily into aquatic systems including groundwater and surface water runoff. Nitrate is typically high in areas where nitrogen is applied to fields such as farms and golf courses. Within both terrestrial and aquatic systems nitrate is reduced to N_2 through the process of denitrification. Nitrate can also be an intermediary in the process of nitrogen fixation in anaerobic environments.	McDowell, 1992
Phosphorus	Phosphorus exists in abundance in the earth's crust making up approximately 0.12 percent. It does not occur free in nature but is found in the form of phosphates in minerals. It is also found in fertile soils and is an essential constituent of protoplasm, nervous tissue and bones. In plants, active uptake occurs and generally accumulates in the living top part. Biomagnification of phosphorus was not found in a Precambrian Shield lake ecosystem within clams, fish, birds, and mammals.	Budavari, 1989; and others in TOXNET
Acetone	Acetone is expected to exist as a vapor in the ambient atmosphere. It is degraded in the atmosphere by reaction with photochemically-produced hydroxyl radicals and also undergoes photodecomposition by sunlight. Acetone has high mobility in soils and volatilization from moist and dry soils is expected to occur. In water, this chemical is not expected to absorb to suspended solids or sediment. Volatilization from water surfaces is an important fate process. Bioconcentration in aquatic organisms is considered low based on the BCF value of 1.	Lyman et al., 1990; SRC, 2000; and others in TOXNET
2-Butanone	Methyl Ethyl Ketone is expected to exist solely as a vapor in the ambient atmosphere. It is degraded in the atmosphere by reaction with photochemically-produced hydroxyl radicals. It is also able to undergo photolysis in the natural light. Based on Koc values of 29 and 34 (in silty loams), Methyl Ethyl Ketone is expected to have high mobility in soils. Volatilization from moist and dry soil surfaces are expected. This chemical is not expected to absorb to suspended solids or sediment in water. Bioconcentration in aquatic organisms is considered low due to the estimated BCF value of 1. The most common exposure to methyl ethyl ketone is through inhalation and ingestion of contaminated water or food.	Walton, et al., 1992; SRC, 2000; and others in TOXNET.

Table 1
Environmental Fate and Transport of Detected Chemicals
Attachment 10A - Thermal Treatment Unit, Ecological Risk Assessment

Chemical	Environmental Fate	Reference
Benzene	In the ambient atmosphere, benzene will exist as a vapor with a vapor pressure of 94.8 mm Hg at 25 deg C. Vapor-phase benzene will be degraded by a reaction with photochemically-produced hydroxyl radicals and the half-life of this reaction is about 13 days. It can also be degraded by ozone radicals and nitrate found in the atmosphere. Benzene is expected to have high mobility in soil and volatilization in moist soil is an important fate process. Benzene may volatilize from dry soil based on vapor pressure. In an aquatic environment, volatilization is the important fate process. Inhalation of ambient air, ingestion of drinking water, and dermal contact are routes of exposure.	SRC, 2000; and others in TOXNET.
Xylenes	Based upon an experimental vapor pressure of 7.99 mm Hg at 25 deg C, xylene is expected to exist entirely in the vapor phase in the ambient atmosphere. Vapor-phase xylene is degraded in the atmosphere by reaction with photochemically-produced hydroxyl radicals with an estimated atmospheric lifetime of about 1-2 days. Xylene is expected to have moderate to high mobility in soils based upon experimental Koc values obtained with a variety of soils at differing pH values and organic carbon content. Volatilization from moist soil surfaces is expected based on an experimental Henry's Law constant of 7.0X10-3 atm-cu m/mole. Biodegradation is an important environmental fate process for xylene. In general, it has been found that xylene is biodegraded in soil and groundwater samples under aerobic conditions and may be degraded under anaerobic denitrifying conditions. In water, xylene is expected to adsorb somewhat to sediment or particulate matter based on its measured Koc values. This compound is expected to volatilize from water surfaces given its experimental Henry's Law constant. Estimated half -lives for a model river and model lake are 3 and 99 hours. The potential for bioconcentration is aquatic organisms is low based on an experimental BCF value of 20, measured in eels.	SRC, 2000
Styrene	If released to air, a vapor pressure of 6.40 mm Hg at 25 deg C indicates styrene will exist solely as a vapor in the ambient atmosphere. Vapor-phase styrene will be degraded in the atmosphere by reaction with photochemically-produced hydroxyl radicals and ozone; the half-life for these reactions in air are estimated to be 7 and 16 hrs, respectively. Direct photochemical or photolytic reactions for styrene are slow. If released to soil, styrene is expected to have low mobility based upon an estimated Koc of 960. Volatilization from moist soil surfaces is expected to be an important fate process. Biodegradation by aerobic microorganisms may lead to extensive or complete destruction of styrene in soil. If released into water, styrene is expected to adsorb to suspended solids and sediment based upon the estimated Koc. Degradation of styrene is rapid in sewage under aerobic conditions. Volatilization from water surfaces is expected to be rapid. A BCF of 13.5 for goldfish suggests bioconcentration in aquatic organisms is low. Styrene is not expected to undergo hydrolysis in the environment due to the lack of hydrolyzable functional groups.	SRC, 2000
Perchlorate	Perchlorate (ClO_4) is an anion that originates as a contaminant in ground water and surface waters from the dissolution of ammonium, potassium, magnesium, or sodium salts. Because perchlorate is nonlabile kinetically (i.e., the reduction of the central chlorine atom occurs extremely slowly) and sorption or natural chemical reduction in the environment is not significant, perchlorate is exceedingly mobile in aqueous systems and can persist for many decades under typical ground and surface water conditions.	USEPA, 2002

Notes:
Information on the fate and transport of chemicals was researched through TOXNET (http://toxnet.nlm.nih.gov/) in the Hazardous Substances Data Bank.
Additional citations for the primary references listed can be found on the HSDB summary for each chemical listed.

Table 2
Mechanisms of Ecotoxicity
Attachment 10A - Thermal Treatment Unit, Ecological Risk Assessment

Analyte	Mechanisms of Ecotoxicity	References
Aluminum	Aluminum is a cytotoxin that interferes with enzymes associated with adenosine triphosphate and maintenance of neurotransmitters; it disrupts neuromotor activity and cognitive abilities; decreases offspring growth, body weights and neurological development; increases resorption rates; alters calcium and phosphorus metabolism; causes embryo lethality; minor skeletal malformations; decrease in egg shell strength and production.	ATSDR, 1992a; and others in TOXNET
Antimony	Mutagenic in bacteria or phage; induces chromosomal aberrations or abnormal cell division; antimony combines with sulfhydryl groups in several respiratory enzymes; trivalent antimony induces heme oxygenase, which causes heme degradation in the liver and kidney; causes pulmonary, hepatic and reproductive effects in mammals.	ATSDR, 1990ba; and others in TOXNET
Arsenic	Reaction of trivalent form (arsenite) with sulfhydryl groups leads to enzyme (oxidative respiration) inhibition. Methylated arsenic is transferred efficiently in food webs, but does not bioacccumulate. Arsenic reduces growth and development in plants and causes inhibition of light activation, wilting, chlorosis, browning, dehydration and death in plants. Arsenic causes malformations and death in toad embryos. It is carcinogenic and mutagenic and causes impaired behavior, reduced growth, lack of appetite, suffocation by gill clogging and vascular collapse in the gills, testicular and ovarian degeneration, liver damage, and failure to metabolize food in fish. Inorganic arsenic destroys the blood vessel lining in the gut and lowers blood pressure in birds. It also causes hepatocyte damage in birds by inhibition of the sodium pump. Behavioral, systemic, growth, systemic and reproductive effects occur as a result of chronic exposures. It is teratogenic, carcinogenic and possibly mutagenic in mammals. Its developmental effects include malformations (exencephaly, eye defects and renal and gonadal agenesis) and fetal death in mammals.	Sadiq 1992; Eisler, 2000; Stanley et al. 1994; Whitworth et al. 1991; Camardese et al. 1990; ATSDR, 1993a; Mance, 1990; and others in TOXNET
Barium	Barium can inhibit intestinal absorption in the winter flounder. Barium accumulates in plants and the bones in birds and mammals. It affects potassium metabolism in muscles and causes respiratory weakness, muscle paralysis and stimulation, irregular cardiac contractions and lowered pulse rate in mammals. Some reproductive effects (reduced ovary weight) have been observed.	Amdur et al. 1991; ATSDR 1990c; Schroeder 1970 as cited in ATSDR 1990b; Charney and Taglietta 1992; Borzelleca et al., 1988.
Cadmium	Cadmium causes mutagenesis, teratogenesis, carcinogenesis; It inhibits enzyme reactions by replacement of essential divalent nutrients (e.g., zinc) at critical sites on proteins and enzymes; combines with sulfhydryl groups in enzymes; inhibition of Phase I and Phase II biotransformation reactions; kidney lesions; reduces growth rates and feed consumption; causes reproductive effects in birds; testicular damage; decreases hemoglobin and hematocrit; causes behavior, growth, and physiological changes in aquatic organisms; accumulates primarily in the kidneys; immunosuppressive effects have been shown in mice, fish, and oysters. Soluble form is highly available for plant uptake and can disturb enzyme activity.	ATSDR, 1990b; Eisler, 2000; Rompala et al, 1994 as cited in Irwin et al, 1997; Wren et al., 1995, as cited in Irwin et al., 1997; Bodek et al., 1988; and others in TOXNET
Chromium	Beneficial but not essential for plants; trivalent form essential form in mammals for maintaining efficient lipid, glucose and protein metabolism; mutagenic, teratogenic and carcinogenic; hexavalent form associated with inhibition of photosynthesis and interference with transport and mobilization of essential nutrients. Hexavalent form can cause oxidation stress in cells, abnormal enzyme activity, lowered resistance to pathogens, disrupted feeding, disrupted osmoregulation, histopathology, and damage to beta cells of pancreatic islets. Can cause nephron and liver damage. Decreased weight gain, increased oxygen consumption, impaired reproduction, and increased hematocrit have been noted in aquatic organisms. High deposition of trivalent form in fish gills leads to tissue damage including hyperplasia, clubbing of lamellae, and necrosis.	ATSDR, 1993b; Eisler, 2000; Moore et al., 1990, as cited in Irwin et al., 1997.
Copper	Essential element for animals as a component of metalloenzymes and respiratory pigments, iron utilization, function of enzymes in pigmentation, connective tissue formation and energy production; forms stable inhibitory complexes with cytochrome P-450; impairs function of NADPH-cytochrome C reductase; inhibits heme biosynthesis; teratogen and possible carcinogen; accumulates in the liver and reduces liver's ability to excrete copper; decreases growth and food consumption in birds; disrupts internal ion balance in aquatic organisms; alters hematology, respiratory physiology, and cardiac physiology in fish; causes histological changes in the gills, kidneys, hematopoietic tissue, mechanoreceptors, and chemoreceptors in fish. Reproductive effects in fish include blockage of spawning, reduced egg production, abnormalities in young, and reduced survival of young.	ATSDR, 1990d; Rand and Petrocelli, 1985, as cited in Irwin et al., 1997; Sorenson, 1991, as cited in Irwin et al., 1997.
Iron	Essential for the production of proteins in plants and hemoglobin in animals. Toxicity related to cellular oxidative stress, dysfunction and toxicity due to peroxide formation.	TOXNET (http://toxnet.nlm.nih.gov/)

Table 2
Mechanisms of Ecotoxicity
Attachment 10A - Thermal Treatment Unit, Ecological Risk Assessment

Analyte	Mechanisms of Ecotoxicity	References
Lead	Inhibits growth in plants. Reduces photosynthetic activity by blocking sulfhydril groups and inhibiting the conversion of coproporphyrinogen to proporphyrinogen. Reduces mitosis and water absorption. In animals, lead inhibits the formation of heme and reduces amino-levulinate acid dehydratase activity in blood. Toxic effects in animals include reduced growth and reproductive output, accumulation in hematopoietic organs, changes in the central nervous system (at high concentrations near those causing mortality) kidney disfunction, enzyme inhibition, and behavioral changes. In birds, lead decreases egg shell thickness and limits growth, ovulation, and sperm formation. In fish, lead can increase mucous formation and cause death from suffocation.	ATSDR, 1993c; Eisler, 2000; Finley and Stendell, 1978; Friberg et al., 1986; Rompala et al., 1984, as cited in Irwin et al., 1997.
Manganese	Manganese is cytotoxic and causes chromosomal aberations in rodents. Reduction in testicular growth (weight) and reduced seminal vesicle weight have been noted in rodents exposed to manganese. Can cause dopamine depletion in nerve cells. Adverse behavioral and systemic effects have been noted in birds exposed to manganese above nutrient levels.	ATSDR, 1992b
Mercury	Mercury binds strongly with sulfhydryl groups and interferes with thiol metabolism, inhibiting or inactivating proteins containing thiol ligands. This leads to mitotic disturbances and inhibition of cell division. Organic mercury compounds are potent inhibitors of cell division. Methylmercury irreversibly destroys central nervous system neurons in mammals and aquatic organisms and is the most toxic form. Mercury compounds adversely affect metabolism, growth, development and behavior in birds and mammals at relatively low exposure levels. The most sensitive target organ of inorganic mercury appears to be the kidneys.	ATSDR, 1994; Eisler, 2000; Leland and Kuwabara, 1985, as cited in Irwin et al., 1997; Heinz, 1979.
Nickel	Nickel is nephrotoxic, carcinogenic, and immunotoxic in mammals. Elevated levels of nickel cause tremors, edema in joints and reduction in body weight and humerus length in birds; decreased reproductive capacity has been noted. Retarded growth, anemia, and decreased enzyme activity have been observed in rats.	ATSDR, 1995; Friberg et al., 1986.
Silver	Silver has a strong affinity for sulfhydryl groups and proteins, resulting in cytotoxicity. Respiratory depression in aquatic organisms has been noted; can cause cardiac enlargement, vascular hypertension, hepatic necrosis, anemia, lowered immunological activity, kidney pathology, enzyme inhibition, growth retardation, and shortened life span in mammals and birds.	ATSDR, 1990e; Eisler, 2000.
Thallium	Exposure to elevated levels of thallium causes neuromorphological changes and systemic effects in mammals (hair loss, increases in skeletal abnormalities and weight loss). No information was located for birds.	ATSDR, 1992c
Zinc	Zinc is essential for normal reproduction and growth in plants and animals. In animals, it is regulated by metallothioneins, which temporarily store zinc, reducing its toxicity. Zinc-dependent enzymes regulate the rates of biosynthesis and catabolism of RNA and DNA. At high exposures, zinc interferes with the metabolism of calcium and iron and induces copper deficiency. Zinc causes cytoplasmic vacuolation, cellular atrophy and cell death in the pancreas. It accumulates preferentially in bone and induces osteomalacia (softening of the bone) as a result of a deficiency of minerals, including calcium and phosphorous. In fish, zinc causes destruction of gill epithelium and tissue hypoxia. In rainbow trout, disruption of internal ion balance has been noted.	Eisler, 2000; Rand and Petrocelli, 1985, as cited in Irwin et al., 1997.
Polycyclic Aromatic Hydrocarbons (PAHs)	Toxicity is highly variable and related to the number of ring structures and molecular weight. Low molecular weight compounds of 2 or three rings (e. g., naphthalene) cause acute toxicity, but are not carcinogenic. Higher molecular weight PAHs with > 4 rings (e. g., benzo(a)pyrene) are mutagenic, teratogenic and carcinogenic to a wider variety of animals. PAHs are toxic to a variety of animal tissues. Causes narcosis toxicity in aquatic animals.	Eisler, 2000.
Phthalates	Little information is known about the ecotoxicological effects that might be caused by this type of chemical. Adverse effects in animals were generally seen only at high doses or with long term exposures. Mildly harmful effects have been seen in the livers and kidneys of some rats and mice given very high doses (e.g., di (2-ethylhexyl)phthalate, di-n-octylphthalate). Longer exposures to high doses might affect the ability of both males and females to reproduce and caused birth defects.	ATSDR, 1997b
2,4-DNT	2,4-DNT is a noncarcinogenic though it is found to bind covalently with the liver, lung and intestines. Inhalation of the fumes and dust, ingestion, or absorption through the skin may cause a chemical change of the blood oxyhemoglobin to methemoglobin (via oxidation of iron [II] to iron [III].	TOXNET (http://toxnet.nlm.nih.gov/)
HMX	HMX may be harmful to the liver and central nervous system though the mechanisms by which HMX causes adverse effects is not understood.	ATSDR, 1997a (Public Health Statement)
Nitroguanidine	Data is not available on the carcinogenic effects of nitroguanidine. Reproductive studies on spargue dawley rats indicated no effects related to chemicals doses ranging from 100 to 1000 mg/kg/day. Nitroguanidine was found to cause chromosomal aborations when incubated in vitro with Chinese hamster cells. An experimental hygeinetic toxicological study suggested maximum tolerable level in water, based on toxicology endpoints should be 0.1 mg/L.	TOXNET (http://toxnet.nlm.nih.gov/)

Table 2
Mechanisms of Ecotoxicity
Attachment 10A - Thermal Treatment Unit, Ecological Risk Assessment

Analyte	Mechanisms of Ecotoxicity	References
Picric acid	Picric acid may be a permanent uncoupler, with delta psi transmembrane electrical potential difference. The uncoupling activity of picric acid in everted membrane systems is probably due to its protonophoric action. In crayfish picric acid caused a specific inhibition fo voltage dependent K conductance. Weakly ionized phenols caused motor excitation and discoordination in intact crayfish.	TOXNET (http://toxnet.nlm.nih.gov/)
TPH	TPHs have a range of toxicities and mechanisms. Smaller compounds such as benzene, toluene, and xylene can affect the central nervous system. Other compounds affect blood, immune system, liver, spleen, kidneys, developing fetus' , and lungs. Benzene has also been found to be carcinogenic.	ATSDR, 1999 (Public Health Statement)
Nitrate	Acute toxicity of nitrate occurs as a result of the reduction to nitrite, a process that can occur in the stomach. Nitrite acts in blood to oxidize hemoglobin to methemoglobin, which does not perform as oxygen carriers to tissues. Annoxia and death may occur. Additionally in water, nitrate may be converted to N-nitroso CMPD, a direct carcinogenic agent.	TOXNET (http://toxnet.nlm.nih.gov/)
Phosphorus	Phosphine toxicity results from inhalation of yellow phosphorus. Phosphorus may affect hepatocyte mitochondria, as well as cause liver cirrhosis.	TOXNET (http://toxnet.nlm.nih.gov/)
Acetone	As is typical of solvents, acetone is irritating to the mucous membranes. Acetone is also narcotic, and although the mechanism by which acetone exerts is effects on the central nervous system is unknown, as a solvent, it may interfere with the composition of membranes, altering their permeability to ions. The mechanisms by which acetone produces hematological, hepatic, renal, reproductive, and developmental effects is unknown, but acetone has been found to distribute to all of these target organs, including the brain, and can undergo transplacental transfer. One of the main effects of acetone is the induction of microsomal enzymes. Enzyme induction is probably responsible for the increased liver and kidney weights observed in animals.	ASTDR, 1997c
Toluene	LD50 for male mice was 1.15 g/kg. Known to have an additive effect with benzene. Evidence suggests lack of carcinogenicity in experimental animals. Alterations in specific neuron populations and their afferent and efferent terminal fields may complement changes in neurophysiology and behavior that have been observed in prenatally and perinatally exposed rodent pups. In utero exposure in rats can cause maternal malnutrition increasing the risk for fetotoxicity.	TOXNET (http://toxnet.nlm.nih.gov/)
Styrene	There is limited evidence in experimental animals for the carcinogenicity of styrene. Styrene has moderate toxicity to aquatic life. Styrene by itself is not likely to cause environmental harm at levels normally found in the environment. Styrene can contribute to smog formation when it reacts with other volatile substances in air. Animal studies have not reported developmental or reproductive effects from inhalation exposure to styrene.	USEPA, 1994
Perchlorate	The known mode of action for perchlorate is that it acts as a competitive inhibitor of active iodide uptake by the symporter in most mammals, including human and laboratory test species. This decrease in intrathyroidal iodide results in a decreased production of T3 and T4 thyroid hormones. This decrease can potentially perturb the hypothalamic-pituitary-thyroid axis to increase TSH from the pituitary to stimulate production of thyroid hormone. Prolonged stimulation may result in thyroid neoplasia, particularly in rodents known to be sensitive. Tumors have occurred in rats dosed with high levels of perchlorate for long periods.	TOXNET (http://toxnet.nlm.nih.gov/)
Xylene(s)	After inhalation exposure the retention in the lungs is about 60% of the inhaled dose. Xylene is efficiently metabolized. More than 90% is biotransformed to methylhippuric acid, which is excreted in urine. Xylene does not accumulate significantly in the human body. Acute exposure to high concentrations of xylene can result in CNS effects and irritation in humans. The chronic toxicity appears to be relatively low in laboratory animals. There is suggestive evidence, however, that chronic CNS effects may occur in animals at moderate concentrations of xylene. Xylene does not appear to be a mutagen or carcinogen. The critical end point is developmental toxicity. The xylene isomers are of moderate to low toxicity for aquatic organisms. The acute toxicity of xylene to birds is low. There is inadequate evidence in humans and experimental animals for the carcinogenicity of xylenes.	TOXNET (http://toxnet.nlm.nih.gov/)
2-Butanone	There is very limited info on the mechanisms of toxic action of 2-butanone. Relatively high inhalation exposure caused pulmonary vasoconstriction and hypertension in cats and dogs. From the toxicological point of view, interactions leading to the potentiation of effects, particularly neurotoxicity, by other intrinsically toxic substances constitute the main hazard of 2-butanone. The mechanisms underlying these interactions are incompletely known.	TOXNET (http://toxnet.nlm.nih.gov/)
Benzene	Benzene is a carcinogenic chemical. Exposure through ingestion of food or water cause blood and immune system damage and may cause cancer. Death in animals due to inhalation exposure has been linked to ventricular fibrillation due to an increased release of adrenaline.	ASTDR, 1997d

Notes:
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Additional citations for the primary references listed can be found on the HSDB summary for each chemical listed.

Table 3
Summary Statistics for Combined Historical and Current Surface Soil Samples from the TTU at the UTTR
Attachment 10A - Thermal Treatment Unit, Ecological Risk Assessment

														Screenig Evaluation		Refined Evaluation - COPECs for Wildlife Receptors			
Analyte	CAS No.	Analyte Group	Units	Det	n	DF (%)	MinND	MaxND	MinDet	MaxDet	AvgDet	Mean*	StdDev*	Initial_EPC*	Basis	95 UCL	Appropriate Distribution	Refined EPC*	EPC Basis*
1,3,5-Trinitrobenzene	99354	energetic	mg/kg	0	22	0%	0.0140	0.210				0.0581	0.0471	0.105	0.5*MaxND	--	--	0.105	0.5*MaxND
1,3-Dinitrobenzene	99650	energetic	mg/kg	0	22	0%	0.0320	0.160				0.0501	0.0299	0.0800	0.5*MaxND	--	--	0.0800	0.5*MaxND
2,4,6-Trinitrotoluene (TNT)	118967	energetic	mg/kg	0	42	0%	0.0440	3.00				0.739	0.735	1.50	0.5*MaxND	--	--	1.50	0.5*MaxND
2,4-Dinitrophenol	51285	energetic	mg/kg	0	28	0%	0.112	100				6.07	15.6	50	0.5*MaxND	--	--	50	0.5*MaxND
2,4-Dinitrotoluene	121142	energetic	mg/kg	1	48	2%	0.0950	21	2.00	2.00	2.00	1.13	2.49	2.00	Max Det	4.70	NON-PARAMETRIC	2.00	Max Det
2,6-Dinitrotoluene	606202	energetic	mg/kg	0	48	0%	0.100	21				1.39	2.47	10.5	0.5*MaxND	--	--	10.5	0.5*MaxND
2-Amino-4,6-Dinitrotoluene	1321126	energetic	mg/kg	0	40	0%	0.156	3.00				0.799	0.710	1.50	0.5*MaxND	--	--	1.50	0.5*MaxND
2-Nitroaniline	88744	energetic	mg/kg	0	28	0%	0.0544	100				6.07	15.6	50	0.5*MaxND	--	--	50	0.5*MaxND
2-Nitrophenol	88755	energetic	mg/kg	0	28	0%	0.0522	21				1.28	3.26	10.5	0.5*MaxND	--	--	10.5	0.5*MaxND
2-Nitrotoluene	88722	energetic	mg/kg	0	22	0%	0.0430	0.280				0.0822	0.0541	0.140	0.5*MaxND	--	--	0.140	0.5*MaxND
3-Nitroaniline	99092	energetic	mg/kg	0	28	0%	0.0438	100				6.19	15.6	50	0.5*MaxND	--	--	50	0.5*MaxND
3-Nitrotoluene	99081	energetic	mg/kg	0	22	0%	0.0760	0.300				0.0964	0.0500	0.150	0.5*MaxND	--	--	0.150	0.5*MaxND
4,6-Dinitro-2-methylphenol	534521	energetic	mg/kg	0	28	0%	0.0396	100				6.06	15.6	50	0.5*MaxND	--	--	50	0.5*MaxND
4-Nitroaniline	100016	energetic	mg/kg	0	28	0%	0.0457	100				6.06	15.6	50	0.5*MaxND	--	--	50	0.5*MaxND
4-Nitrophenol	100027	energetic	mg/kg	0	28	0%	0.0697	100				6.06	15.6	50	0.5*MaxND	--	--	50	0.5*MaxND
4-Nitrotoluene	99990	energetic	mg/kg	0	22	0%	0.0930	0.380				0.122	0.0654	0.190	0.5*MaxND	--	--	0.190	0.5*MaxND
HMX	2691410	energetic	mg/kg	13	42	31%	0.0900	3.00	0.230	25	4.36	1.91	4.04	25	Max Det	8.12	NON-PARAMETRIC	8.12	UCL
Nitrobenzene	98953	energetic	mg/kg	0	48	0%	0.0600	21				1.37	2.47	10.5	0.5*MaxND	--	--	10.5	0.5*MaxND
Nitroglycerin	55630	energetic	mg/kg	0	41	0%	0.300	0.680				0.238	0.0536	0.340	0.5*MaxND	--	--	0.340	0.5*MaxND
Nitroguanidine	556887	energetic	mg/kg	2	42	5%	0.0360	1.00	0.100	0.300	0.200	0.179	0.210	0.300	Max Det	0.501	NON-PARAMETRIC	0.300	Max Det
PETN	78115	energetic	mg/kg	0	30	0%	0.530	1.00				0.433	0.0969	0.500	0.5*MaxND	--	--	0.500	0.5*MaxND
Picric acid	88891	energetic	mg/kg	3	42	7%	0.000800	0.300	0.400	0.500	0.433	0.0909	0.102	0.500	Max Det	0.248	NON-PARAMETRIC	0.248	UCL
RDX	121824	energetic	mg/kg	0	42	0%	0.0300	3.00				0.748	0.726	1.50	0.5*MaxND	--	--	1.50	0.5*MaxND
Tetryl	479458	energetic	mg/kg	0	22	0%	0.0690	0.460				0.136	0.0911	0.230	0.5*MaxND	--	--	0.230	0.5*MaxND
Aluminum	7429905	inorganic	mg/kg	48	48	100%			5390	54000	13200	13200	6950	54000	Max Det	14600	GAMMA	14600.0	UCL
Antimony	7440360	inorganic	mg/kg	22	28	79%	1.60	1.70	0.120	167	10.1	8.12	31.3	167	Max Det	67	NON-PARAMETRIC	67.0	UCL
Arsenic	7440382	inorganic	mg/kg	28	48	58%	10	10	1.90	41.3	7.50	6.46	5.34	41.3	Max Det	7.75	NON-PARAMETRIC	7.75	UCL
Barium	7440393	inorganic	mg/kg	48	48	100%			110	640	206	206	72.9	640	Max Det	224	NON-PARAMETRIC	224.0	UCL
Beryllium	7440417	inorganic	mg/kg	23	48	48%	0.150	1.00	0.280	0.720	0.518	0.465	0.162	0.720	Max Det	0.567	NON-PARAMETRIC	0.567	UCL
Cadmium	7440439	inorganic	mg/kg	21	48	44%	0.110	1.00	0.270	32	2.36	1.25	4.56	32	Max Det	7.80	NON-PARAMETRIC	7.80	UCL
Calcium	7440702	inorganic	mg/kg	42	42	100%			15400	1560000	188000	188000	297000	1560000	Max Det	--	--	--	not a COPEC
Carbon disulfide	75150	inorganic	mg/kg	1	22	5%	0.000600	0.00160	0.00110	0.00110	0.00110	0.000542	0.000164	0.00110	Max Det	--	--	--	not a COPEC
Chloride	16887006	inorganic	mg/kg	30	42	71%	0.100	10.4	0.100	120000	4080	2920	18500	120000	Max Det	--	--	--	not a COPEC
Chromium	7440473	inorganic	mg/kg	48	48	100%			6.50	55.3	14.4	14.4	7.79	55.3	Max Det	16	GAMMA	16.0000	UCL
Cobalt	7440484	inorganic	mg/kg	22	28	79%	4.20	4.90	1.00	4.90	2.90	2.78	1.12	4.90	Max Det	3.13	NORMAL	3.13	UCL
Copper	7440508	inorganic	mg/kg	41	48	85%	1.00	94.7	6.00	18000	498	429	2590	18000	Max Det	4150	NON-PARAMETRIC	4150.0	UCL
Iron	7439896	inorganic	mg/kg	42	42	100%			4510	15000	10600	10600	2790	15000	Max Det	11400	GAMMA	11400.0	UCL
Lead	7439921	inorganic	mg/kg	40	48	83%	2.00	811	2.80	48000	1270	1070	6920	48000	Max Det	11000	NON-PARAMETRIC	11000.0	UCL
Magnesium	7439954	inorganic	mg/kg	42	42	100%			9700	24300	16700	16700	4000	24300	Max Det	17800	GAMMA	17800.0	UCL
Manganese	7439965	inorganic	mg/kg	48	48	100%			120	519	318	318	116	519	Max Det	350	GAMMA	350.0000	UCL
Mercury	7439976	inorganic	mg/kg	13	48	27%	0.0100	0.110	0.00500	0.0700	0.0172	0.0223	0.0153	0.0700	Max Det	0.0319	NON-PARAMETRIC	0.0319	UCL
Molybdenum	7439987	inorganic	mg/kg	20	22	91%	0.300	0.300	0.600	17	1.89	1.73	3.45	17	Max Det	4.93	NON-PARAMETRIC	4.93	UCL
Nickel	7440020	inorganic	mg/kg	48	48	100%			6.70	41.3	11.3	11.3	5.83	41.3	Max Det	12.7	NON-PARAMETRIC	12.7000	UCL
Nitrate	14797558	inorganic	mg/kg	44	48	92%	1.70	2.50	0.00400	22.8	4.57	4.28	5.92	22.8	Max Det	12.8	NON-PARAMETRIC	12.8000	UCL
Perchlorate	7601903	inorganic	mg/kg	11	22	50%	0.0106	0.112	0.0156	4.50	0.833	0.422	1.09	4.50	Max Det	2.73	NON-PARAMETRIC	2.73	UCL
Phosphorus	7723140	inorganic	mg/kg	20	20	100%			450	990	656	656	171	990	Max Det	722	NORMAL	722.0000	UCL
Potassium	7440097	inorganic	mg/kg	42	42	100%			1300	490000	15800	15800	75000	490000	Max Det	--	--	--	not a COPEC
Selenium	7782492	inorganic	mg/kg	0	48	0%	0.180	10				2.48	2.17	5.00	0.5*MaxND	--	--	5.00	0.5*MaxND
Silver	7440224	inorganic	mg/kg	4	48	8%	0.171	2.00	0.170	4.00	1.14	0.608	0.643	4.00	Max Det	1.01	NON-PARAMETRIC	1.01	UCL
Sodium	7440235	inorganic	mg/kg	42	42	100%			274	2020	917	917	462	2020	Max Det	--	--	--	not a COPEC
Strontium	7440246	inorganic	mg/kg	22	22	100%			244	484	351	351	71.9	484	Max Det	377	NORMAL	377.0	UCL
Sulfate	14808798	inorganic	mg/kg	23	42	55%	0.500	0.500	9.20	3060	297	163	538	3060	Max Det	--	--	--	not a COPEC
Thallium	7440280	inorganic	mg/kg	26	48	54%	0.170	5.00	0.110	0.550	0.279	1.20	1.12	0.550	Max Det	2.80	NON-PARAMETRIC	0.550	Max Det
Vanadium	7440622	inorganic	mg/kg	28	28	100%			9.90	25.7	16.7	16.7	3.42	25.7	Max Det	17.8	NORMAL	17.8000	UCL
Zinc	7440666	inorganic	mg/kg	48	48	100%			29.7	2300	125	125	336	2300	Max Det	337	NON-PARAMETRIC	337.0	UCL
2-Methylnaphthalene	91576	PAH	mg/kg	4	28	14%	0.0733	0.410	18	170	104	14.9	43.7	170	Max Det	97	NON-PARAMETRIC	97.0	UCL
Acenaphthene	83329	PAH	mg/kg	0	10	0%	0.0635	0.0837				0.0360	0.00301	0.0418	0.5*MaxND	--	--	0.0418	0.5*MaxND
Acenaphthylene	208968	PAH	mg/kg	0	28	0%	0.0584	21				1.28	3.26	10.5	0.5*MaxND	--	--	10.5	0.5*MaxND

Table 3
Summary Statistics for Combined Historical and Current Surface Soil Samples from the TTU at the UTTR
Attachment 10A - Thermal Treatment Unit, Ecological Risk Assessment

														Screenig Evaluation		Refined Evaluation - COPECs for Wildlife Receptors			
Analyte	CAS No.	Analyte Group	Units	Det	n	DF (%)	MinND	MaxND	MinDet	MaxDet	AvgDet	Mean*	StdDev*	Initial_EPC*	Basis	95 UCL	Appropriate Distribution	Refined EPC*	EPC Basis*
Anthracene	120127	PAH	mg/kg	2	28	7%	0.0462	20	3.60	3.70	3.65	0.793	2.12	3.70	Max Det	4.79	NON-PARAMETRIC	3.70	Max Det
Benzo(a)anthracene	56553	PAH	mg/kg	0	28	0%	0.0574	21				1.29	3.26	10.5	0.5*MaxND	--	--	10.5	0.5*MaxND
Benzo(a)pyrene	50328	PAH	mg/kg	0	28	0%	0.0573	21				1.28	3.26	10.5	0.5*MaxND	--	--	10.5	0.5*MaxND
Benzo(b)fluoranthene	205992	PAH	mg/kg	0	28	0%	0.0968	21				1.30	3.26	10.5	0.5*MaxND	--	--	10.5	0.5*MaxND
Benzo(g,h,i)perylene	191242	PAH	mg/kg	0	28	0%	0.0535	21				1.28	3.26	10.5	0.5*MaxND	--	--	10.5	0.5*MaxND
Benzo(k)fluoranthene	207089	PAH	mg/kg	0	28	0%	0.0903	21				1.29	3.26	10.5	0.5*MaxND	--	--	10.5	0.5*MaxND
Chrysene	218019	PAH	mg/kg	0	28	0%	0.0538	21				1.28	3.26	10.5	0.5*MaxND	--	--	10.5	0.5*MaxND
Dibenzo(a,h)anthracene	53703	PAH	mg/kg	0	28	0%	0.0701	21				1.29	3.26	10.5	0.5*MaxND	--	--	10.5	0.5*MaxND
Fluoranthene	206440	PAH	mg/kg	1	28	4%	0.0546	21	0.144	0.144	0.144	1.28	3.26	0.144	Max Det	7.42	NON-PARAMETRIC	0.144	Max Det
Fluorene	86737	PAH	mg/kg	4	28	14%	0.0604	0.360	1.70	33	19.7	2.86	8.31	33	Max Det	18.5	NON-PARAMETRIC	18.5	UCL
Indeno(1,2,3-c,d)pyrene	193395	PAH	mg/kg	0	28	0%	0.0674	21				1.29	3.26	10.5	0.5*MaxND	--	--	10.5	0.5*MaxND
Naphthalene	91203	PAH	mg/kg	7	28	25%	0.000500	0.360	0.000600	53	18.1	4.54	13.6	53	Max Det	9.95	NON-PARAMETRIC	9.95	UCL
Phenanthrene	85018	PAH	mg/kg	5	28	18%	0.0528	0.360	0.380	92	42.5	7.62	22	92	Max Det	49.1	NON-PARAMETRIC	49.1	UCL
Pyrene	129000	PAH	mg/kg	0	28	0%	0.0699	21				1.30	3.26	10.5	0.5*MaxND	--	--	10.5	0.5*MaxND
TPH	TPH	petroleum	mg/kg	6	6	100%			20	47000	22800	22800	23500	47000	Max Det	328000	GAMMA	47000.0	Max Det
2,4,5-Trichlorophenol	95954	SVOC	mg/kg	0	28	0%	0.0643	100				6.05	15.6	50	0.5*MaxND	--	--	50	0.5*MaxND
2,4,6-Trichlorophenol	88062	SVOC	mg/kg	0	28	0%	0.0726	21				1.28	3.26	10.5	0.5*MaxND	--	--	10.5	0.5*MaxND
2,4-Dichlorophenol	120832	SVOC	mg/kg	0	28	0%	0.0681	21				1.29	3.26	10.5	0.5*MaxND	--	--	10.5	0.5*MaxND
2,4-Dimethylphenol	105679	SVOC	mg/kg	0	28	0%	0.0676	21				1.29	3.26	10.5	0.5*MaxND	--	--	10.5	0.5*MaxND
2-Chloronaphthalene	91587	SVOC	mg/kg	0	28	0%	0.0667	21				1.28	3.26	10.5	0.5*MaxND	--	--	10.5	0.5*MaxND
2-Methylphenol	95487	SVOC	mg/kg	0	28	0%	0.0535	21				1.28	3.26	10.5	0.5*MaxND	--	--	10.5	0.5*MaxND
3,3-Dichlorobenzidine	91941	SVOC	mg/kg	0	28	0%	0.0501	42				2.55	6.52	21	0.5*MaxND	--	--	21	0.5*MaxND
4-Chloro-3-methylphenol	59507	SVOC	mg/kg	0	28	0%	0.0710	21				1.29	3.26	10.5	0.5*MaxND	--	--	10.5	0.5*MaxND
4-Chloroaniline	106478	SVOC	mg/kg	0	28	0%	0.184	21				1.43	3.21	10.5	0.5*MaxND	--	--	10.5	0.5*MaxND
4-Methylphenol	106445	SVOC	mg/kg	0	28	0%	0.0633	21				1.29	3.26	10.5	0.5*MaxND	--	--	10.5	0.5*MaxND
Benzoic acid	65850	SVOC	mg/kg	0	28	0%	0.0714	100				6.07	15.6	50	0.5*MaxND	--	--	50	0.5*MaxND
Benzylalcohol	100516	SVOC	mg/kg	0	28	0%	0.0525	21				1.29	3.26	10.5	0.5*MaxND	--	--	10.5	0.5*MaxND
bis(2-Ethylhexyl)phthalate	117817	SVOC	mg/kg	5	28	18%	0.0710	21	0.0832	1.50	0.661	0.539	1.98	1.50	Max Det	2.10	NON-PARAMETRIC	1.50	Max Det
Butyl benzylphthalate	85687	SVOC	mg/kg	0	28	0%	0.0678	21				1.29	3.26	10.5	0.5*MaxND	--	--	10.5	0.5*MaxND
Dibenzofuran	132649	SVOC	mg/kg	4	28	14%	0.0633	0.360	0.640	12	6.96	1.05	2.99	12	Max Det	6.66	NON-PARAMETRIC	6.66	UCL
Diethylphthalate	84662	SVOC	mg/kg	0	28	0%	0.0800	21				1.29	3.26	10.5	0.5*MaxND	--	--	10.5	0.5*MaxND
Dimethylphthalate	131113	SVOC	mg/kg	0	28	0%	0.0648	21				1.28	3.26	10.5	0.5*MaxND	--	--	10.5	0.5*MaxND
Di-n-butylphthalate	84742	SVOC	mg/kg	0	28	0%	0.0805	21				1.29	3.26	10.5	0.5*MaxND	--	--	10.5	0.5*MaxND
Di-n-octylphthalate	117840	SVOC	mg/kg	0	28	0%	0.0500	21				1.28	3.26	10.5	0.5*MaxND	--	--	10.5	0.5*MaxND
Hexachlorobenzene	118741	SVOC	mg/kg	0	28	0%	0.0560	21				1.29	3.26	10.5	0.5*MaxND	--	--	10.5	0.5*MaxND
Hexachlorobutadiene	87683	SVOC	mg/kg	1	28	4%	0.000700	21	0.000800	0.000800	0.000800	1.25	3.28	0.000800	Max Det	3.81	NON-PARAMETRIC	0.000800	Max Det
Hexachlorocyclopentadiene	77474	SVOC	mg/kg	0	28	0%	0.0685	21				1.34	3.24	10.5	0.5*MaxND	--	--	10.5	0.5*MaxND
Hexachloroethane	67721	SVOC	mg/kg	0	28	0%	0.0584	21				1.29	3.26	10.5	0.5*MaxND	--	--	10.5	0.5*MaxND
Isophorone	78591	SVOC	mg/kg	0	28	0%	0.0664	21				1.29	3.26	10.5	0.5*MaxND	--	--	10.5	0.5*MaxND
n-Nitroso-di-n-propylamine	621647	SVOC	mg/kg	0	28	0%	0.0585	21				1.28	3.26	10.5	0.5*MaxND	--	--	10.5	0.5*MaxND
n-Nitrosodiphenylamine	86306	SVOC	mg/kg	0	28	0%	0.0463	21				1.29	3.26	10.5	0.5*MaxND	--	--	10.5	0.5*MaxND
Pentachlorophenol	87865	SVOC	mg/kg	0	28	0%	0.0665	100				6.04	15.6	50	0.5*MaxND	--	--	50	0.5*MaxND
1,1,1,2-Tetrachloroethane	630206	VOC	mg/kg	1	22	5%	0.000500	0.00150	0.000600	0.000600	0.000600	0.000436	0.000136	0.000600	Max Det	0.000475	NORMAL	0.000475	UCL
1,1,1-Trichloroethane	71556	VOC	mg/kg	1	22	5%	0.000680	0.00130	0.000900	0.000900	0.000900	0.000496	0.000120	0.000900	Max Det	0.000616	NON-PARAMETRIC	0.000616	UCL
1,1,2,2-Tetrachloroethane	79345	VOC	mg/kg	1	22	5%	0.000790	0.00140	0.00100	0.00100	0.00100	0.000558	0.000133	0.00100	Max Det	0.000692	NON-PARAMETRIC	0.000692	UCL
1,1,2-Trichloroethane	79005	VOC	mg/kg	1	22	5%	0.000640	0.00140	0.000800	0.000800	0.000800	0.000480	0.000117	0.000800	Max Det	0.000597	NON-PARAMETRIC	0.000597	UCL
1,1-Dichloroethane	75343	VOC	mg/kg	1	22	5%	0.000550	0.000900	0.000700	0.000700	0.000700	0.000387	0.0000916	0.000700	Max Det	0.000479	NON-PARAMETRIC	0.000479	UCL
1,1-Dichloroethene	75354	VOC	mg/kg	1	22	5%	0.000450	0.00290	0.00110	0.00110	0.00110	0.000593	0.000349	0.00110	Max Det	0.000897	NON-PARAMETRIC	0.000897	UCL
1,2,3-Trichlorobenzene	87616	VOC	mg/kg	1	22	5%	0.000600	0.00110	0.00280	0.00280	0.00280	0.000538	0.000511	0.00280	Max Det	0.000725	NON-PARAMETRIC	0.000725	UCL
1,2,3-Trichloropropane	96184	VOC	mg/kg	1	22	5%	0.000780	0.00210	0.000900	0.000900	0.000900	0.000585	0.000188	0.000900	Max Det	0.000638	NORMAL	0.000638	UCL
1,2,4-Trichlorobenzene	120821	VOC	mg/kg	1	28	4%	0.000600	21	0.00320	0.00320	0.00320	1.25	3.28	0.00320	Max Det	2.02	NON-PARAMETRIC	0.00320	Max Det
1,2-Dibromo-3-chloropropane	96128	VOC	mg/kg	1	22	5%	0.00230	0.00690	0.00390	0.00390	0.00390	0.00209	0.000673	0.00390	Max Det	--	--	--	not a COPEC
1,2-Dichlorobenzene	95501	VOC	mg/kg	1	28	4%	0.000600	21	0.00140	0.00140	0.00140	1.25	3.28	0.00140	Max Det	2.01	NON-PARAMETRIC	0.00140	Max Det
1,2-Dichloroethane	107062	VOC	mg/kg	1	22	5%	0.000630	0.00140	0.000800	0.000800	0.000800	0.000466	0.000121	0.000800	Max Det	0.000585	NON-PARAMETRIC	0.000585	UCL
1,2-Dichloropropane	78875	VOC	mg/kg	1	22	5%	0.000580	0.00110	0.000700	0.000700	0.000700	0.000418	0.0000939	0.000700	Max Det	0.000515	NON-PARAMETRIC	0.000515	UCL
1,2-Ethylene Dibromide	106934	VOC	mg/kg	1	22	5%	0.000630	0.00190	0.000900	0.000900	0.000900	0.000518	0.000176	0.000900	Max Det	--	--	--	not a COPEC
1,3-Dichlorobenzene	541731	VOC	mg/kg	1	28	4%	0.000600	21	0.00190	0.00190	0.00190	1.25	3.28	0.00190	Max Det	2.01	NON-PARAMETRIC	0.00190	Max Det

Table 3

Summary Statistics for Combined Historical and Current Surface Soil Samples from the TTU at the UTTR

Attachment 10A - Thermal Treatment Unit, Ecological Risk Assessment

														Screenig Evaluation		Refined Evaluation - COPECs for Wildlife Receptors			
Analyte	**CAS No.**	**Analyte Group**	**Units**	**Det**	**n**	**DF (%)**	**MinND**	**MaxND**	**MinDet**	**MaxDet**	**AvgDet**	**Mean***	**StdDev***	**Initial_EPC***	**Basis**	**95 UCL**	**Appropriate Distribution**	**Refined EPC***	**EPC Basis***
1,4-Dichlorobenzene	106467	VOC	mg/kg	1	28	4%	0.000600	21	0.00310	0.00310	0.00310	1.25	3.28	0.00310	Max Det	2.01	NON-PARAMETRIC	0.00310	Max Det
2-Butanone	78933	VOC	mg/kg	4	22	18%	0.00350	0.00750	0.00430	0.0159	0.0108	0.00409	0.00375	0.0159	Max Det	0.00758	NON-PARAMETRIC	0.00758	UCL
2-ChloroethylVinylEther	110758	VOC	mg/kg	0	12	0%	0.00580	0.0119				0.00469	0.00106	0.00595	0.5*MaxND	--	--	0.00595	0.5*MaxND
2-Chlorophenol	95578	VOC	mg/kg	0	28	0%	0.0636	21				1.28	3.26	10.5	0.5*MaxND	--	--	10.5	0.5*MaxND
2-Hexanone	591786	VOC	mg/kg	1	22	5%	0.00320	0.00780	0.00380	0.00380	0.00380	0.00260	0.000724	0.00380	Max Det	0.00281	NORMAL	0.00281	UCL
4-Bromophenylphenylether	101553	VOC	mg/kg	0	28	0%	0.0548	21				1.29	3.26	10.5	0.5*MaxND	--	--	10.5	0.5*MaxND
4-Chlorophenylphenylether	7005723	VOC	mg/kg	0	28	0%	0.0645	21				1.28	3.26	10.5	0.5*MaxND	--	--	10.5	0.5*MaxND
4-Methyl-2-pentanone	108101	VOC	mg/kg	1	22	5%	0.00360	0.00680	0.00430	0.00430	0.00430	0.00264	0.000607	0.00430	Max Det	0.00326	NON-PARAMETRIC	0.00326	UCL
Acetone	67641	VOC	mg/kg	9	28	32%	0.00350	21	0.00410	24	4.13	1.72	5.20	24	Max Det	11.5	NON-PARAMETRIC	11.5	UCL
Benzene	71432	VOC	mg/kg	3	22	14%	0.000600	0.00110	0.00116	0.00410	0.00262	0.000703	0.000905	0.00410	Max Det	0.00154	NON-PARAMETRIC	0.00154	UCL
bis(2-chloroethoxy)methane	111911	VOC	mg/kg	0	22	0%	0.0690	0.148				0.0556	0.0158	0.0740	0.5*MaxND	--	--	0.0740	0.5*MaxND
bis(2-chloroethyl)ether	111444	VOC	mg/kg	0	28	0%	0.0538	21				1.29	3.26	10.5	0.5*MaxND	--	--	10.5	0.5*MaxND
bis(2-chloroisopropyl)ether	108601	VOC	mg/kg	0	28	0%	0.0668	21				1.28	3.26	10.5	0.5*MaxND	--	--	10.5	0.5*MaxND
Bromodichloromethane	75274	VOC	mg/kg	1	22	5%	0.000580	0.00130	0.000700	0.000700	0.000700	0.000429	0.000106	0.000700	Max Det	--	--	--	not a COPEC
Bromoform	75252	VOC	mg/kg	1	22	5%	0.000400	0.00160	0.000500	0.000500	0.000500	0.000385	0.000161	0.000500	Max Det	0.000432	NORMAL	0.000432	UCL
Bromomethane	74839	VOC	mg/kg	1	22	5%	0.000900	0.00200	0.00150	0.00150	0.00150	0.000720	0.000205	0.00150	Max Det	0.000917	NON-PARAMETRIC	0.000917	UCL
Carbon tetrachloride	56235	VOC	mg/kg	1	22	5%	0.000650	0.00130	0.000900	0.000900	0.000900	0.000490	0.000117	0.000900	Max Det	0.000607	NON-PARAMETRIC	0.000607	UCL
Chlorobenzene	108907	VOC	mg/kg	1	22	5%	0.000600	0.00120	0.000700	0.000700	0.000700	0.000457	0.0000981	0.000700	Max Det	0.000560	NON-PARAMETRIC	0.000560	UCL
Chloroethane	75003	VOC	mg/kg	1	22	5%	0.000630	0.00210	0.00100	0.00100	0.00100	0.000561	0.000205	0.00100	Max Det	0.000748	NON-PARAMETRIC	0.000748	UCL
Chloroform	67663	VOC	mg/kg	1	22	5%	0.000600	0.00120	0.000700	0.000700	0.000700	0.000426	0.000107	0.000700	Max Det	0.000457	NORMAL	0.000457	UCL
Chloromethane	74873	VOC	mg/kg	1	22	5%	0.000700	0.00200	0.00100	0.00100	0.00100	0.000567	0.000184	0.00100	Max Det	0.000738	NON-PARAMETRIC	0.000738	UCL
cis-1,2-Dichloroethene	156592	VOC	mg/kg	1	22	5%	0.000600	0.00130	0.000700	0.000700	0.000700	0.000461	0.000127	0.000700	Max Det	0.000497	NORMAL	0.000497	UCL
cis-1,3-Dichloropropene	10061015	VOC	mg/kg	1	22	5%	0.000500	0.00110	0.000600	0.000600	0.000600	0.000423	0.000115	0.000600	Max Det	0.000535	NON-PARAMETRIC	0.000535	UCL
Dibromochloromethane	124481	VOC	mg/kg	1	22	5%	0.000560	0.00160	0.000700	0.000700	0.000700	0.000430	0.000149	0.000700	Max Det	0.000567	NON-PARAMETRIC	0.000567	UCL
Dibromomethane	74953	VOC	mg/kg	1	22	5%	0.000500	0.00150	0.000500	0.000500	0.000500	0.000402	0.000139	0.000500	Max Det	0.000442	NORMAL	0.000442	UCL
Dichlorodifluoromethane	75718	VOC	mg/kg	1	22	5%	0.000610	0.00150	0.00110	0.00110	0.00110	0.000515	0.000161	0.00110	Max Det	0.000665	NON-PARAMETRIC	0.000665	UCL
Ethylbenzene	100414	VOC	mg/kg	1	22	5%	0.000700	0.00120	0.00130	0.00130	0.00130	0.000489	0.000200	0.00130	Max Det	0.000563	NON-PARAMETRIC	0.000563	UCL
m,p-Xylene	1330207	VOC	mg/kg	1	22	5%	0.000900	0.00250	0.00200	0.00200	0.00200	0.000882	0.000374	0.00200	Max Det	0.000965	NON-PARAMETRIC	0.000965	UCL
Methylene chloride	75092	VOC	mg/kg	1	22	5%	0.000680	0.00320	0.00320	0.00320	0.00320	0.000878	0.000632	0.00320	Max Det	0.00146	NON-PARAMETRIC	0.00146	UCL
o-Xylene	95476	VOC	mg/kg	3	22	14%	0.000400	0.00120	0.000800	0.00270	0.00191	0.000591	0.000630	0.00270	Max Det	0.00118	NON-PARAMETRIC	0.00118	UCL
Phenol	108952	VOC	mg/kg	0	28	0%	0.0712	21				1.29	3.26	10.5	0.5*MaxND	--	--	10.5	0.5*MaxND
Styrene	100425	VOC	mg/kg	3	22	14%	0.000500	0.00270	0.000600	0.00260	0.00160	0.000622	0.000563	0.00260	Max Det	0.00115	NON-PARAMETRIC	0.00115	UCL
tert-ButylMethylEther	1634044	VOC	mg/kg	1	22	5%	0.000600	0.00170	0.000700	0.000700	0.000700	0.000473	0.000158	0.000700	Max Det	--	--	--	not a COPEC
Tetrachloroethene	127184	VOC	mg/kg	1	22	5%	0.000790	0.00130	0.000900	0.000900	0.000900	0.000531	0.000123	0.000900	Max Det	0.000656	NON-PARAMETRIC	0.000656	UCL
Toluene	108883	VOC	mg/kg	5	22	23%	0.000600	0.00110	0.00180	0.0187	0.0111	0.00284	0.00536	0.0187	Max Det	0.0142	NON-PARAMETRIC	0.0142	UCL
Trans-1,2-Dichloroethene	156605	VOC	mg/kg	1	22	5%	0.000600	0.00120	0.000700	0.000700	0.000700	0.000448	0.000102	0.000700	Max Det	0.000552	NON-PARAMETRIC	0.000552	UCL
Trans-1,3-Dichloropropene	10061026	VOC	mg/kg	1	22	5%	0.000600	0.00140	0.000800	0.000800	0.000800	0.000483	0.000125	0.000800	Max Det	0.000519	NORMAL	0.000519	UCL
Trichloroethylene (TCE)	79016	VOC	mg/kg	1	22	5%	0.000600	0.00110	0.000700	0.000700	0.000700	0.000410	0.0000992	0.000700	Max Det	0.000509	NON-PARAMETRIC	0.000509	UCL
Trichlorofluoromethane	75694	VOC	mg/kg	1	22	5%	0.000510	0.00160	0.00110	0.00110	0.00110	0.000503	0.000183	0.00110	Max Det	--	--	--	not a COPEC
Vinyl Acetate	108054	VOC	mg/kg	1	22	5%	0.00100	0.00180	0.00120	0.00120	0.00120	0.000707	0.000169	0.00120	Max Det	--	--	--	not a COPEC
Vinyl chloride	75014	VOC	mg/kg	1	22	5%	0.000610	0.00170	0.00120	0.00120	0.00120	0.000567	0.000184	0.00120	Max Det	0.000738	NON-PARAMETRIC	0.000738	UCL
pH	pH	Other	-	20	20	100%			7.4	8.9	7.98	7.98	0.3764096	7.98	Average	--	--	--	not a COPEC

Notes:

Det = number of samples where the analyte concentration exceeded the analytical detection limit.

n = number of samples that were analyzed for each chemical

DF = detection frequency

UCL 95 = 95% Upper Confidence Limit

* includes 1/2 DL proxy Values for NDs

Table 4
Linkage Between Assessment and Measurement Endpoints
Attachment 10A - Thermal Treatment Unit, Ecological Risk Assessment

Assessment Endpoint	Measurement Endpoints	Linkage	Null Hypotheses
1. Protection of the terrestrial plant community from direct toxic effects on survival, reproduction and growth due to chemicals in soil	Comparison of concentrations of chemicals in on-site surface soil to literature-based survival, growth and reproduction effects concentrations for terrestrial plants (Table 10)	Direct exposure	Maximum Detected soil concentrations of chemicals do not exceed relevant NOEC or LOEC benchmarks
2. Protection of the soil invertebrate community from direct toxic effects on survival, reproduction and growth due to chemicals in soil	Comparison of concentrations of chemicals in on-site surface soil to literature-based survival, growth and reproduction concentrations for terrestrial invertebrates (Table 11)	Direct exposure	Maximum Detected soil concentrations of chemicals do not exceed relevant NOEC or LOEC benchmarks
3. Protection of populations of herbivorous small mammals from toxic effects on survival, reproduction and growth due to chemicals in soil and plants	Comparison of exposure doses (based on the EPC) to published values for survival, growth and reproduction no observed adverse effect levels (NOAELs) or lowest observed adverse effect levels (LOAELs) (Table 12)	Direct exposure, ingestion	Exposure doses, based on UCL95 concentrations within the TTU, do not exceed survival, growth, reproduction, or other relevant NOAELs or LOAELs
4. Protection of populations of insectivorous small mammals from toxic effects on survival, reproduction and growth due to chemicals in soil and terrestrial invertebrates	Comparison of exposure doses (based on the EPC) to published values for survival, growth and reproduction no observed adverse effect levels (NOAELs) or lowest observed adverse effect levels (LOAELs) (Table 12)	Direct exposure, ingestion	Exposure doses, based on UCL95 concentrations within the TTU, do not exceed survival, growth, reproduction, or other relevant NOAELs or LOAELs
5. Protection of populations of carnivorous mammals from toxic effects on survival, reproduction, and growth due to chemicals in soil and prey	Comparison of exposure doses (based on the EPC) to published values for survival, growth and reproduction no observed adverse effect levels (NOAELs) or lowest observed adverse effect levels (LOAELs) (Table 12)	Direct exposure, ingestion	Exposure doses, based on UCL95 concentrations within the TTU, do not exceed survival, growth, reproduction, or other relevant NOAELs or LOAELs
6. Protection of populations of herbivorous birds from toxic effects on survival, reproduction and growth due to chemicals in soil and plants	Comparison of exposure doses (based on the EPC) to published values for survival, growth and reproduction no observed adverse effect levels (NOAELs) or lowest observed adverse effect levels (LOAELs) (Table 13)	Direct exposure, ingestion	Exposure doses, based on UCL95 concentrations within the TTU, do not exceed survival, growth, reproduction, or other relevant NOAELs or LOAELs
7. Protection of populations of insectivorous birds from toxic effects on survival, reproduction, and growth due to chemicals in soil and invertebrates	Comparison of exposure doses (based on 95th UCL soil concentrations) to published values for survival, growth and reproduction no observed adverse effect levels (NOAELs) or lowest observed adverse effect levels (LOAELs) (Table 13)	Direct exposure, ingestion	Exposure doses, based on UCL95 concentrations within the TTU, do not exceed survival, growth, reproduction, or other relevant NOAELs or LOAELs
8. Protection of populations of carnivorous birds from toxic effects on survival, reproduction, and growth due to chemicals in soil and invertebrates	Comparison of exposure doses (based on the EPC) to published values for survival, growth and reproduction no observed adverse effect levels (NOAELs) or lowest observed adverse effect levels (LOAELs) (Table 13)	Direct exposure, ingestion	Exposure doses, based on UCL95 concentrations within the TTU, do not exceed survival, growth, reproduction, or other relevant NOAELs or LOAELs

Notes:
The EPC (Exposure Point Concentration) was calculated as the maximum detected concentration (or maximum non-detected concentration) in the initial risk characterization. The lesser of the UCL 95 or maximum soil concentration was the EPC in the refined risk characterization.

Table 5

Rationale for Selection of Wildlife Receptors of Concern

Attachment 10A - Thermal Treatment Unit, Ecological Risk Assessment

Assessment Endpoint	Representative Receptor	Special Status?	Home Range Size?	Representative of Ecological Guild?	Susceptible to bioaccumulation?	Likely to be exposed?	Occurs at site?	Sensitivity to contaminants?	Body Size	Diet Composition
Terrestrial plant community	plants	no	immobile	yes	no	yes	yes	unknown	NA	NA
Soil invertebrate community	soil invertebrates	no	very small (<1 acre)	yes	no	yes	yes	unknown	NA	NA
Herbivorous small mammal	Ord's Kangaroo Rat	no	small (<10 acre)	yes	no	yes	yes	unknown	small (<1 kg)	100% plants
Herbivorous small mammal	Townsend's Ground Squirrel	no	very small (<1 acre)	yes	no	yes	yes	unknown	small (<1 kg)	100% plants
Herbivorous small mammal	Black-tailed Jackrabbit	no	medium (>10 acre; <100 acre)	yes	no	yes	yes	unknown	medium (>1kg; <10 kg)	100% plants
Herbivorous large mammal	Pronghorn	no	medium (>10 acre; <100 acre)	yes	no	yes	yes	unknown	large (>10 kg)	100% plants
Insectivorous mammal	Grasshopper Mouse	no	small (<10 acre)	yes	yes	yes	possible	unknown	small (<1 kg)	100 % invertebrates
Carnivorous mammal	Coyote	no	very large (>1000 acre)	yes	yes	yes	yes	unknown	large (>10 kg)	100% vertebrates
Herbivorous bird	Sage Sparrow	no	large (>100 acre; <1000 acre)	yes	no	yes	yes	unknown	small (<1 kg)	100% plants
Insectivorous bird	Loggerhead Shrike	no	medium (>10 acre; <100 acre)	yes	yes	yes	yes	unknown	small (<1 kg)	100% invertebrates
Insectivorous bird	Western Meadowlark	no	small (<10 acre)	yes	yes	yes	yes	unknown	small (<1 kg)	100 % invertebrates
Carnivorous bird	Burrowing Owl	no	small (<10 acre)	yes	yes	yes	yes	unknown	small (<1 kg)	100% vertebrates

Note: Unchanged in October 2005 Update

Table 6

Exposure Parameters for Selected Wildlife Receptors of Concern

Attachment 10A - Thermal Treatment Unit, Ecological Risk Assessment

		Kg body weight		Food Ingestion Rate		Dietary Composition (%)					
Species	Receptor Guild	kg	Reference	kg/kg-bw/d dry weight	Reference[1,2]	Terrestrial Invertebrates	Plants	Small Mammals and Other Vertebrates	Reference[1]	Soil	Reference[1]
Ord's Kangaroo Rat	herbivorous small mammal	0.052	Jones, 1985	0.111	Nagy, 1987		100		Garrison and Best, 1990	2.0	measure of conservatism
Townsend's Ground Squirrel	herbivorous small mammal	0.325	Rickart, 1987	0.050	Nagy, 1987		100		Rickart, 1987.	2.0	measure of conservatism
Black-tailed Jackrabbit	herbivorous small mammal	2.100	Goodwin and Currie, 1965 in Sample et al., 1997	0.071	Nagy, 1987		100		Sample et al., 1997	6.3	Arthur and Gates (1988) in Sample et al., 1997
Grasshopper Mouse	Invertivorous small mammal	0.041	Harriman, 1973	0.250	Bailey and Sperry, 1929	100			Bailey and Sperry, 1929	13.0	Talmage and Walton, 1993
Pronghorn	herbivorous large mammal	48.761	Smith and Beale, 1974	0.034	Nagy, 1987		100		Beale and Smith, 1970	2.0	measure of conservatism
Coyote	carnivorous mammal	10.330	Average of values from California and Arizona presented in Sample et al., 1997	0.045	Nagy, 1987			100	Assumed (99% vertebrate diet in Sperry, 1934)	2.8	Used Red Fox Data from Beyer et al., 1994
Sage Sparrow	herbivorous bird	0.019	Average of male and female data from Bonneville Basin, UT in Martin and Carlson, 1998	0.026	Nagy, 1987		100		Assumed (87% plants and 13% invertebrates - winter diet in Lower Colorado river reported in Martin and Carlson, 1998)	2.0	Measure of conservatism
Loggerhead Shrike	insectivorous bird	0.047	Yosef, 1996	0.022	Nagy, 1987	100			Assumed (66 % invertebrates and 34 % vertebrates in diet - Burton, 1990 in Yosef, 1996	0.0	Species does not generally forage near ground

Table 6

Exposure Parameters for Selected Wildlife Receptors of Concern

Attachment 10A - Thermal Treatment Unit, Ecological Risk Assessment

		Kg body weight		Food Ingestion Rate		Dietary Composition (%)					
Species	Receptor Guild	kg	Reference	kg/kg-bw/d dry weight	Reference[1,2]	Terrestrial Invertebrates	Plants	Small Mammals and Other Vertebrates	Reference[1]	Soil	Reference[1]
Western Meadowlark	omnivorous bird	0.103	Average of values in Sample et al., 1997	0.020	Nagy, 1987	100			Assumed 100% (98% insects in Rotenberry, 1980)	2.0	Measure of conservatism
Burrowing Owl	carnivorous bird	0.157	Average of males and females in Colorado from Haug et al., 1993 in Sample et al., 1997	0.111	Nagy, 1987			100	Assumed (71 % vertebrates / 29% invertebrates in diet - Gleason and Craig, 1979)	5.0	Thomsen, 1971 in Sample et al., 1997

Notes:

1) Complete references are available in the references section of the main body of the ERA

2) Ingestion rates were calculated from Kg body weight using Nagy's allometric equations as modified in Sample et al. 1997 where:
food ingestion rate (birds [burrowing owl]) = 0.0582*(Kg body weight^0.651))/Kg body weight,
food ingestion rate (passerine birds[sage sparrow, loggerhead shrike, western meadowlark]) = 0.0141*(Kg body weight^0.850))/Kg body weight,
food ingestion rate (mammals [coyote, pronghorn]) = 0.0687*(Kg body weight^0.822))/Kg body weight,
food ingestion rate (rodents [Ord's kangaroo rat, townsend's ground squirrel]) = 0.0306*(Kg body weight^0.564))/Kg body weight, and
food ingestion rate (herbivores [black-tailed jackrabbit]) = 0.0875*(Kg body weight^0.727))/Kg body weight.

Table 7

Area Use Factors for Selected Receptors

Attachment 10A - Thermal Treatment Unit, Ecological Risk Assessment

Habitat Size (Acres)	Species	Home Range (Acres)	Home Range Source	Area Use Factor[1]
220	Ord's Kangaroo Rat	1.5	O'Farrel (1978)	1.000
220	Townsend's Ground Squirrel	0.3	Smith and Johnson (1985)	1.000
220	Black-tailed Jackrabbit	45.0	Average of two values presented in Sample et al. (1997)	1.000
220	Grasshopper Mouse	5.7	Large home range for a small mammal due to predatory life history (Blair 1953)	1.000
220	Pronghorn	49.4	minimum undisturbed daily range from Gregg,1955 reported in O'Gara (1978)	1.000
220	Coyote	3533.6	Bekoff (1982) and Bekoff and Wells (1980) in Sample et al. (1997)	0.062
220	Sage Sparrow	124.1	Martin and Carlson (1998) reported traveling 800 meters from nest	1.000
220	Loggerhead Shrike	69.8	Distance between nests averaged 600 meters in data reported from Colorado and Nevada in Porter etal. (1975)	1.000
220	Western Meadowlark	6.9	Sample et al. (1997)	1.000
220	Burrowing Owl	2.0	Thomsen (1971)	1.000

Notes:

1) The area use factors were calculated as Habitat Size divided by Home Range Size with a resulting maximum area use

Full references are found in the main text of Appendix N.

Table 8

Chemical Uptake for Dietary Items

Attachment 10A - Thermal Treatment Unit, Ecological Risk Assessment

Analyte	Plant BTF	Source for Plant BTFs	Terrestrial Invertebrates BTF	Source for Terrestrial Invertebrate BTFs	Small Mammal BTF	Source for Mammal BTFs	Log Kow	LogKow Source	Notes
Aluminum	0.0040	A	0.34	E	0.073	I	NA	-	-
Antimony	0.050	A	0.025	D	1.0	J	NA	-	-
Arsenic	Regression Based	B	Regression Based	F	Regression Based	K	NA	-	-
Barium	0.10	A	0.36	E	0.112	I	NA	-	-
Beryllium	0.010	A	1.182	G	0.41	I	NA	-	-
Cadmium	Regression Based	B	Regression Based	F	Regression Based	K	NA	-	-
Chromium	0.040	A	3.16	G	0.3333	I	NA	-	-
Cobalt	0.054	A	0.291	G	Regression Based	K	NA	-	-
Copper	Regression Based	B	Regression Based	F	Regression Based	K	NA	-	-
Iron	0.010	A	0.38	E	Regression Based	K	NA	-	-
Lead	Regression Based	B	Regression Based	F	Regression Based	K	NA	-	-
Magnesium	2.060	B	0.425	G	0.993	I	NA	-	-
Manganese	0.68	A	Regression Based	F	0.079	I	NA	-	-
Mercury	Regression Based	B	Regression Based	F	0.192	I	NA	-	-
Molybdenum	0.400	A	2.091	G	1.0	J	NA	-	-
Nickel	Regression Based	B	4.7	G	0.5891	I	NA	-	-
Selenium	Regression Based	B	Regression Based	F	Regression Based	K	NA	-	-
Silver	1.0	A	15.3	G	0.81	I	NA	-	-
Sodium	0.820	A	64.5	G	81.94	I	NA	-	-
Strontium	1.1	A	0.3	G	1.0	J	NA	-	-
Thallium	0.0040	A	0.26	D	0.1227	I	NA	-	general trophic group
Vanadium	0.006	A	0.088	G	0.019	I	NA	-	-
Zinc	Regression Based	B	Regression Based	F	Regression Based	K	NA	-	-
1,3,5-Trinitrobenzene	4.8	C	28	H	0.88	H	2.71	Hansch and Leo 1985	-
1,3-Dinitrobenzene	15.0	C	27	H	1.32	H	1.49	Hansch and Leo 1985	-
2,4,6-Trinitrotoluene (TNT)	4.2	C*	0.170	N	0	C*	3.68	Hansch and Leo 1985	-
2,4-Dinitrophenol	2.4	C	29	H	0.69	H	3.45	Mabey et al. 1982	-
2,4-Dinitrotoluene	0.607	N	5.10	N	1.05	H	2.2	SRC, 1998	-
2,6-Dinitrotoluene	11.0	N	3.16	N	1.10	H	2.05	Callahan et al. 1979	-
2-Amino-4,6-Dinitrotoluene	Regression Based	N	Regression Based	N	1.18	H	1.84	SRC, 2004	-
2-Nitroaniline	10.7	C	27	H	1.17	H	1.9	Hansch and Leo 1985	-
2-Nitrophenol	11.3	C	27	H	1.20	H	1.79	Hansch and Leo 1985	-
2-Nitrotoluene	0.43	C	31	H	0.37	H	5.30	Howard and Maylan 1997	-
3-Nitroaniline	16.8	C	26	H	1.38	H	1.37	Hansch et al. 1995	-
3-Nitrotoluene	6.1	C	28	H	0.96	H	2.45	USEPA 2004	-
4,6-Dinitro-2-methylphenol	0.18	C	32	H	0.27	H	6.22	Mabey et al. 1982	-
4-Nitroaniline	3.0	C	28	H	0.75	H	3.20	Fujita et al. 1964	-
4-Nitrophenol	1.0	C	30	H	0.50	H	4.40	Fujita et al. 1964	-
4-Nitrotoluene	6.7	C	28	H	0.99	H	2.36	SRC, 2004	-
HMX	Regression Based	N	1.0	N	2.13	H	0.060	Holdsworth et al. 2001a	-
Nitrobenzene	1.1	C	30	H	0.53	H	4.26	Callahan et al. 1979	-
Nitroglycerin	14.7	C	27	H	1.32	H	1.51	SRC, 2004	-
Nitroguanidine	138.7	C	24	H	2.9	H	-0.89	HSDB, 2002	-
PETN	6.5	C	28	H	0.98	H	2.38	SRC, 2004	-
Picric acid	17.4	C	26	H	1.4	H	1.3	HSDB, 2002	-
RDX	Regression Based	N	Regression Based	N	0	C*	2.00	Howard and Maylan 1997	-
Tetryl	1.8	C	29	H	0.62	H	3.78	Howard and Maylan 1997	-
Carbon disulfide	9.3	C	27	H	1.12	H	2.00	USEPA 1995	-

Table 8
Chemical Uptake for Dietary Items
Attachment 10A - Thermal Treatment Unit, Ecological Risk Assessment

Analyte	Plant BTF	Source for Plant BTFs	Terrestrial Invertebrates BTF	Source for Terrestrial Invertebrate BTFs	Small Mammal BTF	Source for Mammal BTFs	Log Kow	LogKow Source	Notes
Nitrate	1.0	J	1.0	J	1.0	J	NA	--	-
Perchlorate	282.0	L	1.0	J	0.1	J	NA	--	-
Phosphorus	1.0	J	1.0	J	1.0	J	3.1	TNRCC, 1996	-
2-Methylnaphthalene	1.9	C	29	H	0.63	H	3.7	SRC, 1998	-
Acenaphthene	Regression Based	C	1.47	C*	0	C*	4.2	SRC, 1998	-
Acenaphthylene	Regression Based	C	22.9	C*	0	C*	8.52	Mabey et al. 1982	-
Anthracene	Regression Based	C	2.42	C*	0	C*	4.6	SRC, 1998	-
Benzo(a)anthracene	Regression Based	C	1.59	C*	0	C*	13.26	Howard and Maylan 1997	-
Benzo(a)pyrene	Regression Based	C	1.33	C*	0	C*	13.75	Howard and Maylan 1997	-
Benzo(b)fluoranthene	0.31	C*	2.60	C*	0	C*	13.31	Howard and Maylan 1997	-
Benzo(g,h,i)perylene	Regression Based	C	2.94	C*	0	C*	6.58	SRC 1988	-
Benzo(k)fluoranthene	Regression Based	C	2.60	C*	0	C*	14.07	Howard and Maylan 1997	-
Chrysene	Regression Based	C	2.29	C*	0	C*	12.66	Howard and Maylan 1997	-
Dibenzo(a,h)anthracene	0.13	C*	2.31	C*	0	C*	15.43	MacKay et al., 1992	-
Fluoranthene	0.5	C*	3.04	C*	0	C*	5.1	SRC, 1998	-
Fluorene	Regression Based	C	9.57	C*	0	C*	4.0	SRC, 1998	-
Indeno(1,2,3-c,d)pyrene	0.11	C*	2.86	C*	0	C*	15.43	Howard and Maylan 1997	-
Naphthalene	12.2	C*	4.40	C*	0	C*	3.4	SRC, 1998	-
Phenanthrene	Regression Based	C	1.72	C*	0	C*	4.5	SRC, 1998	-
Pyrene	0.72	C*	1.75	C*	0	C*	11.24	Howard and Maylan 1997	-
TPH	60.4	C	25	H	2.18	H	0.0	M - Albers 1995	-
2,4,5-Trichlorophenol	0.02	C	35	H	0.12	H	8.57	EPA 1984e	-
2,4,6-Trichlorophenol	0.01	C	36	H	0.11	H	8.91	EPA 1984f	-
2,4-Dichlorophenol	0.12	C	33	H	0.23	H	6.68	Mabey et al. 1982	-
2,4-Dimethylphenol	0.14	C	32	H	0.25	H	6.47	Mabey et al. 1982	-
2-Chloronaphthalene	0.0	C	36	H	0.10	H	9.21	Mabey et al. 1982	-
2-Methylphenol	9.8	C	27	H	1.14	H	1.95	Hansch and Leo 1985	-
3,3-Dichlorobenzidine	2.3	C	29	H	0.67	H	3.51	Hansch and Leo 1985	-
4-Chloro-3-methylphenol	0.08	C	33	H	0.20	H	7.14	Cutter 1970	-
4-Chloroaniline	1.2	C	30	H	0.53	H	4.21	Tichy and Bocek 1987	-
4-Methylphenol	1.0	C	30	H	0.49	H	4.44	EPA 1979	-
Benzoic acid	1.1	C	30	H	0.52	H	4.31	Hansch and Leo 1981	-
Benzylalcohol	5.7	C	28	H	0.93	H	2.53	Howard and Maylan 1997	-
bis(2-Ethylhexyl)phthalate	0.1	C	33	H	0.19	H	7.3	SRC, 1998	-
Butyl benzylphthalate	0.002	C	39	H	0.05	H	11.14	MacKay et al., 1992	-
Dibenzofuran	1.9	C	29	H	0.63	H	3.7	SRC, 1998	-
Diethylphthalate	0.30	C	31	H	0.33	H	5.66	McDuffie et al. 1984	-
Dimethylphthalate	2.1	C	29	H	0.66	H	3.59	Mabey et al. 1982	-
Di-n-butylphthalate	0.003	C	38	H	0.06	H	10.61	MacKay et al., 1992	-
Di-n-octylphthalate	0.46	C	31	H	0.38	H	5.22	Hansch and Leo 1985	-
Hexachlorobenzene	0.0	C	40	H	0.04	H	12.04	EPA 1984j	-
Hexachlorobutadiene	0.0	C	39	H	0.06	H	11.01	EPA 1984k	-
Hexachlorocyclopentadiene	0.0	C	36	H	0.10	H	9.21	Mabey et al. 1982	-
Hexachloroethane	0.0	C	38	H	0.06	H	10.59	Mabey et al. 1982	-
Isophorone	0.47	C	31	H	0.38	H	5.20	Mabey et al. 1982	-
n-Nitroso-di-n-propylamine	2.4	C	29	H	0.69	H	3.43	Mabey et al. 1982	-
n-Nitrosodiphenylamine	0.07	C	33	H	0.20	H	7.21	Mabey et al. 1982	-
Pentachlorophenol	0.001	C	5.93	C	0.05	H	11.51	Mabey et al. 1982	-

Table 8

Chemical Uptake for Dietary Items

Attachment 10A - Thermal Treatment Unit, Ecological Risk Assessment

Analyte	Plant BTF	Source for Plant BTFs	Terrestrial Invertebrates BTF	Source for Terrestrial Invertebrate BTFs	Small Mammal BTF	Source for Mammal BTFs	Log Kow	LogKow Source	Notes
1,1,1,2-Tetrachloroethane	3.6	C	28	H	0.79	H	3.03	SRC, 2004	-
1,1,1-Trichloroethane	0.28	C	31	H	0.32	H	5.76	Mabey et al. 1982	-
1,1,2,2-Tetrachloroethane	0.35	C	31	H	0.35	H	5.50	EPA 1984c	-
1,1,2-Trichloroethane	0.30	C	31	H	0.33	H	5.69	EPA 1984b	-
1,1-Dichloroethane	1.3	C	29	H	0.55	H	4.12	EPA 1984a	-
1,1-Dichloroethene	8.3	C	27	H	1.07	H	2.13	Hansch and Leo 1985	-
1,2,3-Trichlorobenzene	1.4	C	29	H	0.56	H	4.05	Hansch and Leo 1985	-
1,2,3-Trichloropropane	5.8	C	28	H	0.95	H	2.50	SRC, 2004	-
1,2,4-Trichlorobenzene	0.01	C	37	H	0.08	H	9.90	Mabey et al. 1982	-
1,2-Dibromo-3-chloropropane	0.44	C	31	H	0.37	H	5.27	Jaber et al. 1984	-
1,2-Dichlorobenzene	2.6	C	29	H	0.70	H	3.38	Hansch and Leo 1985	-
1,2-Dichloroethane	2.5	C	29	H	0.70	H	3.41	EPA 1984d	-
1,2-Dichloropropane	0.82	C	30	H	0.47	H	4.61	Mabey et al. 1982	-
1,2-Ethylene Dibromide	11.7	C	27	H	1.21	H	1.8	Hansch and Leo 1985	-
1,3-Dichlorobenzene	0.03	C	35	H	0.14	H	8.29	Mabey et al. 1982	-
1,4-Dichlorobenzene	0.026	C	35	H	0.14	H	8.29	Mabey et al. 1982	-
2-Butanone	46.1	C	25	H	2.0	H	0.29	SRC, 1998	-
2-ChloroethylVinylEther	20.2	C	26	H	1.47	H	1.17	SRC, 2004	-
2-Chlorophenol	0.56	C	31	H	0.41	H	5.02	Mabey et al. 1982	-
2-Hexanone	16.6	C	26	H	1.37	H	1.38	Hansch and Leo 1985	-
4-Bromophenylphenylether	0.6	C	31	H	0.41	H	5.0	USEPA, 1995	-
4-Chlorophenylphenylether	0.0	C	36	H	0.09	H	9.39	Evanson 1977	-
4-Methyl-2-pentanone	19.9	C	26	H	1.46	H	1.19	SRC, 2004	-
Acetone	75.6	C	25	H	2.4	H	-0.24	SRC, 1998	-
Benzene	8.3	C	27	H	1.1	H	2.1	USEPA, 1995	-
Bis(2-chloroethoxy)methane	17.9	C	26	H	1.4	H	1.30	SRC, 2004	-
bis(2-chloroethyl)ether	2.4	C	29	H	0.69	H	3.45	Mabey et al. 1982	-
bis(2-chloroisopropyl)ether	0.66	C	30	H	0.43	H	4.84	Mabey et al. 1982	-
Bromodichloromethane	8.5	C	27	H	1.08	H	2.10	USEPA 1995	-
Bromoform	0.35	C	31	H	0.34	H	5.53	Mabey et al. 1982	-
Bromomethane	19.9	C	26	H	1.46	H	1.19	Hansch and Leo 1985	-
Carbon tetrachloride	4.3	C	28	H	0.85	H	2.83	Hansch and Leo 1985	-
Chlorobenzene	0.13	C	32	H	0.25	H	6.54	EPA 1984g	-
Chloroethane	2.8	C	29	H	0.73	H	3.29	Jow and Hansch 1987	-
Chloroform	0.87	C	30	H	0.48	H	4.54	EPA 1984h	-
Chloromethane	7.8	C	27	H	1.05	H	2.19	Jaber et al. 1984	-
cis-1,2-Dichloroethene	10.6	C	27	H	1.17	H	1.86	Hansch and Leo 1985	-
cis-1,3-Dichloropropene	7.1	C	27	H	1.01	H	2.29	SRC, 2004	-
Dibromochloromethane	0.67	C	30	H	0.44	H	4.81	Callahan et al. 1979	-
Dibromomethane	13.3	C	27	H	1.27	H	1.62	USEPA 1995	-
Dichlorodifluoromethane	0.58	C	30	H	0.41	H	4.97	Howard and Maylan 1997	-
Ethylbenzene	0.07	C	33	H	0.19	H	7.25	EPA 1984i	-
m,p-Xylene	3.0	C	28	H	0.75	H	3.20	Hansch and Leo 1985	-
Methylene chloride	4.1	C	28	H	0.83	H	2.88	Howard and Maylan 1997	-
o-Xylene	3.3	C	28	H	0.77	H	3.1	TNRCC, 1996	-
Phenol	2.6	C	29	H	0.71	H	3.36	EPA 1984l	-
Styrene	4.0	C	28	H	0.83	H	2.9	TNRCC, 1996	-
tert-ButylMethylEther	19.0	C	26	H	1.44	H	1.24	FUJIWARA,Y ET AL. 1984	-
Tetrachloroethene	2.5	C	29	H	0.70	H	3.40	Hansch and Leo 1985	-

Table 8

Chemical Uptake for Dietary Items

Attachment 10A - Thermal Treatment Unit, Ecological Risk Assessment

Analyte	Plant BTF	Source for Plant BTFs	Terrestrial Invertebrates BTF	Source for Terrestrial Invertebrate BTFs	Small Mammal BTF	Source for Mammal BTFs	Log Kow	LogKow Source	Notes
Toluene	4.7	C	28	H	0.88	H	2.7	USEPA, 1995	-
Trans-1,2-Dichloroethene	2.5	C	29	H	0.70	H	3.41	ORNL 2000	-
Trans-1,3-Dichloropropene	0.82	C	30	H	0.47	H	4.61	Mabey et al. 1982	-
Trichloroethylene (TCE)	0.33	C	31	H	0.34	H	5.57	Howard and Maylan 1997	-
Trichlorofluoromethane	0.26	C	32	H	0.31	H	5.83	Callahan et al. 1979	-
Vinyl Acetate	22.0	C	26	H	1.52	H	1.08	NA	-
Vinyl chloride	3.1	C	28	H	0.75	H	3.18	EPA 1984m	-

Notes:

All biotransfer factors are expressed as dry weight

Full references can be found in the reference section of the main body of the ERA

NA = Not applicable; applies to uptake factors for analytes without toxicity reference values for the given receptor

BTF = biotransfer factor

A Soil-to-plant transfer factors for inorganics are from soil-to-dry plant uptake factors presented by ORNL (2000)

B Bechtel Jacobs, 1998 - 90th percentile uptake factors; soil to plant bioaccumulation regression models presented in Table 9

C Soil-to-plant transfer factors for organics were derived using log BTF=1.781-0.4057*log Kow for non-ionic organic compounds ranging from Kow 3 to 8; or modelled for PAHs using ln[tissue concentration]=0.7912(ln[soil concentration])-1.1442; Pentachlrophenol median BAF for soil to terrestrial invertebrates (USEPA, 2005).

C* Soil-to-plant; soil to invertebrate; and soil to mammal BAFs from USEPA (2005).

D Ninetieth percentile value from ARAMS (Development of Terrestrial Exposure and Bioaccumulation Information for the Army Risk Assessment Modeling System ([ARAMS], CH2M HILL, 2001). Naphthalene data substituted for 2-methylnaphthalene.

E Beyer and Stafford, 1993

F Sample et al., 1997 - Soil to earthworm bioaccumulation regression model in Table 9

G Sample et al., 1998a - 90th percentile UCL of soil-to-earthworm transfer factors were used

H Soil-to-invertebrate transfer factors were derived using BTF=10^(logKOW - 0.6)/[0.01*10^(0.983logKow + 0.00028)].
Soil-to-mammal transfer factors for organics were derived using BAF=10^(0.338-0.145*logKow). Both models presented by USEPA (2000).
An organic carbon default value of 0.01 was used since a site-specific value was unavailable (EPA 2003).

I 90% UCL (Sample et al., 1998b) of soil-to-mammal transfer factors were used, except where the 90% UCL was unavailable; maximum transfer factors were then used (manganese, silver, and vanadium).

J Bioaccumulation data were not available. A default value of 1 was assumed.

K Sample et al, 1998 - Soil to small mammal bioaccumulation regression model presented in Table 9

L Ellington et al., 2001

M A Log Kow was not available for TPH. A default value of 0 was used since TPHs are not bioaccumulated (Albers 1995).

N Maximum BAFs caclulated for the Army Risk Assessment Modelling System (2005)

Table 9

Regression Equations for Chemical Biotransfer Factors

Attachment 10A - Thermal Treatment Unit, Ecological Risk Assessment

Analyte	Receptor	B0	B1	Source
Small Mammal/Bird BTF				
Arsenic	General	-4.847	0.8188	Sample et. al (1998a)
Cadmium	General	-0.4036	0.4865	Sample et. al (1998a)
Cobalt	General	-4.4669	1.307	Sample et. al (1998a)
Copper	General	2.042	0.1444	Sample et. al (1998a)
Iron	General	-0.2879	0.5969	Sample et. al (1998a)
Lead	General	0.0761	0.4422	Sample et. al (1998a)
Selenium	General	-0.4158	0.3764	Sample et. al (1998a)
Zinc	General	4.4713	0.0738	Sample et. al (1998a)
Terrestrial Invertebrate BTF				
Arsenic	Earthworm	-1.421	0.706	Sample et. al (1998b)
Cadmium	Earthworm	2.114	0.795	Sample et. al (1998b)
Copper	Earthworm	1.675	0.264	Sample et. al (1998b)
Lead	Earthworm	-0.218	0.807	Sample et. al (1998b)
Manganese	Earthworm	-0.809	0.682	Sample et. al (1998b)
Mercury	Earthworm	-0.684	0.118	Sample et. al (1998b)
Selenium	Earthworm	-0.075	0.733	Sample et. al (1998b)
Zinc	Earthworm	4.449	0.328	Sample et. al (1998b)
RDX	Soil Invertebrate	4.376	0.230	Army Risk Assessment Modelling System (2005)
2-Amino-4,6-Dinitrotoluene	Soil Invertebrate	1.593	0.766	Army Risk Assessment Modelling System (2005)
Plant BTF				
Arsenic	General	-1.992	0.564	Bechtel Jacobs (1998)
Cadmium	General	-0.476	0.546	Bechtel Jacobs (1998)
Copper	General	0.669	0.394	Bechtel Jacobs (1998)
Lead	General	-1.328	0.561	Bechtel Jacobs (1998)
Mercury	General	-0.996	0.544	Bechtel Jacobs (1998)
Nickel	General	-2.224	0.748	Bechtel Jacobs (1998)
Selenium	General	-0.678	1.104	Bechtel Jacobs (1998)
Zinc	General	1.575	0.555	Bechtel Jacobs (1998)
2-Amino-4,6-Dinitrotoluene	General	0.8777	0.3026	Army Risk Assessment Modelling System (2005)
Acenaphthene	General	5.562	0.8556	USEPA 2005
Acenaphthylene	General	1.144	0.791	USEPA 2005
Anthracene	General	0.9887	0.7784	USEPA 2005
Benzo(a)anthracene	General	0.7078	0.5944	USEPA 2005
Benzo(a)pyrene	General	0.0615	0.975	USEPA 2005
Benzo(g,h,i)perylene	General	0.9313	1.1829	USEPA 2005
Benzo(k)fluoranthene	General	0.1579	0.8595	USEPA 2005
Chrysene	General	0.7078	0.5944	USEPA 2005
Fluorene	General	5.562	0.8556	USEPA 2005
HMX	General	2.769	0.5296	Army Risk Assessment Modelling System (2005)
RDX	General	3.453	0.4305	Army Risk Assessment Modelling System (2005)
Phenanthrene	General	0.1665	0.6203	USEPA 2005

Notes:

All values are reported as dry weight.

mg/kg = Milligrams per kilogram.

95UCL = 95% upper confidence limit

Equations:

[1] ln (Prey Conc) = B1*(ln[Site Specific Soil Concentration]) + B0

where:

BTF = Biotransfer Factor.

B0 = Slope.

B1 = Intercept.

Table 10

Ecological Screening Benchmarks for Terrestrial Plants Exposed to Soil

Attachment 10A - Thermal Treatment Unit, Ecological Risk Assessment

Analyte	Surrogate	Reference	Uncertainty Factor (for normalized NOEC)[a]	Normalized NOEC (mg/kg)[b]	Uncertainty Factor (for normalized LOEC)[c]	Normalized LOEC (mg/kg)[d]	Notes
Aluminum	NA	Efroymson et al. 1997a	0.1	5	1	50	
Antimony	NA	Efroymson et al. 1997a	0.1	0.5	1	5	
Arsenic	NA	USEPA 2005 (Eco SSL)	1	18	NA	NSV	
Barium	NA	Efroymson et al. 1997a	0.1	50	1	500	
Beryllium	NA	Efroymson et al. 1997a	0.1	1	1	10	
Cadmium	NA	USEPA 2005 (Eco SSL)	1	32	NA	NSV	
Calcium	NA	NA	NA	NSV	NA	NSV	
Carbon disulfide	NA	NA	NA	NSV	NA	NSV	
Chloride	NA	NA	NA	NSV	NA	NSV	
Chromium	NA	Efroymson et al. 1997a	0.1	0.1	1	1	
Cobalt	NA	USEPA 2005 (Eco SSL)	1	13	1	20	LOEC from Efroymson et al. 1997a
Copper	NA	Efroymson et al. 1997a	0.1	10	1	100	
Iron	NA	NA	NA	NSV	NA	NSV	
Lead	NA	USEPA 2005 (Eco SSL)	1	110	NA	207	
Magnesium	NA	NA	NA	NSV	NA	NSV	
Manganese	NA	Efroymson et al. 1997a	0.1	50	1	500	
Mercury	NA	Efroymson et al. 1997a	0.1	0.03	1	0.3	
Molybdenum	NA	Efroymson et al. 1997a	0.1	0.2	1	2	
Nickel	NA	Efroymson et al. 1997a	0.1	3	1	30	
Nitrate	NA	NA	NA	NSV	NA	NSV	
Perchlorate	NA	EPA 2002	0.5	20	1	40	
Phosphorus	NA	NA	NA	NSV	NA	NSV	
Potassium	NA	NA	NA	NSV	NA	NSV	
Selenium	NA	Efroymson et al. 1997a	0.1	0.1	1	1	
Silver	NA	Efroymson et al. 1997a	0.1	0.2	1	2	
Sodium	NA	NA	NA	NSV	NA	NSV	
Strontium	NA	NA	NA	NSV	NA	NSV	
Sulfate	NA	NA	NA	NSV	NA	NSV	
Thallium	NA	Efroymson et al. 1997a	0.1	0.1	1	1	
Vanadium	NA	Efroymson et al. 1997a	0.1	0.2	1	2	
Zinc	NA	Efroymson et al. 1997a	0.1	5	1	50	
2,4-Dinitrotoluene	TNT	Gong et al. 1999	0.1	5	1	50	
2-Butanone	NA	NA	NA	NSV	NA	NSV	
2-Methylnaphthalene	naphthalene	CCME 1999	0.1	0.3	1	3	seed emergence LC25s
Acenaphthene	NA	Efroymson et al. 1997a	0.1	2	1	20	
Acetone		NA	NA	NSV	NA	NSV	
Anthracene	Benzo(a)pyrene	CCME 1999	1	1.2	1	3.3	
Benzene	toluene	Efroymson et al. 1997a	0.1	20	1	200	
bis(2-Ethylhexyl)phthalate	Diethylphthalate	Efroymson et al. 1997a	0.1	10	1	100	
Dibenzofuran	NA	NA	NA	NSV	NA	NSV	
Fluoranthene	Benzo(a)pyrene	CCME 1999	1	1.2	1	3.3	
Fluorene	Benzo(a)pyrene	CCME 1999	1	1.2	1	3.3	
HMX	NA	Robidoux et al. 2003	1	4500	NA	NSV	
Naphthalene	NA	CCME 1999	0.1	0.3	1	3	seed emergence LC25s
Nitroguanidine	NA	NA	NA	NSV	NA	NSV	

Table 10

Ecological Screening Benchmarks for Terrestrial Plants Exposed to Soil

Attachment 10A - Thermal Treatment Unit, Ecological Risk Assessment

Analyte	Surrogate	Reference	Uncertainty Factor (for normalized NOEC)[a]	Normalized NOEC (mg/kg)[b]	Uncertainty Factor (for normalized LOEC)[c]	Normalized LOEC (mg/kg)[d]	Notes
o-Xylene	xylenes	CCME 1999	0.1	0.5	1	5	seed LC25s
Phenanthrene	Benzo(a)pyrene	CCME 1999	1	1.2	1	3.3	
Picric acid	NA	NA	NA	NSV	NA	NSV	
Styrene	NA	Efroymson et al. 1997a	0.1	30	1	300	
Toluene	NA	Efroymson et al. 1997a	0.1	20	1	200	
TPH	NA	Efroymson et al. 2004	1	8000	1	10000	lowest NOEC/NOEC for diesel range TPH
1,1,1,2-Tetrachloroethane	NA	NA	NA	NSV	NA	NSV	
1,1,1-Trichloroethane	NA	NA	NA	NSV	NA	NSV	
1,1,2,2-Tetrachloroethane	NA	NA	NA	NSV	NA	NSV	
1,1,2-Trichloroethane	NA	NA	NA	NSV	NA	NSV	
1,1-Dichloroethane	NA	NA	NA	NSV	NA	NSV	
1,1-Dichloroethene	NA	NA	NA	NSV	NA	NSV	
1,2,3-Trichlorobenzene	NA	NA	NA	NSV	NA	NSV	
1,2,3-Trichloropropane	NA	NA	NA	NSV	NA	NSV	
1,2,4-Trichlorobenzene	NA	NA	NA	NSV	NA	NSV	
1,2-Dibromo-3-chloropropane	NA	NA	NA	NSV	NA	NSV	
1,2-Dichlorobenzene	NA	NA	NA	NSV	NA	NSV	
1,2-Dichloroethane	NA	NA	NA	NSV	NA	NSV	
1,2-Dichloropropane	NA	NA	NA	NSV	NA	NSV	
1,2-Ethylene Dibromide	NA	NA	NA	NSV	NA	NSV	
1,3,5-Trinitrobenzene	TNT	Gong et al. 1999	0.1	5	1	50	
1,3-Dichlorobenzene	NA	NA	NA	NSV	NA	NSV	
1,3-Dinitrobenzene	TNT	Gong et al. 1999	0.1	5	1	50	
1,4-Dichlorobenzene	NA	NA	NA	NSV	NA	NSV	
2,4,5-Trichlorophenol	3,4-dichlorophenol	Efroymson et al. 1997a	0.1	2	1	20	
2,4,6-Trichlorophenol	3,4-dichlorophenol	Efroymson et al. 1997a	0.1	2	1	20	
2,4,6-Trinitrotoluene (TNT)	NA	Gong et al. 1999	0.1	5	1	50	
2,4-Dichlorophenol	3,4-dichlorophenol	Efroymson et al. 1997a	0.1	2	1	20	
2,4-Dimethylphenol	NA	NA	NA	NSV	NA	NSV	
2,4-Dinitrophenol	NA	Efroymson et al. 1997a	0.1	2	1	20	
2,6-Dinitrotoluene	TNT	Gong et al. 1999	0.1	5	1	50	
2-Amino-4,6-Dinitrotoluene	NA	Talmage et al. 1999	1	80	NA	NSV	
2-ChloroethylVinylEther	NA	NA	NA	NSV	NA	NSV	
2-Chloronaphthalene	NA	NA	NA	NSV	NA	NSV	
2-Chlorophenol	3-chlorophenol	Efroymson et al. 1997a	0.1	0.7	1	7	
2-Hexanone	NA	NA	NA	NSV	NA	NSV	
2-Methylphenol	NA	NA	NA	NSV	NA	NSV	
2-Nitroaniline	NA	NA	NA	NSV	NA	NSV	
2-Nitrophenol	2,4-Dinitrophenol	Efroymson et al. 1997a	0.1	2	1	20	
2-Nitrotoluene	TNT	Gong et al. 1999	0.1	5	1	50	
3,3-Dichlorobenzidine	NA	NA	NA	NSV	NA	NSV	
3-Nitroaniline	NA	NA	NA	NSV	NA	NSV	
3-Nitrotoluene	TNT	Gong et al. 1999	0.1	5	1	50	
4,6-Dinitro-2-methylphenol	NA	NA	NA	NSV	NA	NSV	

Table 10

Ecological Screening Benchmarks for Terrestrial Plants Exposed to Soil

Attachment 10A - Thermal Treatment Unit, Ecological Risk Assessment

Analyte	Surrogate	Reference	Uncertainty Factor (for normalized NOEC)[a]	Normalized NOEC (mg/kg)[b]	Uncertainty Factor (for normalized LOEC)[c]	Normalized LOEC (mg/kg)[d]	Notes
4-Bromophenylphenylether	NA	NA	NA	NSV	NA	NSV	
4-Chloro-3-methylphenol	NA	NA	NA	NSV	NA	NSV	
4-Chloroaniline	3-chloroaniline	Efroymson et al. 1997a	0.1	2	1	20	
4-Chlorophenylphenylether	NA	NA	NA	NSV	NA	NSV	
4-Methyl-2-pentanone	NA	NA	NA	NSV	NA	NSV	
4-Methylphenol	NA	NA	NA	NSV	NA	NSV	
4-Nitroaniline	NA	NA	NA	NSV	NA	NSV	
4-Nitrophenol	2,4-Dinitrophenol	Efroymson et al. 1997a	0.1	2	1	20	
4-Nitrotoluene	TNT	Gong et al. 1999	0.1	5	1	50	
Acenaphthylene	Benzo(a)pyrene	CCME 1999	1	1.2	1	3.3	
Benzo(a)anthracene	Benzo(a)pyrene	CCME 1999	1	1.2	1	3.3	
Benzo(a)pyrene	NA	CCME 1999	1	1.2	1	3.3	NOEC for rye, wheat and corn (Sims and Overcash 1983); high NOEC used for LOEC (Montizaan et al. 1989)
Benzo(b)fluoranthene	Benzo(a)pyrene	CCME 1999	1	1.2	1	3.3	
Benzo(g,h,i)perylene	Benzo(a)pyrene	CCME 1999	1	1.2	1	3.3	
Benzo(k)fluoranthene	Benzo(a)pyrene	CCME 1999	1	1.2	1	3.3	
Benzoic acid	NA	NA	NA	NSV	NA	NSV	
Benzylalcohol	NA	NA	NA	NSV	NA	NSV	
bis(2-chloroethoxy)methane	NA	NA	NA	NSV	NA	NSV	
bis(2-chloroethyl)ether	NA	NA	NA	NSV	NA	NSV	
bis(2-chloroisopropyl)ether	NA	NA	NA	NSV	NA	NSV	
Bromodichloromethane	NA	NA	NA	NSV	NA	NSV	
Bromoform	NA	NA	NA	NSV	NA	NSV	
Bromomethane	NA	NA	NA	NSV	NA	NSV	
Butyl benzylphthalate	Diethylphthalate	Efroymson et al. 1997a	0.1	10	1	100	
Carbon tetrachloride	NA	NA	NA	NSV	NA	NSV	
Chlorobenzene	NA	Hulzeboz et al. 1993	0.01	2.48	0.1	24.8	based on EC50 = 248 mg/kg
Chloroethane	NA	NA	NA	NSV	NA	NSV	
Chloroform	NA	NA	NA	NSV	NA	NSV	
Chloromethane	NA	NA	NA	NSV	NA	NSV	
Chrysene	Benzo(a)pyrene	CCME 1999	1	1.2	1	3.3	
cis-1,2-Dichloroethene	NA	NA	NA	NSV	NA	NSV	
cis-1,3-Dichloropropene	NA	NA	NA	NSV	NA	NSV	
Dibenzo(a,h)anthracene	Benzo(a)pyrene	CCME 1999	1	1.2	1	3.3	
Dibromochloromethane	NA	NA	NA	NSV	NA	NSV	
Dibromomethane	NA	NA	NA	NSV	NA	NSV	
Dichlorodifluoromethane	NA	NA	NA	NSV	NA	NSV	
Diethylphthalate	NA	Efroymson et al. 1997a	0.1	10	1	100	
Dimethylphthalate	Diethylphthalate	Efroymson et al. 1997a	0.1	10	1	100	
Di-n-butylphthalate	NA	Efroymson et al. 1997a	0.1	20	1	200	
Di-n-octylphthalate	Diethylphthalate	Efroymson et al. 1997a	0.1	10	1	100	
Ethylbenzene	NA	CCME 1999	0.1	0.6	1	6	seed LC25s
Hexachlorobenzene	Hexachlorocyclopentadiene	Efroymson et al. 1997a	0.1	1	1	10	
Hexachlorobutadiene	Hexachlorocyclopentadiene	Efroymson et al. 1997a	0.1	1	1	10	

Table 10

Ecological Screening Benchmarks for Terrestrial Plants Exposed to Soil

Attachment 10A - Thermal Treatment Unit, Ecological Risk Assessment

Analyte	Surrogate	Reference	Uncertainty Factor (for normalized NOEC)[a]	Normalized NOEC (mg/kg)[b]	Uncertainty Factor (for normalized LOEC)[c]	Normalized LOEC (mg/kg)[d]	Notes
Hexachlorocyclopentadiene	NA	Efroymson et al. 1997a	0.1	1	1	10	
Hexachloroethane	NA	NA	NA	NSV	NA	NSV	
Indeno(1,2,3-c,d)pyrene	Benzo(a)pyrene	CCME 1999	1	1.2	1	3.3	
Isophorone	NA	NA	NA	NSV	NA	NSV	
m,p-Xylene	xylenes	CCME 1999	0.1	0.5	1	5	seed LC25s
Methylene chloride	NA	NA	NA	NSV	NA	NSV	
Nitrobenzene	TNT	Gong et al. 1999	0.1	5	1	50	
Nitroglycerin	NA	NA	NA	NSV	NA	NSV	
n-Nitroso-di-n-propylamine	NA	NA	NA	NSV	NA	NSV	
n-Nitrosodiphenylamine	NA	NA	NA	NSV	NA	NSV	
Pentachlorophenol	NA	USEPA 2005 (Eco SSL)	1	5	NA	NSV	
PETN	NA	NA	NA	NSV	NA	NSV	
Phenol	NA	Efroymson et al. 1997a	0.1	7	1	70	
Pyrene	Benzo(a)pyrene	CCME 1999	1	1.2	1	3.3	
RDX	NA	Talmage et al. 1999	0.5	50	1	100	
Trichloroethylene (TCE)	NA	NA	NA	NSV	NA	NSV	
tert-ButylMethylEther	NA	NA	NA	NSV	NA	NSV	
Tetrachloroethene	NA	Hulzebos et al., 1993	0.01	10	0.1	100	based on EC50 = 1000 mg/kg
Tetryl	NA	Talmage et al. 1999	0.1	2.5	1	25	
Trans-1,2-Dichloroethene	NA	NA	NA	NSV	NA	NSV	
Trans-1,3-Dichloropropene	NA	NA	NA	NSV	NA	NSV	
Trichlorofluoromethane	NA	NA	NA	NSV	NA	NSV	
Vinyl Acetate	NA	NA	NA	NSV	NA	NSV	
Vinyl chloride	NA	NA	NA	NSV	NA	NSV	

Notes:

NA - not applicable

NSV - no screening value available

mg/kg = milligrams per kilogram

NOEC = No-observed-effect-concentration.

LOEC = Lowest-observed-effect-concentration.

a Uncertainty factors were used to adjust all measured effect concentrations to chronic NOECs as follows:
LOEC to NOEC = 0.1

b Normalized NOEC was calculated by multiplying the effect concentration by the uncertainty factor.

c Uncertainty factors were used to adjust all measured effect concentrations to chronic LOECs as follows:
Subchronic to chronic = 0.1
EC50 to chronic = 0.1
Acute to chronic = 0.1

d Normalized LOEC was calculated by multiplying the effect concentration by the uncertainty factor.

Table 11

Ecological Screening Benchmarks for Invertebrates Exposed to Soil
Attachment 10A - Thermal Treatment Unit, Ecological Risk Assessment

Analyte	Surrogate	Reference	Uncertainty Factor (for normalized NOEC)[a]	Normalized NOEC (mg/kg)[b]	Uncertainty Factor (for normalized LOEC)[c]	Normalized LOEC (mg/kg)[d]	Notes
Aluminum	NA	NA	NA	NSV	NA	NSV	
Antimony	NA	USEPA 2005 (Eco SSL)	1	78	NA	NSV	
Arsenic	NA	Efroymson et al. 1997b	0.1	6	1	60	
Barium	NA	USEPA 2005 (Eco SSL)	1	330	1	585	LOEL = maximum of 3 EC20 values used to derive EcoSSL
Beryllium	NA	USEPA 2005 (Eco SSL)	1	40	NA	NSV	
Cadmium	NA	USEPA 2005 (Eco SSL)	1	140	NA	NSV	
Calcium	NA	NA	NA	NSV	NA	NSV	
Chloride	NA	NA	NA	NSV	NA	NSV	
Chromium	NA	Efroymson et al. 1997b	0.1	0.04	1	0.4	
Cobalt	NA	Hartenstein et al., 1981	1	300	NA	NSV	*Eisenia fetida* Growth 8 wk NOEC
Copper	NA	Efroymson et al. 1997b	0.1	5	1	50	
Iron	NA	NA	NA	NSV	NA	NSV	
Lead	NA	USEPA 2005 (Eco SSL)	1	1700	1	3500	Mean of LOECs from studies used to derive EcoSSL
Magnesium	NA	NA	NA	NSV	NA	NSV	
Manganese	NA	NA	NA	NSV	NA	NSV	
Mercury	NA	Efroymson et al. 1997b	0.1	0.01	1	0.1	
Molybdenum	NA	NA	NA	NSV	NA	NSV	
Nickel	NA	Efroymson et al. 1997b	0.1	20	1	200	
Nitrate	NA	NA	NA	NSV	NA	NSV	
Perchlorate	NA	EPA 2002	0.01	4.45	0.1	44.4	
pH	NA	NA	NA	NSV	NA	NSV	
Phosphorus	NA	NA	NA	NSV	NA	NSV	
Potassium	NA	NA	NA	NSV	NA	NSV	
Silver	NA	NA	NA	NSV	NA	NSV	
Sodium	NA	NA	NA	NSV	NA	NSV	
Strontium	NA	NA	NA	NSV	NA	NSV	
Sulfate	NA	NA	NA	NSV	NA	NSV	
Thallium	NA	CCME 1999	1	12	1	27	earthworm mortality
Vanadium	NA	NA	NA	NSV	NA	NSV	
Zinc	NA	Efroymson et al. 1997b	0.1	20	1	200	
2,4-Dinitrotoluene	TNT	Robidoux et al. 2002	1	32.8	1	58.8	
2-Butanone	NA	NA	NA	NSV	NA	NSV	
2-Methylnaphthalene	Fluorene	Efroymson et al. 1997b	0.1	3	1	30	
Acenaphthene	NA	Sverdrup et al. 2002	0.1	3.1	0.1	10.7	NOEC=reprod EC10; LOEC=LC50 for collembola
Acetone	NA	NA	NA	NSV	NA	NSV	
Anthracene	NA	Sverdrup et al. 2002	0.1	0.5	0.1	6.7	NOEC=reprod EC10; LOEC=LC50 for collembola
Benzene	NA	CCME 1999	0.01	1.61	0.1	16.1	
bis(2-Ethylhexyl)phthalate	Dimethylphthalate	Efroymson et al. 1997b	0.1	20	1	200	
Dibenzofuran	NA	Sverdrup et al. 2001	0.1	1.4	0.1	2.3	LOEC=reprod EC50 for collembola
Fluoranthene	NA	Sverdrup et al. 2001	0.1	4.7	0.1	5.1	LOEC=reprod EC50 for collembola
Fluorene	NA	Sverdrup et al. 2002	0.1	0.77	0.1	3.9	NOEC=reprod EC10; LOEC=LC50 for collembola
HMX	NA	Robidoux et al. 2002	0.1	1.56	1	15.6	
Naphthalene	NA	Sverdrup et al. 2002	0.1	2	0.1	16.7	NOEC=reprod EC10; LOEC=LC50 for collembola
Nitroguanidine	NA	NA	NA	NSV	NA	NSV	
o-Xylene	xylenes	CCME 1999	0.01	0.56	0.1	5.6	based on LC25
Phenanthrene	NA	Sverdrup et al. 2001	0.1	2.1	0.1	3	LOEC=reprod EC50 for collembola
Picric acid	NA	NA	NA	NSV	NA	NSV	

Table 11

Ecological Screening Benchmarks for Invertebrates Exposed to Soil
Attachment 10A - Thermal Treatment Unit, Ecological Risk Assessment

Analyte	Surrogate	Reference	Uncertainty Factor (for normalized NOEC)[a]	Normalized NOEC (mg/kg)[b]	Uncertainty Factor (for normalized LOEC)[c]	Normalized LOEC (mg/kg)[d]	Notes
Styrene	xylenes	CCME 1999	0.01	0.56	0.1	5.6	interim remediation criterion = 56 mg/kg
Toluene	NA	CCME 1999	0.01	0.44	0.1	4.4	based on LC25
TPH	NA	Efroymson et al. 2004	1	700	1	2400	lowest NOEC/LOEC for No.2 fuel oil range TPH
Carbon disulfide	NA	NA	NA	NSV	NA	NSV	
Selenium	NA	Efroymson et al. 1997b	0.1	7	1	70	
1,1,1,2-Tetrachloroethane	1,2,3-Trichlorobenzene	Efroymson et al. 1997b	0.1	2	1	20	
1,1,1-Trichloroethane	1,2,3-Trichlorobenzene	Efroymson et al. 1997b	0.1	2	1	20	
1,1,2,2-Tetrachloroethane	1,2,3-Trichlorobenzene	Efroymson et al. 1997b	0.1	2	1	20	
1,1,2-Trichloroethane	1,2,3-Trichlorobenzene	Efroymson et al. 1997b	0.1	2	1	20	
1,1-Dichloroethane	1,2,3-Trichlorobenzene	Efroymson et al. 1997b	0.1	2	1	20	
1,1-Dichloroethene	1,2,3-Trichlorobenzene	Efroymson et al. 1997b	0.1	2	1	20	
1,2,3-Trichlorobenzene	NA	Efroymson et al. 1997b	0.1	2	1	20	
1,2,3-Trichloropropane	1,2-Dichloropropane	Efroymson et al. 1997b	0.1	70	1	700	
1,2,4-Trichlorobenzene	NA	Efroymson et al. 1997b	0.1	2	1	20	
1,2-Dibromo-3-chloropropane	NA	NA	NA	NSV	NA	NSV	
1,2-Dichlorobenzene	1,2,3-Trichlorobenzene	Efroymson et al. 1997b	0.1	2	1	20	
1,2-Dichloroethane	1,2-Dichloropropane	Efroymson et al. 1997b	0.1	70	1	700	
1,2-Dichloropropane	NA	Efroymson et al. 1997b	0.1	70	1	700	
1,2-Ethylene Dibromide	NA	NA	NA	NSV	NA	NSV	
1,3,5-Trinitrobenzene	TNT	Robidoux et al. 2002	1	32.8	1	58.8	
1,3-Dichlorobenzene	1,2,3-Trichlorobenzene	Efroymson et al. 1997b	0.1	2	1	20	
1,3-Dinitrobenzene	TNT	Robidoux et al. 2002	1	32.8	1	58.8	
1,4-Dichlorobenzene	NA	Efroymson et al. 1997b	0.1	2	1	20	
2,4,5-Trichlorophenol	NA	Efroymson et al. 1997b	0.1	0.9	1	9	
2,4,6-Trichlorophenol	NA	Efroymson et al. 1997b	0.1	1	1	10	
2,4,6-Trinitrotoluene (TNT)	NA	Robidoux et al. 2002	1	32.8	1	58.8	
2,4-Dichlorophenol	3-Chlorophenol	Efroymson et al. 1997b	0.1	1	1	10	
2,4-Dimethylphenol	NA	NA	NA	NSV	NA	NSV	
2,4-Dinitrophenol	4-Nitrophenol	Efroymson et al. 1997b	0.1	0.7	1	7	
2,6-Dinitrotoluene	TNT	Robidoux et al. 2002	1	32.8	1	58.8	
2-Amino-4,6-Dinitrotoluene	TNT	Robidoux et al. 2002	1	32.8	1	58.8	
2-ChloroethylVinylEther	NA	NA	NA	NSV	NA	NSV	
2-Chloronaphthalene	NA	NA	NA	NSV	NA	NSV	
2-Chlorophenol	3-Chlorophenol	Efroymson et al. 1997b	0.1	1	1	10	
2-Hexanone	NA	NA	NA	NSV	NA	NSV	
2-Methylphenol	NA	NA	NA	NSV	NA	NSV	
2-Nitroaniline	NA	NA	NA	NSV	NA	NSV	
2-Nitrophenol	4-Nitrophenol	Efroymson et al. 1997b	0.1	0.7	1	7	
2-Nitrotoluene	TNT	Robidoux et al. 2002	1	32.8	1	58.8	
3,3-Dichlorobenzidine	NA	NA	NA	NSV	NA	NSV	
3-Nitroaniline	NA	NA	NA	NSV	NA	NSV	
3-Nitrotoluene	TNT	Robidoux et al. 2002	1	32.8	1	58.8	
4,6-Dinitro-2-methylphenol	NA	NA	NA	NSV	NA	NSV	
4-Bromophenylphenylether	NA	NA	NA	NSV	NA	NSV	
4-Chloro-3-methylphenol	NA	NA	NA	NSV	NA	NSV	
4-Chloroaniline	3-Chloroaniline	Efroymson et al. 1997b	0.1	3	1	30	
4-Chlorophenylphenylether	NA	NA	NA	NSV	NA	NSV	

Table 11
Ecological Screening Benchmarks for Invertebrates Exposed to Soil
Attachment 10A - Thermal Treatment Unit, Ecological Risk Assessment

Analyte	Surrogate	Reference	Uncertainty Factor (for normalized NOEC)[a]	Normalized NOEC (mg/kg)[b]	Uncertainty Factor (for normalized LOEC)[c]	Normalized LOEC (mg/kg)[d]	Notes
4-Methyl-2-pentanone	NA	NA	NA	NSV	NA	NSV	
4-Methylphenol	NA	NA	NA	NSV	NA	NSV	
4-Nitroaniline	NA	NA	NA	NSV	NA	NSV	
4-Nitrophenol	NA	Efroymson et al. 1997b	0.1	0.7	1	7	
4-Nitrotoluene	TNT	Robidoux et al. 2002	1	32.8	1	58.8	
Acenaphthylene	NA	Sverdrup et al. 2002	0.1	2.3	0.1	14.5	NOEC=reprod EC10; LOEC=LC50 for collembola
Benzo(a)anthracene	NA	Sverdrup et al. 2002	1	980	NA	NSV	
Benzo(a)pyrene	NA	Sverdrup et al. 2002	1	840	NA	NSV	
Benzo(b)fluoranthene	NA	Sverdrup et al. 2002	1	360	NA	NSV	
Benzo(g,h,i)perylene	Benzo(b)fluoranthene	Sverdrup et al. 2002	1	360	NA	NSV	
Benzo(k)fluoranthene	NA	Sverdrup et al. 2002	1	560	NA	NSV	
Benzoic acid	NA	NA	NA	NSV	NA	NSV	
Benzylalcohol	NA	NA	NA	NSV	NA	NSV	
bis(2-chloroethoxy)methane	NA	NA	NA	NSV	NA	NSV	
bis(2-chloroethyl)ether	NA	NA	NA	NSV	NA	NSV	
bis(2-chloroisopropyl)ether	NA	NA	NA	NSV	NA	NSV	
Bromodichloromethane	NA	NA	NA	NSV	NA	NSV	
Bromoform	NA	NA	NA	NSV	NA	NSV	
Bromomethane	NA	NA	NA	NSV	NA	NSV	
Butyl benzylphthalate	Dimethylphthalate	Efroymson et al. 1997b	0.1	20	1	200	
Carbon tetrachloride	NA	NA	NA	NSV	NA	NSV	
Chlorobenzene	NA	Efroymson et al. 1997b	0.1	4	1	40	
Chloroethane	Chlorobenzene	Efroymson et al. 1997b	0.1	4	1	40	
Chloroform	Chlorobenzene	Efroymson et al. 1997b	0.1	4	1	40	
Chloromethane	Chlorobenzene	Efroymson et al. 1997b	0.1	4	1	40	
Chrysene	NA	Sverdrup et al. 2002	1	1030	NA	NSV	
cis-1,2-Dichloroethene	1,2-Dichloropropane	Efroymson et al. 1997b	0.1	70	1	700	
cis-1,3-Dichloropropene	1,2-Dichloropropane	Efroymson et al. 1997b	0.1	70	1	700	
Dibenzo(a,h)anthracene	NA	Sverdrup et al. 2002	1	780	NA	NSV	
Dibromochloromethane	NA	NA	NA	NSV	NA	NSV	
Dibromomethane	NA	NA	NA	NSV	NA	NSV	
Dichlorodifluoromethane	NA	NA	NA	NSV	NA	NSV	
Diethylphthalate	Dimethylphthalate	Efroymson et al. 1997b	0.1	20	1	200	
Dimethylphthalate	NA	Efroymson et al. 1997b	0.1	20	1	200	
Di-n-butylphthalate	Dimethylphthalate	Efroymson et al. 1997b	0.1	20	1	200	
Di-n-octylphthalate	Dimethylphthalate	Efroymson et al. 1997b	0.1	20	1	200	
Ethylbenzene	NA	CCME 1999	0.01	1.13	0.1	11.3	based on LC25
Hexachlorobenzene	NA	NA	NA	NSV	NA	NSV	
Hexachlorobutadiene	NA	NA	NA	NSV	NA	NSV	
Hexachlorocyclopentadiene	NA	NA	NA	NSV	NA	NSV	
Hexachloroethane	NA	NA	NA	NSV	NA	NSV	
Indeno(1,2,3-c,d)pyrene	NA	Sverdrup et al. 2002	1	910	NA	NSV	
Isophorone	NA	NA	NA	NSV	NA	NSV	
m,p-Xylene	xylenes	CCME 1999	0.01	0.56	0.1	5.6	based on LC25
Methylene chloride	NA	NA	NA	NSV	NA	NSV	
Nitrobenzene	NA	Efroymson et al. 1997b	0.1	4	1	40	
Nitroglycerin	NA	NA	NA	NSV	NA	NSV	

Table 11

Ecological Screening Benchmarks for Invertebrates Exposed to Soil
Attachment 10A - Thermal Treatment Unit, Ecological Risk Assessment

Analyte	Surrogate	Reference	Uncertainty Factor (for normalized NOEC)[a]	Normalized NOEC (mg/kg)[b]	Uncertainty Factor (for normalized LOEC)[c]	Normalized LOEC (mg/kg)[d]	Notes
n-Nitroso-di-n-propylamine	N-Nitrosodiphenylamine	Efroymson et al. 1997b	0.1	2	1	20	
n-Nitrosodiphenylamine	N-Nitrosodiphenylamine	Efroymson et al. 1997b	0.1	2	1	20	
Pentachlorophenol	NA	USEPA 2005 (Eco SSL)	1	31	NA	NSV	
PETN	NA	NA	NA	NSV	NA	NSV	
Phenol	NA	Efroymson et al. 1997b	0.1	3	1	30	
Pyrene	NA	Sverdrup et al. 2001	0.1	1.3	0.1	1.6	LOEC=reprod EC50 for collembola
RDX	NA	Robidoux et al. 2002	1	27.4	1	46.7	
Trichloroethylene (TCE)	NA	NA	NA	NSV	NA	NSV	
tert-ButylMethylEther	NA	NA	NA	NSV	NA	NSV	
Tetrachloroethene	NA	NA	NA	NSV	NA	NSV	
Tetryl	NA	NA	NA	NSV	NA	NSV	
Trans-1,2-Dichloroethene	1,2-Dichloropropane	Efroymson et al. 1997b	0.1	70	1	700	
Trans-1,3-Dichloropropene	1,2-Dichloropropane	Efroymson et al. 1997b	0.1	70	1	700	
Trichlorofluoromethane	NA	NA	NA	NSV	NA	NSV	
Vinyl Acetate	NA	NA	NA	NSV	NA	NSV	
Vinyl chloride	NA	NA	NA	NSV	NA	NSV	

Notes:

NA - not applicable

NSV - no screening value available

mg/kg = milligrams per kilogram

NOEC = No-observed-effect-concentration.

LOEC = Lowest-observed-effect-concentration.

a Uncertainty factors were used to adjust all measured effect concentrations to chronic NOECs as follows:
- LOEC to NOEC = 0.1
- Subchronic to chronic = 0.1
- EC50 to chronic = 0.01
- Acute to chronic = 0.01

b Normalized NOEC was calculated by multiplying the effect concentration by the uncertainty factor.

c Uncertainty factors were used to adjust all measured effect concentrations to chronic LOECs as follows:
- Subchronic to chronic = 0.1
- EC50 to chronic = 0.1
- Acute to chronic = 0.1

d Normalized LOEC was calculated by multiplying the effect concentration by the uncertainty factor.

Table 12

Toxicity Reference Values Considered for Mammalian Wildlife Receptors

Attachment 10A - Thermal Treatment Unit, Ecological Risk Assessment

Analyte	Surrogate	Reference	Normalized NOAEL TRV1,3 (mg/kgbw-d)	Normalized LOAEL TRV1,3 (mg/kgbw-d)	Notes
Aluminum	NA	Ondreicka et al. 1966	1.93	19.3	from Sample et al. 1996
Antimony	NA	USEPA 2003 (Eco SSL)	0.059	0.64	LOAEL from Poon et al., 1998 in EcoSSL
Arsenic	NA	Nemec et al. 1998	0.396	1.58	
Barium	NA	NTP 1994	45	75	
Beryllium	NA	USEPA 2003 (Eco SSL)	0.532	NSV	
Cadmium	NA	USEPA 2003 (Eco SSL)	0.77	1.42	LOAEL from Webster (1978) in EcoSSL
Calcium	NA	NA	NSV	NSV	
Chloride	NA	NA	NSV	NSV	
Chromium	NA	Mackenzie et al. 1958/Steven et al. 1976	3.28	13.14	from Sample et al. 1996
Copper	NA	Aulerich et al. 1982	11.7	15.14	from Sample et al. 1996
Cobalt	NA	Paternain et al. 1988	1.135	11.35	
Iron	NA	NA	NSV	NSV	
Lead	NA	Kimmel et al. 1980	0.92	4.7	
Manganese	NA	Laskey et al. 1982	88	284	from Sample et al. 1996
Magnesium	NA	NA	NSV	NSV	
Mercury	NA	Verschuuren et al. 1976	0.032	0.16	from Sample et al. 1996
Nickel	NA	Ambrose et al. 1976	40	80	from Sample et al. 1996
Molybdenum	NA	Schroeder and Mitchener 1971	0.26	2.6	from Sample et al. 1996
Nitrate	NA	Sleight and Atallah 1968	507	1130	from Sample et al. 1996
Perchlorate	NA	EPA 2002	2.59	25.9	
Phosphorus	NA	NA	NSV	NSV	
Potassium	NA	NA	NSV	NSV	
Silver	NA	Rungby and Dacsher 1984	2.38	23.8	
Sulfate	NA	NA	NSV	NSV	
Thallium	NA	Formigli et al. 1986	0.0074	0.074	from Sample et al. 1996
Sodium	NA	NA	NSV	NSV	
Strontium	NA	Skoryna 1981	263	NSV	from Sample et al. 1996
Zinc	NA	Schlicker and Cox 1968	160	320	from Sample et al. 1996
2,4-Dinitrotoluene	TNT	Johnson et al. 2000	2	8	
Vanadium	NA	Domingo et al. 1986	0.21	2.1	from Sample et al. 1996
2-Butanone	acetone	EPA 1986c	10	50	from Sample et al. 1996
2-Methylnaphthalene	NA	Murata et al. 1997	5.03	50.3	
Acenaphthene	NA	USEPA 2001	175	350	
Acetone	NA	EPA 1986c	10	50	from Sample et al. 1996
Anthracene	NA	USEPA 2001	1000	NSV	
Benzene	NA	Wolf et al. 1956	0.7	7	
bis(2-ethylhexyl)phthalate	NA	Lamb et al. 1987	18.3	183	from Sample et al. 1996
Dibenzofuran	NA	NA	NSV	NSV	
Fluoranthene	NA	USEPA 2001	125	250	
Fluorene	NA	USEPA 2001	125	250	

Table 12

Toxicity Reference Values Considered for Mammalian Wildlife Receptors

Attachment 10A - Thermal Treatment Unit, Ecological Risk Assessment

Analyte	Surrogate	Reference	Normalized NOAEL TRV1,3 (mg/kgbw-d)	Normalized LOAEL TRV1,3 (mg/kgbw-d)	Notes
HMX	NA	Holdsworth et al. 2001a	1	5	
Naphthalene	NA	Navarro et al. 1991	50	150	
Nitroguanidine	NA	NA	NSV	NSV	
o-Xylene	xylenes	USEPA 2001	179	357	
Phenanthrene	Acenaphthene	USEPA 2001	175	350	
Picric acid	NA	NA	NSV	NSV	
Styrene	NA	NA	NSV	NSV	
Toluene	NA	Gospe et al. 1994	52	520	
TPH	NA	Cooper and Mattie 1996	1000	15000	
Carbon disulfide	NA	NA	NSV	NSV	
Selenium	NA	Rosenfeld and Beath 1954	0.2	0.33	from Sample et al. 1996
1,1,1,2-Tetrachloroethane	Tetrachloroethene	Buben and O'Flaherty 1985	1.4	7	from Sample et al. 1996
1,1,1-Trichloroethane	NA	Lane et al. 1982	1000	NSV	from Sample et al. 1996
1,1,2,2-Tetrachloroethane	Tetrachloroethene	Buben and O'Flaherty 1985	1.4	7	from Sample et al. 1996
1,1,2-Trichloroethane	1,1,1-Trichloroethane	Lane et al. 1982	1000	NSV	from Sample et al. 1996
1,1-Dichloroethane	1,2-Dichloroethane	Lane et al. 1982	50	NSV	from Sample et al. 1996
1,1-Dichloroethene	1,1-Dichloroethylene	Quast et al. 1983	2.5	NSV	from Sample et al. 1996
1,2,3-Trichlorobenzene	NA	NA	NSV	NSV	
1,2,3-Trichloropropane	1,1,1-Trichloroethane	Lane et al. 1982	1000	NSV	from Sample et al. 1996
1,2,4-Trichlorobenzene	NA	NA	NSV	NSV	
1,2-Dibromo-3-chloropropane	NA	NA	NSV	NSV	
1,2-Dichlorobenzene	NA	NA	NSV	NSV	
1,2-Dichloroethane	NA	Lane et al. 1982	50	NSV	from Sample et al. 1996
1,2-Dichloropropane	1,2-Dichloroethane	Lane et al. 1982	50	NSV	from Sample et al. 1996
1,2-Ethylene Dibromide	NA	NA	NSV	NSV	
1,3,5-Trinitrobenzene	NA	Holdsworth et al. 2001b	2.68	13.31	
1,3-Dichlorobenzene	NA	NA	NSV	NSV	
1,3-Dinitrobenzene	NA	Holdsworth et al. 2001c	0.04	0.2	
1,4-Dichlorobenzene	NA	NA	NSV	NSV	
2,4,5-Trichlorophenol	pentachlorophenol	Schwetz et al. 1978	0.24	2.4	from Sample et al. 1996
2,4,6-Trichlorophenol	pentachlorophenol	Schwetz et al. 1978	0.24	2.4	from Sample et al. 1996
2,4,6-Trinitrotoluene (TNT)	NA	Johnson et al. 2000	2	8	
2,4-Dichlorophenol	pentachlorophenol	Schwetz et al. 1978	0.24	2.4	from Sample et al. 1996
2,4-Dimethylphenol	NA	NA	NSV	NSV	
2,4-Dinitrophenol	NA	NA	NSV	NSV	
2,6-Dinitrotoluene	TNT	Johnson et al. 2000	2	8	
2-Amino-4,6-Dinitrotoluene	NA	Holdsworth et al. 2001d	9	48	
2-ChloroethylVinylEther	NA	NA	NSV	NSV	
2-Chloronaphthalene	NA	NA	NSV	NSV	
2-Chlorophenol	NA	NA	NSV	NSV	

Table 12

Toxicity Reference Values Considered for Mammalian Wildlife Receptors

Attachment 10A - Thermal Treatment Unit, Ecological Risk Assessment

Analyte	Surrogate	Reference	Normalized NOAEL TRV1,3 (mg/kgbw-d)	Normalized LOAEL TRV1,3 (mg/kgbw-d)	Notes
2-Hexanone	acetone	EPA 1986c	10	50	from Sample et al. 1996
2-Methylphenol	NA	Hornshaw et al. 1986	340	NSV	from Sample et al. 1996
2-Nitroaniline	NA	NA	NSV	NSV	
2-Nitrophenol	NA	NA	NSV	NSV	
2-Nitrotoluene	TNT	Johnson et al. 2000	2	8	
3,3-Dichlorobenzidine	NA	NA	NSV	NSV	
3-Nitroaniline	NA	NA	NSV	NSV	
3-Nitrotoluene	TNT	Johnson et al. 2000	2	8	
4,6-Dinitro-2-methylphenol	NA	NA	NSV	NSV	
4-Bromophenylphenylether	NA	NA	NSV	NSV	
4-Chloro-3-methylphenol	NA	NA	NSV	NSV	
4-Chloroaniline	NA	NA	NSV	NSV	
4-Chlorophenylphenylether	NA	NA	NSV	NSV	
4-Methyl-2-pentanone	NA	Microbiological Assoc. 1986	25	NSV	from Sample et al. 1996
4-Methylphenol	2-Methylphenol	Hornshaw et al. 1986	340	NSV	updated from Sample et al. 1996
4-Nitroaniline	NA	NA	NSV	NSV	
4-Nitrophenol	NA	NA	NSV	NSV	
4-Nitrotoluene	TNT	Johnson et al. 2000	2	8	
Acenaphthylene	Acenaphthene	USEPA 2001	175	350	
Benzo(a)anthracene	Benzo(a)pyrene	Mackenzie and Angevine 1981	1	10	from Sample et al. 1996
Benzo(a)pyrene	NA	Mackenzie and Angevine 1981	1	10	from Sample et al. 1996
Benzo(b)fluoranthene	Benzo(a)pyrene	Mackenzie and Angevine 1981	1	10	from Sample et al. 1996
Benzo(g,h,i)perylene	Benzo(a)pyrene	Mackenzie and Angevine 1981	1	10	from Sample et al. 1996
Benzo(k)fluoranthene	Benzo(a)pyrene	Mackenzie and Angevine 1981	1	10	from Sample et al. 1996
Benzoic acid	NA	NA	NSV	NSV	
Benzylalcohol	NA	NA	NSV	NSV	
Bis(2-chloroethoxy)methane	NA	NA	NSV	NSV	
bis(2-chloroethyl)ether	NA	NA	NSV	NSV	
bis(2-chloroisopropyl)ether	NA	NA	NSV	NSV	
Bromodichloromethane	NA	NA	NSV	NSV	
Bromoform	Chloroform	Palmer et al. 1979	15	41	from Sample et al. 1996
Bromomethane	Chloroform	Palmer et al. 1979	15	41	from Sample et al. 1996
Butyl benzylphthalate	Di-n-butylphthalate	Lamb et al. 1987	550	1833	from Sample et al. 1996
Carbon tetrachloride	NA	Alumot et al. 1976a	16	NSV	from Sample et al. 1996

Table 12

Toxicity Reference Values Considered for Mammalian Wildlife Receptors

Attachment 10A - Thermal Treatment Unit, Ecological Risk Assessment

Analyte	Surrogate	Reference	Normalized NOAEL TRV1,3 (mg/kgbw-d)	Normalized LOAEL TRV1,3 (mg/kgbw-d)	Notes
Chlorobenzene	Chloroform	Palmer et al. 1979	15	41	from Sample et al. 1996
Chloroethane	Chloroform	Palmer et al. 1979	15	41	from Sample et al. 1996
Chloroform	NA	Palmer et al. 1979	15	41	from Sample et al. 1996
Chloromethane	Chloroform	Palmer et al. 1979	15	41	from Sample et al. 1996
Chrysene	Benzo(a)pyrene	Mackenzie and Angevine 1981	1	10	from Sample et al. 1996
cis-1,2-Dichloroethene	NA	Barnes et al. 1985	45.2	NSV	from Sample et al. 1996
cis-1,3-Dichloropropene	cis-1,2-Dichloroethene	Barnes et al. 1985	45.2	NSV	from Sample et al. 1996
Dibenzo(a,h)anthracene	Benzo(a)pyrene	Mackenzie and Angevine 1981	1	10	from Sample et al. 1996
Dibromochloromethane	NA	NA	NSV	NSV	
Dibromomethane	NA	NA	NSV	NSV	
Dichlorodifluoromethane	NA	NA	NSV	NSV	
Diethylphthalate	NA	Lamb et al. 1987	4583	NSV	from Sample et al. 1996
Dimethylphthalate	Di-n-butylphthalate	Lamb et al. 1987	550	1833	from Sample et al. 1996
Di-n-butylphthalate	NA	Lamb et al. 1987	550	1833	from Sample et al. 1996
Di-n-octylphthalate	Di-n-butylphthalate	Lamb et al. 1987	550	1833	from Sample et al. 1996
Ethylbenzene	NA	Wolf et al. 1956	97	291	
Hexachlorobenzene	NA	Grant et al. 1977	1.6	3.2	from Sample et al. 1996
Hexachlorobutadiene	Hexachlorobenzene	Grant et al. 1977	1.6	3.2	from Sample et al. 1996
Hexachlorocyclopentadiene	Hexachlorobenzene	Grant et al. 1977	1.6	3.2	from Sample et al. 1996
Hexachloroethane	Hexachlorobenzene	Grant et al. 1977	1.6	3.2	from Sample et al. 1996
Indeno(1,2,3-c,d)pyrene	Benzo(a)pyrene	Mackenzie and Angevine 1981	1	10	from Sample et al. 1996
Isophorone	NA	NA	NSV	NSV	
m,p-Xylene	xylenes	USEPA 2001	179	357	
Methylene chloride	NA	NCA 1982	5.85	50	from Sample et al. 1996
Nitrobenzene	NA	NA	NSV	NSV	
Nitroglycerin	NA	Midgely et al. 2001	3	32	
n-Nitroso-di-n-propylamine	NA	NA	NSV	NSV	
n-Nitrosodiphenylamine	NA	NA	NSV	NSV	
Pentachlorophenol	NA	Schwetz et al. 1978	0.24	2.4	from Sample et al. 1996
PETN	NA	Holdsworth et al. 2001e	170	1700	
Phenol	NA	Bishop et al. 1997	17.1	NSV	
Pyrene	NA	USEPA 2001	75	125	
RDX	NA	Talmage et al. 1999	2	20	
Trichloroethylene (TCE)	NA	Buben and O'Flaherty 1985	0.7	7	from Sample et al. 1996
tert-ButylMethylEther	NA	NA	NSV	NSV	
Tetrachloroethene	NA	Buben and O'Flaherty 1985	1.4	7	from Sample et al. 1996
Tetryl	NA	Talmage et al. 1999	1.3	6.2	
Trans-1,2-Dichloroethene	cis-1,2-Dichloroethene	Barnes et al. 1985	45.2	NSV	from Sample et al. 1996
Trans-1,3-Dichloropropene	cis-1,2-Dichloroethene	Barnes et al. 1985	45.2	NSV	from Sample et al. 1996
Trichlorofluoromethane	NA	NA	NSV	NSV	

Table 12

Toxicity Reference Values Considered for Mammalian Wildlife Receptors

Attachment 10A - Thermal Treatment Unit, Ecological Risk Assessment

Analyte	Surrogate	Reference	Normalized NOAEL TRV1,3 (mg/kgbw-d)	Normalized LOAEL TRV1,3 (mg/kgbw-d)	Notes
Vinyl Acetate	NA	NA	NSV	NSV	
Vinyl chloride	NA	Feron et al. 1981	0.17	1.7	from Sample et al. 1996

Notes:

NA - not applicable

NSV - no screening value available

NOAEL = no observed adverse effect level

LOAEL = lowest observed adverse effect level

1) Selections of TRVs and application of Uncertainty Factors was performed in accordance with USEPA (1997) as described in footnotes 3 and 4

2) > denotes selected NOAEL endpoint study; + denotes selected LOAEL endpoint study; >+ denotes both NOAEL and LOAEL were selected from the same study.

3) the following preferences were used when selecting studies:

NOAEL endpoints were given preference over LOAEL endpoints when both were available. Studies with LD50s as endpoints were only selected when studies for sublethal effects were r

Chronic studies were selected over subchronic studies and subchronic studies were selected over acute studies when multiple studies of varying duration were available for selection.

Studies with reproduction as the endpoint were selected before studies with mortality as the endpoint which were selected before studies with growth as the endpoint which were selected

Studies with the most complete information and therefore the least resulting uncertainty were given preference in study selection.

Studies from surrogate chemicals were only selected when no other study for a particular COPEC was found.

4) Uncertainty factors were used to adjust all measured effect concentrations to chronic NOAELS and chronic LOAELs as follows:

NOAEL to LOAEL = 0.1

Subchronic to Chronic = 0.1

LD50 to chronic = 0.01

subacute to chronic = 0.01

acute to chronic = 0.01

where:

chronic = >12 weeks or during critical lifestage

subchronic = 4-12 weeks

subacute = <4 weeks, multiple doses

acute = only one dose

5) the weight of the black-tailed jackrabbit was used for the rabbit study for phosphorus

6) The weight of the beagle dog is from the lower range from the following web site http://www.dogbiz.com/dogs-grp2/beagle/beagle.htm

7) The TRV for naphthalene was used for phenanthrene because the naphthalene study included a more appropriate endpoint and study duration. Also, the resulting TRV for phenanthrene
Finally, limted acute and chronic animal toxicity tests with phenanthrene indicate low to moderate toxicity (Sandmeyer, 1981).

8) The study for JP-8 was selected for TPH over other studies because it was the only study of a mixture of compounds versus a single compound.

9) Complete references are available in the references section of the main body of the ERA

Table 13
Toxicity Reference Values Considered for Avian Wildlife Receptors
Attachment 10A - Thermal Treatment Unit, Ecological Risk Assessment

Analyte	Surrogate	Reference	Normalized NOAEL TRV[1,3] (mg/kgbw-d)	Normalized LOAEL TRV[1,3] (mg/kgbw-d)	Notes
Aluminum	$Al2(SO_4)^3$	Carriere et al. 1986	109.7	NSV	From Sample et al. 1996
Antimony	NA	NA	NSV	NSV	
Arsenic	sodium arsenate	Stanley et al. 1994	9.3	40	
Barium	Barium hydroxide	Johnson et al. 1960	20.8	41.7	From Sample et al. 1996
Beryllium	NA	NA	NSV	NSV	
Cadmium	cadmium sulfate	Leach et al. 1979	0.16	0.61	From Sample et al. 1996
Calcium	NA	NA	NSV	NSV	
Chloride	NA	NA	NSV	NSV	
Chromium	CrK(SO4)	Haseltine et al., 1985	1	5	From Sample et al. 1996
Cobalt	NA	USEPA 2003 (Eco SSL)	7.61	NSV	
Copper	NA	Mehring et al. 1960	47	61.7	From Sample et al. 1996
Iron	NA	NA	NSV	NSV	
Lead	NA	Edens and Garlich 1983	0.19	1.78	updated from Sample et al. 1996
Magnesium	NA	NA	NSV	NSV	
Manganese	NA	Laskey and Edens 1985	977	NSV	From Sample et al. 1996
Mercury	NA	Heinz 1976; Heinz and Hoffman 1998	0.068	0.37	From Sample et al. 1996
Molybdenum	NA	Lepore and Miller 1965	3.5	35.3	From Sample et al. 1996
Nickel	NA	Cain and Pafford 1981	17.6	77.4	updated from Sample et al. 1996
Nitrate	NA	NA	NSV	NSV	
Perchlorate	NH4(ClO4)	McNabb et al. 2004	3.26	32.6	
Phosphorus	NA	Sparling et al. 1997	0.037	0.26	
Potassium	NA	NA	NSV	NSV	
Silver	NA	NA	NSV	NSV	
Sodium	NA	NA	NSV	NSV	
Strontium	NA	NA	NSV	NSV	
Sulfate	NA	NA	NSV	NSV	
Thallium	NA	Bean and Hudson 1976	0.6	1.2	
Vanadium	NA	White and Dieter 1978	11.4	NSV	From Sample et al. 1996
Zinc	NA	Stahl et al. 1990	14.5	131	From Sample et al. 1996
2,4-DINITROTOLUENE	TNT	Johnson et al. 2000	0.07	1.8	
2-Butanone	acetone	Hill and Camardese 1986	39.3	393	
2-Methylnaphthalene	naphthalene	Wildlife International 1985	26.9	269	
Acenaphthene	aromatic hydrocarbon	Patton and Dieter 1980	325.2	NSV	
Acetone	NA	Hill and Camardese 1986	39.3	NSV	
Anthracene	aromatic hydrocarbon	Patton and Dieter 1980	325.2	NSV	
Benzene	xylenes	Hill and Camardese 1986	10.2	101.7	
bis(2-ethylhexyl)phthalate	NA	Peakall 1974	1.1	NSV	From Sample et al. 1996
Dibenzofuran	NA	NA	NSV	NSV	

Table 13

Toxicity Reference Values Considered for Avian Wildlife Receptors

Attachment 10A - Thermal Treatment Unit, Ecological Risk Assessment

Analyte	Surrogate	Reference	Normalized NOAEL TRV[1,3] (mg/kgbw-d)	Normalized LOAEL TRV[1,3] (mg/kgbw-d)	Notes
Fluoranthene	aromatic hydrocarbon	Patton and Dieter 1980	325.2	NSV	
Fluorene	aromatic hydrocarbon	Patton and Dieter 1980	325.2	NSV	
HMX	NA	Holdsworth et al. 2001a	9	62.5	
Naphthalene	NA	Wildlife International 1985	26.9	269	
Nitroguanidine	NA	NA	NSV	NSV	
o-Xylene	xylenes	Hill and Camardese 1986	10.2	101.7	
Phenanthrene	aromatic hydrocarbon	Patton and Dieter 1980	325.2	NSV	
Picric acid	NA	NA	NSV	NSV	
Styrene	NA	NA	NSV	NSV	
Toluene	xylenes	Hill and Camardese 1986	10.2	101.7	
TPH	NA	Szaro et al. 1981	500	5000	No. 2 fuel oil
Carbon disulfide	NA	NA	NSV	NSV	
Selenium	NA	Heinz et al. 1987	0.4	0.8	From Sample et al. 1996
1,1,1,2-Tetrachloroethane	1,2-Dichloroethane	Alumot et al. 1976b	17.2	34.4	From Sample et al. 1996
1,1,1-Trichloroethane	1,2-Dichloroethane	Alumot et al. 1976b	17.2	34.4	From Sample et al. 1996
1,1,2,2-Tetrachloroethane	1,2-Dichloroethane	Alumot et al. 1976b	17.2	34.4	From Sample et al. 1996
1,1,2-Trichloroethane	1,2-Dichloroethane	Alumot et al. 1976b	17.2	34.4	From Sample et al. 1996
1,1-Dichloroethane	1,2-Dichloroethane	Alumot et al. 1976b	17.2	34.4	From Sample et al. 1996
1,1-Dichloroethene	1,2-Dichloroethane	Alumot et al. 1976b	17.2	34.4	From Sample et al. 1996
1,2,3-Trichlorobenzene	1,2-Dichloroethane	Alumot et al. 1976b	17.2	34.4	From Sample et al. 1996
1,2,3-Trichloropropane	1,2-Dichloroethane	Alumot et al. 1976b	17.2	34.4	From Sample et al. 1996
1,2,4-Trichlorobenzene	1,2-Dichloroethane	Alumot et al. 1976b	17.2	34.4	From Sample et al. 1996
1,2-Dibromo-3-chloropropane	NA	NA	NSV	NSV	
1,2-Dichlorobenzene	1,2-Dichloroethane	Alumot et al. 1976b	17.2	34.4	From Sample et al. 1996
1,2-Dichloroethane	NA	Alumot et al. 1976b	17.2	34.4	From Sample et al. 1996
1,2-Dichloropropane	1,2-Dichloroethane	Alumot et al. 1976b	17.2	34.4	From Sample et al. 1996
1,2-Ethylene Dibromide	NA	NA	NSV	NSV	
1,3,5-Trinitrobenzene	TNT	Johnson et al. 2000	0.07	1.8	
1,3-Dichlorobenzene	1,2-Dichloroethane	Alumot et al. 1976b	17.2	34.4	From Sample et al. 1996
1,3-Dinitrobenzene	NA	Schafer 1972	0.42	NSV	
1,4-Dichlorobenzene	1,2-Dichloroethane	Alumot et al. 1976b	17.2	34.4	From Sample et al. 1996
2,4,5-Trichlorophenol	pentachlorophenol	Nebeker et al. 1994	16.9	38.4	
2,4,6-Trichlorophenol	pentachlorophenol	Nebeker et al. 1994	16.9	38.4	
2,4,6-Trinitrotoluene (TNT)	NA	Johnson et al. 2000	0.07	1.8	
2,4-Dichlorophenol	pentachlorophenol	Nebeker et al. 1994	16.9	38.4	
2,4-Dimethylphenol	NA	NA	NSV	NSV	
2,4-Dinitrophenol	NA	NA	NSV	NSV	
2,6-Dinitrotoluene	TNT	Johnson et al. 2000	0.07	1.8	

Table 13

Toxicity Reference Values Considered for Avian Wildlife Receptors

Attachment 10A - Thermal Treatment Unit, Ecological Risk Assessment

Analyte	Surrogate	Reference	Normalized NOAEL TRV[1,3] (mg/kgbw-d)	Normalized LOAEL TRV[1,3] (mg/kgbw-d)	Notes
2-Amino-4,6-Dinitrotoluene	TNT	Johnson et al. 2000	0.07	1.8	
2-ChloroethylVinylEther	NA	NA	NSV	NSV	
2-Chloronaphthalene	NA	NA	NSV	NSV	
2-Chlorophenol	pentachlorophenol	Nebeker et al. 1994	16.9	38.4	subchronic values
2-Hexanone	acetone	Hill and Camardese 1986	39.3	393	
2-Methylphenol	NA	NA	NSV	NSV	
2-Nitroaniline	NA	NA	NSV	NSV	
2-Nitrophenol	NA	NA	NSV	NSV	
2-Nitrotoluene	TNT	Johnson et al. 2000	0.07	1.8	
3,3-Dichlorobenzidine	NA	NA	NSV	NSV	
3-Nitroaniline	NA	NA	NSV	NSV	
3-Nitrotoluene	TNT	Johnson et al. 2000	0.07	1.8	
4,6-Dinitro-2-methylphenol	NA	NA	NSV	NSV	
4-Bromophenylphenylether	NA	NA	NSV	NSV	
4-Chloro-3-methylphenol	NA	NA	NSV	NSV	
4-Chloroaniline	NA	NA	NSV	NSV	
4-Chlorophenylphenylether	NA	NA	NSV	NSV	
4-Methyl-2-pentanone	acetone	Hill and Camardese 1986	39.3	393	
4-Methylphenol	NA	NA	NSV	NSV	
4-Nitroaniline	NA	NA	NSV	NSV	
4-Nitrophenol	NA	NA	NSV	NSV	
4-Nitrotoluene	TNT	Johnson et al. 2000	0.07	1.8	
Acenaphthylene	aromatic hydrocarbon	Patton and Dieter 1980	325.2	NSV	
Benzo(a)anthracene	aromatic hydrocarbon	Patton and Dieter 1980	325.2	NSV	
Benzo(a)pyrene	aromatic hydrocarbon	Patton and Dieter 1980	325.2	NSV	
Benzo(b)fluoranthene	aromatic hydrocarbon	Patton and Dieter 1980	325.2	NSV	
Benzo(g,h,i)perylene	aromatic hydrocarbon	Patton and Dieter 1980	325.2	NSV	
Benzo(k)fluoranthene	aromatic hydrocarbon	Patton and Dieter 1980	325.2	NSV	
Benzoic acid	aromatic hydrocarbon	Patton and Dieter 1980	325.2	NSV	
Benzylalcohol	NA	NA	NSV	NSV	
bis(2-chloroethoxy)methane	NA	NA	NSV	NSV	
bis(2-chloroethyl)ether	NA	NA	NSV	NSV	
bis(2-chloroisopropyl)ether	NA	NA	NSV	NSV	
Bromodichloromethane	NA	NA	NSV	NSV	
Bromoform	NA	NA	NSV	NSV	
Bromomethane	NA	NA	NSV	NSV	
Butyl benzylphthalate	Di-n-butylphthalate	Peakall 1974	0.11	11	From Sample et al. 1996
Carbon tetrachloride	NA	NA	NSV	NSV	

Table 13

Toxicity Reference Values Considered for Avian Wildlife Receptors

Attachment 10A - Thermal Treatment Unit, Ecological Risk Assessment

Analyte	Surrogate	Reference	Normalized NOAEL TRV[1,3] (mg/kgbw-d)	Normalized LOAEL TRV[1,3] (mg/kgbw-d)	Notes
Chlorobenzene	1,2-Dichloroethane	Alumot et al. 1976b	17.2	34.4	From Sample et al. 1996
Chloroethane	1,2-Dichloroethane	Alumot et al. 1976b	17.2	34.4	From Sample et al. 1996
Chloroform	NA	NA	NSV	NSV	
Chloromethane	1,2-Dichloroethane	Alumot et al. 1976b	17.2	34.4	From Sample et al. 1996
Chrysene	NA	NA	NSV	NSV	
cis-1,2-Dichloroethene	1,2-Dichloroethane	Alumot et al. 1976b	17.2	34.4	From Sample et al. 1996
cis-1,3-Dichloropropene	1,2-Dichloroethane	Alumot et al. 1976b	17.2	34.4	From Sample et al. 1996
Dibenzo(a,h)anthracene	aromatic hydrocarbon	Patton and Dieter 1980	325.2	NSV	
Dibromochloromethane	1,2-Dichloroethane	Alumot et al. 1976b	17.2	34.4	From Sample et al. 1996
Dibromomethane	1,2-Dichloroethane	Alumot et al. 1976b	17.2	34.4	From Sample et al. 1996
Dichlorodifluoromethane	1,2-Dichloroethane	Alumot et al. 1976b	17.2	34.4	From Sample et al. 1996
Diethylphthalate	Di-n-butylphthalate	Peakall 1974	0.11	11	From Sample et al. 1996
Dimethylphthalate	Di-n-butylphthalate	Peakall 1974	0.11	11	From Sample et al. 1996
Di-n-butylphthalate	NA	Peakall 1974	0.11	11	From Sample et al. 1996
Di-n-octylphthalate	Di-n-butylphthalate	Peakall 1974	0.11	11	From Sample et al. 1996
Ethylbenzene	xylenes	Hill and Camardese 1986	10.2	101.7	
Hexachlorobenzene	NA	Vos et al. 1971	0.56	2.25	From Sample et al. 1996
Hexachlorobutadiene	Hexachlorobenzene	Vos et al. 1971	0.56	2.25	From Sample et al. 1996
Hexachlorocyclopentadiene	Hexachlorobenzene	Vos et al. 1971	0.56	2.25	From Sample et al. 1996
Hexachloroethane	Hexachlorobenzene	Vos et al. 1971	0.56	2.25	From Sample et al. 1996
Indeno(1,2,3-c,d)pyrene	aromatic hydrocarbon	Patton and Dieter 1980	325.2	NSV	
Isophorone	NA	NA	NSV	NSV	
m,p-Xylene	xylenes	Hill and Camardese 1986	10.2	101.7	
Methylene chloride	NA	NA	NSV	NSV	
Nitrobenzene	TNT	Johnson et al. 2000	0.07	1.8	
Nitroglycerin	NA	NA	NSV	NSV	
n-Nitroso-di-n-propylamine	NA	NA	NSV	NSV	
n-Nitrosodiphenylamine	NA	NA	NSV	NSV	
Pentachlorophenol	NA	Nebeker et al. 1994	16.9	38.4	
PETN	NA	NA	NSV	NSV	
Phenol	NA	NA	NSV	NSV	
Pyrene	NA	NA	NSV	NSV	
RDX	TNT	Johnson et al. 2000	0.07	1.8	
Trichloroethylene (TCE)	NA	NA	NSV	NSV	
tert-ButylMethylEther	NA	NA	NSV	NSV	
Tetrachloroethene	1,2-Dichloroethane	Alumot et al. 1976b	17.2	34.4	From Sample et al. 1996
Tetryl	NA	NA	NSV	NSV	
Trans-1,2-Dichloroethene	1,2-Dichloroethane	Alumot et al. 1976b	17.2	34.4	From Sample et al. 1996

Table 13

Toxicity Reference Values Considered for Avian Wildlife Receptors

Attachment 10A - Thermal Treatment Unit, Ecological Risk Assessment

Analyte	Surrogate	Reference	Normalized NOAEL TRV[1,3] (mg/kgbw-d)	Normalized LOAEL TRV[1,3] (mg/kgbw-d)	Notes
Trans-1,3-Dichloropropene	1,2-Dichloroethane	Alumot et al. 1976b	17.2	34.4	From Sample et al. 1996
Trichlorofluoromethane	NA	NA	NSV	NSV	
Vinyl acetate	NA	NA	NSV	NSV	
Vinyl chloride	NA	NA	NSV	NSV	

Notes:

NA - not applicable

NSV - no screening value available

NOAEL = no observed adverse effect level

LOAEL = lowest observed adverse effect level

1) Selections of TRVs and application of Uncertainty Factors was performed in accordance with USEPA, (1997) as described in footnotes 3 and 4.

2) > denotes selected NOAEL endpoint study; + denotes selected LOAEL endpoint study; >+ denotes both NOAEL and LOAEL were selected from the same study.

3) The following preferences were used when selecting studies:

NOAEL endpoints were given preference over LOAEL endpoints when both were available. Studies with LD50s as endpoints were only selected when studies for sublethal effects were not available

Chronic studies were selected over subchronic studies and subchronic studies were selected over acute studies when multiple studies of varying duration were available for selection.

Studies with reproduction as the endpoint were selected before studies with mortality as the endpoint which were selected before studies with growth as the endpoint which were selected before studi

Studies with the most complete information and therefore the least resulting uncertainty were given preference in study selection.

Studies from surrogate chemicals were only selected when no other study for a particular COPEC was found.

4) Uncertainty factors were used to adjust all measured effect concentrations to chronic NOAELS and chronic LOAELs as follows:

NOAEL to LOAEL = 0.1

Subchronic to Chronic = 0.1

LD50 to chronic = 0.01

subacute to chronic = 0.01

acute to chronic = 0.01

Where:

chronic = >10 weeks or during critical lifestage

subchronic = 4-10 weeks

subacute = <4 weeks, multiple doses

acute = only one dose

5) The weight of the red-winged blackbird from the Stickel et al., (1983) was used for the weight for starling in Shafer (1972) Thallium study

6) The TRV for arsenic was selected for the study that used the sodium arsenate form because that form of arsenic is more likely to be found in nature.

7) The study on aromatic hydrocarbon mixtures was selcted for all PAHs because using a mixture of these chemicals is more appropriate than using the value for just naphthalene.

Table 14

Direct Toxicity Screening for Plants Exposed to Soil Using Maximum Detected Concentrations

Attachment 10A - Thermal Treatment Unit, Ecological Risk Assessment

Analyte	Soil NOEC Screening Value (mg/kg)	EPC[1] (mg/kg)	DF	NOEC HQ[2]	Screening Conclusion
1,3,5-Trinitrobenzene	5.00	0.105	0%	0.021	Pass
1,3-Dinitrobenzene	5.00	0.08	0%	0.016	Pass
2,4,6-Trinitrotoluene (TNT)	5.00	1.5	0%	0.30	Pass
2,4-Dinitrophenol	2.00	50	0%	**25**	**Retain**
2,4-Dinitrotoluene	5.00	2	2%	0.40	Pass
2,6-Dinitrotoluene	5.00	10.5	0%	**2.1**	**Retain**
2-Amino-4,6-Dinitrotoluene	80.00	1.5	0%	0.019	Pass
2-Nitroaniline	NSV	50	0%	**NA**	Uncertain
2-Nitrophenol	2.00	10.5	0%	**5.2**	**Retain**
2-Nitrotoluene	5.00	0.14	0%	0.028	Pass
3-Nitroaniline	NSV	50	0%	**NA**	Uncertain
3-Nitrotoluene	5.00	0.15	0%	0.030	Pass
4,6-Dinitro-2-methylphenol	NSV	50	0%	**NA**	Uncertain
4-Nitroaniline	NSV	50	0%	**NA**	Uncertain
4-Nitrophenol	2.00	50	0%	**25**	**Retain**
4-Nitrotoluene	5.00	0.19	0%	0.038	Pass
HMX	4500	25	31%	0.0056	Pass
Nitrobenzene	5.00	10.5	0%	**2.1**	**Retain**
Nitroglycerin	NSV	0.34	0%	**NA**	Uncertain
Nitroguanidine	NSV	0.3	5%	**NA**	Uncertain
PETN	NSV	0.5	0%	**NA**	Uncertain
Picric acid	NSV	0.5	7%	**NA**	Uncertain
RDX	50.00	1.5	0%	0.030	Pass
Tetryl	2.50	0.23	0%	0.092	Pass
HI - Energetics				0.41	Pass
Aluminum	5.00	54000	100%	**11000**	**Retain**
Antimony	0.50	166.93	79%	**330.00**	**Retain**
Arsenic	18.00	41.3	58%	**2.3**	**Retain**
Barium	50.00	640	100%	**13.00**	**Retain**
Beryllium	1.00	0.72	48%	0.72	Pass
Cadmium	32.00	32	44%	**1.0**	**Retain**
Carbon disulfide	NSV	0.0011	5%	**NA**	Uncertain
Chromium	0.10	55.3	100%	**550**	**Retain**
Cobalt	13.00	4.9	79%	0.38	Pass
Copper	10.00	18000	85%	**1800**	**Retain**
Iron	NSV	15000	100%	**NA**	Uncertain
Lead	110.00	48000	83%	**440**	**Retain**
Magnesium	NSV	24300	100%	**NA**	Uncertain
Manganese	50.00	519	100%	**10.00**	**Retain**
Mercury	0.03	0.07	27%	**2.3**	**Retain**
Molybdenum	0.20	17	91%	**85**	**Retain**
Nickel	3.00	41.3	100%	**14**	**Retain**
Nitrate	NSV	22.8	92%	**NA**	Uncertain
Perchlorate	20.00	4.5	50%	0.22	Pass
Phosphorus	NSV	990	100%	**NA**	Uncertain

Table 14

Direct Toxicity Screening for Plants Exposed to Soil Using Maximum Detected Concentrations

Attachment 10A - Thermal Treatment Unit, Ecological Risk Assessment

Analyte	Soil NOEC Screening Value (mg/kg)	EPC[1] (mg/kg)	DF	NOEC HQ[2]	Screening Conclusion
Selenium	0.10	5	0%	**50**	**Retain**
Silver	0.20	4	8%	**20**	**Retain**
Strontium	NSV	484	100%	**NA**	Uncertain
Thallium	0.10	0.55	54%	**5.5**	**Retain**
Vanadium	0.20	25.7	100%	**130**	**Retain**
Zinc	5.00	2300	100%	**460**	**Retain**
HI - Inorganics				**15000**	**Retain**
2-Methylnaphthalene	0.30	170	14%	**570**	**Retain**
Acenaphthene	2.00	0.04185	0%	0.021	Pass
Acenaphthylene	1.20	10.5	0%	**8.8**	**Retain**
Anthracene	1.20	3.7	7%	**3.1**	**Retain**
Benzo(a)anthracene	1.20	10.5	0%	**8.8**	**Retain**
Benzo(a)pyrene	1.20	10.5	0%	**8.8**	**Retain**
Benzo(b)fluoranthene	1.20	10.5	0%	**8.8**	**Retain**
Benzo(g,h,i)perylene	1.20	10.5	0%	**8.8**	**Retain**
Benzo(k)fluoranthene	1.20	10.5	0%	**8.8**	**Retain**
Chrysene	1.20	10.5	0%	**8.8**	**Retain**
Dibenzo(a,h)anthracene	1.20	10.5	0%	**8.8**	**Retain**
Fluoranthene	1.20	0.144	4%	0.12	Pass
Fluorene	1.20	33	14%	**28**	**Retain**
Indeno(1,2,3-c,d)pyrene	1.20	10.5	0%	**8.8**	**Retain**
Naphthalene	0.30	53	25%	**180**	**Retain**
Phenanthrene	1.20	92	18%	**77**	**Retain**
Pyrene	1.20	10.5	0%	**8.8**	**Retain**
HI - PAHs				**850**	**Retain**
TPH	8000.00	47000	100%	**5.9**	**Retain**
HI - Petroleum				**5.9**	**Retain**
2,4,5-Trichlorophenol	2.00	50	0%	**25**	**Retain**
2,4,6-Trichlorophenol	2.00	10.5	0%	**5.2**	**Retain**
2,4-Dichlorophenol	2.00	10.5	0%	**5.2**	**Retain**
2,4-Dimethylphenol	NSV	10.5	0%	**NA**	Uncertain
2-Chloronaphthalene	NSV	10.5	0%	**NA**	Uncertain
2-Methylphenol	NSV	10.5	0%	**NA**	Uncertain
3,3-Dichlorobenzidine	NSV	21	0%	**NA**	Uncertain
4-Chloro-3-methylphenol	NSV	10.5	0%	**NA**	Uncertain
4-Chloroaniline	2.00	10.5	0%	**5.2**	**Retain**
4-Methylphenol	NSV	10.5	0%	**NA**	Uncertain
Benzoic acid	NSV	50	0%	**NA**	Uncertain
Benzylalcohol	NSV	10.5	0%	**NA**	Uncertain
bis(2-Ethylhexyl)phthalate	10.00	1.5	18%	0.15	Pass
Butyl benzylphthalate	10.00	10.5	0%	**1.0**	**Retain**
Dibenzofuran	NSV	12	14%	**NA**	Uncertain
Diethylphthalate	10.00	10.5	0%	**1.0**	**Retain**
Dimethylphthalate	10.00	10.5	0%	**1.0**	**Retain**
Di-n-butylphthalate	20.00	10.5	0%	0.52	Pass

Table 14

Direct Toxicity Screening for Plants Exposed to Soil Using Maximum Detected Concentrations

Attachment 10A - Thermal Treatment Unit, Ecological Risk Assessment

Analyte	Soil NOEC Screening Value (mg/kg)	EPC[1] (mg/kg)	DF	NOEC HQ[2]	Screening Conclusion
Di-n-octylphthalate	10.00	10.5	0%	**1.0**	**Retain**
Hexachlorobenzene	1.00	10.5	0%	**11.00**	**Retain**
Hexachlorobutadiene	1.00	0.0008	4%	0.00080	Pass
Hexachlorocyclopentadiene	1.00	10.5	0%	**11.00**	**Retain**
Hexachloroethane	NSV	10.5	0%	**NA**	Uncertain
Isophorone	NSV	10.5	0%	**NA**	Uncertain
n-Nitroso-di-n-propylamine	NSV	10.5	0%	**NA**	Uncertain
n-Nitrosodiphenylamine	NSV	10.5	0%	**NA**	Uncertain
Pentachlorophenol	5.00	50	0%	**10.00**	**Retain**
HI - SVOCs				*0.15*	Pass
1,1,1,2-Tetrachloroethane	NSV	0.0006	5%	**NA**	Uncertain
1,1,1-Trichloroethane	NSV	0.0009	5%	**NA**	Uncertain
1,1,2,2-Tetrachloroethane	NSV	0.001	5%	**NA**	Uncertain
1,1,2-Trichloroethane	NSV	0.0008	5%	**NA**	Uncertain
1,1-Dichloroethane	NSV	0.0007	5%	**NA**	Uncertain
1,1-Dichloroethene	NSV	0.0011	5%	**NA**	Uncertain
1,2,3-Trichlorobenzene	NSV	0.0028	5%	**NA**	Uncertain
1,2,3-Trichloropropane	NSV	0.0009	5%	**NA**	Uncertain
1,2,4-Trichlorobenzene	NSV	0.0032	4%	**NA**	Uncertain
1,2-Dibromo-3-chloropropane	NSV	0.0039	5%	**NA**	Uncertain
1,2-Dichlorobenzene	NSV	0.0014	4%	**NA**	Uncertain
1,2-Dichloroethane	NSV	0.0008	5%	**NA**	Uncertain
1,2-Dichloropropane	NSV	0.0007	5%	**NA**	Uncertain
1,2-Ethylene Dibromide	NSV	0.0009	5%	**NA**	Uncertain
1,3-Dichlorobenzene	NSV	0.0019	4%	**NA**	Uncertain
1,4-Dichlorobenzene	NSV	0.0031	4%	**NA**	Uncertain
2-Butanone	NSV	0.0159	18%	**NA**	Uncertain
2-ChloroethylVinylEther	NSV	0.00595	0%	**NA**	Uncertain
2-Chlorophenol	0.70	10.5	0%	**15.00**	**Retain**
2-Hexanone	NSV	0.0038	5%	**NA**	Uncertain
4-Bromophenylphenylether	NSV	10.5	0%	**NA**	Uncertain
4-Chlorophenylphenylether	NSV	10.5	0%	**NA**	Uncertain
4-Methyl-2-pentanone	NSV	0.0043	5%	**NA**	Uncertain
Acetone	NSV	24	32%	**NA**	Uncertain
Benzene	20.00	0.0041	14%	0.00020	Pass
Bis(2-chloroethoxy)methane	NSV	0.074	0%	**NA**	Uncertain
Bis(2-chloroethyl)ether	NSV	10.5	0%	**NA**	Uncertain
Bis(2-chloroisopropyl)ether	NSV	10.5	0%	**NA**	Uncertain
Bromodichloromethane	NSV	0.0007	5%	**NA**	Uncertain
Bromoform	NSV	0.0005	5%	**NA**	Uncertain
Bromomethane	NSV	0.0015	5%	**NA**	Uncertain
Carbon tetrachloride	NSV	0.0009	5%	**NA**	Uncertain
Chlorobenzene	2.48	0.0007	5%	0.00028	Pass
Chloroethane	NSV	0.001	5%	**NA**	Uncertain
Chloroform	NSV	0.0007	5%	**NA**	Uncertain

Table 14

Direct Toxicity Screening for Plants Exposed to Soil Using Maximum Detected Concentrations

Attachment 10A - Thermal Treatment Unit, Ecological Risk Assessment

Analyte	Soil NOEC Screening Value (mg/kg)	EPC[1] (mg/kg)	DF	NOEC HQ[2]	Screening Conclusion
Chloromethane	NSV	0.001	5%	**NA**	Uncertain
cis-1,2-Dichloroethene	NSV	0.0007	5%	**NA**	Uncertain
cis-1,3-Dichloropropene	NSV	0.0006	5%	**NA**	Uncertain
Dibromochloromethane	NSV	0.0007	5%	**NA**	Uncertain
Dibromomethane	NSV	0.0005	5%	**NA**	Uncertain
Dichlorodifluoromethane	NSV	0.0011	5%	**NA**	Uncertain
Ethylbenzene	0.60	0.0013	5%	0.0022	Pass
m,p-Xylene	0.50	0.002	5%	0.0040	Pass
Methylene chloride	NSV	0.0032	5%	**NA**	Uncertain
o-Xylene	0.50	0.0027	14%	0.0054	Pass
Phenol	7.00	10.5	0%	**1.5**	**Retain**
Styrene	30.00	0.0026	14%	0.000087	Pass
tert-ButylMethylEther	NSV	0.0007	5%	**NA**	Uncertain
Tetrachloroethene	10.00	0.0009	5%	0.000090	Pass
Toluene	20.00	0.0187	23%	0.00093	Pass
Trans-1,2-Dichloroethene	NSV	0.0007	5%	**NA**	Uncertain
Trans-1,3-Dichloropropene	NSV	0.0008	5%	**NA**	Uncertain
Trichloroethylene (TCE)	NSV	0.0007	5%	**NA**	Uncertain
Trichlorofluoromethane	NSV	0.0011	5%	**NA**	Uncertain
Vinyl Acetate	NSV	0.0012	5%	**NA**	Uncertain
Vinyl chloride	NSV	0.0012	5%	**NA**	Uncertain
HI - VOCs				*0.013*	Pass

Notes:

[1] EPC = Exposure Point Concentration. Maximum detected concentration or 1/2 detection limit for non-detected analytes

[2] Hazard Indices (HI) calculated as the sum of HQs for detected analytes

Retain = screening value exceeded, chemical is retained for refined risk characterization

Pass = Screening value not exceeded and chemical passed screening evaluation; conclusion of no potential for risk; no further evaluation

Uncertain = uncertainty exists because no toxicological screening value was found for evaluating potential for risk

HQ = Hazard Quotient = Maximum Detect / Benchmark

DF = Detection Frequency

mg/kg = milligram per kilogram

NOEC = No observed Effect concentration

Hazard quotients in bold exceed one.

Chemicals not detected in any samples are

NA - not applicable

NSV - no screening value available

Table 15

Direct Toxicity Screening for Invertebrates Exposed to Soil Using Maximum Detected Concentrations

Attachment 10A - Thermal Treatment Unit, Ecological Risk Assessment

Analyte	Soil NOEC Screening Value mg/kg	Soil Maximum Detection Concentration[1] (mg/kg)	DF	NOEC HQ[2]	Screening Conclusion
1,3,5-Trinitrobenzene	32.80	0.105	0%	0.0032	Pass
1,3-Dinitrobenzene	32.80	0.08	0%	0.0024	Pass
2,4,6-Trinitrotoluene (TNT)	32.80	1.5	0%	0.046	Pass
2,4-Dinitrophenol	0.70	50	0%	**71.00**	**Retain**
2,4-Dinitrotoluene	32.80	2	2%	0.061	Pass
2,6-Dinitrotoluene	32.80	10.5	0%	0.32	Pass
2-Amino-4,6-Dinitrotoluene	32.80	1.5	0%	0.046	Pass
2-Nitroaniline	NSV	50	0%	**NA**	Uncertain
2-Nitrophenol	0.70	10.5	0%	**15.00**	**Retain**
2-Nitrotoluene	32.80	0.14	0%	0.0043	Pass
3-Nitroaniline	NSV	50	0%	**NA**	Uncertain
3-Nitrotoluene	32.80	0.15	0%	0.0046	Pass
4,6-Dinitro-2-methylphenol	NSV	50	0%	**NA**	Uncertain
4-Nitroaniline	NSV	50	0%	**NA**	Uncertain
4-Nitrophenol	0.70	50	0%	**71.00**	**Retain**
4-Nitrotoluene	32.80	0.19	0%	0.0058	Pass
HMX	1.56	25	31%	**16.00**	**Retain**
Nitrobenzene	4.00	10.5	0%	**2.6**	**Retain**
Nitroglycerin	NSV	0.34	0%	**NA**	Uncertain
Nitroguanidine	NSV	0.3	5%	**NA**	Uncertain
PETN	NSV	0.5	0%	**NA**	Uncertain
Picric acid	NSV	0.5	7%	**NA**	Uncertain
RDX	27.40	1.5	0%	0.055	Pass
Tetryl	NSV	0.23	0%	**NA**	Uncertain
HI - Energetics				**16.00**	**Retain**
Aluminum	NSV	54000	100%	**NA**	Uncertain
Antimony	78.00	166.93	79%	**2.1**	**Retain**
Arsenic	6.00	41.3	58%	**6.9**	**Retain**
Barium	330.00	640	100%	**1.9**	**Retain**
Beryllium	40.00	0.72	48%	0.018	Pass
Cadmium	140.00	32	44%	0.23	Pass
Carbon disulfide	NSV	0.0011	5%	**NA**	Uncertain
Chromium	0.04	55.3	100%	**1400**	**Retain**
Cobalt	300.00	4.9	79%	0.016	Pass
Copper	5.00	18000	85%	**3600.00**	**Retain**
Iron	NSV	15000	100%	**NA**	Uncertain
Lead	1700.00	48000	83%	**28.00**	**Retain**
Magnesium	NSV	24300	100%	**NA**	Uncertain
Manganese	NSV	519	100%	**NA**	Uncertain
Mercury	0.01	0.07	27%	**7.0**	**Retain**
Molybdenum	NSV	17	91%	**NA**	Uncertain
Nickel	20.00	41.3	100%	**2.1**	**Retain**
Nitrate	NSV	22.8	92%	**NA**	Uncertain
Perchlorate	4.45	4.5	50%	**1.0**	**Retain**
Phosphorus	NSV	990	100%	**NA**	Uncertain
Selenium	7.00	5	0%	0.71	Pass
Silver	NSV	4	8%	**NA**	Uncertain
Strontium	NSV	484	100%	**NA**	Uncertain
Thallium	12.00	0.55	54%	0.046	Pass

Table 15

Direct Toxicity Screening for Invertebrates Exposed to Soil Using Maximum Detected Concentrations

Attachment 10A - Thermal Treatment Unit, Ecological Risk Assessment

Analyte	Soil NOEC Screening Value mg/kg	Soil Maximum Detection Concentration[1] (mg/kg)	DF	NOEC HQ[2]	Screening Conclusion
Vanadium	NSV	25.7	100%	**NA**	Uncertain
Zinc	20.00	2300	100%	**120.00**	**Retain**
HI - Inorganics				**5100**	**Retain**
2-Methylnaphthalene	3.00	170	14%	**57.00**	**Retain**
Acenaphthene	3.10	0.04185	0%	0.014	Pass
Acenaphthylene	2.30	10.5	0%	**4.6**	**Retain**
Anthracene	0.50	3.7	7%	**7.4**	**Retain**
Benzo(a)anthracene	980.00	10.5	0%	0.011	Pass
Benzo(a)pyrene	840.00	10.5	0%	0.012	Pass
Benzo(b)fluoranthene	360.00	10.5	0%	0.029	Pass
Benzo(g,h,i)perylene	360.00	10.5	0%	0.029	Pass
Benzo(k)fluoranthene	560.00	10.5	0%	0.019	Pass
Chrysene	1030.00	10.5	0%	0.010	Pass
Dibenzo(a,h)anthracene	780.00	10.5	0%	0.013	Pass
Fluoranthene	4.70	0.144	4%	0.031	Pass
Fluorene	0.77	33	14%	**43.00**	**Retain**
Indeno(1,2,3-c,d)pyrene	910.00	10.5	0%	0.012	Pass
Naphthalene	2.00	53	25%	**27.00**	**Retain**
Phenanthrene	2.10	92	18%	**44.00**	**Retain**
Pyrene	1.30	10.5	0%	**8.1**	**Retain**
HI - PAHs				**180**	**Retain**
TPH	700.00	47000	100%	**67.00**	**Retain**
HI - Petroleum				**67.00**	**Retain**
2,4,5-Trichlorophenol	0.90	50	0%	**56.00**	**Retain**
2,4,6-Trichlorophenol	1.00	10.5	0%	**11.00**	**Retain**
2,4-Dichlorophenol	1.00	10.5	0%	**11.00**	**Retain**
2,4-Dimethylphenol	NSV	10.5	0%	**NA**	Uncertain
2-Chloronaphthalene	NSV	10.5	0%	**NA**	Uncertain
2-Methylphenol	NSV	10.5	0%	**NA**	Uncertain
3,3-Dichlorobenzidine	NSV	21	0%	**NA**	Uncertain
4-Chloro-3-methylphenol	NSV	10.5	0%	**NA**	Uncertain
4-Chloroaniline	3.00	10.5	0%	**3.5**	**Retain**
4-Methylphenol	NSV	10.5	0%	**NA**	Uncertain
Benzoic acid	NSV	50	0%	**NA**	Uncertain
Benzylalcohol	NSV	10.5	0%	**NA**	Uncertain
bis(2-Ethylhexyl)phthalate	20.00	1.5	18%	0.075	Pass
Butyl benzylphthalate	20.00	10.5	0%	0.52	Pass
Dibenzofuran	1.40	12	14%	**8.6**	**Retain**
Diethylphthalate	20.00	10.5	0%	0.52	Pass
Dimethylphthalate	20.00	10.5	0%	0.52	Pass
Di-n-butylphthalate	20.00	10.5	0%	0.52	Pass
Di-n-octylphthalate	20.00	10.5	0%	0.52	Pass
Hexachlorobenzene	NSV	10.5	0%	**NA**	Uncertain
Hexachlorobutadiene	NSV	0.0008	4%	**NA**	Uncertain
Hexachlorocyclopentadiene	NSV	10.5	0%	**NA**	Uncertain
Hexachloroethane	NSV	10.5	0%	**NA**	Uncertain
Isophorone	NSV	10.5	0%	**NA**	Uncertain
n-Nitroso-di-n-propylamine	2.00	10.5	0%	**5.2**	**Retain**
n-Nitrosodiphenylamine	2.00	10.5	0%	**5.2**	**Retain**

Table 15

Direct Toxicity Screening for Invertebrates Exposed to Soil Using Maximum Detected Concentrations

Attachment 10A - Thermal Treatment Unit, Ecological Risk Assessment

Analyte	Soil NOEC Screening Value mg/kg	Soil Maximum Detection Concentration[1] (mg/kg)	DF	NOEC HQ[2]	Screening Conclusion
Pentachlorophenol	31.00	50	0%	**1.6**	**Retain**
HI - SVOCs				**8.6**	**Retain**
1,1,1,2-Tetrachloroethane	2.00	0.0006	5%	0.00030	Pass
1,1,1-Trichloroethane	2.00	0.0009	5%	0.00045	Pass
1,1,2,2-Tetrachloroethane	2.00	0.001	5%	0.00050	Pass
1,1,2-Trichloroethane	2.00	0.0008	5%	0.00040	Pass
1,1-Dichloroethane	2.00	0.0007	5%	0.00035	Pass
1,1-Dichloroethene	2.00	0.0011	5%	0.00055	Pass
1,2,3-Trichlorobenzene	2.00	0.0028	5%	0.0014	Pass
1,2,3-Trichloropropane	70.00	0.0009	5%	0.000013	Pass
1,2,4-Trichlorobenzene	2.00	0.0032	4%	0.0016	Pass
1,2-Dibromo-3-chloropropane	NSV	0.0039	5%	**NA**	Uncertain
1,2-Dichlorobenzene	2.00	0.0014	4%	0.00070	Pass
1,2-Dichloroethane	70.00	0.0008	5%	0.000011	Pass
1,2-Dichloropropane	70.00	0.0007	5%	0.0000100	Pass
1,2-Ethylene Dibromide	NSV	0.0009	5%	**NA**	Uncertain
1,3-Dichlorobenzene	2.00	0.0019	4%	0.00095	Pass
1,4-Dichlorobenzene	2.00	0.0031	4%	0.0016	Pass
2-Butanone	NSV	0.0159	18%	**NA**	Uncertain
2-ChloroethylVinylEther	NSV	0.00595	0%	**NA**	Uncertain
2-Chlorophenol	1.00	10.5	0%	**11.00**	**Retain**
2-Hexanone	NSV	0.0038	5%	**NA**	Uncertain
4-Bromophenylphenylether	NSV	10.5	0%	**NA**	Uncertain
4-Chlorophenylphenylether	NSV	10.5	0%	**NA**	Uncertain
4-Methyl-2-pentanone	NSV	0.0043	5%	**NA**	Uncertain
Acetone	NSV	24	32%	**NA**	Uncertain
Benzene	1.61	0.0041	14%	0.0025	Pass
Bis(2-chloroethoxy)methane	NSV	0.074	0%	**NA**	Uncertain
bis(2-chloroethyl)ether	NSV	10.5	0%	**NA**	Uncertain
bis(2-chloroisopropyl)ether	NSV	10.5	0%	**NA**	Uncertain
Bromodichloromethane	NSV	0.0007	5%	**NA**	Uncertain
Bromoform	NSV	0.0005	5%	**NA**	Uncertain
Bromomethane	NSV	0.0015	5%	**NA**	Uncertain
Carbon tetrachloride	NSV	0.0009	5%	**NA**	Uncertain
Chlorobenzene	4.00	0.0007	5%	0.00018	Pass
Chloroethane	4.00	0.001	5%	0.00025	Pass
Chloroform	4.00	0.0007	5%	0.00018	Pass
Chloromethane	4.00	0.001	5%	0.00025	Pass
cis-1,2-Dichloroethene	70.00	0.0007	5%	0.0000100	Pass
cis-1,3-Dichloropropene	70.00	0.0006	5%	0.0000086	Pass
Dibromochloromethane	NSV	0.0007	5%	**NA**	Uncertain
Dibromomethane	NSV	0.0005	5%	**NA**	Uncertain
Dichlorodifluoromethane	NSV	0.0011	5%	**NA**	Uncertain
Ethylbenzene	1.13	0.0013	5%	0.0012	Pass
m,p-Xylene	0.56	0.002	5%	0.0036	Pass
Methylene chloride	NSV	0.0032	5%	**NA**	Uncertain
o-Xylene	0.56	0.0027	14%	0.0048	Pass
Phenol	3.00	10.5	0%	**3.5**	**Retain**
Styrene	0.56	0.0026	14%	0.0046	Pass

Table 15

Direct Toxicity Screening for Invertebrates Exposed to Soil Using Maximum Detected Concentrations

Attachment 10A - Thermal Treatment Unit, Ecological Risk Assessment

Analyte	Soil NOEC Screening Value mg/kg	Soil Maximum Detection Concentration[1] (mg/kg)	DF	NOEC HQ[2]	Screening Conclusion
tert-ButylMethylEther	NSV	0.0007	5%	**NA**	Uncertain
Tetrachloroethene	NSV	0.0009	5%	**NA**	Uncertain
Toluene	0.44	0.0187	23%	0.042	Pass
Trans-1,2-Dichloroethene	70.00	0.0007	5%	0.0000100	Pass
Trans-1,3-Dichloropropene	70.00	0.0008	5%	0.000011	Pass
Trichloroethylene (TCE)	NSV	0.0007	5%	**NA**	Uncertain
Trichlorofluoromethane	NSV	0.0011	5%	**NA**	Uncertain
Vinyl Acetate	NSV	0.0012	5%	**NA**	Uncertain
Vinyl chloride	NSV	0.0012	5%	**NA**	Uncertain
HI - VOCs				*0.065*	Pass

Notes:

[1] EPC = Exposure Point Concentration. Maximum detected concentration or 1/2 detection limit for non-detected analytes

[2] Hazard Indices (HI) calculated as the sum of HQs for detected analytes

Retain = screening value exceeded, chemical is retained for refined risk characterization

Pass = Screening value not exceeded and chemical passed screening evaluation; conclusion of no potential for risk; no further evaluation

Uncertain = uncertainty exists because no toxicological screening value was found for evaluating potential for risk

HQ = Hazard Quotient = Maximum Detect / Benchmark

DF = Detection Frequency

mg/kg = milligram per kilogram

NOEC = No observed Effect concentration

Hazard quotients in bold exceed one.

NA - not applicable

NSV - no screening value available

Table 16
Initial Risk Estimation for Wildlife Exposed to Site Soils
Attachment 10A - Thermal Treatment Unit, Ecological Risk Assessment

Receptor	Chemical	Body Weight (kg)	Daily Food Intake (kg/kg-bw/day)	Area Use Factor	Daily Food Ingestion from Site (kg/kg-bw/day)	Small Mammals and Other Vertebrates: Percent of Diet	Small Mammals and Other Vertebrates: Soil to Tissue Transfer Factor	Small Mammals and Other Vertebrates: Tissue Concentration (mg/kg DW)	Small Mammals and Other Vertebrates: Total Vertebrate Food Intake (mg/kg-bw/d)a	Soil Invertebrates: Percent of Diet	Soil Invertebrates: Soil to Tissue Transfer Factor	Soil Invertebrates: Tissue Concentration (mg/kg DW)	Soil Invertebrates: Total Invertebrate Food Intake (mg/kg-bw/d)b	Terrestrial Plants: Percent of Diet	Terrestrial Plants: Soil to Tissue Transfer Factor	Terrestrial Plants: Tissue Concentration (mg/kg DW)	Terrestrial Plants: Total Plant Food Intake (mg/kg-bw/d)c	Total Food Intake (mg/kg-bw/d)d	Soil EPC (mg/kg)	Percent of Diet as Soil	Incidental Soil Intake (mg/kg-bw/d)e	Total Chemical Intake (mg/kg-day)f	NOAEL TRV (mg/kg-bw/d)	NOAEL Hazard Quotient	Detection Frequency (%)	Screening Risk Conclusions
Ord's Kangaroo Rat	1,3,5-Trinitrobenzene	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	4.78	0.502	0.0558	0.0558	0.105	2.00	0.000233	0.0560	2.7	0.021	0%	Pass
Ord's Kangaroo Rat	1,3-Dinitrobenzene	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	15	1.20	0.133	0.133	0.0800	2.00	0.000178	0.134	0.04	**3.3**	0%	**Retain**
Ord's Kangaroo Rat	2,4,6-Trinitrotoluene (TNT)	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	4.23	6.34	0.705	0.705	1.50	2.00	0.00333	0.708	2.0	0.35	0%	Pass
Ord's Kangaroo Rat	2,4-Dinitrophenol	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	2.40	120	13.3	13.3	50	2.00	0.111	13.4	NSV	--	0%	Uncertain
Ord's Kangaroo Rat	2,4-Dinitrotoluene	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	0.607	1.21	0.135	0.135	2.00	2.00	0.00444	0.139	2.0	0.070	2%	Pass
Ord's Kangaroo Rat	2,6-Dinitrotoluene	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	11	116	12.8	12.8	10.5	2.00	0.0233	12.9	2.0	**6.4**	0%	**Retain**
Ord's Kangaroo Rat	2-Amino-4,6-Dinitrotoluene	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	Regression Based	2.72	0.302	0.302	1.50	2.00	0.00333	0.305	9.0	0.034	0%	Pass
Ord's Kangaroo Rat	2-Nitroaniline	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	10.7	536	59.6	59.6	50	2.00	0.111	59.7	NSV	--	0%	Uncertain
Ord's Kangaroo Rat	2-Nitrophenol	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	11.3	119	13.2	13.2	10.5	2.00	0.0233	13.3	NSV	--	0%	Uncertain
Ord's Kangaroo Rat	2-Nitrotoluene	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	0.428	0.0599	0.00665	0.00665	0.140	2.00	0.000311	0.00697	2.0	<0.01	0%	Pass
Ord's Kangaroo Rat	3-Nitroaniline	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	16.8	840	93.3	93.3	50	2.00	0.111	93.4	NSV	--	0%	Uncertain
Ord's Kangaroo Rat	3-Nitrotoluene	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	6.12	0.919	0.102	0.102	0.150	2.00	0.000333	0.102	2.0	0.051	0%	Pass
Ord's Kangaroo Rat	4,6-Dinitro-2-methylphenol	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	0.182	9.08	1.01	1.01	50	2.00	0.111	1.12	NSV	--	0%	Uncertain
Ord's Kangaroo Rat	4-Nitroaniline	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	3.04	152	16.9	16.9	50	2.00	0.111	17	NSV	--	0%	Uncertain
Ord's Kangaroo Rat	4-Nitrophenol	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	0.992	49.6	5.51	5.51	50	2.00	0.111	5.62	NSV	--	0%	Uncertain
Ord's Kangaroo Rat	4-Nitrotoluene	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	6.66	1.27	0.141	0.141	0.190	2.00	0.000422	0.141	2.0	0.070	0%	Pass
Ord's Kangaroo Rat	HMX	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	Regression Based	87.7	9.74	9.74	25	2.00	0.0555	9.79	1.0	**9.8**	31%	**Retain**
Ord's Kangaroo Rat	Nitrobenzene	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	1.13	11.9	1.32	1.32	10.5	2.00	0.0233	1.34	NSV	--	0%	Uncertain
Ord's Kangaroo Rat	Nitroglycerin	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	14.7	5.01	0.556	0.556	0.340	2.00	0.000755	0.557	3.0	0.19	0%	Pass
Ord's Kangaroo Rat	Nitroguanidine	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	139	41.6	4.62	4.62	0.300	2.00	0.000666	4.62	NSV	--	5%	Uncertain
Ord's Kangaroo Rat	PETN	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	6.54	3.27	0.363	0.363	0.500	2.00	0.00111	0.364	170.0	<0.01	0%	Pass
Ord's Kangaroo Rat	Picric acid	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	17.4	8.72	0.968	0.968	0.500	2.00	0.00111	0.969	NSV	--	7%	Uncertain
Ord's Kangaroo Rat	RDX	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	Regression Based	37.6	4.18	4.18	1.50	2.00	0.00333	4.18	2.0	**2.1**	0%	**Retain**
Ord's Kangaroo Rat	Tetryl	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	1.78	0.408	0.0454	0.0454	0.230	2.00	0.000511	0.0459	1.3	0.035	0%	Pass
Ord's Kangaroo Rat	*HI - Energetics*																							**9.9**	(dets)	**Retain**
Ord's Kangaroo Rat	Aluminum	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	0.00400	216	24	24	54000	2.00	120	144	1.9	**75**	100%	**Retain**
Ord's Kangaroo Rat	Antimony	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	0.0500	8.35	0.927	0.927	167	2.00	0.371	1.30	0.1	**22**	79%	**Retain**
Ord's Kangaroo Rat	Arsenic	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	Regression Based	1.11	0.124	0.124	41.3	2.00	0.0917	0.215	0.4	0.54	58%	Pass
Ord's Kangaroo Rat	Barium	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	0.100	64	7.11	7.11	640	2.00	1.42	8.53	45.0	0.19	100%	Pass
Ord's Kangaroo Rat	Beryllium	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	0.0100	0.00720	0.000800	0.000800	0.720	2.00	0.00160	0.00240	0.53	<0.01	48%	Pass
Ord's Kangaroo Rat	Cadmium	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	Regression Based	4.12	0.458	0.458	32	2.00	0.0711	0.529	0.8	0.69	44%	Pass
Ord's Kangaroo Rat	Carbon disulfide	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	9.32	0.0103	0.00114	0.00114	0.00110	2.00	0.00000244	0.00114	NSV	--	5%	Uncertain
Ord's Kangaroo Rat	Chromium	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	0.0400	2.21	0.246	0.246	55.3	2.00	0.123	0.368	3.3	0.11	100%	Pass
Ord's Kangaroo Rat	Cobalt	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	0.0540	0.265	0.0294	0.0294	4.90	2.00	0.0109	0.0403	1.1	0.035	79%	Pass
Ord's Kangaroo Rat	Copper	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	Regression Based	92.7	10.3	10.3	18000	2.00	40	50.3	11.7	**4.3**	85%	**Retain**
Ord's Kangaroo Rat	Iron	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	0.0100	150	16.7	16.7	15000	2.00	33.3	50	NSV	--	100%	Uncertain
Ord's Kangaroo Rat	Lead	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	Regression Based	112	12.4	12.4	48000	2.00	107	119	0.9	**130**	83%	**Retain**
Ord's Kangaroo Rat	Magnesium	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	2.06	50100	5560	5560	24300	2.00	54	5610	NSV	--	100%	Uncertain
Ord's Kangaroo Rat	Manganese	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	0.680	353	39.2	39.2	519	2.00	1.15	40.3	88.0	0.46	100%	Pass
Ord's Kangaroo Rat	Mercury	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	Regression Based	0.0869	0.00965	0.00965	0.0700	2.00	0.000155	0.00981	0.0	0.31	27%	Pass
Ord's Kangaroo Rat	Molybdenum	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	0.400	6.80	0.755	0.755	17	2.00	0.0378	0.793	0.3	**3.0**	91%	**Retain**
Ord's Kangaroo Rat	Nickel	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	Regression Based	1.75	0.194	0.194	41.3	2.00	0.0917	0.286	40.0	<0.01	100%	Pass
Ord's Kangaroo Rat	Nitrate	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	1.00	22.8	2.53	2.53	22.8	2.00	0.0506	2.58	507.0	<0.01	92%	Pass
Ord's Kangaroo Rat	Perchlorate	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	282	1270	141	141	4.50	2.00	0.01000	141	2.6	**54**	50%	**Retain**
Ord's Kangaroo Rat	Phosphorus	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	1.00	990	110	110	990	2.00	2.20	112	NSV	--	100%	Uncertain
Ord's Kangaroo Rat	Selenium	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	Regression Based	3.00	0.333	0.333	5.00	2.00	0.0111	0.344	0.2	**1.7**	0%	**Retain**
Ord's Kangaroo Rat	Silver	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	1.00	4.00	0.444	0.444	4.00	2.00	0.00888	0.453	2.4	0.19	8%	Pass
Ord's Kangaroo Rat	Strontium	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	1.10	532	59.1	59.1	484	2.00	1.08	60.2	263.0	0.23	100%	Pass
Ord's Kangaroo Rat	Thallium	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	0.00400	0.00220	0.000244	0.000244	0.550	2.00	0.00122	0.00147	0.0	0.20	54%	Pass
Ord's Kangaroo Rat	Vanadium	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	0.00550	0.141	0.0157	0.0157	25.7	2.00	0.0571	0.0728	0.2	0.35	100%	Pass
Ord's Kangaroo Rat	Zinc	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	Regression Based	355	39.4	39.4	2300	2.00	5.11	44.5	160.0	0.28	100%	Pass
Ord's Kangaroo Rat	*HI - Inorganics*																							**290**	(dets)	**Retain**
Ord's Kangaroo Rat	2-Methylnaphthalene	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	1.87	318	35.3	35.3	170	2.00	0.378	35.7	5.0	**7.1**	14%	**Retain**
Ord's Kangaroo Rat	Acenaphthene	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	Regression Based	17.2	1.91	1.91	0.0418	2.00	0.0000930	1.91	175.0	0.011	0%	Pass
Ord's Kangaroo Rat	Acenaphthylene	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	Regression Based	20.2	2.24	2.24	10.5	2.00	0.0233	2.26	175.0	0.013	0%	Pass
Ord's Kangaroo Rat	Anthracene	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	Regression Based	7.44	0.826	0.826	3.70	2.00	0.00822	0.835	1000.0	<0.01	7%	Pass
Ord's Kangaroo Rat	Benzo(a)anthracene	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	Regression Based	8.21	0.912	0.912	10.5	2.00	0.0233	0.935	1.0	0.94	0%	Pass
Ord's Kangaroo Rat	Benzo(a)pyrene	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	Regression Based	10.5	1.17	1.17	10.5	2.00	0.0233	1.19	1.0	**1.2**	0%	**Retain**
Ord's Kangaroo Rat	Benzo(b)fluoranthene	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	0.310	3.26	0.361	0.361	10.5	2.00	0.0233	0.385	1.0	0.38	0%	Pass
Ord's Kangaroo Rat	Benzo(g,h,i)perylene	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	Regression Based	41	4.55	4.55	10.5	2.00	0.0233	4.57	1.0	**4.6**	0%	**Retain**
Ord's Kangaroo Rat	Benzo(k)fluoranthene	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	Regression Based	8.84	0.981	0.981	10.5	2.00	0.0233	1.00	1.0	**1.0**	0%	**Retain**
Ord's Kangaroo Rat	Chrysene	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	Regression Based	8.21	0.912	0.912	10.5	2.00	0.0233	0.935	1.0	0.94	0%	Pass
Ord's Kangaroo Rat	Dibenzo(a,h)anthracene	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	0.130	1.36	0.152	0.152	10.5	2.00	0.0233	0.175	1.0	0.17	0%	Pass
Ord's Kangaroo Rat	Fluoranthene	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	0.500	0.0720	0.00800	0.00800	0.144	2.00	0.000320	0.00832	125.0	<0.01	4%	Pass
Ord's Kangaroo Rat	Fluorene	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	Regression Based	5190	576	576	33	2.00	0.0733	576	125.0	**4.6**	14%	**Retain**
Ord's Kangaroo Rat	Indeno(1,2,3-c,d)pyrene	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	0.110	1.16	0.128	0.128	10.5	2.00	0.0233	0.152	1.0	0.15	0%	Pass
Ord's Kangaroo Rat	Naphthalene	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	12.2	647	71.8	71.8	53	2.00	0.118	71.9	50.0	**1.4**	25%	**Retain**
Ord's Kangaroo Rat	Phenanthrene	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	Regression Based	19.5	2.17	2.17	92	2.00	0.204	2.37	175.0	0.014	18%	Pass
Ord's Kangaroo Rat	Pyrene	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	0.720	7.56	0.840	0.840	10.5	2.00	0.0233	0.863	75.0	0.012	0%	Pass
Ord's Kangaroo Rat	*HI - PAHs*																							**13**	(dets)	**Retain**
Ord's Kangaroo Rat	TPH	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	-	0	0	0	47000	2.00	104	104	1000.0	0.10	100%	Pass
Ord's Kangaroo Rat	*HI - Petroleum*																							0.10	(dets)	Pass
Ord's Kangaroo Rat	2,4,5-Trichlorophenol	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	0.0202	1.01	0.112	0.112	50	2.00	0.111	0.223	0.2	0.93	0%	Pass
Ord's Kangaroo Rat	2,4,6-Trichlorophenol	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	0.0147	0.154	0.0171	0.0171	10.5	2.00	0.0233	0.0404	0.2	0.17	0%	Pass

Table 16

Initial Risk Estimation for Wildlife Exposed to Site Soils

Attachment 10A - Thermal Treatment Unit, Ecological Risk Assessment

Receptor	Chemical	Body Weight (kg)	Daily Food Intake (kg/kg-bw/day)	Area Use Factor	Daily Food Ingestion from Site (kg/kg-bw/day)	Small Mammals and Other Vertebrates: Percent of Diet	Small Mammals and Other Vertebrates: Soil to Tissue Transfer Factor	Small Mammals and Other Vertebrates: Tissue Concentration (mg/kg DW)	Small Mammals and Other Vertebrates: Total Vertebrate Food Intake (mg/kg-bw/d)a	Soil Invertebrates: Percent of Diet	Soil Invertebrates: Soil to Tissue Transfer Factor	Soil Invertebrates: Tissue Concentration (mg/kg DW)	Soil Invertebrates: Total Invertebrate Food Intake (mg/kg-bw/d)b	Terrestrial Plants: Percent of Diet	Terrestrial Plants: Soil to Tissue Transfer Factor	Terrestrial Plants: Tissue Concentration (mg/kg DW)	Terrestrial Plants: Total Plant Food Intake (mg/kg-bw/d)c	Total Food Intake (mg/kg-bw/d)d	Soil EPC (mg/kg)	Percent of Diet as Soil	Incidental Soil Intake (mg/kg-bw/d)e	Total Chemical Intake (mg/kg-day)f	NOAEL TRV (mg/kg-bw/d)	NOAEL Hazard Quotient	Detection Frequency (%)	Screening Risk Conclusions
Ord's Kangaroo Rat	2,4-Dichlorophenol	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	0.118	1.24	0.138	0.138	10.5	2.00	0.0233	0.161	0.2	0.67	0%	Pass
Ord's Kangaroo Rat	2,4-Dimethylphenol	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	0.143	1.50	0.167	0.167	10.5	2.00	0.0233	0.190	NSV	--	0%	Uncertain
Ord's Kangaroo Rat	2-Chloronaphthalene	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	0.0111	0.116	0.0129	0.0129	10.5	2.00	0.0233	0.0362	NSV	--	0%	Uncertain
Ord's Kangaroo Rat	2-Methylphenol	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	9.77	103	11.4	11.4	10.5	2.00	0.0233	11.4	340.0	0.034	0%	Pass
Ord's Kangaroo Rat	3,3-Dichlorobenzidine	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	2.28	47.8	5.31	5.31	21	2.00	0.0466	5.35	NSV	--	0%	Uncertain
Ord's Kangaroo Rat	4-Chloro-3-methylphenol	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	0.0767	0.805	0.0894	0.0894	10.5	2.00	0.0233	0.113	NSV	--	0%	Uncertain
Ord's Kangaroo Rat	4-Chloroaniline	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	1.18	12.4	1.37	1.37	10.5	2.00	0.0233	1.40	NSV	--	0%	Uncertain
Ord's Kangaroo Rat	4-Methylphenol	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	0.951	9.98	1.11	1.11	10.5	2.00	0.0233	1.13	340.0	<0.01	0%	Pass
Ord's Kangaroo Rat	Benzoic acid	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	1.08	54.1	6.01	6.01	50	2.00	0.111	6.12	NSV	--	0%	Uncertain
Ord's Kangaroo Rat	Benzylalcohol	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	5.67	59.5	6.61	6.61	10.5	2.00	0.0233	6.63	NSV	--	0%	Uncertain
Ord's Kangaroo Rat	bis(2-Ethylhexyl)phthalate	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	0.0660	0.0990	0.0110	0.0110	1.50	2.00	0.00333	0.0143	18.3	<0.01	18%	Pass
Ord's Kangaroo Rat	Butyl benzylphthalate	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	0.00182	0.0191	0.00212	0.00212	10.5	2.00	0.0233	0.0254	550.0	<0.01	0%	Pass
Ord's Kangaroo Rat	Dibenzofuran	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	1.89	22.6	2.52	2.52	12	2.00	0.0267	2.54	NSV	--	14%	Uncertain
Ord's Kangaroo Rat	Diethylphthalate	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	0.304	3.20	0.355	0.355	10.5	2.00	0.0233	0.378	4583.0	<0.01	0%	Pass
Ord's Kangaroo Rat	Dimethylphthalate	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	2.11	22.1	2.46	2.46	10.5	2.00	0.0233	2.48	550.0	<0.01	0%	Pass
Ord's Kangaroo Rat	Di-n-butylphthalate	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	0.00298	0.0313	0.00348	0.00348	10.5	2.00	0.0233	0.0268	550.0	<0.01	0%	Pass
Ord's Kangaroo Rat	Di-n-octylphthalate	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	0.461	4.84	0.537	0.537	10.5	2.00	0.0233	0.560	550.0	<0.01	0%	Pass
Ord's Kangaroo Rat	Hexachlorobenzene	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	0.000785	0.00824	0.000916	0.000916	10.5	2.00	0.0233	0.0242	1.6	0.015	0%	Pass
Ord's Kangaroo Rat	Hexachlorobutadiene	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	0.00207	#########	0.000000184	0.000000184	0.000800	2.00	0.00000178	0.00000196	1.6	<0.01	4%	Pass
Ord's Kangaroo Rat	Hexachlorocyclopentadiene	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	0.0111	0.116	0.0129	0.0129	10.5	2.00	0.0233	0.0362	1.6	0.023	0%	Pass
Ord's Kangaroo Rat	Hexachloroethane	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	0.00305	0.0320	0.00355	0.00355	10.5	2.00	0.0233	0.0269	1.6	0.017	0%	Pass
Ord's Kangaroo Rat	Isophorone	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	0.467	4.91	0.545	0.545	10.5	2.00	0.0233	0.568	NSV	--	0%	Uncertain
Ord's Kangaroo Rat	n-Nitroso-di-n-propylamine	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	2.45	25.7	2.86	2.86	10.5	2.00	0.0233	2.88	NSV	--	0%	Uncertain
Ord's Kangaroo Rat	n-Nitrosodiphenylamine	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	0.0719	0.755	0.0839	0.0839	10.5	2.00	0.0233	0.107	NSV	--	0%	Uncertain
Ord's Kangaroo Rat	Pentachlorophenol	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	0.00129	0.0644	0.00716	0.00716	50	2.00	0.111	0.118	0.2	0.49	0%	Pass
Ord's Kangaroo Rat	*HI - SVOCs*																							<0.01	(dets)	Pass
Ord's Kangaroo Rat	1,1,1,2-Tetrachloroethane	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	3.56	0.00214	0.000237	0.000237	0.000600	2.00	0.00000133	0.000239	1.4	<0.01	5%	Pass
Ord's Kangaroo Rat	1,1,1-Trichloroethane	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	0.279	0.000251	0.0000279	0.0000279	0.000900	2.00	0.00000200	0.0000299	1000.0	<0.01	5%	Pass
Ord's Kangaroo Rat	1,1,2,2-Tetrachloroethane	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	0.354	0.000354	0.0000393	0.0000393	0.00100	2.00	0.00000222	0.0000415	1.4	<0.01	5%	Pass
Ord's Kangaroo Rat	1,1,2-Trichloroethane	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	0.298	0.000238	0.0000265	0.0000265	0.000800	2.00	0.00000178	0.0000282	1000.0	<0.01	5%	Pass
Ord's Kangaroo Rat	1,1-Dichloroethane	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	1.28	0.000899	0.0000998	0.0000998	0.000700	2.00	0.00000155	0.000101	50.0	<0.01	5%	Pass
Ord's Kangaroo Rat	1,1-Dichloroethene	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	8.26	0.00908	0.00101	0.00101	0.00110	2.00	0.00000244	0.00101	2.5	<0.01	5%	Pass
Ord's Kangaroo Rat	1,2,3-Trichlorobenzene	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	1.37	0.00385	0.000427	0.000427	0.00280	2.00	0.00000622	0.000433	NSV	--	5%	Uncertain
Ord's Kangaroo Rat	1,2,3-Trichloropropane	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	5.84	0.00526	0.000584	0.000584	0.000900	2.00	0.00000200	0.000586	1000.0	<0.01	5%	Pass
Ord's Kangaroo Rat	1,2,4-Trichlorobenzene	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	0.00580	0.0000185	0.00000206	0.00000206	0.00320	2.00	0.00000711	0.00000917	NSV	--	4%	Uncertain
Ord's Kangaroo Rat	1,2-Dibromo-3-chloropropane	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	0.438	0.00171	0.000190	0.000190	0.00390	2.00	0.00000866	0.000198	NSV	--	5%	Uncertain
Ord's Kangaroo Rat	1,2-Dichlorobenzene	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	2.57	0.00360	0.000399	0.000399	0.00140	2.00	0.00000311	0.000403	NSV	--	4%	Uncertain
Ord's Kangaroo Rat	1,2-Dichloroethane	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	2.50	0.00200	0.000222	0.000222	0.000800	2.00	0.00000178	0.000224	50.0	<0.01	5%	Pass
Ord's Kangaroo Rat	1,2-Dichloropropane	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	0.818	0.000573	0.0000636	0.0000636	0.000700	2.00	0.00000155	0.0000651	50.0	<0.01	5%	Pass
Ord's Kangaroo Rat	1,2-Ethylene Dibromide	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	11.7	0.0105	0.00117	0.00117	0.000900	2.00	0.00000200	0.00117	NSV	--	5%	Uncertain
Ord's Kangaroo Rat	1,3-Dichlorobenzene	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	0.0262	0.0000498	0.00000553	0.00000553	0.00190	2.00	0.00000422	0.00000975	NSV	--	4%	Uncertain
Ord's Kangaroo Rat	1,4-Dichlorobenzene	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	0.0262	0.0000812	0.00000902	0.00000902	0.00310	2.00	0.00000689	0.0000159	NSV	--	4%	Uncertain
Ord's Kangaroo Rat	2-Butanone	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	46.1	0.732	0.0813	0.0813	0.0159	2.00	0.0000353	0.0814	10.0	<0.01	18%	Pass
Ord's Kangaroo Rat	2-ChloroethylVinylEther	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	20.2	0.120	0.0134	0.0134	0.00595	2.00	0.0000132	0.0134	NSV	--	0%	Uncertain
Ord's Kangaroo Rat	2-Chlorophenol	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	0.557	5.84	0.649	0.649	10.5	2.00	0.0233	0.672	NSV	--	0%	Uncertain
Ord's Kangaroo Rat	2-Hexanone	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	16.6	0.0632	0.00702	0.00702	0.00380	2.00	0.00000844	0.00703	10.0	<0.01	5%	Pass
Ord's Kangaroo Rat	4-Bromophenylphenylether	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	0.566	5.94	0.660	0.660	10.5	2.00	0.0233	0.683	NSV	--	0%	Uncertain
Ord's Kangaroo Rat	4-Chlorophenylphenylether	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	0.00934	0.0981	0.0109	0.0109	10.5	2.00	0.0233	0.0342	NSV	--	0%	Uncertain
Ord's Kangaroo Rat	4-Methyl-2-pentanone	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	19.9	0.0854	0.00949	0.00949	0.00430	2.00	0.00000955	0.00950	25.0	<0.01	5%	Pass
Ord's Kangaroo Rat	Acetone	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	75.6	1810	201	201	24	2.00	0.0533	201	10.0	**20**	32%	**Retain**
Ord's Kangaroo Rat	Benzene	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	8.26	0.0339	0.00376	0.00376	0.00410	2.00	0.00000911	0.00377	0.7	<0.01	14%	Pass
Ord's Kangaroo Rat	Bis(2-chloroethoxy)methane	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	17.9	1.33	0.147	0.147	0.0740	2.00	0.000164	0.148	NSV	--	0%	Uncertain
Ord's Kangaroo Rat	bis(2-chloroethyl)ether	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	2.40	25.2	2.80	2.80	10.5	2.00	0.0233	2.82	NSV	--	0%	Uncertain
Ord's Kangaroo Rat	bis(2-chloroisopropyl)ether	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	0.659	6.92	0.769	0.769	10.5	2.00	0.0233	0.792	NSV	--	0%	Uncertain
Ord's Kangaroo Rat	Bromodichloromethane	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	8.49	0.00594	0.000660	0.000660	0.000700	2.00	0.00000155	0.000662	NSV	--	5%	Uncertain
Ord's Kangaroo Rat	Bromoform	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	0.346	0.000173	0.0000192	0.0000192	0.000500	2.00	0.00000111	0.0000203	15.0	<0.01	5%	Pass
Ord's Kangaroo Rat	Bromomethane	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	19.9	0.0298	0.00331	0.00331	0.00150	2.00	0.00000333	0.00331	15.0	<0.01	5%	Pass
Ord's Kangaroo Rat	Carbon tetrachloride	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	4.29	0.00386	0.000429	0.000429	0.000900	2.00	0.00000200	0.000431	16.0	<0.01	5%	Pass
Ord's Kangaroo Rat	Chlorobenzene	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	0.134	0.0000940	0.0000104	0.0000104	0.000700	2.00	0.00000155	0.0000120	15.0	<0.01	5%	Pass
Ord's Kangaroo Rat	Chloroethane	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	2.79	0.00279	0.000310	0.000310	0.00100	2.00	0.00000222	0.000312	15.0	<0.01	5%	Pass
Ord's Kangaroo Rat	Chloroform	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	0.873	0.000611	0.0000678	0.0000678	0.000700	2.00	0.00000155	0.0000694	15.0	<0.01	5%	Pass
Ord's Kangaroo Rat	Chloromethane	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	7.83	0.00783	0.000869	0.000869	0.00100	2.00	0.00000222	0.000872	15.0	<0.01	5%	Pass
Ord's Kangaroo Rat	cis-1,2-Dichloroethene	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	10.6	0.00744	0.000826	0.000826	0.000700	2.00	0.00000155	0.000828	45.2	<0.01	5%	Pass
Ord's Kangaroo Rat	cis-1,3-Dichloropropene	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	7.11	0.00427	0.000474	0.000474	0.000600	2.00	0.00000133	0.000475	45.2	<0.01	5%	Pass
Ord's Kangaroo Rat	Dibromochloromethane	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	0.674	0.000472	0.0000524	0.0000524	0.000700	2.00	0.00000155	0.0000540	NSV	--	5%	Uncertain
Ord's Kangaroo Rat	Dibromomethane	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	13.3	0.00665	0.000738	0.000738	0.000500	2.00	0.00000111	0.000739	NSV	--	5%	Uncertain
Ord's Kangaroo Rat	Dichlorodifluoromethane	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	0.580	0.000638	0.0000708	0.0000708	0.00110	2.00	0.00000244	0.0000733	NSV	--	5%	Uncertain
Ord's Kangaroo Rat	Ethylbenzene	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	0.0690	0.0000898	0.00000997	0.00000997	0.00130	2.00	0.00000289	0.0000129	97.0	<0.01	5%	Pass
Ord's Kangaroo Rat	m,p-Xylene	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	3.04	0.00608	0.000675	0.000675	0.00200	2.00	0.00000444	0.000679	179.0	<0.01	5%	Pass
Ord's Kangaroo Rat	Methylene chloride	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	4.10	0.0131	0.00146	0.00146	0.00320	2.00	0.00000711	0.00146	5.9	<0.01	5%	Pass
Ord's Kangaroo Rat	o-Xylene	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	3.34	0.00901	0.00100	0.00100	0.00270	2.00	0.00000600	0.00101	179.0	<0.01	14%	Pass
Ord's Kangaroo Rat	Phenol	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	2.62	27.5	3.05	3.05	10.5	2.00	0.0233	3.07	17.1	0.18	0%	Pass
Ord's Kangaroo Rat	Styrene	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	4.02	0.0105	0.00116	0.00116	0.00260	2.00	0.00000577	0.00117	NSV	--	14%	Uncertain
Ord's Kangaroo Rat	tert-ButylMethylEther	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	19	0.0133	0.00147	0.00147	0.000700	2.00	0.00000155	0.00148	NSV	--	5%	Uncertain

Table 16
Initial Risk Estimation for Wildlife Exposed to Site Soils
Attachment 10A - Thermal Treatment Unit, Ecological Risk Assessment

						Small Mammals and Other Vertebrates				Soil Invertebrates				Terrestrial Plants												
Receptor	Chemical	Body Weight (kg)	Daily Food Intake (kg/kg-bw/day)	Area Use Factor	Daily Food Ingestion from Site (kg/kg-bw/day)	Percent of Diet	Soil to Tissue Transfer Factor	Tissue Concentration (mg/kg DW)	Total Vertebrate Food Intake (mg/kg-bw/d)a	Percent of Diet	Soil to Tissue Transfer Factor	Tissue Concentration (mg/kg DW)	Total Invertebrate Food Intake (mg/kg-bw/d)b	Percent of Diet	Soil to Tissue Transfer Factor	Tissue Concentration (mg/kg DW)	Total Plant Food Intake (mg/kg-bw/d)c	Total Food Intake (mg/kg-bw/d)d	Soil EPC (mg/kg)	Percent of Diet as Soil	Incidental Soil Intake (mg/kg-bw/d)e	Total Chemical Intake (mg/kg-day)f	NOAEL TRV (mg/kg-bw/d)	NOAEL Hazard Quotient	Detection Frequency (%)	Screening Risk Conclusions
Ord's Kangaroo Rat	Tetrachloroethene	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	2.52	0.00227	0.000252	0.000252	0.000900	2.00	0.00000200	0.000254	1.4	<0.01	5%	Pass
Ord's Kangaroo Rat	Toluene	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	4.71	0.0882	0.00979	0.00979	0.0187	2.00	0.0000415	0.00983	52.0	<0.01	23%	Pass
Ord's Kangaroo Rat	Trans-1,2-Dichloroethene	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	2.50	0.00175	0.000195	0.000195	0.000700	2.00	0.00000155	0.000196	45.2	<0.01	5%	Pass
Ord's Kangaroo Rat	Trans-1,3-Dichloropropene	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	0.818	0.000654	0.0000727	0.0000727	0.000800	2.00	0.00000178	0.0000744	45.2	<0.01	5%	Pass
Ord's Kangaroo Rat	Trichloroethylene (TCE)	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	0.331	0.000232	0.0000258	0.0000258	0.000700	2.00	0.00000155	0.0000273	0.7	<0.01	5%	Pass
Ord's Kangaroo Rat	Trichlorofluoromethane	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	0.261	0.000288	0.0000319	0.0000319	0.00110	2.00	0.00000244	0.0000344	NSV	--	5%	Uncertain
Ord's Kangaroo Rat	Vinyl Acetate	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	22	0.0264	0.00293	0.00293	0.00120	2.00	0.00000267	0.00293	NSV	--	5%	Uncertain
Ord's Kangaroo Rat	Vinyl chloride	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	3.10	0.00372	0.000413	0.000413	0.00120	2.00	0.00000267	0.000416	0.2	<0.01	5%	Pass
Ord's Kangaroo Rat	*HI - VOCs*																							**20**	(dets)	**Retain**
Townsend's Ground Squirrel	1,3,5-Trinitrobenzene	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	4.78	0.502	0.0251	0.0251	0.105	2.00	0.000105	0.0252	2.7	<0.01	0%	Pass
Townsend's Ground Squirrel	1,3-Dinitrobenzene	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	15	1.20	0.0600	0.0600	0.0800	2.00	0.0000799	0.0601	0.0	**1.5**	0%	**Retain**
Townsend's Ground Squirrel	2,4,6-Trinitrotoluene (TNT)	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	4.23	6.34	0.317	0.317	1.50	2.00	0.00150	0.318	2.0	0.16	0%	Pass
Townsend's Ground Squirrel	2,4-Dinitrophenol	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	2.40	120	5.99	5.99	50	2.00	0.0500	6.04	NSV	--	0%	Uncertain
Townsend's Ground Squirrel	2,4-Dinitrotoluene	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	0.607	1.21	0.0606	0.0606	2.00	2.00	0.00200	0.0626	2.0	0.031	2%	Pass
Townsend's Ground Squirrel	2,6-Dinitrotoluene	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	11	116	5.77	5.77	10.5	2.00	0.0105	5.78	2.0	**2.9**	0%	**Retain**
Townsend's Ground Squirrel	2-Amino-4,6-Dinitrotoluene	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	Regression Based	2.72	0.136	0.136	1.50	2.00	0.00150	0.137	9.0	0.015	0%	Pass
Townsend's Ground Squirrel	2-Nitroaniline	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	10.7	536	26.8	26.8	50	2.00	0.0500	26.8	NSV	--	0%	Uncertain
Townsend's Ground Squirrel	2-Nitrophenol	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	11.3	119	5.95	5.95	10.5	2.00	0.0105	5.96	NSV	--	0%	Uncertain
Townsend's Ground Squirrel	2-Nitrotoluene	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	0.428	0.0599	0.00299	0.00299	0.140	2.00	0.000140	0.00313	2.0	<0.01	0%	Pass
Townsend's Ground Squirrel	3-Nitroaniline	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	16.8	840	41.9	41.9	50	2.00	0.0500	42	NSV	--	0%	Uncertain
Townsend's Ground Squirrel	3-Nitrotoluene	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	6.12	0.919	0.0459	0.0459	0.150	2.00	0.000150	0.0460	2.0	0.023	0%	Pass
Townsend's Ground Squirrel	4,6-Dinitro-2-methylphenol	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	0.182	9.08	0.453	0.453	50	2.00	0.0500	0.503	NSV	--	0%	Uncertain
Townsend's Ground Squirrel	4-Nitroaniline	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	3.04	152	7.60	7.60	50	2.00	0.0500	7.65	NSV	--	0%	Uncertain
Townsend's Ground Squirrel	4-Nitrophenol	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	0.992	49.6	2.48	2.48	50	2.00	0.0500	2.53	NSV	--	0%	Uncertain
Townsend's Ground Squirrel	4-Nitrotoluene	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	6.66	1.27	0.0632	0.0632	0.190	2.00	0.000190	0.0634	2.0	0.032	0%	Pass
Townsend's Ground Squirrel	HMX	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	Regression Based	87.7	4.38	4.38	25	2.00	0.0250	4.40	1.0	**4.4**	31%	**Retain**
Townsend's Ground Squirrel	Nitrobenzene	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	1.13	11.9	0.592	0.592	10.5	2.00	0.0105	0.603	NSV	--	0%	Uncertain
Townsend's Ground Squirrel	Nitroglycerin	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	14.7	5.01	0.250	0.250	0.340	2.00	0.000340	0.251	3.0	0.084	0%	Pass
Townsend's Ground Squirrel	Nitroguanidine	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	139	41.6	2.08	2.08	0.300	2.00	0.000300	2.08	NSV	--	5%	Uncertain
Townsend's Ground Squirrel	PETN	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	6.54	3.27	0.163	0.163	0.500	2.00	0.000500	0.164	170.0	<0.01	0%	Pass
Townsend's Ground Squirrel	Picric acid	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	17.4	8.72	0.435	0.435	0.500	2.00	0.000500	0.436	NSV	--	7%	Uncertain
Townsend's Ground Squirrel	RDX	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	Regression Based	37.6	1.88	1.88	1.50	2.00	0.00150	1.88	2.0	0.94	0%	Pass
Townsend's Ground Squirrel	Tetryl	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	1.78	0.408	0.0204	0.0204	0.230	2.00	0.000230	0.0206	1.3	0.016	0%	Pass
Townsend's Ground Squirrel	*HI - Energetics*																							**4.4**	(dets)	**Retain**
Townsend's Ground Squirrel	Aluminum	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	0.00400	216	10.8	10.8	54000	2.00	53.9	64.7	1.9	**34**	100%	**Retain**
Townsend's Ground Squirrel	Antimony	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	0.0500	8.35	0.417	0.417	167	2.00	0.167	0.584	0.1	**9.9**	79%	**Retain**
Townsend's Ground Squirrel	Arsenic	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	Regression Based	1.11	0.0556	0.0556	41.3	2.00	0.0413	0.0968	0.4	0.24	58%	Pass
Townsend's Ground Squirrel	Barium	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	0.100	64	3.20	3.20	640	2.00	0.639	3.84	45.0	0.085	100%	Pass
Townsend's Ground Squirrel	Beryllium	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	0.0100	0.00720	0.000360	0.000360	0.720	2.00	0.000719	0.00108	0.5	<0.01	48%	Pass
Townsend's Ground Squirrel	Cadmium	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	Regression Based	4.12	0.206	0.206	32	2.00	0.0320	0.238	0.8	0.31	44%	Pass
Townsend's Ground Squirrel	Carbon disulfide	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	9.32	0.0103	0.000512	0.000512	0.00110	2.00	0.00000110	0.000513	NSV	--	5%	Uncertain
Townsend's Ground Squirrel	Chromium	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	0.0400	2.21	0.110	0.110	55.3	2.00	0.0552	0.166	3.3	0.051	100%	Pass
Townsend's Ground Squirrel	Cobalt	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	0.0540	0.265	0.0132	0.0132	4.90	2.00	0.00490	0.0181	1.1	0.016	79%	Pass
Townsend's Ground Squirrel	Copper	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	Regression Based	92.7	4.63	4.63	18000	2.00	18	22.6	11.7	**1.9**	85%	**Retain**
Townsend's Ground Squirrel	Iron	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	0.0100	150	7.49	7.49	15000	2.00	15	22.5	NSV	--	100%	Uncertain
Townsend's Ground Squirrel	Lead	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	Regression Based	112	5.60	5.60	48000	2.00	48	53.5	0.9	**58**	83%	**Retain**
Townsend's Ground Squirrel	Magnesium	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	2.06	50100	2500	2500	24300	2.00	24.3	2520	NSV	--	100%	Uncertain
Townsend's Ground Squirrel	Manganese	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	0.680	353	17.6	17.6	519	2.00	0.518	18.1	88.0	0.21	100%	Pass
Townsend's Ground Squirrel	Mercury	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	Regression Based	0.0869	0.00434	0.00434	0.0700	2.00	0.0000699	0.00441	0.0	0.14	27%	Pass
Townsend's Ground Squirrel	Molybdenum	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	0.400	6.80	0.340	0.340	17	2.00	0.0170	0.357	0.3	**1.4**	91%	**Retain**
Townsend's Ground Squirrel	Nickel	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	Regression Based	1.75	0.0874	0.0874	41.3	2.00	0.0413	0.129	40.0	<0.01	100%	Pass
Townsend's Ground Squirrel	Nitrate	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	1.00	22.8	1.14	1.14	22.8	2.00	0.0228	1.16	507.0	<0.01	92%	Pass
Townsend's Ground Squirrel	Perchlorate	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	282	1270	63.4	63.4	4.50	2.00	0.00450	63.4	2.6	**24**	50%	**Retain**
Townsend's Ground Squirrel	Phosphorus	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	1.00	990	49.5	49.5	990	2.00	0.989	50.4	NSV	--	100%	Uncertain
Townsend's Ground Squirrel	Selenium	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	Regression Based	3.00	0.150	0.150	5.00	2.00	0.00500	0.155	0.2	0.77	0%	Pass
Townsend's Ground Squirrel	Silver	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	1.00	4.00	0.200	0.200	4.00	2.00	0.00400	0.204	2.4	0.086	8%	Pass
Townsend's Ground Squirrel	Strontium	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	1.10	532	26.6	26.6	484	2.00	0.484	27.1	263.0	0.10	100%	Pass
Townsend's Ground Squirrel	Thallium	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	0.00400	0.00220	0.000110	0.000110	0.550	2.00	0.000549	0.000659	0.0	0.089	54%	Pass
Townsend's Ground Squirrel	Vanadium	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	0.00550	0.141	0.00706	0.00706	25.7	2.00	0.0257	0.0327	0.2	0.16	100%	Pass
Townsend's Ground Squirrel	Zinc	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	Regression Based	355	17.7	17.7	2300	2.00	2.30	20	160.0	0.13	100%	Pass
Townsend's Ground Squirrel	*HI - Inorganics*																							**130**	(dets)	**Retain**
Townsend's Ground Squirrel	2-Methylnaphthalene	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	1.87	318	15.9	15.9	170	2.00	0.170	16	5.0	**3.2**	14%	**Retain**
Townsend's Ground Squirrel	Acenaphthene	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	Regression Based	17.2	0.861	0.861	0.0418	2.00	0.0000418	0.861	175.0	<0.01	0%	Pass
Townsend's Ground Squirrel	Acenaphthylene	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	Regression Based	20.2	1.01	1.01	10.5	2.00	0.0105	1.02	175.0	<0.01	0%	Pass
Townsend's Ground Squirrel	Anthracene	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	Regression Based	7.44	0.372	0.372	3.70	2.00	0.00370	0.375	1000.0	<0.01	7%	Pass
Townsend's Ground Squirrel	Benzo(a)anthracene	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	Regression Based	8.21	0.410	0.410	10.5	2.00	0.0105	0.421	1.0	0.42	0%	Pass
Townsend's Ground Squirrel	Benzo(a)pyrene	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	Regression Based	10.5	0.526	0.526	10.5	2.00	0.0105	0.536	1.0	0.54	0%	Pass
Townsend's Ground Squirrel	Benzo(b)fluoranthene	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	0.310	3.26	0.163	0.163	10.5	2.00	0.0105	0.173	1.0	0.17	0%	Pass
Townsend's Ground Squirrel	Benzo(g,h,i)perylene	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	Regression Based	41	2.05	2.05	10.5	2.00	0.0105	2.06	1.0	**2.1**	0%	**Retain**
Townsend's Ground Squirrel	Benzo(k)fluoranthene	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	Regression Based	8.84	0.441	0.441	10.5	2.00	0.0105	0.452	1.0	0.45	0%	Pass
Townsend's Ground Squirrel	Chrysene	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	Regression Based	8.21	0.410	0.410	10.5	2.00	0.0105	0.421	1.0	0.42	0%	Pass
Townsend's Ground Squirrel	Dibenzo(a,h)anthracene	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	0.130	1.36	0.0682	0.0682	10.5	2.00	0.0105	0.0787	1.0	0.079	0%	Pass
Townsend's Ground Squirrel	Fluoranthene	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	0.500	0.0720	0.00360	0.00360	0.144	2.00	0.000144	0.00374	125.0	<0.01	4%	Pass
Townsend's Ground Squirrel	Fluorene	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	Regression Based	5190	259	259	33	2.00	0.0330	259	125.0	**2.1**	14%	**Retain**

Table 16
Initial Risk Estimation for Wildlife Exposed to Site Soils
Attachment 10A - Thermal Treatment Unit, Ecological Risk Assessment

Receptor	Chemical	Body Weight (kg)	Daily Food Intake (kg/kg-bw/day)	Area Use Factor	Daily Food Ingestion from Site (kg/kg-bw/day)	Small Mammals and Other Vertebrates: Percent of Diet	Soil to Tissue Transfer Factor	Tissue Concentration (mg/kg DW)	Total Vertebrate Food Intake (mg/kg-bw/d)a	Soil Invertebrates: Percent of Diet	Soil to Tissue Transfer Factor	Tissue Concentration (mg/kg DW)	Total Invertebrate Food Intake (mg/kg-bw/d)b	Terrestrial Plants: Percent of Diet	Soil to Tissue Transfer Factor	Tissue Concentration (mg/kg DW)	Total Plant Food Intake (mg/kg-bw/d)c	Total Food Intake (mg/kg-bw/d)d	Soil EPC (mg/kg)	Percent of Diet as Soil	Incidental Soil Intake (mg/kg-bw/d)e	Total Chemical Intake (mg/kg-day)f	NOAEL TRV (mg/kg-bw/d)	NOAEL Hazard Quotient	Detection Frequency (%)	Screening Risk Conclusions
Townsend's Ground Squirrel	Indeno(1,2,3-c,d)pyrene	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	0.110	1.16	0.0577	0.0577	10.5	2.00	0.0105	0.0682	1.0	0.068	0%	Pass
Townsend's Ground Squirrel	Naphthalene	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	12.2	647	32.3	32.3	53	2.00	0.0529	32.4	50.0	0.65	25%	Pass
Townsend's Ground Squirrel	Phenanthrene	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	Regression Based	19.5	0.975	0.975	92	2.00	0.0919	1.07	175.0	<0.01	18%	Pass
Townsend's Ground Squirrel	Pyrene	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	0.720	7.56	0.378	0.378	10.5	2.00	0.0105	0.388	75.0	<0.01	0%	Pass
Townsend's Ground Squirrel	*HI - PAHs*																							**5.9**	(dets)	**Retain**
Townsend's Ground Squirrel	TPH	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	-	0	0	0	47000	2.00	47	47	1000.0	0.047	100%	Pass
Townsend's Ground Squirrel	*HI - Petroleum*																							0.047	(dets)	Pass
Townsend's Ground Squirrel	2,4,5-Trichlorophenol	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	0.0202	1.01	0.0505	0.0505	50	2.00	0.0500	0.100	0.2	0.42	0%	Pass
Townsend's Ground Squirrel	2,4,6-Trichlorophenol	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	0.0147	0.154	0.00769	0.00769	10.5	2.00	0.0105	0.0182	0.2	0.076	0%	Pass
Townsend's Ground Squirrel	2,4-Dichlorophenol	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	0.118	1.24	0.0619	0.0619	10.5	2.00	0.0105	0.0724	0.2	0.30	0%	Pass
Townsend's Ground Squirrel	2,4-Dimethylphenol	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	0.143	1.50	0.0751	0.0751	10.5	2.00	0.0105	0.0856	NSV	--	0%	Uncertain
Townsend's Ground Squirrel	2-Chloronaphthalene	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	0.0111	0.116	0.00581	0.00581	10.5	2.00	0.0105	0.0163	NSV	--	0%	Uncertain
Townsend's Ground Squirrel	2-Methylphenol	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	9.77	103	5.12	5.12	10.5	2.00	0.0105	5.13	340.0	0.015	0%	Pass
Townsend's Ground Squirrel	3,3-Dichlorobenzidine	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	2.28	47.8	2.39	2.39	21	2.00	0.0210	2.41	NSV	--	0%	Uncertain
Townsend's Ground Squirrel	4-Chloro-3-methylphenol	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	0.0767	0.805	0.0402	0.0402	10.5	2.00	0.0105	0.0507	NSV	--	0%	Uncertain
Townsend's Ground Squirrel	4-Chloroaniline	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	1.18	12.4	0.618	0.618	10.5	2.00	0.0105	0.629	NSV	--	0%	Uncertain
Townsend's Ground Squirrel	4-Methylphenol	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	0.951	9.98	0.499	0.499	10.5	2.00	0.0105	0.509	340.0	<0.01	0%	Pass
Townsend's Ground Squirrel	Benzoic acid	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	1.08	54.1	2.70	2.70	50	2.00	0.0500	2.75	NSV	--	0%	Uncertain
Townsend's Ground Squirrel	Benzylalcohol	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	5.67	59.5	2.97	2.97	10.5	2.00	0.0105	2.98	NSV	--	0%	Uncertain
Townsend's Ground Squirrel	bis(2-Ethylhexyl)phthalate	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	0.0660	0.0990	0.00494	0.00494	1.50	2.00	0.00150	0.00644	18.3	<0.01	18%	Pass
Townsend's Ground Squirrel	Butyl benzylphthalate	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	0.00182	0.0191	0.000953	0.000953	10.5	2.00	0.0105	0.0114	550.0	<0.01	0%	Pass
Townsend's Ground Squirrel	Dibenzofuran	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	1.89	22.6	1.13	1.13	12	2.00	0.0120	1.14	NSV	--	14%	Uncertain
Townsend's Ground Squirrel	Diethylphthalate	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	0.304	3.20	0.160	0.160	10.5	2.00	0.0105	0.170	4583.0	<0.01	0%	Pass
Townsend's Ground Squirrel	Dimethylphthalate	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	2.11	22.1	1.11	1.11	10.5	2.00	0.0105	1.12	550.0	<0.01	0%	Pass
Townsend's Ground Squirrel	Di-n-butylphthalate	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	0.00298	0.0313	0.00157	0.00157	10.5	2.00	0.0105	0.0121	550.0	<0.01	0%	Pass
Townsend's Ground Squirrel	Di-n-octylphthalate	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	0.461	4.84	0.242	0.242	10.5	2.00	0.0105	0.252	550.0	<0.01	0%	Pass
Townsend's Ground Squirrel	Hexachlorobenzene	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	0.000785	0.00824	0.000412	0.000412	10.5	2.00	0.0105	0.0109	1.6	<0.01	0%	Pass
Townsend's Ground Squirrel	Hexachlorobutadiene	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	0.00207	#########	0.0000000826	0.0000000826	0.000800	2.00	0.000000799	0.000000882	1.6	<0.01	4%	Pass
Townsend's Ground Squirrel	Hexachlorocyclopentadiene	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	0.0111	0.116	0.00581	0.00581	10.5	2.00	0.0105	0.0163	1.6	0.010	0%	Pass
Townsend's Ground Squirrel	Hexachloroethane	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	0.00305	0.0320	0.00160	0.00160	10.5	2.00	0.0105	0.0121	1.6	<0.01	0%	Pass
Townsend's Ground Squirrel	Isophorone	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	0.467	4.91	0.245	0.245	10.5	2.00	0.0105	0.256	NSV	--	0%	Uncertain
Townsend's Ground Squirrel	n-Nitroso-di-n-propylamine	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	2.45	25.7	1.28	1.28	10.5	2.00	0.0105	1.30	NSV	--	0%	Uncertain
Townsend's Ground Squirrel	n-Nitrosodiphenylamine	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	0.0719	0.755	0.0377	0.0377	10.5	2.00	0.0105	0.0482	NSV	--	0%	Uncertain
Townsend's Ground Squirrel	Pentachlorophenol	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	0.00129	0.0644	0.00322	0.00322	50	2.00	0.0500	0.0532	0.2	0.22	0%	Pass
Townsend's Ground Squirrel	*HI - SVOCs*																							<0.01	(dets)	Pass
Townsend's Ground Squirrel	1,1,1,2-Tetrachloroethane	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	3.56	0.00214	0.000107	0.000107	0.000600	2.00	0.000000599	0.000107	1.4	<0.01	5%	Pass
Townsend's Ground Squirrel	1,1,1-Trichloroethane	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	0.279	0.000251	0.0000126	0.0000126	0.000900	2.00	0.000000899	0.0000135	1000.0	<0.01	5%	Pass
Townsend's Ground Squirrel	1,1,2,2-Tetrachloroethane	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	0.354	0.000354	0.0000177	0.0000177	0.00100	2.00	0.000000999	0.0000187	1.4	<0.01	5%	Pass
Townsend's Ground Squirrel	1,1,2-Trichloroethane	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	0.298	0.000238	0.0000119	0.0000119	0.000800	2.00	0.000000799	0.0000127	1000.0	<0.01	5%	Pass
Townsend's Ground Squirrel	1,1-Dichloroethane	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	1.28	0.000899	0.0000449	0.0000449	0.000700	2.00	0.000000699	0.0000456	50.0	<0.01	5%	Pass
Townsend's Ground Squirrel	1,1-Dichloroethene	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	8.26	0.00908	0.000454	0.000454	0.00110	2.00	0.00000110	0.000455	2.5	<0.01	5%	Pass
Townsend's Ground Squirrel	1,2,3-Trichlorobenzene	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	1.37	0.00385	0.000192	0.000192	0.00280	2.00	0.00000280	0.000195	NSV	--	5%	Uncertain
Townsend's Ground Squirrel	1,2,3-Trichloropropane	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	5.84	0.00526	0.000263	0.000263	0.000900	2.00	0.000000899	0.000264	1000.0	<0.01	5%	Pass
Townsend's Ground Squirrel	1,2,4-Trichlorobenzene	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	0.00580	0.0000185	0.000000927	0.000000927	0.00320	2.00	0.00000320	0.00000412	NSV	--	4%	Uncertain
Townsend's Ground Squirrel	1,2-Dibromo-3-chloropropane	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	0.438	0.00171	0.0000854	0.0000854	0.00390	2.00	0.00000390	0.0000893	NSV	--	5%	Uncertain
Townsend's Ground Squirrel	1,2-Dichlorobenzene	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	2.57	0.00360	0.000180	0.000180	0.00140	2.00	0.00000140	0.000181	NSV	--	4%	Uncertain
Townsend's Ground Squirrel	1,2-Dichloroethane	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	2.50	0.00200	0.000100	0.000100	0.000800	2.00	0.000000799	0.000101	50.0	<0.01	5%	Pass
Townsend's Ground Squirrel	1,2-Dichloropropane	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	0.818	0.000573	0.0000286	0.0000286	0.000700	2.00	0.000000699	0.0000293	50.0	<0.01	5%	Pass
Townsend's Ground Squirrel	1,2-Ethylene Dibromide	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	11.7	0.0105	0.000525	0.000525	0.000900	2.00	0.000000899	0.000525	NSV	--	5%	Uncertain
Townsend's Ground Squirrel	1,3-Dichlorobenzene	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	0.0262	0.0000498	0.00000249	0.00000249	0.00190	2.00	0.00000190	0.00000438	NSV	--	4%	Uncertain
Townsend's Ground Squirrel	1,4-Dichlorobenzene	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	0.0262	0.0000812	0.00000406	0.00000406	0.00310	2.00	0.00000310	0.00000715	NSV	--	4%	Uncertain
Townsend's Ground Squirrel	2-Butanone	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	46.1	0.732	0.0366	0.0366	0.0159	2.00	0.0000159	0.0366	10.0	<0.01	18%	Pass
Townsend's Ground Squirrel	2-ChloroethylVinylEther	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	20.2	0.120	0.00602	0.00602	0.00595	2.00	0.00000594	0.00602	NSV	--	0%	Uncertain
Townsend's Ground Squirrel	2-Chlorophenol	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	0.557	5.84	0.292	0.292	10.5	2.00	0.0105	0.302	NSV	--	0%	Uncertain
Townsend's Ground Squirrel	2-Hexanone	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	16.6	0.0632	0.00316	0.00316	0.00380	2.00	0.00000380	0.00316	10.0	<0.01	5%	Pass
Townsend's Ground Squirrel	4-Bromophenylphenylether	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	0.566	5.94	0.297	0.297	10.5	2.00	0.0105	0.307	NSV	--	0%	Uncertain
Townsend's Ground Squirrel	4-Chlorophenylphenylether	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	0.00934	0.0981	0.00490	0.00490	10.5	2.00	0.0105	0.0154	NSV	--	0%	Uncertain
Townsend's Ground Squirrel	4-Methyl-2-pentanone	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	19.9	0.0854	0.00427	0.00427	0.00430	2.00	0.00000430	0.00427	25.0	<0.01	5%	Pass
Townsend's Ground Squirrel	Acetone	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	75.6	1810	90.6	90.6	24	2.00	0.0240	90.6	10.0	**9.1**	32%	**Retain**
Townsend's Ground Squirrel	Benzene	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	8.26	0.0339	0.00169	0.00169	0.00410	2.00	0.00000410	0.00170	0.7	<0.01	14%	Pass
Townsend's Ground Squirrel	Bis(2-chloroethoxy)methane	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	17.9	1.33	0.0663	0.0663	0.0740	2.00	0.0000739	0.0664	NSV	--	0%	Uncertain
Townsend's Ground Squirrel	bis(2-chloroethyl)ether	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	2.40	25.2	1.26	1.26	10.5	2.00	0.0105	1.27	NSV	--	0%	Uncertain
Townsend's Ground Squirrel	bis(2-chloroisopropyl)ether	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	0.659	6.92	0.346	0.346	10.5	2.00	0.0105	0.356	NSV	--	0%	Uncertain
Townsend's Ground Squirrel	Bromodichloromethane	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	8.49	0.00594	0.000297	0.000297	0.000700	2.00	0.000000699	0.000298	NSV	--	5%	Uncertain
Townsend's Ground Squirrel	Bromoform	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	0.346	0.000173	0.00000865	0.00000865	0.000500	2.00	0.000000500	0.00000915	15.0	<0.01	5%	Pass
Townsend's Ground Squirrel	Bromomethane	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	19.9	0.0298	0.00149	0.00149	0.00150	2.00	0.00000150	0.00149	15.0	<0.01	5%	Pass
Townsend's Ground Squirrel	Carbon tetrachloride	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	4.29	0.00386	0.000193	0.000193	0.000900	2.00	0.000000899	0.000194	16.0	<0.01	5%	Pass
Townsend's Ground Squirrel	Chlorobenzene	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	0.134	0.0000940	0.00000469	0.00000469	0.000700	2.00	0.000000699	0.00000539	15.0	<0.01	5%	Pass
Townsend's Ground Squirrel	Chloroethane	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	2.79	0.00279	0.000139	0.000139	0.00100	2.00	0.000000999	0.000140	15.0	<0.01	5%	Pass
Townsend's Ground Squirrel	Chloroform	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	0.873	0.000611	0.0000305	0.0000305	0.000700	2.00	0.000000699	0.0000312	15.0	<0.01	5%	Pass
Townsend's Ground Squirrel	Chloromethane	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	7.83	0.00783	0.000391	0.000391	0.00100	2.00	0.000000999	0.000392	15.0	<0.01	5%	Pass
Townsend's Ground Squirrel	cis-1,2-Dichloroethene	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	10.6	0.00744	0.000372	0.000372	0.000700	2.00	0.000000699	0.000372	45.2	<0.01	5%	Pass
Townsend's Ground Squirrel	cis-1,3-Dichloropropene	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	7.11	0.00427	0.000213	0.000213	0.000600	2.00	0.000000599	0.000214	45.2	<0.01	5%	Pass
Townsend's Ground Squirrel	Dibromochloromethane	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	0.674	0.000472	0.0000236	0.0000236	0.000700	2.00	0.000000699	0.0000243	NSV	--	5%	Uncertain

Table 16
Initial Risk Estimation for Wildlife Exposed to Site Soils
Attachment 10A - Thermal Treatment Unit, Ecological Risk Assessment

Receptor	Chemical	Body Weight (kg)	Daily Food Intake (kg/kg-bw/day)	Area Use Factor	Daily Food Ingestion from Site (kg/kg-bw/day)	Small Mammals and Other Vertebrates: Percent of Diet	Soil to Tissue Transfer Factor	Tissue Concentration (mg/kg DW)	Total Vertebrate Food Intake (mg/kg-bw/d)a	Soil Invertebrates: Percent of Diet	Soil to Tissue Transfer Factor	Tissue Concentration (mg/kg DW)	Total Invertebrate Food Intake (mg/kg-bw/d)b	Terrestrial Plants: Percent of Diet	Soil to Tissue Transfer Factor	Tissue Concentration (mg/kg DW)	Total Plant Food Intake (mg/kg-bw/d)c	Total Food Intake (mg/kg-bw/d)d	Soil EPC (mg/kg)	Percent of Diet as Soil	Incidental Soil Intake (mg/kg-bw/d)e	Total Chemical Intake (mg/kg-day)f	NOAEL TRV (mg/kg-bw/d)	NOAEL Hazard Quotient	Detection Frequency (%)	Screening Risk Conclusions
Townsend's Ground Squirrel	Dibromomethane	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	13.3	0.00665	0.000332	0.000332	0.000500	2.00	0.000000500	0.000333	NSV	--	5%	Uncertain
Townsend's Ground Squirrel	Dichlorodifluoromethane	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	0.580	0.000638	0.0000319	0.0000319	0.00110	2.00	0.00000110	0.0000330	NSV	--	5%	Uncertain
Townsend's Ground Squirrel	Ethylbenzene	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	0.0690	0.0000898	0.00000448	0.00000448	0.00130	2.00	0.00000130	0.00000578	97.0	<0.01	5%	Pass
Townsend's Ground Squirrel	m,p-Xylene	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	3.04	0.00608	0.000304	0.000304	0.00200	2.00	0.00000200	0.000306	179.0	<0.01	5%	Pass
Townsend's Ground Squirrel	Methylene chloride	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	4.10	0.0131	0.000656	0.000656	0.00320	2.00	0.00000320	0.000659	5.9	<0.01	5%	Pass
Townsend's Ground Squirrel	o-Xylene	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	3.34	0.00901	0.000450	0.000450	0.00270	2.00	0.00000270	0.000453	179.0	<0.01	14%	Pass
Townsend's Ground Squirrel	Phenol	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	2.62	27.5	1.37	1.37	10.5	2.00	0.0105	1.38	17.1	0.081	0%	Pass
Townsend's Ground Squirrel	Styrene	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	4.02	0.0105	0.000522	0.000522	0.00260	2.00	0.00000260	0.000525	NSV	--	14%	Uncertain
Townsend's Ground Squirrel	tert-ButylMethylEther	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	19	0.0133	0.000663	0.000663	0.000700	2.00	0.000000699	0.000664	NSV	--	5%	Uncertain
Townsend's Ground Squirrel	Tetrachloroethene	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	2.52	0.00227	0.000113	0.000113	0.000900	2.00	0.000000899	0.000114	1.4	<0.01	5%	Pass
Townsend's Ground Squirrel	Toluene	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	4.71	0.0882	0.00440	0.00440	0.0187	2.00	0.0000187	0.00442	52.0	<0.01	23%	Pass
Townsend's Ground Squirrel	Trans-1,2-Dichloroethene	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	2.50	0.00175	0.0000875	0.0000875	0.000700	2.00	0.000000699	0.0000882	45.2	<0.01	5%	Pass
Townsend's Ground Squirrel	Trans-1,3-Dichloropropene	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	0.818	0.000654	0.0000327	0.0000327	0.000800	2.00	0.000000799	0.0000335	45.2	<0.01	5%	Pass
Townsend's Ground Squirrel	Trichloroethylene (TCE)	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	0.331	0.000232	0.0000116	0.0000116	0.000700	2.00	0.000000699	0.0000123	0.7	<0.01	5%	Pass
Townsend's Ground Squirrel	Trichlorofluoromethane	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	0.261	0.000288	0.0000144	0.0000144	0.00110	2.00	0.00000110	0.0000155	NSV	--	5%	Uncertain
Townsend's Ground Squirrel	Vinyl Acetate	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	22	0.0264	0.00132	0.00132	0.00120	2.00	0.00000120	0.00132	NSV	--	5%	Uncertain
Townsend's Ground Squirrel	Vinyl chloride	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	3.10	0.00372	0.000186	0.000186	0.00120	2.00	0.00000120	0.000187	0.2	<0.01	5%	Pass
Townsend's Ground Squirrel	*HI - VOCs*																							**9.2**	(dets)	**Retain**
Black-tailed Jackrabbit	1,3,5-Trinitrobenzene	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	4.78	0.502	0.0359	0.0359	0.105	6.30	0.000473	0.0364	2.7	0.014	0%	Pass
Black-tailed Jackrabbit	1,3-Dinitrobenzene	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	15	1.20	0.0858	0.0858	0.0800	6.30	0.000360	0.0862	0.0	**2.2**	0%	**Retain**
Black-tailed Jackrabbit	2,4,6-Trinitrotoluene (TNT)	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	4.23	6.34	0.453	0.453	1.50	6.30	0.00675	0.460	2.0	0.23	0%	Pass
Black-tailed Jackrabbit	2,4-Dinitrophenol	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	2.40	120	8.57	8.57	50	6.30	0.225	8.80	NSV	--	0%	Uncertain
Black-tailed Jackrabbit	2,4-Dinitrotoluene	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	0.607	1.21	0.0867	0.0867	2.00	6.30	0.00900	0.0958	2.0	0.048	2%	Pass
Black-tailed Jackrabbit	2,6-Dinitrotoluene	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	11	116	8.25	8.25	10.5	6.30	0.0473	8.30	2.0	**4.2**	0%	**Retain**
Black-tailed Jackrabbit	2-Amino-4,6-Dinitrotoluene	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	Regression Based	2.72	0.194	0.194	1.50	6.30	0.00675	0.201	9.0	0.022	0%	Pass
Black-tailed Jackrabbit	2-Nitroaniline	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	10.7	536	38.3	38.3	50	6.30	0.225	38.5	NSV	--	0%	Uncertain
Black-tailed Jackrabbit	2-Nitrophenol	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	11.3	119	8.51	8.51	10.5	6.30	0.0473	8.56	NSV	--	0%	Uncertain
Black-tailed Jackrabbit	2-Nitrotoluene	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	0.428	0.0599	0.00428	0.00428	0.140	6.30	0.000630	0.00491	2.0	<0.01	0%	Pass
Black-tailed Jackrabbit	3-Nitroaniline	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	16.8	840	60	60	50	6.30	0.225	60.2	NSV	--	0%	Uncertain
Black-tailed Jackrabbit	3-Nitrotoluene	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	6.12	0.919	0.0656	0.0656	0.150	6.30	0.000675	0.0663	2.0	0.033	0%	Pass
Black-tailed Jackrabbit	4,6-Dinitro-2-methylphenol	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	0.182	9.08	0.649	0.649	50	6.30	0.225	0.874	NSV	--	0%	Uncertain
Black-tailed Jackrabbit	4-Nitroaniline	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	3.04	152	10.9	10.9	50	6.30	0.225	11.1	NSV	--	0%	Uncertain
Black-tailed Jackrabbit	4-Nitrophenol	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	0.992	49.6	3.55	3.55	50	6.30	0.225	3.77	NSV	--	0%	Uncertain
Black-tailed Jackrabbit	4-Nitrotoluene	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	6.66	1.27	0.0904	0.0904	0.190	6.30	0.000855	0.0913	2.0	0.046	0%	Pass
Black-tailed Jackrabbit	HMX	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	Regression Based	87.7	6.27	6.27	25	6.30	0.113	6.38	1.0	**6.4**	31%	**Retain**
Black-tailed Jackrabbit	Nitrobenzene	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	1.13	11.9	0.847	0.847	10.5	6.30	0.0473	0.895	NSV	--	0%	Uncertain
Black-tailed Jackrabbit	Nitroglycerin	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	14.7	5.01	0.358	0.358	0.340	6.30	0.00153	0.360	3.0	0.12	0%	Pass
Black-tailed Jackrabbit	Nitroguanidine	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	139	41.6	2.97	2.97	0.300	6.30	0.00135	2.97	NSV	--	5%	Uncertain
Black-tailed Jackrabbit	PETN	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	6.54	3.27	0.234	0.234	0.500	6.30	0.00225	0.236	170.0	<0.01	0%	Pass
Black-tailed Jackrabbit	Picric acid	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	17.4	8.72	0.623	0.623	0.500	6.30	0.00225	0.625	NSV	--	7%	Uncertain
Black-tailed Jackrabbit	RDX	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	Regression Based	37.6	2.69	2.69	1.50	6.30	0.00675	2.69	2.0	**1.3**	0%	**Retain**
Black-tailed Jackrabbit	Tetryl	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	1.78	0.408	0.0292	0.0292	0.230	6.30	0.00104	0.0302	1.3	0.023	0%	Pass
Black-tailed Jackrabbit	*HI - Energetics*																							**6.4**	(dets)	**Retain**
Black-tailed Jackrabbit	Aluminum	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	0.00400	216	15.4	15.4	54000	6.30	243	259	1.9	**130**	100%	**Retain**
Black-tailed Jackrabbit	Antimony	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	0.0500	8.35	0.596	0.596	167	6.30	0.751	1.35	0.1	**23**	79%	**Retain**
Black-tailed Jackrabbit	Arsenic	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	Regression Based	1.11	0.0795	0.0795	41.3	6.30	0.186	0.265	0.4	0.67	58%	Pass
Black-tailed Jackrabbit	Barium	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	0.100	64	4.57	4.57	640	6.30	2.88	7.45	45.0	0.17	100%	Pass
Black-tailed Jackrabbit	Beryllium	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	0.0100	0.00720	0.000514	0.000514	0.720	6.30	0.00324	0.00376	0.5	<0.01	48%	Pass
Black-tailed Jackrabbit	Cadmium	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	Regression Based	4.12	0.295	0.295	32	6.30	0.144	0.439	0.8	0.57	44%	Pass
Black-tailed Jackrabbit	Carbon disulfide	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	9.32	0.0103	0.000733	0.000733	0.00110	6.30	0.00000495	0.000738	NSV	--	5%	Uncertain
Black-tailed Jackrabbit	Chromium	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	0.0400	2.21	0.158	0.158	55.3	6.30	0.249	0.407	3.3	0.12	100%	Pass
Black-tailed Jackrabbit	Cobalt	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	0.0540	0.265	0.0189	0.0189	4.90	6.30	0.0221	0.0410	1.1	0.036	79%	Pass
Black-tailed Jackrabbit	Copper	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	Regression Based	92.7	6.62	6.62	18000	6.30	81	87.7	11.7	**7.5**	85%	**Retain**
Black-tailed Jackrabbit	Iron	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	0.0100	150	10.7	10.7	15000	6.30	67.5	78.2	NSV	--	100%	Uncertain
Black-tailed Jackrabbit	Lead	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	Regression Based	112	8.01	8.01	48000	6.30	216	224	0.9	**240**	83%	**Retain**
Black-tailed Jackrabbit	Magnesium	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	2.06	50100	3580	3580	24300	6.30	109	3690	NSV	--	100%	Uncertain
Black-tailed Jackrabbit	Manganese	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	0.680	353	25.2	25.2	519	6.30	2.34	27.6	88.0	0.31	100%	Pass
Black-tailed Jackrabbit	Mercury	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	Regression Based	0.0869	0.00621	0.00621	0.0700	6.30	0.000315	0.00653	0.0	0.20	27%	Pass
Black-tailed Jackrabbit	Molybdenum	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	0.400	6.80	0.486	0.486	17	6.30	0.0765	0.562	0.3	**2.2**	91%	**Retain**
Black-tailed Jackrabbit	Nickel	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	Regression Based	1.75	0.125	0.125	41.3	6.30	0.186	0.311	40.0	<0.01	100%	Pass
Black-tailed Jackrabbit	Nitrate	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	1.00	22.8	1.63	1.63	22.8	6.30	0.103	1.73	507.0	<0.01	92%	Pass
Black-tailed Jackrabbit	Perchlorate	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	282	1270	90.7	90.7	4.50	6.30	0.0203	90.7	2.6	**35**	50%	**Retain**
Black-tailed Jackrabbit	Phosphorus	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	1.00	990	70.7	70.7	990	6.30	4.46	75.2	NSV	--	100%	Uncertain
Black-tailed Jackrabbit	Selenium	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	Regression Based	3.00	0.214	0.214	5.00	6.30	0.0225	0.237	0.2	**1.2**	0%	**Retain**
Black-tailed Jackrabbit	Silver	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	1.00	4.00	0.286	0.286	4.00	6.30	0.0180	0.304	2.4	0.13	8%	Pass
Black-tailed Jackrabbit	Strontium	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	1.10	532	38	38	484	6.30	2.18	40.2	263.0	0.15	100%	Pass
Black-tailed Jackrabbit	Thallium	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	0.00400	0.00220	0.000157	0.000157	0.550	6.30	0.00248	0.00263	0.0	0.36	54%	Pass
Black-tailed Jackrabbit	Vanadium	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	0.00550	0.141	0.0101	0.0101	25.7	6.30	0.116	0.126	0.2	0.60	100%	Pass
Black-tailed Jackrabbit	Zinc	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	Regression Based	355	25.3	25.3	2300	6.30	10.4	35.7	160.0	0.22	100%	Pass
Black-tailed Jackrabbit	*HI - Inorganics*																							**450**	(dets)	**Retain**
Black-tailed Jackrabbit	2-Methylnaphthalene	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	1.87	318	22.7	22.7	170	6.30	0.765	23.5	5.0	**4.7**	14%	**Retain**
Black-tailed Jackrabbit	Acenaphthene	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	Regression Based	17.2	1.23	1.23	0.0418	6.30	0.000188	1.23	175.0	<0.01	0%	Pass
Black-tailed Jackrabbit	Acenaphthylene	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	Regression Based	20.2	1.44	1.44	10.5	6.30	0.0473	1.49	175.0	<0.01	0%	Pass
Black-tailed Jackrabbit	Anthracene	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	Regression Based	7.44	0.532	0.532	3.70	6.30	0.0167	0.548	1000.0	<0.01	7%	Pass

Table 16
Initial Risk Estimation for Wildlife Exposed to Site Soils
Attachment 10A - Thermal Treatment Unit, Ecological Risk Assessment

Receptor	Chemical	Body Weight (kg)	Daily Food Intake (kg/kg-bw/day)	Area Use Factor	Daily Food Ingestion from Site (kg/kg-bw/day)	Small Mammals and Other Vertebrates: Percent of Diet	Small Mammals and Other Vertebrates: Soil to Tissue Transfer Factor	Small Mammals and Other Vertebrates: Tissue Concentration (mg/kg DW)	Small Mammals and Other Vertebrates: Total Vertebrate Food Intake (mg/kg-bw/d)a	Soil Invertebrates: Percent of Diet	Soil Invertebrates: Soil to Tissue Transfer Factor	Soil Invertebrates: Tissue Concentration (mg/kg DW)	Soil Invertebrates: Total Invertebrate Food Intake (mg/kg-bw/d)b	Terrestrial Plants: Percent of Diet	Terrestrial Plants: Soil to Tissue Transfer Factor	Terrestrial Plants: Tissue Concentration (mg/kg DW)	Terrestrial Plants: Total Plant Food Intake (mg/kg-bw/d)c	Total Food Intake (mg/kg-bw/d)d	Soil EPC (mg/kg)	Percent of Diet as Soil	Incidental Soil Intake (mg/kg-bw/d)e	Total Chemical Intake (mg/kg-day)f	NOAEL TRV (mg/kg-bw/d)	NOAEL Hazard Quotient	Detection Frequency (%)	Screening Risk Conclusions
Black-tailed Jackrabbit	Benzo(a)anthracene	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	Regression Based	8.21	0.587	0.587	10.5	6.30	0.0473	0.634	1.0	0.63	0%	Pass
Black-tailed Jackrabbit	Benzo(a)pyrene	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	Regression Based	10.5	0.752	0.752	10.5	6.30	0.0473	0.800	1.0	0.80	0%	Pass
Black-tailed Jackrabbit	Benzo(b)fluoranthene	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	0.310	3.26	0.233	0.233	10.5	6.30	0.0473	0.280	1.0	0.28	0%	Pass
Black-tailed Jackrabbit	Benzo(g,h,i)perylene	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	Regression Based	41	2.93	2.93	10.5	6.30	0.0473	2.97	1.0	**3.0**	0%	**Retain**
Black-tailed Jackrabbit	Benzo(k)fluoranthene	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	Regression Based	8.84	0.631	0.631	10.5	6.30	0.0473	0.679	1.0	0.68	0%	Pass
Black-tailed Jackrabbit	Chrysene	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	Regression Based	8.21	0.587	0.587	10.5	6.30	0.0473	0.634	1.0	0.63	0%	Pass
Black-tailed Jackrabbit	Dibenzo(a,h)anthracene	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	0.130	1.36	0.0975	0.0975	10.5	6.30	0.0473	0.145	1.0	0.14	0%	Pass
Black-tailed Jackrabbit	Fluoranthene	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	0.500	0.0720	0.00514	0.00514	0.144	6.30	0.000648	0.00579	125.0	<0.01	4%	Pass
Black-tailed Jackrabbit	Fluorene	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	Regression Based	5190	371	371	33	6.30	0.149	371	125.0	**3.0**	14%	**Retain**
Black-tailed Jackrabbit	Indeno(1,2,3-c,d)pyrene	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	0.110	1.16	0.0825	0.0825	10.5	6.30	0.0473	0.130	1.0	0.13	0%	Pass
Black-tailed Jackrabbit	Naphthalene	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	12.2	647	46.2	46.2	53	6.30	0.239	46.4	50.0	0.93	25%	Pass
Black-tailed Jackrabbit	Phenanthrene	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	Regression Based	19.5	1.39	1.39	92	6.30	0.414	1.81	175.0	0.010	18%	Pass
Black-tailed Jackrabbit	Pyrene	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	0.720	7.56	0.540	0.540	10.5	6.30	0.0473	0.587	75.0	<0.01	0%	Pass
Black-tailed Jackrabbit	*HI - PAHs*																							**8.6**	(dets)	**Retain**
Black-tailed Jackrabbit	TPH	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	-	0	0	0	47000	6.30	212	212	1000.0	0.21	100%	Pass
Black-tailed Jackrabbit	*HI - Petroleum*																							0.21	(dets)	Pass
Black-tailed Jackrabbit	2,4,5-Trichlorophenol	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	0.0202	1.01	0.0722	0.0722	50	6.30	0.225	0.297	0.2	**1.2**	0%	**Retain**
Black-tailed Jackrabbit	2,4,6-Trichlorophenol	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	0.0147	0.154	0.0110	0.0110	10.5	6.30	0.0473	0.0583	0.2	0.24	0%	Pass
Black-tailed Jackrabbit	2,4-Dichlorophenol	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	0.118	1.24	0.0886	0.0886	10.5	6.30	0.0473	0.136	0.2	0.57	0%	Pass
Black-tailed Jackrabbit	2,4-Dimethylphenol	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	0.143	1.50	0.107	0.107	10.5	6.30	0.0473	0.155	NSV	--	0%	Uncertain
Black-tailed Jackrabbit	2-Chloronaphthalene	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	0.0111	0.116	0.00831	0.00831	10.5	6.30	0.0473	0.0556	NSV	--	0%	Uncertain
Black-tailed Jackrabbit	2-Methylphenol	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	9.77	103	7.33	7.33	10.5	6.30	0.0473	7.38	340.0	0.022	0%	Pass
Black-tailed Jackrabbit	3,3-Dichlorobenzidine	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	2.28	47.8	3.41	3.41	21	6.30	0.0945	3.51	NSV	--	0%	Uncertain
Black-tailed Jackrabbit	4-Chloro-3-methylphenol	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	0.0767	0.805	0.0575	0.0575	10.5	6.30	0.0473	0.105	NSV	--	0%	Uncertain
Black-tailed Jackrabbit	4-Chloroaniline	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	1.18	12.4	0.885	0.885	10.5	6.30	0.0473	0.932	NSV	--	0%	Uncertain
Black-tailed Jackrabbit	4-Methylphenol	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	0.951	9.98	0.713	0.713	10.5	6.30	0.0473	0.761	340.0	<0.01	0%	Pass
Black-tailed Jackrabbit	Benzoic acid	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	1.08	54.1	3.87	3.87	50	6.30	0.225	4.09	NSV	--	0%	Uncertain
Black-tailed Jackrabbit	Benzylalcohol	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	5.67	59.5	4.25	4.25	10.5	6.30	0.0473	4.30	NSV	--	0%	Uncertain
Black-tailed Jackrabbit	bis(2-Ethylhexyl)phthalate	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	0.0660	0.0990	0.00707	0.00707	1.50	6.30	0.00675	0.0138	18.3	<0.01	18%	Pass
Black-tailed Jackrabbit	Butyl benzylphthalate	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	0.00182	0.0191	0.00136	0.00136	10.5	6.30	0.0473	0.0486	550.0	<0.01	0%	Pass
Black-tailed Jackrabbit	Dibenzofuran	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	1.89	22.6	1.62	1.62	12	6.30	0.0540	1.67	NSV	--	14%	Uncertain
Black-tailed Jackrabbit	Diethylphthalate	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	0.304	3.20	0.228	0.228	10.5	6.30	0.0473	0.276	4583.0	<0.01	0%	Pass
Black-tailed Jackrabbit	Dimethylphthalate	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	2.11	22.1	1.58	1.58	10.5	6.30	0.0473	1.63	550.0	<0.01	0%	Pass
Black-tailed Jackrabbit	Di-n-butylphthalate	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	0.00298	0.0313	0.00224	0.00224	10.5	6.30	0.0473	0.0495	550.0	<0.01	0%	Pass
Black-tailed Jackrabbit	Di-n-octylphthalate	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	0.461	4.84	0.346	0.346	10.5	6.30	0.0473	0.393	550.0	<0.01	0%	Pass
Black-tailed Jackrabbit	Hexachlorobenzene	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	0.000785	0.00824	0.000589	0.000589	10.5	6.30	0.0473	0.0479	1.6	0.030	0%	Pass
Black-tailed Jackrabbit	Hexachlorobutadiene	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	0.00207	#########	0.000000118	0.000000118	0.000800	6.30	0.00000360	0.00000372	1.6	<0.01	4%	Pass
Black-tailed Jackrabbit	Hexachlorocyclopentadiene	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	0.0111	0.116	0.00831	0.00831	10.5	6.30	0.0473	0.0556	1.6	0.035	0%	Pass
Black-tailed Jackrabbit	Hexachloroethane	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	0.00305	0.0320	0.00229	0.00229	10.5	6.30	0.0473	0.0496	1.6	0.031	0%	Pass
Black-tailed Jackrabbit	Isophorone	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	0.467	4.91	0.351	0.351	10.5	6.30	0.0473	0.398	NSV	--	0%	Uncertain
Black-tailed Jackrabbit	n-Nitroso-di-n-propylamine	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	2.45	25.7	1.84	1.84	10.5	6.30	0.0473	1.89	NSV	--	0%	Uncertain
Black-tailed Jackrabbit	n-Nitrosodiphenylamine	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	0.0719	0.755	0.0540	0.0540	10.5	6.30	0.0473	0.101	NSV	--	0%	Uncertain
Black-tailed Jackrabbit	Pentachlorophenol	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	0.00129	0.0644	0.00460	0.00460	50	6.30	0.225	0.230	0.2	0.96	0%	Pass
Black-tailed Jackrabbit	*HI - SVOCs*																							<0.01	(dets)	Pass
Black-tailed Jackrabbit	1,1,1,2-Tetrachloroethane	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	3.56	0.00214	0.000153	0.000153	0.000600	6.30	0.00000270	0.000155	1.4	<0.01	5%	Pass
Black-tailed Jackrabbit	1,1,1-Trichloroethane	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	0.279	0.000251	0.0000180	0.0000180	0.000900	6.30	0.00000405	0.0000220	1000.0	<0.01	5%	Pass
Black-tailed Jackrabbit	1,1,2,2-Tetrachloroethane	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	0.354	0.000354	0.0000253	0.0000253	0.00100	6.30	0.00000450	0.0000298	1.4	<0.01	5%	Pass
Black-tailed Jackrabbit	1,1,2-Trichloroethane	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	0.298	0.000238	0.0000170	0.0000170	0.000800	6.30	0.00000360	0.0000206	1000.0	<0.01	5%	Pass
Black-tailed Jackrabbit	1,1-Dichloroethane	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	1.28	0.000899	0.0000642	0.0000642	0.000700	6.30	0.00000315	0.0000674	50.0	<0.01	5%	Pass
Black-tailed Jackrabbit	1,1-Dichloroethene	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	8.26	0.00908	0.000649	0.000649	0.00110	6.30	0.00000495	0.000654	2.5	<0.01	5%	Pass
Black-tailed Jackrabbit	1,2,3-Trichlorobenzene	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	1.37	0.00385	0.000275	0.000275	0.00280	6.30	0.0000126	0.000287	NSV	--	5%	Uncertain
Black-tailed Jackrabbit	1,2,3-Trichloropropane	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	5.84	0.00526	0.000376	0.000376	0.000900	6.30	0.00000405	0.000380	1000.0	<0.01	5%	Pass
Black-tailed Jackrabbit	1,2,4-Trichlorobenzene	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	0.00580	0.0000185	0.00000133	0.00000133	0.00320	6.30	0.0000144	0.0000157	NSV	--	4%	Uncertain
Black-tailed Jackrabbit	1,2-Dibromo-3-chloropropane	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	0.438	0.00171	0.000122	0.000122	0.00390	6.30	0.0000176	0.000140	NSV	--	5%	Uncertain
Black-tailed Jackrabbit	1,2-Dichlorobenzene	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	2.57	0.00360	0.000257	0.000257	0.00140	6.30	0.00000630	0.000263	NSV	--	4%	Uncertain
Black-tailed Jackrabbit	1,2-Dichloroethane	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	2.50	0.00200	0.000143	0.000143	0.000800	6.30	0.00000360	0.000147	50.0	<0.01	5%	Pass
Black-tailed Jackrabbit	1,2-Dichloropropane	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	0.818	0.000573	0.0000409	0.0000409	0.000700	6.30	0.00000315	0.0000441	50.0	<0.01	5%	Pass
Black-tailed Jackrabbit	1,2-Ethylene Dibromide	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	11.7	0.0105	0.000750	0.000750	0.000900	6.30	0.00000405	0.000754	NSV	--	5%	Uncertain
Black-tailed Jackrabbit	1,3-Dichlorobenzene	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	0.0262	0.0000498	0.00000356	0.00000356	0.00190	6.30	0.00000855	0.0000121	NSV	--	4%	Uncertain
Black-tailed Jackrabbit	1,4-Dichlorobenzene	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	0.0262	0.0000812	0.00000580	0.00000580	0.00310	6.30	0.0000140	0.0000198	NSV	--	4%	Uncertain
Black-tailed Jackrabbit	2-Butanone	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	46.1	0.732	0.0523	0.0523	0.0159	6.30	0.0000716	0.0524	10.0	<0.01	18%	Pass
Black-tailed Jackrabbit	2-ChloroethylVinylEther	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	20.2	0.120	0.00861	0.00861	0.00595	6.30	0.0000268	0.00863	NSV	--	0%	Uncertain
Black-tailed Jackrabbit	2-Chlorophenol	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	0.557	5.84	0.418	0.418	10.5	6.30	0.0473	0.465	NSV	--	0%	Uncertain
Black-tailed Jackrabbit	2-Hexanone	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	16.6	0.0632	0.00452	0.00452	0.00380	6.30	0.0000171	0.00454	10.0	<0.01	5%	Pass
Black-tailed Jackrabbit	4-Bromophenylphenylether	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	0.566	5.94	0.424	0.424	10.5	6.30	0.0473	0.472	NSV	--	0%	Uncertain
Black-tailed Jackrabbit	4-Chlorophenylphenylether	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	0.00934	0.0981	0.00701	0.00701	10.5	6.30	0.0473	0.0543	NSV	--	0%	Uncertain
Black-tailed Jackrabbit	4-Methyl-2-pentanone	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	19.9	0.0854	0.00611	0.00611	0.00430	6.30	0.0000194	0.00612	25.0	<0.01	5%	Pass
Black-tailed Jackrabbit	Acetone	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	75.6	1810	130	130	24	6.30	0.108	130	10.0	**13**	32%	**Retain**
Black-tailed Jackrabbit	Benzene	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	8.26	0.0339	0.00242	0.00242	0.00410	6.30	0.0000185	0.00244	0.7	<0.01	14%	Pass
Black-tailed Jackrabbit	Bis(2-chloroethoxy)methane	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	17.9	1.33	0.0948	0.0948	0.0740	6.30	0.000333	0.0951	NSV	--	0%	Uncertain
Black-tailed Jackrabbit	bis(2-chloroethyl)ether	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	2.40	25.2	1.80	1.80	10.5	6.30	0.0473	1.85	NSV	--	0%	Uncertain
Black-tailed Jackrabbit	bis(2-chloroisopropyl)ether	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	0.659	6.92	0.494	0.494	10.5	6.30	0.0473	0.542	NSV	--	0%	Uncertain
Black-tailed Jackrabbit	Bromodichloromethane	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	8.49	0.00594	0.000425	0.000425	0.000700	6.30	0.00000315	0.000428	NSV	--	5%	Uncertain
Black-tailed Jackrabbit	Bromoform	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	0.346	0.000173	0.0000124	0.0000124	0.000500	6.30	0.00000225	0.0000146	15.0	<0.01	5%	Pass

Table 16
Initial Risk Estimation for Wildlife Exposed to Site Soils
Attachment 10A - Thermal Treatment Unit, Ecological Risk Assessment

Receptor	Chemical	Body Weight (kg)	Daily Food Intake (kg/kg-bw/day)	Area Use Factor	Daily Food Ingestion from Site (kg/kg-bw/day)	Small Mammals and Other Vertebrates: Percent of Diet	Soil to Tissue Transfer Factor	Tissue Concentration (mg/kg DW)	Total Vertebrate Food Intake (mg/kg-bw/d)a	Soil Invertebrates: Percent of Diet	Soil to Tissue Transfer Factor	Tissue Concentration (mg/kg DW)	Total Invertebrate Food Intake (mg/kg-bw/d)b	Terrestrial Plants: Percent of Diet	Soil to Tissue Transfer Factor	Tissue Concentration (mg/kg DW)	Total Plant Food Intake (mg/kg-bw/d)c	Total Food Intake (mg/kg-bw/d)d	Soil EPC (mg/kg)	Percent of Diet as Soil	Incidental Soil Intake (mg/kg-bw/d)e	Total Chemical Intake (mg/kg-day)f	NOAEL TRV (mg/kg-bw/d)	NOAEL Hazard Quotient	Detection Frequency (%)	Screening Risk Conclusions
Black-tailed Jackrabbit	Bromomethane	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	19.9	0.0298	0.00213	0.00213	0.00150	6.30	0.00000675	0.00214	15.0	<0.01	5%	Pass
Black-tailed Jackrabbit	Carbon tetrachloride	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	4.29	0.00386	0.000276	0.000276	0.000900	6.30	0.00000405	0.000280	16.0	<0.01	5%	Pass
Black-tailed Jackrabbit	Chlorobenzene	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	0.134	0.0000940	0.00000671	0.00000671	0.000700	6.30	0.00000315	0.00000987	15.0	<0.01	5%	Pass
Black-tailed Jackrabbit	Chloroethane	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	2.79	0.00279	0.000199	0.000199	0.00100	6.30	0.00000450	0.000204	15.0	<0.01	5%	Pass
Black-tailed Jackrabbit	Chloroform	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	0.873	0.000611	0.0000436	0.0000436	0.000700	6.30	0.00000315	0.0000468	15.0	<0.01	5%	Pass
Black-tailed Jackrabbit	Chloromethane	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	7.83	0.00783	0.000559	0.000559	0.00100	6.30	0.00000450	0.000564	15.0	<0.01	5%	Pass
Black-tailed Jackrabbit	cis-1,2-Dichloroethene	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	10.6	0.00744	0.000532	0.000532	0.000700	6.30	0.00000315	0.000535	45.2	<0.01	5%	Pass
Black-tailed Jackrabbit	cis-1,3-Dichloropropene	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	7.11	0.00427	0.000305	0.000305	0.000600	6.30	0.00000270	0.000308	45.2	<0.01	5%	Pass
Black-tailed Jackrabbit	Dibromochloromethane	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	0.674	0.000472	0.0000337	0.0000337	0.000700	6.30	0.00000315	0.0000369	NSV	--	5%	Uncertain
Black-tailed Jackrabbit	Dibromomethane	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	13.3	0.00665	0.000475	0.000475	0.000500	6.30	0.00000225	0.000477	NSV	--	5%	Uncertain
Black-tailed Jackrabbit	Dichlorodifluoromethane	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	0.580	0.000638	0.0000456	0.0000456	0.00110	6.30	0.00000495	0.0000505	NSV	--	5%	Uncertain
Black-tailed Jackrabbit	Ethylbenzene	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	0.0690	0.0000898	0.00000641	0.00000641	0.00130	6.30	0.00000585	0.0000123	97.0	<0.01	5%	Pass
Black-tailed Jackrabbit	m,p-Xylene	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	3.04	0.00608	0.000434	0.000434	0.00200	6.30	0.00000900	0.000443	179.0	<0.01	5%	Pass
Black-tailed Jackrabbit	Methylene chloride	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	4.10	0.0131	0.000938	0.000938	0.00320	6.30	0.0000144	0.000952	5.9	<0.01	5%	Pass
Black-tailed Jackrabbit	o-Xylene	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	3.34	0.00901	0.000644	0.000644	0.00270	6.30	0.0000122	0.000656	179.0	<0.01	14%	Pass
Black-tailed Jackrabbit	Phenol	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	2.62	27.5	1.96	1.96	10.5	6.30	0.0473	2.01	17.1	0.12	0%	Pass
Black-tailed Jackrabbit	Styrene	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	4.02	0.0105	0.000747	0.000747	0.00260	6.30	0.0000117	0.000759	NSV	--	14%	Uncertain
Black-tailed Jackrabbit	tert-ButylMethylEther	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	19	0.0133	0.000949	0.000949	0.000700	6.30	0.00000315	0.000952	NSV	--	5%	Uncertain
Black-tailed Jackrabbit	Tetrachloroethene	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	2.52	0.00227	0.000162	0.000162	0.000900	6.30	0.00000405	0.000166	1.4	<0.01	5%	Pass
Black-tailed Jackrabbit	Toluene	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	4.71	0.0882	0.00630	0.00630	0.0187	6.30	0.0000842	0.00638	52.0	<0.01	23%	Pass
Black-tailed Jackrabbit	Trans-1,2-Dichloroethene	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	2.50	0.00175	0.000125	0.000125	0.000700	6.30	0.00000315	0.000128	45.2	<0.01	5%	Pass
Black-tailed Jackrabbit	Trans-1,3-Dichloropropene	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	0.818	0.000654	0.0000468	0.0000468	0.000800	6.30	0.00000360	0.0000504	45.2	<0.01	5%	Pass
Black-tailed Jackrabbit	Trichloroethylene (TCE)	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	0.331	0.000232	0.0000166	0.0000166	0.000700	6.30	0.00000315	0.0000197	0.7	<0.01	5%	Pass
Black-tailed Jackrabbit	Trichlorofluoromethane	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	0.261	0.000288	0.0000206	0.0000206	0.00110	6.30	0.00000495	0.0000255	NSV	--	5%	Uncertain
Black-tailed Jackrabbit	Vinyl Acetate	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	22	0.0264	0.00189	0.00189	0.00120	6.30	0.00000540	0.00189	NSV	--	5%	Uncertain
Black-tailed Jackrabbit	Vinyl chloride	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	3.10	0.00372	0.000266	0.000266	0.00120	6.30	0.00000540	0.000271	0.2	<0.01	5%	Pass
Black-tailed Jackrabbit	*HI - VOCs*																							**13**	(dets)	**Retain**
Pronghorn	1,3,5-Trinitrobenzene	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	4.78	0.502	0.0173	0.0173	0.105	2.00	0.0000722	0.0173	2.7	<0.01	0%	Pass
Pronghorn	1,3-Dinitrobenzene	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	15	1.20	0.0413	0.0413	0.0800	2.00	0.0000550	0.0414	0.0	**1.0**	0%	**Retain**
Pronghorn	2,4,6-Trinitrotoluene (TNT)	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	4.23	6.34	0.218	0.218	1.50	2.00	0.00103	0.219	2.0	0.11	0%	Pass
Pronghorn	2,4-Dinitrophenol	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	2.40	120	4.13	4.13	50	2.00	0.0344	4.16	NSV	--	0%	Uncertain
Pronghorn	2,4-Dinitrotoluene	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	0.607	1.21	0.0418	0.0418	2.00	2.00	0.00138	0.0431	2.0	0.022	2%	Pass
Pronghorn	2,6-Dinitrotoluene	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	11	116	3.97	3.97	10.5	2.00	0.00722	3.98	2.0	**2.0**	0%	**Retain**
Pronghorn	2-Amino-4,6-Dinitrotoluene	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	Regression Based	2.72	0.0935	0.0935	1.50	2.00	0.00103	0.0946	9.0	0.011	0%	Pass
Pronghorn	2-Nitroaniline	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	10.7	536	18.4	18.4	50	2.00	0.0344	18.5	NSV	--	0%	Uncertain
Pronghorn	2-Nitrophenol	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	11.3	119	4.10	4.10	10.5	2.00	0.00722	4.10	NSV	--	0%	Uncertain
Pronghorn	2-Nitrotoluene	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	0.428	0.0599	0.00206	0.00206	0.140	2.00	0.0000963	0.00216	2.0	<0.01	0%	Pass
Pronghorn	3-Nitroaniline	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	16.8	840	28.9	28.9	50	2.00	0.0344	28.9	NSV	--	0%	Uncertain
Pronghorn	3-Nitrotoluene	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	6.12	0.919	0.0316	0.0316	0.150	2.00	0.000103	0.0317	2.0	0.016	0%	Pass
Pronghorn	4,6-Dinitro-2-methylphenol	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	0.182	9.08	0.312	0.312	50	2.00	0.0344	0.347	NSV	--	0%	Uncertain
Pronghorn	4-Nitroaniline	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	3.04	152	5.23	5.23	50	2.00	0.0344	5.27	NSV	--	0%	Uncertain
Pronghorn	4-Nitrophenol	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	0.992	49.6	1.71	1.71	50	2.00	0.0344	1.74	NSV	--	0%	Uncertain
Pronghorn	4-Nitrotoluene	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	6.66	1.27	0.0435	0.0435	0.190	2.00	0.000131	0.0437	2.0	0.022	0%	Pass
Pronghorn	HMX	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	Regression Based	87.7	3.02	3.02	25	2.00	0.0172	3.03	1.0	**3.0**	31%	**Retain**
Pronghorn	Nitrobenzene	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	1.13	11.9	0.408	0.408	10.5	2.00	0.00722	0.415	NSV	--	0%	Uncertain
Pronghorn	Nitroglycerin	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	14.7	5.01	0.172	0.172	0.340	2.00	0.000234	0.173	3.0	0.058	0%	Pass
Pronghorn	Nitroguanidine	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	139	41.6	1.43	1.43	0.300	2.00	0.000206	1.43	NSV	--	5%	Uncertain
Pronghorn	PETN	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	6.54	3.27	0.112	0.112	0.500	2.00	0.000344	0.113	170.0	<0.01	0%	Pass
Pronghorn	Picric acid	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	17.4	8.72	0.300	0.300	0.500	2.00	0.000344	0.300	NSV	--	7%	Uncertain
Pronghorn	RDX	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	Regression Based	37.6	1.29	1.29	1.50	2.00	0.00103	1.29	2.0	0.65	0%	Pass
Pronghorn	Tetryl	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	1.78	0.408	0.0140	0.0140	0.230	2.00	0.000158	0.0142	1.3	0.011	0%	Pass
Pronghorn	*HI - Energetics*																							**3.1**	(dets)	**Retain**
Pronghorn	Aluminum	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	0.00400	216	7.43	7.43	54000	2.00	37.1	44.6	1.9	**23**	100%	**Retain**
Pronghorn	Antimony	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	0.0500	8.35	0.287	0.287	167	2.00	0.115	0.402	0.1	**6.8**	79%	**Retain**
Pronghorn	Arsenic	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	Regression Based	1.11	0.0383	0.0383	41.3	2.00	0.0284	0.0667	0.4	0.17	58%	Pass
Pronghorn	Barium	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	0.100	64	2.20	2.20	640	2.00	0.440	2.64	45.0	0.059	100%	Pass
Pronghorn	Beryllium	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	0.0100	0.00720	0.000248	0.000248	0.720	2.00	0.000495	0.000743	0.5	<0.01	48%	Pass
Pronghorn	Cadmium	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	Regression Based	4.12	0.142	0.142	32	2.00	0.0220	0.164	0.8	0.21	44%	Pass
Pronghorn	Carbon disulfide	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	9.32	0.0103	0.000353	0.000353	0.00110	2.00	0.000000757	0.000354	NSV	--	5%	Uncertain
Pronghorn	Chromium	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	0.0400	2.21	0.0761	0.0761	55.3	2.00	0.0380	0.114	3.3	0.035	100%	Pass
Pronghorn	Cobalt	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	0.0540	0.265	0.00910	0.00910	4.90	2.00	0.00337	0.0125	1.1	0.011	79%	Pass
Pronghorn	Copper	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	Regression Based	92.7	3.19	3.19	18000	2.00	12.4	15.6	11.7	**1.3**	85%	**Retain**
Pronghorn	Iron	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	0.0100	150	5.16	5.16	15000	2.00	10.3	15.5	NSV	--	100%	Uncertain
Pronghorn	Lead	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	Regression Based	112	3.85	3.85	48000	2.00	33	36.9	0.9	**40**	83%	**Retain**
Pronghorn	Magnesium	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	2.06	50100	1720	1720	24300	2.00	16.7	1740	NSV	--	100%	Uncertain
Pronghorn	Manganese	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	0.680	353	12.1	12.1	519	2.00	0.357	12.5	88.0	0.14	100%	Pass
Pronghorn	Mercury	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	Regression Based	0.0869	0.00299	0.00299	0.0700	2.00	0.0000482	0.00304	0.0	0.095	27%	Pass
Pronghorn	Molybdenum	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	0.400	6.80	0.234	0.234	17	2.00	0.0117	0.246	0.3	0.94	91%	Pass
Pronghorn	Nickel	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	Regression Based	1.75	0.0602	0.0602	41.3	2.00	0.0284	0.0886	40.0	<0.01	100%	Pass
Pronghorn	Nitrate	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	1.00	22.8	0.784	0.784	22.8	2.00	0.0157	0.800	507.0	<0.01	92%	Pass
Pronghorn	Perchlorate	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	282	1270	43.6	43.6	4.50	2.00	0.00310	43.6	2.6	**17**	50%	**Retain**
Pronghorn	Phosphorus	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	1.00	990	34	34	990	2.00	0.681	34.7	NSV	--	100%	Uncertain
Pronghorn	Selenium	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	Regression Based	3.00	0.103	0.103	5.00	2.00	0.00344	0.107	0.2	0.53	0%	Pass
Pronghorn	Silver	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	1.00	4.00	0.138	0.138	4.00	2.00	0.00275	0.140	2.4	0.059	8%	Pass

Table 16
Initial Risk Estimation for Wildlife Exposed to Site Soils
Attachment 10A - Thermal Treatment Unit, Ecological Risk Assessment

Receptor	Chemical	Body Weight (kg)	Daily Food Intake (kg/kg-bw/day)	Area Use Factor	Daily Food Ingestion from Site (kg/kg-bw/day)	Small Mammals and Other Vertebrates: Percent of Diet	Small Mammals and Other Vertebrates: Soil to Tissue Transfer Factor	Small Mammals and Other Vertebrates: Tissue Concentration (mg/kg DW)	Small Mammals and Other Vertebrates: Total Vertebrate Food Intake (mg/kg-bw/d)a	Soil Invertebrates: Percent of Diet	Soil Invertebrates: Soil to Tissue Transfer Factor	Soil Invertebrates: Tissue Concentration (mg/kg DW)	Soil Invertebrates: Total Invertebrate Food Intake (mg/kg-bw/d)b	Terrestrial Plants: Percent of Diet	Terrestrial Plants: Soil to Tissue Transfer Factor	Terrestrial Plants: Tissue Concentration (mg/kg DW)	Terrestrial Plants: Total Plant Food Intake (mg/kg-bw/d)c	Total Food Intake (mg/kg-bw/d)d	Soil EPC (mg/kg)	Percent of Diet as Soil	Incidental Soil Intake (mg/kg-bw/d)e	Total Chemical Intake (mg/kg-day)f	NOAEL TRV (mg/kg-bw/d)	NOAEL Hazard Quotient	Detection Frequency (%)	Screening Risk Conclusions
Pronghorn	Strontium	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	1.10	532	18.3	18.3	484	2.00	0.333	18.6	263.0	0.071	100%	Pass
Pronghorn	Thallium	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	0.00400	0.00220	0.0000757	0.0000757	0.550	2.00	0.000378	0.000454	0.0	0.061	54%	Pass
Pronghorn	Vanadium	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	0.00550	0.141	0.00486	0.00486	25.7	2.00	0.0177	0.0225	0.2	0.11	100%	Pass
Pronghorn	Zinc	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	Regression Based	355	12.2	12.2	2300	2.00	1.58	13.8	160.0	0.086	100%	Pass
Pronghorn	*HI - Inorganics*																							**90**	(dets)	**Retain**
Pronghorn	2-Methylnaphthalene	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	1.87	318	10.9	10.9	170	2.00	0.117	11	5.0	**2.2**	14%	**Retain**
Pronghorn	Acenaphthene	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	Regression Based	17.2	0.593	0.593	0.0418	2.00	0.0000288	0.593	175.0	<0.01	0%	Pass
Pronghorn	Acenaphthylene	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	Regression Based	20.2	0.694	0.694	10.5	2.00	0.00722	0.701	175.0	<0.01	0%	Pass
Pronghorn	Anthracene	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	Regression Based	7.44	0.256	0.256	3.70	2.00	0.00255	0.258	1000.0	<0.01	7%	Pass
Pronghorn	Benzo(a)anthracene	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	Regression Based	8.21	0.282	0.282	10.5	2.00	0.00722	0.290	1.0	0.29	0%	Pass
Pronghorn	Benzo(a)pyrene	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	Regression Based	10.5	0.362	0.362	10.5	2.00	0.00722	0.369	1.0	0.37	0%	Pass
Pronghorn	Benzo(b)fluoranthene	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	0.310	3.26	0.112	0.112	10.5	2.00	0.00722	0.119	1.0	0.12	0%	Pass
Pronghorn	Benzo(g,h,i)perylene	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	Regression Based	41	1.41	1.41	10.5	2.00	0.00722	1.42	1.0	**1.4**	0%	**Retain**
Pronghorn	Benzo(k)fluoranthene	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	Regression Based	8.84	0.304	0.304	10.5	2.00	0.00722	0.311	1.0	0.31	0%	Pass
Pronghorn	Chrysene	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	Regression Based	8.21	0.282	0.282	10.5	2.00	0.00722	0.290	1.0	0.29	0%	Pass
Pronghorn	Dibenzo(a,h)anthracene	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	0.130	1.36	0.0469	0.0469	10.5	2.00	0.00722	0.0542	1.0	0.054	0%	Pass
Pronghorn	Fluoranthene	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	0.500	0.0720	0.00248	0.00248	0.144	2.00	0.0000991	0.00258	125.0	<0.01	4%	Pass
Pronghorn	Fluorene	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	Regression Based	5190	178	178	33	2.00	0.0227	178	125.0	**1.4**	14%	**Retain**
Pronghorn	Indeno(1,2,3-c,d)pyrene	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	0.110	1.16	0.0397	0.0397	10.5	2.00	0.00722	0.0469	1.0	0.047	0%	Pass
Pronghorn	Naphthalene	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	12.2	647	22.2	22.2	53	2.00	0.0365	22.3	50.0	0.45	25%	Pass
Pronghorn	Phenanthrene	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	Regression Based	19.5	0.671	0.671	92	2.00	0.0633	0.735	175.0	<0.01	18%	Pass
Pronghorn	Pyrene	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	0.720	7.56	0.260	0.260	10.5	2.00	0.00722	0.267	75.0	<0.01	0%	Pass
Pronghorn	*HI - PAHs*																							**4.1**	(dets)	**Retain**
Pronghorn	TPH	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	-	0	0	0	47000	2.00	32.3	32.3	1000.0	0.032	100%	Pass
Pronghorn	*HI - Petroleum*																							0.032	(dets)	Pass
Pronghorn	2,4,5-Trichlorophenol	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	0.0202	1.01	0.0348	0.0348	50	2.00	0.0344	0.0692	0.2	0.29	0%	Pass
Pronghorn	2,4,6-Trichlorophenol	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	0.0147	0.154	0.00529	0.00529	10.5	2.00	0.00722	0.0125	0.2	0.052	0%	Pass
Pronghorn	2,4-Dichlorophenol	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	0.118	1.24	0.0426	0.0426	10.5	2.00	0.00722	0.0499	0.2	0.21	0%	Pass
Pronghorn	2,4-Dimethylphenol	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	0.143	1.50	0.0517	0.0517	10.5	2.00	0.00722	0.0589	NSV	--	0%	Uncertain
Pronghorn	2-Chloronaphthalene	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	0.0111	0.116	0.00400	0.00400	10.5	2.00	0.00722	0.0112	NSV	--	0%	Uncertain
Pronghorn	2-Methylphenol	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	9.77	103	3.53	3.53	10.5	2.00	0.00722	3.54	340.0	0.010	0%	Pass
Pronghorn	3,3-Dichlorobenzidine	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	2.28	47.8	1.64	1.64	21	2.00	0.0144	1.66	NSV	--	0%	Uncertain
Pronghorn	4-Chloro-3-methylphenol	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	0.0767	0.805	0.0277	0.0277	10.5	2.00	0.00722	0.0349	NSV	--	0%	Uncertain
Pronghorn	4-Chloroaniline	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	1.18	12.4	0.426	0.426	10.5	2.00	0.00722	0.433	NSV	--	0%	Uncertain
Pronghorn	4-Methylphenol	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	0.951	9.98	0.343	0.343	10.5	2.00	0.00722	0.351	340.0	<0.01	0%	Pass
Pronghorn	Benzoic acid	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	1.08	54.1	1.86	1.86	50	2.00	0.0344	1.90	NSV	--	0%	Uncertain
Pronghorn	Benzylalcohol	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	5.67	59.5	2.05	2.05	10.5	2.00	0.00722	2.05	NSV	--	0%	Uncertain
Pronghorn	bis(2-Ethylhexyl)phthalate	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	0.0660	0.0990	0.00340	0.00340	1.50	2.00	0.00103	0.00444	18.3	<0.01	18%	Pass
Pronghorn	Butyl benzylphthalate	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	0.00182	0.0191	0.000657	0.000657	10.5	2.00	0.00722	0.00788	550.0	<0.01	0%	Pass
Pronghorn	Dibenzofuran	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	1.89	22.6	0.779	0.779	12	2.00	0.00825	0.787	NSV	--	14%	Uncertain
Pronghorn	Diethylphthalate	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	0.304	3.20	0.110	0.110	10.5	2.00	0.00722	0.117	4583.0	<0.01	0%	Pass
Pronghorn	Dimethylphthalate	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	2.11	22.1	0.761	0.761	10.5	2.00	0.00722	0.768	550.0	<0.01	0%	Pass
Pronghorn	Di-n-butylphthalate	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	0.00298	0.0313	0.00108	0.00108	10.5	2.00	0.00722	0.00830	550.0	<0.01	0%	Pass
Pronghorn	Di-n-octylphthalate	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	0.461	4.84	0.166	0.166	10.5	2.00	0.00722	0.174	550.0	<0.01	0%	Pass
Pronghorn	Hexachlorobenzene	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	0.000785	0.00824	0.000284	0.000284	10.5	2.00	0.00722	0.00751	1.6	<0.01	0%	Pass
Pronghorn	Hexachlorobutadiene	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	0.00207	#########	0.0000000569	0.0000000569	0.000800	2.00	0.000000550	0.000000607	1.6	<0.01	4%	Pass
Pronghorn	Hexachlorocyclopentadiene	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	0.0111	0.116	0.00400	0.00400	10.5	2.00	0.00722	0.0112	1.6	<0.01	0%	Pass
Pronghorn	Hexachloroethane	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	0.00305	0.0320	0.00110	0.00110	10.5	2.00	0.00722	0.00832	1.6	<0.01	0%	Pass
Pronghorn	Isophorone	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	0.467	4.91	0.169	0.169	10.5	2.00	0.00722	0.176	NSV	--	0%	Uncertain
Pronghorn	n-Nitroso-di-n-propylamine	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	2.45	25.7	0.885	0.885	10.5	2.00	0.00722	0.892	NSV	--	0%	Uncertain
Pronghorn	n-Nitrosodiphenylamine	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	0.0719	0.755	0.0260	0.0260	10.5	2.00	0.00722	0.0332	NSV	--	0%	Uncertain
Pronghorn	Pentachlorophenol	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	0.00129	0.0644	0.00222	0.00222	50	2.00	0.0344	0.0366	0.2	0.15	0%	Pass
Pronghorn	*HI - SVOCs*																							<0.01	(dets)	Pass
Pronghorn	1,1,1,2-Tetrachloroethane	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	3.56	0.00214	0.0000735	0.0000735	0.000600	2.00	0.000000413	0.0000739	1.4	<0.01	5%	Pass
Pronghorn	1,1,1-Trichloroethane	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	0.279	0.000251	0.00000864	0.00000864	0.000900	2.00	0.000000619	0.00000926	1000.0	<0.01	5%	Pass
Pronghorn	1,1,2,2-Tetrachloroethane	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	0.354	0.000354	0.0000122	0.0000122	0.00100	2.00	0.000000688	0.0000129	1.4	<0.01	5%	Pass
Pronghorn	1,1,2-Trichloroethane	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	0.298	0.000238	0.00000819	0.00000819	0.000800	2.00	0.000000550	0.00000874	1000.0	<0.01	5%	Pass
Pronghorn	1,1-Dichloroethane	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	1.28	0.000899	0.0000309	0.0000309	0.000700	2.00	0.000000482	0.0000314	50.0	<0.01	5%	Pass
Pronghorn	1,1-Dichloroethene	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	8.26	0.00908	0.000312	0.000312	0.00110	2.00	0.000000757	0.000313	2.5	<0.01	5%	Pass
Pronghorn	1,2,3-Trichlorobenzene	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	1.37	0.00385	0.000132	0.000132	0.00280	2.00	0.00000193	0.000134	NSV	--	5%	Uncertain
Pronghorn	1,2,3-Trichloropropane	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	5.84	0.00526	0.000181	0.000181	0.000900	2.00	0.000000619	0.000182	1000.0	<0.01	5%	Pass
Pronghorn	1,2,4-Trichlorobenzene	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	0.00580	0.0000185	0.000000638	0.000000638	0.00320	2.00	0.00000220	0.00000284	NSV	--	4%	Uncertain
Pronghorn	1,2-Dibromo-3-chloropropane	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	0.438	0.00171	0.0000588	0.0000588	0.00390	2.00	0.00000268	0.0000615	NSV	--	5%	Uncertain
Pronghorn	1,2-Dichlorobenzene	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	2.57	0.00360	0.000124	0.000124	0.00140	2.00	0.000000963	0.000125	NSV	--	4%	Uncertain
Pronghorn	1,2-Dichloroethane	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	2.50	0.00200	0.0000689	0.0000689	0.000800	2.00	0.000000550	0.0000694	50.0	<0.01	5%	Pass
Pronghorn	1,2-Dichloropropane	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	0.818	0.000573	0.0000197	0.0000197	0.000700	2.00	0.000000482	0.0000202	50.0	<0.01	5%	Pass
Pronghorn	1,2-Ethylene Dibromide	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	11.7	0.0105	0.000361	0.000361	0.000900	2.00	0.000000619	0.000362	NSV	--	5%	Uncertain
Pronghorn	1,3-Dichlorobenzene	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	0.0262	0.0000498	0.00000171	0.00000171	0.00190	2.00	0.00000131	0.00000302	NSV	--	4%	Uncertain
Pronghorn	1,4-Dichlorobenzene	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	0.0262	0.0000812	0.00000279	0.00000279	0.00310	2.00	0.00000213	0.00000492	NSV	--	4%	Uncertain
Pronghorn	2-Butanone	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	46.1	0.732	0.0252	0.0252	0.0159	2.00	0.0000109	0.0252	10.0	<0.01	18%	Pass
Pronghorn	2-ChloroethylVinylEther	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	20.2	0.120	0.00414	0.00414	0.00595	2.00	0.00000409	0.00415	NSV	--	0%	Uncertain
Pronghorn	2-Chlorophenol	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	0.557	5.84	0.201	0.201	10.5	2.00	0.00722	0.208	NSV	--	0%	Uncertain
Pronghorn	2-Hexanone	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	16.6	0.0632	0.00217	0.00217	0.00380	2.00	0.00000261	0.00218	10.0	<0.01	5%	Pass
Pronghorn	4-Bromophenylphenylether	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	0.566	5.94	0.204	0.204	10.5	2.00	0.00722	0.211	NSV	--	0%	Uncertain

Table 16
Initial Risk Estimation for Wildlife Exposed to Site Soils
Attachment 10A - Thermal Treatment Unit, Ecological Risk Assessment

						Small Mammals and Other Vertebrates				Soil Invertebrates				Terrestrial Plants												
Receptor	Chemical	Body Weight (kg)	Daily Food Intake (kg/kg-bw/day)	Area Use Factor	Daily Food Ingestion from Site (kg/kg-bw/day)	Percent of Diet	Soil to Tissue Transfer Factor	Tissue Concentration (mg/kg DW)	Total Vertebrate Food Intake (mg/kg-bw/d)a	Percent of Diet	Soil to Tissue Transfer Factor	Tissue Concentration (mg/kg DW)	Total Invertebrate Food Intake (mg/kg-bw/d)b	Percent of Diet	Soil to Tissue Transfer Factor	Tissue Concentration (mg/kg DW)	Total Plant Food Intake (mg/kg-bw/d)c	Total Food Intake (mg/kg-bw/d)d	Soil EPC (mg/kg)	Percent of Diet as Soil	Incidental Soil Intake (mg/kg-bw/d)e	Total Chemical Intake (mg/kg-day)f	NOAEL TRV (mg/kg-bw/d)	NOAEL Hazard Quotient	Detection Frequency (%)	Screening Risk Conclusions
Pronghorn	4-Chlorophenylphenylether	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	0.00934	0.0981	0.00337	0.00337	10.5	2.00	0.00722	0.0106	NSV	--	0%	Uncertain
Pronghorn	4-Methyl-2-pentanone	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	19.9	0.0854	0.00294	0.00294	0.00430	2.00	0.00000296	0.00294	25.0	<0.01	5%	Pass
Pronghorn	Acetone	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	75.6	1810	62.4	62.4	24	2.00	0.0165	62.4	10.0	**6.2**	32%	**Retain**
Pronghorn	Benzene	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	8.26	0.0339	0.00116	0.00116	0.00410	2.00	0.00000282	0.00117	0.7	<0.01	14%	Pass
Pronghorn	Bis(2-chloroethoxy)methane	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	17.9	1.33	0.0456	0.0456	0.0740	2.00	0.0000509	0.0457	NSV	--	0%	Uncertain
Pronghorn	bis(2-chloroethyl)ether	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	2.40	25.2	0.866	0.866	10.5	2.00	0.00722	0.874	NSV	--	0%	Uncertain
Pronghorn	bis(2-chloroisopropyl)ether	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	0.659	6.92	0.238	0.238	10.5	2.00	0.00722	0.245	NSV	--	0%	Uncertain
Pronghorn	Bromodichloromethane	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	8.49	0.00594	0.000204	0.000204	0.000700	2.00	0.000000482	0.000205	NSV	--	5%	Uncertain
Pronghorn	Bromoform	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	0.346	0.000173	0.00000595	0.00000595	0.000500	2.00	0.000000344	0.00000630	15.0	<0.01	5%	Pass
Pronghorn	Bromomethane	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	19.9	0.0298	0.00103	0.00103	0.00150	2.00	0.00000103	0.00103	15.0	<0.01	5%	Pass
Pronghorn	Carbon tetrachloride	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	4.29	0.00386	0.000133	0.000133	0.000900	2.00	0.000000619	0.000134	16.0	<0.01	5%	Pass
Pronghorn	Chlorobenzene	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	0.134	0.0000940	0.00000323	0.00000323	0.000700	2.00	0.000000482	0.00000371	15.0	<0.01	5%	Pass
Pronghorn	Chloroethane	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	2.79	0.00279	0.0000959	0.0000959	0.00100	2.00	0.000000688	0.0000966	15.0	<0.01	5%	Pass
Pronghorn	Chloroform	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	0.873	0.000611	0.0000210	0.0000210	0.000700	2.00	0.000000482	0.0000215	15.0	<0.01	5%	Pass
Pronghorn	Chloromethane	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	7.83	0.00783	0.000269	0.000269	0.00100	2.00	0.000000688	0.000270	15.0	<0.01	5%	Pass
Pronghorn	cis-1,2-Dichloroethene	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	10.6	0.00744	0.000256	0.000256	0.000700	2.00	0.000000482	0.000256	45.2	<0.01	5%	Pass
Pronghorn	cis-1,3-Dichloropropene	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	7.11	0.00427	0.000147	0.000147	0.000600	2.00	0.000000413	0.000147	45.2	<0.01	5%	Pass
Pronghorn	Dibromochloromethane	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	0.674	0.000472	0.0000162	0.0000162	0.000700	2.00	0.000000482	0.0000167	NSV	--	5%	Uncertain
Pronghorn	Dibromomethane	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	13.3	0.00665	0.000229	0.000229	0.000500	2.00	0.000000344	0.000229	NSV	--	5%	Uncertain
Pronghorn	Dichlorodifluoromethane	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	0.580	0.000638	0.0000219	0.0000219	0.00110	2.00	0.000000757	0.0000227	NSV	--	5%	Uncertain
Pronghorn	Ethylbenzene	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	0.0690	0.0000898	0.00000309	0.00000309	0.00130	2.00	0.000000894	0.00000398	97.0	<0.01	5%	Pass
Pronghorn	m,p-Xylene	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	3.04	0.00608	0.000209	0.000209	0.00200	2.00	0.00000138	0.000210	179.0	<0.01	5%	Pass
Pronghorn	Methylene chloride	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	4.10	0.0131	0.000451	0.000451	0.00320	2.00	0.00000220	0.000454	5.9	<0.01	5%	Pass
Pronghorn	o-Xylene	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	3.34	0.00901	0.000310	0.000310	0.00270	2.00	0.00000186	0.000312	179.0	<0.01	14%	Pass
Pronghorn	Phenol	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	2.62	27.5	0.945	0.945	10.5	2.00	0.00722	0.952	17.1	0.056	0%	Pass
Pronghorn	Styrene	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	4.02	0.0105	0.000360	0.000360	0.00260	2.00	0.00000179	0.000361	NSV	--	14%	Uncertain
Pronghorn	tert-ButylMethylEther	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	19	0.0133	0.000457	0.000457	0.000700	2.00	0.000000482	0.000457	NSV	--	5%	Uncertain
Pronghorn	Tetrachloroethene	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	2.52	0.00227	0.0000780	0.0000780	0.000900	2.00	0.000000619	0.0000787	1.4	<0.01	5%	Pass
Pronghorn	Toluene	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	4.71	0.0882	0.00303	0.00303	0.0187	2.00	0.0000129	0.00305	52.0	<0.01	23%	Pass
Pronghorn	Trans-1,2-Dichloroethene	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	2.50	0.00175	0.0000603	0.0000603	0.000700	2.00	0.000000482	0.0000607	45.2	<0.01	5%	Pass
Pronghorn	Trans-1,3-Dichloropropene	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	0.818	0.000654	0.0000225	0.0000225	0.000800	2.00	0.000000550	0.0000231	45.2	<0.01	5%	Pass
Pronghorn	Trichloroethylene (TCE)	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	0.331	0.000232	0.00000798	0.00000798	0.000700	2.00	0.000000482	0.00000846	0.7	<0.01	5%	Pass
Pronghorn	Trichlorofluoromethane	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	0.261	0.000288	0.00000989	0.00000989	0.00110	2.00	0.000000757	0.0000106	NSV	--	5%	Uncertain
Pronghorn	Vinyl Acetate	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	22	0.0264	0.000907	0.000907	0.00120	2.00	0.000000825	0.000908	NSV	--	5%	Uncertain
Pronghorn	Vinyl chloride	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	3.10	0.00372	0.000128	0.000128	0.00120	2.00	0.000000825	0.000129	0.2	<0.01	5%	Pass
Pronghorn	*HI - VOCs*																							**6.3**	(dets)	**Retain**
Grasshopper Mouse	1,3,5-Trinitrobenzene	0.041	0.250	1	0.250	0	-	0	0	100	27.9	2.93	0.733	0	-	0	0	0.733	0.105	13	0.00341	0.736	2.7	0.27	0%	Pass
Grasshopper Mouse	1,3-Dinitrobenzene	0.041	0.250	1	0.250	0	-	0	0	100	26.6	2.13	0.532	0	-	0	0	0.532	0.0800	13	0.00260	0.535	0.0	**13**	0%	**Retain**
Grasshopper Mouse	2,4,6-Trinitrotoluene (TNT)	0.041	0.250	1	0.250	0	-	0	0	100	0.170	0.255	0.0638	0	-	0	0	0.0638	1.50	13	0.0488	0.112	2.0	0.056	0%	Pass
Grasshopper Mouse	2,4-Dinitrophenol	0.041	0.250	1	0.250	0	-	0	0	100	28.7	1440	359	0	-	0	0	359	50	13	1.62	361	NSV	--	0%	Uncertain
Grasshopper Mouse	2,4-Dinitrotoluene	0.041	0.250	1	0.250	0	-	0	0	100	5.10	10.2	2.55	0	-	0	0	2.55	2.00	13	0.0650	2.62	2.0	**1.3**	2%	**Retain**
Grasshopper Mouse	2,6-Dinitrotoluene	0.041	0.250	1	0.250	0	-	0	0	100	3.16	33.2	8.30	0	-	0	0	8.30	10.5	13	0.341	8.64	2.0	**4.3**	0%	**Retain**
Grasshopper Mouse	2-Amino-4,6-Dinitrotoluene	0.041	0.250	1	0.250	0	-	0	0	100	Regression Based	6.71	1.68	0	-	0	0	1.68	1.50	13	0.0488	1.73	9.0	0.19	0%	Pass
Grasshopper Mouse	2-Nitroaniline	0.041	0.250	1	0.250	0	-	0	0	100	27	1350	337	0	-	0	0	337	50	13	1.62	339	NSV	--	0%	Uncertain
Grasshopper Mouse	2-Nitrophenol	0.041	0.250	1	0.250	0	-	0	0	100	26.9	283	70.7	0	-	0	0	70.7	10.5	13	0.341	71	NSV	--	0%	Uncertain
Grasshopper Mouse	2-Nitrotoluene	0.041	0.250	1	0.250	0	-	0	0	100	30.9	4.32	1.08	0	-	0	0	1.08	0.140	13	0.00455	1.09	2.0	0.54	0%	Pass
Grasshopper Mouse	3-Nitroaniline	0.041	0.250	1	0.250	0	-	0	0	100	26.5	1320	331	0	-	0	0	331	50	13	1.62	333	NSV	--	0%	Uncertain
Grasshopper Mouse	3-Nitrotoluene	0.041	0.250	1	0.250	0	-	0	0	100	27.6	4.14	1.04	0	-	0	0	1.04	0.150	13	0.00488	1.04	2.0	0.52	0%	Pass
Grasshopper Mouse	4,6-Dinitro-2-methylphenol	0.041	0.250	1	0.250	0	-	0	0	100	32	1600	400	0	-	0	0	400	50	13	1.62	402	NSV	--	0%	Uncertain
Grasshopper Mouse	4-Nitroaniline	0.041	0.250	1	0.250	0	-	0	0	100	28.5	1420	356	0	-	0	0	356	50	13	1.62	357	NSV	--	0%	Uncertain
Grasshopper Mouse	4-Nitrophenol	0.041	0.250	1	0.250	0	-	0	0	100	29.8	1490	373	0	-	0	0	373	50	13	1.62	374	NSV	--	0%	Uncertain
Grasshopper Mouse	4-Nitrotoluene	0.041	0.250	1	0.250	0	-	0	0	100	27.5	5.23	1.31	0	-	0	0	1.31	0.190	13	0.00618	1.31	2.0	0.66	0%	Pass
Grasshopper Mouse	HMX	0.041	0.250	1	0.250	0	-	0	0	100	1.00	25	6.25	0	-	0	0	6.25	25	13	0.812	7.06	1.0	**7.1**	31%	**Retain**
Grasshopper Mouse	Nitrobenzene	0.041	0.250	1	0.250	0	-	0	0	100	29.7	311	77.9	0	-	0	0	77.9	10.5	13	0.341	78.2	NSV	--	0%	Uncertain
Grasshopper Mouse	Nitroglycerin	0.041	0.250	1	0.250	0	-	0	0	100	26.6	9.05	2.26	0	-	0	0	2.26	0.340	13	0.0110	2.27	3.0	0.76	0%	Pass
Grasshopper Mouse	Nitroguanidine	0.041	0.250	1	0.250	0	-	0	0	100	24.2	7.27	1.82	0	-	0	0	1.82	0.300	13	0.00975	1.83	NSV	--	5%	Uncertain
Grasshopper Mouse	PETN	0.041	0.250	1	0.250	0	-	0	0	100	27.6	13.8	3.44	0	-	0	0	3.44	0.500	13	0.0162	3.46	170.0	0.020	0%	Pass
Grasshopper Mouse	Picric acid	0.041	0.250	1	0.250	0	-	0	0	100	26.4	13.2	3.31	0	-	0	0	3.31	0.500	13	0.0162	3.32	NSV	--	7%	Uncertain
Grasshopper Mouse	RDX	0.041	0.250	1	0.250	0	-	0	0	100	Regression Based	87.3	21.8	0	-	0	0	21.8	1.50	13	0.0488	21.9	2.0	**11**	0%	**Retain**
Grasshopper Mouse	Tetryl	0.041	0.250	1	0.250	0	-	0	0	100	29.1	6.69	1.67	0	-	0	0	1.67	0.230	13	0.00748	1.68	1.3	**1.3**	0%	**Retain**
Grasshopper Mouse	*HI - Energetics*																							**8.4**	(dets)	**Retain**
Grasshopper Mouse	Aluminum	0.041	0.250	1	0.250	0	-	0	0	100	0.340	18400	4590	0	-	0	0	4590	54000	13	1760	6350	1.9	**3300**	100%	**Retain**
Grasshopper Mouse	Antimony	0.041	0.250	1	0.250	0	-	0	0	100	0.0250	4.17	1.04	0	-	0	0	1.04	167	13	5.43	6.47	0.1	**110**	79%	**Retain**
Grasshopper Mouse	Arsenic	0.041	0.250	1	0.250	0	-	0	0	100	Regression Based	3.34	0.835	0	-	0	0	0.835	41.3	13	1.34	2.18	0.4	**5.5**	58%	**Retain**
Grasshopper Mouse	Barium	0.041	0.250	1	0.250	0	-	0	0	100	0.360	230	57.6	0	-	0	0	57.6	640	13	20.8	78.4	45.0	**1.7**	100%	**Retain**
Grasshopper Mouse	Beryllium	0.041	0.250	1	0.250	0	-	0	0	100	1.18	0.851	0.213	0	-	0	0	0.213	0.720	13	0.0234	0.236	0.53	0.44	48%	Pass
Grasshopper Mouse	Cadmium	0.041	0.250	1	0.250	0	-	0	0	100	Regression Based	130	32.6	0	-	0	0	32.6	32	13	1.04	33.6	0.8	**44**	44%	**Retain**
Grasshopper Mouse	Carbon disulfide	0.041	0.250	1	0.250	0	-	0	0	100	27.1	0.0299	0.00747	0	-	0	0	0.00747	0.00110	13	0.0000358	0.00750	NSV	--	5%	Uncertain
Grasshopper Mouse	Chromium	0.041	0.250	1	0.250	0	-	0	0	100	3.16	175	43.7	0	-	0	0	43.7	55.3	13	1.80	45.5	3.3	**14**	100%	**Retain**
Grasshopper Mouse	Cobalt	0.041	0.250	1	0.250	0	-	0	0	100	0.291	1.43	0.356	0	-	0	0	0.356	4.90	13	0.159	0.516	1.1	0.45	79%	Pass
Grasshopper Mouse	Copper	0.041	0.250	1	0.250	0	-	0	0	100	Regression Based	70.9	17.7	0	-	0	0	17.7	18000	13	585	603	11.7	**52**	85%	**Retain**
Grasshopper Mouse	Iron	0.041	0.250	1	0.250	0	-	0	0	100	0.380	5700	1430	0	-	0	0	1430	15000	13	488	1910	NSV	--	100%	Uncertain
Grasshopper Mouse	Lead	0.041	0.250	1	0.250	0	-	0	0	100	Regression Based	4820	1210	0	-	0	0	1210	48000	13	1560	2770	0.9	**3000**	83%	**Retain**
Grasshopper Mouse	Magnesium	0.041	0.250	1	0.250	0	-	0	0	100	0.425	10300	2580	0	-	0	0	2580	24300	13	790	3370	NSV	--	100%	Uncertain

Table 16
Initial Risk Estimation for Wildlife Exposed to Site Soils
Attachment 10A - Thermal Treatment Unit, Ecological Risk Assessment

						Small Mammals and Other Vertebrates				Soil Invertebrates				Terrestrial Plants												
Receptor	Chemical	Body Weight (kg)	Daily Food Intake (kg/kg-bw/day)	Area Use Factor	Daily Food Ingestion from Site (kg/kg-bw/day)	Percent of Diet	Soil to Tissue Transfer Factor	Tissue Concentration (mg/kg DW)	Total Vertebrate Food Intake (mg/kg-bw/d)a	Percent of Diet	Soil to Tissue Transfer Factor	Tissue Concentration (mg/kg DW)	Total Invertebrate Food Intake (mg/kg-bw/d)b	Percent of Diet	Soil to Tissue Transfer Factor	Tissue Concentration (mg/kg DW)	Total Plant Food Intake (mg/kg-bw/d)c	Total Food Intake (mg/kg-bw/d)d	Soil EPC (mg/kg)	Percent of Diet as Soil	Incidental Soil Intake (mg/kg-bw/d)e	Total Chemical Intake (mg/kg-day)f	NOAEL TRV (mg/kg-bw/d)	NOAEL Hazard Quotient	Detection Frequency (%)	Screening Risk Conclusions
Grasshopper Mouse	Manganese	0.041	0.250	1	0.250	0	-	0	0	100	Regression Based	31.7	7.91	0	-	0	0	7.91	519	13	16.9	24.8	88.0	0.28	100%	Pass
Grasshopper Mouse	Mercury	0.041	0.250	1	0.250	0	-	0	0	100	Regression Based	0.369	0.0922	0	-	0	0	0.0922	0.0700	13	0.00228	0.0944	0.0	**3.0**	27%	**Retain**
Grasshopper Mouse	Molybdenum	0.041	0.250	1	0.250	0	-	0	0	100	2.09	35.5	8.89	0	-	0	0	8.89	17	13	0.552	9.44	0.3	**36**	91%	**Retain**
Grasshopper Mouse	Nickel	0.041	0.250	1	0.250	0	-	0	0	100	4.73	195	48.8	0	-	0	0	48.8	41.3	13	1.34	50.2	40.0	**1.3**	100%	**Retain**
Grasshopper Mouse	Nitrate	0.041	0.250	1	0.250	0	-	0	0	100	1.00	22.8	5.70	0	-	0	0	5.70	22.8	13	0.741	6.44	507.0	0.013	92%	Pass
Grasshopper Mouse	Perchlorate	0.041	0.250	1	0.250	0	-	0	0	100	1.00	4.50	1.12	0	-	0	0	1.12	4.50	13	0.146	1.27	2.6	0.49	50%	Pass
Grasshopper Mouse	Phosphorus	0.041	0.250	1	0.250	0	-	0	0	100	1.00	990	248	0	-	0	0	248	990	13	32.2	280	NSV	--	100%	Uncertain
Grasshopper Mouse	Selenium	0.041	0.250	1	0.250	0	-	0	0	100	Regression Based	3.02	0.755	0	-	0	0	0.755	5.00	13	0.162	0.917	0.2	**4.6**	0%	**Retain**
Grasshopper Mouse	Silver	0.041	0.250	1	0.250	0	-	0	0	100	15.3	61.4	15.3	0	-	0	0	15.3	4.00	13	0.130	15.5	2.4	**6.5**	8%	**Retain**
Grasshopper Mouse	Strontium	0.041	0.250	1	0.250	0	-	0	0	100	0.278	135	33.6	0	-	0	0	33.6	484	13	15.7	49.4	263.0	0.19	100%	Pass
Grasshopper Mouse	Thallium	0.041	0.250	1	0.250	0	-	0	0	100	0.256	0.141	0.0352	0	-	0	0	0.0352	0.550	13	0.0179	0.0531	0.0	**7.2**	54%	**Retain**
Grasshopper Mouse	Vanadium	0.041	0.250	1	0.250	0	-	0	0	100	0.0880	2.26	0.565	0	-	0	0	0.565	25.7	13	0.835	1.40	0.2	**6.7**	100%	**Retain**
Grasshopper Mouse	Zinc	0.041	0.250	1	0.250	0	-	0	0	100	Regression Based	1080	271	0	-	0	0	271	2300	13	74.8	346	160.0	**2.2**	100%	**Retain**
Grasshopper Mouse	*HI - Inorganics*																							**6600**	(dets)	**Retain**
Grasshopper Mouse	2-Methylnaphthalene	0.041	0.250	1	0.250	0	-	0	0	100	29	4940	1230	0	-	0	0	1230	170	13	5.52	1240	5.0	**250**	14%	**Retain**
Grasshopper Mouse	Acenaphthene	0.041	0.250	1	0.250	0	-	0	0	100	1.47	0.0615	0.0154	0	-	0	0	0.0154	0.0418	13	0.00136	0.0167	175.0	<0.01	0%	Pass
Grasshopper Mouse	Acenaphthylene	0.041	0.250	1	0.250	0	-	0	0	100	22.9	240	60.1	0	-	0	0	60.1	10.5	13	0.341	60.5	175.0	0.35	0%	Pass
Grasshopper Mouse	Anthracene	0.041	0.250	1	0.250	0	-	0	0	100	2.42	8.95	2.24	0	-	0	0	2.24	3.70	13	0.120	2.36	1000.0	<0.01	7%	Pass
Grasshopper Mouse	Benzo(a)anthracene	0.041	0.250	1	0.250	0	-	0	0	100	1.59	16.7	4.17	0	-	0	0	4.17	10.5	13	0.341	4.51	1.0	**4.5**	0%	**Retain**
Grasshopper Mouse	Benzo(a)pyrene	0.041	0.250	1	0.250	0	-	0	0	100	1.33	14	3.49	0	-	0	0	3.49	10.5	13	0.341	3.83	1.0	**3.8**	0%	**Retain**
Grasshopper Mouse	Benzo(b)fluoranthene	0.041	0.250	1	0.250	0	-	0	0	100	2.60	27.3	6.82	0	-	0	0	6.82	10.5	13	0.341	7.17	1.0	**7.2**	0%	**Retain**
Grasshopper Mouse	Benzo(g,h,i)perylene	0.041	0.250	1	0.250	0	-	0	0	100	2.94	30.9	7.72	0	-	0	0	7.72	10.5	13	0.341	8.06	1.0	**8.1**	0%	**Retain**
Grasshopper Mouse	Benzo(k)fluoranthene	0.041	0.250	1	0.250	0	-	0	0	100	2.60	27.3	6.82	0	-	0	0	6.82	10.5	13	0.341	7.17	1.0	**7.2**	0%	**Retain**
Grasshopper Mouse	Chrysene	0.041	0.250	1	0.250	0	-	0	0	100	2.29	24	6.01	0	-	0	0	6.01	10.5	13	0.341	6.35	1.0	**6.4**	0%	**Retain**
Grasshopper Mouse	Dibenzo(a,h)anthracene	0.041	0.250	1	0.250	0	-	0	0	100	2.31	24.3	6.06	0	-	0	0	6.06	10.5	13	0.341	6.40	1.0	**6.4**	0%	**Retain**
Grasshopper Mouse	Fluoranthene	0.041	0.250	1	0.250	0	-	0	0	100	3.04	0.438	0.109	0	-	0	0	0.109	0.144	13	0.00468	0.114	125.0	<0.01	4%	Pass
Grasshopper Mouse	Fluorene	0.041	0.250	1	0.250	0	-	0	0	100	9.57	316	79	0	-	0	0	79	33	13	1.07	80	125.0	0.64	14%	Pass
Grasshopper Mouse	Indeno(1,2,3-c,d)pyrene	0.041	0.250	1	0.250	0	-	0	0	100	2.86	30	7.51	0	-	0	0	7.51	10.5	13	0.341	7.85	1.0	**7.8**	0%	**Retain**
Grasshopper Mouse	Naphthalene	0.041	0.250	1	0.250	0	-	0	0	100	4.40	233	58.3	0	-	0	0	58.3	53	13	1.72	60	50.0	**1.2**	25%	**Retain**
Grasshopper Mouse	Phenanthrene	0.041	0.250	1	0.250	0	-	0	0	100	1.72	158	39.6	0	-	0	0	39.6	92	13	2.99	42.6	175.0	0.24	18%	Pass
Grasshopper Mouse	Pyrene	0.041	0.250	1	0.250	0	-	0	0	100	1.75	18.4	4.59	0	-	0	0	4.59	10.5	13	0.341	4.93	75.0	0.066	0%	Pass
Grasshopper Mouse	*HI - PAHs*																							**250**	(dets)	**Retain**
Grasshopper Mouse	TPH	0.041	0.250	1	0.250	0	-	0	0	100	-	0	0	0	-	0	0	0	47000	13	1530	1530	1000.0	**1.5**	100%	**Retain**
Grasshopper Mouse	*HI - Petroleum*																							**1.5**	(dets)	**Retain**
Grasshopper Mouse	2,4,5-Trichlorophenol	0.041	0.250	1	0.250	0	-	0	0	100	35.1	1760	439	0	-	0	0	439	50	13	1.62	440	0.2	**1800**	0%	**Retain**
Grasshopper Mouse	2,4,6-Trichlorophenol	0.041	0.250	1	0.250	0	-	0	0	100	35.6	374	93.4	0	-	0	0	93.4	10.5	13	0.341	93.7	0.2	**390**	0%	**Retain**
Grasshopper Mouse	2,4-Dichlorophenol	0.041	0.250	1	0.250	0	-	0	0	100	32.6	342	85.6	0	-	0	0	85.6	10.5	13	0.341	85.9	0.2	**360**	0%	**Retain**
Grasshopper Mouse	2,4-Dimethylphenol	0.041	0.250	1	0.250	0	-	0	0	100	32.3	340	84.9	0	-	0	0	84.9	10.5	13	0.341	85.2	NSV	--	0%	Uncertain
Grasshopper Mouse	2-Chloronaphthalene	0.041	0.250	1	0.250	0	-	0	0	100	36	378	94.5	0	-	0	0	94.5	10.5	13	0.341	94.8	NSV	--	0%	Uncertain
Grasshopper Mouse	2-Methylphenol	0.041	0.250	1	0.250	0	-	0	0	100	27.1	284	71.1	0	-	0	0	71.1	10.5	13	0.341	71.5	340.0	0.21	0%	Pass
Grasshopper Mouse	3,3-Dichlorobenzidine	0.041	0.250	1	0.250	0	-	0	0	100	28.8	605	151	0	-	0	0	151	21	13	0.682	152	NSV	--	0%	Uncertain
Grasshopper Mouse	4-Chloro-3-methylphenol	0.041	0.250	1	0.250	0	-	0	0	100	33.2	349	87.1	0	-	0	0	87.1	10.5	13	0.341	87.5	NSV	--	0%	Uncertain
Grasshopper Mouse	4-Chloroaniline	0.041	0.250	1	0.250	0	-	0	0	100	29.6	311	77.7	0	-	0	0	77.7	10.5	13	0.341	78.1	NSV	--	0%	Uncertain
Grasshopper Mouse	4-Methylphenol	0.041	0.250	1	0.250	0	-	0	0	100	29.9	314	78.4	0	-	0	0	78.4	10.5	13	0.341	78.8	340.0	0.23	0%	Pass
Grasshopper Mouse	Benzoic acid	0.041	0.250	1	0.250	0	-	0	0	100	29.7	1490	371	0	-	0	0	371	50	13	1.62	373	NSV	--	0%	Uncertain
Grasshopper Mouse	Benzylalcohol	0.041	0.250	1	0.250	0	-	0	0	100	27.7	291	72.8	0	-	0	0	72.8	10.5	13	0.341	73.1	NSV	--	0%	Uncertain
Grasshopper Mouse	bis(2-Ethylhexyl)phthalate	0.041	0.250	1	0.250	0	-	0	0	100	33.4	50.1	12.5	0	-	0	0	12.5	1.50	13	0.0488	12.6	18.3	0.69	18%	Pass
Grasshopper Mouse	Butyl benzylphthalate	0.041	0.250	1	0.250	0	-	0	0	100	38.8	408	102	0	-	0	0	102	10.5	13	0.341	102	550.0	0.19	0%	Pass
Grasshopper Mouse	Dibenzofuran	0.041	0.250	1	0.250	0	-	0	0	100	29	348	87.1	0	-	0	0	87.1	12	13	0.390	87.5	NSV	--	14%	Uncertain
Grasshopper Mouse	Diethylphthalate	0.041	0.250	1	0.250	0	-	0	0	100	31.3	329	82.2	0	-	0	0	82.2	10.5	13	0.341	82.6	4583.0	0.018	0%	Pass
Grasshopper Mouse	Dimethylphthalate	0.041	0.250	1	0.250	0	-	0	0	100	28.9	303	75.8	0	-	0	0	75.8	10.5	13	0.341	76.2	550.0	0.14	0%	Pass
Grasshopper Mouse	Di-n-butylphthalate	0.041	0.250	1	0.250	0	-	0	0	100	38	399	99.8	0	-	0	0	99.8	10.5	13	0.341	100	550.0	0.18	0%	Pass
Grasshopper Mouse	Di-n-octylphthalate	0.041	0.250	1	0.250	0	-	0	0	100	30.8	323	80.8	0	-	0	0	80.8	10.5	13	0.341	81.2	550.0	0.15	0%	Pass
Grasshopper Mouse	Hexachlorobenzene	0.041	0.250	1	0.250	0	-	0	0	100	40.2	422	106	0	-	0	0	106	10.5	13	0.341	106	1.6	**66**	0%	**Retain**
Grasshopper Mouse	Hexachlorobutadiene	0.041	0.250	1	0.250	0	-	0	0	100	38.6	0.0309	0.00772	0	-	0	0	0.00772	0.000800	13	0.0000260	0.00775	1.6	<0.01	4%	Pass
Grasshopper Mouse	Hexachlorocyclopentadiene	0.041	0.250	1	0.250	0	-	0	0	100	36	378	94.5	0	-	0	0	94.5	10.5	13	0.341	94.8	1.6	**59**	0%	**Retain**
Grasshopper Mouse	Hexachloroethane	0.041	0.250	1	0.250	0	-	0	0	100	38	399	99.7	0	-	0	0	99.7	10.5	13	0.341	100	1.6	**63**	0%	**Retain**
Grasshopper Mouse	Isophorone	0.041	0.250	1	0.250	0	-	0	0	100	30.8	323	80.8	0	-	0	0	80.8	10.5	13	0.341	81.1	NSV	--	0%	Uncertain
Grasshopper Mouse	n-Nitroso-di-n-propylamine	0.041	0.250	1	0.250	0	-	0	0	100	28.7	301	75.4	0	-	0	0	75.4	10.5	13	0.341	75.7	NSV	--	0%	Uncertain
Grasshopper Mouse	n-Nitrosodiphenylamine	0.041	0.250	1	0.250	0	-	0	0	100	33.3	349	87.4	0	-	0	0	87.4	10.5	13	0.341	87.7	NSV	--	0%	Uncertain
Grasshopper Mouse	Pentachlorophenol	0.041	0.250	1	0.250	0	-	0	0	100	5.93	297	74.1	0	-	0	0	74.1	50	13	1.62	75.8	0.2	**320**	0%	**Retain**
Grasshopper Mouse	*HI - SVOCs*																							*0.69*	(dets)	Pass
Grasshopper Mouse	1,1,1,2-Tetrachloroethane	0.041	0.250	1	0.250	0	-	0	0	100	28.3	0.0170	0.00424	0	-	0	0	0.00424	0.000600	13	0.0000195	0.00426	1.4	<0.01	5%	Pass
Grasshopper Mouse	1,1,1-Trichloroethane	0.041	0.250	1	0.250	0	-	0	0	100	31.4	0.0283	0.00708	0	-	0	0	0.00708	0.000900	13	0.0000292	0.00710	1000.0	<0.01	5%	Pass
Grasshopper Mouse	1,1,2,2-Tetrachloroethane	0.041	0.250	1	0.250	0	-	0	0	100	31.1	0.0311	0.00778	0	-	0	0	0.00778	0.00100	13	0.0000325	0.00782	1.4	<0.01	5%	Pass
Grasshopper Mouse	1,1,2-Trichloroethane	0.041	0.250	1	0.250	0	-	0	0	100	31.4	0.0251	0.00627	0	-	0	0	0.00627	0.000800	13	0.0000260	0.00630	1000.0	<0.01	5%	Pass
Grasshopper Mouse	1,1-Dichloroethane	0.041	0.250	1	0.250	0	-	0	0	100	29.5	0.0206	0.00516	0	-	0	0	0.00516	0.000700	13	0.0000228	0.00518	50.0	<0.01	5%	Pass
Grasshopper Mouse	1,1-Dichloroethene	0.041	0.250	1	0.250	0	-	0	0	100	27.3	0.0300	0.00750	0	-	0	0	0.00750	0.00110	13	0.0000358	0.00754	2.5	<0.01	5%	Pass
Grasshopper Mouse	1,2,3-Trichlorobenzene	0.041	0.250	1	0.250	0	-	0	0	100	29.4	0.0824	0.0206	0	-	0	0	0.0206	0.00280	13	0.0000910	0.0207	NSV	--	5%	Uncertain
Grasshopper Mouse	1,2,3-Trichloropropane	0.041	0.250	1	0.250	0	-	0	0	100	27.7	0.0249	0.00623	0	-	0	0	0.00623	0.000900	13	0.0000292	0.00626	1000.0	<0.01	5%	Pass
Grasshopper Mouse	1,2,4-Trichlorobenzene	0.041	0.250	1	0.250	0	-	0	0	100	37	0.118	0.0296	0	-	0	0	0.0296	0.00320	13	0.000104	0.0297	NSV	--	4%	Uncertain
Grasshopper Mouse	1,2-Dibromo-3-chloropropane	0.041	0.250	1	0.250	0	-	0	0	100	30.9	0.120	0.0301	0	-	0	0	0.0301	0.00390	13	0.000127	0.0302	NSV	--	5%	Uncertain
Grasshopper Mouse	1,2-Dichlorobenzene	0.041	0.250	1	0.250	0	-	0	0	100	28.7	0.0401	0.0100	0	-	0	0	0.0100	0.00140	13	0.0000455	0.0101	NSV	--	4%	Uncertain
Grasshopper Mouse	1,2-Dichloroethane	0.041	0.250	1	0.250	0	-	0	0	100	28.7	0.0229	0.00574	0	-	0	0	0.00574	0.000800	13	0.0000260	0.00576	50.0	<0.01	5%	Pass

Table 16
Initial Risk Estimation for Wildlife Exposed to Site Soils
Attachment 10A - Thermal Treatment Unit, Ecological Risk Assessment

						Small Mammals and Other Vertebrates				Soil Invertebrates				Terrestrial Plants												
Receptor	Chemical	Body Weight (kg)	Daily Food Intake (kg/kg-bw/day)	Area Use Factor	Daily Food Ingestion from Site (kg/kg-bw/day)	Percent of Diet	Soil to Tissue Transfer Factor	Tissue Concentration (mg/kg DW)	Total Vertebrate Food Intake (mg/kg-bw/d)a	Percent of Diet	Soil to Tissue Transfer Factor	Tissue Concentration (mg/kg DW)	Total Invertebrate Food Intake (mg/kg-bw/d)b	Percent of Diet	Soil to Tissue Transfer Factor	Tissue Concentration (mg/kg DW)	Total Plant Food Intake (mg/kg-bw/d)c	Total Food Intake (mg/kg-bw/d)d	Soil EPC (mg/kg)	Percent of Diet as Soil	Incidental Soil Intake (mg/kg-bw/d)e	Total Chemical Intake (mg/kg-day)f	NOAEL TRV (mg/kg-bw/d)	NOAEL Hazard Quotient	Detection Frequency (%)	Screening Risk Conclusions
Grasshopper Mouse	1,2-Dichloropropane	0.041	0.250	1	0.250	0	-	0	0	100	30.1	0.0210	0.00526	0	-	0	0	0.00526	0.000700	13	0.0000228	0.00528	50.0	<0.01	5%	Pass
Grasshopper Mouse	1,2-Ethylene Dibromide	0.041	0.250	1	0.250	0	-	0	0	100	26.9	0.0242	0.00605	0	-	0	0	0.00605	0.000900	13	0.0000292	0.00608	NSV	--	5%	Uncertain
Grasshopper Mouse	1,3-Dichlorobenzene	0.041	0.250	1	0.250	0	-	0	0	100	34.7	0.0660	0.0165	0	-	0	0	0.0165	0.00190	13	0.0000618	0.0166	NSV	--	4%	Uncertain
Grasshopper Mouse	1,4-Dichlorobenzene	0.041	0.250	1	0.250	0	-	0	0	100	34.7	0.108	0.0269	0	-	0	0	0.0269	0.00310	13	0.000101	0.0270	NSV	--	4%	Uncertain
Grasshopper Mouse	2-Butanone	0.041	0.250	1	0.250	0	-	0	0	100	25.4	0.404	0.101	0	-	0	0	0.101	0.0159	13	0.000517	0.101	10.0	0.010	18%	Pass
Grasshopper Mouse	2-ChloroethylVinylEther	0.041	0.250	1	0.250	0	-	0	0	100	26.3	0.156	0.0391	0	-	0	0	0.0391	0.00595	13	0.000193	0.0393	NSV	--	0%	Uncertain
Grasshopper Mouse	2-Chlorophenol	0.041	0.250	1	0.250	0	-	0	0	100	30.6	321	80.2	0	-	0	0	80.2	10.5	13	0.341	80.5	NSV	--	0%	Uncertain
Grasshopper Mouse	2-Hexanone	0.041	0.250	1	0.250	0	-	0	0	100	26.5	0.101	0.0252	0	-	0	0	0.0252	0.00380	13	0.000124	0.0253	10.0	<0.01	5%	Pass
Grasshopper Mouse	4-Bromophenylphenylether	0.041	0.250	1	0.250	0	-	0	0	100	30.5	321	80.1	0	-	0	0	80.1	10.5	13	0.341	80.5	NSV	--	0%	Uncertain
Grasshopper Mouse	4-Chlorophenylphenylether	0.041	0.250	1	0.250	0	-	0	0	100	36.3	381	95.2	0	-	0	0	95.2	10.5	13	0.341	95.5	NSV	--	0%	Uncertain
Grasshopper Mouse	4-Methyl-2-pentanone	0.041	0.250	1	0.250	0	-	0	0	100	26.3	0.113	0.0283	0	-	0	0	0.0283	0.00430	13	0.000140	0.0284	25.0	<0.01	5%	Pass
Grasshopper Mouse	Acetone	0.041	0.250	1	0.250	0	-	0	0	100	24.9	597	149	0	-	0	0	149	24	13	0.780	150	10.0	**15**	32%	**Retain**
Grasshopper Mouse	Benzene	0.041	0.250	1	0.250	0	-	0	0	100	27.3	0.112	0.0280	0	-	0	0	0.0280	0.00410	13	0.000133	0.0281	0.7	0.040	14%	Pass
Grasshopper Mouse	Bis(2-chloroethoxy)methane	0.041	0.250	1	0.250	0	-	0	0	100	26.4	1.95	0.489	0	-	0	0	0.489	0.0740	13	0.00240	0.491	NSV	--	0%	Uncertain
Grasshopper Mouse	bis(2-chloroethyl)ether	0.041	0.250	1	0.250	0	-	0	0	100	28.7	302	75.4	0	-	0	0	75.4	10.5	13	0.341	75.8	NSV	--	0%	Uncertain
Grasshopper Mouse	bis(2-chloroisopropyl)ether	0.041	0.250	1	0.250	0	-	0	0	100	30.3	319	79.6	0	-	0	0	79.6	10.5	13	0.341	80	NSV	--	0%	Uncertain
Grasshopper Mouse	Bromodichloromethane	0.041	0.250	1	0.250	0	-	0	0	100	27.3	0.0191	0.00477	0	-	0	0	0.00477	0.000700	13	0.0000228	0.00479	NSV	--	5%	Uncertain
Grasshopper Mouse	Bromoform	0.041	0.250	1	0.250	0	-	0	0	100	31.2	0.0156	0.00390	0	-	0	0	0.00390	0.000500	13	0.0000163	0.00391	15.0	<0.01	5%	Pass
Grasshopper Mouse	Bromomethane	0.041	0.250	1	0.250	0	-	0	0	100	26.3	0.0394	0.00986	0	-	0	0	0.00986	0.00150	13	0.0000488	0.00991	15.0	<0.01	5%	Pass
Grasshopper Mouse	Carbon tetrachloride	0.041	0.250	1	0.250	0	-	0	0	100	28	0.0252	0.00631	0	-	0	0	0.00631	0.000900	13	0.0000292	0.00634	16.0	<0.01	5%	Pass
Grasshopper Mouse	Chlorobenzene	0.041	0.250	1	0.250	0	-	0	0	100	32.4	0.0227	0.00567	0	-	0	0	0.00567	0.000700	13	0.0000228	0.00570	15.0	<0.01	5%	Pass
Grasshopper Mouse	Chloroethane	0.041	0.250	1	0.250	0	-	0	0	100	28.6	0.0286	0.00714	0	-	0	0	0.00714	0.00100	13	0.0000325	0.00717	15.0	<0.01	5%	Pass
Grasshopper Mouse	Chloroform	0.041	0.250	1	0.250	0	-	0	0	100	30	0.0210	0.00525	0	-	0	0	0.00525	0.000700	13	0.0000228	0.00527	15.0	<0.01	5%	Pass
Grasshopper Mouse	Chloromethane	0.041	0.250	1	0.250	0	-	0	0	100	27.3	0.0273	0.00684	0	-	0	0	0.00684	0.00100	13	0.0000325	0.00687	15.0	<0.01	5%	Pass
Grasshopper Mouse	cis-1,2-Dichloroethene	0.041	0.250	1	0.250	0	-	0	0	100	27	0.0189	0.00472	0	-	0	0	0.00472	0.000700	13	0.0000228	0.00475	45.2	<0.01	5%	Pass
Grasshopper Mouse	cis-1,3-Dichloropropene	0.041	0.250	1	0.250	0	-	0	0	100	27.5	0.0165	0.00412	0	-	0	0	0.00412	0.000600	13	0.0000195	0.00414	45.2	<0.01	5%	Pass
Grasshopper Mouse	Dibromochloromethane	0.041	0.250	1	0.250	0	-	0	0	100	30.3	0.0212	0.00530	0	-	0	0	0.00530	0.000700	13	0.0000228	0.00533	NSV	--	5%	Uncertain
Grasshopper Mouse	Dibromomethane	0.041	0.250	1	0.250	0	-	0	0	100	26.7	0.0134	0.00334	0	-	0	0	0.00334	0.000500	13	0.0000163	0.00336	NSV	--	5%	Uncertain
Grasshopper Mouse	Dichlorodifluoromethane	0.041	0.250	1	0.250	0	-	0	0	100	30.5	0.0335	0.00839	0	-	0	0	0.00839	0.00110	13	0.0000358	0.00842	NSV	--	5%	Uncertain
Grasshopper Mouse	Ethylbenzene	0.041	0.250	1	0.250	0	-	0	0	100	33.3	0.0433	0.0108	0	-	0	0	0.0108	0.00130	13	0.0000422	0.0109	97.0	<0.01	5%	Pass
Grasshopper Mouse	m,p-Xylene	0.041	0.250	1	0.250	0	-	0	0	100	28.5	0.0569	0.0142	0	-	0	0	0.0142	0.00200	13	0.0000650	0.0143	179.0	<0.01	5%	Pass
Grasshopper Mouse	Methylene chloride	0.041	0.250	1	0.250	0	-	0	0	100	28.1	0.0899	0.0225	0	-	0	0	0.0225	0.00320	13	0.000104	0.0226	5.9	<0.01	5%	Pass
Grasshopper Mouse	o-Xylene	0.041	0.250	1	0.250	0	-	0	0	100	28.3	0.0765	0.0191	0	-	0	0	0.0191	0.00270	13	0.0000877	0.0192	179.0	<0.01	14%	Pass
Grasshopper Mouse	Phenol	0.041	0.250	1	0.250	0	-	0	0	100	28.6	301	75.2	0	-	0	0	75.2	10.5	13	0.341	75.5	17.1	**4.4**	0%	**Retain**
Grasshopper Mouse	Styrene	0.041	0.250	1	0.250	0	-	0	0	100	28.1	0.0731	0.0183	0	-	0	0	0.0183	0.00260	13	0.0000845	0.0184	NSV	--	14%	Uncertain
Grasshopper Mouse	tert-ButylMethylEther	0.041	0.250	1	0.250	0	-	0	0	100	26.4	0.0184	0.00461	0	-	0	0	0.00461	0.000700	13	0.0000228	0.00463	NSV	--	5%	Uncertain
Grasshopper Mouse	Tetrachloroethene	0.041	0.250	1	0.250	0	-	0	0	100	28.7	0.0258	0.00645	0	-	0	0	0.00645	0.000900	13	0.0000292	0.00648	1.4	<0.01	5%	Pass
Grasshopper Mouse	Toluene	0.041	0.250	1	0.250	0	-	0	0	100	27.9	0.522	0.131	0	-	0	0	0.131	0.0187	13	0.000608	0.131	52.0	<0.01	23%	Pass
Grasshopper Mouse	Trans-1,2-Dichloroethene	0.041	0.250	1	0.250	0	-	0	0	100	28.7	0.0201	0.00502	0	-	0	0	0.00502	0.000700	13	0.0000228	0.00504	45.2	<0.01	5%	Pass
Grasshopper Mouse	Trans-1,3-Dichloropropene	0.041	0.250	1	0.250	0	-	0	0	100	30.1	0.0240	0.00601	0	-	0	0	0.00601	0.000800	13	0.0000260	0.00604	45.2	<0.01	5%	Pass
Grasshopper Mouse	Trichloroethylene (TCE)	0.041	0.250	1	0.250	0	-	0	0	100	31.2	0.0219	0.00546	0	-	0	0	0.00546	0.000700	13	0.0000228	0.00549	0.7	<0.01	5%	Pass
Grasshopper Mouse	Trichlorofluoromethane	0.041	0.250	1	0.250	0	-	0	0	100	31.5	0.0347	0.00867	0	-	0	0	0.00867	0.00110	13	0.0000358	0.00871	NSV	--	5%	Uncertain
Grasshopper Mouse	Vinyl Acetate	0.041	0.250	1	0.250	0	-	0	0	100	26.2	0.0314	0.00786	0	-	0	0	0.00786	0.00120	13	0.0000390	0.00790	NSV	--	5%	Uncertain
Grasshopper Mouse	Vinyl chloride	0.041	0.250	1	0.250	0	-	0	0	100	28.4	0.0341	0.00853	0	-	0	0	0.00853	0.00120	13	0.0000390	0.00857	0.2	0.050	5%	Pass
Grasshopper Mouse	*HI - VOCs*																							**20**	(dets)	**Retain**
Coyote	1,3,5-Trinitrobenzene	10.330	0.045	1	0.045	100	0.880	0.0924	0.00419	0	-	0	0	0	-	0	0	0.00419	0.105	2.80	0.000133	0.00432	2.7	<0.01	0%	Pass
Coyote	1,3-Dinitrobenzene	10.330	0.045	1	0.045	100	1.32	0.106	0.00480	0	-	0	0	0	-	0	0	0.00480	0.0800	2.80	0.000102	0.00490	0.0	0.12	0%	Pass
Coyote	2,4,6-Trinitrotoluene (TNT)	10.330	0.045	1	0.045	100	0	0	0	0	-	0	0	0	-	0	0	0	1.50	2.80	0.00190	0.00190	2.0	<0.01	0%	Pass
Coyote	2,4-Dinitrophenol	10.330	0.045	1	0.045	100	0.688	34.4	1.56	0	-	0	0	0	-	0	0	1.56	50	2.80	0.0635	1.62	NSV	--	0%	Uncertain
Coyote	2,4-Dinitrotoluene	10.330	0.045	1	0.045	100	1.05	2.11	0.0955	0	-	0	0	0	-	0	0	0.0955	2.00	2.80	0.00254	0.0980	2.0	0.049	2%	Pass
Coyote	2,6-Dinitrotoluene	10.330	0.045	1	0.045	100	1.10	11.5	0.523	0	-	0	0	0	-	0	0	0.523	10.5	2.80	0.0133	0.536	2.0	0.27	0%	Pass
Coyote	2-Amino-4,6-Dinitrotoluene	10.330	0.045	1	0.045	100	1.18	1.77	0.0801	0	-	0	0	0	-	0	0	0.0801	1.50	2.80	0.00190	0.0820	9.0	<0.01	0%	Pass
Coyote	2-Nitroaniline	10.330	0.045	1	0.045	100	1.17	58.7	2.66	0	-	0	0	0	-	0	0	2.66	50	2.80	0.0635	2.73	NSV	--	0%	Uncertain
Coyote	2-Nitrophenol	10.330	0.045	1	0.045	100	1.20	12.6	0.570	0	-	0	0	0	-	0	0	0.570	10.5	2.80	0.0133	0.584	NSV	--	0%	Uncertain
Coyote	2-Nitrotoluene	10.330	0.045	1	0.045	100	0.371	0.0520	0.00236	0	-	0	0	0	-	0	0	0.00236	0.140	2.80	0.000178	0.00253	2.0	<0.01	0%	Pass
Coyote	3-Nitroaniline	10.330	0.045	1	0.045	100	1.38	68.9	3.12	0	-	0	0	0	-	0	0	3.12	50	2.80	0.0635	3.19	NSV	--	0%	Uncertain
Coyote	3-Nitrotoluene	10.330	0.045	1	0.045	100	0.961	0.144	0.00654	0	-	0	0	0	-	0	0	0.00654	0.150	2.80	0.000190	0.00673	2.0	<0.01	0%	Pass
Coyote	4,6-Dinitro-2-methylphenol	10.330	0.045	1	0.045	100	0.273	13.7	0.619	0	-	0	0	0	-	0	0	0.619	50	2.80	0.0635	0.683	NSV	--	0%	Uncertain
Coyote	4-Nitroaniline	10.330	0.045	1	0.045	100	0.749	37.4	1.70	0	-	0	0	0	-	0	0	1.70	50	2.80	0.0635	1.76	NSV	--	0%	Uncertain
Coyote	4-Nitrophenol	10.330	0.045	1	0.045	100	0.501	25.1	1.14	0	-	0	0	0	-	0	0	1.14	50	2.80	0.0635	1.20	NSV	--	0%	Uncertain
Coyote	4-Nitrotoluene	10.330	0.045	1	0.045	100	0.990	0.188	0.00853	0	-	0	0	0	-	0	0	0.00853	0.190	2.80	0.000241	0.00877	2.0	<0.01	0%	Pass
Coyote	HMX	10.330	0.045	1	0.045	100	2.13	53.4	2.42	0	-	0	0	0	-	0	0	2.42	25	2.80	0.0317	2.45	1.0	**2.5**	31%	**Retain**
Coyote	Nitrobenzene	10.330	0.045	1	0.045	100	0.525	5.51	0.250	0	-	0	0	0	-	0	0	0.250	10.5	2.80	0.0133	0.263	NSV	--	0%	Uncertain
Coyote	Nitroglycerin	10.330	0.045	1	0.045	100	1.32	0.447	0.0203	0	-	0	0	0	-	0	0	0.0203	0.340	2.80	0.000432	0.0207	3.0	<0.01	0%	Pass
Coyote	Nitroguanidine	10.330	0.045	1	0.045	100	2.93	0.879	0.0399	0	-	0	0	0	-	0	0	0.0399	0.300	2.80	0.000381	0.0402	NSV	--	5%	Uncertain
Coyote	PETN	10.330	0.045	1	0.045	100	0.984	0.492	0.0223	0	-	0	0	0	-	0	0	0.0223	0.500	2.80	0.000635	0.0229	170.0	<0.01	0%	Pass
Coyote	Picric acid	10.330	0.045	1	0.045	100	1.40	0.698	0.0317	0	-	0	0	0	-	0	0	0.0317	0.500	2.80	0.000635	0.0323	NSV	--	7%	Uncertain
Coyote	RDX	10.330	0.045	1	0.045	100	0	0	0	0	-	0	0	0	-	0	0	0	1.50	2.80	0.00190	0.00190	2.0	<0.01	0%	Pass
Coyote	Tetryl	10.330	0.045	1	0.045	100	0.617	0.142	0.00644	0	-	0	0	0	-	0	0	0.00644	0.230	2.80	0.000292	0.00673	1.3	<0.01	0%	Pass
Coyote	*HI - Energetics*																							**2.5**	(dets)	**Retain**
Coyote	Aluminum	10.330	0.045	1	0.045	100	0.0732	3950	179	0	-	0	0	0	-	0	0	179	54000	2.80	68.5	248	1.9	**130**	100%	**Retain**
Coyote	Antimony	10.330	0.045	1	0.045	100	1.00	167	7.57	0	-	0	0	0	-	0	0	7.57	167	2.80	0.212	7.78	0.1	**130**	79%	**Retain**
Coyote	Arsenic	10.330	0.045	1	0.045	100	Regression Based	0.165	0.00749	0	-	0	0	0	-	0	0	0.00749	41.3	2.80	0.0524	0.0599	0.4	0.15	58%	Pass
Coyote	Barium	10.330	0.045	1	0.045	100	0.112	71.7	3.25	0	-	0	0	0	-	0	0	3.25	640	2.80	0.812	4.07	45.0	0.090	100%	Pass

Table 16
Initial Risk Estimation for Wildlife Exposed to Site Soils
Attachment 10A - Thermal Treatment Unit, Ecological Risk Assessment

Receptor	Chemical	Body Weight (kg)	Daily Food Intake (kg/kg-bw/day)	Area Use Factor	Daily Food Ingestion from Site (kg/kg-bw/day)	Small Mammals and Other Vertebrates: Percent of Diet	Small Mammals and Other Vertebrates: Soil to Tissue Transfer Factor	Small Mammals and Other Vertebrates: Tissue Concentration (mg/kg DW)	Small Mammals and Other Vertebrates: Total Vertebrate Food Intake (mg/kg-bw/d)a	Soil Invertebrates: Percent of Diet	Soil Invertebrates: Soil to Tissue Transfer Factor	Soil Invertebrates: Tissue Concentration (mg/kg DW)	Soil Invertebrates: Total Invertebrate Food Intake (mg/kg-bw/d)b	Terrestrial Plants: Percent of Diet	Terrestrial Plants: Soil to Tissue Transfer Factor	Terrestrial Plants: Tissue Concentration (mg/kg DW)	Terrestrial Plants: Total Plant Food Intake (mg/kg-bw/d)c	Total Food Intake (mg/kg-bw/d)d	Soil EPC (mg/kg)	Percent of Diet as Soil	Incidental Soil Intake (mg/kg-bw/d)e	Total Chemical Intake (mg/kg-day)f	NOAEL TRV (mg/kg-bw/d)	NOAEL Hazard Quotient	Detection Frequency (%)	Screening Risk Conclusions
Coyote	Beryllium	10.330	0.045	1	0.045	100	0.410	0.295	0.0134	0	-	0	0	0	-	0	0	0.0134	0.720	2.80	0.000914	0.0143	0.5	0.027	48%	Pass
Coyote	Cadmium	10.330	0.045	1	0.045	100	Regression Based	3.61	0.163	0	-	0	0	0	-	0	0	0.163	32	2.80	0.0406	0.204	0.8	0.27	44%	Pass
Coyote	Carbon disulfide	10.330	0.045	1	0.045	100	1.12	0.00123	0.0000557	0	-	0	0	0	-	0	0	0.0000557	0.00110	2.80	0.00000140	0.0000571	NSV	--	5%	Uncertain
Coyote	Chromium	10.330	0.045	1	0.045	100	0.333	18.4	0.836	0	-	0	0	0	-	0	0	0.836	55.3	2.80	0.0702	0.906	3.3	0.28	100%	Pass
Coyote	Cobalt	10.330	0.045	1	0.045	100	Regression Based	0.0917	0.00416	0	-	0	0	0	-	0	0	0.00416	4.90	2.80	0.00622	0.0104	1.1	<0.01	79%	Pass
Coyote	Copper	10.330	0.045	1	0.045	100	Regression Based	31.7	1.44	0	-	0	0	0	-	0	0	1.44	18000	2.80	22.8	24.3	11.7	**2.1**	85%	**Retain**
Coyote	Iron	10.330	0.045	1	0.045	100	Regression Based	233	10.6	0	-	0	0	0	-	0	0	10.6	15000	2.80	19	29.6	NSV	--	100%	Uncertain
Coyote	Lead	10.330	0.045	1	0.045	100	Regression Based	127	5.75	0	-	0	0	0	-	0	0	5.75	48000	2.80	60.9	66.7	0.9	**72**	83%	**Retain**
Coyote	Magnesium	10.330	0.045	1	0.045	100	0.992	24100	1090	0	-	0	0	0	-	0	0	1090	24300	2.80	30.8	1120	NSV	--	100%	Uncertain
Coyote	Manganese	10.330	0.045	1	0.045	100	0.0790	41	1.86	0	-	0	0	0	-	0	0	1.86	519	2.80	0.659	2.52	88.0	0.029	100%	Pass
Coyote	Mercury	10.330	0.045	1	0.045	100	0.192	0.0134	0.000609	0	-	0	0	0	-	0	0	0.000609	0.0700	2.80	0.0000889	0.000698	0.0	0.022	27%	Pass
Coyote	Molybdenum	10.330	0.045	1	0.045	100	1.00	17	0.771	0	-	0	0	0	-	0	0	0.771	17	2.80	0.0216	0.792	0.3	**3.0**	91%	**Retain**
Coyote	Nickel	10.330	0.045	1	0.045	100	0.589	24.3	1.10	0	-	0	0	0	-	0	0	1.10	41.3	2.80	0.0524	1.16	40.0	0.029	100%	Pass
Coyote	Nitrate	10.330	0.045	1	0.045	100	1.00	22.8	1.03	0	-	0	0	0	-	0	0	1.03	22.8	2.80	0.0289	1.06	507.0	<0.01	92%	Pass
Coyote	Perchlorate	10.330	0.045	1	0.045	100	0.100	0.450	0.0204	0	-	0	0	0	-	0	0	0.0204	4.50	2.80	0.00571	0.0261	2.6	0.010	50%	Pass
Coyote	Phosphorus	10.330	0.045	1	0.045	100	1.00	990	44.9	0	-	0	0	0	-	0	0	44.9	990	2.80	1.26	46.1	NSV	--	100%	Uncertain
Coyote	Selenium	10.330	0.045	1	0.045	100	Regression Based	1.21	0.0548	0	-	0	0	0	-	0	0	0.0548	5.00	2.80	0.00635	0.0612	0.2	0.31	0%	Pass
Coyote	Silver	10.330	0.045	1	0.045	100	0.810	3.24	0.147	0	-	0	0	0	-	0	0	0.147	4.00	2.80	0.00508	0.152	2.4	0.064	8%	Pass
Coyote	Strontium	10.330	0.045	1	0.045	100	1.00	484	21.9	0	-	0	0	0	-	0	0	21.9	484	2.80	0.614	22.6	263.0	0.086	100%	Pass
Coyote	Thallium	10.330	0.045	1	0.045	100	0.123	0.0675	0.00306	0	-	0	0	0	-	0	0	0.00306	0.550	2.80	0.000698	0.00376	0.0	0.51	54%	Pass
Coyote	Vanadium	10.330	0.045	1	0.045	100	0.0195	0.500	0.0227	0	-	0	0	0	-	0	0	0.0227	25.7	2.80	0.0326	0.0553	0.2	0.26	100%	Pass
Coyote	Zinc	10.330	0.045	1	0.045	100	Regression Based	155	7.02	0	-	0	0	0	-	0	0	7.02	2300	2.80	2.92	9.94	160.0	0.062	100%	Pass
Coyote	*HI - Inorganics*																							**340**	(dets)	**Retain**
Coyote	2-Methylnaphthalene	10.330	0.045	1	0.045	100	0.629	107	4.85	0	-	0	0	0	-	0	0	4.85	170	2.80	0.216	5.06	5.0	**1.0**	14%	**Retain**
Coyote	Acenaphthene	10.330	0.045	1	0.045	100	0	0	0	0	-	0	0	0	-	0	0	0	0.0418	2.80	0.0000531	0.0000531	175.0	<0.01	0%	Pass
Coyote	Acenaphthylene	10.330	0.045	1	0.045	100	0	0	0	0	-	0	0	0	-	0	0	0	10.5	2.80	0.0133	0.0133	175.0	<0.01	0%	Pass
Coyote	Anthracene	10.330	0.045	1	0.045	100	0	0	0	0	-	0	0	0	-	0	0	0	3.70	2.80	0.00470	0.00470	1000.0	<0.01	7%	Pass
Coyote	Benzo(a)anthracene	10.330	0.045	1	0.045	100	0	0	0	0	-	0	0	0	-	0	0	0	10.5	2.80	0.0133	0.0133	1.0	0.013	0%	Pass
Coyote	Benzo(a)pyrene	10.330	0.045	1	0.045	100	0	0	0	0	-	0	0	0	-	0	0	0	10.5	2.80	0.0133	0.0133	1.0	0.013	0%	Pass
Coyote	Benzo(b)fluoranthene	10.330	0.045	1	0.045	100	0	0	0	0	-	0	0	0	-	0	0	0	10.5	2.80	0.0133	0.0133	1.0	0.013	0%	Pass
Coyote	Benzo(g,h,i)perylene	10.330	0.045	1	0.045	100	0	0	0	0	-	0	0	0	-	0	0	0	10.5	2.80	0.0133	0.0133	1.0	0.013	0%	Pass
Coyote	Benzo(k)fluoranthene	10.330	0.045	1	0.045	100	0	0	0	0	-	0	0	0	-	0	0	0	10.5	2.80	0.0133	0.0133	1.0	0.013	0%	Pass
Coyote	Chrysene	10.330	0.045	1	0.045	100	0	0	0	0	-	0	0	0	-	0	0	0	10.5	2.80	0.0133	0.0133	1.0	0.013	0%	Pass
Coyote	Dibenzo(a,h)anthracene	10.330	0.045	1	0.045	100	0	0	0	0	-	0	0	0	-	0	0	0	10.5	2.80	0.0133	0.0133	1.0	0.013	0%	Pass
Coyote	Fluoranthene	10.330	0.045	1	0.045	100	0	0	0	0	-	0	0	0	-	0	0	0	0.144	2.80	0.000183	0.000183	125.0	<0.01	4%	Pass
Coyote	Fluorene	10.330	0.045	1	0.045	100	0	0	0	0	-	0	0	0	-	0	0	0	33	2.80	0.0419	0.0419	125.0	<0.01	14%	Pass
Coyote	Indeno(1,2,3-c,d)pyrene	10.330	0.045	1	0.045	100	0	0	0	0	-	0	0	0	-	0	0	0	10.5	2.80	0.0133	0.0133	1.0	0.013	0%	Pass
Coyote	Naphthalene	10.330	0.045	1	0.045	100	0	0	0	0	-	0	0	0	-	0	0	0	53	2.80	0.0673	0.0673	50.0	<0.01	25%	Pass
Coyote	Phenanthrene	10.330	0.045	1	0.045	100	0	0	0	0	-	0	0	0	-	0	0	0	92	2.80	0.117	0.117	175.0	<0.01	18%	Pass
Coyote	Pyrene	10.330	0.045	1	0.045	100	0	0	0	0	-	0	0	0	-	0	0	0	10.5	2.80	0.0133	0.0133	75.0	<0.01	0%	Pass
Coyote	*HI - PAHs*																							**1.0**	(dets)	**Retain**
Coyote	TPH	10.330	0.045	1	0.045	100	-	0	0	0	-	0	0	0	-	0	0	0	47000	2.80	59.7	59.7	1000.0	0.060	100%	Pass
Coyote	*HI - Petroleum*																							0.060	(dets)	Pass
Coyote	2,4,5-Trichlorophenol	10.330	0.045	1	0.045	100	0.125	6.24	0.283	0	-	0	0	0	-	0	0	0.283	50	2.80	0.0635	0.346	0.2	**1.4**	0%	**Retain**
Coyote	2,4,6-Trichlorophenol	10.330	0.045	1	0.045	100	0.111	1.17	0.0529	0	-	0	0	0	-	0	0	0.0529	10.5	2.80	0.0133	0.0662	0.2	0.28	0%	Pass
Coyote	2,4-Dichlorophenol	10.330	0.045	1	0.045	100	0.234	2.46	0.112	0	-	0	0	0	-	0	0	0.112	10.5	2.80	0.0133	0.125	0.2	0.52	0%	Pass
Coyote	2,4-Dimethylphenol	10.330	0.045	1	0.045	100	0.251	2.64	0.120	0	-	0	0	0	-	0	0	0.120	10.5	2.80	0.0133	0.133	NSV	--	0%	Uncertain
Coyote	2-Chloronaphthalene	10.330	0.045	1	0.045	100	0.101	1.06	0.0479	0	-	0	0	0	-	0	0	0.0479	10.5	2.80	0.0133	0.0612	NSV	--	0%	Uncertain
Coyote	2-Methylphenol	10.330	0.045	1	0.045	100	1.14	11.9	0.541	0	-	0	0	0	-	0	0	0.541	10.5	2.80	0.0133	0.554	340.0	<0.01	0%	Pass
Coyote	3,3-Dichlorobenzidine	10.330	0.045	1	0.045	100	0.675	14.2	0.642	0	-	0	0	0	-	0	0	0.642	21	2.80	0.0267	0.669	NSV	--	0%	Uncertain
Coyote	4-Chloro-3-methylphenol	10.330	0.045	1	0.045	100	0.201	2.11	0.0956	0	-	0	0	0	-	0	0	0.0956	10.5	2.80	0.0133	0.109	NSV	--	0%	Uncertain
Coyote	4-Chloroaniline	10.330	0.045	1	0.045	100	0.533	5.60	0.254	0	-	0	0	0	-	0	0	0.254	10.5	2.80	0.0133	0.267	NSV	--	0%	Uncertain
Coyote	4-Methylphenol	10.330	0.045	1	0.045	100	0.494	5.19	0.235	0	-	0	0	0	-	0	0	0.235	10.5	2.80	0.0133	0.248	340.0	<0.01	0%	Pass
Coyote	Benzoic acid	10.330	0.045	1	0.045	100	0.517	25.9	1.17	0	-	0	0	0	-	0	0	1.17	50	2.80	0.0635	1.24	NSV	--	0%	Uncertain
Coyote	Benzylalcohol	10.330	0.045	1	0.045	100	0.935	9.82	0.445	0	-	0	0	0	-	0	0	0.445	10.5	2.80	0.0133	0.458	NSV	--	0%	Uncertain
Coyote	bis(2-Ethylhexyl)phthalate	10.330	0.045	1	0.045	100	0.190	0.285	0.0129	0	-	0	0	0	-	0	0	0.0129	1.50	2.80	0.00190	0.0148	18.3	<0.01	18%	Pass
Coyote	Butyl benzylphthalate	10.330	0.045	1	0.045	100	0.0527	0.554	0.0251	0	-	0	0	0	-	0	0	0.0251	10.5	2.80	0.0133	0.0384	550.0	<0.01	0%	Pass
Coyote	Dibenzofuran	10.330	0.045	1	0.045	100	0.631	7.57	0.343	0	-	0	0	0	-	0	0	0.343	12	2.80	0.0152	0.359	NSV	--	14%	Uncertain
Coyote	Diethylphthalate	10.330	0.045	1	0.045	100	0.329	3.45	0.156	0	-	0	0	0	-	0	0	0.156	10.5	2.80	0.0133	0.170	4583.0	<0.01	0%	Pass
Coyote	Dimethylphthalate	10.330	0.045	1	0.045	100	0.656	6.89	0.312	0	-	0	0	0	-	0	0	0.312	10.5	2.80	0.0133	0.326	550.0	<0.01	0%	Pass
Coyote	Di-n-butylphthalate	10.330	0.045	1	0.045	100	0.0629	0.661	0.0300	0	-	0	0	0	-	0	0	0.0300	10.5	2.80	0.0133	0.0433	550.0	<0.01	0%	Pass
Coyote	Di-n-octylphthalate	10.330	0.045	1	0.045	100	0.381	4.00	0.181	0	-	0	0	0	-	0	0	0.181	10.5	2.80	0.0133	0.195	550.0	<0.01	0%	Pass
Coyote	Hexachlorobenzene	10.330	0.045	1	0.045	100	0.0391	0.410	0.0186	0	-	0	0	0	-	0	0	0.0186	10.5	2.80	0.0133	0.0319	1.6	0.020	0%	Pass
Coyote	Hexachlorobutadiene	10.330	0.045	1	0.045	100	0.0552	0.0000442	0.00000200	0	-	0	0	0	-	0	0	0.00000200	0.000800	2.80	0.00000102	0.00000302	1.6	<0.01	4%	Pass
Coyote	Hexachlorocyclopentadiene	10.330	0.045	1	0.045	100	0.101	1.06	0.0479	0	-	0	0	0	-	0	0	0.0479	10.5	2.80	0.0133	0.0612	1.6	0.038	0%	Pass
Coyote	Hexachloroethane	10.330	0.045	1	0.045	100	0.0634	0.666	0.0302	0	-	0	0	0	-	0	0	0.0302	10.5	2.80	0.0133	0.0435	1.6	0.027	0%	Pass
Coyote	Isophorone	10.330	0.045	1	0.045	100	0.383	4.02	0.182	0	-	0	0	0	-	0	0	0.182	10.5	2.80	0.0133	0.196	NSV	--	0%	Uncertain
Coyote	n-Nitroso-di-n-propylamine	10.330	0.045	1	0.045	100	0.693	7.27	0.330	0	-	0	0	0	-	0	0	0.330	10.5	2.80	0.0133	0.343	NSV	--	0%	Uncertain
Coyote	n-Nitrosodiphenylamine	10.330	0.045	1	0.045	100	0.196	2.06	0.0934	0	-	0	0	0	-	0	0	0.0934	10.5	2.80	0.0133	0.107	NSV	--	0%	Uncertain
Coyote	Pentachlorophenol	10.330	0.045	1	0.045	100	0.0466	2.33	0.106	0	-	0	0	0	-	0	0	0.106	50	2.80	0.0635	0.169	0.2	0.70	0%	Pass
Coyote	*HI - SVOCs*																							<0.01	(dets)	Pass
Coyote	1,1,1,2-Tetrachloroethane	10.330	0.045	1	0.045	100	0.792	0.000475	0.0000215	0	-	0	0	0	-	0	0	0.0000215	0.000600	2.80	0.000000762	0.0000223	1.4	<0.01	5%	Pass
Coyote	1,1,1-Trichloroethane	10.330	0.045	1	0.045	100	0.319	0.000287	0.0000130	0	-	0	0	0	-	0	0	0.0000130	0.000900	2.80	0.00000114	0.0000141	1000.0	<0.01	5%	Pass
Coyote	1,1,2,2-Tetrachloroethane	10.330	0.045	1	0.045	100	0.347	0.000347	0.0000157	0	-	0	0	0	-	0	0	0.0000157	0.00100	2.80	0.00000127	0.0000170	1.4	<0.01	5%	Pass

Table 16
Initial Risk Estimation for Wildlife Exposed to Site Soils
Attachment 10A - Thermal Treatment Unit, Ecological Risk Assessment

Receptor	Chemical	Body Weight (kg)	Daily Food Intake (kg/kg-bw/day)	Area Use Factor	Daily Food Ingestion from Site (kg/kg-bw/day)	Small Mammals and Other Vertebrates: Percent of Diet	Soil to Tissue Transfer Factor	Tissue Concentration (mg/kg DW)	Total Vertebrate Food Intake (mg/kg-bw/d)a	Soil Invertebrates: Percent of Diet	Soil to Tissue Transfer Factor	Tissue Concentration (mg/kg DW)	Total Invertebrate Food Intake (mg/kg-bw/d)b	Terrestrial Plants: Percent of Diet	Soil to Tissue Transfer Factor	Tissue Concentration (mg/kg DW)	Total Plant Food Intake (mg/kg-bw/d)c	Total Food Intake (mg/kg-bw/d)d	Soil EPC (mg/kg)	Percent of Diet as Soil	Incidental Soil Intake (mg/kg-bw/d)e	Total Chemical Intake (mg/kg-day)f	NOAEL TRV (mg/kg-bw/d)	NOAEL Hazard Quotient	Detection Frequency (%)	Screening Risk Conclusions
Coyote	1,1,2-Trichloroethane	10.330	0.045	1	0.045	100	0.326	0.000261	0.0000118	0	-	0	0	0	-	0	0	0.0000118	0.000800	2.80	0.00000102	0.0000128	1000.0	<0.01	5%	Pass
Coyote	1,1-Dichloroethane	10.330	0.045	1	0.045	100	0.550	0.000385	0.0000175	0	-	0	0	0	-	0	0	0.0000175	0.000700	2.80	0.000000889	0.0000183	50.0	<0.01	5%	Pass
Coyote	1,1-Dichloroethene	10.330	0.045	1	0.045	100	1.07	0.00118	0.0000533	0	-	0	0	0	-	0	0	0.0000533	0.00110	2.80	0.00000140	0.0000547	2.5	<0.01	5%	Pass
Coyote	1,2,3-Trichlorobenzene	10.330	0.045	1	0.045	100	0.563	0.00158	0.0000715	0	-	0	0	0	-	0	0	0.0000715	0.00280	2.80	0.00000355	0.0000751	NSV	--	5%	Uncertain
Coyote	1,2,3-Trichloropropane	10.330	0.045	1	0.045	100	0.945	0.000851	0.0000386	0	-	0	0	0	-	0	0	0.0000386	0.000900	2.80	0.00000114	0.0000397	1000.0	<0.01	5%	Pass
Coyote	1,2,4-Trichlorobenzene	10.330	0.045	1	0.045	100	0.0798	0.000255	0.0000116	0	-	0	0	0	-	0	0	0.0000116	0.00320	2.80	0.00000406	0.0000156	NSV	--	4%	Uncertain
Coyote	1,2-Dibromo-3-chloropropane	10.330	0.045	1	0.045	100	0.374	0.00146	0.0000662	0	-	0	0	0	-	0	0	0.0000662	0.00390	2.80	0.00000495	0.0000712	NSV	--	5%	Uncertain
Coyote	1,2-Dichlorobenzene	10.330	0.045	1	0.045	100	0.705	0.000986	0.0000447	0	-	0	0	0	-	0	0	0.0000447	0.00140	2.80	0.00000178	0.0000465	NSV	--	4%	Uncertain
Coyote	1,2-Dichloroethane	10.330	0.045	1	0.045	100	0.698	0.000558	0.0000253	0	-	0	0	0	-	0	0	0.0000253	0.000800	2.80	0.00000102	0.0000263	50.0	<0.01	5%	Pass
Coyote	1,2-Dichloropropane	10.330	0.045	1	0.045	100	0.468	0.000328	0.0000149	0	-	0	0	0	-	0	0	0.0000149	0.000700	2.80	0.000000889	0.0000157	50.0	<0.01	5%	Pass
Coyote	1,2-Ethylene Dibromide	10.330	0.045	1	0.045	100	1.21	0.00109	0.0000494	0	-	0	0	0	-	0	0	0.0000494	0.000900	2.80	0.00000114	0.0000505	NSV	--	5%	Uncertain
Coyote	1,3-Dichlorobenzene	10.330	0.045	1	0.045	100	0.137	0.000260	0.0000118	0	-	0	0	0	-	0	0	0.0000118	0.00190	2.80	0.00000241	0.0000142	NSV	--	4%	Uncertain
Coyote	1,4-Dichlorobenzene	10.330	0.045	1	0.045	100	0.137	0.000424	0.0000192	0	-	0	0	0	-	0	0	0.0000192	0.00310	2.80	0.00000394	0.0000232	NSV	--	4%	Uncertain
Coyote	2-Butanone	10.330	0.045	1	0.045	100	1.98	0.0314	0.00142	0	-	0	0	0	-	0	0	0.00142	0.0159	2.80	0.0000202	0.00145	10.0	<0.01	18%	Pass
Coyote	2-ChloroethylVinylEther	10.330	0.045	1	0.045	100	1.47	0.00877	0.000397	0	-	0	0	0	-	0	0	0.000397	0.00595	2.80	0.00000755	0.000405	NSV	--	0%	Uncertain
Coyote	2-Chlorophenol	10.330	0.045	1	0.045	100	0.408	4.28	0.194	0	-	0	0	0	-	0	0	0.194	10.5	2.80	0.0133	0.207	NSV	--	0%	Uncertain
Coyote	2-Hexanone	10.330	0.045	1	0.045	100	1.37	0.00522	0.000237	0	-	0	0	0	-	0	0	0.000237	0.00380	2.80	0.00000482	0.000241	10.0	<0.01	5%	Pass
Coyote	4-Bromophenylphenylether	10.330	0.045	1	0.045	100	0.410	4.31	0.195	0	-	0	0	0	-	0	0	0.195	10.5	2.80	0.0133	0.209	NSV	--	0%	Uncertain
Coyote	4-Chlorophenylphenylether	10.330	0.045	1	0.045	100	0.0946	0.994	0.0451	0	-	0	0	0	-	0	0	0.0451	10.5	2.80	0.0133	0.0584	NSV	--	0%	Uncertain
Coyote	4-Methyl-2-pentanone	10.330	0.045	1	0.045	100	1.46	0.00629	0.000285	0	-	0	0	0	-	0	0	0.000285	0.00430	2.80	0.00000546	0.000291	25.0	<0.01	5%	Pass
Coyote	Acetone	10.330	0.045	1	0.045	100	2.36	56.6	2.57	0	-	0	0	0	-	0	0	2.57	24	2.80	0.0305	2.60	10.0	0.26	32%	Pass
Coyote	Benzene	10.330	0.045	1	0.045	100	1.07	0.00438	0.000199	0	-	0	0	0	-	0	0	0.000199	0.00410	2.80	0.00000520	0.000204	0.7	<0.01	14%	Pass
Coyote	Bis(2-chloroethoxy)methane	10.330	0.045	1	0.045	100	1.41	0.104	0.00473	0	-	0	0	0	-	0	0	0.00473	0.0740	2.80	0.0000939	0.00483	NSV	--	0%	Uncertain
Coyote	bis(2-chloroethyl)ether	10.330	0.045	1	0.045	100	0.688	7.22	0.327	0	-	0	0	0	-	0	0	0.327	10.5	2.80	0.0133	0.341	NSV	--	0%	Uncertain
Coyote	bis(2-chloroisopropyl)ether	10.330	0.045	1	0.045	100	0.433	4.55	0.206	0	-	0	0	0	-	0	0	0.206	10.5	2.80	0.0133	0.220	NSV	--	0%	Uncertain
Coyote	Bromodichloromethane	10.330	0.045	1	0.045	100	1.08	0.000756	0.0000343	0	-	0	0	0	-	0	0	0.0000343	0.000700	2.80	0.000000889	0.0000352	NSV	--	5%	Uncertain
Coyote	Bromoform	10.330	0.045	1	0.045	100	0.344	0.000172	0.00000780	0	-	0	0	0	-	0	0	0.00000780	0.000500	2.80	0.000000635	0.00000844	15.0	<0.01	5%	Pass
Coyote	Bromomethane	10.330	0.045	1	0.045	100	1.46	0.00220	0.0000995	0	-	0	0	0	-	0	0	0.0000995	0.00150	2.80	0.00000190	0.000101	15.0	<0.01	5%	Pass
Coyote	Carbon tetrachloride	10.330	0.045	1	0.045	100	0.847	0.000762	0.0000345	0	-	0	0	0	-	0	0	0.0000345	0.000900	2.80	0.00000114	0.0000357	16.0	<0.01	5%	Pass
Coyote	Chlorobenzene	10.330	0.045	1	0.045	100	0.245	0.000172	0.00000779	0	-	0	0	0	-	0	0	0.00000779	0.000700	2.80	0.000000889	0.00000867	15.0	<0.01	5%	Pass
Coyote	Chloroethane	10.330	0.045	1	0.045	100	0.726	0.000726	0.0000329	0	-	0	0	0	-	0	0	0.0000329	0.00100	2.80	0.00000127	0.0000342	15.0	<0.01	5%	Pass
Coyote	Chloroform	10.330	0.045	1	0.045	100	0.479	0.000335	0.0000152	0	-	0	0	0	-	0	0	0.0000152	0.000700	2.80	0.000000889	0.0000161	15.0	<0.01	5%	Pass
Coyote	Chloromethane	10.330	0.045	1	0.045	100	1.05	0.00105	0.0000476	0	-	0	0	0	-	0	0	0.0000476	0.00100	2.80	0.00000127	0.0000488	15.0	<0.01	5%	Pass
Coyote	cis-1,2-Dichloroethene	10.330	0.045	1	0.045	100	1.17	0.000819	0.0000371	0	-	0	0	0	-	0	0	0.0000371	0.000700	2.80	0.000000889	0.0000380	45.2	<0.01	5%	Pass
Coyote	cis-1,3-Dichloropropene	10.330	0.045	1	0.045	100	1.01	0.000608	0.0000276	0	-	0	0	0	-	0	0	0.0000276	0.000600	2.80	0.000000762	0.0000283	45.2	<0.01	5%	Pass
Coyote	Dibromochloromethane	10.330	0.045	1	0.045	100	0.437	0.000306	0.0000139	0	-	0	0	0	-	0	0	0.0000139	0.000700	2.80	0.000000889	0.0000147	NSV	--	5%	Uncertain
Coyote	Dibromomethane	10.330	0.045	1	0.045	100	1.27	0.000634	0.0000287	0	-	0	0	0	-	0	0	0.0000287	0.000500	2.80	0.000000635	0.0000294	NSV	--	5%	Uncertain
Coyote	Dichlorodifluoromethane	10.330	0.045	1	0.045	100	0.414	0.000455	0.0000206	0	-	0	0	0	-	0	0	0.0000206	0.00110	2.80	0.00000140	0.0000220	NSV	--	5%	Uncertain
Coyote	Ethylbenzene	10.330	0.045	1	0.045	100	0.193	0.000251	0.0000114	0	-	0	0	0	-	0	0	0.0000114	0.00130	2.80	0.00000165	0.0000131	97.0	<0.01	5%	Pass
Coyote	m,p-Xylene	10.330	0.045	1	0.045	100	0.748	0.00150	0.0000678	0	-	0	0	0	-	0	0	0.0000678	0.00200	2.80	0.00000254	0.0000704	179.0	<0.01	5%	Pass
Coyote	Methylene chloride	10.330	0.045	1	0.045	100	0.833	0.00266	0.000121	0	-	0	0	0	-	0	0	0.000121	0.00320	2.80	0.00000406	0.000125	5.9	<0.01	5%	Pass
Coyote	o-Xylene	10.330	0.045	1	0.045	100	0.774	0.00209	0.0000947	0	-	0	0	0	-	0	0	0.0000947	0.00270	2.80	0.00000343	0.0000981	179.0	<0.01	14%	Pass
Coyote	Phenol	10.330	0.045	1	0.045	100	0.709	7.45	0.338	0	-	0	0	0	-	0	0	0.338	10.5	2.80	0.0133	0.351	17.1	0.021	0%	Pass
Coyote	Styrene	10.330	0.045	1	0.045	100	0.827	0.00215	0.0000975	0	-	0	0	0	-	0	0	0.0000975	0.00260	2.80	0.00000330	0.000101	NSV	--	14%	Uncertain
Coyote	tert-ButylMethylEther	10.330	0.045	1	0.045	100	1.44	0.00101	0.0000457	0	-	0	0	0	-	0	0	0.0000457	0.000700	2.80	0.000000889	0.0000466	NSV	--	5%	Uncertain
Coyote	Tetrachloroethene	10.330	0.045	1	0.045	100	0.700	0.000630	0.0000286	0	-	0	0	0	-	0	0	0.0000286	0.000900	2.80	0.00000114	0.0000297	1.4	<0.01	5%	Pass
Coyote	Toluene	10.330	0.045	1	0.045	100	0.875	0.0164	0.000742	0	-	0	0	0	-	0	0	0.000742	0.0187	2.80	0.0000237	0.000766	52.0	<0.01	23%	Pass
Coyote	Trans-1,2-Dichloroethene	10.330	0.045	1	0.045	100	0.698	0.000489	0.0000222	0	-	0	0	0	-	0	0	0.0000222	0.000700	2.80	0.000000889	0.0000230	45.2	<0.01	5%	Pass
Coyote	Trans-1,3-Dichloropropene	10.330	0.045	1	0.045	100	0.468	0.000374	0.0000170	0	-	0	0	0	-	0	0	0.0000170	0.000800	2.80	0.00000102	0.0000180	45.2	<0.01	5%	Pass
Coyote	Trichloroethylene (TCE)	10.330	0.045	1	0.045	100	0.339	0.000237	0.0000108	0	-	0	0	0	-	0	0	0.0000108	0.000700	2.80	0.000000889	0.0000116	0.7	<0.01	5%	Pass
Coyote	Trichlorofluoromethane	10.330	0.045	1	0.045	100	0.311	0.000342	0.0000155	0	-	0	0	0	-	0	0	0.0000155	0.00110	2.80	0.00000140	0.0000169	NSV	--	5%	Uncertain
Coyote	Vinyl Acetate	10.330	0.045	1	0.045	100	1.52	0.00182	0.0000826	0	-	0	0	0	-	0	0	0.0000826	0.00120	2.80	0.00000152	0.0000841	NSV	--	5%	Uncertain
Coyote	Vinyl chloride	10.330	0.045	1	0.045	100	0.754	0.000904	0.0000410	0	-	0	0	0	-	0	0	0.0000410	0.00120	2.80	0.00000152	0.0000425	0.2	<0.01	5%	Pass
Coyote	*HI - VOCs*																							*0.28*	(dets)	Pass
Sage Sparrow	1,3,5-Trinitrobenzene	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	4.78	0.502	0.0128	0.0128	0.105	2.00	0.0000536	0.0129	0	0.18	0%	Pass
Sage Sparrow	1,3-Dinitrobenzene	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	15	1.20	0.0306	0.0306	0.0800	2.00	0.0000408	0.0307	0	0.073	0%	Pass
Sage Sparrow	2,4,6-Trinitrotoluene (TNT)	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	4.23	6.34	0.162	0.162	1.50	2.00	0.000765	0.163	0	**2.3**	0%	**Retain**
Sage Sparrow	2,4-Dinitrophenol	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	2.40	120	3.06	3.06	50	2.00	0.0255	3.09	NSV	--	0%	Uncertain
Sage Sparrow	2,4-Dinitrotoluene	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	0.607	1.21	0.0310	0.0310	2.00	2.00	0.00102	0.0320	0	0.46	2%	Pass
Sage Sparrow	2,6-Dinitrotoluene	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	11	116	2.95	2.95	10.5	2.00	0.00536	2.95	0	**42**	0%	**Retain**
Sage Sparrow	2-Amino-4,6-Dinitrotoluene	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	Regression Based	2.72	0.0694	0.0694	1.50	2.00	0.000765	0.0701	0	**1.0**	0%	**Retain**
Sage Sparrow	2-Nitroaniline	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	10.7	536	13.7	13.7	50	2.00	0.0255	13.7	NSV	--	0%	Uncertain
Sage Sparrow	2-Nitrophenol	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	11.3	119	3.04	3.04	10.5	2.00	0.00536	3.04	NSV	--	0%	Uncertain
Sage Sparrow	2-Nitrotoluene	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	0.428	0.0599	0.00153	0.00153	0.140	2.00	0.0000714	0.00160	0	0.023	0%	Pass
Sage Sparrow	3-Nitroaniline	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	16.8	840	21.4	21.4	50	2.00	0.0255	21.5	NSV	--	0%	Uncertain
Sage Sparrow	3-Nitrotoluene	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	6.12	0.919	0.0234	0.0234	0.150	2.00	0.0000765	0.0235	0	0.34	0%	Pass
Sage Sparrow	4,6-Dinitro-2-methylphenol	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	0.182	9.08	0.232	0.232	50	2.00	0.0255	0.257	NSV	--	0%	Uncertain
Sage Sparrow	4-Nitroaniline	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	3.04	152	3.88	3.88	50	2.00	0.0255	3.91	NSV	--	0%	Uncertain
Sage Sparrow	4-Nitrophenol	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	0.992	49.6	1.27	1.27	50	2.00	0.0255	1.29	NSV	--	0%	Uncertain
Sage Sparrow	4-Nitrotoluene	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	6.66	1.27	0.0323	0.0323	0.190	2.00	0.0000970	0.0324	0	0.46	0%	Pass
Sage Sparrow	HMX	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	Regression Based	87.7	2.24	2.24	25	2.00	0.0128	2.25	9	0.25	31%	Pass
Sage Sparrow	Nitrobenzene	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	1.13	11.9	0.303	0.303	10.5	2.00	0.00536	0.308	0	**4.4**	0%	**Retain**
Sage Sparrow	Nitroglycerin	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	14.7	5.01	0.128	0.128	0.340	2.00	0.000173	0.128	NSV	--	0%	Uncertain
Sage Sparrow	Nitroguanidine	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	139	41.6	1.06	1.06	0.300	2.00	0.000153	1.06	NSV	--	5%	Uncertain

Table 16
Initial Risk Estimation for Wildlife Exposed to Site Soils
Attachment 10A - Thermal Treatment Unit, Ecological Risk Assessment

Receptor	Chemical	Body Weight (kg)	Daily Food Intake (kg/kg-bw/day)	Area Use Factor	Daily Food Ingestion from Site (kg/kg-bw/day)	Small Mammals and Other Vertebrates: Percent of Diet	Soil to Tissue Transfer Factor	Tissue Concentration (mg/kg DW)	Total Vertebrate Food Intake (mg/kg-bw/d)a	Soil Invertebrates: Percent of Diet	Soil to Tissue Transfer Factor	Tissue Concentration (mg/kg DW)	Total Invertebrate Food Intake (mg/kg-bw/d)b	Terrestrial Plants: Percent of Diet	Soil to Tissue Transfer Factor	Tissue Concentration (mg/kg DW)	Total Plant Food Intake (mg/kg-bw/d)c	Total Food Intake (mg/kg-bw/d)d	Soil EPC (mg/kg)	Percent of Diet as Soil	Incidental Soil Intake (mg/kg-bw/d)e	Total Chemical Intake (mg/kg-day)f	NOAEL TRV (mg/kg-bw/d)	NOAEL Hazard Quotient	Detection Frequency (%)	Screening Risk Conclusions
Sage Sparrow	PETN	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	6.54	3.27	0.0834	0.0834	0.500	2.00	0.000255	0.0837	NSV	--	0%	Uncertain
Sage Sparrow	Picric acid	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	17.4	8.72	0.222	0.222	0.500	2.00	0.000255	0.223	NSV	--	7%	Uncertain
Sage Sparrow	RDX	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	Regression Based	37.6	0.960	0.960	1.50	2.00	0.000765	0.961	0	**14**	0%	**Retain**
Sage Sparrow	Tetryl	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	1.78	0.408	0.0104	0.0104	0.230	2.00	0.000117	0.0105	NSV	--	0%	Uncertain
Sage Sparrow	*HI - Energetics*																							0.71	(dets)	Pass
Sage Sparrow	Aluminum	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	0.00400	216	5.51	5.51	54000	2.00	27.6	33.1	110	0.30	100%	Pass
Sage Sparrow	Antimony	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	0.0500	8.35	0.213	0.213	167	2.00	0.0852	0.298	NSV	--	79%	Uncertain
Sage Sparrow	Arsenic	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	Regression Based	1.11	0.0284	0.0284	41.3	2.00	0.0211	0.0495	9	<0.01	58%	Pass
Sage Sparrow	Barium	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	0.100	64	1.63	1.63	640	2.00	0.327	1.96	21	0.094	100%	Pass
Sage Sparrow	Beryllium	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	0.0100	0.00720	0.000184	0.000184	0.720	2.00	0.000367	0.000551	NSV	--	48%	Uncertain
Sage Sparrow	Cadmium	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	Regression Based	4.12	0.105	0.105	32	2.00	0.0163	0.121	0	0.76	44%	Pass
Sage Sparrow	Carbon disulfide	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	9.32	0.0103	0.000262	0.000262	0.00110	2.00	0.000000561	0.000262	NSV	--	5%	Uncertain
Sage Sparrow	Chromium	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	0.0400	2.21	0.0564	0.0564	55.3	2.00	0.0282	0.0847	1	0.085	100%	Pass
Sage Sparrow	Cobalt	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	0.0540	0.265	0.00675	0.00675	4.90	2.00	0.00250	0.00925	8	<0.01	79%	Pass
Sage Sparrow	Copper	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	Regression Based	92.7	2.37	2.37	18000	2.00	9.18	11.6	47	0.25	85%	Pass
Sage Sparrow	Iron	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	0.0100	150	3.83	3.83	15000	2.00	7.65	11.5	NSV	--	100%	Uncertain
Sage Sparrow	Lead	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	Regression Based	112	2.86	2.86	48000	2.00	24.5	27.4	0	**140**	83%	**Retain**
Sage Sparrow	Magnesium	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	2.06	50100	1280	1280	24300	2.00	12.4	1290	NSV	--	100%	Uncertain
Sage Sparrow	Manganese	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	0.680	353	9.00	9.00	519	2.00	0.265	9.27	977	<0.01	100%	Pass
Sage Sparrow	Mercury	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	Regression Based	0.0869	0.00222	0.00222	0.0700	2.00	0.0000357	0.00225	0	0.033	27%	Pass
Sage Sparrow	Molybdenum	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	0.400	6.80	0.173	0.173	17	2.00	0.00867	0.182	4	0.052	91%	Pass
Sage Sparrow	Nickel	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	Regression Based	1.75	0.0446	0.0446	41.3	2.00	0.0211	0.0657	18	<0.01	100%	Pass
Sage Sparrow	Nitrate	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	1.00	22.8	0.582	0.582	22.8	2.00	0.0116	0.593	NSV	--	92%	Uncertain
Sage Sparrow	Perchlorate	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	282	1270	32.4	32.4	4.50	2.00	0.00230	32.4	3	**9.9**	50%	**Retain**
Sage Sparrow	Phosphorus	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	1.00	990	25.3	25.3	990	2.00	0.505	25.8	0	**700**	100%	**Retain**
Sage Sparrow	Selenium	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	Regression Based	3.00	0.0766	0.0766	5.00	2.00	0.00255	0.0791	0	0.20	0%	Pass
Sage Sparrow	Silver	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	1.00	4.00	0.102	0.102	4.00	2.00	0.00204	0.104	NSV	--	8%	Uncertain
Sage Sparrow	Strontium	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	1.10	532	13.6	13.6	484	2.00	0.247	13.8	NSV	--	100%	Uncertain
Sage Sparrow	Thallium	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	0.00400	0.00220	0.0000561	0.0000561	0.550	2.00	0.000281	0.000337	1	<0.01	54%	Pass
Sage Sparrow	Vanadium	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	0.00550	0.141	0.00361	0.00361	25.7	2.00	0.0131	0.0167	11	<0.01	100%	Pass
Sage Sparrow	Zinc	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	Regression Based	355	9.05	9.05	2300	2.00	1.17	10.2	15	0.70	100%	Pass
Sage Sparrow	*HI - Inorganics*																							**850**	(dets)	**Retain**
Sage Sparrow	2-Methylnaphthalene	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	1.87	318	8.11	8.11	170	2.00	0.0867	8.20	27	0.30	14%	Pass
Sage Sparrow	Acenaphthene	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	Regression Based	17.2	0.440	0.440	0.0418	2.00	0.0000214	0.440	325	<0.01	0%	Pass
Sage Sparrow	Acenaphthylene	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	Regression Based	20.2	0.514	0.514	10.5	2.00	0.00536	0.520	325	<0.01	0%	Pass
Sage Sparrow	Anthracene	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	Regression Based	7.44	0.190	0.190	3.70	2.00	0.00189	0.192	325	<0.01	7%	Pass
Sage Sparrow	Benzo(a)anthracene	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	Regression Based	8.21	0.209	0.209	10.5	2.00	0.00536	0.215	325	<0.01	0%	Pass
Sage Sparrow	Benzo(a)pyrene	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	Regression Based	10.5	0.269	0.269	10.5	2.00	0.00536	0.274	325	<0.01	0%	Pass
Sage Sparrow	Benzo(b)fluoranthene	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	0.310	3.26	0.0830	0.0830	10.5	2.00	0.00536	0.0884	325	<0.01	0%	Pass
Sage Sparrow	Benzo(g,h,i)perylene	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	Regression Based	41	1.05	1.05	10.5	2.00	0.00536	1.05	325	<0.01	0%	Pass
Sage Sparrow	Benzo(k)fluoranthene	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	Regression Based	8.84	0.225	0.225	10.5	2.00	0.00536	0.231	325	<0.01	0%	Pass
Sage Sparrow	Chrysene	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	Regression Based	8.21	0.209	0.209	10.5	2.00	0.00536	0.215	NSV	--	0%	Uncertain
Sage Sparrow	Dibenzo(a,h)anthracene	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	0.130	1.36	0.0348	0.0348	10.5	2.00	0.00536	0.0402	325	<0.01	0%	Pass
Sage Sparrow	Fluoranthene	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	0.500	0.0720	0.00184	0.00184	0.144	2.00	0.0000735	0.00191	325	<0.01	4%	Pass
Sage Sparrow	Fluorene	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	Regression Based	5190	132	132	33	2.00	0.0168	132	325	0.41	14%	Pass
Sage Sparrow	Indeno(1,2,3-c,d)pyrene	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	0.110	1.16	0.0295	0.0295	10.5	2.00	0.00536	0.0348	325	<0.01	0%	Pass
Sage Sparrow	Naphthalene	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	12.2	647	16.5	16.5	53	2.00	0.0270	16.5	27	0.61	25%	Pass
Sage Sparrow	Phenanthrene	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	Regression Based	19.5	0.498	0.498	92	2.00	0.0469	0.545	325	<0.01	18%	Pass
Sage Sparrow	Pyrene	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	0.720	7.56	0.193	0.193	10.5	2.00	0.00536	0.198	NSV	--	0%	Uncertain
Sage Sparrow	*HI - PAHs*																							**1.3**	(dets)	**Retain**
Sage Sparrow	TPH	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	-	0	0	0	47000	2.00	24	24	500	0.048	100%	Pass
Sage Sparrow	*HI - Petroleum*																							0.048	(dets)	Pass
Sage Sparrow	2,4,5-Trichlorophenol	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	0.0202	1.01	0.0258	0.0258	50	2.00	0.0255	0.0513	17	<0.01	0%	Pass
Sage Sparrow	2,4,6-Trichlorophenol	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	0.0147	0.154	0.00393	0.00393	10.5	2.00	0.00536	0.00928	17	<0.01	0%	Pass
Sage Sparrow	2,4-Dichlorophenol	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	0.118	1.24	0.0316	0.0316	10.5	2.00	0.00536	0.0370	17	<0.01	0%	Pass
Sage Sparrow	2,4-Dimethylphenol	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	0.143	1.50	0.0383	0.0383	10.5	2.00	0.00536	0.0437	NSV	--	0%	Uncertain
Sage Sparrow	2-Chloronaphthalene	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	0.0111	0.116	0.00297	0.00297	10.5	2.00	0.00536	0.00832	NSV	--	0%	Uncertain
Sage Sparrow	2-Methylphenol	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	9.77	103	2.62	2.62	10.5	2.00	0.00536	2.62	NSV	--	0%	Uncertain
Sage Sparrow	3,3-Dichlorobenzidine	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	2.28	47.8	1.22	1.22	21	2.00	0.0107	1.23	NSV	--	0%	Uncertain
Sage Sparrow	4-Chloro-3-methylphenol	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	0.0767	0.805	0.0205	0.0205	10.5	2.00	0.00536	0.0259	NSV	--	0%	Uncertain
Sage Sparrow	4-Chloroaniline	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	1.18	12.4	0.316	0.316	10.5	2.00	0.00536	0.321	NSV	--	0%	Uncertain
Sage Sparrow	4-Methylphenol	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	0.951	9.98	0.255	0.255	10.5	2.00	0.00536	0.260	NSV	--	0%	Uncertain
Sage Sparrow	Benzoic acid	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	1.08	54.1	1.38	1.38	50	2.00	0.0255	1.41	325	<0.01	0%	Pass
Sage Sparrow	Benzylalcohol	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	5.67	59.5	1.52	1.52	10.5	2.00	0.00536	1.52	NSV	--	0%	Uncertain
Sage Sparrow	bis(2-Ethylhexyl)phthalate	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	0.0660	0.0990	0.00252	0.00252	1.50	2.00	0.000765	0.00329	1	<0.01	18%	Pass
Sage Sparrow	Butyl benzylphthalate	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	0.00182	0.0191	0.000487	0.000487	10.5	2.00	0.00536	0.00584	0	0.053	0%	Pass
Sage Sparrow	Dibenzofuran	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	1.89	22.6	0.578	0.578	12	2.00	0.00612	0.584	NSV	--	14%	Uncertain
Sage Sparrow	Diethylphthalate	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	0.304	3.20	0.0816	0.0816	10.5	2.00	0.00536	0.0869	0	0.79	0%	Pass
Sage Sparrow	Dimethylphthalate	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	2.11	22.1	0.565	0.565	10.5	2.00	0.00536	0.570	0	**5.2**	0%	**Retain**
Sage Sparrow	Di-n-butylphthalate	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	0.00298	0.0313	0.000800	0.000800	10.5	2.00	0.00536	0.00616	0	0.056	0%	Pass
Sage Sparrow	Di-n-octylphthalate	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	0.461	4.84	0.123	0.123	10.5	2.00	0.00536	0.129	0	**1.2**	0%	**Retain**
Sage Sparrow	Hexachlorobenzene	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	0.000785	0.00824	0.000210	0.000210	10.5	2.00	0.00536	0.00557	1	<0.01	0%	Pass
Sage Sparrow	Hexachlorobutadiene	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	0.00207	#########	0.0000000422	0.0000000422	0.000800	2.00	0.000000408	0.000000450	1	<0.01	4%	Pass
Sage Sparrow	Hexachlorocyclopentadiene	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	0.0111	0.116	0.00297	0.00297	10.5	2.00	0.00536	0.00832	1	0.015	0%	Pass

Table 16
Initial Risk Estimation for Wildlife Exposed to Site Soils
Attachment 10A - Thermal Treatment Unit, Ecological Risk Assessment

						Small Mammals and Other Vertebrates				Soil Invertebrates				Terrestrial Plants												
Receptor	Chemical	Body Weight (kg)	Daily Food Intake (kg/kg-bw/day)	Area Use Factor	Daily Food Ingestion from Site (kg/kg-bw/day)	Percent of Diet	Soil to Tissue Transfer Factor	Tissue Concentration (mg/kg DW)	Total Vertebrate Food Intake (mg/kg-bw/d)a	Percent of Diet	Soil to Tissue Transfer Factor	Tissue Concentration (mg/kg DW)	Total Invertebrate Food Intake (mg/kg-bw/d)b	Percent of Diet	Soil to Tissue Transfer Factor	Tissue Concentration (mg/kg DW)	Total Plant Food Intake (mg/kg-bw/d)c	Total Food Intake (mg/kg-bw/d)d	Soil EPC (mg/kg)	Percent of Diet as Soil	Incidental Soil Intake (mg/kg-bw/d)e	Total Chemical Intake (mg/kg-day)f	NOAEL TRV (mg/kg-bw/d)	NOAEL Hazard Quotient	Detection Frequency (%)	Screening Risk Conclusions
Sage Sparrow	Hexachloroethane	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	0.00305	0.0320	0.000816	0.000816	10.5	2.00	0.00536	0.00617	1	0.011	0%	Pass
Sage Sparrow	Isophorone	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	0.467	4.91	0.125	0.125	10.5	2.00	0.00536	0.131	NSV	--	0%	Uncertain
Sage Sparrow	n-Nitroso-di-n-propylamine	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	2.45	25.7	0.656	0.656	10.5	2.00	0.00536	0.662	NSV	--	0%	Uncertain
Sage Sparrow	n-Nitrosodiphenylamine	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	0.0719	0.755	0.0193	0.0193	10.5	2.00	0.00536	0.0246	NSV	--	0%	Uncertain
Sage Sparrow	Pentachlorophenol	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	0.00129	0.0644	0.00164	0.00164	50	2.00	0.0255	0.0272	17	<0.01	0%	Pass
Sage Sparrow	*HI - SVOCs*																							<0.01	(dets)	Pass
Sage Sparrow	1,1,1,2-Tetrachloroethane	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	3.56	0.00214	0.0000545	0.0000545	0.000600	2.00	0.000000306	0.0000548	17	<0.01	5%	Pass
Sage Sparrow	1,1,1-Trichloroethane	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	0.279	0.000251	0.00000641	0.00000641	0.000900	2.00	0.000000459	0.00000687	17	<0.01	5%	Pass
Sage Sparrow	1,1,2,2-Tetrachloroethane	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	0.354	0.000354	0.00000903	0.00000903	0.00100	2.00	0.000000510	0.00000954	17	<0.01	5%	Pass
Sage Sparrow	1,1,2-Trichloroethane	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	0.298	0.000238	0.00000608	0.00000608	0.000800	2.00	0.000000408	0.00000648	17	<0.01	5%	Pass
Sage Sparrow	1,1-Dichloroethane	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	1.28	0.000899	0.0000229	0.0000229	0.000700	2.00	0.000000357	0.0000233	17	<0.01	5%	Pass
Sage Sparrow	1,1-Dichloroethene	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	8.26	0.00908	0.000232	0.000232	0.00110	2.00	0.000000561	0.000232	17	<0.01	5%	Pass
Sage Sparrow	1,2,3-Trichlorobenzene	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	1.37	0.00385	0.0000981	0.0000981	0.00280	2.00	0.00000143	0.0000996	17	<0.01	5%	Pass
Sage Sparrow	1,2,3-Trichloropropane	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	5.84	0.00526	0.000134	0.000134	0.000900	2.00	0.000000459	0.000135	17	<0.01	5%	Pass
Sage Sparrow	1,2,4-Trichlorobenzene	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	0.00580	0.0000185	0.000000473	0.000000473	0.00320	2.00	0.00000163	0.00000211	17	<0.01	4%	Pass
Sage Sparrow	1,2-Dibromo-3-chloropropane	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	0.438	0.00171	0.0000436	0.0000436	0.00390	2.00	0.00000199	0.0000456	NSV	--	5%	Uncertain
Sage Sparrow	1,2-Dichlorobenzene	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	2.57	0.00360	0.0000918	0.0000918	0.00140	2.00	0.000000714	0.0000925	17	<0.01	4%	Pass
Sage Sparrow	1,2-Dichloroethane	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	2.50	0.00200	0.0000511	0.0000511	0.000800	2.00	0.000000408	0.0000515	17	<0.01	5%	Pass
Sage Sparrow	1,2-Dichloropropane	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	0.818	0.000573	0.0000146	0.0000146	0.000700	2.00	0.000000357	0.0000150	17	<0.01	5%	Pass
Sage Sparrow	1,2-Ethylene Dibromide	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	11.7	0.0105	0.000268	0.000268	0.000900	2.00	0.000000459	0.000268	NSV	--	5%	Uncertain
Sage Sparrow	1,3-Dichlorobenzene	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	0.0262	0.0000498	0.00000127	0.00000127	0.00190	2.00	0.000000970	0.00000224	17	<0.01	4%	Pass
Sage Sparrow	1,4-Dichlorobenzene	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	0.0262	0.0000812	0.00000207	0.00000207	0.00310	2.00	0.00000158	0.00000365	17	<0.01	4%	Pass
Sage Sparrow	2-Butanone	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	46.1	0.732	0.0187	0.0187	0.0159	2.00	0.00000811	0.0187	39	<0.01	18%	Pass
Sage Sparrow	2-ChloroethylVinylEther	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	20.2	0.120	0.00307	0.00307	0.00595	2.00	0.00000304	0.00308	NSV	--	0%	Uncertain
Sage Sparrow	2-Chlorophenol	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	0.557	5.84	0.149	0.149	10.5	2.00	0.00536	0.154	17	<0.01	0%	Pass
Sage Sparrow	2-Hexanone	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	16.6	0.0632	0.00161	0.00161	0.00380	2.00	0.00000194	0.00162	39	<0.01	5%	Pass
Sage Sparrow	4-Bromophenylphenylether	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	0.566	5.94	0.152	0.152	10.5	2.00	0.00536	0.157	NSV	--	0%	Uncertain
Sage Sparrow	4-Chlorophenylphenylether	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	0.00934	0.0981	0.00250	0.00250	10.5	2.00	0.00536	0.00786	NSV	--	0%	Uncertain
Sage Sparrow	4-Methyl-2-pentanone	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	19.9	0.0854	0.00218	0.00218	0.00430	2.00	0.00000219	0.00218	39	<0.01	5%	Pass
Sage Sparrow	Acetone	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	75.6	1810	46.3	46.3	24	2.00	0.0122	46.3	39	**1.2**	32%	**Retain**
Sage Sparrow	Benzene	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	8.26	0.0339	0.000864	0.000864	0.00410	2.00	0.00000209	0.000866	10	<0.01	14%	Pass
Sage Sparrow	Bis(2-chloroethoxy)methane	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	17.9	1.33	0.0339	0.0339	0.0740	2.00	0.0000378	0.0339	NSV	--	0%	Uncertain
Sage Sparrow	bis(2-chloroethyl)ether	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	2.40	25.2	0.643	0.643	10.5	2.00	0.00536	0.648	NSV	--	0%	Uncertain
Sage Sparrow	bis(2-chloroisopropyl)ether	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	0.659	6.92	0.177	0.177	10.5	2.00	0.00536	0.182	NSV	--	0%	Uncertain
Sage Sparrow	Bromodichloromethane	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	8.49	0.00594	0.000152	0.000152	0.000700	2.00	0.000000357	0.000152	NSV	--	5%	Uncertain
Sage Sparrow	Bromoform	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	0.346	0.000173	0.00000442	0.00000442	0.000500	2.00	0.000000255	0.00000467	NSV	--	5%	Uncertain
Sage Sparrow	Bromomethane	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	19.9	0.0298	0.000760	0.000760	0.00150	2.00	0.000000765	0.000761	NSV	--	5%	Uncertain
Sage Sparrow	Carbon tetrachloride	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	4.29	0.00386	0.0000986	0.0000986	0.000900	2.00	0.000000459	0.0000991	NSV	--	5%	Uncertain
Sage Sparrow	Chlorobenzene	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	0.134	0.0000940	0.00000240	0.00000240	0.000700	2.00	0.000000357	0.00000275	17	<0.01	5%	Pass
Sage Sparrow	Chloroethane	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	2.79	0.00279	0.0000711	0.0000711	0.00100	2.00	0.000000510	0.0000717	17	<0.01	5%	Pass
Sage Sparrow	Chloroform	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	0.873	0.000611	0.0000156	0.0000156	0.000700	2.00	0.000000357	0.0000159	NSV	--	5%	Uncertain
Sage Sparrow	Chloromethane	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	7.83	0.00783	0.000200	0.000200	0.00100	2.00	0.000000510	0.000200	17	<0.01	5%	Pass
Sage Sparrow	cis-1,2-Dichloroethene	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	10.6	0.00744	0.000190	0.000190	0.000700	2.00	0.000000357	0.000190	17	<0.01	5%	Pass
Sage Sparrow	cis-1,3-Dichloropropene	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	7.11	0.00427	0.000109	0.000109	0.000600	2.00	0.000000306	0.000109	17	<0.01	5%	Pass
Sage Sparrow	Dibromochloromethane	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	0.674	0.000472	0.0000120	0.0000120	0.000700	2.00	0.000000357	0.0000124	17	<0.01	5%	Pass
Sage Sparrow	Dibromomethane	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	13.3	0.00665	0.000170	0.000170	0.000500	2.00	0.000000255	0.000170	17	<0.01	5%	Pass
Sage Sparrow	Dichlorodifluoromethane	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	0.580	0.000638	0.0000163	0.0000163	0.00110	2.00	0.000000561	0.0000168	17	<0.01	5%	Pass
Sage Sparrow	Ethylbenzene	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	0.0690	0.0000898	0.00000229	0.00000229	0.00130	2.00	0.000000663	0.00000295	10	<0.01	5%	Pass
Sage Sparrow	m,p-Xylene	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	3.04	0.00608	0.000155	0.000155	0.00200	2.00	0.00000102	0.000156	10	<0.01	5%	Pass
Sage Sparrow	Methylene chloride	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	4.10	0.0131	0.000335	0.000335	0.00320	2.00	0.00000163	0.000336	NSV	--	5%	Uncertain
Sage Sparrow	o-Xylene	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	3.34	0.00901	0.000230	0.000230	0.00270	2.00	0.00000138	0.000231	10	<0.01	14%	Pass
Sage Sparrow	Phenol	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	2.62	27.5	0.701	0.701	10.5	2.00	0.00536	0.706	NSV	--	0%	Uncertain
Sage Sparrow	Styrene	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	4.02	0.0105	0.000267	0.000267	0.00260	2.00	0.00000133	0.000268	NSV	--	14%	Uncertain
Sage Sparrow	tert-ButylMethylEther	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	19	0.0133	0.000339	0.000339	0.000700	2.00	0.000000357	0.000339	NSV	--	5%	Uncertain
Sage Sparrow	Tetrachloroethene	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	2.52	0.00227	0.0000579	0.0000579	0.000900	2.00	0.000000459	0.0000584	17	<0.01	5%	Pass
Sage Sparrow	Toluene	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	4.71	0.0882	0.00225	0.00225	0.0187	2.00	0.00000954	0.00226	10	<0.01	23%	Pass
Sage Sparrow	Trans-1,2-Dichloroethene	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	2.50	0.00175	0.0000447	0.0000447	0.000700	2.00	0.000000357	0.0000451	17	<0.01	5%	Pass
Sage Sparrow	Trans-1,3-Dichloropropene	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	0.818	0.000654	0.0000167	0.0000167	0.000800	2.00	0.000000408	0.0000171	17	<0.01	5%	Pass
Sage Sparrow	Trichloroethylene (TCE)	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	0.331	0.000232	0.00000592	0.00000592	0.000700	2.00	0.000000357	0.00000628	NSV	--	5%	Uncertain
Sage Sparrow	Trichlorofluoromethane	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	0.261	0.000288	0.00000734	0.00000734	0.00110	2.00	0.000000561	0.00000790	NSV	--	5%	Uncertain
Sage Sparrow	Vinyl Acetate	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	22	0.0264	0.000673	0.000673	0.00120	2.00	0.000000612	0.000674	NSV	--	5%	Uncertain
Sage Sparrow	Vinyl chloride	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	3.10	0.00372	0.0000950	0.0000950	0.00120	2.00	0.000000612	0.0000956	NSV	--	5%	Uncertain
Sage Sparrow	*HI - VOCs*																							**1.2**	(dets)	**Retain**
Loggerhead Shrike	1,3,5-Trinitrobenzene	0.047	0.022	1	0.022	0	-	0	0	100	27.9	2.93	0.0654	0	-	0	0	0.0654	0.105	0	0	0.0654	0	0.93	0%	Pass
Loggerhead Shrike	1,3-Dinitrobenzene	0.047	0.022	1	0.022	0	-	0	0	100	26.6	2.13	0.0475	0	-	0	0	0.0475	0.0800	0	0	0.0475	0	0.11	0%	Pass
Loggerhead Shrike	2,4,6-Trinitrotoluene (TNT)	0.047	0.022	1	0.022	0	-	0	0	100	0.170	0.255	0.00569	0	-	0	0	0.00569	1.50	0	0	0.00569	0	0.081	0%	Pass
Loggerhead Shrike	2,4-Dinitrophenol	0.047	0.022	1	0.022	0	-	0	0	100	28.7	1440	32	0	-	0	0	32	50	0	0	32	NSV	--	0%	Uncertain
Loggerhead Shrike	2,4-Dinitrotoluene	0.047	0.022	1	0.022	0	-	0	0	100	5.10	10.2	0.228	0	-	0	0	0.228	2.00	0	0	0.228	0	**3.3**	2%	**Retain**
Loggerhead Shrike	2,6-Dinitrotoluene	0.047	0.022	1	0.022	0	-	0	0	100	3.16	33.2	0.740	0	-	0	0	0.740	10.5	0	0	0.740	0	**11**	0%	**Retain**
Loggerhead Shrike	2-Amino-4,6-Dinitrotoluene	0.047	0.022	1	0.022	0	-	0	0	100	Regression Based	6.71	0.150	0	-	0	0	0.150	1.50	0	0	0.150	0	**2.1**	0%	**Retain**
Loggerhead Shrike	2-Nitroaniline	0.047	0.022	1	0.022	0	-	0	0	100	27	1350	30.1	0	-	0	0	30.1	50	0	0	30.1	NSV	--	0%	Uncertain
Loggerhead Shrike	2-Nitrophenol	0.047	0.022	1	0.022	0	-	0	0	100	26.9	283	6.31	0	-	0	0	6.31	10.5	0	0	6.31	NSV	--	0%	Uncertain
Loggerhead Shrike	2-Nitrotoluene	0.047	0.022	1	0.022	0	-	0	0	100	30.9	4.32	0.0965	0	-	0	0	0.0965	0.140	0	0	0.0965	0	**1.4**	0%	**Retain**
Loggerhead Shrike	3-Nitroaniline	0.047	0.022	1	0.022	0	-	0	0	100	26.5	1320	29.5	0	-	0	0	29.5	50	0	0	29.5	NSV	--	0%	Uncertain

Table 16
Initial Risk Estimation for Wildlife Exposed to Site Soils
Attachment 10A - Thermal Treatment Unit, Ecological Risk Assessment

Receptor	Chemical	Body Weight (kg)	Daily Food Intake (kg/kg-bw/day)	Area Use Factor	Daily Food Ingestion from Site (kg/kg-bw/day)	Small Mammals and Other Vertebrates: Percent of Diet	Small Mammals and Other Vertebrates: Soil to Tissue Transfer Factor	Small Mammals and Other Vertebrates: Tissue Concentration (mg/kg DW)	Small Mammals and Other Vertebrates: Total Vertebrate Food Intake (mg/kg-bw/d)a	Soil Invertebrates: Percent of Diet	Soil Invertebrates: Soil to Tissue Transfer Factor	Soil Invertebrates: Tissue Concentration (mg/kg DW)	Soil Invertebrates: Total Invertebrate Food Intake (mg/kg-bw/d)b	Terrestrial Plants: Percent of Diet	Terrestrial Plants: Soil to Tissue Transfer Factor	Terrestrial Plants: Tissue Concentration (mg/kg DW)	Terrestrial Plants: Total Plant Food Intake (mg/kg-bw/d)c	Total Food Intake (mg/kg-bw/d)d	Soil EPC (mg/kg)	Percent of Diet as Soil	Incidental Soil Intake (mg/kg-bw/d)e	Total Chemical Intake (mg/kg-day)f	NOAEL TRV (mg/kg-bw/d)	NOAEL Hazard Quotient	Detection Frequency (%)	Screening Risk Conclusions
Loggerhead Shrike	3-Nitrotoluene	0.047	0.022	1	0.022	0	-	0	0	100	27.6	4.14	0.0924	0	-	0	0	0.0924	0.150	0	0	0.0924	0	**1.3**	0%	**Retain**
Loggerhead Shrike	4,6-Dinitro-2-methylphenol	0.047	0.022	1	0.022	0	-	0	0	100	32	1600	35.7	0	-	0	0	35.7	50	0	0	35.7	NSV	--	0%	Uncertain
Loggerhead Shrike	4-Nitroaniline	0.047	0.022	1	0.022	0	-	0	0	100	28.5	1420	31.7	0	-	0	0	31.7	50	0	0	31.7	NSV	--	0%	Uncertain
Loggerhead Shrike	4-Nitrophenol	0.047	0.022	1	0.022	0	-	0	0	100	29.8	1490	33.3	0	-	0	0	33.3	50	0	0	33.3	NSV	--	0%	Uncertain
Loggerhead Shrike	4-Nitrotoluene	0.047	0.022	1	0.022	0	-	0	0	100	27.5	5.23	0.117	0	-	0	0	0.117	0.190	0	0	0.117	0	**1.7**	0%	**Retain**
Loggerhead Shrike	HMX	0.047	0.022	1	0.022	0	-	0	0	100	1.00	25	0.558	0	-	0	0	0.558	25	0	0	0.558	9	0.062	31%	Pass
Loggerhead Shrike	Nitrobenzene	0.047	0.022	1	0.022	0	-	0	0	100	29.7	311	6.95	0	-	0	0	6.95	10.5	0	0	6.95	0	**99**	0%	**Retain**
Loggerhead Shrike	Nitroglycerin	0.047	0.022	1	0.022	0	-	0	0	100	26.6	9.05	0.202	0	-	0	0	0.202	0.340	0	0	0.202	NSV	--	0%	Uncertain
Loggerhead Shrike	Nitroguanidine	0.047	0.022	1	0.022	0	-	0	0	100	24.2	7.27	0.162	0	-	0	0	0.162	0.300	0	0	0.162	NSV	--	5%	Uncertain
Loggerhead Shrike	PETN	0.047	0.022	1	0.022	0	-	0	0	100	27.6	13.8	0.307	0	-	0	0	0.307	0.500	0	0	0.307	NSV	--	0%	Uncertain
Loggerhead Shrike	Picric acid	0.047	0.022	1	0.022	0	-	0	0	100	26.4	13.2	0.295	0	-	0	0	0.295	0.500	0	0	0.295	NSV	--	7%	Uncertain
Loggerhead Shrike	RDX	0.047	0.022	1	0.022	0	-	0	0	100	Regression Based	87.3	1.95	0	-	0	0	1.95	1.50	0	0	1.95	0	**28**	0%	**Retain**
Loggerhead Shrike	Tetryl	0.047	0.022	1	0.022	0	-	0	0	100	29.1	6.69	0.149	0	-	0	0	0.149	0.230	0	0	0.149	NSV	--	0%	Uncertain
Loggerhead Shrike	*HI - Energetics*																							**3.3**	(dets)	**Retain**
Loggerhead Shrike	Aluminum	0.047	0.022	1	0.022	0	-	0	0	100	0.340	18400	410	0	-	0	0	410	54000	0	0	410	110	**3.7**	100%	**Retain**
Loggerhead Shrike	Antimony	0.047	0.022	1	0.022	0	-	0	0	100	0.0250	4.17	0.0931	0	-	0	0	0.0931	167	0	0	0.0931	NSV	--	79%	Uncertain
Loggerhead Shrike	Arsenic	0.047	0.022	1	0.022	0	-	0	0	100	Regression Based	3.34	0.0745	0	-	0	0	0.0745	41.3	0	0	0.0745	9	<0.01	58%	Pass
Loggerhead Shrike	Barium	0.047	0.022	1	0.022	0	-	0	0	100	0.360	230	5.14	0	-	0	0	5.14	640	0	0	5.14	21	0.25	100%	Pass
Loggerhead Shrike	Beryllium	0.047	0.022	1	0.022	0	-	0	0	100	1.18	0.851	0.0190	0	-	0	0	0.0190	0.720	0	0	0.0190	NSV	--	48%	Uncertain
Loggerhead Shrike	Cadmium	0.047	0.022	1	0.022	0	-	0	0	100	Regression Based	130	2.90	0	-	0	0	2.90	32	0	0	2.90	0	**18**	44%	**Retain**
Loggerhead Shrike	Carbon disulfide	0.047	0.022	1	0.022	0	-	0	0	100	27.1	0.0299	0.000666	0	-	0	0	0.000666	0.00110	0	0	0.000666	NSV	--	5%	Uncertain
Loggerhead Shrike	Chromium	0.047	0.022	1	0.022	0	-	0	0	100	3.16	175	3.90	0	-	0	0	3.90	55.3	0	0	3.90	1	**3.9**	100%	**Retain**
Loggerhead Shrike	Cobalt	0.047	0.022	1	0.022	0	-	0	0	100	0.291	1.43	0.0318	0	-	0	0	0.0318	4.90	0	0	0.0318	8	<0.01	79%	Pass
Loggerhead Shrike	Copper	0.047	0.022	1	0.022	0	-	0	0	100	Regression Based	70.9	1.58	0	-	0	0	1.58	18000	0	0	1.58	47	0.034	85%	Pass
Loggerhead Shrike	Iron	0.047	0.022	1	0.022	0	-	0	0	100	0.380	5700	127	0	-	0	0	127	15000	0	0	127	NSV	--	100%	Uncertain
Loggerhead Shrike	Lead	0.047	0.022	1	0.022	0	-	0	0	100	Regression Based	4820	108	0	-	0	0	108	48000	0	0	108	0	**570**	83%	**Retain**
Loggerhead Shrike	Magnesium	0.047	0.022	1	0.022	0	-	0	0	100	0.425	10300	230	0	-	0	0	230	24300	0	0	230	NSV	--	100%	Uncertain
Loggerhead Shrike	Manganese	0.047	0.022	1	0.022	0	-	0	0	100	Regression Based	31.7	0.706	0	-	0	0	0.706	519	0	0	0.706	977	<0.01	100%	Pass
Loggerhead Shrike	Mercury	0.047	0.022	1	0.022	0	-	0	0	100	Regression Based	0.369	0.00822	0	-	0	0	0.00822	0.0700	0	0	0.00822	0	0.12	27%	Pass
Loggerhead Shrike	Molybdenum	0.047	0.022	1	0.022	0	-	0	0	100	2.09	35.5	0.793	0	-	0	0	0.793	17	0	0	0.793	4	0.23	91%	Pass
Loggerhead Shrike	Nickel	0.047	0.022	1	0.022	0	-	0	0	100	4.73	195	4.36	0	-	0	0	4.36	41.3	0	0	4.36	18	0.25	100%	Pass
Loggerhead Shrike	Nitrate	0.047	0.022	1	0.022	0	-	0	0	100	1.00	22.8	0.509	0	-	0	0	0.509	22.8	0	0	0.509	NSV	--	92%	Uncertain
Loggerhead Shrike	Perchlorate	0.047	0.022	1	0.022	0	-	0	0	100	1.00	4.50	0.100	0	-	0	0	0.100	4.50	0	0	0.100	3	0.031	50%	Pass
Loggerhead Shrike	Phosphorus	0.047	0.022	1	0.022	0	-	0	0	100	1.00	990	22.1	0	-	0	0	22.1	990	0	0	22.1	0	**600**	100%	**Retain**
Loggerhead Shrike	Selenium	0.047	0.022	1	0.022	0	-	0	0	100	Regression Based	3.02	0.0673	0	-	0	0	0.0673	5.00	0	0	0.0673	0	0.17	0%	Pass
Loggerhead Shrike	Silver	0.047	0.022	1	0.022	0	-	0	0	100	15.3	61.4	1.37	0	-	0	0	1.37	4.00	0	0	1.37	NSV	--	8%	Uncertain
Loggerhead Shrike	Strontium	0.047	0.022	1	0.022	0	-	0	0	100	0.278	135	3.00	0	-	0	0	3.00	484	0	0	3.00	NSV	--	100%	Uncertain
Loggerhead Shrike	Thallium	0.047	0.022	1	0.022	0	-	0	0	100	0.256	0.141	0.00314	0	-	0	0	0.00314	0.550	0	0	0.00314	1	<0.01	54%	Pass
Loggerhead Shrike	Vanadium	0.047	0.022	1	0.022	0	-	0	0	100	0.0880	2.26	0.0504	0	-	0	0	0.0504	25.7	0	0	0.0504	11	<0.01	100%	Pass
Loggerhead Shrike	Zinc	0.047	0.022	1	0.022	0	-	0	0	100	Regression Based	1080	24.2	0	-	0	0	24.2	2300	0	0	24.2	15	**1.7**	100%	**Retain**
Loggerhead Shrike	*HI - Inorganics*																							**1200**	(dets)	**Retain**
Loggerhead Shrike	2-Methylnaphthalene	0.047	0.022	1	0.022	0	-	0	0	100	29	4940	110	0	-	0	0	110	170	0	0	110	27	**4.1**	14%	**Retain**
Loggerhead Shrike	Acenaphthene	0.047	0.022	1	0.022	0	-	0	0	100	1.47	0.0615	0.00137	0	-	0	0	0.00137	0.0418	0	0	0.00137	325	<0.01	0%	Pass
Loggerhead Shrike	Acenaphthylene	0.047	0.022	1	0.022	0	-	0	0	100	22.9	240	5.36	0	-	0	0	5.36	10.5	0	0	5.36	325	0.016	0%	Pass
Loggerhead Shrike	Anthracene	0.047	0.022	1	0.022	0	-	0	0	100	2.42	8.95	0.200	0	-	0	0	0.200	3.70	0	0	0.200	325	<0.01	7%	Pass
Loggerhead Shrike	Benzo(a)anthracene	0.047	0.022	1	0.022	0	-	0	0	100	1.59	16.7	0.372	0	-	0	0	0.372	10.5	0	0	0.372	325	<0.01	0%	Pass
Loggerhead Shrike	Benzo(a)pyrene	0.047	0.022	1	0.022	0	-	0	0	100	1.33	14	0.311	0	-	0	0	0.311	10.5	0	0	0.311	325	<0.01	0%	Pass
Loggerhead Shrike	Benzo(b)fluoranthene	0.047	0.022	1	0.022	0	-	0	0	100	2.60	27.3	0.609	0	-	0	0	0.609	10.5	0	0	0.609	325	<0.01	0%	Pass
Loggerhead Shrike	Benzo(g,h,i)perylene	0.047	0.022	1	0.022	0	-	0	0	100	2.94	30.9	0.689	0	-	0	0	0.689	10.5	0	0	0.689	325	<0.01	0%	Pass
Loggerhead Shrike	Benzo(k)fluoranthene	0.047	0.022	1	0.022	0	-	0	0	100	2.60	27.3	0.609	0	-	0	0	0.609	10.5	0	0	0.609	325	<0.01	0%	Pass
Loggerhead Shrike	Chrysene	0.047	0.022	1	0.022	0	-	0	0	100	2.29	24	0.536	0	-	0	0	0.536	10.5	0	0	0.536	NSV	--	0%	Uncertain
Loggerhead Shrike	Dibenzo(a,h)anthracene	0.047	0.022	1	0.022	0	-	0	0	100	2.31	24.3	0.541	0	-	0	0	0.541	10.5	0	0	0.541	325	<0.01	0%	Pass
Loggerhead Shrike	Fluoranthene	0.047	0.022	1	0.022	0	-	0	0	100	3.04	0.438	0.00976	0	-	0	0	0.00976	0.144	0	0	0.00976	325	<0.01	4%	Pass
Loggerhead Shrike	Fluorene	0.047	0.022	1	0.022	0	-	0	0	100	9.57	316	7.04	0	-	0	0	7.04	33	0	0	7.04	325	0.022	14%	Pass
Loggerhead Shrike	Indeno(1,2,3-c,d)pyrene	0.047	0.022	1	0.022	0	-	0	0	100	2.86	30	0.670	0	-	0	0	0.670	10.5	0	0	0.670	325	<0.01	0%	Pass
Loggerhead Shrike	Naphthalene	0.047	0.022	1	0.022	0	-	0	0	100	4.40	233	5.20	0	-	0	0	5.20	53	0	0	5.20	27	0.19	25%	Pass
Loggerhead Shrike	Phenanthrene	0.047	0.022	1	0.022	0	-	0	0	100	1.72	158	3.53	0	-	0	0	3.53	92	0	0	3.53	325	0.011	18%	Pass
Loggerhead Shrike	Pyrene	0.047	0.022	1	0.022	0	-	0	0	100	1.75	18.4	0.410	0	-	0	0	0.410	10.5	0	0	0.410	NSV	--	0%	Uncertain
Loggerhead Shrike	*HI - PAHs*																							**4.3**	(dets)	**Retain**
Loggerhead Shrike	TPH	0.047	0.022	1	0.022	0	-	0	0	100	-	0	0	0	-	0	0	0	47000	0	0	0	500	<0.01	100%	Pass
Loggerhead Shrike	*HI - Petroleum*																							<0.01	(dets)	Pass
Loggerhead Shrike	2,4,5-Trichlorophenol	0.047	0.022	1	0.022	0	-	0	0	100	35.1	1760	39.1	0	-	0	0	39.1	50	0	0	39.1	17	**2.3**	0%	**Retain**
Loggerhead Shrike	2,4,6-Trichlorophenol	0.047	0.022	1	0.022	0	-	0	0	100	35.6	374	8.33	0	-	0	0	8.33	10.5	0	0	8.33	17	0.49	0%	Pass
Loggerhead Shrike	2,4-Dichlorophenol	0.047	0.022	1	0.022	0	-	0	0	100	32.6	342	7.64	0	-	0	0	7.64	10.5	0	0	7.64	17	0.45	0%	Pass
Loggerhead Shrike	2,4-Dimethylphenol	0.047	0.022	1	0.022	0	-	0	0	100	32.3	340	7.57	0	-	0	0	7.57	10.5	0	0	7.57	NSV	--	0%	Uncertain
Loggerhead Shrike	2-Chloronaphthalene	0.047	0.022	1	0.022	0	-	0	0	100	36	378	8.43	0	-	0	0	8.43	10.5	0	0	8.43	NSV	--	0%	Uncertain
Loggerhead Shrike	2-Methylphenol	0.047	0.022	1	0.022	0	-	0	0	100	27.1	284	6.35	0	-	0	0	6.35	10.5	0	0	6.35	NSV	--	0%	Uncertain
Loggerhead Shrike	3,3-Dichlorobenzidine	0.047	0.022	1	0.022	0	-	0	0	100	28.8	605	13.5	0	-	0	0	13.5	21	0	0	13.5	NSV	--	0%	Uncertain
Loggerhead Shrike	4-Chloro-3-methylphenol	0.047	0.022	1	0.022	0	-	0	0	100	33.2	349	7.77	0	-	0	0	7.77	10.5	0	0	7.77	NSV	--	0%	Uncertain
Loggerhead Shrike	4-Chloroaniline	0.047	0.022	1	0.022	0	-	0	0	100	29.6	311	6.93	0	-	0	0	6.93	10.5	0	0	6.93	NSV	--	0%	Uncertain
Loggerhead Shrike	4-Methylphenol	0.047	0.022	1	0.022	0	-	0	0	100	29.9	314	7.00	0	-	0	0	7.00	10.5	0	0	7.00	NSV	--	0%	Uncertain
Loggerhead Shrike	Benzoic acid	0.047	0.022	1	0.022	0	-	0	0	100	29.7	1490	33.1	0	-	0	0	33.1	50	0	0	33.1	325	0.10	0%	Pass
Loggerhead Shrike	Benzylalcohol	0.047	0.022	1	0.022	0	-	0	0	100	27.7	291	6.49	0	-	0	0	6.49	10.5	0	0	6.49	NSV	--	0%	Uncertain
Loggerhead Shrike	bis(2-Ethylhexyl)phthalate	0.047	0.022	1	0.022	0	-	0	0	100	33.4	50.1	1.12	0	-	0	0	1.12	1.50	0	0	1.12	1	**1.0**	18%	**Retain**

Table 16
Initial Risk Estimation for Wildlife Exposed to Site Soils
Attachment 10A - Thermal Treatment Unit, Ecological Risk Assessment

Receptor	Chemical	Body Weight (kg)	Daily Food Intake (kg/kg-bw/day)	Area Use Factor	Daily Food Ingestion from Site (kg/kg-bw/day)	Small Mammals and Other Vertebrates: Percent of Diet	Soil to Tissue Transfer Factor	Tissue Concentration (mg/kg DW)	Total Vertebrate Food Intake (mg/kg-bw/d)a	Soil Invertebrates: Percent of Diet	Soil to Tissue Transfer Factor	Tissue Concentration (mg/kg DW)	Total Invertebrate Food Intake (mg/kg-bw/d)b	Terrestrial Plants: Percent of Diet	Soil to Tissue Transfer Factor	Tissue Concentration (mg/kg DW)	Total Plant Food Intake (mg/kg-bw/d)c	Total Food Intake (mg/kg-bw/d)d	Soil EPC (mg/kg)	Percent of Diet as Soil	Incidental Soil Intake (mg/kg-bw/d)e	Total Chemical Intake (mg/kg-day)f	NOAEL TRV (mg/kg-bw/d)	NOAEL Hazard Quotient	Detection Frequency (%)	Screening Risk Conclusions
Loggerhead Shrike	Butyl benzylphthalate	0.047	0.022	1	0.022	0	-	0	0	100	38.8	408	9.09	0	-	0	0	9.09	10.5	0	0	9.09	0	83	0%	Retain
Loggerhead Shrike	Dibenzofuran	0.047	0.022	1	0.022	0	-	0	0	100	29	348	7.77	0	-	0	0	7.77	12	0	0	7.77	NSV	--	14%	Uncertain
Loggerhead Shrike	Diethylphthalate	0.047	0.022	1	0.022	0	-	0	0	100	31.3	329	7.34	0	-	0	0	7.34	10.5	0	0	7.34	0	67	0%	Retain
Loggerhead Shrike	Dimethylphthalate	0.047	0.022	1	0.022	0	-	0	0	100	28.9	303	6.77	0	-	0	0	6.77	10.5	0	0	6.77	0	62	0%	Retain
Loggerhead Shrike	Di-n-butylphthalate	0.047	0.022	1	0.022	0	-	0	0	100	38	399	8.91	0	-	0	0	8.91	10.5	0	0	8.91	0	81	0%	Retain
Loggerhead Shrike	Di-n-octylphthalate	0.047	0.022	1	0.022	0	-	0	0	100	30.8	323	7.21	0	-	0	0	7.21	10.5	0	0	7.21	0	66	0%	Retain
Loggerhead Shrike	Hexachlorobenzene	0.047	0.022	1	0.022	0	-	0	0	100	40.2	422	9.42	0	-	0	0	9.42	10.5	0	0	9.42	1	17	0%	Retain
Loggerhead Shrike	Hexachlorobutadiene	0.047	0.022	1	0.022	0	-	0	0	100	38.6	0.0309	0.000689	0	-	0	0	0.000689	0.000800	0	0	0.000689	1	<0.01	4%	Pass
Loggerhead Shrike	Hexachlorocyclopentadiene	0.047	0.022	1	0.022	0	-	0	0	100	36	378	8.43	0	-	0	0	8.43	10.5	0	0	8.43	1	15	0%	Retain
Loggerhead Shrike	Hexachloroethane	0.047	0.022	1	0.022	0	-	0	0	100	38	399	8.90	0	-	0	0	8.90	10.5	0	0	8.90	1	16	0%	Retain
Loggerhead Shrike	Isophorone	0.047	0.022	1	0.022	0	-	0	0	100	30.8	323	7.21	0	-	0	0	7.21	10.5	0	0	7.21	NSV	--	0%	Uncertain
Loggerhead Shrike	n-Nitroso-di-n-propylamine	0.047	0.022	1	0.022	0	-	0	0	100	28.7	301	6.72	0	-	0	0	6.72	10.5	0	0	6.72	NSV	--	0%	Uncertain
Loggerhead Shrike	n-Nitrosodiphenylamine	0.047	0.022	1	0.022	0	-	0	0	100	33.3	349	7.80	0	-	0	0	7.80	10.5	0	0	7.80	NSV	--	0%	Uncertain
Loggerhead Shrike	Pentachlorophenol	0.047	0.022	1	0.022	0	-	0	0	100	5.93	297	6.61	0	-	0	0	6.61	50	0	0	6.61	17	0.39	0%	Pass
Loggerhead Shrike	*HI - SVOCs*																							1.0	(dets)	Retain
Loggerhead Shrike	1,1,1,2-Tetrachloroethane	0.047	0.022	1	0.022	0	-	0	0	100	28.3	0.0170	0.000378	0	-	0	0	0.000378	0.000600	0	0	0.000378	17	<0.01	5%	Pass
Loggerhead Shrike	1,1,1-Trichloroethane	0.047	0.022	1	0.022	0	-	0	0	100	31.4	0.0283	0.000631	0	-	0	0	0.000631	0.000900	0	0	0.000631	17	<0.01	5%	Pass
Loggerhead Shrike	1,1,2,2-Tetrachloroethane	0.047	0.022	1	0.022	0	-	0	0	100	31.1	0.0311	0.000694	0	-	0	0	0.000694	0.00100	0	0	0.000694	17	<0.01	5%	Pass
Loggerhead Shrike	1,1,2-Trichloroethane	0.047	0.022	1	0.022	0	-	0	0	100	31.4	0.0251	0.000560	0	-	0	0	0.000560	0.000800	0	0	0.000560	17	<0.01	5%	Pass
Loggerhead Shrike	1,1-Dichloroethane	0.047	0.022	1	0.022	0	-	0	0	100	29.5	0.0206	0.000461	0	-	0	0	0.000461	0.000700	0	0	0.000461	17	<0.01	5%	Pass
Loggerhead Shrike	1,1-Dichloroethene	0.047	0.022	1	0.022	0	-	0	0	100	27.3	0.0300	0.000669	0	-	0	0	0.000669	0.00110	0	0	0.000669	17	<0.01	5%	Pass
Loggerhead Shrike	1,2,3-Trichlorobenzene	0.047	0.022	1	0.022	0	-	0	0	100	29.4	0.0824	0.00184	0	-	0	0	0.00184	0.00280	0	0	0.00184	17	<0.01	5%	Pass
Loggerhead Shrike	1,2,3-Trichloropropane	0.047	0.022	1	0.022	0	-	0	0	100	27.7	0.0249	0.000556	0	-	0	0	0.000556	0.000900	0	0	0.000556	17	<0.01	5%	Pass
Loggerhead Shrike	1,2,4-Trichlorobenzene	0.047	0.022	1	0.022	0	-	0	0	100	37	0.118	0.00264	0	-	0	0	0.00264	0.00320	0	0	0.00264	17	<0.01	4%	Pass
Loggerhead Shrike	1,2-Dibromo-3-chloropropane	0.047	0.022	1	0.022	0	-	0	0	100	30.9	0.120	0.00268	0	-	0	0	0.00268	0.00390	0	0	0.00268	NSV	--	5%	Uncertain
Loggerhead Shrike	1,2-Dichlorobenzene	0.047	0.022	1	0.022	0	-	0	0	100	28.7	0.0401	0.000895	0	-	0	0	0.000895	0.00140	0	0	0.000895	17	<0.01	4%	Pass
Loggerhead Shrike	1,2-Dichloroethane	0.047	0.022	1	0.022	0	-	0	0	100	28.7	0.0229	0.000512	0	-	0	0	0.000512	0.000800	0	0	0.000512	17	<0.01	5%	Pass
Loggerhead Shrike	1,2-Dichloropropane	0.047	0.022	1	0.022	0	-	0	0	100	30.1	0.0210	0.000469	0	-	0	0	0.000469	0.000700	0	0	0.000469	17	<0.01	5%	Pass
Loggerhead Shrike	1,2-Ethylene Dibromide	0.047	0.022	1	0.022	0	-	0	0	100	26.9	0.0242	0.000540	0	-	0	0	0.000540	0.000900	0	0	0.000540	NSV	--	5%	Uncertain
Loggerhead Shrike	1,3-Dichlorobenzene	0.047	0.022	1	0.022	0	-	0	0	100	34.7	0.0660	0.00147	0	-	0	0	0.00147	0.00190	0	0	0.00147	17	<0.01	4%	Pass
Loggerhead Shrike	1,4-Dichlorobenzene	0.047	0.022	1	0.022	0	-	0	0	100	34.7	0.108	0.00240	0	-	0	0	0.00240	0.00310	0	0	0.00240	17	<0.01	4%	Pass
Loggerhead Shrike	2-Butanone	0.047	0.022	1	0.022	0	-	0	0	100	25.4	0.404	0.00900	0	-	0	0	0.00900	0.0159	0	0	0.00900	39	<0.01	18%	Pass
Loggerhead Shrike	2-ChloroethylVinylEther	0.047	0.022	1	0.022	0	-	0	0	100	26.3	0.156	0.00349	0	-	0	0	0.00349	0.00595	0	0	0.00349	NSV	--	0%	Uncertain
Loggerhead Shrike	2-Chlorophenol	0.047	0.022	1	0.022	0	-	0	0	100	30.6	321	7.15	0	-	0	0	7.15	10.5	0	0	7.15	17	0.42	0%	Pass
Loggerhead Shrike	2-Hexanone	0.047	0.022	1	0.022	0	-	0	0	100	26.5	0.101	0.00225	0	-	0	0	0.00225	0.00380	0	0	0.00225	39	<0.01	5%	Pass
Loggerhead Shrike	4-Bromophenylphenylether	0.047	0.022	1	0.022	0	-	0	0	100	30.5	321	7.15	0	-	0	0	7.15	10.5	0	0	7.15	NSV	--	0%	Uncertain
Loggerhead Shrike	4-Chlorophenylphenylether	0.047	0.022	1	0.022	0	-	0	0	100	36.3	381	8.49	0	-	0	0	8.49	10.5	0	0	8.49	NSV	--	0%	Uncertain
Loggerhead Shrike	4-Methyl-2-pentanone	0.047	0.022	1	0.022	0	-	0	0	100	26.3	0.113	0.00252	0	-	0	0	0.00252	0.00430	0	0	0.00252	39	<0.01	5%	Pass
Loggerhead Shrike	Acetone	0.047	0.022	1	0.022	0	-	0	0	100	24.9	597	13.3	0	-	0	0	13.3	24	0	0	13.3	39	0.34	32%	Pass
Loggerhead Shrike	Benzene	0.047	0.022	1	0.022	0	-	0	0	100	27.3	0.112	0.00250	0	-	0	0	0.00250	0.00410	0	0	0.00250	10	<0.01	14%	Pass
Loggerhead Shrike	Bis(2-chloroethoxy)methane	0.047	0.022	1	0.022	0	-	0	0	100	26.4	1.95	0.0436	0	-	0	0	0.0436	0.0740	0	0	0.0436	NSV	--	0%	Uncertain
Loggerhead Shrike	bis(2-chloroethyl)ether	0.047	0.022	1	0.022	0	-	0	0	100	28.7	302	6.73	0	-	0	0	6.73	10.5	0	0	6.73	NSV	--	0%	Uncertain
Loggerhead Shrike	bis(2-chloroisopropyl)ether	0.047	0.022	1	0.022	0	-	0	0	100	30.3	319	7.10	0	-	0	0	7.10	10.5	0	0	7.10	NSV	--	0%	Uncertain
Loggerhead Shrike	Bromodichloromethane	0.047	0.022	1	0.022	0	-	0	0	100	27.3	0.0191	0.000426	0	-	0	0	0.000426	0.000700	0	0	0.000426	NSV	--	5%	Uncertain
Loggerhead Shrike	Bromoform	0.047	0.022	1	0.022	0	-	0	0	100	31.2	0.0156	0.000348	0	-	0	0	0.000348	0.000500	0	0	0.000348	NSV	--	5%	Uncertain
Loggerhead Shrike	Bromomethane	0.047	0.022	1	0.022	0	-	0	0	100	26.3	0.0394	0.000880	0	-	0	0	0.000880	0.00150	0	0	0.000880	NSV	--	5%	Uncertain
Loggerhead Shrike	Carbon tetrachloride	0.047	0.022	1	0.022	0	-	0	0	100	28	0.0252	0.000563	0	-	0	0	0.000563	0.000900	0	0	0.000563	NSV	--	5%	Uncertain
Loggerhead Shrike	Chlorobenzene	0.047	0.022	1	0.022	0	-	0	0	100	32.4	0.0227	0.000506	0	-	0	0	0.000506	0.000700	0	0	0.000506	17	<0.01	5%	Pass
Loggerhead Shrike	Chloroethane	0.047	0.022	1	0.022	0	-	0	0	100	28.6	0.0286	0.000637	0	-	0	0	0.000637	0.00100	0	0	0.000637	17	<0.01	5%	Pass
Loggerhead Shrike	Chloroform	0.047	0.022	1	0.022	0	-	0	0	100	30	0.0210	0.000468	0	-	0	0	0.000468	0.000700	0	0	0.000468	NSV	--	5%	Uncertain
Loggerhead Shrike	Chloromethane	0.047	0.022	1	0.022	0	-	0	0	100	27.3	0.0273	0.000610	0	-	0	0	0.000610	0.00100	0	0	0.000610	17	<0.01	5%	Pass
Loggerhead Shrike	cis-1,2-Dichloroethene	0.047	0.022	1	0.022	0	-	0	0	100	27	0.0189	0.000422	0	-	0	0	0.000422	0.000700	0	0	0.000422	17	<0.01	5%	Pass
Loggerhead Shrike	cis-1,3-Dichloropropene	0.047	0.022	1	0.022	0	-	0	0	100	27.5	0.0165	0.000367	0	-	0	0	0.000367	0.000600	0	0	0.000367	17	<0.01	5%	Pass
Loggerhead Shrike	Dibromochloromethane	0.047	0.022	1	0.022	0	-	0	0	100	30.3	0.0212	0.000473	0	-	0	0	0.000473	0.000700	0	0	0.000473	17	<0.01	5%	Pass
Loggerhead Shrike	Dibromomethane	0.047	0.022	1	0.022	0	-	0	0	100	26.7	0.0134	0.000298	0	-	0	0	0.000298	0.000500	0	0	0.000298	17	<0.01	5%	Pass
Loggerhead Shrike	Dichlorodifluoromethane	0.047	0.022	1	0.022	0	-	0	0	100	30.5	0.0335	0.000748	0	-	0	0	0.000748	0.00110	0	0	0.000748	17	<0.01	5%	Pass
Loggerhead Shrike	Ethylbenzene	0.047	0.022	1	0.022	0	-	0	0	100	33.3	0.0433	0.000967	0	-	0	0	0.000967	0.00130	0	0	0.000967	10	<0.01	5%	Pass
Loggerhead Shrike	m,p-Xylene	0.047	0.022	1	0.022	0	-	0	0	100	28.5	0.0569	0.00127	0	-	0	0	0.00127	0.00200	0	0	0.00127	10	<0.01	5%	Pass
Loggerhead Shrike	Methylene chloride	0.047	0.022	1	0.022	0	-	0	0	100	28.1	0.0899	0.00201	0	-	0	0	0.00201	0.00320	0	0	0.00201	NSV	--	5%	Uncertain
Loggerhead Shrike	o-Xylene	0.047	0.022	1	0.022	0	-	0	0	100	28.3	0.0765	0.00171	0	-	0	0	0.00171	0.00270	0	0	0.00171	10	<0.01	14%	Pass
Loggerhead Shrike	Phenol	0.047	0.022	1	0.022	0	-	0	0	100	28.6	301	6.71	0	-	0	0	6.71	10.5	0	0	6.71	NSV	--	0%	Uncertain
Loggerhead Shrike	Styrene	0.047	0.022	1	0.022	0	-	0	0	100	28.1	0.0731	0.00163	0	-	0	0	0.00163	0.00260	0	0	0.00163	NSV	--	14%	Uncertain
Loggerhead Shrike	tert-ButylMethylEther	0.047	0.022	1	0.022	0	-	0	0	100	26.4	0.0184	0.000411	0	-	0	0	0.000411	0.000700	0	0	0.000411	NSV	--	5%	Uncertain
Loggerhead Shrike	Tetrachloroethene	0.047	0.022	1	0.022	0	-	0	0	100	28.7	0.0258	0.000576	0	-	0	0	0.000576	0.000900	0	0	0.000576	17	<0.01	5%	Pass
Loggerhead Shrike	Toluene	0.047	0.022	1	0.022	0	-	0	0	100	27.9	0.522	0.0117	0	-	0	0	0.0117	0.0187	0	0	0.0117	10	<0.01	23%	Pass
Loggerhead Shrike	Trans-1,2-Dichloroethene	0.047	0.022	1	0.022	0	-	0	0	100	28.7	0.0201	0.000448	0	-	0	0	0.000448	0.000700	0	0	0.000448	17	<0.01	5%	Pass
Loggerhead Shrike	Trans-1,3-Dichloropropene	0.047	0.022	1	0.022	0	-	0	0	100	30.1	0.0240	0.000536	0	-	0	0	0.000536	0.000800	0	0	0.000536	17	<0.01	5%	Pass
Loggerhead Shrike	Trichloroethylene (TCE)	0.047	0.022	1	0.022	0	-	0	0	100	31.2	0.0219	0.000487	0	-	0	0	0.000487	0.000700	0	0	0.000487	NSV	--	5%	Uncertain
Loggerhead Shrike	Trichlorofluoromethane	0.047	0.022	1	0.022	0	-	0	0	100	31.5	0.0347	0.000774	0	-	0	0	0.000774	0.00110	0	0	0.000774	NSV	--	5%	Uncertain
Loggerhead Shrike	Vinyl Acetate	0.047	0.022	1	0.022	0	-	0	0	100	26.2	0.0314	0.000701	0	-	0	0	0.000701	0.00120	0	0	0.000701	NSV	--	5%	Uncertain
Loggerhead Shrike	Vinyl chloride	0.047	0.022	1	0.022	0	-	0	0	100	28.4	0.0341	0.000761	0	-	0	0	0.000761	0.00120	0	0	0.000761	NSV	--	5%	Uncertain
Loggerhead Shrike	*HI - VOCs*																							*0.77*	(dets)	Pass
Western Meadowlark	1,3,5-Trinitrobenzene	0.103	0.020	1	0.020	0	-	0	0	100	27.9	2.93	0.0581	0	-	0	0	0.0581	0.105	2.00	0.0000417	0.0582	0	0.83	0%	Pass
Western Meadowlark	1,3-Dinitrobenzene	0.103	0.020	1	0.020	0	-	0	0	100	26.6	2.13	0.0422	0	-	0	0	0.0422	0.0800	2.00	0.0000317	0.0423	0	0.10	0%	Pass

Table 16
Initial Risk Estimation for Wildlife Exposed to Site Soils
Attachment 10A - Thermal Treatment Unit, Ecological Risk Assessment

Receptor	Chemical	Body Weight (kg)	Daily Food Intake (kg/kg-bw/day)	Area Use Factor	Daily Food Ingestion from Site (kg/kg-bw/day)	Small Mammals and Other Vertebrates: Percent of Diet	Small Mammals and Other Vertebrates: Soil to Tissue Transfer Factor	Small Mammals and Other Vertebrates: Tissue Concentration (mg/kg DW)	Small Mammals and Other Vertebrates: Total Vertebrate Food Intake (mg/kg-bw/d)a	Soil Invertebrates: Percent of Diet	Soil Invertebrates: Soil to Tissue Transfer Factor	Soil Invertebrates: Tissue Concentration (mg/kg DW)	Soil Invertebrates: Total Invertebrate Food Intake (mg/kg-bw/d)b	Terrestrial Plants: Percent of Diet	Terrestrial Plants: Soil to Tissue Transfer Factor	Terrestrial Plants: Tissue Concentration (mg/kg DW)	Terrestrial Plants: Total Plant Food Intake (mg/kg-bw/d)c	Total Food Intake (mg/kg-bw/d)d	Soil EPC (mg/kg)	Percent of Diet as Soil	Incidental Soil Intake (mg/kg-bw/d)e	Total Chemical Intake (mg/kg-day)f	NOAEL TRV (mg/kg-bw/d)	NOAEL Hazard Quotient	Detection Frequency (%)	Screening Risk Conclusions
Western Meadowlark	2,4,6-Trinitrotoluene (TNT)	0.103	0.020	1	0.020	0	-	0	0	100	0.170	0.255	0.00506	0	-	0	0	0.00506	1.50	2.00	0.000595	0.00565	0	0.081	0%	Pass
Western Meadowlark	2,4-Dinitrophenol	0.103	0.020	1	0.020	0	-	0	0	100	28.7	1440	28.5	0	-	0	0	28.5	50	2.00	0.0198	28.5	NSV	--	0%	Uncertain
Western Meadowlark	2,4-Dinitrotoluene	0.103	0.020	1	0.020	0	-	0	0	100	5.10	10.2	0.202	0	-	0	0	0.202	2.00	2.00	0.000793	0.203	0	**2.9**	2%	**Retain**
Western Meadowlark	2,6-Dinitrotoluene	0.103	0.020	1	0.020	0	-	0	0	100	3.16	33.2	0.658	0	-	0	0	0.658	10.5	2.00	0.00417	0.662	0	**9.5**	0%	**Retain**
Western Meadowlark	2-Amino-4,6-Dinitrotoluene	0.103	0.020	1	0.020	0	-	0	0	100	Regression Based	6.71	0.133	0	-	0	0	0.133	1.50	2.00	0.000595	0.134	0	**1.9**	0%	**Retain**
Western Meadowlark	2-Nitroaniline	0.103	0.020	1	0.020	0	-	0	0	100	27	1350	26.8	0	-	0	0	26.8	50	2.00	0.0198	26.8	NSV	--	0%	Uncertain
Western Meadowlark	2-Nitrophenol	0.103	0.020	1	0.020	0	-	0	0	100	26.9	283	5.61	0	-	0	0	5.61	10.5	2.00	0.00417	5.61	NSV	--	0%	Uncertain
Western Meadowlark	2-Nitrotoluene	0.103	0.020	1	0.020	0	-	0	0	100	30.9	4.32	0.0858	0	-	0	0	0.0858	0.140	2.00	0.0000555	0.0858	0	**1.2**	0%	**Retain**
Western Meadowlark	3-Nitroaniline	0.103	0.020	1	0.020	0	-	0	0	100	26.5	1320	26.3	0	-	0	0	26.3	50	2.00	0.0198	26.3	NSV	--	0%	Uncertain
Western Meadowlark	3-Nitrotoluene	0.103	0.020	1	0.020	0	-	0	0	100	27.6	4.14	0.0822	0	-	0	0	0.0822	0.150	2.00	0.0000595	0.0823	0	**1.2**	0%	**Retain**
Western Meadowlark	4,6-Dinitro-2-methylphenol	0.103	0.020	1	0.020	0	-	0	0	100	32	1600	31.8	0	-	0	0	31.8	50	2.00	0.0198	31.8	NSV	--	0%	Uncertain
Western Meadowlark	4-Nitroaniline	0.103	0.020	1	0.020	0	-	0	0	100	28.5	1420	28.2	0	-	0	0	28.2	50	2.00	0.0198	28.2	NSV	--	0%	Uncertain
Western Meadowlark	4-Nitrophenol	0.103	0.020	1	0.020	0	-	0	0	100	29.8	1490	29.6	0	-	0	0	29.6	50	2.00	0.0198	29.6	NSV	--	0%	Uncertain
Western Meadowlark	4-Nitrotoluene	0.103	0.020	1	0.020	0	-	0	0	100	27.5	5.23	0.104	0	-	0	0	0.104	0.190	2.00	0.0000754	0.104	0	**1.5**	0%	**Retain**
Western Meadowlark	HMX	0.103	0.020	1	0.020	0	-	0	0	100	1.00	25	0.496	0	-	0	0	0.496	25	2.00	0.00992	0.506	9	0.056	31%	Pass
Western Meadowlark	Nitrobenzene	0.103	0.020	1	0.020	0	-	0	0	100	29.7	311	6.18	0	-	0	0	6.18	10.5	2.00	0.00417	6.18	0	**88**	0%	**Retain**
Western Meadowlark	Nitroglycerin	0.103	0.020	1	0.020	0	-	0	0	100	26.6	9.05	0.180	0	-	0	0	0.180	0.340	2.00	0.000135	0.180	NSV	--	0%	Uncertain
Western Meadowlark	Nitroguanidine	0.103	0.020	1	0.020	0	-	0	0	100	24.2	7.27	0.144	0	-	0	0	0.144	0.300	2.00	0.000119	0.144	NSV	--	5%	Uncertain
Western Meadowlark	PETN	0.103	0.020	1	0.020	0	-	0	0	100	27.6	13.8	0.273	0	-	0	0	0.273	0.500	2.00	0.000198	0.273	NSV	--	0%	Uncertain
Western Meadowlark	Picric acid	0.103	0.020	1	0.020	0	-	0	0	100	26.4	13.2	0.262	0	-	0	0	0.262	0.500	2.00	0.000198	0.262	NSV	--	7%	Uncertain
Western Meadowlark	RDX	0.103	0.020	1	0.020	0	-	0	0	100	Regression Based	87.3	1.73	0	-	0	0	1.73	1.50	2.00	0.000595	1.73	0	**25**	0%	**Retain**
Western Meadowlark	Tetryl	0.103	0.020	1	0.020	0	-	0	0	100	29.1	6.69	0.133	0	-	0	0	0.133	0.230	2.00	0.0000913	0.133	NSV	--	0%	Uncertain
Western Meadowlark	*HI - Energetics*																							**3.0**	(dets)	**Retain**
Western Meadowlark	Aluminum	0.103	0.020	1	0.020	0	-	0	0	100	0.340	18400	364	0	-	0	0	364	54000	2.00	21.4	386	110	**3.5**	100%	**Retain**
Western Meadowlark	Antimony	0.103	0.020	1	0.020	0	-	0	0	100	0.0250	4.17	0.0828	0	-	0	0	0.0828	167	2.00	0.0662	0.149	NSV	--	79%	Uncertain
Western Meadowlark	Arsenic	0.103	0.020	1	0.020	0	-	0	0	100	Regression Based	3.34	0.0663	0	-	0	0	0.0663	41.3	2.00	0.0164	0.0826	9	<0.01	58%	Pass
Western Meadowlark	Barium	0.103	0.020	1	0.020	0	-	0	0	100	0.360	230	4.57	0	-	0	0	4.57	640	2.00	0.254	4.82	21	0.23	100%	Pass
Western Meadowlark	Beryllium	0.103	0.020	1	0.020	0	-	0	0	100	1.18	0.851	0.0169	0	-	0	0	0.0169	0.720	2.00	0.000286	0.0172	NSV	--	48%	Uncertain
Western Meadowlark	Cadmium	0.103	0.020	1	0.020	0	-	0	0	100	Regression Based	130	2.58	0	-	0	0	2.58	32	2.00	0.0127	2.60	0	**16**	44%	**Retain**
Western Meadowlark	Carbon disulfide	0.103	0.020	1	0.020	0	-	0	0	100	27.1	0.0299	0.000592	0	-	0	0	0.000592	0.00110	2.00	0.000000436	0.000593	NSV	--	5%	Uncertain
Western Meadowlark	Chromium	0.103	0.020	1	0.020	0	-	0	0	100	3.16	175	3.47	0	-	0	0	3.47	55.3	2.00	0.0219	3.49	1	**3.5**	100%	**Retain**
Western Meadowlark	Cobalt	0.103	0.020	1	0.020	0	-	0	0	100	0.291	1.43	0.0283	0	-	0	0	0.0283	4.90	2.00	0.00194	0.0302	8	<0.01	79%	Pass
Western Meadowlark	Copper	0.103	0.020	1	0.020	0	-	0	0	100	Regression Based	70.9	1.41	0	-	0	0	1.41	18000	2.00	7.14	8.55	47	0.18	85%	Pass
Western Meadowlark	Iron	0.103	0.020	1	0.020	0	-	0	0	100	0.380	5700	113	0	-	0	0	113	15000	2.00	5.95	119	NSV	--	100%	Uncertain
Western Meadowlark	Lead	0.103	0.020	1	0.020	0	-	0	0	100	Regression Based	4820	95.6	0	-	0	0	95.6	48000	2.00	19	115	0	**600**	83%	**Retain**
Western Meadowlark	Magnesium	0.103	0.020	1	0.020	0	-	0	0	100	0.425	10300	205	0	-	0	0	205	24300	2.00	9.64	215	NSV	--	100%	Uncertain
Western Meadowlark	Manganese	0.103	0.020	1	0.020	0	-	0	0	100	Regression Based	31.7	0.628	0	-	0	0	0.628	519	2.00	0.206	0.834	977	<0.01	100%	Pass
Western Meadowlark	Mercury	0.103	0.020	1	0.020	0	-	0	0	100	Regression Based	0.369	0.00731	0	-	0	0	0.00731	0.0700	2.00	0.0000278	0.00734	0	0.11	27%	Pass
Western Meadowlark	Molybdenum	0.103	0.020	1	0.020	0	-	0	0	100	2.09	35.5	0.705	0	-	0	0	0.705	17	2.00	0.00674	0.712	4	0.20	91%	Pass
Western Meadowlark	Nickel	0.103	0.020	1	0.020	0	-	0	0	100	4.73	195	3.88	0	-	0	0	3.88	41.3	2.00	0.0164	3.89	18	0.22	100%	Pass
Western Meadowlark	Nitrate	0.103	0.020	1	0.020	0	-	0	0	100	1.00	22.8	0.452	0	-	0	0	0.452	22.8	2.00	0.00905	0.461	NSV	--	92%	Uncertain
Western Meadowlark	Perchlorate	0.103	0.020	1	0.020	0	-	0	0	100	1.00	4.50	0.0893	0	-	0	0	0.0893	4.50	2.00	0.00179	0.0911	3	0.028	50%	Pass
Western Meadowlark	Phosphorus	0.103	0.020	1	0.020	0	-	0	0	100	1.00	990	19.6	0	-	0	0	19.6	990	2.00	0.393	20	0	**540**	100%	**Retain**
Western Meadowlark	Selenium	0.103	0.020	1	0.020	0	-	0	0	100	Regression Based	3.02	0.0599	0	-	0	0	0.0599	5.00	2.00	0.00198	0.0619	0	0.15	0%	Pass
Western Meadowlark	Silver	0.103	0.020	1	0.020	0	-	0	0	100	15.3	61.4	1.22	0	-	0	0	1.22	4.00	2.00	0.00159	1.22	NSV	--	8%	Uncertain
Western Meadowlark	Strontium	0.103	0.020	1	0.020	0	-	0	0	100	0.278	135	2.67	0	-	0	0	2.67	484	2.00	0.192	2.86	NSV	--	100%	Uncertain
Western Meadowlark	Thallium	0.103	0.020	1	0.020	0	-	0	0	100	0.256	0.141	0.00279	0	-	0	0	0.00279	0.550	2.00	0.000218	0.00301	1	<0.01	54%	Pass
Western Meadowlark	Vanadium	0.103	0.020	1	0.020	0	-	0	0	100	0.0880	2.26	0.0449	0	-	0	0	0.0449	25.7	2.00	0.0102	0.0551	11	<0.01	100%	Pass
Western Meadowlark	Zinc	0.103	0.020	1	0.020	0	-	0	0	100	Regression Based	1080	21.5	0	-	0	0	21.5	2300	2.00	0.913	22.4	15	**1.5**	100%	**Retain**
Western Meadowlark	*HI - Inorganics*																							**1200**	(dets)	**Retain**
Western Meadowlark	2-Methylnaphthalene	0.103	0.020	1	0.020	0	-	0	0	100	29	4940	97.9	0	-	0	0	97.9	170	2.00	0.0674	98	27	**3.6**	14%	**Retain**
Western Meadowlark	Acenaphthene	0.103	0.020	1	0.020	0	-	0	0	100	1.47	0.0615	0.00122	0	-	0	0	0.00122	0.0418	2.00	0.0000166	0.00124	325	<0.01	0%	Pass
Western Meadowlark	Acenaphthylene	0.103	0.020	1	0.020	0	-	0	0	100	22.9	240	4.77	0	-	0	0	4.77	10.5	2.00	0.00417	4.77	325	0.015	0%	Pass
Western Meadowlark	Anthracene	0.103	0.020	1	0.020	0	-	0	0	100	2.42	8.95	0.178	0	-	0	0	0.178	3.70	2.00	0.00147	0.179	325	<0.01	7%	Pass
Western Meadowlark	Benzo(a)anthracene	0.103	0.020	1	0.020	0	-	0	0	100	1.59	16.7	0.331	0	-	0	0	0.331	10.5	2.00	0.00417	0.335	325	<0.01	0%	Pass
Western Meadowlark	Benzo(a)pyrene	0.103	0.020	1	0.020	0	-	0	0	100	1.33	14	0.277	0	-	0	0	0.277	10.5	2.00	0.00417	0.281	325	<0.01	0%	Pass
Western Meadowlark	Benzo(b)fluoranthene	0.103	0.020	1	0.020	0	-	0	0	100	2.60	27.3	0.542	0	-	0	0	0.542	10.5	2.00	0.00417	0.546	325	<0.01	0%	Pass
Western Meadowlark	Benzo(g,h,i)perylene	0.103	0.020	1	0.020	0	-	0	0	100	2.94	30.9	0.612	0	-	0	0	0.612	10.5	2.00	0.00417	0.617	325	<0.01	0%	Pass
Western Meadowlark	Benzo(k)fluoranthene	0.103	0.020	1	0.020	0	-	0	0	100	2.60	27.3	0.542	0	-	0	0	0.542	10.5	2.00	0.00417	0.546	325	<0.01	0%	Pass
Western Meadowlark	Chrysene	0.103	0.020	1	0.020	0	-	0	0	100	2.29	24	0.477	0	-	0	0	0.477	10.5	2.00	0.00417	0.481	NSV	--	0%	Uncertain
Western Meadowlark	Dibenzo(a,h)anthracene	0.103	0.020	1	0.020	0	-	0	0	100	2.31	24.3	0.481	0	-	0	0	0.481	10.5	2.00	0.00417	0.485	325	<0.01	0%	Pass
Western Meadowlark	Fluoranthene	0.103	0.020	1	0.020	0	-	0	0	100	3.04	0.438	0.00868	0	-	0	0	0.00868	0.144	2.00	0.0000571	0.00874	325	<0.01	4%	Pass
Western Meadowlark	Fluorene	0.103	0.020	1	0.020	0	-	0	0	100	9.57	316	6.26	0	-	0	0	6.26	33	2.00	0.0131	6.28	325	0.019	14%	Pass
Western Meadowlark	Indeno(1,2,3-c,d)pyrene	0.103	0.020	1	0.020	0	-	0	0	100	2.86	30	0.596	0	-	0	0	0.596	10.5	2.00	0.00417	0.600	325	<0.01	0%	Pass
Western Meadowlark	Naphthalene	0.103	0.020	1	0.020	0	-	0	0	100	4.40	233	4.63	0	-	0	0	4.63	53	2.00	0.0210	4.65	27	0.17	25%	Pass
Western Meadowlark	Phenanthrene	0.103	0.020	1	0.020	0	-	0	0	100	1.72	158	3.14	0	-	0	0	3.14	92	2.00	0.0365	3.18	325	<0.01	18%	Pass
Western Meadowlark	Pyrene	0.103	0.020	1	0.020	0	-	0	0	100	1.75	18.4	0.365	0	-	0	0	0.365	10.5	2.00	0.00417	0.369	NSV	--	0%	Uncertain
Western Meadowlark	*HI - PAHs*																							**3.8**	(dets)	**Retain**
Western Meadowlark	TPH	0.103	0.020	1	0.020	0	-	0	0	100	-	0	0	0	-	0	0	0	47000	2.00	18.6	18.6	500	0.037	100%	Pass
Western Meadowlark	*HI - Petroleum*																							0.037	(dets)	Pass
Western Meadowlark	2,4,5-Trichlorophenol	0.103	0.020	1	0.020	0	-	0	0	100	35.1	1760	34.8	0	-	0	0	34.8	50	2.00	0.0198	34.8	17	**2.1**	0%	**Retain**
Western Meadowlark	2,4,6-Trichlorophenol	0.103	0.020	1	0.020	0	-	0	0	100	35.6	374	7.41	0	-	0	0	7.41	10.5	2.00	0.00417	7.42	17	0.44	0%	Pass
Western Meadowlark	2,4-Dichlorophenol	0.103	0.020	1	0.020	0	-	0	0	100	32.6	342	6.79	0	-	0	0	6.79	10.5	2.00	0.00417	6.79	17	0.40	0%	Pass
Western Meadowlark	2,4-Dimethylphenol	0.103	0.020	1	0.020	0	-	0	0	100	32.3	340	6.74	0	-	0	0	6.74	10.5	2.00	0.00417	6.74	NSV	--	0%	Uncertain

Table 16
Initial Risk Estimation for Wildlife Exposed to Site Soils
Attachment 10A - Thermal Treatment Unit, Ecological Risk Assessment

Receptor	Chemical	Body Weight (kg)	Daily Food Intake (kg/kg-bw/day)	Area Use Factor	Daily Food Ingestion from Site (kg/kg-bw/day)	Small Mammals and Other Vertebrates: Percent of Diet	Soil to Tissue Transfer Factor	Tissue Concentration (mg/kg DW)	Total Vertebrate Food Intake (mg/kg-bw/d)a	Soil Invertebrates: Percent of Diet	Soil to Tissue Transfer Factor	Tissue Concentration (mg/kg DW)	Total Invertebrate Food Intake (mg/kg-bw/d)b	Terrestrial Plants: Percent of Diet	Soil to Tissue Transfer Factor	Tissue Concentration (mg/kg DW)	Total Plant Food Intake (mg/kg-bw/d)c	Total Food Intake (mg/kg-bw/d)d	Soil EPC (mg/kg)	Percent of Diet as Soil	Incidental Soil Intake (mg/kg-bw/d)e	Total Chemical Intake (mg/kg-day)f	NOAEL TRV (mg/kg-bw/d)	NOAEL Hazard Quotient	Detection Frequency (%)	Screening Risk Conclusions
Western Meadowlark	2-Chloronaphthalene	0.103	0.020	1	0.020	0	-	0	0	100	36	378	7.50	0	-	0	0	7.50	10.5	2.00	0.00417	7.50	NSV	--	0%	Uncertain
Western Meadowlark	2-Methylphenol	0.103	0.020	1	0.020	0	-	0	0	100	27.1	284	5.64	0	-	0	0	5.64	10.5	2.00	0.00417	5.65	NSV	--	0%	Uncertain
Western Meadowlark	3,3-Dichlorobenzidine	0.103	0.020	1	0.020	0	-	0	0	100	28.8	605	12	0	-	0	0	12	21	2.00	0.00833	12	NSV	--	0%	Uncertain
Western Meadowlark	4-Chloro-3-methylphenol	0.103	0.020	1	0.020	0	-	0	0	100	33.2	349	6.91	0	-	0	0	6.91	10.5	2.00	0.00417	6.92	NSV	--	0%	Uncertain
Western Meadowlark	4-Chloroaniline	0.103	0.020	1	0.020	0	-	0	0	100	29.6	311	6.17	0	-	0	0	6.17	10.5	2.00	0.00417	6.17	NSV	--	0%	Uncertain
Western Meadowlark	4-Methylphenol	0.103	0.020	1	0.020	0	-	0	0	100	29.9	314	6.22	0	-	0	0	6.22	10.5	2.00	0.00417	6.23	NSV	--	0%	Uncertain
Western Meadowlark	Benzoic acid	0.103	0.020	1	0.020	0	-	0	0	100	29.7	1490	29.5	0	-	0	0	29.5	50	2.00	0.0198	29.5	325	0.091	0%	Pass
Western Meadowlark	Benzylalcohol	0.103	0.020	1	0.020	0	-	0	0	100	27.7	291	5.77	0	-	0	0	5.77	10.5	2.00	0.00417	5.78	NSV	--	0%	Uncertain
Western Meadowlark	bis(2-Ethylhexyl)phthalate	0.103	0.020	1	0.020	0	-	0	0	100	33.4	50.1	0.994	0	-	0	0	0.994	1.50	2.00	0.000595	0.995	1	0.90	18%	Pass
Western Meadowlark	Butyl benzylphthalate	0.103	0.020	1	0.020	0	-	0	0	100	38.8	408	8.09	0	-	0	0	8.09	10.5	2.00	0.00417	8.09	0	**74**	0%	**Retain**
Western Meadowlark	Dibenzofuran	0.103	0.020	1	0.020	0	-	0	0	100	29	348	6.91	0	-	0	0	6.91	12	2.00	0.00476	6.91	NSV	--	14%	Uncertain
Western Meadowlark	Diethylphthalate	0.103	0.020	1	0.020	0	-	0	0	100	31.3	329	6.53	0	-	0	0	6.53	10.5	2.00	0.00417	6.53	0	**59**	0%	**Retain**
Western Meadowlark	Dimethylphthalate	0.103	0.020	1	0.020	0	-	0	0	100	28.9	303	6.02	0	-	0	0	6.02	10.5	2.00	0.00417	6.02	0	**55**	0%	**Retain**
Western Meadowlark	Di-n-butylphthalate	0.103	0.020	1	0.020	0	-	0	0	100	38	399	7.92	0	-	0	0	7.92	10.5	2.00	0.00417	7.93	0	**72**	0%	**Retain**
Western Meadowlark	Di-n-octylphthalate	0.103	0.020	1	0.020	0	-	0	0	100	30.8	323	6.41	0	-	0	0	6.41	10.5	2.00	0.00417	6.42	0	**58**	0%	**Retain**
Western Meadowlark	Hexachlorobenzene	0.103	0.020	1	0.020	0	-	0	0	100	40.2	422	8.38	0	-	0	0	8.38	10.5	2.00	0.00417	8.38	1	**15**	0%	**Retain**
Western Meadowlark	Hexachlorobutadiene	0.103	0.020	1	0.020	0	-	0	0	100	38.6	0.0309	0.000613	0	-	0	0	0.000613	0.000800	2.00	0.000000317	0.000613	1	<0.01	4%	Pass
Western Meadowlark	Hexachlorocyclopentadiene	0.103	0.020	1	0.020	0	-	0	0	100	36	378	7.50	0	-	0	0	7.50	10.5	2.00	0.00417	7.50	1	**13**	0%	**Retain**
Western Meadowlark	Hexachloroethane	0.103	0.020	1	0.020	0	-	0	0	100	38	399	7.91	0	-	0	0	7.91	10.5	2.00	0.00417	7.92	1	**14**	0%	**Retain**
Western Meadowlark	Isophorone	0.103	0.020	1	0.020	0	-	0	0	100	30.8	323	6.41	0	-	0	0	6.41	10.5	2.00	0.00417	6.41	NSV	--	0%	Uncertain
Western Meadowlark	n-Nitroso-di-n-propylamine	0.103	0.020	1	0.020	0	-	0	0	100	28.7	301	5.98	0	-	0	0	5.98	10.5	2.00	0.00417	5.98	NSV	--	0%	Uncertain
Western Meadowlark	n-Nitrosodiphenylamine	0.103	0.020	1	0.020	0	-	0	0	100	33.3	349	6.93	0	-	0	0	6.93	10.5	2.00	0.00417	6.94	NSV	--	0%	Uncertain
Western Meadowlark	Pentachlorophenol	0.103	0.020	1	0.020	0	-	0	0	100	5.93	297	5.88	0	-	0	0	5.88	50	2.00	0.0198	5.90	17	0.35	0%	Pass
Western Meadowlark	*HI - SVOCs*																							*0.91*	(dets)	Pass
Western Meadowlark	1,1,1,2-Tetrachloroethane	0.103	0.020	1	0.020	0	-	0	0	100	28.3	0.0170	0.000336	0	-	0	0	0.000336	0.000600	2.00	0.000000238	0.000337	17	<0.01	5%	Pass
Western Meadowlark	1,1,1-Trichloroethane	0.103	0.020	1	0.020	0	-	0	0	100	31.4	0.0283	0.000561	0	-	0	0	0.000561	0.000900	2.00	0.000000357	0.000562	17	<0.01	5%	Pass
Western Meadowlark	1,1,2,2-Tetrachloroethane	0.103	0.020	1	0.020	0	-	0	0	100	31.1	0.0311	0.000618	0	-	0	0	0.000618	0.00100	2.00	0.000000397	0.000618	17	<0.01	5%	Pass
Western Meadowlark	1,1,2-Trichloroethane	0.103	0.020	1	0.020	0	-	0	0	100	31.4	0.0251	0.000498	0	-	0	0	0.000498	0.000800	2.00	0.000000317	0.000498	17	<0.01	5%	Pass
Western Meadowlark	1,1-Dichloroethane	0.103	0.020	1	0.020	0	-	0	0	100	29.5	0.0206	0.000410	0	-	0	0	0.000410	0.000700	2.00	0.000000278	0.000410	17	<0.01	5%	Pass
Western Meadowlark	1,1-Dichloroethene	0.103	0.020	1	0.020	0	-	0	0	100	27.3	0.0300	0.000595	0	-	0	0	0.000595	0.00110	2.00	0.000000436	0.000596	17	<0.01	5%	Pass
Western Meadowlark	1,2,3-Trichlorobenzene	0.103	0.020	1	0.020	0	-	0	0	100	29.4	0.0824	0.00163	0	-	0	0	0.00163	0.00280	2.00	0.00000111	0.00163	17	<0.01	5%	Pass
Western Meadowlark	1,2,3-Trichloropropane	0.103	0.020	1	0.020	0	-	0	0	100	27.7	0.0249	0.000494	0	-	0	0	0.000494	0.000900	2.00	0.000000357	0.000495	17	<0.01	5%	Pass
Western Meadowlark	1,2,4-Trichlorobenzene	0.103	0.020	1	0.020	0	-	0	0	100	37	0.118	0.00235	0	-	0	0	0.00235	0.00320	2.00	0.00000127	0.00235	17	<0.01	4%	Pass
Western Meadowlark	1,2-Dibromo-3-chloropropane	0.103	0.020	1	0.020	0	-	0	0	100	30.9	0.120	0.00239	0	-	0	0	0.00239	0.00390	2.00	0.00000155	0.00239	NSV	--	5%	Uncertain
Western Meadowlark	1,2-Dichlorobenzene	0.103	0.020	1	0.020	0	-	0	0	100	28.7	0.0401	0.000796	0	-	0	0	0.000796	0.00140	2.00	0.000000555	0.000796	17	<0.01	4%	Pass
Western Meadowlark	1,2-Dichloroethane	0.103	0.020	1	0.020	0	-	0	0	100	28.7	0.0229	0.000455	0	-	0	0	0.000455	0.000800	2.00	0.000000317	0.000456	17	<0.01	5%	Pass
Western Meadowlark	1,2-Dichloropropane	0.103	0.020	1	0.020	0	-	0	0	100	30.1	0.0210	0.000417	0	-	0	0	0.000417	0.000700	2.00	0.000000278	0.000418	17	<0.01	5%	Pass
Western Meadowlark	1,2-Ethylene Dibromide	0.103	0.020	1	0.020	0	-	0	0	100	26.9	0.0242	0.000480	0	-	0	0	0.000480	0.000900	2.00	0.000000357	0.000480	NSV	--	5%	Uncertain
Western Meadowlark	1,3-Dichlorobenzene	0.103	0.020	1	0.020	0	-	0	0	100	34.7	0.0660	0.00131	0	-	0	0	0.00131	0.00190	2.00	0.000000754	0.00131	17	<0.01	4%	Pass
Western Meadowlark	1,4-Dichlorobenzene	0.103	0.020	1	0.020	0	-	0	0	100	34.7	0.108	0.00214	0	-	0	0	0.00214	0.00310	2.00	0.00000123	0.00214	17	<0.01	4%	Pass
Western Meadowlark	2-Butanone	0.103	0.020	1	0.020	0	-	0	0	100	25.4	0.404	0.00801	0	-	0	0	0.00801	0.0159	2.00	0.00000631	0.00801	39	<0.01	18%	Pass
Western Meadowlark	2-ChloroethylVinylEther	0.103	0.020	1	0.020	0	-	0	0	100	26.3	0.156	0.00310	0	-	0	0	0.00310	0.00595	2.00	0.00000236	0.00310	NSV	--	0%	Uncertain
Western Meadowlark	2-Chlorophenol	0.103	0.020	1	0.020	0	-	0	0	100	30.6	321	6.36	0	-	0	0	6.36	10.5	2.00	0.00417	6.37	17	0.38	0%	Pass
Western Meadowlark	2-Hexanone	0.103	0.020	1	0.020	0	-	0	0	100	26.5	0.101	0.00200	0	-	0	0	0.00200	0.00380	2.00	0.00000151	0.00200	39	<0.01	5%	Pass
Western Meadowlark	4-Bromophenylphenylether	0.103	0.020	1	0.020	0	-	0	0	100	30.5	321	6.36	0	-	0	0	6.36	10.5	2.00	0.00417	6.36	NSV	--	0%	Uncertain
Western Meadowlark	4-Chlorophenylphenylether	0.103	0.020	1	0.020	0	-	0	0	100	36.3	381	7.55	0	-	0	0	7.55	10.5	2.00	0.00417	7.56	NSV	--	0%	Uncertain
Western Meadowlark	4-Methyl-2-pentanone	0.103	0.020	1	0.020	0	-	0	0	100	26.3	0.113	0.00224	0	-	0	0	0.00224	0.00430	2.00	0.00000171	0.00225	39	<0.01	5%	Pass
Western Meadowlark	Acetone	0.103	0.020	1	0.020	0	-	0	0	100	24.9	597	11.8	0	-	0	0	11.8	24	2.00	0.00952	11.8	39	0.30	32%	Pass
Western Meadowlark	Benzene	0.103	0.020	1	0.020	0	-	0	0	100	27.3	0.112	0.00222	0	-	0	0	0.00222	0.00410	2.00	0.00000163	0.00222	10	<0.01	14%	Pass
Western Meadowlark	Bis(2-chloroethoxy)methane	0.103	0.020	1	0.020	0	-	0	0	100	26.4	1.95	0.0388	0	-	0	0	0.0388	0.0740	2.00	0.0000294	0.0388	NSV	--	0%	Uncertain
Western Meadowlark	bis(2-chloroethyl)ether	0.103	0.020	1	0.020	0	-	0	0	100	28.7	302	5.99	0	-	0	0	5.99	10.5	2.00	0.00417	5.99	NSV	--	0%	Uncertain
Western Meadowlark	bis(2-chloroisopropyl)ether	0.103	0.020	1	0.020	0	-	0	0	100	30.3	319	6.32	0	-	0	0	6.32	10.5	2.00	0.00417	6.32	NSV	--	0%	Uncertain
Western Meadowlark	Bromodichloromethane	0.103	0.020	1	0.020	0	-	0	0	100	27.3	0.0191	0.000378	0	-	0	0	0.000378	0.000700	2.00	0.000000278	0.000379	NSV	--	5%	Uncertain
Western Meadowlark	Bromoform	0.103	0.020	1	0.020	0	-	0	0	100	31.2	0.0156	0.000309	0	-	0	0	0.000309	0.000500	2.00	0.000000198	0.000309	NSV	--	5%	Uncertain
Western Meadowlark	Bromomethane	0.103	0.020	1	0.020	0	-	0	0	100	26.3	0.0394	0.000783	0	-	0	0	0.000783	0.00150	2.00	0.000000595	0.000783	NSV	--	5%	Uncertain
Western Meadowlark	Carbon tetrachloride	0.103	0.020	1	0.020	0	-	0	0	100	28	0.0252	0.000501	0	-	0	0	0.000501	0.000900	2.00	0.000000357	0.000501	NSV	--	5%	Uncertain
Western Meadowlark	Chlorobenzene	0.103	0.020	1	0.020	0	-	0	0	100	32.4	0.0227	0.000450	0	-	0	0	0.000450	0.000700	2.00	0.000000278	0.000451	17	<0.01	5%	Pass
Western Meadowlark	Chloroethane	0.103	0.020	1	0.020	0	-	0	0	100	28.6	0.0286	0.000566	0	-	0	0	0.000566	0.00100	2.00	0.000000397	0.000567	17	<0.01	5%	Pass
Western Meadowlark	Chloroform	0.103	0.020	1	0.020	0	-	0	0	100	30	0.0210	0.000416	0	-	0	0	0.000416	0.000700	2.00	0.000000278	0.000417	NSV	--	5%	Uncertain
Western Meadowlark	Chloromethane	0.103	0.020	1	0.020	0	-	0	0	100	27.3	0.0273	0.000542	0	-	0	0	0.000542	0.00100	2.00	0.000000397	0.000543	17	<0.01	5%	Pass
Western Meadowlark	cis-1,2-Dichloroethene	0.103	0.020	1	0.020	0	-	0	0	100	27	0.0189	0.000375	0	-	0	0	0.000375	0.000700	2.00	0.000000278	0.000375	17	<0.01	5%	Pass
Western Meadowlark	cis-1,3-Dichloropropene	0.103	0.020	1	0.020	0	-	0	0	100	27.5	0.0165	0.000327	0	-	0	0	0.000327	0.000600	2.00	0.000000238	0.000327	17	<0.01	5%	Pass
Western Meadowlark	Dibromochloromethane	0.103	0.020	1	0.020	0	-	0	0	100	30.3	0.0212	0.000421	0	-	0	0	0.000421	0.000700	2.00	0.000000278	0.000421	17	<0.01	5%	Pass
Western Meadowlark	Dibromomethane	0.103	0.020	1	0.020	0	-	0	0	100	26.7	0.0134	0.000265	0	-	0	0	0.000265	0.000500	2.00	0.000000198	0.000265	17	<0.01	5%	Pass
Western Meadowlark	Dichlorodifluoromethane	0.103	0.020	1	0.020	0	-	0	0	100	30.5	0.0335	0.000665	0	-	0	0	0.000665	0.00110	2.00	0.000000436	0.000666	17	<0.01	5%	Pass
Western Meadowlark	Ethylbenzene	0.103	0.020	1	0.020	0	-	0	0	100	33.3	0.0433	0.000860	0	-	0	0	0.000860	0.00130	2.00	0.000000516	0.000860	10	<0.01	5%	Pass
Western Meadowlark	m,p-Xylene	0.103	0.020	1	0.020	0	-	0	0	100	28.5	0.0569	0.00113	0	-	0	0	0.00113	0.00200	2.00	0.000000793	0.00113	10	<0.01	5%	Pass
Western Meadowlark	Methylene chloride	0.103	0.020	1	0.020	0	-	0	0	100	28.1	0.0899	0.00178	0	-	0	0	0.00178	0.00320	2.00	0.00000127	0.00178	NSV	--	5%	Uncertain
Western Meadowlark	o-Xylene	0.103	0.020	1	0.020	0	-	0	0	100	28.3	0.0765	0.00152	0	-	0	0	0.00152	0.00270	2.00	0.00000107	0.00152	10	<0.01	14%	Pass
Western Meadowlark	Phenol	0.103	0.020	1	0.020	0	-	0	0	100	28.6	301	5.96	0	-	0	0	5.96	10.5	2.00	0.00417	5.97	NSV	--	0%	Uncertain
Western Meadowlark	Styrene	0.103	0.020	1	0.020	0	-	0	0	100	28.1	0.0731	0.00145	0	-	0	0	0.00145	0.00260	2.00	0.00000103	0.00145	NSV	--	14%	Uncertain
Western Meadowlark	tert-ButylMethylEther	0.103	0.020	1	0.020	0	-	0	0	100	26.4	0.0184	0.000366	0	-	0	0	0.000366	0.000700	2.00	0.000000278	0.000366	NSV	--	5%	Uncertain
Western Meadowlark	Tetrachloroethene	0.103	0.020	1	0.020	0	-	0	0	100	28.7	0.0258	0.000512	0	-	0	0	0.000512	0.000900	2.00	0.000000357	0.000512	17	<0.01	5%	Pass
Western Meadowlark	Toluene	0.103	0.020	1	0.020	0	-	0	0	100	27.9	0.522	0.0104	0	-	0	0	0.0104	0.0187	2.00	0.00000742	0.0104	10	<0.01	23%	Pass

Table 16
Initial Risk Estimation for Wildlife Exposed to Site Soils
Attachment 10A - Thermal Treatment Unit, Ecological Risk Assessment

Receptor	Chemical	Body Weight (kg)	Daily Food Intake (kg/kg-bw/day)	Area Use Factor	Daily Food Ingestion from Site (kg/kg-bw/day)	Small Mammals and Other Vertebrates: Percent of Diet	Small Mammals and Other Vertebrates: Soil to Tissue Transfer Factor	Small Mammals and Other Vertebrates: Tissue Concentration (mg/kg DW)	Small Mammals and Other Vertebrates: Total Vertebrate Food Intake (mg/kg-bw/d)a	Soil Invertebrates: Percent of Diet	Soil Invertebrates: Soil to Tissue Transfer Factor	Soil Invertebrates: Tissue Concentration (mg/kg DW)	Soil Invertebrates: Total Invertebrate Food Intake (mg/kg-bw/d)b	Terrestrial Plants: Percent of Diet	Terrestrial Plants: Soil to Tissue Transfer Factor	Terrestrial Plants: Tissue Concentration (mg/kg DW)	Terrestrial Plants: Total Plant Food Intake (mg/kg-bw/d)c	Total Food Intake (mg/kg-bw/d)d	Soil EPC (mg/kg)	Percent of Diet as Soil	Incidental Soil Intake (mg/kg-bw/d)e	Total Chemical Intake (mg/kg-day)f	NOAEL TRV (mg/kg-bw/d)	NOAEL Hazard Quotient	Detection Frequency (%)	Screening Risk Conclusions
Western Meadowlark	Trans-1,2-Dichloroethene	0.103	0.020	1	0.020	0	-	0	0	100	28.7	0.0201	0.000398	0	-	0	0	0.000398	0.000700	2.00	0.000000278	0.000399	17	<0.01	5%	Pass
Western Meadowlark	Trans-1,3-Dichloropropene	0.103	0.020	1	0.020	0	-	0	0	100	30.1	0.0240	0.000477	0	-	0	0	0.000477	0.000800	2.00	0.000000317	0.000477	17	<0.01	5%	Pass
Western Meadowlark	Trichloroethylene (TCE)	0.103	0.020	1	0.020	0	-	0	0	100	31.2	0.0219	0.000434	0	-	0	0	0.000434	0.000700	2.00	0.000000278	0.000434	NSV	--	5%	Uncertain
Western Meadowlark	Trichlorofluoromethane	0.103	0.020	1	0.020	0	-	0	0	100	31.5	0.0347	0.000688	0	-	0	0	0.000688	0.00110	2.00	0.000000436	0.000689	NSV	--	5%	Uncertain
Western Meadowlark	Vinyl Acetate	0.103	0.020	1	0.020	0	-	0	0	100	26.2	0.0314	0.000623	0	-	0	0	0.000623	0.00120	2.00	0.000000476	0.000624	NSV	--	5%	Uncertain
Western Meadowlark	Vinyl chloride	0.103	0.020	1	0.020	0	-	0	0	100	28.4	0.0341	0.000677	0	-	0	0	0.000677	0.00120	2.00	0.000000476	0.000677	NSV	--	5%	Uncertain
Western Meadowlark	*HI - VOCs*																							*0.68*	(dets)	Pass
Burrowing Owl	1,3,5-Trinitrobenzene	0.157	0.111	1	0.111	100	0.880	0.0924	0.0103	0	-	0	0	0	-	0	0	0.0103	0.105	5.00	0.000583	0.0108	0	0.15	0%	Pass
Burrowing Owl	1,3-Dinitrobenzene	0.157	0.111	1	0.111	100	1.32	0.106	0.0118	0	-	0	0	0	-	0	0	0.0118	0.0800	5.00	0.000444	0.0122	0	0.029	0%	Pass
Burrowing Owl	2,4,6-Trinitrotoluene (TNT)	0.157	0.111	1	0.111	100	0	0	0	0	-	0	0	0	-	0	0	0	1.50	5.00	0.00833	0.00833	0	0.12	0%	Pass
Burrowing Owl	2,4-Dinitrophenol	0.157	0.111	1	0.111	100	0.688	34.4	3.82	0	-	0	0	0	-	0	0	3.82	50	5.00	0.278	4.10	NSV	--	0%	Uncertain
Burrowing Owl	2,4-Dinitrotoluene	0.157	0.111	1	0.111	100	1.05	2.11	0.234	0	-	0	0	0	-	0	0	0.234	2.00	5.00	0.0111	0.245	0	**3.5**	2%	**Retain**
Burrowing Owl	2,6-Dinitrotoluene	0.157	0.111	1	0.111	100	1.10	11.5	1.28	0	-	0	0	0	-	0	0	1.28	10.5	5.00	0.0583	1.34	0	**19**	0%	**Retain**
Burrowing Owl	2-Amino-4,6-Dinitrotoluene	0.157	0.111	1	0.111	100	1.18	1.77	0.196	0	-	0	0	0	-	0	0	0.196	1.50	5.00	0.00833	0.205	0	**2.9**	0%	**Retain**
Burrowing Owl	2-Nitroaniline	0.157	0.111	1	0.111	100	1.17	58.7	6.52	0	-	0	0	0	-	0	0	6.52	50	5.00	0.278	6.80	NSV	--	0%	Uncertain
Burrowing Owl	2-Nitrophenol	0.157	0.111	1	0.111	100	1.20	12.6	1.40	0	-	0	0	0	-	0	0	1.40	10.5	5.00	0.0583	1.46	NSV	--	0%	Uncertain
Burrowing Owl	2-Nitrotoluene	0.157	0.111	1	0.111	100	0.371	0.0520	0.00577	0	-	0	0	0	-	0	0	0.00577	0.140	5.00	0.000777	0.00655	0	0.094	0%	Pass
Burrowing Owl	3-Nitroaniline	0.157	0.111	1	0.111	100	1.38	68.9	7.65	0	-	0	0	0	-	0	0	7.65	50	5.00	0.278	7.93	NSV	--	0%	Uncertain
Burrowing Owl	3-Nitrotoluene	0.157	0.111	1	0.111	100	0.961	0.144	0.0160	0	-	0	0	0	-	0	0	0.0160	0.150	5.00	0.000833	0.0168	0	0.24	0%	Pass
Burrowing Owl	4,6-Dinitro-2-methylphenol	0.157	0.111	1	0.111	100	0.273	13.7	1.52	0	-	0	0	0	-	0	0	1.52	50	5.00	0.278	1.80	NSV	--	0%	Uncertain
Burrowing Owl	4-Nitroaniline	0.157	0.111	1	0.111	100	0.749	37.4	4.16	0	-	0	0	0	-	0	0	4.16	50	5.00	0.278	4.43	NSV	--	0%	Uncertain
Burrowing Owl	4-Nitrophenol	0.157	0.111	1	0.111	100	0.501	25.1	2.78	0	-	0	0	0	-	0	0	2.78	50	5.00	0.278	3.06	NSV	--	0%	Uncertain
Burrowing Owl	4-Nitrotoluene	0.157	0.111	1	0.111	100	0.990	0.188	0.0209	0	-	0	0	0	-	0	0	0.0209	0.190	5.00	0.00106	0.0220	0	0.31	0%	Pass
Burrowing Owl	HMX	0.157	0.111	1	0.111	100	2.13	53.4	5.93	0	-	0	0	0	-	0	0	5.93	25	5.00	0.139	6.07	9	0.67	31%	Pass
Burrowing Owl	Nitrobenzene	0.157	0.111	1	0.111	100	0.525	5.51	0.612	0	-	0	0	0	-	0	0	0.612	10.5	5.00	0.0583	0.671	0	**9.6**	0%	**Retain**
Burrowing Owl	Nitroglycerin	0.157	0.111	1	0.111	100	1.32	0.447	0.0497	0	-	0	0	0	-	0	0	0.0497	0.340	5.00	0.00189	0.0516	NSV	--	0%	Uncertain
Burrowing Owl	Nitroguanidine	0.157	0.111	1	0.111	100	2.93	0.879	0.0977	0	-	0	0	0	-	0	0	0.0977	0.300	5.00	0.00167	0.0993	NSV	--	5%	Uncertain
Burrowing Owl	PETN	0.157	0.111	1	0.111	100	0.984	0.492	0.0546	0	-	0	0	0	-	0	0	0.0546	0.500	5.00	0.00278	0.0574	NSV	--	0%	Uncertain
Burrowing Owl	Picric acid	0.157	0.111	1	0.111	100	1.40	0.698	0.0776	0	-	0	0	0	-	0	0	0.0776	0.500	5.00	0.00278	0.0803	NSV	--	7%	Uncertain
Burrowing Owl	RDX	0.157	0.111	1	0.111	100	0	0	0	0	-	0	0	0	-	0	0	0	1.50	5.00	0.00833	0.00833	0	0.12	0%	Pass
Burrowing Owl	Tetryl	0.157	0.111	1	0.111	100	0.617	0.142	0.0158	0	-	0	0	0	-	0	0	0.0158	0.230	5.00	0.00128	0.0170	NSV	--	0%	Uncertain
Burrowing Owl	*HI - Energetics*																							**4.2**	(dets)	**Retain**
Burrowing Owl	Aluminum	0.157	0.111	1	0.111	100	0.0732	3950	439	0	-	0	0	0	-	0	0	439	54000	5.00	300	739	110	**6.7**	100%	**Retain**
Burrowing Owl	Antimony	0.157	0.111	1	0.111	100	1.00	167	18.5	0	-	0	0	0	-	0	0	18.5	167	5.00	0.927	19.5	NSV	--	79%	Uncertain
Burrowing Owl	Arsenic	0.157	0.111	1	0.111	100	Regression Based	0.165	0.0184	0	-	0	0	0	-	0	0	0.0184	41.3	5.00	0.229	0.248	9	0.027	58%	Pass
Burrowing Owl	Barium	0.157	0.111	1	0.111	100	0.112	71.7	7.97	0	-	0	0	0	-	0	0	7.97	640	5.00	3.55	11.5	21	0.55	100%	Pass
Burrowing Owl	Beryllium	0.157	0.111	1	0.111	100	0.410	0.295	0.0328	0	-	0	0	0	-	0	0	0.0328	0.720	5.00	0.00400	0.0368	NSV	--	48%	Uncertain
Burrowing Owl	Cadmium	0.157	0.111	1	0.111	100	Regression Based	3.61	0.400	0	-	0	0	0	-	0	0	0.400	32	5.00	0.178	0.578	0	**3.6**	44%	**Retain**
Burrowing Owl	Carbon disulfide	0.157	0.111	1	0.111	100	1.12	0.00123	0.000136	0	-	0	0	0	-	0	0	0.000136	0.00110	5.00	0.00000611	0.000143	NSV	--	5%	Uncertain
Burrowing Owl	Chromium	0.157	0.111	1	0.111	100	0.333	18.4	2.05	0	-	0	0	0	-	0	0	2.05	55.3	5.00	0.307	2.35	1	**2.4**	100%	**Retain**
Burrowing Owl	Cobalt	0.157	0.111	1	0.111	100	Regression Based	0.0917	0.0102	0	-	0	0	0	-	0	0	0.0102	4.90	5.00	0.0272	0.0374	8	<0.01	79%	Pass
Burrowing Owl	Copper	0.157	0.111	1	0.111	100	Regression Based	31.7	3.52	0	-	0	0	0	-	0	0	3.52	18000	5.00	100	103	47	**2.2**	85%	**Retain**
Burrowing Owl	Iron	0.157	0.111	1	0.111	100	Regression Based	233	25.9	0	-	0	0	0	-	0	0	25.9	15000	5.00	83.3	109	NSV	--	100%	Uncertain
Burrowing Owl	Lead	0.157	0.111	1	0.111	100	Regression Based	127	14.1	0	-	0	0	0	-	0	0	14.1	48000	5.00	267	281	0	**1500**	83%	**Retain**
Burrowing Owl	Magnesium	0.157	0.111	1	0.111	100	0.992	24100	2680	0	-	0	0	0	-	0	0	2680	24300	5.00	135	2810	NSV	--	100%	Uncertain
Burrowing Owl	Manganese	0.157	0.111	1	0.111	100	0.0790	41	4.55	0	-	0	0	0	-	0	0	4.55	519	5.00	2.88	7.44	977	<0.01	100%	Pass
Burrowing Owl	Mercury	0.157	0.111	1	0.111	100	0.192	0.0134	0.00149	0	-	0	0	0	-	0	0	0.00149	0.0700	5.00	0.000389	0.00188	0	0.028	27%	Pass
Burrowing Owl	Molybdenum	0.157	0.111	1	0.111	100	1.00	17	1.89	0	-	0	0	0	-	0	0	1.89	17	5.00	0.0944	1.98	4	0.57	91%	Pass
Burrowing Owl	Nickel	0.157	0.111	1	0.111	100	0.589	24.3	2.70	0	-	0	0	0	-	0	0	2.70	41.3	5.00	0.229	2.93	18	0.17	100%	Pass
Burrowing Owl	Nitrate	0.157	0.111	1	0.111	100	1.00	22.8	2.53	0	-	0	0	0	-	0	0	2.53	22.8	5.00	0.127	2.66	NSV	--	92%	Uncertain
Burrowing Owl	Perchlorate	0.157	0.111	1	0.111	100	0.100	0.450	0.0500	0	-	0	0	0	-	0	0	0.0500	4.50	5.00	0.0250	0.0750	3	0.023	50%	Pass
Burrowing Owl	Phosphorus	0.157	0.111	1	0.111	100	1.00	990	110	0	-	0	0	0	-	0	0	110	990	5.00	5.50	115	0	**3100**	100%	**Retain**
Burrowing Owl	Selenium	0.157	0.111	1	0.111	100	Regression Based	1.21	0.134	0	-	0	0	0	-	0	0	0.134	5.00	5.00	0.0278	0.162	0	0.41	0%	Pass
Burrowing Owl	Silver	0.157	0.111	1	0.111	100	0.810	3.24	0.360	0	-	0	0	0	-	0	0	0.360	4.00	5.00	0.0222	0.382	NSV	--	8%	Uncertain
Burrowing Owl	Strontium	0.157	0.111	1	0.111	100	1.00	484	53.8	0	-	0	0	0	-	0	0	53.8	484	5.00	2.69	56.4	NSV	--	100%	Uncertain
Burrowing Owl	Thallium	0.157	0.111	1	0.111	100	0.123	0.0675	0.00749	0	-	0	0	0	-	0	0	0.00749	0.550	5.00	0.00305	0.0105	1	0.018	54%	Pass
Burrowing Owl	Vanadium	0.157	0.111	1	0.111	100	0.0195	0.500	0.0556	0	-	0	0	0	-	0	0	0.0556	25.7	5.00	0.143	0.198	11	0.017	100%	Pass
Burrowing Owl	Zinc	0.157	0.111	1	0.111	100	Regression Based	155	17.2	0	-	0	0	0	-	0	0	17.2	2300	5.00	12.8	30	15	**2.1**	100%	**Retain**
Burrowing Owl	*HI - Inorganics*																							**4600**	(dets)	**Retain**
Burrowing Owl	2-Methylnaphthalene	0.157	0.111	1	0.111	100	0.629	107	11.9	0	-	0	0	0	-	0	0	11.9	170	5.00	0.944	12.8	27	0.48	14%	Pass
Burrowing Owl	Acenaphthene	0.157	0.111	1	0.111	100	0	0	0	0	-	0	0	0	-	0	0	0	0.0418	5.00	0.000232	0.000232	325	<0.01	0%	Pass
Burrowing Owl	Acenaphthylene	0.157	0.111	1	0.111	100	0	0	0	0	-	0	0	0	-	0	0	0	10.5	5.00	0.0583	0.0583	325	<0.01	0%	Pass
Burrowing Owl	Anthracene	0.157	0.111	1	0.111	100	0	0	0	0	-	0	0	0	-	0	0	0	3.70	5.00	0.0205	0.0205	325	<0.01	7%	Pass
Burrowing Owl	Benzo(a)anthracene	0.157	0.111	1	0.111	100	0	0	0	0	-	0	0	0	-	0	0	0	10.5	5.00	0.0583	0.0583	325	<0.01	0%	Pass
Burrowing Owl	Benzo(a)pyrene	0.157	0.111	1	0.111	100	0	0	0	0	-	0	0	0	-	0	0	0	10.5	5.00	0.0583	0.0583	325	<0.01	0%	Pass
Burrowing Owl	Benzo(b)fluoranthene	0.157	0.111	1	0.111	100	0	0	0	0	-	0	0	0	-	0	0	0	10.5	5.00	0.0583	0.0583	325	<0.01	0%	Pass
Burrowing Owl	Benzo(g,h,i)perylene	0.157	0.111	1	0.111	100	0	0	0	0	-	0	0	0	-	0	0	0	10.5	5.00	0.0583	0.0583	325	<0.01	0%	Pass
Burrowing Owl	Benzo(k)fluoranthene	0.157	0.111	1	0.111	100	0	0	0	0	-	0	0	0	-	0	0	0	10.5	5.00	0.0583	0.0583	325	<0.01	0%	Pass
Burrowing Owl	Chrysene	0.157	0.111	1	0.111	100	0	0	0	0	-	0	0	0	-	0	0	0	10.5	5.00	0.0583	0.0583	NSV	--	0%	Uncertain
Burrowing Owl	Dibenzo(a,h)anthracene	0.157	0.111	1	0.111	100	0	0	0	0	-	0	0	0	-	0	0	0	10.5	5.00	0.0583	0.0583	325	<0.01	0%	Pass
Burrowing Owl	Fluoranthene	0.157	0.111	1	0.111	100	0	0	0	0	-	0	0	0	-	0	0	0	0.144	5.00	0.000800	0.000800	325	<0.01	4%	Pass
Burrowing Owl	Fluorene	0.157	0.111	1	0.111	100	0	0	0	0	-	0	0	0	-	0	0	0	33	5.00	0.183	0.183	325	<0.01	14%	Pass
Burrowing Owl	Indeno(1,2,3-c,d)pyrene	0.157	0.111	1	0.111	100	0	0	0	0	-	0	0	0	-	0	0	0	10.5	5.00	0.0583	0.0583	325	<0.01	0%	Pass
Burrowing Owl	Naphthalene	0.157	0.111	1	0.111	100	0	0	0	0	-	0	0	0	-	0	0	0	53	5.00	0.294	0.294	27	0.011	25%	Pass

Table 16
Initial Risk Estimation for Wildlife Exposed to Site Soils
Attachment 10A - Thermal Treatment Unit, Ecological Risk Assessment

Receptor	Chemical	Body Weight (kg)	Daily Food Intake (kg/kg-bw/day)	Area Use Factor	Daily Food Ingestion from Site (kg/kg-bw/day)	Small Mammals and Other Vertebrates: Percent of Diet	Small Mammals and Other Vertebrates: Soil to Tissue Transfer Factor	Small Mammals and Other Vertebrates: Tissue Concentration (mg/kg DW)	Small Mammals and Other Vertebrates: Total Vertebrate Food Intake (mg/kg-bw/d)a	Soil Invertebrates: Percent of Diet	Soil Invertebrates: Soil to Tissue Transfer Factor	Soil Invertebrates: Tissue Concentration (mg/kg DW)	Soil Invertebrates: Total Invertebrate Food Intake (mg/kg-bw/d)b	Terrestrial Plants: Percent of Diet	Terrestrial Plants: Soil to Tissue Transfer Factor	Terrestrial Plants: Tissue Concentration (mg/kg DW)	Terrestrial Plants: Total Plant Food Intake (mg/kg-bw/d)c	Total Food Intake (mg/kg-bw/d)d	Soil EPC (mg/kg)	Percent of Diet as Soil	Incidental Soil Intake (mg/kg-bw/d)e	Total Chemical Intake (mg/kg-day)f	NOAEL TRV (mg/kg-bw/d)	NOAEL Hazard Quotient	Detection Frequency (%)	Screening Risk Conclusions
Burrowing Owl	Phenanthrene	0.157	0.111	1	0.111	100	0	0	0	0	-	0	0	0	-	0	0	0	92	5.00	0.511	0.511	325	<0.01	18%	Pass
Burrowing Owl	Pyrene	0.157	0.111	1	0.111	100	0	0	0	0	-	0	0	0	-	0	0	0	10.5	5.00	0.0583	0.0583	NSV	--	0%	Uncertain
Burrowing Owl	*HI - PAHs*																							0.49	(dets)	Pass
Burrowing Owl	TPH	0.157	0.111	1	0.111	100	-	0	0	0	-	0	0	0	-	0	0	0	47000	5.00	261	261	500	0.52	100%	Pass
Burrowing Owl	*HI - Petroleum*																							0.52	(dets)	Pass
Burrowing Owl	2,4,5-Trichlorophenol	0.157	0.111	1	0.111	100	0.125	6.24	0.693	0	-	0	0	0	-	0	0	0.693	50	5.00	0.278	0.970	17	0.057	0%	Pass
Burrowing Owl	2,4,6-Trichlorophenol	0.157	0.111	1	0.111	100	0.111	1.17	0.130	0	-	0	0	0	-	0	0	0.130	10.5	5.00	0.0583	0.188	17	0.011	0%	Pass
Burrowing Owl	2,4-Dichlorophenol	0.157	0.111	1	0.111	100	0.234	2.46	0.273	0	-	0	0	0	-	0	0	0.273	10.5	5.00	0.0583	0.332	17	0.020	0%	Pass
Burrowing Owl	2,4-Dimethylphenol	0.157	0.111	1	0.111	100	0.251	2.64	0.293	0	-	0	0	0	-	0	0	0.293	10.5	5.00	0.0583	0.351	NSV	--	0%	Uncertain
Burrowing Owl	2-Chloronaphthalene	0.157	0.111	1	0.111	100	0.101	1.06	0.117	0	-	0	0	0	-	0	0	0.117	10.5	5.00	0.0583	0.176	NSV	--	0%	Uncertain
Burrowing Owl	2-Methylphenol	0.157	0.111	1	0.111	100	1.14	11.9	1.32	0	-	0	0	0	-	0	0	1.32	10.5	5.00	0.0583	1.38	NSV	--	0%	Uncertain
Burrowing Owl	3,3-Dichlorobenzidine	0.157	0.111	1	0.111	100	0.675	14.2	1.57	0	-	0	0	0	-	0	0	1.57	21	5.00	0.117	1.69	NSV	--	0%	Uncertain
Burrowing Owl	4-Chloro-3-methylphenol	0.157	0.111	1	0.111	100	0.201	2.11	0.234	0	-	0	0	0	-	0	0	0.234	10.5	5.00	0.0583	0.293	NSV	--	0%	Uncertain
Burrowing Owl	4-Chloroaniline	0.157	0.111	1	0.111	100	0.533	5.60	0.622	0	-	0	0	0	-	0	0	0.622	10.5	5.00	0.0583	0.680	NSV	--	0%	Uncertain
Burrowing Owl	4-Methylphenol	0.157	0.111	1	0.111	100	0.494	5.19	0.576	0	-	0	0	0	-	0	0	0.576	10.5	5.00	0.0583	0.634	NSV	--	0%	Uncertain
Burrowing Owl	Benzoic acid	0.157	0.111	1	0.111	100	0.517	25.9	2.87	0	-	0	0	0	-	0	0	2.87	50	5.00	0.278	3.15	325	<0.01	0%	Pass
Burrowing Owl	Benzylalcohol	0.157	0.111	1	0.111	100	0.935	9.82	1.09	0	-	0	0	0	-	0	0	1.09	10.5	5.00	0.0583	1.15	NSV	--	0%	Uncertain
Burrowing Owl	bis(2-Ethylhexyl)phthalate	0.157	0.111	1	0.111	100	0.190	0.285	0.0317	0	-	0	0	0	-	0	0	0.0317	1.50	5.00	0.00833	0.0400	1	0.036	18%	Pass
Burrowing Owl	Butyl benzylphthalate	0.157	0.111	1	0.111	100	0.0527	0.554	0.0615	0	-	0	0	0	-	0	0	0.0615	10.5	5.00	0.0583	0.120	0	**1.1**	0%	**Retain**
Burrowing Owl	Dibenzofuran	0.157	0.111	1	0.111	100	0.631	7.57	0.841	0	-	0	0	0	-	0	0	0.841	12	5.00	0.0666	0.908	NSV	--	14%	Uncertain
Burrowing Owl	Diethylphthalate	0.157	0.111	1	0.111	100	0.329	3.45	0.383	0	-	0	0	0	-	0	0	0.383	10.5	5.00	0.0583	0.442	0	**4.0**	0%	**Retain**
Burrowing Owl	Dimethylphthalate	0.157	0.111	1	0.111	100	0.656	6.89	0.765	0	-	0	0	0	-	0	0	0.765	10.5	5.00	0.0583	0.824	0	**7.5**	0%	**Retain**
Burrowing Owl	Di-n-butylphthalate	0.157	0.111	1	0.111	100	0.0629	0.661	0.0734	0	-	0	0	0	-	0	0	0.0734	10.5	5.00	0.0583	0.132	0	**1.2**	0%	**Retain**
Burrowing Owl	Di-n-octylphthalate	0.157	0.111	1	0.111	100	0.381	4.00	0.444	0	-	0	0	0	-	0	0	0.444	10.5	5.00	0.0583	0.503	0	**4.6**	0%	**Retain**
Burrowing Owl	Hexachlorobenzene	0.157	0.111	1	0.111	100	0.0391	0.410	0.0455	0	-	0	0	0	-	0	0	0.0455	10.5	5.00	0.0583	0.104	1	0.19	0%	Pass
Burrowing Owl	Hexachlorobutadiene	0.157	0.111	1	0.111	100	0.0552	0.0000442	0.00000490	0	-	0	0	0	-	0	0	0.00000490	0.000800	5.00	0.00000444	0.00000935	1	<0.01	4%	Pass
Burrowing Owl	Hexachlorocyclopentadiene	0.157	0.111	1	0.111	100	0.101	1.06	0.117	0	-	0	0	0	-	0	0	0.117	10.5	5.00	0.0583	0.176	1	0.31	0%	Pass
Burrowing Owl	Hexachloroethane	0.157	0.111	1	0.111	100	0.0634	0.666	0.0740	0	-	0	0	0	-	0	0	0.0740	10.5	5.00	0.0583	0.132	1	0.24	0%	Pass
Burrowing Owl	Isophorone	0.157	0.111	1	0.111	100	0.383	4.02	0.447	0	-	0	0	0	-	0	0	0.447	10.5	5.00	0.0583	0.505	NSV	--	0%	Uncertain
Burrowing Owl	n-Nitroso-di-n-propylamine	0.157	0.111	1	0.111	100	0.693	7.27	0.808	0	-	0	0	0	-	0	0	0.808	10.5	5.00	0.0583	0.866	NSV	--	0%	Uncertain
Burrowing Owl	n-Nitrosodiphenylamine	0.157	0.111	1	0.111	100	0.196	2.06	0.229	0	-	0	0	0	-	0	0	0.229	10.5	5.00	0.0583	0.287	NSV	--	0%	Uncertain
Burrowing Owl	Pentachlorophenol	0.157	0.111	1	0.111	100	0.0466	2.33	0.259	0	-	0	0	0	-	0	0	0.259	50	5.00	0.278	0.537	17	0.032	0%	Pass
Burrowing Owl	*HI - SVOCs*																							*0.036*	(dets)	Pass
Burrowing Owl	1,1,1,2-Tetrachloroethane	0.157	0.111	1	0.111	100	0.792	0.000475	0.0000528	0	-	0	0	0	-	0	0	0.0000528	0.000600	5.00	0.00000333	0.0000561	17	<0.01	5%	Pass
Burrowing Owl	1,1,1-Trichloroethane	0.157	0.111	1	0.111	100	0.319	0.000287	0.0000319	0	-	0	0	0	-	0	0	0.0000319	0.000900	5.00	0.00000500	0.0000369	17	<0.01	5%	Pass
Burrowing Owl	1,1,2,2-Tetrachloroethane	0.157	0.111	1	0.111	100	0.347	0.000347	0.0000385	0	-	0	0	0	-	0	0	0.0000385	0.00100	5.00	0.00000555	0.0000441	17	<0.01	5%	Pass
Burrowing Owl	1,1,2-Trichloroethane	0.157	0.111	1	0.111	100	0.326	0.000261	0.0000290	0	-	0	0	0	-	0	0	0.0000290	0.000800	5.00	0.00000444	0.0000334	17	<0.01	5%	Pass
Burrowing Owl	1,1-Dichloroethane	0.157	0.111	1	0.111	100	0.550	0.000385	0.0000427	0	-	0	0	0	-	0	0	0.0000427	0.000700	5.00	0.00000389	0.0000466	17	<0.01	5%	Pass
Burrowing Owl	1,1-Dichloroethene	0.157	0.111	1	0.111	100	1.07	0.00118	0.000131	0	-	0	0	0	-	0	0	0.000131	0.00110	5.00	0.00000611	0.000137	17	<0.01	5%	Pass
Burrowing Owl	1,2,3-Trichlorobenzene	0.157	0.111	1	0.111	100	0.563	0.00158	0.000175	0	-	0	0	0	-	0	0	0.000175	0.00280	5.00	0.0000155	0.000191	17	<0.01	5%	Pass
Burrowing Owl	1,2,3-Trichloropropane	0.157	0.111	1	0.111	100	0.945	0.000851	0.0000945	0	-	0	0	0	-	0	0	0.0000945	0.000900	5.00	0.00000500	0.0000995	17	<0.01	5%	Pass
Burrowing Owl	1,2,4-Trichlorobenzene	0.157	0.111	1	0.111	100	0.0798	0.000255	0.0000284	0	-	0	0	0	-	0	0	0.0000284	0.00320	5.00	0.0000178	0.0000461	17	<0.01	4%	Pass
Burrowing Owl	1,2-Dibromo-3-chloropropane	0.157	0.111	1	0.111	100	0.374	0.00146	0.000162	0	-	0	0	0	-	0	0	0.000162	0.00390	5.00	0.0000217	0.000184	NSV	--	5%	Uncertain
Burrowing Owl	1,2-Dichlorobenzene	0.157	0.111	1	0.111	100	0.705	0.000986	0.000110	0	-	0	0	0	-	0	0	0.000110	0.00140	5.00	0.00000777	0.000117	17	<0.01	4%	Pass
Burrowing Owl	1,2-Dichloroethane	0.157	0.111	1	0.111	100	0.698	0.000558	0.0000620	0	-	0	0	0	-	0	0	0.0000620	0.000800	5.00	0.00000444	0.0000665	17	<0.01	5%	Pass
Burrowing Owl	1,2-Dichloropropane	0.157	0.111	1	0.111	100	0.468	0.000328	0.0000364	0	-	0	0	0	-	0	0	0.0000364	0.000700	5.00	0.00000389	0.0000403	17	<0.01	5%	Pass
Burrowing Owl	1,2-Ethylene Dibromide	0.157	0.111	1	0.111	100	1.21	0.00109	0.000121	0	-	0	0	0	-	0	0	0.000121	0.000900	5.00	0.00000500	0.000126	NSV	--	5%	Uncertain
Burrowing Owl	1,3-Dichlorobenzene	0.157	0.111	1	0.111	100	0.137	0.000260	0.0000289	0	-	0	0	0	-	0	0	0.0000289	0.00190	5.00	0.0000106	0.0000394	17	<0.01	4%	Pass
Burrowing Owl	1,4-Dichlorobenzene	0.157	0.111	1	0.111	100	0.137	0.000424	0.0000471	0	-	0	0	0	-	0	0	0.0000471	0.00310	5.00	0.0000172	0.0000643	17	<0.01	4%	Pass
Burrowing Owl	2-Butanone	0.157	0.111	1	0.111	100	1.98	0.0314	0.00349	0	-	0	0	0	-	0	0	0.00349	0.0159	5.00	0.0000883	0.00358	39	<0.01	18%	Pass
Burrowing Owl	2-ChloroethylVinylEther	0.157	0.111	1	0.111	100	1.47	0.00877	0.000974	0	-	0	0	0	-	0	0	0.000974	0.00595	5.00	0.0000330	0.00101	NSV	--	0%	Uncertain
Burrowing Owl	2-Chlorophenol	0.157	0.111	1	0.111	100	0.408	4.28	0.476	0	-	0	0	0	-	0	0	0.476	10.5	5.00	0.0583	0.534	17	0.032	0%	Pass
Burrowing Owl	2-Hexanone	0.157	0.111	1	0.111	100	1.37	0.00522	0.000580	0	-	0	0	0	-	0	0	0.000580	0.00380	5.00	0.0000211	0.000601	39	<0.01	5%	Pass
Burrowing Owl	4-Bromophenylphenylether	0.157	0.111	1	0.111	100	0.410	4.31	0.478	0	-	0	0	0	-	0	0	0.478	10.5	5.00	0.0583	0.537	NSV	--	0%	Uncertain
Burrowing Owl	4-Chlorophenylphenylether	0.157	0.111	1	0.111	100	0.0946	0.994	0.110	0	-	0	0	0	-	0	0	0.110	10.5	5.00	0.0583	0.169	NSV	--	0%	Uncertain
Burrowing Owl	4-Methyl-2-pentanone	0.157	0.111	1	0.111	100	1.46	0.00629	0.000699	0	-	0	0	0	-	0	0	0.000699	0.00430	5.00	0.0000239	0.000723	39	<0.01	5%	Pass
Burrowing Owl	Acetone	0.157	0.111	1	0.111	100	2.36	56.6	6.29	0	-	0	0	0	-	0	0	6.29	24	5.00	0.133	6.42	39	0.16	32%	Pass
Burrowing Owl	Benzene	0.157	0.111	1	0.111	100	1.07	0.00438	0.000487	0	-	0	0	0	-	0	0	0.000487	0.00410	5.00	0.0000228	0.000510	10	<0.01	14%	Pass
Burrowing Owl	Bis(2-chloroethoxy)methane	0.157	0.111	1	0.111	100	1.41	0.104	0.0116	0	-	0	0	0	-	0	0	0.0116	0.0740	5.00	0.000411	0.0120	NSV	--	0%	Uncertain
Burrowing Owl	bis(2-chloroethyl)ether	0.157	0.111	1	0.111	100	0.688	7.22	0.802	0	-	0	0	0	-	0	0	0.802	10.5	5.00	0.0583	0.860	NSV	--	0%	Uncertain
Burrowing Owl	bis(2-chloroisopropyl)ether	0.157	0.111	1	0.111	100	0.433	4.55	0.505	0	-	0	0	0	-	0	0	0.505	10.5	5.00	0.0583	0.564	NSV	--	0%	Uncertain
Burrowing Owl	Bromodichloromethane	0.157	0.111	1	0.111	100	1.08	0.000756	0.0000840	0	-	0	0	0	-	0	0	0.0000840	0.000700	5.00	0.00000389	0.0000879	NSV	--	5%	Uncertain
Burrowing Owl	Bromoform	0.157	0.111	1	0.111	100	0.344	0.000172	0.0000191	0	-	0	0	0	-	0	0	0.0000191	0.000500	5.00	0.00000278	0.0000219	NSV	--	5%	Uncertain
Burrowing Owl	Bromomethane	0.157	0.111	1	0.111	100	1.46	0.00220	0.000244	0	-	0	0	0	-	0	0	0.000244	0.00150	5.00	0.00000833	0.000252	NSV	--	5%	Uncertain
Burrowing Owl	Carbon tetrachloride	0.157	0.111	1	0.111	100	0.847	0.000762	0.0000846	0	-	0	0	0	-	0	0	0.0000846	0.000900	5.00	0.00000500	0.0000896	NSV	--	5%	Uncertain
Burrowing Owl	Chlorobenzene	0.157	0.111	1	0.111	100	0.245	0.000172	0.0000191	0	-	0	0	0	-	0	0	0.0000191	0.000700	5.00	0.00000389	0.0000230	17	<0.01	5%	Pass
Burrowing Owl	Chloroethane	0.157	0.111	1	0.111	100	0.726	0.000726	0.0000806	0	-	0	0	0	-	0	0	0.0000806	0.00100	5.00	0.00000555	0.0000861	17	<0.01	5%	Pass
Burrowing Owl	Chloroform	0.157	0.111	1	0.111	100	0.479	0.000335	0.0000372	0	-	0	0	0	-	0	0	0.0000372	0.000700	5.00	0.00000389	0.0000411	NSV	--	5%	Uncertain
Burrowing Owl	Chloromethane	0.157	0.111	1	0.111	100	1.05	0.00105	0.000117	0	-	0	0	0	-	0	0	0.000117	0.00100	5.00	0.00000555	0.000122	17	<0.01	5%	Pass
Burrowing Owl	cis-1,2-Dichloroethene	0.157	0.111	1	0.111	100	1.17	0.000819	0.0000910	0	-	0	0	0	-	0	0	0.0000910	0.000700	5.00	0.00000389	0.0000949	17	<0.01	5%	Pass
Burrowing Owl	cis-1,3-Dichloropropene	0.157	0.111	1	0.111	100	1.01	0.000608	0.0000676	0	-	0	0	0	-	0	0	0.0000676	0.000600	5.00	0.00000333	0.0000709	17	<0.01	5%	Pass
Burrowing Owl	Dibromochloromethane	0.157	0.111	1	0.111	100	0.437	0.000306	0.0000340	0	-	0	0	0	-	0	0	0.0000340	0.000700	5.00	0.00000389	0.0000378	17	<0.01	5%	Pass
Burrowing Owl	Dibromomethane	0.157	0.111	1	0.111	100	1.27	0.000634	0.0000704	0	-	0	0	0	-	0	0	0.0000704	0.000500	5.00	0.00000278	0.0000732	17	<0.01	5%	Pass
Burrowing Owl	Dichlorodifluoromethane	0.157	0.111	1	0.111	100	0.414	0.000455	0.0000506	0	-	0	0	0	-	0	0	0.0000506	0.00110	5.00	0.00000611	0.0000567	17	<0.01	5%	Pass

Table 16
Initial Risk Estimation for Wildlife Exposed to Site Soils
Attachment 10A - Thermal Treatment Unit, Ecological Risk Assessment

						Small Mammals and Other Vertebrates				Soil Invertebrates				Terrestrial Plants												
Receptor	Chemical	Body Weight (kg)	Daily Food Intake (kg/kg-bw/day)	Area Use Factor	Daily Food Ingestion from Site (kg/kg-bw/day)	Percent of Diet	Soil to Tissue Transfer Factor	Tissue Concentration (mg/kg DW)	Total Vertebrate Food Intake (mg/kg-bw/d)a	Percent of Diet	Soil to Tissue Transfer Factor	Tissue Concentration (mg/kg DW)	Total Invertebrate Food Intake (mg/kg-bw/d)b	Percent of Diet	Soil to Tissue Transfer Factor	Tissue Concentration (mg/kg DW)	Total Plant Food Intake (mg/kg-bw/d)c	Total Food Intake (mg/kg-bw/d)d	Soil EPC (mg/kg)	Percent of Diet as Soil	Incidental Soil Intake (mg/kg-bw/d)e	Total Chemical Intake (mg/kg-day)f	NOAEL TRV (mg/kg-bw/d)	NOAEL Hazard Quotient	Detection Frequency (%)	Screening Risk Conclusions
Burrowing Owl	Ethylbenzene	0.157	0.111	1	0.111	100	0.193	0.000251	0.0000279	0	-	0	0	0	-	0	0	0.0000279	0.00130	5.00	0.00000722	0.0000351	10	<0.01	5%	Pass
Burrowing Owl	m,p-Xylene	0.157	0.111	1	0.111	100	0.748	0.00150	0.000166	0	-	0	0	0	-	0	0	0.000166	0.00200	5.00	0.0000111	0.000177	10	<0.01	5%	Pass
Burrowing Owl	Methylene chloride	0.157	0.111	1	0.111	100	0.833	0.00266	0.000296	0	-	0	0	0	-	0	0	0.000296	0.00320	5.00	0.0000178	0.000314	NSV	--	5%	Uncertain
Burrowing Owl	o-Xylene	0.157	0.111	1	0.111	100	0.774	0.00209	0.000232	0	-	0	0	0	-	0	0	0.000232	0.00270	5.00	0.0000150	0.000247	10	<0.01	14%	Pass
Burrowing Owl	Phenol	0.157	0.111	1	0.111	100	0.709	7.45	0.827	0	-	0	0	0	-	0	0	0.827	10.5	5.00	0.0583	0.885	NSV	--	0%	Uncertain
Burrowing Owl	Styrene	0.157	0.111	1	0.111	100	0.827	0.00215	0.000239	0	-	0	0	0	-	0	0	0.000239	0.00260	5.00	0.0000144	0.000253	NSV	--	14%	Uncertain
Burrowing Owl	tert-ButylMethylEther	0.157	0.111	1	0.111	100	1.44	0.00101	0.000112	0	-	0	0	0	-	0	0	0.000112	0.000700	5.00	0.00000389	0.000116	NSV	--	5%	Uncertain
Burrowing Owl	Tetrachloroethene	0.157	0.111	1	0.111	100	0.700	0.000630	0.0000700	0	-	0	0	0	-	0	0	0.0000700	0.000900	5.00	0.00000500	0.0000749	17	<0.01	5%	Pass
Burrowing Owl	Toluene	0.157	0.111	1	0.111	100	0.875	0.0164	0.00182	0	-	0	0	0	-	0	0	0.00182	0.0187	5.00	0.000104	0.00192	10	<0.01	23%	Pass
Burrowing Owl	Trans-1,2-Dichloroethene	0.157	0.111	1	0.111	100	0.698	0.000489	0.0000543	0	-	0	0	0	-	0	0	0.0000543	0.000700	5.00	0.00000389	0.0000582	17	<0.01	5%	Pass
Burrowing Owl	Trans-1,3-Dichloropropene	0.157	0.111	1	0.111	100	0.468	0.000374	0.0000416	0	-	0	0	0	-	0	0	0.0000416	0.000800	5.00	0.00000444	0.0000460	17	<0.01	5%	Pass
Burrowing Owl	Trichloroethylene (TCE)	0.157	0.111	1	0.111	100	0.339	0.000237	0.0000263	0	-	0	0	0	-	0	0	0.0000263	0.000700	5.00	0.00000389	0.0000302	NSV	--	5%	Uncertain
Burrowing Owl	Trichlorofluoromethane	0.157	0.111	1	0.111	100	0.311	0.000342	0.0000380	0	-	0	0	0	-	0	0	0.0000380	0.00110	5.00	0.00000611	0.0000441	NSV	--	5%	Uncertain
Burrowing Owl	Vinyl Acetate	0.157	0.111	1	0.111	100	1.52	0.00182	0.000202	0	-	0	0	0	-	0	0	0.000202	0.00120	5.00	0.00000666	0.000209	NSV	--	5%	Uncertain
Burrowing Owl	Vinyl chloride	0.157	0.111	1	0.111	100	0.754	0.000904	0.000100	0	-	0	0	0	-	0	0	0.000100	0.00120	5.00	0.00000666	0.000107	NSV	--	5%	Uncertain
Burrowing Owl	*HI - VOCs*																							*0.20*	(dets)	Pass

Notes:
kg = Kilograms
kg/kg-bw/day = Kilograms per kilogram of body weight per day.
EPC = exposure point concentration
NOAEL = no observed adverse effect level
TRV = toxicological reference value
For the screening, it has been conservatively assumed that all chemical intake is absorbed by the receptor.
Hazard quotients in bold exceed one
Hazard Indices (HIs) calculated by summing HQs for detected analytes
a) Food intake from small mammals = (daily food ingestion from site) X (fraction of diet as small mammals) X (soil to small mammal transfer factor) X (soil concentration).
b) Food intake from terrestrial invertebrates = (daily food ingestion from site) X (fraction of diet as terrestrial invertebrates) X (soil to terrestrial invertebrate transfer factor) X (soil concentration).
c) Food intake from plants = (daily food ingestion from site) X (fraction of diet as plants) X (soil to plant transfer factor) X (soil concentration).
d) Total food intake = (food intake from small mammals and other vertebrates) + (food intake from terrestrial invertebrates) + (food intake from plants)
e) Incidental soil intake = (daily food ingestion from site) X (fraction of diet as soil) X (soil concentration).
f) Total chemical intake = (total food intake) + (water intake) + (incidental soil intake).
NA - not applicable
NSV - no screening value available
Exposure to TPH is only from abiotic media (soil and water); thus, there is no food component associated with exposure to TPH (Albers, 1995)

Table 17

Summary of Chemicals of Potential Ecological Concern after the Screening Risk Assessment

Attachment 10A - Thermal Treatment Unit, Ecological Risk Assessment

	Assessment/ Measurement Endpoint #											
	1	2	3	3	3	3	4	5	6	7	8	9
			Herbivorous Mammals				Insectivorous Mammal	Carnivorous Mammals	Herbivorous Birds	Insectivorous Birds	Omnivorous Birds	Carnivorous Birds
Analyte	Plants	Insects	Ord's Kangaroo Rat	Townsend's Ground Squirrel	Black-tailed Jackrabbit	Pronghorn	Grasshopper Mouse	Coyote	Sage Sparrow	Loggerhead Shrike	Western Meadowlark	Burrowing Owl
1,3,5-Trinitrobenzene	P	P	P	P	P	P	P	P	P	P	P	P
1,3-Dinitrobenzene	P	P	**Retain**	**Retain**	**Retain**	**Retain**	**Retain**	P	P	P	P	P
2,4,6-Trinitrotoluene (TNT)	P	P	P	P	P	P	P	P	**Retain**	P	P	P
2,4-Dinitrophenol	**Retain**	**Retain**	U	U	U	U	U	U	U	U	U	U
2,4-Dinitrotoluene	P	P	P	P	P	P	**Retain**	P	P	**Retain**	**Retain**	**Retain**
2,6-Dinitrotoluene	**Retain**	P	**Retain**	**Retain**	**Retain**	**Retain**	**Retain**	P	**Retain**	**Retain**	**Retain**	**Retain**
2-Amino-4,6-Dinitrotoluene	P	P	P	P	P	P	P	P	**Retain**	**Retain**	**Retain**	**Retain**
2-Nitroaniline	U	U	U	U	U	U	U	U	U	U	U	U
2-Nitrophenol	**Retain**	**Retain**	U	U	U	U	U	U	U	U	U	U
2-Nitrotoluene	P	P	P	P	P	P	P	P	P	**Retain**	**Retain**	P
3-Nitroaniline	U	U	U	U	U	U	U	U	U	U	U	U
3-Nitrotoluene	P	P	P	P	P	P	P	P	P	**Retain**	**Retain**	P
4,6-Dinitro-2-methylphenol	U	U	U	U	U	U	U	U	U	U	U	U
4-Nitroaniline	U	U	U	U	U	U	U	U	U	U	U	U
4-Nitrophenol	**Retain**	**Retain**	U	U	U	U	U	U	U	U	U	U
4-Nitrotoluene	P	P	P	P	P	P	P	P	P	**Retain**	**Retain**	P
HMX	P	**Retain**	**Retain**	**Retain**	**Retain**	**Retain**	**Retain**	**Retain**	P	P	P	P
Nitrobenzene	**Retain**	**Retain**	U	U	U	U	U	U	**Retain**	**Retain**	**Retain**	**Retain**
Nitroglycerin	U	U	P	P	P	P	P	P	U	U	U	U
Nitroguanidine	U	U	U	U	U	U	U	U	U	U	U	U
PETN	U	U	P	P	P	P	P	P	U	U	U	U
Picric acid	U	U	U	U	U	U	U	U	U	U	U	U
RDX	P	P	**Retain**	P	**Retain**	P	**Retain**	P	**Retain**	**Retain**	**Retain**	P
Tetryl	P	U	P	P	P	P	**Retain**	P	U	U	U	U
HI - Energetics	*P*	**Retain**	**Retain**	**Retain**	**Retain**	**Retain**	**Retain**	**Retain**	P	**Retain**	**Retain**	**Retain**
Aluminum	**Retain**	U	**Retain**	**Retain**	**Retain**	**Retain**	**Retain**	**Retain**	P	**Retain**	**Retain**	**Retain**
Antimony	**Retain**	**Retain**	**Retain**	**Retain**	**Retain**	**Retain**	**Retain**	**Retain**	U	U	U	U
Arsenic	**Retain**	**Retain**	P	P	P	P	**Retain**	P	P	P	P	P
Barium	**Retain**	**Retain**	P	P	P	P	**Retain**	P	P	P	P	P
Beryllium	P	P	P	P	P	P	P	P	U	U	U	U
Cadmium	**Retain**	P	P	P	P	P	**Retain**	P	P	**Retain**	**Retain**	**Retain**
Carbon disulfide	U	U	U	U	U	U	U	U	U	U	U	U
Chromium	**Retain**	**Retain**	P	P	P	P	**Retain**	P	P	**Retain**	**Retain**	**Retain**

Table 17

Summary of Chemicals of Potential Ecological Concern after the Screening Risk Assessment

Attachment 10A - Thermal Treatment Unit, Ecological Risk Assessment

	Assessment/ Measurement Endpoint #											
	1	2	3	3	3	3	4	5	6	7	8	9
			Herbivorous Mammals				Insectivorous Mammal	Carnivorous Mammals	Herbivorous Birds	Insectivorous Birds	Omnivorous Birds	Carnivorous Birds
Analyte	Plants	Insects	Ord's Kangaroo Rat	Townsend's Ground Squirrel	Black-tailed Jackrabbit	Pronghorn	Grasshopper Mouse	Coyote	Sage Sparrow	Loggerhead Shrike	Western Meadowlark	Burrowing Owl
Cobalt	P	P	P	P	P	P	P	P	P	P	P	P
Copper	**Retain**	**Retain**	**Retain**	**Retain**	**Retain**	**Retain**	**Retain**	**Retain**	P	P	P	**Retain**
Iron	U	U	U	U	U	U	U	U	U	U	U	U
Lead	**Retain**	**Retain**	**Retain**	**Retain**	**Retain**	**Retain**	**Retain**	**Retain**	**Retain**	**Retain**	**Retain**	**Retain**
Magnesium	U	U	U	U	U	U	U	U	U	U	U	U
Manganese	**Retain**	U	P	P	P	P	P	P	P	P	P	P
Mercury	**Retain**	**Retain**	P	P	P	P	**Retain**	P	P	P	P	P
Molybdenum	**Retain**	U	**Retain**	**Retain**	**Retain**	P	**Retain**	**Retain**	P	P	P	P
Nickel	**Retain**	**Retain**	P	P	P	P	**Retain**	P	P	P	P	P
Nitrate	U	U	P	P	P	P	P	P	U	U	U	U
Perchlorate	P	**Retain**	**Retain**	**Retain**	**Retain**	**Retain**	P	P	**Retain**	P	P	P
Phosphorus	U	U	U	U	U	U	U	U	**Retain**	**Retain**	**Retain**	**Retain**
Selenium	**Retain**	P	**Retain**	P	**Retain**	P	**Retain**	P	P	P	P	P
Silver	**Retain**	U	P	P	P	P	**Retain**	P	U	U	U	U
Strontium	U	U	P	P	P	P	P	P	U	U	U	U
Thallium	**Retain**	P	P	P	P	P	**Retain**	P	P	P	P	P
Vanadium	**Retain**	U	P	P	P	P	**Retain**	P	P	P	P	P
Zinc	**Retain**	**Retain**	P	P	P	P	**Retain**	P	P	**Retain**	**Retain**	**Retain**
HI - Inorganics	**Retain**	**Retain**	**Retain**	**Retain**	**Retain**	**Retain**	**Retain**	**Retain**	**Retain**	**Retain**	**Retain**	**Retain**
2-Methylnaphthalene	**Retain**	**Retain**	**Retain**	**Retain**	**Retain**	**Retain**	**Retain**	**Retain**	P	**Retain**	**Retain**	P
Acenaphthene	P	P	P	P	P	P	P	P	P	P	P	P
Acenaphthylene	**Retain**	**Retain**	P	P	P	P	P	P	P	P	P	P
Anthracene	**Retain**	**Retain**	P	P	P	P	P	P	P	P	P	P
Benzo(a)anthracene	**Retain**	P	P	P	P	P	**Retain**	P	P	P	P	P
Benzo(a)pyrene	**Retain**	P	**Retain**	P	P	P	**Retain**	P	P	P	P	P
Benzo(b)fluoranthene	**Retain**	P	P	P	P	P	**Retain**	P	P	P	P	P
Benzo(g,h,i)perylene	**Retain**	P	**Retain**	**Retain**	**Retain**	**Retain**	**Retain**	P	P	P	P	P
Benzo(k)fluoranthene	**Retain**	P	**Retain**	P	P	P	**Retain**	P	P	P	P	P
Chrysene	**Retain**	P	P	P	P	P	**Retain**	P	U	U	U	U
Dibenzo(a,h)anthracene	**Retain**	P	P	P	P	P	**Retain**	P	P	P	P	P
Fluoranthene	P	P	P	P	P	P	P	P	P	P	P	P
Fluorene	**Retain**	**Retain**	**Retain**	**Retain**	**Retain**	**Retain**	P	P	P	P	P	P
Indeno(1,2,3-c,d)pyrene	**Retain**	P	P	P	P	P	**Retain**	P	P	P	P	P

Table 17

Summary of Chemicals of Potential Ecological Concern after the Screening Risk Assessment

Attachment 10A - Thermal Treatment Unit, Ecological Risk Assessment

	Assessment/ Measurement Endpoint #											
	1	2	3	3	3	3	4	5	6	7	8	9
			Herbivorous Mammals				Insectivorous Mammal	Carnivorous Mammals	Herbivorous Birds	Insectivorous Birds	Omnivorous Birds	Carnivorous Birds
Analyte	Plants	Insects	**Ord's Kangaroo Rat**	**Townsend's Ground Squirrel**	**Black-tailed Jackrabbit**	**Pronghorn**	**Grasshopper Mouse**	**Coyote**	**Sage Sparrow**	**Loggerhead Shrike**	**Western Meadowlark**	**Burrowing Owl**
Naphthalene	**Retain**	**Retain**	**Retain**	P	P	P	**Retain**	P	P	P	P	P
Phenanthrene	**Retain**	**Retain**	P	P	P	P	P	P	P	P	P	P
Pyrene	**Retain**	**Retain**	P	P	P	P	P	P	U	U	U	U
HI - PAHs	**Retain**	**Retain**	**Retain**	**Retain**	**Retain**	**Retain**	**Retain**	**Retain**	**Retain**	**Retain**	**Retain**	P
TPH	**Retain**	**Retain**	P	P	P	P	**Retain**	P	P	P	P	P
HI - Petroleum	**Retain**	**Retain**	P	P	P	P	**Retain**	P	P	P	P	P
2,4,5-Trichlorophenol	**Retain**	**Retain**	P	P	**Retain**	P	**Retain**	**Retain**	P	**Retain**	**Retain**	P
2,4,6-Trichlorophenol	**Retain**	**Retain**	P	P	P	P	**Retain**	P	P	P	P	P
2,4-Dichlorophenol	**Retain**	**Retain**	P	P	P	P	**Retain**	P	P	P	P	P
2,4-Dimethylphenol	U	U	U	U	U	U	U	U	U	U	U	U
2-Chloronaphthalene	U	U	U	U	U	U	U	U	U	U	U	U
2-Methylphenol	U	U	P	P	P	P	P	P	U	U	U	U
3,3-Dichlorobenzidine	U	U	U	U	U	U	U	U	U	U	U	U
4-Chloro-3-methylphenol	U	U	U	U	U	U	U	U	U	U	U	U
4-Chloroaniline	**Retain**	**Retain**	U	U	U	U	U	U	U	U	U	U
4-Methylphenol	U	U	P	P	P	P	P	P	U	U	U	U
Benzoic acid	U	U	U	U	U	U	U	U	P	P	P	P
Benzylalcohol	U	U	U	U	U	U	U	U	U	U	U	U
bis(2-Ethylhexyl)phthalate	P	P	P	P	P	P	P	P	P	**Retain**	P	P
Butyl benzylphthalate	**Retain**	P	P	P	P	P	P	P	P	**Retain**	**Retain**	**Retain**
Dibenzofuran	U	**Retain**	U	U	U	U	U	U	U	U	U	U
Diethylphthalate	**Retain**	P	P	P	P	P	P	P	P	**Retain**	**Retain**	**Retain**
Dimethylphthalate	**Retain**	P	P	P	P	P	P	P	**Retain**	**Retain**	**Retain**	**Retain**
Di-n-butylphthalate	P	P	P	P	P	P	P	P	P	**Retain**	**Retain**	**Retain**
Di-n-octylphthalate	**Retain**	P	P	P	P	P	P	P	**Retain**	**Retain**	**Retain**	**Retain**
Hexachlorobenzene	**Retain**	U	P	P	P	P	**Retain**	P	P	**Retain**	**Retain**	P
Hexachlorobutadiene	P	U	P	P	P	P	P	P	P	P	P	P
Hexachlorocyclopentadiene	**Retain**	U	P	P	P	P	**Retain**	P	P	**Retain**	**Retain**	P
Hexachloroethane	U	U	P	P	P	P	**Retain**	P	P	**Retain**	**Retain**	P
Isophorone	U	U	U	U	U	U	U	U	U	U	U	U
n-Nitroso-di-n-propylamine	U	**Retain**	U	U	U	U	U	U	U	U	U	U
n-Nitrosodiphenylamine	U	**Retain**	U	U	U	U	U	U	U	U	U	U
Pentachlorophenol	**Retain**	**Retain**	P	P	P	P	**Retain**	P	P	P	P	P

Table 17

Summary of Chemicals of Potential Ecological Concern after the Screening Risk Assessment

Attachment 10A - Thermal Treatment Unit, Ecological Risk Assessment

	Assessment/ Measurement Endpoint #											
	1	2	3	3	3	3	4	5	6	7	8	9
			Herbivorous Mammals				Insectivorous Mammal	Carnivorous Mammals	Herbivorous Birds	Insectivorous Birds	Omnivorous Birds	Carnivorous Birds
Analyte	Plants	Insects	**Ord's Kangaroo Rat**	**Townsend's Ground Squirrel**	**Black-tailed Jackrabbit**	**Pronghorn**	**Grasshopper Mouse**	**Coyote**	**Sage Sparrow**	**Loggerhead Shrike**	**Western Meadowlark**	**Burrowing Owl**
HI - SVOCs	*P*	**Retain**	P	P	P	P	P	P	P	**Retain**	P	P
1,1,1,2-Tetrachloroethane	U	P	P	P	P	P	P	P	P	P	P	P
1,1,1-Trichloroethane	U	P	P	P	P	P	P	P	P	P	P	P
1,1,2,2-Tetrachloroethane	U	P	P	P	P	P	P	P	P	P	P	P
1,1,2-Trichloroethane	U	P	P	P	P	P	P	P	P	P	P	P
1,1-Dichloroethane	U	P	P	P	P	P	P	P	P	P	P	P
1,1-Dichloroethene	U	P	P	P	P	P	P	P	P	P	P	P
1,2,3-Trichlorobenzene	U	P	U	U	U	U	U	U	P	P	P	P
1,2,3-Trichloropropane	U	P	P	P	P	P	P	P	P	P	P	P
1,2,4-Trichlorobenzene	U	P	U	U	U	U	U	U	P	P	P	P
1,2-Dibromo-3-chloropropane	U	U	U	U	U	U	U	U	U	U	U	U
1,2-Dichlorobenzene	U	P	U	U	U	U	U	U	P	P	P	P
1,2-Dichloroethane	U	P	P	P	P	P	P	P	P	P	P	P
1,2-Dichloropropane	U	P	P	P	P	P	P	P	P	P	P	P
1,2-Ethylene Dibromide	U	U	U	U	U	U	U	U	U	U	U	U
1,3-Dichlorobenzene	U	P	U	U	U	U	U	U	P	P	P	P
1,4-Dichlorobenzene	U	P	U	U	U	U	U	U	P	P	P	P
2-Butanone	U	U	P	P	P	P	P	P	P	P	P	P
2-ChloroethylVinylEther	U	U	U	U	U	U	U	U	U	U	U	U
2-Chlorophenol	**Retain**	**Retain**	U	U	U	U	U	U	P	P	P	P
2-Hexanone	U	U	P	P	P	P	P	P	P	P	P	P
4-Bromophenylphenylether	U	U	U	U	U	U	U	U	U	U	U	U
4-Chlorophenylphenylether	U	U	U	U	U	U	U	U	U	U	U	U
4-Methyl-2-pentanone	U	U	P	P	P	P	P	P	P	P	P	P
Acetone	U	U	**Retain**	**Retain**	**Retain**	**Retain**	**Retain**	P	**Retain**	P	P	P
Benzene	P	P	P	P	P	P	P	P	P	P	P	P
Bis(2-chloroethoxy)methane	U	U	U	U	U	U	U	U	U	U	U	U
bis(2-chloroethyl)ether	U	U	U	U	U	U	U	U	U	U	U	U
bis(2-chloroisopropyl)ether	U	U	U	U	U	U	U	U	U	U	U	U
Bromodichloromethane	U	U	U	U	U	U	U	U	U	U	U	U
Bromoform	U	U	P	P	P	P	P	P	U	U	U	U
Bromomethane	U	U	P	P	P	P	P	P	U	U	U	U
Carbon tetrachloride	U	U	P	P	P	P	P	P	U	U	U	U

Table 17

Summary of Chemicals of Potential Ecological Concern after the Screening Risk Assessment

Attachment 10A - Thermal Treatment Unit, Ecological Risk Assessment

	Assessment/ Measurement Endpoint #											
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			Herbivorous Mammals				Insectivorous Mammal	Carnivorous Mammals	Herbivorous Birds	Insectivorous Birds	Omnivorous Birds	Carnivorous Birds
Analyte	Plants	Insects	Ord's Kangaroo Rat	Townsend's Ground Squirrel	Black-tailed Jackrabbit	Pronghorn	Grasshopper Mouse	Coyote	Sage Sparrow	Loggerhead Shrike	Western Meadowlark	Burrowing Owl
Chlorobenzene	P	P	P	P	P	P	P	P	P	P	P	P
Chloroethane	U	P	P	P	P	P	P	P	P	P	P	P
Chloroform	U	P	P	P	P	P	P	P	U	U	U	U
Chloromethane	U	P	P	P	P	P	P	P	P	P	P	P
cis-1,2-Dichloroethene	U	P	P	P	P	P	P	P	P	P	P	P
cis-1,3-Dichloropropene	U	P	P	P	P	P	P	P	P	P	P	P
Dibromochloromethane	U	U	U	U	U	U	U	U	P	P	P	P
Dibromomethane	U	U	U	U	U	U	U	U	P	P	P	P
Dichlorodifluoromethane	U	U	U	U	U	U	U	U	P	P	P	P
Ethylbenzene	P	P	P	P	P	P	P	P	P	P	P	P
m,p-Xylene	P	P	P	P	P	P	P	P	P	P	P	P
Methylene chloride	U	U	P	P	P	P	P	P	U	U	U	U
o-Xylene	P	P	P	P	P	P	P	P	P	P	P	P
Phenol	**Retain**	**Retain**	P	P	P	P	**Retain**	P	U	U	U	U
Styrene	P	P	U	U	U	U	U	U	U	U	U	U
tert-ButylMethylEther	U	U	U	U	U	U	U	U	U	U	U	U
Tetrachloroethene	P	U	P	P	P	P	P	P	P	P	P	P
Toluene	P	P	P	P	P	P	P	P	P	P	P	P
Trans-1,2-Dichloroethene	U	P	P	P	P	P	P	P	P	P	P	P
Trans-1,3-Dichloropropene	U	P	P	P	P	P	P	P	P	P	P	P
Trichloroethylene (TCE)	U	U	P	P	P	P	P	P	U	U	U	U
Trichlorofluoromethane	U	U	U	U	U	U	U	U	U	U	U	U
Vinyl Acetate	U	U	U	U	U	U	U	U	U	U	U	U
Vinyl chloride	U	U	P	P	P	P	P	P	U	U	U	U
HI - VOCs	*P*	*P*	**Retain**	**Retain**	**Retain**	**Retain**	**Retain**	P	**Retain**	P	P	P

Notes:

Retain = screening value exceeded, chemical is retained for refined risk characterization

P = Pass - Screening value not exceeded and chemical passed screening evaluation; conclusion of no potential for risk; no further evaluation

U = Uncertain - uncertainty exists because no toxicological screening value was found for evaluating potential for risk

Table 18

Sample Designations for Surface Soil Collected from the TTU at the UTTR

Attachment 10A - Thermal Treatment Unit, Ecological Risk Assessment

Sample Location	Within TTU?	Background	Location Description	Site #	Sample Designation	Sampling Year	Number of Analytes
NR-226	NO	NO	Range land	-	habitat zone	2002	151
NR-227	NO	NO	Range land	-	habitat zone	2002	150
NR-228	YES	NO	Onsite - hazardous waste site	-	OB/OD operational area	2002	151
NR-229	YES	NO	Onsite - range land	-	habitat zone	2002	151
NR-230	YES	NO	Onsite - range land	-	habitat zone	2002	151
NR-231	YES	NO	Onsite - pad 2	2	OB/OD operational area	2002	151
NR-232	YES	NO	Onsite - range land	-	habitat zone	2002	151
NR-233	YES	NO	Onsite - range land	-	habitat zone	2002	151
NR-234	YES	NO	Onsite - range land	-	habitat zone	2002	151
NR-235	YES	NO	Onsite - range land	-	habitat zone	2002	151
NR-236	YES	NO	Onsite - range land	-	habitat zone	2002	151
NR-237	YES	NO	Onsite - range land	-	habitat zone	2002	151
NR-238	NO	YES	Background	-	background	2002	151
NR-239	NO	YES	Background	-	background	2002	151
NR-526	YES	NO	Onsite - range land	-	habitat zone	2004	151
NR-527	YES	NO	Onsite - range land	-	habitat zone	2004	151
NR-528	YES	NO	Onsite - range land	-	habitat zone	2004	151
NR-529	YES	NO	Onsite - range land	-	habitat zone	2004	151
NR-530	YES	NO	Onsite - range land	-	habitat zone	2004	151
NR-531	YES	NO	Onsite - burn pad	1	OB/OD operational area	2004	151
NR-532	YES	NO	Onsite - burn pad	1	OB/OD operational area	2004	151
NR-533	YES	NO	Onsite - main pad	2	OB/OD operational area	2004	151
NR-534	YES	NO	Onsite - main pad	2	OB/OD operational area	2004	151
NR-535	YES	NO	Onsite - main pad	2	OB/OD operational area	2004	151
NR-536	NO	YES	Background	-	background	2004	25
NR-537	NO	YES	Background	-	background	2004	25
SS1	YES	NO	Onsite - burn pad	1	OB/OD operational area	1991	36
SS2	YES	NO	Onsite - burn pad	1	OB/OD operational area	1991	36
SS3	YES	NO	Onsite - burn pad	1	OB/OD operational area	1991	36
SS4	YES	NO	Onsite - burn pad	1	OB/OD operational area	1991	36
SS5	YES	NO	Onsite - burn pan	3	OB/OD operational area	1991	36
SS6	YES	NO	Onsite - burn pan	3	OB/OD operational area	1991	36
SS7	YES	NO	Onsite - burn pan	3	OB/OD operational area	1991	36
SS8	YES	NO	Onsite - burn pan	3	OB/OD operational area	1991	36
SS9	YES	NO	Onsite - burn pan	3	OB/OD operational area	1991	36
SS10	YES	NO	Onsite - pad 1	2	OB/OD operational area	1991	36
SS11	YES	NO	Onsite - pad 1	2	OB/OD operational area	1991	36
SS12	YES	NO	Onsite - pad 2	2	OB/OD operational area	1991	36
SS13	YES	NO	Onsite - pad 2	2	OB/OD operational area	1991	36
SS14	YES	NO	Onsite - pad 3	2	OB/OD operational area	1991	36
SS15	YES	NO	Onsite - pad 3	2	OB/OD operational area	1991	36
SS16	YES	NO	Onsite - range land	-	habitat zone	1991	36
SS17	YES	NO	Onsite - range land	-	habitat zone	1991	36
SS18	YES	NO	Onsite - range land	-	habitat zone	1991	36
SS19	YES	NO	Onsite - range land	-	habitat zone	1991	36
SS20	YES	NO	Onsite - range land	-	habitat zone	1991	36
TTU-SS01S	YES	NO	Onsite - burn pan	3	OB/OD operational area	1989	84
TTU-SS02S	YES	NO	Onsite - burn pan	3	OB/OD operational area	1989	84
TTU-SS03S	YES	NO	Onsite - burn pan	3	OB/OD operational area	1989	84
TTU-SS04S(D)	YES	NO	Onsite - burn pan	3	OB/OD operational area	1989	84
TTU-SS05S	YES	NO	Onsite - burn pan	3	OB/OD operational area	1989	84
TTU-SS06S(BG)	YES	NO	Onsite - 150-200 yards SE of burn pan	-	habitat zone	1989	84

Notes:

Eco - Sample collected in ecological habitat

OB/OD - Sample collected in open burn/open detonation area where limited habitat represents an incomplete exposure pathway for eclogical receptors.

Background - Sample collected outside of the UTTR Boundary

Samples NR-226 and NR-227 were not considered background samples due to their proximity to Site 2, Site 3, and an active firing range

Sample TTU-SS06S(BG) was considered background when sample collected, but is currently considered a site samples that is located within the TTU boundary near Site 3.

Sample TTU-SS04S(D) was included as a site sample as a conservative measure

Table 19

Summary Statistics for Combined Historical and Current Surface Soil Samples from Potential Habitat Locations at the TTU at the UTTR

Attachment 10A - Thermal Treatment Unit, Ecological Risk Assessment

Analyte	Units	Det	n	DF (%)	Min DL	Max DL	Minimum Detected	Maximum Detected	Mean Concentration1	Std Dev	UCL95	Appropriate Distribution	Habitat EPC	Basis
1,3,5-Trinitrobenzene	mg/Kg	0	15	0%	0.0150	0.210			0.0701	0.0454	--	--	0.105	0.5*MaxND
1,3-Dinitrobenzene	mg/Kg	0	15	0%	0.0350	0.160			0.0577	0.0283	--	--	0.0800	0.5*MaxND
2,4,6-Trinitrotoluene (TNT)	mg/Kg	0	20	0%	0.0490	3.00			0.415	0.643	--	--	1.50	0.5*MaxND
2,4-Dinitrophenol	mg/Kg	0	16	0%	0.123	1.80			0.184	0.198	--	--	0.900	0.5*MaxND
2,4-Dinitrotoluene	mg/Kg	0	21	0%	0.103	2.00			0.269	0.376	--	--	1.00	0.5*MaxND
2,6-Dinitrotoluene	mg/Kg	0	21	0%	0.100	3.00			0.421	0.619	--	--	1.50	0.5*MaxND
2-Amino-4,6-Dinitrotoluene	mg/Kg	0	15	0%	0.170	3.00			0.569	0.681	--	--	1.50	0.5*MaxND
2-Nitroaniline	mg/Kg	0	16	0%	0.0594	1.80			0.189	0.205	--	--	0.900	0.5*MaxND
2-Nitrophenol	mg/Kg	0	16	0%	0.0570	0.360			0.0575	0.0352	--	--	0.180	0.5*MaxND
2-Nitrotoluene	mg/Kg	0	15	0%	0.0470	0.280			0.0963	0.0517	--	--	0.140	0.5*MaxND
3-Nitroaniline	mg/Kg	0	16	0%	0.0479	1.80			0.370	0.285	--	--	0.900	0.5*MaxND
3-Nitrotoluene	mg/Kg	0	15	0%	0.0830	0.300			0.110	0.0473	--	--	0.150	0.5*MaxND
4,6-Dinitro-2-methylphenol	mg/Kg	0	16	0%	0.0432	1.80			0.175	0.208	--	--	0.900	0.5*MaxND
4-Nitroaniline	mg/Kg	0	16	0%	0.0500	1.80			0.177	0.206	--	--	0.900	0.5*MaxND
4-Nitrophenol	mg/Kg	0	16	0%	0.0761	1.80			0.175	0.203	--	--	0.900	0.5*MaxND
4-Nitrotoluene	mg/Kg	0	15	0%	0.101	0.380			0.140	0.0620	--	--	0.190	0.5*MaxND
HMX	mg/Kg	4	20	20%	0.100	3.00	0.310	3.60	0.810	1.12	3.30	Data are Non-parametric (0.05)	3.30	UCL
Nitrobenzene	mg/Kg	0	21	0%	0.0660	3.00			0.403	0.629	--	--	1.50	0.5*MaxND
Nitroglycerin	mg/Kg	0	19	0%	0.300	0.680			0.223	0.0676	--	--	0.340	0.5*MaxND
Nitroguanidine	mg/Kg	0	20	0%	0.0390	1.00			0.268	0.238	--	--	0.500	0.5*MaxND
PETN	mg/Kg	0	10	0%	0.580	1.00			0.407	0.0990	--	--	0.500	0.5*MaxND
Picric acid	mg/Kg	3	20	15%	0.000800	0.200	0.400	0.500	0.103	0.145	0.235	Data are Non-parametric (0.05)	0.235	UCL
RDX	mg/Kg	0	20	0%	0.0400	3.00			0.431	0.634	--	--	1.50	0.5*MaxND
Tetryl	mg/Kg	0	15	0%	0.0750	0.460			0.160	0.0871	--	--	0.230	0.5*MaxND
Aluminum	mg/Kg	21	21	100%			5390	17000	12200	3010	15300.00	Data are Non-parametric (0.05)	15300.0	UCL
Antimony	mg/Kg	14	16	88%	1.60	1.70	0.130	3.80	1.66	1.29	4.86	Data are Non-parametric (0.05)	3.80	Max Det
Arsenic	mg/Kg	16	21	76%	10	10	1.90	41.3	7.34	7.94	14.40	Data are Non-parametric (0.05)	14.4	UCL
Barium	mg/Kg	21	21	100%			152	336	212	35.5	255.00	Data are Non-parametric (0.05)	255.0	UCL
Beryllium	mg/Kg	16	21	76%	1.00	1.00	0.300	0.720	0.530	0.117	0.655	Data are Non-parametric (0.05)	0.655	UCL
Cadmium	mg/Kg	13	21	62%	0.120	1.00	0.340	3.00	0.649	0.606	1.23	Data are Non-parametric (0.05)	1.23	UCL
Calcium	mg/Kg	20	20	100%			15400	1560000	231000	429000	--	--	-	Not a COPEC
Carbon disulfide	mg/Kg	0	15	0%	0.000600	0.00160			0.000524	0.000124	--	--	0.000800	0.5*MaxND
Chloride	mg/Kg	16	20	80%	0.100	10.4	0.100	120000	6010	26800	--	--	-	Not a COPEC
Chromium	mg/Kg	21	21	100%			6.50	16	11.3	2.85	12.10	Data are Normal (0.05)	12.1	UCL
Cobalt	mg/Kg	15	16	94%	4.60	4.60	1.00	4.90	2.99	1.24	3.41	Data are Normal (0.05)	3.41	UCL
Copper	mg/Kg	20	21	95%	14.1	14.1	9.40	61	19.1	12	23.60	Data are Log-Normal (0.05)	23.6	UCL
Iron	mg/Kg	20	20	100%			5450	14000	10500	2400	13100.00	Data are Non-parametric (0.05)	13100.0	UCL
Lead	mg/Kg	20	21	95%	16.1	16.1	4.50	36	16.2	9.31	19.00	Data are Normal (0.05)	19.0	UCL
Magnesium	mg/Kg	20	20	100%			11500	24300	18300	3990	22700.00	Data are Non-parametric (0.05)	22700.0	UCL
Manganese	mg/Kg	21	21	100%			203	519	376	102	477.00	Data are Non-parametric (0.05)	477.0	UCL
Mercury	mg/Kg	7	21	33%	0.0200	0.110	0.00640	0.0300	0.0181	0.0117	0.0284	Data are Non-parametric (0.05)	0.0284	UCL
Molybdenum	mg/Kg	13	15	87%	0.300	0.300	0.600	1.30	0.847	0.345	1.00	Data are Normal (0.05)	1.00	UCL
Nickel	mg/Kg	21	21	100%			6.80	13.9	10.2	1.94	12.40	Data are Non-parametric (0.05)	12.4	UCL
Nitrate	mg/Kg	20	21	95%	2.50	2.50	0.00400	22.8	7.27	6.99	10.00	Data are Non-parametric (0.05)	10.0	UCL
Perchlorate	mg/Kg	5	15	33%	0.0106	0.112	0.0156	0.103	0.0232	0.0297	0.0537	Data are Non-parametric (0.05)	0.0537	UCL
Phosphorus	mg/Kg	5	5	100%			820	890	844	30.5	1320	Data are Non-parametric (0.05)	890	Max Det
Potassium	mg/Kg	20	20	100%			2090	6800	4580	1190	--	--	-	Not a COPEC
Selenium	mg/Kg	0	21	0%	0.210	10			1.77	1.88	--	--	5.00	0.5*MaxND
Silver	mg/Kg	1	21	5%	0.183	2.00	0.180	0.180	0.371	0.364	0.717	Data are Non-parametric (0.05)	0.180	Max Det
Sodium	mg/Kg	20	20	100%			274	1060	617	215	--	--	-	Not a COPEC

Table 19

Summary Statistics for Combined Historical and Current Surface Soil Samples from Potential Habitat Locations at the TTU at the UTTR

Attachment 10A - Thermal Treatment Unit, Ecological Risk Assessment

Analyte	Units	Det	n	DF (%)	Min DL	Max DL	Minimum Detected	Maximum Detected	Mean Concentration1	Std Dev	UCL95	Appropriate Distribution	Habitat EPC	Basis
Strontium	mg/Kg	15	15	100%			244	460	343	72	442.00	Data are Non-parametric (0.05)	442.0	UCL
Sulfate	mg/Kg	15	20	75%	0.500	0.500	9.20	816	56.7	180	--	--	-	Not a COPEC
Thallium	mg/Kg	16	21	76%	5.00	5.00	0.150	0.550	0.816	0.968	1.67	Data are Non-parametric (0.05)	0.550	Max Det
Vanadium	mg/Kg	16	16	100%			9.90	25.7	17.3	4.04	18.70	Data are Non-parametric (0.05)	18.7	UCL
Zinc	mg/Kg	21	21	100%			29.7	67	49.7	9.98	60.80	Data are Non-parametric (0.05)	60.8	UCL
2-Methylnaphthalene	mg/Kg	0	16	0%	0.0801	0.360			0.0629	0.0324	--	--	0.180	0.5*MaxND
Acenaphthene	mg/Kg	0	5	0%	0.0693	0.0837			0.0380	0.00269	--	--	0.0418	0.5*MaxND
Acenaphthylene	mg/Kg	0	16	0%	0.0638	0.360			0.0595	0.0346	--	--	0.180	0.5*MaxND
Anthracene	mg/Kg	0	16	0%	0.0504	0.360			0.0581	0.0370	--	--	0.180	0.5*MaxND
Benzo(a)anthracene	mg/Kg	0	16	0%	0.0627	0.360			0.0632	0.0347	--	--	0.180	0.5*MaxND
Benzo(a)pyrene	mg/Kg	0	16	0%	0.0625	0.360			0.0609	0.0348	--	--	0.180	0.5*MaxND
Benzo(b)fluoranthene	mg/Kg	0	16	0%	0.106	0.360			0.0742	0.0297	--	--	0.180	0.5*MaxND
Benzo(g,h,i)perylene	mg/Kg	0	16	0%	0.0584	0.360			0.0593	0.0350	--	--	0.180	0.5*MaxND
Benzo(k)fluoranthene	mg/Kg	0	16	0%	0.0986	0.360			0.0697	0.0308	--	--	0.180	0.5*MaxND
Chrysene	mg/Kg	0	16	0%	0.0588	0.360			0.0605	0.0351	--	--	0.180	0.5*MaxND
Dibenzo(a,h)anthracene	mg/Kg	0	16	0%	0.0765	0.360			0.0650	0.0326	--	--	0.180	0.5*MaxND
Fluoranthene	mg/Kg	1	16	6%	0.0596	0.360	0.144	0.144	0.0625	0.0412	0.107	Data are Non-parametric (0.05)	0.107	UCL
Fluorene	mg/Kg	0	16	0%	0.0660	0.360			0.0640	0.0344	--	--	0.180	0.5*MaxND
Indeno(1,2,3-c,d)pyrene	mg/Kg	0	16	0%	0.0736	0.360			0.0674	0.0331	--	--	0.180	0.5*MaxND
Naphthalene	mg/Kg	0	16	0%	0.000600	0.360			0.0117	0.0449	--	--	0.180	0.5*MaxND
Phenanthrene	mg/Kg	0	16	0%	0.0576	0.360			0.0590	0.0357	--	--	0.180	0.5*MaxND
Pyrene	mg/Kg	0	16	0%	0.0764	0.360			0.0763	0.0355	--	--	0.180	0.5*MaxND
TPH	mg/Kg	1	1	100%			20	20	20	NA	NA	--	20.0	Max Det
2,4,5-Trichlorophenol	mg/Kg	0	16	0%	0.0702	1.80			0.169	0.204	--	--	0.900	0.5*MaxND
2,4,6-Trichlorophenol	mg/Kg	0	16	0%	0.0792	0.360			0.0583	0.0329	--	--	0.180	0.5*MaxND
2,4-Dichlorophenol	mg/Kg	0	16	0%	0.0744	0.360			0.0635	0.0329	--	--	0.180	0.5*MaxND
2,4-Dimethylphenol	mg/Kg	0	16	0%	0.0739	0.360			0.0625	0.0332	--	--	0.180	0.5*MaxND
2-Chloronaphthalene	mg/Kg	0	16	0%	0.0729	0.360			0.0583	0.0334	--	--	0.180	0.5*MaxND
2-Methylphenol	mg/Kg	0	16	0%	0.0585	0.360			0.0596	0.0350	--	--	0.180	0.5*MaxND
3,3-Dichlorobenzidine	mg/Kg	0	16	0%	0.0547	0.720			0.107	0.0864	--	--	0.360	0.5*MaxND
4-Chloro-3-methylphenol	mg/Kg	0	16	0%	0.0776	0.360			0.0638	0.0326	--	--	0.180	0.5*MaxND
4-Chloroaniline	mg/Kg	0	16	0%	0.201	0.756			0.257	0.118	--	--	0.378	0.5*MaxND
4-Methylphenol	mg/Kg	0	16	0%	0.0691	0.360			0.0618	0.0341	--	--	0.180	0.5*MaxND
Benzoic acid	mg/Kg	0	16	0%	0.0780	1.80			0.194	0.202	--	--	0.900	0.5*MaxND
Benzylalcohol	mg/Kg	0	16	0%	0.0573	0.360			0.0655	0.0462	--	--	0.180	0.5*MaxND
bis(2-Ethylhexyl)phthalate	mg/Kg	0	16	0%	0.0751	0.164			0.0620	0.0183	--	--	0.0820	0.5*MaxND
Butyl benzylphthalate	mg/Kg	0	16	0%	0.0740	0.360			0.0659	0.0332	--	--	0.180	0.5*MaxND
Dibenzofuran	mg/Kg	0	16	0%	0.0691	0.360			0.0613	0.0337	--	--	0.180	0.5*MaxND
Diethylphthalate	mg/Kg	0	16	0%	0.0800	0.360			0.0675	0.0311	--	--	0.180	0.5*MaxND
Dimethylphthalate	mg/Kg	0	16	0%	0.0700	0.360			0.0600	0.0345	--	--	0.180	0.5*MaxND
Di-n-butylphthalate	mg/Kg	0	16	0%	0.0879	0.360			0.0658	0.0320	--	--	0.180	0.5*MaxND
Di-n-octylphthalate	mg/Kg	0	16	0%	0.0500	0.360			0.0519	0.0363	--	--	0.180	0.5*MaxND
Hexachlorobenzene	mg/Kg	0	16	0%	0.0611	0.360			0.0632	0.0349	--	--	0.180	0.5*MaxND
Hexachlorobutadiene	mg/Kg	0	16	0%	0.000800	0.360			0.0117	0.0449	--	--	0.180	0.5*MaxND
Hexachlorocyclopentadiene	mg/Kg	0	16	0%	0.0748	0.390			0.136	0.0679	--	--	0.195	0.5*MaxND
Hexachloroethane	mg/Kg	0	16	0%	0.0637	0.360			0.0623	0.0344	--	--	0.180	0.5*MaxND
Isophorone	mg/Kg	0	16	0%	0.0726	0.360			0.0620	0.0332	--	--	0.180	0.5*MaxND
n-Nitroso-di-n-propylamine	mg/Kg	0	16	0%	0.0638	0.360			0.0612	0.0343	--	--	0.180	0.5*MaxND
n-Nitrosodiphenylamine	mg/Kg	0	16	0%	0.0506	0.360			0.0625	0.0379	--	--	0.180	0.5*MaxND
Pentachlorophenol	mg/Kg	0	16	0%	0.0726	1.80			0.150	0.205	--	--	0.900	0.5*MaxND

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Analyte	Units	Det	n	DF (%)	Min DL	Max DL	Minimum Detected	Maximum Detected	Mean Concentration1	Std Dev	UCL95	Appropriate Distribution	Habitat EPC	Basis
1,1,1,2-Tetrachloroethane	mg/Kg	0	15	0%	0.000600	0.00150			0.000466	0.000136	--	--	0.000750	0.5*MaxND
1,1,1-Trichloroethane	mg/Kg	0	15	0%	0.000680	0.00130			0.000500	0.0000781	--	--	0.000650	0.5*MaxND
1,1,2,2-Tetrachloroethane	mg/Kg	0	15	0%	0.000790	0.00140			0.000565	0.0000837	--	--	0.000700	0.5*MaxND
1,1,2-Trichloroethane	mg/Kg	0	15	0%	0.000640	0.00140			0.000490	0.0000970	--	--	0.000700	0.5*MaxND
1,1-Dichloroethane	mg/Kg	0	15	0%	0.000550	0.000900			0.000391	0.0000573	--	--	0.000450	0.5*MaxND
1,1-Dichloroethene	mg/Kg	0	15	0%	0.000450	0.00290			0.000620	0.000388	--	--	0.00145	0.5*MaxND
1,2,3-Trichlorobenzene	mg/Kg	0	15	0%	0.000660	0.00110			0.000455	0.0000702	--	--	0.000550	0.5*MaxND
1,2,3-Trichloropropane	mg/Kg	0	15	0%	0.000780	0.00210			0.000614	0.000190	--	--	0.00105	0.5*MaxND
1,2,4-Trichlorobenzene	mg/Kg	0	16	0%	0.000620	0.360			0.0117	0.0449	--	--	0.180	0.5*MaxND
1,2-Dibromo-3-chloropropane	mg/Kg	0	15	0%	0.00230	0.00690			0.00212	0.000611	--	--	0.00345	0.5*MaxND
1,2-Dichlorobenzene	mg/Kg	0	16	0%	0.000700	0.360			0.0117	0.0449	--	--	0.180	0.5*MaxND
1,2-Dichloroethane	mg/Kg	0	15	0%	0.000630	0.00140			0.000477	0.0000988	--	--	0.000700	0.5*MaxND
1,2-Dichloropropane	mg/Kg	0	15	0%	0.000580	0.00110			0.000426	0.0000665	--	--	0.000550	0.5*MaxND
1,2-Ethylene Dibromide	mg/Kg	0	15	0%	0.000630	0.00190			0.000537	0.000172	--	--	0.000950	0.5*MaxND
1,3-Dichlorobenzene	mg/Kg	0	16	0%	0.000700	0.360			0.0118	0.0449	--	--	0.180	0.5*MaxND
1,4-Dichlorobenzene	mg/Kg	0	16	0%	0.000700	0.360			0.0117	0.0449	--	--	0.180	0.5*MaxND
2-Butanone	mg/Kg	1	15	7%	0.00392	0.00750	0.0123	0.0123	0.00340	0.00253	0.00455	Data are Log-Normal (0.05)	0.00455	UCL
2-ChloroethylVinylEther	mg/Kg	0	10	0%	0.00580	0.0119			0.00462	0.00114	--	--	0.00595	0.5*MaxND
2-Chlorophenol	mg/Kg	0	16	0%	0.0694	0.360			0.0565	0.0338	--	--	0.180	0.5*MaxND
2-Hexanone	mg/Kg	0	15	0%	0.00390	0.00780			0.00274	0.000644	--	--	0.00390	0.5*MaxND
4-Bromophenylphenylether	mg/Kg	0	16	0%	0.0599	0.360			0.0634	0.0353	--	--	0.180	0.5*MaxND
4-Chlorophenylphenylether	mg/Kg	0	16	0%	0.0704	0.360			0.0598	0.0339	--	--	0.180	0.5*MaxND
4-Methyl-2-pentanone	mg/Kg	0	15	0%	0.00391	0.00680			0.00271	0.000445	--	--	0.00340	0.5*MaxND
Acetone	mg/Kg	2	16	13%	0.00380	0.360	0.00410	0.0453	0.0168	0.0448	0.128	Data are Non-parametric (0.05)	0.0453	Max Det
Benzene	mg/Kg	1	15	7%	0.000630	0.00110	0.00116	0.00116	0.000478	0.000202	0.000570	Data are Log-Normal (0.05)	0.000570	UCL
Bis(2-chloroethoxy)methane	mg/Kg	0	15	0%	0.0754	0.148			0.0602	0.0143	--	--	0.0740	0.5*MaxND
bis(2-chloroethyl)ether	mg/Kg	0	16	0%	0.0587	0.360			0.0633	0.0389	--	--	0.180	0.5*MaxND
bis(2-chloroisopropyl)ether	mg/Kg	0	16	0%	0.0729	0.360			0.0608	0.0340	--	--	0.180	0.5*MaxND
Bromodichloromethane	mg/Kg	0	15	0%	0.000580	0.00130			0.000443	0.0000875	--	--	0.000650	0.5*MaxND
Bromoform	mg/Kg	0	15	0%	0.000500	0.00160			0.000419	0.000170	--	--	0.000800	0.5*MaxND
Bromomethane	mg/Kg	0	15	0%	0.000900	0.00200			0.000697	0.000125	--	--	0.00100	0.5*MaxND
Carbon tetrachloride	mg/Kg	0	15	0%	0.000650	0.00130			0.000488	0.0000777	--	--	0.000650	0.5*MaxND
Chlorobenzene	mg/Kg	0	15	0%	0.000680	0.00120			0.000470	0.0000754	--	--	0.000600	0.5*MaxND
Chloroethane	mg/Kg	0	15	0%	0.000630	0.00210			0.000577	0.000206	--	--	0.00105	0.5*MaxND
Chloroform	mg/Kg	0	15	0%	0.000610	0.00120			0.000438	0.0000878	--	--	0.000600	0.5*MaxND
Chloromethane	mg/Kg	0	15	0%	0.000700	0.00200			0.000585	0.000174	--	--	0.00100	0.5*MaxND
cis-1,2-Dichloroethene	mg/Kg	0	15	0%	0.000700	0.00130			0.000482	0.000108	--	--	0.000650	0.5*MaxND
cis-1,3-Dichloropropene	mg/Kg	0	15	0%	0.000600	0.00110			0.000444	0.000101	--	--	0.000550	0.5*MaxND
Dibromochloromethane	mg/Kg	0	15	0%	0.000560	0.00160			0.000455	0.000148	--	--	0.000800	0.5*MaxND
Dibromomethane	mg/Kg	0	15	0%	0.000590	0.00150			0.000437	0.000141	--	--	0.000750	0.5*MaxND
Dichlorodifluoromethane	mg/Kg	0	15	0%	0.000610	0.00150			0.000495	0.000111	--	--	0.000750	0.5*MaxND
Ethylbenzene	mg/Kg	0	15	0%	0.000700	0.00120			0.000471	0.0000823	--	--	0.000600	0.5*MaxND
m,p-Xylene	mg/Kg	0	15	0%	0.00110	0.00250			0.000890	0.000265	--	--	0.00125	0.5*MaxND
Methylene chloride	mg/Kg	0	15	0%	0.000680	0.00320			0.000740	0.000406	--	--	0.00160	0.5*MaxND
o-Xylene	mg/Kg	1	15	7%	0.000500	0.00120	0.00222	0.00222	0.000537	0.000485	0.00108	Data are Non-parametric (0.05)	0.00108	UCL
Phenol	mg/Kg	0	16	0%	0.0778	0.360			0.0645	0.0324	--	--	0.180	0.5*MaxND
Styrene	mg/Kg	2	15	13%	0.000600	0.00270	0.00160	0.00260	0.000739	0.000647	0.00140	Data are Non-parametric (0.05)	0.00140	UCL
tert-ButylMethylEther	mg/Kg	0	15	0%	0.000680	0.00170			0.000503	0.000156	--	--	0.000850	0.5*MaxND
Tetrachloroethene	mg/Kg	0	15	0%	0.000790	0.00130			0.000538	0.0000863	--	--	0.000650	0.5*MaxND
Toluene	mg/Kg	2	15	13%	0.000700	0.00110	0.00800	0.0187	0.00218	0.00497	0.0149	Data are Non-parametric (0.05)	0.0149	UCL

Table 19

Summary Statistics for Combined Historical and Current Surface Soil Samples from Potential Habitat Locations at the TTU at the UTTR

Attachment 10A - Thermal Treatment Unit, Ecological Risk Assessment

Analyte	Units	Det	n	DF (%)	Min DL	Max DL	Minimum Detected	Maximum Detected	Mean Concentration1	Std Dev	UCL95	Appropriate Distribution	Habitat EPC	Basis
Trans-1,2-Dichloroethene	mg/Kg	0	15	0%	0.000670	0.00120			0.000463	0.0000778	--	--	0.000600	0.5*MaxND
Trans-1,3-Dichloropropene	mg/Kg	0	15	0%	0.000700	0.00140			0.000498	0.0000975	--	--	0.000700	0.5*MaxND
Trichloroethylene (TCE)	mg/Kg	0	15	0%	0.000600	0.00110			0.000418	0.0000715	--	--	0.000550	0.5*MaxND
Trichlorofluoromethane	mg/Kg	0	15	0%	0.000510	0.00160			0.000477	0.000142	--	--	0.000800	0.5*MaxND
Vinyl Acetate	mg/Kg	0	15	0%	0.00109	0.00180			0.000717	0.000122	--	--	0.000900	0.5*MaxND
Vinyl chloride	mg/Kg	0	15	0%	0.000610	0.00170			0.000548	0.000136	--	--	0.000850	0.5*MaxND

Notes:

[1] includes 1/2 DL proxy Values for NDs

Data exclude samples collected at the OB/OD area (Table 24b)

95UCLs for retained COPECs calcuated with ProUCL 3.0.0.2

Table 20

Refined Chemical Biotransfer Factors for Inorganics and Selected Organics

Attachment 10A - Thermal Treatment Unit, Ecological Risk Assessment

Analyte	Refined Plant BTF	Source for Plant BTFs	Refined Terrestrial Invertebrates BTF	Source for Terrestrial Invertebrate BTFs	Refinded Small Mammal BTF	Source for Mammal BTFs
Aluminum	0.00287	A	0.043	C	0.073	E
Antimony	0.0102	A	0.0162	D	1.0	F
Arsenic	regrsssion based		regrsssion based		regrsssion based	
Barium	0.10	B	0.09	C	0.057	E
Beryllium	0.010	B	0.045	C	0.41	E
Cadmium	regrsssion based		regrsssion based		regrsssion based	
Chromium	0.040	B	0.306	C	0.085	G
Cobalt	0.00745	A	0.122	C	regrsssion based	
Copper	regrsssion based		regrsssion based		regrsssion based	
Iron	0.00425	A	0.04	C	regrsssion based	
Lead	regrsssion based		regrsssion based		regrsssion based	
Magnesium	0.810	A	0.169	C	0.993	E
Manganese	0.0792	A	regression based		0.079	E
Mercury	regression based		regression based		0.054	E
Molybdenum	0.400	B	0.953	C	1.0	F
Nickel	regression based		1.059	C	0.249	G
Selenium	regression based		regression based		regression based	
Silver	0.014	A	2.045	C	0.81	E
Strontium	1.1	B	0.087	C	1.0	F
Thallium	0.0040	B	0.0606	D	0.1124	E
Vanadium	0.00485	A	0.088	C	0.019	E
Zinc	regression based		regression based		regression based	
2,4,6-Trinitrotoluene (TNT)	1.710	H	0.058	H	0.000	I
2,4-Dinitrotoluene	0.376	H	3.710	H	1.050	J
2,6-Dinitrotoluene	3.140	H	3.160	H	1.100	J
HMX	regression based		0.313	H	2.130	J

Notes:

BTF = biotransfer factor

BTFs for COPECs not listed in this table are the same as those used in the screening analysis (Table 8)

A Median soil-to-plant transfer factors for inorganics are from soil-to-dry plant uptake factors presented by ORNL (2000)

B Bechtel Jacobs, 1998 - median uptake factors

C Sample et al., 1998a - median soil-to-earthworm uptake factors

D Median uptake factors from ARAMS (Army Risk Assessment Modeling System; US Army, 2004)

Naphthalene data substituted for 2-methylnaphthalene.

E Sample et al., 1998b - median soil-to-mammal uptake factors

F Bioaccumulation data were not available. A default value of 1 was assumed.

G Sample et al, 1998 - Soil to small mammal bioaccumulation regression model presented in Table 9

H Median BAFs caclulated for the Army Risk Assessment Modelling System (2005)

I USEPA 2005

J USEPA 2000

Table 21

Wilcoxon Rank Sum Comparison of Inorganics in TTU Soils to the Background Concentrations

Attachment 10A - Thermal Treatment Unit, Ecological Risk Assessment

	Site Sample Soil Statistics							Background Soil Statistics								
Analyte	det	n	DF (%)	Minimum (mg/kg)	Maximum (mg/kg)	Mean (mg/kg)	Standard Deviation	Det	n	DF (%)	Minimum (mg/kg)	Maximum (mg/kg)	Mean (mg/kg)	Standard Deviation	Wilcoxon Rank Sum Result	p
Aluminum	48	48	100%	5390	54000	13200	6950	54	54	100%	2080	21100	11900	3620	NS	0.8751
Antimony	**22**	**28**	**79%**	**0.12**	**167**	**8.12**	**31.3**	**29**	**54**	**54%**	**0.00705**	**3.1**	**0.766**	**0.649**	**SS**	**0.0156**
Arsenic	28	48	58%	1.9	41.3	6.46	5.34	54	54	100%	2.25	15.4	6.63	2.12	BS	0.0017
Barium	48	48	100%	110	640	206	72.9	54	54	100%	148	426	258	56.6	BS	<0.0001
Beryllium	23	48	48%	0.075	0.72	0.465	0.162	46	54	85%	0.00535	1.05	0.409	0.268	NS	0.4427
Cadmium	**21**	**48**	**44%**	**0.055**	**32**	**1.25**	**4.56**	**35**	**54**	**65%**	**0.00292**	**0.71**	**0.203**	**0.185**	**SS**	<0.0001
Chromium	48	48	100%	6.5	55.3	14.4	7.79	54	54	100%	2.32	20.9	12.7	3.66	NS	0.8253
Cobalt	22	28	79%	1	4.9	2.78	1.12	54	54	100%	0.678	6.06	3.53	1.06	BS	0.007
Copper	**41**	**48**	**85%**	**0.5**	**18000**	**429**	**2590**	**54**	**54**	**100%**	**2.49**	**26.7**	**12.5**	**3.86**	**SS**	<0.0001
Iron	42	42	100%	4510	15000	10600	2790	54	54	100%	1390	16200	10100	3190	NS	0.4914
Lead	**40**	**48**	**83%**	**1**	**48000**	**1070**	**6920**	**54**	**54**	**100%**	**2.95**	**30.5**	**10.3**	**4.23**	**SS**	**0.0017**
Magnesium	42	42	100%	9700	24300	16700	4000	54	54	100%	15500	167000	29800	21700	BS	<0.0001
Manganese	48	48	100%	120	519	318	116	54	54	100%	43.4	859	340	136	NS	0.5409
Mercury	13	48	27%	0.005	0.07	0.0223	0.0153	2	4	50%	0.01	0.0262	0.0178	0.00902	NS	0.9435
Molybdenum	**20**	**22**	**91%**	**0.15**	**17**	**1.73**	**3.45**	**53**	**54**	**98%**	**0.073**	**4.91**	**0.824**	**0.771**	**SS**	**0.0025**
Nickel	48	48	100%	6.7	41.3	11.3	5.83	54	54	100%	3	20.2	10.3	3.07	NS	0.6932
Phosphorus	20	20	100%	450	990	656	171	50	50	100%	198	1470	722	214	NS	0.1956
Selenium	**0**	**48**	**0%**	**0.09**	**5**	**2.48**	**2.17**	**38**	**54**	**70%**	**0.00815**	**1.5**	**0.513**	**0.339**	**SS**	<0.0001
Silver	**4**	**48**	**8%**	**0.0855**	**4**	**0.608**	**0.643**	**25**	**54**	**46%**	**0.00572**	**0.23**	**0.0797**	**0.0545**	**SS**	<0.0001
Strontium	22	22	100%	244	484	351	71.9	54	54	100%	211	3680	717	763	BS	0.0107
Thallium	26	48	54%	0.085	2.5	1.2	1.12	25	54	46%	0.0151	1.76	0.515	0.351	NS	0.1577
Vanadium	28	28	100%	9.9	25.7	16.7	3.42	54	54	100%	8.28	35.5	20.8	4.89	BS	<0.0001
Zinc	**48**	**48**	**100%**	**29.7**	**2300**	**125**	**336**	**54**	**54**	**100%**	**6.37**	**78**	**38.3**	**13.4**	**SS**	<0.0001

Notes:

[1] Summary statistics include 1/2 detection limit as a proxy value for non-detects.

DF = detection frequency

Bold and highlighted text are those COPECs with significantly greater site concentrations compared to background. These COPECs were retained for further characterization in the refined screening evaluation.

BS = significant difference between background and site data with background concentrations being greater

NS = no significant difference between background and site data

SS = significant difference between background and site data with site concentrations being greater

p - level of signifiance (0.05) based on the two tailed t-distribution

Table 22

Summary of the Refined Screening Evaluation for Plants

Attachment 10A - Thermal Treatment Unit, Ecological Risk Assessment

Analyte	Class	Detection Frequency	n	Uncertain	No Risk	ND - Exceedances Possible	ND - Exceedances Probable	Detected - Exceedances Possible	Detected - Exceedances Probable	LOEC Exceedance Frequency	Refined Risk Conclusion	Comments
2,4-Dinitrophenol	energetic	0%	28	0	24	1	3	0	0	0%	None	
2,6-Dinitrotoluene	energetic	0%	48	0	45	3	0	0	0	0%	None	
2-Nitrophenol	energetic	0%	28	0	24	4	0	0	0	0%	None	
4-Nitrophenol	energetic	0%	28	0	24	1	3	0	0	0%	None	
Nitrobenzene	energetic	0%	48	0	45	3	0	0	0	0%	None	
Antimony	inorganic	79%	28	0	8	6	0	11	3	11%	Possible	
Cadmium	inorganic	44%	48	0	47	0	0	1	0	0%	None	
Copper	inorganic	85%	48	0	7	4	0	33	4	8%	Possible	
Lead	inorganic	83%	48	0	43	0	1	1	3	6%	None	
Molybdenum	inorganic	91%	22	0	2	0	0	18	2	9%	Possible	
Perchlorate	inorganic	50%	22	0	22	0	0	0	0	0%	None	
Selenium	inorganic	0%	48	0	1	16	31	0	0	0%	Uncertain	Prob risk by ND
Silver	inorganic	8%	48	0	21	25	0	1	1	2%	Uncertain	Poss risk by ND
Zinc	inorganic	100%	48	0	0	0	0	16	32	**67%**	Probable	
2-Methylnaphthalene	PAH	14%	28	0	24	0	0	0	4	14%	None	
Acenaphthylene	PAH	0%	28	0	24	0	4	0	0	0%	None	
Anthracene	PAH	7%	28	0	24	0	2	0	2	7%	None	
Benzo(a)anthracene	PAH	0%	28	0	24	0	4	0	0	0%	None	
Benzo(a)pyrene	PAH	0%	28	0	24	0	4	0	0	0%	None	
Benzo(b)fluoranthene	PAH	0%	28	0	24	0	4	0	0	0%	None	
Benzo(g,h,i)perylene	PAH	0%	28	0	24	0	4	0	0	0%	None	
Benzo(k)fluoranthene	PAH	0%	28	0	24	0	4	0	0	0%	None	
Chrysene	PAH	0%	28	0	24	0	4	0	0	0%	None	
Dibenzo(a,h)anthracene	PAH	0%	28	0	24	0	4	0	0	0%	None	
Fluoranthene	PAH	4%	28	0	24	0	4	0	0	0%	None	
Fluorene	PAH	14%	28	0	24	0	0	1	3	11%	None	
Indeno(1,2,3-c,d)pyrene	PAH	0%	28	0	24	0	4	0	0	0%	None	
Naphthalene	PAH	25%	28	0	23	0	0	1	4	14%	None	
Phenanthrene	PAH	18%	28	0	24	0	0	0	4	14%	None	
Pyrene	PAH	0%	28	0	24	0	4	0	0	0%	None	
TPH	petroleum	100%	6	0	3	0	0	0	3	**50%**	Probable	
2,4,5-Trichlorophenol	SVOC	0%	28	0	24	1	3	0	0	0%	None	
2,4,6-Trichlorophenol	SVOC	0%	28	0	24	4	0	0	0	0%	None	
2,4-Dichlorophenol	SVOC	0%	28	0	24	4	0	0	0	0%	None	
4-Chloroaniline	SVOC	0%	28	0	24	4	0	0	0	0%	None	
Butyl benzylphthalate	SVOC	0%	28	0	25	3	0	0	0	0%	None	
Diethylphthalate	SVOC	0%	28	0	25	3	0	0	0	0%	None	
Dimethylphthalate	SVOC	0%	28	0	25	3	0	0	0	0%	None	

Table 22

Summary of the Refined Screening Evaluation for Plants

Attachment 10A - Thermal Treatment Unit, Ecological Risk Assessment

Analyte	Class	Detection Frequency	n	Uncertain	No Risk	ND - Exceedances		Detected - Exceedances		LOEC Exceedance Frequency	Refined Risk Conclusion	Comments
						Possible	Probable	Possible	Probable			
Di-n-octylphthalate	SVOC	0%	28	0	25	3	0	0	0	0%	None	
Hexachlorobenzene	SVOC	0%	28	0	24	1	3	0	0	0%	None	
Hexachlorocyclopentadiene	SVOC	0%	28	0	24	1	3	0	0	0%	None	
Pentachlorophenol	SVOC	0%	28	0	24	4	0	0	0	0%	None	
2-Chlorophenol	VOC	0%	28	0	24	1	3	0	0	0%	None	
Phenol	VOC	0%	28	0	25	3	0	0	0	0%	None	

Notes:

Uncertainties are not shown in this table

ND - not detected

NOEC - no observed effect concentration

LOEC - lowest observed effect concentration

Uncertain - retained as an uncertainty

None - exposure concentration does not exceed the either toxicity value

Possible - Exposure exceeds the NOEC value but not the LOEC value

Probable - Exposure exceeds the LOEC value

Table 23

Summary of the Refined Screening Evaluation for Plants within Ecological Habitat

Attachment 10A - Thermal Treatment Unit, Ecological Risk Assessment

Analyte	Class	Detection Frequency	n	Uncertain	No Risk	ND - Exceedances		Detected - Exceedances		LOEC Exceedance Frequency	Refined Risk Conclusion	Comments
						Possible	Probable	Possible	Probable			
2,4-Dinitrophenol	energetic	0%	16	0	16	0	0	0	0	0%	None	
2,6-Dinitrotoluene	energetic	0%	21	0	21	0	0	0	0	0%	None	
2-Nitrophenol	energetic	0%	16	0	16	0	0	0	0	0%	None	
4-Nitrophenol	energetic	0%	16	0	16	0	0	0	0	0%	None	
Nitrobenzene	energetic	0%	21	0	21	0	0	0	0	0%	None	
Antimony	inorganic	88%	16	0	5	2	0	9	0	0%	Possible	
Cadmium	inorganic	62%	21	0	21	0	0	0	0	0%	None	
Copper	inorganic	95%	21	0	3	0	0	18	0	0%	Possible	
Lead	inorganic	95%	21	0	21	0	0	0	0	0%	None	
Molybdenum	inorganic	87%	15	0	2	0	0	13	0	0%	Possible	
Perchlorate	inorganic	33%	15	0	15	0	0	0	0	0%	None	
Selenium	inorganic	0%	21	0	0	7	14	0	0	0%	Uncertain	Prob risk by ND
Silver	inorganic	5%	21	0	15	6	0	0	0	0%	None	Poss risk by ND
Zinc	inorganic	100%	21	0	0	0	0	9	12	**57%**	Probable	
2-Methylnaphthalene	PAH	0%	16	0	16	0	0	0	0	0%	None	
Acenaphthylene	PAH	0%	16	0	16	0	0	0	0	0%	None	
Anthracene	PAH	0%	16	0	16	0	0	0	0	0%	None	
Benzo(a)anthracene	PAH	0%	16	0	16	0	0	0	0	0%	None	
Benzo(a)pyrene	PAH	0%	16	0	16	0	0	0	0	0%	None	
Benzo(b)fluoranthene	PAH	0%	16	0	16	0	0	0	0	0%	None	
Benzo(g,h,i)perylene	PAH	0%	16	0	16	0	0	0	0	0%	None	
Benzo(k)fluoranthene	PAH	0%	16	0	16	0	0	0	0	0%	None	
Chrysene	PAH	0%	16	0	16	0	0	0	0	0%	None	
Dibenzo(a,h)anthracene	PAH	0%	16	0	16	0	0	0	0	0%	None	
Fluoranthene	PAH	6%	16	0	16	0	0	0	0	0%	None	
Fluorene	PAH	0%	16	0	16	0	0	0	0	0%	None	
Indeno(1,2,3-c,d)pyrene	PAH	0%	16	0	16	0	0	0	0	0%	None	
Naphthalene	PAH	0%	16	0	16	0	0	0	0	0%	None	
Phenanthrene	PAH	0%	16	0	16	0	0	0	0	0%	None	
Pyrene	PAH	0%	16	0	16	0	0	0	0	0%	None	
TPH	petroleum	100%	1	0	1	0	0	0	0	0%	None	
2,4,5-Trichlorophenol	SVOC	0%	16	0	16	0	0	0	0	0%	None	
2,4,6-Trichlorophenol	SVOC	0%	16	0	16	0	0	0	0	0%	None	
2,4-Dichlorophenol	SVOC	0%	16	0	16	0	0	0	0	0%	None	
4-Chloroaniline	SVOC	0%	16	0	16	0	0	0	0	0%	None	
Butyl benzylphthalate	SVOC	0%	16	0	16	0	0	0	0	0%	None	
Diethylphthalate	SVOC	0%	16	0	16	0	0	0	0	0%	None	
Dimethylphthalate	SVOC	0%	16	0	16	0	0	0	0	0%	None	
Di-n-octylphthalate	SVOC	0%	16	0	16	0	0	0	0	0%	None	

Table 23

Summary of the Refined Screening Evaluation for Plants within Ecological Habitat

Attachment 10A - Thermal Treatment Unit, Ecological Risk Assessment

Analyte	Class	Detection Frequency	n	Uncertain	No Risk	ND - Exceedances		Detected - Exceedances		LOEC Exceedance Frequency	Refined Risk Conclusion	Comments
						Possible	Probable	Possible	Probable			
Hexachlorobenzene	SVOC	0%	16	0	16	0	0	0	0	0%	None	
Hexachlorocyclopentadiene	SVOC	0%	16	0	16	0	0	0	0	0%	None	
Pentachlorophenol	SVOC	0%	16	0	16	0	0	0	0	0%	None	
2-Chlorophenol	VOC	0%	16	0	16	0	0	0	0	0%	None	
Phenol	VOC	0%	16	0	16	0	0	0	0	0%	None	

Notes:

Uncertainties are not shown in this table

ND - not detected

NOEC - no observed effect concentration

LOEC - lowest observed effect concentration

Uncertain - retained as an uncertainty

None - exposure concentration does not exceed the either toxicity value

Possible - Exposure exceeds the NOEC value but not the LOEC value

Probable - Exposure exceeds the LOEC value

Table 24

Summary of the Refined Screening Evaluation for Soil Invertebrates

Attachment 10A - Thermal Treatment Unit, Ecological Risk Assessment

Aanalyte	Class	Detection Frequency	n	Uncertain	None	ND - Exceedances		Detected - Exceedances		LOEC Exceedance Frequency	Refined Risk Conclusion	Comments
						Possible	Probable	Possible	Probable			
2,4-Dinitrophenol	energetic	0%	28	0	22	2	4	0	0	0%	None	
2,4-Dinitrotoluene	energetic	2%	48	0	48	0	0	0	0	0%	None	
2-Nitrophenol	energetic	0%	28	0	24	1	3	0	0	0%	None	
4-Nitrophenol	energetic	0%	28	0	22	2	4	0	0	0%	None	
HMX	energetic	31%	42	0	35	0	0	6	1	2%	None	
Nitrobenzene	energetic	0%	48	0	45	3	0	0	0	0%	None	
Antimony	inorganic	79%	28	0	27	0	0	1	0	0%	None	
Cadmium	inorganic	44%	48	0	48	0	0	0	0	0%	None	
Copper	inorganic	85%	48	0	1	6	0	32	9	19%	Possible	
Lead	inorganic	83%	48	0	47	0	0	0	1	2%	None	
Perchlorate	inorganic	50%	22	0	21	0	0	1	0	0%	None	
Zinc	inorganic	100%	48	0	0	0	0	44	4	8%	Possible	
2-Methylnaphthalene	PAH	14%	28	0	24	0	0	1	3	11%	None	
Acenaphthylene	PAH	0%	28	0	24	4	0	0	0	0%	None	
Anthracene	PAH	7%	28	0	24	1	1	2	0	0%	None	
Fluoranthene	PAH	4%	28	0	25	0	3	0	0	0%	None	
Fluorene	PAH	14%	28	0	24	0	0	1	3	11%	None	
Naphthalene	PAH	25%	28	0	24	0	0	1	3	11%	None	
Phenanthrene	PAH	18%	28	0	24	0	0	0	4	14%	None	
Pyrene	PAH	0%	28	0	24	0	4	0	0	0%	None	
TPH	petroleum	100%	6	0	2	0	0	0	4	**67%**	Probable	
2,4,5-Trichlorophenol	SVOC	0%	28	0	23	1	4	0	0	0%	None	
2,4,6-Trichlorophenol	SVOC	0%	28	0	24	1	3	0	0	0%	None	
2,4-Dichlorophenol	SVOC	0%	28	0	24	1	3	0	0	0%	None	
4-Chloroaniline	SVOC	0%	28	0	24	4	0	0	0	0%	None	
bis(2-Ethylhexyl)phthalate	SVOC	18%	28	28	0	0	0	0	0	0%	None	
Dibenzofuran	SVOC	14%	28	0	25	0	0	0	3	11%	None	
n-Nitroso-di-n-propylamine	SVOC	0%	28	0	24	4	0	0	0	0%	None	
n-Nitrosodiphenylamine	SVOC	0%	28	0	24	4	0	0	0	0%	None	
Pentachlorophenol	SVOC	0%	28	0	25	3	0	0	0	0%	None	
2-Chlorophenol	VOC	0%	28	0	24	1	3	0	0	0%	None	
Phenol	VOC	0%	28	0	24	4	0	0	0	0%	None	

Notes:

ND - not detected

NOEC - no observed effect concentration

LOEC - lowest observed effect concentration

Uncertain - retained as an uncertainty

None - exposure concentration does not exceed the either toxicity value

Possible - Exposure exceeds the NOEC value but not the LOEC value

Probable - Exposure exceeds the LOEC value

Table 25

Summary of the Refined Screening Evaluation for Soil Invertebrates within Ecological Habitat

Attachment 10A - Thermal Treatment Unit, Ecological Risk Assessment

Aanalyte	Class	Detection Frequency	n	Uncertain	None	ND - Exceedances		Detected - Exceedances		LOEC Exceedance Frequency	Risk Conclusion	Comments
						Possible	Probable	Possible	Probable			
2,4-Dinitrophenol	energetic	0%	16	0	15	1	0	0	0	0%	None	
2,4-Dinitrotoluene	energetic	0%	21	0	21	0	0	0	0	0%	None	
2-Nitrophenol	energetic	0%	16	0	16	0	0	0	0	0%	None	
4-Nitrophenol	energetic	0%	16	0	15	1	0	0	0	0%	None	
HMX	energetic	20%	20	0	18	0	0	2	0	0%	None	
Nitrobenzene	energetic	0%	21	0	21	0	0	0	0	0%	None	
Antimony	inorganic	88%	16	0	16	0	0	0	0	0%	None	
Cadmium	inorganic	62%	21	0	21	0	0	0	0	0%	None	
Copper	inorganic	95%	21	0	0	1	0	19	1	5%	Possible	
Lead	inorganic	95%	21	0	21	0	0	0	0	0%	None	
Perchlorate	inorganic	33%	15	0	15	0	0	0	0	0%	None	
Zinc	inorganic	100%	21	0	0	0	0	21	0	0%	Possible	
2-Methylnaphthalene	PAH	0%	16	0	16	0	0	0	0	0%	None	
Acenaphthylene	PAH	0%	16	0	16	0	0	0	0	0%	None	
Anthracene	PAH	0%	16	0	16	0	0	0	0	0%	None	
Fluoranthene	PAH	6%	16	0	16	0	0	0	0	0%	None	
Fluorene	PAH	0%	16	0	16	0	0	0	0	0%	None	
Naphthalene	PAH	0%	16	0	16	0	0	0	0	0%	None	
Phenanthrene	PAH	0%	16	0	16	0	0	0	0	0%	None	
Pyrene	PAH	0%	16	0	16	0	0	0	0	0%	None	
TPH	petroleum	100%	1	0	1	0	0	0	0	0%	None	
2,4,5-Trichlorophenol	SVOC	0%	16	0	15	1	0	0	0	0%	None	
2,4,6-Trichlorophenol	SVOC	0%	16	0	16	0	0	0	0	0%	None	
2,4-Dichlorophenol	SVOC	0%	16	0	16	0	0	0	0	0%	None	
4-Chloroaniline	SVOC	0%	16	0	16	0	0	0	0	0%	None	
bis(2-Ethylhexyl)phthalate	SVOC	0%	16	16	0	0	0	0	0	0%	None	
Dibenzofuran	SVOC	0%	16	0	16	0	0	0	0	0%	None	
n-Nitroso-di-n-propylamine	SVOC	0%	16	0	16	0	0	0	0	0%	None	
n-Nitrosodiphenylamine	SVOC	0%	16	0	16	0	0	0	0	0%	None	
Pentachlorophenol	SVOC	0%	16	0	16	0	0	0	0	0%	None	
2-Chlorophenol	VOC	0%	16	0	16	0	0	0	0	0%	None	
Phenol	VOC	0%	16	0	16	0	0	0	0	0%	None	

Notes:

ND - not detected

NOEC - no observed effect concentration

LOEC - lowest observed effect concentration

Uncertain - retained as an uncertainty

None - exposure concentration does not exceed the either toxicity value

Possible - Exposure exceeds the NOEC value but not the LOEC value

Probable - Exposure exceeds the LOEC value

Table 26

Refined Risk Estimation for Wildlife Exposed to Site Soils

Attachment 10A - Thermal Treatment Unit, Ecological Risk Assessment

						Small Mammals and Other Vertebrates				Soil Invertebrates				Terrestrial Plants														
Receptor	Chemical	Body Weight (kg)	Daily Food Intake (kg/kg-bw/day)	Area Use Factor	Daily Food Ingestion from Site (kg/kg-bw/day)	Percent of Diet	Soil to Tissue Transfer Factor	Tissue Concentration (mg/kg DW)	Total Vertebrate Food Intake (mg/kg-bw/d)a	Percent of Diet	Soil to Tissue Transfer Factor	Tissue Concentration (mg/kg DW)	Total Invertebrate Food Intake (mg/kg-bw/d)b	Percent of Diet	Soil to Tissue Transfer Factor	Tissue Concentration (mg/kg DW)	Total Plant Food Intake (mg/kg-bw/d)c	Total Food Intake (mg/kg-bw/d)d	Refined Soil EPC (mg/kg)	Percent of Diet as Soil	Incidental Soil Intake (mg/kg-bw/d)e	Total Chemical Intake (mg/kg-day)f	NOAEL TRV (mg/kg-bw/d)	LOAEL TRV (mg/kg-bw/d)	NOAEL Hazard Quotient	LOAEL Hazard Quotient	Detection Frequency (%)	Risk Conclusions
Ord's Kangaroo Rat	1,3-Dinitrobenzene	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	15	1.20	0.133	0.133	0.0800	2.00	0.000178	0.134	0.04	0.2	**3.3**	0.67	0%	Uncertain
Ord's Kangaroo Rat	2,4-Dinitrotoluene	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	0.376	0.752	0.0835	0.0835	2.00	2.00	0.00444	0.0880	2	8	0.044	0.011	2%	None
Ord's Kangaroo Rat	2,6-Dinitrotoluene	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	3.14	33	3.66	3.66	10.5	2.00	0.0233	3.68	2	8	**1.8**	0.46	0%	Uncertain
Ord's Kangaroo Rat	HMX	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	Regression Based	48.3	5.37	5.37	8.12	2.00	0.0180	5.38	1	5	**5.4**	***1.1***	31%	**Probable**
Ord's Kangaroo Rat	RDX	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	Regression Based	37.6	4.18	4.18	1.50	2.00	0.00333	4.18	2	20	**2.1**	0.21	0%	Uncertain
Ord's Kangaroo Rat	*HI - Energetics*																								**5.4**	**1.1**	(dets)	**Probable**
Ord's Kangaroo Rat	Antimony	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	0.0102	0.684	0.0759	0.0759	67	2.00	0.149	0.225	0.059	0.64	**3.8**	0.35	79%	Possible
Ord's Kangaroo Rat	Cadmium	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	Regression Based	1.91	0.212	0.212	7.80	2.00	0.0173	0.229	0.77	1.42	0.30	0.16	44%	None
Ord's Kangaroo Rat	Copper	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	Regression Based	52	5.78	5.78	4150	2.00	9.23	15	11.7	15.14	**1.3**	0.99	85%	Possible
Ord's Kangaroo Rat	Lead	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	Regression Based	49.1	5.45	5.45	11000	2.00	24.5	29.9	0.92	4.7	**33**	***6.4***	83%	**Probable**
Ord's Kangaroo Rat	Molybdenum	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	0.400	1.97	0.219	0.219	4.93	2.00	0.0110	0.230	0.26	2.6	0.88	0.088	91%	None
Ord's Kangaroo Rat	Nitrate	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	1.00	12.8	1.42	1.42	12.8	2.00	0.0284	1.45	507	1130	<0.01	<0.01	92%	None
Ord's Kangaroo Rat	Perchlorate	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	282	769	85.4	85.4	2.73	2.00	0.00606	85.4	2.59	25.9	**33**	***3.3***	50%	**Probable**
Ord's Kangaroo Rat	Selenium	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	Regression Based	3.00	0.333	0.333	5.00	2.00	0.0111	0.344	0.2	0.33	**1.7**	***1.0***	0%	Uncertain
Ord's Kangaroo Rat	Silver	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	0.0140	0.0142	0.00157	0.00157	1.01	2.00	0.00225	0.00382	2.38	23.8	<0.01	<0.01	8%	None
Ord's Kangaroo Rat	Zinc	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	Regression Based	122	13.6	13.6	337	2.00	0.749	14.3	160	320	0.090	0.045	100%	None
Ord's Kangaroo Rat	*HI - Inorganics*																								**72**	**11**	(dets)	**Probable**
Ord's Kangaroo Rat	2-Methylnaphthalene	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	1.87	181	20.1	20.1	97	2.00	0.215	20.4	5.03	50.3	**4.0**	0.40	14%	Possible
Ord's Kangaroo Rat	Anthracene	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	Regression Based	7.44	0.826	0.826	3.70	2.00	0.00822	0.835	1000	NSV	<0.01	--	7%	None
Ord's Kangaroo Rat	Benzo(a)pyrene	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	Regression Based	10.5	1.17	1.17	10.5	2.00	0.0233	1.19	1	10	**1.2**	0.12	0%	Uncertain
Ord's Kangaroo Rat	Benzo(g,h,i)perylene	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	Regression Based	41	4.55	4.55	10.5	2.00	0.0233	4.57	1	10	**4.6**	0.46	0%	Uncertain
Ord's Kangaroo Rat	Benzo(k)fluoranthene	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	Regression Based	8.84	0.981	0.981	10.5	2.00	0.0233	1.00	1	10	**1.0**	0.10	0%	Uncertain
Ord's Kangaroo Rat	Fluoranthene	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	0.500	0.0720	0.00800	0.00800	0.144	2.00	0.000320	0.00832	125	250	<0.01	<0.01	4%	None
Ord's Kangaroo Rat	Fluorene	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	Regression Based	3160	351	351	18.5	2.00	0.0410	351	125	250	**2.8**	***1.4***	14%	**Probable**
Ord's Kangaroo Rat	Naphthalene	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	12.2	121	13.5	13.5	9.95	2.00	0.0221	13.5	50	150	0.27	0.090	25%	None
Ord's Kangaroo Rat	Phenanthrene	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	Regression Based	13.2	1.47	1.47	49.1	2.00	0.109	1.58	175	350	<0.01	<0.01	18%	None
Ord's Kangaroo Rat	*HI - PAHs*																								**7.1**	**1.9**	(dets)	**Probable**
Ord's Kangaroo Rat	1,1,1,2-Tetrachloroethane	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	3.56	0.00169	0.000188	0.000188	0.000475	2.00	0.00000105	0.000189	1.4	7	<0.01	<0.01	5%	None
Ord's Kangaroo Rat	1,1,1-Trichloroethane	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	0.279	0.000172	0.0000191	0.0000191	0.000616	2.00	0.00000137	0.0000205	1000	NSV	<0.01	--	5%	None
Ord's Kangaroo Rat	1,1,2,2-Tetrachloroethane	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	0.354	0.000245	0.0000272	0.0000272	0.000692	2.00	0.00000154	0.0000288	1.4	7	<0.01	<0.01	5%	None
Ord's Kangaroo Rat	1,1,2-Trichloroethane	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	0.298	0.000178	0.0000197	0.0000197	0.000597	2.00	0.00000133	0.0000211	1000	NSV	<0.01	--	5%	None
Ord's Kangaroo Rat	1,1-Dichloroethane	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	1.28	0.000616	0.0000684	0.0000684	0.000479	2.00	0.00000106	0.0000694	50	NSV	<0.01	--	5%	None
Ord's Kangaroo Rat	1,1-Dichloroethene	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	8.26	0.00741	0.000823	0.000823	0.000897	2.00	0.00000199	0.000825	2.5	NSV	<0.01	--	5%	None
Ord's Kangaroo Rat	1,2,3-Trichloropropane	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	5.84	0.00373	0.000414	0.000414	0.000638	2.00	0.00000142	0.000416	1000	NSV	<0.01	--	5%	None
Ord's Kangaroo Rat	1,2-Dichloroethane	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	2.50	0.00146	0.000163	0.000163	0.000585	2.00	0.00000130	0.000164	50	NSV	<0.01	--	5%	None
Ord's Kangaroo Rat	1,2-Dichloropropane	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	0.818	0.000421	0.0000467	0.0000467	0.000515	2.00	0.00000114	0.0000479	50	NSV	<0.01	--	5%	None
Ord's Kangaroo Rat	2-Butanone	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	46.1	0.349	0.0388	0.0388	0.00758	2.00	0.0000168	0.0388	10	50	<0.01	<0.01	18%	None
Ord's Kangaroo Rat	2-Hexanone	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	16.6	0.0468	0.00519	0.00519	0.00281	2.00	0.00000624	0.00520	10	50	<0.01	<0.01	5%	None
Ord's Kangaroo Rat	4-Methyl-2-pentanone	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	19.9	0.0647	0.00719	0.00719	0.00326	2.00	0.00000724	0.00720	25	NSV	<0.01	--	5%	None
Ord's Kangaroo Rat	Acetone	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	75.6	868	96.4	96.4	11.5	2.00	0.0255	96.4	10	50	**9.6**	***1.9***	32%	**Probable**
Ord's Kangaroo Rat	Benzene	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	8.26	0.0128	0.00142	0.00142	0.00154	2.00	0.00000343	0.00142	0.7	7	<0.01	<0.01	14%	None
Ord's Kangaroo Rat	Bromoform	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	0.346	0.000150	0.0000166	0.0000166	0.000432	2.00	0.000000959	0.0000176	15	41	<0.01	<0.01	5%	None
Ord's Kangaroo Rat	Bromomethane	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	19.9	0.0182	0.00202	0.00202	0.000917	2.00	0.00000204	0.00203	15	41	<0.01	<0.01	5%	None
Ord's Kangaroo Rat	Carbon tetrachloride	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	4.29	0.00261	0.000290	0.000290	0.000607	2.00	0.00000135	0.000291	16	NSV	<0.01	--	5%	None
Ord's Kangaroo Rat	Chlorobenzene	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	0.134	0.0000752	0.00000835	0.00000835	0.000560	2.00	0.00000124	0.00000959	15	41	<0.01	<0.01	5%	None
Ord's Kangaroo Rat	Chloroethane	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	2.79	0.00209	0.000232	0.000232	0.000748	2.00	0.00000166	0.000233	15	41	<0.01	<0.01	5%	None
Ord's Kangaroo Rat	Chloroform	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	0.873	0.000399	0.0000443	0.0000443	0.000457	2.00	0.00000101	0.0000453	15	41	<0.01	<0.01	5%	None
Ord's Kangaroo Rat	Chloromethane	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	7.83	0.00578	0.000642	0.000642	0.000738	2.00	0.00000164	0.000643	15	41	<0.01	<0.01	5%	None
Ord's Kangaroo Rat	cis-1,2-Dichloroethene	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	10.6	0.00528	0.000586	0.000586	0.000497	2.00	0.00000110	0.000587	45.2	NSV	<0.01	--	5%	None
Ord's Kangaroo Rat	cis-1,3-Dichloropropene	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	7.11	0.00380	0.000422	0.000422	0.000535	2.00	0.00000119	0.000424	45.2	NSV	<0.01	--	5%	None
Ord's Kangaroo Rat	Ethylbenzene	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	0.0690	0.0000389	0.00000431	0.00000431	0.000563	2.00	0.00000125	0.00000556	97	291	<0.01	<0.01	5%	None
Ord's Kangaroo Rat	m,p-Xylene	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	3.04	0.00293	0.000326	0.000326	0.000965	2.00	0.00000214	0.000328	179	357	<0.01	<0.01	5%	None
Ord's Kangaroo Rat	Methylene chloride	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	4.10	0.00601	0.000667	0.000667	0.00146	2.00	0.00000325	0.000670	5.85	50	<0.01	<0.01	5%	None
Ord's Kangaroo Rat	o-Xylene	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	3.34	0.00393	0.000436	0.000436	0.00118	2.00	0.00000261	0.000439	179	357	<0.01	<0.01	14%	None
Ord's Kangaroo Rat	Tetrachloroethene	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	2.52	0.00165	0.000184	0.000184	0.000656	2.00	0.00000146	0.000185	1.4	7	<0.01	<0.01	5%	None
Ord's Kangaroo Rat	Toluene	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	4.71	0.0670	0.00744	0.00744	0.0142	2.00	0.0000316	0.00747	52	520	<0.01	<0.01	23%	None
Ord's Kangaroo Rat	Trans-1,2-Dichloroethene	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	2.50	0.00138	0.000154	0.000154	0.000552	2.00	0.00000123	0.000155	45.2	NSV	<0.01	--	5%	None
Ord's Kangaroo Rat	Trans-1,3-Dichloropropene	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	0.818	0.000424	0.0000471	0.0000471	0.000519	2.00	0.00000115	0.0000483	45.2	NSV	<0.01	--	5%	None
Ord's Kangaroo Rat	Trichloroethylene (TCE)	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	0.331	0.000169	0.0000187	0.0000187	0.000509	2.00	0.00000113	0.0000199	0.7	7	<0.01	<0.01	5%	None
Ord's Kangaroo Rat	Vinyl chloride	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	3.10	0.00229	0.000254	0.000254	0.000738	2.00	0.00000164	0.000256	0.17	1.7	<0.01	<0.01	5%	None
Ord's Kangaroo Rat	*HI - VOCs*																								**9.6**	**1.9**	(dets)	**Probable**
Townsend's Ground Squirrel	1,3-Dinitrobenzene	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	15	1.20	0.0600	0.0600	0.0800	2.00	0.0000799	0.0601	0.04	0.2	**1.5**	0.30	0%	Uncertain
Townsend's Ground Squirrel	2,4-Dinitrotoluene	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	0.376	0.752	0.0376	0.0376	2.00	2.00	0.00200	0.0396	2	8	0.020	<0.01	2%	None
Townsend's Ground Squirrel	2,6-Dinitrotoluene	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	3.14	33	1.65	1.65	10.5	2.00	0.0105	1.66	2	8	0.83	0.21	0%	None
Townsend's Ground Squirrel	HMX	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	Regression Based	48.3	2.41	2.41	8.12	2.00	0.00811	2.42	1	5	**2.4**	0.48	31%	Possible
Townsend's Ground Squirrel	*HI - Energetics*																								**2.4**	0.49	(dets)	Possible
Townsend's Ground Squirrel	Antimony	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	0.0102	0.684	0.0341	0.0341	67	2.00	0.0670	0.101	0.059	0.64	**1.7**	0.16	79%	Possible
Townsend's Ground Squirrel	Cadmium	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	Regression Based	1.91	0.0952	0.0952	7.80	2.00	0.00779	0.103	0.77	1.42	0.13	0.073	44%	None
Townsend's Ground Squirrel	Copper	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	Regression Based	52	2.60	2.60	4150	2.00	4.15	6.75	11.7	15.14	0.58	0.45	85%	None
Townsend's Ground Squirrel	Lead	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	Regression Based	49.1	2.45	2.45	11000	2.00	11	13.4	0.92	4.7	**15**	***2.9***	83%	**Probable**
Townsend's Ground Squirrel	Molybdenum	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	0.400	1.97	0.0986	0.0986	4.93	2.00	0.00493	0.104	0.26	2.6	0.40	0.040	91%	None
Townsend's Ground Squirrel	Nitrate	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	1.00	12.8	0.638	0.638	12.8	2.00	0.0128	0.651	507	1130	<0.01	<0.01	92%	None
Townsend's Ground Squirrel	Perchlorate	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	282	769	38.4	38.4	2.73	2.00	0.00272	38.4	2.59	25.9	**15**	***1.5***	50%	**Probable**
Townsend's Ground Squirrel	Silver	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	0.0140	0.0142	0.000708	0.000708	1.01	2.00	0.00101	0.00172	2.38	23.8	<0.01	<0.01	8%	None
Townsend's Ground Squirrel	Zinc	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	Regression Based	122	6.10	6.10	337	2.00	0.337	6.44	160	320	0.040	0.020	100%	None
Townsend's Ground Squirrel	*HI - Inorganics*																								**32**	**5.1**	(dets)	**Probable**
Townsend's Ground Squirrel	2-Methylnaphthalene	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	1.87	181	9.06	9.06	97	2.00	0.0969	9.15	5.03	50.3	**1.8**	0.18	14%	Possible

Table 26

Refined Risk Estimation for Wildlife Exposed to Site Soils

Attachment 10A - Thermal Treatment Unit, Ecological Risk Assessment

						Small Mammals and Other Vertebrates				Soil Invertebrates				Terrestrial Plants														
Receptor	Chemical	Body Weight (kg)	Daily Food Intake (kg/kg-bw/day)	Area Use Factor	Daily Food Ingestion from Site (kg/kg-bw/day)	Percent of Diet	Soil to Tissue Transfer Factor	Tissue Concentration (mg/kg DW)	Total Vertebrate Food Intake (mg/kg-bw/d)a	Percent of Diet	Soil to Tissue Transfer Factor	Tissue Concentration (mg/kg DW)	Total Invertebrate Food Intake (mg/kg-bw/d)b	Percent of Diet	Soil to Tissue Transfer Factor	Tissue Concentration (mg/kg DW)	Total Plant Food Intake (mg/kg-bw/d)c	Total Food Intake (mg/kg-bw/d)d	Refined Soil EPC (mg/kg)	Percent of Diet as Soil	Incidental Soil Intake (mg/kg-bw/d)e	Total Chemical Intake (mg/kg-day)f	NOAEL TRV (mg/kg-bw/d)	LOAEL TRV (mg/kg-bw/d)	NOAEL Hazard Quotient	LOAEL Hazard Quotient	Detection Frequency (%)	Risk Conclusions
Townsend's Ground Squirrel	Anthracene	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	Regression Based	7.44	0.372	0.372	3.70	2.00	0.00370	0.375	1000	NSV	<0.01	--	7%	None
Townsend's Ground Squirrel	Benzo(g,h,i)perylene	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	Regression Based	41	2.05	2.05	10.5	2.00	0.0105	2.06	1	10	**2.1**	0.21	0%	Uncertain
Townsend's Ground Squirrel	Fluoranthene	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	0.500	0.0720	0.00360	0.00360	0.144	2.00	0.000144	0.00374	125	250	<0.01	<0.01	4%	None
Townsend's Ground Squirrel	Fluorene	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	Regression Based	3160	158	158	18.5	2.00	0.0185	158	125	250	**1.3**	0.63	14%	Possible
Townsend's Ground Squirrel	Naphthalene	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	12.2	121	6.06	6.06	9.95	2.00	0.00994	6.07	50	150	0.12	0.040	25%	None
Townsend's Ground Squirrel	Phenanthrene	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	Regression Based	13.2	0.660	0.660	49.1	2.00	0.0490	0.709	175	350	<0.01	<0.01	18%	None
Townsend's Ground Squirrel	*HI - PAHs*																								**3.2**	0.86	(dets)	Possible
Townsend's Ground Squirrel	1,1,1,2-Tetrachloroethane	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	3.56	0.00169	0.0000845	0.0000845	0.000475	2.00	0.000000474	0.0000849	1.4	7	<0.01	<0.01	5%	None
Townsend's Ground Squirrel	1,1,1-Trichloroethane	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	0.279	0.000172	0.00000859	0.00000859	0.000616	2.00	0.000000615	0.00000920	1000	NSV	<0.01	--	5%	None
Townsend's Ground Squirrel	1,1,2,2-Tetrachloroethane	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	0.354	0.000245	0.0000122	0.0000122	0.000692	2.00	0.000000692	0.0000129	1.4	7	<0.01	<0.01	5%	None
Townsend's Ground Squirrel	1,1,2-Trichloroethane	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	0.298	0.000178	0.00000888	0.00000888	0.000597	2.00	0.000000597	0.00000948	1000	NSV	<0.01	--	5%	None
Townsend's Ground Squirrel	1,1-Dichloroethane	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	1.28	0.000616	0.0000308	0.0000308	0.000479	2.00	0.000000479	0.0000312	50	NSV	<0.01	--	5%	None
Townsend's Ground Squirrel	1,1-Dichloroethene	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	8.26	0.00741	0.000370	0.000370	0.000897	2.00	0.000000896	0.000371	2.5	NSV	<0.01	--	5%	None
Townsend's Ground Squirrel	1,2,3-Trichloropropane	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	5.84	0.00373	0.000186	0.000186	0.000638	2.00	0.000000638	0.000187	1000	NSV	<0.01	--	5%	None
Townsend's Ground Squirrel	1,2-Dichloroethane	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	2.50	0.00146	0.0000731	0.0000731	0.000585	2.00	0.000000584	0.0000737	50	NSV	<0.01	--	5%	None
Townsend's Ground Squirrel	1,2-Dichloropropane	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	0.818	0.000421	0.0000210	0.0000210	0.000515	2.00	0.000000514	0.0000215	50	NSV	<0.01	--	5%	None
Townsend's Ground Squirrel	2-Butanone	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	46.1	0.349	0.0174	0.0174	0.00758	2.00	0.00000757	0.0174	10	50	<0.01	<0.01	18%	None
Townsend's Ground Squirrel	2-Hexanone	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	16.6	0.0468	0.00234	0.00234	0.00281	2.00	0.00000281	0.00234	10	50	<0.01	<0.01	5%	None
Townsend's Ground Squirrel	4-Methyl-2-pentanone	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	19.9	0.0647	0.00323	0.00323	0.00326	2.00	0.00000325	0.00324	25	NSV	<0.01	--	5%	None
Townsend's Ground Squirrel	Acetone	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	75.6	868	43.4	43.4	11.5	2.00	0.0115	43.4	10	50	**4.3**	0.87	32%	Possible
Townsend's Ground Squirrel	Benzene	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	8.26	0.0128	0.000637	0.000637	0.00154	2.00	0.00000154	0.000639	0.7	7	<0.01	<0.01	14%	None
Townsend's Ground Squirrel	Bromoform	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	0.346	0.000150	0.00000747	0.00000747	0.000432	2.00	0.000000432	0.00000790	15	41	<0.01	<0.01	5%	None
Townsend's Ground Squirrel	Bromomethane	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	19.9	0.0182	0.000910	0.000910	0.000917	2.00	0.000000916	0.000911	15	41	<0.01	<0.01	5%	None
Townsend's Ground Squirrel	Carbon tetrachloride	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	4.29	0.00261	0.000130	0.000130	0.000607	2.00	0.000000607	0.000131	16	NSV	<0.01	--	5%	None
Townsend's Ground Squirrel	Chlorobenzene	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	0.134	0.0000752	0.00000376	0.00000376	0.000560	2.00	0.000000559	0.00000431	15	41	<0.01	<0.01	5%	None
Townsend's Ground Squirrel	Chloroethane	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	2.79	0.00209	0.000104	0.000104	0.000748	2.00	0.000000747	0.000105	15	41	<0.01	<0.01	5%	None
Townsend's Ground Squirrel	Chloroform	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	0.873	0.000399	0.0000199	0.0000199	0.000457	2.00	0.000000456	0.0000204	15	41	<0.01	<0.01	5%	None
Townsend's Ground Squirrel	Chloromethane	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	7.83	0.00578	0.000289	0.000289	0.000738	2.00	0.000000738	0.000289	15	41	<0.01	<0.01	5%	None
Townsend's Ground Squirrel	cis-1,2-Dichloroethene	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	10.6	0.00528	0.000264	0.000264	0.000497	2.00	0.000000496	0.000264	45.2	NSV	<0.01	--	5%	None
Townsend's Ground Squirrel	cis-1,3-Dichloropropene	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	7.11	0.00380	0.000190	0.000190	0.000535	2.00	0.000000534	0.000191	45.2	NSV	<0.01	--	5%	None
Townsend's Ground Squirrel	Ethylbenzene	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	0.0690	0.0000389	0.00000194	0.00000194	0.000563	2.00	0.000000562	0.00000250	97	291	<0.01	<0.01	5%	None
Townsend's Ground Squirrel	m,p-Xylene	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	3.04	0.00293	0.000146	0.000146	0.000965	2.00	0.000000964	0.000147	179	357	<0.01	<0.01	5%	None
Townsend's Ground Squirrel	Methylene chloride	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	4.10	0.00601	0.000300	0.000300	0.00146	2.00	0.00000146	0.000302	5.85	50	<0.01	<0.01	5%	None
Townsend's Ground Squirrel	o-Xylene	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	3.34	0.00393	0.000196	0.000196	0.00118	2.00	0.00000118	0.000197	179	357	<0.01	<0.01	14%	None
Townsend's Ground Squirrel	Tetrachloroethene	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	2.52	0.00165	0.0000826	0.0000826	0.000656	2.00	0.000000655	0.0000832	1.4	7	<0.01	<0.01	5%	None
Townsend's Ground Squirrel	Toluene	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	4.71	0.0670	0.00335	0.00335	0.0142	2.00	0.0000142	0.00336	52	520	<0.01	<0.01	23%	None
Townsend's Ground Squirrel	Trans-1,2-Dichloroethene	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	2.50	0.00138	0.0000690	0.0000690	0.000552	2.00	0.000000552	0.0000696	45.2	NSV	<0.01	--	5%	None
Townsend's Ground Squirrel	Trans-1,3-Dichloropropene	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	0.818	0.000424	0.0000212	0.0000212	0.000519	2.00	0.000000518	0.0000217	45.2	NSV	<0.01	--	5%	None
Townsend's Ground Squirrel	Trichloroethylene (TCE)	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	0.331	0.000169	0.00000843	0.00000843	0.000509	2.00	0.000000509	0.00000894	0.7	7	<0.01	<0.01	5%	None
Townsend's Ground Squirrel	Vinyl chloride	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	3.10	0.00229	0.000114	0.000114	0.000738	2.00	0.000000737	0.000115	0.17	1.7	<0.01	<0.01	5%	None
Townsend's Ground Squirrel	*HI - VOCs*																								**4.3**	*0.87*	(dets)	Possible
Black-tailed Jackrabbit	1,3-Dinitrobenzene	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	15	1.20	0.0858	0.0858	0.0800	6.30	0.000360	0.0862	0.04	0.2	**2.2**	0.43	0%	Uncertain
Black-tailed Jackrabbit	2,4-Dinitrotoluene	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	0.376	0.752	0.0537	0.0537	2.00	6.30	0.00900	0.0627	2	8	0.031	<0.01	2%	None
Black-tailed Jackrabbit	2,6-Dinitrotoluene	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	3.14	33	2.36	2.36	10.5	6.30	0.0473	2.40	2	8	**1.2**	0.30	0%	Uncertain
Black-tailed Jackrabbit	HMX	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	Regression Based	48.3	3.45	3.45	8.12	6.30	0.0365	3.49	1	5	**3.5**	0.70	31%	Possible
Black-tailed Jackrabbit	RDX	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	Regression Based	37.6	2.69	2.69	1.50	6.30	0.00675	2.69	2	20	**1.4**	0.14	0%	Uncertain
Black-tailed Jackrabbit	*HI - Energetics*																								**3.5**	0.71	(dets)	Possible
Black-tailed Jackrabbit	Antimony	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	0.0102	0.684	0.0489	0.0489	67	6.30	0.302	0.351	0.059	0.64	**5.9**	0.55	79%	Possible
Black-tailed Jackrabbit	Cadmium	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	Regression Based	1.91	0.136	0.136	7.80	6.30	0.0351	0.171	0.77	1.42	0.22	0.12	44%	None
Black-tailed Jackrabbit	Copper	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	Regression Based	52	3.72	3.72	4150	6.30	18.7	22.4	11.7	15.14	**1.9**	***1.5***	85%	**Probable**
Black-tailed Jackrabbit	Lead	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	Regression Based	49.1	3.51	3.51	11000	6.30	49.6	53.1	0.92	4.7	**58**	***11***	83%	**Probable**
Black-tailed Jackrabbit	Molybdenum	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	0.400	1.97	0.141	0.141	4.93	6.30	0.0222	0.163	0.26	2.6	0.63	0.063	91%	None
Black-tailed Jackrabbit	Nitrate	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	1.00	12.8	0.913	0.913	12.8	6.30	0.0575	0.970	507	1130	<0.01	<0.01	92%	None
Black-tailed Jackrabbit	Perchlorate	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	282	769	55	55	2.73	6.30	0.0123	55	2.59	25.9	**21**	***2.1***	50%	**Probable**
Black-tailed Jackrabbit	Selenium	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	Regression Based	3.00	0.214	0.214	5.00	6.30	0.0225	0.237	0.2	0.33	**1.2**	0.72	0%	Uncertain
Black-tailed Jackrabbit	Silver	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	0.0140	0.0142	0.00101	0.00101	1.01	6.30	0.00456	0.00557	2.38	23.8	<0.01	<0.01	8%	None
Black-tailed Jackrabbit	Zinc	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	Regression Based	122	8.73	8.73	337	6.30	1.52	10.2	160	320	0.064	0.032	100%	None
Black-tailed Jackrabbit	*HI - Inorganics*																								**88**	**16**	(dets)	**Probable**
Black-tailed Jackrabbit	2-Methylnaphthalene	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	1.87	181	13	13	97	6.30	0.437	13.4	5.03	50.3	**2.7**	0.27	14%	Possible
Black-tailed Jackrabbit	Anthracene	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	Regression Based	7.44	0.532	0.532	3.70	6.30	0.0167	0.548	1000	NSV	<0.01	--	7%	None
Black-tailed Jackrabbit	Benzo(g,h,i)perylene	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	Regression Based	41	2.93	2.93	10.5	6.30	0.0473	2.97	1	10	**3.0**	0.30	0%	Uncertain
Black-tailed Jackrabbit	Fluoranthene	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	0.500	0.0720	0.00514	0.00514	0.144	6.30	0.000648	0.00579	125	250	<0.01	<0.01	4%	None
Black-tailed Jackrabbit	Fluorene	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	Regression Based	3160	226	226	18.5	6.30	0.0832	226	125	250	**1.8**	0.90	14%	Possible
Black-tailed Jackrabbit	Naphthalene	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	12.2	121	8.67	8.67	9.95	6.30	0.0448	8.71	50	150	0.17	0.058	25%	None
Black-tailed Jackrabbit	Phenanthrene	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	Regression Based	13.2	0.944	0.944	49.1	6.30	0.221	1.17	175	350	<0.01	<0.01	18%	None
Black-tailed Jackrabbit	*HI - PAHs*																								**4.6**	**1.2**	(dets)	**Probable**
Black-tailed Jackrabbit	2,4,5-Trichlorophenol	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	0.0202	1.01	0.0722	0.0722	50	6.30	0.225	0.297	0.24	2.4	**1.2**	0.12	0%	Uncertain
Black-tailed Jackrabbit	1,1,1,2-Tetrachloroethane	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	3.56	0.00169	0.000121	0.000121	0.000475	6.30	0.00000214	0.000123	1.4	7	<0.01	<0.01	5%	None
Black-tailed Jackrabbit	1,1,1-Trichloroethane	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	0.279	0.000172	0.0000123	0.0000123	0.000616	6.30	0.00000277	0.0000151	1000	NSV	<0.01	--	5%	None
Black-tailed Jackrabbit	1,1,2,2-Tetrachloroethane	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	0.354	0.000245	0.0000175	0.0000175	0.000692	6.30	0.00000312	0.0000206	1.4	7	<0.01	<0.01	5%	None
Black-tailed Jackrabbit	1,1,2-Trichloroethane	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	0.298	0.000178	0.0000127	0.0000127	0.000597	6.30	0.00000269	0.0000154	1000	NSV	<0.01	--	5%	None
Black-tailed Jackrabbit	1,1-Dichloroethane	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	1.28	0.000616	0.0000440	0.0000440	0.000479	6.30	0.00000216	0.0000462	50	NSV	<0.01	--	5%	None
Black-tailed Jackrabbit	1,1-Dichloroethene	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	8.26	0.00741	0.000529	0.000529	0.000897	6.30	0.00000404	0.000534	2.5	NSV	<0.01	--	5%	None
Black-tailed Jackrabbit	1,2,3-Trichloropropane	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	5.84	0.00373	0.000267	0.000267	0.000638	6.30	0.00000287	0.000269	1000	NSV	<0.01	--	5%	None
Black-tailed Jackrabbit	1,2-Dichloroethane	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	2.50	0.00146	0.000105	0.000105	0.000585	6.30	0.00000263	0.000107	50	NSV	<0.01	--	5%	None
Black-tailed Jackrabbit	1,2-Dichloropropane	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	0.818	0.000421	0.0000301	0.0000301	0.000515	6.30	0.00000232	0.0000324	50	NSV	<0.01	--	5%	None
Black-tailed Jackrabbit	2-Butanone	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	46.1	0.349	0.0249	0.0249	0.00758	6.30	0.0000341	0.0250	10	50	<0.01	<0.01	18%	None

Table 26
Refined Risk Estimation for Wildlife Exposed to Site Soils
Attachment 10A - Thermal Treatment Unit, Ecological Risk Assessment

						Small Mammals and Other Vertebrates				Soil Invertebrates				Terrestrial Plants														
Receptor	Chemical	Body Weight (kg)	Daily Food Intake (kg/kg-bw/day)	Area Use Factor	Daily Food Ingestion from Site (kg/kg-bw/day)	Percent of Diet	Soil to Tissue Transfer Factor	Tissue Concentration (mg/kg DW)	Total Vertebrate Food Intake (mg/kg-bw/d)a	Percent of Diet	Soil to Tissue Transfer Factor	Tissue Concentration (mg/kg DW)	Total Invertebrate Food Intake (mg/kg-bw/d)b	Percent of Diet	Soil to Tissue Transfer Factor	Tissue Concentration (mg/kg DW)	Total Plant Food Intake (mg/kg-bw/d)c	Total Food Intake (mg/kg-bw/d)d	Refined Soil EPC (mg/kg)	Percent of Diet as Soil	Incidental Soil Intake (mg/kg-bw/d)e	Total Chemical Intake (mg/kg-day)f	NOAEL TRV (mg/kg-bw/d)	LOAEL TRV (mg/kg-bw/d)	NOAEL Hazard Quotient	LOAEL Hazard Quotient	Detection Frequency (%)	Risk Conclusions
Black-tailed Jackrabbit	2-Hexanone	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	16.6	0.0468	0.00334	0.00334	0.00281	6.30	0.0000127	0.00335	10	50	<0.01	<0.01	5%	None
Black-tailed Jackrabbit	4-Methyl-2-pentanone	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	19.9	0.0647	0.00463	0.00463	0.00326	6.30	0.0000147	0.00464	25	NSV	<0.01	--	5%	None
Black-tailed Jackrabbit	Acetone	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	75.6	868	62	62	11.5	6.30	0.0517	62.1	10	50	**6.2**	***1.2***	32%	**Probable**
Black-tailed Jackrabbit	Benzene	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	8.26	0.0128	0.000911	0.000911	0.00154	6.30	0.00000695	0.000918	0.7	7	<0.01	<0.01	14%	None
Black-tailed Jackrabbit	Bromoform	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	0.346	0.000150	0.0000107	0.0000107	0.000432	6.30	0.00000194	0.0000126	15	41	<0.01	<0.01	5%	None
Black-tailed Jackrabbit	Bromomethane	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	19.9	0.0182	0.00130	0.00130	0.000917	6.30	0.00000413	0.00131	15	41	<0.01	<0.01	5%	None
Black-tailed Jackrabbit	Carbon tetrachloride	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	4.29	0.00261	0.000186	0.000186	0.000607	6.30	0.00000273	0.000189	16	NSV	<0.01	--	5%	None
Black-tailed Jackrabbit	Chlorobenzene	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	0.134	0.0000752	0.00000537	0.00000537	0.000560	6.30	0.00000252	0.00000789	15	41	<0.01	<0.01	5%	None
Black-tailed Jackrabbit	Chloroethane	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	2.79	0.00209	0.000149	0.000149	0.000748	6.30	0.00000337	0.000152	15	41	<0.01	<0.01	5%	None
Black-tailed Jackrabbit	Chloroform	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	0.873	0.000399	0.0000285	0.0000285	0.000457	6.30	0.00000206	0.0000305	15	41	<0.01	<0.01	5%	None
Black-tailed Jackrabbit	Chloromethane	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	7.83	0.00578	0.000413	0.000413	0.000738	6.30	0.00000332	0.000416	15	41	<0.01	<0.01	5%	None
Black-tailed Jackrabbit	cis-1,2-Dichloroethene	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	10.6	0.00528	0.000377	0.000377	0.000497	6.30	0.00000224	0.000380	45.2	NSV	<0.01	--	5%	None
Black-tailed Jackrabbit	cis-1,3-Dichloropropene	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	7.11	0.00380	0.000272	0.000272	0.000535	6.30	0.00000241	0.000274	45.2	NSV	<0.01	--	5%	None
Black-tailed Jackrabbit	Ethylbenzene	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	0.0690	0.0000389	0.00000278	0.00000278	0.000563	6.30	0.00000253	0.00000531	97	291	<0.01	<0.01	5%	None
Black-tailed Jackrabbit	m,p-Xylene	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	3.04	0.00293	0.000210	0.000210	0.000965	6.30	0.00000434	0.000214	179	357	<0.01	<0.01	5%	None
Black-tailed Jackrabbit	Methylene chloride	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	4.10	0.00601	0.000429	0.000429	0.00146	6.30	0.00000659	0.000436	5.85	50	<0.01	<0.01	5%	None
Black-tailed Jackrabbit	o-Xylene	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	3.34	0.00393	0.000281	0.000281	0.00118	6.30	0.00000530	0.000286	179	357	<0.01	<0.01	14%	None
Black-tailed Jackrabbit	Tetrachloroethene	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	2.52	0.00165	0.000118	0.000118	0.000656	6.30	0.00000295	0.000121	1.4	7	<0.01	<0.01	5%	None
Black-tailed Jackrabbit	Toluene	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	4.71	0.0670	0.00479	0.00479	0.0142	6.30	0.0000639	0.00485	52	520	<0.01	<0.01	23%	None
Black-tailed Jackrabbit	Trans-1,2-Dichloroethene	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	2.50	0.00138	0.0000988	0.0000988	0.000552	6.30	0.00000249	0.000101	45.2	NSV	<0.01	--	5%	None
Black-tailed Jackrabbit	Trans-1,3-Dichloropropene	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	0.818	0.000424	0.0000303	0.0000303	0.000519	6.30	0.00000234	0.0000326	45.2	NSV	<0.01	--	5%	None
Black-tailed Jackrabbit	Trichloroethylene (TCE)	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	0.331	0.000169	0.0000121	0.0000121	0.000509	6.30	0.00000229	0.0000144	0.7	7	<0.01	<0.01	5%	None
Black-tailed Jackrabbit	Vinyl chloride	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	3.10	0.00229	0.000164	0.000164	0.000738	6.30	0.00000332	0.000167	0.17	1.7	<0.01	<0.01	5%	None
Black-tailed Jackrabbit	*HI - VOCs*																								**6.2**	**1.2**	(dets)	**Probable**
Pronghorn	1,3-Dinitrobenzene	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	15	1.20	0.0413	0.0413	0.0800	2.00	0.0000550	0.0414	0.04	0.2	**1.0**	0.21	0%	Uncertain
Pronghorn	2,4-Dinitrotoluene	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	0.376	0.752	0.0259	0.0259	2.00	2.00	0.00138	0.0272	2	8	0.014	<0.01	2%	None
Pronghorn	2,6-Dinitrotoluene	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	3.14	33	1.13	1.13	10.5	2.00	0.00722	1.14	2	8	0.57	0.14	0%	None
Pronghorn	HMX	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	Regression Based	48.3	1.66	1.66	8.12	2.00	0.00558	1.67	1	5	**1.7**	0.33	31%	Possible
Pronghorn	*HI - Energetics*																								**1.7**	0.34	(dets)	Possible
Pronghorn	Antimony	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	0.0102	0.684	0.0235	0.0235	67	2.00	0.0461	0.0696	0.059	0.64	**1.2**	0.11	79%	Possible
Pronghorn	Cadmium	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	Regression Based	1.91	0.0656	0.0656	7.80	2.00	0.00536	0.0709	0.77	1.42	0.092	0.050	44%	None
Pronghorn	Copper	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	Regression Based	52	1.79	1.79	4150	2.00	2.86	4.65	11.7	15.14	0.40	0.31	85%	None
Pronghorn	Lead	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	Regression Based	49.1	1.69	1.69	11000	2.00	7.57	9.26	0.92	4.7	**10**	***2.0***	83%	**Probable**
Pronghorn	Molybdenum	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	0.400	1.97	0.0679	0.0679	4.93	2.00	0.00339	0.0713	0.26	2.6	0.27	0.027	91%	None
Pronghorn	Nitrate	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	1.00	12.8	0.439	0.439	12.8	2.00	0.00879	0.448	507	1130	<0.01	<0.01	92%	None
Pronghorn	Perchlorate	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	282	769	26.4	26.4	2.73	2.00	0.00188	26.5	2.59	25.9	**10**	***1.0***	50%	**Probable**
Pronghorn	Silver	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	0.0140	0.0142	0.000487	0.000487	1.01	2.00	0.000696	0.00118	2.38	23.8	<0.01	<0.01	8%	None
Pronghorn	Zinc	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	Regression Based	122	4.20	4.20	337	2.00	0.232	4.43	160	320	0.028	0.014	100%	None
Pronghorn	*HI - Inorganics*																								**22**	**3.5**	(dets)	**Probable**
Pronghorn	2-Methylnaphthalene	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	1.87	181	6.24	6.24	97	2.00	0.0667	6.30	5.03	50.3	**1.2**	0.12	14%	Possible
Pronghorn	Anthracene	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	Regression Based	7.44	0.256	0.256	3.70	2.00	0.00255	0.258	1000	NSV	<0.01	--	7%	None
Pronghorn	Benzo(g,h,i)perylene	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	Regression Based	41	1.41	1.41	10.5	2.00	0.00722	1.42	1	10	**1.4**	0.14	0%	Uncertain
Pronghorn	Fluoranthene	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	0.500	0.0720	0.00248	0.00248	0.144	2.00	0.0000991	0.00258	125	250	<0.01	<0.01	4%	None
Pronghorn	Fluorene	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	Regression Based	3160	109	109	18.5	2.00	0.0127	109	125	250	0.87	0.43	14%	None
Pronghorn	Naphthalene	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	12.2	121	4.17	4.17	9.95	2.00	0.00684	4.18	50	150	0.084	0.028	25%	None
Pronghorn	Phenanthrene	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	Regression Based	13.2	0.455	0.455	49.1	2.00	0.0338	0.488	175	350	<0.01	<0.01	18%	None
Pronghorn	*HI - PAHs*																								**2.2**	0.59	(dets)	Possible
Pronghorn	1,1,1,2-Tetrachloroethane	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	3.56	0.00169	0.0000582	0.0000582	0.000475	2.00	0.000000327	0.0000585	1.4	7	<0.01	<0.01	5%	None
Pronghorn	1,1,1-Trichloroethane	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	0.279	0.000172	0.00000591	0.00000591	0.000616	2.00	0.000000424	0.00000634	1000	NSV	<0.01	--	5%	None
Pronghorn	1,1,2,2-Tetrachloroethane	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	0.354	0.000245	0.00000843	0.00000843	0.000692	2.00	0.000000476	0.00000891	1.4	7	<0.01	<0.01	5%	None
Pronghorn	1,1,2-Trichloroethane	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	0.298	0.000178	0.00000611	0.00000611	0.000597	2.00	0.000000411	0.00000653	1000	NSV	<0.01	--	5%	None
Pronghorn	1,1-Dichloroethane	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	1.28	0.000616	0.0000212	0.0000212	0.000479	2.00	0.000000330	0.0000215	50	NSV	<0.01	--	5%	None
Pronghorn	1,1-Dichloroethene	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	8.26	0.00741	0.000255	0.000255	0.000897	2.00	0.000000617	0.000255	2.5	NSV	<0.01	--	5%	None
Pronghorn	1,2,3-Trichloropropane	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	5.84	0.00373	0.000128	0.000128	0.000638	2.00	0.000000439	0.000129	1000	NSV	<0.01	--	5%	None
Pronghorn	1,2-Dichloroethane	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	2.50	0.00146	0.0000504	0.0000504	0.000585	2.00	0.000000402	0.0000508	50	NSV	<0.01	--	5%	None
Pronghorn	1,2-Dichloropropane	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	0.818	0.000421	0.0000145	0.0000145	0.000515	2.00	0.000000354	0.0000148	50	NSV	<0.01	--	5%	None
Pronghorn	2-Butanone	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	46.1	0.349	0.0120	0.0120	0.00758	2.00	0.00000521	0.0120	10	50	<0.01	<0.01	18%	None
Pronghorn	2-Hexanone	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	16.6	0.0468	0.00161	0.00161	0.00281	2.00	0.00000193	0.00161	10	50	<0.01	<0.01	5%	None
Pronghorn	4-Methyl-2-pentanone	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	19.9	0.0647	0.00223	0.00223	0.00326	2.00	0.00000224	0.00223	25	NSV	<0.01	--	5%	None
Pronghorn	Acetone	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	75.6	868	29.9	29.9	11.5	2.00	0.00790	29.9	10	50	**3.0**	0.60	32%	Possible
Pronghorn	Benzene	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	8.26	0.0128	0.000439	0.000439	0.00154	2.00	0.00000106	0.000440	0.7	7	<0.01	<0.01	14%	None
Pronghorn	Bromoform	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	0.346	0.000150	0.00000514	0.00000514	0.000432	2.00	0.000000297	0.00000544	15	41	<0.01	<0.01	5%	None
Pronghorn	Bromomethane	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	19.9	0.0182	0.000627	0.000627	0.000917	2.00	0.000000631	0.000627	15	41	<0.01	<0.01	5%	None
Pronghorn	Carbon tetrachloride	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	4.29	0.00261	0.0000897	0.0000897	0.000607	2.00	0.000000418	0.0000901	16	NSV	<0.01	--	5%	None
Pronghorn	Chlorobenzene	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	0.134	0.0000752	0.00000259	0.00000259	0.000560	2.00	0.000000385	0.00000297	15	41	<0.01	<0.01	5%	None
Pronghorn	Chloroethane	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	2.79	0.00209	0.0000717	0.0000717	0.000748	2.00	0.000000514	0.0000722	15	41	<0.01	<0.01	5%	None
Pronghorn	Chloroform	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	0.873	0.000399	0.0000137	0.0000137	0.000457	2.00	0.000000314	0.0000140	15	41	<0.01	<0.01	5%	None
Pronghorn	Chloromethane	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	7.83	0.00578	0.000199	0.000199	0.000738	2.00	0.000000508	0.000199	15	41	<0.01	<0.01	5%	None
Pronghorn	cis-1,2-Dichloroethene	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	10.6	0.00528	0.000182	0.000182	0.000497	2.00	0.000000342	0.000182	45.2	NSV	<0.01	--	5%	None
Pronghorn	cis-1,3-Dichloropropene	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	7.11	0.00380	0.000131	0.000131	0.000535	2.00	0.000000368	0.000131	45.2	NSV	<0.01	--	5%	None
Pronghorn	Ethylbenzene	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	0.0690	0.0000389	0.00000134	0.00000134	0.000563	2.00	0.000000387	0.00000172	97	291	<0.01	<0.01	5%	None
Pronghorn	m,p-Xylene	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	3.04	0.00293	0.000101	0.000101	0.000965	2.00	0.000000664	0.000102	179	357	<0.01	<0.01	5%	None
Pronghorn	Methylene chloride	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	4.10	0.00601	0.000207	0.000207	0.00146	2.00	0.00000101	0.000208	5.85	50	<0.01	<0.01	5%	None
Pronghorn	o-Xylene	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	3.34	0.00393	0.000135	0.000135	0.00118	2.00	0.000000809	0.000136	179	357	<0.01	<0.01	14%	None
Pronghorn	Tetrachloroethene	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	2.52	0.00165	0.0000569	0.0000569	0.000656	2.00	0.000000451	0.0000573	1.4	7	<0.01	<0.01	5%	None
Pronghorn	Toluene	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	4.71	0.0670	0.00230	0.00230	0.0142	2.00	0.00000977	0.00231	52	520	<0.01	<0.01	23%	None
Pronghorn	Trans-1,2-Dichloroethene	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	2.50	0.00138	0.0000475	0.0000475	0.000552	2.00	0.000000380	0.0000479	45.2	NSV	<0.01	--	5%	None

Table 26

Refined Risk Estimation for Wildlife Exposed to Site Soils

Attachment 10A - Thermal Treatment Unit, Ecological Risk Assessment

						Small Mammals and Other Vertebrates				Soil Invertebrates				Terrestrial Plants														
Receptor	Chemical	Body Weight (kg)	Daily Food Intake (kg/kg-bw/day)	Area Use Factor	Daily Food Ingestion from Site (kg/kg-bw/day)	Percent of Diet	Soil to Tissue Transfer Factor	Tissue Concentration (mg/kg DW)	Total Vertebrate Food Intake (mg/kg-bw/d)a	Percent of Diet	Soil to Tissue Transfer Factor	Tissue Concentration (mg/kg DW)	Total Invertebrate Food Intake (mg/kg-bw/d)b	Percent of Diet	Soil to Tissue Transfer Factor	Tissue Concentration (mg/kg DW)	Total Plant Food Intake (mg/kg-bw/d)c	Total Food Intake (mg/kg-bw/d)d	Refined Soil EPC (mg/kg)	Percent of Diet as Soil	Incidental Soil Intake (mg/kg-bw/d)e	Total Chemical Intake (mg/kg-day)f	NOAEL TRV (mg/kg-bw/d)	LOAEL TRV (mg/kg-bw/d)	NOAEL Hazard Quotient	LOAEL Hazard Quotient	Detection Frequency (%)	Risk Conclusions
Pronghorn	Trans-1,3-Dichloropropene	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	0.818	0.000424	0.0000146	0.0000146	0.000519	2.00	0.000000357	0.0000149	45.2	NSV	<0.01	--	5%	None
Pronghorn	Trichloroethylene (TCE)	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	0.331	0.000169	0.00000581	0.00000581	0.000509	2.00	0.000000350	0.00000616	0.7	7	<0.01	<0.01	5%	None
Pronghorn	Vinyl chloride	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	3.10	0.00229	0.0000787	0.0000787	0.000738	2.00	0.000000508	0.0000792	0.17	1.7	<0.01	<0.01	5%	None
Pronghorn	*HI - VOCs*																								**3.0**	*0.60*	(dets)	Possible
Grasshopper Mouse	1,3-Dinitrobenzene	0.041	0.250	1	0.250	0	-	0	0	100	26.6	2.13	0.532	0	-	0	0	0.532	0.0800	13	0.00260	0.535	0.04	0.2	**13**	***2.7***	0%	Uncertain
Grasshopper Mouse	2,4-Dinitrotoluene	0.041	0.250	1	0.250	0	-	0	0	100	3.71	7.42	1.86	0	-	0	0	1.86	2.00	13	0.0650	1.92	2	8	0.96	0.24	2%	None
Grasshopper Mouse	2,6-Dinitrotoluene	0.041	0.250	1	0.250	0	-	0	0	100	3.16	33.2	8.30	0	-	0	0	8.30	10.5	13	0.341	8.64	2	8	**4.3**	***1.1***	0%	Uncertain
Grasshopper Mouse	HMX	0.041	0.250	1	0.250	0	-	0	0	100	0.313	2.54	0.635	0	-	0	0	0.635	8.12	13	0.264	0.899	1	5	0.90	0.18	31%	None
Grasshopper Mouse	RDX	0.041	0.250	1	0.250	0	-	0	0	100	egression Bas	87.3	21.8	0	-	0	0	21.8	1.50	13	0.0488	21.9	2	20	**11**	***1.1***	0%	Uncertain
Grasshopper Mouse	Tetryl	0.041	0.250	1	0.250	0	-	0	0	100	29.1	6.69	1.67	0	-	0	0	1.67	0.230	13	0.00748	1.68	1.3	6.2	**1.3**	0.27	0%	Uncertain
Grasshopper Mouse	*HI - Energetics*																								**1.9**	0.42	(dets)	Possible
Grasshopper Mouse	Antimony	0.041	0.250	1	0.250	0	-	0	0	100	0.0162	1.09	0.271	0	-	0	0	0.271	67	13	2.18	2.45	0.059	0.64	**42**	***3.8***	79%	**Probable**
Grasshopper Mouse	Cadmium	0.041	0.250	1	0.250	0	-	0	0	100	egression Bas	42.4	10.6	0	-	0	0	10.6	7.80	13	0.253	10.8	0.77	1.42	**14**	***7.6***	44%	**Probable**
Grasshopper Mouse	Copper	0.041	0.250	1	0.250	0	-	0	0	100	egression Bas	48.2	12	0	-	0	0	12	4150	13	135	147	11.7	15.14	**13**	***9.7***	85%	**Probable**
Grasshopper Mouse	Lead	0.041	0.250	1	0.250	0	-	0	0	100	egression Bas	1470	367	0	-	0	0	367	11000	13	358	725	0.92	4.7	**790**	***150***	83%	**Probable**
Grasshopper Mouse	Molybdenum	0.041	0.250	1	0.250	0	-	0	0	100	0.953	4.70	1.18	0	-	0	0	1.18	4.93	13	0.160	1.34	0.26	2.6	**5.1**	0.51	91%	Possible
Grasshopper Mouse	Nitrate	0.041	0.250	1	0.250	0	-	0	0	100	1.00	12.8	3.19	0	-	0	0	3.19	12.8	13	0.415	3.61	507	1130	<0.01	<0.01	92%	None
Grasshopper Mouse	Perchlorate	0.041	0.250	1	0.250	0	-	0	0	100	1.00	2.73	0.682	0	-	0	0	0.682	2.73	13	0.0886	0.770	2.59	25.9	0.30	0.030	50%	None
Grasshopper Mouse	Selenium	0.041	0.250	1	0.250	0	-	0	0	100	egression Bas	3.02	0.755	0	-	0	0	0.755	5.00	13	0.162	0.917	0.2	0.33	**4.6**	***2.8***	0%	Uncertain
Grasshopper Mouse	Silver	0.041	0.250	1	0.250	0	-	0	0	100	2.04	2.07	0.518	0	-	0	0	0.518	1.01	13	0.0329	0.550	2.38	23.8	0.23	0.023	8%	None
Grasshopper Mouse	Zinc	0.041	0.250	1	0.250	0	-	0	0	100	egression Bas	577	144	0	-	0	0	144	337	13	11	155	160	320	0.97	0.48	100%	None
Grasshopper Mouse	*HI - Inorganics*																								**860**	**180**	(dets)	**Probable**
Grasshopper Mouse	2-Methylnaphthalene	0.041	0.250	1	0.250	0	-	0	0	100	29	2820	704	0	-	0	0	704	97	13	3.15	707	5.03	50.3	**140**	***14***	14%	**Probable**
Grasshopper Mouse	Anthracene	0.041	0.250	1	0.250	0	-	0	0	100	2.42	8.95	2.24	0	-	0	0	2.24	3.70	13	0.120	2.36	1000	NSV	<0.01	--	7%	None
Grasshopper Mouse	Benzo(a)anthracene	0.041	0.250	1	0.250	0	-	0	0	100	1.59	16.7	4.17	0	-	0	0	4.17	10.5	13	0.341	4.51	1	10	**4.5**	0.45	0%	Uncertain
Grasshopper Mouse	Benzo(a)pyrene	0.041	0.250	1	0.250	0	-	0	0	100	1.33	14	3.49	0	-	0	0	3.49	10.5	13	0.341	3.83	1	10	**3.8**	0.38	0%	Uncertain
Grasshopper Mouse	Benzo(b)fluoranthene	0.041	0.250	1	0.250	0	-	0	0	100	2.60	27.3	6.82	0	-	0	0	6.82	10.5	13	0.341	7.17	1	10	**7.2**	0.72	0%	Uncertain
Grasshopper Mouse	Benzo(g,h,i)perylene	0.041	0.250	1	0.250	0	-	0	0	100	2.94	30.9	7.72	0	-	0	0	7.72	10.5	13	0.341	8.06	1	10	**8.1**	0.81	0%	Uncertain
Grasshopper Mouse	Benzo(k)fluoranthene	0.041	0.250	1	0.250	0	-	0	0	100	2.60	27.3	6.82	0	-	0	0	6.82	10.5	13	0.341	7.17	1	10	**7.2**	0.72	0%	Uncertain
Grasshopper Mouse	Chrysene	0.041	0.250	1	0.250	0	-	0	0	100	2.29	24	6.01	0	-	0	0	6.01	10.5	13	0.341	6.35	1	10	**6.4**	0.64	0%	Uncertain
Grasshopper Mouse	Dibenzo(a,h)anthracene	0.041	0.250	1	0.250	0	-	0	0	100	2.31	24.3	6.06	0	-	0	0	6.06	10.5	13	0.341	6.40	1	10	**6.4**	0.64	0%	Uncertain
Grasshopper Mouse	Fluoranthene	0.041	0.250	1	0.250	0	-	0	0	100	3.04	0.438	0.109	0	-	0	0	0.109	0.144	13	0.00468	0.114	125	250	<0.01	<0.01	4%	None
Grasshopper Mouse	Fluorene	0.041	0.250	1	0.250	0	-	0	0	100	9.57	177	44.2	0	-	0	0	44.2	18.5	13	0.601	44.8	125	250	0.36	0.18	14%	None
Grasshopper Mouse	Indeno(1,2,3-c,d)pyrene	0.041	0.250	1	0.250	0	-	0	0	100	2.86	30	7.51	0	-	0	0	7.51	10.5	13	0.341	7.85	1	10	**7.8**	0.78	0%	Uncertain
Grasshopper Mouse	Naphthalene	0.041	0.250	1	0.250	0	-	0	0	100	4.40	43.8	10.9	0	-	0	0	10.9	9.95	13	0.323	11.3	50	150	0.22	0.075	25%	None
Grasshopper Mouse	Phenanthrene	0.041	0.250	1	0.250	0	-	0	0	100	1.72	84.4	21.1	0	-	0	0	21.1	49.1	13	1.59	22.7	175	350	0.13	0.065	18%	None
Grasshopper Mouse	*HI - PAHs*																								**140**	**14**	(dets)	**Probable**
Grasshopper Mouse	TPH	0.041	0.250	1	0.250	0	-	0	0	100	-	0	0	0	-	0	0	0	47000	13	1530	1530	1000	15000	**1.5**	0.10	100%	Possible
Grasshopper Mouse	*HI - Petroleum*																								0.22	0.075	(dets)	None
Grasshopper Mouse	2,4,5-Trichlorophenol	0.041	0.250	1	0.250	0	-	0	0	100	35.1	1760	439	0	-	0	0	439	50	13	1.62	440	0.24	2.4	**1800**	***180***	0%	Uncertain
Grasshopper Mouse	2,4,6-Trichlorophenol	0.041	0.250	1	0.250	0	-	0	0	100	35.6	374	93.4	0	-	0	0	93.4	10.5	13	0.341	93.7	0.24	2.4	**390**	***39***	0%	Uncertain
Grasshopper Mouse	2,4-Dichlorophenol	0.041	0.250	1	0.250	0	-	0	0	100	32.6	342	85.6	0	-	0	0	85.6	10.5	13	0.341	85.9	0.24	2.4	**360**	***36***	0%	Uncertain
Grasshopper Mouse	Hexachlorobenzene	0.041	0.250	1	0.250	0	-	0	0	100	40.2	422	106	0	-	0	0	106	10.5	13	0.341	106	1.6	3.2	**66**	***33***	0%	Uncertain
Grasshopper Mouse	Hexachlorocyclopentadiene	0.041	0.250	1	0.250	0	-	0	0	100	36	378	94.5	0	-	0	0	94.5	10.5	13	0.341	94.8	1.6	3.2	**59**	***30***	0%	Uncertain
Grasshopper Mouse	Hexachloroethane	0.041	0.250	1	0.250	0	-	0	0	100	38	399	99.7	0	-	0	0	99.7	10.5	13	0.341	100	1.6	3.2	**63**	***31***	0%	Uncertain
Grasshopper Mouse	Pentachlorophenol	0.041	0.250	1	0.250	0	-	0	0	100	5.93	297	74.1	0	-	0	0	74.1	50	13	1.62	75.8	0.24	2.4	**320**	***32***	0%	Uncertain
Grasshopper Mouse	1,1,1,2-Tetrachloroethane	0.041	0.250	1	0.250	0	-	0	0	100	28.3	0.0134	0.00335	0	-	0	0	0.00335	0.000475	13	0.0000154	0.00337	1.4	7	<0.01	<0.01	5%	None
Grasshopper Mouse	1,1,1-Trichloroethane	0.041	0.250	1	0.250	0	-	0	0	100	31.4	0.0194	0.00484	0	-	0	0	0.00484	0.000616	13	0.0000200	0.00486	1000	NSV	<0.01	--	5%	None
Grasshopper Mouse	1,1,2,2-Tetrachloroethane	0.041	0.250	1	0.250	0	-	0	0	100	31.1	0.0216	0.00539	0	-	0	0	0.00539	0.000692	13	0.0000225	0.00541	1.4	7	<0.01	<0.01	5%	None
Grasshopper Mouse	1,1,2-Trichloroethane	0.041	0.250	1	0.250	0	-	0	0	100	31.4	0.0187	0.00468	0	-	0	0	0.00468	0.000597	13	0.0000194	0.00470	1000	NSV	<0.01	--	5%	None
Grasshopper Mouse	1,1-Dichloroethane	0.041	0.250	1	0.250	0	-	0	0	100	29.5	0.0141	0.00354	0	-	0	0	0.00354	0.000479	13	0.0000156	0.00355	50	NSV	<0.01	--	5%	None
Grasshopper Mouse	1,1-Dichloroethene	0.041	0.250	1	0.250	0	-	0	0	100	27.3	0.0245	0.00612	0	-	0	0	0.00612	0.000897	13	0.0000292	0.00615	2.5	NSV	<0.01	--	5%	None
Grasshopper Mouse	1,2,3-Trichloropropane	0.041	0.250	1	0.250	0	-	0	0	100	27.7	0.0177	0.00442	0	-	0	0	0.00442	0.000638	13	0.0000207	0.00444	1000	NSV	<0.01	--	5%	None
Grasshopper Mouse	1,2-Dichloroethane	0.041	0.250	1	0.250	0	-	0	0	100	28.7	0.0168	0.00420	0	-	0	0	0.00420	0.000585	13	0.0000190	0.00421	50	NSV	<0.01	--	5%	None
Grasshopper Mouse	1,2-Dichloropropane	0.041	0.250	1	0.250	0	-	0	0	100	30.1	0.0155	0.00387	0	-	0	0	0.00387	0.000515	13	0.0000167	0.00388	50	NSV	<0.01	--	5%	None
Grasshopper Mouse	2-Butanone	0.041	0.250	1	0.250	0	-	0	0	100	25.4	0.192	0.0481	0	-	0	0	0.0481	0.00758	13	0.000246	0.0483	10	50	<0.01	<0.01	18%	None
Grasshopper Mouse	2-Hexanone	0.041	0.250	1	0.250	0	-	0	0	100	26.5	0.0745	0.0186	0	-	0	0	0.0186	0.00281	13	0.0000913	0.0187	10	50	<0.01	<0.01	5%	None
Grasshopper Mouse	4-Methyl-2-pentanone	0.041	0.250	1	0.250	0	-	0	0	100	26.3	0.0857	0.0214	0	-	0	0	0.0214	0.00326	13	0.000106	0.0215	25	NSV	<0.01	--	5%	None
Grasshopper Mouse	Acetone	0.041	0.250	1	0.250	0	-	0	0	100	24.9	286	71.4	0	-	0	0	71.4	11.5	13	0.373	71.8	10	50	**7.2**	***1.4***	32%	**Probable**
Grasshopper Mouse	Benzene	0.041	0.250	1	0.250	0	-	0	0	100	27.3	0.0421	0.0105	0	-	0	0	0.0105	0.00154	13	0.0000502	0.0106	0.7	7	0.015	<0.01	14%	None
Grasshopper Mouse	Bromoform	0.041	0.250	1	0.250	0	-	0	0	100	31.2	0.0135	0.00337	0	-	0	0	0.00337	0.000432	13	0.0000140	0.00338	15	41	<0.01	<0.01	5%	None
Grasshopper Mouse	Bromomethane	0.041	0.250	1	0.250	0	-	0	0	100	26.3	0.0241	0.00603	0	-	0	0	0.00603	0.000917	13	0.0000298	0.00606	15	41	<0.01	<0.01	5%	None
Grasshopper Mouse	Carbon tetrachloride	0.041	0.250	1	0.250	0	-	0	0	100	28	0.0170	0.00426	0	-	0	0	0.00426	0.000607	13	0.0000197	0.00428	16	NSV	<0.01	--	5%	None
Grasshopper Mouse	Chlorobenzene	0.041	0.250	1	0.250	0	-	0	0	100	32.4	0.0182	0.00454	0	-	0	0	0.00454	0.000560	13	0.0000182	0.00456	15	41	<0.01	<0.01	5%	None
Grasshopper Mouse	Chloroethane	0.041	0.250	1	0.250	0	-	0	0	100	28.6	0.0214	0.00534	0	-	0	0	0.00534	0.000748	13	0.0000243	0.00536	15	41	<0.01	<0.01	5%	None
Grasshopper Mouse	Chloroform	0.041	0.250	1	0.250	0	-	0	0	100	30	0.0137	0.00342	0	-	0	0	0.00342	0.000457	13	0.0000148	0.00344	15	41	<0.01	<0.01	5%	None
Grasshopper Mouse	Chloromethane	0.041	0.250	1	0.250	0	-	0	0	100	27.3	0.0202	0.00505	0	-	0	0	0.00505	0.000738	13	0.0000240	0.00507	15	41	<0.01	<0.01	5%	None
Grasshopper Mouse	cis-1,2-Dichloroethene	0.041	0.250	1	0.250	0	-	0	0	100	27	0.0134	0.00335	0	-	0	0	0.00335	0.000497	13	0.0000161	0.00337	45.2	NSV	<0.01	--	5%	None
Grasshopper Mouse	cis-1,3-Dichloropropene	0.041	0.250	1	0.250	0	-	0	0	100	27.5	0.0147	0.00367	0	-	0	0	0.00367	0.000535	13	0.0000174	0.00369	45.2	NSV	<0.01	--	5%	None
Grasshopper Mouse	Ethylbenzene	0.041	0.250	1	0.250	0	-	0	0	100	33.3	0.0188	0.00469	0	-	0	0	0.00469	0.000563	13	0.0000183	0.00471	97	291	<0.01	<0.01	5%	None
Grasshopper Mouse	m,p-Xylene	0.041	0.250	1	0.250	0	-	0	0	100	28.5	0.0275	0.00686	0	-	0	0	0.00686	0.000965	13	0.0000314	0.00690	179	357	<0.01	<0.01	5%	None
Grasshopper Mouse	Methylene chloride	0.041	0.250	1	0.250	0	-	0	0	100	28.1	0.0412	0.0103	0	-	0	0	0.0103	0.00146	13	0.0000476	0.0103	5.85	50	<0.01	<0.01	5%	None
Grasshopper Mouse	o-Xylene	0.041	0.250	1	0.250	0	-	0	0	100	28.3	0.0333	0.00834	0	-	0	0	0.00834	0.00118	13	0.0000382	0.00837	179	357	<0.01	<0.01	14%	None
Grasshopper Mouse	Phenol	0.041	0.250	1	0.250	0	-	0	0	100	28.6	301	75.2	0	-	0	0	75.2	10.5	13	0.341	75.5	17.1	NSV	**4.4**	--	0%	Uncertain
Grasshopper Mouse	Tetrachloroethene	0.041	0.250	1	0.250	0	-	0	0	100	28.7	0.0188	0.00470	0	-	0	0	0.00470	0.000656	13	0.0000213	0.00472	1.4	7	<0.01	<0.01	5%	None
Grasshopper Mouse	Toluene	0.041	0.250	1	0.250	0	-	0	0	100	27.9	0.397	0.0992	0	-	0	0	0.0992	0.0142	13	0.000462	0.0997	52	520	<0.01	<0.01	23%	None
Grasshopper Mouse	Trans-1,2-Dichloroethene	0.041	0.250	1	0.250	0	-	0	0	100	28.7	0.0158	0.00396	0	-	0	0	0.00396	0.000552	13	0.0000180	0.00398	45.2	NSV	<0.01	--	5%	None

Table 26

Refined Risk Estimation for Wildlife Exposed to Site Soils

Attachment 10A - Thermal Treatment Unit, Ecological Risk Assessment

Receptor	Chemical	Body Weight (kg)	Daily Food Intake (kg/kg-bw/day)	Area Use Factor	Daily Food Ingestion from Site (kg/kg-bw/day)	Small Mammals and Other Vertebrates: Percent of Diet	Small Mammals and Other Vertebrates: Soil to Tissue Transfer Factor	Small Mammals and Other Vertebrates: Tissue Concentration (mg/kg DW)	Small Mammals and Other Vertebrates: Total Vertebrate Food Intake (mg/kg-bw/d)a	Soil Invertebrates: Percent of Diet	Soil Invertebrates: Soil to Tissue Transfer Factor	Soil Invertebrates: Tissue Concentration (mg/kg DW)	Soil Invertebrates: Total Invertebrate Food Intake (mg/kg-bw/d)b	Terrestrial Plants: Percent of Diet	Terrestrial Plants: Soil to Tissue Transfer Factor	Terrestrial Plants: Tissue Concentration (mg/kg DW)	Terrestrial Plants: Total Plant Food Intake (mg/kg-bw/d)c	Total Food Intake (mg/kg-bw/d)d	Refined Soil EPC (mg/kg)	Percent of Diet as Soil	Incidental Soil Intake (mg/kg-bw/d)e	Total Chemical Intake (mg/kg-day)f	NOAEL TRV (mg/kg-bw/d)	LOAEL TRV (mg/kg-bw/d)	NOAEL Hazard Quotient	LOAEL Hazard Quotient	Detection Frequency (%)	Risk Conclusions
Grasshopper Mouse	Trans-1,3-Dichloropropene	0.041	0.250	1	0.250	0	-	0	0	100	30.1	0.0156	0.00390	0	-	0	0	0.00390	0.000519	13	0.0000169	0.00391	45.2	NSV	<0.01	--	5%	None
Grasshopper Mouse	Trichloroethylene (TCE)	0.041	0.250	1	0.250	0	-	0	0	100	31.2	0.0159	0.00398	0	-	0	0	0.00398	0.000509	13	0.0000166	0.00399	0.7	7	<0.01	<0.01	5%	None
Grasshopper Mouse	Vinyl chloride	0.041	0.250	1	0.250	0	-	0	0	100	28.4	0.0210	0.00524	0	-	0	0	0.00524	0.000738	13	0.0000240	0.00527	0.17	1.7	0.031	<0.01	5%	None
Grasshopper Mouse	*HI - VOCs*																								**7.2**	**1.4**	(dets)	**Probable**
Coyote	2,4-Dinitrotoluene	10.330	0.045	0.062	0.003	100	1.05	2.11	0.00595	0	-	0	0	0	-	0	0	0.00595	2.00	2.80	0.000158	0.00610	2	8	<0.01	<0.01	2%	None
Coyote	HMX	10.330	0.045	0.062	0.003	100	2.13	17.3	0.0489	0	-	0	0	0	-	0	0	0.0489	8.12	2.80	0.000641	0.0495	1	5	0.050	<0.01	31%	None
Coyote	*HI - Energetics*																								0.053	0.011	(dets)	None
Coyote	Antimony	10.330	0.045	0.062	0.003	100	1.00	67	0.189	0	-	0	0	0	-	0	0	0.189	67	2.80	0.00530	0.194	0.059	0.64	**3.3**	0.30	79%	Possible
Coyote	Cadmium	10.330	0.045	0.062	0.003	100	egression Bas	1.81	0.00512	0	-	0	0	0	-	0	0	0.00512	7.80	2.80	0.000616	0.00574	0.77	1.42	<0.01	<0.01	44%	None
Coyote	Copper	10.330	0.045	0.062	0.003	100	egression Bas	25.7	0.0724	0	-	0	0	0	-	0	0	0.0724	4150	2.80	0.328	0.401	11.7	15.14	0.034	0.026	85%	None
Coyote	Lead	10.330	0.045	0.062	0.003	100	egression Bas	66.1	0.187	0	-	0	0	0	-	0	0	0.187	11000	2.80	0.870	1.06	0.92	4.7	**1.2**	0.22	83%	Possible
Coyote	Molybdenum	10.330	0.045	0.062	0.003	100	1.00	4.93	0.0139	0	-	0	0	0	-	0	0	0.0139	4.93	2.80	0.000390	0.0143	0.26	2.6	0.055	<0.01	91%	None
Coyote	Nitrate	10.330	0.045	0.062	0.003	100	1.00	12.8	0.0361	0	-	0	0	0	-	0	0	0.0361	12.8	2.80	0.00101	0.0371	507	1130	<0.01	<0.01	92%	None
Coyote	Perchlorate	10.330	0.045	0.062	0.003	100	0.100	0.273	0.000770	0	-	0	0	0	-	0	0	0.000770	2.73	2.80	0.000216	0.000985	2.59	25.9	<0.01	<0.01	50%	None
Coyote	Silver	10.330	0.045	0.062	0.003	100	0.810	0.820	0.00231	0	-	0	0	0	-	0	0	0.00231	1.01	2.80	0.0000800	0.00239	2.38	23.8	<0.01	<0.01	8%	None
Coyote	Zinc	10.330	0.045	0.062	0.003	100	egression Bas	134	0.379	0	-	0	0	0	-	0	0	0.379	337	2.80	0.0266	0.406	160	320	<0.01	<0.01	100%	None
Coyote	*HI - Inorganics*																								**4.6**	0.57	(dets)	Possible
Coyote	2-Methylnaphthalene	10.330	0.045	0.062	0.003	100	0.629	61	0.172	0	-	0	0	0	-	0	0	0.172	97	2.80	0.00766	0.180	5.03	50.3	0.036	<0.01	14%	None
Coyote	Anthracene	10.330	0.045	0.062	0.003	100	0	0	0	0	-	0	0	0	-	0	0	0	3.70	2.80	0.000292	0.000292	1000	NSV	<0.01	--	7%	None
Coyote	Fluoranthene	10.330	0.045	0.062	0.003	100	0	0	0	0	-	0	0	0	-	0	0	0	0.144	2.80	0.0000114	0.0000114	125	250	<0.01	<0.01	4%	None
Coyote	Fluorene	10.330	0.045	0.062	0.003	100	0	0	0	0	-	0	0	0	-	0	0	0	18.5	2.80	0.00146	0.00146	125	250	<0.01	<0.01	14%	None
Coyote	Naphthalene	10.330	0.045	0.062	0.003	100	0	0	0	0	-	0	0	0	-	0	0	0	9.95	2.80	0.000786	0.000786	50	150	<0.01	<0.01	25%	None
Coyote	Phenanthrene	10.330	0.045	0.062	0.003	100	0	0	0	0	-	0	0	0	-	0	0	0	49.1	2.80	0.00388	0.00388	175	350	<0.01	<0.01	18%	None
Coyote	*HI - PAHs*																								0.036	<0.01	(dets)	None
Coyote	2,4,5-Trichlorophenol	10.330	0.045	0.062	0.003	100	0.125	6.24	0.0176	0	-	0	0	0	-	0	0	0.0176	50	2.80	0.00395	0.0216	0.24	2.4	0.090	<0.01	0%	None
Sage Sparrow	2,4,6-Trinitrotoluene (TNT)	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	1.71	2.56	0.0654	0.0654	1.50	2.00	0.000765	0.0662	0.07	1.8	0.95	0.037	0%	None
Sage Sparrow	2,6-Dinitrotoluene	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	3.14	33	0.841	0.841	10.5	2.00	0.00536	0.847	0.07	1.8	**12**	0.47	0%	Uncertain
Sage Sparrow	2-Amino-4,6-Dinitrotoluene	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	Regression Based	2.72	0.0694	0.0694	1.50	2.00	0.000765	0.0701	0.07	1.8	**1.0**	0.039	0%	Uncertain
Sage Sparrow	Nitrobenzene	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	1.13	11.9	0.303	0.303	10.5	2.00	0.00536	0.308	0.07	1.8	**4.4**	0.17	0%	Uncertain
Sage Sparrow	RDX	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	Regression Based	37.6	0.960	0.960	1.50	2.00	0.000765	0.961	0.07	1.8	**14**	0.53	0%	Uncertain
Sage Sparrow	Cadmium	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	Regression Based	1.91	0.0486	0.0486	7.80	2.00	0.00398	0.0526	0.16	0.61	0.33	0.086	44%	None
Sage Sparrow	Copper	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	Regression Based	52	1.33	1.33	4150	2.00	2.12	3.45	47	61.7	0.073	0.056	85%	None
Sage Sparrow	Lead	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	Regression Based	49.1	1.25	1.25	11000	2.00	5.62	6.87	0.19	1.78	**36**	***3.9***	83%	**Probable**
Sage Sparrow	Molybdenum	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	0.400	1.97	0.0504	0.0504	4.93	2.00	0.00252	0.0529	3.5	35.3	0.015	<0.01	91%	None
Sage Sparrow	Perchlorate	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	282	769	19.6	19.6	2.73	2.00	0.00139	19.6	3.26	32.6	**6.0**	0.60	50%	Possible
Sage Sparrow	Zinc	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	Regression Based	122	3.12	3.12	337	2.00	0.172	3.29	14.5	131	0.23	0.025	100%	None
Sage Sparrow	*HI - Inorganics*																								**43**	**4.6**	(dets)	**Probable**
Sage Sparrow	2-Methylnaphthalene	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	1.87	181	4.63	4.63	97	2.00	0.0495	4.68	26.9	269	0.17	0.017	14%	None
Sage Sparrow	Anthracene	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	Regression Based	7.44	0.190	0.190	3.70	2.00	0.00189	0.192	325.2	NSV	<0.01	--	7%	None
Sage Sparrow	Fluoranthene	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	0.500	0.0720	0.00184	0.00184	0.144	2.00	0.0000735	0.00191	325.2	NSV	<0.01	--	4%	None
Sage Sparrow	Fluorene	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	Regression Based	3160	80.6	80.6	18.5	2.00	0.00943	80.6	325.2	NSV	0.25	--	14%	None
Sage Sparrow	Naphthalene	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	12.2	121	3.10	3.10	9.95	2.00	0.00507	3.10	26.9	269	0.12	0.012	25%	None
Sage Sparrow	Phenanthrene	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	Regression Based	13.2	0.337	0.337	49.1	2.00	0.0250	0.362	325.2	NSV	<0.01	--	18%	None
Sage Sparrow	*HI - PAHs*																								0.54	0.029	(dets)	None
Sage Sparrow	Dimethylphthalate	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	2.11	22.1	0.565	0.565	10.5	2.00	0.00536	0.570	0.11	11	**5.2**	0.052	0%	Uncertain
Sage Sparrow	Di-n-octylphthalate	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	0.461	4.84	0.123	0.123	10.5	2.00	0.00536	0.129	0.11	11	**1.2**	0.012	0%	Uncertain
Sage Sparrow	1,1,1,2-Tetrachloroethane	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	3.56	0.00169	0.0000431	0.0000431	0.000475	2.00	0.000000242	0.0000434	17.2	34.4	<0.01	<0.01	5%	None
Sage Sparrow	1,1,1-Trichloroethane	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	0.279	0.000172	0.00000439	0.00000439	0.000616	2.00	0.000000314	0.00000470	17.2	34.4	<0.01	<0.01	5%	None
Sage Sparrow	1,1,2,2-Tetrachloroethane	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	0.354	0.000245	0.00000626	0.00000626	0.000692	2.00	0.000000353	0.00000661	17.2	34.4	<0.01	<0.01	5%	None
Sage Sparrow	1,1,2-Trichloroethane	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	0.298	0.000178	0.00000454	0.00000454	0.000597	2.00	0.000000305	0.00000484	17.2	34.4	<0.01	<0.01	5%	None
Sage Sparrow	1,1-Dichloroethane	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	1.28	0.000616	0.0000157	0.0000157	0.000479	2.00	0.000000245	0.0000160	17.2	34.4	<0.01	<0.01	5%	None
Sage Sparrow	1,1-Dichloroethene	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	8.26	0.00741	0.000189	0.000189	0.000897	2.00	0.000000458	0.000190	17.2	34.4	<0.01	<0.01	5%	None
Sage Sparrow	1,2,3-Trichlorobenzene	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	1.37	0.000996	0.0000254	0.0000254	0.000725	2.00	0.000000370	0.0000258	17.2	34.4	<0.01	<0.01	5%	None
Sage Sparrow	1,2,3-Trichloropropane	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	5.84	0.00373	0.0000952	0.0000952	0.000638	2.00	0.000000326	0.0000955	17.2	34.4	<0.01	<0.01	5%	None
Sage Sparrow	1,2,4-Trichlorobenzene	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	0.00580	0.0000185	0.000000473	0.000000473	0.00320	2.00	0.00000163	0.00000211	17.2	34.4	<0.01	<0.01	4%	None
Sage Sparrow	1,2-Dichlorobenzene	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	2.57	0.00360	0.0000918	0.0000918	0.00140	2.00	0.000000714	0.0000925	17.2	34.4	<0.01	<0.01	4%	None
Sage Sparrow	1,2-Dichloroethane	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	2.50	0.00146	0.0000374	0.0000374	0.000585	2.00	0.000000299	0.0000377	17.2	34.4	<0.01	<0.01	5%	None
Sage Sparrow	1,2-Dichloropropane	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	0.818	0.000421	0.0000107	0.0000107	0.000515	2.00	0.000000263	0.0000110	17.2	34.4	<0.01	<0.01	5%	None
Sage Sparrow	1,3-Dichlorobenzene	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	0.0262	0.0000498	0.00000127	0.00000127	0.00190	2.00	0.000000970	0.00000224	17.2	34.4	<0.01	<0.01	4%	None
Sage Sparrow	1,4-Dichlorobenzene	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	0.0262	0.0000812	0.00000207	0.00000207	0.00310	2.00	0.00000158	0.00000365	17.2	34.4	<0.01	<0.01	4%	None
Sage Sparrow	2-Butanone	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	46.1	0.349	0.00890	0.00890	0.00758	2.00	0.00000387	0.00891	39.3	393	<0.01	<0.01	18%	None
Sage Sparrow	2-Hexanone	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	16.6	0.0468	0.00119	0.00119	0.00281	2.00	0.00000143	0.00119	39.3	393	<0.01	<0.01	5%	None
Sage Sparrow	4-Methyl-2-pentanone	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	19.9	0.0647	0.00165	0.00165	0.00326	2.00	0.00000166	0.00165	39.3	393	<0.01	<0.01	5%	None
Sage Sparrow	Acetone	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	75.6	868	22.1	22.1	11.5	2.00	0.00586	22.2	39.3	NSV	0.56	--	32%	None
Sage Sparrow	Benzene	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	8.26	0.0128	0.000325	0.000325	0.00154	2.00	0.000000788	0.000326	10.2	101.7	<0.01	<0.01	14%	None
Sage Sparrow	Chlorobenzene	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	0.134	0.0000752	0.00000192	0.00000192	0.000560	2.00	0.000000286	0.00000220	17.2	34.4	<0.01	<0.01	5%	None
Sage Sparrow	Chloroethane	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	2.79	0.00209	0.0000532	0.0000532	0.000748	2.00	0.000000382	0.0000536	17.2	34.4	<0.01	<0.01	5%	None
Sage Sparrow	Chloromethane	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	7.83	0.00578	0.000147	0.000147	0.000738	2.00	0.000000377	0.000148	17.2	34.4	<0.01	<0.01	5%	None
Sage Sparrow	cis-1,2-Dichloroethene	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	10.6	0.00528	0.000135	0.000135	0.000497	2.00	0.000000254	0.000135	17.2	34.4	<0.01	<0.01	5%	None
Sage Sparrow	cis-1,3-Dichloropropene	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	7.11	0.00380	0.0000970	0.0000970	0.000535	2.00	0.000000273	0.0000973	17.2	34.4	<0.01	<0.01	5%	None
Sage Sparrow	Dibromochloromethane	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	0.674	0.000382	0.00000975	0.00000975	0.000567	2.00	0.000000289	0.0000100	17.2	34.4	<0.01	<0.01	5%	None
Sage Sparrow	Dibromomethane	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	13.3	0.00587	0.000150	0.000150	0.000442	2.00	0.000000225	0.000150	17.2	34.4	<0.01	<0.01	5%	None
Sage Sparrow	Dichlorodifluoromethane	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	0.580	0.000386	0.00000984	0.00000984	0.000665	2.00	0.000000339	0.0000102	17.2	34.4	<0.01	<0.01	5%	None
Sage Sparrow	Ethylbenzene	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	0.0690	0.0000389	0.000000991	0.000000991	0.000563	2.00	0.000000287	0.00000128	10.2	101.7	<0.01	<0.01	5%	None
Sage Sparrow	m,p-Xylene	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	3.04	0.00293	0.0000748	0.0000748	0.000965	2.00	0.000000492	0.0000753	10.2	101.7	<0.01	<0.01	5%	None
Sage Sparrow	o-Xylene	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	3.34	0.00393	0.000100	0.000100	0.00118	2.00	0.000000600	0.000101	10.2	101.7	<0.01	<0.01	14%	None
Sage Sparrow	Tetrachloroethene	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	2.52	0.00165	0.0000422	0.0000422	0.000656	2.00	0.000000335	0.0000425	17.2	34.4	<0.01	<0.01	5%	None

Table 26
Refined Risk Estimation for Wildlife Exposed to Site Soils
Attachment 10A - Thermal Treatment Unit, Ecological Risk Assessment

Receptor	Chemical	Body Weight (kg)	Daily Food Intake (kg/kg-bw/day)	Area Use Factor	Daily Food Ingestion from Site (kg/kg-bw/day)	Small Mammals and Other Vertebrates: Percent of Diet	Small Mammals and Other Vertebrates: Soil to Tissue Transfer Factor	Small Mammals and Other Vertebrates: Tissue Concentration (mg/kg DW)	Small Mammals and Other Vertebrates: Total Vertebrate Food Intake (mg/kg-bw/d)a	Soil Invertebrates: Percent of Diet	Soil Invertebrates: Soil to Tissue Transfer Factor	Soil Invertebrates: Tissue Concentration (mg/kg DW)	Soil Invertebrates: Total Invertebrate Food Intake (mg/kg-bw/d)b	Terrestrial Plants: Percent of Diet	Terrestrial Plants: Soil to Tissue Transfer Factor	Terrestrial Plants: Tissue Concentration (mg/kg DW)	Terrestrial Plants: Total Plant Food Intake (mg/kg-bw/d)c	Total Food Intake (mg/kg-bw/d)d	Refined Soil EPC (mg/kg)	Percent of Diet as Soil	Incidental Soil Intake (mg/kg-bw/d)e	Total Chemical Intake (mg/kg-day)f	NOAEL TRV (mg/kg-bw/d)	LOAEL TRV (mg/kg-bw/d)	NOAEL Hazard Quotient	LOAEL Hazard Quotient	Detection Frequency (%)	Risk Conclusions
Sage Sparrow	Toluene	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	4.71	0.0670	0.00171	0.00171	0.0142	2.00	0.00000725	0.00172	10.2	101.7	<0.01	<0.01	23%	None
Sage Sparrow	Trans-1,2-Dichloroethene	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	2.50	0.00138	0.0000353	0.0000353	0.000552	2.00	0.000000282	0.0000356	17.2	34.4	<0.01	<0.01	5%	None
Sage Sparrow	Trans-1,3-Dichloropropene	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	0.818	0.000424	0.0000108	0.0000108	0.000519	2.00	0.000000265	0.0000111	17.2	34.4	<0.01	<0.01	5%	None
Sage Sparrow	*HI - VOCs*																								*0.56*	<0.01	(dets)	None
Loggerhead Shrike	2,4-Dinitrotoluene	0.047	0.022	1	0.022	0	-	0	0	100	3.71	7.42	0.166	0	-	0	0	0.166	2.00	0	0	0.166	0.07	1.8	**2.4**	0.092	2%	Possible
Loggerhead Shrike	2,6-Dinitrotoluene	0.047	0.022	1	0.022	0	-	0	0	100	3.16	33.2	0.740	0	-	0	0	0.740	10.5	0	0	0.740	0.07	1.8	**11**	0.41	0%	Uncertain
Loggerhead Shrike	2-Amino-4,6-Dinitrotoluene	0.047	0.022	1	0.022	0	-	0	0	100	egression Bas	6.71	0.150	0	-	0	0	0.150	1.50	0	0	0.150	0.07	1.8	**2.1**	0.083	0%	Uncertain
Loggerhead Shrike	2-Nitrotoluene	0.047	0.022	1	0.022	0	-	0	0	100	30.9	4.32	0.0965	0	-	0	0	0.0965	0.140	0	0	0.0965	0.07	1.8	**1.4**	0.054	0%	Uncertain
Loggerhead Shrike	3-Nitrotoluene	0.047	0.022	1	0.022	0	-	0	0	100	27.6	4.14	0.0924	0	-	0	0	0.0924	0.150	0	0	0.0924	0.07	1.8	**1.3**	0.051	0%	Uncertain
Loggerhead Shrike	4-Nitrotoluene	0.047	0.022	1	0.022	0	-	0	0	100	27.5	5.23	0.117	0	-	0	0	0.117	0.190	0	0	0.117	0.07	1.8	**1.7**	0.065	0%	Uncertain
Loggerhead Shrike	HMX	0.047	0.022	1	0.022	0	-	0	0	100	0.313	2.54	0.0567	0	-	0	0	0.0567	8.12	0	0	0.0567	9	62.5	<0.01	<0.01	31%	None
Loggerhead Shrike	Nitrobenzene	0.047	0.022	1	0.022	0	-	0	0	100	29.7	311	6.95	0	-	0	0	6.95	10.5	0	0	6.95	0.07	1.8	**99**	***3.9***	0%	Uncertain
Loggerhead Shrike	RDX	0.047	0.022	1	0.022	0	-	0	0	100	egression Bas	87.3	1.95	0	-	0	0	1.95	1.50	0	0	1.95	0.07	1.8	**28**	***1.1***	0%	Uncertain
Loggerhead Shrike	*HI - Energetics*																								**2.4**	0.093	(dets)	Possible
Loggerhead Shrike	Cadmium	0.047	0.022	1	0.022	0	-	0	0	100	egression Bas	42.4	0.945	0	-	0	0	0.945	7.80	0	0	0.945	0.16	0.61	**5.9**	***1.6***	44%	**Probable**
Loggerhead Shrike	Copper	0.047	0.022	1	0.022	0	-	0	0	100	egression Bas	48.2	1.07	0	-	0	0	1.07	4150	0	0	1.07	47	61.7	0.023	0.017	85%	None
Loggerhead Shrike	Lead	0.047	0.022	1	0.022	0	-	0	0	100	egression Bas	1470	32.8	0	-	0	0	32.8	11000	0	0	32.8	0.19	1.78	**170**	***18***	83%	**Probable**
Loggerhead Shrike	Molybdenum	0.047	0.022	1	0.022	0	-	0	0	100	0.953	4.70	0.105	0	-	0	0	0.105	4.93	0	0	0.105	3.5	35.3	0.030	<0.01	91%	None
Loggerhead Shrike	Perchlorate	0.047	0.022	1	0.022	0	-	0	0	100	1.00	2.73	0.0608	0	-	0	0	0.0608	2.73	0	0	0.0608	3.26	32.6	0.019	<0.01	50%	None
Loggerhead Shrike	Zinc	0.047	0.022	1	0.022	0	-	0	0	100	egression Bas	577	12.9	0	-	0	0	12.9	337	0	0	12.9	14.5	131	0.89	0.098	100%	None
Loggerhead Shrike	*HI - Inorganics*																								**180**	**20**	(dets)	**Probable**
Loggerhead Shrike	2-Methylnaphthalene	0.047	0.022	1	0.022	0	-	0	0	100	29	2820	62.8	0	-	0	0	62.8	97	0	0	62.8	26.9	269	**2.3**	0.23	14%	Possible
Loggerhead Shrike	Anthracene	0.047	0.022	1	0.022	0	-	0	0	100	2.42	8.95	0.200	0	-	0	0	0.200	3.70	0	0	0.200	325.2	NSV	<0.01	--	7%	None
Loggerhead Shrike	Fluoranthene	0.047	0.022	1	0.022	0	-	0	0	100	3.04	0.438	0.00976	0	-	0	0	0.00976	0.144	0	0	0.00976	325.2	NSV	<0.01	--	4%	None
Loggerhead Shrike	Fluorene	0.047	0.022	1	0.022	0	-	0	0	100	9.57	177	3.94	0	-	0	0	3.94	18.5	0	0	3.94	325.2	NSV	0.012	--	14%	None
Loggerhead Shrike	Naphthalene	0.047	0.022	1	0.022	0	-	0	0	100	4.40	43.8	0.976	0	-	0	0	0.976	9.95	0	0	0.976	26.9	269	0.036	<0.01	25%	None
Loggerhead Shrike	Phenanthrene	0.047	0.022	1	0.022	0	-	0	0	100	1.72	84.4	1.88	0	-	0	0	1.88	49.1	0	0	1.88	325.2	NSV	<0.01	--	18%	None
Loggerhead Shrike	*HI - PAHs*																								**2.4**	0.24	(dets)	Possible
Loggerhead Shrike	TPH	0.047	0.022	1	0.022	0	-	0	0	100	-	0	0	0	-	0	0	0	47000	0	0	0	500	5000	<0.01	<0.01	100%	None
Loggerhead Shrike	*HI - Petroleum*																								<0.01	<0.01	(dets)	None
Loggerhead Shrike	2,4,5-Trichlorophenol	0.047	0.022	1	0.022	0	-	0	0	100	35.1	1760	39.1	0	-	0	0	39.1	50	0	0	39.1	16.9	38.4	**2.3**	***1.0***	0%	Uncertain
Loggerhead Shrike	bis(2-Ethylhexyl)phthalate	0.047	0.022	1	0.022	0	-	0	0	100	33.4	50.1	1.12	0	-	0	0	1.12	1.50	0	0	1.12	1.1	NSV		--	18%	Possible
Loggerhead Shrike	Butyl benzylphthalate	0.047	0.022	1	0.022	0	-	0	0	100	38.8	408	9.09	0	-	0	0	9.09	10.5	0	0	9.09	0.11	11	**83**	0.83	0%	Uncertain
Loggerhead Shrike	Diethylphthalate	0.047	0.022	1	0.022	0	-	0	0	100	31.3	329	7.34	0	-	0	0	7.34	10.5	0	0	7.34	0.11	11	**67**	0.67	0%	Uncertain
Loggerhead Shrike	Dimethylphthalate	0.047	0.022	1	0.022	0	-	0	0	100	28.9	303	6.77	0	-	0	0	6.77	10.5	0	0	6.77	0.11	11	**62**	0.62	0%	Uncertain
Loggerhead Shrike	Di-n-butylphthalate	0.047	0.022	1	0.022	0	-	0	0	100	38	399	8.91	0	-	0	0	8.91	10.5	0	0	8.91	0.11	11	**81**	0.81	0%	Uncertain
Loggerhead Shrike	Di-n-octylphthalate	0.047	0.022	1	0.022	0	-	0	0	100	30.8	323	7.21	0	-	0	0	7.21	10.5	0	0	7.21	0.11	11	**66**	0.66	0%	Uncertain
Loggerhead Shrike	Hexachlorobenzene	0.047	0.022	1	0.022	0	-	0	0	100	40.2	422	9.42	0	-	0	0	9.42	10.5	0	0	9.42	0.56	2.25	**17**	***4.2***	0%	Uncertain
Loggerhead Shrike	Hexachlorobutadiene	0.047	0.022	1	0.022	0	-	0	0	100	38.6	0.0309	0.000689	0	-	0	0	0.000689	0.000800	0	0	0.000689	0.56	2.25	<0.01	<0.01	4%	None
Loggerhead Shrike	Hexachlorocyclopentadiene	0.047	0.022	1	0.022	0	-	0	0	100	36	378	8.43	0	-	0	0	8.43	10.5	0	0	8.43	0.56	2.25	**15**	***3.8***	0%	Uncertain
Loggerhead Shrike	Hexachloroethane	0.047	0.022	1	0.022	0	-	0	0	100	38	399	8.90	0	-	0	0	8.90	10.5	0	0	8.90	0.56	2.25	**16**	***4.0***	0%	Uncertain
Loggerhead Shrike	*HI - SVOCs*																								**1.0**	*0*	(dets)	Possible
Western Meadowlark	2,4-Dinitrotoluene	0.103	0.020	1	0.020	0	-	0	0	100	3.71	7.42	0.147	0	-	0	0	0.147	2.00	2.00	0.000793	0.148	0.07	1.8	**2.1**	0.082	2%	Possible
Western Meadowlark	2,6-Dinitrotoluene	0.103	0.020	1	0.020	0	-	0	0	100	3.16	33.2	0.658	0	-	0	0	0.658	10.5	2.00	0.00417	0.662	0.07	1.8	**9.5**	0.37	0%	Uncertain
Western Meadowlark	2-Amino-4,6-Dinitrotoluene	0.103	0.020	1	0.020	0	-	0	0	100	egression Bas	6.71	0.133	0	-	0	0	0.133	1.50	2.00	0.000595	0.134	0.07	1.8	**1.9**	0.074	0%	Uncertain
Western Meadowlark	2-Nitrotoluene	0.103	0.020	1	0.020	0	-	0	0	100	30.9	4.32	0.0858	0	-	0	0	0.0858	0.140	2.00	0.0000555	0.0858	0.07	1.8	**1.2**	0.048	0%	Uncertain
Western Meadowlark	3-Nitrotoluene	0.103	0.020	1	0.020	0	-	0	0	100	27.6	4.14	0.0822	0	-	0	0	0.0822	0.150	2.00	0.0000595	0.0823	0.07	1.8	**1.2**	0.046	0%	Uncertain
Western Meadowlark	4-Nitrotoluene	0.103	0.020	1	0.020	0	-	0	0	100	27.5	5.23	0.104	0	-	0	0	0.104	0.190	2.00	0.0000754	0.104	0.07	1.8	**1.5**	0.058	0%	Uncertain
Western Meadowlark	HMX	0.103	0.020	1	0.020	0	-	0	0	100	0.313	2.54	0.0504	0	-	0	0	0.0504	8.12	2.00	0.00322	0.0536	9	62.5	<0.01	<0.01	31%	None
Western Meadowlark	Nitrobenzene	0.103	0.020	1	0.020	0	-	0	0	100	29.7	311	6.18	0	-	0	0	6.18	10.5	2.00	0.00417	6.18	0.07	1.8	**88**	***3.4***	0%	Uncertain
Western Meadowlark	RDX	0.103	0.020	1	0.020	0	-	0	0	100	egression Bas	87.3	1.73	0	-	0	0	1.73	1.50	2.00	0.000595	1.73	0.07	1.8	**25**	0.96	0%	Uncertain
Western Meadowlark	*HI - Energetics*																								**2.1**	0.083	(dets)	Possible
Western Meadowlark	Cadmium	0.103	0.020	1	0.020	0	-	0	0	100	egression Bas	42.4	0.841	0	-	0	0	0.841	7.80	2.00	0.00309	0.844	0.16	0.61	**5.3**	***1.4***	44%	**Probable**
Western Meadowlark	Copper	0.103	0.020	1	0.020	0	-	0	0	100	egression Bas	48.2	0.955	0	-	0	0	0.955	4150	2.00	1.65	2.60	47	61.7	0.055	0.042	85%	None
Western Meadowlark	Lead	0.103	0.020	1	0.020	0	-	0	0	100	egression Bas	1470	29.1	0	-	0	0	29.1	11000	2.00	4.37	33.5	0.19	1.78	**180**	***19***	83%	**Probable**
Western Meadowlark	Molybdenum	0.103	0.020	1	0.020	0	-	0	0	100	0.953	4.70	0.0933	0	-	0	0	0.0933	4.93	2.00	0.00196	0.0952	3.5	35.3	0.027	<0.01	91%	None
Western Meadowlark	Perchlorate	0.103	0.020	1	0.020	0	-	0	0	100	1.00	2.73	0.0541	0	-	0	0	0.0541	2.73	2.00	0.00108	0.0552	3.26	32.6	0.017	<0.01	50%	None
Western Meadowlark	Zinc	0.103	0.020	1	0.020	0	-	0	0	100	egression Bas	577	11.4	0	-	0	0	11.4	337	2.00	0.134	11.6	14.5	131	0.80	0.088	100%	None
Western Meadowlark	*HI - Inorganics*																								**180**	**20**	(dets)	**Probable**
Western Meadowlark	2-Methylnaphthalene	0.103	0.020	1	0.020	0	-	0	0	100	29	2820	55.9	0	-	0	0	55.9	97	2.00	0.0385	55.9	26.9	269	**2.1**	0.21	14%	Possible
Western Meadowlark	Anthracene	0.103	0.020	1	0.020	0	-	0	0	100	2.42	8.95	0.178	0	-	0	0	0.178	3.70	2.00	0.00147	0.179	325.2	NSV	<0.01	--	7%	None
Western Meadowlark	Fluoranthene	0.103	0.020	1	0.020	0	-	0	0	100	3.04	0.438	0.00868	0	-	0	0	0.00868	0.144	2.00	0.0000571	0.00874	325.2	NSV	<0.01	--	4%	None
Western Meadowlark	Fluorene	0.103	0.020	1	0.020	0	-	0	0	100	9.57	177	3.51	0	-	0	0	3.51	18.5	2.00	0.00733	3.52	325.2	NSV	0.011	--	14%	None
Western Meadowlark	Naphthalene	0.103	0.020	1	0.020	0	-	0	0	100	4.40	43.8	0.868	0	-	0	0	0.868	9.95	2.00	0.00395	0.872	26.9	269	0.032	<0.01	25%	None
Western Meadowlark	Phenanthrene	0.103	0.020	1	0.020	0	-	0	0	100	1.72	84.4	1.67	0	-	0	0	1.67	49.1	2.00	0.0195	1.69	325.2	NSV	<0.01	--	18%	None
Western Meadowlark	*HI - PAHs*																								**2.1**	0.21	(dets)	Possible
Western Meadowlark	2,4,5-Trichlorophenol	0.103	0.020	1	0.020	0	-	0	0	100	35.1	1760	34.8	0	-	0	0	34.8	50	2.00	0.0198	34.8	16.9	38.4	**2.1**	0.91	0%	Uncertain
Western Meadowlark	Butyl benzylphthalate	0.103	0.020	1	0.020	0	-	0	0	100	38.8	408	8.09	0	-	0	0	8.09	10.5	2.00	0.00417	8.09	0.11	11	**74**	0.74	0%	Uncertain
Western Meadowlark	Diethylphthalate	0.103	0.020	1	0.020	0	-	0	0	100	31.3	329	6.53	0	-	0	0	6.53	10.5	2.00	0.00417	6.53	0.11	11	**59**	0.59	0%	Uncertain
Western Meadowlark	Dimethylphthalate	0.103	0.020	1	0.020	0	-	0	0	100	28.9	303	6.02	0	-	0	0	6.02	10.5	2.00	0.00417	6.02	0.11	11	**55**	0.55	0%	Uncertain
Western Meadowlark	Di-n-butylphthalate	0.103	0.020	1	0.020	0	-	0	0	100	38	399	7.92	0	-	0	0	7.92	10.5	2.00	0.00417	7.93	0.11	11	**72**	0.72	0%	Uncertain
Western Meadowlark	Di-n-octylphthalate	0.103	0.020	1	0.020	0	-	0	0	100	30.8	323	6.41	0	-	0	0	6.41	10.5	2.00	0.00417	6.42	0.11	11	**58**	0.58	0%	Uncertain
Western Meadowlark	Hexachlorobenzene	0.103	0.020	1	0.020	0	-	0	0	100	40.2	422	8.38	0	-	0	0	8.38	10.5	2.00	0.00417	8.38	0.56	2.25	**15**	***3.7***	0%	Uncertain
Western Meadowlark	Hexachlorocyclopentadiene	0.103	0.020	1	0.020	0	-	0	0	100	36	378	7.50	0	-	0	0	7.50	10.5	2.00	0.00417	7.50	0.56	2.25	**13**	***3.3***	0%	Uncertain
Western Meadowlark	Hexachloroethane	0.103	0.020	1	0.020	0	-	0	0	100	38	399	7.91	0	-	0	0	7.91	10.5	2.00	0.00417	7.92	0.56	2.25	**14**	***3.5***	0%	Uncertain
Burrowing Owl	2,4-Dinitrotoluene	0.157	0.111	1	0.111	100	1.05	2.11	0.234	0	-	0	0	0	-	0	0	0.234	2.00	5.00	0.0111	0.245	0.07	1.8	**3.5**	0.14	2%	Possible
Burrowing Owl	2,6-Dinitrotoluene	0.157	0.111	1	0.111	100	1.10	11.5	1.28	0	-	0	0	0	-	0	0	1.28	10.5	5.00	0.0583	1.34	0.07	1.8	**19**	0.74	0%	Uncertain

Table 26

Refined Risk Estimation for Wildlife Exposed to Site Soils

Attachment 10A - Thermal Treatment Unit, Ecological Risk Assessment

						Small Mammals and Other Vertebrates				Soil Invertebrates				Terrestrial Plants														
Receptor	Chemical	Body Weight (kg)	Daily Food Intake (kg/kg-bw/day)	Area Use Factor	Daily Food Ingestion from Site (kg/kg-bw/day)	Percent of Diet	Soil to Tissue Transfer Factor	Tissue Concentration (mg/kg DW)	Total Vertebrate Food Intake (mg/kg-bw/d)a	Percent of Diet	Soil to Tissue Transfer Factor	Tissue Concentration (mg/kg DW)	Total Invertebrate Food Intake (mg/kg-bw/d)b	Percent of Diet	Soil to Tissue Transfer Factor	Tissue Concentration (mg/kg DW)	Total Plant Food Intake (mg/kg-bw/d)c	Total Food Intake (mg/kg-bw/d)d	Refined Soil EPC (mg/kg)	Percent of Diet as Soil	Incidental Soil Intake (mg/kg-bw/d)e	Total Chemical Intake (mg/kg-day)f	NOAEL TRV (mg/kg-bw/d)	LOAEL TRV (mg/kg-bw/d)	NOAEL Hazard Quotient	LOAEL Hazard Quotient	Detection Frequency (%)	Risk Conclusions
Burrowing Owl	2-Amino-4,6-Dinitrotoluene	0.157	0.111	1	0.111	100	1.18	1.77	0.196	0	-	0	0	0	-	0	0	0.196	1.50	5.00	0.00833	0.205	0.07	1.8	**2.9**	0.11	0%	Uncertain
Burrowing Owl	HMX	0.157	0.111	1	0.111	100	2.13	17.3	1.92	0	-	0	0	0	-	0	0	1.92	8.12	5.00	0.0451	1.97	9	62.5	0.22	0.032	31%	None
Burrowing Owl	Nitrobenzene	0.157	0.111	1	0.111	100	0.525	5.51	0.612	0	-	0	0	0	-	0	0	0.612	10.5	5.00	0.0583	0.671	0.07	1.8	**9.6**	0.37	0%	Uncertain
Burrowing Owl	*HI - Energetics*																								**3.7**	0.17	(dets)	Possible
Burrowing Owl	Cadmium	0.157	0.111	1	0.111	100	egression Bas	1.81	0.201	0	-	0	0	0	-	0	0	0.201	7.80	5.00	0.0433	0.245	0.16	0.61	**1.5**	0.40	44%	Possible
Burrowing Owl	Copper	0.157	0.111	1	0.111	100	egression Bas	25.7	2.85	0	-	0	0	0	-	0	0	2.85	4150	5.00	23.1	25.9	47	61.7	0.55	0.42	85%	None
Burrowing Owl	Lead	0.157	0.111	1	0.111	100	egression Bas	66.1	7.34	0	-	0	0	0	-	0	0	7.34	11000	5.00	61.1	68.5	0.19	1.78	**360**	***39***	83%	**Probable**
Burrowing Owl	Molybdenum	0.157	0.111	1	0.111	100	1.00	4.93	0.548	0	-	0	0	0	-	0	0	0.548	4.93	5.00	0.0274	0.575	3.5	35.3	0.16	0.016	91%	None
Burrowing Owl	Perchlorate	0.157	0.111	1	0.111	100	0.100	0.273	0.0303	0	-	0	0	0	-	0	0	0.0303	2.73	5.00	0.0151	0.0454	3.26	32.6	0.014	<0.01	50%	None
Burrowing Owl	Zinc	0.157	0.111	1	0.111	100	egression Bas	134	14.9	0	-	0	0	0	-	0	0	14.9	337	5.00	1.87	16.8	14.5	131	**1.2**	0.13	100%	Possible
Burrowing Owl	*HI - Inorganics*																								**364**	**39.4**	(dets)	**Probable**
Burrowing Owl	Butyl benzylphthalate	0.157	0.111	1	0.111	100	0.0527	0.554	0.0615	0	-	0	0	0	-	0	0	0.0615	10.5	5.00	0.0583	0.120	0.11	11	**1.09**	0.0109	0%	Uncertain
Burrowing Owl	Diethylphthalate	0.157	0.111	1	0.111	100	0.329	3.45	0.383	0	-	0	0	0	-	0	0	0.383	10.5	5.00	0.0583	0.442	0.11	11	**4.02**	0.0402	0%	Uncertain
Burrowing Owl	Dimethylphthalate	0.157	0.111	1	0.111	100	0.656	6.89	0.765	0	-	0	0	0	-	0	0	0.765	10.5	5.00	0.0583	0.824	0.11	11	**7.49**	0.0749	0%	Uncertain
Burrowing Owl	Di-n-butylphthalate	0.157	0.111	1	0.111	100	0.0629	0.661	0.0734	0	-	0	0	0	-	0	0	0.0734	10.5	5.00	0.0583	0.132	0.11	11	**1.20**	0.0120	0%	Uncertain
Burrowing Owl	Di-n-octylphthalate	0.157	0.111	1	0.111	100	0.381	4.00	0.444	0	-	0	0	0	-	0	0	0.444	10.5	5.00	0.0583	0.503	0.11	11	**4.57**	0.0457	0%	Uncertain

Notes:

kg = Kilograms.

kg/kg-bw/day = Kilograms per kilogram of body weight per day.

EPC = exposure point concentration

LOAEL = lowest observed adverse effect level

MAH = Monocyclic aromatic hydrocarbon

NOAEL = no observed adverse effect level

PAH = polycyclic aromatic hydrocarbon

TRV = toxicological reference value

For the screening, it has been conservatively assumed that all chemical intake is absorbed by the receptor.

Hazard quotients in bold exceed one

Hazard Indices (HIs) calculated by summing HQs for detected analytes

a) Food intake from small mammals = (daily food ingestion from site) X (fraction of diet as small mammals) X (soil to small mammal transfer factor) X (soil concentration).

b) Food intake from terrestrial invertebrates = (daily food ingestion from site) X (fraction of diet as terrestrial invertebrates) X (soil to terrestrial invertebrate transfer factor) X (soil concentration).

c) Food intake from plants = (daily food ingestion from site) X (fraction of diet as plants) X (soil to plant transfer factor) X (soil concentration).

d) Total food intake = (food intake from small mammals and other vertebrates) + (food intake from terrestrial invertebrates) + (food intake from plants)

e) Incidental soil intake = (daily food ingestion from site) X (fraction of diet as soil) X (soil concentration).

f) Total chemical intake = (total food intake) + (water intake) + (incidental soil intake).

NA - not applicable

NSV - no screening value available

Exposure to TPH is only from abiotic media (soil and water); thus, there is no food component associated with exposure to TPH (Albers, 1995)

Table 27
Refined Risk Estimation for Wildlife Exposed to Site Soils Within Habitat Areas
Attachment 10A - Thermal Treatment Unit, Ecological Risk Assessment

						Small Mammals and Other Vertebrates				Soil Invertebrates				Terrestrial Plants														
Receptor	Chemical	Body Weight (kg)	Daily Food Intake (kg/kg-bw/day)	Area Use Factor	Daily Food Ingestion from Site (kg/kg-bw/day)	Percent of Diet	Soil to Tissue Transfer Factor	Tissue Concentration (mg/kg DW)	Total Vertebrate Food Intake (mg/kg-bw/d)a	Percent of Diet	Soil to Tissue Transfer Factor	Tissue Concentration (mg/kg DW)	Total Invertebrate Food Intake (mg/kg-bw/d)b	Percent of Diet	Soil to Tissue Transfer Factor	Tissue Concentration (mg/kg DW)	Total Plant Food Intake (mg/kg-bw/d)c	Total Food Intake (mg/kg-bw/d)d	Refined Habitat Soil EPC (mg/kg)	Percent of Diet as Soil	Incidental Soil Intake (mg/kg-bw/d)e	Total Chemical Intake (mg/kg-day)f	NOAEL TRV (mg/kg-bw/d)	LOAEL TRV (mg/kg-bw/d)	NOAEL Hazard Quotient	LOAEL Hazard Quotient	Detection Frequency (%)	Risk Conclusions
Ord's Kangaroo Rat	1,3-Dinitrobenzene	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	15	1.20	0.133	0.133	0.0800	2.00	0.000178	0.134	0.0	0.2	**3.3**	0.67	0%	Possible
Ord's Kangaroo Rat	2,4-Dinitrotoluene	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	0.376	0.376	0.0418	0.0418	1.00	2.00	0.00222	0.0440	2.0	8	0.022	<0.01	0%	None
Ord's Kangaroo Rat	2,6-Dinitrotoluene	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	3.14	4.71	0.523	0.523	1.50	2.00	0.00333	0.526	2.0	8	0.26	0.066	0%	None
Ord's Kangaroo Rat	HMX	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	Regression Based	30	3.33	3.33	3.30	2.00	0.00733	3.34	1.0	5	**3.3**	0.67	20%	Possible
Ord's Kangaroo Rat	RDX	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	Regression Based	37.6	4.18	4.18	1.50	2.00	0.00333	4.18	2.0	20	**2.1**	0.21	0%	Uncertain
Ord's Kangaroo Rat	*HI - Energetics*																								**3.3**	0.67	(dets)	Possible
Ord's Kangaroo Rat	Antimony	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	0.0102	0.0388	0.00430	0.00430	3.80	2.00	0.00844	0.0127	0.1	0.64	0.22	0.020	88%	None
Ord's Kangaroo Rat	Cadmium	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	Regression Based	0.696	0.0773	0.0773	1.23	2.00	0.00273	0.0800	0.8	1.42	0.10	0.056	62%	None
Ord's Kangaroo Rat	Copper	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	Regression Based	6.78	0.753	0.753	23.6000000	2.00	0.0524	0.806	11.7	15.14	0.069	0.053	95%	None
Ord's Kangaroo Rat	Lead	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	Regression Based	1.38	0.154	0.154	19.0000000	2.00	0.0422	0.196	0.9	4.7	0.21	0.042	95%	None
Ord's Kangaroo Rat	Molybdenum	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	0.400	0.400	0.0444	0.0444	1.00	2.00	0.00222	0.0466	0.3	2.6	0.18	0.018	87%	None
Ord's Kangaroo Rat	Nitrate	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	1	10	1.110564965	1.110564965	10.0000000	2.00	0.022	1.133	507.0	1130	<0.01	<0.01	95%	None
Ord's Kangaroo Rat	Perchlorate	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	282	15.10	1.68	1.68	0.0537	2.00	0.000119	1.68	2.6	25.9	0.65	0.065	33%	None
Ord's Kangaroo Rat	Selenium	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	Regression Based	3.00	0.333	0.333	5.00	2.00	0.0111	0.344	0.2	0.33	**1.7**	***1.0***	0%	Uncertain
Ord's Kangaroo Rat	Silver	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	0.0140	0.00252	0.000280	0.000280	0.180	2.00	0.000400	0.000680	2.4	23.8	<0.01	<0.01	5%	None
Ord's Kangaroo Rat	Zinc	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	Regression Based	47.2	5.24	5.24	60.8000000	2.00	0.135	5.38	160.0	320	0.034	0.017	100%	None
Ord's Kangaroo Rat	*HI - Inorganics*																								**1.5**	0.27	(dets)	Possible
Ord's Kangaroo Rat	2-Methylnaphthalene	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	1.87	0.337	0.0374	0.0374	0.180	2.00	0.000400	0.0378	5.0	50.3	<0.01	<0.01	0%	None
Ord's Kangaroo Rat	Anthracene	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	Regression Based	0.707	0.0786	0.0786	0.180	2.00	0.000400	0.0790	1000.0	NSV	<0.01	--	0%	None
Ord's Kangaroo Rat	Benzo(a)pyrene	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	Regression Based	0.200	0.0222	0.0222	0.180	2.00	0.000400	0.0226	1.0	10	0.023	<0.01	0%	None
Ord's Kangaroo Rat	Benzo(g,h,i)perylene	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	Regression Based	0.334	0.0371	0.0371	0.180	2.00	0.000400	0.0375	1.0	10	0.038	<0.01	0%	None
Ord's Kangaroo Rat	Benzo(k)fluoranthene	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	Regression Based	0.268	0.0298	0.0298	0.180	2.00	0.000400	0.0302	1.0	10	0.030	<0.01	0%	None
Ord's Kangaroo Rat	Fluoranthene	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	0.500	0.0535	0.00594	0.00594	0.107	2.00	0.000238	0.00618	125.0	250	<0.01	<0.01	6%	None
Ord's Kangaroo Rat	Fluorene	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	Regression Based	60	6.67	6.67	0.180	2.00	0.000400	6.67	125.0	250	0.053	0.027	0%	None
Ord's Kangaroo Rat	Naphthalene	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	12.2	2.20	0.244	0.244	0.180	2.00	0.000400	0.244	50.0	150	<0.01	<0.01	0%	None
Ord's Kangaroo Rat	Phenanthrene	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	Regression Based	0.408	0.0453	0.0453	0.180	2.00	0.000400	0.0457	175.0	350	<0.01	<0.01	0%	None
Ord's Kangaroo Rat	*HI - PAHs*																								<0.01	<0.01	(dets)	None
Ord's Kangaroo Rat	1,1,1,2-Tetrachloroethane	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	3.56	0.00267	0.000297	0.000297	0.000750	2.00	0.00000167	0.000298	1.4	7	<0.01	<0.01	0%	None
Ord's Kangaroo Rat	1,1,1-Trichloroethane	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	0.279	0.000181	0.0000202	0.0000202	0.000650	2.00	0.00000144	0.0000216	1000.0	NSV	<0.01	--	0%	None
Ord's Kangaroo Rat	1,1,2,2-Tetrachloroethane	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	0.354	0.000248	0.0000275	0.0000275	0.000700	2.00	0.00000155	0.0000291	1.4	7	<0.01	<0.01	0%	None
Ord's Kangaroo Rat	1,1,2-Trichloroethane	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	0.298	0.000208	0.0000231	0.0000231	0.000700	2.00	0.00000155	0.0000247	1000.0	NSV	<0.01	--	0%	None
Ord's Kangaroo Rat	1,1-Dichloroethane	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	1.28	0.000578	0.0000642	0.0000642	0.000450	2.00	0.000001000	0.0000652	50.0	NSV	<0.01	--	0%	None
Ord's Kangaroo Rat	1,1-Dichloroethene	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	8.26	0.0120	0.00133	0.00133	0.00145	2.00	0.00000322	0.00133	2.5	NSV	<0.01	--	0%	None
Ord's Kangaroo Rat	1,2,3-Trichloropropane	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	5.84	0.00614	0.000682	0.000682	0.00105	2.00	0.00000233	0.000684	1000.0	NSV	<0.01	--	0%	None
Ord's Kangaroo Rat	1,2-Dichloroethane	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	2.50	0.00175	0.000195	0.000195	0.000700	2.00	0.00000155	0.000196	50.0	NSV	<0.01	--	0%	None
Ord's Kangaroo Rat	1,2-Dichloropropane	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	0.818	0.000450	0.0000500	0.0000500	0.000550	2.00	0.00000122	0.0000512	50.0	NSV	<0.01	--	0%	None
Ord's Kangaroo Rat	2-Butanone	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	46.1	0.210	0.0233	0.0233	0.00455	2.00	0.0000101	0.0233	10.0	50	<0.01	<0.01	7%	None
Ord's Kangaroo Rat	2-Hexanone	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	16.6	0.0649	0.00721	0.00721	0.00390	2.00	0.00000866	0.00722	10.0	50	<0.01	<0.01	0%	None
Ord's Kangaroo Rat	4-Methyl-2-pentanone	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	19.9	0.0676	0.00750	0.00750	0.00340	2.00	0.00000755	0.00751	25.0	NSV	<0.01	--	0%	None
Ord's Kangaroo Rat	Acetone	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	75.6	3.42	0.380	0.380	0.0453	2.00	0.000101	0.380	10.0	50	0.038	<0.01	13%	None
Ord's Kangaroo Rat	Benzene	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	8.26	0.00471	0.000523	0.000523	0.000570	2.00	0.00000127	0.000524	0.7	7	<0.01	<0.01	7%	None
Ord's Kangaroo Rat	Bromoform	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	0.346	0.000277	0.0000308	0.0000308	0.000800	2.00	0.00000178	0.0000325	15.0	41	<0.01	<0.01	0%	None
Ord's Kangaroo Rat	Bromomethane	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	19.9	0.0199	0.00221	0.00221	0.00100	2.00	0.00000222	0.00221	15.0	41	<0.01	<0.01	0%	None
Ord's Kangaroo Rat	Carbon tetrachloride	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	4.29	0.00279	0.000310	0.000310	0.000650	2.00	0.00000144	0.000311	16.0	NSV	<0.01	--	0%	None
Ord's Kangaroo Rat	Chlorobenzene	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	0.134	0.0000805	0.00000895	0.00000895	0.000600	2.00	0.00000133	0.0000103	15.0	41	<0.01	<0.01	0%	None
Ord's Kangaroo Rat	Chloroethane	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	2.79	0.00293	0.000325	0.000325	0.00105	2.00	0.00000233	0.000328	15.0	41	<0.01	<0.01	0%	None
Ord's Kangaroo Rat	Chloroform	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	0.873	0.000524	0.0000581	0.0000581	0.000600	2.00	0.00000133	0.0000595	15.0	41	<0.01	<0.01	0%	None
Ord's Kangaroo Rat	Chloromethane	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	7.83	0.00783	0.000869	0.000869	0.00100	2.00	0.00000222	0.000872	15.0	41	<0.01	<0.01	0%	None
Ord's Kangaroo Rat	cis-1,2-Dichloroethene	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	10.6	0.00691	0.000767	0.000767	0.000650	2.00	0.00000144	0.000769	45.2	NSV	<0.01	--	0%	None
Ord's Kangaroo Rat	cis-1,3-Dichloropropene	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	7.11	0.00391	0.000434	0.000434	0.000550	2.00	0.00000122	0.000436	45.2	NSV	<0.01	--	0%	None
Ord's Kangaroo Rat	Ethylbenzene	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	0.0690	0.0000414	0.00000460	0.00000460	0.000600	2.00	0.00000133	0.00000593	97.0	291	<0.01	<0.01	0%	None
Ord's Kangaroo Rat	m,p-Xylene	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	3.04	0.00380	0.000422	0.000422	0.00125	2.00	0.00000278	0.000425	179.0	357	<0.01	<0.01	0%	None
Ord's Kangaroo Rat	Methylene chloride	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	4.10	0.00656	0.000729	0.000729	0.00160	2.00	0.00000355	0.000732	5.9	50	<0.01	<0.01	0%	None
Ord's Kangaroo Rat	o-Xylene	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	3.34	0.00360	0.000400	0.000400	0.00108	2.00	0.00000240	0.000403	179.0	357	<0.01	<0.01	7%	None
Ord's Kangaroo Rat	Tetrachloroethene	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	2.52	0.00164	0.000182	0.000182	0.000650	2.00	0.00000144	0.000183	1.4	7	<0.01	<0.01	0%	None
Ord's Kangaroo Rat	Toluene	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	4.71	0.0702	0.00780	0.00780	0.0149	2.00	0.0000331	0.00783	52.0	520	<0.01	<0.01	13%	None
Ord's Kangaroo Rat	Trans-1,2-Dichloroethene	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	2.50	0.00150	0.000167	0.000167	0.000600	2.00	0.00000133	0.000168	45.2	NSV	<0.01	--	0%	None
Ord's Kangaroo Rat	Trans-1,3-Dichloropropene	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	0.818	0.000573	0.0000636	0.0000636	0.000700	2.00	0.00000155	0.0000651	45.2	NSV	<0.01	--	0%	None
Ord's Kangaroo Rat	Trichloroethylene (TCE)	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	0.331	0.000182	0.0000202	0.0000202	0.000550	2.00	0.00000122	0.0000215	0.7	7	<0.01	<0.01	0%	None
Ord's Kangaroo Rat	Vinyl chloride	0.052	0.111	1	0.111	0	-	0	0	0	-	0	0	100	3.10	0.00264	0.000293	0.000293	0.000850	2.00	0.00000189	0.000295	0.2	1.7	<0.01	<0.01	0%	None
Ord's Kangaroo Rat	*HI - VOCs*																								*0.041*	<0.01	(dets)	None
Townsend's Ground Squirrel	1,3-Dinitrobenzene	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	15	1.20	0.0600	0.0600	0.0800	2.00	0.0000799	0.0601	0.0	0.2	**1.5**	0.30	0%	Uncertain
Townsend's Ground Squirrel	2,4-Dinitrotoluene	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	0.376	0.376	0.0188	0.0188	1.00	2.00	0.000999	0.0198	2.0	8	<0.01	<0.01	0%	None
Townsend's Ground Squirrel	2,6-Dinitrotoluene	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	3.14	4.71	0.235	0.235	1.50	2.00	0.00150	0.237	2.0	8	0.12	0.030	0%	None
Townsend's Ground Squirrel	HMX	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	Regression Based	30	1.50	1.50	3.30	2.00	0.00330	1.50	1.0	5	**1.5**	0.30	20%	Possible
Townsend's Ground Squirrel	*HI - Energetics*																								**1.5**	0.30	(dets)	Possible
Townsend's Ground Squirrel	Antimony	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	0.0102	0.0388	0.00194	0.00194	3.80	2.00	0.00380	0.00573	0.1	0.64	0.097	<0.01	88%	None
Townsend's Ground Squirrel	Cadmium	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	Regression Based	0.696	0.0347	0.0347	1.23	2.00	0.00123	0.0360	0.8	1.42	0.047	0.025	62%	None
Townsend's Ground Squirrel	Copper	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	Regression Based	6.78	0.339	0.339	23.6000000	2.00	0.0236	0.362	11.7	15.14	0.031	0.024	95%	None
Townsend's Ground Squirrel	Lead	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	Regression Based	1.38	0.0691	0.0691	19.0000000	2.00	0.0190	0.0880	0.9	4.7	0.096	0.019	95%	None
Townsend's Ground Squirrel	Molybdenum	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	0.400	0.400	0.0200	0.0200	1.00	2.00	0.000999	0.0210	0.3	2.6	0.081	<0.01	87%	None
Townsend's Ground Squirrel	Nitrate	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	1	10	0.499505508	0.499505508	10.0000000	2.00	0.0100	0.509	507.0	1130	<0.01	<0.01	95%	None
Townsend's Ground Squirrel	Perchlorate	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	282	15.10	0.756	0.756	0.0537	2.00	0.0000536	0.756	2.6	25.9	0.29	0.029	33%	None
Townsend's Ground Squirrel	Silver	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	0.0140	0.00252	0.000126	0.000126	0.180	2.00	0.000180	0.000306	2.4	23.8	<0.01	<0.01	5%	None
Townsend's Ground Squirrel	Zinc	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	Regression Based	47.2	2.36	2.36	60.8000000	2.00	0.0607	2.42	160.0	320	0.015	<0.01	100%	None
Townsend's Ground Squirrel	*HI - Inorganics*																								0.66	0.12	(dets)	None
Townsend's Ground Squirrel	2-Methylnaphthalene	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	1.87	0.337	0.0168	0.0168	0.180	2.00	0.000180	0.0170	5.0	50.3	<0.01	<0.01	0%	None
Townsend's Ground Squirrel	Anthracene	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	Regression Based	0.707	0.0353	0.0353	0.180	2.00	0.000180	0.0355	1000.0	NSV	<0.01	--	0%	None
Townsend's Ground Squirrel	Benzo(g,h,i)perylene	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	Regression Based	0.334	0.0167	0.0167	0.180	2.00	0.000180	0.0169	1.0	10	0.017	<0.01	0%	None
Townsend's Ground Squirrel	Fluoranthene	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	0.500	0.0535	0.00267	0.00267	0.107	2.00	0.000107	0.00278	125.0	250	<0.01	<0.01	6%	None
Townsend's Ground Squirrel	Fluorene	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	Regression Based	60	3.00	3.00	0.180	2.00	0.000180	3.00	125.0	250	0.024	0.012	0%	None
Townsend's Ground Squirrel	Naphthalene	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	12.2	2.20	0.110	0.110	0.180	2.00	0.000180	0.110	50.0	150	<0.01	<0.01	0%	None

Table 27
Refined Risk Estimation for Wildlife Exposed to Site Soils Within Habitat Areas
Attachment 10A - Thermal Treatment Unit, Ecological Risk Assessment

						Small Mammals and Other Vertebrates				Soil Invertebrates				Terrestrial Plants														
Receptor	Chemical	Body Weight (kg)	Daily Food Intake (kg/kg-bw/day)	Area Use Factor	Daily Food Ingestion from Site (kg/kg-bw/day)	Percent of Diet	Soil to Tissue Transfer Factor	Tissue Concentration (mg/kg DW)	Total Vertebrate Food Intake (mg/kg-bw/d)a	Percent of Diet	Soil to Tissue Transfer Factor	Tissue Concentration (mg/kg DW)	Total Invertebrate Food Intake (mg/kg-bw/d)b	Percent of Diet	Soil to Tissue Transfer Factor	Tissue Concentration (mg/kg DW)	Total Plant Food Intake (mg/kg-bw/d)c	Total Food Intake (mg/kg-bw/d)d	Refined Habitat Soil EPC (mg/kg)	Percent of Diet as Soil	Incidental Soil Intake (mg/kg-bw/d)e	Total Chemical Intake (mg/kg-day)f	NOAEL TRV (mg/kg-bw/d)	LOAEL TRV (mg/kg-bw/d)	NOAEL Hazard Quotient	LOAEL Hazard Quotient	Detection Frequency (%)	Risk Conclusions
Townsend's Ground Squirrel	Phenanthrene	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	Regression Based	0.408	0.0204	0.0204	0.180	2.00	0.000180	0.0205	175.0	350	<0.01	<0.01	0%	None
Townsend's Ground Squirrel	*HI - PAHs*																								<0.01	<0.01	(dets)	None
Townsend's Ground Squirrel	1,1,1,2-Tetrachloroethane	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	3.56	0.00267	0.000133	0.000133	0.000750	2.00	0.000000749	0.000134	1.4	7	<0.01	<0.01	0%	None
Townsend's Ground Squirrel	1,1,1-Trichloroethane	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	0.279	0.000181	0.00000906	0.00000906	0.000650	2.00	0.000000649	0.00000971	1000.0	NSV	<0.01	--	0%	None
Townsend's Ground Squirrel	1,1,2,2-Tetrachloroethane	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	0.354	0.000248	0.0000124	0.0000124	0.000700	2.00	0.000000699	0.0000131	1.4	7	<0.01	<0.01	0%	None
Townsend's Ground Squirrel	1,1,2-Trichloroethane	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	0.298	0.000208	0.0000104	0.0000104	0.000700	2.00	0.000000699	0.0000111	1000.0	NSV	<0.01	--	0%	None
Townsend's Ground Squirrel	1,1-Dichloroethane	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	1.28	0.000578	0.0000289	0.0000289	0.000450	2.00	0.000000450	0.0000293	50.0	NSV	<0.01	--	0%	None
Townsend's Ground Squirrel	1,1-Dichloroethene	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	8.26	0.0120	0.000598	0.000598	0.00145	2.00	0.00000145	0.000600	2.5	NSV	<0.01	--	0%	None
Townsend's Ground Squirrel	1,2,3-Trichloropropane	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	5.84	0.00614	0.000307	0.000307	0.00105	2.00	0.00000105	0.000308	1000.0	NSV	<0.01	--	0%	None
Townsend's Ground Squirrel	1,2-Dichloroethane	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	2.50	0.00175	0.0000875	0.0000875	0.000700	2.00	0.000000699	0.0000882	50.0	NSV	<0.01	--	0%	None
Townsend's Ground Squirrel	1,2-Dichloropropane	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	0.818	0.000450	0.0000225	0.0000225	0.000550	2.00	0.000000549	0.0000230	50.0	NSV	<0.01	--	0%	None
Townsend's Ground Squirrel	2-Butanone	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	46.1	0.210	0.0105	0.0105	0.00455	2.00	0.00000455	0.0105	10.0	50	<0.01	<0.01	7%	None
Townsend's Ground Squirrel	2-Hexanone	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	16.6	0.0649	0.00324	0.00324	0.00390	2.00	0.00000390	0.00325	10.0	50	<0.01	<0.01	0%	None
Townsend's Ground Squirrel	4-Methyl-2-pentanone	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	19.9	0.0676	0.00337	0.00337	0.00340	2.00	0.00000340	0.00338	25.0	NSV	<0.01	--	0%	None
Townsend's Ground Squirrel	Acetone	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	75.6	3.42	0.171	0.171	0.0453	2.00	0.0000452	0.171	10.0	50	0.017	<0.01	13%	None
Townsend's Ground Squirrel	Benzene	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	8.26	0.00471	0.000235	0.000235	0.000570	2.00	0.000000569	0.000236	0.7	7	<0.01	<0.01	7%	None
Townsend's Ground Squirrel	Bromoform	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	0.346	0.000277	0.0000138	0.0000138	0.000800	2.00	0.000000799	0.0000146	15.0	41	<0.01	<0.01	0%	None
Townsend's Ground Squirrel	Bromomethane	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	19.9	0.0199	0.000993	0.000993	0.00100	2.00	0.000000999	0.000994	15.0	41	<0.01	<0.01	0%	None
Townsend's Ground Squirrel	Carbon tetrachloride	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	4.29	0.00279	0.000139	0.000139	0.000650	2.00	0.000000649	0.000140	16.0	NSV	<0.01	--	0%	None
Townsend's Ground Squirrel	Chlorobenzene	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	0.134	0.0000805	0.00000402	0.00000402	0.000600	2.00	0.000000599	0.00000462	15.0	41	<0.01	<0.01	0%	None
Townsend's Ground Squirrel	Chloroethane	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	2.79	0.00293	0.000146	0.000146	0.00105	2.00	0.00000105	0.000147	15.0	41	<0.01	<0.01	0%	None
Townsend's Ground Squirrel	Chloroform	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	0.873	0.000524	0.0000262	0.0000262	0.000600	2.00	0.000000599	0.0000268	15.0	41	<0.01	<0.01	0%	None
Townsend's Ground Squirrel	Chloromethane	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	7.83	0.00783	0.000391	0.000391	0.00100	2.00	0.000000999	0.000392	15.0	41	<0.01	<0.01	0%	None
Townsend's Ground Squirrel	cis-1,2-Dichloroethene	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	10.6	0.00691	0.000345	0.000345	0.000650	2.00	0.000000649	0.000346	45.2	NSV	<0.01	--	0%	None
Townsend's Ground Squirrel	cis-1,3-Dichloropropene	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	7.11	0.00391	0.000195	0.000195	0.000550	2.00	0.000000549	0.000196	45.2	NSV	<0.01	--	0%	None
Townsend's Ground Squirrel	Ethylbenzene	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	0.0690	0.0000414	0.00000207	0.00000207	0.000600	2.00	0.000000599	0.00000267	97.0	291	<0.01	<0.01	0%	None
Townsend's Ground Squirrel	m,p-Xylene	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	3.04	0.00380	0.000190	0.000190	0.00125	2.00	0.00000125	0.000191	179.0	357	<0.01	<0.01	0%	None
Townsend's Ground Squirrel	Methylene chloride	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	4.10	0.00656	0.000328	0.000328	0.00160	2.00	0.00000160	0.000329	5.9	50	<0.01	<0.01	0%	None
Townsend's Ground Squirrel	o-Xylene	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	3.34	0.00360	0.000180	0.000180	0.00108	2.00	0.00000108	0.000181	179.0	357	<0.01	<0.01	7%	None
Townsend's Ground Squirrel	Tetrachloroethene	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	2.52	0.00164	0.0000819	0.0000819	0.000650	2.00	0.000000649	0.0000825	1.4	7	<0.01	<0.01	0%	None
Townsend's Ground Squirrel	Toluene	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	4.71	0.0702	0.00351	0.00351	0.0149	2.00	0.0000149	0.00352	52.0	520	<0.01	<0.01	13%	None
Townsend's Ground Squirrel	Trans-1,2-Dichloroethene	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	2.50	0.00150	0.0000750	0.0000750	0.000600	2.00	0.000000599	0.0000756	45.2	NSV	<0.01	--	0%	None
Townsend's Ground Squirrel	Trans-1,3-Dichloropropene	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	0.818	0.000573	0.0000286	0.0000286	0.000700	2.00	0.000000699	0.0000293	45.2	NSV	<0.01	--	0%	None
Townsend's Ground Squirrel	Trichloroethylene (TCE)	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	0.331	0.000182	0.00000911	0.00000911	0.000550	2.00	0.000000549	0.00000965	0.7	7	<0.01	<0.01	0%	None
Townsend's Ground Squirrel	Vinyl chloride	0.325	0.050	1	0.050	0	-	0	0	0	-	0	0	100	3.10	0.00264	0.000132	0.000132	0.000850	2.00	0.000000849	0.000133	0.2	1.7	<0.01	<0.01	0%	None
Townsend's Ground Squirrel	*HI - VOCs*																								*0.018*	<0.01	(dets)	None
Black-tailed Jackrabbit	1,3-Dinitrobenzene	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	15	1.20	0.0858	0.0858	0.0800	6.30	0.000360	0.0862	0.0	0.2	**2.2**	0.43	0%	Uncertain
Black-tailed Jackrabbit	2,4-Dinitrotoluene	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	0.376	0.376	0.0269	0.0269	1.00	6.30	0.00450	0.0314	2.0	8	0.016	<0.01	0%	None
Black-tailed Jackrabbit	2,6-Dinitrotoluene	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	3.14	4.71	0.337	0.337	1.50	6.30	0.00675	0.343	2.0	8	0.17	0.043	0%	None
Black-tailed Jackrabbit	HMX	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	Regression Based	30	2.14	2.14	3.30	6.30	0.0149	2.16	1.0	5	**2.2**	0.43	20%	Possible
Black-tailed Jackrabbit	RDX	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	Regression Based	37.6	2.69	2.69	1.50	6.30	0.00675	2.69	2.0	20	**1.4**	0.14	0%	Uncertain
Black-tailed Jackrabbit	*HI - Energetics*																								**2.2**	0.43	(dets)	Possible
Black-tailed Jackrabbit	Antimony	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	0.0102	0.0388	0.00277	0.00277	3.80	6.30	0.0171	0.0199	0.1	0.64	0.34	0.031	88%	None
Black-tailed Jackrabbit	Cadmium	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	Regression Based	0.696	0.0497	0.0497	1.23	6.30	0.00554	0.0552	0.8	1.42	0.072	0.039	62%	None
Black-tailed Jackrabbit	Copper	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	Regression Based	6.78	0.485	0.485	23.6000000	6.30	0.106	0.591	11.7	15.14	0.050	0.039	95%	None
Black-tailed Jackrabbit	Lead	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	Regression Based	1.38	0.0988	0.0988	19.0000000	6.30	0.0855	0.184	0.9	4.7	0.20	0.039	95%	None
Black-tailed Jackrabbit	Molybdenum	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	0.400	0.400	0.0286	0.0286	1.00	6.30	0.00450	0.0331	0.3	2.6	0.13	0.013	87%	None
Black-tailed Jackrabbit	Nitrate	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	1	10	0.714565733	0.714565733	10.0000000	6.30	0.045	0.760	507.0	1130	<0.01	<0.01	95%	None
Black-tailed Jackrabbit	Perchlorate	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	282	15.10	1.08	1.08	0.0537	6.30	0.000242	1.08	2.6	25.9	0.42	0.042	33%	None
Black-tailed Jackrabbit	Selenium	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	Regression Based	3.00	0.214	0.214	5.00	6.30	0.0225	0.237	0.2	0.33	**1.2**	0.72	0%	Uncertain
Black-tailed Jackrabbit	Silver	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	0.0140	0.00252	0.000180	0.000180	0.180	6.30	0.000810	0.000990	2.4	23.8	<0.01	<0.01	5%	None
Black-tailed Jackrabbit	Zinc	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	Regression Based	47.2	3.37	3.37	60.8000000	6.30	0.274	3.65	160.0	320	0.023	0.011	100%	None
Black-tailed Jackrabbit	*HI - Inorganics*																								**1.2**	0.21	(dets)	Possible
Black-tailed Jackrabbit	2-Methylnaphthalene	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	1.87	0.337	0.0240	0.0240	0.180	6.30	0.000810	0.0249	5.0	50.3	<0.01	<0.01	0%	None
Black-tailed Jackrabbit	Anthracene	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	Regression Based	0.707	0.0506	0.0506	0.180	6.30	0.000810	0.0514	1000.0	NSV	<0.01	--	0%	None
Black-tailed Jackrabbit	Benzo(g,h,i)perylene	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	Regression Based	0.334	0.0239	0.0239	0.180	6.30	0.000810	0.0247	1.0	10	0.025	<0.01	0%	None
Black-tailed Jackrabbit	Fluoranthene	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	0.500	0.0535	0.00382	0.00382	0.107	6.30	0.000482	0.00430	125.0	250	<0.01	<0.01	6%	None
Black-tailed Jackrabbit	Fluorene	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	Regression Based	60	4.29	4.29	0.180	6.30	0.000810	4.29	125.0	250	0.034	0.017	0%	None
Black-tailed Jackrabbit	Naphthalene	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	12.2	2.20	0.157	0.157	0.180	6.30	0.000810	0.158	50.0	150	<0.01	<0.01	0%	None
Black-tailed Jackrabbit	Phenanthrene	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	Regression Based	0.408	0.0291	0.0291	0.180	6.30	0.000810	0.0299	175.0	350	<0.01	<0.01	0%	None
Black-tailed Jackrabbit	*HI - PAHs*																								<0.01	<0.01	(dets)	None
Black-tailed Jackrabbit	2,4,5-Trichlorophenol	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	0.0202	0.0182	0.00130	0.00130	0.900	6.30	0.00405	0.00535	0.2	2.4	0.022	<0.01	0%	None
Black-tailed Jackrabbit	1,1,1,2-Tetrachloroethane	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	3.56	0.00267	0.000191	0.000191	0.000750	6.30	0.00000338	0.000194	1.4	7	<0.01	<0.01	0%	None
Black-tailed Jackrabbit	1,1,1-Trichloroethane	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	0.279	0.000181	0.0000130	0.0000130	0.000650	6.30	0.00000293	0.0000159	1000.0	NSV	<0.01	--	0%	None
Black-tailed Jackrabbit	1,1,2,2-Tetrachloroethane	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	0.354	0.000248	0.0000177	0.0000177	0.000700	6.30	0.00000315	0.0000209	1.4	7	<0.01	<0.01	0%	None
Black-tailed Jackrabbit	1,1,2-Trichloroethane	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	0.298	0.000208	0.0000149	0.0000149	0.000700	6.30	0.00000315	0.0000180	1000.0	NSV	<0.01	--	0%	None
Black-tailed Jackrabbit	1,1-Dichloroethane	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	1.28	0.000578	0.0000413	0.0000413	0.000450	6.30	0.00000203	0.0000433	50.0	NSV	<0.01	--	0%	None
Black-tailed Jackrabbit	1,1-Dichloroethene	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	8.26	0.0120	0.000856	0.000856	0.00145	6.30	0.00000653	0.000862	2.5	NSV	<0.01	--	0%	None
Black-tailed Jackrabbit	1,2,3-Trichloropropane	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	5.84	0.00614	0.000439	0.000439	0.00105	6.30	0.00000473	0.000443	1000.0	NSV	<0.01	--	0%	None
Black-tailed Jackrabbit	1,2-Dichloroethane	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	2.50	0.00175	0.000125	0.000125	0.000700	6.30	0.00000315	0.000128	50.0	NSV	<0.01	--	0%	None
Black-tailed Jackrabbit	1,2-Dichloropropane	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	0.818	0.000450	0.0000321	0.0000321	0.000550	6.30	0.00000248	0.0000346	50.0	NSV	<0.01	--	0%	None
Black-tailed Jackrabbit	2-Butanone	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	46.1	0.210	0.0150	0.0150	0.00455	6.30	0.0000205	0.0150	10.0	50	<0.01	<0.01	7%	None
Black-tailed Jackrabbit	2-Hexanone	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	16.6	0.0649	0.00464	0.00464	0.00390	6.30	0.0000176	0.00465	10.0	50	<0.01	<0.01	0%	None
Black-tailed Jackrabbit	4-Methyl-2-pentanone	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	19.9	0.0676	0.00483	0.00483	0.00340	6.30	0.0000153	0.00484	25.0	NSV	<0.01	--	0%	None
Black-tailed Jackrabbit	Acetone	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	75.6	3.42	0.244	0.244	0.0453	6.30	0.000204	0.245	10.0	50	0.024	<0.01	13%	None
Black-tailed Jackrabbit	Benzene	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	8.26	0.00471	0.000336	0.000336	0.000570	6.30	0.00000257	0.000339	0.7	7	<0.01	<0.01	7%	None
Black-tailed Jackrabbit	Bromoform	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	0.346	0.000277	0.0000198	0.0000198	0.000800	6.30	0.00000360	0.0000234	15.0	41	<0.01	<0.01	0%	None
Black-tailed Jackrabbit	Bromomethane	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	19.9	0.0199	0.00142	0.00142	0.00100	6.30	0.00000450	0.00142	15.0	41	<0.01	<0.01	0%	None
Black-tailed Jackrabbit	Carbon tetrachloride	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	4.29	0.00279	0.000199	0.000199	0.000650	6.30	0.00000293	0.000202	16.0	NSV	<0.01	--	0%	None
Black-tailed Jackrabbit	Chlorobenzene	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	0.134	0.0000805	0.00000576	0.00000576	0.000600	6.30	0.00000270	0.00000846	15.0	41	<0.01	<0.01	0%	None
Black-tailed Jackrabbit	Chloroethane	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	2.79	0.00293	0.000209	0.000209	0.00105	6.30	0.00000473	0.000214	15.0	41	<0.01	<0.01	0%	None
Black-tailed Jackrabbit	Chloroform	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	0.873	0.000524	0.0000374	0.0000374	0.000600	6.30	0.00000270	0.0000401	15.0	41	<0.01	<0.01	0%	None

Table 27
Refined Risk Estimation for Wildlife Exposed to Site Soils Within Habitat Areas
Attachment 10A - Thermal Treatment Unit, Ecological Risk Assessment

						Small Mammals and Other Vertebrates				Soil Invertebrates				Terrestrial Plants														
Receptor	Chemical	Body Weight (kg)	Daily Food Intake (kg/kg-bw/day)	Area Use Factor	Daily Food Ingestion from Site (kg/kg-bw/day)	Percent of Diet	Soil to Tissue Transfer Factor	Tissue Concentration (mg/kg DW)	Total Vertebrate Food Intake (mg/kg-bw/d)a	Percent of Diet	Soil to Tissue Transfer Factor	Tissue Concentration (mg/kg DW)	Total Invertebrate Food Intake (mg/kg-bw/d)b	Percent of Diet	Soil to Tissue Transfer Factor	Tissue Concentration (mg/kg DW)	Total Plant Food Intake (mg/kg-bw/d)c	Total Food Intake (mg/kg-bw/d)d	Refined Habitat Soil EPC (mg/kg)	Percent of Diet as Soil	Incidental Soil Intake (mg/kg-bw/d)e	Total Chemical Intake (mg/kg-day)f	NOAEL TRV (mg/kg-bw/d)	LOAEL TRV (mg/kg-bw/d)	NOAEL Hazard Quotient	LOAEL Hazard Quotient	Detection Frequency (%)	Risk Conclusions
Black-tailed Jackrabbit	Chloromethane	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	7.83	0.00783	0.000559	0.000559	0.00100	6.30	0.00000450	0.000564	15.0	41	<0.01	<0.01	0%	None
Black-tailed Jackrabbit	cis-1,2-Dichloroethene	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	10.6	0.00691	0.000494	0.000494	0.000650	6.30	0.00000293	0.000497	45.2	NSV	<0.01	--	0%	None
Black-tailed Jackrabbit	cis-1,3-Dichloropropene	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	7.11	0.00391	0.000279	0.000279	0.000550	6.30	0.00000248	0.000282	45.2	NSV	<0.01	--	0%	None
Black-tailed Jackrabbit	Ethylbenzene	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	0.0690	0.0000414	0.00000296	0.00000296	0.000600	6.30	0.00000270	0.00000566	97.0	291	<0.01	<0.01	0%	None
Black-tailed Jackrabbit	m,p-Xylene	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	3.04	0.00380	0.000271	0.000271	0.00125	6.30	0.00000563	0.000277	179.0	357	<0.01	<0.01	0%	None
Black-tailed Jackrabbit	Methylene chloride	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	4.10	0.00656	0.000469	0.000469	0.00160	6.30	0.00000720	0.000476	5.9	50	<0.01	<0.01	0%	None
Black-tailed Jackrabbit	o-Xylene	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	3.34	0.00360	0.000258	0.000258	0.00108	6.30	0.00000486	0.000262	179.0	357	<0.01	<0.01	7%	None
Black-tailed Jackrabbit	Tetrachloroethene	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	2.52	0.00164	0.000117	0.000117	0.000650	6.30	0.00000293	0.000120	1.4	7	<0.01	<0.01	0%	None
Black-tailed Jackrabbit	Toluene	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	4.71	0.0702	0.00502	0.00502	0.0149	6.30	0.0000671	0.00509	52.0	520	<0.01	<0.01	13%	None
Black-tailed Jackrabbit	Trans-1,2-Dichloroethene	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	2.50	0.00150	0.000107	0.000107	0.000600	6.30	0.00000270	0.000110	45.2	NSV	<0.01	--	0%	None
Black-tailed Jackrabbit	Trans-1,3-Dichloropropene	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	0.818	0.000573	0.0000409	0.0000409	0.000700	6.30	0.00000315	0.0000441	45.2	NSV	<0.01	--	0%	None
Black-tailed Jackrabbit	Trichloroethylene (TCE)	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	0.331	0.000182	0.0000130	0.0000130	0.000550	6.30	0.00000248	0.0000155	0.7	7	<0.01	<0.01	0%	None
Black-tailed Jackrabbit	Vinyl chloride	2.100	0.071	1	0.071	0	-	0	0	0	-	0	0	100	3.10	0.00264	0.000188	0.000188	0.000850	6.30	0.00000383	0.000192	0.2	1.7	<0.01	<0.01	0%	None
Black-tailed Jackrabbit	*HI - VOCs*																								*0.026*	<0.01	(dets)	None
Pronghorn	1,3-Dinitrobenzene	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	15	1.20	0.0413	0.0413	0.0800	2.00	0.0000550	0.0414	0.0	0.2	**1.0**	0.21	0%	Uncertain
Pronghorn	2,4-Dinitrotoluene	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	0.376	0.376	0.0129	0.0129	1.00	2.00	0.000688	0.0136	2.0	8	<0.01	<0.01	0%	None
Pronghorn	2,6-Dinitrotoluene	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	3.14	4.71	0.162	0.162	1.50	2.00	0.00103	0.163	2.0	8	0.082	0.020	0%	None
Pronghorn	HMX	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	Regression Based	30	1.03	1.03	3.30	2.00	0.00227	1.03	1.0	5	**1.0**	0.21	20%	Possible
Pronghorn	*HI - Energetics*																								**1.0**	0.21	(dets)	Possible
Pronghorn	Antimony	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	0.0102	0.0388	0.00133	0.00133	3.80	2.00	0.00261	0.00395	0.1	0.64	0.067	<0.01	88%	None
Pronghorn	Cadmium	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	Regression Based	0.696	0.0239	0.0239	1.23	2.00	0.000846	0.0248	0.8	1.42	0.032	0.017	62%	None
Pronghorn	Copper	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	Regression Based	6.78	0.233	0.233	23.6000000	2.00	0.0162	0.250	11.7	15.14	0.021	0.016	95%	None
Pronghorn	Lead	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	Regression Based	1.38	0.0475	0.0475	19.0000000	2.00	0.0131	0.0606	0.9	4.7	0.066	0.013	95%	None
Pronghorn	Molybdenum	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	0.400	0.400	0.0138	0.0138	1.00	2.00	0.000688	0.0144	0.3	2.6	0.056	<0.01	87%	None
Pronghorn	Nitrate	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	1	10	0.343937498	0.343937498	10.0000000	2.00	0.0069	0.351	507.0	1130	<0.01	<0.01	95%	None
Pronghorn	Perchlorate	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	282	15.10	0.520	0.520	0.0537	2.00	0.0000369	0.520	2.6	25.9	0.20	0.020	33%	None
Pronghorn	Silver	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	0.0140	0.00252	0.0000867	0.0000867	0.180	2.00	0.000124	0.000210	2.4	23.8	<0.01	<0.01	5%	None
Pronghorn	Zinc	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	Regression Based	47.2	1.62	1.62	60.8000000	2.00	0.0418	1.67	160.0	320	0.010	<0.01	100%	None
Pronghorn	*HI - Inorganics*																								0.45	0.084	(dets)	None
Pronghorn	2-Methylnaphthalene	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	1.87	0.337	0.0116	0.0116	0.180	2.00	0.000124	0.0117	5.0	50.3	<0.01	<0.01	0%	None
Pronghorn	Anthracene	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	Regression Based	0.707	0.0243	0.0243	0.180	2.00	0.000124	0.0245	1000.0	NSV	<0.01	--	0%	None
Pronghorn	Benzo(g,h,i)perylene	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	Regression Based	0.334	0.0115	0.0115	0.180	2.00	0.000124	0.0116	1.0	10	0.012	<0.01	0%	None
Pronghorn	Fluoranthene	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	0.500	0.0535	0.00184	0.00184	0.107	2.00	0.0000736	0.00191	125.0	250	<0.01	<0.01	6%	None
Pronghorn	Fluorene	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	Regression Based	60	2.06	2.06	0.180	2.00	0.000124	2.06	125.0	250	0.016	<0.01	0%	None
Pronghorn	Naphthalene	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	12.2	2.20	0.0755	0.0755	0.180	2.00	0.000124	0.0757	50.0	150	<0.01	<0.01	0%	None
Pronghorn	Phenanthrene	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	Regression Based	0.408	0.0140	0.0140	0.180	2.00	0.000124	0.0141	175.0	350	<0.01	<0.01	0%	None
Pronghorn	*HI - PAHs*																								<0.01	<0.01	(dets)	None
Pronghorn	1,1,1,2-Tetrachloroethane	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	3.56	0.00267	0.0000919	0.0000919	0.000750	2.00	0.000000516	0.0000924	1.4	7	<0.01	<0.01	0%	None
Pronghorn	1,1,1-Trichloroethane	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	0.279	0.000181	0.00000624	0.00000624	0.000650	2.00	0.000000447	0.00000669	1000.0	NSV	<0.01	--	0%	None
Pronghorn	1,1,2,2-Tetrachloroethane	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	0.354	0.000248	0.00000853	0.00000853	0.000700	2.00	0.000000482	0.00000901	1.4	7	<0.01	<0.01	0%	None
Pronghorn	1,1,2-Trichloroethane	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	0.298	0.000208	0.00000717	0.00000717	0.000700	2.00	0.000000482	0.00000765	1000.0	NSV	<0.01	--	0%	None
Pronghorn	1,1-Dichloroethane	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	1.28	0.000578	0.0000199	0.0000199	0.000450	2.00	0.000000310	0.0000202	50.0	NSV	<0.01	--	0%	None
Pronghorn	1,1-Dichloroethene	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	8.26	0.0120	0.000412	0.000412	0.00145	2.00	0.000000997	0.000413	2.5	NSV	<0.01	--	0%	None
Pronghorn	1,2,3-Trichloropropane	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	5.84	0.00614	0.000211	0.000211	0.00105	2.00	0.000000722	0.000212	1000.0	NSV	<0.01	--	0%	None
Pronghorn	1,2-Dichloroethane	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	2.50	0.00175	0.0000603	0.0000603	0.000700	2.00	0.000000482	0.0000607	50.0	NSV	<0.01	--	0%	None
Pronghorn	1,2-Dichloropropane	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	0.818	0.000450	0.0000155	0.0000155	0.000550	2.00	0.000000378	0.0000158	50.0	NSV	<0.01	--	0%	None
Pronghorn	2-Butanone	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	46.1	0.210	0.00721	0.00721	0.00455	2.00	0.00000313	0.00721	10.0	50	<0.01	<0.01	7%	None
Pronghorn	2-Hexanone	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	16.6	0.0649	0.00223	0.00223	0.00390	2.00	0.00000268	0.00223	10.0	50	<0.01	<0.01	0%	None
Pronghorn	4-Methyl-2-pentanone	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	19.9	0.0676	0.00232	0.00232	0.00340	2.00	0.00000234	0.00233	25.0	NSV	<0.01	--	0%	None
Pronghorn	Acetone	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	75.6	3.42	0.118	0.118	0.0453	2.00	0.0000311	0.118	10.0	50	0.012	<0.01	13%	None
Pronghorn	Benzene	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	8.26	0.00471	0.000162	0.000162	0.000570	2.00	0.000000392	0.000162	0.7	7	<0.01	<0.01	7%	None
Pronghorn	Bromoform	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	0.346	0.000277	0.00000953	0.00000953	0.000800	2.00	0.000000550	0.0000101	15.0	41	<0.01	<0.01	0%	None
Pronghorn	Bromomethane	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	19.9	0.0199	0.000683	0.000683	0.00100	2.00	0.000000688	0.000684	15.0	41	<0.01	<0.01	0%	None
Pronghorn	Carbon tetrachloride	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	4.29	0.00279	0.0000960	0.0000960	0.000650	2.00	0.000000447	0.0000964	16.0	NSV	<0.01	--	0%	None
Pronghorn	Chlorobenzene	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	0.134	0.0000805	0.00000277	0.00000277	0.000600	2.00	0.000000413	0.00000318	15.0	41	<0.01	<0.01	0%	None
Pronghorn	Chloroethane	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	2.79	0.00293	0.000101	0.000101	0.00105	2.00	0.000000722	0.000101	15.0	41	<0.01	<0.01	0%	None
Pronghorn	Chloroform	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	0.873	0.000524	0.0000180	0.0000180	0.000600	2.00	0.000000413	0.0000184	15.0	41	<0.01	<0.01	0%	None
Pronghorn	Chloromethane	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	7.83	0.00783	0.000269	0.000269	0.00100	2.00	0.000000688	0.000270	15.0	41	<0.01	<0.01	0%	None
Pronghorn	cis-1,2-Dichloroethene	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	10.6	0.00691	0.000238	0.000238	0.000650	2.00	0.000000447	0.000238	45.2	NSV	<0.01	--	0%	None
Pronghorn	cis-1,3-Dichloropropene	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	7.11	0.00391	0.000135	0.000135	0.000550	2.00	0.000000378	0.000135	45.2	NSV	<0.01	--	0%	None
Pronghorn	Ethylbenzene	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	0.0690	0.0000414	0.00000142	0.00000142	0.000600	2.00	0.000000413	0.00000184	97.0	291	<0.01	<0.01	0%	None
Pronghorn	m,p-Xylene	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	3.04	0.00380	0.000131	0.000131	0.00125	2.00	0.000000860	0.000132	179.0	357	<0.01	<0.01	0%	None
Pronghorn	Methylene chloride	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	4.10	0.00656	0.000226	0.000226	0.00160	2.00	0.00000110	0.000227	5.9	50	<0.01	<0.01	0%	None
Pronghorn	o-Xylene	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	3.34	0.00360	0.000124	0.000124	0.00108	2.00	0.000000743	0.000125	179.0	357	<0.01	<0.01	7%	None
Pronghorn	Tetrachloroethene	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	2.52	0.00164	0.0000564	0.0000564	0.000650	2.00	0.000000447	0.0000568	1.4	7	<0.01	<0.01	0%	None
Pronghorn	Toluene	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	4.71	0.0702	0.00242	0.00242	0.0149	2.00	0.0000102	0.00243	52.0	520	<0.01	<0.01	13%	None
Pronghorn	Trans-1,2-Dichloroethene	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	2.50	0.00150	0.0000516	0.0000516	0.000600	2.00	0.000000413	0.0000521	45.2	NSV	<0.01	--	0%	None
Pronghorn	Trans-1,3-Dichloropropene	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	0.818	0.000573	0.0000197	0.0000197	0.000700	2.00	0.000000482	0.0000202	45.2	NSV	<0.01	--	0%	None
Pronghorn	Trichloroethylene (TCE)	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	0.331	0.000182	0.00000627	0.00000627	0.000550	2.00	0.000000378	0.00000665	0.7	7	<0.01	<0.01	0%	None
Pronghorn	Vinyl chloride	48.761	0.034	1	0.034	0	-	0	0	0	-	0	0	100	3.10	0.00264	0.0000907	0.0000907	0.000850	2.00	0.000000585	0.0000913	0.2	1.7	<0.01	<0.01	0%	None
Pronghorn	*HI - VOCs*																								*0.013*	<0.01	(dets)	None
Grasshopper Mouse	1,3-Dinitrobenzene	0.041	0.250	1	0.250	0	-	0	0	100	26.6	2.13	0.532	0	-	0	0	0.532	0.0800	13.00	0.00260	0.535	0.0	0.2	**13**	***2.7***	0%	Uncertain
Grasshopper Mouse	2,4-Dinitrotoluene	0.041	0.250	1	0.250	0	-	0	0	100	3.71	3.71	0.928	0	-	0	0	0.928	1.00	13.00	0.0325	0.960	2.0	8	0.48	0.12	0%	None
Grasshopper Mouse	2,6-Dinitrotoluene	0.041	0.250	1	0.250	0	-	0	0	100	3.16	4.74	1.18	0	-	0	0	1.18	1.50	13.00	0.0488	1.23	2.0	8	0.62	0.15	0%	None
Grasshopper Mouse	HMX	0.041	0.250	1	0.250	0	-	0	0	100	0.313	1.03	0.258	0	-	0	0	0.258	3.30	13.00	0.107	0.365	1.0	5	0.36	0.073	20%	None
Grasshopper Mouse	RDX	0.041	0.250	1	0.250	0	-	0	0	100	Regression Based	87.3	21.8	0	-	0	0	21.8	1.50	13.00	0.0488	21.900	2.0	20	**11**	***1.1***	0%	Uncertain
Grasshopper Mouse	Tetryl	0.041	0.250	1	0.250	0	-	0	0	100	29.1	6.69	1.67	0	-	0	0	1.67	0.230	13.00	0.00748	1.68	1.3	6.2	**1.3**	0.27	0%	Uncertain
Grasshopper Mouse	*HI - Energetics*																								0.36	0.073	(dets)	None
Grasshopper Mouse	Antimony	0.041	0.250	1	0.250	0	-	0	0	100	0.0162	0.0616	0.0154	0	-	0	0	0.0154	3.80	13.00	0.124	0.139	0.1	0.64	**2.4**	0.22	88%	Possible
Grasshopper Mouse	Cadmium	0.041	0.250	1	0.250	0	-	0	0	100	Regression Based	9.76	2.44	0	-	0	0	2.44	1.23	13.00	0.0400	2.48	0.8	1.42	**3.2**	***1.8***	62%	**Probable**
Grasshopper Mouse	Copper	0.041	0.250	1	0.250	0	-	0	0	100	Regression Based	12.3	3.07	0	-	0	0	3.07	23.6000000	13.00	0.767	3.84	11.7	15.14	0.33	0.25	95%	None
Grasshopper Mouse	Lead	0.041	0.250	1	0.250	0	-	0	0	100	Regression Based	8.66	2.16	0	-	0	0	2.16	19.0000000	13.00	0.618	2.78	0.9	4.7	**3.0**	0.59	95%	Possible

Table 27
Refined Risk Estimation for Wildlife Exposed to Site Soils Within Habitat Areas
Attachment 10A - Thermal Treatment Unit, Ecological Risk Assessment

Receptor	Chemical	Body Weight (kg)	Daily Food Intake (kg/kg-bw/day)	Area Use Factor	Daily Food Ingestion from Site (kg/kg-bw/day)	Small Mammals and Other Vertebrates: Percent of Diet	Small Mammals and Other Vertebrates: Soil to Tissue Transfer Factor	Small Mammals and Other Vertebrates: Tissue Concentration (mg/kg DW)	Small Mammals and Other Vertebrates: Total Vertebrate Food Intake (mg/kg-bw/d)a	Soil Invertebrates: Percent of Diet	Soil Invertebrates: Soil to Tissue Transfer Factor	Soil Invertebrates: Tissue Concentration (mg/kg DW)	Soil Invertebrates: Total Invertebrate Food Intake (mg/kg-bw/d)b	Terrestrial Plants: Percent of Diet	Terrestrial Plants: Soil to Tissue Transfer Factor	Terrestrial Plants: Tissue Concentration (mg/kg DW)	Terrestrial Plants: Total Plant Food Intake (mg/kg-bw/d)c	Total Food Intake (mg/kg-bw/d)d	Refined Habitat Soil EPC (mg/kg)	Percent of Diet as Soil	Incidental Soil Intake (mg/kg-bw/d)e	Total Chemical Intake (mg/kg-day)f	NOAEL TRV (mg/kg-bw/d)	LOAEL TRV (mg/kg-bw/d)	NOAEL Hazard Quotient	LOAEL Hazard Quotient	Detection Frequency (%)	Risk Conclusions
Grasshopper Mouse	Molybdenum	0.041	0.250	1	0.250	0	-	0	0	100	0.953	0.953	0.238	0	-	0	0	0.238	1.00	13.00	0.0325	0.271	0.3	2.6	**1.0**	0.10	87%	Possible
Grasshopper Mouse	Nitrate	0.041	0.250	1	0.250	0	-	0	0	100	1	10	2.5	0	-	0	0	2.5	10.0000000	13.00	0.325	2.825	507.0	1130	<0.01	<0.01	95%	None
Grasshopper Mouse	Perchlorate	0.041	0.250	1	0.250	0	-	0	0	100	1.00	0.0537	0.0134	0	-	0	0	0.0134	0.0537	13.00	0.00174	0.0152	2.6	25.9	<0.01	<0.01	33%	None
Grasshopper Mouse	Selenium	0.041	0.250	1	0.250	0	-	0	0	100	Regression Based	3.02	0.755	0	-	0	0	0.755	5.00	13.00	0.162	0.917	0.2	0.33	**4.6**	***2.8***	0%	Uncertain
Grasshopper Mouse	Silver	0.041	0.250	1	0.250	0	-	0	0	100	2.04	0.368	0.0920	0	-	0	0	0.0920	0.180	13.00	0.00585	0.0979	2.4	23.8	0.041	<0.01	5%	None
Grasshopper Mouse	Zinc	0.041	0.250	1	0.250	0	-	0	0	100	Regression Based	329	82.3	0	-	0	0	82.3	60.8000000	13.00	1.97	84.200	160.0	320	0.53	0.26	100%	None
Grasshopper Mouse	*HI - Inorganics*																								**11**	**3.2**	(dets)	**Probable**
Grasshopper Mouse	2-Methylnaphthalene	0.041	0.250	1	0.250	0	-	0	0	100	29	5.23	1.31	0	-	0	0	1.31	0.180	13.00	0.00585	1.31	5.0	50.3	0.26	0.026	0%	None
Grasshopper Mouse	Anthracene	0.041	0.250	1	0.250	0	-	0	0	100	2.42	0.436	0.109	0	-	0	0	0.109	0.180	13.00	0.00585	0.115	1000.0	NSV	<0.01	--	0%	None
Grasshopper Mouse	Benzo(a)anthracene	0.041	0.250	1	0.250	0	-	0	0	100	1.59	0.286	0.0716	0	-	0	0	0.0716	0.180	13.00	0.00585	0.0774	1.0	10	0.077	<0.01	0%	None
Grasshopper Mouse	Benzo(a)pyrene	0.041	0.250	1	0.250	0	-	0	0	100	1.33	0.239	0.0598	0	-	0	0	0.0598	0.180	13.00	0.00585	0.0657	1.0	10	0.066	<0.01	0%	None
Grasshopper Mouse	Benzo(b)fluoranthene	0.041	0.250	1	0.250	0	-	0	0	100	2.60	0.468	0.117	0	-	0	0	0.117	0.180	13.00	0.00585	0.123	1.0	10	0.12	0.012	0%	None
Grasshopper Mouse	Benzo(g,h,i)perylene	0.041	0.250	1	0.250	0	-	0	0	100	2.94	0.529	0.132	0	-	0	0	0.132	0.180	13.00	0.00585	0.138	1.0	10	0.14	0.014	0%	None
Grasshopper Mouse	Benzo(k)fluoranthene	0.041	0.250	1	0.250	0	-	0	0	100	2.60	0.468	0.117	0	-	0	0	0.117	0.180	13.00	0.00585	0.123	1.0	10	0.12	0.012	0%	None
Grasshopper Mouse	Chrysene	0.041	0.250	1	0.250	0	-	0	0	100	2.29	0.412	0.103	0	-	0	0	0.103	0.180	13.00	0.00585	0.109	1.0	10	0.11	0.011	0%	None
Grasshopper Mouse	Dibenzo(a,h)anthracene	0.041	0.250	1	0.250	0	-	0	0	100	2.31	0.416	0.104	0	-	0	0	0.104	0.180	13.00	0.00585	0.110	1.0	10	0.11	0.011	0%	None
Grasshopper Mouse	Fluoranthene	0.041	0.250	1	0.250	0	-	0	0	100	3.04	0.325	0.0813	0	-	0	0	0.0813	0.107	13.00	0.00348	0.0848	125.0	250	<0.01	<0.01	6%	None
Grasshopper Mouse	Fluorene	0.041	0.250	1	0.250	0	-	0	0	100	9.57	1.72	0.431	0	-	0	0	0.431	0.180	13.00	0.00585	0.436	125.0	250	<0.01	<0.01	0%	None
Grasshopper Mouse	Indeno(1,2,3-c,d)pyrene	0.041	0.250	1	0.250	0	-	0	0	100	2.86	0.515	0.129	0	-	0	0	0.129	0.180	13.00	0.00585	0.135	1.0	10	0.14	0.014	0%	None
Grasshopper Mouse	Naphthalene	0.041	0.250	1	0.250	0	-	0	0	100	4.40	0.792	0.198	0	-	0	0	0.198	0.180	13.00	0.00585	0.204	50.0	150	<0.01	<0.01	0%	None
Grasshopper Mouse	Phenanthrene	0.041	0.250	1	0.250	0	-	0	0	100	1.72	0.310	0.0774	0	-	0	0	0.0774	0.180	13.00	0.00585	0.0832	175.0	350	<0.01	<0.01	0%	None
Grasshopper Mouse	*HI - PAHs*																								<0.01	<0.01	(dets)	None
Grasshopper Mouse	TPH	0.041	0.250	1	0.250	0	-	0	0	100	-	0	0	0	-	0	0	0	20.0000000	13.00	0.650	0.650	1000.0	15000	<0.01	<0.01	100%	None
Grasshopper Mouse	*HI - Petroleum*																								<0.01	<0.01	(dets)	None
Grasshopper Mouse	2,4,5-Trichlorophenol	0.041	0.250	1	0.250	0	-	0	0	100	35.1	31.6	7.90	0	-	0	0	7.90	0.900	13.00	0.0292	7.93	0.2	2.4	**33**	***3.3***	0%	Uncertain
Grasshopper Mouse	2,4,6-Trichlorophenol	0.041	0.250	1	0.250	0	-	0	0	100	35.6	6.40	1.60	0	-	0	0	1.60	0.180	13.00	0.00585	1.61	0.2	2.4	**6.7**	0.67	0%	Uncertain
Grasshopper Mouse	2,4-Dichlorophenol	0.041	0.250	1	0.250	0	-	0	0	100	32.6	5.87	1.47	0	-	0	0	1.47	0.180	13.00	0.00585	1.47	0.2	2.4	**6.1**	0.61	0%	Uncertain
Grasshopper Mouse	Hexachlorobenzene	0.041	0.250	1	0.250	0	-	0	0	100	40.2	7.24	1.81	0	-	0	0	1.81	0.180	13.00	0.00585	1.82	1.6	3.2	**1.1**	0.57	0%	Uncertain
Grasshopper Mouse	Hexachlorocyclopentadiene	0.041	0.250	1	0.250	0	-	0	0	100	36	7.02	1.75	0	-	0	0	1.75	0.195	13.00	0.00634	1.76	1.6	3.2	**1.1**	0.55	0%	Uncertain
Grasshopper Mouse	Hexachloroethane	0.041	0.250	1	0.250	0	-	0	0	100	38	6.84	1.71	0	-	0	0	1.71	0.180	13.00	0.00585	1.72	1.6	3.2	**1.1**	0.54	0%	Uncertain
Grasshopper Mouse	Pentachlorophenol	0.041	0.250	1	0.250	0	-	0	0	100	5.93	5.34	1.33	0	-	0	0	1.33	0.900	13.00	0.0292	1.36	0.2	2.4	**5.7**	0.57	0%	Uncertain
Grasshopper Mouse	1,1,1,2-Tetrachloroethane	0.041	0.250	1	0.250	0	-	0	0	100	28.3	0.0212	0.00530	0	-	0	0	0.00530	0.000750	13.00	0.0000244	0.00532	1.4	7	<0.01	<0.01	0%	None
Grasshopper Mouse	1,1,1-Trichloroethane	0.041	0.250	1	0.250	0	-	0	0	100	31.4	0.0204	0.00511	0	-	0	0	0.00511	0.000650	13.00	0.0000211	0.00513	1000.0	NSV	<0.01	--	0%	None
Grasshopper Mouse	1,1,2,2-Tetrachloroethane	0.041	0.250	1	0.250	0	-	0	0	100	31.1	0.0218	0.00545	0	-	0	0	0.00545	0.000700	13.00	0.0000228	0.00547	1.4	7	<0.01	<0.01	0%	None
Grasshopper Mouse	1,1,2-Trichloroethane	0.041	0.250	1	0.250	0	-	0	0	100	31.4	0.0220	0.00549	0	-	0	0	0.00549	0.000700	13.00	0.0000228	0.00551	1000.0	NSV	<0.01	--	0%	None
Grasshopper Mouse	1,1-Dichloroethane	0.041	0.250	1	0.250	0	-	0	0	100	29.5	0.0133	0.00332	0	-	0	0	0.00332	0.000450	13.00	0.0000146	0.00333	50.0	NSV	<0.01	--	0%	None
Grasshopper Mouse	1,1-Dichloroethene	0.041	0.250	1	0.250	0	-	0	0	100	27.3	0.0396	0.00989	0	-	0	0	0.00989	0.00145	13.00	0.0000471	0.00994	2.5	NSV	<0.01	--	0%	None
Grasshopper Mouse	1,2,3-Trichloropropane	0.041	0.250	1	0.250	0	-	0	0	100	27.7	0.0291	0.00727	0	-	0	0	0.00727	0.00105	13.00	0.0000341	0.00730	1000.0	NSV	<0.01	--	0%	None
Grasshopper Mouse	1,2-Dichloroethane	0.041	0.250	1	0.250	0	-	0	0	100	28.7	0.0201	0.00502	0	-	0	0	0.00502	0.000700	13.00	0.0000228	0.00504	50.0	NSV	<0.01	--	0%	None
Grasshopper Mouse	1,2-Dichloropropane	0.041	0.250	1	0.250	0	-	0	0	100	30.1	0.0165	0.00413	0	-	0	0	0.00413	0.000550	13.00	0.0000179	0.00415	50.0	NSV	<0.01	--	0%	None
Grasshopper Mouse	2-Butanone	0.041	0.250	1	0.250	0	-	0	0	100	25.4	0.116	0.0289	0	-	0	0	0.0289	0.00455	13.00	0.000148	0.0290	10.0	50	<0.01	<0.01	7%	None
Grasshopper Mouse	2-Hexanone	0.041	0.250	1	0.250	0	-	0	0	100	26.5	0.103	0.0258	0	-	0	0	0.0258	0.00390	13.00	0.000127	0.0260	10.0	50	<0.01	<0.01	0%	None
Grasshopper Mouse	4-Methyl-2-pentanone	0.041	0.250	1	0.250	0	-	0	0	100	26.3	0.0894	0.0224	0	-	0	0	0.0224	0.00340	13.00	0.000110	0.0225	25.0	NSV	<0.01	--	0%	None
Grasshopper Mouse	Acetone	0.041	0.250	1	0.250	0	-	0	0	100	24.9	1.13	0.281	0	-	0	0	0.281	0.0453	13.00	0.00147	0.283	10.0	50	0.028	<0.01	13%	None
Grasshopper Mouse	Benzene	0.041	0.250	1	0.250	0	-	0	0	100	27.3	0.0156	0.00389	0	-	0	0	0.00389	0.000570	13.00	0.0000185	0.00391	0.7	7	<0.01	<0.01	7%	None
Grasshopper Mouse	Bromoform	0.041	0.250	1	0.250	0	-	0	0	100	31.2	0.0249	0.00623	0	-	0	0	0.00623	0.000800	13.00	0.0000260	0.00626	15.0	41	<0.01	<0.01	0%	None
Grasshopper Mouse	Bromomethane	0.041	0.250	1	0.250	0	-	0	0	100	26.3	0.0263	0.00657	0	-	0	0	0.00657	0.00100	13.00	0.0000325	0.00661	15.0	41	<0.01	<0.01	0%	None
Grasshopper Mouse	Carbon tetrachloride	0.041	0.250	1	0.250	0	-	0	0	100	28	0.0182	0.00456	0	-	0	0	0.00456	0.000650	13.00	0.0000211	0.00458	16.0	NSV	<0.01	--	0%	None
Grasshopper Mouse	Chlorobenzene	0.041	0.250	1	0.250	0	-	0	0	100	32.4	0.0195	0.00486	0	-	0	0	0.00486	0.000600	13.00	0.0000195	0.00488	15.0	41	<0.01	<0.01	0%	None
Grasshopper Mouse	Chloroethane	0.041	0.250	1	0.250	0	-	0	0	100	28.6	0.0300	0.00750	0	-	0	0	0.00750	0.00105	13.00	0.0000341	0.00753	15.0	41	<0.01	<0.01	0%	None
Grasshopper Mouse	Chloroform	0.041	0.250	1	0.250	0	-	0	0	100	30	0.0180	0.00450	0	-	0	0	0.00450	0.000600	13.00	0.0000195	0.00452	15.0	41	<0.01	<0.01	0%	None
Grasshopper Mouse	Chloromethane	0.041	0.250	1	0.250	0	-	0	0	100	27.3	0.0273	0.00684	0	-	0	0	0.00684	0.00100	13.00	0.0000325	0.00687	15.0	41	<0.01	<0.01	0%	None
Grasshopper Mouse	cis-1,2-Dichloroethene	0.041	0.250	1	0.250	0	-	0	0	100	27	0.0175	0.00439	0	-	0	0	0.00439	0.000650	13.00	0.0000211	0.00441	45.2	NSV	<0.01	--	0%	None
Grasshopper Mouse	cis-1,3-Dichloropropene	0.041	0.250	1	0.250	0	-	0	0	100	27.5	0.0151	0.00378	0	-	0	0	0.00378	0.000550	13.00	0.0000179	0.00379	45.2	NSV	<0.01	--	0%	None
Grasshopper Mouse	Ethylbenzene	0.041	0.250	1	0.250	0	-	0	0	100	33.3	0.0200	0.00500	0	-	0	0	0.00500	0.000600	13.00	0.0000195	0.00502	97.0	291	<0.01	<0.01	0%	None
Grasshopper Mouse	m,p-Xylene	0.041	0.250	1	0.250	0	-	0	0	100	28.5	0.0356	0.00889	0	-	0	0	0.00889	0.00125	13.00	0.0000406	0.00893	179.0	357	<0.01	<0.01	0%	None
Grasshopper Mouse	Methylene chloride	0.041	0.250	1	0.250	0	-	0	0	100	28.1	0.0450	0.0112	0	-	0	0	0.0112	0.00160	13.00	0.0000520	0.0113	5.9	50	<0.01	<0.01	0%	None
Grasshopper Mouse	o-Xylene	0.041	0.250	1	0.250	0	-	0	0	100	28.3	0.0306	0.00765	0	-	0	0	0.00765	0.00108	13.00	0.0000351	0.00769	179.0	357	<0.01	<0.01	7%	None
Grasshopper Mouse	Phenol	0.041	0.250	1	0.250	0	-	0	0	100	28.6	5.15	1.29	0	-	0	0	1.29	0.180	13.00	0.00585	1.29	17.1	NSV	0.076	--	0%	None
Grasshopper Mouse	Tetrachloroethene	0.041	0.250	1	0.250	0	-	0	0	100	28.7	0.0186	0.00466	0	-	0	0	0.00466	0.000650	13.00	0.0000211	0.00468	1.4	7	<0.01	<0.01	0%	None
Grasshopper Mouse	Toluene	0.041	0.250	1	0.250	0	-	0	0	100	27.9	0.416	0.104	0	-	0	0	0.104	0.0149	13.00	0.000484	0.105	52.0	520	<0.01	<0.01	13%	None
Grasshopper Mouse	Trans-1,2-Dichloroethene	0.041	0.250	1	0.250	0	-	0	0	100	28.7	0.0172	0.00430	0	-	0	0	0.00430	0.000600	13.00	0.0000195	0.00432	45.2	NSV	<0.01	--	0%	None
Grasshopper Mouse	Trans-1,3-Dichloropropene	0.041	0.250	1	0.250	0	-	0	0	100	30.1	0.0210	0.00526	0	-	0	0	0.00526	0.000700	13.00	0.0000228	0.00528	45.2	NSV	<0.01	--	0%	None
Grasshopper Mouse	Trichloroethylene (TCE)	0.041	0.250	1	0.250	0	-	0	0	100	31.2	0.0172	0.00429	0	-	0	0	0.00429	0.000550	13.00	0.0000179	0.00431	0.7	7	<0.01	<0.01	0%	None
Grasshopper Mouse	Vinyl chloride	0.041	0.250	1	0.250	0	-	0	0	100	28.4	0.0242	0.00604	0	-	0	0	0.00604	0.000850	13.00	0.0000276	0.00607	0.2	1.7	0.036	<0.01	0%	None
Grasshopper Mouse	*HI - VOCs*																								*0.039*	<0.01	(dets)	None
Coyote	2,4-Dinitrotoluene	10.330	0.045	0.062	0.003	100	1.05	1.05	0.00297	0	-	0	0	0	-	0	0	0.00297	1.00	2.80	0.0000790	0.00305	2.0	8	<0.01	<0.01	0%	None
Coyote	HMX	10.330	0.045	0.062	0.003	100	2.13	7.04	0.0199	0	-	0	0	0	-	0	0	0.0199	3.30	2.80	0.000261	0.0201	1.0	5	0.020	<0.01	20%	None
Coyote	*HI - Energetics*																								0.020	<0.01	(dets)	None
Coyote	Antimony	10.330	0.045	0.062	0.003	100	1.00	3.80	0.0107	0	-	0	0	0	-	0	0	0.0107	3.80	2.80	0.000300	0.0110	0.1	0.64	0.19	0.017	88%	None
Coyote	Cadmium	10.330	0.045	0.062	0.003	100	Regression Based	0.739	0.00209	0	-	0	0	0	-	0	0	0.00209	1.23	2.80	0.0000972	0.00218	0.8	1.42	<0.01	<0.01	62%	None
Coyote	Copper	10.330	0.045	0.062	0.003	100	Regression Based	12.2	0.0343	0	-	0	0	0	-	0	0	0.0343	23.6000000	2.80	0.00187	0.0362	11.7	15.14	<0.01	<0.01	95%	None
Coyote	Lead	10.330	0.045	0.062	0.003	100	Regression Based	3.97	0.0112	0	-	0	0	0	-	0	0	0.0112	19.0000000	2.80	0.00150	0.0127	0.9	4.7	0.014	<0.01	95%	None
Coyote	Molybdenum	10.330	0.045	0.062	0.003	100	1.00	1.00	0.00282	0	-	0	0	0	-	0	0	0.00282	1.00	2.80	0.0000790	0.00290	0.3	2.6	0.011	<0.01	87%	None
Coyote	Nitrate	10.330	0.045	0.062	0.003	100	1	10	0.028226129	0	-	0	0	0	-	0	0	0.028226129	10.0000000	2.80	0.0008	0.029	507.0	1130	<0.01	<0.01	95%	None
Coyote	Perchlorate	10.330	0.045	0.062	0.003	100	0.100	0.00537	0.0000151	0	-	0	0	0	-	0	0	0.0000151	0.0537	2.80	0.00000424	0.0000194	2.6	25.9	<0.01	<0.01	33%	None
Coyote	Silver	10.330	0.045	0.062	0.003	100	0.810	0.146	0.000412	0	-	0	0	0	-	0	0	0.000412	0.180	2.80	0.0000142	0.000426	2.4	23.8	<0.01	<0.01	5%	None
Coyote	Zinc	10.330	0.045	0.062	0.003	100	Regression Based	118	0.334	0	-	0	0	0	-	0	0	0.334	60.8000000	2.80	0.00480	0.339	160.0	320	<0.01	<0.01	100%	None
Coyote	*HI - Inorganics*																								0.22	0.026	(dets)	None
Coyote	2-Methylnaphthalene	10.330	0.045	0.062	0.003	100	0.629	0.113	0.000320	0	-	0	0	0	-	0	0	0.000320	0.180	2.80	0.0000142	0.000334	5.0	50.3	<0.01	<0.01	0%	None
Coyote	Anthracene	10.330	0.045	0.062	0.003	100	0	0	0	0	-	0	0	0	-	0	0	0	0.180	2.80	0.0000142	0.0000142	1000.0	NSV	<0.01	--	0%	None
Coyote	Fluoranthene	10.330	0.045	0.062	0.003	100	0	0	0	0	-	0	0	0	-	0	0	0	0.107	2.80	0.00000846	0.00000846	125.0	250	<0.01	<0.01	6%	None

Table 27
Refined Risk Estimation for Wildlife Exposed to Site Soils Within Habitat Areas
Attachment 10A - Thermal Treatment Unit, Ecological Risk Assessment

						Small Mammals and Other Vertebrates				Soil Invertebrates				Terrestrial Plants														
Receptor	Chemical	Body Weight (kg)	Daily Food Intake (kg/kg-bw/day)	Area Use Factor	Daily Food Ingestion from Site (kg/kg-bw/day)	Percent of Diet	Soil to Tissue Transfer Factor	Tissue Concentration (mg/kg DW)	Total Vertebrate Food Intake (mg/kg-bw/d)a	Percent of Diet	Soil to Tissue Transfer Factor	Tissue Concentration (mg/kg DW)	Total Invertebrate Food Intake (mg/kg-bw/d)b	Percent of Diet	Soil to Tissue Transfer Factor	Tissue Concentration (mg/kg DW)	Total Plant Food Intake (mg/kg-bw/d)c	Total Food Intake (mg/kg-bw/d)d	Refined Habitat Soil EPC (mg/kg)	Percent of Diet as Soil	Incidental Soil Intake (mg/kg-bw/d)e	Total Chemical Intake (mg/kg-day)f	NOAEL TRV (mg/kg-bw/d)	LOAEL TRV (mg/kg-bw/d)	NOAEL Hazard Quotient	LOAEL Hazard Quotient	Detection Frequency (%)	Risk Conclusions
Coyote	Fluorene	10.330	0.045	0.062	0.003	100	0	0	0	0	-	0	0	0	-	0	0	0	0.180	2.80	0.0000142	0.0000142	125.0	250	<0.01	<0.01	0%	None
Coyote	Naphthalene	10.330	0.045	0.062	0.003	100	0	0	0	0	-	0	0	0	-	0	0	0	0.180	2.80	0.0000142	0.0000142	50.0	150	<0.01	<0.01	0%	None
Coyote	Phenanthrene	10.330	0.045	0.062	0.003	100	0	0	0	0	-	0	0	0	-	0	0	0	0.180	2.80	0.0000142	0.0000142	175.0	350	<0.01	<0.01	0%	None
Coyote	*HI - PAHs*																								<0.01	<0.01	(dets)	None
Coyote	2,4,5-Trichlorophenol	10.330	0.045	0.062	0.003	100	0.125	0.112	0.000317	0	-	0	0	0	-	0	0	0.000317	0.900	2.80	0.0000711	0.000388	0.2	2.4	<0.01	<0.01	0%	None
Sage Sparrow	2,4,6-Trinitrotoluene (TNT)	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	1.71	2.56	0.0654	0.0654	1.50	2.00	0.000765	0.0662	0	1.8	0.95	0.037	0%	None
Sage Sparrow	2,6-Dinitrotoluene	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	3.14	4.71	0.120	0.120	1.50	2.00	0.000765	0.121	0	1.8	**1.7**	0.067	0%	Uncertain
Sage Sparrow	2-Amino-4,6-Dinitrotoluene	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	Regression Based	2.72	0.0694	0.0694	1.50	2.00	0.000765	0.0701	0	1.8	**1.0**	0.039	0%	Uncertain
Sage Sparrow	Nitrobenzene	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	1.13	1.69	0.0432	0.0432	1.50	2.00	0.000765	0.0440	0	1.8	0.63	0.024	0%	None
Sage Sparrow	RDX	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	Regression Based	37.6	0.960	0.960	1.50	2.00	0.000765	0.961	0	1.8	**14**	0.53	0%	Uncertain
Sage Sparrow	Cadmium	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	Regression Based	0.696	0.0177	0.0177	1.23	2.00	0.000628	0.0184	0	0.61	0.12	0.030	62%	None
Sage Sparrow	Copper	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	Regression Based	6.78	0.173	0.173	23.6000000	2.00	0.0120	0.185	47	61.7	<0.01	<0.01	95%	None
Sage Sparrow	Lead	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	Regression Based	1.38	0.0353	0.0353	19.0000000	2.00	0.00970	0.0450	0	1.78	0.24	0.025	95%	None
Sage Sparrow	Molybdenum	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	0.400	0.400	0.0102	0.0102	1.00	2.00	0.000510	0.0107	4	35.3	<0.01	<0.01	87%	None
Sage Sparrow	Perchlorate	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	282	15.10	0.386	0.386	0.0537	2.00	0.0000274	0.386	3	32.6	0.12	0.012	33%	None
Sage Sparrow	Zinc	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	Regression Based	47.2	1.20	1.20	60.8000000	2.00	0.0310	1.24	15	131	0.085	<0.01	100%	None
Sage Sparrow	*HI - Inorganics*																								0.56	0.080	(dets)	None
Sage Sparrow	2-Methylnaphthalene	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	1.87	0.337	0.00859	0.00859	0.180	2.00	0.0000918	0.00868	27	269	<0.01	<0.01	0%	None
Sage Sparrow	Anthracene	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	Regression Based	0.707	0.0180	0.0180	0.180	2.00	0.0000918	0.0181	325	NSV	<0.01	--	0%	None
Sage Sparrow	Fluoranthene	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	0.500	0.0535	0.00136	0.00136	0.107	2.00	0.0000546	0.00142	325	NSV	<0.01	--	6%	None
Sage Sparrow	Fluorene	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	Regression Based	60	1.53	1.53	0.180	2.00	0.0000918	1.53	325	NSV	<0.01	--	0%	None
Sage Sparrow	Naphthalene	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	12.2	2.20	0.0560	0.0560	0.180	2.00	0.0000918	0.0561	27	269	<0.01	<0.01	0%	None
Sage Sparrow	Phenanthrene	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	Regression Based	0.408	0.0104	0.0104	0.180	2.00	0.0000918	0.0105	325	NSV	<0.01	--	0%	None
Sage Sparrow	*HI - PAHs*																								<0.01	0	(dets)	None
Sage Sparrow	Dimethylphthalate	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	2.11	0.379	0.00968	0.00968	0.180	2.00	0.0000918	0.00977	0	11	0.089	<0.01	0%	None
Sage Sparrow	Di-n-octylphthalate	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	0.461	0.0829	0.00211	0.00211	0.180	2.00	0.0000918	0.00221	0	11	0.020	<0.01	0%	None
Sage Sparrow	1,1,1,2-Tetrachloroethane	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	3.56	0.00267	0.0000682	0.0000682	0.000750	2.00	0.000000383	0.0000685	17	34.4	<0.01	<0.01	0%	None
Sage Sparrow	1,1,1-Trichloroethane	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	0.279	0.000181	0.00000463	0.00000463	0.000650	2.00	0.000000332	0.00000496	17	34.4	<0.01	<0.01	0%	None
Sage Sparrow	1,1,2,2-Tetrachloroethane	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	0.354	0.000248	0.00000632	0.00000632	0.000700	2.00	0.000000357	0.00000668	17	34.4	<0.01	<0.01	0%	None
Sage Sparrow	1,1,2-Trichloroethane	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	0.298	0.000208	0.00000532	0.00000532	0.000700	2.00	0.000000357	0.00000567	17	34.4	<0.01	<0.01	0%	None
Sage Sparrow	1,1-Dichloroethane	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	1.28	0.000578	0.0000147	0.0000147	0.000450	2.00	0.000000230	0.0000150	17	34.4	<0.01	<0.01	0%	None
Sage Sparrow	1,1-Dichloroethene	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	8.26	0.0120	0.000305	0.000305	0.00145	2.00	0.000000740	0.000306	17	34.4	<0.01	<0.01	0%	None
Sage Sparrow	1,2,3-Trichlorobenzene	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	1.37	0.000756	0.0000193	0.0000193	0.000550	2.00	0.000000281	0.0000196	17	34.4	<0.01	<0.01	0%	None
Sage Sparrow	1,2,3-Trichloropropane	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	5.84	0.00614	0.000157	0.000157	0.00105	2.00	0.000000536	0.000157	17	34.4	<0.01	<0.01	0%	None
Sage Sparrow	1,2,4-Trichlorobenzene	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	0.00580	0.00104	0.0000266	0.0000266	0.180	2.00	0.0000918	0.000118	17	34.4	<0.01	<0.01	0%	None
Sage Sparrow	1,2-Dichlorobenzene	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	2.57	0.462	0.0118	0.0118	0.180	2.00	0.0000918	0.0119	17	34.4	<0.01	<0.01	0%	None
Sage Sparrow	1,2-Dichloroethane	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	2.50	0.00175	0.0000447	0.0000447	0.000700	2.00	0.000000357	0.0000451	17	34.4	<0.01	<0.01	0%	None
Sage Sparrow	1,2-Dichloropropane	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	0.818	0.000450	0.0000115	0.0000115	0.000550	2.00	0.000000281	0.0000118	17	34.4	<0.01	<0.01	0%	None
Sage Sparrow	1,3-Dichlorobenzene	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	0.0262	0.00471	0.000120	0.000120	0.180	2.00	0.0000918	0.000212	17	34.4	<0.01	<0.01	0%	None
Sage Sparrow	1,4-Dichlorobenzene	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	0.0262	0.00471	0.000120	0.000120	0.180	2.00	0.0000918	0.000212	17	34.4	<0.01	<0.01	0%	None
Sage Sparrow	2-Butanone	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	46.1	0.210	0.00535	0.00535	0.00455	2.00	0.00000232	0.00535	39	393	<0.01	<0.01	7%	None
Sage Sparrow	2-Hexanone	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	16.6	0.0649	0.00166	0.00166	0.00390	2.00	0.00000199	0.00166	39	393	<0.01	<0.01	0%	None
Sage Sparrow	4-Methyl-2-pentanone	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	19.9	0.0676	0.00172	0.00172	0.00340	2.00	0.00000173	0.00173	39	393	<0.01	<0.01	0%	None
Sage Sparrow	Acetone	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	75.6	3.42	0.0873	0.0873	0.0453	2.00	0.0000231	0.0873	39	NSV	<0.01	--	13%	None
Sage Sparrow	Benzene	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	8.26	0.00471	0.000120	0.000120	0.000570	2.00	0.000000291	0.000120	10	101.7	<0.01	<0.01	7%	None
Sage Sparrow	Chlorobenzene	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	0.134	0.0000805	0.00000206	0.00000206	0.000600	2.00	0.000000306	0.00000236	17	34.4	<0.01	<0.01	0%	None
Sage Sparrow	Chloroethane	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	2.79	0.00293	0.0000747	0.0000747	0.00105	2.00	0.000000536	0.0000752	17	34.4	<0.01	<0.01	0%	None
Sage Sparrow	Chloromethane	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	7.83	0.00783	0.000200	0.000200	0.00100	2.00	0.000000510	0.000200	17	34.4	<0.01	<0.01	0%	None
Sage Sparrow	cis-1,2-Dichloroethene	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	10.6	0.00691	0.000176	0.000176	0.000650	2.00	0.000000332	0.000177	17	34.4	<0.01	<0.01	0%	None
Sage Sparrow	cis-1,3-Dichloropropene	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	7.11	0.00391	0.0000998	0.0000998	0.000550	2.00	0.000000281	0.000100	17	34.4	<0.01	<0.01	0%	None
Sage Sparrow	Dibromochloromethane	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	0.674	0.000539	0.0000138	0.0000138	0.000800	2.00	0.000000408	0.0000142	17	34.4	<0.01	<0.01	0%	None
Sage Sparrow	Dibromomethane	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	13.3	0.00997	0.000254	0.000254	0.000750	2.00	0.000000383	0.000255	17	34.4	<0.01	<0.01	0%	None
Sage Sparrow	Dichlorodifluoromethane	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	0.580	0.000435	0.0000111	0.0000111	0.000750	2.00	0.000000383	0.0000115	17	34.4	<0.01	<0.01	0%	None
Sage Sparrow	Ethylbenzene	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	0.0690	0.0000414	0.00000106	0.00000106	0.000600	2.00	0.000000306	0.00000136	10	101.7	<0.01	<0.01	0%	None
Sage Sparrow	m,p-Xylene	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	3.04	0.00380	0.0000969	0.0000969	0.00125	2.00	0.000000638	0.0000976	10	101.7	<0.01	<0.01	0%	None
Sage Sparrow	o-Xylene	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	3.34	0.00360	0.0000919	0.0000919	0.00108	2.00	0.000000551	0.0000925	10	101.7	<0.01	<0.01	7%	None
Sage Sparrow	Tetrachloroethene	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	2.52	0.00164	0.0000418	0.0000418	0.000650	2.00	0.000000332	0.0000421	17	34.4	<0.01	<0.01	0%	None
Sage Sparrow	Toluene	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	4.71	0.0702	0.00179	0.00179	0.0149	2.00	0.00000760	0.00180	10	101.7	<0.01	<0.01	13%	None
Sage Sparrow	Trans-1,2-Dichloroethene	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	2.50	0.00150	0.0000383	0.0000383	0.000600	2.00	0.000000306	0.0000386	17	34.4	<0.01	<0.01	0%	None
Sage Sparrow	Trans-1,3-Dichloropropene	0.019	0.026	1	0.026	0	-	0	0	0	-	0	0	100	0.818	0.000573	0.0000146	0.0000146	0.000700	2.00	0.000000357	0.0000150	17	34.4	<0.01	<0.01	0%	None
Sage Sparrow	*HI - VOCs*																								<0.01	<0.01	(dets)	None
Loggerhead Shrike	2,4-Dinitrotoluene	0.047	0.022	1	0.022	0	-	0	0	100	3.71	3.71	0.0828	0	-	0	0	0.0828	1.00	0	0	0.0828	0	1.8	**1.2**	0.046	0%	Uncertain
Loggerhead Shrike	2,6-Dinitrotoluene	0.047	0.022	1	0.022	0	-	0	0	100	3.16	4.74	0.106	0	-	0	0	0.106	1.50	0	0	0.106	0	1.8	**1.5**	0.059	0%	Uncertain
Loggerhead Shrike	2-Amino-4,6-Dinitrotoluene	0.047	0.022	1	0.022	0	-	0	0	100	Regression Based	6.71	0.150	0	-	0	0	0.150	1.50	0	0	0.150	0	1.8	**2.1**	0.083	0%	Uncertain
Loggerhead Shrike	2-Nitrotoluene	0.047	0.022	1	0.022	0	-	0	0	100	30.9	4.32	0.0965	0	-	0	0	0.0965	0.140	0	0	0.0965	0	1.8	**1.4**	0.054	0%	Uncertain
Loggerhead Shrike	3-Nitrotoluene	0.047	0.022	1	0.022	0	-	0	0	100	27.6	4.14	0.0924	0	-	0	0	0.0924	0.150	0	0	0.0924	0	1.8	**1.3**	0.051	0%	Uncertain
Loggerhead Shrike	4-Nitrotoluene	0.047	0.022	1	0.022	0	-	0	0	100	27.5	5.23	0.117	0	-	0	0	0.117	0.190	0	0	0.117	0	1.8	**1.7**	0.065	0%	Uncertain
Loggerhead Shrike	HMX	0.047	0.022	1	0.022	0	-	0	0	100	0.313	1.03	0.0230	0	-	0	0	0.0230	3.30	0	0	0.0230	9	62.5	<0.01	<0.01	20%	None
Loggerhead Shrike	Nitrobenzene	0.047	0.022	1	0.022	0	-	0	0	100	29.7	44.5	0.992	0	-	0	0	0.992	1.50	0	0	0.992	0	1.8	**14**	0.55	0%	Uncertain
Loggerhead Shrike	RDX	0.047	0.022	1	0.022	0	-	0	0	100	Regression Based	87.3	1.95	0	-	0	0	1.95	1.50	0	0	1.95	0	1.8	**28**	***1.1***	0%	Uncertain
Loggerhead Shrike	*HI - Energetics*																								<0.01	<0.01	(dets)	None
Loggerhead Shrike	Cadmium	0.047	0.022	1	0.022	0	-	0	0	100	Regression Based	9.76	0.218	0	-	0	0	0.218	1.23	0	0	0.218	0	0.61	**1.4**	0.36	62%	Possible
Loggerhead Shrike	Copper	0.047	0.022	1	0.022	0	-	0	0	100	Regression Based	12.3	0.274	0	-	0	0	0.274	23.6000000	0	0	0.274	47	61.7	<0.01	<0.01	95%	None
Loggerhead Shrike	Lead	0.047	0.022	1	0.022	0	-	0	0	100	Regression Based	8.66	0.193	0	-	0	0	0.193	19.0000000	0	0	0.193	0	1.78	**1.0**	0.11	95%	Possible
Loggerhead Shrike	Molybdenum	0.047	0.022	1	0.022	0	-	0	0	100	0.953	0.953	0.0213	0	-	0	0	0.0213	1.00	0	0	0.0213	4	35.3	<0.01	<0.01	87%	None
Loggerhead Shrike	Perchlorate	0.047	0.022	1	0.022	0	-	0	0	100	1.00	0.0537	0.00120	0	-	0	0	0.00120	0.0537	0	0	0.00120	3	32.6	<0.01	<0.01	33%	None
Loggerhead Shrike	Zinc	0.047	0.022	1	0.022	0	-	0	0	100	Regression Based	329	7.34	0	-	0	0	7.34	60.8000000	0	0	7.34	15	131	0.51	0.056	100%	None
Loggerhead Shrike	*HI - Inorganics*																								**2.9**	0.53	(dets)	Possible
Loggerhead Shrike	2-Methylnaphthalene	0.047	0.022	1	0.022	0	-	0	0	100	29	5.23	0.117	0	-	0	0	0.117	0.180	0	0	0.117	27	269	<0.01	<0.01	0%	None
Loggerhead Shrike	Anthracene	0.047	0.022	1	0.022	0	-	0	0	100	2.42	0.436	0.00972	0	-	0	0	0.00972	0.180	0	0	0.00972	325	NSV	<0.01	--	0%	None
Loggerhead Shrike	Fluoranthene	0.047	0.022	1	0.022	0	-	0	0	100	3.04	0.325	0.00726	0	-	0	0	0.00726	0.107	0	0	0.00726	325	NSV	<0.01	--	6%	None
Loggerhead Shrike	Fluorene	0.047	0.022	1	0.022	0	-	0	0	100	9.57	1.72	0.0384	0	-	0	0	0.0384	0.180	0	0	0.0384	325	NSV	<0.01	--	0%	None

Table 27
Refined Risk Estimation for Wildlife Exposed to Site Soils Within Habitat Areas
Attachment 10A - Thermal Treatment Unit, Ecological Risk Assessment

						Small Mammals and Other Vertebrates				Soil Invertebrates				Terrestrial Plants														
Receptor	Chemical	Body Weight (kg)	Daily Food Intake (kg/kg-bw/day)	Area Use Factor	Daily Food Ingestion from Site (kg/kg-bw/day)	Percent of Diet	Soil to Tissue Transfer Factor	Tissue Concentration (mg/kg DW)	Total Vertebrate Food Intake (mg/kg-bw/d)a	Percent of Diet	Soil to Tissue Transfer Factor	Tissue Concentration (mg/kg DW)	Total Invertebrate Food Intake (mg/kg-bw/d)b	Percent of Diet	Soil to Tissue Transfer Factor	Tissue Concentration (mg/kg DW)	Total Plant Food Intake (mg/kg-bw/d)c	Total Food Intake (mg/kg-bw/d)d	Refined Habitat Soil EPC (mg/kg)	Percent of Diet as Soil	Incidental Soil Intake (mg/kg-bw/d)e	Total Chemical Intake (mg/kg-day)f	NOAEL TRV (mg/kg-bw/d)	LOAEL TRV (mg/kg-bw/d)	NOAEL Hazard Quotient	LOAEL Hazard Quotient	Detection Frequency (%)	Risk Conclusions
Loggerhead Shrike	Naphthalene	0.047	0.022	1	0.022	0	-	0	0	100	4.40	0.792	0.0177	0	-	0	0	0.0177	0.180	0	0	0.0177	27	269	<0.01	<0.01	0%	None
Loggerhead Shrike	Phenanthrene	0.047	0.022	1	0.022	0	-	0	0	100	1.72	0.310	0.00691	0	-	0	0	0.00691	0.180	0	0	0.00691	325	NSV	<0.01	--	0%	None
Loggerhead Shrike	*HI - PAHs*																								<0.01	0	(dets)	None
Loggerhead Shrike	TPH	0.047	0.022	1	0.022	0	-	0	0	100	-	0	0	0	-	0	0	0	20.0000000	0	0	0	500	5000	0	0	100%	None
Loggerhead Shrike	*HI - Petroleum*																								0	0	(dets)	None
Loggerhead Shrike	2,4,5-Trichlorophenol	0.047	0.022	1	0.022	0	-	0	0	100	35.1	31.6	0.705	0	-	0	0	0.705	0.900	0	0	0.705	17	38.4	0.042	0.018	0%	None
Loggerhead Shrike	bis(2-Ethylhexyl)phthalate	0.047	0.022	1	0.022	0	-	0	0	100	33.4	2.74	0.0611	0	-	0	0	0.0611	0.0820	0	0	0.0611	1	NSV	0.056	--	0%	None
Loggerhead Shrike	Butyl benzylphthalate	0.047	0.022	1	0.022	0	-	0	0	100	38.8	6.99	0.156	0	-	0	0	0.156	0.180	0	0	0.156	0	11	**1.4**	0.014	0%	Uncertain
Loggerhead Shrike	Diethylphthalate	0.047	0.022	1	0.022	0	-	0	0	100	31.3	5.64	0.126	0	-	0	0	0.126	0.180	0	0	0.126	0	11	**1.1**	0.011	0%	Uncertain
Loggerhead Shrike	Dimethylphthalate	0.047	0.022	1	0.022	0	-	0	0	100	28.9	5.20	0.116	0	-	0	0	0.116	0.180	0	0	0.116	0	11	**1.0**	0.010	0%	Uncertain
Loggerhead Shrike	Di-n-butylphthalate	0.047	0.022	1	0.022	0	-	0	0	100	38	6.85	0.153	0	-	0	0	0.153	0.180	0	0	0.153	0	11	**1.4**	0.014	0%	Uncertain
Loggerhead Shrike	Di-n-octylphthalate	0.047	0.022	1	0.022	0	-	0	0	100	30.8	5.54	0.124	0	-	0	0	0.124	0.180	0	0	0.124	0	11	**1.1**	0.011	0%	Uncertain
Loggerhead Shrike	Hexachlorobenzene	0.047	0.022	1	0.022	0	-	0	0	100	40.2	7.24	0.161	0	-	0	0	0.161	0.180	0	0	0.161	1	2.25	0.29	0.072	0%	None
Loggerhead Shrike	Hexachlorobutadiene	0.047	0.022	1	0.022	0	-	0	0	100	38.6	6.95	0.155	0	-	0	0	0.155	0.180	0	0	0.155	1	2.25	0.28	0.069	0%	None
Loggerhead Shrike	Hexachlorocyclopentadiene	0.047	0.022	1	0.022	0	-	0	0	100	36	7.02	0.157	0	-	0	0	0.157	0.195	0	0	0.157	1	2.25	0.28	0.070	0%	None
Loggerhead Shrike	Hexachloroethane	0.047	0.022	1	0.022	0	-	0	0	100	38	6.84	0.153	0	-	0	0	0.153	0.180	0	0	0.153	1	2.25	0.27	0.068	0%	None
Loggerhead Shrike	*HI - SVOCs*																								0	0	(dets)	None
Western Meadowlark	2,4-Dinitrotoluene	0.103	0.020	1	0.020	0	-	0	0	100	3.71	3.71	0.0736	0	-	0	0	0.0736	1.00	2.00	0.000397	0.0740	0	1.8	**1.1**	0.041	0%	Uncertain
Western Meadowlark	2,6-Dinitrotoluene	0.103	0.020	1	0.020	0	-	0	0	100	3.16	4.74	0.0940	0	-	0	0	0.0940	1.50	2.00	0.000595	0.0946	0	1.8	**1.4**	0.053	0%	Uncertain
Western Meadowlark	2-Amino-4,6-Dinitrotoluene	0.103	0.020	1	0.020	0	-	0	0	100	Regression Based	6.71	0.133	0	-	0	0	0.133	1.50	2.00	0.000595	0.134	0	1.8	**1.9**	0.074	0%	Uncertain
Western Meadowlark	2-Nitrotoluene	0.103	0.020	1	0.020	0	-	0	0	100	30.9	4.32	0.0858	0	-	0	0	0.0858	0.140	2.00	0.0000555	0.0858	0	1.8	**1.2**	0.048	0%	Uncertain
Western Meadowlark	3-Nitrotoluene	0.103	0.020	1	0.020	0	-	0	0	100	27.6	4.14	0.0822	0	-	0	0	0.0822	0.150	2.00	0.0000595	0.0823	0	1.8	**1.2**	0.046	0%	Uncertain
Western Meadowlark	4-Nitrotoluene	0.103	0.020	1	0.020	0	-	0	0	100	27.5	5.23	0.104	0	-	0	0	0.104	0.190	2.00	0.0000754	0.104	0	1.8	**1.5**	0.058	0%	Uncertain
Western Meadowlark	HMX	0.103	0.020	1	0.020	0	-	0	0	100	0.313	1.03	0.0205	0	-	0	0	0.0205	3.30	2.00	0.00131	0.0218	9	62.5	<0.01	<0.01	20%	None
Western Meadowlark	Nitrobenzene	0.103	0.020	1	0.020	0	-	0	0	100	29.7	44.5	0.882	0	-	0	0	0.882	1.50	2.00	0.000595	0.883	0	1.8	**13**	0.49	0%	Uncertain
Western Meadowlark	RDX	0.103	0.020	1	0.020	0	-	0	0	100	Regression Based	87.3	1.73	0	-	0	0	1.73	1.50	2.00	0.000595	1.73	0	1.8	**25**	0.96	0%	Uncertain
Western Meadowlark	*HI - Energetics*																								<0.01	<0.01	(dets)	None
Western Meadowlark	Cadmium	0.103	0.020	1	0.020	0	-	0	0	100	Regression Based	9.76	0.194	0	-	0	0	0.194	1.23	2.00	0.000488	0.194	0	0.61	**1.2**	0.32	62%	Possible
Western Meadowlark	Copper	0.103	0.020	1	0.020	0	-	0	0	100	Regression Based	12.3	0.244	0	-	0	0	0.244	23.6000000	2.00	0.00936	0.253	47	61.7	<0.01	<0.01	95%	None
Western Meadowlark	Lead	0.103	0.020	1	0.020	0	-	0	0	100	Regression Based	8.66	0.172	0	-	0	0	0.172	19.0000000	2.00	0.00754	0.179	0	1.78	0.94	0.10	95%	None
Western Meadowlark	Molybdenum	0.103	0.020	1	0.020	0	-	0	0	100	0.953	0.953	0.0189	0	-	0	0	0.0189	1.00	2.00	0.000397	0.0193	4	35.3	<0.01	<0.01	87%	None
Western Meadowlark	Perchlorate	0.103	0.020	1	0.020	0	-	0	0	100	1.00	0.0537	0.00106	0	-	0	0	0.00106	0.0537	2.00	0.0000213	0.00109	3	32.6	<0.01	<0.01	33%	None
Western Meadowlark	Zinc	0.103	0.020	1	0.020	0	-	0	0	100	Regression Based	329	6.53	0	-	0	0	6.53	60.8000000	2.00	0.0241	6.55	15	131	0.45	0.050	100%	None
Western Meadowlark	*HI - Inorganics*																								**2.6**	0.47	(dets)	Possible
Western Meadowlark	2-Methylnaphthalene	0.103	0.020	1	0.020	0	-	0	0	100	29	5.23	0.104	0	-	0	0	0.104	0.180	2.00	0.0000714	0.104	27	269	<0.01	<0.01	0%	None
Western Meadowlark	Anthracene	0.103	0.020	1	0.020	0	-	0	0	100	2.42	0.436	0.00864	0	-	0	0	0.00864	0.180	2.00	0.0000714	0.00871	325	NSV	<0.01	--	0%	None
Western Meadowlark	Fluoranthene	0.103	0.020	1	0.020	0	-	0	0	100	3.04	0.325	0.00645	0	-	0	0	0.00645	0.107	2.00	0.0000425	0.00650	325	NSV	<0.01	--	6%	None
Western Meadowlark	Fluorene	0.103	0.020	1	0.020	0	-	0	0	100	9.57	1.72	0.0342	0	-	0	0	0.0342	0.180	2.00	0.0000714	0.0342	325	NSV	<0.01	--	0%	None
Western Meadowlark	Naphthalene	0.103	0.020	1	0.020	0	-	0	0	100	4.40	0.792	0.0157	0	-	0	0	0.0157	0.180	2.00	0.0000714	0.0158	27	269	<0.01	<0.01	0%	None
Western Meadowlark	Phenanthrene	0.103	0.020	1	0.020	0	-	0	0	100	1.72	0.310	0.00614	0	-	0	0	0.00614	0.180	2.00	0.0000714	0.00621	325	NSV	<0.01	--	0%	None
Western Meadowlark	*HI - PAHs*																								<0.01	0	(dets)	None
Western Meadowlark	2,4,5-Trichlorophenol	0.103	0.020	1	0.020	0	-	0	0	100	35.1	31.6	0.627	0	-	0	0	0.627	0.900	2.00	0.000357	0.627	17	38.4	0.037	0.016	0%	None
Western Meadowlark	Butyl benzylphthalate	0.103	0.020	1	0.020	0	-	0	0	100	38.8	6.99	0.139	0	-	0	0	0.139	0.180	2.00	0.0000714	0.139	0	11	**1.3**	0.013	0%	Uncertain
Western Meadowlark	Diethylphthalate	0.103	0.020	1	0.020	0	-	0	0	100	31.3	5.64	0.112	0	-	0	0	0.112	0.180	2.00	0.0000714	0.112	0	11	**1.0**	0.010	0%	Uncertain
Western Meadowlark	Dimethylphthalate	0.103	0.020	1	0.020	0	-	0	0	100	28.9	5.20	0.103	0	-	0	0	0.103	0.180	2.00	0.0000714	0.103	0	11	0.94	<0.01	0%	None
Western Meadowlark	Di-n-butylphthalate	0.103	0.020	1	0.020	0	-	0	0	100	38	6.85	0.136	0	-	0	0	0.136	0.180	2.00	0.0000714	0.136	0	11	**1.2**	0.012	0%	Uncertain
Western Meadowlark	Di-n-octylphthalate	0.103	0.020	1	0.020	0	-	0	0	100	30.8	5.54	0.110	0	-	0	0	0.110	0.180	2.00	0.0000714	0.110	0	11	**1.0**	0.010	0%	Uncertain
Western Meadowlark	Hexachlorobenzene	0.103	0.020	1	0.020	0	-	0	0	100	40.2	7.24	0.144	0	-	0	0	0.144	0.180	2.00	0.0000714	0.144	1	2.25	0.26	0.064	0%	None
Western Meadowlark	Hexachlorocyclopentadiene	0.103	0.020	1	0.020	0	-	0	0	100	36	7.02	0.139	0	-	0	0	0.139	0.195	2.00	0.0000774	0.139	1	2.25	0.25	0.062	0%	None
Western Meadowlark	Hexachloroethane	0.103	0.020	1	0.020	0	-	0	0	100	38	6.84	0.136	0	-	0	0	0.136	0.180	2.00	0.0000714	0.136	1	2.25	0.24	0.060	0%	None
Burrowing Owl	2,4-Dinitrotoluene	0.157	0.111	1	0.111	100	1.05	1.05	0.117	0	-	0	0	0	-	0	0	0.117	1.00	5.00	0.00555	0.123	0	1.8	**1.8**	0.068	0%	Uncertain
Burrowing Owl	2,6-Dinitrotoluene	0.157	0.111	1	0.111	100	1.10	1.65	0.183	0	-	0	0	0	-	0	0	0.183	1.50	5.00	0.00833	0.191	0	1.8	**2.7**	0.11	0%	Uncertain
Burrowing Owl	2-Amino-4,6-Dinitrotoluene	0.157	0.111	1	0.111	100	1.18	1.77	0.196	0	-	0	0	0	-	0	0	0.196	1.50	5.00	0.00833	0.205	0	1.8	**2.9**	0.11	0%	Uncertain
Burrowing Owl	HMX	0.157	0.111	1	0.111	100	2.13	7.04	0.782	0	-	0	0	0	-	0	0	0.782	3.30	5.00	0.0183	0.801	9	62.5	0.089	0.013	20%	None
Burrowing Owl	Nitrobenzene	0.157	0.111	1	0.111	100	0.525	0.788	0.0875	0	-	0	0	0	-	0	0	0.0875	1.50	5.00	0.00833	0.0958	0	1.8	**1.4**	0.053	0%	Uncertain
Burrowing Owl	*HI - Energetics*																								0.089	0.013	(dets)	None
Burrowing Owl	Cadmium	0.157	0.111	1	0.111	100	Regression Based	0.739	0.0820	0	-	0	0	0	-	0	0	0.0820	1.23	5.00	0.00683	0.0889	0	0.61	0.56	0.15	62%	None
Burrowing Owl	Copper	0.157	0.111	1	0.111	100	Regression Based	12.2	1.35	0	-	0	0	0	-	0	0	1.35	23.6000000	5.00	0.131	1.48	47	61.7	0.032	0.024	95%	None
Burrowing Owl	Lead	0.157	0.111	1	0.111	100	Regression Based	3.97	0.441	0	-	0	0	0	-	0	0	0.441	19.0000000	5.00	0.106	0.546	0	1.78	**2.9**	0.31	95%	Possible
Burrowing Owl	Molybdenum	0.157	0.111	1	0.111	100	1.00	1.00	0.111	0	-	0	0	0	-	0	0	0.111	1.00	5.00	0.00555	0.117	4	35.3	0.033	<0.01	87%	None
Burrowing Owl	Perchlorate	0.157	0.111	1	0.111	100	0.100	0.00537	0.000596	0	-	0	0	0	-	0	0	0.000596	0.0537	5.00	0.000298	0.000894	3	32.6	<0.01	<0.01	33%	None
Burrowing Owl	Zinc	0.157	0.111	1	0.111	100	Regression Based	118	13.2	0	-	0	0	0	-	0	0	13.2	60.8000000	5.00	0.337	13.500	15	131	0.93	0.10	100%	None
Burrowing Owl	*HI - Inorganics*																								**4.4**	0.58	(dets)	Possible
Burrowing Owl	Butyl benzylphthalate	0.157	0.111	1	0.111	100	0.0527	0.00949	0.00105	0	-	0	0	0	-	0	0	0.00105	0.180	5.00	0.001000	0.00205	0	11	0.019	<0.01	0%	None
Burrowing Owl	Diethylphthalate	0.157	0.111	1	0.111	100	0.329	0.0592	0.00657	0	-	0	0	0	-	0	0	0.00657	0.180	5.00	0.001000	0.00757	0	11	0.069	<0.01	0%	None

Table 27

Refined Risk Estimation for Wildlife Exposed to Site Soils Within Habitat Areas

Attachment 10A - Thermal Treatment Unit, Ecological Risk Assessment

						Small Mammals and Other Vertebrates				Soil Invertebrates				Terrestrial Plants														
Receptor	Chemical	Body Weight (kg)	Daily Food Intake (kg/kg-bw/day)	Area Use Factor	Daily Food Ingestion from Site (kg/kg-bw/day)	Percent of Diet	Soil to Tissue Transfer Factor	Tissue Concentration (mg/kg DW)	Total Vertebrate Food Intake (mg/kg-bw/d)a	Percent of Diet	Soil to Tissue Transfer Factor	Tissue Concentration (mg/kg DW)	Total Invertebrate Food Intake (mg/kg-bw/d)b	Percent of Diet	Soil to Tissue Transfer Factor	Tissue Concentration (mg/kg DW)	Total Plant Food Intake (mg/kg-bw/d)c	Total Food Intake (mg/kg-bw/d)d	Refined Habitat Soil EPC (mg/kg)	Percent of Diet as Soil	Incidental Soil Intake (mg/kg-bw/d)e	Total Chemical Intake (mg/kg-day)f	NOAEL TRV (mg/kg-bw/d)	LOAEL TRV (mg/kg-bw/d)	NOAEL Hazard Quotient	LOAEL Hazard Quotient	Detection Frequency (%)	Risk Conclusions
Burrowing Owl	Dimethylphthalate	0.157	0.111	1	0.111	100	0.656	0.118	0.0131	0	-	0	0	0	-	0	0	0.0131	0.180	5.00	0.001000	0.0141	0	11	0.13	<0.01	0%	None
Burrowing Owl	Di-n-butylphthalate	0.157	0.111	1	0.111	100	0.0629	0.0113	0.00126	0	-	0	0	0	-	0	0	0.00126	0.180	5.00	0.001000	0.00226	0	11	0.020	<0.01	0%	None
Burrowing Owl	Di-n-octylphthalate	0.157	0.111	1	0.111	100	0.381	0.0686	0.00762	0	-	0	0	0	-	0	0	0.00762	0.180	5.00	0.001000	0.00862	0	11	0.078	<0.01	0%	None

Notes:

kg = Kilograms.

kg/kg-bw/day = Kilograms per kilogram of body weight per day.

NA - not applicable

EPC = exposure point concentration

LOAEL = lowest observed adverse effect level

NSV - no screening value available

NOAEL = no observed adverse effect level

PAH = polycyclic aromatic hydrocarbon

TRV = toxicological reference value

For the screening, it has been conservatively assumed that all chemical intake is absorbed by the receptor.

Hazard quotients in bold exceed one

Hazard Indices (HIs) calculated by summing HQs for detected analytes

a) Food intake from small mammals = (daily food ingestion from site) X (fraction of diet as small mammals) X (soil to small mammal transfer factor) X (soil concentration).

b) Food intake from terrestrial invertebrates = (daily food ingestion from site) X (fraction of diet as terrestrial invertebrates) X (soil to terrestrial invertebrate transfer factor) X (soil concentration).

c) Food intake from plants = (daily food ingestion from site) X (fraction of diet as plants) X (soil to plant transfer factor) X (soil concentration).

d) Total food intake = (food intake from small mammals and other vertebrates) + (food intake from terrestrial invertebrates) + (food intake from plants)

e) Incidental soil intake = (daily food ingestion from site) X (fraction of diet as soil) X (soil concentration).

f) Total chemical intake = (total food intake) + (water intake) + (incidental soil intake).

Exposure to TPH is only from abiotic media (soil and water); thus, there is no food component associated with exposure to TPH (Albers, 1995)

Table 28

Summary of Chemicals of Potential Concern after the Refined Screening Risk Assessment

Attachment 10A - Thermal Treatment Unit, Ecological Risk Assessment

Analyte	DF	Assessment/ Measurement Endpoint #																	
		1			2			3			3			3			3		
		LowerTrophic Receptors						Herbivorous Mammals											
		Plants			Insects			Ord's Kangaroo Rat			Townsend's Ground Squirrel			Black-tailed Jackrabbit			Pronghorn		
		screen	refinement	eco	screen	refinement	eco	screen	refinement	eco	screen	refinement	eco	screen	refinement	eco	screen	refinement	eco
1,3,5-Trinitrobenzene	0%	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--
1,3-Dinitrobenzene	0%	P	--	--	P	--	--	R	U	Poss	R	U	U	R	U	U	R	U	U
2,4,6-Trinitrotoluene (TNT)	0%	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--
2,4-Dinitrophenol	0%	**R**	None	None	**R**	None	None	U	--	--	U	--	--	U	--	--	U	--	--
2,4-Dinitrotoluene	2%	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--
2,6-Dinitrotoluene	0%	**R**	None	None	P	--	--	R	U	None	R	None	None	R	U	None	R	None	None
2-Amino-4,6-Dinitrotoluene	0%	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--
2-Nitroaniline	0%	U	--	--	U	--	--	U	--	--	U	--	--	U	--	--	U	--	--
2-Nitrophenol	0%	**R**	None	None	**R**	None	None	U	--	--	U	--	--	U	--	--	U	--	--
2-Nitrotoluene	0%	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--
3-Nitroaniline	0%	U	--	--	U	--	--	U	--	--	U	--	--	U	--	--	U	--	--
3-Nitrotoluene	0%	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--
4,6-Dinitro-2-methylphenol	0%	U	--	--	U	--	--	U	--	--	U	--	--	U	--	--	U	--	--
4-Nitroaniline	0%	U	--	--	U	--	--	U	--	--	U	--	--	U	--	--	U	--	--
4-Nitrophenol	0%	**R**	None	None	**R**	None	None	U	--	--	U	--	--	U	--	--	U	--	--
4-Nitrotoluene	0%	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--
HMX	31%	P	--	--	**R**	None	None	R	**Probable**	Poss	R	Poss	Poss	R	Poss	Poss	R	Poss	Poss
Nitrobenzene	0%	**R**	None	None	**R**	None	None	U	--	--	U	--	--	U	--	--	U	--	--
Nitroglycerin	0%	U	--	--	U	--	--	P	--	--	P	--	--	P	--	--	P	--	--
Nitroguanidine	5%	U	--	--	U	--	--	U	--	--	U	--	--	U	--	--	U	--	--
PETN	0%	U	--	--	U	--	--	P	--	--	P	--	--	P	--	--	P	--	--
Picric acid	7%	U	--	--	U	--	--	U	--	--	U	--	--	U	--	--	U	--	--
RDX	0%	P	--	--	P	--	--	R	U	U	P	--	--	R	U	U	P	--	--
Tetryl	0%	P	--	--	U	--	--	P	--	--	P	--	--	P	--	--	P	--	--
HI - Energetics		P	NA	NA	**R**	NA	NA	R	**Probable**	Poss	R	Poss	Poss	R	Poss	Poss	R	Poss	Poss
Aluminum	100%	**R**	< Bkg	< Bkg	U	--	--	R	< Bkg	< Bkg	R	< Bkg	< Bkg	R	< Bkg	< Bkg	R	< Bkg	< Bkg
Antimony	79%	**R**	Poss	Poss	**R**	None	None	R	Poss	None	R	Poss	None	R	Poss	None	R	Poss	None
Arsenic	58%	**R**	< Bkg	< Bkg	**R**	< Bkg	< Bkg	P	--	--	P	--	--	P	--	--	P	--	--
Barium	100%	**R**	< Bkg	< Bkg	**R**	< Bkg	< Bkg	P	--	--	P	--	--	P	--	--	P	--	--
Beryllium	48%	P	< Bkg	< Bkg	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--
Cadmium	44%	**R**	None	None	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--
Carbon disulfide	5%	U	--	--	U	--	--	U	--	--	U	--	--	U	--	--	U	--	--
Chromium	100%	**R**	< Bkg	< Bkg	**R**	< Bkg	< Bkg	P	--	--	P	--	--	P	--	--	P	--	--
Cobalt	79%	P	< Bkg	< Bkg	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--
Copper	85%	**R**	Poss	Poss	**R**	Poss	Poss	R	Poss	None	R	None	None	R	**Probable**	None	R	None	None
Iron	100%	U	--	--	U	--	--	U	--	--	U	--	--	U	--	--	U	--	--
Lead	83%	**R**	None	None	**R**	None	None	R	**Probable**	None	R	**Probable**	None	R	**Probable**	None	R	**Probable**	None
Magnesium	100%	U	--	--	U	--	--	U	--	--	U	--	--	U	--	--	U	--	--
Manganese	100%	**R**	< Bkg	< Bkg	U	--	--	P	--	--	P	--	--	P	--	--	P	--	--
Mercury	27%	**R**	< Bkg	< Bkg	**R**	< Bkg	< Bkg	P	--	--	P	--	--	P	--	--	P	--	--
Molybdenum	91%	**R**	Poss	Poss	U	--	--	R	None	None	R	None	None	R	None	None	P	--	--
Nickel	100%	**R**	< Bkg	< Bkg	**R**	< Bkg	< Bkg	P	--	--	P	--	--	P	--	--	P	--	--
Nitrate	92%	U	--	--	U	--	--	P	--	--	P	--	--	P	--	--	P	--	--
Perchlorate	50%	P	--	--	**R**	None	None	R	**Probable**	None	R	**Probable**	None	R	**Probable**	None	R	**Probable**	None
Phosphorus	100%	U	--	--	U	--	--	U	--	--	U	--	--	U	--	--	U	--	--
Selenium	0%	**R**	U	U	P	--	--	R	U	U	P	--	--	R	U	U	P	--	--
Silver	8%	**R**	U	None	U	--	--	P	--	--	P	--	--	P	--	--	P	--	--
Strontium	100%	U	--	--	U	--	--	P	--	--	P	--	--	P	--	--	P	--	--
Thallium	54%	**R**	< Bkg	< Bkg	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--
Vanadium	100%	**R**	< Bkg	< Bkg	U	--	--	P	--	--	P	--	--	P	--	--	P	--	--
Zinc	100%	**R**	**Probable**	**Probable**	**R**	Poss	Poss	P	--	--	P	--	--	P	--	--	P	--	--
HI - Inorganics		**R**	NA	NA	**R**	NA	NA	R	**Probable**	Poss	R	**Probable**	None	R	**Probable**	Poss	R	**Probable**	None
2-Methylnaphthalene	14%	**R**	None	None	**R**	None	None	R	Poss	None	R	Poss	None	R	Poss	None	R	Poss	None
Acenaphthene	0%	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--
Acenaphthylene	0%	**R**	None	None	**R**	None	None	P	--	--	P	--	--	P	--	--	P	--	--
Anthracene	7%	**R**	None	None	**R**	None	None	P	--	--	P	--	--	P	--	--	P	--	--
Benzo(a)anthracene	0%	**R**	None	None	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--
Benzo(a)pyrene	0%	**R**	None	None	P	--	--	R	U	None	P	--	--	P	--	--	P	--	--
Benzo(b)fluoranthene	0%	**R**	None	None	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--
Benzo(g,h,i)perylene	0%	**R**	None	None	P	--	--	R	U	None	R	U	None	R	U	None	R	U	None
Benzo(k)fluoranthene	0%	**R**	None	None	P	--	--	R	U	None	P	--	--	P	--	--	P	--	--
Chrysene	0%	**R**	None	None	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--
Dibenzo(a,h)anthracene	0%	**R**	None	None	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--
Fluoranthene	4%	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--
Fluorene	14%	**R**	None	None	**R**	None	None	R	**Probable**	None	R	Poss	None	R	Poss	None	R	None	None
Indeno(1,2,3-c,d)pyrene	0%	**R**	None	None	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--
Naphthalene	25%	**R**	None	None	**R**	None	None	R	None	None	P	--	--	P	--	--	P	--	--
Phenanthrene	18%	**R**	None	None	**R**	None	None	P	--	--	P	--	--	P	--	--	P	--	--
Pyrene	0%	**R**	None	None	**R**	None	None	P	--	--	P	--	--	P	--	--	P	--	--
HI - PAHs		**R**	NA	NA	**R**	NA	NA	R	**Probable**	None	R	Poss	None	R	**Probable**	None	R	Poss	None
TPH	100%	**R**	**Probable**	None	**R**	**Probable**	None	P	--	--	P	--	--	P	--	--	P	--	--
HI - Petroleum		**R**	NA	NA	**R**	NA	NA	P	--	--	P	--	--	P	--	--	P	--	--
2,4,5-Trichlorophenol	0%	**R**	None	None	**R**	None	None	P	--	--	P	--	--	R	U	None	P	--	--
2,4,6-Trichlorophenol	0%	**R**	None	None	**R**	None	None	P	--	--	P	--	--	P	--	--	P	--	--
2,4-Dichlorophenol	0%	**R**	None	None	**R**	None	None	P	--	--	P	--	--	P	--	--	P	--	--
2,4-Dimethylphenol	0%	U	--	--	U	--	--	U	--	--	U	--	--	U	--	--	U	--	--
2-Chloronaphthalene	0%	U	--	--	U	--	--	U	--	--	U	--	--	U	--	--	U	--	--
2-Methylphenol	0%	U	--	--	U	--	--	P	--	--	P	--	--	P	--	--	P	--	--
3,3-Dichlorobenzidine	0%	U	--	--	U	--	--	U	--	--	U	--	--	U	--	--	U	--	--
4-Chloro-3-methylphenol	0%	U	--	--	U	--	--	U	--	--	U	--	--	U	--	--	U	--	--
4-Chloroaniline	0%	**R**	None	None	**R**	None	None	U	--	--	U	--	--	U	--	--	U	--	--
4-Methylphenol	0%	U	--	--	U	--	--	P	--	--	P	--	--	P	--	--	P	--	--
Benzoic acid	0%	U	--	--	U	--	--	U	--	--	U	--	--	U	--	--	U	--	--
Benzylalcohol	0%	U	--	--	U	--	--	U	--	--	U	--	--	U	--	--	U	--	--
bis(2-Ethylhexyl)phthalate	18%	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--
Butyl benzylphthalate	0%	**R**	None	None	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--
Dibenzofuran	14%	U	--	--	**R**	None	None	U	--	--	U	--	--	U	--	--	U	--	--
Diethylphthalate	0%	**R**	None	None	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--
Dimethylphthalate	0%	**R**	None	None	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--
Di-n-butylphthalate	0%	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--
Di-n-octylphthalate	0%	**R**	None	None	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--
Hexachlorobenzene	0%	**R**	None	None	U	--	--	P	--	--	P	--	--	P	--	--	P	--	--
Hexachlorobutadiene	4%	P	--	--	U	--	--	P	--	--	P	--	--	P	--	--	P	--	--
Hexachlorocyclopentadiene	0%	**R**	None	None	U	--	--	P	--	--	P	--	--	P	--	--	P	--	--
Hexachloroethane	0%	U	--	--	U	--	--	P	--	--	P	--	--	P	--	--	P	--	--
Isophorone	0%	U	--	--	U	--	--	U	--	--	U	--	--	U	--	--	U	--	--
n-Nitroso-di-n-propylamine	0%	U	--	--	**R**	None	None	U	--	--	U	--	--	U	--	--	U	--	--
n-Nitrosodiphenylamine	0%	U	--	--	**R**	None	None	U	--	--	U	--	--	U	--	--	U	--	--
Pentachlorophenol	0%	**R**	None	None	**R**	None	None	P	--	--	P	--	--	P	--	--	P	--	--
HI - SVOCs		P	NA	NA	**R**	NA	NA	P	--	--	P	--	--	P	--	--	P	--	--
1,1,1,2-Tetrachloroethane	5%	U	--	--	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--
1,1,1-Trichloroethane	5%	U	--	--	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--
1,1,2,2-Tetrachloroethane	5%	U	--	--	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--
1,1,2-Trichloroethane	5%	U	--	--	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--
1,1-Dichloroethane	5%	U	--	--	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--
1,1-Dichloroethene	5%	U	--	--	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--
1,2,3-Trichlorobenzene	5%	U	--	--	P	--	--	U	--	--	U	--	--	U	--	--	U	--	--

Analyte	4			5			6			7			8			9		
	Insectivorous Mammal			Carnivorous Mammals			Herbivorous Birds			Insectivorous Birds			Omnivorous Birds			Carnivorous Birds		
	Grasshopper Mouse			Coyote			Sage Sparrow			Loggerhead Shrike			Western Meadowlark			Burrowing Owl		
	screen	refinement	eco	screen	refinement	eco	screen	refinement	eco	screen	refinement	eco	screen	refinement	eco	screen	refinement	eco
1,3,5-Trinitrobenzene	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--
1,3-Dinitrobenzene	R	U	U	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--
2,4,6-Trinitrotoluene (TNT)	P	--	--	P	--	--	R	None	None	P	--	--	P	--	--	P	--	--
2,4-Dinitrophenol	U	--	--	U	--	--	U	--	--	U	--	--	U	--	--	U	--	--
2,4-Dinitrotoluene	R	None	None	P	--	--	P	--	--	R	Poss	U	R	Poss	U	R	Poss	U
2,6-Dinitrotoluene	R	U	None	P	--	--	R	U	U	R	U	U	R	U	U	R	U	U
2-Amino-4,6-Dinitrotoluene	P	--	--	P	--	--	R	U	U	R	U	U	R	U	U	R	U	U
2-Nitroaniline	U	--	--	U	--	--	U	--	--	U	--	--	U	--	--	U	--	--
2-Nitrophenol	U	--	--	U	--	--	U	--	--	U	--	--	U	--	--	U	--	--
2-Nitrotoluene	P	--	--	P	--	--	P	--	--	R	U	U	R	U	U	P	--	--
3-Nitroaniline	U	--	--	U	--	--	U	--	--	U	--	--	U	--	--	U	--	--
3-Nitrotoluene	P	--	--	P	--	--	P	--	--	R	U	U	R	U	U	P	--	--
4,6-Dinitro-2-methylphenol	U	--	--	U	--	--	U	--	--	U	--	--	U	--	--	U	--	--
4-Nitroaniline	U	--	--	U	--	--	U	--	--	U	--	--	U	--	--	U	--	--
4-Nitrophenol	U	--	--	U	--	--	U	--	--	U	--	--	U	--	--	U	--	--
4-Nitrotoluene	P	--	--	P	--	--	P	--	--	R	U	U	R	U	U	P	--	--
HMX	R	None	None	R	None	None	P	--	--	P	--	--	P	--	--	P	--	--
Nitrobenzene	U	--	--	U	--	--	R	U	None	R	U	U	R	U	U	R	U	U
Nitroglycerin	P	--	--	P	--	--	U	--	--	U	--	--	U	--	--	U	--	--
Nitroguanidine	U	--	--	U	--	--	U	--	--	U	--	--	U	--	--	U	--	--
PETN	P	--	--	P	--	--	U	--	--	U	--	--	U	--	--	U	--	--
Picric acid	U	--	--	U	--	--	U	--	--	U	--	--	U	--	--	U	--	--
RDX	R	U	U	P	--	--	R	U	U	R	U	U	R	U	U	P	--	--
Tetryl	R	U	U	P	--	--	U	--	--	U	--	--	U	--	--	U	--	--
HI - Energetics	R	Poss	None	R	None	None	P	--	--	R	Poss	None	R	Poss	None	R	Poss	None
Aluminum	R	< Bkg	< Bkg	R	< Bkg	< Bkg	P	--	--	R	< Bkg	< Bkg	R	< Bkg	< Bkg	R	< Bkg	< Bkg
Antimony	R	**Probable**	Poss	R	Poss	None	U	--	--	U	--	--	U	--	--	U	--	--
Arsenic	R	< Bkg	< Bkg	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--
Barium	R	< Bkg	< Bkg	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--
Beryllium	P	--	--	P	--	--	U	--	--	U	--	--	U	--	--	U	--	--
Cadmium	R	**Probable**	**Probable**	P	--	--	P	--	--	R	**Probable**	Poss	R	**Probable**	Poss	R	Poss	None
Carbon disulfide	U	--	--	U	--	--	U	--	--	U	--	--	U	--	--	U	--	--
Chromium	R	< Bkg	< Bkg	P	--	--	P	--	--	R	< Bkg	< Bkg	R	< Bkg	< Bkg	R	< Bkg	< Bkg
Cobalt	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--
Copper	R	**Probable**	None	R	None	None	P	--	--	P	--	--	P	--	--	R	None	None
Iron	U	--	--	U	--	--	U	--	--	U	--	--	U	--	--	U	--	--
Lead	R	**Probable**	Poss	R	Poss	None	R	**Probable**	None	R	**Probable**	Poss	R	**Probable**	None	R	**Probable**	Poss
Magnesium	U	--	--	U	--	--	U	--	--	U	--	--	U	--	--	U	--	--
Manganese	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--
Mercury	R	< Bkg	< Bkg	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--
Molybdenum	R	Poss	Poss	R	None	None	P	--	--	P	--	--	P	--	--	P	--	--
Nickel	R	< Bkg	< Bkg	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--
Nitrate	P	--	--	P	--	--	U	--	--	U	--	--	U	--	--	U	--	--
Perchlorate	P	--	--	P	--	--	R	Poss	None	P	--	--	P	--	--	P	--	--
Phosphorus	U	--	--	U	--	--	R	< Bkg	< Bkg	R	< Bkg	< Bkg	R	< Bkg	< Bkg	R	< Bkg	< Bkg
Selenium	R	U	U	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--
Silver	R	None	None	P	--	--	U	--	--	U	--	--	U	--	--	U	--	--
Strontium	P	--	--	P	--	--	U	--	--	U	--	--	U	--	--	U	--	--
Thallium	R	< Bkg	< Bkg	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--
Vanadium	R	< Bkg	< Bkg	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--
Zinc	R	None	None	P	--	--	P	--	--	R	None	None	R	None	None	R	Poss	None
HI - Inorganics	R	**Probable**	**Probable**	R	Poss	None	R	**Probable**	None	R	**Probable**	Poss	R	**Probable**	Poss	R	**Probable**	Poss
2-Methylnaphthalene	R	**Probable**	None	R	None	None	P	--	--	R	Poss	None	R	Poss	None	P	--	--
Acenaphthene	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--
Acenaphthylene	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--
Anthracene	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--
Benzo(a)anthracene	R	U	None	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--
Benzo(a)pyrene	R	U	None	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--
Benzo(b)fluoranthene	R	U	None	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--
Benzo(g,h,i)perylene	R	U	None	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--
Benzo(k)fluoranthene	R	U	None	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--
Chrysene	R	U	None	P	--	--	U	--	--	U	--	--	U	--	--	U	--	--
Dibenzo(a,h)anthracene	R	U	None	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--
Fluoranthene	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--
Fluorene	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--
Indeno(1,2,3-c,d)pyrene	R	U	None	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--
Naphthalene	R	None	None	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--
Phenanthrene	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--
Pyrene	P	--	--	P	--	--	U	--	--	U	--	--	U	--	--	U	--	--
HI - PAHs	R	**Probable**	None	R	None	None	R	None	None	R	Poss	None	R	Poss	None	P	--	--
TPH	R	Poss	None	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--
HI - Petroleum	R	None	None	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--
2,4,5-Trichlorophenol	R	U	U	R	None	None	P	--	--	R	U	None	R	U	None	P	--	--
2,4,6-Trichlorophenol	R	U	U	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--
2,4-Dichlorophenol	R	U	U	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--
2,4-Dimethylphenol	U	--	--	U	--	--	U	--	--	U	--	--	U	--	--	U	--	--
2-Chloronaphthalene	U	--	--	U	--	--	U	--	--	U	--	--	U	--	--	U	--	--
2-Methylphenol	P	--	--	P	--	--	U	--	--	U	--	--	U	--	--	U	--	--
3,3-Dichlorobenzidine	U	--	--	U	--	--	U	--	--	U	--	--	U	--	--	U	--	--
4-Chloro-3-methylphenol	U	--	--	U	--	--	U	--	--	U	--	--	U	--	--	U	--	--
4-Chloroaniline	U	--	--	U	--	--	U	--	--	U	--	--	U	--	--	U	--	--
4-Methylphenol	P	--	--	P	--	--	U	--	--	U	--	--	U	--	--	U	--	--
Benzoic acid	U	--	--	U	--	--	P	--	--	P	--	--	P	--	--	P	--	--
Benzylalcohol	U	--	--	U	--	--	U	--	--	U	--	--	U	--	--	U	--	--
bis(2-Ethylhexyl)phthalate	P	--	--	P	--	--	P	--	--	R	Poss	None	P	--	--	P	--	--
Butyl benzylphthalate	P	--	--	P	--	--	P	--	--	R	U	U	R	U	U	R	U	None
Dibenzofuran	U	--	--	U	--	--	U	--	--	U	--	--	U	--	--	U	--	--
Diethylphthalate	P	--	--	P	--	--	P	--	--	R	U	U	R	U	U	R	U	None
Dimethylphthalate	P	--	--	P	--	--	R	U	None	R	U	U	R	U	None	R	U	None
Di-n-butylphthalate	P	--	--	P	--	--	P	--	--	R	U	U	R	U	U	R	U	None
Di-n-octylphthalate	P	--	--	P	--	--	R	U	None	R	U	U	R	U	U	R	U	None
Hexachlorobenzene	R	U	U	P	--	--	P	--	--	R	U	None	R	U	None	P	--	--
Hexachlorobutadiene	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--
Hexachlorocyclopentadiene	R	U	U	P	--	--	P	--	--	R	U	None	R	U	None	P	--	--
Hexachloroethane	R	U	U	P	--	--	P	--	--	R	U	None	R	U	None	P	--	--
Isophorone	U	--	--	U	--	--	U	--	--	U	--	--	U	--	--	U	--	--
n-Nitroso-di-n-propylamine	U	--	--	U	--	--	U	--	--	U	--	--	U	--	--	U	--	--
n-Nitrosodiphenylamine	U	--	--	U	--	--	U	--	--	U	--	--	U	--	--	U	--	--
Pentachlorophenol	R	U	U	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--
HI - SVOCs	P	--	--	P	--	--	P	--	--	R	Poss	None	P	--	--	P	--	--
1,1,1,2-Tetrachloroethane	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--
1,1,1-Trichloroethane	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--
1,1,2,2-Tetrachloroethane	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--
1,1,2-Trichloroethane	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--
1,1-Dichloroethane	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--
1,1-Dichloroethene	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--
1,2,3-Trichlorobenzene	U	--	--	U	--	--	P	--	--	P	--	--	P	--	--	P	--	--

Table 28

Summary of Chemicals of Potential Concern after the Refined Screening Risk Assessment

Attachment 10A - Thermal Treatment Unit, Ecological Risk Assessment

		Assessment/ Measurement Endpoint #																																			
		1			2			3			3			3			3			4			5			6			7			8			9		
		LowerTrophic Receptors						Herbivorous Mammals												Insectivorous Mammal			Carnivorous Mammals			Herbivorous Birds			Insectivorous Birds			Omnivorous Birds			Carnivorous Birds		
Analyte	DF	Plants			Insects			Ord's Kangaroo Rat			Townsend's Ground Squirrel			Black-tailed Jackrabbit			Pronghorn			Grasshopper Mouse			Coyote			Sage Sparrow			Loggerhead Shrike			Western Meadowlark			Burrowing Owl		
1,2,3-Trichloropropane	5%	U	--	--	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--
1,2,4-Trichlorobenzene	4%	U	--	--	P	--	--	U	--	--	U	--	--	U	--	--	U	--	--	U	--	--	U	--	--	P	--	--	P	--	--	P	--	--	P	--	--
1,2-Dibromo-3-chloropropane	5%	U	--	--	U	--	--	U	--	--	U	--	--	U	--	--	U	--	--	U	--	--	U	--	--	U	--	--	U	--	--	U	--	--	U	--	--
1,2-Dichlorobenzene	4%	U	--	--	P	--	--	U	--	--	U	--	--	U	--	--	U	--	--	U	--	--	U	--	--	P	--	--	P	--	--	P	--	--	P	--	--
1,2-Dichloroethane	5%	U	--	--	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--
1,2-Dichloropropane	5%	U	--	--	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--
1,2-Ethylene Dibromide	5%	U	--	--	U	--	--	U	--	--	U	--	--	U	--	--	U	--	--	U	--	--	U	--	--	U	--	--	U	--	--	U	--	--	U	--	--
1,3-Dichlorobenzene	4%	U	--	--	P	--	--	U	--	--	U	--	--	U	--	--	U	--	--	U	--	--	U	--	--	P	--	--	P	--	--	P	--	--	P	--	--
1,4-Dichlorobenzene	4%	U	--	--	P	--	--	U	--	--	U	--	--	U	--	--	U	--	--	U	--	--	U	--	--	P	--	--	P	--	--	P	--	--	P	--	--
2-Butanone	18%	U	--	--	U	--	--	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--
2-ChloroethylVinylEther	0%	U	--	--	U	--	--	U	--	--	U	--	--	U	--	--	U	--	--	U	--	--	U	--	--	U	--	--	U	--	--	U	--	--	U	--	--
2-Chlorophenol	0%	**R**	None	None	**R**	None	None	U	--	--	U	--	--	U	--	--	U	--	--	U	--	--	U	--	--	P	--	--	P	--	--	P	--	--	P	--	--
2-Hexanone	5%	U	--	--	U	--	--	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--
4-Bromophenylphenylether	0%	U	--	--	U	--	--	U	--	--	U	--	--	U	--	--	U	--	--	U	--	--	U	--	--	U	--	--	U	--	--	U	--	--	U	--	--
4-Chlorophenylphenylether	0%	U	--	--	U	--	--	U	--	--	U	--	--	U	--	--	U	--	--	U	--	--	U	--	--	U	--	--	U	--	--	U	--	--	U	--	--
4-Methyl-2-pentanone	5%	U	--	--	U	--	--	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--
Acetone	32%	U	--	--	U	--	--	R	**Probable**	None	R	Poss	None	R	**Probable**	None	R	Poss	None	R	**Probable**	None	P	--	--	R	None	None	P	--	--	P	--	--	P	--	--
Benzene	14%	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--
Bis(2-chloroethoxy)methane	0%	U	--	--	U	--	--	U	--	--	U	--	--	U	--	--	U	--	--	U	--	--	U	--	--	U	--	--	U	--	--	U	--	--	U	--	--
bis(2-chloroethyl)ether	0%	U	--	--	U	--	--	U	--	--	U	--	--	U	--	--	U	--	--	U	--	--	U	--	--	U	--	--	U	--	--	U	--	--	U	--	--
bis(2-chloroisopropyl)ether	0%	U	--	--	U	--	--	U	--	--	U	--	--	U	--	--	U	--	--	U	--	--	U	--	--	U	--	--	U	--	--	U	--	--	U	--	--
Bromodichloromethane	5%	U	--	--	U	--	--	U	--	--	U	--	--	U	--	--	U	--	--	U	--	--	U	--	--	U	--	--	U	--	--	U	--	--	U	--	--
Bromoform	5%	U	--	--	U	--	--	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--	U	--	--	U	--	--	U	--	--	U	--	--
Bromomethane	5%	U	--	--	U	--	--	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--	U	--	--	U	--	--	U	--	--	U	--	--
Carbon tetrachloride	5%	U	--	--	U	--	--	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--	U	--	--	U	--	--	U	--	--	U	--	--
Chlorobenzene	5%	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--
Chloroethane	5%	U	--	--	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--
Chloroform	5%	U	--	--	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--	U	--	--	U	--	--	U	--	--	U	--	--
Chloromethane	5%	U	--	--	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--
cis-1,2-Dichloroethene	5%	U	--	--	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--
cis-1,3-Dichloropropene	5%	U	--	--	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--
Dibromochloromethane	5%	U	--	--	U	--	--	U	--	--	U	--	--	U	--	--	U	--	--	U	--	--	U	--	--	P	--	--	P	--	--	P	--	--	P	--	--
Dibromomethane	5%	U	--	--	U	--	--	U	--	--	U	--	--	U	--	--	U	--	--	U	--	--	U	--	--	P	--	--	P	--	--	P	--	--	P	--	--
Dichlorodifluoromethane	5%	U	--	--	U	--	--	U	--	--	U	--	--	U	--	--	U	--	--	U	--	--	U	--	--	P	--	--	P	--	--	P	--	--	P	--	--
Ethylbenzene	5%	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--
m,p-Xylene	5%	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--
Methylene chloride	5%	U	--	--	U	--	--	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--	U	--	--	U	--	--	U	--	--	U	--	--
o-Xylene	14%	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--
Phenol	0%	**R**	None	None	**R**	None	None	P	--	--	P	--	--	P	--	--	P	--	--	R	U	None	P	--	--	U	--	--	U	--	--	U	--	--	U	--	--
Styrene	14%	P	--	--	P	--	--	U	--	--	U	--	--	U	--	--	U	--	--	U	--	--	U	--	--	U	--	--	U	--	--	U	--	--	U	--	--
tert-ButylMethylEther	5%	U	--	--	U	--	--	U	--	--	U	--	--	U	--	--	U	--	--	U	--	--	U	--	--	U	--	--	U	--	--	U	--	--	U	--	--
Tetrachloroethene	5%	P	--	--	U	--	--	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--
Toluene	23%	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--
Trans-1,2-Dichloroethene	5%	U	--	--	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--
Trans-1,3-Dichloropropene	5%	U	--	--	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--
Trichloroethylene (TCE)	5%	U	--	--	U	--	--	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--	U	--	--	U	--	--	U	--	--	U	--	--
Trichlorofluoromethane	5%	U	--	--	U	--	--	U	--	--	U	--	--	U	--	--	U	--	--	U	--	--	U	--	--	U	--	--	U	--	--	U	--	--	U	--	--
Vinyl Acetate	5%	U	--	--	U	--	--	U	--	--	U	--	--	U	--	--	U	--	--	U	--	--	U	--	--	U	--	--	U	--	--	U	--	--	U	--	--
Vinyl chloride	5%	U	--	--	U	--	--	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--	P	--	--	U	--	--	U	--	--	U	--	--	U	--	--
HI - VOCs		P	--	--	P	--	--	R	**Probable**	None	R	Poss	None	R	**Probable**	None	R	Poss	None	R	**Probable**	None	P	--	--	R	None	None	P	--	--	P	--	--	P	--	--

Notes:

screen = results of the screening evaluation of the potential for risks to ecological receptors

refinement = results of focussed evaluation of potential for risks to ecological receptors

eco = evaluation of samples from potential receptor habitat within the TTU

Poss = Possible - NOAEL/NOEC-based hazard quotient exceeds one; potential for risk is possible, based on the chemical screen

Probable = LOAEL/LOEC-based hazard quotient exceeds one; potential for risk is probable, based on the chemical screen

R = Retained: screening value exceeded, chemical retained for refined risk characterization

P = Pass: screening value not exceeded and chemical passed screening evaluation; conclusion of no potential for risk; no further evaluation

U = uncertainty exists because no toxicological screening value was found for evaluating potential for risk

< Bkg = COPEC concentrations on-site are not significantly greater than background concentrations (Attachment B)

Det = LOEC screening value exceeded by detected COPEC; Potential for risk could not be excluded based on the refined chemical screen

DF = detection frequency (all site samples included)

-- = Potential for risk from COPEC was excluded or uncertain and refined analyses were not necessary

NA - Not Applicable; HIs were not be calculated for point-by-point analyses

Figures

Figure 1

Terrestrial Food Web Model

Attachment 10A - Thermal Treatment Unit, Ecological Risk Assessment

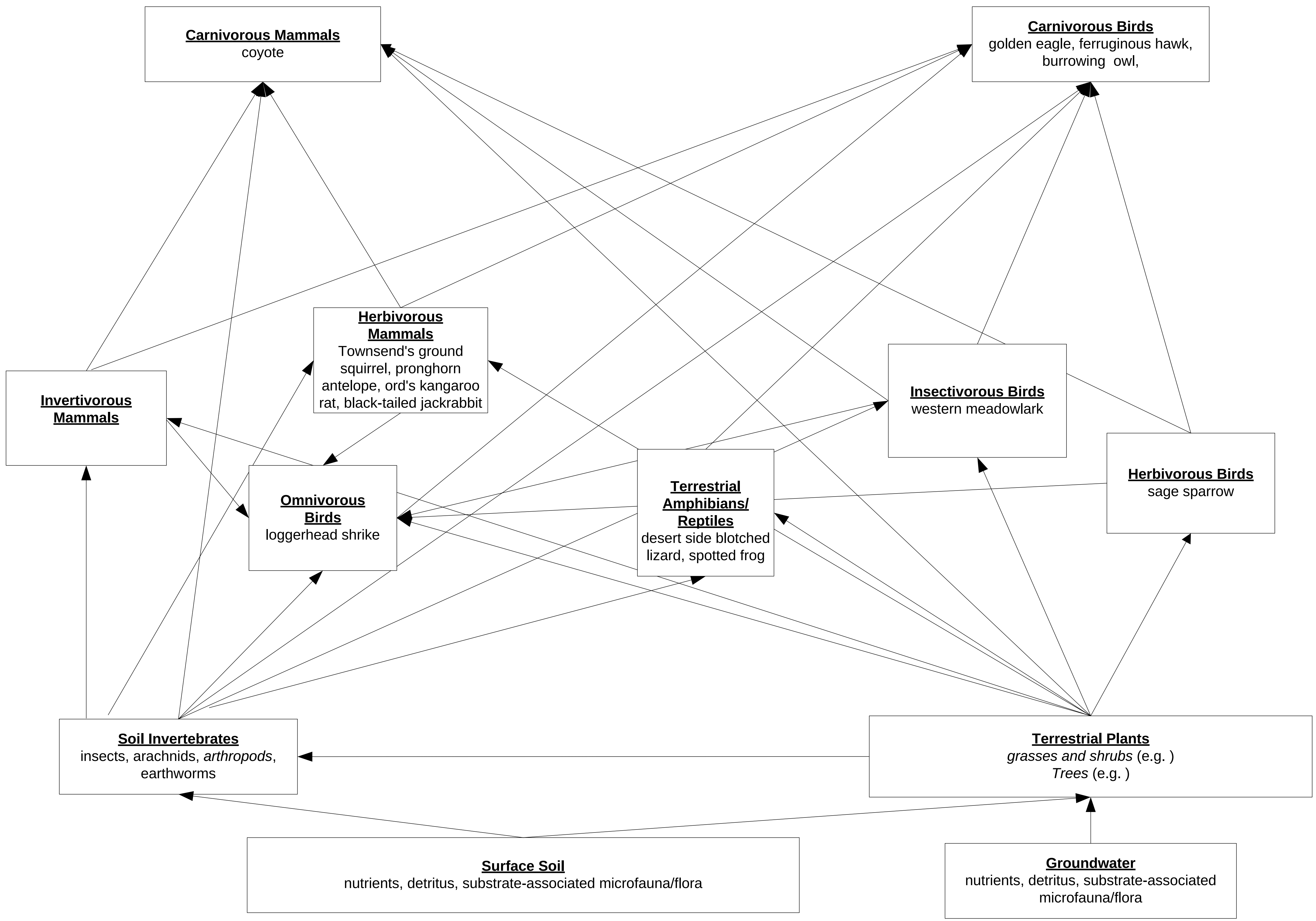
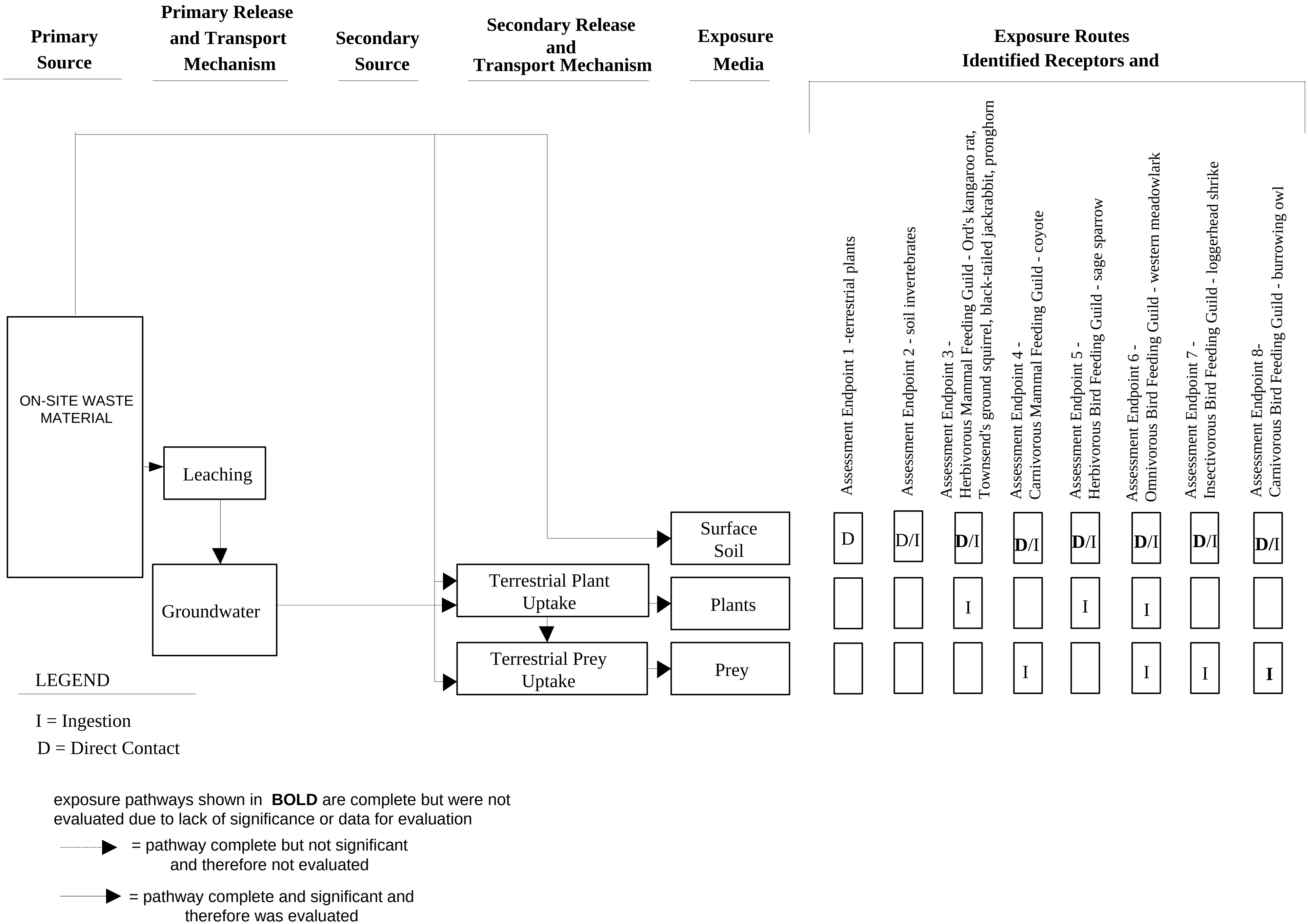


Figure 2

Ecological Conceptual Site Model

Attachment 10A - Thermal Treatment Unit, Ecological Risk Assessment



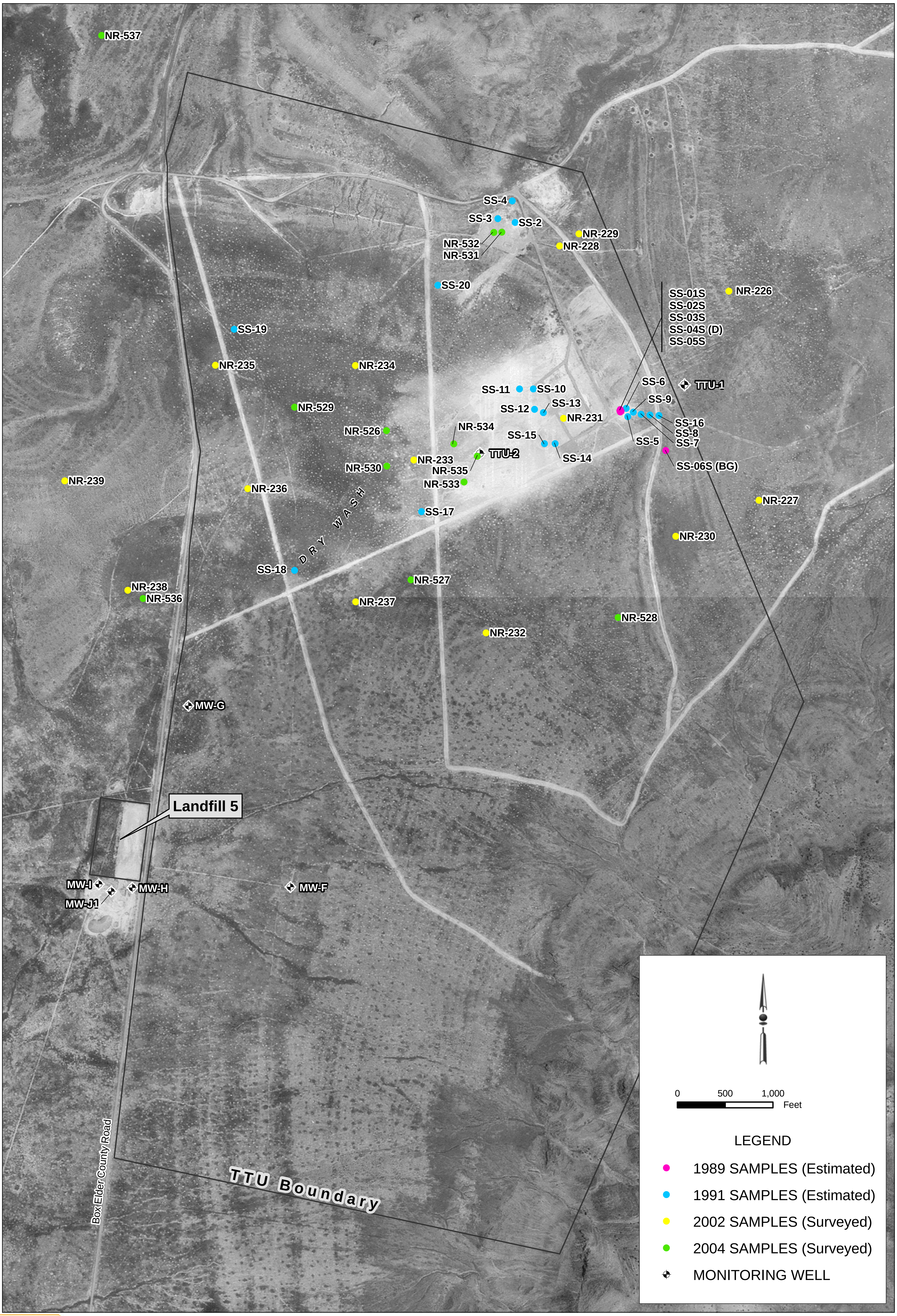


FIGURE 3

TTU SITE MAP

ATTACHMENT 10A - THERMAL TREATMENT UNIT ECOLOGICAL RISK ASSESSMENT

Appendix A

Appendix A: Descriptions of Studies Used to Calculate NOAELs and LOAELs

Compound: Acenaphthene

Form: Not applicable
Reference: EPA, 2001
Test Species: Mouse
Body weight: 0.03 kg (EPA, 1988a)
Exposure Duration: 90 days (≥ 90 days = chronic)
Endpoint: Hepatoxicity
Exposure Route: Oral gavage
Dosage: Three dose levels: 175, 350 and 700 mg/kg/d;
Calculations: Not applicable
Comments: Liver weight changes accompanied by microscopic alteration (cellular hypertrophy) were noted in both mid- and high-does animals and seemed to be does-dependent. Additionally, high-dose males and mid- and high-does females showed significant increases in cholesterol levels. The LOAEL is 350 mg/kg/d based on hepatoxicity; the NOAEL is 175 mg/kg/day.
Final NOAEL: 175 mg/kg/d
Final LOAEL: 350 mg/kg/d

Compound: Acetone

Form: not applicable
Reference: EPA, 1986c
Test Species: Rat
Body weight: 0.35 kg (EPA, 1988a)
Food Consumption: 0.028 kg/d (calculated using allometric equation from EPA, 1988a)
Study Duration: 90 days (<1 yr and not during a critical lifestage=subchronic).
Endpoint: Liver and kidney damage
Exposure Route: oral intubation
Dosage: three dose levels:
100, 500, and 2500 mg/kg/d;
NOAEL = 100 mg/kg/d
LOAEL = 500 mg/kg/d
Calculations: not applicable
Comments: Significant tubular degeneration of the kidneys and increases in kidney weights were observed at the 500 and 2500 mg/kg/d dose levels; liver weights were increased at the 2500 mg/kg/d level. Because no significant differences were observed at the 100 mg/kg/d dose level and the study considered exposure for 90 days and did not include critical lifestages (reproduction), this dose was considered to be a subchronic NOAEL. The 500 mg/kg/d dose was considered to be a subchronic LOAEL. Chronic

NOAEL and LOAEL values were estimated by multiplying the subchronic NOAEL and LOAEL by a subchronic to chronic uncertainty factor of 0.1.
Final NOAEL: 10 mg/kg/d
Final LOAEL: 50 mg/kg/d

Compound: Acetone
Form: Not applicable
Reference: Hill and Camardese, 1986
Test Species: Japanese Quail
Body Weight: 0.60kg (from study)
Food Consumption: 11.8 g (from study)
Exposure Duration: acute – single dose followed by 14 day observation
Endpoint: mortality, overt signs of toxicity
Exposure Route: oral gavage
Dosage: doses ranged from 10000 to 40000 mg/kg
Calculations:

$$NOAEL\ :\left(\frac{20000\,mg\ Acetone}{kg\ \ food}\ x\ \frac{11.8\,g\ \ food}{day}\ x\ \frac{1\,kg}{1000\,mg}\right)/\ 0.60\,kg\ BW = 393.3\,mg/kg/d$$

Acute NOAEL: 393 mg/kg/d

Comments: No mortality observed at any dose level. LC50 of >40000mg/kg is reported. No overt signs of toxicity at concentrations of 40000 ppm. Because no signs of toxicity were observed at 40000 ppm, this dose was considered to be an acute NOAEL. A chronic NOAEL was estimated by multiplying the subchronic LOAEL by a subchronic to chronic uncertainty factor of 0.1.
Final NOAEL: 39.3 mg/kg/d
Final LOAEL: 393 mg/kg

Compound: Aluminum
Form: $AlCl_2$
Reference: Ondreicka et al., 1966
Test Species: Mouse
Exposure Duration: 3 generations (>1 yr and during a critical lifestage = chronic)
Endpoint: reproduction
Exposure Route: oral in water
Dosage: one dose level: 19.3 mg al/kg/d = LOAEL
Calculations: not applicable
Comments: While there were no effects on the number of litters or number of offspring per litter, growth of generation 2 and 3 was significantly reduced. Therefore, this dose was considered to be a chronic LOAEL. A chronic NOAEL was estimated by multiplying the chronic LOAEL by a LOAEL-NOAEL uncertainty factor of 0.1.

Final NOAEL: 1.93 mg / kg / d
Final LOAEL: 19.3 mg / kg / d

Compound: Aluminum
Form: $Al_2(SO_4)_3$
Reference: Carriere et al., 1986
Test Species: ringed dove
0.155 kg body weight (Terres, 1980)
Food consumption: 0.017 kg / d (calculated using allometric equation from Nagy, 1987)
Exposure Duration: 4 months (>10 week and during a critical lifestage = chronic)
Endpoint: reproduction
Exposure Route: oral in diet
Dosage: one dose level: 1000 ppm Al = NOAEL
Calculations:

$$NOAEL\ :\left(\frac{1000\,mg\ Al}{kg\ food}\times\frac{17\,g\ food}{day}\times\frac{1\,kg}{1000\,g}\right)/\,0.155\,kg\ BW = 109.7\ mg/kg/d$$

Comments: Because no significant differences were observed at the 1000 ppm dose and the study considered exposure over 4 months, including critical lifestages (reproduction), this dose was considered to be a chronic NOAEL.
Final NOAEL: 109.7mg / kg / d

Compound: Anthracene
Form: Not applicable
Reference: IRIS, 2001
Test Species: Mouse
Body weight: 0.03 kg (EPA, 1988a)
Exposure Duration: 90 days (≥ 90 days = chronic)
Endpoint: Survival and pathology
Exposure Route: Oral gavage
Dosage: Three dose levels: 250, 500, and 1,000 mg / kg / d;
Calculations: Not applicable
Comments: Mortality, clinical signs, body weights, food consumption, ophthalmology findings, hematology and clinical chemistry results, organ weights, organ-to-body weight ratios, gross pathology, and histopathology were evaluated. No treatment-related effects were observed at the highest dose level.
Final NOAEL: 1,000 mg / kg / d

Compound: Antimony
Form: NA
Reference: EPA, 2003 (EcoSSL)
Test Species: NA
Exposure Duration: NA
Endpoint: Growth and reproduction
Exposure Route: NA

Dosage: NA
Calculations: NA
Comments: A total of 11 papers with 31 toxicity test results were included in the derivation of this EcoSSL. A geometric mean of the NOAEL values for growth and reproduction was calculated at 13.3 mg antimony/kg bw/day. However, this value is higher than the lowest bounded LOAEL for effects on reproduction, growth, or survival. Therefore, the TRV was considered equal to the highest bounded NOAEL below the lowest bounded LOAEL and is equal to 0.059 mg antimony/kg bw/day.
Final NOAEL: 0.059 mg/kg/d

Compound: Aromatic Hydrocarbon (AH) Mixture
Form: Aromatics – ethylbenzene, 1,2,3,4-tetrahydronaphthalene, dimethylnaphthalene, 2,3,3-trimethylindolenine, acenaphthylene, acenaphthene, phenanthrene, 2-methylbenzothiazole, dibenzothiophene, and 2,6-dimethylquinoline
Reference: Patton and Dieter, 1980
Test Species: Mallard
Body weight: 1.23 kg (mean from control group graph in study)
Food consumption: 100 g/d (Heinz et al., 1989)
Exposure Duration: 7 month (>10 wk = chronic)
Endpoint: growth
Exposure Route: oral diet
Dosage: three dose groups (1% mixture in diet)
10000 ppm paraffin mixture only,
9600 ppm paraffin and 400 ppm AH, and
6000 ppm paraffin and 4000 ppm AH
Calculations:

$$NOAEL\ :\left(\frac{4000\,mg\ AH\ Mix}{kg\ food}\times\frac{100\,g\ food}{day}\times\frac{1\,kg}{1000\,g}\right)/1.23\,kg\ BW=325.2\ mg/kg/d$$

Comments: Because no adverse effects were reported for paraffin and aromatic hydrocarbon mixtures and because no adverse effects were reported for the paraffin only dose, a dose of 4000 ppm was considered to be a chronic NOAEL for the aromatic hydrocarbon mixture.
Final NOAEL: 325.2 mg/kg/d

Compound: Arsenic
Form: Arsenate (H_3AsO_4)
Reference: Nemec et al., 1998
Test Species: rabbit
Exposure Duration: days 6-18 of gestation (critical life stage-chronic)
Endpoint: reproduction

Exposure Route: oral gavage
Dosage: 4 concentrations as arsenate (0,0.19, 0.75, and 3 mg/kg/day) (H_3AsO_4 is 52.78% As by weight)
Calculations: NA
Comments: Reproductive and maternal effects were observed only at the highest dose. This resulted in mortality for 7 of 20 doses; no maternal mortality was observed at any other doses. Number of fetuses/litter decreased and fetal reabsorbtions increased at the highest dose, but the differences were not statistically significant. Because the study considered exposure during a critical lifestage, the 1.58 mg/kg dose was considered to be a chronic LOAEL.
Final NOAEL: 0.396 mg/kg/d
Final NOAEL: 1.58 mg/kg/d

Compound: Arsenic
Form: Sodium arsenate
Reference: Stanley et al., 1994
Test Species: mallard
Body weight: 1 kg (Heinz et al., 1989)
Food Consumption: 0.1 kg/d (Heinz et al., 1989)
Exposure Duration: 4 wks prior to breeding, through nesting, incubation, and hatch, to 14 d post hatch (> 10 week and during critical lifestage=chronic)
Endpoint: reproduction
Exposure Route: oral in diet
Dosage: 4 dose levels (As concentrations measured in food) 0.26, 22, 93, and 403 mg/kg
Calculations:

$$\left(\frac{0.26\,mg\ As}{kg\ food}\,x\,\frac{100\,g\ food}{day}\,x\,\frac{1\,kg}{1000\,g}\right)/1\,kg\ BW = 0.026\,mg/kg/d$$

$$\left(\frac{22\,mg\ As}{kg\ food}\,x\,\frac{100\,g\ food}{day}\,x\,\frac{1\,kg}{1000\,g}\right)/1\,kg\ BW = 2.2\,mg/kg/d$$

$$\left(\frac{93\,mg\ As}{kg\ food}\,x\,\frac{100\,g\ food}{day}\,x\,\frac{1\,kg}{1000\,g}\right)/1\,kg\ BW = 9.3\,mg/kg/d$$

$$\left(\frac{403\,mg\ As}{kg\ food}\,x\,\frac{100\,g\ food}{day}\,x\,\frac{1\,kg}{1000\,g}\right)/1\,kg\ BW = 40.3\,mg/kg/d$$

Comments: Although As did not increase duckling mortality, As at 40.3 mg/kg/d significantly reduced duckling production. No reduction duckling production or other adverse effects were observed at the other dose levels. Because the study considered exposure over 10 weeks and through reproduction, the 40.3 mg/kg/d dose was considered to be a chronic LOAEL.

Final NOAEL: 9.3 mg / kg / d
Final LOAEL: 40.3 mg / kg / d

Compound: Barium
Form: Barium Chloride
Reference: NTP, 1994
Test Species: Rat
Body weight: 0.35 kg (EPA, 1988a)
Water Consumption: 0.022 L / d (from study)
Study Duration: 105 weeks (> 1 year = chronic)
Endpoint: nephrotoxicity
Exposure Route: Oral in water
Dosage: Three dose levels: 500, 1,250, and 2,500 ppm Ba (as barium chloride);
Authors calculated exposures
Males – 15, 30, and 60 mg / kg / d
Females – 15, 45, and 75 mg / kg / d

Calculations: Not applicable
Comments: Although no kidney-related lesions were observed in any treatment, kidney weights were significantly increased in females at the 2,500 ppm level. The 2,500 ppm dose level was thus judged to represent a chronic LOAEL.
Final NOAEL: 45 mg / kg / d
Final LOAEL: 75 mg / kg / d

Compound: Barium
Form: Barium Hydroxide
Reference: Johnson et al., 1960
Test Species: 1-day old chicks
Body weight: 0.121 kg (mean for males and females at 14 d; EPA, 1988a)
Food Consumption: 0.0126 kg / d (calculated using allometric equation from EPA, 1988a)
Study Duration: 4 weeks (< 10 weeks = subchronic)
Endpoint: Mortality
Exposure Route: Oral in diet
Dosage: Eight dose levels: 250, 500, 1,000, 2,000, 4,000, 8,000, 16,000, and 32,000 ppm Ba (as barium hydroxide)
NOAEL = 2,000 ppm
Calculations:

$$\left(\frac{2{,}000\,mg\ Ba}{kg\ food} x \frac{12.6\,g\ food}{day} x \frac{1\,kg}{1{,}000\,g}\right) / 0.121\,kg\ BW = 208.26\,mg / kg / d$$

$$\left(\frac{4{,}000\,mg\ Ba}{kg\ food} x \frac{12.6\,g\ food}{day} x \frac{1\,kg}{1{,}000\,g}\right) / 0.121\,kg\ BW = 416.53\,mg / kg / d$$

Comments: To estimate daily Ba intake throughout the 4 week study period, food consumption of 2-week-old chicks was calculated. While this value will over- and underestimate food consumption by younger and older chicks, it was assumed to approximate food consumption throughout the entire 4 week study. While Barium exposures up to 2,000 ppm produced no mortality, chicks in the 4,000 to 32,000 ppm groups experienced 5% to 100% mortality. Because 2,000 ppm was the highest nonlethal dose, this dose was considered to be a subchronic NOAEL. The 4,000 ppm dose was considered to be a subchronic LOAEL. Chronic NOAELs and LOAELs were estimated by multiplying the subchronic NOAELs and LOAELs by a subchronic to chronic uncertainty factor of 0.1.

Final NOAEL: 20.8 mg/kg/d

Final LOAEL: 41.7 mg/kg/d

Compound: Benzene

Form: Not applicable

Reference: Wolf et al., 1956

Test Species: Rat

Body weight: 0.175 to 0.250 kg (from study)

Exposure Duration: 187 days (≥ 90 days = chronic)

Endpoint: Survival and pathology

Exposure Route: Oral gavage

Dosage: Four dose levels: 1, 10 50, and 100 mg/kg/d

Calculations: Not applicable

Comments: Mortality was not reported at any dose level. Benzene at 1 mg/kg/d had no effect, while leucopenia and erythrocytopenia was observed at 10 mg/kg/d and higher dose levels. Therefore, 1 and 10 mg/kg/d were considered the NOAEL and LOAEL, respectively. Dose was adjusted for gavage schedule (5 days/week) for a NOAEL of 0.7 mg/kg/d and a LOAEL of 7 mg/kg/d.

Final NOAEL: 0.7 mg/kg/d

Final LOAEL: 7 mg/kg/d

Compound: Benzo(a)pyrene (BaP)

Form: Not applicable

Reference: Mackenzie and Angevine, 1981

Test Species: Mouse

Body weight: 0.03 kg (EPA, 1988a)

Exposure Duration: Days 7-16 of gestation (during critical lifestage = chronic)

Endpoint: Reproduction

Exposure Route: Oral intubation

Dosage: Three dose levels: 10, 40, and 160 mg/kg/d; LOAEL

Calculations: Not applicable

Comments: BaP exposure at 160 mg/kg/d significantly reduced pregnancy rates and percentage of viable litters. Pup weights were significantly reduced by all three dose levels. Total sterility was observed in 97% of offspring in the 40 and 160 mg/kg/d groups and fertility was impaired among offspring in the 10 mg/kg/d group. While the BaP exposures evaluated in this study were of a short duration, they occurred during a critical lifestage. Therefore, the 10 mg/kg/d dose was considered to be a chronic LOAEL. A chronic NOAEL was estimated by multiplying the chronic LOAEL by a LOAEL-NOAEL uncertainty factor of 0.1.

Final NOAEL: 1 mg/kg/d

Final LOAEL: 10 mg/kg/d

Compound: Bis(2-ethylhexyl) Phthalate (BEHP)
Form: Not applicable
Reference: Peakall, 1974
Test Species: Ringed Dove
Body weight: 0.155 kg (Terres, 1980)
Food consumption: 0.0127 kg/d (calculated using allometric equation from Nagy, 1987)
Exposure Duration: 4 weeks (during critical lifestage = chronic)
Endpoint: reproduction
Exposure Route: oral diet
Dosage: one dose level:
NOAEL = 10 ppm
Calculations:

$$NOAEL\ :\left(\frac{10\,mg\ BEHP}{kg\ \ food}\times\frac{17.27\,g\ \ food}{day}\times\frac{1kg}{1000\,g}\right)/\,0.155\,kg\ BW\ = 1.11\,mg\,/\,kg\,/\,d$$

Comments: No significant reproductive effects were observed among doves on diets containing 10 ppm Bis(2-ethylhexyl)Phthalate, and the study considered exposure over 4 weeks and during a critical lifestage. Therefore, the 10 ppm dose was considered to be a chronic NOAEL.
Final NOAEL: 1.1 mg/kg/d

Compound: Bis(2-ethylhexyl)Phthalate (BEHP)
Form: not applicable
Reference: Lamb et al., 1987
Test Species: Mouse
Body weight: 0.03 kg (EPA, 1988a)
Food Consumption: 0.0055 kg/d
(calculated using allometric equation from EPA, 1988a)
Study Duration: 105 d (during critical lifestage = chronic)
Endpoint: reproduction
Exposure Route: oral in diet
Dosage: three dose levels:
0.01%, 0.1% and 0.3% of diet;
NOAEL = 0.01% = 100 mg/kg
LOAEL = 0.1% = 1000 mg/kg
Calculations:

$$NOAEL\ :\left(\frac{100\,mg\ \ BEHP}{kg\ \ food}\ x\ \frac{5.5\,g\ \ food}{day}\ x\ \frac{1\,kg}{1000\,mg}\right)/\ 0.03\,kg\ BW = 18.33\,mg/kg/d$$

$$LOAEL\ :\left(\frac{1000\,mg\ BEHP}{kg\ food}\ x\ \frac{5.5\,g\ food}{day}\ x\ \frac{1\,kg}{1000\,mg}\right)/\ 0.03\,kg\ BW = 183.3\,mg/kg/d$$

Comments: While significant reproductive effects were observed among mice on diets containing 0.1% and 0.3% Bis(2-ethylhexyl)Phthalate, no adverse effects were observed among the 0.01% dose group. Because the study considered exposure during critical lifestage, the 0.01% dose was considered to be a chronic NOAEL. The 0.1% dose was considered to be a chronic LOAEL.

Final NOAEL: 18.3 mg/kg/d
Final LOAEL: 183 mg/kg/d

Compound: Cadmium
Form: NA
Reference: EPA, 2003 (EcoSSL)
Test Species: NA
Exposure Duration: NA
Endpoint: Growth and reproduction
Exposure Route: NA
Dosage: NA
Calculations: NA

Comments: A literature search was completed and 145 papers with mammalian toxicity data met the search criteria and were used to calculate the EcoSSL. A geometric mean of the NOAEL values for reproduction and growth was calculated at 1.86 mg /kg bw/day. However, this value is higher than the lowest bounded LOAEL for reproduction, growth, or mortality results. Therefore, the EcoSSL is equal to the highest bounded NOAEL below the lowest bounded LOAEL for reproduction, growth, or survival, and is equal to 0.770 mg cadmium/kg bw/day.

Final NOAEL: 0.77 mg/kg/d

Compound: Cadmium
Form: Cd SO_4
Reference: Leach et al., 1979
Test Species: white leghorn chickens
Body weight: 1.55 kg (from EPA, 1988)
Food Consumption: 0.077 kg/d (from study)
Study Duration: 1 year and during a critical lifestage =chronic
Endpoint: reproduction
Exposure Route: oral in diet
Dosage: four dose level:
0.22, 3.22, 12.22, and 48.22 mg/kg Cd
Calculations:

$$\left(\frac{0.22\,mg\ Cd}{kg\ food}\ x\ \frac{0.077\,kg\ food}{day}\right)/\ 1.55\,kg\ BW = 0.011\,mg/kg/d$$

$$\left(\frac{3.22\,mg\ Cd}{kg\ food}\ x\ \frac{0.077\,kg\ food}{day}\right)/\ 1.55\,kg\ BW = 0.16\,mg/kg/d$$

$$\left(\frac{12.22\ mg\ Cd}{kg\ \ food}\ x\ \frac{0.077\ kg\ \ food}{day}\right) / \ 1.55\ kg\ BW = 0.61\ mg/kg/d$$

$$\left(\frac{48.22\ mg\ Cd}{kg\ \ food}\ x\ \frac{0.077\ kg\ \ food}{day}\right) / \ 1.55\ kg\ BW = 2.4\ mg/kg/d$$

Comments: Although egg weight and egg shell thickness was not affected by any diet, egg production was significantly reduced by among hens consuming diets containing 12 and 48 mg/kg Cd. Because the study considered exposure over 1 year, the 3.22 mg/kg Cd diet was considered to be a chronic NOAEL and the 12.22 mg/kg diet was considered to be a chronic LOAEL.

Final NOAEL: 0.16 mg/kg/d

Final LOAEL: 0.61 mg/kg/d

Compound: Carbon Tetrachloride

Form: not applicable

Reference: Alumot et al., 1976a

Test Species: Rat

Body weight: 0.35 kg (EPA, 1988a)

Food Consumption: 0.028 kg/d (calculated using allometric equation from EPA, 1988a)

Study Duration: 2 yr (>1 yr and during a critical lifestage = chronic).

Endpoint: reproduction

Exposure Route: oral in diet

Dosage: two dose levels:

80 and 200 ppm;

No effects observed at either dose level.

Calculations:

$$NOAEL\ :\left(\frac{200\ mg\ CCl4}{kg\ \ food}\ x\ \frac{28\ g\ \ food}{day}\ x\ \frac{1\ kg}{1000\ mg}\right) / \ 0.35\ kg\ BW = 16\ mg/kg/d$$

Comments: Because no significant differences were observed at either dose level and the study considered exposure throughout 2 years including critical lifestages (reproduction), the maximum dose was considered to be a chronic NOAEL.

Final NOAEL: 16 mg/kg/d

Compound: Chloroform

Form: not applicable

Reference: Palmer et al., 1979

Test Species: Rat

Body weight: 0.35 kg (EPA, 1988a)

Study Duration: 13 wk (<1 yr and not during a critical lifestage = subchronic).

Endpoint: liver, kidney, gonad condition

Exposure Route: oral intubation

Dosage: four dose levels:

15, 30, 150, and 410 mg/kg/d; NOAEL = 150 mg/kg/d

Calculations: not applicable

Comments: Gonadal atrophy was observed among male and female rats receiving 410 mg/kg/d; therefore 150 mg/kg/d was considered to be a subchronic NOAEL. The 410 mg/kg/d dose was considered to be a subchronic LOAEL. To estimate the chronic NOAEL and LOAEL, the subchronic values was multiplied by a subchronic-chronic uncertainty factor of 0.1.

Final NOAEL: 15 mg/kg/d

Final LOAEL: 41 mg/kg/d

Compound: Chromium

Form: Cr^{+6} as $K_2Cr_2O_4$

Reference: MacKenzie et al., 1958

Test Species: Rat

Body weight: 0.35 kg (EPA, 1988a)

Water Consumption: 0.046 L/d (calculated using allometric equation from EPA, 1988a)

Study Duration: 1 yr

Endpoint: body weight and food consumption

Exposure Route: oral in water

Dosage: six dose levels:

0.45, 2.2, 4.5, 7.7, 11.2, and 25 ppm Cr^{+6} in water

No effects observed at any dose level

Calculations:

$$NOAEL\ :\left(\frac{25\,mg\ Cr}{L\ water}\ x\ \frac{0.046\,L\ water}{day}\right) / \ 0.35\,kg\ BW = 3.28\,mg/kg/d$$

Comments: Because no significant differences were observed at any dose level studied and the study considered exposure over 1 year, the maximum dose was considered to be a chronic NOAEL.

Final NOAEL: 3.28 mg/kg/d

Compound: Chromium

Form: Cr^{+6}

Reference: Steven et al., 1976 (cited in Eisler, 1986)

Test Species: Rat

Body weight: 0.35 kg (EPA, 1988a)

Water Consumption: 0.046 L/d (calculated using allometric equation from EPA, 1988a)

Study Duration: 3 months (<1 yr = subchronic)

Endpoint: mortality

Exposure Route: oral in water

Dosage: two dose levels:

134 and 1000 ppm Cr^{+6} in water; 1000 ppm = LOAEL

Calculations:

$$LOAEL\ :\left(\frac{1000\,mgCr}{L\ water}\ x\ \frac{0.046\ L\ water}{day}\right)/\ 0.35\,kg\ BW = 131.4\ mg/kg/d$$

Comments: Because the 1000 ppm dose was identified as the toxicity threshold, this dose was considered to be a subchronic LOAEL. A chronic LOAEL was estimated by multiplying the subchronic LOAEL by a subchronic-chronic uncertainty factor of 0.1.

Final LOAEL: 13.14 mg / kg / d

Compound: Chromium

Form: Cr^{+3} as $CrK(SO_4)_2$

Reference: Haseltine et al. , 1985

Test Species: Black duck
Body weight: 1.25 kg ($mean_{male+female}$; Dunning, 1993)
Food Consumption: Congeneric Mallard ducks, weighing 1 kg consume 100 g food / d (Heinz et al.1989). Therefore, it was assumed that a 1.25 kg black duck would consume 125 g food / d.

Study Duration: 10 mo. (>10 weeks and during a critical lifestage = chronic)

Endpoint: reproduction

Exposure Route: oral in diet

Dosage: two dose levels:
10 and 50 ppm Cr^{+3} in diet; NOAEL = 10 ppm

$$NOAEL = \left(\frac{10\,mg\,Cr^{+3}}{kg\ food}\,x\,\frac{125\,g\ food}{day}\,x\,\frac{1kg}{1000\,g}\right)/1.25\,kg\ BW = 1\,mg\,/\,kg\,/\,d$$

$$LOAEL = \left(\frac{50\,mg\,Cr^{+3}}{kg\ food}\,x\,\frac{125\,g\ food}{day}\,x\,\frac{1kg}{1000\,g}\right)/1.25\,kg\ BW = 5\,mg\,/\,kg\,/\,d$$

Comments: While duckling survival was reduced at the 50 ppm dose level, no significant differences were observed at the 10 ppm Cr^{+3} dose level. Because the study considered exposure throughout a critical lifestage (reproduction), the dose 50 ppm dose was considered to be a chronic LOAEL and the dose 10 ppm dose was considered to be a chronic NOAEL.

Final NOAEL: 1 mg / kg / d

Final LOAEL: 5 mg / kg / d

Compound: Cobalt

Form: $CoCl_2$ - Cobalt (II) chloride

Reference: Paternain et al., 1988

Test Species: Rat
240-280 g (260 g average body weight in this study)

Study Duration: Days 6-15 gestation (during critical lifestage = chronic)

Endpoint: Reproduction and development

Exposure Route: oral gavage

Dosage: 3 doses 25, 50, 100 mg/kg ($CoCL_2$); 45.4 % Co.
Calculations: NA
Comments: Significant reduction in weight gain and food consumption in addition to negative blood chemistry changes in mothers dosed 100 mg/kg/d. No significant teratogenic effects were observed; however, increased incidence of stunted fetuses/litter occurred at 50 and 100 mg/kg/d doses. An uncertainty factor of 0.1 was applied to the chronic LOAEL to determine a chronic NOEAL.
Final NOAEL: 1.35 mg/kg/d
Final LOAEL: 11.35 mg/kg/d

Compound: Copper
Form: Copper Sulfate
Reference: Aulerich et al., 1982
Test Species: Mink
Body weight: 1.0 kg (EPA, 1993e)
Food Consumption: 0.137 kg/d (Bleavins and Aulerich, 1981)
Study Duration: 357 d (during a critical lifestage = chronic)
Endpoint: reproduction
Exposure Route: oral in diet
Dosage: four dose levels:
25, 50, 100, and 200 ppm Cu supplemental + 60.5 ppm Cu in base feed; NOAEL = 85.5 ppm Cu (supplement + base)
Calculations:

$$NOAEL\ :\left(\frac{85.5\,mg\ Cu}{kg\ \ food}\,x\,\frac{137\ g\ \ food}{day}\,x\,\frac{1\,kg}{1000\ mg}\right)/\,1.0\,kg\ \ BW = 11.71\,mg/kg/d$$

$$LOAEL\ :\left(\frac{110.5\,mg\ Cu}{kg\ \ food}\,x\,\frac{137\ g\ \ food}{day}\,x\,\frac{1\,kg}{1000\ mg}\right)/\,1.0\,kg\ \ BW = 15.14\,mg/kg/d$$

Comments: Consumption of 50, 100, and 200 ppm supplemental Cu increased the percentage mortality of mink kits. Kit survivorship among the 25 ppm supplemental Cu group was actual greater than the controls. Because this study was approximately one year in duration and considered exposure during reproduction, the 25 ppm supplemental Cu (85.5 ppm total Cu) dose was considered to be a chronic NOAEL and the 50 ppm supplemental Cu (110.5 ppm total Cu) dose was considered to be a chronic NOAEL
Final NOAEL: 11.7 mg/kg/d
Final LOAEL: 15.14 mg/kg/d

Compound: Copper
Form: Copper oxide
Reference: Mehring et al., 1960

Test Species: 1 day old chicks
Body weight: 0.534 kg (mean $_{\text{male+female}}$ at 5 weeks; EPA, 1988)
food consumption: 0.044 kg / d (calculated using allometric equation from EPA, 1988)

Exposure Duration: 10 weeks (10 weeks = chronic).

Endpoint: growth, mortality

Exposure Route: oral in diet

Dosage: 12 dose levels:
26, 36.8, 52.0, 73.5, 104.0, 147.1, 208.0, 294.1, 403, 570, 749, and 1180 ppm total Cu; NOAEL = 570 ppm total Cu

Calculations:

$$\left(\frac{26\,mg\,Cu}{kg\;food}\,x\,\frac{44\,g\;food}{day}\,x\,\frac{1\,kg}{1000\,g}\right)/\,0.534\,kg\;BW = 2.14\,mg/kg/d$$

$$\left(\frac{36.8\,mg\,Cu}{kg\;food}\,x\,\frac{44\,g\;food}{day}\,x\,\frac{1\,kg}{1000\,g}\right)/\,0.534\,kg\;BW = 3.03\,mg/kg/d$$

$$\left(\frac{52\,mg\,Cu}{kg\;food}\,x\,\frac{44\,g\;food}{day}\,x\,\frac{1\,kg}{1000\,g}\right)/\,0.534\,kg\;BW = 4.28\,mg/kg/d$$

$$\left(\frac{73.5\,mg\,Cu}{kg\;food}\,x\,\frac{44\,g\;food}{day}\,x\,\frac{1\,kg}{1000\,g}\right)/\,0.534\,kg\;BW = 6.06\,mg/kg/d$$

$$\left(\frac{147.1\,mg\,Cu}{kg\;food}\,x\,\frac{44\,g\;food}{day}\,x\,\frac{1\,kg}{1000\,g}\right)/\,0.534\,kg\;BW = 12.12\,mg/kg/d$$

$$\left(\frac{208\,mg\,Cu}{kg\;food}\,x\,\frac{44\,g\;food}{day}\,x\,\frac{1\,kg}{1000\,g}\right)/\,0.534\,kg\;BW = 17.14\,mg/kg/d$$

$$\left(\frac{294.1\,mg\,Cu}{kg\;food}\,x\,\frac{44\,g\;food}{day}\,x\,\frac{1\,kg}{1000\,g}\right)/\,0.534\,kg\;BW = 24.23\,mg/kg/d$$

$$\left(\frac{403\,mg\,Cu}{kg\;food}\,x\,\frac{44\,g\;food}{day}\,x\,\frac{1\,kg}{1000\,g}\right)/\,0.534\,kg\;BW = 33.21\,mg/kg/d$$

$$\left(\frac{570\,mg\,Cu}{kg\;food}\,x\,\frac{44\,g\;food}{day}\,x\,\frac{1\,kg}{1000\,g}\right)/\,0.534\,kg\;BW = 46.97\,mg/kg/d$$

$$\left(\frac{749\,mg\,Cu}{kg\ food}\,x\,\frac{44\,g\ food}{day}\,x\,\frac{1\,kg}{1000\,g}\right)/\,0.534\,kg\ BW = 61.7\,mg\,/\,kg\,/\,d$$

$$\left(\frac{1180\,mg\,Cu}{kg\ food}\,x\,\frac{44\,g\ food}{day}\,x\,\frac{1\,kg}{1000\,g}\right)/\,0.534\,kg\ BW = 97.22\,mg\,/\,kg\,/\,d$$

Comments: While consumption of Cu up to 570 ppm had no effect of growth of chicks, 749 ppm Cu in the diet reduced growth by over 30% and produced 15% mortality. Because this study was 10 weeks in duration, the 570 and 749 ppm Cu doses were considered to be a chronic NOAEL and LOAEL, respectively. To estimate daily Cu intake throughout the 10 week study period, food consumption of 5-week-old chicks was calculated. While this value will over- and underestimate food consumption by younger and older chicks, it was assumed to approximate food consumption throughout the entire 10 week study.

Final NOAEL: 47 mg / kg / d

Final LOAEL: 61.7 mg / kg / d

Compound: *o*-Cresol (2-methylphenol)

Form: Not applicable

Reference: Hornshaw et al., 1986

Test Species: Mink

Body weight: 0.958 kg (mean of control females from study)

Food Consumption: 204 g / d (mean of all test groups in study because no differences among groups).

Study Duration: 6 months (during a critical lifestage = chronic)

Endpoint: Reproduction

Exposure Route: Oral in diet

Dosage: Three dose levels: 100, 400, and 1,600 ppm

Calculations:

$$NOAEL\ :\left(\frac{1{,}600\ \ mg\,o-cresol}{kg\ food}\times\frac{204\,g\ food}{day}\times\frac{1\,kg}{1{,}000\,g}\right)/\,0.958\,kg\ BW\ = 340\ mg\,/\,kg\,/\,d$$

Comments: No adverse effects were observed at any dose level. Because this study considered exposure during reproduction, the maximum dose was considered to be a chronic NOAEL.

Final NOAEL: 340 mg / kg / d

Compound: 1,2-Dichloroethane

Form: Not applicable

Reference: Alumot et al., 1976b

Test Species: Chicken

Body weight: 1.6 kg (mean$_{male+female}$ from study)

Food Consumption: 0.11 kg / d (calculated using allometric equation from EPA, 1988)

Study Duration: 2 yr (>10 weeks and during a critical lifestage = chronic)

Endpoint: reproduction

Exposure Route: oral in diet

Dosage: two dose levels:

250 and 500 ppm; NOAEL = 250 ppm

$$NOAEL = \left(\frac{250\,mg\,1{,}2 - Dichloroethane}{kg\ food}\, x\, \frac{110\,g\ food}{day}\, x\, \frac{1kg}{1000\,g} \right) / 1.6\,kg\ BW = 17.2\,mg/kg/d$$

$$LOAEL = \left(\frac{500\,mg\,1{,}2 - Dichloroethane}{kg\ food}\, x\, \frac{110\,g\ food}{day}\, x\, \frac{1kg}{1000\,g} \right) / 1.6\,kg\ BW = 34.4\,mg/kg/d$$

Comments: While egg production was reduced at the 500 ppm dose level, no significant differences were observed at the 250 ppm dose level. Because the study considered exposure throughout 2 years including critical lifestages (reproduction), these doses were considered to be chronic NOAELs and LOAELs.

Final NOAEL: 17.2 mg/kg/d

Final LOAEL: 34.4 mg/kg/d

Compound: 1,2,-Dichloroethane

Form: not applicable

Reference: Lane et al., 1982

Test Species: Mouse
Body weight: 0.035 kg (from study)
Water Consumption: 6 mL/d (from study)

Study Duration: 2 generations (>1 yr and during a critical lifestage = chronic).

Endpoint: reproduction

Exposure Route: oral in water

Dosage: three dose levels:
5, 15, and 50 mg/kg/d
No effects observed at any dose level.

Calculations: not applicable

Comments: Because no significant differences were observed at any dose level and the study considered exposure throughout 2 generations including critical lifestages (reproduction), the maximum dose was considered to be a chronic NOAEL.

Final NOAEL: 50 mg/kg/d.

Compound: 1,1-Dichloroethylene

Form: not applicable

Reference: Quast et al., 1983

Test Species: dog (beagle)
Body weight: 10 kg (EPA, 1988a)

Study Duration: 97 d (<1 yr and not during a critical lifestage = subchronic).

Endpoint: mortality, body weight, blood chemistry, liver histology

Exposure Route: daily oral capsules

Dosage: three dose levels:
6.25, 12.5, and 25 mg/kg/d; NOAEL = 25 mg/kg/d

Calculations: not applicable

Comments: No adverse effects were observed among any of the treatments, therefore the maximum dose, 25 mg/kg/d was considered a subchronic NOAEL. A chronic NOAEL was estimated by multiplying the subchronic NOAEL by a subchronic-chronic uncertainty factor of 0.1.

Final NOAEL: 2.5 mg/kg/d

Compound: 1,2-Dichloroethylene

Form: not applicable

Reference: Bannes et al., 1985

Test Species: Mouse
Body weight: 0.03 kg (EPA, 1988a)

Study Duration: 90 d (<1 yr and not during a critical lifestage = subchronic).

Endpoint: body and organ weights, blood chemistry, hepatic function

Exposure Route: oral in water

Dosage: three dose levels:
16.8, 175, and 387 mg/kg/d (Males)
22.6, 224, and 452 mg/kg/d (Females)
NOAEL = 452 mg/kg/d

Calculations: not applicable

Comments: Exposure to 387 mg/kg/d 1,2-ichloroethylene reduced glutathione levels in males and all dose levels reduced aniline hydroxylase activity in females. No other treatment effects were observed. Because the relationship of enzyme levels to potential population effects is unknown and no other effects were observed, the maximum dose, 452 mg/kg/d was considered a subchronic NOAEL. To estimate the chronic NOAEL, the subchronic NOAEL was multiplied by a subchronic-chronic uncertainty factor of 0.1.

Final NOAEL: 45.2 mg/kg/d

Compound: Diethylphthalate (DEP)

Form: not applicable

Reference: Lamb et al., 1987

Test Species: Mouse
Body weight: 0.03 kg (EPA, 1988a)
Food Consumption: 0.0055 kg/d
(calculated using allometric equation from EPA, 1988a)

Study Duration: 105 d (during a critical lifestage = chronic)

Endpoint: reproduction

Exposure Route: oral in diet

Dosage: three dose levels:
0.25%, 1.25% and 2.5% of diet;
NOAEL = 2.5% = 25000 mg/kg

Calculations:

$$NOAEL\ :\left(\frac{25000\ mg\ mg}{kg\ \ food}\ x\ \frac{5.5\ g\ \ food}{day}\ x\ \frac{1\ kg}{1000\ mg}\right) /\ 0.03\ kg\ BW = 4583\ mg/kg/d$$

Comments: No significant reproductive effects were observed among mice in any of the treatment groups. Because the study considered exposure during a critical lifestage, the maximum dose was considered to be a chronic NOAEL.

Final NOAEL: 4583 mg/kg/d

Compound: Di-n-butyl phthalate (DBP)

Form: not applicable

Reference: Lamb et al., 1987

Test Species: Mouse
Body weight: 0.03 kg (EPA, 1988a)
Food Consumption: 0.0055 kg/d
(calculated using allometric equation from EPA, 1988a)

Study Duration: 105 d (during a critical lifestage = chronic)

Endpoint: reproduction

Exposure Route: oral in diet

Dosage: three dose levels:
0.03%, 0.3% and 1% of diet;
NOAEL = 0.3% = 3000 mg/kg

Calculations:

$$NOAEL\ :\left(\frac{3000\ mg\ DBP}{kg\ \ food}\ x\ \frac{5.5\ g\ \ food}{day}\ x\ \frac{1\ kg}{1000\ mg}\right) /\ 0.03\ kg\ BW = 550\ mg/kg/d$$

$$LOAEL\ :\left(\frac{10000\ mg\ DBP}{kg\ \ food}\ x\ \frac{5.5\ g\ \ food}{day}\ x\ \frac{1\ kg}{1000\ mg}\right) /\ 0.03\ kg\ BW = 1833\ mg/kg/d$$

Comments: While significant reproductive effects (reduced litters/pair, live pups/litter, etc.) were observed among mice on diet containing 1% DBP, no adverse effects were observed among either the 0.03% or 0.3% dose groups. Because the study considered exposure during a critical lifestage, these doses were considered to be chronic NOAELs and LOAELs.

Final NOAEL: 550 mg/kg/d

Final LOAEL: 1833 mg/kg/d

Compound: Di-n-butyl Phthalate (DBP)

Form: Not applicable

Reference: Peakall, 1974

Test Species: Ringed Dove
Body weight: 0.155 kg (Terres, 1980)
Food consumption: 0.0127 kg/d (calculated using allometric equation from Nagy, 1987)
Exposure Duration: 4 weeks (during critical lifestage = chronic)
Endpoint: reproduction
Exposure Route: oral diet
Dosage: one dose level:
LOAEL = 10 ppm
Calculations:

$$LOAEL\ :\left(\frac{10\,mg\ DBP}{kg\ food}\times\frac{17.27\,g\ food}{day}\times\frac{1\,kg}{1000\,g}\right)/\,0.155\,kg\ BW\ = 1.11\,mg/kg/d$$

Comments: Eggshell thickness and water permeability of the shell was reduced among doves on diets containing 10 ppm DBP. Because the study considered exposure during a critical lifestage, the 10 ppm dose was considered to be a chronic LOAEL. A chronic NOAEL was estimated by multiplying the chronic LOAEL by a LOAEL-NOAEL uncertainty factor of 0.1.
Final NOAEL: 0.11 mg/kg/d
Final LOAEL: 1.1 mg/kg/d

Compound: Ethylbenzene
Form: Not applicable
Reference: Wolf et al., 1956
Test Species: Rat
Body weight: 0.175 to 0.250 kg (from study)
Exposure Duration: 182 days (≥ 90 days = chronic)
Endpoint: Survival and pathology
Exposure Route: Oral gavage
Dosage: Four dose levels: 13.6, 136, 408, and 680 mg/kg/d
Calculations: Not applicable
Comments: Mortality was not reported at any dose level. Ethylbenzene at 136 mg/kg/d had no effect, while histopathological changes in the liver and kidney were observed at 408 mg/kg/d and 680 mg/kg/d. Therefore, 136 mg/kg/d and 408 mg/kg/d were considered the NOAEL and LOAEL, respectively. Dose was adjusted for gavage schedule (5 days/week) for a NOAEL of 97.1 mg/kg/d and a LOAEL of 291 mg/kg/d.
Final NOAEL: 291 mg/kg/d
Final LOAEL: 97.1 mg/kg/d

Compound: Fluoranthene
Form: Not applicable
Reference: IRIS, 2001
Test Species: Mouse
Body weight: 0.03 kg (EPA, 1988a)

Exposure Duration: 13 weeks (≥ 90 days = chronic)
Endpoint: Nephropathy
Exposure Route: Oral gavage
Dosage: Three dose levels: 125, 250, and 500 mg/kg/d;
Calculations: Not applicable
Comments: All treated mice exhibited nephropathy, increased salivation, and increased liver enzyme levels in a dose-dependent manner. Mice exposed to 250 and 500 mg/kg/d had statistically increased SGPT values and increased absolute and relative liver weights. Compound-related microscopic liver lesions (indicated by pigmentation) were observed in 65 and 87.5% of the mid-and high-dose mice respectively.
Final NOAEL: 125 mg/kg/d
Final LOAEL: 250 mg/kg/d

Compound: Fluorene
Form: Not applicable
Reference: IRIS, 2001
Test Species: Mouse
Body weight: 0.03 kg (EPA, 1988a)
Exposure Duration: 13 weeks (≥ 90 days = chronic)
Endpoint: Hematoxicity
Exposure Route: Oral gavage
Dosage: Three dose levels: 125, 250, and 500 mg/kg/d;
Calculations: Not applicable
Comments: A significant decrease in red blood cell count and packed cell volume were observed in females treated with 250 mg/kg/d and in males and females treated at 500 mg/kg/d.
Final NOAEL: 125 mg/kg/d
Final LOAEL: 250 mg/kg/d

Compound: Hexachlorobenzene (BHC mixed isomers)
Form: not applicable
Reference: Grant et al., 1977
Test Species: Rat
Body weight: 0.35 kg (EPA, 1988a)
Food Consumption: 0.028 kg/d (calculated using allometric equation from EPA, 1988a)
Study Duration: 4 generations (>1 yr and during a critical lifestage = chronic)
Endpoint: reproduction
Exposure Route: oral in diet
Dosage: seven dose levels:
10, 20, 40, 80, 160, 320, and 640 ppm; NOAEL = 20 ppm
Calculations:

$$NOAEL\ :\left(\frac{20\,mg\ BHC}{kg\ food}\ x\ \frac{28\,g\ food}{day}\ x\ \frac{1\,kg}{1000\,mg}\right)/\ 0.35\,kg\ BW = 1.6\,mg/kg/d$$

$$LOAEL\ :\left(\frac{40\ mg\ BHC}{kg\ \ food}\ x\ \frac{28\ g\ \ food}{day}\ x\ \frac{1\ kg}{1000\ mg}\right)/\ 0.35\ kg\ BW = 3.2\ mg/kg/d$$

Comments: Consumption of 320 ppm and 640 ppm BHC in the diet increased maternal mortality, 80 - 640 ppm BHC reduced litter sizes, and 40 - 320 ppm BHC reduced birth weights. Because no significant effects were observed in groups consuming 10 or 20 ppm BHC in their diet and the study considered exposure throughout four generations including critical lifestages (reproduction), the 20 ppm dose was considered to be a chronic NOAEL. The lowest dose to produce an adverse effect (40 ppm) was considered a chronic LOAEL.

Final NOAEL: 1.6 mg/kg/d

Final LOAEL: 3.2 mg/kg/d

Compound: JP-8 Jet Fuel

Form: Not applicable

Reference: Cooper and Mattie, 1996

Test Species: Rat

Body weight: 0.35 kg (EPA, 1988a)

Study Duration: Gestational days 6-15 (during a critical lifestage = chronic)

Endpoint: Reproduction

Exposure Route: Oral gavage

Dosage: Four dose levels: 500, 1,000, 1,500, 2,000 mg JP-8 jet fuel/kg/d

Calculations: Not applicable

Comments: Maternal and fetal weight gain were significantly reduced in rats dosed by oral gavage at the rate of 1500 mg/kg/day. Additionally, a dose-response increase in mortality was also reported. Because no significant differences were observed at the two lower dose levels and the study considered exposure throughout a critical lifestage (reproduction), the 1,000 mg/kg/day dose was considered to be a chronic NOAEL and the 1,500 mg/kg/day dose was considered to be a chronic LOAEL

Final NOAEL: 1000 mg/kg/d

Final LOAEL: 1500 mg/kg/d

Compound: Lead

Form: Lead acetate

Reference: Edens and Garlich, 1983

Test Species: Japanese Quail

Body weight: 0.15 kg (from study)

Food Consumption: 0.031 kg/d (from study)

Exposure Duration: 5 weeks (during a critical lifestage = chronic).

Endpoint: Reproduction

Exposure Route: Oral in diet

Dosage: Four dose levels: 0, 1, 10, and 100 ppm Pb; NOAEL = 1 ppm Pb

Exposures also reported as metabolic mass-based doses: 0.12, 1.11, and 9.69 mg Pb / $BW^{0.75}$ / d
Doses in mg / kg / d calculated by multiplying each metabolic mass-based dose by ratio of dose-level-specific body mass (kg; from study) to dose-level-specific metabolic mass ($kg^{0.75}$) resulting in the following doses: 0.19, 1.78, and 15.65 mg / kg / d

Comments: While egg production was significantly reduced among birds consuming the 10 and 100 ppm Pb, egg production was not affected by the 1 ppm Pb dose. Because the study considered exposure throughout a critical lifestage (reproduction), these values were considered to be chronic LOAELs and NOAELs.

Final NOAEL: 0.19 mg / kg / d

Final LOAEL: 1.78 mg / kg / d

Compound: Manganese

Form: Manganese Oxide (Mn_3O_4)

Reference: Laskey et al., 1982

Test Species: Rat
Body weight: 0.35 kg (EPA, 1988a)
Food Consumption: 0.028 kg / d (calculated using allometric equation from EPA, 1988a)

Study Duration: through gestation for 224 d
(during a critical lifestage = chronic)

Endpoint: reproduction

Exposure Route: oral in diet

Dosage: three dose levels:
350, 1050, and 3500 ppm supplemented Mn + 50 ppm Mn in base diet; NOAEL = 1100 ppm

Calculations:

$$NOAEL\ :\left(\frac{1100\,mg\ Mn}{kg\ \ food}\ x\ \frac{28\,g\ \ food}{day}\ x\ \frac{1\,kg}{1000\,mg}\right)/\ 0.35\,kg\ \ BW = 88\,mg/kg/d$$

$$LOAEL\ :\left(\frac{3550\,mg\ Mn}{kg\ \ food}\ x\ \frac{28\,g\ \ food}{day}\ x\ \frac{1\,kg}{1000\,mg}\right)/\ 0.35\,kg\ \ BW = 284\,mg/kg/d$$

Comments: While the pregnancy percentage and fertility among rats consuming 3550 ppm Mn in their diet was significantly reduced, all other reproductive parameters (e.g., litter size, ovulations, resorptions, preimplantation death, fetal weights) were not affected. No effects were observed at lower Mn exposure levels. Therefore the 1100 ppm Mn dose was considered to be a chronic NOAEL and the 3550 ppm Mn dose was considered to be a chronic LOAEL.

Final NOAEL: 88 mg / kg / d

Final LOAEL: 284 mg / kg / d

Compound: Manganese

Form: Manganese oxide (Mn_3O_4)

Reference: Laskey and Edens, 1985

Test Species: Japanese Quail (maless only, starting at 1 day old)
Body weight: 0.072 kg (for 3 wk-old male quail; Shellenberger, 1978)

Study Duration: 75 d (>10 weeks = chronic)

Endpoint: growth, aggressive behavior

Exposure Route: oral in diet

Dosage: one dose level:
5000 ppm supplemented Mn + 56 ppm Mn in base diet = NOAEL

Calculations: NA

Comments: While no reduction in growth was observed, aggressive behavior was 25% to 50% reduced relative to controls. Daily Mn consumption was reported to range from 575 mg/kg/day for adults at the end of the study and 977 mg/kg/d for 20 d-old birds. Because the study was >10 weeks in duration, the 977 mg/kg/d dose was considered to be a chronic NOAEL based on a growth endpoint and a chronic LOAEL based on a behavior endpoint. A chronic behavior NOAEL was estimated by applying an LOAEL-NOAEL UF of 0.1

Final $NOAEL_{growth}$: 977 mg/kg/d

Final $NOAEL_{behavior}$: 98 mg/kg/d

Final $LOAEL_{behavior}$: 977 mg/kg/d

Compound: Mercury

Form: Methyl Mercury Chloride (CH_3HgCl; 79.89% Hg)

Reference: Verschuuren et al., 1976

Test Species: Rat
Body weight: 0.35 kg (EPA, 1988a)
Food Consumption: 0.028 kg/d (calculated using allometric equation from EPA, 1988a)

Study Duration: 3 generations (>1 yr and during a critical lifestage = chronic)

Endpoint: reproduction

Exposure Route: oral in diet

Dosage: three dose levels:
0.1, 0.5, and 2.5 ppm Methyl Mercury Chloride;
NOAEL = 0.5 ppm Methyl Mercury Chloride
0.7989 ´ 0.5 mg/kg = 0.399 mg Hg /kg

Calculations:

$$NOAEL\ :\left(\frac{0.399\,mg\ Hg}{kg\ food}\ x\ \frac{28\ g\ food}{day}\ x\ \frac{1\ kg}{1000\ mg}\right) /\ 0.35\ kg\ BW = 0.032\ mg/kg/d$$

$$LOAEL\ :\left(\frac{1.99725\ mg\ Hg}{kg\ food}\ x\ \frac{28\ g\ food}{day}\ x\ \frac{1\ kg}{1000\ mg}\right) /\ 0.35\ kg\ BW = 0.16\ mg/kg/d$$

Comments: While exposure to 2.5 ppm methyl mercury chloride reduced pup viability, adverse effects were not observed at lower doses. Because significant effects were not observed at the 0.5 ppm Methyl Mercury Chloride dose level, this dose was considered to be a chronic NOAEL. The 2.5 ppm Methyl Mercury Chloride dose level was considered to be a chronic LOAEL.

Final NOAEL: 0.032 mg/kg/d
Final LOAEL: 0.16 mg/kg/d

Compound: Mercury
Form: methyl mercury chloride/dicyandiamide
Reference: Heinz (1976) and Heinz and Hoffman (1998)
Test Species: mallard
Body weight: 1 kg (Heinz et al., 1987)
Food Consumption: 0.128 kg/d (from Heinz, 1979)
Exposure Duration: 2 generations (lowest doses), 2.5 months (highest dose) (during a critical lifestage = chronic).
Endpoint: reproduction
Exposure Route: oral in diet
Dosage: four dose levels:
0, 0.53, 2.88, and 9.2 ppm Hg
Calculations:

$$\left(\frac{0.53\,mg\ Hg}{kg\ food}\times\frac{0.128\,kg\ food}{day}\right)/1\,kg\ BW = 0.068\ mg/kg/d$$

$$\left(\frac{2.88\,mg\ Hg}{kg\ food}\times\frac{0.128\,kg\ food}{day}\right)/1\,kg\ BW = 0.37\ mg/kg/d$$

$$\left(\frac{9.2\,mg\ Hg}{kg\ food}\times\frac{0.128\,kg\ food}{day}\right)/1\,kg\ BW = 1.18\ mg/kg/d$$

Comments: Although duckling survival at 7 days was significantly reduced at the two highest dose levels, no significant difference was observed at the 0.068 mg/kg/d dose. Because exposure occurred during reproduction, the 0.37 mg/kg/d dose was considered to be a chronic LOAEL.

Final NOAEL: 0.068 mg/kg/d
Final LOAEL: 0.37 mg/kg/d

Compound: Methylene Chloride
Form: not applicable
Reference: NCA, 1982
Test Species: Rat
Body weight: 0.35 kg (EPA, 1988a)
Study Duration: 2 yrs (>1 yr=chronic)
Endpoint: liver histology

Exposure Route: oral in water
Dosage: four dose levels:
5.85, 50, 125, and 250 mg/kg/d; NOAEL = 5.85 mg/kg/d
Calculations: not applicable
Comments: While Methylene Chloride at 50 mg/kg/d or greater produced histological changes in the liver, no effects were observed at the 5.85 mg/kg/d dose level. Because the study was 2 yrs in duration, the 5.85 mg/kg/d dose was considered to be a chronic NOAEL. The 50 mg/kg/d dose was considered to be a chronic LOAEL.
Final NOAEL: 5.85 mg/kg/d
Final LOAEL: 50 mg/kg/d

Compound: 4-Methyl 2-Pentanone (Methyl Isobutyl Ketone)
Form: not applicable
Reference: Microbiological Associates, 1986 (obtained from Health Effects Assessment Summary Tables (HEAST; EPA, 1993f)
Test Species: Rat
Body weight: 0.35 kg (EPA, 1988a)
Study Duration: 13 weeks
(<1 yr and not during a critical lifestage=subchronic)
Endpoint: Liver and kidney function
Exposure Route: oral gavage
Dosage: one dose level stated in HEAST summary:
250 mg/kg/d = NOAEL
Calculations: not applicable
Comments: Because the study was less than 1 year in duration and not considered exposure during a critical life stage, the 250 mg/kg/d dose was considered to be a subchronic NOAEL. A chronic NOAEL was estimated by multiplying the subchronic NOAEL by a subchronic-chronic uncertainty factor of 0.1
Final NOAEL: 25 mg/kg/d

Compound: Molybdenum
Form: Molybdate (MoO_4)
Reference: Schroeder and Mitchner, 1971
Test Species: Mouse
Body weight: 0.03 kg (EPA, 1988a)
Food Consumption: 0.0055 kg/d
Water Consumption: 0.0075 L/d
(calculated using allometric equation from EPA, 1988a)
Study Duration: 3 generations (> 1 yr and during critical lifestage=chronic)
Endpoint: reproduction
Exposure Route: oral in water
Dosage: one dose level:
10 mg Mo/L + 0.45 mg/kg in diet = LOAEL

Calculations:

$$NOAEL\ :\left(\frac{10\,mg\ Mo}{kg\ \ food}\ x\ \frac{7.5g\ \ food}{day}\ x\ \frac{1\,kg}{1000\ mg}\right)/\ 0.03\,kg\ BW = 2.5\,mg/kg/d$$

$$LOAEL\ :\left(\frac{0.45\,mg\ Mo}{kg\ \ food}\ x\ \frac{7.5\,g\ \ food}{day}\ x\ \frac{1\,kg}{1000\ mg}\right)/\ 0.03\,kg\ BW = 0.0825\,mg/kg/d$$

Total Exposure = 2.5 mg/kg/d + 0.0825 mg/kg/d =2.5825 mg/kg/d

Comments: Because mice exposed to Mo displayed reduced reproductive success with a high incidence of runts, this dose was considered to be a chronic LOAEL. A chronic NOAEL was estimated by multiplying the chronic LOAEL by a LOAEL-NOAEL uncertainty factor of 0.1.

Final NOAEL: 0.26 mg/kg/d

Final LOAEL: 2.6 mg/kg/d

Compound: Naphthalene

Form: Not applicable

Reference: Wildlife International, 1985

Test Species: Bobwhite Quail

Body weight: 198.4 g (mean of control group from study)

Exposure Duration: Acute – single dose followed by 14-day observation

Endpoint: Mortality

Exposure Route: Oral gavage

Dosage: Six dose levels: 0, 292, 486, 810, 1,350, and 2,250 mg/kg

Calculations: Not applicable

Comments: Overt signs of toxicity were observed at 486 mg/kg dose and above. LD50 for naphthalene in bobwhite was determined to be 2,690 mg/kg (95% CI=1,571-57,063 mg/kg). A chronic NOAEL and LOAEL were estimated by applying uncertainty factors of 0.01 and 0.1, respectively.

Final LD50: 2690 mg/kg

Final NOAEL: 26.9 mg/kg/d

Final LOAEL: 269 mg/kg/d

Compound: Naphthalene

Form: Not applicable

Reference: Navarro et al., 1991

Test Species: Rat

Body weight: 0.24 kg (range, 0.21-0.27 kg) (mean of females in study)

Exposure Duration: Days 6-15 of gestation (during critical lifestage = chronic)

Endpoint: Reproduction

Exposure Route: Oral gavage

Dosage: Three dose levels: 50, 150, and 450 mg/kg/d

Calculations: Not applicable

Comments: Dams treated with 150 and 450 mg/kg/d experienced a respective 31 and 53% reduction in weight gain compared to control dams. Maternal body weight gain continued to be reduced post-treatment (day 15 through sacrifice on day 20). No effects in weight gain were observed in rats dosed with 50 mg/kg/d. No fetal effects were observed. Because maternal body weight gain was reduced and these effects were observed during a critical life-stage, 150 mg/kg/d was considered to be the chronic LOAEL. No adverse effects were observed at 50 mg/kg/d, therefore this was considered to be a chronic NOAEL.

Final NOAEL: 50 mg/kg/d

Final LOAEL: 150 mg/kg/d

Compound: No. 2 fuel oil

Reference: Szaro et al., 1981

Test Species: Mallard Duck
Body Weight: 1 kg (from Heinz et al., 1987)
Food Consumption: 100 g/d (from Heinz et al., 1987)

Study Duration: 18 wk (18 wk during a critical lifestage = chronic)

Endpoint: Mortality and growth

Exposure Route: Oral in diet

Dosage: Two dose levels: 0.5 and 5.0% (5,000 and 50,000 mg/kg) No. 2 fuel oil in food

Calculations:

$$NOAEL:\left(\frac{5{,}000\,mg\ No.2\ Fuel\ Oil}{Kg\ \ food}\times\frac{100\,g\ \ food}{day}\times\frac{1kg}{1000\,g}\right)/1kg\ BW = 500\ mg/kg/d$$

$$LOAEL:\left(\frac{50{,}000\,mg\ No.2\ Fuel\ Oil}{Kg\ \ food}\times\frac{100\,g\ \ food}{day}\times\frac{1kg}{1{,}000\,g}\right)/1kg\ BW = 5{,}000\ mg/kg/d$$

Comments: Growth was depressed in mallards receiving a diet containing 5% No. 2 fuel oil, and no mortality was related to oil ingestion. Other effects at the 5% dose included increased liver weights, decreased spleen weights, shorter running distances, and hyperactivity compared to control and 0.5% dosed birds. Because no significant differences were observed at the lower dose level and the study considered exposure throughout a critical lifestage (growth), the 0.5% dose was considered to be a chronic NOAEL and the 5% dose was considered to be a chronic LOAEL.

Final NOAEL: 500 mg/kg/d

Final LOAEL: 5000 mg/kg/d

Compound: Nickel

Form: Nickel Sulfate Hexahydrate

Reference: Ambrose et al., 1976

Test Species: Rat
Body weight: 0.35 kg (EPA, 1988a)
Food Consumption: 0.028 kg/d (calculated using allometric equation from EPA, 1988a)

Study Duration: 3 generations (>1 yr and during a critical lifestage = chronic)

Endpoint: reproduction
Exposure Route: oral in diet
Dosage: three dose levels:
250, 500, and 1000 ppm Ni
NOAEL = 500 ppm
Calculations:

$$NOAEL\ :\left(\frac{500\,mg\ Ni}{kg\ \ food}\ x\ \frac{28\,g\ \ food}{day}\ x\ \frac{1\,kg}{1000\,mg}\right)/\ 0.35\,kg\ BW = 40\ mg/kg/d$$

$$LOAEL\ :\left(\frac{100\,mg\ Ni}{kg\ \ food}\ x\ \frac{28\,g\ \ food}{day}\ x\ \frac{1\,kg}{1000\,mg}\right)/\ 0.35\,kg\ BW = 80\ mg/kg/d$$

Comments: While 1000 ppm Ni in the diet reduced offspring body weights, no adverse effects were observed in the other dose levels. Because this study considers exposures over multiple generations, the 500 ppm dose was considered to be a chronic NOAEL and the 1000 ppm dose was considered to be a chronic LOAEL..
Final NOAEL: 40 mg/kg/d
Final LOAEL: 80 mg/kg/d

Compound: Nickel
Form: Nickel Sulfate
Reference: Cain and Pafford, 1981
Test Species: Mallard Duckling
Body weight: 0.782 kg (mean$_{\text{control male+female}}$ at 28 and 60 days; from study)
Food Consumption: Adult Mallard ducks, weighing 1 kg consume 100 g food/d (Heinz et al., 1989). Therefore, it was assumed that a 0.782 kg mallard duckling would consume 78.2 g food/d.
Study Duration: 90 d (>10 week = chronic)
Endpoint: mortality, growth, behavior
Exposure Route: oral in diet
Dosage: three dose levels:
176, 774, and 1069 ppm Ni;
NOAEL = 176 ppm
Calculations:

$$NOAEL:\left(\frac{176\,mg\ Ni}{kg\ \ food}\times\frac{78.2\,g\ \ food}{day}\times\frac{1kg}{1000\,g}\right)/\,0.782\,kg\ BW\ = 17.6\ mg\,/\,kg\,/\,d$$

$$LOAEL:\left(\frac{774\,mg\ Ni}{kg\ \ food}\times\frac{78.2\,g\ \ food}{day}\times\frac{1kg}{1000\,g}\right)/\,0.782\,kg\ BW\ = 77.4\ mg\,/\,kg\,/\,d$$

Comments: While consumption of up to 774 ppm Ni in diet resulted in a significant increase in tremors and joint edema, 176 ppm did not. Because the study considered exposure over 90 days, the 176 ppm dose was considered to be a chronic NOAEL and the 774 ppm dose was considered to be a chronic LOAEL. To estimate daily Ni intake throughout the 90 day study period, food consumption of 45-day-old ducklings was calculated. While this value will over- and underestimate food consumption by younger and older ducklings, it was assumed to approximate food consumption throughout the entire 90-day study.

Final NOAEL: 17.6 mg/kg/d
Final LOAEL: 77.4 mg/kg/d

Compound: Nitrate
Form: Potassium Nitrate
Reference: Sleight and Atallah, 1968
Test Species: Guinea pig
Body weight: 0.86 kg (EPA, 1988a)
Study Duration: 143-204 days (during a critical lifestage=chronic)
Endpoint: reproduction
Exposure Route: oral in water
Dosage: four dose levels:
12, 102, 507, and 1130 mg nitrate-Nitrogen kg/d;
NOAEL = 507 mg/kg/d
Calculations: not applicable
Comments: While Nitrate at the 1130 mg/kg/d dose level reduced the number of live births, no adverse effects were observed at the other dose levels. Because the study considered exposure during reproduction, the 507 mg/kg/d dose was considered to be a chronic NOAEL and the 1130 mg/kg/d dose was considered to be a chronic LOAEL. .
Final NOAEL: 507 mg/kg/d
Final LOAEL: 1130 mg/kg/d

Compound: Perchlorate
Form: NH_4ClO_4
Reference: McNabb et al. 2003
Test Species: Bobwhite Quail
Exposure Duration: 2-8 weeks during sensitive period (3-4 days posthatch)
Endpoint: Thyroid hormone (T4) content
Exposure Route: drinking water
Dosage: 50 ug/L to 250 mg/L
Calculations: not applicable
Comments:. Quail exposure to ammonium perchlorate (AP) in this study indicated trends but not significant differences in T4 content of the thyroid from controls at 50 ug/L over 2 weeks (NOAEL), and significant differences in several indices occurred at 500 ug/L (LOAEL) over 2 weeks. Drinking rates were not measured but estimated daily doses were determined as 3.85 ug/kg/d at the NOAEL and at 38.5

mg/kg/day at the LOAEL. Since these reported values are expressed as NH_4ClO_4, the perchlorate ion dose was calculated based on a 84.6% composition of AP.
Final NOAEL: 3.26 ug/kg/d
Final LOAEL: 32.6 ug/kg/d

Compound: 2,4,6-Trinitrotoluene (TNT)
Form: Not Applicable
Reference: Johnson et al. 2000
Test Species: Northern Bobwhite (*Colimus virginianus*)
Exposure Duration: 90 days
Endpoint: mortality, blood hematological effects, and immunity
Exposure Route: oral dose in food
Dosage: 160 mg/kg and 3300 mg/kg
Calculations: Not Applicable
Comments:. This evaluation of TNT toxicity for all avian and mammal studies based the reported NOAEL and LOAELs on a single study (Gogal et al. in Draft). These reported chronic values are applied.
Final NOAEL: 0.07 mg/kg/d
Final LOAEL: 1.8 mg/kg/d

Compound: 2,4,6-Trinitrotoluene (TNT)
Form: Not Applicable
Reference: Johnson et al. 2000
Test Species: Dog (beagle)
Exposure Duration: 13 week to 6 month
Endpoint: increased liver weight, physiology, decreased body weight.
Exposure Route: Not Applicable
Dosage: Not Applicable
Calculations: Not Applicable
Comments:. This evaluation of TNT toxicity reported NOAEL and LOAELs from nine investigations. The lowest NOAEL and LOAEL values reported were adopted as wildlife screening values.
Final NOAEL: 2 mg/kg/d
Final LOAEL: 8 mg/kg/d

Compound: Pentachlorophenol (PCP)
Form: not applicable
Reference: Schwetz et al., 1978
Test Species: Rat
Body weight: 0.35 kg (EPA, 1988a)
Food Consumption: 0.028 kg/d (calculated using allometric equation from EPA, 1988a)
Study Duration: 62 d prior to mating, 15 d during mating, and through gestation and lactation (during a critical lifestage = chronic)
Endpoint: reproduction
Exposure Route: oral in diet
Dosage: two dose levels:

3 and 30 ppm; NOAEL = 3 ppm

Calculations:

$$NOAEL\ :\left(\frac{3\,mg\ PCP}{kg\ \ food}\,x\,\frac{28\,g\ \ food}{day}\,x\,\frac{1\,kg}{1000\,mg}\right)/\ 0.35\,kg\ BW = 24\,mg/kg/d$$

$$LOAEL\ :\left(\frac{30\,mg\ Ni}{kg\ \ food}\,x\,\frac{28\,g\ \ food}{day}\,x\,\frac{1\,kg}{1000\,mg}\right)/\ 0.35\,kg\ BW = 2.40\,mg/kg/d$$

Comments: While survival and growth were significantly reduced (<20% of controls) among rats consuming the 30 ppm PCP diet, no adverse effects were observed among rats on the 3 ppm diet. Because the study considered exposure during reproduction, the 3 ppm dose was considered to be a chronic NOAEL and the 30 ppm dose was considered a chronic LOAEL.

Final NOAEL: 0.24 mg/kg/d

Final LOAEL: 2.4 mg/kg/d

Compound: Pentachlorophenol (PCP)

Form: Not applicable

Reference: Nebeker et al., 1994

Test Species: Mallard ducklings (0.15 Kg BW)

Exposure Duration: 11 days (at critical lifestage = chronic)

Endpoint: Growth and Bioaccumulation

Exposure Route: Oral in diet (0.06 g/day)

Dosage: 25, 54.2, 105, 233.2, 423.2, and 961 ug/g

Calculations: Mean PCP in feed was reported for body weight LOAEL and NOAEL test concentrations. These concentrations were used to calculate final LOAEL and NOAEL values after the application of a sub-chronic to chronic uncertainty factor (0.1)

$$NOAEL:\left(\frac{423.2\,mg\ PCP}{kg\ \ food}\times\frac{0.06\,g\ \ food}{day}\times\frac{1kg}{1000\,g}\right)/\,0.15\,kg\ BW\ =169.28\ mg\ /\ kg\ /\ d$$

$$LOAEL:\left(\frac{961mg\ PCPi}{kg\ \ food}\times\frac{0.06\,g\ \ food}{day}\times\frac{1kg}{1000\,g}\right)/\,0.15\,kg\ BW\ =384.4\ mg\ /\ kg\ /\ d$$

Comments:

Final LOAEL: 38.4 mg/kg/d

Final NOAEL: 16.9 mg/kg/d

Compound: Phenol

Form: Not applicable

Reference: Bishop et al., 1997

Test Species: Mouse

Exposure Duration: 347 days (during critical lifestage = chronic)
Endpoint: Reproduction
Exposure Route: Intraperitoneal
Dosage: One dose level: 350 mg/kg (1 i.p. injection prior to each of 17 breeding cycles)
Calculations: Normalized 17 doses of 350 mg/kg over 347 days
17.1 mg/kg/d
Comments: No effects on reproductive performance were observed. Because injections were given at critical lifestage periods, a dose of 17.1 mg/kg/d was considered to be the chronic NOAEL.
Final NOAEL: 17.1 mg/kg/d

Compound: Phosphorus
Form: P_4
Reference: Sparling et al., 1997
Test Species: Mallards
Exposure Duration: 24 hour lethality, 7 day sublethal
Endpoint: mortality, organ function
Exposure Route: fed pelletized P_4
Dosage: 4-5 adult birds dosed with 2, 4, 5.2, 6.1, 7.1, 8.0, and 9.0 mg/kg
Calculations: Not Applicable
Comments: A chronic LOAEL was estimated from the reported acute sublethal liver necrosis (2.6 mg/kg) by multiplying by an acute to chronic uncertainty factor (0.1). The lowest reported NOAEL resulted from acute lethality tests dosed at 3.7 mg/kg. An acute to chronic uncertainty factor (0.1) and a lethal to sublethal uncertainty factor (0.1) were applied to determine a chronic NOAEL.
Final LOAEL: 0.26 mg/kg/d
Final NOAEL: 0.037mg/kg/d

Compound: Pyrene
Form: Not applicable
Reference: IRIS, 2001
Test Species: Mouse
Body weight: 0.03 kg (EPA, 1988a)
Exposure Duration: 13 weeks (≥ 90 days = chronic)
Endpoint: Nephropathy
Exposure Route: Oral gavage
Dosage: Three dose levels: 75, 125, and 250 mg/kg/d;
Calculations: Not applicable
Comments: Nephropathy, characterized by multiple foci of renal tubular regeneration, often accompanied by interstitial lymphocytic infiltrates and/or foci of interstitial fibrosis, were present in higher numbers in female mice in the two higher dose groups. Relative and absolute kidney weights were also reduced in the two higher dosage groups.
Final NOAEL: 75 mg/kg/d
Final LOAEL: 125 mg/kg/d

Compound: Selenium
Form: Potassium Selanate (SeO_4)
Reference: Rosenfeld and Beath, 1954
Test Species: rat
Body weight: 0.35 kg (EPA, 1988a)
Water Consumption: 0.046 L / d
(calculated using allometric equation from EPA, 1988a)
Study Duration: 1 year, through 2 generations (1 yr and during critical lifestage=chronic)
Endpoint: reproduction
Exposure Route: oral in water
Dosage: three dose levels:
1.5, 2.5, and 7.5 mg Se / L
2.5 mg / L = LOAEL
Calculations:

$$NOAEL\ :\left(\frac{1.5\,mg\ Se}{L\ water}\ x\ \frac{46\ mL\ water}{day}\ x\ \frac{1\ L}{1000\ mL}\right)/\ 0.35\,kg\ BW = 0.20\,mg/kg/d$$

$$NOAEL\ :\left(\frac{2.5\,mg\ Se}{L\ water}\ x\ \frac{46\ mL\ water}{day}\ x\ \frac{1\ L}{1000\ mL}\right)/\ 0.35\,kg\ BW = 0.33\,mg/kg/d$$

Comments: While no adverse effects on reproduction were observed among rats exposed to 1.5 mg Se/L in drinking water, the number of second-generation young was reduced by 50% among females in the 2.5 mg/L group. In the 7.5 mg/L group, fertility, juvenile growth, and survival were all reduced. Because the study considered exposure over multiple generations, the 1.5 and 2.5 mg/L doses were considered to be chronic NOAELs and LOAELs, respectively.
Final NOAEL: 0.20 mg / kg / d
Final LOAEL: 0.33 mg / kg / d

Compound: Selenium
Form: Selanomethionine
Reference: Heinz et al., 1989
Test Species: Mallard
Body Weight: 1 kg (from study)
Food Consumption: 100 g / d (from study)
Study Duration: 100 days (>10 wks and during critical lifestage=chronic)
Endpoint: reproduction
Exposure Route: oral in diet
Dosage: five dose levels:
1, 2, 4, 8, and 16 ppm Se; 4 ppm = NOAEL
Calculations:

$$\left(\frac{4\,mg\;Se}{kg\;\;food}\,x\,\frac{100\,g\;\;food}{day}\,x\,\frac{1\,kg}{1000\,g}\right)/1\,kg\;BW\;=0.4\,mg\,/\,kg\,/\,d$$

$$\left(\frac{8\,mg\;Se}{kg\;\;food}\,x\,\frac{100\,g\;\;food}{day}\,x\,\frac{1\,kg}{1000\,g}\right)/1\,kg\;BW\;=0.8\,mg\,/\,kg\,/\,d$$

Comments: Consumption of 8 or 16 ppm Se in the diet as Selanomethionine resulted in a reduced duckling survival as compared to the 1, 2, or 4 ppm Se exposures. Because 4 ppm Se in the diet was the highest dose level that produced no adverse effects and the study considered exposure through reproduction, this dose was considered to be a chronic NOAEL. The 8 ppm Se dose was considered to be a chronic LOAEL

Final NOAEL: 0.4 mg/kg/d

Final LOAEL: 0.8 mg/kg/d

Compound: Strontium (stable)

Form: Strontium Chloride (55% Sr)

Reference: Skoryna, 1981

Test Species: Rat
Body weight: 0.35 kg (EPA, 1988a)

Study Duration: 3 yrs (>1 yr = chronic)

Endpoint: Body weight and bone changes

Exposure Route: oral in water

Dosage: three dose levels:
70, 147, and 263 mg Sr kg/d;
NOAEL = 263 mg/kg/d

Calculations: not applicable

Comments: No adverse effects were observed for any Sr dosage level. Therefore, because the study considered exposure over three years, the maximum dose was considered to be a chronic NOAEL.

Final NOAEL: 263 mg/kg/d

Compound: Thallium

Form: Thallium Sulfate

Reference: Formigli et al., 1986

Test Species: Rat
Body weight: 0.365 kg (from study)

Study Duration: 60 days
(<1 yr and not during a critical lifestage = subchronic)

Endpoint: reproduction (male testicular function)

Exposure Route: oral in water

Dosage: one dose level: 10 ppm Tl = LOAEL

Calculations: mean daily intake (from study) = 270 p Tl/rat
= 0.74 mg/kg/d

Comments: Because rats exposed to 10 ppm Tl in the diet displayed reduced sperm motility and the study considered exposures only for 60 d , this dose was considered to be a subchronic LOAEL. A chronic NOAEL was estimated by multiplying the subchronic LOAEL by a subchronic-chronic uncertainty factor of 0.1 and a LOAEL-NOAEL uncertainty factor of 0.1.

Final NOAEL: 0.0074 mg/kg/d
Final LOAEL: 0.074 mg/kg/d

Compound: Thallium

Form: Tl_2SO_4
Reference: Bean and Hudson, 1976
Test Species: Golden eagles (3 immatures ranging from 2.8-4.6 kg)
Exposure Duration: single dose
Endpoint: lethality
Exposure Route: oral
Dosage: 60 and 120 mg/kg
Calculations: Not Applicable
Comments: Uncertainty factors for lethal to sublethal effects (0.1) and from acute to chronic effects (0.1) were applied to the reported acute NOEL (60 mg/kg) and acute lethal LOEL (120 mg/kg).
Final NOAEL: 0.6 mg/kg/d
Final LOAEL: 1.2 mg/kg/d

Compound: Toluene

Form: Not applicable
Reference: Gospe et al., 1994
Test Species: Rat
Body weight: 0.2 kg (mean from study)
Exposure Duration: Days 6-19 of gestation (during a critical lifestage = chronic)
Endpoint: Reproduction and growth
Exposure Route: Oral gavage
Dosage: 520 mg/kg/d
Calculations: Not applicable
Comments: Female rats dosed at 520 mg/kg/d during gestation experienced a 24% reduction in body weight gain, as well as reductions in placental weight. Fetal weights were reduced 9.4%. Fetal organ weights were less in the exposed group, with significant reductions on the weights of fetal liver and kidney. Toluene exposure did not produce any major fetal malformations and there were no significant neuropathologic findings. Because the study was conducted during a critical life-stage, 520 mg/kg/d was considered to be a chronic LOAEL. A chronic NOAEL was estimated by multiplying the chronic LOAEL by an uncertainty factor of 0.1.
Final NOAEL: 52 mg/kg/d
Final LOAEL: 520 mg/kg/d

Compound: 1,1,1-Trichloroethane

Form: not applicable
Reference: Lane et al., 1982
Test Species: Mouse

Body weight: 0.035 kg (from study)
Water Consumption: 6 mL/d (from study)
Study Duration: 2 generations (>1 yr and during a critical lifestage = chronic)
Endpoint: reproduction
Exposure Route: oral in water
Dosage: three dose levels:
100, 300, and 1000 mg/kg/d
No effects observed at any dose level.
Calculations: not applicable
Comments: Because no significant differences were observed at any dose level and the study considered exposure throughout 2 generations including critical lifestages (reproduction), the maximum dose was considered to be a chronic NOAEL.
Final NOAEL: 1000 mg/kg/d.

Compound: 1,1,2,2-Tetrachloroethylene
Form: not applicable
Reference: Buben and O'Flaherty, 1985
Test Species: Mouse
Body weight: 0.03 kg (EPA, 1988a)
Study Duration: 6 weeks
(<1 yr and not during a critical lifestage = subchronic)
Endpoint: Hepatotoxicity
Exposure Route: oral gavage
Dosage: seven dose levels (administered daily 5 days/week for 6 weeks):
20, 100, 200, 500, 1000, 1500, and 2000 mg/kg/d;
NOAEL = 20 mg/kg/d
Calculations: not applicable
Comments: Because mice were exposed for 5 days/week, 7 day/week exposure were estimated by multiplying doses by 0.7 (5 days/7 days). Hepatotoxicity was observed at doses of 100 mg/kg/d or greater. Therefore, the 20 mg/kg/d dose was considered to be a subchronic NOAEL and the 100 mg/kg/d dose was considered to be a subchronic LOAEL. A chronic NOAEL was estimated by multiplying the subchronic NOAEL by a subchronic-chronic uncertainty factor of 0.1
Final NOAEL: 1.4 mg/kg/d
Final LOAEL: 7 mg/kg/d

Compound: Trichloroethylene (TCE)
Form: not applicable
Reference: Buben and O'Flaherty, 1985
Test Species: Mouse
Body weight: 0.03 kg (EPA, 1988a)
Study Duration: 6 weeks
(<1 yr and not during a critical lifestage = subchronic)
Endpoint: Hepatotoxicity

Exposure Route: oral gavage
Dosage: seven dose levels (administered daily 5 days/week for 6 weeks): 100, 200, 400, 800, 1600, 2400, and 3200 mg/kg/d; LOAEL = 100 mg/kg/d
Calculations: not applicable
Comments: Because mice were exposed for 5 days/week, 7 day/week exposures were estimated by multiplying doses by 0.7 (5 days/7 days). Hepatotoxicity was observed at doses of 100 mg/kg/d or greater. Therefore, the 100 mg/kg/d dose was considered to be a subchronic LOAEL. A chronic NOAEL was estimated by multiplying the subchronic NOAEL by a subchronic-chronic uncertainty factor of 0.1 and a LOAEL-NOAEL uncertainty factor of 0.1.
Final NOAEL: 0.7 mg/kg/d
Final LOAEL: 7 mg/kg/d

Compound: Vanadium
Form: Sodium Metavanadate ($NaVO_3$; 41.78% V)
Reference: Domingo et al., 1986
Test Species: Rat
Body weight (from study): 0.26 kg
Study Duration: 60 d prior to gestation, plus through gestation, delivery and lactation (during a critical lifestage = chronic)
Endpoint: reproduction
Exposure Route: oral intubation
Dosage: three dose levels: 5, 10, and 20 mg $NaVO_3$ /kg/d; LOAEL=5 mg/kg/d
Calculations: LOAEL dosage of elemental V is: 0.4178 x 5 mg $NaVO_3$ /kg/d or 2.1 mg V/kg/d
Comments: Significant differences in reproductive parameters (e.g., no. dead young/litter, size and weight of offspring, etc.) were observed at all dose levels. Therefore, the lowest dose was considered to be a chronic LOAEL. To estimate the chronic NOAEL, the chronic LOAEL was multiplied by a LOAEL-NOAEL uncertainty factor of 0.1.
Final NOAEL: 0.21 mg V/kg/d
Final LOAEL: 2.1 mg V/kg/d

Compound: Vinyl Chloride
Form: not applicable
Reference: Feron et al., 1981
Test Species: Rat
Body weight: 0.35 kg (EPA, 1988a)
Study Duration: lifetime (~144 wks)
Endpoint: longevity, mortality
Exposure Route: oral in diet
Dosage: three dose levels: 1.7, 5.0, and 14.1 mg /kg/d; LOAEL= 1.7 mg/kg/d or

Calculations: not applicable

Comments: Significantly reduced survivorship was observed at all dose levels, therefore the 1.7 mg/kg/d dose level was considered to be a chronic LOAEL. To estimate the chronic NOAEL, the LOAEL was multiplied by a LOAEL-NOAEL uncertainty factor of 0.1.

Final NOAEL: 0.17 mg/kg/d

Final LOAEL: 1.7 mg/kg/d

Compound: Xylenes

Form: Xylene Mixture (60.2% m-xylene, 13.6% p-xylene, 17.0% ethylbenzene, and 9.1% o-xylene)

Reference: IRIS, 2002

Test Species: Rat
Body weight: 0.35 kg (EPA, 1988a)

Exposure Duration: 103 weeks (≥ 90 days = chronic)

Endpoint: Behavior, growth, and mortality

Exposure Route: Oral gavage

Dosage: Two dose levels: 250 and 500 mg/kg/d;

Calculations: Not applicable

Comments: There was a dose-related increase in mortality in male rats, and the increase significantly greater in the high-dose group compared with controls. Although increased mortality was observed at 250 mg/kg/day, the increase was not significant. Although many of the early deaths were caused by gavage error, the possibility that the rats were resisting gavage dosing because of behavioral effects of xylenes was not ruled out. Dose was adjusted for gavage schedule (5 days/week) for a NOAEL of 179 mg/kg/d (from 250 mg/kg/d) and a LOAEL of 357 mg/kg/d (from 500 mg/kg/d).

Final NOAEL: 179 mg/kg/d

Final LOAEL: 357 mg/kg/d

Compound: Xylenes

Form: mixed isomers

Reference: Hill and Camardese, 1986

Test Species: Japanese Quail
Body Weight: 0.60 kg (from study)
Food Consumption: 12.2 g (from study)

Exposure Duration: acute – single dose followed by 14 day observation

Endpoint: mortality, overt signs of toxicity

Exposure Route: oral gavage

Dosage: doses ranged from 5000 to 20000 mg/kg

Calculations:

$$\left(\frac{5000\, mg\ Xylenes}{kg\ \ food}\ x\ \frac{12.2\ g\ \ food}{day}\ x\ \frac{1\, kg}{1000\ mg} \right) / \ 0.60\, kg\ BW = 101.7\ mg/kg/d$$

Comments: No mortality observed at any dose level. LC50 of >20000mg/kg is reported. No overt signs of toxicity at concentrations of 5000 ppm. Because no signs of toxicity were observed at 5000 ppm, this dose was considered to be an acute NOAEL. A 0.1 acute to chronic uncertainty factor was applied to estimate a chronic NOAEL.

Acute NOAEL: 101.7 mg/kg/d
Chronic NOAEL: 10.2 mg/kg/d

Compound: Zinc
Form: Zinc Oxide
Reference: Schlicker and Cox, 1968
Test Species: Rat
Body weight: 0.35 kg (EPA, 1988a)
Food Consumption: 0.028 kg/d (calculated using allometric equation from EPA, 1988a)
Study Duration: days 1 -16 of gestation (during a critical lifestage = chronic)
Endpoint: reproduction
Exposure Route: oral in diet
Dosage: two dose levels:
2000, and 4000 ppm Zn; NOAEL = 2000 ppm
Calculations:

$$NOAEL\ : \left(\frac{2000\, mg\ Zn}{kg\ \ food}\ x\ \frac{28\ g\ \ food}{day}\ x\ \frac{1\, kg}{1000\ g} \right) /\ 0.35\, kg\ BW = 160\ mg/kg/d$$

$$LOAEL\ : \left(\frac{4000\, mg\ Zn}{kg\ \ food}\ x\ \frac{28\ g\ \ food}{day}\ x\ \frac{1\, kg}{1000\ g} \right) /\ 0.35\, kg\ BW = 320\ mg/kg/d$$

Comments: Rats exposed to 4000 ppm Zn in the diet displayed increased rates of fetal resorption and reduced fetal growth rates. Because no effects were observed at the 2000 ppm Zn dose rate and the exposure occurred during gestation (a critical lifestage), this dose was considered a chronic NOAEL. The 4000 ppm Zn dose was considered to be a chronic LOAEL.

Final NOAEL: 160 mg/kg/d
Final LOAEL: 320 mg/kg/d

Compound: Zinc
Form: Zinc Sulfate
Reference: Stahl et al., 1990
Test Species: White Leghorn Hens
Body Weight: 1.935 kg (228 ppm dose; from study)
1.766 kg (2028 ppm dose; from study)
Food Consumption: 123 g/d (228 ppm dose; from study)
0.114 (2028 ppm dose; from study)
Exposure Duration: 44 weeks (>10 wks and during critical lifestage=chronic)
Endpoint: reproduction
Exposure Route: oral in diet

Dosage: four dose levels:
0, 20, 200, and 2000 ppm supplemental Zn plus 28 ppm Zn in diet

Calculations:

$$\left(\frac{28\,mg\;Zn}{kg\;\;food}\,x\,\frac{125\,g\;\;food}{day}\,x\,\frac{1\,kg}{1000\,mg}\right)/\;1.900\,kg\;BW = 1.84\,mg/kg/d$$

$$\left(\frac{48\,mg\;Zn}{kg\;\;food}\,x\,\frac{127\;g\;\;food}{day}\,x\,\frac{1\,kg}{1000\,mg}\right)/\;1.963\,kg\;BW = 3.11\,mg/kg/d$$

$$\left(\frac{228\,mg\;Zn}{kg\;\;food}\,x\,\frac{123\;g\;\;food}{day}\,x\,\frac{1\,kg}{1000\,mg}\right)/\;1.935\,kg\;BW = 14.49\,mg/kg/d$$

$$\left(\frac{2028\,mg\;Zn}{kg\;\;food}\,x\,\frac{114\;g\;\;food}{day}\,x\,\frac{1\,kg}{1000\,mg}\right)/\;1.766\,kg\;BW = 130.9\,mg/kg/d$$

Comments: While no adverse effects were observed among hens consuming 48 and 228 ppm Zn, egg hatchability was <20% of controls among hens consuming 2028 ppm zinc. Because the study was greater than 10 weeks in duration and considered exposure during reproduction, the 228 ppm dose was considered a chronic NOAEL and the 2028 ppm dose was considered a chronic LOAEL..

Final NOAEL: 14.5 mg/kg/d

Final LOAEL: 131 mg/kg/d

Appendix B

Appendix B. Background Soils Analysis

Four sets of background data were available for the Thermal Treatment Unit (TTU). Three sets (1997, 1998, and 2000 data) were reported by URS (2001), and another set that included two additional background locations to the west of the TTU were sampled in 2004 and are reported here. These background data represent two soil formations that exist in the Utah Training and Test Range (UTTR)-North area (which includes the TTU): the combined amtoft, skumpah, and timpie-tooele soil formations and the playa-salt air soil formation. The full background data set including sampling location is presented in Table B-1.

The U.S. Environmental Protection Agency(EPA) provides methods for background comparisons in *Guidance for Comparing Background and Chemical Concentrations in Soil for CERCLA Sites* (USEPA, 2002). In accordance with this guidance, TTU background concentrations of inorganic contaminants of potential ecological concern (COPECs) were statistically compared to on-site concentrations using the non-parametric Wilcoxon Rank Sum (WRS) test. Analyses were performed using the SAS software (SAS Institute, 1999). Results of the WRS tests for the TTU are presented in Table B-2. Additionally, box plots illustrating distributions of the background and on-site data are presented in Figures B-1 to B-13. Figure B-1 is a guide describing how data distributions are displayed in box plots.

Interpretation of the results of this comparison followed EPA (2002) recommendations. Namely, if the null hypothesis was accepted (i.e., there was no significant [$p > 0.05$] difference between background and on-site data), then it was concluded that the analyte was not elevated relative to background and it was dropped from further consideration as a COPEC for all receptors. COPECs with background concentrations that were significantly greater than site concentrations also were dropped from further consideration. Those COPECs with significantly greater site concentrations compared to background concentrations were retained for further evaluation.

Briefly, 23 COPECs had both on-site and background data available. On-site concentrations of eight COPECs (aluminum, beryllium, chromium, iron, manganese, mercury, nickel, and thallium) did not differ from background concentrations. Background concentrations were statistically greater than on-site concentrations for seven COPECs (arsenic, barium, cobalt, magnesium, phosphorus, strontium, and vanadium). These 15 COPECs were excluded from further evaluation. The remaining eight COPECs (antimony, cadmium, copper, lead, molybdenum, selenium, silver, and zinc) had greater on-site concentrations compared to background, and were carried forward for further evaluation in the refined screening assessment.

References:

SAS Institute 1999. SAS/STAT User's Guide, Version 8. SAS Institute, Cary, North Carolina.

United States Environmental Protection Agency (EPA). 2002. *Guidance for Comparing Background and Chemical Concentrations in Soil for CERCLA Sites*. EPA 540-R-01-003, OSWER 9285.7-41, Office of Emergency and Remedial Response, EPA, Washington, D.C. September.

Table B-1

Sample Data for Inorganics in TTU Background and Site Soils

Attachment 10A - Thermal Treatment Unit, Ecological Risk Assessment

Analyte	Location	Type	Habitat	Units	Qualifier	Result	Detection Limit	Sample Year
Aluminum	AMTOF-01-1298-01	Background	Habitat	mg/kg	=	12300		1998
Aluminum	AMTOF-02-1298-01	Background	Habitat	mg/kg	=	10500		1998
Aluminum	AMTOF-03-1298-01	Background	Habitat	mg/kg	=	13600		1998
Aluminum	AMTOF-04-1298-01	Background	Habitat	mg/kg	=	15400		1998
Aluminum	AMTOF-05-1298-01	Background	Habitat	mg/kg	=	10600		1998
Aluminum	AMTOF-06-1298-01	Background	Habitat	mg/kg	=	12800		1998
Aluminum	NR-238	Background	Habitat	mg/Kg	=	14800		2002
Aluminum	NR-239	Background	Habitat	mg/Kg	=	10800		2002
Aluminum	NR-500-0800-01	Background	Habitat	mg/kg	=	12600		2000
Aluminum	NR-501-0800-01	Background	Habitat	mg/kg	=	9160		2000
Aluminum	NR-502-0800-01	Background	Habitat	mg/kg	=	13700		2000
Aluminum	NR-503-0800-01	Background	Habitat	mg/kg	=	13300		2000
Aluminum	NR-504-0800-01	Background	Habitat	mg/kg	=	12200		2000
Aluminum	NR-505-0800-01	Background	Habitat	mg/kg	=	14100		2000
Aluminum	NR-506-0800-01	Background	Habitat	mg/kg	=	12200		2000
Aluminum	NR-507-0800-01	Background	Habitat	mg/kg	=	11600		2000
Aluminum	NR-508-0800-01	Background	Habitat	mg/kg	=	11100		2000
Aluminum	NR-509-0800-01	Background	Habitat	mg/kg	=	10500		2000
Aluminum	NR-510-0800-01	Background	Habitat	mg/kg	=	7800		2000
Aluminum	NR-511-0800-01	Background	Habitat	mg/kg	=	11500		2000
Aluminum	NR-512-0800-01	Background	Habitat	mg/kg	=	15600		2000
Aluminum	NR-513-0800-01	Background	Habitat	mg/kg	=	12800		2000
Aluminum	NR-514-0800-01	Background	Habitat	mg/kg	=	12700		2000
Aluminum	NR-515-0800-01	Background	Habitat	mg/kg	=	2820		2000
Aluminum	NR-516-0800-01	Background	Habitat	mg/kg	=	13700		2000
Aluminum	NR-517-0800-01	Background	Habitat	mg/kg	=	7490		2000
Aluminum	NR-518-0800-01	Background	Habitat	mg/kg	=	2080		2000
Aluminum	NR-519-0800-01	Background	Habitat	mg/kg	=	6810		2000
Aluminum	NR-520-0800-01	Background	Habitat	mg/kg	=	7070		2000
Aluminum	NR-521-0800-01	Background	Habitat	mg/kg	=	5050		2000
Aluminum	NR-522-0800-01	Background	Habitat	mg/kg	=	11700		2000
Aluminum	NR-523-0800-01	Background	Habitat	mg/kg	=	9750		2000
Aluminum	NR-524-0800-01	Background	Habitat	mg/kg	=	7980		2000
Aluminum	NR-525-0800-01	Background	Habitat	mg/kg	=	6340		2000
Aluminum	NR-536	Background	Habitat	mg/Kg	B	15000		2004
Aluminum	NR-537	Background	Habitat	mg/Kg	B	17200		2004
Aluminum	UTNCBU-01-OCT97-01	Background	Habitat	mg/kg	=	12100		1997
Aluminum	UTNCBU-02-OCT97-01	Background	Habitat	mg/kg	=	11400		1997
Aluminum	UTNCBU-03-1298-01	Background	Habitat	mg/kg	=	15800		1998
Aluminum	UTNCBU-04-1298-01	Background	Habitat	mg/kg	=	15400		1998
Aluminum	UTNCBU-05-1298-01	Background	Habitat	mg/kg	=	11700		1998
Aluminum	UTNCBU-06-1298-01	Background	Habitat	mg/kg	=	11500		1998
Aluminum	UTNEB-03-1298-01	Background	Habitat	mg/kg	=	12700		1998
Aluminum	UTNEB-04-1298-01	Background	Habitat	mg/kg	=	17700		1998
Aluminum	UTNEB-05-1298-01	Background	Habitat	mg/kg	=	14100		1998
Aluminum	UTNEB-06-1298-01	Background	Habitat	mg/kg	=	12000		1998
Aluminum	UTNERB-01-OCT97-01	Background	Habitat	mg/kg	=	21100		1997
Aluminum	UTNERB-02-OCT97-01	Background	Habitat	mg/kg	=	18900		1997
Aluminum	UTNOCB-01-OCT97-01	Background	Habitat	mg/kg	=	14100		1997
Aluminum	UTNOCB-02-OCT97-01	Background	Habitat	mg/kg	=	13400		1997
Aluminum	UTNOCBG-03-1298-01	Background	Habitat	mg/kg	=	11100		1998
Aluminum	UTNOCBG-04-1298-01	Background	Habitat	mg/kg	=	10000		1998
Aluminum	UTNOCBG-05-1298-01	Background	Habitat	mg/kg	=	10800		1998

Table B-1

Sample Data for Inorganics in TTU Background and Site Soils

Attachment 10A - Thermal Treatment Unit, Ecological Risk Assessment

Analyte	Location	Type	Habitat	Units	Qualifier	Result	Detection Limit	Sample Year
Aluminum	UTNOCBG-06-1298-01	Background	Habitat	mg/kg	=	15300		1998
Aluminum	NR-226	OnSite	Habitat	mg/Kg	=	5390		2002
Aluminum	NR-227	OnSite	Habitat	mg/Kg	=	8350		2002
Aluminum	NR-228	OnSite	OB/OD	mg/Kg	=	10400		2002
Aluminum	NR-229	OnSite	Habitat	mg/Kg	=	14700		2002
Aluminum	NR-230	OnSite	Habitat	mg/Kg	=	13000		2002
Aluminum	NR-231	OnSite	OB/OD	mg/Kg	=	12800		2002
Aluminum	NR-232	OnSite	Habitat	mg/Kg	=	16800		2002
Aluminum	NR-233	OnSite	Habitat	mg/Kg	=	10500		2002
Aluminum	NR-234	OnSite	Habitat	mg/Kg	=	13200		2002
Aluminum	NR-235	OnSite	Habitat	mg/Kg	=	13600		2002
Aluminum	NR-236	OnSite	Habitat	mg/Kg	=	10700		2002
Aluminum	NR-237	OnSite	Habitat	mg/Kg	=	11100		2002
Aluminum	NR-526	OnSite	Habitat	mg/Kg	B	9050		2004
Aluminum	NR-527	OnSite	Habitat	mg/Kg	B	13500		2004
Aluminum	NR-528	OnSite	Habitat	mg/Kg	B	7720		2004
Aluminum	NR-529	OnSite	Habitat	mg/Kg	B	11800		2004
Aluminum	NR-530	OnSite	Habitat	mg/Kg	B	9540		2004
Aluminum	NR-531	OnSite	OB/OD	mg/Kg	B	10800		2004
Aluminum	NR-532	OnSite	OB/OD	mg/Kg	B	8600		2004
Aluminum	NR-533	OnSite	OB/OD	mg/Kg	B	10300		2004
Aluminum	NR-534	OnSite	OB/OD	mg/Kg	B	9290		2004
Aluminum	NR-535	OnSite	OB/OD	mg/Kg	B	10300		2004
Aluminum	SS1	OnSite	OB/OD	mg/Kg	=	11000		1991
Aluminum	SS10	OnSite	OB/OD	mg/Kg	=	14000		1991
Aluminum	SS11	OnSite	OB/OD	mg/Kg	=	17000		1991
Aluminum	SS12	OnSite	OB/OD	mg/Kg	=	20000		1991
Aluminum	SS13	OnSite	OB/OD	mg/Kg	=	17000		1991
Aluminum	SS14	OnSite	OB/OD	mg/Kg	=	20000		1991
Aluminum	SS15	OnSite	OB/OD	mg/Kg	=	18000		1991
Aluminum	SS16	OnSite	Habitat	mg/Kg	=	14000		1991
Aluminum	SS17	OnSite	Habitat	mg/Kg	=	14000		1991
Aluminum	SS18	OnSite	Habitat	mg/Kg	=	17000		1991
Aluminum	SS19	OnSite	Habitat	mg/Kg	=	12000		1991
Aluminum	SS2	OnSite	OB/OD	mg/Kg	=	7900		1991
Aluminum	SS20	OnSite	Habitat	mg/Kg	=	15000		1991
Aluminum	SS3	OnSite	OB/OD	mg/Kg	=	20000		1991
Aluminum	SS4	OnSite	OB/OD	mg/Kg	=	9600		1991
Aluminum	SS5	OnSite	OB/OD	mg/Kg	=	11000		1991
Aluminum	SS6	OnSite	OB/OD	mg/Kg	=	16000		1991
Aluminum	SS7	OnSite	OB/OD	mg/Kg	=	13000		1991
Aluminum	SS8	OnSite	OB/OD	mg/Kg	=	13000		1991
Aluminum	SS9	OnSite	OB/OD	mg/Kg	=	54000		1991
Aluminum	TTU-SS01S	OnSite	OB/OD	mg/Kg	=	7980		1989
Aluminum	TTU-SS02S	OnSite	OB/OD	mg/Kg	=	9280		1989
Aluminum	TTU-SS03S	OnSite	OB/OD	mg/Kg	=	9950		1989
Aluminum	TTU-SS04S(D)	OnSite	OB/OD	mg/Kg	=	8630		1989
Aluminum	TTU-SS05S	OnSite	OB/OD	mg/Kg	=	9340		1989
Aluminum	TTU-SS06S(BG)	OnSite	Habitat	mg/Kg	=	14600		1989
Antimony	AMTOF-01-1298-01	Background	Habitat	mg/kg	=	1.07		1998
Antimony	AMTOF-02-1298-01	Background	Habitat	mg/kg	=	1.23		1998
Antimony	AMTOF-03-1298-01	Background	Habitat	mg/kg	=	1.47		1998
Antimony	AMTOF-04-1298-01	Background	Habitat	mg/kg	=	1.82		1998

Table B-1

Sample Data for Inorganics in TTU Background and Site Soils

Attachment 10A - Thermal Treatment Unit, Ecological Risk Assessment

Analyte	Location	Type	Habitat	Units	Qualifier	Result	Detection Limit	Sample Year
Antimony	AMTOF-05-1298-01	Background	Habitat	mg/kg	=	1.19		1998
Antimony	AMTOF-06-1298-01	Background	Habitat	mg/kg	=	1.48		1998
Antimony	NR-238	Background	Habitat	mg/Kg	=	2.1		2002
Antimony	NR-239	Background	Habitat	mg/Kg	=	3.1		2002
Antimony	NR-500-0800-01	Background	Habitat	mg/kg	U	0.135	0.27	2000
Antimony	NR-501-0800-01	Background	Habitat	mg/kg	U	0.745	1.49	2000
Antimony	NR-502-0800-01	Background	Habitat	mg/kg	U	0.88	1.76	2000
Antimony	NR-503-0800-01	Background	Habitat	mg/kg	U	0.715	1.43	2000
Antimony	NR-504-0800-01	Background	Habitat	mg/kg	U	0.765	1.53	2000
Antimony	NR-505-0800-01	Background	Habitat	mg/kg	U	0.85	1.7	2000
Antimony	NR-506-0800-01	Background	Habitat	mg/kg	U	0.68	1.36	2000
Antimony	NR-507-0800-01	Background	Habitat	mg/kg	U	0.00705	0.0141	2000
Antimony	NR-508-0800-01	Background	Habitat	mg/kg	U	0.715	1.43	2000
Antimony	NR-509-0800-01	Background	Habitat	mg/kg	U	0.17	0.34	2000
Antimony	NR-510-0800-01	Background	Habitat	mg/kg	U	0.88	1.76	2000
Antimony	NR-511-0800-01	Background	Habitat	mg/kg	U	0.1925	0.385	2000
Antimony	NR-512-0800-01	Background	Habitat	mg/kg	U	0.056	0.112	2000
Antimony	NR-513-0800-01	Background	Habitat	mg/kg	U	0.615	1.23	2000
Antimony	NR-514-0800-01	Background	Habitat	mg/kg	U	0.103	0.206	2000
Antimony	NR-515-0800-01	Background	Habitat	mg/kg	U	0.895	1.79	2000
Antimony	NR-516-0800-01	Background	Habitat	mg/kg	U	0.2255	0.451	2000
Antimony	NR-517-0800-01	Background	Habitat	mg/kg	U	0.16	0.32	2000
Antimony	NR-518-0800-01	Background	Habitat	mg/kg	U	0.498	0.996	2000
Antimony	NR-519-0800-01	Background	Habitat	mg/kg	U	0.051	0.102	2000
Antimony	NR-520-0800-01	Background	Habitat	mg/kg	J	2.54		2000
Antimony	NR-521-0800-01	Background	Habitat	mg/kg	U	0.74	1.48	2000
Antimony	NR-522-0800-01	Background	Habitat	mg/kg	U	0.2785	0.557	2000
Antimony	NR-523-0800-01	Background	Habitat	mg/kg	U	0.1325	0.265	2000
Antimony	NR-524-0800-01	Background	Habitat	mg/kg	U	0.99	1.98	2000
Antimony	NR-525-0800-01	Background	Habitat	mg/kg	U	1.07	2.14	2000
Antimony	NR-536	Background	Habitat	mg/Kg	J	0.21		2004
Antimony	NR-537	Background	Habitat	mg/Kg	J	0.2		2004
Antimony	UTNCBU-01-OCT97-01	Background	Habitat	mg/kg	B	0.644		1997
Antimony	UTNCBU-02-OCT97-01	Background	Habitat	mg/kg	B	0.499		1997
Antimony	UTNCBU-03-1298-01	Background	Habitat	mg/kg	J	0.148		1998
Antimony	UTNCBU-04-1298-01	Background	Habitat	mg/kg	=	0.376		1998
Antimony	UTNCBU-05-1298-01	Background	Habitat	mg/kg	J	0.229		1998
Antimony	UTNCBU-06-1298-01	Background	Habitat	mg/kg	L	0.341		1998
Antimony	UTNEB-03-1298-01	Background	Habitat	mg/kg	=	0.422		1998
Antimony	UTNEB-04-1298-01	Background	Habitat	mg/kg	J	0.122		1998
Antimony	UTNEB-05-1298-01	Background	Habitat	mg/kg	=	0.4		1998
Antimony	UTNEB-06-1298-01	Background	Habitat	mg/kg	=	0.362		1998
Antimony	UTNERB-01-OCT97-01	Background	Habitat	mg/kg	B	0.85		1997
Antimony	UTNERB-02-OCT97-01	Background	Habitat	mg/kg	B	0.843		1997
Antimony	UTNOCB-01-OCT97-01	Background	Habitat	mg/kg	B	0.766		1997
Antimony	UTNOCB-02-OCT97-01	Background	Habitat	mg/kg	B	0.559		1997
Antimony	UTNOCBG-03-1298-01	Background	Habitat	mg/kg	L	1.39		1998
Antimony	UTNOCBG-04-1298-01	Background	Habitat	mg/kg	=	1.25		1998
Antimony	UTNOCBG-05-1298-01	Background	Habitat	mg/kg	=	1.55		1998
Antimony	UTNOCBG-06-1298-01	Background	Habitat	mg/kg	=	1.66		1998
Antimony	NR-226	OnSite	Habitat	mg/Kg	=	1.9		2002
Antimony	NR-227	OnSite	Habitat	mg/Kg	=	2.3		2002
Antimony	NR-228	OnSite	OB/OD	mg/Kg	=	2.2		2002

Table B-1
Sample Data for Inorganics in TTU Background and Site Soils
Attachment 10A - Thermal Treatment Unit, Ecological Risk Assessment

Analyte	Location	Type	Habitat	Units	Qualifier	Result	Detection Limit	Sample Year
Antimony	NR-229	OnSite	Habitat	mg/Kg	=	2.2		2002
Antimony	NR-230	OnSite	Habitat	mg/Kg	=	3.3		2002
Antimony	NR-231	OnSite	OB/OD	mg/Kg	=	2.8		2002
Antimony	NR-232	OnSite	Habitat	mg/Kg	=	2.5		2002
Antimony	NR-233	OnSite	Habitat	mg/Kg	U	0.8	1.6	2002
Antimony	NR-234	OnSite	Habitat	mg/Kg	=	2.4		2002
Antimony	NR-235	OnSite	Habitat	mg/Kg	=	2.5		2002
Antimony	NR-236	OnSite	Habitat	mg/Kg	=	3.8		2002
Antimony	NR-237	OnSite	Habitat	mg/Kg	=	3.2		2002
Antimony	NR-526	OnSite	Habitat	mg/Kg	J	0.21		2004
Antimony	NR-527	OnSite	Habitat	mg/Kg	J	0.16		2004
Antimony	NR-528	OnSite	Habitat	mg/Kg	J	0.17		2004
Antimony	NR-529	OnSite	Habitat	mg/Kg	J	0.19		2004
Antimony	NR-530	OnSite	Habitat	mg/Kg	J	0.13		2004
Antimony	NR-531	OnSite	OB/OD	mg/Kg	=	166.93		2004
Antimony	NR-532	OnSite	OB/OD	mg/Kg	=	18.7		2004
Antimony	NR-533	OnSite	OB/OD	mg/Kg	J	0.12		2004
Antimony	NR-534	OnSite	OB/OD	mg/Kg	J	0.16		2004
Antimony	NR-535	OnSite	OB/OD	mg/Kg	J	0.13		2004
Antimony	TTU-SS01S	OnSite	OB/OD	mg/Kg	U	0.85	1.7	1989
Antimony	TTU-SS02S	OnSite	OB/OD	mg/Kg	=	6.4		1989
Antimony	TTU-SS03S	OnSite	OB/OD	mg/Kg	U	0.85	1.7	1989
Antimony	TTU-SS04S(D)	OnSite	OB/OD	mg/Kg	U	0.85	1.7	1989
Antimony	TTU-SS05S	OnSite	OB/OD	mg/Kg	U	0.8	1.6	1989
Antimony	TTU-SS06S(BG)	OnSite	Habitat	mg/Kg	U	0.85	1.7	1989
Arsenic	AMTOF-01-1298-01	Background	Habitat	mg/kg	=	5.79		1998
Arsenic	AMTOF-02-1298-01	Background	Habitat	mg/kg	=	6.83		1998
Arsenic	AMTOF-03-1298-01	Background	Habitat	mg/kg	=	5.66		1998
Arsenic	AMTOF-04-1298-01	Background	Habitat	mg/kg	=	5.74		1998
Arsenic	AMTOF-05-1298-01	Background	Habitat	mg/kg	=	7.14		1998
Arsenic	AMTOF-06-1298-01	Background	Habitat	mg/kg	=	5.81		1998
Arsenic	NR-238	Background	Habitat	mg/Kg	=	7.7		2002
Arsenic	NR-239	Background	Habitat	mg/Kg	=	8.2		2002
Arsenic	NR-500-0800-01	Background	Habitat	mg/kg	=	5.27		2000
Arsenic	NR-501-0800-01	Background	Habitat	mg/kg	=	9.54		2000
Arsenic	NR-502-0800-01	Background	Habitat	mg/kg	=	5.69		2000
Arsenic	NR-503-0800-01	Background	Habitat	mg/kg	=	5.03		2000
Arsenic	NR-504-0800-01	Background	Habitat	mg/kg	=	4.91		2000
Arsenic	NR-505-0800-01	Background	Habitat	mg/kg	=	5.57		2000
Arsenic	NR-506-0800-01	Background	Habitat	mg/kg	=	9.18		2000
Arsenic	NR-507-0800-01	Background	Habitat	mg/kg	=	5.26		2000
Arsenic	NR-508-0800-01	Background	Habitat	mg/kg	=	6.23		2000
Arsenic	NR-509-0800-01	Background	Habitat	mg/kg	=	8.45		2000
Arsenic	NR-510-0800-01	Background	Habitat	mg/kg	=	6.66		2000
Arsenic	NR-511-0800-01	Background	Habitat	mg/kg	=	5.75		2000
Arsenic	NR-512-0800-01	Background	Habitat	mg/kg	=	5.82		2000
Arsenic	NR-513-0800-01	Background	Habitat	mg/kg	=	4.34		2000
Arsenic	NR-514-0800-01	Background	Habitat	mg/kg	=	6.86		2000
Arsenic	NR-515-0800-01	Background	Habitat	mg/kg	=	8.48		2000
Arsenic	NR-516-0800-01	Background	Habitat	mg/kg	=	6.75		2000
Arsenic	NR-517-0800-01	Background	Habitat	mg/kg	=	15.4		2000
Arsenic	NR-518-0800-01	Background	Habitat	mg/kg	=	9.6		2000
Arsenic	NR-519-0800-01	Background	Habitat	mg/kg	=	5.81		2000

Table B-1
Sample Data for Inorganics in TTU Background and Site Soils
Attachment 10A - Thermal Treatment Unit, Ecological Risk Assessment

Analyte	Location	Type	Habitat	Units	Qualifier	Result	Detection Limit	Sample Year
Arsenic	NR-520-0800-01	Background	Habitat	mg/kg	=	5.92		2000
Arsenic	NR-521-0800-01	Background	Habitat	mg/kg	=	6.99		2000
Arsenic	NR-522-0800-01	Background	Habitat	mg/kg	=	6.37		2000
Arsenic	NR-523-0800-01	Background	Habitat	mg/kg	=	2.25		2000
Arsenic	NR-524-0800-01	Background	Habitat	mg/kg	=	5.7		2000
Arsenic	NR-525-0800-01	Background	Habitat	mg/kg	=	4.22		2000
Arsenic	NR-536	Background	Habitat	mg/Kg	J	5		2004
Arsenic	NR-537	Background	Habitat	mg/Kg	J	6.6		2004
Arsenic	UTNCBU-01-OCT97-01	Background	Habitat	mg/kg	=	6.88		1997
Arsenic	UTNCBU-02-OCT97-01	Background	Habitat	mg/kg	=	6.52		1997
Arsenic	UTNCBU-03-1298-01	Background	Habitat	mg/kg	=	6.69		1998
Arsenic	UTNCBU-04-1298-01	Background	Habitat	mg/kg	=	6.51		1998
Arsenic	UTNCBU-05-1298-01	Background	Habitat	mg/kg	=	5.46		1998
Arsenic	UTNCBU-06-1298-01	Background	Habitat	mg/kg	=	5.46		1998
Arsenic	UTNEB-03-1298-01	Background	Habitat	mg/kg	=	5.35		1998
Arsenic	UTNEB-04-1298-01	Background	Habitat	mg/kg	=	7.16		1998
Arsenic	UTNEB-05-1298-01	Background	Habitat	mg/kg	=	6.08		1998
Arsenic	UTNEB-06-1298-01	Background	Habitat	mg/kg	=	5.92		1998
Arsenic	UTNERB-01-OCT97-01	Background	Habitat	mg/kg	=	12.1		1997
Arsenic	UTNERB-02-OCT97-01	Background	Habitat	mg/kg	=	12		1997
Arsenic	UTNOCB-01-OCT97-01	Background	Habitat	mg/kg	=	8.03		1997
Arsenic	UTNOCB-02-OCT97-01	Background	Habitat	mg/kg	=	6.58		1997
Arsenic	UTNOCBG-03-1298-01	Background	Habitat	mg/kg	=	5		1998
Arsenic	UTNOCBG-04-1298-01	Background	Habitat	mg/kg	=	5.11		1998
Arsenic	UTNOCBG-05-1298-01	Background	Habitat	mg/kg	=	5.04		1998
Arsenic	UTNOCBG-06-1298-01	Background	Habitat	mg/kg	=	5.44		1998
Arsenic	NR-226	OnSite	Habitat	mg/Kg	=	4.9		2002
Arsenic	NR-227	OnSite	Habitat	mg/Kg	=	5.2		2002
Arsenic	NR-228	OnSite	OB/OD	mg/Kg	=	9.8		2002
Arsenic	NR-229	OnSite	Habitat	mg/Kg	=	8.5		2002
Arsenic	NR-230	OnSite	Habitat	mg/Kg	=	7.4		2002
Arsenic	NR-231	OnSite	OB/OD	mg/Kg	=	7.9		2002
Arsenic	NR-232	OnSite	Habitat	mg/Kg	=	41.3		2002
Arsenic	NR-233	OnSite	Habitat	mg/Kg	=	1.9		2002
Arsenic	NR-234	OnSite	Habitat	mg/Kg	=	7.5		2002
Arsenic	NR-235	OnSite	Habitat	mg/Kg	=	7.5		2002
Arsenic	NR-236	OnSite	Habitat	mg/Kg	=	7.3		2002
Arsenic	NR-237	OnSite	Habitat	mg/Kg	=	8.4		2002
Arsenic	NR-526	OnSite	Habitat	mg/Kg	J	4.7		2004
Arsenic	NR-527	OnSite	Habitat	mg/Kg	J	5.1		2004
Arsenic	NR-528	OnSite	Habitat	mg/Kg	J	4.2		2004
Arsenic	NR-529	OnSite	Habitat	mg/Kg	J	4.7		2004
Arsenic	NR-530	OnSite	Habitat	mg/Kg	J	4.6		2004
Arsenic	NR-531	OnSite	OB/OD	mg/Kg	J	5.7		2004
Arsenic	NR-532	OnSite	OB/OD	mg/Kg	J	5.5		2004
Arsenic	NR-533	OnSite	OB/OD	mg/Kg	J	5		2004
Arsenic	NR-534	OnSite	OB/OD	mg/Kg	J	4.8		2004
Arsenic	NR-535	OnSite	OB/OD	mg/Kg	J	5.4		2004
Arsenic	SS1	OnSite	OB/OD	mg/Kg	U	5	10	1991
Arsenic	SS10	OnSite	OB/OD	mg/Kg	U	5	10	1991
Arsenic	SS11	OnSite	OB/OD	mg/Kg	U	5	10	1991
Arsenic	SS12	OnSite	OB/OD	mg/Kg	U	5	10	1991
Arsenic	SS13	OnSite	OB/OD	mg/Kg	U	5	10	1991

Table B-1
Sample Data for Inorganics in TTU Background and Site Soils
Attachment 10A - Thermal Treatment Unit, Ecological Risk Assessment

Analyte	Location	Type	Habitat	Units	Qualifier	Result	Detection Limit	Sample Year
Arsenic	SS14	OnSite	OB/OD	mg/Kg	U	5	10	1991
Arsenic	SS15	OnSite	OB/OD	mg/Kg	U	5	10	1991
Arsenic	SS16	OnSite	Habitat	mg/Kg	U	5	10	1991
Arsenic	SS17	OnSite	Habitat	mg/Kg	U	5	10	1991
Arsenic	SS18	OnSite	Habitat	mg/Kg	U	5	10	1991
Arsenic	SS19	OnSite	Habitat	mg/Kg	U	5	10	1991
Arsenic	SS2	OnSite	OB/OD	mg/Kg	U	5	10	1991
Arsenic	SS20	OnSite	Habitat	mg/Kg	U	5	10	1991
Arsenic	SS3	OnSite	OB/OD	mg/Kg	U	5	10	1991
Arsenic	SS4	OnSite	OB/OD	mg/Kg	U	5	10	1991
Arsenic	SS5	OnSite	OB/OD	mg/Kg	U	5	10	1991
Arsenic	SS6	OnSite	OB/OD	mg/Kg	U	5	10	1991
Arsenic	SS7	OnSite	OB/OD	mg/Kg	U	5	10	1991
Arsenic	SS8	OnSite	OB/OD	mg/Kg	U	5	10	1991
Arsenic	SS9	OnSite	OB/OD	mg/Kg	U	5	10	1991
Arsenic	TTU-SS01S	OnSite	OB/OD	mg/Kg	=	5.7		1989
Arsenic	TTU-SS02S	OnSite	OB/OD	mg/Kg	=	7		1989
Arsenic	TTU-SS03S	OnSite	OB/OD	mg/Kg	=	9.6		1989
Arsenic	TTU-SS04S(D)	OnSite	OB/OD	mg/Kg	=	7		1989
Arsenic	TTU-SS05S	OnSite	OB/OD	mg/Kg	=	7.4		1989
Arsenic	TTU-SS06S(BG)	OnSite	Habitat	mg/Kg	=	5.9		1989
Barium	AMTOF-01-1298-01	Background	Habitat	mg/kg	=	213		1998
Barium	AMTOF-02-1298-01	Background	Habitat	mg/kg	=	148		1998
Barium	AMTOF-03-1298-01	Background	Habitat	mg/kg	=	215		1998
Barium	AMTOF-04-1298-01	Background	Habitat	mg/kg	=	233		1998
Barium	AMTOF-05-1298-01	Background	Habitat	mg/kg	=	227		1998
Barium	AMTOF-06-1298-01	Background	Habitat	mg/kg	=	215		1998
Barium	NR-238	Background	Habitat	mg/Kg	=	212		2002
Barium	NR-239	Background	Habitat	mg/Kg	=	225		2002
Barium	NR-500-0800-01	Background	Habitat	mg/kg	=	240		2000
Barium	NR-501-0800-01	Background	Habitat	mg/kg	=	266		2000
Barium	NR-502-0800-01	Background	Habitat	mg/kg	=	239		2000
Barium	NR-503-0800-01	Background	Habitat	mg/kg	=	257		2000
Barium	NR-504-0800-01	Background	Habitat	mg/kg	=	242		2000
Barium	NR-505-0800-01	Background	Habitat	mg/kg	=	266		2000
Barium	NR-506-0800-01	Background	Habitat	mg/kg	=	275		2000
Barium	NR-507-0800-01	Background	Habitat	mg/kg	=	184		2000
Barium	NR-508-0800-01	Background	Habitat	mg/kg	=	218		2000
Barium	NR-509-0800-01	Background	Habitat	mg/kg	=	344		2000
Barium	NR-510-0800-01	Background	Habitat	mg/kg	=	158		2000
Barium	NR-511-0800-01	Background	Habitat	mg/kg	=	180		2000
Barium	NR-512-0800-01	Background	Habitat	mg/kg	=	187		2000
Barium	NR-513-0800-01	Background	Habitat	mg/kg	=	205		2000
Barium	NR-514-0800-01	Background	Habitat	mg/kg	=	223		2000
Barium	NR-515-0800-01	Background	Habitat	mg/kg	=	194		2000
Barium	NR-516-0800-01	Background	Habitat	mg/kg	=	339		2000
Barium	NR-517-0800-01	Background	Habitat	mg/kg	=	246		2000
Barium	NR-518-0800-01	Background	Habitat	mg/kg	=	270		2000
Barium	NR-519-0800-01	Background	Habitat	mg/kg	=	370		2000
Barium	NR-520-0800-01	Background	Habitat	mg/kg	=	313		2000
Barium	NR-521-0800-01	Background	Habitat	mg/kg	=	334		2000
Barium	NR-522-0800-01	Background	Habitat	mg/kg	=	336		2000
Barium	NR-523-0800-01	Background	Habitat	mg/kg	=	341		2000

Table B-1
Sample Data for Inorganics in TTU Background and Site Soils
Attachment 10A - Thermal Treatment Unit, Ecological Risk Assessment

Analyte	Location	Type	Habitat	Units	Qualifier	Result	Detection Limit	Sample Year
Barium	NR-524-0800-01	Background	Habitat	mg/kg	=	344		2000
Barium	NR-525-0800-01	Background	Habitat	mg/kg	=	309		2000
Barium	NR-536	Background	Habitat	mg/Kg	=	275		2004
Barium	NR-537	Background	Habitat	mg/Kg	=	244		2004
Barium	UTNCBU-01-OCT97-01	Background	Habitat	mg/kg	=	217		1997
Barium	UTNCBU-02-OCT97-01	Background	Habitat	mg/kg	=	288		1997
Barium	UTNCBU-03-1298-01	Background	Habitat	mg/kg	=	227		1998
Barium	UTNCBU-04-1298-01	Background	Habitat	mg/kg	=	221		1998
Barium	UTNCBU-05-1298-01	Background	Habitat	mg/kg	=	196		1998
Barium	UTNCBU-06-1298-01	Background	Habitat	mg/kg	=	208		1998
Barium	UTNEB-03-1298-01	Background	Habitat	mg/kg	=	426		1998
Barium	UTNEB-04-1298-01	Background	Habitat	mg/kg	=	255		1998
Barium	UTNEB-05-1298-01	Background	Habitat	mg/kg	=	263		1998
Barium	UTNEB-06-1298-01	Background	Habitat	mg/kg	=	270		1998
Barium	UTNERB-01-OCT97-01	Background	Habitat	mg/kg	=	270		1997
Barium	UTNERB-02-OCT97-01	Background	Habitat	mg/kg	=	316		1997
Barium	UTNOCB-01-OCT97-01	Background	Habitat	mg/kg	=	266		1997
Barium	UTNOCB-02-OCT97-01	Background	Habitat	mg/kg	=	237		1997
Barium	UTNOCBG-03-1298-01	Background	Habitat	mg/kg	=	274		1998
Barium	UTNOCBG-04-1298-01	Background	Habitat	mg/kg	=	283		1998
Barium	UTNOCBG-05-1298-01	Background	Habitat	mg/kg	=	277		1998
Barium	UTNOCBG-06-1298-01	Background	Habitat	mg/kg	=	332		1998
Barium	NR-226	OnSite	Habitat	mg/Kg	=	152		2002
Barium	NR-227	OnSite	Habitat	mg/Kg	=	187		2002
Barium	NR-228	OnSite	OB/OD	mg/Kg	=	180		2002
Barium	NR-229	OnSite	Habitat	mg/Kg	=	205		2002
Barium	NR-230	OnSite	Habitat	mg/Kg	=	247		2002
Barium	NR-231	OnSite	OB/OD	mg/Kg	=	212		2002
Barium	NR-232	OnSite	Habitat	mg/Kg	=	215		2002
Barium	NR-233	OnSite	Habitat	mg/Kg	=	204		2002
Barium	NR-234	OnSite	Habitat	mg/Kg	=	218		2002
Barium	NR-235	OnSite	Habitat	mg/Kg	=	222		2002
Barium	NR-236	OnSite	Habitat	mg/Kg	=	206		2002
Barium	NR-237	OnSite	Habitat	mg/Kg	=	192		2002
Barium	NR-526	OnSite	Habitat	mg/Kg	=	218		2004
Barium	NR-527	OnSite	Habitat	mg/Kg	=	228		2004
Barium	NR-528	OnSite	Habitat	mg/Kg	=	191		2004
Barium	NR-529	OnSite	Habitat	mg/Kg	=	336		2004
Barium	NR-530	OnSite	Habitat	mg/Kg	=	220		2004
Barium	NR-531	OnSite	OB/OD	mg/Kg	=	196		2004
Barium	NR-532	OnSite	OB/OD	mg/Kg	=	187		2004
Barium	NR-533	OnSite	OB/OD	mg/Kg	=	211		2004
Barium	NR-534	OnSite	OB/OD	mg/Kg	=	194		2004
Barium	NR-535	OnSite	OB/OD	mg/Kg	=	187		2004
Barium	SS1	OnSite	OB/OD	mg/Kg	=	140		1991
Barium	SS10	OnSite	OB/OD	mg/Kg	=	190		1991
Barium	SS11	OnSite	OB/OD	mg/Kg	=	240		1991
Barium	SS12	OnSite	OB/OD	mg/Kg	=	200		1991
Barium	SS13	OnSite	OB/OD	mg/Kg	=	640		1991
Barium	SS14	OnSite	OB/OD	mg/Kg	=	190		1991
Barium	SS15	OnSite	OB/OD	mg/Kg	=	200		1991
Barium	SS16	OnSite	Habitat	mg/Kg	=	230		1991
Barium	SS17	OnSite	Habitat	mg/Kg	=	210		1991

Table B-1
Sample Data for Inorganics in TTU Background and Site Soils
Attachment 10A - Thermal Treatment Unit, Ecological Risk Assessment

Analyte	Location	Type	Habitat	Units	Qualifier	Result	Detection Limit	Sample Year
Barium	SS18	OnSite	Habitat	mg/Kg	=	220		1991
Barium	SS19	OnSite	Habitat	mg/Kg	=	180		1991
Barium	SS2	OnSite	OB/OD	mg/Kg	=	110		1991
Barium	SS20	OnSite	Habitat	mg/Kg	=	190		1991
Barium	SS3	OnSite	OB/OD	mg/Kg	=	160		1991
Barium	SS4	OnSite	OB/OD	mg/Kg	=	170		1991
Barium	SS5	OnSite	OB/OD	mg/Kg	=	240		1991
Barium	SS6	OnSite	OB/OD	mg/Kg	=	220		1991
Barium	SS7	OnSite	OB/OD	mg/Kg	=	200		1991
Barium	SS8	OnSite	OB/OD	mg/Kg	=	200		1991
Barium	SS9	OnSite	OB/OD	mg/Kg	=	210		1991
Barium	TTU-SS01S	OnSite	OB/OD	mg/Kg	=	153		1989
Barium	TTU-SS02S	OnSite	OB/OD	mg/Kg	=	162		1989
Barium	TTU-SS03S	OnSite	OB/OD	mg/Kg	=	161		1989
Barium	TTU-SS04S(D)	OnSite	OB/OD	mg/Kg	=	136		1989
Barium	TTU-SS05S	OnSite	OB/OD	mg/Kg	=	159		1989
Barium	TTU-SS06S(BG)	OnSite	Habitat	mg/Kg	=	181		1989
Beryllium	AMTOF-01-1298-01	Background	Habitat	mg/kg	=	0.209		1998
Beryllium	AMTOF-02-1298-01	Background	Habitat	mg/kg	=	0.204		1998
Beryllium	AMTOF-03-1298-01	Background	Habitat	mg/kg	=	0.16		1998
Beryllium	AMTOF-04-1298-01	Background	Habitat	mg/kg	=	0.206		1998
Beryllium	AMTOF-05-1298-01	Background	Habitat	mg/kg	=	0.204		1998
Beryllium	AMTOF-06-1298-01	Background	Habitat	mg/kg	=	0.19		1998
Beryllium	NR-238	Background	Habitat	mg/Kg	=	0.65		2002
Beryllium	NR-239	Background	Habitat	mg/Kg	=	0.55		2002
Beryllium	NR-500-0800-01	Background	Habitat	mg/kg	=	0.562		2000
Beryllium	NR-501-0800-01	Background	Habitat	mg/kg	=	0.432		2000
Beryllium	NR-502-0800-01	Background	Habitat	mg/kg	=	0.606		2000
Beryllium	NR-503-0800-01	Background	Habitat	mg/kg	=	0.576		2000
Beryllium	NR-504-0800-01	Background	Habitat	mg/kg	=	0.525		2000
Beryllium	NR-505-0800-01	Background	Habitat	mg/kg	=	0.603		2000
Beryllium	NR-506-0800-01	Background	Habitat	mg/kg	=	0.565		2000
Beryllium	NR-507-0800-01	Background	Habitat	mg/kg	=	0.505		2000
Beryllium	NR-508-0800-01	Background	Habitat	mg/kg	=	0.502		2000
Beryllium	NR-509-0800-01	Background	Habitat	mg/kg	=	0.526		2000
Beryllium	NR-510-0800-01	Background	Habitat	mg/kg	=	0.393		2000
Beryllium	NR-511-0800-01	Background	Habitat	mg/kg	=	0.525		2000
Beryllium	NR-512-0800-01	Background	Habitat	mg/kg	=	0.689		2000
Beryllium	NR-513-0800-01	Background	Habitat	mg/kg	=	0.576		2000
Beryllium	NR-514-0800-01	Background	Habitat	mg/kg	=	0.537		2000
Beryllium	NR-515-0800-01	Background	Habitat	mg/kg	=	0.209		2000
Beryllium	NR-516-0800-01	Background	Habitat	mg/kg	=	0.732		2000
Beryllium	NR-517-0800-01	Background	Habitat	mg/kg	=	0.361		2000
Beryllium	NR-518-0800-01	Background	Habitat	mg/kg	=	0.179		2000
Beryllium	NR-519-0800-01	Background	Habitat	mg/kg	=	0.396		2000
Beryllium	NR-520-0800-01	Background	Habitat	mg/kg	=	0.368		2000
Beryllium	NR-521-0800-01	Background	Habitat	mg/kg	=	0.305		2000
Beryllium	NR-522-0800-01	Background	Habitat	mg/kg	=	0.568		2000
Beryllium	NR-523-0800-01	Background	Habitat	mg/kg	=	0.465		2000
Beryllium	NR-524-0800-01	Background	Habitat	mg/kg	=	0.46		2000
Beryllium	NR-525-0800-01	Background	Habitat	mg/kg	=	0.399		2000
Beryllium	NR-536	Background	Habitat	mg/Kg	J	0.79		2004
Beryllium	NR-537	Background	Habitat	mg/Kg	J	0.89		2004

Table B-1

Sample Data for Inorganics in TTU Background and Site Soils

Attachment 10A - Thermal Treatment Unit, Ecological Risk Assessment

Analyte	Location	Type	Habitat	Units	Qualifier	Result	Detection Limit	Sample Year
Beryllium	UTNCBU-01-OCT97-01	Background	Habitat	mg/kg	=	0.639		1997
Beryllium	UTNCBU-02-OCT97-01	Background	Habitat	mg/kg	=	0.582		1997
Beryllium	UTNCBU-03-1298-01	Background	Habitat	mg/kg	U	0.0067	0.0134	1998
Beryllium	UTNCBU-04-1298-01	Background	Habitat	mg/kg	U	0.0068	0.0136	1998
Beryllium	UTNCBU-05-1298-01	Background	Habitat	mg/kg	U	0.0058	0.0116	1998
Beryllium	UTNCBU-06-1298-01	Background	Habitat	mg/kg	U	0.00755	0.0151	1998
Beryllium	UTNEB-03-1298-01	Background	Habitat	mg/kg	U	0.0056	0.0112	1998
Beryllium	UTNEB-04-1298-01	Background	Habitat	mg/kg	U	0.00645	0.0129	1998
Beryllium	UTNEB-05-1298-01	Background	Habitat	mg/kg	U	0.00535	0.0107	1998
Beryllium	UTNEB-06-1298-01	Background	Habitat	mg/kg	U	0.00735	0.0147	1998
Beryllium	UTNERB-01-OCT97-01	Background	Habitat	mg/kg	=	1.05		1997
Beryllium	UTNERB-02-OCT97-01	Background	Habitat	mg/kg	=	0.885		1997
Beryllium	UTNOCB-01-OCT97-01	Background	Habitat	mg/kg	=	0.761		1997
Beryllium	UTNOCB-02-OCT97-01	Background	Habitat	mg/kg	=	0.773		1997
Beryllium	UTNOCBG-03-1298-01	Background	Habitat	mg/kg	=	0.16		1998
Beryllium	UTNOCBG-04-1298-01	Background	Habitat	mg/kg	=	0.22		1998
Beryllium	UTNOCBG-05-1298-01	Background	Habitat	mg/kg	J	0.0839		1998
Beryllium	UTNOCBG-06-1298-01	Background	Habitat	mg/kg	=	0.248		1998
Beryllium	NR-226	OnSite	Habitat	mg/Kg	=	0.3		2002
Beryllium	NR-227	OnSite	Habitat	mg/Kg	=	0.44		2002
Beryllium	NR-228	OnSite	OB/OD	mg/Kg	=	0.58		2002
Beryllium	NR-229	OnSite	Habitat	mg/Kg	=	0.71		2002
Beryllium	NR-230	OnSite	Habitat	mg/Kg	=	0.61		2002
Beryllium	NR-231	OnSite	OB/OD	mg/Kg	=	0.65		2002
Beryllium	NR-232	OnSite	Habitat	mg/Kg	=	0.7		2002
Beryllium	NR-233	OnSite	Habitat	mg/Kg	=	0.46		2002
Beryllium	NR-234	OnSite	Habitat	mg/Kg	=	0.68		2002
Beryllium	NR-235	OnSite	Habitat	mg/Kg	=	0.61		2002
Beryllium	NR-236	OnSite	Habitat	mg/Kg	=	0.57		2002
Beryllium	NR-237	OnSite	Habitat	mg/Kg	=	0.52		2002
Beryllium	NR-526	OnSite	Habitat	mg/Kg	J	0.45		2004
Beryllium	NR-527	OnSite	Habitat	mg/Kg	J	0.72		2004
Beryllium	NR-528	OnSite	Habitat	mg/Kg	J	0.44		2004
Beryllium	NR-529	OnSite	Habitat	mg/Kg	J	0.57		2004
Beryllium	NR-530	OnSite	Habitat	mg/Kg	J	0.55		2004
Beryllium	NR-531	OnSite	OB/OD	mg/Kg	J	0.28		2004
Beryllium	NR-532	OnSite	OB/OD	mg/Kg	J	0.28		2004
Beryllium	NR-533	OnSite	OB/OD	mg/Kg	J	0.55		2004
Beryllium	NR-534	OnSite	OB/OD	mg/Kg	J	0.47		2004
Beryllium	NR-535	OnSite	OB/OD	mg/Kg	J	0.48		2004
Beryllium	SS1	OnSite	OB/OD	mg/Kg	U	0.5	1	1991
Beryllium	SS10	OnSite	OB/OD	mg/Kg	U	0.5	1	1991
Beryllium	SS11	OnSite	OB/OD	mg/Kg	U	0.5	1	1991
Beryllium	SS12	OnSite	OB/OD	mg/Kg	U	0.5	1	1991
Beryllium	SS13	OnSite	OB/OD	mg/Kg	U	0.5	1	1991
Beryllium	SS14	OnSite	OB/OD	mg/Kg	U	0.5	1	1991
Beryllium	SS15	OnSite	OB/OD	mg/Kg	U	0.5	1	1991
Beryllium	SS16	OnSite	Habitat	mg/Kg	U	0.5	1	1991
Beryllium	SS17	OnSite	Habitat	mg/Kg	U	0.5	1	1991
Beryllium	SS18	OnSite	Habitat	mg/Kg	U	0.5	1	1991
Beryllium	SS19	OnSite	Habitat	mg/Kg	U	0.5	1	1991
Beryllium	SS2	OnSite	OB/OD	mg/Kg	U	0.5	1	1991
Beryllium	SS20	OnSite	Habitat	mg/Kg	U	0.5	1	1991

Table B-1

Sample Data for Inorganics in TTU Background and Site Soils

Attachment 10A - Thermal Treatment Unit, Ecological Risk Assessment

Analyte	Location	Type	Habitat	Units	Qualifier	Result	Detection Limit	Sample Year
Beryllium	SS3	OnSite	OB/OD	mg/Kg	U	0.5	1	1991
Beryllium	SS4	OnSite	OB/OD	mg/Kg	U	0.5	1	1991
Beryllium	SS5	OnSite	OB/OD	mg/Kg	U	0.5	1	1991
Beryllium	SS6	OnSite	OB/OD	mg/Kg	U	0.5	1	1991
Beryllium	SS7	OnSite	OB/OD	mg/Kg	U	0.5	1	1991
Beryllium	SS8	OnSite	OB/OD	mg/Kg	U	0.5	1	1991
Beryllium	SS9	OnSite	OB/OD	mg/Kg	U	0.5	1	1991
Beryllium	TTU-SS01S	OnSite	OB/OD	mg/Kg	U	0.085	0.17	1989
Beryllium	TTU-SS02S	OnSite	OB/OD	mg/Kg	U	0.075	0.15	1989
Beryllium	TTU-SS03S	OnSite	OB/OD	mg/Kg	U	0.085	0.17	1989
Beryllium	TTU-SS04S(D)	OnSite	OB/OD	mg/Kg	U	0.085	0.17	1989
Beryllium	TTU-SS05S	OnSite	OB/OD	mg/Kg	U	0.08	0.16	1989
Beryllium	TTU-SS06S(BG)	OnSite	Habitat	mg/Kg	=	0.3		1989
Bismuth	AMTOF-01-1298-01	Background	Habitat	mg/kg	U	0.1275	0.255	1998
Bismuth	AMTOF-02-1298-01	Background	Habitat	mg/kg	U	0.0955	0.191	1998
Bismuth	AMTOF-03-1298-01	Background	Habitat	mg/kg	J	0.0741		1998
Bismuth	AMTOF-04-1298-01	Background	Habitat	mg/kg	U	0.1225	0.245	1998
Bismuth	AMTOF-05-1298-01	Background	Habitat	mg/kg	U	0.1245	0.249	1998
Bismuth	AMTOF-06-1298-01	Background	Habitat	mg/kg	U	0.125	0.25	1998
Bismuth	NR-500-0800-01	Background	Habitat	mg/kg	J	0.436		2000
Bismuth	NR-501-0800-01	Background	Habitat	mg/kg	U	0.123	0.246	2000
Bismuth	NR-502-0800-01	Background	Habitat	mg/kg	J	0.481		2000
Bismuth	NR-503-0800-01	Background	Habitat	mg/kg	U	0.088	0.176	2000
Bismuth	NR-504-0800-01	Background	Habitat	mg/kg	U	0.116	0.232	2000
Bismuth	NR-505-0800-01	Background	Habitat	mg/kg	U	0.126	0.252	2000
Bismuth	NR-506-0800-01	Background	Habitat	mg/kg	U	0.089	0.178	2000
Bismuth	NR-507-0800-01	Background	Habitat	mg/kg	U	0.0975	0.195	2000
Bismuth	NR-508-0800-01	Background	Habitat	mg/kg	U	0.0324	0.0648	2000
Bismuth	NR-509-0800-01	Background	Habitat	mg/kg	U	0.106	0.212	2000
Bismuth	NR-510-0800-01	Background	Habitat	mg/kg	J	0.301		2000
Bismuth	NR-511-0800-01	Background	Habitat	mg/kg	J	0.329		2000
Bismuth	NR-512-0800-01	Background	Habitat	mg/kg	U	0.1055	0.211	2000
Bismuth	NR-513-0800-01	Background	Habitat	mg/kg	U	0.094	0.188	2000
Bismuth	NR-514-0800-01	Background	Habitat	mg/kg	U	0.1135	0.227	2000
Bismuth	NR-515-0800-01	Background	Habitat	mg/kg	U	0.022	0.044	2000
Bismuth	NR-516-0800-01	Background	Habitat	mg/kg	U	0.1255	0.251	2000
Bismuth	NR-517-0800-01	Background	Habitat	mg/kg	U	0.01945	0.0389	2000
Bismuth	NR-518-0800-01	Background	Habitat	mg/kg	U	0.0328	0.0656	2000
Bismuth	NR-519-0800-01	Background	Habitat	mg/kg	U	0.193	0.386	2000
Bismuth	NR-520-0800-01	Background	Habitat	mg/kg	U	0.03555	0.0711	2000
Bismuth	NR-521-0800-01	Background	Habitat	mg/kg	U	0.003625	0.00725	2000
Bismuth	NR-522-0800-01	Background	Habitat	mg/kg	U	0.0825	0.165	2000
Bismuth	NR-523-0800-01	Background	Habitat	mg/kg	U	0.124	0.248	2000
Bismuth	NR-524-0800-01	Background	Habitat	mg/kg	U	0.234	0.468	2000
Bismuth	NR-525-0800-01	Background	Habitat	mg/kg	U	0.2035	0.407	2000
Bismuth	UTNCBU-01-OCT97-01	Background	Habitat	mg/kg	U	0.0745	0.149	1997
Bismuth	UTNCBU-02-OCT97-01	Background	Habitat	mg/kg	U	0.2115	0.423	1997
Bismuth	UTNCBU-03-1298-01	Background	Habitat	mg/kg	U	0.218	0.436	1998
Bismuth	UTNCBU-04-1298-01	Background	Habitat	mg/kg	U	0.2385	0.477	1998
Bismuth	UTNCBU-05-1298-01	Background	Habitat	mg/kg	J	0.0411		1998
Bismuth	UTNCBU-06-1298-01	Background	Habitat	mg/kg	J	0.0757		1998
Bismuth	UTNEB-03-1298-01	Background	Habitat	mg/kg	J	0.206		1998
Bismuth	UTNEB-04-1298-01	Background	Habitat	mg/kg	U	0.259	0.518	1998

Table B-1

Sample Data for Inorganics in TTU Background and Site Soils

Attachment 10A - Thermal Treatment Unit, Ecological Risk Assessment

Analyte	Location	Type	Habitat	Units	Qualifier	Result	Detection Limit	Sample Year
Bismuth	UTNEB-05-1298-01	Background	Habitat	mg/kg	U	0.212	0.424	1998
Bismuth	UTNEB-06-1298-01	Background	Habitat	mg/kg	U	0.2185	0.437	1998
Bismuth	UTNERB-01-OCT97-01	Background	Habitat	mg/kg	U	0.2545	0.509	1997
Bismuth	UTNERB-02-OCT97-01	Background	Habitat	mg/kg	U	0.258	0.516	1997
Bismuth	UTNOCB-01-OCT97-01	Background	Habitat	mg/kg	U	0.233	0.466	1997
Bismuth	UTNOCB-02-OCT97-01	Background	Habitat	mg/kg	U	0.196	0.392	1997
Bismuth	UTNOCBG-03-1298-01	Background	Habitat	mg/kg	U	0.237	0.474	1998
Bismuth	UTNOCBG-04-1298-01	Background	Habitat	mg/kg	U	0.227	0.454	1998
Bismuth	UTNOCBG-05-1298-01	Background	Habitat	mg/kg	U	0.2195	0.439	1998
Bismuth	UTNOCBG-06-1298-01	Background	Habitat	mg/kg	U	0.1635	0.327	1998
Boron	AMTOF-01-1298-01	Background	Habitat	mg/kg	=	32.1		1998
Boron	AMTOF-02-1298-01	Background	Habitat	mg/kg	=	23.1		1998
Boron	AMTOF-03-1298-01	Background	Habitat	mg/kg	=	33.6		1998
Boron	AMTOF-04-1298-01	Background	Habitat	mg/kg	=	39.5		1998
Boron	AMTOF-05-1298-01	Background	Habitat	mg/kg	=	28.6		1998
Boron	AMTOF-06-1298-01	Background	Habitat	mg/kg	=	32.4		1998
Boron	NR-500-0800-01	Background	Habitat	mg/kg	=	45.3		2000
Boron	NR-501-0800-01	Background	Habitat	mg/kg	=	73		2000
Boron	NR-502-0800-01	Background	Habitat	mg/kg	=	55.6		2000
Boron	NR-503-0800-01	Background	Habitat	mg/kg	=	67.3		2000
Boron	NR-504-0800-01	Background	Habitat	mg/kg	=	93.6		2000
Boron	NR-505-0800-01	Background	Habitat	mg/kg	=	124		2000
Boron	NR-506-0800-01	Background	Habitat	mg/kg	=	53.6		2000
Boron	NR-507-0800-01	Background	Habitat	mg/kg	=	24.7		2000
Boron	NR-508-0800-01	Background	Habitat	mg/kg	=	28.5		2000
Boron	NR-509-0800-01	Background	Habitat	mg/kg	=	29.3		2000
Boron	NR-510-0800-01	Background	Habitat	mg/kg	=	14.8		2000
Boron	NR-511-0800-01	Background	Habitat	mg/kg	=	25.1		2000
Boron	NR-512-0800-01	Background	Habitat	mg/kg	=	28.2		2000
Boron	NR-513-0800-01	Background	Habitat	mg/kg	=	31.7		2000
Boron	NR-514-0800-01	Background	Habitat	mg/kg	=	147		2000
Boron	NR-515-0800-01	Background	Habitat	mg/kg	=	170		2000
Boron	NR-516-0800-01	Background	Habitat	mg/kg	=	27.5		2000
Boron	NR-517-0800-01	Background	Habitat	mg/kg	=	619		2000
Boron	NR-518-0800-01	Background	Habitat	mg/kg	=	118		2000
Boron	NR-519-0800-01	Background	Habitat	mg/kg	=	55.7		2000
Boron	NR-520-0800-01	Background	Habitat	mg/kg	=	57.1		2000
Boron	NR-521-0800-01	Background	Habitat	mg/kg	=	55.5		2000
Boron	NR-522-0800-01	Background	Habitat	mg/kg	=	54.8		2000
Boron	NR-523-0800-01	Background	Habitat	mg/kg	=	23.1		2000
Boron	NR-524-0800-01	Background	Habitat	mg/kg	=	37.7		2000
Boron	NR-525-0800-01	Background	Habitat	mg/kg	=	27.1		2000
Boron	UTNCBU-01-OCT97-01	Background	Habitat	mg/kg	=	46.7		1997
Boron	UTNCBU-02-OCT97-01	Background	Habitat	mg/kg	=	41.5		1997
Boron	UTNCBU-03-1298-01	Background	Habitat	mg/kg	=	45.3		1998
Boron	UTNCBU-04-1298-01	Background	Habitat	mg/kg	=	47.7		1998
Boron	UTNCBU-05-1298-01	Background	Habitat	mg/kg	=	32.9		1998
Boron	UTNCBU-06-1298-01	Background	Habitat	mg/kg	=	28		1998
Boron	UTNEB-03-1298-01	Background	Habitat	mg/kg	=	32.4		1998
Boron	UTNEB-04-1298-01	Background	Habitat	mg/kg	=	54.3		1998
Boron	UTNEB-05-1298-01	Background	Habitat	mg/kg	=	53.3		1998
Boron	UTNEB-06-1298-01	Background	Habitat	mg/kg	=	34.6		1998
Boron	UTNERB-01-OCT97-01	Background	Habitat	mg/kg	=	169		1997

Table B-1
Sample Data for Inorganics in TTU Background and Site Soils
Attachment 10A - Thermal Treatment Unit, Ecological Risk Assessment

Analyte	Location	Type	Habitat	Units	Qualifier	Result	Detection Limit	Sample Year
Boron	UTNERB-02-OCT97-01	Background	Habitat	mg/kg	=	101		1997
Boron	UTNOCB-01-OCT97-01	Background	Habitat	mg/kg	=	71.6		1997
Boron	UTNOCB-02-OCT97-01	Background	Habitat	mg/kg	=	145		1997
Boron	UTNOCBG-03-1298-01	Background	Habitat	mg/kg	=	34.6		1998
Boron	UTNOCBG-04-1298-01	Background	Habitat	mg/kg	=	48.3		1998
Boron	UTNOCBG-05-1298-01	Background	Habitat	mg/kg	=	40.8		1998
Boron	UTNOCBG-06-1298-01	Background	Habitat	mg/kg	=	52		1998
Cadmium	AMTOF-01-1298-01	Background	Habitat	mg/kg	=	0.347		1998
Cadmium	AMTOF-02-1298-01	Background	Habitat	mg/kg	=	0.384		1998
Cadmium	AMTOF-03-1298-01	Background	Habitat	mg/kg	=	0.263		1998
Cadmium	AMTOF-04-1298-01	Background	Habitat	mg/kg	=	0.162		1998
Cadmium	AMTOF-05-1298-01	Background	Habitat	mg/kg	=	0.288		1998
Cadmium	AMTOF-06-1298-01	Background	Habitat	mg/kg	=	0.247		1998
Cadmium	NR-238	Background	Habitat	mg/Kg	=	0.71		2002
Cadmium	NR-239	Background	Habitat	mg/Kg	=	0.67		2002
Cadmium	NR-500-0800-01	Background	Habitat	mg/kg	U	0.01285	0.0257	2000
Cadmium	NR-501-0800-01	Background	Habitat	mg/kg	U	0.017	0.034	2000
Cadmium	NR-502-0800-01	Background	Habitat	mg/kg	U	0.012	0.024	2000
Cadmium	NR-503-0800-01	Background	Habitat	mg/kg	J	0.0336		2000
Cadmium	NR-504-0800-01	Background	Habitat	mg/kg	U	0.002915	0.00583	2000
Cadmium	NR-505-0800-01	Background	Habitat	mg/kg	U	0.0195	0.039	2000
Cadmium	NR-506-0800-01	Background	Habitat	mg/kg	J	0.0976		2000
Cadmium	NR-507-0800-01	Background	Habitat	mg/kg	J	0.107		2000
Cadmium	NR-508-0800-01	Background	Habitat	mg/kg	U	0.0117	0.0234	2000
Cadmium	NR-509-0800-01	Background	Habitat	mg/kg	J	0.0575		2000
Cadmium	NR-510-0800-01	Background	Habitat	mg/kg	J	0.148		2000
Cadmium	NR-511-0800-01	Background	Habitat	mg/kg	=	0.296		2000
Cadmium	NR-512-0800-01	Background	Habitat	mg/kg	J	0.0626		2000
Cadmium	NR-513-0800-01	Background	Habitat	mg/kg	J	0.134		2000
Cadmium	NR-514-0800-01	Background	Habitat	mg/kg	U	0.02015	0.0403	2000
Cadmium	NR-515-0800-01	Background	Habitat	mg/kg	U	0.02055	0.0411	2000
Cadmium	NR-516-0800-01	Background	Habitat	mg/kg	U	0.02585	0.0517	2000
Cadmium	NR-517-0800-01	Background	Habitat	mg/kg	U	0.01945	0.0389	2000
Cadmium	NR-518-0800-01	Background	Habitat	mg/kg	U	0.01835	0.0367	2000
Cadmium	NR-519-0800-01	Background	Habitat	mg/kg	U	0.02665	0.0533	2000
Cadmium	NR-520-0800-01	Background	Habitat	mg/kg	U	0.02715	0.0543	2000
Cadmium	NR-521-0800-01	Background	Habitat	mg/kg	U	0.02175	0.0435	2000
Cadmium	NR-522-0800-01	Background	Habitat	mg/kg	U	0.02205	0.0441	2000
Cadmium	NR-523-0800-01	Background	Habitat	mg/kg	U	0.02105	0.0421	2000
Cadmium	NR-524-0800-01	Background	Habitat	mg/kg	U	0.0323	0.0646	2000
Cadmium	NR-525-0800-01	Background	Habitat	mg/kg	U	0.0278	0.0556	2000
Cadmium	NR-536	Background	Habitat	mg/Kg	UB	0.095	0.19	2004
Cadmium	NR-537	Background	Habitat	mg/Kg	J	0.35		2004
Cadmium	UTNCBU-01-OCT97-01	Background	Habitat	mg/kg	=	0.26		1997
Cadmium	UTNCBU-02-OCT97-01	Background	Habitat	mg/kg	=	0.249		1997
Cadmium	UTNCBU-03-1298-01	Background	Habitat	mg/kg	=	0.466		1998
Cadmium	UTNCBU-04-1298-01	Background	Habitat	mg/kg	=	0.5		1998
Cadmium	UTNCBU-05-1298-01	Background	Habitat	mg/kg	=	0.311		1998
Cadmium	UTNCBU-06-1298-01	Background	Habitat	mg/kg	=	0.318		1998
Cadmium	UTNEB-03-1298-01	Background	Habitat	mg/kg	=	0.448		1998
Cadmium	UTNEB-04-1298-01	Background	Habitat	mg/kg	=	0.523		1998
Cadmium	UTNEB-05-1298-01	Background	Habitat	mg/kg	=	0.446		1998
Cadmium	UTNEB-06-1298-01	Background	Habitat	mg/kg	=	0.35		1998

Table B-1

Sample Data for Inorganics in TTU Background and Site Soils

Attachment 10A - Thermal Treatment Unit, Ecological Risk Assessment

Analyte	Location	Type	Habitat	Units	Qualifier	Result	Detection Limit	Sample Year
Cadmium	UTNERB-01-OCT97-01	Background	Habitat	mg/kg	=	0.239		1997
Cadmium	UTNERB-02-OCT97-01	Background	Habitat	mg/kg	=	0.267		1997
Cadmium	UTNOCB-01-OCT97-01	Background	Habitat	mg/kg	=	0.242		1997
Cadmium	UTNOCB-02-OCT97-01	Background	Habitat	mg/kg	=	0.427		1997
Cadmium	UTNOCBG-03-1298-01	Background	Habitat	mg/kg	=	0.269		1998
Cadmium	UTNOCBG-04-1298-01	Background	Habitat	mg/kg	=	0.218		1998
Cadmium	UTNOCBG-05-1298-01	Background	Habitat	mg/kg	=	0.217		1998
Cadmium	UTNOCBG-06-1298-01	Background	Habitat	mg/kg	=	0.376		1998
Cadmium	NR-226	OnSite	Habitat	mg/Kg	=	0.73		2002
Cadmium	NR-227	OnSite	Habitat	mg/Kg	=	0.6		2002
Cadmium	NR-228	OnSite	OB/OD	mg/Kg	=	0.78		2002
Cadmium	NR-229	OnSite	Habitat	mg/Kg	=	0.57		2002
Cadmium	NR-230	OnSite	Habitat	mg/Kg	=	0.92		2002
Cadmium	NR-231	OnSite	OB/OD	mg/Kg	=	0.83		2002
Cadmium	NR-232	OnSite	Habitat	mg/Kg	=	0.83		2002
Cadmium	NR-233	OnSite	Habitat	mg/Kg	=	0.34		2002
Cadmium	NR-234	OnSite	Habitat	mg/Kg	=	0.8		2002
Cadmium	NR-235	OnSite	Habitat	mg/Kg	=	0.83		2002
Cadmium	NR-236	OnSite	Habitat	mg/Kg	=	0.81		2002
Cadmium	NR-237	OnSite	Habitat	mg/Kg	=	0.59		2002
Cadmium	NR-526	OnSite	Habitat	mg/Kg	UB	0.1	0.2	2004
Cadmium	NR-527	OnSite	Habitat	mg/Kg	U	0.06	0.12	2004
Cadmium	NR-528	OnSite	Habitat	mg/Kg	J	0.38		2004
Cadmium	NR-529	OnSite	Habitat	mg/Kg	UB	0.09	0.18	2004
Cadmium	NR-530	OnSite	Habitat	mg/Kg	U	0.07	0.14	2004
Cadmium	NR-531	OnSite	OB/OD	mg/Kg	J	0.27		2004
Cadmium	NR-532	OnSite	OB/OD	mg/Kg	J	0.55		2004
Cadmium	NR-533	OnSite	OB/OD	mg/Kg	U	0.06	0.12	2004
Cadmium	NR-534	OnSite	OB/OD	mg/Kg	U	0.055	0.11	2004
Cadmium	NR-535	OnSite	OB/OD	mg/Kg	U	0.06	0.12	2004
Cadmium	SS1	OnSite	OB/OD	mg/Kg	U	0.5	1	1991
Cadmium	SS10	OnSite	OB/OD	mg/Kg	U	0.5	1	1991
Cadmium	SS11	OnSite	OB/OD	mg/Kg	U	0.5	1	1991
Cadmium	SS12	OnSite	OB/OD	mg/Kg	U	0.5	1	1991
Cadmium	SS13	OnSite	OB/OD	mg/Kg	U	0.5	1	1991
Cadmium	SS14	OnSite	OB/OD	mg/Kg	U	0.5	1	1991
Cadmium	SS15	OnSite	OB/OD	mg/Kg	U	0.5	1	1991
Cadmium	SS16	OnSite	Habitat	mg/Kg	=	3		1991
Cadmium	SS17	OnSite	Habitat	mg/Kg	U	0.5	1	1991
Cadmium	SS18	OnSite	Habitat	mg/Kg	U	0.5	1	1991
Cadmium	SS19	OnSite	Habitat	mg/Kg	U	0.5	1	1991
Cadmium	SS2	OnSite	OB/OD	mg/Kg	U	0.5	1	1991
Cadmium	SS20	OnSite	Habitat	mg/Kg	U	0.5	1	1991
Cadmium	SS3	OnSite	OB/OD	mg/Kg	U	0.5	1	1991
Cadmium	SS4	OnSite	OB/OD	mg/Kg	U	0.5	1	1991
Cadmium	SS5	OnSite	OB/OD	mg/Kg	U	0.5	1	1991
Cadmium	SS6	OnSite	OB/OD	mg/Kg	U	0.5	1	1991
Cadmium	SS7	OnSite	OB/OD	mg/Kg	U	0.5	1	1991
Cadmium	SS8	OnSite	OB/OD	mg/Kg	U	0.5	1	1991
Cadmium	SS9	OnSite	OB/OD	mg/Kg	=	32		1991
Cadmium	TTU-SS01S	OnSite	OB/OD	mg/Kg	U	0.42	0.84	1989
Cadmium	TTU-SS02S	OnSite	OB/OD	mg/Kg	=	2.1		1989
Cadmium	TTU-SS03S	OnSite	OB/OD	mg/Kg	=	0.98		1989

Table B-1

Sample Data for Inorganics in TTU Background and Site Soils

Attachment 10A - Thermal Treatment Unit, Ecological Risk Assessment

Analyte	Location	Type	Habitat	Units	Qualifier	Result	Detection Limit	Sample Year
Cadmium	TTU-SS04S(D)	OnSite	OB/OD	mg/Kg	U	0.435	0.87	1989
Cadmium	TTU-SS05S	OnSite	OB/OD	mg/Kg	=	0.83		1989
Cadmium	TTU-SS06S(BG)	OnSite	Habitat	mg/Kg	=	0.9		1989
Chromium	AMTOF-01-1298-01	Background	Habitat	mg/kg	=	13.3		1998
Chromium	AMTOF-02-1298-01	Background	Habitat	mg/kg	=	17.2		1998
Chromium	AMTOF-03-1298-01	Background	Habitat	mg/kg	=	14.6		1998
Chromium	AMTOF-04-1298-01	Background	Habitat	mg/kg	=	15.7		1998
Chromium	AMTOF-05-1298-01	Background	Habitat	mg/kg	=	10.6		1998
Chromium	AMTOF-06-1298-01	Background	Habitat	mg/kg	=	13.4		1998
Chromium	NR-238	Background	Habitat	mg/Kg	=	14.3		2002
Chromium	NR-239	Background	Habitat	mg/Kg	=	9.6		2002
Chromium	NR-500-0800-01	Background	Habitat	mg/kg	=	12.9		2000
Chromium	NR-501-0800-01	Background	Habitat	mg/kg	=	9.24		2000
Chromium	NR-502-0800-01	Background	Habitat	mg/kg	=	14.5		2000
Chromium	NR-503-0800-01	Background	Habitat	mg/kg	=	13.6		2000
Chromium	NR-504-0800-01	Background	Habitat	mg/kg	=	12.1		2000
Chromium	NR-505-0800-01	Background	Habitat	mg/kg	=	14.3		2000
Chromium	NR-506-0800-01	Background	Habitat	mg/kg	=	13		2000
Chromium	NR-507-0800-01	Background	Habitat	mg/kg	=	13		2000
Chromium	NR-508-0800-01	Background	Habitat	mg/kg	=	11.9		2000
Chromium	NR-509-0800-01	Background	Habitat	mg/kg	=	14.1		2000
Chromium	NR-510-0800-01	Background	Habitat	mg/kg	=	9.21		2000
Chromium	NR-511-0800-01	Background	Habitat	mg/kg	=	14.6		2000
Chromium	NR-512-0800-01	Background	Habitat	mg/kg	=	16		2000
Chromium	NR-513-0800-01	Background	Habitat	mg/kg	=	14.8		2000
Chromium	NR-514-0800-01	Background	Habitat	mg/kg	=	14.6		2000
Chromium	NR-515-0800-01	Background	Habitat	mg/kg	=	3.09		2000
Chromium	NR-516-0800-01	Background	Habitat	mg/kg	=	15.1		2000
Chromium	NR-517-0800-01	Background	Habitat	mg/kg	=	7.05		2000
Chromium	NR-518-0800-01	Background	Habitat	mg/kg	=	2.32		2000
Chromium	NR-519-0800-01	Background	Habitat	mg/kg	=	7.5		2000
Chromium	NR-520-0800-01	Background	Habitat	mg/kg	=	7.59		2000
Chromium	NR-521-0800-01	Background	Habitat	mg/kg	=	5.26		2000
Chromium	NR-522-0800-01	Background	Habitat	mg/kg	=	13.3		2000
Chromium	NR-523-0800-01	Background	Habitat	mg/kg	=	13.1		2000
Chromium	NR-524-0800-01	Background	Habitat	mg/kg	=	8.98		2000
Chromium	NR-525-0800-01	Background	Habitat	mg/kg	=	6.97		2000
Chromium	NR-536	Background	Habitat	mg/Kg	=	12.5		2004
Chromium	NR-537	Background	Habitat	mg/Kg	=	14.2		2004
Chromium	UTNCBU-01-OCT97-01	Background	Habitat	mg/kg	=	11.8		1997
Chromium	UTNCBU-02-OCT97-01	Background	Habitat	mg/kg	=	11.5		1997
Chromium	UTNCBU-03-1298-01	Background	Habitat	mg/kg	=	16.1		1998
Chromium	UTNCBU-04-1298-01	Background	Habitat	mg/kg	=	16.1		1998
Chromium	UTNCBU-05-1298-01	Background	Habitat	mg/kg	=	12		1998
Chromium	UTNCBU-06-1298-01	Background	Habitat	mg/kg	=	12.2		1998
Chromium	UTNEB-03-1298-01	Background	Habitat	mg/kg	=	14.2		1998
Chromium	UTNEB-04-1298-01	Background	Habitat	mg/kg	=	18.4		1998
Chromium	UTNEB-05-1298-01	Background	Habitat	mg/kg	=	14.7		1998
Chromium	UTNEB-06-1298-01	Background	Habitat	mg/kg	=	13.4		1998
Chromium	UTNERB-01-OCT97-01	Background	Habitat	mg/kg	=	20.9		1997
Chromium	UTNERB-02-OCT97-01	Background	Habitat	mg/kg	=	19.2		1997
Chromium	UTNOCB-01-OCT97-01	Background	Habitat	mg/kg	=	16.9		1997
Chromium	UTNOCB-02-OCT97-01	Background	Habitat	mg/kg	=	13.1		1997

Table B-1

Sample Data for Inorganics in TTU Background and Site Soils

Attachment 10A - Thermal Treatment Unit, Ecological Risk Assessment

Analyte	Location	Type	Habitat	Units	Qualifier	Result	Detection Limit	Sample Year
Chromium	UTNOCBG-03-1298-01	Background	Habitat	mg/kg	=	12		1998
Chromium	UTNOCBG-04-1298-01	Background	Habitat	mg/kg	=	10.8		1998
Chromium	UTNOCBG-05-1298-01	Background	Habitat	mg/kg	=	11.8		1998
Chromium	UTNOCBG-06-1298-01	Background	Habitat	mg/kg	=	16		1998
Chromium	NR-226	OnSite	Habitat	mg/Kg	=	7		2002
Chromium	NR-227	OnSite	Habitat	mg/Kg	=	8.1		2002
Chromium	NR-228	OnSite	OB/OD	mg/Kg	=	10.1		2002
Chromium	NR-229	OnSite	Habitat	mg/Kg	=	13.2		2002
Chromium	NR-230	OnSite	Habitat	mg/Kg	=	11.8		2002
Chromium	NR-231	OnSite	OB/OD	mg/Kg	=	11.8		2002
Chromium	NR-232	OnSite	Habitat	mg/Kg	=	15.9		2002
Chromium	NR-233	OnSite	Habitat	mg/Kg	=	9.8		2002
Chromium	NR-234	OnSite	Habitat	mg/Kg	=	12.5		2002
Chromium	NR-235	OnSite	Habitat	mg/Kg	=	12.9		2002
Chromium	NR-236	OnSite	Habitat	mg/Kg	=	10.1		2002
Chromium	NR-237	OnSite	Habitat	mg/Kg	=	10.6		2002
Chromium	NR-526	OnSite	Habitat	mg/Kg	=	7.6		2004
Chromium	NR-527	OnSite	Habitat	mg/Kg	=	10.7		2004
Chromium	NR-528	OnSite	Habitat	mg/Kg	=	6.5		2004
Chromium	NR-529	OnSite	Habitat	mg/Kg	=	10.3		2004
Chromium	NR-530	OnSite	Habitat	mg/Kg	=	7.5		2004
Chromium	NR-531	OnSite	OB/OD	mg/Kg	=	55.3		2004
Chromium	NR-532	OnSite	OB/OD	mg/Kg	=	18.3		2004
Chromium	NR-533	OnSite	OB/OD	mg/Kg	=	8.7		2004
Chromium	NR-534	OnSite	OB/OD	mg/Kg	=	8.4		2004
Chromium	NR-535	OnSite	OB/OD	mg/Kg	=	8.5		2004
Chromium	SS1	OnSite	OB/OD	mg/Kg	=	13		1991
Chromium	SS10	OnSite	OB/OD	mg/Kg	=	15		1991
Chromium	SS11	OnSite	OB/OD	mg/Kg	=	18		1991
Chromium	SS12	OnSite	OB/OD	mg/Kg	=	18		1991
Chromium	SS13	OnSite	OB/OD	mg/Kg	=	14		1991
Chromium	SS14	OnSite	OB/OD	mg/Kg	=	17		1991
Chromium	SS15	OnSite	OB/OD	mg/Kg	=	16		1991
Chromium	SS16	OnSite	Habitat	mg/Kg	=	15		1991
Chromium	SS17	OnSite	Habitat	mg/Kg	=	13		1991
Chromium	SS18	OnSite	Habitat	mg/Kg	=	16		1991
Chromium	SS19	OnSite	Habitat	mg/Kg	=	12		1991
Chromium	SS2	OnSite	OB/OD	mg/Kg	=	18		1991
Chromium	SS20	OnSite	Habitat	mg/Kg	=	14		1991
Chromium	SS3	OnSite	OB/OD	mg/Kg	=	30		1991
Chromium	SS4	OnSite	OB/OD	mg/Kg	=	17		1991
Chromium	SS5	OnSite	OB/OD	mg/Kg	=	25		1991
Chromium	SS6	OnSite	OB/OD	mg/Kg	=	18		1991
Chromium	SS7	OnSite	OB/OD	mg/Kg	=	22		1991
Chromium	SS8	OnSite	OB/OD	mg/Kg	=	15		1991
Chromium	SS9	OnSite	OB/OD	mg/Kg	=	14		1991
Chromium	TTU-SS01S	OnSite	OB/OD	mg/Kg	=	9.7		1989
Chromium	TTU-SS02S	OnSite	OB/OD	mg/Kg	=	23.6		1989
Chromium	TTU-SS03S	OnSite	OB/OD	mg/Kg	=	10.8		1989
Chromium	TTU-SS04S(D)	OnSite	OB/OD	mg/Kg	=	8.3		1989
Chromium	TTU-SS05S	OnSite	OB/OD	mg/Kg	=	9		1989
Chromium	TTU-SS06S(BG)	OnSite	Habitat	mg/Kg	=	12.6		1989
Cobalt	AMTOF-01-1298-01	Background	Habitat	mg/kg	=	3.83		1998

Table B-1
Sample Data for Inorganics in TTU Background and Site Soils
Attachment 10A - Thermal Treatment Unit, Ecological Risk Assessment

Analyte	Location	Type	Habitat	Units	Qualifier	Result	Detection Limit	Sample Year
Cobalt	AMTOF-02-1298-01	Background	Habitat	mg/kg	=	3.57		1998
Cobalt	AMTOF-03-1298-01	Background	Habitat	mg/kg	=	4.01		1998
Cobalt	AMTOF-04-1298-01	Background	Habitat	mg/kg	=	4.18		1998
Cobalt	AMTOF-05-1298-01	Background	Habitat	mg/kg	=	5.22		1998
Cobalt	AMTOF-06-1298-01	Background	Habitat	mg/kg	=	3.75		1998
Cobalt	NR-238	Background	Habitat	mg/Kg	=	4.5		2002
Cobalt	NR-239	Background	Habitat	mg/Kg	=	3.6		2002
Cobalt	NR-500-0800-01	Background	Habitat	mg/kg	=	4.01		2000
Cobalt	NR-501-0800-01	Background	Habitat	mg/kg	=	2.58		2000
Cobalt	NR-502-0800-01	Background	Habitat	mg/kg	=	4.22		2000
Cobalt	NR-503-0800-01	Background	Habitat	mg/kg	=	4.02		2000
Cobalt	NR-504-0800-01	Background	Habitat	mg/kg	=	3.52		2000
Cobalt	NR-505-0800-01	Background	Habitat	mg/kg	=	4.2		2000
Cobalt	NR-506-0800-01	Background	Habitat	mg/kg	=	3.96		2000
Cobalt	NR-507-0800-01	Background	Habitat	mg/kg	=	3.23		2000
Cobalt	NR-508-0800-01	Background	Habitat	mg/kg	=	3.52		2000
Cobalt	NR-509-0800-01	Background	Habitat	mg/kg	=	4.54		2000
Cobalt	NR-510-0800-01	Background	Habitat	mg/kg	=	3.1		2000
Cobalt	NR-511-0800-01	Background	Habitat	mg/kg	=	3.67		2000
Cobalt	NR-512-0800-01	Background	Habitat	mg/kg	=	4.68		2000
Cobalt	NR-513-0800-01	Background	Habitat	mg/kg	=	4		2000
Cobalt	NR-514-0800-01	Background	Habitat	mg/kg	=	3.58		2000
Cobalt	NR-515-0800-01	Background	Habitat	mg/kg	J	0.837		2000
Cobalt	NR-516-0800-01	Background	Habitat	mg/kg	=	6.06		2000
Cobalt	NR-517-0800-01	Background	Habitat	mg/kg	=	1.86		2000
Cobalt	NR-518-0800-01	Background	Habitat	mg/kg	J	0.678		2000
Cobalt	NR-519-0800-01	Background	Habitat	mg/kg	=	2.07		2000
Cobalt	NR-520-0800-01	Background	Habitat	mg/kg	=	2.11		2000
Cobalt	NR-521-0800-01	Background	Habitat	mg/kg	=	1.6		2000
Cobalt	NR-522-0800-01	Background	Habitat	mg/kg	=	3.37		2000
Cobalt	NR-523-0800-01	Background	Habitat	mg/kg	=	2.36		2000
Cobalt	NR-524-0800-01	Background	Habitat	mg/kg	=	2.1		2000
Cobalt	NR-525-0800-01	Background	Habitat	mg/kg	=	1.88		2000
Cobalt	NR-536	Background	Habitat	mg/Kg	J	3.1		2004
Cobalt	NR-537	Background	Habitat	mg/Kg	=	5.2		2004
Cobalt	UTNCBU-01-OCT97-01	Background	Habitat	mg/kg	=	3.03		1997
Cobalt	UTNCBU-02-OCT97-01	Background	Habitat	mg/kg	=	2.78		1997
Cobalt	UTNCBU-03-1298-01	Background	Habitat	mg/kg	=	4.22		1998
Cobalt	UTNCBU-04-1298-01	Background	Habitat	mg/kg	=	4.08		1998
Cobalt	UTNCBU-05-1298-01	Background	Habitat	mg/kg	=	3.21		1998
Cobalt	UTNCBU-06-1298-01	Background	Habitat	mg/kg	=	3.22		1998
Cobalt	UTNEB-03-1298-01	Background	Habitat	mg/kg	=	3.7		1998
Cobalt	UTNEB-04-1298-01	Background	Habitat	mg/kg	=	4.76		1998
Cobalt	UTNEB-05-1298-01	Background	Habitat	mg/kg	=	3.44		1998
Cobalt	UTNEB-06-1298-01	Background	Habitat	mg/kg	=	3.36		1998
Cobalt	UTNERB-01-OCT97-01	Background	Habitat	mg/kg	=	5.02		1997
Cobalt	UTNERB-02-OCT97-01	Background	Habitat	mg/kg	=	4.17		1997
Cobalt	UTNOCB-01-OCT97-01	Background	Habitat	mg/kg	=	3.42		1997
Cobalt	UTNOCB-02-OCT97-01	Background	Habitat	mg/kg	=	3.79		1997
Cobalt	UTNOCBG-03-1298-01	Background	Habitat	mg/kg	=	3.74		1998
Cobalt	UTNOCBG-04-1298-01	Background	Habitat	mg/kg	=	3.93		1998
Cobalt	UTNOCBG-05-1298-01	Background	Habitat	mg/kg	=	3.61		1998
Cobalt	UTNOCBG-06-1298-01	Background	Habitat	mg/kg	=	4.65		1998

Table B-1
Sample Data for Inorganics in TTU Background and Site Soils
Attachment 10A - Thermal Treatment Unit, Ecological Risk Assessment

Analyte	Location	Type	Habitat	Units	Qualifier	Result	Detection Limit	Sample Year
Cobalt	NR-226	OnSite	Habitat	mg/Kg	=	1.9		2002
Cobalt	NR-227	OnSite	Habitat	mg/Kg	=	3		2002
Cobalt	NR-228	OnSite	OB/OD	mg/Kg	=	3.9		2002
Cobalt	NR-229	OnSite	Habitat	mg/Kg	=	4.9		2002
Cobalt	NR-230	OnSite	Habitat	mg/Kg	=	3.6		2002
Cobalt	NR-231	OnSite	OB/OD	mg/Kg	=	4.4		2002
Cobalt	NR-232	OnSite	Habitat	mg/Kg	=	4.8		2002
Cobalt	NR-233	OnSite	Habitat	mg/Kg	=	2.6		2002
Cobalt	NR-234	OnSite	Habitat	mg/Kg	=	4.2		2002
Cobalt	NR-235	OnSite	Habitat	mg/Kg	=	3.7		2002
Cobalt	NR-236	OnSite	Habitat	mg/Kg	=	3.9		2002
Cobalt	NR-237	OnSite	Habitat	mg/Kg	=	3.9		2002
Cobalt	NR-526	OnSite	Habitat	mg/Kg	J	1.7		2004
Cobalt	NR-527	OnSite	Habitat	mg/Kg	J	3.4		2004
Cobalt	NR-528	OnSite	Habitat	mg/Kg	J	1.5		2004
Cobalt	NR-529	OnSite	Habitat	mg/Kg	J	1.5		2004
Cobalt	NR-530	OnSite	Habitat	mg/Kg	J	1		2004
Cobalt	NR-531	OnSite	OB/OD	mg/Kg	J	1.1		2004
Cobalt	NR-532	OnSite	OB/OD	mg/Kg	J	1.6		2004
Cobalt	NR-533	OnSite	OB/OD	mg/Kg	J	2.7		2004
Cobalt	NR-534	OnSite	OB/OD	mg/Kg	J	1.9		2004
Cobalt	NR-535	OnSite	OB/OD	mg/Kg	J	2.6		2004
Cobalt	TTU-SS01S	OnSite	OB/OD	mg/Kg	U	2.35	4.7	1989
Cobalt	TTU-SS02S	OnSite	OB/OD	mg/Kg	U	2.1	4.2	1989
Cobalt	TTU-SS03S	OnSite	OB/OD	mg/Kg	U	2.4	4.8	1989
Cobalt	TTU-SS04S(D)	OnSite	OB/OD	mg/Kg	U	2.45	4.9	1989
Cobalt	TTU-SS05S	OnSite	OB/OD	mg/Kg	U	2.3	4.6	1989
Cobalt	TTU-SS06S(BG)	OnSite	Habitat	mg/Kg	U	2.3	4.6	1989
Copper	AMTOF-01-1298-01	Background	Habitat	mg/kg	=	13		1998
Copper	AMTOF-02-1298-01	Background	Habitat	mg/kg	=	11.3		1998
Copper	AMTOF-03-1298-01	Background	Habitat	mg/kg	=	12.7		1998
Copper	AMTOF-04-1298-01	Background	Habitat	mg/kg	=	13.9		1998
Copper	AMTOF-05-1298-01	Background	Habitat	mg/kg	=	14		1998
Copper	AMTOF-06-1298-01	Background	Habitat	mg/kg	=	15.1		1998
Copper	NR-238	Background	Habitat	mg/Kg	=	17.1		2002
Copper	NR-239	Background	Habitat	mg/Kg	=	15.4		2002
Copper	NR-500-0800-01	Background	Habitat	mg/kg	=	12.8		2000
Copper	NR-501-0800-01	Background	Habitat	mg/kg	=	9.21		2000
Copper	NR-502-0800-01	Background	Habitat	mg/kg	=	13.4		2000
Copper	NR-503-0800-01	Background	Habitat	mg/kg	=	12.3		2000
Copper	NR-504-0800-01	Background	Habitat	mg/kg	=	10.7		2000
Copper	NR-505-0800-01	Background	Habitat	mg/kg	=	11.9		2000
Copper	NR-506-0800-01	Background	Habitat	mg/kg	=	12.2		2000
Copper	NR-507-0800-01	Background	Habitat	mg/kg	=	10.3		2000
Copper	NR-508-0800-01	Background	Habitat	mg/kg	=	10.6		2000
Copper	NR-509-0800-01	Background	Habitat	mg/kg	=	14.1		2000
Copper	NR-510-0800-01	Background	Habitat	mg/kg	=	10.6		2000
Copper	NR-511-0800-01	Background	Habitat	mg/kg	=	12.9		2000
Copper	NR-512-0800-01	Background	Habitat	mg/kg	=	14.9		2000
Copper	NR-513-0800-01	Background	Habitat	mg/kg	=	12.6		2000
Copper	NR-514-0800-01	Background	Habitat	mg/kg	=	11.7		2000
Copper	NR-515-0800-01	Background	Habitat	mg/kg	=	2.77		2000
Copper	NR-516-0800-01	Background	Habitat	mg/kg	=	19.3		2000

Table B-1

Sample Data for Inorganics in TTU Background and Site Soils

Attachment 10A - Thermal Treatment Unit, Ecological Risk Assessment

Analyte	Location	Type	Habitat	Units	Qualifier	Result	Detection Limit	Sample Year
Copper	NR-517-0800-01	Background	Habitat	mg/kg	=	6.25		2000
Copper	NR-518-0800-01	Background	Habitat	mg/kg	=	2.49		2000
Copper	NR-519-0800-01	Background	Habitat	mg/kg	=	6.81		2000
Copper	NR-520-0800-01	Background	Habitat	mg/kg	=	9.26		2000
Copper	NR-521-0800-01	Background	Habitat	mg/kg	=	7.04		2000
Copper	NR-522-0800-01	Background	Habitat	mg/kg	=	15.9		2000
Copper	NR-523-0800-01	Background	Habitat	mg/kg	=	9.63		2000
Copper	NR-524-0800-01	Background	Habitat	mg/kg	=	12.4		2000
Copper	NR-525-0800-01	Background	Habitat	mg/kg	=	9.21		2000
Copper	NR-536	Background	Habitat	mg/Kg	B	19.2		2004
Copper	NR-537	Background	Habitat	mg/Kg	B	26.7		2004
Copper	UTNCBU-01-OCT97-01	Background	Habitat	mg/kg	=	10.2		1997
Copper	UTNCBU-02-OCT97-01	Background	Habitat	mg/kg	=	8.84		1997
Copper	UTNCBU-03-1298-01	Background	Habitat	mg/kg	=	14.6		1998
Copper	UTNCBU-04-1298-01	Background	Habitat	mg/kg	=	14.6		1998
Copper	UTNCBU-05-1298-01	Background	Habitat	mg/kg	=	10.4		1998
Copper	UTNCBU-06-1298-01	Background	Habitat	mg/kg	=	11.3		1998
Copper	UTNEB-03-1298-01	Background	Habitat	mg/kg	=	12.4		1998
Copper	UTNEB-04-1298-01	Background	Habitat	mg/kg	=	16.8		1998
Copper	UTNEB-05-1298-01	Background	Habitat	mg/kg	=	13.8		1998
Copper	UTNEB-06-1298-01	Background	Habitat	mg/kg	=	12.8		1998
Copper	UTNERB-01-OCT97-01	Background	Habitat	mg/kg	=	15.9		1997
Copper	UTNERB-02-OCT97-01	Background	Habitat	mg/kg	=	14		1997
Copper	UTNOCB-01-OCT97-01	Background	Habitat	mg/kg	=	12.9		1997
Copper	UTNOCB-02-OCT97-01	Background	Habitat	mg/kg	=	12.8		1997
Copper	UTNOCBG-03-1298-01	Background	Habitat	mg/kg	=	13.9		1998
Copper	UTNOCBG-04-1298-01	Background	Habitat	mg/kg	=	11.4		1998
Copper	UTNOCBG-05-1298-01	Background	Habitat	mg/kg	=	13.7		1998
Copper	UTNOCBG-06-1298-01	Background	Habitat	mg/kg	=	15.4		1998
Copper	NR-226	OnSite	Habitat	mg/Kg	=	9.4		2002
Copper	NR-227	OnSite	Habitat	mg/Kg	=	11.1		2002
Copper	NR-228	OnSite	OB/OD	mg/Kg	=	16.6		2002
Copper	NR-229	OnSite	Habitat	mg/Kg	=	15.4		2002
Copper	NR-230	OnSite	Habitat	mg/Kg	=	18.6		2002
Copper	NR-231	OnSite	OB/OD	mg/Kg	=	18.8		2002
Copper	NR-232	OnSite	Habitat	mg/Kg	=	20		2002
Copper	NR-233	OnSite	Habitat	mg/Kg	=	10.4		2002
Copper	NR-234	OnSite	Habitat	mg/Kg	=	20.7		2002
Copper	NR-235	OnSite	Habitat	mg/Kg	=	24.4		2002
Copper	NR-236	OnSite	Habitat	mg/Kg	=	20		2002
Copper	NR-237	OnSite	Habitat	mg/Kg	=	13.4		2002
Copper	NR-526	OnSite	Habitat	mg/Kg	J	61		2004
Copper	NR-527	OnSite	Habitat	mg/Kg	B	19.7		2004
Copper	NR-528	OnSite	Habitat	mg/Kg	B	13.2		2004
Copper	NR-529	OnSite	Habitat	mg/Kg	B	18.5		2004
Copper	NR-530	OnSite	Habitat	mg/Kg	B	9.4		2004
Copper	NR-531	OnSite	OB/OD	mg/Kg	B	77.6		2004
Copper	NR-532	OnSite	OB/OD	mg/Kg	B	16.8		2004
Copper	NR-533	OnSite	OB/OD	mg/Kg	B	10.9		2004
Copper	NR-534	OnSite	OB/OD	mg/Kg	B	9.6		2004
Copper	NR-535	OnSite	OB/OD	mg/Kg	B	10.2		2004
Copper	SS1	OnSite	OB/OD	mg/Kg	=	6		1991
Copper	SS10	OnSite	OB/OD	mg/Kg	=	52		1991

Table B-1

Sample Data for Inorganics in TTU Background and Site Soils

Attachment 10A - Thermal Treatment Unit, Ecological Risk Assessment

Analyte	Location	Type	Habitat	Units	Qualifier	Result	Detection Limit	Sample Year
Copper	SS11	OnSite	OB/OD	mg/Kg	=	38		1991
Copper	SS12	OnSite	OB/OD	mg/Kg	=	79		1991
Copper	SS13	OnSite	OB/OD	mg/Kg	=	49		1991
Copper	SS14	OnSite	OB/OD	mg/Kg	=	25		1991
Copper	SS15	OnSite	OB/OD	mg/Kg	=	12		1991
Copper	SS16	OnSite	Habitat	mg/Kg	=	42		1991
Copper	SS17	OnSite	Habitat	mg/Kg	=	15		1991
Copper	SS18	OnSite	Habitat	mg/Kg	=	15		1991
Copper	SS19	OnSite	Habitat	mg/Kg	=	18		1991
Copper	SS2	OnSite	OB/OD	mg/Kg	U	0.5	1	1991
Copper	SS20	OnSite	Habitat	mg/Kg	=	19		1991
Copper	SS3	OnSite	OB/OD	mg/Kg	=	18000		1991
Copper	SS4	OnSite	OB/OD	mg/Kg	=	19		1991
Copper	SS5	OnSite	OB/OD	mg/Kg	=	410		1991
Copper	SS6	OnSite	OB/OD	mg/Kg	=	59		1991
Copper	SS7	OnSite	OB/OD	mg/Kg	=	950		1991
Copper	SS8	OnSite	OB/OD	mg/Kg	=	30		1991
Copper	SS9	OnSite	OB/OD	mg/Kg	=	140		1991
Copper	TTU-SS01S	OnSite	OB/OD	mg/Kg	U	39	78	1989
Copper	TTU-SS02S	OnSite	OB/OD	mg/Kg	U	47.35	94.7	1989
Copper	TTU-SS03S	OnSite	OB/OD	mg/Kg	U	7.65	15.3	1989
Copper	TTU-SS04S(D)	OnSite	OB/OD	mg/Kg	U	41.3	82.6	1989
Copper	TTU-SS05S	OnSite	OB/OD	mg/Kg	U	41.85	83.7	1989
Copper	TTU-SS06S(BG)	OnSite	Habitat	mg/Kg	U	7.05	14.1	1989
Iron	AMTOF-01-1298-01	Background	Habitat	mg/kg	=	11500		1998
Iron	AMTOF-02-1298-01	Background	Habitat	mg/kg	=	10300		1998
Iron	AMTOF-03-1298-01	Background	Habitat	mg/kg	=	12500		1998
Iron	AMTOF-04-1298-01	Background	Habitat	mg/kg	=	12900		1998
Iron	AMTOF-05-1298-01	Background	Habitat	mg/kg	=	10400		1998
Iron	AMTOF-06-1298-01	Background	Habitat	mg/kg	=	11500		1998
Iron	NR-238	Background	Habitat	mg/Kg	=	12300		2002
Iron	NR-239	Background	Habitat	mg/Kg	=	10000		2002
Iron	NR-500-0800-01	Background	Habitat	mg/kg	=	11200		2000
Iron	NR-501-0800-01	Background	Habitat	mg/kg	=	6630		2000
Iron	NR-502-0800-01	Background	Habitat	mg/kg	=	11600		2000
Iron	NR-503-0800-01	Background	Habitat	mg/kg	=	11000		2000
Iron	NR-504-0800-01	Background	Habitat	mg/kg	=	9880		2000
Iron	NR-505-0800-01	Background	Habitat	mg/kg	=	12800		2000
Iron	NR-506-0800-01	Background	Habitat	mg/kg	=	12100		2000
Iron	NR-507-0800-01	Background	Habitat	mg/kg	=	9730		2000
Iron	NR-508-0800-01	Background	Habitat	mg/kg	=	10500		2000
Iron	NR-509-0800-01	Background	Habitat	mg/kg	=	10600		2000
Iron	NR-510-0800-01	Background	Habitat	mg/kg	=	8150		2000
Iron	NR-511-0800-01	Background	Habitat	mg/kg	=	10300		2000
Iron	NR-512-0800-01	Background	Habitat	mg/kg	=	13500		2000
Iron	NR-513-0800-01	Background	Habitat	mg/kg	=	11600		2000
Iron	NR-514-0800-01	Background	Habitat	mg/kg	=	10000		2000
Iron	NR-515-0800-01	Background	Habitat	mg/kg	=	1900		2000
Iron	NR-516-0800-01	Background	Habitat	mg/kg	=	13700		2000
Iron	NR-517-0800-01	Background	Habitat	mg/kg	=	5320		2000
Iron	NR-518-0800-01	Background	Habitat	mg/kg	=	1390		2000
Iron	NR-519-0800-01	Background	Habitat	mg/kg	=	4950		2000
Iron	NR-520-0800-01	Background	Habitat	mg/kg	=	5430		2000

Table B-1
Sample Data for Inorganics in TTU Background and Site Soils
Attachment 10A - Thermal Treatment Unit, Ecological Risk Assessment

Analyte	Location	Type	Habitat	Units	Qualifier	Result	Detection Limit	Sample Year
Iron	NR-521-0800-01	Background	Habitat	mg/kg	=	3370		2000
Iron	NR-522-0800-01	Background	Habitat	mg/kg	=	8550		2000
Iron	NR-523-0800-01	Background	Habitat	mg/kg	=	7070		2000
Iron	NR-524-0800-01	Background	Habitat	mg/kg	=	5640		2000
Iron	NR-525-0800-01	Background	Habitat	mg/kg	=	4610		2000
Iron	NR-536	Background	Habitat	mg/Kg	B	13800		2004
Iron	NR-537	Background	Habitat	mg/Kg	B	15900		2004
Iron	UTNCBU-01-OCT97-01	Background	Habitat	mg/kg	=	9530		1997
Iron	UTNCBU-02-OCT97-01	Background	Habitat	mg/kg	=	8730		1997
Iron	UTNCBU-03-1298-01	Background	Habitat	mg/kg	=	11700		1998
Iron	UTNCBU-04-1298-01	Background	Habitat	mg/kg	=	11400		1998
Iron	UTNCBU-05-1298-01	Background	Habitat	mg/kg	=	9030		1998
Iron	UTNCBU-06-1298-01	Background	Habitat	mg/kg	=	9000		1998
Iron	UTNEB-03-1298-01	Background	Habitat	mg/kg	=	9990		1998
Iron	UTNEB-04-1298-01	Background	Habitat	mg/kg	=	13900		1998
Iron	UTNEB-05-1298-01	Background	Habitat	mg/kg	=	10300		1998
Iron	UTNEB-06-1298-01	Background	Habitat	mg/kg	=	9340		1998
Iron	UTNERB-01-OCT97-01	Background	Habitat	mg/kg	=	16200		1997
Iron	UTNERB-02-OCT97-01	Background	Habitat	mg/kg	=	13400		1997
Iron	UTNOCB-01-OCT97-01	Background	Habitat	mg/kg	=	11800		1997
Iron	UTNOCB-02-OCT97-01	Background	Habitat	mg/kg	=	12400		1997
Iron	UTNOCBG-03-1298-01	Background	Habitat	mg/kg	=	10600		1998
Iron	UTNOCBG-04-1298-01	Background	Habitat	mg/kg	=	9970		1998
Iron	UTNOCBG-05-1298-01	Background	Habitat	mg/kg	=	10100		1998
Iron	UTNOCBG-06-1298-01	Background	Habitat	mg/kg	=	13100		1998
Iron	NR-226	OnSite	Habitat	mg/Kg	=	5450		2002
Iron	NR-227	OnSite	Habitat	mg/Kg	=	8210		2002
Iron	NR-228	OnSite	OB/OD	mg/Kg	=	9440		2002
Iron	NR-229	OnSite	Habitat	mg/Kg	=	12700		2002
Iron	NR-230	OnSite	Habitat	mg/Kg	=	11000		2002
Iron	NR-231	OnSite	OB/OD	mg/Kg	=	11400		2002
Iron	NR-232	OnSite	Habitat	mg/Kg	=	13400		2002
Iron	NR-233	OnSite	Habitat	mg/Kg	=	8410		2002
Iron	NR-234	OnSite	Habitat	mg/Kg	=	12100		2002
Iron	NR-235	OnSite	Habitat	mg/Kg	=	10800		2002
Iron	NR-236	OnSite	Habitat	mg/Kg	=	10100		2002
Iron	NR-237	OnSite	Habitat	mg/Kg	=	10300		2002
Iron	NR-526	OnSite	Habitat	mg/Kg	B	7100		2004
Iron	NR-527	OnSite	Habitat	mg/Kg	B	13000		2004
Iron	NR-528	OnSite	Habitat	mg/Kg	B	7550		2004
Iron	NR-529	OnSite	Habitat	mg/Kg	B	9890		2004
Iron	NR-530	OnSite	Habitat	mg/Kg	B	8430		2004
Iron	NR-531	OnSite	OB/OD	mg/Kg	B	6570		2004
Iron	NR-532	OnSite	OB/OD	mg/Kg	B	4510		2004
Iron	NR-533	OnSite	OB/OD	mg/Kg	B	9360		2004
Iron	NR-534	OnSite	OB/OD	mg/Kg	B	8170		2004
Iron	NR-535	OnSite	OB/OD	mg/Kg	B	9160		2004
Iron	SS1	OnSite	OB/OD	mg/Kg	=	9600		1991
Iron	SS10	OnSite	OB/OD	mg/Kg	=	12000		1991
Iron	SS11	OnSite	OB/OD	mg/Kg	=	14000		1991
Iron	SS12	OnSite	OB/OD	mg/Kg	=	14000		1991
Iron	SS13	OnSite	OB/OD	mg/Kg	=	12000		1991
Iron	SS14	OnSite	OB/OD	mg/Kg	=	15000		1991

Table B-1
Sample Data for Inorganics in TTU Background and Site Soils
Attachment 10A - Thermal Treatment Unit, Ecological Risk Assessment

Analyte	Location	Type	Habitat	Units	Qualifier	Result	Detection Limit	Sample Year
Iron	SS15	OnSite	OB/OD	mg/Kg	=	14000		1991
Iron	SS16	OnSite	Habitat	mg/Kg	=	12000		1991
Iron	SS17	OnSite	Habitat	mg/Kg	=	13000		1991
Iron	SS18	OnSite	Habitat	mg/Kg	=	13000		1991
Iron	SS19	OnSite	Habitat	mg/Kg	=	10000		1991
Iron	SS2	OnSite	OB/OD	mg/Kg	=	6100		1991
Iron	SS20	OnSite	Habitat	mg/Kg	=	14000		1991
Iron	SS3	OnSite	OB/OD	mg/Kg	=	6900		1991
Iron	SS4	OnSite	OB/OD	mg/Kg	=	7800		1991
Iron	SS5	OnSite	OB/OD	mg/Kg	=	15000		1991
Iron	SS6	OnSite	OB/OD	mg/Kg	=	14000		1991
Iron	SS7	OnSite	OB/OD	mg/Kg	=	14000		1991
Iron	SS8	OnSite	OB/OD	mg/Kg	=	11000		1991
Iron	SS9	OnSite	OB/OD	mg/Kg	=	11000		1991
Lead	AMTOF-01-1298-01	Background	Habitat	mg/kg	=	13.2		1998
Lead	AMTOF-02-1298-01	Background	Habitat	mg/kg	=	8.56		1998
Lead	AMTOF-03-1298-01	Background	Habitat	mg/kg	=	11.2		1998
Lead	AMTOF-04-1298-01	Background	Habitat	mg/kg	=	10.5		1998
Lead	AMTOF-05-1298-01	Background	Habitat	mg/kg	=	13		1998
Lead	AMTOF-06-1298-01	Background	Habitat	mg/kg	=	12.8		1998
Lead	NR-238	Background	Habitat	mg/Kg	=	13.8		2002
Lead	NR-239	Background	Habitat	mg/Kg	=	15.9		2002
Lead	NR-500-0800-01	Background	Habitat	mg/kg	=	9.5		2000
Lead	NR-501-0800-01	Background	Habitat	mg/kg	=	7.76		2000
Lead	NR-502-0800-01	Background	Habitat	mg/kg	=	10.4		2000
Lead	NR-503-0800-01	Background	Habitat	mg/kg	=	10		2000
Lead	NR-504-0800-01	Background	Habitat	mg/kg	=	8.3		2000
Lead	NR-505-0800-01	Background	Habitat	mg/kg	=	9.52		2000
Lead	NR-506-0800-01	Background	Habitat	mg/kg	=	10.2		2000
Lead	NR-507-0800-01	Background	Habitat	mg/kg	=	8.21		2000
Lead	NR-508-0800-01	Background	Habitat	mg/kg	=	8.5		2000
Lead	NR-509-0800-01	Background	Habitat	mg/kg	=	11		2000
Lead	NR-510-0800-01	Background	Habitat	mg/kg	=	12		2000
Lead	NR-511-0800-01	Background	Habitat	mg/kg	=	14.1		2000
Lead	NR-512-0800-01	Background	Habitat	mg/kg	=	11.7		2000
Lead	NR-513-0800-01	Background	Habitat	mg/kg	=	10.1		2000
Lead	NR-514-0800-01	Background	Habitat	mg/kg	=	10.2		2000
Lead	NR-515-0800-01	Background	Habitat	mg/kg	=	5.42		2000
Lead	NR-516-0800-01	Background	Habitat	mg/kg	=	14		2000
Lead	NR-517-0800-01	Background	Habitat	mg/kg	=	2.95		2000
Lead	NR-518-0800-01	Background	Habitat	mg/kg	=	5.04		2000
Lead	NR-519-0800-01	Background	Habitat	mg/kg	=	6.8		2000
Lead	NR-520-0800-01	Background	Habitat	mg/kg	=	7.81		2000
Lead	NR-521-0800-01	Background	Habitat	mg/kg	=	5.71		2000
Lead	NR-522-0800-01	Background	Habitat	mg/kg	=	11.6		2000
Lead	NR-523-0800-01	Background	Habitat	mg/kg	=	5.44		2000
Lead	NR-524-0800-01	Background	Habitat	mg/kg	=	9		2000
Lead	NR-525-0800-01	Background	Habitat	mg/kg	=	7.33		2000
Lead	NR-536	Background	Habitat	mg/Kg	=	19.9		2004
Lead	NR-537	Background	Habitat	mg/Kg	=	30.5		2004
Lead	UTNCBU-01-OCT97-01	Background	Habitat	mg/kg	=	6.6		1997
Lead	UTNCBU-02-OCT97-01	Background	Habitat	mg/kg	=	5.99		1997
Lead	UTNCBU-03-1298-01	Background	Habitat	mg/kg	=	11		1998

Table B-1

Sample Data for Inorganics in TTU Background and Site Soils

Attachment 10A - Thermal Treatment Unit, Ecological Risk Assessment

Analyte	Location	Type	Habitat	Units	Qualifier	Result	Detection Limit	Sample Year
Lead	UTNCBU-04-1298-01	Background	Habitat	mg/kg	=	11.2		1998
Lead	UTNCBU-05-1298-01	Background	Habitat	mg/kg	=	8.28		1998
Lead	UTNCBU-06-1298-01	Background	Habitat	mg/kg	=	10		1998
Lead	UTNEB-03-1298-01	Background	Habitat	mg/kg	=	10.8		1998
Lead	UTNEB-04-1298-01	Background	Habitat	mg/kg	=	12.8		1998
Lead	UTNEB-05-1298-01	Background	Habitat	mg/kg	=	8.55		1998
Lead	UTNEB-06-1298-01	Background	Habitat	mg/kg	=	11.9		1998
Lead	UTNERB-01-OCT97-01	Background	Habitat	mg/kg	=	8.55		1997
Lead	UTNERB-02-OCT97-01	Background	Habitat	mg/kg	=	7.19		1997
Lead	UTNOCB-01-OCT97-01	Background	Habitat	mg/kg	=	5.34		1997
Lead	UTNOCB-02-OCT97-01	Background	Habitat	mg/kg	=	6.66		1997
Lead	UTNOCBG-03-1298-01	Background	Habitat	mg/kg	=	13.8		1998
Lead	UTNOCBG-04-1298-01	Background	Habitat	mg/kg	=	11.5		1998
Lead	UTNOCBG-05-1298-01	Background	Habitat	mg/kg	=	15.9		1998
Lead	UTNOCBG-06-1298-01	Background	Habitat	mg/kg	=	10.6		1998
Lead	NR-226	OnSite	Habitat	mg/Kg	=	5.6		2002
Lead	NR-227	OnSite	Habitat	mg/Kg	=	9.1		2002
Lead	NR-228	OnSite	OB/OD	mg/Kg	=	12.5		2002
Lead	NR-229	OnSite	Habitat	mg/Kg	=	6.5		2002
Lead	NR-230	OnSite	Habitat	mg/Kg	=	20.5		2002
Lead	NR-231	OnSite	OB/OD	mg/Kg	=	9		2002
Lead	NR-232	OnSite	Habitat	mg/Kg	=	16.9		2002
Lead	NR-233	OnSite	Habitat	mg/Kg	=	4.5		2002
Lead	NR-234	OnSite	Habitat	mg/Kg	=	14.1		2002
Lead	NR-235	OnSite	Habitat	mg/Kg	=	16.3		2002
Lead	NR-236	OnSite	Habitat	mg/Kg	=	17.8		2002
Lead	NR-237	OnSite	Habitat	mg/Kg	=	10.5		2002
Lead	NR-526	OnSite	Habitat	mg/Kg	=	9.7		2004
Lead	NR-527	OnSite	Habitat	mg/Kg	=	17.5		2004
Lead	NR-528	OnSite	Habitat	mg/Kg	=	15.8		2004
Lead	NR-529	OnSite	Habitat	mg/Kg	=	11.8		2004
Lead	NR-530	OnSite	Habitat	mg/Kg	=	6		2004
Lead	NR-531	OnSite	OB/OD	mg/Kg	=	3.2		2004
Lead	NR-532	OnSite	OB/OD	mg/Kg	=	2.8		2004
Lead	NR-533	OnSite	OB/OD	mg/Kg	=	6.9		2004
Lead	NR-534	OnSite	OB/OD	mg/Kg	=	6.3		2004
Lead	NR-535	OnSite	OB/OD	mg/Kg	=	6.2		2004
Lead	SS1	OnSite	OB/OD	mg/Kg	=	12		1991
Lead	SS10	OnSite	OB/OD	mg/Kg	=	36		1991
Lead	SS11	OnSite	OB/OD	mg/Kg	=	30		1991
Lead	SS12	OnSite	OB/OD	mg/Kg	=	67		1991
Lead	SS13	OnSite	OB/OD	mg/Kg	=	300		1991
Lead	SS14	OnSite	OB/OD	mg/Kg	=	24		1991
Lead	SS15	OnSite	OB/OD	mg/Kg	=	19		1991
Lead	SS16	OnSite	Habitat	mg/Kg	=	34		1991
Lead	SS17	OnSite	Habitat	mg/Kg	=	36		1991
Lead	SS18	OnSite	Habitat	mg/Kg	=	29		1991
Lead	SS19	OnSite	Habitat	mg/Kg	=	28		1991
Lead	SS2	OnSite	OB/OD	mg/Kg	U	1	2	1991
Lead	SS20	OnSite	Habitat	mg/Kg	=	22		1991
Lead	SS3	OnSite	OB/OD	mg/Kg	=	34		1991
Lead	SS4	OnSite	OB/OD	mg/Kg	U	1	2	1991
Lead	SS5	OnSite	OB/OD	mg/Kg	=	48000		1991

Table B-1

Sample Data for Inorganics in TTU Background and Site Soils

Attachment 10A - Thermal Treatment Unit, Ecological Risk Assessment

Analyte	Location	Type	Habitat	Units	Qualifier	Result	Detection Limit	Sample Year
Lead	SS6	OnSite	OB/OD	mg/Kg	=	80		1991
Lead	SS7	OnSite	OB/OD	mg/Kg	=	1500		1991
Lead	SS8	OnSite	OB/OD	mg/Kg	=	65		1991
Lead	SS9	OnSite	OB/OD	mg/Kg	=	140		1991
Lead	TTU-SS01S	OnSite	OB/OD	mg/Kg	U	12.4	24.8	1989
Lead	TTU-SS02S	OnSite	OB/OD	mg/Kg	U	405.5	811	1989
Lead	TTU-SS03S	OnSite	OB/OD	mg/Kg	U	80	160	1989
Lead	TTU-SS04S(D)	OnSite	OB/OD	mg/Kg	U	55.5	111	1989
Lead	TTU-SS05S	OnSite	OB/OD	mg/Kg	U	9.25	18.5	1989
Lead	TTU-SS06S(BG)	OnSite	Habitat	mg/Kg	U	8.05	16.1	1989
Magnesium	AMTOF-01-1298-01	Background	Habitat	mg/kg	=	22700		1998
Magnesium	AMTOF-02-1298-01	Background	Habitat	mg/kg	=	16900		1998
Magnesium	AMTOF-03-1298-01	Background	Habitat	mg/kg	=	24200		1998
Magnesium	AMTOF-04-1298-01	Background	Habitat	mg/kg	=	24200		1998
Magnesium	AMTOF-05-1298-01	Background	Habitat	mg/kg	=	18800		1998
Magnesium	AMTOF-06-1298-01	Background	Habitat	mg/kg	=	22500		1998
Magnesium	NR-238	Background	Habitat	mg/Kg	=	21700		2002
Magnesium	NR-239	Background	Habitat	mg/Kg	=	22100		2002
Magnesium	NR-500-0800-01	Background	Habitat	mg/kg	=	27600		2000
Magnesium	NR-501-0800-01	Background	Habitat	mg/kg	=	40400		2000
Magnesium	NR-502-0800-01	Background	Habitat	mg/kg	=	31600		2000
Magnesium	NR-503-0800-01	Background	Habitat	mg/kg	=	28200		2000
Magnesium	NR-504-0800-01	Background	Habitat	mg/kg	=	27800		2000
Magnesium	NR-505-0800-01	Background	Habitat	mg/kg	=	21800		2000
Magnesium	NR-506-0800-01	Background	Habitat	mg/kg	=	21100		2000
Magnesium	NR-507-0800-01	Background	Habitat	mg/kg	=	17500		2000
Magnesium	NR-508-0800-01	Background	Habitat	mg/kg	=	22300		2000
Magnesium	NR-509-0800-01	Background	Habitat	mg/kg	=	15500		2000
Magnesium	NR-510-0800-01	Background	Habitat	mg/kg	=	18600		2000
Magnesium	NR-511-0800-01	Background	Habitat	mg/kg	=	18800		2000
Magnesium	NR-512-0800-01	Background	Habitat	mg/kg	=	19700		2000
Magnesium	NR-513-0800-01	Background	Habitat	mg/kg	=	16400		2000
Magnesium	NR-514-0800-01	Background	Habitat	mg/kg	=	38000		2000
Magnesium	NR-515-0800-01	Background	Habitat	mg/kg	=	39700		2000
Magnesium	NR-516-0800-01	Background	Habitat	mg/kg	=	22600		2000
Magnesium	NR-517-0800-01	Background	Habitat	mg/kg	B	167000		2000
Magnesium	NR-518-0800-01	Background	Habitat	mg/kg	=	21100		2000
Magnesium	NR-519-0800-01	Background	Habitat	mg/kg	=	25000		2000
Magnesium	NR-520-0800-01	Background	Habitat	mg/kg	B	83800		2000
Magnesium	NR-521-0800-01	Background	Habitat	mg/kg	=	24200		2000
Magnesium	NR-522-0800-01	Background	Habitat	mg/kg	=	34300		2000
Magnesium	NR-523-0800-01	Background	Habitat	mg/kg	=	41700		2000
Magnesium	NR-524-0800-01	Background	Habitat	mg/kg	=	26400		2000
Magnesium	NR-525-0800-01	Background	Habitat	mg/kg	=	17900		2000
Magnesium	NR-536	Background	Habitat	mg/Kg	B	29000		2004
Magnesium	NR-537	Background	Habitat	mg/Kg	B	31800		2004
Magnesium	UTNCBU-01-OCT97-01	Background	Habitat	mg/kg	=	32700		1997
Magnesium	UTNCBU-02-OCT97-01	Background	Habitat	mg/kg	=	29500		1997
Magnesium	UTNCBU-03-1298-01	Background	Habitat	mg/kg	=	36900		1998
Magnesium	UTNCBU-04-1298-01	Background	Habitat	mg/kg	=	35700		1998
Magnesium	UTNCBU-05-1298-01	Background	Habitat	mg/kg	=	29800		1998
Magnesium	UTNCBU-06-1298-01	Background	Habitat	mg/kg	=	28200		1998
Magnesium	UTNEB-03-1298-01	Background	Habitat	mg/kg	=	21800		1998

Table B-1

Sample Data for Inorganics in TTU Background and Site Soils

Attachment 10A - Thermal Treatment Unit, Ecological Risk Assessment

Analyte	Location	Type	Habitat	Units	Qualifier	Result	Detection Limit	Sample Year
Magnesium	UTNEB-04-1298-01	Background	Habitat	mg/kg	=	29700		1998
Magnesium	UTNEB-05-1298-01	Background	Habitat	mg/kg	=	32300		1998
Magnesium	UTNEB-06-1298-01	Background	Habitat	mg/kg	=	26800		1998
Magnesium	UTNERB-01-OCT97-01	Background	Habitat	mg/kg	=	38700		1997
Magnesium	UTNERB-02-OCT97-01	Background	Habitat	mg/kg	=	37700		1997
Magnesium	UTNOCB-01-OCT97-01	Background	Habitat	mg/kg	=	16500		1997
Magnesium	UTNOCB-02-OCT97-01	Background	Habitat	mg/kg	=	23100		1997
Magnesium	UTNOCBG-03-1298-01	Background	Habitat	mg/kg	=	20600		1998
Magnesium	UTNOCBG-04-1298-01	Background	Habitat	mg/kg	=	20200		1998
Magnesium	UTNOCBG-05-1298-01	Background	Habitat	mg/kg	=	19300		1998
Magnesium	UTNOCBG-06-1298-01	Background	Habitat	mg/kg	=	24700		1998
Magnesium	NR-226	OnSite	Habitat	mg/Kg	=	11500		2002
Magnesium	NR-227	OnSite	Habitat	mg/Kg	=	15700		2002
Magnesium	NR-228	OnSite	OB/OD	mg/Kg	=	17800		2002
Magnesium	NR-229	OnSite	Habitat	mg/Kg	=	22900		2002
Magnesium	NR-230	OnSite	Habitat	mg/Kg	=	19800		2002
Magnesium	NR-231	OnSite	OB/OD	mg/Kg	=	20600		2002
Magnesium	NR-232	OnSite	Habitat	mg/Kg	=	22300		2002
Magnesium	NR-233	OnSite	Habitat	mg/Kg	=	12200		2002
Magnesium	NR-234	OnSite	Habitat	mg/Kg	=	24300		2002
Magnesium	NR-235	OnSite	Habitat	mg/Kg	=	20900		2002
Magnesium	NR-236	OnSite	Habitat	mg/Kg	=	20100		2002
Magnesium	NR-237	OnSite	Habitat	mg/Kg	=	17200		2002
Magnesium	NR-526	OnSite	Habitat	mg/Kg	B	12200		2004
Magnesium	NR-527	OnSite	Habitat	mg/Kg	B	22500		2004
Magnesium	NR-528	OnSite	Habitat	mg/Kg	B	13900		2004
Magnesium	NR-529	OnSite	Habitat	mg/Kg	B	17600		2004
Magnesium	NR-530	OnSite	Habitat	mg/Kg	B	14200		2004
Magnesium	NR-531	OnSite	OB/OD	mg/Kg	B	11000		2004
Magnesium	NR-532	OnSite	OB/OD	mg/Kg	B	10800		2004
Magnesium	NR-533	OnSite	OB/OD	mg/Kg	B	14200		2004
Magnesium	NR-534	OnSite	OB/OD	mg/Kg	B	11800		2004
Magnesium	NR-535	OnSite	OB/OD	mg/Kg	B	11000		2004
Magnesium	SS1	OnSite	OB/OD	mg/Kg	=	15000		1991
Magnesium	SS10	OnSite	OB/OD	mg/Kg	=	16000		1991
Magnesium	SS11	OnSite	OB/OD	mg/Kg	=	22000		1991
Magnesium	SS12	OnSite	OB/OD	mg/Kg	=	19000		1991
Magnesium	SS13	OnSite	OB/OD	mg/Kg	=	19000		1991
Magnesium	SS14	OnSite	OB/OD	mg/Kg	=	18000		1991
Magnesium	SS15	OnSite	OB/OD	mg/Kg	=	19000		1991
Magnesium	SS16	OnSite	Habitat	mg/Kg	=	17000		1991
Magnesium	SS17	OnSite	Habitat	mg/Kg	=	22000		1991
Magnesium	SS18	OnSite	Habitat	mg/Kg	=	20000		1991
Magnesium	SS19	OnSite	Habitat	mg/Kg	=	17000		1991
Magnesium	SS2	OnSite	OB/OD	mg/Kg	=	9700		1991
Magnesium	SS20	OnSite	Habitat	mg/Kg	=	22000		1991
Magnesium	SS3	OnSite	OB/OD	mg/Kg	=	13000		1991
Magnesium	SS4	OnSite	OB/OD	mg/Kg	=	14000		1991
Magnesium	SS5	OnSite	OB/OD	mg/Kg	=	14000		1991
Magnesium	SS6	OnSite	OB/OD	mg/Kg	=	19000		1991
Magnesium	SS7	OnSite	OB/OD	mg/Kg	=	14000		1991
Magnesium	SS8	OnSite	OB/OD	mg/Kg	=	14000		1991
Magnesium	SS9	OnSite	OB/OD	mg/Kg	=	13000		1991

Table B-1

Sample Data for Inorganics in TTU Background and Site Soils

Attachment 10A - Thermal Treatment Unit, Ecological Risk Assessment

Analyte	Location	Type	Habitat	Units	Qualifier	Result	Detection Limit	Sample Year
Manganese	AMTOF-01-1298-01	Background	Habitat	mg/kg	=	436		1998
Manganese	AMTOF-02-1298-01	Background	Habitat	mg/kg	=	313		1998
Manganese	AMTOF-03-1298-01	Background	Habitat	mg/kg	=	456		1998
Manganese	AMTOF-04-1298-01	Background	Habitat	mg/kg	=	429		1998
Manganese	AMTOF-05-1298-01	Background	Habitat	mg/kg	=	386		1998
Manganese	AMTOF-06-1298-01	Background	Habitat	mg/kg	=	395		1998
Manganese	NR-238	Background	Habitat	mg/Kg	=	432		2002
Manganese	NR-239	Background	Habitat	mg/Kg	=	464		2002
Manganese	NR-500-0800-01	Background	Habitat	mg/kg	=	356		2000
Manganese	NR-501-0800-01	Background	Habitat	mg/kg	=	196		2000
Manganese	NR-502-0800-01	Background	Habitat	mg/kg	=	364		2000
Manganese	NR-503-0800-01	Background	Habitat	mg/kg	=	338		2000
Manganese	NR-504-0800-01	Background	Habitat	mg/kg	=	296		2000
Manganese	NR-505-0800-01	Background	Habitat	mg/kg	=	371		2000
Manganese	NR-506-0800-01	Background	Habitat	mg/kg	=	331		2000
Manganese	NR-507-0800-01	Background	Habitat	mg/kg	=	305		2000
Manganese	NR-508-0800-01	Background	Habitat	mg/kg	=	335		2000
Manganese	NR-509-0800-01	Background	Habitat	mg/kg	=	351		2000
Manganese	NR-510-0800-01	Background	Habitat	mg/kg	=	322		2000
Manganese	NR-511-0800-01	Background	Habitat	mg/kg	=	389		2000
Manganese	NR-512-0800-01	Background	Habitat	mg/kg	=	403		2000
Manganese	NR-513-0800-01	Background	Habitat	mg/kg	=	370		2000
Manganese	NR-514-0800-01	Background	Habitat	mg/kg	=	314		2000
Manganese	NR-515-0800-01	Background	Habitat	mg/kg	=	60.1		2000
Manganese	NR-516-0800-01	Background	Habitat	mg/kg	=	859		2000
Manganese	NR-517-0800-01	Background	Habitat	mg/kg	=	138		2000
Manganese	NR-518-0800-01	Background	Habitat	mg/kg	=	43.4		2000
Manganese	NR-519-0800-01	Background	Habitat	mg/kg	=	183		2000
Manganese	NR-520-0800-01	Background	Habitat	mg/kg	=	183		2000
Manganese	NR-521-0800-01	Background	Habitat	mg/kg	=	131		2000
Manganese	NR-522-0800-01	Background	Habitat	mg/kg	=	223		2000
Manganese	NR-523-0800-01	Background	Habitat	mg/kg	=	229		2000
Manganese	NR-524-0800-01	Background	Habitat	mg/kg	=	142		2000
Manganese	NR-525-0800-01	Background	Habitat	mg/kg	=	106		2000
Manganese	NR-536	Background	Habitat	mg/Kg	=	517		2004
Manganese	NR-537	Background	Habitat	mg/Kg	=	602		2004
Manganese	UTNCBU-01-OCT97-01	Background	Habitat	mg/kg	=	287		1997
Manganese	UTNCBU-02-OCT97-01	Background	Habitat	mg/kg	=	274		1997
Manganese	UTNCBU-03-1298-01	Background	Habitat	mg/kg	=	396		1998
Manganese	UTNCBU-04-1298-01	Background	Habitat	mg/kg	=	396		1998
Manganese	UTNCBU-05-1298-01	Background	Habitat	mg/kg	=	309		1998
Manganese	UTNCBU-06-1298-01	Background	Habitat	mg/kg	=	318		1998
Manganese	UTNEB-03-1298-01	Background	Habitat	mg/kg	=	421		1998
Manganese	UTNEB-04-1298-01	Background	Habitat	mg/kg	=	400		1998
Manganese	UTNEB-05-1298-01	Background	Habitat	mg/kg	=	386		1998
Manganese	UTNEB-06-1298-01	Background	Habitat	mg/kg	=	320		1998
Manganese	UTNERB-01-OCT97-01	Background	Habitat	mg/kg	=	361		1997
Manganese	UTNERB-02-OCT97-01	Background	Habitat	mg/kg	=	326		1997
Manganese	UTNOCB-01-OCT97-01	Background	Habitat	mg/kg	=	246		1997
Manganese	UTNOCB-02-OCT97-01	Background	Habitat	mg/kg	=	317		1997
Manganese	UTNOCBG-03-1298-01	Background	Habitat	mg/kg	=	418		1998
Manganese	UTNOCBG-04-1298-01	Background	Habitat	mg/kg	=	478		1998
Manganese	UTNOCBG-05-1298-01	Background	Habitat	mg/kg	=	455		1998

Table B-1
Sample Data for Inorganics in TTU Background and Site Soils
Attachment 10A - Thermal Treatment Unit, Ecological Risk Assessment

Analyte	Location	Type	Habitat	Units	Qualifier	Result	Detection Limit	Sample Year
Manganese	UTNOCBG-06-1298-01	Background	Habitat	mg/kg	=	468		1998
Manganese	NR-226	OnSite	Habitat	mg/Kg	=	204		2002
Manganese	NR-227	OnSite	Habitat	mg/Kg	=	377		2002
Manganese	NR-228	OnSite	OB/OD	mg/Kg	=	376		2002
Manganese	NR-229	OnSite	Habitat	mg/Kg	=	481		2002
Manganese	NR-230	OnSite	Habitat	mg/Kg	=	519		2002
Manganese	NR-231	OnSite	OB/OD	mg/Kg	=	420		2002
Manganese	NR-232	OnSite	Habitat	mg/Kg	=	458		2002
Manganese	NR-233	OnSite	Habitat	mg/Kg	=	204		2002
Manganese	NR-234	OnSite	Habitat	mg/Kg	=	429		2002
Manganese	NR-235	OnSite	Habitat	mg/Kg	=	430		2002
Manganese	NR-236	OnSite	Habitat	mg/Kg	=	458		2002
Manganese	NR-237	OnSite	Habitat	mg/Kg	=	308		2002
Manganese	NR-526	OnSite	Habitat	mg/Kg	=	218		2004
Manganese	NR-527	OnSite	Habitat	mg/Kg	=	451		2004
Manganese	NR-528	OnSite	Habitat	mg/Kg	=	333		2004
Manganese	NR-529	OnSite	Habitat	mg/Kg	=	305		2004
Manganese	NR-530	OnSite	Habitat	mg/Kg	=	203		2004
Manganese	NR-531	OnSite	OB/OD	mg/Kg	=	171		2004
Manganese	NR-532	OnSite	OB/OD	mg/Kg	=	125		2004
Manganese	NR-533	OnSite	OB/OD	mg/Kg	=	225		2004
Manganese	NR-534	OnSite	OB/OD	mg/Kg	J	191		2004
Manganese	NR-535	OnSite	OB/OD	mg/Kg	=	190		2004
Manganese	SS1	OnSite	OB/OD	mg/Kg	=	270		1991
Manganese	SS10	OnSite	OB/OD	mg/Kg	=	290		1991
Manganese	SS11	OnSite	OB/OD	mg/Kg	=	480		1991
Manganese	SS12	OnSite	OB/OD	mg/Kg	=	440		1991
Manganese	SS13	OnSite	OB/OD	mg/Kg	=	350		1991
Manganese	SS14	OnSite	OB/OD	mg/Kg	=	360		1991
Manganese	SS15	OnSite	OB/OD	mg/Kg	=	410		1991
Manganese	SS16	OnSite	Habitat	mg/Kg	=	400		1991
Manganese	SS17	OnSite	Habitat	mg/Kg	=	490		1991
Manganese	SS18	OnSite	Habitat	mg/Kg	=	430		1991
Manganese	SS19	OnSite	Habitat	mg/Kg	=	390		1991
Manganese	SS2	OnSite	OB/OD	mg/Kg	=	140		1991
Manganese	SS20	OnSite	Habitat	mg/Kg	=	460		1991
Manganese	SS3	OnSite	OB/OD	mg/Kg	=	120		1991
Manganese	SS4	OnSite	OB/OD	mg/Kg	=	200		1991
Manganese	SS5	OnSite	OB/OD	mg/Kg	=	320		1991
Manganese	SS6	OnSite	OB/OD	mg/Kg	=	410		1991
Manganese	SS7	OnSite	OB/OD	mg/Kg	=	330		1991
Manganese	SS8	OnSite	OB/OD	mg/Kg	=	310		1991
Manganese	SS9	OnSite	OB/OD	mg/Kg	=	280		1991
Manganese	TTU-SS01S	OnSite	OB/OD	mg/Kg	=	181		1989
Manganese	TTU-SS02S	OnSite	OB/OD	mg/Kg	=	219		1989
Manganese	TTU-SS03S	OnSite	OB/OD	mg/Kg	=	189		1989
Manganese	TTU-SS04S(D)	OnSite	OB/OD	mg/Kg	=	139		1989
Manganese	TTU-SS05S	OnSite	OB/OD	mg/Kg	=	219		1989
Manganese	TTU-SS06S(BG)	OnSite	Habitat	mg/Kg	=	345		1989
Mercury	NR-238	Background	Habitat	mg/Kg	U	0.01	0.02	2002
Mercury	NR-239	Background	Habitat	mg/Kg	U	0.01	0.02	2002
Mercury	NR-536	Background	Habitat	mg/Kg	B	0.0262		2004
Mercury	NR-537	Background	Habitat	mg/Kg	B	0.025		2004

Table B-1
Sample Data for Inorganics in TTU Background and Site Soils
Attachment 10A - Thermal Treatment Unit, Ecological Risk Assessment

Analyte	Location	Type	Habitat	Units	Qualifier	Result	Detection Limit	Sample Year
Mercury	NR-226	OnSite	Habitat	mg/Kg	U	0.01	0.02	2002
Mercury	NR-227	OnSite	Habitat	mg/Kg	U	0.01	0.02	2002
Mercury	NR-228	OnSite	OB/OD	mg/Kg	U	0.01	0.02	2002
Mercury	NR-229	OnSite	Habitat	mg/Kg	U	0.01	0.02	2002
Mercury	NR-230	OnSite	Habitat	mg/Kg	=	0.03		2002
Mercury	NR-231	OnSite	OB/OD	mg/Kg	U	0.01	0.02	2002
Mercury	NR-232	OnSite	Habitat	mg/Kg	U	0.01	0.02	2002
Mercury	NR-233	OnSite	Habitat	mg/Kg	U	0.01	0.02	2002
Mercury	NR-234	OnSite	Habitat	mg/Kg	=	0.03		2002
Mercury	NR-235	OnSite	Habitat	mg/Kg	U	0.01	0.02	2002
Mercury	NR-236	OnSite	Habitat	mg/Kg	U	0.01	0.02	2002
Mercury	NR-237	OnSite	Habitat	mg/Kg	U	0.01	0.02	2002
Mercury	NR-526	OnSite	Habitat	mg/Kg	B	0.0087		2004
Mercury	NR-527	OnSite	Habitat	mg/Kg	B	0.0206		2004
Mercury	NR-528	OnSite	Habitat	mg/Kg	B	0.0152		2004
Mercury	NR-529	OnSite	Habitat	mg/Kg	B	0.0085		2004
Mercury	NR-530	OnSite	Habitat	mg/Kg	B	0.0064		2004
Mercury	NR-531	OnSite	OB/OD	mg/Kg	B	0.0065		2004
Mercury	NR-532	OnSite	OB/OD	mg/Kg	B	0.005		2004
Mercury	NR-533	OnSite	OB/OD	mg/Kg	B	0.0086		2004
Mercury	NR-534	OnSite	OB/OD	mg/Kg	B	0.0073		2004
Mercury	NR-535	OnSite	OB/OD	mg/Kg	B	0.0071		2004
Mercury	SS1	OnSite	OB/OD	mg/Kg	U	0.025	0.05	1991
Mercury	SS10	OnSite	OB/OD	mg/Kg	U	0.025	0.05	1991
Mercury	SS11	OnSite	OB/OD	mg/Kg	U	0.025	0.05	1991
Mercury	SS12	OnSite	OB/OD	mg/Kg	U	0.025	0.05	1991
Mercury	SS13	OnSite	OB/OD	mg/Kg	=	0.07		1991
Mercury	SS14	OnSite	OB/OD	mg/Kg	U	0.025	0.05	1991
Mercury	SS15	OnSite	OB/OD	mg/Kg	U	0.025	0.05	1991
Mercury	SS16	OnSite	Habitat	mg/Kg	U	0.025	0.05	1991
Mercury	SS17	OnSite	Habitat	mg/Kg	U	0.025	0.05	1991
Mercury	SS18	OnSite	Habitat	mg/Kg	U	0.025	0.05	1991
Mercury	SS19	OnSite	Habitat	mg/Kg	U	0.025	0.05	1991
Mercury	SS2	OnSite	OB/OD	mg/Kg	U	0.025	0.05	1991
Mercury	SS20	OnSite	Habitat	mg/Kg	U	0.025	0.05	1991
Mercury	SS3	OnSite	OB/OD	mg/Kg	U	0.025	0.05	1991
Mercury	SS4	OnSite	OB/OD	mg/Kg	U	0.025	0.05	1991
Mercury	SS5	OnSite	OB/OD	mg/Kg	U	0.025	0.05	1991
Mercury	SS6	OnSite	OB/OD	mg/Kg	U	0.025	0.05	1991
Mercury	SS7	OnSite	OB/OD	mg/Kg	U	0.025	0.05	1991
Mercury	SS8	OnSite	OB/OD	mg/Kg	U	0.025	0.05	1991
Mercury	SS9	OnSite	OB/OD	mg/Kg	U	0.025	0.05	1991
Mercury	TTU-SS01S	OnSite	OB/OD	mg/Kg	U	0.045	0.09	1989
Mercury	TTU-SS02S	OnSite	OB/OD	mg/Kg	U	0.005	0.01	1989
Mercury	TTU-SS03S	OnSite	OB/OD	mg/Kg	U	0.055	0.11	1989
Mercury	TTU-SS04S(D)	OnSite	OB/OD	mg/Kg	U	0.055	0.11	1989
Mercury	TTU-SS05S	OnSite	OB/OD	mg/Kg	U	0.055	0.11	1989
Mercury	TTU-SS06S(BG)	OnSite	Habitat	mg/Kg	U	0.055	0.11	1989
Molybdenum	AMTOF-01-1298-01	Background	Habitat	mg/kg	=	0.679		1998
Molybdenum	AMTOF-02-1298-01	Background	Habitat	mg/kg	=	0.685		1998
Molybdenum	AMTOF-03-1298-01	Background	Habitat	mg/kg	=	0.696		1998
Molybdenum	AMTOF-04-1298-01	Background	Habitat	mg/kg	=	0.612		1998
Molybdenum	AMTOF-05-1298-01	Background	Habitat	mg/kg	=	0.658		1998

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Sample Data for Inorganics in TTU Background and Site Soils

Attachment 10A - Thermal Treatment Unit, Ecological Risk Assessment

Analyte	Location	Type	Habitat	Units	Qualifier	Result	Detection Limit	Sample Year
Molybdenum	AMTOF-06-1298-01	Background	Habitat	mg/kg	=	0.494		1998
Molybdenum	NR-238	Background	Habitat	mg/Kg	=	1.1		2002
Molybdenum	NR-239	Background	Habitat	mg/Kg	=	0.85		2002
Molybdenum	NR-500-0800-01	Background	Habitat	mg/kg	J	0.748		2000
Molybdenum	NR-501-0800-01	Background	Habitat	mg/kg	J	0.242		2000
Molybdenum	NR-502-0800-01	Background	Habitat	mg/kg	J	0.523		2000
Molybdenum	NR-503-0800-01	Background	Habitat	mg/kg	J	0.517		2000
Molybdenum	NR-504-0800-01	Background	Habitat	mg/kg	J	0.509		2000
Molybdenum	NR-505-0800-01	Background	Habitat	mg/kg	J	0.921		2000
Molybdenum	NR-506-0800-01	Background	Habitat	mg/kg	=	1.2		2000
Molybdenum	NR-507-0800-01	Background	Habitat	mg/kg	J	0.381		2000
Molybdenum	NR-508-0800-01	Background	Habitat	mg/kg	J	0.692		2000
Molybdenum	NR-509-0800-01	Background	Habitat	mg/kg	=	3.34		2000
Molybdenum	NR-510-0800-01	Background	Habitat	mg/kg	J	0.623		2000
Molybdenum	NR-511-0800-01	Background	Habitat	mg/kg	J	0.465		2000
Molybdenum	NR-512-0800-01	Background	Habitat	mg/kg	J	0.373		2000
Molybdenum	NR-513-0800-01	Background	Habitat	mg/kg	=	0.895		2000
Molybdenum	NR-514-0800-01	Background	Habitat	mg/kg	J	0.575		2000
Molybdenum	NR-515-0800-01	Background	Habitat	mg/kg	J	0.247		2000
Molybdenum	NR-516-0800-01	Background	Habitat	mg/kg	=	4.91		2000
Molybdenum	NR-517-0800-01	Background	Habitat	mg/kg	J	0.5		2000
Molybdenum	NR-518-0800-01	Background	Habitat	mg/kg	J	0.13		2000
Molybdenum	NR-519-0800-01	Background	Habitat	mg/kg	U	0.073	0.146	2000
Molybdenum	NR-520-0800-01	Background	Habitat	mg/kg	J	0.23		2000
Molybdenum	NR-521-0800-01	Background	Habitat	mg/kg	J	0.422		2000
Molybdenum	NR-522-0800-01	Background	Habitat	mg/kg	J	0.662		2000
Molybdenum	NR-523-0800-01	Background	Habitat	mg/kg	J	0.719		2000
Molybdenum	NR-524-0800-01	Background	Habitat	mg/kg	J	0.577		2000
Molybdenum	NR-525-0800-01	Background	Habitat	mg/kg	J	0.589		2000
Molybdenum	NR-536	Background	Habitat	mg/Kg	J	0.98		2004
Molybdenum	NR-537	Background	Habitat	mg/Kg	J	0.8		2004
Molybdenum	UTNCBU-01-OCT97-01	Background	Habitat	mg/kg	=	0.587		1997
Molybdenum	UTNCBU-02-OCT97-01	Background	Habitat	mg/kg	B	0.352		1997
Molybdenum	UTNCBU-03-1298-01	Background	Habitat	mg/kg	B	0.527		1998
Molybdenum	UTNCBU-04-1298-01	Background	Habitat	mg/kg	B	0.399		1998
Molybdenum	UTNCBU-05-1298-01	Background	Habitat	mg/kg	B	0.409		1998
Molybdenum	UTNCBU-06-1298-01	Background	Habitat	mg/kg	B	0.513		1998
Molybdenum	UTNEB-03-1298-01	Background	Habitat	mg/kg	B	0.598		1998
Molybdenum	UTNEB-04-1298-01	Background	Habitat	mg/kg	B	0.616		1998
Molybdenum	UTNEB-05-1298-01	Background	Habitat	mg/kg	B	0.501		1998
Molybdenum	UTNEB-06-1298-01	Background	Habitat	mg/kg	B	0.538		1998
Molybdenum	UTNERB-01-OCT97-01	Background	Habitat	mg/kg	=	1.04		1997
Molybdenum	UTNERB-02-OCT97-01	Background	Habitat	mg/kg	=	0.701		1997
Molybdenum	UTNOCB-01-OCT97-01	Background	Habitat	mg/kg	=	1.37		1997
Molybdenum	UTNOCB-02-OCT97-01	Background	Habitat	mg/kg	=	1.62		1997
Molybdenum	UTNOCBG-03-1298-01	Background	Habitat	mg/kg	=	0.966		1998
Molybdenum	UTNOCBG-04-1298-01	Background	Habitat	mg/kg	=	1.88		1998
Molybdenum	UTNOCBG-05-1298-01	Background	Habitat	mg/kg	=	1.81		1998
Molybdenum	UTNOCBG-06-1298-01	Background	Habitat	mg/kg	=	1.45		1998
Molybdenum	NR-226	OnSite	Habitat	mg/Kg	U	0.15	0.3	2002
Molybdenum	NR-227	OnSite	Habitat	mg/Kg	U	0.15	0.3	2002
Molybdenum	NR-228	OnSite	OB/OD	mg/Kg	=	0.75		2002
Molybdenum	NR-229	OnSite	Habitat	mg/Kg	=	0.92		2002

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Sample Data for Inorganics in TTU Background and Site Soils

Attachment 10A - Thermal Treatment Unit, Ecological Risk Assessment

Analyte	Location	Type	Habitat	Units	Qualifier	Result	Detection Limit	Sample Year
Molybdenum	NR-230	OnSite	Habitat	mg/Kg	=	1		2002
Molybdenum	NR-231	OnSite	OB/OD	mg/Kg	=	1.3		2002
Molybdenum	NR-232	OnSite	Habitat	mg/Kg	=	0.86		2002
Molybdenum	NR-233	OnSite	Habitat	mg/Kg	=	1.3		2002
Molybdenum	NR-234	OnSite	Habitat	mg/Kg	=	0.9		2002
Molybdenum	NR-235	OnSite	Habitat	mg/Kg	=	1		2002
Molybdenum	NR-236	OnSite	Habitat	mg/Kg	=	1.3		2002
Molybdenum	NR-237	OnSite	Habitat	mg/Kg	=	1.2		2002
Molybdenum	NR-526	OnSite	Habitat	mg/Kg	J	0.77		2004
Molybdenum	NR-527	OnSite	Habitat	mg/Kg	J	0.8		2004
Molybdenum	NR-528	OnSite	Habitat	mg/Kg	J	0.6		2004
Molybdenum	NR-529	OnSite	Habitat	mg/Kg	J	1		2004
Molybdenum	NR-530	OnSite	Habitat	mg/Kg	J	0.75		2004
Molybdenum	NR-531	OnSite	OB/OD	mg/Kg	B	17		2004
Molybdenum	NR-532	OnSite	OB/OD	mg/Kg	J	2.8		2004
Molybdenum	NR-533	OnSite	OB/OD	mg/Kg	J	1.1		2004
Molybdenum	NR-534	OnSite	OB/OD	mg/Kg	J	1.3		2004
Molybdenum	NR-535	OnSite	OB/OD	mg/Kg	J	1.1		2004
Nickel	AMTOF-01-1298-01	Background	Habitat	mg/kg	=	11.9		1998
Nickel	AMTOF-02-1298-01	Background	Habitat	mg/kg	=	16.3		1998
Nickel	AMTOF-03-1298-01	Background	Habitat	mg/kg	=	11.7		1998
Nickel	AMTOF-04-1298-01	Background	Habitat	mg/kg	=	11.8		1998
Nickel	AMTOF-05-1298-01	Background	Habitat	mg/kg	=	12		1998
Nickel	AMTOF-06-1298-01	Background	Habitat	mg/kg	=	10.8		1998
Nickel	NR-238	Background	Habitat	mg/Kg	=	11.9		2002
Nickel	NR-239	Background	Habitat	mg/Kg	=	10.7		2002
Nickel	NR-500-0800-01	Background	Habitat	mg/kg	=	10.5		2000
Nickel	NR-501-0800-01	Background	Habitat	mg/kg	=	7.29		2000
Nickel	NR-502-0800-01	Background	Habitat	mg/kg	=	11.5		2000
Nickel	NR-503-0800-01	Background	Habitat	mg/kg	=	10.5		2000
Nickel	NR-504-0800-01	Background	Habitat	mg/kg	=	9.01		2000
Nickel	NR-505-0800-01	Background	Habitat	mg/kg	=	10.6		2000
Nickel	NR-506-0800-01	Background	Habitat	mg/kg	=	10.8		2000
Nickel	NR-507-0800-01	Background	Habitat	mg/kg	=	9.28		2000
Nickel	NR-508-0800-01	Background	Habitat	mg/kg	=	10.2		2000
Nickel	NR-509-0800-01	Background	Habitat	mg/kg	=	13.3		2000
Nickel	NR-510-0800-01	Background	Habitat	mg/kg	=	8.8		2000
Nickel	NR-511-0800-01	Background	Habitat	mg/kg	=	11.3		2000
Nickel	NR-512-0800-01	Background	Habitat	mg/kg	=	12.4		2000
Nickel	NR-513-0800-01	Background	Habitat	mg/kg	=	11.5		2000
Nickel	NR-514-0800-01	Background	Habitat	mg/kg	=	10.1		2000
Nickel	NR-515-0800-01	Background	Habitat	mg/kg	=	3.14		2000
Nickel	NR-516-0800-01	Background	Habitat	mg/kg	=	20.2		2000
Nickel	NR-517-0800-01	Background	Habitat	mg/kg	=	6.08		2000
Nickel	NR-518-0800-01	Background	Habitat	mg/kg	=	3		2000
Nickel	NR-519-0800-01	Background	Habitat	mg/kg	=	6.12		2000
Nickel	NR-520-0800-01	Background	Habitat	mg/kg	=	6.76		2000
Nickel	NR-521-0800-01	Background	Habitat	mg/kg	=	5.42		2000
Nickel	NR-522-0800-01	Background	Habitat	mg/kg	=	10.7		2000
Nickel	NR-523-0800-01	Background	Habitat	mg/kg	=	9.27		2000
Nickel	NR-524-0800-01	Background	Habitat	mg/kg	=	7.5		2000
Nickel	NR-525-0800-01	Background	Habitat	mg/kg	=	5.56		2000
Nickel	NR-536	Background	Habitat	mg/Kg	=	13.3		2004

Table B-1

Sample Data for Inorganics in TTU Background and Site Soils

Attachment 10A - Thermal Treatment Unit, Ecological Risk Assessment

Analyte	Location	Type	Habitat	Units	Qualifier	Result	Detection Limit	Sample Year
Nickel	NR-537	Background	Habitat	mg/Kg	=	15.7		2004
Nickel	UTNCBU-01-OCT97-01	Background	Habitat	mg/kg	=	9.16		1997
Nickel	UTNCBU-02-OCT97-01	Background	Habitat	mg/kg	=	8.13		1997
Nickel	UTNCBU-03-1298-01	Background	Habitat	mg/kg	=	11.4		1998
Nickel	UTNCBU-04-1298-01	Background	Habitat	mg/kg	=	10.9		1998
Nickel	UTNCBU-05-1298-01	Background	Habitat	mg/kg	=	8.31		1998
Nickel	UTNCBU-06-1298-01	Background	Habitat	mg/kg	=	8.21		1998
Nickel	UTNEB-03-1298-01	Background	Habitat	mg/kg	=	8.93		1998
Nickel	UTNEB-04-1298-01	Background	Habitat	mg/kg	=	13.2		1998
Nickel	UTNEB-05-1298-01	Background	Habitat	mg/kg	=	9.45		1998
Nickel	UTNEB-06-1298-01	Background	Habitat	mg/kg	=	8.48		1998
Nickel	UTNERB-01-OCT97-01	Background	Habitat	mg/kg	=	15.8		1997
Nickel	UTNERB-02-OCT97-01	Background	Habitat	mg/kg	=	12.3		1997
Nickel	UTNOCB-01-OCT97-01	Background	Habitat	mg/kg	=	12.2		1997
Nickel	UTNOCB-02-OCT97-01	Background	Habitat	mg/kg	=	11.3		1997
Nickel	UTNOCBG-03-1298-01	Background	Habitat	mg/kg	=	9.49		1998
Nickel	UTNOCBG-04-1298-01	Background	Habitat	mg/kg	=	9.42		1998
Nickel	UTNOCBG-05-1298-01	Background	Habitat	mg/kg	=	9.2		1998
Nickel	UTNOCBG-06-1298-01	Background	Habitat	mg/kg	=	12.3		1998
Nickel	NR-226	OnSite	Habitat	mg/Kg	=	6.8		2002
Nickel	NR-227	OnSite	Habitat	mg/Kg	=	9.3		2002
Nickel	NR-228	OnSite	OB/OD	mg/Kg	=	11.4		2002
Nickel	NR-229	OnSite	Habitat	mg/Kg	=	12.8		2002
Nickel	NR-230	OnSite	Habitat	mg/Kg	=	9.7		2002
Nickel	NR-231	OnSite	OB/OD	mg/Kg	=	11.4		2002
Nickel	NR-232	OnSite	Habitat	mg/Kg	=	13		2002
Nickel	NR-233	OnSite	Habitat	mg/Kg	=	9.6		2002
Nickel	NR-234	OnSite	Habitat	mg/Kg	=	13		2002
Nickel	NR-235	OnSite	Habitat	mg/Kg	=	11		2002
Nickel	NR-236	OnSite	Habitat	mg/Kg	=	10.5		2002
Nickel	NR-237	OnSite	Habitat	mg/Kg	=	10.4		2002
Nickel	NR-526	OnSite	Habitat	mg/Kg	=	8.6		2004
Nickel	NR-527	OnSite	Habitat	mg/Kg	=	12.2		2004
Nickel	NR-528	OnSite	Habitat	mg/Kg	=	8.5		2004
Nickel	NR-529	OnSite	Habitat	mg/Kg	=	9.6		2004
Nickel	NR-530	OnSite	Habitat	mg/Kg	=	8.9		2004
Nickel	NR-531	OnSite	OB/OD	mg/Kg	=	41.3		2004
Nickel	NR-532	OnSite	OB/OD	mg/Kg	=	10		2004
Nickel	NR-533	OnSite	OB/OD	mg/Kg	=	9.2		2004
Nickel	NR-534	OnSite	OB/OD	mg/Kg	=	9.1		2004
Nickel	NR-535	OnSite	OB/OD	mg/Kg	=	10		2004
Nickel	SS1	OnSite	OB/OD	mg/Kg	=	8		1991
Nickel	SS10	OnSite	OB/OD	mg/Kg	=	8		1991
Nickel	SS11	OnSite	OB/OD	mg/Kg	=	12		1991
Nickel	SS12	OnSite	OB/OD	mg/Kg	=	11		1991
Nickel	SS13	OnSite	OB/OD	mg/Kg	=	9		1991
Nickel	SS14	OnSite	OB/OD	mg/Kg	=	10		1991
Nickel	SS15	OnSite	OB/OD	mg/Kg	=	11		1991
Nickel	SS16	OnSite	Habitat	mg/Kg	=	9		1991
Nickel	SS17	OnSite	Habitat	mg/Kg	=	9		1991
Nickel	SS18	OnSite	Habitat	mg/Kg	=	11		1991
Nickel	SS19	OnSite	Habitat	mg/Kg	=	7		1991
Nickel	SS2	OnSite	OB/OD	mg/Kg	=	9		1991

Table B-1
Sample Data for Inorganics in TTU Background and Site Soils
Attachment 10A - Thermal Treatment Unit, Ecological Risk Assessment

Analyte	Location	Type	Habitat	Units	Qualifier	Result	Detection Limit	Sample Year
Nickel	SS20	OnSite	Habitat	mg/Kg	=	10		1991
Nickel	SS3	OnSite	OB/OD	mg/Kg	=	19		1991
Nickel	SS4	OnSite	OB/OD	mg/Kg	=	8		1991
Nickel	SS5	OnSite	OB/OD	mg/Kg	=	31		1991
Nickel	SS6	OnSite	OB/OD	mg/Kg	=	11		1991
Nickel	SS7	OnSite	OB/OD	mg/Kg	=	17		1991
Nickel	SS8	OnSite	OB/OD	mg/Kg	=	8		1991
Nickel	SS9	OnSite	OB/OD	mg/Kg	=	9		1991
Nickel	TTU-SS01S	OnSite	OB/OD	mg/Kg	=	9		1989
Nickel	TTU-SS02S	OnSite	OB/OD	mg/Kg	=	10.2		1989
Nickel	TTU-SS03S	OnSite	OB/OD	mg/Kg	=	7.5		1989
Nickel	TTU-SS04S(D)	OnSite	OB/OD	mg/Kg	=	6.7		1989
Nickel	TTU-SS05S	OnSite	OB/OD	mg/Kg	=	10.4		1989
Nickel	TTU-SS06S(BG)	OnSite	Habitat	mg/Kg	=	13.9		1989
Nitrate	NR-238	Background	Habitat	mg/Kg	=	16		2002
Nitrate	NR-239	Background	Habitat	mg/Kg	=	5.1		2002
Nitrate	NR-226	OnSite	Habitat	mg/Kg	=	3.8		2002
Nitrate	NR-227	OnSite	Habitat	mg/Kg	=	3.45		2002
Nitrate	NR-228	OnSite	OB/OD	mg/Kg	=	7.7		2002
Nitrate	NR-229	OnSite	Habitat	mg/Kg	=	1.1		2002
Nitrate	NR-230	OnSite	Habitat	mg/Kg	=	12.2		2002
Nitrate	NR-231	OnSite	OB/OD	mg/Kg	=	10.5		2002
Nitrate	NR-232	OnSite	Habitat	mg/Kg	=	12.2		2002
Nitrate	NR-233	OnSite	Habitat	mg/Kg	=	3.2		2002
Nitrate	NR-234	OnSite	Habitat	mg/Kg	=	15.5		2002
Nitrate	NR-235	OnSite	Habitat	mg/Kg	=	7.7		2002
Nitrate	NR-236	OnSite	Habitat	mg/Kg	=	15.9		2002
Nitrate	NR-237	OnSite	Habitat	mg/Kg	=	10.8		2002
Nitrate	NR-526	OnSite	Habitat	mg/Kg	J	22.8		2004
Nitrate	NR-527	OnSite	Habitat	mg/Kg	B	9		2004
Nitrate	NR-528	OnSite	Habitat	mg/Kg	B	9.1		2004
Nitrate	NR-529	OnSite	Habitat	mg/Kg	B	19.2		2004
Nitrate	NR-530	OnSite	Habitat	mg/Kg	UB	1.25	2.5	2004
Nitrate	NR-531	OnSite	OB/OD	mg/Kg	UB	0.85	1.7	2004
Nitrate	NR-532	OnSite	OB/OD	mg/Kg	UB	1.2	2.4	2004
Nitrate	NR-533	OnSite	OB/OD	mg/Kg	B	2.9		2004
Nitrate	NR-534	OnSite	OB/OD	mg/Kg	J	13.1		2004
Nitrate	NR-535	OnSite	OB/OD	mg/Kg	UB	1.05	2.1	2004
Nitrate	SS1	OnSite	OB/OD	mg/Kg	=	0.007		1991
Nitrate	SS10	OnSite	OB/OD	mg/Kg	=	0.009		1991
Nitrate	SS11	OnSite	OB/OD	mg/Kg	=	0.015		1991
Nitrate	SS12	OnSite	OB/OD	mg/Kg	=	0.043		1991
Nitrate	SS13	OnSite	OB/OD	mg/Kg	=	0.11		1991
Nitrate	SS14	OnSite	OB/OD	mg/Kg	=	0.007		1991
Nitrate	SS15	OnSite	OB/OD	mg/Kg	=	0.006		1991
Nitrate	SS16	OnSite	Habitat	mg/Kg	=	0.004		1991
Nitrate	SS17	OnSite	Habitat	mg/Kg	=	0.011		1991
Nitrate	SS18	OnSite	Habitat	mg/Kg	=	0.01		1991
Nitrate	SS19	OnSite	Habitat	mg/Kg	=	0.008		1991
Nitrate	SS2	OnSite	OB/OD	mg/Kg	=	0.009		1991
Nitrate	SS20	OnSite	Habitat	mg/Kg	=	0.008		1991
Nitrate	SS3	OnSite	OB/OD	mg/Kg	=	0.009		1991
Nitrate	SS4	OnSite	OB/OD	mg/Kg	=	0.045		1991

Table B-1

Sample Data for Inorganics in TTU Background and Site Soils

Attachment 10A - Thermal Treatment Unit, Ecological Risk Assessment

Analyte	Location	Type	Habitat	Units	Qualifier	Result	Detection Limit	Sample Year
Nitrate	SS5	OnSite	OB/OD	mg/Kg	=	0.013		1991
Nitrate	SS6	OnSite	OB/OD	mg/Kg	=	0.009		1991
Nitrate	SS7	OnSite	OB/OD	mg/Kg	=	0.026		1991
Nitrate	SS8	OnSite	OB/OD	mg/Kg	=	0.015		1991
Nitrate	SS9	OnSite	OB/OD	mg/Kg	=	0.007		1991
Nitrate	TTU-SS01S	OnSite	OB/OD	mg/Kg	=	1.5		1989
Nitrate	TTU-SS02S	OnSite	OB/OD	mg/Kg	=	1.6		1989
Nitrate	TTU-SS03S	OnSite	OB/OD	mg/Kg	=	1.8		1989
Nitrate	TTU-SS04S(D)	OnSite	OB/OD	mg/Kg	=	1.6		1989
Nitrate	TTU-SS05S	OnSite	OB/OD	mg/Kg	=	8.5		1989
Nitrate	TTU-SS06S(BG)	OnSite	Habitat	mg/Kg	=	5.4		1989
Phosphorus	AMTOF-01-1298-01	Background	Habitat	mg/kg	=	1130		1998
Phosphorus	AMTOF-02-1298-01	Background	Habitat	mg/kg	=	1470		1998
Phosphorus	AMTOF-03-1298-01	Background	Habitat	mg/kg	=	1040		1998
Phosphorus	AMTOF-04-1298-01	Background	Habitat	mg/kg	=	988		1998
Phosphorus	AMTOF-05-1298-01	Background	Habitat	mg/kg	=	868		1998
Phosphorus	AMTOF-06-1298-01	Background	Habitat	mg/kg	=	1030		1998
Phosphorus	NR-500-0800-01	Background	Habitat	mg/kg	B	728		2000
Phosphorus	NR-501-0800-01	Background	Habitat	mg/kg	B	575		2000
Phosphorus	NR-502-0800-01	Background	Habitat	mg/kg	B	825		2000
Phosphorus	NR-503-0800-01	Background	Habitat	mg/kg	B	794		2000
Phosphorus	NR-504-0800-01	Background	Habitat	mg/kg	B	754		2000
Phosphorus	NR-505-0800-01	Background	Habitat	mg/kg	B	772		2000
Phosphorus	NR-506-0800-01	Background	Habitat	mg/kg	B	668		2000
Phosphorus	NR-507-0800-01	Background	Habitat	mg/kg	B	682		2000
Phosphorus	NR-508-0800-01	Background	Habitat	mg/kg	B	719		2000
Phosphorus	NR-509-0800-01	Background	Habitat	mg/kg	B	713		2000
Phosphorus	NR-510-0800-01	Background	Habitat	mg/kg	B	612		2000
Phosphorus	NR-511-0800-01	Background	Habitat	mg/kg	B	767		2000
Phosphorus	NR-512-0800-01	Background	Habitat	mg/kg	B	719		2000
Phosphorus	NR-513-0800-01	Background	Habitat	mg/kg	B	762		2000
Phosphorus	NR-514-0800-01	Background	Habitat	mg/kg	B	774		2000
Phosphorus	NR-515-0800-01	Background	Habitat	mg/kg	B	230		2000
Phosphorus	NR-516-0800-01	Background	Habitat	mg/kg	B	669		2000
Phosphorus	NR-517-0800-01	Background	Habitat	mg/kg	B	519		2000
Phosphorus	NR-518-0800-01	Background	Habitat	mg/kg	B	198		2000
Phosphorus	NR-519-0800-01	Background	Habitat	mg/kg	B	356		2000
Phosphorus	NR-520-0800-01	Background	Habitat	mg/kg	B	575		2000
Phosphorus	NR-521-0800-01	Background	Habitat	mg/kg	B	328		2000
Phosphorus	NR-522-0800-01	Background	Habitat	mg/kg	B	575		2000
Phosphorus	NR-523-0800-01	Background	Habitat	mg/kg	B	697		2000
Phosphorus	NR-524-0800-01	Background	Habitat	mg/kg	B	492		2000
Phosphorus	NR-525-0800-01	Background	Habitat	mg/kg	B	431		2000
Phosphorus	UTNCBU-01-OCT97-01	Background	Habitat	mg/kg	=	639		1997
Phosphorus	UTNCBU-02-OCT97-01	Background	Habitat	mg/kg	=	658		1997
Phosphorus	UTNCBU-03-1298-01	Background	Habitat	mg/kg	=	820		1998
Phosphorus	UTNCBU-04-1298-01	Background	Habitat	mg/kg	=	862		1998
Phosphorus	UTNCBU-05-1298-01	Background	Habitat	mg/kg	=	722		1998
Phosphorus	UTNCBU-06-1298-01	Background	Habitat	mg/kg	=	621		1998
Phosphorus	UTNEB-03-1298-01	Background	Habitat	mg/kg	=	821		1998
Phosphorus	UTNEB-04-1298-01	Background	Habitat	mg/kg	=	885		1998
Phosphorus	UTNEB-05-1298-01	Background	Habitat	mg/kg	=	790		1998
Phosphorus	UTNEB-06-1298-01	Background	Habitat	mg/kg	=	726		1998

Table B-1

Sample Data for Inorganics in TTU Background and Site Soils

Attachment 10A - Thermal Treatment Unit, Ecological Risk Assessment

Analyte	Location	Type	Habitat	Units	Qualifier	Result	Detection Limit	Sample Year
Phosphorus	UTNERB-01-OCT97-01	Background	Habitat	mg/kg	=	738		1997
Phosphorus	UTNERB-02-OCT97-01	Background	Habitat	mg/kg	=	719		1997
Phosphorus	UTNOCB-01-OCT97-01	Background	Habitat	mg/kg	=	659		1997
Phosphorus	UTNOCB-02-OCT97-01	Background	Habitat	mg/kg	=	835		1997
Phosphorus	UTNOCBG-03-1298-01	Background	Habitat	mg/kg	=	820		1998
Phosphorus	UTNOCBG-04-1298-01	Background	Habitat	mg/kg	=	764		1998
Phosphorus	UTNOCBG-05-1298-01	Background	Habitat	mg/kg	=	753		1998
Phosphorus	UTNOCBG-06-1298-01	Background	Habitat	mg/kg	=	799		1998
Phosphorus	SS1	OnSite	OB/OD	mg/Kg	=	460		1991
Phosphorus	SS10	OnSite	OB/OD	mg/Kg	=	460		1991
Phosphorus	SS11	OnSite	OB/OD	mg/Kg	=	730		1991
Phosphorus	SS12	OnSite	OB/OD	mg/Kg	=	590		1991
Phosphorus	SS13	OnSite	OB/OD	mg/Kg	=	500		1991
Phosphorus	SS14	OnSite	OB/OD	mg/Kg	=	660		1991
Phosphorus	SS15	OnSite	OB/OD	mg/Kg	=	750		1991
Phosphorus	SS16	OnSite	Habitat	mg/Kg	=	860		1991
Phosphorus	SS17	OnSite	Habitat	mg/Kg	=	820		1991
Phosphorus	SS18	OnSite	Habitat	mg/Kg	=	830		1991
Phosphorus	SS19	OnSite	Habitat	mg/Kg	=	820		1991
Phosphorus	SS2	OnSite	OB/OD	mg/Kg	=	450		1991
Phosphorus	SS20	OnSite	Habitat	mg/Kg	=	890		1991
Phosphorus	SS3	OnSite	OB/OD	mg/Kg	=	990		1991
Phosphorus	SS4	OnSite	OB/OD	mg/Kg	=	470		1991
Phosphorus	SS5	OnSite	OB/OD	mg/Kg	=	500		1991
Phosphorus	SS6	OnSite	OB/OD	mg/Kg	=	700		1991
Phosphorus	SS7	OnSite	OB/OD	mg/Kg	=	570		1991
Phosphorus	SS8	OnSite	OB/OD	mg/Kg	=	570		1991
Phosphorus	SS9	OnSite	OB/OD	mg/Kg	=	500		1991
Selenium	AMTOF-01-1298-01	Background	Habitat	mg/kg	=	0.585		1998
Selenium	AMTOF-02-1298-01	Background	Habitat	mg/kg	=	1.07		1998
Selenium	AMTOF-03-1298-01	Background	Habitat	mg/kg	=	0.546		1998
Selenium	AMTOF-04-1298-01	Background	Habitat	mg/kg	=	0.335		1998
Selenium	AMTOF-05-1298-01	Background	Habitat	mg/kg	=	0.379		1998
Selenium	AMTOF-06-1298-01	Background	Habitat	mg/kg	=	0.449		1998
Selenium	NR-238	Background	Habitat	mg/Kg	U	1.15	2.3	2002
Selenium	NR-239	Background	Habitat	mg/Kg	U	1.05	2.1	2002
Selenium	NR-500-0800-01	Background	Habitat	mg/kg	J	0.355		2000
Selenium	NR-501-0800-01	Background	Habitat	mg/kg	J	0.696		2000
Selenium	NR-502-0800-01	Background	Habitat	mg/kg	J	0.498		2000
Selenium	NR-503-0800-01	Background	Habitat	mg/kg	J	0.511		2000
Selenium	NR-504-0800-01	Background	Habitat	mg/kg	J	0.44		2000
Selenium	NR-505-0800-01	Background	Habitat	mg/kg	J	0.493		2000
Selenium	NR-506-0800-01	Background	Habitat	mg/kg	J	0.617		2000
Selenium	NR-507-0800-01	Background	Habitat	mg/kg	J	0.645		2000
Selenium	NR-508-0800-01	Background	Habitat	mg/kg	J	0.388		2000
Selenium	NR-509-0800-01	Background	Habitat	mg/kg	J	0.778		2000
Selenium	NR-510-0800-01	Background	Habitat	mg/kg	J	0.64		2000
Selenium	NR-511-0800-01	Background	Habitat	mg/kg	J	0.54		2000
Selenium	NR-512-0800-01	Background	Habitat	mg/kg	J	0.476		2000
Selenium	NR-513-0800-01	Background	Habitat	mg/kg	J	0.451		2000
Selenium	NR-514-0800-01	Background	Habitat	mg/kg	J	0.768		2000
Selenium	NR-515-0800-01	Background	Habitat	mg/kg	J	0.702		2000
Selenium	NR-516-0800-01	Background	Habitat	mg/kg	J	0.699		2000

Table B-1

Sample Data for Inorganics in TTU Background and Site Soils

Attachment 10A - Thermal Treatment Unit, Ecological Risk Assessment

Analyte	Location	Type	Habitat	Units	Qualifier	Result	Detection Limit	Sample Year
Selenium	NR-517-0800-01	Background	Habitat	mg/kg	U	0.2205	0.441	2000
Selenium	NR-518-0800-01	Background	Habitat	mg/kg	J	0.806		2000
Selenium	NR-519-0800-01	Background	Habitat	mg/kg	J	1.05		2000
Selenium	NR-520-0800-01	Background	Habitat	mg/kg	U	0.297	0.594	2000
Selenium	NR-521-0800-01	Background	Habitat	mg/kg	J	0.872		2000
Selenium	NR-522-0800-01	Background	Habitat	mg/kg	J	0.934		2000
Selenium	NR-523-0800-01	Background	Habitat	mg/kg	J	0.755		2000
Selenium	NR-524-0800-01	Background	Habitat	mg/kg	J	1.5		2000
Selenium	NR-525-0800-01	Background	Habitat	mg/kg	J	1.32		2000
Selenium	NR-536	Background	Habitat	mg/Kg	U	0.345	0.69	2004
Selenium	NR-537	Background	Habitat	mg/Kg	U	0.35	0.7	2004
Selenium	UTNCBU-01-OCT97-01	Background	Habitat	mg/kg	BJ	0.162		1997
Selenium	UTNCBU-02-OCT97-01	Background	Habitat	mg/kg	U	0.1325	0.265	1997
Selenium	UTNCBU-03-1298-01	Background	Habitat	mg/kg	U	0.0865	0.173	1998
Selenium	UTNCBU-04-1298-01	Background	Habitat	mg/kg	J	0.00815		1998
Selenium	UTNCBU-05-1298-01	Background	Habitat	mg/kg	U	0.0745	0.149	1998
Selenium	UTNCBU-06-1298-01	Background	Habitat	mg/kg	U	0.097	0.194	1998
Selenium	UTNEB-03-1298-01	Background	Habitat	mg/kg	U	0.072	0.144	1998
Selenium	UTNEB-04-1298-01	Background	Habitat	mg/kg	U	0.083	0.166	1998
Selenium	UTNEB-05-1298-01	Background	Habitat	mg/kg	U	0.069	0.138	1998
Selenium	UTNEB-06-1298-01	Background	Habitat	mg/kg	U	0.0945	0.189	1998
Selenium	UTNERB-01-OCT97-01	Background	Habitat	mg/kg	U	0.1595	0.319	1997
Selenium	UTNERB-02-OCT97-01	Background	Habitat	mg/kg	U	0.13	0.26	1997
Selenium	UTNOCB-01-OCT97-01	Background	Habitat	mg/kg	=	0.52		1997
Selenium	UTNOCB-02-OCT97-01	Background	Habitat	mg/kg	B	0.56		1997
Selenium	UTNOCBG-03-1298-01	Background	Habitat	mg/kg	=	0.405		1998
Selenium	UTNOCBG-04-1298-01	Background	Habitat	mg/kg	=	0.537		1998
Selenium	UTNOCBG-05-1298-01	Background	Habitat	mg/kg	=	0.381		1998
Selenium	UTNOCBG-06-1298-01	Background	Habitat	mg/kg	=	0.413		1998
Selenium	NR-226	OnSite	Habitat	mg/Kg	U	1.05	2.1	2002
Selenium	NR-227	OnSite	Habitat	mg/Kg	U	0.105	0.21	2002
Selenium	NR-228	OnSite	OB/OD	mg/Kg	U	1	2	2002
Selenium	NR-229	OnSite	Habitat	mg/Kg	U	1.05	2.1	2002
Selenium	NR-230	OnSite	Habitat	mg/Kg	U	1.05	2.1	2002
Selenium	NR-231	OnSite	OB/OD	mg/Kg	U	1	2	2002
Selenium	NR-232	OnSite	Habitat	mg/Kg	U	1	2	2002
Selenium	NR-233	OnSite	Habitat	mg/Kg	U	1	2	2002
Selenium	NR-234	OnSite	Habitat	mg/Kg	U	1.1	2.2	2002
Selenium	NR-235	OnSite	Habitat	mg/Kg	U	1.05	2.1	2002
Selenium	NR-236	OnSite	Habitat	mg/Kg	U	1.05	2.1	2002
Selenium	NR-237	OnSite	Habitat	mg/Kg	U	1.05	2.1	2002
Selenium	NR-526	OnSite	Habitat	mg/Kg	U	0.315	0.63	2004
Selenium	NR-527	OnSite	Habitat	mg/Kg	U	0.345	0.69	2004
Selenium	NR-528	OnSite	Habitat	mg/Kg	U	0.335	0.67	2004
Selenium	NR-529	OnSite	Habitat	mg/Kg	U	0.36	0.72	2004
Selenium	NR-530	OnSite	Habitat	mg/Kg	U	0.38	0.76	2004
Selenium	NR-531	OnSite	OB/OD	mg/Kg	U	0.3	0.6	2004
Selenium	NR-532	OnSite	OB/OD	mg/Kg	U	0.29	0.58	2004
Selenium	NR-533	OnSite	OB/OD	mg/Kg	U	0.325	0.65	2004
Selenium	NR-534	OnSite	OB/OD	mg/Kg	U	0.315	0.63	2004
Selenium	NR-535	OnSite	OB/OD	mg/Kg	U	0.325	0.65	2004
Selenium	SS1	OnSite	OB/OD	mg/Kg	U	5	10	1991
Selenium	SS10	OnSite	OB/OD	mg/Kg	U	5	10	1991

Table B-1

Sample Data for Inorganics in TTU Background and Site Soils

Attachment 10A - Thermal Treatment Unit, Ecological Risk Assessment

Analyte	Location	Type	Habitat	Units	Qualifier	Result	Detection Limit	Sample Year
Selenium	SS11	OnSite	OB/OD	mg/Kg	U	5	10	1991
Selenium	SS12	OnSite	OB/OD	mg/Kg	U	5	10	1991
Selenium	SS13	OnSite	OB/OD	mg/Kg	U	5	10	1991
Selenium	SS14	OnSite	OB/OD	mg/Kg	U	5	10	1991
Selenium	SS15	OnSite	OB/OD	mg/Kg	U	5	10	1991
Selenium	SS16	OnSite	Habitat	mg/Kg	U	5	10	1991
Selenium	SS17	OnSite	Habitat	mg/Kg	U	5	10	1991
Selenium	SS18	OnSite	Habitat	mg/Kg	U	5	10	1991
Selenium	SS19	OnSite	Habitat	mg/Kg	U	5	10	1991
Selenium	SS2	OnSite	OB/OD	mg/Kg	U	5	10	1991
Selenium	SS20	OnSite	Habitat	mg/Kg	U	5	10	1991
Selenium	SS3	OnSite	OB/OD	mg/Kg	U	5	10	1991
Selenium	SS4	OnSite	OB/OD	mg/Kg	U	5	10	1991
Selenium	SS5	OnSite	OB/OD	mg/Kg	U	5	10	1991
Selenium	SS6	OnSite	OB/OD	mg/Kg	U	5	10	1991
Selenium	SS7	OnSite	OB/OD	mg/Kg	U	5	10	1991
Selenium	SS8	OnSite	OB/OD	mg/Kg	U	5	10	1991
Selenium	SS9	OnSite	OB/OD	mg/Kg	U	5	10	1991
Selenium	TTU-SS01S	OnSite	OB/OD	mg/Kg	U	0.8	1.6	1989
Selenium	TTU-SS02S	OnSite	OB/OD	mg/Kg	U	0.75	1.5	1989
Selenium	TTU-SS03S	OnSite	OB/OD	mg/Kg	U	0.85	1.7	1989
Selenium	TTU-SS04S(D)	OnSite	OB/OD	mg/Kg	U	0.85	1.7	1989
Selenium	TTU-SS05S	OnSite	OB/OD	mg/Kg	U	0.09	0.18	1989
Selenium	TTU-SS06S(BG)	OnSite	Habitat	mg/Kg	U	0.85	1.7	1989
Silicon	AMTOF-01-1298-01	Background	Habitat	mg/kg	=	310		1998
Silicon	AMTOF-02-1298-01	Background	Habitat	mg/kg	=	196		1998
Silicon	AMTOF-03-1298-01	Background	Habitat	mg/kg	=	252		1998
Silicon	AMTOF-04-1298-01	Background	Habitat	mg/kg	=	354		1998
Silicon	AMTOF-05-1298-01	Background	Habitat	mg/kg	=	370		1998
Silicon	AMTOF-06-1298-01	Background	Habitat	mg/kg	=	307		1998
Silicon	NR-500-0800-01	Background	Habitat	mg/kg	=	269		2000
Silicon	NR-501-0800-01	Background	Habitat	mg/kg	=	228		2000
Silicon	NR-502-0800-01	Background	Habitat	mg/kg	=	412		2000
Silicon	NR-503-0800-01	Background	Habitat	mg/kg	=	354		2000
Silicon	NR-504-0800-01	Background	Habitat	mg/kg	=	229		2000
Silicon	NR-505-0800-01	Background	Habitat	mg/kg	=	327		2000
Silicon	NR-506-0800-01	Background	Habitat	mg/kg	=	277		2000
Silicon	NR-507-0800-01	Background	Habitat	mg/kg	=	356		2000
Silicon	NR-508-0800-01	Background	Habitat	mg/kg	=	129		2000
Silicon	NR-509-0800-01	Background	Habitat	mg/kg	=	274		2000
Silicon	NR-510-0800-01	Background	Habitat	mg/kg	=	252		2000
Silicon	NR-511-0800-01	Background	Habitat	mg/kg	=	282		2000
Silicon	NR-512-0800-01	Background	Habitat	mg/kg	=	381		2000
Silicon	NR-513-0800-01	Background	Habitat	mg/kg	=	291		2000
Silicon	NR-514-0800-01	Background	Habitat	mg/kg	=	200		2000
Silicon	NR-515-0800-01	Background	Habitat	mg/kg	=	871		2000
Silicon	NR-516-0800-01	Background	Habitat	mg/kg	=	325		2000
Silicon	NR-517-0800-01	Background	Habitat	mg/kg	=	238		2000
Silicon	NR-518-0800-01	Background	Habitat	mg/kg	=	369		2000
Silicon	NR-519-0800-01	Background	Habitat	mg/kg	=	394		2000
Silicon	NR-520-0800-01	Background	Habitat	mg/kg	=	296		2000
Silicon	NR-521-0800-01	Background	Habitat	mg/kg	=	325		2000
Silicon	NR-522-0800-01	Background	Habitat	mg/kg	=	330		2000

Table B-1
Sample Data for Inorganics in TTU Background and Site Soils
Attachment 10A - Thermal Treatment Unit, Ecological Risk Assessment

Analyte	Location	Type	Habitat	Units	Qualifier	Result	Detection Limit	Sample Year
Silicon	NR-523-0800-01	Background	Habitat	mg/kg	=	329		2000
Silicon	NR-524-0800-01	Background	Habitat	mg/kg	=	427		2000
Silicon	NR-525-0800-01	Background	Habitat	mg/kg	=	291		2000
Silicon	UTNCBU-01-OCT97-01	Background	Habitat	mg/kg	=	310		1997
Silicon	UTNCBU-02-OCT97-01	Background	Habitat	mg/kg	=	204		1997
Silicon	UTNCBU-03-1298-01	Background	Habitat	mg/kg	=	281		1998
Silicon	UTNCBU-04-1298-01	Background	Habitat	mg/kg	=	271		1998
Silicon	UTNCBU-05-1298-01	Background	Habitat	mg/kg	=	297		1998
Silicon	UTNCBU-06-1298-01	Background	Habitat	mg/kg	=	163		1998
Silicon	UTNEB-03-1298-01	Background	Habitat	mg/kg	=	233		1998
Silicon	UTNEB-04-1298-01	Background	Habitat	mg/kg	=	281		1998
Silicon	UTNEB-05-1298-01	Background	Habitat	mg/kg	=	256		1998
Silicon	UTNEB-06-1298-01	Background	Habitat	mg/kg	=	297		1998
Silicon	UTNERB-01-OCT97-01	Background	Habitat	mg/kg	=	315		1997
Silicon	UTNERB-02-OCT97-01	Background	Habitat	mg/kg	=	266		1997
Silicon	UTNOCB-01-OCT97-01	Background	Habitat	mg/kg	=	342		1997
Silicon	UTNOCB-02-OCT97-01	Background	Habitat	mg/kg	=	279		1997
Silicon	UTNOCBG-03-1298-01	Background	Habitat	mg/kg	=	294		1998
Silicon	UTNOCBG-04-1298-01	Background	Habitat	mg/kg	=	202		1998
Silicon	UTNOCBG-05-1298-01	Background	Habitat	mg/kg	=	265		1998
Silicon	UTNOCBG-06-1298-01	Background	Habitat	mg/kg	=	215		1998
Silver	AMTOF-01-1298-01	Background	Habitat	mg/kg	J	0.109		1998
Silver	AMTOF-02-1298-01	Background	Habitat	mg/kg	=	0.102		1998
Silver	AMTOF-03-1298-01	Background	Habitat	mg/kg	J	0.105		1998
Silver	AMTOF-04-1298-01	Background	Habitat	mg/kg	J	0.0302		1998
Silver	AMTOF-05-1298-01	Background	Habitat	mg/kg	J	0.0158		1998
Silver	AMTOF-06-1298-01	Background	Habitat	mg/kg	J	0.0755		1998
Silver	NR-238	Background	Habitat	mg/Kg	U	0.21	0.42	2002
Silver	NR-239	Background	Habitat	mg/Kg	U	0.19	0.38	2002
Silver	NR-500-0800-01	Background	Habitat	mg/kg	U	0.03495	0.0699	2000
Silver	NR-501-0800-01	Background	Habitat	mg/kg	U	0.0385	0.077	2000
Silver	NR-502-0800-01	Background	Habitat	mg/kg	U	0.0456	0.0912	2000
Silver	NR-503-0800-01	Background	Habitat	mg/kg	U	0.03715	0.0743	2000
Silver	NR-504-0800-01	Background	Habitat	mg/kg	U	0.03955	0.0791	2000
Silver	NR-505-0800-01	Background	Habitat	mg/kg	U	0.0441	0.0882	2000
Silver	NR-506-0800-01	Background	Habitat	mg/kg	U	0.0351	0.0702	2000
Silver	NR-507-0800-01	Background	Habitat	mg/kg	U	0.0447	0.0894	2000
Silver	NR-508-0800-01	Background	Habitat	mg/kg	U	0.0371	0.0742	2000
Silver	NR-509-0800-01	Background	Habitat	mg/kg	U	0.04405	0.0881	2000
Silver	NR-510-0800-01	Background	Habitat	mg/kg	U	0.0456	0.0912	2000
Silver	NR-511-0800-01	Background	Habitat	mg/kg	U	0.03735	0.0747	2000
Silver	NR-512-0800-01	Background	Habitat	mg/kg	U	0.0425	0.085	2000
Silver	NR-513-0800-01	Background	Habitat	mg/kg	U	0.03175	0.0635	2000
Silver	NR-514-0800-01	Background	Habitat	mg/kg	U	0.04665	0.0933	2000
Silver	NR-515-0800-01	Background	Habitat	mg/kg	U	0.04645	0.0929	2000
Silver	NR-516-0800-01	Background	Habitat	mg/kg	U	0.0585	0.117	2000
Silver	NR-517-0800-01	Background	Habitat	mg/kg	U	0.044	0.088	2000
Silver	NR-518-0800-01	Background	Habitat	mg/kg	U	0.0415	0.083	2000
Silver	NR-519-0800-01	Background	Habitat	mg/kg	U	0.0605	0.121	2000
Silver	NR-520-0800-01	Background	Habitat	mg/kg	U	0.0615	0.123	2000
Silver	NR-521-0800-01	Background	Habitat	mg/kg	U	0.0492	0.0984	2000
Silver	NR-522-0800-01	Background	Habitat	mg/kg	U	0.0499	0.0998	2000
Silver	NR-523-0800-01	Background	Habitat	mg/kg	U	0.0476	0.0952	2000

Table B-1

Sample Data for Inorganics in TTU Background and Site Soils

Attachment 10A - Thermal Treatment Unit, Ecological Risk Assessment

Analyte	Location	Type	Habitat	Units	Qualifier	Result	Detection Limit	Sample Year
Silver	NR-524-0800-01	Background	Habitat	mg/kg	U	0.073	0.146	2000
Silver	NR-525-0800-01	Background	Habitat	mg/kg	U	0.063	0.126	2000
Silver	NR-536	Background	Habitat	mg/Kg	U	0.094	0.188	2004
Silver	NR-537	Background	Habitat	mg/Kg	J	0.23		2004
Silver	UTNCBU-01-OCT97-01	Background	Habitat	mg/kg	BJ	0.0245		1997
Silver	UTNCBU-02-OCT97-01	Background	Habitat	mg/kg	BJ	0.00572		1997
Silver	UTNCBU-03-1298-01	Background	Habitat	mg/kg	B	0.16		1998
Silver	UTNCBU-04-1298-01	Background	Habitat	mg/kg	B	0.164		1998
Silver	UTNCBU-05-1298-01	Background	Habitat	mg/kg	B	0.0896		1998
Silver	UTNCBU-06-1298-01	Background	Habitat	mg/kg	B	0.102		1998
Silver	UTNEB-03-1298-01	Background	Habitat	mg/kg	B	0.203		1998
Silver	UTNEB-04-1298-01	Background	Habitat	mg/kg	B	0.162		1998
Silver	UTNEB-05-1298-01	Background	Habitat	mg/kg	B	0.114		1998
Silver	UTNEB-06-1298-01	Background	Habitat	mg/kg	B	0.115		1998
Silver	UTNERB-01-OCT97-01	Background	Habitat	mg/kg	J	0.0666		1997
Silver	UTNERB-02-OCT97-01	Background	Habitat	mg/kg	BJ	0.0591		1997
Silver	UTNOCB-01-OCT97-01	Background	Habitat	mg/kg	BJ	0.0536		1997
Silver	UTNOCB-02-OCT97-01	Background	Habitat	mg/kg	=	0.161		1997
Silver	UTNOCBG-03-1298-01	Background	Habitat	mg/kg	J	0.0862		1998
Silver	UTNOCBG-04-1298-01	Background	Habitat	mg/kg	=	0.109		1998
Silver	UTNOCBG-05-1298-01	Background	Habitat	mg/kg	J	0.0921		1998
Silver	UTNOCBG-06-1298-01	Background	Habitat	mg/kg	=	0.175		1998
Silver	NR-226	OnSite	Habitat	mg/Kg	U	0.195	0.39	2002
Silver	NR-227	OnSite	Habitat	mg/Kg	U	0.19	0.38	2002
Silver	NR-228	OnSite	OB/OD	mg/Kg	U	0.18	0.36	2002
Silver	NR-229	OnSite	Habitat	mg/Kg	U	0.19	0.38	2002
Silver	NR-230	OnSite	Habitat	mg/Kg	U	0.19	0.38	2002
Silver	NR-231	OnSite	OB/OD	mg/Kg	U	0.185	0.37	2002
Silver	NR-232	OnSite	Habitat	mg/Kg	U	0.18	0.36	2002
Silver	NR-233	OnSite	Habitat	mg/Kg	U	0.185	0.37	2002
Silver	NR-234	OnSite	Habitat	mg/Kg	U	0.195	0.39	2002
Silver	NR-235	OnSite	Habitat	mg/Kg	U	0.19	0.38	2002
Silver	NR-236	OnSite	Habitat	mg/Kg	U	0.195	0.39	2002
Silver	NR-237	OnSite	Habitat	mg/Kg	U	0.19	0.38	2002
Silver	NR-526	OnSite	Habitat	mg/Kg	J	0.18		2004
Silver	NR-527	OnSite	Habitat	mg/Kg	U	0.0935	0.187	2004
Silver	NR-528	OnSite	Habitat	mg/Kg	U	0.0915	0.183	2004
Silver	NR-529	OnSite	Habitat	mg/Kg	U	0.0975	0.195	2004
Silver	NR-530	OnSite	Habitat	mg/Kg	U	0.104	0.208	2004
Silver	NR-531	OnSite	OB/OD	mg/Kg	J	0.17		2004
Silver	NR-532	OnSite	OB/OD	mg/Kg	J	0.22		2004
Silver	NR-533	OnSite	OB/OD	mg/Kg	U	0.088	0.176	2004
Silver	NR-534	OnSite	OB/OD	mg/Kg	U	0.0855	0.171	2004
Silver	NR-535	OnSite	OB/OD	mg/Kg	U	0.089	0.178	2004
Silver	SS1	OnSite	OB/OD	mg/Kg	U	1	2	1991
Silver	SS10	OnSite	OB/OD	mg/Kg	U	1	2	1991
Silver	SS11	OnSite	OB/OD	mg/Kg	U	1	2	1991
Silver	SS12	OnSite	OB/OD	mg/Kg	U	1	2	1991
Silver	SS13	OnSite	OB/OD	mg/Kg	U	1	2	1991
Silver	SS14	OnSite	OB/OD	mg/Kg	U	1	2	1991
Silver	SS15	OnSite	OB/OD	mg/Kg	U	1	2	1991
Silver	SS16	OnSite	Habitat	mg/Kg	U	1	2	1991
Silver	SS17	OnSite	Habitat	mg/Kg	U	1	2	1991

Table B-1

Sample Data for Inorganics in TTU Background and Site Soils

Attachment 10A - Thermal Treatment Unit, Ecological Risk Assessment

Analyte	Location	Type	Habitat	Units	Qualifier	Result	Detection Limit	Sample Year
Silver	SS18	OnSite	Habitat	mg/Kg	U	1	2	1991
Silver	SS19	OnSite	Habitat	mg/Kg	U	1	2	1991
Silver	SS2	OnSite	OB/OD	mg/Kg	U	1	2	1991
Silver	SS20	OnSite	Habitat	mg/Kg	U	1	2	1991
Silver	SS3	OnSite	OB/OD	mg/Kg	U	1	2	1991
Silver	SS4	OnSite	OB/OD	mg/Kg	U	1	2	1991
Silver	SS5	OnSite	OB/OD	mg/Kg	U	1	2	1991
Silver	SS6	OnSite	OB/OD	mg/Kg	U	1	2	1991
Silver	SS7	OnSite	OB/OD	mg/Kg	U	1	2	1991
Silver	SS8	OnSite	OB/OD	mg/Kg	U	1	2	1991
Silver	SS9	OnSite	OB/OD	mg/Kg	U	1	2	1991
Silver	TTU-SS01S	OnSite	OB/OD	mg/Kg	U	0.335	0.67	1989
Silver	TTU-SS02S	OnSite	OB/OD	mg/Kg	=	4		1989
Silver	TTU-SS03S	OnSite	OB/OD	mg/Kg	U	0.34	0.68	1989
Silver	TTU-SS04S(D)	OnSite	OB/OD	mg/Kg	U	0.35	0.7	1989
Silver	TTU-SS05S	OnSite	OB/OD	mg/Kg	U	0.33	0.66	1989
Silver	TTU-SS06S(BG)	OnSite	Habitat	mg/Kg	U	0.33	0.66	1989
Strontium	AMTOF-01-1298-01	Background	Habitat	mg/kg	=	308		1998
Strontium	AMTOF-02-1298-01	Background	Habitat	mg/kg	=	267		1998
Strontium	AMTOF-03-1298-01	Background	Habitat	mg/kg	=	354		1998
Strontium	AMTOF-04-1298-01	Background	Habitat	mg/kg	=	351		1998
Strontium	AMTOF-05-1298-01	Background	Habitat	mg/kg	=	359		1998
Strontium	AMTOF-06-1298-01	Background	Habitat	mg/kg	=	343		1998
Strontium	NR-238	Background	Habitat	mg/Kg	=	231		2002
Strontium	NR-239	Background	Habitat	mg/Kg	=	290		2002
Strontium	NR-500-0800-01	Background	Habitat	mg/kg	B	304		2000
Strontium	NR-501-0800-01	Background	Habitat	mg/kg	B	1300		2000
Strontium	NR-502-0800-01	Background	Habitat	mg/kg	B	660		2000
Strontium	NR-503-0800-01	Background	Habitat	mg/kg	B	598		2000
Strontium	NR-504-0800-01	Background	Habitat	mg/kg	B	614		2000
Strontium	NR-505-0800-01	Background	Habitat	mg/kg	B	278		2000
Strontium	NR-506-0800-01	Background	Habitat	mg/kg	B	456		2000
Strontium	NR-507-0800-01	Background	Habitat	mg/kg	B	293		2000
Strontium	NR-508-0800-01	Background	Habitat	mg/kg	B	354		2000
Strontium	NR-509-0800-01	Background	Habitat	mg/kg	B	448		2000
Strontium	NR-510-0800-01	Background	Habitat	mg/kg	B	315		2000
Strontium	NR-511-0800-01	Background	Habitat	mg/kg	B	283		2000
Strontium	NR-512-0800-01	Background	Habitat	mg/kg	B	211		2000
Strontium	NR-513-0800-01	Background	Habitat	mg/kg	B	248		2000
Strontium	NR-514-0800-01	Background	Habitat	mg/kg	B	601		2000
Strontium	NR-515-0800-01	Background	Habitat	mg/kg	B	2290		2000
Strontium	NR-516-0800-01	Background	Habitat	mg/kg	B	461		2000
Strontium	NR-517-0800-01	Background	Habitat	mg/kg	B	213		2000
Strontium	NR-518-0800-01	Background	Habitat	mg/kg	B	2650		2000
Strontium	NR-519-0800-01	Background	Habitat	mg/kg	B	2000		2000
Strontium	NR-520-0800-01	Background	Habitat	mg/kg	B	834		2000
Strontium	NR-521-0800-01	Background	Habitat	mg/kg	B	2420		2000
Strontium	NR-522-0800-01	Background	Habitat	mg/kg	B	1400		2000
Strontium	NR-523-0800-01	Background	Habitat	mg/kg	B	605		2000
Strontium	NR-524-0800-01	Background	Habitat	mg/kg	B	3090		2000
Strontium	NR-525-0800-01	Background	Habitat	mg/kg	B	3680		2000
Strontium	NR-536	Background	Habitat	mg/Kg	=	343		2004
Strontium	NR-537	Background	Habitat	mg/Kg	=	307		2004

Table B-1

Sample Data for Inorganics in TTU Background and Site Soils

Attachment 10A - Thermal Treatment Unit, Ecological Risk Assessment

Analyte	Location	Type	Habitat	Units	Qualifier	Result	Detection Limit	Sample Year
Strontium	UTNCBU-01-OCT97-01	Background	Habitat	mg/kg	=	379		1997
Strontium	UTNCBU-02-OCT97-01	Background	Habitat	mg/kg	=	439		1997
Strontium	UTNCBU-03-1298-01	Background	Habitat	mg/kg	=	535		1998
Strontium	UTNCBU-04-1298-01	Background	Habitat	mg/kg	=	533		1998
Strontium	UTNCBU-05-1298-01	Background	Habitat	mg/kg	=	458		1998
Strontium	UTNCBU-06-1298-01	Background	Habitat	mg/kg	=	945		1998
Strontium	UTNEB-03-1298-01	Background	Habitat	mg/kg	=	518		1998
Strontium	UTNEB-04-1298-01	Background	Habitat	mg/kg	=	558		1998
Strontium	UTNEB-05-1298-01	Background	Habitat	mg/kg	=	627		1998
Strontium	UTNEB-06-1298-01	Background	Habitat	mg/kg	=	568		1998
Strontium	UTNERB-01-OCT97-01	Background	Habitat	mg/kg	=	467		1997
Strontium	UTNERB-02-OCT97-01	Background	Habitat	mg/kg	=	603		1997
Strontium	UTNOCB-01-OCT97-01	Background	Habitat	mg/kg	=	391		1997
Strontium	UTNOCB-02-OCT97-01	Background	Habitat	mg/kg	=	459		1997
Strontium	UTNOCBG-03-1298-01	Background	Habitat	mg/kg	=	361		1998
Strontium	UTNOCBG-04-1298-01	Background	Habitat	mg/kg	=	398		1998
Strontium	UTNOCBG-05-1298-01	Background	Habitat	mg/kg	=	368		1998
Strontium	UTNOCBG-06-1298-01	Background	Habitat	mg/kg	=	370		1998
Strontium	NR-226	OnSite	Habitat	mg/Kg	=	333		2002
Strontium	NR-227	OnSite	Habitat	mg/Kg	=	321		2002
Strontium	NR-228	OnSite	OB/OD	mg/Kg	=	266		2002
Strontium	NR-229	OnSite	Habitat	mg/Kg	=	244		2002
Strontium	NR-230	OnSite	Habitat	mg/Kg	=	304		2002
Strontium	NR-231	OnSite	OB/OD	mg/Kg	=	283		2002
Strontium	NR-232	OnSite	Habitat	mg/Kg	=	246		2002
Strontium	NR-233	OnSite	Habitat	mg/Kg	=	402		2002
Strontium	NR-234	OnSite	Habitat	mg/Kg	=	322		2002
Strontium	NR-235	OnSite	Habitat	mg/Kg	=	334		2002
Strontium	NR-236	OnSite	Habitat	mg/Kg	=	248		2002
Strontium	NR-237	OnSite	Habitat	mg/Kg	=	358		2002
Strontium	NR-526	OnSite	Habitat	mg/Kg	=	460		2004
Strontium	NR-527	OnSite	Habitat	mg/Kg	=	292		2004
Strontium	NR-528	OnSite	Habitat	mg/Kg	=	416		2004
Strontium	NR-529	OnSite	Habitat	mg/Kg	=	456		2004
Strontium	NR-530	OnSite	Habitat	mg/Kg	=	404		2004
Strontium	NR-531	OnSite	OB/OD	mg/Kg	=	484		2004
Strontium	NR-532	OnSite	OB/OD	mg/Kg	=	386		2004
Strontium	NR-533	OnSite	OB/OD	mg/Kg	=	401		2004
Strontium	NR-534	OnSite	OB/OD	mg/Kg	=	387		2004
Strontium	NR-535	OnSite	OB/OD	mg/Kg	=	371		2004
Sulfur	AMTOF-01-1298-01	Background	Habitat	mg/kg	=	334		1998
Sulfur	AMTOF-02-1298-01	Background	Habitat	mg/kg	=	244		1998
Sulfur	AMTOF-03-1298-01	Background	Habitat	mg/kg	=	330		1998
Sulfur	AMTOF-04-1298-01	Background	Habitat	mg/kg	=	391		1998
Sulfur	AMTOF-05-1298-01	Background	Habitat	mg/kg	=	383		1998
Sulfur	AMTOF-06-1298-01	Background	Habitat	mg/kg	=	386		1998
Sulfur	NR-500-0800-01	Background	Habitat	mg/kg	B	277		2000
Sulfur	NR-501-0800-01	Background	Habitat	mg/kg	B	1160		2000
Sulfur	NR-502-0800-01	Background	Habitat	mg/kg	B	640		2000
Sulfur	NR-503-0800-01	Background	Habitat	mg/kg	B	440		2000
Sulfur	NR-504-0800-01	Background	Habitat	mg/kg	B	382		2000
Sulfur	NR-505-0800-01	Background	Habitat	mg/kg	=	450		2000
Sulfur	NR-506-0800-01	Background	Habitat	mg/kg	B	424		2000

Table B-1
Sample Data for Inorganics in TTU Background and Site Soils
Attachment 10A - Thermal Treatment Unit, Ecological Risk Assessment

Analyte	Location	Type	Habitat	Units	Qualifier	Result	Detection Limit	Sample Year
Sulfur	NR-507-0800-01	Background	Habitat	mg/kg	B	255		2000
Sulfur	NR-508-0800-01	Background	Habitat	mg/kg	B	284		2000
Sulfur	NR-509-0800-01	Background	Habitat	mg/kg	B	610		2000
Sulfur	NR-510-0800-01	Background	Habitat	mg/kg	B	265		2000
Sulfur	NR-511-0800-01	Background	Habitat	mg/kg	B	261		2000
Sulfur	NR-512-0800-01	Background	Habitat	mg/kg	B	242		2000
Sulfur	NR-513-0800-01	Background	Habitat	mg/kg	B	266		2000
Sulfur	NR-514-0800-01	Background	Habitat	mg/kg	B	535		2000
Sulfur	NR-515-0800-01	Background	Habitat	mg/kg	B	3660		2000
Sulfur	NR-516-0800-01	Background	Habitat	mg/kg	B	1290		2000
Sulfur	NR-517-0800-01	Background	Habitat	mg/kg	B	3320		2000
Sulfur	NR-518-0800-01	Background	Habitat	mg/kg	=	3070		2000
Sulfur	NR-519-0800-01	Background	Habitat	mg/kg	=	2890		2000
Sulfur	NR-520-0800-01	Background	Habitat	mg/kg	=	2890		2000
Sulfur	NR-521-0800-01	Background	Habitat	mg/kg	=	4020		2000
Sulfur	NR-522-0800-01	Background	Habitat	mg/kg	=	4010		2000
Sulfur	NR-523-0800-01	Background	Habitat	mg/kg	=	2250		2000
Sulfur	NR-524-0800-01	Background	Habitat	mg/kg	=	2910		2000
Sulfur	NR-525-0800-01	Background	Habitat	mg/kg	=	4720		2000
Sulfur	UTNCBU-01-OCT97-01	Background	Habitat	mg/kg	=	329		1997
Sulfur	UTNCBU-02-OCT97-01	Background	Habitat	mg/kg	=	356		1997
Sulfur	UTNCBU-03-1298-01	Background	Habitat	mg/kg	=	424		1998
Sulfur	UTNCBU-04-1298-01	Background	Habitat	mg/kg	=	468		1998
Sulfur	UTNCBU-05-1298-01	Background	Habitat	mg/kg	=	351		1998
Sulfur	UTNCBU-06-1298-01	Background	Habitat	mg/kg	=	403		1998
Sulfur	UTNEB-03-1298-01	Background	Habitat	mg/kg	=	482		1998
Sulfur	UTNEB-04-1298-01	Background	Habitat	mg/kg	=	582		1998
Sulfur	UTNEB-05-1298-01	Background	Habitat	mg/kg	=	527		1998
Sulfur	UTNEB-06-1298-01	Background	Habitat	mg/kg	=	433		1998
Sulfur	UTNERB-01-OCT97-01	Background	Habitat	mg/kg	=	1100		1997
Sulfur	UTNERB-02-OCT97-01	Background	Habitat	mg/kg	=	673		1997
Sulfur	UTNOCB-01-OCT97-01	Background	Habitat	mg/kg	=	648		1997
Sulfur	UTNOCB-02-OCT97-01	Background	Habitat	mg/kg	=	741		1997
Sulfur	UTNOCBG-03-1298-01	Background	Habitat	mg/kg	=	384		1998
Sulfur	UTNOCBG-04-1298-01	Background	Habitat	mg/kg	=	350		1998
Sulfur	UTNOCBG-05-1298-01	Background	Habitat	mg/kg	=	371		1998
Sulfur	UTNOCBG-06-1298-01	Background	Habitat	mg/kg	=	351		1998
Tellurium	AMTOF-01-1298-01	Background	Habitat	mg/kg	J	0.419		1998
Tellurium	AMTOF-02-1298-01	Background	Habitat	mg/kg	J	0.171		1998
Tellurium	AMTOF-03-1298-01	Background	Habitat	mg/kg	J	0.255		1998
Tellurium	AMTOF-04-1298-01	Background	Habitat	mg/kg	J	0.36		1998
Tellurium	AMTOF-05-1298-01	Background	Habitat	mg/kg	J	0.444		1998
Tellurium	AMTOF-06-1298-01	Background	Habitat	mg/kg	J	0.279		1998
Tellurium	NR-500-0800-01	Background	Habitat	mg/kg	U	0.1515	0.303	2000
Tellurium	NR-501-0800-01	Background	Habitat	mg/kg	U	0.167	0.334	2000
Tellurium	NR-502-0800-01	Background	Habitat	mg/kg	U	0.198	0.396	2000
Tellurium	NR-503-0800-01	Background	Habitat	mg/kg	U	0.161	0.322	2000
Tellurium	NR-504-0800-01	Background	Habitat	mg/kg	U	0.1715	0.343	2000
Tellurium	NR-505-0800-01	Background	Habitat	mg/kg	U	0.191	0.382	2000
Tellurium	NR-506-0800-01	Background	Habitat	mg/kg	U	0.1525	0.305	2000
Tellurium	NR-507-0800-01	Background	Habitat	mg/kg	U	0.194	0.388	2000
Tellurium	NR-508-0800-01	Background	Habitat	mg/kg	U	0.161	0.322	2000
Tellurium	NR-509-0800-01	Background	Habitat	mg/kg	U	0.191	0.382	2000

Table B-1

Sample Data for Inorganics in TTU Background and Site Soils

Attachment 10A - Thermal Treatment Unit, Ecological Risk Assessment

Analyte	Location	Type	Habitat	Units	Qualifier	Result	Detection Limit	Sample Year
Tellurium	NR-510-0800-01	Background	Habitat	mg/kg	U	0.198	0.396	2000
Tellurium	NR-511-0800-01	Background	Habitat	mg/kg	U	0.162	0.324	2000
Tellurium	NR-512-0800-01	Background	Habitat	mg/kg	U	0.1845	0.369	2000
Tellurium	NR-513-0800-01	Background	Habitat	mg/kg	U	0.1375	0.275	2000
Tellurium	NR-514-0800-01	Background	Habitat	mg/kg	U	0.2025	0.405	2000
Tellurium	NR-515-0800-01	Background	Habitat	mg/kg	U	0.2015	0.403	2000
Tellurium	NR-516-0800-01	Background	Habitat	mg/kg	U	0.2535	0.507	2000
Tellurium	NR-517-0800-01	Background	Habitat	mg/kg	U	0.191	0.382	2000
Tellurium	NR-518-0800-01	Background	Habitat	mg/kg	U	0.18	0.36	2000
Tellurium	NR-519-0800-01	Background	Habitat	mg/kg	U	0.2615	0.523	2000
Tellurium	NR-520-0800-01	Background	Habitat	mg/kg	U	0.266	0.532	2000
Tellurium	NR-521-0800-01	Background	Habitat	mg/kg	U	0.2135	0.427	2000
Tellurium	NR-522-0800-01	Background	Habitat	mg/kg	U	0.2165	0.433	2000
Tellurium	NR-523-0800-01	Background	Habitat	mg/kg	U	0.2065	0.413	2000
Tellurium	NR-524-0800-01	Background	Habitat	mg/kg	U	0.317	0.634	2000
Tellurium	NR-525-0800-01	Background	Habitat	mg/kg	U	0.451	0.902	2000
Tellurium	UTNCBU-01-OCT97-01	Background	Habitat	mg/kg	U	0.372	0.744	1997
Tellurium	UTNCBU-02-OCT97-01	Background	Habitat	mg/kg	U	0.376	0.752	1997
Tellurium	UTNCBU-03-1298-01	Background	Habitat	mg/kg	=	0.506		1998
Tellurium	UTNCBU-04-1298-01	Background	Habitat	mg/kg	=	0.704		1998
Tellurium	UTNCBU-05-1298-01	Background	Habitat	mg/kg	=	0.712		1998
Tellurium	UTNCBU-06-1298-01	Background	Habitat	mg/kg	=	0.349		1998
Tellurium	UTNEB-03-1298-01	Background	Habitat	mg/kg	=	0.769		1998
Tellurium	UTNEB-04-1298-01	Background	Habitat	mg/kg	=	0.549		1998
Tellurium	UTNEB-05-1298-01	Background	Habitat	mg/kg	=	0.627		1998
Tellurium	UTNEB-06-1298-01	Background	Habitat	mg/kg	J	0.12		1998
Tellurium	UTNERB-01-OCT97-01	Background	Habitat	mg/kg	U	0.4525	0.905	1997
Tellurium	UTNERB-02-OCT97-01	Background	Habitat	mg/kg	U	0.3695	0.739	1997
Tellurium	UTNOCB-01-OCT97-01	Background	Habitat	mg/kg	U	0.414	0.828	1997
Tellurium	UTNOCB-02-OCT97-01	Background	Habitat	mg/kg	U	0.3485	0.697	1997
Tellurium	UTNOCBG-03-1298-01	Background	Habitat	mg/kg	B	0.617		1998
Tellurium	UTNOCBG-04-1298-01	Background	Habitat	mg/kg	B	0.45		1998
Tellurium	UTNOCBG-05-1298-01	Background	Habitat	mg/kg	B	0.661		1998
Tellurium	UTNOCBG-06-1298-01	Background	Habitat	mg/kg	B	0.526		1998
Thallium	AMTOF-01-1298-01	Background	Habitat	mg/kg	J	0.259		1998
Thallium	AMTOF-02-1298-01	Background	Habitat	mg/kg	J	0.317		1998
Thallium	AMTOF-03-1298-01	Background	Habitat	mg/kg	=	0.523		1998
Thallium	AMTOF-04-1298-01	Background	Habitat	mg/kg	=	0.475		1998
Thallium	AMTOF-05-1298-01	Background	Habitat	mg/kg	=	0.352		1998
Thallium	AMTOF-06-1298-01	Background	Habitat	mg/kg	=	0.435		1998
Thallium	NR-238	Background	Habitat	mg/Kg	=	0.32		2002
Thallium	NR-239	Background	Habitat	mg/Kg	=	0.34		2002
Thallium	NR-500-0800-01	Background	Habitat	mg/kg	U	0.55	1.1	2000
Thallium	NR-501-0800-01	Background	Habitat	mg/kg	U	0.605	1.21	2000
Thallium	NR-502-0800-01	Background	Habitat	mg/kg	U	0.72	1.44	2000
Thallium	NR-503-0800-01	Background	Habitat	mg/kg	U	0.585	1.17	2000
Thallium	NR-504-0800-01	Background	Habitat	mg/kg	U	0.62	1.24	2000
Thallium	NR-505-0800-01	Background	Habitat	mg/kg	U	0.695	1.39	2000
Thallium	NR-506-0800-01	Background	Habitat	mg/kg	U	0.555	1.11	2000
Thallium	NR-507-0800-01	Background	Habitat	mg/kg	U	0.705	1.41	2000
Thallium	NR-508-0800-01	Background	Habitat	mg/kg	U	0.585	1.17	2000
Thallium	NR-509-0800-01	Background	Habitat	mg/kg	U	0.695	1.39	2000
Thallium	NR-510-0800-01	Background	Habitat	mg/kg	U	0.72	1.44	2000

Table B-1

Sample Data for Inorganics in TTU Background and Site Soils

Attachment 10A - Thermal Treatment Unit, Ecological Risk Assessment

Analyte	Location	Type	Habitat	Units	Qualifier	Result	Detection Limit	Sample Year
Thallium	NR-511-0800-01	Background	Habitat	mg/kg	U	0.59	1.18	2000
Thallium	NR-512-0800-01	Background	Habitat	mg/kg	U	0.67	1.34	2000
Thallium	NR-513-0800-01	Background	Habitat	mg/kg	=	0.999		2000
Thallium	NR-514-0800-01	Background	Habitat	mg/kg	U	0.735	1.47	2000
Thallium	NR-515-0800-01	Background	Habitat	mg/kg	U	0.73	1.46	2000
Thallium	NR-516-0800-01	Background	Habitat	mg/kg	U	0.92	1.84	2000
Thallium	NR-517-0800-01	Background	Habitat	mg/kg	U	0.04635	0.0927	2000
Thallium	NR-518-0800-01	Background	Habitat	mg/kg	U	0.605	1.21	2000
Thallium	NR-519-0800-01	Background	Habitat	mg/kg	U	0.1175	0.235	2000
Thallium	NR-520-0800-01	Background	Habitat	mg/kg	U	1.1	2.2	2000
Thallium	NR-521-0800-01	Background	Habitat	mg/kg	U	1.76	3.52	2000
Thallium	NR-522-0800-01	Background	Habitat	mg/kg	U	0.895	1.79	2000
Thallium	NR-523-0800-01	Background	Habitat	mg/kg	U	0.85	1.7	2000
Thallium	NR-524-0800-01	Background	Habitat	mg/kg	U	1.305	2.61	2000
Thallium	NR-525-0800-01	Background	Habitat	mg/kg	U	0.76	1.52	2000
Thallium	NR-536	Background	Habitat	mg/Kg	J	0.24		2004
Thallium	NR-537	Background	Habitat	mg/Kg	J	0.28		2004
Thallium	UTNCBU-01-OCT97-01	Background	Habitat	mg/kg	BJ	0.123		1997
Thallium	UTNCBU-02-OCT97-01	Background	Habitat	mg/kg	BJ	0.142		1997
Thallium	UTNCBU-03-1298-01	Background	Habitat	mg/kg	J	0.144		1998
Thallium	UTNCBU-04-1298-01	Background	Habitat	mg/kg	J	0.178		1998
Thallium	UTNCBU-05-1298-01	Background	Habitat	mg/kg	J	0.0425		1998
Thallium	UTNCBU-06-1298-01	Background	Habitat	mg/kg	J	0.0151		1998
Thallium	UTNEB-03-1298-01	Background	Habitat	mg/kg	U	0.1705	0.341	1998
Thallium	UTNEB-04-1298-01	Background	Habitat	mg/kg	U	0.1965	0.393	1998
Thallium	UTNEB-05-1298-01	Background	Habitat	mg/kg	U	0.1625	0.325	1998
Thallium	UTNEB-06-1298-01	Background	Habitat	mg/kg	U	0.223	0.446	1998
Thallium	UTNERB-01-OCT97-01	Background	Habitat	mg/kg	=	1.2		1997
Thallium	UTNERB-02-OCT97-01	Background	Habitat	mg/kg	B	0.566		1997
Thallium	UTNOCB-01-OCT97-01	Background	Habitat	mg/kg	BJ	0.223		1997
Thallium	UTNOCB-02-OCT97-01	Background	Habitat	mg/kg	BJ	0.236		1997
Thallium	UTNOCBG-03-1298-01	Background	Habitat	mg/kg	=	0.558		1998
Thallium	UTNOCBG-04-1298-01	Background	Habitat	mg/kg	J	0.189		1998
Thallium	UTNOCBG-05-1298-01	Background	Habitat	mg/kg	J	0.279		1998
Thallium	UTNOCBG-06-1298-01	Background	Habitat	mg/kg	=	0.515		1998
Thallium	NR-226	OnSite	Habitat	mg/Kg	=	0.21		2002
Thallium	NR-227	OnSite	Habitat	mg/Kg	=	0.17		2002
Thallium	NR-228	OnSite	OB/OD	mg/Kg	=	0.34		2002
Thallium	NR-229	OnSite	Habitat	mg/Kg	=	0.3		2002
Thallium	NR-230	OnSite	Habitat	mg/Kg	=	0.4		2002
Thallium	NR-231	OnSite	OB/OD	mg/Kg	=	0.35		2002
Thallium	NR-232	OnSite	Habitat	mg/Kg	=	0.55		2002
Thallium	NR-233	OnSite	Habitat	mg/Kg	=	0.34		2002
Thallium	NR-234	OnSite	Habitat	mg/Kg	=	0.35		2002
Thallium	NR-235	OnSite	Habitat	mg/Kg	=	0.29		2002
Thallium	NR-236	OnSite	Habitat	mg/Kg	=	0.32		2002
Thallium	NR-237	OnSite	Habitat	mg/Kg	=	0.32		2002
Thallium	NR-526	OnSite	Habitat	mg/Kg	J	0.28		2004
Thallium	NR-527	OnSite	Habitat	mg/Kg	J	0.22		2004
Thallium	NR-528	OnSite	Habitat	mg/Kg	J	0.15		2004
Thallium	NR-529	OnSite	Habitat	mg/Kg	J	0.26		2004
Thallium	NR-530	OnSite	Habitat	mg/Kg	J	0.24		2004
Thallium	NR-531	OnSite	OB/OD	mg/Kg	J	0.11		2004

Table B-1
Sample Data for Inorganics in TTU Background and Site Soils
Attachment 10A - Thermal Treatment Unit, Ecological Risk Assessment

Analyte	Location	Type	Habitat	Units	Qualifier	Result	Detection Limit	Sample Year
Thallium	NR-532	OnSite	OB/OD	mg/Kg	J	0.11		2004
Thallium	NR-533	OnSite	OB/OD	mg/Kg	J	0.21		2004
Thallium	NR-534	OnSite	OB/OD	mg/Kg	J	0.42		2004
Thallium	NR-535	OnSite	OB/OD	mg/Kg	J	0.21		2004
Thallium	SS1	OnSite	OB/OD	mg/Kg	U	2.5	5	1991
Thallium	SS10	OnSite	OB/OD	mg/Kg	U	2.5	5	1991
Thallium	SS11	OnSite	OB/OD	mg/Kg	U	2.5	5	1991
Thallium	SS12	OnSite	OB/OD	mg/Kg	U	2.5	5	1991
Thallium	SS13	OnSite	OB/OD	mg/Kg	U	2.5	5	1991
Thallium	SS14	OnSite	OB/OD	mg/Kg	U	2.5	5	1991
Thallium	SS15	OnSite	OB/OD	mg/Kg	U	2.5	5	1991
Thallium	SS16	OnSite	Habitat	mg/Kg	U	2.5	5	1991
Thallium	SS17	OnSite	Habitat	mg/Kg	U	2.5	5	1991
Thallium	SS18	OnSite	Habitat	mg/Kg	U	2.5	5	1991
Thallium	SS19	OnSite	Habitat	mg/Kg	U	2.5	5	1991
Thallium	SS2	OnSite	OB/OD	mg/Kg	U	2.5	5	1991
Thallium	SS20	OnSite	Habitat	mg/Kg	U	2.5	5	1991
Thallium	SS3	OnSite	OB/OD	mg/Kg	U	2.5	5	1991
Thallium	SS4	OnSite	OB/OD	mg/Kg	U	2.5	5	1991
Thallium	SS5	OnSite	OB/OD	mg/Kg	U	2.5	5	1991
Thallium	SS6	OnSite	OB/OD	mg/Kg	U	2.5	5	1991
Thallium	SS7	OnSite	OB/OD	mg/Kg	U	2.5	5	1991
Thallium	SS8	OnSite	OB/OD	mg/Kg	U	2.5	5	1991
Thallium	SS9	OnSite	OB/OD	mg/Kg	U	2.5	5	1991
Thallium	TTU-SS01S	OnSite	OB/OD	mg/Kg	=	0.22		1989
Thallium	TTU-SS02S	OnSite	OB/OD	mg/Kg	=	0.22		1989
Thallium	TTU-SS03S	OnSite	OB/OD	mg/Kg	U	0.085	0.17	1989
Thallium	TTU-SS04S(D)	OnSite	OB/OD	mg/Kg	U	0.085	0.17	1989
Thallium	TTU-SS05S	OnSite	OB/OD	mg/Kg	=	0.42		1989
Thallium	TTU-SS06S(BG)	OnSite	Habitat	mg/Kg	=	0.24		1989
Tin	AMTOF-01-1298-01	Background	Habitat	mg/kg	=	1.15		1998
Tin	AMTOF-02-1298-01	Background	Habitat	mg/kg	=	0.798		1998
Tin	AMTOF-03-1298-01	Background	Habitat	mg/kg	=	1.18		1998
Tin	AMTOF-04-1298-01	Background	Habitat	mg/kg	=	1.23		1998
Tin	AMTOF-05-1298-01	Background	Habitat	mg/kg	=	0.942		1998
Tin	AMTOF-06-1298-01	Background	Habitat	mg/kg	=	1.3		1998
Tin	NR-500-0800-01	Background	Habitat	mg/kg	JB	0.475		2000
Tin	NR-501-0800-01	Background	Habitat	mg/kg	JB	0.427		2000
Tin	NR-502-0800-01	Background	Habitat	mg/kg	JB	0.663		2000
Tin	NR-503-0800-01	Background	Habitat	mg/kg	JB	0.427		2000
Tin	NR-504-0800-01	Background	Habitat	mg/kg	JB	0.54		2000
Tin	NR-505-0800-01	Background	Habitat	mg/kg	JB	0.444		2000
Tin	NR-506-0800-01	Background	Habitat	mg/kg	JB	0.383		2000
Tin	NR-507-0800-01	Background	Habitat	mg/kg	JB	0.486		2000
Tin	NR-508-0800-01	Background	Habitat	mg/kg	JB	0.258		2000
Tin	NR-509-0800-01	Background	Habitat	mg/kg	JB	0.519		2000
Tin	NR-510-0800-01	Background	Habitat	mg/kg	JB	0.428		2000
Tin	NR-511-0800-01	Background	Habitat	mg/kg	JB	0.406		2000
Tin	NR-512-0800-01	Background	Habitat	mg/kg	JB	0.481		2000
Tin	NR-513-0800-01	Background	Habitat	mg/kg	JB	0.349		2000
Tin	NR-514-0800-01	Background	Habitat	mg/kg	JB	0.468		2000
Tin	NR-515-0800-01	Background	Habitat	mg/kg	JB	0.404		2000
Tin	NR-516-0800-01	Background	Habitat	mg/kg	JB	0.754		2000

Table B-1

Sample Data for Inorganics in TTU Background and Site Soils

Attachment 10A - Thermal Treatment Unit, Ecological Risk Assessment

Analyte	Location	Type	Habitat	Units	Qualifier	Result	Detection Limit	Sample Year
Tin	NR-517-0800-01	Background	Habitat	mg/kg	JB	0.432		2000
Tin	NR-518-0800-01	Background	Habitat	mg/kg	JB	0.537		2000
Tin	NR-519-0800-01	Background	Habitat	mg/kg	JB	0.622		2000
Tin	NR-520-0800-01	Background	Habitat	mg/kg	JB	0.663		2000
Tin	NR-521-0800-01	Background	Habitat	mg/kg	JB	0.586		2000
Tin	NR-522-0800-01	Background	Habitat	mg/kg	JB	0.78		2000
Tin	NR-523-0800-01	Background	Habitat	mg/kg	JB	0.591		2000
Tin	NR-524-0800-01	Background	Habitat	mg/kg	JB	0.752		2000
Tin	NR-525-0800-01	Background	Habitat	mg/kg	JB	0.636		2000
Tin	UTNCBU-01-OCT97-01	Background	Habitat	mg/kg	J	0.624		1997
Tin	UTNCBU-02-OCT97-01	Background	Habitat	mg/kg	J	0.591		1997
Tin	UTNCBU-03-1298-01	Background	Habitat	mg/kg	=	1.01		1998
Tin	UTNCBU-04-1298-01	Background	Habitat	mg/kg	=	0.964		1998
Tin	UTNCBU-05-1298-01	Background	Habitat	mg/kg	=	0.465		1998
Tin	UTNCBU-06-1298-01	Background	Habitat	mg/kg	=	0.551		1998
Tin	UTNEB-03-1298-01	Background	Habitat	mg/kg	=	0.709		1998
Tin	UTNEB-04-1298-01	Background	Habitat	mg/kg	=	1.28		1998
Tin	UTNEB-05-1298-01	Background	Habitat	mg/kg	=	0.925		1998
Tin	UTNEB-06-1298-01	Background	Habitat	mg/kg	=	0.509		1998
Tin	UTNERB-01-OCT97-01	Background	Habitat	mg/kg	J	1.28		1997
Tin	UTNERB-02-OCT97-01	Background	Habitat	mg/kg	J	0.975		1997
Tin	UTNOCB-01-OCT97-01	Background	Habitat	mg/kg	J	0.799		1997
Tin	UTNOCB-02-OCT97-01	Background	Habitat	mg/kg	J	0.828		1997
Tin	UTNOCBG-03-1298-01	Background	Habitat	mg/kg	=	0.991		1998
Tin	UTNOCBG-04-1298-01	Background	Habitat	mg/kg	=	0.83		1998
Tin	UTNOCBG-05-1298-01	Background	Habitat	mg/kg	=	0.902		1998
Tin	UTNOCBG-06-1298-01	Background	Habitat	mg/kg	=	0.807		1998
Titanium	AMTOF-01-1298-01	Background	Habitat	mg/kg	=	446		1998
Titanium	AMTOF-02-1298-01	Background	Habitat	mg/kg	=	300		1998
Titanium	AMTOF-03-1298-01	Background	Habitat	mg/kg	=	417		1998
Titanium	AMTOF-04-1298-01	Background	Habitat	mg/kg	=	487		1998
Titanium	AMTOF-05-1298-01	Background	Habitat	mg/kg	=	399		1998
Titanium	AMTOF-06-1298-01	Background	Habitat	mg/kg	=	432		1998
Titanium	NR-500-0800-01	Background	Habitat	mg/kg	=	360		2000
Titanium	NR-501-0800-01	Background	Habitat	mg/kg	=	220		2000
Titanium	NR-502-0800-01	Background	Habitat	mg/kg	=	392		2000
Titanium	NR-503-0800-01	Background	Habitat	mg/kg	=	378		2000
Titanium	NR-504-0800-01	Background	Habitat	mg/kg	=	365		2000
Titanium	NR-505-0800-01	Background	Habitat	mg/kg	=	422		2000
Titanium	NR-506-0800-01	Background	Habitat	mg/kg	=	340		2000
Titanium	NR-507-0800-01	Background	Habitat	mg/kg	=	338		2000
Titanium	NR-508-0800-01	Background	Habitat	mg/kg	=	319		2000
Titanium	NR-509-0800-01	Background	Habitat	mg/kg	=	285		2000
Titanium	NR-510-0800-01	Background	Habitat	mg/kg	=	226		2000
Titanium	NR-511-0800-01	Background	Habitat	mg/kg	=	308		2000
Titanium	NR-512-0800-01	Background	Habitat	mg/kg	=	385		2000
Titanium	NR-513-0800-01	Background	Habitat	mg/kg	=	331		2000
Titanium	NR-514-0800-01	Background	Habitat	mg/kg	=	372		2000
Titanium	NR-515-0800-01	Background	Habitat	mg/kg	=	81.6		2000
Titanium	NR-516-0800-01	Background	Habitat	mg/kg	=	385		2000
Titanium	NR-517-0800-01	Background	Habitat	mg/kg	=	229		2000
Titanium	NR-518-0800-01	Background	Habitat	mg/kg	=	59.7		2000
Titanium	NR-519-0800-01	Background	Habitat	mg/kg	=	161		2000

Table B-1

Sample Data for Inorganics in TTU Background and Site Soils

Attachment 10A - Thermal Treatment Unit, Ecological Risk Assessment

Analyte	Location	Type	Habitat	Units	Qualifier	Result	Detection Limit	Sample Year
Titanium	NR-520-0800-01	Background	Habitat	mg/kg	=	167		2000
Titanium	NR-521-0800-01	Background	Habitat	mg/kg	=	113		2000
Titanium	NR-522-0800-01	Background	Habitat	mg/kg	=	266		2000
Titanium	NR-523-0800-01	Background	Habitat	mg/kg	=	240		2000
Titanium	NR-524-0800-01	Background	Habitat	mg/kg	=	185		2000
Titanium	NR-525-0800-01	Background	Habitat	mg/kg	=	155		2000
Titanium	UTNCBU-01-OCT97-01	Background	Habitat	mg/kg	=	337		1997
Titanium	UTNCBU-02-OCT97-01	Background	Habitat	mg/kg	=	336		1997
Titanium	UTNCBU-03-1298-01	Background	Habitat	mg/kg	=	409		1998
Titanium	UTNCBU-04-1298-01	Background	Habitat	mg/kg	=	429		1998
Titanium	UTNCBU-05-1298-01	Background	Habitat	mg/kg	=	220		1998
Titanium	UTNCBU-06-1298-01	Background	Habitat	mg/kg	=	224		1998
Titanium	UTNEB-03-1298-01	Background	Habitat	mg/kg	=	281		1998
Titanium	UTNEB-04-1298-01	Background	Habitat	mg/kg	=	497		1998
Titanium	UTNEB-05-1298-01	Background	Habitat	mg/kg	=	377		1998
Titanium	UTNEB-06-1298-01	Background	Habitat	mg/kg	=	235		1998
Titanium	UTNERB-01-OCT97-01	Background	Habitat	mg/kg	=	501		1997
Titanium	UTNERB-02-OCT97-01	Background	Habitat	mg/kg	=	493		1997
Titanium	UTNOCB-01-OCT97-01	Background	Habitat	mg/kg	=	392		1997
Titanium	UTNOCB-02-OCT97-01	Background	Habitat	mg/kg	=	345		1997
Titanium	UTNOCBG-03-1298-01	Background	Habitat	mg/kg	H	349		1998
Titanium	UTNOCBG-04-1298-01	Background	Habitat	mg/kg	=	334		1998
Titanium	UTNOCBG-05-1298-01	Background	Habitat	mg/kg	=	351		1998
Titanium	UTNOCBG-06-1298-01	Background	Habitat	mg/kg	=	300		1998
Tungsten	AMTOF-01-1298-01	Background	Habitat	mg/kg	U	0.147	0.294	1998
Tungsten	AMTOF-02-1298-01	Background	Habitat	mg/kg	U	0.11	0.22	1998
Tungsten	AMTOF-03-1298-01	Background	Habitat	mg/kg	U	0.1365	0.273	1998
Tungsten	AMTOF-04-1298-01	Background	Habitat	mg/kg	U	0.1415	0.283	1998
Tungsten	AMTOF-05-1298-01	Background	Habitat	mg/kg	U	0.1435	0.287	1998
Tungsten	AMTOF-06-1298-01	Background	Habitat	mg/kg	U	0.144	0.288	1998
Tungsten	NR-500-0800-01	Background	Habitat	mg/kg	UB	0.2045	0.409	2000
Tungsten	NR-501-0800-01	Background	Habitat	mg/kg	UB	0.225	0.45	2000
Tungsten	NR-502-0800-01	Background	Habitat	mg/kg	UB	0.267	0.534	2000
Tungsten	NR-503-0800-01	Background	Habitat	mg/kg	UB	0.2175	0.435	2000
Tungsten	NR-504-0800-01	Background	Habitat	mg/kg	UB	0.2315	0.463	2000
Tungsten	NR-505-0800-01	Background	Habitat	mg/kg	UB	0.258	0.516	2000
Tungsten	NR-506-0800-01	Background	Habitat	mg/kg	UB	0.2055	0.411	2000
Tungsten	NR-507-0800-01	Background	Habitat	mg/kg	UB	0.2615	0.523	2000
Tungsten	NR-508-0800-01	Background	Habitat	mg/kg	UB	0.132	0.264	2000
Tungsten	NR-509-0800-01	Background	Habitat	mg/kg	UB	0.258	0.516	2000
Tungsten	NR-510-0800-01	Background	Habitat	mg/kg	UB	0.267	0.534	2000
Tungsten	NR-511-0800-01	Background	Habitat	mg/kg	UB	0.2185	0.437	2000
Tungsten	NR-512-0800-01	Background	Habitat	mg/kg	UB	0.2485	0.497	2000
Tungsten	NR-513-0800-01	Background	Habitat	mg/kg	UB	0.186	0.372	2000
Tungsten	NR-514-0800-01	Background	Habitat	mg/kg	UB	0.273	0.546	2000
Tungsten	NR-515-0800-01	Background	Habitat	mg/kg	UB	0.2715	0.543	2000
Tungsten	NR-516-0800-01	Background	Habitat	mg/kg	UB	0.342	0.684	2000
Tungsten	NR-517-0800-01	Background	Habitat	mg/kg	UB	0.2575	0.515	2000
Tungsten	NR-518-0800-01	Background	Habitat	mg/kg	UB	0.243	0.486	2000
Tungsten	NR-519-0800-01	Background	Habitat	mg/kg	UB	0.3525	0.705	2000
Tungsten	NR-520-0800-01	Background	Habitat	mg/kg	UB	0.3595	0.719	2000
Tungsten	NR-521-0800-01	Background	Habitat	mg/kg	UB	0.288	0.576	2000
Tungsten	NR-522-0800-01	Background	Habitat	mg/kg	UB	0.292	0.584	2000

Table B-1

Sample Data for Inorganics in TTU Background and Site Soils

Attachment 10A - Thermal Treatment Unit, Ecological Risk Assessment

Analyte	Location	Type	Habitat	Units	Qualifier	Result	Detection Limit	Sample Year
Tungsten	NR-523-0800-01	Background	Habitat	mg/kg	UB	0.2785	0.557	2000
Tungsten	NR-524-0800-01	Background	Habitat	mg/kg	UB	0.4275	0.855	2000
Tungsten	NR-525-0800-01	Background	Habitat	mg/kg	UB	0.158	0.316	2000
Tungsten	UTNCBU-01-OCT97-01	Background	Habitat	mg/kg	BJ	0.0623		1997
Tungsten	UTNCBU-02-OCT97-01	Background	Habitat	mg/kg	U	0.895	1.79	1997
Tungsten	UTNCBU-03-1298-01	Background	Habitat	mg/kg	BJ	0.629		1998
Tungsten	UTNCBU-04-1298-01	Background	Habitat	mg/kg	BJ	0.323		1998
Tungsten	UTNCBU-05-1298-01	Background	Habitat	mg/kg	BJ	0.338		1998
Tungsten	UTNCBU-06-1298-01	Background	Habitat	mg/kg	BJ	0.114		1998
Tungsten	UTNEB-03-1298-01	Background	Habitat	mg/kg	BJ	0.331		1998
Tungsten	UTNEB-04-1298-01	Background	Habitat	mg/kg	BJ	0.0279		1998
Tungsten	UTNEB-05-1298-01	Background	Habitat	mg/kg	BJ	0.103		1998
Tungsten	UTNEB-06-1298-01	Background	Habitat	mg/kg	BJ	0.0978		1998
Tungsten	UTNERB-01-OCT97-01	Background	Habitat	mg/kg	BJ	0.116		1997
Tungsten	UTNERB-02-OCT97-01	Background	Habitat	mg/kg	BJ	0.233		1997
Tungsten	UTNOCB-01-OCT97-01	Background	Habitat	mg/kg	BJ	0.197		1997
Tungsten	UTNOCB-02-OCT97-01	Background	Habitat	mg/kg	U	0.83	1.66	1997
Tungsten	UTNOCBG-03-1298-01	Background	Habitat	mg/kg	U	0.3555	0.711	1998
Tungsten	UTNOCBG-04-1298-01	Background	Habitat	mg/kg	U	0.3405	0.681	1998
Tungsten	UTNOCBG-05-1298-01	Background	Habitat	mg/kg	U	0.3295	0.659	1998
Tungsten	UTNOCBG-06-1298-01	Background	Habitat	mg/kg	U	0.245	0.49	1998
Vanadium	AMTOF-01-1298-01	Background	Habitat	mg/kg	=	21.1		1998
Vanadium	AMTOF-02-1298-01	Background	Habitat	mg/kg	=	23.9		1998
Vanadium	AMTOF-03-1298-01	Background	Habitat	mg/kg	=	24		1998
Vanadium	AMTOF-04-1298-01	Background	Habitat	mg/kg	=	25.2		1998
Vanadium	AMTOF-05-1298-01	Background	Habitat	mg/kg	=	17.8		1998
Vanadium	AMTOF-06-1298-01	Background	Habitat	mg/kg	=	21.7		1998
Vanadium	NR-238	Background	Habitat	mg/Kg	=	22.8		2002
Vanadium	NR-239	Background	Habitat	mg/Kg	=	17.3		2002
Vanadium	NR-500-0800-01	Background	Habitat	mg/kg	=	20.9		2000
Vanadium	NR-501-0800-01	Background	Habitat	mg/kg	=	17.9		2000
Vanadium	NR-502-0800-01	Background	Habitat	mg/kg	=	22.8		2000
Vanadium	NR-503-0800-01	Background	Habitat	mg/kg	=	21.6		2000
Vanadium	NR-504-0800-01	Background	Habitat	mg/kg	=	20.9		2000
Vanadium	NR-505-0800-01	Background	Habitat	mg/kg	=	22.2		2000
Vanadium	NR-506-0800-01	Background	Habitat	mg/kg	=	20.4		2000
Vanadium	NR-507-0800-01	Background	Habitat	mg/kg	=	18.2		2000
Vanadium	NR-508-0800-01	Background	Habitat	mg/kg	=	18.9		2000
Vanadium	NR-509-0800-01	Background	Habitat	mg/kg	=	21.7		2000
Vanadium	NR-510-0800-01	Background	Habitat	mg/kg	=	14.9		2000
Vanadium	NR-511-0800-01	Background	Habitat	mg/kg	=	19.1		2000
Vanadium	NR-512-0800-01	Background	Habitat	mg/kg	=	22.5		2000
Vanadium	NR-513-0800-01	Background	Habitat	mg/kg	=	19.1		2000
Vanadium	NR-514-0800-01	Background	Habitat	mg/kg	=	22.4		2000
Vanadium	NR-515-0800-01	Background	Habitat	mg/kg	=	8.28		2000
Vanadium	NR-516-0800-01	Background	Habitat	mg/kg	=	26.9		2000
Vanadium	NR-517-0800-01	Background	Habitat	mg/kg	=	16.4		2000
Vanadium	NR-518-0800-01	Background	Habitat	mg/kg	=	9.48		2000
Vanadium	NR-519-0800-01	Background	Habitat	mg/kg	=	14.9		2000
Vanadium	NR-520-0800-01	Background	Habitat	mg/kg	=	14.4		2000
Vanadium	NR-521-0800-01	Background	Habitat	mg/kg	=	11.6		2000
Vanadium	NR-522-0800-01	Background	Habitat	mg/kg	=	23.3		2000
Vanadium	NR-523-0800-01	Background	Habitat	mg/kg	=	20.1		2000

Table B-1
Sample Data for Inorganics in TTU Background and Site Soils
Attachment 10A - Thermal Treatment Unit, Ecological Risk Assessment

Analyte	Location	Type	Habitat	Units	Qualifier	Result	Detection Limit	Sample Year
Vanadium	NR-524-0800-01	Background	Habitat	mg/kg	=	17.5		2000
Vanadium	NR-525-0800-01	Background	Habitat	mg/kg	=	12.5		2000
Vanadium	NR-536	Background	Habitat	mg/Kg	=	19.5		2004
Vanadium	NR-537	Background	Habitat	mg/Kg	=	21.9		2004
Vanadium	UTNCBU-01-OCT97-01	Background	Habitat	mg/kg	=	21.3		1997
Vanadium	UTNCBU-02-OCT97-01	Background	Habitat	mg/kg	=	20.5		1997
Vanadium	UTNCBU-03-1298-01	Background	Habitat	mg/kg	=	25.6		1998
Vanadium	UTNCBU-04-1298-01	Background	Habitat	mg/kg	=	25.7		1998
Vanadium	UTNCBU-05-1298-01	Background	Habitat	mg/kg	=	20.6		1998
Vanadium	UTNCBU-06-1298-01	Background	Habitat	mg/kg	=	21.1		1998
Vanadium	UTNEB-03-1298-01	Background	Habitat	mg/kg	=	23.8		1998
Vanadium	UTNEB-04-1298-01	Background	Habitat	mg/kg	=	28		1998
Vanadium	UTNEB-05-1298-01	Background	Habitat	mg/kg	=	23.9		1998
Vanadium	UTNEB-06-1298-01	Background	Habitat	mg/kg	=	23.2		1998
Vanadium	UTNERB-01-OCT97-01	Background	Habitat	mg/kg	=	35.5		1997
Vanadium	UTNERB-02-OCT97-01	Background	Habitat	mg/kg	=	33.2		1997
Vanadium	UTNOCB-01-OCT97-01	Background	Habitat	mg/kg	=	25.5		1997
Vanadium	UTNOCB-02-OCT97-01	Background	Habitat	mg/kg	=	20.7		1997
Vanadium	UTNOCBG-03-1298-01	Background	Habitat	mg/kg	J	19.6		1998
Vanadium	UTNOCBG-04-1298-01	Background	Habitat	mg/kg	=	18.3		1998
Vanadium	UTNOCBG-05-1298-01	Background	Habitat	mg/kg	=	19.6		1998
Vanadium	UTNOCBG-06-1298-01	Background	Habitat	mg/kg	=	24.3		1998
Vanadium	NR-226	OnSite	Habitat	mg/Kg	=	9.9		2002
Vanadium	NR-227	OnSite	Habitat	mg/Kg	=	13.6		2002
Vanadium	NR-228	OnSite	OB/OD	mg/Kg	=	15.6		2002
Vanadium	NR-229	OnSite	Habitat	mg/Kg	=	21.5		2002
Vanadium	NR-230	OnSite	Habitat	mg/Kg	=	19.9		2002
Vanadium	NR-231	OnSite	OB/OD	mg/Kg	=	19.8		2002
Vanadium	NR-232	OnSite	Habitat	mg/Kg	=	25.7		2002
Vanadium	NR-233	OnSite	Habitat	mg/Kg	=	18.8		2002
Vanadium	NR-234	OnSite	Habitat	mg/Kg	=	18.8		2002
Vanadium	NR-235	OnSite	Habitat	mg/Kg	=	20.3		2002
Vanadium	NR-236	OnSite	Habitat	mg/Kg	=	16.4		2002
Vanadium	NR-237	OnSite	Habitat	mg/Kg	=	18.7		2002
Vanadium	NR-526	OnSite	Habitat	mg/Kg	=	12.9		2004
Vanadium	NR-527	OnSite	Habitat	mg/Kg	=	17.8		2004
Vanadium	NR-528	OnSite	Habitat	mg/Kg	=	11.3		2004
Vanadium	NR-529	OnSite	Habitat	mg/Kg	=	16.2		2004
Vanadium	NR-530	OnSite	Habitat	mg/Kg	=	15		2004
Vanadium	NR-531	OnSite	OB/OD	mg/Kg	=	14.1		2004
Vanadium	NR-532	OnSite	OB/OD	mg/Kg	=	11.8		2004
Vanadium	NR-533	OnSite	OB/OD	mg/Kg	=	17.5		2004
Vanadium	NR-534	OnSite	OB/OD	mg/Kg	=	16		2004
Vanadium	NR-535	OnSite	OB/OD	mg/Kg	=	19.2		2004
Vanadium	TTU-SS01S	OnSite	OB/OD	mg/Kg	=	14.9		1989
Vanadium	TTU-SS02S	OnSite	OB/OD	mg/Kg	=	16.5		1989
Vanadium	TTU-SS03S	OnSite	OB/OD	mg/Kg	=	16.4		1989
Vanadium	TTU-SS04S(D)	OnSite	OB/OD	mg/Kg	=	13.1		1989
Vanadium	TTU-SS05S	OnSite	OB/OD	mg/Kg	=	17		1989
Vanadium	TTU-SS06S(BG)	OnSite	Habitat	mg/Kg	=	19.2		1989
Zinc	AMTOF-01-1298-01	Background	Habitat	mg/kg	=	47		1998
Zinc	AMTOF-02-1298-01	Background	Habitat	mg/kg	=	48.5		1998
Zinc	AMTOF-03-1298-01	Background	Habitat	mg/kg	=	48.3		1998

Table B-1
Sample Data for Inorganics in TTU Background and Site Soils
Attachment 10A - Thermal Treatment Unit, Ecological Risk Assessment

Analyte	Location	Type	Habitat	Units	Qualifier	Result	Detection Limit	Sample Year
Zinc	AMTOF-04-1298-01	Background	Habitat	mg/kg	=	49.2		1998
Zinc	AMTOF-05-1298-01	Background	Habitat	mg/kg	=	40.8		1998
Zinc	AMTOF-06-1298-01	Background	Habitat	mg/kg	=	45.2		1998
Zinc	NR-238	Background	Habitat	mg/Kg	=	53.2		2002
Zinc	NR-239	Background	Habitat	mg/Kg	=	45.3		2002
Zinc	NR-500-0800-01	Background	Habitat	mg/kg	B	41.2		2000
Zinc	NR-501-0800-01	Background	Habitat	mg/kg	B	23.9		2000
Zinc	NR-502-0800-01	Background	Habitat	mg/kg	B	45.3		2000
Zinc	NR-503-0800-01	Background	Habitat	mg/kg	B	39.5		2000
Zinc	NR-504-0800-01	Background	Habitat	mg/kg	B	34		2000
Zinc	NR-505-0800-01	Background	Habitat	mg/kg	B	44.5		2000
Zinc	NR-506-0800-01	Background	Habitat	mg/kg	B	41.5		2000
Zinc	NR-507-0800-01	Background	Habitat	mg/kg	B	38.3		2000
Zinc	NR-508-0800-01	Background	Habitat	mg/kg	B	37.8		2000
Zinc	NR-509-0800-01	Background	Habitat	mg/kg	B	39.4		2000
Zinc	NR-510-0800-01	Background	Habitat	mg/kg	B	33.3		2000
Zinc	NR-511-0800-01	Background	Habitat	mg/kg	B	44.5		2000
Zinc	NR-512-0800-01	Background	Habitat	mg/kg	B	50.7		2000
Zinc	NR-513-0800-01	Background	Habitat	mg/kg	B	46.6		2000
Zinc	NR-514-0800-01	Background	Habitat	mg/kg	B	37.4		2000
Zinc	NR-515-0800-01	Background	Habitat	mg/kg	B	8.83		2000
Zinc	NR-516-0800-01	Background	Habitat	mg/kg	B	52.3		2000
Zinc	NR-517-0800-01	Background	Habitat	mg/kg	B	13.2		2000
Zinc	NR-518-0800-01	Background	Habitat	mg/kg	=	6.37		2000
Zinc	NR-519-0800-01	Background	Habitat	mg/kg	=	17.6		2000
Zinc	NR-520-0800-01	Background	Habitat	mg/kg	=	18.1		2000
Zinc	NR-521-0800-01	Background	Habitat	mg/kg	=	12		2000
Zinc	NR-522-0800-01	Background	Habitat	mg/kg	=	34.2		2000
Zinc	NR-523-0800-01	Background	Habitat	mg/kg	=	29		2000
Zinc	NR-524-0800-01	Background	Habitat	mg/kg	=	22.6		2000
Zinc	NR-525-0800-01	Background	Habitat	mg/kg	=	17.8		2000
Zinc	NR-536	Background	Habitat	mg/Kg	=	61.1		2004
Zinc	NR-537	Background	Habitat	mg/Kg	=	78		2004
Zinc	UTNCBU-01-OCT97-01	Background	Habitat	mg/kg	=	32.6		1997
Zinc	UTNCBU-02-OCT97-01	Background	Habitat	mg/kg	=	28.5		1997
Zinc	UTNCBU-03-1298-01	Background	Habitat	mg/kg	=	42.2		1998
Zinc	UTNCBU-04-1298-01	Background	Habitat	mg/kg	=	40.9		1998
Zinc	UTNCBU-05-1298-01	Background	Habitat	mg/kg	=	30.1		1998
Zinc	UTNCBU-06-1298-01	Background	Habitat	mg/kg	=	30.1		1998
Zinc	UTNEB-03-1298-01	Background	Habitat	mg/kg	=	34.2		1998
Zinc	UTNEB-04-1298-01	Background	Habitat	mg/kg	=	50.4		1998
Zinc	UTNEB-05-1298-01	Background	Habitat	mg/kg	=	36.9		1998
Zinc	UTNEB-06-1298-01	Background	Habitat	mg/kg	=	32.2		1998
Zinc	UTNERB-01-OCT97-01	Background	Habitat	mg/kg	=	54		1997
Zinc	UTNERB-02-OCT97-01	Background	Habitat	mg/kg	=	43.4		1997
Zinc	UTNOCB-01-OCT97-01	Background	Habitat	mg/kg	=	48.4		1997
Zinc	UTNOCB-02-OCT97-01	Background	Habitat	mg/kg	=	44.3		1997
Zinc	UTNOCBG-03-1298-01	Background	Habitat	mg/kg	=	42.9		1998
Zinc	UTNOCBG-04-1298-01	Background	Habitat	mg/kg	=	38.9		1998
Zinc	UTNOCBG-05-1298-01	Background	Habitat	mg/kg	=	40.5		1998
Zinc	UTNOCBG-06-1298-01	Background	Habitat	mg/kg	=	51.1		1998
Zinc	NR-226	OnSite	Habitat	mg/Kg	=	29.7		2002
Zinc	NR-227	OnSite	Habitat	mg/Kg	=	38.8		2002

Table B-1

Sample Data for Inorganics in TTU Background and Site Soils

Attachment 10A - Thermal Treatment Unit, Ecological Risk Assessment

Analyte	Location	Type	Habitat	Units	Qualifier	Result	Detection Limit	Sample Year
Zinc	NR-228	OnSite	OB/OD	mg/Kg	=	51.9		2002
Zinc	NR-229	OnSite	Habitat	mg/Kg	=	54.7		2002
Zinc	NR-230	OnSite	Habitat	mg/Kg	=	55.5		2002
Zinc	NR-231	OnSite	OB/OD	mg/Kg	=	52.7		2002
Zinc	NR-232	OnSite	Habitat	mg/Kg	=	57.5		2002
Zinc	NR-233	OnSite	Habitat	mg/Kg	=	36.4		2002
Zinc	NR-234	OnSite	Habitat	mg/Kg	=	59.2		2002
Zinc	NR-235	OnSite	Habitat	mg/Kg	=	53.2		2002
Zinc	NR-236	OnSite	Habitat	mg/Kg	=	48.8		2002
Zinc	NR-237	OnSite	Habitat	mg/Kg	=	42		2002
Zinc	NR-526	OnSite	Habitat	mg/Kg	=	42		2004
Zinc	NR-527	OnSite	Habitat	mg/Kg	=	60.1		2004
Zinc	NR-528	OnSite	Habitat	mg/Kg	=	39.8		2004
Zinc	NR-529	OnSite	Habitat	mg/Kg	=	58.2		2004
Zinc	NR-530	OnSite	Habitat	mg/Kg	=	33.5		2004
Zinc	NR-531	OnSite	OB/OD	mg/Kg	=	583		2004
Zinc	NR-532	OnSite	OB/OD	mg/Kg	=	82.7		2004
Zinc	NR-533	OnSite	OB/OD	mg/Kg	=	37.1		2004
Zinc	NR-534	OnSite	OB/OD	mg/Kg	=	33.6		2004
Zinc	NR-535	OnSite	OB/OD	mg/Kg	=	35.6		2004
Zinc	SS1	OnSite	OB/OD	mg/Kg	=	43		1991
Zinc	SS10	OnSite	OB/OD	mg/Kg	=	61		1991
Zinc	SS11	OnSite	OB/OD	mg/Kg	=	63		1991
Zinc	SS12	OnSite	OB/OD	mg/Kg	=	75		1991
Zinc	SS13	OnSite	OB/OD	mg/Kg	=	68		1991
Zinc	SS14	OnSite	OB/OD	mg/Kg	=	61		1991
Zinc	SS16	OnSite	Habitat	mg/Kg	=	67		1991
Zinc	SS17	OnSite	Habitat	mg/Kg	=	55		1991
Zinc	SS18	OnSite	Habitat	mg/Kg	=	55		1991
Zinc	SS19	OnSite	Habitat	mg/Kg	=	51		1991
Zinc	SS2	OnSite	OB/OD	mg/Kg	=	34		1991
Zinc	SS20	OnSite	Habitat	mg/Kg	=	57		1991
Zinc	SS3	OnSite	OB/OD	mg/Kg	=	60		1991
Zinc	SS4	OnSite	OB/OD	mg/Kg	=	36		1991
Zinc	SS5	OnSite	OB/OD	mg/Kg	=	2300		1991
Zinc	SS6	OnSite	OB/OD	mg/Kg	=	130		1991
Zinc	SS7	OnSite	OB/OD	mg/Kg	=	490		1991
Zinc	SS8	OnSite	OB/OD	mg/Kg	=	63		1991
Zinc	SS9	OnSite	OB/OD	mg/Kg	=	240		1991
Zinc	TTU-SS01S	OnSite	OB/OD	mg/Kg	=	60.7		1989
Zinc	TTU-SS02S	OnSite	OB/OD	mg/Kg	=	88.7		1989
Zinc	TTU-SS03S	OnSite	OB/OD	mg/Kg	=	59.7		1989
Zinc	TTU-SS04S(D)	OnSite	OB/OD	mg/Kg	=	43.2		1989
Zinc	TTU-SS05S	OnSite	OB/OD	mg/Kg	=	66.8		1989
Zinc	TTU-SS06S(BG)	OnSite	Habitat	mg/Kg	=	48.3		1989

B - found in blank
J - estimated value
H - high, qualified result within acceptable range
L - low, qualified result within acceptable range
R - unusable
U - below detection

Table B-2

Wilcoxon Rank Sum Comparison of Inorganics in TTU Soils to the Background Concentrations.

Attachment 10A - Thermal Treatment Unit, Ecological Risk Assessment

	Site Sample Soil Statistics						Background Soil Statistics							
Analyte	**n**	**DF (%)**	**Minimum (mg/kg)**	**Maximum (mg/kg)**	**Mean (mg/kg)**	**Standard Deviation**	**n**	**DF (%)**	**Minimum (mg/kg)**	**Maximum (mg/kg)**	**Mean (mg/kg)**	**Standard Deviation**	**Wilcoxon Rank Sum Result**	**p**
Aluminum	48	100%	5390.00	54000.00	13223.33	6954.98	54	100%	2080	21100	11900	3620	NS	0.8751
Antimony	**28**	**79%**	**0.12**	**166.93**	**8.12**	**31.33**	**54**	**54%**	**0.00705**	**3.10**	**0.766**	**0.649**	**SS**	**0.156**
Arsenic	48	58%	1.90	41.30	6.46	5.34	54	100%	2.25	15.4	6.63	2.12	BS	0.0017
Barium	48	100%	110.00	640.00	206.25	72.94	54	100%	148	426	258	56.6	BS	<0.0001
Beryllium	48	48%	0.08	0.72	0.47	0.16	54	85%	0.00535	1.05	0.409	0.268	NS	0.4427
Cadmium	**48**	**44%**	**0.06**	**32.00**	**1.25**	**4.56**	**54**	**65%**	**0.00292**	**0.710**	**0.203**	**0.185**	**SS**	<0.0001
Chromium	48	100%	6.50	55.30	14.37	7.79	54	100%	2.32	20.9	12.7	3.66	NS	0.8253
Cobalt	28	79%	1.00	4.90	2.78	1.12	54	100%	0.678	6.06	3.53	1.06	BS	0.007
Copper	**48**	**85%**	**0.50**	**18000.00**	**429.34**	**2594.12**	**54**	**100%**	**2.49**	**26.7**	**12.5**	**3.86**	**SS**	<0.0001
Iron	42	100%	4510.00	15000.00	10605.95	2786.58	54	100%	1390	16200	10100	3190	NS	0.4914
Lead	**48**	**83%**	**1.00**	**48000.00**	**1067.88**	**6921.79**	**54**	**100%**	**2.95**	**30.5**	**10.3**	**4.23**	**SS**	**0.0017**
Magnesium	42	100%	9700.00	24300.00	16695.24	4003.90	54	100%	15500	167000	29800	21700	BS	<0.0001
Manganese	48	100%	120.00	519.00	317.67	115.60	54	100%	43.4	859	340	136	NS	0.5409
Mercury	48	27%	0.01	0.07	0.02	0.02	4	50%	0.0100	0.0262	0.0178	0.00902	NS	0.9435
Molybdenum	**22**	**91%**	**0.15**	**17.00**	**1.73**	**3.45**	**54**	**98%**	**0.0730**	**4.91**	**0.824**	**0.771**	**SS**	**0.0025**
Nickel	48	100%	6.70	41.30	11.27	5.83	54	100%	3.00	20.2	10.3	3.07	NS	0.6932
Phosphorus	20	100%	450.00	990.00	656.00	170.80	50	100%	198	1470	722	214	NS	0.1956
Selenium	**48**	**0%**	**0.09**	**5.00**	**2.48**	**2.17**	**54**	**70%**	**0.00815**	**1.50**	**0.513**	**0.339**	**SS**	<0.0001
Silver	**48**	**8%**	**0.09**	**4.00**	**0.61**	**0.64**	**54**	**46%**	**0.00572**	**0.230**	**0.0797**	**0.0545**	**SS**	<0.0001
Strontium	22	100%	244.00	484.00	350.82	71.94	54	100%	211	3680	717	763	BS	0.0107
Thallium	48	54%	0.09	2.50	1.20	1.12	54	46%	0.0151	1.76	0.515	0.351	NS	0.1577
Vanadium	28	100%	9.90	25.70	16.71	3.42	54	100%	8.28	35.5	20.8	4.89	BS	<0.0001
Zinc	**48**	**100%**	**29.70**	**2300.00**	**125.38**	**336.37**	**54**	**100%**	**6.37**	**78**	**38.3**	**13.4**	**SS**	<0.0001

Notes:

[1] Summary statistics include 1/2 detection limit as a proxy value for non-detects.

DF = detection frequency

Bold and highlighted text are those COPECs with significantly greater site concentrations compared to background. These COPECs were retained for further characterization in the refined screening evaluation.

BS = significant difference between background and site data with background concentrations being greater

NS = no significant difference between background and site data

SS = significant difference between background and site data with site concentrations being greater

p - level of signifiance (0.05) based on the two tailed t-distribution

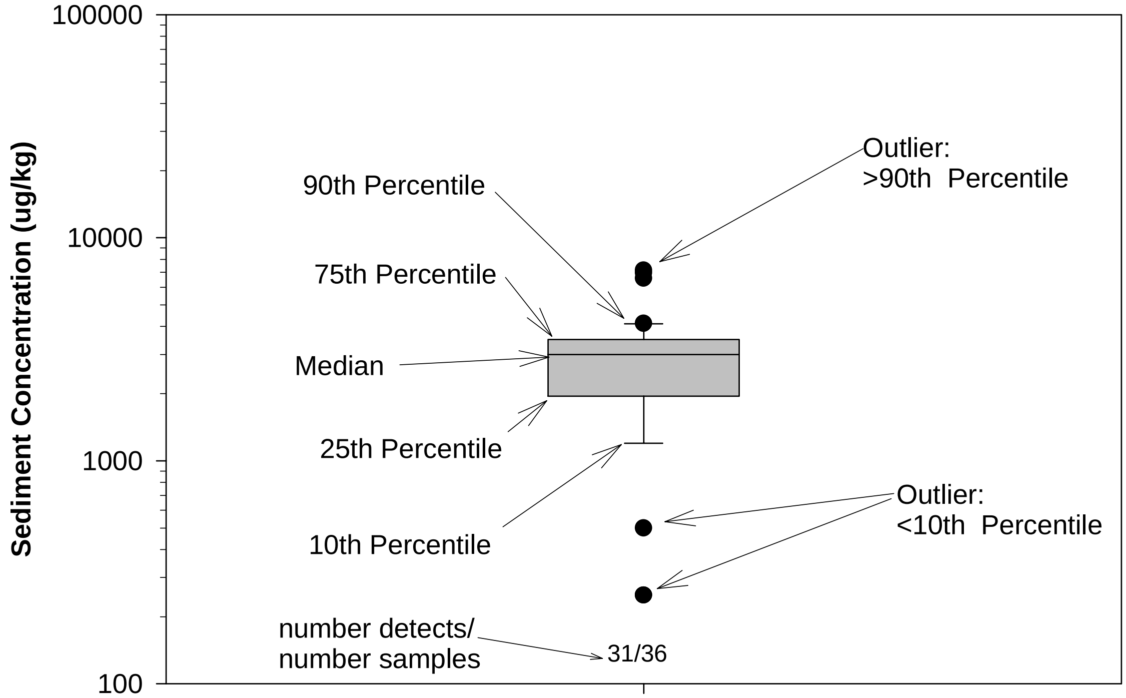
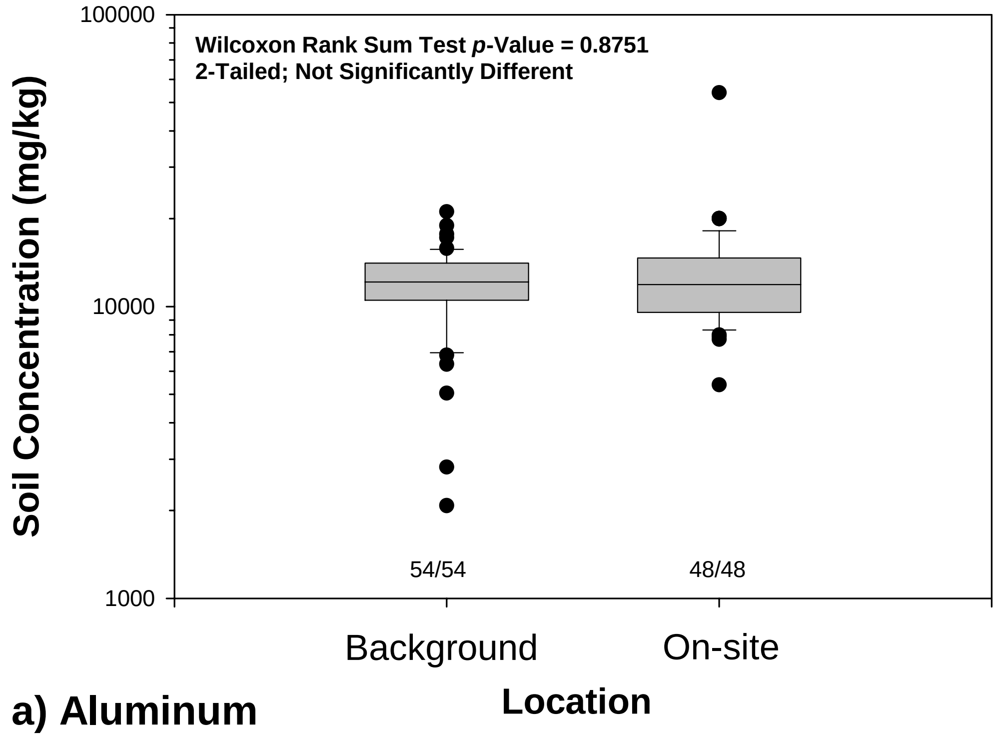


Figure B-1. Example box plot diagram displaying a graphical representation of underlying data distribution.



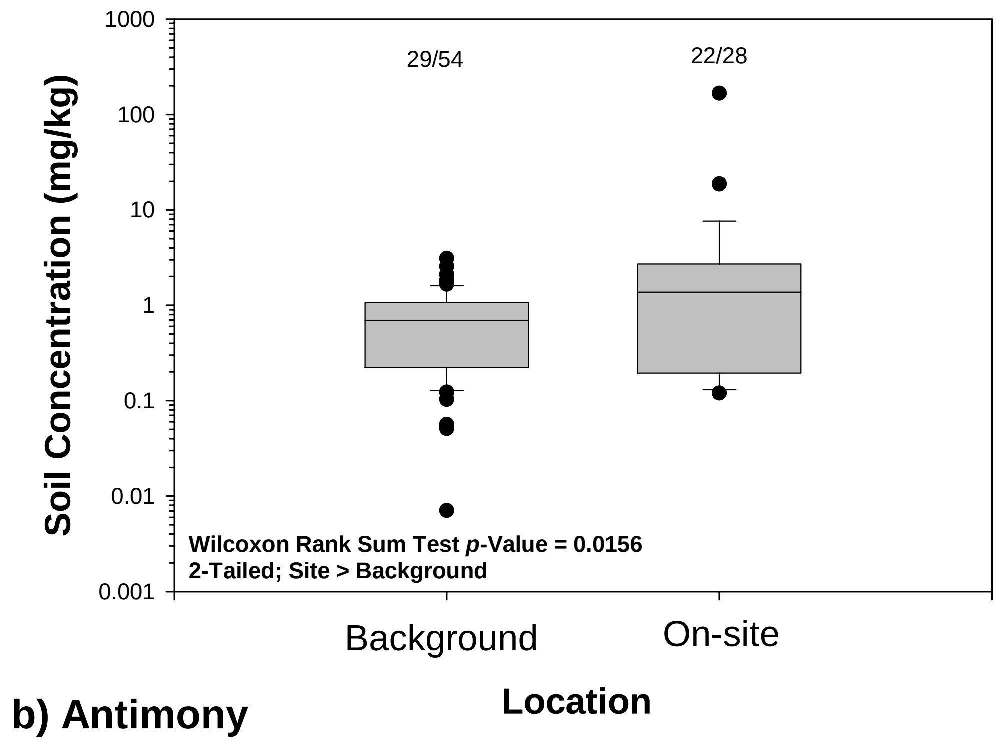


Figure B-2. Comparison of distributions of on-site and background concentrations of a) aluminum and b) antimony at the Thermal Treatment Unit, Hill Air Force Base, Utah. On-site data includes samples through 2004.

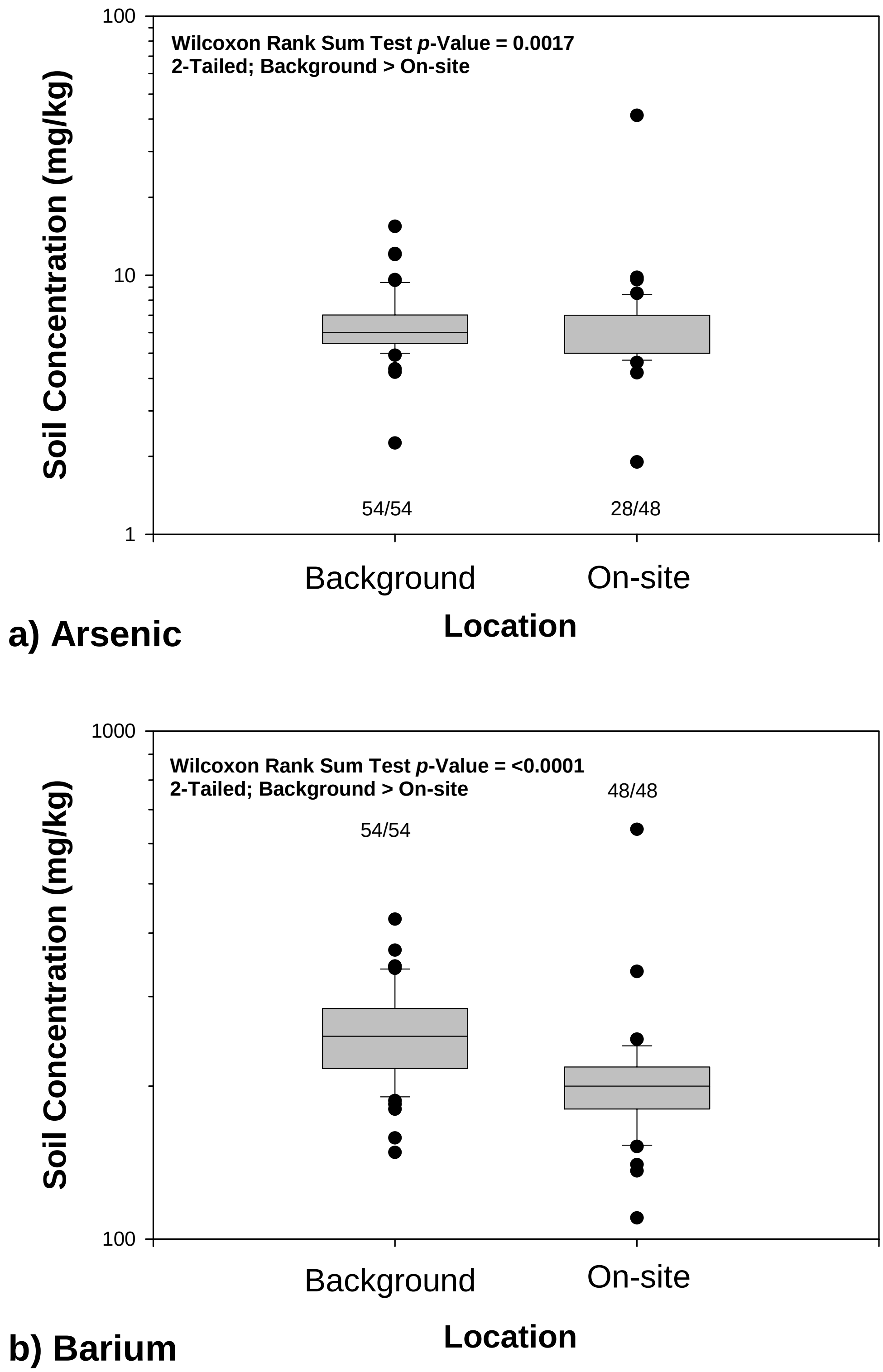
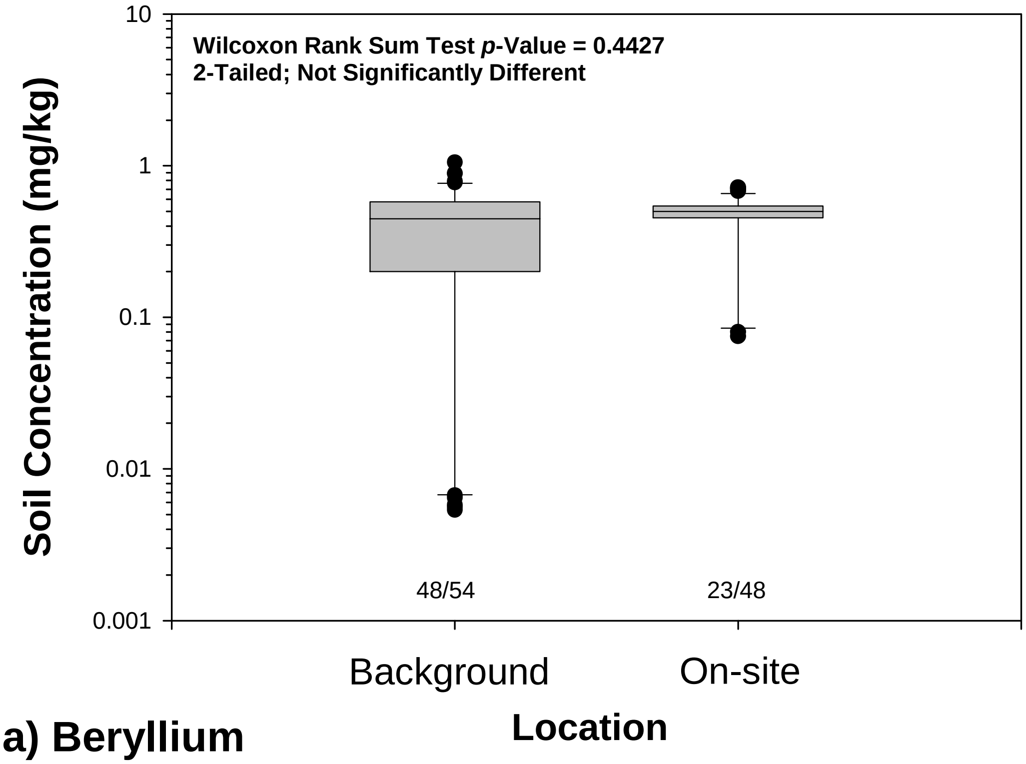
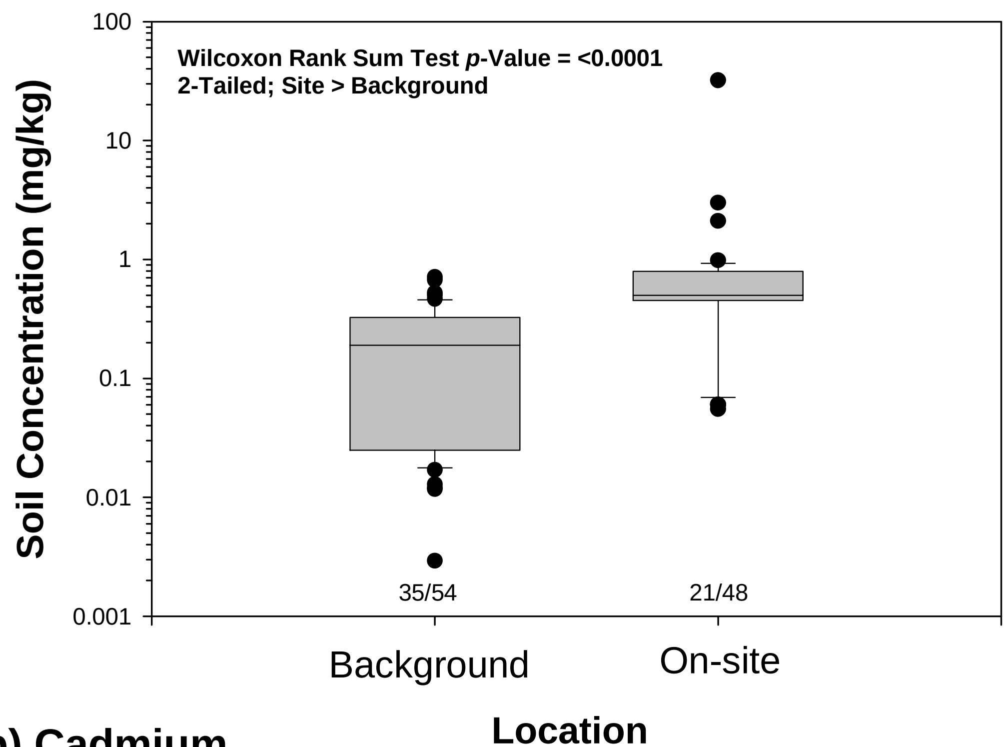


Figure B-3. Comparison of distributions of on-site and background concentrations of a) arsenic and b) barium at the Thermal Treatment Unit, Hill Air Force Base, Utah. On-site data includes samples through 2004.

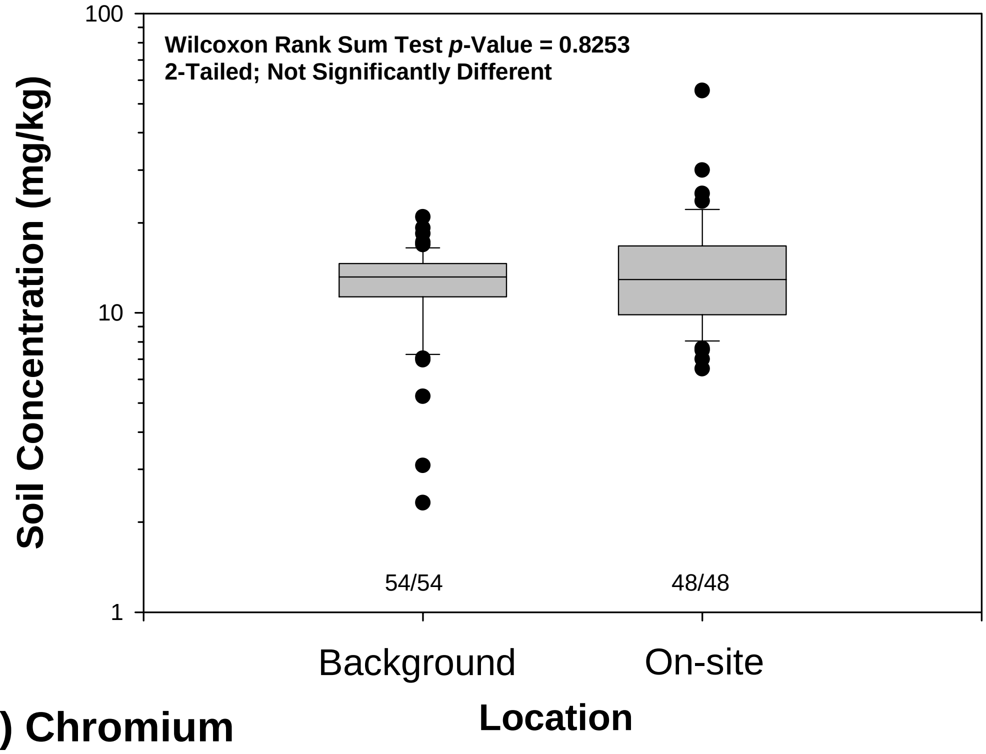


a) Beryllium

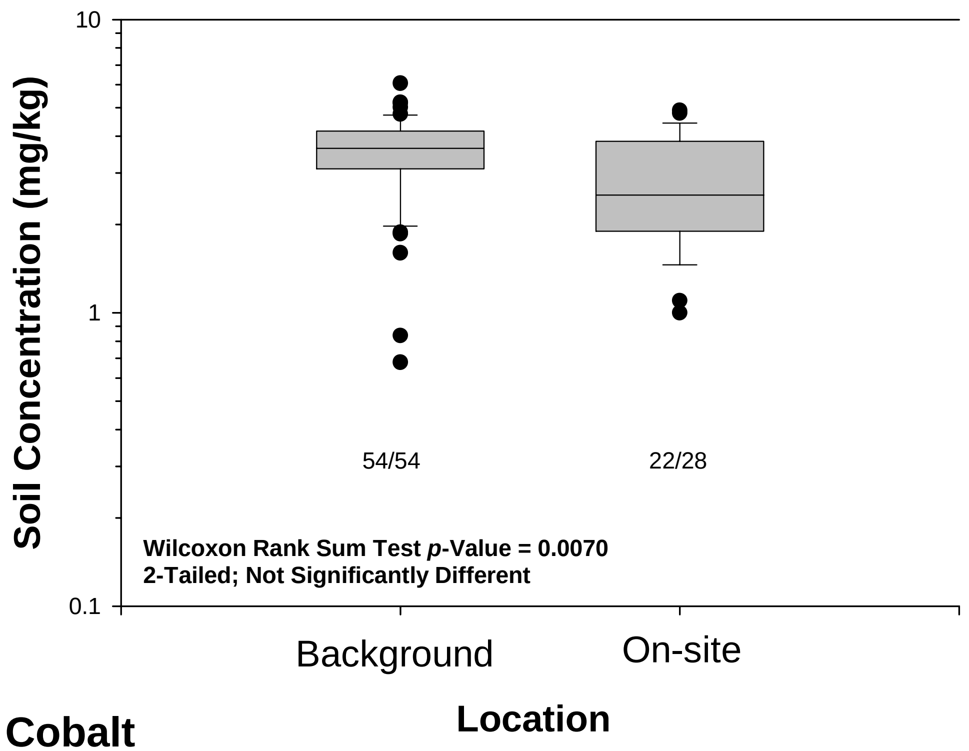


b) Cadmium

Figure B-4. Comparison of distributions of on-site and background concentrations of a) beryllium and b) cadmium at the Thermal Treatment Unit, Hill Air Force Base, Utah. On-site data includes samples through 2004.

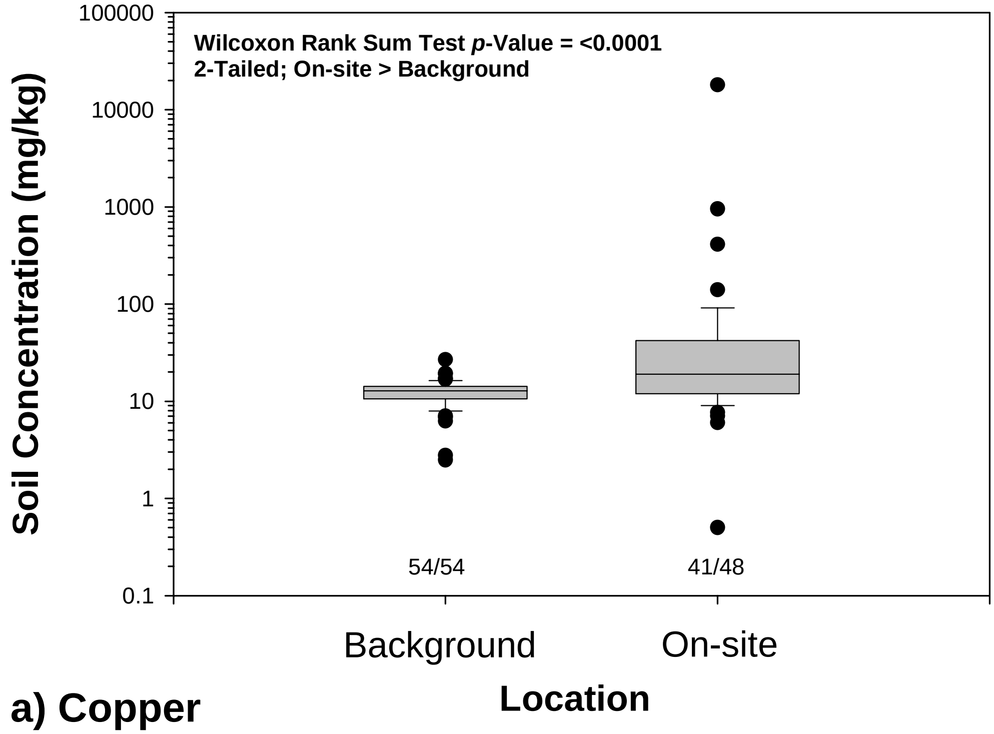


a) Chromium

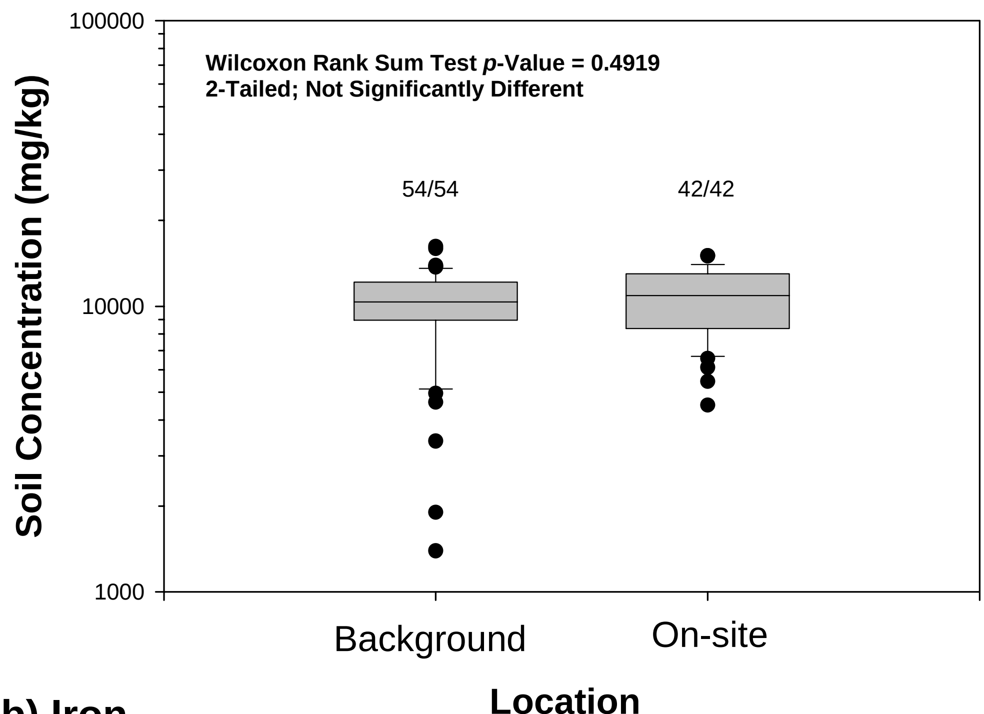


b) Cobalt

Figure B-5. Comparison of distributions of on-site and background concentrations of a) chromium and b) cobalt at the Thermal Treatment Unit, Hill Air Force Base, Utah. On-site data includes samples through 2004.

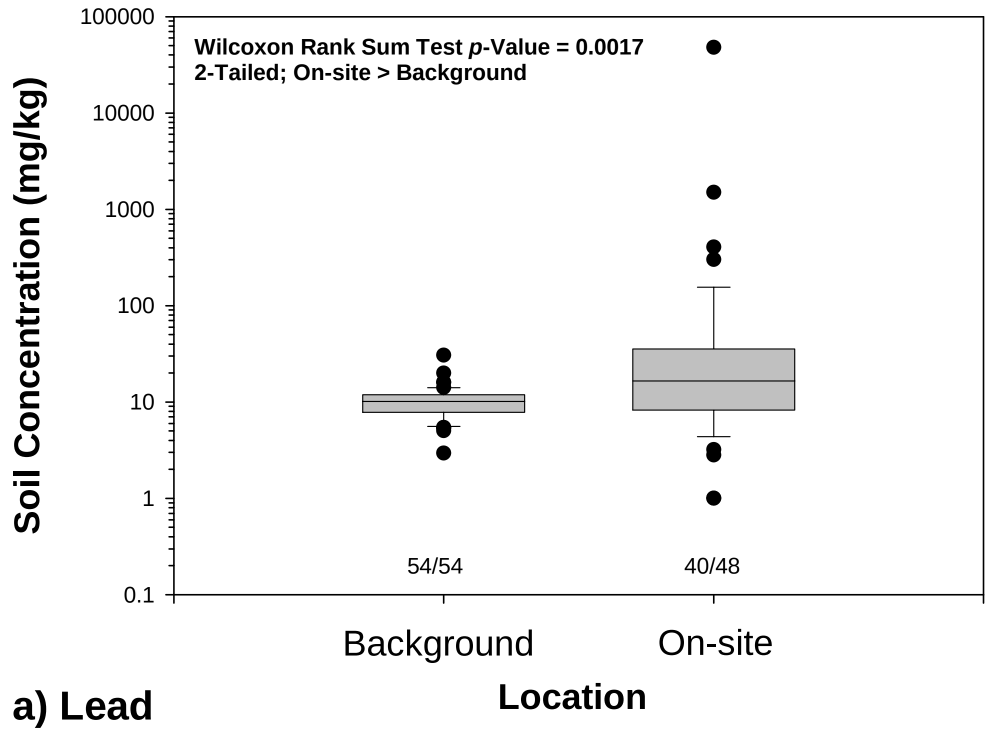


a) Copper

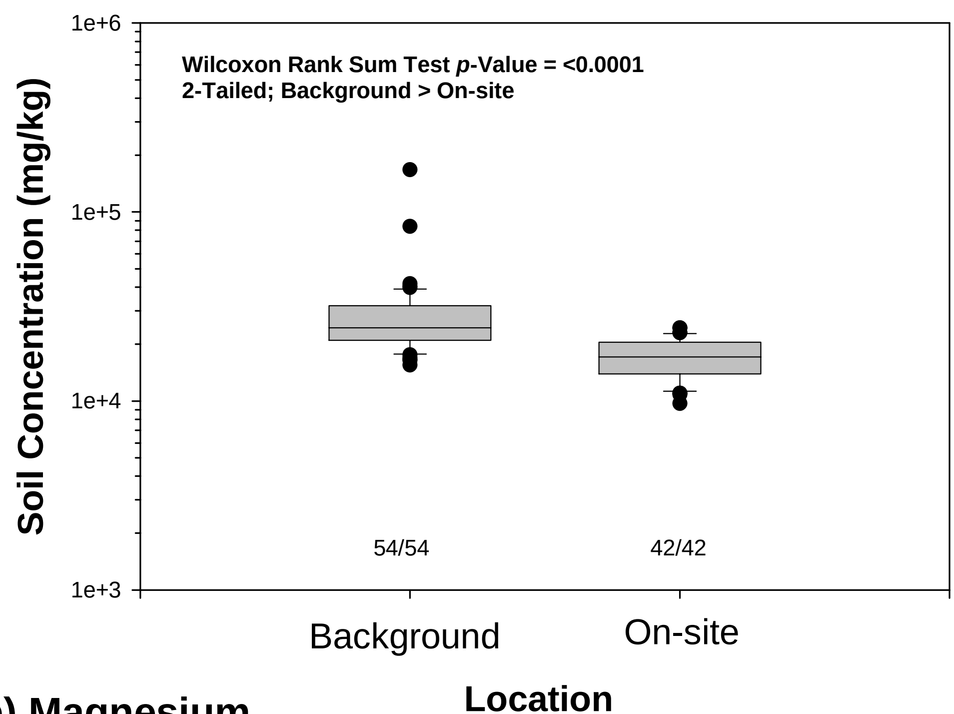


b) Iron

Figure B-6. Comparison of distributions of on-site and background concentrations of a) copper and b) iron at the Thermal Treatment Unit, Hill Air Force Base, Utah. On-site data includes samples through 2004.

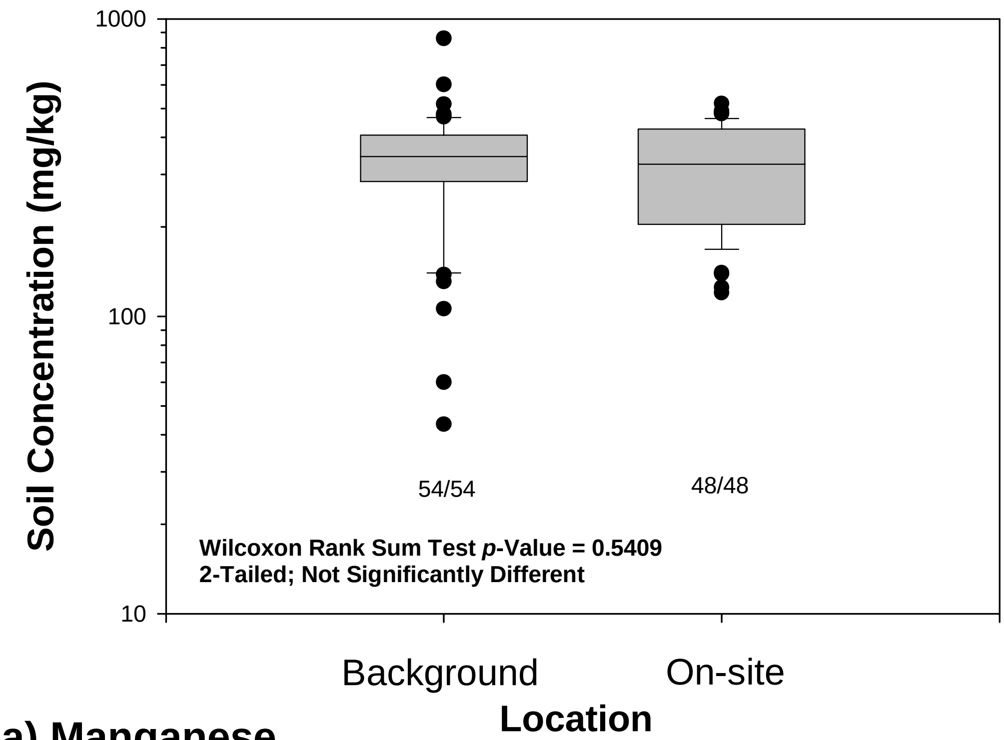


a) Lead

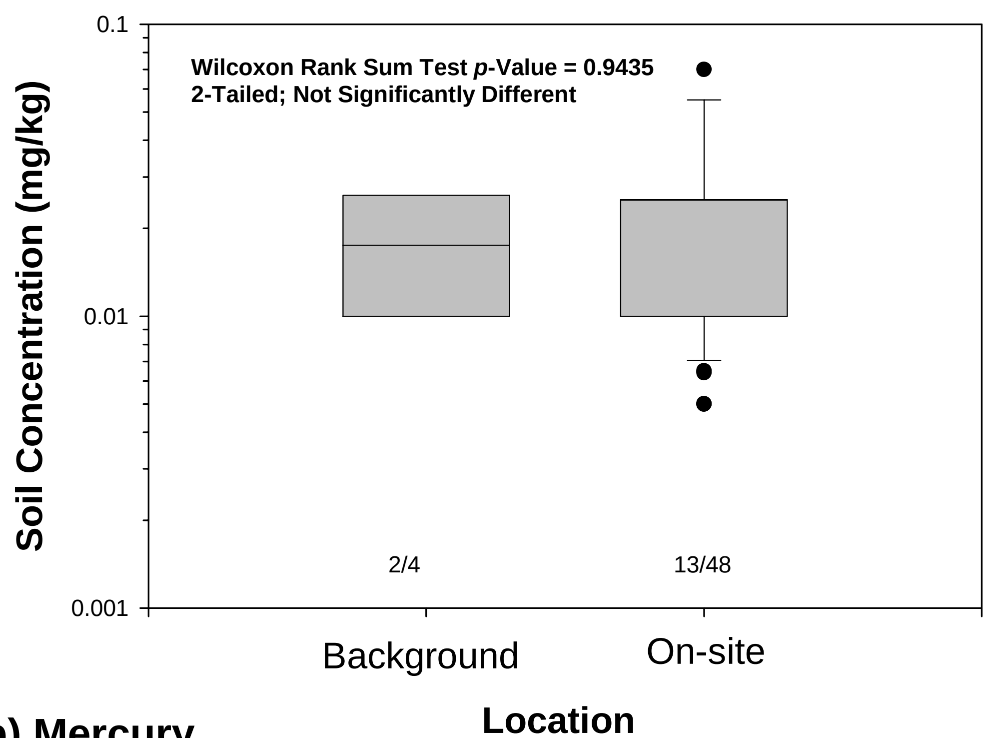


b) Magnesium

Figure B-7. Comparison of distributions of on-site and background concentrations of a) lead and b) magnesium at the Thermal Treatment Unit, Hill Air Force Base, Utah. On-site data includes samples through 2004.

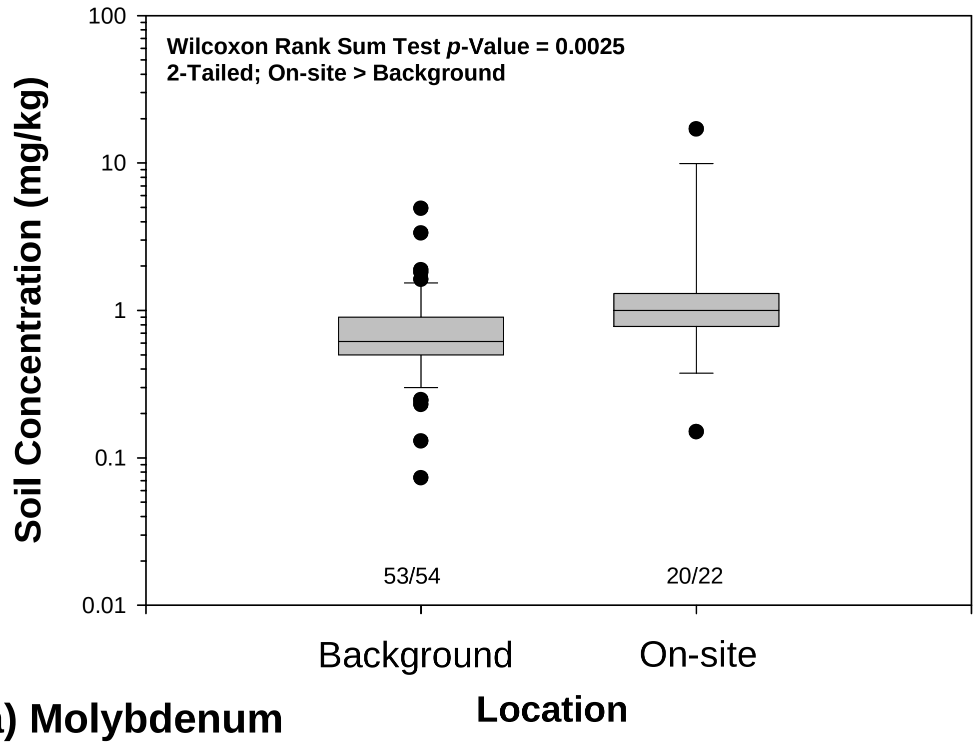


a) Manganese

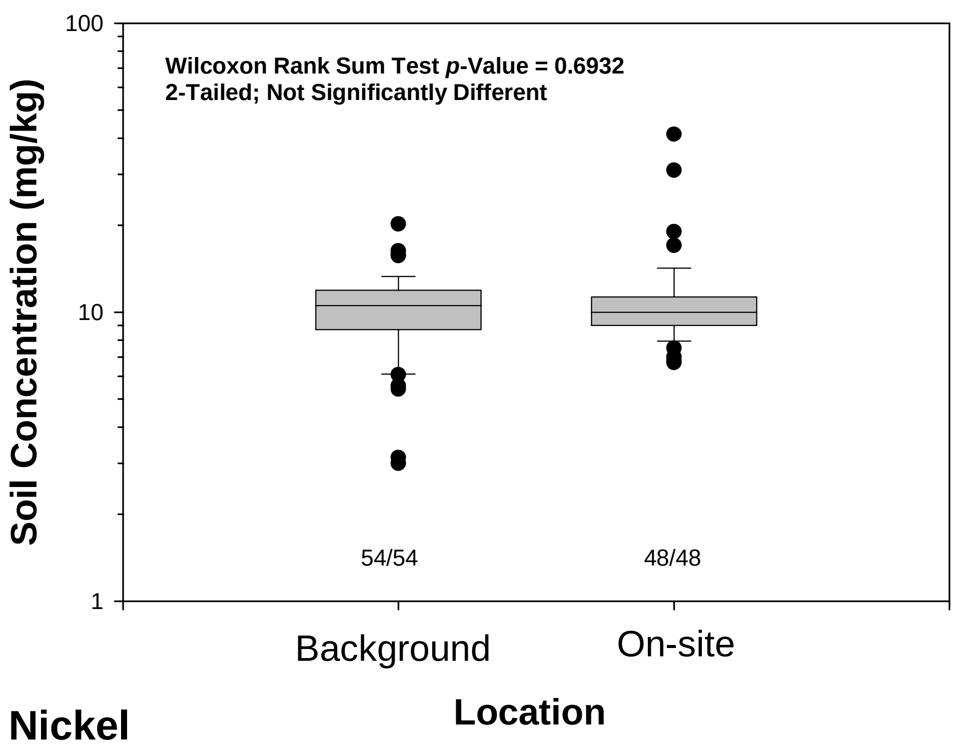


b) Mercury

Figure B-8. Comparison of distributions of on-site and background concentrations of a) manganese and b) mercury at the Thermal Treatment Unit, Hill Air Force Base, Utah. On-site data includes samples through 2004.

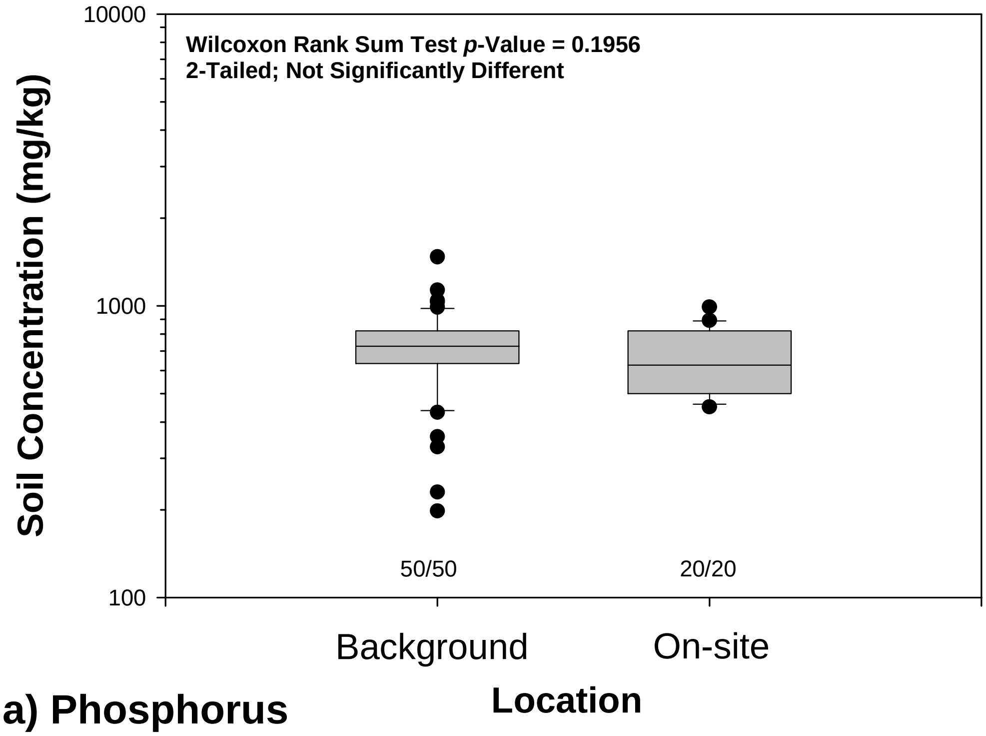


a) Molybdenum

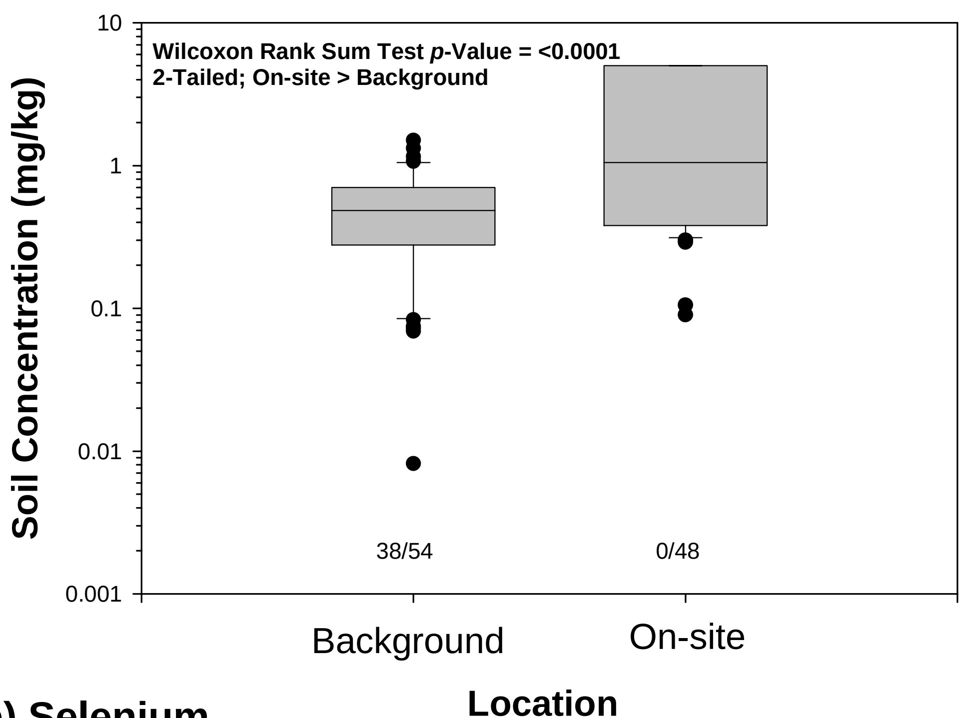


b) Nickel

Figure B-9. Comparison of distributions of on-site and background concentrations of a) molybdenum and b) nickel at the Thermal Treatment Unit, Hill Air Force Base, Utah. On-site data includes samples through 2004.

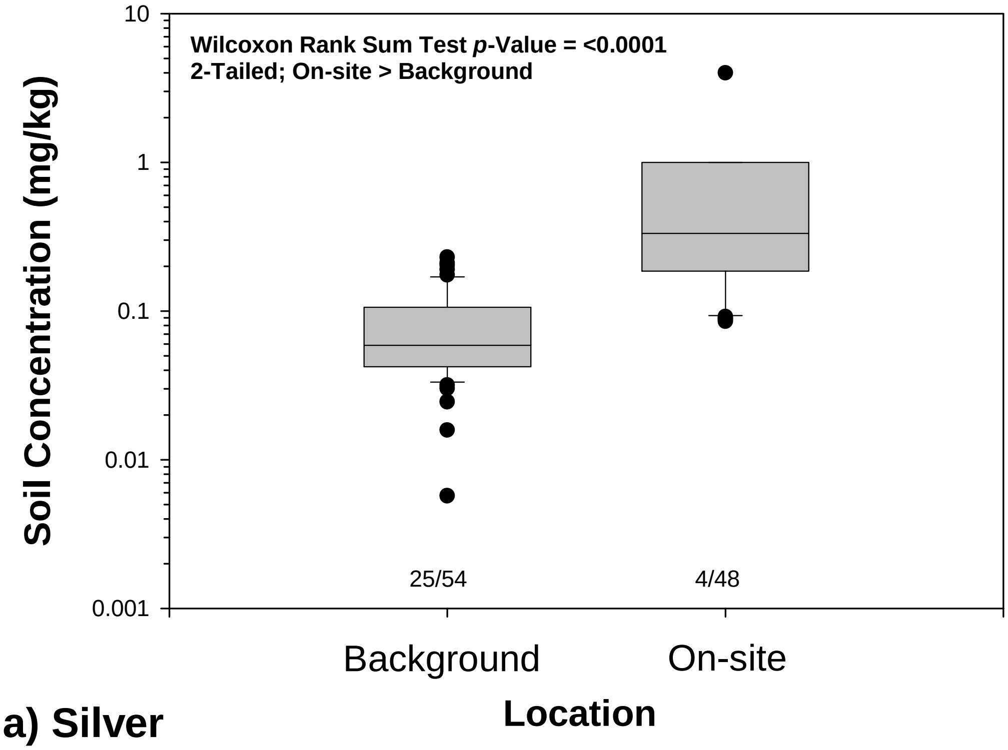


a) Phosphorus

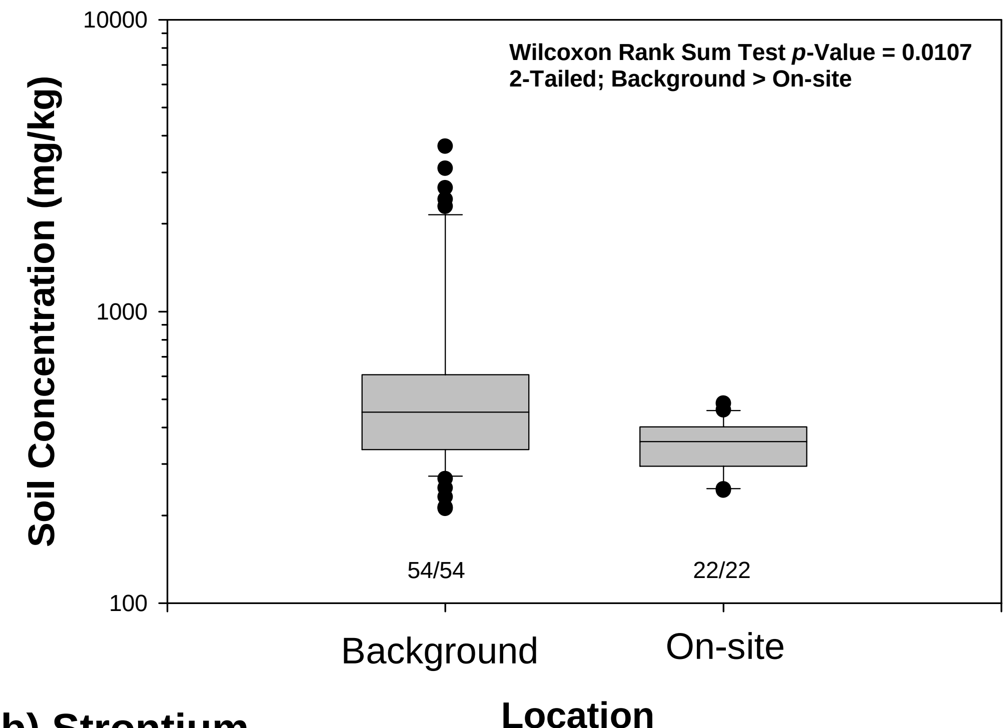


b) Selenium

Figure B-10. Comparison of distributions of on-site and background concentrations of a) phosphorus and b) selenium at the Thermal Treatment Unit, Hill Air Force Base, Utah. On-site data includes samples through 2004.

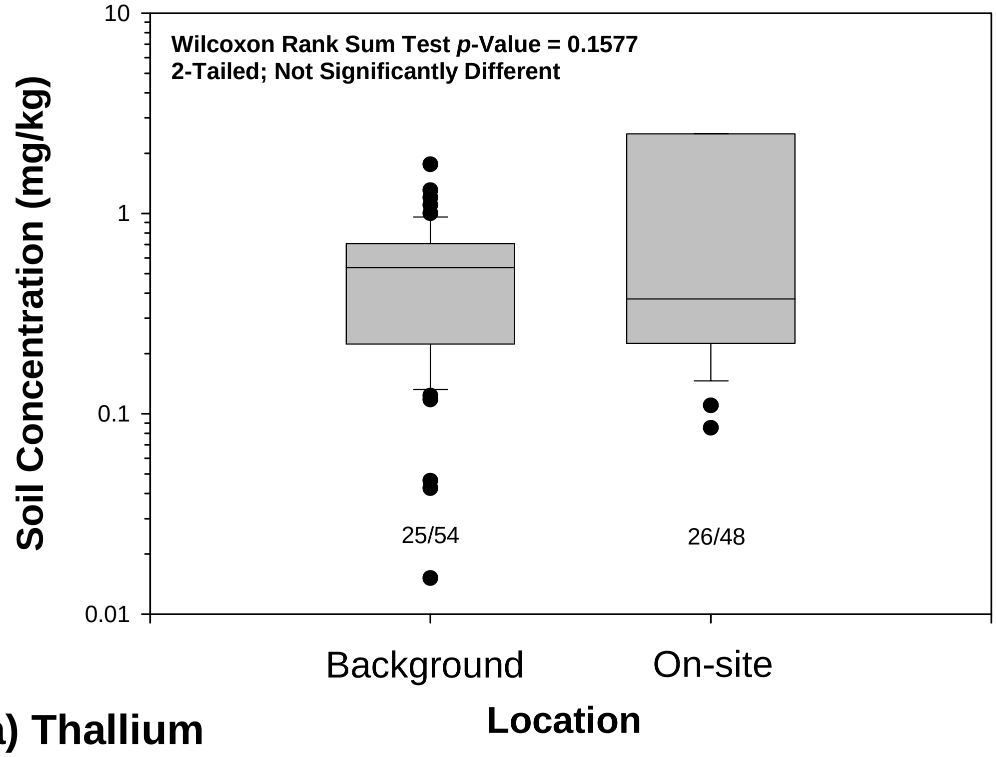


a) Silver

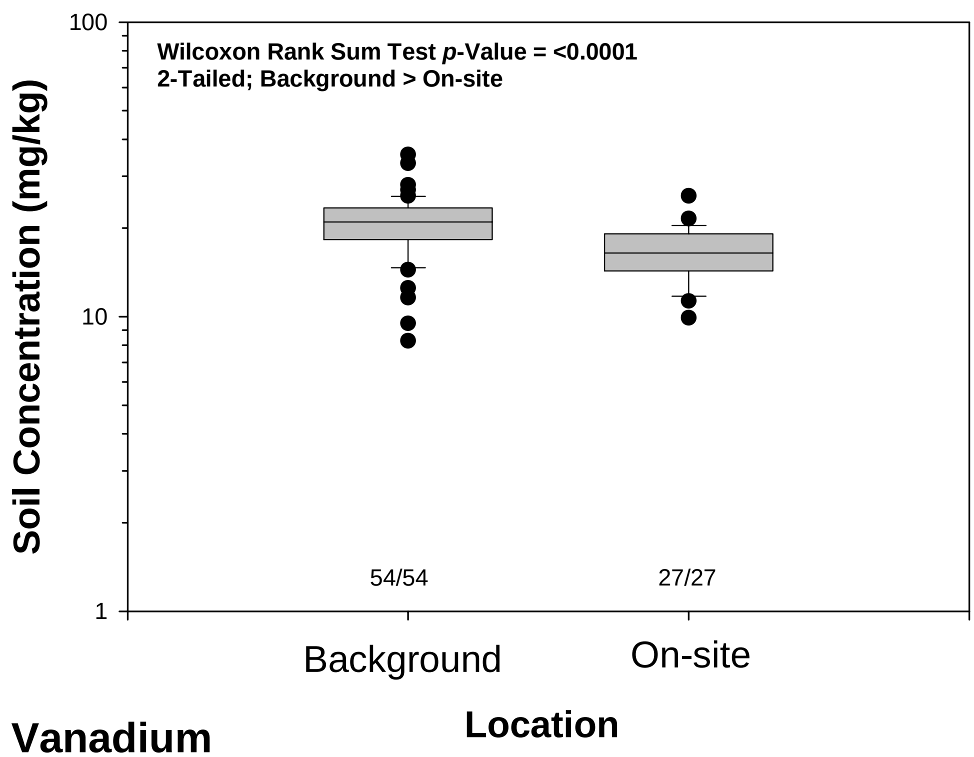


b) Strontium

Figure B-11. Comparison of distributions of on-site and background concentrations of a) silver and b) strontium at the Thermal Treatment Unit, Hill Air Force Base, Utah. On-site data includes samples through 2004.



a) Thallium



b) Vanadium

Figure B-12. Comparison of distributions of on-site and background concentrations of a) thallium and b) vanadium at the Thermal Treatment Unit, Hill Air Force Base, Utah. On-site data includes samples through 2004.

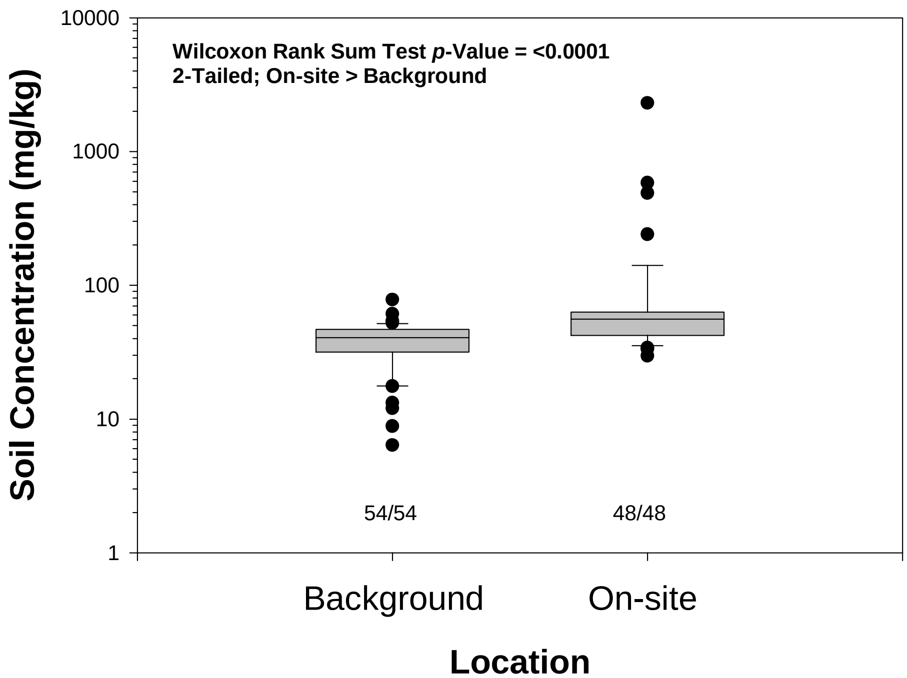


Figure B-13. Comparison of distributions of on-site and background concentrations of zinc at the Thermal Treatment Unit, Hill Air Force Base, Utah. On-site data includes samples through 2004.

Appendix C

Hill Air Force Base, Utah

Utah Test and Training Range Thermal Treatment Unit

Final

2011 Ecological Risk Screen Evaluation

Contract FA8201-09-D-0002
Task Order 0029

October 2011

FINAL

Utah Test and Training Range Thermal Treatment Unit

2011 Ecological Risk Screen Evaluation

Hill Air Force Base
Contract No.: FA8201-09-D-0002
Task Order 0029

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OCTOBER 2011

Contents

Tables

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Acronyms and Abbreviations

AFB	Air Force Base
ATSDR	Agency for Toxic Substances and Disease Registry
AUF	Are Use Factor
BTF	Biotransfer Factor
DL	Detection Limit
DW	Dry Weight
EPA	United States Environmental Protection Agency
EPC	Exposure Point Concentration
ERA	Ecological Risk Assessment
HMX	Cyclotetramethylenetetranitramine
HQ	Hazard Quotient
LOAEL	Lowest Observed Adverse Effect Level
LOEC	Lowest Observed Effect Concentration
Kg	Kilogram
Kg-bw/d dry weight	Kilogram per Body Weight per Day Dry Weight
mg/kg	Milligram per Kilogram
mg/kg/d	Milligram per Kilogram per Day
mg/kgbw-d	Milligram per Kilogram Body Weight per Day
NA	Not Applicable/Not Available
NTP	National Toxicology Program
NOAEL	No Observed Adverse Effect Level
NOEC	No Observed Effect Concentration
PAH	Polynuclear Aromatic Hydrocarbon
PETN	Pentaerythrite Tetranitrate
RDX	Cyclotrimethylene Trinitromine
SLERA	Screening-level Ecological Risk Assessment
SVOC	Semivolatile Organic Compound
TCDD	Tetrachlorodibenzodioxin
TPH	Total Petroleum Hydrocarbons
TRV	Toxicity Reference Value
TTU	Thermal Treatment Unit
UCL	Upper Confidence Limit
VOC	Volatile Organic Compound

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1.0 General

1.0.0.1 Hill Air Force Base (AFB) has been carrying out open burn/open denotation operations at the Utah Test and Training Range (UTTR)-North (United States Environmental Protection Agency [EPA] ID Number UT 0570090001) Thermal Treatment Unit (TTU) under a Resource Conservation and Recovery Act Part B permit issued by the Utah Department of Environmental Quality. Several attachments to the permit, including an ecological risk assessment, must be updated on a regular basis and submitted to the State. A screening-level ecological risk assessment (SLERA) was completed and submitted in 2005 (CH2M HILL, 2005). This SLERA update was conducted using procedures outlined in the *Ecological Risk Assessment Guidance for Superfund: Process for Designing and Conducting Ecological Risk Assessments* (EPA, 1997) and incorporates site data collected during 2009 and 2010.

1.1 Evaluation of the Risk Assessments

1.1.0.1 The conclusions of the 2005 SLERA were that potential for risks over the entire TTU site could not be excluded for zinc to plants; total petroleum hydrocarbons (TPH) to plants and invertebrates; and cyclotetramethylenetetranitramine (HMX), antimony, cadmium, copper, lead, perchlorate, 2-methylnaphthalene, fluorene, total polynuclear aromatic hydrocarbons (PAHs), and acetone to one or more wildlife receptors. Samples driving the potential for risks to receptors were generally associated with open burning/open detonation areas and did not represent the potential for risks in the surrounding wildlife habitat areas of the site due to incomplete exposure pathways.

1.1.0.2 One outcome of the 2005 SLERA was that soil samples would be collected at the conclusion of disposal activities each year to monitor any changes in contaminant concentrations and distribution due to TTU operations. Additional soil data have been collected annually starting in 2005 and analyzed for energetics and metals. These additional data are evaluated relative to the previous onsite data and the results of the 2005 and subsequent SLERAs to determine whether risk conclusions could potentially change as a result of the new data. Because the most recent data (2005 to present) have been collected as composite samples as opposed to discrete samples, they were not pooled with data from 2004 and earlier (which were discrete samples). Rather, the post-2004 data were evaluated independently. These SLERA reevaluations have been conducted every 2 years, starting in 2007.

1.1.0.3 The 2007 SLERA reevaluation (based on 2005–2006 data) and the 2009 evaluation (based on 2007–2008 data) concluded that chromium, vanadium, and cadmium exceed the target hazard quotient of 1 for plants, soil invertebrates, or some small mammals; however, these data are not different from background (in the case of chromium and vanadium) or display only minimal levels of exceedance (cadmium). In addition, a single sample from 2008 was analyzed for dioxin/dibenzofuran congeners. No exceedance of the tetrachlorodibenzodioxin (TCDD) toxic equivalency quotient was observed for this sample for any receptor. It should be noted that the 2009–2010 sampling efforts, similar to the

2005–2006 and the 2007–2008 sampling efforts, focused on metals and energetic compounds. The 2005 SLERA identified TPH, acetone, and PAHs as potential risk drivers. The absence of new data for these other analytes precludes any new conclusions; consequently, they are still considered potential risk drivers. Therefore, the overall conclusion of the 2007 and 2009 evaluations is that calculated ecological risk is not greater than that estimated previously for the TTU.

1.1.0.4 This report summarizes the supplemental screening-level ecological risk evaluation performed based on the newest data (2009–2010) from the TTU.

2.0 Approach

2.0.0.1 Rather than performing the SLERA anew for all analytes and receptors with the 2009–2010 data, a multistep process was used to identify analytes for which the potential for a negative risk conclusion (i.e., analyte fails the screen) existed. Three criteria were considered:

- Maximum concentrations in the 2009–2010 data versus the previous data (2008 and earlier):
  - Maximum 2009–2010 concentrations greater than those observed in the previous data suggested the potential for a changed risk conclusion.
  - Higher measured concentrations may result in estimated exposures greater than screening benchmarks.
- Analyte retained as a potential risk driver based on the previous data:
  - Previously evaluated data suggest potential for risk.
  - New data need to be evaluated to determine whether conclusions change.
- Comparison of 2009–2010 data to background concentrations:
  - Concentrations of inorganic analytes that are not statistically significantly different from background concentrations generally indicate ambient levels and are not considered further in the evaluation.
  - If 2009–2010 concentrations are not different from background, the likelihood that they represent site-associated contamination and thus potential risk is low.

2.0.0.2 Based on a combined evaluation of these three criteria, a judgment was made for each analyte as to whether the recent data required additional risk evaluation. All analytes judged to require further evaluation were screened using the methods and exposure parameters previously employed in the initial SLERA (CH2M HILL, 2005).

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3.0 Results

3.1 Selection of Analytes for Additional Evaluation

3.1.0.1 Of the 27 energetic compounds analyzed for in the 2009–2010 samples, none displayed maximum concentrations that were greater than those observed in the 2008 and earlier data (see Table 3-1). Among the 33 inorganics, one (mercury) displayed a higher maximum in 2009–2010 than was observed in 2008 and earlier.

3.1.0.2 The 2009 SLERA identified cadmium, chromium, and vanadium as potential risk drivers based on the data from 2008 and earlier, plus TPH, acetone, 2-methylnaphthalene, fluorene, and total PAHs based on the 2005 SLERA.

3.1.0.3 Analytes requiring further evaluation were identified using the criteria outlined in Section 2.0. Based on these criteria, one inorganic (mercury) was retained for updated SLERA evaluation. Acetone, TPH, 2-methylnaphthalene, fluorene, total PAHs, and dioxins/dibenzofurans were retained as potential risk drivers, but due to the absence of new data, no new evaluation was conducted. A summary of the selection criteria for each analyte is presented in Table 3-2.

3.2 Screen of Maximum Concentrations of Retained Analytes

3.2.0.1 Methods and parameters employed to perform the SLERAs submitted in 2005 (CH2M HILL, 2005), 2007 (CH2M HILL, 2007), and 2009 (CH2M HILL, 2009) were applied to the 2009–2010 data and supplemented as necessary. Screening values for plants, soil invertebrates, mammals, and birds for the one retained analyte (mercury) are summarized in Tables 3-3 through 3-6. Bioaccumulation models used to estimate contaminant uptake into food items for birds and mammals are presented in Tables 3-7 and 3-8. Parameters for estimation of dietary exposures for birds and mammals are summarized in Table 3-9.

3.2.0.2 Initial screens for mercury data from the 2009–2010 sampling events were further evaluated using the maximum concentration and the no observed effect concentration (NOEC). Results of the maximum screen for plants and soil invertebrates are presented in Table 3-10. NOEC hazard quotients (HQs) greater than 1 were obtained for mercury for plants and soil invertebrates.

3.2.0.3 Dietary exposures, based on maximum soil concentrations and exposure parameters presented in Table 3-9, are presented for six mammals (Ord's kangaroo rat, Townsend's ground squirrel, black-tailed jack rabbit, grasshopper mouse, pronghorn, and coyote) and four birds (sage sparrow, loggerhead shrike, western meadowlark, and burrowing owl) in Table 3-11. The maximum-based mercury exposure did not exceed the no observed adverse effect level (NOAEL) for each mammalian and bird species (see Table 3-11).

3.3 Refined Screen of Retained Analytes

3.3.0.1 Following the procedures outlined in CH2M HILL (2005), a refined screen was conducted for the analytes and receptors with HQs greater than 1. A point-by-point screen of NOECs and lowest observed effect concentrations (LOECs) was conducted for mercury for plants and soil invertebrates. The point-by-point screening of detected mercury results indicated a 14 percent and 5 percent frequency of exceedances of the NOEC and LOEC, respectively, for plants and an 86 percent and 5 percent frequency of exceedances of the NOEC and LOEC, respectively, for soil invertebrates (see Table 3-12).

3.3.0.2 With the exception of one outlier result, the detected mercury data for the 2009–2010 samples are consistent with the background and previous site data presented in Figure A-9a in Appendix A of the 2009 SLERA (CH2M HILL, 2009). Consequently, the NOEC and LOEC exceedance observed for mercury is an artifact of the conservative nature of the plant and soil invertebrate screening values for mercury and does not indicate a potential for site-related adverse effects on plant and invertebrate populations.

3.3.0.3 Analytes for which maximum-based exposure estimates exceeded NOAELs for birds and mammals were reevaluated using ecologically more realistic exposure and effect parameters. Maximum soil concentrations were replaced with 95 percent upper confidence limit (calculated using the most recent version of ProUCL [Ver 4.1]) (see Table 3-13); median bioaccumulation factors were used instead of 90th percentile bioaccumulation factors; and lowest observed adverse effect levels (LOAELs) were used in addition to NOAELs. Refined exposure estimates for mercury for all bird and mammal receptors were less than the NOAEL and LOAELs (Table 3-14).

TABLE 3-1
Comparison of New (2009–2010) and Old (2008 and Earlier) Analytical Results[(1)]
Thermal Treatment Unit 2011 Ecological Risk Screen Evaluation

Analyte Type	Analyte	group	det	n	Maximum	New Maximum > Old Maximum?
Dioxin/Furan	2,3,7,8-Tetrachlorodibenzo-p-dioxin	Old	1	1	0.13	
	1,2,3,7,8-Pentachlorodibenzo-p-dioxin	Old	1	1	0.27	
	1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin	Old	1	1	0.21	
	1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin	Old	1	1	0.44	
	1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin	Old	1	1	0.59	
	1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin	Old	1	1	4.33	
	1,2,3,4,6,7,8,9-Octachlorodibenzo-p-dioxin	Old	1	1	18.2	
	2,3,7,8-Tetrachlorodibenzofuran	Old	1	1	0.92	
	1,2,3,7,8-Pentachlorodibenzofuran	Old	1	1	0.74	
	2,3,4,7,8-Pentachlorodibenzofuran	Old	1	1	0.89	
	1,2,3,4,7,8-Hexachlorodibenzofuran	Old	1	1	2.57	
	1,2,3,6,7,8-Hexachlorodibenzofuran	Old	1	1	0.97	
	1,2,3,7,8,9-Hexachlorodibenzofuran	Old	0	1	0.08	
	2,3,4,6,7,8-Hexachlorodibenzofuran	Old	1	1	1.24	
	1,2,3,4,6,7,8-Heptachlorodibenzofuran	Old	1	1	5.63	
	1,2,3,4,7,8,9-Heptachlorodibenzofuran	Old	1	1	0.73	
	1,2,3,4,6,7,8,9-Octachlorodibenzofuran	Old	1	1	6.26	
Energetic	1,3,5-Trinitrobenzene	New	0	22	0.014	
	1,3,5-Trinitrobenzene	Old	0	86	0.2	No
Energetic	1,3-Dinitrobenzene	New	0	22	0.017	
	1,3-Dinitrobenzene	Old	0	86	0.2	No
Energetic	2,4,6-Trinitrotoluene	New	0	22	0.031	
	2,4,6-Trinitrotoluene	Old	0	106	1.5	No
Energetic	2,4-Dinitrophenol	Old	0	27	50	
Energetic	2,4-Dinitrotoluene	New	4	22	0.43	
	2,4-Dinitrotoluene	Old	3	111	10.5	No
Energetic	2,6-Dinitrotoluene	New	0	22	0.019	
	2,6-Dinitrotoluene	Old	0	111	10.5	No
Energetic	2-Amino-4,6-dinitrotoluene	New	0	22	0.033	
	2-Amino-4,6-dinitrotoluene	Old	1	94	1.5	No
Energetic	2-Nitroaniline	Old	0	27	50	
Energetic	2-Nitrophenol	Old	0	27	10.5	
Energetic	2-Nitrotoluene	New	0	22	0.047	
	2-Nitrotoluene	Old	0	86	0.2	No
Energetic	3-Nitroaniline	Old	0	27	50	
Energetic	3-Nitrotoluene	New	0	22	0.064	
	3-Nitrotoluene	Old	0	86	0.2	No
Energetic	4,6-Dinitro-2-methylphenol	Old	0	27	50	
Energetic	4-Amino-2,6-dinitrotoluene	New	0	22	0.03	
	4-Amino-2,6-Dinitrotoluene	Old	0	74	0.2	No
Energetic	4-Nitroaniline	Old	0	27	50	
Energetic	4-Nitrophenol	Old	0	27	50	
Energetic	4-Nitrotoluene	New	0	22	0.036	
	4-Nitrotoluene	Old	0	86	0.2	No
Energetic	HMX	New	14	22	2	
	HMX	Old	64	108	25	No
Energetic	N-Nitrosodiphenylamine	Old	0	27	10.5	
Energetic	Nitrobenzene	New	0	22	0.085	
	Nitrobenzene	Old	0	111	10.5	No
Energetic	Nitroglycerin	New	1	22	1	
	Nitroglycerin	Old	6	105	6.6	No
Energetic	Nitroguanidine	New	1	22	0.073	
	Nitroguanidine	Old	4	106	0.5	No
Energetic	PETN	New	0	22	0.49	
	PETN	Old	0	94	0.65	No
Energetic	Picric Acid	New	1	22	0.0039	
	Picric Acid	Old	3	96	0.5	No
Energetic	RDX	New	1	22	0.046	
	RDX	Old	10	106	1.5	No
Energetic	n-Nitroso-di-n-propylamine	Old	0	27	10.5	
Energetic	tetryl	New	0	22	0.044	
	tetryl	Old	0	86	0.23	No

TABLE 3-1

Comparison of New (2009–2010) and Old (2008 and Earlier) Analytical Results(1)

Thermal Treatment Unit 2011 Ecological Risk Screen Evaluation

Analyte Type	Analyte	group	det	n	Maximum	New Maximum > Old Maximum?
Inorganic	Aluminum	New	22	22	15000	
	Aluminum	Old	112	112	54000	No
Inorganic	Antimony	New	13	22	0.47	
	Antimony	Old	38	91	166.93	No
Inorganic	Arsenic	New	22	22	7.8	
	Arsenic	Old	82	111	41.3	No
Inorganic	Barium	New	22	22	230	
	Barium	Old	111	111	640	No
Inorganic	Beryllium	New	22	22	0.69	
	Beryllium	Old	76	111	1.3	No
Inorganic	Cadmium	New	22	22	2.7	
	Cadmium	Old	85	111	32	No
Inorganic	Calcium	New	22	22	190000	
	Calcium	Old	106	106	1560000	No
Inorganic	Carbon disulfide	Old	0	22	0.0011	
Inorganic	Chloride	New	22	22	2800	
	Chloride	Old	90	106	120000	No
Inorganic	Chromium	New	22	22	27	
	Chromium	Old	111	111	100	No
Inorganic	Cobalt	New	22	22	4.1	
	Cobalt	Old	86	86	4.9	No
Inorganic	Copper	New	22	22	75	
	Copper	Old	105	111	18000	No
Inorganic	Fluoride	New	1	13	5	
Inorganic	Iron	New	22	22	12000	
	Iron	Old	107	107	15000	No
Inorganic	Lead	New	22	22	44	
	Lead	Old	104	111	48000	No
Inorganic	Magnesium	New	22	22	18000	
	Magnesium	Old	106	106	24300	No
Inorganic	Manganese	New	22	22	430	
	Manganese	Old	112	112	519	No
Inorganic	Mercury	New	21	22	0.46	
	Mercury	Old	39	112	0.07	EXCEEDS
Inorganic	Molybdenum	New	22	22	8.2	
	Molybdenum	Old	75	86	56	No
Inorganic	Nickel	New	22	22	14	
	Nickel	Old	111	111	41.3	No
Inorganic	Nitrate	New	22	22	20	
	Nitrate	Old	106	111	85	No
Inorganic	Perchlorate	New	22	22	18	
	Perchlorate	Old	84	97	180	No
Inorganic	Phosphate	Old	0	13	1.8	
Inorganic	Phosphorus	Old	20	20	990	
Inorganic	Potassium	New	22	22	5300	
	Potassium	Old	106	106	490000	No
Inorganic	Selenium	New	22	22	0.91	
	Selenium	Old	62	111	5	No
Inorganic	Silver	New	22	22	1.6	
	Silver	Old	58	111	4	No
Inorganic	Sodium	New	22	22	4900	
	Sodium	Old	107	107	8800	No
Inorganic	Strontium	New	22	22	450	
	Strontium	Old	86	86	630	No
Inorganic	Sulfate	New	22	22	2700	
	Sulfate	Old	84	106	4300	No
Inorganic	Thallium	New	22	22	0.24	
	Thallium	Old	79	111	2.5	No

TABLE 3-1
Comparison of New (2009–2010) and Old (2008 and Earlier) Analytical Results[1]
Thermal Treatment Unit 2011 Ecological Risk Screen Evaluation

Analyte Type	Analyte	group	det	n	Maximum	New Maximum > Old Maximum?
Inorganic	Vanadium	New	22	22	23	
	Vanadium	Old	91	91	28	No
Inorganic	Zinc	New	22	22	58	
	Zinc	Old	111	111	2300	No
Miscellaneous	pH	Old	20	20	8.9	
PAH	2-Methylnaphthalene	Old	3	27	170	
	Acenaphthene	Old	0	10	0.04185	
	Acenaphthylene	Old	0	27	10.5	
	Anthracene	Old	1	27	10	
	Benz(a)anthracene	Old	0	10	0.0379	
	Benzo(a)anthracene	Old	0	17	10.5	
	Benzo(a)pyrene	Old	0	27	10.5	
	Benzo(b)fluoranthene	Old	0	27	10.5	
	Benzo(g,h,i)perylene	Old	0	27	10.5	
	Benzo(k)fluoranthene	Old	0	27	10.5	
	Chrysene	Old	0	27	10.5	
	Dibenz(a,h)anthracene	Old	0	27	10.5	
	Dibenzofuran	Old	3	27	12	
	Fluoranthene	Old	1	27	10.5	
	Fluorene	Old	3	27	33	
	Indeno(1,2,3-cd)pyrene	Old	0	27	10.5	
	Naphthalene	Old	6	27	53	
	Phenanthrene	Old	4	27	92	
	Pyrene	Old	0	27	10.5	
SVOC	2,4,5-Trichlorophenol	Old	0	27	50	
	2,4,6-Trichlorophenol	Old	0	27	10.5	
	2,4-Dichlorophenol	Old	0	27	10.5	
	2,4-Dimethylphenol	Old	0	27	10.5	
	2-Chloronapthalene	Old	0	27	10.5	
	2-Methylphenol	Old	0	27	10.5	
	3,3'-Dichlorobenzidine	Old	0	27	21	
	4-Chloro-3-methylphenol	Old	0	27	10.5	
	4-Chloroaniline	Old	0	27	10.5	
	4-Methylphenol	Old	0	27	10.5	
	Benzoic acid	Old	0	27	50	
	Benzyl alcohol	Old	0	27	10.5	
	Bis(2-ethylhexyl)phthalate	Old	0	9	0.0454	
	Butylbenzylphthalate	Old	0	27	10.5	
	Di-n-butylphthalate	Old	0	27	10.5	
	Di-n-octylphthalate	Old	0	27	10.5	
	Diethylphthalate	Old	0	27	10.5	
	Dimethylphthalate	Old	0	27	10.5	
	Hexachlorobenzene	Old	0	27	10.5	
	Hexachlorobutadiene	Old	0	27	10.5	
	Hexachlorocyclopentadiene	Old	0	27	10.5	
	Hexachloroethane	Old	0	27	10.5	
	Isophorone	Old	0	27	10.5	
	Pentachlorophenol	Old	0	27	50	
	bis(2-ethylhexyl)phthalate	Old	0	13	0.082	
TPH	Total petroleum hydrocarbons	Old	5	5	47000	
VOC	1,1,1,2-Tetrachloroethane	Old	0	22	0.00075	
	1,1,1-Trichloroethane	Old	0	22	0.0009	
	1,1,2,2-Tetrachloroethane	Old	0	22	0.001	
	1,1,2-Trichloroethane	Old	0	22	0.0008	
	1,1-Dichloroethane	Old	0	22	0.0007	
	1,1-Dichloroethene	Old	0	22	0.00145	
	1,2,3-Trichlorobenzene	Old	1	22	0.0028	
	1,2,3-Trichloropropane	Old	0	22	0.00105	
	1,2,4-Trichlorobenzene	Old	1	27	10.5	
	1,2-Dibromo-3-chloropropane	Old	0	22	0.0039	
	1,2-Dibromoethane	Old	0	22	0.00095	
	1,2-Dichlorobenzene	Old	1	27	10.5	
	1,2-Dichloroethane	Old	0	22	0.0008	
	1,2-Dichloropropane	Old	0	22	0.0007	

TABLE 3-1

Comparison of New (2009–2010) and Old (2008 and Earlier) Analytical Results[1]

Thermal Treatment Unit 2011 Ecological Risk Screen Evaluation

Analyte Type	Analyte	group	det	n	Maximum	New Maximum > Old Maximum?
VOC	1,3-Dichlorobenzene	Old	1	27	10.5	
	1,4-Dichlorobenzene	Old	1	27	10.5	
	2-Butanone	Old	4	22	0.0159	
	2-Chloroethylvinylether	Old	0	12	0.00595	
	2-Chlorophenol	Old	0	27	10.5	
	2-Hexanone	Old	0	22	0.0039	
	4-Bromophenylphenylether	Old	0	27	10.5	
	4-Chlorophenylphenylether	Old	0	27	10.5	
	4-Methyl-2-pentanone	Old	0	22	0.0043	
	Acetone	Old	9	27	24	
	Benzene	Old	3	22	0.0041	
	Bis(2-Chloroethoxy)methane	Old	0	10	0.04555	
	Bis(2-chloroethoxy)methane	Old	0	12	0.074	
	Bis(2-chloroethyl)ether	Old	0	27	10.5	
	Bis(2-chloroisopropyl)ether	Old	0	27	10.5	
	Bis(2-ethylhexyl)phthalate	Old	1	1	0.0832	
	Bromodichloromethane	Old	0	22	0.0007	
	Bromoform	Old	0	22	0.0008	
	Bromomethane	Old	0	22	0.0015	
	Carbon tetrachloride	Old	0	22	0.0009	
	Chlorobenzene	Old	0	22	0.0007	
	Chloroethane	Old	0	22	0.00105	
	Chloroform	Old	0	22	0.0007	
	Chloromethane	Old	0	22	0.001	
	Dibromochloromethane	Old	0	22	0.0008	
	Dibromomethane	Old	0	22	0.00075	
	Dichlorodifluoromethane	Old	0	22	0.0011	
	Ethylbenzene	Old	1	22	0.0013	
	Methylene chloride	Old	1	22	0.0032	
	Phenol	Old	0	27	10.5	
	Styrene	Old	2	22	0.0026	
	Tetrachloroethene	Old	0	22	0.0009	
	Toluene	Old	5	22	0.0187	
	Trichloroethene	Old	0	22	0.0007	
	Trichlorofluoromethane	Old	0	22	0.0011	
	Vinyl Chloride	Old	0	22	0.0012	
	Vinyl acetate	Old	0	22	0.0012	
	bis(2-ethylhexyl)phthalate	Old	4	4	1.5	
	cis-1,2-Dichloroethene	Old	0	22	0.0007	
	cis-1,3-Dichloropropene	Old	0	22	0.0006	
	m,p-Xylenes	Old	1	22	0.002	
	o-Xylene	Old	3	22	0.0027	
	tert-Butyl-methylEther	Old	0	22	0.00085	
	trans-1,2-Dichloroethene	Old	0	22	0.0007	
	trans-1,3-Dichloropropene	Old	0	22	0.0008	

NOTES:

HMX = Cydotetramethylenetetranitramine

PAH = Polynuclear Aromatic Hydrocarbon

PETN = Pentaerythrite Trinitromine

RDX = Cyclotrimetylene Trinitromine

SVOC = Semivolatile Organic Compound

TPH = Total Petroleum Hydrocarbons

VOC = Volatille Organic Compound

[1]All analytes in milligrams per kilogram, except dioxins/furans, which are nanograms per kilogram.

TABLE 3-2
Summary of Selection Criteria for Determination Whether to Revise Screening Evaluation Using 2009 –2010 Data
Thermal Treatment Unit 2011 Ecological Risk Screen Evaluation

Analyte	Analyte Group	2009–2010 Data Contain New Maximum Concentration?	Analyte was Retained in 2005 ERA?	Analyte was Retained in 2007 ERA?	Analyte was Retained in 2009 ERA?	Update Ecological Risk Screen?	Justification for No Update
2,4-Dinitrotoluene	Energetic	No	No	No	No	No	2009–2010 data within range of existing data; no change to conclusions.
HMX	Energetic	No	Yes—Wildlife	No	No	No	2009–2010 data within range of existing data; no change to conclusions.
Nitroglycerin	Energetic	No	No	No	Yes	No	2009–2010 data within range of existing data; no change to conclusions.
Nitroguanidine	Energetic	No	No	No	No	No	2009–2010 data within range of existing data; no change to conclusions.
Picric Acid	Energetic	No	No	No	No	No	2009–2010 data within range of existing data; no change to conclusions.
RDX	Energetic	No	No	No	No	No	2009–2010 data within range of existing data; no change to conclusions.
Aluminum	Inorganic	No	No	No	No	No	2009–2010 data within range of existing data; no change to conclusions.
Antimony	Inorganic	No	Yes—Wildlife	No	No	No	2009–2010 data within range of existing data; no change to conclusions.
Arsenic	Inorganic	No	No	No	No	No	2009–2010 data within range of existing data; no change to conclusions.
Barium	Inorganic	No	No	No	No	No	2009–2010 data within range of existing data; no change to conclusions.
Beryllium	Inorganic	No	No	No	No	No	2009–2010 data within range of existing data; no change to conclusions.
Cadmium	Inorganic	No	Yes—Wildlife	Yes—Wildlife	Yes—Wildlife	No	2009–2010 data within range of existing data; no change to conclusions.
Calcium	Inorganic	No	No	No	No	No	2009–2010 data within range of existing data; no change to conclusions.
Chloride	Inorganic	No	No	No	No	No	2009–2010 data within range of existing data; no change to conclusions.
Chromium	Inorganic	No	No	Yes—Plants and Soil Inverts	Yes—Plants and Soil Inverts	No	2009–2010 data within range of existing data; no change to conclusions.
Cobalt	Inorganic	No	No	No	No	No	2009–2010 data within range of existing data; no change to conclusions.
Copper	Inorganic	No	Yes—Wildlife	No	No	No	2009–2010 data within range of existing data; no change to conclusions.
Iron	Inorganic	No	No	No	No	No	2009–2010 data within range of existing data; no change to conclusions.
Lead	Inorganic	No	Yes—Wildlife	No	No	No	2009–2010 data within range of existing data; no change to conclusions.
Magnesium	Inorganic	No	No	No	No	No	2009–2010 data within range of existing data; no change to conclusions.
Manganese	Inorganic	No	No	No	No	No	2009–2010 data within range of existing data; no change to conclusions.
Mercury	Inorganic	Yes	No	No	No	Yes	2009–2010 data contain new maximum concentration; higher maximum may indicate increased risk estimates and therefore requires evaluation
Molybdenum	Inorganic	No	No	No	No	No	2009–2010 data within range of existing data; no change to conclusions.
Nickel	Inorganic	No	No	No	No	No	2009–2010 data within range of existing data; no change to conclusions.

TABLE 3-2

Summary of Selection Criteria for Determination Whether to Revise Screening Evaluation Using 2009 –2010 Data

Thermal Treatment Unit 2011 Ecological Risk Screen Evaluation

Analyte	Analyte Group	2009–2010 Data Contain New Maximum Concentration?	Analyte was Retained in 2005 ERA?	Analyte was Retained in 2007 ERA?	Analyte was Retained in 2009 ERA?	Update Ecological Risk Screen?	Justification for No Update
Nitrate	Inorganic	No	No	No	No	No	Not a contaminant of potential ecological concern in initial screen.
Perchlorate	Inorganic	No	Yes—Wildlife	No	No	No	2009–2010 data within range of existing data; no change to conclusions.
Potassium	Inorganic	No	No	No	No	No	2009–2010 data within range of existing data; no change to conclusions.
Selenium	Inorganic	No	No	No	No	No	2009–2010 data within range of existing data; no change to conclusions.
Silver	Inorganic	No	No	No	No	No	2009–2010 data within range of existing data; no change to conclusions.
Sodium	Inorganic	No	No	No	No	No	2009–2010 data within range of existing data; no change to conclusions.
Strontium	Inorganic	No	No	No	No	No	2009–2010 data within range of existing data; no change to conclusions.
Sulfate	Inorganic	No	No	No	No	No	Not a contaminant of potential ecological concern in initial screen.
Thallium	Inorganic	No	No	No	No	No	2009–2010 data within range of existing data; no change to conclusions.
Vanadium	Inorganic	No	No	Yes—Plants	Yes—Plants	No	2009–2010 data within range of existing data; no change to conclusions.
Zinc	Inorganic	No	Yes—Plants only	No	No	No	2009–2010 data within range of existing data; no change to conclusions.
Dioxins/ Dibenzofurans	Dioxins/ Dibenzofurans	NA	NA	NA	Yes	No	No new data; initial conclusions are unchanged.
TPH	Petroleum	NA	Yes—Plants and Wildlife	Yes—Plants and Wildlife	Yes—Plants and Wildlife	No	No new data; initial conclusions are unchanged.
Acetone	VOC	NA	Yes—Wildlife	Yes—Wildlife	Yes—Wildlife	No	No new data; initial conclusions are unchanged.
2-Methyl Naphthalene	PAH	NA	Yes—Wildlife	Yes—Wildlife	Yes—Wildlife	No	No new data; initial conclusions are unchanged.
Fluorene	PAH	NA	Yes—Wildlife	Yes—Wildlife	Yes—Wildlife	No	No new data; initial conclusions are unchanged.
Total PAH	PAH	NA	Yes—Wildlife	Yes—Wildlife	Yes—Wildlife	No	No new data; initial conclusions are unchanged.

NOTES:

ERA = Ecological Risk Assessment
HMX = Cyclotetramethylenetetranitramine
NA = Not Applicable
PAH = Polynuclear Aromatic Hydrocarbon
RDX = Cyclotrimethylene Trinitromine
TPH = Total Petroleum Hydrocarbons
VOC = Volatile Organic Compound

TABLE 3-3

Ecological Screening Benchmarks for Terrestrial Plants Exposed to Soil

Thermal Treatment Unit 2011 Ecological Risk Screen Evaluation

Analyte	Surrogate	Reference	Uncertainty Factor (for normalized NOEC)[1]	Normalized NOEC (mg/kg)[2]	Uncertainty Factor (for normalized LOEC)[3]	Normalized LOEC (mg/kg)[4]
Mercury	NA	Efroymson et al., 1997a	0.1	0.03	1	0.3

NOTES:

LOEC = Lowest Observed Effect Concentration

mg/kg = Milligram per Kilogram

NA = Not Applicable

NOEC = No Observed Effect Concentration

(1)Uncertainty factors were used to adjust all measured effect concentrations to chronic NOECs as follows:

LOEC to NOEC = 0.1

Subchronic to chronic = 0.1

EC50 to chronic = 0.01

Acute to chronic = 0.01

(2)Normalized NOEC was calculated by multiplying the effect concentration by the uncertainty factor.

(3)Uncertainty factors were used to adjust all measured effect concentrations to chronic LOECs as follows:

Subchronic to chronic = 0.1

EC50 to chronic = 0.1

Acute to chronic = 0.1

(4)Normalized LOEC was calculated by multiplying the effect concentration by the uncertainty factor.

TABLE 3-4

Ecological Screening Benchmarks for Invertebrates Exposed to Soil

Thermal Treatment Unit 2011 Ecological Risk Screen Evaluation

Analyte	Surrogate	Reference	Uncertainty Factor (for normalized NOEC)[1]	Normalized NOEC (mg/kg)[2]	Uncertainty Factor (for normalized LOEC)[3]	Normalized LOEC (mg/kg)[4]
Mercury	NA	Efroymson et al., 1997b	0.1	0.01	1	0.1

NOTES:

LOEC = Lowest Observed Effect Concentration

mg/kg = Milligram per Kilogram

NA = Not Applicable

NOEC = No Observed Effect Concentration

[1]Uncertainty factors were used to adjust all measured effect concentrations to chronic NOECs as follows:

LOEC to NOEC = 0.1

Subchronic to chronic = 0.1

EC50 to chronic = 0.01

Acute to chronic = 0.01

[2]Normalized NOEC was calculated by multiplying the effect concentration by the uncertainty factor.

[3]Uncertainty factors were used to adjust all measured effect concentrations to chronic LOECs as follows:

Subchronic to chronic = 0.1

EC50 to chronic = 0.1

Acute to chronic = 0.1

[4]Normalized LOEC was calculated by multiplying the effect concentration by the uncertainty factor.

TABLE 3-5
Toxicity Reference Values Considered for Mammalian Wildlife Receptors
Thermal Treatment Unit 2011 Ecological Risk Screen Evaluation

Analyte[1]	Surrogate	Reference[2],[4]	Uncertainty Factor[3] (for normalized NOAEL)	Normalized NOAEL TRV (mg/kgbw-d)	Uncertainty Factor[3] (for normalized LOAEL)	Normalized LOAEL TRV (mg/kgbw-d)	Notes
Mercury	NA	Aulerich et al., 1974 in Sample et al., 1996 NTP, 1993 in ATSDR, 1999	1	1	1	3.7	NOAEL for mink (Aulerich et al., 1974) LOAEL for rat (NTP, 1993 in ATSDR, 1999)

NOTES:

ATSDR = Agency for Toxic Substances and Disease Registry
LOAEL = Lowest Observed Adverse Effect Level
mg/kgbw-d =Milligram per Kilogram Body Weight per Day
NA = Not Applicable
NTP = National Toxicology Program
NOAEL = No Observed Adverse Effect Level
TRV = Toxicity Reference Value

(1) Selections of TRVs and application of uncertainty factors was performed in accordance with EPA (1997) as described in footnotes 2 and 3.

(2)The following preferences were used when selecting studies:
NOAEL endpoints were given preference over LOAEL endpoints when both were available. Studies with LD50s as endpoints were only selected when studies for sublethal effects were not available. Chronic studies were selected over subchronic studies and subchronic studies were selected over acute studies when multiple studies of varying duration were available for selection. Studies with reproduction as the endpoint were selected before studies with mortality as the endpoint, which were selected before studies with growth as the endpoint, which were selected before studies with systemic effects as the endpoint. Studies with the most complete information and therefore the least resulting uncertainty were given preference in study selection. Studies from surrogate chemicals were only selected when no other study for a particular contaminant of potential ecological concern was found.

(3)Uncertainty factors were used to adjust all measured effect concentrations to chronic NOAELs and chronic LOAELs as follows:
NOAEL to LOAEL = 0.1
Subchronic to chronic = 0.1
LD50 to chronic = 0.01
Subacute to chronic = 0.01
Acute to chronic = 0.01
where:
Chronic = >12 weeks or during critical lifestage
Subchronic = 4–12 weeks
Subacute = <4 weeks, multiple doses
Acute = only one dose

(4)Complete references are available in the references section of the main body of the ecological risk assessment.

TABLE 3-6
Toxicity Reference Values Considered for Avian Wildlife Receptors
Thermal Treatment Unit 2011 Ecological Risk Screen Evaluation

Analyte[1]	Surrogate	Reference[2],[4]	Uncertainty Factor[3] (for normalized NOAEL)	Normalized NOAEL TRV (mg/kgbw-d)	Uncertainty Factor[3] (for normalized LOAEL)	Normalized LOAEL TRV (mg/kgbw-d)	Notes
Mercury	NA	Hill and Schaffner, 1976	NA	0.45	NA	0.9	NOAEL and LOAEL for Japanese quail (From Sample et al., 1996)

NOTES:

LOAEL = Lowest Observed Adverse Effect Level

mg/kgbw-d = Milligram per Kilogram per Body Weight per Day

NA = Not Applicable

NOAEL = No Observed Adverse Effect Level

TRV = Toxicity Reference Value

[1]Selections of TRVs and application of uncertainty factors was performed in accordance with EPA (1997) as described in footnotes 2 and 3.

[2]The following preferences were used when selecting studies:

NOAEL endpoints were given preference over LOAEL endpoints when both were available. Studies with LD50s as endpoints were only selected when studies for sublethal effects were not available. Chronic studies were selected over subchronic studies, and subchronic studies were selected over acute studies when multiple studies of varying duration were available for selection. Studies with reproduction as the endpoint were selected before studies with mortality as the endpoint, which were selected before studies with growth as the endpoint, which were selected before studies with systemic effects as the endpoint. Studies with the most complete information and therefore the least resulting uncertainty were given preference in study selection. Studies from surrogate chemicals were only selected when no other study for a particular contaminant of potential ecological concern was found.

[3]Uncertainty factors were used to adjust all measured effect concentrations to chronic NOAELS and chronic LOAELs as follows:

NOAEL to LOAEL = 0.1

Subchronic to chronic = 0.1

LD50 to chronic = 0.01

Subacute to chronic = 0.01

Acute to chronic = 0.01

where:

Chronic = >12 weeks or during critical lifestage

Subchronic = 4–12 weeks

Subacute = <4 weeks, multiple doses

Acute = only one dose

[4]Complete references are available in the references section of the main body of the ecological risk assessment.

TABLE 3-7

Chemical Uptake for Dietary Items

Thermal Treatment Unit 2011 Ecological Risk Screen Evaluation

Analyte	Plant BTF	Source for Plant BTFs	Terrestrial Invertebrates BTF	Source for Terrestrial Invertebrate BTFs	Small Mammal BTF	Source for Mammal BTFs	Log Kow	LogKow Source
Mercury	Regression Based	A	Regression Based	B	0.054	C	NA	-

NOTES:

BTF = Biotransfer Factor

NA = Not Applicable; applies to uptake factors for analytes without toxicity reference values for the given receptor

All biotransfer factors are expressed as dry weight.

Full references can be found in the reference section of the main body of the ecological risk assessment.

A Regression model from Bechtel Jacobs (1998).

B Regression model from Sample et al. (1998a).

C 90th percentile soil-to-small mammal transfer factors from Sample et al. (1998b)

TABLE 3-8

Regression Equations for Chemical Biotransfer Factors

Thermal Treatment Unit 2011 Ecological Risk Screen Evaluation

Analyte	Receptor	B0	B1	Source
Small Mammal/Bird BTF				
Mercury	--	--	--	--
Terrestrial Invertebrate BTF				
Mercury	Earthworm	-0.684	0.118	Sample et al. (1998a)
Plant BTF				
Mercury	General	-0.996	0.544	Bechtel Jacobs (1998)

NOTES:

BTF = Biotransfer Factor

ln (Prey Conc) = B1 * (ln[Site Specific Soil Concentration]) + B0

where:

B0 = Slope

B1 = Intercept

TABLE 3-9

Exposure Parameters for Selected Wildlife Receptors of Concern

Thermal Treatment Unit 2011 Ecological Risk Screen Evaluation

		kg body weight		Food Ingestion Rate		Dietary Composition (percent)					
Species	**Receptor Guild**	**kg**	**Reference**	**kg/kg-bw/d dry weight**	**Reference[(1),(2)]**	**Terrestrial Invertebrates**	**Plants**	**Small Mammals and Other Vertebrates**	**Reference[(1)]**	**Soil**	**Reference[(1)]**
Ord's Kangaroo Rat	Herbivorous small mammal	0.052	Jones, 1985	0.111056496	Nagy, 1987		100		Garrison and Best, 1990	2	Measure of conservatism
Townsend's Ground Squirrel	Herbivorous small mammal	0.325	Rickart, 1987	0.049950551	Nagy, 1987		100		Rickart, 1987	2	Measure of conservatism
Black-tailed Jackrabbit	Herbivorous small mammal	2.1	Goodwin and Currie, 1965, in Sample et al., 1997	0.071456573	Nagy, 1987		100		Sample et al., 1997	6.3	Arthur and Gates (1988) in Sample et al., 1997
Grasshopper Mouse	Invertivorous small mammal	0.041	Harriman, 1973	0.25	Bailey and Sperry, 1929	100			Bailey and Sperry, 1929	13	Talmage and Walton, 1993
Pronghorn	Herbivorous large mammal	48.76118031	Smith and Beale, 1974	0.03439375	Nagy, 1987		100		Beale and Smith, 1970	2	Measure of conservatism
Coyote	Carnivorous mammal	10.33	Average of values from California and Arizona presented in Sample et al., 1997	0.045336384	Nagy, 1987			100	Assumed (99 percent vertebrate diet in Sperry, 1934)	2.8	Used Red Fox Data from Beyer et al., 1994
Sage Sparrow	Herbivorous bird	0.019185	Average of male and female data from Bonneville Basin, Utah, in Martin and Carlson, 1998	0.025513782	Nagy, 1987		100		Assumed (87 percent plants and 13 percent invertebrates—winter diet in Lower Colorado river reported in Martin and Carlson, 1998)	2	Measure of conservatism
Loggerhead Shrike	Insectivorous bird	0.047	Yosef, 1996	0.022305113	Nagy, 1987	100			Assumed (66 percent invertebrates and 34 percent vertebrates in diet—Burton, 1990, in Yosef, 1996	0	Species does not generally forage near ground
Western Meadowlark	Invertivorous small mammal	0.1027	Average of values in Sample et al., 1997	0.019837345	Nagy, 1987	100			Assumed 100 percent (98 percent insects in Rotenberry, 1980)	2	Measure of conservatism
Burrowing Owl	Carnivorous bird	0.157	Average of males and females in Colorado from Haug et al., 1993, in Sample et al., 1997	0.111059063	Nagy, 1987			100	Assumed (71 percent vertebrates/29 percent invertebrates in diet—Gleason and Craig, 1979)	5	Thomsen, 1971, in Sample et al., 1997

NOTES:

kg = Kilogram

kg-bw/d dry weight = Kilogram per Body Weight per Day Dry Weight

(1) Complete references are available in the references section of the main body of the ecological risk assessment.

(2) Ingestion rates were calculated from kg body weight using Nagy's allometric equations as modified in Sample et al. 1997, where:

food ingestion rate (birds [burrowing owl]) = 0.0582*(kg body weight^0.651))/kg body weight

food ingestion rate (passerine birds[sage sparrow, loggerhead shrike, western meadowlark]) = 0.0141*(kg body weight^0.850))/kg body weight

food ingestion rate (mammals[coyote, pronghorn]) = 0.0687*(kg body weight^0.822))/kg body weight

food ingestion rate (rodents [Ord's kangaroo rat, townsend's ground squirrel]) = 0.0306*(kg body weight^0.564))/kg body weight

food ingestion rate (herbivores [black-tailed jackrabbit]) = 0.0875*(kg body weight^0.727))/kg body weight

TABLE 3-10

Comparison of Maximum 2009–2010 Soil Concentrations (mg/kg) to Plant and Soil Invertebrate NOECs

Thermal Treatment Unit 2011 Ecological Risk Screen Evaluation

Analtype	Analyte	group	det	n	min detect (mg/kg)	median detect (mg/kg)	max detect (mg/kg)	Plant NOEC (mg/kg)	Soil Invert. NOEC (mg/kg)	Plant HQ	Soil Invert. HQ
Inorganic	Mercury	NEW	21	22	0.0065	0.017	0.46	0.03	0.01	15.333	46.0000

NOTES:

HQ = Hazard Quotient

mg/kg = Milligram per Kilogram

NOEC = No Observed Effect Concentration

TABLE 3-11
Maximum-based Screening Evaluation for Bird and Mammal Receptors
Thermal Treatment Unit 2011 Ecological Risk Screen Evaluation

Analtype	Analyte	group	det	n	Minimum	Median	Maximum	Plant BTF	Plant Slope	Plant Int	Worm BTF	Worm Slope	Worm Int	Smammal BTF	Smammal Slope	Smammal Int	Estimated Concentrations in Biota (mg/kg DW): Plants	Soil Invertebrates	Small Mammals	Species	kg body weight: kg	Food Ingestion Rate: kg-bw/d dry weight	Dietary Composition (percent): Terrestrial Invertebrates	Plants	Small Mammals and Other Vertebrates	Soil	Estimated Exposure (mg/kg/d): Soil	Terrestrial Invertebrates	Plants	Small Mammals and Other Vertebrates	Total Exp	NOAELs	NOAEL HQ
Inorganic	Mercury	NEW	21	22	0.0065	0.017	0.46		0.544	-0.996		0.118	-0.684	0.054			0.24	0.46	0.02	Ord's Kangaroo Rat	0.052	0.111		100		2.0	0.0010217	0	0.026886	0	0.0279078	1	0.028
Inorganic	Mercury	NEW	21	22	0.0065	0.017	0.46		0.544	-0.996		0.118	-0.684	0.054			0.24	0.46	0.02	Townsend's Ground Squirrel	0.325	0.050		100		2.0	0.0004595	0	0.0120927	0	0.0125522	1	0.013
Inorganic	Mercury	NEW	21	22	0.0065	0.017	0.46		0.544	-0.996		0.118	-0.684	0.054			0.24	0.46	0.02	Black-tailed Jackrabbit	2.100	0.071		100		6.3	0.0020708	0	0.0172992	0	0.01937	1	0.019
Inorganic	Mercury	NEW	21	22	0.0065	0.017	0.46		0.544	-0.996		0.118	-0.684	0.054			0.24	0.46	0.02	Grasshopper Mouse	0.041	0.250	100			13.0	0.01495	0.115103362	0	0	0.1300534	1	0.130
Inorganic	Mercury	NEW	21	22	0.0065	0.017	0.46		0.544	-0.996		0.118	-0.684	0.054			0.24	0.46	0.02	Pronghorn	48.761	0.034		100		2.0	0.0003164	0	0.0083265	0	0.0086429	1	0.009
Inorganic	Mercury	NEW	21	22	0.0065	0.017	0.46		0.544	-0.996		0.118	-0.684	0.054			0.24	0.46	0.02	Coyote	10.330	0.045			100	2.8	0.0005839	0	0	0.001126156	0.0017101	1	0.002
Inorganic	Mercury	NEW	21	22	0.0065	0.017	0.46		0.544	-0.996		0.118	-0.684	0.054			0.24	0.46	0.02	Sage Sparrow	0.019	0.026		100		2.0	0.0002347	0	0.0061767	0	0.0064114	0.45	0.014
Inorganic	Mercury	NEW	21	2	0.0065	0.017	0.46		0.544	-0.996		0.118	-0.684	0.054			0.24	0.46	0.02	Loggerhead Shrike	0.047	0.022	100			0.0	0	0.010269574	0	0	0.0102696	0.45	0.023
Inorganic	Mercury	NEW	21	2	0.0065	0.017	0.46		0.544	-0.996		0.118	-0.684	0.054			0.24	0.46	0.02	Western Meadowlark	0.103	0.020	100			2.0	0.0001825	0.00913338	0	0	0.0093159	0.45	0.021
Inorganic	Mercury	NEW	21	22	0.0065	0.017	0.46		0.544	-0.996		0.118	-0.684	0.054			0.24	0.46	0.02	Burrowing Owl	0.157	0.111			100	5.0	0.0025544	0	0	0.002758707	0.0053131	0.45	0.012

NOTES:
BTF = Biotransfer Factor
DW = Dry Weight
HQ = Hazard Quotient
kg = Kilogram
kg-bw/d dry weight = Kilogram per Body Weight per Day Dry Weight
mg/kg = Milligram per Kilogram
mg/kg/d = Milligram per Kilogram per Day
NOAEL = No Observed Adverse Effect Level

TABLE 3-12

Point-by-Point Screening of Detected Retained Analytes for Plants and Soil Invertebrates

Thermal Treatment Unit 2011 Ecological Risk Screen Evaluation

Analyte	Location	Result	Qual	Units	Plant NOEC	Plant LOEC	Soil Invert. NOEC	Soil Invert. LOEC	Plant NOEC HQ	Plant LOEC HQ	Soil Invert. NOEC HQ	Soil Invert. LOEC HQ
Mercury	NR-557	0.0065	J	mg/kg	0.03	0.3	0.01	0.1	0.216667	0.021667	0.65	0.065
Mercury	NR-571	0.0075	J	mg/kg	0.03	0.3	0.01	0.1	0.25	0.025	0.75	0.075
Mercury	NR-205	0.0096	J	mg/kg	0.03	0.3	0.01	0.1	0.32	0.032	0.96	0.096
Mercury	NR-571	0.013	J	mg/kg	0.03	0.3	0.01	0.1	0.433333	0.043333	1.3	0.13
Mercury	NR-203	0.014	J	mg/kg	0.03	0.3	0.01	0.1	0.466667	0.046667	1.4	0.14
Mercury	NR-449	0.015	J	mg/kg	0.03	0.3	0.01	0.1	0.5	0.05	1.5	0.15
Mercury	NR-446	0.016	J	mg/kg	0.03	0.3	0.01	0.1	0.533333	0.053333	1.6	0.16
Mercury	NR-207	0.017	J	mg/kg	0.03	0.3	0.01	0.1	0.566667	0.056667	1.7	0.17
Mercury	NR-208	0.017	J	mg/kg	0.03	0.3	0.01	0.1	0.566667	0.056667	1.7	0.17
Mercury	NR-201	0.017	J	mg/kg	0.03	0.3	0.01	0.1	0.566667	0.056667	1.7	0.17
Mercury	NR-448	0.017	J	mg/kg	0.03	0.3	0.01	0.1	0.566667	0.056667	1.7	0.17
Mercury	NR-204	0.018	J	mg/kg	0.03	0.3	0.01	0.1	0.6	0.06	1.8	0.18
Mercury	NR-206	0.018	J	mg/kg	0.03	0.3	0.01	0.1	0.6	0.06	1.8	0.18
Mercury	NR-441	0.018	J	mg/kg	0.03	0.3	0.01	0.1	0.6	0.06	1.8	0.18
Mercury	NR-447	0.018	J	mg/kg	0.03	0.3	0.01	0.1	0.6	0.06	1.8	0.18
Mercury	NR-443	0.020	J	mg/kg	0.03	0.3	0.01	0.1	0.666667	0.066667	2	0.2
Mercury	NR-442	0.023	J	mg/kg	0.03	0.3	0.01	0.1	0.766667	0.076667	2.3	0.23
Mercury	NR-444	0.024	J	mg/kg	0.03	0.3	0.01	0.1	0.8	0.08	2.4	0.24
Mercury	NR-209	0.032		mg/kg	0.03	0.3	0.01	0.1	1.066667	0.106667	3.2	0.32
Mercury	NR-202	0.061		mg/kg	0.03	0.3	0.01	0.1	2.033333	0.203333	6.1	0.61
Mercury	NR-445	0.46		mg/kg	0.03	0.3	0.01	0.1	15.33333	1.533333	46	4.6

NOTES:

HQ = Hazard Quotient

LOEC = Lowest Observed Effect Concentration

mg/kg = Milligram per Kilogram

NOEC = No Observed Effect Concentration

J = Estimated value. The analyte was present, but the reported value may not be precise

U = Not detected. The analyte was analyzed for, but not detected above the method detection limit.

TABLE 3-13

Data Distribution, Upper Confidence Limits[1] and Exposure Point Concentrations[2] for Surface Soil Samples Collected in 2009 and 2010

Thermal Treatment Unit 2011 Ecological Risk Assessment

Analyte	Units	No. of Detects	Sample Size	Frequency of Detects (percent)	Minimum Detected Value	Maximum Detected Value	Minimum DL for Nondetects	Maximum DL for Nondetects	Arithmetic Mean of Detects	Standard Deviation of Detects	Recommended UCL	Recommended UCL Basis	EPC
Mercury	mg/kg	21	22	95%	0.0065	0.46	0.005	0.0055	0.04	0.097	0.127	95 percent Chebyshev (Mean, Sd) UCL	0.127

NOTES:

DL = Detection Limit

EPC = Exposure Point Concentration

mg/kg = Milligram per Kilogram

UCL = Upper Confidence Limit

[1]Calculated by the United States Environmental Protection Agency's ProUCL Version 4.1 software

[2]EPC = lesser of UCL or maximum detect

TABLE 3-14
Refined Screening Evaluation for Bird and Mammal Receptors
Thermal Treatment Unit 2011 Ecological Risk Assessment

													Estimated Concentrations in Biota (mg/kg DW)				kg body weight	Food Ingestion Rate	Dietary Composition (percent)				Estimated Exposure (mg/kg/d)												
Analyte Type	Analyte	group	UCL (mg/kg)	Plant BTF	Plant Slope	Plant Int	Worm BTF	Worm Slope	Worm Int	Smammal BTF	Smammal Slope	Smammal Int	Est Plant Conc	Est Worm Conc	Est Smammal Conc	Species	kg	kg-bwld dry weight	Terrestrial Invertebrates	Plants	Small Mammals and Other Vertebrates	Soil	Soil Exp	Invert Exp	Plant Exp	Smammal Exp	Total Exp	AUF	AUF adjusted Total Exp	NOAEL	Analtype	Analyte	LOAEL	NOAEL HQ	LOAEL HQ
Inorganic	Mercury	NEW	0.127		0.544	-0.996		0.118	-0.684	0.054			0.12	0.40	0.01	Ord's Kangaroo Rat	0.052	0.111		100		2.0	0.00028	0	0.0133	0	0.014	1	0.013631	1	Inorganic	Mercury	3.7	0.01	0.00
Inorganic	Mercury	NEW	0.127		0.544	-0.996		0.118	-0.684	0.054			0.12	0.40	0.01	Townsend's Ground Squirrel	0.325	0.050		100		2.0	0.00013	0	0.006	0	0.006	1	0.006131	1	Inorganic	Mercury	3.7	0.01	0.00
Inorganic	Mercury	NEW	0.127		0.544	-0.996		0.118	-0.684	0.054			0.12	0.40	0.01	Black-tailed Jackrabbit	2.100	0.071		100		6.3	0.00057	0	0.0086	0	0.009	1	0.009161	1	Inorganic	Mercury	3.7	0.01	0.00
Inorganic	Mercury	NEW	0.127		0.544	-0.996		0.118	-0.684	0.054			0.12	0.40	0.01	Grasshopper Mouse	0.041	0.250	100			13.0	0.00413	0.0989	0	0	0.103	1	0.103013	1	Inorganic	Mercury	3.7	0.10	0.03
Inorganic	Mercury	NEW	0.127		0.544	-0.996		0.118	-0.684	0.054			0.12	0.40	0.01	Pronghorn	48.761	0.034		100		2.0	8.7E-05	0	0.0041	0	0.004	1	0.004222	1	Inorganic	Mercury	3.7	0.00	0.00
Inorganic	Mercury	NEW	0.127		0.544	-0.996		0.118	-0.684	0.054			0.12	0.40	0.01	Coyote	10.330	0.045			100	2.8	0.00016	0	0	0.0003109	5E-04	1	0.000472	1	Inorganic	Mercury	3.7	0.00	0.00
Inorganic	Mercury	NEW	0.127		0.544	-0.996		0.118	-0.684	0.054			0.12	0.40	0.01	Sage Sparrow	0.019	0.026		100		2.0	6.5E-05	0	0.0031	0	0.003	1	0.003132	0.45	Inorganic	Mercury	0.9	0.01	0.00
Inorganic	Mercury	NEW	0.127		0.544	-0.996		0.118	-0.684	0.054			0.12	0.40	0.01	Loggerhead Shrike	0.047	0.022	100			0.0	0	0.0088	0	0	0.009	1	0.008823	0.45	Inorganic	Mercury	0.9	0.02	0.01
Inorganic	Mercury	NEW	0.127		0.544	-0.996		0.118	-0.684	0.054			0.12	0.40	0.01	Western Meadowlark	0.103	0.020	100			2.0	5E-05	0.0078	0	0	0.008	1	0.007897	0.45	Inorganic	Mercury	0.9	0.02	0.01
Inorganic	Mercury	NEW	0.127		0.544	-0.996		0.118	-0.684	0.054			0.12	0.40	0.01	Burrowing Owl	0.157	0.111			100	5.0	0.00071	0	0	0.0007616	0.001	1	0.001467	0.45	Inorganic	Mercury	0.9	0.00	0.00

NOTES:
AUF = Are Use Factor
BTF = Biotransfer Factor
DW = Dry Weight
HQ = Hazard Quotient
kg = Kilogram
LOAEL = Lowest Observed Adverse Effect Level
mg/kg = Milligram per Kilogram
mg/kd/d = Milligram per Kilogram per Day
NOAEL = No Observed Adverse Effect Level
UCL = Upper Confidence Limit

4.0 Summary and Conclusions

4.0.0.1 Data from the 2009–2010 sampling events at the TTU were evaluated to determine the current status of ecological risks. New data (2009–2010) were compared with previously collected data to identify new analytes and analytes with new, higher maximum concentrations and with background data, where applicable. One analyte (mercury) was retained for an updated SLERA evaluation. Methods and parameters employed to perform the SLERA submitted in 2005 (CH2M HILL, 2005), updated as appropriate, were applied to the 2009–2010 data. The initial screen based on maximum concentrations and NOECs/NOAELs produced HQs greater than 1 for mercury for both plants and soil invertebrates, but not for mammals and birds. Individual mercury results produced a low frequency of LOEC HQs greater than 1 for plants and soil invertebrates and a low frequency of NOEC HQs greater than 1 for plants. Although 85 percent of detected individual mercury results NOEC HQs greater than 1 for soil invertebrates, soil concentrations for mercury are not elevated relative to background and previous site data, with the exception of one outlier result. Additionally, among birds and mammals, comparison of refined exposure estimates with LOAELs also indicates the absence of risks from all analytes to all receptors.

4.0.0.2 The 2009–2010 data do not indicate significant potential for site-related ecological risks at the TTU. Mercury results exceed the target hazard quotient of 1 for plants and soil invertebrates; however, these data are not significantly different from background and previous site data. It should be noted that the 2009–2010 sampling efforts, similar to the 2005–2006 and the 2007–2008 sampling efforts, focused on metals and energetic compounds. The 2005 SLERA identified TPH, acetone, and PAHs as potential risk. The absence of new data for these other analytes precludes any new conclusions; consequently, they are still considered potential risk drivers. Therefore, the overall conclusion of the evaluation of 2009–2010 data is that calculated ecological risk is not greater than that estimated previously for the TTU.

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5.0 References

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