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Final

Remedial Investigation Report
Area of Concern (AOC) I

Former Naval Ammunition Support Detachment
Vieques, Puerto Rico

Naval Facilities Engineering Command

Prepared for

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Appendix J
Habitat Characterization Report

HABITAT CHARACTERIZATION AT AREAS OF CONCERN (AOC) AOC-H, AOC-I, AOC-J, AOC-L, AND AOC-R NAVAL AMMUNITION SUPPORT DETACHMENT (NASD), VIEQUES ISLAND, PUERTO RICO

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1.0 INTRODUCTION

Ecological risk assessments were conducted at five Areas of Concern (AOC) as part of a Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Phase II Expanded Preliminary Assessment/Site Investigation at the Naval Ammunition Support Detachment (NASD), Vieques Island, Puerto Rico. An ecological habitat characterization was conducted at each AOC in order to determine the presence of plant and animal species, and to determine whether preferred habitat was present for any federally endangered or threatened plant and/or animal species.

2.0 SITE LOCATION

Puerto Rico is located on the Antillean Island Arc separating the Caribbean Sea from the Atlantic Ocean. The island of Vieques is located approximately 6 miles (mi) southeast of Puerto Rico (Figure 1). It is approximately 21 mi long (east to west) and 4.5 mi wide (north to south), encompassing a total of 32,986 acres (ac). There are two towns on the island, Esperanza on the south side and Isabel Segunda on the north side. The Navy administers approximately 22,437 ac on the west and east ends of the island. The NASD is located on the western side of Vieques and encompasses 8,265 ac.

The NASD (approximately 8,265 ac) is operated by Naval Station Roosevelt Roads (NSRR) Weapons Department and is located on the western end of Vieques. This report covers five AOC sites located within the NASD (Figure 2). The five sites included AOC-H (former power plant), AOC-I (asphalt plant), AOC-J (former staging area disposal site), AOC-L (former septic vault), and AOC-R (former construction staging area).

3.0 METHODS

To support the ecological risk assessments, a habitat characterization was conducted at each of the five AOCs. The objectives of the habitat characterization are listed below:

1. Identify terrestrial (upland), wetland (palustrine and estuarine), and marine habitat units, including subunits within and contiguous to each AOC;
2. Identify the dominant and subdominant plant species within each AOC habitat unit and contiguous habitat units and, where applicable, identify any vegetative gradients;
3. Identify wildlife species residing within or utilizing each AOC habitat unit and contiguous habitat units, as well as species relative abundance;
4. Identify any critical habitat for federally designated threatened and endangered species within and contiguous to each AOC;

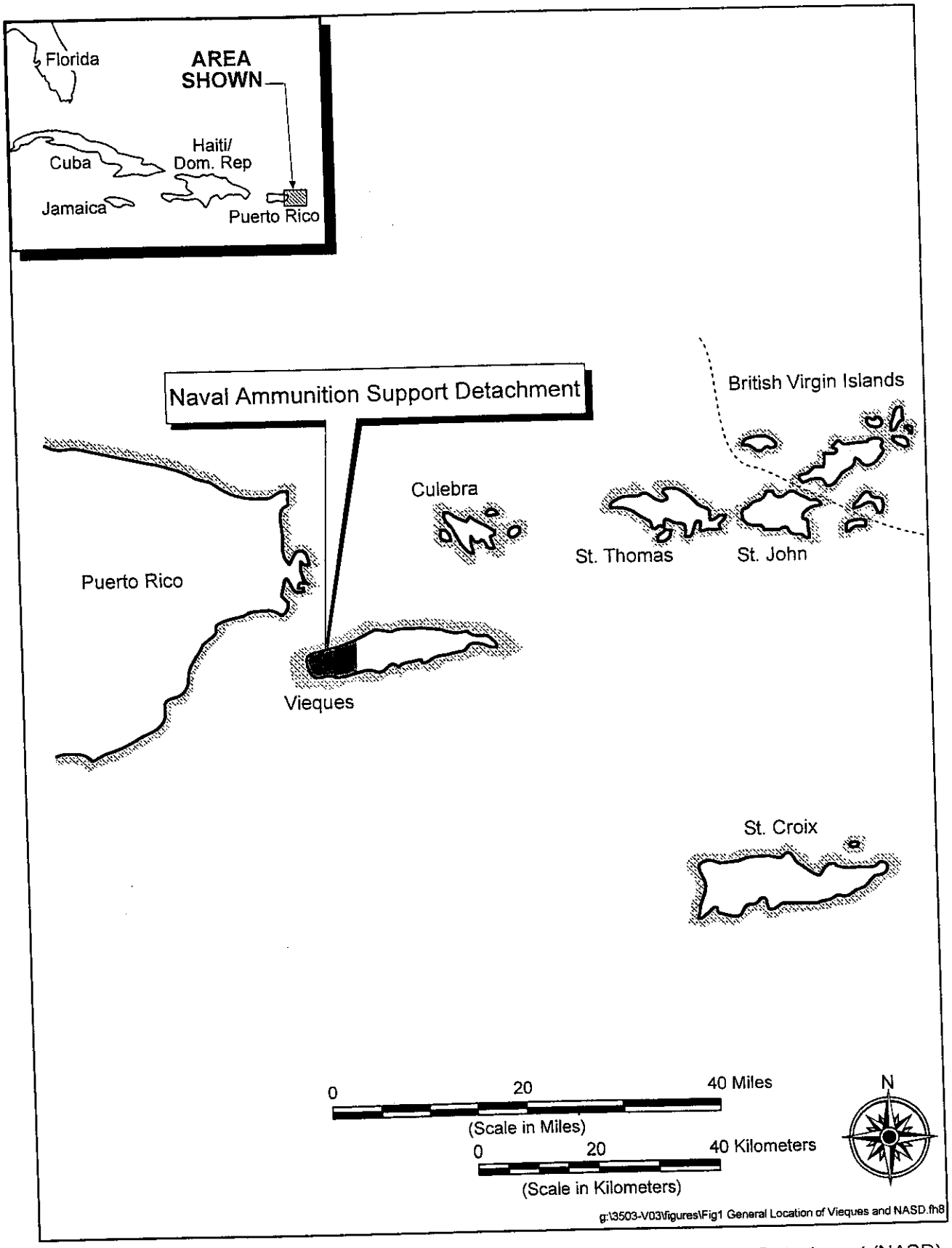

Figure 1. General Location of Vieques Island and the Naval Ammunition Support Detachment (NASD), Puerto Rico.

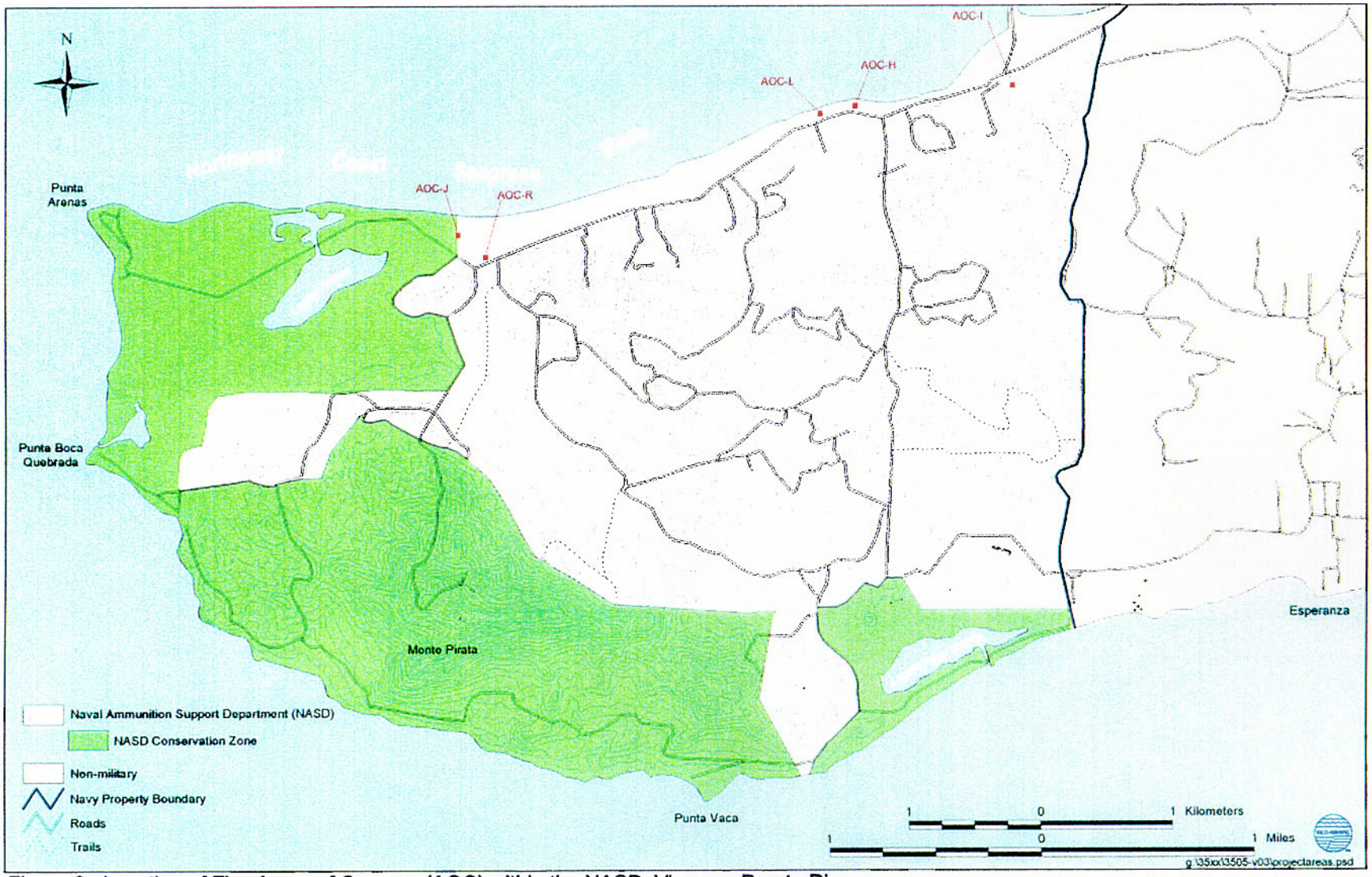

Figure 2. Location of Five Areas of Concern (AOC) within the NASD, Vieques, Puerto Rico.

5. Determine the known occurrences of federally designated threatened or endangered species, as well as the identification of habitat that may potentially support federally designated threatened and endangered species within and contiguous to each AOC;
6. Identify any obvious impact that may potentially be related to previous waste management activities (e.g., stressed vegetation); and
7. Identify reference sites that exhibit physical and biological attributes similar to the AOC habitat units.

Prior to field reconnaissance, vegetation communities were characterized into broad community types based on color signatures from true-color aerial photographs (November 4, 1999: scale, 1 inch equal 500 feet [ft]). Before conducting the fieldwork, a literature search was conducted for each federally protected species. During the January 2-4, 2001 surveys, biologists walked transects through each site and identified any federally protected species seen and noted the presence or absence of preferred habitat for the species. Community types were verified in the field by walking the perimeter and the interior of the sites. Most plant species were identified in the field; however, some specimens were collected for identification using taxonomic references (Acevedo-Rodriguez 1996; Liogier 1982, 1985, 1988, 1994, 1995, 1997; Little and Wadsworth 1964; Little et al. 1964;). Relative dominance and species structure were determined qualitative from visual observations at each community and adjacent community types.

Wildlife species such as birds, mammals, and lizards that were found residing within or utilizing each AOC habitat were identified during the field surveys. Wildlife habitat was also identified. A wildlife biologist characterized the habitats and determined the types of wildlife that could potentially inhabit the plant communities or AOC sites. Any wildlife species observed, were identified in the field with the aid of 8 x 40 binoculars and reference guides (Raffaele 1989; Raffaele et al. 1998).

Several terrestrial and marine species that occur on or around Vieques are listed as protected by the U.S. Fish and Wildlife Service (USFWS). Sixteen federally listed species are known to occur or have the potential to occur within the NASD (Table 1).

During the field surveys, visual observations were conducted to characterize the health of the plants in the AOC sites. Indications of altered plant communities include chlorotic leaves, epinasty (deformities of leaves and stems), patches of altered plant growth, absence of plants (bare ground), and changes in species composition. To determine if the AOC sites contained altered plant communities, a nearby representative site was selected as a reference site. When altered plant communities were identified, biologists attempted to determine and record the probable cause (i.e., chemical, soil compaction, natural causes, etc.).

Table 1

Federally Listed Species Occurring or Potentially Occurring at NASD Vieques

Scientific Name (Common Name)	Federal Status
Plants	
Chaemacrista glandulosa var. *mirabilis* (Herb)	Endangered
Stahlia monosperma (Cobana negra)	Threatened
Calyptranthes thomasiana (Tree)	Endangered
Eugenia woodburyana (Evergreen tree)	Endangered
Goetzea elegans (Beautiful goetzea)	Endangered
Reptiles and Amphibians	
Chelonia mydas (Green sea turtle)	Threatened
Dermochelys coriacea (Leatherback sea turtle)	Endangered
Caretta caretta (Loggerhead sea turtle)	
Eretmochelys imbricata (Hawksbill sea turtle)	Endangered
Birds	
Falco peregrinus tundrius (Arctic peregrine falcon)	Threatened
Pelecanus occidentalis occidentalis (Brown pelican)	Endangered
Sterna dougalli dougalli (Roseate tern)	Endangered
Mammals	
Physeter macrocephalus (Sperm whale)	Endangered
Balaenoptera physalus (Fin whale)	Endangered
Megaptera novaeangliae (Humpback whale)	Endangered
Trichechas manatus (West Indian manatee)	Endangered

Source: Geo-Marine, Inc. 2001

In addition to identification of wildlife in the field, existing literature sources were used to identify any additional species that may have occurred on the AOC sites but were not observed. Most of the wildlife that occurs in the area are bird and lizard species (Appendix A). Species information based upon the literature review and field data were used to generate a simplified food web for the sites. A food web is an interlocking pattern of several to many food chains that is helpful in determining ecosystem processes. Food webs are presented in Appendix B.

This report includes figures of each AOC showing the habitat units and subunits, landscaped areas, roadways, and structures where applicable. For each site, a list of plant species observed within the habitat unit is given, as well as a list of observed wildlife species. The location of known federally designated threatened and endangered species is given. Where applicable, a descriptive comparison of wildlife utilization between the AOC habitat and reference site habitat is given with a generalized food web applicable to each habitat unit.

4.0 RESULTS AND DISCUSSION

4.1 NATURAL HABITAT DESCRIPTION

Mean annual precipitation on Vieques is 45 inches, with the wet season extending from May to November and the dry season from December to April. Relative humidity in Vieques averages about 75 percent.

Mean annual temperature is about 79.8 °F with a record low of 60 °F and a high of 98 °F. The western part of the island is wetter than the eastern portion. Vegetation on the western part, where this survey took place, is mesic in nature.

Vieques lies within the subtropical dry forest life zone, covering about 66 percent of the island and the subtropical moist forest life zone at the higher elevations (Ewel and Whitmore 1973). Nine vegetation types have been identified on Vieques: (1) sandy beach; (2) beach scrub; (3) dry evergreen beach woodland; (4) mixed dry evergreen and deciduous woodland of the rocky coastal slopes; (5) ucar forest; (6) seasonal forests of high moisture areas such as ravines and drainage areas; (7) moist deciduous formation of the inner hills and slopes; (8) thorn scrub; and (9) mangroves. The vast majority of Navy land at Vieques is undeveloped and supports a variety of habitat types with thorn scrub communities the most common and interspersed with forested quebradas (ravines) and other upland forest types. Mangrove swamps, lagoons, coconut flats, and salt/sand flats occur along coastal areas.

The dominant habitat where the surveys took place was subtropical dry forest with subunits of thorn scrub, sandy beach, and mixed forests along the coast referred to as "coastal forest." Small subunits of mixed mangrove and seasonal forests were present near lagoons. In addition, there were man-made, highly impacted areas at some of the AOC sites that included buildings, roadways, parking areas, trails, and grassy areas.

4.2 AOC-H (Former Power Plant)

4.2.1 Site Description

AOC-H, Former Power Plant site, was located approximately 1,000 ft east of the entrance to the NASD Public Works Area (PWA), just north of Highway 200, and was about 2 ac in area (Figure 3). The abandoned power plant (approximately 78 ft long by 27 ft wide) is a concrete structure, which was previously surrounded by dense vegetation (Figure 4). Vegetation around the structure had been cleared to the ground and monitoring wells had been installed prior to the survey. Highway 200 and a grassy maintained area were located to the immediate south of the building. The eastern boundary consisted of dense thorn scrub. The western boundary was adjacent to mixed thorn scrub and coastal forest (Figure 5), beyond which was a quebrada/lagoonal area that emptied into the ocean. The water present was brackish and the area evaluated consisted of a strip of woody vegetation approximately 10 to 12 ft wide on both sides of the bank. The northern boundary of the AOC was densely mixed thorn scrub and coastal forest. Photos of the area are shown in Figures 4 through 9.

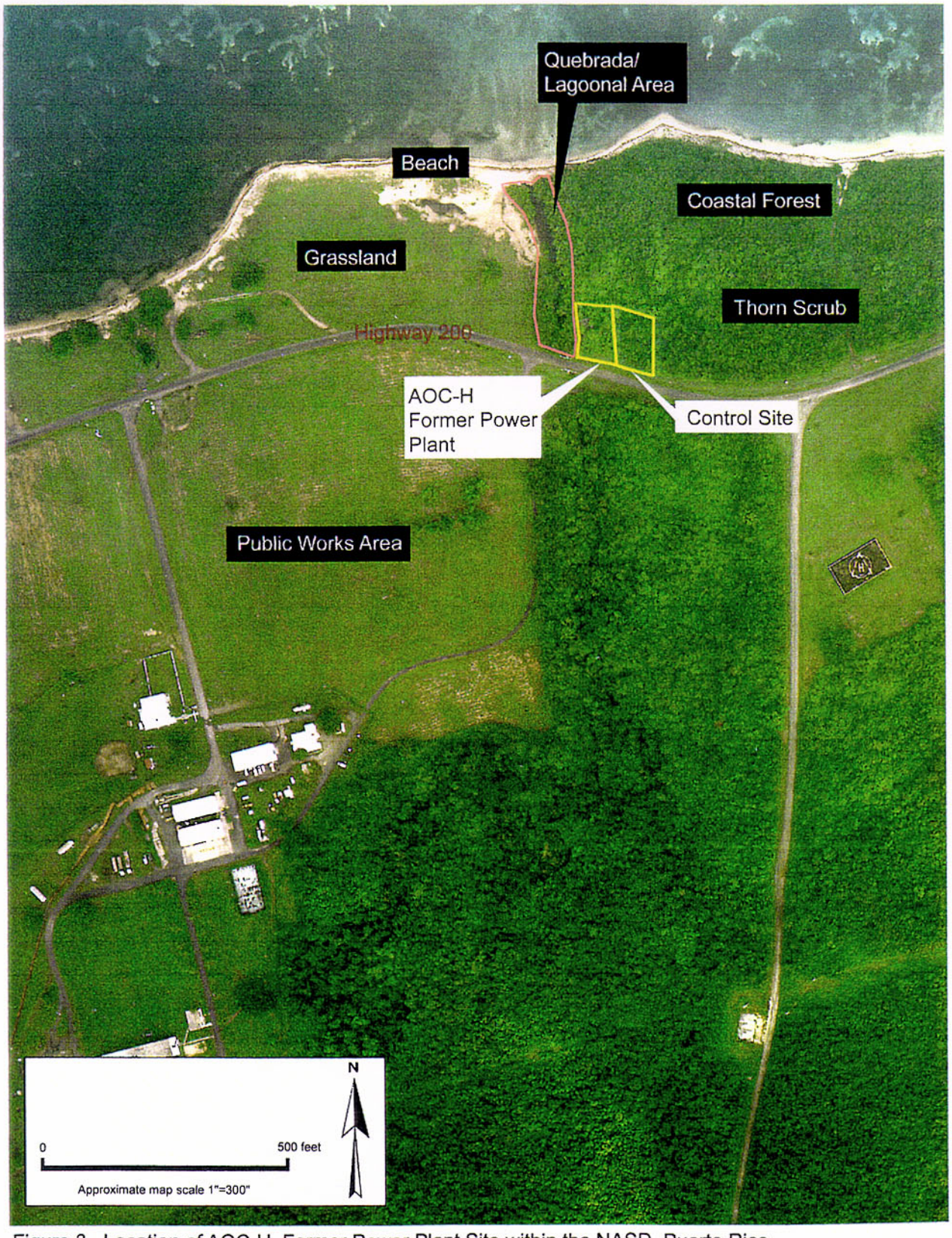

Figure 3. Location of AOC-H, Former Power Plant Site within the NASD, Puerto Rico.

Figure 4. AOC-H. North View from Highway 200 Showing Cleared Areas.

Figure 5. AOC-H. South View showing the rear side of the building.

Figure 6. AOC-H. West Side of a Cleared Area with Mixed Scrub/Coastal Forest to the left in the picture.

Figure 7. AOC-H. Western View along Highway 200 with the Reference Site (thorn scrub) to the right.

Figure 8. AOC-H. Fruit seeds are the small dark objects scattered on the floor of the building interior.

Figure 9. AOC-H. Photo of an anole (*Anolis cristatellus*) using the building.

4.2.2 Vegetation Community Description

Most of the vegetation had been cleared at the time of the survey. The previous existing plant community was described based on: (1) plants that were not eliminated, (2) plants that had resprouted, and/or (3) recently germinated.

From the amount of debris left after clearing, it was apparent that the area had been completely overgrown with vines, shrubs, and trees. The vegetation observed at AOC-H, the reference site (thorn scrub habitat to the east), and the quebrada/lagoonal area to the west is presented in Table 2. Dominant shrubs identified on the site included tantan (*Leucaena leucocephala*), Christmas tree (*Randia aculeata*), and *Erythroxylum brevipes*. A gumbo limbo (*Bursera simaruba*) tree had been growing over the roof of the building. Another tree partly on top of the building and much bigger in size had died. The sandy ground was covered with tantan seedlings. The dominant herbs observed in the site include *Melochia nodiflora* and better man better (*Achyrantes aspera*). Hurricane grass (*Bothriochloa pertusa*) was observed on the southern boundary of the site. This AOC was located adjacent to the grassy road shoulder that is maintained as low grassland.

The vegetation at this site was similar to the adjacent thorn scrub forest of the adjacent reference site. The thorn scrub forest consisted of two canopy layers (shrub and tree), which provide little sunlight for an herbaceous layer. The only herb recorded in the reference site was the exotic orchid (*Oeceoclades maculata)*.

4.2.3 Plant Community Health

It was difficult to determine the condition of the previous plant communities since the area had been cleared at the time of the survey. However, based on adjacent vegetation and the reference site, there appeared to have been little impact from the building structure on the surrounding vegetation prior to the clearing. The building would have created an opening in the canopy and provided shade for some species. The reference site was selected immediately east of the site consisted of thorn scrub. No differences in the vegetation communities were identified with the exception that the west side of the building was adjacent to the quebrada/lagoon. Other than the presence of the concrete building and cleared area, there was little evidence of past military activities.

4.2.4 Wildlife Description

During the wildlife surveys, several species were observed utilizing the abandoned power plant building and the adjacent habitat. The exterior of the building provided shade, foraging areas, and hiding

Table 2

Vegetation Observed at AOC-H, Reference Site, and the Quebrada/Lagoon Area West of AOC-H

		STRATUM		
Common Name	**Scientific Name**	**AOC-H**	**Reference Site**	**Quebrada/Lagoon**
Better Man Better	*Achyrantes aspera*	H		T/S
Hurricane Grass	*Bothriochloa pertusa*	G		
Gumbo Limbo	*Bursera simaruba*	T/S	T/S	
Papaya	*Carica papaya*			T/S
Wild Coffee	*Casearia guianensis*			T/S
Pudding Vine	*Cissus verticillata*	V		V
Coconut Palm	*Cocos nucifera*		T/S	
Manjack	*Cordia obliqua*		T/S	T/S
Brisselet	*Erythroxylum brevipes*	T/S		T/S
Black Mampoo	*Guapira fragans*			T/S
Jasmine	*Jasminum fluminense*	V	V	V
White Mangrove	*Laguncularia racemosa*		T/S	
Tantan, Wild Tamarind	*Leucaena leucocephala*	T/S	T/S	T/S
None	*Lonchocarpus heptaphyllus*		T/S	
Quenepa	*Melicoccus bijugatus*	T/S	T/S	
None	*Melochia nodiflora*	H		
None	*Oeceoclades maculata*			H
None	*Paullinia pinnata*			V
Black Wattle	*Piper amalago*	T/S		T/S
Christmas Tree	*Randia aculeata*	T/S		
Bitter Bush species	*Rauvolfia* sp.	T/S		
Red Mangrove	*Rhizophora mangle*		T/S	
Rain Tree, Licorice	*Samanea saman*			T/S
Basket Withe	*Serjania polyhphylla*		V	
Indian Almond	*Terminalia catappa*		T/S	
Broomstick	*Trichilia hirta*		T/S	T/S
Basket Wiss	*Trichostigma octandrum*	V		V
Indian Jujube	*Ziziphus mauritiana*	T/S	T/S	T/S

T/S = tree or shrub
H = herbaceous
V = vine
G = grass

places for an abundant number of lizards such as the garden lizard (*Anolis pulchellus*), common lizard (*Anolis cristatellus*), and spotted lizard (*Anolis stratulus*). A ground lizard, *Ameiva exsul*, was seen immediately adjacent to the site among thorn scrub. Invertebrates using the structure included wasps and bees. In addition, the building provided a roosting place for a population of approximately 150 West Indian fruit bats (*Artibeus jamaicensis*). Numerous seeds from bat droppings littered the floor of the building. Fruits collected in the building included the moca tree (*Andira inermis*), quenepa plant (*Melicoccus bijugatus*), and the Indian almond tree (*Terminalia catappa*).

Habitat for birds at the site was restricted to bare ground and a few remaining tree branches and vines on top of the building. Bird species observed using the tree branches on top of the power plant building included the gray kingbird (*Tyrannus dominicensis*) and the Adelaide warbler (*Dendroica adelaidae*). Several gray kingbirds flew over the site' and two common ground doves (*Columbina passerina*) were

observed on the site. An additional six species (Table 3) were observed adjacent to the site or in the reference site and included birds typically found in coastal forest, thorn scrub habitat, or quebrada/lagoon areas.

Table 3

Wildlife Observed at AOC-H, Adjacent Habitat and/or Reference Sites

Common Name	Scientific Name	AOC-H	Adjacent Habitat/ Reference Site
Mammals			
West Indian Fruit Bats	*Artibeus jamaicensis*	✓	
Reptiles and Amphibians			
Ground Lizard	*Ameiva exsul*		✓
Anole (Common Lizard)	*Anolis cristatellus*	✓	
Grass Anole (Garden Lizard)	*Anolis pulchellus*	✓	
Anole (Spotted Lizard)	*Anolis stratulus*	✓	
Birds			
Bananaquit	*Coereba flaveola*		✓
Common ground Dove	*Columbina passerina*	✓	✓
Adelaide Warbler	*Dendroica adelaidae*	✓	✓
Northern Mockingbird	*Mimus polyglottos*		✓
Greater Antillean Grackle	*Quiscalus niger*		✓
Louisiana Waterthrush	*Seiurus motacilla*		✓
Gray Kingbird	*Tyrannus dominicensis*	✓	✓
Zenaida Dove	*Zenaida aurita*		✓

There was no evidence that the AOC site had a negative impact on the wildlife diversity or its habitat; however, the recently cleared vegetation reduced the structural diversity, which would reduce bird diversity. The abandoned building provided a positive habitat effect for the fruit bats. Wildlife that was observed at AOC-H, habitat adjacent to the site, and in the reference site is presented in Table 3.

Due to the dense vegetation in the reference site, it was difficult to cover as much ground or to spot birds and wildlife. Since the surrounding areas contained similar vegetation, additional wildlife observed in the reference site and along the borders outside of the AOC are included in one table for each AOC throughout the report. In all cases, species abundance and diversity were higher in the bordering (edge) vegetation and reference areas than the AOC sites because of the clearing activities.

4.2.5 Protected Species

Cobana negra (*Stahlia monosperma*), a federally threatened tree, has been found between the boundary of black mangrove (*Avicennia germinans*) communities, salt flats, and the upland communities at NASD. This species is also known to occur in coastal forests of southeastern Puerto Rico (Little and Wadsworth 1964). Based on recent surveys conducted within the NASD by Geo-Marine, Inc, there are only two

locations where cobana negra is found (Wilkinson and Cubina 2000). The preferred habitat for cobana negra was not present at this site.

The threatened Arctic peregrine falcon (*Falco peregrinus tundrius*) has been observed at NSRR (GMI 1998). This species utilizes open grassland areas for potential feeding areas. This habitat type was present immediately adjacent to the site. The brown pelican (*Pelecanus occidentalis occidentalis*) and the roseate tern (*Sterna dougalli dougallii*) are not likely to utilize this terrestrial site but may be seen nearby due to the proximity of nearby marine habitat.

4.2.6 Food Web

The information in a food web is very important when considering the potential for contaminants existing in the ecosystem. Many contaminants are passed from one trophic level to the next. A contaminant at the soil surface goes through a different process than a contaminant that has leached into the soil. The surface contaminant may be ingested by a decomposer such as a hermit crab and then passed on to the secondary consumer (i.e., a carnivorous bird). Leached contaminants are picked up by the primary producers and then passed through in the food chain.

Two generalized food webs are presented in Appendix B. Food web 1 is presented for mixed habitat (coastal forest, thorn scrub, and grasslands). This type of food web is representative of partially developed grassland sites and forested sites (before clearing), which were not adjacent to a quebrada/lagoonal (AOC-I, AOC-L, and AOC-R). Food web 2 represents mixed habitats (forested uplands) located adjacent to a quebrada or lagoonal area, such as AOC-H and AOC-J. The abundance within each of the food groups is represented by the size of the food group polygon. Dominant species are listed in each of the food groups except for plants, which were provided previously in this section.

4.3 AOC-I (ASPHALT PLANT)

4.3.1 Site Description

AOC-I, the Asphalt Plant, located near the quarry, south of Highway 200 and Mosquito Pier, was approximately 2 ac (Figure 10). The site, located on level ground, was surrounded by an abandoned gravel parking area with gravel roads leading east and south. The site consisted of a raised gravel ramp supported by large wood beams, several grassy areas, bare ground covered with gravel, a concrete pad, and a depressed concrete docking bay partially filled with water. The raised gravel ramp supported a few shrubs, but approximately 80 percent of the site consisted of bare ground, concrete, and gravel mix with scattered weeds and grasses (Figures 11 through 16). A large area of gravel-covered ground was

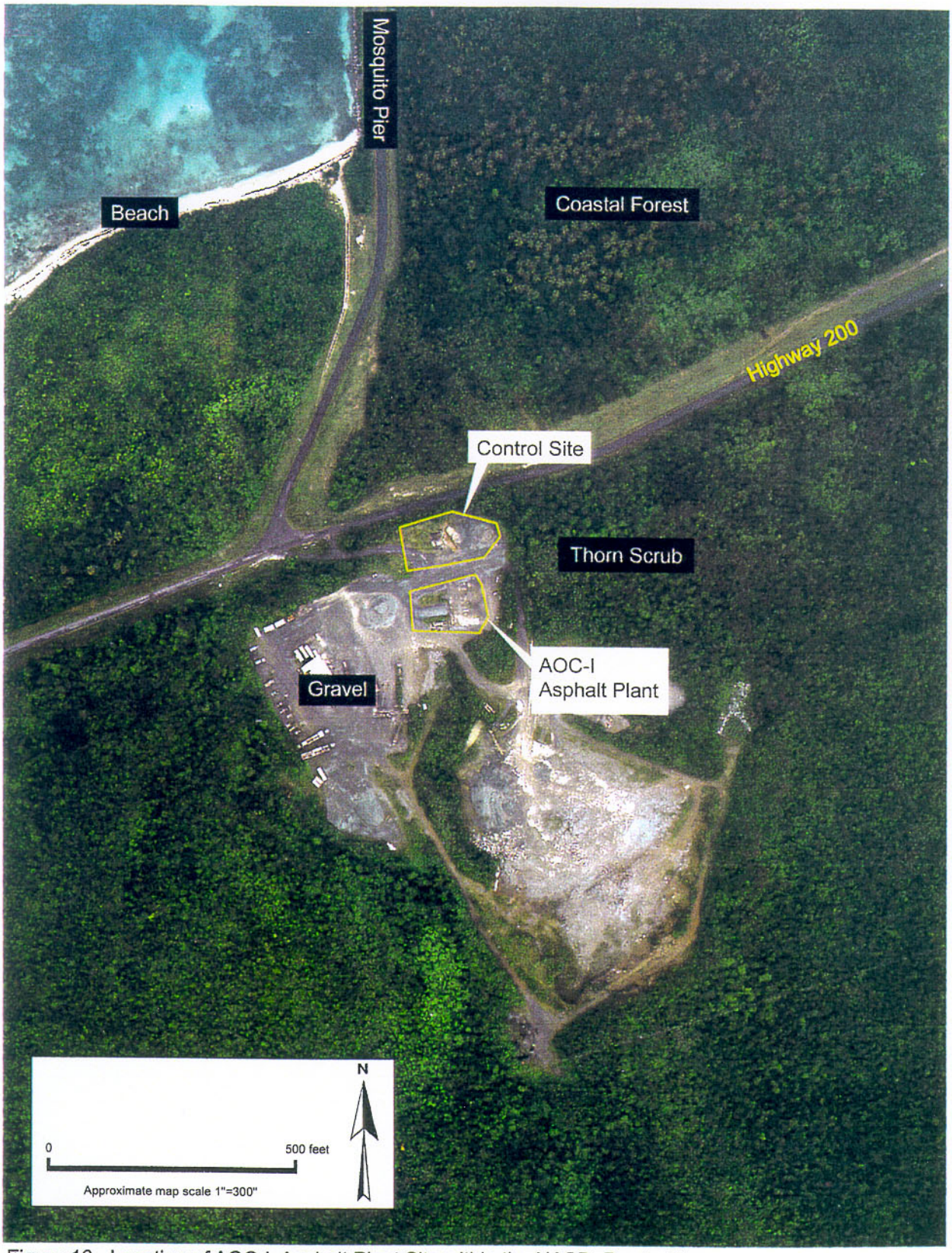

Figure 10. Location of AOC-I, Asphalt Plant Site within the NASD, Puerto Rico.

Figure 11. AOC-I. West View looking towards the Concrete Pad, Gravel Area, and Raised Ramp in the Distance.

Figure 12. AOC-I. North View of the Reference Site.

Figure 13. AOC-I. Stained Soil and Gravel.

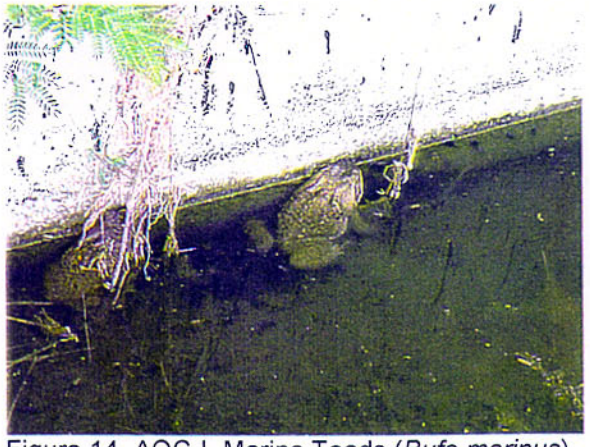

Figure 14. AOC-I. Marine Toads (*Bufo marinus*) using the Water in the Concrete Depression.

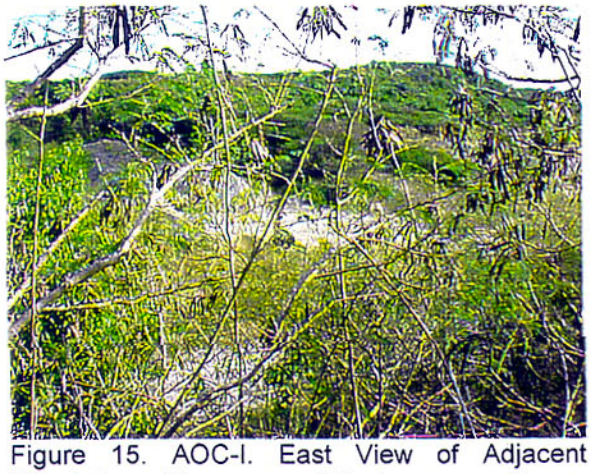

Figure 15. AOC-I. East View of Adjacent Vegetation with quarry activity (gray areas).

Figure 16. AOC-I. Typical Site Ground Cover including Invertebrate (butterfly).

immediately to the west of the site. Slightly hilly ground with some shrubs was to the south. Open ground with similar characteristics as the site was located to the North. A gravel road, cut ditch, and thorn scrub habitat were located to the east.

4.3.2 Vegetation Community Description

The plant community was dominated by herbaceous vegetation due to the impact of the human activities that took place in the area. The vegetation observed at AOC-I, adjacent and surrounding thorn scrub habitat, and within the reference site north of AOC-I, is presented in Table 4. The herbaceous vegetation had the highest diversity of any vegetation layer observed at AOC-I, but hurricane grass was most abundant. A shrub community consisting of bitter bush (*Eupatorium odoratum*), button sage (*Lantana involucrata*), giant milkweed (*Calotropis procera*), *Sesbania sericea*, and tantan was established in approximately 20 percent of the vegetated area. Several tree species such as the white fig (*Ficus citrifolia*) and gumbo limbo had recently invaded the area.

4.3.3 Plant Community Health

The reference site for AOC-I was located to the north with similar topography as well as a sunken concrete structure partially filled with water. The AOC-I and reference sites were highly disturbed by mowing, and deposition of gravel for parking. Evidence of soil staining was present at the AOC site (see Figure 13). Two soil-stained patches were noted in a mostly gravel-covered area that had already been disturbed by deposition of gravel. No direct evidence was visible that the soil stain had affected the local weeds and grasses.

The reference site was bounded on two sides by thorn scrub (see Figure 15) and had a higher percentage of ground cover and shrubs with more soil present. Both the AOC-I site and the reference site had been compacted from heavy vehicles driving or parking on the site. The soil compaction may also have limited the plant species diversity of the site by excluding establishment of woody vegetation. Although no horses (*Equus caballus*) were observed within the reference site, there was sufficient evidence (manure) to indicate that they frequent this habitat and had caused trampling and some disturbance to vegetation by grazing at both the AOC-I site and the reference site.

4.3.4 Wildlife Description

A few species were observed utilizing the abandoned asphalt plant site. Additional species were seen in the adjacent thorn scrub and in the reference site bordered by thorn scrub. At the AOC-I site, the

Table 4

Vegetation Observed at AOC-I, Reference Site, and Adjacent/Surrounding Thorn Scrub Habitat

Common Name	Scientific Name	STRATUM		
		AOC-I	Reference Site	Adjacent/Surrounding Thorn Scrub Habitat
Sweet Acacia	*Acacia farnesiana*	T/S	T/S	T/S
Better Man Better	*Achyrantes aspera*	H	H	
Hurricane Grass	*Bothriochloa pertusa*	G	G	
None	*None*			T/S
Gumbo Limbo	*Bursera simaruba*	T/S		T/S
Giant Milkweed	*Calotropis procera*	T/S	T/S	T/S
Milkweed	*Chamaesyce hirta*	H	H	
Mexican Blue Grass	*Chloris inflata*	G	G	
Old Woman's Bitter	*Citharexylum fruticosum*			T/S
None	*Cleome viscosa*	H	H	
None	*Corchorus aestuans*	H	H	
None	*Corchorus hirtus*	H	H	
Red Manjack	*Cordia collococca*			T/S
Manjack	*Cordia obliqua*			T/S
Bitter Bush, Geritoo	*Eupatorium odoratum*	T/S		
White Fig	*Ficus citrifolia*	T/S		
Jazmín Oloroso	*Jasminum fluminense*		V	
Button Sage	*Lantana involucrata*	T/S		
Tantan, Wild Tamarind	*Leucaena leucocephala*	T/S		T/S
Wild Bush Bean	*Macroptilium lathyroides*	H	H	
None	*Melochia nodiflora*	H	H	
None	*Melochia pyramidata*	H	H	
None	*Merremia quinquefolia*		V	
None	*Merremia umbellata*	V	V	
Sensitive Plant	*Mimosa pudica*	H	H	
None	*Phyllantus* sp.	H	H	
Mesquite	*Prosopis juliflora*		T/S	T/S
None	*Rauvolfia* sp.			T/S
Rain Tree, Licorice	*Samanea saman*		T/S	T/S
None	*Sesbania sericea*	T/S		
None	*Sida* sp.	H	H	
Donkey Weed	*Stylosanthes hamata*	H	H	
None	*Tournefortia angiospermii*	H	H	
None	*Tridax procumbens*	H	H	
None	*Vernonia cinerea*	H	H	
Indian Jujube	*Ziziphus mauritiana*		T/S	T/S

T/S = tree or shrub
H = herbaceous
V = vine
G = grass

exterior of the ramp provided shade, foraging areas, and hiding places for a few common anoles. At least five marine toads (*Bufo marinus*) and approximately 500 marine toad tadpoles were observed in the water-filled concrete structure (see Figure 15). Invertebrates using the site included diving beetles, dragonflies, bees, and butterflies (see Figure 16). Evidence of horses (manure) was present on the site.

Bird habitats were restricted to bare ground, some grassy areas, and a few shrubs growing out from the ramp. A few species of birds were seen on the site–one bananaquit (*Coerba flaveola*), one black-faced

grassquit (*Tiaris bicolor*), one northern mockingbird (*Mimus polyglottus*), and five common ground doves. Four additional species were observed in the adjacent thorn scrub and on the reference site. Common ground doves, gray kingbirds, and bananaquits were the most common birds in the area. Birds observed in this area are typical of coastal forest or thorn scrub habitats. In addition, mongoose (*Herpestes auropunctatus*) tracks and horse signs were seen at the reference site.

Since the AOC-I site was developed, it has had a general negative effect on the potential habitat and was not supportive of many wildlife species. Wildlife that was observed at AOC-I, adjacent habitat to the site, and in the reference site is presented in Table 5.

Table 5

Wildlife Observed at AOC-I, Adjacent Habitat, and the Reference Sites

Common Name	Scientific Name	AOC-I	Adjacent Habitat/ Reference Site
Mammals			
Horse	*Equus caballus*	✓	✓
Mongoose	*Herpestes auropunctatus*		✓
Reptiles and Amphibians			
Anole (Common Lizard)	*Anolis cristatellus*	✓	
Marine Toad	*Bufo marinus*	✓	
Birds			
Mangrove Cuckoo	*Coccyzus minor*		✓
Bananaquit	*Coereba flaveola*	✓	✓
Common ground Dove	*Columbina passerina*	✓	✓
Adelaide's Warbler	*Dendroica adelaidae*		✓
Northern Mockingbird	*Mimus polyglottos*	✓	✓
Black-faced Grassquit	*Tiaris bicolor*	✓	✓
Loggerhead Kingbird	*Tyrannus caudifasciatus*		✓
Gray Kingbird	*Tyrannus dominicensis*		✓

4.3.5 Protected Species

There were no federally protected species or preferred habitat observed at the AOC-I or reference site.

4.3.6 Food Web

A generalized food web for this type of grassland/disturbed community is presented in Appendix B under Food Web 1.

4.4 AOC-J (Former Staging Area Disposal Site)

4.4.1 Site Description

AOC-J, the Former Staging Area Disposal site, was located approximately 1 mi west of the entrance to the PWA, north of Highway 200 near the coast, and was about 1.5 ac in size (Figure 17). A dirt/gravel trail recently cleared by bulldozing led from Highway 200 to the site. The entire AOC-J site, roughly triangular in shape, had been cleared and was bounded on the south and west by a barbed wire fence (Figures 18 through 23).

Dirt and brush had been pushed to the northeast, a plastic fence was in place, and there were several monitoring wells installed. There was a small patch of undisturbed brush and trees. However, approximately 75 percent of the AOC-J site and boundary edges was cleared.

AOC-J was situated within a thorn scrub forest. A coastal forest existed with the ocean to the north and a quebrada/mangrove swamp area immediately to the northeast. Personnel did not enter the AOC site because it was posted (see Figure 18).

4.4.2 Vegetation Community Description

The vegetation community had three strata based on the remnant vegetation found in the AOC-J site. The tree stratum consisted of four species: mesquite (*Prosopis julifora*), gumbo limbo, *Lonchocarpus heptaphyllus,* and yellow prickle (*Zanthoxylum monophyllum*). The shrub stratum was represented by Christmas tree, broomstick (*Trichilia hirta*), and brisselet (*Erythroxylum brevipes*). There were a few species of herbs but no grasses were present in the lowest stratum. This plant community is representative of the coastal scrub forest and did not differ significantly from the reference site. The vegetation recorded at AOC-J, observed in the quebrada/mangrove swamp area, and observed in the nearby mixed coastal forest/thorn scrub habitat (including the reference site) is presented in Table 6.

4.4.3 Plant Community Health

A reference site was selected along the southern boundary of the AOC-J site for plant community comparisons (see Figure 22). It was difficult to determine the condition of the previous plant community at AOC-J since the area had been cleared prior to the survey. These sites (reference vs. AOC-J) were probably similar prior to the clearing of AOC-J. The only difference was that the northern end of the AOC-J slopes towards a low area that leads to the ocean and had more coconut palm trees (*Cocus nucifera*) (see Figure 20).

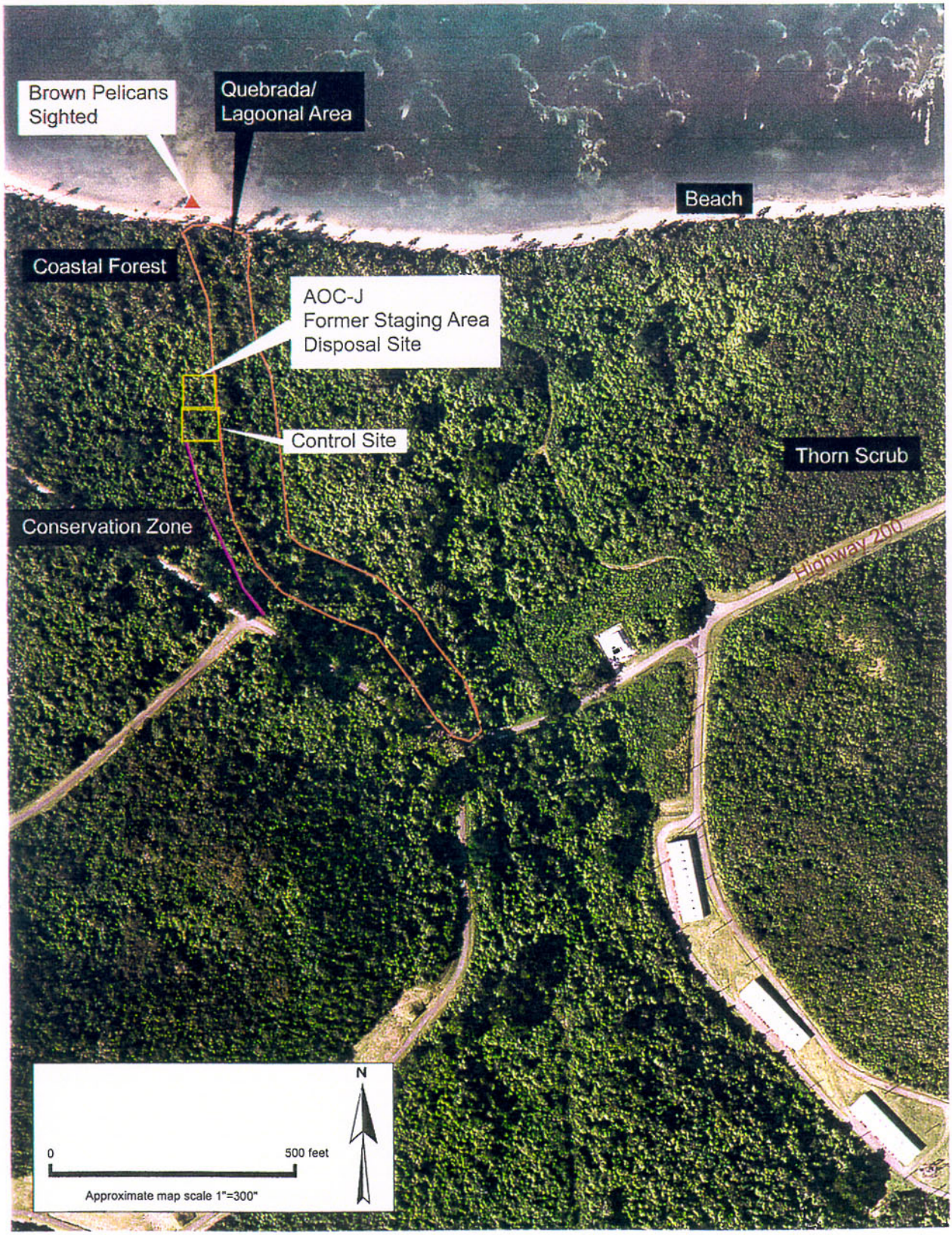

Figure 17. Location of AOC-J, Former Staging Area Disposal Site within the NASD, Puerto Rico.

Figure 18. AOC-J. North View showing western edge of site with no trespassing sign, disturbed soil, and monitoring wells (yellow poles).

Figure 19. AOC-J. Adjacent vegetation to northwest of site with tall palm trees indicating the coastline.

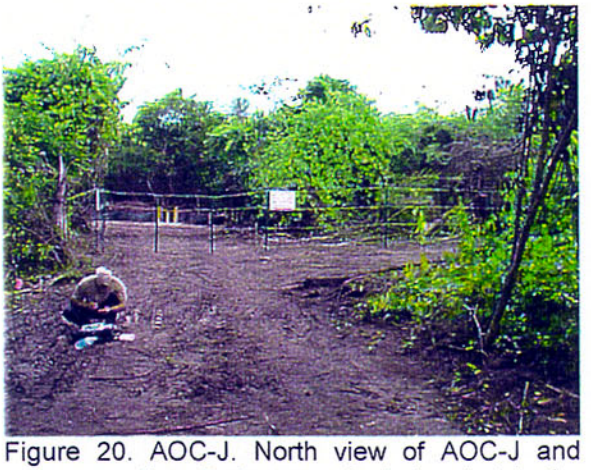

Figure 20. AOC-J. North view of AOC-J and reference sites. Reference site is located to the right of the photo.

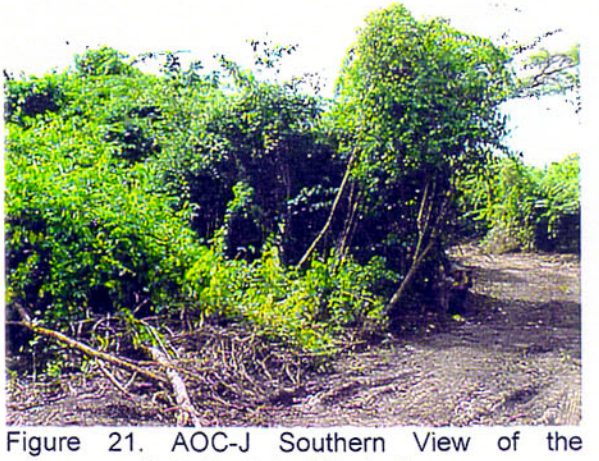

Figure 21. AOC-J Southern View of the reference site to the left of the trail.

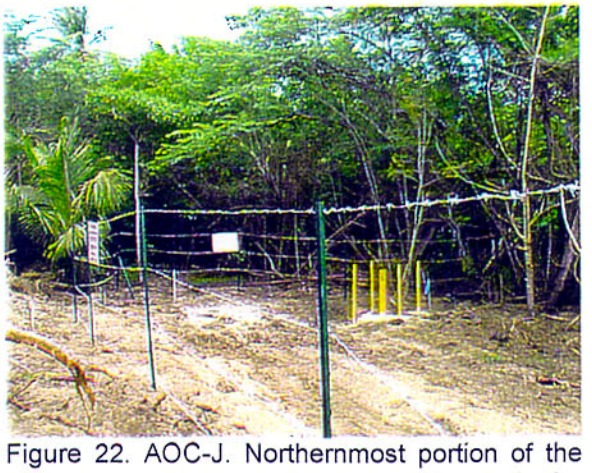

Figure 22. AOC-J. Northernmost portion of the site. The mangrove habitat is beyond the farthest fence line.

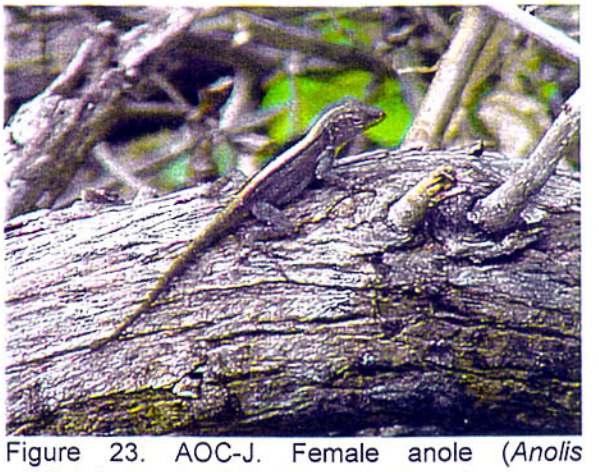

Figure 23. AOC-J. Female anole (*Anolis cristatellus*) using felled wood for foraging.

Table 6

Vegetation Observed in the AOC-J, Quebrada/Mangrove Swamp Adjacent to AOC-J, and the Adjacent Mixed Coastal Forest/Thorn Scrub (includes Reference Site) Habitat

		STRATUM		
Common Name	**Scientific Name**	**AOC-J**	**Adjacent Quebrada Mangrove Swamp**	**Coastal Forest/ Thorn Scrub Habitat**
Sweet Acacia	*Acacia farnesiana*		T/S	T/S
Catch and Keep	*Acacia retusa*			V
Black Mangrove	*Avicennia germinans*		T/S	
None	*Blechum* sp.		H	H
Oxhorn bucida	*Bucida buceras*		T/S	T/S
Gumbo Limbo	*Bursera simaruba*	T/S		
Wild Coffee	*Casearia guianensis*			T/S
Old Woman's Bitter	*Citharexylum fruticsum*			T/S
Sea Grape	*Coccoloba uvifera*		T/S	
Coconut Palm	*Cocos nucifera*		T/S	
Red Manjack	*Cordia collococca*		T/S	
Purple Allamanda	*Cryptostegia grandiflora*			V
Brisselet	*Erythroxylum brevipes*	T/S	T/S	
Black Rod-wood	*Eugenia biflora*			T/S
Black Mampoo	*Guapira fragans*		T/S	T/S
Jazmín Oloroso	*Jasminum fluminense*	V		
None	*Justicia sphaerosperma*			H
White Mangrove	*Laguncularia racemosa*		T/S	
Tantan, Wild Tamarind	*Leucaena leucocephala*			T/S
None	*Lonchocarpus heptaphyllus*	T/S	T/S	T/S
Wild Balsam Apple	*Momardica charantia*			V
None	*Paullinia pinnata*		V	V
Garlic Weed	*Petiveria alliacea*	H		H
Mesquite	*Prosopis juliflora*	T/S	T/S	T/S
Christmas Tree	*Randia aculeata*	T/S	T/S	T/S
Red Mangrove	*Rhizophora mangle*		T/S	
None	*Ruellia* sp.	H		
Mother-in-law Tongue	*Sansevieria trifasciata*			H
Tamarind	*Tamarindus indica*		T/S	
Indian Almond	*Terminalia catappa*		T/S	
Spanish Cork	*Thespesia populnea*		T/S	
Broomstick	*Trichilia hirta*	T/S		T/S
Basket Wiss	*Trichostigma octandrum*		V	
Yellow Prickle	*Zanthoxylum monophyllum*	T/S		

4.4.4 Wildlife Description

During the wildlife surveys many species were observed utilizing the cleared disposal site and the adjacent habitat (Table 7). The woody debris piles along the edges of the site attracted large numbers of lizards (*Anolis pulchellus*, *Anolis cristatellus*, and *Anolis stratulus*) and provided perches for birds. Numerous lizards were present along the trail leading to the site, among the adjacent vegetation, and

within the reference site (see Figure 23). A large green iguana (*Iguana iguana*) 2 to 3 ft long was observed on the opposite side of the lagoon to the east of the site. The only Invertebrate present at the site was land crabs (*Geocarina lateralis*) which were evident by their many crab holes at the northern end of the site.

Habitat for birds at the site had been restricted to bare ground and the small, isolated patch of shrubs and trees. Wildlife that was observed at AOC-J, adjacent habitat to the site, and in the reference site is presented in Table 7. Six different species of birds (two to three individuals each) were seen on the site—Caribbean elaenia (*Elaenia martinica*), Adelaide's warbler, greater Antillean grackle (*Quiscalis niger*), gray kingbird, common ground dove, and bananaquit (see Table 7). An additional eight bird species were observed in the adjacent vegetation and reference site (see Table 7). The great Antillean grackle and gray kingbird were the most common birds in the area.

Table 7

Wildlife Observed at AOC-J, Adjacent Habitat, and the Reference Sites

Common Name	Scientific Name	AOC-J	Adjacent Habitat/ Reference Site
Reptiles and Amphibians			
Anole (Common Lizard)	*Anolis cristatellus*	✓	✓
Grass Anole (Garden Lizard)	*Anolis pulchellus*	✓	✓
Anole (Spotted Lizard)	*Anolis stratulus*	✓	✓
Green Iguana	*Iguana iguana*		✓
Birds			
Belted Kingfisher	*Ceryle alcyon*		✓
Bananaquit	*Coereba flaveola*	✓	✓
Common ground Dove	*Columbina passerina*	✓	✓
Adelaide's Warbler	*Dendroica adelaidae*	✓	✓
Yellow Warbler	*Dendroica petechia*		✓
Caribbean Elaenia	*Elaenia martinica*	✓	✓
Magnificant Frigatebird	*Fregata magnificens*		✓
Common Moorhen	*Gallinula chloropus*		✓
Puerto Rico Woodpecker	*Melanerpes portoricensis*		✓
Brown Pelican	*Pelecanus occidentalis*		✓
Greater Antillean Grackle	*Quiscalus niger*	✓	✓
Louisiana Waterthrush	*Seiurus motacilla*		✓
Yellow-faced Grassquit	*Tiaris olivacea*		✓
Gray Kingbird	*Tyrannus dominicensis*	✓	✓

Two brown pelicans were observed flying over adjacent habitat towards the ocean to the north but were not seen at the AOC-J site. The birds observed were those typical of coastal forest, thorn scrub habitat, or lagoonal areas.

4.4.5 Protected Species

There were no federally protected species or preferred habitat observed directly on the site. Two brown pelicans were observed flying over adjacent habitat towards the north (in the direction of the Caribbean Sea) but were not seen at the AOC-J site. One of the two known cobana negra populations is located on the eastern boundary of Laguna Kiani which is approximately a mile to the east of AOC-J. No individuals of cobana negra were found along the lagoon near AOC-J. Although cobana negra has been found at NASD (on the boundary between black mangrove communities, salt flats, and the upland communities), the habitat at the AOC-J was primarily upland thorn scrub. The adjacent lagoon had a small fringe of mixed mangrove habitat but no cobana negra was present.

4.4.6 Food Web

A generalized food web for the mixed thorn scrub, coastal forest, and mangrove community type found near AOC-J is presented in Appendix B under Food Web 2, Mixed Habitat.

4.5 AOC-L (Former Septic Vault

4.5.1 Site Description

AOC-L, the Former Septic Vault site, was located just north of the entrance to the PWA and was approximately 0.10 ac in size (Figure 24). The septic vault was approximately 90 ft north of Highway 200 and approximately 180 ft from the beach. The site consisted of a partially aboveground, concrete, unused septic tank and a grassy bank. There were several grates that covered openings in the top of the vault. The northern side of the vault had a drop-off of several feet to the ground, while the south side of the vault was flush with the ground (Figures 25 through 30).

4.5.2 Vegetation Community Description

Herbaceous plants dominated the plant community. Habitat in the immediate area included open grasslands, large shade trees, and the beach area. Vegetation observed at AOC-L, the reference site to the east, and in the recreation area (beachfront) and sandy beach area is presented in Table 8. Hurricane grass dominated the site, covering approximately 70 percent of the ground. The herbaceous plants were not only the most abundant group but the most diverse as well. There were a total of eight species of grasses and herbs (excluding vines) compared to four species of woody plants. Several vines were recorded from the site; pudding vine (*Cissus verticillata*) was the dominant species. This species was observed growing over the septic vault. Several small trees were growing next to the concrete structure.

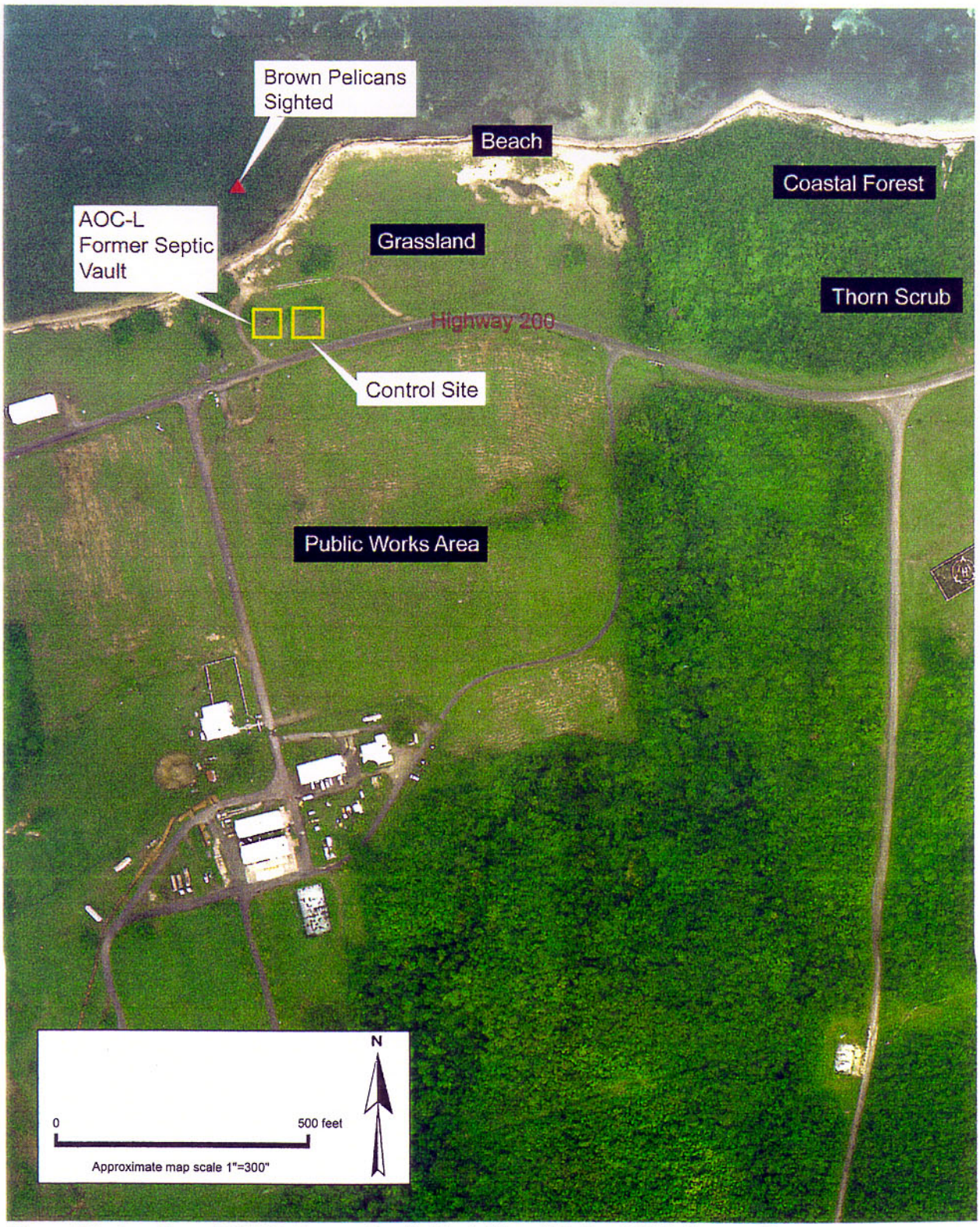

Figure 24. Location of AOC-L, Former Septic Vault Site within the NASD, Puerto Rico.

Figure 25. AOC-L. North View of Site with the Caribbean Sea in the background.

Figure 26. AOC-L. North View of the Adjacent Beach Habitat.

Figure 27. AOC-L. Vines Covering the Vault Grates and Adjacent Off-site Brush

Figure 28. AOC-L. East View of Reference Site.

Figure 29. AOC-L. Southwest view of the site.

Figure 30. AOC-L. Brown pelican (*Pelicanus occidentalis*) flying over the water of Adjacent Habitat.

Table 8

Vegetation Observed at AOC-L, Reference Site, and in the Recreation Area (Beachfront) and Sandy Beach Area

		STRATUM		
Common Name	**Scientific Name**	**AOC-J**	**Reference Site**	**Recreation and Sandy Beach Areas**
Sweet Acacia	*Acacia farnesiana*	T/S	T/S	T/S
Better Man Better	*Achyrantes aspera*		H	
Hurricane Grass	*Bothriochloa pertusa*	G	G	G
Gumbo Limbo	*Bursera simaruba*			T/S
Giant Milkweed*	*Calotropis procera*		T/S	
Bur Grass	*Cenchrus echinatus*			G
Velvet Leaf	*Cissampelos pareira*	V		
Pudding Vine	*Cissus verticillata*	V		
Old Woman's Bitter	*Citharexylum fruticosum*			T/S
Lemon	*Citrus limon*			T/S
None	*Commelina* sp.	H		
Manjack	*Cordia obliqua*			T/S
None	*Digitaria bicornis*			G
Beach Vine	*Ipomea* sp.			V
Jazmín Oloroso	*Jasminum fluminense*	V		
Wild Bush Bean	*Macroptilium lathyroides*	H	H	
None	*Merremia umbellata*	V		
Sensitive Plant	*Mimosa pudica*	H		
Black Wattle	*Piper amalago*	T/S		
None	*Rauvolfia* sp.	T/S		
None	*Sida* sp.		H	
Verbain	*Stachytarpheta jamaicensis*	H		H
Donkey Weed	*Stylosanthes hamata*	H		
Cerbatana	*Synedrella nodiflora*	H		
Indian Almond	*Terminalia catappa*			T/S
Basket Wiss	*Trichostigma octandrum*			V
None	*Vernonia cinerea*	H		
Indian Jujube	*Ziziphus mauritiana*	T/S	T/S	T/S

T/S = tree or shrub
H = herbaceous
V = vine
G = grass
*juvenile

They seemed to have become established recently; hence, none had established dominance. Vegetation of the control site was less diverse than the AOC-L site, but had the same dominants.

4.5.3 Plant Community Health

The vegetation surrounding the septic vault had experienced regular disturbance from mowing resulting in a grassland community. Ground maintenance is the primary factor affecting the species composition and structure of this site. The reference site was located to the east of the septic vault on the other side of a clump of bushes. The plant community at AOC-L was very similar to the reference site and had a similar slope. The species composition and structure were similar between AOC-L and reference sites. No vegetation stresses were observed at the AOC-L. There was a small amount of less densely covered

grassy area with some open patches at AOC-L compared to the reference site. This was probably due to the shade from a large Indian almond tree and compaction from vehicles driving close to the site.

4.5.4 Wildlife Description

The only sign of wildlife at AOC-L was the presence of a rat hole (*Rattus* sp.) on the east side of the vault and evidence of horse grazing (Table 9). No birds or lizards were observed utilizing the habitat at the septic vault. Several other additional species were observed in the adjacent beach habitat and reference site. One cattle egret (*Egreta alba*) and a bananaquit were observed at the reference site. A herd of horses was observed grazing on the adjacent grasslands (see Table 9).

Several brown pelicans were observed flying over the adjacent marine habitat but were not present at the AOC-L (see Table 9). In addition, two common terns (*Sterna hirundo*) and a spotted sandpiper (*Actitis macularia*) were seen along the beach north of the site (see Table 9). Cattle egrets in association with the horse herd and brown pelicans (see Figure 30) along the beach were the most common birds in the area (see Table 9). The bird species observed at this habitat type consisted of coastal forest and shore species due to the close proximity to the Caribbean Sea.

There was no evidence that the AOC-L site had an impact on the wildlife or habitat in the area. Ground maintenance is the primary factor affecting the plant and animal species composition and structure at this site.

Table 9

Wildlife Observed at AOC-L, Adjacent Habitat, and Reference Sites

Common Name	Scientific Name	AOC-L	Adjacent Habitat	Reference Site
Mammals				
Rat	*Rattus* sp.	✓		
Horse	*Equus caballos*		✓	
Birds				
Spotted Sandpiper	*Actitis macularia*		✓	
Cattle Egret	*Bubulcus ibis*		✓	✓
Bananaquit	*Coereba flaveola*		✓	✓
Brown Pelican	*Pelecanus occidentalis*		✓	
Common Tern	*Sterna hirundo*		✓	

4.5.5 Protected Species

Federally endangered marine birds such as the brown pelican and the roseate tern would not utilize this small man-made site. However, brown pelicans were observed flying over the adjacent marine habitat but

not at the AOC-L. There were no federally protected plant or animal species or preferred habitat observed at this site. However, The threatened Arctic peregrine falcon has been observed at NSRR (GMI 1998) and utilizes the open grassland this site provides for potential feeding.

4.5.6 Food Web

A generalized food web for the grassland community type found at AOC-L is presented in Appendix A under Food Web 1.

4.6 AOC-R (Former Construction Staging Area)

4.6.1 Site Description

AOC-R, the Former Construction Staging Area, located north of Highway 200 near a pump station was approximately 12 ac in size (Figure 31). Photographs of the site are presented in Figures 32 through 37. There were two dirt trails leading to the site; one ran along the western edge of the site (see Figure 35) and one ran diagonally along the eastern edge of the site. Several habitats and man-made structure components were present. The southern boundary of the site was adjacent to a grassy mowed area along Highway 200 (Figure 32). A pump station was inset about midway along the road. Behind the grassy area was a dense, scrubby, brushy area. A large concrete pad was located north of this scrub and extended the full width of the 12-ac site (see Figure 34). The pad appeared completely vegetated in the 1999 aerial photographs but at the time of the survey the pad was sparsely covered with vines and weeds. The vegetation surrounding the concrete pad had been cleared. The western dirt path led past the concrete pad to another cleared area to the north (northern cleared area) was separated from the pad by dense thorn scrub and coastal forest.

The northern cleared area to the east of the dirt path was less than one acre in size and had been totally cleared except for one tree. Brush, dead trees, dirt, and rubber tires (some covered with a tar substance) had been pushed to the edges of this part of the site. Additional cleared area existed to the west of the trail. The dirt trail continued to the north towards the beach.

4.6.2 Vegetation Community Description

Although the concrete pad area had been cleared, a large number of weeds and vines were observed growing on top of the concrete pad and its surroundings. The northern cleared area had recently been bulldozed and fewer species were observed.

Figure 31. Location of AOC-R, Former Contruction Staging Area Site within the NASD, Puerto Rico.

Figure 32. AOC-R Southern Boundary Entrance from Highway 200.

Figure 33. AOC-R Thorn Scrub Vegetation.

Figure 34. AOC-R. View of Partial Vine-covered Concrete Pad looking to the East.

Figure 35. AOC-R. Trail along Western Portion of the Site with the Reference Site to the Left of the Trail.

Figure 36. AOC-R. Northern View with Single Tree in Middle of Cleared Area.

Figure 37. AOC-R. Juvenile Great Blue Heron (*Ardea herodias*) found Resting under a Culvert.

The concrete pad was dominated by herbaceous plants, none of which were abundant at the time. A total of six vine species were recorded at AOC-R, the highest number found of all AOC sites surveyed. Shrubs and trees were mostly found along the edge of the concrete pad and the immediate surroundings. The dominant shrub species was tantan. Sweet acacia (*Acacia farnesiana*), red manjack (*Cordia collococca*), *Rauvolfia* sp., and papaya (*Carica papaya*) were also observed but at lower densities. The vegetation observed at the AOC-R, including the concrete pad, northern cleared area, and surrounding thorn scrub habitat, including the reference, site is presented in Table 10.

Table 10

Vegetation Observed at AOC-R, Northern Cleared Area, and Thorn Scrub Habitat including the Reference Sites

		STRATUM		
Common Name	**Scientific Name**	**AOC-R**	**Northern Cleared Area**	**Thorn Scru Habitat/ Reference Site**
Sweet Acacia	*Acacia farnesiana*	T/S		T/S
Better Man Better	*Achyrantes aspera*	H	H	
Casha	*Acacia tortuosa*			T/S
Hurricane Grass	*Bothriochloa pertusa*	G		
Gumbo Limbo	*Bursera simaruba*			T/S
Papaya	*Carica papaya*	T/S		T/S
Wild Coffee	*Casearia guianensis*			T/S
None	*Casearia sylvestris*			T/S
Butterfly Pea	*Centrosema pubescens*	V		V
None	*Chaemaesyce hypericifolia*	H		
Velvet Leaf	*Cissampelos pareira*	V		
Pudding Vine	*Cissus verticillata*	V		
Old Woman's Bitter	*Citharexylum fruticosum*			T/S
None	*Citrus* sp.			T/S
Lemon	*Citrus limon*			
None	*Commelina* sp.	H		
None	*Corchorus aestuans*	H		
Broom Weed	*Corchorus siliquosus*	H		
Red Manjack	*Cordia collococca*	T/S		
Manjack	*Cordia obliqua*			T/S
Purple Allamanda	*Cryptostegia grandiflora*	V		
None	*Desmanthus virgatus*	H		
None	*Digitaria bicornis*			
Brisselet	*Erythroxylum brevipes*		T/S	
Black Rod-wood	*Eugenia biflora*			T/S
Bastard Cedar	*Guazuma ulmifolia*			T/S
Beach Vine	*Ipomea* sp.			
Jazmin Oloroso	*Jasminum fluminense*	V	V	V
None	*Jatropha* sp.	H	H	
Tantan, Wild Tamarind	*Leucaena leucocephala*	T/S		T/S
Wild Bush Bean	*Macroptilium lathyroides*	H		
None	*Melochia nodiflora*	H	H	
None	*Merremia umbellata*	V		

Table 10 (Continued)

Vegetation Observed at AOC-R, Surrounding Thorn Scrub Habitat and in the Reference Sites

Common Name	Scientific Name	STRATUM		
		AOC-R	Northern Cleared Area	Thorn Scru Habitat/ Reference Site
Sensitive Plant	*Mimosa pudica*	H		
Wild Balsam Apple	*Momardica charantia*			V
Garlic Weed	*Petiveria alliacea*	H	H	H
None	*Physalis* sp.	H		
Black Wattle	*Piper amalago*	T/S		
Christmas Tree	*Randia aculeata*		T/S	T/S
None	*Rauvolfia* sp.	T/S		
Rain Tree, Licorice	*Samanea saman*		T/S	T/S
None	*Sida* sp.		H	
Hog Plum	*Spondias mombin*			T/S
Verbain	*Stachytarpheta jamaicensis*	H		
Bull Wiss	*Stigmaphyllon floribundum*	V		
Donkey Weed	*Stylosanthes hamata*	H		
Cerbatana	*Synedrella nodiflora*	H		
Indian Almond	*Terminalia catappa*			
None	*Tournefortia angiospermii*	H	V	
Broomstick	*Trichilia hirta*			T/S
Basket Wiss	*Trichostigma octandrum*	V	V	V
None	*Vernonia cinerea*	H		
Yellow Prickle	*Zanhoxylum monophyllum*			T/S
Indian Jujube	*Ziziphus mauritiana*			T/S

T/S = tree or shrub
H = herbaceous
V = vine
G = grass
*juvenile

There was only one rain tree (*Samanea saman*) in the northern cleared area. Two species of shrubs were recorded at the site—Christmas tree and brisselet. The few species of herbaceous plants observed in the cleared area included garlic weed (*Petiveria alliacea*), better man better, *Melochia nodiflora,* and *Jatropha* sp. The composition of this site prior to clearing was probably very similar to the adjacent scrub forest.

4.6.3 Plant Community Health

It was difficult to determine the condition of the previous plant communities since parts of the area had been cleared at the time of the survey and vegetation had been cleared from the concrete pad. However, based on adjacent vegetation and the reference site, there appeared to have been minimal impacts from military activities on the surrounding vegetation prior to the clearing. Some debris was found at the northern cleared area of AOC-R as well as along the eastern trail near the concrete pad. The concrete pad created an opening in the canopy and would have altered the species composition of vines and weeds directly over and next to the pad.

The reference site was selected in the vegetation immediately to the west of the site. This vegetation was a thorn scrub and coastal forest community. With the exception of the concrete pad, no differences in the vegetation communities were observed or anticipated. There were some indications from openings in the plant communities and from worn trails that horses occasionally graze throughout the site. No other plant stresses were observed at AOC-R.

4.6.4 Wildlife Description

Many wildlife species were observed utilizing the vegetated areas, concrete pad, edges of the cleared areas, and the adjacent habitat. The sides of the concrete pad provided shade, foraging areas, and hiding places for the common, garden and spotted anoles, which were abundant. A mongoose was seen crossing the trail which led to the northern cleared area. Wildlife that was observed at AOC-R, and adjacent to the site, including the reference site, is presented in Table 11.

Table 11

Wildlife Observed at AOC-R, Adjacent Habitat, and in the Reference Site

Common Name	Scientific Name	AOC-R	Adjacent Habitat/ Reference Site
Mammals			
Mongoose	*Herpestes auropunctatus*	✓	
Reptiles and Amphibians			
Anole (Common Lizard)	*Anolis cristatellus*	✓	✓
Grass Anole (Garden Lizard)	*Anolis pulchellus*	✓	✓
Anole (Spotted Lizard)	*Anolis stratulus*	✓	✓
Birds			
Great Egret	*Ardea alba*		✓
Great Blue Heron	*Ardea herodias*		✓
Mangrove Cuckoo	*Coccyzus minor*		✓
Bananaquit	*Coereba flaveola*	✓	✓
Common ground Dove	*Columbina passerina*	✓	✓
Smooth-billed Ani	*Crotophaga ani*	✓	
Adelaide's Warbler	*Dendroica adelaidae*	✓	✓
Caribbean Elaenia	*Elaenia martinica*		✓
Puerto Rico Woodpecker	*Melanerpes portoricensis*	✓	✓
Puerto Rican Flycatcher	*Myiarchus antillarum*		✓
Antillean-crested Hummingbird	*Orthorhyncus cristatus*	✓	
Osprey	*Pandion haliaetus*		✓
Greater Antillean Grackle	*Quiscalus niger*	✓	✓
Puerto Rican Lizard Cuckoo	*Saurothera vieilloti*		✓
Black-faced Grassquit	*Tiaris bicolor*	✓	
Yellow-faced Grassquit	*Tiaris olivacea*		✓
Loggerhead Kingbird	*Tyrannus caudifasciatus*	✓	✓
Gray Kingbird	*Tyrannus dominicensis*	✓	✓
Pin-tailed Whydah	*Vidua macroura*	✓	
Zenaida Dove	*Zenaida aurita*	✓	✓

Habitat for birds included thorn scrub and coastal forest. Many birds were seen along the edges of the cleared area around the concrete pad, along the trails, and were using the brush piles and vegetation associated with the concrete pad for perches. A total of 12 species of birds were seen at the AOC-R site. An additional eight species were found in the adjacent vegetation and reference site. The most common birds at the site were gray kingbirds, bananaquits, and greater Antillean grackles. Bird species included those that would typically be found in coastal forest and thorn scrub habitat. An osprey (*Pandion haliaetus*) was observed flying northward over the adjacent vegetation toward the ocean.

AOC-R had higher numbers of birds and a greater species diversity than other sites, possibily due to its proximity to an established conservation zone to the west, its larger size (approximately 12 ac), and contained a large uncleared area. There was no evidence that AOC-R had a negative impact on the wildlife diversity or its habitat. The concrete pad would have provided a clearing for species preferring more open areas.

4.6.5 Protected Species

The site was located within thorn scrub and mixed coastal forest habitat. There were no federally protected species or preferred habitats observed at this upland site.

4.6.6 Food Web

A generalized food web for this AOC is found in Appendix B under Food Web 1.

5.0 CONCLUSION

In all cases, species abundance and diversity were higher in the bordering vegetation and reference areas than the AOC sites because of recent or past clearing activities. The past activities at all of the AOC sites presented in this report have some degree of impacts on the ecosystems that were in place prior to construction or use of the sites. However, these impacts appear to be limited to changes in species composition based on physical disturbances. The construction of roads, buildings, and ground maintenance are the only disturbances that caused noticeable differences. The recent clearing activity at several of the sites has created a temporary shift in animal species that prefer closed forest systems to those preferring open habitat. However, the opening in the canopy also created temporary habitat for species such as the ground dove that prefer open spaces. The vegetation that was removed by the clearing activities was mostly thorn scrub, the most abundant widespread vegetation on the NASD. As such, the introduction of temporary clearings will not impact wildlife or overall habitat availability on the

NASD. Wildlife adjacent to the sites appeared healthy and utilized the habitats to their fullest extent. No federally protected species were observed directly utilizing these sites.

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Appendix K
Validated Laboratory Data
Surface Soil

Station ID	AOCISB001	AOCISB002	AOCISB003	AOCISB004	AOCISB005	AOCISB006	AOCISB007	AOCISB008	AOCISB009	AOCISB010	AOCISB011		AOCISB012
Sample ID	NDE043	NDE045	NDE047	NDE049	NDE051	NDE053	NDE055	NDE057	NDE059	NDE061	NDE062FD1	NDE064	NDE066
Sample Date	11/29/00	11/29/00	11/29/00	11/29/00	11/29/00	11/30/00	11/30/00	11/30/00	11/30/00	11/30/00	11/30/00	11/30/00	11/30/00
Chemical Name													
Volatile Organic Compounds (UG_KG)													
1,1,1-Trichloroethane	10 U	10 U	10 U	10 U	10 U	10 U	10 UJ	10 UJ	10 U	10 U	10 UJ	10 UJ	10 UJ
1,1,2,2-Tetrachloroethane	10 U	10 U	10 U	10 U	10 U	10 U	10 UJ	10 UJ	10 U	10 U	10 UJ	10 UJ	10 UJ
1,1,2-Trichloroethane	10 U	10 U	10 U	10 U	10 U	10 U	10 UJ	10 UJ	10 U	10 U	10 UJ	10 UJ	10 UJ
1,1-Dichloroethane	10 U	10 U	10 U	10 U	10 U	10 U	10 UJ	10 UJ	10 U	10 U	10 UJ	10 UJ	10 UJ
1,1-Dichloroethene	10 U	10 U	10 U	10 U	10 U	10 U	10 UJ	10 UJ	10 U	0.43 J	10 UJ	10 UJ	10 UJ
1,2-Dichloroethane	10 U	10 U	10 U	10 U	10 U	10 U	10 UJ	10 UJ	10 U	10 U	10 UJ	10 UJ	10 UJ
1,2-Dichloropropane	10 U	10 U	10 U	10 U	10 U	10 U	10 UJ	10 UJ	10 U	10 U	10 UJ	10 UJ	10 UJ
2-Butanone	10 R	10 R	10 R	10 R	5 J	10 R	10 R	10 R	10 R	10 R	10 R	10 R	10 R
2-Hexanone	10 U	10 U	10 U	10 U	10 U	10 U	10 UJ	10 UJ	10 U	10 U	10 UJ	10 UJ	10 UJ
4-Methyl-2-pentanone	10 U	2.8 J	10 U	10 U	10 U	10 U	10 UJ	10 UJ	10 U	10 U	10 UJ	10 UJ	10 UJ
Acetone	10 R	10 R	11 R	12 R	13 R	16 R	16 R	14 R	30 R	19 R	10 R	10 R	10 R
Benzene	10 U	10 U	1.2 J	10 U	10 U	10 U	10 UJ	10 UJ	10 U	10 U	10 UJ	10 UJ	10 UJ
Bromodichloromethane	10 U	10 U	10 U	10 U	10 U	10 U	10 UJ	10 UJ	10 U	10 U	10 UJ	10 UJ	10 UJ
Bromoform	10 U	10 U	10 U	10 U	10 U	10 U	10 UJ	10 UJ	10 U	10 U	10 UJ	10 UJ	10 UJ
Bromomethane	10 U	10 U	10 U	10 U	10 U	10 U	10 UJ	10 UJ	10 U	10 U	10 UJ	10 UJ	10 UJ
Carbon disulfide	10 U	10 U	10 U	10 U	10 U	10 U	10 UJ	10 UJ	10 U	10 U	10 UJ	10 UJ	10 UJ
Carbon tetrachloride	10 U	10 U	10 U	10 U	10 U	10 U	10 UJ	10 UJ	10 U	10 U	10 UJ	10 UJ	10 UJ
Chlorobenzene	10 U	10 U	10 U	10 U	10 U	10 U	10 UJ	10 UJ	10 U	10 U	10 UJ	10 UJ	10 UJ
Chloroethane	10 U	10 U	10 U	10 U	10 U	10 U	10 UJ	10 UJ	10 U	10 U	10 UJ	10 UJ	10 UJ
Chloroform	10 U	10 U	10 U	10 U	10 U	10 U	10 UJ	10 UJ	10 U	10 U	10 UJ	10 UJ	10 UJ
Chloromethane	10 U	10 U	10 U	10 U	10 U	10 U	10 UJ	10 UJ	10 U	10 U	10 UJ	10 UJ	10 UJ
Dibromochloromethane	10 U	10 U	10 U	10 U	10 U	10 U	10 UJ	10 UJ	10 U	10 U	10 UJ	10 UJ	10 UJ
Ethylbenzene	10 U	10 U	3.7 J	10 U	10 U	10 U	10 UJ	10 UJ	10 U	10 U	10 UJ	10 UJ	10 UJ
Methylene chloride	10 U	10 U	10 U	10 U	10 U	10 U	10 UJ	10 UJ	10 U	10 U	10 UJ	10 UJ	10 UJ
Styrene	10 U	10 U	10 U	10 U	10 U	10 U	10 UJ	10 UJ	10 U	10 U	10 UJ	10 UJ	10 UJ
Tetrachloroethene	10 U	10 U	10 U	10 U	10 U	10 U	10 UJ	10 UJ	10 U	10 U	10 UJ	10 UJ	10 UJ
Toluene	10 U	10 U	16	10 U	25	1.4 J	1.7 J	0.59 J	0.3 J	10 U	10 UJ	10 UJ	10 UJ
Trichloroethene	10 U	10 U	10 U	0.31 J	10 U	10 U	10 UJ	10 UJ	10 U	10 U	10 UJ	10 UJ	10 UJ
Vinyl chloride	10 U	10 U	10 U	10 U	10 U	10 U	10 UJ	10 UJ	10 U	10 U	10 UJ	10 UJ	10 UJ
Xylene, total	10 U	10 U	27	10 U	10 U	10 U	10 UJ	0.83 J	10 U	10 U	10 UJ	10 UJ	10 UJ
cis-1,3-Dichloropropene	10 U	10 U	10 U	10 U	10 U	10 U	10 UJ	10 UJ	10 U	10 U	10 UJ	10 UJ	10 UJ
m- and p-Xylene	10 U	10 U	19	10 U	10 U	10 U	10 UJ	0.65 J	10 U	10 U	10 UJ	10 UJ	10 UJ
o-Xylene	10 U	10 U	7.8 J	10 U	10 U	10 U	10 UJ	0.18 J	10 U	10 U	10 UJ	10 UJ	10 UJ
trans-1,3-Dichloropropene	10 U	10 U	10 U	10 U	10 U	10 U	10 UJ	10 UJ	10 U	10 U	10 UJ	10 UJ	10 UJ
Semi-volatile Organic Compounds (UG_KG)													
1,1-Biphenyl	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trichlorobenzene	364 U	331 U	344 U	340 U	363 U	408 U	376 U	356 U	353 U	344 U	376 U	353 U	379 U
1,2-Dichlorobenzene	364 U	331 U	344 U	340 U	363 U	408 U	376 U	356 U	353 U	344 U	376 U	353 U	379 U
1,3-Dichlorobenzene	364 U	331 U	344 U	340 U	363 U	408 U	376 U	356 U	353 U	344 U	376 U	353 U	379 U
1,4-Dichlorobenzene	364 U	331 U	344 U	340 U	363 U	408 U	376 U	356 U	353 U	344 U	376 U	353 U	379 U
2,2'-Oxybis(1-chloropropane)	364 U	331 U	344 U	340 U	363 U	408 U	376 U	356 U	353 U	344 U	376 U	353 U	379 U
2,4,5-Trichlorophenol	1,090 U	994 U	1,030 U	1,020 U	1,090 U	1,220 U	1,130 U	1,070 U	1,060 U	1,030 U	1,130 U	1,060 U	1,140 U
2,4,6-Trichlorophenol	364 U	331 U	344 U	340 U	363 U	408 U	376 U	356 U	353 U	344 U	376 U	353 U	379 U
2,4-Dichlorophenol	364 U	331 U	344 U	340 U	363 U	408 U	376 U	356 U	353 U	344 U	376 U	353 U	379 U
2,4-Dimethylphenol	364 U	331 U	344 U	340 U	363 U	408 U	376 U	356 U	353 U	344 U	376 U	353 U	379 U
2,4-Dinitrophenol	1,090 U	994 U	1,030 U	1,020 U	1,090 U	1,220 U	1,130 U	1,070 U	1,060 U	1,030 U	1,130 U	1,060 U	1,140 U
2,4-Dinitrotoluene	364 U	331 U	344 U	340 U	363 U	408 U	376 U	356 U	353 U	344 U	376 U	353 U	379 U
2,6-Dinitrotoluene	364 U	331 U	344 U	340 U	363 U	408 U	376 U	356 U	353 U	344 U	376 U	353 U	379 U
2-Chloronaphthalene	364 U	331 U	344 U	340 U	363 U	408 U	376 U	356 U	353 U	344 U	376 U	353 U	379 U
2-Chlorophenol	364 U	331 U	344 U	340 U	363 U	408 U	376 U	356 U	353 U	344 U	376 U	353 U	379 U
2-Methylnaphthalene	364 U	331 U	344 U	340 U	363 U	408 U	376 U	356 U	353 U	344 U	376 U	353 U	379 U
2-Methylphenol	364 U	331 U	344 U	340 U	363 U	408 U	376 U	356 U	353 U	344 U	376 U	353 U	379 U
2-Nitroaniline	1,090 U	994 U	1,030 U	1,020 U	1,090 U	1,220 U	1,130 U	1,070 U	1,060 U	1,030 U	1,130 U	1,060 U	1,140 U
2-Nitrophenol	364 U	331 U	344 U	340 U	363 U	408 U	376 U	356 U	353 U	344 U	376 U	353 U	379 U
3,3'-Dichlorobenzidine	729 U	562 U	589 U	579 U	725 U	815 U	752 U	711 U	707 U	687 U	752 U	706 U	758 U
3- and 4-Methylphenol	364 U	331 U	344 U	340 U	363 U	408 U	376 U	356 U	353 U	344 U	376 U	353 U	379 U
3-Nitroaniline	1,090 U	994 U	1,030 U	1,020 U	1,090 U	1,220 U	1,130 U	1,070 U	1,060 U	1,030 U	1,130 U	1,060 U	1,140 U
4,6-Dinitro-2-methylphenol	1,090 U	994 U	1,030 U	1,020 U	1,090 U	1,220 U	1,130 U	1,070 U	1,060 U	1,030 U	1,130 U	1,060 U	1,140 U
4-Bromophenyl-phenylether	364 U	331 U	344 U	340 U	363 U	408 U	376 U	356 U	353 U	344 U	376 U	353 U	379 U
4-Chloro-3-methylphenol	364 U	331 U	344 U	340 U	363 U	408 U	376 U	356 U	353 U	344 U	376 U	353 U	379 U
4-Chloroaniline	364 U	331 U	344 U	340 U	363 U	408 U	376 U	356 U	353 U	344 U	376 U	353 U	379 U
4-Chlorophenyl-phenylether	364 U	331 U	344 U	340 U	363 U	408 U	376 U	356 U	353 U	344 U	376 U	353 U	379 U
4-Methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Nitroaniline	1,090 U	994 U	1,030 U	1,020 U	1,090 U	1,220 U	1,130 U	1,070 U	1,060 U	1,030 U	1,130 U	1,060 U	1,140 U
4-Nitrophenol	1,090 U	994 U	1,030 U	1,020 U	1,090 U	1,220 U	1,130 U	1,070 U	1,060 U	1,030 U	1,130 U	1,060 U	1,140 U
Acenaphthene	364 U	331 U	344 U	340 U	363 U	408 U	376 U	356 U	353 U	344 U	376 U	353 U	379 U
Acenaphthylene	364 U	331 U	344 U	340 U	363 U	408 U	376 U	356 U	353 U	344 U	376 U	353 U	379 U
Acetophenone	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene	364 U	331 U	344 U	340 U	363 U	408 U	376 U	356 U	353 U	344 U	376 U	353 U	379 U
Atrazine	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzaldehyde	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	364 U	331 U	344 U	340 U	363 U	408 U	376 U	356 U	353 U	344 U	376 U	353 U	379 U
Benzo(a)pyrene	364 U	331 U	344 U	340 U	363 U	408 U	376 U	356 U	353 U	344 U	376 U	353 U	379 U
Benzo(b)fluoranthene	364 U	331 U	344 U	340 U	363 U	408 U	376 U	356 U	353 U	344 U	376 U	353 U	379 U
Benzo(g,h,i)perylene	364 U	331 U	344 U	340 U	363 U	408 U	376 U	356 U	353 U	344 U	376 U	353 U	379 U
Benzo(k)fluoranthene	364 U	331 U	344 U	340 U	363 U	408 U	376 U	356 U	353 U	344 U	376 U	353 U	379 U
Butylbenzylphthalate	364 U	331 U	344 U	340 U	363 U	408 U	376 U	356 U	353 U	344 U	376 U	353 U	379 U
Caprolactam	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbazole	364 U	331 U	344 U	340 U	363 U	408 U	376 U	356 U	353 U	344 U	376 U	353 U	379 U
Chrysene	364 U	331 U	344 U	340 U	363 U	408 U	376 U	356 U	353 U	344 U	376 U	353 U	379 U
Di-n-butylphthalate	364 U	331 U	344 U	340 U	363 U	408 U	376 U	356 U	353 U	344 U	376 U	353 U	379 U
Di-n-octylphthalate	364 U	331 U	344 U	340 U	363 U	408 U	376 U	356 U	353 U	344 U	376 U	353 U	379 U
Dibenz(a,h)anthracene	364 U	331 U	344 U	340 U	363 U	408 U	376 U	356 U	353 U	344 U	376 U	353 U	379 U
Dibenzofuran	364 U	331 U	344 U	340 U	363 U	408 U	376 U	356 U	353 U	344 U	376 U	353 U	379 U
Diethylphthalate	364 U	331 U	344 U	340 U	363 U	408 U	376 U	356 U	353 U	344 U	376 U	353 U	379 U
Dimethyl phthalate	364 U	331 U	344 U	340 U	363 U	408 U	376 U	356 U	353 U	344 U	376 U	353 U	379 U
Fluoranthene	364 U	331 U	344 U	340 U	363 U	408 U	376 U	356 U	353 U	344 U	376 U	353 U	379 U
Fluorene	364 U	331 U	344 U	340 U	363 U	408 U	376 U	356 U	353 U	344 U	376 U	353 U	379 U
Hexachlorobenzene	364 U	331 U	344 U	340 U	363 U	408 U	376 U	356 U	353 U	344 U	376 U	353 U	379 U
Hexachlorobutadiene	364 U	331 U	344 U	340 U	363 U	408 U	376 U	356 U	353 U	344 U	376 U	353 U	379 U
Hexachlorocyclopentadiene	364 U	331 U	344 U	340 U	363 U	408 U	376 U	356 U	353 U	344 U	376 U	353 U	379 U
Hexachloroethane	364 U	331 U	344 U	340 U	363 U	408 U	376 U	356 U	353 U	344 U	376 U	353 U	379 U
Indeno(1,2,3-cd)pyrene	364 U	331 U	344 U	340 U	363 U	408 U	376 U	356 U	353 U	344 U	376 U	353 U	379 U
Isophorone	364 U	331 U	344 U	340 U	363 U	408 U	376 U	356 U	353 U	344 U	376 U	353 U	379 U
Naphthalene	364 U	331 U	344 U	340 U	363 U	408 U	376 U	356 U	353 U	344 U	376 U	353 U	379 U
Nitrobenzene	364 U	331 U	344 U	340 U	363 U	408 U	376 U	356 U	353 U	344 U	376 U	353 U	379 U
Pentachlorophenol	1,090 U	994 U	1,030 U	1,020 U	1,090 U	1,220 U	1,130 U	1,070 U	1,060 U	1,030 U	1,130 U	1,060 U	1,140 U
Phenanthrene	364 U	331 U	344 U	340 U	363 U	408 U	376 U	356 U	353 U	344 U	376 U	353 U	379 U
Phenol	364 U	331 U	344 U	340 U	363 U	408 U	376 U	356 U	353 U	344 U	376 U	353 U	379 U
Pyrene	364 U	331 U	344 U	340 U	363 U	408 U	376 U	356 U	353 U	344 U	376 U	353 U	379 U
bis(2-Chloroethoxy)methane	364 U	331 U	344 U	340 U	363 U	408 U	376 U	356 U	353 U	344 U	376 U	353 U	379 U
bis(2-Chloroethyl)ether	364 U	331 U	344 U	340 U	363 U	408 U	376 U	356 U	353 U	344 U	376 U	353 U	379 U
bis(2-Ethylhexyl)phthalate	364 U	331 U	344 U	340 U	363 U	408 U	376 U	356 U	353 U	344 U	376 UJ	3,880 J	379 U
n-Nitroso-di-n-propylamine	364 U	331 U	344 U	340 U	363 U	408 U	376 U	356 U	353 U	344 U	376 U	353 U	379 U
n-Nitrosodiphenylamine	364 U	331 U	344 U	340 U	363 U	408 U	376 U	356 U	353 U	344 U	376 U	353 U	379 U
Pesticide/Polychlorinated Biphenyls (UG_KG)													
4,4'-DDD	3.6 U	3.4 U	3.5 U	3.4 U	3.4 U	3.7 U	3.6 U	3.5 U	3.5 U	3.5 U	3.5 U	3.5 U	3.5 U
4,4'-DDE	3.6 U	3.4 U	3.5 U	3.4 U	3.4 U	3.7 U	3.6 U	3.5 U	3.5 U	3.5 U	3.5 U	3.5 U	3.5 U
4,4'-DDT	3.6 U	3.4 U	3.5 U	3.4 U	3.4 U	3.7 U	3.6 U	3.5 U	3.5 U	3.5 U	3.5 U	3.5 U	3.5 UJ
Aldrin	1.9 U	1.7 U	1.8 U	1.8 U	1.8 U	1.9 U	1.9 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U
Aroclor-1016	36 U	34 U	35 U	34 U	34 U	37 U	36 U	35 U	35 U	35 U	35 U	35 U	35 U
Aroclor-1221	73 U	68 U	70 U	69 U	70 U	75 U	74 U	71 U	71 U	71 U	72 U	71 U	71 U
Aroclor-1232	36 U	34 U	35 U	34 U	34 U	37 U	36 U	35 U	35 U	35 U	35 U	35 U	35 U
Aroclor-1242	36 U	34 U	35 U	34 U	34 U	37 U	36 U	35 U	35 U	35 U	35 U	35 U	35 U
Aroclor-1248	36 U	34 U	35 U	34 U	34 U	37 U	36 U	35 U	35 U	35 U	35 U	35 U	35 U
Aroclor-1254	36 U	34 U	35 U	34 U	34 U	37 U	36 U	35 U	35 U	35 U	35 U	35 U	35 U
Aroclor-1260	36 U	34 U	35 U	34 U	34 U	37 U	36 U	35 U	35 U	35 U	35 U	35 U	35 U
Dieldrin	3.6 U	3.4 U	3.5 U	3.4 U	3.4 U	3.7 U	3.6 U	3.5 U	3.5 U	3.5 U	3.5 U	3.5 U	3.5 U
Endosulfan I	1.9 U	1.7 U	1.8 U	1.8 U	1.8 U	1.9 U	1.9 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U
Endosulfan II	3.6 U	3.4 U	3.5 U	3.4 U	3.4 U	3.7 U	3.6 U	3.5 U	3.5 U	3.5 U	3.5 U	3.5 U	3.5 U
Endosulfan sulfate	3.6 U	3.4 U	3.5 U	3.4 U	3.4 U	3.7 U	3.6 U	3.5 U	3.5 U	3.5 U	3.5 U	3.5 U	3.5 U
Endrin	3.6 U	3.4 U	3.5 U	3.4 U	3.4 U	3.7 U	3.6 U	3.5 U	3.5 U	3.5 U	3.5 U	3.5 U	3.5 U
Endrin aldehyde	3.6 U	3.4 U	3.5 U	3.4 U	3.4 U	3.7 U	3.6 U	3.5 U	3.5 U	3.5 U	3.5 U	3.5 U	3.5 U
Endrin ketone	3.6 U	3.4 U	3.5 U	3.4 U	3.4 U	3.7 U	3.6 U	3.5 U	3.5 U	3.5 U	3.5 U	3.5 U	3.5 U
Heptachlor	1.9 U	1.7 U	1.8 U	1.8 U	1.8 U	1.9 U	1.9 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U
Heptachlor epoxide	1.9 U	1.7 U	1.8 U	1.8 U	1.8 U	1.9 U	1.9 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U
Methoxychlor	19 U	17 U	18 U	18 U	18 U	19 U	19 U	18 U	18 U	18 U	18 U	18 U	18 U
Toxaphene	186 U	174 U	180 U	176 U	178 U	191 U	188 U	181 U	181 U	182 U	183 U	181 U	179 U
alpha-BHC	1.9 U	1.7 U	1.8 U	1.8 U	1.8 U	1.9 U	1.9 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U
alpha-Chlordane	1.9 U	1.7 U	1.8 U	1.8 U	1.8 U	1.9 U	1.9 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U
beta-BHC	1.9 U	1.7 U	1.8 U	1.8 U	1.8 U	1.9 U	1.9 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U
delta-BHC	1.9 U	1.7 U	1.8 U	1.8 U	1.8 U	1.9 U	1.9 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U
gamma-BHC (Lindane)	1.9 U	1.7 U	1.8 U	1.8 U	1.8 U	1.9 U	1.9 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U
gamma-Chlordane	1.9 U	1.7 U	1.8 U	1.8 U	1.8 U	1.9 U	1.9 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U
Total Metals (MG_KG)													
Aluminum	17,700	15,600	18,200	14,400	16,700	21,000	17,000	14,000	15,000	20,000	18,000	18,000	17,000
Antimony	1.1 J	1 J	1.5 J	1.1 J	1.3 J	1.4 J	1.3 J	0.86 J	0.99 J	1.4 J	0.95 J	1.1 J	1.5 J
Arsenic	1.1 J	1.2 J	0.86 J	0.91 J	1.1 J	2 J	1.6 J	0.77 J	0.8 J	1.2 J	0.97 J	1.1 J	1.3 J
Barium	39 J	30 J	39 J	40 J	35 J	62	42 J	26 J	28 J	42	31 J	39 J	39 J
Beryllium	0.15 J	0.11 J	0.15 J	0.11 J	0.14 J	0.26 J	0.14 J	0.03 U	0.03 U	0.14 J	0.03 U	0.11 J	0.18 J
Cadmium	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.03 U	0.11 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
Calcium	20,800	15,100	18,700	18,400	13,700	16,000	14,000	15,000	14,000	20,000	15,000	17,000	17,000
Chromium	34	33	47	31	55	77	57	40	35	47	36	45	42
Chromium (hexavalent)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	16	15	17	13	16	27	19	12	14	18	16	17	15
Copper	70	55	77	48	103	68	59	40	32	55	51	52	49
Iron	29,600	26,300	29,800	23,400	28,000	37,000	30,000	22,000	24,000	31,000	28,000	29,000	28,000
Lead	1	0.47 J	0.96	0.98	0.91	1.5	0.85	1.7	1.8	1.8	1.1	1.9	1.7
Magnesium	13,500	12,700	13,900	10,600	13,200	14,000	13,000	11,000	12,000	15,000	14,000	14,000	12,000
Manganese	593	490	574	465	530	980	680	440	490	670	590	640	570
Mercury	0.004 J	0.006 J	0.006 J	0.003 J	0.0026 U	0.016 J	0.005 J	0.0026 UJ	0.0035 J	0.0026 UJ	0.0027 UJ	0.0039 J	0.0026 U
Nickel	23	21	27	19	32	49	34	21	24	30	25	26	25
Potassium	785 J	544 J	754 J	594 J	529 J	530 J	610 J	480 J	560 J	740 J	610 J	710 J	680 J
Selenium	0.5 U	0.91 J	0.97 J	0.62 J	0.76 J	1.3 J	1.1 J	0.77 J	0.73 J	0.75 J	0.83 J	0.6 J	1.1 J
Silver	0.11 J	0.085 J	0.086 J	0.081 J	0.075 J	0.12 J	0.11 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.12 J
Sodium	527 J	389 J	460 J	447 J	475 J	720 J	490 J	400 J	490 J	560 J	460 J	500 J	420 J
Thallium	0.37 U	0.35 U	0.36 U	0.35 U	0.36 U	0.38 U	0.33 U	0.36 U	0.36 U	0.36 U	0.36 U	0.36 U	0.36 U
Vanadium	87	70	89	73	87	120	86	64	76	96	81	88	85
Zinc	44	36	42	33	35	47	40	31	35	42	40	41	39
Wet Chemistry (MG_KG)													
Total organic carbon (TOC)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pH	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Petroleum Hydrocarbons (MG_KG)													
Petroleum hydrocarbons	121 J	17 U	108 J	88	160 J	103 J	118	443 J	636	1,200	945	889	71 J
Total Petroleum Hydrocarbons, C10-C28	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Petroleum Hydrocarbons, C6-C10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:

NA - Not analyzed
J - Reported value is estimated
R - Unreliable result
U - Analyte not detected
UJ - Not detected, quantitation limit may be inaccurate
MG_KG - Milligrams per Kilogram
UG_KG - Micrograms per Kilogram
Shading Indicates Detection

Station ID	AOCISB013	AOCISB014	AOCISB015	AOCISB016	AOCISB017	AOCISB018		AOCISB019	AOCISB020		AOCISB021
Sample ID	NDE068	NDE070	NDE072	NDE075	NDE077	NDE074FD1	NDE079	NDE081	NDE083	NDE084FD1	NDE086
Sample Date	11/30/00	11/30/00	11/30/00	11/30/00	11/30/00	12/01/00	12/01/00	12/01/00	12/01/00	12/01/00	12/01/00
Chemical Name											
Volatile Organic Compounds (UG_KG)											
1,1,1-Trichloroethane	10 UJ	10 UJ	10 UJ	10 UJ	10 U	10 UJ	10 UJ	10 U	12 UJ	12 UJ	10 UJ
1,1,2,2-Tetrachloroethane	10 UJ	10 UJ	10 UJ	10 UJ	10 U	10 UJ	10 UJ	10 U	12 UJ	12 UJ	10 UJ
1,1,2-Trichloroethane	10 UJ	10 UJ	10 UJ	10 UJ	10 U	10 UJ	10 UJ	10 U	12 UJ	12 UJ	10 UJ
1,1-Dichloroethane	10 UJ	10 UJ	10 UJ	10 UJ	10 U	10 UJ	10 UJ	10 U	12 UJ	12 UJ	10 UJ
1,1-Dichloroethene	10 UJ	10 UJ	10 UJ	10 UJ	10 U	10 UJ	10 UJ	10 U	12 UJ	12 UJ	10 UJ
1,2-Dichloroethane	10 UJ	10 UJ	10 UJ	10 UJ	10 U	10 UJ	10 UJ	10 U	12 UJ	12 UJ	10 UJ
1,2-Dichloropropane	10 UJ	10 UJ	10 UJ	10 UJ	10 U	10 UJ	10 UJ	10 U	12 UJ	12 UJ	10 UJ
2-Butanone	10 R	10 R	10 R	10 UJ	10 R	10 UJ	10 UJ	10 R	12 R	12 UJ	10 R
2-Hexanone	10 UJ	10 UJ	10 UJ	10 UJ	10 U	10 UJ	10 UJ	10 U	12 UJ	12 UJ	10 UJ
4-Methyl-2-pentanone	10 UJ	10 UJ	10 UJ	10 UJ	10 U	10 UJ	10 UJ	10 U	12 UJ	12 UJ	10 UJ
Acetone	10 R	5.7 J	10 R	10 R	10 U	10 R	10 R	22 R	14 R	12 R	16 R
Benzene	10 UJ	10 UJ	10 UJ	10 UJ	10 U	10 UJ	10 UJ	10 U	12 UJ	12 UJ	10 UJ
Bromodichloromethane	10 UJ	10 UJ	10 UJ	10 UJ	10 U	10 UJ	10 UJ	10 U	12 UJ	12 UJ	10 UJ
Bromoform	10 UJ	10 UJ	10 UJ	10 UJ	10 U	10 UJ	10 UJ	10 U	12 UJ	12 UJ	10 UJ
Bromomethane	10 UJ	10 UJ	10 UJ	10 UJ	10 U	10 UJ	10 UJ	10 U	12 UJ	12 UJ	10 UJ
Carbon disulfide	10 UJ	10 UJ	10 UJ	10 UJ	10 U	10 UJ	10 UJ	10 U	12 UJ	12 UJ	10 UJ
Carbon tetrachloride	10 UJ	10 UJ	10 UJ	10 UJ	10 U	10 UJ	10 UJ	10 U	12 UJ	12 UJ	10 UJ
Chlorobenzene	10 UJ	10 UJ	10 UJ	10 UJ	10 U	10 UJ	10 UJ	10 U	12 UJ	12 UJ	10 UJ
Chloroethane	10 UJ	10 UJ	10 UJ	10 UJ	10 U	10 UJ	10 UJ	10 U	12 UJ	12 UJ	10 UJ
Chloroform	10 UJ	10 UJ	10 UJ	10 UJ	10 U	10 UJ	10 UJ	10 U	12 UJ	12 UJ	10 UJ
Chloromethane	10 UJ	10 UJ	10 UJ	10 UJ	10 U	10 UJ	10 UJ	10 U	12 UJ	12 UJ	10 UJ
Dibromochloromethane	10 UJ	10 UJ	10 UJ	10 UJ	10 U	10 UJ	10 UJ	10 U	12 UJ	12 UJ	10 UJ
Ethylbenzene	10 UJ	10 UJ	10 UJ	10 UJ	10 U	10 UJ	10 UJ	10 U	12 UJ	12 UJ	10 UJ
Methylene chloride	10 UJ	10 UJ	10 UJ	10 UJ	10 U	10 UJ	10 UJ	10 U	12 UJ	12 UJ	10 UJ
Styrene	10 UJ	10 UJ	10 UJ	10 UJ	10 U	10 UJ	10 UJ	10 U	12 UJ	12 UJ	10 UJ
Tetrachloroethene	10 UJ	10 UJ	10 UJ	10 UJ	10 U	10 UJ	10 UJ	10 U	12 UJ	12 UJ	0.27 J
Toluene	10 UJ	10 UJ	10 UJ	10 UJ	10 U	10 UJ	10 UJ	10 U	12 UJ	12 UJ	10 UJ
Trichloroethene	10 UJ	10 UJ	10 UJ	10 UJ	10 U	10 UJ	10 UJ	10 U	12 UJ	12 UJ	10 UJ
Vinyl chloride	10 UJ	10 UJ	10 UJ	10 UJ	10 U	10 UJ	10 UJ	10 U	12 UJ	12 UJ	10 UJ
Xylene, total	10 UJ	10 UJ	10 UJ	10 UJ	10 U	10 UJ	10 UJ	10 U	12 UJ	12 UJ	10 UJ
cis-1,3-Dichloropropene	10 UJ	10 UJ	10 UJ	10 UJ	10 U	10 UJ	10 UJ	10 U	12 UJ	12 UJ	10 UJ
m- and p-Xylene	10 UJ	10 UJ	10 UJ	10 UJ	10 U	10 UJ	10 UJ	10 U	12 UJ	12 UJ	10 UJ
o-Xylene	10 UJ	10 UJ	10 UJ	10 UJ	10 U	10 UJ	10 UJ	10 U	12 UJ	12 UJ	10 UJ
trans-1,3-Dichloropropene	10 UJ	10 UJ	10 UJ	10 UJ	10 U	10 UJ	10 UJ	10 U	12 UJ	12 UJ	10 UJ
Semi-volatile Organic Compounds (UG_KG)											
1,1-Biphenyl	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trichlorobenzene	448 U	408 U	430 U	392 U	368 U	428 UJ	451 UJ	420 UJ	604 UJ	531 UJ	440 UJ
1,2-Dichlorobenzene	448 U	408 U	430 U	392 U	368 U	428 UJ	451 UJ	420 UJ	604 UJ	531 UJ	440 UJ
1,3-Dichlorobenzene	448 U	408 U	430 U	392 U	368 U	428 UJ	451 UJ	420 UJ	604 UJ	531 UJ	440 UJ
1,4-Dichlorobenzene	448 U	408 U	430 U	392 U	368 U	428 UJ	451 UJ	420 UJ	604 UJ	531 UJ	440 UJ
2,2'-Oxybis(1-chloropropane)	448 U	408 U	430 U	392 U	368 U	428 UJ	451 UJ	420 UJ	604 UJ	531 UJ	440 UJ
2,4,5-Trichlorophenol	1,340 U	1,230 U	1,290 U	1,170 U	1,100 U	1,290 UJ	1,350 UJ	1,260 UJ	1,810 UJ	1,590 UJ	1,320 UJ
2,4,6-Trichlorophenol	448 U	408 U	430 U	392 U	368 U	428 UJ	451 UJ	420 UJ	604 UJ	531 UJ	440 UJ
2,4-Dichlorophenol	448 U	408 U	430 U	392 U	368 U	428 UJ	451 UJ	420 UJ	604 UJ	531 UJ	440 UJ
2,4-Dimethylphenol	448 U	408 U	430 U	392 U	368 U	428 UJ	451 UJ	420 UJ	604 UJ	531 UJ	440 UJ
2,4-Dinitrophenol	1,340 U	1,230 U	1,290 U	1,170 U	1,100 U	1,290 UJ	1,350 UJ	1,260 UJ	1,810 UJ	1,590 UJ	1,320 UJ
2,4-Dinitrotoluene	448 U	408 U	430 U	392 U	368 U	428 UJ	451 UJ	420 UJ	604 UJ	531 UJ	440 UJ
2,6-Dinitrotoluene	448 U	408 U	430 U	392 U	368 U	428 UJ	451 UJ	420 UJ	604 UJ	531 UJ	440 UJ
2-Chloronaphthalene	448 U	408 U	430 U	392 U	368 U	428 UJ	451 UJ	420 UJ	604 UJ	531 UJ	440 UJ
2-Chlorophenol	448 U	408 U	430 U	392 U	368 U	428 UJ	451 UJ	420 UJ	604 UJ	531 UJ	440 UJ
2-Methylnaphthalene	448 U	408 U	430 U	392 U	368 U	428 UJ	451 UJ	420 UJ	604 UJ	531 UJ	440 UJ
2-Methylphenol	448 U	408 U	430 U	392 U	368 U	428 UJ	451 UJ	420 UJ	604 UJ	531 UJ	440 UJ
2-Nitroaniline	1,340 U	1,230 U	1,290 U	1,170 U	1,100 U	1,290 UJ	1,350 UJ	1,260 UJ	1,810 UJ	1,590 UJ	1,320 UJ
2-Nitrophenol	448 U	408 U	430 U	392 U	368 U	428 UJ	451 UJ	420 UJ	604 UJ	531 UJ	440 UJ
3,3'-Dichlorobenzidine	896 U	817 U	861 U	783 U	736 U	857 UJ	902 UJ	841 UJ	1,210 UJ	1,060 UJ	880 UJ
3- and 4-Methylphenol	448 U	408 U	430 U	392 U	368 U	428 UJ	451 UJ	420 UJ	604 UJ	531 UJ	440 UJ
3-Nitroaniline	1,340 U	1,230 U	1,290 U	1,170 U	1,100 U	1,290 UJ	1,350 UJ	1,260 UJ	1,810 UJ	1,590 UJ	1,320 UJ
4,6-Dinitro-2-methylphenol	1,340 U	1,230 U	1,290 U	1,170 U	1,100 U	1,290 UJ	1,350 UJ	1,260 UJ	1,810 UJ	1,590 UJ	1,320 UJ
4-Bromophenyl-phenylether	448 U	408 U	430 U	392 U	368 U	428 UJ	451 UJ	420 UJ	604 UJ	531 UJ	440 UJ
4-Chloro-3-methylphenol	448 U	408 U	430 U	392 U	368 U	428 UJ	451 UJ	420 UJ	604 UJ	531 UJ	440 UJ
4-Chloroaniline	448 U	408 U	430 U	392 U	368 U	428 UJ	451 UJ	420 UJ	604 UJ	531 UJ	440 UJ
4-Chlorophenyl-phenylether	448 U	408 U	430 U	392 U	368 U	428 UJ	451 UJ	420 UJ	604 UJ	531 UJ	440 UJ
4-Methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Nitroaniline	1,340 U	1,230 U	1,290 U	1,170 U	1,100 U	1,290 UJ	1,350 UJ	1,260 UJ	1,810 UJ	1,590 UJ	1,320 UJ
4-Nitrophenol	1,340 U	1,230 U	1,290 U	1,170 U	1,100 U	1,290 UJ	1,350 UJ	1,260 UJ	1,810 UJ	1,590 UJ	1,320 UJ
Acenaphthene	448 U	408 U	430 U	392 U	368 U	428 UJ	451 UJ	420 UJ	604 UJ	531 UJ	440 UJ
Acenaphthylene	448 U	408 U	430 U	392 U	368 U	428 UJ	451 UJ	420 UJ	604 UJ	531 UJ	440 UJ
Acetophenone	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene	448 U	408 U	430 U	392 U	368 U	428 UJ	451 UJ	420 UJ	604 UJ	531 UJ	440 UJ
Atrazine	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzaldehyde	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	448 U	408 U	430 U	392 U	368 U	428 UJ	451 UJ	420 UJ	604 UJ	531 UJ	440 UJ
Benzo(a)pyrene	448 U	408 U	430 U	392 U	368 U	428 UJ	451 UJ	420 UJ	604 UJ	531 UJ	440 UJ
Benzo(b)fluoranthene	448 U	408 U	430 U	392 U	368 U	428 UJ	451 UJ	420 UJ	604 UJ	531 UJ	440 UJ
Benzo(g,h,i)perylene	448 U	408 U	430 U	392 U	368 U	428 UJ	451 UJ	420 UJ	604 UJ	531 UJ	440 UJ
Benzo(k)fluoranthene	448 U	408 U	430 U	392 U	368 U	428 UJ	451 UJ	420 UJ	604 UJ	531 UJ	440 UJ
Butylbenzylphthalate	448 U	408 U	430 U	392 U	368 U	428 UJ	451 UJ	420 UJ	604 UJ	531 UJ	440 UJ
Caprolactam	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbazole	448 U	408 U	430 U	392 U	368 U	428 UJ	451 UJ	420 UJ	604 UJ	531 UJ	440 UJ
Chrysene	448 U	408 U	430 U	392 U	368 U	428 UJ	451 UJ	420 UJ	604 UJ	531 UJ	440 UJ
Di-n-butylphthalate	448 U	408 U	430 U	392 U	368 U	428 UJ	451 UJ	420 UJ	604 UJ	531 UJ	440 UJ
Di-n-octylphthalate	448 U	408 U	430 U	392 U	368 U	428 UJ	451 UJ	420 UJ	604 UJ	531 UJ	440 UJ
Dibenz(a,h)anthracene	448 U	408 U	430 U	392 U	368 U	428 UJ	451 UJ	420 UJ	604 UJ	531 UJ	440 UJ
Dibenzofuran	448 U	408 U	430 U	392 U	368 U	428 UJ	451 UJ	420 UJ	604 UJ	531 UJ	440 UJ
Diethylphthalate	448 U	408 U	430 U	392 U	368 U	428 UJ	451 UJ	420 UJ	604 UJ	531 UJ	440 UJ
Dimethyl phthalate	448 U	408 U	430 U	392 U	368 U	428 UJ	451 UJ	420 UJ	604 UJ	531 UJ	440 UJ
Fluoranthene	448 U	408 U	430 U	392 U	368 U	428 UJ	451 UJ	420 UJ	604 UJ	531 UJ	440 UJ
Fluorene	448 U	408 U	430 U	392 U	368 U	428 UJ	451 UJ	420 UJ	604 UJ	531 UJ	440 UJ
Hexachlorobenzene	448 U	408 U	430 U	392 U	368 U	428 UJ	451 UJ	420 UJ	604 UJ	531 UJ	440 UJ
Hexachlorobutadiene	448 U	408 U	430 U	392 U	368 U	428 UJ	451 UJ	420 UJ	604 UJ	531 UJ	440 UJ
Hexachlorocyclopentadiene	448 U	408 U	430 U	392 U	368 U	428 UJ	451 UJ	420 UJ	604 UJ	531 UJ	440 UJ
Hexachloroethane	448 U	408 U	430 U	392 U	368 U	428 UJ	451 UJ	420 UJ	604 UJ	531 UJ	440 UJ
Indeno(1,2,3-cd)pyrene	448 U	408 U	430 U	392 U	368 U	428 UJ	451 UJ	420 UJ	604 UJ	531 UJ	440 UJ
Isophorone	448 U	408 U	430 U	392 U	368 U	428 UJ	451 UJ	420 UJ	604 UJ	531 UJ	440 UJ
Naphthalene	448 U	408 U	430 U	392 U	368 U	428 UJ	451 UJ	420 UJ	604 UJ	531 UJ	440 UJ
Nitrobenzene	448 U	408 U	430 U	392 U	368 U	428 UJ	451 UJ	420 UJ	604 UJ	531 UJ	440 UJ
Pentachlorophenol	1,340 U	1,230 U	1,290 U	1,170 U	1,100 U	1,290 UJ	1,350 UJ	1,260 UJ	1,810 UJ	1,590 UJ	1,320 UJ
Phenanthrene	448 U	408 U	430 U	392 U	368 U	428 UJ	451 UJ	420 UJ	604 UJ	531 UJ	440 UJ
Phenol	448 U	408 U	430 U	392 U	368 U	428 UJ	451 UJ	420 UJ	604 UJ	531 UJ	440 UJ
Pyrene	448 U	408 U	430 U	392 U	368 U	428 UJ	451 UJ	420 UJ	604 UJ	531 UJ	440 UJ
bis(2-Chloroethoxy)methane	448 U	408 U	430 U	392 U	368 U	428 UJ	451 UJ	420 UJ	604 UJ	531 UJ	440 UJ
bis(2-Chloroethyl)ether	448 U	408 U	430 U	392 U	368 U	428 UJ	451 UJ	420 UJ	604 UJ	531 UJ	440 UJ
bis(2-Ethylhexyl)phthalate	448 U	408 U	430 U	392 U	368 U	428 UJ	451 UJ	420 UJ	604 UJ	531 UJ	440 UJ
n-Nitroso-di-n-propylamine	448 U	408 U	430 U	392 U	368 U	428 UJ	451 UJ	420 UJ	604 UJ	531 UJ	440 UJ
n-Nitrosodiphenylamine	448 U	408 U	430 U	392 U	368 U	428 UJ	451 UJ	420 UJ	604 UJ	531 UJ	440 UJ
Pesticide/Polychlorinated Biphenyls (UG_KG)											
4,4'-DDD	3.7 U	3.7 U	3.6 U	3.5 U	3.5 U	3.5 U	3.5 U	3.5 UJ	4.1 UJ	4.3 UJ	3.6 UJ
4,4'-DDE	3.7 U	3.7 U	3.6 U	3.5 U	3.5 U	3.5 U	3.5 U	3.5 UJ	4.1 UJ	4.3 UJ	3.6 UJ
4,4'-DDT	3.7 UJ	3.7 UJ	3.6 UJ	3.5 U	3.5 U	3.5 U	3.5 U	3.5 UJ	4.1 UJ	4.3 UJ	3.6 UJ
Aldrin	1.9 U	1.9 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 UJ	2.1 UJ	2.2 UJ	1.9 UJ
Aroclor-1016	37 U	37 U	36 U	35 U	35 U	35 U	35 U	35 UJ	41 UJ	43 UJ	36 UJ
Aroclor-1221	74 U	74 U	73 U	71 U	71 U	71 U	71 U	71 UJ	82 UJ	87 UJ	72 UJ
Aroclor-1232	37 U	37 U	36 U	35 U	35 U	35 U	35 U	35 UJ	41 UJ	43 UJ	36 UJ
Aroclor-1242	37 U	37 U	36 U	35 U	35 U	35 U	35 U	35 UJ	41 UJ	43 UJ	36 UJ
Aroclor-1248	37 U	37 U	36 U	35 U	35 U	35 U	35 U	35 UJ	41 UJ	43 UJ	36 UJ
Aroclor-1254	37 U	37 U	36 U	35 U	35 U	35 U	35 U	35 UJ	41 UJ	43 UJ	36 UJ
Aroclor-1260	37 U	37 U	36 U	35 U	35 U	35 U	35 U	35 UJ	41 UJ	43 UJ	36 UJ
Dieldrin	3.7 U	3.7 U	3.6 U	3.5 U	3.5 U	3.5 U	3.5 U	3.5 UJ	4.1 UJ	4.3 UJ	3.6 UJ
Endosulfan I	1.9 U	1.9 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 UJ	2.1 UJ	2.2 UJ	1.9 UJ
Endosulfan II	3.7 U	3.7 U	3.6 U	3.5 U	3.5 U	3.5 U	3.5 U	3.5 UJ	4.1 UJ	4.3 UJ	3.6 UJ
Endosulfan sulfate	3.7 U	3.7 U	3.6 U	3.5 U	3.5 U	3.5 U	3.5 U	3.5 UJ	4.1 UJ	4.3 UJ	3.6 UJ
Endrin	3.7 U	3.7 U	3.6 U	3.5 U	3.5 U	3.5 U	3.5 U	3.5 UJ	4.1 UJ	4.3 UJ	3.6 UJ
Endrin aldehyde	3.7 U	3.7 U	3.6 U	3.5 U	3.5 U	3.5 U	3.5 U	3.5 UJ	4.1 UJ	4.3 UJ	3.6 UJ
Endrin ketone	3.7 U	3.7 U	3.6 U	3.5 U	3.5 U	3.5 U	3.5 U	3.5 UJ	4.1 UJ	4.3 UJ	3.6 UJ
Heptachlor	1.9 U	1.9 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 UJ	2.1 UJ	2.2 UJ	1.9 UJ
Heptachlor epoxide	1.9 U	1.9 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 UJ	2.1 UJ	2.2 UJ	1.9 UJ
Methoxychlor	19 U	19 U	18 U	18 U	18 U	18 U	18 U	18 UJ	21 UJ	22 UJ	19 UJ
Toxaphene	189 U	189 U	184 U	181 U	178 U	182 U	182 U	183 UJ	210 UJ	222 UJ	185 UJ
alpha-BHC	1.9 U	1.9 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 UJ	2.1 UJ	2.2 UJ	1.9 UJ
alpha-Chlordane	1.9 U	1.9 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 UJ	2.1 UJ	2.2 UJ	1.9 UJ
beta-BHC	1.9 U	1.9 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 UJ	2.1 UJ	2.2 UJ	1.9 UJ
delta-BHC	1.9 U	1.9 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 UJ	2.1 UJ	2.2 UJ	1.9 UJ
gamma-BHC (Lindane)	1.9 U	1.9 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 UJ	2.1 UJ	2.2 UJ	1.9 UJ
gamma-Chlordane	1.9 U	1.9 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 UJ	2.1 UJ	2.2 UJ	1.9 UJ
Total Metals (MG_KG)											
Aluminum	17,000	17,000	18,000	15,000	16,000	18,000	15,000	20,000	25,000	23,000	16,000
Antimony	1.2 J	1.3 J	1 J	1.2 J	1.2 J	1.2 J	1.1 J	1.4 J	1.4 J	1.1 J	0.86 J
Arsenic	1.6 J	1.8 J	1.4 J	1.4 J	1.1 J	1.9 J	1.7 J	2 J	1.8 J	2.3 J	1.2 J
Barium	47	51	40 J	37 J	30 J	40 J	41 J	45	65	62	47
Beryllium	0.17 J	0.2 J	0.14 J	0.19 J	0.13 J	0.21 J	0.18 J	0.18 J	0.42 J	0.32 J	0.13 J
Cadmium	0.03 U	0.03 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.03 U	0.03 U	0.02 U
Calcium	17,000	16,000	15,000	52,000	21,000	21,000	16,000	30,000	7,200	23,000	16,000
Chromium	52	63	48	42	39	34 J	32 J	63 J	110 J	71 J	34 J
Chromium (hexavalent)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	18	19	18	14	16	15	14	20	26	20	15
Copper	46	43	48	48	53	63	51	55	70	62	53
Iron	28,000	29,000	30,000	25,000	29,000	31,000	27,000	32,000	44,000	36,000	26,000
Lead	1.2	2.1	2.3	3.2	1.4	2.1	1.7	1.2	1.6	8.7	2.4
Magnesium	12,000	10,000	14,000	12,000	14,000	13,000	11,000	15,000	9,700	10,000	11,000
Manganese	660	730	570	520	500	590	570	650	780	810	630
Mercury	0.0028 U	0.0039 J	0.0041 J	0.0027 U	0.0026 U	0.0041 J	0.0032 U	0.0032 U	0.014 J	0.034 J	0.0032 U
Nickel	32	37	29	22	25	21 J	20 J	38 J	57 J	38 J	21 J
Potassium	580 J	460 J	530 J	560 J	550 J	840 J	700 J	650 J	600 J	690 J	790 J
Selenium	1.4 J	1 J	1 J	0.66 J	0.89 J	0.49 U	0.49 U	0.49 U	0.57 U	0.59 U	0.5 U
Silver	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.11 J	0.07 U	0.07 U	0.06 U
Sodium	460 J	400 J	390 J	380 J	290 J	520 J	360 J	830 J	670 J	450 J	570 J
Thallium	0.38 U	0.38 U	0.37 U	0.36 U	0.36 U	0.93 J	0.36 U	0.36 U	0.73 J	0.58 J	0.37 U
Vanadium	85	95	88	69	79	85	77	100	140	120	73
Zinc	42	37	44	42	43	42	40	46	48	51	59
Wet Chemistry (MG_KG)											
Total organic carbon (TOC)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pH	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Petroleum Hydrocarbons (MG_KG)											
Petroleum hydrocarbons	31 J	11 J	56 J	66 J	57 J	196 J	130 J	18 J	19 J	40 J	377 J
Total Petroleum Hydrocarbons, C10-C28	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Petroleum Hydrocarbons, C6-C10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:

NA - Not analyzed
J - Reported value is estimated
R - Unreliable result
U - Analyte not detected
UJ - Not detected, quantitation limit may be inaccurate
MG_KG - Milligrams per Kilogram
UG_KG - Micrograms per Kilogram
Shading Indicates Detection

Station ID	AOCISB022	AOCISB023		AOCISB024	AOCISB025	AOCISB026		NDAISS06	NDAISS20	NDAISS22
Sample ID	NDE088	NDE090	NDE091FD1	NDE093	NDE095	NDE097	NDE099FD1	NDAISS06-R02	NDAISS20-R02	NDAISS22-R01-B
Sample Date	12/01/00	12/01/00	12/01/00	12/01/00	12/01/00	12/01/00	12/01/00	08/20/04	08/20/04	08/20/04
Chemical Name										
Volatile Organic Compounds (UG_KG)										
1,1,1-Trichloroethane	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 U	NA	NA	NA
1,1,2,2-Tetrachloroethane	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 U	NA	NA	NA
1,1,2-Trichloroethane	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 U	NA	NA	NA
1,1-Dichloroethane	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 U	NA	NA	NA
1,1-Dichloroethene	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	0.47 J	NA	NA	NA
1,2-Dichloroethane	1 J	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 U	NA	NA	NA
1,2-Dichloropropane	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 U	NA	NA	NA
2-Butanone	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 R	10 R	NA	NA	NA
2-Hexanone	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 U	NA	NA	NA
4-Methyl-2-pentanone	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 U	NA	NA	NA
Acetone	10 R	10 R	34 R	10 R	10 R	10 R	25 R	NA	NA	NA
Benzene	10 UJ	10 UJ	10 UJ	10 UJ	0.27 J	10 UJ	10 U	NA	NA	NA
Bromodichloromethane	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 U	NA	NA	NA
Bromoform	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 U	NA	NA	NA
Bromomethane	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 U	NA	NA	NA
Carbon disulfide	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 U	NA	NA	NA
Carbon tetrachloride	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 U	NA	NA	NA
Chlorobenzene	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 U	NA	NA	NA
Chloroethane	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 U	NA	NA	NA
Chloroform	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 U	NA	NA	NA
Chloromethane	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 U	NA	NA	NA
Dibromochloromethane	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 U	NA	NA	NA
Ethylbenzene	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 U	NA	NA	NA
Methylene chloride	10 UJ	10 UJ	10 UJ	0.34 J	0.36 J	10 UJ	0.56 J	NA	NA	NA
Styrene	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 U	NA	NA	NA
Tetrachloroethene	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 U	NA	NA	NA
Toluene	10 UJ	10 UJ	0.87 J	10 UJ	10 UJ	10 UJ	1.5 J	NA	NA	NA
Trichloroethene	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 U	NA	NA	NA
Vinyl chloride	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 U	NA	NA	NA
Xylene, total	2 J	10 UJ	1.4 J	0.2 J	10 UJ	10 UJ	0.22 J	NA	NA	NA
cis-1,3-Dichloropropene	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 U	NA	NA	NA
m- and p-Xylene	1.4 J	10 UJ	1 J	0.2 J	10 UJ	10 UJ	0.22 J	NA	NA	NA
o-Xylene	0.62 J	10 UJ	0.34 J	10 UJ	10 UJ	10 UJ	10 U	NA	NA	NA
trans-1,3-Dichloropropene	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 UJ	10 U	NA	NA	NA
Semi-volatile Organic Compounds (UG_KG)										
1,1-Biphenyl	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trichlorobenzene	598 UJ	486 U	468 U	468 U	946 U	303 U	808 U	NA	NA	NA
1,2-Dichlorobenzene	598 UJ	486 U	468 U	468 U	946 U	303 U	808 U	NA	NA	NA
1,3-Dichlorobenzene	598 UJ	486 U	468 U	468 U	946 U	303 U	808 U	NA	NA	NA
1,4-Dichlorobenzene	598 UJ	486 U	468 U	468 U	946 U	303 U	808 U	NA	NA	NA
2,2'-Oxybis(1-chloropropane)	598 UJ	486 U	468 U	468 U	946 U	303 U	808 U	NA	NA	NA
2,4,5-Trichlorophenol	1,790 UJ	1,460 U	1,400 U	1,400 U	2,840 U	2,410 U	2,420 U	NA	NA	NA
2,4,6-Trichlorophenol	598 UJ	486 U	468 U	468 U	946 U	303 U	808 U	NA	NA	NA
2,4-Dichlorophenol	598 UJ	486 U	468 U	468 U	946 U	303 U	808 U	NA	NA	NA
2,4-Dimethylphenol	598 UJ	486 U	468 U	468 U	946 U	303 U	808 U	NA	NA	NA
2,4-Dinitrophenol	1,790 UJ	1,460 U	1,400 U	1,400 U	2,840 U	2,410 U	2,420 U	NA	NA	NA
2,4-Dinitrotoluene	598 UJ	486 U	468 U	468 U	946 U	303 U	808 U	NA	NA	NA
2,6-Dinitrotoluene	598 UJ	486 U	468 U	468 U	946 U	303 U	808 U	NA	NA	NA
2-Chloronaphthalene	598 UJ	486 U	468 U	468 U	946 U	303 U	808 U	NA	NA	NA
2-Chlorophenol	598 UJ	486 U	468 U	468 U	946 U	303 U	808 U	NA	NA	NA
2-Methylnaphthalene	598 UJ	486 U	468 U	468 U	946 U	303 U	808 U	NA	NA	NA
2-Methylphenol	598 UJ	486 U	468 U	468 U	946 U	303 U	808 U	NA	NA	NA
2-Nitroaniline	1,790 UJ	1,460 U	1,400 U	1,400 U	2,840 U	2,410 U	2,420 U	NA	NA	NA
2-Nitrophenol	598 UJ	486 U	468 U	468 U	946 U	303 U	808 U	NA	NA	NA
3,3'-Dichlorobenzidine	1,200 UJ	971 U	936 U	935 U	1,890 U	1,610 U	1,620 U	NA	NA	NA
3- and 4-Methylphenol	598 UJ	486 U	468 U	468 U	946 U	303 U	808 U	NA	NA	NA
3-Nitroaniline	1,790 UJ	1,460 U	1,400 U	1,400 U	2,840 U	2,410 U	2,420 U	NA	NA	NA
4,6-Dinitro-2-methylphenol	1,790 UJ	1,460 U	1,400 U	1,400 U	2,840 U	2,410 U	2,420 U	NA	NA	NA
4-Bromophenyl-phenylether	598 UJ	486 U	468 U	468 U	946 U	303 U	808 U	NA	NA	NA
4-Chloro-3-methylphenol	598 UJ	486 U	468 U	468 U	946 U	303 U	808 U	NA	NA	NA
4-Chloroaniline	598 UJ	486 U	468 U	468 U	946 U	303 U	808 U	NA	NA	NA
4-Chlorophenyl-phenylether	598 UJ	486 U	468 U	468 U	946 U	303 U	808 U	NA	NA	NA
4-Methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Nitroaniline	1,790 UJ	1,460 U	1,400 U	1,400 U	2,840 U	2,410 U	2,420 U	NA	NA	NA
4-Nitrophenol	1,790 UJ	1,460 U	1,400 U	1,400 U	2,840 U	2,410 U	2,420 U	NA	NA	NA
Acenaphthene	598 UJ	486 U	468 U	468 U	946 U	303 U	808 U	NA	NA	NA
Acenaphthylene	598 UJ	486 U	468 U	468 U	946 U	303 U	808 U	NA	NA	NA
Acetophenone	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene	598 UJ	486 U	468 U	468 U	946 U	303 U	808 U	NA	NA	NA
Atrazine	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzaldehyde	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	598 UJ	486 U	468 U	468 U	946 U	303 U	808 U	NA	NA	NA
Benzo(a)pyrene	598 UJ	486 U	468 U	468 U	946 U	303 U	808 U	NA	NA	NA
Benzo(b)fluoranthene	598 UJ	486 U	468 U	468 U	946 U	303 U	808 U	NA	NA	NA
Benzo(g,h,i)perylene	598 UJ	486 U	468 U	468 U	946 U	303 U	808 U	NA	NA	NA
Benzo(k)fluoranthene	598 UJ	486 U	468 U	468 U	946 U	303 U	808 U	NA	NA	NA
Butylbenzylphthalate	598 UJ	486 U	468 U	468 U	946 U	303 U	808 U	NA	NA	NA
Caprolactam	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbazole	598 UJ	486 U	468 U	468 U	946 U	303 U	808 U	NA	NA	NA
Chrysene	598 UJ	486 U	468 U	468 U	946 U	303 U	808 U	NA	NA	NA
Di-n-butylphthalate	598 UJ	486 U	468 U	468 U	946 U	303 U	808 U	NA	NA	NA
Di-n-octylphthalate	598 UJ	486 U	468 U	468 U	946 U	303 U	808 U	NA	NA	NA
Dibenz(a,h)anthracene	598 UJ	486 U	468 U	468 U	946 U	303 U	808 U	NA	NA	NA
Dibenzofuran	598 UJ	486 U	468 U	468 U	946 U	303 U	808 U	NA	NA	NA
Diethylphthalate	598 UJ	486 U	468 U	468 U	946 U	303 U	808 U	NA	NA	NA
Dimethyl phthalate	598 UJ	486 U	468 U	468 U	946 U	303 U	808 U	NA	NA	NA
Fluoranthene	598 UJ	486 U	468 U	468 U	946 U	303 U	808 U	NA	NA	NA
Fluorene	598 UJ	486 U	468 U	468 U	946 U	303 U	808 U	NA	NA	NA
Hexachlorobenzene	598 UJ	486 U	468 U	468 U	946 U	303 U	808 U	NA	NA	NA
Hexachlorobutadiene	598 UJ	486 U	468 U	468 U	946 U	303 U	808 U	NA	NA	NA
Hexachlorocyclopentadiene	598 UJ	486 U	468 U	468 U	946 U	303 U	808 U	NA	NA	NA
Hexachloroethane	598 UJ	486 U	468 U	468 U	946 U	303 U	808 U	NA	NA	NA
Indeno(1,2,3-cd)pyrene	598 UJ	486 U	468 U	468 U	946 U	303 U	808 U	NA	NA	NA
Isophorone	598 UJ	486 U	468 U	468 U	946 U	303 U	808 U	NA	NA	NA
Naphthalene	598 UJ	486 U	468 U	468 U	946 U	303 U	808 U	NA	NA	NA
Nitrobenzene	598 UJ	486 U	468 U	468 U	946 U	303 U	808 U	NA	NA	NA
Pentachlorophenol	1,790 UJ	1,460 U	1,400 U	1,400 U	2,840 U	2,410 U	2,420 U	NA	NA	NA
Phenanthrene	598 UJ	486 U	468 U	468 U	946 U	303 U	808 U	NA	NA	NA
Phenol	598 UJ	486 U	468 U	468 U	946 U	303 U	808 U	NA	NA	NA
Pyrene	598 UJ	486 U	468 U	468 U	946 U	303 U	808 U	NA	NA	NA
bis(2-Chloroethoxy)methane	598 UJ	486 U	468 U	468 U	946 U	303 U	808 U	NA	NA	NA
bis(2-Chloroethyl)ether	598 UJ	486 U	468 U	468 U	946 U	303 U	808 U	NA	NA	NA
bis(2-Ethylhexyl)phthalate	598 UJ	486 U	468 U	468 U	946 U	303 U	808 U	NA	NA	NA
n-Nitroso-di-n-propylamine	598 UJ	486 U	468 U	468 U	946 U	303 U	808 U	NA	NA	NA
n-Nitrosodiphenylamine	598 UJ	486 U	468 U	468 U	946 U	303 U	808 U	NA	NA	NA
Pesticide/Polychlorinated Biphenyls (UG_KG)										
4,4'-DDD	4 UJ	3.7 U	3.8 U	3.4 U	3.3 U	3.3 U	3.3 U	NA	NA	NA
4,4'-DDE	4 UJ	3.7 U	3.8 U	3.4 U	3.3 U	3.3 U	3.3 U	NA	NA	NA
4,4'-DDT	4 UJ	3.7 U	3.8 U	3.4 U	3.3 UJ	3.3 UJ	3.3 UJ	NA	NA	NA
Aldrin	2 UJ	1.9 U	2 U	1.8 U	1.7 U	1.7 U	1.7 U	NA	NA	NA
Aroclor-1016	40 UJ	37 U	38 U	34 U	33 U	33 U	33 U	NA	NA	NA
Aroclor-1221	80 UJ	75 U	78 U	69 U	67 U	67 U	67 U	NA	NA	NA
Aroclor-1232	40 UJ	37 U	38 U	34 U	33 U	33 U	33 U	NA	NA	NA
Aroclor-1242	40 UJ	37 U	38 U	34 U	33 U	33 U	33 U	NA	NA	NA
Aroclor-1248	40 UJ	37 U	38 U	34 U	33 U	33 U	33 U	NA	NA	NA
Aroclor-1254	40 UJ	37 U	38 U	34 U	33 U	33 U	33 U	NA	NA	NA
Aroclor-1260	40 UJ	37 U	38 U	34 U	33 U	33 U	33 U	NA	NA	NA
Dieldrin	4 UJ	3.7 U	3.8 U	3.4 U	3.3 U	3.3 U	3.3 U	NA	NA	NA
Endosulfan I	2 UJ	1.9 U	2 U	1.8 U	1.7 U	1.7 U	1.7 U	NA	NA	NA
Endosulfan II	4 UJ	3.7 U	3.8 U	3.4 U	3.3 U	3.3 U	3.3 U	NA	NA	NA
Endosulfan sulfate	4 UJ	3.7 U	3.8 U	3.4 U	3.3 U	3.3 U	3.3 U	NA	NA	NA
Endrin	4 UJ	3.7 U	3.8 U	3.4 U	3.3 U	3.3 U	3.3 U	NA	NA	NA
Endrin aldehyde	4 UJ	3.7 U	3.8 U	3.4 U	3.3 U	3.3 U	3.3 U	NA	NA	NA
Endrin ketone	4 UJ	3.7 U	3.8 U	3.4 U	3.3 U	3.3 U	3.3 U	NA	NA	NA
Heptachlor	2 UJ	1.9 U	2 U	1.8 U	1.7 U	1.7 U	1.7 U	NA	NA	NA
Heptachlor epoxide	2 UJ	1.9 U	2 U	1.8 U	1.7 U	1.7 U	1.7 U	NA	NA	NA
Methoxychlor	20 UJ	19 U	20 U	18 U	17 UJ	17 UJ	17 UJ	NA	NA	NA
Toxaphene	205 UJ	191 U	198 U	176 U	170 U	170 U	170 U	NA	NA	NA
alpha-BHC	2 UJ	1.9 U	2 U	1.8 U	1.7 U	1.7 U	1.7 U	NA	NA	NA
alpha-Chlordane	2 UJ	1.9 U	2 U	1.8 U	1.7 U	1.7 U	1.7 U	NA	NA	NA
beta-BHC	2 UJ	1.9 U	2 U	1.8 U	1.7 U	1.7 U	1.7 U	NA	NA	NA
delta-BHC	2 UJ	1.9 U	2 U	1.8 U	1.7 U	1.7 U	1.7 U	NA	NA	NA
gamma-BHC (Lindane)	2 UJ	1.9 U	2 U	1.8 U	1.7 U	1.7 U	1.7 U	NA	NA	NA
gamma-Chlordane	2 UJ	1.9 U	2 U	1.8 U	1.7 U	1.7 U	1.7 U	NA	NA	NA
Total Metals (MG_KG)										
Aluminum	18,000	16,000	18,000	17,000	18,000	15,000	17,000	NA	NA	NA
Antimony	1.2 J	0.8 J	1.3 J	1.2 J	1.1 J	0.97 J	1 J	NA	NA	NA
Arsenic	1.5 J	1 J	1.3 J	1.3 J	1.9 J	1.1 J	1.1 J	NA	NA	NA
Barium	47 J	35 J	50	51	38 J	30 J	30 B	NA	NA	NA
Beryllium	0.22 J	0.13 J	0.2 J	0.22 J	0.12 J	0.03 U	0.035 UJ	NA	NA	NA
Cadmium	0.52 J	0.03 U	0.03 U	0.02 U	0.03 U	0.02 U	0.02 U	NA	NA	NA
Calcium	13,000	9,500	16,000	45,000	18,000	14,000	17,000	NA	NA	NA
Chromium	57 J	41 J	59 J	36 J	48 J	35 J	32 J	74.6	88.4	NA
Chromium (hexavalent)	NA	NA	NA	NA	NA	NA	NA	0.8 J	0.23 J	NA
Cobalt	18	15	21	17	16	13	15	NA	NA	NA
Copper	69	51 J	82 J	55 J	56 J	45 J	45 J	NA	NA	NA
Iron	30,000	30,000	31,000	28,000	30,000	25,000	28,000	NA	NA	NA
Lead	22	0.81 J	1.5 J	3.8 J	9.9 J	2.3 J	5.1 J	NA	NA	NA
Magnesium	13,000	12,000	13,000	13,000	15,000	12,000	13,000	NA	NA	NA
Manganese	530	660	790	670	590	500	540	NA	NA	NA
Mercury	0.0036 J	0.0028 UJ	0.0029 UJ	0.0055 J	0.0028 UJ	0.0026 UJ	0.0026 UJ	NA	NA	NA
Nickel	31 J	20	38	24	27	20	21	NA	NA	NA
Potassium	910 J	440 J	580 J	620 J	690 J	590 J	670 J	NA	NA	NA
Selenium	0.55 U	1.6 J	0.97 J	0.48 U	1.3 J	1 J	0.96 J	NA	NA	NA
Silver	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.12 J	0.06 U	NA	NA	NA
Sodium	510 J	410 J	640 J	290 J	370 J	420 J	510 J	NA	NA	NA
Thallium	0.4 U	0.38 U	0.4 U	0.36 U	0.37 U	0.36 U	0.36 U	NA	NA	NA
Vanadium	90	84 J	96 J	83 J	91 J	69 J	76 J	NA	NA	NA
Zinc	55	40 J	47 J	44 J	43 J	40 J	43 J	NA	NA	NA
Wet Chemistry (MG_KG)										
Total organic carbon (TOC)	NA	NA	NA	NA	NA	NA	NA	NA	2,630	1,780
pH	NA	NA	NA	NA	NA	NA	NA	NA	8.82	8.95
Total Petroleum Hydrocarbons (MG_KG)										
Petroleum hydrocarbons	154	17 J	15 J	70 J	339 J	248 J	406 J	NA	NA	NA
Total Petroleum Hydrocarbons, C10-C28	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Petroleum Hydrocarbons, C6-C10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:

NA - Not analyzed
J - Reported value is estimated
R - Unreliable result
U - Analyte not detected
UJ - Not detected, quantitation limit may be inaccurate
MG_KG - Milligrams per Kilogram
UG_KG - Micrograms per Kilogram
Shading Indicates Detection

Station ID	NDAISS27	NDAISS28		NDAISS29	NDAISS30	NDAISS31	NDAISS32	NDAISS33	NDAISS34	NDAISS35
Sample ID	NDAISS27-R01	NDAIFD03P-R01	NDAISS28-R01	NDAISS29-R01	NDAISS30-R01	NDAISS31-R01	NDAISS32-R01	NDAISS33-R01	NDAISS34-R01	NDAISS35-R01
Sample Date	08/18/04	08/18/04	08/18/04	08/18/04	08/18/04	08/18/04	08/18/04	08/19/04	08/19/04	08/19/04
Chemical Name										
Volatile Organic Compounds (UG_KG)										
1,1,1-Trichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,2,2-Tetrachloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1,2-Trichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-Dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,1-Dichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloropropane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Butanone	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Hexanone	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4-Methyl-2-pentanone	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acetone	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromodichloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromoform	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromomethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbon disulfide	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlorobenzene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloroform	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibromochloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylene chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Styrene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Tetrachloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Trichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vinyl chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Xylene, total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
cis-1,3-Dichloropropene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
m- and p-Xylene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
o-Xylene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
trans-1,3-Dichloropropene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Semi-volatile Organic Compounds (UG_KG)										
1,1-Biphenyl	336 U	346 U	344 U	371 U	358 U	337 U	350 U	381 U	351 U	343 U
1,2,4-Trichlorobenzene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichlorobenzene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3-Dichlorobenzene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4-Dichlorobenzene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,2'-Oxybis(1-chloropropane)	336 U	346 U	344 U	371 U	358 U	337 U	350 U	381 U	351 U	343 U
2,4,5-Trichlorophenol	1,010 U	1,040 U	1,030 U	1,110 U	1,080 U	1,010 U	1,050 U	1,140 U	1,050 U	1,030 U
2,4,6-Trichlorophenol	336 U	346 U	344 U	371 U	358 U	337 U	350 U	381 U	351 U	343 U
2,4-Dichlorophenol	336 U	346 U	344 U	371 U	358 U	337 U	350 U	381 U	351 U	343 U
2,4-Dimethylphenol	336 U	346 U	344 U	371 U	358 U	337 U	350 U	381 U	351 U	343 U
2,4-Dinitrophenol	1,010 U	1,040 U	1,030 U	1,110 U	1,080 U	1,010 U	1,050 U	1,140 U	1,050 U	1,030 U
2,4-Dinitrotoluene	336 U	346 U	344 U	371 U	358 U	337 U	350 U	381 U	351 U	343 U
2,6-Dinitrotoluene	336 U	346 U	344 U	371 U	358 U	337 U	350 U	381 U	351 U	343 U
2-Chloronaphthalene	336 U	346 U	344 U	371 U	358 U	337 U	350 U	381 U	351 U	343 U
2-Chlorophenol	336 U	346 U	344 U	371 U	358 U	337 U	350 U	381 U	351 U	343 U
2-Methylnaphthalene	336 U	346 U	344 U	371 U	358 U	337 U	350 U	381 U	351 U	343 U
2-Methylphenol	336 U	346 U	344 U	371 U	358 U	337 U	350 U	381 U	351 U	343 U
2-Nitroaniline	1,010 U	1,040 U	1,030 U	1,110 U	1,080 U	1,010 U	1,050 U	1,140 U	1,050 U	1,030 U
2-Nitrophenol	336 U	346 U	344 U	371 U	358 U	337 U	350 U	381 U	351 U	343 U
3,3'-Dichlorobenzidine	682 U	703 U	599 U	753 U	728 U	684 U	710 U	774 U	714 U	596 U
3- and 4-Methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
3-Nitroaniline	1,010 U	1,040 U	1,030 U	1,110 U	1,080 U	1,010 U	1,050 U	1,140 U	1,050 U	1,030 U
4,6-Dinitro-2-methylphenol	1,010 U	1,040 U	1,030 U	1,110 U	1,080 U	1,010 U	1,050 U	1,140 U	1,050 U	1,030 U
4-Bromophenyl-phenylether	336 U	346 U	344 U	371 U	358 U	337 U	350 U	381 U	351 U	343 U
4-Chloro-3-methylphenol	336 U	346 U	344 U	371 U	358 U	337 U	350 U	381 U	351 U	343 U
4-Chloroaniline	336 U	346 U	344 U	371 U	358 U	337 U	350 U	381 U	351 U	343 U
4-Chlorophenyl-phenylether	336 U	346 U	344 U	371 U	358 U	337 U	350 U	381 U	351 U	343 U
4-Methylphenol	336 U	346 U	344 U	371 U	358 U	337 U	350 U	381 U	351 U	343 U
4-Nitroaniline	1,010 U	1,040 U	1,030 U	1,110 U	1,080 U	1,010 U	1,050 U	1,140 U	1,050 U	1,030 U
4-Nitrophenol	1,010 U	1,040 U	1,030 U	1,110 U	1,080 U	1,010 U	1,050 U	1,140 U	1,050 U	1,030 U
Acenaphthene	336 U	346 U	344 U	371 U	358 U	337 U	350 U	381 U	351 U	343 U
Acenaphthylene	336 U	346 U	344 U	371 U	358 U	337 U	350 U	381 U	351 U	343 U
Acetophenone	336 U	346 U	344 U	371 U	358 U	337 U	350 U	381 U	351 U	343 U
Anthracene	336 U	346 U	344 U	371 U	358 U	337 U	350 U	381 U	351 U	343 U
Atrazine	336 U	346 U	344 U	371 U	358 U	337 U	350 U	381 U	351 U	343 U
Benzaldehyde	336 U	346 U	344 U	371 U	358 U	337 U	350 U	381 U	351 U	343 U
Benzo(a)anthracene	336 U	346 U	344 U	371 U	358 U	337 U	59 J	381 U	351 U	343 U
Benzo(a)pyrene	336 U	346 U	344 U	371 U	358 U	337 U	86 J	381 U	351 U	343 U
Benzo(b)fluoranthene	336 U	346 U	344 U	371 U	358 U	337 U	142 J	381 U	351 U	343 U
Benzo(g,h,i)perylene	336 R	346 R	344 R	371 R	358 R	337 R	350 R	381 U	351 U	343 U
Benzo(k)fluoranthene	336 U	346 U	344 U	371 U	358 U	337 U	153 J	381 U	351 U	343 U
Butylbenzylphthalate	336 U	346 U	344 U	371 U	358 U	337 U	350 U	381 U	351 U	343 U
Caprolactam	336 U	346 U	344 U	371 U	358 U	337 U	350 U	381 U	351 U	343 U
Carbazole	336 U	346 U	344 U	371 U	358 U	337 U	350 U	381 U	351 U	343 U
Chrysene	336 U	346 U	344 U	371 U	358 U	337 U	120 J	381 U	351 U	343 U
Di-n-butylphthalate	336 U	346 U	344 U	371 U	358 U	337 U	350 U	381 U	351 U	343 U
Di-n-octylphthalate	336 U	346 U	344 U	371 U	358 U	337 U	350 U	381 U	351 U	343 U
Dibenz(a,h)anthracene	336 UJ	346 UJ	344 UJ	371 UJ	358 UJ	337 UJ	350 UJ	381 U	351 U	343 U
Dibenzofuran	336 U	346 U	344 U	371 U	358 U	337 U	350 U	381 U	351 U	343 U
Diethylphthalate	336 U	346 U	344 U	371 U	358 U	337 U	350 U	381 U	351 U	343 U
Dimethyl phthalate	336 U	346 U	344 U	371 U	358 U	337 U	350 U	381 U	351 U	343 U
Fluoranthene	336 U	346 U	344 U	371 U	358 U	337 U	52.1 J	381 U	351 U	343 U
Fluorene	336 U	346 U	344 U	371 U	358 U	337 U	350 U	381 U	351 U	343 U
Hexachlorobenzene	336 U	346 U	344 U	371 U	358 U	337 U	350 U	381 U	351 U	343 U
Hexachlorobutadiene	336 U	346 U	344 U	371 U	358 U	337 U	350 U	381 U	351 U	343 U
Hexachlorocyclopentadiene	336 UJ	346 UJ	344 UJ	371 UJ	358 UJ	337 UJ	350 UJ	381 U	351 U	343 U
Hexachloroethane	336 U	346 U	344 U	371 U	358 U	337 U	350 U	381 U	351 U	343 U
Indeno(1,2,3-cd)pyrene	336 U	346 U	344 U	371 U	358 U	337 U	39 J	381 U	351 U	343 U
Isophorone	336 U	346 U	344 U	371 U	358 U	337 U	350 U	381 U	351 U	343 U
Naphthalene	336 U	346 U	344 U	371 U	358 U	337 U	350 U	381 U	351 U	343 U
Nitrobenzene	336 U	346 U	344 U	371 U	358 U	337 U	350 U	381 U	351 U	343 U
Pentachlorophenol	1,010 U	1,040 U	1,030 U	1,110 U	1,080 U	1,010 U	1,050 U	1,140 U	1,050 U	1,030 U
Phenanthrene	336 U	346 U	344 U	371 U	358 U	337 U	350 U	381 U	351 U	343 U
Phenol	336 U	346 U	344 U	371 U	358 U	337 U	350 U	381 U	351 U	343 U
Pyrene	336 U	346 U	344 U	371 U	358 U	337 U	63.8 J	381 U	351 U	343 U
bis(2-Chloroethoxy)methane	336 U	346 U	344 U	371 U	358 U	337 U	350 U	381 U	351 U	343 U
bis(2-Chloroethyl)ether	336 U	346 U	344 U	371 U	358 U	337 U	350 U	381 U	351 U	343 U
bis(2-Ethylhexyl)phthalate	804	368	412	198 J	227 J	270 J	102 J	381 U	351 U	192 J
n-Nitroso-di-n-propylamine	336 U	346 U	344 U	371 U	358 U	337 U	350 U	381 U	351 U	343 U
n-Nitrosodiphenylamine	336 U	346 U	344 U	371 U	358 U	337 U	350 U	381 U	351 U	343 U
Pesticide/Polychlorinated Biphenyls (UG_KG)										
4,4'-DDD	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4'-DDE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4'-DDT	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aldrin	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor-1016	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor-1221	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor-1232	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor-1242	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor-1248	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor-1254	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aroclor-1260	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dieldrin	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Endosulfan I	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Endosulfan II	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Endosulfan sulfate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Endrin	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Endrin aldehyde	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Endrin ketone	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Heptachlor	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Heptachlor epoxide	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methoxychlor	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Toxaphene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
alpha-BHC	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
alpha-Chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
beta-BHC	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
delta-BHC	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
gamma-BHC (Lindane)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
gamma-Chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Metals (MG_KG)										
Aluminum	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Antimony	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Barium	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Beryllium	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cadmium	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Calcium	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	49.8 J	52.7 J	60.7 J	92 J	74.6 J	47.8 J	33.2 J	50.8 J	51.2 J	34.6 J
Chromium (hexavalent)	1.62 J	0.579 J	0.144 UJ	0.535 J	0.698 J	0.613 J	0.962 J	0.462 J	0.685 J	0.499 J
Cobalt	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Iron	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Magnesium	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Manganese	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mercury	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Potassium	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Selenium	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Silver	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sodium	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Thallium	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Wet Chemistry (MG_KG)										
Total organic carbon (TOC)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pH	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Petroleum Hydrocarbons (MG_KG)										
Petroleum hydrocarbons	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Petroleum Hydrocarbons, C10-C28	31.9	8.6 U	10.3 U	3.2 U	5.1 U	8.6 U	16.4 U	3.8 J	76.6	33.2
Total Petroleum Hydrocarbons, C6-C10	0.0342 U	0.0412 U	0.04 U	0.0407 U	0.0409 U	0.0366 U	0.16 U	0.0453 U	0.0408 U	0.036 U

Notes:

NA - Not analyzed
J - Reported value is estimated
R - Unreliable result
U - Analyte not detected
UJ - Not detected, quantitation limit may be inaccurate
MG_KG - Milligrams per Kilogram
UG_KG - Micrograms per Kilogram
Shading Indicates Detection

Station ID	NDAISS36	NDAISS37		NDAISS38	NDAISS39	NDAISS40	NDAISS41
Sample ID	NDAISS36-R01	NDAIFD02P-R01	NDAISS37-R01	NDAISS38-R01	NDAISS39-R01	NDAISS40-R01	NDAISS41-R01
Sample Date	08/19/04	08/19/04	08/19/04	08/19/04	08/20/04	08/20/04	08/20/04
Chemical Name							
Volatile Organic Compounds (UG_KG)							
1,1,1-Trichloroethane	NA	NA	NA	NA	NA	NA	NA
1,1,2,2-Tetrachloroethane	NA	NA	NA	NA	NA	NA	NA
1,1,2-Trichloroethane	NA	NA	NA	NA	NA	NA	NA
1,1-Dichloroethane	NA	NA	NA	NA	NA	NA	NA
1,1-Dichloroethene	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloropropane	NA	NA	NA	NA	NA	NA	NA
2-Butanone	NA	NA	NA	NA	NA	NA	NA
2-Hexanone	NA	NA	NA	NA	NA	NA	NA
4-Methyl-2-pentanone	NA	NA	NA	NA	NA	NA	NA
Acetone	NA	NA	NA	NA	NA	NA	NA
Benzene	NA	NA	NA	NA	NA	NA	NA
Bromodichloromethane	NA	NA	NA	NA	NA	NA	NA
Bromoform	NA	NA	NA	NA	NA	NA	NA
Bromomethane	NA	NA	NA	NA	NA	NA	NA
Carbon disulfide	NA	NA	NA	NA	NA	NA	NA
Carbon tetrachloride	NA	NA	NA	NA	NA	NA	NA
Chlorobenzene	NA	NA	NA	NA	NA	NA	NA
Chloroethane	NA	NA	NA	NA	NA	NA	NA
Chloroform	NA	NA	NA	NA	NA	NA	NA
Chloromethane	NA	NA	NA	NA	NA	NA	NA
Dibromochloromethane	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	NA	NA	NA	NA	NA	NA	NA
Methylene chloride	NA	NA	NA	NA	NA	NA	NA
Styrene	NA	NA	NA	NA	NA	NA	NA
Tetrachloroethene	NA	NA	NA	NA	NA	NA	NA
Toluene	NA	NA	NA	NA	NA	NA	NA
Trichloroethene	NA	NA	NA	NA	NA	NA	NA
Vinyl chloride	NA	NA	NA	NA	NA	NA	NA
Xylene, total	NA	NA	NA	NA	NA	NA	NA
cis-1,3-Dichloropropene	NA	NA	NA	NA	NA	NA	NA
m- and p-Xylene	NA	NA	NA	NA	NA	NA	NA
o-Xylene	NA	NA	NA	NA	NA	NA	NA
trans-1,3-Dichloropropene	NA	NA	NA	NA	NA	NA	NA
Semi-volatile Organic Compounds (UG_KG)							
1,1-Biphenyl	357 U	356 UJ	349 UJ	344 UJ	344 UJ	354 U	NA
1,2,4-Trichlorobenzene	NA	NA	NA	NA	NA	NA	NA
1,2-Dichlorobenzene	NA	NA	NA	NA	NA	NA	NA
1,3-Dichlorobenzene	NA	NA	NA	NA	NA	NA	NA
1,4-Dichlorobenzene	NA	NA	NA	NA	NA	NA	NA
2,2'-Oxybis(1-chloropropane)	357 U	356 U	349 U	344 U	344 U	354 U	NA
2,4,5-Trichlorophenol	1,070 U	1,070 U	1,050 U	1,030 U	1,030 U	1,060 U	NA
2,4,6-Trichlorophenol	357 U	356 U	349 U	344 U	344 U	354 U	NA
2,4-Dichlorophenol	357 U	356 U	349 U	344 U	344 U	354 U	NA
2,4-Dimethylphenol	357 U	356 U	349 U	344 U	344 U	354 U	NA
2,4-Dinitrophenol	1,070 U	1,070 UJ	1,050 UJ	1,030 UJ	1,030 UJ	1,060 UJ	NA
2,4-Dinitrotoluene	357 U	356 UJ	349 UJ	344 UJ	344 UJ	354 U	NA
2,6-Dinitrotoluene	357 U	356 U	349 U	344 U	344 U	354 U	NA
2-Chloronaphthalene	357 U	356 U	349 U	344 U	344 U	354 U	NA
2-Chlorophenol	357 U	356 U	349 U	344 U	344 U	354 U	NA
2-Methylnaphthalene	357 U	356 U	349 U	344 U	344 U	354 U	NA
2-Methylphenol	357 U	356 U	349 U	344 U	344 U	354 U	NA
2-Nitroaniline	1,070 U	1,070 U	1,050 U	1,030 U	1,030 U	1,060 U	NA
2-Nitrophenol	357 U	356 U	349 U	344 U	344 U	354 U	NA
3,3'-Dichlorobenzidine	726 U	723 U	709 U	698 U	699 U	719 U	NA
3- and 4-Methylphenol	NA	NA	NA	NA	NA	NA	NA
3-Nitroaniline	1,070 U	1,070 U	1,050 U	1,030 U	1,030 U	1,060 U	NA
4,6-Dinitro-2-methylphenol	1,070 U	1,070 U	1,050 U	1,030 U	1,030 U	1,060 U	NA
4-Bromophenyl-phenylether	357 U	356 U	349 U	344 U	344 U	354 U	NA
4-Chloro-3-methylphenol	357 U	356 U	349 U	344 U	344 U	354 U	NA
4-Chloroaniline	357 U	356 U	349 U	344 U	344 U	354 U	NA
4-Chlorophenyl-phenylether	357 U	356 U	349 U	344 U	344 U	354 U	NA
4-Methylphenol	357 U	356 U	349 U	344 U	344 U	354 U	NA
4-Nitroaniline	1,070 U	1,070 U	1,050 U	1,030 U	1,030 U	1,060 U	NA
4-Nitrophenol	1,070 U	1,070 U	1,050 U	1,030 U	1,030 U	1,060 U	NA
Acenaphthene	357 U	356 U	349 U	344 U	344 U	354 U	NA
Acenaphthylene	357 U	356 U	349 U	344 U	104 J	354 U	NA
Acetophenone	357 U	356 UJ	349 UJ	344 UJ	344 UJ	354 U	NA
Anthracene	55 J	356 U	349 U	344 U	55.4 J	354 U	NA
Atrazine	357 U	356 U	349 U	344 U	344 U	354 U	NA
Benzaldehyde	357 U	356 U	349 U	344 U	344 U	354 U	NA
Benzo(a)anthracene	62.4 J	356 U	349 U	344 U	68 J	354 U	NA
Benzo(a)pyrene	33.6 J	356 U	349 U	42.5 J	145 J	354 U	NA
Benzo(b)fluoranthene	357 U	356 U	349 U	344 U	203 J	354 U	NA
Benzo(g,h,i)perylene	357 U	356 U	349 U	47.6 J	174 J	354 U	NA
Benzo(k)fluoranthene	357 U	356 U	349 U	40.1 J	130 J	354 U	NA
Butylbenzylphthalate	357 U	356 U	349 U	344 U	344 U	354 U	NA
Caprolactam	357 U	356 U	349 U	344 U	344 U	354 U	NA
Carbazole	357 U	356 U	349 U	344 U	344 U	354 U	NA
Chrysene	68.3 J	356 U	349 U	344 U	135 J	354 U	NA
Di-n-butylphthalate	357 U	356 U	349 U	344 U	344 U	354 U	NA
Di-n-octylphthalate	357 U	356 U	349 U	344 U	344 U	354 U	NA
Dibenz(a,h)anthracene	357 U	356 U	349 U	344 U	43.7 J	354 U	NA
Dibenzofuran	357 U	356 U	349 U	344 U	344 U	354 U	NA
Diethylphthalate	357 U	356 U	349 U	344 U	344 U	354 U	NA
Dimethyl phthalate	357 U	356 U	349 U	344 U	344 U	354 U	NA
Fluoranthene	227 J	356 U	31.5 J	344 U	52.7 J	354 U	NA
Fluorene	357 U	356 U	349 U	344 U	344 U	354 U	NA
Hexachlorobenzene	357 U	356 U	349 U	344 U	344 U	354 U	NA
Hexachlorobutadiene	357 U	356 U	349 U	344 U	344 U	354 U	NA
Hexachlorocyclopentadiene	357 U	356 U	349 U	344 U	344 U	354 U	NA
Hexachloroethane	357 U	356 U	349 U	344 U	344 U	354 U	NA
Indeno(1,2,3-cd)pyrene	357 U	356 U	349 U	344 U	138 J	354 U	NA
Isophorone	357 U	356 U	349 U	344 U	344 U	354 U	NA
Naphthalene	357 U	356 U	349 U	344 U	344 U	354 U	NA
Nitrobenzene	357 U	356 U	349 U	344 U	344 U	354 U	NA
Pentachlorophenol	1,070 U	1,070 U	1,050 U	1,030 U	1,030 U	1,060 U	NA
Phenanthrene	357 U	356 U	349 U	344 U	344 U	354 U	NA
Phenol	357 U	356 U	349 U	344 U	344 U	354 U	NA
Pyrene	193 J	356 U	349 U	344 U	118 J	354 U	NA
bis(2-Chloroethoxy)methane	357 U	356 U	349 U	344 U	344 U	354 U	NA
bis(2-Chloroethyl)ether	357 U	356 U	349 U	344 U	344 U	354 U	NA
bis(2-Ethylhexyl)phthalate	664	43.5 J	32.8 J	233 J	182 J	48.9 J	NA
n-Nitroso-di-n-propylamine	357 U	356 U	349 U	344 U	344 U	354 U	NA
n-Nitrosodiphenylamine	357 U	356 U	349 U	344 U	344 U	354 U	NA
Pesticide/Polychlorinated Biphenyls (UG_KG)							
4,4'-DDD	NA	NA	NA	NA	NA	NA	NA
4,4'-DDE	NA	NA	NA	NA	NA	NA	NA
4,4'-DDT	NA	NA	NA	NA	NA	NA	NA
Aldrin	NA	NA	NA	NA	NA	NA	NA
Aroclor-1016	NA	NA	NA	NA	NA	NA	NA
Aroclor-1221	NA	NA	NA	NA	NA	NA	NA
Aroclor-1232	NA	NA	NA	NA	NA	NA	NA
Aroclor-1242	NA	NA	NA	NA	NA	NA	NA
Aroclor-1248	NA	NA	NA	NA	NA	NA	NA
Aroclor-1254	NA	NA	NA	NA	NA	NA	NA
Aroclor-1260	NA	NA	NA	NA	NA	NA	NA
Dieldrin	NA	NA	NA	NA	NA	NA	NA
Endosulfan I	NA	NA	NA	NA	NA	NA	NA
Endosulfan II	NA	NA	NA	NA	NA	NA	NA
Endosulfan sulfate	NA	NA	NA	NA	NA	NA	NA
Endrin	NA	NA	NA	NA	NA	NA	NA
Endrin aldehyde	NA	NA	NA	NA	NA	NA	NA
Endrin ketone	NA	NA	NA	NA	NA	NA	NA
Heptachlor	NA	NA	NA	NA	NA	NA	NA
Heptachlor epoxide	NA	NA	NA	NA	NA	NA	NA
Methoxychlor	NA	NA	NA	NA	NA	NA	NA
Toxaphene	NA	NA	NA	NA	NA	NA	NA
alpha-BHC	NA	NA	NA	NA	NA	NA	NA
alpha-Chlordane	NA	NA	NA	NA	NA	NA	NA
beta-BHC	NA	NA	NA	NA	NA	NA	NA
delta-BHC	NA	NA	NA	NA	NA	NA	NA
gamma-BHC (Lindane)	NA	NA	NA	NA	NA	NA	NA
gamma-Chlordane	NA	NA	NA	NA	NA	NA	NA
Total Metals (MG_KG)							
Aluminum	NA	NA	NA	NA	NA	NA	NA
Antimony	NA	NA	NA	NA	NA	NA	NA
Arsenic	NA	NA	NA	NA	NA	NA	NA
Barium	NA	NA	NA	NA	NA	NA	NA
Beryllium	NA	NA	NA	NA	NA	NA	NA
Cadmium	NA	NA	NA	NA	NA	NA	NA
Calcium	NA	NA	NA	NA	NA	NA	NA
Chromium	51.5 J	33 J	37.5 J	36.4 J	53	57.6	75.3
Chromium (hexavalent)	0.52 J	0.647 J	1.27 J	1.17 J	0.543 J	0.728 J	0.593 J
Cobalt	NA	NA	NA	NA	NA	NA	NA
Copper	NA	NA	NA	NA	NA	NA	NA
Iron	NA	NA	NA	NA	NA	NA	NA
Lead	NA	NA	NA	NA	NA	NA	NA
Magnesium	NA	NA	NA	NA	NA	NA	NA
Manganese	NA	NA	NA	NA	NA	NA	NA
Mercury	NA	NA	NA	NA	NA	NA	NA
Nickel	NA	NA	NA	NA	NA	NA	NA
Potassium	NA	NA	NA	NA	NA	NA	NA
Selenium	NA	NA	NA	NA	NA	NA	NA
Silver	NA	NA	NA	NA	NA	NA	NA
Sodium	NA	NA	NA	NA	NA	NA	NA
Thallium	NA	NA	NA	NA	NA	NA	NA
Vanadium	NA	NA	NA	NA	NA	NA	NA
Zinc	NA	NA	NA	NA	NA	NA	NA
Wet Chemistry (MG_KG)							
Total organic carbon (TOC)	NA	NA	NA	NA	NA	NA	97.4 U
pH	NA	NA	NA	NA	NA	NA	9.06
Total Petroleum Hydrocarbons (MG_KG)							
Petroleum hydrocarbons	NA	NA	NA	NA	NA	NA	NA
Total Petroleum Hydrocarbons, C10-C28	50.6	147	137	14.9	23.9	132 J	NA
Total Petroleum Hydrocarbons, C6-C10	0.0365 U	0.043 U	0.0408 U	0.0356 U	0.041 U	0.043 U	NA

Notes:

NA - Not analyzed
J - Reported value is estimated
R - Unreliable result
U - Analyte not detected
UJ - Not detected, quantitation limit may be inaccurate
MG_KG - Milligrams per Kilogram
UG_KG - Micrograms per Kilogram
Shading Indicates Detection

Appendix K
Validated Laboratory Data
Subsurface Soil

West Vieques - AOC-I
Validated Subsurface Soil Raw Analytical Results

Station ID	AOCISB001	AOCISB002	AOCISB003	AOCISB004	AOCISB005	AOCISB006	AOCISB007	AOCISB008	AOCISB009	AOCISB010	AOCISB011	AOCISB012	AOCISB013	AOCISB014
Sample ID	NDE044	NDE046	NDE048	NDE050	NDE052	NDE054	NDE056	NDE058	NDE060	NDE063	NDE065	NDE067	NDE069	NDE071
Sample Date	11/29/00	11/29/00	11/29/00	11/29/00	11/29/00	11/30/00	11/30/00	11/30/00	11/30/00	11/30/00	11/30/00	11/30/00	11/30/00	11/30/00
Chemical Name														
Volatile Organic Compounds (UG_KG)														
1,1,1-Trichloroethane	11 U	11 U	10 U	11 U	10 U	12 U	10 U	10 U	10 U	10 U	10 UJ	10 UJ	10 UJ	10 UJ
1,1,2,2-Tetrachloroethane	11 U	11 U	10 U	11 U	10 U	12 U	10 U	10 U	10 U	10 U	10 UJ	10 UJ	10 UJ	10 UJ
1,1,2-Trichloroethane	11 U	11 U	10 U	11 U	10 U	12 U	10 U	10 U	10 U	10 U	10 UJ	10 UJ	10 UJ	10 UJ
1,1-Dichloroethane	11 U	11 U	10 U	11 U	10 U	12 U	10 U	10 U	10 U	10 U	10 UJ	10 UJ	10 UJ	10 UJ
1,1-Dichloroethene	11 U	11 U	10 U	11 U	10 U	12 U	10 U	0.42 J	10 U	10 U	10 UJ	10 UJ	10 UJ	10 UJ
1,2-Dichloroethane	11 U	11 U	10 U	11 U	10 U	12 U	10 U	10 U	10 U	10 U	10 UJ	10 UJ	10 UJ	10 UJ
1,2-Dichloropropane	11 U	11 U	10 U	11 U	10 U	12 U	10 U	10 U	10 U	10 U	10 UJ	10 UJ	10 UJ	10 UJ
2-Butanone	11 R	11 R	10 R	11 R	10 R	12 R	10 R	4.1 R	4.1 J	10 R	10 R	10 R	10 R	10 R
2-Hexanone	11 U	11 U	10 U	11 U	10 U	12 U	10 U	10 U	10 U	10 U	10 UJ	10 UJ	10 UJ	10 UJ
4-Methyl-2-pentanone	11 U	11 U	10 U	11 U	10 U	12 U	10 U	10 U	10 U	10 U	10 UJ	10 UJ	10 UJ	10 UJ
Acetone	11 R	17 R	11 R	12 R	11 R	27 R	18 R	56 R	38 R	11 R	15 R	10 R	15 R	10 R
Benzene	11 U	11 U	10 U	11 U	10 U	12 U	10 U	10 U	10 U	10 U	10 UJ	10 UJ	10 UJ	10 UJ
Bromodichloromethane	11 U	11 U	10 U	11 U	10 U	12 U	10 U	10 U	10 U	10 U	10 UJ	10 UJ	10 UJ	10 UJ
Bromoform	11 U	11 U	10 U	11 U	10 U	12 U	10 U	10 U	10 U	10 U	10 UJ	10 UJ	10 UJ	10 UJ
Bromomethane	11 U	11 U	10 U	11 U	10 U	12 U	10 U	10 U	10 U	10 U	10 UJ	10 UJ	10 UJ	10 UJ
Carbon disulfide	11 U	11 U	10 U	11 U	10 U	12 U	10 U	10 U	10 U	10 U	10 UJ	10 UJ	10 UJ	10 UJ
Carbon tetrachloride	11 U	11 U	10 U	11 U	10 U	12 U	10 U	10 U	10 U	10 U	10 UJ	10 UJ	10 UJ	10 UJ
Chlorobenzene	11 U	11 U	10 U	11 U	10 U	12 U	10 U	10 U	10 U	10 U	10 UJ	10 UJ	10 UJ	10 UJ
Chloroethane	11 U	11 U	10 U	11 U	10 U	12 U	10 U	10 U	10 U	10 U	10 UJ	10 UJ	10 UJ	10 UJ
Chloroform	11 U	11 U	10 U	11 U	10 U	12 U	10 U	10 U	10 U	10 U	10 UJ	10 UJ	10 UJ	10 UJ
Chloromethane	11 U	11 U	10 U	11 U	10 U	12 U	10 U	10 U	10 U	10 U	10 UJ	10 UJ	10 UJ	10 UJ
Dibromochloromethane	11 U	11 U	10 U	11 U	10 U	12 U	10 U	10 U	10 U	10 U	10 UJ	10 UJ	10 UJ	10 UJ
Ethylbenzene	11 U	11 U	10 U	11 U	10 U	12 U	10 U	10 U	10 U	10 U	10 UJ	10 UJ	10 UJ	0.89 J
Methylene chloride	11 U	11 U	10 U	11 U	10 U	12 U	10 U	10 U	10 U	10 U	10 UJ	10 UJ	10 UJ	10 UJ
Styrene	11 U	11 U	10 U	11 U	10 U	12 U	10 U	10 U	10 U	10 U	10 UJ	10 UJ	10 UJ	10 UJ
Tetrachloroethene	11 U	11 U	10 U	11 U	10 U	12 U	10 U	10 U	10 U	10 U	10 UJ	10 UJ	10 UJ	0.29 J
Toluene	11 U	11 U	10 U	11 U	10 U	0.67 J	0.78 J	10 U	10 U	10 U	10 UJ	10 UJ	10 UJ	10 UJ
Trichloroethene	0.37 J	11 U	10 U	11 U	10 U	12 U	10 U	10 U	10 U	10 U	10 UJ	10 UJ	10 UJ	10 UJ
Vinyl chloride	11 U	11 U	10 U	11 U	10 U	12 U	10 U	10 U	10 U	10 U	10 UJ	10 UJ	10 UJ	10 UJ
Xylene, total	11 U	11 U	10 U	11 U	10 U	12 U	10 U	10 U	10 U	10 U	10 UJ	10 UJ	10 UJ	4.8 J
cis-1,3-Dichloropropene	11 U	11 U	10 U	11 U	10 U	12 U	10 U	10 U	10 U	10 U	10 UJ	10 UJ	10 UJ	10 UJ
m- and p-Xylene	11 U	11 U	10 U	11 U	10 U	12 U	10 U	10 U	10 U	10 U	10 UJ	10 UJ	10 UJ	3.6 J
o-Xylene	11 U	11 U	10 U	11 U	10 U	12 U	10 U	10 U	10 U	10 U	10 UJ	10 UJ	10 UJ	1.2 J
trans-1,3-Dichloropropene	11 U	11 U	10 U	11 U	10 U	12 U	10 U	10 U	10 U	10 U	10 UJ	10 UJ	10 UJ	10 UJ
Semi-volatile Organic Compounds (UG_KG)														
1,2,4-Trichlorobenzene	469 U	416 U	347 U	410 U	353 U	354 U	364 U	448 U	358 U	386 U	371 U	382 U	371 U	397 U
1,2-Dichlorobenzene	469 U	416 U	347 U	410 U	353 U	354 U	364 U	448 U	358 U	386 U	371 U	382 U	371 U	397 U
1,3-Dichlorobenzene	469 U	416 U	347 U	410 U	353 U	354 U	364 U	448 U	358 U	386 U	371 U	382 U	371 U	397 U
1,4-Dichlorobenzene	469 U	416 U	347 U	410 U	353 U	354 U	364 U	448 U	358 U	386 U	371 U	382 U	371 U	397 U
2,2'-Oxybis(1-chloropropane)	469 U	416 U	347 U	410 U	353 U	354 U	364 U	448 U	358 U	386 U	371 U	382 U	371 U	397 U
2,4,5-Trichlorophenol	1,410 U	1,250 U	1,040 U	1,230 U	1,060 U	1,060 U	1,090 U	1,340 U	1,080 U	1,160 U	1,110 U	1,150 U	1,110 U	1,190 U
2,4,6-Trichlorophenol	469 U	416 U	347 U	410 U	353 U	354 U	364 U	448 U	358 U	386 U	371 U	382 U	371 U	397 U
2,4-Dichlorophenol	469 U	416 U	347 U	410 U	353 U	354 U	364 U	448 U	358 U	386 U	371 U	382 U	371 U	397 U
2,4-Dimethylphenol	469 U	416 U	347 U	410 U	353 U	354 U	364 U	448 U	358 U	386 U	371 U	382 U	371 U	397 U
2,4-Dinitrophenol	1,410 U	1,250 U	1,040 U	1,230 U	1,060 U	1,060 U	1,090 U	1,340 U	1,080 U	1,160 U	1,110 U	1,150 U	1,110 U	1,190 U
2,4-Dinitrotoluene	469 U	416 U	347 U	410 U	353 U	354 U	364 U	448 U	358 U	386 U	371 U	382 U	371 U	397 U
2,6-Dinitrotoluene	469 U	416 U	347 U	410 U	353 U	354 U	364 U	448 U	358 U	386 U	371 U	382 U	371 U	397 U
2-Chloronaphthalene	469 U	416 U	347 U	410 U	353 U	354 U	364 U	448 U	358 U	386 U	371 U	382 U	371 U	397 U
2-Chlorophenol	469 U	416 U	347 U	410 U	353 U	354 U	364 U	448 U	358 U	386 U	371 U	382 U	371 U	397 U
2-Methylnaphthalene	469 U	416 U	347 U	410 U	353 U	354 U	364 U	448 U	358 U	386 U	371 U	382 U	371 U	397 U
2-Methylphenol	469 U	416 U	347 U	410 U	353 U	354 U	364 U	448 U	358 U	386 U	371 U	382 U	371 U	397 U
2-Nitroaniline	1,410 U	1,250 U	1,040 U	1,230 U	1,060 U	1,060 U	1,090 U	1,340 U	1,080 U	1,160 U	1,110 U	1,150 U	1,110 U	1,190 U
2-Nitrophenol	469 U	416 U	347 U	410 U	353 U	354 U	364 U	448 U	358 U	386 U	371 U	382 U	371 U	397 U
3,3'-Dichlorobenzidine	938 U	833 U	695 U	820 U	705 U	709 U	729 U	896 U	717 U	771 U	743 U	764 U	743 U	795 U
3- and 4-Methylphenol	469 U	416 U	347 U	410 U	353 U	354 U	364 U	448 U	358 U	386 U	371 U	382 U	371 U	397 U
3-Nitroaniline	1,410 U	1,250 U	1,040 U	1,230 U	1,060 U	1,060 U	1,090 U	1,340 U	1,080 U	1,160 U	1,110 U	1,150 U	1,110 U	1,190 U
4,6-Dinitro-2-methylphenol	1,410 U	1,250 U	1,040 U	1,230 U	1,060 U	1,060 U	1,090 U	1,340 U	1,080 U	1,160 U	1,110 U	1,150 U	1,110 U	1,190 U
4-Bromophenyl-phenylether	469 U	416 U	347 U	410 U	353 U	354 U	364 U	448 U	358 U	386 U	371 U	382 U	371 U	397 U
4-Chloro-3-methylphenol	469 U	416 U	347 U	410 U	353 U	354 U	364 U	448 U	358 U	386 U	371 U	382 U	371 U	397 U
4-Chloroaniline	469 U	416 U	347 U	410 U	353 U	354 U	364 U	448 U	358 U	386 U	371 U	382 U	371 U	397 U
4-Chlorophenyl-phenylether	469 U	416 U	347 U	410 U	353 U	354 U	364 U	448 U	358 U	386 U	371 U	382 U	371 U	397 U
4-Nitroaniline	1,410 U	1,250 U	1,040 U	1,230 U	1,060 U	1,060 U	1,090 U	1,340 U	1,080 U	1,160 U	1,110 U	1,150 U	1,110 U	1,190 U
4-Nitrophenol	1,410 U	1,250 U	1,040 U	1,230 U	1,060 U	1,060 U	1,090 U	1,340 U	1,080 U	1,160 U	1,110 U	1,150 U	1,110 U	1,190 U
Acenaphthene	469 U	416 U	347 U	410 U	353 U	354 U	364 U	448 U	358 U	386 U	371 U	382 U	371 U	397 U
Acenaphthylene	469 U	416 U	347 U	410 U	353 U	354 U	364 U	448 U	358 U	386 U	371 U	382 U	371 U	397 U
Anthracene	469 U	416 U	347 U	410 U	353 U	354 U	364 U	448 U	358 U	386 U	371 U	382 U	371 U	397 U
Benzo(a)anthracene	469 U	416 U	347 U	410 U	353 U	354 U	364 U	448 U	358 U	386 U	371 U	382 U	371 U	397 U
Benzo(a)pyrene	469 U	416 U	347 U	410 U	353 U	354 U	364 U	448 U	358 U	386 U	371 U	382 U	371 U	397 U
Benzo(b)fluoranthene	469 U	416 U	347 U	410 U	353 U	354 U	364 U	448 U	358 U	386 U	371 U	382 U	371 U	397 U
Benzo(g,h,i)perylene	469 U	416 U	347 U	410 U	353 U	354 U	364 U	448 U	358 U	386 U	371 U	382 U	371 U	397 U
Benzo(k)fluoranthene	469 U	416 U	347 U	410 U	353 U	354 U	364 U	448 U	358 U	386 U	371 U	382 U	371 U	397 U
Butylbenzylphthalate	469 U	416 U	347 U	410 U	353 U	354 U	364 U	448 U	358 U	386 U	371 U	382 U	371 U	397 U
Carbazole	469 U	416 U	347 U	410 U	353 U	354 U	364 U	448 U	358 U	386 U	371 U	382 U	371 U	397 U
Chrysene	469 U	416 U	347 U	410 U	353 U	354 U	364 U	448 U	358 U	386 U	371 U	382 U	371 U	397 U
Di-n-butylphthalate	469 U	416 U	347 U	410 U	353 U	354 U	364 U	448 U	358 U	386 U	371 U	382 U	371 U	397 U
Di-n-octylphthalate	469 U	416 U	347 U	410 U	353 U	354 U	364 U	448 U	358 U	386 U	371 U	382 U	371 U	397 U
Dibenz(a,h)anthracene	469 U	416 U	347 U	410 U	353 U	354 U	364 U	448 U	358 U	386 U	371 U	382 U	371 U	397 U
Dibenzofuran	469 U	416 U	347 U	410 U	353 U	354 U	364 U	448 U	358 U	386 U	371 U	382 U	371 U	397 U
Diethylphthalate	469 U	416 U	347 U	410 U	353 U	354 U	364 U	448 U	358 U	386 U	371 U	382 U	371 U	397 U
Dimethyl phthalate	469 U	416 U	347 U	410 U	353 U	354 U	364 U	448 U	358 U	386 U	371 U	382 U	371 U	397 U
Fluoranthene	469 U	416 U	347 U	410 U	353 U	354 U	364 U	448 U	358 U	386 U	371 U	382 U	371 U	397 U
Fluorene	469 U	416 U	347 U	410 U	353 U	354 U	364 U	448 U	358 U	386 U	371 U	382 U	371 U	397 U
Hexachlorobenzene	469 U	416 U	347 U	410 U	353 U	354 U	364 U	448 U	358 U	386 U	371 U	382 U	371 U	397 U
Hexachlorobutadiene	469 U	416 U	347 U	410 U	353 U	354 U	364 U	448 U	358 U	386 U	371 U	382 U	371 U	397 U
Hexachlorocyclopentadiene	469 U	416 U	347 U	410 U	353 U	354 U	364 U	448 U	358 U	386 U	371 U	382 U	371 U	397 U
Hexachloroethane	469 U	416 U	347 U	410 U	353 U	354 U	364 U	448 U	358 U	386 U	371 U	382 U	371 U	397 U
Indeno(1,2,3-cd)pyrene	469 U	416 U	347 U	410 U	353 U	354 U	364 U	448 U	358 U	386 U	371 U	382 U	371 U	397 U
Isophorone	469 U	416 U	347 U	410 U	353 U	354 U	364 U	448 U	358 U	386 U	371 U	382 U	371 U	397 U
Naphthalene	469 U	416 U	347 U	410 U	353 U	354 U	364 U	448 U	358 U	386 U	371 U	382 U	371 U	397 U
Nitrobenzene	469 U	416 U	347 U	410 U	353 U	354 U	364 U	448 U	358 U	386 U	371 U	382 U	371 U	397 U
Pentachlorophenol	1,410 U	1,250 U	1,040 U	1,230 U	1,060 U	1,060 U	1,090 U	1,340 U	1,080 U	1,160 U	1,110 U	1,150 U	1,110 U	1,190 U
Phenanthrene	469 U	416 U	347 U	410 U	353 U	354 U	364 U	448 U	358 U	386 U	371 U	382 U	371 U	397 U
Phenol	469 U	416 U	347 U	410 U	353 U	354 U	364 U	448 U	358 U	386 U	371 U	382 U	371 U	397 U
Pyrene	469 U	416 U	347 U	410 U	353 U	354 U	364 U	448 U	358 U	386 U	371 U	382 U	371 U	397 U
bis(2-Chloroethoxy)methane	469 U	416 U	347 U	410 U	353 U	354 U	364 U	448 U	358 U	386 U	371 U	382 U	371 U	397 U
bis(2-Chloroethyl)ether	469 U	416 U	347 U	410 U	353 U	354 U	364 U	448 U	358 U	386 U	371 U	382 U	371 U	397 U
bis(2-Ethylhexyl)phthalate	469 U	416 U	347 U	410 U	353 U	354 U	364 U	448 U	358 U	386 U	371 U	382 U	371 U	397 U
n-Nitroso-di-n-propylamine	469 U	416 U	347 U	410 U	353 U	354 U	364 U	448 U	358 U	386 U	371 U	382 U	371 U	397 U
n-Nitrosodiphenylamine	469 U	416 U	347 U	410 U	353 U	354 U	364 U	448 U	358 U	386 U	371 U	382 U	371 U	397 U
Pesticide/Polychlorinated Biphenyls (UG_KG)														
4,4'-DDD	4 U	3.7 U	3.5 U	3.6 U	3.6 U	3.5 U	3.5 U	3.9 U	3.5 U	3.5 U	3.5 U	3.5 U	3.5 U	3.5 U
4,4'-DDE	4 U	3.7 U	3.5 U	3.6 U	3.6 U	3.5 U	3.5 U	3.9 U	3.5 U	3.5 U	3.5 U	3.5 U	3.5 U	3.5 U
4,4'-DDT	4 U	3.7 U	3.5 U	3.6 U	3.6 U	3.5 U	3.5 U	3.9 U	3.5 U	3.5 U	3.5 U	3.5 UJ	3.5 UJ	3.5 UJ
Aldrin	2.1 U	1.9 U	1.8 U	1.9 U	1.8 U	1.8 U	1.8 U	2 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U
Aroclor-1016	40 U	37 U	35 U	36 U	36 U	35 U	35 U	39 U	35 U	35 U	35 U	35 U	35 U	35 U
Aroclor-1221	82 U	75 U	70 U	72 U	72 U	70 U	71 U	79 U	71 U	72 U	70 U	71 U	71 U	71 U
Aroclor-1232	40 U	37 U	35 U	36 U	36 U	35 U	35 U	39 U	35 U	35 U	35 U	35 U	35 U	35 U
Aroclor-1242	40 U	37 U	35 U	36 U	36 U	35 U	35 U	39 U	35 U	35 U	35 U	35 U	35 U	35 U
Aroclor-1248	40 U	37 U	35 U	36 U	36 U	35 U	35 U	39 U	35 U	35 U	35 U	35 U	35 U	35 U
Aroclor-1254	40 U	37 U	35 U	36 U	36 U	35 U	35 U	39 U	35 U	35 U	35 U	35 U	35 U	35 U
Aroclor-1260	40 U	37 U	35 U	36 U	36 U	35 U	35 U	39 U	35 U	35 U	35 U	35 U	35 U	35 U
Dieldrin	4 U	3.7 U	3.5 U	3.6 U	3.6 U	3.5 U	3.5 U	3.9 U	3.5 U	3.5 U	3.5 U	3.5 U	3.5 U	3.5 U
Endosulfan I	2.1 U	1.9 U	1.8 U	1.9 U	1.8 U	1.8 U	1.8 U	2 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U
Endosulfan II	4 U	3.7 U	3.5 U	3.6 U	3.6 U	3.5 U	3.5 U	3.9 U	3.5 U	3.5 U	3.5 U	3.5 U	3.5 U	3.5 U
Endosulfan sulfate	4 U	3.7 U	3.5 U	3.6 U	3.6 U	3.5 U	3.5 U	3.9 U	3.5 U	3.5 U	3.5 U	3.5 U	3.5 U	3.5 U
Endrin	4 U	3.7 U	3.5 U	3.6 U	3.6 U	3.5 U	3.5 U	3.9 U	3.5 U	3.5 U	3.5 U	3.5 U	3.5 U	3.5 U
Endrin aldehyde	4 U	3.7 U	3.5 U	3.6 U	3.6 U	3.5 U	3.5 U	3.9 U	3.5 U	3.5 U	3.5 U	3.5 U	3.5 U	3.5 U
Endrin ketone	4 U	3.7 U	3.5 U	3.6 U	3.6 U	3.5 U	3.5 U	3.9 U	3.5 U	3.5 U	3.5 U	3.5 U	3.5 U	3.5 U
Heptachlor	2.1 U	1.9 U	1.8 U	1.9 U	1.8 U	1.8 U	1.8 U	2 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U
Heptachlor epoxide	2.1 U	1.9 U	1.8 U	1.9 U	1.8 U	1.8 U	1.8 U	2 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U
Methoxychlor	21 U	19 U	18 U	19 U	18 U	18 U	18 U	20 U	18 U	18 U	18 U	18 U	18 U	18 U
Toxaphene	209 U	192 U	180 U	185 U	185 U	180 U	182 U	201 U	181 U	184 U	180 U	180 U	180 U	180 U
alpha-BHC	2.1 U	1.9 U	1.8 U	1.9 U	1.8 U	1.8 U	1.8 U	2 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U
alpha-Chlordane	2.1 U	1.9 U	1.8 U	1.9 U	1.8 U	1.8 U	1.8 U	2 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U
beta-BHC	2.1 U	1.9 U	1.8 U	1.9 U	1.8 U	1.8 U	1.8 U	2 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U
delta-BHC	2.1 U	1.9 U	1.8 U	1.9 U	1.8 U	1.8 U	1.8 U	2 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U
gamma-BHC (Lindane)	2.1 U	1.9 U	1.8 U	1.9 U	1.8 U	1.8 U	1.8 U	2 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U
gamma-Chlordane	2.1 U	1.9 U	1.8 U	1.9 U	1.8 U	1.8 U	1.8 U	2 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U
Total Metals (MG_KG)														
Aluminum	32,600	27,600	27,000	25,400	22,100	18,000	15,000	21,000	18,000	18,000	18,000	16,000	13,000	17,000 J
Antimony	1.8 J	1.7 J	2.3 J	2.8 J	2.3 J	1.9 J	1.3 J	1.3 J	1.1 J	1.2 J	0.98 J	0.96 J	0.9 J	1.1 J
Arsenic	1.9 J	0.85 J	1.2 J	1.2 J	1.3 J	1.1 J	1.3 J	1.7 J	1.6 J	1.2 J	1.1 J	1.2 J	0.59 J	1.2 J
Barium	88	42 J	60	50	22 J	14 J	20 J	57	65	41 J	41 J	38 J	23 J	40 J
Beryllium	0.33 J	0.22 J	0.16 J	0.22 J	0.11 J	0.12 J	0.13 J	0.21 J	0.21 J	0.14 J	0.15 J	0.18 J	0.11 J	0.17 J
Cadmium	0.03 U	0.03 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.03 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U	0.02 U
Calcium	4,650	5,520	5,410	6,090	6,900	5,600	7,600	21,000	13,000	17,000	20,000	23,000	24,000	38,000
Chromium	96	71	105	156	106	110	50	47	69	43	38	41	40	36
Chromium (hexavalent)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	27	28	29	31	26	23	24	21	21	18	16	15	12	15
Copper	225	18	67	45	40	69	77	70	52	74	53	49	31	51
Iron	62,500	40,000	51,700	47,000	38,300	32,000	26,000	35,000	31,000	30,000	28,000	26,000	20,000	27,000
Lead	0.48 J	0.18 U	0.17 U	0.17 U	0.17 U	0.17 U	0.17 U	1.3	1.5	0.43 J	0.45 J	0.5 J	0.51 J	1.8
Magnesium	18,900 J	23,200	23,600	23,300	21,600	18,000	14,000	16,000	9,400	15,000	14,000	13,000	10,000	13,000
Manganese	898	802	972	938	786	680	760	750	1,100	620	660	620	460	710
Mercury	0.009 J	0.005 J	0.004 J	0.0027 U	0.0027 U	0.0026 UJ	0.0027 UJ	0.0038 J	0.0057 J	0.0053 J	0.006 J	0.0026 U	0.0027 U	0.0027 U
Nickel	71	61	64	84	66	60	38	37	38	31	25	24	22	23
Potassium	702 J	203 J	241 J	266 J	450 J	150 J	120 J	690 J	570 J	640 J	730 J	770 J	440 J	730 J
Selenium	1.4 J	0.78 J	1.2 J	0.76 J	1.2	1.2 J	0.91 J	0.94 J	1.5 J	0.96 J	0.88 J	0.62 J	0.77 J	0.88 J
Silver	0.092 J	0.083 J	0.087 J	0.081 J	0.064 J	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U
Sodium	2,650	1,230	1,550	1,580	21 U	760 J	780 J	360 J	330 J	370 J	360 J	350 J	250 J	440 J
Thallium	0.42 U	0.38 U	0.36 U	0.37 U	0.37 U	0.36 U	0.36 U	0.4 U	0.36 U	0.37 U	0.36 U	0.36 U	0.36 U	0.36 U
Vanadium	188	136	162	143	112	89	82	98	100	84	82	77	53	81
Zinc	55	51	57	57	48	43	40	50	40	40	39	38	32	34
Wet Chemistry (MG_KG)														
Total organic carbon (TOC)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pH	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Petroleum Hydrocarbons (MG_KG)														
Petroleum hydrocarbons	21 U	20 UJ	18 U	19 U	16 UJ	16 UJ	16 UJ	23 J	75 J	25 J	78 U	16 U	11 J	16 UJ

Notes:

NA - Not analyzed
B - Analyte not detected above associated blank
J - Reported value is estimated
R - Unreliable result
U - Analyte not detected
UJ - Not detected, quantitation limit may be inaccurate
MG_KG - Milligrams per Kilogram
UG_KG - Micrograms per Kilogram
Shading Indicates Detection

West Vieques - AOC-I
Validated Subsurface Soil Raw Analytical Results

Station ID	AOCISB015	AOCISB016	AOCISB017	AOCISB018	AOCISB019	AOCISB020	AOCISB021	AOCISB022	AOCISB023	AOCISB024	AOCISB025	AOCISB026	NDAISB04	NDAISB06	NDAISB19
Sample ID	NDE073	NDE076	NDE078	NDE080	NDE082	NDE085	NDE087	NDE089	NDE092	NDE094	NDE096	NDE098	NDAISB04-R02	NDAISB06-R02	NDAISB19-R02
Sample Date	11/30/00	11/30/00	11/30/00	12/01/00	12/01/00	12/01/00	12/01/00	12/01/00	12/01/00	12/01/00	12/01/00	12/01/00	09/09/04	09/09/04	09/09/04
Chemical Name															
Volatile Organic Compounds (UG_KG)															
1,1,1-Trichloroethane	10 UJ	10 UJ	10 UJ	11 UJ	10 UJ	10 UJ	12 UJ	11 U	10 UJ	10 UJ	11 U	10 U	NA	NA	NA
1,1,2,2-Tetrachloroethane	10 UJ	10 UJ	10 UJ	11 UJ	10 UJ	10 UJ	12 UJ	11 U	10 UJ	10 UJ	11 U	10 U	NA	NA	NA
1,1,2-Trichloroethane	10 UJ	10 UJ	10 UJ	11 UJ	10 UJ	10 UJ	12 UJ	11 U	10 UJ	10 UJ	11 U	10 U	NA	NA	NA
1,1-Dichloroethane	10 UJ	10 UJ	10 UJ	11 UJ	10 UJ	10 UJ	12 UJ	11 U	10 UJ	10 UJ	11 U	10 U	NA	NA	NA
1,1-Dichloroethene	10 UJ	10 UJ	10 UJ	11 UJ	10 UJ	10 UJ	12 UJ	11 U	10 UJ	10 UJ	11 U	10 U	NA	NA	NA
1,2-Dichloroethane	10 UJ	10 UJ	10 UJ	11 UJ	10 UJ	10 UJ	12 UJ	11 U	10 UJ	10 UJ	11 U	1.2 J	NA	NA	NA
1,2-Dichloropropane	10 UJ	10 UJ	10 UJ	11 UJ	10 UJ	10 UJ	12 UJ	11 U	10 UJ	10 UJ	11 U	10 U	NA	NA	NA
2-Butanone	10 R	10 R	10 R	11 UJ	10 R	10 UJ	2.9 J	11 R	10 UJ	10 R	11 R	10 R	NA	NA	NA
2-Hexanone	10 UJ	10 UJ	10 UJ	11 UJ	10 UJ	10 UJ	12 UJ	11 U	10 UJ	10 UJ	11 U	10 U	NA	NA	NA
4-Methyl-2-pentanone	10 UJ	10 UJ	10 UJ	11 UJ	10 UJ	0.79 J	53 J	11 U	10 UJ	10 UJ	11 U	10 U	NA	NA	NA
Acetone	10 R	29 UJ	31 UJ	11 R	10 R	10 R	973 R	11 R	10 R	25 R	34 R	19 R	NA	NA	NA
Benzene	10 UJ	10 UJ	10 UJ	11 UJ	10 UJ	10 UJ	12 UJ	11 U	10 UJ	10 UJ	11 U	10 U	NA	NA	NA
Bromodichloromethane	10 UJ	10 UJ	10 UJ	11 UJ	10 UJ	10 UJ	12 UJ	11 U	10 UJ	10 UJ	11 U	10 U	NA	NA	NA
Bromoform	10 UJ	10 UJ	10 UJ	11 UJ	10 UJ	10 UJ	12 UJ	11 U	10 UJ	10 UJ	11 U	10 U	NA	NA	NA
Bromomethane	10 UJ	10 UJ	10 UJ	11 UJ	10 UJ	10 UJ	12 UJ	11 U	10 UJ	10 UJ	11 U	10 U	NA	NA	NA
Carbon disulfide	10 UJ	10 UJ	10 UJ	11 UJ	10 UJ	10 UJ	12 UJ	11 U	10 UJ	10 UJ	11 U	10 U	NA	NA	NA
Carbon tetrachloride	10 UJ	10 UJ	10 UJ	11 UJ	10 UJ	10 UJ	12 UJ	11 U	10 UJ	10 UJ	11 U	10 U	NA	NA	NA
Chlorobenzene	10 UJ	10 UJ	10 UJ	11 UJ	10 UJ	10 UJ	12 UJ	11 U	10 UJ	10 UJ	11 U	10 U	NA	NA	NA
Chloroethane	10 UJ	10 UJ	10 UJ	11 UJ	10 UJ	10 UJ	12 UJ	11 U	10 UJ	10 UJ	11 U	10 U	NA	NA	NA
Chloroform	10 UJ	10 UJ	10 UJ	11 UJ	10 UJ	10 UJ	12 UJ	11 U	10 UJ	10 UJ	11 U	10 U	NA	NA	NA
Chloromethane	10 UJ	10 UJ	10 UJ	11 UJ	10 UJ	10 UJ	12 UJ	11 U	10 UJ	10 UJ	11 U	10 U	NA	NA	NA
Dibromochloromethane	10 UJ	10 UJ	10 UJ	11 UJ	10 UJ	10 UJ	12 UJ	11 U	10 UJ	10 UJ	11 U	10 U	NA	NA	NA
Ethylbenzene	10 UJ	10 UJ	10 UJ	11 UJ	10 UJ	10 UJ	96 J	11 U	10 UJ	10 UJ	11 U	10 U	NA	NA	NA
Methylene chloride	10 UJ	10 UJ	10 UJ	11 UJ	10 UJ	10 UJ	12 UJ	11 U	10 UJ	10 UJ	11 U	10 U	NA	NA	NA
Styrene	10 UJ	10 UJ	10 UJ	11 UJ	10 UJ	10 UJ	12 UJ	11 U	10 UJ	10 UJ	11 U	10 U	NA	NA	NA
Tetrachloroethene	10 UJ	10 UJ	10 UJ	11 UJ	10 UJ	10 UJ	12 UJ	11 U	10 UJ	10 UJ	11 U	10 U	NA	NA	NA
Toluene	10 UJ	10 UJ	10 UJ	11 UJ	10 UJ	10 UJ	12 UJ	11 U	10 UJ	10 UJ	11 U	0.33 J	NA	NA	NA
Trichloroethene	10 UJ	10 UJ	10 UJ	11 UJ	10 UJ	10 UJ	12 UJ	11 U	10 UJ	10 UJ	11 U	10 U	NA	NA	NA
Vinyl chloride	10 UJ	10 UJ	10 UJ	11 UJ	10 UJ	10 UJ	12 UJ	11 U	10 UJ	10 UJ	11 U	10 U	NA	NA	NA
Xylene, total	10 UJ	10 UJ	10 UJ	11 UJ	10 UJ	10 UJ	4,460 J	1 J	10 UJ	10 UJ	11 U	10 U	NA	NA	NA
cis-1,3-Dichloropropene	10 UJ	10 UJ	10 UJ	11 UJ	10 UJ	10 UJ	12 UJ	11 U	10 UJ	10 UJ	11 U	10 U	NA	NA	NA
m- and p-Xylene	10 UJ	10 UJ	10 UJ	11 UJ	10 UJ	10 UJ	2,970 J	0.79 J	10 UJ	10 UJ	11 U	10 U	NA	NA	NA
o-Xylene	10 UJ	10 UJ	10 UJ	11 UJ	10 UJ	10 UJ	1,500 J	0.23 J	10 UJ	10 UJ	11 U	10 U	NA	NA	NA
trans-1,3-Dichloropropene	10 UJ	10 UJ	10 UJ	11 UJ	10 UJ	10 UJ	12 UJ	11 U	10 UJ	10 UJ	11 U	10 U	NA	NA	NA
Semi-volatile Organic Compounds (UG_KG)															
1,2,4-Trichlorobenzene	397 U	365 U	372 U	517 UJ	433 UJ	436 UJ	416 UJ	512 UJ	484 U	468 U	505 U	429 U	NA	NA	NA
1,2-Dichlorobenzene	397 U	365 U	372 U	517 UJ	433 UJ	436 UJ	416 UJ	512 UJ	484 U	468 U	505 U	429 U	NA	NA	NA
1,3-Dichlorobenzene	397 U	365 U	372 U	517 UJ	433 UJ	436 UJ	416 UJ	512 UJ	484 U	468 U	505 U	429 U	NA	NA	NA
1,4-Dichlorobenzene	397 U	365 U	372 U	517 UJ	433 UJ	436 UJ	416 UJ	512 UJ	484 U	468 U	505 U	429 U	NA	NA	NA
2,2'-Oxybis(1-chloropropane)	397 U	365 U	372 U	517 UJ	433 UJ	436 UJ	416 UJ	512 UJ	484 U	468 U	505 U	429 U	NA	NA	NA
2,4,5-Trichlorophenol	1,190 U	1,100 U	1,120 U	1,550 UJ	1,300 UJ	1,310 UJ	1,250 UJ	1,540 UJ	1,450 U	1,400 U	1,510 U	1,290 U	NA	NA	NA
2,4,6-Trichlorophenol	397 U	365 U	372 U	517 UJ	433 UJ	436 UJ	416 UJ	512 UJ	484 U	468 U	505 U	429 U	NA	NA	NA
2,4-Dichlorophenol	397 U	365 U	372 U	517 UJ	433 UJ	436 UJ	416 UJ	512 UJ	484 U	468 U	505 U	429 U	NA	NA	NA
2,4-Dimethylphenol	397 U	365 U	372 U	517 UJ	433 UJ	436 UJ	416 UJ	512 UJ	484 U	468 U	505 U	429 U	NA	NA	NA
2,4-Dinitrophenol	1,190 U	1,100 U	1,120 U	1,550 UJ	1,300 UJ	1,310 UJ	1,250 UJ	1,540 UJ	1,450 U	1,400 U	1,510 U	1,290 U	NA	NA	NA
2,4-Dinitrotoluene	397 U	365 U	372 U	517 UJ	433 UJ	436 UJ	416 UJ	512 UJ	484 U	468 U	505 U	429 U	NA	NA	NA
2,6-Dinitrotoluene	397 U	365 U	372 U	517 UJ	433 UJ	436 UJ	416 UJ	512 UJ	484 U	468 U	505 U	429 U	NA	NA	NA
2-Chloronaphthalene	397 U	365 U	372 U	517 UJ	433 UJ	436 UJ	416 UJ	512 UJ	484 U	468 U	505 U	429 U	NA	NA	NA
2-Chlorophenol	397 U	365 U	372 U	517 UJ	433 UJ	436 UJ	416 UJ	512 UJ	484 U	468 U	505 U	429 U	NA	NA	NA
2-Methylnaphthalene	397 U	365 U	372 U	517 UJ	433 UJ	436 UJ	4,630 J	512 UJ	484 U	468 U	505 U	429 U	NA	NA	NA
2-Methylphenol	397 U	365 U	372 U	517 UJ	433 UJ	436 UJ	416 UJ	512 UJ	484 U	468 U	505 U	429 U	NA	NA	NA
2-Nitroaniline	1,190 U	1,100 U	1,120 U	1,550 UJ	1,300 UJ	1,310 UJ	1,250 UJ	1,540 UJ	1,450 U	1,400 U	1,510 U	1,290 U	NA	NA	NA
2-Nitrophenol	397 U	365 U	372 U	517 UJ	433 UJ	436 UJ	416 UJ	512 UJ	484 U	468 U	505 U	429 U	NA	NA	NA
3,3'-Dichlorobenzidine	793 U	731 U	745 U	1,030 UJ	866 UJ	873 UJ	833 UJ	1,020 UJ	967 U	936 U	1,010 U	857 U	NA	NA	NA
3- and 4-Methylphenol	397 U	365 U	372 U	517 UJ	433 UJ	436 UJ	416 UJ	512 UJ	484 U	468 U	505 U	429 U	NA	NA	NA
3-Nitroaniline	1,190 U	1,100 U	1,120 U	1,550 UJ	1,300 UJ	1,310 UJ	1,250 UJ	1,540 UJ	1,450 U	1,400 U	1,510 U	1,290 U	NA	NA	NA
4,6-Dinitro-2-methylphenol	1,190 U	1,100 U	1,120 U	1,550 UJ	1,300 UJ	1,310 UJ	1,250 UJ	1,540 UJ	1,450 U	1,400 U	1,510 U	1,290 U	NA	NA	NA
4-Bromophenyl-phenylether	397 U	365 U	372 U	517 UJ	433 UJ	436 UJ	416 UJ	512 UJ	484 U	468 U	505 U	429 U	NA	NA	NA
4-Chloro-3-methylphenol	397 U	365 U	372 U	517 UJ	433 UJ	436 UJ	416 UJ	512 UJ	484 U	468 U	505 U	429 U	NA	NA	NA
4-Chloroaniline	397 U	365 U	372 U	517 UJ	433 UJ	436 UJ	416 UJ	512 UJ	484 U	468 U	505 U	429 U	NA	NA	NA
4-Chlorophenyl-phenylether	397 U	365 U	372 U	517 UJ	433 UJ	436 UJ	416 UJ	512 UJ	484 U	468 U	505 U	429 U	NA	NA	NA
4-Nitroaniline	1,190 U	1,100 U	1,120 U	1,550 UJ	1,300 UJ	1,310 UJ	1,250 UJ	1,540 UJ	1,450 U	1,400 U	1,510 U	1,290 U	NA	NA	NA
4-Nitrophenol	1,190 U	1,100 U	1,120 U	1,550 UJ	1,300 UJ	1,310 UJ	1,250 UJ	1,540 UJ	1,450 U	1,400 U	1,510 U	1,290 U	NA	NA	NA
Acenaphthene	397 U	365 U	372 U	517 UJ	433 UJ	436 UJ	331 J	512 UJ	484 U	468 U	505 U	429 U	NA	NA	NA
Acenaphthylene	397 U	365 U	372 U	517 UJ	433 UJ	436 UJ	416 UJ	512 UJ	484 U	468 U	505 U	429 U	NA	NA	NA
Anthracene	397 U	365 U	372 U	517 UJ	433 UJ	436 UJ	416 UJ	512 UJ	484 U	468 U	505 U	429 U	NA	NA	NA
Benzo(a)anthracene	397 U	365 U	372 U	517 UJ	433 UJ	436 UJ	27 UJ	512 UJ	484 U	468 U	505 U	429 U	NA	NA	NA
Benzo(a)pyrene	397 U	365 U	372 U	517 UJ	433 UJ	436 UJ	416 UJ	512 UJ	484 U	468 U	505 U	429 U	NA	NA	NA
Benzo(b)fluoranthene	397 U	365 U	372 U	517 UJ	433 UJ	436 UJ	39 J	512 UJ	31 J	468 U	505 U	429 U	NA	NA	NA
Benzo(g,h,i)perylene	397 U	365 U	372 U	517 UJ	433 UJ	436 UJ	416 UJ	512 UJ	484 U	468 U	505 U	429 U	NA	NA	NA
Benzo(k)fluoranthene	397 U	365 U	372 U	517 UJ	433 UJ	436 UJ	32 J	512 UJ	484 U	468 U	505 U	429 U	NA	NA	NA
Butylbenzylphthalate	397 U	365 U	372 U	517 UJ	433 UJ	436 UJ	416 UJ	512 UJ	484 U	468 U	505 U	429 U	NA	NA	NA
Carbazole	397 U	365 U	372 U	517 UJ	433 UJ	436 UJ	158 J	512 UJ	484 U	468 U	505 U	429 U	NA	NA	NA
Chrysene	397 U	365 U	372 U	517 UJ	433 UJ	436 UJ	129 J	512 UJ	484 U	468 U	505 U	429 U	NA	NA	NA
Di-n-butylphthalate	397 U	365 U	372 U	517 UJ	433 UJ	436 UJ	416 UJ	512 UJ	484 U	468 U	505 U	429 U	NA	NA	NA
Di-n-octylphthalate	397 U	365 U	372 U	517 UJ	433 UJ	436 UJ	416 UJ	512 UJ	484 U	468 U	505 U	429 U	NA	NA	NA
Dibenz(a,h)anthracene	397 U	365 U	372 U	517 UJ	433 UJ	436 UJ	416 UJ	512 UJ	484 U	468 U	505 U	429 U	NA	NA	NA
Dibenzofuran	397 U	365 U	372 U	517 UJ	433 UJ	436 UJ	663 J	512 UJ	484 U	468 U	505 U	429 U	NA	NA	NA
Diethylphthalate	397 U	365 U	372 U	517 UJ	433 UJ	436 UJ	416 UJ	512 UJ	484 U	468 U	505 U	429 U	NA	NA	NA
Dimethyl phthalate	397 U	365 U	372 U	517 UJ	433 UJ	436 UJ	416 UJ	512 UJ	484 U	468 U	505 U	429 U	NA	NA	NA
Fluoranthene	397 U	365 U	372 U	517 UJ	433 UJ	436 UJ	969 J	512 UJ	484 U	468 U	505 U	429 U	NA	NA	NA
Fluorene	397 U	365 U	372 U	517 UJ	433 UJ	436 UJ	893 J	512 UJ	484 U	468 U	505 U	429 U	NA	NA	NA
Hexachlorobenzene	397 U	365 U	372 U	517 UJ	433 UJ	436 UJ	416 UJ	512 UJ	484 U	468 U	505 U	429 U	NA	NA	NA
Hexachlorobutadiene	397 U	365 U	372 U	517 UJ	433 UJ	436 UJ	416 UJ	512 UJ	484 U	468 U	505 U	429 U	NA	NA	NA
Hexachlorocyclopentadiene	397 U	365 U	372 U	517 UJ	433 UJ	436 UJ	416 UJ	512 UJ	484 U	468 U	505 U	429 U	NA	NA	NA
Hexachloroethane	397 U	365 U	372 U	517 UJ	433 UJ	436 UJ	416 UJ	512 UJ	484 U	468 U	505 U	429 U	NA	NA	NA
Indeno(1,2,3-cd)pyrene	397 U	365 U	372 U	517 UJ	433 UJ	436 UJ	416 UJ	512 UJ	484 U	468 U	505 U	429 U	NA	NA	NA
Isophorone	397 U	365 U	372 U	517 UJ	433 UJ	436 UJ	416 UJ	512 UJ	484 U	468 U	505 U	429 U	NA	NA	NA
Naphthalene	397 U	365 U	372 U	517 UJ	433 UJ	436 UJ	2,550 J	512 UJ	484 U	468 U	505 U	429 U	NA	NA	NA
Nitrobenzene	397 U	365 U	372 U	517 UJ	433 UJ	436 UJ	416 UJ	512 UJ	484 U	468 U	505 U	429 U	NA	NA	NA
Pentachlorophenol	1,190 U	1,100 U	1,120 U	1,550 UJ	1,300 UJ	1,310 UJ	1,250 UJ	1,540 UJ	1,450 U	1,400 U	1,510 U	1,290 U	NA	NA	NA
Phenanthrene	397 U	365 U	372 U	517 UJ	433 UJ	436 UJ	2,620 J	512 UJ	484 U	468 U	505 U	429 U	NA	NA	NA
Phenol	397 U	365 U	372 U	517 UJ	433 UJ	436 UJ	416 UJ	512 UJ	484 U	468 U	505 U	429 U	NA	NA	NA
Pyrene	397 U	365 U	372 U	517 UJ	433 UJ	436 UJ	469 J	512 UJ	484 U	468 U	505 U	429 U	NA	NA	NA
bis(2-Chloroethoxy)methane	397 U	365 U	372 U	517 UJ	433 UJ	436 UJ	416 UJ	512 UJ	484 U	468 U	505 U	429 U	NA	NA	NA
bis(2-Chloroethyl)ether	397 U	365 U	372 U	517 UJ	433 UJ	436 UJ	416 UJ	512 UJ	484 U	468 U	505 U	429 U	NA	NA	NA
bis(2-Ethylhexyl)phthalate	397 U	365 U	372 U	517 UJ	433 UJ	436 UJ	416 UJ	512 UJ	484 U	468 U	505 U	429 U	NA	NA	NA
n-Nitroso-di-n-propylamine	397 U	365 U	372 U	517 UJ	433 UJ	436 UJ	416 UJ	512 UJ	484 U	468 U	505 U	429 U	NA	NA	NA
n-Nitrosodiphenylamine	397 U	365 U	372 U	517 UJ	433 UJ	436 UJ	416 UJ	512 UJ	484 U	468 U	505 U	429 U	NA	NA	NA
Pesticide/Polychlorinated Biphenyls (UG_KG)															
4,4'-DDD	3.6 U	3.5 U	3.5 U	4.2 UJ	3.5 UJ	3.6 UJ	3.5 UJ	4 UJ	3.6 U	3.6 U	3.3 U	3.5 U	NA	NA	NA
4,4'-DDE	3.6 U	3.5 U	3.5 U	4.2 UJ	3.5 UJ	3.6 UJ	3.5 UJ	4 UJ	3.6 U	3.6 U	3.3 U	3.5 U	NA	NA	NA
4,4'-DDT	3.6 UJ	3.5 U	3.5 U	4.2 UJ	3.5 UJ	3.6 UJ	3.5 UJ	4 UJ	3.6 U	3.6 U	3.3 UJ	3.5 U	NA	NA	NA
Aldrin	1.8 U	1.8 U	1.8 U	2.2 UJ	1.8 UJ	1.9 UJ	1.8 UJ	2.1 UJ	1.9 U	1.8 U	1.7 U	1.8 U	NA	NA	NA
Aroclor-1016	36 U	35 U	35 U	42 UJ	35 UJ	36 UJ	35 UJ	40 UJ	36 U	36 U	33 U	35 U	NA	NA	NA
Aroclor-1221	72 U	71 U	70 U	85 UJ	71 UJ	73 UJ	71 UJ	82 UJ	74 U	73 U	67 U	72 U	NA	NA	NA
Aroclor-1232	36 U	35 U	35 U	42 UJ	35 UJ	36 UJ	35 UJ	40 UJ	36 U	36 U	33 U	35 U	NA	NA	NA
Aroclor-1242	36 U	35 U	35 U	42 UJ	35 UJ	36 UJ	35 UJ	40 UJ	36 U	36 U	33 U	35 U	NA	NA	NA
Aroclor-1248	36 U	35 U	35 U	42 UJ	35 UJ	36 UJ	35 UJ	40 UJ	36 U	36 U	33 U	35 U	NA	NA	NA
Aroclor-1254	36 U	35 U	35 U	42 UJ	35 UJ	36 UJ	35 UJ	40 UJ	36 U	36 U	33 U	35 U	NA	NA	NA
Aroclor-1260	36 U	35 U	35 U	42 UJ	35 UJ	36 UJ	35 UJ	40 UJ	36 U	36 U	33 U	35 U	NA	NA	NA
Dieldrin	3.6 U	3.5 U	3.5 U	4.2 UJ	3.5 UJ	3.6 UJ	3.5 UJ	4 UJ	3.6 U	3.6 U	3.3 U	3.5 U	NA	NA	NA
Endosulfan I	1.8 U	1.8 U	1.8 U	2.2 UJ	1.8 UJ	1.9 UJ	1.8 UJ	2.1 UJ	1.9 U	1.8 U	1.7 U	1.8 U	NA	NA	NA
Endosulfan II	3.6 U	3.5 U	3.5 U	4.2 UJ	3.5 UJ	3.6 UJ	3.5 UJ	4 UJ	3.6 U	3.6 U	3.3 U	3.5 U	NA	NA	NA
Endosulfan sulfate	3.6 U	3.5 U	3.5 U	4.2 UJ	3.5 UJ	3.6 UJ	3.5 UJ	4 UJ	3.6 U	3.6 U	3.3 U	3.5 U	NA	NA	NA
Endrin	3.6 U	3.5 U	3.5 U	4.2 UJ	3.5 UJ	3.6 UJ	3.5 UJ	4 UJ	3.6 U	3.6 U	3.3 U	3.5 U	NA	NA	NA
Endrin aldehyde	3.6 U	3.5 U	3.5 U	4.2 UJ	3.5 UJ	3.6 UJ	3.5 UJ	4 UJ	3.6 U	3.6 U	3.3 U	3.5 U	NA	NA	NA
Endrin ketone	3.6 U	3.5 U	3.5 U	4.2 UJ	3.5 UJ	3.6 UJ	3.5 UJ	4 UJ	3.6 U	3.6 U	3.3 U	3.5 U	NA	NA	NA
Heptachlor	1.8 U	1.8 U	1.8 U	2.2 UJ	1.8 UJ	1.9 UJ	1.8 UJ	2.1 UJ	1.9 U	1.8 U	1.7 U	1.8 U	NA	NA	NA
Heptachlor epoxide	1.8 U	1.8 U	1.8 U	2.2 UJ	1.8 UJ	1.9 UJ	1.8 UJ	2.1 UJ	1.9 U	1.8 U	1.7 U	1.8 U	NA	NA	NA
Methoxychlor	18 U	18 U	18 U	22 UJ	18 UJ	19 UJ	18 UJ	21 UJ	19 U	18 U	17 UJ	18 U	NA	NA	NA
Toxaphene	184 U	180 U	179 U	218 UJ	180 UJ	186 UJ	182 UJ	209 UJ	188 U	185 U	170 U	182 U	NA	NA	NA
alpha-BHC	1.8 U	1.8 U	1.8 U	2.2 UJ	1.8 UJ	1.9 UJ	1.8 UJ	2.1 UJ	1.9 U	1.8 U	1.7 U	1.8 U	NA	NA	NA
alpha-Chlordane	1.8 U	1.8 U	1.8 U	2.2 UJ	1.8 UJ	1.9 UJ	1.8 UJ	2.1 UJ	1.9 U	1.8 U	1.7 U	1.8 U	NA	NA	NA
beta-BHC	1.8 U	1.8 U	1.8 U	2.2 UJ	1.8 UJ	1.9 UJ	1.8 UJ	2.1 UJ	1.9 U	1.8 U	1.7 U	1.8 U	NA	NA	NA
delta-BHC	1.8 U	1.8 U	1.8 U	2.2 UJ	1.8 UJ	1.9 UJ	1.8 UJ	2.1 UJ	1.9 U	1.8 U	1.7 U	1.8 U	NA	NA	NA
gamma-BHC (Lindane)	1.8 U	1.8 U	1.8 U	2.2 UJ	1.8 UJ	1.9 UJ	1.8 UJ	2.1 UJ	1.9 U	1.8 U	1.7 U	1.8 U	NA	NA	NA
gamma-Chlordane	1.8 U	1.8 U	1.8 U	2.2 UJ	1.8 UJ	1.9 UJ	1.8 UJ	2.1 UJ	1.9 U	1.8 U	1.7 U	1.8 U	NA	NA	NA
Total Metals (MG_KG)															
Aluminum	23,000	20,000	15,000	24,000	26,000	28,000	23,000	25,000	17,000	19,000	20,000	14,800	NA	NA	NA
Antimony	1.7 J	1.3 J	0.91 J	1.7 J	2.9 J	2.2 J	2 J	2.1 J	1.4 J	1.4 J	1.2 J	2 J	NA	NA	NA
Arsenic	1.6 J	1.3 J	1.3 J	2 J	2.1	2.1 J	1.9 J	2.6	2.1 J	1.4 J	1.6 J	1.7 J	NA	NA	NA
Barium	43 J	49	54	57	44	26 J	40 J	47 J	41 J	59	66	52	NA	NA	NA
Beryllium	0.19 J	0.19 J	0.14 J	0.32 J	0.23 J	0.27 J	0.32 J	0.29 J	0.22 J	0.26 J	0.21 J	0.14 J	NA	NA	NA
Cadmium	0.02 U	0.02 U	0.02 U	0.03 U	0.02 U	0.02 U	0.02 U	0.03 U	0.03 U	0.03 U	0.03 U	0.02 U	NA	NA	NA
Calcium	28,000	22,000	18,000	9,900	6,500	6,200	5,700	17,000	20,000	41,000	30,000	10,200	NA	NA	NA
Chromium	64	46	39	87 J	160 J	130 J	110 J	130 J	68 J	38 J	40 J	86 J	197 J	69.8 J	112 J
Chromium (hexavalent)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.305 J	0.255 J	0.515 J
Cobalt	24	18	15	27	31	29	26	25	18	19	21	25	NA	NA	NA
Copper	85	59	53	84	43	49	59	80	43 J	70 J	72 J	20 J	NA	NA	NA
Iron	42,000	31,000	27,000	41,000	60,000	61,000	41,000	39,000	28,000	33,000	34,000	26,100	NA	NA	NA
Lead	1.8	0.82	0.26 J	1.6	0.17 U	0.17 U	14	1.3	1.7 J	7.5 J	4.6 J	1.3 J	NA	NA	NA
Magnesium	21,000	17,000	12,000	19,000	26,000	26,000	23,000	17,000	12,000	14,000	15,000	12,000	NA	NA	NA
Manganese	750	730	590	850	1,100	900	840	810	600	790	860	694	NA	NA	NA
Mercury	0.0027 U	0.0027 U	0.0027 U	0.0047 J	0.0032 U	0.0033 U	0.0032 U	0.0089 J	0.0097 J	0.0028 UJ	0.0028 UJ	0.0027 UJ	NA	NA	NA
Nickel	37	30	24	56 J	83 J	78 J	66 J	60 J	43	26	27	65	NA	NA	NA
Potassium	790 J	670 J	510 J	380 J	400 J	220 J	390 J	550 J	460 J	570 J	650 J	77 J	NA	NA	NA
Selenium	1.1 J	0.94 J	1.1 J	0.59 U	0.49 U	0.5 U	0.49 U	0.56 U	0.76 J	0.8 J	1.2 J	1.2 J	NA	NA	NA
Silver	0.11 J	0.06 U	0.06 U	0.07 U	0.11 J	0.06 U	0.12 J	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	NA	NA	NA
Sodium	450 J	470 J	360 J	140 J	1,400	1,200	1,400	310 J	470 J	320 J	300 J	21.4 B	NA	NA	NA
Thallium	0.37 U	0.36 U	0.36 U	0.43 U	0.36 U	0.37 U	0.36 U	0.41 U	0.38 U	0.38 U	0.38 U	0.36 U	NA	NA	NA
Vanadium	120	89	75	130	170	140	130	130	90 J	94 J	100 J	65 J	NA	NA	NA
Zinc	52	43	35	58	60	55	52	52	40 J	47 J	47 J	39 J	NA	NA	NA
Wet Chemistry (MG_KG)															
Total organic carbon (TOC)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
pH	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Petroleum Hydrocarbons (MG_KG)															
Petroleum hydrocarbons	16 U	16	16 U	16 J	11 J	11 J	232 J	17 J	20 J	40 J	22 J	16 UJ	NA	NA	NA

Notes:
NA - Not analyzed
B - Analyte not detected above associated blank
J - Reported value is estimated
R - Unreliable result
U - Analyte not detected
UJ - Not detected, quantitation limit may be inaccurate
MG_KG - Milligrams per Kilogram
UG_KG - Micrograms per Kilogram
Shading Indicates Detection

Station ID	NDAISB20		NDAISB21	NDAISB22	NDAISB41
Sample ID	NDAIFD04P-R01	NDAISB20-R02	NDAISB21-R02	NDAISB22-R02	NDAISB41-R01-C
Sample Date	09/09/04	09/09/04	09/09/04	09/09/04	09/09/04
Chemical Name					
Volatile Organic Compounds (UG_KG)					
1,1,1-Trichloroethane	NA	NA	NA	NA	NA
1,1,2,2-Tetrachloroethane	NA	NA	NA	NA	NA
1,1,2-Trichloroethane	NA	NA	NA	NA	NA
1,1-Dichloroethane	NA	NA	NA	NA	NA
1,1-Dichloroethene	NA	NA	NA	NA	NA
1,2-Dichloroethane	NA	NA	NA	NA	NA
1,2-Dichloropropane	NA	NA	NA	NA	NA
2-Butanone	NA	NA	NA	NA	NA
2-Hexanone	NA	NA	NA	NA	NA
4-Methyl-2-pentanone	NA	NA	NA	NA	NA
Acetone	NA	NA	NA	NA	NA
Benzene	NA	NA	NA	NA	NA
Bromodichloromethane	NA	NA	NA	NA	NA
Bromoform	NA	NA	NA	NA	NA
Bromomethane	NA	NA	NA	NA	NA
Carbon disulfide	NA	NA	NA	NA	NA
Carbon tetrachloride	NA	NA	NA	NA	NA
Chlorobenzene	NA	NA	NA	NA	NA
Chloroethane	NA	NA	NA	NA	NA
Chloroform	NA	NA	NA	NA	NA
Chloromethane	NA	NA	NA	NA	NA
Dibromochloromethane	NA	NA	NA	NA	NA
Ethylbenzene	NA	NA	NA	NA	NA
Methylene chloride	NA	NA	NA	NA	NA
Styrene	NA	NA	NA	NA	NA
Tetrachloroethene	NA	NA	NA	NA	NA
Toluene	NA	NA	NA	NA	NA
Trichloroethene	NA	NA	NA	NA	NA
Vinyl chloride	NA	NA	NA	NA	NA
Xylene, total	NA	NA	NA	NA	NA
cis-1,3-Dichloropropene	NA	NA	NA	NA	NA
m- and p-Xylene	NA	NA	NA	NA	NA
o-Xylene	NA	NA	NA	NA	NA
trans-1,3-Dichloropropene	NA	NA	NA	NA	NA
Semi-volatile Organic Compounds (UG_KG)					
1,2,4-Trichlorobenzene	NA	NA	NA	NA	NA
1,2-Dichlorobenzene	NA	NA	NA	NA	NA
1,3-Dichlorobenzene	NA	NA	NA	NA	NA
1,4-Dichlorobenzene	NA	NA	NA	NA	NA
2,2'-Oxybis(1-chloropropane)	NA	NA	NA	NA	NA
2,4,5-Trichlorophenol	NA	NA	NA	NA	NA
2,4,6-Trichlorophenol	NA	NA	NA	NA	NA
2,4-Dichlorophenol	NA	NA	NA	NA	NA
2,4-Dimethylphenol	NA	NA	NA	NA	NA
2,4-Dinitrophenol	NA	NA	NA	NA	NA
2,4-Dinitrotoluene	NA	NA	NA	NA	NA
2,6-Dinitrotoluene	NA	NA	NA	NA	NA
2-Chloronaphthalene	NA	NA	NA	NA	NA
2-Chlorophenol	NA	NA	NA	NA	NA
2-Methylnaphthalene	NA	NA	NA	NA	NA
2-Methylphenol	NA	NA	NA	NA	NA
2-Nitroaniline	NA	NA	NA	NA	NA
2-Nitrophenol	NA	NA	NA	NA	NA
3,3'-Dichlorobenzidine	NA	NA	NA	NA	NA
3- and 4-Methylphenol	NA	NA	NA	NA	NA
3-Nitroaniline	NA	NA	NA	NA	NA
4,6-Dinitro-2-methylphenol	NA	NA	NA	NA	NA
4-Bromophenyl-phenylether	NA	NA	NA	NA	NA
4-Chloro-3-methylphenol	NA	NA	NA	NA	NA
4-Chloroaniline	NA	NA	NA	NA	NA
4-Chlorophenyl-phenylether	NA	NA	NA	NA	NA
4-Nitroaniline	NA	NA	NA	NA	NA
4-Nitrophenol	NA	NA	NA	NA	NA
Acenaphthene	NA	NA	NA	NA	NA
Acenaphthylene	NA	NA	NA	NA	NA
Anthracene	NA	NA	NA	NA	NA
Benzo(a)anthracene	NA	NA	NA	NA	NA
Benzo(a)pyrene	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	NA	NA	NA	NA	NA
Benzo(k)fluoranthene	NA	NA	NA	NA	NA
Butylbenzylphthalate	NA	NA	NA	NA	NA
Carbazole	NA	NA	NA	NA	NA
Chrysene	NA	NA	NA	NA	NA
Di-n-butylphthalate	NA	NA	NA	NA	NA
Di-n-octylphthalate	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	NA	NA	NA	NA	NA
Dibenzofuran	NA	NA	NA	NA	NA
Diethylphthalate	NA	NA	NA	NA	NA
Dimethyl phthalate	NA	NA	NA	NA	NA
Fluoranthene	NA	NA	NA	NA	NA
Fluorene	NA	NA	NA	NA	NA
Hexachlorobenzene	NA	NA	NA	NA	NA
Hexachlorobutadiene	NA	NA	NA	NA	NA
Hexachlorocyclopentadiene	NA	NA	NA	NA	NA
Hexachloroethane	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	NA	NA	NA	NA	NA
Isophorone	NA	NA	NA	NA	NA
Naphthalene	NA	NA	NA	NA	NA
Nitrobenzene	NA	NA	NA	NA	NA
Pentachlorophenol	NA	NA	NA	NA	NA
Phenanthrene	NA	NA	NA	NA	NA
Phenol	NA	NA	NA	NA	NA
Pyrene	NA	NA	NA	NA	NA
bis(2-Chloroethoxy)methane	NA	NA	NA	NA	NA
bis(2-Chloroethyl)ether	NA	NA	NA	NA	NA
bis(2-Ethylhexyl)phthalate	NA	NA	NA	NA	NA
n-Nitroso-di-n-propylamine	NA	NA	NA	NA	NA
n-Nitrosodiphenylamine	NA	NA	NA	NA	NA
Pesticide/Polychlorinated Biphenyls (UG_KG)					
4,4'-DDD	NA	NA	NA	NA	NA
4,4'-DDE	NA	NA	NA	NA	NA
4,4'-DDT	NA	NA	NA	NA	NA
Aldrin	NA	NA	NA	NA	NA
Aroclor-1016	NA	NA	NA	NA	NA
Aroclor-1221	NA	NA	NA	NA	NA
Aroclor-1232	NA	NA	NA	NA	NA
Aroclor-1242	NA	NA	NA	NA	NA
Aroclor-1248	NA	NA	NA	NA	NA
Aroclor-1254	NA	NA	NA	NA	NA
Aroclor-1260	NA	NA	NA	NA	NA
Dieldrin	NA	NA	NA	NA	NA
Endosulfan I	NA	NA	NA	NA	NA
Endosulfan II	NA	NA	NA	NA	NA
Endosulfan sulfate	NA	NA	NA	NA	NA
Endrin	NA	NA	NA	NA	NA
Endrin aldehyde	NA	NA	NA	NA	NA
Endrin ketone	NA	NA	NA	NA	NA
Heptachlor	NA	NA	NA	NA	NA
Heptachlor epoxide	NA	NA	NA	NA	NA
Methoxychlor	NA	NA	NA	NA	NA
Toxaphene	NA	NA	NA	NA	NA
alpha-BHC	NA	NA	NA	NA	NA
alpha-Chlordane	NA	NA	NA	NA	NA
beta-BHC	NA	NA	NA	NA	NA
delta-BHC	NA	NA	NA	NA	NA
gamma-BHC (Lindane)	NA	NA	NA	NA	NA
gamma-Chlordane	NA	NA	NA	NA	NA
Total Metals (MG_KG)					
Aluminum	NA	NA	NA	NA	NA
Antimony	NA	NA	NA	NA	NA
Arsenic	NA	NA	NA	NA	NA
Barium	NA	NA	NA	NA	NA
Beryllium	NA	NA	NA	NA	NA
Cadmium	NA	NA	NA	NA	NA
Calcium	NA	NA	NA	NA	NA
Chromium	137 J	157 J	168 J	131 J	NA
Chromium (hexavalent)	0.311 J	0.662 J	0.644 J	0.43 J	NA
Cobalt	NA	NA	NA	NA	NA
Copper	NA	NA	NA	NA	NA
Iron	NA	NA	NA	NA	NA
Lead	NA	NA	NA	NA	NA
Magnesium	NA	NA	NA	NA	NA
Manganese	NA	NA	NA	NA	NA
Mercury	NA	NA	NA	NA	NA
Nickel	NA	NA	NA	NA	NA
Potassium	NA	NA	NA	NA	NA
Selenium	NA	NA	NA	NA	NA
Silver	NA	NA	NA	NA	NA
Sodium	NA	NA	NA	NA	NA
Thallium	NA	NA	NA	NA	NA
Vanadium	NA	NA	NA	NA	NA
Zinc	NA	NA	NA	NA	NA
Wet Chemistry (MG_KG)					
Total organic carbon (TOC)	NA	97.2 U	NA	96.9 U	99.1 U
pH	NA	8.36	NA	8.46	9.08
Total Petroleum Hydrocarbons (MG_KG)					
Petroleum hydrocarbons	NA	NA	NA	NA	NA

Notes:

NA - Not analyzed
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Shading Indicates Detection

Appendix K
Validated Laboratory Data
Groundwater

West Vieques - AOC-I
Validated Groundwater Raw Analytical Results

Station ID	NDAIMW01			NDAIMW02		NDAIMW03	NDAIMW04		NDAIMW05	NDAIMW06		NDAIMW07		WAI-MW08	WAI-MW09
Sample ID	NDAIGW01-R01	WAI-GW01P-06A	WAI-GW01-06A	NDAIGW02-R01	NDAIFD01P-R01	NDAIGW03-R01	NDAIGW04-R01	WAI-GW04-06A	NDAIGW05-R01	NDAIGW06-R01	WAI-GW06-06A	NDAIGW07-R01	WAI-GW07-06A	WAI-GW08-06A	WAI-GW09-06A
Sample Date	09/23/04	01/10/06	01/10/06	09/21/04	09/21/04	09/21/04	09/23/04	01/10/06	09/22/04	09/22/04	01/10/06	09/24/04	01/10/06	01/10/06	01/11/06
Chemical Name															
Volatile Organic Compounds (UG_L)															
1,1,1-Trichloroethane	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1,2,2-Tetrachloroethane	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1,2-Trichloro-1,2,2-trifluoroethane(Freon-113)	0.5 U	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 UJ
1,1,2-Trichloroethane	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1-Dichloroethane	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.26 J	0.5 U	0.5 U
1,1-Dichloroethene	0.9 U	0.5 U	0.5 U	0.9 U	0.9 U	0.9 U	0.9 U	0.5 U	0.9 U	0.9 U	0.5 U	0.9 U	0.5 U	0.5 U	0.5 U
1,2,3-Trichlorobenzene	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2,4-Trichlorobenzene	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dibromo-3-chloropropane	2 U	0.5 U	0.5 U	2 U	2 U	2 U	2 U	0.5 U	2 U	2 U	0.5 U	2 U	0.5 U	0.5 U	0.5 U
1,2-Dibromoethane	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dichlorobenzene	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dichloroethane	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1.6	0.5 U	0.5 U
1,2-Dichloropropane	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ	0.33 J	0.5 U	0.5 U	0.5 U
1,3-Dichlorobenzene	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.52	0.5 U	0.5 U
1,4-Dichlorobenzene	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.52	0.5 U	0.5 U
2-Butanone	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
2-Hexanone	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
4-Methyl-2-pentanone	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	14.9	5 U	5 U	5 U
Acetone	5 U	5 UJ	5 UJ	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 UJ	5 U	11 U	5 UJ	5 UJ
Benzene	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.62	33.7	4.6	0.66	0.5 U	0.5 U	59.3	28	0.5 U	0.5 U
Bromochloromethane	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Bromodichloromethane	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U
Bromoform	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.13 J	0.5 U	0.5 U	0.5 U	0.5 U
Bromomethane	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Carbon disulfide	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Carbon tetrachloride	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Chlorobenzene	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Chloroethane	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Chloroform	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Chloromethane	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.51	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Cyclohexane	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	6.4	41.6	13	1	0.5 U	0.5 UJ	36.2	66	0.5 U	0.5 U
Dibromochloromethane	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Dichlorodifluoromethane (Freon-12)	0.5 U	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 UJ
Ethylbenzene	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.45 J	3.7	0.41 J	0.5 U	0.5 U	0.5 U	14.4	7.9	0.5 U	0.5 U
Isopropylbenzene	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	2.6	41	7.1 J	4.2	0.5 U	0.5 U	42.4	47	0.5 U	0.5 U
Methyl acetate	2 U	0.5 U	0.5 UJ	2 U	2 U	2 U	2 U	0.5 U	2 U	2 U	0.5 UJ	2 U	0.5 UJ	0.5 U	0.5 U
Methyl-tert-butyl ether (MTBE)	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Methylcyclohexane	0.58 U	0.5 U	0.5 U	0.58 U	0.58 U	0.58 U	29.7	3.7	1.2	0.58 U	0.5 UJ	21.7	34	0.5 U	0.5 U
Methylene chloride	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Styrene	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Tetrachloroethene	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Toluene	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	1.4	0.3 J	0.5 U	0.5 U	0.5 U	1.9	1.9	0.5 U	0.5 U
Trichloroethene	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.17 J	0.5 U	0.5 U	0.5 U	0.5 U	1.4	0.5 U	0.5 U
Trichlorofluoromethane(Freon-11)	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 UJ	0.5 U	0.5 U
Vinyl chloride	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Xylene, total	2 U	0.5 U	0.5 U	2 U	2 U	0.42 J	8.1	0.8 J	2 U	2 U	0.5 U	11.2	10	0.5 U	0.5 U
cis-1,2-Dichloroethene	0.5 U	0.5 UJ	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 UJ	0.5 U
cis-1,3-Dichloropropene	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
trans-1,2-Dichloroethene	0.5 U	0.5 UJ	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 UJ	0.5 U
trans-1,3-Dichloropropene	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Semi-volatile Organic Compounds (UG_L)															
1,1-Biphenyl	5 UJ	5 U	5 U	5.2 U	5.2 U	5 U	5 U	5 U	5 U	5 U	5.4 U	5 U	5 U	5 UJ	5 U
1,2,4,5-Tetrachlorobenzene	5 UJ	5 U	5 U	5.2 U	5.2 U	5 U	5 U	5 U	5 U	5 U	5.4 U	5 U	5 U	5 U	5 U
2,2'-Oxybis(1-chloropropane)	5 UJ	5 U	5 U	5.2 U	5.2 U	5 U	5 U	5 U	5 U	5 U	5.4 U	5 U	5 U	5 U	5 U
2,4,5-Trichlorophenol	20 U	20 U	20 U	20.8 U	20.8 U	20 U	20 U	20 U	20 U	20 U	22 U	20 U	20 U	20 U	20 U
2,4,6-Trichlorophenol	5 U	5 U	5 U	5.2 U	5.2 U	5 U	5 U	5 U	5 U	5 U	5.4 U	5 U	5 U	5 U	5 U
2,4-Dichlorophenol	5 U	5 U	5 U	5.2 U	5.2 U	5 U	5 U	5 U	5 U	5 U	5.4 U	5 U	5 U	5 U	5 U
2,4-Dimethylphenol	5 U	5 U	5 U	5.2 U	5.2 U	5 U	5 U	5 U	5 U	5 U	5.4 U	5 U	5 U	5 U	5 U
2,4-Dinitrophenol	20 U	20 UJ	20 UJ	20.8 UJ	20.8 UJ	20 UJ	20 U	20 U	20 U	20 U	22 UJ	20 U	20 UJ	20 U	20 U
2,4-Dinitrotoluene	5 UJ	5 U	5 U	5.2 U	5.2 U	5 U	5 U	5 U	5 U	5 U	5.4 U	5 U	5 U	5 U	5 U
2,6-Dinitrotoluene	5 UJ	5 U	5 U	5.2 U	5.2 U	5 U	5 U	5 U	5 U	5 U	5.4 U	5 U	5 U	5 U	5 U
2-Chloronaphthalene	5 UJ	5 U	5 U	5.2 U	5.2 U	5 U	5 U	5 U	5 U	5 U	5.4 U	5 U	5 U	5 U	5 U
2-Chlorophenol	5 U	5 U	5 U	5.2 U	5.2 U	5 U	5 U	5 U	5 U	5 U	5.4 U	5 U	5 U	5 U	5 U
2-Methylnaphthalene	5 UJ	5 U	5 U	5.2 U	5.2 U	5 U	41.4	3.8 J	9.5	5 U	5.4 U	82.1	110	5 U	5 U
2-Methylphenol	5 U	5 U	5 U	5.2 U	5.2 U	5 U	5 U	5 U	5 U	5 U	5.4 U	5 U	5 U	5 U	5 U
2-Nitroaniline	20 UJ	20 U	20 U	20.8 U	20.8 U	20 U	20 U	20 U	20 U	20 U	22 U	20 U	20 U	20 U	20 U
2-Nitrophenol	5 U	5 U	5 U	5.2 U	5.2 U	5 U	5 U	5 U	5 U	5 U	5.4 U	5 U	5 U	5 U	5 U
3,3'-Dichlorobenzidine	5 UJ	5 U	5 U	5.2 U	5.2 U	5 U	5 U	5 U	5 U	5 U	5.4 U	5 U	5 U	5 U	5 U
3-Nitroaniline	20 UJ	20 U	20 U	20.8 U	20.8 U	20 U	20 U	20 U	20 U	20 U	22 U	20 U	20 U	20 U	20 U
4,6-Dinitro-2-methylphenol	20 U	20 U	20 U	20.8 UJ	20.8 UJ	20 UJ	20 U	20 U	20 U	20 U	22 U	20 U	20 U	20 U	20 U
4-Bromophenyl-phenylether	5 UJ	5 U	5 U	5.2 U	5.2 U	5 U	5 U	5 U	5 U	5 U	5.4 U	5 U	5 U	5 U	5 U
4-Chloro-3-methylphenol	5 U	5 U	5 U	5.2 U	5.2 U	5 U	5 U	5 U	5 U	5 U	5.4 U	5 U	5 U	5 U	5 U
4-Chloroaniline	5 UJ	5 U	5 U	5.2 U	5.2 U	5 U	5 U	5 U	5 U	5 U	5.4 U	5 U	5 U	5 U	5 U
4-Chlorophenyl-phenylether	5 UJ	5 U	5 U	5.2 U	5.2 U	5 U	5 U	5 U	5 U	5 U	5.4 U	5 U	5 U	5 U	5 U
4-Methylphenol	6.1 U	5 U	5 U	6.4 U	6.4 U	6.1 U	6.1 U	5 U	6.1 U	6.1 U	5.4 U	6.1 U	5 U	5 U	5 U
4-Nitroaniline	20 UJ	20 U	20 U	20.8 U	20.8 U	20 U	20 U	20 U	20 U	20 U	22 UJ	20 U	20 UJ	20 U	20 U
4-Nitrophenol	20 U	20 U	20 U	20.8 U	20.8 U	20 U	20 U	20 U	20 U	20 U	22 U	20 U	20 U	20 U	20 U
Acenaphthene	5 UJ	5 U	5 U	5.2 U	5.2 U	5 U	5 U	5 U	5 U	5 U	5.4 U	5 U	2.5 J	5 U	5 U
Acenaphthylene	5 UJ	5 U	5 U	5.2 U	5.2 U	5 U	5 U	5 U	5 U	5 U	5.4 U	5 U	5 U	5 U	5 U
Acetophenone	5 UJ	5 U	5 U	5.2 U	5.2 U	5 U	6.4 J	5 U	5 U	5 U	5.4 U	15.3 J	5 U	5 U	5 U
Anthracene	5 UJ	5 U	5 U	5.2 U	5.2 U	5 U	5 U	5 U	5 U	5 U	5.4 U	5 U	5 U	5 U	5 U
Atrazine	5 UJ	5 U	5 U	5.2 U	5.2 U	5 U	5 U	5 UJ	5 U	5 U	5.4 U	5 U	5 U	5 UJ	5 UJ
Benzaldehyde	5 UJ	5 U	5 U	5.2 U	5.2 U	5 U	5 U	5 UJ	5 U	5 U	5.4 U	5 U	5 U	5 UJ	5 UJ
Benzo(a)anthracene	5 UJ	5 U	5 U	5.2 U	5.2 U	5 U	5 U	5 U	5 U	5 U	5.4 U	5 U	5 U	5 U	5 U
Benzo(a)pyrene	5 UJ	5 U	5 U	5.2 U	5.2 U	5 U	5 U	5 U	5 U	5 U	5.4 U	5 U	5 U	5 UJ	5 UJ
Benzo(b)fluoranthene	5 UJ	5 U	5 U	5.2 U	5.2 U	5 U	5 U	5 U	5 U	5 U	5.4 U	5 U	5 U	5 UJ	5 UJ
Benzo(g,h,i)perylene	5 UJ	5 U	5 U	5.2 U	5.2 U	5 U	5 U	5 U	5 U	5 U	5.4 U	5 U	5 U	5 UJ	5 UJ
Benzo(k)fluoranthene	5 UJ	5 U	5 U	5.2 U	5.2 U	5 U	5 U	5 U	5 U	5 U	5.4 U	5 U	5 U	5 UJ	5 UJ
Butylbenzylphthalate	5 UJ	5 U	5 U	5.2 U	5.2 U	5 U	5 U	5 U	5 U	5 U	5.4 U	5 U	5 U	5 UJ	5 U
Caprolactam	9.1 UJ	5 U	5 U	5.2 U	5.2 U	5 U	5 U	5 U	5 U	5 U	5.4 U	5 U	5 U	5 UJ	5 U
Carbazole	10 UJ	NA	NA	10.4 U	10.4 U	10 U	10 U	NA	10 U	10 U	NA	10 U	NA	NA	NA
Chrysene	5 UJ	5 U	5 U	5.2 U	5.2 U	5 U	5 U	5 U	5 U	5 U	5.4 U	5 U	5 U	5 U	5 U
Di-n-butylphthalate	5 UJ	5 U	5 U	5.2 U	5.2 U	5 U	5 U	5 U	5 U	5 U	5.4 U	5 U	5 U	5 UJ	5 U
Di-n-octylphthalate	5 UJ	5 U	5 U	5.2 U	5.2 U	5 U	5 U	5 U	5 U	5 U	5.4 U	5 U	5 U	5 UJ	5 U
Dibenz(a,h)anthracene	5 UJ	5 U	5 U	5.2 U	5.2 U	5 U	5 U	5 U	5 U	5 U	5.4 U	5 U	5 U	5 UJ	5 UJ
Dibenzofuran	5 UJ	5 U	5 U	5.2 U	5.2 U	5 U	5 U	1.2 J	3.8 J	5 U	5.4 U	4.1 J	5.5	5 U	5 U
Diethylphthalate	5 UJ	5 U	5 U	5.2 U	5.2 U	5 U	5 U	5 U	5 U	5 U	5.4 U	5 U	5 U	5 UJ	5 U
Dimethyl phthalate	5 UJ	5 U	5 U	5.2 U	5.2 U	5 U	5 U	5 U	5 U	5 U	5.4 U	5 U	5 U	5 UJ	5 U
Fluoranthene	5 UJ	5 U	5 U	5.2 U	5.2 U	5 U	5 U	5 U	5 U	5 U	5.4 U	5 U	5 U	5 U	5 U
Fluorene	5 UJ	5 U	5 U	5.2 U	5.2 U	5 U	5 U	1.7 J	5 U	5 U	5.4 U	6.9	8.3	5 U	5 U
Hexachlorobenzene	5 UJ	5 U	5 U	5.2 U	5.2 U	5 U	5 U	5 U	5 U	5 U	5.4 U	5 U	5 U	5 U	5 U
Hexachlorobutadiene	5 UJ	5 U	5 U	5.2 U	5.2 U	5 U	5 U	5 U	5 U	5 U	5.4 U	5 U	5 U	5 U	5 U
Hexachlorocyclopentadiene	5 UJ	5 U	5 U	5.2 U	5.2 U	5 U	5 U	5 UJ	5 U	5 U	5.4 U	5 U	5 U	5 UJ	5 UJ
Hexachloroethane	5 UJ	5 U	5 U	5.2 U	5.2 U	5 U	5 U	5 U	5 U	5 U	5.4 U	5 U	5 U	5 U	5 U
Indeno(1,2,3-cd)pyrene	5 UJ	5 U	5 U	5.2 UJ	5.2 UJ	5 UJ	5 U	5 U	5 U	5 U	5.4 U	5 U	5 U	5 UJ	5 UJ
Isophorone	5 UJ	5 U	5 U	5.2 U	5.2 U	5 U	5 U	5 U	5 U	5 U	5.4 U	5 U	5 U	5 U	5 U
Naphthalene	5 UJ	5 U	5 U	5.2 U	5.2 U	5 U	46.2	5.5	5 U	5 U	5.4 U	81.4	96	5 U	5 U
Nitrobenzene	5 UJ	5 U	5 U	5.2 U	5.2 U	5 U	5 U	5 U	5 U	5 U	5.4 UJ	5 U	5 UJ	5 U	5 U
Pentachlorophenol	20 U	5 UJ	5 UJ	20.8 U	20.8 U	20 U	20 U	5 U	20 U	20 U	5.4 U	20 U	5 U	5 U	5 U
Phenanthrene	5 UJ	5 U	5 U	5.2 U	5.2 U	5 U	5 U	5 U	4.8 J	5 U	5.4 U	5.9	7	5 U	5 U
Phenol	5 U	5 U	5 U	5.2 U	5.2 U	5 U	5 U	5 U	5 U	5 U	5.4 U	5 U	5 U	5 U	5 U
Pyrene	5 UJ	5 U	5 U	5.2 U	5.2 U	5 U	5 U	5 U	5 U	5 U	5.4 U	5 U	5 U	5 U	5 U
bis(2-Chloroethoxy)methane	5 UJ	5 U	5 U	5.2 U	5.2 U	5 U	5 U	5 U	5 U	5 U	5.4 U	5 U	5 U	5 U	5 U
bis(2-Chloroethyl)ether	5 UJ	5 U	5 U	5.2 U	5.2 U	5 U	5 U	5 U	5 U	5 U	5.4 U	5 U	5 U	5 U	5 U
bis(2-Ethylhexyl)phthalate	10 UJ	5 U	5 U	10.4 U	10.4 U	10 U	10 U	5 U	9.6 J	10 U	5.4 U	10 U	5 U	5 UJ	5 U
n-Nitroso-di-n-propylamine	5 UJ	5 U	5 U	5.2 U	5.2 U	5 U	5 U	5 U	5 U	5 U	5.4 U	5 U	5 U	5 U	5 U
n-Nitrosodiphenylamine	5 UJ	5 U	5 U	5.2 U	5.2 U	5 U	5 U	5 U	5 U	5 U	5.4 U	5 U	5 U	5 U	5 U
Pesticide/Polychlorinated Biphenyls (UG_L)															
4,4'-DDD	0.021 U	NA	NA	0.02 U	0.02 U	0.02 U	0.021 U	NA	0.021 U	0.021 U	NA	0.021 U	NA	NA	NA
4,4'-DDE	0.021 U	NA	NA	0.02 U	0.02 U	0.02 U	0.021 U	NA	0.021 U	0.021 U	NA	0.021 U	NA	NA	NA
4,4'-DDT	0.021 UJ	NA	NA	0.02 U	0.02 U	0.02 U	0.021 UJ	NA	0.021 UJ	0.021 UJ	NA	0.021 UJ	NA	NA	NA
Aldrin	0.01 U	NA	NA	0.01 U	0.01 U	0.01 U	0.01 U	NA	0.011 U	0.01 U	NA	0.01 U	NA	NA	NA
Aroclor-1016	1 U	NA	NA	1 U	1 U	1 U	1 U	NA	1.1 U	1 U	NA	1 U	NA	NA	NA
Aroclor-1221	0.21 U	NA	NA	0.2 U	0.2 U	0.2 U	0.21 U	NA	0.21 U	0.21 U	NA	0.21 U	NA	NA	NA
Aroclor-1232	0.42 U	NA	NA	0.4 U	0.4 U	0.4 U	0.42 U	NA	0.42 U	0.42 U	NA	0.42 U	NA	NA	NA
Aroclor-1242	0.21 U	NA	NA	0.2 U	0.2 U	0.2 U	0.21 U	NA	0.21 U	0.21 U	NA	0.21 U	NA	NA	NA
Aroclor-1248	0.21 U	NA	NA	0.2 U	0.2 U	0.2 U	0.21 U	NA	0.21 U	0.21 U	NA	0.21 U	NA	NA	NA
Aroclor-1254	0.21 U	NA	NA	0.2 U	0.2 U	0.2 U	0.21 U	NA	0.21 U	0.21 U	NA	0.21 U	NA	NA	NA
Aroclor-1260	0.21 U	NA	NA	0.2 U	0.2 U	0.2 U	0.21 U	NA	0.21 U	0.21 U	NA	0.21 U	NA	NA	NA
Dieldrin	0.021 U	NA	NA	0.02 U	0.02 U	0.02 U	0.021 U	NA	0.021 UJ	0.021 U	NA	0.021 U	NA	NA	NA
Endosulfan I	0.01 U	NA	NA	0.01 U	0.01 U	0.01 U	0.01 U	NA	0.011 U	0.01 U	NA	0.01 U	NA	NA	NA
Endosulfan II	0.021 U	NA	NA	0.02 U	0.02 U	0.02 U	0.021 U	NA	0.021 U	0.021 U	NA	0.021 U	NA	NA	NA
Endosulfan sulfate	0.021 U	NA	NA	0.02 U	0.02 U	0.02 U	0.021 U	NA	0.021 U	0.021 U	NA	0.021 U	NA	NA	NA
Endrin	0.021 U	NA	NA	0.02 U	0.02 U	0.02 U	0.021 U	NA	0.021 U	0.021 U	NA	0.021 U	NA	NA	NA
Endrin aldehyde	0.021 U	NA	NA	0.02 U	0.02 U	0.02 U	0.021 U	NA	0.021 U	0.021 U	NA	0.021 U	NA	NA	NA
Endrin ketone	0.021 U	NA	NA	0.02 U	0.02 U	0.02 U	0.021 U	NA	0.021 U	0.021 U	NA	0.021 U	NA	NA	NA
Heptachlor	0.01 U	NA	NA	0.01 U	0.01 U	0.01 U	0.01 U	NA	0.011 U	0.01 U	NA	0.01 U	NA	NA	NA
Heptachlor epoxide	0.01 U	NA	NA	0.01 U	0.01 U	0.01 U	0.01 U	NA	0.011 U	0.01 U	NA	0.01 U	NA	NA	NA
Methoxychlor	0.1 UJ	NA	NA	0.1 U	0.1 U	0.1 U	0.1 UJ	NA	0.11 UJ	0.1 UJ	NA	0.1 UJ	NA	NA	NA
Toxaphene	0.052 U	NA	NA	0.05 U	0.05 U	0.05 U	0.052 U	NA	0.053 U	0.052 U	NA	0.052 U	NA	NA	NA
alpha-BHC	0.01 U	NA	NA	0.01 U	0.01 U	0.01 U	0.01 U	NA	0.011 U	0.01 U	NA	0.01 U	NA	NA	NA
alpha-Chlordane	0.01 U	NA	NA	0.01 U	0.01 U	0.01 U	0.01 UJ	NA	0.011 U	0.01 U	NA	0.01 U	NA	NA	NA
beta-BHC	0.01 U	NA	NA	0.01 U	0.01 U	0.01 U	0.01 U	NA	0.011 U	0.01 U	NA	0.01 U	NA	NA	NA
delta-BHC	0.01 U	NA	NA	0.01 U	0.01 U	0.01 U	0.01 U	NA	0.011 U	0.01 U	NA	0.01 U	NA	NA	NA
gamma-BHC (Lindane)	0.01 U	NA	NA	0.01 U	0.01 U	0.01 U	0.01 U	NA	0.011 UJ	0.01 U	NA	0.01 U	NA	NA	NA
gamma-Chlordane	0.01 UJ	NA	NA	0.01 U	0.01 U	0.01 U	0.01 U	NA	0.011 UJ	0.01 UJ	NA	0.01 UJ	NA	NA	NA
Total Metals (UG_L)															
Aluminum	209	249	200 U	70.3 J	70.6 J	358	56.2 J	200 U	54 J	774	200 U	69.9 J	275	461	200 U
Antimony	3.46 J	60 U	60 U	2.55 J	3.16 J	2.99 J	2.3 U	60 U	2.3 U	2.3 U	60 U	3.39 J	60 U	60 U	60 U
Arsenic	15.6 J	10 U	10 U	17	15.1	15.5 J	15.6 J	4.3 J	18.7	12.1	10 U	13.5 J	4.5 J	10 U	10 U
Barium	16.1 J	17.6 J	17.4 J	52.8 J	52.2 J	69.4 J	104 J	89.6 J	72.3 J	19.2 J	23.9 J	40.4 J	51.6 J	63.3 J	36 J
Beryllium	0.2 U	5 U	5 U	0.2 U	0.2 U	0.2 U	0.2 U	5 U	0.2 U	0.2 U	5 U	0.2 U	5 U	5 U	5 U
Cadmium	6.35	5 U	5 U	7.7 J	8.72	5.8	5.66	5 U	3.81 J	3.19 J	5 U	4.8 J	5 U	5 U	5 U
Calcium	78,900	97,800	97,300	93,400	93,200	70,600	64,600	60,600	47,700	45,600	58,500	61,200	64,500	71,300	61,600
Chromium	1.47 J	10 U	10 U	1.62 J	1.6 J	3.1 J	1.35 J	10 U	1.74 J	2 J	10 U	1.3 U	10 U	10 U	10 U
Cobalt	6.99 J	50 U	50 U	8.78 J	8.68 J	7.28 J	7.07 J	50 U	5.18 J	4.04 J	50 U	6.24 J	50 U	50 U	50 U
Copper	7.9 J	25 U	25 U	8.48 J	8.64 J	8.54 J	4.43 J	25 U	4.75 J	6.73 J	25 U	4.47 J	25 U	3.4 J	25 U
Cyanide	9.9 U	10 U	10 U	11.6	9.9 U	9.9 U	9.9 U	10 U	9.9 U	9.9 U	10 U	9.9 U	10 U	10 U	10 U
Iron	210 J	281	100 U	76.5 J	84.8 J	684 J	72.7 J	290	100 J	974 J	126	295 J	1,840	715	151
Lead	6.5 J	10 U	10 U	7.37	6.32	4.54 J	4.4 J	10 U	6.66	5.87	10 U	8.38	10 U	10 U	10 U
Magnesium	44,700	54,500	54,000	59,300	59,000	50,400	54,700	50,800	36,800	21,800	27,100	47,500	50,200	37,600	54,300
Manganese	40.7	20.3	13.3 J	891	888	1,330	1,930	1,900	1,110	57.2	15 U	1,280	1,660	145	283
Mercury	0.025 U	0.2 U	0.2 U	0.025 U	0.025 U	0.025 U	0.025 U	0.2 U	0.0478 J	0.0462 J	0.2 U	0.025 U	0.2 U	0.2 U	0.2 U
Nickel	1.7 U	1.6 J	40 U	1.8 J	1.92 J	2.17 J	1.7 U	1.4 J	1.7 U	2.51 J	40 U	1.7 U	40 U	2.5 J	1.2 J
Potassium	943 J	899 J	915 J	614 J	617 J	614 J	537 J	287 J	308 J	1,290 J	1,240 J	451 J	315 J	527 J	384 J
Selenium	2.6 U	35 U	35 U	2.6 U	2.6 U	2.6 U	2.6 U	1.8 J	2.6 U	2.6 U	3.8 J	2.6 U	1.8 J	2.3 J	35 U
Silver	0.65 U	10 U	10 U	0.65 U	0.65 U	0.65 U	0.65 U	10 U	0.65 U	0.65 U	10 U	0.65 U	10 U	10 U	10 U
Sodium	94,600	101,000	100,000	79,700	79,500	111,000	151,000	143,000	238,000	382,000	418,000	159,000	155,000	207,000	249,000
Thallium	0.23 U	1 U	1 U	0.23 U	0.23 U	0.23 U	0.23 UJ	1 U	0.23 UJ	0.23 UJ	1 U	0.23 U	1 U	1 U	1 U
Vanadium	37.1 J	50 U	50 U	26.9 J	26.9 J	11.3 J	13.9 J	50 U	3.48 J	46.9 J	50 U	7.3 J	50 U	50 U	50 U
Zinc	0.94 U	60 U	60 U	0.94 U	0.94 U	0.94 U	0.94 U	60 U	0.94 U	2.14 J	12 J	0.94 U	60 U	10.3 J	60 U
Dissolved Metals (UG_L)															
Aluminum	84.2 J	200 U	200 U	42.4 J	37.7 J	38.2 J	15 U	200 U	34.7 J	73.1 J	200 U	15 U	38.9 J	128 J	200 U
Antimony	2.3 U	60 U	60 U	2.3 U	2.85 J	2.3 U	2.3 U	60 U	2.3 U	2.33 J	60 U	2.3 U	60 U	60 U	60 U
Arsenic	14 J	10 U	10 U	15.4	15.9	20 J	18.1 J	10 U	18.1	10.6	10 U	16 J	6.2 J	10 U	10 U
Barium	16.4 J	17.5 J	18 J	51.6 J	51.3 J	66.7 J	103 J	94.4 J	70.9 J	19 J	25.4 J	39.9 J	55.1 J	61.9 J	35.4 J
Beryllium	0.2 U	5 U	5 U	0.2 U	0.2 U	0.2 U	0.2 U	5 U	0.2 U	0.2 U	5 U	0.2 U	5 U	5 U	5 U
Cadmium	6.31	5 U	5 U	8.23 J	8.17	6.24	5.82	5 U	3.82 J	3.07 J	5 U	4.9 J	5 U	5 U	5 U
Calcium	81,400	98,700	101,000	91,700	92,600	69,500	64,500	61,700	46,400	47,300	58,700	60,000	67,800	71,800	62,100
Chromium	1.3 U	10 U	10 U	1.3 U	1.3 U	1.3 U	1.65 J	10 U	1.46 J	1.3 U	7 J	1.3 U	1.1 J	2.4 J	10 U
Cobalt	7.06 J	50 U	50 U	8.61 J	8.52 J	6.93 J	6.97 J	0.8 J	5.28 J	3.64 J	50 U	6.33 J	0.94 J	0.49 J	0.93 J
Copper	8.79 J	25 U	25 U	7.77 J	8.08 J	5.22 J	4.24 J	25 U	3.35 J	5.18 J	25 U	4.4 J	25 U	25 U	25 U
Iron	83.3 J	100 U	100 U	32.5 J	33.4 J	99.8 J	17 J	117	77.3 J	68.9 J	100 U	188 J	1,470	241	100 U
Lead	7.55 J	10 U	10 U	7.95	6.17	7.54 J	5.83 J	10 U	6.15	4.75	10 U	7.2	10 U	10 U	10 U
Magnesium	46,200	54,400	56,000	58,000	58,400	51,100	54,700	51,800	36,300	22,600	27,000	46,700	53,400	37,700	54,500
Manganese	37.9	11.5 J	10.9 J	859	865	1,290	1,920	1,960	1,090	44.9	12.1 J	1,240	1,760	126	279
Mercury	0.025 U	0.2 U	0.2 U	0.025 U	0.025 U	0.025 U	0.025 U	0.2 U	0.025 U	0.025 U	0.2 U	0.025 U	0.2 U	0.2 U	0.2 U
Nickel	1.99 J	0.58 J	40 U	1.76 J	1.77 J	2.07 J	1.7 U	0.69 J	1.7 U	1.98 J	0.65 J	1.7 U	1.2 J	1.6 J	0.99 J
Potassium	1,090 J	917 J	932 J	585 J	613 J	719 J	477 J	295 J	348 J	1,340 J	1,270 J	427 J	339 J	515 J	373 J
Selenium	2.92 J	35 U	35 U	2.6 U	2.6 U	2.6 U	2.6 U	35 U	2.6 U	2.6 U	35 U	2.6 U	35 U	2.2 J	35 U
Silver	0.65 U	10 U	10 U	0.65 U	0.65 U	0.65 U	0.65 U	10 U	0.65 U	0.65 U	10 U	0.65 U	10 U	10 U	10 U
Sodium	98,400	102,000	104,000	78,500	79,300	112,000	150,000	147,000	235,000	404,000	430,000	156,000	164,000	209,000	248,000
Thallium	0.23 U	1 U	0.047 J	0.23 U	0.23 U	0.23 U	0.23 UJ	1 U	0.23 UJ	0.23 UJ	1 U	0.23 U	1 U	1 U	1 U
Vanadium	37.6 J	50 U	50 U	26.3 J	26.2 J	9.78 J	13.5 J	50 U	2.94 J	45.3 J	50 U	7.15 J	50 U	50 U	50 U
Zinc	0.95 J	60 U	60 U	0.94 U	0.94 U	0.94 U	0.94 U	60 U	0.94 U	2.32 J	12.4 J	3.24 J	60 U	10.7 J	60 U
Wet Chemistry (MG_L)															
Nitrate	NA	0.615	0.66	NA	NA	NA	NA	0.05 U	NA	NA	1.86	NA	0.05 U	0.77	0.05 U
Sulfate	NA	22.4	22.2	NA	NA	NA	NA	10.2	NA	NA	52	NA	2.37 J	17.8	1.85 J
Total dissolved solids (TDS)	643	714	718	721	718	646	717	142	859	1,170	1,320	732	6,710	814	905
Total organic carbon (TOC)	NA	8.58	2.74 J	NA	NA	NA	NA	3.79 J	NA	NA	9.87	NA	7.28	7.14	8.1

Notes:
NA - Not analyzed
J - Reported value is estimated
U - Analyte not detected
UJ - Not detected, quantitation limit may be inaccurate
UG_L - MIcrograms per Liter
MG_L - Milligrams per Liter
Shading Indicates Detection

Appendix L
2004 Data Quality Evaluations

Former NASD AOC I Data Quality Evaluation (DQE)

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COPIES: Russ Bowen/TPA

FROM: Kevin A. Sanders/GNV
Mark W. Stinnett/GNV

DATE: November 9, 2004

Introduction

The purpose of the technical memorandum (TM) is to present the findings of the data quality evaluation (DQE) performed on the multi-media sampling collected as part of the Former NASD AOC I PASI and RIFS activities.

The purpose of the data quality evaluation process is to assess the effect of the overall analytical process on the usability of the data. The two major categories of data evaluation are laboratory performance and matrix interferences. Evaluation of laboratory performance is a check for compliance with the method requirements; either the laboratory did, or did not, analyze the samples within the limits of the analytical method. Evaluation of matrix interferences is more subtle and involves the analysis of several areas of results including surrogate spike recoveries, matrix spike recoveries, and duplicate sample results.

AOC I samples were collected during the PASI from November 29, 2000 through December 1, 2001 and during the RIFS from August 18 through September 24, 2004. Field QC samples collected included field duplicates, field blanks, trip blanks (analyzed for VOCs only), and equipment rinsate blanks. The number of each type of sample is listed by analytical method in ***Exhibit 1***. The samples were analyzed for the following analytical fractions:

- Volatile organic compounds (VOCs) by SW-846 method 8260B
- Semivolatile organic compounds (SVOCs) by SW-846 method 8270C
- Organochlorine Pesticides and PCB's by SW846 method 8081A and 8082
- Total Petroleum Hydrocarbons (TPH) by Florida method FL-PRO
- Non-halogenated VOCs (TPH C6-C10 and C10-C-28) by SW-846 method 8015M
- Metals by SW-846 method 6010B and EPA 200.7 (ICPES)
- Thallium by SW-846 method 7841
- Mercury by SW-846 method 7470A and EPA 245.5
- General Chemistry parameters Hexavalent Chromium, TDS, soil pH, cyanide and total organic carbon (TOC)

Before the analytical results were released by the laboratory, both the sample results and associated QC data were carefully reviewed to verify sample identity, instrument calibration, detection limits, dilution factors, numerical computations, accuracy of transcriptions, and chemical interpretations. Additionally, the QC data were reduced and

the resulting data were reviewed to ascertain whether they were within the laboratory-defined limits for accuracy and precision. Data non-conformances were discussed in the data package cover letter and case narrative

The hardcopy data packages were reviewed by the sub-contractor (EDS) utilizing review criteria as specified by the EPA Region II guidelines, basically following those outlined in the Environmental Protection Agency (EPA) guidance document *Contract Laboratory Program National Functional Guidelines for Organic (Oct, 1999) and Inorganic Data Review (Oct, 2004) [NFG]*). Areas of review included (when applicable to the method) holding time compliance, calibration verification, blank results, matrix spike precision and accuracy, method accuracy as demonstrated by LCSs, field duplicate results, surrogate recoveries, internal standard performance, and interference checks. The EPA Region II data review workbook was completed for each of these data packages and any non-conformance documented. This data review and validation process is independent of the laboratory's checks and focuses on the usability of the data to support the project data interpretation and decision-making processes.

Data that were not within the acceptance limits were appended with a qualifying flag, which consists of a single or double-letter abbreviation that reflects a problem with the data. Although the qualifying flags are appended to data records during the database query process, they are also included in the final data summary tables deliverable so that the data will not be used indiscriminately. These also include secondary, or the two-digit "sub-qualifier" flags, which are entered into the comment field of the database. ***Exhibit 2*** presents these codes and their definitions. The following primary flags were used to qualify the data:

- **U -** Undetected. Analyte was analyzed for but not detected above the method detection limit.
- **UJ -** Detection limit estimated. Analyte was analyzed for, and qualified as not detected. The result is estimated.
- **J -** Estimated. The analyte was present, but the reported value may not be accurate or precise.
- **R -** Rejected. The data are unusable. (NOTE: Analyte/compound may or may not be present.)

Numerical sample results that are greater than the method detection limit (MDL) but less than the laboratory reporting limit (RL) are qualified with a "J" for estimated as required by NFG.

The entire database was queried for frequency of detection in blanks and samples, detailed listing of blank detects, matrix spike/matrix spike duplicate (MS/MSD) results, field duplicate precision, surrogate recoveries, preparation and analysis dates pertaining to holding times. The queries were then manipulated to calculate necessary statistics for evaluation of the data.

Once the data review and validation process was completed, the entire data set were reviewed for analyte frequencies of detection, dilution factors that might affect data usability, and patterns of target analyte distribution. The data set was also evaluated to

identify potential data limitations, uncertainties, or both in the analytical results. ***Exhibit 3*** presents data which were rejected, and ***Exhibit 4*** presents all the data that have been qualified due to the validation process.

Holding Times

The holding times for each parameter were evaluated according to SW-846 requirements. There were no records that did not meet the SW-846 holding time criteria. No flags were applied.

Calibration

Most all calibration criteria pertaining to all methods were met for these samples. One-hundred and six results were qualified as estimated (J/UJ). These estimated records included 18 pesticides, 41 metals (selenium), 4 volatiles, and 43 semivolatiles. Ninety-five records were rejected for low relative response factors (RRF). These results included forty-two 2-butanone and fifty-three acetone records. Acetone and 2-butanone are noted poor performers by method 8260B and are not contaminants of concern at AOC I.

Laboratory Method Accuracy

Laboratory control samples (LCSs) or blank spikes are quality control samples utilized to monitor laboratory method performance. This sample does not possess a difficult matrix as it consists of deionized (DI) laboratory water spiked with the target compounds of interest. With few exceptions, LCS data was within method criteria indicating that the laboratory methods were in control.

Exhibit 4 indicates that a total of 12 records were qualified due to LCS recoveries outside control limits. Five of these records were estimated (UJ) for organochlorine pesticides. Seven semivolatile records of Benzo(g,h,i)perylene (all non-detects) were rejected. These method accuracy and precision data indicate that the laboratory analytical methods were in control.

Potential Field Sampling and Laboratory Contamination

Four types of blank samples were used to monitor potential contamination introduced during field sampling, sample handling, shipping activities, as well as sample preparation and analysis in the laboratory. Types of blank samples included:

- **Trip Blank (TB)**: A sample of analyte free water that is prepared in the laboratory prior to the sampling event. The water is stored in VOC sample containers and is not opened in the field, and travels back to the laboratory with the other samples for VOC analysis. This blank is used to monitor the potential for sample contamination during the sample container trip. One trip blank was included in each sample cooler that contained samples for VOC analysis. Eight trip blanks were submitted to the laboratory with these samples.
- **Equipment Rinsate Blank (ERB)**: A sample of the target-free water used for the final rinse during the equipment decontamination process. This blank sample is collected by rinsing the sampling equipment after decontamination and is analyzed for the same analytical parameters as the corresponding samples. This blank is used to monitor

potential contamination caused by incomplete equipment decontamination. One equipment rinsate blank should be collected per day of sampling, per type of sampling equipment. Depending on the method, up to eight equipment rinsate blanks were submitted to the laboratory for this field effort

- **Field Blank or Ambient Blank (FB or AB)**: The field blank is an aliquot of the source water used for equipment decontamination. This blank monitors contamination that may be introduced from the water used for decontamination. One field blank should be collected from each source of decontamination water and analyzed for the same parameters as the associated samples. Up to two field blanks were collected during this sampling event, depending on the method.
- **Laboratory Method Blank or Method Blank (MB)**: A laboratory method blank is ASTM Type II water that is treated as a sample in that it undergoes the same analytical process as the corresponding field samples. Method blanks are used to monitor laboratory performance and contamination introduced during the analytical procedure. One method blank was prepared and analyzed for every twenty samples or per analytical batch, whichever was more frequent.

According to the NFG, concentrations of common organic contaminants detected in samples at less than ten times the concentration of the associated blanks can be attributed to field sampling and laboratory contamination rather than environmental contamination from site activities. Common organic contaminants include acetone, methylene chloride, 2-butanone, and the phthalates. For other inorganic and organic contaminants, five times the concentration detected in the associated blanks (rather than ten times) is used to qualify results as potential field and/or laboratory contamination rather than environmental contamination. The ten times rule was applied on a sample delivery group (SDG) by SDG basis and not globally. Global flag application; however, would account for anomalous data which should also be attributed to laboratory or field blank contamination.

Field sample concentrations less than the action levels (5 or 10 times rule) were qualified as not detected (30 total records).

As presented in ***Exhibit 4,*** five volatile compounds, acetone, methylene chloride, 1,2-dichloromethane, chloromethane, and toluene, were detected in blanks resulting in qualification of field samples. Acetone and methylene chloride were reported in all blank types, resulting in three and nine records respectively, qualified as non-detect due to blank contamination. Acetone and methylene chloride are extraction solvents and are common laboratory contaminants. Toluene was detected at mostly sub-part-per-billion levels in equipment and trip blanks. Six toluene records were qualified as non-detect. Chloromethane was detected in all blank types (except the lab method blank) at sub part-per-billion concentrations. A single chloromethane record was qualified as non-detect. 1,2-Dichloroethane was reported in 3 of 16 laboratory blanks with concentrations between 0.28 and 1.3 µg/L which resulted in the qualification of 2 sample records as not detected.

Caprolactam was quantitated in ambient and equipment blanks just below the minimum reporting limit. Three sample records were qualified as non-detect due to blank contamination. Two of three equipment blanks were reported to contain TPH (C10-C28) at

sub-part-per-billion levels just above the method detection limit (MDL). Six field samples were qualified as not detected due to low level blank contamination.

Matrix Effects

Surrogate Spike Recovery

Surrogate spike compounds were added to every sample analyzed for the organic parameters including field and laboratory blanks as well as field environmental samples. Surrogate spikes consist of organic compounds which are similar to the method targets in chemical composition and behavior in the analytical process, but which are not normally found in environmental samples.

Surrogate spike recoveries were used to monitor both laboratory performance and matrix interferences. Surrogate spike recoveries from field and laboratory blanks were used to evaluate laboratory performance because the blanks should represent an "ideal" sample matrix. Surrogate spike recoveries for field samples were used to evaluate the potential for matrix interferences. According to *NFG*, data are not qualified with respect to surrogate recoveries unless one or more volatile surrogates are out of specifications. Semivolatiles are not qualified unless two or more surrogates, within the same fraction (base/neutral or acid fraction), are out of specification.

Exhibit 4, "Change in Qualifiers," indicates that 1151 records were qualified as estimated (J/UJ) due to surrogate recoveries outside control limits. ***Exhibit 5*** indicates that the distribution of these records consists of: 31 FL-PRO, a single TPH (C10-28), 1,068 volatiles, and 51 semi-volatiles. No results were rejected.

Overall, surrogate recoveries were well within criteria indicating that the specific sample matrix did not greatly influence the overall analytical process or the final numerical sample result.

Matrix Spike/Matrix Spike Duplicate Precision and Accuracy

A matrix spike is an aliquot of sample spiked with a known concentration of target analyte(s). The spiking occurs prior to sample preparation and analysis. A matrix spike is used to document the bias of a method in a given sample matrix. The matrix spike duplicate is an intra-laboratory-split sample spiked with identical concentrations of target analyte(s). The spiking occurs prior to sample preparation and analysis. They are used to document the precision and accuracy of a method in a given sample matrix. For the MS/MSD measurement, three aliquots of a single sample are analyzed; one native sample and two spiked with target analytes or compounds. Matrix accuracy is evaluated from the spike recoveries, while matrix precision is evaluated from comparison of the found concentrations of the MS and MSD.

Organic results are not qualified upon the results of MS/MSD results alone. Evaluation is in conjunction with surrogate, LCS, and internal standard (if applicable) results. There were 2 pesticide records from the same sample, and a single TPH (C10-28) record qualified as estimated.

Inorganic results may be qualified solely upon the results of the matrix spike/matrix spike duplicate precision and accuracy. Instances where the native sample concentration for a

given element exceeds the spike added concentration by a factor of four or more are not evaluated as the spike added would be masked by the native concentration. According to NFG, metals recoveries of greater than 30% and less than 75% recovery are required to be flagged as estimated (J/UJ). Recoveries greater than 125% requires that detections be estimated (J) and non-detects remaining as undetected. Precision requirements for waters and soils are set at 20 and 35 relative percent difference (RPD), respectively. ***Exhibit 4*** indicates that 169 records were qualified as estimated (J/UJ) due to MS or MSD accuracy or precision statistics outside control limits. These included 57 antimony records (antimony is a known poor performer), 7 hexavalent chromium, 33 total chromium, 10 each of copper, lead, vanadium and zinc, 3 each of dissolved and total thallium and 23 mercury results. No data were rejected due to poor MS/MSD recoveries.

The majority of the accuracy and precision results were well within established criteria, indicating that the specific sample matrix did not greatly influence the overall analytical process or the final numerical sample result.

Serial Dilutions for ICPES

Serial dilutions are performed on samples being quantitated by Inductively Coupled Plasma Emission Spectroscopy (ICPES) in order to aid in the recognition of matrix interferences (spectral overlap, background light and noise, and physical). A field sample with concentrations (ideally) greater than 50 times the instrument detection limit (IDL) are diluted 1+4 (5-fold) and analyzed immediately after the straight native digestate. The qualifying concentrations of the dilution are then multiplied by five and compared to the concentrations of the native sample. A percent difference (%D) is calculated from this comparison and %D's greater than 10 percent result in associated samples in that analytical batch to be qualified as estimated (J/UJ) for that particular element.

Forty-one records were estimated due to serial dilutions exceeding 10%D criteria. These included 12 nickel, 22 potassium, and 7 total chromium records. No data were rejected.

This statistic indicates that the specific sample matrix did not greatly influence the overall analytical process or the final numerical sample result.

Laboratory Duplicate Precision

A laboratory duplicate is an intralaboratory split of a native field sample which is analyzed for the same parameters. Precision is determined from the concentrations of the native and the split duplicate. No data were qualified due to poor laboratory duplicate precision. This indicates that the matrix did not have an influence on the final numerical result.

Field Duplicate Sample Results

Field duplicate analyses measure both field and laboratory precision and can also be affected by the homogeneity of the samples. Depending on the method, up to two sets of field duplicates were collected during this field effort. Both the native and duplicate samples were analyzed for the same parameters.

An aqueous control limit of ± 20 percent for the RPD was used for original and duplicate sample values greater than or equal to five times the RL. Solid samples utilized a control limit of 35 RPD. A control limit of ± the RL was used if either the sample for the duplicate

value was less than five times the RL for waters and 2 times the RL for soils. In the cases where only one result is above the five times the RL level and the other is below the ± RL criteria were applied. Forty-five record sets met the criteria outlined above. No flags were applied. These duplicate record sets are presented in ***Exhibit 6.*** These statistics indicate that matrix heterogeneity and sampling technique did not greatly influence the final numerical result.

Total versus Dissolved Metals

Aqueous samples were split and a one aliquot per sample field filtered. A comparison between the total and dissolved results was performed in order to establish whether the major anion or cation were associated with the dissolved or total fraction. Results where the total and dissolved concentrations were greater than five times the reporting limit were evaluated as is; that is whether the dissolved fraction was greater than the total. In the instance where one or both concentrations were less than five times the RL, the difference between the two values were compared to the RL. If the difference was less than the RL, the comparison was not performed as the difference would be considered within analytical method error. There were 169 "measurable" sets of data. Following the criteria described above, no data were flagged.

Sample Results Quantitated at or Near the Method Detection Limit (MDL)

The MDL is defined as the minimum concentration of an analyte that can be identified, measured, and reported with 99 percent confidence that the analyte concentration is greater than zero. Sample results at, or near the MDL are not accurate or precise. This situation is often caused by instrument noise or low-level background shifts rather than a true analyte signal. Concentrations at this level may be Type I (alpha) errors (or false positives) and should be applied in this manner. As concentrations approach a "quantitation limit," the confidence in the values increase.

PARCCs

Precision--is defined as the agreement between duplicate results, and was estimated by comparing duplicate matrix spike recoveries, and field duplicate sample results. MS/MSD precision was documented as well within control limit criteria for most samples and targets. Precision between native and field duplicate sample results were within acceptable criteria for all of the measurements indicating that sample matrix did not significantly interfere with the overall analytical process.

Accuracy--is a measure of the agreement between an experimental determination and the true value of the parameter being measured. For the organic analyses, each of the samples was spiked with a surrogate compound; and for organic and inorganic analyses a MS/MSD, and LCS were spiked with a known reference material before preparation. The surrogate and MS/MSD data provides a measure of the matrix effects as they may effect accuracy and precision on the analytical method. The LCS results demonstrate accuracy of the method. Spike recoveries were within the method acceptance limits for the majority of the measurements; therefore, other than the documented exceptions, there was no evidence of significant matrix interferences that would affect the usability of the data.

Representativeness--this criteria is a qualitative measure of the degree to which sample data accurately and precisely represent a characteristic environmental condition. Representativeness is a subjective parameter and is used to evaluate the efficacy of the sampling plan design. Representativeness was demonstrated by providing full descriptions in the project scoping documents of the sampling techniques and the rationale used for selecting sampling locations.

Completeness--is defined as the percentage of measurements that are judged to be valid compared to total number of measurements made. A goal of 90 percent usable data was established in the project scoping document. The completeness for this sampling event was calculated to be 99.1 percent (11120/11222).

Comparability--is another qualitative measure designed to express the confidence with which one data set may be compared to another. Factors that affect comparability are sample collection and handling techniques, sample matrix type, and analytical method. Comparability is limited by the other PARCC parameters because data sets can be compared with confidence only when precision and accuracy are known. Data from this investigation are comparable with other data collected at the site because only EPA methods were used to analyze the sample and EPA Level IV QC data are available to support the quality of the data.

Summary and Conclusions

Conclusions of the data quality evaluation process include:

- The laboratory analyzed the samples according to the EPA methods stated in the work plan as demonstrated by the deliverable summaries and analytical run sequences
- Sample results for metals above the MDL but less than the RL may be attributed to instrument noise and/or low level contamination and not site-related activities and as such may be false positives.
- Sample results for target organic compounds above the MDL but less than the RL should be considered as uncertain but indicative of the presence of that compound at an estimated concentration
- Ninety-five volatile results were rejected for low relative response factors (42, 2-butanone and 53 acetone records)
- Low recoveries of the LCS resulted in 7 non-detect Benzo(g,h,i)perylene records being rejected
- Spike recoveries, surrogates, and field duplicate sample results (other than the exceptions documented in the text and attachments) indicate that the specific sample matrix did not significantly interfere with the analytical process or the final numerical result

The project objectives or PARCCs were met, and the data can be used in the project decision-making process as qualified by the data quality evaluation process.

Exhibit 1 - Number of Samples Collected by Matrix, Type, and Method

Matrix	Analytical Method	Analytical Method Description	Prep Method	Diss	N	FD	AB	EB	TB
SB	SW7196A	Chromium, Hexavalent (Colorimetric)	METHOD	NONE	6	1			
SS	SW7196A	Chromium, Hexavalent (Colorimetric)	METHOD	NONE	17	2	1	4	
SB	SW8270C	GC/MS for Semivolatile Organics	SW3550	NONE	26				
SS	SW8270C	GC/MS for Semivolatile Organics	SW3550	NONE	40	7			
WG	SW8270C	GC/MS for Semivolatile Organics	SW3510	NONE	7	1	2	7	
WG	SW6010B	Inductively Coupled Plasma Emission Spectroscopy	SW3010	FLDFLT	7	1		2	
SB	E200.7	Inductively Coupled Plasma Emission Spectroscopy	SW3050	NONE	26				
SB	SW6010B	Inductively Coupled Plasma Emission Spectroscopy	SW3050B	NONE	6	1			
SS	E200.7	Inductively Coupled Plasma Emission Spectroscopy	SW3050	NONE	26	5			
SS	SW6010B	Inductively Coupled Plasma Emission Spectroscopy	SW3050B	NONE	17	2			
WG	SW6010B	Inductively Coupled Plasma Emission Spectroscopy	SW3010A	NONE	7	1	2	8	
WQ	E245.2	Mercury (Cold Vapor, Automated)	METHOD	NONE				2	
SB	E245.5	Mercury (Cold Vapor, Sediments)	METHOD	NONE	26				
SS	E245.5	Mercury (Cold Vapor, Sediments)	METHOD	NONE	26	5			
WG	SW7470A	Mercury in Liquid Waste (Cold Vapor)	SW3005	FLDFLT	7	1		2	
WG	SW7470A	Mercury in Liquid Waste (Cold Vapor)	METHOD	NONE	7	1	1	2	
SS	SW8015-P	Nonhalogenated Volatile Organics (TPH C6-C10)	SW5030	NONE	14	2	1	3	
SS	SW8015-E	Nonhalogenated Volatile Organics (TPH C10-C28)	SW3550	NONE	14	2	1	3	
SB	CLP_PEST	Organochlorine Pesticides and PCBs	SW3550	NONE	26				
SS	CLP_PEST	Organochlorine Pesticides and PCBs	SW3550	NONE	26	5	1	2	
WG	SW8081	Organochlorine Pesticides and PCBs	SW3510	NONE	7	1	1	4	
WG	SW8082	POLYCHLORINATED BIPHENYLS (PCB)	SW3510	NONE	7	1	1	2	
WG	E160.1	Residue, Filterable (TDS)	NONE	NONE	7	1	1	2	
SB	SW9045	Soil pH	NONE	NONE	3				
SS	SW9045	Soil pH	NONE	NONE	3				
WG	SW7841	Thallium (GFAA)	SW3005	FLDFLT	7	1		2	
WG	SW7841	Thallium (GFAA)	SW3020A	NONE	7	1	1	2	
WG	SW9012	Total and Amendable Cyanide (Colorimetric)	METHOD	NONE	7	1	1	1	
SB	SW9060MOD	Total Organic Carbon	NONE	NONE	3				
SS	SW9060MOD	Total Organic Carbon	NONE	NONE	3		1	2	
SB	FL-PRO	Total Petroleum Hydrocarbons	METHOD	NONE	26				
SS	FL-PRO	Total Petroleum Hydrocarbons	METHOD	NONE	26	5		2	
SB	SW8260B	Volatile Organic Compounds by GCMS	SW5030	NONE	26				
SS	SW8260B	Volatile Organic Compounds by GCMS	SW5030	NONE	26	5			
WG	SW8260B	Volatile Organic Compounds by GCMS	SW5030	NONE	7	1	1	4	8

Exhibit 2 - Data Validation Sub-Qualifiers and Their Definitions

Code	Definition
TN	Tune
BS	Blank Spike/LCS
IS	Internal Standard
MS	Matrix Spike and/or Matrix Spike Duplicate Recovery
MD	Matrix Spike/Matrix Spike Duplicate Precision
2S	Second Source
SD	Serial Dilution
SS	Spiked Surrogate
LR	Lab Re-extraction or Re-Analysis
IC	Initial Calibration
CC	Continuing Calibration Verification
PD	Pesticide Degradation
LD	Lab Duplicate
2C	Second Column (Confirmation)
HT	Holding Time
TD	Dissolved Concentration Greater Than the Total
PS	Post Spike
BL	Blank
RE	Re-extraction
DL	Dilution
IB	In Between MDL and RL
FD	Field Duplicate

Exhibit 3 - Fully Rejeceted Data Records

Matrix	Native Sample ID	Native Sample Type	Parameter	Analysis/ Prep Method	Validation Notes
SB	NDE044	N	Acetone	SW8260B	IC, CC
SB	NDE046	N	Acetone	SW8260B	IC, CC
SB	NDE048	N	Acetone	SW8260B	IC, CC
SB	NDE050	N	Acetone	SW8260B	IC, CC
SB	NDE052	N	Acetone	SW8260B	IC, CC
SB	NDE054	N	Acetone	SW8260B	CC
SB	NDE056	N	Acetone	SW8260B	CC
SB	NDE058	N	Acetone	SW8260B	CC
SB	NDE060	N	Acetone	SW8260B	CC
SB	NDE063	N	Acetone	SW8260B	CC
SB	NDE065	N	Acetone	SW8260B	CC
SB	NDE067	N	Acetone	SW8260B	IC, CC
SB	NDE069	N	Acetone	SW8260B	IC, CC
SB	NDE071	N	Acetone	SW8260B	IC, CC
SB	NDE073	N	Acetone	SW8260B	IC, CC
SB	NDE092	N	Acetone	SW8260B	IC, CC
SB	NDE094	N	Acetone	SW8260B	IC, CC
SB	NDE096	N	Acetone	SW8260B	CC
SB	NDE098	N	Acetone	SW8260B	CC
SB	NDE080	N	Acetone	SW8260B	IC, CC
SB	NDE082	N	Acetone	SW8260B	IC, CC
SB	NDE085	N	Acetone	SW8260B	IC, CC
SB	NDE087	N	Acetone	SW8260B	IC, CC
SB	NDE089	N	Acetone	SW8260B	IC, CC
SS	NDE043	N	Acetone	SW8260B	IC, CC
SS	NDE045	N	Acetone	SW8260B	IC, CC
SS	NDE047	N	Acetone	SW8260B	IC, CC
SS	NDE049	N	Acetone	SW8260B	IC, CC
SS	NDE051	N	Acetone	SW8260B	IC, CC
SS	NDE053	N	Acetone	SW8260B	CC
SS	NDE055	N	Acetone	SW8260B	CC
SS	NDE057	N	Acetone	SW8260B	CC
SS	NDE059	N	Acetone	SW8260B	CC
SS	NDE061	N	Acetone	SW8260B	CC
SS	NDE062FD1	FD	Acetone	SW8260B	CC
SS	NDE064	N	Acetone	SW8260B	CC
SS	NDE066	N	Acetone	SW8260B	IC, CC
SS	NDE068	N	Acetone	SW8260B	IC, CC
SS	NDE072	N	Acetone	SW8260B	IC, CC
SS	NDE075	N	Acetone	SW8260B	IC, CC
SS	NDE090	N	Acetone	SW8260B	IC, CC
SS	NDE091FD1	FD	Acetone	SW8260B	IC, CC
SS	NDE093	N	Acetone	SW8260B	IC, CC
SS	NDE095	N	Acetone	SW8260B	IC, CC
SS	NDE097	N	Acetone	SW8260B	IC, CC
SS	NDE099FD1	FD	Acetone	SW8260B	CC
SS	NDE074FD1	FD	Acetone	SW8260B	IC, CC
SS	NDE079	N	Acetone	SW8260B	IC, CC
SS	NDE081	N	Acetone	SW8260B	IC, CC
SS	NDE083	N	Acetone	SW8260B	IC, CC
SS	NDE084FD1	FD	Acetone	SW8260B	IC, CC
SS	NDE086	N	Acetone	SW8260B	IC, CC
SS	NDE088	N	Acetone	SW8260B	IC, CC
SB	NDE044	N	2-butanone (MEK)	SW8260B	IC, CC
SB	NDE046	N	2-butanone (MEK)	SW8260B	IC, CC

Exhibit 3 - Fully Rejeceted Data Records

Matrix	Native Sample ID	Native Sample Type	Parameter	Analysis/ Prep Method	Validation Notes
SB	NDE044	N	Acetone	SW8260B	IC, CC
SB	NDE046	N	Acetone	SW8260B	IC, CC
SB	NDE048	N	Acetone	SW8260B	IC, CC
SB	NDE048	N	2-butanone (MEK)	SW8260B	IC, CC
SB	NDE050	N	2-butanone (MEK)	SW8260B	IC, CC
SB	NDE052	N	2-butanone (MEK)	SW8260B	IC, CC
SB	NDE054	N	2-butanone (MEK)	SW8260B	IC, CC
SB	NDE056	N	2-butanone (MEK)	SW8260B	IC, CC
SB	NDE058	N	2-butanone (MEK)	SW8260B	IC, CC
SB	NDE063	N	2-butanone (MEK)	SW8260B	IC, CC
SB	NDE065	N	2-butanone (MEK)	SW8260B	IC, CC
SB	NDE067	N	2-butanone (MEK)	SW8260B	IC, CC
SB	NDE069	N	2-butanone (MEK)	SW8260B	IC, CC
SB	NDE071	N	2-butanone (MEK)	SW8260B	IC, CC
SB	NDE073	N	2-butanone (MEK)	SW8260B	CC
SB	NDE076	N	2-butanone (MEK)	SW8260B	IC, CC
SB	NDE078	N	2-butanone (MEK)	SW8260B	IC, CC
SB	NDE094	N	2-butanone (MEK)	SW8260B	CC
SB	NDE096	N	2-butanone (MEK)	SW8260B	IC, CC
SB	NDE098	N	2-butanone (MEK)	SW8260B	IC, CC
SB	NDE082	N	2-butanone (MEK)	SW8260B	CC
SB	NDE089	N	2-butanone (MEK)	SW8260B	CC
SS	NDE043	N	2-butanone (MEK)	SW8260B	IC, CC
SS	NDE045	N	2-butanone (MEK)	SW8260B	IC, CC
SS	NDE047	N	2-butanone (MEK)	SW8260B	IC, CC
SS	NDE049	N	2-butanone (MEK)	SW8260B	IC, CC
SS	NDE053	N	2-butanone (MEK)	SW8260B	IC, CC
SS	NDE055	N	2-butanone (MEK)	SW8260B	IC, CC
SS	NDE057	N	2-butanone (MEK)	SW8260B	IC, CC
SS	NDE059	N	2-butanone (MEK)	SW8260B	IC, CC
SS	NDE061	N	2-butanone (MEK)	SW8260B	IC,CC
SS	NDE062FD1	FD	2-butanone (MEK)	SW8260B	IC, CC
SS	NDE064	N	2-butanone (MEK)	SW8260B	IC, CC
SS	NDE066	N	2-butanone (MEK)	SW8260B	IC, CC
SS	NDE068	N	2-butanone (MEK)	SW8260B	IC, CC
SS	NDE070	N	2-butanone (MEK)	SW8260B	IC, CC
SS	NDE072	N	2-butanone (MEK)	SW8260B	IC, CC
SS	NDE077	N	2-butanone (MEK)	SW8260B	IC, CC
SS	NDE097	N	2-butanone (MEK)	SW8260B	CC
SS	NDE099FD1	FD	2-butanone (MEK)	SW8260B	IC, CC
SS	NDE081	N	2-butanone (MEK)	SW8260B	CC
SS	NDE083	N	2-butanone (MEK)	SW8260B	CC
SS	NDE086	N	2-butanone (MEK)	SW8260B	CC
SS	DAIFD03P-R0	FD	Benzo(g,h,i)perylene	SW8270C	BS
SS	NDAISS27-R0	N	Benzo(g,h,i)perylene	SW8270C	BS
SS	NDAISS28-R0	N	Benzo(g,h,i)perylene	SW8270C	BS
SS	NDAISS29-R0	N	Benzo(g,h,i)perylene	SW8270C	BS
SS	NDAISS30-R0	N	Benzo(g,h,i)perylene	SW8270C	BS
SS	NDAISS31-R0	N	Benzo(g,h,i)perylene	SW8270C	BS
SS	NDAISS32-R0	N	Benzo(g,h,i)perylene	SW8270C	BS

Matrix	Sample ID	Sample Type	LR Type	Analytical Method	Prep Method	Dissolved ?	Parameter	Lab Result	Lab Qual	Lab Conc Qual	Final Result	Final Qual	Final Conc Qual	Detection Limit	Reporting Limit	Units	Validation Notes
SS	NDAISS31-R01	N		SW8015-E	SW3550	NONE	Total Petroleum Hydrocarbons C10-C28	8.6	=	=	8.6	U	U	1.3	2.0	mg/kg	BL
SS	NDAIFD03P-R01	FD		SW8015-E	SW3550	NONE	Total Petroleum Hydrocarbons C10-C28	8.6	=	=	8.6	U	U	1.3	2.1	mg/kg	BL
SS	NDAISS28-R01	N		SW8015-E	SW3550	NONE	Total Petroleum Hydrocarbons C10-C28	10.3	=	=	10.3	U	U	1.4	2.1	mg/kg	BL
SS	NDAISS32-R01	N		SW8015-E	SW3550	NONE	Total Petroleum Hydrocarbons C10-C28	16.4	=	=	16.4	U	U	1.4	2.1	mg/kg	BL
SS	NDAISS29-R01	N		SW8015-E	SW3550	NONE	Total Petroleum Hydrocarbons C10-C28	3.2	=	=	3.2	U	U	1.4	2.2	mg/kg	BL
SS	NDAISS30-R01	N		SW8015-E	SW3550	NONE	Total Petroleum Hydrocarbons C10-C28	6.1	=	=	6.1	U	U	1.4	2.2	mg/kg	BL
WG	NDAIGW06-R01	N		SW8260B	SW5030	NONE	Acetone	3.4	J	J	5.0	U	U	1.8	5.0	ug/L	BL
WG	NDAIGW03-R01	N		SW8260B	SW5030	NONE	Acetone	4.4	J	J	5.0	U	U	1.8	5.0	ug/L	BL
WG	NDAIGW01-R01	N		SW8260B	SW5030	NONE	Acetone	5.8	=	=	5.8	U	U	1.8	5.0	ug/L	BL
WG	NDAIGW01-R01	N		SW8260B	SW5030	NONE	Chloromethane	0.58	=	=	0.58	U	U	0.24	0.50	ug/L	BL
SS	NDE045	N		SW8260B	SW5030	NONE	Methylene chloride	0.36	J	J	10.0	U	U	0.29	10.0	ug/kg	BL
SS	NDE081	N		SW8260B	SW5030	NONE	Methylene chloride	0.32	J	J	11.0	U	U	0.29	10.0	ug/kg	BL
SS	NDE043	N		SW8260B	SW5030	NONE	Methylene chloride	0.54	J	J	10.0	U	U	0.30	10.0	ug/kg	BL
SB	NDE089	N		SW8260B	SW5030	NONE	Methylene chloride	0.40	J	J	11.0	U	U	0.35	11.0	ug/kg	BL
SB	NDE044	N		SW8260B	SW5030	NONE	Methylene chloride	0.50	J	J	11.0	U	U	0.35	11.0	ug/kg	BL
SS	NDE045	N		SW8260B	SW5030	NONE	Toluene	0.21	J	J	10.0	U	U	0.18	10.0	ug/kg	BL
SB	NDE052	N		SW8260B	SW5030	NONE	Toluene	1.2	J	J	10.0	U	U	0.19	10.0	ug/kg	BL
WG	NDAIGW07-R01	N		SW8270C	SW3510	NONE	caprolactam	16.9	=	=	16.9	U	U	0.59	5.0	ug/L	BL
WG	NDAIGW05-R01	N		SW8270C	SW3510	NONE	caprolactam	18.9	=	=	18.9	U	U	0.59	5.0	ug/L	BL
WG	NDAIGW01-R01	N		SW8270C	SW3510	NONE	caprolactam	9.1	=	=	9.1	UJ	U	0.59	5.0	ug/L	BL
SS	NDE090	N		SW8260B	SW5030	NONE	1,2-Dichloroethane	0.20	B	J	10.0	UJ	U	0.20	10.0	ug/kg	BL,SS
SS	NDE093	N		SW8260B	SW5030	NONE	1,2-Dichloroethane	0.23	B	J	10.0	UJ	U	0.22	10.0	ug/kg	BL,SS
SB	NDE067	N		SW8260B	SW5030	NONE	Methylene chloride	0.31	J	J	10.0	UJ	U	0.30	10.0	ug/kg	BL,SS
SS	NDE068	N		SW8260B	SW5030	NONE	Methylene chloride	0.36	J	J	10.0	UJ	U	0.33	10.0	ug/kg	BL,SS
SB	NDE085	N		SW8260B	SW5030	NONE	Methylene chloride	0.45	J	J	10.0	UJ	U	0.33	10.0	ug/kg	BL,SS
SS	NDE084FD1	FD		SW8260B	SW5030	NONE	Methylene chloride	0.45	J	J	12.0	UJ	U	0.39	12.0	ug/kg	BL,SS
SB	NDE078	N		SW8260B	SW5030	NONE	Toluene	0.22	J	J	10.0	UJ	U	0.19	10.0	ug/kg	BL,SS
SS	NDE066	N		SW8260B	SW5030	NONE	Toluene	0.72	J	J	10.0	UJ	U	0.20	10.0	ug/kg	BL,SS
SB	NDE071	N		SW8260B	SW5030	NONE	Toluene	3.5	J	J	10.0	UJ	U	0.21	10.0	ug/kg	BL,SS
SB	NDE087	N		SW8260B	SW5030	NONE	Toluene	5.4	J	J	12.0	UJ	U	0.25	12.0	ug/kg	BL,SS
WG	NDAIGW04-R01	N		SW8081	SW3510	NONE	alpha-chlordane	0.010	U	U	0.010	UJ	U	0.00031	0.010	ug/L	BS
WG	NDAIGW06-R01	N		SW8081	SW3510	NONE	gamma-chlordane	0.010	U	U	0.010	UJ	U	0.00025	0.010	ug/L	BS
WG	NDAIGW01-R01	N		SW8081	SW3510	NONE	gamma-chlordane	0.010	U	U	0.010	UJ	U	0.00025	0.010	ug/L	BS
WG	NDAIGW07-R01	N		SW8081	SW3510	NONE	gamma-chlordane	0.010	U	U	0.010	UJ	U	0.00025	0.010	ug/L	BS
WG	NDAIGW05-R01	N		SW8081	SW3510	NONE	gamma-chlordane	0.011	U	U	0.011	UJ	U	0.00026	0.011	ug/L	BS
SS	NDAIFD03P-R01	FD		SW8270C	SW3550	NONE	Benzo(g,h,i)perylene	346	U	U	346	R	U	32.5	346	ug/kg	BS
SS	NDAISS27-R01	N		SW8270C	SW3550	NONE	Benzo(g,h,i)perylene	336	U	U	336	R	U	31.6	336	ug/kg	BS
SS	NDAISS28-R01	N		SW8270C	SW3550	NONE	Benzo(g,h,i)perylene	344	U	U	344	R	U	32.3	344	ug/kg	BS
SS	NDAISS29-R01	N		SW8270C	SW3550	NONE	Benzo(g,h,i)perylene	371	U	U	371	R	U	34.8	371	ug/kg	BS
SS	NDAISS30-R01	N		SW8270C	SW3550	NONE	Benzo(g,h,i)perylene	358	U	U	358	R	U	33.7	358	ug/kg	BS
SS	NDAISS31-R01	N		SW8270C	SW3550	NONE	Benzo(g,h,i)perylene	337	U	U	337	R	U	31.6	337	ug/kg	BS
SS	NDAISS32-R01	N		SW8270C	SW3550	NONE	Benzo(g,h,i)perylene	350	U	U	350	R	U	32.8	350	ug/kg	BS
SB	NDE096	N		CLP_PEST	SW3550	NONE	methoxychlor	17.0	U	U	17.0	UJ	U	0.29	17.0	ug/kg	CC
SS	NDE095	N		CLP_PEST	SW3550	NONE	methoxychlor	17.0	U	U	17.0	UJ	U	0.29	17.0	ug/kg	CC
SS	NDE097	N		CLP_PEST	SW3550	NONE	methoxychlor	17.0	U	U	17.0	UJ	U	0.29	17.0	ug/kg	CC
SS	NDE099FD1	FD		CLP_PEST	SW3550	NONE	methoxychlor	17.0	U	U	17.0	UJ	U	0.29	17.0	ug/kg	CC
SB	NDE096	N		CLP_PEST	SW3550	NONE	p,p'-DDT	3.3	U	U	3.3	UJ	U	0.39	3.3	ug/kg	CC
SS	NDE095	N		CLP_PEST	SW3550	NONE	p,p'-DDT	3.3	U	U	3.3	UJ	U	0.39	3.3	ug/kg	CC
SS	NDE097	N		CLP_PEST	SW3550	NONE	p,p'-DDT	3.3	U	U	3.3	UJ	U	0.39	3.3	ug/kg	CC
SS	NDE099FD1	FD		CLP_PEST	SW3550	NONE	p,p'-DDT	3.3	U	U	3.3	UJ	U	0.39	3.3	ug/kg	CC
SS	NDE049	N		E200.7	SW3050	NONE	Selenium	0.62	J	J	0.62	J	J	0.48	1.0	mg/kg	CC

Matrix	Sample ID	Sample Type	LR Type	Analytical Method	Prep Method	Dissolved ?	Parameter	Lab Result	Lab Qual	Lab Conc Qual	Final Result	Final Qual	Final Conc Qual	Detection Limit	Reporting Limit	Units	Validation Notes
SS	NDE051	N		E200.7	SW3050	NONE	Selenium	0.76	J	J	0.76	J	J	0.48	1.0	mg/kg	CC
SS	NDE045	N		E200.7	SW3050	NONE	Selenium	0.91	J	J	0.91	J	J	0.48	1.0	mg/kg	CC
SS	NDE099FD1	FD		E200.7	SW3050	NONE	Selenium	0.96	B	J	0.96	J	J	0.48	1.0	mg/kg	CC
SS	NDE064	N		E200.7	SW3050	NONE	Selenium	0.60	J	J	0.60	J	J	0.48	1.1	mg/kg	CC
SS	NDE057	N		E200.7	SW3050	NONE	Selenium	0.77	J	J	0.77	J	J	0.48	1.1	mg/kg	CC
SB	NDE065	N		E200.7	SW3050	NONE	Selenium	0.88	J	J	0.88	J	J	0.48	1.1	mg/kg	CC
SS	NDE077	N		E200.7	SW3050	NONE	Selenium	0.89	J	J	0.89	J	J	0.48	1.1	mg/kg	CC
SS	NDE097	N		E200.7	SW3050	NONE	Selenium	1.0	B	J	1.0	J	J	0.48	1.1	mg/kg	CC
SB	NDE054	N		E200.7	SW3050	NONE	Selenium	1.2	=	=	1.2	J	J	0.48	1.1	mg/kg	CC
SB	NDE067	N		E200.7	SW3050	NONE	Selenium	0.62	J	J	0.62	J	J	0.49	1.1	mg/kg	CC
SS	NDE075	N		E200.7	SW3050	NONE	Selenium	0.66	J	J	0.66	J	J	0.49	1.1	mg/kg	CC
SS	NDE059	N		E200.7	SW3050	NONE	Selenium	0.73	J	J	0.73	J	J	0.49	1.1	mg/kg	CC
SS	NDE061	N		E200.7	SW3050	NONE	Selenium	0.75	J	J	0.75	J	J	0.49	1.1	mg/kg	CC
SB	NDE069	N		E200.7	SW3050	NONE	Selenium	0.77	J	J	0.77	J	J	0.49	1.1	mg/kg	CC
SS	NDE062FD1	FD		E200.7	SW3050	NONE	Selenium	0.83	J	J	0.83	J	J	0.49	1.1	mg/kg	CC
SB	NDE071	N		E200.7	SW3050	NONE	Selenium	0.88	J	J	0.88	J	J	0.49	1.1	mg/kg	CC
SB	NDE056	N		E200.7	SW3050	NONE	Selenium	0.91	J	J	0.91	J	J	0.49	1.1	mg/kg	CC
SB	NDE076	N		E200.7	SW3050	NONE	Selenium	0.94	J	J	0.94	J	J	0.49	1.1	mg/kg	CC
SS	NDE047	N		E200.7	SW3050	NONE	Selenium	0.97	J	J	0.97	J	J	0.49	1.1	mg/kg	CC
SB	NDE078	N		E200.7	SW3050	NONE	Selenium	1.1	=	=	1.1	J	J	0.49	1.1	mg/kg	CC
SS	NDE066	N		E200.7	SW3050	NONE	Selenium	1.1	=	=	1.1	J	J	0.49	1.1	mg/kg	CC
SB	NDE048	N		E200.7	SW3050	NONE	Selenium	1.2	=	=	1.2	J	J	0.49	1.1	mg/kg	CC
SB	NDE098	N		E200.7	SW3050	NONE	Selenium	1.2	=	=	1.2	J	J	0.49	1.1	mg/kg	CC
SB	NDE060	N		E200.7	SW3050	NONE	Selenium	1.5	=	=	1.5	J	J	0.49	1.1	mg/kg	CC
SB	NDE063	N		E200.7	SW3050	NONE	Selenium	0.96	J	J	0.96	J	J	0.50	1.1	mg/kg	CC
SS	NDE072	N		E200.7	SW3050	NONE	Selenium	1.0	J	J	1.0	J	J	0.50	1.1	mg/kg	CC
SB	NDE073	N		E200.7	SW3050	NONE	Selenium	1.1	=	=	1.1	J	J	0.50	1.1	mg/kg	CC
SB	NDE092	N		E200.7	SW3050	NONE	Selenium	0.76	B	J	0.76	J	J	0.51	1.1	mg/kg	CC
SB	NDE094	N		E200.7	SW3050	NONE	Selenium	0.80	B	J	0.80	J	J	0.51	1.1	mg/kg	CC
SS	NDE053	N		E200.7	SW3050	NONE	Selenium	1.3	=	=	1.3	J	J	0.51	1.1	mg/kg	CC
SS	NDE095	N		E200.7	SW3050	NONE	Selenium	1.3	=	=	1.3	J	J	0.51	1.1	mg/kg	CC
SS	NDE068	N		E200.7	SW3050	NONE	Selenium	1.4	=	=	1.4	J	J	0.51	1.1	mg/kg	CC
SB	NDE046	N		E200.7	SW3050	NONE	Selenium	0.78	J	J	0.78	J	J	0.52	1.1	mg/kg	CC
SS	NDE070	N		E200.7	SW3050	NONE	Selenium	1.0	J	J	1.0	J	J	0.52	1.1	mg/kg	CC
SB	NDE096	N		E200.7	SW3050	NONE	Selenium	1.2	=	=	1.2	J	J	0.52	1.1	mg/kg	CC
SS	NDE090	N		E200.7	SW3050	NONE	Selenium	1.6	=	=	1.6	J	J	0.52	1.1	mg/kg	CC
SS	NDE055	N		E200.7	SW3050	NONE	Selenium	1.1	J	J	1.1	J	J	0.55	1.1	mg/kg	CC
SB	NDE058	N		E200.7	SW3050	NONE	Selenium	0.94	J	J	0.94	J	J	0.54	1.2	mg/kg	CC
SS	NDE091FD1	FD		E200.7	SW3050	NONE	Selenium	0.97	B	J	0.97	J	J	0.54	1.2	mg/kg	CC
SB	NDE044	N		E200.7	SW3050	NONE	Selenium	1.4	=	=	1.4	J	J	0.57	1.2	mg/kg	CC
WG	NDAIGW04-R01	N		SW8081	SW3510	NONE	methoxychlor	0.10	U	U	0.10	UJ	U	0.00019	0.10	ug/L	CC
WG	NDAIGW06-R01	N		SW8081	SW3510	NONE	methoxychlor	0.10	U	U	0.10	UJ	U	0.00019	0.10	ug/L	CC
WG	NDAIGW01-R01	N		SW8081	SW3510	NONE	methoxychlor	0.10	U	U	0.10	UJ	U	0.00019	0.10	ug/L	CC
WG	NDAIGW07-R01	N		SW8081	SW3510	NONE	methoxychlor	0.10	U	U	0.10	UJ	U	0.00019	0.10	ug/L	CC
WG	NDAIGW05-R01	N		SW8081	SW3510	NONE	methoxychlor	0.11	U	U	0.11	UJ	U	0.00019	0.11	ug/L	CC
WG	NDAIGW04-R01	N		SW8081	SW3510	NONE	p,p'-DDT	0.021	U	U	0.021	UJ	U	0.00011	0.021	ug/L	CC
WG	NDAIGW06-R01	N		SW8081	SW3510	NONE	p,p'-DDT	0.021	U	U	0.021	UJ	U	0.00011	0.021	ug/L	CC
WG	NDAIGW01-R01	N		SW8081	SW3510	NONE	p,p'-DDT	0.021	U	U	0.021	UJ	U	0.00011	0.021	ug/L	CC
WG	NDAIGW07-R01	N		SW8081	SW3510	NONE	p,p'-DDT	0.021	U	U	0.021	UJ	U	0.00011	0.021	ug/L	CC
WG	NDAIGW05-R01	N		SW8081	SW3510	NONE	p,p'-DDT	0.021	U	U	0.021	UJ	U	0.00012	0.021	ug/L	CC
SB	NDE073	N		SW8260B	SW5030	NONE	2-butanone (MEK)	10.0	U	U	10.0	R	U	1.5	10.0	ug/kg	CC

Matrix	Sample ID	Sample Type	LR Type	Analytical Method	Prep Method	Dissolved ?	Parameter	Lab Result	Lab Qual	Lab Conc Qual	Final Result	Final Qual	Final Conc Qual	Detection Limit	Reporting Limit	Units	Validation Notes
SS	NDE081	N		SW8260B	SW5030	NONE	2-butanone (MEK)	10.0	U	U	10.0	R	U	1.5	10.0	ug/kg	CC
SB	NDE082	N		SW8260B	SW5030	NONE	2-butanone (MEK)	10.0	U	U	10.0	R	U	1.6	10.0	ug/kg	CC
SS	NDE083	N		SW8260B	SW5030	NONE	2-butanone (MEK)	12.0	U	U	12.0	R	U	2.0	12.0	ug/kg	CC
SS	NDE086	N		SW8260B	SW5030	NONE	2-butanone (MEK)	10.0	U	U	10.0	R	U	1.4	10.0	ug/kg	CC
SB	NDE089	N		SW8260B	SW5030	NONE	2-butanone (MEK)	11.0	U	U	11.0	R	U	1.8	11.0	ug/kg	CC
SB	NDE094	N		SW8260B	SW5030	NONE	2-butanone (MEK)	10.0	U	U	10.0	R	U	1.7	10.0	ug/kg	CC
SS	NDE097	N		SW8260B	SW5030	NONE	2-butanone (MEK)	10.0	U	U	10.0	R	U	1.5	10.0	ug/kg	CC
SS	NDE053	N		SW8260B	SW5030	NONE	Acetone	16.0	=	B	16.0	R	=	1.8	10.0	ug/kg	CC
SB	NDE054	N		SW8260B	SW5030	NONE	Acetone	27.0	=	B	27.0	R	=	2.2	12.0	ug/kg	CC
SS	NDE055	N		SW8260B	SW5030	NONE	Acetone	16.0	=	B	16.0	R	=	1.7	10.0	ug/kg	CC
SB	NDE056	N		SW8260B	SW5030	NONE	Acetone	18.0	=	B	18.0	R	=	1.7	10.0	ug/kg	CC
SS	NDE057	N		SW8260B	SW5030	NONE	Acetone	14.0	=	B	14.0	R	=	1.4	10.0	ug/kg	CC
SB	NDE058	N		SW8260B	SW5030	NONE	Acetone	56.0	=	B	56.0	R	=	1.9	10.0	ug/kg	CC
SS	NDE059	N		SW8260B	SW5030	NONE	Acetone	30.0	=	B	30.0	R	=	1.9	10.0	ug/kg	CC
SB	NDE060	N		SW8260B	SW5030	NONE	Acetone	38.0	=	B	38.0	R	=	1.8	10.0	ug/kg	CC
SS	NDE061	N		SW8260B	SW5030	NONE	Acetone	19.0	=	B	19.0	R	=	1.5	10.0	ug/kg	CC
SS	NDE062FD1	FD		SW8260B	SW5030	NONE	Acetone	8.4	J	J	10.0	R	J	1.6	10.0	ug/kg	CC
SB	NDE063	N		SW8260B	SW5030	NONE	Acetone	11.0	=	B	11.0	R	=	1.6	10.0	ug/kg	CC
SS	NDE064	N		SW8260B	SW5030	NONE	Acetone	10.0	U	U	10.0	R	U	1.5	10.0	ug/kg	CC
SB	NDE065	N		SW8260B	SW5030	NONE	Acetone	15.0	=	B	15.0	R	=	1.7	10.0	ug/kg	CC
SB	NDE096	N		SW8260B	SW5030	NONE	Acetone	34.0	B	B	34.0	R	J	2.1	11.0	ug/kg	CC
SB	NDE098	N		SW8260B	SW5030	NONE	Acetone	19.0	B	B	19.0	R	J	1.8	10.0	ug/kg	CC
SS	NDE099FD1	FD		SW8260B	SW5030	NONE	Acetone	25.0	B	B	25.0	R	J	1.7	10.0	ug/kg	CC
WG	NDAIGW03-R01	N		SW8270C	SW3510	NONE	2,4-Dinitrophenol	20.0	U	U	20.0	UJ	U	5.6	20.0	ug/L	CC
WG	NDAIFD01P-R01	FD		SW8270C	SW3510	NONE	2,4-Dinitrophenol	20.8	U	U	20.8	UJ	U	5.8	20.8	ug/L	CC
WG	NDAIGW02-R01	N		SW8270C	SW3510	NONE	2,4-Dinitrophenol	20.8	U	U	20.8	UJ	U	5.8	20.8	ug/L	CC
SS	NDAISS38-R01	N		SW8270C	SW3550	NONE	2,4-Dinitrophenol	1030	U	U	1030	UJ	U	229	1030	ug/kg	CC
SS	NDAISS39-R01	N		SW8270C	SW3550	NONE	2,4-Dinitrophenol	1030	U	U	1030	UJ	U	230	1030	ug/kg	CC
SS	NDAISS37-R01	N		SW8270C	SW3550	NONE	2,4-Dinitrophenol	1050	U	U	1050	UJ	U	233	1050	ug/kg	CC
SS	NDAISS40-R01	N		SW8270C	SW3550	NONE	2,4-Dinitrophenol	1060	U	U	1060	UJ	U	236	1060	ug/kg	CC
SS	NDAIFD02P-R01	FD		SW8270C	SW3550	NONE	2,4-Dinitrophenol	1070	U	U	1070	UJ	U	237	1070	ug/kg	CC
SS	NDAISS38-R01	N		SW8270C	SW3550	NONE	2,4-Dinitrotoluene	344	U	U	344	UJ	U	44.8	344	ug/kg	CC
SS	NDAISS39-R01	N		SW8270C	SW3550	NONE	2,4-Dinitrotoluene	344	U	U	344	UJ	U	44.8	344	ug/kg	CC
SS	NDAISS37-R01	N		SW8270C	SW3550	NONE	2,4-Dinitrotoluene	349	U	U	349	UJ	U	45.5	349	ug/kg	CC
SS	NDAIFD02P-R01	FD		SW8270C	SW3550	NONE	2,4-Dinitrotoluene	356	U	U	356	UJ	U	46.4	356	ug/kg	CC
WG	NDAIGW03-R01	N		SW8270C	SW3510	NONE	4,6-Dinitro-2-methylphenol	20.0	U	U	20.0	UJ	U	3.3	20.0	ug/L	CC
WG	NDAIFD01P-R01	FD		SW8270C	SW3510	NONE	4,6-Dinitro-2-methylphenol	20.8	U	U	20.8	UJ	U	3.4	20.8	ug/L	CC
WG	NDAIGW02-R01	N		SW8270C	SW3510	NONE	4,6-Dinitro-2-methylphenol	20.8	U	U	20.8	UJ	U	3.4	20.8	ug/L	CC
SS	NDAISS38-R01	N		SW8270C	SW3550	NONE	Acetophenone	344	U	U	344	UJ	U	53.1	344	ug/kg	CC
SS	NDAISS39-R01	N		SW8270C	SW3550	NONE	Acetophenone	344	U	U	344	UJ	U	53.2	344	ug/kg	CC
SS	NDAISS37-R01	N		SW8270C	SW3550	NONE	Acetophenone	349	U	U	349	UJ	U	54.0	349	ug/kg	CC
SS	NDAIFD02P-R01	FD		SW8270C	SW3550	NONE	Acetophenone	356	U	U	356	UJ	U	55.0	356	ug/kg	CC
SS	NDAISS38-R01	N		SW8270C	SW3550	NONE	biphenyl (diphenyl)	344	U	U	344	UJ	U	63.6	344	ug/kg	CC
SS	NDAISS39-R01	N		SW8270C	SW3550	NONE	biphenyl (diphenyl)	344	U	U	344	UJ	U	63.6	344	ug/kg	CC
SS	NDAISS37-R01	N		SW8270C	SW3550	NONE	biphenyl (diphenyl)	349	U	U	349	UJ	U	64.6	349	ug/kg	CC
SS	NDAIFD02P-R01	FD		SW8270C	SW3550	NONE	biphenyl (diphenyl)	356	U	U	356	UJ	U	65.8	356	ug/kg	CC
SS	NDAISS27-R01	N		SW8270C	SW3550	NONE	Dibenz(a,h)anthracene	336	U	U	336	UJ	U	39.7	336	ug/kg	CC
SS	NDAISS31-R01	N		SW8270C	SW3550	NONE	Dibenz(a,h)anthracene	337	U	U	337	UJ	U	39.8	337	ug/kg	CC
SS	NDAISS28-R01	N		SW8270C	SW3550	NONE	Dibenz(a,h)anthracene	344	U	U	344	UJ	U	40.7	344	ug/kg	CC
SS	NDAIFD03P-R01	FD		SW8270C	SW3550	NONE	Dibenz(a,h)anthracene	346	U	U	346	UJ	U	40.9	346	ug/kg	CC
SS	NDAISS32-R01	N		SW8270C	SW3550	NONE	Dibenz(a,h)anthracene	350	U	U	350	UJ	U	41.3	350	ug/kg	CC

Matrix	Sample ID	Sample Type	LR Type	Analytical Method	Prep Method	Dissolved ?	Parameter	Lab Result	Lab Qual	Lab Conc Qual	Final Result	Final Qual	Final Conc Qual	Detection Limit	Reporting Limit	Units	Validation Notes
SS	NDAISS30-R01	N		SW8270C	SW3550	NONE	Dibenz(a,h)anthracene	358	U	U	358	UJ	U	42.4	358	ug/kg	CC
SS	NDAISS29-R01	N		SW8270C	SW3550	NONE	Dibenz(a,h)anthracene	371	U	U	371	UJ	U	43.8	371	ug/kg	CC
SS	NDAISS27-R01	N		SW8270C	SW3550	NONE	Hexachlorocyclopentadiene	336	U	U	336	UJ	U	40.7	336	ug/kg	CC
SS	NDAISS31-R01	N		SW8270C	SW3550	NONE	Hexachlorocyclopentadiene	337	U	U	337	UJ	U	40.8	337	ug/kg	CC
SS	NDAISS28-R01	N		SW8270C	SW3550	NONE	Hexachlorocyclopentadiene	344	U	U	344	UJ	U	41.7	344	ug/kg	CC
SS	NDAIFD03P-R01	FD		SW8270C	SW3550	NONE	Hexachlorocyclopentadiene	346	U	U	346	UJ	U	42.0	346	ug/kg	CC
SS	NDAISS32-R01	N		SW8270C	SW3550	NONE	Hexachlorocyclopentadiene	350	U	U	350	UJ	U	42.4	350	ug/kg	CC
SS	NDAISS30-R01	N		SW8270C	SW3550	NONE	Hexachlorocyclopentadiene	358	U	U	358	UJ	U	43.4	358	ug/kg	CC
SS	NDAISS29-R01	N		SW8270C	SW3550	NONE	Hexachlorocyclopentadiene	371	U	U	371	UJ	U	45.0	371	ug/kg	CC
WG	NDAIGW03-R01	N		SW8270C	SW3510	NONE	Indeno(1,2,3-c,d)pyrene	5.0	U	U	5.0	UJ	U	2.6	5.0	ug/L	CC
WG	NDAIFD01P-R01	FD		SW8270C	SW3510	NONE	Indeno(1,2,3-c,d)pyrene	5.2	U	U	5.2	UJ	U	2.7	5.2	ug/L	CC
WG	NDAIGW02-R01	N		SW8270C	SW3510	NONE	Indeno(1,2,3-c,d)pyrene	5.2	U	U	5.2	UJ	U	2.7	5.2	ug/L	CC
SB	NDE087	N		SW8260B	SW5030	NONE	2-butanone (MEK)	2.9	J	J	2.9	J	J	2.0	12.0	ug/kg	CC, SS
WG	NDAIGW04-R01	N		SW8270C	SW3510	NONE	Acetophenone	6.4	=	=	6.4	J	J	0.66	5.0	ug/L	IC
WG	NDAIGW07-R01	N		SW8270C	SW3510	NONE	Acetophenone	15.3	=	=	15.3	J	J	0.66	5.0	ug/L	IC
SS	NDAISS32-R01	N		SW8270C	SW3550	NONE	Indeno(1,2,3-c,d)pyrene	39.0	J	J	39.0	J	J	36.0	350	ug/kg	IC
SS	NDE051	N		SW8260B	SW5030	NONE	2-butanone (MEK)	5.0	J	J	5.0	J	J	1.4	10.0	ug/kg	IC, CC
SB	NDE060	N		SW8260B	SW5030	NONE	2-butanone (MEK)	4.1	J	J	4.1	J	J	1.6	10.0	ug/kg	IC, CC
SS	NDE043	N		SW8260B	SW5030	NONE	2-butanone (MEK)	10.0	U	U	10.0	R	U	1.5	10.0	ug/kg	IC, CC
SB	NDE044	N		SW8260B	SW5030	NONE	2-butanone (MEK)	11.0	U	U	11.0	R	U	1.8	11.0	ug/kg	IC, CC
SS	NDE045	N		SW8260B	SW5030	NONE	2-butanone (MEK)	10.0	U	U	10.0	R	U	1.5	10.0	ug/kg	IC, CC
SB	NDE046	N		SW8260B	SW5030	NONE	2-butanone (MEK)	11.0	U	U	11.0	R	U	1.9	11.0	ug/kg	IC, CC
SS	NDE047	N		SW8260B	SW5030	NONE	2-butanone (MEK)	10.0	U	U	10.0	R	U	1.5	10.0	ug/kg	IC, CC
SB	NDE048	N		SW8260B	SW5030	NONE	2-butanone (MEK)	10.0	U	U	10.0	R	U	1.6	10.0	ug/kg	IC, CC
SS	NDE049	N		SW8260B	SW5030	NONE	2-butanone (MEK)	10.0	U	U	10.0	R	U	1.4	10.0	ug/kg	IC, CC
SB	NDE050	N		SW8260B	SW5030	NONE	2-butanone (MEK)	11.0	U	U	11.0	R	U	1.8	11.0	ug/kg	IC, CC
SB	NDE052	N		SW8260B	SW5030	NONE	2-butanone (MEK)	10.0	U	U	10.0	R	U	1.6	10.0	ug/kg	IC, CC
SS	NDE053	N		SW8260B	SW5030	NONE	2-butanone (MEK)	10.0	U	U	10.0	R	U	1.6	10.0	ug/kg	IC, CC
SB	NDE054	N		SW8260B	SW5030	NONE	2-butanone (MEK)	12.0	U	U	12.0	R	U	2.0	12.0	ug/kg	IC, CC
SS	NDE055	N		SW8260B	SW5030	NONE	2-butanone (MEK)	10.0	U	U	10.0	R	U	1.5	10.0	ug/kg	IC, CC
SB	NDE056	N		SW8260B	SW5030	NONE	2-butanone (MEK)	10.0	U	U	10.0	R	U	1.5	10.0	ug/kg	IC, CC
SS	NDE057	N		SW8260B	SW5030	NONE	2-butanone (MEK)	10.0	U	U	10.0	R	U	1.3	10.0	ug/kg	IC, CC
SB	NDE058	N		SW8260B	SW5030	NONE	2-butanone (MEK)	4.1	J	J	4.1	R	J	1.7	10.0	ug/kg	IC, CC
SS	NDE059	N		SW8260B	SW5030	NONE	2-butanone (MEK)	10.0	U	U	10.0	R	U	1.7	10.0	ug/kg	IC, CC
SS	NDE062FD1	FD		SW8260B	SW5030	NONE	2-butanone (MEK)	10.0	U	U	10.0	R	U	1.4	10.0	ug/kg	IC, CC
SB	NDE063	N		SW8260B	SW5030	NONE	2-butanone (MEK)	10.0	U	U	10.0	R	U	1.5	10.0	ug/kg	IC, CC
SS	NDE064	N		SW8260B	SW5030	NONE	2-butanone (MEK)	10.0	U	U	10.0	R	U	1.3	10.0	ug/kg	IC, CC
SB	NDE065	N		SW8260B	SW5030	NONE	2-butanone (MEK)	10.0	U	U	10.0	R	U	1.6	10.0	ug/kg	IC, CC
SS	NDE066	N		SW8260B	SW5030	NONE	2-butanone (MEK)	10.0	U	U	10.0	R	U	1.6	10.0	ug/kg	IC, CC
SB	NDE067	N		SW8260B	SW5030	NONE	2-butanone (MEK)	10.0	U	U	10.0	R	U	1.6	10.0	ug/kg	IC, CC
SS	NDE068	N		SW8260B	SW5030	NONE	2-butanone (MEK)	10.0	U	U	10.0	R	U	1.7	10.0	ug/kg	IC, CC
SB	NDE069	N		SW8260B	SW5030	NONE	2-butanone (MEK)	10.0	U	U	10.0	R	U	1.5	10.0	ug/kg	IC, CC
SS	NDE070	N		SW8260B	SW5030	NONE	2-butanone (MEK)	10.0	U	U	10.0	R	U	1.7	10.0	ug/kg	IC, CC
SB	NDE071	N		SW8260B	SW5030	NONE	2-butanone (MEK)	10.0	U	U	10.0	R	U	1.7	10.0	ug/kg	IC, CC
SS	NDE072	N		SW8260B	SW5030	NONE	2-butanone (MEK)	10.0	U	U	10.0	R	U	1.7	10.0	ug/kg	IC, CC
SB	NDE076	N		SW8260B	SW5030	NONE	2-butanone (MEK)	10.0	U	U	10.0	R	U	1.4	10.0	ug/kg	IC, CC
SS	NDE077	N		SW8260B	SW5030	NONE	2-butanone (MEK)	10.0	U	U	10.0	R	U	1.7	10.0	ug/kg	IC, CC
SB	NDE078	N		SW8260B	SW5030	NONE	2-butanone (MEK)	10.0	U	U	10.0	R	U	1.5	10.0	ug/kg	IC, CC
SB	NDE096	N		SW8260B	SW5030	NONE	2-butanone (MEK)	11.0	U	U	11.0	R	U	1.9	11.0	ug/kg	IC, CC
SB	NDE098	N		SW8260B	SW5030	NONE	2-butanone (MEK)	10.0	U	U	10.0	R	U	1.6	10.0	ug/kg	IC, CC
SS	NDE099FD1	FD		SW8260B	SW5030	NONE	2-butanone (MEK)	10.0	U	U	10.0	R	U	1.5	10.0	ug/kg	IC, CC

Matrix	Sample ID	Sample Type	LR Type	Analytical Method	Prep Method	Dissolved ?	Parameter	Lab Result	Lab Qual	Lab Conc Qual	Final Result	Final Qual	Final Conc Qual	Detection Limit	Reporting Limit	Units	Validation Notes
SS	NDE070	N		SW8260B	SW5030	NONE	Acetone	6.7	J	J	6.7	J	J	1.8	10.0	ug/kg	IC, CC
SS	NDE043	N		SW8260B	SW5030	NONE	Acetone	4.3	J	J	10.0	R	J	1.7	10.0	ug/kg	IC, CC
SB	NDE044	N		SW8260B	SW5030	NONE	Acetone	4.6	J	J	11.0	R	J	2.0	11.0	ug/kg	IC, CC
SS	NDE045	N		SW8260B	SW5030	NONE	Acetone	3.6	J	J	10.0	R	J	1.6	10.0	ug/kg	IC, CC
SB	NDE046	N		SW8260B	SW5030	NONE	Acetone	17.0	=	B	17.0	R	=	2.1	11.0	ug/kg	IC, CC
SS	NDE047	N		SW8260B	SW5030	NONE	Acetone	11.0	=	B	11.0	R	=	1.7	10.0	ug/kg	IC, CC
SB	NDE048	N		SW8260B	SW5030	NONE	Acetone	11.0	=	B	11.0	R	=	1.8	10.0	ug/kg	IC, CC
SS	NDE049	N		SW8260B	SW5030	NONE	Acetone	12.0	=	B	12.0	R	=	1.6	10.0	ug/kg	IC, CC
SB	NDE050	N		SW8260B	SW5030	NONE	Acetone	12.0	=	B	12.0	R	=	2.1	11.0	ug/kg	IC, CC
SS	NDE051	N		SW8260B	SW5030	NONE	Acetone	13.0	=	B	13.0	R	=	1.5	10.0	ug/kg	IC, CC
SB	NDE052	N		SW8260B	SW5030	NONE	Acetone	11.0	=	B	11.0	R	=	1.8	10.0	ug/kg	IC, CC
SS	NDE066	N		SW8260B	SW5030	NONE	Acetone	5.4	J	J	10.0	R	J	1.8	10.0	ug/kg	IC, CC
SB	NDE067	N		SW8260B	SW5030	NONE	Acetone	6.1	J	J	10.0	R	J	1.8	10.0	ug/kg	IC, CC
SS	NDE068	N		SW8260B	SW5030	NONE	Acetone	5.5	J	J	10.0	R	J	1.9	10.0	ug/kg	IC, CC
SB	NDE069	N		SW8260B	SW5030	NONE	Acetone	15.0	=	B	15.0	R	=	1.7	10.0	ug/kg	IC, CC
SB	NDE071	N		SW8260B	SW5030	NONE	Acetone	8.4	J	J	10.0	R	J	1.9	10.0	ug/kg	IC, CC
SS	NDE072	N		SW8260B	SW5030	NONE	Acetone	10.0	U	U	10.0	R	U	1.9	10.0	ug/kg	IC, CC
SB	NDE073	N		SW8260B	SW5030	NONE	Acetone	4.9	J	J	10.0	R	J	1.7	10.0	ug/kg	IC, CC
SS	NDE074FD1	FD		SW8260B	SW5030	NONE	Acetone	3.9	J	J	10.0	R	J	1.6	10.0	ug/kg	IC, CC
SS	NDE075	N		SW8260B	SW5030	NONE	Acetone	10.0	U	U	10.0	R	U	1.7	10.0	ug/kg	IC, CC
SS	NDE079	N		SW8260B	SW5030	NONE	Acetone	10.0	U	U	10.0	R	U	1.6	10.0	ug/kg	IC, CC
SB	NDE080	N		SW8260B	SW5030	NONE	Acetone	9.1	J	J	11.0	R	J	2.0	11.0	ug/kg	IC, CC
SS	NDE081	N		SW8260B	SW5030	NONE	Acetone	22.0	=	B	22.0	R	=	1.7	10.0	ug/kg	IC, CC
SB	NDE082	N		SW8260B	SW5030	NONE	Acetone	3.3	J	J	10.0	R	J	1.7	10.0	ug/kg	IC, CC
SS	NDE083	N		SW8260B	SW5030	NONE	Acetone	14.0	=	B	14.0	R	=	2.2	12.0	ug/kg	IC, CC
SS	NDE084FD1	FD		SW8260B	SW5030	NONE	Acetone	8.3	J	J	12.0	R	J	2.3	12.0	ug/kg	IC, CC
SB	NDE085	N		SW8260B	SW5030	NONE	Acetone	6.3	J	J	10.0	R	J	1.9	10.0	ug/kg	IC, CC
SS	NDE086	N		SW8260B	SW5030	NONE	Acetone	16.0	=	B	16.0	R	=	1.5	10.0	ug/kg	IC, CC
SB	NDE087	N		SW8260B	SW5030	NONE	Acetone	15.0	=	B	15.0	R	=	2.2	12.0	ug/kg	IC, CC
SS	NDE088	N		SW8260B	SW5030	NONE	Acetone	10.0	U	U	10.0	R	U	1.9	10.0	ug/kg	IC, CC
SB	NDE089	N		SW8260B	SW5030	NONE	Acetone	5.4	J	J	11.0	R	J	2.0	11.0	ug/kg	IC, CC
SS	NDE090	N		SW8260B	SW5030	NONE	Acetone	5.8	B	J	10.0	R	J	1.7	10.0	ug/kg	IC, CC
SS	NDE091FD1	FD		SW8260B	SW5030	NONE	Acetone	34.0	B	B	34.0	R	J	1.7	10.0	ug/kg	IC, CC
SB	NDE092	N		SW8260B	SW5030	NONE	Acetone	4.8	B	J	10.0	R	J	1.7	10.0	ug/kg	IC, CC
SS	NDE093	N		SW8260B	SW5030	NONE	Acetone	5.1	B	J	10.0	R	J	1.9	10.0	ug/kg	IC, CC
SB	NDE094	N		SW8260B	SW5030	NONE	Acetone	25.0	B	B	25.0	R	J	1.9	10.0	ug/kg	IC, CC
SS	NDE095	N		SW8260B	SW5030	NONE	Acetone	6.0	B	J	10.0	R	J	1.9	10.0	ug/kg	IC, CC
SS	NDE097	N		SW8260B	SW5030	NONE	Acetone	7.9	B	J	10.0	R	J	1.7	10.0	ug/kg	IC, CC
SS	NDE061	N		SW8260B	SW5030	NONE	2-butanone (MEK)	10.0	U	U	10.0	R	U	1.4	10.0	ug/kg	IC,CC
SS	NDE045	N		E200.7	SW3050	NONE	Antimony	1.0	J	J	1.0	J	J	0.25	12.0	mg/kg	MS
SB	NDE098	N		E200.7	SW3050	NONE	Antimony	2.0	B	J	2.0	J	J	0.26	12.8	mg/kg	MS
SS	NDE057	N		E200.7	SW3050	NONE	Antimony	0.86	J	J	0.86	J	J	0.25	13.0	mg/kg	MS
SB	NDE067	N		E200.7	SW3050	NONE	Antimony	0.96	J	J	0.96	J	J	0.25	13.0	mg/kg	MS
SS	NDE097	N		E200.7	SW3050	NONE	Antimony	0.97	B	J	0.97	J	J	0.25	13.0	mg/kg	MS
SB	NDE065	N		E200.7	SW3050	NONE	Antimony	0.98	J	J	0.98	J	J	0.25	13.0	mg/kg	MS
SS	NDE059	N		E200.7	SW3050	NONE	Antimony	0.99	J	J	0.99	J	J	0.25	13.0	mg/kg	MS
SS	NDE099FD1	FD		E200.7	SW3050	NONE	Antimony	1.0	B	J	1.0	J	J	0.25	13.0	mg/kg	MS
SB	NDE060	N		E200.7	SW3050	NONE	Antimony	1.1	J	J	1.1	J	J	0.25	13.0	mg/kg	MS
SB	NDE071	N		E200.7	SW3050	NONE	Antimony	1.1	J	J	1.1	J	J	0.25	13.0	mg/kg	MS
SS	NDE049	N		E200.7	SW3050	NONE	Antimony	1.1	J	J	1.1	J	J	0.25	13.0	mg/kg	MS
SS	NDE064	N		E200.7	SW3050	NONE	Antimony	1.1	J	J	1.1	J	J	0.25	13.0	mg/kg	MS

Matrix	Sample ID	Sample Type	LR Type	Analytical Method	Prep Method	Dissolved ?	Parameter	Lab Result	Lab Qual	Lab Conc Qual	Final Result	Final Qual	Final Conc Qual	Detection Limit	Reporting Limit	Units	Validation Notes
SS	NDE077	N		E200.7	SW3050	NONE	Antimony	1.2	J	J	1.2	J	J	0.25	13.0	mg/kg	MS
SS	NDE093	N		E200.7	SW3050	NONE	Antimony	1.2	B	J	1.2	J	J	0.25	13.0	mg/kg	MS
SB	NDE056	N		E200.7	SW3050	NONE	Antimony	1.3	J	J	1.3	J	J	0.25	13.0	mg/kg	MS
SS	NDE051	N		E200.7	SW3050	NONE	Antimony	1.3	J	J	1.3	J	J	0.25	13.0	mg/kg	MS
SS	NDE061	N		E200.7	SW3050	NONE	Antimony	1.4	J	J	1.4	J	J	0.25	13.0	mg/kg	MS
SS	NDE047	N		E200.7	SW3050	NONE	Antimony	1.5	J	J	1.5	J	J	0.25	13.0	mg/kg	MS
SS	NDE066	N		E200.7	SW3050	NONE	Antimony	1.5	J	J	1.5	J	J	0.25	13.0	mg/kg	MS
SB	NDE054	N		E200.7	SW3050	NONE	Antimony	1.9	J	J	1.9	J	J	0.25	13.0	mg/kg	MS
SB	NDE087	N		E200.7	SW3050	NONE	Antimony	2.0	B	B	2.0	J	J	0.25	13.0	mg/kg	MS
SB	NDE082	N		E200.7	SW3050	NONE	Antimony	2.9	B	B	2.9	J	J	0.25	13.0	mg/kg	MS
SS	NDE086	N		E200.7	SW3050	NONE	Antimony	0.86	B	B	0.86	J	J	0.26	13.0	mg/kg	MS
SB	NDE069	N		E200.7	SW3050	NONE	Antimony	0.90	J	J	0.90	J	J	0.26	13.0	mg/kg	MS
SB	NDE078	N		E200.7	SW3050	NONE	Antimony	0.91	J	J	0.91	J	J	0.26	13.0	mg/kg	MS
SS	NDE062FD1	FD		E200.7	SW3050	NONE	Antimony	0.95	J	J	0.95	J	J	0.26	13.0	mg/kg	MS
SS	NDE072	N		E200.7	SW3050	NONE	Antimony	1.0	J	J	1.0	J	J	0.26	13.0	mg/kg	MS
SS	NDE043	N		E200.7	SW3050	NONE	Antimony	1.1	J	J	1.1	J	J	0.26	13.0	mg/kg	MS
SS	NDE095	N		E200.7	SW3050	NONE	Antimony	1.1	B	J	1.1	J	J	0.26	13.0	mg/kg	MS
SS	NDE079	N		E200.7	SW3050	NONE	Antimony	1.1	B	B	1.1	J	J	0.26	13.0	mg/kg	MS
SB	NDE063	N		E200.7	SW3050	NONE	Antimony	1.2	J	J	1.2	J	J	0.26	13.0	mg/kg	MS
SS	NDE075	N		E200.7	SW3050	NONE	Antimony	1.2	J	J	1.2	J	J	0.26	13.0	mg/kg	MS
SS	NDE074FD1	FD		E200.7	SW3050	NONE	Antimony	1.2	B	B	1.2	J	J	0.26	13.0	mg/kg	MS
SB	NDE076	N		E200.7	SW3050	NONE	Antimony	1.3	J	J	1.3	J	J	0.26	13.0	mg/kg	MS
SB	NDE094	N		E200.7	SW3050	NONE	Antimony	1.4	B	J	1.4	J	J	0.26	13.0	mg/kg	MS
SS	NDE081	N		E200.7	SW3050	NONE	Antimony	1.4	B	B	1.4	J	J	0.26	13.0	mg/kg	MS
SB	NDE073	N		E200.7	SW3050	NONE	Antimony	1.7	J	J	1.7	J	J	0.26	13.0	mg/kg	MS
SB	NDE085	N		E200.7	SW3050	NONE	Antimony	2.2	B	B	2.2	J	J	0.26	13.0	mg/kg	MS
SB	NDE048	N		E200.7	SW3050	NONE	Antimony	2.3	J	J	2.3	J	J	0.26	13.0	mg/kg	MS
SB	NDE052	N		E200.7	SW3050	NONE	Antimony	2.3	J	J	2.3	J	J	0.26	13.0	mg/kg	MS
SB	NDE050	N		E200.7	SW3050	NONE	Antimony	2.8	J	J	2.8	J	J	0.26	13.0	mg/kg	MS
SS	NDE090	N		E200.7	SW3050	NONE	Antimony	0.80	B	J	0.80	J	J	0.27	13.0	mg/kg	MS
SB	NDE096	N		E200.7	SW3050	NONE	Antimony	1.2	B	J	1.2	J	J	0.27	13.0	mg/kg	MS
SS	NDE068	N		E200.7	SW3050	NONE	Antimony	1.2	J	J	1.2	J	J	0.27	13.0	mg/kg	MS
SS	NDE070	N		E200.7	SW3050	NONE	Antimony	1.3	J	J	1.3	J	J	0.27	13.0	mg/kg	MS
SB	NDE092	N		E200.7	SW3050	NONE	Antimony	1.4	B	J	1.4	J	J	0.27	13.0	mg/kg	MS
SS	NDE053	N		E200.7	SW3050	NONE	Antimony	1.4	J	J	1.4	J	J	0.27	13.0	mg/kg	MS
SS	NDE055	N		E200.7	SW3050	NONE	Antimony	1.3	J	J	1.3	J	J	0.33	13.0	mg/kg	MS
SB	NDE046	N		E200.7	SW3050	NONE	Antimony	1.7	J	J	1.7	J	J	0.27	14.0	mg/kg	MS
SB	NDE058	N		E200.7	SW3050	NONE	Antimony	1.3	J	J	1.3	J	J	0.28	14.0	mg/kg	MS
SS	NDE091FD1	FD		E200.7	SW3050	NONE	Antimony	1.3	B	J	1.3	J	J	0.28	14.0	mg/kg	MS
SS	NDE088	N		E200.7	SW3050	NONE	Antimony	1.2	B	B	1.2	J	J	0.29	14.0	mg/kg	MS
SB	NDE089	N		E200.7	SW3050	NONE	Antimony	2.1	B	B	2.1	J	J	0.29	15.0	mg/kg	MS
SS	NDE083	N		E200.7	SW3050	NONE	Antimony	1.4	B	B	1.4	J	J	0.30	15.0	mg/kg	MS
SB	NDE044	N		E200.7	SW3050	NONE	Antimony	1.8	J	J	1.8	J	J	0.30	15.0	mg/kg	MS
SS	NDE084FD1	FD		E200.7	SW3050	NONE	Antimony	1.1	B	B	1.1	J	J	0.31	15.0	mg/kg	MS
SB	NDE080	N		E200.7	SW3050	NONE	Antimony	1.7	B	B	1.7	J	J	0.31	15.0	mg/kg	MS
SS	NDE099FD1	FD		E200.7	SW3050	NONE	Chromium, total	32.0	=	=	32.0	J	J	0.090	2.1	mg/kg	MS
SS	NDE097	N		E200.7	SW3050	NONE	Chromium, total	35.0	=	=	35.0	J	J	0.090	2.1	mg/kg	MS
SS	NDE093	N		E200.7	SW3050	NONE	Chromium, total	36.0	=	=	36.0	J	J	0.090	2.1	mg/kg	MS
SB	NDE098	N		E200.7	SW3050	NONE	Chromium, total	86.0	=	=	86.0	J	J	0.090	2.1	mg/kg	MS
SB	NDE094	N		E200.7	SW3050	NONE	Chromium, total	38.0	=	=	38.0	J	J	0.090	2.2	mg/kg	MS
SB	NDE096	N		E200.7	SW3050	NONE	Chromium, total	40.0	=	=	40.0	J	J	0.090	2.2	mg/kg	MS

Matrix	Sample ID	Sample Type	LR Type	Analytical Method	Prep Method	Dissolved ?	Parameter	Lab Result	Lab Qual	Lab Conc Qual	Final Result	Final Qual	Final Conc Qual	Detection Limit	Reporting Limit	Units	Validation Notes
SS	NDE090	N		E200.7	SW3050	NONE	Chromium, total	41.0	=	=	41.0	J	J	0.090	2.2	mg/kg	MS
SS	NDE095	N		E200.7	SW3050	NONE	Chromium, total	48.0	=	=	48.0	J	J	0.090	2.2	mg/kg	MS
SB	NDE092	N		E200.7	SW3050	NONE	Chromium, total	68.0	=	=	68.0	J	J	0.090	2.2	mg/kg	MS
SS	NDE091FD1	FD		E200.7	SW3050	NONE	Chromium, total	59.0	=	=	59.0	J	J	0.10	2.3	mg/kg	MS
SS	NDE099FD1	FD		E200.7	SW3050	NONE	Copper	45.0	=	=	45.0	J	J	0.020	5.2	mg/kg	MS
SS	NDE093	N		E200.7	SW3050	NONE	Copper	55.0	=	=	55.0	J	J	0.020	5.2	mg/kg	MS
SS	NDE097	N		E200.7	SW3050	NONE	Copper	45.0	=	=	45.0	J	J	0.020	5.3	mg/kg	MS
SB	NDE098	N		E200.7	SW3050	NONE	Copper	20.0	=	=	20.0	J	J	0.020	5.4	mg/kg	MS
SB	NDE092	N		E200.7	SW3050	NONE	Copper	43.0	=	=	43.0	J	J	0.020	5.5	mg/kg	MS
SS	NDE095	N		E200.7	SW3050	NONE	Copper	56.0	=	=	56.0	J	J	0.020	5.5	mg/kg	MS
SB	NDE094	N		E200.7	SW3050	NONE	Copper	70.0	=	=	70.0	J	J	0.020	5.5	mg/kg	MS
SS	NDE090	N		E200.7	SW3050	NONE	Copper	61.0	=	=	61.0	J	J	0.020	5.6	mg/kg	MS
SB	NDE096	N		E200.7	SW3050	NONE	Copper	72.0	=	=	72.0	J	J	0.020	5.6	mg/kg	MS
SS	NDE091FD1	FD		E200.7	SW3050	NONE	Copper	82.0	=	=	82.0	J	J	0.020	5.9	mg/kg	MS
SS	NDE097	N		E200.7	SW3050	NONE	Lead	2.3	=	=	2.3	J	J	0.17	0.63	mg/kg	MS
SS	NDE099FD1	FD		E200.7	SW3050	NONE	Lead	5.1	=	=	5.1	J	J	0.17	0.63	mg/kg	MS
SS	NDE093	N		E200.7	SW3050	NONE	Lead	8.8	=	=	8.8	J	J	0.17	0.63	mg/kg	MS
SB	NDE098	N		E200.7	SW3050	NONE	Lead	1.3	=	=	1.3	J	J	0.17	0.64	mg/kg	MS
SB	NDE092	N		E200.7	SW3050	NONE	Lead	1.7	=	=	1.7	J	J	0.18	0.66	mg/kg	MS
SB	NDE094	N		E200.7	SW3050	NONE	Lead	7.5	=	=	7.5	J	J	0.18	0.66	mg/kg	MS
SS	NDE095	N		E200.7	SW3050	NONE	Lead	9.9	=	=	9.9	J	J	0.18	0.66	mg/kg	MS
SS	NDE090	N		E200.7	SW3050	NONE	Lead	0.81	=	=	0.81	J	J	0.18	0.67	mg/kg	MS
SB	NDE096	N		E200.7	SW3050	NONE	Lead	4.6	=	=	4.6	J	J	0.18	0.67	mg/kg	MS
SS	NDE091FD1	FD		E200.7	SW3050	NONE	Lead	1.5	=	=	1.5	J	J	0.19	0.70	mg/kg	MS
SS	NDE099FD1	FD		E200.7	SW3050	NONE	Vanadium	76.0	=	=	76.0	J	J	0.070	10.0	mg/kg	MS
SS	NDE093	N		E200.7	SW3050	NONE	Vanadium	83.0	=	=	83.0	J	J	0.070	10.0	mg/kg	MS
SB	NDE098	N		E200.7	SW3050	NONE	Vanadium	65.0	=	=	65.0	J	J	0.070	10.7	mg/kg	MS
SS	NDE097	N		E200.7	SW3050	NONE	Vanadium	69.0	=	=	69.0	J	J	0.070	11.0	mg/kg	MS
SS	NDE090	N		E200.7	SW3050	NONE	Vanadium	84.0	=	=	84.0	J	J	0.070	11.0	mg/kg	MS
SB	NDE092	N		E200.7	SW3050	NONE	Vanadium	90.0	=	=	90.0	J	J	0.070	11.0	mg/kg	MS
SS	NDE095	N		E200.7	SW3050	NONE	Vanadium	91.0	=	=	91.0	J	J	0.070	11.0	mg/kg	MS
SB	NDE094	N		E200.7	SW3050	NONE	Vanadium	94.0	=	=	94.0	J	J	0.070	11.0	mg/kg	MS
SB	NDE096	N		E200.7	SW3050	NONE	Vanadium	100.0	=	=	100	J	J	0.070	11.0	mg/kg	MS
SS	NDE091FD1	FD		E200.7	SW3050	NONE	Vanadium	96.0	=	=	96.0	J	J	0.080	12.0	mg/kg	MS
SS	NDE099FD1	FD		E200.7	SW3050	NONE	Zinc	43.0	=	=	43.0	J	J	0.52	4.2	mg/kg	MS
SS	NDE093	N		E200.7	SW3050	NONE	Zinc	44.0	=	=	44.0	J	J	0.52	4.2	mg/kg	MS
SS	NDE097	N		E200.7	SW3050	NONE	Zinc	40.0	=	=	40.0	J	J	0.53	4.2	mg/kg	MS
SB	NDE098	N		E200.7	SW3050	NONE	Zinc	39.0	=	=	39.0	J	J	0.54	4.3	mg/kg	MS
SB	NDE092	N		E200.7	SW3050	NONE	Zinc	40.0	=	=	40.0	J	J	0.55	4.4	mg/kg	MS
SS	NDE095	N		E200.7	SW3050	NONE	Zinc	43.0	=	=	43.0	J	J	0.55	4.4	mg/kg	MS
SB	NDE094	N		E200.7	SW3050	NONE	Zinc	47.0	=	=	47.0	J	J	0.55	4.4	mg/kg	MS
SS	NDE090	N		E200.7	SW3050	NONE	Zinc	40.0	=	=	40.0	J	J	0.56	4.5	mg/kg	MS
SB	NDE096	N		E200.7	SW3050	NONE	Zinc	47.0	=	=	47.0	J	J	0.56	4.5	mg/kg	MS
SS	NDE091FD1	FD		E200.7	SW3050	NONE	Zinc	47.0	=	=	47.0	J	J	0.59	4.7	mg/kg	MS
SS	NDE059	N		E245.5	METHOD	NONE	Mercury	0.0035	J	J	0.0035	J	J	0.0026	0.040	mg/kg	MS
SS	NDE064	N		E245.5	METHOD	NONE	Mercury	0.0039	J	J	0.0039	J	J	0.0026	0.040	mg/kg	MS
SS	NDE093	N		E245.5	METHOD	NONE	Mercury	0.0055	B	J	0.0055	J	J	0.0026	0.040	mg/kg	MS
SB	NDE060	N		E245.5	METHOD	NONE	Mercury	0.0057	J	J	0.0057	J	J	0.0026	0.040	mg/kg	MS
SB	NDE065	N		E245.5	METHOD	NONE	Mercury	0.0060	J	J	0.0060	J	J	0.0026	0.040	mg/kg	MS
SS	NDE055	N		E245.5	METHOD	NONE	Mercury	0.0050	J	J	0.0050	J	J	0.0027	0.040	mg/kg	MS
SB	NDE063	N		E245.5	METHOD	NONE	Mercury	0.0053	J	J	0.0053	J	J	0.0027	0.040	mg/kg	MS

Matrix	Sample ID	Sample Type	LR Type	Analytical Method	Prep Method	Dissolved ?	Parameter	Lab Result	Lab Qual	Lab Conc Qual	Final Result	Final Qual	Final Conc Qual	Detection Limit	Reporting Limit	Units	Validation Notes
SB	NDE092	N		E245.5	METHOD	NONE	Mercury	0.0097	B	J	0.0097	J	J	0.0028	0.040	mg/kg	MS
SS	NDE053	N		E245.5	METHOD	NONE	Mercury	0.010	J	J	0.010	J	J	0.0028	0.040	mg/kg	MS
SB	NDE058	N		E245.5	METHOD	NONE	Mercury	0.0038	J	J	0.0038	J	J	0.0029	0.040	mg/kg	MS
SB	NDE054	N		E245.5	METHOD	NONE	Mercury	0.0026	U	U	0.0026	UJ	U	0.0026	0.040	mg/kg	MS
SS	NDE057	N		E245.5	METHOD	NONE	Mercury	0.0026	U	U	0.0026	UJ	U	0.0026	0.040	mg/kg	MS
SS	NDE061	N		E245.5	METHOD	NONE	Mercury	0.0026	U	U	0.0026	UJ	U	0.0026	0.040	mg/kg	MS
SS	NDE097	N		E245.5	METHOD	NONE	Mercury	0.0026	U	U	0.0026	UJ	U	0.0026	0.040	mg/kg	MS
SS	NDE099FD1	FD		E245.5	METHOD	NONE	Mercury	0.0026	U	U	0.0026	UJ	U	0.0026	0.040	mg/kg	MS
SB	NDE056	N		E245.5	METHOD	NONE	Mercury	0.0027	U	U	0.0027	UJ	U	0.0027	0.040	mg/kg	MS
SB	NDE098	N		E245.5	METHOD	NONE	Mercury	0.0027	U	U	0.0027	UJ	U	0.0027	0.040	mg/kg	MS
SS	NDE062FD1	FD		E245.5	METHOD	NONE	Mercury	0.0027	U	U	0.0027	UJ	U	0.0027	0.040	mg/kg	MS
SB	NDE094	N		E245.5	METHOD	NONE	Mercury	0.0028	U	U	0.0028	UJ	U	0.0028	0.040	mg/kg	MS
SB	NDE096	N		E245.5	METHOD	NONE	Mercury	0.0028	U	U	0.0028	UJ	U	0.0028	0.040	mg/kg	MS
SS	NDE090	N		E245.5	METHOD	NONE	Mercury	0.0028	U	U	0.0028	UJ	U	0.0028	0.040	mg/kg	MS
SS	NDE095	N		E245.5	METHOD	NONE	Mercury	0.0028	U	U	0.0028	UJ	U	0.0028	0.040	mg/kg	MS
SS	NDE091FD1	FD		E245.5	METHOD	NONE	Mercury	0.0029	U	U	0.0029	UJ	U	0.0029	0.040	mg/kg	MS
SS	NDAIFD02P-R01	FD		SW6010B	SW3050B	NONE	Chromium, total	33.0	=	=	33.0	J	J	0.12	1.2	mg/kg	MS
SS	NDAISS36-R01	N		SW6010B	SW3050B	NONE	Chromium, total	51.5	=	=	51.5	J	J	0.12	1.2	mg/kg	MS
SS	NDAISS35-R01	N		SW6010B	SW3050B	NONE	Chromium, total	34.6	=	=	34.6	J	J	0.13	1.3	mg/kg	MS
SS	NDAISS38-R01	N		SW6010B	SW3050B	NONE	Chromium, total	36.4	=	=	36.4	J	J	0.13	1.3	mg/kg	MS
SS	NDAISS34-R01	N		SW6010B	SW3050B	NONE	Chromium, total	51.2	=	=	51.2	J	J	0.13	1.3	mg/kg	MS
SS	NDAISS33-R01	N		SW6010B	SW3050B	NONE	Chromium, total	50.8	=	=	50.8	J	J	0.14	1.4	mg/kg	MS
SS	NDAISS37-R01	N		SW6010B	SW3050B	NONE	Chromium, total	37.5	=	=	37.5	J	J	0.14	1.4	mg/kg	MS
SB	NDAISB19-R02	N		SW6010B	SW3050B	NONE	Chromium, total	112	=	=	112	J	J	0.60	6.0	mg/kg	MS
SB	NDAISB20-R02	N		SW6010B	SW3050B	NONE	Chromium, total	157	=	=	157	J	J	0.63	6.3	mg/kg	MS
SB	NDAISB21-R02	N		SW6010B	SW3050B	NONE	Chromium, total	168	=	=	168	J	J	0.67	6.7	mg/kg	MS
SB	NDAISB04-R02	N		SW6010B	SW3050B	NONE	Chromium, total	197	=	=	197	J	J	0.74	7.4	mg/kg	MS
SB	NDAISB06-R02	N		SW7196A	METHOD	NONE	chromium, hexavalent	0.26	B	J	0.26	J	J	0.15	1.1	mg/kg	MS
SB	NDAISB22-R02	N		SW7196A	METHOD	NONE	chromium, hexavalent	0.43	B	J	0.43	J	J	0.15	1.1	mg/kg	MS
SB	NDAISB19-R02	N		SW7196A	METHOD	NONE	chromium, hexavalent	0.52	B	J	0.52	J	J	0.15	1.1	mg/kg	MS
SB	NDAISB21-R02	N		SW7196A	METHOD	NONE	chromium, hexavalent	0.64	B	J	0.64	J	J	0.15	1.1	mg/kg	MS
SB	NDAISB04-R02	N		SW7196A	METHOD	NONE	chromium, hexavalent	0.31	B	J	0.31	J	J	0.15	1.1	mg/kg	MS
SB	NDAISB20-R02	N		SW7196A	METHOD	NONE	chromium, hexavalent	0.66	B	J	0.66	J	J	0.15	1.1	mg/kg	MS
SB	NDAIFD04P-R01	FD		SW7196A	METHOD	NONE	chromium, hexavalent	0.31	B	J	0.31	J	J	0.15	1.1	mg/kg	MS
WG	NDAIGW04-R01	N		SW7841	SW3005	FLDFLT	Thallium	0.23	U	U	0.23	UJ	U	0.23	0.50	ug/L	MS
WG	NDAIGW05-R01	N		SW7841	SW3005	FLDFLT	Thallium	0.23	U	U	0.23	UJ	U	0.23	0.50	ug/L	MS
WG	NDAIGW06-R01	N		SW7841	SW3005	FLDFLT	Thallium	0.23	U	U	0.23	UJ	U	0.23	0.50	ug/L	MS
WG	NDAIGW04-R01	N		SW7841	SW3020A	NONE	Thallium	0.23	U	U	0.23	UJ	U	0.23	0.50	ug/L	MS
WG	NDAIGW05-R01	N		SW7841	SW3020A	NONE	Thallium	0.23	U	U	0.23	UJ	U	0.23	0.50	ug/L	MS
WG	NDAIGW06-R01	N		SW7841	SW3020A	NONE	Thallium	0.23	U	U	0.23	UJ	U	0.23	0.50	ug/L	MS
SS	NDAISS33-R01	N		SW8015-E	SW3550	NONE	Total Petroleum Hydrocarbons C10-C28	3.8	=	=	3.8	J	J	1.5	2.3	mg/kg	MS
WG	NDAIGW05-R01	N		SW8081	SW3510	NONE	Dieldrin	0.021	U	U	0.021	UJ	U	0.00029	0.021	ug/L	MS
WG	NDAIGW05-R01	N		SW8081	SW3510	NONE	gamma bhc (lindane)	0.011	U	U	0.011	UJ	U	0.00026	0.011	ug/L	MS
SS	NDE079	N		E200.7	SW3050	NONE	Chromium, total	32.0	=	=	32.0	J	J	0.090	2.1	mg/kg	MS, MD
SS	NDE074FD1	FD		E200.7	SW3050	NONE	Chromium, total	34.0	=	=	34.0	J	J	0.090	2.1	mg/kg	MS, MD
SS	NDE081	N		E200.7	SW3050	NONE	Chromium, total	63.0	=	=	63.0	J	J	0.090	2.1	mg/kg	MS, MD
SB	NDE087	N		E200.7	SW3050	NONE	Chromium, total	110	=	=	110	J	J	0.090	2.1	mg/kg	MS, MD
SB	NDE082	N		E200.7	SW3050	NONE	Chromium, total	160	=	=	160	J	J	0.090	2.1	mg/kg	MS, MD
SS	NDE086	N		E200.7	SW3050	NONE	Chromium, total	34.0	=	=	34.0	J	J	0.090	2.2	mg/kg	MS, MD
SB	NDE085	N		E200.7	SW3050	NONE	Chromium, total	130	=	=	130	J	J	0.090	2.2	mg/kg	MS, MD
SS	NDE088	N		E200.7	SW3050	NONE	Chromium, total	57.0	=	=	57.0	J	J	0.10	2.4	mg/kg	MS, MD

Matrix	Sample ID	Sample Type	LR Type	Analytical Method	Prep Method	Dissolved ?	Parameter	Lab Result	Lab Qual	Lab Conc Qual	Final Result	Final Qual	Final Conc Qual	Detection Limit	Reporting Limit	Units	Validation Notes
SB	NDE089	N		E200.7	SW3050	NONE	Chromium, total	130	=	=	130	J	J	0.11	2.4	mg/kg	MS, MD
SS	NDE083	N		E200.7	SW3050	NONE	Chromium, total	110	=	=	110	J	J	0.11	2.5	mg/kg	MS, MD
SS	NDE084FD1	FD		E200.7	SW3050	NONE	Chromium, total	71.0	=	=	71.0	J	J	0.11	2.6	mg/kg	MS, MD
SB	NDE080	N		E200.7	SW3050	NONE	Chromium, total	87.0	=	=	87.0	J	J	0.11	2.6	mg/kg	MS, MD
SB	NDE082	N		E200.7	SW3050	NONE	Nickel	83.0	=	=	83.0	J	J	0.090	8.4	mg/kg	SD
SS	NDE079	N		E200.7	SW3050	NONE	Nickel	20.0	=	=	20.0	J	J	0.090	8.5	mg/kg	SD
SS	NDE074FD1	FD		E200.7	SW3050	NONE	Nickel	21.0	=	=	21.0	J	J	0.090	8.5	mg/kg	SD
SS	NDE081	N		E200.7	SW3050	NONE	Nickel	38.0	=	=	38.0	J	J	0.090	8.5	mg/kg	SD
SB	NDE087	N		E200.7	SW3050	NONE	Nickel	66.0	=	=	66.0	J	J	0.090	8.5	mg/kg	SD
SS	NDE086	N		E200.7	SW3050	NONE	Nickel	21.0	=	=	21.0	J	J	0.10	8.6	mg/kg	SD
SB	NDE085	N		E200.7	SW3050	NONE	Nickel	78.0	=	=	78.0	J	J	0.10	8.7	mg/kg	SD
SS	NDE088	N		E200.7	SW3050	NONE	Nickel	31.0	=	=	31.0	J	J	0.11	9.5	mg/kg	SD
SB	NDE089	N		E200.7	SW3050	NONE	Nickel	60.0	=	=	60.0	J	J	0.11	9.7	mg/kg	SD
SS	NDE083	N		E200.7	SW3050	NONE	Nickel	57.0	=	=	57.0	J	J	0.11	9.8	mg/kg	SD
SS	NDE084FD1	FD		E200.7	SW3050	NONE	Nickel	38.0	=	=	38.0	J	J	0.12	10.0	mg/kg	SD
SB	NDE080	N		E200.7	SW3050	NONE	Nickel	56.0	=	=	56.0	J	J	0.12	10.0	mg/kg	SD
SS	NDE093	N		E200.7	SW3050	NONE	Potassium	620	B	J	620	J	J	3.1	1050	mg/kg	SD
SS	NDE099FD1	FD		E200.7	SW3050	NONE	Potassium	670	B	J	670	J	J	3.1	1050	mg/kg	SD
SS	NDE077	N		E200.7	SW3050	NONE	Potassium	550	J	J	550	J	J	3.2	1050	mg/kg	SD
SS	NDE097	N		E200.7	SW3050	NONE	Potassium	590	B	J	590	J	J	3.2	1050	mg/kg	SD
SS	NDE066	N		E200.7	SW3050	NONE	Potassium	680	J	J	680	J	J	3.2	1050	mg/kg	SD
SS	NDE075	N		E200.7	SW3050	NONE	Potassium	660	J	J	660	J	J	3.2	1060	mg/kg	SD
SB	NDE071	N		E200.7	SW3050	NONE	Potassium	730	J	J	730	J	J	3.2	1060	mg/kg	SD
SB	NDE067	N		E200.7	SW3050	NONE	Potassium	770	J	J	770	J	J	3.2	1060	mg/kg	SD
SB	NDE098	N		E200.7	SW3050	NONE	Potassium	77.0	B	J	77.0	J	J	3.2	1070	mg/kg	SD
SB	NDE069	N		E200.7	SW3050	NONE	Potassium	440	J	J	440	J	J	3.2	1070	mg/kg	SD
SB	NDE078	N		E200.7	SW3050	NONE	Potassium	510	J	J	510	J	J	3.2	1070	mg/kg	SD
SB	NDE076	N		E200.7	SW3050	NONE	Potassium	670	J	J	670	J	J	3.2	1070	mg/kg	SD
SS	NDE072	N		E200.7	SW3050	NONE	Potassium	530	J	J	530	J	J	3.3	1090	mg/kg	SD
SB	NDE073	N		E200.7	SW3050	NONE	Potassium	790	J	J	790	J	J	3.3	1090	mg/kg	SD
SB	NDE094	N		E200.7	SW3050	NONE	Potassium	570	B	J	570	J	J	3.3	1100	mg/kg	SD
SS	NDE095	N		E200.7	SW3050	NONE	Potassium	690	B	J	690	J	J	3.3	1100	mg/kg	SD
SB	NDE092	N		E200.7	SW3050	NONE	Potassium	460	B	J	460	J	J	3.3	1110	mg/kg	SD
SS	NDE068	N		E200.7	SW3050	NONE	Potassium	580	J	J	580	J	J	3.3	1110	mg/kg	SD
SS	NDE090	N		E200.7	SW3050	NONE	Potassium	440	B	J	440	J	J	3.4	1120	mg/kg	SD
SS	NDE070	N		E200.7	SW3050	NONE	Potassium	460	J	J	460	J	J	3.4	1120	mg/kg	SD
SB	NDE096	N		E200.7	SW3050	NONE	Potassium	650	B	J	650	J	J	3.4	1120	mg/kg	SD
SS	NDE091FD1	FD		E200.7	SW3050	NONE	Potassium	580	B	J	580	J	J	3.5	1170	mg/kg	SD
SS	NDAISS32-R01	N		SW6010B	SW3050B	NONE	Chromium, total	33.2	=	=	33.2	J	J	0.12	1.2	mg/kg	SD
SS	NDAIFD03P-R01	FD		SW6010B	SW3050B	NONE	Chromium, total	62.7	=	=	62.7	J	J	0.12	1.2	mg/kg	SD
SS	NDAISS30-R01	N		SW6010B	SW3050B	NONE	Chromium, total	74.6	=	=	74.6	J	J	0.12	1.2	mg/kg	SD
SS	NDAISS31-R01	N		SW6010B	SW3050B	NONE	Chromium, total	47.8	=	=	47.8	J	J	0.13	1.3	mg/kg	SD
SS	NDAISS27-R01	N		SW6010B	SW3050B	NONE	Chromium, total	49.8	=	=	49.8	J	J	0.13	1.3	mg/kg	SD
SS	NDAISS28-R01	N		SW6010B	SW3050B	NONE	Chromium, total	60.7	=	=	60.7	J	J	0.13	1.3	mg/kg	SD
SS	NDAISS29-R01	N		SW6010B	SW3050B	NONE	Chromium, total	92.0	=	=	92.0	J	J	0.14	1.4	mg/kg	SD
SB	NDE082	N		FL-PRO	METHOD	NONE	petroleum hydrocarbons	11.0	J	=	11.0	J	J	9.6	16.0	mg/kg	SS
SS	NDE053	N		FL-PRO	METHOD	NONE	petroleum hydrocarbons	103	=	=	103	J	J	9.6	16.0	mg/kg	SS
SS	NDE081	N		FL-PRO	METHOD	NONE	petroleum hydrocarbons	18.0	=	=	18.0	J	J	9.7	16.0	mg/kg	SS
SB	NDE058	N		FL-PRO	METHOD	NONE	petroleum hydrocarbons	23.0	=	=	23.0	J	J	9.7	16.0	mg/kg	SS
SS	NDE077	N		FL-PRO	METHOD	NONE	petroleum hydrocarbons	57.0	=	=	57.0	J	J	9.7	16.0	mg/kg	SS
SS	NDE075	N		FL-PRO	METHOD	NONE	petroleum hydrocarbons	66.0	=	=	66.0	J	J	9.7	16.0	mg/kg	SS

Matrix	Sample ID	Sample Type	LR Type	Analytical Method	Prep Method	Dissolved ?	Parameter	Lab Result	Lab Qual	Lab Conc Qual	Final Result	Final Qual	Final Conc Qual	Detection Limit	Reporting Limit	Units	Validation Notes
SS	NDE066	N		FL-PRO	METHOD	NONE	petroleum hydrocarbons	71.0	=	=	71.0	J	J	9.7	16.0	mg/kg	SS
SB	NDE087	N		FL-PRO	METHOD	NONE	petroleum hydrocarbons	232	=	=	232	J	J	9.7	16.0	mg/kg	SS
SS	NDE079	N		FL-PRO	METHOD	NONE	petroleum hydrocarbons	130	=	=	130	J	J	9.8	16.0	mg/kg	SS
SS	NDE086	N		FL-PRO	METHOD	NONE	petroleum hydrocarbons	377	=	=	377	J	J	9.9	16.0	mg/kg	SS
SB	NDE085	N		FL-PRO	METHOD	NONE	petroleum hydrocarbons	11.0	J	=	11.0	J	J	10.0	16.0	mg/kg	SS
SS	NDE068	N		FL-PRO	METHOD	NONE	petroleum hydrocarbons	31.0	=	=	31.0	J	J	10.0	16.0	mg/kg	SS
SS	NDE072	N		FL-PRO	METHOD	NONE	petroleum hydrocarbons	56.0	=	=	56.0	J	J	10.0	16.0	mg/kg	SS
SB	NDE060	N		FL-PRO	METHOD	NONE	petroleum hydrocarbons	75.0	=	=	75.0	J	J	10.0	16.0	mg/kg	SS
SS	NDE091FD1	FD		FL-PRO	METHOD	NONE	petroleum hydrocarbons	15.0	J	J	15.0	J	J	11.0	17.0	mg/kg	SS
SB	NDE089	N		FL-PRO	METHOD	NONE	petroleum hydrocarbons	17.0	J	=	17.0	J	J	11.0	18.0	mg/kg	SS
SB	NDE080	N		FL-PRO	METHOD	NONE	petroleum hydrocarbons	16.0	J	=	16.0	J	J	12.0	19.0	mg/kg	SS
SS	NDE099FD1	FD		FL-PRO	METHOD	NONE	petroleum hydrocarbons	406	=	=	406	J	J	19.0	31.0	mg/kg	SS
SS	NDE074FD1	FD		FL-PRO	METHOD	NONE	petroleum hydrocarbons	196	=	=	196	J	J	19.0	32.0	mg/kg	SS
SS	NDE097	N		FL-PRO	METHOD	NONE	petroleum hydrocarbons	248	=	=	248	J	J	19.0	32.0	mg/kg	SS
SB	NDE063	N		FL-PRO	METHOD	NONE	petroleum hydrocarbons	25.0	J	J	25.0	J	J	20.0	32.0	mg/kg	SS
SS	NDE047	N		FL-PRO	METHOD	NONE	petroleum hydrocarbons	108	=	=	108	J	J	47.0	77.0	mg/kg	SS
SS	NDE057	N		FL-PRO	METHOD	NONE	petroleum hydrocarbons	443	=	=	443	J	J	48.0	78.0	mg/kg	SS
SS	NDE051	N		FL-PRO	METHOD	NONE	petroleum hydrocarbons	160	=	=	160	J	J	53.0	87.0	mg/kg	SS
SS	NDE043	N		FL-PRO	METHOD	NONE	petroleum hydrocarbons	121	=	=	121	J	J	55.0	89.0	mg/kg	SS
SB	NDE054	N		FL-PRO	METHOD	NONE	petroleum hydrocarbons	16.0	U	U	16.0	UJ	U	9.7	16.0	mg/kg	SS
SB	NDE056	N		FL-PRO	METHOD	NONE	petroleum hydrocarbons	16.0	U	U	16.0	UJ	U	9.7	16.0	mg/kg	SS
SB	NDE071	N		FL-PRO	METHOD	NONE	petroleum hydrocarbons	16.0	U	U	16.0	UJ	U	9.7	16.0	mg/kg	SS
SB	NDE052	N		FL-PRO	METHOD	NONE	petroleum hydrocarbons	16.0	U	U	16.0	UJ	U	9.9	16.0	mg/kg	SS
SB	NDE098	N		FL-PRO	METHOD	NONE	petroleum hydrocarbons	16.0	U	U	16.0	UJ	U	9.9	16.0	mg/kg	SS
SB	NDE046	N		FL-PRO	METHOD	NONE	petroleum hydrocarbons	20.0	U	U	20.0	UJ	U	12.0	20.0	mg/kg	SS
SS	NDAISS40-R01	N		SW8015-E	SW3550	NONE	Total Petroleum Hydrocarbons C10-C28	132	=	=	132	J	J	1.4	2.2	mg/kg	SS
SS	NDE057	N		SW8260B	SW5030	NONE	1,1,1-Trichloroethane	10.0	U	U	10.0	UJ	U	0.18	10.0	ug/kg	SS
SS	NDE064	N		SW8260B	SW5030	NONE	1,1,1-Trichloroethane	10.0	U	U	10.0	UJ	U	0.19	10.0	ug/kg	SS
SS	NDE086	N		SW8260B	SW5030	NONE	1,1,1-Trichloroethane	10.0	U	U	10.0	UJ	U	0.19	10.0	ug/kg	SS
SB	NDE076	N		SW8260B	SW5030	NONE	1,1,1-Trichloroethane	10.0	U	U	10.0	UJ	U	0.20	10.0	ug/kg	SS
SS	NDE062FD1	FD		SW8260B	SW5030	NONE	1,1,1-Trichloroethane	10.0	U	U	10.0	UJ	U	0.20	10.0	ug/kg	SS
SS	NDE079	N		SW8260B	SW5030	NONE	1,1,1-Trichloroethane	10.0	U	U	10.0	UJ	U	0.20	10.0	ug/kg	SS
SB	NDE078	N		SW8260B	SW5030	NONE	1,1,1-Trichloroethane	10.0	U	U	10.0	UJ	U	0.21	10.0	ug/kg	SS
SB	NDE092	N		SW8260B	SW5030	NONE	1,1,1-Trichloroethane	10.0	U	U	10.0	UJ	U	0.21	10.0	ug/kg	SS
SS	NDE055	N		SW8260B	SW5030	NONE	1,1,1-Trichloroethane	10.0	U	U	10.0	UJ	U	0.21	10.0	ug/kg	SS
SS	NDE090	N		SW8260B	SW5030	NONE	1,1,1-Trichloroethane	10.0	U	U	10.0	UJ	U	0.21	10.0	ug/kg	SS
SS	NDE091FD1	FD		SW8260B	SW5030	NONE	1,1,1-Trichloroethane	10.0	U	U	10.0	UJ	U	0.21	10.0	ug/kg	SS
SS	NDE097	N		SW8260B	SW5030	NONE	1,1,1-Trichloroethane	10.0	U	U	10.0	UJ	U	0.21	10.0	ug/kg	SS
SS	NDE074FD1	FD		SW8260B	SW5030	NONE	1,1,1-Trichloroethane	10.0	U	U	10.0	UJ	U	0.21	10.0	ug/kg	SS
SB	NDE065	N		SW8260B	SW5030	NONE	1,1,1-Trichloroethane	10.0	U	U	10.0	UJ	U	0.22	10.0	ug/kg	SS
SB	NDE067	N		SW8260B	SW5030	NONE	1,1,1-Trichloroethane	10.0	U	U	10.0	UJ	U	0.22	10.0	ug/kg	SS
SB	NDE069	N		SW8260B	SW5030	NONE	1,1,1-Trichloroethane	10.0	U	U	10.0	UJ	U	0.22	10.0	ug/kg	SS
SB	NDE073	N		SW8260B	SW5030	NONE	1,1,1-Trichloroethane	10.0	U	U	10.0	UJ	U	0.22	10.0	ug/kg	SS
SB	NDE082	N		SW8260B	SW5030	NONE	1,1,1-Trichloroethane	10.0	U	U	10.0	UJ	U	0.22	10.0	ug/kg	SS
SS	NDE075	N		SW8260B	SW5030	NONE	1,1,1-Trichloroethane	10.0	U	U	10.0	UJ	U	0.22	10.0	ug/kg	SS
SS	NDE066	N		SW8260B	SW5030	NONE	1,1,1-Trichloroethane	10.0	U	U	10.0	UJ	U	0.23	10.0	ug/kg	SS
SS	NDE070	N		SW8260B	SW5030	NONE	1,1,1-Trichloroethane	10.0	U	U	10.0	UJ	U	0.23	10.0	ug/kg	SS
SS	NDE072	N		SW8260B	SW5030	NONE	1,1,1-Trichloroethane	10.0	U	U	10.0	UJ	U	0.23	10.0	ug/kg	SS
SB	NDE071	N		SW8260B	SW5030	NONE	1,1,1-Trichloroethane	10.0	U	U	10.0	UJ	U	0.24	10.0	ug/kg	SS
SB	NDE094	N		SW8260B	SW5030	NONE	1,1,1-Trichloroethane	10.0	U	U	10.0	UJ	U	0.24	10.0	ug/kg	SS
SB	NDE085	N		SW8260B	SW5030	NONE	1,1,1-Trichloroethane	10.0	U	U	10.0	UJ	U	0.24	10.0	ug/kg	SS

Matrix	Sample ID	Sample Type	LR Type	Analytical Method	Prep Method	Dissolved ?	Parameter	Lab Result	Lab Qual	Lab Conc Qual	Final Result	Final Qual	Final Conc Qual	Detection Limit	Reporting Limit	Units	Validation Notes
SS	NDE068	N		SW8260B	SW5030	NONE	1,1,1-Trichloroethane	10.0	U	U	10.0	UJ	U	0.24	10.0	ug/kg	SS
SS	NDE093	N		SW8260B	SW5030	NONE	1,1,1-Trichloroethane	10.0	U	U	10.0	UJ	U	0.24	10.0	ug/kg	SS
SS	NDE095	N		SW8260B	SW5030	NONE	1,1,1-Trichloroethane	10.0	U	U	10.0	UJ	U	0.24	10.0	ug/kg	SS
SS	NDE088	N		SW8260B	SW5030	NONE	1,1,1-Trichloroethane	10.0	U	U	10.0	UJ	U	0.24	10.0	ug/kg	SS
SB	NDE080	N		SW8260B	SW5030	NONE	1,1,1-Trichloroethane	11.0	U	U	11.0	UJ	U	0.26	11.0	ug/kg	SS
SB	NDE087	N		SW8260B	SW5030	NONE	1,1,1-Trichloroethane	12.0	U	U	12.0	UJ	U	0.28	12.0	ug/kg	SS
SS	NDE083	N		SW8260B	SW5030	NONE	1,1,1-Trichloroethane	12.0	U	U	12.0	UJ	U	0.28	12.0	ug/kg	SS
SS	NDE084FD1	FD		SW8260B	SW5030	NONE	1,1,1-Trichloroethane	12.0	U	U	12.0	UJ	U	0.28	12.0	ug/kg	SS
SS	NDE057	N		SW8260B	SW5030	NONE	1,1,2,2-Tetrachloroethane	10.0	U	U	10.0	UJ	U	0.11	10.0	ug/kg	SS
SS	NDE062FD1	FD		SW8260B	SW5030	NONE	1,1,2,2-Tetrachloroethane	10.0	U	U	10.0	UJ	U	0.12	10.0	ug/kg	SS
SS	NDE064	N		SW8260B	SW5030	NONE	1,1,2,2-Tetrachloroethane	10.0	U	U	10.0	UJ	U	0.12	10.0	ug/kg	SS
SS	NDE086	N		SW8260B	SW5030	NONE	1,1,2,2-Tetrachloroethane	10.0	U	U	10.0	UJ	U	0.12	10.0	ug/kg	SS
SB	NDE069	N		SW8260B	SW5030	NONE	1,1,2,2-Tetrachloroethane	10.0	U	U	10.0	UJ	U	0.13	10.0	ug/kg	SS
SB	NDE073	N		SW8260B	SW5030	NONE	1,1,2,2-Tetrachloroethane	10.0	U	U	10.0	UJ	U	0.13	10.0	ug/kg	SS
SB	NDE076	N		SW8260B	SW5030	NONE	1,1,2,2-Tetrachloroethane	10.0	U	U	10.0	UJ	U	0.13	10.0	ug/kg	SS
SB	NDE078	N		SW8260B	SW5030	NONE	1,1,2,2-Tetrachloroethane	10.0	U	U	10.0	UJ	U	0.13	10.0	ug/kg	SS
SB	NDE092	N		SW8260B	SW5030	NONE	1,1,2,2-Tetrachloroethane	10.0	U	U	10.0	UJ	U	0.13	10.0	ug/kg	SS
SS	NDE055	N		SW8260B	SW5030	NONE	1,1,2,2-Tetrachloroethane	10.0	U	U	10.0	UJ	U	0.13	10.0	ug/kg	SS
SS	NDE090	N		SW8260B	SW5030	NONE	1,1,2,2-Tetrachloroethane	10.0	U	U	10.0	UJ	U	0.13	10.0	ug/kg	SS
SS	NDE091FD1	FD		SW8260B	SW5030	NONE	1,1,2,2-Tetrachloroethane	10.0	U	U	10.0	UJ	U	0.13	10.0	ug/kg	SS
SS	NDE097	N		SW8260B	SW5030	NONE	1,1,2,2-Tetrachloroethane	10.0	U	U	10.0	UJ	U	0.13	10.0	ug/kg	SS
SS	NDE074FD1	FD		SW8260B	SW5030	NONE	1,1,2,2-Tetrachloroethane	10.0	U	U	10.0	UJ	U	0.13	10.0	ug/kg	SS
SS	NDE079	N		SW8260B	SW5030	NONE	1,1,2,2-Tetrachloroethane	10.0	U	U	10.0	UJ	U	0.13	10.0	ug/kg	SS
SB	NDE065	N		SW8260B	SW5030	NONE	1,1,2,2-Tetrachloroethane	10.0	U	U	10.0	UJ	U	0.14	10.0	ug/kg	SS
SB	NDE067	N		SW8260B	SW5030	NONE	1,1,2,2-Tetrachloroethane	10.0	U	U	10.0	UJ	U	0.14	10.0	ug/kg	SS
SB	NDE082	N		SW8260B	SW5030	NONE	1,1,2,2-Tetrachloroethane	10.0	U	U	10.0	UJ	U	0.14	10.0	ug/kg	SS
SS	NDE066	N		SW8260B	SW5030	NONE	1,1,2,2-Tetrachloroethane	10.0	U	U	10.0	UJ	U	0.14	10.0	ug/kg	SS
SS	NDE075	N		SW8260B	SW5030	NONE	1,1,2,2-Tetrachloroethane	10.0	U	U	10.0	UJ	U	0.14	10.0	ug/kg	SS
SB	NDE071	N		SW8260B	SW5030	NONE	1,1,2,2-Tetrachloroethane	10.0	U	U	10.0	UJ	U	0.15	10.0	ug/kg	SS
SB	NDE094	N		SW8260B	SW5030	NONE	1,1,2,2-Tetrachloroethane	10.0	U	U	10.0	UJ	U	0.15	10.0	ug/kg	SS
SB	NDE085	N		SW8260B	SW5030	NONE	1,1,2,2-Tetrachloroethane	10.0	U	U	10.0	UJ	U	0.15	10.0	ug/kg	SS
SS	NDE068	N		SW8260B	SW5030	NONE	1,1,2,2-Tetrachloroethane	10.0	U	U	10.0	UJ	U	0.15	10.0	ug/kg	SS
SS	NDE070	N		SW8260B	SW5030	NONE	1,1,2,2-Tetrachloroethane	10.0	U	U	10.0	UJ	U	0.15	10.0	ug/kg	SS
SS	NDE072	N		SW8260B	SW5030	NONE	1,1,2,2-Tetrachloroethane	10.0	U	U	10.0	UJ	U	0.15	10.0	ug/kg	SS
SS	NDE093	N		SW8260B	SW5030	NONE	1,1,2,2-Tetrachloroethane	10.0	U	U	10.0	UJ	U	0.15	10.0	ug/kg	SS
SS	NDE095	N		SW8260B	SW5030	NONE	1,1,2,2-Tetrachloroethane	10.0	U	U	10.0	UJ	U	0.15	10.0	ug/kg	SS
SS	NDE088	N		SW8260B	SW5030	NONE	1,1,2,2-Tetrachloroethane	10.0	U	U	10.0	UJ	U	0.15	10.0	ug/kg	SS
SB	NDE080	N		SW8260B	SW5030	NONE	1,1,2,2-Tetrachloroethane	11.0	U	U	11.0	UJ	U	0.16	11.0	ug/kg	SS
SB	NDE087	N		SW8260B	SW5030	NONE	1,1,2,2-Tetrachloroethane	12.0	U	U	12.0	UJ	U	0.18	12.0	ug/kg	SS
SS	NDE083	N		SW8260B	SW5030	NONE	1,1,2,2-Tetrachloroethane	12.0	U	U	12.0	UJ	U	0.18	12.0	ug/kg	SS
SS	NDE084FD1	FD		SW8260B	SW5030	NONE	1,1,2,2-Tetrachloroethane	12.0	U	U	12.0	UJ	U	0.18	12.0	ug/kg	SS
SS	NDE057	N		SW8260B	SW5030	NONE	1,1,2-Trichloroethane	10.0	U	U	10.0	UJ	U	0.18	10.0	ug/kg	SS
SS	NDE064	N		SW8260B	SW5030	NONE	1,1,2-Trichloroethane	10.0	U	U	10.0	UJ	U	0.18	10.0	ug/kg	SS
SB	NDE076	N		SW8260B	SW5030	NONE	1,1,2-Trichloroethane	10.0	U	U	10.0	UJ	U	0.19	10.0	ug/kg	SS
SS	NDE062FD1	FD		SW8260B	SW5030	NONE	1,1,2-Trichloroethane	10.0	U	U	10.0	UJ	U	0.19	10.0	ug/kg	SS
SS	NDE079	N		SW8260B	SW5030	NONE	1,1,2-Trichloroethane	10.0	U	U	10.0	UJ	U	0.19	10.0	ug/kg	SS
SS	NDE086	N		SW8260B	SW5030	NONE	1,1,2-Trichloroethane	10.0	U	U	10.0	UJ	U	0.19	10.0	ug/kg	SS
SB	NDE078	N		SW8260B	SW5030	NONE	1,1,2-Trichloroethane	10.0	U	U	10.0	UJ	U	0.20	10.0	ug/kg	SS
SB	NDE092	N		SW8260B	SW5030	NONE	1,1,2-Trichloroethane	10.0	U	U	10.0	UJ	U	0.20	10.0	ug/kg	SS
SS	NDE055	N		SW8260B	SW5030	NONE	1,1,2-Trichloroethane	10.0	U	U	10.0	UJ	U	0.20	10.0	ug/kg	SS
SS	NDE090	N		SW8260B	SW5030	NONE	1,1,2-Trichloroethane	10.0	U	U	10.0	UJ	U	0.20	10.0	ug/kg	SS

Matrix	Sample ID	Sample Type	LR Type	Analytical Method	Prep Method	Dissolved ?	Parameter	Lab Result	Lab Qual	Lab Conc Qual	Final Result	Final Qual	Final Conc Qual	Detection Limit	Reporting Limit	Units	Validation Notes
SS	NDE091FD1	FD		SW8260B	SW5030	NONE	1,1,2-Trichloroethane	10.0	U	U	10.0	UJ	U	0.20	10.0	ug/kg	SS
SS	NDE074FD1	FD		SW8260B	SW5030	NONE	1,1,2-Trichloroethane	10.0	U	U	10.0	UJ	U	0.20	10.0	ug/kg	SS
SB	NDE065	N		SW8260B	SW5030	NONE	1,1,2-Trichloroethane	10.0	U	U	10.0	UJ	U	0.21	10.0	ug/kg	SS
SB	NDE067	N		SW8260B	SW5030	NONE	1,1,2-Trichloroethane	10.0	U	U	10.0	UJ	U	0.21	10.0	ug/kg	SS
SB	NDE069	N		SW8260B	SW5030	NONE	1,1,2-Trichloroethane	10.0	U	U	10.0	UJ	U	0.21	10.0	ug/kg	SS
SB	NDE073	N		SW8260B	SW5030	NONE	1,1,2-Trichloroethane	10.0	U	U	10.0	UJ	U	0.21	10.0	ug/kg	SS
SB	NDE082	N		SW8260B	SW5030	NONE	1,1,2-Trichloroethane	10.0	U	U	10.0	UJ	U	0.21	10.0	ug/kg	SS
SS	NDE075	N		SW8260B	SW5030	NONE	1,1,2-Trichloroethane	10.0	U	U	10.0	UJ	U	0.21	10.0	ug/kg	SS
SS	NDE097	N		SW8260B	SW5030	NONE	1,1,2-Trichloroethane	10.0	U	U	10.0	UJ	U	0.21	10.0	ug/kg	SS
SS	NDE066	N		SW8260B	SW5030	NONE	1,1,2-Trichloroethane	10.0	U	U	10.0	UJ	U	0.22	10.0	ug/kg	SS
SS	NDE070	N		SW8260B	SW5030	NONE	1,1,2-Trichloroethane	10.0	U	U	10.0	UJ	U	0.22	10.0	ug/kg	SS
SS	NDE072	N		SW8260B	SW5030	NONE	1,1,2-Trichloroethane	10.0	U	U	10.0	UJ	U	0.22	10.0	ug/kg	SS
SB	NDE071	N		SW8260B	SW5030	NONE	1,1,2-Trichloroethane	10.0	U	U	10.0	UJ	U	0.23	10.0	ug/kg	SS
SB	NDE094	N		SW8260B	SW5030	NONE	1,1,2-Trichloroethane	10.0	U	U	10.0	UJ	U	0.23	10.0	ug/kg	SS
SB	NDE085	N		SW8260B	SW5030	NONE	1,1,2-Trichloroethane	10.0	U	U	10.0	UJ	U	0.23	10.0	ug/kg	SS
SS	NDE068	N		SW8260B	SW5030	NONE	1,1,2-Trichloroethane	10.0	U	U	10.0	UJ	U	0.23	10.0	ug/kg	SS
SS	NDE093	N		SW8260B	SW5030	NONE	1,1,2-Trichloroethane	10.0	U	U	10.0	UJ	U	0.23	10.0	ug/kg	SS
SS	NDE095	N		SW8260B	SW5030	NONE	1,1,2-Trichloroethane	10.0	U	U	10.0	UJ	U	0.23	10.0	ug/kg	SS
SS	NDE088	N		SW8260B	SW5030	NONE	1,1,2-Trichloroethane	10.0	U	U	10.0	UJ	U	0.23	10.0	ug/kg	SS
SB	NDE080	N		SW8260B	SW5030	NONE	1,1,2-Trichloroethane	11.0	U	U	11.0	UJ	U	0.24	11.0	ug/kg	SS
SB	NDE087	N		SW8260B	SW5030	NONE	1,1,2-Trichloroethane	12.0	U	U	12.0	UJ	U	0.27	12.0	ug/kg	SS
SS	NDE083	N		SW8260B	SW5030	NONE	1,1,2-Trichloroethane	12.0	U	U	12.0	UJ	U	0.27	12.0	ug/kg	SS
SS	NDE084FD1	FD		SW8260B	SW5030	NONE	1,1,2-Trichloroethane	12.0	U	U	12.0	UJ	U	0.27	12.0	ug/kg	SS
SS	NDE057	N		SW8260B	SW5030	NONE	1,1-Dichloroethane	10.0	U	U	10.0	UJ	U	0.36	10.0	ug/kg	SS
SS	NDE064	N		SW8260B	SW5030	NONE	1,1-Dichloroethane	10.0	U	U	10.0	UJ	U	0.37	10.0	ug/kg	SS
SS	NDE086	N		SW8260B	SW5030	NONE	1,1-Dichloroethane	10.0	U	U	10.0	UJ	U	0.38	10.0	ug/kg	SS
SB	NDE076	N		SW8260B	SW5030	NONE	1,1-Dichloroethane	10.0	U	U	10.0	UJ	U	0.39	10.0	ug/kg	SS
SS	NDE062FD1	FD		SW8260B	SW5030	NONE	1,1-Dichloroethane	10.0	U	U	10.0	UJ	U	0.39	10.0	ug/kg	SS
SS	NDE079	N		SW8260B	SW5030	NONE	1,1-Dichloroethane	10.0	U	U	10.0	UJ	U	0.39	10.0	ug/kg	SS
SS	NDE074FD1	FD		SW8260B	SW5030	NONE	1,1-Dichloroethane	10.0	U	U	10.0	UJ	U	0.41	10.0	ug/kg	SS
SB	NDE069	N		SW8260B	SW5030	NONE	1,1-Dichloroethane	10.0	U	U	10.0	UJ	U	0.42	10.0	ug/kg	SS
SB	NDE073	N		SW8260B	SW5030	NONE	1,1-Dichloroethane	10.0	U	U	10.0	UJ	U	0.42	10.0	ug/kg	SS
SB	NDE078	N		SW8260B	SW5030	NONE	1,1-Dichloroethane	10.0	U	U	10.0	UJ	U	0.42	10.0	ug/kg	SS
SB	NDE092	N		SW8260B	SW5030	NONE	1,1-Dichloroethane	10.0	U	U	10.0	UJ	U	0.42	10.0	ug/kg	SS
SS	NDE055	N		SW8260B	SW5030	NONE	1,1-Dichloroethane	10.0	U	U	10.0	UJ	U	0.42	10.0	ug/kg	SS
SS	NDE090	N		SW8260B	SW5030	NONE	1,1-Dichloroethane	10.0	U	U	10.0	UJ	U	0.42	10.0	ug/kg	SS
SS	NDE091FD1	FD		SW8260B	SW5030	NONE	1,1-Dichloroethane	10.0	U	U	10.0	UJ	U	0.42	10.0	ug/kg	SS
SS	NDE097	N		SW8260B	SW5030	NONE	1,1-Dichloroethane	10.0	U	U	10.0	UJ	U	0.42	10.0	ug/kg	SS
SB	NDE065	N		SW8260B	SW5030	NONE	1,1-Dichloroethane	10.0	U	U	10.0	UJ	U	0.43	10.0	ug/kg	SS
SB	NDE067	N		SW8260B	SW5030	NONE	1,1-Dichloroethane	10.0	U	U	10.0	UJ	U	0.43	10.0	ug/kg	SS
SB	NDE082	N		SW8260B	SW5030	NONE	1,1-Dichloroethane	10.0	U	U	10.0	UJ	U	0.43	10.0	ug/kg	SS
SS	NDE075	N		SW8260B	SW5030	NONE	1,1-Dichloroethane	10.0	U	U	10.0	UJ	U	0.43	10.0	ug/kg	SS
SS	NDE066	N		SW8260B	SW5030	NONE	1,1-Dichloroethane	10.0	U	U	10.0	UJ	U	0.45	10.0	ug/kg	SS
SB	NDE071	N		SW8260B	SW5030	NONE	1,1-Dichloroethane	10.0	U	U	10.0	UJ	U	0.46	10.0	ug/kg	SS
SB	NDE094	N		SW8260B	SW5030	NONE	1,1-Dichloroethane	10.0	U	U	10.0	UJ	U	0.46	10.0	ug/kg	SS
SB	NDE085	N		SW8260B	SW5030	NONE	1,1-Dichloroethane	10.0	U	U	10.0	UJ	U	0.46	10.0	ug/kg	SS
SS	NDE070	N		SW8260B	SW5030	NONE	1,1-Dichloroethane	10.0	U	U	10.0	UJ	U	0.46	10.0	ug/kg	SS
SS	NDE072	N		SW8260B	SW5030	NONE	1,1-Dichloroethane	10.0	U	U	10.0	UJ	U	0.46	10.0	ug/kg	SS
SS	NDE095	N		SW8260B	SW5030	NONE	1,1-Dichloroethane	10.0	U	U	10.0	UJ	U	0.46	10.0	ug/kg	SS
SS	NDE088	N		SW8260B	SW5030	NONE	1,1-Dichloroethane	10.0	U	U	10.0	UJ	U	0.46	10.0	ug/kg	SS
SS	NDE068	N		SW8260B	SW5030	NONE	1,1-Dichloroethane	10.0	U	U	10.0	UJ	U	0.47	10.0	ug/kg	SS

Matrix	Sample ID	Sample Type	LR Type	Analytical Method	Prep Method	Dissolved ?	Parameter	Lab Result	Lab Qual	Lab Conc Qual	Final Result	Final Qual	Final Conc Qual	Detection Limit	Reporting Limit	Units	Validation Notes
SS	NDE093	N		SW8260B	SW5030	NONE	1,1-Dichloroethane	10.0	U	U	10.0	UJ	U	0.47	10.0	ug/kg	SS
SB	NDE080	N		SW8260B	SW5030	NONE	1,1-Dichloroethane	11.0	U	U	11.0	UJ	U	0.50	11.0	ug/kg	SS
SB	NDE087	N		SW8260B	SW5030	NONE	1,1-Dichloroethane	12.0	U	U	12.0	UJ	U	0.55	12.0	ug/kg	SS
SS	NDE083	N		SW8260B	SW5030	NONE	1,1-Dichloroethane	12.0	U	U	12.0	UJ	U	0.55	12.0	ug/kg	SS
SS	NDE084FD1	FD		SW8260B	SW5030	NONE	1,1-Dichloroethane	12.0	U	U	12.0	UJ	U	0.56	12.0	ug/kg	SS
SS	NDE057	N		SW8260B	SW5030	NONE	1,1-Dichloroethene	10.0	U	U	10.0	UJ	U	0.31	10.0	ug/kg	SS
SS	NDE064	N		SW8260B	SW5030	NONE	1,1-Dichloroethene	10.0	U	U	10.0	UJ	U	0.32	10.0	ug/kg	SS
SS	NDE086	N		SW8260B	SW5030	NONE	1,1-Dichloroethene	10.0	U	U	10.0	UJ	U	0.33	10.0	ug/kg	SS
SB	NDE076	N		SW8260B	SW5030	NONE	1,1-Dichloroethene	10.0	U	U	10.0	UJ	U	0.34	10.0	ug/kg	SS
SS	NDE062FD1	FD		SW8260B	SW5030	NONE	1,1-Dichloroethene	10.0	U	U	10.0	UJ	U	0.34	10.0	ug/kg	SS
SS	NDE079	N		SW8260B	SW5030	NONE	1,1-Dichloroethene	10.0	U	U	10.0	UJ	U	0.34	10.0	ug/kg	SS
SS	NDE074FD1	FD		SW8260B	SW5030	NONE	1,1-Dichloroethene	10.0	U	U	10.0	UJ	U	0.35	10.0	ug/kg	SS
SB	NDE078	N		SW8260B	SW5030	NONE	1,1-Dichloroethene	10.0	U	U	10.0	UJ	U	0.36	10.0	ug/kg	SS
SS	NDE055	N		SW8260B	SW5030	NONE	1,1-Dichloroethene	10.0	U	U	10.0	UJ	U	0.36	10.0	ug/kg	SS
SS	NDE090	N		SW8260B	SW5030	NONE	1,1-Dichloroethene	10.0	U	U	10.0	UJ	U	0.36	10.0	ug/kg	SS
SS	NDE091FD1	FD		SW8260B	SW5030	NONE	1,1-Dichloroethene	10.0	U	U	10.0	UJ	U	0.36	10.0	ug/kg	SS
SB	NDE069	N		SW8260B	SW5030	NONE	1,1-Dichloroethene	10.0	U	U	10.0	UJ	U	0.37	10.0	ug/kg	SS
SB	NDE073	N		SW8260B	SW5030	NONE	1,1-Dichloroethene	10.0	U	U	10.0	UJ	U	0.37	10.0	ug/kg	SS
SB	NDE092	N		SW8260B	SW5030	NONE	1,1-Dichloroethene	10.0	U	U	10.0	UJ	U	0.37	10.0	ug/kg	SS
SB	NDE082	N		SW8260B	SW5030	NONE	1,1-Dichloroethene	10.0	U	U	10.0	UJ	U	0.37	10.0	ug/kg	SS
SS	NDE075	N		SW8260B	SW5030	NONE	1,1-Dichloroethene	10.0	U	U	10.0	UJ	U	0.37	10.0	ug/kg	SS
SS	NDE097	N		SW8260B	SW5030	NONE	1,1-Dichloroethene	10.0	U	U	10.0	UJ	U	0.37	10.0	ug/kg	SS
SB	NDE065	N		SW8260B	SW5030	NONE	1,1-Dichloroethene	10.0	U	U	10.0	UJ	U	0.38	10.0	ug/kg	SS
SB	NDE067	N		SW8260B	SW5030	NONE	1,1-Dichloroethene	10.0	U	U	10.0	UJ	U	0.38	10.0	ug/kg	SS
SS	NDE066	N		SW8260B	SW5030	NONE	1,1-Dichloroethene	10.0	U	U	10.0	UJ	U	0.39	10.0	ug/kg	SS
SB	NDE071	N		SW8260B	SW5030	NONE	1,1-Dichloroethene	10.0	U	U	10.0	UJ	U	0.40	10.0	ug/kg	SS
SB	NDE094	N		SW8260B	SW5030	NONE	1,1-Dichloroethene	10.0	U	U	10.0	UJ	U	0.40	10.0	ug/kg	SS
SB	NDE085	N		SW8260B	SW5030	NONE	1,1-Dichloroethene	10.0	U	U	10.0	UJ	U	0.40	10.0	ug/kg	SS
SS	NDE070	N		SW8260B	SW5030	NONE	1,1-Dichloroethene	10.0	U	U	10.0	UJ	U	0.40	10.0	ug/kg	SS
SS	NDE072	N		SW8260B	SW5030	NONE	1,1-Dichloroethene	10.0	U	U	10.0	UJ	U	0.40	10.0	ug/kg	SS
SS	NDE095	N		SW8260B	SW5030	NONE	1,1-Dichloroethene	10.0	U	U	10.0	UJ	U	0.40	10.0	ug/kg	SS
SS	NDE088	N		SW8260B	SW5030	NONE	1,1-Dichloroethene	10.0	U	U	10.0	UJ	U	0.40	10.0	ug/kg	SS
SS	NDE068	N		SW8260B	SW5030	NONE	1,1-Dichloroethene	10.0	U	U	10.0	UJ	U	0.41	10.0	ug/kg	SS
SS	NDE093	N		SW8260B	SW5030	NONE	1,1-Dichloroethene	10.0	U	U	10.0	UJ	U	0.41	10.0	ug/kg	SS
SB	NDE080	N		SW8260B	SW5030	NONE	1,1-Dichloroethene	11.0	U	U	11.0	UJ	U	0.44	11.0	ug/kg	SS
SB	NDE087	N		SW8260B	SW5030	NONE	1,1-Dichloroethene	12.0	U	U	12.0	UJ	U	0.48	12.0	ug/kg	SS
SS	NDE083	N		SW8260B	SW5030	NONE	1,1-Dichloroethene	12.0	U	U	12.0	UJ	U	0.48	12.0	ug/kg	SS
SS	NDE084FD1	FD		SW8260B	SW5030	NONE	1,1-Dichloroethene	12.0	U	U	12.0	UJ	U	0.49	12.0	ug/kg	SS
SS	NDE088	N		SW8260B	SW5030	NONE	1,2-Dichloroethane	1.0	J	J	1.0	J	J	0.22	10.0	ug/kg	SS
SS	NDE057	N		SW8260B	SW5030	NONE	1,2-Dichloroethane	10.0	U	U	10.0	UJ	U	0.17	10.0	ug/kg	SS
SS	NDE064	N		SW8260B	SW5030	NONE	1,2-Dichloroethane	10.0	U	U	10.0	UJ	U	0.17	10.0	ug/kg	SS
SB	NDE076	N		SW8260B	SW5030	NONE	1,2-Dichloroethane	10.0	U	U	10.0	UJ	U	0.18	10.0	ug/kg	SS
SS	NDE062FD1	FD		SW8260B	SW5030	NONE	1,2-Dichloroethane	10.0	U	U	10.0	UJ	U	0.18	10.0	ug/kg	SS
SS	NDE079	N		SW8260B	SW5030	NONE	1,2-Dichloroethane	10.0	U	U	10.0	UJ	U	0.18	10.0	ug/kg	SS
SS	NDE086	N		SW8260B	SW5030	NONE	1,2-Dichloroethane	10.0	U	U	10.0	UJ	U	0.18	10.0	ug/kg	SS
SS	NDE074FD1	FD		SW8260B	SW5030	NONE	1,2-Dichloroethane	10.0	U	U	10.0	UJ	U	0.19	10.0	ug/kg	SS
SB	NDE065	N		SW8260B	SW5030	NONE	1,2-Dichloroethane	10.0	U	U	10.0	UJ	U	0.20	10.0	ug/kg	SS
SB	NDE067	N		SW8260B	SW5030	NONE	1,2-Dichloroethane	10.0	U	U	10.0	UJ	U	0.20	10.0	ug/kg	SS
SB	NDE069	N		SW8260B	SW5030	NONE	1,2-Dichloroethane	10.0	U	U	10.0	UJ	U	0.20	10.0	ug/kg	SS
SB	NDE073	N		SW8260B	SW5030	NONE	1,2-Dichloroethane	10.0	U	U	10.0	UJ	U	0.20	10.0	ug/kg	SS
SB	NDE078	N		SW8260B	SW5030	NONE	1,2-Dichloroethane	10.0	U	U	10.0	UJ	U	0.20	10.0	ug/kg	SS

Matrix	Sample ID	Sample Type	LR Type	Analytical Method	Prep Method	Dissolved ?	Parameter	Lab Result	Lab Qual	Lab Conc Qual	Final Result	Final Qual	Final Conc Qual	Detection Limit	Reporting Limit	Units	Validation Notes
SB	NDE092	N		SW8260B	SW5030	NONE	1,2-Dichloroethane	10.0	U	U	10.0	UJ	U	0.20	10.0	ug/kg	SS
SB	NDE082	N		SW8260B	SW5030	NONE	1,2-Dichloroethane	10.0	U	U	10.0	UJ	U	0.20	10.0	ug/kg	SS
SS	NDE055	N		SW8260B	SW5030	NONE	1,2-Dichloroethane	10.0	U	U	10.0	UJ	U	0.20	10.0	ug/kg	SS
SS	NDE075	N		SW8260B	SW5030	NONE	1,2-Dichloroethane	10.0	U	U	10.0	UJ	U	0.20	10.0	ug/kg	SS
SS	NDE091FD1	FD		SW8260B	SW5030	NONE	1,2-Dichloroethane	10.0	U	U	10.0	UJ	U	0.20	10.0	ug/kg	SS
SS	NDE097	N		SW8260B	SW5030	NONE	1,2-Dichloroethane	10.0	U	U	10.0	UJ	U	0.20	10.0	ug/kg	SS
SS	NDE066	N		SW8260B	SW5030	NONE	1,2-Dichloroethane	10.0	U	U	10.0	UJ	U	0.21	10.0	ug/kg	SS
SS	NDE070	N		SW8260B	SW5030	NONE	1,2-Dichloroethane	10.0	U	U	10.0	UJ	U	0.21	10.0	ug/kg	SS
SS	NDE072	N		SW8260B	SW5030	NONE	1,2-Dichloroethane	10.0	U	U	10.0	UJ	U	0.21	10.0	ug/kg	SS
SB	NDE071	N		SW8260B	SW5030	NONE	1,2-Dichloroethane	10.0	U	U	10.0	UJ	U	0.22	10.0	ug/kg	SS
SB	NDE094	N		SW8260B	SW5030	NONE	1,2-Dichloroethane	10.0	U	U	10.0	UJ	U	0.22	10.0	ug/kg	SS
SB	NDE085	N		SW8260B	SW5030	NONE	1,2-Dichloroethane	10.0	U	U	10.0	UJ	U	0.22	10.0	ug/kg	SS
SS	NDE068	N		SW8260B	SW5030	NONE	1,2-Dichloroethane	10.0	U	U	10.0	UJ	U	0.22	10.0	ug/kg	SS
SS	NDE095	N		SW8260B	SW5030	NONE	1,2-Dichloroethane	10.0	U	U	10.0	UJ	U	0.22	10.0	ug/kg	SS
SB	NDE080	N		SW8260B	SW5030	NONE	1,2-Dichloroethane	11.0	U	U	11.0	UJ	U	0.23	11.0	ug/kg	SS
SB	NDE087	N		SW8260B	SW5030	NONE	1,2-Dichloroethane	12.0	U	U	12.0	UJ	U	0.26	12.0	ug/kg	SS
SS	NDE083	N		SW8260B	SW5030	NONE	1,2-Dichloroethane	12.0	U	U	12.0	UJ	U	0.26	12.0	ug/kg	SS
SS	NDE084FD1	FD		SW8260B	SW5030	NONE	1,2-Dichloroethane	12.0	U	U	12.0	UJ	U	0.26	12.0	ug/kg	SS
SS	NDE057	N		SW8260B	SW5030	NONE	1,2-Dichloropropane	10.0	U	U	10.0	UJ	U	0.090	10.0	ug/kg	SS
SS	NDE062FD1	FD		SW8260B	SW5030	NONE	1,2-Dichloropropane	10.0	U	U	10.0	UJ	U	0.090	10.0	ug/kg	SS
SS	NDE064	N		SW8260B	SW5030	NONE	1,2-Dichloropropane	10.0	U	U	10.0	UJ	U	0.090	10.0	ug/kg	SS
SS	NDE086	N		SW8260B	SW5030	NONE	1,2-Dichloropropane	10.0	U	U	10.0	UJ	U	0.090	10.0	ug/kg	SS
SB	NDE076	N		SW8260B	SW5030	NONE	1,2-Dichloropropane	10.0	U	U	10.0	UJ	U	0.10	10.0	ug/kg	SS
SS	NDE074FD1	FD		SW8260B	SW5030	NONE	1,2-Dichloropropane	10.0	U	U	10.0	UJ	U	0.10	10.0	ug/kg	SS
SS	NDE079	N		SW8260B	SW5030	NONE	1,2-Dichloropropane	10.0	U	U	10.0	UJ	U	0.10	10.0	ug/kg	SS
SB	NDE065	N		SW8260B	SW5030	NONE	1,2-Dichloropropane	10.0	U	U	10.0	UJ	U	0.11	10.0	ug/kg	SS
SB	NDE067	N		SW8260B	SW5030	NONE	1,2-Dichloropropane	10.0	U	U	10.0	UJ	U	0.11	10.0	ug/kg	SS
SB	NDE069	N		SW8260B	SW5030	NONE	1,2-Dichloropropane	10.0	U	U	10.0	UJ	U	0.11	10.0	ug/kg	SS
SB	NDE073	N		SW8260B	SW5030	NONE	1,2-Dichloropropane	10.0	U	U	10.0	UJ	U	0.11	10.0	ug/kg	SS
SB	NDE078	N		SW8260B	SW5030	NONE	1,2-Dichloropropane	10.0	U	U	10.0	UJ	U	0.11	10.0	ug/kg	SS
SB	NDE092	N		SW8260B	SW5030	NONE	1,2-Dichloropropane	10.0	U	U	10.0	UJ	U	0.11	10.0	ug/kg	SS
SB	NDE082	N		SW8260B	SW5030	NONE	1,2-Dichloropropane	10.0	U	U	10.0	UJ	U	0.11	10.0	ug/kg	SS
SS	NDE055	N		SW8260B	SW5030	NONE	1,2-Dichloropropane	10.0	U	U	10.0	UJ	U	0.11	10.0	ug/kg	SS
SS	NDE066	N		SW8260B	SW5030	NONE	1,2-Dichloropropane	10.0	U	U	10.0	UJ	U	0.11	10.0	ug/kg	SS
SS	NDE075	N		SW8260B	SW5030	NONE	1,2-Dichloropropane	10.0	U	U	10.0	UJ	U	0.11	10.0	ug/kg	SS
SS	NDE090	N		SW8260B	SW5030	NONE	1,2-Dichloropropane	10.0	U	U	10.0	UJ	U	0.11	10.0	ug/kg	SS
SS	NDE091FD1	FD		SW8260B	SW5030	NONE	1,2-Dichloropropane	10.0	U	U	10.0	UJ	U	0.11	10.0	ug/kg	SS
SS	NDE097	N		SW8260B	SW5030	NONE	1,2-Dichloropropane	10.0	U	U	10.0	UJ	U	0.11	10.0	ug/kg	SS
SB	NDE071	N		SW8260B	SW5030	NONE	1,2-Dichloropropane	10.0	U	U	10.0	UJ	U	0.12	10.0	ug/kg	SS
SB	NDE094	N		SW8260B	SW5030	NONE	1,2-Dichloropropane	10.0	U	U	10.0	UJ	U	0.12	10.0	ug/kg	SS
SB	NDE085	N		SW8260B	SW5030	NONE	1,2-Dichloropropane	10.0	U	U	10.0	UJ	U	0.12	10.0	ug/kg	SS
SS	NDE068	N		SW8260B	SW5030	NONE	1,2-Dichloropropane	10.0	U	U	10.0	UJ	U	0.12	10.0	ug/kg	SS
SS	NDE070	N		SW8260B	SW5030	NONE	1,2-Dichloropropane	10.0	U	U	10.0	UJ	U	0.12	10.0	ug/kg	SS
SS	NDE072	N		SW8260B	SW5030	NONE	1,2-Dichloropropane	10.0	U	U	10.0	UJ	U	0.12	10.0	ug/kg	SS
SS	NDE093	N		SW8260B	SW5030	NONE	1,2-Dichloropropane	10.0	U	U	10.0	UJ	U	0.12	10.0	ug/kg	SS
SS	NDE095	N		SW8260B	SW5030	NONE	1,2-Dichloropropane	10.0	U	U	10.0	UJ	U	0.12	10.0	ug/kg	SS
SS	NDE088	N		SW8260B	SW5030	NONE	1,2-Dichloropropane	10.0	U	U	10.0	UJ	U	0.12	10.0	ug/kg	SS
SB	NDE080	N		SW8260B	SW5030	NONE	1,2-Dichloropropane	11.0	U	U	11.0	UJ	U	0.13	11.0	ug/kg	SS
SB	NDE087	N		SW8260B	SW5030	NONE	1,2-Dichloropropane	12.0	U	U	12.0	UJ	U	0.14	12.0	ug/kg	SS
SS	NDE083	N		SW8260B	SW5030	NONE	1,2-Dichloropropane	12.0	U	U	12.0	UJ	U	0.14	12.0	ug/kg	SS
SS	NDE084FD1	FD		SW8260B	SW5030	NONE	1,2-Dichloropropane	12.0	U	U	12.0	UJ	U	0.14	12.0	ug/kg	SS

Matrix	Sample ID	Sample Type	LR Type	Analytical Method	Prep Method	Dissolved ?	Parameter	Lab Result	Lab Qual	Lab Conc Qual	Final Result	Final Qual	Final Conc Qual	Detection Limit	Reporting Limit	Units	Validation Notes
SS	NDE079	N		SW8260B	SW5030	NONE	2-butanone (MEK)	10.0	U	U	10.0	UJ	U	1.4	10.0	ug/kg	SS
SB	NDE092	N		SW8260B	SW5030	NONE	2-butanone (MEK)	10.0	U	U	10.0	UJ	U	1.5	10.0	ug/kg	SS
SS	NDE075	N		SW8260B	SW5030	NONE	2-butanone (MEK)	10.0	U	U	10.0	UJ	U	1.5	10.0	ug/kg	SS
SS	NDE090	N		SW8260B	SW5030	NONE	2-butanone (MEK)	10.0	U	U	10.0	UJ	U	1.5	10.0	ug/kg	SS
SS	NDE091FD1	FD		SW8260B	SW5030	NONE	2-butanone (MEK)	10.0	U	U	10.0	UJ	U	1.5	10.0	ug/kg	SS
SS	NDE074FD1	FD		SW8260B	SW5030	NONE	2-butanone (MEK)	10.0	U	U	10.0	UJ	U	1.5	10.0	ug/kg	SS
SB	NDE085	N		SW8260B	SW5030	NONE	2-butanone (MEK)	10.0	U	U	10.0	UJ	U	1.7	10.0	ug/kg	SS
SS	NDE093	N		SW8260B	SW5030	NONE	2-butanone (MEK)	10.0	U	U	10.0	UJ	U	1.7	10.0	ug/kg	SS
SS	NDE095	N		SW8260B	SW5030	NONE	2-butanone (MEK)	10.0	U	U	10.0	UJ	U	1.7	10.0	ug/kg	SS
SS	NDE088	N		SW8260B	SW5030	NONE	2-butanone (MEK)	10.0	U	U	10.0	UJ	U	1.7	10.0	ug/kg	SS
SB	NDE080	N		SW8260B	SW5030	NONE	2-butanone (MEK)	11.0	U	U	11.0	UJ	U	1.8	11.0	ug/kg	SS
SS	NDE084FD1	FD		SW8260B	SW5030	NONE	2-butanone (MEK)	12.0	U	U	12.0	UJ	U	2.0	12.0	ug/kg	SS
SS	NDE057	N		SW8260B	SW5030	NONE	2-Hexanone	10.0	U	U	10.0	UJ	U	0.43	10.0	ug/kg	SS
SS	NDE064	N		SW8260B	SW5030	NONE	2-Hexanone	10.0	U	U	10.0	UJ	U	0.44	10.0	ug/kg	SS
SS	NDE086	N		SW8260B	SW5030	NONE	2-Hexanone	10.0	U	U	10.0	UJ	U	0.45	10.0	ug/kg	SS
SS	NDE062FD1	FD		SW8260B	SW5030	NONE	2-Hexanone	10.0	U	U	10.0	UJ	U	0.46	10.0	ug/kg	SS
SB	NDE076	N		SW8260B	SW5030	NONE	2-Hexanone	10.0	U	U	10.0	UJ	U	0.47	10.0	ug/kg	SS
SS	NDE079	N		SW8260B	SW5030	NONE	2-Hexanone	10.0	U	U	10.0	UJ	U	0.47	10.0	ug/kg	SS
SS	NDE074FD1	FD		SW8260B	SW5030	NONE	2-Hexanone	10.0	U	U	10.0	UJ	U	0.48	10.0	ug/kg	SS
SB	NDE069	N		SW8260B	SW5030	NONE	2-Hexanone	10.0	U	U	10.0	UJ	U	0.50	10.0	ug/kg	SS
SB	NDE073	N		SW8260B	SW5030	NONE	2-Hexanone	10.0	U	U	10.0	UJ	U	0.50	10.0	ug/kg	SS
SB	NDE078	N		SW8260B	SW5030	NONE	2-Hexanone	10.0	U	U	10.0	UJ	U	0.50	10.0	ug/kg	SS
SB	NDE092	N		SW8260B	SW5030	NONE	2-Hexanone	10.0	U	U	10.0	UJ	U	0.50	10.0	ug/kg	SS
SS	NDE055	N		SW8260B	SW5030	NONE	2-Hexanone	10.0	U	U	10.0	UJ	U	0.50	10.0	ug/kg	SS
SS	NDE090	N		SW8260B	SW5030	NONE	2-Hexanone	10.0	U	U	10.0	UJ	U	0.50	10.0	ug/kg	SS
SS	NDE091FD1	FD		SW8260B	SW5030	NONE	2-Hexanone	10.0	U	U	10.0	UJ	U	0.50	10.0	ug/kg	SS
SS	NDE097	N		SW8260B	SW5030	NONE	2-Hexanone	10.0	U	U	10.0	UJ	U	0.50	10.0	ug/kg	SS
SB	NDE082	N		SW8260B	SW5030	NONE	2-Hexanone	10.0	U	U	10.0	UJ	U	0.51	10.0	ug/kg	SS
SS	NDE075	N		SW8260B	SW5030	NONE	2-Hexanone	10.0	U	U	10.0	UJ	U	0.51	10.0	ug/kg	SS
SB	NDE065	N		SW8260B	SW5030	NONE	2-Hexanone	10.0	U	U	10.0	UJ	U	0.52	10.0	ug/kg	SS
SB	NDE067	N		SW8260B	SW5030	NONE	2-Hexanone	10.0	U	U	10.0	UJ	U	0.52	10.0	ug/kg	SS
SS	NDE066	N		SW8260B	SW5030	NONE	2-Hexanone	10.0	U	U	10.0	UJ	U	0.53	10.0	ug/kg	SS
SS	NDE070	N		SW8260B	SW5030	NONE	2-Hexanone	10.0	U	U	10.0	UJ	U	0.54	10.0	ug/kg	SS
SB	NDE071	N		SW8260B	SW5030	NONE	2-Hexanone	10.0	U	U	10.0	UJ	U	0.55	10.0	ug/kg	SS
SB	NDE094	N		SW8260B	SW5030	NONE	2-Hexanone	10.0	U	U	10.0	UJ	U	0.55	10.0	ug/kg	SS
SB	NDE085	N		SW8260B	SW5030	NONE	2-Hexanone	10.0	U	U	10.0	UJ	U	0.55	10.0	ug/kg	SS
SS	NDE072	N		SW8260B	SW5030	NONE	2-Hexanone	10.0	U	U	10.0	UJ	U	0.55	10.0	ug/kg	SS
SS	NDE095	N		SW8260B	SW5030	NONE	2-Hexanone	10.0	U	U	10.0	UJ	U	0.55	10.0	ug/kg	SS
SS	NDE088	N		SW8260B	SW5030	NONE	2-Hexanone	10.0	U	U	10.0	UJ	U	0.55	10.0	ug/kg	SS
SS	NDE068	N		SW8260B	SW5030	NONE	2-Hexanone	10.0	U	U	10.0	UJ	U	0.56	10.0	ug/kg	SS
SS	NDE093	N		SW8260B	SW5030	NONE	2-Hexanone	10.0	U	U	10.0	UJ	U	0.56	10.0	ug/kg	SS
SB	NDE080	N		SW8260B	SW5030	NONE	2-Hexanone	11.0	U	U	11.0	UJ	U	0.60	11.0	ug/kg	SS
SS	NDE083	N		SW8260B	SW5030	NONE	2-Hexanone	12.0	U	U	12.0	UJ	U	0.65	12.0	ug/kg	SS
SB	NDE087	N		SW8260B	SW5030	NONE	2-Hexanone	12.0	U	U	12.0	UJ	U	0.66	12.0	ug/kg	SS
SS	NDE084FD1	FD		SW8260B	SW5030	NONE	2-Hexanone	12.0	U	U	12.0	UJ	U	0.66	12.0	ug/kg	SS
SB	NDE085	N		SW8260B	SW5030	NONE	4-methyl-2-pentanone (MIBK)	0.79	J	J	0.79	J	J	0.76	10.0	ug/kg	SS
SB	NDE087	N		SW8260B	SW5030	NONE	4-methyl-2-pentanone (MIBK)	53.0	=	=	53.0	J	J	0.90	12.0	ug/kg	SS
SS	NDE057	N		SW8260B	SW5030	NONE	4-methyl-2-pentanone (MIBK)	10.0	U	U	10.0	UJ	U	0.59	10.0	ug/kg	SS
SS	NDE064	N		SW8260B	SW5030	NONE	4-methyl-2-pentanone (MIBK)	10.0	U	U	10.0	UJ	U	0.60	10.0	ug/kg	SS
SS	NDE086	N		SW8260B	SW5030	NONE	4-methyl-2-pentanone (MIBK)	10.0	U	U	10.0	UJ	U	0.62	10.0	ug/kg	SS
SS	NDE062FD1	FD		SW8260B	SW5030	NONE	4-methyl-2-pentanone (MIBK)	10.0	U	U	10.0	UJ	U	0.63	10.0	ug/kg	SS

Matrix	Sample ID	Sample Type	LR Type	Analytical Method	Prep Method	Dissolved ?	Parameter	Lab Result	Lab Qual	Lab Conc Qual	Final Result	Final Qual	Final Conc Qual	Detection Limit	Reporting Limit	Units	Validation Notes
SB	NDE076	N		SW8260B	SW5030	NONE	4-methyl-2-pentanone (MIBK)	10.0	U	U	10.0	UJ	U	0.64	10.0	ug/kg	SS
SS	NDE079	N		SW8260B	SW5030	NONE	4-methyl-2-pentanone (MIBK)	10.0	U	U	10.0	UJ	U	0.64	10.0	ug/kg	SS
SS	NDE074FD1	FD		SW8260B	SW5030	NONE	4-methyl-2-pentanone (MIBK)	10.0	U	U	10.0	UJ	U	0.67	10.0	ug/kg	SS
SB	NDE078	N		SW8260B	SW5030	NONE	4-methyl-2-pentanone (MIBK)	10.0	U	U	10.0	UJ	U	0.68	10.0	ug/kg	SS
SS	NDE055	N		SW8260B	SW5030	NONE	4-methyl-2-pentanone (MIBK)	10.0	U	U	10.0	UJ	U	0.68	10.0	ug/kg	SS
SS	NDE090	N		SW8260B	SW5030	NONE	4-methyl-2-pentanone (MIBK)	10.0	U	U	10.0	UJ	U	0.68	10.0	ug/kg	SS
SB	NDE069	N		SW8260B	SW5030	NONE	4-methyl-2-pentanone (MIBK)	10.0	U	U	10.0	UJ	U	0.69	10.0	ug/kg	SS
SB	NDE073	N		SW8260B	SW5030	NONE	4-methyl-2-pentanone (MIBK)	10.0	U	U	10.0	UJ	U	0.69	10.0	ug/kg	SS
SB	NDE092	N		SW8260B	SW5030	NONE	4-methyl-2-pentanone (MIBK)	10.0	U	U	10.0	UJ	U	0.69	10.0	ug/kg	SS
SS	NDE091FD1	FD		SW8260B	SW5030	NONE	4-methyl-2-pentanone (MIBK)	10.0	U	U	10.0	UJ	U	0.69	10.0	ug/kg	SS
SS	NDE097	N		SW8260B	SW5030	NONE	4-methyl-2-pentanone (MIBK)	10.0	U	U	10.0	UJ	U	0.69	10.0	ug/kg	SS
SB	NDE082	N		SW8260B	SW5030	NONE	4-methyl-2-pentanone (MIBK)	10.0	U	U	10.0	UJ	U	0.70	10.0	ug/kg	SS
SS	NDE075	N		SW8260B	SW5030	NONE	4-methyl-2-pentanone (MIBK)	10.0	U	U	10.0	UJ	U	0.70	10.0	ug/kg	SS
SB	NDE065	N		SW8260B	SW5030	NONE	4-methyl-2-pentanone (MIBK)	10.0	U	U	10.0	UJ	U	0.71	10.0	ug/kg	SS
SB	NDE067	N		SW8260B	SW5030	NONE	4-methyl-2-pentanone (MIBK)	10.0	U	U	10.0	UJ	U	0.71	10.0	ug/kg	SS
SS	NDE066	N		SW8260B	SW5030	NONE	4-methyl-2-pentanone (MIBK)	10.0	U	U	10.0	UJ	U	0.73	10.0	ug/kg	SS
SS	NDE070	N		SW8260B	SW5030	NONE	4-methyl-2-pentanone (MIBK)	10.0	U	U	10.0	UJ	U	0.75	10.0	ug/kg	SS
SS	NDE072	N		SW8260B	SW5030	NONE	4-methyl-2-pentanone (MIBK)	10.0	U	U	10.0	UJ	U	0.75	10.0	ug/kg	SS
SB	NDE071	N		SW8260B	SW5030	NONE	4-methyl-2-pentanone (MIBK)	10.0	U	U	10.0	UJ	U	0.76	10.0	ug/kg	SS
SB	NDE094	N		SW8260B	SW5030	NONE	4-methyl-2-pentanone (MIBK)	10.0	U	U	10.0	UJ	U	0.76	10.0	ug/kg	SS
SS	NDE095	N		SW8260B	SW5030	NONE	4-methyl-2-pentanone (MIBK)	10.0	U	U	10.0	UJ	U	0.76	10.0	ug/kg	SS
SS	NDE088	N		SW8260B	SW5030	NONE	4-methyl-2-pentanone (MIBK)	10.0	U	U	10.0	UJ	U	0.76	10.0	ug/kg	SS
SS	NDE068	N		SW8260B	SW5030	NONE	4-methyl-2-pentanone (MIBK)	10.0	U	U	10.0	UJ	U	0.77	10.0	ug/kg	SS
SS	NDE093	N		SW8260B	SW5030	NONE	4-methyl-2-pentanone (MIBK)	10.0	U	U	10.0	UJ	U	0.77	10.0	ug/kg	SS
SB	NDE080	N		SW8260B	SW5030	NONE	4-methyl-2-pentanone (MIBK)	11.0	U	U	11.0	UJ	U	0.82	11.0	ug/kg	SS
SS	NDE083	N		SW8260B	SW5030	NONE	4-methyl-2-pentanone (MIBK)	12.0	U	U	12.0	UJ	U	0.90	12.0	ug/kg	SS
SS	NDE084FD1	FD		SW8260B	SW5030	NONE	4-methyl-2-pentanone (MIBK)	12.0	U	U	12.0	UJ	U	0.91	12.0	ug/kg	SS
SB	NDE076	N		SW8260B	SW5030	NONE	Acetone	29.0	=	B	29.0	UJ	U	1.6	10.0	ug/kg	SS
SB	NDE078	N		SW8260B	SW5030	NONE	Acetone	31.0	=	B	31.0	UJ	U	1.7	10.0	ug/kg	SS
SS	NDE075	N		SW8260B	SW5030	NONE	Benzene	10.0	U	U	10.0	UJ	U	0.17	10.0	ug/kg	SS
SS	NDE095	N		SW8260B	SW5030	NONE	Benzene	0.27	J	J	0.27	J	J	0.19	10.0	ug/kg	SS
SS	NDE057	N		SW8260B	SW5030	NONE	Benzene	10.0	U	U	10.0	UJ	U	0.14	10.0	ug/kg	SS
SS	NDE064	N		SW8260B	SW5030	NONE	Benzene	10.0	U	U	10.0	UJ	U	0.15	10.0	ug/kg	SS
SS	NDE086	N		SW8260B	SW5030	NONE	Benzene	10.0	U	U	10.0	UJ	U	0.15	10.0	ug/kg	SS
SB	NDE076	N		SW8260B	SW5030	NONE	Benzene	10.0	U	U	10.0	UJ	U	0.16	10.0	ug/kg	SS
SS	NDE062FD1	FD		SW8260B	SW5030	NONE	Benzene	10.0	U	U	10.0	UJ	U	0.16	10.0	ug/kg	SS
SS	NDE074FD1	FD		SW8260B	SW5030	NONE	Benzene	10.0	U	U	10.0	UJ	U	0.16	10.0	ug/kg	SS
SS	NDE079	N		SW8260B	SW5030	NONE	Benzene	10.0	U	U	10.0	UJ	U	0.16	10.0	ug/kg	SS
SB	NDE065	N		SW8260B	SW5030	NONE	Benzene	10.0	U	U	10.0	UJ	U	0.17	10.0	ug/kg	SS
SB	NDE069	N		SW8260B	SW5030	NONE	Benzene	10.0	U	U	10.0	UJ	U	0.17	10.0	ug/kg	SS
SB	NDE073	N		SW8260B	SW5030	NONE	Benzene	10.0	U	U	10.0	UJ	U	0.17	10.0	ug/kg	SS
SB	NDE078	N		SW8260B	SW5030	NONE	Benzene	10.0	U	U	10.0	UJ	U	0.17	10.0	ug/kg	SS
SB	NDE092	N		SW8260B	SW5030	NONE	Benzene	10.0	U	U	10.0	UJ	U	0.17	10.0	ug/kg	SS
SB	NDE082	N		SW8260B	SW5030	NONE	Benzene	10.0	U	U	10.0	UJ	U	0.17	10.0	ug/kg	SS
SS	NDE055	N		SW8260B	SW5030	NONE	Benzene	10.0	U	U	10.0	UJ	U	0.17	10.0	ug/kg	SS
SS	NDE090	N		SW8260B	SW5030	NONE	Benzene	10.0	U	U	10.0	UJ	U	0.17	10.0	ug/kg	SS
SS	NDE091FD1	FD		SW8260B	SW5030	NONE	Benzene	10.0	U	U	10.0	UJ	U	0.17	10.0	ug/kg	SS
SS	NDE097	N		SW8260B	SW5030	NONE	Benzene	10.0	U	U	10.0	UJ	U	0.17	10.0	ug/kg	SS
SB	NDE067	N		SW8260B	SW5030	NONE	Benzene	10.0	U	U	10.0	UJ	U	0.18	10.0	ug/kg	SS
SS	NDE066	N		SW8260B	SW5030	NONE	Benzene	10.0	U	U	10.0	UJ	U	0.18	10.0	ug/kg	SS
SS	NDE070	N		SW8260B	SW5030	NONE	Benzene	10.0	U	U	10.0	UJ	U	0.18	10.0	ug/kg	SS

Matrix	Sample ID	Sample Type	LR Type	Analytical Method	Prep Method	Dissolved ?	Parameter	Lab Result	Lab Qual	Lab Conc Qual	Final Result	Final Qual	Final Conc Qual	Detection Limit	Reporting Limit	Units	Validation Notes
SB	NDE071	N		SW8260B	SW5030	NONE	Benzene	10.0	U	U	10.0	UJ	U	0.19	10.0	ug/kg	SS
SB	NDE094	N		SW8260B	SW5030	NONE	Benzene	10.0	U	U	10.0	UJ	U	0.19	10.0	ug/kg	SS
SB	NDE085	N		SW8260B	SW5030	NONE	Benzene	10.0	U	U	10.0	UJ	U	0.19	10.0	ug/kg	SS
SS	NDE068	N		SW8260B	SW5030	NONE	Benzene	10.0	U	U	10.0	UJ	U	0.19	10.0	ug/kg	SS
SS	NDE072	N		SW8260B	SW5030	NONE	Benzene	10.0	U	U	10.0	UJ	U	0.19	10.0	ug/kg	SS
SS	NDE093	N		SW8260B	SW5030	NONE	Benzene	10.0	U	U	10.0	UJ	U	0.19	10.0	ug/kg	SS
SS	NDE088	N		SW8260B	SW5030	NONE	Benzene	10.0	U	U	10.0	UJ	U	0.19	10.0	ug/kg	SS
SB	NDE080	N		SW8260B	SW5030	NONE	Benzene	11.0	U	U	11.0	UJ	U	0.20	11.0	ug/kg	SS
SB	NDE087	N		SW8260B	SW5030	NONE	Benzene	12.0	U	U	12.0	UJ	U	0.22	12.0	ug/kg	SS
SS	NDE083	N		SW8260B	SW5030	NONE	Benzene	12.0	U	U	12.0	UJ	U	0.22	12.0	ug/kg	SS
SS	NDE084FD1	FD		SW8260B	SW5030	NONE	Benzene	12.0	U	U	12.0	UJ	U	0.23	12.0	ug/kg	SS
SS	NDE057	N		SW8260B	SW5030	NONE	Bromodichloromethane	10.0	U	U	10.0	UJ	U	0.13	10.0	ug/kg	SS
SS	NDE064	N		SW8260B	SW5030	NONE	Bromodichloromethane	10.0	U	U	10.0	UJ	U	0.13	10.0	ug/kg	SS
SB	NDE076	N		SW8260B	SW5030	NONE	Bromodichloromethane	10.0	U	U	10.0	UJ	U	0.14	10.0	ug/kg	SS
SS	NDE062FD1	FD		SW8260B	SW5030	NONE	Bromodichloromethane	10.0	U	U	10.0	UJ	U	0.14	10.0	ug/kg	SS
SS	NDE079	N		SW8260B	SW5030	NONE	Bromodichloromethane	10.0	U	U	10.0	UJ	U	0.14	10.0	ug/kg	SS
SS	NDE086	N		SW8260B	SW5030	NONE	Bromodichloromethane	10.0	U	U	10.0	UJ	U	0.14	10.0	ug/kg	SS
SB	NDE069	N		SW8260B	SW5030	NONE	Bromodichloromethane	10.0	U	U	10.0	UJ	U	0.15	10.0	ug/kg	SS
SB	NDE073	N		SW8260B	SW5030	NONE	Bromodichloromethane	10.0	U	U	10.0	UJ	U	0.15	10.0	ug/kg	SS
SB	NDE078	N		SW8260B	SW5030	NONE	Bromodichloromethane	10.0	U	U	10.0	UJ	U	0.15	10.0	ug/kg	SS
SB	NDE092	N		SW8260B	SW5030	NONE	Bromodichloromethane	10.0	U	U	10.0	UJ	U	0.15	10.0	ug/kg	SS
SS	NDE055	N		SW8260B	SW5030	NONE	Bromodichloromethane	10.0	U	U	10.0	UJ	U	0.15	10.0	ug/kg	SS
SS	NDE075	N		SW8260B	SW5030	NONE	Bromodichloromethane	10.0	U	U	10.0	UJ	U	0.15	10.0	ug/kg	SS
SS	NDE090	N		SW8260B	SW5030	NONE	Bromodichloromethane	10.0	U	U	10.0	UJ	U	0.15	10.0	ug/kg	SS
SS	NDE091FD1	FD		SW8260B	SW5030	NONE	Bromodichloromethane	10.0	U	U	10.0	UJ	U	0.15	10.0	ug/kg	SS
SS	NDE097	N		SW8260B	SW5030	NONE	Bromodichloromethane	10.0	U	U	10.0	UJ	U	0.15	10.0	ug/kg	SS
SS	NDE074FD1	FD		SW8260B	SW5030	NONE	Bromodichloromethane	10.0	U	U	10.0	UJ	U	0.15	10.0	ug/kg	SS
SB	NDE065	N		SW8260B	SW5030	NONE	Bromodichloromethane	10.0	U	U	10.0	UJ	U	0.16	10.0	ug/kg	SS
SB	NDE067	N		SW8260B	SW5030	NONE	Bromodichloromethane	10.0	U	U	10.0	UJ	U	0.16	10.0	ug/kg	SS
SB	NDE082	N		SW8260B	SW5030	NONE	Bromodichloromethane	10.0	U	U	10.0	UJ	U	0.16	10.0	ug/kg	SS
SS	NDE066	N		SW8260B	SW5030	NONE	Bromodichloromethane	10.0	U	U	10.0	UJ	U	0.16	10.0	ug/kg	SS
SB	NDE071	N		SW8260B	SW5030	NONE	Bromodichloromethane	10.0	U	U	10.0	UJ	U	0.17	10.0	ug/kg	SS
SB	NDE094	N		SW8260B	SW5030	NONE	Bromodichloromethane	10.0	U	U	10.0	UJ	U	0.17	10.0	ug/kg	SS
SB	NDE085	N		SW8260B	SW5030	NONE	Bromodichloromethane	10.0	U	U	10.0	UJ	U	0.17	10.0	ug/kg	SS
SS	NDE068	N		SW8260B	SW5030	NONE	Bromodichloromethane	10.0	U	U	10.0	UJ	U	0.17	10.0	ug/kg	SS
SS	NDE070	N		SW8260B	SW5030	NONE	Bromodichloromethane	10.0	U	U	10.0	UJ	U	0.17	10.0	ug/kg	SS
SS	NDE072	N		SW8260B	SW5030	NONE	Bromodichloromethane	10.0	U	U	10.0	UJ	U	0.17	10.0	ug/kg	SS
SS	NDE093	N		SW8260B	SW5030	NONE	Bromodichloromethane	10.0	U	U	10.0	UJ	U	0.17	10.0	ug/kg	SS
SS	NDE095	N		SW8260B	SW5030	NONE	Bromodichloromethane	10.0	U	U	10.0	UJ	U	0.17	10.0	ug/kg	SS
SS	NDE088	N		SW8260B	SW5030	NONE	Bromodichloromethane	10.0	U	U	10.0	UJ	U	0.17	10.0	ug/kg	SS
SB	NDE080	N		SW8260B	SW5030	NONE	Bromodichloromethane	11.0	U	U	11.0	UJ	U	0.18	11.0	ug/kg	SS
SB	NDE087	N		SW8260B	SW5030	NONE	Bromodichloromethane	12.0	U	U	12.0	UJ	U	0.20	12.0	ug/kg	SS
SS	NDE083	N		SW8260B	SW5030	NONE	Bromodichloromethane	12.0	U	U	12.0	UJ	U	0.20	12.0	ug/kg	SS
SS	NDE084FD1	FD		SW8260B	SW5030	NONE	Bromodichloromethane	12.0	U	U	12.0	UJ	U	0.20	12.0	ug/kg	SS
SS	NDE057	N		SW8260B	SW5030	NONE	Bromoform	10.0	U	U	10.0	UJ	U	0.16	10.0	ug/kg	SS
SS	NDE064	N		SW8260B	SW5030	NONE	Bromoform	10.0	U	U	10.0	UJ	U	0.16	10.0	ug/kg	SS
SS	NDE062FD1	FD		SW8260B	SW5030	NONE	Bromoform	10.0	U	U	10.0	UJ	U	0.17	10.0	ug/kg	SS
SS	NDE086	N		SW8260B	SW5030	NONE	Bromoform	10.0	U	U	10.0	UJ	U	0.17	10.0	ug/kg	SS
SB	NDE076	N		SW8260B	SW5030	NONE	Bromoform	10.0	U	U	10.0	UJ	U	0.18	10.0	ug/kg	SS
SS	NDE074FD1	FD		SW8260B	SW5030	NONE	Bromoform	10.0	U	U	10.0	UJ	U	0.18	10.0	ug/kg	SS
SS	NDE079	N		SW8260B	SW5030	NONE	Bromoform	10.0	U	U	10.0	UJ	U	0.18	10.0	ug/kg	SS

Matrix	Sample ID	Sample Type	LR Type	Analytical Method	Prep Method	Dissolved ?	Parameter	Lab Result	Lab Qual	Lab Conc Qual	Final Result	Final Qual	Final Conc Qual	Detection Limit	Reporting Limit	Units	Validation Notes
SB	NDE065	N		SW8260B	SW5030	NONE	Bromoform	10.0	U	U	10.0	UJ	U	0.19	10.0	ug/kg	SS
SB	NDE067	N		SW8260B	SW5030	NONE	Bromoform	10.0	U	U	10.0	UJ	U	0.19	10.0	ug/kg	SS
SB	NDE069	N		SW8260B	SW5030	NONE	Bromoform	10.0	U	U	10.0	UJ	U	0.19	10.0	ug/kg	SS
SB	NDE073	N		SW8260B	SW5030	NONE	Bromoform	10.0	U	U	10.0	UJ	U	0.19	10.0	ug/kg	SS
SB	NDE078	N		SW8260B	SW5030	NONE	Bromoform	10.0	U	U	10.0	UJ	U	0.19	10.0	ug/kg	SS
SB	NDE092	N		SW8260B	SW5030	NONE	Bromoform	10.0	U	U	10.0	UJ	U	0.19	10.0	ug/kg	SS
SB	NDE082	N		SW8260B	SW5030	NONE	Bromoform	10.0	U	U	10.0	UJ	U	0.19	10.0	ug/kg	SS
SS	NDE055	N		SW8260B	SW5030	NONE	Bromoform	10.0	U	U	10.0	UJ	U	0.19	10.0	ug/kg	SS
SS	NDE075	N		SW8260B	SW5030	NONE	Bromoform	10.0	U	U	10.0	UJ	U	0.19	10.0	ug/kg	SS
SS	NDE090	N		SW8260B	SW5030	NONE	Bromoform	10.0	U	U	10.0	UJ	U	0.19	10.0	ug/kg	SS
SS	NDE091FD1	FD		SW8260B	SW5030	NONE	Bromoform	10.0	U	U	10.0	UJ	U	0.19	10.0	ug/kg	SS
SS	NDE097	N		SW8260B	SW5030	NONE	Bromoform	10.0	U	U	10.0	UJ	U	0.19	10.0	ug/kg	SS
SS	NDE066	N		SW8260B	SW5030	NONE	Bromoform	10.0	U	U	10.0	UJ	U	0.20	10.0	ug/kg	SS
SS	NDE070	N		SW8260B	SW5030	NONE	Bromoform	10.0	U	U	10.0	UJ	U	0.20	10.0	ug/kg	SS
SS	NDE072	N		SW8260B	SW5030	NONE	Bromoform	10.0	U	U	10.0	UJ	U	0.20	10.0	ug/kg	SS
SB	NDE071	N		SW8260B	SW5030	NONE	Bromoform	10.0	U	U	10.0	UJ	U	0.21	10.0	ug/kg	SS
SB	NDE094	N		SW8260B	SW5030	NONE	Bromoform	10.0	U	U	10.0	UJ	U	0.21	10.0	ug/kg	SS
SB	NDE085	N		SW8260B	SW5030	NONE	Bromoform	10.0	U	U	10.0	UJ	U	0.21	10.0	ug/kg	SS
SS	NDE068	N		SW8260B	SW5030	NONE	Bromoform	10.0	U	U	10.0	UJ	U	0.21	10.0	ug/kg	SS
SS	NDE093	N		SW8260B	SW5030	NONE	Bromoform	10.0	U	U	10.0	UJ	U	0.21	10.0	ug/kg	SS
SS	NDE095	N		SW8260B	SW5030	NONE	Bromoform	10.0	U	U	10.0	UJ	U	0.21	10.0	ug/kg	SS
SS	NDE088	N		SW8260B	SW5030	NONE	Bromoform	10.0	U	U	10.0	UJ	U	0.21	10.0	ug/kg	SS
SB	NDE080	N		SW8260B	SW5030	NONE	Bromoform	11.0	U	U	11.0	UJ	U	0.22	11.0	ug/kg	SS
SB	NDE087	N		SW8260B	SW5030	NONE	Bromoform	12.0	U	U	12.0	UJ	U	0.25	12.0	ug/kg	SS
SS	NDE083	N		SW8260B	SW5030	NONE	Bromoform	12.0	U	U	12.0	UJ	U	0.25	12.0	ug/kg	SS
SS	NDE084FD1	FD		SW8260B	SW5030	NONE	Bromoform	12.0	U	U	12.0	UJ	U	0.25	12.0	ug/kg	SS
SS	NDE057	N		SW8260B	SW5030	NONE	Bromomethane	10.0	U	U	10.0	UJ	U	0.63	10.0	ug/kg	SS
SS	NDE064	N		SW8260B	SW5030	NONE	Bromomethane	10.0	U	U	10.0	UJ	U	0.65	10.0	ug/kg	SS
SS	NDE086	N		SW8260B	SW5030	NONE	Bromomethane	10.0	U	U	10.0	UJ	U	0.67	10.0	ug/kg	SS
SS	NDE062FD1	FD		SW8260B	SW5030	NONE	Bromomethane	10.0	U	U	10.0	UJ	U	0.68	10.0	ug/kg	SS
SB	NDE076	N		SW8260B	SW5030	NONE	Bromomethane	10.0	U	U	10.0	UJ	U	0.69	10.0	ug/kg	SS
SS	NDE079	N		SW8260B	SW5030	NONE	Bromomethane	10.0	U	U	10.0	UJ	U	0.69	10.0	ug/kg	SS
SS	NDE074FD1	FD		SW8260B	SW5030	NONE	Bromomethane	10.0	U	U	10.0	UJ	U	0.72	10.0	ug/kg	SS
SB	NDE078	N		SW8260B	SW5030	NONE	Bromomethane	10.0	U	U	10.0	UJ	U	0.74	10.0	ug/kg	SS
SB	NDE092	N		SW8260B	SW5030	NONE	Bromomethane	10.0	U	U	10.0	UJ	U	0.74	10.0	ug/kg	SS
SS	NDE055	N		SW8260B	SW5030	NONE	Bromomethane	10.0	U	U	10.0	UJ	U	0.74	10.0	ug/kg	SS
SS	NDE090	N		SW8260B	SW5030	NONE	Bromomethane	10.0	U	U	10.0	UJ	U	0.74	10.0	ug/kg	SS
SS	NDE091FD1	FD		SW8260B	SW5030	NONE	Bromomethane	10.0	U	U	10.0	UJ	U	0.74	10.0	ug/kg	SS
SS	NDE097	N		SW8260B	SW5030	NONE	Bromomethane	10.0	U	U	10.0	UJ	U	0.74	10.0	ug/kg	SS
SB	NDE069	N		SW8260B	SW5030	NONE	Bromomethane	10.0	U	U	10.0	UJ	U	0.75	10.0	ug/kg	SS
SB	NDE073	N		SW8260B	SW5030	NONE	Bromomethane	10.0	U	U	10.0	UJ	U	0.75	10.0	ug/kg	SS
SS	NDE075	N		SW8260B	SW5030	NONE	Bromomethane	10.0	U	U	10.0	UJ	U	0.75	10.0	ug/kg	SS
SB	NDE065	N		SW8260B	SW5030	NONE	Bromomethane	10.0	U	U	10.0	UJ	U	0.76	10.0	ug/kg	SS
SB	NDE082	N		SW8260B	SW5030	NONE	Bromomethane	10.0	U	U	10.0	UJ	U	0.76	10.0	ug/kg	SS
SB	NDE067	N		SW8260B	SW5030	NONE	Bromomethane	10.0	U	U	10.0	UJ	U	0.77	10.0	ug/kg	SS
SS	NDE066	N		SW8260B	SW5030	NONE	Bromomethane	10.0	U	U	10.0	UJ	U	0.79	10.0	ug/kg	SS
SS	NDE070	N		SW8260B	SW5030	NONE	Bromomethane	10.0	U	U	10.0	UJ	U	0.81	10.0	ug/kg	SS
SS	NDE072	N		SW8260B	SW5030	NONE	Bromomethane	10.0	U	U	10.0	UJ	U	0.81	10.0	ug/kg	SS
SB	NDE071	N		SW8260B	SW5030	NONE	Bromomethane	10.0	U	U	10.0	UJ	U	0.82	10.0	ug/kg	SS
SB	NDE094	N		SW8260B	SW5030	NONE	Bromomethane	10.0	U	U	10.0	UJ	U	0.82	10.0	ug/kg	SS
SB	NDE085	N		SW8260B	SW5030	NONE	Bromomethane	10.0	U	U	10.0	UJ	U	0.82	10.0	ug/kg	SS

Matrix	Sample ID	Sample Type	LR Type	Analytical Method	Prep Method	Dissolved ?	Parameter	Lab Result	Lab Qual	Lab Conc Qual	Final Result	Final Qual	Final Conc Qual	Detection Limit	Reporting Limit	Units	Validation Notes
SS	NDE095	N		SW8260B	SW5030	NONE	Bromomethane	10.0	U	U	10.0	UJ	U	0.82	10.0	ug/kg	SS
SS	NDE088	N		SW8260B	SW5030	NONE	Bromomethane	10.0	U	U	10.0	UJ	U	0.82	10.0	ug/kg	SS
SS	NDE068	N		SW8260B	SW5030	NONE	Bromomethane	10.0	U	U	10.0	UJ	U	0.83	10.0	ug/kg	SS
SS	NDE093	N		SW8260B	SW5030	NONE	Bromomethane	10.0	U	U	10.0	UJ	U	0.83	10.0	ug/kg	SS
SB	NDE080	N		SW8260B	SW5030	NONE	Bromomethane	11.0	U	U	11.0	UJ	U	0.88	11.0	ug/kg	SS
SB	NDE087	N		SW8260B	SW5030	NONE	Bromomethane	12.0	U	U	12.0	UJ	U	0.97	12.0	ug/kg	SS
SS	NDE083	N		SW8260B	SW5030	NONE	Bromomethane	12.0	U	U	12.0	UJ	U	0.97	12.0	ug/kg	SS
SS	NDE084FD1	FD		SW8260B	SW5030	NONE	Bromomethane	12.0	U	U	12.0	UJ	U	0.98	12.0	ug/kg	SS
SS	NDE057	N		SW8260B	SW5030	NONE	Carbon disulfide	10.0	U	U	10.0	UJ	U	0.43	10.0	ug/kg	SS
SS	NDE064	N		SW8260B	SW5030	NONE	Carbon disulfide	10.0	U	U	10.0	UJ	U	0.44	10.0	ug/kg	SS
SS	NDE086	N		SW8260B	SW5030	NONE	Carbon disulfide	10.0	U	U	10.0	UJ	U	0.45	10.0	ug/kg	SS
SS	NDE062FD1	FD		SW8260B	SW5030	NONE	Carbon disulfide	10.0	U	U	10.0	UJ	U	0.46	10.0	ug/kg	SS
SB	NDE076	N		SW8260B	SW5030	NONE	Carbon disulfide	10.0	U	U	10.0	UJ	U	0.47	10.0	ug/kg	SS
SS	NDE079	N		SW8260B	SW5030	NONE	Carbon disulfide	10.0	U	U	10.0	UJ	U	0.47	10.0	ug/kg	SS
SS	NDE074FD1	FD		SW8260B	SW5030	NONE	Carbon disulfide	10.0	U	U	10.0	UJ	U	0.48	10.0	ug/kg	SS
SB	NDE069	N		SW8260B	SW5030	NONE	Carbon disulfide	10.0	U	U	10.0	UJ	U	0.50	10.0	ug/kg	SS
SB	NDE073	N		SW8260B	SW5030	NONE	Carbon disulfide	10.0	U	U	10.0	UJ	U	0.50	10.0	ug/kg	SS
SB	NDE078	N		SW8260B	SW5030	NONE	Carbon disulfide	10.0	U	U	10.0	UJ	U	0.50	10.0	ug/kg	SS
SB	NDE092	N		SW8260B	SW5030	NONE	Carbon disulfide	10.0	U	U	10.0	UJ	U	0.50	10.0	ug/kg	SS
SS	NDE055	N		SW8260B	SW5030	NONE	Carbon disulfide	10.0	U	U	10.0	UJ	U	0.50	10.0	ug/kg	SS
SS	NDE090	N		SW8260B	SW5030	NONE	Carbon disulfide	10.0	U	U	10.0	UJ	U	0.50	10.0	ug/kg	SS
SS	NDE091FD1	FD		SW8260B	SW5030	NONE	Carbon disulfide	10.0	U	U	10.0	UJ	U	0.50	10.0	ug/kg	SS
SS	NDE097	N		SW8260B	SW5030	NONE	Carbon disulfide	10.0	U	U	10.0	UJ	U	0.50	10.0	ug/kg	SS
SB	NDE082	N		SW8260B	SW5030	NONE	Carbon disulfide	10.0	U	U	10.0	UJ	U	0.51	10.0	ug/kg	SS
SS	NDE075	N		SW8260B	SW5030	NONE	Carbon disulfide	10.0	U	U	10.0	UJ	U	0.51	10.0	ug/kg	SS
SB	NDE065	N		SW8260B	SW5030	NONE	Carbon disulfide	10.0	U	U	10.0	UJ	U	0.52	10.0	ug/kg	SS
SB	NDE067	N		SW8260B	SW5030	NONE	Carbon disulfide	10.0	U	U	10.0	UJ	U	0.52	10.0	ug/kg	SS
SS	NDE066	N		SW8260B	SW5030	NONE	Carbon disulfide	10.0	U	U	10.0	UJ	U	0.53	10.0	ug/kg	SS
SS	NDE070	N		SW8260B	SW5030	NONE	Carbon disulfide	10.0	U	U	10.0	UJ	U	0.54	10.0	ug/kg	SS
SB	NDE071	N		SW8260B	SW5030	NONE	Carbon disulfide	10.0	U	U	10.0	UJ	U	0.55	10.0	ug/kg	SS
SB	NDE094	N		SW8260B	SW5030	NONE	Carbon disulfide	10.0	U	U	10.0	UJ	U	0.55	10.0	ug/kg	SS
SB	NDE085	N		SW8260B	SW5030	NONE	Carbon disulfide	10.0	U	U	10.0	UJ	U	0.55	10.0	ug/kg	SS
SS	NDE072	N		SW8260B	SW5030	NONE	Carbon disulfide	10.0	U	U	10.0	UJ	U	0.55	10.0	ug/kg	SS
SS	NDE095	N		SW8260B	SW5030	NONE	Carbon disulfide	10.0	U	U	10.0	UJ	U	0.55	10.0	ug/kg	SS
SS	NDE088	N		SW8260B	SW5030	NONE	Carbon disulfide	10.0	U	U	10.0	UJ	U	0.55	10.0	ug/kg	SS
SS	NDE068	N		SW8260B	SW5030	NONE	Carbon disulfide	10.0	U	U	10.0	UJ	U	0.56	10.0	ug/kg	SS
SS	NDE093	N		SW8260B	SW5030	NONE	Carbon disulfide	10.0	U	U	10.0	UJ	U	0.56	10.0	ug/kg	SS
SB	NDE080	N		SW8260B	SW5030	NONE	Carbon disulfide	11.0	U	U	11.0	UJ	U	0.60	11.0	ug/kg	SS
SS	NDE083	N		SW8260B	SW5030	NONE	Carbon disulfide	12.0	U	U	12.0	UJ	U	0.65	12.0	ug/kg	SS
SB	NDE087	N		SW8260B	SW5030	NONE	Carbon disulfide	12.0	U	U	12.0	UJ	U	0.66	12.0	ug/kg	SS
SS	NDE084FD1	FD		SW8260B	SW5030	NONE	Carbon disulfide	12.0	U	U	12.0	UJ	U	0.66	12.0	ug/kg	SS
SS	NDE057	N		SW8260B	SW5030	NONE	Carbon tetrachloride	10.0	U	U	10.0	UJ	U	0.26	10.0	ug/kg	SS
SS	NDE064	N		SW8260B	SW5030	NONE	Carbon tetrachloride	10.0	U	U	10.0	UJ	U	0.27	10.0	ug/kg	SS
SB	NDE076	N		SW8260B	SW5030	NONE	Carbon tetrachloride	10.0	U	U	10.0	UJ	U	0.28	10.0	ug/kg	SS
SS	NDE062FD1	FD		SW8260B	SW5030	NONE	Carbon tetrachloride	10.0	U	U	10.0	UJ	U	0.28	10.0	ug/kg	SS
SS	NDE079	N		SW8260B	SW5030	NONE	Carbon tetrachloride	10.0	U	U	10.0	UJ	U	0.28	10.0	ug/kg	SS
SS	NDE086	N		SW8260B	SW5030	NONE	Carbon tetrachloride	10.0	U	U	10.0	UJ	U	0.28	10.0	ug/kg	SS
SS	NDE074FD1	FD		SW8260B	SW5030	NONE	Carbon tetrachloride	10.0	U	U	10.0	UJ	U	0.29	10.0	ug/kg	SS
SB	NDE078	N		SW8260B	SW5030	NONE	Carbon tetrachloride	10.0	U	U	10.0	UJ	U	0.30	10.0	ug/kg	SS
SB	NDE092	N		SW8260B	SW5030	NONE	Carbon tetrachloride	10.0	U	U	10.0	UJ	U	0.30	10.0	ug/kg	SS
SS	NDE055	N		SW8260B	SW5030	NONE	Carbon tetrachloride	10.0	U	U	10.0	UJ	U	0.30	10.0	ug/kg	SS

Matrix	Sample ID	Sample Type	LR Type	Analytical Method	Prep Method	Dissolved ?	Parameter	Lab Result	Lab Qual	Lab Conc Qual	Final Result	Final Qual	Final Conc Qual	Detection Limit	Reporting Limit	Units	Validation Notes
SS	NDE090	N		SW8260B	SW5030	NONE	Carbon tetrachloride	10.0	U	U	10.0	UJ	U	0.30	10.0	ug/kg	SS
SS	NDE091FD1	FD		SW8260B	SW5030	NONE	Carbon tetrachloride	10.0	U	U	10.0	UJ	U	0.30	10.0	ug/kg	SS
SS	NDE097	N		SW8260B	SW5030	NONE	Carbon tetrachloride	10.0	U	U	10.0	UJ	U	0.30	10.0	ug/kg	SS
SB	NDE065	N		SW8260B	SW5030	NONE	Carbon tetrachloride	10.0	U	U	10.0	UJ	U	0.31	10.0	ug/kg	SS
SB	NDE067	N		SW8260B	SW5030	NONE	Carbon tetrachloride	10.0	U	U	10.0	UJ	U	0.31	10.0	ug/kg	SS
SB	NDE069	N		SW8260B	SW5030	NONE	Carbon tetrachloride	10.0	U	U	10.0	UJ	U	0.31	10.0	ug/kg	SS
SB	NDE073	N		SW8260B	SW5030	NONE	Carbon tetrachloride	10.0	U	U	10.0	UJ	U	0.31	10.0	ug/kg	SS
SB	NDE082	N		SW8260B	SW5030	NONE	Carbon tetrachloride	10.0	U	U	10.0	UJ	U	0.31	10.0	ug/kg	SS
SS	NDE075	N		SW8260B	SW5030	NONE	Carbon tetrachloride	10.0	U	U	10.0	UJ	U	0.31	10.0	ug/kg	SS
SS	NDE066	N		SW8260B	SW5030	NONE	Carbon tetrachloride	10.0	U	U	10.0	UJ	U	0.32	10.0	ug/kg	SS
SB	NDE094	N		SW8260B	SW5030	NONE	Carbon tetrachloride	10.0	U	U	10.0	UJ	U	0.33	10.0	ug/kg	SS
SS	NDE070	N		SW8260B	SW5030	NONE	Carbon tetrachloride	10.0	U	U	10.0	UJ	U	0.33	10.0	ug/kg	SS
SS	NDE072	N		SW8260B	SW5030	NONE	Carbon tetrachloride	10.0	U	U	10.0	UJ	U	0.33	10.0	ug/kg	SS
SS	NDE095	N		SW8260B	SW5030	NONE	Carbon tetrachloride	10.0	U	U	10.0	UJ	U	0.33	10.0	ug/kg	SS
SB	NDE071	N		SW8260B	SW5030	NONE	Carbon tetrachloride	10.0	U	U	10.0	UJ	U	0.34	10.0	ug/kg	SS
SB	NDE085	N		SW8260B	SW5030	NONE	Carbon tetrachloride	10.0	U	U	10.0	UJ	U	0.34	10.0	ug/kg	SS
SS	NDE068	N		SW8260B	SW5030	NONE	Carbon tetrachloride	10.0	U	U	10.0	UJ	U	0.34	10.0	ug/kg	SS
SS	NDE093	N		SW8260B	SW5030	NONE	Carbon tetrachloride	10.0	U	U	10.0	UJ	U	0.34	10.0	ug/kg	SS
SS	NDE088	N		SW8260B	SW5030	NONE	Carbon tetrachloride	10.0	U	U	10.0	UJ	U	0.34	10.0	ug/kg	SS
SB	NDE080	N		SW8260B	SW5030	NONE	Carbon tetrachloride	11.0	U	U	11.0	UJ	U	0.36	11.0	ug/kg	SS
SB	NDE087	N		SW8260B	SW5030	NONE	Carbon tetrachloride	12.0	U	U	12.0	UJ	U	0.40	12.0	ug/kg	SS
SS	NDE083	N		SW8260B	SW5030	NONE	Carbon tetrachloride	12.0	U	U	12.0	UJ	U	0.40	12.0	ug/kg	SS
SS	NDE084FD1	FD		SW8260B	SW5030	NONE	Carbon tetrachloride	12.0	U	U	12.0	UJ	U	0.40	12.0	ug/kg	SS
SS	NDE057	N		SW8260B	SW5030	NONE	Chlorobenzene	10.0	U	U	10.0	UJ	U	0.16	10.0	ug/kg	SS
SS	NDE064	N		SW8260B	SW5030	NONE	Chlorobenzene	10.0	U	U	10.0	UJ	U	0.16	10.0	ug/kg	SS
SS	NDE062FD1	FD		SW8260B	SW5030	NONE	Chlorobenzene	10.0	U	U	10.0	UJ	U	0.17	10.0	ug/kg	SS
SS	NDE086	N		SW8260B	SW5030	NONE	Chlorobenzene	10.0	U	U	10.0	UJ	U	0.17	10.0	ug/kg	SS
SB	NDE076	N		SW8260B	SW5030	NONE	Chlorobenzene	10.0	U	U	10.0	UJ	U	0.18	10.0	ug/kg	SS
SS	NDE074FD1	FD		SW8260B	SW5030	NONE	Chlorobenzene	10.0	U	U	10.0	UJ	U	0.18	10.0	ug/kg	SS
SS	NDE079	N		SW8260B	SW5030	NONE	Chlorobenzene	10.0	U	U	10.0	UJ	U	0.18	10.0	ug/kg	SS
SB	NDE065	N		SW8260B	SW5030	NONE	Chlorobenzene	10.0	U	U	10.0	UJ	U	0.19	10.0	ug/kg	SS
SB	NDE067	N		SW8260B	SW5030	NONE	Chlorobenzene	10.0	U	U	10.0	UJ	U	0.19	10.0	ug/kg	SS
SB	NDE069	N		SW8260B	SW5030	NONE	Chlorobenzene	10.0	U	U	10.0	UJ	U	0.19	10.0	ug/kg	SS
SB	NDE073	N		SW8260B	SW5030	NONE	Chlorobenzene	10.0	U	U	10.0	UJ	U	0.19	10.0	ug/kg	SS
SB	NDE078	N		SW8260B	SW5030	NONE	Chlorobenzene	10.0	U	U	10.0	UJ	U	0.19	10.0	ug/kg	SS
SB	NDE092	N		SW8260B	SW5030	NONE	Chlorobenzene	10.0	U	U	10.0	UJ	U	0.19	10.0	ug/kg	SS
SB	NDE082	N		SW8260B	SW5030	NONE	Chlorobenzene	10.0	U	U	10.0	UJ	U	0.19	10.0	ug/kg	SS
SS	NDE055	N		SW8260B	SW5030	NONE	Chlorobenzene	10.0	U	U	10.0	UJ	U	0.19	10.0	ug/kg	SS
SS	NDE075	N		SW8260B	SW5030	NONE	Chlorobenzene	10.0	U	U	10.0	UJ	U	0.19	10.0	ug/kg	SS
SS	NDE090	N		SW8260B	SW5030	NONE	Chlorobenzene	10.0	U	U	10.0	UJ	U	0.19	10.0	ug/kg	SS
SS	NDE091FD1	FD		SW8260B	SW5030	NONE	Chlorobenzene	10.0	U	U	10.0	UJ	U	0.19	10.0	ug/kg	SS
SS	NDE097	N		SW8260B	SW5030	NONE	Chlorobenzene	10.0	U	U	10.0	UJ	U	0.19	10.0	ug/kg	SS
SS	NDE066	N		SW8260B	SW5030	NONE	Chlorobenzene	10.0	U	U	10.0	UJ	U	0.20	10.0	ug/kg	SS
SS	NDE070	N		SW8260B	SW5030	NONE	Chlorobenzene	10.0	U	U	10.0	UJ	U	0.20	10.0	ug/kg	SS
SS	NDE072	N		SW8260B	SW5030	NONE	Chlorobenzene	10.0	U	U	10.0	UJ	U	0.20	10.0	ug/kg	SS
SB	NDE071	N		SW8260B	SW5030	NONE	Chlorobenzene	10.0	U	U	10.0	UJ	U	0.21	10.0	ug/kg	SS
SB	NDE094	N		SW8260B	SW5030	NONE	Chlorobenzene	10.0	U	U	10.0	UJ	U	0.21	10.0	ug/kg	SS
SB	NDE085	N		SW8260B	SW5030	NONE	Chlorobenzene	10.0	U	U	10.0	UJ	U	0.21	10.0	ug/kg	SS
SS	NDE068	N		SW8260B	SW5030	NONE	Chlorobenzene	10.0	U	U	10.0	UJ	U	0.21	10.0	ug/kg	SS
SS	NDE093	N		SW8260B	SW5030	NONE	Chlorobenzene	10.0	U	U	10.0	UJ	U	0.21	10.0	ug/kg	SS
SS	NDE095	N		SW8260B	SW5030	NONE	Chlorobenzene	10.0	U	U	10.0	UJ	U	0.21	10.0	ug/kg	SS

Matrix	Sample ID	Sample Type	LR Type	Analytical Method	Prep Method	Dissolved ?	Parameter	Lab Result	Lab Qual	Lab Conc Qual	Final Result	Final Qual	Final Conc Qual	Detection Limit	Reporting Limit	Units	Validation Notes
SS	NDE088	N		SW8260B	SW5030	NONE	Chlorobenzene	10.0	U	U	10.0	UJ	U	0.21	10.0	ug/kg	SS
SB	NDE080	N		SW8260B	SW5030	NONE	Chlorobenzene	11.0	U	U	11.0	UJ	U	0.22	11.0	ug/kg	SS
SB	NDE087	N		SW8260B	SW5030	NONE	Chlorobenzene	12.0	U	U	12.0	UJ	U	0.25	12.0	ug/kg	SS
SS	NDE083	N		SW8260B	SW5030	NONE	Chlorobenzene	12.0	U	U	12.0	UJ	U	0.25	12.0	ug/kg	SS
SS	NDE084FD1	FD		SW8260B	SW5030	NONE	Chlorobenzene	12.0	U	U	12.0	UJ	U	0.25	12.0	ug/kg	SS
SS	NDE057	N		SW8260B	SW5030	NONE	Chloroethane	10.0	U	U	10.0	UJ	U	0.42	10.0	ug/kg	SS
SS	NDE064	N		SW8260B	SW5030	NONE	Chloroethane	10.0	U	U	10.0	UJ	U	0.43	10.0	ug/kg	SS
SS	NDE062FD1	FD		SW8260B	SW5030	NONE	Chloroethane	10.0	U	U	10.0	UJ	U	0.45	10.0	ug/kg	SS
SS	NDE086	N		SW8260B	SW5030	NONE	Chloroethane	10.0	U	U	10.0	UJ	U	0.45	10.0	ug/kg	SS
SB	NDE076	N		SW8260B	SW5030	NONE	Chloroethane	10.0	U	U	10.0	UJ	U	0.46	10.0	ug/kg	SS
SS	NDE079	N		SW8260B	SW5030	NONE	Chloroethane	10.0	U	U	10.0	UJ	U	0.46	10.0	ug/kg	SS
SS	NDE074FD1	FD		SW8260B	SW5030	NONE	Chloroethane	10.0	U	U	10.0	UJ	U	0.48	10.0	ug/kg	SS
SB	NDE069	N		SW8260B	SW5030	NONE	Chloroethane	10.0	U	U	10.0	UJ	U	0.49	10.0	ug/kg	SS
SB	NDE073	N		SW8260B	SW5030	NONE	Chloroethane	10.0	U	U	10.0	UJ	U	0.49	10.0	ug/kg	SS
SB	NDE078	N		SW8260B	SW5030	NONE	Chloroethane	10.0	U	U	10.0	UJ	U	0.49	10.0	ug/kg	SS
SB	NDE092	N		SW8260B	SW5030	NONE	Chloroethane	10.0	U	U	10.0	UJ	U	0.49	10.0	ug/kg	SS
SS	NDE055	N		SW8260B	SW5030	NONE	Chloroethane	10.0	U	U	10.0	UJ	U	0.49	10.0	ug/kg	SS
SS	NDE090	N		SW8260B	SW5030	NONE	Chloroethane	10.0	U	U	10.0	UJ	U	0.49	10.0	ug/kg	SS
SS	NDE091FD1	FD		SW8260B	SW5030	NONE	Chloroethane	10.0	U	U	10.0	UJ	U	0.49	10.0	ug/kg	SS
SS	NDE097	N		SW8260B	SW5030	NONE	Chloroethane	10.0	U	U	10.0	UJ	U	0.49	10.0	ug/kg	SS
SB	NDE082	N		SW8260B	SW5030	NONE	Chloroethane	10.0	U	U	10.0	UJ	U	0.50	10.0	ug/kg	SS
SS	NDE075	N		SW8260B	SW5030	NONE	Chloroethane	10.0	U	U	10.0	UJ	U	0.50	10.0	ug/kg	SS
SB	NDE065	N		SW8260B	SW5030	NONE	Chloroethane	10.0	U	U	10.0	UJ	U	0.51	10.0	ug/kg	SS
SB	NDE067	N		SW8260B	SW5030	NONE	Chloroethane	10.0	U	U	10.0	UJ	U	0.51	10.0	ug/kg	SS
SS	NDE066	N		SW8260B	SW5030	NONE	Chloroethane	10.0	U	U	10.0	UJ	U	0.52	10.0	ug/kg	SS
SS	NDE070	N		SW8260B	SW5030	NONE	Chloroethane	10.0	U	U	10.0	UJ	U	0.53	10.0	ug/kg	SS
SB	NDE071	N		SW8260B	SW5030	NONE	Chloroethane	10.0	U	U	10.0	UJ	U	0.54	10.0	ug/kg	SS
SB	NDE094	N		SW8260B	SW5030	NONE	Chloroethane	10.0	U	U	10.0	UJ	U	0.54	10.0	ug/kg	SS
SB	NDE085	N		SW8260B	SW5030	NONE	Chloroethane	10.0	U	U	10.0	UJ	U	0.54	10.0	ug/kg	SS
SS	NDE072	N		SW8260B	SW5030	NONE	Chloroethane	10.0	U	U	10.0	UJ	U	0.54	10.0	ug/kg	SS
SS	NDE095	N		SW8260B	SW5030	NONE	Chloroethane	10.0	U	U	10.0	UJ	U	0.54	10.0	ug/kg	SS
SS	NDE088	N		SW8260B	SW5030	NONE	Chloroethane	10.0	U	U	10.0	UJ	U	0.54	10.0	ug/kg	SS
SS	NDE068	N		SW8260B	SW5030	NONE	Chloroethane	10.0	U	U	10.0	UJ	U	0.55	10.0	ug/kg	SS
SS	NDE093	N		SW8260B	SW5030	NONE	Chloroethane	10.0	U	U	10.0	UJ	U	0.55	10.0	ug/kg	SS
SB	NDE080	N		SW8260B	SW5030	NONE	Chloroethane	11.0	U	U	11.0	UJ	U	0.58	11.0	ug/kg	SS
SS	NDE083	N		SW8260B	SW5030	NONE	Chloroethane	12.0	U	U	12.0	UJ	U	0.64	12.0	ug/kg	SS
SB	NDE087	N		SW8260B	SW5030	NONE	Chloroethane	12.0	U	U	12.0	UJ	U	0.65	12.0	ug/kg	SS
SS	NDE084FD1	FD		SW8260B	SW5030	NONE	Chloroethane	12.0	U	U	12.0	UJ	U	0.65	12.0	ug/kg	SS
SS	NDE057	N		SW8260B	SW5030	NONE	Chloroform	10.0	U	U	10.0	UJ	U	0.20	10.0	ug/kg	SS
SS	NDE064	N		SW8260B	SW5030	NONE	Chloroform	10.0	U	U	10.0	UJ	U	0.20	10.0	ug/kg	SS
SS	NDE062FD1	FD		SW8260B	SW5030	NONE	Chloroform	10.0	U	U	10.0	UJ	U	0.21	10.0	ug/kg	SS
SS	NDE086	N		SW8260B	SW5030	NONE	Chloroform	10.0	U	U	10.0	UJ	U	0.21	10.0	ug/kg	SS
SB	NDE076	N		SW8260B	SW5030	NONE	Chloroform	10.0	U	U	10.0	UJ	U	0.22	10.0	ug/kg	SS
SS	NDE074FD1	FD		SW8260B	SW5030	NONE	Chloroform	10.0	U	U	10.0	UJ	U	0.22	10.0	ug/kg	SS
SS	NDE079	N		SW8260B	SW5030	NONE	Chloroform	10.0	U	U	10.0	UJ	U	0.22	10.0	ug/kg	SS
SB	NDE069	N		SW8260B	SW5030	NONE	Chloroform	10.0	U	U	10.0	UJ	U	0.23	10.0	ug/kg	SS
SB	NDE073	N		SW8260B	SW5030	NONE	Chloroform	10.0	U	U	10.0	UJ	U	0.23	10.0	ug/kg	SS
SB	NDE078	N		SW8260B	SW5030	NONE	Chloroform	10.0	U	U	10.0	UJ	U	0.23	10.0	ug/kg	SS
SB	NDE092	N		SW8260B	SW5030	NONE	Chloroform	10.0	U	U	10.0	UJ	U	0.23	10.0	ug/kg	SS
SS	NDE055	N		SW8260B	SW5030	NONE	Chloroform	10.0	U	U	10.0	UJ	U	0.23	10.0	ug/kg	SS
SS	NDE090	N		SW8260B	SW5030	NONE	Chloroform	10.0	U	U	10.0	UJ	U	0.23	10.0	ug/kg	SS

Matrix	Sample ID	Sample Type	LR Type	Analytical Method	Prep Method	Dissolved ?	Parameter	Lab Result	Lab Qual	Lab Conc Qual	Final Result	Final Qual	Final Conc Qual	Detection Limit	Reporting Limit	Units	Validation Notes
SS	NDE091FD1	FD		SW8260B	SW5030	NONE	Chloroform	10.0	U	U	10.0	UJ	U	0.23	10.0	ug/kg	SS
SS	NDE097	N		SW8260B	SW5030	NONE	Chloroform	10.0	U	U	10.0	UJ	U	0.23	10.0	ug/kg	SS
SB	NDE065	N		SW8260B	SW5030	NONE	Chloroform	10.0	U	U	10.0	UJ	U	0.24	10.0	ug/kg	SS
SB	NDE067	N		SW8260B	SW5030	NONE	Chloroform	10.0	U	U	10.0	UJ	U	0.24	10.0	ug/kg	SS
SB	NDE082	N		SW8260B	SW5030	NONE	Chloroform	10.0	U	U	10.0	UJ	U	0.24	10.0	ug/kg	SS
SS	NDE075	N		SW8260B	SW5030	NONE	Chloroform	10.0	U	U	10.0	UJ	U	0.24	10.0	ug/kg	SS
SS	NDE066	N		SW8260B	SW5030	NONE	Chloroform	10.0	U	U	10.0	UJ	U	0.25	10.0	ug/kg	SS
SS	NDE070	N		SW8260B	SW5030	NONE	Chloroform	10.0	U	U	10.0	UJ	U	0.25	10.0	ug/kg	SS
SS	NDE072	N		SW8260B	SW5030	NONE	Chloroform	10.0	U	U	10.0	UJ	U	0.25	10.0	ug/kg	SS
SB	NDE071	N		SW8260B	SW5030	NONE	Chloroform	10.0	U	U	10.0	UJ	U	0.26	10.0	ug/kg	SS
SB	NDE094	N		SW8260B	SW5030	NONE	Chloroform	10.0	U	U	10.0	UJ	U	0.26	10.0	ug/kg	SS
SB	NDE085	N		SW8260B	SW5030	NONE	Chloroform	10.0	U	U	10.0	UJ	U	0.26	10.0	ug/kg	SS
SS	NDE068	N		SW8260B	SW5030	NONE	Chloroform	10.0	U	U	10.0	UJ	U	0.26	10.0	ug/kg	SS
SS	NDE093	N		SW8260B	SW5030	NONE	Chloroform	10.0	U	U	10.0	UJ	U	0.26	10.0	ug/kg	SS
SS	NDE095	N		SW8260B	SW5030	NONE	Chloroform	10.0	U	U	10.0	UJ	U	0.26	10.0	ug/kg	SS
SS	NDE088	N		SW8260B	SW5030	NONE	Chloroform	10.0	U	U	10.0	UJ	U	0.26	10.0	ug/kg	SS
SB	NDE080	N		SW8260B	SW5030	NONE	Chloroform	11.0	U	U	11.0	UJ	U	0.28	11.0	ug/kg	SS
SS	NDE083	N		SW8260B	SW5030	NONE	Chloroform	12.0	U	U	12.0	UJ	U	0.30	12.0	ug/kg	SS
SB	NDE087	N		SW8260B	SW5030	NONE	Chloroform	12.0	U	U	12.0	UJ	U	0.31	12.0	ug/kg	SS
SS	NDE084FD1	FD		SW8260B	SW5030	NONE	Chloroform	12.0	U	U	12.0	UJ	U	0.31	12.0	ug/kg	SS
SS	NDE057	N		SW8260B	SW5030	NONE	Chloromethane	10.0	U	U	10.0	UJ	U	0.60	10.0	ug/kg	SS
SS	NDE064	N		SW8260B	SW5030	NONE	Chloromethane	10.0	U	U	10.0	UJ	U	0.62	10.0	ug/kg	SS
SS	NDE086	N		SW8260B	SW5030	NONE	Chloromethane	10.0	U	U	10.0	UJ	U	0.64	10.0	ug/kg	SS
SS	NDE062FD1	FD		SW8260B	SW5030	NONE	Chloromethane	10.0	U	U	10.0	UJ	U	0.65	10.0	ug/kg	SS
SB	NDE076	N		SW8260B	SW5030	NONE	Chloromethane	10.0	U	U	10.0	UJ	U	0.66	10.0	ug/kg	SS
SS	NDE079	N		SW8260B	SW5030	NONE	Chloromethane	10.0	U	U	10.0	UJ	U	0.66	10.0	ug/kg	SS
SS	NDE074FD1	FD		SW8260B	SW5030	NONE	Chloromethane	10.0	U	U	10.0	UJ	U	0.68	10.0	ug/kg	SS
SB	NDE078	N		SW8260B	SW5030	NONE	Chloromethane	10.0	U	U	10.0	UJ	U	0.70	10.0	ug/kg	SS
SB	NDE092	N		SW8260B	SW5030	NONE	Chloromethane	10.0	U	U	10.0	UJ	U	0.70	10.0	ug/kg	SS
SS	NDE055	N		SW8260B	SW5030	NONE	Chloromethane	10.0	U	U	10.0	UJ	U	0.70	10.0	ug/kg	SS
SS	NDE090	N		SW8260B	SW5030	NONE	Chloromethane	10.0	U	U	10.0	UJ	U	0.70	10.0	ug/kg	SS
SS	NDE091FD1	FD		SW8260B	SW5030	NONE	Chloromethane	10.0	U	U	10.0	UJ	U	0.70	10.0	ug/kg	SS
SB	NDE069	N		SW8260B	SW5030	NONE	Chloromethane	10.0	U	U	10.0	UJ	U	0.71	10.0	ug/kg	SS
SB	NDE073	N		SW8260B	SW5030	NONE	Chloromethane	10.0	U	U	10.0	UJ	U	0.71	10.0	ug/kg	SS
SS	NDE097	N		SW8260B	SW5030	NONE	Chloromethane	10.0	U	U	10.0	UJ	U	0.71	10.0	ug/kg	SS
SB	NDE082	N		SW8260B	SW5030	NONE	Chloromethane	10.0	U	U	10.0	UJ	U	0.72	10.0	ug/kg	SS
SS	NDE075	N		SW8260B	SW5030	NONE	Chloromethane	10.0	U	U	10.0	UJ	U	0.72	10.0	ug/kg	SS
SB	NDE065	N		SW8260B	SW5030	NONE	Chloromethane	10.0	U	U	10.0	UJ	U	0.73	10.0	ug/kg	SS
SB	NDE067	N		SW8260B	SW5030	NONE	Chloromethane	10.0	U	U	10.0	UJ	U	0.73	10.0	ug/kg	SS
SS	NDE066	N		SW8260B	SW5030	NONE	Chloromethane	10.0	U	U	10.0	UJ	U	0.75	10.0	ug/kg	SS
SS	NDE070	N		SW8260B	SW5030	NONE	Chloromethane	10.0	U	U	10.0	UJ	U	0.77	10.0	ug/kg	SS
SS	NDE072	N		SW8260B	SW5030	NONE	Chloromethane	10.0	U	U	10.0	UJ	U	0.77	10.0	ug/kg	SS
SB	NDE071	N		SW8260B	SW5030	NONE	Chloromethane	10.0	U	U	10.0	UJ	U	0.78	10.0	ug/kg	SS
SB	NDE094	N		SW8260B	SW5030	NONE	Chloromethane	10.0	U	U	10.0	UJ	U	0.78	10.0	ug/kg	SS
SB	NDE085	N		SW8260B	SW5030	NONE	Chloromethane	10.0	U	U	10.0	UJ	U	0.78	10.0	ug/kg	SS
SS	NDE095	N		SW8260B	SW5030	NONE	Chloromethane	10.0	U	U	10.0	UJ	U	0.78	10.0	ug/kg	SS
SS	NDE088	N		SW8260B	SW5030	NONE	Chloromethane	10.0	U	U	10.0	UJ	U	0.78	10.0	ug/kg	SS
SS	NDE068	N		SW8260B	SW5030	NONE	Chloromethane	10.0	U	U	10.0	UJ	U	0.79	10.0	ug/kg	SS
SS	NDE093	N		SW8260B	SW5030	NONE	Chloromethane	10.0	U	U	10.0	UJ	U	0.79	10.0	ug/kg	SS
SB	NDE080	N		SW8260B	SW5030	NONE	Chloromethane	11.0	U	U	11.0	UJ	U	0.84	11.0	ug/kg	SS
SS	NDE083	N		SW8260B	SW5030	NONE	Chloromethane	12.0	U	U	12.0	UJ	U	0.92	12.0	ug/kg	SS

Matrix	Sample ID	Sample Type	LR Type	Analytical Method	Prep Method	Dissolved ?	Parameter	Lab Result	Lab Qual	Lab Conc Qual	Final Result	Final Qual	Final Conc Qual	Detection Limit	Reporting Limit	Units	Validation Notes
SB	NDE087	N		SW8260B	SW5030	NONE	Chloromethane	12.0	U	U	12.0	UJ	U	0.93	12.0	ug/kg	SS
SS	NDE084FD1	FD		SW8260B	SW5030	NONE	Chloromethane	12.0	U	U	12.0	UJ	U	0.94	12.0	ug/kg	SS
SS	NDE057	N		SW8260B	SW5030	NONE	cis-1,3-Dichloropropene	10.0	U	U	10.0	UJ	U	0.18	10.0	ug/kg	SS
SS	NDE064	N		SW8260B	SW5030	NONE	cis-1,3-Dichloropropene	10.0	U	U	10.0	UJ	U	0.19	10.0	ug/kg	SS
SS	NDE086	N		SW8260B	SW5030	NONE	cis-1,3-Dichloropropene	10.0	U	U	10.0	UJ	U	0.19	10.0	ug/kg	SS
SB	NDE076	N		SW8260B	SW5030	NONE	cis-1,3-Dichloropropene	10.0	U	U	10.0	UJ	U	0.20	10.0	ug/kg	SS
SS	NDE062FD1	FD		SW8260B	SW5030	NONE	cis-1,3-Dichloropropene	10.0	U	U	10.0	UJ	U	0.20	10.0	ug/kg	SS
SS	NDE079	N		SW8260B	SW5030	NONE	cis-1,3-Dichloropropene	10.0	U	U	10.0	UJ	U	0.20	10.0	ug/kg	SS
SB	NDE078	N		SW8260B	SW5030	NONE	cis-1,3-Dichloropropene	10.0	U	U	10.0	UJ	U	0.21	10.0	ug/kg	SS
SB	NDE092	N		SW8260B	SW5030	NONE	cis-1,3-Dichloropropene	10.0	U	U	10.0	UJ	U	0.21	10.0	ug/kg	SS
SS	NDE055	N		SW8260B	SW5030	NONE	cis-1,3-Dichloropropene	10.0	U	U	10.0	UJ	U	0.21	10.0	ug/kg	SS
SS	NDE090	N		SW8260B	SW5030	NONE	cis-1,3-Dichloropropene	10.0	U	U	10.0	UJ	U	0.21	10.0	ug/kg	SS
SS	NDE091FD1	FD		SW8260B	SW5030	NONE	cis-1,3-Dichloropropene	10.0	U	U	10.0	UJ	U	0.21	10.0	ug/kg	SS
SS	NDE097	N		SW8260B	SW5030	NONE	cis-1,3-Dichloropropene	10.0	U	U	10.0	UJ	U	0.21	10.0	ug/kg	SS
SS	NDE074FD1	FD		SW8260B	SW5030	NONE	cis-1,3-Dichloropropene	10.0	U	U	10.0	UJ	U	0.21	10.0	ug/kg	SS
SB	NDE065	N		SW8260B	SW5030	NONE	cis-1,3-Dichloropropene	10.0	U	U	10.0	UJ	U	0.22	10.0	ug/kg	SS
SB	NDE067	N		SW8260B	SW5030	NONE	cis-1,3-Dichloropropene	10.0	U	U	10.0	UJ	U	0.22	10.0	ug/kg	SS
SB	NDE069	N		SW8260B	SW5030	NONE	cis-1,3-Dichloropropene	10.0	U	U	10.0	UJ	U	0.22	10.0	ug/kg	SS
SB	NDE073	N		SW8260B	SW5030	NONE	cis-1,3-Dichloropropene	10.0	U	U	10.0	UJ	U	0.22	10.0	ug/kg	SS
SB	NDE082	N		SW8260B	SW5030	NONE	cis-1,3-Dichloropropene	10.0	U	U	10.0	UJ	U	0.22	10.0	ug/kg	SS
SS	NDE075	N		SW8260B	SW5030	NONE	cis-1,3-Dichloropropene	10.0	U	U	10.0	UJ	U	0.22	10.0	ug/kg	SS
SS	NDE066	N		SW8260B	SW5030	NONE	cis-1,3-Dichloropropene	10.0	U	U	10.0	UJ	U	0.23	10.0	ug/kg	SS
SS	NDE070	N		SW8260B	SW5030	NONE	cis-1,3-Dichloropropene	10.0	U	U	10.0	UJ	U	0.23	10.0	ug/kg	SS
SS	NDE072	N		SW8260B	SW5030	NONE	cis-1,3-Dichloropropene	10.0	U	U	10.0	UJ	U	0.23	10.0	ug/kg	SS
SB	NDE071	N		SW8260B	SW5030	NONE	cis-1,3-Dichloropropene	10.0	U	U	10.0	UJ	U	0.24	10.0	ug/kg	SS
SB	NDE094	N		SW8260B	SW5030	NONE	cis-1,3-Dichloropropene	10.0	U	U	10.0	UJ	U	0.24	10.0	ug/kg	SS
SB	NDE085	N		SW8260B	SW5030	NONE	cis-1,3-Dichloropropene	10.0	U	U	10.0	UJ	U	0.24	10.0	ug/kg	SS
SS	NDE068	N		SW8260B	SW5030	NONE	cis-1,3-Dichloropropene	10.0	U	U	10.0	UJ	U	0.24	10.0	ug/kg	SS
SS	NDE093	N		SW8260B	SW5030	NONE	cis-1,3-Dichloropropene	10.0	U	U	10.0	UJ	U	0.24	10.0	ug/kg	SS
SS	NDE095	N		SW8260B	SW5030	NONE	cis-1,3-Dichloropropene	10.0	U	U	10.0	UJ	U	0.24	10.0	ug/kg	SS
SS	NDE088	N		SW8260B	SW5030	NONE	cis-1,3-Dichloropropene	10.0	U	U	10.0	UJ	U	0.24	10.0	ug/kg	SS
SB	NDE080	N		SW8260B	SW5030	NONE	cis-1,3-Dichloropropene	11.0	U	U	11.0	UJ	U	0.26	11.0	ug/kg	SS
SB	NDE087	N		SW8260B	SW5030	NONE	cis-1,3-Dichloropropene	12.0	U	U	12.0	UJ	U	0.28	12.0	ug/kg	SS
SS	NDE083	N		SW8260B	SW5030	NONE	cis-1,3-Dichloropropene	12.0	U	U	12.0	UJ	U	0.28	12.0	ug/kg	SS
SS	NDE084FD1	FD		SW8260B	SW5030	NONE	cis-1,3-Dichloropropene	12.0	U	U	12.0	UJ	U	0.28	12.0	ug/kg	SS
SS	NDE057	N		SW8260B	SW5030	NONE	Dibromochloromethane	10.0	U	U	10.0	UJ	U	0.16	10.0	ug/kg	SS
SS	NDE064	N		SW8260B	SW5030	NONE	Dibromochloromethane	10.0	U	U	10.0	UJ	U	0.16	10.0	ug/kg	SS
SS	NDE062FD1	FD		SW8260B	SW5030	NONE	Dibromochloromethane	10.0	U	U	10.0	UJ	U	0.17	10.0	ug/kg	SS
SS	NDE086	N		SW8260B	SW5030	NONE	Dibromochloromethane	10.0	U	U	10.0	UJ	U	0.17	10.0	ug/kg	SS
SB	NDE076	N		SW8260B	SW5030	NONE	Dibromochloromethane	10.0	U	U	10.0	UJ	U	0.18	10.0	ug/kg	SS
SS	NDE074FD1	FD		SW8260B	SW5030	NONE	Dibromochloromethane	10.0	U	U	10.0	UJ	U	0.18	10.0	ug/kg	SS
SS	NDE079	N		SW8260B	SW5030	NONE	Dibromochloromethane	10.0	U	U	10.0	UJ	U	0.18	10.0	ug/kg	SS
SB	NDE065	N		SW8260B	SW5030	NONE	Dibromochloromethane	10.0	U	U	10.0	UJ	U	0.19	10.0	ug/kg	SS
SB	NDE067	N		SW8260B	SW5030	NONE	Dibromochloromethane	10.0	U	U	10.0	UJ	U	0.19	10.0	ug/kg	SS
SB	NDE069	N		SW8260B	SW5030	NONE	Dibromochloromethane	10.0	U	U	10.0	UJ	U	0.19	10.0	ug/kg	SS
SB	NDE073	N		SW8260B	SW5030	NONE	Dibromochloromethane	10.0	U	U	10.0	UJ	U	0.19	10.0	ug/kg	SS
SB	NDE078	N		SW8260B	SW5030	NONE	Dibromochloromethane	10.0	U	U	10.0	UJ	U	0.19	10.0	ug/kg	SS
SB	NDE092	N		SW8260B	SW5030	NONE	Dibromochloromethane	10.0	U	U	10.0	UJ	U	0.19	10.0	ug/kg	SS
SB	NDE082	N		SW8260B	SW5030	NONE	Dibromochloromethane	10.0	U	U	10.0	UJ	U	0.19	10.0	ug/kg	SS
SS	NDE055	N		SW8260B	SW5030	NONE	Dibromochloromethane	10.0	U	U	10.0	UJ	U	0.19	10.0	ug/kg	SS
SS	NDE075	N		SW8260B	SW5030	NONE	Dibromochloromethane	10.0	U	U	10.0	UJ	U	0.19	10.0	ug/kg	SS

Matrix	Sample ID	Sample Type	LR Type	Analytical Method	Prep Method	Dissolved ?	Parameter	Lab Result	Lab Qual	Lab Conc Qual	Final Result	Final Qual	Final Conc Qual	Detection Limit	Reporting Limit	Units	Validation Notes
SS	NDE090	N		SW8260B	SW5030	NONE	Dibromochloromethane	10.0	U	U	10.0	UJ	U	0.19	10.0	ug/kg	SS
SS	NDE091FD1	FD		SW8260B	SW5030	NONE	Dibromochloromethane	10.0	U	U	10.0	UJ	U	0.19	10.0	ug/kg	SS
SS	NDE097	N		SW8260B	SW5030	NONE	Dibromochloromethane	10.0	U	U	10.0	UJ	U	0.19	10.0	ug/kg	SS
SS	NDE066	N		SW8260B	SW5030	NONE	Dibromochloromethane	10.0	U	U	10.0	UJ	U	0.20	10.0	ug/kg	SS
SS	NDE070	N		SW8260B	SW5030	NONE	Dibromochloromethane	10.0	U	U	10.0	UJ	U	0.20	10.0	ug/kg	SS
SS	NDE072	N		SW8260B	SW5030	NONE	Dibromochloromethane	10.0	U	U	10.0	UJ	U	0.20	10.0	ug/kg	SS
SB	NDE071	N		SW8260B	SW5030	NONE	Dibromochloromethane	10.0	U	U	10.0	UJ	U	0.21	10.0	ug/kg	SS
SB	NDE094	N		SW8260B	SW5030	NONE	Dibromochloromethane	10.0	U	U	10.0	UJ	U	0.21	10.0	ug/kg	SS
SB	NDE085	N		SW8260B	SW5030	NONE	Dibromochloromethane	10.0	U	U	10.0	UJ	U	0.21	10.0	ug/kg	SS
SS	NDE068	N		SW8260B	SW5030	NONE	Dibromochloromethane	10.0	U	U	10.0	UJ	U	0.21	10.0	ug/kg	SS
SS	NDE093	N		SW8260B	SW5030	NONE	Dibromochloromethane	10.0	U	U	10.0	UJ	U	0.21	10.0	ug/kg	SS
SS	NDE095	N		SW8260B	SW5030	NONE	Dibromochloromethane	10.0	U	U	10.0	UJ	U	0.21	10.0	ug/kg	SS
SS	NDE088	N		SW8260B	SW5030	NONE	Dibromochloromethane	10.0	U	U	10.0	UJ	U	0.21	10.0	ug/kg	SS
SB	NDE080	N		SW8260B	SW5030	NONE	Dibromochloromethane	11.0	U	U	11.0	UJ	U	0.22	11.0	ug/kg	SS
SB	NDE087	N		SW8260B	SW5030	NONE	Dibromochloromethane	12.0	U	U	12.0	UJ	U	0.25	12.0	ug/kg	SS
SS	NDE083	N		SW8260B	SW5030	NONE	Dibromochloromethane	12.0	U	U	12.0	UJ	U	0.25	12.0	ug/kg	SS
SS	NDE084FD1	FD		SW8260B	SW5030	NONE	Dibromochloromethane	12.0	U	U	12.0	UJ	U	0.25	12.0	ug/kg	SS
SB	NDE071	N		SW8260B	SW5030	NONE	Ethylbenzene	0.89	J	J	0.89	J	J	0.32	10.0	ug/kg	SS
SB	NDE087	N		SW8260B	SW5030	NONE	Ethylbenzene	96.0	=	=	96.0	J	J	0.38	12.0	ug/kg	SS
SS	NDE057	N		SW8260B	SW5030	NONE	Ethylbenzene	10.0	U	U	10.0	UJ	U	0.24	10.0	ug/kg	SS
SS	NDE064	N		SW8260B	SW5030	NONE	Ethylbenzene	10.0	U	U	10.0	UJ	U	0.25	10.0	ug/kg	SS
SS	NDE062FD1	FD		SW8260B	SW5030	NONE	Ethylbenzene	10.0	U	U	10.0	UJ	U	0.26	10.0	ug/kg	SS
SS	NDE086	N		SW8260B	SW5030	NONE	Ethylbenzene	10.0	U	U	10.0	UJ	U	0.26	10.0	ug/kg	SS
SB	NDE076	N		SW8260B	SW5030	NONE	Ethylbenzene	10.0	U	U	10.0	UJ	U	0.27	10.0	ug/kg	SS
SS	NDE079	N		SW8260B	SW5030	NONE	Ethylbenzene	10.0	U	U	10.0	UJ	U	0.27	10.0	ug/kg	SS
SB	NDE078	N		SW8260B	SW5030	NONE	Ethylbenzene	10.0	U	U	10.0	UJ	U	0.28	10.0	ug/kg	SS
SB	NDE092	N		SW8260B	SW5030	NONE	Ethylbenzene	10.0	U	U	10.0	UJ	U	0.28	10.0	ug/kg	SS
SS	NDE055	N		SW8260B	SW5030	NONE	Ethylbenzene	10.0	U	U	10.0	UJ	U	0.28	10.0	ug/kg	SS
SS	NDE090	N		SW8260B	SW5030	NONE	Ethylbenzene	10.0	U	U	10.0	UJ	U	0.28	10.0	ug/kg	SS
SS	NDE091FD1	FD		SW8260B	SW5030	NONE	Ethylbenzene	10.0	U	U	10.0	UJ	U	0.28	10.0	ug/kg	SS
SS	NDE074FD1	FD		SW8260B	SW5030	NONE	Ethylbenzene	10.0	U	U	10.0	UJ	U	0.28	10.0	ug/kg	SS
SB	NDE065	N		SW8260B	SW5030	NONE	Ethylbenzene	10.0	U	U	10.0	UJ	U	0.29	10.0	ug/kg	SS
SB	NDE067	N		SW8260B	SW5030	NONE	Ethylbenzene	10.0	U	U	10.0	UJ	U	0.29	10.0	ug/kg	SS
SB	NDE069	N		SW8260B	SW5030	NONE	Ethylbenzene	10.0	U	U	10.0	UJ	U	0.29	10.0	ug/kg	SS
SB	NDE073	N		SW8260B	SW5030	NONE	Ethylbenzene	10.0	U	U	10.0	UJ	U	0.29	10.0	ug/kg	SS
SB	NDE082	N		SW8260B	SW5030	NONE	Ethylbenzene	10.0	U	U	10.0	UJ	U	0.29	10.0	ug/kg	SS
SS	NDE075	N		SW8260B	SW5030	NONE	Ethylbenzene	10.0	U	U	10.0	UJ	U	0.29	10.0	ug/kg	SS
SS	NDE097	N		SW8260B	SW5030	NONE	Ethylbenzene	10.0	U	U	10.0	UJ	U	0.29	10.0	ug/kg	SS
SS	NDE066	N		SW8260B	SW5030	NONE	Ethylbenzene	10.0	U	U	10.0	UJ	U	0.30	10.0	ug/kg	SS
SS	NDE070	N		SW8260B	SW5030	NONE	Ethylbenzene	10.0	U	U	10.0	UJ	U	0.31	10.0	ug/kg	SS
SS	NDE072	N		SW8260B	SW5030	NONE	Ethylbenzene	10.0	U	U	10.0	UJ	U	0.31	10.0	ug/kg	SS
SB	NDE094	N		SW8260B	SW5030	NONE	Ethylbenzene	10.0	U	U	10.0	UJ	U	0.32	10.0	ug/kg	SS
SB	NDE085	N		SW8260B	SW5030	NONE	Ethylbenzene	10.0	U	U	10.0	UJ	U	0.32	10.0	ug/kg	SS
SS	NDE068	N		SW8260B	SW5030	NONE	Ethylbenzene	10.0	U	U	10.0	UJ	U	0.32	10.0	ug/kg	SS
SS	NDE093	N		SW8260B	SW5030	NONE	Ethylbenzene	10.0	U	U	10.0	UJ	U	0.32	10.0	ug/kg	SS
SS	NDE095	N		SW8260B	SW5030	NONE	Ethylbenzene	10.0	U	U	10.0	UJ	U	0.32	10.0	ug/kg	SS
SS	NDE088	N		SW8260B	SW5030	NONE	Ethylbenzene	10.0	U	U	10.0	UJ	U	0.32	10.0	ug/kg	SS
SB	NDE080	N		SW8260B	SW5030	NONE	Ethylbenzene	11.0	U	U	11.0	UJ	U	0.34	11.0	ug/kg	SS
SS	NDE083	N		SW8260B	SW5030	NONE	Ethylbenzene	12.0	U	U	12.0	UJ	U	0.37	12.0	ug/kg	SS
SS	NDE084FD1	FD		SW8260B	SW5030	NONE	Ethylbenzene	12.0	U	U	12.0	UJ	U	0.38	12.0	ug/kg	SS
SS	NDE057	N		SW8260B	SW5030	NONE	m,p-Xylene (sum of isomers)	0.65	J	J	0.65	J	J	0.15	10.0	ug/kg	SS

Matrix	Sample ID	Sample Type	LR Type	Analytical Method	Prep Method	Dissolved ?	Parameter	Lab Result	Lab Qual	Lab Conc Qual	Final Result	Final Qual	Final Conc Qual	Detection Limit	Reporting Limit	Units	Validation Notes
SS	NDE091FD1	FD		SW8260B	SW5030	NONE	m,p-Xylene (sum of isomers)	1.0	J	J	1.0	J	J	0.18	10.0	ug/kg	SS
SS	NDE093	N		SW8260B	SW5030	NONE	m,p-Xylene (sum of isomers)	0.20	J	J	0.20	J	J	0.20	10.0	ug/kg	SS
SS	NDE088	N		SW8260B	SW5030	NONE	m,p-Xylene (sum of isomers)	1.4	J	J	1.4	J	J	0.20	10.0	ug/kg	SS
SB	NDE071	N		SW8260B	SW5030	NONE	m,p-Xylene (sum of isomers)	3.6	J	J	3.6	J	J	0.20	10.0	ug/kg	SS
SS	NDE062FD1	FD		SW8260B	SW5030	NONE	m,p-Xylene (sum of isomers)	10.0	U	U	10.0	UJ	U	0.16	10.0	ug/kg	SS
SS	NDE064	N		SW8260B	SW5030	NONE	m,p-Xylene (sum of isomers)	10.0	U	U	10.0	UJ	U	0.16	10.0	ug/kg	SS
SS	NDE086	N		SW8260B	SW5030	NONE	m,p-Xylene (sum of isomers)	10.0	U	U	10.0	UJ	U	0.16	10.0	ug/kg	SS
SB	NDE076	N		SW8260B	SW5030	NONE	m,p-Xylene (sum of isomers)	10.0	U	U	10.0	UJ	U	0.17	10.0	ug/kg	SS
SS	NDE074FD1	FD		SW8260B	SW5030	NONE	m,p-Xylene (sum of isomers)	10.0	U	U	10.0	UJ	U	0.17	10.0	ug/kg	SS
SS	NDE079	N		SW8260B	SW5030	NONE	m,p-Xylene (sum of isomers)	10.0	U	U	10.0	UJ	U	0.17	10.0	ug/kg	SS
SB	NDE065	N		SW8260B	SW5030	NONE	m,p-Xylene (sum of isomers)	10.0	U	U	10.0	UJ	U	0.18	10.0	ug/kg	SS
SB	NDE067	N		SW8260B	SW5030	NONE	m,p-Xylene (sum of isomers)	10.0	U	U	10.0	UJ	U	0.18	10.0	ug/kg	SS
SB	NDE069	N		SW8260B	SW5030	NONE	m,p-Xylene (sum of isomers)	10.0	U	U	10.0	UJ	U	0.18	10.0	ug/kg	SS
SB	NDE073	N		SW8260B	SW5030	NONE	m,p-Xylene (sum of isomers)	10.0	U	U	10.0	UJ	U	0.18	10.0	ug/kg	SS
SB	NDE078	N		SW8260B	SW5030	NONE	m,p-Xylene (sum of isomers)	10.0	U	U	10.0	UJ	U	0.18	10.0	ug/kg	SS
SB	NDE092	N		SW8260B	SW5030	NONE	m,p-Xylene (sum of isomers)	10.0	U	U	10.0	UJ	U	0.18	10.0	ug/kg	SS
SB	NDE082	N		SW8260B	SW5030	NONE	m,p-Xylene (sum of isomers)	10.0	U	U	10.0	UJ	U	0.18	10.0	ug/kg	SS
SS	NDE055	N		SW8260B	SW5030	NONE	m,p-Xylene (sum of isomers)	10.0	U	U	10.0	UJ	U	0.18	10.0	ug/kg	SS
SS	NDE075	N		SW8260B	SW5030	NONE	m,p-Xylene (sum of isomers)	10.0	U	U	10.0	UJ	U	0.18	10.0	ug/kg	SS
SS	NDE090	N		SW8260B	SW5030	NONE	m,p-Xylene (sum of isomers)	10.0	U	U	10.0	UJ	U	0.18	10.0	ug/kg	SS
SS	NDE097	N		SW8260B	SW5030	NONE	m,p-Xylene (sum of isomers)	10.0	U	U	10.0	UJ	U	0.18	10.0	ug/kg	SS
SS	NDE066	N		SW8260B	SW5030	NONE	m,p-Xylene (sum of isomers)	10.0	U	U	10.0	UJ	U	0.19	10.0	ug/kg	SS
SS	NDE070	N		SW8260B	SW5030	NONE	m,p-Xylene (sum of isomers)	10.0	U	U	10.0	UJ	U	0.19	10.0	ug/kg	SS
SB	NDE094	N		SW8260B	SW5030	NONE	m,p-Xylene (sum of isomers)	10.0	U	U	10.0	UJ	U	0.20	10.0	ug/kg	SS
SB	NDE085	N		SW8260B	SW5030	NONE	m,p-Xylene (sum of isomers)	10.0	U	U	10.0	UJ	U	0.20	10.0	ug/kg	SS
SS	NDE068	N		SW8260B	SW5030	NONE	m,p-Xylene (sum of isomers)	10.0	U	U	10.0	UJ	U	0.20	10.0	ug/kg	SS
SS	NDE072	N		SW8260B	SW5030	NONE	m,p-Xylene (sum of isomers)	10.0	U	U	10.0	UJ	U	0.20	10.0	ug/kg	SS
SS	NDE095	N		SW8260B	SW5030	NONE	m,p-Xylene (sum of isomers)	10.0	U	U	10.0	UJ	U	0.20	10.0	ug/kg	SS
SB	NDE080	N		SW8260B	SW5030	NONE	m,p-Xylene (sum of isomers)	11.0	U	U	11.0	UJ	U	0.21	11.0	ug/kg	SS
SS	NDE083	N		SW8260B	SW5030	NONE	m,p-Xylene (sum of isomers)	12.0	U	U	12.0	UJ	U	0.23	12.0	ug/kg	SS
SS	NDE084FD1	FD		SW8260B	SW5030	NONE	m,p-Xylene (sum of isomers)	12.0	U	U	12.0	UJ	U	0.24	12.0	ug/kg	SS
SS	NDE095	N		SW8260B	SW5030	NONE	Methylene chloride	0.36	J	J	0.36	J	J	0.32	10.0	ug/kg	SS
SS	NDE093	N		SW8260B	SW5030	NONE	Methylene chloride	0.34	J	J	0.34	J	J	0.33	10.0	ug/kg	SS
SS	NDE057	N		SW8260B	SW5030	NONE	Methylene chloride	10.0	U	U	10.0	UJ	U	0.25	10.0	ug/kg	SS
SS	NDE064	N		SW8260B	SW5030	NONE	Methylene chloride	10.0	U	U	10.0	UJ	U	0.26	10.0	ug/kg	SS
SS	NDE062FD1	FD		SW8260B	SW5030	NONE	Methylene chloride	10.0	U	U	10.0	UJ	U	0.27	10.0	ug/kg	SS
SS	NDE086	N		SW8260B	SW5030	NONE	Methylene chloride	10.0	U	U	10.0	UJ	U	0.27	10.0	ug/kg	SS
SB	NDE076	N		SW8260B	SW5030	NONE	Methylene chloride	10.0	U	U	10.0	UJ	U	0.28	10.0	ug/kg	SS
SS	NDE079	N		SW8260B	SW5030	NONE	Methylene chloride	10.0	U	U	10.0	UJ	U	0.28	10.0	ug/kg	SS
SB	NDE078	N		SW8260B	SW5030	NONE	Methylene chloride	10.0	U	U	10.0	UJ	U	0.29	10.0	ug/kg	SS
SB	NDE092	N		SW8260B	SW5030	NONE	Methylene chloride	10.0	U	U	10.0	UJ	U	0.29	10.0	ug/kg	SS
SS	NDE055	N		SW8260B	SW5030	NONE	Methylene chloride	10.0	U	U	10.0	UJ	U	0.29	10.0	ug/kg	SS
SS	NDE090	N		SW8260B	SW5030	NONE	Methylene chloride	10.0	U	U	10.0	UJ	U	0.29	10.0	ug/kg	SS
SS	NDE091FD1	FD		SW8260B	SW5030	NONE	Methylene chloride	10.0	U	U	10.0	UJ	U	0.29	10.0	ug/kg	SS
SS	NDE074FD1	FD		SW8260B	SW5030	NONE	Methylene chloride	10.0	U	U	10.0	UJ	U	0.29	10.0	ug/kg	SS
SB	NDE065	N		SW8260B	SW5030	NONE	Methylene chloride	10.0	U	U	10.0	UJ	U	0.30	10.0	ug/kg	SS
SB	NDE069	N		SW8260B	SW5030	NONE	Methylene chloride	10.0	U	U	10.0	UJ	U	0.30	10.0	ug/kg	SS
SB	NDE073	N		SW8260B	SW5030	NONE	Methylene chloride	10.0	U	U	10.0	UJ	U	0.30	10.0	ug/kg	SS
SB	NDE082	N		SW8260B	SW5030	NONE	Methylene chloride	10.0	U	U	10.0	UJ	U	0.30	10.0	ug/kg	SS
SS	NDE075	N		SW8260B	SW5030	NONE	Methylene chloride	10.0	U	U	10.0	UJ	U	0.30	10.0	ug/kg	SS
SS	NDE097	N		SW8260B	SW5030	NONE	Methylene chloride	10.0	U	U	10.0	UJ	U	0.30	10.0	ug/kg	SS

Matrix	Sample ID	Sample Type	LR Type	Analytical Method	Prep Method	Dissolved ?	Parameter	Lab Result	Lab Qual	Lab Conc Qual	Final Result	Final Qual	Final Conc Qual	Detection Limit	Reporting Limit	Units	Validation Notes
SS	NDE066	N		SW8260B	SW5030	NONE	Methylene chloride	10.0	U	U	10.0	UJ	U	0.31	10.0	ug/kg	SS
SB	NDE094	N		SW8260B	SW5030	NONE	Methylene chloride	10.0	U	U	10.0	UJ	U	0.32	10.0	ug/kg	SS
SS	NDE070	N		SW8260B	SW5030	NONE	Methylene chloride	10.0	U	U	10.0	UJ	U	0.32	10.0	ug/kg	SS
SS	NDE072	N		SW8260B	SW5030	NONE	Methylene chloride	10.0	U	U	10.0	UJ	U	0.32	10.0	ug/kg	SS
SB	NDE071	N		SW8260B	SW5030	NONE	Methylene chloride	10.0	U	U	10.0	UJ	U	0.33	10.0	ug/kg	SS
SS	NDE088	N		SW8260B	SW5030	NONE	Methylene chloride	10.0	U	U	10.0	UJ	U	0.33	10.0	ug/kg	SS
SB	NDE080	N		SW8260B	SW5030	NONE	Methylene chloride	11.0	U	U	11.0	UJ	U	0.35	11.0	ug/kg	SS
SB	NDE087	N		SW8260B	SW5030	NONE	Methylene chloride	12.0	U	U	12.0	UJ	U	0.39	12.0	ug/kg	SS
SS	NDE083	N		SW8260B	SW5030	NONE	Methylene chloride	12.0	U	U	12.0	UJ	U	0.39	12.0	ug/kg	SS
SS	NDE057	N		SW8260B	SW5030	NONE	o-Xylene (1,2-Dimethylbenzene)	0.18	J	J	0.18	J	J	0.14	10.0	ug/kg	SS
SS	NDE091FD1	FD		SW8260B	SW5030	NONE	o-Xylene (1,2-Dimethylbenzene)	0.34	J	J	0.34	J	J	0.17	10.0	ug/kg	SS
SS	NDE088	N		SW8260B	SW5030	NONE	o-Xylene (1,2-Dimethylbenzene)	0.62	J	J	0.62	J	J	0.19	10.0	ug/kg	SS
SB	NDE071	N		SW8260B	SW5030	NONE	o-Xylene (1,2-Dimethylbenzene)	1.2	J	J	1.2	J	J	0.19	10.0	ug/kg	SS
SS	NDE064	N		SW8260B	SW5030	NONE	o-Xylene (1,2-Dimethylbenzene)	10.0	U	U	10.0	UJ	U	0.15	10.0	ug/kg	SS
SS	NDE086	N		SW8260B	SW5030	NONE	o-Xylene (1,2-Dimethylbenzene)	10.0	U	U	10.0	UJ	U	0.15	10.0	ug/kg	SS
SB	NDE076	N		SW8260B	SW5030	NONE	o-Xylene (1,2-Dimethylbenzene)	10.0	U	U	10.0	UJ	U	0.16	10.0	ug/kg	SS
SS	NDE062FD1	FD		SW8260B	SW5030	NONE	o-Xylene (1,2-Dimethylbenzene)	10.0	U	U	10.0	UJ	U	0.16	10.0	ug/kg	SS
SS	NDE074FD1	FD		SW8260B	SW5030	NONE	o-Xylene (1,2-Dimethylbenzene)	10.0	U	U	10.0	UJ	U	0.16	10.0	ug/kg	SS
SS	NDE079	N		SW8260B	SW5030	NONE	o-Xylene (1,2-Dimethylbenzene)	10.0	U	U	10.0	UJ	U	0.16	10.0	ug/kg	SS
SB	NDE065	N		SW8260B	SW5030	NONE	o-Xylene (1,2-Dimethylbenzene)	10.0	U	U	10.0	UJ	U	0.17	10.0	ug/kg	SS
SB	NDE069	N		SW8260B	SW5030	NONE	o-Xylene (1,2-Dimethylbenzene)	10.0	U	U	10.0	UJ	U	0.17	10.0	ug/kg	SS
SB	NDE073	N		SW8260B	SW5030	NONE	o-Xylene (1,2-Dimethylbenzene)	10.0	U	U	10.0	UJ	U	0.17	10.0	ug/kg	SS
SB	NDE078	N		SW8260B	SW5030	NONE	o-Xylene (1,2-Dimethylbenzene)	10.0	U	U	10.0	UJ	U	0.17	10.0	ug/kg	SS
SB	NDE092	N		SW8260B	SW5030	NONE	o-Xylene (1,2-Dimethylbenzene)	10.0	U	U	10.0	UJ	U	0.17	10.0	ug/kg	SS
SB	NDE082	N		SW8260B	SW5030	NONE	o-Xylene (1,2-Dimethylbenzene)	10.0	U	U	10.0	UJ	U	0.17	10.0	ug/kg	SS
SS	NDE055	N		SW8260B	SW5030	NONE	o-Xylene (1,2-Dimethylbenzene)	10.0	U	U	10.0	UJ	U	0.17	10.0	ug/kg	SS
SS	NDE075	N		SW8260B	SW5030	NONE	o-Xylene (1,2-Dimethylbenzene)	10.0	U	U	10.0	UJ	U	0.17	10.0	ug/kg	SS
SS	NDE090	N		SW8260B	SW5030	NONE	o-Xylene (1,2-Dimethylbenzene)	10.0	U	U	10.0	UJ	U	0.17	10.0	ug/kg	SS
SS	NDE097	N		SW8260B	SW5030	NONE	o-Xylene (1,2-Dimethylbenzene)	10.0	U	U	10.0	UJ	U	0.17	10.0	ug/kg	SS
SB	NDE067	N		SW8260B	SW5030	NONE	o-Xylene (1,2-Dimethylbenzene)	10.0	U	U	10.0	UJ	U	0.18	10.0	ug/kg	SS
SS	NDE066	N		SW8260B	SW5030	NONE	o-Xylene (1,2-Dimethylbenzene)	10.0	U	U	10.0	UJ	U	0.18	10.0	ug/kg	SS
SS	NDE070	N		SW8260B	SW5030	NONE	o-Xylene (1,2-Dimethylbenzene)	10.0	U	U	10.0	UJ	U	0.18	10.0	ug/kg	SS
SB	NDE094	N		SW8260B	SW5030	NONE	o-Xylene (1,2-Dimethylbenzene)	10.0	U	U	10.0	UJ	U	0.19	10.0	ug/kg	SS
SB	NDE085	N		SW8260B	SW5030	NONE	o-Xylene (1,2-Dimethylbenzene)	10.0	U	U	10.0	UJ	U	0.19	10.0	ug/kg	SS
SS	NDE068	N		SW8260B	SW5030	NONE	o-Xylene (1,2-Dimethylbenzene)	10.0	U	U	10.0	UJ	U	0.19	10.0	ug/kg	SS
SS	NDE072	N		SW8260B	SW5030	NONE	o-Xylene (1,2-Dimethylbenzene)	10.0	U	U	10.0	UJ	U	0.19	10.0	ug/kg	SS
SS	NDE093	N		SW8260B	SW5030	NONE	o-Xylene (1,2-Dimethylbenzene)	10.0	U	U	10.0	UJ	U	0.19	10.0	ug/kg	SS
SS	NDE095	N		SW8260B	SW5030	NONE	o-Xylene (1,2-Dimethylbenzene)	10.0	U	U	10.0	UJ	U	0.19	10.0	ug/kg	SS
SB	NDE080	N		SW8260B	SW5030	NONE	o-Xylene (1,2-Dimethylbenzene)	11.0	U	U	11.0	UJ	U	0.20	11.0	ug/kg	SS
SS	NDE083	N		SW8260B	SW5030	NONE	o-Xylene (1,2-Dimethylbenzene)	12.0	U	U	12.0	UJ	U	0.22	12.0	ug/kg	SS
SS	NDE084FD1	FD		SW8260B	SW5030	NONE	o-Xylene (1,2-Dimethylbenzene)	12.0	U	U	12.0	UJ	U	0.23	12.0	ug/kg	SS
SS	NDE057	N		SW8260B	SW5030	NONE	Styrene	10.0	U	U	10.0	UJ	U	0.15	10.0	ug/kg	SS
SS	NDE062FD1	FD		SW8260B	SW5030	NONE	Styrene	10.0	U	U	10.0	UJ	U	0.16	10.0	ug/kg	SS
SS	NDE064	N		SW8260B	SW5030	NONE	Styrene	10.0	U	U	10.0	UJ	U	0.16	10.0	ug/kg	SS
SS	NDE086	N		SW8260B	SW5030	NONE	Styrene	10.0	U	U	10.0	UJ	U	0.16	10.0	ug/kg	SS
SB	NDE076	N		SW8260B	SW5030	NONE	Styrene	10.0	U	U	10.0	UJ	U	0.17	10.0	ug/kg	SS
SS	NDE074FD1	FD		SW8260B	SW5030	NONE	Styrene	10.0	U	U	10.0	UJ	U	0.17	10.0	ug/kg	SS
SS	NDE079	N		SW8260B	SW5030	NONE	Styrene	10.0	U	U	10.0	UJ	U	0.17	10.0	ug/kg	SS
SB	NDE065	N		SW8260B	SW5030	NONE	Styrene	10.0	U	U	10.0	UJ	U	0.18	10.0	ug/kg	SS
SB	NDE067	N		SW8260B	SW5030	NONE	Styrene	10.0	U	U	10.0	UJ	U	0.18	10.0	ug/kg	SS
SB	NDE069	N		SW8260B	SW5030	NONE	Styrene	10.0	U	U	10.0	UJ	U	0.18	10.0	ug/kg	SS

Matrix	Sample ID	Sample Type	LR Type	Analytical Method	Prep Method	Dissolved ?	Parameter	Lab Result	Lab Qual	Lab Conc Qual	Final Result	Final Qual	Final Conc Qual	Detection Limit	Reporting Limit	Units	Validation Notes
SB	NDE073	N		SW8260B	SW5030	NONE	Styrene	10.0	U	U	10.0	UJ	U	0.18	10.0	ug/kg	SS
SB	NDE078	N		SW8260B	SW5030	NONE	Styrene	10.0	U	U	10.0	UJ	U	0.18	10.0	ug/kg	SS
SB	NDE092	N		SW8260B	SW5030	NONE	Styrene	10.0	U	U	10.0	UJ	U	0.18	10.0	ug/kg	SS
SB	NDE082	N		SW8260B	SW5030	NONE	Styrene	10.0	U	U	10.0	UJ	U	0.18	10.0	ug/kg	SS
SS	NDE055	N		SW8260B	SW5030	NONE	Styrene	10.0	U	U	10.0	UJ	U	0.18	10.0	ug/kg	SS
SS	NDE075	N		SW8260B	SW5030	NONE	Styrene	10.0	U	U	10.0	UJ	U	0.18	10.0	ug/kg	SS
SS	NDE090	N		SW8260B	SW5030	NONE	Styrene	10.0	U	U	10.0	UJ	U	0.18	10.0	ug/kg	SS
SS	NDE091FD1	FD		SW8260B	SW5030	NONE	Styrene	10.0	U	U	10.0	UJ	U	0.18	10.0	ug/kg	SS
SS	NDE097	N		SW8260B	SW5030	NONE	Styrene	10.0	U	U	10.0	UJ	U	0.18	10.0	ug/kg	SS
SS	NDE066	N		SW8260B	SW5030	NONE	Styrene	10.0	U	U	10.0	UJ	U	0.19	10.0	ug/kg	SS
SS	NDE070	N		SW8260B	SW5030	NONE	Styrene	10.0	U	U	10.0	UJ	U	0.19	10.0	ug/kg	SS
SB	NDE071	N		SW8260B	SW5030	NONE	Styrene	10.0	U	U	10.0	UJ	U	0.20	10.0	ug/kg	SS
SB	NDE094	N		SW8260B	SW5030	NONE	Styrene	10.0	U	U	10.0	UJ	U	0.20	10.0	ug/kg	SS
SB	NDE085	N		SW8260B	SW5030	NONE	Styrene	10.0	U	U	10.0	UJ	U	0.20	10.0	ug/kg	SS
SS	NDE068	N		SW8260B	SW5030	NONE	Styrene	10.0	U	U	10.0	UJ	U	0.20	10.0	ug/kg	SS
SS	NDE072	N		SW8260B	SW5030	NONE	Styrene	10.0	U	U	10.0	UJ	U	0.20	10.0	ug/kg	SS
SS	NDE093	N		SW8260B	SW5030	NONE	Styrene	10.0	U	U	10.0	UJ	U	0.20	10.0	ug/kg	SS
SS	NDE095	N		SW8260B	SW5030	NONE	Styrene	10.0	U	U	10.0	UJ	U	0.20	10.0	ug/kg	SS
SS	NDE088	N		SW8260B	SW5030	NONE	Styrene	10.0	U	U	10.0	UJ	U	0.20	10.0	ug/kg	SS
SB	NDE080	N		SW8260B	SW5030	NONE	Styrene	11.0	U	U	11.0	UJ	U	0.21	11.0	ug/kg	SS
SB	NDE087	N		SW8260B	SW5030	NONE	Styrene	12.0	U	U	12.0	UJ	U	0.23	12.0	ug/kg	SS
SS	NDE083	N		SW8260B	SW5030	NONE	Styrene	12.0	U	U	12.0	UJ	U	0.23	12.0	ug/kg	SS
SS	NDE084FD1	FD		SW8260B	SW5030	NONE	Styrene	12.0	U	U	12.0	UJ	U	0.24	12.0	ug/kg	SS
SS	NDE086	N		SW8260B	SW5030	NONE	Tetrachloroethene (PCE)	0.27	J	J	0.27	J	J	0.19	10.0	ug/kg	SS
SB	NDE071	N		SW8260B	SW5030	NONE	Tetrachloroethene (PCE)	0.29	J	J	0.29	J	J	0.23	10.0	ug/kg	SS
SS	NDE057	N		SW8260B	SW5030	NONE	Tetrachloroethene (PCE)	10.0	U	U	10.0	UJ	U	0.18	10.0	ug/kg	SS
SS	NDE064	N		SW8260B	SW5030	NONE	Tetrachloroethene (PCE)	10.0	U	U	10.0	UJ	U	0.18	10.0	ug/kg	SS
SB	NDE076	N		SW8260B	SW5030	NONE	Tetrachloroethene (PCE)	10.0	U	U	10.0	UJ	U	0.19	10.0	ug/kg	SS
SS	NDE062FD1	FD		SW8260B	SW5030	NONE	Tetrachloroethene (PCE)	10.0	U	U	10.0	UJ	U	0.19	10.0	ug/kg	SS
SS	NDE079	N		SW8260B	SW5030	NONE	Tetrachloroethene (PCE)	10.0	U	U	10.0	UJ	U	0.19	10.0	ug/kg	SS
SB	NDE078	N		SW8260B	SW5030	NONE	Tetrachloroethene (PCE)	10.0	U	U	10.0	UJ	U	0.20	10.0	ug/kg	SS
SB	NDE092	N		SW8260B	SW5030	NONE	Tetrachloroethene (PCE)	10.0	U	U	10.0	UJ	U	0.20	10.0	ug/kg	SS
SS	NDE055	N		SW8260B	SW5030	NONE	Tetrachloroethene (PCE)	10.0	U	U	10.0	UJ	U	0.20	10.0	ug/kg	SS
SS	NDE090	N		SW8260B	SW5030	NONE	Tetrachloroethene (PCE)	10.0	U	U	10.0	UJ	U	0.20	10.0	ug/kg	SS
SS	NDE091FD1	FD		SW8260B	SW5030	NONE	Tetrachloroethene (PCE)	10.0	U	U	10.0	UJ	U	0.20	10.0	ug/kg	SS
SS	NDE074FD1	FD		SW8260B	SW5030	NONE	Tetrachloroethene (PCE)	10.0	U	U	10.0	UJ	U	0.20	10.0	ug/kg	SS
SB	NDE065	N		SW8260B	SW5030	NONE	Tetrachloroethene (PCE)	10.0	U	U	10.0	UJ	U	0.21	10.0	ug/kg	SS
SB	NDE067	N		SW8260B	SW5030	NONE	Tetrachloroethene (PCE)	10.0	U	U	10.0	UJ	U	0.21	10.0	ug/kg	SS
SB	NDE069	N		SW8260B	SW5030	NONE	Tetrachloroethene (PCE)	10.0	U	U	10.0	UJ	U	0.21	10.0	ug/kg	SS
SB	NDE073	N		SW8260B	SW5030	NONE	Tetrachloroethene (PCE)	10.0	U	U	10.0	UJ	U	0.21	10.0	ug/kg	SS
SB	NDE082	N		SW8260B	SW5030	NONE	Tetrachloroethene (PCE)	10.0	U	U	10.0	UJ	U	0.21	10.0	ug/kg	SS
SS	NDE075	N		SW8260B	SW5030	NONE	Tetrachloroethene (PCE)	10.0	U	U	10.0	UJ	U	0.21	10.0	ug/kg	SS
SS	NDE097	N		SW8260B	SW5030	NONE	Tetrachloroethene (PCE)	10.0	U	U	10.0	UJ	U	0.21	10.0	ug/kg	SS
SS	NDE066	N		SW8260B	SW5030	NONE	Tetrachloroethene (PCE)	10.0	U	U	10.0	UJ	U	0.22	10.0	ug/kg	SS
SS	NDE070	N		SW8260B	SW5030	NONE	Tetrachloroethene (PCE)	10.0	U	U	10.0	UJ	U	0.22	10.0	ug/kg	SS
SS	NDE072	N		SW8260B	SW5030	NONE	Tetrachloroethene (PCE)	10.0	U	U	10.0	UJ	U	0.22	10.0	ug/kg	SS
SB	NDE094	N		SW8260B	SW5030	NONE	Tetrachloroethene (PCE)	10.0	U	U	10.0	UJ	U	0.23	10.0	ug/kg	SS
SB	NDE085	N		SW8260B	SW5030	NONE	Tetrachloroethene (PCE)	10.0	U	U	10.0	UJ	U	0.23	10.0	ug/kg	SS
SS	NDE068	N		SW8260B	SW5030	NONE	Tetrachloroethene (PCE)	10.0	U	U	10.0	UJ	U	0.23	10.0	ug/kg	SS
SS	NDE093	N		SW8260B	SW5030	NONE	Tetrachloroethene (PCE)	10.0	U	U	10.0	UJ	U	0.23	10.0	ug/kg	SS
SS	NDE095	N		SW8260B	SW5030	NONE	Tetrachloroethene (PCE)	10.0	U	U	10.0	UJ	U	0.23	10.0	ug/kg	SS

Matrix	Sample ID	Sample Type	LR Type	Analytical Method	Prep Method	Dissolved ?	Parameter	Lab Result	Lab Qual	Lab Conc Qual	Final Result	Final Qual	Final Conc Qual	Detection Limit	Reporting Limit	Units	Validation Notes
SS	NDE088	N		SW8260B	SW5030	NONE	Tetrachloroethene (PCE)	10.0	U	U	10.0	UJ	U	0.23	10.0	ug/kg	SS
SB	NDE080	N		SW8260B	SW5030	NONE	Tetrachloroethene (PCE)	11.0	U	U	11.0	UJ	U	0.24	11.0	ug/kg	SS
SB	NDE087	N		SW8260B	SW5030	NONE	Tetrachloroethene (PCE)	12.0	U	U	12.0	UJ	U	0.27	12.0	ug/kg	SS
SS	NDE083	N		SW8260B	SW5030	NONE	Tetrachloroethene (PCE)	12.0	U	U	12.0	UJ	U	0.27	12.0	ug/kg	SS
SS	NDE084FD1	FD		SW8260B	SW5030	NONE	Tetrachloroethene (PCE)	12.0	U	U	12.0	UJ	U	0.27	12.0	ug/kg	SS
SS	NDE057	N		SW8260B	SW5030	NONE	Toluene	0.59	J	J	0.59	J	J	0.16	10.0	ug/kg	SS
SS	NDE091FD1	FD		SW8260B	SW5030	NONE	Toluene	0.87	J	J	0.87	J	J	0.19	10.0	ug/kg	SS
SS	NDE055	N		SW8260B	SW5030	NONE	Toluene	1.7	J	J	1.7	J	J	0.19	10.0	ug/kg	SS
SS	NDE064	N		SW8260B	SW5030	NONE	Toluene	10.0	U	U	10.0	UJ	U	0.16	10.0	ug/kg	SS
SS	NDE062FD1	FD		SW8260B	SW5030	NONE	Toluene	10.0	U	U	10.0	UJ	U	0.17	10.0	ug/kg	SS
SS	NDE086	N		SW8260B	SW5030	NONE	Toluene	10.0	U	U	10.0	UJ	U	0.17	10.0	ug/kg	SS
SB	NDE076	N		SW8260B	SW5030	NONE	Toluene	10.0	U	U	10.0	UJ	U	0.18	10.0	ug/kg	SS
SS	NDE074FD1	FD		SW8260B	SW5030	NONE	Toluene	10.0	U	U	10.0	UJ	U	0.18	10.0	ug/kg	SS
SS	NDE079	N		SW8260B	SW5030	NONE	Toluene	10.0	U	U	10.0	UJ	U	0.18	10.0	ug/kg	SS
SB	NDE065	N		SW8260B	SW5030	NONE	Toluene	10.0	U	U	10.0	UJ	U	0.19	10.0	ug/kg	SS
SB	NDE067	N		SW8260B	SW5030	NONE	Toluene	10.0	U	U	10.0	UJ	U	0.19	10.0	ug/kg	SS
SB	NDE069	N		SW8260B	SW5030	NONE	Toluene	10.0	U	U	10.0	UJ	U	0.19	10.0	ug/kg	SS
SB	NDE073	N		SW8260B	SW5030	NONE	Toluene	10.0	U	U	10.0	UJ	U	0.19	10.0	ug/kg	SS
SB	NDE092	N		SW8260B	SW5030	NONE	Toluene	10.0	U	U	10.0	UJ	U	0.19	10.0	ug/kg	SS
SB	NDE082	N		SW8260B	SW5030	NONE	Toluene	10.0	U	U	10.0	UJ	U	0.19	10.0	ug/kg	SS
SS	NDE075	N		SW8260B	SW5030	NONE	Toluene	10.0	U	U	10.0	UJ	U	0.19	10.0	ug/kg	SS
SS	NDE090	N		SW8260B	SW5030	NONE	Toluene	10.0	U	U	10.0	UJ	U	0.19	10.0	ug/kg	SS
SS	NDE097	N		SW8260B	SW5030	NONE	Toluene	10.0	U	U	10.0	UJ	U	0.19	10.0	ug/kg	SS
SS	NDE070	N		SW8260B	SW5030	NONE	Toluene	10.0	U	U	10.0	UJ	U	0.20	10.0	ug/kg	SS
SS	NDE072	N		SW8260B	SW5030	NONE	Toluene	10.0	U	U	10.0	UJ	U	0.20	10.0	ug/kg	SS
SB	NDE094	N		SW8260B	SW5030	NONE	Toluene	10.0	U	U	10.0	UJ	U	0.21	10.0	ug/kg	SS
SB	NDE085	N		SW8260B	SW5030	NONE	Toluene	10.0	U	U	10.0	UJ	U	0.21	10.0	ug/kg	SS
SS	NDE068	N		SW8260B	SW5030	NONE	Toluene	10.0	U	U	10.0	UJ	U	0.21	10.0	ug/kg	SS
SS	NDE093	N		SW8260B	SW5030	NONE	Toluene	10.0	U	U	10.0	UJ	U	0.21	10.0	ug/kg	SS
SS	NDE095	N		SW8260B	SW5030	NONE	Toluene	10.0	U	U	10.0	UJ	U	0.21	10.0	ug/kg	SS
SS	NDE088	N		SW8260B	SW5030	NONE	Toluene	10.0	U	U	10.0	UJ	U	0.21	10.0	ug/kg	SS
SB	NDE080	N		SW8260B	SW5030	NONE	Toluene	11.0	U	U	11.0	UJ	U	0.22	11.0	ug/kg	SS
SS	NDE083	N		SW8260B	SW5030	NONE	Toluene	12.0	U	U	12.0	UJ	U	0.25	12.0	ug/kg	SS
SS	NDE084FD1	FD		SW8260B	SW5030	NONE	Toluene	12.0	U	U	12.0	UJ	U	0.25	12.0	ug/kg	SS
SS	NDE057	N		SW8260B	SW5030	NONE	trans-1,3-Dichloropropene	10.0	U	U	10.0	UJ	U	0.14	10.0	ug/kg	SS
SS	NDE064	N		SW8260B	SW5030	NONE	trans-1,3-Dichloropropene	10.0	U	U	10.0	UJ	U	0.15	10.0	ug/kg	SS
SS	NDE086	N		SW8260B	SW5030	NONE	trans-1,3-Dichloropropene	10.0	U	U	10.0	UJ	U	0.15	10.0	ug/kg	SS
SB	NDE076	N		SW8260B	SW5030	NONE	trans-1,3-Dichloropropene	10.0	U	U	10.0	UJ	U	0.16	10.0	ug/kg	SS
SS	NDE062FD1	FD		SW8260B	SW5030	NONE	trans-1,3-Dichloropropene	10.0	U	U	10.0	UJ	U	0.16	10.0	ug/kg	SS
SS	NDE074FD1	FD		SW8260B	SW5030	NONE	trans-1,3-Dichloropropene	10.0	U	U	10.0	UJ	U	0.16	10.0	ug/kg	SS
SS	NDE079	N		SW8260B	SW5030	NONE	trans-1,3-Dichloropropene	10.0	U	U	10.0	UJ	U	0.16	10.0	ug/kg	SS
SB	NDE065	N		SW8260B	SW5030	NONE	trans-1,3-Dichloropropene	10.0	U	U	10.0	UJ	U	0.17	10.0	ug/kg	SS
SB	NDE069	N		SW8260B	SW5030	NONE	trans-1,3-Dichloropropene	10.0	U	U	10.0	UJ	U	0.17	10.0	ug/kg	SS
SB	NDE073	N		SW8260B	SW5030	NONE	trans-1,3-Dichloropropene	10.0	U	U	10.0	UJ	U	0.17	10.0	ug/kg	SS
SB	NDE078	N		SW8260B	SW5030	NONE	trans-1,3-Dichloropropene	10.0	U	U	10.0	UJ	U	0.17	10.0	ug/kg	SS
SB	NDE092	N		SW8260B	SW5030	NONE	trans-1,3-Dichloropropene	10.0	U	U	10.0	UJ	U	0.17	10.0	ug/kg	SS
SB	NDE082	N		SW8260B	SW5030	NONE	trans-1,3-Dichloropropene	10.0	U	U	10.0	UJ	U	0.17	10.0	ug/kg	SS
SS	NDE055	N		SW8260B	SW5030	NONE	trans-1,3-Dichloropropene	10.0	U	U	10.0	UJ	U	0.17	10.0	ug/kg	SS
SS	NDE075	N		SW8260B	SW5030	NONE	trans-1,3-Dichloropropene	10.0	U	U	10.0	UJ	U	0.17	10.0	ug/kg	SS
SS	NDE090	N		SW8260B	SW5030	NONE	trans-1,3-Dichloropropene	10.0	U	U	10.0	UJ	U	0.17	10.0	ug/kg	SS
SS	NDE091FD1	FD		SW8260B	SW5030	NONE	trans-1,3-Dichloropropene	10.0	U	U	10.0	UJ	U	0.17	10.0	ug/kg	SS

Matrix	Sample ID	Sample Type	LR Type	Analytical Method	Prep Method	Dissolved ?	Parameter	Lab Result	Lab Qual	Lab Conc Qual	Final Result	Final Qual	Final Conc Qual	Detection Limit	Reporting Limit	Units	Validation Notes
SS	NDE097	N		SW8260B	SW5030	NONE	trans-1,3-Dichloropropene	10.0	U	U	10.0	UJ	U	0.17	10.0	ug/kg	SS
SB	NDE067	N		SW8260B	SW5030	NONE	trans-1,3-Dichloropropene	10.0	U	U	10.0	UJ	U	0.18	10.0	ug/kg	SS
SS	NDE066	N		SW8260B	SW5030	NONE	trans-1,3-Dichloropropene	10.0	U	U	10.0	UJ	U	0.18	10.0	ug/kg	SS
SS	NDE070	N		SW8260B	SW5030	NONE	trans-1,3-Dichloropropene	10.0	U	U	10.0	UJ	U	0.18	10.0	ug/kg	SS
SB	NDE071	N		SW8260B	SW5030	NONE	trans-1,3-Dichloropropene	10.0	U	U	10.0	UJ	U	0.19	10.0	ug/kg	SS
SB	NDE094	N		SW8260B	SW5030	NONE	trans-1,3-Dichloropropene	10.0	U	U	10.0	UJ	U	0.19	10.0	ug/kg	SS
SB	NDE085	N		SW8260B	SW5030	NONE	trans-1,3-Dichloropropene	10.0	U	U	10.0	UJ	U	0.19	10.0	ug/kg	SS
SS	NDE068	N		SW8260B	SW5030	NONE	trans-1,3-Dichloropropene	10.0	U	U	10.0	UJ	U	0.19	10.0	ug/kg	SS
SS	NDE072	N		SW8260B	SW5030	NONE	trans-1,3-Dichloropropene	10.0	U	U	10.0	UJ	U	0.19	10.0	ug/kg	SS
SS	NDE093	N		SW8260B	SW5030	NONE	trans-1,3-Dichloropropene	10.0	U	U	10.0	UJ	U	0.19	10.0	ug/kg	SS
SS	NDE095	N		SW8260B	SW5030	NONE	trans-1,3-Dichloropropene	10.0	U	U	10.0	UJ	U	0.19	10.0	ug/kg	SS
SS	NDE088	N		SW8260B	SW5030	NONE	trans-1,3-Dichloropropene	10.0	U	U	10.0	UJ	U	0.19	10.0	ug/kg	SS
SB	NDE080	N		SW8260B	SW5030	NONE	trans-1,3-Dichloropropene	11.0	U	U	11.0	UJ	U	0.20	11.0	ug/kg	SS
SB	NDE087	N		SW8260B	SW5030	NONE	trans-1,3-Dichloropropene	12.0	U	U	12.0	UJ	U	0.22	12.0	ug/kg	SS
SS	NDE083	N		SW8260B	SW5030	NONE	trans-1,3-Dichloropropene	12.0	U	U	12.0	UJ	U	0.22	12.0	ug/kg	SS
SS	NDE084FD1	FD		SW8260B	SW5030	NONE	trans-1,3-Dichloropropene	12.0	U	U	12.0	UJ	U	0.23	12.0	ug/kg	SS
SS	NDE057	N		SW8260B	SW5030	NONE	Trichloroethene (TCE)	10.0	U	U	10.0	UJ	U	0.22	10.0	ug/kg	SS
SS	NDE064	N		SW8260B	SW5030	NONE	Trichloroethene (TCE)	10.0	U	U	10.0	UJ	U	0.23	10.0	ug/kg	SS
SB	NDE076	N		SW8260B	SW5030	NONE	Trichloroethene (TCE)	10.0	U	U	10.0	UJ	U	0.24	10.0	ug/kg	SS
SS	NDE062FD1	FD		SW8260B	SW5030	NONE	Trichloroethene (TCE)	10.0	U	U	10.0	UJ	U	0.24	10.0	ug/kg	SS
SS	NDE079	N		SW8260B	SW5030	NONE	Trichloroethene (TCE)	10.0	U	U	10.0	UJ	U	0.24	10.0	ug/kg	SS
SS	NDE086	N		SW8260B	SW5030	NONE	Trichloroethene (TCE)	10.0	U	U	10.0	UJ	U	0.24	10.0	ug/kg	SS
SS	NDE074FD1	FD		SW8260B	SW5030	NONE	Trichloroethene (TCE)	10.0	U	U	10.0	UJ	U	0.25	10.0	ug/kg	SS
SB	NDE069	N		SW8260B	SW5030	NONE	Trichloroethene (TCE)	10.0	U	U	10.0	UJ	U	0.26	10.0	ug/kg	SS
SB	NDE073	N		SW8260B	SW5030	NONE	Trichloroethene (TCE)	10.0	U	U	10.0	UJ	U	0.26	10.0	ug/kg	SS
SB	NDE078	N		SW8260B	SW5030	NONE	Trichloroethene (TCE)	10.0	U	U	10.0	UJ	U	0.26	10.0	ug/kg	SS
SB	NDE092	N		SW8260B	SW5030	NONE	Trichloroethene (TCE)	10.0	U	U	10.0	UJ	U	0.26	10.0	ug/kg	SS
SB	NDE082	N		SW8260B	SW5030	NONE	Trichloroethene (TCE)	10.0	U	U	10.0	UJ	U	0.26	10.0	ug/kg	SS
SS	NDE055	N		SW8260B	SW5030	NONE	Trichloroethene (TCE)	10.0	U	U	10.0	UJ	U	0.26	10.0	ug/kg	SS
SS	NDE075	N		SW8260B	SW5030	NONE	Trichloroethene (TCE)	10.0	U	U	10.0	UJ	U	0.26	10.0	ug/kg	SS
SS	NDE090	N		SW8260B	SW5030	NONE	Trichloroethene (TCE)	10.0	U	U	10.0	UJ	U	0.26	10.0	ug/kg	SS
SS	NDE091FD1	FD		SW8260B	SW5030	NONE	Trichloroethene (TCE)	10.0	U	U	10.0	UJ	U	0.26	10.0	ug/kg	SS
SS	NDE097	N		SW8260B	SW5030	NONE	Trichloroethene (TCE)	10.0	U	U	10.0	UJ	U	0.26	10.0	ug/kg	SS
SB	NDE065	N		SW8260B	SW5030	NONE	Trichloroethene (TCE)	10.0	U	U	10.0	UJ	U	0.27	10.0	ug/kg	SS
SB	NDE067	N		SW8260B	SW5030	NONE	Trichloroethene (TCE)	10.0	U	U	10.0	UJ	U	0.27	10.0	ug/kg	SS
SS	NDE066	N		SW8260B	SW5030	NONE	Trichloroethene (TCE)	10.0	U	U	10.0	UJ	U	0.28	10.0	ug/kg	SS
SS	NDE070	N		SW8260B	SW5030	NONE	Trichloroethene (TCE)	10.0	U	U	10.0	UJ	U	0.28	10.0	ug/kg	SS
SS	NDE072	N		SW8260B	SW5030	NONE	Trichloroethene (TCE)	10.0	U	U	10.0	UJ	U	0.28	10.0	ug/kg	SS
SB	NDE071	N		SW8260B	SW5030	NONE	Trichloroethene (TCE)	10.0	U	U	10.0	UJ	U	0.29	10.0	ug/kg	SS
SB	NDE094	N		SW8260B	SW5030	NONE	Trichloroethene (TCE)	10.0	U	U	10.0	UJ	U	0.29	10.0	ug/kg	SS
SB	NDE085	N		SW8260B	SW5030	NONE	Trichloroethene (TCE)	10.0	U	U	10.0	UJ	U	0.29	10.0	ug/kg	SS
SS	NDE068	N		SW8260B	SW5030	NONE	Trichloroethene (TCE)	10.0	U	U	10.0	UJ	U	0.29	10.0	ug/kg	SS
SS	NDE093	N		SW8260B	SW5030	NONE	Trichloroethene (TCE)	10.0	U	U	10.0	UJ	U	0.29	10.0	ug/kg	SS
SS	NDE095	N		SW8260B	SW5030	NONE	Trichloroethene (TCE)	10.0	U	U	10.0	UJ	U	0.29	10.0	ug/kg	SS
SS	NDE088	N		SW8260B	SW5030	NONE	Trichloroethene (TCE)	10.0	U	U	10.0	UJ	U	0.29	10.0	ug/kg	SS
SB	NDE080	N		SW8260B	SW5030	NONE	Trichloroethene (TCE)	11.0	U	U	11.0	UJ	U	0.31	11.0	ug/kg	SS
SB	NDE087	N		SW8260B	SW5030	NONE	Trichloroethene (TCE)	12.0	U	U	12.0	UJ	U	0.34	12.0	ug/kg	SS
SS	NDE083	N		SW8260B	SW5030	NONE	Trichloroethene (TCE)	12.0	U	U	12.0	UJ	U	0.34	12.0	ug/kg	SS
SS	NDE084FD1	FD		SW8260B	SW5030	NONE	Trichloroethene (TCE)	12.0	U	U	12.0	UJ	U	0.34	12.0	ug/kg	SS
SS	NDE057	N		SW8260B	SW5030	NONE	Vinyl chloride	10.0	U	U	10.0	UJ	U	0.37	10.0	ug/kg	SS
SS	NDE064	N		SW8260B	SW5030	NONE	Vinyl chloride	10.0	U	U	10.0	UJ	U	0.38	10.0	ug/kg	SS

Matrix	Sample ID	Sample Type	LR Type	Analytical Method	Prep Method	Dissolved ?	Parameter	Lab Result	Lab Qual	Lab Conc Qual	Final Result	Final Qual	Final Conc Qual	Detection Limit	Reporting Limit	Units	Validation Notes
SS	NDE062FD1	FD		SW8260B	SW5030	NONE	Vinyl chloride	10.0	U	U	10.0	UJ	U	0.39	10.0	ug/kg	SS
SS	NDE086	N		SW8260B	SW5030	NONE	Vinyl chloride	10.0	U	U	10.0	UJ	U	0.39	10.0	ug/kg	SS
SB	NDE076	N		SW8260B	SW5030	NONE	Vinyl chloride	10.0	U	U	10.0	UJ	U	0.40	10.0	ug/kg	SS
SS	NDE079	N		SW8260B	SW5030	NONE	Vinyl chloride	10.0	U	U	10.0	UJ	U	0.40	10.0	ug/kg	SS
SS	NDE074FD1	FD		SW8260B	SW5030	NONE	Vinyl chloride	10.0	U	U	10.0	UJ	U	0.42	10.0	ug/kg	SS
SB	NDE069	N		SW8260B	SW5030	NONE	Vinyl chloride	10.0	U	U	10.0	UJ	U	0.43	10.0	ug/kg	SS
SB	NDE073	N		SW8260B	SW5030	NONE	Vinyl chloride	10.0	U	U	10.0	UJ	U	0.43	10.0	ug/kg	SS
SB	NDE078	N		SW8260B	SW5030	NONE	Vinyl chloride	10.0	U	U	10.0	UJ	U	0.43	10.0	ug/kg	SS
SB	NDE092	N		SW8260B	SW5030	NONE	Vinyl chloride	10.0	U	U	10.0	UJ	U	0.43	10.0	ug/kg	SS
SS	NDE055	N		SW8260B	SW5030	NONE	Vinyl chloride	10.0	U	U	10.0	UJ	U	0.43	10.0	ug/kg	SS
SS	NDE075	N		SW8260B	SW5030	NONE	Vinyl chloride	10.0	U	U	10.0	UJ	U	0.43	10.0	ug/kg	SS
SS	NDE090	N		SW8260B	SW5030	NONE	Vinyl chloride	10.0	U	U	10.0	UJ	U	0.43	10.0	ug/kg	SS
SS	NDE091FD1	FD		SW8260B	SW5030	NONE	Vinyl chloride	10.0	U	U	10.0	UJ	U	0.43	10.0	ug/kg	SS
SS	NDE097	N		SW8260B	SW5030	NONE	Vinyl chloride	10.0	U	U	10.0	UJ	U	0.43	10.0	ug/kg	SS
SB	NDE065	N		SW8260B	SW5030	NONE	Vinyl chloride	10.0	U	U	10.0	UJ	U	0.44	10.0	ug/kg	SS
SB	NDE067	N		SW8260B	SW5030	NONE	Vinyl chloride	10.0	U	U	10.0	UJ	U	0.44	10.0	ug/kg	SS
SB	NDE082	N		SW8260B	SW5030	NONE	Vinyl chloride	10.0	U	U	10.0	UJ	U	0.44	10.0	ug/kg	SS
SS	NDE066	N		SW8260B	SW5030	NONE	Vinyl chloride	10.0	U	U	10.0	UJ	U	0.46	10.0	ug/kg	SS
SB	NDE071	N		SW8260B	SW5030	NONE	Vinyl chloride	10.0	U	U	10.0	UJ	U	0.47	10.0	ug/kg	SS
SB	NDE094	N		SW8260B	SW5030	NONE	Vinyl chloride	10.0	U	U	10.0	UJ	U	0.47	10.0	ug/kg	SS
SB	NDE085	N		SW8260B	SW5030	NONE	Vinyl chloride	10.0	U	U	10.0	UJ	U	0.47	10.0	ug/kg	SS
SS	NDE070	N		SW8260B	SW5030	NONE	Vinyl chloride	10.0	U	U	10.0	UJ	U	0.47	10.0	ug/kg	SS
SS	NDE072	N		SW8260B	SW5030	NONE	Vinyl chloride	10.0	U	U	10.0	UJ	U	0.47	10.0	ug/kg	SS
SS	NDE095	N		SW8260B	SW5030	NONE	Vinyl chloride	10.0	U	U	10.0	UJ	U	0.47	10.0	ug/kg	SS
SS	NDE088	N		SW8260B	SW5030	NONE	Vinyl chloride	10.0	U	U	10.0	UJ	U	0.47	10.0	ug/kg	SS
SS	NDE068	N		SW8260B	SW5030	NONE	Vinyl chloride	10.0	U	U	10.0	UJ	U	0.48	10.0	ug/kg	SS
SS	NDE093	N		SW8260B	SW5030	NONE	Vinyl chloride	10.0	U	U	10.0	UJ	U	0.48	10.0	ug/kg	SS
SB	NDE080	N		SW8260B	SW5030	NONE	Vinyl chloride	11.0	U	U	11.0	UJ	U	0.51	11.0	ug/kg	SS
SB	NDE087	N		SW8260B	SW5030	NONE	Vinyl chloride	12.0	U	U	12.0	UJ	U	0.56	12.0	ug/kg	SS
SS	NDE083	N		SW8260B	SW5030	NONE	Vinyl chloride	12.0	U	U	12.0	UJ	U	0.56	12.0	ug/kg	SS
SS	NDE084FD1	FD		SW8260B	SW5030	NONE	Vinyl chloride	12.0	U	U	12.0	UJ	U	0.57	12.0	ug/kg	SS
SS	NDE057	N		SW8260B	SW5030	NONE	Xylenes, total	0.83	J	J	0.83	J	J	0.15	10.0	ug/kg	SS
SS	NDE091FD1	FD		SW8260B	SW5030	NONE	Xylenes, total	1.4	J	J	1.4	J	J	0.18	10.0	ug/kg	SS
SS	NDE093	N		SW8260B	SW5030	NONE	Xylenes, total	0.20	J	J	0.20	J	J	0.20	10.0	ug/kg	SS
SS	NDE088	N		SW8260B	SW5030	NONE	Xylenes, total	2.0	J	J	2.0	J	J	0.20	10.0	ug/kg	SS
SB	NDE071	N		SW8260B	SW5030	NONE	Xylenes, total	4.8	J	J	4.8	J	J	0.20	10.0	ug/kg	SS
SS	NDE062FD1	FD		SW8260B	SW5030	NONE	Xylenes, total	10.0	U	U	10.0	UJ	U	0.16	10.0	ug/kg	SS
SS	NDE064	N		SW8260B	SW5030	NONE	Xylenes, total	10.0	U	U	10.0	UJ	U	0.16	10.0	ug/kg	SS
SS	NDE086	N		SW8260B	SW5030	NONE	Xylenes, total	10.0	U	U	10.0	UJ	U	0.16	10.0	ug/kg	SS
SB	NDE076	N		SW8260B	SW5030	NONE	Xylenes, total	10.0	U	U	10.0	UJ	U	0.17	10.0	ug/kg	SS
SS	NDE074FD1	FD		SW8260B	SW5030	NONE	Xylenes, total	10.0	U	U	10.0	UJ	U	0.17	10.0	ug/kg	SS
SS	NDE079	N		SW8260B	SW5030	NONE	Xylenes, total	10.0	U	U	10.0	UJ	U	0.17	10.0	ug/kg	SS
SB	NDE065	N		SW8260B	SW5030	NONE	Xylenes, total	10.0	U	U	10.0	UJ	U	0.18	10.0	ug/kg	SS
SB	NDE067	N		SW8260B	SW5030	NONE	Xylenes, total	10.0	U	U	10.0	UJ	U	0.18	10.0	ug/kg	SS
SB	NDE069	N		SW8260B	SW5030	NONE	Xylenes, total	10.0	U	U	10.0	UJ	U	0.18	10.0	ug/kg	SS
SB	NDE073	N		SW8260B	SW5030	NONE	Xylenes, total	10.0	U	U	10.0	UJ	U	0.18	10.0	ug/kg	SS
SB	NDE078	N		SW8260B	SW5030	NONE	Xylenes, total	10.0	U	U	10.0	UJ	U	0.18	10.0	ug/kg	SS
SB	NDE092	N		SW8260B	SW5030	NONE	Xylenes, total	10.0	U	U	10.0	UJ	U	0.18	10.0	ug/kg	SS
SB	NDE082	N		SW8260B	SW5030	NONE	Xylenes, total	10.0	U	U	10.0	UJ	U	0.18	10.0	ug/kg	SS
SS	NDE055	N		SW8260B	SW5030	NONE	Xylenes, total	10.0	U	U	10.0	UJ	U	0.18	10.0	ug/kg	SS
SS	NDE075	N		SW8260B	SW5030	NONE	Xylenes, total	10.0	U	U	10.0	UJ	U	0.18	10.0	ug/kg	SS

Matrix	Sample ID	Sample Type	LR Type	Analytical Method	Prep Method	Dissolved ?	Parameter	Lab Result	Lab Qual	Lab Conc Qual	Final Result	Final Qual	Final Conc Qual	Detection Limit	Reporting Limit	Units	Validation Notes
SS	NDE090	N		SW8260B	SW5030	NONE	Xylenes, total	10.0	U	U	10.0	UJ	U	0.18	10.0	ug/kg	SS
SS	NDE097	N		SW8260B	SW5030	NONE	Xylenes, total	10.0	U	U	10.0	UJ	U	0.18	10.0	ug/kg	SS
SS	NDE066	N		SW8260B	SW5030	NONE	Xylenes, total	10.0	U	U	10.0	UJ	U	0.19	10.0	ug/kg	SS
SS	NDE070	N		SW8260B	SW5030	NONE	Xylenes, total	10.0	U	U	10.0	UJ	U	0.19	10.0	ug/kg	SS
SB	NDE094	N		SW8260B	SW5030	NONE	Xylenes, total	10.0	U	U	10.0	UJ	U	0.20	10.0	ug/kg	SS
SB	NDE085	N		SW8260B	SW5030	NONE	Xylenes, total	10.0	U	U	10.0	UJ	U	0.20	10.0	ug/kg	SS
SS	NDE068	N		SW8260B	SW5030	NONE	Xylenes, total	10.0	U	U	10.0	UJ	U	0.20	10.0	ug/kg	SS
SS	NDE072	N		SW8260B	SW5030	NONE	Xylenes, total	10.0	U	U	10.0	UJ	U	0.20	10.0	ug/kg	SS
SS	NDE095	N		SW8260B	SW5030	NONE	Xylenes, total	10.0	U	U	10.0	UJ	U	0.20	10.0	ug/kg	SS
SB	NDE080	N		SW8260B	SW5030	NONE	Xylenes, total	11.0	U	U	11.0	UJ	U	0.21	11.0	ug/kg	SS
SS	NDE083	N		SW8260B	SW5030	NONE	Xylenes, total	12.0	U	U	12.0	UJ	U	0.23	12.0	ug/kg	SS
SS	NDE084FD1	FD		SW8260B	SW5030	NONE	Xylenes, total	12.0	U	U	12.0	UJ	U	0.24	12.0	ug/kg	SS
WG	NDAIGW01-R01	N		SW8270C	SW3510	NONE	1,2,4,5-tetrachlorobenzene	5.0	U	U	5.0	UJ	U	2.2	5.0	ug/L	SS
WG	NDAIGW01-R01	N		SW8270C	SW3510	NONE	2,4-Dinitrotoluene	5.0	U	U	5.0	UJ	U	2.8	5.0	ug/L	SS
WG	NDAIGW01-R01	N		SW8270C	SW3510	NONE	2,6-Dinitrotoluene	5.0	U	U	5.0	UJ	U	2.8	5.0	ug/L	SS
WG	NDAIGW01-R01	N		SW8270C	SW3510	NONE	2-Chloronaphthalene	5.0	U	U	5.0	UJ	U	2.8	5.0	ug/L	SS
WG	NDAIGW01-R01	N		SW8270C	SW3510	NONE	2-Methylnaphthalene	5.0	U	U	5.0	UJ	U	2.8	5.0	ug/L	SS
WG	NDAIGW01-R01	N		SW8270C	SW3510	NONE	2-Nitroaniline	20.0	U	U	20.0	UJ	U	3.0	20.0	ug/L	SS
WG	NDAIGW01-R01	N		SW8270C	SW3510	NONE	3,3'-Dichlorobenzidine	5.0	U	U	5.0	UJ	U	2.7	5.0	ug/L	SS
WG	NDAIGW01-R01	N		SW8270C	SW3510	NONE	3-Nitroaniline	20.0	U	U	20.0	UJ	U	2.8	20.0	ug/L	SS
WG	NDAIGW01-R01	N		SW8270C	SW3510	NONE	4-Bromophenyl phenyl ether	5.0	U	U	5.0	UJ	U	2.3	5.0	ug/L	SS
WG	NDAIGW01-R01	N		SW8270C	SW3510	NONE	4-Chloroaniline	5.0	U	U	5.0	UJ	U	3.0	5.0	ug/L	SS
WG	NDAIGW01-R01	N		SW8270C	SW3510	NONE	4-Chlorophenyl phenyl ether	5.0	U	U	5.0	UJ	U	2.5	5.0	ug/L	SS
WG	NDAIGW01-R01	N		SW8270C	SW3510	NONE	4-Nitroaniline	20.0	U	U	20.0	UJ	U	2.8	20.0	ug/L	SS
WG	NDAIGW01-R01	N		SW8270C	SW3510	NONE	Acenaphthene	5.0	U	U	5.0	UJ	U	2.8	5.0	ug/L	SS
WG	NDAIGW01-R01	N		SW8270C	SW3510	NONE	Acenaphthylene	5.0	U	U	5.0	UJ	U	3.0	5.0	ug/L	SS
WG	NDAIGW01-R01	N		SW8270C	SW3510	NONE	Acetophenone	5.0	U	U	5.0	UJ	U	0.66	5.0	ug/L	SS
WG	NDAIGW01-R01	N		SW8270C	SW3510	NONE	Anthracene	5.0	U	U	5.0	UJ	U	2.8	5.0	ug/L	SS
WG	NDAIGW01-R01	N		SW8270C	SW3510	NONE	Atrazine	5.0	U	U	5.0	UJ	U	0.54	5.0	ug/L	SS
WG	NDAIGW01-R01	N		SW8270C	SW3510	NONE	Benzaldehyde	5.0	U	U	5.0	UJ	U	0.49	5.0	ug/L	SS
WG	NDAIGW01-R01	N		SW8270C	SW3510	NONE	Benzo(a)anthracene	5.0	U	U	5.0	UJ	U	2.6	5.0	ug/L	SS
WG	NDAIGW01-R01	N		SW8270C	SW3510	NONE	Benzo(a)pyrene	5.0	U	U	5.0	UJ	U	2.8	5.0	ug/L	SS
WG	NDAIGW01-R01	N		SW8270C	SW3510	NONE	Benzo(b)fluoranthene	5.0	U	U	5.0	UJ	U	2.6	5.0	ug/L	SS
WG	NDAIGW01-R01	N		SW8270C	SW3510	NONE	Benzo(g,h,i)perylene	5.0	U	U	5.0	UJ	U	2.6	5.0	ug/L	SS
WG	NDAIGW01-R01	N		SW8270C	SW3510	NONE	Benzo(k)fluoranthene	5.0	U	U	5.0	UJ	U	2.9	5.0	ug/L	SS
WG	NDAIGW01-R01	N		SW8270C	SW3510	NONE	Benzyl butyl phthalate	5.0	U	U	5.0	UJ	U	3.0	5.0	ug/L	SS
WG	NDAIGW01-R01	N		SW8270C	SW3510	NONE	biphenyl (diphenyl)	5.0	U	U	5.0	UJ	U	0.76	5.0	ug/L	SS
WG	NDAIGW01-R01	N		SW8270C	SW3510	NONE	Bis(2-Chloroethoxy) methane	5.0	U	U	5.0	UJ	U	3.5	5.0	ug/L	SS
WG	NDAIGW01-R01	N		SW8270C	SW3510	NONE	bis(2-Chloroethyl) ether	5.0	U	U	5.0	UJ	U	3.0	5.0	ug/L	SS
WG	NDAIGW01-R01	N		SW8270C	SW3510	NONE	bis(2-Chloroisopropyl) ether	5.0	U	U	5.0	UJ	U	3.3	5.0	ug/L	SS
WG	NDAIGW01-R01	N		SW8270C	SW3510	NONE	bis(2-Ethylhexyl) phthalate	10.0	U	U	10.0	UJ	U	4.4	10.0	ug/L	SS
WG	NDAIGW01-R01	N		SW8270C	SW3510	NONE	Carbazole	10.0	U	U	10.0	UJ	U	3.1	10.0	ug/L	SS
WG	NDAIGW01-R01	N		SW8270C	SW3510	NONE	Chrysene	5.0	U	U	5.0	UJ	U	2.9	5.0	ug/L	SS
WG	NDAIGW01-R01	N		SW8270C	SW3510	NONE	Dibenz(a,h)anthracene	5.0	U	U	5.0	UJ	U	2.7	5.0	ug/L	SS
WG	NDAIGW01-R01	N		SW8270C	SW3510	NONE	Dibenzofuran	5.0	U	U	5.0	UJ	U	2.7	5.0	ug/L	SS
WG	NDAIGW01-R01	N		SW8270C	SW3510	NONE	Diethyl phthalate	5.0	U	U	5.0	UJ	U	2.8	5.0	ug/L	SS
WG	NDAIGW01-R01	N		SW8270C	SW3510	NONE	Dimethyl phthalate	5.0	U	U	5.0	UJ	U	3.0	5.0	ug/L	SS
WG	NDAIGW01-R01	N		SW8270C	SW3510	NONE	Di-n-butyl phthalate	5.0	U	U	5.0	UJ	U	2.9	5.0	ug/L	SS
WG	NDAIGW01-R01	N		SW8270C	SW3510	NONE	Di-n-octylphthalate	5.0	U	U	5.0	UJ	U	2.8	5.0	ug/L	SS
WG	NDAIGW01-R01	N		SW8270C	SW3510	NONE	Fluoranthene	5.0	U	U	5.0	UJ	U	2.8	5.0	ug/L	SS
WG	NDAIGW01-R01	N		SW8270C	SW3510	NONE	Fluorene	5.0	U	U	5.0	UJ	U	2.9	5.0	ug/L	SS

Matrix	Sample ID	Sample Type	LR Type	Analytical Method	Prep Method	Dissolved ?	Parameter	Lab Result	Lab Qual	Lab Conc Qual	Final Result	Final Qual	Final Conc Qual	Detection Limit	Reporting Limit	Units	Validation Notes
WG	NDAIGW01-R01	N		SW8270C	SW3510	NONE	Hexachlorobenzene	5.0	U	U	5.0	UJ	U	2.6	5.0	ug/L	SS
WG	NDAIGW01-R01	N		SW8270C	SW3510	NONE	Hexachlorobutadiene	5.0	U	U	5.0	UJ	U	2.5	5.0	ug/L	SS
WG	NDAIGW01-R01	N		SW8270C	SW3510	NONE	Hexachlorocyclopentadiene	5.0	U	U	5.0	UJ	U	2.2	5.0	ug/L	SS
WG	NDAIGW01-R01	N		SW8270C	SW3510	NONE	Hexachloroethane	5.0	U	U	5.0	UJ	U	2.6	5.0	ug/L	SS
WG	NDAIGW01-R01	N		SW8270C	SW3510	NONE	Indeno(1,2,3-c,d)pyrene	5.0	U	U	5.0	UJ	U	2.6	5.0	ug/L	SS
WG	NDAIGW01-R01	N		SW8270C	SW3510	NONE	Isophorone	5.0	U	U	5.0	UJ	U	3.8	5.0	ug/L	SS
WG	NDAIGW01-R01	N		SW8270C	SW3510	NONE	Naphthalene	5.0	U	U	5.0	UJ	U	2.8	5.0	ug/L	SS
WG	NDAIGW01-R01	N		SW8270C	SW3510	NONE	Nitrobenzene	5.0	U	U	5.0	UJ	U	2.8	5.0	ug/L	SS
WG	NDAIGW01-R01	N		SW8270C	SW3510	NONE	n-Nitrosodi-n-propylamine	5.0	U	U	5.0	UJ	U	3.0	5.0	ug/L	SS
WG	NDAIGW01-R01	N		SW8270C	SW3510	NONE	n-Nitrosodiphenylamine	5.0	U	U	5.0	UJ	U	3.4	5.0	ug/L	SS
WG	NDAIGW01-R01	N		SW8270C	SW3510	NONE	Phenanthrene	5.0	U	U	5.0	UJ	U	2.8	5.0	ug/L	SS
WG	NDAIGW01-R01	N		SW8270C	SW3510	NONE	Pyrene	5.0	U	U	5.0	UJ	U	2.9	5.0	ug/L	SS

Exhibit 5 - Sample Records Qualified as Estimated for Surrogate Recoveries Outside Control Limits

Matrix	Sample ID	Sample Type	Analytical Method	Prep Method	Parameter	Lab Result	Lab Qual	Lab Conc Qual	Final Result	Final Qual	Final Conc Qual	Detection Limit	Reporting Limit	Units	Validation Notes
SB	NDE082	N	FL-PRO	METHOD	petroleum hydrocarbons	11.0	J	=	11.0	J	J	9.6	16.0	mg/kg	SS
SB	NDE058	N	FL-PRO	METHOD	petroleum hydrocarbons	23.0	=	=	23.0	J	J	9.7	16.0	mg/kg	SS
SB	NDE087	N	FL-PRO	METHOD	petroleum hydrocarbons	232	=	=	232	J	J	9.7	16.0	mg/kg	SS
SB	NDE085	N	FL-PRO	METHOD	petroleum hydrocarbons	11.0	J	=	11.0	J	J	10.0	16.0	mg/kg	SS
SB	NDE060	N	FL-PRO	METHOD	petroleum hydrocarbons	75.0	=	=	75.0	J	J	10.0	16.0	mg/kg	SS
SB	NDE089	N	FL-PRO	METHOD	petroleum hydrocarbons	17.0	J	=	17.0	J	J	11.0	18.0	mg/kg	SS
SB	NDE080	N	FL-PRO	METHOD	petroleum hydrocarbons	16.0	J	=	16.0	J	J	12.0	19.0	mg/kg	SS
SB	NDE063	N	FL-PRO	METHOD	petroleum hydrocarbons	25.0	J	J	25.0	J	J	20.0	32.0	mg/kg	SS
SB	NDE054	N	FL-PRO	METHOD	petroleum hydrocarbons	16.0	U	U	16.0	UJ	U	9.7	16.0	mg/kg	SS
SB	NDE056	N	FL-PRO	METHOD	petroleum hydrocarbons	16.0	U	U	16.0	UJ	U	9.7	16.0	mg/kg	SS
SB	NDE071	N	FL-PRO	METHOD	petroleum hydrocarbons	16.0	U	U	16.0	UJ	U	9.7	16.0	mg/kg	SS
SB	NDE052	N	FL-PRO	METHOD	petroleum hydrocarbons	16.0	U	U	16.0	UJ	U	9.9	16.0	mg/kg	SS
SB	NDE098	N	FL-PRO	METHOD	petroleum hydrocarbons	16.0	U	U	16.0	UJ	U	9.9	16.0	mg/kg	SS
SB	NDE046	N	FL-PRO	METHOD	petroleum hydrocarbons	20.0	U	U	20.0	UJ	U	12.0	20.0	mg/kg	SS
SS	NDE053	N	FL-PRO	METHOD	petroleum hydrocarbons	103	=	=	103	J	J	9.6	16.0	mg/kg	SS
SS	NDE081	N	FL-PRO	METHOD	petroleum hydrocarbons	18.0	=	=	18.0	J	J	9.7	16.0	mg/kg	SS
SS	NDE077	N	FL-PRO	METHOD	petroleum hydrocarbons	57.0	=	=	57.0	J	J	9.7	16.0	mg/kg	SS
SS	NDE075	N	FL-PRO	METHOD	petroleum hydrocarbons	66.0	=	=	66.0	J	J	9.7	16.0	mg/kg	SS
SS	NDE066	N	FL-PRO	METHOD	petroleum hydrocarbons	71.0	=	=	71.0	J	J	9.7	16.0	mg/kg	SS
SS	NDE079	N	FL-PRO	METHOD	petroleum hydrocarbons	130	=	=	130	J	J	9.8	16.0	mg/kg	SS
SS	NDE086	N	FL-PRO	METHOD	petroleum hydrocarbons	377	=	=	377	J	J	9.9	16.0	mg/kg	SS
SS	NDE068	N	FL-PRO	METHOD	petroleum hydrocarbons	31.0	=	=	31.0	J	J	10.0	16.0	mg/kg	SS
SS	NDE072	N	FL-PRO	METHOD	petroleum hydrocarbons	56.0	=	=	56.0	J	J	10.0	16.0	mg/kg	SS
SS	NDE091FD1	FD	FL-PRO	METHOD	petroleum hydrocarbons	15.0	J	J	15.0	J	J	11.0	17.0	mg/kg	SS
SS	NDE099FD1	FD	FL-PRO	METHOD	petroleum hydrocarbons	406	=	=	406	J	J	19.0	31.0	mg/kg	SS
SS	NDE074FD1	FD	FL-PRO	METHOD	petroleum hydrocarbons	196	=	=	196	J	J	19.0	32.0	mg/kg	SS
SS	NDE097	N	FL-PRO	METHOD	petroleum hydrocarbons	248	=	=	248	J	J	19.0	32.0	mg/kg	SS
SS	NDE047	N	FL-PRO	METHOD	petroleum hydrocarbons	108	=	=	108	J	J	47.0	77.0	mg/kg	SS
SS	NDE057	N	FL-PRO	METHOD	petroleum hydrocarbons	443	=	=	443	J	J	48.0	78.0	mg/kg	SS
SS	NDE051	N	FL-PRO	METHOD	petroleum hydrocarbons	160	=	=	160	J	J	53.0	87.0	mg/kg	SS
SS	NDE043	N	FL-PRO	METHOD	petroleum hydrocarbons	121	=	=	121	J	J	55.0	89.0	mg/kg	SS
SS	NDAISS40-R01	N	SW8015-E	SW3550	TPH C10-C28	132	=	=	132	J	J	1.4	2.2	mg/kg	SS
SB	NDE076	N	SW8260B	SW5030	1,1,1-Trichloroethane	10.0	U	U	10.0	UJ	U	0.20	10.0	ug/kg	SS
SB	NDE078	N	SW8260B	SW5030	1,1,1-Trichloroethane	10.0	U	U	10.0	UJ	U	0.21	10.0	ug/kg	SS
SB	NDE092	N	SW8260B	SW5030	1,1,1-Trichloroethane	10.0	U	U	10.0	UJ	U	0.21	10.0	ug/kg	SS
SB	NDE065	N	SW8260B	SW5030	1,1,1-Trichloroethane	10.0	U	U	10.0	UJ	U	0.22	10.0	ug/kg	SS
SB	NDE067	N	SW8260B	SW5030	1,1,1-Trichloroethane	10.0	U	U	10.0	UJ	U	0.22	10.0	ug/kg	SS
SB	NDE069	N	SW8260B	SW5030	1,1,1-Trichloroethane	10.0	U	U	10.0	UJ	U	0.22	10.0	ug/kg	SS
SB	NDE073	N	SW8260B	SW5030	1,1,1-Trichloroethane	10.0	U	U	10.0	UJ	U	0.22	10.0	ug/kg	SS
SB	NDE082	N	SW8260B	SW5030	1,1,1-Trichloroethane	10.0	U	U	10.0	UJ	U	0.22	10.0	ug/kg	SS
SB	NDE071	N	SW8260B	SW5030	1,1,1-Trichloroethane	10.0	U	U	10.0	UJ	U	0.24	10.0	ug/kg	SS
SB	NDE094	N	SW8260B	SW5030	1,1,1-Trichloroethane	10.0	U	U	10.0	UJ	U	0.24	10.0	ug/kg	SS
SB	NDE085	N	SW8260B	SW5030	1,1,1-Trichloroethane	10.0	U	U	10.0	UJ	U	0.24	10.0	ug/kg	SS
SB	NDE080	N	SW8260B	SW5030	1,1,1-Trichloroethane	11.0	U	U	11.0	UJ	U	0.26	11.0	ug/kg	SS
SB	NDE087	N	SW8260B	SW5030	1,1,1-Trichloroethane	12.0	U	U	12.0	UJ	U	0.28	12.0	ug/kg	SS
SS	NDE057	N	SW8260B	SW5030	1,1,1-Trichloroethane	10.0	U	U	10.0	UJ	U	0.18	10.0	ug/kg	SS
SS	NDE064	N	SW8260B	SW5030	1,1,1-Trichloroethane	10.0	U	U	10.0	UJ	U	0.19	10.0	ug/kg	SS
SS	NDE086	N	SW8260B	SW5030	1,1,1-Trichloroethane	10.0	U	U	10.0	UJ	U	0.19	10.0	ug/kg	SS

Matrix	Sample ID	Sample Type	Analytical Method	Prep Method	Parameter	Lab Result	Lab Qual	Lab Conc Qual	Final Result	Final Qual	Final Conc Qual	Detection Limit	Reporting Limit	Units	Validation Notes
SS	NDE062FD1	FD	SW8260B	SW5030	1,1,1-Trichloroethane	10.0	U	U	10.0	UJ	U	0.20	10.0	ug/kg	SS
SS	NDE079	N	SW8260B	SW5030	1,1,1-Trichloroethane	10.0	U	U	10.0	UJ	U	0.20	10.0	ug/kg	SS
SS	NDE055	N	SW8260B	SW5030	1,1,1-Trichloroethane	10.0	U	U	10.0	UJ	U	0.21	10.0	ug/kg	SS
SS	NDE090	N	SW8260B	SW5030	1,1,1-Trichloroethane	10.0	U	U	10.0	UJ	U	0.21	10.0	ug/kg	SS
SS	NDE091FD1	FD	SW8260B	SW5030	1,1,1-Trichloroethane	10.0	U	U	10.0	UJ	U	0.21	10.0	ug/kg	SS
SS	NDE097	N	SW8260B	SW5030	1,1,1-Trichloroethane	10.0	U	U	10.0	UJ	U	0.21	10.0	ug/kg	SS
SS	NDE074FD1	FD	SW8260B	SW5030	1,1,1-Trichloroethane	10.0	U	U	10.0	UJ	U	0.21	10.0	ug/kg	SS
SS	NDE075	N	SW8260B	SW5030	1,1,1-Trichloroethane	10.0	U	U	10.0	UJ	U	0.22	10.0	ug/kg	SS
SS	NDE066	N	SW8260B	SW5030	1,1,1-Trichloroethane	10.0	U	U	10.0	UJ	U	0.23	10.0	ug/kg	SS
SS	NDE070	N	SW8260B	SW5030	1,1,1-Trichloroethane	10.0	U	U	10.0	UJ	U	0.23	10.0	ug/kg	SS
SS	NDE072	N	SW8260B	SW5030	1,1,1-Trichloroethane	10.0	U	U	10.0	UJ	U	0.23	10.0	ug/kg	SS
SS	NDE068	N	SW8260B	SW5030	1,1,1-Trichloroethane	10.0	U	U	10.0	UJ	U	0.24	10.0	ug/kg	SS
SS	NDE093	N	SW8260B	SW5030	1,1,1-Trichloroethane	10.0	U	U	10.0	UJ	U	0.24	10.0	ug/kg	SS
SS	NDE095	N	SW8260B	SW5030	1,1,1-Trichloroethane	10.0	U	U	10.0	UJ	U	0.24	10.0	ug/kg	SS
SS	NDE088	N	SW8260B	SW5030	1,1,1-Trichloroethane	10.0	U	U	10.0	UJ	U	0.24	10.0	ug/kg	SS
SS	NDE083	N	SW8260B	SW5030	1,1,1-Trichloroethane	12.0	U	U	12.0	UJ	U	0.28	12.0	ug/kg	SS
SS	NDE084FD1	FD	SW8260B	SW5030	1,1,1-Trichloroethane	12.0	U	U	12.0	UJ	U	0.28	12.0	ug/kg	SS
SB	NDE069	N	SW8260B	SW5030	1,1,2,2-Tetrachloroethane	10.0	U	U	10.0	UJ	U	0.13	10.0	ug/kg	SS
SB	NDE073	N	SW8260B	SW5030	1,1,2,2-Tetrachloroethane	10.0	U	U	10.0	UJ	U	0.13	10.0	ug/kg	SS
SB	NDE076	N	SW8260B	SW5030	1,1,2,2-Tetrachloroethane	10.0	U	U	10.0	UJ	U	0.13	10.0	ug/kg	SS
SB	NDE078	N	SW8260B	SW5030	1,1,2,2-Tetrachloroethane	10.0	U	U	10.0	UJ	U	0.13	10.0	ug/kg	SS
SB	NDE092	N	SW8260B	SW5030	1,1,2,2-Tetrachloroethane	10.0	U	U	10.0	UJ	U	0.13	10.0	ug/kg	SS
SB	NDE065	N	SW8260B	SW5030	1,1,2,2-Tetrachloroethane	10.0	U	U	10.0	UJ	U	0.14	10.0	ug/kg	SS
SB	NDE067	N	SW8260B	SW5030	1,1,2,2-Tetrachloroethane	10.0	U	U	10.0	UJ	U	0.14	10.0	ug/kg	SS
SB	NDE082	N	SW8260B	SW5030	1,1,2,2-Tetrachloroethane	10.0	U	U	10.0	UJ	U	0.14	10.0	ug/kg	SS
SB	NDE071	N	SW8260B	SW5030	1,1,2,2-Tetrachloroethane	10.0	U	U	10.0	UJ	U	0.15	10.0	ug/kg	SS
SB	NDE094	N	SW8260B	SW5030	1,1,2,2-Tetrachloroethane	10.0	U	U	10.0	UJ	U	0.15	10.0	ug/kg	SS
SB	NDE085	N	SW8260B	SW5030	1,1,2,2-Tetrachloroethane	10.0	U	U	10.0	UJ	U	0.15	10.0	ug/kg	SS
SB	NDE080	N	SW8260B	SW5030	1,1,2,2-Tetrachloroethane	11.0	U	U	11.0	UJ	U	0.16	11.0	ug/kg	SS
SB	NDE087	N	SW8260B	SW5030	1,1,2,2-Tetrachloroethane	12.0	U	U	12.0	UJ	U	0.18	12.0	ug/kg	SS
SS	NDE057	N	SW8260B	SW5030	1,1,2,2-Tetrachloroethane	10.0	U	U	10.0	UJ	U	0.11	10.0	ug/kg	SS
SS	NDE062FD1	FD	SW8260B	SW5030	1,1,2,2-Tetrachloroethane	10.0	U	U	10.0	UJ	U	0.12	10.0	ug/kg	SS
SS	NDE064	N	SW8260B	SW5030	1,1,2,2-Tetrachloroethane	10.0	U	U	10.0	UJ	U	0.12	10.0	ug/kg	SS
SS	NDE086	N	SW8260B	SW5030	1,1,2,2-Tetrachloroethane	10.0	U	U	10.0	UJ	U	0.12	10.0	ug/kg	SS
SS	NDE055	N	SW8260B	SW5030	1,1,2,2-Tetrachloroethane	10.0	U	U	10.0	UJ	U	0.13	10.0	ug/kg	SS
SS	NDE090	N	SW8260B	SW5030	1,1,2,2-Tetrachloroethane	10.0	U	U	10.0	UJ	U	0.13	10.0	ug/kg	SS
SS	NDE091FD1	FD	SW8260B	SW5030	1,1,2,2-Tetrachloroethane	10.0	U	U	10.0	UJ	U	0.13	10.0	ug/kg	SS
SS	NDE097	N	SW8260B	SW5030	1,1,2,2-Tetrachloroethane	10.0	U	U	10.0	UJ	U	0.13	10.0	ug/kg	SS
SS	NDE074FD1	FD	SW8260B	SW5030	1,1,2,2-Tetrachloroethane	10.0	U	U	10.0	UJ	U	0.13	10.0	ug/kg	SS
SS	NDE079	N	SW8260B	SW5030	1,1,2,2-Tetrachloroethane	10.0	U	U	10.0	UJ	U	0.13	10.0	ug/kg	SS
SS	NDE066	N	SW8260B	SW5030	1,1,2,2-Tetrachloroethane	10.0	U	U	10.0	UJ	U	0.14	10.0	ug/kg	SS
SS	NDE075	N	SW8260B	SW5030	1,1,2,2-Tetrachloroethane	10.0	U	U	10.0	UJ	U	0.14	10.0	ug/kg	SS
SS	NDE068	N	SW8260B	SW5030	1,1,2,2-Tetrachloroethane	10.0	U	U	10.0	UJ	U	0.15	10.0	ug/kg	SS
SS	NDE070	N	SW8260B	SW5030	1,1,2,2-Tetrachloroethane	10.0	U	U	10.0	UJ	U	0.15	10.0	ug/kg	SS
SS	NDE072	N	SW8260B	SW5030	1,1,2,2-Tetrachloroethane	10.0	U	U	10.0	UJ	U	0.15	10.0	ug/kg	SS
SS	NDE093	N	SW8260B	SW5030	1,1,2,2-Tetrachloroethane	10.0	U	U	10.0	UJ	U	0.15	10.0	ug/kg	SS
SS	NDE095	N	SW8260B	SW5030	1,1,2,2-Tetrachloroethane	10.0	U	U	10.0	UJ	U	0.15	10.0	ug/kg	SS
SS	NDE088	N	SW8260B	SW5030	1,1,2,2-Tetrachloroethane	10.0	U	U	10.0	UJ	U	0.15	10.0	ug/kg	SS

Matrix	Sample ID	Sample Type	Analytical Method	Prep Method	Parameter	Lab Result	Lab Qual	Lab Conc Qual	Final Result	Final Qual	Final Conc Qual	Detection Limit	Reporting Limit	Units	Validation Notes
SS	NDE083	N	SW8260B	SW5030	1,1,2,2-Tetrachloroethane	12.0	U	U	12.0	UJ	U	0.18	12.0	ug/kg	SS
SS	NDE084FD1	FD	SW8260B	SW5030	1,1,2,2-Tetrachloroethane	12.0	U	U	12.0	UJ	U	0.18	12.0	ug/kg	SS
SB	NDE076	N	SW8260B	SW5030	1,1,2-Trichloroethane	10.0	U	U	10.0	UJ	U	0.19	10.0	ug/kg	SS
SB	NDE078	N	SW8260B	SW5030	1,1,2-Trichloroethane	10.0	U	U	10.0	UJ	U	0.20	10.0	ug/kg	SS
SB	NDE092	N	SW8260B	SW5030	1,1,2-Trichloroethane	10.0	U	U	10.0	UJ	U	0.20	10.0	ug/kg	SS
SB	NDE065	N	SW8260B	SW5030	1,1,2-Trichloroethane	10.0	U	U	10.0	UJ	U	0.21	10.0	ug/kg	SS
SB	NDE067	N	SW8260B	SW5030	1,1,2-Trichloroethane	10.0	U	U	10.0	UJ	U	0.21	10.0	ug/kg	SS
SB	NDE069	N	SW8260B	SW5030	1,1,2-Trichloroethane	10.0	U	U	10.0	UJ	U	0.21	10.0	ug/kg	SS
SB	NDE073	N	SW8260B	SW5030	1,1,2-Trichloroethane	10.0	U	U	10.0	UJ	U	0.21	10.0	ug/kg	SS
SB	NDE082	N	SW8260B	SW5030	1,1,2-Trichloroethane	10.0	U	U	10.0	UJ	U	0.21	10.0	ug/kg	SS
SB	NDE071	N	SW8260B	SW5030	1,1,2-Trichloroethane	10.0	U	U	10.0	UJ	U	0.23	10.0	ug/kg	SS
SB	NDE094	N	SW8260B	SW5030	1,1,2-Trichloroethane	10.0	U	U	10.0	UJ	U	0.23	10.0	ug/kg	SS
SB	NDE085	N	SW8260B	SW5030	1,1,2-Trichloroethane	10.0	U	U	10.0	UJ	U	0.23	10.0	ug/kg	SS
SB	NDE080	N	SW8260B	SW5030	1,1,2-Trichloroethane	11.0	U	U	11.0	UJ	U	0.24	11.0	ug/kg	SS
SB	NDE087	N	SW8260B	SW5030	1,1,2-Trichloroethane	12.0	U	U	12.0	UJ	U	0.27	12.0	ug/kg	SS
SS	NDE057	N	SW8260B	SW5030	1,1,2-Trichloroethane	10.0	U	U	10.0	UJ	U	0.18	10.0	ug/kg	SS
SS	NDE064	N	SW8260B	SW5030	1,1,2-Trichloroethane	10.0	U	U	10.0	UJ	U	0.18	10.0	ug/kg	SS
SS	NDE062FD1	FD	SW8260B	SW5030	1,1,2-Trichloroethane	10.0	U	U	10.0	UJ	U	0.19	10.0	ug/kg	SS
SS	NDE079	N	SW8260B	SW5030	1,1,2-Trichloroethane	10.0	U	U	10.0	UJ	U	0.19	10.0	ug/kg	SS
SS	NDE086	N	SW8260B	SW5030	1,1,2-Trichloroethane	10.0	U	U	10.0	UJ	U	0.19	10.0	ug/kg	SS
SS	NDE055	N	SW8260B	SW5030	1,1,2-Trichloroethane	10.0	U	U	10.0	UJ	U	0.20	10.0	ug/kg	SS
SS	NDE090	N	SW8260B	SW5030	1,1,2-Trichloroethane	10.0	U	U	10.0	UJ	U	0.20	10.0	ug/kg	SS
SS	NDE091FD1	FD	SW8260B	SW5030	1,1,2-Trichloroethane	10.0	U	U	10.0	UJ	U	0.20	10.0	ug/kg	SS
SS	NDE074FD1	FD	SW8260B	SW5030	1,1,2-Trichloroethane	10.0	U	U	10.0	UJ	U	0.20	10.0	ug/kg	SS
SS	NDE075	N	SW8260B	SW5030	1,1,2-Trichloroethane	10.0	U	U	10.0	UJ	U	0.21	10.0	ug/kg	SS
SS	NDE097	N	SW8260B	SW5030	1,1,2-Trichloroethane	10.0	U	U	10.0	UJ	U	0.21	10.0	ug/kg	SS
SS	NDE066	N	SW8260B	SW5030	1,1,2-Trichloroethane	10.0	U	U	10.0	UJ	U	0.22	10.0	ug/kg	SS
SS	NDE070	N	SW8260B	SW5030	1,1,2-Trichloroethane	10.0	U	U	10.0	UJ	U	0.22	10.0	ug/kg	SS
SS	NDE072	N	SW8260B	SW5030	1,1,2-Trichloroethane	10.0	U	U	10.0	UJ	U	0.22	10.0	ug/kg	SS
SS	NDE068	N	SW8260B	SW5030	1,1,2-Trichloroethane	10.0	U	U	10.0	UJ	U	0.23	10.0	ug/kg	SS
SS	NDE093	N	SW8260B	SW5030	1,1,2-Trichloroethane	10.0	U	U	10.0	UJ	U	0.23	10.0	ug/kg	SS
SS	NDE095	N	SW8260B	SW5030	1,1,2-Trichloroethane	10.0	U	U	10.0	UJ	U	0.23	10.0	ug/kg	SS
SS	NDE088	N	SW8260B	SW5030	1,1,2-Trichloroethane	10.0	U	U	10.0	UJ	U	0.23	10.0	ug/kg	SS
SS	NDE083	N	SW8260B	SW5030	1,1,2-Trichloroethane	12.0	U	U	12.0	UJ	U	0.27	12.0	ug/kg	SS
SS	NDE084FD1	FD	SW8260B	SW5030	1,1,2-Trichloroethane	12.0	U	U	12.0	UJ	U	0.27	12.0	ug/kg	SS
SB	NDE076	N	SW8260B	SW5030	1,1-Dichloroethane	10.0	U	U	10.0	UJ	U	0.39	10.0	ug/kg	SS
SB	NDE069	N	SW8260B	SW5030	1,1-Dichloroethane	10.0	U	U	10.0	UJ	U	0.42	10.0	ug/kg	SS
SB	NDE073	N	SW8260B	SW5030	1,1-Dichloroethane	10.0	U	U	10.0	UJ	U	0.42	10.0	ug/kg	SS
SB	NDE078	N	SW8260B	SW5030	1,1-Dichloroethane	10.0	U	U	10.0	UJ	U	0.42	10.0	ug/kg	SS
SB	NDE092	N	SW8260B	SW5030	1,1-Dichloroethane	10.0	U	U	10.0	UJ	U	0.42	10.0	ug/kg	SS
SB	NDE065	N	SW8260B	SW5030	1,1-Dichloroethane	10.0	U	U	10.0	UJ	U	0.43	10.0	ug/kg	SS
SB	NDE067	N	SW8260B	SW5030	1,1-Dichloroethane	10.0	U	U	10.0	UJ	U	0.43	10.0	ug/kg	SS
SB	NDE082	N	SW8260B	SW5030	1,1-Dichloroethane	10.0	U	U	10.0	UJ	U	0.43	10.0	ug/kg	SS
SB	NDE071	N	SW8260B	SW5030	1,1-Dichloroethane	10.0	U	U	10.0	UJ	U	0.46	10.0	ug/kg	SS
SB	NDE094	N	SW8260B	SW5030	1,1-Dichloroethane	10.0	U	U	10.0	UJ	U	0.46	10.0	ug/kg	SS
SB	NDE085	N	SW8260B	SW5030	1,1-Dichloroethane	10.0	U	U	10.0	UJ	U	0.46	10.0	ug/kg	SS
SB	NDE080	N	SW8260B	SW5030	1,1-Dichloroethane	11.0	U	U	11.0	UJ	U	0.50	11.0	ug/kg	SS
SB	NDE087	N	SW8260B	SW5030	1,1-Dichloroethane	12.0	U	U	12.0	UJ	U	0.55	12.0	ug/kg	SS

Matrix	Sample ID	Sample Type	Analytical Method	Prep Method	Parameter	Lab Result	Lab Qual	Lab Conc Qual	Final Result	Final Qual	Final Conc Qual	Detection Limit	Reporting Limit	Units	Validation Notes
SS	NDE057	N	SW8260B	SW5030	1,1-Dichloroethane	10.0	U	U	10.0	UJ	U	0.36	10.0	ug/kg	SS
SS	NDE064	N	SW8260B	SW5030	1,1-Dichloroethane	10.0	U	U	10.0	UJ	U	0.37	10.0	ug/kg	SS
SS	NDE086	N	SW8260B	SW5030	1,1-Dichloroethane	10.0	U	U	10.0	UJ	U	0.38	10.0	ug/kg	SS
SS	NDE062FD1	FD	SW8260B	SW5030	1,1-Dichloroethane	10.0	U	U	10.0	UJ	U	0.39	10.0	ug/kg	SS
SS	NDE079	N	SW8260B	SW5030	1,1-Dichloroethane	10.0	U	U	10.0	UJ	U	0.39	10.0	ug/kg	SS
SS	NDE074FD1	FD	SW8260B	SW5030	1,1-Dichloroethane	10.0	U	U	10.0	UJ	U	0.41	10.0	ug/kg	SS
SS	NDE055	N	SW8260B	SW5030	1,1-Dichloroethane	10.0	U	U	10.0	UJ	U	0.42	10.0	ug/kg	SS
SS	NDE090	N	SW8260B	SW5030	1,1-Dichloroethane	10.0	U	U	10.0	UJ	U	0.42	10.0	ug/kg	SS
SS	NDE091FD1	FD	SW8260B	SW5030	1,1-Dichloroethane	10.0	U	U	10.0	UJ	U	0.42	10.0	ug/kg	SS
SS	NDE097	N	SW8260B	SW5030	1,1-Dichloroethane	10.0	U	U	10.0	UJ	U	0.42	10.0	ug/kg	SS
SS	NDE075	N	SW8260B	SW5030	1,1-Dichloroethane	10.0	U	U	10.0	UJ	U	0.43	10.0	ug/kg	SS
SS	NDE066	N	SW8260B	SW5030	1,1-Dichloroethane	10.0	U	U	10.0	UJ	U	0.45	10.0	ug/kg	SS
SS	NDE070	N	SW8260B	SW5030	1,1-Dichloroethane	10.0	U	U	10.0	UJ	U	0.46	10.0	ug/kg	SS
SS	NDE072	N	SW8260B	SW5030	1,1-Dichloroethane	10.0	U	U	10.0	UJ	U	0.46	10.0	ug/kg	SS
SS	NDE095	N	SW8260B	SW5030	1,1-Dichloroethane	10.0	U	U	10.0	UJ	U	0.46	10.0	ug/kg	SS
SS	NDE088	N	SW8260B	SW5030	1,1-Dichloroethane	10.0	U	U	10.0	UJ	U	0.46	10.0	ug/kg	SS
SS	NDE068	N	SW8260B	SW5030	1,1-Dichloroethane	10.0	U	U	10.0	UJ	U	0.47	10.0	ug/kg	SS
SS	NDE093	N	SW8260B	SW5030	1,1-Dichloroethane	10.0	U	U	10.0	UJ	U	0.47	10.0	ug/kg	SS
SS	NDE083	N	SW8260B	SW5030	1,1-Dichloroethane	12.0	U	U	12.0	UJ	U	0.55	12.0	ug/kg	SS
SS	NDE084FD1	FD	SW8260B	SW5030	1,1-Dichloroethane	12.0	U	U	12.0	UJ	U	0.56	12.0	ug/kg	SS
SB	NDE076	N	SW8260B	SW5030	1,1-Dichloroethene	10.0	U	U	10.0	UJ	U	0.34	10.0	ug/kg	SS
SB	NDE078	N	SW8260B	SW5030	1,1-Dichloroethene	10.0	U	U	10.0	UJ	U	0.36	10.0	ug/kg	SS
SB	NDE069	N	SW8260B	SW5030	1,1-Dichloroethene	10.0	U	U	10.0	UJ	U	0.37	10.0	ug/kg	SS
SB	NDE073	N	SW8260B	SW5030	1,1-Dichloroethene	10.0	U	U	10.0	UJ	U	0.37	10.0	ug/kg	SS
SB	NDE092	N	SW8260B	SW5030	1,1-Dichloroethene	10.0	U	U	10.0	UJ	U	0.37	10.0	ug/kg	SS
SB	NDE082	N	SW8260B	SW5030	1,1-Dichloroethene	10.0	U	U	10.0	UJ	U	0.37	10.0	ug/kg	SS
SB	NDE065	N	SW8260B	SW5030	1,1-Dichloroethene	10.0	U	U	10.0	UJ	U	0.38	10.0	ug/kg	SS
SB	NDE067	N	SW8260B	SW5030	1,1-Dichloroethene	10.0	U	U	10.0	UJ	U	0.38	10.0	ug/kg	SS
SB	NDE071	N	SW8260B	SW5030	1,1-Dichloroethene	10.0	U	U	10.0	UJ	U	0.40	10.0	ug/kg	SS
SB	NDE094	N	SW8260B	SW5030	1,1-Dichloroethene	10.0	U	U	10.0	UJ	U	0.40	10.0	ug/kg	SS
SB	NDE085	N	SW8260B	SW5030	1,1-Dichloroethene	10.0	U	U	10.0	UJ	U	0.40	10.0	ug/kg	SS
SB	NDE080	N	SW8260B	SW5030	1,1-Dichloroethene	11.0	U	U	11.0	UJ	U	0.44	11.0	ug/kg	SS
SB	NDE087	N	SW8260B	SW5030	1,1-Dichloroethene	12.0	U	U	12.0	UJ	U	0.48	12.0	ug/kg	SS
SS	NDE057	N	SW8260B	SW5030	1,1-Dichloroethene	10.0	U	U	10.0	UJ	U	0.31	10.0	ug/kg	SS
SS	NDE064	N	SW8260B	SW5030	1,1-Dichloroethene	10.0	U	U	10.0	UJ	U	0.32	10.0	ug/kg	SS
SS	NDE086	N	SW8260B	SW5030	1,1-Dichloroethene	10.0	U	U	10.0	UJ	U	0.33	10.0	ug/kg	SS
SS	NDE062FD1	FD	SW8260B	SW5030	1,1-Dichloroethene	10.0	U	U	10.0	UJ	U	0.34	10.0	ug/kg	SS
SS	NDE079	N	SW8260B	SW5030	1,1-Dichloroethene	10.0	U	U	10.0	UJ	U	0.34	10.0	ug/kg	SS
SS	NDE074FD1	FD	SW8260B	SW5030	1,1-Dichloroethene	10.0	U	U	10.0	UJ	U	0.35	10.0	ug/kg	SS
SS	NDE055	N	SW8260B	SW5030	1,1-Dichloroethene	10.0	U	U	10.0	UJ	U	0.36	10.0	ug/kg	SS
SS	NDE090	N	SW8260B	SW5030	1,1-Dichloroethene	10.0	U	U	10.0	UJ	U	0.36	10.0	ug/kg	SS
SS	NDE091FD1	FD	SW8260B	SW5030	1,1-Dichloroethene	10.0	U	U	10.0	UJ	U	0.36	10.0	ug/kg	SS
SS	NDE075	N	SW8260B	SW5030	1,1-Dichloroethene	10.0	U	U	10.0	UJ	U	0.37	10.0	ug/kg	SS
SS	NDE097	N	SW8260B	SW5030	1,1-Dichloroethene	10.0	U	U	10.0	UJ	U	0.37	10.0	ug/kg	SS
SS	NDE066	N	SW8260B	SW5030	1,1-Dichloroethene	10.0	U	U	10.0	UJ	U	0.39	10.0	ug/kg	SS
SS	NDE070	N	SW8260B	SW5030	1,1-Dichloroethene	10.0	U	U	10.0	UJ	U	0.40	10.0	ug/kg	SS
SS	NDE072	N	SW8260B	SW5030	1,1-Dichloroethene	10.0	U	U	10.0	UJ	U	0.40	10.0	ug/kg	SS
SS	NDE095	N	SW8260B	SW5030	1,1-Dichloroethene	10.0	U	U	10.0	UJ	U	0.40	10.0	ug/kg	SS

Matrix	Sample ID	Sample Type	Analytical Method	Prep Method	Parameter	Lab Result	Lab Qual	Lab Conc Qual	Final Result	Final Qual	Final Conc Qual	Detection Limit	Reporting Limit	Units	Validation Notes
SS	NDE088	N	SW8260B	SW5030	1,1-Dichloroethene	10.0	U	U	10.0	UJ	U	0.40	10.0	ug/kg	SS
SS	NDE068	N	SW8260B	SW5030	1,1-Dichloroethene	10.0	U	U	10.0	UJ	U	0.41	10.0	ug/kg	SS
SS	NDE093	N	SW8260B	SW5030	1,1-Dichloroethene	10.0	U	U	10.0	UJ	U	0.41	10.0	ug/kg	SS
SS	NDE083	N	SW8260B	SW5030	1,1-Dichloroethene	12.0	U	U	12.0	UJ	U	0.48	12.0	ug/kg	SS
SS	NDE084FD1	FD	SW8260B	SW5030	1,1-Dichloroethene	12.0	U	U	12.0	UJ	U	0.49	12.0	ug/kg	SS
SB	NDE076	N	SW8260B	SW5030	1,2-Dichloroethane	10.0	U	U	10.0	UJ	U	0.18	10.0	ug/kg	SS
SB	NDE065	N	SW8260B	SW5030	1,2-Dichloroethane	10.0	U	U	10.0	UJ	U	0.20	10.0	ug/kg	SS
SB	NDE067	N	SW8260B	SW5030	1,2-Dichloroethane	10.0	U	U	10.0	UJ	U	0.20	10.0	ug/kg	SS
SB	NDE069	N	SW8260B	SW5030	1,2-Dichloroethane	10.0	U	U	10.0	UJ	U	0.20	10.0	ug/kg	SS
SB	NDE073	N	SW8260B	SW5030	1,2-Dichloroethane	10.0	U	U	10.0	UJ	U	0.20	10.0	ug/kg	SS
SB	NDE078	N	SW8260B	SW5030	1,2-Dichloroethane	10.0	U	U	10.0	UJ	U	0.20	10.0	ug/kg	SS
SB	NDE092	N	SW8260B	SW5030	1,2-Dichloroethane	10.0	U	U	10.0	UJ	U	0.20	10.0	ug/kg	SS
SB	NDE082	N	SW8260B	SW5030	1,2-Dichloroethane	10.0	U	U	10.0	UJ	U	0.20	10.0	ug/kg	SS
SB	NDE071	N	SW8260B	SW5030	1,2-Dichloroethane	10.0	U	U	10.0	UJ	U	0.22	10.0	ug/kg	SS
SB	NDE094	N	SW8260B	SW5030	1,2-Dichloroethane	10.0	U	U	10.0	UJ	U	0.22	10.0	ug/kg	SS
SB	NDE085	N	SW8260B	SW5030	1,2-Dichloroethane	10.0	U	U	10.0	UJ	U	0.22	10.0	ug/kg	SS
SB	NDE080	N	SW8260B	SW5030	1,2-Dichloroethane	11.0	U	U	11.0	UJ	U	0.23	11.0	ug/kg	SS
SB	NDE087	N	SW8260B	SW5030	1,2-Dichloroethane	12.0	U	U	12.0	UJ	U	0.26	12.0	ug/kg	SS
SS	NDE088	N	SW8260B	SW5030	1,2-Dichloroethane	1.0	J	J	1.0	J	J	0.22	10.0	ug/kg	SS
SS	NDE090	N	SW8260B	SW5030	1,2-Dichloroethane	0.20	B	J	10.0	UJ	U	0.20	10.0	ug/kg	BL,SS
SS	NDE093	N	SW8260B	SW5030	1,2-Dichloroethane	0.23	B	J	10.0	UJ	U	0.22	10.0	ug/kg	BL,SS
SS	NDE057	N	SW8260B	SW5030	1,2-Dichloroethane	10.0	U	U	10.0	UJ	U	0.17	10.0	ug/kg	SS
SS	NDE064	N	SW8260B	SW5030	1,2-Dichloroethane	10.0	U	U	10.0	UJ	U	0.17	10.0	ug/kg	SS
SS	NDE062FD1	FD	SW8260B	SW5030	1,2-Dichloroethane	10.0	U	U	10.0	UJ	U	0.18	10.0	ug/kg	SS
SS	NDE079	N	SW8260B	SW5030	1,2-Dichloroethane	10.0	U	U	10.0	UJ	U	0.18	10.0	ug/kg	SS
SS	NDE086	N	SW8260B	SW5030	1,2-Dichloroethane	10.0	U	U	10.0	UJ	U	0.18	10.0	ug/kg	SS
SS	NDE074FD1	FD	SW8260B	SW5030	1,2-Dichloroethane	10.0	U	U	10.0	UJ	U	0.19	10.0	ug/kg	SS
SS	NDE055	N	SW8260B	SW5030	1,2-Dichloroethane	10.0	U	U	10.0	UJ	U	0.20	10.0	ug/kg	SS
SS	NDE075	N	SW8260B	SW5030	1,2-Dichloroethane	10.0	U	U	10.0	UJ	U	0.20	10.0	ug/kg	SS
SS	NDE091FD1	FD	SW8260B	SW5030	1,2-Dichloroethane	10.0	U	U	10.0	UJ	U	0.20	10.0	ug/kg	SS
SS	NDE097	N	SW8260B	SW5030	1,2-Dichloroethane	10.0	U	U	10.0	UJ	U	0.20	10.0	ug/kg	SS
SS	NDE066	N	SW8260B	SW5030	1,2-Dichloroethane	10.0	U	U	10.0	UJ	U	0.21	10.0	ug/kg	SS
SS	NDE070	N	SW8260B	SW5030	1,2-Dichloroethane	10.0	U	U	10.0	UJ	U	0.21	10.0	ug/kg	SS
SS	NDE072	N	SW8260B	SW5030	1,2-Dichloroethane	10.0	U	U	10.0	UJ	U	0.21	10.0	ug/kg	SS
SS	NDE068	N	SW8260B	SW5030	1,2-Dichloroethane	10.0	U	U	10.0	UJ	U	0.22	10.0	ug/kg	SS
SS	NDE095	N	SW8260B	SW5030	1,2-Dichloroethane	10.0	U	U	10.0	UJ	U	0.22	10.0	ug/kg	SS
SS	NDE083	N	SW8260B	SW5030	1,2-Dichloroethane	12.0	U	U	12.0	UJ	U	0.26	12.0	ug/kg	SS
SS	NDE084FD1	FD	SW8260B	SW5030	1,2-Dichloroethane	12.0	U	U	12.0	UJ	U	0.26	12.0	ug/kg	SS
SB	NDE076	N	SW8260B	SW5030	1,2-Dichloropropane	10.0	U	U	10.0	UJ	U	0.10	10.0	ug/kg	SS
SB	NDE065	N	SW8260B	SW5030	1,2-Dichloropropane	10.0	U	U	10.0	UJ	U	0.11	10.0	ug/kg	SS
SB	NDE067	N	SW8260B	SW5030	1,2-Dichloropropane	10.0	U	U	10.0	UJ	U	0.11	10.0	ug/kg	SS
SB	NDE069	N	SW8260B	SW5030	1,2-Dichloropropane	10.0	U	U	10.0	UJ	U	0.11	10.0	ug/kg	SS
SB	NDE073	N	SW8260B	SW5030	1,2-Dichloropropane	10.0	U	U	10.0	UJ	U	0.11	10.0	ug/kg	SS
SB	NDE078	N	SW8260B	SW5030	1,2-Dichloropropane	10.0	U	U	10.0	UJ	U	0.11	10.0	ug/kg	SS
SB	NDE092	N	SW8260B	SW5030	1,2-Dichloropropane	10.0	U	U	10.0	UJ	U	0.11	10.0	ug/kg	SS
SB	NDE082	N	SW8260B	SW5030	1,2-Dichloropropane	10.0	U	U	10.0	UJ	U	0.11	10.0	ug/kg	SS
SB	NDE071	N	SW8260B	SW5030	1,2-Dichloropropane	10.0	U	U	10.0	UJ	U	0.12	10.0	ug/kg	SS
SB	NDE094	N	SW8260B	SW5030	1,2-Dichloropropane	10.0	U	U	10.0	UJ	U	0.12	10.0	ug/kg	SS

Matrix	Sample ID	Sample Type	Analytical Method	Prep Method	Parameter	Lab Result	Lab Qual	Lab Conc Qual	Final Result	Final Qual	Final Conc Qual	Detection Limit	Reporting Limit	Units	Validation Notes
SB	NDE085	N	SW8260B	SW5030	1,2-Dichloropropane	10.0	U	U	10.0	UJ	U	0.12	10.0	ug/kg	SS
SB	NDE080	N	SW8260B	SW5030	1,2-Dichloropropane	11.0	U	U	11.0	UJ	U	0.13	11.0	ug/kg	SS
SB	NDE087	N	SW8260B	SW5030	1,2-Dichloropropane	12.0	U	U	12.0	UJ	U	0.14	12.0	ug/kg	SS
SS	NDE057	N	SW8260B	SW5030	1,2-Dichloropropane	10.0	U	U	10.0	UJ	U	0.090	10.0	ug/kg	SS
SS	NDE062FD1	FD	SW8260B	SW5030	1,2-Dichloropropane	10.0	U	U	10.0	UJ	U	0.090	10.0	ug/kg	SS
SS	NDE064	N	SW8260B	SW5030	1,2-Dichloropropane	10.0	U	U	10.0	UJ	U	0.090	10.0	ug/kg	SS
SS	NDE086	N	SW8260B	SW5030	1,2-Dichloropropane	10.0	U	U	10.0	UJ	U	0.090	10.0	ug/kg	SS
SS	NDE074FD1	FD	SW8260B	SW5030	1,2-Dichloropropane	10.0	U	U	10.0	UJ	U	0.10	10.0	ug/kg	SS
SS	NDE079	N	SW8260B	SW5030	1,2-Dichloropropane	10.0	U	U	10.0	UJ	U	0.10	10.0	ug/kg	SS
SS	NDE055	N	SW8260B	SW5030	1,2-Dichloropropane	10.0	U	U	10.0	UJ	U	0.11	10.0	ug/kg	SS
SS	NDE066	N	SW8260B	SW5030	1,2-Dichloropropane	10.0	U	U	10.0	UJ	U	0.11	10.0	ug/kg	SS
SS	NDE075	N	SW8260B	SW5030	1,2-Dichloropropane	10.0	U	U	10.0	UJ	U	0.11	10.0	ug/kg	SS
SS	NDE090	N	SW8260B	SW5030	1,2-Dichloropropane	10.0	U	U	10.0	UJ	U	0.11	10.0	ug/kg	SS
SS	NDE091FD1	FD	SW8260B	SW5030	1,2-Dichloropropane	10.0	U	U	10.0	UJ	U	0.11	10.0	ug/kg	SS
SS	NDE097	N	SW8260B	SW5030	1,2-Dichloropropane	10.0	U	U	10.0	UJ	U	0.11	10.0	ug/kg	SS
SS	NDE068	N	SW8260B	SW5030	1,2-Dichloropropane	10.0	U	U	10.0	UJ	U	0.12	10.0	ug/kg	SS
SS	NDE070	N	SW8260B	SW5030	1,2-Dichloropropane	10.0	U	U	10.0	UJ	U	0.12	10.0	ug/kg	SS
SS	NDE072	N	SW8260B	SW5030	1,2-Dichloropropane	10.0	U	U	10.0	UJ	U	0.12	10.0	ug/kg	SS
SS	NDE093	N	SW8260B	SW5030	1,2-Dichloropropane	10.0	U	U	10.0	UJ	U	0.12	10.0	ug/kg	SS
SS	NDE095	N	SW8260B	SW5030	1,2-Dichloropropane	10.0	U	U	10.0	UJ	U	0.12	10.0	ug/kg	SS
SS	NDE088	N	SW8260B	SW5030	1,2-Dichloropropane	10.0	U	U	10.0	UJ	U	0.12	10.0	ug/kg	SS
SS	NDE083	N	SW8260B	SW5030	1,2-Dichloropropane	12.0	U	U	12.0	UJ	U	0.14	12.0	ug/kg	SS
SS	NDE084FD1	FD	SW8260B	SW5030	1,2-Dichloropropane	12.0	U	U	12.0	UJ	U	0.14	12.0	ug/kg	SS
SB	NDE087	N	SW8260B	SW5030	2-butanone (MEK)	2.9	J	J	2.9	J	J	2.0	12.0	ug/kg	CC, SS
SB	NDE092	N	SW8260B	SW5030	2-butanone (MEK)	10.0	U	U	10.0	UJ	U	1.5	10.0	ug/kg	SS
SB	NDE085	N	SW8260B	SW5030	2-butanone (MEK)	10.0	U	U	10.0	UJ	U	1.7	10.0	ug/kg	SS
SB	NDE080	N	SW8260B	SW5030	2-butanone (MEK)	11.0	U	U	11.0	UJ	U	1.8	11.0	ug/kg	SS
SS	NDE079	N	SW8260B	SW5030	2-butanone (MEK)	10.0	U	U	10.0	UJ	U	1.4	10.0	ug/kg	SS
SS	NDE075	N	SW8260B	SW5030	2-butanone (MEK)	10.0	U	U	10.0	UJ	U	1.5	10.0	ug/kg	SS
SS	NDE090	N	SW8260B	SW5030	2-butanone (MEK)	10.0	U	U	10.0	UJ	U	1.5	10.0	ug/kg	SS
SS	NDE091FD1	FD	SW8260B	SW5030	2-butanone (MEK)	10.0	U	U	10.0	UJ	U	1.5	10.0	ug/kg	SS
SS	NDE074FD1	FD	SW8260B	SW5030	2-butanone (MEK)	10.0	U	U	10.0	UJ	U	1.5	10.0	ug/kg	SS
SS	NDE093	N	SW8260B	SW5030	2-butanone (MEK)	10.0	U	U	10.0	UJ	U	1.7	10.0	ug/kg	SS
SS	NDE095	N	SW8260B	SW5030	2-butanone (MEK)	10.0	U	U	10.0	UJ	U	1.7	10.0	ug/kg	SS
SS	NDE088	N	SW8260B	SW5030	2-butanone (MEK)	10.0	U	U	10.0	UJ	U	1.7	10.0	ug/kg	SS
SS	NDE084FD1	FD	SW8260B	SW5030	2-butanone (MEK)	12.0	U	U	12.0	UJ	U	2.0	12.0	ug/kg	SS
SB	NDE076	N	SW8260B	SW5030	2-Hexanone	10.0	U	U	10.0	UJ	U	0.47	10.0	ug/kg	SS
SB	NDE069	N	SW8260B	SW5030	2-Hexanone	10.0	U	U	10.0	UJ	U	0.50	10.0	ug/kg	SS
SB	NDE073	N	SW8260B	SW5030	2-Hexanone	10.0	U	U	10.0	UJ	U	0.50	10.0	ug/kg	SS
SB	NDE078	N	SW8260B	SW5030	2-Hexanone	10.0	U	U	10.0	UJ	U	0.50	10.0	ug/kg	SS
SB	NDE092	N	SW8260B	SW5030	2-Hexanone	10.0	U	U	10.0	UJ	U	0.50	10.0	ug/kg	SS
SB	NDE082	N	SW8260B	SW5030	2-Hexanone	10.0	U	U	10.0	UJ	U	0.51	10.0	ug/kg	SS
SB	NDE065	N	SW8260B	SW5030	2-Hexanone	10.0	U	U	10.0	UJ	U	0.52	10.0	ug/kg	SS
SB	NDE067	N	SW8260B	SW5030	2-Hexanone	10.0	U	U	10.0	UJ	U	0.52	10.0	ug/kg	SS
SB	NDE071	N	SW8260B	SW5030	2-Hexanone	10.0	U	U	10.0	UJ	U	0.55	10.0	ug/kg	SS
SB	NDE094	N	SW8260B	SW5030	2-Hexanone	10.0	U	U	10.0	UJ	U	0.55	10.0	ug/kg	SS
SB	NDE085	N	SW8260B	SW5030	2-Hexanone	10.0	U	U	10.0	UJ	U	0.55	10.0	ug/kg	SS
SB	NDE080	N	SW8260B	SW5030	2-Hexanone	11.0	U	U	11.0	UJ	U	0.60	11.0	ug/kg	SS

Matrix	Sample ID	Sample Type	Analytical Method	Prep Method	Parameter	Lab Result	Lab Qual	Lab Conc Qual	Final Result	Final Qual	Final Conc Qual	Detection Limit	Reporting Limit	Units	Validation Notes
SB	NDE087	N	SW8260B	SW5030	2-Hexanone	12.0	U	U	12.0	UJ	U	0.66	12.0	ug/kg	SS
SS	NDE057	N	SW8260B	SW5030	2-Hexanone	10.0	U	U	10.0	UJ	U	0.43	10.0	ug/kg	SS
SS	NDE064	N	SW8260B	SW5030	2-Hexanone	10.0	U	U	10.0	UJ	U	0.44	10.0	ug/kg	SS
SS	NDE086	N	SW8260B	SW5030	2-Hexanone	10.0	U	U	10.0	UJ	U	0.45	10.0	ug/kg	SS
SS	NDE062FD1	FD	SW8260B	SW5030	2-Hexanone	10.0	U	U	10.0	UJ	U	0.46	10.0	ug/kg	SS
SS	NDE079	N	SW8260B	SW5030	2-Hexanone	10.0	U	U	10.0	UJ	U	0.47	10.0	ug/kg	SS
SS	NDE074FD1	FD	SW8260B	SW5030	2-Hexanone	10.0	U	U	10.0	UJ	U	0.48	10.0	ug/kg	SS
SS	NDE055	N	SW8260B	SW5030	2-Hexanone	10.0	U	U	10.0	UJ	U	0.50	10.0	ug/kg	SS
SS	NDE090	N	SW8260B	SW5030	2-Hexanone	10.0	U	U	10.0	UJ	U	0.50	10.0	ug/kg	SS
SS	NDE091FD1	FD	SW8260B	SW5030	2-Hexanone	10.0	U	U	10.0	UJ	U	0.50	10.0	ug/kg	SS
SS	NDE097	N	SW8260B	SW5030	2-Hexanone	10.0	U	U	10.0	UJ	U	0.50	10.0	ug/kg	SS
SS	NDE075	N	SW8260B	SW5030	2-Hexanone	10.0	U	U	10.0	UJ	U	0.51	10.0	ug/kg	SS
SS	NDE066	N	SW8260B	SW5030	2-Hexanone	10.0	U	U	10.0	UJ	U	0.53	10.0	ug/kg	SS
SS	NDE070	N	SW8260B	SW5030	2-Hexanone	10.0	U	U	10.0	UJ	U	0.54	10.0	ug/kg	SS
SS	NDE072	N	SW8260B	SW5030	2-Hexanone	10.0	U	U	10.0	UJ	U	0.55	10.0	ug/kg	SS
SS	NDE095	N	SW8260B	SW5030	2-Hexanone	10.0	U	U	10.0	UJ	U	0.55	10.0	ug/kg	SS
SS	NDE088	N	SW8260B	SW5030	2-Hexanone	10.0	U	U	10.0	UJ	U	0.55	10.0	ug/kg	SS
SS	NDE068	N	SW8260B	SW5030	2-Hexanone	10.0	U	U	10.0	UJ	U	0.56	10.0	ug/kg	SS
SS	NDE093	N	SW8260B	SW5030	2-Hexanone	10.0	U	U	10.0	UJ	U	0.56	10.0	ug/kg	SS
SS	NDE083	N	SW8260B	SW5030	2-Hexanone	12.0	U	U	12.0	UJ	U	0.65	12.0	ug/kg	SS
SS	NDE084FD1	FD	SW8260B	SW5030	2-Hexanone	12.0	U	U	12.0	UJ	U	0.66	12.0	ug/kg	SS
SB	NDE085	N	SW8260B	SW5030	4-methyl-2-pentanone (MIBK)	0.79	J	J	0.79	J	J	0.76	10.0	ug/kg	SS
SB	NDE087	N	SW8260B	SW5030	4-methyl-2-pentanone (MIBK)	53.0	=	=	53.0	J	J	0.90	12.0	ug/kg	SS
SB	NDE076	N	SW8260B	SW5030	4-methyl-2-pentanone (MIBK)	10.0	U	U	10.0	UJ	U	0.64	10.0	ug/kg	SS
SB	NDE078	N	SW8260B	SW5030	4-methyl-2-pentanone (MIBK)	10.0	U	U	10.0	UJ	U	0.68	10.0	ug/kg	SS
SB	NDE069	N	SW8260B	SW5030	4-methyl-2-pentanone (MIBK)	10.0	U	U	10.0	UJ	U	0.69	10.0	ug/kg	SS
SB	NDE073	N	SW8260B	SW5030	4-methyl-2-pentanone (MIBK)	10.0	U	U	10.0	UJ	U	0.69	10.0	ug/kg	SS
SB	NDE092	N	SW8260B	SW5030	4-methyl-2-pentanone (MIBK)	10.0	U	U	10.0	UJ	U	0.69	10.0	ug/kg	SS
SB	NDE082	N	SW8260B	SW5030	4-methyl-2-pentanone (MIBK)	10.0	U	U	10.0	UJ	U	0.70	10.0	ug/kg	SS
SB	NDE065	N	SW8260B	SW5030	4-methyl-2-pentanone (MIBK)	10.0	U	U	10.0	UJ	U	0.71	10.0	ug/kg	SS
SB	NDE067	N	SW8260B	SW5030	4-methyl-2-pentanone (MIBK)	10.0	U	U	10.0	UJ	U	0.71	10.0	ug/kg	SS
SB	NDE071	N	SW8260B	SW5030	4-methyl-2-pentanone (MIBK)	10.0	U	U	10.0	UJ	U	0.76	10.0	ug/kg	SS
SB	NDE094	N	SW8260B	SW5030	4-methyl-2-pentanone (MIBK)	10.0	U	U	10.0	UJ	U	0.76	10.0	ug/kg	SS
SB	NDE080	N	SW8260B	SW5030	4-methyl-2-pentanone (MIBK)	11.0	U	U	11.0	UJ	U	0.82	11.0	ug/kg	SS
SS	NDE057	N	SW8260B	SW5030	4-methyl-2-pentanone (MIBK)	10.0	U	U	10.0	UJ	U	0.59	10.0	ug/kg	SS
SS	NDE064	N	SW8260B	SW5030	4-methyl-2-pentanone (MIBK)	10.0	U	U	10.0	UJ	U	0.60	10.0	ug/kg	SS
SS	NDE086	N	SW8260B	SW5030	4-methyl-2-pentanone (MIBK)	10.0	U	U	10.0	UJ	U	0.62	10.0	ug/kg	SS
SS	NDE062FD1	FD	SW8260B	SW5030	4-methyl-2-pentanone (MIBK)	10.0	U	U	10.0	UJ	U	0.63	10.0	ug/kg	SS
SS	NDE079	N	SW8260B	SW5030	4-methyl-2-pentanone (MIBK)	10.0	U	U	10.0	UJ	U	0.64	10.0	ug/kg	SS
SS	NDE074FD1	FD	SW8260B	SW5030	4-methyl-2-pentanone (MIBK)	10.0	U	U	10.0	UJ	U	0.67	10.0	ug/kg	SS
SS	NDE055	N	SW8260B	SW5030	4-methyl-2-pentanone (MIBK)	10.0	U	U	10.0	UJ	U	0.68	10.0	ug/kg	SS
SS	NDE090	N	SW8260B	SW5030	4-methyl-2-pentanone (MIBK)	10.0	U	U	10.0	UJ	U	0.68	10.0	ug/kg	SS
SS	NDE091FD1	FD	SW8260B	SW5030	4-methyl-2-pentanone (MIBK)	10.0	U	U	10.0	UJ	U	0.69	10.0	ug/kg	SS
SS	NDE097	N	SW8260B	SW5030	4-methyl-2-pentanone (MIBK)	10.0	U	U	10.0	UJ	U	0.69	10.0	ug/kg	SS
SS	NDE075	N	SW8260B	SW5030	4-methyl-2-pentanone (MIBK)	10.0	U	U	10.0	UJ	U	0.70	10.0	ug/kg	SS
SS	NDE066	N	SW8260B	SW5030	4-methyl-2-pentanone (MIBK)	10.0	U	U	10.0	UJ	U	0.73	10.0	ug/kg	SS
SS	NDE070	N	SW8260B	SW5030	4-methyl-2-pentanone (MIBK)	10.0	U	U	10.0	UJ	U	0.75	10.0	ug/kg	SS
SS	NDE072	N	SW8260B	SW5030	4-methyl-2-pentanone (MIBK)	10.0	U	U	10.0	UJ	U	0.75	10.0	ug/kg	SS

Matrix	Sample ID	Sample Type	Analytical Method	Prep Method	Parameter	Lab Result	Lab Qual	Lab Conc Qual	Final Result	Final Qual	Final Conc Qual	Detection Limit	Reporting Limit	Units	Validation Notes
SS	NDE095	N	SW8260B	SW5030	4-methyl-2-pentanone (MIBK)	10.0	U	U	10.0	UJ	U	0.76	10.0	ug/kg	SS
SS	NDE088	N	SW8260B	SW5030	4-methyl-2-pentanone (MIBK)	10.0	U	U	10.0	UJ	U	0.76	10.0	ug/kg	SS
SS	NDE068	N	SW8260B	SW5030	4-methyl-2-pentanone (MIBK)	10.0	U	U	10.0	UJ	U	0.77	10.0	ug/kg	SS
SS	NDE093	N	SW8260B	SW5030	4-methyl-2-pentanone (MIBK)	10.0	U	U	10.0	UJ	U	0.77	10.0	ug/kg	SS
SS	NDE083	N	SW8260B	SW5030	4-methyl-2-pentanone (MIBK)	12.0	U	U	12.0	UJ	U	0.90	12.0	ug/kg	SS
SS	NDE084FD1	FD	SW8260B	SW5030	4-methyl-2-pentanone (MIBK)	12.0	U	U	12.0	UJ	U	0.91	12.0	ug/kg	SS
SB	NDE076	N	SW8260B	SW5030	Acetone	29.0	=	B	29.0	UJ	U	1.6	10.0	ug/kg	SS
SB	NDE078	N	SW8260B	SW5030	Acetone	31.0	=	B	31.0	UJ	U	1.7	10.0	ug/kg	SS
SB	NDE076	N	SW8260B	SW5030	Benzene	10.0	U	U	10.0	UJ	U	0.16	10.0	ug/kg	SS
SB	NDE065	N	SW8260B	SW5030	Benzene	10.0	U	U	10.0	UJ	U	0.17	10.0	ug/kg	SS
SB	NDE069	N	SW8260B	SW5030	Benzene	10.0	U	U	10.0	UJ	U	0.17	10.0	ug/kg	SS
SB	NDE073	N	SW8260B	SW5030	Benzene	10.0	U	U	10.0	UJ	U	0.17	10.0	ug/kg	SS
SB	NDE078	N	SW8260B	SW5030	Benzene	10.0	U	U	10.0	UJ	U	0.17	10.0	ug/kg	SS
SB	NDE092	N	SW8260B	SW5030	Benzene	10.0	U	U	10.0	UJ	U	0.17	10.0	ug/kg	SS
SB	NDE082	N	SW8260B	SW5030	Benzene	10.0	U	U	10.0	UJ	U	0.17	10.0	ug/kg	SS
SB	NDE067	N	SW8260B	SW5030	Benzene	10.0	U	U	10.0	UJ	U	0.18	10.0	ug/kg	SS
SB	NDE071	N	SW8260B	SW5030	Benzene	10.0	U	U	10.0	UJ	U	0.19	10.0	ug/kg	SS
SB	NDE094	N	SW8260B	SW5030	Benzene	10.0	U	U	10.0	UJ	U	0.19	10.0	ug/kg	SS
SB	NDE085	N	SW8260B	SW5030	Benzene	10.0	U	U	10.0	UJ	U	0.19	10.0	ug/kg	SS
SB	NDE080	N	SW8260B	SW5030	Benzene	11.0	U	U	11.0	UJ	U	0.20	11.0	ug/kg	SS
SB	NDE087	N	SW8260B	SW5030	Benzene	12.0	U	U	12.0	UJ	U	0.22	12.0	ug/kg	SS
SS	NDE095	N	SW8260B	SW5030	Benzene	0.27	J	J	0.27	J	J	0.19	10.0	ug/kg	SS
SS	NDE075	N	SW8260B	SW5030	Benzene	10.0	U	U	10.0	UJ	U	0.17	10.0	ug/kg	SS
SS	NDE057	N	SW8260B	SW5030	Benzene	10.0	U	U	10.0	UJ	U	0.14	10.0	ug/kg	SS
SS	NDE064	N	SW8260B	SW5030	Benzene	10.0	U	U	10.0	UJ	U	0.15	10.0	ug/kg	SS
SS	NDE086	N	SW8260B	SW5030	Benzene	10.0	U	U	10.0	UJ	U	0.15	10.0	ug/kg	SS
SS	NDE062FD1	FD	SW8260B	SW5030	Benzene	10.0	U	U	10.0	UJ	U	0.16	10.0	ug/kg	SS
SS	NDE074FD1	FD	SW8260B	SW5030	Benzene	10.0	U	U	10.0	UJ	U	0.16	10.0	ug/kg	SS
SS	NDE079	N	SW8260B	SW5030	Benzene	10.0	U	U	10.0	UJ	U	0.16	10.0	ug/kg	SS
SS	NDE055	N	SW8260B	SW5030	Benzene	10.0	U	U	10.0	UJ	U	0.17	10.0	ug/kg	SS
SS	NDE090	N	SW8260B	SW5030	Benzene	10.0	U	U	10.0	UJ	U	0.17	10.0	ug/kg	SS
SS	NDE091FD1	FD	SW8260B	SW5030	Benzene	10.0	U	U	10.0	UJ	U	0.17	10.0	ug/kg	SS
SS	NDE097	N	SW8260B	SW5030	Benzene	10.0	U	U	10.0	UJ	U	0.17	10.0	ug/kg	SS
SS	NDE066	N	SW8260B	SW5030	Benzene	10.0	U	U	10.0	UJ	U	0.18	10.0	ug/kg	SS
SS	NDE070	N	SW8260B	SW5030	Benzene	10.0	U	U	10.0	UJ	U	0.18	10.0	ug/kg	SS
SS	NDE068	N	SW8260B	SW5030	Benzene	10.0	U	U	10.0	UJ	U	0.19	10.0	ug/kg	SS
SS	NDE072	N	SW8260B	SW5030	Benzene	10.0	U	U	10.0	UJ	U	0.19	10.0	ug/kg	SS
SS	NDE093	N	SW8260B	SW5030	Benzene	10.0	U	U	10.0	UJ	U	0.19	10.0	ug/kg	SS
SS	NDE088	N	SW8260B	SW5030	Benzene	10.0	U	U	10.0	UJ	U	0.19	10.0	ug/kg	SS
SS	NDE083	N	SW8260B	SW5030	Benzene	12.0	U	U	12.0	UJ	U	0.22	12.0	ug/kg	SS
SS	NDE084FD1	FD	SW8260B	SW5030	Benzene	12.0	U	U	12.0	UJ	U	0.23	12.0	ug/kg	SS
SB	NDE076	N	SW8260B	SW5030	Bromodichloromethane	10.0	U	U	10.0	UJ	U	0.14	10.0	ug/kg	SS
SB	NDE069	N	SW8260B	SW5030	Bromodichloromethane	10.0	U	U	10.0	UJ	U	0.15	10.0	ug/kg	SS
SB	NDE073	N	SW8260B	SW5030	Bromodichloromethane	10.0	U	U	10.0	UJ	U	0.15	10.0	ug/kg	SS
SB	NDE078	N	SW8260B	SW5030	Bromodichloromethane	10.0	U	U	10.0	UJ	U	0.15	10.0	ug/kg	SS
SB	NDE092	N	SW8260B	SW5030	Bromodichloromethane	10.0	U	U	10.0	UJ	U	0.15	10.0	ug/kg	SS
SB	NDE065	N	SW8260B	SW5030	Bromodichloromethane	10.0	U	U	10.0	UJ	U	0.16	10.0	ug/kg	SS
SB	NDE067	N	SW8260B	SW5030	Bromodichloromethane	10.0	U	U	10.0	UJ	U	0.16	10.0	ug/kg	SS

Matrix	Sample ID	Sample Type	Analytical Method	Prep Method	Parameter	Lab Result	Lab Qual	Lab Conc Qual	Final Result	Final Qual	Final Conc Qual	Detection Limit	Reporting Limit	Units	Validation Notes
SB	NDE082	N	SW8260B	SW5030	Bromodichloromethane	10.0	U	U	10.0	UJ	U	0.16	10.0	ug/kg	SS
SB	NDE071	N	SW8260B	SW5030	Bromodichloromethane	10.0	U	U	10.0	UJ	U	0.17	10.0	ug/kg	SS
SB	NDE094	N	SW8260B	SW5030	Bromodichloromethane	10.0	U	U	10.0	UJ	U	0.17	10.0	ug/kg	SS
SB	NDE085	N	SW8260B	SW5030	Bromodichloromethane	10.0	U	U	10.0	UJ	U	0.17	10.0	ug/kg	SS
SB	NDE080	N	SW8260B	SW5030	Bromodichloromethane	11.0	U	U	11.0	UJ	U	0.18	11.0	ug/kg	SS
SB	NDE087	N	SW8260B	SW5030	Bromodichloromethane	12.0	U	U	12.0	UJ	U	0.20	12.0	ug/kg	SS
SS	NDE057	N	SW8260B	SW5030	Bromodichloromethane	10.0	U	U	10.0	UJ	U	0.13	10.0	ug/kg	SS
SS	NDE064	N	SW8260B	SW5030	Bromodichloromethane	10.0	U	U	10.0	UJ	U	0.13	10.0	ug/kg	SS
SS	NDE062FD1	FD	SW8260B	SW5030	Bromodichloromethane	10.0	U	U	10.0	UJ	U	0.14	10.0	ug/kg	SS
SS	NDE079	N	SW8260B	SW5030	Bromodichloromethane	10.0	U	U	10.0	UJ	U	0.14	10.0	ug/kg	SS
SS	NDE086	N	SW8260B	SW5030	Bromodichloromethane	10.0	U	U	10.0	UJ	U	0.14	10.0	ug/kg	SS
SS	NDE055	N	SW8260B	SW5030	Bromodichloromethane	10.0	U	U	10.0	UJ	U	0.15	10.0	ug/kg	SS
SS	NDE075	N	SW8260B	SW5030	Bromodichloromethane	10.0	U	U	10.0	UJ	U	0.15	10.0	ug/kg	SS
SS	NDE090	N	SW8260B	SW5030	Bromodichloromethane	10.0	U	U	10.0	UJ	U	0.15	10.0	ug/kg	SS
SS	NDE091FD1	FD	SW8260B	SW5030	Bromodichloromethane	10.0	U	U	10.0	UJ	U	0.15	10.0	ug/kg	SS
SS	NDE097	N	SW8260B	SW5030	Bromodichloromethane	10.0	U	U	10.0	UJ	U	0.15	10.0	ug/kg	SS
SS	NDE074FD1	FD	SW8260B	SW5030	Bromodichloromethane	10.0	U	U	10.0	UJ	U	0.15	10.0	ug/kg	SS
SS	NDE066	N	SW8260B	SW5030	Bromodichloromethane	10.0	U	U	10.0	UJ	U	0.16	10.0	ug/kg	SS
SS	NDE068	N	SW8260B	SW5030	Bromodichloromethane	10.0	U	U	10.0	UJ	U	0.17	10.0	ug/kg	SS
SS	NDE070	N	SW8260B	SW5030	Bromodichloromethane	10.0	U	U	10.0	UJ	U	0.17	10.0	ug/kg	SS
SS	NDE072	N	SW8260B	SW5030	Bromodichloromethane	10.0	U	U	10.0	UJ	U	0.17	10.0	ug/kg	SS
SS	NDE093	N	SW8260B	SW5030	Bromodichloromethane	10.0	U	U	10.0	UJ	U	0.17	10.0	ug/kg	SS
SS	NDE095	N	SW8260B	SW5030	Bromodichloromethane	10.0	U	U	10.0	UJ	U	0.17	10.0	ug/kg	SS
SS	NDE088	N	SW8260B	SW5030	Bromodichloromethane	10.0	U	U	10.0	UJ	U	0.17	10.0	ug/kg	SS
SS	NDE083	N	SW8260B	SW5030	Bromodichloromethane	12.0	U	U	12.0	UJ	U	0.20	12.0	ug/kg	SS
SS	NDE084FD1	FD	SW8260B	SW5030	Bromodichloromethane	12.0	U	U	12.0	UJ	U	0.20	12.0	ug/kg	SS
SB	NDE076	N	SW8260B	SW5030	Bromoform	10.0	U	U	10.0	UJ	U	0.18	10.0	ug/kg	SS
SB	NDE065	N	SW8260B	SW5030	Bromoform	10.0	U	U	10.0	UJ	U	0.19	10.0	ug/kg	SS
SB	NDE067	N	SW8260B	SW5030	Bromoform	10.0	U	U	10.0	UJ	U	0.19	10.0	ug/kg	SS
SB	NDE069	N	SW8260B	SW5030	Bromoform	10.0	U	U	10.0	UJ	U	0.19	10.0	ug/kg	SS
SB	NDE073	N	SW8260B	SW5030	Bromoform	10.0	U	U	10.0	UJ	U	0.19	10.0	ug/kg	SS
SB	NDE078	N	SW8260B	SW5030	Bromoform	10.0	U	U	10.0	UJ	U	0.19	10.0	ug/kg	SS
SB	NDE092	N	SW8260B	SW5030	Bromoform	10.0	U	U	10.0	UJ	U	0.19	10.0	ug/kg	SS
SB	NDE082	N	SW8260B	SW5030	Bromoform	10.0	U	U	10.0	UJ	U	0.19	10.0	ug/kg	SS
SB	NDE071	N	SW8260B	SW5030	Bromoform	10.0	U	U	10.0	UJ	U	0.21	10.0	ug/kg	SS
SB	NDE094	N	SW8260B	SW5030	Bromoform	10.0	U	U	10.0	UJ	U	0.21	10.0	ug/kg	SS
SB	NDE085	N	SW8260B	SW5030	Bromoform	10.0	U	U	10.0	UJ	U	0.21	10.0	ug/kg	SS
SB	NDE080	N	SW8260B	SW5030	Bromoform	11.0	U	U	11.0	UJ	U	0.22	11.0	ug/kg	SS
SB	NDE087	N	SW8260B	SW5030	Bromoform	12.0	U	U	12.0	UJ	U	0.25	12.0	ug/kg	SS
SS	NDE057	N	SW8260B	SW5030	Bromoform	10.0	U	U	10.0	UJ	U	0.16	10.0	ug/kg	SS
SS	NDE064	N	SW8260B	SW5030	Bromoform	10.0	U	U	10.0	UJ	U	0.16	10.0	ug/kg	SS
SS	NDE062FD1	FD	SW8260B	SW5030	Bromoform	10.0	U	U	10.0	UJ	U	0.17	10.0	ug/kg	SS
SS	NDE086	N	SW8260B	SW5030	Bromoform	10.0	U	U	10.0	UJ	U	0.17	10.0	ug/kg	SS
SS	NDE074FD1	FD	SW8260B	SW5030	Bromoform	10.0	U	U	10.0	UJ	U	0.18	10.0	ug/kg	SS
SS	NDE079	N	SW8260B	SW5030	Bromoform	10.0	U	U	10.0	UJ	U	0.18	10.0	ug/kg	SS
SS	NDE055	N	SW8260B	SW5030	Bromoform	10.0	U	U	10.0	UJ	U	0.19	10.0	ug/kg	SS
SS	NDE075	N	SW8260B	SW5030	Bromoform	10.0	U	U	10.0	UJ	U	0.19	10.0	ug/kg	SS
SS	NDE090	N	SW8260B	SW5030	Bromoform	10.0	U	U	10.0	UJ	U	0.19	10.0	ug/kg	SS

Matrix	Sample ID	Sample Type	Analytical Method	Prep Method	Parameter	Lab Result	Lab Qual	Lab Conc Qual	Final Result	Final Qual	Final Conc Qual	Detection Limit	Reporting Limit	Units	Validation Notes
SS	NDE091FD1	FD	SW8260B	SW5030	Bromoform	10.0	U	U	10.0	UJ	U	0.19	10.0	ug/kg	SS
SS	NDE097	N	SW8260B	SW5030	Bromoform	10.0	U	U	10.0	UJ	U	0.19	10.0	ug/kg	SS
SS	NDE066	N	SW8260B	SW5030	Bromoform	10.0	U	U	10.0	UJ	U	0.20	10.0	ug/kg	SS
SS	NDE070	N	SW8260B	SW5030	Bromoform	10.0	U	U	10.0	UJ	U	0.20	10.0	ug/kg	SS
SS	NDE072	N	SW8260B	SW5030	Bromoform	10.0	U	U	10.0	UJ	U	0.20	10.0	ug/kg	SS
SS	NDE068	N	SW8260B	SW5030	Bromoform	10.0	U	U	10.0	UJ	U	0.21	10.0	ug/kg	SS
SS	NDE093	N	SW8260B	SW5030	Bromoform	10.0	U	U	10.0	UJ	U	0.21	10.0	ug/kg	SS
SS	NDE095	N	SW8260B	SW5030	Bromoform	10.0	U	U	10.0	UJ	U	0.21	10.0	ug/kg	SS
SS	NDE088	N	SW8260B	SW5030	Bromoform	10.0	U	U	10.0	UJ	U	0.21	10.0	ug/kg	SS
SS	NDE083	N	SW8260B	SW5030	Bromoform	12.0	U	U	12.0	UJ	U	0.25	12.0	ug/kg	SS
SS	NDE084FD1	FD	SW8260B	SW5030	Bromoform	12.0	U	U	12.0	UJ	U	0.25	12.0	ug/kg	SS
SB	NDE076	N	SW8260B	SW5030	Bromomethane	10.0	U	U	10.0	UJ	U	0.69	10.0	ug/kg	SS
SB	NDE078	N	SW8260B	SW5030	Bromomethane	10.0	U	U	10.0	UJ	U	0.74	10.0	ug/kg	SS
SB	NDE092	N	SW8260B	SW5030	Bromomethane	10.0	U	U	10.0	UJ	U	0.74	10.0	ug/kg	SS
SB	NDE069	N	SW8260B	SW5030	Bromomethane	10.0	U	U	10.0	UJ	U	0.75	10.0	ug/kg	SS
SB	NDE073	N	SW8260B	SW5030	Bromomethane	10.0	U	U	10.0	UJ	U	0.75	10.0	ug/kg	SS
SB	NDE065	N	SW8260B	SW5030	Bromomethane	10.0	U	U	10.0	UJ	U	0.76	10.0	ug/kg	SS
SB	NDE082	N	SW8260B	SW5030	Bromomethane	10.0	U	U	10.0	UJ	U	0.76	10.0	ug/kg	SS
SB	NDE067	N	SW8260B	SW5030	Bromomethane	10.0	U	U	10.0	UJ	U	0.77	10.0	ug/kg	SS
SB	NDE071	N	SW8260B	SW5030	Bromomethane	10.0	U	U	10.0	UJ	U	0.82	10.0	ug/kg	SS
SB	NDE094	N	SW8260B	SW5030	Bromomethane	10.0	U	U	10.0	UJ	U	0.82	10.0	ug/kg	SS
SB	NDE085	N	SW8260B	SW5030	Bromomethane	10.0	U	U	10.0	UJ	U	0.82	10.0	ug/kg	SS
SB	NDE080	N	SW8260B	SW5030	Bromomethane	11.0	U	U	11.0	UJ	U	0.88	11.0	ug/kg	SS
SB	NDE087	N	SW8260B	SW5030	Bromomethane	12.0	U	U	12.0	UJ	U	0.97	12.0	ug/kg	SS
SS	NDE057	N	SW8260B	SW5030	Bromomethane	10.0	U	U	10.0	UJ	U	0.63	10.0	ug/kg	SS
SS	NDE064	N	SW8260B	SW5030	Bromomethane	10.0	U	U	10.0	UJ	U	0.65	10.0	ug/kg	SS
SS	NDE086	N	SW8260B	SW5030	Bromomethane	10.0	U	U	10.0	UJ	U	0.67	10.0	ug/kg	SS
SS	NDE062FD1	FD	SW8260B	SW5030	Bromomethane	10.0	U	U	10.0	UJ	U	0.68	10.0	ug/kg	SS
SS	NDE079	N	SW8260B	SW5030	Bromomethane	10.0	U	U	10.0	UJ	U	0.69	10.0	ug/kg	SS
SS	NDE074FD1	FD	SW8260B	SW5030	Bromomethane	10.0	U	U	10.0	UJ	U	0.72	10.0	ug/kg	SS
SS	NDE055	N	SW8260B	SW5030	Bromomethane	10.0	U	U	10.0	UJ	U	0.74	10.0	ug/kg	SS
SS	NDE090	N	SW8260B	SW5030	Bromomethane	10.0	U	U	10.0	UJ	U	0.74	10.0	ug/kg	SS
SS	NDE091FD1	FD	SW8260B	SW5030	Bromomethane	10.0	U	U	10.0	UJ	U	0.74	10.0	ug/kg	SS
SS	NDE097	N	SW8260B	SW5030	Bromomethane	10.0	U	U	10.0	UJ	U	0.74	10.0	ug/kg	SS
SS	NDE075	N	SW8260B	SW5030	Bromomethane	10.0	U	U	10.0	UJ	U	0.75	10.0	ug/kg	SS
SS	NDE066	N	SW8260B	SW5030	Bromomethane	10.0	U	U	10.0	UJ	U	0.79	10.0	ug/kg	SS
SS	NDE070	N	SW8260B	SW5030	Bromomethane	10.0	U	U	10.0	UJ	U	0.81	10.0	ug/kg	SS
SS	NDE072	N	SW8260B	SW5030	Bromomethane	10.0	U	U	10.0	UJ	U	0.81	10.0	ug/kg	SS
SS	NDE095	N	SW8260B	SW5030	Bromomethane	10.0	U	U	10.0	UJ	U	0.82	10.0	ug/kg	SS
SS	NDE088	N	SW8260B	SW5030	Bromomethane	10.0	U	U	10.0	UJ	U	0.82	10.0	ug/kg	SS
SS	NDE068	N	SW8260B	SW5030	Bromomethane	10.0	U	U	10.0	UJ	U	0.83	10.0	ug/kg	SS
SS	NDE093	N	SW8260B	SW5030	Bromomethane	10.0	U	U	10.0	UJ	U	0.83	10.0	ug/kg	SS
SS	NDE083	N	SW8260B	SW5030	Bromomethane	12.0	U	U	12.0	UJ	U	0.97	12.0	ug/kg	SS
SS	NDE084FD1	FD	SW8260B	SW5030	Bromomethane	12.0	U	U	12.0	UJ	U	0.98	12.0	ug/kg	SS
SB	NDE076	N	SW8260B	SW5030	Carbon disulfide	10.0	U	U	10.0	UJ	U	0.47	10.0	ug/kg	SS
SB	NDE069	N	SW8260B	SW5030	Carbon disulfide	10.0	U	U	10.0	UJ	U	0.50	10.0	ug/kg	SS
SB	NDE073	N	SW8260B	SW5030	Carbon disulfide	10.0	U	U	10.0	UJ	U	0.50	10.0	ug/kg	SS
SB	NDE078	N	SW8260B	SW5030	Carbon disulfide	10.0	U	U	10.0	UJ	U	0.50	10.0	ug/kg	SS

Matrix	Sample ID	Sample Type	Analytical Method	Prep Method	Parameter	Lab Result	Lab Qual	Lab Conc Qual	Final Result	Final Qual	Final Conc Qual	Detection Limit	Reporting Limit	Units	Validation Notes
SB	NDE092	N	SW8260B	SW5030	Carbon disulfide	10.0	U	U	10.0	UJ	U	0.50	10.0	ug/kg	SS
SB	NDE082	N	SW8260B	SW5030	Carbon disulfide	10.0	U	U	10.0	UJ	U	0.51	10.0	ug/kg	SS
SB	NDE065	N	SW8260B	SW5030	Carbon disulfide	10.0	U	U	10.0	UJ	U	0.52	10.0	ug/kg	SS
SB	NDE067	N	SW8260B	SW5030	Carbon disulfide	10.0	U	U	10.0	UJ	U	0.52	10.0	ug/kg	SS
SB	NDE071	N	SW8260B	SW5030	Carbon disulfide	10.0	U	U	10.0	UJ	U	0.55	10.0	ug/kg	SS
SB	NDE094	N	SW8260B	SW5030	Carbon disulfide	10.0	U	U	10.0	UJ	U	0.55	10.0	ug/kg	SS
SB	NDE085	N	SW8260B	SW5030	Carbon disulfide	10.0	U	U	10.0	UJ	U	0.55	10.0	ug/kg	SS
SB	NDE080	N	SW8260B	SW5030	Carbon disulfide	11.0	U	U	11.0	UJ	U	0.60	11.0	ug/kg	SS
SB	NDE087	N	SW8260B	SW5030	Carbon disulfide	12.0	U	U	12.0	UJ	U	0.66	12.0	ug/kg	SS
SS	NDE057	N	SW8260B	SW5030	Carbon disulfide	10.0	U	U	10.0	UJ	U	0.43	10.0	ug/kg	SS
SS	NDE064	N	SW8260B	SW5030	Carbon disulfide	10.0	U	U	10.0	UJ	U	0.44	10.0	ug/kg	SS
SS	NDE086	N	SW8260B	SW5030	Carbon disulfide	10.0	U	U	10.0	UJ	U	0.45	10.0	ug/kg	SS
SS	NDE062FD1	FD	SW8260B	SW5030	Carbon disulfide	10.0	U	U	10.0	UJ	U	0.46	10.0	ug/kg	SS
SS	NDE079	N	SW8260B	SW5030	Carbon disulfide	10.0	U	U	10.0	UJ	U	0.47	10.0	ug/kg	SS
SS	NDE074FD1	FD	SW8260B	SW5030	Carbon disulfide	10.0	U	U	10.0	UJ	U	0.48	10.0	ug/kg	SS
SS	NDE055	N	SW8260B	SW5030	Carbon disulfide	10.0	U	U	10.0	UJ	U	0.50	10.0	ug/kg	SS
SS	NDE090	N	SW8260B	SW5030	Carbon disulfide	10.0	U	U	10.0	UJ	U	0.50	10.0	ug/kg	SS
SS	NDE091FD1	FD	SW8260B	SW5030	Carbon disulfide	10.0	U	U	10.0	UJ	U	0.50	10.0	ug/kg	SS
SS	NDE097	N	SW8260B	SW5030	Carbon disulfide	10.0	U	U	10.0	UJ	U	0.50	10.0	ug/kg	SS
SS	NDE075	N	SW8260B	SW5030	Carbon disulfide	10.0	U	U	10.0	UJ	U	0.51	10.0	ug/kg	SS
SS	NDE066	N	SW8260B	SW5030	Carbon disulfide	10.0	U	U	10.0	UJ	U	0.53	10.0	ug/kg	SS
SS	NDE070	N	SW8260B	SW5030	Carbon disulfide	10.0	U	U	10.0	UJ	U	0.54	10.0	ug/kg	SS
SS	NDE072	N	SW8260B	SW5030	Carbon disulfide	10.0	U	U	10.0	UJ	U	0.55	10.0	ug/kg	SS
SS	NDE095	N	SW8260B	SW5030	Carbon disulfide	10.0	U	U	10.0	UJ	U	0.55	10.0	ug/kg	SS
SS	NDE088	N	SW8260B	SW5030	Carbon disulfide	10.0	U	U	10.0	UJ	U	0.55	10.0	ug/kg	SS
SS	NDE068	N	SW8260B	SW5030	Carbon disulfide	10.0	U	U	10.0	UJ	U	0.56	10.0	ug/kg	SS
SS	NDE093	N	SW8260B	SW5030	Carbon disulfide	10.0	U	U	10.0	UJ	U	0.56	10.0	ug/kg	SS
SS	NDE083	N	SW8260B	SW5030	Carbon disulfide	12.0	U	U	12.0	UJ	U	0.65	12.0	ug/kg	SS
SS	NDE084FD1	FD	SW8260B	SW5030	Carbon disulfide	12.0	U	U	12.0	UJ	U	0.66	12.0	ug/kg	SS
SB	NDE076	N	SW8260B	SW5030	Carbon tetrachloride	10.0	U	U	10.0	UJ	U	0.28	10.0	ug/kg	SS
SB	NDE078	N	SW8260B	SW5030	Carbon tetrachloride	10.0	U	U	10.0	UJ	U	0.30	10.0	ug/kg	SS
SB	NDE092	N	SW8260B	SW5030	Carbon tetrachloride	10.0	U	U	10.0	UJ	U	0.30	10.0	ug/kg	SS
SB	NDE065	N	SW8260B	SW5030	Carbon tetrachloride	10.0	U	U	10.0	UJ	U	0.31	10.0	ug/kg	SS
SB	NDE067	N	SW8260B	SW5030	Carbon tetrachloride	10.0	U	U	10.0	UJ	U	0.31	10.0	ug/kg	SS
SB	NDE069	N	SW8260B	SW5030	Carbon tetrachloride	10.0	U	U	10.0	UJ	U	0.31	10.0	ug/kg	SS
SB	NDE073	N	SW8260B	SW5030	Carbon tetrachloride	10.0	U	U	10.0	UJ	U	0.31	10.0	ug/kg	SS
SB	NDE082	N	SW8260B	SW5030	Carbon tetrachloride	10.0	U	U	10.0	UJ	U	0.31	10.0	ug/kg	SS
SB	NDE094	N	SW8260B	SW5030	Carbon tetrachloride	10.0	U	U	10.0	UJ	U	0.33	10.0	ug/kg	SS
SB	NDE071	N	SW8260B	SW5030	Carbon tetrachloride	10.0	U	U	10.0	UJ	U	0.34	10.0	ug/kg	SS
SB	NDE085	N	SW8260B	SW5030	Carbon tetrachloride	10.0	U	U	10.0	UJ	U	0.34	10.0	ug/kg	SS
SB	NDE080	N	SW8260B	SW5030	Carbon tetrachloride	11.0	U	U	11.0	UJ	U	0.36	11.0	ug/kg	SS
SB	NDE087	N	SW8260B	SW5030	Carbon tetrachloride	12.0	U	U	12.0	UJ	U	0.40	12.0	ug/kg	SS
SS	NDE057	N	SW8260B	SW5030	Carbon tetrachloride	10.0	U	U	10.0	UJ	U	0.26	10.0	ug/kg	SS
SS	NDE064	N	SW8260B	SW5030	Carbon tetrachloride	10.0	U	U	10.0	UJ	U	0.27	10.0	ug/kg	SS
SS	NDE062FD1	FD	SW8260B	SW5030	Carbon tetrachloride	10.0	U	U	10.0	UJ	U	0.28	10.0	ug/kg	SS
SS	NDE079	N	SW8260B	SW5030	Carbon tetrachloride	10.0	U	U	10.0	UJ	U	0.28	10.0	ug/kg	SS
SS	NDE086	N	SW8260B	SW5030	Carbon tetrachloride	10.0	U	U	10.0	UJ	U	0.28	10.0	ug/kg	SS
SS	NDE074FD1	FD	SW8260B	SW5030	Carbon tetrachloride	10.0	U	U	10.0	UJ	U	0.29	10.0	ug/kg	SS

Matrix	Sample ID	Sample Type	Analytical Method	Prep Method	Parameter	Lab Result	Lab Qual	Lab Conc Qual	Final Result	Final Qual	Final Conc Qual	Detection Limit	Reporting Limit	Units	Validation Notes
SS	NDE055	N	SW8260B	SW5030	Carbon tetrachloride	10.0	U	U	10.0	UJ	U	0.30	10.0	ug/kg	SS
SS	NDE090	N	SW8260B	SW5030	Carbon tetrachloride	10.0	U	U	10.0	UJ	U	0.30	10.0	ug/kg	SS
SS	NDE091FD1	FD	SW8260B	SW5030	Carbon tetrachloride	10.0	U	U	10.0	UJ	U	0.30	10.0	ug/kg	SS
SS	NDE097	N	SW8260B	SW5030	Carbon tetrachloride	10.0	U	U	10.0	UJ	U	0.30	10.0	ug/kg	SS
SS	NDE075	N	SW8260B	SW5030	Carbon tetrachloride	10.0	U	U	10.0	UJ	U	0.31	10.0	ug/kg	SS
SS	NDE066	N	SW8260B	SW5030	Carbon tetrachloride	10.0	U	U	10.0	UJ	U	0.32	10.0	ug/kg	SS
SS	NDE070	N	SW8260B	SW5030	Carbon tetrachloride	10.0	U	U	10.0	UJ	U	0.33	10.0	ug/kg	SS
SS	NDE072	N	SW8260B	SW5030	Carbon tetrachloride	10.0	U	U	10.0	UJ	U	0.33	10.0	ug/kg	SS
SS	NDE095	N	SW8260B	SW5030	Carbon tetrachloride	10.0	U	U	10.0	UJ	U	0.33	10.0	ug/kg	SS
SS	NDE068	N	SW8260B	SW5030	Carbon tetrachloride	10.0	U	U	10.0	UJ	U	0.34	10.0	ug/kg	SS
SS	NDE093	N	SW8260B	SW5030	Carbon tetrachloride	10.0	U	U	10.0	UJ	U	0.34	10.0	ug/kg	SS
SS	NDE088	N	SW8260B	SW5030	Carbon tetrachloride	10.0	U	U	10.0	UJ	U	0.34	10.0	ug/kg	SS
SS	NDE083	N	SW8260B	SW5030	Carbon tetrachloride	12.0	U	U	12.0	UJ	U	0.40	12.0	ug/kg	SS
SS	NDE084FD1	FD	SW8260B	SW5030	Carbon tetrachloride	12.0	U	U	12.0	UJ	U	0.40	12.0	ug/kg	SS
SB	NDE076	N	SW8260B	SW5030	Chlorobenzene	10.0	U	U	10.0	UJ	U	0.18	10.0	ug/kg	SS
SB	NDE065	N	SW8260B	SW5030	Chlorobenzene	10.0	U	U	10.0	UJ	U	0.19	10.0	ug/kg	SS
SB	NDE067	N	SW8260B	SW5030	Chlorobenzene	10.0	U	U	10.0	UJ	U	0.19	10.0	ug/kg	SS
SB	NDE069	N	SW8260B	SW5030	Chlorobenzene	10.0	U	U	10.0	UJ	U	0.19	10.0	ug/kg	SS
SB	NDE073	N	SW8260B	SW5030	Chlorobenzene	10.0	U	U	10.0	UJ	U	0.19	10.0	ug/kg	SS
SB	NDE078	N	SW8260B	SW5030	Chlorobenzene	10.0	U	U	10.0	UJ	U	0.19	10.0	ug/kg	SS
SB	NDE092	N	SW8260B	SW5030	Chlorobenzene	10.0	U	U	10.0	UJ	U	0.19	10.0	ug/kg	SS
SB	NDE082	N	SW8260B	SW5030	Chlorobenzene	10.0	U	U	10.0	UJ	U	0.19	10.0	ug/kg	SS
SB	NDE071	N	SW8260B	SW5030	Chlorobenzene	10.0	U	U	10.0	UJ	U	0.21	10.0	ug/kg	SS
SB	NDE094	N	SW8260B	SW5030	Chlorobenzene	10.0	U	U	10.0	UJ	U	0.21	10.0	ug/kg	SS
SB	NDE085	N	SW8260B	SW5030	Chlorobenzene	10.0	U	U	10.0	UJ	U	0.21	10.0	ug/kg	SS
SB	NDE080	N	SW8260B	SW5030	Chlorobenzene	11.0	U	U	11.0	UJ	U	0.22	11.0	ug/kg	SS
SB	NDE087	N	SW8260B	SW5030	Chlorobenzene	12.0	U	U	12.0	UJ	U	0.25	12.0	ug/kg	SS
SS	NDE057	N	SW8260B	SW5030	Chlorobenzene	10.0	U	U	10.0	UJ	U	0.16	10.0	ug/kg	SS
SS	NDE064	N	SW8260B	SW5030	Chlorobenzene	10.0	U	U	10.0	UJ	U	0.16	10.0	ug/kg	SS
SS	NDE062FD1	FD	SW8260B	SW5030	Chlorobenzene	10.0	U	U	10.0	UJ	U	0.17	10.0	ug/kg	SS
SS	NDE086	N	SW8260B	SW5030	Chlorobenzene	10.0	U	U	10.0	UJ	U	0.17	10.0	ug/kg	SS
SS	NDE074FD1	FD	SW8260B	SW5030	Chlorobenzene	10.0	U	U	10.0	UJ	U	0.18	10.0	ug/kg	SS
SS	NDE079	N	SW8260B	SW5030	Chlorobenzene	10.0	U	U	10.0	UJ	U	0.18	10.0	ug/kg	SS
SS	NDE055	N	SW8260B	SW5030	Chlorobenzene	10.0	U	U	10.0	UJ	U	0.19	10.0	ug/kg	SS
SS	NDE075	N	SW8260B	SW5030	Chlorobenzene	10.0	U	U	10.0	UJ	U	0.19	10.0	ug/kg	SS
SS	NDE090	N	SW8260B	SW5030	Chlorobenzene	10.0	U	U	10.0	UJ	U	0.19	10.0	ug/kg	SS
SS	NDE091FD1	FD	SW8260B	SW5030	Chlorobenzene	10.0	U	U	10.0	UJ	U	0.19	10.0	ug/kg	SS
SS	NDE097	N	SW8260B	SW5030	Chlorobenzene	10.0	U	U	10.0	UJ	U	0.19	10.0	ug/kg	SS
SS	NDE066	N	SW8260B	SW5030	Chlorobenzene	10.0	U	U	10.0	UJ	U	0.20	10.0	ug/kg	SS
SS	NDE070	N	SW8260B	SW5030	Chlorobenzene	10.0	U	U	10.0	UJ	U	0.20	10.0	ug/kg	SS
SS	NDE072	N	SW8260B	SW5030	Chlorobenzene	10.0	U	U	10.0	UJ	U	0.20	10.0	ug/kg	SS
SS	NDE068	N	SW8260B	SW5030	Chlorobenzene	10.0	U	U	10.0	UJ	U	0.21	10.0	ug/kg	SS
SS	NDE093	N	SW8260B	SW5030	Chlorobenzene	10.0	U	U	10.0	UJ	U	0.21	10.0	ug/kg	SS
SS	NDE095	N	SW8260B	SW5030	Chlorobenzene	10.0	U	U	10.0	UJ	U	0.21	10.0	ug/kg	SS
SS	NDE088	N	SW8260B	SW5030	Chlorobenzene	10.0	U	U	10.0	UJ	U	0.21	10.0	ug/kg	SS
SS	NDE083	N	SW8260B	SW5030	Chlorobenzene	12.0	U	U	12.0	UJ	U	0.25	12.0	ug/kg	SS
SS	NDE084FD1	FD	SW8260B	SW5030	Chlorobenzene	12.0	U	U	12.0	UJ	U	0.25	12.0	ug/kg	SS
SB	NDE076	N	SW8260B	SW5030	Chloroethane	10.0	U	U	10.0	UJ	U	0.46	10.0	ug/kg	SS

Matrix	Sample ID	Sample Type	Analytical Method	Prep Method	Parameter	Lab Result	Lab Qual	Lab Conc Qual	Final Result	Final Qual	Final Conc Qual	Detection Limit	Reporting Limit	Units	Validation Notes
SB	NDE069	N	SW8260B	SW5030	Chloroethane	10.0	U	U	10.0	UJ	U	0.49	10.0	ug/kg	SS
SB	NDE073	N	SW8260B	SW5030	Chloroethane	10.0	U	U	10.0	UJ	U	0.49	10.0	ug/kg	SS
SB	NDE078	N	SW8260B	SW5030	Chloroethane	10.0	U	U	10.0	UJ	U	0.49	10.0	ug/kg	SS
SB	NDE092	N	SW8260B	SW5030	Chloroethane	10.0	U	U	10.0	UJ	U	0.49	10.0	ug/kg	SS
SB	NDE082	N	SW8260B	SW5030	Chloroethane	10.0	U	U	10.0	UJ	U	0.50	10.0	ug/kg	SS
SB	NDE065	N	SW8260B	SW5030	Chloroethane	10.0	U	U	10.0	UJ	U	0.51	10.0	ug/kg	SS
SB	NDE067	N	SW8260B	SW5030	Chloroethane	10.0	U	U	10.0	UJ	U	0.51	10.0	ug/kg	SS
SB	NDE071	N	SW8260B	SW5030	Chloroethane	10.0	U	U	10.0	UJ	U	0.54	10.0	ug/kg	SS
SB	NDE094	N	SW8260B	SW5030	Chloroethane	10.0	U	U	10.0	UJ	U	0.54	10.0	ug/kg	SS
SB	NDE085	N	SW8260B	SW5030	Chloroethane	10.0	U	U	10.0	UJ	U	0.54	10.0	ug/kg	SS
SB	NDE080	N	SW8260B	SW5030	Chloroethane	11.0	U	U	11.0	UJ	U	0.58	11.0	ug/kg	SS
SB	NDE087	N	SW8260B	SW5030	Chloroethane	12.0	U	U	12.0	UJ	U	0.65	12.0	ug/kg	SS
SS	NDE057	N	SW8260B	SW5030	Chloroethane	10.0	U	U	10.0	UJ	U	0.42	10.0	ug/kg	SS
SS	NDE064	N	SW8260B	SW5030	Chloroethane	10.0	U	U	10.0	UJ	U	0.43	10.0	ug/kg	SS
SS	NDE062FD1	FD	SW8260B	SW5030	Chloroethane	10.0	U	U	10.0	UJ	U	0.45	10.0	ug/kg	SS
SS	NDE086	N	SW8260B	SW5030	Chloroethane	10.0	U	U	10.0	UJ	U	0.45	10.0	ug/kg	SS
SS	NDE079	N	SW8260B	SW5030	Chloroethane	10.0	U	U	10.0	UJ	U	0.46	10.0	ug/kg	SS
SS	NDE074FD1	FD	SW8260B	SW5030	Chloroethane	10.0	U	U	10.0	UJ	U	0.48	10.0	ug/kg	SS
SS	NDE055	N	SW8260B	SW5030	Chloroethane	10.0	U	U	10.0	UJ	U	0.49	10.0	ug/kg	SS
SS	NDE090	N	SW8260B	SW5030	Chloroethane	10.0	U	U	10.0	UJ	U	0.49	10.0	ug/kg	SS
SS	NDE091FD1	FD	SW8260B	SW5030	Chloroethane	10.0	U	U	10.0	UJ	U	0.49	10.0	ug/kg	SS
SS	NDE097	N	SW8260B	SW5030	Chloroethane	10.0	U	U	10.0	UJ	U	0.49	10.0	ug/kg	SS
SS	NDE075	N	SW8260B	SW5030	Chloroethane	10.0	U	U	10.0	UJ	U	0.50	10.0	ug/kg	SS
SS	NDE066	N	SW8260B	SW5030	Chloroethane	10.0	U	U	10.0	UJ	U	0.52	10.0	ug/kg	SS
SS	NDE070	N	SW8260B	SW5030	Chloroethane	10.0	U	U	10.0	UJ	U	0.53	10.0	ug/kg	SS
SS	NDE072	N	SW8260B	SW5030	Chloroethane	10.0	U	U	10.0	UJ	U	0.54	10.0	ug/kg	SS
SS	NDE095	N	SW8260B	SW5030	Chloroethane	10.0	U	U	10.0	UJ	U	0.54	10.0	ug/kg	SS
SS	NDE088	N	SW8260B	SW5030	Chloroethane	10.0	U	U	10.0	UJ	U	0.54	10.0	ug/kg	SS
SS	NDE068	N	SW8260B	SW5030	Chloroethane	10.0	U	U	10.0	UJ	U	0.55	10.0	ug/kg	SS
SS	NDE093	N	SW8260B	SW5030	Chloroethane	10.0	U	U	10.0	UJ	U	0.55	10.0	ug/kg	SS
SS	NDE083	N	SW8260B	SW5030	Chloroethane	12.0	U	U	12.0	UJ	U	0.64	12.0	ug/kg	SS
SS	NDE084FD1	FD	SW8260B	SW5030	Chloroethane	12.0	U	U	12.0	UJ	U	0.65	12.0	ug/kg	SS
SB	NDE076	N	SW8260B	SW5030	Chloroform	10.0	U	U	10.0	UJ	U	0.22	10.0	ug/kg	SS
SB	NDE069	N	SW8260B	SW5030	Chloroform	10.0	U	U	10.0	UJ	U	0.23	10.0	ug/kg	SS
SB	NDE073	N	SW8260B	SW5030	Chloroform	10.0	U	U	10.0	UJ	U	0.23	10.0	ug/kg	SS
SB	NDE078	N	SW8260B	SW5030	Chloroform	10.0	U	U	10.0	UJ	U	0.23	10.0	ug/kg	SS
SB	NDE092	N	SW8260B	SW5030	Chloroform	10.0	U	U	10.0	UJ	U	0.23	10.0	ug/kg	SS
SB	NDE065	N	SW8260B	SW5030	Chloroform	10.0	U	U	10.0	UJ	U	0.24	10.0	ug/kg	SS
SB	NDE067	N	SW8260B	SW5030	Chloroform	10.0	U	U	10.0	UJ	U	0.24	10.0	ug/kg	SS
SB	NDE082	N	SW8260B	SW5030	Chloroform	10.0	U	U	10.0	UJ	U	0.24	10.0	ug/kg	SS
SB	NDE071	N	SW8260B	SW5030	Chloroform	10.0	U	U	10.0	UJ	U	0.26	10.0	ug/kg	SS
SB	NDE094	N	SW8260B	SW5030	Chloroform	10.0	U	U	10.0	UJ	U	0.26	10.0	ug/kg	SS
SB	NDE085	N	SW8260B	SW5030	Chloroform	10.0	U	U	10.0	UJ	U	0.26	10.0	ug/kg	SS
SB	NDE080	N	SW8260B	SW5030	Chloroform	11.0	U	U	11.0	UJ	U	0.28	11.0	ug/kg	SS
SB	NDE087	N	SW8260B	SW5030	Chloroform	12.0	U	U	12.0	UJ	U	0.31	12.0	ug/kg	SS
SS	NDE057	N	SW8260B	SW5030	Chloroform	10.0	U	U	10.0	UJ	U	0.20	10.0	ug/kg	SS
SS	NDE064	N	SW8260B	SW5030	Chloroform	10.0	U	U	10.0	UJ	U	0.20	10.0	ug/kg	SS
SS	NDE062FD1	FD	SW8260B	SW5030	Chloroform	10.0	U	U	10.0	UJ	U	0.21	10.0	ug/kg	SS

Matrix	Sample ID	Sample Type	Analytical Method	Prep Method	Parameter	Lab Result	Lab Qual	Lab Conc Qual	Final Result	Final Qual	Final Conc Qual	Detection Limit	Reporting Limit	Units	Validation Notes
SS	NDE086	N	SW8260B	SW5030	Chloroform	10.0	U	U	10.0	UJ	U	0.21	10.0	ug/kg	SS
SS	NDE074FD1	FD	SW8260B	SW5030	Chloroform	10.0	U	U	10.0	UJ	U	0.22	10.0	ug/kg	SS
SS	NDE079	N	SW8260B	SW5030	Chloroform	10.0	U	U	10.0	UJ	U	0.22	10.0	ug/kg	SS
SS	NDE055	N	SW8260B	SW5030	Chloroform	10.0	U	U	10.0	UJ	U	0.23	10.0	ug/kg	SS
SS	NDE090	N	SW8260B	SW5030	Chloroform	10.0	U	U	10.0	UJ	U	0.23	10.0	ug/kg	SS
SS	NDE091FD1	FD	SW8260B	SW5030	Chloroform	10.0	U	U	10.0	UJ	U	0.23	10.0	ug/kg	SS
SS	NDE097	N	SW8260B	SW5030	Chloroform	10.0	U	U	10.0	UJ	U	0.23	10.0	ug/kg	SS
SS	NDE075	N	SW8260B	SW5030	Chloroform	10.0	U	U	10.0	UJ	U	0.24	10.0	ug/kg	SS
SS	NDE066	N	SW8260B	SW5030	Chloroform	10.0	U	U	10.0	UJ	U	0.25	10.0	ug/kg	SS
SS	NDE070	N	SW8260B	SW5030	Chloroform	10.0	U	U	10.0	UJ	U	0.25	10.0	ug/kg	SS
SS	NDE072	N	SW8260B	SW5030	Chloroform	10.0	U	U	10.0	UJ	U	0.25	10.0	ug/kg	SS
SS	NDE068	N	SW8260B	SW5030	Chloroform	10.0	U	U	10.0	UJ	U	0.26	10.0	ug/kg	SS
SS	NDE093	N	SW8260B	SW5030	Chloroform	10.0	U	U	10.0	UJ	U	0.26	10.0	ug/kg	SS
SS	NDE095	N	SW8260B	SW5030	Chloroform	10.0	U	U	10.0	UJ	U	0.26	10.0	ug/kg	SS
SS	NDE088	N	SW8260B	SW5030	Chloroform	10.0	U	U	10.0	UJ	U	0.26	10.0	ug/kg	SS
SS	NDE083	N	SW8260B	SW5030	Chloroform	12.0	U	U	12.0	UJ	U	0.30	12.0	ug/kg	SS
SS	NDE084FD1	FD	SW8260B	SW5030	Chloroform	12.0	U	U	12.0	UJ	U	0.31	12.0	ug/kg	SS
SB	NDE076	N	SW8260B	SW5030	Chloromethane	10.0	U	U	10.0	UJ	U	0.66	10.0	ug/kg	SS
SB	NDE078	N	SW8260B	SW5030	Chloromethane	10.0	U	U	10.0	UJ	U	0.70	10.0	ug/kg	SS
SB	NDE092	N	SW8260B	SW5030	Chloromethane	10.0	U	U	10.0	UJ	U	0.70	10.0	ug/kg	SS
SB	NDE069	N	SW8260B	SW5030	Chloromethane	10.0	U	U	10.0	UJ	U	0.71	10.0	ug/kg	SS
SB	NDE073	N	SW8260B	SW5030	Chloromethane	10.0	U	U	10.0	UJ	U	0.71	10.0	ug/kg	SS
SB	NDE082	N	SW8260B	SW5030	Chloromethane	10.0	U	U	10.0	UJ	U	0.72	10.0	ug/kg	SS
SB	NDE065	N	SW8260B	SW5030	Chloromethane	10.0	U	U	10.0	UJ	U	0.73	10.0	ug/kg	SS
SB	NDE067	N	SW8260B	SW5030	Chloromethane	10.0	U	U	10.0	UJ	U	0.73	10.0	ug/kg	SS
SB	NDE071	N	SW8260B	SW5030	Chloromethane	10.0	U	U	10.0	UJ	U	0.78	10.0	ug/kg	SS
SB	NDE094	N	SW8260B	SW5030	Chloromethane	10.0	U	U	10.0	UJ	U	0.78	10.0	ug/kg	SS
SB	NDE085	N	SW8260B	SW5030	Chloromethane	10.0	U	U	10.0	UJ	U	0.78	10.0	ug/kg	SS
SB	NDE080	N	SW8260B	SW5030	Chloromethane	11.0	U	U	11.0	UJ	U	0.84	11.0	ug/kg	SS
SB	NDE087	N	SW8260B	SW5030	Chloromethane	12.0	U	U	12.0	UJ	U	0.93	12.0	ug/kg	SS
SS	NDE057	N	SW8260B	SW5030	Chloromethane	10.0	U	U	10.0	UJ	U	0.60	10.0	ug/kg	SS
SS	NDE064	N	SW8260B	SW5030	Chloromethane	10.0	U	U	10.0	UJ	U	0.62	10.0	ug/kg	SS
SS	NDE086	N	SW8260B	SW5030	Chloromethane	10.0	U	U	10.0	UJ	U	0.64	10.0	ug/kg	SS
SS	NDE062FD1	FD	SW8260B	SW5030	Chloromethane	10.0	U	U	10.0	UJ	U	0.65	10.0	ug/kg	SS
SS	NDE079	N	SW8260B	SW5030	Chloromethane	10.0	U	U	10.0	UJ	U	0.66	10.0	ug/kg	SS
SS	NDE074FD1	FD	SW8260B	SW5030	Chloromethane	10.0	U	U	10.0	UJ	U	0.68	10.0	ug/kg	SS
SS	NDE055	N	SW8260B	SW5030	Chloromethane	10.0	U	U	10.0	UJ	U	0.70	10.0	ug/kg	SS
SS	NDE090	N	SW8260B	SW5030	Chloromethane	10.0	U	U	10.0	UJ	U	0.70	10.0	ug/kg	SS
SS	NDE091FD1	FD	SW8260B	SW5030	Chloromethane	10.0	U	U	10.0	UJ	U	0.70	10.0	ug/kg	SS
SS	NDE097	N	SW8260B	SW5030	Chloromethane	10.0	U	U	10.0	UJ	U	0.71	10.0	ug/kg	SS
SS	NDE075	N	SW8260B	SW5030	Chloromethane	10.0	U	U	10.0	UJ	U	0.72	10.0	ug/kg	SS
SS	NDE066	N	SW8260B	SW5030	Chloromethane	10.0	U	U	10.0	UJ	U	0.75	10.0	ug/kg	SS
SS	NDE070	N	SW8260B	SW5030	Chloromethane	10.0	U	U	10.0	UJ	U	0.77	10.0	ug/kg	SS
SS	NDE072	N	SW8260B	SW5030	Chloromethane	10.0	U	U	10.0	UJ	U	0.77	10.0	ug/kg	SS
SS	NDE095	N	SW8260B	SW5030	Chloromethane	10.0	U	U	10.0	UJ	U	0.78	10.0	ug/kg	SS
SS	NDE088	N	SW8260B	SW5030	Chloromethane	10.0	U	U	10.0	UJ	U	0.78	10.0	ug/kg	SS
SS	NDE068	N	SW8260B	SW5030	Chloromethane	10.0	U	U	10.0	UJ	U	0.79	10.0	ug/kg	SS
SS	NDE093	N	SW8260B	SW5030	Chloromethane	10.0	U	U	10.0	UJ	U	0.79	10.0	ug/kg	SS

Matrix	Sample ID	Sample Type	Analytical Method	Prep Method	Parameter	Lab Result	Lab Qual	Lab Conc Qual	Final Result	Final Qual	Final Conc Qual	Detection Limit	Reporting Limit	Units	Validation Notes
SS	NDE083	N	SW8260B	SW5030	Chloromethane	12.0	U	U	12.0	UJ	U	0.92	12.0	ug/kg	SS
SS	NDE084FD1	FD	SW8260B	SW5030	Chloromethane	12.0	U	U	12.0	UJ	U	0.94	12.0	ug/kg	SS
SB	NDE076	N	SW8260B	SW5030	cis-1,3-Dichloropropene	10.0	U	U	10.0	UJ	U	0.20	10.0	ug/kg	SS
SB	NDE078	N	SW8260B	SW5030	cis-1,3-Dichloropropene	10.0	U	U	10.0	UJ	U	0.21	10.0	ug/kg	SS
SB	NDE092	N	SW8260B	SW5030	cis-1,3-Dichloropropene	10.0	U	U	10.0	UJ	U	0.21	10.0	ug/kg	SS
SB	NDE065	N	SW8260B	SW5030	cis-1,3-Dichloropropene	10.0	U	U	10.0	UJ	U	0.22	10.0	ug/kg	SS
SB	NDE067	N	SW8260B	SW5030	cis-1,3-Dichloropropene	10.0	U	U	10.0	UJ	U	0.22	10.0	ug/kg	SS
SB	NDE069	N	SW8260B	SW5030	cis-1,3-Dichloropropene	10.0	U	U	10.0	UJ	U	0.22	10.0	ug/kg	SS
SB	NDE073	N	SW8260B	SW5030	cis-1,3-Dichloropropene	10.0	U	U	10.0	UJ	U	0.22	10.0	ug/kg	SS
SB	NDE082	N	SW8260B	SW5030	cis-1,3-Dichloropropene	10.0	U	U	10.0	UJ	U	0.22	10.0	ug/kg	SS
SB	NDE071	N	SW8260B	SW5030	cis-1,3-Dichloropropene	10.0	U	U	10.0	UJ	U	0.24	10.0	ug/kg	SS
SB	NDE094	N	SW8260B	SW5030	cis-1,3-Dichloropropene	10.0	U	U	10.0	UJ	U	0.24	10.0	ug/kg	SS
SB	NDE085	N	SW8260B	SW5030	cis-1,3-Dichloropropene	10.0	U	U	10.0	UJ	U	0.24	10.0	ug/kg	SS
SB	NDE080	N	SW8260B	SW5030	cis-1,3-Dichloropropene	11.0	U	U	11.0	UJ	U	0.26	11.0	ug/kg	SS
SB	NDE087	N	SW8260B	SW5030	cis-1,3-Dichloropropene	12.0	U	U	12.0	UJ	U	0.28	12.0	ug/kg	SS
SS	NDE057	N	SW8260B	SW5030	cis-1,3-Dichloropropene	10.0	U	U	10.0	UJ	U	0.18	10.0	ug/kg	SS
SS	NDE064	N	SW8260B	SW5030	cis-1,3-Dichloropropene	10.0	U	U	10.0	UJ	U	0.19	10.0	ug/kg	SS
SS	NDE086	N	SW8260B	SW5030	cis-1,3-Dichloropropene	10.0	U	U	10.0	UJ	U	0.19	10.0	ug/kg	SS
SS	NDE062FD1	FD	SW8260B	SW5030	cis-1,3-Dichloropropene	10.0	U	U	10.0	UJ	U	0.20	10.0	ug/kg	SS
SS	NDE079	N	SW8260B	SW5030	cis-1,3-Dichloropropene	10.0	U	U	10.0	UJ	U	0.20	10.0	ug/kg	SS
SS	NDE055	N	SW8260B	SW5030	cis-1,3-Dichloropropene	10.0	U	U	10.0	UJ	U	0.21	10.0	ug/kg	SS
SS	NDE090	N	SW8260B	SW5030	cis-1,3-Dichloropropene	10.0	U	U	10.0	UJ	U	0.21	10.0	ug/kg	SS
SS	NDE091FD1	FD	SW8260B	SW5030	cis-1,3-Dichloropropene	10.0	U	U	10.0	UJ	U	0.21	10.0	ug/kg	SS
SS	NDE097	N	SW8260B	SW5030	cis-1,3-Dichloropropene	10.0	U	U	10.0	UJ	U	0.21	10.0	ug/kg	SS
SS	NDE074FD1	FD	SW8260B	SW5030	cis-1,3-Dichloropropene	10.0	U	U	10.0	UJ	U	0.21	10.0	ug/kg	SS
SS	NDE075	N	SW8260B	SW5030	cis-1,3-Dichloropropene	10.0	U	U	10.0	UJ	U	0.22	10.0	ug/kg	SS
SS	NDE066	N	SW8260B	SW5030	cis-1,3-Dichloropropene	10.0	U	U	10.0	UJ	U	0.23	10.0	ug/kg	SS
SS	NDE070	N	SW8260B	SW5030	cis-1,3-Dichloropropene	10.0	U	U	10.0	UJ	U	0.23	10.0	ug/kg	SS
SS	NDE072	N	SW8260B	SW5030	cis-1,3-Dichloropropene	10.0	U	U	10.0	UJ	U	0.23	10.0	ug/kg	SS
SS	NDE068	N	SW8260B	SW5030	cis-1,3-Dichloropropene	10.0	U	U	10.0	UJ	U	0.24	10.0	ug/kg	SS
SS	NDE093	N	SW8260B	SW5030	cis-1,3-Dichloropropene	10.0	U	U	10.0	UJ	U	0.24	10.0	ug/kg	SS
SS	NDE095	N	SW8260B	SW5030	cis-1,3-Dichloropropene	10.0	U	U	10.0	UJ	U	0.24	10.0	ug/kg	SS
SS	NDE088	N	SW8260B	SW5030	cis-1,3-Dichloropropene	10.0	U	U	10.0	UJ	U	0.24	10.0	ug/kg	SS
SS	NDE083	N	SW8260B	SW5030	cis-1,3-Dichloropropene	12.0	U	U	12.0	UJ	U	0.28	12.0	ug/kg	SS
SS	NDE084FD1	FD	SW8260B	SW5030	cis-1,3-Dichloropropene	12.0	U	U	12.0	UJ	U	0.28	12.0	ug/kg	SS
SB	NDE076	N	SW8260B	SW5030	Dibromochloromethane	10.0	U	U	10.0	UJ	U	0.18	10.0	ug/kg	SS
SB	NDE065	N	SW8260B	SW5030	Dibromochloromethane	10.0	U	U	10.0	UJ	U	0.19	10.0	ug/kg	SS
SB	NDE067	N	SW8260B	SW5030	Dibromochloromethane	10.0	U	U	10.0	UJ	U	0.19	10.0	ug/kg	SS
SB	NDE069	N	SW8260B	SW5030	Dibromochloromethane	10.0	U	U	10.0	UJ	U	0.19	10.0	ug/kg	SS
SB	NDE073	N	SW8260B	SW5030	Dibromochloromethane	10.0	U	U	10.0	UJ	U	0.19	10.0	ug/kg	SS
SB	NDE078	N	SW8260B	SW5030	Dibromochloromethane	10.0	U	U	10.0	UJ	U	0.19	10.0	ug/kg	SS
SB	NDE092	N	SW8260B	SW5030	Dibromochloromethane	10.0	U	U	10.0	UJ	U	0.19	10.0	ug/kg	SS
SB	NDE082	N	SW8260B	SW5030	Dibromochloromethane	10.0	U	U	10.0	UJ	U	0.19	10.0	ug/kg	SS
SB	NDE071	N	SW8260B	SW5030	Dibromochloromethane	10.0	U	U	10.0	UJ	U	0.21	10.0	ug/kg	SS
SB	NDE094	N	SW8260B	SW5030	Dibromochloromethane	10.0	U	U	10.0	UJ	U	0.21	10.0	ug/kg	SS
SB	NDE085	N	SW8260B	SW5030	Dibromochloromethane	10.0	U	U	10.0	UJ	U	0.21	10.0	ug/kg	SS
SB	NDE080	N	SW8260B	SW5030	Dibromochloromethane	11.0	U	U	11.0	UJ	U	0.22	11.0	ug/kg	SS
SB	NDE087	N	SW8260B	SW5030	Dibromochloromethane	12.0	U	U	12.0	UJ	U	0.25	12.0	ug/kg	SS

Matrix	Sample ID	Sample Type	Analytical Method	Prep Method	Parameter	Lab Result	Lab Qual	Lab Conc Qual	Final Result	Final Qual	Final Conc Qual	Detection Limit	Reporting Limit	Units	Validation Notes
SS	NDE057	N	SW8260B	SW5030	Dibromochloromethane	10.0	U	U	10.0	UJ	U	0.16	10.0	ug/kg	SS
SS	NDE064	N	SW8260B	SW5030	Dibromochloromethane	10.0	U	U	10.0	UJ	U	0.16	10.0	ug/kg	SS
SS	NDE062FD1	FD	SW8260B	SW5030	Dibromochloromethane	10.0	U	U	10.0	UJ	U	0.17	10.0	ug/kg	SS
SS	NDE086	N	SW8260B	SW5030	Dibromochloromethane	10.0	U	U	10.0	UJ	U	0.17	10.0	ug/kg	SS
SS	NDE074FD1	FD	SW8260B	SW5030	Dibromochloromethane	10.0	U	U	10.0	UJ	U	0.18	10.0	ug/kg	SS
SS	NDE079	N	SW8260B	SW5030	Dibromochloromethane	10.0	U	U	10.0	UJ	U	0.18	10.0	ug/kg	SS
SS	NDE055	N	SW8260B	SW5030	Dibromochloromethane	10.0	U	U	10.0	UJ	U	0.19	10.0	ug/kg	SS
SS	NDE075	N	SW8260B	SW5030	Dibromochloromethane	10.0	U	U	10.0	UJ	U	0.19	10.0	ug/kg	SS
SS	NDE090	N	SW8260B	SW5030	Dibromochloromethane	10.0	U	U	10.0	UJ	U	0.19	10.0	ug/kg	SS
SS	NDE091FD1	FD	SW8260B	SW5030	Dibromochloromethane	10.0	U	U	10.0	UJ	U	0.19	10.0	ug/kg	SS
SS	NDE097	N	SW8260B	SW5030	Dibromochloromethane	10.0	U	U	10.0	UJ	U	0.19	10.0	ug/kg	SS
SS	NDE066	N	SW8260B	SW5030	Dibromochloromethane	10.0	U	U	10.0	UJ	U	0.20	10.0	ug/kg	SS
SS	NDE070	N	SW8260B	SW5030	Dibromochloromethane	10.0	U	U	10.0	UJ	U	0.20	10.0	ug/kg	SS
SS	NDE072	N	SW8260B	SW5030	Dibromochloromethane	10.0	U	U	10.0	UJ	U	0.20	10.0	ug/kg	SS
SS	NDE068	N	SW8260B	SW5030	Dibromochloromethane	10.0	U	U	10.0	UJ	U	0.21	10.0	ug/kg	SS
SS	NDE093	N	SW8260B	SW5030	Dibromochloromethane	10.0	U	U	10.0	UJ	U	0.21	10.0	ug/kg	SS
SS	NDE095	N	SW8260B	SW5030	Dibromochloromethane	10.0	U	U	10.0	UJ	U	0.21	10.0	ug/kg	SS
SS	NDE088	N	SW8260B	SW5030	Dibromochloromethane	10.0	U	U	10.0	UJ	U	0.21	10.0	ug/kg	SS
SS	NDE083	N	SW8260B	SW5030	Dibromochloromethane	12.0	U	U	12.0	UJ	U	0.25	12.0	ug/kg	SS
SS	NDE084FD1	FD	SW8260B	SW5030	Dibromochloromethane	12.0	U	U	12.0	UJ	U	0.25	12.0	ug/kg	SS
SB	NDE071	N	SW8260B	SW5030	Ethylbenzene	0.89	J	J	0.89	J	J	0.32	10.0	ug/kg	SS
SB	NDE087	N	SW8260B	SW5030	Ethylbenzene	96.0	=	=	96.0	J	J	0.38	12.0	ug/kg	SS
SB	NDE076	N	SW8260B	SW5030	Ethylbenzene	10.0	U	U	10.0	UJ	U	0.27	10.0	ug/kg	SS
SB	NDE078	N	SW8260B	SW5030	Ethylbenzene	10.0	U	U	10.0	UJ	U	0.28	10.0	ug/kg	SS
SB	NDE092	N	SW8260B	SW5030	Ethylbenzene	10.0	U	U	10.0	UJ	U	0.28	10.0	ug/kg	SS
SB	NDE065	N	SW8260B	SW5030	Ethylbenzene	10.0	U	U	10.0	UJ	U	0.29	10.0	ug/kg	SS
SB	NDE067	N	SW8260B	SW5030	Ethylbenzene	10.0	U	U	10.0	UJ	U	0.29	10.0	ug/kg	SS
SB	NDE069	N	SW8260B	SW5030	Ethylbenzene	10.0	U	U	10.0	UJ	U	0.29	10.0	ug/kg	SS
SB	NDE073	N	SW8260B	SW5030	Ethylbenzene	10.0	U	U	10.0	UJ	U	0.29	10.0	ug/kg	SS
SB	NDE082	N	SW8260B	SW5030	Ethylbenzene	10.0	U	U	10.0	UJ	U	0.29	10.0	ug/kg	SS
SB	NDE094	N	SW8260B	SW5030	Ethylbenzene	10.0	U	U	10.0	UJ	U	0.32	10.0	ug/kg	SS
SB	NDE085	N	SW8260B	SW5030	Ethylbenzene	10.0	U	U	10.0	UJ	U	0.32	10.0	ug/kg	SS
SB	NDE080	N	SW8260B	SW5030	Ethylbenzene	11.0	U	U	11.0	UJ	U	0.34	11.0	ug/kg	SS
SS	NDE057	N	SW8260B	SW5030	Ethylbenzene	10.0	U	U	10.0	UJ	U	0.24	10.0	ug/kg	SS
SS	NDE064	N	SW8260B	SW5030	Ethylbenzene	10.0	U	U	10.0	UJ	U	0.25	10.0	ug/kg	SS
SS	NDE062FD1	FD	SW8260B	SW5030	Ethylbenzene	10.0	U	U	10.0	UJ	U	0.26	10.0	ug/kg	SS
SS	NDE086	N	SW8260B	SW5030	Ethylbenzene	10.0	U	U	10.0	UJ	U	0.26	10.0	ug/kg	SS
SS	NDE079	N	SW8260B	SW5030	Ethylbenzene	10.0	U	U	10.0	UJ	U	0.27	10.0	ug/kg	SS
SS	NDE055	N	SW8260B	SW5030	Ethylbenzene	10.0	U	U	10.0	UJ	U	0.28	10.0	ug/kg	SS
SS	NDE090	N	SW8260B	SW5030	Ethylbenzene	10.0	U	U	10.0	UJ	U	0.28	10.0	ug/kg	SS
SS	NDE091FD1	FD	SW8260B	SW5030	Ethylbenzene	10.0	U	U	10.0	UJ	U	0.28	10.0	ug/kg	SS
SS	NDE074FD1	FD	SW8260B	SW5030	Ethylbenzene	10.0	U	U	10.0	UJ	U	0.28	10.0	ug/kg	SS
SS	NDE075	N	SW8260B	SW5030	Ethylbenzene	10.0	U	U	10.0	UJ	U	0.29	10.0	ug/kg	SS
SS	NDE097	N	SW8260B	SW5030	Ethylbenzene	10.0	U	U	10.0	UJ	U	0.29	10.0	ug/kg	SS
SS	NDE066	N	SW8260B	SW5030	Ethylbenzene	10.0	U	U	10.0	UJ	U	0.30	10.0	ug/kg	SS
SS	NDE070	N	SW8260B	SW5030	Ethylbenzene	10.0	U	U	10.0	UJ	U	0.31	10.0	ug/kg	SS
SS	NDE072	N	SW8260B	SW5030	Ethylbenzene	10.0	U	U	10.0	UJ	U	0.31	10.0	ug/kg	SS
SS	NDE068	N	SW8260B	SW5030	Ethylbenzene	10.0	U	U	10.0	UJ	U	0.32	10.0	ug/kg	SS

Matrix	Sample ID	Sample Type	Analytical Method	Prep Method	Parameter	Lab Result	Lab Qual	Lab Conc Qual	Final Result	Final Qual	Final Conc Qual	Detection Limit	Reporting Limit	Units	Validation Notes
SS	NDE093	N	SW8260B	SW5030	Ethylbenzene	10.0	U	U	10.0	UJ	U	0.32	10.0	ug/kg	SS
SS	NDE095	N	SW8260B	SW5030	Ethylbenzene	10.0	U	U	10.0	UJ	U	0.32	10.0	ug/kg	SS
SS	NDE088	N	SW8260B	SW5030	Ethylbenzene	10.0	U	U	10.0	UJ	U	0.32	10.0	ug/kg	SS
SS	NDE083	N	SW8260B	SW5030	Ethylbenzene	12.0	U	U	12.0	UJ	U	0.37	12.0	ug/kg	SS
SS	NDE084FD1	FD	SW8260B	SW5030	Ethylbenzene	12.0	U	U	12.0	UJ	U	0.38	12.0	ug/kg	SS
SB	NDE071	N	SW8260B	SW5030	m,p-Xylene (sum of isomers)	3.6	J	J	3.6	J	J	0.20	10.0	ug/kg	SS
SB	NDE076	N	SW8260B	SW5030	m,p-Xylene (sum of isomers)	10.0	U	U	10.0	UJ	U	0.17	10.0	ug/kg	SS
SB	NDE065	N	SW8260B	SW5030	m,p-Xylene (sum of isomers)	10.0	U	U	10.0	UJ	U	0.18	10.0	ug/kg	SS
SB	NDE067	N	SW8260B	SW5030	m,p-Xylene (sum of isomers)	10.0	U	U	10.0	UJ	U	0.18	10.0	ug/kg	SS
SB	NDE069	N	SW8260B	SW5030	m,p-Xylene (sum of isomers)	10.0	U	U	10.0	UJ	U	0.18	10.0	ug/kg	SS
SB	NDE073	N	SW8260B	SW5030	m,p-Xylene (sum of isomers)	10.0	U	U	10.0	UJ	U	0.18	10.0	ug/kg	SS
SB	NDE078	N	SW8260B	SW5030	m,p-Xylene (sum of isomers)	10.0	U	U	10.0	UJ	U	0.18	10.0	ug/kg	SS
SB	NDE092	N	SW8260B	SW5030	m,p-Xylene (sum of isomers)	10.0	U	U	10.0	UJ	U	0.18	10.0	ug/kg	SS
SB	NDE082	N	SW8260B	SW5030	m,p-Xylene (sum of isomers)	10.0	U	U	10.0	UJ	U	0.18	10.0	ug/kg	SS
SB	NDE094	N	SW8260B	SW5030	m,p-Xylene (sum of isomers)	10.0	U	U	10.0	UJ	U	0.20	10.0	ug/kg	SS
SB	NDE085	N	SW8260B	SW5030	m,p-Xylene (sum of isomers)	10.0	U	U	10.0	UJ	U	0.20	10.0	ug/kg	SS
SB	NDE080	N	SW8260B	SW5030	m,p-Xylene (sum of isomers)	11.0	U	U	11.0	UJ	U	0.21	11.0	ug/kg	SS
SS	NDE057	N	SW8260B	SW5030	m,p-Xylene (sum of isomers)	0.65	J	J	0.65	J	J	0.15	10.0	ug/kg	SS
SS	NDE091FD1	FD	SW8260B	SW5030	m,p-Xylene (sum of isomers)	1.0	J	J	1.0	J	J	0.18	10.0	ug/kg	SS
SS	NDE093	N	SW8260B	SW5030	m,p-Xylene (sum of isomers)	0.20	J	J	0.20	J	J	0.20	10.0	ug/kg	SS
SS	NDE088	N	SW8260B	SW5030	m,p-Xylene (sum of isomers)	1.4	J	J	1.4	J	J	0.20	10.0	ug/kg	SS
SS	NDE062FD1	FD	SW8260B	SW5030	m,p-Xylene (sum of isomers)	10.0	U	U	10.0	UJ	U	0.16	10.0	ug/kg	SS
SS	NDE064	N	SW8260B	SW5030	m,p-Xylene (sum of isomers)	10.0	U	U	10.0	UJ	U	0.16	10.0	ug/kg	SS
SS	NDE086	N	SW8260B	SW5030	m,p-Xylene (sum of isomers)	10.0	U	U	10.0	UJ	U	0.16	10.0	ug/kg	SS
SS	NDE074FD1	FD	SW8260B	SW5030	m,p-Xylene (sum of isomers)	10.0	U	U	10.0	UJ	U	0.17	10.0	ug/kg	SS
SS	NDE079	N	SW8260B	SW5030	m,p-Xylene (sum of isomers)	10.0	U	U	10.0	UJ	U	0.17	10.0	ug/kg	SS
SS	NDE055	N	SW8260B	SW5030	m,p-Xylene (sum of isomers)	10.0	U	U	10.0	UJ	U	0.18	10.0	ug/kg	SS
SS	NDE075	N	SW8260B	SW5030	m,p-Xylene (sum of isomers)	10.0	U	U	10.0	UJ	U	0.18	10.0	ug/kg	SS
SS	NDE090	N	SW8260B	SW5030	m,p-Xylene (sum of isomers)	10.0	U	U	10.0	UJ	U	0.18	10.0	ug/kg	SS
SS	NDE097	N	SW8260B	SW5030	m,p-Xylene (sum of isomers)	10.0	U	U	10.0	UJ	U	0.18	10.0	ug/kg	SS
SS	NDE066	N	SW8260B	SW5030	m,p-Xylene (sum of isomers)	10.0	U	U	10.0	UJ	U	0.19	10.0	ug/kg	SS
SS	NDE070	N	SW8260B	SW5030	m,p-Xylene (sum of isomers)	10.0	U	U	10.0	UJ	U	0.19	10.0	ug/kg	SS
SS	NDE068	N	SW8260B	SW5030	m,p-Xylene (sum of isomers)	10.0	U	U	10.0	UJ	U	0.20	10.0	ug/kg	SS
SS	NDE072	N	SW8260B	SW5030	m,p-Xylene (sum of isomers)	10.0	U	U	10.0	UJ	U	0.20	10.0	ug/kg	SS
SS	NDE095	N	SW8260B	SW5030	m,p-Xylene (sum of isomers)	10.0	U	U	10.0	UJ	U	0.20	10.0	ug/kg	SS
SS	NDE083	N	SW8260B	SW5030	m,p-Xylene (sum of isomers)	12.0	U	U	12.0	UJ	U	0.23	12.0	ug/kg	SS
SS	NDE084FD1	FD	SW8260B	SW5030	m,p-Xylene (sum of isomers)	12.0	U	U	12.0	UJ	U	0.24	12.0	ug/kg	SS
SB	NDE067	N	SW8260B	SW5030	Methylene chloride	0.31	J	J	10.0	UJ	U	0.30	10.0	ug/kg	BL,SS
SB	NDE085	N	SW8260B	SW5030	Methylene chloride	0.45	J	J	10.0	UJ	U	0.33	10.0	ug/kg	BL,SS
SB	NDE076	N	SW8260B	SW5030	Methylene chloride	10.0	U	U	10.0	UJ	U	0.28	10.0	ug/kg	SS
SB	NDE078	N	SW8260B	SW5030	Methylene chloride	10.0	U	U	10.0	UJ	U	0.29	10.0	ug/kg	SS
SB	NDE092	N	SW8260B	SW5030	Methylene chloride	10.0	U	U	10.0	UJ	U	0.29	10.0	ug/kg	SS
SB	NDE065	N	SW8260B	SW5030	Methylene chloride	10.0	U	U	10.0	UJ	U	0.30	10.0	ug/kg	SS
SB	NDE069	N	SW8260B	SW5030	Methylene chloride	10.0	U	U	10.0	UJ	U	0.30	10.0	ug/kg	SS
SB	NDE073	N	SW8260B	SW5030	Methylene chloride	10.0	U	U	10.0	UJ	U	0.30	10.0	ug/kg	SS
SB	NDE082	N	SW8260B	SW5030	Methylene chloride	10.0	U	U	10.0	UJ	U	0.30	10.0	ug/kg	SS
SB	NDE094	N	SW8260B	SW5030	Methylene chloride	10.0	U	U	10.0	UJ	U	0.32	10.0	ug/kg	SS
SB	NDE071	N	SW8260B	SW5030	Methylene chloride	10.0	U	U	10.0	UJ	U	0.33	10.0	ug/kg	SS

Matrix	Sample ID	Sample Type	Analytical Method	Prep Method	Parameter	Lab Result	Lab Qual	Lab Conc Qual	Final Result	Final Qual	Final Conc Qual	Detection Limit	Reporting Limit	Units	Validation Notes
SB	NDE080	N	SW8260B	SW5030	Methylene chloride	11.0	U	U	11.0	UJ	U	0.35	11.0	ug/kg	SS
SB	NDE087	N	SW8260B	SW5030	Methylene chloride	12.0	U	U	12.0	UJ	U	0.39	12.0	ug/kg	SS
SS	NDE095	N	SW8260B	SW5030	Methylene chloride	0.36	J	J	0.36	J	J	0.32	10.0	ug/kg	SS
SS	NDE093	N	SW8260B	SW5030	Methylene chloride	0.34	J	J	0.34	J	J	0.33	10.0	ug/kg	SS
SS	NDE068	N	SW8260B	SW5030	Methylene chloride	0.36	J	J	10.0	UJ	U	0.33	10.0	ug/kg	BL,SS
SS	NDE084FD1	FD	SW8260B	SW5030	Methylene chloride	0.45	J	J	12.0	UJ	U	0.39	12.0	ug/kg	BL,SS
SS	NDE057	N	SW8260B	SW5030	Methylene chloride	10.0	U	U	10.0	UJ	U	0.25	10.0	ug/kg	SS
SS	NDE064	N	SW8260B	SW5030	Methylene chloride	10.0	U	U	10.0	UJ	U	0.26	10.0	ug/kg	SS
SS	NDE062FD1	FD	SW8260B	SW5030	Methylene chloride	10.0	U	U	10.0	UJ	U	0.27	10.0	ug/kg	SS
SS	NDE086	N	SW8260B	SW5030	Methylene chloride	10.0	U	U	10.0	UJ	U	0.27	10.0	ug/kg	SS
SS	NDE079	N	SW8260B	SW5030	Methylene chloride	10.0	U	U	10.0	UJ	U	0.28	10.0	ug/kg	SS
SS	NDE055	N	SW8260B	SW5030	Methylene chloride	10.0	U	U	10.0	UJ	U	0.29	10.0	ug/kg	SS
SS	NDE090	N	SW8260B	SW5030	Methylene chloride	10.0	U	U	10.0	UJ	U	0.29	10.0	ug/kg	SS
SS	NDE091FD1	FD	SW8260B	SW5030	Methylene chloride	10.0	U	U	10.0	UJ	U	0.29	10.0	ug/kg	SS
SS	NDE074FD1	FD	SW8260B	SW5030	Methylene chloride	10.0	U	U	10.0	UJ	U	0.29	10.0	ug/kg	SS
SS	NDE075	N	SW8260B	SW5030	Methylene chloride	10.0	U	U	10.0	UJ	U	0.30	10.0	ug/kg	SS
SS	NDE097	N	SW8260B	SW5030	Methylene chloride	10.0	U	U	10.0	UJ	U	0.30	10.0	ug/kg	SS
SS	NDE066	N	SW8260B	SW5030	Methylene chloride	10.0	U	U	10.0	UJ	U	0.31	10.0	ug/kg	SS
SS	NDE070	N	SW8260B	SW5030	Methylene chloride	10.0	U	U	10.0	UJ	U	0.32	10.0	ug/kg	SS
SS	NDE072	N	SW8260B	SW5030	Methylene chloride	10.0	U	U	10.0	UJ	U	0.32	10.0	ug/kg	SS
SS	NDE088	N	SW8260B	SW5030	Methylene chloride	10.0	U	U	10.0	UJ	U	0.33	10.0	ug/kg	SS
SS	NDE083	N	SW8260B	SW5030	Methylene chloride	12.0	U	U	12.0	UJ	U	0.39	12.0	ug/kg	SS
SB	NDE071	N	SW8260B	SW5030	o-Xylene (1,2-Dimethylbenzene)	1.2	J	J	1.2	J	J	0.19	10.0	ug/kg	SS
SB	NDE076	N	SW8260B	SW5030	o-Xylene (1,2-Dimethylbenzene)	10.0	U	U	10.0	UJ	U	0.16	10.0	ug/kg	SS
SB	NDE065	N	SW8260B	SW5030	o-Xylene (1,2-Dimethylbenzene)	10.0	U	U	10.0	UJ	U	0.17	10.0	ug/kg	SS
SB	NDE069	N	SW8260B	SW5030	o-Xylene (1,2-Dimethylbenzene)	10.0	U	U	10.0	UJ	U	0.17	10.0	ug/kg	SS
SB	NDE073	N	SW8260B	SW5030	o-Xylene (1,2-Dimethylbenzene)	10.0	U	U	10.0	UJ	U	0.17	10.0	ug/kg	SS
SB	NDE078	N	SW8260B	SW5030	o-Xylene (1,2-Dimethylbenzene)	10.0	U	U	10.0	UJ	U	0.17	10.0	ug/kg	SS
SB	NDE092	N	SW8260B	SW5030	o-Xylene (1,2-Dimethylbenzene)	10.0	U	U	10.0	UJ	U	0.17	10.0	ug/kg	SS
SB	NDE082	N	SW8260B	SW5030	o-Xylene (1,2-Dimethylbenzene)	10.0	U	U	10.0	UJ	U	0.17	10.0	ug/kg	SS
SB	NDE067	N	SW8260B	SW5030	o-Xylene (1,2-Dimethylbenzene)	10.0	U	U	10.0	UJ	U	0.18	10.0	ug/kg	SS
SB	NDE094	N	SW8260B	SW5030	o-Xylene (1,2-Dimethylbenzene)	10.0	U	U	10.0	UJ	U	0.19	10.0	ug/kg	SS
SB	NDE085	N	SW8260B	SW5030	o-Xylene (1,2-Dimethylbenzene)	10.0	U	U	10.0	UJ	U	0.19	10.0	ug/kg	SS
SB	NDE080	N	SW8260B	SW5030	o-Xylene (1,2-Dimethylbenzene)	11.0	U	U	11.0	UJ	U	0.20	11.0	ug/kg	SS
SS	NDE057	N	SW8260B	SW5030	o-Xylene (1,2-Dimethylbenzene)	0.18	J	J	0.18	J	J	0.14	10.0	ug/kg	SS
SS	NDE091FD1	FD	SW8260B	SW5030	o-Xylene (1,2-Dimethylbenzene)	0.34	J	J	0.34	J	J	0.17	10.0	ug/kg	SS
SS	NDE088	N	SW8260B	SW5030	o-Xylene (1,2-Dimethylbenzene)	0.62	J	J	0.62	J	J	0.19	10.0	ug/kg	SS
SS	NDE064	N	SW8260B	SW5030	o-Xylene (1,2-Dimethylbenzene)	10.0	U	U	10.0	UJ	U	0.15	10.0	ug/kg	SS
SS	NDE086	N	SW8260B	SW5030	o-Xylene (1,2-Dimethylbenzene)	10.0	U	U	10.0	UJ	U	0.15	10.0	ug/kg	SS
SS	NDE062FD1	FD	SW8260B	SW5030	o-Xylene (1,2-Dimethylbenzene)	10.0	U	U	10.0	UJ	U	0.16	10.0	ug/kg	SS
SS	NDE074FD1	FD	SW8260B	SW5030	o-Xylene (1,2-Dimethylbenzene)	10.0	U	U	10.0	UJ	U	0.16	10.0	ug/kg	SS
SS	NDE079	N	SW8260B	SW5030	o-Xylene (1,2-Dimethylbenzene)	10.0	U	U	10.0	UJ	U	0.16	10.0	ug/kg	SS
SS	NDE055	N	SW8260B	SW5030	o-Xylene (1,2-Dimethylbenzene)	10.0	U	U	10.0	UJ	U	0.17	10.0	ug/kg	SS
SS	NDE075	N	SW8260B	SW5030	o-Xylene (1,2-Dimethylbenzene)	10.0	U	U	10.0	UJ	U	0.17	10.0	ug/kg	SS
SS	NDE090	N	SW8260B	SW5030	o-Xylene (1,2-Dimethylbenzene)	10.0	U	U	10.0	UJ	U	0.17	10.0	ug/kg	SS
SS	NDE097	N	SW8260B	SW5030	o-Xylene (1,2-Dimethylbenzene)	10.0	U	U	10.0	UJ	U	0.17	10.0	ug/kg	SS
SS	NDE066	N	SW8260B	SW5030	o-Xylene (1,2-Dimethylbenzene)	10.0	U	U	10.0	UJ	U	0.18	10.0	ug/kg	SS
SS	NDE070	N	SW8260B	SW5030	o-Xylene (1,2-Dimethylbenzene)	10.0	U	U	10.0	UJ	U	0.18	10.0	ug/kg	SS

Matrix	Sample ID	Sample Type	Analytical Method	Prep Method	Parameter	Lab Result	Lab Qual	Lab Conc Qual	Final Result	Final Qual	Final Conc Qual	Detection Limit	Reporting Limit	Units	Validation Notes
SS	NDE068	N	SW8260B	SW5030	o-Xylene (1,2-Dimethylbenzene)	10.0	U	U	10.0	UJ	U	0.19	10.0	ug/kg	SS
SS	NDE072	N	SW8260B	SW5030	o-Xylene (1,2-Dimethylbenzene)	10.0	U	U	10.0	UJ	U	0.19	10.0	ug/kg	SS
SS	NDE093	N	SW8260B	SW5030	o-Xylene (1,2-Dimethylbenzene)	10.0	U	U	10.0	UJ	U	0.19	10.0	ug/kg	SS
SS	NDE095	N	SW8260B	SW5030	o-Xylene (1,2-Dimethylbenzene)	10.0	U	U	10.0	UJ	U	0.19	10.0	ug/kg	SS
SS	NDE083	N	SW8260B	SW5030	o-Xylene (1,2-Dimethylbenzene)	12.0	U	U	12.0	UJ	U	0.22	12.0	ug/kg	SS
SS	NDE084FD1	FD	SW8260B	SW5030	o-Xylene (1,2-Dimethylbenzene)	12.0	U	U	12.0	UJ	U	0.23	12.0	ug/kg	SS
SB	NDE076	N	SW8260B	SW5030	Styrene	10.0	U	U	10.0	UJ	U	0.17	10.0	ug/kg	SS
SB	NDE065	N	SW8260B	SW5030	Styrene	10.0	U	U	10.0	UJ	U	0.18	10.0	ug/kg	SS
SB	NDE067	N	SW8260B	SW5030	Styrene	10.0	U	U	10.0	UJ	U	0.18	10.0	ug/kg	SS
SB	NDE069	N	SW8260B	SW5030	Styrene	10.0	U	U	10.0	UJ	U	0.18	10.0	ug/kg	SS
SB	NDE073	N	SW8260B	SW5030	Styrene	10.0	U	U	10.0	UJ	U	0.18	10.0	ug/kg	SS
SB	NDE078	N	SW8260B	SW5030	Styrene	10.0	U	U	10.0	UJ	U	0.18	10.0	ug/kg	SS
SB	NDE092	N	SW8260B	SW5030	Styrene	10.0	U	U	10.0	UJ	U	0.18	10.0	ug/kg	SS
SB	NDE082	N	SW8260B	SW5030	Styrene	10.0	U	U	10.0	UJ	U	0.18	10.0	ug/kg	SS
SB	NDE071	N	SW8260B	SW5030	Styrene	10.0	U	U	10.0	UJ	U	0.20	10.0	ug/kg	SS
SB	NDE094	N	SW8260B	SW5030	Styrene	10.0	U	U	10.0	UJ	U	0.20	10.0	ug/kg	SS
SB	NDE085	N	SW8260B	SW5030	Styrene	10.0	U	U	10.0	UJ	U	0.20	10.0	ug/kg	SS
SB	NDE080	N	SW8260B	SW5030	Styrene	11.0	U	U	11.0	UJ	U	0.21	11.0	ug/kg	SS
SB	NDE087	N	SW8260B	SW5030	Styrene	12.0	U	U	12.0	UJ	U	0.23	12.0	ug/kg	SS
SS	NDE057	N	SW8260B	SW5030	Styrene	10.0	U	U	10.0	UJ	U	0.15	10.0	ug/kg	SS
SS	NDE062FD1	FD	SW8260B	SW5030	Styrene	10.0	U	U	10.0	UJ	U	0.16	10.0	ug/kg	SS
SS	NDE064	N	SW8260B	SW5030	Styrene	10.0	U	U	10.0	UJ	U	0.16	10.0	ug/kg	SS
SS	NDE086	N	SW8260B	SW5030	Styrene	10.0	U	U	10.0	UJ	U	0.16	10.0	ug/kg	SS
SS	NDE074FD1	FD	SW8260B	SW5030	Styrene	10.0	U	U	10.0	UJ	U	0.17	10.0	ug/kg	SS
SS	NDE079	N	SW8260B	SW5030	Styrene	10.0	U	U	10.0	UJ	U	0.17	10.0	ug/kg	SS
SS	NDE055	N	SW8260B	SW5030	Styrene	10.0	U	U	10.0	UJ	U	0.18	10.0	ug/kg	SS
SS	NDE075	N	SW8260B	SW5030	Styrene	10.0	U	U	10.0	UJ	U	0.18	10.0	ug/kg	SS
SS	NDE090	N	SW8260B	SW5030	Styrene	10.0	U	U	10.0	UJ	U	0.18	10.0	ug/kg	SS
SS	NDE091FD1	FD	SW8260B	SW5030	Styrene	10.0	U	U	10.0	UJ	U	0.18	10.0	ug/kg	SS
SS	NDE097	N	SW8260B	SW5030	Styrene	10.0	U	U	10.0	UJ	U	0.18	10.0	ug/kg	SS
SS	NDE066	N	SW8260B	SW5030	Styrene	10.0	U	U	10.0	UJ	U	0.19	10.0	ug/kg	SS
SS	NDE070	N	SW8260B	SW5030	Styrene	10.0	U	U	10.0	UJ	U	0.19	10.0	ug/kg	SS
SS	NDE068	N	SW8260B	SW5030	Styrene	10.0	U	U	10.0	UJ	U	0.20	10.0	ug/kg	SS
SS	NDE072	N	SW8260B	SW5030	Styrene	10.0	U	U	10.0	UJ	U	0.20	10.0	ug/kg	SS
SS	NDE093	N	SW8260B	SW5030	Styrene	10.0	U	U	10.0	UJ	U	0.20	10.0	ug/kg	SS
SS	NDE095	N	SW8260B	SW5030	Styrene	10.0	U	U	10.0	UJ	U	0.20	10.0	ug/kg	SS
SS	NDE088	N	SW8260B	SW5030	Styrene	10.0	U	U	10.0	UJ	U	0.20	10.0	ug/kg	SS
SS	NDE083	N	SW8260B	SW5030	Styrene	12.0	U	U	12.0	UJ	U	0.23	12.0	ug/kg	SS
SS	NDE084FD1	FD	SW8260B	SW5030	Styrene	12.0	U	U	12.0	UJ	U	0.24	12.0	ug/kg	SS
SB	NDE071	N	SW8260B	SW5030	Tetrachloroethene (PCE)	0.29	J	J	0.29	J	J	0.23	10.0	ug/kg	SS
SB	NDE076	N	SW8260B	SW5030	Tetrachloroethene (PCE)	10.0	U	U	10.0	UJ	U	0.19	10.0	ug/kg	SS
SB	NDE078	N	SW8260B	SW5030	Tetrachloroethene (PCE)	10.0	U	U	10.0	UJ	U	0.20	10.0	ug/kg	SS
SB	NDE092	N	SW8260B	SW5030	Tetrachloroethene (PCE)	10.0	U	U	10.0	UJ	U	0.20	10.0	ug/kg	SS
SB	NDE065	N	SW8260B	SW5030	Tetrachloroethene (PCE)	10.0	U	U	10.0	UJ	U	0.21	10.0	ug/kg	SS
SB	NDE067	N	SW8260B	SW5030	Tetrachloroethene (PCE)	10.0	U	U	10.0	UJ	U	0.21	10.0	ug/kg	SS
SB	NDE069	N	SW8260B	SW5030	Tetrachloroethene (PCE)	10.0	U	U	10.0	UJ	U	0.21	10.0	ug/kg	SS
SB	NDE073	N	SW8260B	SW5030	Tetrachloroethene (PCE)	10.0	U	U	10.0	UJ	U	0.21	10.0	ug/kg	SS
SB	NDE082	N	SW8260B	SW5030	Tetrachloroethene (PCE)	10.0	U	U	10.0	UJ	U	0.21	10.0	ug/kg	SS

Matrix	Sample ID	Sample Type	Analytical Method	Prep Method	Parameter	Lab Result	Lab Qual	Lab Conc Qual	Final Result	Final Qual	Final Conc Qual	Detection Limit	Reporting Limit	Units	Validation Notes
SB	NDE094	N	SW8260B	SW5030	Tetrachloroethene (PCE)	10.0	U	U	10.0	UJ	U	0.23	10.0	ug/kg	SS
SB	NDE085	N	SW8260B	SW5030	Tetrachloroethene (PCE)	10.0	U	U	10.0	UJ	U	0.23	10.0	ug/kg	SS
SB	NDE080	N	SW8260B	SW5030	Tetrachloroethene (PCE)	11.0	U	U	11.0	UJ	U	0.24	11.0	ug/kg	SS
SB	NDE087	N	SW8260B	SW5030	Tetrachloroethene (PCE)	12.0	U	U	12.0	UJ	U	0.27	12.0	ug/kg	SS
SS	NDE086	N	SW8260B	SW5030	Tetrachloroethene (PCE)	0.27	J	J	0.27	J	J	0.19	10.0	ug/kg	SS
SS	NDE057	N	SW8260B	SW5030	Tetrachloroethene (PCE)	10.0	U	U	10.0	UJ	U	0.18	10.0	ug/kg	SS
SS	NDE064	N	SW8260B	SW5030	Tetrachloroethene (PCE)	10.0	U	U	10.0	UJ	U	0.18	10.0	ug/kg	SS
SS	NDE062FD1	FD	SW8260B	SW5030	Tetrachloroethene (PCE)	10.0	U	U	10.0	UJ	U	0.19	10.0	ug/kg	SS
SS	NDE079	N	SW8260B	SW5030	Tetrachloroethene (PCE)	10.0	U	U	10.0	UJ	U	0.19	10.0	ug/kg	SS
SS	NDE055	N	SW8260B	SW5030	Tetrachloroethene (PCE)	10.0	U	U	10.0	UJ	U	0.20	10.0	ug/kg	SS
SS	NDE090	N	SW8260B	SW5030	Tetrachloroethene (PCE)	10.0	U	U	10.0	UJ	U	0.20	10.0	ug/kg	SS
SS	NDE091FD1	FD	SW8260B	SW5030	Tetrachloroethene (PCE)	10.0	U	U	10.0	UJ	U	0.20	10.0	ug/kg	SS
SS	NDE074FD1	FD	SW8260B	SW5030	Tetrachloroethene (PCE)	10.0	U	U	10.0	UJ	U	0.20	10.0	ug/kg	SS
SS	NDE075	N	SW8260B	SW5030	Tetrachloroethene (PCE)	10.0	U	U	10.0	UJ	U	0.21	10.0	ug/kg	SS
SS	NDE097	N	SW8260B	SW5030	Tetrachloroethene (PCE)	10.0	U	U	10.0	UJ	U	0.21	10.0	ug/kg	SS
SS	NDE066	N	SW8260B	SW5030	Tetrachloroethene (PCE)	10.0	U	U	10.0	UJ	U	0.22	10.0	ug/kg	SS
SS	NDE070	N	SW8260B	SW5030	Tetrachloroethene (PCE)	10.0	U	U	10.0	UJ	U	0.22	10.0	ug/kg	SS
SS	NDE072	N	SW8260B	SW5030	Tetrachloroethene (PCE)	10.0	U	U	10.0	UJ	U	0.22	10.0	ug/kg	SS
SS	NDE068	N	SW8260B	SW5030	Tetrachloroethene (PCE)	10.0	U	U	10.0	UJ	U	0.23	10.0	ug/kg	SS
SS	NDE093	N	SW8260B	SW5030	Tetrachloroethene (PCE)	10.0	U	U	10.0	UJ	U	0.23	10.0	ug/kg	SS
SS	NDE095	N	SW8260B	SW5030	Tetrachloroethene (PCE)	10.0	U	U	10.0	UJ	U	0.23	10.0	ug/kg	SS
SS	NDE088	N	SW8260B	SW5030	Tetrachloroethene (PCE)	10.0	U	U	10.0	UJ	U	0.23	10.0	ug/kg	SS
SS	NDE083	N	SW8260B	SW5030	Tetrachloroethene (PCE)	12.0	U	U	12.0	UJ	U	0.27	12.0	ug/kg	SS
SS	NDE084FD1	FD	SW8260B	SW5030	Tetrachloroethene (PCE)	12.0	U	U	12.0	UJ	U	0.27	12.0	ug/kg	SS
SB	NDE078	N	SW8260B	SW5030	Toluene	0.22	J	J	10.0	UJ	U	0.19	10.0	ug/kg	BL,SS
SB	NDE071	N	SW8260B	SW5030	Toluene	3.5	J	J	10.0	UJ	U	0.21	10.0	ug/kg	BL,SS
SB	NDE087	N	SW8260B	SW5030	Toluene	5.4	J	J	12.0	UJ	U	0.25	12.0	ug/kg	BL,SS
SB	NDE076	N	SW8260B	SW5030	Toluene	10.0	U	U	10.0	UJ	U	0.18	10.0	ug/kg	SS
SB	NDE065	N	SW8260B	SW5030	Toluene	10.0	U	U	10.0	UJ	U	0.19	10.0	ug/kg	SS
SB	NDE067	N	SW8260B	SW5030	Toluene	10.0	U	U	10.0	UJ	U	0.19	10.0	ug/kg	SS
SB	NDE069	N	SW8260B	SW5030	Toluene	10.0	U	U	10.0	UJ	U	0.19	10.0	ug/kg	SS
SB	NDE073	N	SW8260B	SW5030	Toluene	10.0	U	U	10.0	UJ	U	0.19	10.0	ug/kg	SS
SB	NDE092	N	SW8260B	SW5030	Toluene	10.0	U	U	10.0	UJ	U	0.19	10.0	ug/kg	SS
SB	NDE082	N	SW8260B	SW5030	Toluene	10.0	U	U	10.0	UJ	U	0.19	10.0	ug/kg	SS
SB	NDE094	N	SW8260B	SW5030	Toluene	10.0	U	U	10.0	UJ	U	0.21	10.0	ug/kg	SS
SB	NDE085	N	SW8260B	SW5030	Toluene	10.0	U	U	10.0	UJ	U	0.21	10.0	ug/kg	SS
SB	NDE080	N	SW8260B	SW5030	Toluene	11.0	U	U	11.0	UJ	U	0.22	11.0	ug/kg	SS
SS	NDE057	N	SW8260B	SW5030	Toluene	0.59	J	J	0.59	J	J	0.16	10.0	ug/kg	SS
SS	NDE091FD1	FD	SW8260B	SW5030	Toluene	0.87	J	J	0.87	J	J	0.19	10.0	ug/kg	SS
SS	NDE055	N	SW8260B	SW5030	Toluene	1.7	J	J	1.7	J	J	0.19	10.0	ug/kg	SS
SS	NDE066	N	SW8260B	SW5030	Toluene	0.72	J	J	10.0	UJ	U	0.20	10.0	ug/kg	BL,SS
SS	NDE064	N	SW8260B	SW5030	Toluene	10.0	U	U	10.0	UJ	U	0.16	10.0	ug/kg	SS
SS	NDE062FD1	FD	SW8260B	SW5030	Toluene	10.0	U	U	10.0	UJ	U	0.17	10.0	ug/kg	SS
SS	NDE086	N	SW8260B	SW5030	Toluene	10.0	U	U	10.0	UJ	U	0.17	10.0	ug/kg	SS
SS	NDE074FD1	FD	SW8260B	SW5030	Toluene	10.0	U	U	10.0	UJ	U	0.18	10.0	ug/kg	SS
SS	NDE079	N	SW8260B	SW5030	Toluene	10.0	U	U	10.0	UJ	U	0.18	10.0	ug/kg	SS
SS	NDE075	N	SW8260B	SW5030	Toluene	10.0	U	U	10.0	UJ	U	0.19	10.0	ug/kg	SS
SS	NDE090	N	SW8260B	SW5030	Toluene	10.0	U	U	10.0	UJ	U	0.19	10.0	ug/kg	SS

Matrix	Sample ID	Sample Type	Analytical Method	Prep Method	Parameter	Lab Result	Lab Qual	Lab Conc Qual	Final Result	Final Qual	Final Conc Qual	Detection Limit	Reporting Limit	Units	Validation Notes
SS	NDE097	N	SW8260B	SW5030	Toluene	10.0	U	U	10.0	UJ	U	0.19	10.0	ug/kg	SS
SS	NDE070	N	SW8260B	SW5030	Toluene	10.0	U	U	10.0	UJ	U	0.20	10.0	ug/kg	SS
SS	NDE072	N	SW8260B	SW5030	Toluene	10.0	U	U	10.0	UJ	U	0.20	10.0	ug/kg	SS
SS	NDE068	N	SW8260B	SW5030	Toluene	10.0	U	U	10.0	UJ	U	0.21	10.0	ug/kg	SS
SS	NDE093	N	SW8260B	SW5030	Toluene	10.0	U	U	10.0	UJ	U	0.21	10.0	ug/kg	SS
SS	NDE095	N	SW8260B	SW5030	Toluene	10.0	U	U	10.0	UJ	U	0.21	10.0	ug/kg	SS
SS	NDE088	N	SW8260B	SW5030	Toluene	10.0	U	U	10.0	UJ	U	0.21	10.0	ug/kg	SS
SS	NDE083	N	SW8260B	SW5030	Toluene	12.0	U	U	12.0	UJ	U	0.25	12.0	ug/kg	SS
SS	NDE084FD1	FD	SW8260B	SW5030	Toluene	12.0	U	U	12.0	UJ	U	0.25	12.0	ug/kg	SS
SB	NDE076	N	SW8260B	SW5030	trans-1,3-Dichloropropene	10.0	U	U	10.0	UJ	U	0.16	10.0	ug/kg	SS
SB	NDE065	N	SW8260B	SW5030	trans-1,3-Dichloropropene	10.0	U	U	10.0	UJ	U	0.17	10.0	ug/kg	SS
SB	NDE069	N	SW8260B	SW5030	trans-1,3-Dichloropropene	10.0	U	U	10.0	UJ	U	0.17	10.0	ug/kg	SS
SB	NDE073	N	SW8260B	SW5030	trans-1,3-Dichloropropene	10.0	U	U	10.0	UJ	U	0.17	10.0	ug/kg	SS
SB	NDE078	N	SW8260B	SW5030	trans-1,3-Dichloropropene	10.0	U	U	10.0	UJ	U	0.17	10.0	ug/kg	SS
SB	NDE092	N	SW8260B	SW5030	trans-1,3-Dichloropropene	10.0	U	U	10.0	UJ	U	0.17	10.0	ug/kg	SS
SB	NDE082	N	SW8260B	SW5030	trans-1,3-Dichloropropene	10.0	U	U	10.0	UJ	U	0.17	10.0	ug/kg	SS
SB	NDE067	N	SW8260B	SW5030	trans-1,3-Dichloropropene	10.0	U	U	10.0	UJ	U	0.18	10.0	ug/kg	SS
SB	NDE071	N	SW8260B	SW5030	trans-1,3-Dichloropropene	10.0	U	U	10.0	UJ	U	0.19	10.0	ug/kg	SS
SB	NDE094	N	SW8260B	SW5030	trans-1,3-Dichloropropene	10.0	U	U	10.0	UJ	U	0.19	10.0	ug/kg	SS
SB	NDE085	N	SW8260B	SW5030	trans-1,3-Dichloropropene	10.0	U	U	10.0	UJ	U	0.19	10.0	ug/kg	SS
SB	NDE080	N	SW8260B	SW5030	trans-1,3-Dichloropropene	11.0	U	U	11.0	UJ	U	0.20	11.0	ug/kg	SS
SB	NDE087	N	SW8260B	SW5030	trans-1,3-Dichloropropene	12.0	U	U	12.0	UJ	U	0.22	12.0	ug/kg	SS
SS	NDE057	N	SW8260B	SW5030	trans-1,3-Dichloropropene	10.0	U	U	10.0	UJ	U	0.14	10.0	ug/kg	SS
SS	NDE064	N	SW8260B	SW5030	trans-1,3-Dichloropropene	10.0	U	U	10.0	UJ	U	0.15	10.0	ug/kg	SS
SS	NDE086	N	SW8260B	SW5030	trans-1,3-Dichloropropene	10.0	U	U	10.0	UJ	U	0.15	10.0	ug/kg	SS
SS	NDE062FD1	FD	SW8260B	SW5030	trans-1,3-Dichloropropene	10.0	U	U	10.0	UJ	U	0.16	10.0	ug/kg	SS
SS	NDE074FD1	FD	SW8260B	SW5030	trans-1,3-Dichloropropene	10.0	U	U	10.0	UJ	U	0.16	10.0	ug/kg	SS
SS	NDE079	N	SW8260B	SW5030	trans-1,3-Dichloropropene	10.0	U	U	10.0	UJ	U	0.16	10.0	ug/kg	SS
SS	NDE055	N	SW8260B	SW5030	trans-1,3-Dichloropropene	10.0	U	U	10.0	UJ	U	0.17	10.0	ug/kg	SS
SS	NDE075	N	SW8260B	SW5030	trans-1,3-Dichloropropene	10.0	U	U	10.0	UJ	U	0.17	10.0	ug/kg	SS
SS	NDE090	N	SW8260B	SW5030	trans-1,3-Dichloropropene	10.0	U	U	10.0	UJ	U	0.17	10.0	ug/kg	SS
SS	NDE091FD1	FD	SW8260B	SW5030	trans-1,3-Dichloropropene	10.0	U	U	10.0	UJ	U	0.17	10.0	ug/kg	SS
SS	NDE097	N	SW8260B	SW5030	trans-1,3-Dichloropropene	10.0	U	U	10.0	UJ	U	0.17	10.0	ug/kg	SS
SS	NDE066	N	SW8260B	SW5030	trans-1,3-Dichloropropene	10.0	U	U	10.0	UJ	U	0.18	10.0	ug/kg	SS
SS	NDE070	N	SW8260B	SW5030	trans-1,3-Dichloropropene	10.0	U	U	10.0	UJ	U	0.18	10.0	ug/kg	SS
SS	NDE068	N	SW8260B	SW5030	trans-1,3-Dichloropropene	10.0	U	U	10.0	UJ	U	0.19	10.0	ug/kg	SS
SS	NDE072	N	SW8260B	SW5030	trans-1,3-Dichloropropene	10.0	U	U	10.0	UJ	U	0.19	10.0	ug/kg	SS
SS	NDE093	N	SW8260B	SW5030	trans-1,3-Dichloropropene	10.0	U	U	10.0	UJ	U	0.19	10.0	ug/kg	SS
SS	NDE095	N	SW8260B	SW5030	trans-1,3-Dichloropropene	10.0	U	U	10.0	UJ	U	0.19	10.0	ug/kg	SS
SS	NDE088	N	SW8260B	SW5030	trans-1,3-Dichloropropene	10.0	U	U	10.0	UJ	U	0.19	10.0	ug/kg	SS
SS	NDE083	N	SW8260B	SW5030	trans-1,3-Dichloropropene	12.0	U	U	12.0	UJ	U	0.22	12.0	ug/kg	SS
SS	NDE084FD1	FD	SW8260B	SW5030	trans-1,3-Dichloropropene	12.0	U	U	12.0	UJ	U	0.23	12.0	ug/kg	SS
SB	NDE076	N	SW8260B	SW5030	Trichloroethene (TCE)	10.0	U	U	10.0	UJ	U	0.24	10.0	ug/kg	SS
SB	NDE069	N	SW8260B	SW5030	Trichloroethene (TCE)	10.0	U	U	10.0	UJ	U	0.26	10.0	ug/kg	SS
SB	NDE073	N	SW8260B	SW5030	Trichloroethene (TCE)	10.0	U	U	10.0	UJ	U	0.26	10.0	ug/kg	SS
SB	NDE078	N	SW8260B	SW5030	Trichloroethene (TCE)	10.0	U	U	10.0	UJ	U	0.26	10.0	ug/kg	SS
SB	NDE092	N	SW8260B	SW5030	Trichloroethene (TCE)	10.0	U	U	10.0	UJ	U	0.26	10.0	ug/kg	SS
SB	NDE082	N	SW8260B	SW5030	Trichloroethene (TCE)	10.0	U	U	10.0	UJ	U	0.26	10.0	ug/kg	SS

Matrix	Sample ID	Sample Type	Analytical Method	Prep Method	Parameter	Lab Result	Lab Qual	Lab Conc Qual	Final Result	Final Qual	Final Conc Qual	Detection Limit	Reporting Limit	Units	Validation Notes
SB	NDE065	N	SW8260B	SW5030	Trichloroethene (TCE)	10.0	U	U	10.0	UJ	U	0.27	10.0	ug/kg	SS
SB	NDE067	N	SW8260B	SW5030	Trichloroethene (TCE)	10.0	U	U	10.0	UJ	U	0.27	10.0	ug/kg	SS
SB	NDE071	N	SW8260B	SW5030	Trichloroethene (TCE)	10.0	U	U	10.0	UJ	U	0.29	10.0	ug/kg	SS
SB	NDE094	N	SW8260B	SW5030	Trichloroethene (TCE)	10.0	U	U	10.0	UJ	U	0.29	10.0	ug/kg	SS
SB	NDE085	N	SW8260B	SW5030	Trichloroethene (TCE)	10.0	U	U	10.0	UJ	U	0.29	10.0	ug/kg	SS
SB	NDE080	N	SW8260B	SW5030	Trichloroethene (TCE)	11.0	U	U	11.0	UJ	U	0.31	11.0	ug/kg	SS
SB	NDE087	N	SW8260B	SW5030	Trichloroethene (TCE)	12.0	U	U	12.0	UJ	U	0.34	12.0	ug/kg	SS
SS	NDE057	N	SW8260B	SW5030	Trichloroethene (TCE)	10.0	U	U	10.0	UJ	U	0.22	10.0	ug/kg	SS
SS	NDE064	N	SW8260B	SW5030	Trichloroethene (TCE)	10.0	U	U	10.0	UJ	U	0.23	10.0	ug/kg	SS
SS	NDE062FD1	FD	SW8260B	SW5030	Trichloroethene (TCE)	10.0	U	U	10.0	UJ	U	0.24	10.0	ug/kg	SS
SS	NDE079	N	SW8260B	SW5030	Trichloroethene (TCE)	10.0	U	U	10.0	UJ	U	0.24	10.0	ug/kg	SS
SS	NDE086	N	SW8260B	SW5030	Trichloroethene (TCE)	10.0	U	U	10.0	UJ	U	0.24	10.0	ug/kg	SS
SS	NDE074FD1	FD	SW8260B	SW5030	Trichloroethene (TCE)	10.0	U	U	10.0	UJ	U	0.25	10.0	ug/kg	SS
SS	NDE055	N	SW8260B	SW5030	Trichloroethene (TCE)	10.0	U	U	10.0	UJ	U	0.26	10.0	ug/kg	SS
SS	NDE075	N	SW8260B	SW5030	Trichloroethene (TCE)	10.0	U	U	10.0	UJ	U	0.26	10.0	ug/kg	SS
SS	NDE090	N	SW8260B	SW5030	Trichloroethene (TCE)	10.0	U	U	10.0	UJ	U	0.26	10.0	ug/kg	SS
SS	NDE091FD1	FD	SW8260B	SW5030	Trichloroethene (TCE)	10.0	U	U	10.0	UJ	U	0.26	10.0	ug/kg	SS
SS	NDE097	N	SW8260B	SW5030	Trichloroethene (TCE)	10.0	U	U	10.0	UJ	U	0.26	10.0	ug/kg	SS
SS	NDE066	N	SW8260B	SW5030	Trichloroethene (TCE)	10.0	U	U	10.0	UJ	U	0.28	10.0	ug/kg	SS
SS	NDE070	N	SW8260B	SW5030	Trichloroethene (TCE)	10.0	U	U	10.0	UJ	U	0.28	10.0	ug/kg	SS
SS	NDE072	N	SW8260B	SW5030	Trichloroethene (TCE)	10.0	U	U	10.0	UJ	U	0.28	10.0	ug/kg	SS
SS	NDE068	N	SW8260B	SW5030	Trichloroethene (TCE)	10.0	U	U	10.0	UJ	U	0.29	10.0	ug/kg	SS
SS	NDE093	N	SW8260B	SW5030	Trichloroethene (TCE)	10.0	U	U	10.0	UJ	U	0.29	10.0	ug/kg	SS
SS	NDE095	N	SW8260B	SW5030	Trichloroethene (TCE)	10.0	U	U	10.0	UJ	U	0.29	10.0	ug/kg	SS
SS	NDE088	N	SW8260B	SW5030	Trichloroethene (TCE)	10.0	U	U	10.0	UJ	U	0.29	10.0	ug/kg	SS
SS	NDE083	N	SW8260B	SW5030	Trichloroethene (TCE)	12.0	U	U	12.0	UJ	U	0.34	12.0	ug/kg	SS
SS	NDE084FD1	FD	SW8260B	SW5030	Trichloroethene (TCE)	12.0	U	U	12.0	UJ	U	0.34	12.0	ug/kg	SS
SB	NDE076	N	SW8260B	SW5030	Vinyl chloride	10.0	U	U	10.0	UJ	U	0.40	10.0	ug/kg	SS
SB	NDE069	N	SW8260B	SW5030	Vinyl chloride	10.0	U	U	10.0	UJ	U	0.43	10.0	ug/kg	SS
SB	NDE073	N	SW8260B	SW5030	Vinyl chloride	10.0	U	U	10.0	UJ	U	0.43	10.0	ug/kg	SS
SB	NDE078	N	SW8260B	SW5030	Vinyl chloride	10.0	U	U	10.0	UJ	U	0.43	10.0	ug/kg	SS
SB	NDE092	N	SW8260B	SW5030	Vinyl chloride	10.0	U	U	10.0	UJ	U	0.43	10.0	ug/kg	SS
SB	NDE065	N	SW8260B	SW5030	Vinyl chloride	10.0	U	U	10.0	UJ	U	0.44	10.0	ug/kg	SS
SB	NDE067	N	SW8260B	SW5030	Vinyl chloride	10.0	U	U	10.0	UJ	U	0.44	10.0	ug/kg	SS
SB	NDE082	N	SW8260B	SW5030	Vinyl chloride	10.0	U	U	10.0	UJ	U	0.44	10.0	ug/kg	SS
SB	NDE071	N	SW8260B	SW5030	Vinyl chloride	10.0	U	U	10.0	UJ	U	0.47	10.0	ug/kg	SS
SB	NDE094	N	SW8260B	SW5030	Vinyl chloride	10.0	U	U	10.0	UJ	U	0.47	10.0	ug/kg	SS
SB	NDE085	N	SW8260B	SW5030	Vinyl chloride	10.0	U	U	10.0	UJ	U	0.47	10.0	ug/kg	SS
SB	NDE080	N	SW8260B	SW5030	Vinyl chloride	11.0	U	U	11.0	UJ	U	0.51	11.0	ug/kg	SS
SB	NDE087	N	SW8260B	SW5030	Vinyl chloride	12.0	U	U	12.0	UJ	U	0.56	12.0	ug/kg	SS
SS	NDE057	N	SW8260B	SW5030	Vinyl chloride	10.0	U	U	10.0	UJ	U	0.37	10.0	ug/kg	SS
SS	NDE064	N	SW8260B	SW5030	Vinyl chloride	10.0	U	U	10.0	UJ	U	0.38	10.0	ug/kg	SS
SS	NDE062FD1	FD	SW8260B	SW5030	Vinyl chloride	10.0	U	U	10.0	UJ	U	0.39	10.0	ug/kg	SS
SS	NDE086	N	SW8260B	SW5030	Vinyl chloride	10.0	U	U	10.0	UJ	U	0.39	10.0	ug/kg	SS
SS	NDE079	N	SW8260B	SW5030	Vinyl chloride	10.0	U	U	10.0	UJ	U	0.40	10.0	ug/kg	SS
SS	NDE074FD1	FD	SW8260B	SW5030	Vinyl chloride	10.0	U	U	10.0	UJ	U	0.42	10.0	ug/kg	SS
SS	NDE055	N	SW8260B	SW5030	Vinyl chloride	10.0	U	U	10.0	UJ	U	0.43	10.0	ug/kg	SS
SS	NDE075	N	SW8260B	SW5030	Vinyl chloride	10.0	U	U	10.0	UJ	U	0.43	10.0	ug/kg	SS

Matrix	Sample ID	Sample Type	Analytical Method	Prep Method	Parameter	Lab Result	Lab Qual	Lab Conc Qual	Final Result	Final Qual	Final Conc Qual	Detection Limit	Reporting Limit	Units	Validation Notes
SS	NDE090	N	SW8260B	SW5030	Vinyl chloride	10.0	U	U	10.0	UJ	U	0.43	10.0	ug/kg	SS
SS	NDE091FD1	FD	SW8260B	SW5030	Vinyl chloride	10.0	U	U	10.0	UJ	U	0.43	10.0	ug/kg	SS
SS	NDE097	N	SW8260B	SW5030	Vinyl chloride	10.0	U	U	10.0	UJ	U	0.43	10.0	ug/kg	SS
SS	NDE066	N	SW8260B	SW5030	Vinyl chloride	10.0	U	U	10.0	UJ	U	0.46	10.0	ug/kg	SS
SS	NDE070	N	SW8260B	SW5030	Vinyl chloride	10.0	U	U	10.0	UJ	U	0.47	10.0	ug/kg	SS
SS	NDE072	N	SW8260B	SW5030	Vinyl chloride	10.0	U	U	10.0	UJ	U	0.47	10.0	ug/kg	SS
SS	NDE095	N	SW8260B	SW5030	Vinyl chloride	10.0	U	U	10.0	UJ	U	0.47	10.0	ug/kg	SS
SS	NDE088	N	SW8260B	SW5030	Vinyl chloride	10.0	U	U	10.0	UJ	U	0.47	10.0	ug/kg	SS
SS	NDE068	N	SW8260B	SW5030	Vinyl chloride	10.0	U	U	10.0	UJ	U	0.48	10.0	ug/kg	SS
SS	NDE093	N	SW8260B	SW5030	Vinyl chloride	10.0	U	U	10.0	UJ	U	0.48	10.0	ug/kg	SS
SS	NDE083	N	SW8260B	SW5030	Vinyl chloride	12.0	U	U	12.0	UJ	U	0.56	12.0	ug/kg	SS
SS	NDE084FD1	FD	SW8260B	SW5030	Vinyl chloride	12.0	U	U	12.0	UJ	U	0.57	12.0	ug/kg	SS
SB	NDE071	N	SW8260B	SW5030	Xylenes, total	4.8	J	J	4.8	J	J	0.20	10.0	ug/kg	SS
SB	NDE076	N	SW8260B	SW5030	Xylenes, total	10.0	U	U	10.0	UJ	U	0.17	10.0	ug/kg	SS
SB	NDE065	N	SW8260B	SW5030	Xylenes, total	10.0	U	U	10.0	UJ	U	0.18	10.0	ug/kg	SS
SB	NDE067	N	SW8260B	SW5030	Xylenes, total	10.0	U	U	10.0	UJ	U	0.18	10.0	ug/kg	SS
SB	NDE069	N	SW8260B	SW5030	Xylenes, total	10.0	U	U	10.0	UJ	U	0.18	10.0	ug/kg	SS
SB	NDE073	N	SW8260B	SW5030	Xylenes, total	10.0	U	U	10.0	UJ	U	0.18	10.0	ug/kg	SS
SB	NDE078	N	SW8260B	SW5030	Xylenes, total	10.0	U	U	10.0	UJ	U	0.18	10.0	ug/kg	SS
SB	NDE092	N	SW8260B	SW5030	Xylenes, total	10.0	U	U	10.0	UJ	U	0.18	10.0	ug/kg	SS
SB	NDE082	N	SW8260B	SW5030	Xylenes, total	10.0	U	U	10.0	UJ	U	0.18	10.0	ug/kg	SS
SB	NDE094	N	SW8260B	SW5030	Xylenes, total	10.0	U	U	10.0	UJ	U	0.20	10.0	ug/kg	SS
SB	NDE085	N	SW8260B	SW5030	Xylenes, total	10.0	U	U	10.0	UJ	U	0.20	10.0	ug/kg	SS
SB	NDE080	N	SW8260B	SW5030	Xylenes, total	11.0	U	U	11.0	UJ	U	0.21	11.0	ug/kg	SS
SS	NDE057	N	SW8260B	SW5030	Xylenes, total	0.83	J	J	0.83	J	J	0.15	10.0	ug/kg	SS
SS	NDE091FD1	FD	SW8260B	SW5030	Xylenes, total	1.4	J	J	1.4	J	J	0.18	10.0	ug/kg	SS
SS	NDE093	N	SW8260B	SW5030	Xylenes, total	0.20	J	J	0.20	J	J	0.20	10.0	ug/kg	SS
SS	NDE088	N	SW8260B	SW5030	Xylenes, total	2.0	J	J	2.0	J	J	0.20	10.0	ug/kg	SS
SS	NDE062FD1	FD	SW8260B	SW5030	Xylenes, total	10.0	U	U	10.0	UJ	U	0.16	10.0	ug/kg	SS
SS	NDE064	N	SW8260B	SW5030	Xylenes, total	10.0	U	U	10.0	UJ	U	0.16	10.0	ug/kg	SS
SS	NDE086	N	SW8260B	SW5030	Xylenes, total	10.0	U	U	10.0	UJ	U	0.16	10.0	ug/kg	SS
SS	NDE074FD1	FD	SW8260B	SW5030	Xylenes, total	10.0	U	U	10.0	UJ	U	0.17	10.0	ug/kg	SS
SS	NDE079	N	SW8260B	SW5030	Xylenes, total	10.0	U	U	10.0	UJ	U	0.17	10.0	ug/kg	SS
SS	NDE055	N	SW8260B	SW5030	Xylenes, total	10.0	U	U	10.0	UJ	U	0.18	10.0	ug/kg	SS
SS	NDE075	N	SW8260B	SW5030	Xylenes, total	10.0	U	U	10.0	UJ	U	0.18	10.0	ug/kg	SS
SS	NDE090	N	SW8260B	SW5030	Xylenes, total	10.0	U	U	10.0	UJ	U	0.18	10.0	ug/kg	SS
SS	NDE097	N	SW8260B	SW5030	Xylenes, total	10.0	U	U	10.0	UJ	U	0.18	10.0	ug/kg	SS
SS	NDE066	N	SW8260B	SW5030	Xylenes, total	10.0	U	U	10.0	UJ	U	0.19	10.0	ug/kg	SS
SS	NDE070	N	SW8260B	SW5030	Xylenes, total	10.0	U	U	10.0	UJ	U	0.19	10.0	ug/kg	SS
SS	NDE068	N	SW8260B	SW5030	Xylenes, total	10.0	U	U	10.0	UJ	U	0.20	10.0	ug/kg	SS
SS	NDE072	N	SW8260B	SW5030	Xylenes, total	10.0	U	U	10.0	UJ	U	0.20	10.0	ug/kg	SS
SS	NDE095	N	SW8260B	SW5030	Xylenes, total	10.0	U	U	10.0	UJ	U	0.20	10.0	ug/kg	SS
SS	NDE083	N	SW8260B	SW5030	Xylenes, total	12.0	U	U	12.0	UJ	U	0.23	12.0	ug/kg	SS
SS	NDE084FD1	FD	SW8260B	SW5030	Xylenes, total	12.0	U	U	12.0	UJ	U	0.24	12.0	ug/kg	SS
WG	NDAIGW01-R01	N	SW8270C	SW3510	1,2,4,5-tetrachlorobenzene	5.0	U	U	5.0	UJ	U	2.2	5.0	ug/L	SS
WG	NDAIGW01-R01	N	SW8270C	SW3510	2,4-Dinitrotoluene	5.0	U	U	5.0	UJ	U	2.8	5.0	ug/L	SS
WG	NDAIGW01-R01	N	SW8270C	SW3510	2,6-Dinitrotoluene	5.0	U	U	5.0	UJ	U	2.8	5.0	ug/L	SS
WG	NDAIGW01-R01	N	SW8270C	SW3510	2-Chloronaphthalene	5.0	U	U	5.0	UJ	U	2.8	5.0	ug/L	SS

Matrix	Sample ID	Sample Type	Analytical Method	Prep Method	Parameter	Lab Result	Lab Qual	Lab Conc Qual	Final Result	Final Qual	Final Conc Qual	Detection Limit	Reporting Limit	Units	Validation Notes
WG	NDAIGW01-R01	N	SW8270C	SW3510	2-Methylnaphthalene	5.0	U	U	5.0	UJ	U	2.8	5.0	ug/L	SS
WG	NDAIGW01-R01	N	SW8270C	SW3510	2-Nitroaniline	20.0	U	U	20.0	UJ	U	3.0	20.0	ug/L	SS
WG	NDAIGW01-R01	N	SW8270C	SW3510	3,3'-Dichlorobenzidine	5.0	U	U	5.0	UJ	U	2.7	5.0	ug/L	SS
WG	NDAIGW01-R01	N	SW8270C	SW3510	3-Nitroaniline	20.0	U	U	20.0	UJ	U	2.8	20.0	ug/L	SS
WG	NDAIGW01-R01	N	SW8270C	SW3510	4-Bromophenyl phenyl ether	5.0	U	U	5.0	UJ	U	2.3	5.0	ug/L	SS
WG	NDAIGW01-R01	N	SW8270C	SW3510	4-Chloroaniline	5.0	U	U	5.0	UJ	U	3.0	5.0	ug/L	SS
WG	NDAIGW01-R01	N	SW8270C	SW3510	4-Chlorophenyl phenyl ether	5.0	U	U	5.0	UJ	U	2.5	5.0	ug/L	SS
WG	NDAIGW01-R01	N	SW8270C	SW3510	4-Nitroaniline	20.0	U	U	20.0	UJ	U	2.8	20.0	ug/L	SS
WG	NDAIGW01-R01	N	SW8270C	SW3510	Acenaphthene	5.0	U	U	5.0	UJ	U	2.8	5.0	ug/L	SS
WG	NDAIGW01-R01	N	SW8270C	SW3510	Acenaphthylene	5.0	U	U	5.0	UJ	U	3.0	5.0	ug/L	SS
WG	NDAIGW01-R01	N	SW8270C	SW3510	Acetophenone	5.0	U	U	5.0	UJ	U	0.66	5.0	ug/L	SS
WG	NDAIGW01-R01	N	SW8270C	SW3510	Anthracene	5.0	U	U	5.0	UJ	U	2.8	5.0	ug/L	SS
WG	NDAIGW01-R01	N	SW8270C	SW3510	Atrazine	5.0	U	U	5.0	UJ	U	0.54	5.0	ug/L	SS
WG	NDAIGW01-R01	N	SW8270C	SW3510	Benzaldehyde	5.0	U	U	5.0	UJ	U	0.49	5.0	ug/L	SS
WG	NDAIGW01-R01	N	SW8270C	SW3510	Benzo(a)anthracene	5.0	U	U	5.0	UJ	U	2.6	5.0	ug/L	SS
WG	NDAIGW01-R01	N	SW8270C	SW3510	Benzo(a)pyrene	5.0	U	U	5.0	UJ	U	2.8	5.0	ug/L	SS
WG	NDAIGW01-R01	N	SW8270C	SW3510	Benzo(b)fluoranthene	5.0	U	U	5.0	UJ	U	2.6	5.0	ug/L	SS
WG	NDAIGW01-R01	N	SW8270C	SW3510	Benzo(g,h,i)perylene	5.0	U	U	5.0	UJ	U	2.6	5.0	ug/L	SS
WG	NDAIGW01-R01	N	SW8270C	SW3510	Benzo(k)fluoranthene	5.0	U	U	5.0	UJ	U	2.9	5.0	ug/L	SS
WG	NDAIGW01-R01	N	SW8270C	SW3510	Benzyl butyl phthalate	5.0	U	U	5.0	UJ	U	3.0	5.0	ug/L	SS
WG	NDAIGW01-R01	N	SW8270C	SW3510	biphenyl (diphenyl)	5.0	U	U	5.0	UJ	U	0.76	5.0	ug/L	SS
WG	NDAIGW01-R01	N	SW8270C	SW3510	Bis(2-Chloroethoxy) methane	5.0	U	U	5.0	UJ	U	3.5	5.0	ug/L	SS
WG	NDAIGW01-R01	N	SW8270C	SW3510	bis(2-Chloroethyl) ether	5.0	U	U	5.0	UJ	U	3.0	5.0	ug/L	SS
WG	NDAIGW01-R01	N	SW8270C	SW3510	bis(2-Chloroisopropyl) ether	5.0	U	U	5.0	UJ	U	3.3	5.0	ug/L	SS
WG	NDAIGW01-R01	N	SW8270C	SW3510	bis(2-Ethylhexyl) phthalate	10.0	U	U	10.0	UJ	U	4.4	10.0	ug/L	SS
WG	NDAIGW01-R01	N	SW8270C	SW3510	Carbazole	10.0	U	U	10.0	UJ	U	3.1	10.0	ug/L	SS
WG	NDAIGW01-R01	N	SW8270C	SW3510	Chrysene	5.0	U	U	5.0	UJ	U	2.9	5.0	ug/L	SS
WG	NDAIGW01-R01	N	SW8270C	SW3510	Dibenz(a,h)anthracene	5.0	U	U	5.0	UJ	U	2.7	5.0	ug/L	SS
WG	NDAIGW01-R01	N	SW8270C	SW3510	Dibenzofuran	5.0	U	U	5.0	UJ	U	2.7	5.0	ug/L	SS
WG	NDAIGW01-R01	N	SW8270C	SW3510	Diethyl phthalate	5.0	U	U	5.0	UJ	U	2.8	5.0	ug/L	SS
WG	NDAIGW01-R01	N	SW8270C	SW3510	Dimethyl phthalate	5.0	U	U	5.0	UJ	U	3.0	5.0	ug/L	SS
WG	NDAIGW01-R01	N	SW8270C	SW3510	Di-n-butyl phthalate	5.0	U	U	5.0	UJ	U	2.9	5.0	ug/L	SS
WG	NDAIGW01-R01	N	SW8270C	SW3510	Di-n-octylphthalate	5.0	U	U	5.0	UJ	U	2.8	5.0	ug/L	SS
WG	NDAIGW01-R01	N	SW8270C	SW3510	Fluoranthene	5.0	U	U	5.0	UJ	U	2.8	5.0	ug/L	SS
WG	NDAIGW01-R01	N	SW8270C	SW3510	Fluorene	5.0	U	U	5.0	UJ	U	2.9	5.0	ug/L	SS
WG	NDAIGW01-R01	N	SW8270C	SW3510	Hexachlorobenzene	5.0	U	U	5.0	UJ	U	2.6	5.0	ug/L	SS
WG	NDAIGW01-R01	N	SW8270C	SW3510	Hexachlorobutadiene	5.0	U	U	5.0	UJ	U	2.5	5.0	ug/L	SS
WG	NDAIGW01-R01	N	SW8270C	SW3510	Hexachlorocyclopentadiene	5.0	U	U	5.0	UJ	U	2.2	5.0	ug/L	SS
WG	NDAIGW01-R01	N	SW8270C	SW3510	Hexachloroethane	5.0	U	U	5.0	UJ	U	2.6	5.0	ug/L	SS
WG	NDAIGW01-R01	N	SW8270C	SW3510	Indeno(1,2,3-c,d)pyrene	5.0	U	U	5.0	UJ	U	2.6	5.0	ug/L	SS
WG	NDAIGW01-R01	N	SW8270C	SW3510	Isophorone	5.0	U	U	5.0	UJ	U	3.8	5.0	ug/L	SS
WG	NDAIGW01-R01	N	SW8270C	SW3510	Naphthalene	5.0	U	U	5.0	UJ	U	2.8	5.0	ug/L	SS
WG	NDAIGW01-R01	N	SW8270C	SW3510	Nitrobenzene	5.0	U	U	5.0	UJ	U	2.8	5.0	ug/L	SS
WG	NDAIGW01-R01	N	SW8270C	SW3510	n-Nitrosodi-n-propylamine	5.0	U	U	5.0	UJ	U	3.0	5.0	ug/L	SS
WG	NDAIGW01-R01	N	SW8270C	SW3510	n-Nitrosodiphenylamine	5.0	U	U	5.0	UJ	U	3.4	5.0	ug/L	SS
WG	NDAIGW01-R01	N	SW8270C	SW3510	Phenanthrene	5.0	U	U	5.0	UJ	U	2.8	5.0	ug/L	SS
WG	NDAIGW01-R01	N	SW8270C	SW3510	Pyrene	5.0	U	U	5.0	UJ	U	2.9	5.0	ug/L	SS

Matrix	Analytical Method	Prep Method	Dissolved ?	Sample ID	Parameter	Final Result	Final Qual	Field Dup Final Result	Field Dup Final Qual	Detection Limit	Reporting Limit	Units	RPD
SB	SW7196A	METHOD	NONE	NDAISB20-R02	chromium, hexavalent	0.662	J	0.311	J	0.152	1.1	mg/kg	72.1
SS	SW7196A	METHOD	NONE	NDAISS37-R01	chromium, hexavalent	1.27	J	0.647	J	0.146	1.06	mg/kg	65.0
SS	SW8270C	SW3550	NONE	NDAISS37-R01	bis(2-Ethylhexyl) phthalate	82.8	J	43.5	J	41.3	349	ug/kg	62.2
SB	SW6010B	SW3050B	NONE	NDAISB20-R02	Chromium, total	157	J	137	J	0.629	6.29	mg/kg	13.6
SS	SW6010B	SW3050B	NONE	NDAISS37-R01	Chromium, total	37.5	J	33	J	0.141	1.41	mg/kg	12.8
SS	SW8270C	SW3550	NONE	NDAISS28-R01	bis(2-Ethylhexyl) phthalate	412	=	368	=	40.7	344	ug/kg	11.3
SS	SW8015-E	SW3550	NONE	NDAISS37-R01	TPH C10-C28	137	=	147	=	27.5	42.3	mg/kg	7.0
SS	SW6010B	SW3050B	NONE	NDAISS28-R01	Chromium, total	60.7	J	62.7	J	0.13	1.3	mg/kg	3.2
WG	SW6010B	SW3010	FLDFLT	NDAIGW02-R01	Lead	7.95	=	6.17	=	2.2	3	ug/L	25.2
WG	SW6010B	SW3010A	NONE	NDAIGW02-R01	Antimony	2.55	J	3.16	J	2.3	60	ug/L	21.4
WG	SW6010B	SW3010A	NONE	NDAIGW02-R01	Lead	7.37	=	6.32	=	2.2	3	ug/L	15.3
WG	SW6010B	SW3010A	NONE	NDAIGW02-R01	Cadmium	7.7	J	8.72	=	0.35	5	ug/L	12.4
WG	SW6010B	SW3010A	NONE	NDAIGW02-R01	Arsenic	17	=	15.1	=	1.8	10	ug/L	11.8
WG	SW6010B	SW3010	FLDFLT	NDAIGW02-R01	Aluminum	42.4	J	37.7	J	15	200	ug/L	11.7
WG	SW6010B	SW3010A	NONE	NDAIGW02-R01	Iron	76.5	J	84.8	J	9.2	100	ug/L	10.3
WG	SW6010B	SW3010A	NONE	NDAIGW02-R01	Nickel	1.8	J	1.92	J	1.7	40	ug/L	6.5
WG	SW6010B	SW3010	FLDFLT	NDAIGW02-R01	Potassium	585	J	613	J	75	5000	ug/L	4.7
WG	SW6010B	SW3010	FLDFLT	NDAIGW02-R01	Copper	7.77	J	8.08	J	0.62	25	ug/L	3.9
WG	SW6010B	SW3010	FLDFLT	NDAIGW02-R01	Arsenic	15.4	=	15.9	=	1.8	10	ug/L	3.2
WG	SW6010B	SW3010	FLDFLT	NDAIGW02-R01	Iron	32.5	J	33.4	J	9.2	100	ug/L	2.7
WG	SW6010B	SW3010A	NONE	NDAIGW02-R01	Copper	8.48	J	8.64	J	0.62	25	ug/L	1.9
WG	SW6010B	SW3010A	NONE	NDAIGW02-R01	Chromium, total	1.62	J	1.6	J	1.3	10	ug/L	1.2
WG	SW6010B	SW3010A	NONE	NDAIGW02-R01	Cobalt	8.78	J	8.68	J	0.76	50	ug/L	1.1
WG	SW6010B	SW3010A	NONE	NDAIGW02-R01	Barium	52.8	J	52.2	J	0.44	200	ug/L	1.1
WG	SW6010B	SW3010	FLDFLT	NDAIGW02-R01	Cobalt	8.61	J	8.52	J	0.76	50	ug/L	1.1
WG	SW6010B	SW3010	FLDFLT	NDAIGW02-R01	Sodium	78500	=	79300	=	140	5000	ug/L	1.0
WG	SW6010B	SW3010	FLDFLT	NDAIGW02-R01	Calcium	91700	=	92600	=	51	5000	ug/L	1.0
WG	SW6010B	SW3010	FLDFLT	NDAIGW02-R01	Cadmium	8.23	J	8.17	=	0.35	5	ug/L	0.7
WG	SW6010B	SW3010	FLDFLT	NDAIGW02-R01	Manganese	859	=	865	=	0.46	15	ug/L	0.7
WG	SW6010B	SW3010	FLDFLT	NDAIGW02-R01	Magnesium	58000	=	58400	=	40	5000	ug/L	0.7
WG	SW6010B	SW3010	FLDFLT	NDAIGW02-R01	Barium	51.6	J	51.3	J	0.44	200	ug/L	0.6
WG	SW6010B	SW3010	FLDFLT	NDAIGW02-R01	Nickel	1.76	J	1.77	J	1.7	40	ug/L	0.6
WG	SW6010B	SW3010A	NONE	NDAIGW02-R01	Magnesium	59300	=	59000	=	40	5000	ug/L	0.5
WG	SW6010B	SW3010A	NONE	NDAIGW02-R01	Potassium	614	J	617	J	75	5000	ug/L	0.5
WG	SW6010B	SW3010A	NONE	NDAIGW02-R01	Aluminum	70.3	J	70.6	J	15	200	ug/L	0.4
WG	E160.1	NONE	NONE	NDAIGW02-R01	TDS	721	=	718	=	10	20	ug/L	0.4
WG	SW6010B	SW3010	FLDFLT	NDAIGW02-R01	Vanadium	26.3	J	26.2	J	1.1	50	ug/L	0.4
WG	SW6010B	SW3010A	NONE	NDAIGW02-R01	Manganese	891	=	888	=	0.46	15	ug/L	0.3
WG	SW6010B	SW3010A	NONE	NDAIGW02-R01	Sodium	79700	=	79500	=	140	5000	ug/L	0.3
WG	SW6010B	SW3010A	NONE	NDAIGW02-R01	Calcium	93400	=	93200	=	51	5000	ug/L	0.2
WG	SW6010B	SW3010A	NONE	NDAIGW02-R01	Vanadium	26.9	J	26.9	J	1.1	50	ug/L	0.0

Matrix	Sample ID	Analytical Method	Preparation Method	Parameter	Total Lab Result	Total Lab Qual	Dissolved Lab Result	Dissolved Lab Qual	Detection Limit	Reporting Limit	Units
WG	NDAIGW03-R01	SW6010B	SW3010A	Arsenic	15.5	=	20.0	=	1.8	10	ug/L
WG	NDAIGW04-R01	SW6010B	SW3010A	Arsenic	15.6	=	18.1	=	1.8	10	ug/L
WG	NDAIGW07-R01	SW6010B	SW3010A	Arsenic	13.5	=	16.0	=	1.8	10	ug/L
WG	NDAIFD01P-R01	SW6010B	SW3010A	Arsenic	15.1	=	15.9	=	1.8	10	ug/L
WG	NDAIGW01-R01	SW6010B	SW3010A	Barium	16.1	J	16.4	J	0.44	200	ug/L
WG	NDAIGW07-R01	SW6010B	SW3010A	Cadmium	4.8	J	4.9	J	0.35	5	ug/L
WG	NDAIGW05-R01	SW6010B	SW3010A	Cadmium	3.8	J	3.8	J	0.35	5	ug/L
WG	NDAIGW02-R01	SW6010B	SW3010A	Cadmium	7.7	=	8.2	=	0.35	5	ug/L
WG	NDAIGW03-R01	SW6010B	SW3010A	Cadmium	5.8	=	6.2	=	0.35	5	ug/L
WG	NDAIGW04-R01	SW6010B	SW3010A	Cadmium	5.7	=	5.8	=	0.35	5	ug/L
WG	NDAIGW04-R01	SW6010B	SW3010A	Chromium, total	1.4	J	1.7	J	1.3	10	ug/L
WG	NDAIGW01-R01	SW6010B	SW3010A	Cobalt	7.0	J	7.1	J	0.76	50	ug/L
WG	NDAIGW07-R01	SW6010B	SW3010A	Cobalt	6.2	J	6.3	J	0.76	50	ug/L
WG	NDAIGW05-R01	SW6010B	SW3010A	Cobalt	5.2	J	5.3	J	0.76	50	ug/L
WG	NDAIGW01-R01	SW6010B	SW3010A	Copper	7.9	J	8.8	J	0.62	25	ug/L
WG	NDAIGW02-R01	SW6010B	SW3010A	Lead	7.4	=	8.0	=	2.2	3	ug/L
WG	NDAIGW01-R01	SW6010B	SW3010A	Lead	6.5	=	7.6	=	2.2	3	ug/L
WG	NDAIGW03-R01	SW6010B	SW3010A	Lead	4.5	=	7.5	=	2.2	3	ug/L
WG	NDAIGW04-R01	SW6010B	SW3010A	Lead	4.4	=	5.8	=	2.2	3	ug/L
WG	NDAIGW06-R01	SW6010B	SW3010A	Magnesium	21800	=	22600	=	40	5000	ug/L
WG	NDAIGW01-R01	SW6010B	SW3010A	Nickel	1.7	U	2.0	J	1.7	40	ug/L
WG	NDAIGW06-R01	SW6010B	SW3010A	Potassium	1290	J	1340	J	75	5000	ug/L
WG	NDAIGW01-R01	SW6010B	SW3010A	Potassium	943	J	1090	J	75	5000	ug/L
WG	NDAIGW03-R01	SW6010B	SW3010A	Potassium	614	J	719	J	75	5000	ug/L
WG	NDAIGW05-R01	SW6010B	SW3010A	Potassium	308	J	348	J	75	5000	ug/L
WG	NDAIGW01-R01	SW6010B	SW3010A	Selenium	2.6	U	2.9	J	2.6	5	ug/L
WG	NDAIGW01-R01	SW6010B	SW3010A	Vanadium	37.1	J	37.6	J	1.1	50	ug/L
WG	NDAIGW07-R01	SW6010B	SW3010A	Zinc	0.94	U	3.2	J	0.94	20	ug/L
WG	NDAIGW01-R01	SW6010B	SW3010A	Zinc	0.94	U	0.95	J	0.94	20	ug/L
WG	NDAIGW06-R01	SW6010B	SW3010A	Zinc	2.1	J	2.3	J	0.94	20	ug/L
WG	NDAIGW01-R01	SW6010B	SW3010A	Calcium	78900	=	81400	=	51	5000	ug/L
WG	NDAIGW06-R01	SW6010B	SW3010A	Calcium	45600	=	47300	=	51	5000	ug/L
WG	NDAIGW03-R01	SW6010B	SW3010A	Magnesium	50400	=	51100	=	40	5000	ug/L
WG	NDAIGW01-R01	SW6010B	SW3010A	Magnesium	44700	=	46200	=	40	5000	ug/L
WG	NDAIGW06-R01DL1	SW6010B	SW3010A	Sodium	382000	=	404000	=	700	25000	ug/L
WG	NDAIGW03-R01	SW6010B	SW3010A	Sodium	111000	=	112000	=	140	5000	ug/L
WG	NDAIGW01-R01	SW6010B	SW3010A	Sodium	94600	=	98400	=	140	5000	ug/L
WG	NDAIGW05-R01SD	SW7841	SW3020A	Thallium	9.4	=	12.2	=	0.23	0.5	ug/L
WG	NDAIGW05-R01MS	SW7841	SW3020A	Thallium	8.1	=	11.1	=	0.23	0.5	ug/L
WG	NDAIGW05-R01SD	SW7470A	METHOD	Mercury	2.6	=	2.6	=	0.025	0.2	ug/L
WG	NDAIGW05-R01MS	SW7470A	METHOD	Mercury	2.6	=	2.6	=	0.025	0.2	ug/L
WG	NDAIGW02-R01	SW6010B	SW3010A	Aluminum	70.3	J	42.4	J	15	200	ug/L
WG	NDAIFD01P-R01	SW6010B	SW3010A	Aluminum	70.6	J	37.7	J	15	200	ug/L
WG	NDAIGW05-R01	SW6010B	SW3010A	Aluminum	54.0	J	34.7	J	15	200	ug/L
WG	NDAIGW05-R01SD	SW6010B	SW3010A	Aluminum	48400	=	49100	=	15	200	ug/L
WG	NDAIGW05-R01MS	SW6010B	SW3010A	Aluminum	48700	=	49000	=	15	200	ug/L
WG	NDAIGW01-R01	SW6010B	SW3010A	Aluminum	209	=	84.2	J	15	200	ug/L
WG	NDAIGW06-R01	SW6010B	SW3010A	Aluminum	774	=	73.1	J	15	200	ug/L
WG	NDAIGW03-R01	SW6010B	SW3010A	Aluminum	358	=	38.2	J	15	200	ug/L
WG	NDAIFD01P-R01	SW6010B	SW3010A	Antimony	3.2	J	2.9	J	2.3	60	ug/L
WG	NDAIGW05-R01MS	SW6010B	SW3010A	Antimony	509	=	512	=	2.3	60	ug/L
WG	NDAIGW05-R01SD	SW6010B	SW3010A	Antimony	508	=	508	=	2.3	60	ug/L
WG	NDAIGW05-R01MS	SW6010B	SW3010A	Arsenic	505	=	509	=	1.8	10	ug/L
WG	NDAIGW05-R01SD	SW6010B	SW3010A	Arsenic	501	=	507	=	1.8	10	ug/L
WG	NDAIGW05-R01	SW6010B	SW3010A	Arsenic	18.7	=	18.1	=	1.8	10	ug/L
WG	NDAIGW02-R01	SW6010B	SW3010A	Arsenic	17.0	=	15.4	=	1.8	10	ug/L
WG	NDAIGW01-R01	SW6010B	SW3010A	Arsenic	15.6	=	14.0	=	1.8	10	ug/L
WG	NDAIGW06-R01	SW6010B	SW3010A	Arsenic	12.1	=	10.6	=	1.8	10	ug/L
WG	NDAIGW04-R01	SW6010B	SW3010A	Barium	104	J	103	J	0.44	200	ug/L
WG	NDAIGW05-R01	SW6010B	SW3010A	Barium	72.3	J	70.9	J	0.44	200	ug/L
WG	NDAIGW03-R01	SW6010B	SW3010A	Barium	69.4	J	66.7	J	0.44	200	ug/L
WG	NDAIGW02-R01	SW6010B	SW3010A	Barium	52.8	J	51.6	J	0.44	200	ug/L

Matrix	Sample ID	Analytical Method	Preparation Method	Parameter	Total Lab Result	Total Lab Qual	Dissolved Lab Result	Dissolved Lab Qual	Detection Limit	Reporting Limit	Units
WG	NDAIFD01P-R01	SW6010B	SW3010A	Barium	52.2	J	51.3	J	0.44	200	ug/L
WG	NDAIGW07-R01	SW6010B	SW3010A	Barium	40.4	J	39.9	J	0.44	200	ug/L
WG	NDAIGW06-R01	SW6010B	SW3010A	Barium	19.2	J	19.0	J	0.44	200	ug/L
WG	NDAIGW05-R01SD	SW6010B	SW3010A	Barium	563	=	570	=	0.44	200	ug/L
WG	NDAIGW05-R01MS	SW6010B	SW3010A	Barium	563	=	567	=	0.44	200	ug/L
WG	NDAIGW05-R01SD	SW6010B	SW3010A	Beryllium	493	=	495	=	0.2	5	ug/L
WG	NDAIGW05-R01MS	SW6010B	SW3010A	Beryllium	494	=	493	=	0.2	5	ug/L
WG	NDAIGW06-R01	SW6010B	SW3010A	Cadmium	3.2	J	3.1	J	0.35	5	ug/L
WG	NDAIGW05-R01SD	SW6010B	SW3010A	Cadmium	511	=	516	=	0.35	5	ug/L
WG	NDAIGW05-R01MS	SW6010B	SW3010A	Cadmium	511	=	515	=	0.35	5	ug/L
WG	NDAIFD01P-R01	SW6010B	SW3010A	Cadmium	8.7	=	8.2	=	0.35	5	ug/L
WG	NDAIGW01-R01	SW6010B	SW3010A	Cadmium	6.4	=	6.3	=	0.35	5	ug/L
WG	NDAIGW05-R01SD	SW6010B	SW3010A	Calcium	96600	=	97500	=	51	5000	ug/L
WG	NDAIGW05-R01MS	SW6010B	SW3010A	Calcium	97100	=	97200	=	51	5000	ug/L
WG	NDAIFD01P-R01	SW6010B	SW3010A	Calcium	93200	=	92600	=	51	5000	ug/L
WG	NDAIGW02-R01	SW6010B	SW3010A	Calcium	93400	=	91700	=	51	5000	ug/L
WG	NDAIGW03-R01	SW6010B	SW3010A	Calcium	70600	=	69500	=	51	5000	ug/L
WG	NDAIGW04-R01	SW6010B	SW3010A	Calcium	64600	=	64500	=	51	5000	ug/L
WG	NDAIGW07-R01	SW6010B	SW3010A	Calcium	61200	=	60000	=	51	5000	ug/L
WG	NDAIGW05-R01	SW6010B	SW3010A	Calcium	47700	=	46400	=	51	5000	ug/L
WG	NDAIGW05-R01	SW6010B	SW3010A	Chromium, total	1.7	J	1.5	J	1.3	10	ug/L
WG	NDAIGW05-R01SD	SW6010B	SW3010A	Chromium, total	495	=	500	=	1.3	10	ug/L
WG	NDAIGW05-R01MS	SW6010B	SW3010A	Chromium, total	496	=	499	=	1.3	10	ug/L
WG	NDAIGW02-R01	SW6010B	SW3010A	Cobalt	8.8	J	8.6	J	0.76	50	ug/L
WG	NDAIFD01P-R01	SW6010B	SW3010A	Cobalt	8.7	J	8.5	J	0.76	50	ug/L
WG	NDAIGW04-R01	SW6010B	SW3010A	Cobalt	7.1	J	7.0	J	0.76	50	ug/L
WG	NDAIGW03-R01	SW6010B	SW3010A	Cobalt	7.3	J	6.9	J	0.76	50	ug/L
WG	NDAIGW06-R01	SW6010B	SW3010A	Cobalt	4.0	J	3.6	J	0.76	50	ug/L
WG	NDAIGW05-R01SD	SW6010B	SW3010A	Cobalt	504	=	510	=	0.76	50	ug/L
WG	NDAIGW05-R01MS	SW6010B	SW3010A	Cobalt	504	=	509	=	0.76	50	ug/L
WG	NDAIFD01P-R01	SW6010B	SW3010A	Copper	8.6	J	8.1	J	0.62	25	ug/L
WG	NDAIGW02-R01	SW6010B	SW3010A	Copper	8.5	J	7.8	J	0.62	25	ug/L
WG	NDAIGW03-R01	SW6010B	SW3010A	Copper	8.5	J	5.2	J	0.62	25	ug/L
WG	NDAIGW06-R01	SW6010B	SW3010A	Copper	6.7	J	5.2	J	0.62	25	ug/L
WG	NDAIGW07-R01	SW6010B	SW3010A	Copper	4.5	J	4.4	J	0.62	25	ug/L
WG	NDAIGW04-R01	SW6010B	SW3010A	Copper	4.4	J	4.2	J	0.62	25	ug/L
WG	NDAIGW05-R01	SW6010B	SW3010A	Copper	4.8	J	3.4	J	0.62	25	ug/L
WG	NDAIGW05-R01SD	SW6010B	SW3010A	Copper	481	=	488	=	0.62	25	ug/L
WG	NDAIGW05-R01MS	SW6010B	SW3010A	Copper	483	=	487	=	0.62	25	ug/L
WG	NDAIFD01P-R01	SW6010B	SW3010A	Iron	84.8	J	33.4	J	9.2	100	ug/L
WG	NDAIGW02-R01	SW6010B	SW3010A	Iron	76.5	J	32.5	J	9.2	100	ug/L
WG	NDAIGW04-R01	SW6010B	SW3010A	Iron	72.7	J	17.0	J	9.2	100	ug/L
WG	NDAIGW05-R01SD	SW6010B	SW3010A	Iron	53500	=	54300	=	9.2	100	ug/L
WG	NDAIGW05-R01MS	SW6010B	SW3010A	Iron	53900	=	54200	=	9.2	100	ug/L
WG	NDAIGW07-R01	SW6010B	SW3010A	Iron	295	=	188	=	9.2	100	ug/L
WG	NDAIGW03-R01	SW6010B	SW3010A	Iron	684	=	99.8	J	9.2	100	ug/L
WG	NDAIGW01-R01	SW6010B	SW3010A	Iron	210	=	83.3	J	9.2	100	ug/L
WG	NDAIGW05-R01	SW6010B	SW3010A	Iron	100	=	77.3	J	9.2	100	ug/L
WG	NDAIGW06-R01	SW6010B	SW3010A	Iron	974	=	68.9	J	9.2	100	ug/L
WG	NDAIGW05-R01MS	SW6010B	SW3010A	Lead	498	=	501	=	2.2	3	ug/L
WG	NDAIGW05-R01SD	SW6010B	SW3010A	Lead	494	=	500	=	2.2	3	ug/L
WG	NDAIGW07-R01	SW6010B	SW3010A	Lead	8.4	=	7.2	=	2.2	3	ug/L
WG	NDAIFD01P-R01	SW6010B	SW3010A	Lead	6.3	=	6.2	=	2.2	3	ug/L
WG	NDAIGW05-R01	SW6010B	SW3010A	Lead	6.7	=	6.2	=	2.2	3	ug/L
WG	NDAIGW06-R01	SW6010B	SW3010A	Lead	5.9	=	4.8	=	2.2	3	ug/L
WG	NDAIGW05-R01SD	SW6010B	SW3010A	Magnesium	85300	=	86300	=	40	5000	ug/L
WG	NDAIGW05-R01MS	SW6010B	SW3010A	Magnesium	85700	=	86000	=	40	5000	ug/L
WG	NDAIFD01P-R01	SW6010B	SW3010A	Magnesium	59000	=	58400	=	40	5000	ug/L
WG	NDAIGW02-R01	SW6010B	SW3010A	Magnesium	59300	=	58000	=	40	5000	ug/L
WG	NDAIGW04-R01	SW6010B	SW3010A	Magnesium	54700	=	54700	=	40	5000	ug/L
WG	NDAIGW07-R01	SW6010B	SW3010A	Magnesium	47500	=	46700	=	40	5000	ug/L
WG	NDAIGW05-R01	SW6010B	SW3010A	Magnesium	36800	=	36300	=	40	5000	ug/L

Matrix	Sample ID	Analytical Method	Preparation Method	Parameter	Total Lab Result	Total Lab Qual	Dissolved Lab Result	Dissolved Lab Qual	Detection Limit	Reporting Limit	Units
WG	NDAIGW04-R01	SW6010B	SW3010A	Manganese	1930	=	1920	=	0.46	15	ug/L
WG	NDAIGW05-R01SD	SW6010B	SW3010A	Manganese	1600	=	1620	=	0.46	15	ug/L
WG	NDAIGW05-R01MS	SW6010B	SW3010A	Manganese	1600	=	1600	=	0.46	15	ug/L
WG	NDAIGW03-R01	SW6010B	SW3010A	Manganese	1330	=	1290	=	0.46	15	ug/L
WG	NDAIGW07-R01	SW6010B	SW3010A	Manganese	1280	=	1240	=	0.46	15	ug/L
WG	NDAIGW05-R01	SW6010B	SW3010A	Manganese	1110	=	1090	=	0.46	15	ug/L
WG	NDAIFD01P-R01	SW6010B	SW3010A	Manganese	888	=	865	=	0.46	15	ug/L
WG	NDAIGW02-R01	SW6010B	SW3010A	Manganese	891	=	859	=	0.46	15	ug/L
WG	NDAIGW06-R01	SW6010B	SW3010A	Manganese	57.2	=	44.9	=	0.46	15	ug/L
WG	NDAIGW01-R01	SW6010B	SW3010A	Manganese	40.7	=	37.9	=	0.46	15	ug/L
WG	NDAIGW03-R01	SW6010B	SW3010A	Nickel	2.2	J	2.1	J	1.7	40	ug/L
WG	NDAIGW06-R01	SW6010B	SW3010A	Nickel	2.5	J	2.0	J	1.7	40	ug/L
WG	NDAIFD01P-R01	SW6010B	SW3010A	Nickel	1.9	J	1.8	J	1.7	40	ug/L
WG	NDAIGW02-R01	SW6010B	SW3010A	Nickel	1.8	J	1.8	J	1.7	40	ug/L
WG	NDAIGW05-R01MS	SW6010B	SW3010A	Nickel	506	=	511	=	1.7	40	ug/L
WG	NDAIGW05-R01SD	SW6010B	SW3010A	Nickel	505	=	511	=	1.7	40	ug/L
WG	NDAIFD01P-R01	SW6010B	SW3010A	Potassium	617	J	613	J	75	5000	ug/L
WG	NDAIGW02-R01	SW6010B	SW3010A	Potassium	614	J	585	J	75	5000	ug/L
WG	NDAIGW04-R01	SW6010B	SW3010A	Potassium	537	J	477	J	75	5000	ug/L
WG	NDAIGW07-R01	SW6010B	SW3010A	Potassium	451	J	427	J	75	5000	ug/L
WG	NDAIGW05-R01SD	SW6010B	SW3010A	Potassium	48200	=	49100	=	75	5000	ug/L
WG	NDAIGW05-R01MS	SW6010B	SW3010A	Potassium	48600	=	48900	=	75	5000	ug/L
WG	NDAIGW05-R01SD	SW6010B	SW3010A	Selenium	483	=	494	=	2.6	5	ug/L
WG	NDAIGW05-R01MS	SW6010B	SW3010A	Selenium	491	=	491	=	2.6	5	ug/L
WG	NDAIGW05-R01SD	SW6010B	SW3010A	Silver	490	=	496	=	0.65	10	ug/L
WG	NDAIGW05-R01MS	SW6010B	SW3010A	Silver	491	=	495	=	0.65	10	ug/L
WG	NDAIGW05-R01SD	SW6010B	SW3010A	Sodium	283000	=	288000	=	140	5000	ug/L
WG	NDAIGW05-R01MS	SW6010B	SW3010A	Sodium	285000	=	287000	=	140	5000	ug/L
WG	NDAIGW05-R01	SW6010B	SW3010A	Sodium	238000	=	235000	=	140	5000	ug/L
WG	NDAIGW07-R01	SW6010B	SW3010A	Sodium	159000	=	156000	=	140	5000	ug/L
WG	NDAIGW04-R01	SW6010B	SW3010A	Sodium	151000	=	150000	=	140	5000	ug/L
WG	NDAIFD01P-R01	SW6010B	SW3010A	Sodium	79500	=	79300	=	140	5000	ug/L
WG	NDAIGW02-R01	SW6010B	SW3010A	Sodium	79700	=	78500	=	140	5000	ug/L
WG	NDAIGW06-R01	SW6010B	SW3010A	Vanadium	46.9	J	45.3	J	1.1	50	ug/L
WG	NDAIGW02-R01	SW6010B	SW3010A	Vanadium	26.9	J	26.3	J	1.1	50	ug/L
WG	NDAIFD01P-R01	SW6010B	SW3010A	Vanadium	26.9	J	26.2	J	1.1	50	ug/L
WG	NDAIGW04-R01	SW6010B	SW3010A	Vanadium	13.9	J	13.5	J	1.1	50	ug/L
WG	NDAIGW03-R01	SW6010B	SW3010A	Vanadium	11.3	J	9.8	J	1.1	50	ug/L
WG	NDAIGW07-R01	SW6010B	SW3010A	Vanadium	7.3	J	7.2	J	1.1	50	ug/L
WG	NDAIGW05-R01	SW6010B	SW3010A	Vanadium	3.5	J	2.9	J	1.1	50	ug/L
WG	NDAIGW05-R01MS	SW6010B	SW3010A	Vanadium	498	=	502	=	1.1	50	ug/L
WG	NDAIGW05-R01SD	SW6010B	SW3010A	Vanadium	497	=	502	=	1.1	50	ug/L
WG	NDAIGW05-R01SD	SW6010B	SW3010A	Zinc	501	=	506	=	0.94	20	ug/L
WG	NDAIGW05-R01MS	SW6010B	SW3010A	Zinc	499	=	505	=	0.94	20	ug/L

Exhibit 8 - Percent Completeness by Matrix and Method

Matrix	Parameter Class	Ana/Ext Method	Total Unique Results	Fully Rejected Results	Difference	% Complete by Matrix and Method
SB	PCB	CLP_PEST	182	0	182	100.0
SS	PCB	CLP_PEST	217	0	217	100.0
SB	PEST	CLP_PEST	546	0	546	100.0
SS	PEST	CLP_PEST	651	0	651	100.0
WG	genchem	E160.1	8	0	8	100.0
SB	METALS	E200.7	572	0	572	100.0
SS	METALS	E200.7	682	0	682	100.0
SB	METALS	E245.5	26	0	26	100.0
SS	METALS	E245.5	31	0	31	100.0
SB	TPH	FL-PRO	26	0	26	100.0
SS	TPH	FL-PRO	31	0	31	100.0
SB	METALS	SW6010B	7	0	7	100.0
SS	METALS	SW6010B	19	0	19	100.0
WG	METALS	SW6010B	168	0	168	100.0
WG	DISSMETAL	SW6010B/DISSMET	168	0	168	100.0
SB	metals	SW7196A	7	0	7	100.0
SS	metals	SW7196A	19	0	19	100.0
WG	METALS	SW7470A	8	0	8	100.0
WG	DISSMETAL	SW7470A/DISSMET	8	0	8	100.0
WG	METALS	SW7841	8	0	8	100.0
WG	DISSMETAL	SW7841/DISSMET	8	0	8	100.0
SS	TPH	SW8015-E	16	0	16	100.0
SS	TPH	SW8015-P	16	0	16	100.0
WG	PEST	SW8081	168	0	168	100.0
WG	PCB	SW8082	56	0	56	100.0
SB	VOC	SW8260B	884	45	839	94.9
SS	VOC	SW8260B	1054	50	1004	95.3
WG	VOC	SW8260B	400	0	400	100.0
SB	SVOC	SW8270C	1664	0	1664	100.0
SS	SVOC	SW8270C	3024	7	3017	99.8
WG	SVOC	SW8270C	528	0	528	100.0
WG	GENCHEM	SW9012	8	0	8	100.0
SB	GENCHEM	SW9045	3	0	3	100.0
SS	GENCHEM	SW9045	3	0	3	100.0
SB	GENCHEM	SW9060MOD	3	0	3	100.0
SS	GENCHEM	SW9060MOD	3	0	3	100.0
	SUMS:		**11222**	**102**	**11120**	

Project Percent Completeness: **99.1**

Appendix L
2007 Data Quality Evaluations

AOC I Data Quality Assessment

PREPARED FOR: John Swenfurth/TPA

PREPARED BY: Michael Zamboni/WDC

DATE: November 16, 2007

PROJECT NUMBER: 180357.RI.RI.AI

1 Data Quality Assessment

The purpose of this data quality evaluation is to assess the effect of the overall analytical process on the usability of the analytical data. The two major categories of data evaluation are laboratory performance and matrix interferences. Evaluation of laboratory performance is a check for compliance with the method requirements; in other words, a check of whether the laboratory analyzed the samples within the limits of the analytical method. Additionally, an independent, third-party validator conducted a review of the laboratory data to assess whether the analytical methods were within required control limits at the time of analysis. Evaluation of potential matrix interferences involves the review of several areas of results, including surrogate spike recoveries, matrix spike recoveries, and duplicate sample results.

The data evaluation and validation is a multi-tiered approach. The process begins with an internal laboratory review, continues with an independent review by a third-party validator, and ends with an overall review by the Navy contractor project chemistry team. While only the data validator is allowed to apply qualifiers to the data, the process provides a medium for essential communication between the laboratory, validator, and project team to ensure acceptable data quality.

1.1 Laboratory Internal Quality Control Review

Prior to releasing the analytical data, the laboratory reviewed both the sample and QC data to verify sample identity, instrument calibration, quantitation limits, dilution factors, numerical computations, accuracy of transcriptions, and chemical interpretations. In addition, the QC data were tabulated and the results reviewed to ascertain whether they were within the contract-required or laboratory-defined limits for accuracy and precision. Any non-conforming data were discussed in the data package cover letter and case narrative.

1.2 Data Validation

An independent data validator reviewed all data packages using the validation criteria defined by USEPA Contract Laboratory Program. USEPA Region II checklists were applied to the data to help the validator create a thorough and systematic approach to the validation process. As stated above, the data validation process was independent and separate from

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the laboratory's internal review. The process was specifically focused on the effects of the laboratory's performance and sample matrix on the analytical results. Areas of review consisted of holding time compliance, surrogate recovery accuracy, matrix spiked sample precision and accuracy, blank contamination, initial and continuing calibration accuracy and precision, laboratory control sample accuracy, internal standard response and retention time accuracy, instrument tune criteria accuracy, and duplicate sample precision (laboratory and field duplicates). Additionally, the analytical spectrum and raw data output were reviewed and laboratory results selected by the validator were recalculated from the raw data to verify final laboratory quantitation.

When multiple analyses were performed, the analytical run with the lowest quantitation limits was selected by the validator, if the QC criteria were met for that analysis. If a sample was analyzed more than once as a result of concentrations exceeding the calibration range, the data validator selected results from the appropriate dilution. When multiple analyses were performed and QC criteria were outside of control limits for all analyses, the data validator selected results from the analytical run with the least number of exceptions or best possible QC.

1.2.1 Primary Data Validation Qualifiers

The following data validation qualifiers were applied to one or more analytical results:

- **U** - Not detected. Sample was analyzed for this parameter, but it was not detected above the reported quantitation limit. The data validator may also apply this qualifier to indicate that a concentration is attributed to blank contamination, but this qualifier does not necessarily indicate a quality control problem.
- **UJ** – Not detected, quantitation limit estimated. Sample was analyzed for this parameter, but it was not detected above the reported quantitation limit. The quantitation limit for this parameter is estimated.
- **J** - Concentration estimated. The parameter was positively identified and the associated numerical value is the approximate concentration of the parameter in the sample.
- **(No qualifier present) -** Detected. Qualification was not warranted.

1.3 Data Quality Evaluation

The data quality evaluation consisted of an overall review by the Navy contractor project chemistry team of the analytical data for systematic errors. The distribution of data qualifiers and systematic errors is discussed below. The data quality is evaluated based on the number of, severity of, and distribution of these data qualifiers. The data qualifiers were compiled and the individual data validation reports were reviewed if clarification on a data quality issue was necessary.

1.3.1 Vieques Island AOC I Groundwater Study Data

The purpose of this data quality evaluation is to summarize the findings of the data validation and any effects on the usability of the groundwater data as part of the Vieques Island AOC I sampling effort. This evaluation assesses the analytical results of the samples collected on Jan 11 and Jan 12, 2006.

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1.3.1.1 Volatile Compounds

Volatiles were analyzed by EPA CLP OLC03.2. Excluding field quality control samples, 350 distinct data points were generated. The validation process resulted in the following qualifiers for results in the volatiles fraction:

- 5.14 percent were UJ-qualified as "nondetect, estimated quantitation limit" because of high recovery in the continuing calibration verification
- 4.00 percent were UJ-qualified as "nondetect, estimated quantitation limit" because of low spiked surrogate recovery
- 1.43 percent were J-qualified as "estimated" because of high spiked surrogate recovery
- 0.57 percent were U-qualified as "nondetect" because of blank contamination
- 0.57 were J-qualified as "estimated" because the results were below the quantitation limit

1.3.1.1.1 Calibration

Eighteen results were UJ-qualified because of continuing calibration deficiencies. These were qualified as such because of high recovery for 1,1,2-trichloro-1,2,2-trifluoroethane, acetone, dichlorodifluoromethane, methyl acetate, and trichlorofluoromethane. No data were rejected as a result of calibration deficiencies, and UJ-qualification does not adversely impact data usability. UJ-qualified results are usable as non-detects.

1.3.1.1.2 Surrogates

A total of 19 results were J- or UJ-qualified because of spiked surrogate recovery. Of this total, 14 results were UJ-qualified because of spiked surrogate recovery less than the lower control limit and five results were J-qualified because of spiked surrogate recovery greater than the upper control limit. No data were rejected as a result of surrogates, and J- and UJ-qualification does not adversely impact data usability. J-qualified results are usable as detects and UJ-qualified results are usable as non-detects.

1.3.1.1.3 Blank Contamination

Two results were U-qualified because of blank contamination; acetone was detected in associated blank samples. Acetone is a common laboratory contaminant. The U-qualification of results to indicate they may be attributable to blank contamination does not adversely affect the usability of data because the results are usable as nondetects. The data user should exercise caution, however, when U-qualified results are greater than project action limits (PALs). One should assume a PAL exceedance when this occurs, to remain conservative.

1.3.1.1.4 Quantitation Limits

Two results were J-qualified as estimated because they were lower than the quantitation limits. These results should be considered estimated by the data user, but data usability is not adversely affected because J-qualified results are usable as detects.

1.3.1.2 Semivolatile Compounds

Semivolatiles were analyzed by EPA CLP OLC03.2. Excluding field quality control samples, 455 distinct data points were generated. The validation process resulted in the following qualifiers for results in the semivolatiles fraction:

- 4.40 percent were UJ-qualified as "nondetect, estimated quantitation limit" because of low spiked surrogate recovery

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- 2.86 percent were UJ-qualified as "nondetect, estimated quantitation limit" because of high recovery in the continuing calibration verification
- 1.32 percent were UJ-qualified as "nondetect, estimated quantitation limit" because of low recovery in the continuing calibration verification
- 0.88 were J-qualified as "estimated" because the results were below the quantitation limit

1.3.1.2.1 Surrogates

A total of 20 results were UJ-qualified because of spiked surrogate recovery. These were qualified as such because of spiked surrogate recovery less than the lower control limit. No data were rejected as a result of surrogates, and UJ-qualification does not adversely impact data usability. UJ-qualified results are usable as non-detects.

1.3.1.2.2 Calibration

Nineteen results were UJ-qualified because of continuing calibration deficiencies. Of these, 13 results were UJ-qualified because of high recovery for atrazine, benzaldehyde, hexachlorocyclopentadiene, nitrobenzene, and pentachlorophenol. The remaining six results were UJ-qualified because of low recovery for 2,4-dinitrophenol and nitroaniline. No data were rejected as a result of calibration deficiencies, and UJ-qualification does not adversely impact data usability. UJ-qualified results are usable as non-detects.

1.3.1.2.3 Quantitation Limits

Four results were J-qualified as estimated because they were lower than the quantitation limits. These results should be considered estimated by the data user, but data usability is not adversely affected because J-qualified results are usable as detects.

1.3.1.3 Total Metals

Total metals were analyzed by EPA CLP ILM05.3. Excluding field quality control samples, 168 distinct data points were generated. The validation process resulted in the following qualifiers for results in the metals fraction:

- 19.64 percent were U-qualified as "nondetect" because of blank contamination
- 12.50 were J-qualified as "estimated" because the results were below the quantitation limit
- 4.17 percent were J-qualified as "estimated" because of serial dilution

1.3.1.3.1 Blank Contamination

Thirty three results were U-qualified because of blank contamination; aluminum, cadmium, chromium, cobalt, iron, manganese, nickel, silver, and vanadium were detected in associated blank samples. The U-qualification of results to indicate they may be attributable to blank contamination does not adversely affect the usability of data because the results are usable as nondetects. The data user should exercise caution, however, when U-qualified results are greater than PALs. One should assume a PAL exceedance when this occurs, to remain conservative.

1.3.1.3.2 Quantitation Limits

Twenty one results were J-qualified as estimated because the result was lower than the quantitation limit. These results should be considered estimated by the data user, but data usability is not adversely affected because J-qualified results are usable as detects.

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1.3.1.3.3 Serial Dilution

Seven results were J-qualified as estimated because of serial dilution reproducibility exceedances. Potassium was the only affected parameter. No data were rejected due to serial dilution exceedances. J-qualification of data does not adversely affect usability because the estimated results are usable as detects.

1.3.1.4 Filtered Metals

Filtered metals were analyzed by EPA CLP ILM05.3. Excluding field quality control samples, 161 distinct data points were generated. The validation process resulted in the following qualifiers for results in the filtered metals fraction:

- 18.63 percent were J-qualified as "estimated" because the results were below the quantitation limit
- 8.70 percent were U-qualified as "nondetect" because of blank contamination
- 4.35 percent were J-qualified as "estimated" because of serial dilution

1.3.1.4.1 Quantitation Limits

Thirty results were J-qualified as estimated because the result was lower than the quantitation limit. These results should be considered estimated by the data user, but data usability is not adversely affected because J-qualified results are usable as detects.

1.3.1.4.2 Blank Contamination

Fourteen results were U-qualified because of blank contamination; silver and vanadium were detected in associated blank samples. The U-qualification of results to indicate they may be attributable to blank contamination does not adversely affect the usability of data because the results are usable as nondetects. The data user should exercise caution, however, when U-qualified results are greater than PALs. One should assume a PAL exceedance when this occurs, to remain conservative.

1.3.1.4.3 Serial Dilution

Seven results were J-qualified as estimated because of serial dilution reproducibility exceedances. Potassium was the only affected parameter. No data were rejected due to serial dilution exceedances. J-qualification of data does not adversely affect usability because the estimated results are usable as detects.

1.3.1.5 Wet Chemistry

Samples were analyzed by EPA 300.0 for nitrate and sulfate, by EPA 160.1 for Total Dissolved Solids (TDS), and by EPA 415.1 for Total Organic Carbon (TOC). Excluding field quality control samples, 28 distinct data points were generated. The validation process resulted in the following qualifiers for results in the wet chemistry fraction:

- 14.29 percent were J-qualified as "estimated" because the results were below the quantitation limit

1.3.1.5.1 Quantitation Limits

Four results were J-qualified as estimated because the result was lower than the quantitation limit. These results should be considered estimated by the data user, but data usability is not adversely affected because J-qualified results are usable as detects.

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Four results were J-qualified as estimated because the result was lower than the quantitation limit. These results should be considered estimated by the data user, but data usability is not adversely affected because J-qualified results are usable as detects.

2 Impact of Data Quality on Project Data Quality Objectives and Data Usability

The laboratory analyzed the samples in accordance with EPA and EPA CLP methods. The data packages were reviewed by an independent data validator using USEPA Region II validation checklists.

The J- and UJ-qualifiers indicate that some results are estimated. These qualifiers do not indicate a problem that adversely affects the usability of the data. J- and UJ-qualified results are usable for evaluating the nature and extent of contamination and estimating potentially associated human health and ecological risks.

Several sample results were U-qualified to indicate associated blank contamination as a result of field and/or laboratory techniques or procedures. U-qualified sample results do not adversely affect data usability. Some of these parameters, such as acetone, are common laboratory contaminants, and are likely to have originated in the laboratory. Data points U-qualified because of blank contamination are usable as non-detects for evaluating the nature and extent of contamination and estimating potentially associated human health and ecological risks.

2.1 PARCC

2.1.1 Precision

Precision is defined as the agreement between duplicate results, and was characterized by comparing duplicate matrix spike recoveries, native duplicates, and field duplicate sample results. Because no results were qualified based on MS/MSD precision, laboratory duplicates, or field duplicates, the sample matrix did not interfere with the analytical process or adversely affect precision.

2.1.2 Accuracy

Accuracy is a measure of the agreement between an experimental determination and the true value of the parameter being measured. For organic analyses, each sample was spiked with surrogate compounds; and for organic and inorganic analyses, an MS/MSD and LCS were spiked with a known parameter concentration before preparation. Surrogates and MS/MSD provide a measure of the matrix effects on the analytical accuracy. LCS demonstrates accuracy of the method and the laboratory's ability to meet the method criteria. Because no results were qualified based on MS/MSD accuracy or LCS accuracy, matrix effects and the laboratory's ability did not have any adverse effects on accuracy.

2.1.3 Representativeness

Representativeness is a qualitative measure of the degree to which sample data accurately and precisely represent a characteristic environmental condition (in this case, nature and extent of contamination). Representativeness is a subjective parameter and is used to

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evaluate the efficacy of the sample planning design. In terms of data quality, representativeness was assured because the sampling team following approved standard operating procedures for sample collection and handling, and the laboratory followed approved standard operating procedures for sample handling, preparation, and analysis.

2.1.4 Completeness

Completeness is defined as the percentage of measurements that are judged to be valid compared to the total number of measurements made. USEPA National Functional Guidelines for Organic and Inorganic Data Review and Region II RCRA and CERCLA Data Validation SOPs designate all results except those R-qualified as "rejected" to be usable. There were no R-qualified results in this dataset; therefore the data validation process demonstrated that 100 percent of the data are usable as qualified.

2.1.5 Comparability

Comparability is a qualitative measure designed to express the confidence with which one data set may be compared to another. Factors that affect comparability are sample collection and handling techniques, sample matrix, and analytical methods. In this case, because approved standard operating procedures were used for sample collection and handling, a common sample matrix was evaluated (groundwater), and EPA and EPA CLP methods were utilized, the data user may express confidence in the fact that this data set is comparable to others of acceptable data quality. In addition, comparability is controlled by the other PARCC parameters because data sets can be compared with confidence only when precision and accuracy are known. Because precision and accuracy were demonstrated to be acceptable for the groundwater data, the data user may be confident that this data set is comparable to others of high data quality.

2.2 Validation Qualifier Summary

The data quality evaluation showed that the laboratory U-qualified 73.84 percent (858 results) of the data as non-detect and further qualification was not warranted. Another 8.95 percent (104 results) were detected and no further qualification was warranted. The percentage of nondetect results UJ-qualified as "nondetect, estimated quantitation limit" amounted to 6.11 percent (70 results). The majority of the UJ-qualified results (37 results) were attributed the low or high continuing calibration recoveries in the volatiles and semivolatiles fractions. The remaining UJ-qualifiers (34 results) were attributed to low spiked surrogate recovery in the volatiles and semivolatiles fractions. A total of 4.22 percent (49 results) were U-qualified as "nondetect" as a result of blank contamination. The percentage of detected results J-qualified as "estimated" was 6.88 percent (80 results), and consisted mostly of qualifiers for quantitation limits (67 results). The remaining J-qualifiers resulted from serial dilution (14 results) and high spiked surrogate recoveries (5 results). There were no rejected results in this data set.

The overall conclusion is that the dataset generated is acceptable and appropriate for its intended use.

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Appendix M
Human Health Risk Assessment

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Attachments

1 Risk Assessment Guidance for Superfund (RAGS) Part D Tables
2 ProUCL Output

Acronyms and Abbreviations

ADAF	Age-Dependent Adjustment Factor
AOC	Area of Concern
bgs	Below Ground Surface
Cal/EPA	California Environmental Protection Agency
CDI	Chronic Daily Intake
COC	Chemical of Concern
COPC	Chemical of Potential Concern
CSF	Cancer Slope Factor
ELCR	Excess Lifetime Cancer Risk
EPA	U.S. Environmental Protection Agency
EPC	Exposure Point Concentration
ERP	Environmental Restoration Program
EQB	Environmental Quality Board
gpd	Gallons per Day
HEAST	Health Effects Assessment Summary Table
HHRA	Human Health Risk Assessment
HI	Hazard Index
HQ	Hazard Quotient
IRIS	Integrated Risk Information System
MCL	Maximum Contaminant Level
mg/kg	Milligram per Kilogram
MMOA	Mutagenic Mode of Action
NCEA	National Center for Environmental Assessment
OSWER	Office of Solid Waste and Emergency Response
PAH	Polycyclic Aromatic Hydrocarbon
PCB	Polychlorinated Biphenyl
PEF	Particulate Emission Factor
PRG	Preliminary Remediation Goal
PPRTV	Provisional Peer-Reviewed Toxicity Value
QAPP	Quality Assurance Project Plan
RAGS	Risk Assessment Guidance for Superfund
RBC	Risk-Based Concentration
RBSL	Risk-Based Screening Level
RI	Remedial Investigation

RfC	Reference Concentration
RfD	Reference Dose
RME	Reasonable Maximum Exposure
SVOC	Semivolatile Organic compound
TCE	Trichloroethene
UCL	Upper Confidence Limit
URF	Unit Risk Factor
VOC	Volatile Organic Compound

M.1 Introduction

M.1.1 Overview

This baseline Human Health Risk Assessment (HHRA) was prepared for Area of Concern (AOC) I in the Vieques Environmental Restoration Program (ERP). The HHRA was conducted to assess the potential risk to human health under potential future land use assumptions (the site is currently vacant). The overall approach and assumptions used in this HHRA are consistent with the HHRA protocol presented in the Final Master Quality Assurance Project Plan (QAPP) for sites in the ERP (CH2M HILL, 2007).

As presented in the Master QAPP and in accordance with EPA guidance documents, this HHRA consists of a four-step evaluation process comprising:

- Data evaluation
- Exposure assessment
- Toxicity assessment
- Risk characterization

M.1.2 Scope of the Risk Assessment

As stated previously, the risk assessment was prepared in accordance with the protocol in the Final Master QAPP for sites in the ERP (CH2M HILL, 2007), which is consistent with EPA Region II policy and EPA guidance, primarily: *Risk Assessment Guidance for Superfund (RAGS), Volume 1: Human Health Evaluation Manual, Parts A, D, and E* (EPA, 1989, 2001, and 2004a), *Exposure Factors Handbook* (EPA, 1997a), and *Human Health Evaluation Manual, Standard Default Exposure Factors* (EPA, 1991a). In addition, other EPA guidance documents were used and are cited in the text and tables.

The supporting tables for this HHRA are presented in RAGS Part D format (EPA, 2001) in Attachment 1. Therefore, the tables follow the standard numbering format required by EPA. Additional supporting tables (ProUCL Version 4.0 output) are presented in Attachment 2.

M.2 Data Evaluation

M.2.1 Data Used in the HHRA

The soil dataset used in the HHRA consists of soil samples collected during field investigations in November/December 2000 (Expanded PA/SI) and August/September 2004 (RI). The soil dataset for the 0-6 ft below ground surface (bgs) depth interval included 44 surface soil samples (26 samples from 0 to 6 inches; 18 samples from 0 to 2 feet) and 33 subsurface soil samples collected at various intervals within 2 to 6 feet bgs.

The groundwater dataset used in the HHRA consists of groundwater samples collected during September 2004 and January 2006. Groundwater samples were collected from seven locations in 2004 (MW-01 through MW-07) and six locations in 2006 (MW-01, MW-04, and MW-06 through MW-09). Analytical data from MW-08 and MW-09 were not used in the HHRA because these wells were installed outside of the groundwater plume to confirm plume delineation, and organics analytes were not detected in these samples.

- The soil and groundwater analyses used in this risk assessment are volatile organic compounds (VOCs), semivolatile organic compounds (SVOCs), pesticides/PCBs, and inorganics. The complete analytical dataset for these samples is included in Appendix K.

M.2.2 Selection of Chemicals of Potential Concern

The chemicals of potential concern (COPCs) are those chemicals that have the greatest potential to cause adverse human health effects if receptors come in contact with site media. For each environmental medium, COPCs were selected in accordance with the Final Master QAPP HHRA protocol (CH2M HILL, 2007). Chemicals that were considered essential nutrients (calcium, magnesium, potassium, and sodium) were not selected as COPCs, as they are only toxic at high doses.

M.2.2.1 Comparison to Screening Levels

For each analyte detected in soil and groundwater, the maximum detected concentration was compared to the analyte's human health risk-based screening levels (RBSLs). The following screening levels were used:

• **Soil—**EPA Region 9 Preliminary Remediation Goals (PRGs) for soil, issued in October 2004 (and revised in December 2004), based on residential and industrial scenarios, target excess lifetime cancer risk (ELCR) of 1×10^{-6} and adjusted for a target non-cancer hazard quotient (HQ) of 0.1 (EPA Region 9, 2004) were used for selecting COPCs for soil. For PRGs based on toxicity values that were updated in EPA's Integrated Risk Information System (IRIS; EPA, 2007a) subsequent to October 2004, screening levels were calculated using the EPA Region 9 PRG equations."

• **Groundwater—** EPA Region 9 PRGs for tap water, issued in October 2004 (and revised in December 2004), based on a target ELCR of 1×10^{-6} and adjusted for a target non-cancer HQ of 0.1 (EPA Region 9, 2004) were used for selecting COPCs for groundwater. As was done for soil, PRGs based on toxicity values that were updated in EPA's IRIS (EPA,2007a) subsequent to October 2004 were not used. Rather, updated screening levels were calculated using the EPA Region 9 PRG equations.

In accordance with the Master QAPP, the screening values used for each receptor group COPC selection are summarized in Table M-1.

TABLE M-1 SUMMARY OF RECEPTOR GROUPS AND ASSOCIATED SCREENING VALUES USED FOR COPC SELECTION

Receptor Group	Surface Soil (0-2 ft)	Total Soil (0-6 ft)	Groundwater
Maintenance Worker	Industrial PRGs	Not Applicable	Not Applicable
Industrial Worker	Not Applicable	Industrial PRGs	Tap Water PRGs
Construction Worker	Not Applicable	Industrial PRGs	Not Applicable[(1)]
Recreational User	Residential PRGs	Not Applicable	Not Applicable
Resident	Residential RPGs [(2)]	Residential PRGs [(3)]	Tap Water PRGs

[(1)] Groundwater too deep (~17 ft bgs) for contact during construction/excavation activities; [(2)] EPA's preferred soil depth for residential receptors; [(3)] EQB's preferred soil depth for residential receptors

M.2.2.2 Use of Surrogate Chemicals for Missing Screening Values

Soil screening values for benzo(g,h,i)perylene were not available from the EPA Region 9 PRG tables. Consistent with the Master QAPP, if a screening value for a constituent was not available from the EPA Region 9 PRG tables, the constituent was evaluated using the screening values for a surrogate chemical, if appropriate and available. Pyrene was selected as a surrogate chemical for benzo(g,h,i)perylene during the COPC selection process because of its structural similarity.

M.2.3 Chemicals of Potential Concern

The analytes with maximum detected concentrations exceeding RBSLs were identified as COPCs. Results of the COPC screening process for each environmental medium and receptor group are provided in Tables 2.1 through 2.3 of Attachment 1. Table M-2 summarizes the COPCs identified for each receptor/data group.

TABLE M-2 SUMMARY OF COPCS

Receptor	Recreational User/ Resident	Maintenance Worker	Resident	Industrial/ Construction Worker	Resident/ Industrial Worker
Data Group	Soil (0-2 ft)	Soil (0-2 ft)	Soil (0-6 ft)	Soil (0-6 ft)	Groundwater

TABLE M-2 SUMMARY OF COPCS

Receptor	Recreational User/ Resident	Maintenance Worker	Resident	Industrial/ Construction Worker	Resident/ Industrial Worker
Table	Table 2.1	Table 2.1a	Table 2.2	Table 2.2a	Table 2.3
Inorganics	aluminum, arsenic, iron, manganese, thallium, vanadium	arsenic, iron, vanadium	aluminum, arsenic, iron, manganese, thallium, vanadium	arsenic, iron, vanadium	antimony, arsenic, cadmium, iron, manganese, vanadium
VOCs	none	none	none	none	1,2-dichloroethane, 1,2-dichloropropane, benzene, trichloroethene
SVOCs	benzo(a)pyrene	none	benzo(a)pyrene	none	1,4-dichlorobenzene, 2-methylnaphthalene, bis(2-ethylhexyl)phthalate, dibenzofuran, naphthalene

M.3 Exposure Assessment

M.3.1 Identification of Exposure Pathways

In this subsection, potentially complete and incomplete exposure pathways are identified in accordance with the Master QAPP (CH2M HILL, 2007). A pathway is considered to be potentially complete if all of the following conditions are (or may be at some time in the future) present:

- A potential source or potential chemical release from a source
- An exposure point where contact can occur
- A receptor at the exposure point
- An exposure route by which contact can occur (e.g., ingestion)

If all of these conditions were not met, the pathway was concluded to be incomplete and was not considered further in the HHRA, as discussed below. Figure M-1 illustrates a diagrammatic conceptual model for potential human exposure.

M.3.2 Exposure Pathways to be Quantified

AOC I is currently vacant and unused property. Access to the site is restricted by fencing and a locked gate across the only road entrance to the site. A steep embankment with thick brush adjacent to a drainage ditch restricts access along the eastern site boundary. Use of the adjacent rock quarry affects the accessibility of the site. The entrance gate is kept locked when quarry operations are not being conducted, requires a key to access, and is used by truck drivers who need to drive across the site to access the adjacent quarry. It is unlikely drivers exit their trucks while driving across AOC I. The truck drivers are required to lock the gate each time they leave the site. Therefore, there are likely no current trespassers or other exposed populations at the site.

Various potential future exposure pathways were quantified in the HHRA. The following potential exposures were estimated for the indicated receptors:

- **Recreational User –** Ingestion, dermal contact, and inhalation of COPCs in surface soil (0-2 ft) were quantified for adult, youth, and child recreators.
- **Resident –** Various exposure pathways were quantified for a potential future resident[1]:
    - ***Soil*** - Ingestion, dermal contact, and inhalation exposures to COPCs in surface soil (0-2 ft) and total soil (0-6 ft) were quantified for adult and child residents.
    - ***Groundwater*** - Ingestion and dermal exposures to COPCs in groundwater were quantified for adult and child residents.

[1] Residential land use is not anticipated at AOC I.

- ***Bathroom Air*** - Inhalation exposures to bathroom air (as a result of adult showering and child bathing) from tap water use were quantified for residents.

- **Maintenance Worker –** Ingestion, dermal contact, and inhalation exposures to COPCs in surface soil (0-2 ft) were quantified for maintenance workers.
- **Industrial Worker –** The following exposure pathways were quantified for a potential future industrial worker:
  - ***Soil*** – Ingestion, dermal contact, and inhalation exposures to COPCs in total soil (0-6 ft) were quantified for industrial workers.
  - ***Groundwater*** - Ingestion and dermal contact exposures to COPCs in groundwater were quantified based on drinking water and hand washing scenarios.
- **Construction Worker –** Ingestion, dermal contact, and inhalation of COPCs in total soil (0-6 ft) were quantified for a potential future construction worker.

Exposure to groundwater at AOC I for a potential future construction worker scenario was not evaluated since the depth to groundwater exceeds typical construction depths. Construction worker depths are assumed to be within the 0-6 ft interval and groundwater around AOC I is approximately 17 ft below grade. Therefore, the groundwater pathway for a potential future construction worker engaging in excavation activities is incomplete.

M.3.3 Quantification of Exposure

To evaluate the potentially complete exposure pathways further, the magnitude, frequency, and duration of exposures were quantified. Exposure point concentrations (EPCs) were identified and pathway-specific intakes were estimated. EPA guidance (1989) recommends selecting intake variable values for a given pathway so that the combination of all intake variable values results in an estimate of the reasonable maximum exposure (RME) for that pathway. EPA recommends using upper-bound parameter values (as opposed to average values) for chemical concentration, exposure frequency, and exposure duration. EPA guidance recommends that the contact rate be a value that represents the 95th percentile.

M.3.3.1 Exposure Point Concentrations

The EPCs for each exposure medium and receptor group are provided in Tables 3.1 through 3.3 of Attachment 1. For COPCs having less than two detected concentrations, the maximum detected concentration was used as the EPC for that data grouping (EPA, 2007a).

The upper confidence limit (UCL) on the mean concentration was used as the EPC for each COPC identified for a receptor group where the number of detected concentrations was two or more and where eight or more samples are available in the dataset. EPCs were identified following the most recent parametric (distributional) and nonparametric EPA recommendations offered in ProUCL (USEPA, 2007a). Version 4 of ProUCL offers approaches for calculating UCLs of the mean, particularly when nondetects are present. These approaches consider a large variety of inputs including the perceived distribution of the detected results (if no perceived distribution is acceptable, nonparametric alternatives are offered), sample size, variability, and skewness.

The ProUCL decision tree for UCLs of the mean is very large, with parametric approaches with nondetects centering on maximum likelihood estimates for use as proxy substitutions. These estimates attempt to complete the censored left tail of the data using information available from the available detected data. The distributions available in ProUCL include normal, lognormal, and gamma distributions.

Nonparametric approaches are available when a discernable distribution cannot be identified. When non-detects are present, the primary nonparametric approach involves the Kaplan-Meier approach. Depending on the data, the Kaplan-Meier approach may be applied with aspects of a student t approach or one of various "bootstrap" approaches. When all results are detected, other nonparametric approaches (i.e.,. the Chebyshev approach) are used. The recommended UCL from the ProUCL output was used as the EPC. The UCL concentrations are presented in Tables 3.1 through 3.3 of Attachment 1, and the ProUCL output is provided in Attachment 2."

For the residential scenario, EPCs were calculated for surface soil (0-2 ft bgs) and total soil (0-6 ft bgs) to address both EPA's preferred approach (using 0-2 ft bgs) and EQB's preferred approach (using 0-6 ft bgs). The higher of the two EPCs for each COPC was used in the risk calculations to produce a conservative risk estimate. The EPCs for total soil were used for all inorganic COPCs, while the EPC for surface soil was used for benzo(a)pyrene (Table 3.2 Supplement of Attachment 1).

For most EPCs, measured concentrations were used in the HHRA. However, modeled concentrations were used as EPCs when evaluating inhalation exposures to volatile constituents and particulates in air. Ambient air EPCs (resulting from particulate emissions from soil) and bathroom air EPCs (resulting from volatilization from tap water use for showering and bathing) were modeled based on the measured soil and groundwater concentrations, respectively.

A site-specific particulate emission factor (PEF) was calculated for use in intake calculations for recreational users and residents (Table 4 RME Supplement C-1 of Attachment 1). Climate Zone 9 (based on Miami, FL) and a 1-acre areal extent of site contamination (based on the approximate area where COPCs were detected in soil) were used in the site-specific PEF calculation. Additionally, a receptor-specific PEF was calculated for a construction worker scenario because increased fugitive dusts may be emitted from soil by construction vehicle traffic on temporary unpaved roads and other construction activities. Table 4 RME Supplement C-2 of Attachment 1 presents equations and exposure assumptions used to calculate a PEF for the construction worker scenario.

Bathroom air EPCs were calculated for volatile groundwater COPCs using the Andelman Model (modified by Schaum et al., 1994); the input assumptions (e.g., time in shower or bath, tap water flow rate) used in the Andelman Model to calculate the EPCs are presented in Table 3.3 Supplement A (Child and Adult) of Attachment 1.

M.3.3.2 Exposure Factors

A RME scenario was quantified for potential future recreational users, maintenance workers, construction workers, industrial workers, and residents (EPA, 1989). The term "RME" refers to a type of high-end exposure estimated through the use of these default values. The high-end exposure is typically used as the basis for action at a Superfund site.

The exposure factors used in the RME intake calculations are consistent with the Master QAPP (CH2M HILL, 2007) and are presented in Tables 4.1 through 4.6 of Attachment 1. The primary references for exposure factors are standard default exposure factors presented in EPA guidance (EPA, 1991a; EPA, 1997a; EPA, 2002a; EPA, 2004).

The exposure factors were used to calculate chronic daily intakes (CDIs; for all receptors except construction workers) and subchronic daily intakes (SDIs; for construction workers) for COPCs in surface soil, total soil, and groundwater. The intake equations used to calculate CDIs and SDIs for each exposure pathway are presented in Tables 4.1 through 4.6 of Attachment 1.

M.3.3.3 Exposure Factors for Chemicals with Mutagenic Mode of Action

In accordance with EPA guidance, COPCs with a mutagenic mode of action (MMOA) require separate exposure evaluations for age ranges 0 to <2, 2 to <16, and 16 and older (EPA, 2005) due to toxicity adjustments required for these age ranges. Age groups and associated exposure parameters used in the HHRA for the MMOA calculations are presented in Tables 4.1 Supplement A through 4.6 Supplement A of Attachment 1.

M.4 Toxicity Assessment

In accordance with the Master QAPP HHRA protocol (CH2M HILL, 2007) and EPA guidance, a tiered approach was used to obtain toxicity values to estimate non-cancer and cancer risks. The following hierarchy of sources was used to obtain toxicity data:

- Tier I Toxicity Criteria: Integrated Risk Information System (IRIS) (EPA, 2007b).
- Tier II Toxicity Criteria: Provisional Peer-Reviewed Toxicity Values (PPRTVs; as presented in EPA Region 9, 2004) and other provisional toxicity criteria from the National Center for Environmental Assessment [NCEA; EPA, 2007c].
- Tier III Toxicity Criteria: Health Effects Assessment Summary Tables [HEAST; EPA, 1997b] and other peer-reviewed sources.

M.4.1 Non-Carcinogenic Toxicity Values

Non-carcinogenic toxicity values (oral reference doses [RfDs] and inhalation reference concentrations [RfCs]) were used in estimating potential adverse health effects associated with exposure to COPCs. Toxicity data for potential non-carcinogenic effects of COPCs are presented in Tables 5.1 and 5.2 of Attachment 1.

M.4.2 Carcinogenic Toxicity Values

Carcinogenic toxicity values (cancer slope factors [CSFs] and unit risk factors [URFs]) were used in evaluating potential carcinogenic effects associated with exposure to known, probable, or possible carcinogens having an EPA weight-of-evidence classification of A, B, or C, respectively. CSFs and URFs were used to estimate upper-bound lifetime statistical probabilities of a hypothetical individual developing cancer as a result of exposure to a particular level of a potential carcinogen. Toxicity data for potential carcinogenic effects for COPCs are presented in Tables 6.1 and 6.2 of Attachment 1.

M.4.3 Derivation of Dermal Toxicity Values

Oral RfDs and CSFs were converted to dermal RfDs and CSFs using an oral-to-dermal adjustment factor. The values used for this conversion were obtained from RAGS Part E (Supplemental Guidance for Dermal Risk Assessment), Section 4.2 and Exhibit 4-1 (EPA, 2004). Following EPA's recommendation, such a conversion was performed only when a chemical has a gastrointestinal absorption factor of less than 50%. If a chemical-specific adjustment factor was not available, a default value of 100% was used.

M.4.4 Toxicity Values for TCE

In accordance with the preferred approach currently used by the Department of Defense, toxicity values presented in the Cal/EPA toxicity criteria database were used for trichloroethene (TCE) since toxicity values are not provided in EPA's IRIS database. In addition, the draft EPA toxicity values for TCE were used to calculate a second set of risk estimates that are discussed in the Uncertainty section (Section 6). This approach is not precedent-setting for all of Vieques, but is being used at AOC I because the site is not a TCE site (few very low detections of TCE in soil and groundwater).

M.5 Risk Characterization

Potential human health risks are discussed independently for carcinogenic and non-carcinogenic COPCs because of the different toxicological endpoints, relevant exposure durations, and methods used to characterize risk. The estimated risks associated with chemicals within background levels are discussed in Section 5.5 so that the portion of the total estimated risk that is attributable to background concentrations can be evaluated and used in risk management decisions, in accordance with EPA guidance (2002b).

EPA Superfund guidance generally considers an acceptable site ELCR range to be within 1 to 100 in a million ($1x10^{-6}$ to $1x10^{-4}$). Generally, remedial actions are not warranted at sites with risks below $1x10^{-4}$ or a Hazard Index (HI) less than 1.0 (**EPA, 1991b**). If the cumulative ELCR is less than $1x10^{-4}$, action generally is not required, but may be warranted if another standard (for example, maximum contaminant level [MCL]) is exceeded, or if other site-specific information suggests to risk managers that action is appropriate.

Chemicals of concern (COCs) were identified for each receptor group where the ELCR or HI exceeded threshold values (a total ELCR greater than $1x10^{-4}$ or a target organ-specific HI greater than 1.0). The receptor scenarios and exposure pathways that were estimated to exceed threshold values are presented in Tables 10.5 through 10.7 of Attachment 1. When an ELCR of $1x10^{-4}$ was exceeded, the COPCs posing an individual ELCR greater than $1x10^{-6}$ in the environmental medium responsible for the unacceptable risk for a receptor were identified as COCs. When a target organ-specific HI exceeded 1.0, the COPCs posing an individual HQ greater than 0.10 for that target organ in the environmental medium responsible for the unacceptable risk were identified as COCs. It should be noted that inorganic COPCs that are likely attributable to background levels were not identified as COCs. The COCs for media exceeding threshold levels are discussed in Section 5.6.

M.5.1 Approach for Potential Non-Carcinogenic Effects

The HHRA evaluated the potential for non-carcinogenic effects by comparing exposure intakes of each COPC over a specified time period (i.e., chronic or subchronic) with RfDs derived for similar exposure periods. In EPA methodology, this ratio of exposure to toxicity is referred to as a HQ. The HQ assumes that there is a level of exposure below which it is unlikely for even sensitive populations to experience adverse health effects. If the exposure level exceeds this threshold, there is the potential for non-cancer health effects to occur. The HQ is calculated as follows:

$$HQ = \frac{Intake}{RfD}$$

Intake and RfD are expressed in the same units (mg/kg-day) and represent the same exposure period (e.g., chronic). The intake and RfD also represent the same exposure route (e.g., oral intakes are divided by the oral RfDs). A HQ that exceeds 1.0 (i.e., intake exceeds

the RfD) indicates that there is a potential for adverse health effects associated with exposure to that COPC.

To assess the potential for non-carcinogenic health effects posed by exposure to multiple COPCs and exposure routes, a HI approach was used (EPA, 1989). This approach assumes that non-carcinogenic hazards associated with exposure to more than one COPC and exposure route are additive. Synergistic or antagonistic interactions between COPCs are not quantified. The HI may exceed 1.0 even if all of the individual HQs are less than 1.0. The HI is equal to the sum of the HQs and is calculated as follows:

$$HI = \frac{I_1}{RfD_1} + \frac{I_2}{RfD_2} + \ldots \frac{I_i}{RfD_i}$$

where:

I = Intake level (mg/kg-day)

RfD = Reference dose (mg/kg-day)

I_i = Intake level for the "*i*"th constituent

RfD_i = Reference dose for the "*i*"th constituent

HIs were calculated in a phased approach. Screening HIs were calculated by summing all HQs for a receptor for the appropriate exposure media (e.g., surface soil and groundwater), and final HIs were calculated for each potential receptor by target organ (or target effect or target system). If a final HI exceeds 1.0, there is a potential for a non-carcinogenic effect on that target organ/effect/system.

M.5.2 Approach for Potential Carcinogenic Effects

The potential for carcinogenic effects due to exposure to site-related contamination was evaluated by estimating the ELCR. The ELCR is the incremental increase in the probability of developing cancer during one's lifetime (as a result of exposure to site media) above the probability of developing cancer from non-site-related causes.

Potential ELCRs associated with exposure to individual carcinogens were calculated using CSFs and the CDIs. The linear low-dose equation was used to estimate the incremental probability of an individual developing cancer over a lifetime as a result of exposure to the potential carcinogen. Estimated ELCRs are calculated by multiplying the CDI by the CSF.

$$ELCR = CDI \times CSF$$

where:

ELCR = unitless probability of an individual developing cancer

CDI = chronic daily intake averaged over 70 years

CSF = cancer slope factor

The theoretical probability of a receptor developing cancer as a consequence of exposure to two or more COPCs and by two or more exposure pathways was calculated by summing the risk estimates for each COPC in the appropriate scenarios using the following equation:

$$Total\ \ ELCR = (I_1 \times SF_1) + (I_2 \times SF_2) + \ldots (I_i \times SF_i)$$

where:

I = Intake level (mg/kg-day)

CSF = Cancer slope factor $(mg/kg\text{-}day)^{-1}$

I_i = Intake level for the '*i*'th constituent

CSF_i = Cancer slope Factor for the '*i*'th constituent

M.5.3 Approach for Potential Mutagenic Effects

Consistent with the Cancer Guidelines and Supplemental Guidance (EPA, 2005a and 2005b), for COPCs which act via a MMOA, ELCRs were estimated using age-dependent adjustment factors (ADAFs). Benzo(a)pyrene was the only COPC at AOC I that is categorized as a chemical with a MMOA. All carcinogenic polycyclic aromatic hydrocarbons (PAHs) are considered by EPA to follow the MMOA and are typically evaluated using ADAFs as a group of chemicals even when the maximum detected concentrations of some of the PAHs are below the respective screening values. However, since no other carcinogenic PAHs were identified as COPCs at AOC I, the estimation of ELCR using ADAFs was conducted on benzo(a)pyrene in this HHRA. The calculation of ELCR using ADAFs is presented in Tables 7.3 RME Supplement A and 7.7 RME Supplement A of Attachment 1.

M.5.4 Summary of Risk Estimates

Potential exposures to soil and groundwater were quantified for the RME scenarios identified below. The calculated ELCRs and HIs are as follows:

- **Future Recreational Adult/Youth**
  - Surface Soil - ingestion, dermal contact, and inhalation
  - ELCR $<1x10^{-6}$ and all target organ-specific HIs<1.0 (Table 7.1 RME and Table 7.2 RME, summarized in Table 9.1 RME and Table 9.2 RME)
- **Future Recreational Child**
  - Surface Soil - ingestion, dermal contact, and inhalation
  - $3x10^{-6}$ ELCR and all target organ-specific HIs<1.0 (Table 7.3 RME, summarized in Table 9.3 RME)
- **Future Maintenance Worker**
  - Surface Soil - ingestion, dermal contact, and inhalation
  - ELCR $<1x10^{-6}$ and all target organ-specific HIs<1.0 (Table 7.4 RME, summarized in Table 9.4 RME)
- **Future Residential Child/Adult**

- Soil - ingestion, dermal contact, and inhalation
- Groundwater – ingestion, dermal contact, and inhalation (through showering or bathing)
- Three target organ-specific HIs>1.0 for an adult (kidney [1.4]; respiratory [5]; and skin [1.4]) (Table 7.5 RME, summarized in Table 9.5 RME)
- Six target organ-specific HIs>1.0 for a child (blood [3]; GI system [1.5]; kidney [5]; nervous system [1.1]; respiratory [40]; and skin [3]) (Table 7.6 RME, summarized in Table 9.6 RME)
- $4x10^{-4}$ ELCR (primarily associated with benzo(a)pyrene and arsenic in soil, and 1,2-dichloroethane, benzene, bis(2-ethylhexyl)phthalate, and arsenic in groundwater) (Table 7.7 RME, summarized in Table 9.7 RME)

- **Future Construction Worker**
  - Surface Soil - ingestion, dermal contact, and inhalation
  - ELCR $<1x10^{-6}$ and all target organ-specific HIs<1 (Table 7.8 RME, summarized in Table 9.8 RME)

- **Future Industrial Worker**
  - Total Soil – ingestion, dermal contact, and inhalation
  - Groundwater – ingestion and dermal contact
    $8x10^{-5}$ ELCR (primarily associated with benzene and arsenic in groundwater) and all target organ-specific HIs<1 (Table 7.9 RME, summarized in Table 9.9 RME)

M.5.5 Potential Risks Attributable to Background Concentrations

The maximum detected concentrations of inorganics in surface and total soil were compared to site-specific background soil concentrations historically established for soil type "Qa" on West Vieques. The method used for development of background levels in soil is presented in Appendix E of the *Final Soil, Groundwater, Surface Water, and Sediment Background Investigation Report* (CH2M HILL, 2002) and consisted of calculating the upper 95% tolerance limit (UTL95%) for each inorganic.

As indicated in Section 4.2, detected concentrations of the six inorganic COPCs in soil are likely associated with background concentrations. However, it is important to note that no inorganics were eliminated as COPCs based on comparison to background concentrations. The risk estimates associated with potential exposures to inorganic COPCs in soil (as presented in Tables 9.1 RME through 9.9 RME) are as follows (Table M-3):

TABLE M-3 ESTIMATED RISKS FOR INORGANIC SOIL COPCS

Receptor	ELCR	Screening HI
Recreational Adult	$4x10^{-7}$	0.09
Recreational Youth	$3x10^{-7}$	0.2
Recreational Child	$8x10^{-7}$	0.7

TABLE M-3 ESTIMATED RISKS FOR INORGANIC SOIL COPCS

Resident	$4x10^{-6}$	0.3 (Adult), 3 (Child); target organ-specific HI>1.0
Industrial Worker	$1x10^{-6}$	0.2
Construction Worker	$1x10^{-7}$	0.2
Maintenance Worker	$2x10^{-7}$	0.03

For groundwater, the maximum detected concentrations of inorganics were compared to background groundwater quality represented by the maximum concentrations detected in monitoring well MW-01. Five inorganic COPCs in groundwater (antimony, arsenic, cadmium, manganese, and vanadium) are likely attributable to background (Section 4.2.2). Therefore, these five groundwater COPCs are not expected to be related to historic operations at AOC I. However, these inorganics were not eliminated as COPCs based on comparison to background concentrations. At one location in groundwater, iron may be associated with a localized impact.

The risk estimates associated with potential exposures to these five inorganic COPCs in groundwater (as presented in Tables 9.5 RME, 9.6 RME, 9.7 RME. and 9.9 RME) are as follows (Table M-4):

TABLE M-4 ESTIMATED RISKS FOR INORGANIC GROUNDWATER COPCS ASSOCIATED WITH BACKGROUND

Receptor	ELCR	Screening HI
Resident	$3x10^{-4}$	3 (Adult), 7 (Child); target organ-specific HI>1.0
Industrial Worker	$8x10^{-5}$	1

M.5.6 Summary of Chemicals of Concern

For receptors with potential risks exceeding threshold values, the COCs are presented in Table M-5. Inorganics that are likely wholly or primarily attributable to background levels were not identified as COCs.

TABLE M-5 SUMMARY OF COCS

Receptor	Soil COCs	Groundwater COCs
Recreational User	None	Not applicable
Resident	None	benzene, 1,2-dichloroethane, 1,2-dichloropropane, bis(2-ethylhexyl)phthalate, 2-methylnaphthalene, naphthalene,
Industrial Worker	None	None
Construction Worker	None	Not applicable
Maintenance Worker	None	Not applicable

M.6 Uncertainty Analysis

The assumptions used in the HHRA have inherent uncertainty. While it is theoretically possible that this leads to underestimates of potential risk, the use of numerous upper-bound assumptions most likely results in conservative estimates of potential risks. An individual's potential exposure and subsequent potential risk are influenced by their individual exposure scenario and dose/response and will vary on a case-by-case basis. Despite inevitable uncertainties associated with the steps used to estimate potential risks, the use of numerous health-protective assumptions will most likely result in a protective estimate of potential health risks for site receptors.

The key assumptions in the HHRA and their influences on the numerical risk estimates are presented in Table M-6. Additionally, specific uncertainties associated with the HHRA for AOC I are discussed below.

There is uncertainty associated with the TCE toxicity values used in the HHRA. In accordance with the current Department of Defense preferred approach, toxicity values presented in the Cal/EPA toxicity criteria database were used for TCE in this HHRA. This approach is not precedent-setting for Vieques as a whole, but is being used at AOC I because it is not a TCE site (few detections of TCE in soil and groundwater). The ratio of the Cal/EPA and the draft provisional NCEA toxicity values for TCE was applied directly to the risk estimates (associated with the Cal/EPA toxicity values) to develop risk estimates using draft provisional NCEA toxicity values, and the results are summarized in Table M-7 and in the following bullets:

- The estimated non-cancer HQs for both future adult and child residents were far below the target level of 1.0 using both toxicity sources
- For a future aggregate resident, the estimated ELCR from TCE was $3x10^{-7}$ using Cal/EPA toxicity values and $1x10^{-5}$ using draft provisional NCEA toxicity values
- For a future industrial worker, the estimated ELCR from TCE was $7x10^{-8}$ using Cal/EPA toxicity values and $2x10^{-6}$ using draft provisional NCEA toxicity values
- The risk estimates for both future residents and industrial workers based on both toxicity sources were less than or equal to a $1x10^{-5}$ excess lifetime cancer risk (ELCR) level, which was used as the upper end of the acceptable cancer risk range for TCE (based on the Cal/EPA toxicity value), as opposed to the $1x10^{-4}$ ELCR level typically used by EPA under CERCLA to define the upper end of the acceptable risk management range

The estimated ELCR and target organ-specific HI associated with groundwater exposures exceeded the target levels for future residential receptors. Although potable use of groundwater was quantified, Vieques is served by the public water supply from the mainland of Puerto Rico, and it is expected that the public water supply would be used in the future. Additionally, many of the inorganic groundwater COPCs identified at AOC I are ubiquitous and not related to historic site use. Therefore, the high concentrations of these chemicals are likely attributed to naturally-occurring background concentrations.

During the COPC selection process, chemicals that were detected in soil and groundwater at concentrations within background levels were retained in the risk calculations. The EPCs for the six inorganic COPCs (aluminum, arsenic, iron, manganese, thallium, and vanadium) in soil were likely associated with background concentrations. In addition, the EPCs for four inorganic COPCs (antimony, arsenic, cadmium, and vanadium) in groundwater were likely associated with background concentrations. Therefore, inclusion of these chemicals in the risk evaluation overestimates site-related risks.

TABLE M-6 UNCERTAINTIES IN THE HUMAN HEALTH RISK ASSESSMENT

Category	Methodology	Probable Effect on Risk Estimates
DATA EVALUATION		
Selection of COPCs	Inorganic chemicals detected in soil or groundwater at concentrations likely associated with background levels were retained as COPCs.	Site-related risks are overestimated
EXPOSURE ASSUMPTIONS		
Selection of exposure scenarios and exposure pathways	Potable use of groundwater was evaluated in the HHRA even though it is unlikely that groundwater at AOC I will be used as a potable water source in the future.	Likely overestimates future risks
Use of the 95 percent UCL on the arithmetic mean as the EPC.	Receptors are assumed to be exposed to the 95 percent UCL concentration for the entire exposure duration.	Likely overestimates risks
TOXICITY ASSESSMENT		
Absence of toxicity values	Non-cancer and cancer risks were not evaluated for one COPC (dibenzofuran) in groundwater due to unavailable toxicity values.	Underestimates non-cancer risks
Toxicity values derived from animal studies	Uncertainty factors for various COCs are high (3000 for naphthalene and 1,2-dichloroethane).	Likely overestimates risks
Toxicity values for TCE	Toxicity values from the Cal/EPA toxicity criteria database were used for TCE in the HHRA. A second set of risk estimates was calculated based on the draft EPA toxicity values for TCE.	May under- or overestimate risks
RISK CHARACTERIZATION		
Risk from multiple chemicals	Assumes additivity of risks from multiple chemicals; chemical mixtures may actually have synergistic or antagonistic effects.	May under- or overestimate risks

TABLE M-7

Comparison of Estimated Risks Associated with Trichloroethene Exposures based on CalEPA Toxicity Values and NCEA Provisional Values

Baseline Human Health Risk Assessment

Former NASD, Vieques, Puerto Rico

	California EPA Toxicity Value					NCEA Provisional Values				
	RfD_{inh}	CSF_{oral}	CSF_{derm}	CSF_{inh}		RfD_{inh}	CSF_{oral}	CSF_{derm}	CSF_{inh}	
	1.7E-01	1.3E-02	1.3E-02	7.0E-03		1.0E-02	4.0E-01	4.0E-01	4.0E-01	
	Estimated HQ/ELCR					Estimated HQ/ELCR				
Receptor Group:	HQ_{inh}	$ELCR_{oral}$	$ELCR_{derm}$	$ELCR_{inh}$	$ELCR_{total}$	HQ_{inh}	$ELCR_{oral}$	$ELCR_{derm}$	$ELCR_{inh}$	$ELCR_{total}$
Future Resident										
Adult	4.5E-04	--	--	--	--	7.6E-03	--	--	--	--
Child	2.7E-03	--	--	--	--	4.7E-02	--	--	--	--
Adult/Child Aggregate	--	2.72E-07	1.59E-08	1.43E-08	3E-07	--	8.36E-06	4.91E-07	8.16E-07	1E-05
Future Industrial Worker	--	6.36E-08	1.91E-09	--	7E-08	--	1.96E-06	5.86E-08	--	2E-06

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Appendix M
Attachment 1
Risk Assessment Guidance for Superfund (RAGS) Part D Tables

TABLE 1
SELECTION OF EXPOSURE PATHWAYS
AOC-I
Former NASD, Vieques, Puerto Rico

Scenario Timeframe	Medium	Exposure Medium	Exposure Point	Receptor Population	Receptor Age	Exposure Route	On-Site/ Off-Site	Type of Analysis	Rationale for Selection or Exclusion of Exposure Pathway
Future	Surface Soil (0-2 ft)	Surface Soil	AOC-I Surface Soil	Recreational	Adult	Dermal	On-site	Quant	Recreational receptors may contact surface soil.
						Ingestion	On-site	Quant	Recreational receptors may contact surface soil.
					Youth	Dermal	On-site	Quant	Recreational receptors may contact surface soil.
						Ingestion	On-site	Quant	Recreational receptors may contact surface soil.
					Child	Dermal	On-site	Quant	Recreational receptors may contact surface soil.
						Ingestion	On-site	Quant	Recreational receptors may contact surface soil.
		Air	Emissions from AOC-I Surface Soil	Recreational	Adult	Inhalation	On-site	Quant	Recreational receptors may inhale dust from surface soil.
					Youth	Inhalation	On-site	Quant	Recreational receptors may inhale dust from surface soil.
					Child	Inhalation	On-site	Quant	Recreational receptors may inhale dust from surface soil.
	Surface Soil (0-2 ft)	Surface Soil	AOC-I Surface Soil	Residential (1)	Adult	Dermal	On-site	Quant	The site is not expected to be developed for residential use; however, the residential scenario is conservatively included.
						Ingestion	On-site	Quant	The site is not expected to be developed for residential use; however, the residential scenario is conservatively included.
					Child	Dermal	On-site	Quant	The site is not expected to be developed for residential use; however, the residential scenario is conservatively included.
						Ingestion	On-site	Quant	The site is not expected to be developed for residential use; however, the residential scenario is conservatively included.
				Maintenance Worker	Adult	Dermal	On-site	Quant	Based on likely occupational duties, it is assumed that maintenance workers may come in contact with surface soil.
						Ingestion	On-site	Quant	Based on likely occupational duties, it is assumed that maintenance workers may come in contact with surface soil.
		Air	Emissions from AOC-I Surface Soil	Residential (1)	Adult	Inhalation	On-site	Quant	The site is not expected to be developed for residential use; however, the residential scenario is conservatively included.
					Child	Inhalation	On-site	Quant	The site is not expected to be developed for residential use; however, the residential scenario is conservatively included.
				Maintenance Worker	Adult	Inhalation	On-site	Quant	Based on likely occupational duties, it is assumed that maintenance workers may come in contact with surface soil.
	Total Soil (0-6 ft)	Total Soil	AOC-I Total Soil	Residential (2)	Adult	Dermal	On-site	Quant	The site is not expected to be developed for residential use; however, the residential scenario is conservatively included.
						Ingestion	On-site	Quant	The site is not expected to be developed for residential use; however, the residential scenario is conservatively included.
					Child	Dermal	On-site	Quant	The site is not expected to be developed for residential use; however, the residential scenario is conservatively included.
						Ingestion	On-site	Quant	The site is not expected to be developed for residential use; however, the residential scenario is conservatively included.
				Industrial Worker	Adult	Dermal	On-site	Quant	Industrial workers could contact subsurface and surface soil while performing occupational duties at the site.
						Ingestion	On-site	Quant	Industrial workers may be exposed to subsurface and surface soil via incidental ingestion.
				Construction Worker	Adult	Dermal	On-site	Quant	Construction workers could contact subsurface and surface soil while performing activities at the site.
						Ingestion	On-site	Quant	Construction workers could ingest subsurface and surface soil while performing activities at the site.
		Air	Emissions from AOC-I Total Soil	Residential (2)	Adult	Inhalation	On-site	Quant	The site is not expected to be developed for residential use; however, the residential scenario is conservatively included.
					Child	Inhalation	On-site	Quant	The site is not expected to be developed for residential use; however, the residential scenario is conservatively included.
				Industrial Worker	Adult	Inhalation	On-site	Quant	Industrial workers could inhale dust from subsurface and surface soil
				Construction Worker	Adult	Inhalation	On-site	Quant	Construction workers could inhale dust from subsurface and surface soil.
Future	Groundwater	Groundwater	Tap Water	Residential	Adult	Dermal	On-site	Quant	Although unlikely, groundwater is conservatively assumed as a future potable water supply. The adult is assumed to shower.
						Ingestion	On-site	Quant	Although unlikely, groundwater is conservatively assumed as a future potable water supply.
					Child	Dermal	On-site	Quant	Although unlikely, groundwater is conservatively assumed as a future potable water supply. The child is assumed to bathe.
						Ingestion	On-site	Quant	Although unlikely, groundwater is conservatively assumed as a future potable water supply.
				Industrial Worker	Adult	Dermal	On-site	Quant	Although unlikely, groundwater is conservatively assumed as a future potable water supply for industrial workers. Dermal exposures are assumed to occur from hand and face washing.
						Ingestion	On-site	Quant	Although unlikely, groundwater is conservatively assumed as a future potable water supply.
		Indoor Air	Water Vapors in Bathroom	Residential	Adult	Inhalation	On-site	Quant	Although unlikely, adult residents are assumed to inhale volatile groundwater constituents during showering.
					Child	Inhalation	On-site	Quant	Children are assumed to inhale volatile groundwater constituents while bathing.

(1) EPA's preferred soil depth is 0-2 ft.

(2) EQB's preferred soil depth is 0-6 ft.

TABLE 2.1
OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN
AOC-I
Former NASD, Vieques, Puerto Rico

Scenario Timeframe: Future
Medium: Soil
Exposure Medium: Surface Soil (Recreational and Residential)

Exposure Point	CAS Number	Chemical	Minimum Concentration	Qualifier	Maximum Concentration	Qualifier	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value (2)	Screening Toxicity Value (3)		Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag	Rationale for Selection or Deletion (4)
Surface Soil (0-2 ft)	75-35-4	1,1-Dichloroethene	4.3E-04	J	4.3E-04	J	MG/KG	AOCISB010	1 / 26	1.00E-02 - 1.20E-02	4.3E-04	NA	1.2E+01	nc	NA	NA	NO	BSL
	107-06-2	1,2-Dichloroethane	1.0E-03	J	1.0E-03	J	MG/KG	AOCISB022	1 / 26	1.00E-02 - 1.20E-02	1.0E-03	NA	2.8E-01	ca	NA	NA	NO	BSL
	78-93-3	2-Butanone	5.0E-03	J	5.0E-03	J	MG/KG	AOCISB005	1 / 7	1.00E-02 - 1.00E-02	5.0E-03	NA	2.2E+03	nc	NA	NA	NO	BSL
	108-10-1	4-Methyl-2-pentanone	2.8E-03	J	2.8E-03	J	MG/KG	AOCISB002	1 / 26	1.00E-02 - 1.20E-02	2.8E-03	NA	5.3E+02	nc	NA	NA	NO	BSL
	208-96-8	Acenaphthylene	1.0E-01	J	1.0E-01	J	MG/KG	NDAISS39	1 / 40	3.31E-01 - 9.46E-01	1.0E-01	NA	3.7E+02	nc	NA	NA	NO	BSL
	67-64-1	Acetone	6.7E-03	J	6.7E-03	J	MG/KG	AOCISB014	1 / 2	1.00E-02 - 1.00E-02	6.7E-03	NA	1.4E+03	nc	NA	NA	NO	BSL
	7429-90-5	Aluminum	1.4E+04		2.5E+04		MG/KG	AOCISB020	26 / 26	4.10E+01 - 4.90E+01	2.5E+04	2.9E+04	7.6E+03	nc	NA	NA	YES	ASL
	120-12-7	Anthracene	5.5E-02	J	6.5E-02	J	MG/KG	NDAISS36	2 / 40	3.31E-01 - 9.46E-01	6.5E-02	NA	2.2E+03	nc	NA	NA	NO	BSL
	7440-36-0	Antimony	8.0E-01	J	1.5E+00	J	MG/KG	AOCISB003, AOCISB012	26 / 26	1.20E+01 - 1.50E+01	1.5E+00	2.3E+00	3.1E+00	nc	NA	NA	NO	BSL
	7440-38-2	Arsenic	7.7E-01	J	2.0E+00	J	MG/KG	AOCISB006, AOCISB019	26 / 26	2.10E+00 - 2.50E+00	2.0E+00	2.2E+00	3.9E-01	ca	NA	NA	YES	ASL
	7440-39-3	Barium	2.6E+01	J	6.5E+01		MG/KG	AOCISB020	26 / 26	4.10E+01 - 4.90E+01	6.5E+01	3.2E+02	1.5E+03	calc	NA	NA	NO	BSL
	71-43-2	Benzene	2.7E-04	J	1.2E-03	J	MG/KG	AOCISB003	2 / 26	1.00E-02 - 1.20E-02	1.2E-03	NA	6.4E-01	ca	NA	NA	NO	BSL
	56-55-3	Benzo(a)anthracene	5.9E-02	J	6.8E-02	J	MG/KG	NDAISS39	3 / 40	3.31E-01 - 9.46E-01	6.8E-02	NA	6.2E-01	ca	NA	NA	NO	BSL
	50-32-8	Benzo(a)pyrene	3.4E-02	J	1.5E-01	J	MG/KG	NDAISS39	4 / 40	3.31E-01 - 9.46E-01	1.5E-01	NA	6.2E-02	ca	NA	NA	YES	ASL
	205-99-2	Benzo(b)fluoranthene	1.4E-01	J	2.0E-01	J	MG/KG	NDAISS39	2 / 40	3.31E-01 - 9.46E-01	2.0E-01	NA	6.2E-01	ca	NA	NA	NO	BSL
	191-24-2	Benzo(g,h,i)perylene	4.8E-02	J	1.7E-01	J	MG/KG	NDAISS39	2 / 34	3.31E-01 - 9.46E-01	1.7E-01	NA	2.3E+02	nc	NA	NA	NO	BSL
	207-08-9	Benzo(k)fluoranthene	4.0E-02	J	1.5E-01	J	MG/KG	NDAISS32	3 / 40	3.31E-01 - 9.46E-01	1.5E-01	NA	6.2E+00	ca	NA	NA	NO	BSL
	7440-41-7	Beryllium	1.1E-01	J	4.2E-01	J	MG/KG	AOCISB020	23 / 26	1.00E+00 - 1.20E+00	4.2E-01	4.5E-01	1.5E+01	nc	NA	NA	NO	BSL
	117-81-7	bis(2-Ethylhexyl)phthalate	4.9E-02	J	3.9E+00	J	MG/KG	AOCISB011	13 / 40	3.31E-01 - 9.46E-01	3.9E+00	NA	3.5E+01	ca	NA	NA	NO	BSL
	7440-43-9	Cadmium	5.2E-01	J	5.2E-01	J	MG/KG	AOCISB022	1 / 26	1.00E+00 - 1.20E+00	5.2E-01	3.6E-02	3.7E+00	nc	NA	NA	NO	BSL
	7440-70-2	Calcium	7.2E+03		5.2E+04		MG/KG	AOCISB016	26 / 26	1.03E+03 - 1.23E+03	5.2E+04	4.5E+04	NA	NA	NA	NA	NO	NUT
	7440-47-3	Chromium	3.1E+01		1.1E+02	J	MG/KG	AOCISB020	43 / 43	1.19E+00 - 2.50E+00	1.1E+02	7.4E+01	2.1E+02	ca	NA	NA	NO	BSL
	18540-29-9	Chromium, hexavalent	2.3E-01	J	1.6E+00	J	MG/KG	NDAISS27	16 / 17	1.02E+00 - 1.15E+00	1.6E+00	NA	2.2E+01	nc	NA	NA	NO	BSL
	218-01-9	Chrysene	6.8E-02	J	1.4E-01	J	MG/KG	NDAISS39	3 / 40	3.31E-01 - 9.46E-01	1.4E-01	NA	6.2E+01	ca	NA	NA	NO	BSL
	7440-48-4	Cobalt	1.2E+01		2.7E+01		MG/KG	AOCISB006	26 / 26	1.00E+01 - 1.20E+01	2.7E+01	3.3E+01	1.4E+02	nc	NA	NA	NO	BSL
	7440-50-8	Copper	4.0E+01		1.0E+02		MG/KG	AOCISB005	26 / 26	5.20E+00 - 6.20E+00	1.0E+02	6.8E+01	3.1E+02	nc	NA	NA	NO	BSL
	53-70-3	Dibenz(a,h)anthracene	4.4E-02	J	4.4E-02	J	MG/KG	NDAISS39	1 / 40	3.31E-01 - 9.46E-01	4.4E-02	NA	6.2E-02	ca	NA	NA	NO	BSL
	100-41-4	Ethylbenzene	3.7E-03	J	3.7E-03	J	MG/KG	AOCISB003	1 / 26	1.00E-02 - 1.20E-02	3.7E-03	NA	1.9E+02	nc	NA	NA	NO	BSL
	206-44-0	Fluoranthene	3.2E-02	J	2.3E-01	J	MG/KG	NDAISS36	4 / 40	3.31E-01 - 9.46E-01	2.3E-01	NA	2.3E+02	nc	NA	NA	NO	BSL
	193-39-5	Indeno(1,2,3-cd)pyrene	3.9E-02	J	1.4E-01	J	MG/KG	NDAISS39	2 / 40	3.31E-01 - 9.46E-01	1.4E-01	NA	6.2E-01	ca	NA	NA	NO	BSL
	7439-89-6	Iron	2.2E+04		4.4E+04		MG/KG	AOCISB020	26 / 26	2.10E+01 - 2.50E+01	4.4E+04	3.9E+04	2.3E+03	nc	NA	NA	YES	ASL
	7439-92-1	Lead	4.7E-01	J	2.2E+01		MG/KG	AOCISB022	26 / 26	6.20E-01 - 7.40E-01	2.2E+01	6.9E+00	4.0E+02	nc	NA	NA	NO	BSL
	m&pXYLENE	m,p-Xylene	2.0E-04	J	1.9E-02		MG/KG	AOCISB003	4 / 26	1.00E-02 - 1.20E-02	1.9E-02	NA	2.7E+01	nc	NA	NA	NO	BSL
	7439-95-4	Magnesium	9.7E+03		1.5E+04		MG/KG	AOCISB010, AOCISB019, AOCISB025	26 / 26	1.03E+03 - 1.23E+03	1.5E+04	1.3E+04	NA	NA	NA	NA	NO	NUT
	7439-96-5	Manganese	4.4E+02		9.8E+02		MG/KG	AOCISB006	26 / 26	3.10E+00 - 3.70E+00	9.8E+02	1.2E+03	1.8E+02	nc	NA	NA	YES	ASL
	7439-97-6	Mercury	3.0E-03	J	1.6E-02	J	MG/KG	AOCISB006	12 / 26	4.00E-02 - 4.00E-02	1.6E-02	3.1E-02	2.3E+00	nc	NA	NA	NO	BSL
	75-09-2	Methylene chloride	3.4E-04	J	3.6E-04	J	MG/KG	AOCISB025	2 / 26	1.00E-02 - 1.20E-02	3.6E-04	NA	9.1E+00	ca	NA	NA	NO	BSL
	7440-02-0	Nickel	1.9E+01		5.7E+01	J	MG/KG	AOCISB020	26 / 26	8.30E+00 - 9.80E+00	5.7E+01	4.0E+01	1.6E+02	nc	NA	NA	NO	BSL
	95-47-6	o-Xylene	1.8E-04	J	7.8E-03	J	MG/KG	AOCISB003	3 / 26	1.00E-02 - 1.20E-02	7.8E-03	NA	2.7E+01	nc	NA	NA	NO	BSL
	7440-09-7	Potassium	4.4E+02	J	9.1E+02	J	MG/KG	AOCISB022	26 / 26	1.03E+03 - 1.23E+03	9.1E+02	1.7E+03	NA	NA	NA	NA	NO	NUT
	129-00-0	Pyrene	6.4E-02	J	1.9E-01	J	MG/KG	NDAISS36	3 / 40	3.31E-01 - 9.46E-01	1.9E-01	NA	2.3E+02	nc	NA	NA	NO	BSL
	7782-49-2	Selenium	6.0E-01	J	1.6E+00	J	MG/KG	AOCISB023	19 / 26	1.00E+00 - 1.20E+00	1.6E+00	2.0E+00	3.9E+01	nc	NA	NA	NO	BSL
	7440-22-4	Silver	7.5E-02	J	1.2E-01	J	MG/KG	AOCISB006, AOCISB012, AOCISB026	9 / 26	2.10E+00 - 2.50E+00	1.2E-01	7.7E-02	3.9E+01	nc	NA	NA	NO	BSL
	7440-23-5	Sodium	2.9E+02	J	8.3E+02	J	MG/KG	AOCISB019	26 / 26	1.03E+03 - 1.23E+03	8.3E+02	1.2E+03	NA	NA	NA	NA	NO	NUT
	127-18-4	Tetrachloroethene	2.7E-04	J	2.7E-04	J	MG/KG	AOCISB021	1 / 26	1.00E-02 - 1.20E-02	2.7E-04	NA	4.8E-01	ca	NA	NA	NO	BSL
	7440-28-0	Thallium	7.3E-01	J	7.3E-01	J	MG/KG	AOCISB020	1 / 26	2.10E+00 - 2.50E+00	7.3E-01	6.7E-01	5.2E-01	nc	NA	NA	YES	ASL
	108-88-3	Toluene	3.0E-04	J	2.5E-02		MG/KG	AOCISB005	6 / 26	1.00E-02 - 1.20E-02	2.5E-02	NA	3.0E+02	calc	NA	NA	NO	BSL
	79-01-6	Trichloroethene	3.1E-04	J	3.1E-04	J	MG/KG	AOCISB004	1 / 26	1.00E-02 - 1.20E-02	3.1E-04	NA	5.3E-02	ca	NA	NA	NO	BSL
	7440-62-2	Vanadium	6.4E+01		1.4E+02		MG/KG	AOCISB020	26 / 26	1.00E+01 - 1.20E+01	1.4E+02	1.3E+02	7.8E+00	nc	NA	NA	YES	ASL
	1330-20-7	Xylene (total)	2.0E-04	J	2.7E-02		MG/KG	AOCISB003	4 / 26	1.00E-02 - 1.20E-02	2.7E-02	NA	2.7E+01	nc	NA	NA	NO	BSL
	7440-66-6	Zinc	3.1E+01		5.9E+01		MG/KG	AOCISB021	26 / 26	4.10E+00 - 4.90E+00	5.9E+01	7.1E+01	2.3E+03	nc	NA	NA	NO	BSL

(1) Maximum concentration is used for screening.

(2) West Vieques Soil Type Qa (95% upper tolerance limit).

(3) EPA Region 9 Preliminary Remediation Goals (PRGs) for Residential Soil; October 1, 2004, Concentrations based on non-carcinogenic health effects are adjusted using HQ=0.1
PRG value for xylenes used as a surrogate for m,p-xylenes and o-xylene
Acenaphthene was used as a surrogate for acenaphthylene
Mercury and compounds was used as a surrogate for mercury
Pyrene was used as a surrogate for benzo(ghi)perylene
EPA Region 9 PRGs were calculated where indicated due to updated toxicity values in IRIS.

(4) Rationale Codes
Selection Reason: Above Screening Levels (ASL)
Deletion Reason: Below Screening Level (BSL)
Essential Nutrient (NUT)

COPC = Chemical of Potential Concern
ARAR/TBC = Applicable or Relevant and Appropriate Requirement/ To Be Considered
EQB = Environmental Quality Board.
TPH values derived from Criterion from *Commonwealth Government of Puerto Rico,* Office of the Governor, Environmental Quality Board, Water Quality Area (November 7, 1990, Amendments 2002).
ca = Carcinogenic
nc = Noncarcinogenic
NA = Not available
J = compound was detected below the reporting limit in the sample

TABLE 2.1a
OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN
AOC-I
Former NASD, Vieques, Puerto Rico

Scenario Timeframe: Future
Medium: Soil
Exposure Medium: Surface Soil (Maintenance Worker)

Exposure Point	CAS Number	Chemical	Minimum Concentration	Qualifier	Maximum Concentration	Qualifier	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value (2)	Screening Toxicity Value (3)		Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag	Rationale for Selection or Deletion (4)
Surface Soil (0-2 ft)	75-35-4	1,1-Dichloroethene	4.3E-04	J	4.3E-04	J	MG/KG	AOCISB010	1 / 26	1.00E-02 - 1.20E-02	4.3E-04	NA	4.1E+01	nc	NA	NA	NO	BSL
	107-06-2	1,2-Dichloroethane	1.0E-03	J	1.0E-03	J	MG/KG	AOCISB022	1 / 26	1.00E-02 - 1.20E-02	1.0E-03	NA	6.0E-01	ca	NA	NA	NO	BSL
	78-93-3	2-Butanone	5.0E-03	J	5.0E-03	J	MG/KG	AOCISB005	1 / 7	1.00E-02 - 1.00E-02	5.0E-03	NA	1.1E+04	nc	NA	NA	NO	BSL
	108-10-1	4-Methyl-2-pentanone	2.8E-03	J	2.8E-03	J	MG/KG	AOCISB002	1 / 26	1.00E-02 - 1.20E-02	2.8E-03	NA	4.7E+03	nc	NA	NA	NO	BSL
	208-96-8	Acenaphthylene	1.0E-01	J	1.0E-01	J	MG/KG	NDAISS39	1 / 40	3.31E-01 - 9.46E-01	1.0E-01	NA	2.9E+03	nc	NA	NA	NO	BSL
	67-64-1	Acetone	6.7E-03	J	6.7E-03	J	MG/KG	AOCISB014	1 / 2	1.00E-02 - 1.00E-02	6.7E-03	NA	5.4E+03	nc	NA	NA	NO	BSL
	7429-90-5	Aluminum	1.4E+04		2.5E+04		MG/KG	AOCISB020	26 / 26	4.10E+01 - 4.90E+01	2.5E+04	2.9E+04	9.2E+04	nc	NA	NA	NO	BSL
	120-12-7	Anthracene	5.5E-02	J	6.5E-02	J	MG/KG	NDAISS36	2 / 40	3.31E-01 - 9.46E-01	6.5E-02	NA	2.4E+04	max	NA	NA	NO	BSL
	7440-36-0	Antimony	8.0E-01	J	1.5E+00	J	MG/KG	AOCISB003, AOCISB012	26 / 26	1.20E+01 - 1.50E+01	1.5E+00	2.3E+00	4.1E+01	nc	NA	NA	NO	BSL
	7440-38-2	Arsenic	7.7E-01	J	2.0E+00	J	MG/KG	AOCISB006, AOCISB019	26 / 26	2.10E+00 - 2.50E+00	2.0E+00	2.2E+00	1.6E+00	ca	NA	NA	YES	ASL
	7440-39-3	Barium	2.6E+01	J	6.5E+01		MG/KG	AOCISB020	26 / 26	4.10E+01 - 4.90E+01	6.5E+01	3.2E+02	1.1E+04	calc	NA	NA	NO	BSL
	71-43-2	Benzene	2.7E-04	J	1.2E-03	J	MG/KG	AOCISB003	2 / 26	1.00E-02 - 1.20E-02	1.2E-03	NA	1.4E+00	ca	NA	NA	NO	BSL
	56-55-3	Benzo(a)anthracene	5.9E-02	J	6.8E-02	J	MG/KG	NDAISS39	3 / 40	3.31E-01 - 9.46E-01	6.8E-02	NA	2.1E+00	ca	NA	NA	NO	BSL
	50-32-8	Benzo(a)pyrene	3.4E-02	J	1.5E-01	J	MG/KG	NDAISS39	4 / 40	3.31E-01 - 9.46E-01	1.5E-01	NA	2.1E-01	ca	NA	NA	NO	BSL
	205-99-2	Benzo(b)fluoranthene	1.4E-01	J	2.0E-01	J	MG/KG	NDAISS39	2 / 40	3.31E-01 - 9.46E-01	2.0E-01	NA	2.1E+00	ca	NA	NA	NO	BSL
	191-24-2	Benzo(g,h,i)perylene	4.8E-02	J	1.7E-01	J	MG/KG	NDAISS39	2 / 34	3.31E-01 - 9.46E-01	1.7E-01	NA	2.9E+03	nc	NA	NA	NO	BSL
	207-08-9	Benzo(k)fluoranthene	4.0E-02	J	1.5E-01	J	MG/KG	NDAISS32	3 / 40	3.31E-01 - 9.46E-01	1.5E-01	NA	2.1E+01	ca	NA	NA	NO	BSL
	7440-41-7	Beryllium	1.1E-01	J	4.2E-01	J	MG/KG	AOCISB020	23 / 26	1.00E+00 - 1.20E+00	4.2E-01	4.5E-01	1.9E+02	nc	NA	NA	NO	BSL
	117-81-7	bis(2-Ethylhexyl)phthalate	4.9E-02	J	3.9E+00	J	MG/KG	AOCISB011	13 / 40	3.31E-01 - 9.46E-01	3.9E+00	NA	1.2E+02	ca	NA	NA	NO	BSL
	7440-43-9	Cadmium	5.2E-01	J	5.2E-01	J	MG/KG	AOCISB022	1 / 26	1.00E+00 - 1.20E+00	5.2E-01	3.6E-02	4.5E+01	nc	NA	NA	NO	BSL
	7440-70-2	Calcium	7.2E+03		5.2E+04		MG/KG	AOCISB016	26 / 26	1.03E+03 - 1.23E+03	5.2E+04	4.5E+04	NA	NA	NA	NA	NO	NUT
	7440-47-3	Chromium	3.1E+01		1.1E+02	J	MG/KG	AOCISB020	43 / 43	1.19E+00 - 2.50E+00	1.1E+02	7.4E+01	4.5E+02	ca	NA	NA	NO	BSL
	18540-29-9	Chromium, hexavalent	2.3E-01	J	1.6E+00	J	MG/KG	NDAISS27	16 / 17	1.02E+00 - 1.15E+00	1.6E+00	NA	6.4E+01	ca	NA	NA	NO	BSL
	218-01-9	Chrysene	6.8E-02	J	1.4E-01	J	MG/KG	NDAISS39	3 / 40	3.31E-01 - 9.46E-01	1.4E-01	NA	2.1E+02	ca	NA	NA	NO	BSL
	7440-48-4	Cobalt	1.2E+01		2.7E+01		MG/KG	AOCISB006	26 / 26	1.00E+01 - 1.20E+01	2.7E+01	3.3E+01	1.9E+03	ca	NA	NA	NO	BSL
	7440-50-8	Copper	4.0E+01		1.0E+02		MG/KG	AOCISB005	26 / 26	5.20E+00 - 6.20E+00	1.0E+02	6.8E+01	4.1E+03	nc	NA	NA	NO	BSL
	53-70-3	Dibenz(a,h)anthracene	4.4E-02	J	4.4E-02	J	MG/KG	NDAISS39	1 / 40	3.31E-01 - 9.46E-01	4.4E-02	NA	2.1E-01	ca	NA	NA	NO	BSL
	100-41-4	Ethylbenzene	3.7E-03	J	3.7E-03	J	MG/KG	AOCISB003	1 / 26	1.00E-02 - 1.20E-02	3.7E-03	NA	4.0E+02	sat	NA	NA	NO	BSL
	206-44-0	Fluoranthene	3.2E-02	J	2.3E-01	J	MG/KG	NDAISS36	4 / 40	3.31E-01 - 9.46E-01	2.3E-01	NA	2.2E+03	nc	NA	NA	NO	BSL
	193-39-5	Indeno(1,2,3-cd)pyrene	3.9E-02	J	1.4E-01	J	MG/KG	NDAISS39	2 / 40	3.31E-01 - 9.46E-01	1.4E-01	NA	2.1E+00	ca	NA	NA	NO	BSL
	7439-89-6	Iron	2.2E+04		4.4E+04		MG/KG	AOCISB020	26 / 26	2.10E+01 - 2.50E+01	4.4E+04	3.9E+04	3.1E+04	nc	NA	NA	YES	ASL
	7439-92-1	Lead	4.7E-01	J	2.2E+01		MG/KG	AOCISB022	26 / 26	6.20E-01 - 7.40E-01	2.2E+01	6.9E+00	8.0E+02	nc	NA	NA	NO	BSL
	m&pXYLENE	m,p-Xylene	2.0E-04	J	1.9E-02		MG/KG	AOCISB003	4 / 26	1.00E-02 - 1.20E-02	1.9E-02	NA	9.0E+01	nc	NA	NA	NO	BSL
	7439-95-4	Magnesium	9.7E+03		1.5E+04		MG/KG	AOCISB010, AOCISB019, AOCISB025	26 / 26	1.03E+03 - 1.23E+03	1.5E+04	1.3E+04	NA	NA	NA	NA	NO	NUT
	7439-96-5	Manganese	4.4E+02		9.8E+02		MG/KG	AOCISB006	26 / 26	3.10E+00 - 3.70E+00	9.8E+02	1.2E+03	1.9E+03	nc	NA	NA	NO	BSL
	7439-97-6	Mercury	3.0E-03	J	1.6E-02	J	MG/KG	AOCISB006	12 / 26	4.00E-02 - 4.00E-02	1.6E-02	3.1E-02	3.1E+01	nc	NA	NA	NO	BSL
	75-09-2	Methylene chloride	3.4E-04	J	3.6E-04	J	MG/KG	AOCISB025	2 / 26	1.00E-02 - 1.20E-02	3.6E-04	NA	2.1E+01	ca	NA	NA	NO	BSL
	7440-02-0	Nickel	1.9E+01		5.7E+01	J	MG/KG	AOCISB020	26 / 26	8.30E+00 - 9.80E+00	5.7E+01	4.0E+01	2.0E+03	nc	NA	NA	NO	BSL
	95-47-6	o-Xylene	1.8E-04	J	7.8E-03	J	MG/KG	AOCISB003	3 / 26	1.00E-02 - 1.20E-02	7.8E-03	NA	9.0E+01	nc	NA	NA	NO	BSL
	7440-09-7	Potassium	4.4E+02	J	9.1E+02	J	MG/KG	AOCISB022	26 / 26	1.03E+03 - 1.23E+03	9.1E+02	1.7E+03	NA	NA	NA	NA	NO	NUT
	129-00-0	Pyrene	6.4E-02	J	1.9E-01	J	MG/KG	NDAISS36	3 / 40	3.31E-01 - 9.46E-01	1.9E-01	NA	2.9E+03	nc	NA	NA	NO	BSL
	7782-49-2	Selenium	6.0E-01	J	1.6E+00	J	MG/KG	AOCISB023	19 / 26	1.00E+00 - 1.20E+00	1.6E+00	2.0E+00	5.1E+02	nc	NA	NA	NO	BSL
	7440-22-4	Silver	7.5E-02	J	1.2E-01	J	MG/KG	AOCISB006, AOCISB012, AOCISB026	9 / 26	2.10E+00 - 2.50E+00	1.2E-01	7.7E-02	5.1E+02	nc	NA	NA	NO	BSL
	7440-23-5	Sodium	2.9E+02	J	8.3E+02	J	MG/KG	AOCISB019	26 / 26	1.03E+03 - 1.23E+03	8.3E+02	1.2E+03	NA	NA	NA	NA	NO	NUT
	127-18-4	Tetrachloroethene	2.7E-04	J	2.7E-04	J	MG/KG	AOCISB021	1 / 26	1.00E-02 - 1.20E-02	2.7E-04	NA	1.3E+00	ca	NA	NA	NO	BSL
	7440-28-0	Thallium	7.3E-01	J	7.3E-01	J	MG/KG	AOCISB020	1 / 26	2.10E+00 - 2.50E+00	7.3E-01	6.7E-01	6.7E+00	nc	NA	NA	NO	BSL
	108-88-3	Toluene	3.0E-04	J	2.5E-02		MG/KG	AOCISB005	6 / 26	1.00E-02 - 1.20E-02	2.5E-02	NA	1.7E+03	calc	NA	NA	NO	BSL
	79-01-6	Trichloroethene	3.1E-04	J	3.1E-04	J	MG/KG	AOCISB004	1 / 26	1.00E-02 - 1.20E-02	3.1E-04	NA	1.1E-01	ca	NA	NA	NO	BSL
	7440-62-2	Vanadium	6.4E+01		1.4E+02		MG/KG	AOCISB020	26 / 26	1.00E+01 - 1.20E+01	1.4E+02	1.3E+02	1.0E+02	nc	NA	NA	YES	ASL
	1330-20-7	Xylene (total)	2.0E-04	J	2.7E-02		MG/KG	AOCISB003	4 / 26	1.00E-02 - 1.20E-02	2.7E-02	NA	9.0E+01	nc	NA	NA	NO	BSL
	7440-66-6	Zinc	3.1E+01		5.9E+01		MG/KG	AOCISB021	26 / 26	4.10E+00 - 4.90E+00	5.9E+01	7.1E+01	3.1E+04	nc	NA	NA	NO	BSL

(1) Maximum concentration is used for screening.

(2) West Vieques Soil Type Qa (95% upper tolerance limit).

(3) EPA Region 9 Preliminary Remediation Goals (PRGs) for Industrial Soil, October 1, 2004; concentrations based on non-carcinogenic health effects are adjusted using HQ=0.1
PRG value for xylenes used as a surrogate for m,p-xylenes and o-xylene
Acenaphthene was used as a surrogate for acenaphthylene
Mercury and compounds was used as a surrogate for mercury
Pyrene was used as a surrogate for benzo(ghi)perylene
EPA Region 9 PRGs were calculated where indicated due to updated toxicity values in IRIS.

(4) Rationale Codes
Selection Reason: Above Screening Levels (ASL)
Deletion Reason: Below Screening Level (BSL)

COPC = Chemical of Potential Concern
ARAR/TBC = Applicable or Relevant and Appropriate Requirement/ To Be Considered
EQB = Environmental Quality Board.
TPH values derived from Criterion from *Commonwealth Government of Puerto Rico,* Office of the Governor, Environmental Quality Board, Water Quality Area (November 7, 1990, Amendments 2002).
ca = Carcinogenic
nc = Noncarcinogenic
NA = Not available
J - compound was detected below the reporting limit in the sample

TABLE 2.2
OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN
AOC-I
Former NASD, Vieques, Puerto Rico

Scenario Timeframe: Future
Medium: Soil
Exposure Medium: Total Soil (Residential

Exposure Point	CAS Number	Chemical	Minimum Concentration Qualifier		Maximum Concentration Qualifier		Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value (2)	Screening Toxicity Value (3)		Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag	Rationale for Selection or Deletion (4)
Total Soil	75-35-4	1,1-Dichloroethene	4.2E-04	J	4.3E-04	J	MG/KG	AOCISB010	2 / 52	1.00E-02 - 1.20E-02	4.3E-04	NA	1.24E+01	nc	NA	NA	NO	BSL
(0-6 ft)	107-06-2	1,2-Dichloroethane	1.0E-03	J	1.2E-03	J	MG/KG	AOCISB026	2 / 52	1.00E-02 - 1.20E-02	1.2E-03	NA	2.78E-01	ca	NA	NA	NO	BSL
	78-93-3	2-Butanone	2.9E-03	J	5.0E-03	J	MG/KG	AOCISB005	3 / 12	1.00E-02 - 1.20E-02	5.0E-03	NA	2.23E+03	nc	NA	NA	NO	BSL
	91-57-6	2-Methylnaphthalene	4.6E+00	J	4.6E+00	J	MG/KG	AOCISB021	1 / 66	3.31E-01 - 9.46E-01	4.6E+00	NA	1.40E+01	calc	NA	NA	NO	BSL
	108-10-1	4-Methyl-2-pentanone	7.9E-04	J	5.3E-02	J	MG/KG	AOCISB021	3 / 52	1.00E-02 - 1.20E-02	5.3E-02	NA	5.28E+02	nc	NA	NA	NO	BSL
	83-32-9	Acenaphthene	3.3E-01	J	3.3E-01	J	MG/KG	AOCISB021	1 / 66	3.31E-01 - 9.46E-01	3.3E-01	NA	3.68E+02	nc	NA	NA	NO	BSL
	208-96-8	Acenaphthylene	1.0E-01	J	1.0E-01	J	MG/KG	NDAISS39	1 / 66	3.31E-01 - 9.46E-01	1.0E-01	NA	3.68E+02	nc	NA	NA	NO	BSL
	67-64-1	Acetone	6.7E-03	J	6.7E-03	J	MG/KG	AOCISB014	1 / 4	1.00E-02 - 1.00E-02	6.7E-03	NA	1.41E+03	nc	NA	NA	NO	BSL
	7429-90-5	Aluminum	1.3E+04		3.3E+04		MG/KG	AOCISB001	52 / 52	4.10E+01 - 5.10E+01	3.3E+04	2.9E+04	7.61E+03	nc	NA	NA	YES	ASL
	120-12-7	Anthracene	5.5E-02	J	6.5E-02	J	MG/KG	NDAISS36	2 / 66	3.31E-01 - 9.46E-01	6.5E-02	NA	2.19E+03	nc	NA	NA	NO	BSL
	7440-36-0	Antimony	8.0E-01	J	2.9E+00	J	MG/KG	AOCISB019	52 / 52	1.20E+01 - 1.50E+01	2.9E+00	2.3E+00	3.13E+00	nc	NA	NA	NO	BSL
	7440-38-2	Arsenic	5.9E-01	J	2.6E+00		MG/KG	AOCISB022	52 / 52	2.10E+00 - 2.60E+00	2.6E+00	2.2E+00	3.90E-01	ca	NA	NA	YES	ASL
	7440-39-3	Barium	1.4E+01	J	8.8E+01		MG/KG	AOCISB001	52 / 52	4.10E+01 - 5.10E+01	8.8E+01	3.2E+02	1.50E+03	calc	NA	NA	NO	BSL
	71-43-2	Benzene	2.7E-04	J	1.2E-03	J	MG/KG	AOCISB003	2 / 52	1.00E-02 - 1.20E-02	1.2E-03	NA	6.43E-01	ca	NA	NA	NO	BSL
	56-55-3	Benzo(a)anthracene	5.9E-02	J	6.8E-02	J	MG/KG	NDAISS39	3 / 66	3.31E-01 - 9.46E-01	6.8E-02	NA	6.21E-01	ca	NA	NA	NO	BSL
	50-32-8	Benzo(a)pyrene	3.4E-02	J	1.5E-01	J	MG/KG	NDAISS39	4 / 66	3.31E-01 - 9.46E-01	1.5E-01	NA	6.21E-02	ca	NA	NA	YES	ASL
	205-99-2	Benzo(b)fluoranthene	3.1E-02	J	2.0E-01	J	MG/KG	NDAISS39	4 / 66	3.31E-01 - 9.46E-01	2.0E-01	NA	6.21E-01	ca	NA	NA	NO	BSL
	191-24-2	Benzo(g,h,i)perylene	4.8E-02	J	1.7E-01	J	MG/KG	NDAISS39	2 / 60	3.31E-01 - 9.46E-01	1.7E-01	NA	2.32E+02	nc	NA	NA	NO	BSL
	207-08-9	Benzo(k)fluoranthene	3.2E-02	J	1.5E-01	J	MG/KG	NDAISS32	4 / 66	3.31E-01 - 9.46E-01	1.5E-01	NA	6.21E+00	ca	NA	NA	NO	BSL
	7440-41-7	Beryllium	1.1E-01	J	4.2E-01	J	MG/KG	AOCISB020	49 / 52	1.00E+00 - 1.30E+00	4.2E-01	4.5E-01	1.54E+01	nc	NA	NA	NO	BSL
	117-81-7	bis(2-Ethylhexyl)phthalate	4.9E-02	J	3.9E+00	J	MG/KG	AOCISB011	13 / 66	3.31E-01 - 9.46E-01	3.9E+00	NA	3.47E+01	ca	NA	NA	NO	BSL
	7440-43-9	Cadmium	5.2E-01	J	5.2E-01	J	MG/KG	AOCISB022	1 / 52	1.00E+00 - 1.30E+00	5.2E-01	3.6E-02	3.70E+00	nc	NA	NA	NO	BSL
	7440-70-2	Calcium	4.7E+03		5.2E+04		MG/KG	AOCISB016	52 / 52	1.03E+03 - 1.28E+03	5.2E+04	4.5E+04	NA	NA	NA	NA	NO	NUT
	86-74-8	Carbazole	1.6E-01	J	1.6E-01	J	MG/KG	AOCISB021	1 / 66	3.31E-01 - 9.46E-01	1.6E-01	NA	2.43E+01	ca	NA	NA	NO	BSL
	7440-47-3	Chromium	3.1E+01		2.0E+02	J	MG/KG	NDAISB04	75 / 75	1.19E+00 - 7.41E+00	2.0E+02	7.4E+01	2.11E+02	ca	NA	NA	NO	BSL
	18540-29-9	Chromium, hexavalent	2.3E-01	J	1.6E+00	J	MG/KG	NDAISS27	22 / 23	1.02E+00 - 1.15E+00	1.6E+00	NA	2.23E+01	nc	NA	NA	NO	BSL
	218-01-9	Chrysene	6.8E-02	J	1.4E-01	J	MG/KG	NDAISS39	4 / 66	3.31E-01 - 9.46E-01	1.4E-01	NA	6.21E+01	ca	NA	NA	NO	BSL
	7440-48-4	Cobalt	1.2E+01		3.1E+01		MG/KG	AOCISB004, AOCISB019	52 / 52	1.00E+01 - 1.30E+01	3.1E+01	3.3E+01	1.38E+02	nc	NA	NA	NO	BSL
	7440-50-8	Copper	1.8E+01		2.3E+02		MG/KG	AOCISB001	52 / 52	5.20E+00 - 6.40E+00	2.3E+02	6.8E+01	3.13E+02	nc	NA	NA	NO	BSL
	53-70-3	Dibenz(a,h)anthracene	4.4E-02	J	4.4E-02	J	MG/KG	NDAISS39	1 / 66	3.31E-01 - 9.46E-01	4.4E-02	NA	6.21E-02	ca	NA	NA	NO	BSL
	132-64-9	Dibenzofuran	6.6E-01	J	6.6E-01	J	MG/KG	AOCISB021	1 / 66	3.31E-01 - 9.46E-01	6.6E-01	NA	1.45E+01	nc	NA	NA	NO	BSL
	100-41-4	Ethylbenzene	8.9E-04	J	9.6E-02	J	MG/KG	AOCISB021	3 / 52	1.00E-02 - 1.20E-02	9.6E-02	NA	1.86E+02	nc	NA	NA	NO	BSL
	206-44-0	Fluoranthene	3.2E-02	J	9.7E-01	J	MG/KG	AOCISB021	5 / 66	3.31E-01 - 9.46E-01	9.7E-01	NA	2.29E+02	nc	NA	NA	NO	BSL
	86-73-7	Fluorene	8.9E-01	J	8.9E-01	J	MG/KG	AOCISB021	1 / 66	3.31E-01 - 9.46E-01	8.9E-01	NA	2.75E+02	nc	NA	NA	NO	BSL
	193-39-5	Indeno(1,2,3-cd)pyrene	3.9E-02	J	1.4E-01	J	MG/KG	NDAISS39	2 / 66	3.31E-01 - 9.46E-01	1.4E-01	NA	6.21E-01	ca	NA	NA	NO	BSL
	7439-89-6	Iron	2.0E+04		6.3E+04		MG/KG	AOCISB001	52 / 52	2.10E+01 - 5.00E+01	6.3E+04	3.9E+04	2.35E+03	nc	NA	NA	YES	ASL
	7439-92-1	Lead	2.6E-01	J	2.2E+01		MG/KG	AOCISB022	44 / 52	6.20E-01 - 7.70E-01	2.2E+01	6.9E+00	4.00E+02	nc	NA	NA	NO	BSL
	m&pXYLENE	m,p-Xylene	2.0E-04	J	3.0E+00	J	MG/KG	AOCISB021	7 / 52	1.00E-02 - 9.73E-01	3.0E+00	NA	2.71E+01	nc	NA	NA	NO	BSL
	7439-95-4	Magnesium	9.4E+03		2.6E+04		MG/KG	AOCISB019, AOCISB020	52 / 52	1.03E+03 - 1.28E+03	2.6E+04	1.3E+04	NA	NA	NA	NA	NO	NUT
	7439-96-5	Manganese	4.4E+02		1.1E+03		MG/KG	AOCISB009, AOCISB019	52 / 52	3.10E+00 - 3.80E+00	1.1E+03	1.2E+03	1.76E+02	nc	NA	NA	YES	ASL
	7439-97-6	Mercury	3.0E-03	J	1.6E-02	J	MG/KG	AOCISB006	22 / 52	4.00E-02 - 5.00E-02	1.6E-02	3.1E-02	2.35E+00	nc	NA	NA	NO	BSL
	75-09-2	Methylene chloride	3.4E-04	J	3.6E-04	J	MG/KG	AOCISB025	2 / 52	1.00E-02 - 1.20E-02	3.6E-04	NA	9.11E+00	ca	NA	NA	NO	BSL
	91-20-3	Naphthalene	2.6E+00	J	2.6E+00	J	MG/KG	AOCISB021	1 / 66	3.31E-01 - 9.46E-01	2.6E+00	NA	5.59E+00	nc	NA	NA	NO	BSL
	7440-02-0	Nickel	1.9E+01		8.4E+01		MG/KG	AOCISB004	52 / 52	8.30E+00 - 1.00E+01	8.4E+01	4.0E+01	1.56E+02	nc	NA	NA	NO	BSL
	95-47-6	o-Xylene	1.8E-04	J	1.5E+00	J	MG/KG	AOCISB021	6 / 52	1.00E-02 - 9.73E-01	1.5E+00	NA	2.71E+01	nc	NA	NA	NO	BSL
	85-01-8	Phenanthrene	2.6E+00	J	2.6E+00	J	MG/KG	AOCISB021	1 / 66	3.31E-01 - 9.46E-01	2.6E+00	NA	2.32E+02	nc	NA	NA	NO	BSL
	7440-09-7	Potassium	7.7E+01	J	9.1E+02	J	MG/KG	AOCISB022	52 / 52	1.03E+03 - 1.28E+03	9.1E+02	1.7E+03	NA	NA	NA	NA	NO	NUT
	129-00-0	Pyrene	6.4E-02	J	4.7E-01	J	MG/KG	AOCISB021	4 / 66	3.31E-01 - 9.46E-01	4.7E-01	NA	2.32E+02	nc	NA	NA	NO	BSL
	7782-49-2	Selenium	6.0E-01	J	1.6E+00	J	MG/KG	AOCISB023	40 / 52	1.00E+00 - 1.30E+00	1.6E+00	2.0E+00	3.91E+01	nc	NA	NA	NO	BSL
	7440-22-4	Silver	6.4E-02	J	1.2E-01	J	MG/KG	AOCISB021, AOCISB026	17 / 52	2.10E+00 - 2.60E+00	1.2E-01	7.7E-02	3.91E+01	nc	NA	NA	NO	BSL
	7440-23-5	Sodium	2.1E+01	J	2.7E+03		MG/KG	AOCISB001	51 / 52	1.03E+03 - 1.28E+03	2.7E+03	1.2E+03	NA	NA	NA	NA	NO	NUT
	127-18-4	Tetrachloroethene	2.7E-04	J	2.9E-04	J	MG/KG	AOCISB014	2 / 52	1.00E-02 - 1.20E-02	2.9E-04	NA	4.84E-01	ca	NA	NA	NO	BSL
	7440-28-0	Thallium	7.3E-01	J	7.3E-01	J	MG/KG	AOCISB020	1 / 52	2.10E+00 - 2.60E+00	7.3E-01	6.7E-01	5.16E-01	nc	NA	NA	YES	ASL
	108-88-3	Toluene	3.0E-04	J	2.5E-02		MG/KG	AOCISB005	9 / 52	1.00E-02 - 1.20E-02	2.5E-02	NA	3.00E+02	calc	NA	NA	NO	BSL
	79-01-6	Trichloroethene	3.1E-04	J	3.7E-04	J	MG/KG	AOCISB001	2 / 52	1.00E-02 - 1.20E-02	3.7E-04	NA	5.30E-02	ca	NA	NA	NO	BSL
	7440-62-2	Vanadium	5.3E+01		1.9E+02		MG/KG	AOCISB001	52 / 52	1.00E+01 - 1.30E+01	1.9E+02	1.3E+02	7.82E+00	nc	NA	NA	YES	ASL
	1330-20-7	Xylene (total)	2.0E-04	J	4.5E+00	J	MG/KG	AOCISB021	7 / 52	1.00E-02 - 9.73E-01	4.5E+00	NA	2.71E+01	nc	NA	NA	NO	BSL
	7440-66-6	Zinc	3.1E+01		6.0E+01		MG/KG	AOCISB019	52 / 52	4.10E+00 - 5.10E+00	6.0E+01	7.1E+01	2.35E+03	nc	NA	NA	NO	BSL

(1) Maximum concentration is used for screening.

(2) West Vieques Soil Type Qa (95% upper tolerance limit).

(3) EPA Region 9 Preliminary Remediation Goals (PRGs) for Residential Soil, October 1, 2004; concentrations based on non-carcinogenic health effects are adjusted using HQ=0.1
PRG value for xylenes used as a surrogate for m,p-xylenes and o-xylene
Acenaphthene was used as a surrogate for acenaphthylene
Mercury and compounds was used as a surrogate for mercury
Pyrene was used as a surrogate for benzo(ghi)perylene
EPA Region 9 PRGs were calculated where indicated due to updated toxicity values in IRIS.

(4) Rationale Codes

Selection Reason: Above Screening Levels (ASL)
Deletion Reason: Below Screening Level (BSL)
Essential Nutrient (NUT)

COPC = Chemical of Potential Concern
ARAR/TBC = Applicable or Relevant and Appropriate Requirement/ To Be Considered
EQB = Environmental Quality Board.
TPH values derived from Criterion from *Commonwealth Government of Puerto Rico,* Office of the Governor, Environmental Quality Board, Water Quality Area (November 7, 1990, Amendments 2002).
ca = Carcinogenic
nc = Noncarcinogenic
NA = Not available
J - compound was detected below the reporting limit in the sample

TABLE 2.2a
OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN
AOC-I
Former NASD, Vieques, Puerto Rico

Scenario Timeframe: Future
Medium: Soil
Exposure Medium: Total Soil (Industrial and Construction Worker)

Exposure Point	CAS Number	Chemical	Minimum Concentration	Qualifier	Maximum Concentration	Qualifier	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value (2)	Screening Toxicity Value (3)		Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag	Rationale for Selection or Deletion (4)
Total Soil (0-6 ft)	75-35-4	1,1-Dichloroethene	4.2E-04	J	4.3E-04	J	MG/KG	AOCISB010	2 / 52	1.00E-02 - 1.20E-02	4.3E-04	NA	4.1E+01	nc	NA	NA	NO	BSL
	107-06-2	1,2-Dichloroethane	1.0E-03	J	1.2E-03	J	MG/KG	AOCISB026	2 / 52	1.00E-02 - 1.20E-02	1.2E-03	NA	6.0E-01	ca	NA	NA	NO	BSL
	78-93-3	2-Butanone	2.9E-03	J	5.0E-03	J	MG/KG	AOCISB005	3 / 12	1.00E-02 - 1.20E-02	5.0E-03	NA	1.1E+04	nc	NA	NA	NO	BSL
	91-57-6	2-Methylnaphthalene	4.6E+00	J	4.6E+00	J	MG/KG	AOCISB021	1 / 66	3.31E-01 - 9.46E-01	4.6E+00	NA	7.6E+01	calc	NA	NA	NO	BSL
	108-10-1	4-Methyl-2-pentanone	7.9E-04	J	5.3E-02	J	MG/KG	AOCISB021	3 / 52	1.00E-02 - 1.20E-02	5.3E-02	NA	4.7E+03	nc	NA	NA	NO	BSL
	83-32-9	Acenaphthene	3.3E-01	J	3.3E-01	J	MG/KG	AOCISB021	1 / 66	3.31E-01 - 9.46E-01	3.3E-01	NA	2.9E+03	nc	NA	NA	NO	BSL
	208-96-8	Acenaphthylene	1.0E-01	J	1.0E-01	J	MG/KG	NDAISS39	1 / 66	3.31E-01 - 9.46E-01	1.0E-01	NA	2.9E+03	nc	NA	NA	NO	BSL
	67-64-1	Acetone	6.7E-03	J	6.7E-03	J	MG/KG	AOCISB014	1 / 4	1.00E-02 - 1.00E-02	6.7E-03	NA	5.4E+03	nc	NA	NA	NO	BSL
	7429-90-5	Aluminum	1.3E+04		3.3E+04		MG/KG	AOCISB001	52 / 52	4.10E+01 - 5.10E+01	3.3E+04	2.9E+04	9.2E+04	nc	NA	NA	NO	BSL
	120-12-7	Anthracene	5.5E-02	J	6.5E-02	J	MG/KG	NDAISS36	2 / 66	3.31E-01 - 9.46E-01	6.5E-02	NA	2.4E+04	max	NA	NA	NO	BSL
	7440-36-0	Antimony	8.0E-01	J	2.9E+00	J	MG/KG	AOCISB019	52 / 52	1.20E+01 - 1.50E+01	2.9E+00	2.3E+00	4.1E+01	nc	NA	NA	NO	BSL
	7440-38-2	Arsenic	5.9E-01	J	2.6E+00		MG/KG	AOCISB022	52 / 52	2.10E+00 - 2.60E+00	2.6E+00	2.2E+00	1.6E+00	ca	NA	NA	YES	ASL
	7440-39-3	Barium	1.4E+01	J	8.8E+01		MG/KG	AOCISB001	52 / 52	4.10E+01 - 5.10E+01	8.8E+01	3.2E+02	1.1E+04	calc	NA	NA	NO	BSL
	71-43-2	Benzene	2.7E-04	J	1.2E-03	J	MG/KG	AOCISB003	2 / 52	1.00E-02 - 1.20E-02	1.2E-03	NA	1.4E+00	ca	NA	NA	NO	BSL
	56-55-3	Benzo(a)anthracene	5.9E-02	J	6.8E-02	J	MG/KG	NDAISS39	3 / 66	3.31E-01 - 9.46E-01	6.8E-02	NA	2.1E+00	ca	NA	NA	NO	BSL
	50-32-8	Benzo(a)pyrene	3.4E-02	J	1.5E-01	J	MG/KG	NDAISS39	4 / 66	3.31E-01 - 9.46E-01	1.5E-01	NA	2.1E-01	ca	NA	NA	NO	BSL
	205-99-2	Benzo(b)fluoranthene	3.1E-02	J	2.0E-01	J	MG/KG	NDAISS39	4 / 66	3.31E-01 - 9.46E-01	2.0E-01	NA	2.1E+00	ca	NA	NA	NO	BSL
	191-24-2	Benzo(g,h,i)perylene	4.8E-02	J	1.7E-01	J	MG/KG	NDAISS39	2 / 60	3.31E-01 - 9.46E-01	1.7E-01	NA	2.9E+03	nc	NA	NA	NO	BSL
	207-08-9	Benzo(k)fluoranthene	3.2E-02	J	1.5E-01	J	MG/KG	NDAISS32	4 / 66	3.31E-01 - 9.46E-01	1.5E-01	NA	2.1E+01	ca	NA	NA	NO	BSL
	7440-41-7	Beryllium	1.1E-01	J	4.2E-01	J	MG/KG	AOCISB020	49 / 52	1.00E+00 - 1.30E+00	4.2E-01	4.5E-01	1.9E+02	nc	NA	NA	NO	BSL
	117-81-7	bis(2-Ethylhexyl)phthalate	4.9E-02	J	3.9E+00	J	MG/KG	AOCISB011	13 / 66	3.31E-01 - 9.46E-01	3.9E+00	NA	1.2E+02	ca	NA	NA	NO	BSL
	7440-43-9	Cadmium	5.2E-01	J	5.2E-01	J	MG/KG	AOCISB022	1 / 52	1.00E+00 - 1.30E+00	5.2E-01	3.6E-02	4.5E+01	nc	NA	NA	NO	BSL
	7440-70-2	Calcium	4.7E+03		5.2E+04		MG/KG	AOCISB016	52 / 52	1.03E+03 - 1.28E+03	5.2E+04	4.5E+04	NA	NA	NA	NA	NO	NUT
	86-74-8	Carbazole	1.6E-01	J	1.6E-01	J	MG/KG	AOCISB021	1 / 66	3.31E-01 - 9.46E-01	1.6E-01	NA	8.6E+01	ca	NA	NA	NO	BSL
	7440-47-3	Chromium	3.1E+01		2.0E+02	J	MG/KG	NDAISB04	75 / 75	1.19E+00 - 7.41E+00	2.0E+02	7.4E+01	4.5E+02	nc	NA	NA	NO	BSL
	18540-29-9	Chromium, hexavalent	2.3E-01	J	1.6E+00	J	MG/KG	NDAISS27	22 / 23	1.02E+00 - 1.15E+00	1.6E+00	NA	6.4E+01	ca	NA	NA	NO	BSL
	218-01-9	Chrysene	6.8E-02	J	1.4E-01	J	MG/KG	NDAISS39	4 / 66	3.31E-01 - 9.46E-01	1.4E-01	NA	2.1E+02	ca	NA	NA	NO	BSL
	7440-48-4	Cobalt	1.2E+01		3.1E+01		MG/KG	AOCISB004, AOCISB019	52 / 52	1.00E+01 - 1.30E+01	3.1E+01	3.3E+01	1.9E+03	ca	NA	NA	NO	BSL
	7440-50-8	Copper	1.8E+01		2.3E+02		MG/KG	AOCISB001	52 / 52	5.20E+00 - 6.40E+00	2.3E+02	6.8E+01	4.1E+03	nc	NA	NA	NO	BSL
	53-70-3	Dibenz(a,h)anthracene	4.4E-02	J	4.4E-02	J	MG/KG	NDAISS39	1 / 66	3.31E-01 - 9.46E-01	4.4E-02	NA	2.1E-01	ca	NA	NA	NO	BSL
	132-64-9	Dibenzofuran	6.6E-01	J	6.6E-01	J	MG/KG	AOCISB021	1 / 66	3.31E-01 - 9.46E-01	6.6E-01	NA	1.6E+02	nc	NA	NA	NO	BSL
	100-41-4	Ethylbenzene	8.9E-04	J	9.6E-02	J	MG/KG	AOCISB021	3 / 52	1.00E-02 - 1.20E-02	9.6E-02	NA	4.0E+02	sat	NA	NA	NO	BSL
	206-44-0	Fluoranthene	3.2E-02	J	9.7E-01	J	MG/KG	AOCISB021	5 / 66	3.31E-01 - 9.46E-01	9.7E-01	NA	2.2E+03	nc	NA	NA	NO	BSL
	86-73-7	Fluorene	8.9E-01	J	8.9E-01	J	MG/KG	AOCISB021	1 / 66	3.31E-01 - 9.46E-01	8.9E-01	NA	2.6E+03	nc	NA	NA	NO	BSL
	193-39-5	Indeno(1,2,3-cd)pyrene	3.9E-02	J	1.4E-01	J	MG/KG	NDAISS39	2 / 66	3.31E-01 - 9.46E-01	1.4E-01	NA	2.1E+00	ca	NA	NA	NO	BSL
	7439-89-6	Iron	2.0E+04		6.3E+04		MG/KG	AOCISB001	52 / 52	2.10E+01 - 5.00E+01	6.3E+04	3.9E+04	3.1E+04	nc	NA	NA	YES	ASL
	7439-92-1	Lead	2.6E-01	J	2.2E+01		MG/KG	AOCISB022	44 / 52	6.20E-01 - 7.70E-01	2.2E+01	6.9E+00	8.0E+02	nc	NA	NA	NO	BSL
	m&pXYLENE	m,p-Xylene	2.0E-04	J	3.0E+00	J	MG/KG	AOCISB021	7 / 52	1.00E-02 - 9.73E-01	3.0E+00	NA	9.0E+01	nc	NA	NA	NO	BSL
	7439-95-4	Magnesium	9.4E+03		2.6E+04		MG/KG	AOCISB019, AOCISB020	52 / 52	1.03E+03 - 1.28E+03	2.6E+04	1.3E+04	NA	NA	NA	NA	NO	NUT
	7439-96-5	Manganese	4.4E+02		1.1E+03		MG/KG	AOCISB009, AOCISB019	52 / 52	3.10E+00 - 3.80E+00	1.1E+03	1.2E+03	1.9E+03	nc	NA	NA	NO	BSL
	7439-97-6	Mercury	3.0E-03	J	1.6E-02	J	MG/KG	AOCISB006	22 / 52	4.00E-02 - 5.00E-02	1.6E-02	3.1E-02	3.1E+01	nc	NA	NA	NO	BSL
	75-09-2	Methylene chloride	3.4E-04	J	3.6E-04	J	MG/KG	AOCISB025	2 / 52	1.00E-02 - 1.20E-02	3.6E-04	NA	2.1E+01	ca	NA	NA	NO	BSL
	91-20-3	Naphthalene	2.6E+00	J	2.6E+00	J	MG/KG	AOCISB021	1 / 66	3.31E-01 - 9.46E-01	2.6E+00	NA	1.9E+01	nc	NA	NA	NO	BSL
	7440-02-0	Nickel	1.9E+01		8.4E+01		MG/KG	AOCISB004	52 / 52	8.30E+00 - 1.00E+01	8.4E+01	4.0E+01	2.0E+03	nc	NA	NA	NO	BSL
	95-47-6	o-Xylene	1.8E-04	J	1.5E+00	J	MG/KG	AOCISB021	6 / 52	1.00E-02 - 9.73E-01	1.5E+00	NA	9.0E+01	nc	NA	NA	NO	BSL
	85-01-8	Phenanthrene	2.6E+00	J	2.6E+00	J	MG/KG	AOCISB021	1 / 66	3.31E-01 - 9.46E-01	2.6E+00	NA	2.9E+03	nc	NA	NA	NO	BSL
	7440-09-7	Potassium	7.7E+01	J	9.1E+02	J	MG/KG	AOCISB022	52 / 52	1.03E+03 - 1.28E+03	9.1E+02	1.7E+03	NA	NA	NA	NA	NO	NUT
	129-00-0	Pyrene	6.4E-02	J	4.7E-01	J	MG/KG	AOCISB021	4 / 66	3.31E-01 - 9.46E-01	4.7E-01	NA	2.9E+03	nc	NA	NA	NO	BSL
	7782-49-2	Selenium	6.0E-01	J	1.6E+00	J	MG/KG	AOCISB023	40 / 52	1.00E+00 - 1.30E+00	1.6E+00	2.0E+00	5.1E+02	nc	NA	NA	NO	BSL
	7440-22-4	Silver	6.4E-02	J	1.2E-01	J	MG/KG	AOCISB021, AOCISB026	17 / 52	2.10E+00 - 2.60E+00	1.2E-01	7.7E-02	5.1E+02	nc	NA	NA	NO	BSL
	7440-23-5	Sodium	2.1E+01	J	2.7E+03		MG/KG	AOCISB001	51 / 52	1.03E+03 - 1.28E+03	2.7E+03	1.2E+03	NA	NA	NA	NA	NO	NUT
	127-18-4	Tetrachloroethene	2.7E-04	J	2.9E-04	J	MG/KG	AOCISB014	2 / 52	1.00E-02 - 1.20E-02	2.9E-04	NA	1.3E+00	ca	NA	NA	NO	BSL
	7440-28-0	Thallium	7.3E-01	J	7.3E-01	J	MG/KG	AOCISB020	1 / 52	2.10E+00 - 2.60E+00	7.3E-01	6.7E-01	6.7E+00	nc	NA	NA	NO	BSL
	108-88-3	Toluene	3.0E-04	J	2.5E-02		MG/KG	AOCISB005	9 / 52	1.00E-02 - 1.20E-02	2.5E-02	NA	1.7E+03	calc	NA	NA	NO	BSL
	79-01-6	Trichloroethene	3.1E-04	J	3.7E-04	J	MG/KG	AOCISB001	2 / 52	1.00E-02 - 1.20E-02	3.7E-04	NA	1.1E-01	ca	NA	NA	NO	BSL
	7440-62-2	Vanadium	5.3E+01		1.9E+02		MG/KG	AOCISB001	52 / 52	1.00E+01 - 1.30E+01	1.9E+02	1.3E+02	1.0E+02	nc	NA	NA	YES	ASL
	1330-20-7	Xylene (total)	2.0E-04	J	4.5E+00	J	MG/KG	AOCISB021	7 / 52	1.00E-02 - 9.73E-01	4.5E+00	NA	9.0E+01	nc	NA	NA	NO	BSL
	7440-66-6	Zinc	3.1E+01		6.0E+01		MG/KG	AOCISB019	52 / 52	4.10E+00 - 5.10E+00	6.0E+01	7.1E+01	3.1E+04	nc	NA	NA	NO	BSL

(1) Maximum concentration is used for screening.

(2) West Vieques Soil Type Qa (95% upper tolerance limit).

(3) EPA Region 9 Preliminary Remediation Goals (PRGs) for Industrial Soil; October 1, 2004, Concentrations based on non-carcinogenic health effects are adjusted using HQ=0.1
PRG value for xylenes used as a surrogate for m,p-xylenes and o-xylene
Acenaphthene was used as a surrogate for acenaphthylene
Mercury and compounds was used as a surrogate for mercury
Pyrene was used as a surrogate for benzo(ghi)perylene
EPA Region 9 PRGs were calculated where indicated due to updated toxicity values in IRIS.

(4) Rationale Codes

Selection Reason: Above Screening Levels (ASL)
Deletion Reason: Below Screening Level (BSL)
Essential Nutrient (NUT)

COPC = Chemical of Potential Concern
ARAR/TBC = Applicable or Relevant and Appropriate Requirement/ To Be Considered
EQB = Environmental Quality Board.
TPH values derived from Criterion from *Commonwealth Government of Puerto Rico,* Office of the Governor, Environmental Quality Board, Water Quality Area (November 7, 1990, Amendments 2002).
ca = Carcinogenic
nc = Noncarcinogenic
NA = Not available
J - compound was detected below the reporting limit in the sample

TABLE 2.3

OCCURRENCE, DISTRIBUTION AND SELECTION OF CHEMICALS OF POTENTIAL CONCERN

AOC-I

Former NASD, Vieques, Puerto Rico

Scenario Timeframe: Future
Medium: Groundwater
Exposure Medium: Groundwater

Exposure Point	CAS Number	Chemical	Minimum Concentration	Qualifier	Maximum Concentration	Qualifier	Units	Location of Maximum Concentration	Detection Frequency	Range of Detection Limits	Concentration Used for Screening (1)	Background Value (2)	Screening Toxicity Value (3)		Potential ARAR/TBC Value	Potential ARAR/TBC Source	COPC Flag	Rationale for Selection or Deletion (4)
Groundwater	75-34-3	1,1-Dichloroethane	2.60E-01	J	2.60E-01	J	UG/L	NDAIMW07	1 / 11	5.00E-01 - 5.00E-01	2.60E-01	NA	8.1E+01	nc	NA	NA	NO	BSL
	107-06-2	1,2-Dichloroethane	1.60E+00		1.60E+00		UG/L	NDAIMW07	1 / 11	5.00E-01 - 5.00E-01	1.60E+00	NA	1.2E-01	ca	5	MCL	YES	ASL
	78-87-5	1,2-Dichloropropane	3.30E-01	J	3.30E-01	J	UG/L	NDAIMW07	1 / 11	5.00E-01 - 5.00E-01	3.30E-01	NA	1.6E-01	ca	5	MCL	YES	ASL
	541-73-1	1,3-Dichlorobenzene	5.20E-01		5.20E-01		UG/L	NDAIMW07	1 / 11	5.00E-01 - 5.00E-01	5.20E-01	NA	1.8E+01	nc	NA	NA	NO	BSL
	106-46-7	1,4-Dichlorobenzene	5.20E-01		5.20E-01		UG/L	NDAIMW07	1 / 11	5.00E-01 - 5.00E-01	5.20E-01	NA	5.0E-01	ca	NA	NA	YES	ASL
	91-57-6	2-Methylnaphthalene	3.80E+00	J	1.10E+02		UG/L	NDAIMW07	5 / 11	5.00E+00 - 1.50E+01	1.10E+02	NA	2.4E+00	calc	NA	NA	YES	ASL
	108-10-1	4-Methyl-2-pentanone	1.49E+01		1.49E+01		UG/L	NDAIMW07	1 / 11	5.00E+00 - 5.00E+00	1.49E+01	NA	2.0E+02	nc	NA	NA	NO	BSL
	83-32-9	Acenaphthene	2.50E+00	J	2.50E+00	J	UG/L	NDAIMW07	1 / 11	5.00E+00 - 5.40E+00	2.50E+00	NA	3.7E+01	nc	NA	NA	NO	BSL
	98-86-2	Acetophenone	6.40E+00	J	1.53E+01	J	UG/L	NDAIMW07	2 / 11	5.00E+00 - 5.40E+00	1.53E+01	NA	6.1E+01	calc	NA	NA	NO	BSL
	7429-90-5	Aluminum	5.40E+01	J	7.74E+02		UG/L	NDAIMW06	8 / 11	2.00E+02 - 2.00E+02	7.74E+02	2.49E+02	3.6E+03	nc	NA	NA	NO	BSL
	7429-90-5_D	Aluminum, Dissolved	3.47E+01	J	8.42E+01	J	UG/L	NDAIMW01	6 / 11	2.00E+02 - 2.00E+02	8.42E+01	8.42E+01	3.6E+03	nc	NA	NA	NO	BSL
	7440-36-0	Antimony	2.55E+00	J	3.46E+00	J	UG/L	NDAIMW01	4 / 11	6.00E+01 - 6.00E+01	3.46E+00	3.46E+00	1.5E+00	nc	6	MCL	YES	ASL
	7440-36-0_D	Antimony, Dissolved	2.33E+00	J	2.33E+00	J	UG/L	NDAIMW06	1 / 11	6.00E+01 - 6.00E+01	2.33E+00	ND	1.5E+00	nc	6	MCL	YES	ASL
	7440-38-2	Arsenic	4.30E+00	J	1.87E+01		UG/L	NDAIMW05	9 / 11	1.00E+01 - 1.00E+01	1.87E+01	1.56E+01	4.5E-02	ca	10	MCL	YES	ASL
	7440-38-2_D	Arsenic, Dissolved	6.20E+00	J	2.00E+01	J	UG/L	NDAIMW03	8 / 11	1.00E+01 - 1.00E+01	2.00E+01	1.40E+01	4.5E-02	ca	10	MCL	YES	ASL
	7440-39-3	Barium	1.61E+01	J	1.04E+02	J	UG/L	NDAIMW04	11 / 11	2.00E+02 - 2.00E+02	1.04E+02	1.76E+01	7.3E+02	calc	2000	MCL	NO	BSL
	7440-39-3_D	Barium, Dissolved	1.64E+01	J	1.03E+02	J	UG/L	NDAIMW04	11 / 11	2.00E+02 - 2.00E+02	1.03E+02	1.80E+01	7.3E+02	calc	2000	MCL	NO	BSL
	71-43-2	Benzene	6.20E-01		5.93E+01		UG/L	NDAIMW07	6 / 11	5.00E-01 - 4.20E+00	5.93E+01	NA	3.5E-01	ca	5	MCL	YES	ASL
	117-81-7	bis(2-Ethylhexyl)phthalate	9.60E+00	J	9.60E+00	J	UG/L	NDAIMW05	1 / 11	5.00E+00 - 1.04E+01	9.60E+00	NA	4.8E+00	ca	NA	NA	YES	ASL
	75-25-2	Bromoform	1.30E-01	J	1.30E-01	J	UG/L	NDAIMW06	1 / 11	5.00E-01 - 5.00E-01	1.30E-01	NA	8.5E+00	ca	NA	NA	NO	BSL
	7440-43-9	Cadmium	3.19E+00	J	7.70E+00	J	UG/L	NDAIMW02	7 / 11	5.00E+00 - 5.00E+00	7.70E+00	6.35E+00	1.8E+00	nc	5	MCL	YES	ASL
	7440-43-9_D	Cadmium, Dissolved	3.07E+00	J	8.23E+00	J	UG/L	NDAIMW02	7 / 11	5.00E+00 - 5.00E+00	8.23E+00	6.31E+00	1.8E+00	nc	5	MCL	YES	ASL
	7440-70-2	Calcium	4.56E+04		9.73E+04		UG/L	NDAIMW01	11 / 11	5.00E+03 - 5.00E+03	9.73E+04	9.78E+04	NA	NA	NA	NA	NO	NUT
	7440-70-2_D	Calcium, Dissolved	4.64E+04		1.01E+05		UG/L	NDAIMW01	11 / 11	5.00E+03 - 5.00E+03	1.01E+05	1.01E+05	NA	NA	NA	NA	NO	NUT
	74-87-3	Chloromethane	5.10E-01		5.10E-01		UG/L	NDAIMW05	1 / 11	5.00E-01 - 5.00E-01	5.10E-01	NA	1.6E+01	nc	NA	NA	NO	BSL
	7440-47-3	Chromium	1.35E+00	J	3.10E+00	J	UG/L	NDAIMW03	6 / 11	1.00E+01 - 1.00E+01	3.10E+00	1.47E+00	1.1E+01	nc	100	MCL	NO	BSL
	7440-47-3_D	Chromium, Dissolved	1.10E+00	J	7.00E+00	J	UG/L	NDAIMW06	4 / 11	1.00E+01 - 1.00E+01	7.00E+00	ND	1.1E+01	nc	100	MCL	NO	BSL
	7440-48-4	Cobalt	4.04E+00	J	8.78E+00	J	UG/L	NDAIMW02	7 / 11	5.00E+01 - 5.00E+01	8.78E+00	6.99E+00	7.3E+01	nc	NA	NA	NO	BSL
	7440-48-4_D	Cobalt, Dissolved	8.00E-01	J	8.61E+00	J	UG/L	NDAIMW02	9 / 11	5.00E+01 - 5.00E+01	8.61E+00	7.06E+00	7.3E+01	nc	NA	NA	NO	BSL
	7440-50-8	Copper	4.43E+00	J	8.54E+00	J	UG/L	NDAIMW03	7 / 11	2.50E+01 - 2.50E+01	8.54E+00	7.90E+00	1.5E+02	nc	1300	MCL	NO	BSL
	7440-50-8_D	Copper, Dissolved	3.35E+00	J	8.79E+00	J	UG/L	NDAIMW01	7 / 11	2.50E+01 - 2.50E+01	8.79E+00	8.79E+00	1.5E+02	nc	1300	MCL	NO	BSL
	57-12-5	Cyanide, Total	1.16E+01		1.16E+01		UG/L	NDAIMW02	1 / 11	1.00E+01 - 1.00E+01	1.16E+01	NA	7.3E+01	nc	100	MCL	NO	BSL
	110-82-7	Cyclohexane	1.00E+00		6.60E+01		UG/L	NDAIMW07	6 / 11	5.00E-01 - 4.20E+00	6.60E+01	NA	1.0E+03	nc	NA	NA	NO	BSL
	132-64-9	Dibenzofuran	1.20E+00	J	5.50E+00		UG/L	NDAIMW07	4 / 11	5.00E+00 - 5.40E+00	5.50E+00	NA	1.2E+00	nc	NA	NA	YES	ASL
	100-41-4	Ethylbenzene	4.10E-01	J	1.44E+01		UG/L	NDAIMW07	5 / 11	5.00E-01 - 5.00E-01	1.44E+01	NA	1.3E+02	nc	700	MCL	NO	BSL
	86-73-7	Fluorene	1.70E+00	J	8.30E+00		UG/L	NDAIMW07	3 / 11	5.00E+00 - 5.40E+00	8.30E+00	NA	2.4E+01	nc	NA	NA	NO	BSL
	7439-89-6	Iron	7.27E+01	J	1.84E+03		UG/L	NDAIMW07	10 / 11	1.00E+02 - 1.00E+02	1.84E+03	2.81E+02	1.1E+03	nc	NA	NA	YES	ASL
	7439-89-6_D	Iron (Dissolved)	1.70E+01	J	1.47E+03		UG/L	NDAIMW07	9 / 11	1.00E+02 - 1.00E+02	1.47E+03	8.33E+01	1.1E+03	nc	NA	NA	YES	ASL
	98-82-8	Isopropylbenzene (Cumene)	2.60E+00		4.70E+01		UG/L	NDAIMW07	6 / 11	5.00E-01 - 4.20E+00	4.70E+01	NA	6.6E+01	nc	NA	NA	NO	BSL
	7439-92-1	Lead	4.40E+00	J	8.38E+00		UG/L	NDAIMW07	7 / 11	3.00E+00 - 1.00E+01	8.38E+00	6.50E+00	1.5E+01	MCL	NA	NA	NO	BSL
	7439-92-1_D	Lead, Dissolved	4.75E+00		7.95E+00		UG/L	NDAIMW02	7 / 11	3.00E+00 - 1.00E+01	7.95E+00	7.55E+00	1.5E+01	MCL	NA	NA	NO	BSL
	7439-95-4	Magnesium	2.18E+04		5.93E+04		UG/L	NDAIMW02	11 / 11	5.00E+03 - 5.00E+03	5.93E+04	5.45E+04	NA	NA	NA	NA	NO	NUT
	7439-95-4_D	Magnesium, Dissolved	2.26E+04		5.80E+04		UG/L	NDAIMW02	11 / 11	5.00E+03 - 5.00E+03	5.80E+04	5.60E+04	NA	NA	NA	NA	NO	NUT
	7439-96-5	Manganese	1.33E+01	J	1.93E+03		UG/L	NDAIMW04	10 / 11	1.50E+01 - 1.50E+01	1.93E+03	4.07E+01	8.8E+01	nc	NA	NA	YES	ASL
	7439-96-5_D	Manganese, Dissolved	1.09E+01	J	1.96E+03		UG/L	NDAIMW04	11 / 11	1.50E+01 - 1.50E+01	1.96E+03	3.79E+01	8.8E+01	nc	NA	NA	YES	ASL
	7439-97-6	Mercury	4.62E-02	J	4.78E-02	J	UG/L	NDAIMW05	2 / 11	2.00E-01 - 2.00E-01	4.78E-02	ND	1.1E+00	nc	2	MCL	NO	BSL
	108-87-2	Methyl Cyclohexane	1.20E+00		3.40E+01		UG/L	NDAIMW07	5 / 11	5.00E-01 - 4.20E+00	3.40E+01	NA	5.2E+02	nc	NA	NA	NO	BSL
	91-20-3	Naphthalene	5.50E+00		9.60E+01		UG/L	NDAIMW07	4 / 11	5.00E+00 - 1.50E+01	9.60E+01	NA	6.2E-01	nc	NA	NA	YES	ASL
	7440-02-0	Nickel	1.40E+00	J	2.51E+00	J	UG/L	NDAIMW06	4 / 11	4.00E+01 - 4.00E+01	2.51E+00	1.60E+00	7.3E+01	nc	NA	NA	NO	BSL
	7440-02-0_D	Nickel, Dissolved	6.50E-01	J	2.07E+00	J	UG/L	NDAIMW03	7 / 11	4.00E+01 - 4.00E+01	2.07E+00	1.99E+00	7.3E+01	nc	NA	NA	NO	BSL
	85-01-8	Phenanthrene	4.80E+00	J	7.00E+00		UG/L	NDAIMW07	3 / 11	5.00E+00 - 5.40E+00	7.00E+00	NA	1.8E+01	nc	NA	NA	NO	BSL
	7440-09-7	Potassium	2.87E+02	J	1.29E+03	J	UG/L	NDAIMW06	11 / 11	5.00E+03 - 5.00E+03	1.29E+03	9.43E+02	NA	NA	NA	NA	NO	NUT
	7440-09-7_D	Potassium, Dissolved	2.95E+02	J	1.34E+03	J	UG/L	NDAIMW06	11 / 11	5.00E+03 - 5.00E+03	1.34E+03	1.09E+03	NA	NA	NA	NA	NO	NUT
	7782-49-2	Selenium	1.80E+00	J	3.80E+00	J	UG/L	NDAIMW06	3 / 11	5.00E+00 - 3.50E+01	3.80E+00	ND	1.8E+01	nc	50	MCL	NO	BSL
	7782-49-2_D	Selenium, Dissolved	2.92E+00	J	2.92E+00	J	UG/L	NDAIMW01	1 / 11	5.00E+00 - 3.50E+01	2.92E+00	2.92E+00	1.8E+01	nc	50	MCL	NO	BSL
	7440-23-5	Sodium	7.97E+04		4.18E+05		UG/L	NDAIMW06	11 / 11	5.00E+03 - 2.50E+04	4.18E+05	1.01E+05	NA	NA	NA	NA	NO	NUT
	7440-23-5_D	Sodium, Dissolved	7.85E+04		4.30E+05		UG/L	NDAIMW06	11 / 11	5.00E+03 - 2.50E+04	4.30E+05	1.04E+05	NA	NA	NA	NA	NO	NUT
	7440-28-0_D	Thallium, Dissolved	4.70E-02	J	4.70E-02	J	UG/L	NDAIMW01	1 / 11	5.00E-01 - 1.00E+00	4.70E-02	NA	2.4E-01	nc	2	MCL	NO	BSL
	108-88-3	Toluene	3.00E-01	J	1.90E+00		UG/L	NDAIMW07	4 / 11	5.00E-01 - 5.00E-01	1.90E+00	NA	2.3E+02	calc	1000	MCL	NO	BSL
	79-01-6	Trichloroethene	1.70E-01	J	1.40E+00		UG/L	NDAIMW07	2 / 11	5.00E-01 - 5.00E-01	1.40E+00	NA	2.8E-02	ca	5	MCL	YES	ASL
	7440-62-2	Vanadium	3.48E+00	J	4.69E+01	J	UG/L	NDAIMW06	7 / 11	5.00E+01 - 5.00E+01	4.69E+01	3.71E+01	3.6E+00	nc	NA	NA	YES	ASL
	7440-62-2_D	Vanadium, Dissolved	2.94E+00	J	4.53E+01	J	UG/L	NDAIMW06	7 / 11	5.00E+01 - 5.00E+01	4.53E+01	3.76E+01	3.6E+00	nc	NA	NA	YES	ASL
	1330-20-7	Xylene (total)	4.20E-01	J	1.12E+01		UG/L	NDAIMW07	5 / 11	5.00E-01 - 2.00E+00	1.12E+01	NA	2.1E+01	nc	10000	MCL	NO	BSL
	7440-66-6	Zinc	2.14E+00	J	1.20E+01	J	UG/L	NDAIMW06	2 / 11	2.00E+01 - 6.00E+01	1.20E+01	ND	1.1E+03	nc	NA	NA	NO	BSL
	7440-66-6_D	Zinc, Dissolved	9.50E-01	J	1.24E+01	J	UG/L	NDAIMW06	4 / 11	2.00E+01 - 6.00E+01	1.24E+01	9.50E-01	1.1E+03	nc	NA	NA	NO	BSL

(1) Maximum concentration is used for screening.

(2) Background well NDAIMW01 (highest concentration detected).

(3) EPA Region 9 PRGs Table, Tap Water, October 2004, U.S. EPA Region 9 (HQ = 0.1 for noncarcinogens).
Anthracene was used as a surrogate for phenanthrene
Chromium (VI) was used as a surrogate for chromium
Mercury and compounds was used as a surrogate for mercury
EPA Region 9 PRGs were calculated where indicated due to updated toxicity values in Above Screening Levels (ASL)
Below Screening Level (BSL)

(4) Rationale Codes Selection Reason: Essential Nutrient (NUT)
Deletion Reason:

COPC = Chemical of Potential Concern
ARAR/TBC = Applicable or Relevant and Appropriate Requirement/ To Be Considered
MCL = Maximum Contaminant Level from EPA's National Primary Drinking Water Standards. The highest level of a contaminant that is allowed in drinking water.
ca = Carcinogenic
nc = Noncarcinogenic
NA = Not available
ND = Not detected
J - compound was detected below the reporting limit in the sample

Table 3.1.RME
MEDIUM-SPECIFIC EXPOSURE POINT CONCENTRATION SUMMARY
AOC-I
Former NASD, Vieques, Puerto Rico

Scenario Timeframe: Future
Medium: Soil
Exposure Medium: Surface Soil (Recreational and Residential)

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean	95% UCL (N/T/G)		Maximum Concentration (Qualifier)		Exposure Point Concentration			
								Value	Units	Statistic	Rationale
Surface Soil (0- 2 ft)	Benzo(a)pyrene	mg/kg	7.7E-02	1.2E-01	(T,G)	1.5E-01	J	1.2E-01	mg/kg	95% KM (t)	(1,3)
	Aluminum	mg/kg	1.7E+04	1.8E+04	(N,T,G)	2.5E+04		1.8E+04	mg/kg	95% KM (BCA)	(1,2,3)
	Arsenic	mg/kg	1.3E+00	1.5E+00	(N,T,G)	2.0E+00	J	1.5E+00	mg/kg	95% KM (t)	(1,2,3)
	Iron	mg/kg	2.9E+04	3.3E+04		4.4E+04		3.3E+04	mg/kg	95% KM (Chebyshev)	(4)
	Manganese	mg/kg	6.1E+02	6.5E+02	(N,T,G)	9.8E+02		6.5E+02	mg/kg	95% KM (BCA)	(1,2,3)
	Thallium	mg/kg	7.3E-01	--		7.3E-01	J	7.3E-01	mg/kg	Max	(6)
	Vanadium	mg/kg	8.6E+01	9.2E+01	(T,G)	1.4E+02		9.2E+01	mg/kg	95% KM (BCA)	(1,3)

Full statistics for data included in Appendix B.
Unusually high non-detected values excluded from quantitative risk assessment. Removed non-detects that were one order of magnitude greater than the maximum detected value for each analyte (RAGS Part A, Chapter 5, Dec. 1989).
ProUCL, Version 4.0 used to determine distribution of data using the Shapiro-Wilk W Test. ProUCL used to calculate RME EPC, following recommendations based on distribution and standard deviation in users guide (USEPA. April 2007. ProUCL, Version 4.0. Prepared by Lockheed Martin Environmental Services).

Statistics: Maximum Detected Value (Max); 95% KM (t) UCL; 95% KM (z) UCL; 95% KM (jackknife) UCL;
99% KM (Chebyshev) UCL; 97.5% KM (Chebyshev) UCL; 95% KM (Chebyshev) UCL;
95% KM (bootstrap t) UCL; 95% Student's-T test UCL (95% Stud-t); 95% KM (BCA) UCL;
95% KM (Percentile Bootstrap) UCL; 95% Approximate Gamma (App. Gamma); 95% Adjusted Gamma (Adj. Gamma);

(1) Shapiro-Wilk W Test indicates data are log-normally distributed.
(2) Shapiro-Wilk W Test indicates data are normally distributed.
(3) Anderson-Darling and/or Kolmogorov-Smirnov Tests indicate data are gamma distributed.
(4) Distribution tests are inconclusive (data are not normal, log-normal, or gamma-distributed).
(5) The maximum detected concentration was used as the UCL because the value recommended by ProUCL was higher than the Max.
(6) The maximum detected concentration was used as the UCL because the number of detected concentration was less than 2.
G = Gamma distribution.
N = Normal distribution.
T = Log-normal distribution.

J - analyte was detected below the reporting limit in the sample

Table 3.1a.RME

MEDIUM-SPECIFIC EXPOSURE POINT CONCENTRATION SUMMARY

AOC-I

Former NASD, Vieques, Puerto Rico

Scenario Timeframe: Future
Medium: Soil
Exposure Medium: Surface Soil (Maintenance Worker)

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean	95% UCL (N/T/G)		Maximum Concentration (Qualifier)		Exposure Point Concentration			
								Value	Units	Statistic	Rationale
Surface Soil (0- 2 ft)	Arsenic	mg/kg	1.3E+00	1.5E+00	(N,T,G)	2.0E+00	J	1.5E+00	mg/kg	95% Stud-t	(1,2,3)
	Iron	mg/kg	2.9E+04	3.0E+04		4.4E+04		3.0E+04	mg/kg	95% Stud-t	(4)
	Vanadium	mg/kg	8.6E+01	9.2E+01	(T,G)	1.4E+02		9.2E+01	mg/kg	95% App. Gamma	(1,3)

Full statistics for data included in Appendix B.

Unusually high non-detected values excluded from quantitative risk assessment. Removed non-detects that were one order of magnitude greater than the maximum detected value for each analyte (RAGS Part A, Chapter 5, Dec. 1989).

ProUCL, Version 4.0 used to determine distribution of data using the Shapiro-Wilk W Test. ProUCL used to calculate RME EPC, following recommendations based on distribution and standard deviation in users guide (USEPA. April 2007. ProUCL, Version 4.0. Prepared by Lockheed Martin Environmental Services).

Statistics: Maximum Detected Value (Max); 95% KM (t) UCL; 95% KM (z) UCL; 95% KM (jackknife) UCL; 99% KM (Chebyshev) UCL; 97.5% KM (Chebyshev) UCL; 95% KM (Chebyshev) UCL; 95% KM (bootstrap t) UCL; 95% Student's-T test UCL (95% Stud-t); 95% KM (BCA) UCL; 95% KM (Percentile Bootstrap) UCL; 95% Approximate Gamma (App. Gamma); 95% Adjusted Gamma (Adj. Gamma);

(1) Shapiro-Wilk W Test indicates data are log-normally distributed.
(2) Shapiro-Wilk W Test indicates data are normally distributed.
(3) Anderson-Darling and/or Kolmogorov-Smirnov Tests indicate data are gamma distributed.
(4) Distribution tests are inconclusive (data are not normal, log-normal, or gamma-distributed).
(5) The maximum detected concentration was used as the UCL because the value recommended by ProUCL was higher than the Max.
(6) The maximum detected concentration was used as the UCL because the number of detected concentration was less than 2.

G = Gamma distribution.
N = Normal distribution.
T = Log-normal distribution.

J - analyte was detected below the reporting limit in the sample

Table 3.2.RME
MEDIUM-SPECIFIC EXPOSURE POINT CONCENTRATION SUMMARY
AOC-I
Former NASD, Vieques, Puerto Rico

Scenario Timeframe: Future
Medium: Soil
Exposure Medium: Total Soil (Residential)

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean	95% UCL (N/T/G)		Maximum Concentration (Qualifier)		Exposure Point Concentration			
								Value	Units	Statistic	Rationale
Total Soil (0-6 ft)	Benzo(a)pyrene	mg/kg	7.7E-02	1.2E-01	(N,T,G)	1.5E-01	J	1.2E-01	mg/kg	95% KM (t)	(1,2,3)
	Aluminum	mg/kg	1.9E+04	2.2E+04		3.3E+04		2.2E+04	mg/kg	95% KM (Chebyshev)	(4)
	Arsenic	mg/kg	1.4E+00	1.5E+00	(T,G)	2.6E+00		1.5E+00	mg/kg	95% KM (BCA)	(1,3)
	Iron	mg/kg	3.3E+04	3.9E+04		6.3E+04		3.9E+04	mg/kg	95% KM (Chebyshev)	(4)
	Manganese	mg/kg	7.0E+02	7.3E+02	(N,T,G)	1.1E+03		7.3E+02	mg/kg	95% KM (t)	(1,2,3)
	Thallium	mg/kg	7.3E-01	---		7.3E-01	J	7.3E-01	mg/kg	Max	(6)
	Vanadium	mg/kg	9.7E+01	1.1E+02		1.9E+02		1.1E+02	mg/kg	95% KM (Chebyshev)	(4)

Full statistics for data included in Appendix B.
Unusually high non-detected values excluded from quantitative risk assessment. Removed non-detects that were one order of magnitude greater than the maximum detected value for each analyte (RAGS Part A, Chapter 5, Dec. 1989).
ProUCL, Version 4.0 used to determine distribution of data using the Shapiro-Wilk W Test. ProUCL used to calculate RME EPC, following recommendations based on distribution and standard deviation in users guide (USEPA. April 2007. ProUCL, Version 4.0. Prepared by Lockheed Martin Environmental Services).

Statistics: Maximum Detected Value (Max); 95% KM (t) UCL; 95% KM (z) UCL; 95% KM (jackknife) UCL;
99% KM (Chebyshev) UCL; 97.5% KM (Chebyshev) UCL; 95% KM (Chebyshev) UCL;
95% KM (bootstrap t) UCL; 95% Student's-T test UCL (95% Stud-t); 95% KM (BCA) UCL;
95% KM (Percentile Bootstrap) UCL; 95% Approximate Gamma (App. Gamma); 95% Adjusted Gamma (Adj. Gamma);

(1) Shapiro-Wilk W Test indicates data are log-normally distributed.
(2) Shapiro-Wilk W Test indicates data are normally distributed.
(3) Anderson-Darling and/or Kolmogorov-Smirnov Tests indicate data are gamma distributed.
(4) Distribution tests are inconclusive (data are not normal, log-normal, or gamma-distributed).
(5) The maximum detected concentration was used as the UCL because the value recommended by ProUCL was higher than the Max.
(6) The maximum detected concentration was used as the UCL because the number of detected concentration was less than 2.
G = Gamma distribution.
N = Normal distribution.
T = Log-normal distribution.

J - analyte was detected below the reporting limit in the sample

Table 3.2a.RME

MEDIUM-SPECIFIC EXPOSURE POINT CONCENTRATION SUMMARY

AOC-I

Former NASD, Vieques, Puerto Rico

Scenario Timeframe: Future
Medium: Soil
Exposure Medium: Total Soil (Industrial and Construction Worker)

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean	95% UCL (N/T/G)		Maximum Concentration (Qualifier)	Exposure Point Concentration			
							Value	Units	Statistic	Rationale
Total Soil (0-6 ft)	Arsenic	mg/kg	1.4E+00	1.5E+00	(T,G)	2.6E+00	1.5E+00	mg/kg	95% App. Gamma	(1,3)
	Iron	mg/kg	3.3E+04	3.5E+04		6.3E+04	3.5E+04	mg/kg	95% Stud-t	(4)
	Vanadium	mg/kg	9.7E+01	1.0E+02		1.9E+02	1.0E+02	mg/kg	95% Stud-t	(4)

Full statistics for data included in Appendix B.

Unusually high non-detected values excluded from quantitative risk assessment. Removed non-detects that were one order of magnitude greater than the maximum detected value for each analyte (RAGS Part A, Chapter 5, Dec. 1989).

ProUCL, Version 4.0 used to determine distribution of data using the Shapiro-Wilk W Test. ProUCL used to calculate RME EPC, following recommendations based on distribution and standard deviation in users guide (USEPA. April 2007. ProUCL, Version 4.0. Prepared by Lockheed Martin Environmental Services).

Statistics: Maximum Detected Value (Max); 95% KM (t) UCL; 95% KM (z) UCL; 95% KM (jackknife) UCL; 99% KM (Chebyshev) UCL; 97.5% KM (Chebyshev) UCL; 95% KM (Chebyshev) UCL; 95% KM (bootstrap t) UCL; 95% Student's-T test UCL (95% Stud-t); 95% KM (BCA) UCL; 95% KM (Percentile Bootstrap) UCL; 95% Approximate Gamma (App. Gamma); 95% Adjusted Gamma (Adj. Gamma);

(1) Shapiro-Wilk W Test indicates data are log-normally distributed.
(2) Shapiro-Wilk W Test indicates data are normally distributed.
(3) Anderson-Darling and/or Kolmogorov-Smirnov Tests indicate data are gamma distributed.
(4) Distribution tests are inconclusive (data are not normal, log-normal, or gamma-distributed).
(5) The maximum detected concentration was used as the UCL because the value recommended by ProUCL was higher than the Max.
(6) The maximum detected concentration was used as the UCL because the number of detected concentration was less than 2.

J - analyte was detected below the reporting limit in the sample

G = Gamma distribution.
N = Normal distribution.
T = Log-normal distribution.

Table 3.2.RME Supplement
MEDIUM-SPECIFIC EXPOSURE POINT CONCENTRATION SUMMARY
AOC-I
Former NASD, Vieques, Puerto Rico

Scenario Timeframe: Future
Medium: Soil
Exposure Medium: Soil (Residential)

		Surface Soil (0-2 ft)			Total Soil (0-6 ft)			The Higher of Two	
Exposure Point	Chemical of Potential Concern	Arithmetic Mean	95% UCL (N/T/G)	Maximum Concentration (Qualifier)	Arithmetic Mean	95% UCL (N/T/G)	Maximum Concentration (Qualifier)	Exposure Point Concentration	
								Value	Soil Depth
Soil (0-2 ft or 0-6 ft)	Benzo(a)pyrene	7.7E-02	1.20E-01	1.45E-01	7.68E-02	1.19E-01	1.5E-01	1.20E-01	Surface Soil (0-2 ft)
	Aluminum	1.7E+04	1.81E+04	2.50E+04	1.91E+04	2.16E+04	3.3E+04	2.16E+04	Total Soil (0-6 ft)
	Arsenic	1.3E+00	1.46E+00	2.00E+00	1.42E+00	1.51E+00	2.6E+00	1.51E+00	Total Soil (0-6 ft)
	Iron	2.9E+04	3.26E+04	4.40E+04	3.29E+04	3.86E+04	6.3E+04	3.86E+04	Total Soil (0-6 ft)
	Manganese	6.1E+02	6.51E+02	9.80E+02	6.97E+02	7.33E+02	1.1E+03	7.33E+02	Total Soil (0-6 ft)
	Thallium	7.3E-01	--	7.30E-01	7.30E-01	---	7.3E-01	7.30E-01	Max
	Vanadium	8.6E+01	9.19E+01	1.40E+02	9.74E+01	1.15E+02	1.9E+02	1.15E+02	Total Soil (0-6 ft)

Units are presented in mg/kg.

Table 3.3.RME
MEDIUM-SPECIFIC EXPOSURE POINT CONCENTRATION SUMMARY
AOC-I
Former NASD, Vieques, Puerto Rico

Scenario Timeframe: Future
Medium: Groundwater
Exposure Medium: Groundwater

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean	95% UCL (N/T/G)		Maximum Concentration (Qualifier)		Exposure Point Concentration			
								Value	Units	Statistic	Rationale
Groundwater											
	1,2-Dichloroethane	µg/L	1.6E+00	--		1.6E+00		1.6E+00	µg/L	Max	(6)
	1,2-Dichloropropane	µg/L	3.3E-01	--		3.3E-01	J	3.3E-01	µg/L	Max	(6)
	Benzene	µg/L	2.1E+01	2.3E+01	(N,T,G)	5.9E+01		2.3E+01	µg/L	95% KM (t)	(1,2,3)
	Trichloroethene	µg/L	7.9E-01	1.4E+00		1.4E+00		1.4E+00	µg/L	Max	(5)
	1,4-Dichlorobenzene	µg/L	5.2E-01	--		5.2E-01		5.2E-01	µg/L	Max	(6)
	2-Methylnaphthalene	µg/L	4.9E+01	4.6E+01	(N,T,G)	1.1E+02		4.6E+01	µg/L	95% KM (t)	(1,2,3)
	bis(2-Ethylhexyl)phthalate	µg/L	9.6E+00	--		9.6E+00	J	9.6E+00	µg/L	Max	(6)
	Dibenzofuran	µg/L	3.7E+00	3.0E+00	(N,T,G)	5.5E+00		3.0E+00	µg/L	95% KM (t)	(1,2,3)
	Naphthalene	µg/L	5.7E+01	4.5E+01	(N,T,G)	9.6E+01		4.5E+01	µg/L	95% KM (t)	(1,2,3)
	Antimony	µg/L	3.1E+00	3.2E+00	(N,T,G)	3.5E+00	J	3.2E+00	µg/L	95% KM (t)	(1,2,3)
	Arsenic	µg/L	1.3E+01	1.5E+01	(N)	1.9E+01		1.5E+01	µg/L	95% KM (t)	(2)
	Cadmium	µg/L	5.3E+00	5.5E+00	(N,T,G)	7.7E+00	J	5.5E+00	µg/L	95% KM (t)	(1,2,3)
	Iron	µg/L	4.7E+02	1.2E+03	(T,G)	1.8E+03		1.2E+03	µg/L	95% KM (Chebyshev)	(1,3)
	Manganese	µg/L	1.0E+03	1.4E+03	(N)	1.9E+03		1.4E+03	µg/L	95% KM (t)	(2)
	Vanadium	µg/L	2.1E+01	2.5E+01	(N,T,G)	4.7E+01	J	2.5E+01	µg/L	95% KM (t)	(1,2,3)

Full statistics for data included in Appendix B.
Unusually high non-detected values excluded from quantitative risk assessment. Removed non-detects that were one order of magnitude greater than the maximum detected value for each analyte (RAGS Part A, Chapter 5, Dec. 1989).
ProUCL, Version 4.0 used to determine distribution of data using the Shapiro-Wilk W Test. ProUCL used to calculate RME EPC, following recommendations based on distribution and standard deviation in users guide (USEPA. April 2007. ProUCL, Version 4.0. Prepared by Lockheed Martin Environmental Services).

Statistics: Maximum Detected Value (Max); 95% KM (t) UCL; 95% KM (z) UCL; 95% KM (jackknife) UCL;
99% KM (Chebyshev) UCL; 97.5% KM (Chebyshev) UCL; 95% KM (Chebyshev) UCL;
95% KM (bootstrap t) UCL; 95% Student's-T test UCL (95% Stud-t); 95% KM (BCA) UCL;
95% KM (Percentile Bootstrap) UCL; 95% Approximate Gamma (App. Gamma); 95% Adjusted Gamma (Adj. Gamma);

(1) Shapiro-Wilk W Test indicates data are log-normally distributed.
(2) Shapiro-Wilk W Test indicates data are normally distributed.

Table 3.3.RME

MEDIUM-SPECIFIC EXPOSURE POINT CONCENTRATION SUMMARY

AOC-I

Former NASD, Vieques, Puerto Rico

Scenario Timeframe: Future
Medium: Groundwater
Exposure Medium: Groundwater

Exposure Point	Chemical of Potential Concern	Units	Arithmetic Mean	95% UCL (N/T/G)	Maximum Concentration (Qualifier)	Exposure Point Concentration			
						Value	Units	Statistic	Rationale

(3) Anderson-Darling and/or Kolmogorov-Smirnov Tests indicate data are gamma distributed.

(4) Distribution tests are inconclusive (data are not normal, log-normal, or gamma-distributed).

J - analyte was detected below the reporting limit in the sample

(5) The maximum detected concentration was used as the UCL because the value recommended by ProUCL was higher than the Max.

(6) The maximum detected concentration was used as the UCL because the number of detected concentration was less than 2.

G = Gamma distribution.

N = Normal distribution.

T = Log-normal distribution.

TABLE 3-3
RME Supplement A (Adult)

Bathroom Air Exposure Concentrations from Upper Alluvial Aquifer Groundwater, Andelman Model, as Modified by Schaum
AOC-I

Former NASD, Vieques, Puerto Rico

Chemical	Exposure Point Concentration Cwo (mg/l)	C_{amax} (mg/m^3)	C_a (mg/m^3)
1,2-Dichloroethane	1.6E-03	1.7E-02	1.3E-02
1,2-Dichloropropane	3.3E-04	3.5E-03	2.7E-03
Benzene	2.3E-02	2.4E-01	1.9E-01
1,4-Dichlorobenzene	5.2E-04	5.5E-03	4.3E-03
2-Methylnaphthalene	4.6E-02	4.9E-01	3.8E-01
Naphthalene	4.5E-02	4.7E-01	3.7E-01
Trichloroethene	1.4E-03	1.5E-02	1.2E-02

Variables	Units	Exposure Assumptions
Ca = concentration of chemical in air	mg/m^3	Solved by Eq 1
C_{amax} = maximum concentration of chemical in air	mg/m^3	Solved by Eq 2
t_1 = time in shower	hr	2.5E-01
t_2 = time in bathroom after shower	hr	3.3E-01
f = fraction volatilized for chemical	unitless	**9.0E-01**
F_w = shower water flow rate	L/hr	7.5E+02
V_a = bathroom volume	m^3	1.6E+01

Equation 1:	C_a =	$((C_{amax}/2) * t_1 + C_{amax} * t_2) / (t_1 + t_2)$
Equation 2:	C_{amax} =	$(C_w * f * F_w * t_1) / V_a$

Equations and assumptions from Water Consumption and Health: Integration of Exposure Assessment, Toxicology, and Risk Assessment, edited by Rhoda G.M. Wang. Macel Dekker, Inc., New York. 1994. Exposure to Volatiles in Domestic Water, Schaum et al., Pages 307-320.

TABLE 3-3
RME Supplement A (Child)
Bathroom Air Exposure Concentrations from Upper Alluvial Aquifer Groundwater, Andelman Model, as Modified by Schaum
AOC-I
Former NASD, Vieques, Puerto Rico

Chemical	Exposure Point Concentration Cwo (mg/l)	C_{amax} (mg/m^3)	C_a (mg/m^3)
1,2-Dichloroethane	1.6E-03	3.0E-02	2.4E-02
1,2-Dichloropropane	3.3E-04	6.3E-03	4.9E-03
Benzene	2.3E-02	4.4E-01	3.4E-01
1,4-Dichlorobenzene	5.2E-04	9.9E-03	7.7E-03
2-Methylnaphthalene	4.6E-02	8.8E-01	6.8E-01
Naphthalene	4.5E-02	8.5E-01	6.6E-01
Trichloroethene	1.4E-03	2.7E-02	2.1E-02

Variables	Units	Exposure Assumptions
Ca = concentration of chemical in air	mg/m^3	Solved by Eq 1
C_{amax} = maximum concentration of chemical in air	mg/m^3	Solved by Eq 2
t_1 = time in bath	hr	4.5E-01
t_2 = time in bathroom after bath	hr	5.5E-01
f = fraction volatilized for chemical	unitless	**9.0E-01**
F_w = tap water flow rate	L/hr	7.5E+02
V_a = bathroom volume	m^3	1.6E+01

Equation 1:	C_a =	$((C_{amax}/2) * t_1 + C_{amax} * t_2) / (t_1 + t_2)$
Equation 2:	C_{amax} =	$(C_w * f * F_w * t_1) / V_a$

Equations and assumptions from Water Consumption and Health: Integration of Exposure Assessment, Toxicology, and Risk Assessment, edited by Rhoda G.M. Wang. Macel Dekker, Inc., New York. 1994. Exposure to Volatiles in Domestic Water, Schaum et al., Pages 307-320.

TABLE 4.1.RME
VALUES USED FOR DAILY INTAKE CALCULATIONS
REASONABLE MAXIMUM EXPOSURE
AOC-I
Former NASD, Vieques, Puerto Rico

Scenario Timeframe: Future
Medium: Surface Soil (0-2 ft)
Exposure Medium: Surface Soil

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Ingestion	Recreational	Adult	AOC-I Surface Soil	CS	Chemical Concentration in Soil	See Table 3s.RME	mg/kg	See Table 3s.RME	Chronic Daily Intake (CDI) (mg/kg-day) =
				IR-S	Ingestion Rate of Soil	100	mg/day	EPA, 2002	CS x IR-S x EF x ED x CF x 1/BW x 1/AT
				EF	Exposure Frequency	104	days/year	(1)	
				ED	Exposure Duration	24	years	(1)	
				CF	Conversion Factor	0.000001	kg/mg	- -	
				BW	Body Weight	70	kg	EPA, 2002	
				AT-N	Averaging Time (Non-Cancer)	8,760	days	(3)	
				AT-C	Averaging Time (Cancer)	25,550	days	(4)	
		Youth	AOC-I Surface Soil	CS	Chemical Concentration in Soil	See Table 3s.RME	mg/kg	See Table 3s.RME	CDI (mg/kg-day) =
				IR-S	Ingestion Rate of Soil	100	mg/day	EPA, 2002	CS x IR-S x EF x ED x CF x 1/BW x 1/AT
				EF	Exposure Frequency	104	days/year	(1)	
				ED	Exposure Duration	10	years	(2)	
				CF	Conversion Factor	0.000001	kg/mg	- -	
				BW	Body Weight	39	kg	EPA 2004 (2)	
				AT-N	Averaging Time (Non-Cancer)	3,650	days	(3)	
				AT-C	Averaging Time (Cancer)	25,550	days	(4)	
		Child	AOC-I Surface Soil	CS	Chemical Concentration in Soil	See Table 3s.RME	mg/kg	See Table 3s.RME	CDI (mg/kg-day) =
				IR-S	Ingestion Rate of Soil	200	mg/day	EPA, 2002	CS x IR-S x EF x ED x CF x 1/BW x 1/AT
				EF	Exposure Frequency	104	days/year	(1)	
				ED	Exposure Duration	6	years	EPA, 2002	
				CF	Conversion Factor	0.000001	kg/mg	- -	
				BW	Body Weight	15	kg	EPA, 2002	
				AT-N	Averaging Time (Non-Cancer)	2,190	days	(3)	
				AT-C	Averaging Time (Cancer)	25,550	days	(4)	
	Residential	Adult	AOC-I Surface Soil (8)	CS	Chemical Concentration in Soil	See Table 3s.RME	mg/kg	See Table 3s.RME	Chronic Daily Intake (CDI) (mg/kg-day) =
				IR-S	Ingestion Rate of Soil	100	mg/day	EPA, 2002	CS x IR-S x EF x ED x CF x 1/BW x 1/AT
				EF	Exposure Frequency	350	days/year	EPA, 2002	
				ED	Exposure Duration	24	years	EPA, 2002	
				CF	Conversion Factor	0.000001	kg/mg	- -	
				BW	Body Weight	70	kg	EPA, 2002	
				AT-N	Averaging Time (Non-Cancer)	8,760	days	(3)	
Ingestion (cont.)	Residential (cont.)	Child	AOC-I Surface Soil (8)	CS	Chemical Concentration in Soil	See Table 3s.RME	mg/kg	See Table 3s.RME	CDI (mg/kg-day) =
				IR-S	Ingestion Rate of Soil	200	mg/day	EPA, 2002	CS x IR-S x EF x ED x CF x 1/BW x 1/AT
				EF	Exposure Frequency	350	days/year	EPA, 2002	
				ED	Exposure Duration	6	years	EPA, 2002	
				CF	Conversion Factor	0.000001	kg/mg	- -	
				BW	Body Weight	15	kg	EPA, 2002	
				AT-N	Averaging Time (Non-Cancer)	2,190	days	(3)	
		Child/Adult Aggregate	AOC-I Surface Soil (8)	CS	Chemical Concentration in Soil	See Table 3s.RME	mg/kg	See Table 3s.RME	Chronic Daily Intake (CDI) (mg/kg-day) =
				IR-S-Adj	Ingestion Rate of Soil, Age-adjusted	114.29	mg-year/kg-day	Calculated	CS x IR-S-Adj x EF x CF1 x 1/AT
				EF	Exposure Frequency	350	days/year	EPA, 2002	IR-S-Adj (mg-year/kd-day) =
				CF1	Conversion Factor 1	0.000001	kg/mg	- -	(ED-C x IR-S-C / BW-C) + (ED-A x IR-S-A / BW-A)
				AT-C	Averaging Time (Cancer)	25,550	days	(4)	
	Maintenance Worker	Adult	AOC-I Surface Soil	CS	Chemical Concentration in Soil	See Table 3s.RME	mg/kg	See Table 3s.RME	CDI (mg/kg-day) =
				Irsoil	Ingestion Rate of Soil	100	mg/day	EPA, 2002	CS x Irsoil x EF x ED x CF x 1/BW x 1/AT
				EF	Exposure Frequency	52	days/year	(1)	
				ED	Exposure Duration	25	years	EPA, 2002	
				CF	Conversion Factor	0.000001	kg/mg	- -	
				BW	Body Weight	70	kg	EPA, 2002	
				AT-N	Averaging Time (Non-Cancer)	9,125	days	(3)	
				AT-C	Averaging Time (Cancer)	25,550	days	(4)	
Dermal	Recreational	Adult	AOC-I Surface Soil	CS	Chemical Concentration in Soil	See Table 3s.RME	mg/kg	See Table 3s.RME	CDI (mg/kg-day) =
				SA	Skin Surface Area Available for Contact	5,700	cm^2	EPA, 2004 (5)	CS x SA x SSAF x DABS x CF x EF x
				SSAF	Soil to Skin Adherence Factor	0.2	mg/cm^2-day	EPA, 2004	ED x 1/BW x 1/AT
				DABS	Dermal Absorption Factor Solids	Chemical-Specific	--	EPA, 2004	
				CF	Conversion Factor	0.000001	kg/mg	- -	
				EF	Exposure Frequency	104	days/year	(1)	
				ED	Exposure Duration	24	years	(1)	
				BW	Body Weight	70	kg	EPA, 2002	
				AT-N	Averaging Time (Non-Cancer)	8,760	days	(3)	
				AT-C	Averaging Time (Cancer)	25,550	days	(4)	
Dermal (cont.)	Recreational (cont.)	Youth	AOC-I Surface Soil	CS	Chemical Concentration in Soil	See Table 3s.RME	mg/kg	See Table 3s.RME	CDI (mg/kg-day) =
				SA	Skin Surface Area Available for Contact	4,100	cm^2	EPA, 2004 (5)	CS x SA x SSAF x DABS x CF x EF x
				SSAF	Soil to Skin Adherence Factor	0.2	mg/cm^2-day	EPA, 2004	ED x 1/BW x 1/AT
				DABS	Dermal Absorption Factor Solids	Chemical-Specific	--	EPA, 2004	
				CF	Conversion Factor	0.000001	kg/mg	- -	
				EF	Exposure Frequency	104	days/year	(1)	
				ED	Exposure Duration	10	years	(2)	
				BW	Body Weight	39	kg	EPA 2004 (2)	
				AT-C	Averaging Time (Cancer)	25,550	days	(4)	
				AT-N	Averaging Time (Non-Cancer)	3,650	days	(3)	
		Child	AOC-I Surface Soil	CS	Chemical Concentration in Soil	See Table 3s.RME	mg/kg	See Table 3s.RME	CDI (mg/kg-day) =
				SA	Skin Surface Area Available for Contact	2,800	cm^2	EPA, 2004 (6)	CS x SA x SSAF x DABS x CF x EF x
				SSAF	Soil to Skin Adherence Factor	0.2	mg/cm^2-day	EPA, 2004	ED x 1/BW x 1/AT
				DABS	Dermal Absorption Factor Solids	Chemical-Specific	--	EPA, 2004	
				CF	Conversion Factor	0.000001	kg/mg	- -	
				EF	Exposure Frequency	104	days/year	(1)	
				ED	Exposure Duration	6	years	EPA, 2002	
				BW	Body Weight	15	kg	EPA, 2002	
				AT-C	Averaging Time (Cancer)	25,550	days	(4)	
				AT-N	Averaging Time (Non-Cancer)	2,190	days	(3)	
	Residential	Adult	AOC-I Surface Soil (8)	CS	Chemical Concentration in Soil	See Table 3s.RME	mg/kg	See Table 3s.RME	CDI (mg/kg-day) =
				SA	Skin Surface Area Available for Contact	5,700	cm^2	EPA, 2004 (5)	CS x SA x SSAF x DABS x CF x EF x
				SSAF	Soil to Skin Adherence Factor	0.07	mg/cm^2-day	EPA, 2004	ED x 1/BW x 1/AT
				DABS	Dermal Absorption Factor Solids	Chemical-Specific	--	EPA, 2004	
				CF	Conversion Factor	0.000001	kg/mg	- -	
				EF	Exposure Frequency	350	days/year	EPA, 2002	
				ED	Exposure Duration	24	years	EPA, 2002	
				BW	Body Weight	70	kg	EPA, 2002	
				AT-N	Averaging Time (Non-Cancer)	8,760	days	(3)	
Dermal (cont.)	Residential (cont.)	Child	AOC-I Surface Soil (8)	CS	Chemical Concentration in Soil	See Table 3s.RME	mg/kg	See Table 3s.RME	CDI (mg/kg-day) =
				SA	Skin Surface Area Available for Contact	2,800	cm^2	EPA, 2004 (6)	CS x SA x SSAF x DABS x CF x EF x
				SSAF	Soil to Skin Adherence Factor	0.2	mg/cm^2-day	EPA, 2004	ED x 1/BW x 1/AT
				DABS	Dermal Absorption Factor Solids	Chemical-Specific	--	EPA, 2004	
				CF	Conversion Factor	0.000001	kg/mg	- -	
				EF	Exposure Frequency	350	days/year	EPA, 2002	
				ED	Exposure Duration	6	years	EPA, 2002	
				BW	Body Weight	15	kg	EPA, 2002	
				AT-N	Averaging Time (Non-Cancer)	2,190	days	(3)	
		Child/Adult Aggregate	AOC-I Surface Soil (8)	CS	Chemical Concentration in Soil	See Table 3s.RME	mg/kg	See Table 3s.RME	CDI (mg/kg-day) =
				DA-Adj	Dermal Absorption, Age-adjusted	361	mg-year/kg-day	Calculated	CS x DA-Adj x DABS x CF1 x EF x 1/AT
				DABS	Dermal Absorption Factor Solids	Chemical-Specific	--	EPA, 2002	DA-Adj (mg-year/kg-day) =
				CF1	Conversion Factor 1	0.000001	kg/mg	- -	(ED-C x SA-C x SSAF-C / BW-C) + (ED-A x SA-A x SSAF-A / BW-A)
				EF	Exposure Frequency	350	days/year	EPA, 2002	
				AT-C	Averaging Time (Cancer)	25,550	days	(4)	
	Maintenance Worker	Adult	AOC-I Surface Soil	CS	Chemical Concentration in Soil	See Table 3s.RME	mg/kg	See Table 3s.RME	CDI (mg/kg-day) =
				SA	Skin Surface Area Available for Contact	3,300	cm^2	EPA, 2004 (7)	CS x SA x AF x DABS x CF x EF x
				AF	Soil to Skin Adherence Factor	0.2	mg/cm^2-day	EPA, 2004	ED x 1/BW x 1/AT
				DABS	Dermal Absorption Factor Solids	chem-specific	--	EPA, 2004	
				CF	Conversion Factor	0.000001	kg/mg	- -	
				EF	Exposure Frequency	52	days/year	(1)	
				ED	Exposure Duration	25	years	EPA, 2002	
				BW	Body Weight	70	kg	EPA, 2002	
				AT-C	Averaging Time (Cancer)	25,550	days	(4)	
				AT-N	Averaging Time (Non-Cancer)	9,125	days	(3)	

Notes:
(1) Based on best professional judgment.
(2) Youths from 6 to 16 years of age. Body weight is average of the mean values for boys and girls for the ages 6 through 16
(3) Calculated as the product of ED (years) x 365 days/year.
(4) Calculated as the product of 70 years assumed human lifetime (EPA, 1989a) x 365 days/year.
(5) SA includes head, hands, forearms, and lower legs.
(6) SA includes head, hands, forearms, lower legs, and feet.
(7) SA includes head, hands, forearms, and lower legs.
(8) The higher of the two EPCs (0-2 ft and 0-6 ft) for each COPC was used in the risk calculations.

Sources:
EPA, 2002: Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites, OSWER 9355.4-24, December, 2002.
EPA, 2004. *Risk Assessment Guidance for Superfund (RAGS) Volume I: Human Health Evaluation Manual.* Part E Supplemental Guidance for Dermal Risk Assessment) Final.

cm^2 = Square centimeter
kg = Kilogram
kg/mg = Kilogram per milligram
mg/kg = Milligram per kilogram
mg/kg-day = Milligram per kilogram per day
mg/cm^2-day = Milligram per square centimeter per day
mg/day = Milligram per day

TABLE 4.2.RME
VALUES USED FOR DAILY INTAKE CALCULATIONS
REASONABLE MAXIMUM EXPOSURE
AOC-I
Former NASD, Vieques, Puerto Rico

Scenario Timeframe: Future
Medium: Surface Soil (0-2 ft)
Exposure Medium: Air

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Inhalation	Recreational	Adult	Emissions from AOC-I Surface Soil	CS	Chemical Concentration in Soil	See Table 3s.RME	mg/kg	See Table 3s.RME	Chronic Daily Intake (CDI) (mg/kg-day) =
				CA	Chemical Concentration in Air	Calculated	mg/m^3	EPA, 2002	CA x IN x EF x ED x 1/BW x 1/AT
				PEF	Particulate Emission Factor	7.05E+08	m^3/kg	See Table 4 Suppl C	
				VF	Volatilization Factor for volatile constituents	Calculated	m^3/kg	EPA, 2002	$CA (mg/m^3) = CS (1/PEF + 1/VF)$
				IN	Inhalation Rate	20	m^3/day	EPA, 2002	
				EF	Exposure Frequency	104	days/year	(1)	
				ED	Exposure Duration	24	years	(1)	
				BW	Body Weight	70	kg	EPA, 2002	
				AT-N	Averaging Time (Non-Cancer)	8,760	days	(3)	
				AT-C	Averaging Time (Cancer)	25,550	days	(4)	
		Youth	Emissions from AOC-I Surface Soil	CS	Chemical Concentration in Soil	See Table 3s.RME	mg/kg	See Table 3s.RME	CDI (mg/kg-day) =
				CA	Chemical Concentration in Air	Calculated	mg/m^3	EPA, 2002	CA x IN x EF x ED x 1/BW x 1/AT
				PEF	Particulate Emission Factor	7.05E+08	m^3/kg	See Table 4 Suppl C	
				VF	Volatilization Factor for volatile constituents	Calculated	m^3/kg	EPA, 2002	$CA (mg/m^3) = CS (1/PEF + 1/VF)$
				IN	Inhalation Rate	20	m^3/day	EPA, 2002	
				EF	Exposure Frequency	104	days/year	(1)	
				ED	Exposure Duration	10	years	(2)	
				BW	Body Weight	39	kg	EPA 2004 (2)	
				AT-N	Averaging Time (Non-Cancer)	3,650	days	(3)	
				AT-C	Averaging Time (Cancer)	25,550	days	(4)	
		Child	Emissions from AOC-I Surface Soil	CS	Chemical Concentration in Soil	See Table 3s.RME	mg/kg	See Table 3s.RME	CDI (mg/kg-day) =
				CA	Chemical Concentration in Air	Calculated	mg/m^3	EPA, 2002	CA x IN x EF x ED x 1/BW x 1/AT
				PEF	Particulate Emission Factor	7.05E+08	m^3/kg	See Table 4 Suppl C	
				VF	Volatilization Factor for volatile constituents	Calculated	m^3/kg	EPA, 2002	$CA (mg/m^3) = CS (1/PEF + 1/VF)$
				IN	Inhalation Rate	15	m^3/day	EPA, 1997	
				EF	Exposure Frequency	104	days/year	(1)	
				ED	Exposure Duration	6	years	EPA, 2002	
				BW	Body Weight	15	kg	EPA, 2002	
				AT-N	Averaging Time (Non-Cancer)	2,190	days	(3)	
				AT-C	Averaging Time (Cancer)	25,550	days	(4)	
Inhalation (cont.)	Residential	Adult	Emissions from AOC-I Surface Soil (5)	CS	Chemical Concentration in Soil	See Table 3s.RME	mg/kg	See Table 3s.RME	Chronic Daily Intake (CDI) (mg/kg-day) =
				CA	Chemical Concentration in Air	Calculated	mg/m^3	EPA, 2002	CA x IN x EF x ED x 1/BW x 1/AT
				PEF	Particulate Emission Factor	7.05E+08	m^3/kg	See Table 4 Suppl C	
				VF	Volatilization Factor for volatile constituents	Calculated	m^3/kg	EPA, 2002	$CA (mg/m^3) = CS (1/PEF + 1/VF)$
				IN	Inhalation Rate	20	m^3/day	EPA, 2002	
				EF	Exposure Frequency	350	days/year	EPA, 2002	
				ED	Exposure Duration	24	years	EPA, 2002	
				BW	Body Weight	70	kg	EPA, 2002	
				AT-N	Averaging Time (Non-Cancer)	8,760	days	(3)	
		Child	Emissions from AOC-I Surface Soil (5)	CS	Chemical Concentration in Soil	See Table 3s.RME	mg/kg	See Table 3s.RME	CDI (mg/kg-day) =
				CA	Chemical Concentration in Air	Calculated	mg/m^3	EPA, 2002	CA x IN x EF x ED x 1/BW x 1/AT
				PEF	Particulate Emission Factor	7.05E+08	m^3/kg	See Table 4 Suppl C	
				VF	Volatilization Factor for volatile constituents	Calculated	m^3/kg	EPA, 2002	$CA (mg/m^3) = CS (1/PEF + 1/VF)$
				IN	Inhalation Rate	15	m^3/day	EPA, 1997	
				EF	Exposure Frequency	350	days/year	EPA, 2002	
				ED	Exposure Duration	6	years	EPA, 2002	
				BW	Body Weight	15	kg	EPA, 2002	
				AT-N	Averaging Time (Non-Cancer)	2,190	days	(3)	
		Child/Adult Aggregate	Emissions from AOC-I Surface Soil (5)	CS	Chemical Concentration in Soil	See Table 3s.RME	mg/kg	See Table 3s.RME	Chronic Daily Intake (CDI) (mg/kg-day) =
				CA	Chemical Concentration in Air	Calculated	mg/m^3	Calculated	CA x IN-Adj x EF x 1/AT
				IN-Adj	Inhalation Rate, Adjusted	12.86	m^3-yr/kg-day	- -	
				EF	Exposure Frequency	350	days/year	EPA, 2002	IN-Adj (m^3-yr/kg-day) = (IN-A x ED-A / BW-A)
				AT-C	Averaging Time (Cancer)	25,550	days	(4)	(IN-C x ED-C / BW-C)
Inhalation (cont.)	Maintenance Worker	Adult	Emissions from AOC-I Surface Soil	CS	Chemical Concentration in Soil	See Table 3s.RME	mg/kg	See Table 3s.RME	CDI (mg/kg-day) =
				CA	Chemical Concentration in Air	Calculated	mg/m^3	EPA, 2002	CA x IN x EF x ED x 1/BW x 1/AT
				PEF	Particulate Emission Factor	7.05E+08	m^3/kg	See Table 4 Suppl C	
				VF	Volatilization Factor for volatile constituents	Calculated	m^3/kg	EPA, 2002	$CA (mg/m^3) = CS (1/PEF + 1/VF)$
				IN	Inhalation Rate	20	m^3/day	EPA, 2002	
				EF	Exposure Frequency	52	days/year	(1)	
				ED	Exposure Duration	25	years	EPA, 2002	
				BW	Body Weight	70	kg	EPA, 2002	
				AT-N	Averaging Time (Non-Cancer)	9,125	days	(3)	
				AT-C	Averaging Time (Cancer)	25,550	days	(4)	

Notes:
(1) Based on best professional judgment.
(2) Youths from 6 to 16 years of age. Body weight is average of the mean values for boys and girls for the ages 6 through 16
(3) Calculated as the product of ED (years) x 365 days/year.
(4) Calculated as the product of 70 years assumed human lifetime (EPA, 1989a) x 365 days/year.
(5) The higher of the two EPCs (0-2 ft and 0-6 ft) for each COPC was used in the risk calculations.

Sources:
EPA, 1997: Exposure Factors Handbook. EPA/600/P-95/002Fa.
EPA, 2002: Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites, OSWER 9355.4-24, December, 2002.

kg = Kilogram
mg/kg = Milligram per kilogram
mg/kg-day = Milligram per kilogram per day
mg/m^3 = Milligram per cubic meter
m^3/day = Cubic meter per day
m^3/kg = Cubic meter per kilogram

TABLE 4.3.RME
VALUES USED FOR DAILY INTAKE CALCULATIONS
REASONABLE MAXIMUM EXPOSURE
AOC-I
Former NASD, Vieques, Puerto Rico

Scenario Timeframe: Future
Medium: Total Soil (0-6 ft)
Exposure Medium: Total Soil

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Ingestion	Residential	Adult	AOC-I Total Soil (6)	CS	Chemical Concentration in Soil	See Table 3s.RME	mg/kg	See Table 3s.RME	Chronic Daily Intake (CDI) (mg/kg-day) =
				IR-S	Ingestion Rate of Soil	100	mg/day	EPA, 2002	CS x IR-S x EF x ED x CF x 1/BW x 1/AT
				EF	Exposure Frequency	350	days/year	EPA, 2002	
				ED	Exposure Duration	24	years	EPA, 2002	
				CF	Conversion Factor	0.000001	kg/mg	- -	
				BW	Body Weight	70	kg	EPA, 2002	
				AT-N	Averaging Time (Non-Cancer)	8,760	days	(1)	
		Child	AOC-I Total Soil (6)	CS	Chemical Concentration in Soil	See Table 3s.RME	mg/kg	See Table 3s.RME	CDI (mg/kg-day) =
				IR-S	Ingestion Rate of Soil	200	mg/day	EPA, 2002	CS x IR-S x EF x ED x CF x 1/BW x 1/AT
				EF	Exposure Frequency	350	days/year	EPA, 2002	
				ED	Exposure Duration	6	years	EPA, 2002	
				CF	Conversion Factor	0.000001	kg/mg	- -	
				BW	Body Weight	15	kg	EPA, 2002	
				AT-N	Averaging Time (Non-Cancer)	2,190	days	(1)	
		Child/Adult Aggregate	AOC-I Total Soil (6)	CS	Chemical Concentration in Soil	See Table 3s.RME	mg/kg	See Table 3s.RME	Chronic Daily Intake (CDI) (mg/kg-day) =
				IR-S-Adj	Ingestion Rate of Soil, Age-adjusted	114.29	mg-year/kg-day	Calculated	CS x IR-S-Adj x EF x CF1 x 1/AT
				EF	Exposure Frequency	350	days/year	EPA, 2002	IR-S-Adj (mg-year/kd-day) =
				CF1	Conversion Factor 1	0.000001	kg/mg	- -	(ED-C x IR-S-C / BW-C) + (ED-A x IR-S-A / BW-A)
				AT-C	Averaging Time (Cancer)	25,550	days	(2)	
	Construction Worker	Adult	AOC-I Total Soil	CS	Chemical Concentration in Soil	See Table 3s.RME	mg/kg	See Table 3s.RME	Chronic Daily Intake (CDI) (mg/kg-day) =
				Irsoil	Ingestion Rate of Soil	330	mg/day	EPA, 2002	CS x Irsoil x EF x ED x CF x 1/BW x 1/AT
				EF	Exposure Frequency	250	days/year	EPA, 2002	
				ED	Exposure Duration	1	years	EPA, 2002	
				CF	Conversion Factor	0.000001	kg/mg	- -	
				BW	Body Weight	70	kg	EPA, 2002	
				AT-N	Averaging Time (Non-Cancer)	365	days	(1)	
				AT-C	Averaging Time (Cancer)	25,550	days	(2)	
	Industrial Worker	Adult	AOC-I Total Soil	CS	Chemical Concentration in Soil	See Table 3s.RME	mg/kg	See Table 3s.RME	Chronic Daily Intake (CDI) (mg/kg-day) =
				Irsoil	Ingestion Rate of Soil	100	mg/day	EPA, 2002	CS x Irsoil x EF x ED x CF x 1/BW x 1/AT
				EF	Exposure Frequency	250	days/year	EPA, 2002	
				ED	Exposure Duration	25	years	EPA, 2002	
				CF	Conversion Factor	0.000001	kg/mg	- -	
				BW	Body Weight	70	kg	EPA, 2002	
				AT-N	Averaging Time (Non-Cancer)	9,125	days	(1)	
				AT-C	Averaging Time (Cancer)	25,550	days	(2)	
Dermal	Residential	Adult	AOC-I Total Soil (6)	CS	Chemical Concentration in Soil	See Table 3s.RME	mg/kg	See Table 3s.RME	CDI (mg/kg-day) =
				SA	Skin Surface Area Available for Contact	5,700	cm^2	EPA, 2004 (3)	CS x SA x SSAF x DABS x CF x EF x
				SSAF	Soil to Skin Adherence Factor	0.07	mg/cm^2-day	EPA, 2004	ED x 1/BW x 1/AT
				DABS	Dermal Absorption Factor Solids	Chemical-Specific	--	EPA, 2004	
				CF	Conversion Factor	0.000001	kg/mg	- -	
				EF	Exposure Frequency	350	days/year	EPA, 2002	
				ED	Exposure Duration	24	years	EPA, 2002	
				BW	Body Weight	70	kg	EPA, 2002	
				AT-N	Averaging Time (Non-Cancer)	8,760	days	(1)	
		Child	AOC-I Total Soil (6)	CS	Chemical Concentration in Soil	See Table 3s.RME	mg/kg	See Table 3s.RME	CDI (mg/kg-day) =
				SA	Skin Surface Area Available for Contact	2,800	cm^2	EPA, 2004 (4)	CS x SA x SSAF x DABS x CF x EF x
				SSAF	Soil to Skin Adherence Factor	0.2	mg/cm^2-day	EPA, 2004	ED x 1/BW x 1/AT
				DABS	Dermal Absorption Factor Solids	Chemical-Specific	--	EPA, 2004	
				CF	Conversion Factor	0.000001	kg/mg	- -	
				EF	Exposure Frequency	350	days/year	EPA, 2002	
				ED	Exposure Duration	6	years	EPA, 2002	
				BW	Body Weight	15	kg	EPA, 2002	
				AT-N	Averaging Time (Non-Cancer)	2,190	days	(1)	
		Child/Adult Aggregate	AOC-I Total Soil (6)	CS	Chemical Concentration in Soil	See Table 3s.RME	mg/kg	See Table 3s.RME	CDI (mg/kg-day) =
				DA-Adj	Dermal Absorption, Age-adjusted	361	mg-year/kg-day	Calculated	CS x DA-Adj x DABS x CF1 x EF x 1/AT
				DABS	Dermal Absorption Factor Solids	Chemical-Specific	--	EPA, 2002	DA-Adj (mg-year/kg-day) =
				CF1	Conversion Factor 1	0.000001	kg/mg	- -	(ED-C x SA-C x SSAF-C / BW-C) + (ED-A x SA-A x SSAF-A / BW-A)
				EF	Exposure Frequency	350	days/year	EPA, 2002	
				AT-C	Averaging Time (Cancer)	25,550	days	(2)	
	Construction Worker	Adult	AOC-I Total Soil	CS	Chemical Concentration in Soil	See Table 3s.RME	mg/kg	See Table 3s.RME	CDI (mg/kg-day) =
				SA	Skin Surface Area Available for Contact	3,300	cm^2	EPA, 2004 (5)	CS x SA x SSAF x DABS x CF x EF x
				SSAF	Soil to Skin Adherence Factor	0.3	mg/cm^2-day	EPA, 2004	ED x 1/BW x 1/AT
				DABS	Dermal Absorption Factor Solids	chem-specific	--	EPA, 2004	
				CF	Conversion Factor	0.000001	kg/mg	- -	
				EF	Exposure Frequency	250	days/year	EPA, 2002	
				ED	Exposure Duration	1	years	EPA, 2002	
				BW	Body Weight	70	kg	EPA, 2002	
				AT-N	Averaging Time (Non-Cancer)	365	days	(1)	
				AT-C	Averaging Time (Cancer)	25,550	days	(2)	
Dermal (cont.)	Industrial Worker	Adult	AOC-I Total Soil	CS	Chemical Concentration in Soil	See Table 3s.RME	mg/kg	See Table 3s.RME	CDI (mg/kg-day) =
				SA	Skin Surface Area Available for Contact	3,300	cm^2	EPA, 2004 (5)	CS x SA x SSAF x DABS x CF x EF x
				SSAF	Soil to Skin Adherence Factor	0.2	mg/cm^2-day	EPA, 2004	ED x 1/BW x 1/AT
				DABS	Dermal Absorption Factor Solids	chem-specific	--	EPA, 2004	
				CF	Conversion Factor	0.000001	kg/mg	- -	
				EF	Exposure Frequency	250	days/year	EPA, 2002	
				ED	Exposure Duration	25	years	EPA, 2002	
				BW	Body Weight	70	kg	EPA, 2002	
				AT-N	Averaging Time (Non-Cancer)	9,125	days	(1)	
				AT-C	Averaging Time (Cancer)	25,550	days	(2)	

Notes:
(1) Calculated as the product of ED (years) x 365 days/year.
(2) Calculated as the product of 70 years assumed human lifetime (EPA, 1989a) x 365 days/year.
(3) SA includes head, hands, forearms, and lower legs.
(4) SA includes head, hands, forearms, lower legs, and feet.
(5) SA includes head, hands, forearms, and lower legs.
(6) The higher of the two EPCs (0-2 ft and 0-6 ft) for each COPC was used in the risk calculations.

Sources:
EPA, 2002: Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites, OSWER 9355.4-24, December, 2002.
EPA, 2004. *Risk Assessment Guidance for Superfund (RAGS) Volume I: Human Health Evaluation Manual*. Part E Supplemental Guidance for Dermal Risk Assessment) Final.

cm^2 = Square centimeter
kg = Kilogram
kg/mg = Kilogram per milligram
mg/cm^2-day = Milligram per square centimeter per day
mg/day = Milligram per day
mg/kg = Milligram per kilogram
mg/kg-day = Milligram per kilogram per day

TABLE 4.4.RME
VALUES USED FOR DAILY INTAKE CALCULATIONS
REASONABLE MAXIMUM EXPOSURE
AOC-I
Former NASD, Vieques, Puerto Rico

Scenario Timeframe: Future
Medium: Total Soil (0-6 ft)
Exposure Medium: Air

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Inhalation	Residential	Adult	Emissions from AOC-I Total Soil (3)	CS	Chemical Concentration in Soil	See Table 3s.RME	mg/kg	See Table 3s.RME	Chronic Daily Intake (CDI) (mg/kg-day) =
				CA	Chemical Concentration in Air	Calculated	mg/m^3	EPA, 2002	CA x IN x EF x ED x 1/BW x 1/AT
				PEF	Particulate Emission Factor	7.05E+08	m^3/kg	See Table 4 Suppl C	
				VF	Volatilization Factor for volatile constituents	Calculated	m^3/kg	EPA, 2002	CA (mg/m^3) = CS (1/PEF + 1/VF)
				IN	Inhalation Rate	20	m^3/day	EPA, 2002	
				EF	Exposure Frequency	350	days/year	EPA, 2002	
				ED	Exposure Duration	24	years	EPA, 2002	
				BW	Body Weight	70	kg	EPA, 2002	
				AT-N	Averaging Time (Non-Cancer)	8,760	days	(1)	
		Child	Emissions from AOC-I Total Soil (3)	CS	Chemical Concentration in Soil	See Table 3s.RME	mg/kg	See Table 3s.RME	CDI (mg/kg-day) =
				CA	Chemical Concentration in Air	Calculated	mg/m^3	EPA, 2002	CA x IN x EF x ED x 1/BW x 1/AT
				PEF	Particulate Emission Factor	7.05E+08	m^3/kg	See Table 4 Suppl C	
				VF	Volatilization Factor for volatile constituents	Calculated	m^3/kg	EPA, 2002	CA (mg/m^3) = CS (1/PEF + 1/VF)
				IN	Inhalation Rate	15	m^3/day	EPA, 1997	
				EF	Exposure Frequency	350	days/year	EPA, 2002	
				ED	Exposure Duration	6	years	EPA, 2002	
				BW	Body Weight	15	kg	EPA, 2002	
				AT-N	Averaging Time (Non-Cancer)	2,190	days	(1)	
		Child/Adult Aggregate	Emissions from AOC-I Total Soil (3)	CS	Chemical Concentration in Soil	See Table 3s.RME	mg/kg	See Table 3s.RME	Chronic Daily Intake (CDI) (mg/kg-day) =
				CA	Chemical Concentration in Air	Calculated	mg/m^3	Calculated	CA x CF x IN-Adj x EF x 1/AT
				IN-Adj	Inhalation Rate, Adjusted	12.86	m^3-yr/kg-day	- -	
				EF	Exposure Frequency	350	days/year	EPA, 2002	IN-Adj (m^3-yr/kg-day) = (IN-A x ED-A / BW-A)
				AT-C	Averaging Time (Cancer)	25,550	days	(2)	(IN-C x ED-C / BW-C)
Inhalation (cont.)	Construction Worker	Adult	Emissions from AOC-I Total Soil	CS	Chemical Concentration in Soil	See Table 3s.RME	mg/kg	See Table 3s.RME	Chronic Daily Intake (CDI) (mg/kg-day) =
				CA	Chemical Concentration in Air	Calculated	mg/m^3	EPA, 2002	CA x IN x EF x ED x 1/BW x 1/AT
				PEF	Particulate Emission Factor	1.48E+07	m^3/kg	See Table 4 Suppl C	
				VF	Volatilization Factor for volatile constituents	Calculated	m^3/kg	EPA, 2002	CA (mg/m^3) = CS (1/PEF + 1/VF)
				IN	Inhalation Rate	20	m^3/day	EPA, 2002	
				EF	Exposure Frequency	250	days/year	EPA, 2002	
				ED	Exposure Duration	1	years	EPA, 2002	
				BW	Body Weight	70	kg	EPA, 2002	
				AT-N	Averaging Time (Non-Cancer)	365	days	(1)	
				AT-C	Averaging Time (Cancer)	25,550	days	(2)	
	Industrial Worker	Adult	Emissions from AOC-I Total Soil	CS	Chemical Concentration in Soil	See Table 3s.RME	mg/kg	See Table 3s.RME	Chronic Daily Intake (CDI) (mg/kg-day) =
				CA	Chemical Concentration in Air	Calculated	mg/m^3	EPA, 2002	CA x IN x EF x ED x 1/BW x 1/AT
				PEF	Particulate Emission Factor	7.05E+08	m^3/kg	See Table 4 Suppl C	
				VF	Volatilization Factor for volatile constituents	Calculated	m^3/kg	EPA, 2002	CA (mg/m^3) = CS (1/PEF + 1/VF)
				IN	Inhalation Rate	20	m^3/day	EPA, 2002	
				EF	Exposure Frequency	250	days/year	EPA, 2002	
				ED	Exposure Duration	25	years	EPA, 2002	
				BW	Body Weight	70	kg	EPA, 2002	
				AT-N	Averaging Time (Non-Cancer)	9,125	days	(1)	
				AT-C	Averaging Time (Cancer)	25,550	days	(2)	

Notes:
(1) Calculated as the product of ED (years) x 365 days/year.
(2) Calculated as the product of 70 years assumed human lifetime (EPA, 1989a) x 365 days/year.
(3) The higher of the two EPCs (0-2 ft and 0-6 ft) for each COPC was used in the risk calculations.

Sources:
EPA, 1997: Exposure Factors Handbook. EPA/600/P-95/002Fa.
EPA, 2002: Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites, OSWER 9355.4-24, December, 2002.

kg = Kilogram
mg/kg = Milligram per kilogram
mg/kg-day = Milligram per kilogram per day
mg/m^3 = milligram per cubic meter
m^3/day = Cubic meters per day
m^3/kg = Cubic meters per kilogram

TABLE 4.5.RME
VALUES USED FOR DAILY INTAKE CALCULATIONS
REASONABLE MAXIMUM EXPOSURE
AOC-I
Former NASD, Vieques, Puerto Rico

Scenario Timeframe: Future
Medium: Groundwater
Exposure Medium: Groundwater

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Ingestion	Residential	Adult	Tap Water	CW	Chemical Concentration in Water	See Table 3s.RME	µg/l	See Table 3s.RME	Chronic Daily Intake (CDI) (mg/kg-day) =
				IR-W	Ingestion Rate of Water	2	L/day	EPA, 2002	CW x IR-W x EF x ED x CF1 x 1/BW x 1/AT
				EF	Exposure Frequency	350	days/year	EPA, 2002	
				ED	Exposure Duration	24	years	EPA, 2002	
				BW	Body Weight	70	kg	EPA, 2002	
				AT-N	Averaging Time (Non-Cancer)	8,760	days	(1)	
				CF1	Conversion Factor 1	0.001	mg/µg	- -	
		Child	Tap Water	CW	Chemical Concentration in Water	See Table 3s.RME	µg/l	See Table 3s.RME	CDI (mg/kg-day) =
				IR-W	Ingestion Rate of Water	1	L/day	EPA, 1997	CW x IR-W x EF x ED x CF1 x 1/BW x 1/AT
				EF	Exposure Frequency	350	days/year	EPA, 2002	
				ED	Exposure Duration	6	years	EPA, 2002	
				BW	Body Weight	15	kg	EPA, 2002	
				AT-N	Averaging Time (Non-Cancer)	2,190	days	(1)	
				CF1	Conversion Factor 1	0.001	mg/µg	- -	
		Child/Adult	Tap Water	CW	Chemical Concentration in Water	See Table 3s.RME	µg/l	See Table 3s.RME	CDI (mg/kg-day) =
		Aggregate		IR-W-Adj	Ingestion Rate of Water, Age-adjusted	1.1	liter-year/kg-day	calculated	CW x IR-W-Adj x EF x CF1 x 1/AT
				EF	Exposure Frequency	350	days/year	EPA, 2002	IR-W-Adj (liter-year/kd-day) =
				AT-C	Averaging Time (Cancer)	25,550	days	(2)	(ED-C x IR-W-C / BW-C) + (ED-A x IR-W-A / BW-A)
				CF1	Conversion Factor 1	0.001	mg/µg	- -	
	Industrial Worker	Adult	Tap Water	CW	Chemical Concentration in Water	See Table 3s.RME	µg/l	See Table 3s.RME	CDI (mg/kg-day) =
				IR-W	Ingestion Rate of Water	1	L/day	EPA, 1991	CW x IR-W x EF x ED x CF1 x 1/BW x 1/AT
				EF	Exposure Frequency	250	days/year	EPA, 2002	
				ED	Exposure Duration	25	years	EPA, 2002	
				BW	Body Weight	70	kg	EPA, 2002	
				AT-C	Averaging Time (Cancer)	25,550	days	(2)	
				AT-N	Averaging Time (Non-Cancer)	9,125	days	(1)	
				CF1	Conversion Factor 1	0.001	mg/µg	- -	
Dermal	Resident	Adult	Tap Water	CW	Chemical Concentration in Water	See Table 3s.RME	µg/l	See Table 3s.RME	CDI (mg/kg-day) =
				DAevent	Dermally Absorbed Dose per Event	Calculated	mg/cm^2-event	calculated	DAevent x SA x EV x EF x ED x 1/BW x 1/AT
				FA	Fraction absorbed water	Chemical Specific	dimensionless	EPA, 2004	
				Kp	Permeability Coefficient	Chemical Specific	cm/hr	EPA, 2004	Inorganics: DAevent (mg/cm^2-event) =
				τ	Lag Time	Chemical Specific	hr/event	EPA, 2004	Kp x CW x t_{event} x CF1 x CF2
				t*	Time to Reach Steady-state	Chemical Specific	hours	EPA, 2004	
				B	Ratio of Permeability of Stratum Corneum to Epidermis	Chemical Specific	dimensionless	EPA, 2004	Organics :
				t_{event}	Event Time	0.58	hr/event	EPA, 2004	t_{event}<t*: DAevent (mg/cm^2-event) =
				SA	Skin Surface Area Available for Contact	18,000	cm^2	EPA, 2004	2 x FA x Kp x CW x (sqrt((6 x τ x t_{event})/π)) x CF1 x CF2
				EV	Event Frequency	1	events/day	EPA, 2004	
				EF	Exposure Frequency	350	days/year	EPA, 2002	
				ED	Exposure Duration	24	years	EPA, 2002	t_{event}>t*: DAevent (mg/cm^2-event) =
				BW	Body Weight	70	kg	EPA, 2002	FA x Kp x CW x (t_{event}/(1+B) + 2 x τ x
				AT-N	Averaging Time (Non-Cancer)	8,760	days	(1)	((1 + 3B + $3B^2$)/$(1+B)^2$)) x CF1 x CF2
				CF1	Conversion Factor 1	0.001	mg/µg	- -	
				CF2	Conversion Factor 2	0.001	l/cm^3	- -	
		Child	Tap Water	CW	Chemical Concentration in Water	See Table 3s.RME	µg/l	See Table 3s.RME	CDI (mg/kg-day) =
				DAevent	Dermally Absorbed Dose per Event	Calculated	mg/cm^2-event	calculated	DAevent x SA x EV x EF x ED x 1/BW x 1/AT
				FA	Fraction absorbed water	Chemical Specific	dimensionless	EPA, 2004	
				Kp	Permeability Coefficient	Chemical Specific	cm/hr	EPA, 2004	Inorganics: DAevent (mg/cm^2-event) =
				τ	Lag Time	Chemical Specific	hr/event	EPA, 2004	Kp x CW x t_{event} x CF1 x CF2
				t*	Time to Reach Steady-state	Chemical Specific	hours	EPA, 2004	
				B	Ratio of Permeability of Stratum Corneum to Epidermis	Chemical Specific	dimensionless	EPA, 2004	Organics :
				t_{event}	Event Time	1.00	hr/event	EPA, 2004	t_{event}<t*: DAevent (mg/cm^2-event) =
				SA	Skin Surface Area Available for Contact	6,600	cm^2	EPA, 2004	2 x FA x Kp x CW x (sqrt((6 x τ x t_{event})/π)) x CF1 x CF2
				EV	Event Frequency	1	events/day	EPA, 2004	
				EF	Exposure Frequency	350	days/year	EPA, 2002	
				ED	Exposure Duration	6	years	EPA, 2002	t_{event}>t*: DAevent (mg/cm^2-event) =
				BW	Body Weight	15	kg	EPA, 2002	FA x Kp x CW x (t_{event}/(1+B) + 2 x τ x
				AT-N	Averaging Time (Non-Cancer)	2190	days	(1)	((1 + 3B + $3B^2$)/$(1+B)^2$)) x CF1 x CF2
				CF1	Conversion Factor 1	0.001	mg/µg	- -	
				CF2	Conversion Factor 2	0.001	l/cm^3	- -	
		Child/Adult	Tap Water	CW	Chemical Concentration in Water	See Table 3s.RME	µg/l	See Table 3s.RME	CDI (mg/kg-day) = DA-Adj x EF x EV x 1/AT
		Aggregate		DA-Adj	Dermally Absorbed Dose, Age-adjusted	Calculated	mg-year/event-kg	calculated	DA-Adj = (DAevent-A x SA-A x ED-A x 1/BW-A)
				EV	Event Frequency	1	events/day	EPA, 2004	+ (Daevent-C x SA-C x ED-C x 1/BW-C)
				EF	Exposure Frequency	350	days/year	EPA, 2002	
				AT-C	Averaging Time (Cancer)	25,550	days	(2)	
				CF1	Conversion Factor 1	0.001	mg/µg	- -	
Dermal (cont.)	Industrial Worker	Adult	Tap Water	CW	Chemical Concentration in Water	See Table 3s.RME	µg/l	See Table 3s.RME	CDI (mg/kg-day) =
				DAevent	Dermally Absorbed Dose per Event	Calculated	mg/cm^2-event	calculated	DAevent x SA x EV x EF x ED x 1/BW x 1/AT
				FA	Fraction absorbed water	Chemical Specific	dimensionless	EPA, 2004	
				PC	Permeability Coefficient	Chemical Specific	cm/hr	EPA, 2004	Inorganics: DAevent (mg/cm^2-event) =
				τ	Lag Time	Chemical Specific	hr/event	EPA, 2004	Kp x CW x t_{event} x CF1 x CF2
				t*	Time to Reach Steady-state	Chemical Specific	hours	EPA, 2004	
				B	Ratio of Permeability of Stratum Corneum to Epidermis	Chemical Specific	dimensionless	EPA, 2004	Organics :
				t_{event}	Event Time	0.2	hr/event	(4)	t_{event}<t*: DAevent (mg/cm^2-event) =
				SA	Skin Surface Area Available for Contact	2,733	cm^2	EPA, 2004 (3)	2 x FA x Kp x CW x (sqrt((6 x τ x t_{event})/π)) x CF1 x CF2
				EV	Event Frequency	1	events/day	EPA, 1991	
				EF	Exposure Frequency	250	days/year	EPA, 2002	
				ED	Exposure Duration	25	years	EPA, 2002	t_{event}>t*: DAevent (mg/cm^2-event) =
				BW	Body Weight	70	kg	EPA, 2002	FA x PC x CW x (t_{event}/(1+B) + 2 x τ x
				AT-C	Averaging Time (Cancer)	25,550	days	(2)	((1 + 3B + $3B^2$)/$(1+B)^2$)) x CF1 x CF2
				AT-N	Averaging Time (Non-Cancer)	9,125	days	(1)	
				CF1	Conversion Factor 1	0.001	mg/µg	- -	
				CF2	Conversion Factor 2	0.001	l/cm^3	- -	

Notes:
(1) Calculated as the product of ED (years) x 365 days/year.
(2) Calculated as the product of 70 years assumed human lifetime (EPA, 1989a) x 365 days/year.
(3) The SA for an industrial worker exposed to tap water is based on face, forearms, and hands.
(4) Based on best professional judgment (total of 12 minutes per day).

Sources:
EPA, 1991: Risk Assessment Guidance for Superfund. Vol.1: Human Health Evaluation Manual - Supplemental Guidance, Standard Default Exposure Factors. Interim Final. OSWER Directive 9285.6-03.
EPA, 1997: Exposure Factors Handbook. EPA/600/P-95/002Fa.
EPA, 2002: Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites, OSWER 9355.4-24, December, 2002.
EPA, 2004: Risk Assessment Guidance for Superfund (RAGS) Volume I: Human Health Evaluation Manual. Part E Supplemental Guidance for Dermal Risk Assessment) Final.

cm/hr = Centimeter per hour
cm^2 = Square centimeter
hr/day = Hour per day
hr/event = Hour per event
kg = Kilogram
L/cm^3 = Liter per cubic centimeter
L/day = Liter per day
mg/cm^2 -event = Milligram per square centimeter per event
mg/kg-day = Milligram per kilogram per day
mg/L = Milligram per liter

TABLE 4.6.RME
VALUES USED FOR DAILY INTAKE CALCULATIONS
REASONABLE MAXIMUM EXPOSURE
AOC-I
Former NASD, Vieques, Puerto Rico

Scenario Timeframe: Future
Medium: Groundwater
Exposure Medium: Bathroom Air

Exposure Route	Receptor Population	Receptor Age	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Inhalation	Resident	Adult	Water Vapors in Bathroom	CW	Chemical Concentration in Water	See Table 3s.RME	µg/L	See Table 3s.RME	Chronic Daily Intake (CDI) (mg/kg-day) =
				CA	Chemical Concentration in Air from Shower	calculated	mg/m^3	- -	CA x IN x ET x EF x ED x 1/BW x 1/AT
				IN	Inhalation Rate	0.83	m^3/hr	EPA, 2002	
				ET	Exposure Time	0.58	hr/day	(1)	CA calculated based on CW using Andelman model
				EF	Exposure Frequency	350	days/year	EPA, 2002	as modified by Schaum et al.
				ED	Exposure Duration	24	years	EPA, 2002	
				BW	Body Weight	70	kg	EPA, 2002	
				AT-C	Averaging Time (Cancer)	25,550	days	(2)	
				AT-N	Averaging Time (Non-Cancer)	8,760	days	(3)	
		Child	Water Vapors in Bathroom	CW	Chemical Concentration in Water	See Table 3s.RME	µg/L	See Table 3s.RME	Chronic Daily Intake (CDI) (mg/kg-day) =
				CA	Chemical Concentration in Air from Shower	calculated	mg/m^3	- -	CA x IN x ET x EF x ED x 1/BW x 1/AT
				IN	Inhalation Rate	0.63	m^3/hr	EPA, 1997	
				ET	Exposure Time	1	hr/day	(1)	CA calculated based on CW using Andelman model
				EF	Exposure Frequency	350	days/year	EPA, 2002	as modified by Schaum et al.
				ED	Exposure Duration	6	years	EPA, 2002	
				BW	Body Weight	15	kg	EPA, 2002	
				AT-C	Averaging Time (Cancer)	25,550	days	(2)	
				AT-N	Averaging Time (Non-Cancer)	2,190	days	(3)	
		Adult/Child Aggregate	Water Vapors in Bathroom	CW	Chemical Concentration in Water	See Table 3s.RME	µg/L	See Table 3s.RME	Chronic Daily Intake (CDI) (mg/kg-day) =
				CA	Chemical Concentration in Air	Calculated	mg/m^3	Calculated	CA x CF x IN-adj x EF x 1/AT
				IN-Adj	Inhalation Rate, Adjusted	12.86	m^3-yr/kg-day	- -	
				EF	Exposure Frequency	350	days/year	EPA, 2002	IN-Adj (m^3-yr/kg-day) = (IN-A x ED-A / BW-A)
				AT-C	Averaging Time (Cancer)	25,550	days	(2)	(IN-C x ED-C / BW-C)
				CF	Conversion Factor	0.001	mg/µg	- -	

Notes:
(1) EPA Region 2 and the Andelman model as modified by Schaum et. al.
(2) Calculated as the product of 70 years assumed human lifetime (EPA, 1989a) x 365 days/year.
(3) Calculated as the product of ED (years) x 365 days/year.

Sources:
EPA, 2002: Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites, OSWER 9355.4-24, December, 2002.
EPA, 1997: Exposure Factors Handbook. EPA/600/P-95/002Fa.

hr/day = Hour per day
kg = Kilogram
m^3/hour = Cubic meter per hour
mg/kg-day = Milligram per kilogram per day
mg/kg-shower = Milligram per kilogram per shower
mg/µg = Milligram per microgram
mg/m^3 = Milligram per cubic meter
µg/L = Microgram per liter
$µg/m^3$ = Microgram per cubic meter

TABLE 4.1.RME Supplement A
VALUES USED FOR DAILY INTAKE CALCULATIONS (MUTAGENIC MODE OF ACTION)
REASONABLE MAXIMUM EXPOSURE
AOC-I
Former NASD, Vieques, Puerto Rico

Scenario Timeframe: Future
Medium: Surface Soil (0-2 ft)
Exposure Medium: Surface Soil

Exposure Route	Receptor Population	Exposure Point	Receptor Age		Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Ingestion	Recreational	AOC-I Surface Soil	Child	Child (0-<2 yrs)	CS	Chemical Concentration in Soil	See Table 3s.RME	mg/kg	See Table 3s.RME	CDI (mg/kg-day) =
					IR-S-Adj (0-2)	Age Adjusted Ingestion Rate of Soil (0-<2 yrs)	39.7	mg-yr/day-kg	calculated	CS x IR-S-Adj (0-2) x EF x CF1 x 1/AT
					EF	Exposure Frequency	104	days/year	(1)	[for child aged 0-<2 years]
					CF	Conversion Factor	0.000001	kg/mg	- -	
					AT-C	Averaging Time (Cancer)	25,550	days	(2)	
				Child (2-6 yrs)	CS	Chemical Concentration in Soil	See Table 3s.RME	mg/kg	See Table 3s.RME	CDI (mg/kg-day) =
					IR-S-Adj (2-6)	Age Adjusted Ingestion Rate of Soil (2-<6 yrs)	49.8	mg-yr/day-kg	calculated	CS x IR-S-Adj (2-6) x EF x CF1 x 1/AT
					EF	Exposure Frequency	104	days/year	(1)	[for child aged 2-6 years]
					CF	Conversion Factor	0.000001	kg/mg	- -	
					AT-C	Averaging Time (Cancer)	25,550	days	(2)	
Dermal	Recreational	AOC-I Surface Soil	Child	Child (0-<2 yrs)	CS	Chemical Concentration in Soil	See Table 3s.RME	mg/kg	See Table 3s.RME	CDI (mg/kg-day) =
					SSAF-Adj (0-2)	Age Adjusted Soil to Skin Adherence Factor (0-<2 yrs)	103	mg-yr/day-kg	calculated	CS x SSAF-Adj (0-2) x DABS x CF1 x EF x 1/AT
					DABS	Dermal Absorption Factor Solids	Chemical-Specific	--	EPA, 2004	[for child aged 0-<2 years]
					CF	Conversion Factor	0.000001	kg/mg	- -	
					EF	Exposure Frequency	104	days/year	(1)	
					AT-C	Averaging Time (Cancer)	25,550	days	(2)	
				Child (2-6 yrs)	CS	Chemical Concentration in Soil	See Table 3s.RME	mg/kg	See Table 3s.RME	CDI (mg/kg-day) =
					SSAF-Adj (2-6)	Age Adjusted Soil to Skin Adherence Factor(2-<6 yrs)	144	mg-yr/day-kg	calculated	CS x SSAF-Adj (2-6) x DABS x CF1 x EF x 1/AT
					DABS	Dermal Absorption Factor Solids	Chemical-Specific	--	EPA, 2004	[for child aged 2-6 years]
					CF	Conversion Factor	0.000001	kg/mg	- -	
					EF	Exposure Frequency	104	days/year	(1)	
					AT-C	Averaging Time (Cancer)	25,550	days	(2)	

Notes:
(1) Based on best professional judgment.
(2) Calculated as the product of 70 years assumed human lifetime (EPA, 1989a) x 365 days/year.

Sources:
EPA, 2004: Risk Assessment Guidance for Superfund (RAGS) Volume I: Human Health Evaluation Manual. Part E Supplemental Guidance for Dermal Risk Assessment) Final.

cm^2 = Square centimeter
kg = Kilogram
kg/mg = Kilogram per milligram
mg/kg = Milligram per kilogram
mg/kg-day = Milligram per kilogram per day
mg/cm^2-day = Milligram per square centimeter per day
mg/day = Milligram per day

TABLE 4.2.RME Supplement A

VALUES USED FOR DAILY INTAKE CALCULATIONS (MUTAGENIC MODE OF ACTION)

REASONABLE MAXIMUM EXPOSURE

AOC-I

Former NASD, Vieques, Puerto Rico

Scenario Timeframe: Future
Medium: Surface Soil (0-2 ft)
Exposure Medium: Air

Exposure Route	Receptor Population	Exposure Point	Receptor Age		Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Inhalation	Recreational	Emissions from AOC-I Surface Soil	Child	Child (0-<2 yrs)	CS	Chemical Concentration in Soil	See Table 3s.RME	mg/kg	See Table 3s.RME	CDI (mg/kg-day) =
					CA	Chemical Concentration in Air	Calculated	mg/m^3	EPA, 2002	CA x IN-Adj (0-2) x ET x EF x 1/AT
					IN-Adj (0-2)	Age Adjusted Inhalation Rate (0-<2 yrs)	1.1	m^3-yr/day-kg	calculated	[for child aged 0-<2 years]
					PEF	Particulate Emission Factor	7.05E+08	m^3/kg	EPA, 2002	
					VF	Volatilization Factor for volatile constituents	Calculated	m^3/kg	EPA, 2002	CA (mg/m^3) = CS (1/PEF + 1/VF)
					EF	Exposure Frequency	104	days/year	(1)	
					AT-C	Averaging Time (Cancer)	25,550	days	(2)	
				Child (2-6 yrs)	CS	Chemical Concentration in Soil	See Table 3s.RME	mg/kg	See Table 3s.RME	CDI (mg/kg-day) =
					CA	Chemical Concentration in Air	Calculated	mg/m^3	EPA, 2002	CA x IN-Adj (2-6) x ET x EF x 1/AT
					IN-Adj (2-6)	Age Adjusted Inhalation Rate (2-<6 yrs)	2.0	m^3-yr/day-kg	calculated	[for child aged 2-6 years]
					PEF	Particulate Emission Factor	7.05E+08	m^3/kg	EPA, 2002	
					VF	Volatilization Factor for volatile constituents	Calculated	m^3/kg	EPA, 2002	CA (mg/m^3) = CS (1/PEF + 1/VF)
					EF	Exposure Frequency	104	days/year	(1)	
					AT-C	Averaging Time (Cancer)	25,550	days	(2)	

Notes:

(1) Based on best professional judgment.

(2) Calculated as the product of 70 years assumed human lifetime (EPA, 1989a) x 365 days/year.

Sources:

EPA, 2002: Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites, OSWER 9355.4-24, December, 2002.

kg = Kilogram

mg/kg = Milligram per kilogram

mg/kg-day = Milligram per kilogram per day

mg/m^3 = Milligram per cubic meter

m^3/day = Cubic meter per day

m^3/kg = Cubic meter per kilogram

TABLE 4.3.RME Supplement A
VALUES USED FOR DAILY INTAKE CALCULATIONS (MUTAGENIC MODE OF ACTION)
REASONABLE MAXIMUM EXPOSURE
AOC-I
Former NASD, Vieques, Puerto Rico

Scenario Timeframe: Future
Medium: Soil
Exposure Medium: Soil (0-2 ft or 0-6 ft)

Exposure Route	Receptor Population	Exposure Point	Receptor Age		Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Ingestion	Residential	AOC-E Soil (0-2 ft or 0-6 ft)	Child/Adult Aggregate	Child (0-<2 yrs)	CS	Chemical Concentration in Soil	See Table 3s.RME	mg/kg	See Table 3s.RME	CDI (mg/kg-day) =
					IR-S-Adj (0-2)	Age Adjusted Ingestion Rate of Soil (0-<2 yrs)	39.7	mg-yr/day-kg	calculated	CS x IR-S-Adj (0-2) x EF x CF1 x 1/AT
					EF	Exposure Frequency	350	days/year	EPA, 2002	[for child aged 0-<2 years]
					CF1	Conversion Factor 1	0.000001	kg/mg	- -	
					AT-C	Averaging Time (Cancer)	25,550	days	(1)	
				Child/Adolescent Aggregate (2-<16 yrs)	CS	Chemical Concentration in Soil	See Table 3s.RME	mg/kg	See Table 3s.RME	CDI (mg/kg-day) =
					IR-S-Adj (2-16)	Age Adjusted Ingestion Rate of Soil (2-<16 yrs)	77.8	mg-yr/day-kg	calculated	CS x IR-S-Adj (2-16) x EF x CF1 x 1/AT
					EF	Exposure Frequency	350	days/year	EPA, 2002	[for child/adolescent aged 2-<16 years]
					CF1	Conversion Factor 1	0.000001	kg/mg	- -	
					AT-C	Averaging Time (Cancer)	25,550	days	(1)	
				Adolescent/Adult Aggregate (16-30 yrs)	CS	Chemical Concentration in Soil	See Table 3s.RME	mg/kg	See Table 3s.RME	CDI (mg/kg-day) =
					IR-S-Adj (16-30)	Age Adjusted Ingestion Rate of Soil (16-<30 yrs)	20.7	mg-yr/day-kg	calculated	CS x IR-S-Adj (16-30) x EF x CF1 x 1/AT
					EF	Exposure Frequency	350	days/year	EPA, 2002	[for adolescent/adult aged 16-30 years]
					CF1	Conversion Factor 1	0.000001	kg/mg	- -	
					AT-C	Averaging Time (Cancer)	25,550	days	(1)	
Dermal (cont.)	Residential	AOC-E Soil (0-2 ft or 0-6 ft)	Child/Adult Aggregate	Child (0-<2 yrs)	CS	Chemical Concentration in Soil	See Table 3s.RME	mg/kg	See Table 3s.RME	CDI (mg/kg-day) =
					SSAF-Adj (0-2)	Age Adjusted Soil to Skin Adherence Factor (0-<2 yrs)	103	mg-yr/day-kg	calculated	CS x SSAF-Adj (0-2) x DABS x CF1 x EF x 1/AT
					DABS	Dermal Absorption Factor Solids	Chemical-Specific	--	EPA, 2004	[for child aged 0-<2 years]
					CF1	Conversion Factor 1	0.000001	kg/mg	- -	
					EF	Exposure Frequency	350	days/year	EPA, 2002	
					AT-C	Averaging Time (Cancer)	25,550	days	(1)	
				Child/Adolescent Aggregate (2-<16 yrs)	CS	Chemical Concentration in Soil	See Table 3s.RME	mg/kg	See Table 3s.RME	CDI (mg/kg-day) =
					SSAF-Adj (2-16)	Age Adjusted Soil to Skin Adherence Factor(2-<16 yrs)	324	mg-yr/day-kg	calculated	CS x SSAF-Adj (2-16) x DABS x CF1 x EF x 1/AT
					DABS	Dermal Absorption Factor Solids	Chemical-Specific	--	EPA, 2004	[for child/adolescent aged 2-<16 years]
					CF1	Conversion Factor 1	0.000001	kg/mg	- -	
					EF	Exposure Frequency	350	days/year	EPA, 2002	
					AT-C	Averaging Time (Cancer)	25,550	days	(1)	
				Adolescent/Adult Aggregate (16-30 yrs)	CS	Chemical Concentration in Soil	See Table 3s.RME	mg/kg	See Table 3s.RME	CDI (mg/kg-day) =
					SSAF-Adj (16-30)	Age Adjusted Soil to Skin Adherence Factor(16-<30 yrs)	82.2	mg-yr/day-kg	calculated	CS x SSAF-Adj (16-30) x DABS x CF1 x EF x 1/AT
					DABS	Dermal Absorption Factor Solids	Chemical-Specific	--	EPA, 2004	[for adolescent/adult aged 16-30 years]
					CF1	Conversion Factor 1	0.000001	kg/mg	- -	
					EF	Exposure Frequency	350	days/year	EPA, 2002	
					AT-C	Averaging Time (Cancer)	25,550	days	(1)	

Notes:
(1) Calculated as the product of 70 years assumed human lifetime (EPA, 1989a) x 365 days/year.

Sources:
EPA, 2002: Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites, OSWER 9355.4-24, December, 2002.
EPA, 2004: Risk Assessment Guidance for Superfund (RAGS) Volume I: Human Health Evaluation Manual. Part E Supplemental Guidance for Dermal Risk Assessment) Final.

cm^2 = Square centimeter
kg = Kilogram
kg/mg = Kilogram per milligram
mg/kg = Milligram per kilogram
mg/kg-day = Milligram per kilogram per day
mg/cm^2-day = Milligram per square centimeter per day
mg/day = Milligram per day

TABLE 4.4.RME Supplement A

VALUES USED FOR DAILY INTAKE CALCULATIONS (MUTAGENIC MODE OF ACTION)

REASONABLE MAXIMUM EXPOSURE

AOC-I

Former NASD, Vieques, Puerto Rico

Scenario Timeframe: Future
Medium: Soil (0-2 ft or 0-6 ft)
Exposure Medium: Air

Exposure Route	Receptor Population	Exposure Point	Receptor Age		Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Inhalation	Residential	Emissions from AOC-E Soil (0-2 ft or 0-6 ft)	Child/Adult Aggregate	Child (0-<2 yrs)	CS	Chemical Concentration in Soil	See Table 3s.RME	mg/kg	See Table 3s.RME	CDI (mg/kg-day) =
					CA	Chemical Concentration in Air	Calculated	mg/m^3	EPA, 2002	CA x IN-Adj (0-2) x ET x EF x 1/AT
					IN-Adj (0-2)	Age Adjusted Inhalation Rate (0-<2 yrs)	1.1	m^3-yr/day-kg	calculated	[for child aged 0-<2 years]
					PEF	Particulate Emission Factor	7.05E+08	m^3/kg	EPA, 2002	
					VF	Volatilization Factor for volatile constituents	Calculated	m^3/kg	EPA, 2002	CA (mg/m^3) = CS (1/PEF + 1/VF)
					EF	Exposure Frequency	350	days/year	EPA, 2002	
					AT-C	Averaging Time (Cancer)	25,550	days	(1)	
				Child/Adolescent Aggregate (2-<16 yrs)	CS	Chemical Concentration in Soil	See Table 3s.RME	mg/kg	See Table 3s.RME	CDI (mg/kg-day) =
					CA	Chemical Concentration in Air	Calculated	mg/m^3	EPA, 2002	CA x IN-Adj (2-16) x ET x EF x 1/AT
					IN-Adj (2-16)	Age Adjusted Inhalation Rate (2-<16 yrs)	5.3	m^3-yr/day-kg	calculated	[for child/adolescent aged 2-<16 years]
					PEF	Particulate Emission Factor	7.05E+08	m^3/kg	EPA, 2002	
					VF	Volatilization Factor for volatile constituents	Calculated	m^3/kg	EPA, 2002	CA (mg/m^3) = CS (1/PEF + 1/VF)
					EF	Exposure Frequency	350	days/year	EPA, 2002	
					AT-C	Averaging Time (Cancer)	25,550	days	(1)	
				Adolescent/Adult Aggregate (16-30 yrs)	CS	Chemical Concentration in Soil	See Table 3s.RME	mg/kg	See Table 3s.RME	CDI (mg/kg-day) =
					CA	Chemical Concentration in Air	Calculated	mg/m^3	EPA, 2002	CA x IN-Adj (16-30) x ET x EF x 1/AT
					IN-Adj (16-30)	Age Adjusted Inhalation Rate (16-<30 yrs)	2.8	m^3-yr/day-kg	calculated	[for adolescent/adult aged 16-30 years]
					PEF	Particulate Emission Factor	7.05E+08	m^3/kg	EPA, 2002	
					VF	Volatilization Factor for volatile constituents	Calculated	m^3/kg	EPA, 2002	CA (mg/m^3) = CS (1/PEF + 1/VF)
					EF	Exposure Frequency	350	days/year	EPA, 2002	
					AT-C	Averaging Time (Cancer)	25,550	days	(1)	

Notes:

(1) Calculated as the product of 70 years assumed human lifetime (EPA, 1989a) x 365 days/year.

Sources:

EPA, 1997: Exposure Factors Handbook. EPA/600/P-95/002Fa.

EPA, 2002: Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites, OSWER 9355.4-24, December, 2002.

kg = Kilogram

mg/kg = Milligram per kilogram

mg/kg-day = Milligram per kilogram per day

mg/m^3 = Milligram per cubic meter

m^3/day = Cubic meter per day

m^3/kg = Cubic meter per kilogram

TABLE 4.5.RME Supplement A
VALUES USED FOR DAILY INTAKE CALCULATIONS (MUTAGENIC MODE OF ACTION)
REASONABLE MAXIMUM EXPOSURE
AOC-I
Former NASD, Vieques, Puerto Rico

Scenario Timeframe: Future
Medium: Groundwater
Exposure Medium: Groundwater

Exposure Route	Receptor Population	Exposure Point	Receptor Age		Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Ingestion	Residential	Tap Water	Child/Adult Aggregate	Child (0-<2 yrs)	CW	Chemical Concentration in Water	See Table 3s.RME	µg/l	See Table 3s.RME	CDI (mg/kg-day) =
					IR-W-Adj (0-2)	Ingestion Rate of Water, Age-adjusted (0-<2 yrs)	0.22	liter-year/kg-day	calculated	CW x IR-W-Adj (0-2) x EF x CF1 x 1/AT
					EF	Exposure Frequency	350	days/year	EPA, 2002	[for child aged 0-<2 years]
					AT-C	Averaging Time (Cancer)	25,550	days	(1)	
					CF1	Conversion Factor 1	0.001	mg/µg	- -	
				Child/Adolescent Aggregate (2-<16 yrs)	CW	Chemical Concentration in Water	See Table 3s.RME	µg/l	See Table 3s.RME	CDI (mg/kg-day) =
					IR-W-Adj (2-16)	Ingestion Rate of Water, Age-adjusted (2-<16 yrs)	0.84	liter-year/kg-day	calculated	CW x IR-W-Adj (6-16) x EF x CF1 x 1/AT
					EF	Exposure Frequency	350	days/year	EPA, 2002	[for child/adolescent aged 2-<16 years]
					AT-C	Averaging Time (Cancer)	25,550	days	(1)	
					CF1	Conversion Factor 1	0.001	mg/µg	- -	
				Adolescent/Adult Aggregate (16-30 yrs)	CW	Chemical Concentration in Water	See Table 3s.RME	µg/l	See Table 3s.RME	CDI (mg/kg-day) =
					IR-W-Adj (16-30)	Ingestion Rate of Water, Age-adjusted (16-<30 yrs)	0.41	liter-year/kg-day	calculated	CW x IR-W-Adj (16-30) x EF x CF1 x 1/AT
					EF	Exposure Frequency	350	days/year	EPA, 2002	[for adolescent/adult aged 16-30 years]
					AT-C	Averaging Time (Cancer)	25,550	days	(1)	
					CF1	Conversion Factor 1	0.001	mg/µg	- -	
Dermal	Resident	Tap Water	Child/Adult Aggregate	Child/Adult Aggregate	CW	Chemical Concentration in Water	See Table 3s.RME	µg/l	See Table 3s.RME	Inorganics: DAevent (mg/cm^2-event) =
					DAevent	Dermally Absorbed Dose per Event	Calculated	mg/cm^2-event	calculated	Kp x CW x t_{event} x CF1 x CF2
					FA	Fraction absorbed water	Chemical-Specific	dimensionless	EPA, 2004	Organics :
					Kp	Permeability Coefficient	Chemical-Specific	cm/hr	EPA, 2004	t_{event}<t*: DAevent (mg/cm^2-event) =
					τ	Lag Time	Chemical-Specific	hr/event	EPA, 2004	2 x FA x Kp x CW x (sqrt((6 xτ x t_{event})/π)) x CF1 x CF2
					t*	Time to Reach Steady-state	Chemical-Specific	hours	EPA, 2004	
					B	Ratio of Permeability of Stratum Corneum to Epidermis	Chemical-Specific	dimensionless	EPA, 2004	t_{event}>t*: DAevent (mg/cm^2-event) =
					t_{event}	Event Time	see below	hr/event	EPA, 2004	FA x Kp x CW x (t_{event}/(1+B) + 2 x τ x
					CF1	Conversion Factor 1	0.001	mg/µg	- -	((1 + 3B + 3B^2)/(1+B)^2)) x CF1 x CF2
					CF2	Conversion Factor 2	0.001	l/cm^3	- -	
				Child (0-<2 yrs)	DA-Adj	Dermally Absorbed Dose per Event	Calculated	mg/cm^2-event	calculated	CDI (mg/kg-day) =
					SA-Adj (0-2)	Skin Surface Area, Age-adjusted (0-<2 yrs)	1,172	cm^2-year/kg	calculated	DAevent x SA-Adj (0-2) x EV x EF x 1/AT
					EV	Event Frequency	1	events/day	EPA, 2004	[for child aged 0-<2 years]
					t_{event}	Event Time (0-<6 yrs)	1.0	hr/event	EPA, 2004	
					EF	Exposure Frequency	350	days/year	EPA, 2002	
					AT-C	Averaging Time (Cancer)	25,550	days	(1)	
				Child/Adolescent Aggregate (2-6 yrs)	DA-Adj	Dermally Absorbed Dose per Event	Calculated	mg/cm^2-event	calculated	CDI (mg/kg-day) =
					SA-Adj (2-6)	Skin Surface Area, Age-adjusted (2-<6 yrs)	1,685	cm^2-year/kg	calculated	DAevent x SA-Adj (2-6) x EV x EF x 1/AT
					EV	Event Frequency	1	events/day	EPA, 2004	[for child/adolescent aged 2-6 years]
					t_{event}	Event Time (0-<6 yrs)	1.0	hr/event	EPA, 2004	
					EF	Exposure Frequency	350	days/year	EPA, 2002	
					AT-C	Averaging Time (Cancer)	25,550	days	(1)	
				Child/Adolescent Aggregate (6-<16 yrs)	DA-Adj	Dermally Absorbed Dose per Event	Calculated	mg/cm^2-event	calculated	CDI (mg/kg-day) =
					SA-Adj (6-16)	Skin Surface Area, Age-adjusted (6-<16 yrs)	3,234	cm^2-year/kg	calculated	DAevent x SA-Adj (6-16) x EV x EF x 1/AT
					EV	Event Frequency	1	events/day	EPA, 2004	[for child/adolescent aged 6-<16 years]
					t_{event}	Event Time (6-<30 yrs)	0.58	hr/event	EPA, 2004	
					EF	Exposure Frequency	350	days/year	EPA, 2002	
					AT-C	Averaging Time (Cancer)	25,550	days	(1)	
				Adolescent/Adult Aggregate (16-30 yrs)	DA-Adj	Dermally Absorbed Dose per Event	Calculated	mg/cm^2-event	calculated	CDI (mg/kg-day) =
					SA-Adj (16-30)	Skin Surface Area, Age-adjusted (16-<30 yrs)	3,687	cm^2-year/kg	calculated	DAevent x SA-Adj (6-16) x EV x EF x 1/AT
					EV	Event Frequency	1	events/day	EPA, 2004	[for adolescent/adult aged 16-30 years]
					t_{event}	Event Time (6-<30 yrs)	0.58	hr/event	EPA, 2004	
					EF	Exposure Frequency	350	days/year	EPA, 2002	
					AT-C	Averaging Time (Cancer)	25,550	days	(1)	

Notes:
(1) Calculated as the product of 70 years assumed human lifetime (EPA, 1989a) x 365 days/year.

Sources:
EPA, 1991: Risk Assessment Guidance for Superfund. Vol.1: Human Health Evaluation Manual - Supplemental Guidance, Standard Default Exposure Factors. Interim Final. OSWER Directive 9285.6-03.
EPA, 1997: Exposure Factors Handbook. EPA/600/P-95/002Fa.
EPA, 2002: Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites, OSWER 9355.4-24, December, 2002.
EPA, 2004: Risk Assessment Guidance for Superfund (RAGS) Volume I: Human Health Evaluation Manual. Part E Supplemental Guidance for Dermal Risk Assessment) Final.

cm/hr = Centimeter per hour
cm^2 = Square centimeter
hr/day = Hour per day
hr/event = Hour per event
kg = Kilogram
L/cm^3 = Liter per cubic centimeter
L/day = Liter per day
mg/cm^2 -event = Milligram per square centimeter per event
mg/kg-day = Milligram per kilogram per day
mg/L = Milligram per liter

TABLE 4.6.RME Supplement A

VALUES USED FOR DAILY INTAKE CALCULATIONS (MUTAGENIC MODE OF ACTION)

REASONABLE MAXIMUM EXPOSURE

AOC-I

Former NASD, Vieques, Puerto Rico

Scenario Timeframe: Future
Medium: Groundwater
Exposure Medium: Bathroom Air

Exposure Route	Receptor Population	Exposure Point	Receptor Age		Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Inhalation	Resident	Water Vapors in Bathroom	Adult/Child Aggregate	Child (0-<2 yrs)	CW	Chemical Concentration in Water	See Table 3s.RME	µg/L	See Table 3s.RME	Chronic Daily Intake (CDI) (mg/kg-day) =
					CA	Chemical Concentration in Air	Calculated	mg/m^3	Calculated	CA x IN-Adj (0-2) x ET x EF x 1/AT
					IN-Adj (0-2)	Inhalation Rate, Adjusted (0-<2 yrs)	1.1	m^3-yr/day-kg	Calculated	[for child aged 0-<2 years]
					ET	Exposure Time	1	hr/day	(1)	
					EF	Exposure Frequency	350	days/year	EPA, 2002	CA calculated based on CW using Andelman model
					AT-C	Averaging Time (Cancer)	25,550	days	(2)	as modified by Schaum et al.
					CF	Conversion Factor	0.001	mg/µg	- -	
				Child/Adolescent Aggregate (2-6 yrs)	CW	Chemical Concentration in Water	See Table 3s.RME	µg/L	See Table 3s.RME	CDI (mg/kg-day) =
					CA	Chemical Concentration in Air	Calculated	mg/m^3	Calculated	CA x IN-Adj (2-6) x ET x EF x 1/AT
					IN-Adj (2-6)	Inhalation Rate, Adjusted (2-<6 yrs)	2.0	m^3-yr/day-kg	Calculated	[for child/adolescent aged 2-6 years]
					ET	Exposure Time	1	hr/day	(1)	
					EF	Exposure Frequency	350	days/year	EPA, 2002	CA calculated based on CW using Andelman model
					AT-C	Averaging Time (Cancer)	25,550	days	(2)	as modified by Schaum et al.
					CF	Conversion Factor	0.001	mg/µg	- -	
				Child/Adolescent Aggregate (6-<16 yrs)	CW	Chemical Concentration in Water	See Table 3s.RME	µg/L	See Table 3s.RME	CDI (mg/kg-day) =
					CA	Chemical Concentration in Air	Calculated	mg/m^3	Calculated	CA x IN-Adj (6-16) x ET x EF x 1/AT
					IN-Adj (6-16)	Inhalation Rate, Adjusted (6-<16 yrs)	3.4	m^3-yr/day-kg	Calculated	[for child/adolescent aged 6-<16 years]
					ET	Exposure Time	0.58	hr/day	(1)	
					EF	Exposure Frequency	350	days/year	EPA, 2002	CA calculated based on CW using Andelman model
					AT-C	Averaging Time (Cancer)	25,550	days	(2)	as modified by Schaum et al.
					CF	Conversion Factor	0.001	mg/µg	- -	
				Adolescent/Adult Aggregate (16-30 yrs)	CW	Chemical Concentration in Water	See Table 3s.RME	µg/L	See Table 3s.RME	CDI (mg/kg-day) =
					CA	Chemical Concentration in Air	Calculated	mg/m^3	Calculated	CA x IN-Adj (16-30) x ET x EF x 1/AT
					IN-Adj (16-30)	Inhalation Rate, Adjusted (16-<30 yrs)	2.8	m^3-yr/day-kg	Calculated	[for adolescent/adult aged 16-30 years]
					ET	Exposure Time	0.58	hr/day	(1)	
					EF	Exposure Frequency	350	days/year	EPA, 2002	CA calculated based on CW using Andelman model
					AT-C	Averaging Time (Cancer)	25,550	days	(2)	as modified by Schaum et al.
					CF	Conversion Factor	0.001	mg/µg	- -	

Notes:

(1) EPA Region 2 and the Andelman model as modified by Schaum et. al.

(2) Calculated as the product of 70 years assumed human lifetime (EPA, 1989a) x 365 days/year.

Sources:

EPA, 2002: Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites, OSWER 9355.4-24, December, 2002.

hr/day = Hour per day
kg = Kilogram
m^3/hour = Cubic meter per hour
mg/kg-day = Milligram per kilogram per day
mg/kg-shower = Milligram per kilogram per shower
mg/µg = Milligram per microgram
mg/m^3 = Milligram per cubic meter
µg/L = Microgram per liter
µg/m^3 = Microgram per cubic meter

TABLE 4 - Supplement B
Age-Adjusted Exposure Factors (RME)
AOC-I
Former NASD, Vieques, Puerto Rico

			Intake Rate		Dermal			Age-Adjusted Exposure Factors				
AGE (year)	ED (years)	BW [1] (kg)	SOIL IR-S [2] (mg/day)	AIR IN [3] (m3/day)	SOIL SSAF [4] (mg/cm2-event)	EXPOSED SA [5] (cm2)	TOTAL SA [6] (cm2)	AGE GROUP	IR-S-Adj (mg-yr/day-kg)	IN-Adj (m3-yr/day-kg)	SSAF-Adj (mg-yr/day-kg)	TOTAL SA (cm2-yr/kg)
0	1	9.1	200	4.5	0.2	2,625	5,910	0-<2 yrs	39.7	1.1	103	1,172
1	1	11.3	200	6.8	0.2	2,571	5,910					
2	1	13.3	200	6.8	0.2	2,434	5,910	2-<6 yrs	49.8	2.0	144	1,685
3	1	15.3	200	8.3	0.2	2,893	6,565					
4	1	17.4	200	8.3	0.2	3,175	7,185					
5	1	19.7	200	8.3	0.2	3,255	7,860					
6	1	22.6	100	10	0.2	2,949	8,545	6-<16 yrs	28.1	3.4	180	3,234
7	1	24.9	100	10	0.2	3,182	9,265					
8	1	28.1	100	10	0.2	3,434	10,000					
9	1	31.5	100	13.5	0.2	3,657	10,650					
10	1	36.3	100	13.5	0.2	3,819	11,750					
11	1	41.1	100	13.5	0.2	4,111	12,650					
12	1	45.3	100	13.5	0.2	4,453	13,700					
13	1	50.4	100	13.5	0.07	4,916	14,750					
14	1	56	100	13.5	0.07	5,205	15,800					
15	1	58.1	100	14.5	0.07	5,386	16,350					
								2-<16 yrs	77.8	5.3	323.8	4,920
16	1	62.6	100	14.5	0.07	5,534	16,800	16-<30 yrs	20.7	2.8	82.2	3,687
17	1	63.2	100	14.5	0.07	5,641	17,150					
18	1	65.1	100	14.5	0.07	5,700	18,000					
19	1	66	100	13.25	0.07	5,700	18,000					
20	1	67.2	100	13.25	0.07	5,700	18,000					
21	1	67.2	100	13.25	0.07	5,700	18,000					
22	1	67.2	100	13.25	0.07	5,700	18,000					
23	1	67.2	100	13.25	0.07	5,700	18,000					
24	1	67.2	100	13.25	0.07	5,700	18,000					
25	1	71.5	100	13.25	0.07	5,700	18,000					
26	1	71.5	100	13.25	0.07	5,700	18,000					
27	1	71.5	100	13.25	0.07	5,700	18,000					
28	1	71.5	100	13.25	0.07	5,700	18,000					
29	1	71.5	100	13.25	0.07	5,700	18,000					

Equations and Definitions:

IR-S-Adj (mg-yr/day-kg) ∑ (ED * IR-S) / BW
SSAF-Adj (mg-yr/day-kg ∑ (ED * EV * SSAF * SA) / BW
IN-Adj (m3-yr/hour-kg) ∑ (ED * IN) / BW

ED - Exposure duration
BW - Body weight
IR-S - Ingestion rate for soi

SSAF - Soil-to-skin adherence factoı
SA - Skin surface area
EV - Event frequency

References:

[1] EPA 1997. Exposure Factors Handbook. Tables 7-2 (adults) and 7-3 (children), mean. Values are mean of male and female. Source: National Center of Health Statistics (NCHS)

[2] EPA 1991. Standard Default Exposure Factors. Default for resident child and adult

[3] EPA 1997. Exposure Factors Handbook. Table 5-23 - Summary of Recommended Values for Inhalation. Mean of male and femal

[4] EPA 2004. Risk Assessment Guidance for Superfund Volume I: Human Health Evaluation Manual (Part E, Supplemental Guidance for Dermal Risk Assessment
Recommended default adherence factor for a child resident (0.2) and adult resident (0.07). For older children, the geometric mean weighted adherence factor f
children playing in wet soil was used for children 6 - 12, as an estimate of a high-end soil contact activity (see Exhibit 3-3)

[5] EPA 2004. Risk Assessment Guidance for Superfund Volume I: Human Health Evaluation Manual (Part E, Supplemental Guidance for Dermal Risk Assessmen
Calculated from Exhibit C-1 - Body Part-Specific Surface Area Calculations (Children). Data from Exposure Factors Handbook, Tables 6-6, 6-7 and 6-8
Surface area of head, forearms, hands, lower legs and feet (for child <6 years); feet excluded from surface area calculation for >6 yeai
Surface area for >18 is recommended default for adult resident (EPA 2004)

[6] EPA 2004. Risk Assessment Guidance for Superfund Volume I: Human Health Evaluation Manual (Part E, Supplemental Guidance for Dermal Risk Assessmen
Exhibit C-1 - Body Part-Specific Surface Area Calculations (Children). Data from Exposure Factors Handbook, Tables 6-6 and 6-7
Total Body Surface Area (50th percentile)

Table 4 RME Supplement C-1
Particulate Emission Factor - Recreator/Resident/Industrial Worker/Maintenance Worker
AOC-I
Former NASD, Vieques, Puerto Rico

PEF Equations:

$$Q/C_{wind} = A \times \exp\left[\frac{(\ln A_{site} - B)^2}{C}\right]$$

Exhibit D-2 (EPA, 2002)

$$PEF = Q/C_{wind} \times \frac{3{,}600 \sec/\mathrm{hr}}{0.036 \times (1-V) \times \left(U_m/U_t\right)^3 \times F(x)}$$

Equation 4-5 (EPA, 2002)

PEF and Box Model Input Parameters

Parameter	Definition	Value	Units	Source
Q/C_{wind}	inverse ratio of the geometric mean air concentration to the emission flux at the center of a square source	**66**	m	calculated
A	Constant for Zone 9 (Miami, FL)	12.196	unitless	Exhibit D-2 (EPA, 2002)
B	Constant for Zone 9 (Miami, FL)	19.065	unitless	Exhibit D-2 (EPA, 2002)
C	Constant for Zone 9 (Miami, FL)	215.392	unitless	Exhibit D-2 (EPA, 2002)
A_{site}	Areal extent of site contamination	1.0	acres	site-specific
PEF	particulate emission factor	**7.05E+08**	m^3/kg	calculated
V	fraction of vegetative cover	0.5	unitless	Default (Eqn. 4-5)
Um	mean annual windspeed	5.19	m/s	Daily Average Windspeed (10.1 knot)
Ut	equivalent threshold value of windpeed at 7 m	11.32	m/s	Default (Eqn. 4-5)
F(x)	function dependent on Um/Ut derived using Cowherd et al. (1985)	0.194	unitless	Default (Eqn. 4-5)

Source:

EPA, 2002. Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites, EPA Office of Solid Waste and Emergency Response. OSWER 9355.4-24. December.

Table 4 RME Supplement C-2
Particulate Emission Factor - Construction Worker
AOC-I
Former NASD, Vieques, Puerto Rico

PEF Equations:

$$Q/C_{Sr} = A \times \exp\left[\frac{(\ln A_{site} - B)^2}{C}\right]$$

Equation 5-6 (EPA, 2002)

$$PEF_{SC} = Q/C_{Sr} \times \frac{1}{F_D} \frac{T \times A_R}{556 \times (W/3)^{0.4} \times \left(\frac{365\ d/yr - p}{365\ d/yr}\right)^3 \times \sum VKT}$$

Equation 5-5 (EPA, 2002)

$$F_D = 0.1852 + \frac{5.3537}{t_c} + \frac{-9.6318}{t_c^{\ 2}}$$

Equation E-16 (EPA, 2002)

PEF and Box Model Input Parameters

Parameter	Definition	Value	Units	Source
Q/C_{Sr}	inverse ratio of the geometric mean air concentration to the emission flux at the center of a square source	**20.5**	m	calculated
A	Constant	12.935	unitless	default (Eqn. 5-6)
B	Constant	5.738	unitless	default (Eqn. 5-6)
C	Constant	71.771	unitless	default (Eqn. 5-6)
A_{site}	Areal extent of site contamination	1	acres	site-specific
PEF_{SC}	subchronic road particulate emission factor	**1.48E+07**	m^3/kg	calculated
F_D	Dispersion correction factor	0.188	unitless	calculated
t_c	duration of construction (250 days for 8 hr/day)	2,000	hr	assumed
T	total time over which construction occurs (t_c x 3600 s/hr)	7,200,000	s	assumed
A_R	surface area of contaminated road segment	274.21	m^2	default (Eqn. 5-5)
W	mean weight of vehicle [(1 car @ 2 tons/car) + (2 trucks @ 20 tons/truck)] / 3 vehicles)	14	tons	assumed
p	number of days with at least 0.01 inches of precipitation (based on measured 2005 data)	92	days/yr	site-specific
VKT	sum of fleet vehicle kilometers traveled during the exposure duration (assumed 3 vehicles x 0.045 km/day x 250 days)	33.8	km	assumed

Source:

EPA, 2002. Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites, EPA Office of Solid Waste and Emergency Response. OSWER 9355.4-24. December.

TABLE 5.1

NON-CANCER TOXICITY DATA -- ORAL/DERMAL

AOC-I

Former NASD, Vieques, Puerto Rico

Chemical of Potential Concern	Chronic/ Subchronic	Oral RfD		Oral Absorption Efficiency for Dermal (1)	Absorbed RfD for Dermal (2)		Primary Target Organ(s)	Combined Uncertainty/Modifying Factors	RfD:Target Organ(s)	
		Value	Units		Value	Units			Source(s)	Date(s) (MM/DD/YYYY)
1,2-Dichloroethane	Chronic	2.0E-02	mg/kg-day	> 50%	2.0E-02	mg/kg-day	heart, lungs, CNS, kidney, liver, gastrointestinal	3000/1	NCEA (R9)	10/2004
1,2-Dichloroethane	Subchronic	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloropropane	Chronic/Subchronic	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,4-Dichlorobenzene	Chronic	3.0E-02	mg/kg-day	> 50%	3.0E-02	mg/kg-day	liver, developmental	1000/1	NCEA (R3, R9)	10/2006, 10/2004
1,4-Dichlorobenzene	Subchronic	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Methylnaphthalene	Chronic	4.0E-03	mg/kg-day	> 50%	4.0E-03	mg/kg-day	respiratory	1000/1	IRIS	03/13/2007
2-Methylnaphthalene	Subchronic	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aluminum	Chronic	1.0E+00	mg/kg-day	> 50%	1.0E+00	mg/kg-day	nervous system	NA	PPRTV (R3)	4/12/2007
Aluminum	Subchronic	NA	NA	NA	NA	NA	NA	NA	NA	NA
Antimony	Chronic	4.0E-04	mg/kg-day	15%	6.0E-05	mg/kg-day	blood	1000/1	IRIS	03/13/2007
Antimony	Subchronic	4.0E-04	mg/kg-day	15%	6.0E-05	mg/kg-day	blood, whole body	1000	HEAST	07/31/1997
Arsenic	Chronic	3.0E-04	mg/kg-day	95%	3.0E-04	mg/kg-day	skin	3/1	IRIS	03/13/2007
Arsenic	Subchronic	3.0E-04	mg/kg-day	95%	3.0E-04	mg/kg-day	skin	3	HEAST	07/31/1997
Benzene	Chronic	4.0E-03	mg/kg-day	> 50%	4.0E-03	mg/kg-day	blood	300/1	IRIS	03/13/2007
Benzene	Subchronic	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	Chronic/Subchronic	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-Ethylhexyl)phthalate	Chronic	2.0E-02	mg/kg-day	> 50%	2.0E-02	mg/kg-day	liver	1000/1	IRIS	03/13/2007
bis(2-Ethylhexyl)phthalate	Subchronic	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cadmium (water)	Chronic	5.0E-04	mg/kg-day	5%	2.5E-05	mg/kg-day	kidney	10/1	IRIS	03/13/2007
Cadmium	Subchronic	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenzofuran	Chronic/Subchronic	NA	NA	NA	NA	NA	NA	NA	NA	NA
Iron	Chronic	7.0E-01	mg/kg-day	> 50%	7.0E-01	mg/kg-day	gastrointestinal	1.5	PPRTV	9/11/2006
Iron	Subchronic	7.0E-01	mg/kg-day	> 50%	7.0E-01	mg/kg-day	gastrointestinal	1.5	PPRTV	9/11/2006
Manganese	Chronic	1.4E-01	mg/kg-day	4%	5.6E-03	mg/kg-day	CNS	1/1	IRIS	03/13/2007
Manganese	Subchronic	1.4E-01	mg/kg-day	4%	5.6E-03	mg/kg-day	CNS	1	HEAST	07/31/1997
Naphthalene	Chronic	2.0E-02	mg/kg-day	58-89%	2.0E-02	mg/kg-day	whole body	3000/1	IRIS	03/13/2007
Naphthalene	Subchronic	NA	NA	NA	NA	NA	NA	NA	NA	NA
Trichloroethene	Chronic	NA	NA	NA	NA	NA	NA	NA	Cal/EPA	NA
Trichloroethene	Chronic	3.0E-04	mg/kg-day	>50%	3.0E-04	mg/kg-day	liver, kidney, fetus	NA	NCEA (R9)	10/1/2004
Trichloroethene	Subchronic	NA	NA	NA	NA	NA	NA	NA	NA	NA
Thallium	Chronic	6.6E-05	mg/kg-day	100%	6.6E-05	mg/kg-day	blood	3000/1	IRIS (R9)	03/13/2007
Thallium	Subchronic	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium	Chronic	1.0E-03	mg/kg-day	2.6%	2.6E-05	mg/kg-day	respiratory, kidney	NA	NCEA (R3, R9)	10/2006, 10/2004
Vanadium	Subchronic	7.0E-03	mg/kg-day	2.6%	1.8E-04	mg/kg-day	whole body	100	HEAST	07/31/1997

Note:

(1) Source: Risk Assessment Guidance for Superfund. Volume 1: Human Health Evaluation Manual (Part E, Supplemental Guidance for Dermal Risk Assessment) Final. Section 4.2 and Exhibit 4-1. USEPA recommends that the oral RfD should not be adjusted to estimate the absorbed dose for compounds when the absorption efficiency is greater than 50%. Constituents that do not have oral absorption efficiencies reported on this table were assumed to have an oral absorption efficiency of 100%.

(2) Adjusted based on RAGS Part E.

Definitions:

NA = Not Available

IRIS = Integrated Risk Information System

HEAST = Health Effects Assessment Summary Tables

NCEA = National Center for Environmental Assessment

PPRTV = Preliminary Peer-Reviewed Toxicity Value

R9 = As cited in EPA Region 9 Preliminary Remediation Goal (PRG) Table

R3 = As cited in EPA Region 3 Risk-Based Concentration (RBC) Table

Cal/EPA = California Environmental Protection Agency

GI = Gastrointestinal

CNS = Central Nervous System

NOE = No Observed Effects

TABLE 5.2

NON-CANCER TOXICITY DATA -- INHALATION

AOC-I

Former NASD, Vieques, Puerto Rico

Chemical of Potential Concern	Chronic/ Subchronic	Inhalation RfC		Extrapolated RfD (1)		Primary Target Organ(s)	Combined Uncertainty/Modifying Factors	RfC : Target Organ(s)	
		Value	Units	Value	Units			Source(s)	Date(s) (MM/DD/YYYY)
1,2-Dichloroethane	Chronic	5.0E-03	mg/m^3	1.4E-03	mg/kg-day	gastrointestinal, liver, kidney	3000	NCEA (R9)	10/2004
1,2-Dichloroethane	Subchronic	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloropropane	Chronic	4.0E-03	mg/m^3	1.1E-03	mg/kg-day	respiratory	300/1	IRIS	03/13/2007
1,2-Dichloropropane	Subchronic	1.3E-02	mg/m^3	3.7E-03	mg/kg-day	respiratory	100	HEAST	07/31/1997
1,4-Dichlorobenzene	Chronic	8.0E-01	mg/m^3	2.3E-01	mg/kg-day	liver	100/1	IRIS	03/13/2007
1,4-Dichlorobenzene	Subchronic	2.5E+00	mg/m^3	7.1E-01	mg/kg-day	liver	30	HEAST	07/31/1997
2-Methylnaphthalene	Chronic/Subchronic	NA	NA	NA	NA	NA	NA	NA	NA
Aluminum	Chronic	5.0E-03	mg/m^3	1.4E-03	mg/kg-day	NA	NA	PPRTV (R3)	4/12/2007
Aluminum	Subchronic	NA	NA	NA	NA	NA	NA	NA	NA
Antimony	Chronic/Subchronic	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	Chronic/Subchronic	NA	NA	NA	NA	NA	NA	NA	NA
Benzene	Chronic	3.0E-02	mg/m^3	8.6E-03	mg/kg-day	blood	300/1	IRIS	03/13/2007
Benzene	Subchronic	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	Chronic/Subchronic	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-Ethylhexyl)phthalate	Chronic/Subchronic	NA	NA	NA	NA	NA	NA	NA	NA
Cadmium	Chronic	NA	NA	5.7E-05	mg/kg-day	NA	NA	NCEA (R3)	NA
Cadmium	Subchronic	NA	NA	NA	NA	NA	NA	NA	NA
Dibenzofuran	Chronic/Subchronic	NA	NA	NA	NA	NA	NA	NA	NA
Iron	Chronic/Subchronic	NA	NA	NA	NA	NA	NA	NA	NA
Manganese	Chronic	5.0E-05	mg/m^3	1.4E-05	mg/kg-day	neurological	1000/1	IRIS	03/13/2007
Manganese	Subchronic	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	Chronic	3.0E-03	mg/m^3	8.6E-04	mg/kg-day	respiratory	3000/1	IRIS	03/13/2007
Naphthalene	Subchronic	NA	NA	NA	NA	NA	NA	NA	NA
Trichloroethene	Chronic	NA	NA	1.0E-02	mg/kg-day	nervous system, eyes	NA	NCEA (R9)	10/2004
Trichloroethene	Chronic	6.0E-01	mg/m^3	1.7E-01	mg/kg-day	neurological, eyes	NA	Cal/EPA	04/28/2006
Trichloroethene	Subchronic	NA	NA	NA	NA	NA	NA	NA	NA
Thallium	Chronic/Subchronic	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium	Chronic/Subchronic	NA	NA	NA	NA	NA	NA	NA	NA

Note:

(1) Adjusted based on the inhalation RfC, body weight of 70 kg, and inhalation ratee of 20 m^3/day.

Definitions:

NA = Not Available

IRIS = Integrated Risk Information System

HEAST = Health Effects Assessment Summary Tables

NCEA = National Center for Environmental Assessment

PPRTV = Preliminary Peer-Reviewed Toxicity Value

R9 = As cited in EPA Region 9 Preliminary Remediation Goal (PRG) Table

R3 = As cited in EPA Region 3 Risk-Based Concentration (RBC) Table

Cal/EPA = California Environmental Protection Agency

TABLE 6.1

CANCER TOXICITY DATA -- ORAL/DERMAL

AOC-I

Former NASD, Vieques, Puerto Rico

Chemical of Potential Concern	Oral Cancer Slope Factor		Oral Absorption Efficiency for Dermal (1)	Absorbed Cancer Slope Factor for Dermal (2)		Weight of Evidence/ Cancer Guideline Description	Oral CSF	
	Value	Units		Value	Units		Source(s)	Date(s) (MM/DD/YYYY)
1,2-Dichloroethane	9.1E-02	(mg/kg-day) ˆ	> 50%	9.1E-02	(mg/kg-day) ˆ	B2	IRIS	03/13/2007
1,2-Dichloropropane	6.8E-02	(mg/kg-day) ˆ	> 50%	6.8E-02	(mg/kg-day) ˆ	B2	HEAST	07/31/1997
1,4-Dichlorobenzene	2.4E-02	(mg/kg-day) ˆ	> 50%	2.4E-02	(mg/kg-day) ˆ	C	HEAST	07/31/1997
2-Methylnaphthalene	NA	NA	NA	NA	NA	NA	NA	NA
Aluminum	NA	NA	NA	NA	NA	D	IRIS	03/13/2007
Antimony	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	1.5E+00	(mg/kg-day) ˆ	95%	1.5E+00	(mg/kg-day) ˆ	A	IRIS	03/13/2007
Benzene	5.5E-02	(mg/kg-day) ˆ	> 50%	5.5E-02	(mg/kg-day) ˆ	A	IRIS	03/13/2007
Benzo(a)pyrene (3)	7.3E+00	(mg/kg-day) ˆ	58-89%	7.3E+00	(mg/kg-day) ˆ	B2	IRIS	03/13/2007
bis(2-Ethylhexyl)phthalate	1.4E-02	(mg/kg-day) ˆ	> 50%	1.4E-02	(mg/kg-day) ˆ	B2	IRIS	03/13/2007
Cadmium	NA	NA	NA	NA	NA	B1	IRIS	03/13/2007
Dibenzofuran	NA	NA	NA	NA	NA	D	IRIS	03/13/2007
Iron	NA	NA	NA	NA	NA	NA	NA	NA
Manganese	NA	NA	NA	NA	NA	D	IRIS	03/13/2007
Naphthalene	NA	NA	NA	NA	NA	C	IRIS	03/13/2007
Trichloroethene	4.0E-01	(mg/kg-day) ˆ	> 50%	4.0E-01	(mg/kg-day) ˆ	NA	NCEA (R9)	10/2004
Trichloroethene	1.3E-02	(mg/kg-day) ˆ	> 50%	1.3E-02	(mg/kg-day) ˆ	NA	Cal/EPA	04/28/2006
Thallium	NA	NA	NA	NA	NA	D	IRIS	03/13/2007
Vanadium	NA	NA	NA	NA	NA	NA	NA	NA

(1) Source: Risk Assessment Guidance for Superfund. Volume 1: Human Health Evaluation Manual (Part E, Supplemental Guidance for Dermal Risk Assessment) Final. Section 4.2 and Exhibit 4-1. USEPA recommends that the oral slope factor should not be adjusted to estimate the absorbed dose for compounds when the absorption efficiency is greater than 50%. Constituents that do not have oral absorption efficiencies reported on this table were assumed to have an oral absorption efficiency of 100%.

(2) Adjusted based on RAGS Part E.

(3) This chemical operates with a mutagenic mode of action (USEPA 2005).

Definitions:

NA = Not Available

IRIS = Integrated Risk Information System

HEAST = Health Effects Assessment Summary Tables

Cal/EPA = California Environmental Protection Agency

NCEA = National Center for Environmental Assessment

R9 = As cited in EPA Region 9 Preliminary Remedial Goal (PRG) Table

Chemical-specific data are not available, thus, USEPA (2005) default age-dependant adjustment factors (ADAF) will be applied to the slope factor as follows:

AGE	AGE ADAF
0-<2	10
2-<16	3
16-<30	1

Weight of Evidence definitions:

Group A chemicals (known human carcinogens) are agents for which there is sufficient evidence to support the causal association between exposure to the agents in humans and cancer.

Group B1 chemicals (probable human carcinogens) are agents for which there is limited evidence of possible carcinogenicity in humans.

Group B2 chemicals (probable human carcinogens) are agents for which there is sufficient evidence of carcinogenicity in animals but inadequate or a lack of evidence in humans.

Group C chemicals (possible human carcinogens) are agents for which there is limited evidence of carcinogenicity in animals and inadequate or a lack of human data.

Group D chemicals (not classifiable as to human carcinogenicity) are agents with inadequate human and animal evidence of carcinogenicity or for which no data are available.

Group E chemicals (evidence of noncarcinogenicity in humans) are agents for which there is no evidence of carcinogenicity from human or animal studies, or both.

TABLE 6.2

CANCER TOXICITY DATA -- INHALATION

AOC-I

Former NASD, Vieques, Puerto Rico

Chemical of Potential Concern	Unit Risk		Inhalation Cancer Slope Factor		Weight of Evidence/ Cancer Guideline Description	Unit Risk : Inhalation CSF	
	Value	Units	Value	Units		Source(s)	Date(s) (MM/DD/YYYY)
1,2-Dichloroethane	2.6E-05	$(ug/m^3)^{-1}$	9.1E-02	$(mg/kg\text{-}day)^{-1}$	B2	IRIS	03/13/2007
1,2-Dichloropropane	NA	NA	NA	NA	B2	HEAST	07/31/1997
1,4-Dichlorobenzene	NA	NA	2.2E-02	$(mg/kg\text{-}day)^{-1}$	B2	NCEA (R3, R9)	10/2006, 10/2004
2-Methylnaphthalene	NA	NA	NA	NA	NA	NA	NA
Aluminum	NA	NA	NA	NA	NA	NA	NA
Antimony	NA	NA	NA	NA	NA	NA	NA
Arsenic	4.3E-03	$(ug/m^3)^{-1}$	1.5E+01	$(mg/kg\text{-}day)^{-1}$	A	IRIS	03/13/2007
Benzene	7.8E-06	$(ug/m^3)^{-1}$	2.7E-02	$(mg/kg\text{-}day)^{-1}$	A	IRIS	03/13/2007
Benzo(a)pyrene (1)	8.8E-04	$(ug/m^3)^{-1}$	3.1E+00	$(mg/kg\text{-}day)^{-1}$	B2	NCEA (R4)	05/2000
bis(2-Ethylhexyl)phthalate	NA	NA	NA	NA	B2	IRIS	03/13/2007
Cadmium	1.8E-03	$(ug/m^3)^{-1}$	6.3E+00	$(mg/kg\text{-}day)^{-1}$	B1	IRIS	03/13/2007
Dibenzofuran	NA	NA	NA	NA	D	IRIS	03/13/2007
Iron	NA	NA	NA	NA	NA	NA	NA
Manganese	NA	NA	NA	NA	D	IRIS	03/13/2007
Naphthalene	NA	NA	NA	NA	C	IRIS	03/13/2007
Trichloroethene	NA	NA	4.0E-01	$(mg/kg\text{-}day)^{-1}$	NA	NCEA (R9)	10/2004
Trichloroethene	2.0E-06	$(ug/m^3)^{-1}$	7.0E-03	$(mg/kg\text{-}day)^{-1}$	NA	Cal/EPA	4/28/2006
Thallium	NA	NA	NA	NA	NA	NA	NA
Vanadium	NA	NA	NA	NA	NA	NA	NA

Definitions:

NA = Not Available

IRIS = Integrated Risk Information System

HEAST = Health Effects Assessment Summary Tables

NCEA = National Center for Environmental Assessment

R9 = As cited in EPA Region 9 Preliminary Remediation Goal (PRG) Table

R4 = As cited in EPA Region 4 Human Health Risk Assessment Bulletins-- Supplement to RAGS

R3 = As cited in EPA Region 3 Risk-Based Concentration (RBC) Table

Cal/EPA = California Environmental Protection Agency

(1) This chemical operates with a mutagenic mode of action (USEPA 2005).

Chemical-specific data are not available, thus, USEPA (2005) default age-dependant adjustment factors (ADAF) will be applied to the slope factor as follows:

AGE	AGE ADAF
0-<2	10
2-<16	3
16-<30	1

Weight of Evidence definitions:

Group A chemicals (known human carcinogens) are agents for which there is sufficient evidence to support the causal association between exposure to the agents in humans and cancer.

Group B1 chemicals (probable human carcinogens) are agents for which there is limited evidence of possible carcinogenicity in humans.

Group B2 chemicals (probable human carcinogens) are agents for which there is sufficient evidence of carcinogenicity in animals but inadequate or a lack of evidence in humans.

Group C chemicals (possible human carcinogens) are agents for which there is limited evidence of carcinogenicity in animals and inadequate or a lack of human data.

Group D chemicals (not classifiable as to human carcinogenicity) are agents with inadequate human and animal evidence of carcinogenicity or for which no data are available.

Group E chemicals (evidence of noncarcinogenicity in humans) are agents for which there is no evidence of carcinogenicity from human or animal studies, or both.

TABLE 7.1.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

AOC-I

Former NASD, Vieques, Puerto Rico

Scenario Timeframe: Future
Receptor Population: Recreational
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	AOC-I	Ingestion	Benzo(a)pyrene	1.2E-01	mg/kg	1.7E-08	mg/kg/day	7.3E+00	1/(mg/kg/day)	1.2E-07	4.9E-08	mg/kg/day	NA	NA	NA
		Surface Soil (0 - 2 ft)		Aluminum	1.8E+04	mg/kg	2.5E-03	mg/kg/day	NA	NA	NA	7.4E-03	mg/kg/day	1.0E+00	mg/kg/day	7.4E-03
				Arsenic	1.5E+00	mg/kg	2.0E-07	mg/kg/day	1.5E+00	1/(mg/kg/day)	3.1E-07	5.9E-07	mg/kg/day	3.0E-04	mg/kg/day	2.0E-03
				Iron	3.3E+04	mg/kg	4.5E-03	mg/kg/day	NA	NA	NA	1.3E-02	mg/kg/day	7.0E-01	mg/kg/day	1.9E-02
				Manganese	6.5E+02	mg/kg	9.1E-05	mg/kg/day	NA	NA	NA	2.7E-04	mg/kg/day	1.4E-01	mg/kg/day	1.9E-03
				Thallium	7.3E-01	mg/kg	1.0E-07	mg/kg/day	NA	NA	NA	3.0E-07	mg/kg/day	6.6E-05	mg/kg/day	4.5E-03
				Vanadium	9.2E+01	mg/kg	1.3E-05	mg/kg/day	NA	NA	NA	3.7E-05	mg/kg/day	1.0E-03	mg/kg/day	3.7E-02
			Exp. Route Total								4.3E-07					7.2E-02
Soil	Surface Soil	AOC-I	Dermal	Benzo(a)pyrene	1.2E-01	mg/kg	2.5E-08	mg/kg/day	7.3E+00	1/(mg/kg/day)	1.8E-07	7.2E-08	mg/kg/day	NA	NA	NA
		Surface Soil (0 - 2 ft)		Aluminum	1.8E+04	mg/kg	2.9E-05	mg/kg/day	NA	NA	NA	8.4E-05	mg/kg/day	1.0E+00	mg/kg/day	8.4E-05
				Arsenic	1.5E+00	mg/kg	7.0E-08	mg/kg/day	1.5E+00	1/(mg/kg/day)	1.0E-07	2.0E-07	mg/kg/day	3.0E-04	mg/kg/day	6.8E-04
				Iron	3.3E+04	mg/kg	5.2E-05	mg/kg/day	NA	NA	NA	1.5E-04	mg/kg/day	7.0E-01	mg/kg/day	2.2E-04
				Manganese	6.5E+02	mg/kg	1.0E-06	mg/kg/day	NA	NA	NA	3.0E-06	mg/kg/day	5.6E-03	mg/kg/day	5.4E-04
				Thallium	7.3E-01	mg/kg	1.2E-09	mg/kg/day	NA	NA	NA	3.4E-09	mg/kg/day	6.6E-05	mg/kg/day	5.1E-05
				Vanadium	9.2E+01	mg/kg	1.5E-07	mg/kg/day	NA	NA	NA	4.3E-07	mg/kg/day	2.6E-05	mg/kg/day	1.6E-02
			Exp. Route Total								2.9E-07					1.8E-02
		Exposure Point Total									7.1E-07					9.0E-02
	Exposure Medium Total										7.1E-07					9.0E-02
Soil	Ambient Air	AOC-I	Inhalation	Benzo(a)pyrene	1.7E-10	mg/m3	4.7E-12	mg/kg/day	3.1E+00	1/(mg/kg/day)	1.5E-11	1.4E-11	mg/kg/day	NA	NA	NA
		Emissions from		Aluminum	2.6E-05	mg/m3	7.2E-07	mg/kg/day	NA	NA	NA	2.1E-06	mg/kg/day	1.4E-03	mg/kg/day	1.5E-03
		Surface Soil (0-2 ft)		Arsenic	2.1E-09	mg/m3	5.8E-11	mg/kg/day	1.5E+01	1/(mg/kg/day)	8.7E-10	1.7E-10	mg/kg/day	NA	NA	NA
				Iron	4.6E-05	mg/m3	1.3E-06	mg/kg/day	NA	NA	NA	3.8E-06	mg/kg/day	NA	NA	NA
				Manganese	9.2E-07	mg/m3	2.6E-08	mg/kg/day	NA	NA	NA	7.5E-08	mg/kg/day	1.4E-05	mg/kg/day	5.3E-03
				Thallium	1.0E-09	mg/m3	2.9E-11	mg/kg/day	NA	NA	NA	8.4E-11	mg/kg/day	NA	NA	NA
				Vanadium	1.3E-07	mg/m3	3.6E-09	mg/kg/day	NA	NA	NA	1.1E-08	mg/kg/day	NA	NA	NA
			Exp. Route Total								8.8E-10					6.7E-03
		Exposure Point Total									8.8E-10					6.7E-03
	Exposure Medium Total										8.8E-10					6.7E-03
Soil Total											7.1E-07					9.7E-02
Receptor Total											7.1E-07					9.7E-02

NA = Not applicable.

TABLE 7.2.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

AOC-I

Former NASD, Vieques, Puerto Rico

Scenario Timeframe: Future
Receptor Population: Recreational
Receptor Age: Youth

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	AOC-I	Ingestion	Benzo(a)pyrene	1.2E-01	mg/kg	1.2E-08	mg/kg/day	7.3E+00	1/(mg/kg/day)	2.7E-07	8.7E-08	mg/kg/day	NA	NA	NA
		Surface Soil (0 - 2 ft)		Aluminum	1.8E+04	mg/kg	1.9E-03	mg/kg/day	NA	NA	NA	1.3E-02	mg/kg/day	1.0E+00	mg/kg/day	1.3E-02
				Arsenic	1.5E+00	mg/kg	1.5E-07	mg/kg/day	1.5E+00	1/(mg/kg/day)	2.3E-07	1.1E-06	mg/kg/day	3.0E-04	mg/kg/day	3.6E-03
				Iron	3.3E+04	mg/kg	3.4E-03	mg/kg/day	NA	NA	NA	2.4E-02	mg/kg/day	7.0E-01	mg/kg/day	3.4E-02
				Manganese	6.5E+02	mg/kg	6.8E-05	mg/kg/day	NA	NA	NA	4.8E-04	mg/kg/day	1.4E-01	mg/kg/day	3.4E-03
				Thallium	7.3E-01	mg/kg	7.6E-08	mg/kg/day	NA	NA	NA	5.3E-07	mg/kg/day	6.6E-05	mg/kg/day	8.1E-03
				Vanadium	9.2E+01	mg/kg	9.6E-06	mg/kg/day	NA	NA	NA	6.7E-05	mg/kg/day	1.0E-03	mg/kg/day	6.7E-02
			Exp. Route Total								5.0E-07					1.3E-01
Soil	Surface Soil	AOC-I	Dermal	Benzo(a)pyrene	1.2E-01	mg/kg	1.3E-08	mg/kg/day	7.3E+00	1/(mg/kg/day)	2.9E-07	9.3E-08	mg/kg/day	NA	NA	NA
		Surface Soil (0 - 2 ft)		Aluminum	1.8E+04	mg/kg	1.5E-05	mg/kg/day	NA	NA	NA	1.1E-04	mg/kg/day	1.0E+00	mg/kg/day	1.1E-04
				Arsenic	1.5E+00	mg/kg	3.7E-08	mg/kg/day	1.5E+00	1/(mg/kg/day)	5.6E-08	2.6E-07	mg/kg/day	3.0E-04	mg/kg/day	8.7E-04
				Iron	3.3E+04	mg/kg	2.8E-05	mg/kg/day	NA	NA	NA	2.0E-04	mg/kg/day	7.0E-01	mg/kg/day	2.8E-04
				Manganese	6.5E+02	mg/kg	5.6E-07	mg/kg/day	NA	NA	NA	3.9E-06	mg/kg/day	5.6E-03	mg/kg/day	7.0E-04
				Thallium	7.3E-01	mg/kg	6.2E-10	mg/kg/day	NA	NA	NA	4.4E-09	mg/kg/day	6.6E-05	mg/kg/day	6.6E-05
				Vanadium	9.2E+01	mg/kg	7.9E-08	mg/kg/day	NA	NA	NA	5.5E-07	mg/kg/day	2.6E-05	mg/kg/day	2.1E-02
			Exp. Route Total								3.5E-07					2.3E-02
		Exposure Point Total									8.5E-07					1.5E-01
	Exposure Medium Total										8.5E-07					1.5E-01
Soil	Ambient Air	AOC-I	Inhalation	Benzo(a)pyrene	1.7E-10	mg/m3	3.5E-12	mg/kg/day	3.1E+00	1/(mg/kg/day)	3.3E-11	2.5E-11	mg/kg/day	NA	NA	NA
		Emissions from		Aluminum	2.6E-05	mg/m3	5.4E-07	mg/kg/day	NA	NA	NA	3.8E-06	mg/kg/day	1.4E-03	mg/kg/day	2.6E-03
		Surface Soil (0 - 2 ft)		Arsenic	2.1E-09	mg/m3	4.3E-11	mg/kg/day	1.5E+01	1/(mg/kg/day)	6.5E-10	3.0E-10	mg/kg/day	NA	NA	NA
				Iron	4.6E-05	mg/m3	9.7E-07	mg/kg/day	NA	NA	NA	6.8E-06	mg/kg/day	NA	NA	NA
				Manganese	9.2E-07	mg/m3	1.9E-08	mg/kg/day	NA	NA	NA	1.4E-07	mg/kg/day	1.4E-05	mg/kg/day	9.5E-03
				Thallium	1.0E-09	mg/m3	2.2E-11	mg/kg/day	NA	NA	NA	1.5E-10	mg/kg/day	NA	NA	NA
				Vanadium	1.3E-07	mg/m3	2.7E-09	mg/kg/day	NA	NA	NA	1.9E-08	mg/kg/day	NA	NA	NA
			Exp. Route Total								6.8E-10					1.2E-02
		Exposure Point Total									6.8E-10					1.2E-02
	Exposure Medium Total										6.8E-10					1.2E-02
Soil Total											8.5E-07					1.6E-01
Receptor Total											8.5E-07					1.6E-01

NA = Not applicable.

TABLE 7.3.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

AOC-I

Former NASD, Vieques, Puerto Rico

Scenario Timeframe: Future
Receptor Population: Recreational
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	AOC-I	Ingestion	Benzo(a)pyrene	1.2E-01	mg/kg	3.9E-08	mg/kg/day	7.3E+00	1/(mg/kg/day)	1.9E-06	4.5E-07	mg/kg/day	NA	NA	NA
		Surface Soil (0 - 2 ft)		Aluminum	1.8E+04	mg/kg	5.9E-03	mg/kg/day	NA	NA	NA	6.9E-02	mg/kg/day	1.0E+00	mg/kg/day	6.9E-02
				Arsenic	1.5E+00	mg/kg	4.8E-07	mg/kg/day	1.5E+00	1/(mg/kg/day)	7.1E-07	5.5E-06	mg/kg/day	3.0E-04	mg/kg/day	1.8E-02
				Iron	3.3E+04	mg/kg	1.1E-02	mg/kg/day	NA	NA	NA	1.2E-01	mg/kg/day	7.0E-01	mg/kg/day	1.8E-01
				Manganese	6.5E+02	mg/kg	2.1E-04	mg/kg/day	NA	NA	NA	2.5E-03	mg/kg/day	1.4E-01	mg/kg/day	1.8E-02
				Thallium	7.3E-01	mg/kg	2.4E-07	mg/kg/day	NA	NA	NA	2.8E-06	mg/kg/day	6.6E-05	mg/kg/day	4.2E-02
				Vanadium	9.2E+01	mg/kg	3.0E-05	mg/kg/day	NA	NA	NA	3.5E-04	mg/kg/day	1.0E-03	mg/kg/day	3.5E-01
			Exp. Route Total								2.7E-06					6.7E-01
Soil	Surface Soil	AOC-I	Dermal	Benzo(a)pyrene	1.2E-01	mg/kg	1.4E-08	mg/kg/day	7.3E+00	1/(mg/kg/day)	6.8E-07	1.7E-07	mg/kg/day	NA	NA	NA
		Surface Soil (0 - 2 ft)		Aluminum	1.8E+04	mg/kg	1.7E-05	mg/kg/day	NA	NA	NA	1.9E-04	mg/kg/day	1.0E+00	mg/kg/day	1.9E-04
				Arsenic	1.5E+00	mg/kg	4.0E-08	mg/kg/day	1.5E+00	1/(mg/kg/day)	6.0E-08	4.7E-07	mg/kg/day	3.0E-04	mg/kg/day	1.6E-03
				Iron	3.3E+04	mg/kg	3.0E-05	mg/kg/day	NA	NA	NA	3.5E-04	mg/kg/day	7.0E-01	mg/kg/day	5.0E-04
				Manganese	6.5E+02	mg/kg	5.9E-07	mg/kg/day	NA	NA	NA	6.9E-06	mg/kg/day	5.6E-03	mg/kg/day	1.2E-03
				Thallium	7.3E-01	mg/kg	6.7E-10	mg/kg/day	NA	NA	NA	7.8E-09	mg/kg/day	6.6E-05	mg/kg/day	1.2E-04
				Vanadium	9.2E+01	mg/kg	0.0E+00	mg/kg/day	NA	NA	NA	0.0E+00	mg/kg/day	2.6E-05	mg/kg/day	0.0E+00
			Exp. Route Total								7.4E-07					3.6E-03
		Exposure Point Total									3.4E-06					6.8E-01
	Exposure Medium Total										3.4E-06					6.8E-01
Soil	Ambient Air	AOC-I	Inhalation	Benzo(a)pyrene	1.7E-10	mg/m3	4.1E-12	mg/kg/day	3.1E+00	1/(mg/kg/day)	3.6E-11	4.8E-11	mg/kg/day	NA	NA	NA
		Emissions from		Aluminum	2.6E-05	mg/m3	6.3E-07	mg/kg/day	NA	NA	NA	7.3E-06	mg/kg/day	1.4E-03	mg/kg/day	5.1E-03
		Surface Soil (0 - 2 ft)		Arsenic	2.1E-09	mg/m3	5.1E-11	mg/kg/day	1.5E+01	1/(mg/kg/day)	7.6E-10	5.9E-10	mg/kg/day	NA	NA	NA
				Iron	4.6E-05	mg/m3	1.1E-06	mg/kg/day	NA	NA	NA	1.3E-05	mg/kg/day	NA	NA	NA
				Manganese	9.2E-07	mg/m3	2.3E-08	mg/kg/day	NA	NA	NA	2.6E-07	mg/kg/day	1.4E-05	mg/kg/day	1.8E-02
				Thallium	1.0E-09	mg/m3	2.5E-11	mg/kg/day	NA	NA	NA	3.0E-10	mg/kg/day	NA	NA	NA
				Vanadium	1.3E-07	mg/m3	3.2E-09	mg/kg/day	NA	NA	NA	3.7E-08	mg/kg/day	NA	NA	NA
			Exp. Route Total								8.0E-10					2.4E-02
		Exposure Point Total									8.0E-10					2.4E-02
	Exposure Medium Total										8.0E-10					2.4E-02
Soil Total											3.4E-06					7.0E-01
Receptor Total											3.4E-06					7.0E-01

NA = Not applicable.

Detailed risk calculations for benzo(a)pyrene (based on Mutagenic Mode of Action age groups) are presented in Table 7.3RME Supplement A

TABLE 7.3.RME Supplement A

CALCULATION OF CHEMICAL CANCER RISKS FOR COPC WITH MUTAGENIC MODE OF ACTION

REASONABLE MAXIMUM EXPOSURE

AOC-I

Former NASD, Vieques, Puerto Rico

Scenario Timeframe: Future
Receptor Population: Recreational
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations						
							Intake			CSF/Unit Risk			Cancer Risk
					Value	Units	Value		Units	Value		Units	
							0-2 yrs	2-6 yrs		0-2 yrs (ADAF=10)	2-6 yrs (ADAF=3)		
Soil	Surface Soil	AOC-I Surface Soil (0 - 2 ft)	Ingestion	Benzo(a)pyrene	1.2E-01	mg/kg	1.9E-08	2.4E-08	mg/kg/day	7.3E+01	2.2E+01	1/(mg/kg-day)	1.9E-06
			Dermal	Benzo(a)pyrene	1.2E-01	mg/kg	6.5E-09	9.1E-09	mg/kg/day	7.3E+01	2.2E+01	1/(mg/kg-day)	6.8E-07
	Ambient Air	AOC-I Emissions from Surface Soil (0-2 ft)	Inhalation	Benzo(a)pyrene	1.7E-10	mg/m3	7.6E-13	1.3E-12	mg/kg/day	3.1E+01	9.2E+00	1/(mg/kg-day)	3.6E-11

TABLE 7.4.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

AOC-I

Former NASD, Vieques, Puerto Rico

Scenario Timeframe: Future
Receptor Population: Maintenance Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Surface Soil	AOC-I	Ingestion	Arsenic	1.5E+00	mg/kg	1.1E-07	mg/kg/day	1.5E+00	1/(mg/kg/day)	1.6E-07	3.0E-07	mg/kg/day	3.0E-04	mg/kg/day	9.9E-04
		Surface Soil (0 - 2 ft)		Iron	3.0E+04	mg/kg	2.2E-03	mg/kg/day	NA	NA	NA	6.2E-03	mg/kg/day	7.0E-01	mg/kg/day	8.8E-03
				Vanadium	9.2E+01	mg/kg	6.7E-06	mg/kg/day	NA	NA	NA	1.9E-05	mg/kg/day	1.0E-03	mg/kg/day	1.9E-02
			Exp. Route Total								1.6E-07					2.8E-02
Soil	Surface Soil	AOC-I	Dermal	Arsenic	1.5E+00	mg/kg	2.1E-08	mg/kg/day	1.5E+00	1/(mg/kg/day)	3.2E-08	5.9E-08	mg/kg/day	3.0E-04	mg/kg/day	2.0E-04
		Surface Soil (0 - 2 ft)		Iron	3.0E+04	mg/kg	1.5E-05	mg/kg/day	NA	NA	NA	4.1E-05	mg/kg/day	7.0E-01	mg/kg/day	5.8E-05
				Vanadium	9.2E+01	mg/kg	4.4E-08	mg/kg/day	NA	NA	NA	1.2E-07	mg/kg/day	2.6E-05	mg/kg/day	4.7E-03
			Exp. Route Total								3.2E-08					5.0E-03
		Exposure Point Total									1.9E-07					3.3E-02
	Exposure Medium Total										1.9E-07					3.3E-02
Soil	Ambient Air	AOC-I	Inhalation	Arsenic	2.1E-09	mg/m3	3.0E-11	mg/kg/day	1.5E+01	1/(mg/kg/day)	4.5E-10	8.4E-11	mg/kg/day	NA	NA	NA
		Emissions from		Iron	4.3E-05	mg/m3	6.3E-07	mg/kg/day	NA	NA	NA	1.8E-06	mg/kg/day	NA	NA	NA
		Surface Soil (0-2 ft)		Vanadium	1.3E-07	mg/m3	1.9E-09	mg/kg/day	NA	NA	NA	5.3E-09	mg/kg/day	NA	NA	NA
			Exp. Route Total								4.5E-10					0.0E+00
		Exposure Point Total									4.5E-10					0.0E+00
	Exposure Medium Total										4.5E-10					0.0E+00
Soil Total											1.9E-07					3.3E-02
Receptor Total											1.9E-07					3.3E-02

NA = Not applicable.

TABLE 7.5.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

AOC-I

Former NASD, Vieques, Puerto Rico

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Soil	AOC-I	Ingestion	Benzo(a)pyrene	1.2E-01	mg/kg	NA	NA	NA	NA	NA	1.6E-07	mg/kg/day	NA	NA	NA
		Soil		Aluminum	2.2E+04	mg/kg	NA	NA	NA	NA	NA	3.0E-02	mg/kg/day	1.0E+00	mg/kg/day	3.0E-02
				Arsenic	1.5E+00	mg/kg	NA	NA	NA	NA	NA	2.1E-06	mg/kg/day	3.0E-04	mg/kg/day	6.9E-03
				Iron	3.9E+04	mg/kg	NA	NA	NA	NA	NA	5.3E-02	mg/kg/day	7.0E-01	mg/kg/day	7.6E-02
				Manganese	7.3E+02	mg/kg	NA	NA	NA	NA	NA	1.0E-03	mg/kg/day	1.4E-01	mg/kg/day	7.2E-03
				Thallium	7.3E-01	mg/kg	NA	NA	NA	NA	NA	1.0E-06	mg/kg/day	6.6E-05	mg/kg/day	1.5E-02
				Vanadium	1.1E+02	mg/kg	NA	NA	NA	NA	NA	1.6E-04	mg/kg/day	1.0E-03	mg/kg/day	1.6E-01
			Exp. Route Total								0.0E+00					2.9E-01
Soil	Soil	AOC-I	Dermal	Benzo(a)pyrene	1.2E-01	mg/kg	NA	NA	NA	NA	NA	8.5E-08	mg/kg/day	NA	NA	NA
		Soil		Aluminum	2.2E+04	mg/kg	NA	NA	NA	NA	NA	1.2E-04	mg/kg/day	1.0E+00	mg/kg/day	1.2E-04
				Arsenic	1.5E+00	mg/kg	NA	NA	NA	NA	NA	2.5E-07	mg/kg/day	3.0E-04	mg/kg/day	8.2E-04
				Iron	3.9E+04	mg/kg	NA	NA	NA	NA	NA	2.1E-04	mg/kg/day	7.0E-01	mg/kg/day	3.0E-04
				Manganese	7.3E+02	mg/kg	NA	NA	NA	NA	NA	4.0E-06	mg/kg/day	5.6E-03	mg/kg/day	7.2E-04
				Thallium	7.3E-01	mg/kg	NA	NA	NA	NA	NA	4.0E-09	mg/kg/day	6.6E-05	mg/kg/day	6.0E-05
				Vanadium	1.1E+02	mg/kg	NA	NA	NA	NA	NA	6.3E-07	mg/kg/day	2.6E-05	mg/kg/day	2.4E-02
			Exp. Route Total								0.0E+00					2.6E-02
		Exposure Point Total									0.0E+00					3.2E-01
	Exposure Medium Total										0.0E+00					3.2E-01
Soil	Ambient Air	AOC-I	Inhalation	Benzo(a)pyrene	1.7E-10	mg/m3	NA	NA	NA	NA	NA	4.7E-11	mg/kg/day	NA	NA	NA
		Emissions from		Aluminum	3.1E-05	mg/m3	NA	NA	NA	NA	NA	8.4E-06	mg/kg/day	1.4E-03	mg/kg/day	5.9E-03
		Soil		Arsenic	2.1E-09	mg/m3	NA	NA	NA	NA	NA	5.9E-10	mg/kg/day	NA	NA	NA
				Iron	5.5E-05	mg/m3	NA	NA	NA	NA	NA	1.5E-05	mg/kg/day	NA	NA	NA
				Manganese	1.0E-06	mg/m3	NA	NA	NA	NA	NA	2.9E-07	mg/kg/day	1.4E-05	mg/kg/day	2.0E-02
				Thallium	1.0E-09	mg/m3	NA	NA	NA	NA	NA	2.8E-10	mg/kg/day	NA	NA	NA
				Vanadium	1.6E-07	mg/m3	NA	NA	NA	NA	NA	4.5E-08	mg/kg/day	NA	NA	NA
			Exp. Route Total								0.0E+00					2.6E-02
		Exposure Point Total									0.0E+00					2.6E-02
	Exposure Medium Total										0.0E+00					2.6E-02
Soil Total											0.0E+00					3.4E-01

TABLE 7.5.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

AOC-I

Former NASD, Vieques, Puerto Rico

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Groundwater	Groundwater	AOC-I	Ingestion	1,2-Dichloroethane	1.6E+00	ug/L	NA	NA	NA	NA	NA	4.4E-05	mg/kg/day	2.0E-02	mg/kg/day	2.2E-03
		Tap water		1,2-Dichloropropane	3.3E-01	ug/L	NA	NA	NA	NA	NA	9.0E-06	mg/kg/day	NA	NA	NA
				Benzene	2.3E+01	ug/L	NA	NA	NA	NA	NA	6.3E-04	mg/kg/day	4.0E-03	mg/kg/day	1.6E-01
				Trichloroethene	1.4E+00	ug/L	NA	NA	NA	NA	NA	3.8E-05	mg/kg/day	NA	NA	NA
				1,4-Dichlorobenzene	5.2E-01	ug/L	NA	NA	NA	NA	NA	1.4E-05	mg/kg/day	3.0E-02	mg/kg/day	4.7E-04
				2-Methylnaphthalene	4.6E+01	ug/L	NA	NA	NA	NA	NA	1.3E-03	mg/kg/day	4.0E-03	mg/kg/day	3.2E-01
				bis(2-Ethylhexyl)phthalate	9.6E+00	ug/L	NA	NA	NA	NA	NA	2.6E-04	mg/kg/day	2.0E-02	mg/kg/day	1.3E-02
				Dibenzofuran	3.0E+00	ug/L	NA	NA	NA	NA	NA	8.3E-05	mg/kg/day	NA	NA	NA
				Naphthalene	4.5E+01	ug/L	NA	NA	NA	NA	NA	1.2E-03	mg/kg/day	2.0E-02	mg/kg/day	6.2E-02
				Antimony	3.2E+00	ug/L	NA	NA	NA	NA	NA	8.7E-05	mg/kg/day	4.0E-04	mg/kg/day	2.2E-01
				Arsenic	1.5E+01	ug/L	NA	NA	NA	NA	NA	4.0E-04	mg/kg/day	3.0E-04	mg/kg/day	1.3E+00
				Cadmium	5.5E+00	ug/L	NA	NA	NA	NA	NA	1.5E-04	mg/kg/day	5.0E-04	mg/kg/day	3.0E-01
				Iron	1.2E+03	ug/L	NA	NA	NA	NA	NA	3.2E-02	mg/kg/day	7.0E-01	mg/kg/day	4.5E-02
				Manganese	1.4E+03	ug/L	NA	NA	NA	NA	NA	3.7E-02	mg/kg/day	1.4E-01	mg/kg/day	2.7E-01
				Vanadium	2.5E+01	ug/L	NA	NA	NA	NA	NA	6.8E-04	mg/kg/day	1.0E-03	mg/kg/day	6.8E-01
			Exp. Route Total								0.0E+00					3.4E+00
Groundwater	Groundwater	AOC-I	Dermal	1,2-Dichloroethane	1.6E+00	ug/L	NA	NA	NA	NA	NA	2.2E-06	mg/kg/day	2.0E-02	mg/kg/day	1.1E-04
		Tap water		1,2-Dichloropropane	3.3E-01	ug/L	NA	NA	NA	NA	NA	9.0E-07	mg/kg/day	NA	NA	NA
				Benzene	2.3E+01	ug/L	NA	NA	NA	NA	NA	9.6E-05	mg/kg/day	4.0E-03	mg/kg/day	2.4E-02
				Trichloroethene	1.4E+00	ug/L	NA	NA	NA	NA	NA	6.4E-06	mg/kg/day	NA	NA	NA
				1,4-Dichlorobenzene	5.2E-01	ug/L	NA	NA	NA	NA	NA	9.6E-06	mg/kg/day	3.0E-02	mg/kg/day	3.2E-04
				2-Methylnaphthalene	4.6E+01	ug/L	NA	NA	NA	NA	NA	1.4E-03	mg/kg/day	4.0E-03	mg/kg/day	3.5E-01
				bis(2-Ethylhexyl)phthalate	9.6E+00	ug/L	NA	NA	NA	NA	NA	4.1E-04	mg/kg/day	2.0E-02	mg/kg/day	2.0E-02
				Dibenzofuran	3.0E+00	ug/L	NA	NA	NA	NA	NA	1.2E-04	mg/kg/day	NA	NA	NA
				Naphthalene	4.5E+01	ug/L	NA	NA	NA	NA	NA	8.1E-04	mg/kg/day	2.0E-02	mg/kg/day	4.1E-02
				Antimony	3.2E+00	ug/L	NA	NA	NA	NA	NA	4.6E-07	mg/kg/day	6.0E-05	mg/kg/day	7.6E-03
				Arsenic	1.5E+01	ug/L	NA	NA	NA	NA	NA	2.1E-06	mg/kg/day	3.0E-04	mg/kg/day	7.0E-03
				Cadmium	5.5E+00	ug/L	NA	NA	NA	NA	NA	7.8E-07	mg/kg/day	2.5E-05	mg/kg/day	3.1E-02
				Iron	1.2E+03	ug/L	NA	NA	NA	NA	NA	1.7E-04	mg/kg/day	7.0E-01	mg/kg/day	2.4E-04
				Manganese	1.4E+03	ug/L	NA	NA	NA	NA	NA	1.9E-04	mg/kg/day	5.6E-03	mg/kg/day	3.5E-02
				Vanadium	2.5E+01	ug/L	NA	NA	NA	NA	NA	3.6E-06	mg/kg/day	2.6E-05	mg/kg/day	1.4E-01
			Exp. Route Total								0.0E+00					6.6E-01
		Exposure Point Total									0.0E+00					4.1E+00
	Exposure Medium Total										0.0E+00					4.1E+00

TABLE 7.5.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

AOC-I

Former NASD, Vieques, Puerto Rico

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Groundwater	Bathroom Air	AOC-I	Inhalation	1,2-Dichloroethane	1.3E-02	mg/m^3	NA	NA	NA	NA	NA	8.7E-05	mg/kg/day	1.4E-03	mg/kg/day	6.1E-02
		Water Vapors in Bathroom		1,2-Dichloropropane	2.7E-03	mg/m^3	NA	NA	NA	NA	NA	1.8E-05	mg/kg/day	1.1E-03	mg/kg/day	1.6E-02
				Benzene	1.9E-01	mg/m^3	NA	NA	NA	NA	NA	1.3E-03	mg/kg/day	8.6E-03	mg/kg/day	1.5E-01
				1,4-Dichlorobenzene	4.3E-03	mg/m^3	NA	NA	NA	NA	NA	2.8E-05	mg/kg/day	2.3E-01	mg/kg/day	1.2E-04
				2-Methylnaphthalene	3.8E-01	mg/m^3	NA	NA	NA	NA	NA	2.5E-03	mg/kg/day	NA	NA	NA
				Naphthalene	3.7E-01	mg/m^3	NA	NA	NA	NA	NA	2.5E-03	mg/kg/day	8.6E-04	mg/kg/day	2.9E+00
				Trichloroethene	1.2E-02	mg/m^3	NA	NA	NA	NA	NA	7.6E-05	mg/kg/day	1.7E-01	mg/kg/day	4.5E-04
			Exp. Route Total								0.0E+00					3.1E+00
		Exposure Point Total									0.0E+00					3.1E+00
	Exposure Medium Total										0.0E+00					3.1E+00
Groundwater Total											0.0E+00					7.1E+00
Receptor Total											0.0E+00					7.5E+00

NA = Not applicable.

TABLE 7.5.RME SUPPLEMENT A
CALCULATION OF DAEVENT
REASONABLE MAXIMUM EXPOSURE
AOC-I
Former NASD, Vieques, Puerto Rico

Chemical of Potential Concern	Groundwater Concentration (CW) (ug/L)	Permeability Coefficient (Kp) (cm/hr)	B (dimensionless)	Lag Time (τ_{event}) (hr)	t* (hr)	Fraction Absorbed Water (FA) (dimensionless)	Duration of Event (tevent) (hr)	DAevent (mg/cm^2-event)	Eq
1,2-Dichloroethane	1.60E+00	4.2E-03	1.6E-02	3.8E-01	9.2E-01	1.0E+00	0.58	8.7E-09	2
1,2-Dichloropropane	3.30E-01	7.8E-03	3.2E-02	4.6E-01	1.1E+00	1.0E+00	0.58	3.6E-09	2
Benzene	2.31E+01	1.5E-02	5.1E-02	2.9E-01	7.0E-01	1.0E+00	0.58	3.9E-07	2
Trichloroethene	1.40E+00	1.2E-02	5.1E-02	5.8E-01	1.4E+00	1.0E+00	0.58	2.6E-08	2
1,4-Dichlorobenzene	5.20E-01	4.2E-02	2.0E-01	7.1E-01	1.7E+00	1.0E+00	0.58	3.9E-08	2
2-Methylnaphthalene	4.64E+01	7.2E-02	3.3E-01	6.6E-01	1.6E+00	1.0E+00	0.58	5.7E-06	2
bis(2-Ethylhexyl)phthalate	9.60E+00	2.5E-02	1.9E-01	1.7E+01	4.0E+01	8.0E-01	0.58	1.6E-06	2
Dibenzofuran	3.04E+00	7.9E-02	4.0E-01	9.2E-01	2.2E+00	1.0E+00	0.58	4.9E-07	2
Naphthalene	4.49E+01	4.7E-02	2.0E-01	5.6E-01	1.3E+00	1.0E+00	0.58	3.3E-06	2
Antimony	3.19E+00	1.0E-03	NA	NA	NA	NA	0.58	1.9E-09	1
Arsenic	1.46E+01	1.0E-03	NA	NA	NA	NA	0.58	8.5E-09	1
Cadmium	5.46E+00	1.0E-03	NA	NA	NA	NA	0.58	3.2E-09	1
Iron	1.16E+03	1.0E-03	NA	NA	NA	NA	0.58	6.7E-07	1
Manganese	1.36E+03	1.0E-03	NA	NA	NA	NA	0.58	7.9E-07	1
Vanadium	2.49E+01	1.0E-03	NA	NA	NA	NA	0.58	1.4E-08	1

Inorganics: DAevent (mg/cm2-event) =

DA_{event} = Kp x CW x tevent x 0.001 mg/ug x 0.001 l/cm^3 (Eq 1)

Organics: DAevent (mg/cm2-event) =

DA_{event} = t_{event}<t*: DA_{event} (mg/cm^2-event) =
2 x FA x Kp x Cw x (sqrt((6 x τ x t_{event}) / (3.1415))) x CF1 x CF2 (Eq 2)

t_{event}>t*: DA_{event} (mg/cm^2-event) =
FA x Kp x CW x (t_{event}/(1+B) + 2 x τ x ((1 + 3B + $3B^2$)/$(1+B)^2$)) xCF1 x CF2 (Eq 3)

Notes:
NA - Not applicable
Permeability constants from EPA 2004, *Risk Assessment Guidance for Superfund Volume I: Human Health Evaluation Manual (Part E, Supplemental Guidance for Dermal Risk Assessment - Final).* EPA/540/R/99/005. The default value of 0.001 was assigned to inorganics not listed in this document.
B - Dimensionless ratio of the permeability coefficient of a compound through the stratum corneum relative to its permeability coefficient across the viable epidermis (dimensionless).
t* - Time to reach steady-state

TABLE 7.6.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

AOC-I

Former NASD, Vieques, Puerto Rico

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Soil	AOC-I	Ingestion	Benzo(a)pyrene	1.2E-01	mg/kg	NA	NA	NA	NA	NA	1.5E-06	mg/kg/day	NA	NA	NA
		Soil		Aluminum	2.2E+04	mg/kg	NA	NA	NA	NA	NA	2.8E-01	mg/kg/day	1.0E+00	mg/kg/day	2.8E-01
				Arsenic	1.5E+00	mg/kg	NA	NA	NA	NA	NA	1.9E-05	mg/kg/day	3.0E-04	mg/kg/day	6.4E-02
				Iron	3.9E+04	mg/kg	NA	NA	NA	NA	NA	4.9E-01	mg/kg/day	7.0E-01	mg/kg/day	7.1E-01
				Manganese	7.3E+02	mg/kg	NA	NA	NA	NA	NA	9.4E-03	mg/kg/day	1.4E-01	mg/kg/day	6.7E-02
				Thallium	7.3E-01	mg/kg	NA	NA	NA	NA	NA	9.3E-06	mg/kg/day	6.6E-05	mg/kg/day	1.4E-01
				Vanadium	1.1E+02	mg/kg	NA	NA	NA	NA	NA	1.5E-03	mg/kg/day	1.0E-03	mg/kg/day	1.5E+00
			Exp. Route Total								0.0E+00					2.7E+00
Soil	Soil	AOC-I	Dermal	Benzo(a)pyrene	1.2E-01	mg/kg	NA	NA	NA	NA	NA	5.6E-07	mg/kg/day	NA	NA	NA
		Soil		Aluminum	2.2E+04	mg/kg	NA	NA	NA	NA	NA	7.7E-04	mg/kg/day	1.0E+00	mg/kg/day	7.7E-04
				Arsenic	1.5E+00	mg/kg	NA	NA	NA	NA	NA	1.6E-06	mg/kg/day	3.0E-04	mg/kg/day	5.4E-03
				Iron	3.9E+04	mg/kg	NA	NA	NA	NA	NA	1.4E-03	mg/kg/day	7.0E-01	mg/kg/day	2.0E-03
				Manganese	7.3E+02	mg/kg	NA	NA	NA	NA	NA	2.6E-05	mg/kg/day	5.6E-03	mg/kg/day	4.7E-03
				Thallium	7.3E-01	mg/kg	NA	NA	NA	NA	NA	2.6E-08	mg/kg/day	6.6E-05	mg/kg/day	4.0E-04
				Vanadium	1.1E+02	mg/kg	NA	NA	NA	NA	NA	4.1E-06	mg/kg/day	2.6E-05	mg/kg/day	1.6E-01
			Exp. Route Total								0.0E+00					1.7E-01
		Exposure Point Total									0.0E+00					2.9E+00
	Exposure Medium Total										0.0E+00					2.9E+00
Soil	Ambient Air	AOC-I	Inhalation	Benzo(a)pyrene	1.7E-10	mg/m3	NA	NA	NA	NA	NA	1.6E-10	mg/kg/day	NA	NA	NA
		Emissions from		Aluminum	3.1E-05	mg/m3	NA	NA	NA	NA	NA	2.9E-05	mg/kg/day	1.4E-03	mg/kg/day	2.1E-02
		Soil		Arsenic	2.1E-09	mg/m3	NA	NA	NA	NA	NA	2.1E-09	mg/kg/day	NA	NA	NA
				Iron	5.5E-05	mg/m3	NA	NA	NA	NA	NA	5.3E-05	mg/kg/day	NA	NA	NA
				Manganese	1.0E-06	mg/m3	NA	NA	NA	NA	NA	1.0E-06	mg/kg/day	1.4E-05	mg/kg/day	7.0E-02
				Thallium	1.0E-09	mg/m3	NA	NA	NA	NA	NA	9.9E-10	mg/kg/day	NA	NA	NA
				Vanadium	1.6E-07	mg/m3	NA	NA	NA	NA	NA	1.6E-07	mg/kg/day	NA	NA	NA
			Exp. Route Total								0.0E+00					9.0E-02
		Exposure Point Total									0.0E+00					9.0E-02
	Exposure Medium Total										0.0E+00					9.0E-02
Soil Total											0.0E+00					3.0E+00

TABLE 7.6.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

AOC-I

Former NASD, Vieques, Puerto Rico

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Groundwater	Groundwater	AOC-I	Ingestion	1,2-Dichloroethane	1.6E+00	ug/L	NA	NA	NA	NA	NA	1.0E-04	mg/kg/day	2.0E-02	mg/kg/day	5.1E-03
		Tap water		1,2-Dichloropropane	3.3E-01	ug/L	NA	NA	NA	NA	NA	2.1E-05	mg/kg/day	NA	NA	NA
				Benzene	2.3E+01	ug/L	NA	NA	NA	NA	NA	1.5E-03	mg/kg/day	4.0E-03	mg/kg/day	3.7E-01
				Trichloroethene	1.4E+00	ug/L	NA	NA	NA	NA	NA	8.9E-05	mg/kg/day	NA	NA	NA
				1,4-Dichlorobenzene	5.2E-01	ug/L	NA	NA	NA	NA	NA	3.3E-05	mg/kg/day	3.0E-02	mg/kg/day	1.1E-03
				2-Methylnaphthalene	4.6E+01	ug/L	NA	NA	NA	NA	NA	3.0E-03	mg/kg/day	4.0E-03	mg/kg/day	7.4E-01
				bis(2-Ethylhexyl)phthalate	9.6E+00	ug/L	NA	NA	NA	NA	NA	6.1E-04	mg/kg/day	2.0E-02	mg/kg/day	3.1E-02
				Dibenzofuran	3.0E+00	ug/L	NA	NA	NA	NA	NA	1.9E-04	mg/kg/day	NA	NA	NA
				Naphthalene	4.5E+01	ug/L	NA	NA	NA	NA	NA	2.9E-03	mg/kg/day	2.0E-02	mg/kg/day	1.4E-01
				Antimony	3.2E+00	ug/L	NA	NA	NA	NA	NA	2.0E-04	mg/kg/day	4.0E-04	mg/kg/day	5.1E-01
				Arsenic	1.5E+01	ug/L	NA	NA	NA	NA	NA	9.4E-04	mg/kg/day	3.0E-04	mg/kg/day	3.1E+00
				Cadmium	5.5E+00	ug/L	NA	NA	NA	NA	NA	3.5E-04	mg/kg/day	5.0E-04	mg/kg/day	7.0E-01
				Iron	1.2E+03	ug/L	NA	NA	NA	NA	NA	7.4E-02	mg/kg/day	7.0E-01	mg/kg/day	1.1E-01
				Manganese	1.4E+03	ug/L	NA	NA	NA	NA	NA	8.7E-02	mg/kg/day	1.4E-01	mg/kg/day	6.2E-01
				Vanadium	2.5E+01	ug/L	NA	NA	NA	NA	NA	1.6E-03	mg/kg/day	1.0E-03	mg/kg/day	1.6E+00
			Exp. Route Total								0.0E+00					7.9E+00
Groundwater	Groundwater	AOC-I	Dermal	1,2-Dichloroethane	1.6E+00	ug/L	NA	NA	NA	NA	NA	2.8E-06	mg/kg/day	2.0E-02	mg/kg/day	1.4E-04
		Tap water		1,2-Dichloropropane	3.3E-01	ug/L	NA	NA	NA	NA	NA	2.0E-06	mg/kg/day	NA	NA	NA
				Benzene	2.3E+01	ug/L	NA	NA	NA	NA	NA	1.5E-04	mg/kg/day	4.0E-03	mg/kg/day	3.6E-02
				Trichloroethene	1.4E+00	ug/L	NA	NA	NA	NA	NA	1.4E-05	mg/kg/day	NA	NA	NA
				1,4-Dichlorobenzene	5.2E-01	ug/L	NA	NA	NA	NA	NA	2.1E-05	mg/kg/day	3.0E-02	mg/kg/day	7.2E-04
				2-Methylnaphthalene	4.6E+01	ug/L	NA	NA	NA	NA	NA	3.2E-03	mg/kg/day	4.0E-03	mg/kg/day	7.9E-01
				bis(2-Ethylhexyl)phthalate	9.6E+00	ug/L	NA	NA	NA	NA	NA	9.1E-04	mg/kg/day	2.0E-02	mg/kg/day	4.6E-02
				Dibenzofuran	3.0E+00	ug/L	NA	NA	NA	NA	NA	2.7E-04	mg/kg/day	NA	NA	NA
				Naphthalene	4.5E+01	ug/L	NA	NA	NA	NA	NA	1.8E-03	mg/kg/day	2.0E-02	mg/kg/day	9.1E-02
				Antimony	3.2E+00	ug/L	NA	NA	NA	NA	NA	1.3E-06	mg/kg/day	6.0E-05	mg/kg/day	2.2E-02
				Arsenic	1.5E+01	ug/L	NA	NA	NA	NA	NA	6.2E-06	mg/kg/day	3.0E-04	mg/kg/day	2.1E-02
				Cadmium	5.5E+00	ug/L	NA	NA	NA	NA	NA	2.3E-06	mg/kg/day	2.5E-05	mg/kg/day	9.2E-02
				Iron	1.2E+03	ug/L	NA	NA	NA	NA	NA	4.9E-04	mg/kg/day	7.0E-01	mg/kg/day	7.0E-04
				Manganese	1.4E+03	ug/L	NA	NA	NA	NA	NA	5.7E-04	mg/kg/day	5.6E-03	mg/kg/day	1.0E-01
				Vanadium	2.5E+01	ug/L	NA	NA	NA	NA	NA	1.1E-05	mg/kg/day	2.6E-05	mg/kg/day	4.0E-01
			Exp. Route Total								0.0E+00					1.6E+00
		Exposure Point Total									0.0E+00					9.5E+00
	Exposure Medium Total										0.0E+00					9.5E+00

TABLE 7.6.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

AOC-I

Former NASD, Vieques, Puerto Rico

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Groundwater	Bathroom Air	AOC-I Water Vapors in Bathroom	Inhalation	1,2-Dichloroethane	2.4E-02	mg/m^3	NA	NA	NA	NA	NA	9.5E-04	mg/kg/day	1.4E-03	mg/kg/day	6.6E-01
				1,2-Dichloropropane	4.9E-03	mg/m^3	NA	NA	NA	NA	NA	2.0E-04	mg/kg/day	1.1E-03	mg/kg/day	1.7E-01
				Benzene	3.4E-01	mg/m^3	NA	NA	NA	NA	NA	1.4E-02	mg/kg/day	8.6E-03	mg/kg/day	1.6E+00
				1,4-Dichlorobenzene	7.7E-03	mg/m^3	NA	NA	NA	NA	NA	3.1E-04	mg/kg/day	2.3E-01	mg/kg/day	1.3E-03
				2-Methylnaphthalene	6.8E-01	mg/m^3	NA	NA	NA	NA	NA	2.8E-02	mg/kg/day	NA	NA	NA
				Naphthalene	6.6E-01	mg/m^3	NA	NA	NA	NA	NA	2.7E-02	mg/kg/day	8.6E-04	mg/kg/day	3.1E+01
				Trichloroethene	2.1E-02	mg/m^3	NA	NA	NA	NA	NA	8.3E-04	mg/kg/day	1.7E-01	mg/kg/day	4.8E-03
			Exp. Route Total								0.0E+00					3.3E+01
		Exposure Point Total									0.0E+00					3.3E+01
	Exposure Medium Total										0.0E+00					3.3E+01
Groundwater Total											0.0E+00					4.3E+01
Receptor Total											0.0E+00					4.6E+01

NA = Not applicable.

TABLE 7.6.RME SUPPLEMENT A
CALCULATION OF DAEVENT
REASONABLE MAXIMUM EXPOSURE
AOC-I
Former NASD, Vieques, Puerto Rico

Chemical of Potential Concern	Groundwater Concentration (CW) (ug/L)	Permeability Coefficient (Kp) (cm/hr)	B (dimensionless)	Lag Time (τ_{event}) (hr)	t* (hr)	Fraction Absorbed Water (FA) (dimensionless)	Duration of Event (tevent) (hr)	DAevent (mg/cm^2-event)	Eq
1,2-Dichloroethane	1.60E+00	4.2E-03	1.6E-02	3.8E-01	9.2E-01	1.0E+00	1.0	6.7E-09	3
1,2-Dichloropropane	3.30E-01	7.8E-03	3.2E-02	4.6E-01	1.1E+00	1.0E+00	1.0	4.8E-09	2
Benzene	2.31E+01	1.5E-02	5.1E-02	2.9E-01	7.0E-01	1.0E+00	1.0	3.4E-07	3
Trichloroethene	1.40E+00	1.2E-02	5.1E-02	5.8E-01	1.4E+00	1.0E+00	1.0	3.4E-08	2
1,4-Dichlorobenzene	5.20E-01	4.2E-02	2.0E-01	7.1E-01	1.7E+00	1.0E+00	1.0	5.1E-08	2
2-Methylnaphthalene	4.64E+01	7.2E-02	3.3E-01	6.6E-01	1.6E+00	1.0E+00	1.0	7.5E-06	2
bis(2-Ethylhexyl)phthalate	9.60E+00	2.5E-02	1.9E-01	1.7E+01	4.0E+01	8.0E-01	1.0	2.2E-06	2
Dibenzofuran	3.04E+00	7.9E-02	4.0E-01	9.2E-01	2.2E+00	1.0E+00	1.0	6.4E-07	2
Naphthalene	4.49E+01	4.7E-02	2.0E-01	5.6E-01	1.3E+00	1.0E+00	1.0	4.3E-06	2
Antimony	3.19E+00	1.0E-03	NA	NA	NA	NA	1.0	3.2E-09	1
Arsenic	1.46E+01	1.0E-03	NA	NA	NA	NA	1.0	1.5E-08	1
Cadmium	5.46E+00	1.0E-03	NA	NA	NA	NA	1.0	5.5E-09	1
Iron	1.16E+03	1.0E-03	NA	NA	NA	NA	1.0	1.2E-06	1
Manganese	1.36E+03	1.0E-03	NA	NA	NA	NA	1.0	1.4E-06	1
Vanadium	2.49E+01	1.0E-03	NA	NA	NA	NA	1.0	2.5E-08	1

Inorganics: DAevent (mg/cm2-event) =

DA_{event} = Kp x CW x tevent x 0.001 mg/ug x 0.001 l/cm^3 (Eq 1)

Organics: DAevent (mg/cm2-event) =

DA_{event} = t_{event}<t*: DA_{event} (mg/cm^2-event) =
2 x FA x Kp x Cw x (sqrt((6 x τ x t_{event}) / (3.1415))) x CF1 x CF2 (Eq 2)

t_{event}>t*: DA_{event} (mg/cm^2-event) =
FA x Kp x CW x (t_{event}/(1+B) + 2 x τ x ((1 + 3B + $3B^2$)/$(1+B)^2$)) xCF1 x CF2 (Eq 3)

Notes:
NA - Not applicable
Permeability constants from EPA 2004, *Risk Assessment Guidance for Superfund Volume I: Human Health Evaluation Manual (Part E, Supplemental Guidance for Dermal Risk Assessment - Final).* EPA/540/R/99/005. The default value of 0.001 was assigned to inorganics not listed in this document.
B - Dimensionless ratio of the permeability coefficient of a compound through the stratum corneum relative to its permeability coefficient across the viable epidermis (dimensionless).
t* - Time to reach steady-state

TABLE 7.7.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

AOC-I

Former NASD, Vieques, Puerto Rico

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Adult/Child Aggregate

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Soil	AOC-I	Ingestion	Benzo(a)pyrene	1.2E-01	mg/kg	1.9E-07	mg/kg/day	7.3E+00	1/(mg/kg/day)	7.8E-06	NA	NA	NA	NA	NA
		Soil		Aluminum	2.2E+04	mg/kg	3.4E-02	mg/kg/day	NA	NA	NA	NA	NA	NA	NA	NA
				Arsenic	1.5E+00	mg/kg	2.4E-06	mg/kg/day	1.5E+00	1/(mg/kg/day)	3.5E-06	NA	NA	NA	NA	NA
				Iron	3.9E+04	mg/kg	6.0E-02	mg/kg/day	NA	NA	NA	NA	NA	NA	NA	NA
				Manganese	7.3E+02	mg/kg	1.1E-03	mg/kg/day	NA	NA	NA	NA	NA	NA	NA	NA
				Thallium	7.3E-01	mg/kg	1.1E-06	mg/kg/day	NA	NA	NA	NA	NA	NA	NA	NA
				Vanadium	1.1E+02	mg/kg	1.8E-04	mg/kg/day	NA	NA	NA	NA	NA	NA	NA	NA
			Exp. Route Total								1.1E-05					0.0E+00
Soil	Soil	AOC-I	Dermal	Benzo(a)pyrene	1.2E-01	mg/kg	7.7E-08	mg/kg/day	7.3E+00	1/(mg/kg/day)	3.2E-06	NA	NA	NA	NA	NA
		Soil		Aluminum	2.2E+04	mg/kg	1.1E-04	mg/kg/day	NA	NA	NA	NA	NA	NA	NA	NA
				Arsenic	1.5E+00	mg/kg	2.2E-07	mg/kg/day	1.5E+00	1/(mg/kg/day)	3.4E-07	NA	NA	NA	NA	NA
				Iron	3.9E+04	mg/kg	1.9E-04	mg/kg/day	NA	NA	NA	NA	NA	NA	NA	NA
				Manganese	7.3E+02	mg/kg	3.6E-06	mg/kg/day	NA	NA	NA	NA	NA	NA	NA	NA
				Thallium	7.3E-01	mg/kg	3.6E-09	mg/kg/day	NA	NA	NA	NA	NA	NA	NA	NA
				Vanadium	1.1E+02	mg/kg	5.7E-07	mg/kg/day	NA	NA	NA	NA	NA	NA	NA	NA
			Exp. Route Total								3.6E-06					0.0E+00
		Exposure Point Total									1.5E-05					0.0E+00
	Exposure Medium Total										1.5E-05					0.0E+00
Soil	Ambient Air	AOC-I	Inhalation	Benzo(a)pyrene	1.7E-10	mg/m3	3.0E-11	mg/kg/day	3.1E+00	1/(mg/kg/day)	2.1E-10	NA	NA	NA	NA	NA
		Emissions from		Aluminum	3.1E-05	mg/m3	5.4E-06	mg/kg/day	NA	NA	NA	NA	NA	NA	NA	NA
		Soil		Arsenic	2.1E-09	mg/m3	3.8E-10	mg/kg/day	1.5E+01	1/(mg/kg/day)	5.7E-09	NA	NA	NA	NA	NA
				Iron	5.5E-05	mg/m3	9.7E-06	mg/kg/day	NA	NA	NA	NA	NA	NA	NA	NA
				Manganese	1.0E-06	mg/m3	1.8E-07	mg/kg/day	NA	NA	NA	NA	NA	NA	NA	NA
				Thallium	1.0E-09	mg/m3	1.8E-10	mg/kg/day	NA	NA	NA	NA	NA	NA	NA	NA
				Vanadium	1.6E-07	mg/m3	2.9E-08	mg/kg/day	NA	NA	NA	NA	NA	NA	NA	NA
			Exp. Route Total								5.9E-09					0.0E+00
		Exposure Point Total									5.9E-09					0.0E+00
	Exposure Medium Total										5.9E-09					0.0E+00
Soil Total											1.5E-05					0.0E+00

TABLE 7.7.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

AOC-I

Former NASD, Vieques, Puerto Rico

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Adult/Child Aggregate

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Groundwater	Groundwater	AOC-I	Ingestion	1,2-Dichloroethane	1.6E+00	ug/L	2.4E-05	mg/kg/day	9.1E-02	1/(mg/kg/day)	2.2E-06	NA	NA	NA	NA	NA
		Tap water		1,2-Dichloropropane	3.3E-01	ug/L	4.9E-06	mg/kg/day	6.8E-02	1/(mg/kg/day)	3.4E-07	NA	NA	NA	NA	NA
				Benzene	2.3E+01	ug/L	3.5E-04	mg/kg/day	5.5E-02	1/(mg/kg/day)	1.9E-05	NA	NA	NA	NA	NA
				Trichloroethene	1.4E+00	ug/L	2.1E-05	mg/kg/day	1.3E-02	1/(mg/kg/day)	2.7E-07	NA	NA	NA	NA	NA
				1,4-Dichlorobenzene	5.2E-01	ug/L	7.8E-06	mg/kg/day	2.4E-02	1/(mg/kg/day)	1.9E-07	NA	NA	NA	NA	NA
				2-Methylnaphthalene	4.6E+01	ug/L	6.9E-04	mg/kg/day	NA	NA	NA	NA	NA	NA	NA	NA
				bis(2-Ethylhexyl)phthalate	9.6E+00	ug/L	1.4E-04	mg/kg/day	1.4E-02	1/(mg/kg/day)	2.0E-06	NA	NA	NA	NA	NA
				Dibenzofuran	3.0E+00	ug/L	4.5E-05	mg/kg/day	NA	NA	NA	NA	NA	NA	NA	NA
				Naphthalene	4.5E+01	ug/L	6.7E-04	mg/kg/day	NA	NA	NA	NA	NA	NA	NA	NA
				Antimony	3.2E+00	ug/L	4.8E-05	mg/kg/day	NA	NA	NA	NA	NA	NA	NA	NA
				Arsenic	1.5E+01	ug/L	2.2E-04	mg/kg/day	1.5E+00	1/(mg/kg/day)	3.3E-04	NA	NA	NA	NA	NA
				Cadmium	5.5E+00	ug/L	8.1E-05	mg/kg/day	NA	NA	NA	NA	NA	NA	NA	NA
				Iron	1.2E+03	ug/L	1.7E-02	mg/kg/day	NA	NA	NA	NA	NA	NA	NA	NA
				Manganese	1.4E+03	ug/L	2.0E-02	mg/kg/day	NA	NA	NA	NA	NA	NA	NA	NA
				Vanadium	2.5E+01	ug/L	3.7E-04	mg/kg/day	NA	NA	NA	NA	NA	NA	NA	NA
			Exp. Route Total								3.5E-04					0.0E+00
Groundwater	Groundwater	AOC-I	Dermal	1,2-Dichloroethane	1.6E+00	ug/L	3.4E-07	mg/kg/day	9.1E-02	1/(mg/kg/day)	3.1E-08	NA	NA	NA	NA	NA
		Tap water		1,2-Dichloropropane	3.3E-01	ug/L	1.7E-07	mg/kg/day	6.8E-02	1/(mg/kg/day)	1.2E-08	NA	NA	NA	NA	NA
				Benzene	2.3E+01	ug/L	1.6E-05	mg/kg/day	5.5E-02	1/(mg/kg/day)	8.7E-07	NA	NA	NA	NA	NA
				Trichloroethene	1.4E+00	ug/L	1.2E-06	mg/kg/day	1.3E-02	1/(mg/kg/day)	1.6E-08	NA	NA	NA	NA	NA
				1,4-Dichlorobenzene	5.2E-01	ug/L	1.8E-06	mg/kg/day	2.4E-02	1/(mg/kg/day)	4.4E-08	NA	NA	NA	NA	NA
				2-Methylnaphthalene	4.6E+01	ug/L	2.7E-04	mg/kg/day	NA	NA	NA	NA	NA	NA	NA	NA
				bis(2-Ethylhexyl)phthalate	9.6E+00	ug/L	7.7E-05	mg/kg/day	1.4E-02	1/(mg/kg/day)	1.1E-06	NA	NA	NA	NA	NA
				Dibenzofuran	3.0E+00	ug/L	2.3E-05	mg/kg/day	NA	NA	NA	NA	NA	NA	NA	NA
				Naphthalene	4.5E+01	ug/L	1.5E-04	mg/kg/day	NA	NA	NA	NA	NA	NA	NA	NA
				Antimony	3.2E+00	ug/L	9.8E-08	mg/kg/day	NA	NA	NA	NA	NA	NA	NA	NA
				Arsenic	1.5E+01	ug/L	4.5E-07	mg/kg/day	1.5E+00	1/(mg/kg/day)	6.8E-07	NA	NA	NA	NA	NA
				Cadmium	5.5E+00	ug/L	1.7E-07	mg/kg/day	NA	NA	NA	NA	NA	NA	NA	NA
				Iron	1.2E+03	ug/L	3.6E-05	mg/kg/day	NA	NA	NA	NA	NA	NA	NA	NA
				Manganese	1.4E+03	ug/L	4.2E-05	mg/kg/day	NA	NA	NA	NA	NA	NA	NA	NA
				Vanadium	2.5E+01	ug/L	7.7E-07	mg/kg/day	NA	NA	NA	NA	NA	NA	NA	NA
			Exp. Route Total								2.7E-06					0.0E+00
		Exposure Point Total									3.5E-04					0.0E+00
	Exposure Medium Total										3.5E-04					0.0E+00

TABLE 7.7.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

AOC-I

Former NASD, Vieques, Puerto Rico

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Adult/Child Aggregate

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Groundwater	Bathroom Air	AOC-I Water Vapors in Bathroom	Inhalation	1,2-Dichloroethane	1.3E-02	mg/m^3	2.3E-06	mg/kg/day	9.1E-02	1/(mg/kg/day)	2.1E-07	NA	NA	NA	NA	NA
				1,2-Dichloropropane	2.7E-03	mg/m^3	4.8E-07	mg/kg/day	NA	NA	NA	NA	NA	NA	NA	NA
				Benzene	1.9E-01	mg/m^3	3.4E-05	mg/kg/day	2.7E-02	1/(mg/kg/day)	9.2E-07	NA	NA	NA	NA	NA
				1,4-Dichlorobenzene	4.3E-03	mg/m^3	7.6E-07	mg/kg/day	2.2E-02	1/(mg/kg/day)	1.7E-08	NA	NA	NA	NA	NA
				2-Methylnaphthalene	3.8E-01	mg/m^3	6.8E-05	mg/kg/day	NA	NA	NA	NA	NA	NA	NA	NA
				Naphthalene	3.7E-01	mg/m^3	6.5E-05	mg/kg/day	NA	NA	NA	NA	NA	NA	NA	NA
				Trichloroethene	1.2E-02	mg/m^3	2.0E-06	mg/kg/day	7.0E-03	1/(mg/kg/day)	1.4E-08	NA	NA	NA	NA	NA
			Exp. Route Total								1.2E-06					0.0E+00
		Exposure Point Total									1.2E-06					0.0E+00
	Exposure Medium Total										1.2E-06					0.0E+00
Groundwater Total											3.6E-04					0.0E+00
Receptor Total											3.7E-04					0.0E+00

NA = Not applicable.

Detailed risk calculations for benzo(a)pyrene (based on Mutagenic Mode of Action age groups) are presented in Table 7.7RME Supplement A

TABLE 7.7.RME Supplement A

CALCULATION OF CHEMICAL CANCER RISKS FOR COPC WITH MUTAGENIC MODE OF ACTION

REASONABLE MAXIMUM EXPOSURE

AOC-I

Former NASD, Vieques, Puerto Rico

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Adult/Child Aggregate

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations								
							Intake				CSF/Unit Risk				Cancer Risk
					Value	Units	Value			Units	Value			Units	
							0-2 yrs	2-16 yrs	16-30 yrs		0-2 yrs (ADAF=10)	2-16 yrs (ADAF=3)	16-30 yrs (ADAF=1)		
Soil	Soil	AOC-I Soil	Ingestion	Benzo(a)pyrene	1.2E-01	mg/kg	6.5E-08	1.3E-07	3.4E-08	mg/kg/day	7.3E+01	2.2E+01	7.3E+00	1/(mg/kg-day)	7.8E-06
			Dermal	Benzo(a)pyrene	1.2E-01	mg/kg	2.2E-08	6.9E-08	1.8E-08	mg/kg/day	7.3E+01	2.2E+01	7.3E+00	1/(mg/kg-day)	3.2E-06
	Ambient Air	AOC-I Emissions from Soil	Inhalation	Benzo(a)pyrene	1.7E-10	mg/m^3	2.6E-12	1.2E-11	6.5E-12	mg/kg/day	3.1E+01	9.2E+00	3.1E+00	1/(mg/kg-day)	2.1E-10

TABLE 7.8.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

AOC-I

Former NASD, Vieques, Puerto Rico

Scenario Timeframe: Future
Receptor Population: Construction Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Total Soil	AOC-I	Ingestion	Arsenic	1.52E+00	mg/kg	7.0E-08	mg/kg/day	1.5E+00	1/(mg/kg/day)	1.1E-07	4.9E-06	mg/kg/day	3.0E-04	mg/kg/day	1.6E-02
		Total Soil (0 - 6 ft)		Iron	3.51E+04	mg/kg	1.6E-03	mg/kg/day	NA	NA	NA	1.1E-01	mg/kg/day	7.0E-01	mg/kg/day	1.6E-01
				Vanadium	1.04E+02	mg/kg	4.8E-06	mg/kg/day	NA	NA	NA	3.4E-04	mg/kg/day	7.0E-03	mg/kg/day	4.8E-02
			Exp. Route Total								1.1E-07					2.3E-01
Soil	Total Soil	AOC-I	Dermal	Arsenic	1.5E+00	mg/kg	6.3E-09	mg/kg/day	1.5E+00	1/(mg/kg/day)	9.5E-09	4.4E-07	mg/kg/day	3.0E-04	mg/kg/day	1.5E-03
		Total Soil (0 - 6 ft)		Iron	3.5E+04	mg/kg	4.9E-06	mg/kg/day	NA	NA	NA	3.4E-04	mg/kg/day	7.0E-01	mg/kg/day	4.9E-04
				Vanadium	1.0E+02	mg/kg	1.4E-08	mg/kg/day	NA	NA	NA	1.0E-06	mg/kg/day	1.8E-04	mg/kg/day	5.5E-03
			Exp. Route Total								9.5E-09					7.5E-03
		Exposure Point Total									1.1E-07					2.3E-01
	Exposure Medium Total										1.1E-07					2.3E-01
Soil	Ambient Air	AOC-I	Inhalation	Arsenic	1.0E-07	mg/m3	2.9E-10	mg/kg/day	1.5E+01	1/(mg/kg/day)	4.3E-09	2.0E-08	mg/kg/day	NA	NA	NA
		Emissions from		Iron	2.4E-03	mg/m3	6.6E-06	mg/kg/day	NA	NA	NA	4.6E-04	mg/kg/day	NA	NA	NA
		Total Soil (0 - 6 ft)		Vanadium	7.0E-06	mg/m3	2.0E-08	mg/kg/day	NA	NA	NA	1.4E-06	mg/kg/day	NA	NA	NA
			Exp. Route Total								4.3E-09					0.0E+00
		Exposure Point Total									4.3E-09					0.0E+00
	Exposure Medium Total										4.3E-09					0.0E+00
Soil Total											1.2E-07					2.3E-01
Receptor Total											1.2E-07					2.3E-01

NA = Not applicable.

TABLE 7.9.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

AOC-I

Former NASD, Vieques, Puerto Rico

Scenario Timeframe: Future
Receptor Population: Industrial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Soil	Total Soil	AOC-I	Ingestion	Arsenic	1.5E+00	mg/kg	5.3E-07	mg/kg/day	1.5E+00	1/(mg/kg/day)	8.0E-07	1.5E-06	mg/kg/day	3.0E-04	mg/kg/day	5.0E-03
		Total Soil (0 - 6 ft)		Iron	3.5E+04	mg/kg	1.2E-02	mg/kg/day	NA	NA	NA	3.4E-02	mg/kg/day	7.0E-01	mg/kg/day	4.9E-02
				Vanadium	1.0E+02	mg/kg	3.6E-05	mg/kg/day	NA	NA	NA	1.0E-04	mg/kg/day	1.0E-03	mg/kg/day	1.0E-01
			Exp. Route Total								8.0E-07					1.6E-01
Soil	Total Soil	AOC-I	Dermal	Arsenic	1.5E+00	mg/kg	1.1E-07	mg/kg/day	1.5E+00	1/(mg/kg/day)	1.6E-07	3.0E-07	mg/kg/day	3.0E-04	mg/kg/day	9.8E-04
		Total Soil (0 - 6 ft)		Iron	3.5E+04	mg/kg	8.1E-05	mg/kg/day	NA	NA	NA	2.3E-04	mg/kg/day	7.0E-01	mg/kg/day	3.2E-04
				Vanadium	1.0E+02	mg/kg	2.4E-07	mg/kg/day	NA	NA	NA	6.7E-07	mg/kg/day	2.6E-05	mg/kg/day	2.6E-02
			Exp. Route Total								1.6E-07					2.7E-02
		Exposure Point Total									9.6E-07					1.8E-01
	Exposure Medium Total										9.6E-07					1.8E-01
Soil	Ambient Air	AOC-I	Inhalation	Arsenic	2.2E-09	mg/m3	1.5E-10	mg/kg/day	1.5E+01	1/(mg/kg/day)	2.3E-09	4.2E-10	mg/kg/day	NA	NA	NA
		Emissions from		Iron	5.0E-05	mg/m3	3.5E-06	mg/kg/day	NA	NA	NA	9.7E-06	mg/kg/day	NA	NA	NA
		Total Soil (0 - 6 ft)		Vanadium	1.5E-07	mg/m3	1.0E-08	mg/kg/day	NA	NA	NA	2.9E-08	mg/kg/day	NA	NA	NA
			Exp. Route Total								2.3E-09					0.0E+00
		Exposure Point Total									2.3E-09					0.0E+00
	Exposure Medium Total										2.3E-09					0.0E+00
Soil Total											9.6E-07					1.8E-01
Groundwater	Groundwater	AOC-I	Ingestion	1,2-Dichloroethane	1.6E+00	ug/L	5.6E-06	mg/kg/day	9.1E-02	1/(mg/kg/day)	5.1E-07	1.6E-05	mg/kg/day	2.0E-02	mg/kg/day	7.8E-04
		Tap water		1,2-Dichloropropane	3.3E-01	ug/L	1.2E-06	mg/kg/day	6.8E-02	1/(mg/kg/day)	7.8E-08	3.2E-06	mg/kg/day	NA	NA	NA
				Benzene	2.3E+01	ug/L	8.1E-05	mg/kg/day	5.5E-02	1/(mg/kg/day)	4.4E-06	2.3E-04	mg/kg/day	4.0E-03	mg/kg/day	5.7E-02
				Trichloroethene	1.4E+00	ug/L	4.9E-06	mg/kg/day	1.3E-02	1/(mg/kg/day)	6.4E-08	1.4E-05	mg/kg/day	NA	NA	NA
				1,4-Dichlorobenzene	5.2E-01	ug/L	1.8E-06	mg/kg/day	2.4E-02	1/(mg/kg/day)	4.4E-08	5.1E-06	mg/kg/day	3.0E-02	mg/kg/day	1.7E-04
				2-Methylnaphthalene	4.6E+01	ug/L	1.6E-04	mg/kg/day	NA	NA	NA	4.5E-04	mg/kg/day	4.0E-03	mg/kg/day	1.1E-01
				bis(2-Ethylhexyl)phthalate	9.6E+00	ug/L	3.4E-05	mg/kg/day	1.4E-02	1/(mg/kg/day)	4.7E-07	9.4E-05	mg/kg/day	2.0E-02	mg/kg/day	4.7E-03
				Dibenzofuran	3.0E+00	ug/L	1.1E-05	mg/kg/day	NA	NA	NA	3.0E-05	mg/kg/day	NA	NA	NA
				Naphthalene	4.5E+01	ug/L	1.6E-04	mg/kg/day	NA	NA	NA	4.4E-04	mg/kg/day	2.0E-02	mg/kg/day	2.2E-02
				Antimony	3.2E+00	ug/L	1.1E-05	mg/kg/day	NA	NA	NA	3.1E-05	mg/kg/day	4.0E-04	mg/kg/day	7.8E-02
				Arsenic	1.5E+01	ug/L	5.1E-05	mg/kg/day	1.5E+00	1/(mg/kg/day)	7.7E-05	1.4E-04	mg/kg/day	3.0E-04	mg/kg/day	4.8E-01
				Cadmium	5.5E+00	ug/L	1.9E-05	mg/kg/day	NA	NA	NA	5.3E-05	mg/kg/day	5.0E-04	mg/kg/day	1.1E-01
				Iron	1.2E+03	ug/L	4.0E-03	mg/kg/day	NA	NA	NA	1.1E-02	mg/kg/day	7.0E-01	mg/kg/day	1.6E-02
				Manganese	1.4E+03	ug/L	4.7E-03	mg/kg/day	NA	NA	NA	1.3E-02	mg/kg/day	1.4E-01	mg/kg/day	9.5E-02
				Vanadium	2.5E+01	ug/L	8.7E-05	mg/kg/day	NA	NA	NA	2.4E-04	mg/kg/day	1.0E-03	mg/kg/day	2.4E-01
			Exp. Route Total								8.2E-05					1.2E+00

TABLE 7.9.RME

CALCULATION OF CHEMICAL CANCER RISKS AND NON-CANCER HAZARDS

REASONABLE MAXIMUM EXPOSURE

AOC-I

Former NASD, Vieques, Puerto Rico

Scenario Timeframe: Future
Receptor Population: Industrial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Exposure Route	Chemical of Potential Concern	EPC		Cancer Risk Calculations					Non-Cancer Hazard Calculations				
					Value	Units	Intake/Exposure Concentration		CSF/Unit Risk		Cancer Risk	Intake/Exposure Concentration		RfD/RfC		Hazard Quotient
							Value	Units	Value	Units		Value	Units	Value	Units	
Groundwater	Groundwater	AOC-I	Dermal	1,2-Dichloroethane	1.6E+00	ug/L	4.9E-08	mg/kg/day	9.1E-02	1/(mg/kg/day)	4.5E-09	1.4E-07	mg/kg/day	2.0E-02	mg/kg/day	6.9E-06
		Tap water		1,2-Dichloropropane	3.3E-01	ug/L	2.0E-08	mg/kg/day	6.8E-02	1/(mg/kg/day)	1.4E-09	5.7E-08	mg/kg/day	NA	NA	NA
				Benzene	2.3E+01	ug/L	2.2E-06	mg/kg/day	5.5E-02	1/(mg/kg/day)	1.2E-07	6.1E-06	mg/kg/day	4.0E-03	mg/kg/day	1.5E-03
				Trichloroethene	1.4E+00	ug/L	1.5E-07	mg/kg/day	1.3E-02	1/(mg/kg/day)	1.9E-09	4.1E-07	mg/kg/day	NA	NA	NA
				1,4-Dichlorobenzene	5.2E-01	ug/L	2.2E-07	mg/kg/day	2.4E-02	1/(mg/kg/day)	5.2E-09	6.1E-07	mg/kg/day	3.0E-02	mg/kg/day	2.0E-05
				2-Methylnaphthalene	4.6E+01	ug/L	3.2E-05	mg/kg/day	NA	NA	NA	9.0E-05	mg/kg/day	4.0E-03	mg/kg/day	2.3E-02
				bis(2-Ethylhexyl)phthalate	9.6E+00	ug/L	9.2E-06	mg/kg/day	1.4E-02	1/(mg/kg/day)	1.3E-07	2.6E-05	mg/kg/day	2.0E-02	mg/kg/day	1.3E-03
				Dibenzofuran	3.0E+00	ug/L	2.7E-06	mg/kg/day	NA	NA	NA	7.6E-06	mg/kg/day	NA	NA	NA
				Naphthalene	4.5E+01	ug/L	1.8E-05	mg/kg/day	NA	NA	NA	5.2E-05	mg/kg/day	2.0E-02	mg/kg/day	2.6E-03
				Antimony	3.2E+00	ug/L	6.1E-09	mg/kg/day	NA	NA	NA	1.7E-08	mg/kg/day	6.0E-05	mg/kg/day	2.8E-04
				Arsenic	1.5E+01	ug/L	2.8E-08	mg/kg/day	1.5E+00	1/(mg/kg/day)	4.2E-08	7.8E-08	mg/kg/day	3.0E-04	mg/kg/day	2.6E-04
				Cadmium	5.5E+00	ug/L	1.0E-08	mg/kg/day	NA	NA	NA	2.9E-08	mg/kg/day	2.5E-05	mg/kg/day	1.2E-03
				Iron	1.2E+03	ug/L	2.2E-06	mg/kg/day	NA	NA	NA	6.2E-06	mg/kg/day	7.0E-01	mg/kg/day	8.8E-06
				Manganese	1.4E+03	ug/L	2.6E-06	mg/kg/day	NA	NA	NA	7.3E-06	mg/kg/day	5.6E-03	mg/kg/day	1.3E-03
				Vanadium	2.5E+01	ug/L	4.8E-08	mg/kg/day	NA	NA	NA	1.3E-07	mg/kg/day	2.6E-05	mg/kg/day	5.1E-03
			Exp. Route Total								3.0E-07					3.6E-02
		Exposure Point Total									8.3E-05					1.3E+00
	Exposure Medium Total										8.3E-05					1.3E+00
Groundwater Total											8.3E-05					1.3E+00
Receptor Total											8.4E-05					1.4E+00

NA = Not applicable.

TABLE 7.9.RME SUPPLEMENT A
CALCULATION OF DAEVENT
REASONABLE MAXIMUM EXPOSURE
AOC-I
Former NASD, Vieques, Puerto Rico

Chemical of Potential Concern	Groundwater Concentration (CW) (ug/L)	Permeability Coefficient (Kp) (cm/hr)	B (dimensionless)	Lag Time (τ_{event}) (hr)	t* (hr)	Fraction Absorbed Water (FA) (dimensionless)	Duration of Event (tevent) (hr)	DAevent (mg/cm^2-event)	Eq
1,2-Dichloroethane	1.60E+00	4.2E-03	1.6E-02	3.8E-01	9.2E-01	1.0E+00	0.2	5.1E-09	2
1,2-Dichloropropane	3.30E-01	7.8E-03	3.2E-02	4.6E-01	1.1E+00	1.0E+00	0.2	2.1E-09	2
Benzene	2.31E+01	1.5E-02	5.1E-02	2.9E-01	7.0E-01	1.0E+00	0.2	2.3E-07	2
Trichloroethene	1.40E+00	1.2E-02	5.1E-02	5.8E-01	1.4E+00	1.0E+00	0.2	1.5E-08	2
1,4-Dichlorobenzene	5.20E-01	4.2E-02	2.0E-01	7.1E-01	1.7E+00	1.0E+00	0.2	2.3E-08	2
2-Methylnaphthalene	4.64E+01	7.2E-02	3.3E-01	6.6E-01	1.6E+00	1.0E+00	0.2	3.4E-06	2
bis(2-Ethylhexyl)phthalate	9.60E+00	2.5E-02	1.9E-01	1.7E+01	4.0E+01	8.0E-01	0.2	9.7E-07	2
Dibenzofuran	3.04E+00	7.9E-02	4.0E-01	9.2E-01	2.2E+00	1.0E+00	0.2	2.9E-07	2
Naphthalene	4.49E+01	4.7E-02	2.0E-01	5.6E-01	1.3E+00	1.0E+00	0.2	1.9E-06	2
Antimony	3.19E+00	1.0E-03	NA	NA	NA	NA	0.2	6.4E-10	1
Arsenic	1.46E+01	1.0E-03	NA	NA	NA	NA	0.2	2.9E-09	1
Cadmium	5.46E+00	1.0E-03	NA	NA	NA	NA	0.2	1.1E-09	1
Iron	1.16E+03	1.0E-03	NA	NA	NA	NA	0.2	2.3E-07	1
Manganese	1.36E+03	1.0E-03	NA	NA	NA	NA	0.2	2.7E-07	1
Vanadium	2.49E+01	1.0E-03	NA	NA	NA	NA	0.2	5.0E-09	1

Inorganics: DAevent (mg/cm2-event) =

DA_{event} = Kp x CW x tevent x 0.001 mg/ug x 0.001 l/cm^3 (Eq 1)

Organics: DAevent (mg/cm2-event) =

DA_{event} = t_{event}<t*: DA_{event} (mg/cm^2-event) =
2 x FA x Kp x Cw x (sqrt((6 x τ x t_{event}) / (3.1415))) x CF1 x CF2 (Eq 2)

t_{event}>t*: DA_{event} (mg/cm^2-event) =
FA x Kp x CW x (t_{event}/(1+B) + 2 x τ x ((1 + 3B + $3B^2$)/$(1+B)^2$)) xCF1 x CF2 (Eq 3)

Notes:
NA - Not applicable
Permeability constants from EPA 2004, *Risk Assessment Guidance for Superfund Volume I: Human Health Evaluation Manual (Part E, Supplemental Guidance for Dermal Risk Assessment - Final).* EPA/540/R/99/005. The default value of 0.001 was assigned to inorganics not listed in this document.
B - Dimensionless ratio of the permeability coefficient of a compound through the stratum corneum relative to its permeability coefficient across the viable epidermis (dimensionless).
t* - Time to reach steady-state

TABLE 9.1.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
AOC-I
Former NASD, Vieques, Puerto Rico

Scenario Timeframe: Future
Receptor Population: Recreational
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface Soil	AOC-I Surface Soil (0 - 2 ft)	Benzo(a)pyrene	1E-07	NA	2E-07	3E-07	NA	NA	NA	NA	NA
			Aluminum	NA	NA	NA	NA	nervous system	7E-03	NA	8E-05	7E-03
			Arsenic	3E-07	NA	1E-07	4E-07	skin	2E-03	NA	7E-04	3E-03
			Iron	NA	NA	NA	NA	GI system	2E-02	NA	2E-04	2E-02
			Manganese	NA	NA	NA	NA	nervous system	2E-03	NA	5E-04	2E-03
			Thallium	NA	NA	NA	NA	blood	5E-03	NA	5E-05	5E-03
			Vanadium	NA	NA	NA	NA	respiratory, kidney	4E-02	NA	2E-02	5E-02
		Exposure Point Total		4E-07	NA	3E-07	7E-07		7E-02	NA	2E-02	9E-02
	Exposure Medium Total			4E-07	NA	3E-07	7E-07		7E-02	NA	2E-02	9E-02
	Ambient Air	AOC-I Emissions from Surface Soil (0-2 ft)	Benzo(a)pyrene	NA	1E-11	NA	1E-11	NA	NA	NA	NA	NA
			Aluminum	NA	NA	NA	NA	NA	NA	1E-03	NA	1E-03
			Arsenic	NA	9E-10	NA	9E-10	NA	NA	NA	NA	NA
			Iron	NA	NA	NA	NA	NA	NA	NA	NA	NA
			Manganese	NA	NA	NA	NA	nervous system	NA	5E-03	NA	5E-03
			Thallium	NA	NA	NA	NA	NA	NA	NA	NA	NA
			Vanadium	NA	NA	NA	NA	NA	NA	NA	NA	NA
		Exposure Point Total		NA	9E-10	NA	9E-10		NA	7E-03	NA	7E-03
	Exposure Medium Total			NA	9E-10	NA	9E-10		NA	7E-03	NA	7E-03
Medium Total				4E-07	9E-10	3E-07	7E-07		7E-02	7E-03	2E-02	1E-01
Receptor Total				4E-07	9E-10	3E-07	7E-07		7E-02	7E-03	2E-02	1E-01

NA = Not applicable or not available

Total Blood HI Across Media =	5E-03
Total GI System HI Across Media =	2E-02
Total Kidney HI Across Media =	5E-02
Total Nervous System HI Across Media =	2E-02
Total Respiratory HI Across Media =	5E-02
Total Skin HI Across Media =	3E-03

TABLE 9.2.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
AOC-I
Former NASD, Vieques, Puerto Rico

Scenario Timeframe: Future
Receptor Population: Recreational
Receptor Age: Youth

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface Soil	AOC-I Surface Soil (0 - 2 ft)	Benzo(a)pyrene	3E-07	NA	3E-07	6E-07	NA	NA	NA	NA	NA
			Aluminum	NA	NA	NA	NA	nervous system	1E-02	NA	1E-04	1E-02
			Arsenic	2E-07	NA	6E-08	3E-07	skin	4E-03	NA	9E-04	4E-03
			Iron	NA	NA	NA	NA	GI system	3E-02	NA	3E-04	3E-02
			Manganese	NA	NA	NA	NA	nervous system	3E-03	NA	7E-04	4E-03
			Thallium	NA	NA	NA	NA	blood	8E-03	NA	7E-05	8E-03
			Vanadium	NA	NA	NA	NA	respiratory, kidney	7E-02	NA	2E-02	9E-02
		Exposure Point Total		5E-07	NA	3E-07	8E-07		1E-01	NA	2E-02	2E-01
	Exposure Medium Total			5E-07	NA	3E-07	8E-07		1E-01	NA	2E-02	2E-01
	Ambient Air	AOC-I Emissions from Surface Soil (0 - 2 ft)	Benzo(a)pyrene	NA	3E-11	NA	3E-11	NA	NA	NA	NA	NA
			Aluminum	NA	NA	NA	NA	NA	NA	3E-03	NA	3E-03
			Arsenic	NA	7E-10	NA	7E-10	NA	NA	NA	NA	NA
			Iron	NA	NA	NA	NA	NA	NA	NA	NA	NA
			Manganese	NA	NA	NA	NA	nervous system	NA	9E-03	NA	9E-03
			Thallium	NA	NA	NA	NA	NA	NA	NA	NA	NA
			Vanadium	NA	NA	NA	NA	NA	NA	NA	NA	NA
		Exposure Point Total		NA	7E-10	NA	7E-10		NA	1E-02	NA	1E-02
	Exposure Medium Total			NA	7E-10	NA	7E-10		NA	1E-02	NA	1E-02
Medium Total				5E-07	7E-10	3E-07	9E-07		1E-01	1E-02	2E-02	2E-01
Receptor Total				5E-07	7E-10	3E-07	9E-07		1E-01	1E-02	2E-02	2E-01

NA = Not applicable or not available

Total Blood HI Across Media =	8E-03
Total GI System HI Across Media =	3E-02
Total Kidney HI Across Media =	9E-02
Total Nervous System HI Across Media =	3E-02
Total Respiratory HI Across Media =	9E-02
Total Skin HI Across Media =	4E-03

TABLE 9.3.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
AOC-I
Former NASD, Vieques, Puerto Rico

Scenario Timeframe: Future
Receptor Population: Recreational
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface Soil	AOC-I Surface Soil (0 - 2 ft)	Benzo(a)pyrene	2E-06	NA	7E-07	3E-06	NA	NA	NA	NA	NA
			Aluminum	NA	NA	NA	NA	nervous system	7E-02	NA	2E-04	7E-02
			Arsenic	7E-07	NA	6E-08	8E-07	skin	2E-02	NA	2E-03	2E-02
			Iron	NA	NA	NA	NA	GI system	2E-01	NA	5E-04	2E-01
			Manganese	NA	NA	NA	NA	nervous system	2E-02	NA	1E-03	2E-02
			Thallium	NA	NA	NA	NA	blood	4E-02	NA	1E-04	4E-02
			Vanadium	NA	NA	NA	NA	respiratory, kidney	3E-01	NA	0E+00	3E-01
		Exposure Point Total		3E-06	NA	7E-07	3E-06		7E-01	NA	4E-03	7E-01
	Exposure Medium Total			3E-06	NA	7E-07	3E-06		7E-01	NA	4E-03	7E-01
	Ambient Air	AOC-I Emissions from Surface Soil (0 - 2 ft)	Benzo(a)pyrene	NA	4E-11	NA	4E-11	NA	NA	NA	NA	NA
			Aluminum	NA	NA	NA	NA	NA	NA	5E-03	NA	5E-03
			Arsenic	NA	8E-10	NA	8E-10	NA	NA	NA	NA	NA
			Iron	NA	NA	NA	NA	NA	NA	NA	NA	NA
			Manganese	NA	NA	NA	NA	nervous system	NA	2E-02	NA	2E-02
			Thallium	NA	NA	NA	NA	NA	NA	NA	NA	NA
			Vanadium	NA	NA	NA	NA	NA	NA	NA	NA	NA
		Exposure Point Total		NA	8E-10	NA	8E-10		NA	2E-02	NA	2E-02
	Exposure Medium Total			NA	8E-10	NA	8E-10		NA	2E-02	NA	2E-02
Medium Total				3E-06	8E-10	7E-07	3E-06		7E-01	2E-02	4E-03	7E-01
Receptor Total				3E-06	8E-10	7E-07	3E-06		7E-01	2E-02	4E-03	7E-01

NA = Not applicable or not available

Total Blood HI Across Media =	4E-02
Total GI System HI Across Media =	2E-01
Total Kidney HI Across Media =	3E-01
Total Nervous System HI Across Media =	1E-01
Total Respiratory HI Across Media =	3E-01
Total Skin HI Across Media =	2E-02

TABLE 9.4.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
AOC-I
Former NASD, Vieques, Puerto Rico

Scenario Timeframe: Future
Receptor Population: Maintenance Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Surface Soil	AOC-I Surface Soil (0 - 2 ft)	Arsenic	2E-07	NA	3E-08	2E-07	skin	1E-03	NA	2E-04	1E-03
			Iron	NA	NA	NA	NA	GI system	9E-03	NA	6E-05	9E-03
			Vanadium	NA	NA	NA	NA	respiratory, kidney	2E-02	NA	5E-03	2E-02
		Exposure Point Total		2E-07	NA	3E-08	2E-07		3E-02	NA	5E-03	3E-02
	Exposure Medium Total			2E-07	NA	3E-08	2E-07		3E-02	NA	5E-03	3E-02
	Ambient Air	AOC-I Emissions from Surface Soil (0-2 ft)	Arsenic	NA	5E-10	NA	5E-10	NA	NA	NA	NA	NA
			Iron	NA	NA	NA	NA	NA	NA	NA	NA	NA
			Vanadium	NA	NA	NA	NA	NA	NA	NA	NA	NA
		Exposure Point Total		NA	5E-10	NA	5E-10		NA	0E+00	NA	0E+00
	Exposure Medium Total			NA	5E-10	NA	5E-10		NA	0E+00	NA	0E+00
Medium Total				2E-07	5E-10	3E-08	2E-07		3E-02	0E+00	5E-03	3E-02
Receptor Total				2E-07	5E-10	3E-08	2E-07		3E-02	0E+00	5E-03	3E-02

NA = Not applicable or not available

Total GI System HI Across Media =	9E-03
Total Kidney HI Across Media =	2E-02
Total Respiratory HI Across Media =	2E-02
Total Skin HI Across Media =	1E-03

TABLE 9.5.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
AOC-I
Former NASD, Vieques, Puerto Rico

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Soil	AOC-I Soil	Benzo(a)pyrene	NA	NA	NA	NA	NA	NA	NA	NA	NA
			Aluminum	NA	NA	NA	NA	nervous system	3E-02	NA	1E-04	3E-02
			Arsenic	NA	NA	NA	NA	skin	7E-03	NA	8E-04	8E-03
			Iron	NA	NA	NA	NA	GI system	8E-02	NA	3E-04	8E-02
			Manganese	NA	NA	NA	NA	nervous system	7E-03	NA	7E-04	8E-03
			Thallium	NA	NA	NA	NA	blood	2E-02	NA	6E-05	2E-02
			Vanadium	NA	NA	NA	NA	respiratory, kidney	2E-01	NA	2E-02	2E-01
		Exposure Point Total		NA	NA	NA	NA		3E-01	NA	3E-02	3E-01
	Exposure Medium Total			NA	NA	NA	NA		3E-01	NA	3E-02	3E-01
	Ambient Air	AOC-I Emissions from Soil	Benzo(a)pyrene	NA	NA	NA	NA	NA	NA	NA	NA	NA
			Aluminum	NA	NA	NA	NA	NA	NA	6E-03	NA	6E-03
			Arsenic	NA	NA	NA	NA	NA	NA	NA	NA	NA
			Iron	NA	NA	NA	NA	NA	NA	NA	NA	NA
			Manganese	NA	NA	NA	NA	nervous system	NA	2E-02	NA	2E-02
			Thallium	NA	NA	NA	NA	NA	NA	NA	NA	NA
			Vanadium	NA	NA	NA	NA	NA	NA	NA	NA	NA
		Exposure Point Total		NA	NA	NA	NA		NA	3E-02	NA	3E-02
	Exposure Medium Total			NA	NA	NA	NA		NA	3E-02	NA	3E-02
Medium Total				NA	NA	NA	NA		3E-01	3E-02	3E-02	3E-01

TABLE 9.5.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
AOC-I
Former NASD, Vieques, Puerto Rico

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Groundwater	Groundwater	AOC-I Tap water	1,2-Dichloroethane	NA	NA	NA	NA	heart, respiratory, nervous, kidney, liver, GI system	2E-03	NA	1E-04	2E-03
			1,2-Dichloropropane	NA	NA	NA	NA	NA	NA	NA	NA	NA
			Benzene	NA	NA	NA	NA	blood	2E-01	NA	2E-02	2E-01
			Trichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA
			1,4-Dichlorobenzene	NA	NA	NA	NA	liver, developmental	5E-04	NA	3E-04	8E-04
			2-Methylnaphthalene	NA	NA	NA	NA	respiratory	3E-01	NA	4E-01	7E-01
			bis(2-Ethylhexyl)phthalate	NA	NA	NA	NA	liver	1E-02	NA	2E-02	3E-02
			Dibenzofuran	NA	NA	NA	NA	NA	NA	NA	NA	NA
			Naphthalene	NA	NA	NA	NA	whole body	6E-02	NA	4E-02	1E-01
			Antimony	NA	NA	NA	NA	blood	2E-01	NA	8E-03	2E-01
			Arsenic	NA	NA	NA	NA	skin	1E+00	NA	7E-03	1E+00
			Cadmium	NA	NA	NA	NA	kidney	3E-01	NA	3E-02	3E-01
			Iron	NA	NA	NA	NA	GI system	5E-02	NA	2E-04	5E-02
			Manganese	NA	NA	NA	NA	nervous system	3E-01	NA	3E-02	3E-01
			Vanadium	NA	NA	NA	NA	respiratory, kidney	7E-01	NA	1E-01	8E-01
		Exposure Point Total		NA	NA	NA	NA		3E+00	NA	7E-01	4E+00
	Exposure Medium Total			NA	NA	NA	NA		3E+00	NA	7E-01	4E+00
Groundwater	Bathroom Air	AOC-I Water Vapors in Bathroom	1,2-Dichloroethane	NA	NA	NA	NA	GI system, liver, kidney	NA	6E-02	NA	6E-02
			1,2-Dichloropropane	NA	NA	NA	NA	respiratory	NA	2E-02	NA	2E-02
			Benzene	NA	NA	NA	NA	blood	NA	1E-01	NA	1E-01
			1,4-Dichlorobenzene	NA	NA	NA	NA	liver	NA	1E-04	NA	1E-04
			2-Methylnaphthalene	NA	NA	NA	NA	NA	NA	NA	NA	NA
			Naphthalene	NA	NA	NA	NA	respiratory	NA	3E+00	NA	3E+00
			Trichloroethene	NA	NA	NA	NA	nervous system, eyes	NA	4E-04	NA	4E-04
		Exposure Point Total		NA	NA	NA	NA		NA	3E+00	NA	3E+00
	Exposure Medium Total			NA	NA	NA	NA		NA	3E+00	NA	3E+00
Medium Total				NA	NA	NA	NA		3E+00	3E+00	7E-01	7E+00
Receptor Total				NA	NA	NA	NA		4E+00	3E+00	7E-01	7E+00

NA = Not applicable or not available

Total Blood HI Across Media = 6E-01

TABLE 9.5.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
AOC-I
Former NASD, Vieques, Puerto Rico

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
											Total GI System HI Across Media =	2E-01
											Total Kidney HI Across Media =	**1.4E+00**
											Total Liver HI Across Media =	1E-01
											Total Nervous System HI Across Media =	4E-01
											Total Respiratory HI Across Media =	**5E+00**
											Total Skin HI Across Media =	**1.4E+00**
											Total Whole Body HI Across Media =	1E-01
											Total Eyes HI Across Media =	4E-04
											Total Heart HI Across Media =	2E-03
											Total Developmental HI Across Media =	8E-04

TABLE 9.6.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
AOC-I
Former NASD, Vieques, Puerto Rico

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Soil	AOC-I Soil	Benzo(a)pyrene	NA	NA	NA	NA	NA	NA	NA	NA	NA
			Aluminum	NA	NA	NA	NA	nervous system	3E-01	NA	8E-04	3E-01
			Arsenic	NA	NA	NA	NA	skin	6E-02	NA	5E-03	7E-02
			Iron	NA	NA	NA	NA	GI system	7E-01	NA	2E-03	7E-01
			Manganese	NA	NA	NA	NA	nervous system	7E-02	NA	5E-03	7E-02
			Thallium	NA	NA	NA	NA	blood	1E-01	NA	4E-04	1.4E-01
			Vanadium	NA	NA	NA	NA	respiratory, kidney	1E+00	NA	2E-01	2E+00
		Exposure Point Total		NA	NA	NA	NA		3E+00	NA	2E-01	3E+00
	Exposure Medium Total			NA	NA	NA	NA		3E+00	NA	2E-01	3E+00
	Ambient Air	AOC-I Emissions from Soil	Benzo(a)pyrene	NA	NA	NA	NA	NA	NA	NA	NA	NA
			Aluminum	NA	NA	NA	NA	NA	NA	2E-02	NA	2E-02
			Arsenic	NA	NA	NA	NA	NA	NA	NA	NA	NA
			Iron	NA	NA	NA	NA	NA	NA	NA	NA	NA
			Manganese	NA	NA	NA	NA	nervous system	NA	7E-02	NA	7E-02
			Thallium	NA	NA	NA	NA	NA	NA	NA	NA	NA
			Vanadium	NA	NA	NA	NA	NA	NA	NA	NA	NA
		Exposure Point Total		NA	NA	NA	NA		NA	9E-02	NA	9E-02
	Exposure Medium Total			NA	NA	NA	NA		NA	9E-02	NA	9E-02
Medium Total				NA	NA	NA	NA		3E+00	9E-02	2E-01	3E+00

TABLE 9.6.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
AOC-I
Former NASD, Vieques, Puerto Rico

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Groundwater	Groundwater	AOC-I Tap water	1,2-Dichloroethane	NA	NA	NA	NA	heart, respiratory, nervous, kidney, liver, GI system	5E-03	NA	1E-04	5E-03
			1,2-Dichloropropane	NA	NA	NA	NA	NA	NA	NA	NA	NA
			Benzene	NA	NA	NA	NA	blood	4E-01	NA	4E-02	4E-01
			Trichloroethene	NA	NA	NA	NA	NA	NA	NA	NA	NA
			1,4-Dichlorobenzene	NA	NA	NA	NA	liver, developmental	1E-03	NA	7E-04	2E-03
			2-Methylnaphthalene	NA	NA	NA	NA	respiratory	7E-01	NA	8E-01	2E+00
			bis(2-Ethylhexyl)phthalate	NA	NA	NA	NA	liver	3E-02	NA	5E-02	8E-02
			Dibenzofuran	NA	NA	NA	NA	NA	NA	NA	NA	NA
			Naphthalene	NA	NA	NA	NA	whole body	1E-01	NA	9E-02	2E-01
			Antimony	NA	NA	NA	NA	blood	5E-01	NA	2E-02	5E-01
			Arsenic	NA	NA	NA	NA	skin	3E+00	NA	2E-02	3E+00
			Cadmium	NA	NA	NA	NA	kidney	7E-01	NA	9E-02	8E-01
			Iron	NA	NA	NA	NA	GI system	1E-01	NA	7E-04	1.1E-01
			Manganese	NA	NA	NA	NA	nervous system	6E-01	NA	1E-01	7E-01
			Vanadium	NA	NA	NA	NA	respiratory, kidney	2E+00	NA	4E-01	2E+00
		Exposure Point Total		NA	NA	NA	NA		8E+00	NA	2E+00	1E+01
	Exposure Medium Total			NA	NA	NA	NA		8E+00	NA	2E+00	1E+01
Groundwater	Bathroom Air	AOC-I Water Vapors in Bathroom	1,2-Dichloroethane	NA	NA	NA	NA	GI system, liver, kidney	NA	7E-01	NA	7E-01
			1,2-Dichloropropane	NA	NA	NA	NA	respiratory	NA	2E-01	NA	2E-01
			Benzene	NA	NA	NA	NA	blood	NA	2E+00	NA	2E+00
			1,4-Dichlorobenzene	NA	NA	NA	NA	liver	NA	1E-03	NA	1E-03
			2-Methylnaphthalene	NA	NA	NA	NA	NA	NA	NA	NA	NA
			Naphthalene	NA	NA	NA	NA	respiratory	NA	3E+01	NA	3E+01
			Trichloroethene	NA	NA	NA	NA	nervous system, eyes	NA	5E-03	NA	5E-03
		Exposure Point Total		NA	NA	NA	NA		NA	3E+01	NA	3E+01
	Exposure Medium Total			NA	NA	NA	NA		NA	3E+01	NA	3E+01
Medium Total				NA	NA	NA	NA		8E+00	3E+01	2E+00	4E+01
Receptor Total				NA	NA	NA	NA		1E+01	3E+01	2E+00	5E+01

TABLE 9.6.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
AOC-I
Former NASD, Vieques, Puerto Rico

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total

NA = Not applicable or not available

Total Blood HI Across Media =	**3E+00**
Total GI System HI Across Media =	**1.5E+00**
Total Kidney HI Across Media =	**5E+00**
Total Liver HI Across Media =	7E-01
Total Nervous System HI Across Media =	**1.1E+00**
Total Respiratory HI Across Media =	**4E+01**
Total Skin HI Across Media =	**3E+00**
Total Whole Body HI Across Media =	2E-01
Total Eyes HI Across Media =	5E-03
Total Heart HI Across Media =	5E-03
Total Developmental HI Across Media =	2E-03

TABLE 9.7.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
AOC-I
Former NASD, Vieques, Puerto Rico

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Adult/Child Aggregate

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Soil	AOC-I Soil	Benzo(a)pyrene	8E-06	NA	3E-06	1E-05	NA	NA	NA	NA	NA
			Aluminum	NA	NA	NA	NA	nervous system	NA	NA	NA	NA
			Arsenic	4E-06	NA	3E-07	4E-06	skin	NA	NA	NA	NA
			Iron	NA	NA	NA	NA	GI system	NA	NA	NA	NA
			Manganese	NA	NA	NA	NA	nervous system	NA	NA	NA	NA
			Thallium	NA	NA	NA	NA	blood	NA	NA	NA	NA
			Vanadium	NA	NA	NA	NA	respiratory, kidney	NA	NA	NA	NA
		Exposure Point Total		1E-05	NA	4E-06	1E-05		NA	NA	NA	NA
	Exposure Medium Total			1E-05	NA	4E-06	1E-05		NA	NA	NA	NA
	Ambient Air	AOC-I Emissions from Soil	Benzo(a)pyrene	NA	2E-10	NA	2E-10	NA	NA	NA	NA	NA
			Aluminum	NA	NA	NA	NA	NA	NA	NA	NA	NA
			Arsenic	NA	6E-09	NA	6E-09	NA	NA	NA	NA	NA
			Iron	NA	NA	NA	NA	NA	NA	NA	NA	NA
			Manganese	NA	NA	NA	NA	nervous system	NA	NA	NA	NA
			Thallium	NA	NA	NA	NA	NA	NA	NA	NA	NA
			Vanadium	NA	NA	NA	NA	NA	NA	NA	NA	NA
		Exposure Point Total		NA	6E-09	NA	6E-09		NA	NA	NA	NA
	Exposure Medium Total			NA	6E-09	NA	6E-09		NA	NA	NA	NA
Medium Total				1E-05	6E-09	4E-06	1E-05		NA	NA	NA	NA

TABLE 9.7.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
AOC-I
Former NASD, Vieques, Puerto Rico

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Adult/Child Aggregate

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Groundwater	Groundwater	AOC-I Tap water	1,2-Dichloroethane	2E-06	NA	3E-08	2E-06	heart, respiratory, nervous, kidney, liver, GI system	NA	NA	NA	NA
			1,2-Dichloropropane	3E-07	NA	1E-08	3E-07	NA	NA	NA	NA	NA
			Benzene	2E-05	NA	9E-07	2E-05	blood	NA	NA	NA	NA
			Trichloroethene	3E-07	NA	2E-08	3E-07	NA	NA	NA	NA	NA
			1,4-Dichlorobenzene	2E-07	NA	4E-08	2E-07	liver, developmental	NA	NA	NA	NA
			2-Methylnaphthalene	NA	NA	NA	NA	respiratory	NA	NA	NA	NA
			bis(2-Ethylhexyl)phthalate	2E-06	NA	1E-06	3E-06	liver	NA	NA	NA	NA
			Dibenzofuran	NA	NA	NA	NA	NA	NA	NA	NA	NA
			Naphthalene	NA	NA	NA	NA	whole body	NA	NA	NA	NA
			Antimony	NA	NA	NA	NA	blood	NA	NA	NA	NA
			Arsenic	3E-04	NA	7E-07	3E-04	skin	NA	NA	NA	NA
			Cadmium	NA	NA	NA	NA	kidney	NA	NA	NA	NA
			Iron	NA	NA	NA	NA	GI system	NA	NA	NA	NA
			Manganese	NA	NA	NA	NA	nervous system	NA	NA	NA	NA
			Vanadium	NA	NA	NA	NA	respiratory, kidney	NA	NA	NA	NA
		Exposure Point Total		4E-04	NA	3E-06	4E-04		NA	NA	NA	NA
	Exposure Medium Total			4E-04	NA	3E-06	4E-04		NA	NA	NA	NA
Groundwater	Bathroom Air	AOC-I Water Vapors in Bathroom	1,2-Dichloroethane	NA	2E-07	NA	2E-07	GI system, liver, kidney	NA	NA	NA	NA
			1,2-Dichloropropane	NA	NA	NA	NA	respiratory	NA	NA	NA	NA
			Benzene	NA	9E-07	NA	9E-07	blood	NA	NA	NA	NA
			1,4-Dichlorobenzene	NA	2E-08	NA	2E-08	liver	NA	NA	NA	NA
			2-Methylnaphthalene	NA	NA	NA	NA	NA	NA	NA	NA	NA
			Naphthalene	NA	NA	NA	NA	respiratory	NA	NA	NA	NA
			Trichloroethene	NA	1E-08	NA	1E-08	nervous system, eyes	NA	NA	NA	NA
		Exposure Point Total		NA	1E-06	NA	1E-06		NA	NA	NA	NA
	Exposure Medium Total			NA	1E-06	NA	1E-06		NA	NA	NA	NA
Medium Total				4E-04	1E-06	3E-06	4E-04		NA	NA	NA	NA
Receptor Total				4E-04	1E-06	6E-06	4E-04		NA	NA	NA	NA

NA = Not applicable or not available

TABLE 9.8.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
AOC-I
Former NASD, Vieques, Puerto Rico

Scenario Timeframe: Future
Receptor Population: Construction Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Total Soil	AOC-I Total Soil (0 - 6 ft)	Arsenic	1E-07	NA	9E-09	1E-07	skin	2E-02	NA	1E-03	2E-02
			Iron	NA	NA	NA	NA	GI system	2E-01	NA	5E-04	2E-01
			Vanadium	NA	NA	NA	NA	respiratory, kidney	5E-02	NA	6E-03	5E-02
		Exposure Point Total		1E-07	NA	9E-09	1E-07		2E-01	NA	7E-03	2E-01
	Exposure Medium Total			1E-07	NA	9E-09	1E-07		2E-01	NA	7E-03	2E-01
	Ambient Air	AOC-I Emissions from Total Soil (0 - 6 ft)	Arsenic	NA	4E-09	NA	4E-09	NA	NA	NA	NA	NA
			Iron	NA	NA	NA	NA	NA	NA	NA	NA	NA
			Vanadium	NA	NA	NA	NA	NA	NA	NA	NA	NA
		Exposure Point Total		NA	4E-09	NA	4E-09		NA	0E+00	NA	0E+00
	Exposure Medium Total			NA	4E-09	NA	4E-09		NA	0E+00	NA	0E+00
Medium Total				1E-07	4E-09	9E-09	1E-07		2E-01	0E+00	7E-03	2E-01
Receptor Total				1E-07	4E-09	9E-09	1E-07		2E-01	0E+00	7E-03	2E-01

NA = Not applicable or not available

Total GI System HI Across Media =	2E-01
Total Kidney HI Across Media =	5E-02
Total Respiratory HI Across Media =	5E-02
Total Skin HI Across Media =	2E-02

TABLE 9.9.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
AOC-I
Former NASD, Vieques, Puerto Rico

Scenario Timeframe: Future
Receptor Population: Industrial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Total Soil	AOC-I Total Soil (0 - 6 ft)	Arsenic	8E-07	NA	2E-07	1E-06	skin	5E-03	NA	1E-03	6E-03
			Iron	NA	NA	NA	NA	GI system	5E-02	NA	3E-04	5E-02
			Vanadium	NA	NA	NA	NA	respiratory, kidney	1E-01	NA	3E-02	1E-01
		Exposure Point Total		8E-07	NA	2E-07	1E-06		2E-01	NA	3E-02	2E-01
	Exposure Medium Total			8E-07	NA	2E-07	1E-06		2E-01	NA	3E-02	2E-01
	Ambient Air	AOC-I Emissions from Total Soil (0 - 6 ft)	Arsenic	NA	2E-09	NA	2E-09	NA	NA	NA	NA	NA
			Iron	NA	NA	NA	NA	NA	NA	NA	NA	NA
			Vanadium	NA	NA	NA	NA	NA	NA	NA	NA	NA
		Exposure Point Total		NA	2E-09	NA	2E-09		NA	0E+00	NA	0E+00
	Exposure Medium Total			NA	2E-09	NA	2E-09		NA	0E+00	NA	0E+00
Medium Total				8E-07	2E-09	2E-07	1E-06		2E-01	0E+00	3E-02	2E-01
Groundwater	Groundwater	AOC-I Tap water	1,2-Dichloroethane	5E-07	NA	4E-09	5E-07	heart, respiratory, nervous, kidney, liver, GI system	8E-04	NA	7E-06	8E-04
			1,2-Dichloropropane	8E-08	NA	1E-09	8E-08	NA	NA	NA	NA	NA
			Benzene	4E-06	NA	1E-07	5E-06	blood	6E-02	NA	2E-03	6E-02
			Trichloroethene	6E-08	NA	2E-09	7E-08	NA	NA	NA	NA	NA
			1,4-Dichlorobenzene	4E-08	NA	5E-09	5E-08	liver, developmental	2E-04	NA	2E-05	2E-04
			2-Methylnaphthalene	NA	NA	NA	NA	respiratory	1E-01	NA	2E-02	1E-01
			bis(2-Ethylhexyl)phthalate	5E-07	NA	1E-07	6E-07	liver	5E-03	NA	1E-03	5E-03
			Dibenzofuran	NA	NA	NA	NA	NA	NA	NA	NA	NA
			Naphthalene	NA	NA	NA	NA	whole body	2E-02	NA	3E-03	2E-02
			Antimony	NA	NA	NA	NA	blood	8E-02	NA	3E-04	8E-02
			Arsenic	8E-05	NA	4E-08	8E-05	skin	5E-01	NA	3E-04	5E-01
			Cadmium	NA	NA	NA	NA	kidney	1E-01	NA	1E-03	1E-01
			Iron	NA	NA	NA	NA	GI system	2E-02	NA	9E-06	2E-02
			Manganese	NA	NA	NA	NA	nervous system	9E-02	NA	1E-03	9E-02
			Vanadium	NA	NA	NA	NA	respiratory, kidney	2E-01	NA	5E-03	2E-01
		Exposure Point Total		8E-05	NA	3E-07	8E-05		1E+00	NA	4E-02	1E+00
	Exposure Medium Total			8E-05	NA	3E-07	8E-05		1E+00	NA	4E-02	1E+00
Medium Total				8E-05	NA	3E-07	8E-05		1E+00	NA	4E-02	1E+00
Receptor Total				8E-05	2E-09	5E-07	8E-05		1E+00	0E+00	6E-02	1E+00

TABLE 9.9.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
AOC-I
Former NASD, Vieques, Puerto Rico

Scenario Timeframe: Future
Receptor Population: Industrial Worker
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total

NA = Not applicable or not available

Total Blood HI Across Media =	1E-01
Total GI System HI Across Media =	7E-02
Total Kidney HI Across Media =	5E-01
Total Liver HI Across Media =	6E-03
Total Nervous System HI Across Media =	9E-02
Total Respiratory HI Across Media =	5E-01
Total Skin HI Across Media =	5E-01
Total Whole Body HI Across Media =	2E-02
Total Heart HI Across Media =	8E-04
Total Developmental HI Across Media =	2E-04

TABLE 10.5.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
AOC-I
Former NASD, Vieques, Puerto Rico

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Adult

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Groundwater	Groundwater	AOC-I Tap water	2-Methylnaphthalene	NA	NA	NA	NA	respiratory	3E-01	NA	4E-01	7E-01
		Exposure Point Total		NA	NA	NA	NA		3E-01	NA	4E-01	7E-01
	Exposure Medium Total			NA	NA	NA	NA		3E-01	NA	4E-01	7E-01
Groundwater	Bathroom Air	AOC-I Water Vapors in Bathroom	Naphthalene	NA	NA	NA	NA	respiratory	NA	3E+00	NA	3E+00
		Exposure Point Total		NA	NA	NA	NA		NA	3E+00	NA	3E+00
	Exposure Medium Total			NA	NA	NA	NA		NA	3E+00	NA	3E+00
Medium Total				NA	NA	NA	NA		3E-01	3E+00	4E-01	4E+00

NA = Not applicable or not available

Total Kidney HI Across Media =	**NA**
Total Respiratory HI Across Media =	**4E+00**
Total Skin HI Across Media =	**NA**

TABLE 10.6.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
AOC-I
Former NASD, Vieques, Puerto Rico

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Child

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Soil	Soil	AOC-I										
		Exposure Point Total		NA	NA	NA	NA		0E+00	NA	0E+00	0E+00
	Exposure Medium Total			NA	NA	NA	NA		0E+00	NA	0E+00	0E+00
Medium Total				NA	NA	NA	NA		0E+00	0E+00	0E+00	0E+00
Groundwater	Groundwater	AOC-I	Benzene	NA	NA	NA	NA	blood	4E-01	NA	4E-02	4E-01
		Tap water	2-Methylnaphthalene	NA	NA	NA	NA	respiratory	7E-01	NA	8E-01	2E+00
		Exposure Point Total		NA	NA	NA	NA		1E+00	NA	8E-01	2E+00
	Exposure Medium Total			NA	NA	NA	NA		1E+00	NA	8E-01	2E+00
Groundwater	Bathroom Air	AOC-I	1,2-Dichloroethane	NA	NA	NA	NA	GI system, liver, kidney	NA	7E-01	NA	7E-01
		Water Vapors in Bathroom	1,2-Dichloropropane	NA	NA	NA	NA	respiratory	NA	2E-01	NA	2E-01
			Benzene	NA	NA	NA	NA	blood	NA	2E+00	NA	2E+00
			Naphthalene	NA	NA	NA	NA	respiratory	NA	3E+01	NA	3E+01
		Exposure Point Total		NA	NA	NA	NA		NA	3E+01	NA	3E+01
	Exposure Medium Total			NA	NA	NA	NA		NA	3E+01	NA	3E+01
Medium Total				NA	NA	NA	NA		1E+00	3E+01	8E-01	4E+01

NA = Not applicable or not available

Total Blood HI Across Media =	**2E+00**
Total GI System HI Across Media =	7E-01
Total Kidney HI Across Media =	7E-01
Total Respiratory HI Across Media =	**3E+01**
Total Skin HI Across Media =	NA

TABLE 10.7.RME
SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs
REASONABLE MAXIMUM EXPOSURE
AOC-I
Former NASD, Vieques, Puerto Rico

Scenario Timeframe: Future
Receptor Population: Resident
Receptor Age: Adult/Child Aggregate

Medium	Exposure Medium	Exposure Point	Chemical of Potential Concern	Carcinogenic Risk				Non-Carcinogenic Hazard Quotient				
				Ingestion	Inhalation	Dermal	Exposure Routes Total	Primary Target Organ(s)	Ingestion	Inhalation	Dermal	Exposure Routes Total
Groundwater	Groundwater	AOC-I Tap water	1,2-Dichloroethane	2E-06	NA	3E-08	2E-06	heart, respiratory, nervous, kidney, liver, GI system	NA	NA	NA	NA
			Benzene	2E-05	NA	9E-07	2E-05	blood	NA	NA	NA	NA
			bis(2-Ethylhexyl)phthalate	2E-06	NA	1E-06	3E-06	liver	NA	NA	NA	NA
		Exposure Point Total		2E-05	NA	2E-06	3E-05		NA	NA	NA	NA
	Exposure Medium Total			2E-05	NA	2E-06	3E-05		NA	NA	NA	NA
Medium Total				2E-05	0E+00	2E-06	3E-05		NA	NA	NA	NA

NA = Not applicable or not available

Appendix M
Attachment 2
ProUCL Output

General UCL Statistics for Data Sets with Non-Detects

User Selected Options

From File	C:\Documents and Settings\hawata\My Documents\Projects\Vieqeous\0816Data\AOCI_ProUCL_input_TCE.wst
Full Precision	ON
Confidence Coefficient	95%
Number of Bootstrap Operations	2000

Aluminum (MG/KG)

General Statistics

Number of Valid Samples	26	Number of Detected Data	26
Number of Unique Samples	13	Number of Non-Detect Data	0
Number of Missing Values	39	Percent Non-Detects	0.00%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	14000	Minimum Detected	9.5468126
Maximum Detected	25000	Maximum Detected	10.126631
Mean of Detected	17215.385	Mean of Detected	9.7453066
SD of Detected	2362.4889	SD of Detected	0.1283295
Minimum Non-Detect	N/A	Minimum Non-Detect	N/A
Maximum Non-Detect	N/A	Maximum Non-Detect	N/A

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.881717	Shapiro Wilk Test Statistic	0.929741
5% Shapiro Wilk Critical Value	0.92	5% Shapiro Wilk Critical Value	0.92
Data not Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	17215.385	Mean	9.7453066
SD	2362.4889	SD	0.1283295
95% DL/2 (t) UCL	18006.804	95% H-Stat (DL/2) UCL	17993.489
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE method failed to converge properly		Mean in Log Scale	N/A
		SD in Log Scale	N/A
		Mean in Original Scale	N/A
		SD in Original Scale	N/A
		95% Percentile Bootstrap UCL	N/A
		95% BCA Bootstrap UCL	N/A

Gamma Distribution Test with Detected Values Only

k star (bias corrected)	53.772114
Theta Star	320.15451
nu star	2796.1499
A-D Test Statistic	0.6309448
5% A-D Critical Value	0.7426931
K-S Test Statistic	0.7426931
5% K-S Critical Value	0.1707314

Data appear Gamma Distributed at 5% Significance Level

Data Distribution Test with Detected Values Only

Data appear Gamma Distributed at 5% Significance Level

Assuming Gamma Distribution

Gamma ROS Statistics using Extrapolated Data

Minimum	14000
Maximum	25000
Mean	17215.385
Median	17000
SD	2362.4889
k star	53.772114
Theta star	320.15451
Nu star	2796.1499
AppChi2	2674.2925
95% Gamma Approximate UCL	17999.825
95% Adjusted Gamma UCL	18052.772

Note: DL/2 is not a recommended method.

Nonparametric Statistics

Kaplan-Meier (KM) Method

Mean	17215.385
SD	2316.611
SE of Mean	463.32219
95% KM (t) UCL	18006.804
95% KM (z) UCL	17977.482
95% KM (jackknife) UCL	18006.804
95% KM (bootstrap t) UCL	18245.454
95% KM (BCA) UCL	18100
95% KM (Percentile Bootstrap) UCL	17973.077
95% KM (Chebyshev) UCL	19234.959
97.5% KM (Chebyshev) UCL	20108.831
99% KM (Chebyshev) UCL	21825.382

Potential UCLs to Use

95% KM (BCA) UCL	18100

Arsenic (MG/KG)

General Statistics

Number of Valid Samples	26	Number of Detected Data	26
Number of Unique Samples	15	Number of Non-Detect Data	0
Number of Missing Values	39	Percent Non-Detects	0.00%

Raw Statistics

Minimum Detected	0.77
Maximum Detected	2
Mean of Detected	1.3361538
SD of Detected	0.3689236
Minimum Non-Detect	N/A
Maximum Non-Detect	N/A

Log-transformed Statistics

Minimum Detected	-0.261365
Maximum Detected	0.6931472
Mean of Detected	0.252745
SD of Detected	0.279267
Minimum Non-Detect	N/A
Maximum Non-Detect	N/A

UCL Statistics

Normal Distribution Test with Detected Values Only

Shapiro Wilk Test Statistic	0.943239
5% Shapiro Wilk Critical Value	0.92

Data appear Normal at 5% Significance Level

Lognormal Distribution Test with Detected Values Only

Shapiro Wilk Test Statistic	0.9581375
5% Shapiro Wilk Critical Value	0.92

Data appear Lognormal at 5% Significance Level

Assuming Normal Distribution

DL/2 Substitution Method	
Mean	1.3361538
SD	0.3689236
95% DL/2 (t) UCL	1.459741
Maximum Likelihood Estimate(MLE) Method	N/A

MLE method failed to converge properly

Assuming Lognormal Distribution

DL/2 Substitution Method	
Mean	0.252745
SD	0.279267
95% H-Stat (DL/2) UCL	1.4803745
Log ROS Method	
Mean in Log Scale	N/A
SD in Log Scale	N/A
Mean in Original Scale	N/A
SD in Original Scale	N/A
95% Percentile Bootstrap UCL	N/A
95% BCA Bootstrap UCL	N/A

Gamma Distribution Test with Detected Values Only

k star (bias corrected)	12.109266
Theta Star	0.1103414
nu star	629.68186
A-D Test Statistic	0.3568609
5% A-D Critical Value	0.7440092
K-S Test Statistic	0.7440092
5% K-S Critical Value	0.1710673

Data appear Gamma Distributed at 5% Significance Level

Assuming Gamma Distribution

Gamma ROS Statistics using Extrapolated Data	
Minimum	0.77
Maximum	2
Mean	1.3361538
Median	1.25
SD	0.3689236
k star	12.109266
Theta star	0.1103414
Nu star	629.68186
AppChi2	572.46903
95% Gamma Approximate UCL	1.4696897
95% Adjusted Gamma UCL	1.4789745

Note: DL/2 is not a recommended method.

Data Distribution Test with Detected Values Only

Data appear Normal at 5% Significance Level

Nonparametric Statistics

Kaplan-Meier (KM) Method	
Mean	1.3361538
SD	0.3617593
SE of Mean	0.0723519
95% KM (t) UCL	1.459741
95% KM (z) UCL	1.4551621
95% KM (jackknife) UCL	1.459741
95% KM (bootstrap t) UCL	1.4633539
95% KM (BCA) UCL	1.4569231
95% KM (Percentile Bootstrap) UCL	1.4573077
95% KM (Chebyshev) UCL	1.6515283
97.5% KM (Chebyshev) UCL	1.7879911
99% KM (Chebyshev) UCL	2.0560458

Potential UCLs to Use

95% KM (t) UCL	1.459741
95% KM (Percentile Bootstrap) UCL	1.4573077

Benzo(a)pyrene (MG/KG)

General Statistics

Number of Valid Samples	40	Number of Detected Data	4
Number of Unique Samples	4	Number of Non-Detect Data	36
Number of Missing Values	26	Percent Non-Detects	90.00%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.0336	Minimum Detected	-3.393229
Maximum Detected	0.145	Maximum Detected	-1.931022
Mean of Detected	0.076775	Mean of Detected	-2.733977
SD of Detected	0.0509202	SD of Detected	0.6678519
Minimum Non-Detect	0.1655	Minimum Non-Detect	-1.798784
Maximum Non-Detect	0.473	Maximum Non-Detect	-0.74866

Note: Data have multiple DLs - Use of KM Method is recommended	Number treated as Non-Detect	40
For all methods (except KM, DL/2, and ROS Methods),	Number treated as Detected	0
Observations < Largest ND are treated as NDs	Single DL Non-Detect Percentage	100.00%

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.9038456	Shapiro Wilk Test Statistic	0.9425451
5% Shapiro Wilk Critical Value	0.748	5% Shapiro Wilk Critical Value	0.748
Data appear Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.1020338	Mean	-2.333029
SD	0.0350805	SD	0.3231628
95% DL/2 (t) UCL	0.1113793	95% H-Stat (DL/2) UCL	0.1272024
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE method failed to converge properly		Mean in Log Scale	-2.733977
		SD in Log Scale	0.2637191
		Mean in Original Scale	0.0672839
		SD in Original Scale	0.01955
		95% Percentile Bootstrap UCL	0.072399
		95% BCA Bootstrap UCL	0.0732997

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only
k star (bias corrected)	0.9539257	**Data appear Normal at 5% Significance Level**
Theta Star	0.0804832	
nu star	7.6314054	

A-D Test Statistic	0.3045206
5% A-D Critical Value	0.659331
K-S Test Statistic	0.659331
5% K-S Critical Value	0.3965004

Data appear Gamma Distributed at 5% Significance Level

Assuming Gamma Distribution

Gamma ROS Statistics using Extrapolated Data

Minimum	0.0295127
Maximum	0.145
Mean	0.076314
Median	0.0761873
SD	0.0204298
k star	12.328699
Theta star	0.0061899
Nu star	986.29589
AppChi2	914.39615
95% Gamma Approximate UCL	0.0823146
95% Adjusted Gamma UCL	N/A

Nonparametric Statistics

Kaplan-Meier (KM) Method

Mean	0.076775
SD	0.0440982
SE of Mean	0.0254601
95% KM (t) UCL	0.1196721
95% KM (z) UCL	0.1186532
95% KM (jackknife) UCL	0.1256852
95% KM (bootstrap t) UCL	0.1611984
95% KM (BCA) UCL	0.1253333
95% KM (Percentile Bootstrap) UCL	0.1253333
95% KM (Chebyshev) UCL	0.1877531
97.5% KM (Chebyshev) UCL	0.2357733
99% KM (Chebyshev) UCL	0.3300999

Potential UCLs to Use

95% KM (t) UCL	0.1196721
95% KM (Percentile Bootstrap) UCL	0.1253333

Note: DL/2 is not a recommended method.

Iron (MG/KG)

General Statistics

Number of Valid Samples	26	Number of Detected Data	26
Number of Unique Samples	16	Number of Non-Detect Data	0
Number of Missing Values	39	Percent Non-Detects	0.00%

Raw Statistics

Minimum Detected	22000
Maximum Detected	44000
Mean of Detected	28888.462
SD of Detected	4332.7891
Minimum Non-Detect	N/A
Maximum Non-Detect	N/A

Log-transformed Statistics

Minimum Detected	9.9987977
Maximum Detected	10.691945
Mean of Detected	10.261482
SD of Detected	0.1390163
Minimum Non-Detect	N/A
Maximum Non-Detect	N/A

UCL Statistics

Normal Distribution Test with Detected Values Only

Shapiro Wilk Test Statistic	0.8444977
5% Shapiro Wilk Critical Value	0.92

Data not Normal at 5% Significance Level

Lognormal Distribution Test with Detected Values Only

Shapiro Wilk Test Statistic	0.9085706
5% Shapiro Wilk Critical Value	0.92

Data not Lognormal at 5% Significance Level

Assuming Normal Distribution

DL/2 Substitution Method	
Mean	28888.462
SD	4332.7891
95% DL/2 (t) UCL	30339.92
Maximum Likelihood Estimate(MLE) Method	N/A

MLE method failed to converge properly

Assuming Lognormal Distribution

DL/2 Substitution Method	
Mean	10.261482
SD	0.1390163
95% H-Stat (DL/2) UCL	30308.396
Log ROS Method	
Mean in Log Scale	N/A
SD in Log Scale	N/A
Mean in Original Scale	N/A
SD in Original Scale	N/A
95% Percentile Bootstrap UCL	N/A
95% BCA Bootstrap UCL	N/A

Gamma Distribution Test with Detected Values Only

k star (bias corrected)	45.697926
Theta Star	632.16133
nu star	2376.2922
A-D Test Statistic	0.9479916
5% A-D Critical Value	0.7428008
K-S Test Statistic	0.7428008
5% K-S Critical Value	0.1707387

Data not Gamma Distributed at 5% Significance Level

Assuming Gamma Distribution

Gamma ROS Statistics using Extrapolated Data	
Minimum	22000
Maximum	44000
Mean	28888.462
Median	29000
SD	4332.7891
k star	45.697926
Theta star	632.16133
Nu star	2376.2922
AppChi2	2264.046
95% Gamma Approximate UCL	30320.685
95% Adjusted Gamma UCL	30417.573

Note: DL/2 is not a recommended method.

Data Distribution Test with Detected Values Only

Data do not follow a Discernable Distribution (0.05)

Nonparametric Statistics

Kaplan-Meier (KM) Method	
Mean	28888.462
SD	4248.6493
SE of Mean	849.72986
95% KM (t) UCL	30339.92
95% KM (z) UCL	30286.143
95% KM (jackknife) UCL	30339.92
95% KM (bootstrap t) UCL	30751.654
95% KM (BCA) UCL	30415.385
95% KM (Percentile Bootstrap) UCL	30288.462
95% KM (Chebyshev) UCL	32592.348
97.5% KM (Chebyshev) UCL	34195.023
99% KM (Chebyshev) UCL	37343.167

Potential UCLs to Use

95% KM (Chebyshev) UCL	32592.348

Manganese (MG/KG)

General Statistics

Number of Valid Samples	26	Number of Detected Data	26
Number of Unique Samples	20	Number of Non-Detect Data	0
Number of Missing Values	39	Percent Non-Detects	0.00%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	440	Minimum Detected	6.0867747
Maximum Detected	980	Maximum Detected	6.8875526
Mean of Detected	614.69231	Mean of Detected	6.4062793
SD of Detected	112.11379	SD of Detected	0.1733646
Minimum Non-Detect	N/A	Minimum Non-Detect	N/A
Maximum Non-Detect	N/A	Maximum Non-Detect	N/A

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.9111263	Shapiro Wilk Test Statistic	0.9596916
5% Shapiro Wilk Critical Value	0.92	5% Shapiro Wilk Critical Value	0.92
Data not Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	614.69231	Mean	6.4062793
SD	112.11379	SD	0.1733646
95% DL/2 (t) UCL	652.24975	95% H-Stat (DL/2) UCL	653.11642
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE method failed to converge properly		Mean in Log Scale	N/A
		SD in Log Scale	N/A
		Mean in Original Scale	N/A
		SD in Original Scale	N/A
		95% Percentile Bootstrap UCL	N/A
		95% BCA Bootstrap UCL	N/A

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only
k star (bias corrected)	29.972405	**Data appear Gamma Distributed at 5% Significance Level**
Theta Star	20.508608	
nu star	1558.565	
A-D Test Statistic	0.4042033	**Nonparametric Statistics**
5% A-D Critical Value	0.7433475	Kaplan-Meier (KM) Method
K-S Test Statistic	0.7433475	Mean 614.69231
5% K-S Critical Value	0.1707831	SD 109.93661
Data appear Gamma Distributed at 5% Significance Level		SE of Mean 21.987323
		95% KM (t) UCL 652.24975

Assuming Gamma Distribution

Gamma ROS Statistics using Extrapolated Data	
Minimum	440
Maximum	980
Mean	614.69231
Median	615
SD	112.11379
k star	29.972405
Theta star	20.508608
Nu star	1558.565
AppChi2	1467.8818
95% Gamma Approximate UCL	652.66696
95% Adjusted Gamma UCL	655.25336

95% KM (z) UCL	650.85824
95% KM (jackknife) UCL	652.24975
95% KM (bootstrap t) UCL	659.10028
95% KM (BCA) UCL	651.42308
95% KM (Percentile Bootstrap) UCL	650.42308
95% KM (Chebyshev) UCL	710.53283
97.5% KM (Chebyshev) UCL	752.00309
99% KM (Chebyshev) UCL	833.46341

Potential UCLs to Use

95% KM (BCA) UCL	651.42308

Note: DL/2 is not a recommended method.

Vanadium (MG/KG)

General Statistics

Number of Valid Samples	26	Number of Detected Data	26
Number of Unique Samples	21	Number of Non-Detect Data	0
Number of Missing Values	39	Percent Non-Detects	0.00%

Raw Statistics		**Log-transformed Statistics**	
Minimum Detected	64	Minimum Detected	4.1588831
Maximum Detected	140	Maximum Detected	4.9416424
Mean of Detected	86.307692	Mean of Detected	4.4433896
SD of Detected	16.00942	SD of Detected	0.1691195
Minimum Non-Detect	N/A	Minimum Non-Detect	N/A
Maximum Non-Detect	N/A	Maximum Non-Detect	N/A

UCL Statistics

Normal Distribution Test with Detected Values Only		**Lognormal Distribution Test with Detected Values Only**	
Shapiro Wilk Test Statistic	0.8498346	Shapiro Wilk Test Statistic	0.9219894
5% Shapiro Wilk Critical Value	0.92	5% Shapiro Wilk Critical Value	0.92
Data not Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	

Assuming Normal Distribution		**Assuming Lognormal Distribution**	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	86.307692	Mean	4.4433896
SD	16.00942	SD	0.1691195
95% DL/2 (t) UCL	91.670751	95% H-Stat (DL/2) UCL	91.523008
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE method failed to converge properly		Mean in Log Scale	N/A
		SD in Log Scale	N/A
		Mean in Original Scale	N/A
		SD in Original Scale	N/A
		95% Percentile Bootstrap UCL	N/A
		95% BCA Bootstrap UCL	N/A

Gamma Distribution Test with Detected Values Only

k star (bias corrected)	30.615124
Theta Star	2.8191195
nu star	1591.9864

A-D Test Statistic	0.7743785
5% A-D Critical Value	0.7433237
K-S Test Statistic	0.7433237
5% K-S Critical Value	0.1707811

Data follow Appr. Gamma Distribution at 5% Significance Level

Assuming Gamma Distribution

Gamma ROS Statistics using Extrapolated Data

Minimum	64
Maximum	140
Mean	86.307692
Median	85.5
SD	16.00942
k star	30.615124
Theta star	2.8191195
Nu star	1591.9864
AppChi2	1500.3236
95% Gamma Approximate UCL	91.580692
95% Adjusted Gamma UCL	91.939693

Note: DL/2 is not a recommended method.

Data Distribution Test with Detected Values Only

Data Follow Appr. Gamma Distribution at 5% Significance Level

Nonparametric Statistics

Kaplan-Meier (KM) Method

Mean	86.307692
SD	15.698528
SE of Mean	3.1397056
95% KM (t) UCL	91.670751
95% KM (z) UCL	91.472049
95% KM (jackknife) UCL	91.670751
95% KM (bootstrap t) UCL	94.094571
95% KM (BCA) UCL	91.923077
95% KM (Percentile Bootstrap) UCL	91.615385
95% KM (Chebyshev) UCL	99.993352
97.5% KM (Chebyshev) UCL	105.91515
99% KM (Chebyshev) UCL	117.54737

Potential UCLs to Use

95% KM (BCA) UCL	91.923077

General UCL Statistics for Data Sets with Non-Detects

User Selected Options

From File	C:\Documents and Settings\hawata\My Documents\Projects\Vieqeous\0816Data\AOCI_ProUCL_input_TCE.wst
Full Precision	ON
Confidence Coefficient	95%
Number of Bootstrap Operations	2000

Arsenic (MG/KG)

General Statistics

Number of Valid Samples	26	Number of Unique Samples	15

Raw Statistics

Minimum	0.77
Maximum	2
Mean	1.3361538
Median	1.25
SD	0.3689236
Coefficient of Variation	0.2761086
Skewness	0.3636168

Log-transformed Statistics

Minimum of Log Data	-0.261365
Maximum of Log Data	0.6931472
Mean of log Data	0.252745
SD of log Data	0.279267

Relevant UCL Statistics

Normal Distribution Test

Shapiro Wilk Test Statistic	0.943239
Shapiro Wilk Critical Value	0.92

Data appear Normal at 5% Significance Level

Assuming Normal Distribution

95% Student's-t UCL	1.459741

95% UCLs (Adjusted for Skewness)

95% Adjusted-CLT UCL	1.4606751
95% Modified-t UCL	1.4606009

Lognormal Distribution Test

Shapiro Wilk Test Statistic	0.9581375
Shapiro Wilk Critical Value	0.92

Data appear Lognormal at 5% Significance Level

Assuming Lognormal Distribution

95% H-UCL	1.4803745
95% Chebyshev (MVUE) UCL	1.6601267
97.5% Chebyshev (MVUE) UCL	1.8000827
99% Chebyshev (MVUE) UCL	2.0749992

Gamma Distribution Test

k star (bias corrected)	12.109266
Theta Star	0.1103414
nu star	629.68186
Approximate Chi Square Value (.05)	572.46903
Adjusted Level of Significance	0.0398
Adjusted Chi Square Value	568.87514
Anderson-Darling Test Statistic	0.3568609
Anderson-Darling 5% Critical Value	0.7440092
Kolmogorov-Smirnov Test Statistic	0.1175667
Kolmogorov-Smirnov 5% Critical Value	0.1710673

Data appear Gamma Distributed at 5% Significance Level

Assuming Gamma Distribution

95% Approximate Gamma UCL	1.4696897
95% Adjusted Gamma UCL	1.4789745

Data Distribution

Data appear Normal at 5% Significance Level

Nonparametric Statistics

95% CLT UCL	1.4551621
95% Jackknife UCL	1.459741
95% Standard Bootstrap UCL	1.4544962
95% Bootstrap-t UCL	1.4723006
95% Hall's Bootstrap UCL	1.4655353
95% Percentile Bootstrap UCL	1.4519231
95% BCA Bootstrap UCL	1.4488462
95% Chebyshev(Mean, Sd) UCL	1.6515283
97.5% Chebyshev(Mean, Sd) UCL	1.7879911
99% Chebyshev(Mean, Sd) UCL	2.0560458

Potential UCL to Use	Use 95% Student's-t UCL 1.459741

Iron (MG/KG)

General Statistics

Number of Valid Samples	26	Number of Unique Samples	16

Raw Statistics		**Log-transformed Statistics**	
Minimum	22000	Minimum of Log Data	9.9987977
Maximum	44000	Maximum of Log Data	10.691945
Mean	28888.462	Mean of log Data	10.261482
Median	29000	SD of log Data	0.1390163
SD	4332.7891		
Coefficient of Variation	0.1499834		
Skewness	1.7338236		

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.8444977	Shapiro Wilk Test Statistic	0.9085706
Shapiro Wilk Critical Value	0.92	Shapiro Wilk Critical Value	0.92
Data not Normal at 5% Significance Level		**Data not Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	30339.92	95% H-UCL	30308.396
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	32319.437
95% Adjusted-CLT UCL	30594.873	97.5% Chebyshev (MVUE) UCL	33809.369
95% Modified-t UCL	30388.075	99% Chebyshev (MVUE) UCL	36736.051

Gamma Distribution Test		**Data Distribution**	
k star (bias corrected)	45.697926	**Data do not follow a Discernable Distribution (0.05)**	
Theta Star	632.16133		
nu star	2376.2922		
Approximate Chi Square Value (.05)	2264.046	**Nonparametric Statistics**	
Adjusted Level of Significance	0.0398	95% CLT UCL	30286.143
Adjusted Chi Square Value	2256.8344	95% Jackknife UCL	30339.92
		95% Standard Bootstrap UCL	30270.122
Anderson-Darling Test Statistic	0.9479916	95% Bootstrap-t UCL	30865.875
Anderson-Darling 5% Critical Value	0.7428008	95% Hall's Bootstrap UCL	32472.732
Kolmogorov-Smirnov Test Statistic	0.2209156	95% Percentile Bootstrap UCL	30376.923
Kolmogorov-Smirnov 5% Critical Value	0.1707387	95% BCA Bootstrap UCL	30569.231
Data not Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	32592.348
		97.5% Chebyshev(Mean, Sd) UCL	34195.023
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL	37343.167
95% Approximate Gamma UCL	30320.685		
95% Adjusted Gamma UCL	30417.573		

Potential UCL to Use	Use 95% Student's-t UCL 30339.92
	or 95% Modified-t UCL 30388.075

Vanadium (MG/KG)

General Statistics

Number of Valid Samples	26	Number of Unique Samples	21

Raw Statistics		**Log-transformed Statistics**	
Minimum	64	Minimum of Log Data	4.1588831
Maximum	140	Maximum of Log Data	4.9416424
Mean	86.307692	Mean of log Data	4.4433896
Median	85.5	SD of log Data	0.1691195
SD	16.00942		
Coefficient of Variation	0.1854924		
Skewness	1.7371038		

Relevant UCL Statistics

Normal Distribution Test		**Lognormal Distribution Test**	
Shapiro Wilk Test Statistic	0.8498346	Shapiro Wilk Test Statistic	0.9219894
Shapiro Wilk Critical Value	0.92	Shapiro Wilk Critical Value	0.92
Data not Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	91.670751	95% H-UCL	91.523008
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	98.770802
95% Adjusted-CLT UCL	92.614949	97.5% Chebyshev (MVUE) UCL	104.19292
95% Modified-t UCL	91.84902	99% Chebyshev (MVUE) UCL	114.84363

Gamma Distribution Test		**Data Distribution**
k star (bias corrected)	30.615124	**Data Follow Appr. Gamma Distribution at 5% Significance Level**
Theta Star	2.8191195	
nu star	1591.9864	
Approximate Chi Square Value (.05)	1500.3236	**Nonparametric Statistics**
Adjusted Level of Significance	0.0398	95% CLT UCL 91.472049
Adjusted Chi Square Value	1494.4652	95% Jackknife UCL 91.670751
		95% Standard Bootstrap UCL 91.475957
Anderson-Darling Test Statistic	0.7743785	95% Bootstrap-t UCL 94.214048
Anderson-Darling 5% Critical Value	0.7433237	95% Hall's Bootstrap UCL 100.41314
Kolmogorov-Smirnov Test Statistic	0.1631757	95% Percentile Bootstrap UCL 91.923077
Kolmogorov-Smirnov 5% Critical Value	0.1707811	95% BCA Bootstrap UCL 93.038462
Data follow Appr. Gamma Distribution at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL 99.993352
		97.5% Chebyshev(Mean, Sd) UCL 105.91515
Assuming Gamma Distribution		99% Chebyshev(Mean, Sd) UCL 117.54737
95% Approximate Gamma UCL	91.580692	
95% Adjusted Gamma UCL	91.939693	

Potential UCL to Use	Use 95% Approximate Gamma UCL 91.580692

General UCL Statistics for Data Sets with Non-Detects

User Selected Options

From File	C:\Documents and Settings\hawata\My Documents\Projects\Vieqeous\0816Data\AOCI_ProUCL_input_TCE.wst
Full Precision	ON
Confidence Coefficient	95%
Number of Bootstrap Operations	2000

Aluminum (MG/KG)

General Statistics

Number of Valid Samples	52	Number of Detected Data	52
Number of Unique Samples	25	Number of Non-Detect Data	0
Number of Missing Values	65	Percent Non-Detects	0.00%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	13000	Minimum Detected	9.4727046
Maximum Detected	32600	Maximum Detected	10.392068
Mean of Detected	19059.615	Mean of Detected	9.8331293
SD of Detected	4273.2299	SD of Detected	0.2078084
Minimum Non-Detect	N/A	Minimum Non-Detect	N/A
Maximum Non-Detect	N/A	Maximum Non-Detect	N/A

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Lilliefors Test Statistic	0.2143298	Lilliefors Test Statistic	0.1822643
5% Lilliefors Critical Value	0.1228661	5% Lilliefors Critical Value	0.1228661
Data not Normal at 5% Significance Level		**Data not Lognormal at 5% Significance Level**	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	19059.615	Mean	9.8331293
SD	4273.2299	SD	0.2078084
95% DL/2 (t) UCL	20052.373	95% H-Stat (DL/2) UCL	20025.886
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE method failed to converge properly		Mean in Log Scale	N/A
		SD in Log Scale	N/A
		Mean in Original Scale	N/A
		SD in Original Scale	N/A
		95% Percentile Bootstrap UCL	N/A
		95% BCA Bootstrap UCL	N/A

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only
k star (bias corrected)	21.394081	**Data do not follow a Discernable Distribution (0.05)**
Theta Star	890.88263	
nu star	2224.9845	

A-D Test Statistic	1.5318657
5% A-D Critical Value	0.7482609
K-S Test Statistic	0.7482609
5% K-S Critical Value	0.1228256

Data not Gamma Distributed at 5% Significance Level

Assuming Gamma Distribution

Gamma ROS Statistics using Extrapolated Data

Minimum	13000
Maximum	32600
Mean	19059.615
Median	18000
SD	4273.2299
k star	21.394081
Theta star	890.88263
Nu star	2224.9845
AppChi2	2116.4082
95% Gamma Approximate UCL	20037.415
95% Adjusted Gamma UCL	20065.845

Nonparametric Statistics

Kaplan-Meier (KM) Method

Mean	19059.615
SD	4231.9417
SE of Mean	592.59037
95% KM (t) UCL	20052.373
95% KM (z) UCL	20034.34
95% KM (jackknife) UCL	20052.373
95% KM (bootstrap t) UCL	20198.493
95% KM (BCA) UCL	20100
95% KM (Percentile Bootstrap) UCL	20026.923
95% KM (Chebyshev) UCL	21642.657
97.5% KM (Chebyshev) UCL	22760.341
99% KM (Chebyshev) UCL	24955.815

Potential UCLs to Use

95% KM (Chebyshev) UCL	21642.657

Note: DL/2 is not a recommended method.

Arsenic (MG/KG)

General Statistics

Number of Valid Samples	52	Number of Detected Data	52
Number of Unique Samples	19	Number of Non-Detect Data	0
Number of Missing Values	65	Percent Non-Detects	0.00%

Raw Statistics

Minimum Detected	0.59
Maximum Detected	2.6
Mean of Detected	1.4207692
SD of Detected	0.4185589
Minimum Non-Detect	N/A
Maximum Non-Detect	N/A

Log-transformed Statistics

Minimum Detected	-0.527633
Maximum Detected	0.9555114
Mean of Detected	0.3076696
SD of Detected	0.302301
Minimum Non-Detect	N/A
Maximum Non-Detect	N/A

UCL Statistics

Normal Distribution Test with Detected Values Only

Lilliefors Test Statistic	0.1519932
5% Lilliefors Critical Value	0.1228661

Data not Normal at 5% Significance Level

Assuming Normal Distribution

DL/2 Substitution Method

Mean	1.4207692
SD	0.4185589
95% DL/2 (t) UCL	1.5180089

Lognormal Distribution Test with Detected Values Only

Lilliefors Test Statistic	0.1065755
5% Lilliefors Critical Value	0.1228661

Data appear Lognormal at 5% Significance Level

Assuming Lognormal Distribution

DL/2 Substitution Method

Mean	0.3076696
SD	0.302301
95% H-Stat (DL/2) UCL	1.5340554

Maximum Likelihood Estimate(MLE) Method	N/A

MLE method failed to converge properly

Log ROS Method	
Mean in Log Scale	N/A
SD in Log Scale	N/A
Mean in Original Scale	N/A
SD in Original Scale	N/A
95% Percentile Bootstrap UCL	N/A
95% BCA Bootstrap UCL	N/A

Gamma Distribution Test with Detected Values Only

k star (bias corrected)	10.991498
Theta Star	0.1292607
nu star	1143.1158
A-D Test Statistic	0.5252302
5% A-D Critical Value	0.7496335
K-S Test Statistic	0.7496335
5% K-S Critical Value	0.1230611

Data appear Gamma Distributed at 5% Significance Level

Data Distribution Test with Detected Values Only

Data appear Gamma Distributed at 5% Significance Level

Assuming Gamma Distribution

Gamma ROS Statistics using Extrapolated Data	
Minimum	0.59
Maximum	2.6
Mean	1.4207692
Median	1.3
SD	0.4185589
k star	10.991498
Theta star	0.1292607
Nu star	1143.1158
AppChi2	1065.6212
95% Gamma Approximate UCL	1.5240911
95% Adjusted Gamma UCL	1.5271294

Nonparametric Statistics

Kaplan-Meier (KM) Method	
Mean	1.4207692
SD	0.4145148
SE of Mean	0.0580437
95% KM (t) UCL	1.5180089
95% KM (z) UCL	1.5162426
95% KM (jackknife) UCL	1.5180089
95% KM (bootstrap t) UCL	1.5275907
95% KM (BCA) UCL	1.5088462
95% KM (Percentile Bootstrap) UCL	1.5155769
95% KM (Chebyshev) UCL	1.6737757
97.5% KM (Chebyshev) UCL	1.7832519
99% KM (Chebyshev) UCL	1.9982965

Potential UCLs to Use

95% KM (BCA) UCL	1.5088462

Note: DL/2 is not a recommended method.

Benzo(a)pyrene (MG/KG)

General Statistics

Number of Valid Samples	66
Number of Unique Samples	4
Number of Missing Values	52
Number of Detected Data	4
Number of Non-Detect Data	62
Percent Non-Detects	93.94%

Raw Statistics

Minimum Detected	0.0336
Maximum Detected	0.145
Mean of Detected	0.076775
SD of Detected	0.0509202
Minimum Non-Detect	0.1655
Maximum Non-Detect	0.473

Log-transformed Statistics

Minimum Detected	-3.393229
Maximum Detected	-1.931022
Mean of Detected	-2.733977
SD of Detected	0.6678519
Minimum Non-Detect	-1.798784
Maximum Non-Detect	-0.74866

Note: Data have multiple DLs - Use of KM Method is recommended
For all methods (except KM, DL/2, and ROS Methods),
Observations < Largest ND are treated as NDs

Number treated as Non-Detect	66
Number treated as Detected	0
Single DL Non-Detect Percentage	100.00%

UCL Statistics

Normal Distribution Test with Detected Values Only

Lilliefors Test Statistic	0.9038456
5% Lilliefors Critical Value	0.748

Data appear Normal at 5% Significance Level

Assuming Normal Distribution

DL/2 Substitution Method	
Mean	0.1025962
SD	0.0283812
95% DL/2 (t) UCL	0.1084256
Maximum Likelihood Estimate(MLE) Method	N/A

MLE method failed to converge properly

Lognormal Distribution Test with Detected Values Only

Lilliefors Test Statistic	0.9425451
5% Lilliefors Critical Value	0.748

Data appear Lognormal at 5% Significance Level

Assuming Lognormal Distribution

DL/2 Substitution Method	
Mean	-2.310592
SD	0.2633735
95% H-Stat (DL/2) UCL	0.1167392
Log ROS Method	
Mean in Log Scale	-2.733977
SD in Log Scale	0.3057976
Mean in Original Scale	0.0680606
SD in Original Scale	0.0218042
95% Percentile Bootstrap UCL	0.0725665
95% BCA Bootstrap UCL	0.0727652

Gamma Distribution Test with Detected Values Only

k star (bias corrected)	0.9539257
Theta Star	0.0804832
nu star	7.6314054
A-D Test Statistic	0.3045206
5% A-D Critical Value	0.659331
K-S Test Statistic	0.659331
5% K-S Critical Value	0.3965004

Data appear Gamma Distributed at 5% Significance Level

Assuming Gamma Distribution

Gamma ROS Statistics using Extrapolated Data	
Minimum	0.0295118
Maximum	0.145
Mean	0.0763944
Median	0.0762291
SD	0.0239438
k star	8.9148722
Theta star	0.0085693
Nu star	1176.7631
AppChi2	1098.1192
95% Gamma Approximate UCL	0.0818655
95% Adjusted Gamma UCL	N/A

Data Distribution Test with Detected Values Only

Data appear Normal at 5% Significance Level

Nonparametric Statistics

Kaplan-Meier (KM) Method	
Mean	0.076775
SD	0.0440982
SE of Mean	0.0254601
95% KM (t) UCL	0.1192587
95% KM (z) UCL	0.1186532
95% KM (jackknife) UCL	0.1254578
95% KM (bootstrap t) UCL	0.1631814
95% KM (BCA) UCL	0.1253333
95% KM (Percentile Bootstrap) UCL	0.13025
95% KM (Chebyshev) UCL	0.1877531
97.5% KM (Chebyshev) UCL	0.2357733
99% KM (Chebyshev) UCL	0.3300999

Potential UCLs to Use

95% KM (t) UCL	0.1192587
95% KM (Percentile Bootstrap) UCL	0.13025

Note: DL/2 is not a recommended method.

Iron (MG/KG)

General Statistics

Number of Valid Samples	52	Number of Detected Data	52
Number of Unique Samples	31	Number of Non-Detect Data	0
Number of Missing Values	65	Percent Non-Detects	0.00%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	20000	Minimum Detected	9.9034876
Maximum Detected	62500	Maximum Detected	11.042922
Mean of Detected	32859.615	Mean of Detected	10.366191
SD of Detected	9516.2041	SD of Detected	0.2513833
Minimum Non-Detect	N/A	Minimum Non-Detect	N/A
Maximum Non-Detect	N/A	Maximum Non-Detect	N/A

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Lilliefors Test Statistic	0.2313124	Lilliefors Test Statistic	0.1925845
5% Lilliefors Critical Value	0.1228661	5% Lilliefors Critical Value	0.1228661
Data not Normal at 5% Significance Level		**Data not Lognormal at 5% Significance Level**	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	32859.615	Mean	10.366191
SD	9516.2041	SD	0.2513833
95% DL/2 (t) UCL	35070.422	95% H-Stat (DL/2) UCL	34855.717
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE method failed to converge properly		Mean in Log Scale	N/A
		SD in Log Scale	N/A
		Mean in Original Scale	N/A
		SD in Original Scale	N/A
		95% Percentile Bootstrap UCL	N/A
		95% BCA Bootstrap UCL	N/A

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only
k star (bias corrected)	14.10393	**Data do not follow a Discernable Distribution (0.05)**
Theta Star	2329.8198	
nu star	1466.8087	
A-D Test Statistic	2.3818482	**Nonparametric Statistics**
5% A-D Critical Value	0.7491162	Kaplan-Meier (KM) Method
K-S Test Statistic	0.7491162	Mean 32859.615
5% K-S Critical Value	0.1229713	SD 9424.258
Data not Gamma Distributed at 5% Significance Level		SE of Mean 1319.6601
		95% KM (t) UCL 35070.422

Assuming Gamma Distribution	
Gamma ROS Statistics using Extrapolated Data	
Minimum	20000
Maximum	62500
Mean	32859.615
Median	30000
SD	9516.2041
k star	14.10393
Theta star	2329.8198
Nu star	1466.8087
AppChi2	1378.8701
95% Gamma Approximate UCL	34955.264
95% Adjusted Gamma UCL	35016.601

95% KM (z) UCL	35030.263
95% KM (jackknife) UCL	35070.422
95% KM (bootstrap t) UCL	35610.14
95% KM (BCA) UCL	35086.538
95% KM (Percentile Bootstrap) UCL	35005.769
95% KM (Chebyshev) UCL	38611.88
97.5% KM (Chebyshev) UCL	41100.89
99% KM (Chebyshev) UCL	45990.067

Potential UCLs to Use

95% KM (Chebyshev) UCL	38611.88

Note: DL/2 is not a recommended method.

Manganese (MG/KG)

General Statistics

Number of Valid Samples	52	Number of Detected Data	52
Number of Unique Samples	38	Number of Non-Detect Data	0
Number of Missing Values	65	Percent Non-Detects	0.00%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	440	Minimum Detected	6.0867747
Maximum Detected	1100	Maximum Detected	7.0030655
Mean of Detected	697.15385	Mean of Detected	6.5232705
SD of Detected	156.09806	SD of Detected	0.2190015
Minimum Non-Detect	N/A	Minimum Non-Detect	N/A
Maximum Non-Detect	N/A	Maximum Non-Detect	N/A

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Lilliefors Test Statistic	0.1206754	Lilliefors Test Statistic	0.0790683
5% Lilliefors Critical Value	0.1228661	5% Lilliefors Critical Value	0.1228661
Data appear Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	697.15385	Mean	6.5232705
SD	156.09806	SD	0.2190015
95% DL/2 (t) UCL	733.41858	95% H-Stat (DL/2) UCL	735.20012
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE method failed to converge properly		Mean in Log Scale	N/A
		SD in Log Scale	N/A
		Mean in Original Scale	N/A
		SD in Original Scale	N/A
		95% Percentile Bootstrap UCL	N/A
		95% BCA Bootstrap UCL	N/A

Gamma Distribution Test with Detected Values Only

k star (bias corrected)	20.018658
Theta Star	34.825204
nu star	2081.9404
A-D Test Statistic	0.2664181
5% A-D Critical Value	0.7482962
K-S Test Statistic	0.7482962
5% K-S Critical Value	0.1228301

Data appear Gamma Distributed at 5% Significance Level

Assuming Gamma Distribution

Gamma ROS Statistics using Extrapolated Data

Minimum	440
Maximum	1100
Mean	697.15385
Median	670
SD	156.09806
k star	20.018658
Theta star	34.825204
Nu star	2081.9404
AppChi2	1976.9502
95% Gamma Approximate UCL	734.17771
95% Adjusted Gamma UCL	735.25524

Note: DL/2 is not a recommended method.

Data Distribution Test with Detected Values Only

Data appear Normal at 5% Significance Level

Nonparametric Statistics

Kaplan-Meier (KM) Method

Mean	697.15385
SD	154.58983
SE of Mean	21.646906
95% KM (t) UCL	733.41858
95% KM (z) UCL	732.75984
95% KM (jackknife) UCL	733.41858
95% KM (bootstrap t) UCL	736.49273
95% KM (BCA) UCL	728.5
95% KM (Percentile Bootstrap) UCL	733.07692
95% KM (Chebyshev) UCL	791.51052
97.5% KM (Chebyshev) UCL	832.33873
99% KM (Chebyshev) UCL	912.53784

Potential UCLs to Use

95% KM (t) UCL	733.41858
95% KM (Percentile Bootstrap) UCL	733.07692

Vanadium (MG/KG)

General Statistics

Number of Valid Samples	52	Number of Detected Data	52
Number of Unique Samples	35	Number of Non-Detect Data	0
Number of Missing Values	65	Percent Non-Detects	0.00%

Raw Statistics

Minimum Detected	53
Maximum Detected	188
Mean of Detected	97.384615
SD of Detected	28.573369
Minimum Non-Detect	N/A
Maximum Non-Detect	N/A

Log-transformed Statistics

Minimum Detected	3.9702919
Maximum Detected	5.236442
Mean of Detected	4.5418089
SD of Detected	0.2665553
Minimum Non-Detect	N/A
Maximum Non-Detect	N/A

UCL Statistics

Normal Distribution Test with Detected Values Only

Lilliefors Test Statistic	0.2135348
5% Lilliefors Critical Value	0.1228661

Data not Normal at 5% Significance Level

Lognormal Distribution Test with Detected Values Only

Lilliefors Test Statistic	0.1616014
5% Lilliefors Critical Value	0.1228661

Data not Lognormal at 5% Significance Level

Assuming Normal Distribution

DL/2 Substitution Method	
Mean	97.384615
SD	28.573369
95% DL/2 (t) UCL	104.02279
Maximum Likelihood Estimate(MLE) Method	N/A

MLE method failed to converge properly

Assuming Lognormal Distribution

DL/2 Substitution Method	
Mean	4.5418089
SD	0.2665553
95% H-Stat (DL/2) UCL	103.7993
Log ROS Method	
Mean in Log Scale	N/A
SD in Log Scale	N/A
Mean in Original Scale	N/A
SD in Original Scale	N/A
95% Percentile Bootstrap UCL	N/A
95% BCA Bootstrap UCL	N/A

Gamma Distribution Test with Detected Values Only

k star (bias corrected)	12.950393
Theta Star	7.5198191
nu star	1346.8409
A-D Test Statistic	1.7259442
5% A-D Critical Value	0.7493079
K-S Test Statistic	0.7493079
5% K-S Critical Value	0.1230046

Data not Gamma Distributed at 5% Significance Level

Assuming Gamma Distribution

Gamma ROS Statistics using Extrapolated Data	
Minimum	53
Maximum	188
Mean	97.384615
Median	88.5
SD	28.573369
k star	12.950393
Theta star	7.5198191
Nu star	1346.8409
AppChi2	1262.6239
95% Gamma Approximate UCL	103.88017
95% Adjusted Gamma UCL	104.07058

Note: DL/2 is not a recommended method.

Data Distribution Test with Detected Values Only

Data do not follow a Discernable Distribution (0.05)

Nonparametric Statistics

Kaplan-Meier (KM) Method	
Mean	97.384615
SD	28.297291
SE of Mean	3.9624133
95% KM (t) UCL	104.02279
95% KM (z) UCL	103.90221
95% KM (jackknife) UCL	104.02279
95% KM (bootstrap t) UCL	104.94789
95% KM (BCA) UCL	104.17308
95% KM (Percentile Bootstrap) UCL	104.05769
95% KM (Chebyshev) UCL	114.65637
97.5% KM (Chebyshev) UCL	122.12988
99% KM (Chebyshev) UCL	136.81013

Potential UCLs to Use

95% KM (Chebyshev) UCL	114.65637

General UCL Statistics for Data Sets with Non-Detects

User Selected Options

From File	C:\Documents and Settings\hawata\My Documents\Projects\Vieqeous\0816Data\AOCI_ProUCL_input_TCE.wst
Full Precision	ON
Confidence Coefficient	95%
Number of Bootstrap Operations	2000

Arsenic (MG/KG)

General Statistics

Number of Valid Samples	52	Number of Unique Samples	19

Raw Statistics		Log-transformed Statistics	
Minimum	0.59	Minimum of Log Data	-0.527633
Maximum	2.6	Maximum of Log Data	0.9555114
Mean	1.4207692	Mean of log Data	0.3076696
Median	1.3	SD of log Data	0.302301
SD	0.4185589		
Coefficient of Variation	0.2946002		
Skewness	0.47578		

Relevant UCL Statistics

Normal Distribution Test		Lognormal Distribution Test	
Lilliefors Test Statistic	0.1519932	Lilliefors Test Statistic	0.1065755
Lilliefors Critical Value	0.1228661	Lilliefors Critical Value	0.1228661
Data not Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	
Assuming Normal Distribution		**Assuming Lognormal Distribution**	
95% Student's-t UCL	1.5180089	95% H-UCL	1.5340554
95% UCLs (Adjusted for Skewness)		95% Chebyshev (MVUE) UCL	1.6874523
95% Adjusted-CLT UCL	1.5203346	97.5% Chebyshev (MVUE) UCL	1.8020789
95% Modified-t UCL	1.5186472	99% Chebyshev (MVUE) UCL	2.0272405

Gamma Distribution Test		Data Distribution	
k star (bias corrected)	10.991498	**Data appear Gamma Distributed at 5% Significance Level**	
Theta Star	0.1292607		
nu star	1143.1158		
Approximate Chi Square Value (.05)	1065.6212	**Nonparametric Statistics**	
Adjusted Level of Significance	0.0453846	95% CLT UCL	1.5162426
Adjusted Chi Square Value	1063.5011	95% Jackknife UCL	1.5180089
		95% Standard Bootstrap UCL	1.5144422
Anderson-Darling Test Statistic	0.5252302	95% Bootstrap-t UCL	1.5250581
Anderson-Darling 5% Critical Value	0.7496335	95% Hall's Bootstrap UCL	1.5180482
Kolmogorov-Smirnov Test Statistic	0.1178165	95% Percentile Bootstrap UCL	1.5157692
Kolmogorov-Smirnov 5% Critical Value	0.1230611	95% BCA Bootstrap UCL	1.5117308
Data appear Gamma Distributed at 5% Significance Level		95% Chebyshev(Mean, Sd) UCL	1.6737757
		97.5% Chebyshev(Mean, Sd) UCL	1.7832519

Assuming Gamma Distribution

95% Approximate Gamma UCL	1.5240911
95% Adjusted Gamma UCL	1.5271294

99% Chebyshev(Mean, Sd) UCL	1.9982965

Potential UCL to Use

Use 95% Approximate Gamma UCL 1.5240911

Iron (MG/KG)

General Statistics

Number of Valid Samples	52	Number of Unique Samples	31

Raw Statistics

Minimum	20000
Maximum	62500
Mean	32859.615
Median	30000
SD	9516.2041
Coefficient of Variation	0.2896018
Skewness	1.720938

Log-transformed Statistics

Minimum of Log Data	9.9034876
Maximum of Log Data	11.042922
Mean of log Data	10.366191
SD of log Data	0.2513833

Relevant UCL Statistics

Normal Distribution Test

Lilliefors Test Statistic	0.2313124
Lilliefors Critical Value	0.1228661

Data not Normal at 5% Significance Level

Lognormal Distribution Test

Lilliefors Test Statistic	0.1925845
Lilliefors Critical Value	0.1228661

Data not Lognormal at 5% Significance Level

Assuming Normal Distribution

95% Student's-t UCL	35070.422

95% UCLs (Adjusted for Skewness)

95% Adjusted-CLT UCL	35366.779
95% Modified-t UCL	35122.911

Assuming Lognormal Distribution

95% H-UCL	34855.717
95% Chebyshev (MVUE) UCL	37811.624
97.5% Chebyshev (MVUE) UCL	39994.652
99% Chebyshev (MVUE) UCL	44282.788

Gamma Distribution Test

k star (bias corrected)	14.10393
Theta Star	2329.8198
nu star	1466.8087
Approximate Chi Square Value (.05)	1378.8701
Adjusted Level of Significance	0.0453846
Adjusted Chi Square Value	1376.4548
Anderson-Darling Test Statistic	2.3818482
Anderson-Darling 5% Critical Value	0.7491162
Kolmogorov-Smirnov Test Statistic	0.2080823
Kolmogorov-Smirnov 5% Critical Value	0.1229713

Data not Gamma Distributed at 5% Significance Level

Data Distribution

Data do not follow a Discernable Distribution (0.05)

Nonparametric Statistics

95% CLT UCL	35030.263
95% Jackknife UCL	35070.422
95% Standard Bootstrap UCL	34979.302
95% Bootstrap-t UCL	35511.978
95% Hall's Bootstrap UCL	35401.901
95% Percentile Bootstrap UCL	35155.769
95% BCA Bootstrap UCL	35182.692
95% Chebyshev(Mean, Sd) UCL	38611.88
97.5% Chebyshev(Mean, Sd) UCL	41100.89

Assuming Gamma Distribution

95% Approximate Gamma UCL	34955.264
95% Adjusted Gamma UCL	35016.601

99% Chebyshev(Mean, Sd) UCL	45990.067

Potential UCL to Use

Use 95% Student's-t UCL	35070.422
or 95% Modified-t UCL	35122.911

Vanadium (MG/KG)

General Statistics

Number of Valid Samples	52	Number of Unique Samples	35

Raw Statistics

Minimum	53
Maximum	188
Mean	97.384615
Median	88.5
SD	28.573369
Coefficient of Variation	0.2934074
Skewness	1.3154595

Log-transformed Statistics

Minimum of Log Data	3.9702919
Maximum of Log Data	5.236442
Mean of log Data	4.5418089
SD of log Data	0.2665553

Relevant UCL Statistics

Normal Distribution Test

Lilliefors Test Statistic	0.2135348
Lilliefors Critical Value	0.1228661

Data not Normal at 5% Significance Level

Lognormal Distribution Test

Lilliefors Test Statistic	0.1616014
Lilliefors Critical Value	0.1228661

Data not Lognormal at 5% Significance Level

Assuming Normal Distribution

95% Student's-t UCL	104.02279

95% UCLs (Adjusted for Skewness)

95% Adjusted-CLT UCL	104.67456
95% Modified-t UCL	104.14326

Assuming Lognormal Distribution

95% H-UCL	103.7993
95% Chebyshev (MVUE) UCL	113.07879
97.5% Chebyshev (MVUE) UCL	119.95553
99% Chebyshev (MVUE) UCL	133.46354

Gamma Distribution Test

k star (bias corrected)	12.950393
Theta Star	7.5198191
nu star	1346.8409
Approximate Chi Square Value (.05)	1262.6239
Adjusted Level of Significance	0.0453846
Adjusted Chi Square Value	1260.3138

Anderson-Darling Test Statistic	1.7259442
Anderson-Darling 5% Critical Value	0.7493079
Kolmogorov-Smirnov Test Statistic	0.1780925
Kolmogorov-Smirnov 5% Critical Value	0.1230046

Data not Gamma Distributed at 5% Significance Level

Data Distribution

Data do not follow a Discernable Distribution (0.05)

Nonparametric Statistics

95% CLT UCL	103.90221
95% Jackknife UCL	104.02279
95% Standard Bootstrap UCL	103.7706
95% Bootstrap-t UCL	104.64828
95% Hall's Bootstrap UCL	104.49686
95% Percentile Bootstrap UCL	104.21154
95% BCA Bootstrap UCL	104.75
95% Chebyshev(Mean, Sd) UCL	114.65637
97.5% Chebyshev(Mean, Sd) UCL	122.12988

Assuming Gamma Distribution

95% Approximate Gamma UCL 103.88017

95% Adjusted Gamma UCL 104.07058

99% Chebyshev(Mean, Sd) UCL 136.81013

Potential UCL to Use

Use 95% Student's-t UCL 104.02279

or 95% Modified-t UCL 104.14326

General UCL Statistics for Data Sets with Non-Detects

User Selected Options

From File	C:\Documents and Settings\hawata\My Documents\Projects\Vieqeous\0816Data\AOCI_ProUCL_input_TCE.wst
Full Precision	ON
Confidence Coefficient	95%
Number of Bootstrap Operations	2000

2-Methylnaphthalene (UG/L)

General Statistics

Number of Valid Samples	11	Number of Detected Data	5
Number of Unique Samples	5	Number of Non-Detect Data	6
Number of Missing Values	10	Percent Non-Detects	54.55%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	3.8	Minimum Detected	1.3350011
Maximum Detected	110	Maximum Detected	4.7004804
Mean of Detected	49.36	Mean of Detected	3.2835984
SD of Detected	46.035345	SD of Detected	1.442888
Minimum Non-Detect	2.5	Minimum Non-Detect	0.9162907
Maximum Non-Detect	2.7	Maximum Non-Detect	0.9932518

Note: Data have multiple DLs - Use of KM Method is recommended	Number treated as Non-Detect	6
For all methods (except KM, DL/2, and ROS Methods),	Number treated as Detected	5
Observations < Largest ND are treated as NDs	Single DL Non-Detect Percentage	54.55%

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.915584	Shapiro Wilk Test Statistic	0.9128063
5% Shapiro Wilk Critical Value	0.762	5% Shapiro Wilk Critical Value	0.762
Data appear Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	23.131818	Mean	1.6248214
SD	38.448578	SD	1.8318127
95% DL/2 (t) UCL	44.143104	95% H-Stat (DL/2) UCL	187.57547
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE yields a negative mean		Mean in Log Scale	0.8727287
		SD in Log Scale	2.599651
		Mean in Original Scale	22.702662
		SD in Original Scale	38.719611
		95% Percentile Bootstrap UCL	42.52469
		95% BCA Bootstrap UCL	50.992088

Gamma Distribution Test with Detected Values Only

k star (bias corrected)	0.5110052
Theta Star	96.593921
nu star	5.1100524
A-D Test Statistic	0.2982218
5% A-D Critical Value	0.6928829
K-S Test Statistic	0.6928829
5% K-S Critical Value	0.3649146

Data appear Gamma Distributed at 5% Significance Level

Assuming Gamma Distribution

Gamma ROS Statistics using Extrapolated Data	
Minimum	3.8
Maximum	110
Mean	48.937285
Median	44.71014
SD	33.958363
k star	1.236072
Theta star	39.590968
Nu star	27.193583
AppChi2	16.301557
95% Gamma Approximate UCL	81.635157
95% Adjusted Gamma UCL	89.067014

Note: DL/2 is not a recommended method.

Data Distribution Test with Detected Values Only

Data appear Normal at 5% Significance Level

Nonparametric Statistics

Kaplan-Meier (KM) Method	
Mean	24.509091
SD	35.850763
SE of Mean	12.08529
95% KM (t) UCL	46.413208
95% KM (z) UCL	44.387623
95% KM (jackknife) UCL	43.677164
95% KM (bootstrap t) UCL	57.714931
95% KM (BCA) UCL	82.1
95% KM (Percentile Bootstrap) UCL	57.572727
95% KM (Chebyshev) UCL	77.187647
97.5% KM (Chebyshev) UCL	99.981701
99% KM (Chebyshev) UCL	144.7562

Potential UCLs to Use

95% KM (t) UCL	46.413208
95% KM (Percentile Bootstrap) UCL	57.572727

Antimony (UG/L)

General Statistics

Number of Valid Samples	7	Number of Detected Data	4
Number of Unique Samples	4	Number of Non-Detect Data	3
Number of Missing Values	6	Percent Non-Detects	42.86%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	2.55	Minimum Detected	0.9360934
Maximum Detected	3.46	Maximum Detected	1.2412686
Mean of Detected	3.0975	Mean of Detected	1.1233663
SD of Detected	0.4196328	SD of Detected	0.1405471
Minimum Non-Detect	1.15	Minimum Non-Detect	0.1397619
Maximum Non-Detect	1.15	Maximum Non-Detect	0.1397619

UCL Statistics

Normal Distribution Test with Detected Values Only

Shapiro Wilk Test Statistic	0.9075994
5% Shapiro Wilk Critical Value	0.748

Data appear Normal at 5% Significance Level

Assuming Normal Distribution

DL/2 Substitution Method	
Mean	2.0164286
SD	1.3805968
95% DL/2 (t) UCL	3.0304118
Maximum Likelihood Estimate(MLE) Method	
Mean	1.7929536
SD	1.6348312
95% MLE (t) UCL	2.99366
95% MLE (Tiku) UCL	3.1942351

Lognormal Distribution Test with Detected Values Only

Shapiro Wilk Test Statistic	0.8986737
5% Shapiro Wilk Critical Value	0.748

Data appear Lognormal at 5% Significance Level

Assuming Lognormal Distribution

DL/2 Substitution Method	
Mean	0.4047585
SD	0.9017545
95% H-Stat (DL/2) UCL	2.3505099
Log ROS Method	
Mean in Log Scale	0.9527953
SD in Log Scale	0.2428616
Mean in Original Scale	2.6585994
SD in Original Scale	0.6355433
95% Percentile Bootstrap UCL	3.0122685
95% BCA Bootstrap UCL	3.0279348

Gamma Distribution Test with Detected Values Only

k star (bias corrected)	17.499649
Theta Star	0.1770036
nu star	139.99719
A-D Test Statistic	0.3586669
5% A-D Critical Value	0.6561643
K-S Test Statistic	0.6561643
5% K-S Critical Value	0.3938857

Data appear Gamma Distributed at 5% Significance Level

Assuming Gamma Distribution

Gamma ROS Statistics using Extrapolated Data	
Minimum	2.55
Maximum	3.46
Mean	3.0296483
Median	2.99
SD	0.3538134
k star	47.956004
Theta star	0.0631756
Nu star	671.38406
AppChi2	612.26863
95% Gamma Approximate UCL	3.3221653
95% Adjusted Gamma UCL	N/A

Note: DL/2 is not a recommended method.

Data Distribution Test with Detected Values Only

Data appear Normal at 5% Significance Level

Nonparametric Statistics

Kaplan-Meier (KM) Method	
Mean	2.8628571
SD	0.3858465
SE of Mean	0.1683972
95% KM (t) UCL	3.1900832
95% KM (z) UCL	3.1398459
95% KM (jackknife) UCL	3.2240284
95% KM (bootstrap t) UCL	3.0830943
95% KM (BCA) UCL	3.42
95% KM (Percentile Bootstrap) UCL	3.41
95% KM (Chebyshev) UCL	3.5968837
97.5% KM (Chebyshev) UCL	3.9144975
99% KM (Chebyshev) UCL	4.5383885

Potential UCLs to Use

95% KM (t) UCL	3.1900832
95% KM (Percentile Bootstrap) UCL	3.41

Arsenic (UG/L)

General Statistics

Number of Valid Samples	11	Number of Detected Data	9
Number of Unique Samples	8	Number of Non-Detect Data	2
Number of Missing Values	10	Percent Non-Detects	18.18%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	4.3	Minimum Detected	1.458615
Maximum Detected	18.7	Maximum Detected	2.9285235
Mean of Detected	12.977778	Mean of Detected	2.450634
SD of Detected	5.2112325	SD of Detected	0.5634665
Minimum Non-Detect	5	Minimum Non-Detect	1.6094379
Maximum Non-Detect	5	Maximum Non-Detect	1.6094379

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.8294788	Shapiro Wilk Test Statistic	0.7287896
5% Shapiro Wilk Critical Value	0.829	5% Shapiro Wilk Critical Value	0.829
Data appear Normal at 5% Significance Level		**Data not Lognormal at 5% Significance Level**	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	11.072727	Mean	2.1716625
SD	6.3000144	SD	0.7995185
95% DL/2 (t) UCL	14.515544	95% H-Stat (DL/2) UCL	15.281409
Maximum Likelihood Estimate(MLE) Method		Log ROS Method	
Mean	9.8964339	Mean in Log Scale	2.3197657
SD	7.8547559	SD in Log Scale	0.5857894
95% MLE (t) UCL	14.188882	Mean in Original Scale	11.655889
95% MLE (Tiku) UCL	14.747064	SD in Original Scale	5.5240987
		95% Percentile Bootstrap UCL	14.1
		95% BCA Bootstrap UCL	14.136364

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only
k star (bias corrected)	3.1410363	**Data appear Normal at 5% Significance Level**
Theta Star	4.1316867	
nu star	56.538653	
A-D Test Statistic	1.0923176	**Nonparametric Statistics**
5% A-D Critical Value	0.723639	Kaplan-Meier (KM) Method
K-S Test Statistic	0.723639	Mean 11.418182
5% K-S Critical Value	0.2800757	SD 5.5405642
Data not Gamma Distributed at 5% Significance Level		SE of Mean 1.7719833
		95% KM (t) UCL 14.629833

Assuming Gamma Distribution

Gamma ROS Statistics using Extrapolated Data

Minimum	4.3
Maximum	18.7
Mean	12.24425
Median	13.5
SD	4.9861307
k star	3.6615165
Theta star	3.344038
Nu star	80.553363
AppChi2	60.872824
95% Gamma Approximate UCL	16.202888
95% Adjusted Gamma UCL	16.978873

95% KM (z) UCL	14.332835
95% KM (jackknife) UCL	14.594417
95% KM (bootstrap t) UCL	14.051354
95% KM (BCA) UCL	15.009091
95% KM (Percentile Bootstrap) UCL	14.754545
95% KM (Chebyshev) UCL	19.142078
97.5% KM (Chebyshev) UCL	22.484214
99% KM (Chebyshev) UCL	29.049193

Potential UCLs to Use

95% KM (t) UCL	14.629833
95% KM (Percentile Bootstrap) UCL	14.754545

Note: DL/2 is not a recommended method.

Benzene (UG/L)

General Statistics

Number of Valid Samples	11	Number of Detected Data	6
Number of Unique Samples	6	Number of Non-Detect Data	5
Number of Missing Values	10	Percent Non-Detects	45.45%

Raw Statistics

Minimum Detected	0.62
Maximum Detected	59.3
Mean of Detected	21.146667
SD of Detected	23.558739
Minimum Non-Detect	0.25
Maximum Non-Detect	0.25

Log-transformed Statistics

Minimum Detected	-0.478036
Maximum Detected	4.0826093
Mean of Detected	1.9274695
SD of Detected	2.0289537
Minimum Non-Detect	-1.386294
Maximum Non-Detect	-1.386294

UCL Statistics

Normal Distribution Test with Detected Values Only

Shapiro Wilk Test Statistic	0.8671688
5% Shapiro Wilk Critical Value	0.788

Data appear Normal at 5% Significance Level

Lognormal Distribution Test with Detected Values Only

Shapiro Wilk Test Statistic	0.8548015
5% Shapiro Wilk Critical Value	0.788

Data appear Lognormal at 5% Significance Level

Assuming Normal Distribution

DL/2 Substitution Method

Mean	11.591364
SD	19.950642
95% DL/2 (t) UCL	22.493942

Assuming Lognormal Distribution

DL/2 Substitution Method

Mean	0.1061463
SD	2.5371351
95% H-Stat (DL/2) UCL	1037.0232

Maximum Likelihood Estimate(MLE) Method	
Mean	0.9873488
SD	29.728343
95% MLE (t) UCL	17.233222
95% MLE (Tiku) UCL	20.131699

Log ROS Method	
Mean in Log Scale	-0.640404
SD in Log Scale	3.4503971
Mean in Original Scale	11.559991
SD in Original Scale	19.970543
95% Percentile Bootstrap UCL	21.757132
95% BCA Bootstrap UCL	24.992422

Gamma Distribution Test with Detected Values Only

k star (bias corrected)	0.3891073
Theta Star	54.346625
nu star	4.6692872
A-D Test Statistic	0.4242822
5% A-D Critical Value	0.7325218
K-S Test Statistic	0.7325218
5% K-S Critical Value	0.3474543

Data appear Gamma Distributed at 5% Significance Level

Assuming Gamma Distribution

Gamma ROS Statistics using Extrapolated Data	
Minimum	0.62
Maximum	59.3
Mean	17.303803
Median	9.6742568
SD	18.383821
k star	0.6221488
Theta star	27.812964
Nu star	13.687274
AppChi2	6.3578032
95% Gamma Approximate UCL	37.252159
95% Adjusted Gamma UCL	42.568796

Note: DL/2 is not a recommended method.

Data Distribution Test with Detected Values Only

Data appear Normal at 5% Significance Level

Nonparametric Statistics

Kaplan-Meier (KM) Method	
Mean	11.816364
SD	18.887685
SE of Mean	6.238397
95% KM (t) UCL	23.123215
95% KM (z) UCL	22.077614
95% KM (jackknife) UCL	22.629894
95% KM (bootstrap t) UCL	30.414979
95% KM (BCA) UCL	27.630909
95% KM (Percentile Bootstrap) UCL	24.774545
95% KM (Chebyshev) UCL	39.008906
97.5% KM (Chebyshev) UCL	50.77514
99% KM (Chebyshev) UCL	73.88763

Potential UCLs to Use

95% KM (t) UCL	23.123215
95% KM (Percentile Bootstrap) UCL	24.774545

Cadmium (UG/L)

General Statistics

Number of Valid Samples	11	Number of Detected Data	7
Number of Unique Samples	7	Number of Non-Detect Data	4
Number of Missing Values	11	Percent Non-Detects	36.36%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	3.19	Minimum Detected	1.1600209
Maximum Detected	7.7	Maximum Detected	2.0412203
Mean of Detected	5.33	Mean of Detected	1.6353176
SD of Detected	1.5361207	SD of Detected	0.3038091
Minimum Non-Detect	2.5	Minimum Non-Detect	0.9162907
Maximum Non-Detect	2.5	Maximum Non-Detect	0.9162907

UCL Statistics

Normal Distribution Test with Detected Values Only

Shapiro Wilk Test Statistic	0.9779817
5% Shapiro Wilk Critical Value	0.803

Data appear Normal at 5% Significance Level

Assuming Normal Distribution

DL/2 Substitution Method	
Mean	3.8463636
SD	2.3776176
95% DL/2 (t) UCL	5.1456783
Maximum Likelihood Estimate(MLE) Method	
Mean	3.6888976
SD	2.5820324
95% MLE (t) UCL	5.0999204
95% MLE (Tiku) UCL	5.2583767

Lognormal Distribution Test with Detected Values Only

Shapiro Wilk Test Statistic	0.9638319
5% Shapiro Wilk Critical Value	0.803

Data appear Lognormal at 5% Significance Level

Assuming Lognormal Distribution

DL/2 Substitution Method	
Mean	1.1217997
SD	0.7503356
95% H-Stat (DL/2) UCL	3.5811224
Log ROS Method	
Mean in Log Scale	1.3434734
SD in Log Scale	0.482096
Mean in Original Scale	4.2415227
SD in Original Scale	1.9399533
95% Percentile Bootstrap UCL	5.1457068
95% BCA Bootstrap UCL	5.1780299

Gamma Distribution Test with Detected Values Only

k star (bias corrected)	7.7013869
Theta Star	0.6920831
nu star	107.81942
A-D Test Statistic	0.2136767
5% A-D Critical Value	0.7078841
K-S Test Statistic	0.7078841
5% K-S Critical Value	0.3117744

Data appear Gamma Distributed at 5% Significance Level

Assuming Gamma Distribution

Gamma ROS Statistics using Extrapolated Data	
Minimum	2.9957125
Maximum	7.7
Mean	4.9582365
Median	4.8
SD	1.4128373
k star	9.8162686
Theta star	0.505104
Nu star	215.95791
AppChi2	182.9478
95% Gamma Approximate UCL	5.8528738
95% Adjusted Gamma UCL	6.0157574

Note: DL/2 is not a recommended method.

Data Distribution Test with Detected Values Only

Data appear Normal at 5% Significance Level

Nonparametric Statistics

Kaplan-Meier (KM) Method	
Mean	4.5518182
SD	1.5319377
SE of Mean	0.4989053
95% KM (t) UCL	5.4560647
95% KM (z) UCL	5.3724444
95% KM (jackknife) UCL	5.3938996
95% KM (bootstrap t) UCL	5.4979173
95% KM (BCA) UCL	6.0727273
95% KM (Percentile Bootstrap) UCL	5.81
95% KM (Chebyshev) UCL	6.7264961
97.5% KM (Chebyshev) UCL	7.667481
99% KM (Chebyshev) UCL	9.5158636

Potential UCLs to Use

95% KM (t) UCL	5.4560647
95% KM (Percentile Bootstrap) UCL	5.81

Dibenzofuran (UG/L)

General Statistics

Number of Valid Samples	11	Number of Detected Data	4
Number of Unique Samples	4	Number of Non-Detect Data	7
Number of Missing Values	10	Percent Non-Detects	63.64%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	1.2	Minimum Detected	0.1823216
Maximum Detected	5.5	Maximum Detected	1.7047481
Mean of Detected	3.65	Mean of Detected	1.1582644
SD of Detected	1.7935068	SD of Detected	0.6698789
Minimum Non-Detect	2.5	Minimum Non-Detect	0.9162907
Maximum Non-Detect	2.7	Maximum Non-Detect	0.9932518

Note: Data have multiple DLs - Use of KM Method is recommended	Number treated as Non-Detect	8
For all methods (except KM, DL/2, and ROS Methods),	Number treated as Detected	3
Observations < Largest ND are treated as NDs	Single DL Non-Detect Percentage	72.73%

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.935922	Shapiro Wilk Test Statistic	0.8329915
5% Shapiro Wilk Critical Value	0.748	5% Shapiro Wilk Critical Value	0.748
Data appear Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	2.1363636	Mean	0.5737495
SD	1.5511433	SD	0.5915496
95% DL/2 (t) UCL	2.9840287	95% H-Stat (DL/2) UCL	3.428171
Maximum Likelihood Estimate(MLE) Method		Log ROS Method	
Mean	1.3110773	Mean in Log Scale	0.5444623
SD	2.4746235	SD in Log Scale	0.678664
95% MLE (t) UCL	2.6634036	Mean in Original Scale	2.1479814
95% MLE (Tiku) UCL	3.805212	SD in Original Scale	1.5864194
		95% Percentile Bootstrap UCL	2.8846347
		95% BCA Bootstrap UCL	3.0480897

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	1.1223396	**Data appear Normal at 5% Significance Level**	
Theta Star	3.252135		
nu star	8.9787169		
A-D Test Statistic	0.4546645	**Nonparametric Statistics**	
5% A-D Critical Value	0.658974	Kaplan-Meier (KM) Method	
K-S Test Statistic	0.658974	Mean	2.0909091
5% K-S Critical Value	0.3962309	SD	1.5054172
Data appear Gamma Distributed at 5% Significance Level		SE of Mean	0.524119
		95% KM (t) UCL	3.0408544

Assuming Gamma Distribution

Gamma ROS Statistics using Extrapolated Data

Minimum	1.2
Maximum	5.5
Mean	3.5248112
Median	3.4486893
SD	1.021869
k star	7.0876065
Theta star	0.4973204
Nu star	155.92734
AppChi2	128.06085
95% Gamma Approximate UCL	4.2918226
95% Adjusted Gamma UCL	N/A

95% KM (z) UCL	2.9530081
95% KM (jackknife) UCL	3.7083246
95% KM (bootstrap t) UCL	2.6628913
95% KM (BCA) UCL	5.5
95% KM (Percentile Bootstrap) UCL	4.3545455
95% KM (Chebyshev) UCL	4.3754908
97.5% KM (Chebyshev) UCL	5.3640312
99% KM (Chebyshev) UCL	7.3058273

Potential UCLs to Use

95% KM (t) UCL	3.0408544
95% KM (Percentile Bootstrap) UCL	4.3545455

Note: DL/2 is not a recommended method.

Iron (UG/L)

General Statistics

Number of Valid Samples	11	Number of Detected Data	10
Number of Unique Samples	10	Number of Non-Detect Data	1
Number of Missing Values	10	Percent Non-Detects	9.09%

Raw Statistics		**Log-transformed Statistics**	
Minimum Detected	72.7	Minimum Detected	4.2863414
Maximum Detected	1840	Maximum Detected	7.5175209
Mean of Detected	466.82	Mean of Detected	5.5695938
SD of Detected	565.21003	SD of Detected	1.1125671
Minimum Non-Detect	50	Minimum Non-Detect	3.912023
Maximum Non-Detect	50	Maximum Non-Detect	3.912023

UCL Statistics

Normal Distribution Test with Detected Values Only		**Lognormal Distribution Test with Detected Values Only**	
Shapiro Wilk Test Statistic	0.739895	Shapiro Wilk Test Statistic	0.9308981
5% Shapiro Wilk Critical Value	0.842	5% Shapiro Wilk Critical Value	0.842
Data not Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	

Assuming Normal Distribution

DL/2 Substitution Method

Mean	426.65455
SD	552.50524
95% DL/2 (t) UCL	728.58627

Maximum Likelihood Estimate(MLE) Method

Mean	397.71585
SD	562.42345
95% MLE (t) UCL	705.06765
95% MLE (Tiku) UCL	688.15241

Assuming Lognormal Distribution

DL/2 Substitution Method

Mean	5.3558922
SD	1.2713683
95% H-Stat (DL/2) UCL	1451.8951

Log ROS Method

Mean in Log Scale	5.3203478
SD in Log Scale	1.3406656
Mean in Original Scale	425.91906
SD in Original Scale	553.09845
95% Percentile Bootstrap UCL	695.52815

95% BCA Bootstrap UCL 792.0827

Gamma Distribution Test with Detected Values Only

k star (bias corrected)	0.7676077
Theta Star	608.1492
nu star	15.352154
A-D Test Statistic	0.4932655
5% A-D Critical Value	0.7482457
K-S Test Statistic	0.7482457
5% K-S Critical Value	0.2737429

Data appear Gamma Distributed at 5% Significance Level

Assuming Gamma Distribution

Gamma ROS Statistics using Extrapolated Data

Minimum	0
Maximum	1840
Mean	424.38182
Median	210
SD	554.37094
k star	0.2407794
Theta star	1762.5338
Nu star	5.2971467
AppChi2	1.2918938
95% Gamma Approximate UCL	1740.0909
95% Adjusted Gamma UCL	2247.146

Note: DL/2 is not a recommended method.

Data Distribution Test with Detected Values Only

Data appear Gamma Distributed at 5% Significance Level

Nonparametric Statistics

Kaplan-Meier (KM) Method

Mean	430.99091
SD	523.65594
SE of Mean	166.42878
95% KM (t) UCL	732.6366
95% KM (z) UCL	704.7419
95% KM (jackknife) UCL	730.91522
95% KM (bootstrap t) UCL	1111.5929
95% KM (BCA) UCL	711.45455
95% KM (Percentile Bootstrap) UCL	723.04545
95% KM (Chebyshev) UCL	1156.4372
97.5% KM (Chebyshev) UCL	1470.3383
99% KM (Chebyshev) UCL	2086.9364

Potential UCLs to Use

95% KM (Chebyshev) UCL	1156.4372

Manganese (UG/L)

General Statistics

Number of Valid Samples	11	Number of Detected Data	10
Number of Unique Samples	10	Number of Non-Detect Data	1
Number of Missing Values	10	Percent Non-Detects	9.09%

Raw Statistics

Minimum Detected	13.3
Maximum Detected	1930
Mean of Detected	1021.22
SD of Detected	752.77142
Minimum Non-Detect	7.5
Maximum Non-Detect	7.5

Log-transformed Statistics

Minimum Detected	2.587764
Maximum Detected	7.5652753
Mean of Detected	6.1022013
SD of Detected	1.8819922
Minimum Non-Detect	2.014903
Maximum Non-Detect	2.014903

UCL Statistics

Normal Distribution Test with Detected Values Only

Shapiro Wilk Test Statistic	0.8775752
5% Shapiro Wilk Critical Value	0.842

Data appear Normal at 5% Significance Level

Assuming Normal Distribution

DL/2 Substitution Method	
Mean	928.72273
SD	777.24612
95% DL/2 (t) UCL	1353.4703
Maximum Likelihood Estimate(MLE) Method	
Mean	892.33441
SD	800.40754
95% MLE (t) UCL	1329.7392
95% MLE (Tiku) UCL	1325.8601

Lognormal Distribution Test with Detected Values Only

Shapiro Wilk Test Statistic	0.7523647
5% Shapiro Wilk Critical Value	0.842

Data not Lognormal at 5% Significance Level

Assuming Lognormal Distribution

DL/2 Substitution Method	
Mean	5.6676153
SD	2.2946066
95% H-Stat (DL/2) UCL	106599.41
Log ROS Method	
Mean in Log Scale	5.7369909
SD in Log Scale	2.1575148
Mean in Original Scale	929.11306
SD in Original Scale	776.73606
95% Percentile Bootstrap UCL	1282.6131
95% BCA Bootstrap UCL	1283.2182

Gamma Distribution Test with Detected Values Only

k star (bias corrected)	0.5757762
Theta Star	1773.6404
nu star	11.515525
A-D Test Statistic	1.1082659
5% A-D Critical Value	0.7587879
K-S Test Statistic	0.7587879
5% K-S Critical Value	0.2764222

Data not Gamma Distributed at 5% Significance Level

Assuming Gamma Distribution

Gamma ROS Statistics using Extrapolated Data	
Minimum	13.3
Maximum	1930
Mean	942.89144
Median	1110
SD	759.92587
k star	0.5819157
Theta star	1620.3231
Nu star	12.802145
AppChi2	5.7599065
95% Gamma Approximate UCL	2095.6995
95% Adjusted Gamma UCL	2409.0147

Note: DL/2 is not a recommended method.

Data Distribution Test with Detected Values Only

Data appear Normal at 5% Significance Level

Nonparametric Statistics

Kaplan-Meier (KM) Method	
Mean	929.59091
SD	739.99578
SE of Mean	235.1861
95% KM (t) UCL	1355.8566
95% KM (z) UCL	1316.4376
95% KM (jackknife) UCL	1353.017
95% KM (bootstrap t) UCL	1330.5705
95% KM (BCA) UCL	1328.5455
95% KM (Percentile Bootstrap) UCL	1314
95% KM (Chebyshev) UCL	1954.7433
97.5% KM (Chebyshev) UCL	2398.3276
99% KM (Chebyshev) UCL	3269.663

Potential UCLs to Use

95% KM (t) UCL	1355.8566
95% KM (Percentile Bootstrap) UCL	1314

Naphthalene (UG/L)

General Statistics

Number of Valid Samples	11	Number of Detected Data	4
Number of Unique Samples	4	Number of Non-Detect Data	7
Number of Missing Values	10	Percent Non-Detects	63.64%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	5.5	Minimum Detected	1.7047481
Maximum Detected	96	Maximum Detected	4.5643482
Mean of Detected	57.275	Mean of Detected	3.6253628
SD of Detected	40.352396	SD of Detected	1.3181622
Minimum Non-Detect	2.5	Minimum Non-Detect	0.9162907
Maximum Non-Detect	2.7	Maximum Non-Detect	0.9932518

Note: Data have multiple DLs - Use of KM Method is recommended	Number treated as Non-Detect	7
For all methods (except KM, DL/2, and ROS Methods),	Number treated as Detected	4
Observations < Largest ND are treated as NDs	Single DL Non-Detect Percentage	63.64%

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.949218	Shapiro Wilk Test Statistic	0.8141762
5% Shapiro Wilk Critical Value	0.748	5% Shapiro Wilk Critical Value	0.748
Data appear Normal at 5% Significance Level		**Data appear Lognormal at 5% Significance Level**	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	21.636364	Mean	1.4708762
SD	35.87272	SD	1.8545969
95% DL/2 (t) UCL	41.240001	95% H-Stat (DL/2) UCL	198.72046
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE yields a negative mean		Mean in Log Scale	0.976787
		SD in Log Scale	2.4066885
		Mean in Original Scale	21.446845
		SD in Original Scale	35.999913
		95% Percentile Bootstrap UCL	38.983271
		95% BCA Bootstrap UCL	41.3229

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only
k star (bias corrected)	0.497998	**Data appear Normal at 5% Significance Level**
Theta Star	115.01049	
nu star	3.9839844	

A-D Test Statistic	0.4372473
5% A-D Critical Value	0.6638512
K-S Test Statistic	0.6638512
5% K-S Critical Value	0.4005241

Data appear Gamma Distributed at 5% Significance Level

Assuming Gamma Distribution

Gamma ROS Statistics using Extrapolated Data	
Minimum	5.5
Maximum	158.00031
Mean	67.98614
Median	65.823615
SD	42.617228
k star	1.4986398
Theta star	45.36523
Nu star	32.970076
AppChi2	20.842824
95% Gamma Approximate UCL	107.5434
95% Adjusted Gamma UCL	N/A

Nonparametric Statistics

Kaplan-Meier (KM) Method	
Mean	24.327273
SD	32.625174
SE of Mean	11.358628
95% KM (t) UCL	44.914343
95% KM (z) UCL	43.010553
95% KM (jackknife) UCL	52.033715
95% KM (bootstrap t) UCL	36.021677
95% KM (BCA) UCL	96
95% KM (Percentile Bootstrap) UCL	84.054545
95% KM (Chebyshev) UCL	73.838383
97.5% KM (Chebyshev) UCL	95.26188
99% KM (Chebyshev) UCL	137.34419

Potential UCLs to Use

95% KM (t) UCL	44.914343
95% KM (Percentile Bootstrap) UCL	84.054545

Note: DL/2 is not a recommended method.

Vanadium (UG/L)

General Statistics

Number of Valid Samples	11	Number of Detected Data	7
Number of Unique Samples	7	Number of Non-Detect Data	4
Number of Missing Values	11	Percent Non-Detects	36.36%

Raw Statistics

Minimum Detected	3.48
Maximum Detected	46.9
Mean of Detected	20.982857
SD of Detected	16.35017
Minimum Non-Detect	25
Maximum Non-Detect	25

Log-transformed Statistics

Minimum Detected	1.2470323
Maximum Detected	3.8480177
Mean of Detected	2.7207656
SD of Detected	0.9308461
Minimum Non-Detect	3.2188758
Maximum Non-Detect	3.2188758

UCL Statistics

Normal Distribution Test with Detected Values Only

Shapiro Wilk Test Statistic	0.9136607
5% Shapiro Wilk Critical Value	0.803

Data appear Normal at 5% Significance Level

Lognormal Distribution Test with Detected Values Only

Shapiro Wilk Test Statistic	0.9612365
5% Shapiro Wilk Critical Value	0.803

Data appear Lognormal at 5% Significance Level

Assuming Normal Distribution

DL/2 Substitution Method	
Mean	17.898182
SD	13.368382
95% DL/2 (t) UCL	25.203703
Maximum Likelihood Estimate(MLE) Method	
Mean	14.13656
SD	18.435722
95% MLE (t) UCL	24.211268
95% MLE (Tiku) UCL	32.894011

Assuming Lognormal Distribution

DL/2 Substitution Method	
Mean	2.6498431
SD	0.7277138
95% H-Stat (DL/2) UCL	26.932781
Log ROS Method	
Mean in Log Scale	2.4818593
SD in Log Scale	0.8474819
Mean in Original Scale	16.533949
SD in Original Scale	14.296635
95% Percentile Bootstrap UCL	23.86221
95% BCA Bootstrap UCL	25.239664

Gamma Distribution Test with Detected Values Only

k star (bias corrected)	1.0642763
Theta Star	19.715611
nu star	14.899868
A-D Test Statistic	0.215129
5% A-D Critical Value	0.718757
K-S Test Statistic	0.718757
5% K-S Critical Value	0.3162659

Data appear Gamma Distributed at 5% Significance Level

Assuming Gamma Distribution

Gamma ROS Statistics using Extrapolated Data	
Minimum	3.48
Maximum	46.9
Mean	21.127124
Median	20.463629
SD	12.734257
k star	1.9272508
Theta star	10.962312
Nu star	42.399519
AppChi2	28.471733
95% Gamma Approximate UCL	31.462079
95% Adjusted Gamma UCL	33.64749

Note: DL/2 is not a recommended method.

Data Distribution Test with Detected Values Only

Data appear Normal at 5% Significance Level

Nonparametric Statistics

Kaplan-Meier (KM) Method	
Mean	16.623636
SD	13.592888
SE of Mean	4.5612261
95% KM (t) UCL	24.890681
95% KM (z) UCL	24.126186
95% KM (jackknife) UCL	24.817635
95% KM (bootstrap t) UCL	28.042982
95% KM (BCA) UCL	24.390909
95% KM (Percentile Bootstrap) UCL	23.718182
95% KM (Chebyshev) UCL	36.50556
97.5% KM (Chebyshev) UCL	45.108484
99% KM (Chebyshev) UCL	62.007263

Potential UCLs to Use

95% KM (t) UCL	24.890681
95% KM (Percentile Bootstrap) UCL	23.718182

Trichloroethene (UG/L)

General Statistics

Number of Valid Samples	11	Number of Detected Data	2
Number of Unique Samples	2	Number of Non-Detect Data	9
Number of Missing Values	10	Percent Non-Detects	81.82%

Raw Statistics		Log-transformed Statistics	
Minimum Detected	0.17	Minimum Detected	-1.771957
Maximum Detected	1.4	Maximum Detected	0.3364722
Mean of Detected	0.785	Mean of Detected	-0.717742
SD of Detected	0.8697413	SD of Detected	1.4908845
Minimum Non-Detect	0.25	Minimum Non-Detect	-1.386294
Maximum Non-Detect	0.25	Maximum Non-Detect	-1.386294

UCL Statistics

Normal Distribution Test with Detected Values Only		Lognormal Distribution Test with Detected Values Only	
Shapiro Wilk Test Statistic	0.9999808	Shapiro Wilk Test Statistic	0.9999808
5% Shapiro Wilk Critical Value	N/A	5% Shapiro Wilk Critical Value	N/A
Data not Normal at 5% Significance Level		**Data not Lognormal at 5% Significance Level**	

Assuming Normal Distribution		Assuming Lognormal Distribution	
DL/2 Substitution Method		DL/2 Substitution Method	
Mean	0.245	Mean	-1.83186
SD	0.383308	SD	0.7250464
95% DL/2 (t) UCL	0.4544692	95% H-Stat (DL/2) UCL	0.3973257
Maximum Likelihood Estimate(MLE) Method	N/A	Log ROS Method	
MLE method failed to converge properly		Mean in Log Scale	N/A
		SD in Log Scale	N/A
		Mean in Original Scale	N/A
		SD in Original Scale	N/A
		95% Percentile Bootstrap UCL	N/A
		95% BCA Bootstrap UCL	N/A

Gamma Distribution Test with Detected Values Only		Data Distribution Test with Detected Values Only	
k star (bias corrected)	N/A	**Data do not follow a Discernable Distribution (0.05)**	
Theta Star	N/A		
nu star	N/A		
A-D Test Statistic	0.357274	**Nonparametric Statistics**	
5% A-D Critical Value	N/A	Kaplan-Meier (KM) Method	
K-S Test Statistic	N/A	Mean	0.2818182
5% K-S Critical Value	N/A	SD	0.3536001
Data not Gamma Distributed at 5% Significance Level		SE of Mean	0.1507756
		95% KM (t) UCL	0.5550931

Assuming Gamma Distribution

Gamma ROS Statistics using Extrapolated Data

Minimum	N/A
Maximum	N/A
Mean	N/A
Median	N/A
SD	N/A
k star	N/A
Theta star	N/A
Nu star	N/A
AppChi2	N/A
95% Gamma Approximate UCL	N/A
95% Adjusted Gamma UCL	N/A

95% KM (z) UCL	0.529822
95% KM (jackknife) UCL	1.1307075
95% KM (bootstrap t) UCL	1.8E+308
95% KM (BCA) UCL	1.4
95% KM (Percentile Bootstrap) UCL	1.4
95% KM (Chebyshev) UCL	0.9390338
97.5% KM (Chebyshev) UCL	1.2234115
99% KM (Chebyshev) UCL	1.7820165

Potential UCLs to Use

95% KM (BCA) UCL	1.4

Note: DL/2 is not a recommended method.

Appendix N
Ecological Risk Assessment

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APPENDIX N

Ecological Risk Assessment

This appendix presents a screening ecological risk assessment (SERA), constituting Steps 1 and 2 of the ecological risk assessment (ERA) process, and the first step (Step 3) of a baseline ecological risk assessment (BERA) for AOC I. AOC I is located within the former NASD, Vieques. The following subsection defines the objectives of the ERA and describes the ERA process.

N.1 Ecological Risk Assessment Process

This ERA was conducted in accordance with the protocol in the Final Master QAPP for sites in the ERP (CH2M HILL, 2007), which is consistent with the *Navy Policy for Conducting Ecological Risk Assessments* (CNO, 1999), the Navy guidance for implementing this ERA policy (NAVFAC, 2003), and the EPA Ecological Risk Assessment Guidance for Superfund (EPA, 1997). The Navy ERA policy and guidance, which describe a process consisting of eight steps organized into three tiers, is conceptually similar to the eight-step ERA process outlined in the EPA ERA guidance for Superfund. The major differences between the Navy ERA policy and the EPA ERA guidance are that the former:

- Provides defined criteria for exiting the ERA process at specific points
- Divides Step 3 (the first step of the BERA) into two distinct sub-steps (Steps 3A and 3B), with a potential exit point after Step 3A
- Incorporates risk management considerations throughout all tiers of the ERA process

Steps 1 and 2 of the ERA process comprise the SERA, which is conducted using intentionally conservative assumptions. If complete exposure pathways exist at a site and the results of the SERA indicate that unacceptable risks are possible, the site normally continues on to Step 3, the first step in the BERA, for the pathways, chemicals of potential concern (COPCs), and receptors identified in the SERA.

In Step 3A, a refined evaluation of exposure estimates is conducted using more realistic assumptions and additional methodologies relative to those used in the SERA, which is intended to be a very conservative assessment. Examples of more realistic exposure assumptions include using central tendency estimates (rather than maximums) for media concentrations, exposure parameters, and bioaccumulation factors. Examples of additional methodologies include consideration of upgradient and background concentrations, detection frequency, and bioavailability.

If risk estimates (and their associated uncertainty) are acceptable following Step 3A, the site will meet the conditions of the exit criterion specified in the Navy policy. If the Step 3A evaluation does not support an acceptable risk determination within acceptable uncertainty, the site continues to Step 3B.

In Step 3B, the preliminary conceptual model from the SERA is refined based upon the results of the Step 3A evaluation to develop a revised list of key receptors, critical exposure pathways, COPCs, assessment endpoints, measurement endpoints, and risk hypotheses. Based upon the revised conceptual model, the lines of evidence to be used in characterizing risk are determined. Agreement on the revised conceptual model, COPCs, exposure pathways, endpoints, and risk hypotheses constitutes the Scientific Management Decision Point (SMDP) at the end of Step 3.

N.1.1 Objectives of the ERA

The objectives of the SERA are to:

- Determine if potential risks to ecological receptors warrant either: (1) additional assessment beyond the conservative screening steps of the ERA process (unacceptable ecological risks are possible); or (2) the removal of the site from further ecological consideration (no unacceptable ecological risks likely).
- Focus subsequent steps of the ERA process on the specific chemicals, pathways, and receptors of potential concern if unacceptable ecological risks are possible.
- Identify any data gaps or areas of unacceptable uncertainty that may require the collection of additional data to support ERA evaluations beyond the screening level.

If the site is not screened out in the SERA, the evaluation continues to Step 3. The general objectives of the Step 3 ERA are to:

- Refine the risk estimates from the SERA to determine if risks to ecological receptors from site-related chemicals are likely to be unacceptable based upon realistic exposure scenarios.
- Focus subsequent data collection activities if potentially unacceptable risks are indicated, uncertainties are unacceptably high, and/or data gaps are identified.

At the conclusion of Step 3, there are three possible decision points:

- **No further action is warranted.** This decision is appropriate if the evaluation indicates that sufficient data are available on which to base a conclusion of no unacceptable risk within acceptable uncertainty.
- **Further data are required.** This decision is appropriate if the evaluation indicates that the potential for unacceptable risk exists and additional data to refine these estimates (e.g., additional analytical data, toxicity testing, measures of bioavailability) are needed. In this case, the site continues to Step 4 of the ERA process.
- **Take remedial action.** This decision may be appropriate for circumstances in which the potential for unacceptable risks is identified but these potential risks could best be addressed through remedial action (e.g., presumptive remedy) rather than additional study.

N.2 Screening Ecological Risk Assessment

As discussed in Section N.1, Steps 1 and 2 of the ERA process constitute the SERA, which is conducted using intentionally conservative assumptions. The principal components of the SERA are problem formulation, exposure estimation, effects evaluation, and risk calculation.

N.2.1 Screening Problem Formulation

Problem formulation establishes the goals, scope, and focus of the ERA. As part of problem formulation, the environmental setting of AOC I is characterized in terms of the habitats and biota known to be or potentially present. The types and concentrations of chemicals present in ecologically relevant media are also described. A preliminary conceptual model is developed for AOC I that describes potential sources, potential transport pathways, potential exposure pathways and routes, and potential receptors. Assessment endpoints, measurement endpoints, and risk hypotheses are then selected to evaluate those receptors for which complete and potentially critical exposure pathways are likely to exist. The fate, transport, and toxicological properties of the chemicals present at AOC I, particularly the potential to bioaccumulate, are also considered during this process.

N.2.1.1 Environmental Setting

AOC I, a former asphalt plant, is located approximately 1,500 feet south of the Mosquito Pier adjacent to an active Public Works Department rock quarry on the western side of Vieques Island. The plant was in operation from the 1960s to 1988. AOC I, which is approximately 1 acre, includes one large concrete pad, one earthen ramp with a sheet metal support wall, two concrete-paved containment areas, and an area where two diesel fuel aboveground storage tanks (ASTs) were formerly located. Both containment areas have sumps. A site location map and aerial photo are presented in Section 2.

The former asphalt plant was a hot mix operation. Asphalt material was heated and aggregate from the adjoining quarry was mixed with the asphalt. No additional blending of additives is known to have occurred at this facility. Trucks would enter the facility, be loaded with asphalt, and transport the asphalt to a location on the island where roads were being paved.

A concrete containment area located in the northern portion of the site is assumed to have been used as a staging area for the asphalt trucks. The large concrete pad is assumed to be where the asphalt mixing drum was located. The sheet metal retaining wall appears to have been used as support for a gravel ramp, presumably used by front-end loaders to fill hoppers that fed aggregate into the asphalt plant. The concrete containment area to the south is assumed to have been used for transfer of asphalt material to the trucks.

N.2.1.2 Physiographic Features

The physiographic features of AOC I (weather, climate, topography, geology, hydrology, and hydrogeology) are discussed in Section 2. The general topography of AOC I and the immediately surrounding area is generally flat with only slight changes in elevation. The leveled area representing the former asphalt plant has been characterized as having a surface composed of angular gravel (crushed rock) fill mixed with silty clay and sand.

The regional surface water flow in the area is to the north toward Vieques Passage, which is located approximately 900 feet north-northeast of AOC I. Surface water drainage of the AOC I area consists of a drainage ditch located along the eastern side of AOC I. This ditch ends at Highway 200 where it discharges onto the roadway. The general direction of groundwater flow, based on the measurements made in the AOC I monitoring wells, is northwest toward the Vieques Passage.

N.2.1.3 Habitats and Biota

The description of the vegetative and wildlife communities at AOC I is based upon the detailed habitat characterization conducted at AOC I by Geo-Marine (2001). The habitat characterization was conducted to determine the presence of plant and animal species, and to determine if preferred habitat was present for any federally endangered or threatened plant and animal species.

AOC I consists of several grassy areas, bare ground covered with gravel, and a concrete pad. The site is surrounded by a former gravel parking area with gravel roads leading north and south through the former asphalt plant to the quarry. Approximately 80 percent of the site consists of bare ground, concrete, and gravel mixed with scattered weeds and grasses. Hurricane-grass (*Fimbristylis cymosa*) was the most abundant flora observed. In the adjacent shrub community, bitter bush (*Eupatorium odoratum*), button sage (*Lantana involucrata*), giant milkweed (*Calotropis procera*), silky sesban (*Sesbania sericea)*, and wild-tantan (*Dismanthus virgatus*) were present in approximately 20 percent of the vegetated area. Several tree species, such as the white fig (*Ficus citrifolia*) and Gumbo-Limbo (*Bursea simarouba*), have recently invaded the area (Table N-1).

Very few wildlife species were observed utilizing the abandoned asphalt plant site. However, wildlife species were sighted in the adjacent thorn scrub. A few species of birds, including bananaquit (*Coerba flaveola*), black-faced grassquit (*Tiaris bicolor*), northern mockingbird (*Mimus polyglottus*), and common ground doves (*Columbina passerina*), were observed onsite. Common ground doves, gray kingbirds (*Tyrannus dominicensis*), and bananaquits were the most common birds in the adjacent areas. In addition, mongoose (*Herpestes auropunctatus*) and horse tracks were seen at the site. The ramp provided shade, foraging areas, and cover for a few common anoles (*Anolis* sp.). Marine toads (*Bufo marinus*) and marine toad tadpoles were observed in a concrete structure partially filled with water; however, this is an intermittent water source fed only by direct rainfall and is therefore not an aquatic habitat. Wildlife species that have been observed at AOC I, the adjacent habitat, and in the reference site are listed in Table N-2. Invertebrates using the site included diving beetles, dragonflies, bees, and butterflies (Geo-Marine, 2001).

N.2.1.4 Rare, Threatened, and Endangered Species

Seventeen federally listed species are known to occur, or have the potential to occur, on NASD Vieques (Table N-3). No endangered or threatened species, or preferred habitats, were observed within the AOC I area, nor are any expected to use the site as habitat.

The threatened Arctic peregrine falcon has been observed at Naval Station Roosevelt Roads in Puerto Rico. This species uses open grassland areas for potential feeding areas. This habitat type is not generally present in the immediate site vicinity. The brown pelican,

piping plover, and the roseate tern are not likely to use this terrestrial site but may be seen nearby due to the proximity of marine habitat to the north.

N.2.1.5 Summary of Available Analytical Data

Field work associated with the Expanded Preliminary Assessment/Site Investigation (PA/SI) was conducted in November and December 2000. Twenty-six surface soil samples (0 to 6 inches bls) were collected at AOC I throughout the former asphalt plant. Soils were analyzed for metals, pesticides, polychlorinated biphenyls (PCBs), volatile organic compounds (VOCs), semivolatile organic compounds (SVOCs), total petroleum hydrocarbons (TPH)-diesel range organics (DRO), TPH-gasoline range organics (GRO), and benzene, toluene, ethylbenzene, and xylene (BTEX). An additional 18 surface soil samples (0 to 2 feet bls) were collected during the RI to refine the understanding of the horizontal extent of surface soil constituents.

Subsurface soils and groundwater were also sampled on the site. However, these media were not evaluated in this ERA due to the lack of complete exposure pathways to these media.

N.2.1.6 Preliminary Ecological Conceptual Model

The preliminary ecological conceptual model relates potentially exposed receptor populations with potential source areas based upon physical site characteristics and complete exposure pathways. Important components of the conceptual model are the identification of potential source areas, transport pathways, exposure media, exposure pathways and routes, and receptor groups. Actual or potential exposures of ecological receptors associated with a site is determined by identifying the most likely, and most important, pathways of contaminant release and transport. A complete exposure pathway has three components: (1) a source of contamination that results in a release to the environment; (2) a pathway of chemical transport through an environmental medium; and (3) an exposure or contact point for an ecological receptor. Figure N-1 illustrates a diagrammatic conceptual model for potential ecological exposure. Key components of this conceptual model are discussed in the following subsections.

N.2.1.7 Potential Source Area

The potential source of contamination at this site is spills/leaks from the former asphalt plant operations.

N.2.1.8 Transport Pathways and Exposure Media

A transport pathway describes the mechanisms whereby chemicals may be transported from a source of contamination to ecologically relevant media. These transport pathways are shown on Figure N-1.

The primary transport mechanism of contaminants from the source area at AOC I is the leaking or spilling of asphalt-related constituents onto the ground surface during site activities. Contaminants bound to surface soil may be transported by stormwater runoff. Surface soil may also be released to the air by wind erosion. The site is relatively flat and partially vegetated, which can minimize the runoff transport pathway and limit dust emissions associated with an air pathway.

Surface soil contaminants may migrate through the soil column to subsurface soils and the underlying groundwater. Recharge to the groundwater aquifer primarily occurs through infiltration of rainfall. The movement of water through the unsaturated soil can dissolve contaminants and transport them to the underlying groundwater, serving as a source of contaminants to groundwater and potentially to downgradient water bodies.

N.2.1.9 Exposure Pathways and Routes

An exposure pathway links a source of contamination with one or more receptors through exposure via one or more media and exposure routes. Exposure, and thus potential risk, can only occur if complete exposure pathways exist. Figure N-1 shows the potentially complete exposure pathways to ecological receptors at AOC I.

Potentially complete exposure pathways to terrestrial receptors (e.g., mammals and birds) using the upland habitats present on AOC I exist (exposure to surface soils). There are no exposure pathways to aquatic receptors due to the lack of aquatic habitat at the site. Terrestrial receptors (and their prey) are also not exposed directly to groundwater at this site.

An exposure route describes the specific mechanism(s) by which a receptor is exposed to a chemical present in an environmental medium. Terrestrial plants may be exposed to chemicals present in surface soils through their root surfaces during water and nutrient uptake.

Animals may be exposed to chemicals through: (1) direct inhalation of gaseous chemicals or of chemicals adhered to airborne particulate matter; (2) incidental ingestion of contaminated abiotic media (soil) during feeding or preening activities; (3) the ingestion of contaminated plant and/or animal tissues for chemicals that have entered food webs; and/or (4) dermal contact with contaminated abiotic media.

Based upon the general fate properties (relatively high adsorption to solids) of the chemicals primarily present on AOC I (metals and polycyclic aromatic hydrocarbons [PAHs]) and the protection offered by hair or feathers, potential dermal exposures for upper trophic level receptors are not considered significant relative to ingestion exposures and are not directly evaluated in this ERA. Upper trophic level receptors considered in this ERA would not likely be exposed, via inhalation, to significant airborne sources of chemicals because the site is mostly covered with gravel or patches of vegetation; thus little wind erosion of the soils would be expected. Furthermore, the primary chemicals present on the site (metals and PAHs) typically adsorb to soil, suggesting that the potential for volatilization and thus exposure via inhalation is limited. Incidental ingestion of soil during feeding, preening, or grooming activities is, however, considered in the risk estimates. Direct contact is considered for lower trophic level receptors (e.g., soil invertebrates).

N.2.1.10 Receptors

Because of the complexity of natural systems, it is generally not possible to directly assess the potential impacts to all ecological receptors present at a site. Therefore, specific receptor species or species groups (e.g., red-tailed hawk) are often selected as surrogates to evaluate potential risks to larger portions of the ecological community (guilds; e.g., carnivorous birds)

used to represent the assessment endpoints (e.g., survival and reproduction of carnivorous birds). Selection criteria typically include those species that:

- Are known to occur, or are likely to occur, at the site.
- Have a particular ecological, economic, or aesthetic value.
- Are representative of taxonomic groups, life history traits, and/or trophic levels in the habitats present at the site for which complete exposure pathways are likely to exist.
- Can, because of toxicological sensitivity or potential exposure magnitude, be expected to represent potentially sensitive populations at the site.

The following upper trophic level receptor species have been chosen for exposure modeling based upon the criteria listed above:

- Norway rat (*Rattus norvegicus*) - terrestrial mammalian omnivore (modeled as a herbivore in the screening portion of the assessment).
- Indian mongoose (*Herpestes auropunctatus*) - terrestrial mammalian omnivore (modeled as an invertivore in the screening portion of the assessment).
- Pearly-eyed thrasher (*Margarops fuscatus*) - terrestrial avian omnivore (modeled as an invertivore in the screening portion of the assessment).
- Red-tailed hawk (*Buteo jamaicensis*) - terrestrial avian carnivore.

Upper trophic level receptor species quantitatively evaluated in the ERA were limited to birds and mammals, the taxonomic groups with the most available information regarding exposure and toxicological effects. Because of the limited amount of ingestion-related toxicological data available for reptiles, exposures via the food web for these taxa were evaluated using bird and mammal receptors as surrogates.

Lower trophic level receptor species were evaluated in the ERA based upon those taxonomic groupings for which screening values have been developed; these groupings and screening values are used in most ERAs. As such, specific species of plants or soil invertebrates were not chosen as receptors because of the limited information available for specific species and because these receptors were evaluated on a community level via a comparison to soil screening values.

N.2.1.11 Endpoints and Risk Hypotheses

The conclusion of the screening problem formulation includes the selection of ecological endpoints and risk hypotheses, which are based upon the preliminary conceptual model. Two types of endpoints, assessment endpoints and measurement endpoints, are defined as part of the ERA process (EPA, 1997). An assessment endpoint is an explicit expression of the environmental component or value that is to be protected. A measurement endpoint is a measurable ecological characteristic that is related to the component or value chosen as the assessment endpoint. The considerations for selecting assessment and measurement endpoints are summarized in EPA (1997) and discussed in detail in Suter (1989, 1990, 1993). Risk hypotheses are testable hypotheses about the relationship among the assessment endpoints and their predicted responses when exposed to contaminants.

Endpoints define ecological attributes that are to be protected (assessment endpoints) and measurable characteristics of those attributes (measurement endpoints) that can be used to gauge the degree of impact that has or may occur. Assessment endpoints most often relate to attributes of biological populations or communities, and are intended to focus the risk assessment on particular components of the ecosystem that could be adversely affected by chemicals attributable to the site (EPA, 1997). Assessment endpoints contain an entity (e.g., hawk population) and an attribute of that entity (e.g., survival rate). Individual assessment endpoints usually encompass a group of species or populations (the receptor) with some common characteristic, such as specific exposure route or contaminant sensitivity, with the receptor then used to represent the assessment endpoint in the risk evaluation.

Assessment and measurement endpoints may involve ecological components from any level of biological organization, from individual organisms to the ecosystem itself. Effects on individual organisms are important for some receptors, such as rare and endangered species; population- and community-level effects are typically more relevant to ecosystems. Population- and community-level effects are usually difficult to evaluate directly without long-term and extensive study. However, measurement endpoint evaluations at the individual level, such as an evaluation of the effects of chemical exposure on reproduction, can be used to predict effects on an assessment endpoint at the population or community level.

Table N-4 shows the preliminary assessment endpoints, risk hypotheses, and measurement endpoints used in the screening portion (Steps 1 and 2) of the ERA. Table N-4 also shows the receptors associated with each endpoint.

N.2.2 Screening Exposure Estimation

Maximum concentrations were used in the screening portion of the ERA to conservatively estimate potential chemical exposures for the ecological receptors selected to represent the assessment endpoints at AOC I. Food web exposures for upper trophic level receptor species were determined by estimating the chemical-specific concentrations in each dietary component using uptake and food web models. Incidental ingestion of soil was also included when calculating the total level of exposure. Maximum surface soil concentrations were used in all screening food web calculations to provide a conservative assessment.

For conservatism, the maximum reporting limit for chemicals analyzed for but not detected was also compared to medium-specific screening values and (where applicable) used for food web exposure modeling. This was done to determine if reporting limits were less than or equal to chemical concentrations at which potential adverse effects to ecological receptors may occur.

N.2.2.1 Exposure Estimation

Upper trophic level receptor exposures (via the food web) to chemicals present in surface soil were determined by estimating the concentration of each bioaccumulating chemical in each relevant dietary component. Incidental ingestion of soil was included when calculating the total exposure. Since receptors (and their prey) are not exposed directly to groundwater at this site, food web exposures were not calculated based upon groundwater concentrations.

Only chemicals with the potential to bioaccumulate significantly were evaluated for exposures via food webs (EPA, 2007b). This list of bioaccumulating chemicals is provided in Table N-5 for relevant constituents and is based upon the list provided by EPA (2000).

Dietary items for which tissue concentrations were modeled included terrestrial plants, soil invertebrates, and small mammals. For the screening portion of the ERA, the uptake of chemicals from the abiotic media into these food items was based upon conservative (e.g., 90th percentile) bioconcentration factors (BCFs) or bioaccumulation factors (BAFs) from the literature. Default factors of 1.0 were used only when data were unavailable for a chemical in the literature.

N.2.2.2 Screening Exposure Point Concentrations

Maximum soil concentrations were used as exposure point concentrations for exposure estimation and food web modeling in the screening portion of the ERA. Exposure point concentrations (concentrations in terrestrial plant, soil invertebrate, and small mammal prey items) for terrestrial upper trophic level receptors were estimated using bioaccumulation models and maximum measured surface soil concentrations. The methodology and models used to derive these estimates are described below.

Terrestrial Plants. Tissue concentrations in the aboveground vegetative portion of terrestrial plants were estimated by multiplying the maximum surface soil concentration for each chemical by chemical-specific soil-to-plant BCFs obtained from the literature. The BCF values used were based upon root uptake from soil and upon the ratio between dry-weight soil and dry-weight plant tissue. Literature values based upon the ratio between dry-weight soil and wet-weight plant tissue were converted to a dry-weight basis by dividing the wet-weight BCF by the estimated solids content for terrestrial plants (15 percent [0.15]; Sample et al., 1997).

For organic chemicals without literature-based BCFs, sediment-to-plant BCFs were estimated using the algorithm provided in USEPA (2007a):

$$\log BCF = (-0.229)(\log K_{ow}) + 1.0237$$

where: BCF = Soil-to-plant BCF (unitless; dry-weight basis)
K_{ow} = Octanol-water partitioning coefficient (unitless)

The log K_{ow} values used in this equation are listed in Table N-5. The soil-to-plant BCFs used in the screening portion of the ERA are shown in Table N-6.

Soil Invertebrates. Tissue concentrations in soil invertebrates (earthworms) were estimated by multiplying the maximum surface soil concentration for each chemical by chemical-specific BCFs or BAFs obtained from the literature. BCFs are calculated by dividing the concentration of a chemical in the tissues of an organism by the concentration of that same chemical in the surrounding environmental medium (in this case, soil) without accounting for uptake via the diet. BAFs consider both direct exposure to soil and exposure via the diet. Since earthworms consume soil, BAFs are more appropriate values and were used in the food web models when available. BAFs based upon depurated analyses (soil was purged from the gut of the earthworm prior to analysis) were given preference over undepurated

analyses when selecting BAF values since direct ingestion of soil is accounted for separately in the food web model.

The BCF/BAF values used were based upon the ratio between dry-weight soil and dry-weight earthworm tissue. Literature values based upon the ratio between dry-weight soil and wet-weight earthworm tissue were converted to a dry-weight basis by dividing the wet-weight BCF/BAF by the estimated solids content for earthworms (16 percent [0.16]; EPA, 1993). For chemicals without available measured BAFs or BCFs, an earthworm BAF of 1.0 was assumed. The soil-to-invertebrate BCFs/BAFs used in the screening portion of the ERA are shown in Table N-6.

Small Mammals. Whole-body tissue concentrations in small mammals (Norway rat for this site) were estimated using one of two methodologies. For chemicals with literature-based soil-to-small mammal BAFs, the small mammal tissue concentration was calculated by multiplying the maximum surface soil concentration for each chemical by a chemical-specific soil-to-small mammal BAF obtained from the literature. The BAF values used were based upon the ratio between dry-weight soil and whole-body dry-weight tissue. Literature values based upon the ratio between dry-weight soil and wet-weight tissue were converted to a dry-weight basis by dividing the wet-weight BAF by the estimated solids content for small mammals (32 percent [0.32]; EPA, 1993). The soil-to-small mammal BAFs used in the screening portion of the ERA are shown in Table N-6.

For chemicals without soil-to-small mammal BAF values, an alternate approach was used to estimate whole-body tissue concentrations. Because most chemical exposure for small mammals occurs via the diet, it was assumed that the concentration of each chemical in the small mammal's tissues was equal to the chemical concentration in its diet, that is, a diet to whole-body BAF (wet-weight basis) of 1.0 was assumed. The use of a diet to whole-body BAF of 1.0 is likely to result in a conservative estimate of chemical concentrations for chemicals that are not known to biomagnify in terrestrial food webs (such as PAHs) based upon reported literature values for chemicals that are known to biomagnify in food webs. For example, a maximum BAF (wet-weight) value of 1.0 was reported by Simmons and McKee (1992) for PCBs based on laboratory studies with white-footed mice. Menzie et al. (1992) reported BAF values (wet-weight) for DDT of 0.3 for voles and 0.2 for short-tailed shrews.

N.2.2.3 Dietary Intakes

Dietary intakes for each upper trophic level receptor species were calculated using the following formula (modified from EPA [1993]):

$$DI_x = \frac{[[\sum_i (FIR)(FC_{xi})(PDF_i)] + [(FIR)(SC_x)(PDS)] + [(WIR)(WC_x)]]}{BW}$$

where

DI_x	=	Dietary intake for chemical x (mg chemical/kg body weight/day)
FIR	=	Food ingestion rate (kg/day, dry-weight)
FC_{xi}	=	Concentration of chemical x in food item i (mg/kg, dry-weight)
PDF_i	=	Proportion of diet composed of food item i (dry-weight basis)

SC_x	=	Concentration of chemical x in soil (mg/kg, dry-weight)
PDS	=	Proportion of diet composed of soil (dry-weight basis)
WIR	=	Water ingestion rate (L/day)
WC_x	=	Concentration of chemical x in water (mg/L)
BW	=	Body weight (kg, wet-weight)

Receptor-specific values used as inputs to this equation for the screening portion of the ERA are provided in Table N-7. Consistent with the conservative approach used for a SERA, the minimum adult body weight and maximum food ingestion rate from the scientific literature were used for each receptor, and receptors were modeled using exclusive diets (only one type of food consumed). When measured food ingestion rates were not available for a receptor from the literature, the rates were estimated using allometric equations from Nagy (2001). Since there is no source of drinking water on the site, water ingestion was set to zero. It was assumed that chemicals were 100 percent bioavailable to the receptor and it was also assumed that each receptor spent 100 percent of its time on the site (i.e., an area use factor [AUF] of 1.0 was assumed).

N.2.3 Screening Effects Evaluation

The purpose of the screening effects evaluation is to establish chemical exposure levels (screening values) that represent conservative thresholds for adverse ecological effects. One set of screening values is typically developed for each selected assessment endpoint.

N.2.3.1 Medium-Specific Screening Values

Medium-specific screening values were established for each ecologically relevant medium. Screening value sources were based on prior agency recommendations following review of the work plan. Based upon the preliminary conceptual model, direct exposure to surface soil was a potentially complete pathway at AOC I.

The soil screening values used were the lower of the plant and soil invertebrate ecological soil screening levels (eco-SSLs). If eco-SSLs were not available, the soil screening values used were from the Oak Ridge National Laboratory, which has identified soil screening values specific to soil invertebrates and microbial processes (Efroymson et al., 1997a), and terrestrial plants (Efroymson et al., 1997b). Where screening values were available for multiple receptors in these ORNL references, the most conservative value was chosen. In some instances where soil screening values were not available from these three primary sources, three other references were consulted comprising the Canadian protocol for deriving environmental soil quality guidelines (SQGs; CCME, 1996), Dutch Soil Quality Standards (MHSPE, 2000), and U.S. Fish and Wildlife Service soil screening values presented by Beyer (1990). The lowest screening value from these three sources was then selected for screening.

N.2.3.2 Ingestion Screening Values

Ingestion screening values for dietary exposures were derived for each mammalian and avian receptor species and chemical evaluated in the ERA. Toxicological information from the literature for wildlife species most closely related to the receptor species was used, when available, but was supplemented by laboratory studies of non-wildlife species (e.g., chickens and laboratory rats) when necessary. The ingestion screening values are expressed as

milligrams of the chemical per kilogram body weight of the receptor per day (mg/kg-BW/day).

Growth and reproduction were emphasized as assessment endpoints because they are the most relevant, ecologically, to maintaining viable populations and because they are generally the most studied chronic toxicological endpoints for ecological receptors. If several chronic toxicity studies were available from the literature, the most appropriate study was selected for each receptor species based upon study design, study methodology, study duration, study endpoint, and test species. Ingestion screening values were derived for both chronic No Observed Adverse Effect Levels (NOAELs) and chronic Lowest Observed Adverse Effect Levels (LOAELs) endpoints. The applicable uncertainty factors from Table N-8 were applied to derive these screening values, where necessary. Ingestion screening values for mammals and birds are summarized in Tables N-9 and N-10, respectively.

N.2.4 Screening Risk Calculation

The screening risk calculation is the final step in a SERA. In this step, the maximum exposure concentrations (abiotic media) or exposure doses (upper trophic level receptor species) are compared to the corresponding screening values to derive screening risk estimates. The outcome of this step is a list of chemicals of potential concern (COPCs) for each medium-pathway-receptor combination evaluated or a conclusion of acceptable risk.

N.2.4.1 Selection of Chemicals of Potential Concern (COPCs)

COPCs are selected using the hazard quotient (HQ) method. HQs are calculated by dividing the chemical concentration in the medium being evaluated by the corresponding medium-specific screening value or by dividing the exposure dose by the corresponding ingestion screening value. Detected chemicals with HQs greater than one are considered COPCs in the SERA. Detected chemicals for which toxicological data were not available were also identified as COPCs in the SERA. Undetected chemicals with maximum reporting limits that exceeded screening values are addressed in the uncertainty section. Undetected chemicals without available screening values were not identified as COPCs.

HQs exceeding 1.0 indicate the potential for risk since the chemical concentration or dose (exposure) exceeds the screening value (effect). However, screening values and exposure estimates are derived using intentionally conservative assumptions such that HQs greater than or equal to 1.0 do not necessarily indicate that risks are present or impacts are occurring. Rather, they identify chemical-pathway-receptor combinations requiring further evaluation. HQs that are less than 1.0 indicate that risks are very unlikely, enabling a conclusion of no unacceptable risk to be reached with high confidence.

N.2.4.2 Surface Soil

Maximum surface soil concentrations are compared to screening values in Table N-11. Based upon this comparison, seven metals (chromium [plus hexavalent chromium], cobalt, copper, manganese, nickel, selenium, and vanadium) and three PAHs had maximum HQs exceeding 1.0 based upon detected concentrations and were therefore identified as COPCs. In addition, two metals (aluminum and iron), eight PAHs, four VOCs (2-butanone, 4-methyl-2-pentanone, acetone, and methylene chloride) and TPHs were retained as COPCs because screening values were not available for comparison to detected concentrations.

N.2.4.3 Food Web Exposures

HQs based upon maximum exposure doses for each upper trophic level receptor are listed in Table N-12. Exposure dose calculations for each receptor are provided in Tables N-13 through N-16. Based upon a comparison to NOAELs, nine metals (arsenic, cadmium, chromium, copper, lead, mercury, nickel, selenium, and zinc) and hexachlorobenzene had HQs exceeding 1.0 for one or more upper trophic level receptors and were identified as COPCs. Arsenic, cadmium, lead, mercury, and zinc were included in the food web analysis because they are considered bioaccumulative, however, the maximum soil concentrations of these metals did not exceed soil screening values.

Ingestion screening values were not available for avian or mammalian receptors for two organic chemicals (4-bromophenyl-phenylether and 4-chlorophenyl-phenylether), and ingestion screening values were not available for avian receptors for three chemicals (1,1,2,2-tetrachloroethane, hexachlorocyclopentadiene, and hexachloroethane). None of these chemicals were detected and therefore were not identified as COPCs.

N.2.5 Screening Risk Conclusions

COPCs were identified in surface soil at AOC I, as well as from food web exposures. These COPCs are summarized in Table N-17.

N.3 Baseline Ecological Risk Assessment

The SERA resulted in a set of COPCs for each medium evaluated. This set of COPCs includes chemicals with HQs exceeding 1.0 (based upon maximum exposures) and detected chemicals for which toxicological data (screening values) were not available.

N.3.1 Refinement of Conservative Screening Assumptions

Step 3 initiates the problem formulation phase of the BERA. The BERA begins with a preliminary step (Step 3A) in which the conservative assumptions used in the SERA are refined and risk estimates are recalculated using the same conceptual model for the site. The refinement may also include consideration of other factors such as background data, detection frequency, and chemical-specific bioavailability.

The assumptions, parameter values, and methods that were modified for the Step 3A refinement were as follows:

- Risk estimates based upon maximum chemical concentrations were supplemented by risk estimates based upon average (arithmetic mean) chemical concentrations. In addition, BAFs and BCFs were based upon, or modeled from, central tendency estimates (e.g., median or mean) from the literature as opposed to the high-end estimates used in the SERA for many chemicals. Revised BAF/BCF values used in Step 3A are provided in Table N-18.

  In the BERA, using central tendency estimates (rather than high end or maximums) for exposure parameters such as BAFs provides a more representative estimate of potential exposures and risks to receptor populations (the focus of the assessment endpoints) of upper trophic level receptors. Because these upper trophic level species are highly

mobile, they would be expected to effectively average their exposure over time as they forage within the area defining their home range (which extends to offsite areas).

Average prey concentrations at Step 3A are most appropriately estimated using central tendency estimates of media concentrations and accumulation factors. For example, the wildlife dietary exposure models contained in the *Wildlife Exposure Factors Handbook* (EPA, 1993) specify the calculation of an average daily dose. Increasing the representativeness of the exposure estimates relative to population-level effects is consistent with the intent of the Step 3A evaluation. In cases where adequate spatial sampling coverage exists, mean concentrations are also appropriate for evaluating potential risks to populations of lower trophic level receptors because the members of the population are expected to be found throughout a site (where suitable habitat is present), rather than concentrated in one particular area. While effects on individual organisms might be important for some receptors, such as rare and endangered species, population- and community-level effects are typically more relevant to ecosystems. A discussion of the uncertainties associated with the number of available samples and their spatial distribution is presented in Section N.4.

- Central tendency estimates (e.g., mean, median, midpoint) for body weight and food ingestion rate (Table N-19) were used to develop exposure estimates for upper trophic level receptors, rather than the minimum body weights and maximum ingestion rates used in the SERA. Central tendency estimates for these exposure parameters are more relevant for a BERA because they better represent the characteristics of a greater proportion of the individuals in the population. Populations (rather than individual organisms) were emphasized during the development of the assessment endpoints for the ERA.
- The SERA conservatively identified a chemical as a food web COPC if the estimated dose for at least one upper trophic level receptor exceeded the NOAEL. The actual dose that is protective of an individual receptor, however, will fall between the NOAEL and the LOAEL. Both the NOAEL and LOAEL were used for comparison in the BERA.
- Former NASD background concentrations were also considered in the refinement.

Only complete, critical pathways identified in the SERA were re-evaluated in Step 3A of the ERA. Similarly, only COPCs and receptors identified in the SERA as requiring further evaluation were addressed in Step 3A. Although many aspects of the estimation of exposure were modified in Step 3A (see above), the screening values (effects) used in Step 3A were the same as the values used in the SERA, unless there was adequate justification available to provide an alternate screening value. Although the same basic conceptual model from the SERA was also used in Step 3A, the endpoints and risk hypotheses from the SERA were modified slightly to better reflect the Step 3A analysis (Table N-20).

N.3.2 Refined (Step 3A) Risk Characterization

Based upon the results of the SERA, the assessment endpoints, measurement endpoints, and risk hypotheses were modified for the Step 3A evaluation (Table N-20). Modifications included changing the measurement endpoints to reflect the assumptions and methods used in the Step 3A evaluation. The results of the refined risk characterization are discussed in the following subsections.

N.3.2.1 Surface Soil

Mean chemical concentrations in surface soils from AOC I are compared to screening values in Table N-21. Based upon this comparison, five metals (chromium [including hexavalent chromium], cobalt, manganese, selenium, and vanadium) had mean HQs that exceeded 1.0 and were retained as COPCs. Three detected PAHs were also retained. In addition, two detected metals, eight PAHs, four VOCs, and TPH were retained as COPCs because screening values were not available for comparison.

N.3.2.2 Food Web Exposures

HQs based upon average exposure doses for each upper trophic level receptor are listed in Table N-22. Exposure dose calculations for each receptor are provided in Tables N-23 through N-26. Based upon a comparison to NOAELs, only chromium had a HQ exceeding 1.0 (for the pearly-eyed thrasher based upon total chromium). However, HQs based upon the LOAEL and the Maximum Acceptable Toxicant Concentration (MATC, the geometric mean of the NOAEL and LOAEL) were both less than one. Thus, no COPCs for upper trophic level receptors were retained for further evaluation.

N.3.3 Risk Evaluation

The potential for adverse effects associated with the COPCs identified in Section N.3.2 and Tables N-21 and N-22 are evaluated in this section.

N.3.3.1 Surface Soil Exposures

Seven metals (aluminum, chromium, cobalt, iron, manganese, selenium, and vanadium) were identified as COPCs in surface soils from AOC I. On-site surface soil concentrations for these metals are compared to background upper tolerance limit (UTL) concentrations in Table N-27. The maximum concentrations of aluminum, manganese, and selenium did not exceed the background UTL in any sample. The maximum concentrations of iron and vanadium exceeded the background UTL in a single sample by a very small amount (maximum ratio of 1.17 and 1.08, respectively). Similarly, cobalt exceeded the background UTL in two of 26 samples at a maximum ratio of 1.08. Total chromium exceeded the background UTL in 7 of 43 samples but the maximum ratio was less than 1.5 (in sample NDE083). Note that the field duplicate for sample 083 did not exceed the background UTL. The ratios for all other samples were less than 1.25. Mean concentrations of all these metals were below background UTL. Thus, the concentrations of all seven of these metals are consistent with background conditions and these chemicals are not retained as chemicals of concern (COCs).

Although the maximum and/or mean concentrations of three PAHs (fluoranthene, pyrene, and benzo[a]pyrene) exceeded ecological soil screening values, these exceedances were limited to one, one, and two out of 40 samples, respectively, and HQs were about 2 or less. These screening values are based on non-site-specific background values and thus have limited utility in evaluating risk. However, the total PAH concentration for detected constituents in the five samples with detected PAHs (maximum of 1,377 µg/kg, mean of 73 µg/kg) was less than an eco-SSL for total higher molecular-weight PAHs based upon exposures to soil invertebrates (18,000 µg/kg) and none of the PAHs had HQs exceeding

one based upon food web exposures. Thus, none of the PAHs (including those without individual soil screening values) were identified as COCs.

Four VOCs (2-butanone, 4-methyl-2-pentanone, acetone, and methylene chloride) and TPH were detected but could not be evaluated quantitatively because screening values were not available. However, maximum concentrations of these four VOCs were less than screening values for other, similar VOCs (see Table N-11). Thus, none of these VOCs were identified as COCs.

There are no available soil screening values for TPH. However, PAHs (which are typically the most toxic fraction of the TPH) were not identified as COCs in surface soil. Thus, TPH was not retained as a COC.

N.3.3.2 Food Web Exposures

No COPCs were identified for this exposure pathway.

N.3.3.3 Summary of COCs

In summary, none of the COPCs carried forward from Step 2 were retained as COCs following the Step 3A refinement. Thus, no unacceptable risks were identified for ecological receptors at AOC I and no further evaluation is recommended.

N.4 Uncertainties

Uncertainties are present in all risk assessments because of the limitations of the available data and the need to make certain assumptions and extrapolations based upon incomplete information. The uncertainty in this ERA is mainly attributable to the following factors:

- Reporting Limits - Reporting limits for some undetected analytes exceeded applicable screening values in soil. Because these chemicals were not detected, they are not known to be present on the site but the potential for unacceptable risks cannot be totally discounted because the reporting limits are higher than the screening values.
- Selection of COPCs - Chemicals without available screening values were not retained as COPCs in the SERA portion of the assessment unless they were detected. This could result in an underestimation of risks if these chemicals are actually present on the site at ecologically significant concentrations. For the Step 2 screen, two metals, eight PAHs, four VOCs, and TPH were detected in surface soil and lacked screening values. These chemicals were evaluated in Step 3 through a combination of background comparisons and a comparison to toxicological information from the literature. Thus, the uncertainty associated with the lack of screening values for these detected chemicals is low because there were other, relevant data that allowed them to be evaluated.
- Evaluation of Soils - The quantitative evaluation of chemical concentrations in soils included the combination of surface soils from the 0-6 inch and 0-24 inch depth ranges. These variable depth ranges could over estimate or under estimate actual exposures to soil contaminants. The 0-6 inch interval may represent the highest concentrations in the soil profile assuming a surface release, or may not represent elevated concentrations that occur below 6 inches. Composite soil samples over the 0-24 inch profile may dilute

elevated concentrations that are limited to a narrow zone, or may represent concentrations that occur low in the soil profile and not accessible to terrestrial organisms. The combination of surface soil data from varying depth profiles introduces a range of uncertainties as described above.

- Ingestion Screening Values - Data on the toxicity of many chemicals to the receptor species were sparse or lacking, requiring the extrapolation of data from other wildlife species or from laboratory studies with nonwildlife species. This is a typical limitation and extrapolation for ecological risk assessments because so few wildlife species have been tested directly for most chemicals. The uncertainties associated with toxicity extrapolation were minimized through the selection of the most appropriate test species for which suitable toxicity data were available. The factors considered in selecting a test species to represent a receptor species included taxonomic relatedness, trophic level, foraging method, and similarity of diet.

  A second uncertainty related to the derivation of ingestion screening values applies to metals. Most of the toxicological studies on which the ingestion screening values for metals were based used forms of the metal (such as salts) that have high water solubility and high bioavailability to receptors. Since the analytical samples on which site-specific exposure estimates were based measured total metal, regardless of form, and these highly bioavailable forms are expected to compose only a fraction of the total metal concentration, this is likely to result in an overestimation of potential risks for these chemicals.

- Chemical Mixtures - Information on the ecotoxicological effects of chemical interactions is generally lacking, which required (as is standard for ecological risk assessments) that the chemicals be evaluated on a compound-by-compound basis during the comparison to screening values. This could result in an underestimation of risk (if there are additive or synergistic effects among chemicals) or an overestimation of risks (if there are antagonistic effects among chemicals).

- Receptor Species Selection - Reptiles were selected as receptors in the ERA, but were not evaluated quantitatively even when exposure pathways were complete. These taxa were evaluated using other fauna (birds and mammals) as surrogates due to the general lack of taxon-specific toxicological data. This represents an uncertainty in the assessment

  It was also assumed that reptiles were not exposed to significantly higher concentrations of chemicals and were not more sensitive to chemicals than the other receptor species evaluated. This assumption was a source of uncertainty in the ERA. In addition, there is some uncertainty associated with the use of specific receptor species to represent larger groups of organisms (e.g., guilds).

- Food Web Exposure Modeling - Chemical concentrations in terrestrial food items (plants, earthworms, and small mammals) were modeled from measured surface soil concentrations and were not directly measured. The use of generic, literature-derived exposure models and bioaccumulation factors introduces some uncertainty into the resulting estimates. The values selected and methodology employed were intended to provide a conservative (SERA) or realistic (Step 3A) estimate of potential food web exposure concentrations.

Another source of uncertainty is the use of default assumptions for exposure parameters such as BCFs and BAFs. Although BCFs or BAFs for many bioaccumulative chemicals were readily available from the literature and were used in the ERA, the use of a default factor of 1.0 to estimate the concentration of some chemicals in receptor prey items is a source of uncertainty.

Area use factors were assumed to equal 1.0. This is a conservative assumption since a significant percentage of each upper trophic level receptor species time could be spent foraging offsite in unimpacted areas or areas where chemical concentrations are expected to be significantly lower.

- Mean Versus Maximum Media Concentrations - As is typical in an ERA, a finite number of samples of environmental media are used to develop the exposure estimates. The maximum measured concentration provides a conservative estimate for immobile biota or those with a limited home range. The most realistic exposure estimates for mobile species with relatively large home ranges and for species populations (even those that are immobile or have limited home ranges) are those based upon the mean chemical concentrations in each medium to which these receptors are exposed. This is reflected in the wildlife dietary exposure models contained in the *Wildlife Exposure Factors Handbook* (EPA, 1993), which specify the use of average media concentrations. It is possible, however, that receptors could spend additional time foraging at a nearby AOC or SWMU and thus be exposed to contaminants from more than one site. Thus, the average contaminant concentrations in AOC I media and food sources may not accurately represent contaminant exposure to a receptor ranging into other sites. It is likely, however, that assuming an Area Use Factor of 1 will result in a conservative estimate of exposure because it is likely that off-site foraging would be conducted in uncontaminated areas than at other AOCs or SWMUs, none of which are contiguous with AOC I. Given the mobility of the upper trophic level receptor species used in the ERA, the use of maximum chemical concentrations (rather than mean concentrations) in the SERA to estimate the exposure via food webs is very conservative. This conservatism was reduced to more realistic levels in the values selected for use in the Step 3A evaluation.

- Comparisons to Background Concentrations - Background concentrations were used to judge the site-relatedness of individual chemicals in particular media. If site chemical concentrations were consistent with these levels, it was assumed that the concentrations were not site-related. There exists the possibility that concentrations below background were indeed site-related, rendering the assumption false. However the impact of this possibility is minimal since chemicals at concentrations consistent with background conditions should exhibit no different ecological effects than commonly occurring in areas not affected by releases, regardless of their source.

- Spatial Distribution of Samples - The number and spatial distribution of the analytical samples were sufficient to adequately estimate potential ecological risks at this small site. Between 17 and 43 surface soil samples were collected for the major analytes (the number varied by analyte) from the site, which encompasses approximately 1 acre.

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Appendix N
Ecological Risk Assessment Tables

TABLE N-1
Vegetation Observed at AOC I, Reference Site, and Adjacent/Surrounding Thorn-Scrub Habitat
AOC I, Former NASD, Vieques, Puerto Rico

Common Name	Scientific Name	STRATUM		
		AOC I	Reference Site	Adjacent/Surrounding/ Thorn-Scrub Habitat
Sweet acacia	*Acacia farnesiana*	T/S	T/S	T/S
Better man better	*Achyrantes aspera*	H	H	
Hurricane grass	*Bothriochloa pertusa*	G	G	
None	*None*			T/S
Gumbo limbo	*Bursera simaruba*	T/S		T/S
Giant milkweed	*Calotropis procera*	T/S	T/S	T/S
Milkweed	*Chamaesyce hirta*	H	H	
Mexican blue grass	*Chloris inflata*	G	G	
Old woman's bitter	*Citharexylum fruticosum*			T/S
None	*Cleome viscosa*	H	H	
None	*Corchorus aestuans*	H	H	
None	*Corchorus hirtus*	H	H	
Red manjack	*Cordia collococca*			T/S
Manjack	*Cordia obliqua*			T/S
Bitter bush, geritoo	*Eupatorium odoratum*	T/S		
White fig	*Ficus citrifolia*	T/S		
Jazmín oloroso	*Jasminum fluminense*		V	
Button sage	*Lantana involucrata*	T/S		
Tantan, wild tamarind	*Leucaena leucocephala*	T/S		T/S
Wild bush bean	*Macroptilium lathyroides*	H	H	
None	*Melochia nodiflora*	H	H	
None	*Melochia pyramidata*	H	H	
None	*Merremia quinquefolia*		V	
None	*Merremia umbellata*	V	V	
Sensitive Plantp	*Mimosa pudica*	H	H	
None	*Phyllantus* sp.	H	H	
Mesquite	*Prosopis juliflora*		T/S	T/S
None	*Rauvolfia* sp.			T/S
Rain tree, licorice	*Samanea saman*		T/S	T/S
None	*Sesbania sericea*	T/S		
None	*Sida* sp.	H	H	
Donkey weed	*Stylosanthes hamata*	H	H	
None	*Tournefortia angiospermii*	H	H	
None	*Tridax procumbens*	H	H	
None	*Vernonia cinerea*	H	H	
Indian jujube	*Ziziphus mauritiana*		T/S	T/S

From Geo-Marine (2001)
T/S - tree/shrub
H - herbaceous
V - vine
G - grass

TABLE N-2
Wildlife Observed at AOC I and the Adjacent Habitat/Reference Site
AOC I, Former NASD, Vieques, Puerto Rico

Common Name	Scientific Name	AOC I	Adjacent Habitat/ Reference Site
Mammals			
Horse	*Equus caballus*	X	X
Mongoose	*Herpestes auropunctatus*		X
Reptiles and Amphibians			
Anole (Common lizard)	*Anolis cristatellus*	X	
Marine toad	*Bufo marinus*	X	
Birds			
Mangrove cuckoo	*Coccyzus minor*		X
Bananaquit	*Coereba flaveola*	X	X
Common ground dove	*Columbina passerina*	X	X
Adelaide's warbler	*Dendroica adelaidae*		X
Northern mockingbird	*Mimus polyglottos*	X	X
Black-faced grassquit	*Tiaris bicolor*	X	X
Loggerhead kingbird	*Tyrannus caudifasciatus*		X
Gray kingbird	*Tyrannus dominicensis*		X

From Geo-Marine (2001)

TABLE N-3
Federally Listed Species Occurring or Potentially Occurring at NASD Vieques
AOC I, Former NASD, Vieques, Puerto Rico

Scientific Name (Common Name)	Federal Status
Plants	
Chaemacrista glandulosa var. mirabilis (Herb)	Endangered
Stahlia monosperma (Cobana negra)	Threatened
Calyptranthes thomasiana (Tree)	Endangered
Eugenia woodburyana (Evergreen tree)	Endangered
Goetzea elegans (Beautiful goetzea)	Endangered
Reptiles and Amphibians	
Chelonia mydas (Green sea turtle)	Threatened
Dermochelys coriacea (Leatherback sea turtle)	Endangered
Caretta caretta (Loggerhead sea turtle)	Threatened
Eretmochelys imbricata (Hawksbill sea turtle)	Endangered
Birds	
Falco peregrinus tundrius (Arctic peregrine falcon)	Threatened
Pelecanus occidentalis occidentalis (Brown pelican)	Endangered
Sterna dougalli dougalli (Roseate tern)	Endangered
Charadrius melodus (Piping plover)	Threatened
Mammals	
Physeter macrocephalus (Sperm whale)	Endangered
Balaenoptera physalus (Fin whale)	Endangered
Megaptera novaeangliae (Humpback whale)	Endangered
Trichechus manatus (West Indian manatee)	Endangered

TABLE N-4
Preliminary Assessment Endpoints, Risk Hypotheses, and Measurement Endpoints
AOC I, Former NASD, Vieques, Puerto Rico

Assessment Endpoint	Risk Hypothesis	Measurement Endpoint	Receptor
Terrestrial Habitats			
Survival, growth, and reproduction of terrestrial soil invertebrate communities	Are site-related chemical concentrations in surface soil sufficient to adversely effect soil invertebrate communities?	Comparison of maximum chemical concentrations in surface soil with soil screening values.	Soil invertebrates
Survival, growth, and reproduction of terrestrial plant communities	Are site-related chemical concentrations in surface soil sufficient to adversely effect terrestrial plant communities?	Comparison of maximum chemical concentrations in surface soil with soil screening values.	Terrestrial plants
Survival, growth, and reproduction of terrestrial reptile populations	Are site-related chemical concentrations in surface soil sufficient to cause adverse effects (on growth, survival, or reproduction) to terrestrial reptile populations?	Evidence of potential risk to other upper trophic level terrestrial receptors evaluated in the ERA.	--
Survival, growth, and reproduction of avian terrestrial omnivore populations (modeled as an invertivore)	Are site-related chemical concentrations in surface soil sufficient to cause adverse effects (on growth, survival, or reproduction) to avian receptor populations that may consume soil invertebrates from the site?	Comparison of literature-derived chronic No Observed Adverse Effect Level (NOAEL) values for survival, growth, and/or reproductive effects with modeled dietary exposure doses based on maximum surface soil concentrations.	Pearly-eyed thrasher
Survival, growth, and reproduction of avian terrestrial carnivore populations	Are site-related chemical concentrations in surface soil sufficient to cause adverse effects (on growth, survival, or reproduction) to avian receptor populations that may consume small mammals from the site?	Comparison of literature-derived chronic No Observed Adverse Effect Level (NOAEL) values for survival, growth, and/or reproductive effects with modeled dietary exposure doses based on maximum surface soil concentrations.	Red-tailed hawk
Survival, growth, and reproduction of mammalian terrestrial omnivore populations (modeled as a herbivore)	Are site-related chemical concentrations in surface soil sufficient to cause adverse effects (on growth, survival, or reproduction) to mammalian receptor populations that may consume terrestrial plants from the site?	Comparison of literature-derived chronic No Observed Adverse Effect Level (NOAEL) values for survival, growth, and/or reproductive effects with modeled dietary exposure doses based on maximum surface soil concentrations.	Norway rat
Survival, growth, and reproduction of mammalian terrestrial omnivore populations (modeled as a invertivore)	Are site-related chemical concentrations in surface soil sufficient to cause adverse effects (on growth, survival, or reproduction) to mammalian receptor populations that may consume soil invertebrates from the site?	Comparison of literature-derived chronic No Observed Adverse Effect Level (NOAEL) values for survival, growth, and/or reproductive effects with modeled dietary exposure doses based on maximum surface soil concentrations.	Indian mongoose

TABLE N-5
Bioaccumulative Chemicals List and Log K_{ow} Values for Relevant Chemicals
AOC I, Former NASD, Vieques, Puerto Rico

Chemical	Minimum Log K_{ow}	Maximum Log K_{ow}	Selected log K_{ow}	Reference
Inorganics				
Arsenic	--	--	--	--
Cadmium	--	--	--	--
Chromium	--	--	--	--
Copper	--	--	--	--
Lead	--	--	--	--
Mercury	--	--	--	--
Nickel	--	--	--	--
Selenium	--	--	--	--
Silver	--	--	--	--
Zinc	--	--	--	--
Pesticides/PCBs				
4,4'-DDD	5.90	6.65	6.10	EPA 1995a
4,4'-DDE	5.63	6.96	6.76	EPA 1995a
4,4'-DDT	5.56	7.01	6.53	EPA 1995a
Aldrin	5.11	7.50	6.50	EPA 1995a
alpha-BHC	3.75	3.81	3.80	EPA 1995a
alpha-Chlordane	5.80	6.41	6.32	EPA 1995a
Aroclor-1016	--	--	5.60	Sample et al. 1996
Aroclor-1221	--	--	4.70	Jones et al. 1997
Aroclor-1232	--	--	5.10	Jones et al. 1997
Aroclor-1242	--	--	5.60	Jones et al. 1997
Aroclor-1248	--	--	6.20	Jones et al. 1997
Aroclor-1254	--	--	6.50	Jones et al. 1997
Aroclor-1260	--	--	6.80	Jones et al. 1997
beta-BHC	3.75	3.84	3.81	EPA 1995a
delta-BHC	--	--	4.10	EPA 1996
Dieldrin	3.63	6.20	5.37	EPA 1995a
Endosulfan I	3.55	3.85	3.83	EPA 1995a
Endosulfan II	3.62	4.52	4.52	EPA 1995a
Endrin	2.92	5.20	5.06	EPA 1995a
gamma-BHC (Lindane)	3.61	3.90	3.73	EPA 1995a
gamma-Chlordane	5.80	6.41	6.32	EPA 1995a
Heptachlor	4.93	6.26	6.26	EPA 1995a
Heptachlor epoxide	3.50	5.40	5.00	EPA 1995a
Methoxychlor	4.20	5.60	5.08	EPA 1995a
Toxaphene	4.33	5.56	5.50	EPA 1995a
Volatile and Semivolatile Organics				
1,1,2,2-Tetrachloroethane	2.31	2.64	2.39	EPA 1995a
1,2,4-Trichlorobenzene	3.89	4.23	4.01	EPA 1995a
1,2-Dichlorobenzene	3.20	3.61	3.43	EPA 1995a
1,3-Dichlorobenzene	--	--	3.50	EPA 1996
1,4-Dichlorobenzene	3.26	3.62	3.42	EPA 1995a
4-Bromophenyl-phenylether	4.89	5.24	5.00	EPA 1995a
4-Chlorophenyl-phenylether	4.08	5.09	4.95	EPA 1995a
Acenaphthene	3.77	4.49	3.92	EPA 1995a
Acenaphthylene	--	--	4.10	EPA 1996
Anthracene	4.44	4.80	4.55	EPA 1995a
Benzo(a)anthracene	5.61	5.79	5.70	EPA 1995a
Benzo(a)pyrene	5.98	6.34	6.11	EPA 1995a
Benzo(b)fluoranthene	5.79	6.40	6.20	EPA 1995a
Benzo(g,h,i)perylene	6.58	7.05	6.70	EPA 1995a
Benzo(k)fluoranthene	6.12	6.27	6.20	EPA 1995a
Chrysene	5.41	5.79	5.70	EPA 1995a
Dibenz(a,h)anthracene	6.50	6.88	6.69	EPA 1995a
Fluoranthene	4.84	5.39	5.12	EPA 1995a
Fluorene	4.04	4.40	4.21	EPA 1995a
Hexachlorobenzene	5.23	6.92	5.89	EPA 1995a
Hexachlorobutadiene	4.74	5.16	4.81	EPA 1995a
Hexachlorocyclopentadiene	5.05	5.51	5.39	EPA 1995a
Hexachloroethane	3.82	4.14	4.00	EPA 1995a
Indeno(1,2,3-cd)pyrene	6.58	6.72	6.65	EPA 1995a
Pentachlorophenol	5.01	5.24	5.09	EPA 1995a
Phenanthrene	4.37	4.57	4.55	EPA 1995a
Pyrene	4.76	5.52	5.11	EPA 1995a

TABLE N-6
Soil Bioconcentration and Bioaccumulation Factors For Plants, Soil Invertebrates, and Small Mammals - Step 2
AOC I, Former NASD, Vieques, Puerto Rico

Chemical	Soil-Plant BCF (dry weight)		Soil-Invertebrate BAF (dry weight)		Soil-Small Mammal BAF (dry weight)	
	Value	Reference	Value	Reference	Value	Reference
Inorganics						
Arsenic	1.103	Bechtel Jacobs 1998	0.523	Sample et al. 1998a	0.014	Sample et al. 1998b
Cadmium	3.250	Bechtel Jacobs 1998	40.69	Sample et al. 1998a	0.462	Sample et al. 1998b
Chromium	0.084	Bechtel Jacobs 1998	3.162	Sample et al. 1998a	0.349	Sample et al. 1998b
Copper	0.625	Bechtel Jacobs 1998	1.531	Sample et al. 1998a	0.554	Sample et al. 1998b
Lead	0.468	Bechtel Jacobs 1998	1.522	Sample et al. 1998a	0.286	Sample et al. 1998b
Mercury	5.000	Bechtel Jacobs 1998	20.63	Sample et al. 1998a	0.130	Sample et al. 1998b
Nickel	1.411	Bechtel Jacobs 1998	4.730	Sample et al. 1998a	0.589	Sample et al. 1998b
Selenium	3.012	Bechtel Jacobs 1998	1.340	Sample et al. 1998a	1.263	Sample et al. 1998b
Silver	0.037	Bechtel Jacobs 1998	15.34	Sample et al. 1998a	0.810	Sample et al. 1998b
Zinc	1.820	Bechtel Jacobs 1998	12.89	Sample et al. 1998a	2.782	Sample et al. 1998b
Pesticides/PCBs						
4,4'-DDD	0.4234	EPA 2007a	2.00	Menzie et al. 1992	--	see text
4,4'-DDE	0.2990	EPA 2007a	10.6	Menzie et al. 1992	--	see text
4,4'-DDT	0.3375	EPA 2007a	0.70	Menzie et al. 1992	--	see text
Aldrin	0.3429	EPA 2007a	3.30	Edwards and Bohlen 1992	--	see text
alpha-BHC	1.4240	EPA 2007a	1.00	--	--	see text
alpha-Chlordane	0.3771	EPA 2007a	4.00	Edwards and Bohlen 1992	--	see text
Aroclor-1016	0.5512	EPA 2007a	15.9	Sample et al. 1998a	--	see text
Aroclor-1221	0.8859	EPA 2007a	15.9	Sample et al. 1998a	--	see text
Aroclor-1232	0.7175	EPA 2007a	15.9	Sample et al. 1998a	--	see text
Aroclor-1242	0.5512	EPA 2007a	15.9	Sample et al. 1998a	--	see text
Aroclor-1248	0.4017	EPA 2007a	15.9	Sample et al. 1998a	--	see text
Aroclor-1254	0.3429	EPA 2007a	15.9	Sample et al. 1998a	--	see text
Aroclor-1260	0.2928	EPA 2007a	15.9	Sample et al. 1998a	--	see text
beta-BHC	1.4165	EPA 2007a	1.00	--	--	see text
delta-BHC	1.2156	EPA 2007a	1.00	--	--	see text
Dieldrin	0.6223	EPA 2007a	8.00	Beyer and Gish 1980	--	see text
Endosulfan I	1.4016	EPA 2007a	1.00	--	--	see text
Endosulfan II	0.9741	EPA 2007a	1.00	--	--	see text
Endrin	0.7328	EPA 2007a	3.60	Edwards and Bohlen 1992	--	see text
gamma-BHC (Lindane)	1.4775	EPA 2007a	1.00	--	--	see text
gamma-Chlordane	0.3771	EPA 2007a	4.00	Edwards and Bohlen 1992	--	see text
Heptachlor	0.3892	EPA 2007a	3.00	Edwards and Bohlen 1992	--	see text
Heptachlor epoxide	0.7563	EPA 2007a	8.39	EPA 1999	--	see text
Methoxychlor	0.7251	EPA 2007a	1.00	--	--	see text
Toxaphene	0.5810	EPA 2007a	1.00	--	--	see text
Volatile/Semivolatile Organics						
1,1,2,2-Tetrachloroethane	2.9950	EPA 2007a	1.00	--	--	see text
1,2,4-Trichlorobenzene	1.2747	EPA 2007a	0.56	Beyer 1996	--	see text
1,2-Dichlorobenzene	1.7307	EPA 2007a	1.00	--	--	see text
1,3-Dichlorobenzene	1.6680	EPA 2007a	1.00	--	--	see text
1,4-Dichlorobenzene	1.7399	EPA 2007a	1.00	--	--	see text
4-Bromophenyl-phenylether	0.7563	EPA 2007a	1.00	--	--	see text
4-Chlorophenyl-phenylether	0.7765	EPA 2007a	1.00	--	--	see text
Acenaphthene	1.3367	EPA 2007a	0.30	Beyer and Stafford 1993	--	see text
Acenaphthylene	1.2156	EPA 2007a	0.22	Beyer and Stafford 1993	--	see text
Anthracene	0.9588	EPA 2007a	0.32	Beyer and Stafford 1993	--	see text
Benzo(a)anthracene	0.5229	EPA 2007a	0.27	Beyer and Stafford 1993	--	see text
Benzo(a)pyrene	0.4212	EPA 2007a	0.34	Beyer and Stafford 1993	--	see text
Benzo(b)fluoranthene	0.4017	EPA 2007a	0.21	Beyer and Stafford 1993	--	see text
Benzo(g,h,i)perylene	0.3086	EPA 2007a	0.15	Beyer and Stafford 1993	--	see text
Benzo(k)fluoranthene	0.4017	EPA 2007a	0.21	Beyer and Stafford 1993	--	see text
Chrysene	0.5229	EPA 2007a	0.44	Beyer and Stafford 1993	--	see text
Dibenz(a,h)anthracene	0.3102	EPA 2007a	0.49	Beyer and Stafford 1993	--	see text
Fluoranthene	0.7099	EPA 2007a	0.37	Beyer and Stafford 1993	--	see text
Fluorene	1.1471	EPA 2007a	0.20	Beyer and Stafford 1993	--	see text
Hexachlorobenzene	0.4730	EPA 2007a	1.69	Beyer 1996	--	see text
Hexachlorobutadiene	0.8360	EPA 2007a	1.00	--	--	see text
Hexachlorocyclopentadiene	0.6157	EPA 2007a	1.00	--	--	see text
Hexachloroethane	1.2814	EPA 2007a	1.00	--	--	see text
Indeno(1,2,3-cd)pyrene	0.3168	EPA 2007a	0.41	Beyer and Stafford 1993	--	see text
Pentachlorophenol	0.7213	EPA 2007a	8.00	van Gestel and Ma 1988	--	see text
Phenanthrene	0.9588	EPA 2007a	0.28	Beyer and Stafford 1993	--	see text
Pyrene	0.7137	EPA 2007a	0.39	Beyer and Stafford 1993	--	see text

TABLE N-7
Exposure Parameters for Upper Trophic Level Ecological Receptors - Step 2
AOC I, Former NASD, Vieques, Puerto Rico

Receptor	Body Weight (kg)		Food Ingestion Rate (kg/day - dry)		Dietary Composition (percent)				Soil Ingestion (percent)		Home Range (ha) [a]	
	Value	Reference	Value	Reference	Terr. Plants	Soil Invert.	Small Mammals	Reference	Value	Reference	Value	Reference
Birds												
Pearly-eyed thrasher	0.095	Oberle 2000	0.0140	allometric equation (Nagy 2001)	0	95.4	0	--	4.6	Sample and Suter 1994; value is for American robin	NA	--
Red-tailed hawk	0.957	EPA 1993	0.0395	Sample and Suter 1994	0	0	100	EPA 1993; Sample and Suter 1994	0	Sample and Suter 1994	233	Sample and Suter 1994
Mammals												
Norway rat	0.250	Pass and Freeth 1993	0.0586	allometric equation (Nagy 2001)	98	0	0	Linzey 1998; estimated based on description of diet	2.0	Beyer et al. 1994; value is for deer mouse	0.24	Stroud 1982
Indian Mongoose	0.305	Nellis 1989	0.0345	allometric equation (Nagy 2001)	0	87	0	Nellis 1989	13	Sample and Suter 1994; value is for short-tailed shrew	3.20	Nellis 1989

a - Home range not used in food web modeling. Values represent mean of available data.
NA - not available

TABLE N-8
Uncertainty Factors Applied to Ingestion-Based Screening Values
AOC I, Former NASD, Vieques, Puerto Rico

Convert From	Convert To	Uncertainty Factor
Chronic NOAEL	Chronic NOAEL	1
Chronic LOAEL	Chronic NOAEL	5
Subchronic NOAEL	Chronic NOAEL	10
Subchronic LOAEL	Chronic NOAEL	20
Acute NOAEL	Chronic NOAEL	30
Acute LOAEL	Chronic NOAEL	50
LD50	Chronic NOAEL	100

Uncertainty factors from Wentsel et al. (1996)
Durations are defined as follows (EPA 1999; Sample et al. 1996):
- Acute: <14 days
- Subchronic: 14 - 90 days
- Chronic: >90 days or during critical life stage

TABLE N-9
Ingestion Screening Values for Mammals
AOC I, Former NASD, Vieques, Puerto Rico

Chemical	Test Organism	Body Weight (kg)	Duration	Exposure Route	Effect/Endpoint	LOAEL (mg/kg/d)	NOAEL (mg/kg/d)	Reference
Inorganics								
Arsenic	mouse	0.0	3 generations	oral in water	reproduction	1.26	0.25 a	Sample et al. 1996
Arsenic	dog	10	2 years	oral in diet	systemic	6.0 b	1.20	ATSDR 1993a
Cadmium	rat	0.3	6 weeks	oral (gavage)	reproduction	10	1	Sample et al. 1996
Cadmium	dog	10	3 months	oral in diet	reproduction	3.75 b	0.75	ATSDR 1999a
Chromium	rat	0.35	1 year	oral in water	body weight/intake	16.4 b	3.28	Sample et al. 1996
Copper	mouse	0.03	1 month + GD 0-19	oral in diet	developmental	104.0	78	ATSDR 1990a
Copper	mink	1	357 days	oral in diet	reproduction	15.1	11.70	Sample et al. 1996
Mercury	rat	0.35	3 generations	oral in diet	reproduction	0.16	0.032	Sample et al. 1996
Mercury	mink	1.00	93 days	oral in diet	survival/weight loss	0.25	0.15	Sample et al. 1996
Nickel	rat	0.35	3 generations	oral in diet	reproduction	80.0	40.0	Sample et al. 1996
Nickel	dog	10.0	2 years	oral in diet	systemic	62.5	25.0	ATSDR 1997a
Selenium	rat	0.35	1 year	oral in water	reproduction	0.33	0.20	Sample et al. 1996
Silver	rat	0.35	2 weeks	oral in water	survival	45.3 d	9.06 e	ATSDR 1990b
Zinc	rat	0.35	GD 1-16	oral in diet	reproduction	320	160	Sample et al. 1996
Zinc	mink	1.00	25 weeks	oral	reproduction	104 b	20.8	ATSDR 1994a
Pesticides/PCBs								
4,4'-DDD	rat	0.35	2 years	oral in diet	reproduction	4.00	0.80	Sample et al. 1996
4,4'-DDD	dog	10.0	2 generations	oral in diet	reproduction	5.00	1.00	ATSDR 1994b
4,4'-DDE	rat	0.35	2 years	oral in diet	reproduction	4.00	0.80	Sample et al. 1996
4,4'-DDE	dog	10.0	2 generations	oral in diet	reproduction	5.00	1.00	ATSDR 1994b
4,4'-DDT	rat	0.35	2 years	oral in diet	reproduction	4.00	0.80	Sample et al. 1996
4,4'-DDT	dog	10.0	2 generations	oral in diet	reproduction	5.00	1.00	ATSDR 1994b
Aldrin	rat	0.35	3 generations	oral in diet	reproduction	1.00	0.20	Sample et al. 1996
alpha-BHC	rat	0.35	4 generations	oral in diet	reproduction	3.20	1.60	Sample et al. 1996
alpha-Chlordane	mouse	0.03	6 generations	oral in diet	reproduction	9.16	4.58	Sample et al. 1996
Aroclor-1016	oldfield mouse	0.014	12 months	oral in diet	reproduction	0.68	0.14 a	Sample et al. 1996
Aroclor-1016	mink	1.00	18 months	oral in diet	reproduction	3.43	1.37	Sample et al. 1996
Aroclor-1221	oldfield mouse	0.014	12 months	oral in diet	reproduction	0.68	0.14 a	Sample et al. 1996
Aroclor-1221	mink	1.00	7 months	oral in diet	reproduction	0.69	0.14 a	Sample et al. 1996
Aroclor-1232	oldfield mouse	0.014	12 months	oral in diet	reproduction	0.68	0.14 a	Sample et al. 1996
Aroclor-1232	mink	1.00	7 months	oral in diet	reproduction	0.69	0.14 a	Sample et al. 1996
Aroclor-1242	oldfield mouse	0.014	12 months	oral in diet	reproduction	0.68	0.14 a	Sample et al. 1996
Aroclor-1242	mink	1.00	7 months	oral in diet	reproduction	0.69	0.14 a	Sample et al. 1996
Aroclor-1248	oldfield mouse	0.014	12 months	oral in diet	reproduction	0.68	0.14 a	Sample et al. 1996
Aroclor-1248	mink	1.00	4.5 months	oral in diet	reproduction	0.69	0.14	Sample et al. 1996
Aroclor-1254	oldfield mouse	0.014	12 months	oral in diet	reproduction	0.68	0.14 a	Sample et al. 1996
Aroclor-1254	mink	1.00	4.5 months	oral in diet	reproduction	0.69	0.14	Sample et al. 1996
Aroclor-1260	oldfield mouse	0.014	12 months	oral in diet	reproduction	0.68	0.14 a	Sample et al. 1996
Aroclor-1260	mink	1.00	4.5 months	oral in diet	reproduction	0.69	0.14	Sample et al. 1996
beta-BHC	rat	0.35	4 generations	oral in diet	reproduction	3.20	1.60	Sample et al. 1996
delta-BHC	rat	0.35	4 generations	oral in diet	reproduction	3.20	1.60	Sample et al. 1996
Dieldrin	rat	0.35	3 generations	oral in diet	reproduction	0.20	0.04 a	Sample et al. 1996
Dieldrin	dog	10	15.7 months	oral in diet	systemic	0.14	0.03 a	ATSDR 1993b
Endosulfan I	rat	0.35	30 days	oral (gavage)	fertility	7.50 b	1.50	Sample et al. 1996
Endosulfan I	dog	10.0	2 years	oral in diet	systemic	5.00 b	1.00	ATSDR 1993c
Endosulfan II	rat	0.35	30 days	oral (gavage)	fertility	7.50 b	1.50	Sample et al. 1996
Endosulfan II	dog	10.0	2 years	oral in diet	systemic	5.00 b	1.00	ATSDR 1993c
Endrin	mouse	0.03	120 days	oral in diet	reproduction	0.92	0.18 a	Sample et al. 1996
gamma-BHC (Lindane)	rat	0.35	3 generations	oral in diet	reproduction	40.0 b	8.00	Sample et al. 1996
gamma-Chlordane	mouse	0.03	6 generations	oral in diet	reproduction	9.16	4.58	Sample et al. 1996
Heptachlor	mouse	0.03	70 days	oral in diet	reproduction	1.63 f	0.33 g	ATSDR 1993d
Heptachlor	mink	1.00	181 days	oral in diet	reproduction	1.00	0.20 a	Sample et al. 1996
Heptachlor epoxide	mouse	0.03	70 days	oral in diet	reproduction	1.63 f	0.33 g	ATSDR 1993d
Heptachlor epoxide	mink	1.00	181 days	oral in diet	reproduction	1.00	0.20 a	Sample et al. 1996
Methoxychlor	rat	0.35	11 months	oral in diet	reproduction	8.00	4.00	Sample et al. 1996
Toxaphene	rat	0.35	3 generations	oral in diet	reproduction	40.0 b	8.00	Sample et al. 1996
Volatile/Semivolatile Organics								
1,1,2,2-Tetrachloroethane	rat	0.35	78 weeks	oral (gavage)	reproduction	380 b	76	ATSDR 1996a
1,2,4-Trichlorobenzene	rat	0.35	3 generations	oral in water	reproduction	106	53	Coulston and Kolbye 1994
1,2-Dichlorobenzene	rat	0.35	chronic	oral (gavage)	liver/kidney	429	85.7	Coulston and Kolbye 1994
1,3-Dichlorobenzene	rat	0.35	chronic	oral (gavage)	liver/kidney	429	85.7	Coulston and Kolbye 1994
1,4-Dichlorobenzene	rat	0.35	GD 6-15	oral (gavage)	developmental	500	250	ATSDR 1998
4-Bromophenyl-phenylether	--	--	--	--	--	NA	NA	--
4-Chlorophenyl-phenylether	--	--	--	--	--	NA	NA	--
Acenaphthene	mouse	0.03	13 weeks	oral (gavage)	reproduction	700	350	ATSDR 1995
Acenaphthylene	mouse	0.03	13 weeks	oral (gavage)	reproduction	700	350	ATSDR 1995
Anthracene	mouse	0.03	13 weeks	oral (gavage)	reproduction	5,000 b	1,000	ATSDR 1995
Benzo(a)anthracene	mouse	0.03	GD 7-16	oral (gavage)	reproduction	10.0	2.00 a	Sample et al. 1996
Benzo(a)pyrene	mouse	0.03	GD 7-16	oral (gavage)	reproduction	10.0	2.00 a	Sample et al. 1996
Benzo(b)fluoranthene	mouse	0.03	GD 7-16	oral (gavage)	reproduction	10.0	2.00 a	Sample et al. 1996
Benzo(g,h,i)perylene	mouse	0.03	GD 7-16	oral (gavage)	reproduction	10.0	2.00 a	Sample et al. 1996
Benzo(k)fluoranthene	mouse	0.03	GD 7-16	oral (gavage)	reproduction	10.0	2.00 a	Sample et al. 1996
Chrysene	mouse	0.03	GD 7-16	oral (gavage)	reproduction	10.0	2.00 a	Sample et al. 1996
Dibenz(a,h)anthracene	mouse	0.03	GD 7-16	oral (gavage)	reproduction	10.0	2.00 a	Sample et al. 1996
Fluoranthene	mouse	0.03	13 weeks	oral (gavage)	reproduction	2,500 b	500	ATSDR 1995
Fluorene	mouse	0.03	13 weeks	oral (gavage)	reproduction	2,500 b	500	ATSDR 1995
Hexachlorobenzene	rat	0.35	4 generations	oral in diet	reproduction	2.00	1.00	ATSDR 1996b
Hexachlorobenzene	dog	10.0	1 year	oral	systemic	12.0	1.20	ATSDR 1996b
Hexachlorobutadiene	rat	0.35	GD 1-22; LD 1-21	oral in diet	developmental	20.0	2.00	ATSDR 1994c
Hexachlorocyclopentadiene	mouse	0.03	GD 6-15	oral (gavage)	developmental	375 b	75.0	ATSDR 1999b
Hexachloroethane	rat	0.35	GD 6-16	oral (gavage)	reproduction	500	100	ATSDR 1997b
Indeno(1,2,3-cd)pyrene	mouse	0.03	GD 7-16	oral (gavage)	reproduction	10.0	2.00 a	Sample et al. 1996
Pentachlorophenol	rat	0.35	2 generations	oral in diet	developmental	25.0	5.00 a	ATSDR 1994d
Phenanthrene	mouse	0.03	13 weeks	oral (gavage)	reproduction	2,500 b	500	ATSDR 1995
Pyrene	mouse	0.03	GD 7-16	oral (gavage)	reproduction	10.0	2.00 a	Sample et al. 1996

[a] Uncertainty factor of 5 applied to LOAEL
[b] Uncertainty factor of 5 applied to NOAEL
[c] Does not include subchronic uncertainty factor of 10
[d] Derived from a subchronic NOAEL of 181.2 and an uncertainty factor of 4
[e] Derived from a subchronic NOAEL of 181.2 and an uncertainty factor of 20
[f] Derived from a subchronic NOAEL of 6.50 and an uncertainty factor of 4
[g] Derived from a subchronic NOAEL of 6.50 and an uncertainty factor of 20

TABLE N-10
Ingestion Screening Values for Birds
AOC I, Former NASD, Vieques, Puerto Rico

Chemical	Test Organism	Body Weight (kg)	Duration	Exposure Route	Effect/Endpoint	LOAEL (mg/kg/d)	NOAEL (mg/kg/d)	Reference
Inorganics								
Arsenic	brown-headed cowbird	0.049	7 months	oral in diet	survival	7.38	2.46	Sample et al. 1996
Cadmium	mallard	1.153	90 days	oral in diet	reproduction	20	1.45	Sample et al. 1996
Chromium	American black duck	1.25	10 months	oral in diet	reproduction	5	1	Sample et al. 1996
Copper	chicken (chicks)	0.534	10 weeks	oral in diet	growth/survival	61.7	47	Sample et al. 1996
Lead	American kestrel	0.13	7 months	oral in diet	reproduction	19.25 b	3.85	Sample et al. 1996
Mercury	red-tailed hawk	1.1	12 weeks	oral in diet	survival/neurological	1.2	0.49	USEPA 1995b
Nickel	mallard	0.782	90 days	oral in diet	growth/survival	107	77.4	Sample et al. 1996
Selenium	screech owl	0.2	13.7 weeks	oral in diet	reproduction	1.5	0.44	Sample et al. 1996
Silver	chicken (chicks)	0.8	not specified	oral in diet	growth	35	7 a	Eisler 1996
Zinc	chicken	1.935	44 weeks	oral in diet	reproduction	131	14.5	Sample et al. 1996
Pesticides/PCBs								
4,4'-DDD	Japanese quail	0.11	3 generations	oral in diet	reproduction	5	0.5	USEPA 1995b
4,4'-DDD	barn owl	0.47	2 years	oral in diet	reproduction	0.4 b	0.08	Blus 1996
4,4'-DDE	Japanese quail	0.11	3 generations	oral in diet	reproduction	5.0	0.5	USEPA 1995b
4,4'-DDE	barn owl	0.47	2 years	oral in diet	reproduction	0.40 b	0.08	Blus 1996
4,4'-DDT	Japanese quail	0.11	3 generations	oral in diet	reproduction	5	0.5	USEPA 1995b
4,4'-DDT	barn owl	0.47	2 years	oral in diet	reproduction	0.4 b	0.08	Blus 1996
Aldrin	ring-necked pheasant	1.14	5 days	oral in diet	survival	0.4 b	0.0701 c	Hill et al. 1975
alpha-BHC	Japanese quail	0.15	90 days	oral in diet	reproduction	2.25	0.56	Sample et al. 1996
alpha-Chlordane	red-winged blackbird	0.06	84 days	oral in diet	survival	10.7	2.14	Sample et al. 1996
Aroclor-1016	screech owl	0.181	2 generations	oral in diet	reproduction	2.05 b	0.41	Sample et al. 1996
Aroclor-1221	screech owl	0.181	2 generations	oral in diet	reproduction	2.05 b	0.41	Sample et al. 1996
Aroclor-1232	screech owl	0.18	2 generations	oral in diet	reproduction	2.05 b	0.41	Sample et al. 1996
Aroclor-1242	screech owl	0.18	2 generations	oral in diet	reproduction	2.05 b	0.41	Sample et al. 1996
Aroclor-1248	screech owl	0.18	2 generations	oral in diet	reproduction	2.05 b	0.41	Sample et al. 1996
Aroclor-1254	screech owl	0.18	2 generations	oral in diet	reproduction	2.1 b	0.41	Sample et al. 1996
Aroclor-1260	screech owl	0.18	2 generations	oral in diet	reproduction	2.05 b	0.41	Sample et al. 1996
beta-BHC	Japanese quail	0.15	90 days	oral in diet	reproduction	2.25	0.56	Sample et al. 1996
delta-BHC	Japanese quail	0.15	90 days	oral in diet	reproduction	2.25	0.56	Sample et al. 1996
Dieldrin	barn owl	0.466	2 years	oral in diet	reproduction	0.39 b	0.08	Sample et al. 1996
Endosulfan I	gray partridge	0.40	4 weeks	oral in diet	reproduction	50.00 b	10	Sample et al. 1996
Endosulfan II	gray partridge	0.4	4 weeks	oral in diet	reproduction	50.00 b	10.00	Sample et al. 1996
Endrin	screech owl	0.181	>83 days	oral in diet	reproduction	0.10	0.02 a	Sample et al. 1996
gamma-BHC (Lindane)	mallard	1	8 weeks	oral (gavage)	reproduction	20.00	4 a	Sample et al. 1996
gamma-Chlordane	red-winged blackbird	0.06	84 days	oral in diet	survival	10.70	2.14	Sample et al. 1996
Heptachlor	ring-necked pheasant	1.14	5 days	oral in diet	survival	1.38 b	0.28 d	Hill et al. 1975
Heptachlor epoxide	ring-necked pheasant	1.14	5 days	oral in diet	survival	1.38 b	0.28 d	Hill et al. 1975
Methoxychlor	chicken	1.5	16 weeks	oral in diet	reproduction	1775.00 b	355	Wiemeyer 1996
Toxaphene	American black duck	1.00	2 seasons	oral in diet	reproduction	5.00	1.00	Wiemeyer 1996
Volatile/Semivolatile Organics								
1,1,2,2-Tetrachloroethane	--	--	--	--	--	NA	NA	--
1,2,4-Trichlorobenzene	northern bobwhite	0.19	14 days	oral	survival	160.80 e	32.16 f	EPA 2002
1,2-Dichlorobenzene	northern bobwhite	0.19	14 days	oral	survival	160.80 e	32.16 f	EPA 2002
1,3-Dichlorobenzene	northern bobwhite	0.19	14 days	oral	survival	160.8 e	32.16 f	EPA 2002
1,4-Dichlorobenzene	northern bobwhite	0.19	14 days	oral	survival	160.8 e	32.16 f	EPA 2002
4-Bromophenyl-phenylether	--	--	--	--	--	NA	NA	--
4-Chlorophenyl-phenylether	--	--	--	--	--	NA	NA	--
Acenaphthene	chicken	1.50	35 days	oral in diet	reproduction	35.50 b	7.10 g	Rigdon and Neal 1963
Acenaphthylene	chicken	1.5	35 days	oral in diet	reproduction	35.5 b	7.1 g	Rigdon and Neal 1963
Anthracene	chicken	1.50	35 days	oral in diet	reproduction	35.50 b	7.10 g	Rigdon and Neal 1963
Benzo(a)anthracene	chicken	1.5	35 days	oral in diet	reproduction	35.5 b	7.1 g	Rigdon and Neal 1963
Benzo(a)pyrene	chicken	1.50	35 days	oral in diet	reproduction	35.50 b	7.10 g	Rigdon and Neal 1963
Benzo(b)fluoranthene	chicken	1.5	35 days	oral in diet	reproduction	35.5 b	7.1 g	Rigdon and Neal 1963
Benzo(g,h,i)perylene	chicken	1.50	35 days	oral in diet	reproduction	35.50 b	7.10 g	Rigdon and Neal 1963
Benzo(k)fluoranthene	chicken	1.5	35 days	oral in diet	reproduction	35.5 b	7.1 g	Rigdon and Neal 1963
Chrysene	chicken	1.50	35 days	oral in diet	reproduction	35.50 b	7.10 g	Rigdon and Neal 1963
Dibenz(a,h)anthracene	chicken	1.5	35 days	oral in diet	reproduction	35.5 b	7.1 g	Rigdon and Neal 1963
Fluoranthene	chicken	1.50	35 days	oral in diet	reproduction	35.50 b	7.10 g	Rigdon and Neal 1963
Fluorene	chicken	1.5	35 days	oral in diet	reproduction	35.5 b	7.1 g	Rigdon and Neal 1963
Hexachlorobenzene	Japanese quail	0.15	90 days	oral in diet	reproduction	0.57	0.11	Coulston and Kolbye 1994; EPA 2002
Hexachlorobutadiene	Japanese quail	0.15	90 days	oral in diet	reproduction	16.95 b	3.39	Coulston and Kolbye 1994; EPA 2002
Hexachlorocyclopentadiene	--	--	--	--	--	NA	NA	--
Hexachloroethane	--	--	--	--	--	NA	NA	--
Indeno(1,2,3-cd)pyrene	chicken	1.50	35 days	oral in diet	reproduction	35.5 b	7.1 g	Rigdon and Neal 1963
Pentachlorophenol	chicken	1.50	8 weeks	oral in diet	systemic/growth	8.5 h	4.3 i	Eisler 1989
Phenanthrene	chicken	1.5	35 days	oral in diet	reproduction	35.50 b	7.10 g	Rigdon and Neal 1963
Pyrene	chicken	1.5	35 days	oral in diet	reproduction	35.50 b	7.1 g	Rigdon and Neal 1963

[a] Uncertainty factor of 5 applied to LOAEL
[b] Uncertainty factor of 5 applied to NOAEL
[c] Derived from a LD50 of 7.01 and an uncertainty factor of 100
[d] Derived from a LD50 of 27.53 and an uncertainty factor of 100
[e] Derived from an acute LOAEL of 1,608 and an uncertainty factor of 10
[f] Derived from an acute LOAEL of 1,608 and an uncertainty factor of 50
[g] Uncertainty factor of 10 applied to subchronic NOAEL of 71.0
[h] Uncertainty factor of 10 applied to subchronic LOAEL of 85.2
Uncertainty factor of 10 applied to subchronic NOAEL of 42.6

TABLE N-11

Step 2 Screening Statistics and COPC Selection - Surface Soil

AOC I, Former NASD, Vieques, Puerto Rico

Chemical	Range of Non-Detect Values	Frequency of Detection	Maximum Concentration Detected	Sample ID of Maximum Detected Concentration	Screening Value	Reference	Frequency of Exceedance	Maximum Hazard Quotient[1]	COPC?
Inorganics (MG/KG)									
Aluminum	-- - --	26 / 26	25,000	NDE083	NSV	--	-- / --	NSV	YES
Antimony	-- - --	26 / 26	1.50	NDE047	78.0	EPA, 2005a	0 / 26	0.019	NO
Arsenic	-- - --	26 / 26	2.30	NDE083	18.0	EPA, 2005b	0 / 26	0.13	NO
Barium	-- - --	26 / 26	65.0	NDE083	330	EPA, 2005c	0 / 26	0.20	NO
Beryllium	0.030 - 0.035	23 / 26	0.42	NDE083	40.0	EPA, 2005d	0 / 26	0.011	NO
Cadmium	0.020 - 0.11	1 / 26	0.52	NDE088	32.0	EPA, 2005e	0 / 26	0.016	NO
Calcium [2]	-- - --	26 / 26	52,000	NDE075	NSV	--	-- / --	NSV	NO
Chromium	-- - --	43 / 43	110	NDE083	0.40	Efroymson, 1997a	43 / 43	275	YES
Chromium (hexavalent)	-- - --	17 / 17	1.62	NDAISS27-R01	0.40	Efroymson, 1997a	16 / 17	4.05	YES
Cobalt	-- - --	26 / 26	27.0	NDE053	13.0	EPA, 2005f	25 / 26	2.08	YES
Copper	-- - --	26 / 26	103	NDE051	70.0	EPA, 2007c	3 / 26	1.47	YES
Iron	-- - --	26 / 26	44,000	NDE083	NSV	--	-- / --	NSV	YES
Lead	-- - --	26 / 26	22.0	NDE088	120	EPA, 2005g	0 / 26	0.18	NO
Magnesium [2]	-- - --	26 / 26	15,000	NDE061	NSV	--	-- / --	NSV	NO
Manganese	-- - --	26 / 26	980	NDE053	220	EPA, 2007d	26 / 26	4.45	YES
Mercury	0.0026 - 0.0036	13 / 26	0.034	NDE083	0.10	Efroymson, 1997a	0 / 26	0.34	NO
Nickel	-- - --	26 / 26	57.0	NDE083	38.0	EPA, 2007e	2 / 26	1.50	YES
Potassium [2]	-- - --	26 / 26	910	NDE088	NSV	--	-- / --	NSV	NO
Selenium	0.48 - 0.59	19 / 26	1.60	NDE090	0.52	EPA, 2007f	19 / 26	3.08	YES
Silver	0.060 - 0.11	9 / 26	0.12	NDE053	560	EPA, 2006	0 / 26	0.0002	NO
Sodium [2]	-- - --	26 / 26	830	NDE081	NSV	--	-- / --	NSV	NO
Thallium	0.33 - 0.40	2 / 26	0.93	NDE079	1.00	Efroymson, 1997b	0 / 26	0.93	NO
Vanadium	-- - --	26 / 26	140	NDE083	2.00	Efroymson, 1997b	26 / 26	70.0	YES
Zinc	-- - --	26 / 26	59.0	NDE086	120	EPA, 2007g	0 / 26	0.49	NO
Pesticide/Polychlorinated Biphenyls (UG/KG)									
4,4'-DDD	3.30 - 4.30	0 / 26	--	--	10.0	MHSPE 2000	-- / --	0.43	NO
4,4'-DDE	3.30 - 4.30	0 / 26	--	--	10.0	MHSPE 2000	-- / --	0.43	NO
4,4'-DDT	3.30 - 4.30	0 / 26	--	--	10.0	MHSPE 2000	-- / --	0.43	NO
Aldrin	1.70 - 2.20	0 / 26	--	--	0.060	MHSPE 2000	-- / --	36.7	NO
Aroclor-1016	33.0 - 43.0	0 / 26	--	--	40,000	Efroymson, 1997b	-- / --	0.0011	NO
Aroclor-1221	67.0 - 87.0	0 / 26	--	--	40,000	Efroymson, 1997b	-- / --	0.0022	NO
Aroclor-1232	33.0 - 43.0	0 / 26	--	--	40,000	Efroymson, 1997b	-- / --	0.0011	NO
Aroclor-1242	33.0 - 43.0	0 / 26	--	--	40,000	Efroymson, 1997b	-- / --	0.0011	NO
Aroclor-1248	33.0 - 43.0	0 / 26	--	--	40,000	Efroymson, 1997b	-- / --	0.0011	NO
Aroclor-1254	33.0 - 43.0	0 / 26	--	--	40,000	Efroymson, 1997b	-- / --	0.0011	NO
Aroclor-1260	33.0 - 43.0	0 / 26	--	--	40,000	Efroymson, 1997b	-- / --	0.0011	NO
Dieldrin	3.30 - 4.30	0 / 26	--	--	0.50	MHSPE 2000	-- / --	8.60	NO
Endosulfan I	1.70 - 2.20	0 / 26	--	--	0.010	MHSPE 2000	-- / --	220	NO
Endosulfan II	3.30 - 4.30	0 / 26	--	--	NSV	--	-- / --	NSV	NO
Endosulfan sulfate	3.30 - 4.30	0 / 26	--	--	NSV	--	-- / --	NSV	NO
Endrin	3.30 - 4.30	0 / 26	--	--	0.040	MHSPE 2000	-- / --	108	NO
Endrin aldehyde	3.30 - 4.30	0 / 26	--	--	100	Beyer, 1990	-- / --	0.043	NO
Endrin ketone	3.30 - 4.30	0 / 26	--	--	100	Beyer, 1990	-- / --	0.043	NO
Heptachlor	1.70 - 2.20	0 / 26	--	--	0.70	MHSPE 2000	-- / --	3.14	NO
Heptachlor epoxide	1.70 - 2.20	0 / 26	--	--	0.0002	MHSPE 2000	-- / --	11,000	NO
Methoxychlor	17.0 - 22.0	0 / 26	--	--	NSV	--	-- / --	NSV	NO
Toxaphene	170 - 222	0 / 26	--	--	NSV	--	-- / --	NSV	NO
alpha-BHC	1.70 - 2.20	0 / 26	--	--	3.00	MHSPE 2000	-- / --	0.73	NO
alpha-Chlordane	1.70 - 2.20	0 / 26	--	--	NSV	--	-- / --	NSV	NO
beta-BHC	1.70 - 2.20	0 / 26	--	--	9.00	MHSPE 2000	-- / --	0.24	NO
delta-BHC	1.70 - 2.20	0 / 26	--	--	NSV	--	-- / --	NSV	NO
gamma-BHC (Lindane)	1.70 - 2.20	0 / 26	--	--	0.050	MHSPE 2000	-- / --	44.0	NO
gamma-Chlordane	1.70 - 2.20	0 / 26	--	--	NSV	--	-- / --	NSV	NO
Semivolatile Organic Compounds (UG/KG)									
1,1-Biphenyl	336 - 381	0 / 14	--	--	NSV	--	-- / --	NSV	NO
1,2,4-Trichlorobenzene	331 - 946	0 / 26	--	--	20,000	Efroymson, 1997a	-- / --	0.047	NO
1,2-Dichlorobenzene	331 - 946	0 / 26	--	--	NSV	--	-- / --	NSV	NO
1,3-Dichlorobenzene	331 - 946	0 / 26	--	--	NSV	--	-- / --	NSV	NO
1,4-Dichlorobenzene	331 - 946	0 / 26	--	--	20,000	Efroymson, 1997a	-- / --	0.047	NO
2,2'-Oxybis(1-chloropropane)	331 - 946	0 / 40	--	--	NSV	--	-- / --	NSV	NO
2,4,5-Trichlorophenol	994 - 2,840	0 / 40	--	--	4,000	Efroymson, 1997b	-- / --	0.71	NO
2,4,6-Trichlorophenol	331 - 946	0 / 40	--	--	10,000	Efroymson, 1997a	-- / --	0.095	NO
2,4-Dichlorophenol	331 - 946	0 / 40	--	--	NSV	--	-- / --	NSV	NO
2,4-Dimethylphenol	331 - 946	0 / 40	--	--	NSV	--	-- / --	NSV	NO
2,4-Dinitrophenol	994 - 2,840	0 / 40	--	--	20,000	Efroymson, 1997b	-- / --	0.14	NO
2,4-Dinitrotoluene	331 - 946	0 / 40	--	--	NSV	--	-- / --	NSV	NO
2,6-Dinitrotoluene	331 - 946	0 / 40	--	--	NSV	--	-- / --	NSV	NO
2-Chloronaphthalene	331 - 946	0 / 40	--	--	NSV	--	-- / --	NSV	NO
2-Chlorophenol	331 - 946	0 / 40	--	--	NSV	--	-- / --	NSV	NO
2-Methylnaphthalene	331 - 946	0 / 40	--	--	NSV	--	-- / --	NSV	NO
2-Methylphenol	331 - 946	0 / 40	--	--	NSV	--	-- / --	NSV	NO
2-Nitroaniline	994 - 2,840	0 / 40	--	--	NSV	--	-- / --	NSV	NO
2-Nitrophenol	331 - 946	0 / 40	--	--	NSV	--	-- / --	NSV	NO
3,3'-Dichlorobenzidine	662 - 1,890	0 / 40	--	--	NSV	--	-- / --	NSV	NO
3- and 4-Methylphenol	331 - 946	0 / 26	--	--	NSV	--	-- / --	NSV	NO
3-Nitroaniline	994 - 2,840	0 / 40	--	--	NSV	--	-- / --	NSV	NO
4,6-Dinitro-2-methylphenol	994 - 2,840	0 / 40	--	--	NSV	--	-- / --	NSV	NO
4-Bromophenyl-phenylether	331 - 946	0 / 40	--	--	NSV	--	-- / --	NSV	NO
4-Chloro-3-methylphenol	331 - 946	0 / 40	--	--	NSV	--	-- / --	NSV	NO
4-Chloroaniline	331 - 946	0 / 40	--	--	NSV	--	-- / --	NSV	NO
4-Chlorophenyl-phenylether	331 - 946	0 / 40	--	--	NSV	--	-- / --	NSV	NO
4-Methylphenol	336 - 381	0 / 14	--	--	NSV	--	-- / --	NSV	NO
4-Nitroaniline	994 - 2,840	0 / 40	--	--	NSV	--	-- / --	NSV	NO
4-Nitrophenol	994 - 2,840	0 / 40	--	--	7,000	Efroymson, 1997a	-- / --	0.41	NO
Acenaphthene	331 - 946	0 / 40	--	--	20,000	Efroymson, 1997b	-- / --	0.047	NO
Acenaphthylene	331 - 946	1 / 40	104	NDAISS39-R01	NSV	--	-- / --	NSV	YES
Acetophenone	336 - 381	0 / 14	--	--	NSV	--	-- / --	NSV	NO
Anthracene	331 - 946	2 / 40	65.0	NDAISS36-R01	100	Beyer, 1990	0 / 40	0.65	NO
Atrazine	336 - 381	0 / 14	--	--	0.20	MHSPE 2000	-- / --	1,905	NO
Benzaldehyde	336 - 381	0 / 14	--	--	NSV	--	-- / --	NSV	NO
Benzo(a)anthracene	331 - 946	3 / 40	68.0	NDAISS39-R01	NSV	--	-- / --	NSV	YES
Benzo(a)pyrene	331 - 946	4 / 40	145	NDAISS39-R01	100	Beyer, 1990	1 / 40	1.45	YES
Benzo(b)fluoranthene	331 - 946	2 / 40	203	NDAISS39-R01	NSV	--	-- / --	NSV	YES
Benzo(g,h,i)perylene	331 - 946	2 / 34	174	NDAISS39-R01	NSV	--	-- / --	NSV	YES
Benzo(k)fluoranthene	331 - 946	3 / 40	153	NDAISS32-R01	NSV	--	-- / --	NSV	YES
Butylbenzylphthalate	331 - 946	0 / 40	--	--	NSV	--	-- / --	NSV	NO
Caprolactam	336 - 381	0 / 14	--	--	NSV	--	-- / --	NSV	NO
Carbazole	331 - 946	0 / 40	--	--	NSV	--	-- / --	NSV	NO
Chrysene	331 - 946	3 / 40	135	NDAISS39-R01	NSV	--	-- / --	NSV	YES
Di-n-butylphthalate	331 - 946	0 / 40	--	--	200,000	Efroymson, 1997b	-- / --	0.0047	NO
Di-n-octylphthalate	331 - 946	0 / 40	--	--	NSV	--	-- / --	NSV	NO

TABLE N-11

Step 2 Screening Statistics and COPC Selection - Surface Soil

AOC I, Former NASD, Vieques, Puerto Rico

Chemical	Range of Non-Detect Values	Frequency of Detection	Maximum Concentration Detected	Sample ID of Maximum Detected Concentration	Screening Value	Reference	Frequency of Exceedance	Maximum Hazard Quotient[1]	COPC?
Dibenz(a,h)anthracene	331 - 946	1 / 40	43.7	NDAISS39-R01	NSV	--	-- / --	NSV	YES
Dibenzofuran	331 - 946	0 / 40	--	--	NSV	--	-- / --	NSV	NO
Diethylphthalate	331 - 946	0 / 40	--	--	100,000	Efroymson, 1997b	-- / --	0.0095	NO
Dimethyl phthalate	331 - 946	0 / 40	--	--	200,000	Efroymson, 1997a	-- / --	0.0047	NO
Fluoranthene	331 - 946	4 / 40	227	NDAISS36-R01	100	Beyer, 1990	1 / 40	2.27	YES
Fluorene	331 - 946	0 / 40	--	--	30,000	Efroymson, 1997a	-- / --	0.032	NO
Hexachlorobenzene	331 - 946	0 / 40	--	--	1,000,000	Efroymson, 1997a	-- / --	0.001	NO
Hexachlorobutadiene	331 - 946	0 / 40	--	--	NSV	--	-- / --	NSV	NO
Hexachlorocyclopentadiene	331 - 946	0 / 40	--	--	10,000	Efroymson, 1997b	-- / --	0.095	NO
Hexachloroethane	331 - 946	0 / 40	--	--	NSV	--	-- / --	NSV	NO
Indeno(1,2,3-cd)pyrene	331 - 946	2 / 40	138	NDAISS39-R01	NSV	--	-- / --	NSV	YES
Isophorone	331 - 946	0 / 40	--	--	NSV	--	-- / --	NSV	NO
Naphthalene	331 - 946	0 / 40	--	--	100	Beyer, 1990	-- / --	9.46	NO
Nitrobenzene	331 - 946	0 / 40	--	--	40,000	Efroymson, 1997a	-- / --	0.024	NO
Pentachlorophenol	994 - 2,840	0 / 40	--	--	5,000	EPA, 2007h	-- / --	0.57	NO
Phenanthrene	331 - 946	0 / 40	--	--	100	Beyer, 1990	-- / --	9.46	NO
Phenol	331 - 946	0 / 40	--	--	30,000	Efroymson, 1997a	-- / --	0.032	NO
Pyrene	331 - 946	3 / 40	193	NDAISS36-R01	100	Beyer, 1990	2 / 40	1.93	YES
bis(2-Chloroethoxy)methane	331 - 946	0 / 40	--	--	NSV	--	-- / --	NSV	NO
bis(2-Chloroethyl)ether	331 - 946	0 / 40	--	--	NSV	--	-- / --	NSV	NO
bis(2-Ethylhexyl)phthalate	331 - 946	13 / 40	3,880	NDE064	10,000	IPCS 1992	0 / 40	0.39	NO
n-Nitroso-di-n-propylamine	331 - 946	0 / 40	--	--	NSV	--	-- / --	NSV	NO
n-Nitrosodiphenylamine	331 - 946	0 / 40	--	--	20,000	Efroymson, 1997a	-- / --	0.047	NO
Volatile Organic Compounds (UG/KG)									
1,1,1-Trichloroethane	10.0 - 12.0	0 / 26	--	--	70.0	MHSPE 2000	-- / --	0.17	NO
1,1,2,2-Tetrachloroethane	10.0 - 12.0	0 / 26	--	--	NSV	--	-- / --	NSV	NO
1,1,2-Trichloroethane	10.0 - 12.0	0 / 26	--	--	400	MHSPE 2000	-- / --	0.03	NO
1,1-Dichloroethane	10.0 - 12.0	0 / 26	--	--	20.0	MHSPE 2000	-- / --	0.60	NO
1,1-Dichloroethene	10.0 - 12.0	2 / 26	0.47	NDE097	100	MHSPE 2000	0 / 26	0.0047	NO
1,2-Dichloroethane	10.0 - 12.0	1 / 26	1.00	NDE088	20.0	MHSPE 2000	0 / 26	0.050	NO
1,2-Dichloropropane	10.0 - 12.0	0 / 26	--	--	700,000	Efroymson, 1997a	-- / --	0.00002	NO
2-Butanone	10.0 - 12.0	1 / 8	5.00	NDE051	NSV	--	-- / --	NSV	YES
2-Hexanone	10.0 - 12.0	0 / 26	--	--	NSV	--	-- / --	NSV	NO
4-Methyl-2-pentanone	10.0 - 12.0	1 / 26	2.80	NDE045	NSV	--	-- / --	NSV	YES
Acetone	10.0 - 10.0	1 / 2	6.70	NDE070	NSV	--	-- / --	NSV	YES
Benzene	10.0 - 12.0	2 / 26	1.20	NDE047	10.0	MHSPE 2000	0 / 26	0.12	NO
Bromodichloromethane	10.0 - 12.0	0 / 26	--	--	NSV	--	-- / --	NSV	NO
Bromoform	10.0 - 12.0	0 / 26	--	--	NSV	--	-- / --	NSV	NO
Bromomethane	10.0 - 12.0	0 / 26	--	--	NSV	--	-- / --	NSV	NO
Carbon disulfide	10.0 - 12.0	0 / 26	--	--	NSV	--	-- / --	NSV	NO
Carbon tetrachloride	10.0 - 12.0	0 / 26	--	--	1,000,000	Efroymson, 1997a	-- / --	0.000012	NO
Chlorobenzene	10.0 - 12.0	0 / 26	--	--	40,000	Efroymson, 1997a	-- / --	0.0003	NO
Chloroethane	10.0 - 12.0	0 / 26	--	--	NSV	--	-- / --	NSV	NO
Chloroform	10.0 - 12.0	0 / 26	--	--	20.0	MHSPE 2000	-- / --	0.60	NO
Chloromethane	10.0 - 12.0	0 / 26	--	--	NSV	--	-- / --	NSV	NO
Dibromochloromethane	10.0 - 12.0	0 / 26	--	--	NSV	--	-- / --	NSV	NO
Ethylbenzene	10.0 - 12.0	1 / 26	3.70	NDE047	30.0	MHSPE 2000	0 / 26	0.12	NO
Methylene chloride	10.0 - 12.0	3 / 26	0.56	NDE097	NSV	--	-- / --	NSV	YES
Styrene	10.0 - 12.0	0 / 26	--	--	300,000	Efroymson, 1997b	-- / --	0.00004	NO
Tetrachloroethene	10.0 - 12.0	1 / 26	0.27	NDE086	2.00	MHSPE 2000	0 / 26	0.14	NO
Toluene	10.0 - 12.0	8 / 26	25.0	NDE051	200,000	Efroymson, 1997b	0 / 26	0.0001	NO
Trichloroethene	10.0 - 12.0	1 / 26	0.31	NDE049	100	MHSPE 2000	0 / 26	0.003	NO
Vinyl chloride	10.0 - 12.0	0 / 26	--	--	10.0	MHSPE 2000	-- / --	1.20	NO
Xylene, total	10.0 - 12.0	6 / 26	27.0	NDE047	100	MHSPE 2000	0 / 26	0.27	NO
cis-1,3-Dichloropropene	10.0 - 12.0	0 / 26	--	--	NSV	--	-- / --	NSV	NO
m- and p-Xylene	10.0 - 12.0	6 / 26	19.0	NDE047	100	MHSPE 2000	0 / 26	0.19	NO
o-Xylene	10.0 - 12.0	4 / 26	7.80	NDE047	100	MHSPE 2000	0 / 26	0.08	NO
trans-1,3-Dichloropropene	10.0 - 12.0	0 / 26	--	--	NSV	--	-- / --	NSV	NO
Total Petroleum Hydrocarbons (MG/KG)									
Petroleum hydrocarbons	17.0 - 17.0	25 / 26	1,200	NDE061	NSV	--	-- / --	NSV	YES
Total Petroleum Hydrocarbons, C10-C28	3.20 - 16.4	9 / 14	147	NDAISS37-R01	NSV	--	-- / --	NSV	YES
Total Petroleum Hydrocarbons, C6-C10	0.034 - 0.16	0 / 14	--	--	NSV	--	-- / --	NSV	NO

NSV - No screening value

1 - Maximum HQ based on maximum concentration detected unless frequency of detection is zero, in which case it is based on maximum reporting limit - indicated by shaded cells.

2 - Macronutrient - Not considered to be a COPC.

TABLE N-12
Summary of Hazard Quotients for Upper Trophic Level Receptors - Step 2
AOC I, Former NASD, Vieques, Puerto Rico

Chemical	Norway rat		Mongoose		Pearly-eyed thrasher		Red-tailed hawk	
	NOAEL	LOAEL	NOAEL	LOAEL	NOAEL	LOAEL	NOAEL	LOAEL
Inorganics								
Arsenic	**2.36**	0.47	0.13	0.03	0.07	0.02	<0.01	<0.01
Cadmium	0.39	0.04	**2.78**	0.56	**2.05**	0.15	<0.01	<0.01
Chromium	0.80	0.16	**10.9**	**2.18**	**49.6**	**9.91**	**1.59**	0.32
Copper	0.20	0.15	**1.45**	**1.12**	0.49	0.37	0.05	0.04
Lead	0.31	0.03	0.45	0.05	**1.26**	0.25	0.07	0.01
Mercury	**1.23**	0.25	0.46	0.28	0.20	0.08	<0.01	<0.01
Nickel	0.47	0.23	**1.09**	0.44	0.49	0.36	0.02	0.01
Selenium	**5.58**	**3.38**	**1.17**	0.71	0.71	0.21	0.19	0.06
Silver	<0.01	<0.01	0.02	<0.01	0.04	<0.01	<0.01	<0.01
Zinc	0.16	0.08	**3.63**	0.73	**7.39**	0.82	0.47	0.05
Pesticides/PCBs								
4,4'-DDD	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
4,4'-DDE	<0.01	<0.01	<0.01	<0.01	0.01	<0.01	<0.01	<0.01
4,4'-DDT	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Aldrin	<0.01	<0.01	<0.01	<0.01	0.01	<0.01	<0.01	<0.01
alpha-BHC	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
alpha-Chlordane	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Aroclor-1016	0.04	<0.01	0.05	0.02	0.23	0.05	<0.01	<0.01
Aroclor-1221	0.13	0.03	1.00	0.20	0.48	0.10	<0.01	<0.01
Aroclor-1232	0.05	0.01	0.49	0.10	0.23	0.05	<0.01	<0.01
Aroclor-1242	0.04	<0.01	0.49	0.10	0.23	0.05	<0.01	<0.01
Aroclor-1248	0.03	<0.01	0.48	0.10	0.23	0.05	<0.01	<0.01
Aroclor-1254	0.03	<0.01	0.48	0.10	0.23	0.05	<0.01	<0.01
Aroclor-1260	0.02	<0.01	0.48	0.10	0.23	0.05	<0.01	<0.01
beta-BHC	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
delta-BHC	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Dieldrin	0.02	<0.01	0.12	0.02	0.06	0.01	<0.01	<0.01
Endosulfan I	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Endosulfan II	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Endrin	<0.01	<0.01	<0.01	<0.01	0.11	0.02	<0.01	<0.01
gamma-BHC (Lindane)	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
gamma-Chlordane	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Heptachlor	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Heptachlor epoxide	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Methoxychlor	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Toxaphene	<0.01	<0.01	<0.01	<0.01	0.03	<0.01	<0.01	<0.01
Semivolatile Organics								
1,2,4-Trichlorobenzene	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
1,2-Dichlorobenzene	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
1,3-Dichlorobenzene	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
1,4-Dichlorobenzene	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
4-Bromophenyl-phenylether	NA	NA	NA	NA	NA	NA	NA	NA
4-Chlorophenyl-phenylether	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Acenaphthylene	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Anthracene	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Benzo(a)anthracene	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Benzo(a)pyrene	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Benzo(b)fluoranthene	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Benzo(g,h,i)perylene	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Benzo(k)fluoranthene	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Chrysene	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Dibenz(a,h)anthracene	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Fluoranthene	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Fluorene	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Hexachlorobenzene	0.11	0.05	0.14	0.01	**2.04**	0.41	0.12	0.02
Hexachlorobutadiene	0.09	<0.01	0.05	<0.01	0.04	<0.01	<0.01	<0.01
Hexachlorocyclopentadiene	<0.01	<0.01	<0.01	<0.01	NA	NA	NA	NA
Hexachloroethane	<0.01	<0.01	<0.01	<0.01	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Pentachlorophenol	0.10	0.02	0.45	0.09	0.75	0.38	0.01	<0.01
Phenanthrene	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Pyrene	0.02	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Volatile Organics								
1,1,2,2-Tetrachloroethane	<0.01	<0.01	<0.01	<0.01	NA	NA	NA	NA

Hazard Quotients greater than 1 are bolded and shaded

TABLE N-13
Summary of Norway Rat Exposure Doses - Step 2
AOC I, Former NASD, Vieques, Puerto Rico

Chemical	Surface Soil Concentration (mg/kg)	Soil-Worm BAF	Terrestrial Invertebrate Concentration (mg/kg dw)	Soil-Plant BAF	Terrestrial Plant Concentration (mg/kg dw)	Surface Water Concentration (mg/L)	Dietary Intake (mg/kg/day)	NOAEL TRV (mg/kg/d)	LOAEL TRV (mg/kg/d)	NOAEL HQ	LOAEL HQ
Inorganics											
Arsenic	2.30	0.52	1.203	1.103	2.537	0	0.594	0.252	1.26	2.36	0.47
Cadmium	0.52	40.69	21.16	3.250	1.690	0	0.391	1	10	0.39	0.04
Chromium	110	3.16	347.8	0.084	9.229	0	2.637	3.28	16.4	0.80	0.16
Copper	103	1.53	157.7	0.625	64.38	0	15.279	78	104	0.20	0.15
Lead	22.0	1.52	33.48	0.468	10.30	0	2.470	8	80	0.31	0.03
Mercury	0.034	20.63	0.701	5.000	0.170	0	0.039	0.032	0.16	1.23	0.25
Nickel	57.0	4.73	269.6	1.411	80.43	0	18.752	40	80	0.47	0.23
Selenium	1.60	1.34	2.144	3.012	4.819	0	1.115	0.2	0.33	5.58	3.38
Silver	0.12	15.34	1.841	0.037	0.004	0	0.002	9.06	45.3	0.0002	0.00003
Zinc	59.0	12.89	760.2	1.820	107.4	0	24.956	160	320	0.16	0.08
Pesticides/PCBs											
4,4'-DDD	0.0043	2.00	0.0086	0.423	0.0018	0	0.000	0.8	4	0.0005	0.0001
4,4'-DDE	0.0043	10.60	0.0456	0.299	0.0013	0	0.000	0.8	4	0.0004	0.0001
4,4'-DDT	0.0043	0.70	0.0030	0.338	0.0015	0	0.000	0.8	4	0.0004	0.0001
Aldrin	0.0022	3.30	0.0073	0.343	0.0008	0	0.000	0.2	1	0.0009	0.0002
alpha-BHC	0.0022	1.00	0.0022	1.424	0.0031	0	0.001	1.6	3.2	0.0005	0.0002
alpha-Chlordane	0.0022	4.00	0.0088	0.377	0.0008	0	0.000	4.58	9.16	0.00004	0.00002
Aroclor-1016	0.043	15.91	0.6841	0.551	0.0237	0	0.006	0.136	0.68	0.04	0.01
Aroclor-1221	0.087	15.91	1.3842	0.886	0.0771	0	0.018	0.136	0.68	0.13	0.03
Aroclor-1232	0.043	15.91	0.6841	0.717	0.0309	0	0.007	0.136	0.68	0.05	0.01
Aroclor-1242	0.043	15.91	0.6841	0.551	0.0237	0	0.006	0.136	0.68	0.04	0.01
Aroclor-1248	0.043	15.91	0.6841	0.402	0.0173	0	0.004	0.136	0.68	0.03	0.01
Aroclor-1254	0.043	15.91	0.6841	0.343	0.0147	0	0.004	0.136	0.68	0.03	0.005
Aroclor-1260	0.043	15.91	0.6841	0.293	0.0126	0	0.003	0.136	0.68	0.02	0.005
beta-BHC	0.0022	1.00	0.0022	1.416	0.0031	0	0.001	1.6	3.2	0.0005	0.0002
delta-BHC	0.0022	1.00	0.0022	1.216	0.0027	0	0.001	1.6	3.2	0.0004	0.0002
Dieldrin	0.0043	8.00	0.0344	0.622	0.0027	0	0.001	0.04	0.2	0.02	0.003
Endosulfan I	0.0022	1.00	0.0022	1.402	0.0031	0	0.001	1.5	7.5	0.0005	0.0001
Endosulfan II	0.0043	1.00	0.0043	0.974	0.0042	0	0.001	1.5	7.5	0.0007	0.0001
Endrin	0.0043	3.60	0.0155	0.733	0.0032	0	0.001	0.184	0.92	0.004	0.0008
gamma-BHC (Lindane)	0.0022	1.00	0.0022	1.478	0.0033	0	0.001	8	40	0.0001	0.00002
gamma-Chlordane	0.0022	4.00	0.0088	0.377	0.0008	0	0.000	4.58	9.16	0.00004	0.00002
Heptachlor	0.0022	3.00	0.0066	0.389	0.0009	0	0.000	0.325	1.625	0.0006	0.0001
Heptachlor epoxide	0.0022	8.39	0.0185	0.756	0.0017	0	0.000	0.325	1.625	0.0012	0.0002
Methoxychlor	0.022	1.00	0.0220	0.725	0.0160	0	0.004	4	8	0.0009	0.0005
Toxaphene	0.222	1.00	0.2220	0.581	0.1290	0	0.031	8	40	0.0038	0.0008
Semivolatile Organics											
1,2,4-Trichlorobenzene	0.946	0.56	0.5298	1.275	1.206	0	0.282	53	106	0.005	0.003
1,2-Dichlorobenzene	0.946	1.00	0.9460	1.731	1.637	0	0.381	85.7	428.5	0.004	0.001
1,3-Dichlorobenzene	0.946	1.00	0.9460	1.668	1.578	0	0.367	85.7	428.5	0.004	0.001
1,4-Dichlorobenzene	0.946	1.00	0.9460	1.740	1.646	0	0.383	250	500	0.002	0.001
4-Bromophenyl-phenylether	0.946	1.00	0.9460	0.756	0.715	0	0.169	NA	NA	NA	NA
4-Chlorophenyl-phenylether	0.946	1.00	0.9460	0.777	0.735	0	0.173	NA	NA	NA	NA
Acenaphthene	0.946	0.30	0.2838	1.337	1.264	0	0.295	350	700	0.0008	0.0004
Acenaphthylene	0.104	0.22	0.0229	1.216	0.126	0	0.030	350	700	0.0001	0.00004
Anthracene	0.065	0.32	0.0208	0.959	0.062	0	0.015	1000	5000	0.00001	0.000003
Benzo(a)anthracene	0.068	0.27	0.0184	0.523	0.036	0	0.008	2	10	0.004	0.001
Benzo(a)pyrene	0.145	0.34	0.0493	0.421	0.061	0	0.015	2	10	0.01	0.001
Benzo(b)fluoranthene	0.203	0.21	0.0426	0.402	0.082	0	0.020	2	10	0.01	0.002
Benzo(g,h,i)perylene	0.174	0.15	0.0261	0.309	0.054	0	0.013	2	10	0.01	0.001
Benzo(k)fluoranthene	0.153	0.21	0.0321	0.402	0.061	0	0.015	2	10	0.01	0.001
Chrysene	0.135	0.44	0.0594	0.523	0.071	0	0.017	2	10	0.01	0.002
Dibenz(a,h)anthracene	0.0437	0.49	0.0214	0.310	0.014	0	0.003	2	10	0.00	0.0003
Fluoranthene	0.227	0.37	0.0840	0.710	0.161	0	0.038	500	2500	0.0001	0.00002
Fluorene	0.946	0.20	0.1892	1.147	1.085	0	0.254	500	2500	0.0005	0.0001
Hexachlorobenzene	0.946	1.69	1.5987	0.473	0.447	0	0.107	1	2	0.11	0.05
Hexachlorobutadiene	0.946	1.00	0.9460	0.836	0.791	0	0.186	2	20	0.09	0.009
Hexachlorocyclopentadiene	0.946	1.00	0.9460	0.616	0.582	0	0.138	75	375	0.002	0.0004
Hexachloroethane	0.946	1.00	0.9460	1.281	1.212	0	0.283	100	500	0.003	0.001
Indeno(1,2,3-cd)pyrene	0.138	0.41	0.0566	0.317	0.044	0	0.011	2	10	0.01	0.001
Pentachlorophenol	2.84	8.00	22.720	0.721	2.048	0	0.484	5	25	0.10	0.02
Phenanthrene	0.946	0.28	0.2649	0.959	0.907	0	0.213	500	2500	0.0004	0.0001
Pyrene	0.193	0.39	0.0753	0.714	0.138	0	0.033	2	10	0.02	0.00
Volatile Organics											
1,1,2,2-Tetrachloroethane	0.012	1.00	0.0120	2.995	0.036	0	0.008	76	380	0.00011	0.00002

$$DI_x = \frac{[[\sum_i (FIR)(FC_{xi})(PDF_i)] + [(FIR)(SC_x)(PDS)] + [(WIR)(WC_x)]]}{BW}$$

DI = Chemical-specific = Dietary intake for chemical (mg chemical/kg body weight/day)
FIR = 0.058631328 = Food ingestion rate (kg/day dry weight, from Table J-7)
FCxi = Chemical-specific = Concentration of chemical in food item (soil invertebrates, dry weight basis
PDFi = 0 = Proportion of diet composed of food item (soil invertebrates, dry weight basis, from Table J-7
FCxi = Chemical-specific = Concentration of chemical in food item (terrestrial plants, dry weight basis)
PDFi = 0.98 = Proportion of diet composed of food item (terrestrial plants, dry weight basis, from Table J-7
SCx = Chemical-specific = Concentration of chemical in soil (mg/kg, dry weight)
PDS = 0.02 = Proportion of diet composed of soil (dry weight basis, from Table J-7)
WIR = 0.080987162 = Water ingestion rate (L/day)
WC = Chemical-specific = Concentration of chemical in water (mg/L)
BW = 0.25 = Body weight (kg wet weight, from Table J-7)
Shaded cells indicate an HQ of greater than 1.

TABLE N-14
Summary of Indian Mongoose Exposure Doses - Step 2
AOC I, Former NASD, Vieques, Puerto Rico

Chemical	Surface Soil Concentration (mg/kg)	Soil-Worm BAF	Terrestrial Invertebrate Concentration (mg/kg dw)	Soil-Plant BAF	Terrestrial Plant Concentration (mg/kg dw)	Soil-Mammal BAF	Small Mammal Concentration (mg/kg dw)	Surface Water Concentration (mg/L)	Dietary Intake (mg/kg/day)	NOAEL TRV (mg/kg/d)	LOAEL TRV (mg/kg/d)	NOAEL HQ	LOAEL HQ
Inorganics													
Arsenic	2.30	0.52	1.203	1.103	2.537	0.014	0.0322	0.0	0.152	1.2	6	0.13	0.03
Cadmium	0.52	40.69	21.16	3.250	1.690	0.462	0.2402	0.0	2.090	0.75	3.75	2.79	0.56
Chromium	110	3.16	347.8	0.084	9.229	0.349	38.390	0.0	35.846	3.28	16.4	10.93	2.19
Copper	103	1.53	157.7	0.625	64.38	0.554	57.062	0.0	17.033	11.7	15.14	1.46	1.13
Lead	22.0	1.52	33.48	0.468	10.30	0.286	6.2920	0.0	3.619	8	80	0.45	0.05
Mercury	0.034	20.63	0.701	5.000	0.170	0.130	0.0044	0.0	0.070	0.15	0.25	0.46	0.28
Nickel	57.0	4.73	269.6	1.411	80.43	0.589	33.573	0.0	27.370	25	62.5	1.09	0.44
Selenium	1.60	1.34	2.144	3.012	4.819	1.263	2.0208	0.0	0.235	0.2	0.33	1.17	0.71
Silver	0.12	15.34	1.841	0.037	0.004	0.810	0.0972	0.0	0.183	9.06	45.3	0.0202	0.0040
Zinc	59.0	12.89	760.2	1.820	107.4	2.782	164.15	0.0	75.680	20.8	104	3.64	0.73
Pesticides/PCBs													
4,4'-DDD	0.0043	2.00	0.0086	0.4234	0.0018	see footnote	0.0007	0.0	0.001	1	5	0.0009	0.0002
4,4'-DDE	0.0043	10.60	0.0456	0.2990	0.0013	see footnote	0.0019	0.0	0.005	1	5	0.0045	0.0009
4,4'-DDT	0.0043	0.70	0.0030	0.3375	0.0015	see footnote	0.0009	0.0	0.000	1	5	0.0004	0.0001
Aldrin	0.0022	3.30	0.0073	0.3429	0.0008	see footnote	0.0005	0.0	0.001	0.2	1	0.0037	0.0007
alpha-BHC	0.0022	1.00	0.0022	1.4240	0.0031	see footnote	0.0020	0.0	0.000	1.6	3.2	0.0002	0.0001
alpha-Chlordane	0.0022	4.00	0.0088	0.3771	0.0008	see footnote	0.0005	0.0	0.001	4.58	9.16	0.00020	0.00010
Aroclor-1016	0.043	15.91	0.6841	0.5512	0.0237	see footnote	0.0152	0.0	0.068	1.37	3.43	0.05	0.02
Aroclor-1221	0.087	15.91	1.3842	0.8859	0.0771	see footnote	0.0488	0.0	0.137	0.138	0.69	1.00	0.20
Aroclor-1232	0.043	15.91	0.6841	0.7175	0.0309	see footnote	0.0196	0.0	0.068	0.138	0.69	0.49	0.10
Aroclor-1242	0.043	15.91	0.6841	0.5512	0.0237	see footnote	0.0152	0.0	0.068	0.138	0.69	0.49	0.10
Aroclor-1248	0.043	15.91	0.6841	0.4017	0.0173	see footnote	0.0112	0.0	0.068	0.14	0.69	0.49	0.10
Aroclor-1254	0.043	15.91	0.6841	0.3429	0.0147	see footnote	0.0097	0.0	0.068	0.14	0.69	0.49	0.0985
Aroclor-1260	0.043	15.91	0.6841	0.2928	0.0126	see footnote	0.0027	0.0	0.068	0.14	0.69	0.49	0.0985
beta-BHC	0.0022	1.00	0.0022	1.4165	0.0031	see footnote	0.0020	0.0	0.000	1.6	3.2	0.0002	0.0001
delta-BHC	0.0022	1.00	0.0022	1.2156	0.0027	see footnote	0.0017	0.0	0.000	1.6	3.2	0.0002	0.0001
Dieldrin	0.0043	8.00	0.0344	0.6223	0.0027	see footnote	0.0017	0.0	0.003	0.028	0.14	0.12	0.0246
Endosulfan I	0.0022	1.00	0.0022	1.4016	0.0031	see footnote	0.0019	0.0	0.000	1	5	0.0002	0.0000
Endosulfan II	0.0043	1.00	0.0043	0.9741	0.0042	see footnote	0.0026	0.0	0.000	1	5	0.0005	0.0001
Endrin	0.0043	3.60	0.0155	0.7328	0.0032	see footnote	0.0020	0.0	0.002	0.184	0.92	0.0086	0.0017
gamma-BHC (Lindane)	0.0022	1.00	0.0022	1.4775	0.0033	see footnote	0.0020	0.0	0.000	8	40	0.0000	0.00001
gamma-Chlordane	0.0022	4.00	0.0088	0.3771	0.0008	see footnote	0.0005	0.0	0.001	4.58	9.16	0.00020	0.00010
Heptachlor	0.0022	3.00	0.0066	0.3892	0.0009	see footnote	0.0006	0.0	0.001	0.2	1	0.0034	0.0007
Heptachlor epoxide	0.0022	8.39	0.0185	0.7563	0.0017	see footnote	0.0011	0.0	0.002	0.2	1	0.0092	0.0018
Methoxychlor	0.022	1.00	0.0220	0.7251	0.0160	see footnote	0.0102	0.0	0.002	4	8	0.0006	0.0003
Toxaphene	0.222	1.00	0.2220	0.5810	0.1290	see footnote	0.0821	0.0	0.025	8	40	0.0031	0.0006
Semivolatile Organics													
1,2,4-Trichlorobenzene	0.946	0.56	0.530	1.275	1.2059	see footnote	0.0102	0.0	0.066	53	106	0.00125	0.00062
1,2-Dichlorobenzene	0.946	1.00	0.946	1.731	1.6373	see footnote	0.0138	0.0	0.107	85.7	428.5	0.00125	0.000250
1,3-Dichlorobenzene	0.946	1.00	0.946	1.668	1.5779	see footnote	0.0133	0.0	0.107	85.7	428.5	0.00125	0.000250
1,4-Dichlorobenzene	0.946	1.00	0.946	1.740	1.6459	see footnote	0.0139	0.0	0.107	250	500	0.000428	0.000214
4-Bromophenyl-phenylether	0.946	1.00	0.946	0.756	0.7155	see footnote	0.2064	0.0	0.107	NA	NA	NA	NA
4-Chlorophenyl-phenylether	0.946	1.00	0.946	0.777	0.7346	see footnote	0.2118	0.0	0.107	NA	NA	NA	NA
Acenaphthene	0.946	0.30	0.284	1.337	1.2645	see footnote	0.3606	0.0	0.042	350	700	0.00012	0.00006
Acenaphthylene	0.104	0.22	0.023	1.216	0.1264	see footnote	0.3285	0.0	0.004	350	700	0.00001	0.00001
Anthracene	0.065	0.32	0.021	0.959	0.0623	see footnote	0.2602	0.0	0.003	1000	5000	0.00000	0.00000
Benzo(a)anthracene	0.068	0.27	0.018	0.523	0.0356	see footnote	0.1444	0.0	0.003	2	10	0.00	0.0003
Benzo(a)pyrene	0.145	0.34	0.049	0.421	0.0611	see footnote	0.1174	0.0	0.007	2	10	0.00	0.0007
Benzo(b)fluoranthene	0.203	0.21	0.043	0.402	0.0815	see footnote	0.1122	0.0	0.007	2	10	0.00	0.0007
Benzo(g,h,i)perylene	0.174	0.15	0.026	0.309	0.0537	see footnote	0.0874	0.0	0.005	2	10	0.00	0.0005
Benzo(k)fluoranthene	0.153	0.21	0.032	0.402	0.0615	see footnote	0.1122	0.0	0.005	2	10	0.00	0.0005
Chrysene	0.135	0.44	0.059	0.523	0.0706	see footnote	0.1444	0.0	0.008	2	10	0.00	0.0008
Dibenz(a,h)anthracene	0.0437	0.49	0.021	0.310	0.0136	see footnote	0.0879	0.0	0.003	2	10	0.00	0.0003
Fluoranthene	0.227	0.37	0.084	0.710	0.1612	see footnote	0.1941	0.0	0.012	500	2500	0.00002	0.00000
Fluorene	0.946	0.20	0.189	1.147	1.0852	see footnote	0.3103	0.0	0.033	500	2500	0.00007	0.00001
Hexachlorobenzene	0.946	1.69	1.599	0.473	0.4475	see footnote	0.1311	0.0	0.171	1.2	12	0.14	0.01
Hexachlorobutadiene	0.946	1.00	0.946	0.836	0.7909	see footnote	0.2276	0.0	0.107	2	20	0.05	0.0054
Hexachlorocyclopentadiene	0.946	1.00	0.946	0.616	0.5825	see footnote	0.1691	0.0	0.107	75	375	0.001	0.0003
Hexachloroethane	0.946	1.00	0.946	1.281	1.2122	see footnote	0.3460	0.0	0.107	100	500	0.001	0.0002
Indeno(1,2,3-cd)pyrene	0.138	0.41	0.057	0.317	0.0437	see footnote	0.0896	0.0	0.008	2	10	0.00	0.0008
Pentachlorophenol	2.84	8.00	22.72	0.721	2.0484	see footnote	0.4954	0.0	2.278	5	25	0.46	0.09
Phenanthrene	0.946	0.28	0.265	0.959	0.9071	see footnote	0.2602	0.0	0.040	500	2500	0.00008	0.00002
Pyrene	0.193	0.39	0.075	0.714	0.1377	see footnote	0.1951	0.0	0.010	2	10	0.01	0.00
Volatile Organics													
1,1,2,2-Tetrachloroethane	0.012	1.00	0.012	2.995	0.0359	see footnote	0.0238	0.0	0.001	76	380	0.00002	0.00000

It was assumed that the concentration of each chemical in the small mammal's tissues was equal to the chemical concentration in its diet, that is, a diet to whole-body BAF (wet-weight basis) of 1.0 was assumed.

$$DI_x = \frac{[[\sum_i (FIR)(FC_{xi})(PDF_i)] + [(FIR)(SC_x)(PDS)] + [(WIR)(WC_x)]]}{BW}$$

DI = Chemical-specific = Dietary intake for chemical (mg chemical/kg body weight/day)
FIR = 0.0345 = Food ingestion rate (kg/day dry weight, from Table J-7)
FCxi = Chemical-specific = Concentration of chemical in food item (soil invertebrates, dry weight basis)
PDFi = 0.87 = Proportion of diet composed of food item (soil invertebrates, dry weight basis, from Table J-7
FCxi = Chemical-specific = Concentration of chemical in food item (terrestrial plants, dry weight basis
PDFi = 0.00 = Proportion of diet composed of food item (terrestrial plants, dry weight basis, from Table J-7
FCxi = Chemical-specific = Concentration of chemical in food item (small mammals, dry weight basis
PDFi = 0.000 = Proportion of diet composed of food item (small mammals, dry weight basis, from Table J-7
SCx = Chemical-specific = Concentration of chemical in soil (mg/kg, dry weight)
PDS = 0.13 = Proportion of diet composed of soil (dry weight basis, from Table J-7)
WIR = 0.068297905 = Water ingestion rate (L/day)
WC = Chemical-specific = Concentration of chemical in water (mg/L)
BW = 0.305 = Body weight (kg wet weight, from Table J-7)
Shaded cells indicate an HQ of greater than 1.

TABLE N-15
Summary of Pearly-eyed Thrasher Exposure Doses - Step 2
AOC I, Former NASD, Vieques, Puerto Rico

Chemical	Surface Soil Concentration (mg/kg)	Soil-Worm BAF	Terrestrial Invertebrate Concentration (mg/kg dw)	Soil-Plant BAF	Terrestrial Plant Concentration (mg/kg dw)	Surface Water Concentration (mg/L)	Dietary Intake (mg/kg/day)	NOAEL TRV (mg/kg/d)	LOAEL TRV (mg/kg/d)	NOAEL HQ	LOAEL HQ
Inorganics											
Arsenic	2.30	0.523	1.2029	1.103	2.537	0	0.185	2.46	7.38	0.08	0.03
Cadmium	0.52	40.69	21.1588	3.25	1.690	0	2.978	1.45	20	2.05	0.15
Chromium	110	3.162	347.82	0.0839	9.229	0	49.646	1	5	49.65	9.93
Copper	103	1.531	157.693	0.625	64.375	0	22.868	47	61.7	0.49	0.37
Lead	22.0	1.522	33.484	0.468	10.296	0	4.857	3.85	19.25	1.26	0.25
Mercury	0.034	20.625	0.70125	5	0.170	0	0.099	0.49	1.2	0.20	0.08
Nickel	57.0	4.73	269.61	1.411	80.427	0	38.291	77.4	107	0.49	0.36
Selenium	1.60	1.34	2.144	3.012	4.819	0	0.312	0.44	1.5	0.71	0.21
Silver	0.12	15.338	1.84056	0.0367	0.004	0	0.260	7	35	0.04	0.01
Zinc	59.0	12.885	760.215	1.82	107.380	0	107.278	14.5	131	7.40	0.82
Pesticides/PCBs											
4,4'-DDD	0.0043	2	0.0086	0.423	0.002	0	0.001	0.5	5	0.0025	0.0002
4,4'-DDE	0.0043	10.6	0.04558	0.299	0.001	0	0.006	0.5	5	0.01	0.001
4,4'-DDT	0.0043	0.7	0.00301	0.338	0.001	0	0.000	0.5	5	0.0009	0.0001
Aldrin	0.0022	3.3	0.00726	0.343	0.001	0	0.001	0.0701	0.3505	0.01	0.003
alpha-BHC	0.0022	1	0.0022	1.424	0.003	0	0.000	0.56	2.25	0.0006	0.0001
alpha-Chlordane	0.0022	4	0.0088	0.377	0.001	0	0.001	2.14	10.7	0.0006	0.0001
Aroclor-1016	0.043	15.91	0.68413	0.551	0.024	0	0.096	0.41	2.05	0.24	0.05
Aroclor-1221	0.087	15.91	1.38417	0.886	0.077	0	0.195	0.41	2.05	0.48	0.10
Aroclor-1232	0.043	15.91	0.68413	0.717	0.031	0	0.096	0.41	2.05	0.24	0.05
Aroclor-1242	0.043	15.91	0.68413	0.551	0.024	0	0.096	0.41	2.05	0.24	0.05
Aroclor-1248	0.043	15.91	0.68413	0.402	0.017	0	0.096	0.41	2.05	0.24	0.05
Aroclor-1254	0.043	15.91	0.68413	0.343	0.015	0	0.096	0.41	2.05	0.24	0.05
Aroclor-1260	0.043	15.91	0.68413	0.293	0.013	0	0.096	0.41	2.05	0.24	0.05
beta-BHC	0.0022	1	0.0022	1.416	0.003	0	0.000	0.56	2.25	0.0006	0.0001
delta-BHC	0.0022	1	0.0022	1.216	0.003	0	0.000	0.56	2.25	0.0006	0.0001
Dieldrin	0.0043	8	0.0344	0.622	0.003	0	0.005	0.077	0.385	0.06	0.01
Endosulfan I	0.0022	1	0.0022	1.402	0.003	0	0.000	10	50	0.00003	0.00001
Endosulfan II	0.0043	1	0.0043	0.974	0.004	0	0.001	10	50	0.00006	0.00001
Endrin	0.0043	3.6	0.01548	0.733	0.003	0	0.002	0.02	0.1	0.11	0.02
gamma-BHC (Lindane)	0.0022	1	0.0022	1.478	0.003	0	0.000	4	20	0.0001	0.00002
gamma-Chlordane	0.0022	4	0.0088	0.377	0.001	0	0.001	2.14	10.7	0.001	0.0001
Heptachlor	0.0022	3	0.0066	0.389	0.001	0	0.001	0.2753	1.3765	0.003	0.001
Heptachlor epoxide	0.0022	8.39	0.018458	0.756	0.002	0	0.003	0.2753	1.3765	0.01	0.002
Methoxychlor	0.022	1	0.022	0.725	0.016	0	0.003	355	1775	0.000009	0.000002
Toxaphene	0.222	1	0.222	0.581	0.129	0	0.033	1	5	0.03	0.01
Semivolatile Organics											
1,2,4-Trichlorobenzene	0.946	0.56	0.52976	1.275	1.206	0	0.081	32.16	160.8	0.00252	0.00050
1,2-Dichlorobenzene	0.946	1	0.946	1.731	1.637	0	0.139	32.16	160.8	0.00433	0.00087
1,3-Dichlorobenzene	0.946	1	0.946	1.668	1.578	0	0.139	32.16	160.8	0.00433	0.00087
1,4-Dichlorobenzene	0.946	1	0.946	1.740	1.646	0	0.139	32.16	160.8	0.00433	0.00087
4-Bromophenyl-phenylether	0.946	1	0.946	0.756	0.715	0	0.139	NA	NA	NA	NA
4-Chlorophenyl-phenylether	0.946	1	0.946	0.777	0.735	0	0.139	NA	NA	NA	NA
Acenaphthene	0.946	0.3	0.2838	1.337	1.264	0	0.046	7.1	35.5	0.0065	0.0013
Acenaphthylene	0.104	0.22	0.02288	1.216	0.126	0	0.004	7.1	35.5	0.0006	0.0001
Anthracene	0.065	0.32	0.0208	0.959	0.062	0	0.003	7.1	35.5	0.0005	0.0001
Benzo(a)anthracene	0.068	0.27	0.01836	0.523	0.036	0	0.003	7.1	35.5	0.0004	0.0001
Benzo(a)pyrene	0.145	0.34	0.0493	0.421	0.061	0	0.008	7.1	35.5	0.0011	0.0002
Benzo(b)fluoranthene	0.203	0.21	0.04263	0.402	0.082	0	0.007	7.1	35.5	0.0010	0.0002
Benzo(g,h,i)perylene	0.174	0.15	0.0261	0.309	0.054	0	0.005	7.1	35.5	0.0007	0.0001
Benzo(k)fluoranthene	0.153	0.21	0.03213	0.402	0.061	0	0.006	7.1	35.5	0.0008	0.0002
Chrysene	0.135	0.44	0.0594	0.523	0.071	0	0.009	7.1	35.5	0.0013	0.0003
Dibenz(a,h)anthracene	0.0437	0.49	0.021413	0.310	0.014	0	0.003	7.1	35.5	0.0005	0.0001
Fluoranthene	0.227	0.37	0.08399	0.710	0.161	0	0.013	7.1	35.5	0.0019	0.0004
Fluorene	0.946	0.2	0.1892	1.147	1.085	0	0.033	7.1	35.5	0.0046	0.0009
Hexachlorobenzene	0.946	1.69	1.59874	0.473	0.447	0	0.231	0.113	0.565	2.05	0.41
Hexachlorobutadiene	0.946	1	0.946	0.836	0.791	0	0.139	3.39	16.95	0.04	0.008
Hexachlorocyclopentadiene	0.946	1	0.946	0.616	0.582	0	0.139	NA	NA	NA	NA
Hexachloroethane	0.946	1	0.946	1.281	1.212	0	0.139	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	0.138	0.41	0.05658	0.317	0.044	0	0.009	7.1	35.5	0.001	0.000
Pentachlorophenol	2.84	8	22.72	0.721	2.048	0	3.213	4.26	8.52	0.75	0.38
Phenanthrene	0.946	0.28	0.26488	0.959	0.907	0	0.044	7.1	35.5	0.0061	0.0012
Pyrene	0.193	0.39	0.07527	0.714	0.138	0	0.012	7.1	35.5	0.0017	0.0003
Volatile Organics											
1,1,2,2-Tetrachloroethane	0.012	1	0.012	2.995	0.036	0	0.002	NA	NA	NA	NA

$$DI_x = \frac{[[\sum_i (FIR)(FC_{xi})(PDF_i)] + [(FIR)(SC_x)(PDS)] + [(WIR)(WC_x)]]}{BW}$$

DI = Chemical-specific = Dietary intake for chemical (mg chemical/kg body weight/day)
FIR = 0.014 = Food ingestion rate (kg/day dry weight, from Table J-5)
FCxi = Chemical-specific = Concentration of chemical in food item (soil invertebrates, dry weight basis)
PDFi = 0.954 = Proportion of diet composed of food item (soil invertebrates, dry weight basis, from Table J-7)
FCxi = Chemical-specific = Concentration of chemical in food item (terrestrial plants, dry weight basis)
PDFi = 0 = Proportion of diet composed of food item (terrestrial plants, dry weight basis, from Table J-7)
SCx = Chemical-specific = Concentration of chemical in soil (mg/kg, dry weight)
PDS = 0.046 = Proportion of diet composed of soil (dry weight basis, from Table J-7)
WIR = 0.012698351 = Water ingestion rate (L/day)
WC = Chemical-specific = Concentration of chemical in water (mg/L)
BW = 0.095 = Body weight (kg wet weight, from Table J-7)

Shaded cells indicate an HQ of greater than 1.

TABLE N-16
Summary of Red-tailed Hawk Doses - Step 2
AOC I Former NASD, Vieques, Puerto Rico

Chemical	Surface Soil Concentration (mg/kg)	Soil-Mammal BAF	Small Mammal Concentration (mg/kg dw)	Surface Water Concentration (mg/L)	Dietary Intake (mg/kg/day)	NOAEL TRV (mg/kg/d)	LOAEL TRV (mg/kg/d)	NOAEL HQ	LOAEL HQ
Inorganics									
Arsenic	2.30	0.014	0.032	0.0	0.001	2.46	7.38	0.00054	0.00018
Cadmium	0.52	0.462	0.240	0.0	0.010	1.45	20	0.01	0.000
Chromium	110	0.349	38.390	0.0	1.585	1	5	1.59	0.32
Copper	103	0.554	57.062	0.0	2.356	47	61.7	0.05	0.04
Lead	22.0	0.286	6.292	0.0	0.260	3.85	19.25	0.07	0.01
Mercury	0.034	0.130	0.004	0.0	0.000	0.49	1.2	0.0004	0.0002
Nickel	57.0	0.589	33.573	0.0	1.386	77.4	107	0.018	0.013
Selenium	1.60	1.263	2.021	0.0	0.083	0.44	1.5	0.19	0.06
Silver	0.12	0.810	0.097	0.0	0.004	7	35	0.00	0.000
Zinc	59.0	2.782	164.150	0.0	6.779	14.5	131	0.47	0.05
Pesticides/PCBs									
4,4'-DDD	0.0043	see footnote	0.001	0.0	0.000	0.5	5	0.0001	0.00001
4,4'-DDE	0.0043	see footnote	0.002	0.0	0.000	0.5	5	0.00016	0.00002
4,4'-DDT	0.0043	see footnote	0.001	0.0	0.000	0.5	5	0.0001	0.00001
Aldrin	0.0022	see footnote	0.000	0.0	0.000	0.0701	0.3505	0.0003	0.0001
alpha-BHC	0.0022	see footnote	0.002	0.0	0.000	0.56	2.25	0.0001	0.00004
alpha-Chlordane	0.0022	see footnote	0.001	0.0	0.000	2.14	10.7	0.000010	0.000002
Aroclor-1016	0.043	see footnote	0.015	0.0	0.001	0.41	2.05	0.002	0.0003
Aroclor-1221	0.087	see footnote	0.049	0.0	0.002	0.41	2.05	0.005	0.001
Aroclor-1232	0.043	see footnote	0.020	0.0	0.001	0.41	2.05	0.002	0.0004
Aroclor-1242	0.043	see footnote	0.015	0.0	0.001	0.41	2.05	0.002	0.0003
Aroclor-1248	0.043	see footnote	0.011	0.0	0.000	0.41	2.05	0.001	0.0002
Aroclor-1254	0.043	see footnote	0.010	0.0	0.000	0.41	2.05	0.001	0.0002
Aroclor-1260	0.043	see footnote	0.003	0.0	0.000	0.41	2.05	0.0003	0.0001
beta-BHC	0.0022	see footnote	0.002	0.0	0.000	0.56	2.25	0.0001	0.00004
delta-BHC	0.0022	see footnote	0.002	0.0	0.000	0.56	2.25	0.0001	0.00003
Dieldrin	0.0043	see footnote	0.002	0.0	0.000	0.077	0.385	0.0009	0.0002
Endosulfan I	0.0022	see footnote	0.002	0.0	0.000	10	50	0.00001	0.000002
Endosulfan II	0.0043	see footnote	0.003	0.0	0.000	10	50	0.00001	0.000002
Endrin	0.0043	see footnote	0.002	0.0	0.000	0.02	0.1	0.0041	0.0008
gamma-BHC (Lindane)	0.0022	see footnote	0.002	0.0	0.000	4	20	0.00002	0.000004
gamma-Chlordane	0.0022	see footnote	0.001	0.0	0.000	2.14	10.7	0.00001	0.000002
Heptachlor	0.0022	see footnote	0.001	0.0	0.000	0.2753	1.3765	0.0001	0.00002
Heptachlor epoxide	0.0022	see footnote	0.001	0.0	0.000	0.2753	1.3765	0.0002	0.00003
Methoxychlor	0.022	see footnote	0.010	0.0	0.000	355	1775	0.0000012	0.0000002
Toxaphene	0.222	see footnote	0.082	0.0	0.003	1	5	0.0034	0.0007
Semivolatile Organics									
1,2,4-Trichlorobenzene	0.946	see footnote	0.010	0.0	0.000	32.16	160.8	0.00001	0.000003
1,2-Dichlorobenzene	0.946	see footnote	0.014	0.0	0.001	32.16	160.8	0.00002	0.000004
1,3-Dichlorobenzene	0.946	see footnote	0.0133	0.0	0.001	32.16	160.8	0.00002	0.000003
1,4-Dichlorobenzene	0.946	see footnote	0.0139	0.0	0.001	32.16	160.8	0.00002	0.000004
4-Bromophenyl-phenylether	0.946	see footnote	0.206	0.0	0.009	NA	NA	NA	NA
4-Chlorophenyl-phenylether	0.946	see footnote	0.2118	0.0	0.009	NA	NA	NA	NA
Acenaphthene	0.946	see footnote	0.361	0.0	0.015	7.1	35.5	0.0021	0.0004
Acenaphthylene	0.104	see footnote	0.328	0.0	0.014	7.1	35.5	0.0019	0.0004
Anthracene	0.065	see footnote	0.260	0.0	0.011	7.1	35.5	0.0015	0.0003
Benzo(a)anthracene	0.068	see footnote	0.144	0.0	0.006	7.1	35.5	0.0008	0.0002
Benzo(a)pyrene	0.145	see footnote	0.117	0.0	0.005	7.1	35.5	0.0007	0.0001
Benzo(b)fluoranthene	0.203	see footnote	0.112	0.0	0.005	7.1	35.5	0.0007	0.0001
Benzo(g,h,i)perylene	0.174	see footnote	0.0874	0.0	0.004	7.1	35.5	0.0005	0.0001
Benzo(k)fluoranthene	0.153	see footnote	0.112	0.0	0.005	7.1	35.5	0.0007	0.0001
Chrysene	0.135	see footnote	0.144	0.0	0.006	7.1	35.5	0.0008	0.0002
Dibenz(a,h)anthracene	0.0437	see footnote	0.088	0.0	0.004	7.1	35.5	0.0005	0.0001
Fluoranthene	0.227	see footnote	0.194	0.0	0.008	7.1	35.5	0.0011	0.0002
Fluorene	0.946	see footnote	0.310	0.0	0.013	7.1	35.5	0.0018	0.0004
Hexachlorobenzene	0.946	see footnote	0.131	0.0	0.005	0.113	0.565	0.05	0.01
Hexachlorobutadiene	0.946	see footnote	0.228	0.0	0.009	3.39	16.95	0.003	0.001
Hexachlorocyclopentadiene	0.946	see footnote	0.169	0.0	0.007	NA	NA	NA	NA
Hexachloroethane	0.946	see footnote	0.346	0.0	0.014	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	0.138	see footnote	0.090	0.0	0.004	7.1	35.5	0.001	0.0001
Pentachlorophenol	2.84	see footnote	0.495	0.0	0.020	4.26	8.52	0.005	0.002
Phenanthrene	0.946	see footnote	0.260	0.0	0.011	7.1	35.5	0.0015	0.0003
Pyrene	0.193	see footnote	0.195	0.0	0.008	7.1	35.5	0.0011	0.0002
Volatile Organics									
1,1,2,2-Tetrachloroethane	0.012	see footnote	0.024	0.0	0.001	NA	NA	NA	NA

It was assumed that the concentration of each chemical in the small mammal's tissues was equal to the chemical concentration in its diet, that is, a diet to whole-body BAF (wet-weight basis) of 1.0 was assumed.

$$DI_x = \frac{[[\sum_i (FIR)(FC_{xi})(PDF_i)] + [(FIR)(SC_x)(PDS)] + [(WIR)(WC_x)]]}{BW}$$

DI = Chemical-specific = Dietary intake for chemical (mg chemical/kg body weight/day)
FIR = 0.03952 = Food ingestion rate (kg/day dry weight, from Table J-7)
FCxi = Chemical-specific = Concentration of chemical in food item (small mammals, dry weight basis)
PDFi = 1.000 = Proportion of diet composed of food item (small mammals, dry weight basis, from Table J-7)
SCx = Chemical-specific = Concentration of chemical in soil (mg/kg, dry weight)
PDS = 0 = Proportion of diet composed of soil (dry weight basis, from Table J-7)
WIR = 0.067962426 = Water ingestion rate (L/day)
WC = Chemical-specific = Concentration of chemical in water (mg/L)
BW = 0.957 = Body weight (kg wet weight, from Table J-7)
Shaded cells indicate an HQ of greater than 1.

TABLE N-17
Summary of COPCs - Step 2
AOC I, Former NASD, Vieques, Puerto Rico

Chemical	Surface Soil		Food Web	
	MD	NSV	MD [a]	NSV
Inorganics				
Aluminum		X		
Arsenic			X	
Cadmium			X	
Chromium	X		X	
Cobalt	X			
Copper	X		X	
Iron		X		
Lead			X	
Manganese	X			
Mercury			X	
Nickel	X		X	
Selenium	X		X	
Vanadium	X			
Zinc			X	
Semivolatile Organic Compounds				
Acenaphthylene		X		
Benzo(a)anthracene		X		
Benzo(a)pyrene	X			
Benzo(b)fluoranthene		X		
Benzo(g,h,i)perylene		X		
Benzo(k)fluoranthene		X		
Chrysene		X		
Dibenz(a,h)anthracene		X		
Fluoranthene	X			
Hexachlorobenzene			X	
Indeno(1,2,3-cd)pyrene		X		
Pyrene	X			
Volatile Organic Compounds				
2-Butanone		X		
4-Methyl-2-pentanone		X		
Acetone		X		
Methylene chloride		X		
Total Petroleum Hydrocarbons				
Petroleum hydrocarbons		X		
Total Petroleum Hydrocarbons, C10-C28		X		

MD - Result based on maximum detection/detection limit
NSV - Result based on no screening value available
a - Result based on exceedance of No Observed Adverse Effect Level (NOAEL)

TABLE N-18
Soil Bioconcentration and Bioaccumulation Factors For Plants, Soil Invertebrates, and Small Mammals - Step 3
AOC I, Former NASD, Vieques, Puerto Rico

Chemical	Soil-Plant BCF (dry weight)		Soil-Invertebrate BAF (dry weight)		Soil-Rat BAF (dry weight)[1]	
	Value	Reference	Value	Reference	Value	Reference
Inorganics						
Arsenic	0.037	Bechtel Jacobs 1998	0.258	Sample et al. 1998a	0.003	Sample et al. 1998b
Cadmium	0.514	Bechtel Jacobs 1998	7.660	Sample et al. 1998a	0.144	Sample et al. 1998b
Chromium	0.048	Bechtel Jacobs 1998	0.320	Sample et al. 1998a	0.092	Sample et al. 1998b
Copper	0.123	Bechtel Jacobs 1998	0.468	Sample et al. 1998a	0.111	Sample et al. 1998b
Lead	0.038	Bechtel Jacobs 1998	0.307	Sample et al. 1998a	0.055	Sample et al. 1998b
Mercury	0.344	Bechtel Jacobs 1998	1.186	Sample et al. 1998a	0.054	Sample et al. 1998b
Nickel	0.034	Bechtel Jacobs 1998	1.656	Sample et al. 1998a	0.168	Sample et al. 1998b
Selenium	0.567	Bechtel Jacobs 1998	0.982	Sample et al. 1998a	0.258	Sample et al. 1998b
Zinc	0.358	Bechtel Jacobs 1998	2.482	Sample et al. 1998a	0.509	Sample et al. 1998b
Semivolatile Organics						
Hexachlorobenzene	0.473	EPA 2007a	1.690	Beyer 1996	--	see text

[1] BAFs developed for omnivorous small mammals.

TABLE N-19
Exposure Parameters for Upper Trophic Level Ecological Receptors - Step 3
AOC I, Former NASD, Vieques, Puerto Rico

Receptor	Body Weight (kg)		Food Ingestion Rate (kg/day - dry)		Dietary Composition (percent)				Soil Ingestion (percent)	
	Value	Reference	Value	Reference	Terr. Plants	Soil Invert.	Small Mammals	Reference	Value	Reference
Birds										
Pearly-eyed thrasher	0.096	Oberle 2000	0.0127	allometric equation (Nagy 2001)	20	75.4	0	Oberle 2000; estimated based on description of diet	4.6	Sample and Suter 1994; value is for American robin
Red-tailed hawk	1.126	Sample and Suter 1994	0.0360	Sample and Suter 1994	0	0	100	EPA 1993; Sample and Suter 1994	0	Sample and Suter 1994
Mammals										
Norway rat	0.438	Pass and Freeth 1993	0.0367	allometric equation (Nagy 2001)	49	49	0	Linzey 1998; estimated based on description of diet	2.0	Beyer et al. 1994; value is for deer mouse
Indian mongoose	0.434	Nellis 1989	0.0242	allometric equation (Nagy 2001)	9.7	61	16.3	Nellis 1989; estimated based on description of diet	13	Sample and Suter 1994; value is for short-tailed shrew

TABLE N-20
Assessment Endpoints, Risk Hypotheses, and Measurement Endpoints - Step 3
AOC I, Former NASD, Vieques, Puerto Rico

Assessment Endpoint	Risk Hypothesis	Measurement Endpoint	Receptor
Terrestrial Habitats			
Survival, growth, and reproduction of terrestrial soil invertebrate communities	Are site-related chemical concentrations in surface soil sufficient to adversely effect soil invertebrate communities?	Comparison of mean chemical concentrations in surface soil with soil screening values	Soil invertebrates
Survival, growth, and reproduction of terrestrial plant communities	Are site-related chemical concentrations in surface soil sufficient to adversely effect terrestrial plant communities?	Comparison of mean chemical concentrations in surface soil with soil screening values	Terrestrial plants
Survival, growth, and reproduction of terrestrial reptile populations	Are site-related chemical concentrations in surface soil sufficient to cause adverse effects (on growth, survival, or reproduction) to terrestrial reptile populations?	Evidence of potential risk to other upper trophic level terrestrial receptors evaluated in the ERA	--
Survival, growth, and reproduction of avian terrestrial invertivore/omnivore populations	Are site-related chemical concentrations in surface soil sufficient to cause adverse effects (on growth, survival, or reproduction) to avian receptor populations that may consume terrestrial plants and soil invertebrates from the site?	Comparison of literature-derived chronic No Observed Adverse Effect Level (NOAEL) and Lowest Observed Adverse Effect Level (LOAEL) values for survival, growth, and/or reproductive effects with modeled dietary exposure doses based on mean surface soil concentrations	Pearly-eyed thrasher
Survival, growth, and reproduction of avian terrestrial carnivore populations	Are site-related chemical concentrations in surface soil sufficient to cause adverse effects (on growth, survival, or reproduction) to avian receptor populations that may consume small mammals from the site?	Comparison of literature-derived chronic No Observed Adverse Effect Level (NOAEL) and Lowest Observed Adverse Effect Level (LOAEL) values for survival, growth, and/or reproductive effects with modeled dietary exposure doses based on mean surface soil concentrations	Red-tailed hawk
Survival, growth, and reproduction of mammalian terrestrial omnivore populations	Are site-related chemical concentrations in surface soil sufficient to cause adverse effects (on growth, survival, or reproduction) to mammalian receptor populations that may consume terrestrial plants and soil invertebrates from the site?	Comparison of literature-derived chronic No Observed Adverse Effect Level (NOAEL) and Lowest Observed Adverse Effect Level (LOAEL) values for survival, growth, and/or reproductive effects with modeled dietary exposure doses based on mean surface soil concentrations	Norway rat
Survival, growth, and reproduction of mammalian terrestrial omnivore populations	Are site-related chemical concentrations in surface soil sufficient to cause adverse effects (on growth, survival, or reproduction) to mammalian receptor populations that may consume small mammals, soil invertebrates, and plants from the site?	Comparison of literature-derived chronic No Observed Adverse Effect Level (NOAEL) and Lowest Observed Adverse Effect Level (LOAEL) values for survival, growth, and/or reproductive effects with modeled dietary exposure doses based on mean surface soil concentrations	Indian mongoose

Table N-21
Step 3 Screening Statistics - Surface Soil
AOC I, Former NASD, Vieques, Puerto Rico

Chemical	Frequency of Detection	Maximum Concentration Detected	Sample ID of Maximum Detected Concentration	Arithmetic Mean	Standard Deviation of Mean	Screening Value	Frequency of Exceedance	Maximum Hazard Quotient	Mean Hazard Quotient
Inorganics (MG/KG)									
Aluminum	26 / 26	25,000	NDE083	17,485	2,260	NSV	-- / --	NSV	NSV
Chromium	43 / 43	110	NDE083	52.0	17.8	0.40	43 / 43	275	130
Chromium (hexavalent)	17 / 17	1.62	NDAISS27-R01	0.74	0.34	0.40	16 / 17	4.05	1.84
Cobalt	26 / 26	27.0	NDE053	17.2	3.46	13.0	25 / 26	2.08	1.32
Copper	26 / 26	103	NDE051	58.6	14.0	70.0	3 / 26	1.47	0.84
Iron	26 / 26	44,000	NDE083	29,196	4,274	NSV	-- / --	NSV	NSV
Manganese	26 / 26	980	NDE053	623	117	220	26 / 26	4.45	2.83
Nickel	26 / 26	57.0	NDE083	29.0	9.08	38.0	2 / 26	1.50	0.76
Selenium	19 / 26	1.60	NDE090	0.79	0.40	0.52	19 / 26	3.08	1.52
Vanadium	26 / 26	140	NDE083	87.3	15.7	2.00	26 / 26	70.0	43.7
Semivolatile Organic Compounds (UG/KG)									
Acenaphthylene	1 / 40	104	NDAISS39-R01	205	64.7	NSV	-- / --	NSV	NSV
Benzo(a)anthracene	3 / 40	68.0	NDAISS39-R01	198	73.4	NSV	-- / --	NSV	NSV
Benzo(a)pyrene	4 / 40	145	NDAISS39-R01	197	75.3	100	1 / 40	1.45	--
Benzo(b)fluoranthene	2 / 40	203	NDAISS39-R01	207	63.3	NSV	-- / --	NSV	NSV
Benzo(g,h,i)perylene	2 / 34	174	NDAISS39-R01	209	72.1	NSV	-- / --	NSV	NSV
Benzo(k)fluoranthene	3 / 40	153	NDAISS32-R01	202	69.1	NSV	-- / --	NSV	NSV
Chrysene	3 / 40	135	NDAISS39-R01	202	68.3	NSV	-- / --	NSV	NSV
Dibenz(a,h)anthracene	1 / 40	43.7	NDAISS39-R01	203	67.8	NSV	-- / --	NSV	NSV
Fluoranthene	4 / 40	227	NDAISS36-R01	198	75.7	100	1 / 40	2.27	1.98
Indeno(1,2,3-cd)pyrene	2 / 40	138	NDAISS39-R01	202	68.7	NSV	-- / --	NSV	NSV
Pyrene	3 / 40	193	NDAISS36-R01	203	67.8	100	2 / 40	1.93	--
Volatile Organic Compounds (UG/KG)									
2-Butanone	1 / 8	5.00	NDE051	5.13	0.35	NSV	-- / --	NSV	NSV
4-Methyl-2-pentanone	1 / 26	2.80	NDE045	4.95	0.48	NSV	-- / --	NSV	NSV
Acetone	1 / 2	6.70	NDE070	5.85	1.20	NSV	-- / --	NSV	NSV
Methylene chloride	3 / 26	0.56	NDE097	4.51	1.52	NSV	-- / --	NSV	NSV
Total Petroleum Hydrocarbons (MG/KG)									
Petroleum hydrocarbons	25 / 26	1,200	NDE061	225	298	NSV	-- / --	NSV	NSV
Total Petroleum Hydrocarbons, C10-C28	9 / 14	147	NDAISS37-R01	38.3	48.0	NSV	-- / --	NSV	NSV

Shaded cells indicate mean HQ greater than 1 or maximum HQ of the mean is greater than the maximum.

NSV - No Screening Value

TABLE N-22

Summary of Hazard Quotients for Upper Trophic Level Receptors - Step 3

AOC I, Former NASD, Vieques, Puerto Rico

Chemical	Norway rat		Mongoose		Pearly-eyed thrasher			Red-tailed hawk	
	NOAEL	LOAEL	NOAEL	LOAEL	NOAEL	MATC	LOAEL	NOAEL	LOAEL
Inorganics									
Arsenic	0.08	0.02	0.02	<0.01	0.02	--	<0.01	<0.01	<0.01
Cadmium	0.01	<0.01	0.01	<0.01	0.02	--	<0.01	<0.01	<0.01
Chromium	0.27	0.05	0.31	0.06	1.88	0.84	0.38	0.15	0.03
Copper	0.02	0.01	0.12	0.10	0.06	--	0.05	<0.01	<0.01
Lead	<0.01	<0.01	<0.01	<0.01	0.03	--	<0.01	<0.01	<0.01
Mercury	<0.01	<0.01	<0.01	<0.01	<0.01	--	<0.01	<0.01	<0.01
Nickel	0.05	0.03	0.08	0.03	0.06	--	0.04	<0.01	<0.01
Selenium	0.26	0.16	0.18	0.11	0.20	--	0.06	0.01	<0.01
Zinc	0.03	0.02	0.20	0.04	0.71	--	0.08	0.05	<0.01
Semivolatile Organics									
Hexachlorobenzene	0.02	<0.01	0.01	<0.01	0.32	--	0.06	0.02	<0.01

Hazard Quotients greater than 1 are bolded and shaded

TABLE N-23
Summary of Norway Rat Exposure Doses - Step 3
AOC I, Former NASD, Vieques, Puerto Rico

Chemical	Surface Soil Concentration (mg/kg)	Soil-Worm BAF	Terrestrial Invertebrate Concentration (mg/kg dw)	Soil-Plant BAF	Terrestrial Plant Concentration (mg/kg dw)	Surface Water Concentration (mg/L)	Dietary Intake (mg/kg/day)	NOAEL TRV (mg/kg/d)	LOAEL TRV (mg/kg/d)	NOAEL HQ	LOAEL HQ
Arsenic	1.37	0.258	0.355	0.037	0.051	0.0	0.019	0.25	1.26	0.08	0.02
Cadmium	0.033	7.660	0.249	0.514	0.017	0.0	0.011	1.00	10.0	0.01	0.00
Chromium	52.0	0.320	16.632	0.048	2.470	0.0	0.874	3.28	16.4	0.27	0.05
Copper	58.6	0.468	27.440	0.123	7.214	0.0	1.525	78	104	0.02	0.01
Lead	3.36	0.307	1.033	0.038	0.127	0.0	0.053	8.00	80	0.01	0.001
Mercury	0.005	1.186	0.005	0.344	0.002	0.0	0.000	0.032	0.16	0.01	0.002
Nickel	29.0	1.656	48.024	0.034	0.992	0.0	2.066	40	80	0.05	0.03
Selenium	0.79	0.982	0.774	0.567	0.447	0.0	0.052	0.20	0.33	0.26	0.16
Zinc	42.4	2.482	105.287	0.358	15.18	0.0	5.029	160	320	0.03	0.02
Hexachlorobenzene	0.207	1.690	0.350	0.473	0.098	0.0	0.019	1.00	2.00	0.02	0.01

$$DI = \frac{[AFF[\sum_i (FIR)(FC_{xi})(PDF_i)] + [(FIR)(SC_x)(PDS)]]}{BW}$$

DI = Chemical-specific = Dietary intake for chemical (mg chemical/kg body weight/day)
FIR = 0.03674981 = Food ingestion rate (kg/day dry weight, from Table J-17)
FCxi = Chemical-specific = Concentration of chemical in food item (soil invertebrates, dry weight basis)
PDFi = 0.49 = Proportion of diet composed of food item (soil invertebrates, dry weight basis, from Table J-19)
FCxi = Chemical-specific = Concentration of chemical in food item (terrestrial plants, dry weight basis)
PDFi = 0.49 = Proportion of diet composed of food item (terrestrial plants, dry weight basis, from Table J-19)
SCx = Chemical-specific = Concentration of chemical in soil (mg/kg, dry weight)
PDS = 0.02 = Proportion of diet composed of soil (dry weight basis, from Table J-19)
WIR = 0.0470 = Water ingestion rate (L/day)
WC = Chemical-specific = Concentration of chemical in water (mg/L)
BW = 0.4375 = Body weight (kg wet weight, from Table J-19)
AFF = 1 = Area foraging factor (Site Size/Home Range)

TABLE N-24
Summary of Indian Mongoose Exposure Doses - Step 3
AOC I, Former NASD, Vieques, Puerto Rico

Chemical	Surface Soil Concentration (mg/kg)	Soil-Worm BAF	Terrestrial Invertebrate Concentration (mg/kg dw)	Soil-Plant BAF	Terrestrial Plant Concentration (mg/kg dw)	Soil-Mammal BAF	Small Mammal Concentration (mg/kg dw)	Surface Water Concentration (mg/L)	Dietary Intake (mg/kg/day)	NOAEL TRV (mg/kg/d)	LOAEL TRV (mg/kg/d)	NOAEL HQ	LOAEL HQ
Arsenic	1.37	0.258	0.355	0.037	0.051	0.003	0.004	0.0	0.0224	1.20	6.00	0.02	0.004
Cadmium	0.033	7.660	0.249	0.514	0.017	0.144	0.005	0.0	0.0088	0.75	3.75	0.01	0.002
Chromium	52.0	0.320	16.63	0.048	2.470	0.092	4.782	0.0	1.0004	3.28	16.4	0.31	0.06
Copper	58.6	0.468	27.44	0.123	7.214	0.111	6.489	0.0	1.4580	11.7	15.1	0.12	0.10
Lead	3.36	0.307	1.033	0.038	0.127	0.055	0.184	0.0	0.0620	8.00	80	0.01	0.001
Mercury	0.005	1.186	0.005	0.344	0.002	0.054	0.000	0.0	0.0002	0.15	0.25	0.002	0.001
Nickel	29.0	1.656	48.02	0.034	0.992	0.168	4.881	0.0	1.8958	25.0	62.5	0.08	0.03
Selenium	0.79	0.982	0.774	0.567	0.447	0.258	0.203	0.0	0.0364	0.20	0.33	0.18	0.11
Zinc	42.4	2.482	105.3	0.358	15.18	0.509	21.60	0.0	4.1724	20.8	104	0.20	0.04
Hexachlorobenzene	0.207	1.690	0.350	0.473	0.098	See footnote	0.059	0.0	0.0145	1.20	12.0	0.01	0.001

It was assumed that the concentration of each chemical in the small mammal's tissues was equal to the chemical concentration in its diet, that is, a diet to whole-body BAF (wet-weight basis) of 1.0 was assumed.

$$DI = \frac{[AFF[\sum_i (FIR)(FC_{xi})(PDF_i)] + [(FIR)(SC_x)(PDS)]]}{BW}$$

DI = Chemical-specific = Dietary intake for chemical (mg chemical/kg body weight/day)
FIR = 0.024230248 = Food ingestion rate (kg/day dry weight, from Table J-17)
FCxi = Chemical-specific = Concentration of chemical in food item (soil invertebrates, dry weight basis)
PDFi = 0.61 = Proportion of diet composed of food item (soil invertebrates, dry weight basis, from Table J-19)
FCxi = Chemical-specific = Concentration of chemical in food item (terrestrial plants, dry weight basis)
PDFi = 0.097 = Proportion of diet composed of food item (terrestrial plants, dry weight basis, from Table J-19)
FCxi = Chemical-specific = Concentration of chemical in food item (small mammals, dry weight basis)
PDFi = 0.163 = Proportion of diet composed of food item (small mammals, dry weight basis, from Table J-19)
PDS = 0.13 = Proportion of diet composed of soil (dry weight basis, from Table J-19)
WIR = 0.0467 = Water ingestion rate (L/day)
WC = Chemical-specific = Concentration of chemical in water (mg/L)
BW = 0.434 = Body weight (kg wet weight, from Table J-19)
AFF = 1 = Area foraging factor (Site Size/Home Range)

TABLE N-25
Summary of Pearly-eyed Thrasher Exposure Doses - Step 3
AOC I, Former NASD, Vieques, Puerto Rico

Chemical	Surface Soil Concentration (mg/kg)	Soil-Worm BAF	Terrestrial Invertebrate Concentration (mg/kg dw)	Soil-Plant BAF	Terrestrial Plant Concentration (mg/kg dw)	Surface Water Concentration (mg/L)	Dietary Intake (mg/kg/day)	NOAEL TRV (mg/kg/d)	MATC TRV (mg/kg/d)	LOAEL TRV (mg/kg/d)	NOAEL HQ	MATC HQ	LOAEL HQ
Arsenic	1.37	0.258	0.355	0.037	0.051	0.0	0.042	2.46	4.26	7.38	0.02	0.01	0.01
Cadmium	0.033	7.660	0.249	0.514	0.017	0.0	0.024	1.45	5.39	20.0	0.02	0.004	0.001
Chromium	52.0	0.320	16.632	0.048	2.470	0.0	1.883	1.00	2.24	5.00	1.88	0.84	0.38
Copper	58.6	0.468	27.440	0.123	7.214	0.0	3.031	47.0	53.9	61.7	0.06	0.06	0.05
Lead	3.36	0.307	1.033	0.038	0.127	0.0	0.117	3.85	8.61	19.25	0.03	0.01	0.01
Mercury	0.005	1.186	0.005	0.344	0.002	0.0	0.001	0.49	0.77	1.20	0.001	0.001	0.0005
Nickel	29.0	1.656	48.024	0.034	0.992	0.0	4.608	77.4	91.0	107	0.06	0.05	0.043
Selenium	0.79	0.982	0.774	0.567	0.447	0.0	0.087	0.44	0.81	1.50	0.20	0.11	0.06
Zinc	42.4	2.482	105.287	0.358	15.176	0.0	10.301	14.5	43.6	131	0.71	0.24	0.08
Hexachlorobenzene	0.207	1.690	0.350	0.473	0.098	0.0	0.036	0.113	0.25	0.565	0.32	0.14	0.06

$$DI = \frac{[AFF[\sum_i (FIR)(FC_{xi})(PDF_i)] + [(FIR)(SC_x)(PDS)]]}{BW}$$

DI = Chemical-specific = Dietary intake for chemical (mg chemical/kg body weight/day)
FIR = 0.0117 = Food ingestion rate (kg/day dry weight, from Table J-17)
FCxi = Chemical-specific = Concentration of chemical in food item (soil invertebrates, dry weight basis)
PDFi = 0.754 = Proportion of diet composed of food item (soil invertebrates, dry weight basis, from Table J-19)
FCxi = Chemical-specific = Concentration of chemical in food item (terrestrial plants, dry weight basis)
PDFi = 0.2 = Proportion of diet composed of food item (terrestrial plants, dry weight basis, from Table J-19)
SCx = Chemical-specific = Concentration of chemical in soil (mg/kg, dry weight)
PDS = 0.046 = Proportion of diet composed of soil (dry weight basis, from Table J-19)
WIR = 0.0123 = Water ingestion rate (L/day)
WC = Chemical-specific = Concentration of chemical in water (mg/L)
BW = 0.096 = Body weight (kg wet weight, from Table J-19)
AFF = 1 = Area foraging factor (Site Size/Home Range)
Shaded cells indicate an HQ of greater than 1.

TABLE N-26
Summary of Red-tailed Hawk Doses - Step 3
AOC I Former NASD, Vieques, Puerto Rico

Chemical	Surface Soil Concentration (mg/kg)	Soil-Mammal BAF	Small Mammal Concentration (mg/kg dw)	Surface Water Concentration (mg/L)	Dietary Intake (mg/kg/day)	NOAEL TRV (mg/kg/d)	LOAEL TRV (mg/kg/d)	NOAEL HQ	LOAEL HQ
Arsenic	1.37	0.003	0.0045	0.0	0.0001	2.46	7.38	0.0001	0.00002
Cadmium	0.033	0.144	0.005	0.0	0.0001	1.45	20.0	0.0001	0.00001
Chromium	52.0	0.092	4.782	0.0	0.1530	1.00	5.00	0.15	0.03
Copper	58.6	0.111	6.489	0.0	0.2077	47.0	61.7	0.00	0.003
Lead	3.36	0.055	0.184	0.0	0.0059	3.85	19.3	0.002	0.0003
Mercury	0.005	0.054	0.000	0.0	0.0000	0.49	1.20	0.00002	0.00001
Nickel	29.0	0.168	4.881	0.0	0.1562	77.4	107	0.002	0.001
Selenium	0.79	0.258	0.203	0.0	0.0065	0.44	1.50	0.01	0.00
Zinc	42.4	0.509	21.60	0.0	0.6913	14.5	131	0.05	0.01
Hexachlorobenzene	0.207	See footnote	0.059	0.0	0.0019	0.113	0.565	0.02	0.003

It was assumed that the concentration of each chemical in the small mammal's tissues was equal to the chemical concentration in its diet, that is, a diet to whole-body BAF (wet-weight basis) of 1.0 was assumed.

$$DI_x = \frac{[[\sum_i (FIR)(FC_{xi})(PDF_i)] + [(FIR)(SC_x)(PDS)] + [(WIR)(WC_x)]]}{BW}$$

DI =	Chemical-specific	= Dietary intake for chemical (mg chemical/kg body weight/day)
FIR =	0.036032	= Food ingestion rate (kg/day dry weight, from Table J-19)
FCxi =	Chemical-specific	= Concentration of chemical in food item (small mammals, dry weight basis)
PDFi =	1.000	= Proportion of diet composed of food item (small mammals, dry weight basis, from Table J-19)
SCx =	Chemical-specific	= Concentration of chemical in soil (mg/kg, dry weight)
PDS =	0	= Proportion of diet composed of soil (dry weight basis, from Table J-19)
WIR =	0.063882622	= Water ingestion rate (L/day)
WC =	Chemical-specific	= Concentration of chemical in water (mg/L)
BW =	1.126	= Body weight (kg wet weight, from Table J-19)

TABLE N-27
Comparison of COPC Surface Soil Concentrations to Background Concentrations
AOC I, Former NASD, Vieques, Puerto Rico

Chemical	Range of Non-Detect Values	Frequency of Detection	Maximum Concentration Detected	Sample ID of Maximum Detected Concentration	Arithmetic Mean	Standard Deviation of Mean	Background UTL	Frequency of UTL Exceedance	Maximum Ratio
Inorganics (MG/KG)									
Aluminum	-- - --	26 / 26	25,000	NDE083	17,485	2,260	29,000	0 / 26	0.86
Chromium	-- - --	43 / 43	110	NDE083	52.0	17.8	74.0	7 / 43	1.49
Chromium (hexavalent)	-- - --	17 / 17	1.62	NDAISS27-R01	0.74	0.34	NSV	-- / --	NSV
Cobalt	-- - --	26 / 26	27.0	NDE053	17.2	3.46	25.0	2 / 26	1.08
Iron	-- - --	26 / 26	44,000	NDE083	29,196	4,274	37,531	1 / 26	1.17
Manganese	-- - --	26 / 26	980	NDE053	623	117	1,167	0 / 26	0.84
Selenium	0.48 - 0.59	19 / 26	1.60	NDE090	0.79	0.40	2.00	0 / 26	0.80
Vanadium	-- - --	26 / 26	140	NDE083	87.3	15.7	130	1 / 26	1.08

Shaded cells indicate maximum ratio greater than 1.

Responses to
EPA Comments on the Draft Remedial Investigation Report
Area of Concern (AOC) I
Former Naval Ammunition Support Detachment
Vieques, Puerto Rico
November 2007

General Comments:

EPA 1.

The report makes conclusions on the soil contamination at the site based on data obtained in the 2000 (PA/SI work plan) and the 2004 (RI/FS work plan). However, limitations of the use of this historical data were not evaluated. The RI report and the Data Quality Evaluation report should describe any differences in the methods used for collection, analysis and data validation of this data, and whether these two sets of data could be directly compared.

Navy Response

The following text has been added at the end of Section 3.6:

"The surface soil samples were collected at different depths during the different investigations. During the EBS and PA/SI, the surface soil samples were collected from 0 to 0.5 ft bls and during the RI, generally from 0 to 2 ft bls, depending on the depth to bedrock. This information is stated in Sections 3.1.1.1.1, 3.1.1.1.2, and 3.1.1.1.3. During the EBS the surface soil samples were collected with a stainless steel spoon, during the PA/SI with a stainless steel spoon or hand auger, and during the RI with a hand auger. Subsurface samples were collected during the PA/SI and the RI. The methods used to collect the samples were: a direct push rig with acetate liner during the PA/SI and a drill rig using split spoons during the RI. It is a common practice for data collection at a particular site to be step-wise, ultimately culminating in a comprehensive dataset comprising multiple investigation phases. All samples were collected using well-established, commonly accepted sampling methods.

Regarding changes in analytical methodology, unless a particular analytical method was found to provide unreliable results, the particular analytical method by which one dataset is analyzed is irrelevant with respect to its comparability with a dataset resulting from a different analytical method. The data resulting from a particular analytical method are just as available for use as those from another analytical method. For AOC I, only the analytical method for thallium used during the 2004 RI groundwater sampling was shown to provide potentially unreliable results. However, this thallium analytical method tended to provide falsely elevated results, so use of the data from this method most likely overestimates thallium concentrations. A new analytical method for thallium (ILM05) was utilized during

the 2006 supplemental RI, during which only groundwater samples were collected; thallium was not detected in groundwater during 2006 or previous sampling events.

What should be taken into consideration are the reporting limits associated with particular dataset compared to the reporting limits of a different dataset that is being combined for evaluation purposes. It is important to note that for the datasets generated at AOC I, there is very little overlap of analyses between events for soil, so comparability among particular constituents in different datasets is not of significant concern. As shown in Table 3-1, with respect to the major analyses (i.e., those included in risk assessment - VOCs, SVOCs, pesticides, PCBs, and metals), only SVOCs and chromium were analyzed in surface soil in more than one event (i.e., PA/SI and RI). All other major surface soil parameters were analyzed in only one event (i.e., VOCs, pesticides, and PCBs during the PA/SI and hexavalent chromium during the RI). Chromium was detected during both events, and the SVOCs were analyzed using the same analytical method (and target quantitation limits) during both events. For subsurface soil, there is no overlap of analyses between the PA/SI and RI. For groundwater, the quantitation limits for metals during the 2006 supplemental RI are generally higher than those during the 2004 RI. However, this is due to the regulatory requirement to use ILM05 in 2006, which has a higher, contract-required reporting limit. Pesticides and PCBs were analyzed only in 2004; the reporting limits for VOCs and SVOCs between the two events are approximately the same.

The 2000, 2004, and 2006 analytical data were validated using Region II guidelines and worksheets. Therefore, from a data validation standpoint, there are not comparability issues among the various datasets."

EPA 2.

Please revise the HHRA to more clearly state that the site is fenced and there is no current exposure to trespassers or any other populations.

Navy Response

Section M.3.2 of Appendix M (HHRA) has been revised to include the following text as the first paragraph in this section:

"AOC I is currently vacant and unused property. Access to the site is restricted by fencing and a locked gate across the only road entrance to the site. A steep embankment with thick brush adjacent to a drainage ditch restricts access along the eastern site boundary. Use of the adjacent rock quarry affects the accessibility of the site. The entrance gate is kept locked when quarry operations are not being conducted, requires a key to access, and is used by truck drivers who need to drive across the site to access the adjacent quarry. It is unlikely drivers exit their trucks while driving across AOC I. The truck drivers are required to lock the gate each time they leave the site. Therefore, there are likely no current trespassers or other exposed populations at the site."

The first sentence of the second paragraph of the section has been re-written to state:

"Various potential future exposure pathways were quantified in the HHRA."

Specific Comments:

EPA 3.

Executive Summary, page ES-3: In the discussion of comparing concentrations of constituents in surface soil to background values, it should be clearly noted that this comparison was only for inorganics.

Navy Response

Executive Summary, page ES-3, second paragraph, the next to last sentence was revised to read:

"Further, concentrations of inorganic constituents detected in surface soil were . . . ."

Executive Summary, page ES-3, third paragraph, the second sentence was revised to read:

"Based on these evaluations, no unacceptable risk (over that attributable to background inorganics) was identified for exposure . . . ."

EPA 4.

Section 2.3.4, Hydrology and Hydrogeology, page 2-6:

a. Differences in the groundwater levels at the site varied from 4 to 5 feet between January 2006 and March 2006, with the lowest levels observed in March. The highest water elevations should also be depicted on Figure 2-8, with an indication of the depths and locations of the elevated OVA readings detected in the rock at locations MW04 and MW07. These OVA readings should also be included in the text (Section 4.2.3) with a discussion of the potential of contaminant flushing with fluctuating water levels. Consideration should be given to collecting and analyzing a sample to determine contaminant concentrations in the rock and the potential of a source of groundwater contamination within the rock.

Navy Response

Figure 2-8 has been revised to show the lowest and highest water level elevations and the OVA readings with depth for NDAMW07.

Collecting and analyzing a rock sample would not likely provide useful information other than confirming the presence of contamination, which is already anticipated (as stated in Section 4.2.3) and would be considered in any remedy evaluation. The contamination is migrating through the rock fractures; it is not incorporated into the rock matrix. Therefore, collecting a sample of rock, pulverizing it, and analyzing it would not accurately represent contaminant concentrations migrating through the fractures, nor would it provide an indication of what groundwater concentrations may result. Groundwater sample analysis is likely the most accurate manner in which to determine the contribution of contamination from leaching through the bedrock fractures. The asphalt plant was in operation from the 1960s through 1988. Installation of wells NDAMW04 and 07 took place in 2004, 16 years after the plant operation ceased and 44 years after plant operation began. Given this timeframe and that there is only about 3 to 9 feet of unconsolidated material above bedrock,

it is highly likely that the groundwater data accurately represent the concentrations to be expected from leaching through the bedrock.

The following text has replaced the last sentence of Section 4.2.3:

"Figure 2-8 shows the OVA readings observed from the rock fragments collected during drilling of the wells used to create the cross section. Elevated OVA readings were also observed during the drilling of NDAMW04. These OVA readings likely represent the presence of VOC and/or SVOC contamination within the unsaturated bedrock fractures at the time the wells were installed. This contamination likely represents an ongoing source of contamination to the groundwater, periodically flushed through as precipitation percolates through the unsaturated fractures and into the bedrock aquifer. However, given the considerable time between operation of the plant and installation of wells NDAMW04 and 07 (i.e., between 16 and 44 years), it is likely that the groundwater data from these wells suitably represent the continuing contribution from leaching through the unsaturated bedrock fractures."

EPA Evaluation of Response

The response indicates that the contamination is migrating through the rock fractures and that it is not incorporated into the rock matrix. However, unless a rock core is collected and a rock sample analyzed, an assumption cannot be made that about what is or isn't in the rock matrix. The potential of the rock acting as a continuing source of contamination needs to be considered in any remedy evaluation as stated in the response. The suggested change to replace the last sentence in Section 4.2.3 should be modified as follows:

> **"Figure 2-8 shows the OVA readings observed from the rock fragments collected during drilling of the wells used to create the cross section. Elevated OVA readings were also observed during the drilling of NDAMW04. ~~These OVA readings likely represent the presence of VOC and/or SVOC contamination within the unsaturated bedrock fractures at the time the wells were installed.~~ This contamination likely represents an ongoing source of contamination to the groundwater, periodically flushed through as precipitation percolates through the unsaturated fractures and into the bedrock aquifer. However, given the considerable time between operation of the plant and installation of wells NDAMW04 and 07 (i.e., between 16 and 44 years), it is likely that the groundwater data from these wells suitably represent the continuing contribution from leaching ~~through~~ of concentrations from the unsaturated bedrock ~~fractures~~."**

Navy Response

The recommended text has replaced the last sentence of Section 4.2.3.

b. Tidal fluctuations and potential shifts in groundwater flow directions should be investigated.

Navy Response

The following paragraph has been added at the end of the next-to-last paragraph of Section 8.3:

"In addition, to evaluate potential tidal influences on groundwater flow directions at AOC I, groundwater-level readings will be obtained that correspond with low tide and a high tide during the groundwater sampling event."

EPA 5.

Section 4.0, Nature and Extent of Contamination: The discussion of the sample results includes comparisons of on-site data to background concentrations. EPA is concerned with how some of these comparisons are shown. For example in Section 4.2.2.3, Inorganic Constituents, on Page 4-9, there is discussion of the arsenic concentrations. The text states that the on-site concentrations exceed the background levels "...but by only a small amount (i.e., by 6 ug/L or less)." This is confusing, because a difference of 6 ug/L does not accurately provide context for the comparison. A difference of 6 ug/L could be a significant concern, if that is the difference between compliance with an MCL or not. It might be helpful to provide more context for this comparison. For example, relative percent difference between on-site and background concentrations might be a way of demonstrating similar concentrations. Also, it might be helpful to compare concentrations to ARARs such as MCLs; compliance with MCLs would be another line of evidence to demonstrate no site-related impact. Please review this type of comparison through the chapter to more clearly present the on-site concentrations relative to background levels.

Navy Response

Compliance with an MCL or other ARARs has no relation to whether a constituent's concentration is site-related or not. It is comparison to background and consideration of other elements of the conceptual model of constituent presence and transport that establishes this relationship. It is common knowledge that all background environmental datasets for a particular constituent comprise a range of concentrations, not a single concentration, because there is inherent heterogeneity in environmental media. Therefore, while the team concurred upon a single well as a background well at AOC I, it is recognized that the inorganics data for this well represent a single point (for each inorganic) in a range of inorganics representative of background, as stated in the first paragraph of Section 4.2.2.3. Therefore, the magnitude of background exceedance is a very reasonable observation to make. Further, the magnitude of background exceedance was not used singly to determine whether a particular constituent concentration was likely site-related or not. Using the example of arsenic cited in the comment, the text in Section 4.2.2.3 goes on to point out that the arsenic concentrations in soil are likely attributable to background. Given that groundwater in the bedrock is derived, at least in part, from percolation through the soil and rock (as well as from upgradient), this information, together with the relatively low magnitude of background exceedance, suggests arsenic in groundwater is attributable to background.

EPA Evaluation of Response

The response does not adequately address EPA's concern regarding onsite concentrations relative to background concentrations. EPA recommends that the text be revised to more robustly explain the onsite data relative to background concentrations.

Navy Response

Based on concurrence reached between EPA and the Navy during a conference call held on April 17, 2008, the following revision to the text adequately addresses EPA's concern.

The fourth paragraph of Section 4.2.2.3 has been revised to read: "The total arsenic concentrations detected in site wells (maximum of 18.7 µg/L in 2004; maximum of 4.5 µg/L in 2006) are similar to the background total arsenic concentrations (15.6 µg/L in 2004 and 10 U µg/L in 2006). Similarly, the dissolved arsenic concentrations in site wells (maximum of 20 µg/L in 2004; maximum of 6.2 µg/L in 2006) are comparable to the background dissolved arsenic concentrations (14 µg/L in 2004 and 10 U µg/L in 2006). In addition, as discussed previously, the arsenic concentrations in soil at the site are likely attributable to background. For these reasons, the arsenic concentrations in groundwater at the site are likely attributable to background."

EPA 6.

Section 4.1, Summary of Detected Constituents, page 4-1, and Table 4-2: The text indicates that site-specific SSLs were calculated for AOC I, yet Table 4-2 indicates that Region IX SSLs were used. Please clarify.

Navy Response

The original column title cells were incorrectly labeled. The column title cells in Tables 4-1 and 4-2 have been corrected to "Site Specific SSL – DAF 1.5" to reflect what was actually utilized.

EPA 7.

Section 4.2.2.3, Inorganic Constituents, page 4-8: The document indicates that although inorganic concentrations (i.e., arsenic) in the groundwater were detected above MCLs, they are likely attributed to background even though concentrations in the background well were not elevated. Data from other background wells in the vicinity of AOC I, or in the same geologic material should be assessed prior to concluding that the inorganics are not site related.

Navy Response

Please see response to EPA Comment 5.

EPA 8.

Appendix M, Human Health Risk Assessment, Section M.4.4, Toxicity Values for TCE, page 4-2: The approach for evaluating TCE is not consistent with Region 2. The Region 2 approach quantifies risk from TCE using the draft provisional 2001 NCEA toxicity values for TCE. If these values result in risk/hazard outside the acceptable risk range, then the uncertainty section can include risk estimates based on other toxicity values, such as those developed by CalEPA and discussions of how the risk range likely covers the actual risk associated with TCE. Table M-7 also requires revision based on this approach.

Navy Response

The approach used is consistent with the HHRA Protocol ("Toxicity Assessment" section) presented in the agency-approved Final Master QAPP (CH2M HILL, May 2007). Therefore, no revision is necessary.

EPA Evaluation of Response

EPA has re-reviewed the Final Master QAPP, and the information in the QAPP relating to toxicity information for TCE is incorrect and not consistent with EPA protocol. The Master QAPP will need to be revised to reflect this.

Navy Response

During a conference call between the Navy contractor risk assessor and the EPA Region 2 toxicologist on April 21, 2008, it was concurred that the Master QAPP should not be revised at this time because any new protocol needs to be concurred upon by the entire Team and be acceptable broadly to Region 2 and the Navy. Specifically for AOC I, the approach indicated below will be applied. This approach is not precedent-setting for all of Vieques, but is being used at AOC I because the site is not a TCE site (few very low detections of TCE in soil and groundwater). This last sentence has been added to the end of Section M.4.4 *Toxicity Values for TCE*.

As concurred upon during the conference call, the risk calculations for TCE based on the Cal/EPA toxicity values will not be modified. Additional risk estimates were already provided for each appropriate receptor group in the Uncertainty Analysis (Section M.6) based on the 2001 draft provisional NCEA toxicity values for TCE. The ratio of the Cal/EPA and the draft provisional NCEA toxicity values for TCE was applied directly to the risk estimates (associated with the Cal/EPA toxicity values) for each applicable receptor group to develop risk estimates using draft provisional NCEA toxicity values.

The risk estimates for TCE based on Cal/EPA were compared to a $1x10^{-5}$ excess lifetime cancer risk (ELCR) level as the upper end of the acceptable cancer risk range for TCE, as opposed to the $1x10^{-4}$ ELCR level typically used by EPA under CERCLA to define the upper end of the acceptable risk management range.

The 3rd paragraph of Section M.6 was revised as follows:

> "There is uncertainty associated with the TCE toxicity values used in the HHRA. In accordance with the current Department of Defense preferred approach, toxicity values presented in the Cal/EPA toxicity criteria database were used for TCE in this HHRA. This approach is not precedent-setting for Vieques as a whole, but is being used at AOC I because it is not a TCE site (few detections of TCE in soil and groundwater). The ratio of the Cal/EPA and the draft provisional NCEA toxicity values for TCE was applied directly to the risk estimates (associated with the Cal/EPA toxicity values) to develop risk estimates using draft provisional NCEA toxicity values, and the results are summarized in Table M-7 and in the following bullets:
>
> - The estimated non-cancer HQs for both future adult and child residents were far below the target level of 1.0 using both toxicity sources

- For a future aggregate resident, the estimated ELCR from TCE was $3x10^{-7}$ using Cal/EPA toxicity values and $1x10^{-5}$ using draft provisional NCEA toxicity values
- For a future industrial worker, the estimated ELCR from TCE was $7x10^{-8}$ using Cal/EPA toxicity values and $2x10^{-6}$ using draft provisional NCEA toxicity values
- The risk estimates for both future residents and industrial workers based on both toxicity sources were less than or equal to a $1x10^{-5}$ excess lifetime cancer risk (ELCR) level, which was used as the upper end of the acceptable cancer risk range for TCE (based on the Cal/EPA toxicity value), as opposed to the $1x10^{-4}$ ELCR level typically used by EPA under CERCLA to define the upper end of the acceptable risk management range"

EPA 9.

Appendix M, Attachment 1, RAGS Part D Tables:

a. Table 4.2: The PEF value used is the default from EPA's Soil Screening Guidance. Please consider using a site-specific PEF to account for the correct size, vegetation, etc. that would influence particulate emissions.

Navy Response

A site-specific PEF was calculated using the site-specific area of impact (1.0 acre) and the daily average wind speed from measurements at Observation Post 5 on Vieques (10.1 knots) (Department of the Navy, 1979). The fraction of vegetative cover present on-site in the future was assumed to be 50%. The revised PEF is presented in Table 4 RME Supplement C-1 **(attached).** RAGS Part D Table 4s, 7s, and 9s in Attachment 1 were updated to incorporate the revised PEF **(attached).**

In addition, associated text was modified as indicated below:

Section 6.3 Risk Estimates, the third bullet was changed to:

- Future Maintenance Worker
  - ELCR $<1x10^{-6}$ and all target organ-specific HIs < 1

Appendix M, Section M.3.3.1 Exposure Point Concentrations, the fifth paragraph was changed to:

"A site-specific particulate emission factor (PEF) was calculated for use in intake calculations for recreational users and residents (Table 4 RME Supplement C-1 of Attachment 1). Climate Zone 9 (based on Miami, FL) and a 1-acre areal extent of site contamination (based on the approximate area where COPCs were detected in soil) were used in the site-specific PEF calculation. The value for mean annual wind speed (5.19 meters/second) was obtained from data collected at Observation Post 5 on Vieques (Department of the Navy, 1979). Additionally, a receptor-specific PEF was calculated for a construction worker scenario because increased fugitive dusts may be emitted from soil by construction vehicle traffic on temporary unpaved roads and other construction activities. Table 4 RME Supplement C-2 of Attachment 1 presents equations and exposure assumptions used to calculate a PEF for the construction worker scenario."

Section M.5.4 Summary of Risk Estimates, the third bullet comment was changed to:

- Future Maintenance Worker
  - Surface Soil - ingestion, dermal contact, and inhalation
  - ELCR <$1x10^{-6}$ and all target organ-specific HIs<1.0 (Table 7.4 RME, summarized in Table 9.4 RME)

Table M-3 Estimated Risks for Inorganic Soil COPCs, the ELCR for the maintenance worker was changed to 2E-07.

Section M.7 References, the following reference was added:

Department of the Navy. 1979. *Draft Environmental Impact Statement: Volume I – Continued Use of the Atlantic Fleet Weapons Training Facility Inner Range (Vieques)*. December.

b. Table 10.7: The risks presented in this table, which is an aggregate of the risks to the child and adult resident, do not seem to match with Tables 10.5 and 10.6, which present the risks to the adult and child, respectively. Please review these tables to ensure that they are correct.

Navy Response

The adult and child receptors were evaluated individually for noncarcinogenic exposures; however, these receptors were not evaluated individually for carcinogenic exposures. Thus, "NA" is listed for carcinogenic risks in Tables 10.5 and 10.6. Carcinogenic risks were estimated for an aggregate adult/child receptor (Table 10.7). Because noncarcinogenic risks were not calculated for the aggregate resident, "NA" is indicated for noncarcinogenic risks on Table 10.7.

EPA 10.

Appendix N, Ecological Risk Assessment:

a. Section N.2.1.3, Habitats and Biota, page N-4: The reference site used was an area described as being "highly disturbed by mowing and deposition of gravel." A disturbed area is not an appropriate reference site.

Navy Response

This section was summarizing the facts of an ecological evaluation as reported by Geo-Marine in 2001. A suitable reference site in this context is typically defined as an area that is similar to the site in terms of habitat and physical characteristics but not known to be impacted by site-related contamination. The reference site appears to meet this criterion. However, the third paragraph of Section N.2.1.3, which discusses the reference site, has been deleted since it is irrelevant to the onsite habitat/biota description provided in the remainder of the section.

b. Section N.2.1.5, Summary of Available Analytical Data, page N-5: It is noted that surface soil samples consist of samples collected from the top 6" (26 soil samples) and top 2' (18 soil samples). Therefore, there should be some discussion regarding the potential uncertainty in combining data sets in Section N.4 Uncertainties. In addition, it should be noted that the 0-6" depth range may over- or underestimate actual exposure.

Navy Response

The Uncertainties section has been updated to include the following text:

"Evaluation of Soil Sample Depths - The quantitative evaluation of chemical concentrations in soils included the combination of surface soils from the 0-6 inch and 0-24 inch depth ranges. These variable depth ranges could overestimate or underestimate actual exposures to soil contaminants. The 0-6 inch interval may represent the highest concentrations in the soil profile assuming a surface release, which would likely be the release mechanism during historical activities at AOC I, or may not represent elevated concentrations that occur below 6 inches. Composite soil samples over the 0-24 inch profile may dilute elevated concentrations that are limited to a narrow zone, or may represent concentrations that occur low in the soil profile and not accessible to terrestrial organisms. The combination of surface soil data from varying depth profiles introduces some uncertainty, as described above."

c. Figure N-1, Ecological Conceptual Model: It is more appropriate to discuss absorption for plant exposure rather than dermal contact. The figure should also illustrate ingestion of contaminated foods (plant and/or animal tissue) in addition to soil ingestion.

Navy Response

The conceptual model (Figure N-1 and Figure 7-1) have been revised in accordance with the comment.

d. Section N.2.1.9, Exposure Pathways and Routes, page N-6: Although there may not be aquatic habitat, it is noted that Marine toads and marine toad tadpoles were observed in the water-filled concrete structure (page N-4).

Navy Response

The concrete structure intermittently holds rainwater, and is not considered an aquatic habitat. In Section N.2.1.3, last paragraph, the sentence describing the marine toad has been revised as follows:

"Marine toads (*Bufo marinus*) and marine toad tadpoles were observed in a concrete structure partially filled with water; however, this is an intermittent water source fed only by direct rainfall and is therefore not an aquatic habitat."

e. Tables N-5, N-6 & N-7: Please include all references cited in these tables in Section N.5 references.

Navy Response

All references cited in Tables N-5, N-6, and N-7 are now included in the reference section of Appendix N.

f. Table N-7, Exposure Parameters for Upper Trophic Level Ecological Receptors – Step 2, provides the dietary composition for each of the five receptors. Although the Pearly-eyed thrasher, Norway rat and Indian mongoose are considered terrestrial omnivores (Table N-4), this is not reflected in the dietary composition provided in this table. It is understood that this allows for a more conservative

calculation, however the risk hypotheses should be modified to reflect a diet consisting of only one type of food source (soil invertebrates or terrestrial plants).

Navy Response

The risk hypotheses in Table N-4 for each of the receptors listed in the comment have been revised as suggested to reflect the dietary components listed in Table N-4. The text in Appendix N (Section N.2.1.10) was also revised.

g. Section N.2.2.1, Exposure Estimation, page N-9: All contaminants in exceedances of screening values should be evaluated for exposure via food webs.

Navy Response

The evaluation of only bioaccumulative chemicals in AOC I food web models is consistent with all previous EPA-reviewed ERAs conducted on Vieques, as well as relevant EPA guidance (see attached guidance).

EPA Evaluation of Response

The response directs the reviewer to the attached guidance. However, no guidance was included in this response. This should be clarified.

Navy Response

As stated in the April 28, 2008 e-mail submitted to EPA, EQB, and FWS, the preliminary comment responses and all supporting documentation were uploaded to the Vieques website for regulatory consideration. The guidance referred to in the preliminary response was one of the supporting documents uploaded to the Vieques website.

h. Section N.2.2.2, Screening Exposure Point Concentrations, page N-9: Please note that the reference for deriving soil-to-plant BCFs (rather than sediment-to-plant BCFs), specifically Attachment 4-1 Exposure Factors and Bioaccumulation Models for Derivation of Wildlife Eco-SSLs) of EPA's Ecological Soil Screening Levels, was updated in August of 2007 and therefore this equation may not adequately reflect changes to the reference document.

Navy Response

The equation did not change from the 2005 version. The citation was changed to refer to the 2007 version of the document (April, not August, was the latest version posted on EPA's web site).

i. Section N.2.3.1, Medium-Specific Screening Values, page N-11: It should be noted that soil screening values for several contaminants have been modified, and additional contaminants have been added to EPA's Ecological Soil Screening Level list. Specifically, copper, dieldrin, and pentachlorophenol were updated in 2007 and manganese, nickel, selenium, silver, zinc, DDT and metabolites and total PAHs were added to the list of available screening values (http://www.epa.gov/ecotox/ecossl/). These values should be added to Table 4-1 Surface Soil Detection and Exceedance Results, Table 8-1 Surface Soil Summary Statistics and table N-11 Step 2 Screening Statistics and COPC Selection –Surface Soil.

Navy Response

The tables were revised to include the most recent Eco-SSL values. The updated Eco-SSL values did not alter the risk evaluation or conclusions.

j. Section N.2.4.3, Food Web Exposures, page N-13: It is noted that in comparison to NOAELs, nine metals had HQs greater than "1". Although these metals did not necessarily exceed surface soil screening values, they are included in the table on bioaccumulative compounds (Table 4-2) In Bioaccumulation Testing and Interpretation for the Purpose of Sediment Quality Assessment (EPA, February 2000) and therefore were included in the food web modeling. This information should be clearly noted with the ecological risk assessment appendix.

Navy Response

The following sentence has been added to the end of the first paragraph in Section N.2.4.3:

"Arsenic, cadmium, lead, mercury, and zinc were included in the food web analysis because they are considered bioaccumulative; however, the maximum soil concentrations of these metals did not exceed soil screening values."

k. Table N17, Summary of COPCs – Step 2: It would be helpful to note that chemicals identified as COPCs for food web modeling, were identified based on exceedance of NOAELs, rather than LOAELs.

Navy Response

The following footnote has been added to the end of Table N-17:

"Result based on exceedance of No Observed Adverse Effect Level (NOAEL)."

l. Section N.3.1, Refinement of Conservative Screening Assumptions, page N-13 and Table N-7, Exposure Parameters for Upper Trophic Level Ecological Receptors – Step 2: Please include information about the home range of the selected upper trophic level receptors. Although these upper trophic level receptors may be highly mobile and thus averaging their exposure over time, it should be noted that they may be feeding at another AOC or SWMU which may have similar contaminants present. Therefore, it cannot be assumed that the average contaminant concentrations in the food sources are less than the concentration of contaminants on site.

Navy Response

Table N-7 has been updated to include home range information, if available, along with a footnote indicating that these values were not used in food web modeling. As a conservative measure, all food web models assumed receptors foraged exclusively at the site (AOC I); that is, an Area Use Factor of 1 was assumed.

The Uncertainties Section (N.4, eighth bullet) was also updated as follows to address potential exposure to nearby contaminated sites (see underlined sentence):

- "Mean Versus Maximum Media Concentrations - As is typical in an ERA, a finite number of samples of environmental media are used to develop the exposure estimates.

The maximum measured concentration provides a conservative estimate for immobile biota or those with a limited home range. The most realistic exposure estimates for mobile species with relatively large home ranges and for species populations (even those that are immobile or have limited home ranges) are those based upon the mean chemical concentrations in each medium to which these receptors are exposed. This is reflected in the wildlife dietary exposure models contained in the *Wildlife Exposure Factors Handbook* (EPA, 1993), which specify the use of average media concentrations. It is possible that receptors could spend additional time foraging at a nearby AOC or SWMU and thus be exposed to contaminants from more than one site. Thus, the average contaminant concentrations in AOC I media and food sources may not accurately represent contaminant exposure to a receptor ranging into other sites. It is much more likely, however, that assuming an Area Use Factor of 1 will result in a conservative estimate of exposure because it is much more likely that off-site foraging would be conducted in uncontaminated areas than at other AOCs or SWMUs, none of which are contiguous with AOC I. Given the mobility of the upper trophic level receptor species used in the ERA, the use of maximum chemical concentrations (rather than mean concentrations) in the SERA to estimate the exposure via food webs is very conservative. This conservatism was reduced to more realistic levels in the values selected for use in the Step 3A evaluation."

EPA Evaluation of Response

The response includes additional language which is underlined. In the last underlined sentence, the words "much more likely" should be replaced by the words "is likely," in the discussion of the likelihood of a receptor foraging off-site.

Navy Response

The words "much more" have been removed from the inserted sentences.

m. Section N.4, Uncertainties, Spatial Distribution of Samples, page N-18: It is noted in this Section that the site encompasses approximately 2 acres. However, the main text of this report indicates that this site is approximately 1 acre in size. Please clarify the size of the site.

Navy Response

The correct site size is approximately 1 acre. The text in Section N.4 has been updated to reflect this.

Responses to
PREQB Technical Evaluation

Draft Remedial Investigation Report Area of Concern (AOC) I, Former Naval Ammunition Support Detachment, Vieques, Puerto Rico, November 2007

INTRODUCTION

The AOC I Draft Remedial Investigation (RI) Report, dated November 2007, had been previously evaluated. That previous evaluation determined that the third round of groundwater sampling recommended during the feasibility study would be beneficial in providing additional data for consideration.

The previous evaluation did not consider the Human Health Risk Assessment presented in Appendix M. The below comments evaluate Appendix M Human Health Risk Assessment.

COMMENTS TO APPENDIX M

PREQB 1.

Future reports should clearly identify deviations from the Master QAPP.

Navy Response

All of the fieldwork conducted at AOC I preceded the Master QAPP. Therefore, there were no field deviations from the Master QAPP. The human health and ecological risk assessments were conducted in accordance with the risk assessment protocols in the Master QAPP, except as noted below in PREQB Comment 2.

PREQB 2.

Section M.2.2.1. The use of EPA Region III RBCs for chemicals with updated IRIS toxicity data is a departure from the Master QAPP and was not presented in the Interim Deliverable for AOC I. For those chemicals with updated toxicity data, updated PRGs should be calculated using the Region IX PRG equations rather than using Region III RBCs.

Navy Response

The Region IX PRG equations were used to calculate screening values for acetophenone, barium, 2-methylnaphthalene, and toluene, and the updated screening values are provided in a revised set of Table 2s (attached). Use of the Region IX PRG equations for identifying updated screening values did not result in any new COPCs and therefore no additional tables need to be modified.

The bullets within Section M.2.2.1 (Comparison to Screening Levels) have been revised as follows:

"• **Soil—**EPA Region 9 Preliminary Remediation Goals (PRGs) for soil, issued in October 2004 (and revised in December 2004), based on residential and industrial scenarios, target excess lifetime cancer risk (ELCR) of 1×10^{-6} and adjusted for a target non-cancer hazard quotient (HQ)

of 0.1 (EPA Region 9, 2004) were used for selecting COPCs for soil. For PRGs based on toxicity values that were updated in EPA's Integrated Risk Information System (IRIS; EPA, 2007a) subsequent to October 2004, screening levels were calculated using the EPA Region 9 PRG equations."

"• **Groundwater—** EPA Region 9 PRGs for tap water, issued in October 2004 (and revised in December 2004), based on a target ELCR of 1×10^{-6} and adjusted for a target non-cancer HQ of 0.1 (EPA Region 9, 2004) were used for selecting COPCs for groundwater. As was done for soil, PRGs based on toxicity values that were updated in EPA's IRIS (EPA,2007a) subsequent to October 2004 were not used. Rather, updated screening levels were calculated using the EPA Region 9 PRG equations."

PREQB 3.

Pages 3-1 and 3-2, Section M.3.2. Groundwater should be considered as potable until sufficient documentation is presented otherwise and the footnote should be removed.

Navy Response

Groundwater was considered potable for purposes of risk assessment (see bullets under "Resident" and "Industrial Worker"). The footnote stating that it is unlikely that groundwater will be used as a future potable water supply is simply a statement of likelihood. It helps to show that the risk evaluation for potable use of groundwater is a conservative measure. Further, it does not emphatically state that groundwater will not be used as a future potable source, only that it is unlikely.

PREQB Evaluation of Response

EQB considers groundwater to be potable unless sufficient documentation is provided that demonstrates otherwise. The potential for groundwater to be used in the future exists; therefore, EQB requests that the footnote be removed.

Navy Response

The footnote has been removed.

PREQB 4.

Page 3-2, M.3.3. EPA guidance referred to in this section also recommends that the contact rate be a value that represents the 95th percentile. Include this information in the last sentence of this section.

Navy Response

The following sentence has been added to the end of Section M.3.3:

"EPA guidance recommends that the contact rate be a value that represents the 95th percentile."

PREQB 5.

Page 3-2, M.3.3.1. The text should clarify what method was used for dealing with nondetect data in calculating the exposure point concentrations. The latest version of ProUCL has specific methods for handling nondetect data, and NERL-EPA Las Vegas

strongly recommends against using one-half the detection limit as a surrogate for nondetect data.

Navy Response

The 2nd paragraph of Section M.3.3.1 has been modified to read:

"The upper confidence limit (UCL) on the mean concentration was used as the EPC for each COPC identified for a receptor group where the number of detected concentrations was two or more and where eight or more samples are available in the dataset. EPCs were identified following the most recent parametric (distributional) and nonparametric EPA recommendations offered in ProUCL (USEPA, 2007a). Version 4 of ProUCL offers approaches for calculating UCLs of the mean, particularly when nondetects are present. These approaches consider a large variety of inputs including the perceived distribution of the detected results (if no perceived distribution is acceptable, nonparametric alternatives are offered), sample size, variability, and skewness.

The ProUCL decision tree for UCLs of the mean is very large, with parametric approaches with nondetects centering on maximum likelihood estimates for use as proxy substitutions. These estimates attempt to complete the censored left tail of the data using information available from the available detected data. The distributions available in ProUCL include normal, lognormal, and gamma distributions.

Nonparametric approaches are available when a discernable distribution cannot be identified. When non-detects are present, the primary nonparametric approach involves the Kaplan-Meier approach. Depending on the data, the Kaplan-Meier approach may be applied with aspects of a student t approach or one of various "bootstrap" approaches. When all results are detected, other nonparametric approaches (i.e.,. the Chebyshev approach) are used. The recommended UCL from the ProUCL output was used as the EPC. The UCL concentrations are presented in Tables 3.1 through 3.3 of Attachment 1, and the ProUCL output is provided in Attachment 2."

PREQB Evaluation of Response

Please include in the response whether a surrogate value was used for non-detect data, such as one-half the sample quantitation limit. The current version of ProUCL uses methods for evaluating nondetect data, as your response indicates. Please just confirm that no surrogate value was used.

Navy Response

No surrogate value was used.