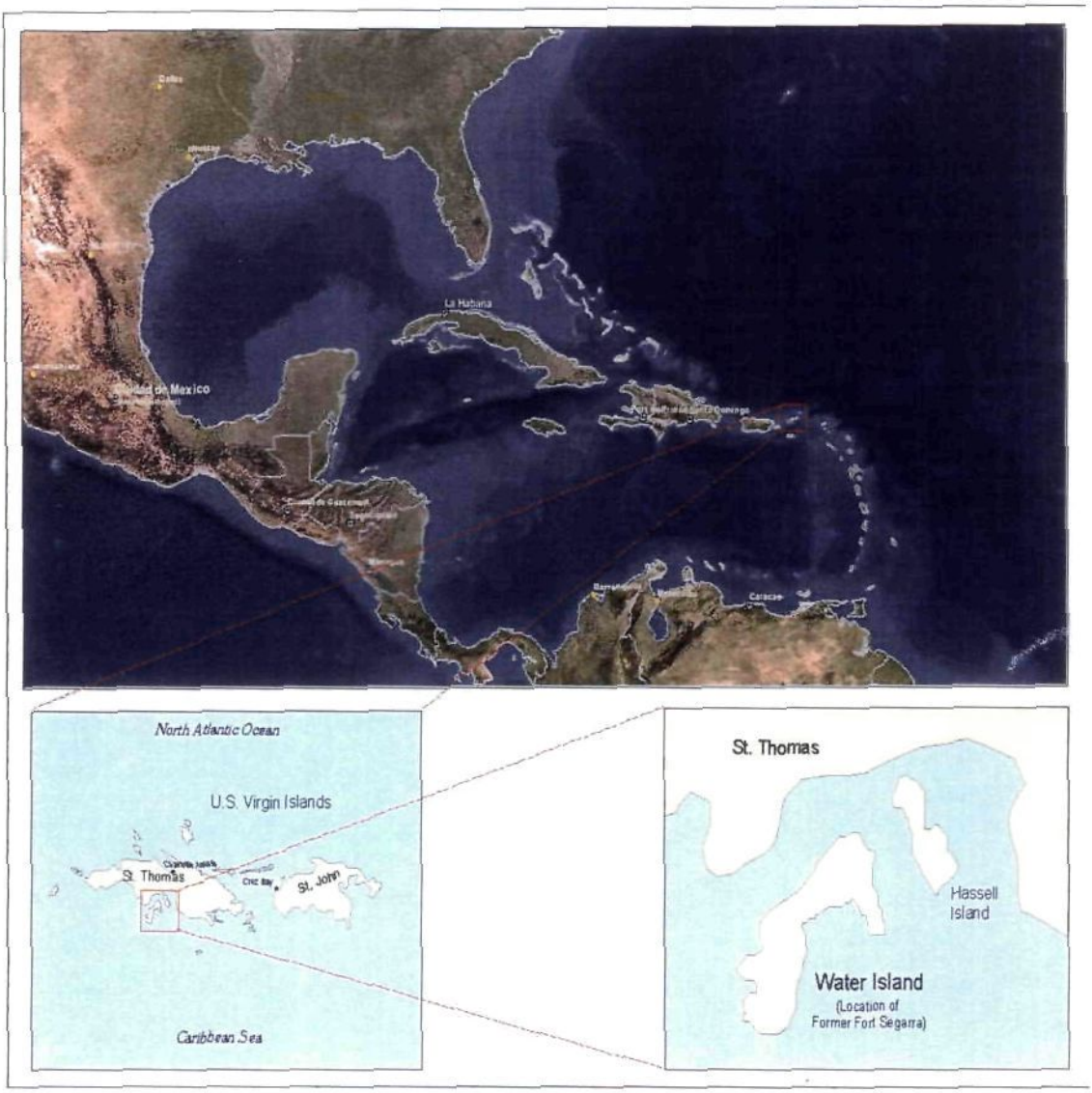

Site Investigation Report
Former Fort Segarra
Water Island, U. S. Virgin Islands
March 10, 2004

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Site Investigation Report
Flamingo Bay Army Test Areas
Former Fort Segarra
Water Island, USVI

Prepared for

Office of Insular Affairs
Department of the Interior
Washington, DC

Prepared by

Bureau of Reclamation
Technical Service Center
Denver, CO

April 2004

INTRODUCTION

This Site Investigation (SI) Report for the Flamingo Bay Army Test Areas, Former Fort Segarra at Water Island, United States (U.S.) Virgin Islands (VI) has been prepared by the U. S. Department of the Interior (DOI) for the U.S. Environmental Protection Agency (EPA). The SI was conducted specifically at the Flamingo Bay Landfill, and Test Areas 4, 5, and 8 to evaluate the presence of non-munitions hazardous substances, and in coordination with the U.S. Army engineering evaluation/cost assessment (EE/CA) investigation for chemical warfare material (CWM), ordnance and explosives (OE), and agent by-products.

The EPA listed the Flamingo Bay Army Test Areas (Figures 1 and 2) on the Federal Agency Hazardous Waste Compliance Docket (Federal Docket) pursuant to Section 120(c) of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) on June 12, 2000. The U.S. Army had prepared a site characterization report indicating the possible presence of chemical warfare testing at this site, which prompted EPA listing. The Federal Docket is a listing of sites that are federally owned or operated that manage hazardous waste or at which hazardous substance may have been released into the environment. EPA is required to evaluate all Federal Docket sites to determine whether they pose a risk to human health and/or the environment and for possible listing on the National Priorities List (NPL).

One of the first steps in EPA's site evaluation process is the Preliminary Assessment (PA). The PA is a limited-scope investigation with the goal of collecting readily available information through a records search, site reconnaissance and environs reconnaissance. The PA is designed to distinguish between sites that pose little or no threats to human health and the environment and sites that require further investigation. The Flamingo Bay Army Test Areas, former Fort Segarra, are owned by the United States and is under the jurisdiction, custody, and control of the DOI. As such, DOI contracted with URS Corporation (URS) to assist in preparation of the PA. DOI plans to transfer some of these properties to the VI government; therefore, the PA was completed to meet CERCLA 120 (c) requirements and transfer requirements defined in CERCLA 120(h). The PA was prepared in accordance with EPA *Guidance for Performing Preliminary Assessments Under CERCLA,* dated September 1991, and was submitted to the EPA Region 2 in July 2001. Within the PA, the Site was characterized with a hazard ranking of 11 using the EPA score sheet.

Under normal circumstances, based on the lack of receptors at this Site, a hazard ranking score of 11 would result in a decision by EPA of no further action required. However, because of the previous use of the Site as an Army testing area, the EPA expressed concern regarding the potential presence of contaminants and their associated risks. The Former Fort Segarra on Water Island was used by the Department of Defense (DOD) from 1948 to 1950 to test CWM as part of the Tropical Test Program of the San Jose Project. DOD was present on the property until 1952 when it was transferred to the DOI. As a result of this past DOD use, EPA required further site evaluation including the collection and analysis of soil samples, and requested the addtion of cyanide (CN) to the TAL list, to assure an appropriate investigation for hazards, and to assist in the decision regarding any further action at the Site.

The second step in the EPA site evaluation process is the SI. Environmental samples are collected and analyzed in the SI to test any PA hypothesis and support the site evaluation by EPA. This document reports the findings of the SI at the Flamingo Bay Landfill and Test Areas 4, 5, and 8 at the former Fort Segarra, Water Island, VI, conducted from April 28, 2003 to June 17, 2003. The site scored at 7.21 in this Site Investigation Report using the EPA Quickscore software.

Because Water Island is a Formerly Utilized Defense Site (FUDS), the Army also is required under the Defense Environmental Restoration Program (DERP) to investigate and remediate hazardous waste contamination related to the Army past activities at the site. Under DERP, the Army planned to investigate only CWM, OE, and agent byproducts. However, in a spirit of cooperation with DOI, the Army agreed to do sampling and analysis for potential hazardous waste components that may have occurred on the site during both Army and DOI tenure; and to do that sampling in conjunction with the planned DERP activity. The special circumstance of the Army use of the Site for CWM testing prompted the EPA Region 2 to decide that an SI would be required even though the Site did not have a hazard ranking score at or above 28.5 in the PA. The focus of both the DOI 2001 PA and the 2003 SI was the presence of non-munitions hazardous substances as a result of activities conducted at the Site that may have occurred following DOD's departure from the Site in 1952.

The DOI SI was coordinated with the Army EE/CA fieldwork performed by the U.S. Army Engineering and Support Center, Huntsville (USAESCH). Planning documents were produced under a contract with Parsons, Norcross, GA (Parsons) including both the Army EE/CA and DOI SI requirements in each document. Draft documents were submitted to EPA for comment and review in January 2003, and produced in final form April 2003. The planning documents included:

- EE/CA Work Plan, Volumes 1 and 2, April 2003
  - Site Safety and Health Plan, EE/CA, Appendix B
  - Investigation Derived Waste Plan, EE/CA, Environmental Protection Plan, Section 9
- Site Specific Sampling and Analysis Plan, April 2003

The Army EE/CA investigation was required to adhere to the DERP protocols for FUDS and was required to be performed relevant to the Army regulations and guidance for OE programs. As such, high levels of safety and security were required for the fieldwork. Coordination between the Army and DOI allowed for field samples for both the Army intrusive investigation for CWM and OE and DOI hazardous materials investigation to be accomplished in the most cost effective and efficient manner. Parsons was contracted by the Army to perform the fieldwork. Parsons collected and shipped all environmental samples to Severn Trent Laboratory, Savannah Division (STL-SL), Savannah, GA and Edgewood Chemical, Biological Center, Edgewood, MD (ECBC). Analytical data were verified and validated for use at Parsons, and delivered to DOI on December 9, 2003 for incorporation into the SI report.

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PART I: SITE INFORMATION

1. **Site Name**: Flamingo Bay Army Test Areas
   Former Ft. Segarra, Water Island, VI 00802

2. **County** – NA **County Code** – NA **Congressional District**: VI, At Large

3. **CERCLIS ID NO.** VI0000591875

4. **Block No.** Not Applicable **Lot. No.** Not Applicable

5. **Latitude** - 18° 18' 37.2'' **Longitude** - 64° 57' 28.7''
   USGS Quadrangle Map – Central St. Thomas

6. **Approximate size of site** – 258,012 square feet

7. **Owner** The property is currently owned by the United States and under the jurisdiction, custody and control of the:

   U.S. Department of the Interior
   1849 C Street NW
   Washington, DC 20240

   Prior to 1952, the property was under the jurisdiction, custody, and control of the Department of Defense.

8. **Operator** Same as Owner

9. **Type of Ownership** – Federal

10. **Owner/Operator Notification on File** – Not Applicable

11. **Permit Information** – Not Applicable

12. **Site Status** – Active

Flamingo Bay Landfill

The Flamingo Bay Landfill is currently not in use. A fence has been placed around the Flamingo Bay Landfill to restrict access to the area by Water Island residents. However, approximately 180 feet, along the southeastern side of the landfill, is currently not enclosed with a fence.

Test Area 4

Portions of Test Area 4 are still used by the local homeowner's association, the Water Island Civic Association (WICA). Abandoned vehicles are currently being stored in Test Area 4.

Test Area 5

Test Area 5 is currently being used by WICA. A solid Waste Transfer Station has been established in Test Area 5 as a collection area for household trash, landscaping wastes, and construction debris. The Virgin Islands Department of Public Works administers this Transfer Station. Roll-off bins are used to hold household trash. Separate staging areas have been established for residents of Water Island to store car batteries and used oil. Construction debris and landscaping waste are stored uncontained. On a monthly basis, a trash collection service picks up the waste for disposal off the island.

13. Years of Operation: 1948-2004

14. Identify the types of waste sources.

14a. Waste Sources

Waste Unit No.	Waste Source Type	Facility Name for Unit
1	Landfill	Flamingo Bay Landfill
2	Waste Pile	Test Area 4
3	Waste Pile	Test Area 5

14b. Other Areas of Concern

Because the findings of the Army Archival Search Report, June 2001, indicated that there was some testing performed during the Army Tropical Test Program in Test Area 8, DOI requested testing of this area. Test Area 8 is the former location of the Water Isle Hotel and Beach Club, also known as the Sea Cliff Resort Hotel. The hotel had been destroyed in 1989 by hurricane winds, and never rebuilt. The remains of the hotel buildings and support facilities had been removed by the Bureau of Reclamation (Reclamation) for DOI in 1997 and documented in 1998 reports. This area of concern is currently unoccupied.

15. Regulatory History of Site (including the scope and objectives of any previous response actions, investigations, and litigation by state, local and federal agencies.)

15.1 Site History

The U.S. Government acquired Water Island in 1944 from the East Asiatic Company, Ltd., Denmark to establish a fort to protect the Roosevelt Roads Naval Station in Puerto Rico. Water Island was intended as the main defense battery, with secondary defense batteries located on St. Thomas. From 1944 to 1952, Water Island was under the jurisdiction of the DOD and was used

for military purposes until 1950. The Army began the construction of Fort Segarra on the island soon after it was purchased. Approximately 33 structures were constructed on Water Island for this purpose including gun emplacements, bunkers, barracks, and support facilities. The fort was never completed, however, due to the end of World War II. Consequently, neither the guns nor explosive munitions were ever delivered to Fort Segarra.

The Army also used the island as a base for the Tropical Test Program San Jose Project. The purpose of the Tropical Test Program was to determine the effectiveness of chemical munitions and defenses in jungle terrain, and the effects on chemical munitions of storage in tropical climates. A number of tests of persistent and lethal chemical agents were performed on Water Island. Lack of approved test plans, materials, time, or funds frustrated attempts at extensive testing.

File records documented that five tests were conducted on Water Island. Although documentation does not exist, it is believed that an additional two tests were also conducted on the island. Of the five tests documented at Water Island, three involved the static firing of chemical munitions and two were surveillance tests to determine property changes in bombs subjected to the tropical environment.

In May of 1950, the Army announced the cancellation of the San Jose Project and the transfer of its functions to the CEBAR Proving Grounds (now Dugway Proving Grounds) in Utah. Project personnel began terminating activities immediately and the project was completely shut down by September 1950.

DOD transferred administrative control over Water Island to DOI in 1952, and portions of Water Island subsequently were leased by DOI to a private corporation (Water Island, Inc.) for the construction of a resort complex. The corporation, as the master leaseholder, subsequently granted more than 140 separate subleases. Many of these sub-leaseholders built homes on the island.

During the early 1990s, DOI proposed to transfer most of the property on Water Island to the leaseholders. Regulations promulgated by EPA, as well as internal DOI policy as set forth in its Departmental Manual part 602 DM2, required that DOI ascertain the presence or potential presence of hazardous substances on property intended for sale or transfer. In addition, CERLCA section 120(h) imposes environmental assessment obligations on federal agencies when they transfer property to third parties.

In June 2000, the EPA listed the Flamingo Bay Army Test Areas, Former Fort Segarra, Water Island, VI on the Federal Docket pursuant to Section 120 of CERCLA (65 Federal Register 36997; June 12, 2000).

As a Federal Docket site, a PA (and if necessary an SI) is required to be submitted to EPA so that a determination can be made whether the site is a potential NPL candidate. The Site did not score at or above 28.5 on the EPA, Region 2, hazard ranking score sheet in the PA. However, the Site is a FUDS site, and therefore, EPA expressed concern regarding the potential for

hazardous waste contamination from CWM related to the Army past activities. Because of this special circumstance, the EPA Region 2 decided that a SI would be required even though the Site did not score at or above 28.5 on the hazard ranking score sheet.

DOI, with jurisdiction custody and control of the Site, is required to provide information to EPA on any other types of possible hazardous waste activities that may have occurred following the Army departure from the Site. In addition, since DOI plans to transfer the Site to the VI government, DOI is required to comply with the requirements of CERCLA Section 120 (h) before transferring the property.

Ref. Nos. 3, 4, 14

15.2 Previous Investigations

Previous investigations have been limited to non-intrusive activities including record searches, interviews, and surface assessments. A summary of these investigations is provided below.

15.2.1 Ebasco Environmental Archive Search Report (July 1991)

In 1991, the U.S. Army Corps of Engineers hired Ebasco Environmental (Ebasco) to conduct an archive search to find and evaluate available information related to the San Jose Project in the U.S. VI. Specifically, Ebasco was to review the data to determine if the sites used by the San Jose Project in the U.S. VI are potentially contaminated by conventional or special (chemical) ordnance or explosive wastes.

According to the records uncovered by Ebasco, only a limited number of tests were completed. The tests that were identified as associated with Test Areas 4 and 5 are described below:

Static Test of M 70 Bomb (HD Filled).

In early 1949, an AN-M70 (a 115-pound (lb) bomb filled with distilled mustard) was tested in Areas 4 and 5. The M70 bomb is 51.5 inches long and 8 inches in diameter, with an 11-inch fin span. This type of mustard is a relatively pure liquid that produces blisters on skin when there is liquid contact, and, if inhaled in sufficient quantities, "burns" the lungs and produces choking or "chemical pneumonia." In this test, the bombs were supported in a vertical or near vertical position just at the ground surface and detonated remotely. The intention was to simulate detonation at ground surface after being dropped from an airplane.

Static Test of Single E-23 Smoke Pot, HD Filled, In the Open.

This test was performed in the summer of 1949 in Test Area 4. Smoke pots are used primarily to obscure the battlefield from enemy observation and to deceive the enemy about real intentions. Smoke can also be used to disseminate chemical agents to produce casualties in downwind areas. The E-23 smoke pots are 5-gallon steel containers, 13 inches high and 12 1/16 inches in diameter. The purpose of the test was to determine the dosage produced in the field, the rate of

dose created, the degree of decomposition loss in the smoke pot, and the overall efficiency of agent dissemination from static firing of the smoke pot.

Static Test of Single E-23 Smoke Pot, GA Filled, In the Open.

Through its archive search, Ebasco was not able to specifically identify the exact locations where this test was conducted. However, the test described below was conducted as part of the Tropical Test Program on Water Island and could have taken place in Area 4 or Area 5.

GA is a lethal nerve agent first produced by Germany during World War II. It is a non-persistent agent. This agent can be inhaled or absorbed through the skin and inhibits cholinesterase activity in the body. The report of this test could not be found; however, monthly progress reports indicate tests took place in November and December of 1949.

A subsequent study conducted by the U.S. Army Chemical Material Destruction Agency in 1993 identified an additional test that may have been conducted in Test Area 4. This test is described as a Test of a Single E-23 Smoke Pot, HQ-filled. HQ is a combination of sesquimustard and Mustard, toxic vesicants. However, this potential test activity was not identified by Ebasco during the Archive Search Study.

In May of 1991, Ebasco, as part of its archives search project, conducted a visual site inspection of Water Island. The following excerpts describe their observations regarding Flamingo Bay Landfill and Test Areas 4 and 5.

Flamingo Bay Warehouse Area

The Water Isle Hotels and Beach Clubs constructed a metal warehouse near the deep-water dock for storage of vehicles and materials. The warehouse was constructed on an area filled in for this purpose. A salt pond located south of the warehouse was excavated to form a landfill. However, in 1966 during the excavation operations two objects that resembled bombs were unearthed. Mr. Couter, a Water Isle employee, reported that hotel employees were removing "elephant muck" from the site with a dragline when the bombs were located. The Naval Explosive Ordnance Detachment was contacted to remove the bombs and dispose of them. The Detachment identified the objects as a 500 lb M70 and an M78 500 lb bomb. Hotel employees were instructed by the Detachment not to dig in the immediate area the bombs were discovered, and the area was filled in and covered with borrowed soil to a depth of about three feet. Debris and scrap materials have been subsequently deposited on the site.

Test Area 4

This area is located to the south and southwest of the Flamingo Bay Harbor. The site straddles the road that comes from the main dock. The area north of the road is relatively clear of debris; however, the area south of the road has been used by island residents to dispose of vehicles and miscellaneous debris.

Test Area 5

This area is located south and southeast of the Flamingo Bay Harbor and is south of the road that comes from the main dock. This area was used to accumulate and burn debris from Hurricane Hugo. There was a substantial amount of metallic debris on the ground observed during the visual site inspection.

15.2.2 1993 U. S. Army Chemical Materiel Destruction Agency Scoping Study

The U.S. Army conducted a scoping study on the former Fort Segarra and submitted the document, Former Fort Segarra Scoping Study, in December 1993. The study summarized background information, recorded disposition of CWM, and delineated potential strategies for remediating potentially buried CWM. The report also identified regulatory and technical issues associated with efforts to clean up potentially buried CWM at the former Fort.

15.2.3 1994 Management Technology Associates, Inc. Site Characterization, Fort Segarra (Draft 1994)

In March 1993 Management Technology Associates, Inc. (MTA) was awarded a contract to perform non-intrusive site characterization and debris removal operations at Former Fort Segarra. All field operations were completed by June 9, 1994.

MTA conducted a surface investigation of Test Areas 4, 5, 6, 8, Tamarind Bay, and the Flamingo Bay Landfill. Tamarind Bay is a separate area not directly related to CWM training and is located south of Test Area 1. Tamarind Bay was deemed suspect after stressed vegetation was observed in the area during an archeological investigation. Test Areas 2, 3, and 7 were not investigated because interviewees indicated that no CWM testing was conducted at the northern end of Water Island. The MTA investigation of all sites included surface inspection, magnetometer sweeps, and select surface soil sampling.

MTA's investigation found no suspect anomalies or surface debris at Tamarind Bay, Test Area 6, Test Area 8, the portion of Test Area 4 north of the road, and the portions of the Flamingo Bay Landfill Area outside the fence. The remainder of Test Area 4, Test Area 5, and the fenced portion of the Flamingo Bay Landfill were further characterized by conducting a magnetometer survey over 100 percent (%) of the land surface. Anomalous areas were selected for further investigation, including the collection and analysis of surface soil samples. CWM or agent breakdown products (ABP) were not detected during field screening or laboratory analysis of any of the surface soil samples collected at Former Fort Segarra.

MTA recommended intrusive investigation to the Anomaly Review Board (ARB) in September 1994. MTA recommended specific magnetic anomalies that represented potential "hot" areas in Test Area 5 for intrusive investigation, as well as random areas. Random areas were selected as 10% of the grid areas formed by a 20-foot by 20-foot grid pattern constructed over the southern portion of Test Area 4 and the fenced portion of the Flamingo Bay Landfill. MTA also recommended sampling of a circular depression located in Test Area 4 and the suspected trench

area in the Flamingo Bay Landfill. The ARB approved MTA's recommendations in January 1995.

MTA was contracted by the U.S. Army Corps of Engineers (USACE) to perform further site characterization and debris removal operations at Former Fort Segarra, Water Island. The characterization was preliminary and was based primarily upon magnetometer readings and limited soil sampling. The findings were subsequently discounted by following investigations and the archives reconciliation efforts culminating in the June 2001 Archived Search Report by the St. Louis District, USACE. The observations related to the landfill and test areas are summarized below:

Flamingo Bay Landfill

MTA personnel discovered a vented one (1) ton container that appeared to be from the Tropical Test Program. In addition, a local worker told the USACE site representative that he was present during demobilization of the Tropical Test Program of the San Jose Project in 1950 and saw projectiles buried in what is now a linear depression, which looks like a covered, ditch. The technical Escort Unit took a soil sample from the one (1) ton container. All analyses of samples collected from this site produced negative results.

MTA found what appeared to be numerous buried automobiles that earlier investigations reported were used as fill for the extension of the shoreline in the 1960's.

Test Area 4

MTA conducted a surface investigation in the portion of Test Area 4 located between the road from the main dock and the shoreline. The area was relatively clear of debris and heavy vegetation. Magnetometer sweeps identified some anomalies but nothing indicative of buried munitions or munitions related materials.

MTA cleared the heavy debris and 78 junk vehicles that were located south of the road. The debris and vehicles were transported off of Water Island and disposed of at the St. Thomas public landfill. Automotive fluids were drained and batteries removed prior to transport. These hazardous materials were shipped off-site and managed in accordance with applicable environmental regulations.

The magnetic survey of the portion of Test Area 4 located south of the road identified large number of anomalies of a suspicious nature. Subsequent investigations and archives reconciliation efforts discounted the suspicions. In addition, MTA found an 8-foot diameter sunken circular area with no vegetation growing in it. Magnetometer reading indicated almost a continuous response in the circular area.

Test Area 5

MTA removed substantial heavy tropical vegetation and consolidated approximately 90 cubic

yards of household debris prior to performing the surface investigation. The surface sweeps indicated a large number of anomalies, which later investigations discounted.

15.2.4 U.S. DOI, Water Island U.S. Virgin Islands Title Transfer, Final Environmental Assessment and Findings of No Significant Impact (May 1996)

Before title to portions of Water Island could be transferred from the federal government to the Virgin Islands government, an environmental study was completed in accordance with the National Environmental Policy Act of 1969 (NEPA) to determine if any significant impacts would result from the termination of federal jurisdiction and ownership. DOI prepared the Environmental Assessment in 1996. As part of its assessment, DOI conducted a site inspection of the Flamingo Bay Landfill and Test Areas 4 and 5. Excerpts from their field inspections are provided below:

Flamingo Bay Landfill

The landfill is the location where two military bombs where discovered during mucking operations by the master lessee in 1966. In 1991, Ebasco gave the area a risk assessment code of 1 because of the possibility of munitions being present. The landfill was fenced as a result. The area inside the enclosure contained abandoned vehicles and some discarded construction materials.

Test Area 4

Test Area 4 was heavily overgrown with a low canopy of bushes and scrubs, with the only open area created by deposits of miscellaneous household items, automobiles, appliances, and other items, and by the road leading to the warehouse. An examination of the former test area during the site reconnaissance did not reveal any physical anomalies associated with burial sites (i.e., depressions, mounds, etc.), signs of stressed vegetation, or barren ground surfaces.

A large portion of the test area was excavated when Water Island, Inc., dredged the entrance to Flamingo Bay Marina. Presently, residents of the island use the southern end of the site as a place for disposal of miscellaneous household items, automobiles, appliances, and other items. The area contains household trash, abandoned automobiles, construction debris, appliances, a tanker trailer, paint cans, car batteries, gas cans, an approximately 3,000-gallon tank, and solvent containers.

Test Area 5

The area appeared to have undergone extensive excavation and grading. The site was predominantly vegetated by grasses, with isolated patches of bushes, shrubs, and barren ground. The patches of barren ground exposed cropping out bedrock and did not appear to be caused by contamination. The site contains several scattered piles of construction debris, including corrugated boards (potential asbestos-containing material [ACM]), corrugated metal roofing material, and several empty rusted 55-gallon drums. Other debris included a car battery and a

gas tank from an automobile. A large concrete structure that reportedly was erected and used by the hotel to make concrete was also present at this site.

The site also contains a burn pit excavated by the former master lessee to dispose of debris generated by Hurricane Hugo in 1989. The dimensions of the burn pit measured approximately 20 feet wide by 100 feet long. The pit was surrounded by dense vegetation and appeared to contain standing water. Access to the bottom of the pit could not be gained and, consequently, the appearance and condition of the water could not be assessed. There were no signs of obvious contamination (i.e., stressed vegetation, barren spots, or stains). A car battery was the only indication of potentially hazardous substances at the site.

Conditional to the Title Transfer of the Water Island Properties, the Office of Insular Affairs contracted with Reclamation for the deconstruction of the former Hotel, the water catchment basin, and for renovations to the deep water dock. That work was done in 1998. All work was performed under appropriate permitting and regulations.

15.2.5 US Army Corps of Engineers, Engineering Research and Development Center Historical Photo analysis Report 2001.

In September 2001, The USACE, Engineering Research and Development Center, Topographic Engineering Center (TEC) published a report on the analysis of historical photographs of Water Island (TEC, 2001). While the report covered all of Water Island, it focused on the Flamingo Bay Landfill, Test Area 4, and Test Area 5.

15.2.6 US Army Corps of Engineers, Saint Louis District, Revised Archives Search Report, June 2001.

The USACE, Saint Louis District, completed revising the Archives Search Report (ASR) for former Fort Segarra in June 2001. The revised ASR updated the 1991 ASR completed by Ebasco to include information made available in the last decade.

15.2.7 US DOI Preliminary Site Assessment Report, Flamingo Bay Army Test Areas, Water Island, VI, July 2001.

Reclamation, Denver Federal Center, Denver, CO was contracted to perform the PA consistent with EPA Guidance on behalf of DOI. The PA concluded:

Since the 1940's, the Flamingo Bay Landfill and Test Areas 4 and 5 have undergone both military and civilian uses. The landfill and test areas were used in association with the Tropical Test Program. The purpose of the Tropical Test Program was to determine the effectiveness of chemical munitions in a jungle terrain and the effects on chemical munitions storage in tropical climates. This project was conducted on Water Island from 1948 until 1950.

During the mid-1960's two bombs (similar to the types used during the Tropical Test Program) were unearthed in the landfill indicating that the Army used this area for disposal purposes. Hotel operators subsequently used the landfill for disposal purposes.

A limited number of tests associated with the Tropical Test Program were conducted in Test Areas 4 and 5. These chemical weapons test and experiments included chemical agent such as mustard and tabun. Later, the hotel operators and island residents used these two areas for disposal of items such as abandoned vehicles, construction debris, landscaping debris, and household generated trash and waste. Currently, Test Area 4 is being used to store approximately 86 abandoned vehicles. Test Area 5 is being used as a solid waste transfer station for the island.

A variety of visual site inspections and investigation of these three properties have been conducted by the U.S. Army and DOI since the early 1990s. None of the inspections identified obvious signs of contamination (i.e., discoloration of soils, stressed vegetation, odors, or adverse health effects on island residents). As of the date of the PA Report, no soils or groundwater samples were collected and analyzed to determine whether hazardous substance was released to the environment.

In completing the hazard ranking score sheets for the PA, assumptions were made that releases of contaminants to groundwater and nearby surface water (ocean) have occurred. These assumptions were made to evaluate the potential "worst-case" scenario. Even using these worst-case assumptions, the score for this Site was an 11. There are two factors that mitigate the potential risks associated with these properties. The first factor is that the groundwater is not used as a source of drinking water on the island. In fact, groundwater is not used at all on the island since there are no active wells on the island. The second factor is that the closest surface water is the ocean. Both groundwater and surface water run-off discharge to the ocean. Because theses waters discharge to the ocean, the dilution of any possible contaminants from Water Island is expected to be significant. Therefore, it was determined to be unlikely that any potential contaminants from the three areas would adversely impact human health or the environment.

15.2.8 Site Investigation Report, Plot D and Lot 101, Water Island, VI. Asbestos Containing Materials. Office of Insular Affairs, Department of the Interior, March 10, 2003.

Hurricane Hugo destroyed or badly damaged most of the Water Island structures in 1989 including the resort hotel. Hurricane Marilyn, in 1995, destroyed many rebuilt structures and the water catchment basin constructed with corrugated transite sheets by the US Army and further devastated the island. Subsequently, DOI, having custody of Water Island for the federal government, had a contractor cleanup and dispose of the catchment basin materials and the hotel debris at an approved disposal facility located off the island. The project was completed in 1998 at a cost of approximately $2.5 million.

In May 2002, as part of a Phase II activity to cleanup debris from houses and villa structures that

were part of the original leasee complex, and additional debris resulting from the impact of the two hurricanes, Reclamation, on behalf of DOI, removed house debris from Plot D on Water Island to an approved stockpile area located in Test Area 5 on Water Island.

In June 2002, several small pieces of transite (a Class II non-friable material) were observed in the stockpile area where Plot D debris had been disposed. On July 12, 2002, Reclamation notified EPA of a plan for corrective action regarding ACM. As part of that plan, Reclamation contracted with an accredited and U.S. VI-permitted waste management company to have all visible pieces of transite removed from Plot D and the adjacent lot occupied by a resident (Lot 101), and disposed of in accordance with regulatory requirements. Reclamation completed this Corrective Action Plan on December 15, 2002.

In September 2002, representatives of the EPA made a site visit to Plot D and Lot 101. At that time the EPA On Scene Coordinators (OSC) observed possible "asbestos-containing shingles" and determined that a release of asbestos could possibly have occurred. These observations were reported in a Pollution Report dated October 16, 2002.

On October 17, 2002, Reclamation received a letter from the Caribbean Environmental Protect Division (CEPD) of the EPA recommending work practices under National Environmental Standards for Hazardous Air Pollution (NESHAP) for the segregation and disposal of debris piles generated from work activities performed on behalf of DOI at Water Island; and also directing random bulk sampling of Plot D and Lot 101 for ACM.

On October 25, 2002, DOI received from the EPA a notice of a potential release or threat of release of hazardous substance on Water Island, which stated that asbestos might have been released during the course of the clean up activities undertaken by Reclamation.

Reclamation responded to the EPA in a letter dated October 29, 2002, and advised that Reclamation does not believe that a release or threat of release of asbestos occurred during it's clean up activities on Water Island. However, due to concerns expressed by the EPA and by the resident living adjacent to Plot D, Reclamation performed sampling and analysis activities to confirm that the previously conducted cleanup activities did not present any threat to public health or the environment. A Sampling and Analysis Plan (SAP) was submitted to the EPA for review on November 5, 2002. Sampling was performed according to the protocol presented in the SAP on January 22, 2003.

No asbestos above regulatory levels was detected in the soil, dust, air, and water at the site. Based on the sampling event of January 22, 2003, it was concluded that there is no risk to human health from asbestos exposure to soil, dust, air, or water at the Site.

15a. Is the site or any waste sources subject to the Petroleum Exclusion? Identify petroleum products and by products that justify this decision.

The Site is not subject to the petroleum exclusion. EPA current interpretation of the petroleum exclusion relates to a release or threatened release involving **solely** crude oil, fraction of crude oil, or refined crude oil products. The potential exists for past releases of hazardous substances, such as metals, at the Water Island Site, as well as petroleum products. Therefore, the petroleum exclusion is not applicable.

15b. Are pesticides produced and stored on site? Does the facility apply pesticides (Federal Insecticide, Fungicide, and Rodenticide Act) to any part of the property?

There is no evidence that pesticides were produced or stored at the Flamingo Bay Landfill or Test Areas 4, 5 and 8. Additionally, there is no documented evidence that insecticides were used. However, termites are a concern on Water Island and the application of general use, EPA-approved pesticides is highly probable. Testing for pesticides would be included on the TCL for any potential future sampling at the site.

15c. Is the site or any waste source subject to RCRA Subtitle C?

The Site is not subject to RCRA Subtitle C. The types of sites subject to RCRA Subtitle C include:

- Facilities that treated, stored, or disposed of RCRA hazardous waste since November 19, 1980.
- Facilities that currently have a RCRA Part B operating permit or post-closure permit.
- Facilities that filed a RCRA Part A application.
- Facilities that were Non-or late filers.

The Flamingo Bay Landfill and test areas do not meet any of the criteria listed above. Any waste generated since 1980 would have been associated with the hotel and resident activities. Household generated waste is exempt from RCRA Subtitle C regulation. Any hotel-generated waste would likely be considered "conditionally exempt small quantity generated."

15d. Is the site or any waste source maintained under the authority of the Nuclear Regulatory Commission (NRC)?

There is no indication that radioactive materials or wastes were ever present at the Flamingo Bay Landfill or the Test Areas. The site is not maintained under the authority of the NRC.

16. Information Available from:

Contact – Ms. Helen Shannon, USEPA **Telephone Number:** (212) 637-4260

Prepared- Ms. Margaret Lake, Bureau of Reclamation **Telephone Number**: (303) 445-2181

Date: March 2004

PART II: WASTE SOURCE INFORMATION

Waste Unit Number 1: Flamingo Bay Landfill

Source Type: Landfill

Description:

1. **Describe the types of containers, impoundments or other storage systems (i.e., concrete lined surface impoundments) and any labels that may be present.**

The Flamingo Bay Landfill is approximately 88,650 square feet in size. During the May 2001 PA, most of the landfill was enclosed by an eight-foot high chain link fence. Access is normally gained through a locked gate. However, fencing did not enclose approximately 180 feet along the southeastern side of the landfill. This unfenced portion is unlikely to allow access to the site due to steep slopes and dense vegetation. The surface of the landfill area is densely vegetated with a low canopy of grasses, bushes, and shrubs. (See Photograph Nos. 1-5 in Attachment A). A visual survey of the perimeter area of the landfill was conducted from the road that runs around the landfill. From the road, the following items were observed in the landfill: a large truck, cars, miscellaneous construction debris, empty oil cans, and an abandoned chiller unit. There was no visual observance of stained soils or stressed vegetation.

2. **Describe the physical condition of the containers or storage systems (i.e., rusted and/or bulging metal drums).**

The landfill was a trench and fill operation that did not include engineering controls (liners, leachate collection systems, cap or cover). The containers observed in the landfill were disposed of on the ground surface and included empty oil cans and an abandoned chiller.

3. **Describe any secondary containment that may be present (e.g., drums on concrete pads in buildings or above ground tanks surrounded by berms).**

There was no secondary containment observed in the Flamingo Bay Landfill.

Hazardous Substances/Physical State

No hazardous substances were observed in the landfill.

Waste Unit Number 2: Test Area 4

Source Type: Waste Pile

Description:

1. **Describe the types of containers, impoundments or other storage systems (i.e., concrete lined surface impoundments) and any labels that may be present.**

Test Area 4 is approximately 52,800 square feet in size. Test Area 4 is heavily overgrown with a low canopy of bushes and shrubs. The only open areas are created by open vehicle storage areas and the road leading to the abandoned cars. During the May 2001 PA, approximately 86 abandoned vehicles were being stored at Test Area 4 (see Photograph Nos. 6-11, Attachment A). Most of the vehicles have been abandoned by island residents. Mr. Coutier, a former hotel employee and current resident, indicated that one tanker truck present was used to supply water to the hotel. The area was visually surveyed by walking among the abandoned vehicles. Island residents indicated that they typically drain the fluids and remove the batteries prior to abandoning the cars. There were no batteries in the cars inspected, nor drips or leaks of fluids observed from the vehicles. In addition, there was no evidence of stained soils or stressed vegetation.

During the May/ June 2003 field sampling event approximately 100 abandoned cars were present in Test Area 4. It was necessary to remove abandoned cars from the intended sampling area to facilitate the sampling effort. Approximately 30% of the cars were removed to the opposite side of the road with the understanding that the VI government would transport them to Bovoni Landfill, located on eastern St. Thomas Island.

When the cars were removed and the sampling team initiated sampling, a pile of suspected asbestos (ACM) transite debris was observed. The pile is estimated to contain 1000 cubic feet of suspected ACM. The pile was consolidated and partially covered with soil, mold, and vegetation. Sampling ceased and a certified industrial hygienist with expertise in asbestos was brought to the site, and remained on site for the duration of the sampling conducted in Test Area 4. The certified asbestos expert gave appropriate training to the sampling teams, and observed the sampling operation. Some sampling locations were adjusted with the approval of the Army and the DOI representative on site. As little adjustment of sample locations as possible was done in order to preserve the representativeness of the sampling, and to avoid any possible contact with the suspect ACM. Personnel monitors and area monitors were used throughout the duration of the sampling. The sampling effort was completed with no disturbance of the partially buried suspect asbestos pile, and no suspect ACM was encountered at the new sampling locations by the sampling team. All analytical tests on monitoring devices came back negative for asbestos exposure.

2. **Describe the physical condition of the containers or storage systems (i.e., rusted and/or bulging metal drums).**

There were no containers observed in Test Area 4. The cars were disposed of on the ground surface.

3. **Describe any secondary containment that may be present (e.g., drums on concrete pads in buildings or above ground tanks surrounded by berms).**

There was no secondary containment observed in Test Area 4.

Hazardous Substances/Physical State

Suspected ACM was observed in Test Area 4.

Waste Unit Number 3: Test Area 5

Source Type: Waste Pile

Description:

1. **Describe the types of containers, impoundments or other storage systems (i.e., concrete lined surface impoundments) and any labels that may be present.**

Test Area 5 is approximately 116,562 square feet in size. Test Area 5 is heavily vegetated with grasses and a low canopy of bushes and shrubs. The trash collection activities and the road leading to the trash storage areas create the only open areas. During the May 2001 PA, the following items were observed in Test Area 5: several roll-off bins used to collect household trash from island residents, appliances, a pallet storing car batteries, a 55-gallon drum and other small containers storing used oil, un-containerized landscaping debris and construction debris (see Photograph Nos. 12-16, Attachment A). All non-hazardous construction debris generated during the demolition of the former hotel was disposed of in Test Area 5. There was no evidence of stained soils or stressed vegetation in Test Area 5.

During the Phase II cleanup activity of debris from the deconstruction of the villa area and Plot D, additional construction debris was deposited at the toe of the former debris pile in Test Area 5. Some ACM pieces were observed in this area and were analyzed as transite building material, approximately 30% asbestos. The daily construction reports traced this material back to Plot D debris. Asbestos certified personnel were brought to the area to collect and properly dispose of all ACM. Contracts and disposal manifests are available.

2. **Describe the physical condition of the containers or storage systems (i.e., rusted and/or bulging metal drums).**

The roll-off containers used to collect household trash are in good condition. The containers holding used oil were also free from rust, bulges, or dents. No leaks were observed from the car batteries and the used oil containers.

3. Describe any secondary containment that may be present (e.g., drums on concrete pads in buildings or above ground tanks surrounded by berms).

There was no secondary containment observed in the Test Area 5.

Hazardous Substances/Physical State

The hazardous substances observed in Test Area 5 are the used oils and the car batteries.

PART III. SAMPLING RESULTS

EXISTING ANALYTICAL DATA

1. Previous Data

1.1 Persistence Testing

Groundwater, soil, sediment, surface water, air and waste sampling analyses for the Flamingo Bay Landfill and Test Areas 4 and 5 were performed by Army personnel immediately after any tests conducted in the various areas during the Tropical Test Program. The testing performed in Area 6 and Area 8 was "persistence testing" and is referenced in the army archival report. Analytical results show that soil samples were non-detect for mustard gas after 48 and 96 hours following specific testing phases.

1.2 1993 Surface soils samples

In March 1993, MTA investigated all sites at former Fort Segarra by performing surface inspections, magnetometer sweeps, and select surface soil sampling and analysis for documented areas where CWM testing occurred. The results of the investigation concluded no suspect anomalies or surface debris at Test Area 6, Test Area 8, the portion of Test Area 4 north of the road, and the portions of the Flamingo Bay Landfill outside the fence. The remainder of Test Area 4, Test Area 5, and the fenced Flamingo Bay Landfill was further characterized by conducting a magnetometer survey over 100% of the surface areas, collecting soil samples, and analyzing for CWM and ABP. CWM, ABP, and hazardous chemicals were not detected during field screening or laboratory analysis of any of the surface soil samples collected at former Fort Segarra.

2. Current Data

2.1 Spring 2003 EE/CA Sampling Event, Army contract with Parsons.

The USAESCH contracted Parsons to conduct an EE/CA at former Fort Segarra on Water Island in the U.S. VI from, April to June 2003. The EE/CA required an intrusive investigation to evaluate the potential presence of CWM, OE and, hazardous and toxic waste (HTW). The contracted activity was performed consistent with CERCLA and the National Oil & Hazardous Substance Pollution Contingency Plan (NCP) and DERP for FUDS sites and relevant U.S. Army regulations and guidance for OE programs.

The purpose of the investigation was to characterize the potential presence of CWM, OE, and HTW. Analytical results for CWM, OE and HTW of soil samples collected at selected locations were provided to DOI for incorporation into this SI Report.

Specifically, the scope of work included investigations at four sites on Water Island: three of the eight former test areas (Teat Areas 4, 5, and 8), and the Flamingo Bay Landfill. The goal of the investigation is to evaluate the safety and risk to human health and the environment resulting

from past DOD activities and DOI management. This goal will be achieved by minimizing public exposure to potentially contaminated media.

USAESCH conducted an analysis based on the "Applicability of Biological Warfare Materiel (BWM) and Non-Stockpile Chemical Warfare Materiel (CWM) Response Activity Guidance Manual" (referred to as "Interim Guidance") published by Department of the Army Safety. The Interim Guidance states that if it is determined that the probability of encountering CWM is "seldom" or "unlikely," the Installation (or District) Commander or designated representative may assume the risk of conducting site activities as a non-CWM site. USAESCH determined that the probability of encountering CWM was "unlikely" for the four areas under investigation at former Fort Segarra.

Site characterization involving intrusive excavation, sampling and data collection was conducted to determine or classify those portions of the Site that are contaminated or potentially contaminated with CWM, to estimate the type and amount of CWM contamination, if present, and determine if HTW contamination exists at the Site.

Parsons prepared an EE/CA Work Plan, and SAP for the field investigation using sampling and analysis requirements for HTW from DOI.

The operations conducted at former Fort Segarra included intrusive investigation of individual geophysical anomalies, excavation of test pits and trenches for assessment of contents of anomalous areas, and discrete soil sampling to assess the presence of contamination at selected excavations and soil boring locations. Section 6.2 of the EE/CA Work Plan (Parsons, April 2003) details the operations to be conducted at each of the areas. Specific sampling locations, sampling procedures, analytical methods, and quality control procedures are contained in the Site Specific SAP for former Fort Segarra (Parsons, 2003).

2.1.1 Sampling Locations

As part of the Tropical Test Program from 1948 to 1950, the US Army Chemical Corps used Water Island for the testing and storage of chemical munitions. The purpose of the testing program was to evaluate the storage and performance of CWM in a tropical environment. Eight test areas were identified on Water Island. In addition to the Army test areas, an area known as Flamingo Bay Landfill is of interest due to the discovery of suspected chemical warfare bombs in 1966. The areas of concern are shown in Figure 1.1.

Records show that 57 tests were planned for the U.S. VI. However, only nine of the tests were actually conducted (Table 2.1.1.1). Of the nine tests conducted, only seven were conducted at four army designated test areas on Water Island (US Army Chemical Materiel Destruction Agency (USACMDA), 1993). The areas used were Test Areas 4, 5, 6, and 8 ("toxic storage yard"). Records search, environmental investigations, and personal interviews with former military employees and others familiar with the Site during the testing period eliminated the other four army designated test areas from investigation because tests were not performed there. (Area 6 was later eliminated as well as discussed below.)

Table 2.1.1.1

Tropical Test Program - CWM Testing
(Archive Search Report, Ebasco 1991)

Test Area	Test Number	Description
Test Area 1	N/A	- Test Area 1 was identified in the plans for the static M70 bomb test. - Records indicate that no CWM testing was conducted in this area.
Test Area 2	N/A	- Records indicate that no CWM testing was conducted in this area.
Test Area 3	N/A	- Records indicate that no CWM testing was conducted in this area.
Test Area 4	136 166 176 179*	- Static test of M70 bomb, distilled mustard (HD)-filled (Phase I and II - Static test in the open of a single E-23 smoke pot, tabun (GA)-filled. - Static test in the open of a single E-23 smoke pot, HD-filled. - Test of a single E-23 smoke pot, sesquimustard (HQ)-filled, functioned statically in open on land.
Test Area 5	136	- Static test of M70 bomb, HD-filled (Phase VII and VIII).
Test Area 6	136 168*	- Static test of M70 bomb, HD-filled (Phase VII and VIII). - Test of a single E-23 smoke pot, GA-filled, functioned statically on water with onshore wind.
Test Area 7	N/A	- Records indicate that no CWM testing was conducted in this area.
Test Area 8	136	- Static test of M70 bomb, HD-filled (Phase VII and VIII).
Toxic Storage Yard (Area 8)***	89 135	- Surveillance** of T-3 bombs mustard/distilled mustard (H/HD) in storage. - Surveillance** of un-stabilized Cyanogen Chloride (CK) in M70, M78, and M79 bombs.

* - Actual Test Location Unknown, suspected to be in proposed test area

** - Surveillance consisted of monitoring chemical filled bombs to determine affects of a tropical environment on agent fillers.

*** -"Toxic storage yard" is used to reference part of area 8. The term is used for a certain type of fenced area whether toxics were stored there or not.

Flamingo Bay Landfill and Test Areas 4 and 5

As part of the ASR prepared by the Army, an OE risk assessment was conducted for Water Island as a whole using the procedure developed by the USACE in accordance with MIL-STD-882C and Army Regulation (AR) 385-10. The output is a Risk Assessment Code (RAC) score used to prioritize the OE response action at FUDS. The OE risk assessment was based on best available information resulting from record searches, field observations, interviews, and measurements. This information was used to assess risk based upon the potential OE hazards identified at the Site. The risk assessment was composed of two factors: hazard severity and hazard probability.

The former Fort Segarra received a RAC score of 1 and was recommended for the performance of an EE/CA at the Flamingo Bay Landfill, Test Area 4, and Test Area 5. The presence of ordnance had been "confirmed" by suspect chemical bomb findings in the Flamingo Bay Landfill. The presence of buried munitions or chemical warfare agent residue in Test Area 4 and Test Area 5 were considered "potential." The ASR did not provide conclusions regarding additional munitions and chemical warfare agent discovery rates.

Previous investigations had eliminated from concern six of the eight designated test areas on Water Island leaving Test Area 4 and Test Area 5 as areas of concern. In addition to the two

remaining test areas, the Flamingo Bay Landfill was recommended for investigation due to the reported discovery of suspected chemical bombs there in 1966.

Testing activities were performed in the northern portion of Test Area 4 based on available information. In the early 1960s, this northern portion of Test Area 4 was dredged to open up a pond that had previously existed. Additionally, a marina was constructed to allow access to Flamingo Bay. Damage to the northern part of Test Area 4 occurred during Hurricane Hugo and Hurricane Marilyn.

The southern part of Test Area 4, though not used for testing during the Tropical Test Program, has been used as an area for deposition of miscellaneous discarded items, and contains household trash, abandoned vehicles, some construction debris, and appliances. The southern part of Test Area 4 is also the location of a debris pile of suspected ACM discovered in the process of clearing abandoned vehicles for the intrusive investigation.

Test Area 5 is the current location of the Water Island Solid Waste Transfer Site, administered by the VI Department of Public Works. As such, several dumpsters are staged there for collection of household garbage and bulk garbage, as well as, several piles of loose trash and debris. The sign at the area states that the bins are transported weekly to Bovoni Landfill, located on eastern St. Thomas Island. The site was also used for disposal of debris generated from several hurricanes and the demolition of the hotel. The hotel debris includes a substantial amount of concrete rubble.

Available information indicates that no CWM testing was conducted at the Flamingo Bay Landfill as part of the Tropical Test Program. However, the adjacent deepwater dock was used to deliver equipment and munitions during the Tropical Test Program and at least two suspect chemical bombs (identified as M70 and M78 bombs) were uncovered in this area in 1966 (USACMDA, 1993).

Test Area 6

Test Areas 4, 5, and the Flamingo Bay Landfill were selected for intrusive investigation and sampling for the EE/CA investigation. Test Area 8 (see below) was added at the request of DOI. Test Area 6 was not designated for testing. Only phases 7 (Feb. 10, 1949) and 8 (Feb. 23, 1949) of test 136 of the Tropical Test Program were performed at Test Area 6. Test 136 was static testing of an HD filled M70 bomb. HD is a distilled mustard gas (bis (2-chloroethyl) sulfide, 958mg/m^3 volatility, and 0.8g/L water solubility). HD is a persistent agent due to its low vapor pressure, which is the reason for persistence testing by the Army following all H (mustard gas mixture) tests. HD, the distilled mustard, is less toxic than the H mixture of homologs. HD has a low solubility in aqueous solutions, but is readily soluble in organic solvents (USA FM 3-9). Decomposition is accelerated in neutral and basic mediums. The representative half-life for HD is 4 to 13 minutes.

One other test (Test 168) was possibly performed near Test Area 6. Test 168 was a static firing of a GA-filled E-23 smoke pot. Static testing is an event in which the "round" is detonated in position, not fused and fired from a gun. GA, Tabun, is ethyl N, N-dimethyl phosphoroaminocyanidate (610mg/m^3 volatility, and 50-100 g/L water solubility). The half-life

of GA is seven hrs, the shortest of any G (organophosphorous) agents (USA, Field Manual 3-9, 1975). GA is unstable in neutral aqueous solutions. The toxicity of GA dramatically decreases with time.

Test Area 6 is located on the leeward side of the island extending from the very rocky shoreline to the center ridge. The area consists of steeply sloped terrain, moderately vegetated by bushes and shrubs. There is no sign of stressed vegetation. The Army selected Test Area 6 for static testing during the Tropical Test Project because it is located on the windward side and the effects of onshore winds on the static test could be measured. However, since it is on the windward side, Test Area 6 has been subjected to the full force of multiple hurricanes since the tests were performed, and has constant pelting from sea spray. A site inspection of Test Area 6 conducted in early 2003 confirmed that there is very little soil or vegetation remaining in the area. It is estimated by USAESCH project personnel that 12 feet of surface soil has been lost from Test Area 6 since testing occurred around 1950. The vegetation remaining is an endangered species of barrel cactus, and should not be disturbed.

Army Test 136 conducted at Test Area 6 incorporated persistence testing that determined there was no residue CWM detected after 48 hours in phase 7 testing and, after 96 hours in phase 8.

The investigations conducted in 1991, 1993, the 1996 Environmental Assessment, and the Revised Archival Search Report performed in 2001 concluded that Test Area 6 did not require further investigation. Test results from the 1993 investigation showed no hazardous materials present, and cited the practices used for decontamination of closing Army facilities. A review of the Site history, available data, and the Site visit lead to the decision that environmental sampling in Test Area 6 was not warranted.

Test Area 8

Phase 5 and 6 of test Number 136 was performed in Test Area 8. This test was the static firing of the HD-filled M70 bomb (see Test Area 6 details for Test 136 described above). The ASR indicates that a "toxic storage yard" was located in this area. According to the ASR, T-3 H/HD filled bombs and aged Cyanogen Chloride (CK)-filled bombs involved in the surveillance tests were stored outside in this area. CK polymerizes readily to Cyanuric Chloride (CYC) and upon any exposure to humidity, the CYC would hydrolyze to cyanuric acid, a non-critical compound generally present in soils. Agent transfer operations to support the tropical tests were reportedly conducted in this area.

Test Area 8 is also the former location of the Water Isle Hotel and Beach Club, also known as the Sea Cliff Resort Hotel. The hotel was destroyed in 1989 by hurricane winds, and never rebuilt. The remains of the hotel buildings and support facilities had been removed in 1997 and documented in 1998 reports by Reclamation for DOI due to the damage to the buildings and to concerns for physical hazards. This area is currently unoccupied.

All of Test Area 8 has been transferred from ownership of the US government to the VI government. However, DOI requested testing of this area during the 2003 SI because former sampling and analysis in the area is not well documented in the Army archives. To accommodate this request ten surface soil sample locations were added to the EE/CA

investigation work plan.

Soil Sample Location Summary

Figures included in the EE/CA report (Parsons, 2004) show the sampling locations for the individual areas. The figures are included in Appendix B for reference as follows:

Figure 4.1 Sample Locations for Test Area 4
Figure 4.2 Sample Locations for Test Area 5
Figure 4.3 Sample Locations for Test Area 8
Figure 4.4 Sample Locations for Flamingo Bay Landfill

Sample locations for all areas are biased to concentrate on observed ground scarring, documented historical use locations, and recommendations from previous investigations.

All soil samples collected for HTW laboratory analyses were collected from a 0 to 2-foot depth for surface representation. Additional samples were collected at depths indicated in Table 2.1.1.2. Samples were collected from soil borings and from intrusive excavations at biased locations based on previous investigations, photographs, and Site history.

Some sample locations in Test Area 4 required adjustments or were not able to be sampled due to the presence of the suspected ACM. During the field investigation of Test Area 4, a limited amount of suspected ACM was encountered. The presence of ACM was unanticipated because Reclamation cleanup activities previously performed on Water Island had removed all ACM associated with the Hotel and Water Catchment Basin built by the Army, and later used by the Hotel. Reclamation had not deposited construction debris, and certainly no ACM, in Test Area 4 during any operations on Water Island. All ACM encountered during the deconstruction activities of 1998 had been appropriately contained, removed from the island, and deposited in an appropriate landfill. It has to be assumed that the suspected ACM found in Test Area 4 was deposited by island residents as an effort to cleanup individual properties and consolidate panels from the Army water catchment basin, which was destroyed in the hurricanes of 1989 and 1995 and scattered over the island by high winds. The mound of suspected ACM was partially buried with some surface scattering, and was heavily vegetated. A Certified Industrial Hygienist was brought to the Site before any further sampling took place, and he supervised the remaining sampling effort. Asbestos avoidance activities were practiced; and appropriate personnel and area monitoring was performed.

Table 2.1.1.2
Sample Summary Table for HTW Soils Investigation

Location	Depth	Sample ID
Test Area 4 - 30 Samples		
TA4-SB-1	3'	TA4-SB1-1
TA4-SB-2	0-2'	TA4-SB2-S1
	2.5'	TA4-SB2-1
	2.5'	TA4-SB2-1B (field duplicate)
TA4-SB3	0-2'	TA4-SB3-S1

Table 2.1.1.2
Sample Summary Table for HTW Soils Investigation

Location	Depth	Sample ID
	18'	TA4-SB3-1
TA4-SB4	2.5'	TA4-SB4-1
TA4-SB5	3'	TA4-SB5-1
TA4-SB6	3'	TA4-SB6-1
TA4-SB7	3.5'	TA4-SB7-1
TA4-TP1	4.5'	TA4-TP1-1
TA4-TP2	4'	TA4-TP2-1
TA4-TP3	3"	TA4-TP3-1
TA4-TP4	1.5'	TA4-TP4-1
TA4-TP5	2.5'	TA4-TP5-1
TA4-TP6	0-2'	TA4-TP6-S1
	5.5'	TA4-TP6-1
TA4-TP7	0-2'	TA4-TP7-S1
	3'	TA4-TP7-1
TA4-TP8	5.5'	TA4-TP8-1
TA4-TP9	0-2'	TA4-TP9-S1
	3.5'	TA4-TP9-1
TA4-TP10	3'	TA4-TP10-1
TA4-TP11	3'	TA4-TP11-1
TA4-TP12	3'	TA4-TP12-1
	3'	TA4-TP12-1B (field duplicate)
	3'	TA4-TP12-QA
TA4-SBK-1	0-2'	TA4-SBK-1 (background)
TA4-SBK-2	0-2'	TA4-SBK-2 (background)
TA4-SR-1	0-2'	TA4-SR-1 (residential)
TA4-SR-2	0-2'	TA4-SR-2 (residential)
Test Area 5 - 27 samples		
TA5-GS1	0-2'	TA5-GS-1-S-1
	4'	TA5-GS-1-1
TA5-GS2	1.5'	TA5-GS-2
TA5-GS3	0-2'	TA5-GS-3-S-1
	0-2'	TA5-GS-3B-S-1
	2'	TA5-GS-3-1
	2'	TA5-GS-3B-1
TA5-GS4	3'	TA5-GS-4-1
TA5-GS4	1.5'	TA5-GS-4-2
TA5-GS5	4'	TA5-GS-5-1
TA5-GS5	0-2'	TA5-GS-5-S-1
	3.5'	TA5-GS-5-2
TA5-147	1'	TA5-147-1
TA5-153	14'	TA5-153-1
TA5-146	1'	TA5-146-1
TA5-193	4'	TA5-193-1
TA5-195	1'	TA5-195-1
TA5-199	1.5'	TA5-199-1
TA5-204	6'	TA5-205-1
TA5-TP1	5.5'	TA5-TP1-1
TA5-TP2	6'	TA5-TP2-1
TA5-TP3	6.5'	TA5-TP3-1

Table 2.1.1.2
Sample Summary Table for HTW Soils Investigation

Location	Depth	Sample ID
TA5-SBK-1	2'	TA5-SBK-1
	2'	TA5-SBK-1B (background)
	2'	TA5-SBK-1/QA (background QA)
TA5-SBK-2	2'	TA5-SBK-2 (background)
TA5-SR-1	0-2'	TA5-SR-1 (residential)
TA5-SR-2	0-2'	TA5-SR-2 (residential)
Test Area 8 - 13 samples		
TA8-SB1	0-2'	TA8-SB1-1
TA8-SB2	0-2'	TA8-SB2-1
	0-2'	TA8-SB2B-1 (field duplicate)
TA8-SB3	0-2'	TA8-SB3-1
TA8-SB-4	0-2'	TA8-SB4-1
TA8-SB-5	0-2'	TA8-SB5-1
TA8-SB-6	0-2'	TA8-SB6-1
TA8-SB-7	0-2'	TA8-SB7-1
TA8-SB-8	0-2'	TA8-SB8-1
TA8-SB-9	0-2'	TA8-SB9-1
TA8-SB-10	0-2'	TA8-SB10-1
TA8-SBK-1	0-2'	TA8-SBK-1 (background)
TA8-SBK-1	0-2'	TA8-SBK-2 (background)
Flamingo Bay Landfill Area - 30 samples		
FBL-SB1	0-2'	FBL-SB1-1
	3'	FBL-SB1-2
FBL-SB2	3'	FBL-SB2-1
FBL-SB3	0-2'	FBL-SB3-1
	3'	FBL-SB3-2
FBL-SB4	3.5'	FBL-SB4-1
FBL-SB5	3.5'	FBL-SB5-1
FBL-SB6	0-2'	FBL-SB6-1
	3.5'	FBL-SB6-2
FBL-SB7	0-2'	FBL-SB7-S1
	4.5'	FBL-SB7-1
FBL-SB8	0-2'	FBL-SB8-1
	3.5'	FBL-SB8-2
FBL-SB9	3.5'	FBL-SB9-1
FBL-SB10	0-2'	FBL-SB10-1
	3'	FBL-SB10-2
FBL-1T	3'	FBL-1T-1
FBL-ST1	0-2'	FBL-ST1-S1
	3.5'	FBL-ST1-1
FBL-ST2	0-2'	FBL-ST2-2-1
	3.5'	FBL-ST2-1
FBL-G1	4'	FBL-G1-1
FBL-G6	3.5'	FBL-G6-1
FBL-G20	3.5'	FBL-G20-1
FBL-G15	2.5'	FBL-G15-1
FBL-G9	4'	FBL-G9-1
FBL-SBK-1	2'	FBL-SBK-1 (background)
FBL-SBK-2	2'	FBL-SBK-2 (background)

Table 2.1.1.2
Sample Summary Table for HTW Soils Investigation

Location	Depth	Sample ID
FBL-SR-1	0-2'	FBL-SR-1 (residential)
FBL-SR-2	0-2'	FBL-SR-2 (residential)

2.1.2 Sample Analysis

2.1.2.1 Chemical Warfare Materiel (CWM)

In order to reduce the risk to human health and the environment resulting from past DOD activities, the focus of the EE/CA Work Plan was to characterize the Site for the presence of CWM, OE, and agent by products. The scope of the work included investigations at four sites on Water Island; the Flamingo Bay Landfill and three of eight former army test areas (Test Areas 4, 5, and 8). Operations included intrusive investigation of magnetic anomalies, excavation of test pits and trenches, and discrete soil sampling to assess contamination at selected excavations and borings. The SAP (Parsons, April 2003) details each of the operations conducted at each area of concern.

Edgewood Chemical, Biological Center, Edgewood, MD (ECBC) conducted all CWM and ABP analyses for samples collected during the Spring 2003 sampling event.

Air monitoring for the potential CWM contaminants of concern was conducted at each area during sampling by ECBE using Miniature Chemical Agent Monitoring System (MINICAMS) and Depot Area Air Monitoring System (DAAMS).

In addition, ECBC provided on-site headspace clearance screening of all individual samples collected for CWM and ABP prior to any sample leaving the Site. An ECBC mobile laboratory was set up on site for the performance of screening analysis.

Duplicates of all samples collected were sent to the ECBC offsite laboratory in Edgewood, MD for analysis of CWM or ABP. Samples were analyzed for:

Photo 1 – Debris in the southern portion of the landfill.

Photo 2 – Debris in the southern portion of the landfill.

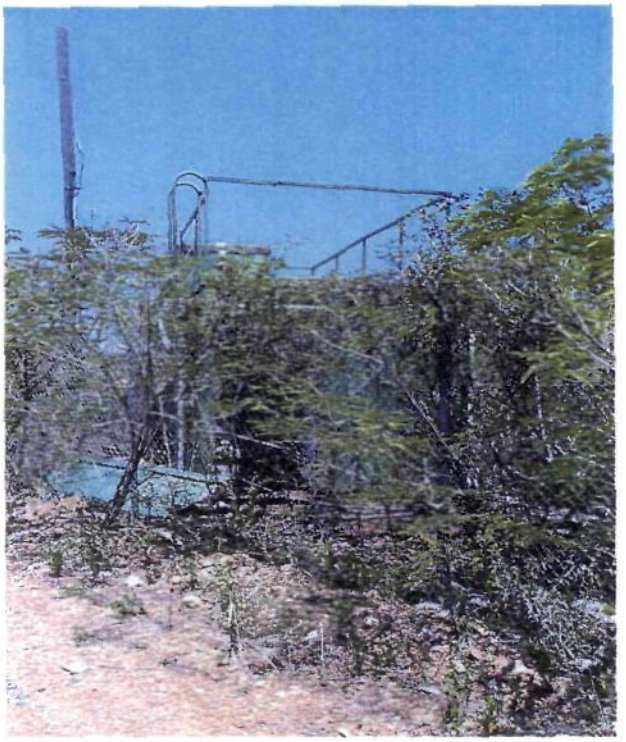

Photo 3 – Abandoned equipment in the eastern area of the landfill

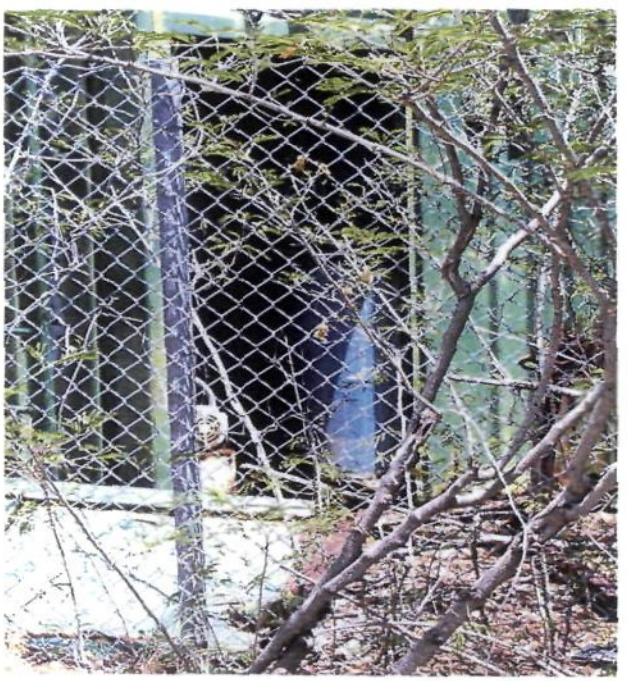

Photo 4 – Abandoned Equipment on eastern portion of landfill.

Photo 5 – Debris on Northern edge of landfill.

Photo 6 – View of Cars in Test Area 4.

Photo 7 – Abandoned Cars in Test Area 4.

Photo 8 - .Abandoned Cars in Test Area 4.

Photo 9 – Abandoned Cars in Test Area 4.

Photo 10 – Abandoned Tanker Truck in Test Area 4.

Photo 11 – Abandoned Tanker in Test Area 4.

Photo 12 – Car Removal from Area 4

Test Area 4 ACM pile in background behind left shoulder of left-most person

Test Area 4 close-up of ACM pile

Table 2.1.2.5
Holding time/Method Exceedances

Field Sample ID	Days Past Recommended Holding Times per Method				
Methods	Semi-volatile 8270	Chlorinated Herbicides 8151	Pesticides/PCB 8081/8082	Cyanide 9012	Explosives 8330
FS-TA5-SBK-1-2'	7	9	8	5	NA
FS-TA5-SBK-1B-2' (FD)	7	9	8	5	NA
FS-TA5-SR-1-0'-2'	7	9	8	5	NA
FS-TA5-SR-2-0'-2'	7	9	8	5	NA
FS-TA4-SR-2-0'-2'	7	9	8	5	NA
FS-TA4-SR-1-0'-2'	7	9	8	5	NA
FS-TA8-SB-6-1-0'-2' *	6	8	7	4	NA
FS-TA8-SBK-1-0'-2'	6	8	7	4	NA
FS-TA8-SB-8-1-0'-2' *	6	8	7	4	NA
FS-TA8-SB-10-1-0'-2' *	6	8	7	4	NA
FS-TA4-TP-2-1-4' * (+MS/MSD)	11	13	12	14	NA
FS-TA5-146-1-1' *	12	14	13	10	NA
FS-TA5-153-1-14" *	12	14	13	10	NA
FS-TA5-195-1-1' *	12	15	13	10	NA
FS-TA5-204-1-6" *	12	15	13	10	NA
FS-TA5-SBK-2-2' *	12	15	13	10	NA
FS-TA5-TP-1-1-5.5' * (+MS/MSD)	11	14	12	9	NA
FS-TA5-TP-3-1-6.5' *	11	14	12	9	NA
FS-TA5-SBK-1/QA-2'	10	10	10	10	NA
FS-TA4-TP-7-S1 *	14	14	14	14	14
FS-TA4-TP-7-1 *	14	14	14	14	14
FS-TA4-TP-3	NA	NA	NA	NA	NA
FS-TA4-TP-4	NA	NA	NA	NA	NA
FS-TA4-TP-5	NA	NA	NA	NA	NA
FS-TA4-TP-9	NA	NA	NA	NA	NA
FS-TA4-TP-11-1-3' *	NA	NA	NA	NA	NA
FS-TA4-TP12-1 *	13	13	13	13	13
FS-TA4-TP12-1B	NA	NA	NA	NA	NA
FS-TA4-TP12-1/QA-3'	13	13	13	13	13
FS-TA4-SBK-1-0-2'	NA	NA	NA	NA	NA
FS-TA4-SBK-2-0-2'	NA	NA	NA	NA	NA

* = Site characterization samples
NA = not applicable

Holding time is the length of time a sample is recommended for storage after collection and prior to analysis without significantly affecting the analytical results. Holding times vary with the analyte, sample matrix, and analytical methodology used to quantify the analyte concentration. Validity of holding times established by the EPA and presented in current regulations are currently being studied and considered for re-evaluation by EPA. EPA considers that some holding times may be arbitrary and/or may appear to be politically driven (EPA National Exposure Research Laboratory Environmental Sciences). Some holding times seem to be arbitrary when a single value is applied to a large general class of compounds such as pesticides;

when the holding time was originally established for aqueous media and then blindly applied to other media such as soils; or when a contaminant is known to be chemically highly stable and will still be present in the sample even if the sample is not extracted in the recommended time frame. For example, if PCBs significantly degraded after 14 days, there would not be an environmental problem with PCBs today. Holding times may appear to be politically driven to speed commercial laboratories in sample analysis and report production. The primary concern for laboratories occurs when sample load is heavy or excessive, instruments break down, extraction difficulties occur due to matrix complications, or shipping complications cause samples to arrive later than planned. If holding times are missed even just by one day, data are rejected or estimated, and as such, are called into question even though the analytical result may be perfectly accurate. From the EPA point of view, holding times are particularly objectionable when they cause data to be rejected, delay projects, and cost the government money for rework that is unnecessary. To that end, the EPA is undertaking studies to provide a scientific basis for changes to the current regulations.

Holding times can be extended when recommended preservation has been performed to reduce physical and chemical processes that might affect the sample, sample integrity is maintained, and when persistence of analytes of interest is considered. The herbicide and pesticide analytes of interest at the Site are infamously persistent. PCB persistence is notable. Some holding times are ambiguous; for example, the Quality Assurance Manual for the EPA Science and Ecosystem Support Division, Analytical Support Branch lists the holding time for cyanide in soil as "not specified."

Chemical Concentration Result by Test Area

Any maximum chemical concentration result in an area of concern exceeding the maximum background concentration by a factor of 2 (referred to as the background threshold) is addressed here. Where a maximum chemical concentration result exceeds the background threshold, the average chemical concentration across the area of concern is further compared with the average background concentration. Only investigative samples (excludes duplicates and QA samples) were used in this assessment. Results of the samples collected at residences within 200 feet of each area are also discussed. Each area of concern is presented individually, and as part of the overall Site. The analytical data as receive from Parsons are included in Appendix C.

Test Area 4. Test Area 4 is located between Test Area 5 and the Flamingo Bay Landfill. It is used as a repository for abandoned vehicles by Island residences. Test Area 4 is the location of the observed pile of suspected ACM following the removal of abandoned cars and vegetation just prior to sampling at the Site.

There are 24 investigative sample results, 2 background results, 2 nearby residence results, and various QA/QC samples for the characterization of Test Area 4. Six (6) of the 24 investigative sample results are surface samples (collected from the surface to 2 feet).

Site Results for Test Area 4: The heavy metals (# samples), cobalt (8), chromium (2), copper (10), nickel (9), lead (4), vanadium (8), and zinc (2) exceeded the applicable background threshold for samples collected in Test Area 4. The sample average over Test Area 4 for each of these metals slightly exceeded the average background concentrations; however, none of the Site

average metal concentrations exceeded twice the average background concentrations. Table 2.1.2.6 presents the summary statistics for the metal concentrations exceeding the background threshold.

Table 2.1.2.6
Test Area 4
Metal Concentrations Exceeding Background Threshold

Sample ID of Maximum Site Concentration	Metal	Maximum Concentration mg/Kg	Background Threshold mg/Kg	Sample Average Over TA4 mg/Kg	Background Average mg/Kg	Two Times Background Average mg/Kg
TA4-SB3-S1-0'-2'	Cobalt	26	11	7.4	5.5	11
TA4-SB4-1-2.5' TA4-SB2-S1-0'-2'	Chromium	28	26	12.7	9.4	19.7
TA4-SB2-S1-0'-2'	Copper	91	32	23.9	14	28
TA4-SB3-S1-0'-2' TA4-SB4-1-2.5'	Nickel	15	8.2	6.1	3.8	7.6
TA4-TP6-S1-0'-2'	Lead	46	12.8	9.1	5.6	11.2
TA4-SB3-S1-0'-2'	Vanadium	210	84.6	64.3	39.7	79.4
TA4-SB3-1-18'	Zinc	170	91.6	50.8	42.3	84.6

None of the samples collected in Test Area 4 exhibited concentrations exceeding the applicable RLs for Mercury or Cyanide.

There were no detected concentrations above the RLs for semi-volatile compounds (SVOCs), PCBs, or cyanide in samples collected at Test Area 4. The organic chemicals detected at concentrations above their applicable RLs are presented in Table 2.1.2.7.

The herbicides 2, 4-D and MCPP were both detected in one sample each at a concentration (62 ug/kg and 5,100 ug/kg, respectively) exceeding the RL. Both 2, 4-D and MCPP are currently approved for use as herbicides. 2, 4-D is one of the most widely used herbicides in the U.S. and Canada.

The pesticides dieldrin and technical chlordane were also detected in one sample each at a concentration (6.8 ug/kg and 7.3 ug/kg, respectively) exceeding the RL. Dieldrin and chlordane were previously approved, and widely used for control of fire ants and termites. Dieldrin and chlordane were banned by the EPA in 1987 and 1988, respectively. Both are persistent in the environment because they bind tightly to soil, and break down very slowly in soil and water. They can stay in soil for over 20 years.

Bis (2-ethylhexyl) phthalate, an SVOC, was detected in one sample at a concentration (700 ug/kg) above the RL. It was also detected in one background sample (TA4-SBK-1-0'-2') at a concentration of 90 ug/kg. Bis (2-ethylhexyl) phthalate is found in many plastics, and therefore, is found everywhere in the environment. It is not toxic at the low levels usually present; however, it is persistent because it binds strongly to soil particles. Because of its presence in plastics, bis (2-ethylhexyl) phthalate is common field and laboratory contaminant, and its presence may not be indicative of contamination.

An explosive compound, 1, 3, 5-trinitobenzene, was detected at of depth of 3 feet in one sample (TA4-TP7-1-3') at a concentration of 310 ug/kg (the RL is 250 ug/kg). 1, 3, 5-trinitobenzene is a synthetic substance used in explosives. EPA has not classified this compound as to it carcinogenicity, and requires spills of 10 pounds or more to be reported. It does not bind strongly to soil particles, and therefore, will move through the soil column away from the surface.

The only organic chemicals detected at concentrations above the RLs in samples collected at the surface (0 to 2 feet) were chlordane (sample TA4-TP9-S1-0'-2') and bis (2-ethylhexyl) phthalate (sample TA4-TP6-S1-0'-2'). Neither of those contaminants exceeded the HRS SCDM levels.

Table 2.1.2.7
Test Area 4
Organic Chemical Detected at Concentration Above the RL

Chemical	Maximum Concentration Detected	Location of Maximum Concentration Detected	Number of Times Detected Above RL
Herbicides (ug/kg)			
2,4-D	62	TA4-SB2-1-2.5'	1
MCPP	5,100	TA4-SB4-1-2.5'	1
Pesticides (ug/kg)			
Dieldrin	6.8	TA4-SB7-1-3.5'	1
Chlordane	7.3	TA4-TP9-S1-0'-2'	1
SVOCs (ug/kg)			
Bis(2-ethylhexyl)phthalate	700	TA4-TP6-S1-0'-2'	1
Explosives (ug/kg)			
1,3,5-trinitobenzene	310	TA4-TP7-1-3'	1

Residence Results for Test Area 4: Samples collected at the residences within 200 ft. of Test Area 4 exhibit elevated levels of cobalt copper, nickel, and vanadium compared to twice the background concentration for these metals in Test Area 4 as shown in Table 2.1.2.8.

Table 2.1.2.8
Test Area 4 Residences
Metal Concentrations Exceeding Background

Metal	Residence 1 mg/Kg	Residence 2 mg/Kg	Background Threshold mg/Kg	Residence Average mg/Kg	Background Average mg/Kg	Two times Background Average mg/Kg
Cobalt	15	14	11	14.5	5.5	11
Copper	51	45	32	48	14	28
Nickel	NA	9.8	8.2	8.6	3.8	7.6
Vanadium	100	91	84.6	95.5	39.7	79.4

NA - not applicable (did not exceed twice the background concentration).
Shaded cells = concentrations exceed twice the background average

In addition, the samples collected at both residences near Test Area 4 contained Dicamba at concentrations (31 and 24 ug/kg) above the RL of 20 ug/kg, and MCPP at 15,000 and 14,000

ug/kg (the RL is 2,000 ug/kg). Both residential samples were collected at a depth of 0 to 2 feet. Dicamba and MCPP are both current general use herbicides for the control of weeds and broadleaf plants such as vines. It is likely that the residences are using it for weed control. Dicamba was not found in the investigative Site samples. No other organic chemicals were detected at concentration above the associated RLs.

Test Area 5. Test Area 5 is located adjacent to and directly east of Test Area 4. It is currently used as the waste materials transfer station for Water Island residents. It is the repository of the construction debris generated from clean-up efforts after major storms and hurricanes hit the island.

There were 20 investigative samples, 2 background samples, 2 nearby residence samples, and various QA/QC samples collected for the assessment of Test Area 5. Six of the samples were collected at the surface (0 to 2 feet).

Site Results for Test Area 5: The heavy metals (# samples), chromium (7), copper (1), nickel (1), lead (5), strontium (3), and mercury (1) exceeded the applicable background threshold values for samples collected in Test Area 5. The summary statistics for the metal concentrations exceeding the background threshold are presented in Table 2.1.2.9. The sample average concentration over Test Area 5 for chromium, lead, strontium, and mercury also exceeded twice the average background concentrations.

Many samples (14 and 16 samples, respectively) exhibited elevated concentrations of calcium and sodium; however, these elements are eliminated from further assessment because they are essential nutrients.

Table 2.1.2.9
Test Area 5
Metal Concentrations Exceeding Background Threshold

Sample ID	Metal	Maximum Concentration mg/Kg	Background Threshold mg/Kg	Sample Average Over TA5 mg/Kg	Background Average mg/Kg	Two Times Background Average mg/Kg
TA5-GS5-1-4'	Chromium	130	15.2	24.0	7.4	14.8
TA5-GS5-S1-0'-2'	Copper	85	78	51	36.5	73
TA5-TP2-1-6'	Nickel	49	28	18.1	13	26
TA5-TP2-1-6'	Lead	74	11.4	9.8	4.6	9.2
TA5-GS1-S1-0'-2'	Strontium	2,800	300	296	103.5	207
TA5-147-1-1'	Mercury	1	0.08	0.1	0.02	0.04

There were no detected concentrations above the RL for cyanide in samples collected at Test Area 5. The organic chemicals detected at concentrations above their applicable RLs are presented in Table 2.1.2.10.

Table 2.1.2.10
Test Area 5
Organic Chemicals Detected at Concentration Above the RL

Chemical	Maximum Concentration Detected	Location of Maximum Concentration Detected	Number of Times Detected Above RL
Herbicides (ug/kg)			
2,4-DB	16	TA5-GS3-1-2'	2
MCPP	100,000	TA5-147-1-1'	1
Pesticides (ug/kg)			
Dieldrin	31	TA5-GS5-S1-0'-2'	4
Chlordane (technical)	190	TA5-146-1-1'	1
PCBs (ug/kg)			
Aroclor-1254	87	GS5-S2-3.5'	2
SVOCs (ug/kg)			
Bis(2-ethylhexyl)phthalate	600	TA5-GS5-S1-0'-2'	1
Butylbenzylphthalate	1,000	TA5-GS5-S1-0'-2'	1

The herbicides 2, 4-DB, and MCPP were both detected at concentrations exceeding the RLs. The maximum concentration if 2, 4-DB detected was 16 ug/kg in sample TA5-GS3-1-2'. MCPP was detected in the background sample TA5-SBK-2-2'; therefore, only results that were greater than the RL and the background threshold were assessed. Two samples contained MCPP at concentration exceeding the RL and the background threshold. The maximum MCPP concentration (100,000 ug/kg) was detected in sample TA5-147-1-1'. Both 2, 4-DB and MCPP are currently approved for use as an herbicide.

The pesticides dieldrin and technical chlordane were detected at concentrations exceeding the RLs. Dieldrin was detected in four samples at a concentration above the RL; the maximum detected concentration (31 ug/kg) was observed in sample TA5-GS5-S1-0'-2'. Technical chlordane was detected in one sample (TA5-146-1-1', at 190 ug/kg). Dieldrin and chlordane were previously approved, and widely used for control of fire ants and termites. Dieldrin and chlordane were banned by the EPA in 1987 and 1988, respectively. Both are persistent in the environment because they bind tightly to soil, and break down very slowly in soil and water. They can stay in soil for over 20 years.

The PCB aroclor-1254 was detected at a concentration above the RL in two samples collected from borehole TA5-GS5; at depths of 0 to 2 feet and 3.5 feet. The higher concentration (87 ug/kg) was detected in the deeper sample. PCBs, including aroclor-1254, are inert, thermally and physically stable, and have dielectric properties. They have been used in closed systems such as heat transfer liquids (transformers), hydraulic fluids and lubricants and open systems such as plasticizers, surface coatings, adhesives, etc. The use of PCBs in open systems was banned in the U.S. in 1974 and in closed systems in 1977. Aroclor-1254 strongly binds with soil particles and is persistent in the environment.

Two SVOCs were detected in Test Area 5 samples at concentrations above the RLs, bis (2-ethylhexyl) phthalate, and butylbenzylphthalate. Bis (2-ethylhexyl) phthalate was detected in one sample (TA5-GS5-S1-0'-1') at a concentration (600 ug/kg) above the RL. It was also detected in both background samples (TA5-SBK-1-2' and TA5-SBK-2-2') at concentrations of

73 and 78 ug/kg, respectively. Bis (2-ethylhexyl) phthalate is found in many plastics, and therefore, is found everywhere in the environment. It is not toxic at the low levels usually present; however, it is persistent because it binds strongly to soil particles. Because of its presence in plastics, bis (2-ethylhexyl) phthalate is a common field and laboratory contaminant, and its presence is not always indicative of environmental contamination. Butylbenzylphthalate was detected in one sample at a concentration (1,000 ug/kg) above the RL. Butylbenzylphthalate is also often found in plastic products.

No contaminant in surface samples at Test Area 5 exceeded the HRS SCDM level.

Residence Results for Test Area 5: Chromium and strontium were the only metals detected at concentrations exceeding the background threshold in samples collected at the residences adjacent to Test Area 5. Chromium exceeded the background threshold in one sample (TA5-SR-2-0'-2') at a concentration of 22 mg/kg; the background threshold is 15.2 mg/kg. Strontium at a concentration of 580 mg/kg in sample TA5-SR-2-0'-2'exceeded the background threshold of 300 mg/kg. Calcium and magnesium were also detected at concentrations exceeding the background threshold, but were eliminated from further assessment because they are essential nutrients.

The only organic chemicals detected at concentrations above the RLs were the herbicides Dicamba and MCPP. Dicamba was detected in both residence samples (both collected at a depth of 0 to 2 feet), but at a concentration of 33 ug/Kg above the RL in only one residence sample (TA5-SR-2-0'-2'). MCPP was detected in both residence samples at concentrations above the RL. The maximum detected concentration was 21,000 ug/kg collected at location TA5-SR2. Both Dicamba and MCPP are herbicides that are currently approved for use.

Test Area 8. Test Area 8 is located across Flamingo Bay from and due north of Test Area 4. Test Area 8 is the site of the former hotel at Water Island. It is also the site of the Former Ft. Segarra Headquarters and "toxic storage yard." CWM was stored here during the surveillance testing for the Tropical Toxic Storage Tests. Test Area 8 has already been transferred to the Virgin Islands government control.

There were10 investigative samples collected in Test Area 8; all are surface samples collected at 0 to 2'. Additionally, two background samples and one duplicate sample were collected. No samples at private residences were taken due to the historic use of the area as a headquarters building and Hotel only and not as a landfill.

Site Results for Test Area 8: The heavy metals (# samples), chromium (3), cobalt (1), copper (1), nickel (2), vanadium (1), and zinc (1) exceeded the background threshold values for the Test Area 8. The summary statistics for the metal concentrations exceeding the background threshold are presented in Table 2.1.2.9. None of the sample average concentrations over Test Area 8 exceeded twice the average background concentrations.

Table 2.1.2.11
Test Area 8
Metal Concentrations Exceeding the Background Threshold

Sample ID	Metal	Maximum Concentration mg/Kg	Background Threshold mg/Kg	Sample Average Over TA5 mg/Kg	Background Average mg/Kg	Two Times Background Average mg/Kg
TA8-SB6-1-0'-2'	Aluminum	36,000	30,000	14,020	12,350	14,700
TA8-SB8-1-0'-2'	Barium	420	156	101	75	150
TA8-SB6-1-0'-2'	Chromium	130	32	24	13	26
TA8-SB6-1-0'-2'	Cobalt	36	28	11	10	20
TA8-SB6-1-0'-2'	Copper	130	64	30	28	56
TA8-SB6-1-0'-2'	Nickel	84	19	15	7	168
TA8-SB6-1-0'-2'	Vanadium	240	156	61	57	114
TA8-SB3-1-0'-2'	Zinc	230	156	78	60	120
TA8-SB3-1-0'-2'	Mercury	0.11	0.06	0.029	0.026	0.052

Cyanide and SVOCs were not detected in any samples at concentrations above the RL. The organic chemicals detected at concentrations above their applicable RLs are presented in Table 2.1.2.12.

Table 2.1.2.12
Test Area 8
Organic Chemicals Detected at Concentration Above the RL

Chemical	Maximum Concentration Detected	Location of Maximum Concentration Detected	Number of Times Detected Above RL
Herbicides (ug/kg)			
2,4,5-T	12	TA8-SB2-1-0'-2' TA8-SB4-1-0'-2'	2*
Dicamba	32	TA8-SB1-1-0'-2'	2*
MCPP	17,000	TA8-SB6-1-0'-2'	3*
Pesticides (ug/kg)			
Dieldrin	1,100	TA8-SB7-1-0'-2'	10*
Heptachlor epoxide	3.4	TA8-SB10-1-0'-2'	1*
PCBs (ug/kg)			
Aroclor-1254	100	TA8-SB8-1-0'-2'	3*

* Also detected in at least one of the background samples

The herbicides 2,4,5-T, Dicamba, and MCPP were detected at concentrations above the RLs in site investigation samples collected at Test Area 8, and in at least one background sample. The maximum concentration of 2, 4, 5-T (12 ug/kg) did not exceed the background threshold concentration. However, the maximum concentrations for Dicamba and MCPP were greater than the background threshold concentrations. Both dicamba and MCPP (as well as 2, 4, 5-T) are currently approved for use as herbicides for the control of weeds and broadleaf plants such as vines.

The pesticides dieldrin and heptachlor epoxide were both detected in site investigation samples at concentrations above the RLs. Both diedrin and heptachlor epoxide were also detected in one (heptachlor epoxide) or both (dieldrin) background samples. Dieldrin and heptachlor epoxide

were both used extensively (with approval from the EPA) in the past for termite control around buildings and homes. The EPA banned the use of both dieldrin and heptachlor epoxide in 1987 and 1988, respectively. The maximum concentrations in site investigation samples did not exceed the background threshold concentrations. Additionally, the site average dieldrin concentration (318 ug/kg) does not exceed the average background concentration (515 ug/kg). However, because of the relatively high concentrations of dieldrin present compared to the concentrations observed in Test Areas 4 and 5, further discussion of the presence of dieldrin is warranted. The maximum concentration of dieldrin detected in Test Areas 4 and 5 was 6.8 ug/kg and 31 ug/kg, respectively.

Dieldrin is a cyclodiene insecticide and biodegradation product of aldrin. Both dieldrin and aldrin are insecticides used for termite control. USDA in 1970 cancelled the use of dieldrin, but EPA allowed for its' use against termites until 1987, when manufacturers voluntarily withdrew it. Aldrin quickly degrades to dieldrin, which is more persistent. Dieldrin is not very soluble in water, binds tightly to soil particles, and is persistent but not mobile in soils. Because Test Area 8 is the site of the former hotel at Water Island and the former Ft. Segarra Headquarters and storage yard, it is most likely that dieldrin/aldrin was used for termite control during the years prior to the EPA ban of its use in 1987. The background area sampled was not part of the former Ft. Segarra Headquarters, but was part of the former hotel complex.

The PCB aroclor-1254 was detected at a concentration above the RL in three samples. Aroclor-1254 was also detected in one of the two background samples collected at a concentration of 670 ug/Kg. PCBs, including aroclor-1254, are inert, thermally and physically stable, and have dielectric properties. They have been used in closed systems such as heat transfer liquids (transformers), hydraulic fluids and lubricants and open systems such as plasticizers, surface coatings, adhesives, etc. The use of PCBs in open systems was banned in the U.S. in 1974 and in closed systems in 1977. Aroclor-1254 strongly binds with soil particles and is persistent in the environment.

Test Area 8 is not a part of the Federal Facility. It was transferred to the Virgin Islands Government in the previous land transfer 3 years ago. No data from Test Area 8 was used to score the site.

Flamingo Bay Landfill. The Flamingo Bay Landfill is located west of TA 4. It is a swampy area that was used by the former hotel as a landfill and by the Army as a temporary repository for some CWM, which was subsequently removed. It is no longer in use as a landfill and is fenced to prevent access by the public.

There are 26 investigative sample results, two residence sample results and two background sample results, plus 4 duplicate sample results for the Flamingo Bay Landfill. The samples are at varying depths, with 8 investigative surface samples.

Site Results for Flamingo Bay Landfill Area: The heavy metals (# samples), arsenic (13), barium (13), cadmium (12), chromium (11), copper (16), iron (5), nickel (7), lead (16), mercury (14), and zinc (10) exceeded the background threshold value in samples collect in the Flamingo Bay Landfill. The summary statistics for the metal concentrations exceeding the background threshold are presented in Table 2.1.2.13. Potassium and magnesium were also present at

concentrations exceeding the background threshold value in two and one samples, respectively; however, no further assessment of these metals will be conducted because they are essential nutrients. As illustrated in Table 2.1.2.13, investigative samples collected in the Flamingo Bay Landfill exhibited elevated metal concentrations. The Arsenic and Lead concentrations in surface soil were utilized in computing the HRS for the site. Arsenic (28 mg/Kg) exceeded the HRS SCDM level (23 mg/KG). These results are discussed further in the Summary of Results section below.

Additionally, cyanide was detected in nine of the 26 investigative samples collected; but one sample contained a cyanide concentration that exceeded twice the RL (threshold value). The maximum detected cyanide concentration was 3.7mg/Kg. However, the site average cyanide concentration did not exceed the RL, and the maximum cyanide concentration did not exceed the SCDM level.

Table 2.1.2.13
Flamingo Bay Landfill (FBL)
Metal Concentrations Exceeding the Background Threshold

Sample ID	Metal	Maximum Concentration mg/Kg	Background Threshold mg/Kg	Sample Average Over FBL mg/Kg	Background Average mg/Kg	Two Times Background Average mg/Kg
FBL-SB2-1-3'	Arsenic	180	4	29	1.75	3
FBL-SB2-1-3'	Barium	1,100	64	136	27	54
FBL-SB1-2-3'	Cadmium	21	1.38	3.33	0.52	1.04
FBL-SB1-2-3'	Copper	790	58	186	23	46
FBL-G1-1-4' FBL –SB2-1-3'	Chromium	180	40	49	14.5	29
FBL-SB1-2-3'	Lead	5,700	14	685	5.7	11.4
FBL-SB1-2-3'	Iron	240,000	88,000	69,423	29,500	59,000
FBL-SB1-2-3'	Nickel	95	28	24	9.2	18.4
FBL-SB1-2-3'	Zinc	6,700	196	707	67	134
FBL-ST2-S1-0'-2'	Mercury	0.87	0.034	0.15	0.013	0.03
FBL-IT-1-3'	Cyanide	3.7	2.0*	0.86	1.0*	2.0*

* The RL value was used for non-detected results for calculating average values
Shaded cells indicate sample average values that exceed twice the average background values

The organic chemicals detected at concentrations above their applicable RLs are presented in Table 2.1.2.14.

Table 2.1.2.14
Flamingo Bay Landfill
Organic Chemicals Detected at Concentration Above the RL

Chemical	Maximum Concentration Detected	Location of Maximum Concentration Detected	Number of Times Detected Above RL
Herbicides (ug/kg)			
Dicamba	35	FBL-SB6-1-0'-2'	5
MCPP	43,000	FBL-SB6-1-0'-2'	13
Pesticides (ug/kg)			
Delta-BHC	1.8	FBL-ST1-1-3.5'	2

		FBL-G20-1-3.5'	
4,4-DDT	1,100	FBL-G1-1-4'	5
Dieldrin	1,400	FBL-SB5-1-3.5'	13
Endosulfan I	64	FBL-SB8-2-3.5'	1
Heptachlor	2.9	FBL-G20-1-3.5'	1
Heptachlor epoxide	150	FBL-G1-1-4'	1
PCBs (ug/kg)			
Aroclor-1254	21,000	FBL-G1-1-4'	8
SVOCs (ug/kg)			
Bis(2-ethylhexyl)phthalate	29,000	FBL-SB4-1-3.5'	4
Butylbenzylphthalate	1,000	FBL-SB6-1-0'-2'	1
Explosives (ug/Kg)			
2,4-Dinitrotoluene	430	FBL-ST2-S1-0'-2'	1
2,6-Dinitrotoluene	660	FBL-ST2-S1-0'-2'	1

The herbicides Dicamba and MCPP were detected at concentrations above the RLs in site investigation samples collected at the Flamingo Bay Landfill, and in one background sample. The maximum concentration of MCPP did not exceed the background threshold value. However, the maximum concentration for Dicamba (35 ug/Kg) was slightly greater than the background threshold (32 ug/kg). Both Dicamba and MCPP are currently approved for use as herbicides for the control of weeds and broadleaf plants such as vines.

The pesticides delta-BHC, 4, 4-DDT, dieldrin, endosulfan I, heptachlor, and heptachlor epoxide were detected in site investigation samples at concentrations above the RLs. Delta-BHC was detected in two samples (both at a concentration of 1.8 ug/Kg); however, these detected concentrations are not significantly different than the RL of 1.7 ug/Kg, and therefore, will not be discussed further. Endosulfan is a broad contact insecticide and acaricide currently approved by the EPA for use. Heptachlor is currently approved for restricted use as a pesticide for the control of fire ants, but was previously (prior to 1983) used for the control of mosquitoes, flies, and termites. 4, 4-DDT was previously used as an insecticide for the control of mosquitoes, flies, and termites. The EPA banned the use of 4, 4-DDT in 1972. Dieldrin and heptachlor epoxide were both used extensively (with approval from the EPA) in the past for termite control around buildings and homes. The EPA banned the use of both dieldrin and heptachlor epoxide in 1987 and 1988, respectively.

Because of the relatively high concentrations of dieldrin present (maximum of 1,400 ug/Kg) compared to the concentrations observed in Test Areas 4 and 5, further discussion of the presence of dieldrin is warranted. The maximum concentration of dieldrin detected in Test Areas 4 and 5 was 6.8 ug/kg and 31 ug/kg, respectively. Dieldrin is a cyclodiene insecticide and biodegradation product of aldrin. Both are insecticides used for termite control. USDA in 1970 cancelled the use of dieldrin, but EPA allowed for its' use against termites until 1987, when manufacturers voluntarily withdrew it. Aldrin quickly degrades to dieldrin, which is more persistent. Dieldrin is not very soluble in water, binds tightly to soil particles, and is persistent but not mobile in soils. Dieldrin level was not above the SCDM concentration level in any surface sample.

Two SVOCs were detected in Test Area 5 samples at concentrations above the RLs, bis (2-ethylhexyl) phthalate, and butylbenzylphthalate. Bis (2-ethylhexyl) phthalate was detected in

one sample (TA5-GS5-S1-0'-1') at a concentration (600 ug/kg) above the RL. It was also detected in both background samples (TA5-SBK-1-2' and TA5-SBK-2-2') at concentrations of 73 and 78 ug/kg, respectively. Bis (2-ethylhexyl) phthalate is found in many plastics, and therefore, is found everywhere in the environment. It is not toxic at the low levels usually present; however, it is persistent because it binds strongly to soil particles. Because of its presence in plastics, bis (2-ethylhexyl) phthalate is a common field and laboratory contaminant, and its presence is not always indicative of environmental contamination. Butylbenzylphthalate was detected in one sample at a concentration (1,000 ug/kg) above the RL. Butylbenzylphthalate is also often found in plastic products. Neither of these phthalates was above the SCDM concentration level.

Two explosive compounds were detected in same sample (FBL-ST2-S1-0'-2') collected in the Flamingo Bay Landfill. This sample was collected at the surface at a depth of 0 to 2 feet. 2, 4-dinitotoluene and 2, 6-dintrotolune were detected at concentrations of 430 ug/kg and 660 ug/kg, respectively. Both of these compounds are used as waterproofing agents in explosives.

Table 2.1.2.14
Flamingo Bay Landfill
Organic Chemicals Detected at Concentration Above the RL

Chemical	Maximum Concentration Detected	Location of Maximum Concentration Detected	Number of Times Detected Above RL
Herbicides (ug/kg)			
Dicamba	35	FBL-SB6-1-0'-2'	5
MCPP	43,000	FBL-SB6-1-0'-2'	13
Pesticides (ug/kg)			
Delta-BHC	1.8	FBL-ST1-1-3.5' FBL-G20-1-3.5'	2
4,4-DDT	1,100	FBL-G1-1-4'	5
Dieldrin	1,400	FBL-SB5-1-3.5'	13
Endosulfan I	64	FBL-SB8-2-3.5'	1
Heptachlor	2.9	FBL-G20-1-3.5'	1
Heptachlor epoxide	150	FBL-G1-1-4'	1
PCBs (ug/kg)			
Aroclor-1254	21,000	FBL-G1-1-4'	8
SVOCs (ug/kg)			
Bis(2-ethylhexyl)phthalate	29,000	FBL-SB4-1-3.5'	4
Butylbenzylphthalate	1,000	FBL-SB6-1-0'-2'	1
Explosives (ug/kg)			
2,4-Dinitrotoluene	430	FBL-ST2-S1-0'-2'	1
2,6-Dinitrotoluene	660	FBL-ST2-S1-0'-2'	1

Residence Results for Flamingo Bay Landfill Area: No metals were detected above the background threshold level in residence samples for Flamingo Bay Landfill. The only organic chemicals detected at concentrations above the RLs were the herbicides Dicamba and MCPP, and the pesticides 4, 4'-DDT and 4, 4'-DDE. Dicamba was detected in one residence sample (collected at a depth of 0 to 2 feet), but at a concentration of 26 ug/kg, slightly above the RL of 20 ug/kg (FBL-SR-1-0'-2'). MCPP was detected in the same residence sample at a concentration of 32,000 ug/kg, above the RL of 2000 ug/kg. Dicamba and MCPP are both

current general use herbicides for the control of weeds and broadleaf plants such as vines. It is likely that the residences are using it for weed control.

The pesticides 4, 4'-DDT and 4, 4'-DDE were both detected in one residence sample at 8.8 ug/kg (FBL-SR-2-0'-2') above the reporting limit of 3.3 ug/kg. 4, 4-DDT was previously used as an insecticide for the control of mosquitoes, flies, and termites. It is an insecticide of high persistence. The EPA banned the use of 4, 4-DDT in 1972. DDE is an impurity in DDT as well as a biodegradation product of DDT and therefore occurs in the environment as a result of the use of DDT as an insecticide. If released to soil it will adsorb very strongly to the soil and will not be expected to leach through soil to groundwater.

Risk-based Screening Assessment for Test Area 4, 5, 8, and Flamingo Bay Landfill

Chemical concentrations that exceeded the background threshold values (inorganic chemicals) or the RLs (organic chemicals) in samples collected in Test Areas 4, 5, and 8 and the Flamingo Bay Landfill were presented in the Tables 2.1.2.6 through 2.1.2.14. These results were assessed further by comparing the chemical concentrations observed in samples collected at a depth of 0 to 2 feet against established residential risk-based screening values. The risk-based screening values used in this assessment were the EPA Region III risk-based concentrations (RBCs) for residential soils and industrial soils, and are presented in Appendix E. No chemicals in surface soils collected in Test Area 4 or the Flamingo Bay Landfill were detected at concentrations exceeding the residential (or industrial) soil RBCs. Table 2.1.2.15 presents the chemical concentrations in surface soil samples collected in Test Areas 5 and 8 that exceeded the residential or industrial soil RBCs.

MCPP was the only chemical detected in surface soils collected in Test Area 5 at a concentration that exceeded the residential soil RBC. MCPP is a general use herbicide that is currently approved for use by the EPA if used as directed by the manufacturer. Test Area 5 is currently used as the waste materials transfer station for Water Island residents. Therefore, this area of concern is not residential, and comparison to the EPA Region III industrial soil RBC is more appropriate. As shown in Table 2.1.2.15, the concentration of MCPP detected in sample TA5-147-1-1' did not exceed the industrial soil RBC.

Table 2.1.2.15
Chemical Concentrations Exceeding the RBCs

Test Area 5				
Location	**Chemical**	**Concentration ug/kg**	**EPA Region III Residential Soil RBC ug/kg**	**EPA Region III Industrial Soil RBC ug/kg**
Herbicide				
TA5-147-1-1'	MCPP	100,000	78,000	2,000,000
Test Area 8				
Pesticide				
TA8-SB1-1-0'-2'	Dieldrin	260	40	180

TA8-SB3-1-0'-2'	Dieldrin	230	40	180
TA8-SB4-1-0'-2'	Dieldrin	91	40	180
TA8-SB5-1-0'-2'	Dieldrin	700	40	180
TA8-SB6-1-0'-2'	Dieldrin	140	40	180
TA8-SB7-1-0'-2'	Dieldrin	1,100	40	180
TA8-SB8-1-0'-2'	Dieldrin	300	40	180
TA8-SB9-1-0'-2'	Dieldrin	180	40	180
TA8-SB10-1-0'-2'	Dieldrin	160	40	180
TA8-SBK-1-0'-2'	Dieldrin	420	40	180
TA8-SBK-2-0'-2'	Dieldrin	610	40	180

Dieldrin was detected in all but one surface soil sample collected in Test Area 8, including the two background samples, at concentrations exceeding the residential soil RBC as shown in Table 2.1.2.15. Test Area 8 is the site of the former hotel at Water Island. It is also the site of the former Ft. Segarra Headquarters and the "toxic storage yard." Dieldrin was used extensively (with approval from the EPA) in the past for termite control around buildings and homes. USDA in 1970 cancelled the use of dieldrin, but EPA allowed for its' use against termites until 1987, when manufacturers voluntarily withdrew it. Dieldrin is a cyclodiene insecticide and biodegradation product of aldrin. Aldrin quickly degrades to dieldrin, which is more persistent. Dieldrin is not very soluble in water, binds tightly to soil particles, and is persistent but not mobile in soils. Because Test Area 8 is the site of the former hotel at Water Island and the former Ft. Segarra Headquarters and storage yard, it is most likely that dieldrin/aldrin was used for termite control during the years prior to the EPA's ban of its use in 1987.

No other Chemicals at Test Areas 4, 5, 8, or the Flamingo Bay Landfill exceeded the EPA Region 3 Risk Based Concentrations.

Hazard Ranking Score System

The Quickscore software available from the EPA website was used to score the site. The site scored 7.21. Test Area 8 is not included in the scoring since it is not part of the Federal facility being considered for the NPL. Test Area 8 was transferred to the Virgin Islands government previously. Meetings are scheduled between the DOI and the VI Government in June to discuss the findings at the site. The score sheets used to score the site are included in Appendix F.

PART IV: HAZARD ASSESSMENT

Groundwater Route

1. Describe the likelihood of a release of contaminant(s) to the groundwater as follows: observed release, suspected release, or none. Identify contaminants detected or suspected and provide a rationale for attributing them to the site. For observed releases, define the supporting analytical evidence and relationship to background.

Suspected releases are assumed for the landfill and the two test areas. Based on information contained in the Ebasco reports and the DOI Environmental Assessments hazardous substances such as used oil, car batteries, and abandoned vehicles were deposited on the three source areas. Given the shallow depth to ground water (from 0 to 10 feet below ground level) it is likely that groundwater could be impacted with metals and hydrocarbon contaminants.

Reference Nos. 1, 3, and 4

2. Describe the aquifer of concern; include information such as depth, thickness, geologic composition, areas of karst terrain, permeability, overlying strats, confining layers, interconnections, discontinuities, depth to water table, and groundwater flow direction.

Available information was reviewed to assess whether potentially contaminated ground water beneath Water Island, specifically from the southern part of the island, could be a threat to the groundwater aquifer currently being used as a potable water supply on the nearby island of St. Thomas.

Water Island is on the eastern portion of the Greater Antilles submarine shelf, which many geologists believe is an extension of the Rocky-Andes mountain chain. The island is of volcanic origin and is comprised of undeformed and metamorphosed Cretaceous volcanic and volcanic sedimentary rocks. In general, rocks of volcanic origin dominate the center of the island, while the perimeter of the island is comprised of sedimentary rocks.

Little is known about groundwater conditions on Water Island. The island reportedly was named because potable water in the form of shallow freshwater ponds was used by early sailors. Some of the freshwater and occasional saltwater ponds have apparently been backfilled by construction, dredging and land filling operations over the years. The depth to groundwater at Water Island is reported to range from 0 feet below ground surface at the salt water ponds to over 10 feet below ground surface. In general, groundwater exists in residual soil as well as underlying fractured bedrock of volcanic origin. Because of unreliable groundwater supplies, the US military and other island residents, both historically and at present, obtained drinking water by collecting rainfall and storing it in cisterns. Therefore, groundwater on Water Island is not used as a source of drinking water. Nor is groundwater used for any other purposes on the island.

As is typical of smaller islands in the Caribbean, Water Island likely hosts a shallow freshwater aquifer of limited horizontal (i.e., areal extent of the island) and vertical extent. These shallow

aquifers are recharged directly from precipitation falling on the landmass and infiltrating into underlying strata. The freshwater aquifer is usually relatively thin and is underlain by saltwater saturated rocks. The topography of Water Island is hilly to mountainous with ground surface elevations ranging from sea level to 290 feet above mean sea level. A bedrock ridge trends generally from north to south through the central part of the island. Accepted groundwater hydrology principles would suggest that shallow groundwater underlying Water Island (freshwater component) likely flows from areas of higher topography to low areas. In the case of Water Island, one would expect shallow groundwater to flow toward the east, east of the ridgeline and generally to the west, west of the ridgeline. The shallow fresh groundwater probably then discharges into the surrounding ocean.

Since Water Island is separated from St. Thomas by an ocean channel, there is little likelihood that the aquifer supplying St. Thomas is hydraulically connected to the shallow fresh water aquifer underlying Water Island. Furthermore, the direction of shallow groundwater flow in the southern part of Water Island is expected to be to the west-southwest and east-southeast away from the island of St. Thomas located to the north.

Reference Nos. 1, 3, 4, 12, and 13

3. What is the depth from the lowest point of waste disposal/storage to the highest seasonal level of the saturated zone of the aquifer of concern?

The depth to groundwater at Water Island is reported to range from the surface to greater than 10 feet below ground surface. Given that waste may have been deposited by the Army and former hotel to fill in wetland areas, it is possible that the waste is present in the zone of saturation.

Reference Nos. 1, 3, and 4

4. What is the permeability value of the least permeable continuous intervening stratum between the ground surface and the top of the aquifer of concern?

As stated above, the depth to groundwater at Water Island is reported to range from the surface to greater than 10 feet below ground surface. As such, there may be no intervening stratum between the ground surface and the groundwater.

Reference Nos. 1, 3, and 4

5. What is the net precipitation at the site (inches)?

The average annual rainfall in St. Thomas is from 41 to 42 inches per year.

Reference No. 1

6. What is the distance to and depth of the nearest well that is currently used for drinking purpose?

There are no drinking water wells on the island. Island residents collect rainwater in cisterns as their source of drinking water. When rainfall amounts are too small to fulfill water needs, residents ship water to the island by barge from St. Thomas.

Reference Nos. 3 and 4

7. **If a release to groundwater is observed or suspected, determine the number of people that obtain drinking water from wells that are documented or suspected to be actually contaminated by hazardous substance(s) attributed to an observed release from the site.**

As stated above, there are no drinking water wells on the island. Island residents collect rainwater in cisterns as their source of drinking water. When rainfall amounts are too small to fulfill water needs, residents ship water to the island by barge from St. Thomas.

Reference Nos. 3 and 4

8. **Identify the population served by wells located within 4 miles of the site that draw from the aquifer of concern.**

There are no populations within 4 miles of the site that draw from the aquifer of concern.

Reference Nos. 3 and 4

State whether groundwater is blended with surface water, groundwater or both before distribution.

Not applicable since groundwater is not used as a source of drinking water on Water Island.

Reference Nos. 3 and 4

Is a designed wellhead protection area within 4 miles of the site?

There are no wellhead protection areas within 4 miles of Water Island.

Reference No. 5

9. **Identify any of the following resource uses of groundwater within 4 miles of the site (i.e., commercial livestock water, ingredient in commercial food preparation, supply commercial aquaculture, supply for major, or designated water recreation areas, irrigation of commercial food or commercial forage crops)**

The groundwater on Water Island is not used for any of the uses listed above. There are currently no active wells to access ground water on the island.

Reference No. 4

Surface Water Route

10. Describe the likelihood of a release of contaminant(s) to surface water as follows: observed release, suspected release, or none. Identify contaminants detected or suspected and provide a rationale for attributing them to the site. For observed release, define the supporting analytical evidence and relationship to background.

Given the close proximity of the landfill and test areas to Flamingo Bay and the fact that the waste materials were stored in waste piles, it is possible that a release of contaminants to the bay has occurred. Potential contaminants that could have made their way into the bay include metals and hydrocarbons.

Reference No. 3 and 4

11. Identify the nearest down slope surface water. If possible, include a description of possible surface drainage patterns from the site.

Flamingo Bay is the nearest down slope surface water from the landfill and test areas.

Reference No. 3

12. What is the distance in feet to the nearest down slope surface water? Measure the distance along a course that runoff can be expected to follow.

Flamingo Bay is as close as 200 feet to the landfill and test areas.

Reference No. 3

13. Identify all surface water body types within 15 downstream miles.

The ocean is the only surface water body type within 15 miles of Water Island.

Reference No. 3

14. Determine the 2 year, 24 hour rainfall (in inches) for the site.

The 2 year, 24 hour rainfall for the site is 4.3 inches.

Reference No. 8

15. Determine the size of the drainage area (acres) for sources at the site.

The size of the drainage area is 26 acres. This is the drainage area that contributes to all four sources (landfill and three test areas).

Reference No. 3

16. Describe the predominant soil group in the drainage area.

The predominant soil types on Water Island are clay loams, gravelly clay loams, and gravelly clays belonging to the Cramer Series. These soils are typically associated with rocks of volcanic origin and are found along the ridgeline and hill slopes. In addition, minor amounts of silty clay loams, silty loams, and sands of the Jaucas Series can be found in the low lying areas. The depth to bedrock ranges from 0 to over 60 feet. The permeability of the soil units ranges from a low of 4.2E-5 to a high of 4.4E-3 cm/sec. The available water capacity ranges from a low of 0.10 to a high of 0.20 inches/inch of soil.

Reference Nos. 1, 4, and 13

17. Determine the type of floodplain that the site is located within.

The Federal Emergency Management Agency (FEMA) has designated the southeastern portion of the landfill as Zone A and A8. The remainder of the landfill area and Test Areas 4 and 5 are designated as Zone C.
Zone A is defined as an area of 100-year flood. Zone A8 is defined as an area of 100-year flood with a base elevation of 8 feet. Zone C is defined as an area of minimal flooding.

Reference No. 9

18. Identify drinking water intakes in surface waters within 15 miles downstream of the point of surface water entry. For each intake, identify the name of the surface water body in which the intake is located, the distance in miles from the point of surface water entry, population served and stream flow at the intake location.

Intake	Distance	Population Served	Type of Intake
Crown Bay		49,000	Ocean
Ritz Carlton		300	Ocean
Secret Harbor		300	Ocean

Reference No. 7

19. Identify fisheries that existing within 15 miles downstream of the point of surface water entry.

There are no fisheries within 15 miles of Water Island.

Reference No. 5 and 6

20. Identify surface water sensitive environments that exist within 15 miles of the point of surface water entry.

Environment	Water Body	Flow	Wetland Frontage

Coral Reef	Ocean	NA	NA
Sea Grass Beds	Ocean	NA	NA

The fringing coral reefs extend around the south and east shores of Water Island from just west of Flamingo Point east to Sand Bay.

Sea Grass beds are present on both the east and west sides of Water Island. The beds occur in Limestone Bay, Sprat Bay, and Banana Bay on the east side of the island. The Sea Grass is more abundant on the west side of Water Island. On the west side of the island the sea grass is present in Ruyter Cove, Elephant Bay, and Providence Point.

Reference No. 4

21. If a release to surface water is observed or suspected, identify any intakes that are or may be actually contaminated by hazardous substance(s) attributed to an observed release from the site.

Although the assumption has been made that contaminants from the site have entered Flamingo Bay, the dilution of the contaminants in the ocean waters would make it highly unlikely that these contaminants would be detected in the ocean intakes that are used to supply part of the drinking water on St. Thomas. In addition, the ocean water is treated with reverse osmosis units prior to use. It is likely that any contaminants would be removed in this treatment process.

Reference No. 3

22. Identify whether the surface water is used for any of the following purposes, such as irrigation of commercial food or commercial forage crops, watering of commercial livestock, commercial food preparation, recreation, and potential drinking water supply.

The ocean is used as a recreation resource. There are several beaches on Water Island. In addition to the three drinking water intakes already existing on St. Thomas, it is possible that future intakes could be installed. However, water extracted from the ocean for drinking water purposes would need to be desalinated prior to use.

Reference No. 3 and 7

Soil Exposure Pathway

23. Determine the number of people that occupy residences or attend school or day care on or within 200 feet of observed contamination.

There are no schools or day care facilities on Water Island. There are approximately 5 homes just south of the landfill and test areas. Approximately 20 residents are located within 200 feet of the source areas. However, no areas of observed contamination were identified during the site inspection.

Reference No. 3

24. Determine the number of people that regularly work on or within 200 feet of observed contamination.

No one works within 200 feet of the source areas.

Reference No. 3

25. Identify terrestrial sensitive environments on or within 200 feet of observed contamination.

No terrestrial sensitive environments exist within 200 feet of the source areas.

Reference No. 3 and 4

26. Identify whether there are any of the following resource uses, such as commercial agriculture, silviculture, livestock production or grazing within an observed or suspected soil contaminated area.

There are no such resource uses on Water Island.

Reference No. 3

Air Pathway

27. Describe the likelihood of release of hazardous substance to air as follows: observed release, suspected release or none. Identify contaminants detected or suspected and provide a rationale for attributing them to the site. For observed releases, define the supporting analytical evidence and relationship to background.

A release of hazardous substances to the air may have occurred in the 1948-1950 time frame when the Army was active with the Tropical Test Program on Water Island. However, the chemicals released to the atmosphere during the test would not be expected to still be present today. The current uses of the landfill and test areas would not result in a release of hazardous substance to the air.

Reference No. 3

28. Determine populations that reside within 4 miles of the site.

Distance	Population
>0-1/4 mile	25
>1/4-1/2 mile	35
>1/2 – 1 mile	70

>1-2 miles	31
>2-3 miles	13,000
>3-4 miles	28,000

Reference No. 11 (Revision)

29. Identify the sensitive environments, including wetlands and associated wetlands acres, within 4 miles of the site.

Distance	Wetland Acreage	Environment
>0-1/4 mile	NA	Coral Reef at Flamingo Point
>1/4-1/2 mile	1.78 acres	Salt Pond at Limestone Bay
	NA	Coral Reef at Limestone Bay
>1/2 – 1 mile		Sea Grass in Druif Bay
>1-2 miles	0.98 acres	Salt Pond at Sands Bay
	1.38 acres	Salt Ponds on Sprat Point
	NA	Sea Grass in Elephant Bay
	NA	Sea Grass at Carolina Point
	NA	Sea Grass on Ruyter Cove
	NA	Sea Grass at Banana Point
>2-4 miles		None Identified
>3-4 miles		None Identified

Reference No. 4

30. If a release to air is observed or suspected, determine the number of people that reside or are suspected to reside within the area of air contamination from the release.

A release to the air was not observed and is not suspected.

Reference No. 3

31. If a release to air is observed or suspected, identify any sensitive environments, listed above in question No. 29, which are or may be located within the area of air contamination from the release.

A release to the air was not observed and is not suspected.

Reference No. 3

SUMMARY AND CONCLUSIONS

Since the 1940's, the Flamingo Bay landfill and Test Areas 4 and 5 have undergone both military and civilian uses. The landfill and test areas were used in association with the U.S. Tropical Test Program. The purpose of the Tropical Test Program was to determine the effectiveness of chemical munitions and defenses in jungle terrain and the effects on chemical munitions storage in tropical climates. This project was conducted on Water Island from 1948 until 1950.

During the mid-1960's two bombs (similar to the types used during the Tropical Test Program) were unearthed in the landfill indicating that the Army used this area for disposal purposes. Hotel operators subsequently used the landfill for disposal purposes.

A limited number of tests associated with the Tropical Test Program were conducted in Test Areas 4 and 5. These chemical weapons test and experiments included chemical agent such as mustard and tabun. Later, these two areas were used by the hotel operators and island residents for disposal site for items such as abandoned vehicles, construction debris, landscaping debris, and household generated trash and waste. Currently, Area 4 is being used to store approximately 86 abandoned vehicles. Area 5 is being used as a solid waste transfer station for the island.

A variety of visual site inspections and investigation of these three properties have been conducted by the U.S. Army and DOI since the early 1990s. None of the inspections identified obvious signs of contamination (i.e., discoloration of soils, stressed vegetation, odors, or adverse health effects on island residents). Environmental samples have been collected and analyzed to determine whether hazardous substance have been released to the environment.

In completing, the PA score sheets, assumptions were made that releases of contaminants to groundwater and nearby surface water (ocean) have occurred. These assumptions were made to evaluate the potential "worst-case" scenario. Even using these worst-case assumptions, the PA score for this site is an 11. There are two factors that mitigate the potential risks associated with these properties. The first factor is that the groundwater is not used as a source of drinking water on the island. In fact, ground water is not used at all on the island since there are no active wells on the island. The second factor is that the closest surface water is the ocean. Both ground water and surface water run-off discharge to the ocean. Because these waters discharge to the ocean, the dilution of any possible contaminants from Water Island is expected to be significant. Therefore, it was thought to be unlikely that any potential contaminants from the three sites would adversely impact human health or the environment.

However, the EPA Region 2 required an SI as follow-up to the PA. With the cooperation of the Army CEJAC and USAESCH, an investigation involving field sampling took place in May/ June 2003. The results of that event based on comparison to EPA Region 3 Risk Based Concentrations for human exposure (Appendix E) indicate that there has not been a release of hazardous material contamination, which demonstrates a potential risk to human health or the environment, in the Test Areas 4, 5, and the Flamingo Bay Landfill. The site was scored using the EPA Quickscore HRS system available from the EPA website. Arsenic and Lead concentrations were used to calculate the HRS with a result of a 7.21 score for the site. The printed score sheets are in Appendix F.

A consolidated pile of debris suspected of containing asbestos was discovered in the process of sampling Test Area 4. The pile is partially buried with vegetation overgrowing the area and has not been disturbed. The pile appears to have been present for many years based on observance of the size of trees, mold, and vegetation existing with it. It is thought to be associated with debris collection after the 1989 and 1995 Hurricanes that devastated the island. The soil and vegetation cover, and the moist tropical climate are not conducive to release of asbestos into the environment. Monitoring in the Area during sampling activities indicated asbestos was not being released. Monitoring results are included with data in Appendix C. DOI is currently in the process of contracting for removal from the island, and disposal in an appropriate landfill, of the suspected asbestos material discovered in Test Area 4. The contracted removal activity will occur in mid June 2004.

Test Area 8, which was transferred to the USVI Government in 1996, shows soil concentration of dieldrin above the industrial RBC of 180 ug/ kg in five of the nine investigative samples and in both of the background samples. Dieldrin does not exceed the HRS SCDM concentration level; and Test Area 8 is no longer part of the Federal Facility, and therefore not scored with the site. EPA approved dieldrin for use for termite control during the Army and DOI activities at the site and the pesticide is presumed to have been used accordingly, as legally allowed at that time. Dieldrin is very persistent and remains in soil for an extensive time. These results of the sampling are being discussed with USVI Government, and meetings scheduled for June 2004. Appropriate actions regarding the presence of dieldrin will be undertaken according to the terms of the 1996 land transfer agreement between DOI and the VI Government.

In addition to HWM testing of the areas of concern, Parsons and USACE conducted an EO and CWM investigation of the site and produced the draft final EE/CA Report for the former Ft. Segarra. No EO or CWM was detected in that investigation. No Department of Defense Action Indicated (NDAI) with minimal Site-wide Institutional Controls (IC) is the recommended alternative in the draft final Army EE/CA Report. The Report recommends IC for Test Area 4, Test Area 5, and the Flamingo Bay Landfill Area in the form of signage and brochures informing the public of previous Army activity at the site. In addition to the NDAI with IC, the draft final EE/CA Report recommends as part of the alternative for Flamingo Bay Landfill Area, the removal of two items in that area identified during the investigation. The two items are to be treated as 3X items. An item treated as 3X scrap indicates that the item has been surface decontaminated of any possible chemical warfare agent or residual by locally approved procedures, bagged or contained in an agent-tight barrier, and appropriate tests have verified that concentrations for agent do not exist.

The draft final EE/CA Report discusses fencing as part of possible alternatives, but fencing is not included in the alternative chosen by the Army. The draft final EE/CA notes "the possibility does exist that 3X scrap and or residual soil contamination does remain within the area". DOD assigned a safety risk of "low" to all of the areas. In comments on the draft final EE/CA Report (April 12, 2004), DOI requests that the Army revise the EE/CA document to include fencing of the Flamingo Bay Landfill Area. The EE/CA document characterizes fencing as both effective and cost-effective. In general, multiple institutional controls are deemed appropriate to address residual risks. It is the opinion of DOI that the signage and educational brochures chosen as appropriate should not replace other appropriate measures such as fencing, but should rather be a supplement to those measures. The parties are currently in negotiation.

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14. URS Corporation. July 17, 2001. Site Assessment Report, Flamingo Bay Army Test Areas, Water Island, VI.

Appendix A

Photos

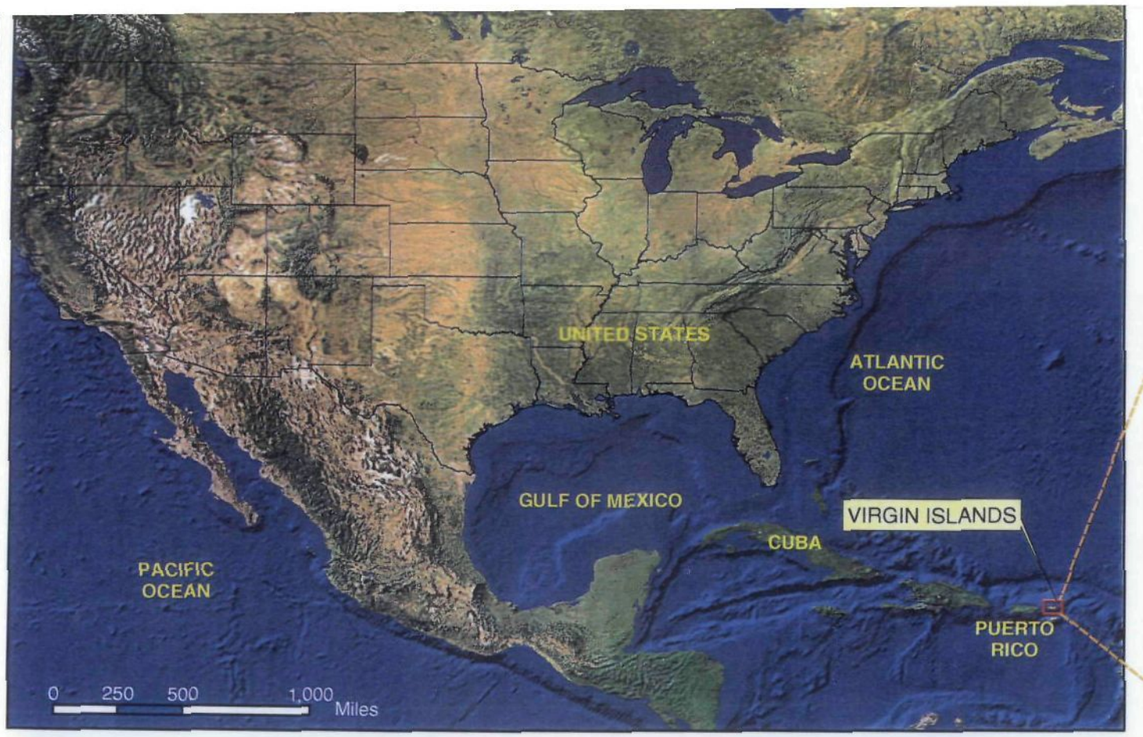
Appendix B

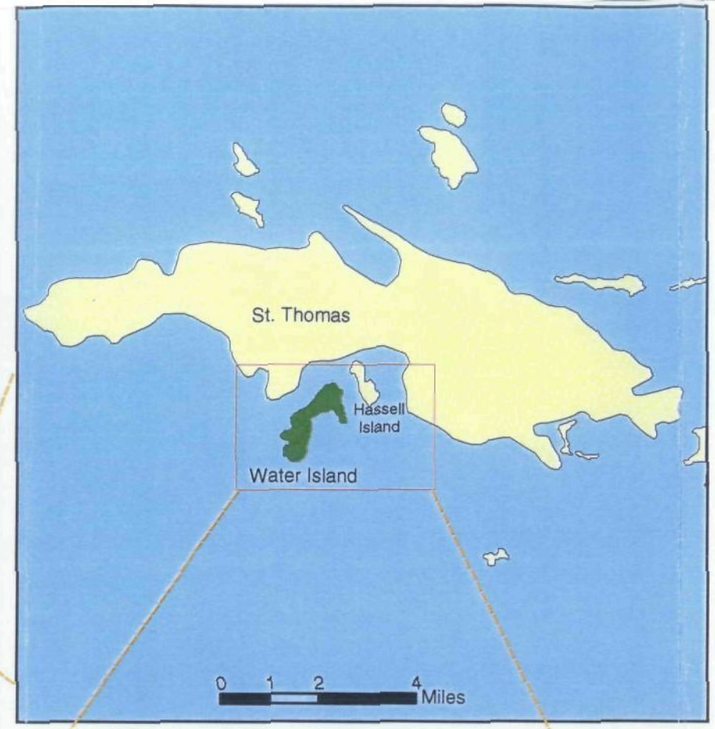
Sample Locations Figures

Figure 2.1

Location of Former Fort Segarra

Water Island, U.S. Virgin Islands





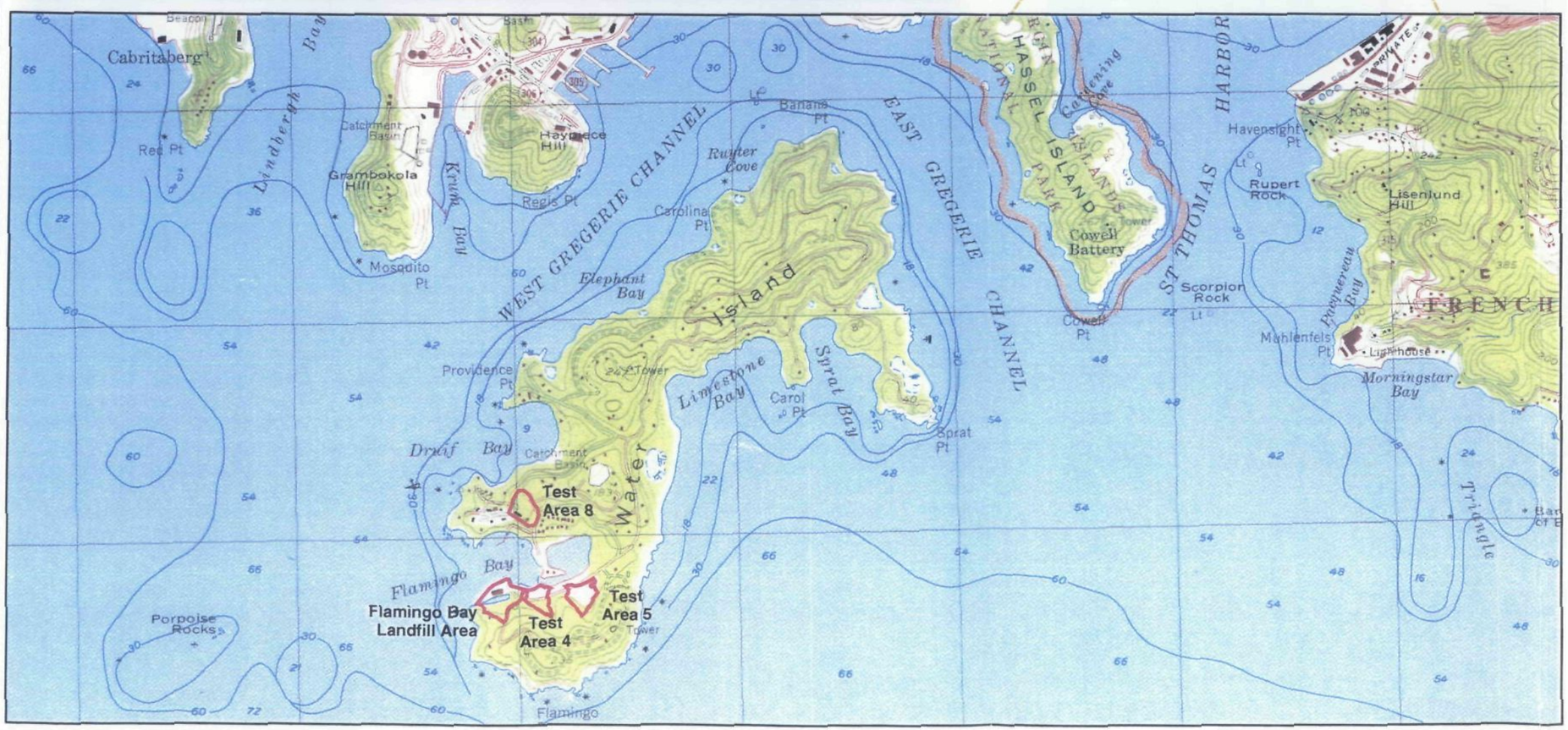


Image Source: ESRI World Shaded Relief Map, Published 2002, and USGS Topographic Map.

Legend

Test Area Boundaries (MTA, 1994)

PARSONS		U.S. ARMY CORPS OF ENGINEERS HUNTSVILLE CENTER
DESIGNED BY: BT	Location of Former Fort Segarra Water Island, U.S. Virgin Islands	
DRAWN BY: BT		
CHECKED BY: JM	SCALE: As Shown	PROJECT NUMBER: 742325
SUBMITTED BY: TR	DATE: December 2003	PAGE NUMBER: 2 - 9
	FILE: x:\gis\739122\gis\maps\draft_eeca\figure2_1_loc.mxd	

Figure 2.2

Areas of Interest

Former Fort Segarra
Water Island, U.S. Virgin Islands

Legend

Boundary of Area of Interest

Image Source: USGS Topographic Map.
Coordinate System: State Plane PR Virgin Islands, NAD83, Units in Feet.

1,000 500 0 1,000 Feet

N

PARSONS	U.S. ARMY CORPS OF ENGINEERS HUNTSVILLE CENTER
DESIGNED BY: BT	Areas of Interest
DRAWN BY: BT	
CHECKED BY: JM	SCALE: As Shown — PROJECT NUMBER: 732325
SUBMITTED BY: TR	DATE: December 2003 — PAGE NUMBER: 2 - 10
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Flamingo Bay

TA4 SB7
TA4 SB6
TA4 SB5
TA4 SB4
TA4 SB3
TA4 SB1
TA4 SBK 2
TA4 TP5
TA4 TP3
TA4 TP4
TA4 TP9
TA4 TP2
TA4 TP8
TA4 TP1
TA4 TP12
TA4 TP7
TA4 TP11
TA4 TP6
TA4 TP10
TA4 SBK 1

1168000
1168200
1168400
831600
831400
831200

Figure 4.1
Sample Locations Test Area 4

Former Fort Segarra
Water Island, U.S. Virgin Islands

Legend

- Sample Location
- Test Area 4 Boundary

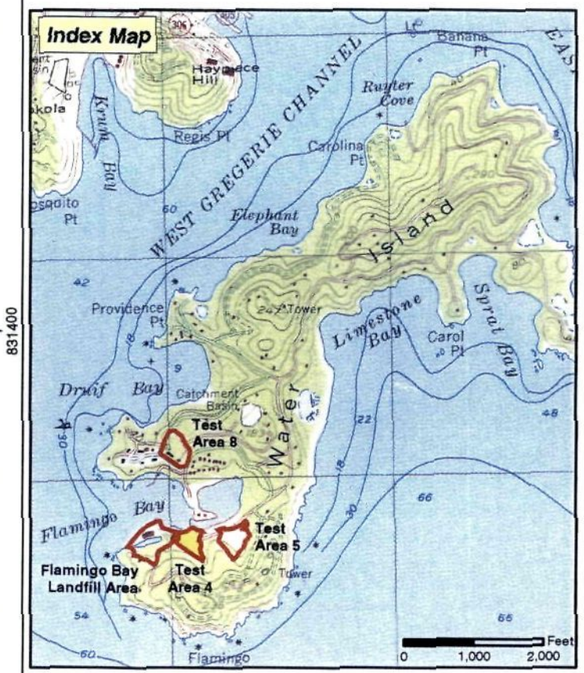

Image Source: MTA Investigation, 1994.
Coordinate System: State Plane PR Virgin Islands, NAD83, Units in Feet.

60 30 0 60 Feet

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DRAWN BY: BT	
CHECKED BY: JM	SCALE: As Shown — PROJECT NUMBER: 742325
SUBMITTED BY: TR	DATE: December 2003 — PAGE NUMBER: 4 - 15
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Figure 4.2

Sample Locations Test Area 5

Former Fort Segarra
Water Island, U.S. Virgin Islands

Legend

- Sample Location
- Trench/Test Pit
- Test Area 5 Boundary

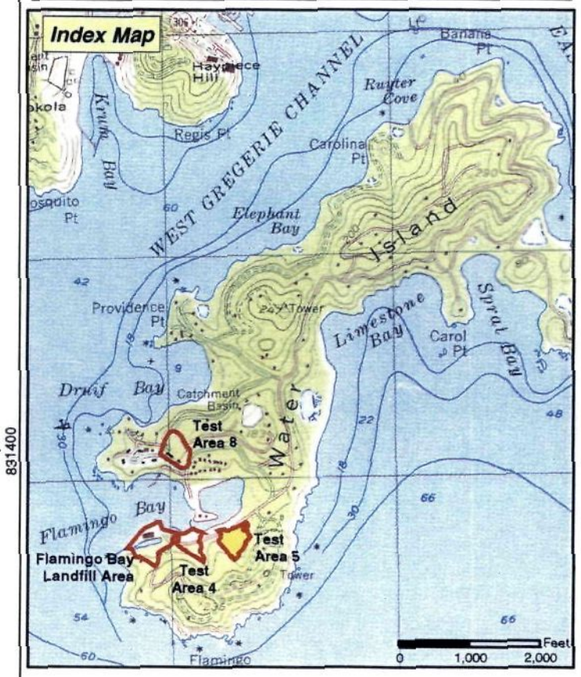

Image Source: MTA Investigation, 1994.
Coordinate System: State Plane PR Virgin Islands, NAD83, Units in Feet.

60 30 0 60 Feet

N

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SUBMITTED BY: TR	DATE: December 2003 — PAGE NUMBER: 4 - 16
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Figure 4.3

Sample Locations Test Area 8

Former Fort Segarra
Water Island, U.S. Virgin Islands

TA8 SB01
TA8 SB02
TA8 SB03
TA8 SB04
TA8 SB05
TA8 SB06
TA8 SBK1
TA8 SB07
TA8 SB08
TA8 SB09
TA8 SB10
TA8 SBK2

1167600
1167800
1168000
1168200
833000
832800
832600

Legend

- Sample Location
- Test Area 8 Boundary

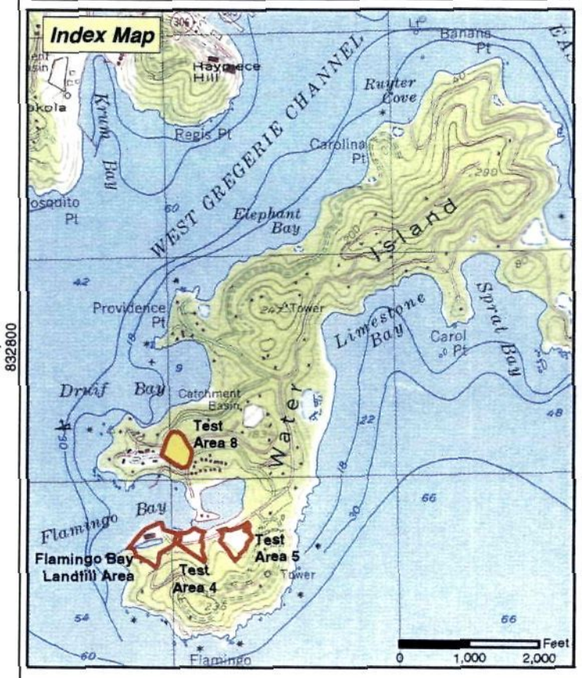

Image Source: Engineering Drawings, Dated 1991, by Lowe Engineers, and Mosaicked by TEC.
Coordinate System: State Plane PR Virgin Islands, NAD83, Units in Feet.

60 30 0 60 Feet

N

PARSONS	U.S. ARMY CORPS OF ENGINEERS HUNTSVILLE CENTER
DESIGNED BY: BT	Sample Locations Test Area 8
DRAWN BY: BT	
CHECKED BY: JM	SCALE: As Shown; PROJECT NUMBER: 732325
SUBMITTED BY: TR	DATE: December 2003; PAGE NUMBER: 4 - 17
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Figure 4.4

Sample Locations
Flamingo Bay Landfill Area

Former Fort Segarra
Water Island, U.S. Virgin Islands

Legend

- Sample Location
- Flamingo Bay Landfill Area Boundary

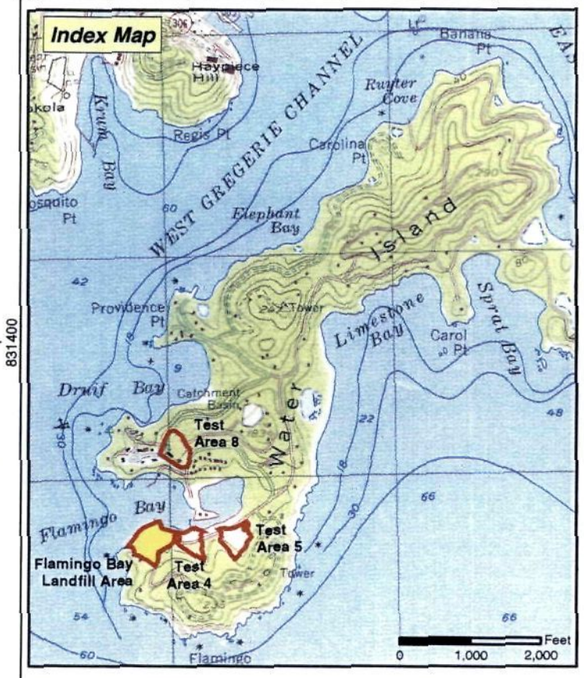

Image Source: MTA Investigation, 1994.
Coordinate System: State Plane PR Virgin Islands, NAD83, Units in Feet.

70 35 0 70 Feet

N

PARSONS	U.S. ARMY CORPS OF ENGINEERS HUNTSVILLE CENTER
DESIGNED BY: BT	Sample Locations Flamingo Bay Landfill Area
DRAWN BY: BT	
CHECKED BY: JM	SCALE: As Shown — PROJECT NUMBER: 732325
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Appendix C

Analytical Data

Analytical Results Summary
Test Area 4 - Former Fort Segarra, Water Island, USVI

Parameter, Units	Compound / Analyte	Sample ID / Date Collected	FS-TA4-SB4-1-2.5' 6/4/2003	FS-TA4-SB3-S1-0'-2' 6/2/2003	FS-TA4-SB3-1-18' 6/2/2003	FS-TA4-SB1-1-3' 6/3/2003	FS-TA4-SB2-S1-0'-2' 6/3/2003	FS-TA4-SB5-1-3' 6/5/2003	FS-TA4-TP6-S1-0'-2' 6/5/2003	FS-TA4-TP6-1-5.5' 6/5/2003
Metals, mg/kg										
SW6010B	Silver		1.3 U	1 U	1.1 U	1.1 U	0.96 U	1.1 U	1.1 U	1.2 U
	Aluminum		36000	31000	20000	13000	14000	5300	10000	9400
	Arsenic		1.5 J	5.5	4.2	6.9	16	4.9 J	4	1.8 J
	Barium		43	77	32	23	29	19	21	23
	Beryllium		0.32 J	0.24 J	0.22 J	0.15 J	0.15 J	0.085 J	0.19 J	0.16 J
	Calcium		26000	87000	140000	220000	200000	300000	220000	270000
	Cadmium		0.72	1	0.83	0.69	0.63	0.29 J	1.2	0.53 J
	Cobalt		18 J	26	16	7	12	2.2	5.1	3.2
	Chromium		28	19	18	18	28	22 J	12	9.4
	Copper		37	50	74	34	91	9.9	33	15
	Iron		51000	50000	41000	19000	26000	6400	20000	11000
	Potassium		2000	1200	1100	1200	1000	750 J	1400	1700
	Magnesium		25000	29000	19000	15000	15000	9000 J	12000	10000
	Manganese		820	1000	670	340	580	170 J	330	220
	Sodium		5700 J	2200	2600	3600	2300	4600	3300	5600
	Nickel		15	15	12	5.9	8.3	2.6 J	7.4	4.1 J
	Lead		2.5	5.8	15	22	9.1	5.3	46	16
	Antimony		2.5 U	2.1 U	2.2 U	2.2 U	1.9 U	2.1 U	0.79 J	2.4 U
	Selenium		3 U	2.5 U	2.7 U	2.7 U	2.3 U	2.6 U	2.6 U	2.8 U
	Strontium		180	1300	1900	3000	3300	4400	2900	3500
	Thallium		3.6 U	5.8 U	3.1 U	3.1 U	2.7 U	3 U	3.1 U	3.3 U
	Vanadium		190	210	130	67	94	19	48	28
	Zinc		49	70 J	170 J	160 J	65 J	23	60	40
Mercury, mg/kg										
SW7471	Mercury		0.022 J	0.012 J	0.016 J	0.019 J	0.012 J	0.0081 J	0.016 J	0.013 J
Pesticides, ug/kg										
SW8081A	Aldrin		2.3 U	1.9 U	2 U	2 U	1.8 U	2 U	2.1 U	2.2 U
	alpha-BHC		2.3 U	1.9 U	2 U	2 U	1.8 U	2 U	2.1 U	2.2 U
	beta-BHC		2.3 U	1.9 U	2 U	2 U	1.8 U	2 U	2.1 U	2.2 U
	gamma-BHC (Lindane)		2.3 U	1.9 U	2 U	2 U	1.8 U	2 U	2.1 U	2.2 U
	delta-BHC		2.3 U	1.9 U	2 U	2 U	1.8 U	2 U	2.1 U	2.2 U
	Chlordane (technical)		23 U	19 U	20 U	20 U	18 U	20 U	21 U	22 U
	4,4'-DDT		4.5 U	3.8 U	0.44 J	4 U	3.5 U	3.9 U	4 U	4.2 U
	Endosulfan I		2.3 U	1.9 U	2 U	2 U	1.8 U	2 U	2.1 U	2.2 U
	Endosulfan II		4.5 U	3.8 U	3.8 U	4 U	3.5 U	3.9 U	4 U	4.2 U
	4,4'-DDE		4.5 U	3.8 U	3.8 U	4 U	3.5 U	3.9 U	4 U	4.2 U
	4,4'-DDD		4.5 U	3.8 U	3.8 U	4 U	3.5 U	3.9 U	4 U	4.2 U
	Dieldrin		4.5 U	3.8 U	3.8 U	4 U	3.5 U	3.9 U	4 U	4.2 U
	Endosulfan sulfate		4.5 U	3.8 U	3.8 U	4 U	3.5 U	3.9 U	4 U	4.2 U
	Endrin		4.5 U	3.8 U	3.8 U	4 U	3.5 U	3.9 U	4 U	4.2 U
	Endrin aldehyde		4.5 U	3.8 U	3.8 U	4 U	3.5 U	3.9 U	4 U	4.2 U
	Heptachlor		2.3 U	1.9 U	2 U	2 U	1.8 U	2 U	2.1 U	2.2 U
	Heptachlor epoxide		2.3 U	1.9 U	2 U	2 U	1.8 U	2 U	2.1 U	2.2 U
	Toxaphene		230 U	190 U	200 U	200 U	180 U	200 U	210 U	220 U
	Endrin ketone		4.5 U	3.8 U	3.8 U	4 U	3.5 U	3.9 U	4 U	4.2 U
	Methoxychlor		23 U	19 U	20 U	20 U	18 U	20 U	21 U	22 U

Analytical Results Summary
Test Area 4 - Former Fort Segarra, Water Island, USVI

Parameter, Units	Compound / Analyte	Sample ID / Date Collected	FS-TA4-SB4-1-2.5' 6/4/2003	FS-TA4-SB3-S1-0'-2' 6/2/2003	FS-TA4-SB3-1-18' 6/2/2003	FS-TA4-SB1-1-3' 6/3/2003	FS-TA4-SB2-S1-0'-2' 6/3/2003	FS-TA4-SB5-1-3' 6/5/2003	FS-TA4-TP6-S1-0'-2' 6/5/2003	FS-TA4-TP6-1-5.5' 6/5/2003
PCBs, ug/kg										
SW8082	Aroclor-1242		45 U	38 U	38 U	40 U	35 U	39 U	40 U	42 U
	Aroclor-1254		45 U	38 U	38 U	40 U	35 U	39 U	40 U	42 U
	Aroclor-1221		92 U	76 U	78 U	81 U	70 U	79 U	82 U	85 U
	Aroclor-1232		45 U	38 U	38 U	40 U	35 U	39 U	40 U	42 U
	Aroclor-1248		45 U	38 U	38 U	40 U	35 U	39 U	40 U	42 U
	Aroclor-1260		45 U	38 U	38 U	40 U	35 U	39 U	40 U	42 U
	Aroclor-1016		45 U	38 U	38 U	40 U	35 U	39 U	40 U	42 U
Herbicides, ug/kg										
SW8151A	2,4,5-TP (Silvex)		11 U	9.4 U	9.6 U	10 U	8.7 U	9.8 U	10 U	10 U
	2,4-DB		13 U	10 U	11 U	11 U	9.8 U	11 U	11 U	12 U
	2,4-D		11 U	9.4 U	9.6 U	10 U	8.7 U	9.8 U	10 U	10 U
	2,4,5-T		8.2 J	2.2 J	9.6 U	10 U	8.7 U	9.8 U	10 U	10 U
	Pentachlorophenol		23 U	19 U	20 U	20 U	18 U	20 U	21 U	22 U
	Dalapon		2700 U	2300 U	2300 U	2400 U	2100 U	2400 U	2400 U	2500 U
	Dicamba		8.2 J	23 U	23 U	24 U	21 U	24 U	24 U	25 U
	Dichloroprop		140 U	110 U	120 U	120 U	100 U	120 U	120 U	130 U
	Dinoseb		140 U	110 U	120 U	120 U	100 U	120 U	120 U	130 U
	MCPA		2700 U	2300 U	2300 U	2400 U	2100 U	2400 U	2400 U	2500 U
	MCPP		5100 J	2300 U	2300 U	2400 U	390 J	2400 U	2400 U	2500 U
Semivolatiles, ug/kg										
SW8270C	2-Chlorophenol		450 U	380 U	380 U	400 U	350 U	390 U	400 U	420 U
	Acenaphthene		450 U	380 U	380 U	400 U	350 U	390 U	400 U	420 U
	2,2'-Oxybis(1-Chloropropane) (bis-2-chloroisopropyl ether)		450 U	380 U	380 U	400 U	350 U	390 U	400 U	420 U
	2-Nitroaniline		2300 U	1900 U	2000 U	2000 U	1800 U	2000 U	2100 U	2200 U
	2-Methylnaphthalene		450 U	380 U	380 U	400 U	350 U	390 U	370 J	420 U
	2-Methylphenol (o-Cresol)		450 U	380 U	380 U	400 U	350 U	390 U	400 U	420 U
	2,4-Dichlorophenol		450 U	380 U	380 U	400 U	350 U	390 U	400 U	420 U
	Acenaphthylene		450 U	380 U	380 U	400 U	350 U	390 U	400 U	420 U
	3-Nitroaniline		2300 U	1900 U	2000 U	2000 U	1800 U	2000 U	2100 U	2200 U
	2,4-Dimethylphenol		450 U	380 U	380 U	400 U	350 U	390 U	400 U	420 U
	Anthracene		450 U	380 U	380 U	400 U	350 U	390 U	400 U	420 U
	4,6-Dinitro-2-methylphenol		2300 U	1900 U	2000 U	2000 U	1800 U	2000 U	2100 U	2200 U
	4-Chloroaniline		900 U	750 U	770 U	800 U	690 U	780 U	800 U	840 U
	4-Chloro-3-methylphenol		450 U	380 U	380 U	400 U	350 U	390 U	400 U	420 U
	3-Methylphenol/4-Methylphenol (m&p-Cresol)		450 U	380 U	380 U	400 U	350 U	390 U	400 U	420 U
	4-Nitroaniline		2300 U	1900 U	2000 U	2000 U	1800 U	2000 U	2100 U	2200 U
	Benzidine		3700 U	3100 U	3100 U	3200 U	2800 U	3200 U	3300 U	3400 U
	2,4-Dinitrophenol		2300 U	1900 U	2000 U	2000 U	1800 U	2000 U	2100 U	2200 U
	2-Nitrophenol		450 U	380 U	380 U	400 U	350 U	390 U	400 U	420 U
	Benzo(a)pyrene		450 U	380 U	380 U	400 U	350 U	390 U	400 U	420 U
	4-Nitrophenol		2300 U	1900 U	2000 U	2000 U	1800 U	2000 U	2100 U	2200 U
	Acetophenone		450 U	380 U	380 U	400 U	350 U	390 U	400 U	420 U
	Aniline		450 U	380 U	380 U	400 U	350 U	390 U	400 U	420 U
	Benzo(a)anthracene		450 U	380 U	380 U	400 U	350 U	390 U	400 U	420 U
	2,6-Dichlorophenol		450 U	380 U	380 U	400 U	350 U	390 U	400 U	420 U
	Benzo(b)fluoranthene		450 U	380 U	380 U	400 U	350 U	390 U	400 U	420 U
	Diethylphthalate		450 U	380 U	380 U	400 U	350 U	390 U	400 U	420 U
	Hexachloropropene		450 U	380 U	380 U	400 U	350 U	390 U	400 U	420 U
	2-Naphthylamine		580 U	480 U	490 U	510 U	440 U	490 U	510 U	530 U
	N-Nitrosopyrrolidine		450 U	380 U	380 U	400 U	350 U	390 U	400 U	420 U

Analytical Results Summary
Test Area 4 - Former Fort Segarra, Water Island, USVI

Parameter, Units	Compound / Analyte	Sample ID / Date Collected	FS-TA4-SB4-1-2.5' 6/4/2003	FS-TA4-SB3-S1-0'-2' 6/2/2003	FS-TA4-SB3-1-18' 6/2/2003	FS-TA4-SB1-1-3' 6/3/2003	FS-TA4-SB2-S1-0'-2' 6/3/2003	FS-TA4-SB5-1-3' 6/5/2003	FS-TA4-TP6-S1-0'-2' 6/5/2003	FS-TA4-TP6-1-5.5' 6/5/2003
	Pyridine		450 U	380 U	380 U	400 U	350 U	390 U	400 U	420 U
	1,2,4,5-Tetrachlorobenzene		450 U	380 U	380 U	400 U	350 U	390 U	400 U	420 U
	2,4,5-Trichlorophenol		450 U	380 U	380 U	400 U	350 U	390 U	400 U	420 U
	Benzo(g,h,i)perylene		450 U	380 U	380 U	400 U	350 U	390 U	400 U	420 U
	Pentachlorophenol		2300 U	1900 U	2000 U	2000 U	1800 U	2000 U	2100 U	2200 U
	Phenol		450 U	380 U	380 U	400 U	350 U	390 U	400 U	420 U
	bis(2-Chloroethoxy)methane		450 U	380 U	380 U	400 U	350 U	390 U	400 U	420 U
	2,4,6-Trichlorophenol		450 U	380 U	380 U	400 U	350 U	390 U	400 U	420 U
	bis(2-Chloroethyl)ether		450 U	380 U	380 U	400 U	350 U	390 U	400 U	420 U
	bis(2-Ethylhexyl)phthalate		280 J	86 J	110 J	91 J	99 J	390 U	700	420 U
	4-Bromophenylphenyl ether		450 U	380 U	380 U	400 U	350 U	390 U	400 U	420 U
	Butylbenzylphthalate		450 U	380 U	380 U	400 U	350 U	390 U	84 J	420 U
	2-Chloronaphthalene		450 U	380 U	380 U	400 U	350 U	390 U	400 U	420 U
	4-Chlorophenylphenyl ether		450 U	380 U	380 U	400 U	350 U	390 U	400 U	420 U
	Chrysene		450 U	380 U	380 U	400 U	350 U	390 U	400 U	420 U
	Dibenzo(a,h)anthracene		450 U	380 U	380 U	400 U	350 U	390 U	400 U	420 U
	1,2-Dichlorobenzene		450 U	380 U	380 U	400 U	350 U	390 U	400 U	420 U
	1,3-Dichlorobenzene		450 U	380 U	380 U	400 U	350 U	390 U	400 U	420 U
	1,4-Dichlorobenzene		450 U	380 U	380 U	400 U	350 U	390 U	400 U	420 U
	3,3'-Dichlorobenzidine		900 U	750 U	770 U	800 U	690 U	780 U	800 U	840 U
	Dimethylphthalate		450 U	380 U	380 U	400 U	350 U	390 U	400 U	420 U
	Di-n-butylphthalate		450 U	380 U	380 U	400 U	56 J	390 U	400 U	420 U
	2,4-Dinitrotoluene		450 U	380 U	380 U	400 U	350 U	390 U	400 U	420 U
	2,6-Dinitrotoluene		450 U	380 U	380 U	400 U	350 U	390 U	400 U	420 U
	Di-n-octylphthalate		450 U	380 U	380 U	400 U	350 U	390 U	400 U	420 U
	1,2-Diphenylhydrazine		450 U	380 U	380 U	400 U	350 U	390 U	400 U	420 U
	Fluoranthene		450 U	380 U	380 U	400 U	350 U	390 U	400 U	420 U
	Fluorene		450 U	380 U	380 U	400 U	350 U	390 U	400 U	420 U
	Hexachlorobenzene		450 U	380 U	380 U	400 U	350 U	390 U	400 U	420 U
	Hexachlorobutadiene		450 U	380 U	380 U	400 U	350 U	390 U	400 U	420 U
	Hexachlorocyclopentadiene		1100 U	920 U	940 U	980 U	850 U	950 U	990 U	1000 U
	Hexachloroethane		450 U	380 U	380 U	400 U	350 U	390 U	400 U	420 U
	Indeno(1,2,3-cd)pyrene		450 U	380 U	380 U	400 U	350 U	390 U	400 U	420 U
	Isophorone		450 U	380 U	380 U	400 U	350 U	390 U	400 U	420 U
	Naphthalene		450 U	380 U	380 U	400 U	350 U	390 U	120 J	420 U
	Nitrobenzene		450 U	380 U	380 U	400 U	350 U	390 U	400 U	420 U
	N-Nitrosodimethylamine		820 U	680 U	700 U	720 U	630 U	700 U	730 U	760 U
	N-Nitrosodiphenylamine		450 U	380 U	380 U	400 U	350 U	390 U	400 U	420 U
	Phenanthrene		450 U	380 U	380 U	400 U	350 U	390 U	400 U	420 U
	Pyrene		450 U	380 U	380 U	400 U	350 U	21 J	400 U	420 U
	1,2,4-Trichlorobenzene		450 U	380 U	380 U	400 U	350 U	390 U	400 U	420 U
	Benzo(k)fluoranthene		450 U	380 U	380 U	400 U	350 U	390 U	400 U	420 U
	Benzoic acid		2300 U	1900 U	2000 U	2000 U	1800 U	2000 U	2100 U	2200 U
	Benzyl alcohol		450 U	380 U	380 U	400 U	350 U	390 U	400 U	420 U
	Dibenzofuran		450 U	380 U	380 U	400 U	350 U	390 U	400 U	420 U
	N-Nitroso-di-n-propylamine		450 U	380 U	380 U	400 U	350 U	390 U	400 U	420 U
Explosives, ug/kg										
SW8330	2,4,6-Trinitrotoluene		250 U	250 U	250 U	250 U	250 U	250 U	250 U	250 U
	2-Nitrotoluene		250 U	250 U	250 U	250 U	250 U	250 U	250 U	250 U
	3-Nitrotoluene		420 U	420 U	420 U	420 U	420 U	420 U	420 U	420 U
	4-Nitrotoluene		390 U	390 U	390 U	390 U	390 U	390 U	390 U	390 U
	Nitrobenzene		390 U	390 U	390 U	390 U	390 U	390 U	390 U	390 U
(HMX)	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine		500 U	500 U	500 U	500 U	500 U	500 U	500 U	500 U

Analytical Results Summary
Test Area 4 - Former Fort Segarra, Water Island, USVI

Parameter, Units	Compound / Analyte	Sample ID / Date Collected	FS-TA4-SB4-1-2.5' 6/4/2003	FS-TA4-SB3-S1-0'-2' 6/2/2003	FS-TA4-SB3-1-18' 6/2/2003	FS-TA4-SB1-1-3' 6/3/2003	FS-TA4-SB2-S1-0'-2' 6/3/2003	FS-TA4-SB5-1-3' 6/5/2003	FS-TA4-TP6-S1-0'-2' 6/5/2003	FS-TA4-TP6-1-5.5' 6/5/2003
(RDX)	Hexahydro-1,3,5-trinitro-1,3,5-triazine		500 U	500 U	500 U	500 U	500 U	500 U	500 U	500 U
(Tetryl)	Methyl-2,4,6-trinitrophenylnitramine		660 U	660 U	660 U	660 U	660 U	660 U	660 U	660 U
	1,3,5-Trinitrobenzene		250 U	250 U	250 U	250 U	250 U	250 U	250 U	250 U
	2,4-Dinitrotoluene		250 U	250 U	250 U	250 U	250 U	250 U	250 U	250 U
	2,6-Dinitrotoluene		500 U	500 U	500 U	500 U	500 U	500 U	500 U	500 U
	1,3-Dinitrobenzene									
	4-Amino-2,6-Dinitrotoluene									
	2-Amino-4,6-Dinitrotoluene									
Cyanide, mg/kg										
SW9012A	Cyanide		0.88 U	0.82 U	0.85 U	0.89 U	0.77 U	0.86 U	0.9 U	0.91 U

QA/QC samples not used in calculating site average

Background samples

Residence samples

Surface samples

Concentrations exceed background threshold (inorganic) or RL (organic and cyanide)

exceeds SCDM. Used for HRS score

Analytical Results Summary
Test Area 4 - Former Fort Segarra, Water Island, USVI

Parameter,		FS-TA4-TP1-1-4.5'		FS-TA4-TP10-1-3'		FS-TA4-TP8-1-5.5'		FS-TA4-SB2-1-2.5'		FS-TA4-SB2-1B-2.5'		FS-TA4-SB7-1-3.5'		FS-TA4-SB6-1-3'		FS-TA4-SR-1-0'-2'	
Units	Compound / Analyte	6/5/2003		6/5/2003		6/5/2003		6/4/2003		6/4/2003		6/4/2003		6/4/2003		6/16/2003	
Metals, mg/kg																	
SW6010B	Silver	1.3	U	1.2	U	1.4	U	1.1	U	1	U	1.3	U	1.1	U	1	U
	Aluminum	14000		9700		11000		29000		29000		9400		11000		23000	
	Arsenic	3.6		3.6		2.4	J	6.2	J	4.4	J	4.9	J	1.6	J	1.7	J
	Barium	21		19		18		40		34		17		23		40	
	Beryllium	0.23	J	0.15	J	0.17	J	0.27	J	0.31	J	0.13	J	0.13	J	0.27	J
	Calcium	210000		220000		210000		29000		37000		260000		260000		13000	
	Cadmium	0.87		0.72		0.72		1.3		1.2		0.5	J	0.63		0.98	
	Cobalt	5.2		4.8		4.2		24		20		5.3		7.2		15	
	Chromium	12		8.1		9.9		23	J	26	J	8.8	J	8.8	J	7.3	
	Copper	19		14		15		40		37		16		16		51	
	Iron	17000		15000		14000		48000		49000		14000		16000		35000	
	Potassium	2000		1300		1500		1000	J	1400	J	810	J	840	J	1700	
	Magnesium	13000		13000		12000		31000	J	22000	J	12000	J	13000	J	14000	
	Manganese	340		350		270		910	J	780	J	280	J	410	J	930	
	Sodium	5100		3200		3300		1400		1600		3500		3900		390	
	Nickel	6.4		5.1		4.9	J	14		12		3.9	J	5.3		7.4	
	Lead	11		8.7		10		2.1		2.5		2.7		5.8		3.5	
	Antimony	2.5	U	2.5	U	2.8	U	2.2	U	2	U	2.6	U	2.2	U	2	U
	Selenium	3	U	2.9	U	3.3	U	2.6	U	2.4	U	3.1	U	2.7	U	2.4	U
	Strontium	2700		2900		2600		370		470		4000		3500		120	
	Thallium	3.5	U	3.4	U	3.9	U	3	U	2.8	U	3.6	U	3.1	U	2.8	U
	Vanadium	47		45		43		200		210		56		59		100	
	Zinc	40		31		35		61		48		25		28		82	
Mercury, mg/kg																	
SW7471	Mercury	0.022	J	0.017	J	0.013	J	0.0079	J	0.0075	J	0.0065	J	0.014	J	0.0069	J
Pesticides, ug/kg																	
SW8081A	Aldrin	2.2	U	2.2	U	2.5	U	1.9	U	1.9	U	2.4	U	2	U	1.8	U
	alpha-BHC	2.2	U	2.2	U	2.5	U	1.9	U	1.9	U	2.4	U	2	U	1.8	U
	beta-BHC	2.2	U	2.2	U	2.5	U	1.9	U	1.9	U	2.4	U	2	U	1.8	U
	gamma-BHC (Lindane)	2.2	U	2.2	U	2.5	U	1.9	U	1.9	U	2.4	U	2	U	1.8	U
	delta-BHC	2.2	U	2.2	U	2.5	U	1.9	U	1.9	U	2.4	U	2	U	1.8	U
	Chlordane (technical)	22	U	22	U	25	U	19	U	19	U	24	U	20	U	18	U
	4,4'-DDT	4.3	U	4.3	U	4.9	U	3.7	U	3.7	U	4.7	U	3.9	U	3.6	U
	Endosulfan I	2.2	U	2.2	U	2.5	U	1.9	U	1.9	U	2.4	U	2	U	1.8	U
	Endosulfan II	4.3	U	4.3	U	4.9	U	3.7	U	3.7	U	4.7	U	3.9	U	3.6	U
	4,4'-DDE	4.3	U	4.3	U	4.9	U	3.7	U	3.7	U	4.7	U	3.9	U	3.6	U
	4,4'-DDD	4.3	U	4.3	U	4.9	U	3.7	U	3.7	U	4.7	U	3.9	U	3.6	U
	Dieldrin	4.3	U	4.3	U	4.9	U	3.7	U	3.7	U	6.8		3.9	U	3.6	U
	Endosulfan sulfate	4.3	U	4.3	U	4.9	U	3.7	U	3.7	U	4.7	U	3.9	U	3.6	U
	Endrin	4.3	U	4.3	U	4.9	U	3.7	U	3.7	U	4.7	U	3.9	U	3.6	U
	Endrin aldehyde	4.3	U	4.3	U	4.9	U	3.7	U	3.7	U	4.7	U	3.9	U	3.6	U
	Heptachlor	2.2	U	2.2	U	2.5	U	1.9	U	1.9	U	2.4	U	2	U	1.8	U
	Heptachlor epoxide	2.2	U	2.2	U	2.5	U	1.9	U	1.9	U	2.4	U	2	U	1.8	U
	Toxaphene	220	U	220	U	250	U	190	U	190	U	240	U	200	U	180	U
	Endrin ketone	4.3	U	4.3	U	4.9	U	3.7	U	3.7	U	4.7	U	3.9	U	3.6	U
	Methoxychlor	22	U	22	U	25	U	19	U	19	U	24	U	20	U	18	U

Analytical Results Summary
Test Area 4 - Former Fort Segarra, Water Island, USVI

Parameter,		FS-TA4-TP1-1-4.5'		FS-TA4-TP10-1-3'		FS-TA4-TP6-1-5.5'		FS-TA4-SB2-1-2.5'		FS-TA4-SB2-1B-2.5'		FS-TA4-SB7-1-3.5'		FS-TA4-SB6-1-3'		FS-TA4-SR-1-0'-2'	
Units	Compound / Analyte	6/5/2003		6/5/2003		6/5/2003		6/4/2003		6/4/2003		6/4/2003		6/4/2003		6/16/2003	
PCBs, ug/kg																	
SW8082	Aroclor-1242	43	U	43	U	49	U	37	U	37	U	47	U	39	U	36	U
	Aroclor-1254	43	U	43	U	49	U	37	U	37	U	47	U	39	U	36	U
	Aroclor-1221	88	U	87	U	100	U	75	U	74	U	96	U	79	U	73	U
	Aroclor-1232	43	U	43	U	49	U	37	U	37	U	47	U	39	U	36	U
	Aroclor-1248	43	U	43	U	49	U	37	U	37	U	47	U	39	U	36	U
	Aroclor-1260	43	U	43	U	49	U	37	U	37	U	47	U	39	U	36	U
	Aroclor-1016	43	U	43	U	49	U	37	U	37	U	47	U	39	U	36	U
Herbicides, ug/kg																	
SW8151A	2,4,5-TP (Silvex)	11	U	11	U	12	U	9.3	U	9.2	U	12	U	9.8	U	9	U
	2,4-DB	12	U	12	U	14	U	10	U	10	U	13	U	11	U	10	U
	2,4-D	11	U	11	U	12	U	62		71		12	U	9.8	U	9	U
	2,4,5-T	11	U	11	U	12	U	2.4	J	9.2	U	12	U	9.8	U	9	U
	Pentachlorophenol	22	U	22	U	25	U	19	U	19	U	24	U	20	U	18	U
	Dalapon	2600	U	2600	U	3000	U	2200	U	2200	U	2800	U	2400	U	2200	U
	Dicamba	26	U	26	U	30	U	4.1	J	6.8	J	28	U	24	U	31	
	Dichloroprop	130	U	130	U	150	U	110	U	110	U	140	U	120	U	110	U
	Dinoseb	130	U	130	U	150	U	110	U	110	U	140	U	120	U	110	U
	MCPA	2600	U	2600	U	3000	U	2200	U	2200	U	2800	U	2400	U	2200	U
	MCPP	2600	U	2600	U	3000	U	2200	U	2200	U	2800	U	2400	U	15000	J
Semivolatiles, ug/kg																	
SW8270C	2-Chlorophenol	430	U	430	U	490	U	370	U	370	U	470	U	390	U	360	U
	Acenaphthene	430	U	430	U	490	U	370	U	370	U	470	U	390	U	360	U
	2,2'-Oxybis(1-Chloropropane) (bis-2-chloroisopropyl ether)	430	U	430	U	490	U	370	U	370	U	470	U	390	U	360	U
	2-Nitroaniline	2200	U	2200	U	2500	U	1900	U	1900	U	2400	U	2000	U	1800	U
	2-Methylnaphthalene	430	U	430	U	490	U	370	U	370	U	470	U	390	U	360	U
	2-Methylphenol (o-Cresol)	430	U	430	U	490	U	370	U	370	U	470	U	390	U	360	U
	2,4-Dichlorophenol	430	U	430	U	490	U	370	U	370	U	470	U	390	U	360	U
	Acenaphthylene	430	U	430	U	490	U	370	U	370	U	470	U	390	U	360	U
	3-Nitroaniline	2200	U	2200	U	2500	U	1900	U	1900	U	2400	U	2000	U	1800	U
	2,4-Dimethylphenol	430	U	430	U	490	U	370	U	370	U	470	U	390	U	360	U
	Anthracene	430	U	430	U	490	U	370	U	370	U	470	U	390	U	360	U
	4,6-Dinitro-2-methylphenol	2200	U	2200	U	2500	U	1900	U	1900	U	2400	U	2000	U	1800	U
	4-Chloroaniline	870	U	860	U	980	U	740	U	730	U	940	U	780	U	720	U
	4-Chloro-3-methylphenol	430	U	430	U	490	U	370	U	370	U	470	U	390	U	360	U
	3-Methylphenol/4-Methylphenol (m&p-Cresol)	430	U	430	U	490	U	370	U	370	U	470	U	390	U	360	U
	4-Nitroaniline	2200	U	2200	U	2500	U	1900	U	1900	U	2400	U	2000	U	1800	U
	Benzidine	3600	U	3500	U	4000	U	3000	UJ	3000	UJ	3800	U	3200	UJ	2900	U
	2,4-Dinitrophenol	2200	U	2200	U	2500	U	1900	U	1900	U	2400	U	2000	U	1800	U
	2-Nitrophenol	430	U	430	U	490	U	370	U	370	U	470	U	390	U	360	U
	Benzo(a)pyrene	430	U	430	U	490	U	370	U	370	U	470	U	390	U	360	U
	4-Nitrophenol	2200	U	2200	U	2500	U	1900	U	1900	U	2400	U	2000	U	1800	U
	Acetophenone	430	U	430	U	490	U	370	U	370	U	470	U	390	U	360	U
	Aniline	430	U	430	U	490	U	370	UJ	370	UJ	470	U	390	UJ	360	U
	Benzo(a)anthracene	430	U	430	U	490	U	370	U	370	U	470	U	390	U	360	U
	2,6-Dichlorophenol	430	U	430	U	490	U	370	U	370	U	470	U	390	U	360	U
	Benzo(b)fluoranthene	430	U	430	U	490	U	370	U	370	U	470	U	390	U	360	U
	Diethylphthalate	430	U	430	U	490	U	370	U	370	U	470	U	390	U	360	U
	Hexachloropropene	430	U	430	U	490	U	370	U	370	U	470	U	390	U	360	U
	2-Naphthylamine	550	U	540	U	630	U	470	U	470	U	600	U	490	U	460	U
	N-Nitrosopyrrolidine	430	U	430	U	490	U	370	U	370	U	470	U	390	U	360	U

Analytical Results Summary
Test Area 4 - Former Fort Segarra, Water Island, USVI

Parameter, Units	Compound / Analyte	FS-TA4-TP1-1-4.5' 6/5/2003		FS-TA4-TP10-1-3' 6/5/2003		FS-TA4-TP8-1-5.5' 6/5/2003		FS-TA4-SB2-1-2.5' 6/4/2003		FS-TA4-SB2-1B-2.5' 6/4/2003		FS-TA4-SB7-1-3.5' 6/4/2003		FS-TA4-SB6-1-3' 6/4/2003		FS-TA4-SR-1-0'-2' 6/16/2003	
	Pyridine	430	U	430	U	490	U	370	UJ	370	UJ	470	U	390	UJ	360	U
	1,2,4,5-Tetrachlorobenzene	430	U	430	U	490	U	370	U	370	U	470	U	390	U	360	U
	2,4,5-Trichlorophenol	430	U	430	U	490	U	370	U	370	U	470	U	390	U	360	U
	Benzo(g,h,i)perylene	430	U	430	U	490	U	370	U	370	U	470	U	39	J	360	U
	Pentachlorophenol	2200	U	2200	U	2500	U	1900	U	1900	U	2400	U	2000	U	1800	U
	Phenol	430	U	430	U	490	U	370	U	370	U	470	U	390	U	360	U
	bis(2-Chloroethoxy)methane	430	U	430	U	490	U	370	U	370	U	470	U	390	U	360	U
	2,4,6-Trichlorophenol	430	U	430	U	490	U	370	U	370	U	470	U	390	U	360	U
	bis(2-Chloroethyl)ether	430	U	430	U	490	U	370	U	370	U	470	U	390	U	360	U
	bis(2-Ethylhexyl)phthalate	430	U	430	U	490	U	370	U	370	U	97	J	390	U	68	J
	4-Bromophenylphenyl ether	430	U	430	U	490	U	370	U	370	U	470	U	390	U	360	U
	Butylbenzylphthalate	430	U	430	U	490	U	370	U	370	U	470	U	390	U	360	U
	2-Chloronaphthalene	430	U	430	U	490	U	370	U	370	U	470	U	390	U	360	U
	4-Chlorophenylphenyl ether	430	U	430	U	490	U	370	U	370	U	470	U	390	U	360	U
	Chrysene	430	U	430	U	490	U	370	U	370	U	470	U	390	U	360	U
	Dibenzo(a,h)anthracene	430	U	430	U	490	U	370	U	370	U	470	U	390	U	360	U
	1,2-Dichlorobenzene	430	U	430	U	490	U	370	U	370	U	470	U	390	U	360	U
	1,3-Dichlorobenzene	430	U	430	U	490	U	370	U	370	U	470	U	390	U	360	U
	1,4-Dichlorobenzene	430	U	430	U	490	U	370	U	370	U	470	U	390	U	360	U
	3,3'-Dichlorobenzidine	870	U	860	U	980	U	740	U	730	U	940	U	780	U	720	U
	Dimethylphthalate	430	U	430	U	490	U	370	U	370	U	470	U	390	U	360	U
	Di-n-butylphthalate	430	U	430	U	490	U	370	U	370	U	470	U	390	U	360	U
	2,4-Dinitrotoluene	430	U	430	U	490	U	370	U	370	U	470	U	390	U	360	U
	2,6-Dinitrotoluene	430	U	430	U	490	U	370	U	370	U	470	U	390	U	360	U
	Di-n-octylphthalate	430	U	430	U	490	U	370	U	370	U	470	U	390	U	360	U
	1,2-Diphenylhydrazine	430	U	430	U	490	U	370	U	370	U	470	U	390	U	360	U
	Fluoranthene	430	U	430	U	490	U	370	U	370	U	470	U	390	U	360	U
	Fluorene	430	U	430	U	490	U	370	U	370	U	470	U	390	U	360	U
	Hexachlorobenzene	430	U	430	U	490	U	370	U	370	U	470	U	390	U	360	U
	Hexachlorobutadiene	430	U	430	U	490	U	370	U	370	U	470	U	390	U	360	U
	Hexachlorocyclopentadiene	1100	U	1000	U	1200	U	910	UJ	900	UJ	1200	U	950	UJ	880	U
	Hexachloroethane	430	U	430	U	490	U	370	U	370	U	470	U	390	U	360	U
	Indeno(1,2,3-cd)pyrene	430	U	430	U	490	U	370	U	370	U	470	U	210	J	360	U
	Isophorone	430	U	430	U	490	U	370	U	370	U	470	U	390	U	360	U
	Naphthalene	430	U	430	U	490	U	370	U	370	U	470	U	390	U	360	U
	Nitrobenzene	430	U	430	U	490	U	370	U	370	U	470	U	390	U	360	U
	N-Nitrosodimethylamine	790	U	780	U	900	U	670	U	670	U	860	U	700	U	650	U
	N-Nitrosodiphenylamine	430	U	430	U	490	U	370	U	370	U	470	U	390	U	360	U
	Phenanthrene	430	U	430	U	490	U	370	U	370	U	470	U	390	U	360	U
	Pyrene	430	U	430	U	490	U	370	U	370	U	470	U	390	U	360	U
	1,2,4-Trichlorobenzene	430	U	430	U	490	U	370	U	370	U	470	U	390	U	360	U
	Benzo(k)fluoranthene	430	U	430	U	490	U	370	U	370	U	470	U	390	U	360	U
	Benzoic acid	2200	U	2200	U	2500	U	1900	U	1900	U	2400	U	2000	U	1800	U
	Benzyl alcohol	430	U	430	U	490	U	370	U	370	U	470	U	390	U	360	U
	Dibenzofuran	430	U	430	U	490	U	370	U	370	U	470	U	390	U	360	U
	N-Nitroso-di-n-propylamine	430	U	430	U	490	U	370	U	370	U	470	U	390	U	360	U
Explosives, ug/kg																	
SW8330	2,4,6-Trinitrotoluene	250	U	250	U	250	U	250	U	250	U	250	U	250	U	NA	
	2-Nitrotoluene	250	U	250	U	250	U	250	U	250	U	250	U	250	U	NA	
	3-Nitrotoluene	420	U	420	U	420	U	420	U	420	U	420	U	420	U	NA	
	4-Nitrotoluene	390	U	390	U	390	U	390	U	390	U	390	U	390	U	NA	
	Nitrobenzene	390	U	390	U	390	U	390	U	390	U	390	U	390	U	NA	
(HMX)	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine	500	U	500	U	500	U	500	U	500	U	500	U	500	U	NA	

Analytical Results Summary
Test Area 4 - Former Fort Segarra, Water Island, USVI

Parameter, Units	Compound / Analyte	FS-TA4-TP1-1-4.5' 6/5/2003	FS-TA4-TP10-1-3' 6/5/2003	FS-TA4-TP8-1-5.5' 6/5/2003	FS-TA4-SB2-1-2.5' 6/4/2003	FS-TA4-SB2-1B-2.5' 6/4/2003	FS-TA4-SB7-1-3.5' 6/4/2003	FS-TA4-SB6-1-3' 6/4/2003	FS-TA4-SR-1-0'-2' 6/16/2003
(RDX)	Hexahydro-1,3,5-trinitro-1,3,5-triazine	500 U	500 U	500 U	500 U	500 U	500 U	500 U	NA
(Tetryl)	Methyl-2,4,6-trinitrophenylnitramine	660 U	660 U	660 U	660 U	660 U	660 U	660 U	NA
	1,3,5-Trinitrobenzene	250 U	250 U	250 U	250 U	250 U	250 U	250 U	NA
	2,4-Dinitrotoluene	250 U	250 U	250 U	250 U	250 U	250 U	250 U	NA
	2,6-Dinitrotoluene	500 U	500 U	500 U	500 U	500 U	500 U	500 U	NA
	1,3-Dinitrobenzene								
	4-Amino-2,6-Dinitrotoluene								
	2-Amino-4,6-Dinitrotoluene								
Cyanide, mg/kg									
SW9012A	Cyanide	0.98 U	0.93 U	1.1 U	0.83 U	0.81 U	1.1 U	0.86 U	0.79 U

QA/QC samples not used in cal

Background samples

Residence samples

Surface samples

Concentrations exceed backgro

exceeds SCDM. Used for HRS

Analytical Results Summary
Test Area 4 - Former Fort Segarra, Water Island, USVI

Parameter,		FS-TA4-SR-2-0'-2'	FS-TA4-TP2-1-4'	FS-TA4-TP7-1-0'-2'	FS-TA4-TP7-1-3'	FS-TA4-TP12-1/QA-3'	FS-TA4-TP11-1-3'	FS-TA-4-SBK-1-0'-2'	FS-TA-4-TP12-1B-3'
Units	Compound / Analyte	6/16/2003	6/12/2003	6/12/2003	6/12/2003	6/13/2003	6/13/2003	6/13/2003	6/13/2003
Metals, mg/kg									
SW6010B	Silver	0.99 U	1.2 U	1.1 U	1.3 U	1.2 U	1.0 U	1.0 U	1.0 U
	Aluminum	18000	8600	8000	6200	5800	6210 J	11000	9620 J
	Arsenic	0.98 J	2.7 U	4	1.9 J	2.6 J	0.7 J	3.0 U	2.0 J
	Barium	34	22	16	18	16	19.0 J	19.4	15.5 J
	Beryllium	0.29 J	0.15 J	0.13 J	0.1 J	0.095 J	0.1 J	0.2 J	0.2 J
	Calcium	11000	300000	230000	300000	270000	229000 J	142000	203000 J
	Cadmium	1	0.33 J	0.73	0.41 J	0.5 J	0.58	1.0	1.3
	Cobalt	14	1.9	4.9	2.2	2.9	3.0 J	5.4	4.9 J
	Chromium	17	7	5.6	6.7	5.2	6.3 J	5.7	11 J
	Copper	45	6.6	13	9.6	9.4	8.0 J	12	13 J
	Iron	33000	8800	13000	8200	8700	8300 J	15400	12100 J
	Potassium	1300	1500	740	900	790 J	881 J	1650	935 J
	Magnesium	14000	8200	11000	9200	9100	10300 J	8650	10900 J
	Manganese	990	170	230	150	210	196 J	289	290 J
	Sodium	360	4700	3600	4800	2900	3640	3550	2260
	Nickel	9.8	2.5 J	4.2 J	2.7 J	2.6 J	3.0	3.5	8.5
	Lead	6.3	2.3	7.8	3.7	5.8	1.0 J	6.4	9.2 J
	Antimony	2 U	2.3 U	2.2 UJ	2.6 UJ	2.3 UJ	4.0 U	4.0 U	4.0 U
	Selenium	2.4 U	2.8 U	2.6 U	3.1 U	2.8 U	4.0 U	4.0 U	4.0 U
	Strontium	98	4500	3400	4400	3800	NR	NR	NR
	Thallium	2.8 U	3.3 U	3 U	3.6 U	3.2 U	6.0 U	6.0 U	6.0 U
	Vanadium	91	16	43	22	26	22 J	37	39 J
	Zinc	92	24	65	28	30	25.0 J	45.8	30.7 J
Mercury, mg/kg									
SW7471	Mercury	0.014 J	0.02 J	0.012 J	0.01 J	0.015 J	0.0084 J	0.013	0.014 J
Pesticides, ug/kg									
SW8081A	Aldrin	1.8 U	2.2 U	2 U	2.3 U	2.1 U	2.5 U	2.5 U	2.5 U
	alpha-BHC	1.8 U	2.2 U	2 U	2.3 U	2.1 U	2.5 U	2.5 U	2.5 U
	beta-BHC	1.8 U	2.2 U	2 U	2.3 U	2.1 U	2.5 U	2.5 U	2.5 U
	gamma-BHC (Lindane)	1.8 U	2.2 U	2 U	2.3 U	2.1 U	2.5 U	2.5 U	2.5 U
	delta-BHC	1.8 U	2.2 U	2 U	2.3 U	2.1 U	2.5 U	2.5 U	2.5 U
	Chlordane (technical)	18 U	22 U	20 U	23 U	21 U	2.5 UJ	2.5 U	2.5 UJ
	4,4'-DDT	3.5 U	4.2 U	0.72 J	4.5 U	4.1 U	2.5 U	2.5 U	2.5 U
	Endosulfan I	1.8 U	2.2 U	2 U	2.3 U	2.1 U	2.5 U	2.5 U	2.5 U
	Endosulfan II	3.5 U	4.2 U	3.8 U	4.5 U	4.1 U	2.5 U	2.5 U	2.5 U
	4,4'-DDE	3.5 U	4.2 U	3.8 U	4.5 U	4.1 U	2.5 UJ	2.5 U	2.5 UJ
	4,4'-DDD	3.5 U	4.2 U	3.8 U	4.5 U	4.1 U	2.5 U	2.5 U	2.5 U
	Dieldrin	3.5 U	4.2 U	3.8 U	4.5 U	4.1 U	2.5 U	2.5 U	2.5 U
	Endosulfan sulfate	3.5 U	4.2 U	3.8 U	4.5 U	4.1 U	2.5 U	2.5 U	2.5 U
	Endrin	3.5 U	4.2 U	3.8 U	4.5 U	4.1 U	2.5 U	2.5 U	2.5 U
	Endrin aldehyde	3.5 U	4.2 U	3.8 U	4.5 U	4.1 U	2.5 U	2.5 U	2.5 U
	Heptachlor	1.8 U	2.2 U	0.59 J	2.3 U	2.1 U	2.5 U	2.5 U	2.5 U
	Heptachlor epoxide	1.8 U	2.2 U	2 U	2.3 U	2.1 U	2.5 U	2.5 U	2.5 U
	Toxaphene	180 U	220 U	200 U	230 U	210 U	120 U	120 U	120 U
	Endrin ketone	3.5 U	4.2 U	3.8 U	4.5 U	4.1 U	2.5 U	2.5 U	2.5 U
	Methoxychlor	18 U	22 U	20 U	23 U	21 U	2.5 U	2.5 U	2.5 U

Analytical Results Summary
Test Area 4 - Former Fort Segarra, Water Island, USVI

Parameter, Units	Compound / Analyte	FS-TA4-SR-2-0'-2' 6/16/2003		FS-TA4-TP2-1-4' 6/12/2003		FS-TA4-TP7-1-0'-2' 6/12/2003		FS-TA4-TP7-1-3' 6/12/2003		FS-TA4-TP12-1/QA-3' 6/13/2003		FS-TA4-TP11-1-3' 6/13/2003		FS-TA-4-SBK-1-0'-2' 6/13/2003		FS-TA-4-TP12-1B-3' 6/13/2003	
PCBs, ug/kg																	
SW8082	Aroclor-1242	35	U	42	U	38	U	45	U	41	U	25	U	25	U	25	U
	Aroclor-1254	35	U	42	U	38	U	45	U	41	U	25	U	25	U	25	U
	Aroclor-1221	71	U	86	U	78	U	92	U	83	U	25	U	25	U	25	U
	Aroclor-1232	35	U	42	U	38	U	45	U	41	U	25	U	25	U	25	U
	Aroclor-1248	35	U	42	U	38	U	45	U	41	U	25	U	25	U	25	U
	Aroclor-1260	35	U	42	U	38	U	45	U	41	U	25	U	25	U	25	U
	Aroclor-1016	35	U	42	U	38	U	45	U	41	U	25	U	25	U	25	U
Herbicides, ug/kg																	
SW8151A	2,4,5-TP (Silvex)	8.8	U	11	U	9.6	U	11	U	10	U	30	U	20	U	30	U
	2,4-DB	9.9	U	12	U	11	U	13	U	11	U	130	U	120	U	130	U
	2,4-D	8.8	U	11	U	9.6	U	11	U	10	U	130	U	120	U	130	U
	2,4,5-T	4.6	J	11	U	9.6	U	11	U	10	U	30	UJ	20	UJ	30	UJ
	Pentachlorophenol	18	U	22	U	20	U	23	U	21	U	NR		NR		NR	
	Dalapon	2100	U	2600	U	2300	U	2700	U	2500	U	130	U	120	U	130	U
	Dicamba	24		26	U	23	U	27	U	25	U	130	U	120	U	130	U
	Dichloroprop	110	U	130	U	120	U	140	U	120	U	130	U	120	U	130	U
	Dinoseb	110	U	130	U	120	U	140	U	120	U	130	U	120	U	130	U
	MCPA	2100	U	2600	U	2300	U	2700	U	2500	U	13000	U	12000	U	13000	U
	MCPP	14000	J	2600	U	2300	U	2700	U	2500	U	13000	U	12000	U	13000	U
Semivolatiles, ug/kg																	
SW8270C	2-Chlorophenol	350	U	420	U	380	U	450	U	410	U	250	U	250	U	250	U
	Acenaphthene	350	U	420	U	380	U	450	U	410	U	250	U	250	U	250	U
	2,2'-Oxybis(1-Chloropropane) (bis-2-chloroisopropyl ether)	350	U	420	U	380	U	450	U	410	U	250	U	250	U	250	U
	2-Nitroaniline	1800	U	2200	U	2000	U	2300	U	2100	U	2500	U	2500	U	2500	U
	2-Methylnaphthalene	350	U	420	U	380	U	450	U	410	U	250	U	250	U	250	U
	2-Methylphenol (o-Cresol)	350	U	420	U	380	U	450	U	410	U	250	U	250	U	250	U
	2,4-Dichlorophenol	350	U	420	U	380	U	450	U	410	U	250	U	250	U	250	U
	Acenaphthylene	350	U	420	U	380	U	450	U	410	U	250	U	250	U	250	U
	3-Nitroaniline	1800	U	2200	U	2000	U	2300	U	2100	U	2500	U	2500	U	2500	U
	2,4-Dimethylphenol	350	U	420	U	380	U	450	U	410	U	510	U	500	U	500	U
	Anthracene	350	U	420	U	380	U	450	U	410	U	250	U	250	U	250	U
	4,6-Dinitro-2-methylphenol	1800	U	2200	U	2000	UJ	2300	UJ	2100	U	2500	U	2500	U	2500	U
	4-Chloroaniline	700	U	850	U	770	U	900	U	810	U	510	UJ	500	UJ	500	UJ
	4-Chloro-3-methylphenol	350	U	420	U	380	U	450	U	410	U	510	U	500	U	500	U
	3-Methylphenol/4-Methylphenol (m&p-Cresol)	350	U	420	U	380	U	450	U	410	U	250	U	250	U	250	U
	4-Nitroaniline	1800	U	2200	U	2000	U	2300	U	2100	U	2500	U	2500	U	2500	U
	Benzidine	2900	U	3500	U	3100	UJ	3700	UJ	3300	UJ	NR		NR		NR	
	2,4-Dinitrophenol	1800	U	2200	U	2000	UJ	2300	UJ	2100	U	2500	U	2500	U	2500	U
	2-Nitrophenol	350	U	420	U	380	U	450	U	410	U	510	U	500	U	500	U
	Benzo(a)pyrene	350	U	420	U	380	U	450	U	410	U	250	U	250	U	250	U
	4-Nitrophenol	1800	U	2200	U	2000	U	2300	U	2100	U	2500	U	2500	U	2500	U
	Acetophenone	350	U	420	U	380	U	450	U	410	U	NR		NR		NR	
	Aniline	350	U	420	U	380	U	450	U	410	U	NR		NR		NR	
	Benzo(a)anthracene	350	U	420	U	380	U	450	U	410	U	250	U	250	U	250	U
	2,6-Dichlorophenol	350	U	420	U	380	U	450	U	410	U	NR		NR		NR	
	Benzo(b)fluoranthene	350	U	420	U	380	U	450	U	410	U	250	U	250	U	250	U
	Diethylphthalate	350	U	420	U	380	U	450	U	410	U	250	U	250	U	250	U
	Hexachloropropene	350	U	420	U	380	U	450	U	410	U	NR		NR		NR	
	2-Naphthylamine	450	U	540	U	490	U	580	U	520	U	NR		NR		NR	
	N-Nitrosopyrrolidine	350	U	420	U	380	U	450	U	410	U	NR		NR		NR	

Analytical Results Summary
Test Area 4 - Former Fort Segarra, Water Island, USVI

Parameter, Units	Compound / Analyte	FS-TA4-SR-2-0'-2' 6/16/2003	FS-TA4-TP2-1-4' 6/12/2003	FS-TA4-TP7-1-0'-2' 6/12/2003	FS-TA4-TP7-1-3' 6/12/2003	FS-TA4-TP12-1/QA-3' 6/13/2003	FS-TA4-TP11-1-3' 6/13/2003	FS-TA-4-SBK-1-0'-2' 6/13/2003	FS-TA-4-TP12-1B-3' 6/13/2003
	Pyridine	350 U	420 U	380 UJ	450 UJ	410 U	NR	NR	NR
	1,2,4,5-Tetrachlorobenzene	350 U	420 U	380 U	450 U	410 U	NR	NR	NR
	2,4,5-Trichlorophenol	350 U	420 U	380 U	450 U	410 U	250 U	250 U	250 U
	Benzo(g,h,i)perylene	350 U	420 U	380 U	450 U	410 U	250 U	250 U	250 U
	Pentachlorophenol	1800 U	2200 U	2000 UJ	2300 UJ	2100 U	2500 U	2500 U	2500 U
	Phenol	350 U	420 U	380 U	450 U	410 U	250 U	250 U	250 U
	bis(2-Chloroethoxy)methane	350 U	420 U	380 U	450 U	410 U	250 U	250 U	250 U
	2,4,6-Trichlorophenol	350 U	420 U	380 U	450 U	410 U	250 U	250 U	250 U
	bis(2-Chloroethyl)ether	350 U	420 U	380 U	450 U	410 U	250 U	250 U	250 U
	bis(2-Ethylhexyl)phthalate	76 J	72 J	380 U	61 J	410 U	150 J	90 J	90 J
	4-Bromophenylphenyl ether	350 U	420 U	380 U	450 U	410 U	250 U	250 U	250 U
	Butylbenzylphthalate	350 U	420 U	380 U	450 U	410 U	250 U	250 U	250 U
	2-Chloronaphthalene	350 U	420 U	380 U	450 U	410 U	250 U	250 U	250 U
	4-Chlorophenylphenyl ether	350 U	420 U	380 U	450 U	410 U	250 U	250 U	250 U
	Chrysene	350 U	420 U	380 U	450 U	410 U	250 U	250 U	250 U
	Dibenzo(a,h)anthracene	350 U	420 U	380 U	450 U	410 U	250 U	250 U	250 U
	1,2-Dichlorobenzene	350 U	420 U	380 U	450 U	410 U	250 U	250 U	250 U
	1,3-Dichlorobenzene	350 U	420 U	380 UJ	450 UJ	410 U	250 U	250 U	250 U
	1,4-Dichlorobenzene	350 U	420 U	380 U	450 U	410 U	250 U	250 U	250 U
	3,3'-Dichlorobenzidine	700 U	850 U	770 U	900 U	810 U	1000 U	1000 U	1000 U
	Dimethylphthalate	350 U	420 U	380 U	450 U	410 U	250 U	250 U	250 U
	Di-n-butylphthalate	350 U	420 U	380 U	450 U	410 U	40 J	250 U	250 U
	2,4-Dinitrotoluene	350 U	420 U	380 U	450 U	410 U	250 U	250 U	250 U
	2,6-Dinitrotoluene	350 U	420 U	380 U	450 U	410 U	250 U	250 U	250 U
	Di-n-octylphthalate	350 U	420 U	380 U	450 U	410 U	250 U	250 U	40 J
	1,2-Diphenylhydrazine	350 U	420 U	380 U	450 U	410 U	NR	NR	NR
	Fluoranthene	350 U	420 U	380 U	450 U	410 U	250 U	250 U	250 U
	Fluorene	350 U	420 U	380 U	450 U	410 U	250 U	250 U	250 U
	Hexachlorobenzene	350 U	420 U	380 U	450 U	410 U	250 U	250 U	250 U
	Hexachlorobutadiene	350 U	420 U	380 U	450 U	410 U	250 U	250 U	250 U
	Hexachlorocyclopentadiene	860 U	1000 U	940 UJ	1100 UJ	1000 U	1000 U	1000 U	1000 U
	Hexachloroethane	350 U	420 U	380 UJ	450 UJ	410 U	250 U	250 U	250 U
	Indeno(1,2,3-cd)pyrene	350 U	420 U	380 UJ	450 UJ	410 U	250 U	250 U	250 U
	Isophorone	350 U	420 U	380 U	450 U	410 U	250 U	250 U	250 U
	Naphthalene	350 U	420 U	380 U	450 U	410 U	250 U	250 U	250 U
	Nitrobenzene	350 U	420 U	380 U	450 U	410 U	250 U	250 U	250 U
	N-Nitrosodimethylamine	640 U	770 U	700 U	820 U	740 U	NR	NR	NR
	N-Nitrosodiphenylamine	350 U	420 U	380 U	450 U	410 U	250 U	250 U	250 U
	Phenanthrene	350 U	420 U	380 U	450 U	410 U	250 U	250 U	250 U
	Pyrene	350 U	420 U	380 U	450 U	410 U	250 U	250 U	250 U
	1,2,4-Trichlorobenzene	350 U	420 U	380 U	450 U	410 U	250 U	250 U	250 U
	Benzo(k)fluoranthene	350 U	420 U	380 U	450 U	410 U	250 U	250 U	250 U
	Benzoic acid	1800 U	2200 U	2000 UJ	2300 UJ	2100 U	2500 U	700 J	1200 J
	Benzyl alcohol	350 U	420 U	380 U	450 U	410 U	2500 U	2500 U	2500 U
	Dibenzofuran	350 U	420 U	380 U	450 U	410 U	250 U	250 U	250 U
	N-Nitroso-di-n-propylamine	350 U	420 U	380 U	450 U	410 U	250 U	250 U	250 U
Explosives, ug/kg									
SW8330	2,4,6-Trinitrotoluene	NA	250 U	250 U	250 U	250 U	500 U	500 U	500 U
	2-Nitrotoluene	NA	250 U	250 U	250 U	250 U	1000 U	1000 U	1000 U
	3-Nitrotoluene	NA	420 U	420 U	420 U	420 U	1000 U	1000 U	1000 U
	4-Nitrotoluene	NA	390 U	390 U	390 U	390 U	1000 U	1000 U	1000 U
	Nitrobenzene	NA	390 U	390 U	390 U	390 U	500 U	500 U	500 U
(HMX)	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine	NA	500 U	500 U	500 U	500 U	1800 U	1800 U	1800 U

Analytical Results Summary
Test Area 4 - Former Fort Segarra, Water Island, USVI

Parameter, Units	Compound / Analyte	FS-TA4-SR-2-0'-2' 6/16/2003	FS-TA4-TP2-1-4' 6/12/2003	FS-TA4-TP7-1-0'-2' 6/12/2003	FS-TA4-TP7-1-3' 6/12/2003	FS-TA4-TP12-1/QA-3' 6/13/2003	FS-TA4-TP11-1-3' 6/13/2003	FS-TA-4-SBK-1-0'-2' 6/13/2003	FS-TA-4-TP12-1B-3' 6/13/2003
(RDX)	Hexahydro-1,3,5-trinitro-1,3,5-triazine	NA	500 U	500 U	500 U	500 U	4400 U	4400 U	4400 U
(Tetryl)	Methyl-2,4,6-trinitrophenylnitramine	NA	660 U	660 U	660 U	660 U	2300 UJ	2300 UJ	2300 UJ
	1,3,5-Trinitrobenzene	NA	250 U	250 U	310	250 U	330 U	330 U	330 U
	2,4-Dinitrotoluene	NA	250 U	250 U	250 U	250 U	1000 U	1000 U	1000 U
	2,6-Dinitrotoluene	NA	500 U	500 U	500 U	500 U	1000 U	1000 U	1000 U
	1,3-Dinitrobenzene						1200 U	1200 U	1200 U
	4-Amino-2,6-Dinitrotoluene						2000 U	2000 U	2000 U
	2-Amino-4,6-Dinitrotoluene						250 U	250 U	250 U
Cyanide, mg/kg									
SW9012A	Cyanide	0.8 U	0.93 U	0.84 U	1 U	0.92 U	0.3 U	0.2 U	0.3 U
	QA/QC samples not used in cal								
	Background samples								
	Residence samples								
	Surface samples								
	Concentrations exceed backgro								
	exceeds SCDM. Used for HRS								

Analytical Results Summary
Test Area 4 - Former Fort Segarra, Water Island, USVI

Parameter,		FS-TA-4-TP12-1-3'		FS-TA-4-TP9-S1-0'-2'		FS-TA-4-TP9-1-0'-2'		FS-TA-4-TP3-1-10"		FS-TA-4-TP4-1-1.5'		FS-TA-4-TP5-1-2.5'		FS-TA-4-SBK-2-0'-2'	
Units	Compound / Analyte	6/13/2003		6/13/2003		6/13/2003		6/13/2003		6/13/2003		6/13/2003		6/13/2003	
Metals, mg/kg															
SW6010B	Silver	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
	Aluminum	18600	J	6560	J	4810	J	5590	J	6670	J	8350	J	10500	
	Arsenic	3.8		2.0	J	2.0	J	2.0	J	0.7	J	2.0	J	3.0	U
	Barium	21.9	J	14.6	J	13.7	J	12.6	J	16.5	J	20.7	J	19.9	
	Beryllium	0.2	J	0.4	U	0.4	U	0.4	U	0.4	U	0.1	J	0.1	J
	Calcium	153000	J	216000	J	221000	J	251000	J	230000	J	217000	J	202000	
	Cadmium	1.6		0.65		0.53		0.54		0.62		0.8		0.85	
	Cobalt	8.5	J	4.2	J	3	J	3.0	J	3.1	J	4.4	J	5.5	
	Chromium	16	J	6.3	J	7.7	J	5.8	J	6.6	J	12	J	13	
	Copper	23.9	J	12	J	4.4	J	6.0	J	8.7	J	18	J	16	
	Iron	23600	J	10500	J	8900	J	7010	J	8430	J	12400	J	13900	
	Potassium	2000	J	644	J	626	J	580	J	634	J	714	J	1200	
	Magnesium	14900	J	9990	J	9870	J	9000	J	9660	J	11600	J	10500	
	Manganese	444	J	180	J	184	J	135	J	175	J	221	J	303	
	Sodium	2000		2290		2370		2800		2630		2180		4080	
	Nickel	8.3		2.7		3.8		2.2		2.8		3.8		4.1	
	Lead	19	J	5.9	J	0.7	J	3.2	J	3.9	J	8.9	J	4.7	
	Antimony	4.0	U	4.0	U	4.0	U	4.0	U	4.0	U	4.0	U	4.0	U
	Selenium	4.0	U	4.0	U	4.0	U	4.0	U	4.0	U	4.0	U	4.0	U
	Strontium	NR		NR		NR		NR		NR		NR		NR	
	Thallium	1.0		1.0	J	6.0	U	6.0	U	6.0	U	6.0	U	6.0	U
	Vanadium	74.6	J	31	J	21	J	23	J	23	J	32	J	42.3	
	Zinc	54.4	J	34	J	21.9	J	19	J	29.1	J	61.3	J	38.8	
Mercury, mg/kg															
SW7471	Mercury	0.025	J	0.0078	J	0.0057	J	0.0083	J	0.011	J	0.016	J	0.02	
Pesticides, ug/kg															
SW8081A	Aldrin	2.4	U	2.3	U	2.4	U	2.7	U	2.4	U	2.6	U	2.5	U
	alpha-BHC	2.4	U	2.3	U	2.4	U	2.7	U	2.4	U	2.6	U	2.5	U
	beta-BHC	2.4	U	2.3	U	2.4	U	2.7	U	2.4	U	2.6	U	2.5	U
	gamma-BHC (Lindane)	2.4	U	2.3	U	2.4	U	2.7	U	2.4	U	2.6	U	2.5	U
	delta-BHC	2.4	U	2.3	U	2.4	U	2.7	U	2.4	U	2.6	U	2.5	U
	Chlordane (technical)	2.4	UJ	7.3	J	2.4	UJ	2.7	UJ	2.4	UJ	2.6	UJ	2.5	U
	4,4'-DDT	2.4	U	2.3	U	2.4	U	2.7	U	2.4	U	2.6	U	2.5	U
	Endosulfan I	2.4	U	2.3	U	2.4	U	2.7	U	2.4	U	2.6	U	2.5	U
	Endosulfan II	2.4	U	2.3	U	2.4	U	2.7	U	2.4	U	2.6	U	2.5	U
	4,4'-DDE	14	J	2.3	UJ	2.4	UJ	2.7	UJ	2.4	UJ	2.6	UJ	2.5	U
	4,4'-DDD	2.4	U	2.3	U	2.4	U	2.7	U	2.4	U	2.6	U	2.5	U
	Dieldrin	2.4	U	2.3	U	2.4	U	2.7	U	2.4	U	2.6	U	2.5	U
	Endosulfan sulfate	2.4	U	2.3	U	2.4	U	2.7	U	2.4	U	2.6	U	2.5	U
	Endrin	2.4	U	2.3	U	2.4	U	2.7	U	2.4	U	2.6	U	2.5	U
	Endrin aldehyde	2.4	U	2.3	U	2.4	U	2.7	U	2.4	U	2.6	U	2.5	U
	Heptachlor	2.4	U	2.3	U	2.4	U	2.7	U	2.4	U	2.6	U	2.5	U
	Heptachlor epoxide	2.4	U	2.3	U	2.4	U	2.7	U	2.4	U	2.6	U	2.5	U
	Toxaphene	120	U	110	U	120	U	130	U	120	U	130	U	120	U
	Endrin ketone	2.4	U	2.3	U	2.4	U	2.7	U	2.4	U	2.6	U	2.5	U
	Methoxychlor	2.4	U	2.3	U	2.4	U	2.7	U	2.4	U	2.6	U	2.5	U

Analytical Results Summary
Test Area 4 - Former Fort Segarra, Water Island, USVI

Parameter, Units	Compound / Analyte	FS-TA-4-TP12-1-3' 6/13/2003	FS-TA-4-TP9-S1-0'-2' 6/13/2003	FS-TA-4-TP9-1-0'-2' 6/13/2003	FS-TA-4-TP3-1-10* 6/13/2003	FS-TA-4-TP4-1-1.5' 6/13/2003	FS-TA-4-TP5-1-2.5' 6/13/2003	FS-TA-4-SBK-2-0'-2' 6/13/2003
PCBs, ug/kg								
SW8082	Aroclor-1242	24 U	23 U	24 U	27 U	24 U	26 U	25 U
	Aroclor-1254	24 U	23 U	24 U	27 U	24 U	26 U	25 U
	Aroclor-1221	24 U	23 U	24 U	27 U	24 U	26 U	25 U
	Aroclor-1232	24 U	23 U	24 U	27 U	24 U	26 U	25 U
	Aroclor-1248	24 U	23 U	24 U	27 U	24 U	26 U	25 U
	Aroclor-1260	24 U	23 U	24 U	27 U	24 U	26 U	25 U
	Aroclor-1016	24 U	23 U	24 U	27 U	24 U	26 U	25 U
Herbicides, ug/kg								
SW8151A	2,4,5-TP (Silvex)	20 U	20 U	20 U	30 U	30 U	30 U	20 U
	2,4-DB	120 U	110 U	120 U	130 U	120 U	130 U	120 U
	2,4-D	120 U	110 U	120 U	130 U	120 U	130 U	120 U
	2,4,5-T	20 UJ	20 UJ	20 UJ	30 UJ	30 UJ	30 UJ	20 UJ
	Pentachlorophenol	NR	NR	NR	NR	NR	NR	NR
	Dalapon	120 U	110 U	120 U	130 U	120 U	130 U	120 U
	Dicamba	120 U	110 U	120 U	130 U	120 U	130 U	120 U
	Dichloroprop	120 U	110 U	120 U	130 U	120 U	130 U	120 U
	Dinoseb	120 U	110 U	120 U	130 U	120 U	130 U	120 U
	MCPA	12000 U	11000 U	12000 U	13000 U	12000 U	13000 U	12000 U
	MCPP	12000 U	11000 U	12000 U	13000 U	12000 U	13000 U	12000 U
Semivolatiles, ug/kg								
SW8270C	2-Chlorophenol	250 U	230 U	240 U	270 U	250 U	260 U	2500 U
	Acenaphthene	250 U	230 U	240 U	270 U	250 U	260 U	2500 U
	2,2'-Oxybis(1-Chloropropane) (bis-2-chloroisopropyl ether)	250 U	230 U	240 U	270 U	250 U	260 U	2500 U
	2-Nitroaniline	2500 U	2300 U	2400 U	2700 U	2500 U	2600 U	25000 U
	2-Methylnaphthalene	250 U	230 U	240 U	270 U	250 U	260 U	2500 U
	2-Methylphenol (o-Cresol)	250 U	230 U	240 U	270 U	250 U	260 U	2500 U
	2,4-Dichlorophenol	250 U	230 U	240 U	270 U	250 U	260 U	2500 U
	Acenaphthylene	250 U	230 U	240 U	270 U	250 U	260 U	2500 U
	3-Nitroaniline	2500 U	2300 U	2400 U	2700 U	2500 U	2600 U	25000 U
	2,4-Dimethylphenol	500 U	460 U	490 U	550 U	500 U	520 U	5000 U
	Anthracene	250 U	230 U	240 U	270 U	250 U	260 U	2500 U
	4,6-Dinitro-2-methylphenol	2500 U	2300 U	2400 U	2700 U	2500 U	2600 U	25000 U
	4-Chloroaniline	500 UJ	460 UJ	490 UJ	550 UJ	500 UJ	520 UJ	5000 UJ
	4-Chloro-3-methylphenol	500 U	460 U	490 U	550 U	500 U	520 U	5000 U
	3-Methylphenol/4-Methylphenol (m&p-Cresol)	250 U	230 U	240 U	270 U	250 U	260 U	2500 U
	4-Nitroaniline	2500 U	2300 U	2400 U	2700 U	2500 U	2600 U	25000 U
	Benzidine	NR	NR	NR	NR	NR	NR	NR
	2,4-Dinitrophenol	2500 U	2300 U	2400 U	2700 U	2500 U	2600 U	25000 U
	2-Nitrophenol	500 U	460 U	490 U	550 U	500 U	520 U	5000 U
	Benzo(a)pyrene	250 U	230 U	240 U	270 U	250 U	260 U	2500 U
	4-Nitrophenol	2500 U	2300 U	2400 U	2700 U	2500 U	2600 U	25000 U
	Acetophenone	NR	NR	NR	NR	NR	NR	NR
	Aniline	NR	NR	NR	NR	NR	NR	NR
	Benzo(a)anthracene	250 U	230 U	240 U	270 U	250 U	260 U	2500 U
	2,6-Dichlorophenol	NR	NR	NR	NR	NR	NR	NR
	Benzo(b)fluoranthene	250 U	230 U	240 U	270 U	250 U	260 U	2500 U
	Diethylphthalate	250 U	230 U	240 U	270 U	250 U	260 U	2500 U
	Hexachloropropene	NR	NR	NR	NR	NR	NR	NR
	2-Naphthylamine	NR	NR	NR	NR	NR	NR	NR
	N-Nitrosopyrrolidine	NR	NR	NR	NR	NR	NR	NR

Analytical Results Summary
Test Area 4 - Former Fort Segarra, Water Island, USVI

Parameter,		FS-TA-4-TP12-1-3'	FS-TA-4-TP9-S1-0'-2'	FS-TA-4-TP9-1-0'-2'	FS-TA-4-TP3-1-10"	FS-TA-4-TP4-1-1.5'	FS-TA-4-TP5-1-2.5'	FS-TA-4-SBK-2-0'-2'
Units	Compound / Analyte	6/13/2003	6/13/2003	6/13/2003	6/13/2003	6/13/2003	6/13/2003	6/13/2003
	Pyridine	NR	NR	NR	NR	NR	NR	NR
	1,2,4,5-Tetrachlorobenzene	NR	NR	NR	NR	NR	NR	NR
	2,4,5-Trichlorophenol	250 U	230 U	240 U	270 U	250 U	260 U	2500 U
	Benzo(g,h,i)perylene	250 U	230 U	240 U	270 U	250 U	260 U	2500 U
	Pentachlorophenol	2500 U	2300 U	2400 U	2700 U	2500 U	2600 U	25000 U
	Phenol	250 U	230 U	240 U	270 U	250 U	260 U	2500 U
	bis(2-Chloroethoxy)methane	250 U	230 U	240 U	270 U	250 U	260 U	2500 U
	2,4,6-Trichlorophenol	250 U	230 U	240 U	270 U	250 U	260 U	2500 U
	bis(2-Chloroethyl)ether	250 U	230 U	240 U	270 U	250 U	260 U	2500 U
	bis(2-Ethylhexyl)phthalate	80 J	80 J	170 J	100 J	80 J	300 J	25000 U
	4-Bromophenylphenyl ether	250 U	230 U	240 U	270 U	250 U	260 U	2500 U
	Butylbenzylphthalate	250 U	110 J	240 U	270 U	250 U	260 U	2500 U
	2-Chloronaphthalene	250 U	230 U	240 U	270 U	250 U	260 U	2500 U
	4-Chlorophenylphenyl ether	250 U	230 U	240 U	270 U	250 U	260 U	2500 U
	Chrysene	250 U	230 U	240 U	270 U	250 U	260 U	2500 U
	Dibenzo(a,h)anthracene	250 U	230 U	240 U	270 U	250 U	260 U	2500 U
	1,2-Dichlorobenzene	250 U	230 U	240 U	270 U	250 U	260 U	2500 U
	1,3-Dichlorobenzene	250 U	230 U	240 U	270 U	250 U	260 U	2500 U
	1,4-Dichlorobenzene	250 U	230 U	240 U	270 U	250 U	260 U	2500 U
	3,3'-Dichlorobenzidine	1000 U	920 U	970 U	1100 U	1000 U	1000 U	9900 U
	Dimethylphthalate	250 U	230 U	240 U	270 U	250 U	260 U	2500 U
	Di-n-butylphthalate	250 U	230 U	30 J	270 U	250 U	260 U	400 J
	2,4-Dinitrotoluene	250 U	230 U	240 U	270 U	250 U	260 U	2500 U
	2,6-Dinitrotoluene	250 U	230 U	240 U	270 U	250 U	260 U	2500 U
	Di-n-octylphthalate	250 U	180 J	240 U	270 U	250 U	50 J	2500 U
	1,2-Diphenylhydrazine	NR	NR	NR	NR	NR	NR	NR
	Fluoranthene	250 U	230 U	240 U	270 U	250 U	260 U	2500 U
	Fluorene	250 U	230 U	240 U	270 U	250 U	260 U	2500 U
	Hexachlorobenzene	250 U	230 U	240 U	270 U	250 U	260 U	2500 U
	Hexachlorobutadiene	250 U	230 U	240 U	270 U	250 U	260 U	2500 U
	Hexachlorocyclopentadiene	1000 U	920 U	970 U	1100 U	1000 U	1000 U	9900 U
	Hexachloroethane	250 U	230 U	240 U	270 U	250 U	260 U	2500 U
	Indeno(1,2,3-cd)pyrene	250 U	230 U	240 U	270 U	250 U	260 U	2500 U
	Isophorone	250 U	230 U	240 U	270 U	250 U	260 U	2500 U
	Naphthalene	250 U	230 U	240 U	270 U	250 U	50 J	2500 U
	Nitrobenzene	250 U	230 U	240 U	270 U	250 U	260 U	2500 U
	N-Nitrosodimethylamine	NR	NR	NR	NR	NR	NR	NR
	N-Nitrosodiphenylamine	250 U	230 U	240 U	270 U	250 U	260 U	2500 U
	Phenanthrene	250 U	230 U	240 U	270 U	250 U	260 U	2500 U
	Pyrene	250 U	230 U	240 U	270 U	250 U	260 U	2500 U
	1,2,4-Trichlorobenzene	250 U	230 U	240 U	270 U	250 U	260 U	2500 U
	Benzo(k)fluoranthene	250 U	230 U	240 U	270 U	250 U	260 U	2500 U
	Benzoic acid	1000 J	2300 U	2400 U	2700 U	200 J	200 J	25000 U
	Benzyl alcohol	2500 U	2300 U	2400 U	2700 U	2500 U	2600 U	2500 U
	Dibenzofuran	250 U	230 U	240 U	270 U	250 U	260 U	2500 U
	N-Nitroso-di-n-propylamine	250 U	230 U	240 U	270 U	250 U	260 U	2500 U
Explosives, ug/kg								
SW8330	2,4,6-Trinitrotoluene	500 U	500 U	500 U	500 U	500 U	500 U	500 U
	2-Nitrotoluene	1000 U	1000 U	1000 U	1000 U	1000 U	1000 U	1000 U
	3-Nitrotoluene	1000 U	1000 U	1000 U	1000 U	1000 U	1000 U	1000 U
	4-Nitrotoluene	1000 U	1000 U	1000 U	1000 U	1000 U	1000 U	1000 U
	Nitrobenzene	500 U	500 U	500 U	500 U	500 U	500 U	500 U
(HMX)	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine	1800 U	1800 U	1800 U	1800 U	1800 U	1800 U	1800 U

Analytical Results Summary
Test Area 4 - Former Fort Segarra, Water Island, USVI

Parameter, Units	Compound / Analyte	FS-TA-4-TP12-1-3' 6/13/2003	FS-TA-4-TP9-S1-0'-2' 6/13/2003	FS-TA-4-TP9-1-0'-2' 6/13/2003	FS-TA-4-TP3-1-10" 6/13/2003	FS-TA-4-TP4-1-1.5' 6/13/2003	FS-TA-4-TP5-1-2.5' 6/13/2003	FS-TA-4-SBK-2-0'-2' 6/13/2003
(RDX)	Hexahydro-1,3,5-trinitro-1,3,5-triazine	4400 U	4400 U	4400 U	4400 U	4400 U	4400 U	4400 U
(Tetryl)	Methyl-2,4,6-trinitrophenylnitramine	2300 UJ	2300 UJ	2300 UJ	2300 UJ	2300 UJ	2300 UJ	2300 UJ
	1,3,5-Trinitrobenzene	330 U	330 U	330 U	330 U	330 U	330 U	330 U
	2,4-Dinitrotoluene	1000 U	1000 U	1000 U	1000 U	1000 U	1000 U	1000 U
	2,6-Dinitrotoluene	1000 U	1000 U	1000 U	1000 U	1000 U	1000 U	1000 U
	1,3-Dinitrobenzene	1200 U	1200 U	1200 U	1200 U	1200 U	1200 U	1200 U
	4-Amino-2,6-Dinitrotoluene	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U	2000 U
	2-Amino-4,6-Dinitrotoluene	250 U	250 U	250 U	250 U	250 U	250 U	250 U
Cyanide, mg/kg								
SW9012A	Cyanide	0.2 U	0.2 U	0.2 U	0.3 U	0.2 U	0.3 U	0.2 U
	QA/QC samples not used in cal							
	Background samples							
	Residence samples							
	Surface samples							
	Concentrations exceed backgro							
	exceeds SCDM. Used for HRS							

Analytical Results Summary
Test Area 4 - Former Fort Segarra, Water Island, USVI

Parameter, Units	Compound / Analyte	BG Threshold	# of all samples >Threshold	Bkg x 3, or PQL for HRS	# surface samples above 3x Bkg, or PQL for HRS	Above HRS SCDM	Chemical Total	Site Average
Metals, mg/kg								
SW6010B	Silver							
	Aluminum							
	Arsenic							
	Barium	40	1	60	1	77	580.0	24.2
	Beryllium							
	Calcium							
	Cadmium							
	Cobalt	11	5	17	2	26	178.4	7.4
	Chromium	26	1	39			305.0	12.7
	Copper	32	7	48	3	91	574.1	23.9
	Iron							
	Potassium							
	Magnesium							
	Manganese							
	Sodium							
	Nickel	8.2	6	12.3	1	15	145.9	6.1
	Lead	12.8	5	19.2	1	46	218.4	9.1
	Antimony							
	Selenium							
	Strontium							
	Thallium							
	Vanadium	84.6	5	126.9	1	210	1543.6	64.3
	Zinc	91.6	2				1218.7	50.8
Mercury, mg/kg								
SW7471	Mercury	0.04						
Pesticides, ug/kg								
SW8081A	Aldrin							
	alpha-BHC							
	beta-BHC							
	gamma-BHC (Lindane)							
	delta-BHC							
	Chlordane (technical)	5.2	1	7.8			382.3	15.9
	4,4'-DDT							
	Endosulfan I							
	Endosulfan II							
	4,4'-DDE							
	4,4'-DDD							
	Dieldrin	2.5	1	2.5			89.4	3.7
	Endosulfan sulfate							
	Endrin							
	Endrin aldehyde							
	Heptachlor							
	Heptachlor epoxide							
	Toxaphene							
	Endrin ketone							
	Methoxychlor							

Analytical Results Summary
Test Area 4 - Former Fort Segarra, Water Island, USVI

Parameter, Units	Compound / Analyte	BG Threshold	# of all samples >Threshold	Bkg x 3, or PQL for HRS	# surface samples above 3x Bkg, or PQL for HRS	Above HRS SCDM	Chemical Total	Site Average
PCBs, ug/kg								
SW8082	Aroclor-1242							
	Aroclor-1254							
	Aroclor-1221							
	Aroclor-1232							
	Aroclor-1248							
	Aroclor-1260							
	Aroclor-1016							
Herbicides, ug/kg								
SW8151A	2,4,5-TP (Silvex)							
	2,4-DB							
	2,4-D						1087.9	45.3
	2,4,5-T							
	Pentachlorophenol							
	Dalapon							
	Dicamba							
	Dichloroprop							
	Dinoseb							
	MCPA							
	MCPP							
Semivolatiles, ug/kg								
SW8270C	2-Chlorophenol							
	Acenaphthene							
	2,2'-Oxybis(1-Chloropropane) (bis-2-chloroisopropyl ether)							
	2-Nitroaniline							
	2-Methylnaphthalene							
	2-Methylphenol (o-Cresol)							
	2,4-Dichlorophenol							
	Acenaphthylene							
	3-Nitroaniline							
	2,4-Dimethylphenol							
	Anthracene							
	4,6-Dinitro-2-methylphenol							
	4-Chloroaniline							
	4-Chloro-3-methylphenol							
	3-Methylphenol/4-Methylphenol (m&p-Cresol)							
	4-Nitroaniline							
	Benzidine							
	2,4-Dinitrophenol							
	2-Nitrophenol							
	Benzo(a)pyrene							
	4-Nitrophenol							
	Acetophenone							
	Aniline							
	Benzo(a)anthracene							
	2,6-Dichlorophenol							
	Benzo(b)fluoranthene							
	Diethylphthalate							
	Hexachloropropene							
	2-Naphthylamine							
	N-Nitrosopyrrolidine							

Analytical Results Summary
Test Area 4 - Former Fort Segarra, Water Island, USVI

Parameter, Units	Compound / Analyte	BG Threshold	# of all samples >Threshold	Bkg x 3, or PQL for HRS	# surface samples above 3x Bkg, or PQL for HRS	Above HRS SCDM	Chemical Total	Site Average
	Pyridine							
	1,2,4,5-Tetrachlorobenzene							
	2,4,5-Trichlorophenol							
	Benzo(g,h,i)perylene							
	Pentachlorophenol							
	Phenol							
	bis(2-Chloroethoxy)methane							
	2,4,6-Trichlorophenol							
	bis(2-Chloroethyl)ether							
	bis(2-Ethylhexyl)phthalate							
	4-Bromophenylphenyl ether							
	Butylbenzylphthalate							
	2-Chloronaphthalene							
	4-Chlorophenylphenyl ether							
	Chrysene							
	Dibenzo(a,h)anthracene							
	1,2-Dichlorobenzene							
	1,3-Dichlorobenzene							
	1,4-Dichlorobenzene							
	3,3'-Dichlorobenzidine							
	Dimethylphthalate							
	Di-n-butylphthalate							
	2,4-Dinitrotoluene							
	2,6-Dinitrotoluene							
	Di-n-octylphthalate							
	1,2-Diphenylhydrazine							
	Fluoranthene							
	Fluorene							
	Hexachlorobenzene							
	Hexachlorobutadiene							
	Hexachlorocyclopentadiene							
	Hexachloroethane							
	Indeno(1,2,3-cd)pyrene							
	Isophorone							
	Naphthalene							
	Nitrobenzene							
	N-Nitrosodimethylamine							
	N-Nitrosodiphenylamine							
	Phenanthrene							
	Pyrene							
	1,2,4-Trichlorobenzene							
	Benzo(k)fluoranthene							
	Benzoic acid							
	Benzyl alcohol							
	Dibenzofuran							
	N-Nitroso-di-n-propylamine							
Explosives, ug/kg								
SW8330	2,4,6-Trinitrotoluene							
	2-Nitrotoluene							
	3-Nitrotoluene							
	4-Nitrotoluene							
	Nitrobenzene							
(HMX)	Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine							

Analytical Results Summary
Test Area 4 - Former Fort Segarra, Water Island, USVI

Parameter, Units	Compound / Analyte	BG Threshold	# of all samples >Threshold	Bkg x 3, or PQL for HRS	# surface samples above 3x Bkg, or PQL for HRS	Above HRS SCDM	Chemical Total	Site Average
(RDX)	Hexahydro-1,3,5-trinitro-1,3,5-triazine							
(Tetryl)	Methyl-2,4,6-trinitrophenylnitramine							
	1,3,5-Trinitrobenzene							
	2,4-Dinitrotoluene							
	2,6-Dinitrotoluene							
	1,3-Dinitrobenzene							
	4-Amino-2,6-Dinitrotoluene							
	2-Amino-4,6-Dinitrotoluene							
Cyanide, mg/kg								
SW9012A	Cyanide	1						
	QA/QC samples not used in cal							
	Background samples							
	Residence samples							
	Surface samples							
	Concentrations exceed backgro							
	exceeds SCDM. Used for HRS							

Analytical Results Summary
Test Area 5 - Former Fort Segarra, Water Island, USVI

Parameter,		Sample ID	FS-TA5-TP2-1-6'	FS-TA5-GS3-S1-0'-2'	FS-TA5-GS3B-S1-0'-2'	FS-TA5-GS3-1-2'	FS-TA5-GS3B-1-2'	FS-TA5-GS2-1-1.5'	FS-TA5-GS1-S1-0'-2'	FS-TA5-GS1-1-4'	FS-TA5-199-1-1.5'	FS-TA5-193-1-4'	FS-TA5-GS5-1-4'
Units	Compound / Analyte	Date Collected	5/29/2003	6/10/2003	6/10/2003	6/10/2003	6/10/2003	6/10/2003	6/10/2003	6/10/2003	6/10/2003	6/10/2003	6/9/2003
Metals, mg/kg													
SW6010B	Silver		1 U	1.1 U	1.3 U	1.1 U	1 U	1.1 U	1.1 U	1.1 U	1 U	1 U	1 U
	Aluminum		45000	32000	33000	32000	31000	38000	20000	33000	32000	39000	38000
	Arsenic		3.5	3.1	3.9	5.8 J	2.8 J	1 J	3.3 J	1.7 J	2.1 J	1.4 J	3.2
	Barium		29	33 J	44 J	56 J	35 J	15 J	34 J	36 J	16	36	8.8
	Beryllium		0.17 J	0.24 J	0.26 J	0.22 J	0.18 J	0.2 J	0.17 J	0.28 J	0.18 J	0.24 J	0.22 J
	Calcium		20000	42000 J	29000 J	44000 J	32000 J	13000 J	190000 J	14000 J	19000	19000	24000
	Cadmium		1	1.3	1.1	1.6	1.6	1.6	1.1	1.5	2.1	1.8	1.7
	Cobalt		34	22 J	21 J	24 J	26 J	30 J	16 J	30 J	28	30	35
	Chromium		98 J	20 J	20 J	25 J	15 J	16 J	14 J	14 J	15	12	130
	Copper		79 J	46	46	52 J	37 J	47 J	29 J	42 J	39	50	68
	Iron		54000	44000	47000	47000	48000	58000	31000	55000	72000	60000	58000
	Potassium		460	1100	1200	1000	670	420	700	520	390	510	390
	Magnesium		53000	33000	32000	36000	44000	46000	22000	33000	36000	44000	54000
	Manganese		1200	870	810	930	1000	770	980	1200	2100	1500	930
	Sodium		3800 J	1600	1400	1900	2000	870	2200	880	2200	2500	3400
	Nickel		49 J	15	14	15	14	18	9.8	15	12	17	39 J
	Lead		74 J	14	16	43 J	18 J	1.4 J	5 J	3.5 J	3 J	2.2	2.1 J
	Antimony		2.1 UJ	2.2 U	2.6 U	0.75 J	2.1 U	2.3 U	2.1 U	2.3 U	0.85 J	2.1 U	2.1 UJ
	Selenium		2.5 U	2.6 U	3.1 U	2.6 U	2.5 U	2.7 U	2.5 U	2.8 U	2.4 U	2.5 U	2.5 U
	Strontium		83 J	440 J	260 J	450 J	220 J	49 J	2800 J	160 J	140	150	150
	Thallium		5.8 U	3 U	3.6 U	15 U	2.9 U	6.4 U	3 U	6.4 U	14 U	5.8 U	5.8 U
	Vanadium		190	190	190	200	190	220	120	240	220	250	250
	Zinc		80 J	86 J	100 J	120 J	82 J	68 J	50 J	67 J	110	73	64 J
Mercury, mg/kg													
SW7471	Mercury		0.023	0.022	0.015 J	0.015 J	0.033	0.023 U	0.0095 J	0.007 J	0.02 U	0.021 U	0.021 U
Pesticides, ug/kg													
SW8081A	Aldrin		1.9 U	2 U	2.3 U	2 U	2 U	2.1 U	1.9 U	2.1 U	1.8 U	1.9 U	1.9 U
	alpha-BHC		1.9 U	2 U	2.3 U	2 U	2 U	2.1 U	1.9 U	2.1 U	1.8 U	1.9 U	1.9 U
	beta-BHC		1.9 U	2 U	2.3 U	2 U	2 U	2.1 U	1.9 U	2.1 U	1.8 U	1.9 U	1.9 U
	gamma-BHC (Lindane)		1.9 U	2 U	2.3 U	2 U	2 U	2.1 U	1.9 U	2.1 U	1.8 U	1.9 U	1.9 U
	delta-BHC		1.9 U	2 U	2.3 U	2 U	2 U	2.1 U	1.9 U	2.1 U	1.8 U	1.9 U	1.9 U
	Chlordane (technical)		19 U	20 U	23 U	20 U	20 U	21 U	19 U	21 U	18 U	19 U	19 U
	4,4'-DDT		3.8 U	3.8 U	4.4 U	3.9 U	3.8 U	4 U	3.7 U	4.1 U	3.5 U	3.7 U	3.6 U
	Endosulfan I		1.9 U	2 U	2.3 U	2 U	2 U	2.1 U	1.9 U	2.1 U	1.8 U	1.9 U	1.9 U
	Endosulfan II		3.8 U	3.8 U	4.4 U	3.9 U	3.8 U	4 U	3.7 U	4.1 U	3.5 U	3.7 U	3.6 U
	4,4'-DDE		3.8 U	3.8 U	4.4 U	3.9 U	3.8 U	4 U	3.7 U	4.1 U	3.5 U	3.7 U	3.6 U
	4,4'-DDD		3.8 U	3.8 U	4.4 U	3.9 U	3.8 U	4 U	3.7 U	4.1 U	3.5 U	3.7 U	3.6 U
	Dieldrin		4.5	2.8 J	2.9 J	18	11	4 U	3.7 U	4.1 U	0.45 J	3.7 U	0.97 J
	Endosulfan sulfate		3.8 U	3.8 U	4.4 U	3.9 U	3.8 U	4 U	3.7 U	4.1 U	3.5 U	3.7 U	3.6 U
	Endrin		3.8 U	3.8 U	4.4 U	3.9 U	3.8 U	4 U	3.7 U	4.1 U	3.5 U	3.7 U	3.6 U
	Endrin aldehyde		3.8 U	3.8 U	4.4 U	3.9 U	3.8 U	4 U	3.7 U	4.1 U	3.5 U	3.7 U	3.6 U
	Heptachlor		1.9 U	2 U	0.51 J	2 U	2 U	2.1 U	1.9 U	2.1 U	1.8 U	1.9 U	0.31 J
	Heptachlor epoxide		1.9 U	2 U	2.3 U	2 U	2 U	2.1 U	1.9 U	2.1 U	1.8 U	1.9 U	1.9 U
	Toxaphene		190 U	200 U	230 U	200 U	200 U	210 U	190 U	210 U	180 U	190 U	190 U
	Endrin ketone		3.8 U	3.8 U	4.4 U	3.9 U	3.8 U	4 U	3.7 U	4.1 U	3.5 U	3.7 U	3.6 U
	Methoxychlor		19 U	20 U	23 U	20 U	20 U	21 U	19 U	21 U	18 U	19 U	19 U

Analytical Results Summary
Test Area 5 - Former Fort Segarra, Water Island, USVI

Parameter,		Sample ID	FS-TA5-TP2-1-6'	FS-TA5-GS3-S1-0'-2'	FS-TA5-GS3B-S1-0'-2'	FS-TA5-GS3-1-2'	FS-TA5-GS3B-1-2'	FS-TA5-GS2-1-1.5'	FS-TA5-GS1-S1-0'-2	FS-TA5-GS1-1-4'	FS-TA5-199-1-1.5'	FS-TA5-193-1-4'	FS-TA5-GS5-1-4
Units	Compound / Analyte	Date Collected	5/29/2003	6/10/2003	6/10/2003	6/10/2003	6/10/2003	6/10/2003	6/10/2003	6/10/2003	6/10/2003	6/10/2003	6/9/2003
PCBs, ug/kg													
SW8082	Aroclor-1242		38 U	38 U	44 U	39 U	38 U	40 U	37 U	41 U	35 U	37 U	36 U
	Aroclor-1254		14 J	38 U	44 U	39 U	38 U	40 U	37 U	41 U	35 U	37 U	36 U
	Aroclor-1221		76 U	77 U	90 U	79 U	77 U	82 U	74 U	84 U	72 U	74 U	74 U
	Aroclor-1232		38 U	38 U	44 U	39 U	38 U	40 U	37 U	41 U	35 U	37 U	36 U
	Aroclor-1248		38 U	38 U	44 U	39 U	38 U	40 U	37 U	41 U	35 U	37 U	36 U
	Aroclor-1260		38 U	38 U	44 U	39 U	38 U	40 U	37 U	41 U	35 U	37 U	36 U
	Aroclor-1016		38 U	38 U	44 U	39 U	38 U	40 U	37 U	41 U	35 U	37 U	36 U
Herbicides, ug/kg													
SW8151A	2,4,5-TP (Silvex)		9.4 U	9.5 U	11 U	9.8 U	9.5 U	10 U	9.2 U	10 U	1.2 J	9.2 U	9.1 U
	2,4-DB		10 U	6.4 J	11 J	16	11 U	11 U	3.2 J	12 U	10 U	10 U	10 U
	2,4-D		9.4 U	9.5 U	11 U	9.8 U	9.5 U	10 U	9.2 U	10 U	8.9 U	9.2 U	9.1 U
	2,4,5-T		4.5 J	0.84 J	11 U	1.8 J	9.5 U	0.84 J	1.2 J	10 U	8.9 U	5.8 J	0.8 J
	Pentachlorophenol		19 U	20 U	23 U	20 U	20 U	21 U	19 U	21 U	18 U	19 U	19 U
	Dalapon		2300 U	2300 U	2700 U	2400 U	2300 U	2400 U	2200 U	2500 U	2200 U	2200 U	2200 U
	Dicamba		13 J	8.9 J	15 J	18 J	3.2 J	24 U	3 J	20 J	5.2 J	12 J	3.1 J
	Dichloroprop		110 U	110 U	140 U	120 U	110 U	120 U	110 U	120 U	110 U	110 U	110 U
	Dinoseb		110 UJ	110 U	140 U	120 U	110 U	120 U	110 U	120 U	110 U	110 U	110 U
	MCPA		2300 UJ	2300 U	2700 U	2400 U	2300 U	2400 U	2200 U	2500 U	2200 U	2200 U	2200 U
	MCPP		77000 J	2000 J	3800 J	6100 J	620 J	1500 J	5600	30000 J	23000 J	20000 J	11000 J
Semivolatiles, ug/kg													
SW8270C	2-Chlorophenol		380 U	380 U	440 U	390 U	380 U	400 U	370 U	410 U	350 U	370 U	360 U
	Acenaphthene		380 U	380 U	440 U	390 U	380 U	400 U	370 U	410 U	350 U	370 U	360 U
	2,2'-Oxybis(1-Chloropropane) (bis-2-chloroisopropyl ether)		380 U	380 U	440 U	390 U	380 U	400 U	370 U	410 U	350 U	370 U	360 U
	2-Nitroaniline		1900 U	2000 U	2300 U	2000 U	2000 U	2100 U	1900 U	2100 U	1800 U	1900 U	1900 U
	2-Methylnaphthalene		380 U	380 U	440 U	390 U	380 U	400 U	370 U	410 U	350 U	370 U	360 U
	2-Methylphenol (o-Cresol)		380 U	380 U	440 U	390 U	380 U	400 U	370 U	410 U	350 U	370 U	360 U
	2,4-Dichlorophenol		380 U	380 U	440 U	390 U	380 U	400 U	370 U	410 U	350 U	370 U	360 U
	Acenaphthylene		380 U	380 U	440 U	390 U	380 U	400 U	370 U	410 U	350 U	370 U	360 U
	3-Nitroaniline		1900 U	2000 U	2300 U	2000 U	2000 U	2100 U	1900 U	2100 U	1800 U	1900 U	1900 U
	2,4-Dimethylphenol		380 U	380 U	440 U	390 U	380 U	400 U	370 U	410 U	350 U	370 U	360 U
	Anthracene		380 U	380 U	440 U	390 U	380 U	400 U	370 U	410 U	350 U	370 U	360 U
	4,6-Dinitro-2-methylphenol		1900 U	2000 U	2300 U	2000 U	2000 U	2100 U	1900 U	2100 U	1800 U	1900 U	1900 U
	4-Chloroaniline		750 U	760 U	890 U	780 U	760 U	800 U	730 U	820 U	710 U	730 U	720 U
	4-Chloro-3-methylphenol		380 U	380 U	440 U	390 U	380 U	400 U	370 U	410 U	350 U	370 U	360 U
	3-Methylphenol/4-Methylphenol (m&p-Cresol)		380 U	380 U	440 U	390 U	380 U	400 U	370 U	410 U	350 U	370 U	360 U
	4-Nitroaniline		1900 U	2000 U	2300 U	2000 U	2000 U	2100 U	1900 U	2100 U	1800 U	1900 U	1900 U
	Benzidine		3100 UJ	3100 U	3600 U	3200 U	3100 U	3300 U	3000 U	3400 U	2900 U	3000 U	3000 UJ
	2,4-Dinitrophenol		1900 U	2000 U	2300 U	2000 U	2000 U	2100 U	1900 U	2100 U	1800 U	1900 U	1900 U
	2-Nitrophenol		380 U	380 U	440 U	390 U	380 U	400 U	370 U	410 U	350 U	370 U	360 U
	Benzo(a)pyrene		380 U	380 U	440 U	390 U	380 U	400 U	370 U	410 U	350 U	370 U	360 U
	4-Nitrophenol		1900 U	2000 U	2300 U	2000 U	2000 U	2100 U	1900 U	2100 U	1800 U	1900 U	1900 U
	Acetophenone		380 U	380 U	440 U	390 U	380 U	400 U	370 U	410 U	350 U	370 U	360 U

Analytical Results Summary
Test Area 5 - Former Fort Segarra, Water Island, USVI

Parameter,		Sample ID	FS-TA5-TP2-1-6'	FS-TA5-GS3-S1-0'-2'	FS-TA5-GS3B-S1-0'-2'	FS-TA5-GS3-1-2'	FS-TA5-GS3B-1-2'	FS-TA5-GS2-1-1.5'	FS-TA5-GS1-S1-0'-2	FS-TA5-GS1-1-4'	FS-TA5-199-1-1.5'	FS-TA5-193-1-4'	FS-TA5-GS5-1-4
Units	Compound / Analyte	Date Collected	5/29/2003	6/10/2003	6/10/2003	6/10/2003	6/10/2003	6/10/2003	6/10/2003	6/10/2003	6/10/2003	6/10/2003	6/9/2003
	Aniline		380 UJ	380 U	440 U	390 U	380 U	400 U	370 U	410 U	350 U	370 U	360 U
	Benzo(a)anthracene		380 U	380 U	440 U	390 U	380 U	400 U	370 U	410 U	350 U	370 U	360 U
	2,6-Dichlorophenol		380 U	380 U	440 U	390 U	380 U	400 U	370 U	410 U	350 U	370 U	360 U
	Benzo(b)fluoranthene		380 U	380 U	440 U	390 U	380 U	400 U	370 U	410 U	350 U	370 U	360 U
	Diethylphthalate		380 U	380 U	440 U	390 U	380 U	400 U	370 U	410 U	350 U	370 U	360 U
	Hexachloropropene		380 U	380 U	440 U	390 U	380 U	400 U	370 U	410 U	350 U	370 U	360 U
	2-Naphthylamine		480 U	480 U	570 U	490 U	480 U	510 U	470 U	520 U	450 U	470 U	460 U
	N-Nitrosopyrrolidine		380 U	380 U	440 U	390 U	380 U	400 U	370 U	410 U	350 U	370 U	360 U
	Pyridine		380 UJ	380 U	440 U	390 U	380 U	400 U	370 U	410 U	350 U	370 U	360 UJ
	1,2,4,5-Tetrachlorobenzene		380 U	380 U	440 U	390 U	380 U	400 U	370 U	410 U	350 U	370 U	360 U
	2,4,5-Trichlorophenol		380 U	380 U	440 U	390 U	380 U	400 U	370 U	410 U	350 U	370 U	360 U
	Benzo(g,h,i)perylene		380 U	380 U	440 U	390 U	380 U	400 U	370 U	410 U	350 U	370 U	360 U
	Pentachlorophenol		1900 U	2000 U	2300 U	2000 U	2000 U	2100 U	1900 U	2100 U	1800 U	1900 U	1900 U
	Phenol		380 U	380 U	440 U	390 U	380 U	400 U	370 U	410 U	350 U	370 U	360 U
	bis(2-Chloroethoxy)methane		380 U	380 U	440 U	390 U	380 U	400 U	370 U	410 U	350 U	370 U	360 U
	2,4,6-Trichlorophenol		380 U	380 U	440 U	390 U	380 U	400 U	370 U	410 U	350 U	370 U	360 U
	bis(2-Chloroethyl)ether		380 U	380 U	440 U	390 U	380 U	400 U	370 U	410 U	350 U	370 U	360 U
	bis(2-Ethylhexyl)phthalate		180 J	92 J	110 J	100 J	85 J	100 J	85 J	110 J	110 J	79 J	360 U
	4-Bromophenylphenyl ether		380 U	380 U	440 U	390 U	380 U	400 U	370 U	410 U	350 U	370 U	360 U
	Butylbenzylphthalate		380 U	60 J	440 U	390 U	380 U	400 U	370 U	410 U	350 U	370 U	360 U
	2-Chloronaphthalene		380 U	380 U	440 U	390 U	380 U	400 U	370 U	410 U	350 U	370 U	360 U
	4-Chlorophenylphenyl ether		380 U	380 U	440 U	390 U	380 U	400 U	370 U	410 U	350 U	370 U	360 U
	Chrysene		380 U	380 U	440 U	390 U	380 U	400 U	370 U	410 U	350 U	370 U	360 U
	Dibenzo(a,h)anthracene		380 U	130 J	440 U	390 U	380 U	400 U	370 U	410 U	350 U	370 U	360 U
	1,2-Dichlorobenzene		380 U	380 U	440 U	390 U	380 U	400 U	370 U	410 U	350 U	370 U	360 U
	1,3-Dichlorobenzene		380 U	380 U	440 U	390 U	380 U	400 U	370 U	410 U	350 U	370 U	360 U
	1,4-Dichlorobenzene		380 U	380 U	440 U	390 U	380 U	400 U	370 U	410 U	350 U	370 U	360 U
	3,3'-Dichlorobenzidine		750 U	760 U	890 U	780 U	760 U	800 U	730 U	820 U	710 U	730 U	720 U
	Dimethylphthalate		380 U	380 U	440 U	390 U	380 U	400 U	370 U	410 U	350 U	370 U	360 U
	Di-n-butylphthalate		380 U	380 U	440 U	390 U	380 U	400 U	370 U	410 U	350 U	370 U	360 U
	2,4-Dinitrotoluene		380 U	380 U	440 U	390 U	380 U	400 U	370 U	410 U	350 U	370 U	360 U
	2,6-Dinitrotoluene		380 U	380 U	440 U	390 U	380 U	400 U	370 U	410 U	350 U	370 U	360 U
	Di-n-octylphthalate		380 U	380 U	440 U	390 U	380 U	400 U	370 U	410 U	350 U	370 U	360 U
	1,2-Diphenylhydrazine		380 U	380 U	440 U	390 U	380 U	400 U	370 U	410 U	350 U	370 U	360 U
	Fluoranthene		380 U	380 U	440 U	390 U	380 U	400 U	370 U	410 U	350 U	370 U	360 U
	Fluorene		380 U	380 U	440 U	390 U	380 U	400 U	370 U	410 U	350 U	370 U	360 U
	Hexachlorobenzene		380 U	380 U	440 U	390 U	380 U	400 U	370 U	410 U	350 U	370 U	360 U
	Hexachlorobutadiene		380 U	380 U	440 U	390 U	380 U	400 U	370 U	410 U	350 U	370 U	360 U
	Hexachlorocyclopentadiene		920 U	930 U	1100 U	950 U	930 U	990 U	900 U	1000 U	870 U	900 U	890 U
	Hexachloroethane		380 U	380 U	440 U	390 U	380 U	400 U	370 U	410 U	350 U	370 U	360 U
	Indeno(1,2,3-cd)pyrene		380 U	200 J	440 U	390 U	380 U	400 U	370 U	410 U	350 U	370 U	360 U
	Isophorone		380 U	380 U	440 U	390 U	380 U	400 U	370 U	410 U	350 U	370 U	360 U
	Naphthalene		380 U	380 U	440 U	390 U	380 U	400 U	370 U	410 U	350 U	370 U	360 U
	Nitrobenzene		380 U	380 U	440 U	390 U	380 U	400 U	370 U	410 U	350 U	370 U	360 U
	N-Nitrosodimethylamine		680 U	690 U	810 U	700 U	690 U	730 U	670 U	750 U	640 U	670 U	660 U
	N-Nitrosodiphenylamine		380 U	380 U	440 U	390 U	380 U	400 U	370 U	410 U	350 U	370 U	360 U
	Phenanthrene		380 U	380 U	440 U	390 U	380 U	400 U	370 U	410 U	350 U	370 U	360 U
	Pyrene		380 U	380 U	440 U	390 U	380 U	400 U	370 U	410 U	350 U	370 U	360 U
	1,2,4-Trichlorobenzene		380 U	380 U	440 U	390 U	380 U	400 U	370 U	410 U	350 U	370 U	360 U

Analytical Results Summary
Test Area 5 - Former Fort Segarra, Water Island, USVI

Parameter, Units	Compound / Analyte	Sample ID / Date Collected	FS-TA5-TP2-1-6' 5/29/2003	FS-TA5-GS3-S1-0'-2' 6/10/2003	FS-TA5-GS3B-S1-0'-2' 6/10/2003	FS-TA5-GS3-1-2' 6/10/2003	FS-TA5-GS3B-1-2' 6/10/2003	FS-TA5-GS2-1-1.5' 6/10/2003	FS-TA5-GS1-S1-0'-2 6/10/2003	FS-TA5-GS1-1-4' 6/10/2003	FS-TA5-199-1-1.5' 6/10/2003	FS-TA5-193-1-4' 6/10/2003	FS-TA5-GS5-1-4 6/9/2003
	Benzo(k)fluoranthene		380 U	380 U	440 U	390 U	380 U	400 U	370 U	410 U	350 U	370 U	360 U
	Benzoic acid		1900 U	2000 U	2300 U	2000 U	2000 U	2100 U	1900 U	2100 U	1800 U	1900 U	1900 U
	Benzyl alcohol		380 U	380 U	440 U	390 U	380 U	400 U	370 U	410 U	350 U	370 U	360 U
	Dibenzofuran		380 U	380 U	440 U	390 U	380 U	400 U	370 U	410 U	350 U	370 U	360 U
	N-Nitroso-di-n-propylamine		380 U	380 U	440 U	390 U	380 U	400 U	370 U	410 U	350 U	370 U	360 U
Cyanide, mg/kg													
SW9012A			0.84 U	0.85 U	0.97 U	0.88 U	0.86 U	0.89 U	0.8 U	0.9 U	0.79 U	0.81 U	0.79 U
	QA/QC samples not used in calculating site average												
	Background samples												
	Residence samples												
	Concentrations exceed background threshold (inorganic) or RL (organic and cyanide)												
	Surface Samples												
	exceeds SCDM. Used for HRS score												

Analytical Results Summary
Test Area 5 - Former Fort Segarra, Water Island, USVI

Parameter,		FS-TA5-GS5-S1-0'-2'	FS-TA5-GS5-S2-3.5'	FS-TA5-GS4-1-3'	FS-TA5-GS4-2-1.5'	FS-TA5-147-1-1'	FS-TA5-SBK-1-2'	FS-TA5-SBK-1B-2'	FS-TA5-SR-1-0'-2'	FS-TA5-SR-2-0'-2'	FS-TA5-146-1-1'	FS-TA5-153-1-14'
Units	Compound / Analyte	6/9/2003	6/9/2003	6/9/2003	6/9/2003	6/11/2003	6/16/2003	6/16/2003	6/16/2003	6/16/2003	6/11/2003	6/11/2003
Metals, mg/kg												
SW6010B	Silver	1.1 U	1.1 U	1 U	1 U	1 U	0.98 U	1.1 U	1 U	0.99 U	1 U	0.99 U
	Aluminum	33000	32000	19000	32000	33000	29000	28000	20000	18000	29000	33000
	Arsenic	3.1	1.5 J	1.1 J	0.99 J	2.5	4.1	4.3	1.3 J	1.1 J	2.7	0.77 J
	Barium	19	18	29	26	12	98	86	45	26	14	20
	Beryllium	0.24 J	0.23 J	0.15 J	0.22 J	0.27 J	0.28 J	0.29 J	0.4 J	0.29 J	0.23 J	0.29 J
	Calcium	25000	20000	45000	18000	15000	5000 J	3000 J	37000	2900	36000	11000
	Cadmium	1.4	1.4	1.1	1.4	1.8	1.5	1.5	1.3	0.98	1.7	2.1
	Cobalt	28	28	19	4.7 J	36	31	28	20	15	29	18
	Chromium	22	12	15	8.6	14	7.6	8.3	11	22	9.8	10
	Copper	85	60	35	41	60	39	38 J	52	20	51	53
	Iron	57000	57000	31000	55000	63000	57000	58000	45000	36000	52000	66000
	Potassium	670	540	590	390	440	700	810	1400	2300	530	530
	Magnesium	41000	43000	39000	40000	37000	33000	31000	14000	12000	35000	37000
	Manganese	950	920	930	1400	1700	2100	2000	1100	940	1600	2500
	Sodium	2800	3300	3000	2600	2800	900	830	590	330	2500	1900
	Nickel	20 J	17 J	14 J	14 J	18	14	12	9.1	6.8	14	18
	Lead	6.7	3.5	3.7	5.3 J	3.5 J	5.7	6.4	8	3.3	7.3	2.5 U
	Antimony	0.75 J	2.2 UJ	2.1 UJ	0.8 J	2.1 U	0.73 J	0.81 J	2 U	2 U	2 U	0.73 J
	Selenium	2.6 U	2.7 U	2.5 U	2.5 U	2.5 U	2.4 U	2.5 U	2.4 U	2.4 U	2.4 U	2.4 U
	Strontium	280	94	270	190	120	57 J	38	580	32	220	35
	Thallium	6 U	3.1 U	2.9 U	29 U	15 U	2.7 U	3 U	2.8 U	2.8 U	5.7 U	6.4 U
	Vanadium	240	260	160	240	250	250	250	150	110	220	260
	Zinc	87 J	75 J	52 J	69 J	160	74	80	69	65	78	85
Mercury, mg/kg												
SW7471	Mercury	0.011 J	0.023 U	0.0086 J	0.018 J	1.0	0.012 J	0.015 J	0.011 J	0.023	0.0062 J	0.02 U
Pesticides, ug/kg												
SW8081A	Aldrin	2 U	2 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	1.8 U
	alpha-BHC	2 U	2 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	1.8 U
	beta-BHC	2 U	2 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	1.8 U
	gamma-BHC (Lindane)	2 U	2 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	1.8 U
	delta-BHC	2 U	2 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	1.8 U
	Chlordane (technical)	20 U	20 U	19 U	19 U	18 U	18 U	18 U	18 U	18 U	190	18 U
	4,4'-DDT	2.3 J	3.8 U	3.8 U	3.7 U	1.6 J	3.6 U	3.6 U	3.5 U	3.5 U	0.83 J	3.6 U
	Endosulfan I	2 U	2 U	1.9 U	1.9 U	1.8 U	1.8 U	1.8 U	0.93 J	1.8 U	1.8 U	1.8 U
	Endosulfan II	3.8 U	3.8 U	3.8 U	3.7 U	3.5 U	3.6 U	3.6 U	3.5 U	3.5 U	3.5 U	3.6 U
	4,4'-DDE	3.8 U	3.8 U	3.8 U	3.7 U	3.5 U	3.6 U	3.6 U	0.96 J	3.5 U	3.5 U	3.6 U
	4,4'-DDD	3.8 U	3.8 U	3.8 U	3.7 U	3.5 U	3.6 U	3.6 U	3.5 U	3.5 U	3.5 U	3.6 U
	Dieldrin	31 J	15 J	1.8 J	0.93 J	2.2 J	3.6 U	0.59 J	0.51 J	3.5 U	2.9 J	3.6 U
	Endosulfan sulfate	3.8 U	3.8 U	3.8 U	3.7 U	3.5 U	3.6 U	3.6 U	3.5 U	3.5 U	3.5 U	3.6 U
	Endrin	3.8 U	3.8 U	3.8 U	3.7 U	3.5 U	3.6 U	3.6 U	3.5 U	3.5 U	3.5 U	3.6 U
	Endrin aldehyde	3.8 U	3.8 U	3.8 U	3.7 U	3.5 U	3.6 U	3.6 U	3.5 U	3.5 U	3.5 U	3.6 U
	Heptachlor	2 U	2 U	1.9 U	1.9 U	1.8 U	0.83 J	1.8 U	1.4 J	1.8 U	1.3 J	1.8 U
	Heptachlor epoxide	2 U	0.21 J	1.9 U	1.9 U	3.7	0.51 J	1.8 U	1.8 U	1.8 U	1.8 U	1.8 U
	Toxaphene	200 U	200 U	190 U	190 U	180 U	180 U	180 U	180 U	180 U	180 U	180 U
	Endrin ketone	3.8 U	3.8 U	3.8 U	3.7 U	3.5 U	3.6 U	3.6 U	3.5 U	3.5 U	3.5 U	3.6 U
	Methoxychlor	20 U	20 U	19 U	19 U	18 U	18 U	18 U	18 U	18 U	18 U	18 U

Analytical Results Summary
Test Area 5 - Former Fort Segarra, Water Island, USVI

Parameter, Units	Compound / Analyte	FS-TA5-GS5-S1-0'-2' 6/9/2003		FS-TA5-GS5-S2-3.5' 6/9/2003		FS-TA5-GS4-1-3' 6/9/2003		FS-TA5-GS4-2-1.5' 6/9/2003		FS-TA5-147-1-1' 6/11/2003		FS-TA5-SBK-1-2' 6/16/2003		FS-TA5-SBK-1B-2' 6/16/2003		FS-TA5-SR-1-0'-2' 6/16/2003		FS-TA5-SR-2-0'-2' 6/16/2003		FS-TA5-146-1-1' 6/11/2003		FS-TA5-153-1-14' 6/11/2003	
PCBs, ug/kg																							
SW8082	Aroclor-1242	38	U	38	U	38	U	37	U	35	U	36	U	36	U	35	U	35	U	35	U	36	U
	Aroclor-1254	39	J	87	J	38	U	37	U	35	U	36	U	36	U	35	U	35	U	35	U	36	U
	Aroclor-1221	78	U	78	U	76	U	74	U	72	U	73	U	73	U	70	U	71	U	72	U	73	U
	Aroclor-1232	38	U	38	U	38	U	37	U	35	U	36	U	36	U	35	U	35	U	35	U	36	U
	Aroclor-1248	38	U	38	U	38	U	37	U	35	U	36	U	36	U	35	U	35	U	35	U	36	U
	Aroclor-1260	38	U	38	U	38	U	37	U	35	U	36	U	36	U	35	U	35	U	35	U	36	U
	Aroclor-1016	38	U	38	U	38	U	37	U	35	U	36	U	36	U	35	U	35	U	35	U	36	U
Herbicides, ug/kg																							
SW8151A	2,4,5-TP (Silvex)	0.86	J	0.71	J	9.4	U	9.2	U	8.9	U	9	U	9	U	8.7	U	8.8	U	8.9	U	9	U
	2,4-DB	11	U	11	U	10	U	10	U	10	U	10	U	10	U	9.8	U	9.9	U	10	U	10	U
	2,4-D	9.6	U	9.6	U	9.4	U	9.2	U	8.9	U	9	U	9	U	8.7	U	8.8	U	8.9	U	9	U
	2,4,5-T	2.5	J	1.8	J	9.4	U	9.2	U	8.9	U	9	U	9	U	8.7	U	8.8	U	8.9	U	9	U
	Pentachlorophenol	20	U	20	U	19	U	19	U	18	U	18	U	18	U	18	U	18	U	18	U	18	U
	Dalapon	2300	U	2300	U	2300	U	2200	U	2200	U	2200	U	2200	U	2100	U	2100	U	2200	U	2200	U
	Dicamba	8	J	7	J	23	U	7.2	J	16	J	17	J	12	J	11	J	33		6.4	J	22	U
	Dichloroprop	120	U	120	U	110	U	110	U	110	U	110	U	110	U	100	U	110	U	110	U	110	U
	Dinoseb	120	U	120	U	110	U	110	U	110	U	110	U	110	U	100	U	110	U	110	U	110	U
	MCPA	2300	U	2300	U	2300	U	2200	U	2200	U	2200	U	2200	U	2100	U	2100	U	2200	U	2200	U
	MCPP	4200	J	5000	J	2600	J	53000	J	100000	J	40000	J	24000	J	4800		21000	J	9800	J	4800	J
Semivolatiles, ug/kg																							
SW8270C	2-Chlorophenol	380	U	380	U	380	U	370	U	350	U	360	U	360	U	350	U	350	U	350	U	360	U
	Acenaphthene	380	U	380	U	380	U	370	U	350	U	360	U	360	U	350	U	350	U	350	U	360	U
	2,2'-Oxybis(1-Chloropropane) (bis-2-chloroisopropyl ether)	380	U	380	U	380	U	370	U	350	U	360	U	360	U	350	U	350	U	350	U	360	U
	2-Nitroaniline	2000	U	2000	U	1900	U	1900	U	1800	U	1800	U	1800	U	1800	U	1800	U	1800	U	1800	U
	2-Methylnaphthalene	380	U	380	U	380	U	370	U	350	U	360	U	360	U	350	U	350	U	350	U	360	U
	2-Methylphenol (o-Cresol)	380	U	380	U	380	U	370	U	350	U	360	U	360	U	350	U	350	U	350	U	360	U
	2,4-Dichlorophenol	380	U	380	U	380	U	370	U	350	U	360	U	360	U	350	U	350	U	350	U	360	U
	Acenaphthylene	380	U	380	U	380	U	370	U	350	U	360	U	360	U	350	U	350	U	350	U	360	U
	3-Nitroaniline	2000	U	2000	U	1900	U	1900	U	1800	U	1800	U	1800	U	1800	U	1800	U	1800	U	1800	U
	2,4-Dimethylphenol	380	U	380	U	380	U	370	U	350	U	360	U	360	U	350	U	350	U	350	U	360	U
	Anthracene	380	U	380	U	380	U	370	U	350	U	360	U	360	U	350	U	350	U	350	U	360	U
	4,6-Dinitro-2-methylphenol	2000	U	2000	U	1900	U	1900	U	1800	U	1800	U	1800	U	1800	U	1800	U	1800	U	1800	U
	4-Chloroaniline	770	U	770	U	750	U	730	U	710	U	720	U	720	U	690	U	700	U	710	U	720	U
	4-Chloro-3-methylphenol	380	U	380	U	380	U	370	U	350	U	360	U	360	U	350	U	350	U	350	U	360	U
	3-Methylphenol/4-Methylphenol (m&p-Cresol)	380	U	380	U	380	U	370	U	350	U	360	U	360	U	350	U	350	U	350	U	360	U
	4-Nitroaniline	2000	U	2000	U	1900	U	1900	U	1800	U	1800	U	1800	U	1800	U	1800	U	1800	U	1800	U
	Benzidine	3100	UJ	3100	UJ	3100	UJ	3000	UJ	2900	U	2900	U	2900	U	2800	U	2900	U	2900	UJ	2900	UJ
	2,4-Dinitrophenol	2000	U	2000	U	1900	U	1900	U	1800	U	1800	U	1800	U	1800	U	1800	U	1800	U	1800	U
	2-Nitrophenol	380	U	380	U	380	U	370	U	350	U	360	U	360	U	350	U	350	U	350	U	360	U
	Benzo(a)pyrene	380	U	380	U	380	U	370	U	350	U	360	U	360	U	350	U	350	U	350	U	360	U
	4-Nitrophenol	2000	U	2000	U	1900	U	1900	U	1800	U	1800	U	1800	U	1800	U	1800	U	1800	U	1800	U
	Acetophenone	380	U	380	U	380	U	370	U	350	U	360	U	360	U	350	U	350	U	350	U	360	U

Analytical Results Summary
Test Area 5 - Former Fort Segarra, Water Island, USVI

Parameter,		FS-TA5-GS5-S1-0'-2'	FS-TA5-GS5-S2-3.5'	FS-TA5-GS4-1-3'	FS-TA5-GS4-2-1.5'	FS-TA5-147-1-1'	FS-TA5-SBK-1-2'	FS-TA5-SBK-1B-2'	FS-TA5-SR-1-0'-2'	FS-TA5-SR-2-0'-2'	FS-TA5-146-1-1'	FS-TA5-153-1-14'
Units	Compound / Analyte	6/9/2003	6/9/2003	6/9/2003	6/9/2003	6/11/2003	6/16/2003	6/16/2003	6/16/2003	6/16/2003	6/11/2003	6/11/2003
	Aniline	380 U	380 U	380 U	370 U	350 U	360 U	360 U	350 U	350 U	350 U	360 U
	Benzo(a)anthracene	380 U	380 U	380 U	370 U	350 U	360 U	360 U	350 U	350 U	350 U	360 U
	2,6-Dichlorophenol	380 U	380 U	380 U	370 U	350 U	360 U	360 U	350 U	350 U	350 U	360 U
	Benzo(b)fluoranthene	380 U	380 U	380 U	370 U	350 U	360 U	360 U	350 U	350 U	350 U	360 U
	Diethylphthalate	380 U	380 U	380 U	370 U	350 U	360 U	360 U	350 U	350 U	350 U	47 J
	Hexachloropropene	380 U	380 U	380 U	370 U	350 U	360 U	360 U	350 U	350 U	350 U	360 U
	2-Naphthylamine	490 U	490 U	480 U	470 U	450 U	460 U	460 U	440 U	450 U	450 U	460 U
	N-Nitrosopyrrolidine	380 U	380 U	380 U	370 U	350 U	360 U	360 U	350 U	350 U	350 U	360 U
	Pyridine	380 UJ	380 UJ	380 UJ	370 UJ	350 U	360 U	360 U	350 U	350 U	350 U	360 U
	1,2,4,5-Tetrachlorobenzene	380 U	380 U	380 U	370 U	350 U	360 U	360 U	350 U	350 U	350 U	360 U
	2,4,5-Trichlorophenol	380 U	380 U	380 U	370 U	350 U	360 U	360 U	350 U	350 U	350 U	360 U
	Benzo(g,h,i)perylene	380 U	380 U	380 U	370 U	350 U	360 U	360 U	350 U	350 U	80 J	360 U
	Pentachlorophenol	2000 U	2000 U	1900 U	1900 U	1800 U	1800 U	1800 U	1800 U	1800 U	1800 U	1800 U
	Phenol	380 U	380 U	380 U	370 U	350 U	360 U	360 U	350 U	350 U	350 U	360 U
	bis(2-Chloroethoxy)methane	380 U	380 U	380 U	370 U	350 U	360 U	360 U	350 U	350 U	350 U	360 U
	2,4,6-Trichlorophenol	380 U	380 U	380 U	370 U	350 U	360 U	360 U	350 U	350 U	350 U	360 U
	bis(2-Chloroethyl)ether	380 U	380 U	380 U	370 U	350 U	360 U	360 U	350 U	350 U	350 U	360 U
	bis(2-Ethylhexyl)phthalate	600	85 J	63 J	370 U	62 J	73 J	72 J	56 J	72 J	110 J	62 J
	4-Bromophenylphenyl ether	380 U	380 U	380 U	370 U	350 U	360 U	360 U	350 U	350 U	350 U	360 U
	Butylbenzylphthalate	1000	86 J	380 U	370 U	51 J	360 U	360 U	350 U	350 U	81 J	360 U
	2-Chloronaphthalene	380 U	380 U	380 U	370 U	350 U	360 U	360 U	350 U	350 U	350 U	360 U
	4-Chlorophenylphenyl ether	380 U	380 U	380 U	370 U	350 U	360 U	360 U	350 U	350 U	350 U	360 U
	Chrysene	380 U	380 U	380 U	370 U	350 U	360 U	360 U	350 U	350 U	350 U	360 U
	Dibenzo(a,h)anthracene	380 U	380 U	380 U	370 U	350 U	360 U	360 U	350 U	350 U	55 J	360 U
	1,2-Dichlorobenzene	380 U	380 U	380 U	370 U	350 U	360 U	360 U	350 U	350 U	350 U	360 U
	1,3-Dichlorobenzene	380 U	380 U	380 U	370 U	350 U	360 U	360 U	350 U	350 U	350 U	360 U
	1,4-Dichlorobenzene	380 U	380 U	380 U	370 U	350 U	360 U	360 U	350 U	350 U	350 U	360 U
	3,3'-Dichlorobenzidine	770 U	770 U	750 U	730 U	710 U	720 U	720 U	690 U	700 U	710 U	720 U
	Dimethylphthalate	380 U	380 U	380 U	370 U	350 U	360 U	360 U	350 U	350 U	350 U	360 U
	Di-n-butylphthalate	380 U	380 U	380 U	370 U	350 U	360 U	360 U	350 U	350 U	350 U	360 U
	2,4-Dinitrotoluene	380 U	380 U	380 U	370 U	350 U	360 U	360 U	350 U	350 U	350 U	360 U
	2,6-Dinitrotoluene	380 U	380 U	380 U	370 U	350 U	360 U	360 U	350 U	350 U	350 U	360 U
	Di-n-octylphthalate	380 U	380 U	380 U	370 U	350 U	360 U	360 U	350 U	350 U	350 U	360 U
	1,2-Diphenylhydrazine	380 U	380 U	380 U	370 U	350 U	360 U	360 U	350 U	350 U	350 U	360 U
	Fluoranthene	380 U	380 U	380 U	370 U	350 U	360 U	360 U	350 U	350 U	350 U	360 U
	Fluorene	380 U	380 U	380 U	370 U	350 U	360 U	360 U	350 U	350 U	350 U	360 U
	Hexachlorobenzene	380 U	380 U	380 U	370 U	350 U	360 U	360 U	350 U	350 U	350 U	360 U
	Hexachlorobutadiene	380 U	380 U	380 U	370 U	350 U	360 U	360 U	350 U	350 U	350 U	360 U
	Hexachlorocyclopentadiene	940 U	940 U	920 U	900 U	870 U	880 U	880 U	850 U	860 U	870 U	880 U
	Hexachloroethane	380 U	380 U	380 U	370 U	350 U	360 U	360 U	350 U	350 U	350 U	360 U
	Indeno(1,2,3-cd)pyrene	380 U	380 U	380 U	370 U	350 U	360 U	360 U	350 U	350 U	63 J	360 U
	Isophorone	380 U	380 U	380 U	370 U	350 U	360 U	360 U	350 U	350 U	350 U	360 U
	Naphthalene	380 U	380 U	380 U	370 U	350 U	360 U	360 U	350 U	350 U	350 U	360 U
	Nitrobenzene	380 U	380 U	380 U	370 U	350 U	360 U	360 U	350 U	350 U	350 U	360 U
	N-Nitrosodimethylamine	700 U	700 U	680 U	670 U	640 U	650 U	650 U	630 U	640 U	640 U	650 U
	N-Nitrosodiphenylamine	380 U	380 U	380 U	370 U	350 U	360 U	360 U	350 U	350 U	350 U	360 U
	Phenanthrene	380 U	380 U	380 U	370 U	350 U	360 U	360 U	350 U	350 U	350 U	360 U
	Pyrene	380 U	380 U	380 U	370 U	350 U	360 U	360 U	350 U	350 U	350 U	360 U
	1,2,4-Trichlorobenzene	380 U	380 U	380 U	370 U	350 U	360 U	360 U	350 U	350 U	350 U	360 U

Analytical Results Summary
Test Area 5 - Former Fort Segarra, Water Island, USVI

Parameter, Units	Compound / Analyte	FS-TA5-GS5-S1-0'-2' 6/9/2003	FS-TA5-GS5-S2-3.5' 6/9/2003	FS-TA5-GS4-1-3' 6/9/2003	FS-TA5-GS4-2-1.5' 6/9/2003	FS-TA5-147-1-1' 6/11/2003	FS-TA5-SBK-1-2' 6/16/2003	FS-TA5-SBK-1B-2' 6/16/2003	FS-TA5-SR-1-0'-2' 6/16/2003	FS-TA5-SR-2-0'-2' 6/16/2003	FS-TA5-146-1-1' 6/11/2003	FS-TA5-153-1-14' 6/11/2003
	Benzo(k)fluoranthene	380 U	380 U	380 U	370 U	350 U	360 U	360 U	350 U	350 U	350 U	360 U
	Benzoic acid	2000 U	2000 U	1900 U	1900 U	1800 U	1800 U	1800 U	1800 U	1800 U	1800 U	1800 U
	Benzyl alcohol	380 U	380 U	380 U	370 U	350 U	360 U	360 U	350 U	350 U	350 U	360 U
	Dibenzofuran	380 U	380 U	380 U	370 U	350 U	360 U	360 U	350 U	350 U	350 U	360 U
	N-Nitroso-di-n-propylamine	380 U	380 U	380 U	370 U	350 U	360 U	360 U	350 U	350 U	350 U	360 U
Cyanide, mg/kg SW9012A		0.86 U	0.86 U	0.85 U	0.84 U	0.8 U	0.82 U	0.82 U	0.77 U	0.77 U	0.77 U	0.81 U

QA/QC samples not used in ca

Background samples

Residence samples

Concentrations exceed backgr

Surface Samples

exceeds SCDM. Used for HRS

Analytical Results Summary
Test Area 5 - Former Fort Segarra, Water Island, USVI

Parameter,		FS-TA5-195-1-1'	FS-TA5-204-1-6'	FS-TA5-SBK-2-2'	FS-TA5-TP1-1-5.5'	FS-TA5-TP3-1-6.5'	FS-TA5-SBK-1/QA-2'	BG Threshold	# of all samples >Threshold	Bkg x 3, or PQL for HRS	# surface samples above 3x Bkg, or PQL for HRS	Above HRS SCDM	Chemical Total	Site Average
Units	Compound / Analyte	6/11/2003	6/11/2003	6/11/2003	6/12/2003	6/12/2003	6/16/2003							
Metals, mg/kg														
SW6010B	Silver	0.97 U	0.96 U	1.1 U	1.1 U	1.1 U	0.99 U							
	Aluminum	37000	31000	37000	46000	20000	27000							
	Arsenic	1.7 J	1.5 J	1.4 J	1.6 J	2.3 J	4							
	Barium	14	26	60	20	110	120							
	Beryllium	0.21 J	0.26 J	0.29 J	0.27 J	0.39 J	0.24 J							
	Calcium	13000	11000	9200 J	1800	3000	4400 J							
	Cadmium	1.7	1.7	1.6	1.7	1	1.5							
	Cobalt	34	29	30	25	34	29							
	Chromium	14	9.6	7.1	8.9	12	9	16.4	6	24.6	2	130	514.9	23.4
	Copper	53	40	34	63	26	36	78	2	117			1102	50.1
	Iron	57000	59000	59000	73000	49000	52000							
	Potassium	390	380	850	420	1100	630							
	Magnesium	38000	35000	37000	61000	17000	31000							
	Manganese	1500	1400	1100	930	1900	2000							
	Sodium	2600	2100	980	6300	2000	840							
	Nickel	18	11	12	18	11	12						390.8	17.8
	Lead	2.7 J	4.1	3.5	1.6	6.6	5.7						229.7	10.4
	Antimony	1.9 U	0.71 J	2.1 U	2.2 UJ	2.2 UJ	0.81 J							
	Selenium	2.3 U	2.3 U	2.5 U	2.7 U	2.6 U	2.4 U							
	Strontium	64	79	150 J	23	43	59 J	114	4	173	2	2800	6320	287.3
	Thallium	1.4 U	5.4 U	5.9 U	3.1 U	3 U	2.8 U							
	Vanadium	230	230	240	300	170	230							
	Zinc	67	75	61	86	66	74							
Mercury, mg/kg														
SW7471	Mercury	0.02 U	0.0049 J	0.019 J	0.0064 J	0.02 U	0.0049 J	0.02	5	0.02	3	1	1.3476	0.1
Pesticides, ug/kg														
SW8081A	Aldrin	1.8 U	1.8 U	1.9 U	2 U	1.9 U	1.9 U							
	alpha-BHC	1.8 U	1.8 U	1.9 U	2 U	1.9 U	1.9 U							
	beta-BHC	1.8 U	1.8 U	1.9 U	2 U	1.9 U	1.9 U							
	gamma-BHC (Lindane)	1.8 U	1.8 U	1.9 U	2 U	1.9 U	1.9 U							
	delta-BHC	1.8 U	1.8 U	1.9 U	2 U	1.9 U	1.9 U							
	Chlordane (technical)	18 U	18 U	19 U	20 U	19 U	19 U							
	4,4'-DDT	3.5 U	3.5 U	3.7 U	4 U	0.42 J	3.6 U							
	Endosulfan I	1.8 U	1.8 U	1.9 U	2 U	1.9 U	1.9 U							
	Endosulfan II	3.5 U	3.5 U	3.7 U	4 U	3.8 U	3.6 U							
	4,4'-DDE	3.5 U	3.5 U	3.7 U	4 U	3.8 U	3.6 U							
	4,4'-DDD	3.5 U	3.5 U	3.7 U	4 U	3.8 U	3.6 U							
	Dieldrin	3.5 U	0.43 J	3.7 U	1 J	9.1	3.6 U	3.6	6	3.6	3			
	Endosulfan sulfate	3.5 U	3.5 U	3.7 U	4 U	3.8 U	3.6 U							
	Endrin	3.5 U	3.5 U	3.7 U	4 U	3.8 U	3.6 U							
	Endrin aldehyde	3.5 U	3.5 U	3.7 U	4 U	3.8 U	3.6 U							
	Heptachlor	1.8 U	1.8 U	1.9 U	2 U	1.9 U	1.9 U							
	Heptachlor epoxide	1.8 U	0.3 J	1.9 U	2 U	0.23 J	1.9 U							
	Toxaphene	180 U	180 U	190 U	200 U	190 U	190 U							
	Endrin ketone	3.5 U	3.5 U	3.7 U	4 U	3.8 U	3.6 U							
	Methoxychlor	18 U	18 U	19 U	20 U	19 U	19 U							

Analytical Results Summary
Test Area 5 - Former Fort Segarra, Water Island, USVI

Parameter, Units	Compound / Analyte	FS-TA5-195-1-1' 6/11/2003	FS-TA5-204-1-6' 6/11/2003	FS-TA5-SBK-2-2' 6/11/2003	FS-TA5-TP1-1-5.5' 6/12/2003	FS-TA5-TP3-1-6.5' 6/12/2003	FS-TA5-SBK-1/QA-2' 6/16/2003	BG Threshold	# of all samples >Threshold	Bkg x 3, or PQL for HRS	# surface samples above 3x Bkg, or PQL for HRS	Above HRS SCDM	Chemical Total	Site Average
PCBs, ug/kg														
SW8082	Aroclor-1242	35 U	35 U	37 U	40 U	38 U	36 U							
	Aroclor-1254	35 U	35 U	37 U	40 U	38 U	36 U							
	Aroclor-1221	72 U	72 U	74 U	81 U	76 U	74 U							
	Aroclor-1232	35 U	35 U	37 U	40 U	38 U	36 U							
	Aroclor-1248	35 U	35 U	37 U	40 U	38 U	36 U							
	Aroclor-1260	35 U	35 U	37 U	40 U	38 U	36 U							
	Aroclor-1016	35 U	35 U	37 U	40 U	38 U	36 U							
Herbicides, ug/kg														
SW8151A	2,4,5-TP (Silvex)	8.9 U	8.9 U	9.2 U	10 U	9.4 U	9.1 U							
	2,4-DB	10 U	10 U	10 U	11 U	10 U	10 U	10	2	10	2	16		
	2,4-D	8.9 U	8.9 U	9.2 U	10 U	9.4 U	9.1 U							
	2,4,5-T	8.9 U	8.9 U	9.2 U	10 U	9.4 U	9.1 U							
	Pentachlorophenol	18 U	18 U	19 U	20 U	19 U	19 U							
	Dalapon	2200 U	2200 U	2200 U	2400 U	2300 U	2200 U							
	Dicamba	22 U	5.2 J	11 J	4.1 J	23 U	18 J							
	Dichloroprop	110 U	110 U	110 U	120 U	110 U	110 U							
	Dinoseb	110 U	110 U	110 U	120 U	110 U	110 U							
	MCPA	2200 U	2200 U	2200 U	2400 U	2300 U	2200 U							
	MCPP	3700 J	12000 J	9900 J	2400 U	2300 U	37000 J	80000	1	120000				
Semivolatiles, ug/kg														
SW8270C	2-Chlorophenol	350 U	350 U	370 U	400 U	380 U	360 U							
	Acenaphthene	350 U	350 U	370 U	400 U	380 U	360 U							
	2,2'-Oxybis(1-Chloropropane) (bis-2-chloroisopropyl ether)	350 U	350 U	370 U	400 U	380 U	360 U							
	2-Nitroaniline	1800 U	1800 U	1900 U	2000 U	1900 U	1900 U							
	2-Methylnaphthalene	350 U	350 U	370 U	400 U	380 U	360 U							
	2-Methylphenol (o-Cresol)	350 U	350 U	370 U	400 U	380 U	360 U							
	2,4-Dichlorophenol	350 U	350 U	370 U	400 U	380 U	360 U							
	Acenaphthylene	350 U	350 U	370 U	400 U	380 U	360 U							
	3-Nitroaniline	1800 U	1800 U	1900 U	2000 U	1900 U	1900 U							
	2,4-Dimethylphenol	350 U	350 U	370 U	400 U	380 U	360 U							
	Anthracene	350 U	350 U	370 U	400 U	380 U	360 U							
	4,6-Dinitro-2-methylphenol	1800 U	1800 U	1900 U	2000 UJ	1900 UJ	1900 U							
	4-Chloroaniline	710 U	710 U	730 U	800 U	750 U	720 U							
	4-Chloro-3-methylphenol	350 U	350 U	370 U	400 U	380 U	360 U							
	3-Methylphenol/4-Methylphenol (m&p-Cresol)	350 U	350 U	370 U	400 U	380 U	360 U							
	4-Nitroaniline	1800 U	1800 U	1900 U	2000 U	1900 U	1900 U							
	Benzidine	2900 UJ	2900 UJ	3000 UJ	3200 UJ	3100 UJ	3000 U							
	2,4-Dinitrophenol	1800 U	1800 U	1900 U	2000 UJ	1900 UJ	1900 U							
	2-Nitrophenol	350 U	350 U	370 U	400 U	380 U	360 U							
	Benzo(a)pyrene	350 U	350 U	370 U	400 U	380 U	360 U							
	4-Nitrophenol	1800 U	1800 U	1900 U	2000 U	1900 U	1900 U							
	Acetophenone	350 U	350 U	370 U	400 U	380 U	360 U							

Analytical Results Summary
Test Area 5 - Former Fort Segarra, Water Island, USVI

Parameter,		FS-TA5-195-1-1'	FS-TA5-204-1-6'	FS-TA5-SBK-2-2'	FS-TA5-TP1-1-5.5'	FS-TA5-TP3-1-6.5'	FS-TA5-SBK-1/QA-2'	BG Threshold	# of all samples >Threshold	Bkg x 3, or PQL for HRS	# surface samples above 3x Bkg, or PQL for HRS	Above HRS SCDM	Chemical Total	Site Average
Units	Compound / Analyte	6/11/2003	6/11/2003	6/11/2003	6/12/2003	6/12/2003	6/16/2003							
	Aniline	350 U	350 U	370 U	400 U	380 U	360 U							
	Benzo(a)anthracene	350 U	350 U	370 U	400 U	380 U	360 U							
	2,6-Dichlorophenol	350 U	350 U	370 U	400 U	380 U	360 U							
	Benzo(b)fluoranthene	350 U	350 U	370 U	400 U	380 U	360 U							
	Diethylphthalate	350 U	350 U	370 U	400 U	380 U	360 U							
	Hexachloropropene	350 U	350 U	370 U	400 U	380 U	360 U							
	2-Naphthylamine	450 U	450 U	470 U	510 U	480 U	460 U							
	N-Nitrosopyrrolidine	350 U	350 U	370 U	400 U	380 U	360 U							
	Pyridine	350 U	350 U	370 U	400 UJ	380 UJ	360 U							
	1,2,4,5-Tetrachlorobenzene	350 U	350 U	370 U	400 U	380 U	360 U							
	2,4,5-Trichlorophenol	350 U	350 U	370 U	400 U	380 U	360 U							
	Benzo(g,h,i)perylene	350 U	350 U	370 U	400 U	380 U	360 U							
	Pentachlorophenol	1800 U	1800 U	1900 U	2000 UJ	1900 UJ	1900 U							
	Phenol	350 U	350 U	370 U	400 U	380 U	360 U							
	bis(2-Chloroethoxy)methane	350 U	350 U	370 U	400 U	380 U	360 U							
	2,4,6-Trichlorophenol	350 U	350 U	370 U	400 U	380 U	360 U							
	bis(2-Chloroethyl)ether	350 U	350 U	370 U	400 U	380 U	360 U							
	bis(2-Ethylhexyl)phthalate	50 J	67 J	78 J	75 J	62 J	360 U							
	4-Bromophenylphenyl ether	350 U	350 U	370 U	400 U	380 U	360 U							
	Butylbenzylphthalate	350 U	350 U	370 U	400 U	380 U	360 U							
	2-Chloronaphthalene	350 U	350 U	370 U	400 U	380 U	360 U							
	4-Chlorophenylphenyl ether	350 U	350 U	370 U	400 U	380 U	360 U							
	Chrysene	350 U	350 U	370 U	400 U	380 U	360 U							
	Dibenzo(a,h)anthracene	350 U	350 U	370 U	400 U	380 U	360 U							
	1,2-Dichlorobenzene	350 U	350 U	370 U	400 U	380 U	360 U							
	1,3-Dichlorobenzene	350 U	350 U	370 U	400 UJ	380 UJ	360 U							
	1,4-Dichlorobenzene	350 U	350 U	370 U	400 U	380 U	360 U							
	3,3'-Dichlorobenzidine	710 U	710 U	730 U	800 U	750 U	720 U							
	Dimethylphthalate	350 U	350 U	370 U	400 U	380 U	360 U							
	Di-n-butylphthalate	350 U	350 U	370 U	400 U	380 U	360 U							
	2,4-Dinitrotoluene	350 U	350 U	370 U	400 U	380 U	360 U							
	2,6-Dinitrotoluene	350 U	350 U	370 U	400 U	380 U	360 U							
	Di-n-octylphthalate	350 U	350 U	370 U	400 U	380 U	360 U							
	1,2-Diphenylhydrazine	350 U	350 U	370 U	400 U	380 U	360 U							
	Fluoranthene	350 U	350 U	370 U	400 U	380 U	360 U							
	Fluorene	350 U	350 U	370 U	400 U	380 U	360 U							
	Hexachlorobenzene	350 U	350 U	370 U	400 U	380 U	360 U							
	Hexachlorobutadiene	350 U	350 U	370 U	400 U	380 U	360 U							
	Hexachlorocyclopentadiene	870 U	870 U	900 U	980 UJ	920 UJ	890 U							
	Hexachloroethane	350 U	350 U	370 U	400 UJ	380 UJ	360 U							
	Indeno(1,2,3-cd)pyrene	350 U	350 U	370 U	400 U	380 U	360 UJ							
	Isophorone	350 U	350 U	370 U	400 U	380 U	360 U							
	Naphthalene	350 U	350 U	370 U	400 U	380 U	360 U							
	Nitrobenzene	350 U	350 U	370 U	400 U	380 U	360 U							
	N-Nitrosodimethylamine	640 U	640 U	670 U	720 U	680 U	660 U							
	N-Nitrosodiphenylamine	350 U	350 U	370 U	400 U	380 U	360 U							
	Phenanthrene	350 U	350 U	370 U	400 U	380 U	360 U							
	Pyrene	350 U	350 U	370 U	400 U	380 U	360 U							
	1,2,4-Trichlorobenzene	350 U	350 U	370 U	400 U	380 U	360 U							

Analytical Results Summary
Test Area 5 - Former Fort Segarra, Water Island, USVI

Parameter,		FS-TA5-195-1-1'		FS-TA5-204-1-6'		FS-TA5-SBK-2-2'		FS-TA5-TP1-1-5.5'		FS-TA5-TP3-1-6.5'		FS-TA5-SBK-1/QA-2'		BG Threshold	# of all samples >Threshold	Bkg x 3, or PQL for HRS	# surface samples above 3x Bkg, or PQL for HRS	Above HRS SCDM	Chemical Total	Site Average
Units	Compound / Analyte	6/11/2003		6/11/2003		6/11/2003		6/12/2003		6/12/2003		6/16/2003								
	Benzo(k)fluoranthene	350	U	350	U	370	U	400	U	380	U	360	U							
	Benzoic acid	1800	U	1800	U	1900	U	2000	UJ	1900	UJ	1900	U							
	Benzyl alcohol	350	U	350	U	370	U	400	U	380	U	360	U							
	Dibenzofuran	350	U	350	U	370	U	400	U	380	U	360	U							
	N-Nitroso-di-n-propylamine	350	U	350	U	370	U	400	U	380	U	360	U							
Cyanide, mg/kg																				
SW9012A		0.81	U	0.78	U	0.83	U	0.86	U	0.84	U	0.8	U							

QA/QC samples not used in ca

Background samples

Residence samples

Concentrations exceed backgr

Surface Samples

exceeds SCDM. Used for HRS

Analytical Results Summary
Test Area 8 - Former Fort Segarra, Water Island, USVI

Parameter, Units	Compound / Analyte	Sample ID / Date Collected	FS-TA8-SB3-1-0'-2' 6/17/2003	FS-TA8-SB2-1-0'-2' 6/17/2003	FS-TA8-SB1-1-0'-2' 6/17/2003	FS-TA8-SB5-1-0'-2' 6/17/2003	FS-TA8-SB4-1-0'-2' 6/17/2003	FS-TA8-SB7-1-0'-2' 6/17/2003	FS-TA8-SB9-1-0'-2 6/17/2003	FS-TA8-SBK-2-0'-2' 6/17/2003	FS-TA8-SB2B-1-0'-2' 6/17/2003	FS-TA8-SB6-1-0'-2' 6/17/2003
Metals, mg/kg												
SW6010B	Silver		0.99 U	0.95 U	1 U	0.95 U	0.95 U	1 U	0.97 U	0.98 U	0.94 U	1 U
	Aluminum		13000	7700	8000	11000	5500	14000	19000	15000	6600	36000
	Arsenic		4.1	2.2 U	0.93 J	1.8 J	0.75 J	4.7	1.3 J	2.4	2.2 U	2.5
	Barium		60	24	31	76	36	68	84	72	23	150
	Beryllium		0.28 J	0.16 J	0.19 J	0.25 J	0.15 J	0.36 J	0.29 J	0.23 J	0.14 J	0.33 J
	Calcium		11000	1500	1200	25000	3200	42000	12000	67000	1200	8500
	Cadmium		0.75	0.29 J	0.32 J	0.74	0.21 J	1	0.87	0.9	0.24 J	1.7
	Cobalt		6.1	4.1	6.3	7.6	4	9.9	18	14	3	36
	Chromium		7.1	4.5	5.9	7.2	2.5	19	43	16	4.1	130
	Copper		27	3.9	7.6	24	9.3	30	34	32	3.1	130
	Iron		23000	15000	16000	26000	11000	29000	35000	29000	12000	61000
	Potassium		1600 J	1400 J	1600 J	1900 J	1000 J	1400 J	1700 J	1600 J	1200 J	800
	Magnesium		7900	3900	3100	5800	1500 J	7800	13000	9400	3200	25000
	Manganese		610	240	390	410	340	840	920	950	200	1200
	Sodium		270	190	220	330	160	620	350	710	180	800
	Nickel		3.9 J	2.1 J	2.2 J	5.6	0.79 J	10	31	9.5	1.8 J	84
	Lead		20	1.5	21	5.1	4.2	27	5.6	15	1.1	3
	Antimony		0.73 J	1.9 UJ	2 UJ	1.9 UJ	1.9 UJ	2 UJ	1.9 UJ	2 UJ	1.9 UJ	0.7 J
	Selenium		2.4 U	2.3 U	2.4 U	2.3 U	2.3 U	2.4 U	2.3 U	2.4 U	2.3 U	2.5 U
	Strontium		170	19	14	360	40	520	120	850	15	46
	Thallium		2.8 U	2.7 U	2.8 U	2.7 U	2.6 U	2.8 U	2.7 U	2.8 U	2.6 U	5.9 U
	Vanadium		25	19	25	37	12	66	100	78	17	240
	Zinc		230 J	24 J	31 J	73 J	32 J	150 J	63 J	78 J	19 J	69
Mercury, mg/kg												
SW7471	Mercury		0.11	0.0093 J	0.014 J	0.04	0.0085 J	0.042	0.032	0.022	0.008 J	0.014 J
Pesticides, ug/kg												
SW8081A	Aldrin		7.2 U	1.8 U	8.8 U	70 U	3.5 U	35 U	7.2 U	45 U	1.8 U	9.4 U
	alpha-BHC		7.2 U	1.8 U	8.8 U	70 U	3.5 U	35 U	7.2 U	45 U	1.8 U	9.4 U
	beta-BHC		7.2 U	1.8 U	8.8 U	70 U	3.5 U	35 U	7.2 U	45 U	1.8 U	9.4 U
	gamma-BHC (Lindane)		7.2 U	1.8 U	8.8 U	70 U	3.5 U	35 U	7.2 U	45 U	1.8 U	9.4 U
	delta-BHC		7.2 U	1.8 U	8.8 U	70 U	3.5 U	35 U	7.2 U	45 U	1.8 U	9.4 U
	Chlordane (technical)		72 U	18 U	88 U	700 U	35 U	350 U	72 U	450 U	18 U	94 U
	4,4'-DDT		14 U	3.4 U	17 U	140 U	6.8 U	9.7 J	14 U	87 U	3.4 U	18 U
	Endosulfan I		7.2 U	1.8 U	8.8 U	70 U	3.5 U	35 U	7.2 U	45 U	1.8 U	9.4 U
	Endosulfan II		14 U	3.4 U	17 U	140 U	6.8 U	69 U	14 U	87 U	3.4 U	18 U
	4,4'-DDE		14 U	3.4 U	17 U	140 U	2.5 J	24 J	14 U	87 U	3.4 U	18 U
	4,4'-DDD		14 U	3.4 U	17 U	140 U	6.8 U	69 U	14 U	87 U	3.4 U	18 U
	Dieldrin		230	17	260	700	91	1100	180	610	8.2	140
	Endosulfan sulfate		14 U	3.4 U	17 U	140 U	6.8 U	69 U	14 U	87 U	3.4 U	18 U
	Endrin		14 U	3.4 U	17 U	140 U	6.8 U	69 U	14 U	87 U	3.4 U	18 U
	Endrin aldehyde		14 U	3.4 U	17 U	140 U	6.8 U	69 U	14 U	87 U	3.4 U	18 U
	Heptachlor		7.2 U	1.8 U	8.8 U	70 U	3.5 U	35 U	7.2 U	45 U	1.8 U	9.4 U
	Heptachlor epoxide		7.2 U	1.8 U	8.8 U	70 U	3.5 U	35 U	7.2 U	7.9 J	1.8 U	9.4 U
	Toxaphene		720 U	180 U	880 U	7000 U	350 U	3500 U	720 U	4500 U	180 U	940 U
	Endrin ketone		14 U	3.4 U	17 U	140 U	6.8 U	69 U	14 U	87 U	3.4 U	18 U
	Methoxychlor		72 U	18 U	88 U	700 U	35 U	350 U	72 U	450 U	18 U	94 U
PCBs, ug/kg												
SW8082	Aroclor-1242		140 U	34 U	170 U	1400 U	68 U	690 U	140 U	870 U	34 U	180 U
	Aroclor-1254		140 U	34 U	170 U	1400 U	41 J	690 U	140 U	870 U	34 U	180 U
	Aroclor-1221		280 U	70 U	350 U	2800 U	140 U	1400 U	280 U	1800 U	70 U	370 U
	Aroclor-1232		140 U	34 U	170 U	1400 U	68 U	690 U	140 U	870 U	34 U	180 U
	Aroclor-1248		140 U	34 U	170 U	1400 U	68 U	690 U	140 U	870 U	34 U	180 U
	Aroclor-1260		140 U	34 U	170 U	1400 U	68 U	690 U	140 U	870 U	34 U	180 U
	Aroclor-1016		140 U	34 U	170 U	1400 U	68 U	690 U	140 U	870 U	34 U	180 U

Analytical Results Summary
Test Area 8 - Former Fort Segarra, Water Island, USVI

Parameter,		Sample ID	FS-TA8-SB3-1-0'-2'	FS-TA8-SB2-1-0'-2'	FS-TA8-SB1-1-0'-2'	FS-TA8-SB5-1-0'-2'	FS-TA8-SB4-1-0'-2'	FS-TA8-SB7-1-0'-2'	FS-TA8-SB9-1-0'-2	FS-TA8-SBK-2-0'-2'	FS-TA8-SB2B-1-0'-2'	FS-TA8-SB6-1-0'-2'
Units	Compound / Analyte	Date Collected	6/17/2003	6/17/2003	6/17/2003	6/17/2003	6/17/2003	6/17/2003	6/17/2003	6/17/2003	6/17/2003	6/17/2003
Herbicides, ug/kg												
SW8151A	2,4,5-TP (Silvex)		8.8 U	8.6 U	8.6 U	8.6 U	8.6 U	8.6 U	8.8 U	8.7 U	8.6 U	9.2 U
	2,4-DB		9.9 U	60	17 J	9.6 U	9.6 U	9.7 U	26 J	11 J	36	10 U
	2,4-D		8.8 U	8.6 U	8.6 U	8.6 U	8.6 U	8.6 U	8.8 U	8.7 U	8.6 U	9.2 U
	2,4,5-T		6.1 J	12	8.1 J	2 J	12	4.3 J	7.8 J	4 J	6.7 J	9.2 U
	Pentachlorophenol		18 U	18 U	6.8 J	18 U	4.7 J	18 U	18 U	18 U	18 U	19 U
	Dalapon		2100 U	2100 U	2100 U	2100 U	2100 U	2100 U	2100 U	2100 U	2100 U	2200 U
	Dicamba		10 J	9 J	32 J	8 J	7.6 J	11 J	26 J	6.4 J	7.2 J	12 J
	Dichloroprop		110 U	100 U	100 U	100 U	100 U	100 U	110 U	100 U	100 U	110 U
	Dinoseb		110 U	100 U	100 U	100 U	100 U	100 U	110 U	100 U	100 U	110 U
	MCPA		2100 U	2100 U	2100 U	2100 U	2100 U	2100 U	2100 U	2100 U	2100 U	2200 U
	MCPP		7800 J	2100 U	2100 U	2100 U	2100 U	2100 U	2100 U	2100 U	2100 U	17000 J
Semivolatiles, ug/kg												
SW8270C	2-Chlorophenol		350 U	340 U	340 U	340 U	340 U	340 U	350 U	350 U	340 U	370 U
	Acenaphthene		350 U	340 U	340 U	340 U	340 U	340 U	350 U	350 U	340 U	370 U
	2,2'-Oxybis(1-Chloropropane)	(bis-2-chloroisopropyl e	350 U	340 U	340 U	340 U	340 U	340 U	350 U	350 U	340 U	370 U
	2-Nitroaniline		1800 U	1800 U	1800 U	1800 U	1800 U	1800 U	1800 U	1800 U	1800 U	1900 U
	2-Methylnaphthalene		350 U	340 U	340 U	340 U	340 U	340 U	350 U	350 U	340 U	370 U
	2-Methylphenol (o-Cresol)		350 U	340 U	340 U	340 U	340 U	340 U	350 U	350 U	340 U	370 U
	2,4-Dichlorophenol		350 U	340 U	340 U	340 U	340 U	340 U	350 U	350 U	340 U	370 U
	Acenaphthylene		350 U	340 U	340 U	340 U	340 U	340 U	350 U	350 U	340 U	370 U
	3-Nitroaniline		1800 U	1800 U	1800 U	1800 U	1800 U	1800 U	1800 U	1800 U	1800 U	1900 U
	2,4-Dimethylphenol		350 U	340 U	340 U	340 U	340 U	340 U	350 U	350 U	340 U	370 U
	Anthracene		350 U	340 U	340 U	340 U	340 U	340 U	350 U	350 U	340 U	370 U
	4,6-Dinitro-2-methylphenol		1800 U	1800 U	1800 U	1800 U	1800 U	1800 U	1800 U	1800 U	1800 U	1900 U
	4-Chloroaniline		700 UJ	690 UJ	690 UJ	680 UJ	680 UJ	690 UJ	700 UJ	690 U	690 UJ	730 U
	4-Chloro-3-methylphenol		350 U	340 U	340 U	340 U	340 U	340 U	350 U	350 U	340 U	370 U
	3-Methylphenol/4-Methylphenol	(m&p-Cresol)	350 U	340 U	340 U	340 U	340 U	340 U	350 U	350 U	340 U	370 U
	4-Nitroaniline		1800 U	1800 U	1800 U	1800 U	1800 U	1800 U	1800 U	1800 U	1800 U	1900 U
	Benzidine		2900 UJ	2800 UJ	2800 UJ	2800 UJ	2800 UJ	2800 UJ	2900 UJ	2800 U	2800 UJ	3000 U
	2,4-Dinitrophenol		1800 U	1800 U	1800 U	1800 U	1800 U	1800 U	1800 U	1800 U	1800 U	1900 U
	2-Nitrophenol		350 U	340 U	340 U	340 U	340 U	340 U	350 U	350 U	340 U	370 U
	Benzo(a)pyrene		350 U	340 U	340 U	340 U	340 U	340 U	350 U	350 U	340 U	370 U
	4-Nitrophenol		1800 U	1800 U	1800 U	1800 U	1800 U	1800 U	1800 U	1800 U	1800 U	1900 U
	Acetophenone		350 U	340 U	340 U	340 U	340 U	340 U	350 U	350 U	340 U	370 U
	Aniline		350 UJ	340 UJ	340 UJ	340 UJ	340 UJ	340 UJ	350 UJ	350 U	340 UJ	370 U
	Benzo(a)anthracene		350 U	340 U	340 U	340 U	340 U	340 U	350 U	350 U	340 U	370 U
	2,6-Dichlorophenol		350 U	340 U	340 U	340 U	340 U	340 U	350 U	350 U	340 U	370 U
	Benzo(b)fluoranthene		350 U	340 U	340 U	340 U	340 U	340 U	350 U	350 U	340 U	370 U
	Diethylphthalate		350 U	340 U	340 U	340 U	340 U	340 U	350 U	350 U	340 U	370 U
	Hexachloropropene		350 U	340 U	340 U	340 U	340 U	340 U	350 U	350 U	340 U	370 U
	2-Naphthylamine		440 U	440 U	440 U	430 U	430 U	440 U	440 U	440 U	440 U	470 U
	N-Nitrosopyrrolidine		350 U	340 U	340 U	340 U	340 U	340 U	350 U	350 U	340 U	370 U
	Pyridine		350 UJ	340 UJ	340 UJ	340 UJ	340 UJ	340 UJ	350 UJ	350 U	340 UJ	370 U
	1,2,4,5-Tetrachlorobenzene		350 U	340 U	340 U	340 U	340 U	340 U	350 U	350 U	340 U	370 U
	2,4,5-Trichlorophenol		350 U	340 U	340 U	340 U	340 U	340 U	350 U	350 U	340 U	370 U
	Benzo(g,h,i)perylene		350 U	340 U	340 U	340 U	340 U	340 U	350 U	350 U	340 U	370 U
	Pentachlorophenol		1800 U	1800 U	1800 U	1800 U	1800 U	1800 U	1800 U	1800 U	1800 U	1900 U
	Phenol		350 U	340 U	340 U	340 U	340 U	340 U	350 U	350 U	340 U	370 U
	bis(2-Chloroethoxy)methane		350 U	340 U	340 U	340 U	340 U	340 U	350 U	350 U	340 U	370 U
	2,4,6-Trichlorophenol		350 UJ	340 UJ	340 UJ	340 UJ	340 UJ	340 UJ	350 UJ	350 U	340 U	370 U
	bis(2-Chloroethyl)ether		350 U	340 U	340 U	340 U	340 U	340 U	350 U	350 U	340 U	370 U
	bis(2-Ethylhexyl)phthalate		350 U	340 U	340 U	340 U	340 U	340 J	110 J	350 U	49 J	72 J

Analytical Results Summary
Test Area 8 - Former Fort Segarra, Water Island, USVI

Parameter, Units	Compound / Analyte	Sample ID / Date Collected	FS-TA8-SB3-1-0'-2' 6/17/2003	FS-TA8-SB2-1-0'-2' 6/17/2003	FS-TA8-SB1-1-0'-2' 6/17/2003	FS-TA8-SB5-1-0'-2' 6/17/2003	FS-TA8-SB4-1-0'-2' 6/17/2003	FS-TA8-SB7-1-0'-2' 6/17/2003	FS-TA8-SB9-1-0'-2 6/17/2003	FS-TA8-SBK-2-0'-2' 6/17/2003	FS-TA8-SB2B-1-0'-2' 6/17/2003	FS-TA8-SB6-1-0'-2' 6/17/2003
	4-Bromophenylphenyl ether		350 U	340 U	340 U	340 U	340 U	340 U	350 U	350 U	340 U	370 U
	Butylbenzylphthalate		350 U	340 U	340 U	340 U	93 J	340 U	350 U	350 U	340 U	370 U
	2-Chloronaphthalene		350 U	340 U	340 U	340 U	340 U	340 U	350 U	350 U	340 U	370 U
	4-Chlorophenylphenyl ether		350 U	340 U	340 U	340 U	340 U	340 U	350 U	350 U	340 U	370 U
	Chrysene		350 U	340 U	340 U	340 U	340 U	340 U	350 U	350 U	340 U	370 U
	Dibenzo(a,h)anthracene		350 U	340 U	340 U	340 U	340 U	340 U	350 U	350 U	340 U	370 U
	1,2-Dichlorobenzene		350 UJ	340 UJ	340 UJ	340 UJ	340 UJ	340 UJ	350 UJ	350 U	340 UJ	370 U
	1,3-Dichlorobenzene		350 UJ	340 UJ	340 UJ	340 UJ	340 UJ	340 UJ	350 UJ	350 U	340 UJ	370 U
	1,4-Dichlorobenzene		350 UJ	340 UJ	340 UJ	340 UJ	340 UJ	340 UJ	350 UJ	350 U	340 UJ	370 U
	3,3'-Dichlorobenzidine		700 U	690 U	690 U	680 U	680 U	690 U	700 U	690 U	690 U	730 U
	Dimethylphthalate		350 U	340 U	340 U	340 U	340 U	340 U	350 U	350 U	340 U	370 U
	Di-n-butylphthalate		350 U	340 U	340 U	340 U	340 U	340 U	350 U	350 U	340 U	370 U
	2,4-Dinitrotoluene		350 U	340 U	340 U	340 U	340 U	340 U	350 U	350 U	340 U	370 U
	2,6-Dinitrotoluene		350 U	340 U	340 U	340 U	340 U	340 U	350 U	350 U	340 U	370 U
	Di-n-octylphthalate		350 U	340 U	340 U	340 U	340 U	340 U	350 U	350 U	340 U	370 U
	1,2-Diphenylhydrazine		350 U	340 U	340 U	340 U	340 U	340 U	350 U	350 U	340 U	370 U
	Fluoranthene		350 U	340 U	340 U	340 U	340 U	340 U	350 U	350 U	340 U	370 U
	Fluorene		350 U	340 U	340 U	340 U	340 U	340 U	350 U	350 U	340 U	370 U
	Hexachlorobenzene		350 U	340 U	340 U	340 U	340 U	340 U	350 U	350 U	340 U	370 U
	Hexachlorobutadiene		350 U	340 U	340 U	340 U	340 U	340 U	350 U	350 U	340 U	370 U
	Hexachlorocyclopentadiene		860 U	840 U	840 U	840 U	840 U	840 U	860 U	850 U	840 UJ	900 U
	Hexachloroethane		350 UJ	340 UJ	340 UJ	340 UJ	340 UJ	340 UJ	350 UJ	350 U	340 UJ	370 U
	Indeno(1,2,3-cd)pyrene		350 U	340 U	340 U	340 U	340 U	340 U	350 U	350 U	340 U	370 U
	Isophorone		350 U	340 U	340 U	340 U	340 U	340 U	350 U	350 U	340 U	370 U
	Naphthalene		350 U	340 U	340 U	340 U	340 U	340 U	350 U	350 U	340 U	370 U
	Nitrobenzene		350 U	340 U	340 U	340 U	340 U	340 U	350 U	350 U	340 U	370 U
	N-Nitrosodimethylamine		640 U	620 U	620 U	620 U	620 U	620 U	640 U	630 U	620 U	670 U
	N-Nitrosodiphenylamine		350 U	340 U	340 U	340 U	340 U	340 U	350 U	350 U	340 U	370 U
	Phenanthrene		350 U	340 U	340 U	340 U	340 U	340 U	350 U	350 U	340 U	370 U
	Pyrene		350 U	340 U	340 U	340 U	340 U	340 U	350 U	350 U	340 U	370 U
	1,2,4-Trichlorobenzene		350 U	340 U	340 U	340 U	340 U	340 U	350 U	350 U	340 U	370 U
	Benzo(k)fluoranthene		350 U	340 U	340 U	340 U	340 U	340 U	350 U	350 U	340 U	370 U
	Benzoic acid		1800 UJ	1800 UJ	1800 UJ	1800 UJ	1800 UJ	1800 UJ	1800 UJ	1800 U	1800 UJ	1900 U
	Benzyl alcohol		350 U	340 U	340 U	340 U	340 U	340 U	350 U	350 U	340 U	370 U
	Dibenzofuran		350 U	340 U	340 U	340 U	340 U	340 U	350 U	350 U	340 U	370 U
	N-Nitroso-di-n-propylamine		350 U	340 U	340 U	340 U	340 U	340 U	350 U	350 U	340 U	370 U
Cyanide, mg/kg												
SW9012A			0.77 U	0.77 U	0.75 U	0.74 U	0.77 U	0.75 U	0.79 U	0.77 U	0.75 U	0.41 J

QA/QC samples not used in calculating site average

Background samples

Concentrations exceed background threshold (inorganic) or RL (organic and cyanide)

Analytical Results Summary
Test Area 8 - Former Fort Segarra, Water Island, USVI

Parameter, Units	Compound / Analyte	FS-TA8-SBK-1-0'-2' 6/17/2003		FS-TA8-SB8-1-0'-2' 6/17/2003		FSA-TA8-SB-10-1-0'-2' 6/17/2003			Site Average		
Metals, mg/kg											
SW6010B	Silver	1	U	1	U	1	U				
	Aluminum	9700		13000		13000		140,200.0	14,020.0		
	Arsenic	1.6	J	2.6		0.87	J				
	Barium	78		420		62		1,011.0	101.1		
	Beryllium	0.18	J	0.35	J	0.29	J				
	Calcium	100000		37000		4900					
	Cadmium	0.57		0.91		0.53					
	Cobalt	5.3		8.8		6.4		107.2	10.7		
	Chromium	10		11		11		241.2	24.1		
	Copper	24		22		14		301.8	30.2		
	Iron	18000		31000		24000					
	Potassium	1400		1500		1100					
	Magnesium	6300		6000		4200					
	Manganese	400		1000		460					
	Sodium	1200		770		1300					
	Nickel	3.6	J	5.5		5.3		150.4	15.0		
	Lead	23		6.3		2.9					
	Antimony	2	U	2	U	2	U				
	Selenium	2.4	U	2.5	U	2.5	U				
	Strontium	1300		530		59					
	Thallium	2.8	U	2.9	U	2.9	U				
	Vanadium	35		49		33		606.0	60.6		
	Zinc	41		67		39		778.0	77.8		
Mercury, mg/kg											
SW7471	Mercury	0.03		0.012	J	0.0077	J	0.3	0.029		
Pesticides, ug/kg											
SW8081A	Aldrin	18	U	18	U	0.7	J				
	alpha-BHC	18	U	18	U	7.3	U				
	beta-BHC	18	U	18	U	7.3	U				
	gamma-BHC (Lindane)	18	U	18	U	7.3	U				
	delta-BHC	18	U	18	U	7.3	U				
	Chlordane (technical)	180	U	180	U	73	U				
	4,4'-DDT	34	U	35	U	2.6	J				
	Endosulfan I	18	U	18	U	1.7	J				
	Endosulfan II	34	U	35	U	14	U				
	4,4'-DDE	34	U	35	U	14	U				
	4,4'-DDD	34	U	35	U	14	U				
	Dieldrin	420		300		160		3,178.0	317.800		
	Endosulfan sulfate	34	U	35	U	14	U				
	Endrin	34	U	35	U	14	U				
	Endrin aldehyde	34	U	35	U	14	U				
	Heptachlor	18	U	18	U	7.3	U				
	Heptachlor epoxide	18	U	18	U	3.4	J				
	Toxaphene	1800	U	1800	U	730	U				
	Endrin ketone	34	U	35	U	14	U				
	Methoxychlor	180	U	180	U	73	U				
PCBs, ug/kg											
SW8082	Aroclor-1242	340	U	350	U	140	U				
	Aroclor-1254	670	J	100	J	91	J				
	Aroclor-1221	700	U	710	U	290	U				
	Aroclor-1232	340	U	350	U	140	U				
	Aroclor-1248	340	U	350	U	140	U				
	Aroclor-1260	340	U	350	U	140	U				
	Aroclor-1016	340	U	350	U	140	U				

Analytical Results Summary
Test Area 8 - Former Fort Segarra, Water Island, USVI

Parameter, Units	Compound / Analyte	FS-TA8-SBK-1-0'-2' 6/17/2003		FS-TA8-SB8-1-0'-2' 6/17/2003		FSA-TA8-SB-10-1-0'-2' 6/17/2003		Site Average
Herbicides, ug/kg								
SW8151A	2,4,5-TP (Silvex)	1.4	J	8.8	U	8.9	U	
	2,4-DB	9.7	U	9.9	U	10	U	
	2,4-D	8.6	U	8.8	U	8.9	U	
	2,4,5-T	5.9	J	8.8	U	8.9	U	
	Pentachlorophenol	18	U	18	U	18	U	
	Dalapon	2100	U	2100	U	2200	U	
	Dicamba	4	J	3.2	J	5.6	J	
	Dichloroprop	100	U	110	U	110	U	
	Dinoseb	100	U	110	U	110	U	
	MCPA	2100	U	2100	U	2200	U	
	MCPP	1300	J	2100	U	8800	J	
Semivolatiles, ug/kg								
SW8270C	2-Chlorophenol	340	U	350	U	350	U	
	Acenaphthene	340	U	350	U	350	U	
	2,2'-Oxybis(1-Chloropropane) (bi	340	U	350	U	350	U	
	2-Nitroaniline	1800	U	1800	U	1800	U	
	2-Methylnaphthalene	340	U	350	U	350	U	
	2-Methylphenol (o-Cresol)	340	U	350	U	350	U	
	2,4-Dichlorophenol	340	U	350	U	350	U	
	Acenaphthylene	340	U	350	U	350	U	
	3-Nitroaniline	1800	U	1800	U	1800	U	
	2,4-Dimethylphenol	340	U	350	U	350	U	
	Anthracene	340	U	350	U	350	U	
	4,6-Dinitro-2-methylphenol	1800	U	1800	U	1800	U	
	4-Chloroaniline	690	U	700	U	710	U	
	4-Chloro-3-methylphenol	340	U	350	U	350	U	
	3-Methylphenol/4-Methylphenol (	340	U	350	U	350	U	
	4-Nitroaniline	1800	U	1800	U	1800	U	
	Benzidine	2800	U	2900	U	2900	UJ	
	2,4-Dinitrophenol	1800	U	1800	U	1800	U	
	2-Nitrophenol	340	U	350	U	350	U	
	Benzo(a)pyrene	340	U	350	U	350	U	
	4-Nitrophenol	1800	U	1800	U	1800	U	
	Acetophenone	340	U	350	U	350	U	
	Aniline	340	U	350	U	350	U	
	Benzo(a)anthracene	340	U	350	U	350	U	
	2,6-Dichlorophenol	340	U	350	U	350	U	
	Benzo(b)fluoranthene	340	U	350	U	350	U	
	Diethylphthalate	340	U	350	U	350	U	
	Hexachloropropene	340	U	350	U	350	U	
	2-Naphthylamine	440	U	450	U	450	U	
	N-Nitrosopyrrolidine	340	U	350	U	350	U	
	Pyridine	340	U	350	U	350	U	
	1,2,4,5-Tetrachlorobenzene	340	U	350	U	350	U	
	2,4,5-Trichlorophenol	340	U	350	U	350	U	
	Benzo(g,h,i)perylene	340	U	350	U	350	U	
	Pentachlorophenol	1800	U	1800	U	1800	U	
	Phenol	340	U	350	U	350	U	
	bis(2-Chloroethoxy)methane	340	U	350	U	350	U	
	2,4,6-Trichlorophenol	340	U	350	U	350	U	
	bis(2-Chloroethyl)ether	340	U	350	U	350	U	
	bis(2-Ethylhexyl)phthalate	61	J	110	J	72	J	

Analytical Results Summary
Test Area 8 - Former Fort Segarra, Water Island, USVI

Parameter, Units	Compound / Analyte	FS-TA8-SBK-1-0'-2' 6/17/2003		FS-TA8-SB8-1-0'-2' 6/17/2003		FSA-TA8-SB-10-1-0'-2' 6/17/2003		Site Average
	4-Bromophenylphenyl ether	340	U	350	U	350	U	
	Butylbenzylphthalate	340	U	350	U	350	U	
	2-Chloronaphthalene	340	U	350	U	350	U	
	4-Chlorophenylphenyl ether	340	U	350	U	350	U	
	Chrysene	340	U	350	U	350	U	
	Dibenzo(a,h)anthracene	340	U	350	U	350	U	
	1,2-Dichlorobenzene	340	U	350	U	350	U	
	1,3-Dichlorobenzene	340	U	350	U	350	U	
	1,4-Dichlorobenzene	340	U	350	U	350	U	
	3,3'-Dichlorobenzidine	690	U	700	U	710	U	
	Dimethylphthalate	340	U	350	U	350	U	
	Di-n-butylphthalate	340	U	350	U	350	U	
	2,4-Dinitrotoluene	340	U	350	U	350	U	
	2,6-Dinitrotoluene	340	U	350	U	350	U	
	Di-n-octylphthalate	340	U	350	U	350	U	
	1,2-Diphenylhydrazine	340	U	350	U	350	U	
	Fluoranthene	340	U	350	U	350	U	
	Fluorene	340	U	350	U	350	U	
	Hexachlorobenzene	340	U	350	U	350	U	
	Hexachlorobutadiene	340	U	350	U	350	U	
	Hexachlorocyclopentadiene	840	U	860	U	870	U	
	Hexachloroethane	340	U	350	U	350	U	
	Indeno(1,2,3-cd)pyrene	340	U	350	U	350	U	
	Isophorone	340	U	350	U	350	U	
	Naphthalene	340	U	350	U	350	U	
	Nitrobenzene	340	U	350	U	350	U	
	N-Nitrosodimethylamine	620	U	640	U	640	U	
	N-Nitrosodiphenylamine	340	U	350	U	350	U	
	Phenanthrene	340	U	350	U	350	U	
	Pyrene	340	U	350	U	350	U	
	1,2,4-Trichlorobenzene	340	U	350	U	350	U	
	Benzo(k)fluoranthene	340	U	350	U	350	U	
	Benzoic acid	1800	U	1800	U	1800	U	
	Benzyl alcohol	340	U	350	U	350	U	
	Dibenzofuran	340	U	350	U	350	U	
	N-Nitroso-di-n-propylamine	340	U	350	U	350	U	
Cyanide, mg/kg								
SW9012A		0.77	U	0.77	U	0.78	U	
	QA/QC samples not used in calcu							
	Background samples							
	Concentrations exceed backgrou							

Analytical Results Summary
Flamingo Bay Landfill - Former Fort Segarra, Water Island, USVI

Parameter,		Sample ID	FS-FBL-SB2-1-3'	FS-FBL-SB9-1-3.5'	FS-FBL-SB10-1-0'-2'	FS-FBL-SB7-S-1-0'-2'	FS-FBL-G1-1-4'	FS-FBL-G6-1-3.5'	FS-FBL-G9-1-4'	FS-FBL-SB6-1-0'-2'	FS-FBL-SB6-2-3.5'
Units	Compound / Analyte	Date Collected	5/20/2003	5/19/2003	5/19/2003	5/19/2003	5/20/2003	5/20/2003	5/21/2003	5/21/2003	5/21/2003
Metals, mg/kg											
SW6010B	Silver		0.94 J	1.1 U	1 U	1 U	0.72 J	0.99 U	1.1 U	1 U	1.1 U
	Aluminum		36000	25000	36000	36000	12000	25000	12000	36000	15000
	Arsenic		180	1.3 J	1.8 J	2.6	120	19	0.88 J	2.2 J	2 J
	Barium		1100	38	88	59 J	190 J	75	26	100	64
	Beryllium		0.24 J	0.28 J	0.29 J	0.23 J	0.16 J	0.2 J	0.27 J	0.24 J	0.22 J
	Calcium		150000	5900	8600	27000	160000	150000	1400	59000	6700
	Cadmium		11	0.51 J	0.71	1.1	5.1	1.6	0.27 J	0.95	0.59
	Cobalt		15 J	18 J	27 J	26 J	15	15	7.1	30	12
	Chromium		180 J	28 J	32 J	18 J	180	52	9.7	18	7.1
	Copper		650	35	50	58	590	99	13	59	28
	Iron		41000	39000	52000	58000	160000	36000	23000	48000	29000
	Potassium		2100	1400	1100	730	1400 J	1000 J	2100 J	680	1800
	Magnesium		11000	18000	31000	34000	9600	21000	5600	32000	10000
	Manganese		1300	1000	1300	1300	920	830	630	1800	930
	Sodium		3400	2000	1800	1700	2700 J	1800 J	1300 J	2300	1100
	Nickel		37	14	21	15	95 J	14 J	2.6 J	14	5.2
	Lead		1200	3.9	3.5	54	890	250	10	12	9.4
	Antimony		8.3	2.1 U	2.1 U	0.84 J	9.3 J	1.2 J	2.2 UJ	2.1	2.1 U
	Selenium		2.7 U	2.5 U	2.5 U	2.4 U	2.8 U	2.4 U	2.7 U	2.5 U	2.6 U
	Strontium		1900	47	98	380	1900	2300	18	900	94
	Thallium		3.1 U	3 U	2.9 U	5.7 U	6.5 U	2.8 U	3.1 U	2.9 U	3 U
	Vanadium		66	130	190	200	53	120	49	200	61
	Zinc		3900 J	65 J	83 J	130 J	910 J	260 J	68 J	120 J	160
Mercury, mg/kg											
SW7471	Mercury		0.58	0.015 J	0.0063 J	0.0056 J	0.23	0.06	0.017 J	0.0049 J	0.02 J
Pesticides, ug/kg											
SW8081A	Aldrin		2.1 U	1.9 U	1.9 U	1.9 U	11 U	1.8 U	2 U	1.8 U	1.9 U
	alpha-BHC		2.1 U	1.9 U	1.9 U	1.9 U	11 U	1.8 U	2 U	1.8 U	1.9 U
	beta-BHC		2.1 U	1.9 U	1.9 U	1.9 U	11 U	1.8 U	2 U	1.8 U	1.9 U
	gamma-BHC (Lindane)		2.1 U	1.9 U	1.9 U	1.9 U	11 U	1.8 U	2 U	1.8 U	1.9 U
	delta-BHC		2.1 U	1.9 U	1.9 U	1.9 U	11 U	1.8 U	2 U	1.8 U	1.9 U
	Chlordane (technical)		21 U	19 U	19 U	19 U	110 U	18 U	20 U	18 U	19 U
	4,4'-DDT		4 U	3.8 U	3.7 U	1.1 J	1100 J	3.6 U	3.8 U	3.6 U	3.7 U
	Endosulfan I		2.1 U	1.9 U	1.9 U	1.9 U	11 U	1.8 U	2 U	1.8 U	1.9 U
	Endosulfan II		4 U	3.8 U	3.7 U	3.6 U	21 U	3.6 U	3.8 U	3.6 U	3.7 U
	4,4'-DDE		4 U	3.8 U	3.7 U	3.6 U	21 U	3.6 U	3.8 U	3.6 U	3.7 U
	4,4'-DDD		4 U	3.8 U	3.7 U	3.6 U	21 U	3.6 U	3.8 U	3.6 U	3.7 U
	Dieldrin		72	3.8 U	3.7 U	2.7 J	1300 J	12 J	3.8 U	2.1 J	1.3 J
	Endosulfan sulfate		4 U	3.8 U	3.7 U	3.6 U	21 U	3.6 U	3.8 U	3.6 U	3.7 U
	Endrin		4 U	3.8 U	3.7 U	3.6 U	21 U	3.6 U	3.8 U	3.6 U	3.7 U
	Endrin aldehyde		4 U	3.8 U	3.7 U	3.6 U	21 U	0.93 J	3.8 U	3.6 U	3.7 U
	Heptachlor		2.1 U	1.9 U	1.9 U	1.9 U	11 U	1.8 U	2 U	1.8 U	1.9 U
	Heptachlor epoxide		2.1 U	1.9 U	1.9 U	1.9 U	150 J	1.8 U	2 U	1.8 U	1.9 U
	Toxaphene		210 U	190 U	190 U	190 U	1100 U	180 U	200 U	180 U	190 U
	Endrin ketone		4 U	3.8 U	3.7 U	3.6 U	21 U	3.6 U	3.8 U	3.6 U	3.7 U
	Methoxychlor		21 U	19 U	19 U	19 U	110 U	18 U	20 U	18 U	19 U
PCBs, ug/kg											
SW8082	Aroclor-1242		40 U	38 U	37 U	36 U	210 U	36 U	38 U	36 U	37 U
	Aroclor-1254		320	38 U	37 U	36 U	21000 J	150	38 U	36 U	37 U
	Aroclor-1221		82 U	76 U	75 U	74 U	420 U	73 U	77 U	73 U	74 U
	Aroclor-1232		40 U	38 U	37 U	36 U	210 U	36 U	38 U	36 U	37 U
	Aroclor-1248		40 U	38 U	37 U	36 U	210 U	36 U	38 U	36 U	37 U
	Aroclor-1260		40 U	38 U	37 U	36 U	210 U	36 U	38 U	36 U	37 U

Analytical Results Summary
Flamingo Bay Landfill - Former Fort Segarra, Water Island, USVI

Parameter,		Sample ID	FS-FBL-SB2-1-3'		FS-FBL-SB9-1-3.5'		FS-FBL-SB10-1-0'-2'		FS-FBL-SB7-S-1-0'-2'		FS-FBL-G1-1-4'		FS-FBL-G6-1-3.5'		FS-FBL-G9-1-4'		FS-FBL-SB6-1-0'-2'		FS-FBL-SB6-2-3.5'	
Units	Compound / Analyte	Date Collected	5/20/2003		5/19/2003		5/19/2003		5/19/2003		5/20/2003		5/20/2003		5/21/2003		5/21/2003		5/21/2003	
	Aroclor-1016		40	U	38	U	37	U	36	U	210	U	36	U	38	U	36	U	37	U
Herbicides, ug/kg																				
SW8151A	2,4,5-TP (Silvex)		10	U	9.4	U	0.82	J	9.1	U	10	U	9	U	9.5	U	9	U	9.2	U
	2,4-DB		11	U	10	U	10	U	10	U	12	U	10	U	11	U	10	U	10	U
	2,4-D		10	U	9.4	U	9.3	U	9.1	U	10	U	4	J	9.5	U	9	U	9.2	U
	2,4,5-T		10	U	1.1	J	2	J	5.9	J	10	U	1.6	J	1.9	J	2.2	J	9.2	U
	Pentachlorophenol		21	U	19	U	19	U	19	U	21	U	18	U	20	U	18	U	19	U
	Dalapon		2400	U	2300	U	2200	U	2200	U	2500	U	2200	U	2300	U	2200	U	2200	U
	Dicamba		24	U	23	U	28	J	32		25	U	22	U	5	J	9	J	35	
	Dichloroprop		120	U	110	U	110	U	110	U	120	U	110	U	110	U	110	U	110	U
	Dinoseb		120	U	110	U	110	U	110	U	120	U	110	U	110	U	110	U	110	U
	MCPA		2400	U	2300	U	2200	U	2200	U	2500	U	2200	U	2300	U	2200	U	2200	U
	MCPP		2400	U	12000	J	29000	J	27000	J	2500	U	800	J	15000	J	7500	J	43000	J
Semivolatiles, ug/kg																				
SW8270C	2-Chlorophenol		400	U	380	U	370	U	360	U	410	U	360	U	380	U	360	U	370	U
	Acenaphthene		400	U	380	U	370	U	360	U	410	U	360	U	380	U	360	U	370	U
	2,2'-Oxybis(1-Chloropropane) (bis-2-chloroisopropyl ether)		400	U	380	U	370	U	360	U	410	U	360	U	380	U	360	U	370	U
	2-Nitroaniline		2100	U	1900	U	1900	U	1900	U	2100	U	1800	U	2000	U	1800	U	1900	U
	2-Methylnaphthalene		400	U	380	U	370	U	360	U	410	U	360	U	380	U	360	U	370	U
	2-Methylphenol (o-Cresol)		400	U	380	U	370	U	360	U	410	U	360	U	380	U	360	U	370	U
	2,4-Dichlorophenol		400	U	380	U	370	U	360	U	410	U	360	U	380	U	360	U	370	U
	Acenaphthylene		400	U	380	U	370	U	360	U	410	U	360	U	380	U	360	U	370	U
	3-Nitroaniline		2100	U	1900	U	1900	U	1900	U	2100	U	1800	U	2000	U	1800	U	1900	U
	2,4-Dimethylphenol		400	U	380	U	370	U	360	U	410	U	360	U	380	U	360	U	370	U
	Anthracene		400	U	380	U	370	U	360	U	410	U	360	U	380	U	360	U	370	U
	4,6-Dinitro-2-methylphenol		2100	U	1900	U	1900	U	1900	U	2100	U	1800	U	2000	U	1800	U	1900	U
	4-Chloroaniline		800	U	750	U	740	U	720	U	820	U	720	U	760	U	720	U	730	U
	4-Chloro-3-methylphenol		400	U	380	U	370	U	360	U	410	U	360	U	380	U	360	U	370	U
	3-Methylphenol/4-Methylphenol (m&p-Cresol)		400	U	380	U	370	U	360	U	410	U	360	U	380	U	360	U	370	U
	4-Nitroaniline		2100	U	1900	U	1900	U	1900	U	2100	U	1800	U	2000	U	1800	U	1900	U
	Benzidine		3300	U	3100	U	3000	U	3000	U	3400	UJ	2900	UJ	3100	UJ	2900	U	3000	U
	2,4-Dinitrophenol		2100	U	1900	U	1900	U	1900	U	2100	U	1800	U	2000	U	1800	U	1900	U
	2-Nitrophenol		400	U	380	U	370	U	360	U	410	U	360	U	380	U	360	U	370	U
	Benzo(a)pyrene		400	U	380	U	370	U	360	U	410	U	360	U	380	U	360	U	370	U
	4-Nitrophenol		2100	U	1900	U	1900	U	1900	U	2100	U	1800	U	2000	U	1800	U	1900	U
	Acetophenone		400	U	380	U	370	U	360	U	410	U	360	U	380	U	360	U	370	U
	Aniline		400	U	380	U	370	U	360	U	410	UJ	360	UJ	380	UJ	360	U	370	U
	Benzo(a)anthracene		400	U	380	U	370	U	360	U	410	U	360	U	380	U	360	U	370	U
	2,6-Dichlorophenol		400	U	380	U	370	U	360	U	410	U	360	U	380	U	360	U	370	U
	Benzo(b)fluoranthene		400	U	380	U	370	U	360	U	410	U	360	U	380	U	360	U	370	U
	Diethylphthalate		400	U	380	U	370	U	360	U	410	U	360	U	380	U	360	U	370	U
	Hexachloropropene		400	U	380	U	370	U	360	U	410	U	360	U	380	U	360	U	370	U
	2-Naphthylamine		510	U	480	U	470	U	460	U	530	U	460	U	480	U	460	U	470	U
	N-Nitrosopyrrolidine		400	U	380	U	370	U	360	U	410	U	360	U	380	U	360	U	370	U
	Pyridine		400	U	380	U	370	U	360	U	410	UJ	360	UJ	380	UJ	360	U	370	U
	1,2,4,5-Tetrachlorobenzene		400	U	380	U	370	U	360	U	410	U	360	U	380	U	360	U	370	U
	2,4,5-Trichlorophenol		400	U	380	U	370	U	360	U	410	U	360	U	380	U	360	U	370	U
	Benzo(g,h,i)perylene		400	U	380	U	370	U	360	U	410	U	360	U	380	U	360	U	370	U
	Pentachlorophenol		2100	U	1900	U	1900	U	1900	U	2100	UJ	1800	UJ	2000	UJ	1800	U	1900	U
	Phenol		400	U	380	U	370	U	360	U	410	U	360	U	380	U	360	U	370	U
	bis(2-Chloroethoxy)methane		400	U	380	U	370	U	360	U	410	U	360	U	380	U	360	U	370	U
	2,4,6-Trichlorophenol		400	U	380	U	370	U	360	U	410	U	360	U	380	U	360	U	370	U
	bis(2-Chloroethyl)ether		400	U	380	U	370	U	360	U	410	U	360	U	380	U	360	U	370	U

Analytical Results Summary
Flamingo Bay Landfill - Former Fort Segarra, Water Island, USVI

Parameter,		Sample ID	FS-FBL-SB2-1-3'		FS-FBL-SB9-1-3.5'		FS-FBL-SB10-1-0'-2'		FS-FBL-SB7-S-1-0'-2'		FS-FBL-G1-1-4'		FS-FBL-G6-1-3.5'		FS-FBL-G9-1-4'		FS-FBL-SB6-1-0'-2'		FS-FBL-SB6-2-3.5'	
Units	Compound / Analyte	Date Collected	5/20/2003		5/19/2003		5/19/2003		5/19/2003		5/20/2003		5/20/2003		5/21/2003		5/21/2003		5/21/2003	
	bis(2-Ethylhexyl)phthalate		160	J	380	U	370	U	140	J	56	J	360	U	380	U	360	U	370	U
	4-Bromophenylphenyl ether		400	U	380	U	370	U	360	U	410	U	360	U	380	U	360	U	370	U
	Butylbenzylphthalate		44	J	380	U	370	U	360	U	410	U	360	U	380	U	360	U	1000	
	2-Chloronaphthalene		400	U	380	U	370	U	360	U	410	U	360	U	380	U	360	U	370	U
	4-Chlorophenylphenyl ether		400	U	380	U	370	U	360	U	410	U	360	U	380	U	360	U	370	U
	Chrysene		400	U	380	U	370	U	360	U	410	U	360	U	380	U	360	U	370	U
	Dibenzo(a,h)anthracene		400	U	380	U	370	U	360	U	410	U	360	U	380	U	360	U	370	U
	1,2-Dichlorobenzene		400	U	380	U	370	U	360	U	410	U	360	U	380	U	360	U	370	U
	1,3-Dichlorobenzene		400	U	380	U	370	U	360	U	410	U	360	U	380	U	360	U	370	U
	1,4-Dichlorobenzene		400	U	380	U	370	U	360	U	410	U	360	U	380	U	360	U	370	U
	3,3'-Dichlorobenzidine		800	U	750	U	740	U	720	U	820	U	720	U	760	U	720	U	730	U
	Dimethylphthalate		400	U	380	U	370	U	360	U	410	U	360	U	380	U	360	U	370	U
	Di-n-butylphthalate		400	U	380	U	370	U	49	J	160	J	92	J	99	J	360	U	370	U
	2,4-Dinitrotoluene		400	U	380	U	370	U	360	U	410	U	360	U	380	U	360	U	370	U
	2,6-Dinitrotoluene		400	U	380	U	370	U	360	U	410	U	360	U	380	U	360	U	370	U
	Di-n-octylphthalate		400	U	380	U	370	U	360	U	410	U	360	U	380	U	360	U	370	U
	1,2-Diphenylhydrazine		400	U	380	U	370	U	360	U	410	U	360	U	380	U	360	U	370	U
	Fluoranthene		400	U	380	U	370	U	360	U	410	U	360	U	380	U	360	U	370	U
	Fluorene		400	U	380	U	370	U	360	U	410	U	360	U	380	U	360	U	370	U
	Hexachlorobenzene		400	U	380	U	370	U	360	U	410	U	360	U	380	U	360	U	370	U
	Hexachlorobutadiene		400	U	380	U	370	U	360	U	410	U	360	U	380	U	360	U	370	U
	Hexachlorocyclopentadiene		990	U	920	U	910	U	890	U	1000	UJ	880	UJ	930	UJ	880	U	900	U
	Hexachloroethane		400	U	380	U	370	U	360	U	410	U	360	U	380	U	360	U	370	U
	Indeno(1,2,3-cd)pyrene		400	U	380	U	370	U	360	U	410	U	360	U	380	U	360	U	370	U
	Isophorone		400	U	380	U	370	U	360	U	410	U	360	U	380	U	360	U	370	U
	Naphthalene		400	U	380	U	370	U	360	U	410	U	360	U	380	U	360	U	370	U
	Nitrobenzene		400	U	380	U	370	U	360	U	410	U	360	U	380	U	360	U	370	U
	N-Nitrosodimethylamine		730	U	680	U	660	U	660	U	750	U	650	U	690	U	650	U	670	U
	N-Nitrosodiphenylamine		400	U	380	U	370	U	360	U	410	U	360	U	380	U	360	U	370	U
	Phenanthrene		400	U	380	U	370	U	360	U	410	U	360	U	380	U	360	U	370	U
	Pyrene		400	U	380	U	370	U	360	U	410	U	360	U	380	U	360	U	370	U
	1,2,4-Trichlorobenzene		400	U	380	U	370	U	360	U	410	U	360	U	380	U	360	U	370	U
	Benzo(k)fluoranthene		400	U	380	U	370	U	360	U	410	U	360	U	380	U	360	U	370	U
	Benzoic acid		2100	U	1900	U	1900	U	1900	U	2100	U	1800	U	2000	U	1800	U	1900	U
	Benzyl alcohol		400	U	380	U	370	U	360	U	410	U	360	U	380	U	360	U	370	U
	Dibenzofuran		400	U	380	U	370	U	360	U	410	U	360	U	380	U	360	U	370	U
	N-Nitroso-di-n-propylamine		400	U	380	U	370	U	360	U	410	U	360	U	380	U	360	U	370	U
Cyanide, mg/kg																				
SW9012A	Cyanide		0.55	J	0.85	U	0.84	U	0.8	U	0.9	U	0.79	U	0.85	U	0.8	U	0.81	U

QA/QC samples not used in calculating site average

Background samples

Concentrations exceed background threshold (inorganic) or RL (organic and cyanide)

Residence samples

Surface samples

exceeds SCDM. Used for HRS score

Analytical Results Summary
Flamingo Bay Landfill - Former Fort Segarra, Water Island, USVI

Parameter,		FS-FBL-SB4-1-3.5'		FS-FBL-SB4B-S-1-3.5'		FS-FBL-SB5-1-3.5'		FS-FBL-SB5B-1-3.5'		FS-FBL-SB8-1-0'-2'		FS-FBL-SB8-2-3.5'		FS-FBL-SB10-2-3'		FS-FBL-ST2-S1-0'-2'		FS-FBL-ST2-1-3.5'		FS-FBL-ST1-S1-0'-2'	
Units	Compound / Analyte	5/22/2003		5/22/2003		5/22/2003		5/22/2003		5/22/2003		5/22/2003		5/22/2003		5/27/2003		5/27/2003		5/27/2003	
Metals, mg/kg																					
SW6010B	Silver	1	U	1	U	1	U	1	U	1	U	1	U	1.1	U	0.67	J	0.99	U	1.1	U
	Aluminum	24000		24000		25000		24000		13000		12000		36000		14000		11000		20000	
	Arsenic	31		36		65		61		1.2	J	1.5	J	1.5	J	14		1.9	J	3.9	
	Barium	120	J	91	J	180	J	130	J	25	J	32	J	52	J	120		26		49	
	Beryllium	0.17	J	0.17	J	0.23	J	0.23	J	0.22	J	0.24	J	0.31	J	0.2	J	0.23	J	0.36	J
	Calcium	180000		180000		100000	J	75000	J	3400	J	8700	J	5400	J	54000		3800		4700	
	Cadmium	2.1		2		1.7		1.5		0.29	J	0.46	J	0.69		3.6		0.37	J	0.83	
	Cobalt	15		15		19		17		7.3		7.9		25		7.4		9.4		19	
	Chromium	55		51		61		50		4.4		8.6		41		26		4.8		14	
	Copper	200	J	520	J	190	J	120	J	51	J	61	J	53	J	190		15		92	
	Iron	46000		41000		48000		39000		26000		26000		52000		35000		23000		51000	
	Potassium	1100		1200		1000		960		1500		1500		1400		1400		1600		3100	
	Magnesium	18000		15000		20000		20000		7600		6800		34000		6300		4100		10000	
	Manganese	820		940		1000		1000		690		750		1100		660		830		1000	
	Sodium	3200		3100		2500		2200		270		370		1900		660		380		850	
	Nickel	23		21		22	J	15	J	2.6	J	3.6	J	25	J	13		2.2	J	8.8	
	Lead	370		310		290		9600		13	J	14	J	2.2	J	720		84		52	
	Antimony	3		3		1.9	J	36		2	UJ	2	UJ	2.2	UJ	7.2		2	U	2.1	U
	Selenium	2.5	U	2.5	U	2.5	U	2.4	U	2.5	U	2.4	U	2.6	U	2.5	U	2.4	U	2.5	U
	Strontium	2700		2800		1400		1100		48		130		48		650		62		51	
	Thallium	2.9	U	2.9	U	2.9	U	2.9	U	2.9	U	2.8	U	3.1	U	2.9	U	2.8	U	5.9	U
	Vanadium	100		79		140		130		58		56		180		43		43		180	
	Zinc	620		650		320	J	520	J	82	J	80	J	87	J	600		67		100	
Mercury, mg/kg																					
SW7471	Mercury	0.096		0.09		0.12		0.12		0.0093	J	0.014	J	0.0047	J	0.87		0.097		0.055	
Pesticides, ug/kg																					
SW8081A	Aldrin	7.6	U	39	U	47	U	190	U	1.8	U	1.8	U	1.9	U	1.8	U	1.8	U	2	U
	alpha-BHC	7.6	U	39	U	47	U	190	U	1.8	U	1.8	U	1.9	U	1.8	U	1.8	U	2	U
	beta-BHC	7.6	U	39	U	47	U	190	U	1.8	U	1.8	U	1.9	U	1.8	U	1.8	U	2	U
	gamma-BHC (Lindane)	7.6	U	39	U	47	U	190	U	1.8	U	1.8	U	1.9	U	1.8	U	1.8	U	2	U
	delta-BHC	7.6	U	39	U	47	U	190	U	1.8	U	1.8	U	1.9	U	1.8	U	1.8	U	2	U
	Chlordane (technical)	76	U	390	U	470	U	1900	U	18	U	18	U	19	U	18	U	18	U	20	U
	4,4'-DDT	15	U	75	U	91	U	370	U	3.5	U	3.5	U	3.7	U	6.3	J	3.5	U	3.8	U
	Endosulfan I	7.6	U	39	U	47	U	190	U	1.8	U	64		1.9	U	1.8	U	1.8	U	2	U
	Endosulfan II	15	U	75	U	91	U	370	U	3.5	U	3.5	U	3.7	U	3.5	U	3.5	U	3.8	U
	4,4'-DDE	15	U	75	U	91	U	370	U	3.5	U	3.5	U	3.7	U	1.3	J	3.5	U	3.8	U
	4,4'-DDD	15	U	75	U	91	U	370	U	3.5	U	3.5	U	3.7	U	3.5	U	3.5	U	3.8	U
	Dieldrin	200		340		1400		1200		3.5	U	3.5	U	3.7	U	7.9		3.5	U	1	J
	Endosulfan sulfate	15	U	75	U	91	U	370	U	3.5	U	3.5	U	3.7	U	3.5	U	3.5	U	3.8	U
	Endrin	15	U	75	U	91	U	370	U	3.5	U	3.5	U	3.7	U	3.5	U	3.5	U	3.8	U
	Endrin aldehyde	15	U	75	U	91	U	370	U	3.5	U	3.5	U	3.7	U	3.5	U	3.5	U	3.8	U
	Heptachlor	7.6	U	39	U	47	U	190	U	1.8	U	1.8	U	1.9	U	1.8	U	1.8	U	2	U
	Heptachlor epoxide	7.6	U	11	J	47	U	190	U	1.8	U	1.8	U	1.9	U	1.8	U	1.8	U	2	U
	Toxaphene	760	U	3900	U	4700	U	19000	U	180	U	180	U	190	U	180	U	180	U	200	U
	Endrin ketone	15	U	75	U	91	U	370	U	3.5	U	3.5	U	3.7	U	3.5	U	3.5	U	3.8	U
	Methoxychlor	76	U	390	U	470	U	1900	U	18	U	18	U	19	U	18	U	18	U	20	U
PCBs, ug/kg																					
SW8082	Aroclor-1242	150	U	750	U	910	U	3700	U	35	U	35	U	37	U	35	U	35	U	38	U
	Aroclor-1254	150	U	750	U	1800	J	940	J	35	U	35	U	37	U	35	U	35	U	38	U
	Aroclor-1221	300	U	1500	U	1800	U	7400	U	71	U	71	U	75	U	72	U	72	U	78	U
	Aroclor-1232	150	U	750	U	910	U	3700	U	35	U	35	U	37	U	35	U	35	U	38	U
	Aroclor-1248	150	U	750	U	910	U	3700	U	35	U	35	U	37	U	35	U	35	U	38	U
	Aroclor-1260	150	U	750	U	910	U	3700	U	35	U	35	U	37	U	35	U	35	U	38	U

Analytical Results Summary
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Parameter,		FS-FBL-SB4-1-3.5'		FS-FBL-SB4B-S-1-3.5'		FS-FBL-SB5-1-3.5'		FS-FBL-SB5B-1-3.5'		FS-FBL-SB8-1-0'-2'		FS-FBL-SB8-2-3.5'		FS-FBL-SB10-2-3'		FS-FBL-ST2-S1-0'-2'		FS-FBL-ST2-1-3.5'		FS-FBL-ST1-S1-0'-2'	
Units	Compound / Analyte	5/22/2003		5/22/2003		5/22/2003		5/22/2003		5/22/2003		5/22/2003		5/22/2003		5/27/2003		5/27/2003		5/27/2003	
	Aroclor-1016	150	U	750	U	910	U	3700	U	35	U	35	U	37	U	35	U	35	U	38	U
Herbicides, ug/kg																					
SW8151A	2,4,5-TP (Silvex)	0.91	J	9.4	U	9.1	U	9.2	U	8.8	U	8.8	U	9.3	U	8.9	U	8.9	U	9.6	U
	2,4-DB	0.83	J	10	U	10	U	10	U	9.9	U	9.9	U	10	U	10	U	10	U	11	U
	2,4-D	9.2	U	9.4	U	9.1	U	9.2	U	8.8	U	8.8	U	9.3	U	8.9	U	8.9	U	9.6	U
	2,4,5-T	0.9	J	0.82	J	1.2	J	9.2	U	8.8	U	8.8	U	9.3	U	8.9	U	8.9	U	9.6	U
	Pentachlorophenol	19	U	19	U	9.2	J	6.2	J	18	U	18	U	19	U	18	U	18	U	20	U
	Dalapon	2200	U	2300	U	2200	U	2200	U	2100	U	2100	U	2200	U	2200	U	2200	U	2300	U
	Dicamba	22	U	23	U	22	U	22	U	22		27		10	J	2.8	J	19	J	20	J
	Dichloroprop	110	U	110	U	110	U	110	U	110	U	110	U	110	U	110	U	110	U	120	U
	Dinoseb	110	U	110	U	110	U	110	U	110	U	110	U	110	U	110	U	110	U	120	U
	MCPA	2200	U	2300	U	2200	U	2200	U	2100	U	2100	U	2200	U	2200	U	2200	U	2300	U
	MCPP	490	J	2300	U	1700	J	930	J	42000	J	28000	J	9300	J	1900	J	4400	J	2200	J
Semivolatiles, ug/kg																					
SW8270C	2-Chlorophenol	370	U	380	U	360	U	370	U	350	U	350	U	370	U	350	U	350	U	380	U
	Acenaphthene	370	U	380	U	360	U	370	U	350	U	350	U	370	U	350	U	350	U	380	U
	2,2'-Oxybis(1-Chloropropane) (bis-2-chloroisopropyl ether)	370	U	380	U	360	U	370	U	350	U	350	U	370	U	350	U	350	U	380	U
	2-Nitroaniline	1900	U	1900	U	1900	U	1900	U	1800	U	1800	U	1900	U	1800	U	1800	U	2000	U
	2-Methylnaphthalene	370	U	380	U	360	U	370	U	350	U	350	U	370	U	350	U	350	U	380	U
	2-Methylphenol (o-Cresol)	370	U	380	U	360	U	370	U	350	U	350	U	370	U	350	U	350	U	380	U
	2,4-Dichlorophenol	370	U	380	U	360	U	370	U	350	U	350	U	370	U	350	U	350	U	380	U
	Acenaphthylene	370	U	380	U	360	U	370	U	350	U	350	U	370	U	350	U	350	U	380	U
	3-Nitroaniline	1900	U	1900	U	1900	U	1900	U	1800	U	1800	U	1900	U	1800	U	1800	U	2000	U
	2,4-Dimethylphenol	370	U	380	U	360	U	370	U	350	U	350	U	370	U	350	U	350	U	380	U
	Anthracene	370	U	380	U	360	U	370	U	350	U	350	U	370	U	350	U	350	U	380	U
	4,6-Dinitro-2-methylphenol	1900	U	1900	U	1900	U	1900	U	1800	U	1800	U	1900	U	1800	U	1800	U	2000	U
	4-Chloroaniline	730	UJ	750	UJ	720	UJ	730	UJ	700	UJ	700	UJ	740	UJ	710	U	710	U	770	U
	4-Chloro-3-methylphenol	370	U	380	U	360	U	370	U	350	U	350	U	370	U	350	U	350	U	380	U
	3-Methylphenol/4-Methylphenol (m&p-Cresol)	370	U	380	U	360	U	370	U	350	U	350	U	370	U	350	U	350	U	380	U
	4-Nitroaniline	1900	U	1900	U	1900	U	1900	U	1800	U	1800	U	1900	U	1800	U	1800	U	2000	U
	Benzidine	3000	UJ	3100	UJ	3000	UJ	3000	UJ	2900	U	2900	UJ	3000	UJ	2900	U	2900	U	3100	U
	2,4-Dinitrophenol	1900	U	1900	U	1900	U	1900	U	1800	UJ	1800	U	1900	U	1800	U	1800	U	2000	U
	2-Nitrophenol	370	U	380	U	360	U	370	U	350	U	350	U	370	U	350	U	350	U	380	U
	Benzo(a)pyrene	370	U	380	U	360	U	370	U	350	U	350	U	370	U	350	U	350	U	380	U
	4-Nitrophenol	1900	U	1900	U	1900	U	1900	U	1800	U	1800	U	1900	U	1800	U	1800	U	2000	U
	Acetophenone	370	U	380	U	360	U	370	U	350	U	350	U	370	U	33	J	350	U	380	U
	Aniline	370	UJ	380	UJ	360	UJ	370	UJ	350	UJ	350	UJ	370	UJ	350	U	350	U	380	U
	Benzo(a)anthracene	370	U	380	U	360	U	370	U	350	U	350	U	370	U	350	U	350	U	380	U
	2,6-Dichlorophenol	370	U	380	U	360	U	370	U	350	U	350	U	370	U	350	U	350	U	380	U
	Benzo(b)fluoranthene	370	U	380	U	360	U	370	U	350	U	350	U	370	U	350	U	350	U	380	U
	Diethylphthalate	370	U	380	U	360	U	370	U	350	U	350	U	370	U	350	U	350	U	380	U
	Hexachloropropene	370	U	380	U	360	U	370	U	350	U	350	U	370	U	350	U	350	U	380	U
	2-Naphthylamine	470	U	480	U	460	U	470	U	450	U	450	U	470	U	450	U	450	U	490	U
	N-Nitrosopyrrolidine	370	U	380	U	360	U	370	U	350	U	350	U	370	U	350	U	350	U	380	U
	Pyridine	370	UJ	380	UJ	360	UJ	370	UJ	350	UJ	350	UJ	370	UJ	350	U	350	U	380	U
	1,2,4,5-Tetrachlorobenzene	370	U	380	U	360	U	370	U	350	U	350	U	370	U	350	U	350	U	380	U
	2,4,5-Trichlorophenol	370	U	380	U	360	U	370	U	350	U	350	U	370	U	350	U	350	U	380	U
	Benzo(g,h,i)perylene	370	U	380	U	360	U	370	U	350	U	350	U	370	U	350	U	350	U	380	U
	Pentachlorophenol	1900	UJ	1900	UJ	1900	UJ	1900	UJ	1800	UJ	1800	UJ	1900	UJ	1800	U	1800	U	2000	U
	Phenol	370	U	380	U	360	U	370	U	350	U	350	U	370	U	350	U	350	U	380	U
	bis(2-Chloroethoxy)methane	370	U	380	U	360	U	370	U	350	U	350	U	370	U	350	U	350	U	380	U
	2,4,6-Trichlorophenol	370	U	380	U	360	U	370	U	350	U	350	U	370	U	350	U	350	U	380	U
	bis(2-Chloroethyl)ether	370	U	380	U	360	U	370	U	350	U	350	U	370	U	350	U	350	U	380	U

Analytical Results Summary
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Parameter,		FS-FBL-SB4-1-3.5'		FS-FBL-SB4B-S-1-3.5'		FS-FBL-SB5-1-3.5'		FS-FBL-SB5B-1-3.5'		FS-FBL-SB8-1-0'-2'		FS-FBL-SB8-2-3.5'		FS-FBL-SB10-2-3'		FS-FBL-ST2-S1-0'-2'		FS-FBL-ST2-1-3.5'		FS-FBL-ST1-S1-0'-2'	
Units	Compound / Analyte	5/22/2003		5/22/2003		5/22/2003		5/22/2003		5/22/2003		5/22/2003		5/22/2003		5/27/2003		5/27/2003		5/27/2003	
	bis(2-Ethylhexyl)phthalate	29000		1700		20000		130	J	51	J	540		370	U	4600		350	U	380	U
	4-Bromophenylphenyl ether	370	U	380	U	360	U	370	U	350	U	350	U	370	U	56	J	350	U	380	U
	Butylbenzylphthalate	74	J	380	U	36	J	370	U	350	U	350	U	370	U	230	J	350	U	380	U
	2-Chloronaphthalene	370	U	380	U	360	U	370	U	350	U	350	U	370	U	350	U	350	U	380	U
	4-Chlorophenylphenyl ether	370	U	380	U	360	U	370	U	350	U	350	U	370	U	350	U	350	U	380	U
	Chrysene	370	U	380	U	360	U	370	U	350	U	350	U	370	U	350	U	350	U	380	U
	Dibenzo(a,h)anthracene	370	U	380	U	360	U	370	U	350	U	350	U	370	U	350	U	350	U	380	U
	1,2-Dichlorobenzene	370	U	380	U	360	U	370	U	350	U	350	U	370	U	350	U	350	U	380	U
	1,3-Dichlorobenzene	370	UJ	380	UJ	360	UJ	370	UJ	350	UJ	350	UJ	370	UJ	350	U	350	U	380	U
	1,4-Dichlorobenzene	370	UJ	380	UJ	360	UJ	370	UJ	350	UJ	350	UJ	370	UJ	350	U	350	U	380	U
	3,3'-Dichlorobenzidine	730	U	750	U	720	U	730	U	700	U	700	U	740	U	710	U	710	U	770	U
	Dimethylphthalate	370	U	380	U	360	U	370	U	350	U	350	U	370	U	350	U	350	U	380	U
	Di-n-butylphthalate	370	U	380	U	360	U	370	U	350	U	350	U	370	U	350	U	350	U	380	U
	2,4-Dinitrotoluene	370	U	380	U	360	U	370	U	350	U	350	U	370	U	430		350	U	380	U
	2,6-Dinitrotoluene	370	U	380	U	360	U	370	U	350	U	350	U	370	U	660		350	U	380	U
	Di-n-octylphthalate	370	U	380	U	220	J	370	U	350	U	350	U	370	U	350	U	350	U	380	U
	1,2-Diphenylhydrazine	370	U	380	U	360	U	370	U	350	U	350	U	370	U	350	U	350	U	380	U
	Fluoranthene	370	U	380	U	360	U	370	U	350	U	350	U	370	U	350	U	350	U	380	U
	Fluorene	370	U	380	U	360	U	370	U	350	U	350	U	370	U	350	U	350	U	380	U
	Hexachlorobenzene	370	U	380	U	360	U	370	U	350	U	350	U	370	U	350	U	350	U	380	U
	Hexachlorobutadiene	370	U	380	U	360	U	370	U	350	U	350	U	370	U	350	U	350	U	380	U
	Hexachlorocyclopentadiene	900	UJ	920	UJ	890	UJ	900	UJ	860	UJ	860	UJ	910	UJ	870	U	870	U	940	U
	Hexachloroethane	370	U	380	U	360	U	370	U	350	U	350	U	370	U	350	U	350	U	380	U
	Indeno(1,2,3-cd)pyrene	370	U	380	U	360	U	370	U	350	U	350	U	370	U	350	U	350	U	380	U
	Isophorone	370	U	380	U	360	U	370	U	350	U	350	U	370	U	350	U	350	U	380	U
	Naphthalene	370	U	380	U	360	U	370	U	350	U	350	U	370	U	350	U	350	U	380	U
	Nitrobenzene	370	U	380	U	360	U	370	U	350	U	350	U	370	U	350	U	350	U	380	U
	N-Nitrosodimethylamine	670	U	680	U	660	U	670	U	640	U	640	U	670	U	640	U	650	U	700	U
	N-Nitrosodiphenylamine	370	U	380	U	360	U	370	U	350	U	350	U	370	U	350	U	350	U	380	U
	Phenanthrene	370	U	380	U	360	U	370	U	350	U	350	U	370	U	350	U	350	U	380	U
	Pyrene	370	U	380	U	360	U	370	U	350	U	350	U	370	U	350	U	350	U	380	U
	1,2,4-Trichlorobenzene	370	U	380	U	360	U	370	U	350	U	350	U	370	U	350	U	350	U	380	U
	Benzo(k)fluoranthene	370	U	380	U	360	U	370	U	350	U	350	U	370	U	25	J	350	U	380	U
	Benzoic acid	1900	UJ	1900	UJ	1900	UJ	1900	UJ	1800	UJ	1800	UJ	1900	UJ	1800	U	1800	U	2000	U
	Benzyl alcohol	370	U	380	U	360	U	370	U	350	U	350	U	370	U	350	U	350	U	380	U
	Dibenzofuran	370	U	380	U	360	U	370	U	350	U	350	U	370	U	350	U	350	U	380	U
	N-Nitroso-di-n-propylamine	370	U	380	U	360	U	370	U	350	U	350	U	370	U	350	U	350	U	380	U
Cyanide, mg/kg																					
SW9012A	Cyanide	0.82	U	0.84	U	0.28	J	0.8	U	0.79	U	0.79	U	0.81	U	0.28	J	0.41	J	0.84	U

QA/QC samples not used in calcula

Background samples

Concentrations exceed background

Residence samples

Surface samples

exceeds SCDM. Used for HRS scor

Analytical Results Summary
Flamingo Bay Landfill - Former Fort Segarra, Water Island, USVI

Parameter,		FS-FBL-ST1-1-3.5'		FS-FBL-SB1-1-0'-2'		FS-FBL-SB1-2-3'		FS-FBL-G15-1-2.5'		FS-FBL-G15B-1-2.5'		FS-FBL-IT-1-3'		FS-FBL-SR-2-0'-2'		FS-FBL-SR-1-0'-2'		FS-FBL-G20-1-3.5'		FS-FBL-G20B-S-1
Units	Compound / Analyte	5/27/2003		5/27/2003		5/27/2003		5/27/2003		5/27/2003		5/27/2003		5/27/2003		5/27/2003		5/21/2003		5/21/2003
Metals, mg/kg																				
SW6010B	Silver	0.14	J	2		1	J	1.3	J	1.7		1	U	0.94	U	0.95	U	1	U	1.1
	Aluminum	17000		18000		34000		19000	J	21000	J	14000		18000		7300		34000		35000
	Arsenic	19		28		110		52		60		9.9		1.8	J	2.2	U	16	J	5.1
	Barium	47		200	J	120	J	380	J	270	J	87		32		21		43		42
	Beryllium	0.32	J	0.19	J	0.17	J	0.22	J	0.23	J	0.28	J	0.25	J	0.15	J	0.23	J	0.27
	Calcium	12000		83000	J	310000	J	94000	J	140000	J	57000		41000		530		37000		47000
	Cadmium	1.2		10		21		9.9		11		1.6		0.62		0.14	J	1.4		1.4
	Cobalt	14		14		12		13	J	9.8	J	9.2		14		7.6		29	J	35
	Chromium	26		62		70		80		67		24		11		5		30	J	22
	Copper	84		500	J	790	J	420		420		41		36		8.3		62		81
	Iron	37000		190000		240000		130000	J	73000	J	45000		36000		17000		73000		69000
	Potassium	2800		2200		1200		1800		2100		1800		1700		1600		770		680
	Magnesium	8900		9600		9100		12000		9800		6700		13000		2300		33000		37000
	Manganese	900		1100		1000		1200	J	810	J	620		770		910		1300		1300
	Sodium	950		2100		2100		1800	J	2400		1000		510		170		2300		2500
	Nickel	6.8		47	J	67	J	33		32		13		7.6		1.9	J	26		21
	Lead	97		1300	J	5700		5300	J	21000	J	68		5.8		2.5		24		20
	Antimony	2.1	U	8.1	J	39	J	22	J	760	J	2	U	1.9	U	1.9	U	0.9	J	2.2
	Selenium	2.5	U	2.5	U	2.6	U	2.5	U	2.7	U	2.4	U	2.3	U	2.3	U	2.5	U	2.6
	Strontium	130		890		4100		1200	J	1800	J	850		570		8		500		530
	Thallium	2.9	U	15	U	15	U	5.9	U	62	U	2.8	U	5.3	U	2.6	U	2.9	U	6
	Vanadium	120		42		130		67	J	45	J	60		120		36		200		240
	Zinc	150		890	J	6700	J	1600		1700		160		65		40		110		110
Mercury, mg/kg																				
SW7471	Mercury	0.069		0.57		0.22		0.35		0.41		0.048		0.012	J	0.018	J	0.0096	J	0.012
Pesticides, ug/kg																				
SW8081A	Aldrin	2	U	7.9	U	2	U	2	U	10	U	1.9	U	1.8	U	1.8	U	2	U	2
	alpha-BHC	2	U	7.9	U	2	U	2	U	10	U	1.9	U	1.8	U	1.8	U	2	U	2
	beta-BHC	2	U	7.9	U	2	U	2	U	10	U	1.9	U	1.8	U	1.8	U	2	U	2
	gamma-BHC (Lindane)	2	U	7.9	U	2	U	2	U	10	U	1.9	U	1.8	U	1.8	U	2	U	2
	delta-BHC	0.18	J	7.9	U	2	U	2	U	10	U	1.9	U	1.8	U	1.8	U	0.18	J	2
	Chlordane (technical)	20	U	79	U	20	U	20	U	100	U	19	U	18	U	18	U	20	U	20
	4,4'-DDT	1.2	J	15	U	6.4	J	3.9	UJ	130	J	3.6	U	8.8		3.4	U	9.6		3.8
	Endosulfan I	0.5	J	7.9	U	2	U	2	U	10	U	1.9	U	1.8	U	1.8	U	2	U	2
	Endosulfan II	3.9	U	15	U	3.8	U	3.9	U	20	U	3.6	U	3.4	U	3.4	U	3.8	U	3.8
	4,4'-DDE	3.9	U	15	U	3.8	U	3.9	U	20	U	3.6	U	8.8		3.4	U	3.8	U	3.8
	4,4'-DDD	3.9	U	15	U	3.8	U	3.9	U	20	U	3.6	U	0.86	J	3.4	U	3.8	U	3.8
	Dieldrin	4.6		23		16		14	J	86	J	3.8		3.4	U	3.4	U	38	J	8.8
	Endosulfan sulfate	3.9	U	15	U	3.8	U	3.9	U	20	U	3.6	U	3.4	U	3.4	U	3.8	U	3.8
	Endrin	3.9	U	15	U	3.8	U	3.9	U	20	U	3.6	U	3.4	U	3.4	U	3.8	U	3.8
	Endrin aldehyde	3.9	U	15	U	3.8	U	3.9	U	20	U	3.6	U	3.4	U	3.4	U	3.8	U	3.8
	Heptachlor	2	U	7.9	U	0.7	J	2	U	10	U	1.9	U	1.8	U	1.8	U	2.9		2
	Heptachlor epoxide	2	U	8.2	J	2.6	J	2	U	4.8	J	0.23	J	1.8	U	0.23	J	7.8	J	2
	Toxaphene	200	U	790	U	200	U	200	U	1000	U	190	U	180	U	180	U	200	U	200
	Endrin ketone	3.9	U	15	U	3.8	U	3.9	U	20	U	3.6	U	3.4	U	3.4	U	3.8	U	3.8
	Methoxychlor	20	U	79	U	20	U	20	U	100	U	19	U	18	U	18	U	20	U	20
PCBs, ug/kg																				
SW8082	Aroclor-1242	39	U	150	U	38	U	39	U	200	U	36	U	34	U	34	U	38	U	38
	Aroclor-1254	39	U	190		120		100	J	290	J	36	U	34	U	34	U	38	U	38
	Aroclor-1221	79	U	310	U	78	U	79	U	400	U	74	U	70	U	69	U	77	U	78
	Aroclor-1232	39	U	150	U	38	U	39	U	200	U	36	U	34	U	34	U	38	U	38
	Aroclor-1248	39	U	150	U	38	U	39	U	200	U	36	U	34	U	34	U	38	U	38
	Aroclor-1260	39	U	150	U	38	U	39	U	200	U	36	U	34	U	34	U	38	U	38

Analytical Results Summary
Flamingo Bay Landfill - Former Fort Segarra, Water Island, USVI

Parameter,		FS-FBL-ST1-1-3.5'		FS-FBL-SB1-1-0'-2'		FS-FBL-SB1-2-3'		FS-FBL-G15-1-2.5'		FS-FBL-G15B-1-2.5'		FS-FBL-IT-1-3'		FS-FBL-SR-2-0'-2'		FS-FBL-SR-1-0'-2'		FS-FBL-G20-1-3.5'		FS-FBL-G20B-S-1
Units	Compound / Analyte	5/27/2003		5/27/2003		5/27/2003		5/27/2003		5/27/2003		5/27/2003		5/27/2003		5/27/2003		5/21/2003		5/21/2003
	Aroclor-1016	39	U	150	U	38	U	39	U	200	U	36	U	34	U	34	U	38	U	38
Herbicides, ug/kg																				
SW8151A	2,4,5-TP (Silvex)	9.8	U	9.6	U	9.6	U	9.8	U	10	U	9.1	U	8.6	U	8.6	U	9.5	U	9.6
	2,4-DB	11	U	11	U	11	U	11	U	11	U	10	U	9.7	U	9.6	U	11	U	11
	2,4-D	9.8	U	9.6	U	9.6	U	9.8	U	10	U	9.1	U	8.6	U	8.6	U	9.5	U	9.6
	2,4,5-T	1.6	J	9.6	U	0.75	J	9.8	U	10	U	9.1	U	8.6	U	8.6	U	9.5	U	1.8
	Pentachlorophenol	20	U	20	U	20	U	20	U	20	U	4.2	J	18	U	18	U	20	U	20
	Dalapon	2400	U	2300	U	2300	U	2400	U	2400	U	2200	U	2100	U	2100	U	2300	U	2300
	Dicamba	10	J	23	U	23	U	24	U	24	U	1.9	J	3.8	J	26		23	U	2.5
	Dichloroprop	120	U	120	U	120	U	120	U	120	U	110	U	100	U	100	U	110	U	120
	Dinoseb	120	U	120	U	120	U	120	U	120	U	110	U	100	U	100	U	110	U	120
	MCPA	2400	U	2300	U	2300	U	2400	U	2400	U	2200	U	2100	U	2100	U	2300	U	2300
	MCPP	870	J	530	J	510	J	2400	U	2400	U	2200	U	2100	U	32000	J	470	J	1600
Semivolatiles, ug/kg																				
SW8270C	2-Chlorophenol	390	U	380	U	380	U	390	U	400	U	360	U	340	U	340	U	380	U	380
	Acenaphthene	390	U	380	U	380	U	390	U	400	U	360	U	340	U	340	U	380	U	380
	2,2'-Oxybis(1-Chloropropane) (bis-2-chloroisopropyl ether)	390	U	380	U	380	U	390	U	400	U	360	U	340	U	340	U	380	U	380
	2-Nitroaniline	2000	U	2000	U	2000	U	2000	U	2000	U	1900	U	1800	U	1800	U	2000	U	2000
	2-Methylnaphthalene	390	U	380	U	380	U	390	U	400	U	360	U	340	U	340	U	380	U	380
	2-Methylphenol (o-Cresol)	390	U	380	U	380	U	390	U	400	U	360	U	340	U	340	U	380	U	380
	2,4-Dichlorophenol	390	U	380	U	380	U	390	U	400	U	360	U	340	U	340	U	380	U	380
	Acenaphthylene	390	U	380	U	380	U	390	U	400	U	360	U	340	U	340	U	380	U	380
	3-Nitroaniline	2000	U	2000	U	2000	U	2000	U	2000	U	1900	U	1800	U	1800	U	2000	U	2000
	2,4-Dimethylphenol	390	U	380	U	380	U	390	U	400	U	360	U	340	U	340	U	380	U	380
	Anthracene	390	U	380	U	380	U	390	U	400	U	360	U	340	U	340	U	380	U	380
	4,6-Dinitro-2-methylphenol	2000	U	2000	U	2000	U	2000	U	2000	U	1900	U	1800	U	1800	U	2000	U	2000
	4-Chloroaniline	780	U	770	UJ	770	UJ	780	U	800	U	720	U	690	U	680	U	760	U	770
	4-Chloro-3-methylphenol	390	U	380	U	380	U	390	U	400	U	360	U	340	U	340	U	380	U	380
	3-Methylphenol/4-Methylphenol (m&p-Cresol)	390	U	380	U	380	U	390	U	400	U	360	U	340	U	340	U	380	U	380
	4-Nitroaniline	2000	U	2000	U	2000	U	2000	U	2000	U	1900	U	1800	U	1800	U	2000	U	2000
	Benzidine	3200	U	3100	UJ	3100	UJ	3200	U	3200	U	3000	U	2800	U	2800	U	3100	U	3100
	2,4-Dinitrophenol	2000	U	2000	U	2000	U	2000	U	2000	U	1900	U	1800	U	1800	U	2000	U	2000
	2-Nitrophenol	390	U	380	U	380	U	390	U	400	U	360	U	340	U	340	U	380	U	380
	Benzo(a)pyrene	390	U	380	U	380	U	390	U	400	U	360	U	340	U	340	U	380	U	380
	4-Nitrophenol	2000	U	2000	U	2000	U	2000	U	2000	U	1900	U	1800	U	1800	U	2000	U	2000
	Acetophenone	390	U	33	J	330	J	38	J	42	J	360	U	340	U	340	U	380	U	380
	Aniline	390	U	380	UJ	380	UJ	390	U	400	U	360	U	340	U	340	U	380	U	380
	Benzo(a)anthracene	390	U	380	U	380	U	390	U	400	U	360	U	340	U	340	U	380	U	380
	2,6-Dichlorophenol	390	U	380	U	380	U	390	U	400	U	360	U	340	U	340	U	380	U	380
	Benzo(b)fluoranthene	390	U	380	U	47	J	390	U	400	U	360	U	340	U	340	U	380	U	380
	Diethylphthalate	390	U	380	U	380	U	390	U	400	U	360	U	340	U	340	U	380	U	380
	Hexachloropropene	390	U	380	U	380	U	390	U	400	U	360	U	340	U	340	U	380	U	380
	2-Naphthylamine	490	U	490	U	490	U	490	U	510	U	460	U	440	U	430	U	480	U	490
	N-Nitrosopyrrolidine	390	U	380	U	380	U	390	U	400	U	360	U	340	U	340	U	380	U	380
	Pyridine	390	U	380	UJ	380	UJ	390	U	400	U	360	U	340	U	340	U	380	U	380
	1,2,4,5-Tetrachlorobenzene	390	U	380	U	380	U	390	U	400	U	360	U	340	U	340	U	380	U	380
	2,4,5-Trichlorophenol	390	U	380	U	380	U	390	U	400	U	360	U	340	U	340	U	380	U	380
	Benzo(g,h,i)perylene	390	U	380	U	27	J	390	U	400	U	360	U	340	U	340	U	380	U	380
	Pentachlorophenol	2000	U	2000	UJ	2000	UJ	2000	U	2000	U	1900	U	1800	U	1800	U	2000	U	2000
	Phenol	390	U	380	U	380	U	390	U	400	U	360	U	340	U	340	U	380	U	380
	bis(2-Chloroethoxy)methane	390	U	380	U	380	U	390	U	400	U	360	U	340	U	340	U	380	U	380
	2,4,6-Trichlorophenol	390	U	380	U	380	U	390	U	400	U	360	U	340	U	340	U	380	U	380
	bis(2-Chloroethyl)ether	390	U	380	U	380	U	390	U	400	U	360	U	340	U	340	U	380	U	380

Analytical Results Summary
Flamingo Bay Landfill - Former Fort Segarra, Water Island, USVI

Parameter,		FS-FBL-ST1-1-3.5'		FS-FBL-SB1-1-0'-2'		FS-FBL-SB1-2-3'		FS-FBL-G15-1-2.5'		FS-FBL-G15B-1-2.5'		FS-FBL-IT-1-3'		FS-FBL-SR-2-0'-2'		FS-FBL-SR-1-0'-2'		FS-FBL-G20-1-3.5'		FS-FBL-G20B-S-1
Units	Compound / Analyte	5/27/2003		5/27/2003		5/27/2003		5/27/2003		5/27/2003		5/27/2003		5/27/2003		5/27/2003		5/21/2003		5/21/2003
	bis(2-Ethylhexyl)phthalate	390	U	210	J	130	J	140	J	230	J	140	J	340	U	340	U	63	J	220
	4-Bromophenylphenyl ether	390	U	380	U	380	U	390	U	400	U	360	U	340	U	340	U	380	U	380
	Butylbenzylphthalate	390	U	380	U	150	J	390	U	42	J	360	U	340	U	340	U	380	U	380
	2-Chloronaphthalene	390	U	380	U	380	U	390	U	400	U	360	U	340	U	340	U	380	U	380
	4-Chlorophenylphenyl ether	390	U	380	U	380	U	390	U	400	U	360	U	340	U	340	U	380	U	380
	Chrysene	390	U	380	U	380	U	390	U	400	U	360	U	340	U	340	U	380	U	380
	Dibenzo(a,h)anthracene	390	U	380	U	380	U	390	U	400	U	360	U	340	U	340	U	380	U	380
	1,2-Dichlorobenzene	390	U	380	U	380	U	390	U	400	U	360	U	340	U	340	U	380	U	380
	1,3-Dichlorobenzene	390	U	380	UJ	380	UJ	390	U	400	U	360	U	340	U	340	U	380	U	380
	1,4-Dichlorobenzene	390	U	380	UJ	380	UJ	390	U	400	U	360	U	340	U	340	U	380	U	380
	3,3'-Dichlorobenzidine	780	U	770	U	770	U	780	U	800	U	720	U	690	U	680	U	760	U	770
	Dimethylphthalate	390	U	380	U	380	U	390	U	400	U	360	U	340	U	340	U	380	U	380
	Di-n-butylphthalate	390	U	380	U	380	U	390	U	400	U	360	U	340	U	340	U	380	U	380
	2,4-Dinitrotoluene	390	U	380	U	380	U	390	U	400	U	360	U	340	U	340	U	380	U	380
	2,6-Dinitrotoluene	390	U	380	U	380	U	390	U	400	U	360	U	340	U	340	U	380	U	380
	Di-n-octylphthalate	390	U	380	U	380	U	390	U	400	U	360	U	340	U	340	U	380	U	380
	1,2-Diphenylhydrazine	390	U	380	U	380	U	390	U	400	U	360	U	340	U	340	U	380	U	380
	Fluoranthene	390	U	380	U	380	U	390	U	400	U	360	U	340	U	340	U	380	U	380
	Fluorene	390	U	380	U	380	U	390	U	400	U	360	U	340	U	340	U	380	U	380
	Hexachlorobenzene	390	U	380	U	380	U	390	U	400	U	360	U	340	U	340	U	380	U	380
	Hexachlorobutadiene	390	U	380	U	380	U	390	U	400	U	360	U	340	U	340	U	380	U	380
	Hexachlorocyclopentadiene	950	U	940	UJ	940	UJ	950	U	980	U	890	U	840	U	840	U	930	U	940
	Hexachloroethane	390	U	380	U	380	U	390	U	400	U	360	U	340	U	340	U	380	U	380
	Indeno(1,2,3-cd)pyrene	390	U	380	U	380	U	390	U	400	U	360	U	340	U	340	U	380	U	380
	Isophorone	390	U	380	U	380	U	390	U	400	U	360	U	340	U	340	U	380	U	380
	Naphthalene	390	U	380	U	380	U	390	U	400	U	360	U	340	U	340	U	380	U	380
	Nitrobenzene	390	U	380	U	380	U	390	U	400	U	360	U	340	U	340	U	380	U	380
	N-Nitrosodimethylamine	700	U	700	U	700	U	700	U	720	U	660	U	620	U	620	U	690	U	700
	N-Nitrosodiphenylamine	390	U	380	U	380	U	390	U	400	U	360	U	340	U	340	U	380	U	380
	Phenanthrene	390	U	380	U	380	U	390	U	400	U	360	U	340	U	340	U	380	U	380
	Pyrene	390	U	380	U	28	J	390	U	400	U	360	U	340	U	340	U	380	U	380
	1,2,4-Trichlorobenzene	390	U	380	U	380	U	390	U	400	U	360	U	340	U	340	U	380	U	380
	Benzo(k)fluoranthene	390	U	19	J	28	J	390	U	400	U	16	J	340	U	340	U	380	U	380
	Benzoic acid	2000	U	2000	UJ	2000	UJ	2000	U	2000	U	1900	U	1800	U	1800	U	2000	U	2000
	Benzyl alcohol	390	U	380	U	380	U	390	U	400	U	460	U	340	U	340	U	380	U	380
	Dibenzofuran	390	U	380	U	380	U	390	U	400	U	360	U	340	U	340	U	380	U	380
	N-Nitroso-di-n-propylamine	390	U	380	U	380	U	390	U	400	U	360	U	340	U	340	U	380	U	380
Cyanide, mg/kg																				
SW9012A	Cyanide	0.85	U	0.32	J	0.45	J	0.55	J	0.58	J	3.7		0.75	U	0.75	U	0.85	U	0.86
	QA/QC samples not used in calcula																			
	Background samples																			
	Concentrations exceed background																			
	Residence samples																			
	Surface samples																			
	exceeds SCDM. Used for HRS scor																			

Analytical Results Summary
Flamingo Bay Landfill - Former Fort Segarra, Water Island, USVI

Parameter,		-3.5' FS-FBL-SB3-1-0'-2'		FS-FBL-SB3-2-3'		FS-FBL-SB7-1-4.5'		FS-FBL-SBK-2-0'-2'		FS-FBL-SBK-1-0'-2'							
Units	Compound / Analyte	5/28/2003		5/28/2003		5/28/2003		5/28/2003		5/28/2003		BG Threshold	# of all samples >Threshold	Bkg x 3, or PQL for HRS	# surface samples above 3x Bkg, or PQL for HRS	Above HRS SCDM	Site total
Metals, mg/kg																	
SW6010B	Silver	U	1 U	0.47	J	1	U	1	U	1.1	U						
	Aluminum		41000	24000		30000		25000		9900		50000		75000			
	Arsenic	J	2 J	45		3.6		1.5	J	2	J	4	13	6	2	28	751.28
	Barium		64	140		63		32		22		64	13	96	3	200	3531
	Beryllium	J	0.26 J	0.23	J	0.3	J	0.32	J	0.11	J	0.64		0.96			
	Calcium		7700	110000		15000		14000		260000		520000		780000			
	Cadmium		0.62	6.9		0.67		0.69		0.34	J	1.38	12	2.07	2	10	86.56
	Cobalt	J	29 J	20	J	23	J	22	J	5.5	J	44		66			
	Chromium	J	78	120		23		20		9		40	11	60	2	78	1282.6
	Copper		73	310		49		29		17		58	16	87	3	500	4825
	Iron		58000	110000		56000		44000		15000		88000	5	132000			1805000
	Potassium		790	1300		980		1200		760		2400	2	3600			39320
	Magnesium		43000	16000		24000		21000		11000		42000	1	63000			474300
	Manganese		1200	1100		1200		1500		310		3000		4500			
	Sodium		1000	2100		2300		2100	J	3500	J	7000		10500			
	Nickel		31	43		16		14		4.3	J	28	7	42	1	47	626.8
	Lead		14	1300		12		4.3		7		14	16	21	3	1300	17817
	Antimony	U	2.1 UJ	8	J	2	UJ	2	U	2.1	U	4.2	7	6.3	2		139.74
	Selenium	U	2.5 U	2.5	U	2.4	U	2.4	U	2.6	U						
	Strontium		38	1400		160		210		3600		7200		10800			
	Thallium	U	2.9 U	5.9	U	2.8	U	2.8	U	3	U						
	Vanadium		230 J	94	J	170	J	160		53		320		480			
	Zinc		100 J	770	J	130	J	98		36		196	10	294	2	890	18372
Mercury, mg/kg																	
SW7471	Mercury	J	0.011 J	0.38		0.0092	J	0.017	J	0.008	J	0.034	14	0.051	3	0.87	3.8812
Pesticides, ug/kg												RL					
SW8081A	Aldrin	U	1.9 U	7.8	U	1.9	U	1.9	U	1.9	U						
	alpha-BHC	U	1.9 U	7.8	U	1.9	U	1.9	U	1.9	U						
	beta-BHC	U	1.9 U	7.8	U	1.9	U	1.9	U	1.9	U						
	gamma-BHC (Lindane)	U	1.9 U	7.8	U	1.9	U	1.9	U	0.34	J						
	delta-BHC	U	1.9 U	7.8	U	1.9	U	1.9	U	1.9	U	1.7	2				
	Chlordane (technical)	U	19 U	78	U	19	U	19	U	19	U						
	4,4'-DDT	U	3.7 U	16	J	3.6	U	3.7	U	3.8	U	3.3	5	3.8	1	6.3	
	Endosulfan I	U	1.9 U	7.8	U	1.9	U	1.9	U	1.9	U	1.7	1				
	Endosulfan II	U	3.7 U	15	U	3.6	U	3.7	U	3.8	U						
	4,4'-DDE	U	3.7 U	15	U	3.6	U	3.7	U	3.8	U	3.3					
	4,4'-DDD	U	3.7 U	15	U	3.6	U	3.7	U	3.8	U						
	Dieldrin	J	1.2 J	82		2.2	J	3.7	U	3.8	U	3.3	13	3.8	1	23	
	Endosulfan sulfate	U	3.7 U	15	U	3.6	U	3.7	U	3.8	U						
	Endrin	U	3.7 U	15	U	3.6	U	3.7	U	3.8	U						
	Endrin aldehyde	U	3.7 U	15	U	3.6	U	3.7	U	3.8	U	3.3					
	Heptachlor	U	1.9 U	7.8	U	1.9	U	1.9	U	1.9	U	1.7	1				
	Heptachlor epoxide	UJ	1.9 U	7.8	U	1.9	U	1.9	U	1.9	U	1.7	4				
	Toxaphene	U	190 U	780	U	190	U	190	U	190	U						
	Endrin ketone	U	3.7 U	15	U	3.6	U	3.7	U	3.8	U						
	Methoxychlor	U	19 U	78	U	19	U	19	U	19	U						
PCBs, ug/kg																	
SW8082	Aroclor-1242	U	37 U	150	U	36	U	37	U	38	U						
	Aroclor-1254	U	16 J	700		36	U	37	U	38	U	33	8	38	1	190	25170
	Aroclor-1221	U	74 U	310	U	74	U	75	U	76	U						
	Aroclor-1232	U	37 U	150	U	36	U	37	U	38	U						
	Aroclor-1248	U	37 U	150	U	36	U	37	U	38	U						
	Aroclor-1260	U	37 U	150	U	36	U	37	U	38	U						

Analytical Results Summary
Flamingo Bay Landfill - Former Fort Segarra, Water Island, USVI

Parameter,		-3.5'	FS-FBL-SB3-1-0'-2'		FS-FBL-SB3-2-3'		FS-FBL-SB7-1-4.5'		FS-FBL-SBK-2-0'-2'		FS-FBL-SBK-1-0'-2'							
Units	Compound / Analyte		5/28/2003		5/28/2003		5/28/2003		5/28/2003		5/28/2003		BG Threshold	# of all samples >Threshold	Bkg x 3, or PQL for HRS	# surface samples above 3x Bkg, or PQL for HRS	Above HRS SCDM	Site total
	Aroclor-1016	U	37	U	150	U	36	U	37	U	38	U						
Herbicides, ug/kg																		
SW8151A	2,4,5-TP (Silvex)	U	9.2	U	9.5	U	9.1	U	9.3	U	9.4	U	8.3					
	2,4-DB	U	10	U	11	U	10	U	10	U	10	U	9.3					
	2,4-D	U	9.2	U	9.5	U	9.1	U	9.3	U	9.4	U	8.3					
	2,4,5-T	J	9.2	U	9.5	U	9.1	U	7.2	J	2.1	J	8.3					
	Pentachlorophenol	U	19	U	20	U	19	U	19	U	19	U	17					
	Dalapon	U	2200	U	2300	U	2200	U	2200	U	2300	U						
	Dicamba	J	18	J	23	U	22	U	16	J	23	U	20	5				
	Dichloroprop	U	110	U	110	U	110	U	110	U	110	U						
	Dinoseb	U	110	U	110	U	110	U	110	U	110	U						
	MCPA	U	2200	U	2300	U	2200	U	2200	U	2300	U						
	MCPP	J	15000	J	510	J	34000	J	24000	J	2300	U	2000	13				
Semivolatiles, ug/kg																		
SW8270C	2-Chlorophenol	U	370	U	380	U	360	U	370	U	380	U						
	Acenaphthene	U	370	U	380	U	360	U	370	U	380	U						
	2,2'-Oxybis(1-Chloropropane) (bis-2-chloroisopropyl ether)	U	370	U	380	U	360	U	370	U	380	U						
	2-Nitroaniline	U	1900	U	2000	U	1900	U	1900	U	1900	U						
	2-Methylnaphthalene	U	370	U	380	U	360	U	370	U	380	U						
	2-Methylphenol (o-Cresol)	U	370	U	380	U	360	U	370	U	380	U						
	2,4-Dichlorophenol	U	370	U	380	U	360	U	370	U	380	U						
	Acenaphthylene	U	370	U	380	U	360	U	370	U	380	U						
	3-Nitroaniline	U	1900	U	2000	U	1900	U	1900	U	1900	U						
	2,4-Dimethylphenol	U	370	U	380	U	360	U	370	U	380	U						
	Anthracene	U	370	U	380	U	360	U	370	U	380	U						
	4,6-Dinitro-2-methylphenol	U	1900	U	2000	U	1900	U	1900	U	1900	U						
	4-Chloroaniline	U	730	U	760	U	720	U	740	U	750	U						
	4-Chloro-3-methylphenol	U	370	U	380	U	360	U	370	U	380	U						
	3-Methylphenol/4-Methylphenol (m&p-Cresol)	U	370	U	380	U	360	U	370	U	380	U						
	4-Nitroaniline	U	1900	U	2000	U	1900	U	1900	U	1900	U						
	Benzidine	U	3000	UJ	3100	UJ	3000	UJ	3000	U	3100	U						
	2,4-Dinitrophenol	U	1900	UJ	2000	UJ	1900	UJ	1900	U	1900	U						
	2-Nitrophenol	U	370	U	380	U	360	U	370	U	380	U						
	Benzo(a)pyrene	U	370	U	380	U	360	U	370	U	380	U						
	4-Nitrophenol	U	1900	U	2000	U	1900	U	1900	U	1900	U						
	Acetophenone	U	370	U	380	U	360	U	370	U	380	U	330					
	Aniline	U	370	UJ	380	UJ	360	UJ	370	U	380	U						
	Benzo(a)anthracene	U	370	U	380	U	360	U	370	U	380	U						
	2,6-Dichlorophenol	U	370	U	380	U	360	U	370	U	380	U						
	Benzo(b)fluoranthene	U	370	U	380	U	360	U	370	U	380	U	330					
	Diethylphthalate	U	370	U	380	U	360	U	370	U	380	U						
	Hexachloropropene	U	370	U	380	U	360	U	370	U	380	U						
	2-Naphthylamine	U	470	U	480	U	460	U	470	U	480	U						
	N-Nitrosopyrrolidine	U	370	U	380	U	360	U	370	U	380	U						
	Pyridine	U	370	UJ	380	UJ	360	UJ	370	U	380	U						
	1,2,4,5-Tetrachlorobenzene	U	370	U	380	U	360	U	370	U	380	U						
	2,4,5-Trichlorophenol	U	370	U	380	U	360	U	370	U	380	U						
	Benzo(g,h,i)perylene	U	370	U	380	U	360	U	370	U	380	U	330					
	Pentachlorophenol	U	1900	U	2000	U	1900	U	1900	U	1900	U						
	Phenol	U	370	U	380	U	360	U	370	U	380	U						
	bis(2-Chloroethoxy)methane	U	370	U	380	U	360	U	370	U	380	U						
	2,4,6-Trichlorophenol	U	370	U	380	U	360	U	370	U	380	U						
	bis(2-Chloroethyl)ether	U	370	U	380	U	360	U	370	U	380	U						

Analytical Results Summary
Flamingo Bay Landfill - Former Fort Segarra, Water Island, USVI

Parameter, Units	Compound / Analyte	-3.5' FS-FBL-SB3-1-0'-2' 5/28/2003		FS-FBL-SB3-2-3' 5/28/2003		FS-FBL-SB7-1-4.5' 5/28/2003		FS-FBL-SBK-2-0'-2' 5/28/2003		FS-FBL-SBK-1-0'-2' 5/28/2003		BG Threshold	# of all samples >Threshold	Bkg x 3, or PQL for HRS	# surface samples above 3x Bkg, or PQL for HRS	Above HRS SCDM	Site total
	bis(2-Ethylhexyl)phthalate	J	370 U	200	J	140	J	320	J	280	J	330	4	960	1	4600	
	4-Bromophenylphenyl ether	U	370 U	380	U	360	U	370	U	380	U	330					
	Butylbenzylphthalate	U	370 U	67	J	360	U	370	U	380	U	330	1				
	2-Chloronaphthalene	U	370 U	380	U	360	U	370	U	380	U						
	4-Chlorophenylphenyl ether	U	370 U	380	U	360	U	370	U	380	U						
	Chrysene	U	370 U	380	U	360	U	370	U	380	U						
	Dibenzo(a,h)anthracene	U	370 U	380	U	360	U	370	U	380	U						
	1,2-Dichlorobenzene	U	370 U	380	U	360	U	370	U	380	U						
	1,3-Dichlorobenzene	U	370 UJ	380	UJ	360	UJ	370	U	380	U						
	1,4-Dichlorobenzene	U	370 UJ	380	UJ	360	UJ	370	U	380	U						
	3,3'-Dichlorobenzidine	U	730 U	760	U	720	U	740	U	750	U						
	Dimethylphthalate	U	370 U	380	U	360	U	370	U	380	U						
	Di-n-butylphthalate	U	370 U	380	U	68	J	370	U	380	U	330					
	2,4-Dinitrotoluene	U	370 U	380	U	360	U	370	U	380	U	330	1		1	430	
	2,6-Dinitrotoluene	U	370 U	380	U	360	U	370	U	380	U	330	1		1	660	
	Di-n-octylphthalate	U	370 U	380	U	360	U	370	U	380	U	330					
	1,2-Diphenylhydrazine	U	370 U	380	U	360	U	370	U	380	U						
	Fluoranthene	U	370 U	380	U	360	U	370	U	380	U						
	Fluorene	U	370 U	380	U	360	U	370	U	380	U						
	Hexachlorobenzene	U	370 U	380	U	360	U	370	U	380	U						
	Hexachlorobutadiene	U	370 U	380	U	360	U	370	U	380	U						
	Hexachlorocyclopentadiene	U	900 UJ	930	UJ	890	UJ	910	U	920	U						
	Hexachloroethane	U	370 UJ	380	UJ	360	UJ	370	U	380	U						
	Indeno(1,2,3-cd)pyrene	U	370 U	380	U	360	U	370	U	380	U						
	Isophorone	U	370 U	380	U	360	U	370	U	380	U						
	Naphthalene	U	370 U	380	U	360	U	370	U	380	U						
	Nitrobenzene	U	370 U	380	U	360	U	370	U	380	U						
	N-Nitrosodimethylamine	U	670 U	690	U	660	U	670	U	680	U						
	N-Nitrosodiphenylamine	U	370 U	380	U	360	U	370	U	380	U						
	Phenanthrene	U	370 U	380	U	360	U	370	U	380	U						
	Pyrene	U	370 U	380	U	360	U	370	U	380	U	330					
	1,2,4-Trichlorobenzene	U	370 U	380	U	360	U	370	U	380	U						
	Benzo(k)fluoranthene	U	370 U	380	U	360	U	370	U	380	U	330					
	Benzoic acid	U	1900 UJ	2000	UJ	1900	UJ	1900	U	1900	U						
	Benzyl alcohol	U	370 U	380	U	360	U	370	U	380	U						
	Dibenzofuran	U	370 U	380	U	360	U	370	U	380	U						
	N-Nitroso-di-n-propylamine	U	370 U	380	U	360	U	370	U	380	U						
Cyanide, mg/kg												RL					
SW9012A	Cyanide	U	0.83 U	0.83	U	0.81	U	0.84	U	0.84	U	1	1				22.25

QA/QC samples not used in calcula

Background samples

Concentrations exceed background

Residence samples

Surface samples

exceeds SCDM. Used for HRS scor

Analytical Results Summary
Flamingo Bay Landfill - Former Fort Segarra, Water Island, USVI

Parameter, Units	Compound / Analyte	Site Average
Metals, mg/kg		
SW6010B	Silver	
	Aluminum	
	Arsenic	28.90
	Barium	135.81
	Beryllium	
	Calcium	
	Cadmium	3.33
	Cobalt	
	Chromium	49.33
	Copper	185.58
	Iron	69,423.08
	Potassium	1,512.31
	Magnesium	18,242.31
	Manganese	
	Sodium	
	Nickel	24.11
	Lead	685.27
	Antimony	5.37
	Selenium	
	Strontium	
	Thallium	
	Vanadium	
	Zinc	706.62
Mercury, mg/kg		
SW7471	Mercury	0.15
Pesticides, ug/kg		
SW8081A	Aldrin	
	alpha-BHC	
	beta-BHC	
	gamma-BHC (Lindane)	
	delta-BHC	
	Chlordane (technical)	
	4,4'-DDT	
	Endosulfan I	
	Endosulfan II	
	4,4'-DDE	
	4,4'-DDD	
	Dieldrin	
	Endosulfan sulfate	
	Endrin	
	Endrin aldehyde	
	Heptachlor	
	Heptachlor epoxide	
	Toxaphene	
	Endrin ketone	
	Methoxychlor	
PCBs, ug/kg		
SW8082	Aroclor-1242	
	Aroclor-1254	968.08
	Aroclor-1221	
	Aroclor-1232	
	Aroclor-1248	
	Aroclor-1260	

Parameter, Units	Compound / Analyte	Site Average
	Aroclor-1016	
Herbicides, ug/kg		
SW8151A	2,4,5-TP (Silvex)	
	2,4-DB	
	2,4-D	
	2,4,5-T	
	Pentachlorophenol	
	Dalapon	
	Dicamba	
	Dichloroprop	
	Dinoseb	
	MCPA	
	MCPP	
Semivolatiles, ug/kg		
SW8270C	2-Chlorophenol	
	Acenaphthene	
	2,2'-Oxybis(1-Chloropropane) (bis-2-chloroisopropyl ether)	
	2-Nitroaniline	
	2-Methylnaphthalene	
	2-Methylphenol (o-Cresol)	
	2,4-Dichlorophenol	
	Acenaphthylene	
	3-Nitroaniline	
	2,4-Dimethylphenol	
	Anthracene	
	4,6-Dinitro-2-methylphenol	
	4-Chloroaniline	
	4-Chloro-3-methylphenol	
	3-Methylphenol/4-Methylphenol (m&p-Cresol)	
	4-Nitroaniline	
	Benzidine	
	2,4-Dinitrophenol	
	2-Nitrophenol	
	Benzo(a)pyrene	
	4-Nitrophenol	
	Acetophenone	
	Aniline	
	Benzo(a)anthracene	
	2,6-Dichlorophenol	
	Benzo(b)fluoranthene	
	Diethylphthalate	
	Hexachloropropene	
	2-Naphthylamine	
	N-Nitrosopyrrolidine	
	Pyridine	
	1,2,4,5-Tetrachlorobenzene	
	2,4,5-Trichlorophenol	
	Benzo(g,h,i)perylene	
	Pentachlorophenol	
	Phenol	
	bis(2-Chloroethoxy)methane	
	2,4,6-Trichlorophenol	
	bis(2-Chloroethyl)ether	

Analytical Results Summary
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Parameter, Units	Compound / Analyte	Site Average
	bis(2-Ethylhexyl)phthalate	
	4-Bromophenylphenyl ether	
	Butylbenzylphthalate	
	2-Chloronaphthalene	
	4-Chlorophenylphenyl ether	
	Chrysene	
	Dibenzo(a,h)anthracene	
	1,2-Dichlorobenzene	
	1,3-Dichlorobenzene	
	1,4-Dichlorobenzene	
	3,3'-Dichlorobenzidine	
	Dimethylphthalate	
	Di-n-butylphthalate	
	2,4-Dinitrotoluene	
	2,6-Dinitrotoluene	
	Di-n-octylphthalate	
	1,2-Diphenylhydrazine	
	Fluoranthene	
	Fluorene	
	Hexachlorobenzene	
	Hexachlorobutadiene	
	Hexachlorocyclopentadiene	
	Hexachloroethane	
	Indeno(1,2,3-cd)pyrene	
	Isophorone	
	Naphthalene	
	Nitrobenzene	
	N-Nitrosodimethylamine	
	N-Nitrosodiphenylamine	
	Phenanthrene	
	Pyrene	
	1,2,4-Trichlorobenzene	
	Benzo(k)fluoranthene	
	Benzoic acid	
	Benzyl alcohol	
	Dibenzofuran	
	N-Nitroso-di-n-propylamine	
Cyanide, mg/kg		
SW9012A	Cyanide	0.86
	QA/QC samples not used in calcula	
	Background samples	
	Concentrations exceed background	
	Residence samples	
	Surface samples	
	exceeds SCDM. Used for HRS scor	

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CLEARANCE REPORT
EXTRACTION SAMPLES
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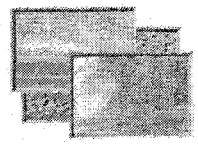

Report To: John Schwarz (at VI) Room 3103 of ECBC, for PROJECT: Fort Segarra, VI

Phone/Fax: W: (410) 436-0000 F: (340) 776-3426

Govt Org/Poc: ECBC: John Ditillo

Sample #/Name MB030383-M01 03052201-LCS **Date Rec'd** 5/22/2003

Sample Matrix Other Laboratory Control Spike **Sample Date** 5/22/2003

Headspace Clearance # **Remarks**

Extraction Number(s)	*Batch Number*	*IOP Number*
MB030383-M01LCS	03052201	MT8

Analyte	*Extraction Date*	*Analysis Date*	*PQL*	*Result*	*Remarks*
1,4-Dithiane	5/22/2003	5/22/2003	200	68%	
1,4-Thioxane			200	71%	
BFB (Surrogate)			0	84%	
GA			20	83%	
HD			200	69%	

Sample #/Name MB030384-M01 03052201-LCSD **Date Rec'd** 5/22/2003

Sample Matrix Other Laboratory Control Spike Duplicate **Sample Date** 5/22/2003

Headspace Clearance # **Remarks**

Extraction Number(s)	*Batch Number*	*IOP Number*
MB030384-M01LCSD	03052201	MT8

Analyte	*Extraction Date*	*Analysis Date*	*PQL*	*Result*	*Remarks*
1,4-Dithiane	5/22/2003	5/22/2003	200	80%	
1,4-Thioxane			200	81%	
BFB (Surrogate)			0	83%	
GA			20	85%	
HD			200	80%	

MS = Matrix Spike; MSD = Matrix Spike Duplicate; Dup = Duplicate; ND = Not Detected at or above the Practical Quantitation Limit (PQL); Detection limits and sample results are in ppb. MS/MSD results are in % recovery. J = Detected above the method detection limit but below the PQL. Result is an estimated value.

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Phone/Fax:	W: (410) 436-0000 F: (340) 776-3426
Govt Org/Poc:	ECBC: John Ditillo

Sample #/Name MB030385-M01 03052201-MB **Date Rec'd** 5/22/2003

Sample Matrix Other Method Blank **Sample Date** 5/22/2003

Headspace Clearance # **Remarks**

Extraction Number(s)	*Batch Number*	*IOP Number*
MB030385-M01MB	**03052201**	**MT8**

Analyte	*Extraction Date*	*Analysis Date*	*PQL*	*Result*	*Remarks*
BFB (Surrogate)	5/22/2003	5/22/2003	0	82%	

MS = Matrix Spike; MSD = Matrix Spike Duplicate; Dup = Duplicate; ND = Not Detected at or above the Practical Quantitation Limit (PQL); Detection limits and sample results are in ppb. MS/MSD results are in % recovery. J = Detected above the method detection limit but below the PQL. Result is an estimated value.

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Phone/Fax:	W: (410) 436-0000 F: (340) 776-3426
Govt Org/Poc:	ECBC: John Ditillo

Sample #/Name MB030587-M01 03062701-MB **Date Rec'd** 6/27/2003
Sample Matrix Other Method Blank **Sample Date** 6/27/2003
Headspace Clearance # **Remarks**

Extraction Number(s)	*Batch Number*	*IOP Number*
MB030587-M01MB	**03062701**	**MT8**

Analyte	*Extraction Date*	*Analysis Date*	*PQL*	*Result*	*Remarks*
BFB (Surrogate)	6/27/2003	6/27/2003	0	88%	

Sample #/Name MB030588-M01 03063001-LCS **Date Rec'd** 6/30/2003
Sample Matrix Other Laboratory Control Spike **Sample Date** 6/30/2003
Headspace Clearance # **Remarks**

Extraction Number(s)	*Batch Number*	*IOP Number*
MB030588-M01LCS	**03063001**	**MT8**

Analyte	*Extraction Date*	*Analysis Date*	*PQL*	*Result*	*Remarks*
1,4-Dithiane	6/30/2003	6/30/2003	200	113%	
1,4-Thioxane			200	122%	
BFB (Surrogate)			0	118%	
GA			20	95%	
HD			200	116%	

Sample #/Name MB030589-M01 03063001-LCSD **Date Rec'd** 6/30/2003
Sample Matrix Other Laboratory Control Spike Duplicate **Sample Date** 6/30/2003
Headspace Clearance # **Remarks**

Extraction Number(s)	*Batch Number*	*IOP Number*
MB030589-M01LCSD	**03063001**	**MT8**

Analyte	*Extraction Date*	*Analysis Date*	*PQL*	*Result*	*Remarks*
1,4-Dithiane	6/30/2003	6/30/2003	200	104%	
1,4-Thioxane			200	115%	
BFB (Surrogate)			0	114%	
GA			20	94%	
HD			200	108%	

MS = Matrix Spike; MSD = Matrix Spike Duplicate; Dup = Duplicate; ND = Not Detected at or above the Practical Quantitation Limit (PQL); Detection limits and sample results are in ppb. MS/MSD results are in % recovery. J = Detected above the method detection limit but below the PQL. Result is an estimated value.

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CLEARANCE REPORT
EXTRACTION SAMPLES
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Phone/Fax: W: (410) 436-0000 F: (340) 776-3426
Govt Org/Poc: ECBC: John Ditillo

Sample #/Name MB030585-M01 03062701-LCS **Date Rec'd** 6/27/2003
Sample Matrix Other Laboratory Control Spike **Sample Date** 6/27/2003
Headspace Clearance # **Remarks**

Extraction Number(s)	*Batch Number*	*IOP Number*
MB030585-M01LCS	03062701	MT8

Analyte	*Extraction Date*	*Analysis Date*	*PQL*	*Result*	*Remarks*
1,4-Dithiane	6/27/2003	6/27/2003	200	79%	
1,4-Thioxane			200	91%	
BFB (Surrogate)			0	92%	
GA			20	85%	
HD			200	82%	

Sample #/Name MB030586-M01 03062701-LCSD **Date Rec'd** 6/27/2003
Sample Matrix Other Laboratory Control Spike Duplicate **Sample Date** 6/27/2003
Headspace Clearance # **Remarks**

Extraction Number(s)	*Batch Number*	*IOP Number*
MB030586-M01LCSD	03062701	MT8

Analyte	*Extraction Date*	*Analysis Date*	*PQL*	*Result*	*Remarks*
1,4-Dithiane	6/27/2003	6/27/2003	200	87%	
1,4-Thioxane			200	98%	
BFB (Surrogate)			0	97%	
GA			20	88%	
HD			200	91%	

MS = Matrix Spike; MSD = Matrix Spike Duplicate; Dup = Duplicate; ND = Not Detected at or above the Practical Quantitation Limit (PQL); Detection limits and sample results are in ppb. MS/MSD results are in % recovery. J = Detected above the method detection limit but below the PQL. Result is an estimated value.

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Govt Org/Poc:	ECBC: John Ditillo

Sample #/Name MB030566-M01 FS-TA8-SB8-1-0-2' Date Rec'd 6/27/2003
Sample Matrix Soil Sample Date 6/17/2003
Headspace Clearance # Remarks

Extraction Number(s)	Batch Number	IOP Number
MB030566-M01	03063001	MT8

Analyte	Extraction Date	Analysis Date	PQL	Result	Remarks
1,4-Dithiane	6/30/2003	6/30/2003	200	ND	
1,4-Thioxane			200	ND	
BFB (Surrogate)			0	107%	
GA			20	ND	
HD			200	ND	

Sample #/Name MB030567-M01 FS-TA8-SB10-1-0-2' Date Rec'd 6/27/2003
Sample Matrix Soil Sample Date 6/17/2003
Headspace Clearance # Remarks

Extraction Number(s)	Batch Number	IOP Number
MB030567-M01	03063001	MT8

Analyte	Extraction Date	Analysis Date	PQL	Result	Remarks
1,4-Dithiane	6/30/2003	6/30/2003	200	ND	
1,4-Thioxane			200	ND	
BFB (Surrogate)			0	98%	
GA			20	ND	
HD			200	ND	

Sample #/Name MB030568-M01 FS-TA4-TP11-1-3' Date Rec'd 6/27/2003
Sample Matrix Soil Sample Date 6/13/2003
Headspace Clearance # Remarks

Extraction Number(s)	Batch Number	IOP Number
MB030568-M01	03063001	MT8

Analyte	Extraction Date	Analysis Date	PQL	Result	Remarks
1,4-Dithiane	6/30/2003	6/30/2003	200	ND	
1,4-Thioxane			200	ND	
BFB (Surrogate)			0	108%	
GA			20	ND	
HD			200	ND	

MS = Matrix Spike; MSD = Matrix Spike Duplicate; Dup = Duplicate; ND = Not Detected at or above the Practical Quantitation Limit (PQL); Detection limits and sample results are in ppb. MS/MSD results are in % recovery. J = Detected above the method detection limit but below the PQL. Result is an estimated value.

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Phone/Fax:	W: (410) 436-0000 F: (340) 776-3426
Govt Org/Poc:	ECBC: John Ditillo

Sample #/Name MB030563-M01 FS-TA4-SR1-0-2' **Date Rec'd** 6/27/2003
Sample Matrix Soil **Sample Date** 6/16/2003
Headspace Clearance # **Remarks**

Extraction Number(s)	*Batch Number*	*IOP Number*
MB030563-M01	**03063001**	**MT8**

Analyte	*Extraction Date*	*Analysis Date*	*PQL*	*Result*	*Remarks*
1,4-Dithiane	6/30/2003	6/30/2003	200	ND	
1,4-Thioxane			200	ND	
BFB (Surrogate)			0	105%	
GA			20	ND	
HD			200	ND	

Sample #/Name MB030564-M01 FS-TA8-SB6-1-0'-2' **Date Rec'd** 6/27/2003
Sample Matrix Soil **Sample Date** 6/17/2003
Headspace Clearance # **Remarks**

Extraction Number(s)	*Batch Number*	*IOP Number*
MB030564-M01	**03063001**	**MT8**

Analyte	*Extraction Date*	*Analysis Date*	*PQL*	*Result*	*Remarks*
1,4-Dithiane	6/30/2003	6/30/2003	200	ND	
1,4-Thioxane			200	ND	
BFB (Surrogate)			0	102%	
GA			20	ND	
HD			200	ND	

Sample #/Name MB030565-M01 FS-TA8-SBK-1-0-2' **Date Rec'd** 6/27/2003
Sample Matrix Soil **Sample Date** 6/17/2003
Headspace Clearance # **Remarks**

Extraction Number(s)	*Batch Number*	*IOP Number*
MB030565-M01	**03063001**	**MT8**

Analyte	*Extraction Date*	*Analysis Date*	*PQL*	*Result*	*Remarks*
1,4-Dithiane	6/30/2003	6/30/2003	200	ND	
1,4-Thioxane			200	ND	
BFB (Surrogate)			0	95%	
GA			20	ND	
HD			200	ND	

MS = Matrix Spike; MSD = Matrix Spike Duplicate; Dup = Duplicate; ND = Not Detected at or above the Practical Quantitation Limit (PQL); Detection limits and sample results are in ppb. MS/MSD results are in % recovery. J = Detected above the method detection limit but below the PQL. Result is an estimated value.

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Phone/Fax:	**W:** (410) 436-0000 **F:** (340) 776-3426
Govt Org/Poc:	ECBC: John Ditillo

Sample #/Name MB030560-M01 FS-TA5-SR-1-0'-2' **Date Rec'd** 6/27/2003
Sample Matrix Soil **Sample Date** 6/16/2003
Headspace Clearance # **Remarks**

Extraction Number(s)	*Batch Number*	*IOP Number*
MB030560-M01	03063001	MT8

Analyte	*Extraction Date*	*Analysis Date*	*PQL*	*Result*	*Remarks*
1,4-Dithiane	6/30/2003	6/30/2003	200	ND	
1,4-Thioxane			200	ND	
BFB (Surrogate)			0	90%	
GA			20	ND	
HD			200	ND	

Sample #/Name MB030561-M01 FS-TA5-SR2-0-2' **Date Rec'd** 6/27/2003
Sample Matrix Soil **Sample Date** 6/16/2003
Headspace Clearance # **Remarks**

Extraction Number(s)	*Batch Number*	*IOP Number*
MB030561-M01	03063001	MT8

Analyte	*Extraction Date*	*Analysis Date*	*PQL*	*Result*	*Remarks*
1,4-Dithiane	6/30/2003	6/30/2003	200	ND	
1,4-Thioxane			200	ND	
BFB (Surrogate)			0	75%	
GA			20	ND	
HD			200	ND	

Sample #/Name MB030562-M01 FS-TA4-SR2-0-2' **Date Rec'd** 6/27/2003
Sample Matrix Soil **Sample Date** 6/16/2003
Headspace Clearance # **Remarks**

Extraction Number(s)	*Batch Number*	*IOP Number*
MB030562-M01	03063001	MT8

Analyte	*Extraction Date*	*Analysis Date*	*PQL*	*Result*	*Remarks*
1,4-Dithiane	6/30/2003	6/30/2003	200	ND	
1,4-Thioxane			200	ND	
BFB (Surrogate)			0	92%	
GA			20	ND	
HD			200	ND	

MS = Matrix Spike; MSD = Matrix Spike Duplicate; Dup = Duplicate; ND = Not Detected at or above the Practical Quantitation Limit (PQL); Detection limits and sample results are in ppb. MS/MSD results are in % recovery. J = Detected above the method detection limit but below the PQL. Result is an estimated value.

Report To:	John Schwarz (at VI) Room 3103 of ECBC, for PROJECT: Fort Segarra, VI
Phone/Fax:	W: (410) 436-0000 F: (340) 776-3426
Govt Org/Poc:	ECBC: John Ditillo

Sample #/Name MB030559-M01 FS-TA5-SBK-1-2' **Date Rec'd** 6/27/2003

Sample Matrix Soil **Sample Date** 6/16/2003

Headspace Clearance # **Remarks**

Extraction Number(s)	*Batch Number*	*IOP Number*
MB030559-M01	03063001	MT8

Analyte	*Extraction Date*	*Analysis Date*	*PQL*	*Result*	*Remarks*
1,4-Dithiane	6/30/2003	6/30/2003	200	ND	
1,4-Thioxane			200	ND	
BFB (Surrogate)			0	125%	
GA			20	ND	
HD			200	ND	

MB030559-M01MS	03063001	MT8

Analyte		*Extraction Date*	*Analysis Date*	*PQL*	*Result*	*Remarks*
1,4-Dithiane	MS	6/30/2003	6/30/2003	200	119%	
1,4-Thioxane				200	128%	
BFB (Surrogate)				0	119%	
GA				20	105%	
HD				200	125%	

MB030559-M01MSD	03063001	MT8

Analyte		*Extraction Date*	*Analysis Date*	*PQL*	*Result*	*Remarks*
1,4-Dithiane	MSD	6/30/2003	6/30/2003	200	103%	
1,4-Thioxane				200	113%	
BFB (Surrogate)				0	104%	
GA				20	96%	
HD				200	108%	

MS = Matrix Spike; MSD = Matrix Spike Duplicate; Dup = Duplicate; ND = Not Detected at or above the Practical Quantitation Limit (PQL); Detection limits and sample results are in ppb. MS/MSD results are in % recovery. J = Detected above the method detection limit but below the PQL. Result is an estimated value.

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Govt Org/Poc:	ECBC: John Ditillo

Sample #/Name MB030558-M01 FS-TA4-TP7-1-3' **Date Rec'd** 6/27/2003

Sample Matrix Soil **Sample Date** 6/13/2003

Headspace Clearance # **Remarks**

Extraction Number(s)	*Batch Number*	*IOP Number*
MB030558-M01	**03063001**	**MT8**

Analyte	*Extraction Date*	*Analysis Date*	*PQL*	*Result*	*Remarks*
1,4-Dithiane	6/30/2003	6/30/2003	200	ND	
1,4-Thioxane			200	ND	
BFB (Surrogate)			0	119%	
GA			20	ND	
HD			200	ND	

MS = Matrix Spike; MSD = Matrix Spike Duplicate; Dup = Duplicate; ND = Not Detected at or above the Practical Quantitation Limit (PQL); Detection limits and sample results are in ppb. MS/MSD results are in % recovery. J = Detected above the method detection limit but below the PQL. Result is an estimated value.

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Govt Org/Poc:	ECBC: John Ditillo

Sample #/Name MB030555-M01 FS-TA4-TP4-1-10' **Date Rec'd** 6/27/2003
Sample Matrix Soil **Sample Date** 6/13/2003
Headspace Clearance # **Remarks**

Extraction Number(s)	*Batch Number*	*IOP Number*
MB030555-M01	03063001	MT8

Analyte	*Extraction Date*	*Analysis Date*	*PQL*	*Result*	*Remarks*
1,4-Dithiane	6/30/2003	6/30/2003	200	ND	
1,4-Thioxane			200	ND	
BFB (Surrogate)			0	116%	
GA			20	ND	
HD			200	ND	

Sample #/Name MB030556-M01 FS-TA4-TP5-1-1.5' **Date Rec'd** 6/27/2003
Sample Matrix Soil **Sample Date** 6/13/2003
Headspace Clearance # **Remarks**

Extraction Number(s)	*Batch Number*	*IOP Number*
MB030556-M01	03063001	MT8

Analyte	*Extraction Date*	*Analysis Date*	*PQL*	*Result*	*Remarks*
1,4-Dithiane	6/30/2003	6/30/2003	200	ND	
1,4-Thioxane			200	ND	
BFB (Surrogate)			0	120%	
GA			20	ND	
HD			200	ND	

Sample #/Name MB030557-M01 FS-TA4-SBK-2-2.5' **Date Rec'd** 6/27/2003
Sample Matrix Soil **Sample Date** 6/13/2003
Headspace Clearance # **Remarks**

Extraction Number(s)	*Batch Number*	*IOP Number*
MB030557-M01	03063001	MT8

Analyte	*Extraction Date*	*Analysis Date*	*PQL*	*Result*	*Remarks*
1,4-Dithiane	6/30/2003	6/30/2003	200	ND	
1,4-Thioxane			200	ND	
BFB (Surrogate)			0	121%	
GA			20	ND	
HD			200	ND	

MS = Matrix Spike; MSD = Matrix Spike Duplicate; Dup = Duplicate; ND = Not Detected at or above the Practical Quantitation Limit (PQL); Detection limits and sample results are in ppb. MS/MSD results are in % recovery. J = Detected above the method detection limit but below the PQL. Result is an estimated value.

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Govt Org/Poc:	ECBC: John Ditillo

Sample #/Name MB030552-M01 FS-TA4-TP9-S1-0'-2' **Date Rec'd** 6/27/2003
Sample Matrix Soil **Sample Date** 6/13/2003
Headspace Clearance # **Remarks**

Extraction Number(s)	*Batch Number*	*IOP Number*
MB030552-M01	03063001	MT8

Analyte	*Extraction Date*	*Analysis Date*	*PQL*	*Result*	*Remarks*
1,4-Dithiane	6/30/2003	6/30/2003	200	ND	
1,4-Thioxane			200	ND	
BFB (Surrogate)			0	108	
GA			20	ND	
HD			200	ND	

Sample #/Name MB030553-M01 FS-TA4-TP9-1-2.5' **Date Rec'd** 6/27/2003
Sample Matrix Soil **Sample Date** 6/13/2003
Headspace Clearance # **Remarks**

Extraction Number(s)	*Batch Number*	*IOP Number*
MB030553-M01	03063001	MT8

Analyte	*Extraction Date*	*Analysis Date*	*PQL*	*Result*	*Remarks*
1,4-Dithiane	6/30/2003	6/30/2003	200	ND	
1,4-Thioxane			20	ND	
BFB (Surrogate)			0	117%	
GA			20	ND	
HD			200	ND	

Sample #/Name MB030554-M01 FS-TA4-TP3-1-3.5' **Date Rec'd** 6/27/2003
Sample Matrix Soil **Sample Date** 6/13/2003
Headspace Clearance # **Remarks**

Extraction Number(s)	*Batch Number*	*IOP Number*
MB030554-M01	03063001	MT8

Analyte	*Extraction Date*	*Analysis Date*	*PQL*	*Result*	*Remarks*
1,4-Dithiane	6/30/2003	6/30/2003	200	ND	
1,4-Thioxane			200	ND	
BFB (Surrogate)			0	119%	
GA			20	ND	
HD			200	ND	

MS = Matrix Spike; MSD = Matrix Spike Duplicate; Dup = Duplicate; ND = Not Detected at or above the Practical Quantitation Limit (PQL); Detection limits and sample results are in ppb. MS/MSD results are in % recovery. J = Detected above the method detection limit but below the PQL. Result is an estimated value.

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Govt Org/Poc:	ECBC: John Ditillo

Sample #/Name MB030549-M01 FS-TA4-TP7-51-0' **Date Rec'd** 6/27/2003
Sample Matrix Soil **Sample Date** 6/12/2003
Headspace Clearance # **Remarks**

Extraction Number(s)	*Batch Number*	*IOP Number*
MB030549-M01	03062701	

Analyte	*Extraction Date*	*Analysis Date*	*PQL*	*Result*	*Remarks*
1,4-Dithiane	6/27/2003	6/27/2003	200	ND	
1,4-Thioxane			200		
BFB (Surrogate)			0		
GA			20		
HD			200		

Sample #/Name MB030550-M01 FS-TA4-SBK-1-3' **Date Rec'd** 6/27/2003
Sample Matrix Soil **Sample Date** 6/13/2003
Headspace Clearance # **Remarks**

Extraction Number(s)	*Batch Number*	*IOP Number*
MB030550-M01	03063001	MT8

Analyte	*Extraction Date*	*Analysis Date*	*PQL*	*Result*	*Remarks*
1,4-Dithiane	6/30/03	6/30/2003	200	ND	
1,4-Thioxane			200	ND	
BFB (Surrogate)			0	109%	
GA			20	ND	
HD			200	ND	

Sample #/Name MB030551-M01 FS-TA4-TP12-1-3' **Date Rec'd** 6/27/2003
Sample Matrix Soil **Sample Date** 6/13/2003
Headspace Clearance # **Remarks**

Extraction Number(s)	*Batch Number*	*IOP Number*
MB030551-M01	03063001	MT8

Analyte	*Extraction Date*	*Analysis Date*	*PQL*	*Result*	*Remarks*
1,4-Dithiane	6/30/2003	6/30/2003	200	ND	
1,4-Thioxane			200	ND	
BFB (Surrogate)			0	108%	
GA			20	ND	
HD			200	ND	

MS = Matrix Spike; MSD = Matrix Spike Duplicate; Dup = Duplicate; ND = Not Detected at or above the Practical Quantitation Limit (PQL); Detection limits and sample results are in ppb. MS/MSD results are in % recovery. J = Detected above the method detection limit but below the PQL. Result is an estimated value.

SBCCOM MONITORING BRANCH

CLEARANCE EXTRACTION SAMPLES

MB-FORM 41 Revision 10 July 2003

Report To: John Schwarz (at VI) Room 3103 of ECBC, for PROJECT: Fort Segarra, VI

Phone/Fax: W: (410) 436-0000 F: (340) 776-3426

Govt Org/Poc: ECBC: John Ditillo

Sample #/Name MB030549-M01 FS-TA4-TP7-51-0' **Date Rec'd** 6/27/2003

Sample Matrix Soil **Sample Date** 6/12/2003

Headspace Clearance # **Remarks**

Extraction Number(s)	*Batch Number*	*IOP Number*
MB030549-M01	**03062701**	**MT8**

Analyte	*Extraction Date*	*Analysis Date*	*PQL*	*Result*	*Remarks*
1,4-Dithiane	6/27/2003	6/27/2003	200		
1,4-Thioxane			200		
BFB (Surrogate)				119%	
GA			20		
HD			200		

MS = Matrix Spike; MSD = Matrix Spike Duplicate; Dup = Duplicate; ND = Not Detected at or above the Practical Quantitation Limit (PQL); Detection limits and sample results are in ppb. MS/MSD results are in % recovery. J = Detected above the method detection limit but below the PQL. Result is an estimated value.

Report To:	John Schwarz (at VI) Room 3103 of ECBC, for PROJECT: Fort Segarra, VI
Phone/Fax:	W: (410) 436-0000 F: (340) 776-3426
Govt Org/Poc:	ECBC: John Ditillo

Sample #/Name MB030548-M01 FS-TA4-TP2-1-4' **Date Rec'd** 6/27/2003

Sample Matrix Soil **Sample Date** 6/12/2003

Headspace Clearance # **Remarks**

Extraction Number(s)	*Batch Number*	*IOP Number*
MB030548-M01	03062701	MT8

Analyte	*Extraction Date*	*Analysis Date*	*PQL*	*Result*	*Remarks*
1,4-Dithiane	6/27/2003	6/27/2003	200	ND	
1,4-Thioxane			200	ND	
BFB (Surrogate)			0	99%	
GA			20	ND	
HD			200	ND	

MB030548-M01MS	03062701	MT8

Analyte		*Extraction Date*	*Analysis Date*	*PQL*	*Result*	*Remarks*
1,4-Dithiane	MS	6/27/2003	6/27/2003	200	90%	
1,4-Thioxane				200	99%	
BFB (Surrogate)				0	99%	
GA				20	84%	
HD				200	93%	

MB030548-M01MSD	03062701	MT8

Analyte		*Extraction Date*	*Analysis Date*	*PQL*	*Result*	*Remarks*
1,4-Dithiane	MSD	6/27/2003	6/27/2003	200	78%	
1,4-Thioxane				200	89%	
BFB (Surrogate)				0	103%	
GA				20	85%	
HD				200	82%	

MS = Matrix Spike; MSD = Matrix Spike Duplicate; Dup = Duplicate; ND = Not Detected at or above the Practical Quantitation Limit (PQL); Detection limits and sample results are in ppb. MS/MSD results are in % recovery. J = Detected above the method detection limit but below the PQL. Result is an estimated value.

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Phone/Fax:	**W:** (410) 436-0000 **F:** (340) 776-3426
Govt Org/Poc:	ECBC: John Ditillo

Sample #/Name MB030546-M01 FS-TA5-TP1-1-5.5' **Date Rec'd** 6/27/2003
Sample Matrix Soil **Sample Date** 6/12/2003

Headspace Clearance # **Remarks**

Extraction Number(s)	*Batch Number*	*IOP Number*
MB030546-M01	03062701	MT8

Analyte	*Extraction Date*	*Analysis Date*	*PQL*	*Result*	*Remarks*
1,4-Dithiane	6/27/2003	6/27/2003	200	ND	
1,4-Thioxane			200	ND	
BFB (Surrogate)			0	98%	
GA			20	ND	
HD			200	ND	

Sample #/Name MB030547-M01 FS-TA5-TP3-1-6.5' **Date Rec'd** 6/27/2003
Sample Matrix Soil **Sample Date** 6/12/2003

Headspace Clearance # **Remarks**

Extraction Number(s)	*Batch Number*	*IOP Number*
MB030547-M01	03062701	MT8

Analyte	*Extraction Date*	*Analysis Date*	*PQL*	*Result*	*Remarks*
1,4-Dithiane	6/27/2003	6/27/2003	200	ND	
1,4-Thioxane			200	ND	
BFB (Surrogate)			0	98%	
GA			20	ND	
HD			200	ND	

MS = Matrix Spike; MSD = Matrix Spike Duplicate; Dup = Duplicate; ND = Not Detected at or above the Practical Quantitation Limit (PQL); Detection limits and sample results are in ppb. MS/MSD results are in % recovery. J = Detected above the method detection limit but below the PQL. Result is an estimated value.

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Phone/Fax:	W: (410) 436-0000 F: (340) 776-3426
Govt Org/Poc:	ECBC: John Ditillo

Sample #/Name MB030543-M01 FS-TA5-195-1-1' **Date Rec'd** 6/27/2003
Sample Matrix Soil **Sample Date** 6/11/2003
Headspace Clearance # **Remarks**

Extraction Number(s)	*Batch Number*	*IOP Number*
MB030543-M01	03062701	MT8

Analyte	*Extraction Date*	*Analysis Date*	*PQL*	*Result*	*Remarks*
1,4-Dithiane	6/27/2003	6/27/2003	200	ND	
1,4-Thioxane			200	ND	
BFB (Surrogate)			0	97%	
GA			20	ND	
HD			200	ND	

Sample #/Name MB030544-M01 FS-TA5-204-1-6' **Date Rec'd** 6/27/2003
Sample Matrix Soil **Sample Date** 6/11/2003
Headspace Clearance # **Remarks**

Extraction Number(s)	*Batch Number*	*IOP Number*
MB030544-M01	03062701	MT8

Analyte	*Extraction Date*	*Analysis Date*	*PQL*	*Result*	*Remarks*
1,4-Dithiane	6/27/2003	6/27/2003	200	ND	
1,4-Thioxane			200	ND	
BFB (Surrogate)			0	94%	
GA			20	ND	
HD			200	ND	

Sample #/Name MB030545-M01 FS-TA5-SBK-2-2' **Date Rec'd** 6/27/2003
Sample Matrix Soil **Sample Date** 6/11/2003
Headspace Clearance # **Remarks**

Extraction Number(s)	*Batch Number*	*IOP Number*
MB030545-M01	03062701	MT8

Analyte	*Extraction Date*	*Analysis Date*	*PQL*	*Result*	*Remarks*
1,4-Dithiane	6/27/2003	6/27/2003	200	ND	
1,4-Thioxane			200	ND	
BFB (Surrogate)			0	96%	
GA			20	ND	
HD			200	ND	

MS = Matrix Spike; MSD = Matrix Spike Duplicate; Dup = Duplicate; ND = Not Detected at or above the Practical Quantitation Limit (PQL); Detection limits and sample results are in ppb. MS/MSD results are in % recovery, J = Detected above the method detection limit but below the PQL. Result is an estimated value.

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Report To: John Schwarz (at VI) Room 3103 of ECBC, for PROJECT: Fort Segarra, VI

Phone/Fax: W: (410) 436-0000 F: (340) 776-3426

Govt Org/Poc: ECBC: John Dirillo

Sample #/Name MB030541-M01 FS-TA5-146-1-1' **Date Rec'd** 6/27/2003

Sample Matrix Soil **Sample Date** 6/11/2003

Headspace Clearance # **Remarks**

Extraction Number(s)	*Batch Number*	*IOP Number*
MB030541-M01	03062701	MT8

Analyte	*Extraction Date*	*Analysis Date*	*PQL*	*Result*	*Remarks*
1,4-Dithiane	6/27/03	6/27/2003	200	ND	
1,4-Thioxane			200	ND	
BFB (Surrogate)			0	90%	
GA			20	ND	
HD			200	ND	

Sample #/Name MB030542-M01 FS-TA5-153-1-14' **Date Rec'd** 6/27/2003

Sample Matrix Soil **Sample Date** 6/11/2003

Headspace Clearance # **Remarks**

Extraction Number(s)	*Batch Number*	*IOP Number*
MB030542-M01	03062701	MT8

Analyte	*Extraction Date*	*Analysis Date*	*PQL*	*Result*	*Remarks*
1,4-Dithiane	6/27/2003	6/27/2003	200	ND	
1,4-Thioxane			200	ND	
BFB (Surrogate)			0	100%	
GA			20	ND	
HD			200	ND	

MS = Matrix Spike; MSD = Matrix Spike Duplicate; Dup = Duplicate; ND = Not Detected at or above the Practical Quantitation Limit (PQL); Detection limits and sample results are in ppb. MS/MSD results are in % recovery. J = Detected above the method detection limit but below the PQL. Result is an estimated value.

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Phone/Fax:	W: (410) 436-0000 F: (340) 776-3426
Govt Org/Poc:	ECBC: John Ditillo

Sample #/Name MB030513-M01 03061901LCS **Date Rec'd** 6/18/2003
Sample Matrix Soil Laboratory Control Spike **Sample Date** 6/19/2003
Headspace Clearance # **Remarks**

Extraction Number(s)	*Batch Number*	*IOP Number*
MB030513-M01LCS	03061901	MT8

Analyte	*Extraction Date*	*Analysis Date*	*PQL*	*Result*	*Remarks*
1,4-Dithiane	6/19/2003	6/19/2003	200	82%	
1,4-Thioxane			200	92%	
BFB (Surrogate)			0	82%	
GA			20	79%	
HD			200	84%	

Sample #/Name MB030514-M01 03061901LCSD **Date Rec'd** 6/18/2003
Sample Matrix Soil Laboratory Control Spike Duplicate **Sample Date** 6/19/2003
Headspace Clearance # **Remarks**

Extraction Number(s)	*Batch Number*	*IOP Number*
MB030514-M01LCSD	03061901	MT8

Analyte	*Extraction Date*	*Analysis Date*	*PQL*	*Result*	*Remarks*
1,4-Dithiane	06/19/01	6/19/2001	200	88%	
1,4-Thioxane			200	98%	
BFB (Surrogate)			0	92%	
GA			20	78%	
HD			200	91%	

MS = Matrix Spike; MSD = Matrix Spike Duplicate; Dup = Duplicate; ND = Not Detected at or above the Practical Quantitation Limit (PQL); Detection limits and sample results are in ppb. MS/MSD results are in % recovery. J = Detected above the method detection limit but below the PQL. Result is an estimated value.

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Phone/Fax:	W: (410) 436-0000 F: (340) 776-3426
Govt Org/Poc:	ECBC: John Ditillo

Sample #/Name MB030511-M01 FS-TA8-SBK-2-0'-2' **Date Rec'd** 6/18/2003
Sample Matrix Soil **Sample Date** 6/17/2003
Headspace Clearance #

Remarks

Extraction Number(s)	*Batch Number*	*IOP Number*
MB030511-M01	**03061901**	**MT8**

Analyte	*Extraction Date*	*Analysis Date*	*PQL*	*Result*	*Remarks*
1,4-Dithiane	6/19/2003	6/19/2003	200	ND	
1,4-Thioxane			200	ND	
BFB (Surrogate)			0	78%	
GA			20	ND	
HD			200	ND	

MB030511-M01MS	**03061901**	**MT8**

Analyte		*Extraction Date*	*Analysis Date*	*PQL*	*Result*	*Remarks*
1,4-Dithiane	MS	6/19/2003	6/19/2003	200	80%	
1,4-Thioxane				200	92%	
BFB (Surrogate)				0	79%	
GA				20	81%	
HD				200	86%	

MB030511-M01MSD	**03061901**	**MT8**

Analyte		*Extraction Date*	*Analysis Date*	*PQL*	*Result*	*Remarks*
1,4-Dithiane	MSD	6/19/2003	6/19/2003	200	84%	
1,4-Thioxane				200	95%	
BFB (Surrogate)				0	80%	
GA				20	87%	
HD				200	89%	

Sample #/Name MB030512-M01 03061901MB **Date Rec'd** 6/18/2003
Sample Matrix Soil Method Blank **Sample Date** 6/19/2003
Headspace Clearance #

Remarks

Extraction Number(s)	*Batch Number*	*IOP Number*
MB030512-M01MB	**03061901**	**MT8**

Analyte	*Extraction Date*	*Analysis Date*	*PQL*	*Result*	*Remarks*
BFB (Surrogate)	6/19/2003	6/19/2003	0	86%	

MS = Matrix Spike; MSD = Matrix Spike Duplicate; Dup = Duplicate; ND = Not Detected at or above the Practical Quantitation Limit (PQL); Detection limits and sample results are in ppb. MS/MSD results are in % recovery. J = Detected above the method detection limit but below the PQL. Result is an estimated value.

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Phone/Fax:	W: (410) 436-0000 F: (340) 776-3426
Govt Org/Poc:	ECBC: John Ditillo

Sample #/Name MB030509-M01 FS-TA8-SB7-1-0'-2' **Date Rec'd** 6/18/2003
Sample Matrix Soil **Sample Date** 6/17/2003
Headspace Clearance # **Remarks**

Extraction Number(s)	*Batch Number*	*IOP Number*
MB030509-M01	03061901	MT8

Analyte	*Extraction Date*	*Analysis Date*	*PQL*	*Result*	*Remarks*
1,4-Dithiane	6/19/2003	6/19/2003	200	ND	
1,4-Thioxane			200	ND	
BFB (Surrogate)			0	78%	
GA			20	ND	
HD			200	ND	

Sample #/Name MB030510-M01 FS-TA8-SB9-1-0'-2' **Date Rec'd** 6/18/2003
Sample Matrix Soil **Sample Date** 6/17/2003
Headspace Clearance # **Remarks**

Extraction Number(s)	*Batch Number*	*IOP Number*
MB030510-M01	03061901	MT8

Analyte	*Extraction Date*	*Analysis Date*	*PQL*	*Result*	*Remarks*
1,4-Dithiane	6/19/2003	6/19/2003	200	ND	
1,4-Thioxane			200	ND	
BFB (Surrogate)			0	75%	
GA			20	ND	
HD			200	ND	

MS = Matrix Spike; MSD = Matrix Spike Duplicate; Dup = Duplicate; ND = Not Detected at or above the Practical Quantitation Limit (PQL); Detection limits and sample results are in ppb. MS/MSD results are in % recovery. J = Detected above the method detection limit but below the PQL. Result is an estimated value.

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Phone/Fax:	**W:** (410) 436-0000 **F:** (340) 776-3426
Govt Org/Poc:	ECBC: John Ditillo

Sample #/Name MB030506-M01 FS-TA8-SB1-1-0'-2' **Date Rec'd** 6/18/2003
Sample Matrix Soil **Sample Date** 6/17/2003
Headspace Clearance # **Remarks**

Extraction Number(s)	*Batch Number*	*IOP Number*
MB030506-M01	03061901	MT8

Analyte	*Extraction Date*	*Analysis Date*	*PQL*	*Result*	*Remarks*
1,4-Dithiane	6/19/2003	6/19/2003	200	ND	
1,4-Thioxane			200	ND	
BFB (Surrogate)			0	75%	
GA			20	ND	
HD			200	ND	

Sample #/Name MB030507-M01 FS-TA8-SB5-1-0'-2' **Date Rec'd** 6/18/2003
Sample Matrix Soil **Sample Date** 6/17/2003
Headspace Clearance # **Remarks**

Extraction Number(s)	*Batch Number*	*IOP Number*
MB030507-M01	03061901	MT8

Analyte	*Extraction Date*	*Analysis Date*	*PQL*	*Result*	*Remarks*
1,4-Dithiane	6/19/2003	6/19/2003	200	ND	
1,4-Thioxane			200	ND	
BFB (Surrogate)			0	74%	
GA			20	ND	
HD			200	ND	

Sample #/Name MB030508-M01 FS-TA8-SB4-1-0'-2' **Date Rec'd** 6/18/2003
Sample Matrix Soil **Sample Date** 6/17/2003
Headspace Clearance # **Remarks**

Extraction Number(s)	*Batch Number*	*IOP Number*
MB030508-M01	03061901	MT8

Analyte	*Extraction Date*	*Analysis Date*	*PQL*	*Result*	*Remarks*
1,4-Dithiane	6/19/2003	6/19/2003	200	ND	
1,4-Thioxane			200	ND	
BFB (Surrogate)			0	72%	
GA			20	ND	
HD			200	ND	

MS = Matrix Spike; MSD = Matrix Spike Duplicate; Dup = Duplicate; ND = Not Detected at or above the Practical Quantitation Limit (PQL); Detection limits and sample results are in ppb. MS/MSD results are in % recovery. J = Detected above the method detection limit but below the PQL. Result is an estimated value.

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CLEARANCE REPORT
EXTRACTION SAMPLES
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Report To: John Schwarz (at VI) Room 3103 of ECBC, for PROJECT: Fort Segarra, VI

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Govt Org/Poc: ECBC: John Ditillo

Sample #/Name MB030504-M01 FS-TA8-SB3-1-0'-2' **Date Rec'd** 6/18/2003

Sample Matrix Soil **Sample Date** 6/17/2003

Headspace Clearance # **Remarks**

Extraction Number(s)	*Batch Number*	*IOP Number*
MB030504-M01	03061901	MT8

Analyte	*Extraction Date*	*Analysis Date*	*PQL*	*Result*	*Remarks*
1,4-Dithiane	06/19/03	6/19/2003	200	ND	
1,4-Thioxane			200	ND	
BFB (Surrogate)			0	82%	
GA			20	ND	
HD			200	ND	

Sample #/Name MB030505-M01 FS-TA8-SB2-1-0'-2' **Date Rec'd** 6/18/2003

Sample Matrix Soil **Sample Date** 6/17/2003

Headspace Clearance # **Remarks**

Extraction Number(s)	*Batch Number*	*IOP Number*
MB030505-M01	03061901	MT8

Analyte	*Extraction Date*	*Analysis Date*	*PQL*	*Result*	*Remarks*
1,4-Dithiane	6/19/2003	6/19/2003	200	ND	
1,4-Thioxane			200	ND	
BFB (Surrogate)			0	70%	
GA			20	ND	
HD			200	ND	

MS = Matrix Spike; MSD = Matrix Spike Duplicate; Dup = Duplicate; ND = Not Detected at or above the Practical Quantitation Limit (PQL); Detection limits and sample results are in ppb. MS/MSD results are in % recovery. J = Detected above the method detection limit but below the PQL. Result is an estimated value.

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Phone/Fax:	W: (410) 436-0000 F: (340) 776-3426
Govt Org/Poc:	ECBC: John Ditillo

Sample #/Name MB030495-M01 03061203-LCS **Date Rec'd** 6/12/2003
Sample Matrix Other Laboratory Control Spike **Sample Date** 6/11/2003
Headspace Clearance # **Remarks**

Extraction Number(s)	*Batch Number*	*IOP Number*
MB030495-M01LCS	03061203	MT8

Analyte	*Extraction Date*	*Analysis Date*	*PQL*	*Result*	*Remarks*
1,4-Dithiane	6/12/2003	6/12/2003	200	76%	
1,4-Thioxane			200	86%	
BFB (Surrogate)			0	71%	
GA			20	82%	
HD			200	83%	

Sample #/Name MB030496-M01 03061203-LCSD **Date Rec'd** 6/12/2003
Sample Matrix Other Laboratory Control Spike Duplicate **Sample Date** 6/11/2003
Headspace Clearance # **Remarks**

Extraction Number(s)	*Batch Number*	*IOP Number*
MB030496-M01LCSD	03061203	MT8

Analyte	*Extraction Date*	*Analysis Date*	*PQL*	*Result*	*Remarks*
1,4-Dithiane	6/12/2003	6/12/2003	200	76%	
1,4-Thioxane			200	86%	
BFB (Surrogate)			0	79%	
GA			20	82%	
HD			200	82%	

Sample #/Name MB030497-M01 03061203-MB **Date Rec'd** 6/12/2003
Sample Matrix Other Method Blank **Sample Date** 6/11/2003
Headspace Clearance # **Remarks**

Extraction Number(s)	*Batch Number*	*IOP Number*
MB030497-M01MB	03061203	MT8

Analyte	*Extraction Date*	*Analysis Date*	*PQL*	*Result*	*Remarks*
BFB (Surrogate)	6/12/2003	6/12/2003	0	71%	

MS = Matrix Spike; MSD = Matrix Spike Duplicate; Dup = Duplicate; ND = Not Detected at or above the Practical Quantitation Limit (PQL); Detection limits and sample results are in ppb. MS/MSD results are in % recovery. J = Detected above the method detection limit but below the PQL. Result is an estimated value.

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Phone/Fax:	W: (410) 436-0000 F: (340) 776-3426
Govt Org/Poc:	ECBC: John Ditillo

5 mi read

Sample #/Name MB030492-M01 FS-TAS-199-1-1.5' = TA5 **Date Rec'd** 6/12/2003
Sample Matrix Soil **Sample Date** 6/10/2003
Headspace Clearance # **Remarks**

Extraction Number(s)	*Batch Number*	*IOP Number*
MB030492-M01	03061203	MT8

Analyte	*Extraction Date*	*Analysis Date*	*PQL*	*Result*	*Remarks*
1,4-Dithiane	6/12/2003	6/12/2003	200	ND	
1,4-Thioxane			200	ND	
BFB (Surrogate)			0	88%	
GA			20	ND	
HD			200	ND	

Sample #/Name MB030493-M01 FS-TAS-193-1-4' **Date Rec'd** 6/12/2003
Sample Matrix Soil **Sample Date** 6/10/2003
Headspace Clearance # **Remarks**

Extraction Number(s)	*Batch Number*	*IOP Number*
MB030493-M01	03061203	MT8

Analyte	*Extraction Date*	*Analysis Date*	*PQL*	*Result*	*Remarks*
1,4-Dithiane	6/12/2003	6/12/2003	200	ND	
1,4-Thioxane			200	ND	
BFB (Surrogate)			0	90%	
GA			20	ND	
HD			200	ND	

Sample #/Name MB030494-M01 FS-TAS-147-1-1' **Date Rec'd** 6/12/2003
Sample Matrix Soil **Sample Date** 6/11/2003
Headspace Clearance # **Remarks**

Extraction Number(s)	*Batch Number*	*IOP Number*
MB030494-M01	03061203	MT8

Analyte	*Extraction Date*	*Analysis Date*	*PQL*	*Result*	*Remarks*
1,4-Dithiane	6/12/03	6/12/2003	200	ND	
1,4-Thioxane			200	ND	
BFB (Surrogate)			0	85%	
GA			20	ND	
HD			200	ND	

MS = Matrix Spike; MSD = Matrix Spike Duplicate; Dup = Duplicate; ND = Not Detected at or above the Practical Quantitation Limit (PQL); Detection limits and sample results are in ppb. MS/MSD results are in % recovery. J = Detected above the method detection limit but below the PQL. Result is an estimated value.

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Phone/Fax:	W: (410) 436-0000 F: (340) 776-3426
Govt Org/Poc:	ECBC: John Ditillo

Sample #/Name MB030489-M01 FS-TAS-GS2-1'-1.5' **Date Rec'd** 6/12/2003
Sample Matrix Soil **Sample Date** 6/10/2003
Headspace Clearance # **Remarks**

Extraction Number(s)	*Batch Number*	*IOP Number*
MB030489-M01	03061203	MT8

Analyte	*Extraction Date*	*Analysis Date*	*PQL*	*Result*	*Remarks*
1,4-Dithiane	6/12/2003	6/12/2003	200	ND	
1,4-Thioxane			200	ND	
BFB (Surrogate)			0	90%	
GA			20	ND	
HD			200	ND	

Sample #/Name MB030490-M01 FS-TAS-GS1-S1-0'-2' **Date Rec'd** 6/12/2003
Sample Matrix Soil **Sample Date** 6/10/2003
Headspace Clearance # **Remarks**

Extraction Number(s)	*Batch Number*	*IOP Number*
MB030490-M01	03061203	MT8

Analyte	*Extraction Date*	*Analysis Date*	*PQL*	*Result*	*Remarks*
1,4-Dithiane	6/12/2003	6/12/2003	200	ND	
1,4-Thioxane			200	ND	
BFB (Surrogate)			0	101%	
GA			20	ND	
HD			200	ND	

Sample #/Name MB030491-M01 FS-TAS-GS1-1'-4' **Date Rec'd** 6/12/2003
Sample Matrix Soil **Sample Date** 6/10/2003
Headspace Clearance # **Remarks**

Extraction Number(s)	*Batch Number*	*IOP Number*
MB030491-M01	03061203	MT8

Analyte	*Extraction Date*	*Analysis Date*	*PQL*	*Result*	*Remarks*
1,4-Dithiane	6/12/2003	6/12/2003	200	ND	
1,4-Thioxane			200	ND	
BFB (Surrogate)			0	95%	
GA			20	ND	
HD			200	ND	

MS = Matrix Spike; MSD = Matrix Spike Duplicate; Dup = Duplicate; ND = Not Detected at or above the Practical Quantitation Limit (PQL); Detection limits and sample results are in ppb. MS/MSD results are in % recovery. J = Detected above the method detection limit but below the PQL. Result is an estimated value.

Report To:	John Schwarz (at VI) Room 3103 of ECBC, for PROJECT: Fort Segarra, VI
Phone/Fax:	W: (410) 436-0000 F: (340) 776-3426
Govt Org/Poc:	ECBC: John Ditillo

Sample #/Name MB030486-M01 FS-TAS-GS4-2-1.5' **Date Rec'd** 6/12/2003
Sample Matrix Soil **Sample Date** 6/9/2003
Headspace Clearance # **Remarks**

Extraction Number(s)	*Batch Number*	*IOP Number*
MB030486-M01	03061203	MT8

Analyte	*Extraction Date*	*Analysis Date*	*PQL*	*Result*	*Remarks*
1,4-Dithiane	6/12/2003	6/12/2003	200	ND	
1,4-Thioxane			200	ND	
BFB (Surrogate)			0	88%	
GA			20	ND	
GD			200	ND	

Sample #/Name MB030487-M01 FS-TAS-GS3-S1-0'-2' **Date Rec'd** 6/12/2003
Sample Matrix Soil **Sample Date** 6/10/2003
Headspace Clearance # **Remarks**

Extraction Number(s)	*Batch Number*	*IOP Number*
MB030487-M01	03061203	MT8

Analyte	*Extraction Date*	*Analysis Date*	*PQL*	*Result*	*Remarks*
1,4-Dithiane	6/12/2003	6/12/2003	200	ND	
1,4-Thioxane			200	ND	
BFB (Surrogate)			0	87%	
GA			20	ND	
HD			200	ND	

Sample #/Name MB030488-M01 FS-TAS-GS3-1'-2' **Date Rec'd** 6/12/2003
Sample Matrix Soil **Sample Date** 6/10/2003
Headspace Clearance # **Remarks**

Extraction Number(s)	*Batch Number*	*IOP Number*
MB030488-M01	03061203	MT8

Analyte	*Extraction Date*	*Analysis Date*	*PQL*	*Result*	*Remarks*
1,4-Dithiane	6/12/2003	6/12/2003	200	ND	
1,4-Thioxane			200	ND	
BFB (Surrogate)			0	96%	
GA			20	ND	
HD			200	ND	

MS = Matrix Spike; MSD = Matrix Spike Duplicate; Dup = Duplicate; ND = Not Detected at or above the Practical Quantitation Limit (PQL); Detection limits and sample results are in ppb. MS/MSD results are in % recovery. J = Detected above the method detection limit but below the PQL. Result is an estimated value.

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Govt Org/Poc:	ECBC: John Ditillo

Sample #/Name MB030483-M01 FS-TAS-GS5-S1-0'-2' **Date Rec'd** 6/12/2003
Sample Matrix Soil **Sample Date** 6/9/2003
Headspace Clearance # **Remarks**

Extraction Number(s)	*Batch Number*	*IOP Number*
MB030483-M01	03061203	MT8

Analyte	*Extraction Date*	*Analysis Date*	*PQL*	*Result*	*Remarks*
1,4-Dithiane	6/12/2003	6/12/2003	200	ND	
1,4-Thioxane			200	ND	
BFB (Surrogate)			0	106%	
GA			20	ND	
HD			200	ND	

Sample #/Name MB030484-M01 FS-TAS-GS5-S2-3.5' **Date Rec'd** 6/12/2003
Sample Matrix Soil **Sample Date** 6/9/2003
Headspace Clearance # **Remarks**

Extraction Number(s)	*Batch Number*	*IOP Number*
MB030484-M01	03061203	MT8

Analyte	*Extraction Date*	*Analysis Date*	*PQL*	*Result*	*Remarks*
1,4-Dithiane	6/12/2003	6/12/2003	200	ND	
1,4-Thioxane			200	ND	
BFB (Surrogate)			0	94%	
GA			20	ND	
HD			200	ND	

Sample #/Name MB030485-M01 FS-TAS-GS4-1-3' **Date Rec'd** 6/12/2003
Sample Matrix Soil **Sample Date** 6/9/2003
Headspace Clearance # **Remarks**

Extraction Number(s)	*Batch Number*	*IOP Number*
MB030485-M01	03061203	MT8

Analyte	*Extraction Date*	*Analysis Date*	*PQL*	*Result*	*Remarks*
1,4-Dithiane	6/12/2003	6/12/2003	200	ND	
1,4-Thioxane			200	ND	
BFB (Surrogate)			0	96%	
GA			20	ND	
HD			200	ND	

MS = Matrix Spike; MSD = Matrix Spike Duplicate; Dup = Duplicate; ND = Not Detected at or above the Practical Quantitation Limit (PQL); Detection limits and sample results are in ppb. MS/MSD results are in % recovery. J = Detected above the method detection limit but below the PQL. Result is an estimated value.

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Govt Org/Poc:	ECBC: John Ditillo

Sample #/Name MB030480-M01 FS-TA4-TP10-1-3' **Date Rec'd** 6/12/2003
Sample Matrix Soil **Sample Date** 6/5/2003
Headspace Clearance # **Remarks**

Extraction Number(s)	*Batch Number*	*IOP Number*
MB030480-M01	**03061203**	**MT8**

Analyte	*Extraction Date*	*Analysis Date*	*PQL*	*Result*	*Remarks*
1,4-Dithiane	6/12/2003	6/12/2003	200	ND	
1,4-Thioxane			200	ND	
BFB (Surrogate)			0	86%	
GA			20	ND	
HD			200	ND	

Sample #/Name MB030481-M01 FS-TA4-TP8-1-5.5' **Date Rec'd** 6/12/2003
Sample Matrix Soil **Sample Date** 6/5/2003
Headspace Clearance # **Remarks**

Extraction Number(s)	*Batch Number*	*IOP Number*
MB030481-M01	**03061203**	**MT8**

Analyte	*Extraction Date*	*Analysis Date*	*PQL*	*Result*	*Remarks*
1,4-Dithiane	6/12/2003	6/12/2003	200	ND	
1,4-Thioxane			200	ND	
BFB (Surrogate)			0	86%	
GA			20	ND	
HD			200	ND	

Sample #/Name MB030482-M01 FS-TAS-GS5-1-4' **Date Rec'd** 6/12/2003
Sample Matrix Soil **Sample Date** 6/9/2003
Headspace Clearance # **Remarks**

Extraction Number(s)	*Batch Number*	*IOP Number*
MB030482-M01	**03061203**	**MT8**

Analyte	*Extraction Date*	*Analysis Date*	*PQL*	*Result*	*Remarks*
1,4-Dithiane	6/12/03	6/12/2003	200	ND	
1,4-Thioxane			200	ND	
BFB (Surrogate)			0	123%	
GA			20	ND	
HD			200	ND	

MS = Matrix Spike; MSD = Matrix Spike Duplicate; Dup = Duplicate; ND = Not Detected at or above the Practical Quantitation Limit (PQL); Detection limits and sample results are in ppb. MS/MSD results are in % recovery. J = Detected above the method detection limit but below the PQL. Result is an estimated value.

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Phone/Fax:	W: (410) 436-0000 F: (340) 776-3426
Govt Org/Poc:	ECBC: John Ditillo

Sample #/Name MB030477-M01 FS-TA4-TP6-S1-0'-2' Date Rec'd 6/12/2003
Sample Matrix Soil Sample Date 6/5/2003
Headspace Clearance # Remarks

Extraction Number(s)	*Batch Number*	*IOP Number*
MB030477-M01	03061203	MT8

Analyte	*Extraction Date*	*Analysis Date*	*PQL*	*Result*	*Remarks*
1,4-Dithiane	6/12/2003	6/12/2003	200	ND	
1,4-Thioxane			200	ND	
BFB (Surrogate)			0	90%	
GA			20	ND	
HD			200	ND	

Sample #/Name MB030478-M01 FS-TA4-TP6-1-5.5' Date Rec'd 6/12/2003
Sample Matrix Soil Sample Date 6/5/2003
Headspace Clearance # Remarks

Extraction Number(s)	*Batch Number*	*IOP Number*
MB030478-M01	03061203	MT8

Analyte	*Extraction Date*	*Analysis Date*	*PQL*	*Result*	*Remarks*
1,4-Dithiane	6/12/2003	6/12/2003	200	ND	
1,4-Thioxane			200	ND	
BFB (Surrogate)			0	95%	
GA			20	ND	
HD			200	ND	

Sample #/Name MB030479-M01 FS-TA4-TP1-1-4.5' Date Rec'd 6/12/2003
Sample Matrix Soil Sample Date 6/5/2003
Headspace Clearance # Remarks

Extraction Number(s)	*Batch Number*	*IOP Number*
MB030479-M01	03061203	MT8

Analyte	*Extraction Date*	*Analysis Date*	*PQL*	*Result*	*Remarks*
1,4-Dithiane	6/12/2003	6/12/2003	200	ND	
1,4-Thioxane			200	ND	
BFB (Surrogate)			0	85%	
GA			20	ND	
HD			200	ND	

MS = Matrix Spike; MSD = Matrix Spike Duplicate; Dup = Duplicate; ND = Not Detected at or above the Practical Quantitation Limit (PQL); Detection limits and sample results are in ppb. MS/MSD results are in % recovery. J = Detected above the method detection limit but below the PQL. Result is an estimated value.

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Phone/Fax:	W: (410) 436-0000 F: (340) 776-3426
Govt Org/Poc:	ECBC: John Ditillo

Sample #/Name MB030474-M01 FS-TA4-SB7-1-3.5' **Date Rec'd** 6/12/2003
Sample Matrix Soil **Sample Date** 6/4/2003
Headspace Clearance # **Remarks**

Extraction Number(s)	*Batch Number*	*IOP Number*
MB030474-M01	03061203	MT8

Analyte	*Extraction Date*	*Analysis Date*	*PQL*	*Result*	*Remarks*
1,4-Dithiane	6/12/2003	6/12/2003	200	ND	
1,4-Thioxane			200	ND	
BFB (Surrogate)			0	89%	
GA			20	ND	
HD			200	ND	

Sample #/Name MB030475-M01 FS-TA4-SB6-1-3' **Date Rec'd** 6/12/2003
Sample Matrix Soil **Sample Date** 6/4/2003
Headspace Clearance # **Remarks**

Extraction Number(s)	*Batch Number*	*IOP Number*
MB030475-M01	03061203	MT8

Analyte	*Extraction Date*	*Analysis Date*	*PQL*	*Result*	*Remarks*
1,4-Dithiane	6/12/2003	6/12/2003	200	ND	
1,4-Thioxane			200	ND	
BFB (Surrogate)			0	95%	
GA			20	ND	
HD			200	ND	

Sample #/Name MB030476-M01 FS-TA4-SB5-1-3' **Date Rec'd** 6/12/2003
Sample Matrix Soil **Sample Date** 6/5/2003
Headspace Clearance # **Remarks**

Extraction Number(s)	*Batch Number*	*IOP Number*
MB030476-M01	03061203	MT8

Analyte	*Extraction Date*	*Analysis Date*	*PQL*	*Result*	*Remarks*
1,4-Dithiane	6/12/2003	6/12/2003	200	ND	
1,4-Thioxane			200	ND	
BFB (Surrogate)			0	92%	
GA			20	ND	
HD			200	ND	

MS = Matrix Spike; MSD = Matrix Spike Duplicate; Dup = Duplicate; ND = Not Detected at or above the Practical Quantitation Limit (PQL); Detection limits and sample results are in ppb. MS/MSD results are in % recovery. J = Detected above the method detection limit but below the PQL. Result is an estimated value.

SBCCOM MONITORING BRANCH

CLEARANCE REPORT
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Report To: John Schwarz (at VI) Room 3103 of ECBC, for PROJECT: Fort Segarra, VI

Phone/Fax: W: (410) 436-0000 F: (340) 776-3426

Govt Org/Poc: ECBC: John Ditillo

Sample #/Name MB030473-M01 FS-TA4-SB2-1-2.5' **Date Rec'd** 6/12/2003

Sample Matrix Soil **Sample Date** 6/4/2003

Headspace Clearance #

Remarks

Extraction Number(s)	*Batch Number*	*TOP Number*
MB030473-M01	03061203	MT8

Analyte		*Extraction Date*	*Analysis Date*	*PQL*	*Result*	*Remarks*
1,4-Dithiane		6/12/03	6/12/2003	200	ND	
1,4-Thioxane				200	ND	
BFB (Surrogate)				0	85%	
GA				20	ND	
HD				200	ND	

MB030473-M01MS		03061203		MT8		
Analyte		*Extraction Date*	*Analysis Date*	*PQL*	*Result*	*Remarks*
1,4-Dithiane	MS	6/12/2003	6/12/2003	200	95%	
1,4-Thioxane				200	104%	
BFB (Surrogate)				0	90%	
GA				20	110%	
HD				200	103%	

MB030473-M01MSD		03061203		MT8		
Analyte		*Extraction Date*	*Analysis Date*	*PQL*	*Result*	*Remarks*
1,4-Dithiane	MSD	6/12/2003	6/12/2003	200	97%	
1,4-Thioxane				200	105%	
BFB (Surrogate)				0	83%	
GA				20	108%	
HD				200	107%	

MS = Matrix Spike; MSD = Matrix Spike Duplicate; Dup = Duplicate; ND = Not Detected at or above the Practical Quantitation Limit (PQL); Detection limits and sample results are in ppb. MS/MSD results are in % recovery. J = Detected above the method detection limit but below the PQL. Result is an estimated value.

Report To:	John Schwarz (at VI) Room 3103 of ECBC, for PROJECT: Fort Segarra, VI
Phone/Fax:	W: (410) 436-0000 F: (340) 776-3426
Govt Org/Poc:	ECBC: John Ditillo

Sample #/Name MB030433-M01 FBL-SR-2-0'-2'
Sample Matrix Soil
Headspace Clearance #
Date Rec'd 6/6/2003
Sample Date 6/4/2003
Remarks Need COC information confirmation

Extraction Number(s)	*Batch Number*	*IOP Number*
MB030433-M01	03060601	MT8

Analyte	*Extraction Date*	*Analysis Date*	*PQL*	*Result*	*Remarks*
1,4-Dithiane	6/6/2003	6/6/2003	200	ND	
1,4-Thioxane			200	ND	
BFB (Surrogate)			0	76%	
GA			20	ND	
HD			200	ND	

Sample #/Name MB030434-M01 FBL-G15-1
Sample Matrix Other Laboratory Control Spike
Headspace Clearance #
Date Rec'd 6/6/2003
Sample Date 6/4/2003
Remarks Need COC information confirmation

Extraction Number(s)	*Batch Number*	*IOP Number*
MB030434-M01	03060601	MT8

Analyte	*Extraction Date*	*Analysis Date*	*PQL*	*Result*	*Remarks*
1,4-Dithiane	6/6/03	6/6/2003	200	99%	
1,4-Thioxane			200	112%	
BFB (Surrogate)			0	93%	
GA			20	96%	
HD			200	103%	

MS = Matrix Spike; MSD = Matrix Spike Duplicate; Dup = Duplicate; ND = Not Detected at or above the Practical Quantitation Limit (PQL); Detection limits and sample results are in ppb. MS/MSD results are in % recovery. J = Detected above the method detection limit but below the PQL. Result is an estimated value.

Report To:	John Schwarz (at VI) Room 3103 of ECBC, for PROJECT: Fort Segarra, VI
Phone/Fax:	W: (410) 436-0000 F: (340) 776-3426
Govt Org/Poc:	ECBC: John Ditillo

Sample #/Name MB030430-M01 FBL-SB7-1'-4.5' **Date Rec'd** 6/6/2003
Sample Matrix Soil **Sample Date** 6/4/2003
Headspace Clearance # **Remarks** Need COC information confirmation

Extraction Number(s)	*Batch Number*	*IOP Number*
MB030430-M01	03060601	MT8

Analyte	*Extraction Date*	*Analysis Date*	*PQL*	*Result*	*Remarks*
1,4-Dithiane	6/6/2003	6/6/2003	200	ND	
1,4-Thioxane			200	ND	
BFB (Surrogate)			0	91%	
GA			20	ND	
HD			200	ND	

Sample #/Name MB030431-M01 FBL-IT-1 **Date Rec'd** 6/6/2003
Sample Matrix Soil **Sample Date** 6/4/2003
Headspace Clearance # **Remarks** Need COC information confirmation

Extraction Number(s)	*Batch Number*	*IOP Number*
MB030431-M01	03060601	MT8

Analyte	*Extraction Date*	*Analysis Date*	*PQL*	*Result*	*Remarks*
1,4-Dithiane	6/9/2003	6/6/2003	200	ND	
1,4-Thioxane			200	ND	
BFB (Surrogate)			0	91%	
GA			20	ND	
HD			200	ND	

Sample #/Name MB030432-M01 FBL-SR-1-0'-2' **Date Rec'd** 6/6/2003
Sample Matrix Soil **Sample Date** 6/4/2003
Headspace Clearance # **Remarks** Need COC information confirmation

Extraction Number(s)	*Batch Number*	*IOP Number*
MB030432-M01	03060601	MT8

Analyte	*Extraction Date*	*Analysis Date*	*PQL*	*Result*	*Remarks*
1,4-Dithiane	6/6/2003	6/6/2003	200	ND	
1,4-Thioxane			200	ND	
BFB (Surrogate)			0	76%	
GA			20	ND	
HD			200	ND	

MS = Matrix Spike; MSD = Matrix Spike Duplicate; Dup = Duplicate; ND = Not Detected at or above the Practical Quantitation Limit (PQL); Detection limits and sample results are in ppb. MS/MSD results are in % recovery. J = Detected above the method detection limit but below the PQL. Result is an estimated value.

SBCCOM MONITORING BRANCH

CLEARANCE REPORT
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Report To: John Schwarz (at VI) Room 3103 of ECBC. for PROJECT: Fort Segarra, VI

Phone/Fax: W: (410) 436-0000 F: (340) 776-3426

Govt Org/Poc: ECBC: John Ditillo

Sample #/Name MB030428-M01 FBL-SB3-1-0'-2'

Sample Matrix Soil

Date Rec'd 6/6/2003

Sample Date 6/4/2003

Headspace Clearance #

Remarks Need COC information confirmation

Extraction Number(s)	*Batch Number*	*IOP Number*
MB030428-M01	03060601	MT8

Analyte	*Extraction Date*	*Analysis Date*	*PQL*	*Result*	*Remarks*
1,4-Dithiane	6/6/2003	6/6/2003	200	ND	
1,4-Thioxane			200	ND	
BFB (Surrogate)			0	93%	
GA			20	ND	
HD			200	ND	

Sample #/Name MB030429-M01 FBL-SB3-2'-3'

Sample Matrix Soil

Date Rec'd 6/6/2003

Sample Date 6/4/2003

Headspace Clearance #

Remarks Need COC information confirmation

Extraction Number(s)	*Batch Number*	*IOP Number*
MB030429-M01	03060601	MT8

Analyte	*Extraction Date*	*Analysis Date*	*PQL*	*Result*	*Remarks*
1,4-Dithiane	6/6/2003	6/6/2003	200	ND	
1,4-Thioxane			200	ND	
BFB (Surrogate)			0	93%	
GA			20	ND	
HD			200	ND	

MS = Matrix Spike; MSD = Matrix Spike Duplicate; Dup = Duplicate; ND = Not Detected at or above the Practical Quantitation Limit (PQL); Detection limits and sample results are in ppb. MS/MSD results are in % recovery. J = Detected above the method detection limit but below the PQL. Result is an estimated value.

Report To:	John Schwarz (at VI) Room 3103 of ECBC, for PROJECT: Fort Segarra, VI
Phone/Fax:	W: (410) 436-0000 F: (340) 776-3426
Govt Org/Poc:	ECBC: John Ditillo

Sample #/Name MB030590-M01 03063001-MB
Sample Matrix Other Method Blank
Headspace Clearance #

Date Rec'd 6/30/2003
Sample Date 6/30/2003

Remarks

Extraction Number(s)	*Batch Number*	*IOP Number*
MB030590-M01MB	03063001	MT8

Analyte	*Extraction Date*	*Analysis Date*	*PQL*	*Result*	*Remarks*
BFB (Surrogate)	6/30/2003	6/30/2003	0	119%	

MS = Matrix Spike; MSD = Matrix Spike Duplicate; Dup = Duplicate; ND = Not Detected at or above the Practical Quantitation Limit (PQL); Detection limits and sample results are in ppb. MS/MSD results are in % recovery. J = Detected above the method detection limit but below the PQL. Result is an estimated value.

PARSONS

MEMORANDUM

January 23, 2004

To: John Maddox

From: Edward Grunwald

Subject: Results of Asbestos Sampling at Fort Segarra,USVI

As per your request below is a write-up of the exposure monitoring investigation performed at Fort Segerra, USVI the week of June 8, 2003. The investigation focused on determining whether personnel working at Ft Segarra are being exposure to asbestos fiber concentrations above the OSHA permissible exposure limit of 0.1f/cc.

Sampling Methodology

Exposure monitoring was conducted during excavation operations at test area 5, since much of the asbestos containing material (ACM) from the remnants of the Water Island hotel was disposed at this location. Excavation operations were performed by two teams of 3 workers (USA and Parsons teams) that would alternate downrange operations at approximately 50 minutes intervals. Samples were collected from one member of each team per day, thus by the close of the third day every team member had been monitored.

The sample train consisted of a 25mm diameter, 0.8um mixed cellulose ester membrane filter with a conductive cowl connected at one end to the employee's lapel and at the other end to an SKC AirChek 52 pump (usually attached to the employees belt). Each morning pumps were calibrated using a Gilibrator® bubble flow meter to a flow rate of approximately 2liter/min (L/min). At the commencement of downrange operations ,usually between 9:00-9:30am, the sample trains were attached to workers and the pumps turned-on. When daily field operations ceased (between 4:00-5:00pm) the sample cassettes were removed and capped and run times recorded. Pumps were post calibrated and sample volumes calculated. Sample cassettes and blanks were then shipped to Galson Laboratories for fiber analysis using phase contrast microscopy (NIOSH method 7400). Galson Laboratories is an American Industrial Hygiene Association PAT (Proficiency Analytical Testing Program) certified asbestos laboratory.

Sample Results

Table 1 presents the asbestos monitoring results. No employee was exposed to asbestos fibers above the OSHA permissible exposure limit (PEL)of 0.1fiber/cc (8hr-TWA). In fact, no sample contained fibers in excess of the limit of quantitation of 10fibers/100 fields. In conclusion the practice of asbestos avoidance in conjunction with non-friable nature of the ACM, resulted in exposures significantly below the OSHA PEL. If you have any question feel free to contact me at 678-969-2394.

Table 1
Asbestos Monitoring Results
Ft Segarra, USVI

Sample ID	Employee	Sample Collection Date	Flow Rate (L/min)	Sample Time (min)	Results (f/cc)
Seg-AS-01	Nelms	June 9, 2003	2.02	393	<0.006
Seg-AS-02	Dennis	June 9, 2003	2.09	419	<0.006
Field Blank-01	NA	June 9, 2003	NA	NA	NA
Medium Balnk-01	NA	June 9, 2003	NA	NA	NA
Seg-AS-03	Taylor	June 10,2003	2.07	359	<0.007
Seg-AS-04	Edwards	June 10,2003	1.98	357	<0.007
Seg-AS-05	Clark	June 11, 2003	2.02	441	<0.006
Seg-AS-06	Reisgies	June 11, 2003	2.07	450	<0.005
Field Blank-02	NA	June 10, 2003	NA	NA	NA
Medium Blank-02	NA	June 13,2003	NA	NA	NA

No fibers were detected in any field or medium blank

Appendix D

Data Verification Reports

DATA VERIFICATION REPORT

for samples collected from

FORMER FORT SEGARRA

WATER ISLAND, U.S. VIRGIN ISLANDS

Data Verification by: Katherine LaPierre, Tammy Chang and Sandra de las Fuentes
Parsons - Austin

INTRODUCTION

Samples for this project were collected from June 15, 2003 through July 18, 2003. The samples were assigned to and reported in thirteen (13) different data packages or sample delivery groups (SDGs). The SDGs were numbered sequentially from FSG001 through FSG013. The details of each SDG are provided in the following table:

SDG Number	Soil Samples	Field Duplicates	MS/MSD pairs	Equipment Blanks
FSG001	0	0	0	1
FSG002	4	0	0	0
FSG003	5	0	1	0
FSG004	6	3	0	0
FSG005	3	0	1	0
FSG006	5	0	1	0
FSG007	0	0	0	1
FSG008	4	0	0	0
FSG009	9	1	1	0
FSG010	7	2	0	1
FSG011	6	0	0	0
FSG012	8	1	1	0
FSG013	21	1	2	0
Totals:	78	8	7	3

The total number of samples collected for this project was 103. All samples were analyzed for semivolatile organic compounds (SVOCs), herbicides, pesticides, polychlorinated biphenyls (PCBs), metals and cyanide. In addition, some samples were also analyzed for explosives.

Due to budget constraints, only 10% of the data was scheduled for validation. Data package FSG013 was chosen for validation because it encompassed more than 10% of the field samples collected, as well as a significant number of field quality control (QC) samples. All aspects of this data package were reviewed, including the raw data. The remaining 12 SDGs were reviewed for accuracy, precision, representativeness, and

completeness using the data presented in the final lab report, but a review of the raw data was not performed for these packages.

EVALUATION CRITERIA

The data submitted by the laboratory has been reviewed and verified following the guidelines outlined in the Ft. Segarra Field Sampling Plan (FSP), the Ft. Segarra Quality Assurance Project Plan (QAPP), and the United States Army Corps of Engineers (USACE) Shell document. The data qualifiers defined in the Ft. Segarra QAPP were applied to the data based on the review of the data and any non-compliance found. Information reviewed in the data packages included sample results; field and laboratory QC sample results; surrogate recoveries; case narratives; and chain-of-custody (COC) forms. In addition, the raw data for package FSG013 was reviewed. This raw data review included calibrations, initial and continuing calibration verifications, initial and continuing calibration blanks, internal standards, instrument performance checks, second source verifications, post digestion spikes and compound quantitation. The findings presented in this report are based on the reviewed information, and whether guidelines in the specified project documents were met.

FSG001 - FSG012

General

The laboratory applied a variety of data qualifiers to denote different situations. Through the verification of these SDGs, all flags were reviewed and changed or removed as necessary in order to reflect the data validation flags listed in the QAPP (U, J, UJ and R).

For example, the laboratory used the qualifiers "J" for organics and "B" for inorganics to designate values above the MDL but below the RL. All "B" flags for organics were changed to "J" to be consistent with the organic results and the flags designated in the QAPP.

Accuracy

Accuracy was evaluated using the percent recovery (%R) obtained from the LCS samples, MS/MSD samples and the surrogate spikes, as applicable for each SDG and analytical method. Data was qualified as estimated using "J" for detects and "UJ" for non-detects if a non-compliant analyte was recovered below tolerance and using "J" for detects only if a non-compliant analyte was recovered above tolerance.

Only analytes that failed in both the MS and the MSD were qualified as estimated. Analytes that failed on only the MS or the MSD were considered sporadic marginal failures and the data was not qualified for these analytes. In addition, only those samples from the same SDG and of similar matrix were qualified if the MS/MSD failed criteria.

Samples with one or more surrogate failing criteria were re-extracted and re-analyzed. However, because the re-extractions occurred outside of hold time, the re-

analyses were used only to confirm the original results and the results of the re-extraction were flagged "R" to indicate the original run should be used.

LCS failures below acceptance criteria were uncommon. However, when this occurred, all samples were re-extracted outside of hold time and the re-analysis was used. LCS failures above the acceptance criteria were also rare, but when this occurred, all associated sample results were non-detect, so no corrective action was necessary.

Precision

Precision was evaluated using the relative percent difference (RPD) obtained from the MS/MSD samples and the field duplicate analyte results.

No qualification of data was performed for non-compliant MS/MSD RPDs.

If field duplicates were included in a data package and failed to meet the precision criteria listed in the QAPP, the non-compliant analytes were flagged as estimated ("J" if detected or "UJ" if non-detect) for all samples with a matrix similar to the parent/field duplicate pair within the same SDG.

Representativeness

Representativeness was evaluated by reviewing the COC, analytical procedures, holding times, equipment blanks and method blanks associated with each package. Per instructions from the client, data was not rejected based on hold time exceedance.

All samples were analyzed in accordance with the COC and the procedures specified in the Ft. Segarra QAPP and the USACE Shell document.

Blank detections above 1/2 the reporting limit (RL) were rare, but when they did occur, the sample concentrations were significantly higher than (greater than 5 times) the blank concentration, so no corrective action was necessary.

Completeness

Completeness has been evaluated by comparing the total number of samples collected with the total number of samples with valid analytical data. No sample results were rejected on the basis of hold time exceedance per instructions from the client.

All results for the samples in these SDG were considered usable. The completeness for these SDGs is 100%, which meets the minimum acceptance criteria of 90%.

FSG013

The following data validation report covers soil samples and the associated field QC samples collected from the former Fort Segarra during the period of June 11, 2003 through June 17, 2003. The samples in the following SDG were analyzed for SVOCs, herbicides, pesticides, PCBs, metals, cyanide and explosives:

FSG013

The field QC samples collected in association with this SDG included two Matrix Spike/Matrix Spike Duplicate (MS/MSD) pairs and one field duplicate. In addition, three

equipment blanks were collected in association with the samples in this SDG. The equipment blanks were reported in SDGs FSG001, FSG007 and FSG010. All field QC samples were analyzed for SVOCs, herbicides, pesticides, PCBs, cyanide and metals. The field QC samples were not analyzed for explosives because only a few samples were selected for explosives analysis.

All samples were collected by Parsons. The explosives analyses were performed by STL-Tallahassee and all other analyses were performed by STL-Savannah following the procedures outlined in the Ft. Segarra Field Sampling Plan (FSP), the Ft. Segarra Quality Assurance Project Plan (QAPP), and the United States Corps of Engineers (USACE) Shell document.

There were four (4) coolers associated with the samples in this SDG. The coolers were received by the laboratory at temperatures of 3.1^0 C, 3.8^0 C, 1.3^0 C and 3.4^0 C, all of which are within the recommended range.

It should be noted that all samples in this SDG were received by the laboratory outside of the 14-day hold time for organic analyses. Thus, the extraction and analysis for all organic methods were performed outside of the holding time designated by the method. See individual analyses below for details. Per the instructions from the client, the data was not rejected due to the hold time exceedance.

SEMIVOLATILES

General

The semivolatiles portion of this SDG consisted of twenty-six (26) samples, including twenty-one (21) soil samples, two MS/MSD pair, and one field duplicate. The samples were collected during the period of June 11, 2003 through June 17, 2003 and were analyzed for the full list of SVOCs as specified in the Ft. Segarra QAPP.

The SVOC analyses were performed using United States Environmental Protection Agency (USEPA) SW846 Method 8270C.

Accuracy

Accuracy was evaluated using the percent recovery obtained from the LCS sample, MS/MSD samples and the surrogate spikes. Samples FS-TA4-TP-2-1-4' and FS-TA5-TP-1-1-5.5' were designated for MS/MSD analysis on the COC.

All LCS and surrogate recoveries were within acceptance criteria.

A total of six surrogates are spiked for method 8270C, three acid surrogates and three base/neutral surrogates. The method allows for one acid surrogate and one base/neutral surrogate to fail without the need for corrective action. All samples met this requirement.

All MS/MSD were within acceptance criteria except for the following:

Parent	Analyte	MS %R	MSD %R	Criteria
FS-TA4-TP-2-1-4'	1,3-Dichlorobenzene	42	42	45-135%
	Hexachloroethane	35	42	45-135%
	Hexachlorocyclopentadiene	18	15	45-135%
	2,4-Dinitrophenol	35	40	45-135%
	4,6-Dinitro-2-methylphenol	40	44	45-135%
	Pentachlorophenol	28	32	45-135%
	Benzidine	19	20	45-135%
	Benzoic Acid	13	17	45-135%
	Pyridine	28	35	45-135%
FS-TA5-TP-1-1-5.5'	1,3-Dichlorobenzene	(48)	40	45-135%
	Hexachloroethane	(45)	40	45-135%
	Hexachlorocyclopentadiene	38	35	45-135%
	2,4-Dinitrophenol	42	30	45-135%
	4,6-Dinitro-2-methylphenol	(50)	42	45-135%
	Pentachlorophenol	0	0	45-135%
	Benzidine	35	30	45-135%
	Benzoic Acid	28	30	45-135%
	Pyridine	35	30	45-135%

( ) Indicates the recovery met criteria

No corrective action was necessary for those analytes that met criteria in either the MS or the MSD. The analytes failing in both the MS and MSD were flagged "J" if detected or "UJ" if non-detect in all samples with similar matrix to the parent sample.

Precision

Precision was evaluated using the RPD obtained from the MS/MSD samples and the field duplicate analyte results. Sample FS-TA5-SBK-1B-2' was collected as the field duplicate of sample FS-TA5-SBK-1-2'.

All MS/MSD and field duplicate RPDs were within acceptance criteria.

Representativeness

Representativeness expresses the degree to which sample data accurately and precisely represents actual site conditions. Representativeness has been evaluated by:

- Comparing the COC procedures to those described in the Ft. Segarra FSP;
- Comparing actual analytical procedures to those described in the Ft. Segarra QAPP;
- Evaluating holding times; and
- Examining field and laboratory blanks for cross contamination of samples during sample collection or analysis.

All samples in this SDG were analyzed following the COC and the analytical procedures described in the Ft. Segarra QAPP except as noted in this report. All samples were prepared and analyzed outside of the holding time required by the method because all samples were received by the laboratory after the 14-day extraction hold time had expired.

- All instrument tune criteria were met.
- All initial calibration criteria were met.
- All second source verification criteria were met. The ICV was prepared using a secondary source.
- All calibration verification criteria were met, except for the following:

  Benzidine failed low in the CCVs analyzed on 7/24/03, 7/25/03 and 7/28/03. Due to the low bias demonstrated by the CCVs, the benzidine result for all associated samples was flagged "J" if detected or "UJ" if non-detect. In addition, Indeno(1,2,3-cd)pyrene failed low in the CCV analyzed 7/21/03. Due to the low bias demonstrated, all associated sample results for this analyte were flagged "J" if detected or "UJ" if non-detect.

- Several internal standards failed low for the following samples FS-TA4-TP-2-1-4' and FS-TA4-TP12-1/QA-3'. A low internal standard response results in a high bias. All analytes were non-detect in these samples with the exception of bis(2-ethylhexyl)phthalate detected below the RL in sample FS-TA4-TP-2-1-4'. The analyte was already flagged "J", so no corrective action was necessary. The internal standards also failed in the Matrix Spike Duplicate analyzed on sample FS-TA4-TP-2-1-4' and the Matrix Spike analyzed on sample FS-TA5-TP-1-1-5.5'. The MS/MSD recoveries are detailed in the Accuracy section above.
- All MDL studies were performed within 12 months prior to the date samples were analyzed.

There were three method blanks associated with the SVOC analyses in this SDG. All blanks were free of any target SVOCs at or above 1/2 the RL.

Three equipment blanks were collected in association with the samples in this SDG. The equipment blanks were reported in SDGs FSG001, FSG007 and FSG010. No target analytes were detected above the RL in the equipment blanks.

Completeness

Completeness has been evaluated by comparing the total number of samples collected with the total number of samples with valid analytical data.

All SVOC results for the samples in this SDG were considered usable. The completeness for the SVOC portion of this SDG is 100%, which meets the minimum acceptance criteria of 90%.

HERBICIDES

General

The herbicide portion of this SDG consisted of twenty-six (26) samples, including twenty-one (21) soil samples, two MS/MSD pair, and one field duplicate. The samples were collected during the period of June 11, 2003 through June 17, 2003 and were analyzed for the full list of herbicides as specified in the Ft. Segarra QAPP.

The herbicide analyses were performed using USEPA SW846 Method 8151. All positive detections for target analytes were confirmed on a secondary column. The laboratory reported the higher of the two results unless the primary and secondary column results differed by more than 40% RPD. If the results from the primary and secondary column had an RPD of greater than 40, the laboratory reported the lower result and the value was qualified "J" as estimated.

Accuracy

Accuracy was evaluated using the percent recovery obtained from the LCS sample, MS/MSD samples and the surrogate spikes. Samples FS-TA4-TP-2-1-4' and FS-TA5-TP-1-1-5.5' and were designated for MS/MSD analysis on the COC.

All LCS, MS/MSD and surrogate recoveries were within acceptance criteria, except for the following: Dinoseb failed high in the LCS and MSD. All samples were non-detect for Dinoseb, therefore no corrective action was necessary.

Precision

Precision was evaluated using the relative percent difference (RPD) obtained from the MS/MSD samples and the field duplicate analyte results. Sample FS-TA5-SBK-1B-2' was collected as the field duplicate of sample FS-TA5-SBK-1-2'.

All MS/MSD and field duplicate RPDs were within acceptance criteria.

Representativeness

Representativeness expresses the degree to which sample data accurately and precisely represents actual site conditions. Representativeness has been evaluated by:

- Comparing the COC procedures to those described in the Ft. Segarra FSP;
- Comparing actual analytical procedures to those described in the Ft. Segarra QAPP;
- Evaluating holding times; and
- Examining field and laboratory blanks for cross contamination of samples during sample collection or analysis.

All samples in this SDG were analyzed following the COC and the analytical procedures described in the Ft. Segarra QAPP except as noted in this report. All samples were prepared and analyzed outside of the holding time required by the method because all samples were received by the laboratory after the 14-day extraction hold time had expired.

- All initial calibration criteria were met.
- All calibration verification criteria were met.
- All second source verification criteria were met. The ICV was prepared using a secondary source.
- All MDL studies were performed within 12 months prior to the date samples were analyzed.

There were two method blanks associated with the herbicides analyses in this SDG. Both blanks were free of any target herbicides at or above 1/2 the RL.

Three equipment blanks were collected in association with the samples in this SDG. The equipment blanks were reported in SDGs FSG001, FSG007 and FSG010. No target analytes were detected above the RL in the equipment blanks.

Completeness

Completeness has been evaluated by comparing the total number of samples collected with the total number of samples with valid analytical data.

All herbicide results for the samples in this SDG were considered usable. The completeness for the herbicide portion of this SDG is 100%, which meets the minimum acceptance criteria of 90%.

PESTICIDES

General

The pesticide portion of this SDG consisted of twenty-six (26) samples, including twenty-one (21) soil samples, two MS/MSD pair, and one field duplicate. The samples were collected during the period of June 11, 2003 through June 17, 2003 and were analyzed for the full list of pesticides as specified in the Ft. Segarra QAPP.

The pesticide analyses were performed using USEPA SW846 Method 8081A. All positive detections for target analytes were confirmed on a secondary column. The laboratory reported the higher of the two results unless the primary and secondary column results differed by more than 40% RPD. If the results from the primary and secondary column had an RPD of greater than 40, the laboratory reported the lower result and the value was qualified "J" as estimated

Accuracy

Accuracy was evaluated using the percent recovery obtained from the LCS sample, MS/MSD samples and the surrogate spikes. Samples FS-TA4-TP-2-1-4' and FS-TA5-TP-1-1-5.5' and were designated for MS/MSD analysis on the COC.

All LCS recoveries were within acceptance criteria.

Some samples contained surrogate recoveries that were below acceptance criteria. The samples were re-extracted and the surrogates met criteria in the re-extracted results.

Many compounds failed criteria in the MS/MSD samples. The MS/MSDs were re-extracted and all analytes met criteria in the re-extracted results.

Precision

Precision was evaluated using the RPD obtained from the MS/MSD samples and the field duplicate analyte results. Sample FS-TA5-SBK-1B-2' was collected as the field duplicate of sample FS-TA5-SBK-1-2'.

All MS/MSD and field duplicate RPDs were within acceptance criteria.

Representativeness

Representativeness expresses the degree to which sample data accurately and precisely represents actual site conditions. Representativeness has been evaluated by:

- Comparing the COC procedures to those described in the Ft. Segarra FSP;
- Comparing actual analytical procedures to those described in the Ft. Segarra QAPP;
- Evaluating holding times; and
- Examining field and laboratory blanks for cross contamination of samples during sample collection or analysis.

All samples in this SDG were analyzed following the COC and the analytical procedures described in the Ft. Segarra QAPP except as noted in this report. All samples were prepared and analyzed outside of the holding time required by the method because all samples were received by the laboratory after the 14-day extraction hold time had expired.

- All initial calibration criteria were met.
- All calibration verification criteria were met.
- All second source verification criteria were met. The ICV was prepared using a secondary source.
- All MDL studies were performed within 12 months prior to the date samples were analyzed.

There were three method blanks associated with the pesticide analyses in this SDG. All blanks were free of any target pesticides at or above 1/2 the RL.

Three equipment blanks were collected in association with the samples in this SDG. The equipment blanks were reported in SDGs FSG001, FSG007 and FSG010. No target analytes were detected above the RL in the equipment blanks.

Completeness

Completeness has been evaluated by comparing the total number of samples collected with the total number of samples with valid analytical data.

All pesticide results for the samples in this SDG were considered usable. The completeness for the pesticide portion of this SDG is 100%, which meets the minimum acceptance criteria of 90%.

PCB

General

The PCB portion of this SDG consisted of twenty-six (26) samples, including twenty-one (21) soil samples, two MS/MSD pair, and one field duplicate. The samples were collected during the period of June 11, 2003 through June 17, 2003 and were analyzed for the full list of PCBs as specified in the Ft. Segarra QAPP.

The PCB analyses were performed using USEPA SW846 Method 8082. All positive detections for target analytes were confirmed on a secondary column. The laboratory reported the higher of the two results unless the primary and secondary column results differed by more than 40% RPD. If the results from the primary and secondary column had an RPD of greater than 40, the laboratory reported the lower result and the value was qualified "J" as estimated

Accuracy

Accuracy was evaluated using the percent recovery obtained from the LCS sample, MS/MSD samples and the surrogate spikes. Samples FS-TA4-TP-2-1-4' and FS-TA5-TP-1-1-5.5' and were designated for MS/MSD analysis on the COC. Only Aroclor-1016 and Aroclor-1260 were spiked for the LCS and MS/MSD as per the method.

All LCS and MS/MSD recoveries were within acceptance criteria.

All surrogate recoveries were within acceptance criteria, except for those samples which required a significant dilution. No corrective action was necessary for surrogates which failed due to being diluted out.

Precision

Precision was evaluated using the RPD obtained from the MS/MSD samples and the field duplicate analyte results. Sample FS-TA5-SBK-1B-2' was collected as the field duplicate of sample FS-TA5-SBK-1-2'.

All MS/MSD and field duplicate RPDs were within acceptance criteria.

Representativeness

Representativeness expresses the degree to which sample data accurately and precisely represents actual site conditions. Representativeness has been evaluated by:

- Comparing the COC procedures to those described in the Ft. Segarra FSP;
- Comparing actual analytical procedures to those described in the Ft. Segarra QAPP;
- Evaluating holding times; and

- Examining field and laboratory blanks for cross contamination of samples during sample collection or analysis.

All samples in this SDG were analyzed following the COC and the analytical procedures described in the Ft. Segarra QAPP except as noted in this report. All samples were prepared and analyzed outside of the holding time required by the method because all samples were received by the laboratory after the 14-day extraction hold time had expired.

- All initial calibration criteria were met.
- All calibration verification criteria were met.
- All second source verification criteria were met. The ICV was prepared using a secondary source.
- All MDL studies were performed within 12 months prior to the date samples were analyzed.

There were three method blanks associated with the PCBs analyses in this SDG. All blanks were free of any target PCBs at or above 1/2 the RL.

Three equipment blanks were collected in association with the samples in this SDG. The equipment blanks were reported in SDGs FSG001, FSG007 and FSG010. No target analytes were detected above the RL in the equipment blanks.

Completeness

Completeness has been evaluated by comparing the total number of samples collected with the total number of samples with valid analytical data.

All PCB results for the samples in this SDG were considered usable. The completeness for the PCB portion of this SDG is 100%, which meets the minimum acceptance criteria of 90%.

ICP METALS

General

The metals portion of this SDG consisted of twenty-six (26) samples, including twenty-one (21) soil samples, two MS/MSD pair, and one field duplicate. The samples were collected during the period of June 11, 2003 through June 17, 2003 and were analyzed for the full list of ICP metals as specified in the Ft. Segarra QAPP.

The ICP metals analyses were performed using USEPA SW846 Method 6010B.

It should be noted that the reporting limits for arsenic, lead, selenium and thallium were raised above the levels listed in the QAPP. The higher RLs were necessary to meet the Ft. Segarra QAPP requirement that the RL be at least three times the MDL concentration. In addition, the metals analyses for the samples in this SDG were performed at multiple dilutions to ensure all concentrations were within the working linear range of the instrument. However, due to the limitations of the Laboratory Information Management System (LIMS), the Analytical Data Report (for final sample

results) indicates all metals were analyzed undiluted (dilution factor of 1). Form XIV, provided in the raw data, details the actual dilution factors used for each metal.

Accuracy

Accuracy was evaluated using the percent recovery obtained from the LCS/LCSD samples and the MS/MSD samples. Samples FS-TA4-TP-2-1-4' and FS-TA5-TP-1-1-5.5' and were designated for MS/MSD analysis on the COC. It should be noted that several metals could not be evaluated using the MS/MSD because the amount spiked was insignificant when compared to the native sample concentration.

All LCS recoveries were within acceptance criteria.

All MS/MSD recoveries were within acceptance criteria except for the following:

Parent	Analyte	MS %R	MSD %R	Criteria
FS-TA4-TP-2-1-4'	Antimony	68	62	75-125%
	Manganese	173	(104)	75-125%
	Potassium	130	136	75-125%
FS-TA5-TP-1-1-5.5'	Antimony	47	62	75-125%
	Calcium	530	(94)	75-125%
	Copper	36	(76)	75-125%
	Potassium	145	(94)	75-125%
	Strontium	128	(101)	75-125%
	Zinc	(79)	69	75-125%

( ) Indicates the recovery met criteria.

No corrective action was necessary for those metals that met criteria in either the MS or the MSD. Potassium failed high in both the MS and MSD. All potassium results were flagged "J" if detected in samples with a similar matrix to the parent samples. Antimony failed low in both MS and MSD. All antimony results were flagged "J" if detected or "UJ" if non-detect in samples with similar matrix to the parent samples.

Precision

Precision was evaluated using the RPD obtained from the MS/MSD samples and the field duplicate analyte results. Sample FS-TA5-SBK-1B-2' was collected as the field duplicate of sample FS-TA5-SBK-1-2'.

All MS/MSD RPDs were within acceptance criteria, except for antimony and potassium. These metals were previously flagged "J" or "UJ", therefore no further corrective action was required. Calcium also failed the RPD criteria, although no flags were applied since the MSD recovery was within limits.

All field duplicate RPDs were within acceptance criteria (RPD $\leq$ 25) except for calcium (RPD = 50) and strontium (RPD = 40). The results for these metals were flagged

"J" if detected or "UJ" if non-detect in all samples with a similar matrix to the parent sample.

Representativeness

Representativeness expresses the degree to which sample data accurately and precisely represents actual site conditions. Representativeness has been evaluated by:

- Comparing the COC procedures to those described in the Ft. Segarra FSP;
- Comparing actual analytical procedures to those described in the Ft. Segarra QAPP;
- Evaluating holding times; and
- Examining laboratory blanks for cross contamination of samples during analysis.

All samples in this SDG were analyzed following the COC and the analytical procedures described in the Ft. Segarra QAPP except as noted in this report. All samples were prepared and analyzed within the holding time required by the method.

- All initial calibration criteria were met.
- All calibration verification criteria were met.
- All second source calibration criteria were met. The ICV was prepared using a secondary source.
- All interference check criteria were met.
- Dilution tests were analyzed on three samples, one sample in each of the three analytical batches. Several metals failed criteria. However, all metals that failed criteria in the dilution test met criteria in the post digestion spike, so no corrective action was necessary.
- Post digestion spikes were analyzed on three samples, one sample in each of the three analytical batches. The post digestion spike (PDS) was not applicable for several metals because the spike amount was insufficient when compared to the native sample concentration. These metals all met criteria in the associated dilution tests, so no corrective action was necessary. All other metals met criteria in the PDS.
- All MDL studies were performed within 12 months prior to the date samples were analyzed.

There were three method blanks and multiple calibration blanks analyzed in association with the ICP metals analyses in this SDG. The method blanks had detections of calcium, iron, and sodium at greater than 1/2 the RL. However, all associated sample concentrations were significantly higher than (greater than 5 times) the blank concentration, so no corrective action was necessary. Several calibration blanks had detections of aluminum, iron, manganese, strontium and vanadium. All concentrations were below the RL, so no corrective action was necessary.

Three equipment blanks were collected in association with the samples in this SDG. The equipment blanks were reported in SDGs FSG001, FSG007 and FSG010. Only calcium and manganese were detected above the RL in the equipment blanks. However, all associated sample concentrations were significantly higher than (greater than 5 times) the blank concentration, so no corrective action was necessary.

Completeness

Completeness has been evaluated by comparing the total number of samples collected with the total number of samples with valid analytical data.

All ICP metals results for the samples in this SDG were considered usable. The completeness for the ICP metals portion of this SDG is 100%, which meets the minimum acceptance criteria of 90%.

MERCURY

General

The mercury portion of this SDG consisted of twenty-six (26) samples, including twenty-one (21) soil samples, two MS/MSD pair, and one field duplicate. The samples were collected during the period of June 11, 2003 through June 17, 2003 and were analyzed for mercury as specified in the Ft. Segarra QAPP.

The mercury analyses were performed using USEPA SW846 Method 7471A.

Accuracy

Accuracy was evaluated using the percent recovery obtained from the LCS sample and MS/MSD samples. Samples FS-TA4-TP-2-1-4' and FS-TA5-TP-1-1-5.5' and were designated for MS/MSD analysis on the COC.

All LCS and MS/MSD recoveries were within acceptance criteria.

Precision

Precision was evaluated using the RPD obtained from the MS/MSD samples and the field duplicate analyte results. Sample FS-TA5-SBK-1B-2' was collected as the field duplicate of sample FS-TA5-SBK-1-2'.

The MS/MSD RPD was within acceptance criteria.

Mercury was non-detect in both the parent and the field duplicate.

Representativeness

Representativeness expresses the degree to which sample data accurately and precisely represents actual site conditions. Representativeness has been evaluated by:

- Comparing the COC procedures to those described in the Ft. Segarra FSP;
- Comparing actual analytical procedures to those described in the Ft. Segarra QAPP;
- Evaluating holding times; and

- Examining laboratory blanks for cross contamination of samples during analysis.

All samples in this SDG were analyzed following the COC and the analytical procedures described in the Ft. Segarra QAPP except as noted in this report. All samples were digested within the 28-day hold time, except for the five samples collected on 6/11/03. These five samples were digested on day 29. In addition, the samples collected on 6/11/03, 6/12/03 and 6/13/03 were analyzed outside of the 28-day hold time. However, because all samples were digested within 29 days of collection, all data was considered usable.

- All initial calibration criteria were met.
- All calibration verification criteria were met.
- All second source verification criteria were met. The ICV was prepared using a secondary source.
- All MDL studies were performed within 12 months prior to the date samples were analyzed

There were two method blanks and several calibration blanks associated with the mercury analyses in this SDG. All blanks were non-detect for mercury.

Three equipment blanks were collected in association with the samples in this SDG. The equipment blanks were reported in SDGs FSG001, FSG007 and FSG010. No target analytes were detected above the RL in the equipment blanks.

Completeness

Completeness has been evaluated by comparing the total number of samples collected with the total number of samples with valid analytical data.

All mercury results for the samples in this SDG were considered usable. The completeness for the mercury portion of this SDG is 100%, which meets the minimum acceptance criteria of 90%.

CYANIDE

General

The cyanide portion of this SDG consisted of twenty-six (26) samples, including twenty-one (21) soil samples, two MS/MSD pair, and one field duplicate. The samples were collected during the period of June 11, 2003 through June 17, 2003 and were analyzed for cyanide as specified in the Ft. Segarra QAPP.

The cyanide analyses were performed using USEPA Method 9012A.

Accuracy

Accuracy was evaluated using the percent recovery obtained from the LCS sample and the MS/MSD samples. Samples FS-TA4-TP-2-1-4' and FS-TA5-TP-1-1-5.5' and were designated for MS/MSD analysis on the COC.

All LCS and MS/MSD recoveries were within acceptance criteria.

Precision

Precision was evaluated using the RPD obtained from the MS/MSD samples and the field duplicate analyte results. Sample FS-TA5-SBK-1B-2' was collected as the field duplicate of sample FS-TA5-SBK-1-2'.

The MS/MSD RPD for cyanide was within acceptance criteria.

Cyanide was non-detect in both the parent and the field duplicate.

Representativeness

Representativeness expresses the degree to which sample data accurately and precisely represents actual site conditions. Representativeness has been evaluated by:

- Comparing the COC procedures to those described in the Ft. Segarra FSP;
- Comparing actual analytical procedures to those described in the Ft. Segarra QAPP;
- Evaluating holding times; and
- Examining field and laboratory blanks for cross contamination of samples during sample collection or analysis.

The samples in this SDG were analyzed following the COC and the analytical procedures described in the Ft. Segarra QAPP except as noted in this report. All samples were prepared and analyzed outside of the holding time required by the method because all samples were received by the laboratory after the 14-day hold time had expired.

- All initial calibration criteria were met.
- All calibration verification criteria were met.
- All second source verification criteria were met. The ICV was prepared using a secondary source.
- The MDL study was performed within 12 months prior to the date samples were analyzed.

There were two method blanks associated with the cyanide analyses in this SDG. Both blanks were free of any target cyanide at or above 1/2 the RL.

Three equipment blanks were collected in association with the samples in this SDG. The equipment blanks were reported in SDGs FSG001, FSG007 and FSG010. No target analytes were detected above the RL in the equipment blanks.

Completeness

Completeness has been evaluated by comparing the total number of samples collected with the total number of samples with valid analytical data.

All cyanide results for the samples in this SDG were considered usable. The completeness for the cyanide portion of this SDG is 100%, which meets the minimum acceptance criteria of 90%.

EXPLOSIVES

General

The explosives portion of this SDG consisted of three (3) samples. The samples were collected on June 12, 2003 and June 13, 2003 and were analyzed for the full list of explosives as specified in the Ft. Segarra QAPP, with two exceptions:

(1) Two of the target compounds for explosives listed in the Ft. Segarra QAPP were analyzed by method 8270C (SVOCs). N-nitrosodiphenylamine and Diphenylamine, were analyzed by method 8270C and were not determined by method 8330. As indicated in method 8270C, N-nitrosodiphenylamine decomposes in the gas chromatographic inlet and cannot be separated from Diphenylamine, therefore Diphenylamine is reported as N-nitrosodiphenylamine.

(2) The explosives analyses were subcontracted to STL-Tallahassee. It should be noted that the reporting limits for Nitrobenzene, 3-Nitrotoluene and Tetryl were raised above the level listed in the QAPP. The higher RLs were necessary to meet the Ft. Segarra QAPP requirement that the RL be at least three times the MDL concentration.

The explosive analyses were performed using USEPA SW846 Method 8330.

Accuracy

Accuracy was evaluated using the percent recovery obtained from the LCS sample, MS/MSD samples and the surrogate spikes. There were no samples designated on the COC for the MS/MSD. However, the laboratory analyzed an MS/MSD on sample FS-TA4-TP-2-1-4'.

All LCS, MS/MSD and surrogate recoveries were within acceptance criteria.

Precision

Precision was evaluated using the RPD obtained from the MS/MSD samples. There were no field duplicate samples associated with the explosives analyses.

All MS/MSD RPDs were within acceptance criteria.

Representativeness

Representativeness expresses the degree to which sample data accurately and precisely represents actual site conditions. Representativeness has been evaluated by:

- Comparing the COC procedures to those described in the Ft. Segarra FSP;
- Comparing actual analytical procedures to those described in the Ft. Segarra QAPP;
- Evaluating holding times; and
- Examining field and laboratory blanks for cross contamination of samples during sample collection or analysis.

All samples in this SDG were analyzed following the COC and the analytical procedures described in the Ft. Segarra QAPP. All samples were prepared and analyzed outside of the holding time required by the method because all samples were received by the laboratory after the 14-day extraction hold time had expired.

The following QC was also examined:

- All initial calibration criteria were met.
- All calibration verification criteria were met.
- All second source verification criteria were met. The ICV was prepared using a secondary source.
- The MDL studies were performed more than 12 months prior to the date samples were analyzed. No qualification of data was performed based on the expired MDLs.

There was one method blank associated with the explosives analyses in this SDG. The method blank was free of any target analytes at or above 1/2 the RL.

Completeness

Completeness has been evaluated by comparing the total number of samples collected with the total number of samples with valid analytical data.

All explosive results for the samples in this SDG were considered usable. The completeness for the explosives portion of this SDG is 100%, which meets the minimum acceptance criteria of 90%.

Appendix E

EPA Region III
Risk Based Concentrations 2003
And
Superfund Chemical Data Matrix Methodology 2004

Sources: I = IRIS H = HEAST A = HEAST Alternate W = Withdrawn from IRIS or HEAST E = EPA-NCEA provisional value O = other							Basis: C = Carcinogenic effects N = Noncarcinogenic effects I = RBC at HI of 0.1 < RBC-c; see Alternate RBCs II = See Alternate RBCs Risk-based concentrations					Region III SSLs	
												Soil, for groundwater migration	
Chemical	CAS	RfDo mg/kg/d	CSFo 1/mg/kg/d	RfDi mg/kg/d	CSFi 1/mg/kg/d	VOC	Tap water ug/l	Ambient air ug/m3	Fish mg/kg	Soil Industrial mg/kg	Residential mg/kg	DAF 1 mg/kg	DAF 20 mg/kg
ACETALDEHYDE	75070			2.57E-03 I	7.7E-03 I	y	1.6E+00 C	8.1E-01 C				3.8E-04	7.7E-03 C
ACETOCHLOR	34256821	2E-02 I					7.3E+02 N	7.3E+01 N	2.7E+01 N	2.0E+04 N	1.6E+03 N		
**ACETONE	67641	9.00E-01 I				y	5.5E+03 N	3.3E+03 N	1.2E+03 N	9.2E+05 N	7.0E+04 N	1.1E+00	2.2E+01 N
ACETONITRILE	75058			1.7E-02 I		y	1.2E+02 N	6.2E+01 N				2.9E-02	5.8E-01 N
**ACETOPHENONE	98862	1.00E-01 I				y	6.1E+02 N	3.7E+02 N	1.4E+02 N	1.0E+05 N	7.8E+03 N	1.6E-01	3.2E+00 N
**ACROLEIN	107028	5.00E-04 I		5.70E-06 I		y	4.2E-02 N	2.1E-02 N	6.8E-01 N	5.1E+02 N	3.9E+01 N	1.0E-05	2.0E-04 N
ACRYLAMIDE	79061	2.00E-04 I	4.50E+00 I		4.50E+00 I		1.5E-02 C	1.4E-03 C	7.0E-04 C	6.4E-01 C	1.4E-01 C	3.7E-06	7.4E-05 C
ACRYLONITRILE	107131	1.00E-03 H	5.40E-01 I	5.70E-04 I	2.40E-01 I	y	3.7E-02 C	2.6E-02 C	5.8E-03 C	5.3E+00 C	1.2E+00 C	7.4E-06	1.5E-04 C
ALACHLOR	15972608	1.00E-02 I	8.00E-02 H				8.4E-01 C	7.8E-02 C	3.9E-02 C	3.6E+01 C	8.0E+00 C	3.5E-04	7.0E-03 C
ALAR	1596845	1.50E-01 I					5.5E+03 N	5.5E+02 N	2.0E+02 N	1.5E+05 N	1.2E+04 N		
ALDICARB	116063	1.00E-03 I					3.7E+01 N	3.7E+00 N	1.4E+00 N	1.0E+03 N	7.8E+01 N	1.0E-02	2.1E-01 N
ALDICARB SULFONE	1646884	1.00E-03 I					3.7E+01 N	3.7E+00 N	1.4E+00 N	1.0E+03 N	7.8E+01 N	7.5E-03	1.5E-01 N
ALDRIN	309002	3.00E-05 I	1.70E+01 I		1.70E+01 I		3.9E-03 C	3.7E-04 C	1.9E-04 C	1.7E-01 C	3.8E-02 C	3.8E-04	7.7E-03 C
ALUMINUM	7429905	1.00E+00 E		1.00E-03 E			3.7E+04 N	3.7E+00 N	1.4E+03 N	1.0E+06 N	7.8E+04 N		
**AMINODINITROTOLUENES		2.00E-04 E					7.3E+00 N	7.3E-01 N	2.7E-01 N	2.0E+02 N	1.6E+01 N		
4-AMINOPYRIDINE	504245	2.00E-05 H					7.3E-01 N	7.3E-02 N	2.7E-02 N	2.0E+01 N	1.6E+00 N		
AMMONIA	7664417			2.86E-02 I		y	2.1E+02 N	1.0E+02 N					
ANILINE	62533	7.00E-03 E	5.70E-03 I	2.90E-04 I			1.2E+01 C	1.1E+00 N	5.5E-01 C	5.0E+02 C	1.1E+02 C I	6.8E-03	1.4E-01 C
ANTIMONY	7440360	4.00E-04 I					1.5E+01 N	1.5E+00 N	5.4E-01 N	4.1E+02 N	3.1E+01 N	6.6E-01	1.3E+01 N
ANTIMONY PENTOXIDE	1314609	5.00E-04 H					1.8E+01 N	1.8E+00 N	6.8E-01 N	5.1E+02 N	3.9E+01 N		
ANTIMONY TETROXIDE	1332816	4.00E-04 H					1.5E+01 N	1.5E+00 N	5.4E-01 N	4.1E+02 N	3.1E+01 N		
ANTIMONY TRIOXIDE	1309644	4.00E-04 H		5.70E-05 I			1.5E+01 N	2.1E-01 N	5.4E-01 N	4.1E+02 N	3.1E+01 N		
ARSENIC	7440382	3.00E-04 I	1.50E+00 I		1.51E+01 I		4.5E-02 C	4.1E-04 C	2.1E-03 C	1.9E+00 C	4.3E-01 C	1.3E-03	2.6E-02 C
ARSINE	7784421			1.40E-05 I		y	1.0E-01 N	5.1E-02 N					
ASSURE	76578148	9.00E-03 I					3.3E+02 N	3.3E+01 N	1.2E+01 N	9.2E+03 N	7.0E+02 N		
ATRAZINE	1912249	3.50E-02 I	2.20E-01 H				3.0E-01 C	2.8E-02 C	1.4E-02 C	1.3E+01 C	2.9E+00 C	4.4E-04	8.8E-03 C
AZOBENZENE	103333		1.10E-01 I		1.10E-01 I		6.1E-01 C	5.7E-02 C	2.9E-02 C	2.6E+01 C	5.8E+00 C	1.8E-03	3.5E-02 C
BARIUM	7440393	7.00E-02 I		1.40E-04 A			2.6E+03 N	5.1E-01 N	9.5E+01 N	7.2E+04 N	5.5E+03 N	1.1E+02	2.1E+03 N
BAYGON	114261	4.00E-03 I					1.5E+02 N	1.5E+01 N	5.4E+00 N	4.1E+03 N	3.1E+02 N		
BAYTHROID	68359375	2.50E-02 I					9.1E+02 N	9.1E+01 N	3.4E+01 N	2.6E+04 N	2.0E+03 N		
BENTAZON	25057890	3.00E-02 I					1.1E+03 N	1.1E+02 N	4.1E+01 N	3.1E+04 N	2.3E+03 N		
BENZALDEHYDE	100527	1.00E-01 I					3.7E+03 N	3.7E+02 N	1.4E+02 N	1.0E+05 N	7.8E+03 N		
BENZENE	71432	4.00E-03 I	5.5E-02 I	8.6E-03 I	2.7E-02 I	y	3.4E-01 C	2.3E-01 C	5.7E-02 C	5.2E+01 C	1.2E+01 C	9.5E-05	1.9E-03 C
BENZENETHIOL	108985	1.00E-05 H				y	6.1E-02 N	3.7E-02 N	1.4E-02 N	1.0E+01 N	7.8E-01 N		
BENZIDINE	92875	3.00E-03 I	2.30E+02 I		2.30E+02 I		2.9E-04 C	2.7E-05 C	1.4E-05 C	1.2E-02 C	2.8E-03 C		
BENZOIC ACID	65850	4.00E+00 I					1.5E+05 N	1.5E+04 N	5.4E+03 N	4.1E+06 N	3.1E+05 N		
BENZYL ALCOHOL	100516	3.00E-01 H					1.1E+04 N	1.1E+03 N	4.1E+02 N	3.1E+05 N	2.3E+04 N	4.4E+00	8.8E+01 N
BENZYL CHLORIDE	100447		0.17 I			y	6.2E-02 C	3.7E-02 C	1.9E-02 C	1.7E+01 C	3.8E+00 C	1.9E-05	3.7E-04 C
BERYLLIUM	7440417	2.00E-03 I		5.7E-06 I	8.40E+00 I		7.3E+01 N	7.5E-04 C	2.7E+00 N	2.0E+03 N	1.6E+02 N	5.8E+01	1.2E+03 N
BIPHENYL	92524	5.00E-02 I				y	3.0E+02 N	1.8E+02 N	6.8E+01 N	5.1E+04 N	3.9E+03 N	4.8E+00	9.6E+01 N
BIS(2-CHLOROETHYL)ETHER	111444		1.10E+00 I		1.10E+00 I	y	9.6E-03 C	5.7E-03 C	2.9E-03 C	2.6E+00 C	5.8E-01 C	2.2E-06	4.4E-05 C
BIS(2-CHLOROISOPROPYL)ETHER	108601	4.00E-02 I	7.00E-02 H		3.50E-02 H	y	2.6E-01 C	1.8E-01 C	4.5E-02 C	4.1E+01 C	9.1E+00 C	8.4E-05	1.7E-03 C
BIS(CHLOROMETHYL)ETHER	542881		2.20E+02 I		2.20E+02 I	y	4.8E-05 C	2.8E-05 C	1.4E-05 C	1.3E-02 C	2.9E-03 C	9.7E-09	1.9E-07 C
BIS(2-ETHYLHEXYL)PHTHALATE	117817	2.00E-02 I	1.40E-02 I		1.40E-02 E		4.8E+00 C	4.5E-01 C	2.3E-01 C	2.0E+02 C	4.6E+01 C	1.4E+02	2.9E+03 C
BORON	7440428	9.00E-02 I		5.70E-03 H			3.3E+03 N	2.1E+01 N	1.2E+02 N	9.2E+04 N	7.0E+03 N		
BROMODICHLOROMETHANE	75274	2.00E-02 I	6.20E-02 I			y	1.7E-01 C	1.0E-01 C	5.1E-02 C	4.6E+01 C	1.0E+01 C	5.4E-05	1.1E-03 C
BROMOETHENE	593602			8.6E-04 I	1.10E-01 H	y	1.1E-01 C	5.7E-02 C				5.4E-05	1.1E-03 C
BROMOFORM	75252	2.00E-02 I	7.90E-03 I		3.90E-03 I		8.5E+00 C	1.6E+00 C	4.0E-01 C	3.6E+02 C	8.1E+01 C	3.3E-03	6.7E-02 C
BROMOMETHANE	74839	1.40E-03 I		1.40E-03 I		y	8.5E+00 N	5.1E+00 N	1.9E+00 N	1.4E+03 N	1.1E+02 N	2.1E-03	4.1E-02 N
BROMOPHOS	2104963	5.00E-03 H					1.8E+02 N	1.8E+01 N	6.8E+00 N	5.1E+03 N	3.9E+02 N		
1,3-BUTADIENE	106990			5.7E-04 I	1.00E-01 I	y	1.3E-01 C	6.3E-02 C				7.0E-05	1.4E-03 C
1-BUTANOL	71363	1.00E-01 I					3.7E+03 N	3.7E+02 N	1.4E+02 N	1.0E+05 N	7.8E+03 N	7.8E-01	1.6E+01 N
BUTYLBENZYLPHTHALATE	85687	2.00E-01 I					7.3E+03 N	7.3E+02 N	2.7E+02 N	2.0E+05 N	1.6E+04 N	8.4E+02	1.7E+04 N
BUTYLATE	2008415	5.00E-02 I					1.8E+03 N	1.8E+02 N	6.8E+01 N	5.1E+04 N	3.9E+03 N		
CADMIUM-WATER	7440439	5.00E-04 I		5.7E-05 E	6.30E+00 I		1.8E+01 N	9.9E-04 C	6.8E-01 N	5.1E+02 N	3.9E+01 N	1.4E+00	2.7E+01 N
CADMIUM-FOOD	7440439	1.00E-03 I		5.7E-05 E	6.30E+00 I		3.7E+01 N	9.9E-04 C	1.4E+00 N	1.0E+03 N	7.8E+01 N	2.7E+00	5.5E+01 N
CAPROLACTAM	105602	5.00E-01 I					1.8E+04 N	1.8E+03 N	6.8E+02 N	5.1E+05 N	3.9E+04 N		
CARBARYL	63252	1.00E-01 I					3.7E+03 N	3.7E+02 N	1.4E+02 N	1.0E+05 N	7.8E+03 N	1.5E+00	3.0E+01 N
CARBON DISULFIDE	75150	1.00E-01 I		2.00E-01 I		y	1.0E+03 N	7.3E+02 N	1.4E+02 N	1.0E+05 N	7.8E+03 N	9.5E-01	1.9E+01 N
CARBON TETRACHLORIDE	56235	7.00E-04 I	1.30E-01 I	5.71E-04 E	5.30E-02 I	y	1.6E-01 C	1.2E-01 C	2.4E-02 C	2.2E+01 C	4.9E+00 C	1.1E-04	2.1E-03 C
CARBOSULFAN	55285148	1.00E-02 I					3.7E+02 N	3.7E+01 N	1.4E+01 N	1.0E+04 N	7.8E+02 N		
CHLORAL HYDRATE	302170	1.00E-01 I					3.7E+03 N	3.7E+02 N	1.4E+02 N	1.0E+05 N	7.8E+03 N		
CHLORANIL	118752		4.00E-01 H				1.7E-01 C	1.6E-02 C	7.9E-03 C	7.2E+00 C	1.6E+00 C		
CHLORDANE	57749	5.00E-04 I	3.5E-01 I	2.00E-04 I	3.5E-01 I		1.9E-01 C	1.8E-02 C	9.0E-03 C	8.2E+00 C	1.8E+00 C	4.6E-02	9.2E-01 C
CHLORINE	7782505	1.00E-01 I		5.7E-05 E		y	4.2E-01 N	2.1E-01 N	1.4E+02 N	1.0E+05 N	7.8E+03 N		
CHLORINE DIOXIDE	10049044	3.00E-02 I		5.70E-05 I		y	4.2E-01 N	2.1E-01 N	4.1E+01 N	3.1E+04 N	2.3E+03 N		

Sources: I = IRIS H = HEAST A = HEAST Alternate W = Withdrawn from IRIS or HEAST
E = EPA-NCEA provisional value O = other

Basis: C = Carcinogenic effects N = Noncarcinogenic effects ! = RBC at HI of 0.1 < RBC-c; see Alternate RBCs !! = See Alternate RBCs

Chemical	CAS	RfDo mg/kg/d	CSFo 1/mg/kg/d	RfDi mg/kg/d	CSFi 1/mg/kg/d	VOC	Risk-based concentrations: Tap water ug/l	Ambient air ug/m3	Fish mg/kg	Soil Industrial mg/kg	Residential mg/kg	Region III SSLs: Soil, for groundwater migration DAF 1 mg/kg	DAF 20 mg/kg
CHLOROACETIC ACID	79118	2.00E-03 H					7.3E+01 N	7.3E+00 N	2.7E+00 N	2.0E+03 N	1.6E+02 N		
4-CHLOROANILINE	106478	4.00E-03 I					1.5E+02 N	1.5E+01 N	5.4E+00 N	4.1E+03 N	3.1E+02 N	4.8E-02	9.7E-01 N
CHLOROBENZENE	108907	2.00E-02 I		1.7E-02 E		y	1.1E+02 N	6.2E+01 N	2.7E+01 N	2.0E+04 N	1.6E+03 N	4.0E-02	8.0E-01 N
CHLOROBENZILATE	510156	2.00E-02 I	2.70E-01 H		2.70E-01 H		2.5E-01 C	2.3E-02 C	1.2E-02 C	1.1E+01 C	2.4E+00 C	1.3E-03	2.7E-02 C
P-CHLOROBENZOIC ACID	74113	2.00E-01 H					7.3E+03 N	7.3E+02 N	2.7E+02 N	2.0E+05 N	1.6E+04 N		
2-CHLORO-1,3-BUTADIENE	126998	2.00E-02 A		2.00E-03 H		y	1.4E+01 N	7.3E+00 N	2.7E+01 N	2.0E+04 N	1.6E+03 N	6.0E-03	1.2E-01 N
1-CHLOROBUTANE	109693	4.00E-01 H				y	2.4E+03 N	1.5E+03 N	5.4E+02 N	4.1E+05 N	3.1E+04 N	1.0E+00	2.0E+01 N
1-CHLORO-1,1-DIFLUOROETHANE	75683			1.40E+01 I		y	1.0E+05 N	5.1E+04 N				7.0E+01	1.4E+03 N
CHLORODIFLUOROMETHANE	75456			1.40E+01 I		y	1.0E+05 N	5.1E+04 N				7.0E+01	1.4E+03 N
CHLOROETHANE	75003	4.00E-01 E	2.90E-03 E	2.90E+00 I		y	3.6E+00 C	2.2E+00 C	1.1E+00 C	9.9E+02 C	2.2E+02 C	9.6E-04	1.9E-02 C
CHLOROFORM	67663	1.00E-02 I		1.4E-02 E	8.10E-02 I	y	1.5E-01 C	7.7E-02 C	1.4E+01 N	1.0E+04 N	7.8E+02 N	4.5E-05	9.1E-04 C
CHLOROMETHANE	74873			2.6E-02 I		y	1.9E+02 N	9.5E+01 N				4.6E-02	9.3E-01 N
4-CHLORO-2-METHYLANILINE	95692		5.80E-01 H				1.2E-01 C	1.1E-02 C	5.4E-03 C	4.9E+00 C	1.1E+00 C		
BETA-CHLORONAPHTHALENE	91587	8.00E-02 I				y	4.9E+02 N	2.9E+02 N	1.1E+02 N	8.2E+04 N	6.3E+03 N	1.6E+00	3.2E+01 N
**O-CHLORONITROBENZENE	88733	1.00E-03 I	9.7E-03 E	2.00E-05 E		y	1.5E-01 N	7.3E-02 N	3.3E-01 C !	3.0E+02 C !	6.6E+01 C !		
**P-CHLORONITROBENZENE	100005	1.00E-03 E	6.7E-03 E	1.7E-04 E		y	1.2E+00 N	6.2E-01 N	4.7E-01 C !	4.3E+02 C !	7.8E+01 N		
2-CHLOROPHENOL	95578	5.00E-03 I				y	3.0E+01 N	1.8E+01 N	6.8E+00 N	5.1E+03 N	3.9E+02 N		
2-CHLOROPROPANE	75296			2.90E-02 H		y	2.1E+02 N	1.1E+02 N				6.6E-02	1.3E+00 N
O-CHLOROTOLUENE	95498	2.00E-02 I				y	1.2E+02 N	7.3E+01 N	2.7E+01 N	2.0E+04 N	1.6E+03 N	6.5E-02	1.3E+00 N
CHLORPYRIFOS	2921882	3.00E-03 I					1.1E+02 N	1.1E+01 N	4.1E+00 N	3.1E+03 N	2.3E+02 N	3.2E+00	6.3E+01 N
CHLORPYRIFOS-METHYL	5598130	1.00E-02 H					3.7E+02 N	3.7E+01 N	1.4E+01 N	1.0E+04 N	7.8E+02 N		
CHROMIUM III	16065831	1.50E+00 I					5.5E+04 N	5.5E+03 N	2.0E+03 N	1.5E+06 N	1.2E+05 N	9.9E+07	2.0E+09 N
CHROMIUM VI	18540299	3.00E-03 I		3.00E-05 I	4.10E+01 H		1.1E+02 N	1.5E-04 C	4.1E+00 N	3.1E+03 N	2.3E+02 N	2.1E+00	4.2E+01 N
COBALT	7440484	2.00E-02 E		5.7E-06 E	9.8 E		7.3E+02 N	6.4E-04 C	2.7E+01 N	2.0E+04 N	1.6E+03 N		
COKE OVEN EMISSIONS (COAL TAR)	8007452				2.2 I			2.8E-03 C					
COPPER	7440508	4.00E-02 H					1.5E+03 N	1.5E+02 N	5.4E+01 N	4.1E+04 N	3.1E+03 N	5.3E+02	1.1E+04 N
CUMENE	98828	1.00E-01 I		1.10E-01 I		y	6.6E+02 N	4.0E+02 N	1.4E+02 N	1.0E+05 N	7.8E+03 N	3.2E+00	6.4E+01 N
CYANIDE (FREE)	57125	2.00E-02 I					7.3E+02 N	7.3E+01 N	2.7E+01 N	2.0E+04 N	1.6E+03 N	7.4E+00	1.5E+02 N
CALCIUM CYANIDE	592018	4E-02 I					1.5E+03 N	1.5E+02 N	5.4E+01 N	4.1E+04 N	3.1E+03 N		
COPPER CYANIDE	544923	5.00E-03 I					1.8E+02 N	1.8E+01 N	6.8E+00 N	5.1E+03 N	3.9E+02 N		
CYANAZINE	21725462	2.00E-03 H	8.40E-01 H				8.0E-02 C	7.5E-03 C	3.8E-03 C	3.4E+00 C	7.6E-01 C	2.6E-05	5.3E-04 C
CYANOGEN	460195	4.00E-02 I				y	2.4E+02 N	1.5E+02 N	5.4E+01 N	4.1E+04 N	3.1E+03 N		
CYANOGEN BROMIDE	506683	9.00E-02 I					3.3E+03 N	3.3E+02 N	1.2E+02 N	9.2E+04 N	7.0E+03 N		
CYANOGEN CHLORIDE	506774	5.00E-02 I					1.8E+03 N	1.8E+02 N	6.8E+01 N	5.1E+04 N	3.9E+03 N		
HYDROGEN CYANIDE	74908	2.00E-02 I		8.60E-04 I		y	6.2E+00 N	3.1E+00 N	2.7E+01 N	2.0E+04 N	1.6E+03 N	1.1E-01	2.2E+00 N
POTASSIUM CYANIDE	151508	5.00E-02 I					1.8E+03 N	1.8E+02 N	6.8E+01 N	5.1E+04 N	3.9E+03 N		
POTASSIUM SILVER CYANIDE	506616	2.00E-01 I					7.3E+03 N	7.3E+02 N	2.7E+02 N	2.0E+05 N	1.6E+04 N		
SILVER CYANIDE	506649	1.00E-01 I					3.7E+03 N	3.7E+02 N	1.4E+02 N	1.0E+05 N	7.8E+03 N	3.1E+01	6.2E+02 N
SODIUM CYANIDE	143339	4.00E-02 I					1.5E+03 N	1.5E+02 N	5.4E+01 N	4.1E+04 N	3.1E+03 N		
**THIOCYANATE		1.00E-04 E					3.7E+00 N	3.7E-01 N	1.4E-01 N	1.0E+02 N	7.8E+00 N		
ZINC CYANIDE	557211	5.00E-02 I					1.8E+03 N	1.8E+02 N	6.8E+01 N	5.1E+04 N	3.9E+03 N	1.1E+02	2.3E+03 N
**CYCLOHEXANE	110827			1.70E+00 I		y	1.2E+04 N	6.2E+03 N					
CYCLOHEXANONE	108941	5.00E+00 I					1.8E+05 N	1.8E+04 N	6.8E+03 N	5.1E+06 N	3.9E+05 N	6.1E+01	1.2E+03 N
CYHALOTHRIN/KARATE	68085858	5.00E-03 I					1.8E+02 N	1.8E+01 N	6.8E+00 N	5.1E+03 N	3.9E+02 N		
CYPERMETHRIN	52315078	1.00E-02 I					3.7E+02 N	3.7E+01 N	1.4E+01 N	1.0E+04 N	7.8E+02 N		
DACTHAL	1861321	1.00E-02 I					3.7E+02 N	3.7E+01 N	1.4E+01 N	1.0E+04 N	7.8E+02 N		
DALAPON	75990	3.00E-02 I					1.1E+03 N	1.1E+02 N	4.1E+01 N	3.1E+04 N	2.3E+03 N	3.5E-01	7.1E+00 N
DDD	72548		2.40E-01 I				2.8E-01 C	2.6E-02 C	1.3E-02 C	1.2E+01 C	2.7E+00 C	5.6E-01	1.1E+01 C
DDE	72559		3.40E-01 I				2.0E-01 C	1.8E-02 C	9.3E-03 C	8.4E+00 C	1.9E+00 C	1.8E+00	3.5E+01 C
DDT	50293	5.00E-04 I	3.40E-01 I		3.40E-01 I		2.0E-01 C	1.8E-02 C	9.3E-03 C	8.4E+00 C	1.9E+00 C	5.8E-02	1.2E+00 C
DIAZINON	333415	9.00E-04 H					3.3E+01 N	3.3E+00 N	1.2E+00 N	9.2E+02 N	7.0E+01 N	2.1E-02	4.3E-01 N
DIBENZOFURAN	132649	2.00E-03 E				y	1.2E+01 N	7.3E+00 N	2.7E+00 N	2.0E+03 N	1.6E+02 N	1.9E-01	3.8E+00 N
1,4-DIBROMOBENZENE	106376	1.00E-02 I					3.7E+02 N	3.7E+01 N	1.4E+01 N	1.0E+04 N	7.8E+02 N		
DIBROMOCHLOROMETHANE	124481	2.00E-02 I	8.40E-02 I			y	1.3E-01 C	7.5E-02 C	3.8E-02 C	3.4E+01 C	7.6E+00 C	4.1E-05	8.3E-04 C
1,2-DIBROMO-3-CHLOROPROPANE	96128		1.40E+00 H	5.70E-05 I	2.40E-03 H	y	4.7E-02 C !	2.1E-01 N	2.3E-03 C	2.0E+00 C	4.6E-01 C	4.4E-05	8.7E-04 C
1,2-DIBROMOETHANE	106934		8.50E+01 I	5.70E-05 H	7.60E-01 I	y	7.5E-04 C	8.2E-03 C	3.7E-05 C	3.4E-02 C	7.5E-03 C	4.3E-07	8.5E-06 C
DIBUTYLPHTHALATE	84742	1.00E-01 I					3.7E+03 N	3.7E+02 N	1.4E+02 N	1.0E+05 N	7.8E+03 N	2.5E+02	5.0E+03 N
DICAMBA	1918009	3.00E-02 I					1.1E+03 N	1.1E+02 N	4.1E+01 N	3.1E+04 N	2.3E+03 N	2.2E-01	4.5E+00 N
1,2-DICHLOROBENZENE	95501	9.00E-02 I		4.00E-02 H		y	2.7E+02 N	1.5E+02 N	1.2E+02 N	9.2E+04 N	7.0E+03 N	2.3E-01	4.6E+00 N
1,3-DICHLOROBENZENE	541731	3.00E-02 E				y	1.8E+02 N	1.1E+02 N	4.1E+01 N	3.1E+04 N	2.3E+03 N	1.5E-01	2.9E+00 N
1,4-DICHLOROBENZENE	106467	3.00E-02 E	2.40E-02 H	2.29E-01 I	2.2E-02 E	y	4.7E-01 C	2.8E-01 C	1.3E-01 C	1.2E+02 C	2.7E+01 C	3.6E-04	7.1E-03 C
3,3'-DICHLOROBENZIDINE	91941		4.50E-01 I				1.5E-01 C	1.4E-02 C	7.0E-03 C	6.4E+00 C	1.4E+00 C	2.5E-04	4.9E-03 C
1,4-DICHLORO-2-BUTENE	764410				9.30E+00 H	y	1.3E-03 C	6.7E-04 C				4.0E-07	8.0E-06 C
DICHLORODIFLUOROMETHANE	75718	2.00E-01 I		5.00E-02 A		y	3.5E+02 N	1.8E+02 N	2.7E+02 N	2.0E+05 N	1.6E+04 N	5.5E-01	1.1E+01 N
1,1-DICHLOROETHANE	75343	1.00E-01 H		1.40E-01 A		y	8.0E+02 N	5.1E+02 N	1.4E+02 N	1.0E+05 N	7.8E+03 N	2.3E-01	4.5E+00 N
**1,2-DICHLOROETHANE	107062	2.00E-02 E	9.10E-02 I	1.40E-03 E	9.10E-02 I	y	1.2E-01 C	6.9E-02 C	3.5E-02 C	3.1E+01 C	7.0E+00 C	5.2E-05	1.0E-03 C

Sources: I = IRIS H = HEAST A = HEAST Alternate W = Withdrawn from IRIS or HEAST E = EPA-NCEA provisional value O = other							Basis: C = Carcinogenic effects N = Noncarcinogenic effects I = RBC at HI of 0.1 < RBC-c; see Alternate RBCs !! = See Alternate RBCs					Region III SSLs	
							Risk-based concentrations					Soil, for groundwater migration	
Chemical	CAS	RfDo mg/kg/d	CSFo 1/mg/kg/d	RfDi mg/kg/d	CSFi 1/mg/kg/d	VOC	Tap water ug/l	Ambient air ug/m3	Fish mg/kg	Soil Industrial mg/kg	Residential mg/kg	DAF 1 mg/kg	DAF 20 mg/kg
1,1-DICHLOROETHENE	75354	5.00E-02 I		6.00E-02 I		y	3.5E+02 N	2.2E+02 N	6.8E+01 N	5.1E+04 N	3.9E+03 N	1.5E-01	2.9E+00 N
**CIS-1,2-DICHLOROETHENE	156592	1.00E-02 E				y	6.1E+01 N	3.7E+01 N	1.4E+01 N	1.0E+04 N	7.8E+02 N	1.7E-02	3.5E-01 N
TRANS-1,2-DICHLOROETHENE	156605	2.00E-02 I				y	1.2E+02 N	7.3E+01 N	2.7E+01 N	2.0E+04 N	1.6E+03 N	4.1E-02	8.2E-01 N
TOTAL 1,2-DICHLOROETHENE	540590	9.00E-03 H				y	5.5E+01 N	3.3E+01 N	1.2E+01 N	9.2E+03 N	7.0E+02 N	1.9E-02	3.7E-01 N
2,4-DICHLOROPHENOL	120832	3.00E-03 I					1.1E+02 N	1.1E+01 N	4.1E+00 N	3.1E+03 N	2.3E+02 N	6.0E-02	1.2E+00 N
2,4-D	94757	1.00E-02 I					3.7E+02 N	3.7E+01 N	1.4E+01 N	1.0E+04 N	7.8E+02 N	4.5E-01	9.0E+00 N
4-(2,4-DICHLOROPHENOXY)BUTYRIC ACID	94826	8E-03 I					2.9E+02 N	2.9E+01 N	1.1E+01 N	8.2E+03 N	6.3E+02 N		
1,2-DICHLOROPROPANE	78875		6.80E-02 H	1.14E-03 I		y	1.6E-01 C	9.2E-02 C	4.6E-02 C	4.2E+01 C	9.4E+00 C	1.0E-04	2.1E-03 C
**1,3-DICHLOROPROPANE	142289	2.00E-02 E				y	1.2E+02 N	7.3E+01 N	2.7E+01 N	2.0E+04 N	1.6E+03 N		
2,3-DICHLOROPROPANOL	616239	3.00E-03 I					1.1E+02 N	1.1E+01 N	4.1E+00 N	3.1E+03 N	2.3E+02 N		
1,3-DICHLOROPROPENE	542756	3.00E-02 I	1.00E-01 I	5.71E-03 I	1.00E-02 I	y	4.4E-01 C	6.3E-01 C	3.2E-02 C	2.9E+01 C	6.4E+00 C	1.6E-04	3.1E-03 C
DICHLORVOS	62737	5E-04 I	0.29 I	1.43E-04 I			2.3E-01 C	2.2E-02 C	1.1E-02 C	9.9E+00 C	2.2E+00 C	5.5E-05	1.1E-03 C
DICYCLOPENTADIENE	77736	3E-02 H		6.00E-05 A		y	4.4E-01 N	2.2E-01 N	4.1E+01 N	3.1E+04 N	2.3E+03 N		
DIELDRIN	60571	5.00E-05 I	1.60E+01 I		1.60E+01 I		4.2E-03 C	3.9E-04 C	2.0E-04 C	1.8E-01 C	4.0E-02 C	1.1E-04	2.2E-03 C
DIESEL EMISSIONS				1.40E-03 I				5.1E+00 N					
DIETHYLPHTHALATE	84662	8.00E-01 I					2.9E+04 N	2.9E+03 N	1.1E+03 N	8.2E+05 N	6.3E+04 N	2.3E+01	4.5E+02 N
**DIETHYLENE GLYCOL, MONOBUTYL ETHER	112345	1.00E-02 E		5.70E-03 E			3.7E+02 N	2.1E+01 N	1.4E+01 N	1.0E+04 N	7.8E+02 N		
**DIETHYLENE GLYCOL, MONOETHYL ETHER	111900	6.00E-02 E		8.6E-04 E			2.2E+03 N	3.1E+00 N	8.1E+01 N	6.1E+04 N	4.7E+03 N		
DI(2-ETHYLHEXYL)ADIPATE	103231	6.00E-01 I	1.20E-03 I				5.6E+01 C	5.2E+00 C	2.6E+00 C	2.4E+03 C	5.3E+02 C		
DIETHYLSTILBESTROL	56531		4.70E+03 H				1.4E-05 C	1.3E-06 C	6.7E-07 C	6.1E-04 C	1.4E-04 C		
DIFENZOQUAT (AVENGE)	43222486	8.00E-02 I					2.9E+03 N	2.9E+02 N	1.1E+02 N	8.2E+04 N	6.3E+03 N		
1,1-DIFLUOROETHANE	75376			1.10E+01 I		y	8.0E+04 N	4.0E+04 N					
DIISOPROPYL METHYLPHOSPHONATE (DIMP)	1445756	8.00E-02 I					2.9E+03 N	2.9E+02 N	1.1E+02 N	8.2E+04 N	6.3E+03 N		
3,3'-DIMETHOXYBENZIDINE	119904		1.40E-02 H				4.8E+00 C	4.5E-01 C	2.3E-01 C	2.0E+02 C	4.6E+01 C		
2,4-DIMETHYLANILINE HYDROCHLORIDE	21436964		5.80E-01 H				1.2E-01 C	1.1E-02 C	5.4E-03 C	4.9E+00 C	1.1E+00 C		
2,4-DIMETHYLANILINE	95681		7.50E-01 H				8.9E-02 C	8.3E-03 C	4.2E-03 C	3.8E+00 C	8.5E-01 C		
N,N-DIMETHYLANILINE	121697	2.00E-03 I					7.3E+01 N	7.3E+00 N	2.7E+00 N	2.0E+03 N	1.6E+02 N		
**3,3'-DIMETHYLBENZIDINE	119937		2.30E+00 E				2.9E-02 C	2.7E-03 C	1.4E-03 C	1.2E+00 C	2.8E-01 C		
2,4-DIMETHYLPHENOL	105679	2.00E-02 I					7.3E+02 N	7.3E+01 N	2.7E+01 N	2.0E+04 N	1.6E+03 N	3.4E-01	6.7E+00 N
2,6-DIMETHYLPHENOL	576261	6.00E-04 I					2.2E+01 N	2.2E+00 N	8.1E-01 N	6.1E+02 N	4.7E+01 N		
3,4-DIMETHYLPHENOL	95658	1.00E-03 I					3.7E+01 N	3.7E+00 N	1.4E+00 N	1.0E+03 N	7.8E+01 N		
DIMETHYLPHTHALATE	131113	1.00E+01 W					3.7E+05 N	3.7E+04 N	1.4E+04 N	1.0E+07 N	7.8E+05 N		
**1,2-DINITROBENZENE	528290	1.00E-04 E					3.7E+00 N	3.7E-01 N	1.4E-01 N	1.0E+02 N	7.8E+00 N		
1,3-DINITROBENZENE	99650	1.00E-04 I					3.7E+00 N	3.7E-01 N	1.4E-01 N	1.0E+02 N	7.8E+00 N	1.8E-03	3.7E-02 N
**1,4-DINITROBENZENE	100254	1.00E-04 E					3.7E+00 N	3.7E-01 N	1.4E-01 N	1.0E+02 N	7.8E+00 N		
4,6-DINITRO-O-CYCLOHEXYL PHENOL	131895	2.00E-03 I					7.3E+01 N	7.3E+00 N	2.7E+00 N	2.0E+03 N	1.6E+02 N		
4,6-DINITRO-2-METHYLPHENOL	534521	1.00E-04 E					3.7E+00 N	3.7E-01 N	1.4E-01 N	1.0E+02 N	7.8E+00 N		
2,4-DINITROPHENOL	51285	2.00E-03 I					7.3E+01 N	7.3E+00 N	2.7E+00 N	2.0E+03 N	1.6E+02 N		
DINITROTOLUENE MIX			6.80E-01 I				9.8E-02 C	9.2E-03 C	4.6E-03 C	4.2E+00 C	9.4E-01 C		
2,4-DINITROTOLUENE	121142	2.00E-03 I					7.3E+01 N	7.3E+00 N	2.7E+00 N	2.0E+03 N	1.6E+02 N	2.9E-02	5.7E-01 N
2,6-DINITROTOLUENE	606202	1.00E-03 H					3.7E+01 N	3.7E+00 N	1.4E+00 N	1.0E+03 N	7.8E+01 N	1.2E-02	2.5E-01 N
DINOSEB	88857	1.00E-03 I					3.7E+01 N	3.7E+00 N	1.4E+00 N	1.0E+03 N	7.8E+01 N	8.7E-03	1.7E-01 N
**DIOCTYLPHTHALATE	117840	4.00E-02 E					1.5E+03 N	1.5E+02 N	5.4E+01 N	4.1E+04 N	3.1E+03 N	2.4E+05	4.9E+06 N
1,4-DIOXANE	123911		1.10E-02 I				6.1E+00 C	5.7E-01 C	2.9E-01 C	2.6E+02 C	5.8E+01 C	1.3E-03	2.6E-02 C
DIPHENYLAMINE	122394	2.50E-02 I					9.1E+02 N	9.1E+01 N	3.4E+01 N	2.6E+04 N	2.0E+03 N	1.3E+00	2.5E+01 N
1,2-DIPHENYLHYDRAZINE	122667		8.00E-01 I		8.00E-01 I		8.4E-02 C	7.8E-03 C	3.9E-03 C	3.6E+00 C	8.0E-01 C	1.3E-04	2.5E-03 C
DIQUAT	85007	2.20E-03 I					8.0E+01 N	8.0E+00 N	3.0E+00 N	2.2E+03 N	1.7E+02 N	1.7E-02	3.3E-01 N
DISULFOTON	298044	4.00E-05 I					1.5E+00 N	1.5E-01 N	5.4E-02 N	4.1E+01 N	3.1E+00 N	3.2E-03	6.4E-02 N
1,4-DITHIANE	505293	1.00E-02 I					3.7E+02 N	3.7E+01 N	1.4E+01 N	1.0E+04 N	7.8E+02 N		
DIURON	330541	2.00E-03 I					7.3E+01 N	7.3E+00 N	2.7E+00 N	2.0E+03 N	1.6E+02 N	5.8E-02	1.2E+00 N
ENDOSULFAN	115297	6.00E-03 I					2.2E+02 N	2.2E+01 N	8.1E+00 N	6.1E+03 N	4.7E+02 N	9.8E-01	2.0E+01 N
ENDRIN	72208	3.00E-04 I					1.1E+01 N	1.1E+00 N	4.1E+01 N	3.1E+02 N	2.3E+01 N	2.7E-01	5.4E+00 N
EPICHLOROHYDRIN	106898	2.00E-03 H	9.90E-03 I	2.86E-04 I	4.20E-03 I	y	2.0E+00 N	1.0E+00 N	3.2E-01 C !	2.9E+02 C !	6.5E+01 C !	4.2E-04	8.4E-03 N
ETHION	563122	5.00E-04 I					1.8E+01 N	1.8E+00 N	6.8E-01 N	5.1E+02 N	3.9E+01 N	3.2E-01	6.4E+00 N
2-ETHOXYETHANOL	110805	4.00E-01 H		5.70E-02 I			1.5E+04 N	2.1E+02 N	5.4E+02 N	4.1E+05 N	3.1E+04 N	3.3E+00	6.5E+01 N
ETHYL ACETATE	141786	9.00E-01 I				y	5.5E+03 N	3.3E+03 N	1.2E+03 N	9.2E+05 N	7.0E+04 N	1.7E+00	3.5E+01 N
ETHYLBENZENE	100414	1.00E-01 I		2.90E-01 I		y	1.3E+03 N	1.1E+03 N	1.4E+02 N	1.0E+05 N	7.8E+03 N	7.5E-01	1.5E+01 N
**ETHYLENE DIAMINE	107153	9.00E-02 E					3.3E+03 N	3.3E+02 N	1.2E+02 N	9.2E+04 N	7.0E+03 N		
ETHYLENE GLYCOL	107211	2.00E+00 I					7.3E+04 N	7.3E+03 N	2.7E+03 N	2.0E+06 N	1.6E+05 N	1.5E+01	3.0E+02 N
ETHYLENE GLYCOL, MONOBUTYL ETHER	111762	5.00E-01 I		3.70E+00 I			1.8E+04 N	1.4E+04 N	6.8E+02 N	5.1E+05 N	3.9E+04 N		
ETHYLENE OXIDE	75218		1.00E+00 H		3.50E-01 H	y	2.3E-02 C	1.8E-02 C	3.2E-03 C	2.9E+00 C	6.4E-01 C	4.8E-06	9.5E-05 C
ETHYLENE THIOUREA	96457	8.00E-05 I	1.1E-01 H				6.1E-01 C !	5.7E-02 C !	2.9E-02 C !	2.6E+01 C !	5.8E+00 C !		
ETHYL ETHER	60297	2.00E-01 I				y	1.2E+03 N	7.3E+02 N	2.7E+02 N	2.0E+05 N	1.6E+04 N	4.2E-01	8.5E+00 N
ETHYL METHACRYLATE	97632	9.00E-02 H				y	5.5E+02 N	3.3E+02 N	1.2E+02 N	9.2E+04 N	7.0E+03 N	1.0E+00	2.1E+01 N
FENAMIPHOS	22224926	2.50E-04 I					9.1E+00 N	9.1E-01 N	3.4E-01 N	2.6E+02 N	2.0E+01 N	7.8E-03	1.6E-01 N
FLUOMETURON	2164172	1.30E-02 I					4.7E+02 N	4.7E+01 N	1.8E+01 N	1.3E+04 N	1.0E+03 N		

Sources: I = IRIS H = HEAST A = HEAST Alternate W = Withdrawn from IRIS or HEAST
E = EPA-NCEA provisional value O = other

Basis: C = Carcinogenic effects N = Noncarcinogenic effects ! = RBC at HI of 0.1 < RBC-c; see Alternate RBCs !! = See Alternate RBCs

Risk-based concentrations

Chemical	CAS	RfDo mg/kg/d	CSFo 1/mg/kg/d	RfDi mg/kg/d	CSFi 1/mg/kg/d	VOC	Tap water ug/l	Ambient air ug/m3	Fish mg/kg	Soil Industrial mg/kg	Residential mg/kg	Region III SSLs Soil, for groundwater migration DAF 1 mg/kg	DAF 20 mg/kg
FLUORINE	7782414	6.00E-02 I					2.2E+03 N	2.2E+02 N	8.1E+01 N	6.1E+04 N	4.7E+03 N		
FOMESAFEN	72178020		1.90E-01 I				3.5E-01 C	3.3E-02 C	1.7E-02 C	1.5E+01 C	3.4E+00 C		
FONOFOS	944229	2.00E-03 I					7.3E+01 N	7.3E+00 N	2.7E+00 N	2.0E+03 N	1.6E+02 N	1.8E-01	3.5E+00 N
FORMALDEHYDE	50000	2.00E-01 I			4.50E-02 I		7.3E+03 N	1.4E-01 C	2.7E+02 N	2.0E+05 N	1.6E+04 N	1.5E+00	3.0E+01 N
**FORMIC ACID	64186	2.00E+00 H		8.6E-04 E			7.3E+04 N	3.1E+00 N	2.7E+03 N	2.0E+06 N	1.6E+05 N		
FURAN	110009	1.00E-03 I				y	6.1E+00 N	3.7E+00 N	1.4E+00 N	1.0E+03 N	7.8E+01 N	1.5E-03	3.0E-02 N
FURAZOLIDONE	67458		3.80E+00 H				1.8E-02 C	1.6E-03 C	8.3E-04 C	7.5E-01 C	1.7E-01 C		
FURFURAL	98011	3.00E-03 I		1.00E-02 A			1.1E+02 N	3.7E+01 N	4.1E+00 N	3.1E+03 N	2.3E+02 N	2.3E-02	4.6E-01 N
GLYCIDALDEHYDE	765344	4.00E-04 I		2.90E-04 H			1.5E+01 N	1.1E+00 N	5.4E-01 N	4.1E+02 N	3.1E+01 N		
GLYPHOSATE	1071836	1.00E-01 I					3.7E+03 N	3.7E+02 N	1.4E+02 N	1.0E+05 N	7.8E+03 N	2.6E+01	5.3E+02 N
HEPTACHLOR	76448	5.00E-04 I	4.50E+00 I		4.50E+00 I		1.5E-02 C	1.4E-03 C	7.0E-04 C	6.4E-01 C	1.4E-01 C	4.2E-02	8.4E-01 C
HEPTACHLOR EPOXIDE	1024573	1.30E-05 I	9.10E+00 I		9.10E+00 I		7.4E-03 C	6.9E-04 C	3.5E-04 C	3.1E-01 C	7.0E-02 C	1.2E-03	2.5E-02 C
HEXABROMOBENZENE	87821	2.00E-03 I					7.3E+01 N	7.3E+00 N	2.7E+00 N	2.0E+03 N	1.6E+02 N		
HEXACHLOROBENZENE	118741	8.00E-04 I	1.60E+00 I		1.60E+00 I		4.2E-02 C	3.9E-03 C	2.0E-03 C	1.8E+00 C	4.0E-01 C	2.6E-03	5.2E-02 C
HEXACHLOROBUTADIENE	87683	2.00E-04 H	7.80E-02 I		7.80E-02 I		8.6E-01 C !	8.0E-02 C !	4.0E-02 C !	3.7E+01 C !	8.2E+00 C !	9.2E-02	1.8E+00 C
ALPHA-HCH	319846		6.30E+00 I		6.30E+00 I		1.1E-02 C	9.9E-04 C	5.0E-04 C	4.5E-01 C	1.0E-01 C	4.5E-05	8.9E-04 C
BETA-HCH	319857		1.80E+00 I		1.80E+00 I		3.7E-02 C	3.5E-03 C	1.8E-03 C	1.6E+00 C	3.5E-01 C	1.6E-04	3.1E-03 C
GAMMA-HCH (LINDANE)	58899	3.00E-04 I	1.30E+00 H				5.2E-02 C	4.8E-03 C	2.4E-03 C	2.2E+00 C	4.9E-01 C	2.2E-04	4.3E-03 C
TECHNICAL HCH	608731		1.80E+00 I		1.80E+00 I		3.7E-02 C	3.5E-03 C	1.8E-03 C	1.6E+00 C	3.5E-01 C		
HEXACHLOROCYCLOPENTADIENE	77474	6.00E-03 I		5.7E-05 I			2.2E+02 N	2.1E-01 N	8.1E+00 N	6.1E+03 N	4.7E+02 N	8.8E+01	1.8E+03 N
HEXACHLORODIBENZODIOXIN MIX	19408743		6.20E+03 I		4.55E+03 I		1.1E-05 C	1.4E-06 C	5.1E-07 C	4.6E-04 C	1.0E-04 C		
HEXACHLOROETHANE	67721	1.00E-03 I	1.40E-02 I		1.40E-02 I		4.8E+00 C !	4.5E-01 C !	2.3E-01 C !	2.0E+02 C !	4.6E+01 C !	1.8E-02	3.6E-01 C
HEXACHLOROPHENE	70304	3.00E-04 I					1.1E+01 N	1.1E+00 N	4.1E-01 N	3.1E+02 N	2.3E+01 N	1.0E+02	2.0E+03 N
1,6-HEXAMETHYLENE DIISOCYANATE	822060			2.90E-06 I				1.1E-02 N					
**HEXANE	110543	1.10E+01 E		5.71E-02 I		y	4.2E+02 N	2.1E+02 N	1.5E+04 N	1.1E+07 N	8.6E+05 N	8.2E-01	1.6E+01 N
HEXAZINONE	51235042	3.30E-02 I					1.2E+03 N	1.2E+02 N	4.5E+01 N	3.4E+04 N	2.6E+03 N		
HMX	2691410	5.00E-02 I					1.8E+03 N	1.8E+02 N	6.8E+01 N	5.1E+04 N	3.9E+03 N		
HYDRAZINE	302012		3.00E+00 I		1.70E+01 I		2.2E-02 C	3.7E-04 C	1.1E-03 C	9.5E-01 C	2.1E-01 C		
HYDROGEN CHLORIDE	7647010			5.70E-03 I				2.1E+01 N					
**HYDROGEN SULFIDE	7783064	3.00E-03 I		5.7E-04 I			1.1E+02 N	2.1E+00 N	4.1E+00 N	3.1E+03 N	2.3E+02 N		
**HYDROQUINONE	123319	4.00E-02 E	5.6E-02 E				1.2E+00 C	1.1E-01 C	5.6E-02 C	5.1E+01 C	1.1E+01 C		
IRON	7439896	3.00E-01 E					1.1E+04 N	1.1E+03 N	4.1E+02 N	3.1E+05 N	2.3E+04 N		
ISOBUTANOL	78831	3.00E-01 I				y	1.8E+03 N	1.1E+03 N	4.1E+02 N	3.1E+05 N	2.3E+04 N	5.9E-01	1.2E+01 N
ISOPHORONE	78591	2.00E-01 I	9.50E-04 I				7.0E+01 C	6.6E+00 C	3.3E+00 C	3.0E+03 C	6.7E+02 C	2.1E-02	4.1E-01 C
ISOPROPALIN	33820530	1.50E-02 I					5.5E+02 N	5.5E+01 N	2.0E+01 N	1.5E+04 N	1.2E+03 N		
ISOPROPYL METHYL PHOSPHONIC ACID	1832548	1.00E-01 I					3.7E+03 N	3.7E+02 N	1.4E+02 N	1.0E+05 N	7.8E+03 N		
TETRAETHYLLEAD	78002	1.00E-07 I					3.7E-03 N	3.7E-04 N	1.4E-04 N	1.0E-01 N	7.8E-03 N	4.6E-05	9.2E-04 N
**KEPONE	143500	2.00E-04 E	8.00E+00 E				8.4E-03 C	7.8E-04 C	3.9E-04 C	3.6E-01 C	8.0E-02 C		
LITHIUM	7439932	2.00E-02 E					7.3E+02 N	7.3E+01 N	2.7E+01 N	2.0E+04 N	1.6E+03 N		
MALATHION	121755	2.00E-02 I					7.3E+02 N	7.3E+01 N	2.7E+01 N	2.0E+04 N	1.6E+03 N	4.0E-01	8.1E+00 N
MALEIC ANHYDRIDE	108316	1.00E-01 I					3.7E+03 N	3.7E+02 N	1.4E+02 N	1.0E+05 N	7.8E+03 N		
MANGANESE-NONFOOD	7439965	2.00E-02 I		1.43E-05 I			7.3E+02 N	5.2E-02 N	2.7E+01 N	2.0E+04 N	1.6E+03 N	4.8E+01	9.5E+02 N
MANGANESE-FOOD	7439965	1.40E-01 I		1.43E-05 I			5.1E+03 N	5.2E-02 N	1.9E+02 N	1.4E+05 N	1.1E+04 N	3.3E+02	6.7E+03 N
MEPHOSFOLAN	950107	9.00E-05 H					3.3E+00 N	3.3E-01 N	1.2E-01 N	9.2E+01 N	7.0E+00 N		
MEPIQUAT CHLORIDE	24307264	3.00E-02 I					1.1E+03 N	1.1E+02 N	4.1E+01 N	3.1E+04 N	2.3E+03 N		
MERCURIC CHLORIDE	7487947	3.00E-04 I					1.1E+01 N	1.1E+00 N	4.1E-01 N	3.1E+02 N	2.3E+01 N		
MERCURY (INORGANIC)	7439976			8.60E-05 I				3.1E-01 N					
METHYLMERCURY	22967926	1.00E-04 I					3.7E+00 N	3.7E-01 N	1.4E-01 N	1.0E+02 N	7.8E+00 N		
METHACRYLONITRILE	126987	1.00E-04 I		2.00E-04 A		y	1.0E+00 N	7.3E-01 N	1.4E-01 N	1.0E+02 N	7.8E+00 N	2.1E-04	4.2E-03 N
METHANOL	67561	5.00E-01 I					1.8E+04 N	1.8E+03 N	6.8E+02 N	5.1E+05 N	3.9E+04 N	3.8E+00	7.5E+01 N
METHIDATHION	950378	1.00E-03 I					3.7E+01 N	3.7E+00 N	1.4E+00 N	1.0E+03 N	7.8E+01 N		
METHOXYCHLOR	72435	5.00E-03 I					1.8E+02 N	1.8E+01 N	6.8E+00 N	5.1E+03 N	3.9E+02 N	1.5E+01	3.1E+02 N
METHYL ACETATE	79209	1.00E+00 H				y	6.1E+03 N	3.7E+03 N	1.4E+03 N	1.0E+06 N	7.8E+04 N	1.2E+00	2.5E+01 N
METHYL ACRYLATE	96333	3.00E-02 A				y	1.8E+02 N	1.1E+02 N	4.1E+01 N	3.1E+04 N	2.3E+03 N	5.0E-01	1.0E+01 N
2-METHYLANILINE	95534		2.40E-01 H				2.8E-01 C	2.6E-02 C	1.3E-02 C	1.2E+01 C	2.7E+00 C	2.8E-04	5.7E-03 C
4-(2-METHYL-4-CHLOROPHENOXY) BUTYRIC ACID	94815	1.00E-02 I					3.7E+02 N	3.7E+01 N	1.4E+01 N	1.0E+04 N	7.8E+02 N		
2-METHYL-4-CHLOROPHENOXYACETIC ACID (MCPA)	94746	5.00E-04 I					1.8E+01 N	1.8E+00 N	6.8E-01 N	5.1E+02 N	3.9E+01 N		
2-(2-METHYL-4-CHLOROPHENOXY)PROPIONIC ACID (M	93652	1.00E-03 I					3.7E+01 N	3.7E+00 N	1.4E+00 N	1.0E+03 N	7.8E+01 N		
METHYLCYCLOHEXANE	108872			8.60E-01 H		y	6.3E+03 N	3.1E+03 N					
METHYLENE BROMIDE	74953	1.00E-02 A				y	6.1E+01 N	3.7E+01 N	1.4E+01 N	1.0E+04 N	7.8E+02 N	1.5E-02	3.0E-01 N
METHYLENE CHLORIDE	75092	6.00E-02 I	7.50E-03 I	8.60E-01 H	1.65E-03 I	y	4.1E+00 C	3.8E+00 C	4.2E-01 C	3.8E+02 C	8.5E+01 C	9.5E-04	1.9E-02 C
4,4'-METHYLENE BIS(2-CHLOROANILINE)	101144	7.00E-04 H	1.30E-01 H		1.30E-01 H		5.2E-01 C	4.8E-02 C	2.4E-02 C	2.2E+01 C	4.9E+00 C		
4,4'-METHYLENE BIS(N,N'-DIMETHYL)ANILINE	101611		4.60E-02 I				1.5E+00 C	1.4E-01 C	6.9E-02 C	6.2E+01 C	1.4E+01 C		
4,4'-METHYLENEDIPHENYL ISOCYANATE	101688			1.7E-04 I				6.2E-01 N					
**METHYL ETHYL KETONE (2-BUTANONE)	78933	6.00E-01 I		1.40E+00 I		y	7.0E+03 N	5.1E+03 N	8.1E+02 N	6.1E+05 N	4.7E+04 N	1.5E+00	2.9E+01 N
**METHYL ISOBUTYL KETONE (4-METHYL-2-PENTANO	108101			8.60E-01 I		y	6.3E+03 N	3.1E+03 N				2.9E+00	5.9E+01 N

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Basis: C = Carcinogenic effects N = Noncarcinogenic effects ! = RBC at HI of 0.1 < RBC-c; see Alternate RBCs !! = See Alternate RBCs

Chemical	CAS	RfDo mg/kg/d	CSFo 1/mg/kg/d	RfDi mg/kg/d	CSFi 1/mg/kg/d	VOC	Risk-based concentrations: Tap water ug/l	Ambient air ug/m3	Fish mg/kg	Soil Industrial mg/kg	Soil Residential mg/kg	Region III SSLs: Soil, for groundwater migration DAF 1 mg/kg	DAF 20 mg/kg
METHYL METHACRYLATE	80626	1.40E+00 I		2.00E-01 I		y	1.4E+03 N	7.3E+02 N	1.9E+03 N	1.4E+06 N	1.1E+05 N	3.2E-01	6.5E+00 N
2-METHYL-5-NITROANILINE	99558		3.30E-02 H				2.0E+00 C	1.9E-01 C	9.6E-02 C	8.7E+01 C	1.9E+01 C		
METHYL PARATHION	298000	2.50E-04 I					9.1E+00 N	9.1E-01 N	3.4E-01 N	2.6E+02 N	2.0E+01 N	4.3E-03	8.5E-02 N
2-METHYLPHENOL	95487	5.00E-02 I					1.8E+03 N	1.8E+02 N	6.8E+01 N	5.1E+04 N	3.9E+03 N		
3-METHYLPHENOL	108394	5.00E-02 I					1.8E+03 N	1.8E+02 N	6.8E+01 N	5.1E+04 N	3.9E+03 N		
4-METHYLPHENOL	106445	5.00E-03 H					1.8E+02 N	1.8E+01 N	6.8E+00 N	5.1E+03 N	3.9E+02 N		
METHYLSTYRENE MIX	25013154	6.00E-03 A		1.00E-02 A		y	5.5E+01 N	3.7E+01 N	8.1E+00 N	6.1E+03 N	4.7E+02 N	5.1E-02	1.0E+00 N
ALPHA-METHYLSTYRENE	98839	7.00E-02 A				y	4.3E+02 N	2.6E+02 N	9.5E+01 N	7.2E+04 N	5.5E+03 N	4.0E-01	7.9E+00 N
METHYL TERT-BUTYL ETHER	1634044		4.00E-03 O	8.57E-01 I		y	2.6E+00 C	1.6E+00 C	7.9E-01 C	7.2E+02 C	1.6E+02 C	5.9E-04	1.2E-02 C
METOLACHLOR (DUAL)	51218452	1.50E-01 I					5.5E+03 N	5.5E+02 N	2.0E+02 N	1.5E+05 N	1.2E+04 N		
MIREX	2385855	2.00E-04 I					7.3E+00 N	7.3E-01 N	2.7E-01 N	2.0E+02 N	1.6E+01 N		
MOLYBDENUM	7439987	5E-03 I					1.8E+02 N	1.8E+01 N	6.8E+00 N	5.1E+03 N	3.9E+02 N		
MONOCHLORAMINE	10599903	1E-01 I		1.00E-01 H			3.7E+03 N	3.7E+02 N	1.4E+02 N	1.0E+05 N	7.8E+03 N		
NALED	300765	2E-03 I					7.3E+01 N	7.3E+00 N	2.7E+00 N	2.0E+03 N	1.6E+02 N		
NICKEL REFINERY DUST					8.4E-01 I			7.5E-03 C					
NICKEL	7440020	2.00E-02 I					7.3E+02 N	7.3E+01 N	2.7E+01 N	2.0E+04 N	1.6E+03 N		
NITRATE	14797558	1.60E+00 I					5.8E+04 N !!	5.8E+03 N	2.2E+03 N	1.6E+06 N	1.3E+05 N		
NITRITE	14797650	1.00E-01 I					3.7E+03 N !!	3.7E+02 N	1.4E+02 N	1.0E+05 N	7.8E+03 N		
**2-NITROANILINE	88744	3.00E-03 E		3.00E-05 E			1.1E+02 N	1.1E-01 N	4.1E+00 N	3.1E+03 N	2.3E+02 N		
3-NITROANILINE	99092	3.00E-04 E	2.00E-02 E	3.00E-04 E			3.3E+00 C !	3.1E-01 C !	1.6E-01 C !	1.4E+02 C !	2.3E+01 N		
4-NITROANILINE	100016	3.00E-03 E	2.00E-02 E	1.00E-03 E			3.3E+00 C	3.1E-01 C	1.6E-01 C	1.4E+02 C	3.2E+01 C !		
NITROBENZENE	98953	5.00E-04 I		6.00E-04 A		y	3.5E+00 N	2.2E+00 N	6.8E-01 N	5.1E+02 N	3.9E+01 N	1.2E-03	2.3E-02 N
NITROFURANTOIN	67209	7.00E-02 H					2.6E+03 N	2.6E+02 N	9.5E+01 N	7.2E+04 N	5.5E+03 N		
NITROFURAZONE	59870		1.50E+00 H				4.5E-02 C	4.2E-03 C	2.1E-03 C	1.9E+00 C	4.3E-01 C		
NITROGLYCERIN	55630		1.4E-02 E				4.8E+00 C	4.5E-01 C	2.3E-01 C	2.0E+02 C	4.6E+01 C		
2-NITROPROPANE	79469			5.70E-03 I	9.40E+00 H	y	1.3E-03 C	6.7E-04 C				3.2E-07	6.4E-06 C
N-NITROSO-DI-N-BUTYLAMINE	924163		5.40E+00 I		5.60E+00 I	y	1.9E-03 C	1.1E-03 C	5.8E-04 C	5.3E-01 C	1.2E-01 C	1.4E-06	2.7E-05 C
N-NITROSODIETHANOLAMINE	1116547		2.80E+00 I				2.4E-02 C	2.2E-03 C	1.1E-03 C	1.0E+00 C	2.3E-01 C		
N-NITROSODIETHYLAMINE	55185		1.50E+02 I		1.50E+02 I		4.5E-04 C	4.2E-05 C	2.1E-05 C	1.9E-02 C	4.3E-03 C	1.1E-07	2.3E-06 C
**N-NITROSODIMETHYLAMINE	62759	8.00E-06 E	5.10E+01 I		5.10E+01 I		1.3E-03 C	1.2E-04 C	6.2E-05 C	5.6E-02 C	1.3E-02 C	2.8E-07	5.7E-06 C
**N-NITROSODIPHENYLAMINE	86306	2.00E-02 E	4.90E-03 I				1.4E+01 C	1.3E+00 C	6.4E-01 C	5.8E+02 C	1.3E+02 C	3.8E-02	7.6E-01 C
N-NITROSODIPROPYLAMINE	621647		7.00E+00 I				9.6E-03 C	8.9E-04 C	4.5E-04 C	4.1E-01 C	9.1E-02 C	2.4E-06	4.7E-05 C
N-NITROSO-N-ETHYLUREA	759739		1.40E+02 H				4.8E-04 C	4.5E-05 C	2.3E-05 C	2.0E-02 C	4.6E-03 C		
N-NITROSO-N-METHYLETHYLAMINE	10595956		2.20E+01 I				3.0E-03 C	2.8E-04 C	1.4E-04 C	1.3E-01 C	2.9E-02 C		
N-NITROSOPYRROLIDINE	930552		2.10E+00 I		2.10E+00 I		3.2E-02 C	3.0E-03 C	1.5E-03 C	1.4E+00 C	3.0E-01 C		
M-NITROTOLUENE	99081	2.00E-02 E				y	1.2E+02 N	7.3E+01 N	2.7E+01 N	2.0E+04 N	1.6E+03 N		
**O-NITROTOLUENE	88722	1.00E-02 H	2.30E-01 E			y	4.6E-02 C	2.7E-02 C	1.4E-02 C	1.2E+01 C	2.8E+00 C		
**P-NITROTOLUENE	99990	1.00E-02 E	1.7E-02 E			y	6.2E-01 C	3.7E-01 C	1.9E-01 C	1.7E+02 C	3.8E+01 C		
NUSTAR	85509199	7.00E-04 I					2.6E+01 N	2.6E+00 N	9.5E-01 N	7.2E+02 N	5.5E+01 N		
ORYZALIN	19044883	5.00E-02 I					1.8E+03 N	1.8E+02 N	6.8E+01 N	5.1E+04 N	3.9E+03 N		
OXADIAZON	19666309	5.00E-03 I					1.8E+02 N	1.8E+01 N	6.8E+00 N	5.1E+03 N	3.9E+02 N		
OXAMYL	23135220	2.50E-02 I					9.1E+02 N	9.1E+01 N	3.4E+01 N	2.6E+04 N	2.0E+03 N	1.9E-01	3.8E+00 N
OXYFLUORFEN	42874033	3.00E-03 I					1.1E+02 N	1.1E+01 N	4.1E+00 N	3.1E+03 N	2.3E+02 N		
PARAQUAT DICHLORIDE	1910425	4.50E-03 I					1.6E+02 N	1.6E+01 N	6.1E+00 N	4.6E+03 N	3.5E+02 N		
PARATHION	56382	6.00E-03 H					2.2E+02 N	2.2E+01 N	8.1E+00 N	6.1E+03 N	4.7E+02 N	5.0E-01	1.0E+01 N
PENTACHLOROBENZENE	608935	8.00E-04 I					2.9E+01 N	2.9E+00 N	1.1E+00 N	8.2E+02 N	6.3E+01 N	1.0E+00	2.0E+01 N
PENTACHLORONITROBENZENE	82688	3.00E-03 I	2.60E-01 H				2.6E-01 C	2.4E-02 C	1.2E-02 C	1.1E+01 C	2.5E+00 C	4.1E-03	8.2E-02 C
PENTACHLOROPHENOL	87865	3.00E-02 I	1.20E-01 I				5.6E-01 C	5.2E-02 C	2.6E-02 C	2.4E+01 C	5.3E+00 C		
PERMETHRIN	52645531	5.00E-02 I					1.8E+03 N	1.8E+02 N	6.8E+01 N	5.1E+04 N	3.9E+03 N	1.2E+02	2.4E+03 N
PHENOL	108952	3.00E-01 I					1.1E+04 N	1.1E+03 N	4.1E+02 N	3.1E+05 N	2.3E+04 N	3.3E+00	6.7E+01 N
M-PHENYLENEDIAMINE	108452	6.00E-03 I					2.2E+02 N	2.2E+01 N	8.1E+00 N	6.1E+03 N	4.7E+02 N	4.9E-02	9.8E-01 N
O-PHENYLENEDIAMINE	95545		4.70E-02 H				1.4E+00 C	1.3E-01 C	6.7E-02 C	6.1E+01 C	1.4E+01 C		
P-PHENYLENEDIAMINE	106503	1.90E-01 H					6.9E+03 N	6.9E+02 N	2.6E+02 N	1.9E+05 N	1.5E+04 N		
2-PHENYLPHENOL	90437		1.90E-03 H				3.5E+01 C	3.3E+00 C	1.7E+00 C	1.5E+03 C	3.4E+02 C		
PHOSPHINE	7803512	3.00E-04 I		8.60E-05 I			1.1E+01 N	3.1E-01 N	4.1E-01 N	3.1E+02 N	2.3E+01 N		
PHOSPHORIC ACID	7664382			2.90E-03 I				1.1E+01 N					
PHOSPHORUS (WHITE)	7723140	2.00E-05 I					7.3E-01 N	7.3E-02 N	2.7E-02 N	2.0E+01 N	1.6E+00 N		
P-PHTHALIC ACID	100210	1.00E+00 H					3.7E+04 N	3.7E+03 N	1.4E+03 N	1.0E+06 N	7.8E+04 N		
PHTHALIC ANHYDRIDE	85449	2.00E+00 I		3.43E-02 H			7.3E+04 N	1.3E+02 N	2.7E+03 N	2.0E+06 N	1.6E+05 N	2.6E+01	5.2E+02 N
POLYBROMINATED BIPHENYLS		7.00E-06 H	8.90E+00 H				7.5E-03 C	7.0E-04 C	3.5E-04 C	3.2E-01 C	7.2E-02 C !		
POLYCHLORINATED BIPHENYLS	1336363		2.00E+00 I		2.00E+00 I		3.3E-02 C	3.1E-03 C	1.6E-03 C	1.4E+00 C	3.2E-01 C	2.1E-02	4.1E-01 C
AROCLOR-1016	12674112	7.00E-05 I	7.00E-02 I		7.00E-02 I		9.6E-01 C !	8.9E-02 C !	4.5E-02 C !	4.1E+01 C !	5.5E+00 N	2.1E-01	4.2E+00 C
AROCLOR-1221	11104282		2.00E+00 I		2.00E+00 I		3.3E-02 C	3.1E-03 C	1.6E-03 C	1.4E+00 C	3.2E-01 C		
AROCLOR-1232	11141165		2.00E+00 I		2.00E+00 I		3.3E-02 C	3.1E-03 C	1.6E-03 C	1.4E+00 C	3.2E-01 C		
AROCLOR-1242	53469219		2.00E+00 I		2.00E+00 I		3.3E-02 C	3.1E-03 C	1.6E-03 C	1.4E+00 C	3.2E-01 C		
AROCLOR-1248	12672296		2.00E+00 I		2.00E+00 I		3.3E-02 C	3.1E-03 C	1.6E-03 C	1.4E+00 C	3.2E-01 C		

Sources: I = IRIS H = HEAST A = HEAST Alternate W = Withdrawn from IRIS or HEAST E = EPA-NCEA provisional value O = other							Basis: C = Carcinogenic effects N = Noncarcinogenic effects ! = RBC at HI of 0.1 < RBC-c; see Alternate RBCs !! = See Alternate RBCs Risk-based concentrations					Region III SSLs Soil, for groundwater migration	
Chemical	CAS	RfDo mg/kg/d	CSFo 1/mg/kg/d	RfDi mg/kg/d	CSFi 1/mg/kg/d	VOC	Tap water ug/l	Ambient air ug/m3	Fish mg/kg	Soil Industrial mg/kg	Residential mg/kg	DAF 1 mg/kg	DAF 20 mg/kg
AROCLOR-1254	11097691	2.00E-05 I	2.00E+00 I		2.00E+00 I		3.3E-02 C	3.1E-03 C	1.6E-03 C	1.4E+00 C	3.2E-01 C !	5.4E-02	1.1E+00 C
AROCLOR-1260	11096825		2.00E+00 I		2.00E+00 I		3.3E-02 C	3.1E-03 C	1.6E-03 C	1.4E+00 C	3.2E-01 C		
POLYCHLORINATED TERPHENYLS	61788338		4.50E+00 E				1.5E-02 C	1.4E-03 C	7.0E-04 C	6.4E-01 C	1.4E-01 C		
POLYNUCLEAR AROMATIC HYDROCARBONS:													
ACENAPHTHENE	83329	6.00E-02 I				y	3.7E+02 N	2.2E+02 N	8.1E+01 N	6.1E+04 N	4.7E+03 N	5.2E+00	1.0E+02 N
ANTHRACENE	120127	3.00E-01 I				y	1.8E+03 N	1.1E+03 N	4.1E+02 N	3.1E+05 N	2.3E+04 N	2.3E+01	4.7E+02 N
BENZ[A]ANTHRACENE	56553		7.30E-01 E				9.2E-02 C	8.6E-03 C	4.3E-03 C	3.9E+00 C	8.7E-01 C	7.3E-02	1.5E+00 C
BENZO[B]FLUORANTHENE	205992		7.30E-01 E				9.2E-02 C	8.6E-03 C	4.3E-03 C	3.9E+00 C	8.7E-01 C	2.3E-01	4.5E+00 C
BENZO[K]FLUORANTHENE	207089		7.30E-02 E				9.2E-01 C	8.6E-02 C	4.3E-02 C	3.9E+01 C	8.7E+00 C	2.3E+00	4.5E+01 C
BENZO[A]PYRENE	50328		7.30E+00 I		3.10E+00 E		9.2E-03 C	2.0E-03 C	4.3E-04 C	3.9E-01 C	8.7E-02 C	1.9E-02	3.7E-01 C
CARBAZOLE	86748		2.00E-02 H				3.3E+00 C	3.1E-01 C	1.6E-01 C	1.4E+02 C	3.2E+01 C	2.3E-02	4.7E-01 C
CHRYSENE	218019		7.30E-03 E				9.2E+00 C	8.6E-01 C	4.3E-01 C	3.9E+02 C	8.7E+01 C	7.3E+00	1.5E+02 C
DIBENZ[A,H]ANTHRACENE	53703		7.30E+00 E				9.2E-03 C	8.6E-04 C	4.3E-04 C	3.9E-01 C	8.7E-02 C	7.0E-02	1.4E+00 C
DIBENZOFURAN	132649	2.00E-03 E				y	1.2E+01 N	7.3E+00 N	2.7E+00 N	2.0E+03 N	1.6E+02 N	1.9E-01	3.8E+00 N
FLUORANTHENE	206440	4.00E-02 I					1.5E+03 N	1.5E+02 N	5.4E+01 N	4.1E+04 N	3.1E+03 N	3.1E+02	6.3E+03 N
FLUORENE	86737	4.00E-02 I				y	2.4E+02 N	1.5E+02 N	5.4E+01 N	4.1E+04 N	3.1E+03 N	6.8E+00	1.4E+02 N
INDENO[1,2,3-C,D]PYRENE	193395		7.30E-01 E				9.2E-02 C	8.6E-03 C	4.3E-03 C	3.9E+00 C	8.7E-01 C	6.4E-01	1.3E+01 C
2-METHYLNAPHTHALENE	91576	2.00E-02 E				y	1.2E+02 N	7.3E+01 N	2.7E+01 N	2.0E+04 N	1.6E+03 N	1.1E+00	2.2E+01 N
NAPHTHALENE	91203	2.00E-02 I		9.00E-04 I		y	6.5E+00 N	3.3E+00 N	2.7E+01 N	2.0E+04 N	1.6E+03 N	7.7E-03	1.5E-01 N
PYRENE	129000	3.00E-02 I				y	1.8E+02 N	1.1E+02 N	4.1E+01 N	3.1E+04 N	2.3E+03 N	3.4E+01	6.8E+02 N
PROMETON	1610180	1.50E-02 I					5.5E+02 N	5.5E+01 N	2.0E+01 N	1.5E+04 N	1.2E+03 N		
PROMETRYN	7287196	4.00E-03 I					1.5E+02 N	1.5E+01 N	5.4E+00 N	4.1E+03 N	3.1E+02 N		
PROPACHLOR	1918167	1.30E-02 I					4.7E+02 N	4.7E+01 N	1.8E+01 N	1.3E+04 N	1.0E+03 N		
PROPANIL	709988	5.00E-03 I					1.8E+02 N	1.8E+01 N	6.8E+00 N	5.1E+03 N	3.9E+02 N		
PROPARGITE	2312358	2.00E-02 I					7.3E+02 N	7.3E+01 N	2.7E+01 N	2.0E+04 N	1.6E+03 N		
PROPYLENE GLYCOL	57556	2.00E+01 H					7.3E+05 N	7.3E+04 N	2.7E+04 N	2.0E+07 N	1.6E+06 N		
PROPYLENE GLYCOL, MONOETHYL ETHER	52125538	7.00E-01 H					2.6E+04 N	2.6E+03 N	9.5E+02 N	7.2E+05 N	5.5E+04 N		
PROPYLENE GLYCOL, MONOMETHYL ETHER	107982	7.00E-01 H		5.70E-01 I			2.6E+04 N	2.1E+03 N	9.5E+02 N	7.2E+05 N	5.5E+04 N		
PURSUIT	81335775	2.50E-01 I					9.1E+03 N	9.1E+02 N	3.4E+02 N	2.6E+05 N	2.0E+04 N		
PYRIDINE	110861	1.00E-03 I					3.7E+01 N	3.7E+00 N	1.4E+00 N	1.0E+03 N	7.8E+01 N		
QUINOLINE	91225		3.00E+00 I				2.2E-02 C	2.1E-03 C	1.1E-03 C	9.5E-01 C	2.1E-01 C		
RDX	121824	3.00E-03 I	1.10E-01 I				6.1E-01 C	5.7E-02 C	2.9E-02 C	2.6E+01 C	5.8E+00 C		
RESMETHRIN	10453868	3.00E-02 I					1.1E+03 N	1.1E+02 N	4.1E+01 N	3.1E+04 N	2.3E+03 N		
RONNEL	299843	5.00E-02 H					1.8E+03 N	1.8E+02 N	6.8E+01 N	5.1E+04 N	3.9E+03 N		
ROTENONE	83794	4.00E-03 I					1.5E+02 N	1.5E+01 N	5.4E+00 N	4.1E+03 N	3.1E+02 N		
SELENIOUS ACID	7783008	5.00E-03 I					1.8E+02 N	1.8E+01 N	6.8E+00 N	5.1E+03 N	3.9E+02 N		
SELENIUM	7782492	5.00E-03 I					1.8E+02 N	1.8E+01 N	6.8E+00 N	5.1E+03 N	3.9E+02 N	9.5E-01	1.9E+01 N
SILVER	7440224	5.00E-03 I					1.8E+02 N	1.8E+01 N	6.8E+00 N	5.1E+03 N	3.9E+02 N	1.6E+00	3.1E+01 N
SIMAZINE	122349	5.00E-03 I	1.20E-01 H				5.6E-01 C	5.2E-02 C	2.6E-02 C	2.4E+01 C	5.3E+00 C	1.7E-04	3.3E-03 C
SODIUM AZIDE	26628228	4.00E-03 I					1.5E+02 N	1.5E+01 N	5.4E+00 N	4.1E+03 N	3.1E+02 N		
SODIUM DIETHYLDITHIOCARBAMATE	148185	3.00E-02 I	2.70E-01 H				2.5E-01 C	2.3E-02 C	1.2E-02 C	1.1E+01 C	2.4E+00 C		
STRONTIUM, STABLE	7440246	6.00E-01 I					2.2E+04 N	2.2E+03 N	8.1E+02 N	6.1E+05 N	4.7E+04 N	7.7E+02	1.5E+04 N
STRYCHNINE	57249	3.00E-04 I					1.1E+01 N	1.1E+00 N	4.1E-01 N	3.1E+02 N	2.3E+01 N	8.3E-03	1.7E-01 N
STYRENE	100425	2.00E-01 I		2.86E-01 I		y	1.6E+03 N	1.0E+03 N	2.7E+02 N	2.0E+05 N	1.6E+04 N	2.9E+00	5.7E+01 N
2,3,7,8-TETRACHLORODIBENZODIOXIN	1746016		1.50E+05 H		1.50E+05 H		4.5E-07 C	4.2E-08 C	2.1E-08 C	1.9E-05 C	4.3E-06 C	4.3E-07	8.6E-06 C
1,2,4,5-TETRACHLOROBENZENE	95943	3.00E-04 I					1.1E+01 N	1.1E+00 N	4.1E-01 N	3.1E+02 N	2.3E+01 N	3.3E-02	6.6E-01 N
1,1,1,2-TETRACHLOROETHANE	630206	3.00E-02 I	2.60E-02 I		2.60E-02 I	y	4.1E-01 C	2.4E-01 C	1.2E-01 C	1.1E+02 C	2.5E+01 C	2.0E-04	4.0E-03 C
1,1,2,2-TETRACHLOROETHANE	79345	6.00E-02 E	2.00E-01 I		2.00E-01 I	y	5.3E-02 C	3.1E-02 C	1.6E-02 C	1.4E+01 C	3.2E+00 C	3.4E-05	6.8E-04 C
TETRACHLOROETHENE	127184	1.00E-02 I	5.4E-01 O	1.4E-01 E	2.00E-02 O	y	1.0E-01 C	3.1E-01 C	5.8E-03 C	5.3E+00 C	1.2E+00 C	2.3E-04	4.7E-03 C
2,3,4,6-TETRACHLOROPHENOL	58902	3.00E-02 I					1.1E+03 N	1.1E+02 N	4.1E+01 N	3.1E+04 N	2.3E+03 N		
P,A,A,A-TETRACHLOROTOLUENE	5216251		2.00E+01 H				3.3E-03 C	3.1E-04 C	1.6E-04 C	1.4E-01 C	3.2E-02 C		
1,1,1,2-TETRAFLUOROETHANE	811972			2.29E+01 I		y	1.7E+05 N	8.4E+04 N					
TETRAHYDROFURAN	109999	2.00E-01 E	7.6E-03 E	8.6E-02 E	6.8E-03 E		8.8E+00 C	9.2E-01 C	4.2E-01 C	3.8E+02 C	8.4E+01 C		
TETRYL	479458	1.00E-02 H					3.7E+02 N	3.7E+01 N	1.4E+01 N	1.0E+04 N	7.8E+02 N		
THALLIUM	7440280	7.00E-05 O					2.6E+00 N	2.6E-01 N	9.5E-02 N	7.2E+01 N	5.5E+00 N	1.8E-01	3.6E+00 N
THALLIUM ACETATE	563688	9.00E-05 I					3.3E+00 N	3.3E-01 N	1.2E-01 N	9.2E+01 N	7.0E+00 N		
THALLIUM CARBONATE	6533739	8.00E-05 I					2.9E+00 N	2.9E-01 N	1.1E-01 N	8.2E+01 N	6.3E+00 N		
THALLIUM CHLORIDE	7791120	8.00E-05 I					2.9E+00 N	2.9E-01 N	1.1E-01 N	8.2E+01 N	6.3E+00 N		
THALLIUM NITRATE	10102451	9.00E-05 I					3.3E+00 N	3.3E-01 N	1.2E-01 N	9.2E+01 N	7.0E+00 N		
THALLIUM SULFATE (2:1)	7446186	8.00E-05 I					2.9E+00 N	2.9E-01 N	1.1E-01 N	8.2E+01 N	6.3E+00 N		
THIOBENCARB	28249776	1.00E-02 I					3.7E+02 N	3.7E+01 N	1.4E+01 N	1.0E+04 N	7.8E+02 N		
TIN	7440315	6.00E-01 H					2.2E+04 N	2.2E+03 N	8.1E+02 N	6.1E+05 N	4.7E+04 N		
TITANIUM	7440326	4.00E+00 E		8.60E-03 E			1.5E+05 N	3.1E+01 N	5.4E+03 N	4.1E+06 N	3.1E+05 N		
TITANIUM DIOXIDE	13463677	4.00E+00 E		8.60E-03 E			1.5E+05 N	3.1E+01 N	5.4E+03 N	4.1E+06 N	3.1E+05 N		
TOLUENE	108883	2.00E-01 I		1.14E-01 I		y	7.5E+02 N	4.2E+02 N	2.7E+02 N	2.0E+05 N	1.6E+04 N	4.4E-01	8.8E+00 N
TOLUENE-2,4-DIAMINE	95807		3.20E+00 H				2.1E-02 C	2.0E-03 C	9.9E-04 C	8.9E-01 C	2.0E-01 C		

Sources: I = IRIS H = HEAST A = HEAST Alternate W = Withdrawn from IRIS or HEAST E = EPA-NCEA provisional value O = other							Basis: C = Carcinogenic effects N = Noncarcinogenic effects ! = RBC at HI of 0.1 < RBC-c; see Alternate RBCs !! = See Alternate RBCs Risk-based concentrations					Region III SSLs	
							Tap	Ambient		Soil		Soil, for groundwater migration	
Chemical	CAS	RfDo mg/kg/d	CSFo 1/mg/kg/d	RfDi mg/kg/d	CSFi 1/mg/kg/d	VOC	water ug/l	air ug/m3	Fish mg/kg	Industrial mg/kg	Residential mg/kg	DAF 1 mg/kg	DAF 20 mg/kg
TOLUENE-2,5-DIAMINE	95705	6.00E-01 H					2.2E+04 N	2.2E+03 N	8.1E+02 N	6.1E+05 N	4.7E+04 N		
TOLUENE-2,6-DIAMINE	823405	2.00E-01 H					7.3E+03 N	7.3E+02 N	2.7E+02 N	2.0E+05 N	1.6E+04 N		
P-TOLUIDINE	106490		1.90E-01 H				3.5E-01 C	3.3E-02 C	1.7E-02 C	1.5E+01 C	3.4E+00 C	3.0E-04	5.9E-03 C
TOXAPHENE	8001352		1.10E+00 I		1.10E+00 I		6.1E-02 C	5.7E-03 C	2.9E-03 C	2.6E+00 C	5.8E-01 C	3.1E-02	6.3E-01 C
1,2,4-TRIBROMOBENZENE	615543	5.00E-03 I					1.8E+02 N	1.8E+01 N	6.8E+00 N	5.1E+03 N	3.9E+02 N		
TRIBUTYLTIN OXIDE	56359	3.00E-04 I					1.1E+01 N	1.1E+00 N	4.1E-01 N	3.1E+02 N	2.3E+01 N		
2,4,6-TRICHLOROANILINE	634935		3.40E-02 H				2.0E+00 C	1.8E-01 C	9.3E-02 C	8.4E+01 C	1.9E+01 C		
1,2,4-TRICHLOROBENZENE	120821	1.00E-02 I		1.00E-03 E		y	7.2E+00 N	3.7E+00 N	1.4E+01 N	1.0E+04 N	7.8E+02 N	1.4E-02	2.8E-01 N
1,1,1-TRICHLOROETHANE	71556	2.80E-01 E		6.30E-01 E		y	3.2E+03 N	2.3E+03 N	3.8E+02 N	2.9E+05 N	2.2E+04 N	3.0E+00	6.0E+01 N
1,1,2-TRICHLOROETHANE	79005	4.00E-03 I	5.70E-02 I		5.60E-02 I	y	1.9E-01 C	1.1E-01 C	5.5E-02 C	5.0E+01 C	1.1E+01 C	3.9E-05	7.8E-04 C
TRICHLOROETHENE	79016	3.00E-04 E	4.00E-01 E	1.00E-02 E	4.00E-01 E	y	2.6E-02 C	1.6E-02 C	7.9E-03 C	7.2E+00 C	1.6E+00 C	1.3E-05	2.6E-04 C
TRICHLOROFLUOROMETHANE	75694	3.00E-01 I		2.00E-01 A		y	1.3E+03 N	7.3E+02 N	4.1E+02 N	3.1E+05 N	2.3E+04 N	1.1E+00	2.3E+01 N
2,4,5-TRICHLOROPHENOL	95954	1.00E-01 I					3.7E+03 N	3.7E+02 N	1.4E+02 N	1.0E+05 N	7.8E+03 N		
2,4,6-TRICHLOROPHENOL	88062		1.10E-02 I		1.00E-02 I		6.1E+00 C	6.3E-01 C	2.9E-01 C	2.6E+02 C	5.8E+01 C		
2,4,5-T	93765	1.00E-02 I					3.7E+02 N	3.7E+01 N	1.4E+01 N	1.0E+04 N	7.8E+02 N	9.8E-02	2.0E+00 N
2-(2,4,5-TRICHLOROPHENOXY)PROPIONIC ACID	93721	8.00E-03 I					2.9E+02 N	2.9E+01 N	1.1E+01 N	8.2E+03 N	6.3E+02 N	1.1E+00	2.1E+01 N
1,1,2-TRICHLOROPROPANE	598776	5.00E-03 I				y	3.0E+01 N	1.8E+01 N	6.8E+00 N	5.1E+03 N	3.9E+02 N	1.2E-02	2.5E-01 N
1,2,3-TRICHLOROPROPANE	96184	6.00E-03 I	2.00E+00 E	1.4E-03 E		y	5.3E-03 C	3.1E-03 C	1.6E-03 C	1.4E+00 C	3.2E-01 C	1.8E-06	3.6E-05 C
**1,2,3-TRICHLOROPROPENE	96195	1.00E-02 E		3.00E-04 E		y	2.2E+00 N	1.1E+00 N	1.4E+01 N	1.0E+04 N	7.8E+02 N	8.8E-04	1.8E-02 N
1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE	76131	3.00E+01 I		8.60E+00 H		y	5.9E+04 N	3.1E+04 N	4.1E+04 N	3.1E+07 N	2.3E+06 N	1.2E+02	2.3E+03 N
1,2,4-TRIMETHYLBENZENE	95636	5.00E-02 E		1.70E-03 E		y	1.2E+01 N	6.2E+00 N	6.8E+01 N	5.1E+04 N	3.9E+03 N		
1,3,5-TRIMETHYLBENZENE	108678	5.00E-02 E		1.70E-03 E		y	1.2E+01 N	6.2E+00 N	6.8E+01 N	5.1E+04 N	3.9E+03 N		
TRIMETHYL PHOSPHATE	512561		3.70E-02 H				1.8E+00 C	1.7E-01 C	8.5E-02 C	7.7E+01 C	1.7E+01 C		
1,3,5-TRINITROBENZENE	99354	3.00E-02 I					1.1E+03 N	1.1E+02 N	4.1E+01 N	3.1E+04 N	2.3E+03 N		
2,4,6-TRINITROTOLUENE	118967	5.00E-04 I	3.00E-02 I				2.2E+00 C !	2.1E-01 C !	1.1E-01 C !	9.5E+01 C !	2.1E+01 C !		
URANIUM (SOLUBLE SALTS; from IRIS)	7440611	3.00E-03 I					1.1E+02 N	1.1E+01 N	4.1E+00 N	3.1E+03 N	2.3E+02 N		
URANIUM (SOLUBLE SALTS; provisional)	7440611	2.00E-04 E					7.3E+00 N	7.3E-01 N	2.7E-01 N	2.0E+02 N	1.6E+01 N		
**VANADIUM	7440622	3.00E-04 E					1.1E+01 N	1.1E+00 N	4.1E-01 N	3.1E+02 N	2.3E+01 N	1.1E+01	2.2E+02 N
VANADIUM PENTOXIDE	1314621	9.00E-03 I					3.3E+02 N	3.3E+01 N	1.2E+01 N	9.2E+03 N	7.0E+02 N		
VANADIUM SULFATE	16785812	2.00E-02 H					7.3E+02 N	7.3E+01 N	2.7E+01 N	2.0E+04 N	1.6E+03 N		
VINCLOZOLIN	50471448	2.50E-02 I					9.1E+02 N	9.1E+01 N	3.4E+01 N	2.6E+04 N	2.0E+03 N		
VINYL ACETATE	108054	1.00E+00 H		5.71E-02 I		y	4.1E+02 N	2.1E+02 N	1.4E+03 N	1.0E+06 N	7.8E+04 N	8.7E-02	1.7E+00 N
VINYL CHLORIDE inc earlylife(see cover memos)	75014	3.00E-03 I	1.40E+00 I	2.8E-02 I	3.00E-02 I	y	1.5E-02 C	7.2E-02 C			9.0E-02 C	1.7E-05	3.3E-04 C
VINYL CHLORIDE: adult (see cover memos)	75014	3.00E-03 I	7.20E-01 I	2.8E-02 I	1.5E-02 I	y			4.4E-03 C	4.0E+00 C		3.3E-05	6.6E-04 C
WARFARIN	81812	3.00E-04 I					1.1E+01 N	1.1E+00 N	4.1E-01 N	3.1E+02 N	2.3E+01 N	2.2E-02	4.4E-01 N
XYLENES	1330207	2.00E-01 I		3.00E-02 I		y	2.1E+02 N	1.1E+02 N	2.7E+02 N	2.0E+05 N	1.6E+04 N	1.5E-01	3.0E+00 N
ZINC	7440666	3.00E-01 I					1.1E+04 N	1.1E+03 N	4.1E+02 N	3.1E+05 N	2.3E+04 N	6.8E+02	1.4E+04 N
ZINC PHOSPHIDE	1314847	3E-04 I					1.1E+01 N	1.1E+00 N	4.1E-01 N	3.1E+02 N	2.3E+01 N		
ZINEB	12122677	5E-02 I					1.8E+03 N	1.8E+02 N	6.8E+01 N	5.1E+04 N	3.9E+03 N		

Sources: I = IRIS H = HEAST A = HEAST Alternate W = Withdrawn from IRIS or HEAST E = EPA-NCEA provisional value O = other							Basis: C = Carcinogenic effects N = Noncarcinogenic effects 1 = RBC at HI of 0.1 < RBC-c; see Alternate RBCs !! = See Alternate RBCs Risk-based concentrations					Region III SSLs	
							Tap	Ambient		Soil		Soil, for groundwater migration	
Chemical	CAS	RfDo mg/kg/d	CSFo 1/mg/kg/d	RfDi mg/kg/d	CSFi 1/mg/kg/d	VOC	water ug/l	air ug/m3	Fish mg/kg	Industrial mg/kg	Residential mg/kg	DAF 1 mg/kg	DAF 20 mg/kg

SUPERFUND CHEMICAL DATA MATRIX METHODOLOGY

Prepared For EPA
January 2004

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1.0 INTRODUCTION

The Superfund Chemical Data Matrix (SCDM) is a database containing factor values and benchmark values used for applying the Hazard Ranking System (HRS; 40 CFR Part 300 Appendix A, 55 *FR* 51583) to evaluate potential National Priorities List (NPL) sites. The HRS assigns factor values for toxicity, gas migration potential, gas and ground water mobility, surface water persistence, and bioaccumulation potential. These assignments are based on the physical, chemical, ecological, toxicological, and radiological properties of hazardous substances present at a site. Hazardous substances, as defined for HRS purposes, includes both hazardous substances referenced in the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) section 101(14), which are substances specifically listed under other federal laws and are known as "CERCLA hazardous substances," and "pollutants or contaminants" as defined in CERCLA itself in section 101(33).

SCDM contains HRS factor values and benchmarks for those hazardous substances frequently found at sites that are evaluated using the HRS. SCDM also contains the physical, chemical, toxicological, and radiological input data used to calculate the factors and benchmarks. The input data presented in SCDM are taken directly from peer reviewed, generally accepted literature sources and databases and/or EPA developed literature sources and databases; or are calculated using procedures set forth by EPA and in the HRS. Further HRS procedures are then applied to the input data to determine a factor value or benchmark. The HRS also assigns extra weight to targets with exposure levels to hazardous substances that are at or above benchmarks. These benchmarks include both risk-based screening concentrations and concentrations specified in regulatory limits for the hazardous substances present at a site for a particular migration pathway.

Chapter 2.0, *Data Selection Methodology*, of this document explains how data are selected and prioritized into a hierarchy for assigning SCDM values. Chapter 3.0, *Calculations in SCDM*, describes how some types of data (i.e., volatilization half-lives, distribution coefficients, and screening concentrations) are internally calculated using data in SCDM and methodologies from published literature or regulatory guidance documents. Chapter 4.0, *Chemical Data, Factor Values, and Benchmarks*, describes how SCDM data, HRS factor values, and benchmark values are presented. The factor values and benchmark values are listed, substance by substance, in Appendix A. Appendix B contains the HRS factor values and benchmark tables (organized by pathway) for both nonradiological hazardous substances and radionuclides. Please note that *National Recommended Water Quality Criteria (NRWQC)* Chronic Criteria Continuous Concentration (CCC) and Acute Criteria Maximum Concentration (CMC) values have endnotes associated with them listed at the end of Appendix B. Appendix C contains a cross-reference index of substance name synonyms.

HAZARD RANKING SYSTEM
Hazardous Substance Factor Values

Substance Name	CAS Number	Toxicity	Ground Water Mobility				Persistence		Bioaccumulation				Ecotoxicity		Air Gas Migration	Air Gas Mobility	Gas	Part
			Liquid		Non-Liquid				Food Chain		Environment							
			Karst	Non-Karst	Karst	Non-Karst	River	Lake	Fresh	Salt	Fresh	Salt	Fresh	Salt				
Acenaphthene	000083-32-9	10	1.00E+00	1.00E-04*	2.00E-01	2.00E-05*	0.4000	0.4000	500.0	500.0	500.0	500.0	10000	1000*	11	0.2000	Yes	Yes
Acenaphthylene	000208-96-8	0	1.00E+00	1.00E-04*	2.00E-01	2.00E-05*	0.4000	1.0000	500.0	500.0	500.0	500.0	0	0	11	0.0200	Yes	Yes
Acetone	000067-64-1	1*	1.00E+00	1.00E+00	1.00E+00	1.00E+00	0.0700*	0.0700	0.5	0.5	0.5	0.5	100	1	17	1.0000	Yes	No
Acrolein	000107-02-8	10000	1.00E+00	1.00E+00	1.00E+00	1.00E+00	0.0700	0.0700	500.0	500.0	500.0	500.0	10000	1000	17	1.0000	Yes	No
Acrylamide	000079-06-1	10000	1.00E+00	1.00E+00	1.00E+00	1.00E+00	1.0000	1.0000	5.0	5.0	5.0	5.0	10	10	6	0.2000	Yes	Yes
Alachlor**	015972-60-8	100	1.00E+00	1.00E-02	1.00E+00	1.00E-02	0.4000	0.0700	500.0	500.0	50.0	50.0	1000	1000	6	0.0200	Yes	Yes
Aldrin	000309-00-2	10000	1.00E+00	1.00E-04	2.00E-03	2.00E-07	1.0000	1.0000	5000.0*	50000.0	50000.0	50000.0	10000	10000	6	0.0020	Yes	Yes
Aluminum	007429-90-5	0	1.00E+00	1.00E+00*	1.00E+00*	1.00E+00*	1.0000	1.0000	50.0	50.0	5000.0*	5000.0*	100	100	...	...	No	Yes
Americium**	007440-35-9	0	1.00E+00	1.00E+00	...	...	1.0000	1.0000	5000.0	5000.0	5000.0	5000.0	0	0	...	...	No	Yes
Aniline	000062-53-3	10000	1.00E+00	1.00E+00	1.00E+00	1.00E+00	1.0000	0.4000	50.0*	50.0*	500.0	500.0	10000	10	11	1.0000	Yes	No
Anthracene	000120-12-7	10	1.00E+00	1.00E-04*	2.00E-03	2.00E-07*	0.4000*	0.4000*	50000.0*	50000.0*	50000.0*	50000.0*	10000	10000*	6	0.0020	Yes	Yes
Antimony	007440-36-0	10000	1.00E+00	1.00E-02	1.00E+00	1.00E-02	1.0000	1.0000	5.0*	5.0*	5.0	50.0*	100	100	...	...	No	Yes
Arsenic	007440-38-2	10000	1.00E+00	1.00E-02	1.00E+00	1.00E-02	1.0000	1.0000	5.0	500.0	5000.0*	500.0	10	100	...	...	No	Yes
Asbestos	001332-21-4	10000	1.00E+00	1.00E-04	...	...	1.0000	1.0000	0.5	0.5	0.5	0.5	0	0	...	...	No	Yes
Barium	007440-39-3	10000	1.00E+00	1.00E-02	1.00E+00	1.00E-02	1.0000	1.0000	500.0*	500.0*	500.0*	500.0*	1	1	...	...	No	Yes

* Indicates difference between previous version of chemical data (JUN 96) and current version of chemical data (JAN04).
** Indicates new hazardous substance in current version of chemical data (JAN04).

HAZARD RANKING SYSTEM
Hazardous Substance Factor Values

			Ground Water Mobility				Persistence		Bioaccumulation				Ecotoxicity					
			Liquid		Non-Liquid				Food Chain		Environment				Air Gas	Air Gas		
Substance Name	CAS Number	Toxicity	Karst	Non-Karst	Karst	Non-Karst	River	Lake	Fresh	Salt	Fresh	Salt	Fresh	Salt	Migration	Mobility	Gas	Part
Benz(a)anthracene	000056-55-3	1000	1.00E+00	1.00E-04*	2.00E-05	2.00E-09*	1.0000	1.0000	50000.0	50000.0	50000.0	50000.0	10000	10000	6	0.0020	Yes	Yes
Benzene	000071-43-2	1000*	1.00E+00	1.00E+00	1.00E+00	1.00E+00	0.4000	0.4000	5000.0	5000.0	5000.0*	50000.0	1000*	1000	17	1.0000	Yes	No
Benzidine	000092-87-5	10000	1.00E+00	1.00E+00	1.00E+00	1.00E+00	1.0000	0.4000	50.0	50.0	5000.0*	5000.0*	100*	100*	0	0.0002	Yes	Yes
Benzo(a)pyrene	000050-32-8	10000	1.00E+00	1.00E-04	2.00E-05	2.00E-09	1.0000	1.0000	50000.0	50000.0*	50000.0	50000.0*	10000	1000	6	0.0002	Yes	Yes
Benzo(g,h,i)perylene	000191-24-2	0	1.00E+00	1.00E-04	2.00E-05	2.00E-09	1.0000	1.0000	50000.0	50000.0	50000.0	50000.0	0	0	...	...	No	Yes
Benzo(j,k)fluorene (Fluoranthene)	000206-44-0	100	1.00E+00	1.00E-04*	2.00E-03	2.00E-07*	1.0000	1.0000	500.0*	5000.0	5000.0*	5000.0	10000	10000*	6	0.0020	Yes	Yes
Benzo(k)fluoranthene	000207-08-9	100	1.00E+00	1.00E-04	2.00E-05	2.00E-09	1.0000	1.0000	50000.0	50000.0	50000.0	50000.0	0	0	6	0.0002	Yes	Yes
Beryllium	007440-41-7	10000	1.00E+00	1.00E-02	1.00E+00	1.00E-02	1.0000	1.0000	50.0	50.0	50.0	50.0	0	0	...	...	No	Yes
Bis (2-ethylhexyl) phthalate	000117-81-7	100	1.00E+00	1.00E-04	2.00E-03	2.00E-07	1.0000	1.0000	50000.0	500.0*	50000.0	5000.0*	1000	1000*	6	0.0002*	Yes	Yes
Boron	007440-42-8	100	1.00E+00	1.00E+00	1.00E+00	1.00E+00	1.0000	1.0000	0.5	0.5	0.5	0.5	0	0	...	...	No	Yes
Bromodichloromethane	000075-27-4	100	1.00E+00	1.00E+00	1.00E+00	1.00E+00	0.4000	1.0000	50.0	50.0	50.0	50.0	0	0	17	1.0000	Yes	No
Butylbenzyl phthalate	000085-68-7	10	1.00E+00	1.00E-04*	2.00E-01	2.00E-05*	1.0000	1.0000	500.0	500.0	500.0	500.0	1000*	1000*	6	0.0020	Yes	Yes
Cadmium	007440-43-9	10000	1.00E+00	1.00E-02	1.00E+00*	1.00E-02*	1.0000	1.0000	5000.0	50000.0*	50000.0*	50000.0*	10000*	1000	...	...	No	Yes
Carbazole	000086-74-8	10	1.00E+00	1.00E-02*	2.00E-01	2.00E-03*	0.4000	0.0700	500.0	500.0	500.0	500.0	1000*	1000*	6*	0.0200*	Yes	Yes

* Indicates difference between previous version of chemical data (JUN 96) and current version of chemical data (JAN04).
** Indicates new hazardous substance in current version of chemical data (JAN04).

HAZARD RANKING SYSTEM
Hazardous Substance Factor Values

			Ground Water Mobility				Persistence		Bioaccumulation				Ecotoxicity					
			Liquid		Non-Liquid				Food Chain		Environment				Air Gas	Air Gas		
Substance Name	CAS Number	Toxicity	Karst	Non-Karst	Karst	Non-Karst	River	Lake	Fresh	Salt	Fresh	Salt	Fresh	Salt	Migration	Mobility	Gas	Part
Carbon disulfide	000075-15-0	10	1.00E+00	1.00E+00	1.00E+00	1.00E+00	0.4000	0.4000	500.0	500.0	500.0	500.0	100	10*	17	1.0000	Yes	No
Carbon tetrachloride	000056-23-5	1000	1.00E+00	1.00E+00	1.00E+00	1.00E+00	0.4000	1.0000	50.0	50.0	500.0*	500.0*	100	10*	17	1.0000	Yes	No
Cesium	007440-46-2	0	1.00E+00	1.00E-02	1.00E+00	1.00E-02	1.0000	1.0000	5.0*	50.0*	5.0*	50.0*	0	0	...	...	No	Yes
Chlordane	000057-74-9	10000	1.00E+00	1.00E-02	2.00E-03	2.00E-05	1.0000	1.0000	5000.0*	5000.0*	50000.0	5000.0*	10000	10000	6	0.0020	Yes	Yes
Chlordane, alpha-	005103-71-9	10000*	1.00E+00	1.00E-02	2.00E-03	2.00E-05	1.0000	1.0000	50000.0*	50000.0*	50000.0*	50000.0*	10000	10000	11*	0.0200*	Yes*	Yes
Chlordane, gama-	005566-34-7	10000*	1.00E+00	1.00E-02	2.00E-03	2.00E-05	1.0000	1.0000	50000.0	50000.0	50000.0*	50000.0*	0*	0*	6*	0.0020*	Yes*	Yes
Chlorobenzene	000108-90-7	100	1.00E+00	1.00E+00	1.00E+00	1.00E+00	0.0007	0.0700	50.0	50.0	5000.0*	5000.0*	10000*	100	17	1.0000	Yes	No
Chloroform	000067-66-3	100	1.00E+00	1.00E+00	1.00E+00	1.00E+00	0.4000	1.0000	5.0	5.0	500.0*	500.0*	100*	10	17	1.0000	Yes	No
Chromium	007440-47-3	10000	1.00E+00	1.00E-02	1.00E+00	1.00E-02	1.0000	1.0000	500.0*	500.0	500.0*	500.0	10000*	100	...	...	No	Yes
Chromium(III)	016065-83-1	1	1.00E+00	1.00E-04	1.00E+00	1.00E-04	1.0000	1.0000	500.0	500.0	500.0	500.0	100*	100*	...	...	No	Yes
Chromium(VI)	018540-29-9	10000	1.00E+00	1.00E-02	1.00E+00	1.00E-02	1.0000	1.0000	5.0	500.0	5.0	500.0	100	100	...	...	No	Yes
Chrysene	000218-01-9	10	1.00E+00	1.00E-04*	2.00E-05	2.00E-09*	1.0000	1.0000	5.0*	5.0*	5000.0	500.0	1000	1000	6	0.0002	Yes	Yes
Cobalt	007440-48-4	10*	1.00E+00	1.00E-02	1.00E+00	1.00E-02	1.0000	1.0000	5000.0*	5000.0*	5000.0	5000.0	0	0	...	...	No	Yes
Copper	007440-50-8	0	1.00E+00	1.00E-02	1.00E+00	1.00E-02	1.0000	1.0000	500.0*	50000.0	5000.0*	50000.0	1000*	1000*	...	...	No	Yes
Cumene	000098-82-8	10*	1.00E+00	1.00E-02*	2.00E-01	2.00E-03*	0.4000	0.4000	500.0	500.0	500.0	500.0	100	1	17	1.0000	Yes	No

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** Indicates new hazardous substance in current version of chemical data (JAN04).

HAZARD RANKING SYSTEM
Hazardous Substance Factor Values

			Ground Water Mobility				Persistence		Bioaccumulation				Ecotoxicity					
			Liquid		Non-Liquid				Food Chain		Environment				Air Gas	Air Gas		
Substance Name	CAS Number	Toxicity	Karst	Non-Karst	Karst	Non-Karst	River	Lake	Fresh	Salt	Fresh	Salt	Fresh	Salt	Migration	Mobility	Gas	Part
Cyanamide**	000420-04-2	10	1.00E+00	1.00E+00	1.00E+00	1.00E+00	1.0000	1.0000	0.5	0.5	0.5	0.5	10	100	6	0.2000	Yes	Yes
Cyanide	000057-12-5	100	1.00E+00	1.00E+00	1.00E+00*	1.00E+00*	1.0000*	1.0000*	0.5	0.5	0.5	0.5	1000	1000	17*	1.0000*	Yes*	No*
DDD	000072-54-8	100	1.00E+00	1.00E-04	2.00E-03	2.00E-07	1.0000	1.0000	50000.0	50000.0	50000.0	50.0*	10000	10000	6	0.0020	Yes	Yes
DDE	000072-55-9	100	1.00E+00	1.00E-04	2.00E-03	2.00E-07	1.0000	1.0000	50000.0	50000.0	50000.0	50000.0	10000	10000	6	0.0020	Yes	Yes
DDT	000050-29-3	1000	1.00E+00	1.00E-04	2.00E-03	2.00E-07	1.0000	1.0000	50000.0	50000.0	50000.0	50000.0	10000	10000	6	0.0020	Yes	Yes
Di-n-butyl phthalate	000084-74-2	10	1.00E+00	1.00E-04*	2.00E-01	2.00E-05*	1.0000	1.0000	5000.0	5000.0	5000.0	5000.0	1000	10000	6	0.0200	Yes	Yes
Di-n-octyl phthalate	000117-84-0	100	1.00E+00	1.00E-04	2.00E-03	2.00E-07	1.0000	1.0000	500.0	500.0	50000.0*	50000.0*	0	0	6	0.0020	Yes	Yes
Dibenz(a,h)anthracene	000053-70-3	10000	1.00E+00	1.00E-04	2.00E-05	2.00E-09	1.0000	1.0000	50000.0	50000.0	50000.0	50000.0	0	0	...	...	No	Yes
Dibenzofuran	000132-64-9	1000*	1.00E+00	1.00E-04*	2.00E-01	2.00E-05*	1.0000	1.0000	500.0	500.0	500.0	500.0	1000*	1000*	11	0.0200	Yes	Yes
Dibromo-3-chloropropane, 1,2-	000096-12-8	10000	1.00E+00	1.00E+00	1.00E+00	1.00E+00	1.0000	1.0000	50.0	50.0	50.0	50.0	10*	10*	11	1.0000	Yes	No
Dibromoethane, 1,2-	000106-93-4	10000	1.00E+00	1.00E+00	1.00E+00	1.00E+00	0.4000	1.0000	5.0	5.0	5.0	5.0	10*	100*	17	1.0000	Yes	No
Dichlorobenzene, 1,4-	000106-46-7	10	1.00E+00	1.00E+00	2.00E-01	2.00E-01	0.4000	1.0000	5000.0*	5000.0*	5000.0*	5000.0*	1000*	100	17	1.0000	Yes	No
Dichloroethane, 1,1-	000075-34-3	10	1.00E+00	1.00E+00	1.00E+00	1.00E+00	0.4000	1.0000	5.0	5.0	5.0	5.0	0	0	17	1.0000	Yes	No
Dichloroethane, 1,2-	000107-06-2	100	1.00E+00	1.00E+00	1.00E+00	1.00E+00	0.4000	1.0000	5.0	5.0	5.0	5.0	10*	1	17	1.0000	Yes	No

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HAZARD RANKING SYSTEM
Hazardous Substance Factor Values

			Ground Water Mobility				Persistence		Bioaccumulation				Ecotoxicity					
			Liquid		Non-Liquid				Food Chain		Environment				Air Gas	Air Gas		
Substance Name	CAS Number	Toxicity	Karst	Non-Karst	Karst	Non-Karst	River	Lake	Fresh	Salt	Fresh	Salt	Fresh	Salt	Migration	Mobility	Gas	Part
Dichloroethylene, 1,1-	000075-35-4	100	1.00E+00	1.00E+00	1.00E+00	1.00E+00	0.4000	1.0000	50.0	50.0	50.0	50.0	100*	1	17	1.0000	Yes	No
Dichloroethylene, 1,2-**	000540-59-0	100	1.00E+00	1.00E-02	1.00E+00	1.00E-02	0.4000	1.0000	50.0	50.0	50.0	50.0	1	1	17	1.0000	Yes	No
Dichloroethylene, cis-1,2-	000156-59-2	100	1.00E+00	1.00E+00	1.00E+00	1.00E+00	0.4000	1.0000	5.0	5.0	5.0	5.0	0	0	17	1.0000	Yes	No
Dichloroethylene, trans-1,2-	000156-60-5	100	1.00E+00	1.00E+00	1.00E+00	1.00E+00	0.4000	1.0000	50.0	50.0	50.0	50.0	1	1	17	1.0000	Yes	No
Dichlorophenol, 2,4-	000120-83-2	1000	1.00E+00	1.00E+00	1.00E+00	1.00E+00	0.0007	0.0700	50.0	50.0	500.0	500.0	10000*	100	11	0.2000	Yes	Yes
Dichloropropane, 1,2-	000078-87-5	1000	1.00E+00	1.00E+00	1.00E+00	1.00E+00	0.4000	1.0000	50.0*	50.0*	50.0*	50.0*	10	10*	17	1.0000	Yes	No
Dichloropropene, 1,3-	000542-75-6	100*	1.00E+00	1.00E+00	1.00E+00	1.00E+00	0.4000	0.4000	5.0*	5.0*	5.0*	5.0*	1000	1000*	17	1.0000	Yes	No
Dieldrin	000060-57-1	10000	1.00E+00	1.00E-02	2.00E-03	2.00E-05	1.0000	1.0000	50000.0	5000.0	50000.0	50000.0*	10000	10000	6	0.0020	Yes	Yes
Diethyl phthalate	000084-66-2	1	1.00E+00	1.00E-02*	1.00E+00	1.00E-02*	1.0000	1.0000	500.0	500.0	500.0	500.0	10	100*	11	0.2000	Yes	Yes
Dimethyl phenol, 2,4-	000105-67-9	100	1.00E+00	1.00E-02*	1.00E+00	1.00E-02*	1.0000	0.4000	500.0	500.0	500.0	500.0	100	1000*	11	0.2000	Yes	Yes
Dinitrobenzene, 1,3-	000099-65-0	10000	1.00E+00	1.00E+00	1.00E+00	1.00E+00	1.0000	0.4000*	5.0	5.0	5.0	5.0	100	100	6	0.0200	Yes	Yes
Dioxin 1,4-**	000290-67-5	10	1.00E+00	...	...	...	0.4000	0.0700	0.5	0.5	0.5	0.5	0	0	...	...	No	Yes
Diphenylhydrazine, 1,2-	000122-66-7	1000	1.00E+00	1.00E-02*	2.00E-01	2.00E-03*	1.0000	1.0000	50.0	50.0	50.0	50.0	1000	1000	6	0.0200	Yes	Yes
Disulfoton	000298-04-4	10000	1.00E+00	1.00E-04*	2.00E-01	2.00E-05*	1.0000	0.4000	500.0	500.0	5000.0*	5000.0*	10000	10000*	6	0.0200	Yes	Yes

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HAZARD RANKING SYSTEM
Hazardous Substance Factor Values

			Ground Water Mobility				Persistence		Bioaccumulation				Ecotoxicity					
			Liquid		Non-Liquid				Food Chain		Environment				Air Gas	Air Gas		
Substance Name	CAS Number	Toxicity	Karst	Non-Karst	Karst	Non-Karst	River	Lake	Fresh	Salt	Fresh	Salt	Fresh	Salt	Migration	Mobility	Gas	Part
Endosulfan (I or II)	000115-29-7	100	1.00E+00	1.00E+00	2.00E-03	2.00E-03	1.0000	0.4000	5.0*	5000.0	50000.0	5000.0	10000	10000	11	0.0020	Yes	Yes
Endosulfan I**	000959-98-8	100	1.00E+00	1.00E+00	2.00E-03	2.00E-03	1.0000	1.0000	500.0	500.0	50000.0	50000.0	10000	10000	11	0.0020	Yes	Yes
Endosulfan II**	033213-65-9	100	1.00E+00	1.00E+00	...	...	1.0000	1.0000	500.0	500.0	5000.0	5000.0	10000	10000	11	0.0020	Yes	Yes
Endrin	000072-20-8	10000	1.00E+00	1.00E-02	2.00E-03	2.00E-05	1.0000	1.0000	5000.0	5000.0	50000.0	5000.0	10000	10000	6	0.0020	Yes	Yes
Endrin aldehyde	007421-93-4	0	1.00E+00	1.00E-04*	2.00E-03*	2.00E-07*	1.0000*	1.0000*	5000.0*	5000.0*	5000.0*	5000.0*	0	0	6*	0.0020*	Yes*	Yes
Ethyl benzene	000100-41-4	10	1.00E+00	1.00E+00	1.00E+00	1.00E+00	0.0007*	0.0700*	50.0	50.0	50.0	50.0	100	1000*	17	1.0000	Yes	No
Ethyl chloride	000075-00-3	1	1.00E+00	1.00E+00	1.00E+00	1.00E+00	0.0007	0.0700	5.0	5.0	5.0	5.0	0	0	17	1.0000	Yes	No
Ethylene glycol monobutyl ether (EBGE)**	000111-76-2	10	1.00E+00	1.00E+00	...	...	1.0000	1.0000	5.0	5.0	5.0	5.0	1	1	...	...	No	Yes
Fluorene	000086-73-7	100	1.00E+00	1.00E-04*	2.00E-01	2.00E-05*	1.0000	1.0000	500.0*	500.0*	5000.0	5000.0	1000	1000	11	0.0200	Yes	Yes
Fluorine	007782-41-4	10	1.00E+00	1.00E-02	2.00E-01*	2.00E-03*	0.4000	0.0700	50000.0*	50000.0*	50000.0*	50000.0*	0	0	17	1.0000	Yes	No
Heptachlor	000076-44-8	1000	1.00E+00	1.00E-04	2.00E-03	2.00E-07	0.4000*	0.4000*	50000.0*	50000.0*	50000.0	50000.0	10000	10000	11	0.0200	Yes	Yes
Heptachlor epoxide, alpha, beta, gamma	001024-57-3	10000	1.00E+00	1.00E-04*	2.00E-03	2.00E-07*	1.0000	1.0000	5000.0*	5000.0*	50000.0	5000.0*	10000	10000	6	0.0200	Yes	Yes
Heptachlorodibenzo-p-dioxin**	037871-00-4	0	1.00E+00	1.00E-04	2.00E-05	2.00E-09	1.0000	1.0000	50000.0	50000.0	50000.0	50000.0	0	0	...	...	No	Yes
Heptachlorodibenzo-p-dioxin 1,2,3,4,6,7,8-	035822-46-9	10000	1.00E+00	1.00E-04	2.00E-05	2.00E-09	1.0000	1.0000	50000.0	50000.0	50000.0	50000.0	0	0	...	...	No	Yes

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** Indicates new hazardous substance in current version of chemical data (JAN04).

HAZARD RANKING SYSTEM
Hazardous Substance Factor Values

Substance Name	CAS Number	Toxicity	Ground Water Mobility				Persistence		Bioaccumulation				Ecotoxicity		Air Gas Migration	Air Gas Mobility	Gas	Part
			Liquid		Non-Liquid				Food Chain		Environment							
			Karst	Non-Karst	Karst	Non-Karst	River	Lake	Fresh	Salt	Fresh	Salt	Fresh	Salt				
Heptachlorodibenzofuran 1,2,3,4,6,7,8-	067562-39-4	10000	1.00E+00	1.00E-04	2.00E-05	2.00E-09	1.0000	1.0000	50000.0	50000.0	50000.0	50000.0	0	0	6*	0.0002*	Yes*	Yes
Heptachlorodibenzofuran 1,2,3,4,7,8,9-	055673-89-7	10000*	1.00E+00	...	...	...	0.4000	0.0700	0.5	0.5	0.5	0.5	0	0	...	...	No	Yes
Hexabromobiphenyl (PBB)**	036355-01-8	1	1.00E+00	1.00E-04	2.00E-05	2.00E-09	1.0000	1.0000	50000.0	50000.0	50000.0	50000.0	0	0	6	0.0002	Yes	Yes
Hexachlorobenzene	000118-74-1	1000	1.00E+00	1.00E-02	2.00E-05	2.00E-07	1.0000	1.0000	50000.0*	50000.0	50000.0	50000.0	10000*	10000	11	0.0200	Yes	Yes
Hexachlorobutadiene	000087-68-3	10000	1.00E+00	1.00E-04*	2.00E-01	2.00E-05*	1.0000	1.0000	50.0	50000.0*	5000.0	50000.0*	10000	1000*	17	1.0000	Yes	No
Hexachlorocyclohexane, alpha-	000319-84-6	10000	1.00E+00	1.00E+00	2.00E-01	2.00E-01	1.0000	1.0000	5000.0*	50000.0*	5000.0*	50000.0*	1000*	1000	11	0.0200	Yes	Yes
Hexachlorocyclohexane, beta-	000319-85-7	100	1.00E+00	1.00E+00	2.00E-03	2.00E-03	1.0000	1.0000	500.0	500.0	5000.0*	5000.0	1000*	1000*	6	0.0020	Yes	Yes
Hexachlorodibenzo-p-dioxin 1,2,3,4,7,8-	039227-28-6	10000	1.00E+00	1.00E-04	2.00E-05	2.00E-09	1.0000	1.0000	50000.0	50000.0	50000.0	50000.0	0	0	...	...	No	Yes
Hexachlorodibenzo-p-dioxin 1,2,3,6,7,8-	057653-85-7	10000	1.00E+00	1.00E-04*	...	...	1.0000*	1.0000*	5000.0	5000.0	5000.0	5000.0	0*	0*	...	...	No	Yes
Hexachlorodibenzo-p-dioxin 1,2,3,7,8,9-	019408-74-3	10000	1.00E+00	1.00E-04*	2.00E-05*	2.00E-09*	1.0000*	1.0000*	50000.0*	50000.0*	50000.0*	50000.0*	0	0	...	...	No	Yes
Hexachlorodibenzofuran 1,2,3,4,7,8-	070648-26-9	10000	1.00E+00	1.00E-04	2.00E-05	2.00E-09	1.0000	1.0000	50000.0	50000.0	50000.0	50000.0	0	0	...	...	No	Yes
Hexachlorodibenzofuran 1,2,3,6,7,8-	057117-44-9	10000	1.00E+00	...	...	...	0.4000	0.0700	0.5	0.5	0.5	0.5	0	0	...	...	No	Yes
Hexachlorodibenzofuran 1,2,3,7,8,9-	072918-21-9	10000	1.00E+00	...	...	...	0.4000	0.0700	0.5	0.5	0.5	0.5	0	0	...	...	No	Yes

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HAZARD RANKING SYSTEM
Hazardous Substance Factor Values

Substance Name	CAS Number	Toxicity	Ground Water Mobility				Persistence		Bioaccumulation				Ecotoxicity		Air Gas Migration	Air Gas Mobility	Gas	Part
			Liquid		Non-Liquid				Food Chain		Environment							
			Karst	Non-Karst	Karst	Non-Karst	River	Lake	Fresh	Salt	Fresh	Salt	Fresh	Salt				
Hexachlorodibenzofuran 2,3,4,6,7,8-	060851-34-5	10000	1.00E+00	...	...	...	0.4000	0.0700	0.5	0.5	0.5	0.5	0	0	...	...	No	Yes
Hydrazine	000302-01-2	10000	1.00E+00	1.00E+00	1.00E+00	1.00E+00	0.4000*	0.0700*	0.5	0.5	0.5	0.5	10000	100	11*	1.0000	Yes	No
Hydrogen sulfide	007783-06-4	1000*	1.00E+00	1.00E+00	1.00E+00	1.00E+00	0.0007*	0.0700	0.5	0.5	0.5	0.5	1000	1000	17	1.0000	Yes	No
Indeno(1,2,3-cd)pyrene	000193-39-5	1000	1.00E+00	1.00E-04	2.00E-05	2.00E-09	1.0000	1.0000	50000.0	50000.0	50000.0	50000.0	0	0	...	...	No	Yes
Iron	007439-89-6	1	1.00E+00	1.00E-02	1.00E+00	1.00E-02	1.0000	1.0000	5000.0*	5000.0*	5000.0*	5000.0*	10	10	...	...	No	Yes
Lead	007439-92-1	10000	1.00E+00	1.00E-02	1.00E+00*	1.00E-02*	1.0000	1.0000	5.0*	5000.0	50000.0*	5000.0	1000	1000	...	...	No	Yes
Lead chromate**	007758-97-6	10000	1.00E+00	...	2.00E-03	...	1.0000	1.0000	50000.0	50000.0	50000.0	50000.0	0	0	...	...	No	Yes
Lindane	000058-89-9	10000	1.00E+00	1.00E+00	2.00E-01	2.00E-01	1.0000	1.0000	50000.0*	5000.0*	50000.0*	5000.0*	10000	10000	11	0.0200	Yes	Yes
Manganese	007439-96-5	10000	1.00E+00	1.00E-02	1.00E+00	1.00E-02	1.0000	1.0000	50000.0*	50000.0*	50000.0	50000.0	0	0	...	...	No	Yes
Mercury	007439-97-6	10000	1.00E+00	1.00E-02	1.00E+00*	1.00E-02*	1.0000*	1.0000	50000.0	50000.0	50000.0	50000.0	10000	10000	17	0.2000	Yes	Yes
Methoxychlor	000072-43-5	100	1.00E+00	1.00E-04*	2.00E-03	2.00E-07*	1.0000	1.0000	5.0*	50000.0*	5000.0*	50000.0*	10000	10000	6	0.0020	Yes	Yes
Methyl Parathion	000298-00-0	10000	1.00E+00	1.00E-02*	2.00E-01	2.00E-03*	1.0000	0.4000	50.0	50.0	50.0	50.0	10000	10000	6	0.0200	Yes	Yes
Methyl ethyl ketone	000078-93-3	1*	1.00E+00	1.00E+00	1.00E+00	1.00E+00	0.4000	0.4000	0.5	0.5	0.5	0.5	1	1	17	1.0000	Yes	No
Methyl isobutyl ketone	000108-10-1	10*	1.00E+00	1.00E+00	1.00E+00	1.00E+00	0.4000	0.4000	5.0	5.0	5.0	5.0	1	1	17	1.0000	Yes	No

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HAZARD RANKING SYSTEM
Hazardous Substance Factor Values

			Ground Water Mobility				Persistence		Bioaccumulation				Ecotoxicity					
			Liquid		Non-Liquid				Food Chain		Environment				Air Gas	Air Gas		
Substance Name	CAS Number	Toxicity	Karst	Non-Karst	Karst	Non-Karst	River	Lake	Fresh	Salt	Fresh	Salt	Fresh	Salt	Migration	Mobility	Gas	Part
Methyl phenol, 4-	000106-44-5	100	1.00E+00	1.00E-02*	1.00E+00	1.00E-02*	0.0007*	0.0007*	5.0	5.0	5.0	5.0	100*	100*	11	1.0000	Yes	No
Methyl tert-butyl ether (MTBE)**	001634-04-4	1	1.00E+00	1.00E+00	1.00E+00	1.00E+00	0.4000	1.0000	5.0	5.0	5.0	5.0	1	1	17	1.0000	Yes	No
Methylene chloride (dichloromethane)	000075-09-2	10	1.00E+00	1.00E+00	1.00E+00	1.00E+00	0.4000	1.0000	5.0	5.0	500.0*	500.0*	1	10	17	1.0000	Yes	No
Methylnaphthalene, 2-	000091-57-6	0	1.00E+00	1.00E-02	2.00E-01	2.00E-03	0.4000	0.4000	50000.0*	50000.0*	50000.0*	50000.0*	100*	1000	11	0.2000	Yes	Yes
Naphthalene	000091-20-3	1000*	1.00E+00	1.00E-02*	2.00E-01	2.00E-03*	0.4000	0.4000	50000.0*	5000.0*	50000.0*	5000.0	1000	1000	11	0.2000	Yes	Yes
Nickel	007440-02-0	10000	1.00E+00	1.00E-02	1.00E+00*	1.00E-02*	1.0000	1.0000	0.5	500.0	500.0	500.0	100*	1000	...	...	No	Yes
Nitrosodiphenylamine, N-	000086-30-6	10	1.00E+00	1.00E-02*	2.00E-01	2.00E-03*	1.0000	1.0000	500.0	500.0	500.0	500.0	100	100	6	0.0200	Yes	Yes
Pentachlorodibenzo-p-dioxin 1,2,3,7,8-	040321-76-4	10000	1.00E+00	1.00E-04	2.00E-05*	2.00E-09*	1.0000	1.0000	50000.0	50000.0	50000.0	50000.0	0*	0*	...	...	No	Yes
Pentachlorodibenzofuran 1,2,3,7,8-	057117-41-6	0*	1.00E+00	1.00E-04	2.00E-05	2.00E-09	1.0000	1.0000	50000.0	50000.0	50000.0	50000.0	0	0	...	...	No	Yes
Pentachlorodibenzofuran 2,3,4,7,8-**	057117-31-4	10000	1.00E+00	1.00E-04	...	...	1.0000	1.0000	0.5	0.5	0.5	0.5	0	0	6	0.0020	Yes	Yes
Pentachlorophenol (PCP)	000087-86-5	100	1.00E+00	1.00E+00	1.00E+00	1.00E+00	1.0000	1.0000	50000.0*	5000.0*	50000.0*	5000.0*	100	1000	6	0.0200	Yes	Yes
Perchlorate**	014797-73-0	10000	1.00E+00	1.00E+00	1.00E+00	1.00E+00	0.4000	0.0700	0.5	0.5	0.5	0.5	0	0	...	...	No	Yes
Phenanthrene	000085-01-8	0	1.00E+00	1.00E-04*	2.00E-01	2.00E-05*	0.4000*	0.4000*	5000.0*	5000.0*	50000.0*	5000.0*	10000*	10000*	11	0.0200	Yes	Yes
Phenol	000108-95-2	10*	1.00E+00	1.00E+00	1.00E+00	1.00E+00	0.0007*	0.0700*	50.0*	5.0	50000.0*	5.0	10000	1000*	11	1.0000	Yes	No
Plutonium	007440-07-5	0	1.00E+00	1.00E-04	...	...	1.0000	1.0000	500.0*	500.0*	500.0*	500.0*	0	0	...	...	No	Yes

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HAZARD RANKING SYSTEM
Hazardous Substance Factor Values

Substance Name	CAS Number	Toxicity	Ground Water Mobility				Persistence		Bioaccumulation				Ecotoxicity		Air Gas Migration	Air Gas Mobility	Gas	Part
			Liquid		Non-Liquid				Food Chain		Environment							
			Karst	Non-Karst	Karst	Non-Karst	River	Lake	Fresh	Salt	Fresh	Salt	Fresh	Salt				
Polychlorinated biphenyls (PCBs)	001336-36-3	10000	1.00E+00	1.00E-04	2.00E-03	2.00E-07	1.0000	1.0000	50000.0	50000.0	50000.0	50000.0	10000	10000	11	0.0200	Yes	Yes
Pyrene	000129-00-0	100	1.00E+00	1.00E-04*	2.00E-01*	2.00E-05	1.0000	1.0000	50000.0*	5000.0	50000.0*	5000.0	10000	10000	6	0.0020	Yes	Yes
Radium	007440-14-4	0	1.00E+00	1.00E-02	1.00E+00*	1.00E-02*	1.0000	1.0000	0.5*	0.5*	0.5*	0.5*	0	0	...	...	No	Yes
Radon	010043-92-2	0	1.00E+00	1.00E+00	1.00E+00	1.00E+00	0.4000	0.0700	0.5	0.5	0.5	0.5	0	0	17	1.0000	Yes	No
Selenium	007782-49-2	100	1.00E+00	1.00E+00*	1.00E+00	1.00E+00*	1.0000	1.0000	50.0*	500.0*	500.0*	500.0*	1000	100	...	...	No	Yes
Silver	007440-22-4	100	1.00E+00	1.00E+00	1.00E+00*	1.00E+00*	1.0000	1.0000	50.0	50000.0*	50.0	50000.0*	10000	10000	...	...	No	Yes
Strontium	007440-24-6	1	1.00E+00	1.00E-02	1.00E+00	1.00E-02	1.0000	1.0000	5.0*	5.0*	5.0*	5.0*	0	0	...	...	No	Yes
Styrene	000100-42-5	10	1.00E+00	1.00E-02*	1.00E+00	1.00E-02*	0.4000	1.0000	50.0	50.0	50.0	50.0	100	100	17	1.0000	Yes	No
Tetrachlorobenzene, 1,2,4,5-	000095-94-3	10000	1.00E+00	1.00E-02	2.00E-03	2.00E-05	1.0000	1.0000	5000.0	5000.0	5000.0	5000.0	10000*	1000	17	0.2000	Yes	Yes
Tetrachlorodibenzo-p-dioxin**	041903-57-5	0	1.00E+00	1.00E-04	2.00E-05	2.00E-09	1.0000	1.0000	50000.0	50000.0	50000.0	50000.0	0	0	...	...	No	Yes
Tetrachlorodibenzo-p-dioxin 2,3,7,8-(TCDD)	001746-01-6	10000	1.00E+00	1.00E-04	2.00E-05	2.00E-09	1.0000	1.0000	5000.0	5000.0	5000.0	5000.0	0*	0*	6	0.0002	Yes	Yes
Tetrachlorodibenzofuran 2,3,7,8-	051207-31-9	10000	1.00E+00	1.00E-04	2.00E-05*	2.00E-09*	1.0000	1.0000	50000.0	50000.0	50000.0	50000.0	0	0	6*	0.0020*	Yes*	Yes
Tetrachloroethane, 1,1,2,2-	000079-34-5	10	1.00E+00	1.00E+00	1.00E+00	1.00E+00	0.4000	1.0000	5.0	5.0	5.0	5.0	0*	0*	11	1.0000	Yes	No
Tetrachloroethylene	000127-18-4	100	1.00E+00	1.00E+00	1.00E+00	1.00E+00	0.4000	1.0000	50.0	50.0	50.0	50.0	0*	0*	17	1.0000	Yes	No

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HAZARD RANKING SYSTEM
Hazardous Substance Factor Values

Substance Name	CAS Number	Toxicity	Ground Water Mobility: Liquid Karst	Ground Water Mobility: Liquid Non-Karst	Ground Water Mobility: Non-Liquid Karst	Ground Water Mobility: Non-Liquid Non-Karst	Persistence: River	Persistence: Lake	Bioaccumulation: Food Chain Fresh	Bioaccumulation: Food Chain Salt	Bioaccumulation: Environment Fresh	Bioaccumulation: Environment Salt	Ecotoxicity: Fresh	Ecotoxicity: Salt	Air Gas Migration	Air Gas Mobility	Gas	Part
Thallium	007440-28-0	100	1.00E+00	1.00E-02*	1.00E+00	1.00E-02*	1.0000	1.0000	500.0	50.0	500.0	50.0	0*	0*	...	...	No	Yes
Toluene	000108-88-3	10	1.00E+00	1.00E+00	1.00E+00	1.00E+00	0.0700*	0.0700*	50.0	50.0	5000.0*	50.0	100	100	17	1.0000	Yes	No
Toxaphene	008001-35-2	1000	1.00E+00	1.00E-04*	2.00E-03	2.00E-07*	1.0000	1.0000	50000.0	50000.0	50000.0	50000.0	10000	10000	6	0.0020	Yes	Yes
Trichlorobenzene, 1,2,4-	000120-82-1	100	1.00E+00	1.00E+00	2.00E-01	2.00E-01	0.4000	1.0000	5000.0*	500.0	5000.0*	500.0	1000	10000*	17	1.0000	Yes	No
Trichloroethane, 1,1,1-	000071-55-6	1	1.00E+00	1.00E+00	1.00E+00	1.00E+00	0.4000	1.0000	5.0	5.0	5.0	5.0	10	10	17	1.0000	Yes	No
Trichloroethane, 1,1,2-	000079-00-5	1000	1.00E+00	1.00E+00	1.00E+00	1.00E+00	0.4000	1.0000	50.0	50.0	50.0	50.0	100*	10	17	1.0000	Yes	No
Trichloroethylene (TCE)	000079-01-6	10	1.00E+00	1.00E+00	1.00E+00	1.00E+00	0.4000	1.0000	50.0	50.0	50.0	50.0	100	10	17	1.0000	Yes	No
Trichlorofluoromethane	000075-69-4	10	1.00E+00	1.00E+00	1.00E+00	1.00E+00	0.4000	1.0000	50.0	50.0	50.0	50.0	0	0	17	1.0000	Yes	No
Trichlorophenol, 2,4,6-	000088-06-2	10	1.00E+00	1.00E+00	1.00E+00	1.00E+00	1.0000	0.4000	5000.0*	5000.0*	50000.0	50000.0	1000	100	11	0.2000	Yes	Yes
Trichloropropane, 1,2,3-	000096-18-4	10000	1.00E+00	1.00E+00	1.00E+00	1.00E+00	0.4000	1.0000	5.0*	5.0*	5.0*	5.0*	10	10	11	1.0000	Yes	No
Trifluralin (Treflan)	001582-09-8	100	1.00E+00	1.00E-02	2.00E-01	2.00E-03	1.0000	1.0000	5000.0	5000.0	50000.0	50000.0	10000	10000*	11	0.0200	Yes	Yes
Trinitrobenzene, 1,3,5-	000099-35-4	100*	1.00E+00	1.00E+00	1.00E+00	1.00E+00	0.4000	0.0700	5.0	5.0	5.0	5.0	1000	1000	0*	0.0020*	Yes	Yes
Vanadium	007440-62-2	100	1.00E+00	1.00E-02	1.00E+00*	1.00E-02*	1.0000	1.0000	500.0*	500.0*	500.0*	500.0*	0	0	...	...	No	Yes
Vinyl acetate	000108-05-4	10	1.00E+00	1.00E+00	1.00E+00	1.00E+00	0.0700*	0.0700*	0.5	0.5	0.5	0.5	10	100*	17	1.0000	Yes	No

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HAZARD RANKING SYSTEM
Hazardous Substance Factor Values

			Ground Water Mobility				Persistence		Bioaccumulation				Ecotoxicity					
			Liquid		Non-Liquid				Food Chain		Environment				Air Gas	Air Gas		
Substance Name	CAS Number	Toxicity	Karst	Non-Karst	Karst	Non-Karst	River	Lake	Fresh	Salt	Fresh	Salt	Fresh	Salt	Migration	Mobility	Gas	Part
Vinyl chloride	000075-01-4	10000	1.00E+00	1.00E+00	1.00E+00	1.00E+00	0.0007	0.0700	5.0	5.0	5.0	5.0	0	0	17	1.0000	Yes	No
Xylene**	001330-20-7	100	1.00E+00	1.00E-02	1.00E+00	1.00E-02	0.4000	1.0000	50.0	50.0	50.0	50.0	100	100	17	1.0000	Yes	No
Xylene, m-	000108-38-3	1	1.00E+00	1.00E+00	1.00E+00	1.00E+00	0.0007*	0.0700*	500.0	500.0	500.0	500.0	100	100*	17	1.0000	Yes	No
Xylene, o-	000095-47-6	1	1.00E+00	1.00E+00	1.00E+00	1.00E+00	0.4000	1.0000	50.0	50.0	50.0	50.0	100	100	17	1.0000	Yes	No
Xylene, p-	000106-42-3	10	1.00E+00	1.00E+00	1.00E+00	1.00E+00	0.0007*	0.0700*	50.0	50.0	50.0	50.0	100	100*	17	1.0000	Yes	No
Zinc	007440-66-6	10	1.00E+00	1.00E-02	1.00E+00*	1.00E-02*	1.0000	1.0000	5.0*	50000.0	50000.0*	50000.0	10	100	...	...	No	Yes

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HAZARD RANKING SYSTEM
Hazardous Substance Factor Values

			Ground Water Mobility				Persistence		Bioaccumulation				Ecotoxicity					
			Liquid		Non-Liquid				Food Chain		Environment							
Substance Name	CAS Number	Toxicity	Karst	Non-Karst	Karst	Non-Karst	River	Lake	Fresh	Salt	Fresh	Salt	Fresh	Salt	Air Gas Migration	Air Gas Mobility	Gas	Part
Americium 241	014596-10-2	10000	1.00E+00	1.00E-02	...	...	1.0000	1.0000	0.5	0.5	0.5	0.5	10000	10000	...	...	No	Yes
Antimony 125(+D) (radionuclide)	014234-35-6	1000	1.00E+00	1.00E-02	1.00E+00	1.00E-02	1.0000	1.0000	5.0*	5.0*	5.0	50.0*	1000	1000	...	...	No	Yes
Cadmium 109 (radionuclide)	014109-32-1	1000	1.00E+00	1.00E-02	1.00E+00*	1.00E-02*	1.0000	1.0000	5000.0	50000.0*	50000.0*	50000.0*	1000	1000	...	...	No	Yes
Cesium 137(+D) (radionuclide)	010045-97-3	10000	1.00E+00	1.00E-02	1.00E+00	1.00E-02	1.0000	1.0000	5.0*	50.0*	5.0*	50.0*	10000	10000	...	...	No	Yes
Cobalt 57 (radionuclide)	013981-50-5	100	1.00E+00	1.00E-02	1.00E+00	1.00E-02	1.0000	1.0000	5000.0*	5000.0*	5000.0	5000.0	100	100	...	...	No	Yes
Cobalt 60 (radionuclide)	010198-40-0	10000	1.00E+00	1.00E-02	1.00E+00	1.00E-02	1.0000	1.0000	5000.0*	5000.0*	5000.0	5000.0	10000	10000	...	...	No	Yes
Iron 55 (radionuclide)	014681-59-5	100	1.00E+00	1.00E-02	1.00E+00	1.00E-02	1.0000	1.0000	5000.0*	5000.0*	5000.0*	5000.0*	100	100	...	...	No	Yes
Lead 210(+D) (radionuclide)	014255-04-0	10000	1.00E+00	1.00E-02	1.00E+00*	1.00E-02*	1.0000	1.0000	5.0*	5000.0	50000.0*	5000.0	10000	10000	...	...	No	Yes
Manganese 54 (radionuclide)	013966-31-9	1000	1.00E+00	1.00E-02	1.00E+00	1.00E-02	1.0000	1.0000	50000.0*	50000.0*	50000.0	50000.0	1000	1000	...	...	No	Yes
Nickel 59 (radionuclide)	014336-70-0	100	1.00E+00	1.00E-02	1.00E+00*	1.00E-02*	1.0000	1.0000	0.5	500.0	500.0	500.0	100	100	...	...	No	Yes
Nickel 63 (radionuclide)	013981-37-8	100	1.00E+00	1.00E-02	1.00E+00*	1.00E-02*	1.0000	1.0000	0.5	500.0	500.0	500.0	100	100	...	...	No	Yes
Plutonium 236 (radionuclide)	015411-92-4	10000	1.00E+00	1.00E-04	...	...	1.0000	1.0000	500.0*	500.0*	500.0*	500.0*	10000	10000	...	...	No	Yes
Plutonium 238 (radionuclide)	013981-16-3	10000	1.00E+00	1.00E-04	...	...	1.0000	1.0000	500.0*	500.0*	500.0*	500.0*	10000	10000	...	...	No	Yes
Plutonium 239 (radionuclide)	015117-48-3	10000	1.00E+00	1.00E-04	...	...	1.0000	1.0000	500.0*	500.0*	500.0*	500.0*	10000	10000	...	...	No	Yes
Plutonium 240 (radionuclide)	014119-33-6	10000	1.00E+00	1.00E-04	...	...	1.0000	1.0000	500.0*	500.0*	500.0*	500.0*	10000	10000	...	...	No	Yes

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HAZARD RANKING SYSTEM
Hazardous Substance Factor Values

Substance Name	CAS Number	Toxicity	Ground Water Mobility: Liquid Karst	Ground Water Mobility: Liquid Non-Karst	Ground Water Mobility: Non-Liquid Karst	Ground Water Mobility: Non-Liquid Non-Karst	Persistence: River	Persistence: Lake	Bioaccumulation: Food Chain Fresh	Bioaccumulation: Food Chain Salt	Bioaccumulation: Environment Fresh	Bioaccumulation: Environment Salt	Ecotoxicity: Fresh	Ecotoxicity: Salt	Air Gas Migration	Air Gas Mobility	Gas	Part
Plutonium 241(+D) (radionuclide)	014119-32-5	10000	1.00E+00	1.00E-04	...	...	1.0000	1.0000	500.0*	500.0*	500.0*	500.0*	10000	10000	...	...	No	Yes
Plutonium 242 (radionuclide)	013982-10-0	10000	1.00E+00	1.00E-04	...	...	1.0000	1.0000	500.0*	500.0*	500.0*	500.0*	10000	10000	...	...	No	Yes
Plutonium 243 (radionuclide)	015706-37-3	100	1.00E+00	1.00E-04	...	...	0.0700	0.0700	500.0*	500.0*	500.0*	500.0*	100	100	...	...	No	Yes
Plutonium 244(+D) (radionuclide)	014119-34-7	10000	1.00E+00	1.00E-04	...	...	1.0000	1.0000	500.0*	500.0*	500.0*	500.0*	10000	10000	...	...	No	Yes
Radium 226(+D) (radionuclide)	013982-63-3	10000	1.00E+00	1.00E-02	1.00E+00*	1.00E-02*	1.0000	1.0000	0.5*	0.5*	0.5*	0.5*	10000	10000	...	...	No	Yes
Radium 228(+D) (radionuclide)	015262-20-1	10000	1.00E+00	1.00E-02	1.00E+00*	1.00E-02*	1.0000	1.0000	0.5*	0.5*	0.5*	0.5*	10000	10000	...	...	No	Yes
Radon 222 (+D)(radionuclide)	014859-67-7	1000	1.00E+00	1.00E+00	1.00E+00	1.00E+00	1.0000	0.4000	0.5	0.5	0.5	0.5	1000	1000	17	1.0000	Yes	No
Silver 108m(+D) (radionuclide)	014391-65-2	1000*	1.00E+00	1.00E+00	1.00E+00*	1.00E+00*	1.0000	1.0000	50.0	50000.0*	50.0	50000.0*	1000*	1000*	...	...	No	Yes
Silver 110m (radionuclide)	014391-76-5	1000*	1.00E+00	1.00E+00	1.00E+00*	1.00E+00*	1.0000	1.0000	50.0	50000.0*	50.0	50000.0*	1000*	1000*	...	...	No	Yes
Strontium 90(+D) (radionuclide)	010098-97-2	10000	1.00E+00	1.00E-02	1.00E+00	1.00E-02	1.0000	1.0000	5.0*	5.0*	5.0*	5.0*	10000	10000	...	...	No	Yes
Technetium 99 (radionuclide)**	014133-76-7	1000	1.00E+00	1.00E+00	...	...	1.0000	1.0000	0.5	0.5	0.5	0.5	1000	1000	...	...	No	Yes
Thallium 204 (radionuclide)	013968-51-9	1000*	1.00E+00	1.00E-02*	1.00E+00	1.00E-02*	1.0000	1.0000	500.0	50.0	500.0	50.0	1000*	1000*	...	...	No	Yes
Thorium 227 (radionuclide)	015623-47-9	10000	1.00E+00	1.00E-02*	1.00E+00	1.00E-02*	1.0000	0.4000	0.5*	0.5*	0.5*	0.5*	10000	10000	...	...	No	Yes
Thorium 228(+D) (radionuclide)	014274-82-9	10000	1.00E+00	1.00E-02*	1.00E+00	1.00E-02*	1.0000	1.0000	0.5*	0.5*	0.5*	0.5*	10000	10000	...	...	No	Yes

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HAZARD RANKING SYSTEM
Hazardous Substance Factor Values

Substance Name	CAS Number	Toxicity	Ground Water Mobility				Persistence		Bioaccumulation				Ecotoxicity		Air Gas Migration	Air Gas Mobility	Gas	Part
			Liquid		Non-Liquid				Food Chain		Environment							
			Karst	Non-Karst	Karst	Non-Karst	River	Lake	Fresh	Salt	Fresh	Salt	Fresh	Salt				
Thorium 229(+D) (radionuclide)	015594-54-4	10000	1.00E+00	1.00E-02*	1.00E+00	1.00E-02*	1.0000	1.0000	0.5*	0.5*	0.5*	0.5*	10000	10000	...	...	No	Yes
Thorium 230 (radionuclide)	014269-63-7	10000	1.00E+00	1.00E-02*	1.00E+00	1.00E-02*	1.0000	1.0000	0.5*	0.5*	0.5*	0.5*	10000	10000	...	...	No	Yes
Thorium 231 (radionuclide)	014932-40-2	1000*	1.00E+00	1.00E-02*	1.00E+00	1.00E-02*	0.4000	0.0700	0.5*	0.5*	0.5*	0.5*	1000*	1000*	...	...	No	Yes
Thorium 232 (radionuclide)	007440-29-1	10000	1.00E+00	1.00E-02*	1.00E+00	1.00E-02*	1.0000	1.0000	0.5*	0.5*	0.5*	0.5*	10000	10000	...	...	No	Yes
Thorium 234 (radionuclide)	015065-10-8	10000*	1.00E+00	1.00E-02*	1.00E+00	1.00E-02*	1.0000	1.0000	0.5*	0.5*	0.5*	0.5*	10000*	10000*	...	...	No	Yes
Tritium	010028-17-8	100	1.00E+00	1.00E+00	...	...	1.0000	1.0000	0.5	0.5	0.5	0.5	100	100	17	1.0000	Yes	No
Uranium 232 (radionuclide)	014158-29-3	10000	1.00E+00	1.00E+00*	2.00E-01*	2.00E-01*	1.0000	1.0000	0.5*	0.5*	0.5*	0.5*	10000	10000	...	...	No	Yes
Uranium 233 (radionuclide)	013968-55-3	10000	1.00E+00	1.00E+00*	2.00E-01*	2.00E-01*	1.0000	1.0000	0.5*	0.5*	0.5*	0.5*	10000	10000	...	...	No	Yes
Uranium 234 (radionuclide)	013966-29-5	10000	1.00E+00	1.00E+00*	2.00E-01*	2.00E-01*	1.0000	1.0000	0.5*	0.5*	0.5*	0.5*	10000	10000	...	...	No	Yes
Uranium 235(+D) (radionuclide)	015117-96-1	10000	1.00E+00	1.00E+00*	2.00E-01*	2.00E-01*	1.0000	1.0000	0.5*	0.5*	0.5*	0.5*	10000	10000	...	...	No	Yes
Uranium 236(+D) (radionuclide)	013982-70-2	10000	1.00E+00	1.00E+00*	2.00E-01*	2.00E-01*	1.0000	1.0000	0.5*	0.5*	0.5*	0.5*	10000	10000	...	...	No	Yes
Uranium 238(+D) (radionuclide)	007440-61-1	10000	1.00E+00	1.00E+00*	2.00E-01*	2.00E-01*	1.0000	1.0000	5000.0*	5000.0*	5000.0*	5000.0*	10000	10000	...	...	No	Yes
Zinc 65 (radionuclide)	013982-39-3	1000	1.00E+00	1.00E-02	1.00E+00*	1.00E-02*	1.0000	1.0000	5.0*	50000.0	50000.0*	50000.0	1000	1000	...	...	No	Yes

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HAZARD RANKING SYSTEM
Hazardous Substance Benchmarks

Substance Name	CAS Number	Ground Water/Surface Water Pathway Drinking Water			Surface Water Pathway Food Chain			Surface Water Pathway Environmental			
								Acute CMC (µg/L) *		Chronic CCC (µg/L) *	
		MCL/MCLG (mg/L)	Reference Dose Screen Conc (mg/L)	Cancer Risk Screen Conc (mg/L)	FDAAL (ppm)	Ref. Dose Screen Conc (mg/kg)	Cancer Risk Screen Conc (mg/kg)	Fresh	Salt	Fresh	Salt
Acenaphthene	000083-32-9	...	2.2E+0	...	...	8.1E+1	...	...	...	...	...
Acenaphthylene	000208-96-8	...	...	...	...	...	...	...	...	...	...
Acetone	000067-64-1	...	3.3E+1*	...	...	1.2E+3*	...	...	...	...	...
Acrolein	000107-02-8	...	1.8E-2*	...	...	6.8E-1*	...	...	...	...	...
Acrylamide	000079-06-1	...	7.3E-3	1.9E-5	...	2.7E-1	7.0E-4	...	...	...	...
Alachlor**	015972-60-8	2.0E-3	3.6E-1	1.1E-3	...	1.4E+1	3.9E-2	...	...	...	...
Aldrin	000309-00-2	...	1.1E-3	5.0E-6	3.0E-1	4.1E-2	1.9E-4	3.0E+0[G]	1.3E+0[G]	...	...
Aluminum	007429-90-5	...	...	...	...	...	...	7.5E+2[G2, I2]	...	8.7E+1[G2, I2, L2]	...
Americium**	007440-35-9	...	...	...	...	...	...	...	...	...	...
Aniline	000062-53-3	...	...	1.5E-2	...	...	5.5E-1	...	...	...	...
Anthracene	000120-12-7	...	1.1E+1	...	...	4.1E+2	...	...	...	...	...
Antimony	007440-36-0	6.0E-3	1.5E-2	...	...	5.4E-1	...	...	...	...	...
Arsenic	007440-38-2	1.0E-2*	1.1E-2	5.7E-5	...	4.1E-1	2.1E-3	3.4E+2[A, D, K]	6.9E+1[A, D, bb]	1.5E+2[A, D, K]	3.6E+1[A, D, bb]
Asbestos	001332-21-4	7.0E+0 million fibers/L	...	...	...	...	...	...	...	...	...

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HAZARD RANKING SYSTEM
Hazardous Substance Benchmarks

Substance Name	CAS Number	Ground Water/Surface Water Pathway Drinking Water			Surface Water Pathway Food Chain			Surface Water Pathway Environmental			
								Acute		Chronic	
		MCL/MCLG (mg/L)	Reference Dose Screen Conc (mg/L)	Cancer Risk Screen Conc (mg/L)	FDAAL (ppm)	Ref. Dose Screen Conc (mg/kg)	Cancer Risk Screen Conc (mg/kg)	CMC (µg/L) *		CCC (µg/L) *	
								Fresh	Salt	Fresh	Salt
Barium	007440-39-3	2.0E+0	2.6E+0	...	...	9.5E+1	...	...	...	...	...
Benz(a)anthracene	000056-55-3	...	...	1.2E-4	...	...	4.3E-3	...	...	...	...
Benzene	000071-43-2	5.0E-3	1.5E-1*	1.5E-3	...	5.4E+0*	5.7E-2*	...	...	...	...
Benzidine	000092-87-5	...	1.1E-1	3.7E-7	...	4.1E+0	1.4E-5	...	...	...	...
Benzo(a)pyrene	000050-32-8	2.0E-4	...	1.2E-5	...	...	4.3E-4	...	...	...	...
Benzo(g,h,i)perylene	000191-24-2	...	...	...	...	...	...	...	...	...	...
Benzo(j,k)fluorene (Fluoranthene)	000206-44-0	...	1.5E+0	...	...	5.4E+1	...	...	...	...	...
Benzo(k)fluoranthene	000207-08-9	...	...	1.2E-3	...	...	4.3E-2	...	...	...	...
Beryllium	007440-41-7	4.0E-3	7.3E-2*	...*	...	2.7E+0*	...*	...	...	...	...
Bis (2-ethylhexyl) phthalate	000117-81-7	6.0E-3	7.3E-1	6.1E-3	...	2.7E+1	2.3E-1	...	...	...	...
Boron	007440-42-8	...	3.3E+0	...	...	1.2E+2	...	...	...	...	...
Bromodichloromethane	000075-27-4	...*	7.3E-1	1.4E-3	...	2.7E+1	5.1E-2	...	...	...	...
Butylbenzyl phthalate	000085-68-7	...	7.3E+0	...	...	2.7E+2	...	...	...	...	...
Cadmium	007440-43-9	5.0E-3	1.8E-2	...	...	6.8E-1	...	2.0E+0 D, E, K, bb	4.0E+1 D, bb	2.5E-1 D, E, K, bb	8.8E+0 D, bb

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HAZARD RANKING SYSTEM
Hazardous Substance Benchmarks

Substance Name	CAS Number	Ground Water/Surface Water Pathway Drinking Water			Surface Water Pathway Food Chain			Surface Water Pathway Environmental			
								Acute CMC (µg/L) *		Chronic CCC (µg/L) *	
		MCL/MCLG (mg/L)	Reference Dose Screen Conc (mg/L)	Cancer Risk Screen Conc (mg/L)	FDAAL (ppm)	Ref. Dose Screen Conc (mg/kg)	Cancer Risk Screen Conc (mg/kg)	Fresh	Salt	Fresh	Salt
Carbazole	000086-74-8	...	...	4.3E-3	...	...	1.6E-1	...	...	...	...
Carbon disulfide	000075-15-0	...	3.7E+0	...	...	1.4E+2	...	...	...	...	...
Carbon tetrachloride	000056-23-5	5.0E-3	2.6E-2	6.6E-4	...	9.5E-1	2.4E-2	...	...	...	...
Cesium	007440-46-2	...	...	...	...	...	...	...	...	...	...
Chlordane	000057-74-9	2.0E-3	1.8E-2	2.4E-4	3.0E-1	6.8E-1*	9.0E-3	2.4E+0[G]	9.0E-2[G]	4.3E-3[G, aa]	4.0E-3[G, aa]
Chlordane, alpha-	005103-71-9	...	1.8E-2*	2.4E-4*	...	6.8E-1*	9.0E-3*	...	...	...	...
Chlordane, gama-	005566-34-7	...	1.8E-2*	2.4E-4*	...	6.8E-1*	9.0E-3*	...	...	...	...
Chlorobenzene	000108-90-7	1.0E-1	7.3E-1	...	...	2.7E+1	...	...	...	...	...
Chloroform	000067-66-3	...*	3.6E-1	...*	...	1.4E+1	...*	...	...	...	...
Chromium	007440-47-3	1.0E-1	1.1E-1*	...	...	4.1E+0*	...	...	...	...	...
Chromium(III)	016065-83-1	...	5.5E+1*	...	...	2.0E+3*	...	5.7E+2[D, E, K]	...	7.4E+1[D, E, K]	...
Chromium(VI)	018540-29-9	...	1.1E-1*	...	...	4.1E+0*	...	1.6E+1[D, K]	1.1E+3[D, bb]	1.1E+1[D, K]	5.0E+1[D, bb]
Chrysene	000218-01-9	...	...	1.2E-2	...	...	4.3E-1	...	...	...	...

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HAZARD RANKING SYSTEM
Hazardous Substance Benchmarks

Substance Name	CAS Number	Ground Water/Surface Water Pathway Drinking Water			Surface Water Pathway Food Chain			Surface Water Pathway Environmental			
		MCL/MCLG (mg/L)	Reference Dose Screen Conc (mg/L)	Cancer Risk Screen Conc (mg/L)	FDAAL (ppm)	Ref. Dose Screen Conc (mg/kg)	Cancer Risk Screen Conc (mg/kg)	Acute CMC (µg/L) *		Chronic CCC (µg/L) *	
								Fresh	Salt	Fresh	Salt
Cobalt	007440-48-4	...	...	...	...	...	...	...	...	...	...
Copper	007440-50-8	1.3E+0	...	...	...	...	...	1.3E+1[D, E, K, cc]	4.8E+0[D, cc, ff]	9.0E+0[D, E, K, cc]	3.1E+0[D, cc, ff]
Cumene	000098-82-8	...	3.7E+0*	...	...	1.4E+2*	...	...	...	...	...
Cyanamide**	000420-04-2	...	...	...	...	...	...	...	...	...	...
Cyanide	000057-12-5	2.0E-1	7.3E-1	...	...	2.7E+1	...	2.2E+1[K, Q]	1.0E+0[Q, bb]	5.2E+0[K, Q]	1.0E+0[Q, bb]
DDD	000072-54-8	...	...	3.5E-4	...*	...	1.3E-2	...	...	...	...
DDE	000072-55-9	...	...	2.5E-4	5.0E+0	...	9.3E-3	...	...	...	...
DDT	000050-29-3	...	1.8E-2	2.5E-4	5.0E+0	6.8E-1	9.3E-3	1.1E+0[G, ii]	1.3E-1[G, ii]	1.0E-3[G, aa, ii]	1.0E-3[G, aa, ii]
Di-n-butyl phthalate	000084-74-2	...	3.7E+0	...	...	1.4E+2	...	...	...	...	...
Di-n-octyl phthalate	000117-84-0	...	7.3E-1	...	...	2.7E+1	...	...	...	...	...
Dibenz(a,h)anthracene	000053-70-3	...	...	1.2E-5	...	...	4.3E-4	...	...	...	...
Dibenzofuran	000132-64-9	...	1.5E-1*	...	...	5.4E+0*	...	...	...	...	...
Dibromo-3-chloropropane, 1,2-	000096-12-8	2.0E-4	...	6.1E-5	...	...	2.3E-3	...	...	...	...
Dibromoethane, 1,2-	000106-93-4	...*	...	1.0E-6	...	...	3.7E-5	...	...	...	...

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HAZARD RANKING SYSTEM
Hazardous Substance Benchmarks

Substance Name	CAS Number	Ground Water/Surface Water Pathway Drinking Water			Surface Water Pathway Food Chain			Surface Water Pathway Environmental			
								Acute CMC (µg/L) *		Chronic CCC (µg/L) *	
		MCL/MCLG (mg/L)	Reference Dose Screen Conc (mg/L)	Cancer Risk Screen Conc (mg/L)	FDAAL (ppm)	Ref. Dose Screen Conc (mg/kg)	Cancer Risk Screen Conc (mg/kg)	Fresh	Salt	Fresh	Salt
Dichlorobenzene, 1,4-	000106-46-7	7.5E-2	...	3.5E-3	...	...	1.3E-1	...	...	...	...
Dichloroethane, 1,1-	000075-34-3	...	3.7E+0	...	...	1.4E+2	...	...	...	...	...
Dichloroethane, 1,2-	000107-06-2	5.0E-3	...	9.4E-4	...	...	3.5E-2	...	...	...	...
Dichloroethylene, 1,1-	000075-35-4	7.0E-3	1.8E+0*	...*	...	6.8E+1*	...*	...	...	...	...
Dichloroethylene, 1,2-**	000540-59-0	...	3.3E-1	...	...	1.2E+1	...	...	...	...	...
Dichloroethylene, cis-1,2-	000156-59-2	7.0E-2	3.6E-1	...	...	1.4E+1	...	...	...	...	...
Dichloroethylene, trans-1,2-	000156-60-5	1.0E-1	7.3E-1	...	...	2.7E+1	...	...	...	...	...
Dichlorophenol, 2,4-	000120-83-2	...	1.1E-1	...	...	4.1E+0	...	...	...	...	...
Dichloropropane, 1,2-	000078-87-5	5.0E-3	...	1.3E-3	...	...	4.6E-2	...	...	...	...
Dichloropropene, 1,3-	000542-75-6	...	1.1E+0*	8.5E-4	...	4.1E+1*	3.2E-2	...	...	...	...
Dieldrin	000060-57-1	...	1.8E-3	5.3E-6	3.0E-1	6.8E-2	2.0E-4	2.4E-1[K]	7.1E-1[G]	5.6E-2[K, O]	1.9E-3[G, aa]
Diethyl phthalate	000084-66-2	...	2.9E+1	...	...	1.1E+3	...	...	...	...	...
Dimethyl phenol, 2,4-	000105-67-9	...	7.3E-1	...	...	2.7E+1	...	...	...	...	...

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HAZARD RANKING SYSTEM
Hazardous Substance Benchmarks

Substance Name	CAS Number	Ground Water/Surface Water Pathway Drinking Water			Surface Water Pathway Food Chain			Surface Water Pathway Environmental			
								Acute CMC (µg/L) *		Chronic CCC (µg/L) *	
		MCL/MCLG (mg/L)	Reference Dose Screen Conc (mg/L)	Cancer Risk Screen Conc (mg/L)	FDAAL (ppm)	Ref. Dose Screen Conc (mg/kg)	Cancer Risk Screen Conc (mg/kg)	Fresh	Salt	Fresh	Salt
Dinitrobenzene, 1,3-	000099-65-0	...	3.7E-3	...	...	1.4E-1	...	...	...	...	...
Dioxin 1,4-**	000290-67-5	...	...	...	...	...	...	...	...	...	...
Diphenylhydrazine, 1,2-	000122-66-7	...	...	1.1E-4	...	...	3.9E-3	...	...	...	...
Disulfoton	000298-04-4	...	1.5E-3	...	...	5.4E-2	...	...	...	...	...
Endosulfan (I or II)	000115-29-7	...	2.2E-1	...	...	8.1E+0	...	...	...	...	...
Endosulfan I**	000959-98-8	...	2.2E-1	...	...	8.1E+0	...	2.2E-1[G, Y]	3.4E-2[G, Y]	5.6E-2[G, Y]	8.7E-3[G, Y]
Endosulfan II**	033213-65-9	...	2.2E-1	...	...	8.1E+0	...	2.2E-1[G, Y]	3.4E-2[G, Y]	5.6E-2[G, Y]	8.7E-3[G, Y]
Endrin	000072-20-8	2.0E-3	1.1E-2	...	...	4.1E-1	...	8.6E-2[K]	3.7E-2[G]	3.6E-2[K, O]	2.3E-3[G, aa]
Endrin aldehyde	007421-93-4	...	...	...	...	...	...	...	...	...	...
Ethyl benzene	000100-41-4	7.0E-1	3.7E+0	...	...	1.4E+2	...	...	...	...	...
Ethyl chloride	000075-00-3	...	...	...	...	...	...	...	...	...	...
Ethylene glycol monobutyl ether (EBGE)**	000111-76-2	...	1.8E+1	...	...	6.8E+2	...	...	...	...	...
Fluorene	000086-73-7	...	1.5E+0	...	...	5.4E+1	...	...	...	...	...
Fluorine	007782-41-4	...	2.2E+0	...	...	8.1E+1	...	...	...	...	...

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HAZARD RANKING SYSTEM
Hazardous Substance Benchmarks

Substance Name	CAS Number	Ground Water/Surface Water Pathway Drinking Water			Surface Water Pathway Food Chain			Surface Water Pathway Environmental			
								Acute CMC (µg/L) *		Chronic CCC (µg/L) *	
		MCL/MCLG (mg/L)	Reference Dose Screen Conc (mg/L)	Cancer Risk Screen Conc (mg/L)	FDAAL (ppm)	Ref. Dose Screen Conc (mg/kg)	Cancer Risk Screen Conc (mg/kg)	Fresh	Salt	Fresh	Salt
Heptachlor	000076-44-8	4.0E-4	1.8E-2	1.9E-5	3.0E-1	6.8E-1	7.0E-4	5.2E-1 G	5.3E-2 G	3.8E-3 G, aa	3.6E-3 G, aa
Heptachlor epoxide, alpha, beta, gamma	001024-57-3	2.0E-4	4.7E-4	9.4E-6	3.0E-1	1.8E-2	3.5E-4	5.2E-1 G, V	5.3E-2 G, V	3.8E-3 G, V, aa	3.6E-3 G, V, aa
Heptachlorodibenzo-p-dioxin**	037871-00-4	...	...	...	...	...	...	...	...	...	...
Heptachlorodibenzo-p-dioxin 1,2,3,4,6,7,8-	035822-46-9	...	...	5.7E-7	...	...	2.1E-5	...	...	...	...
Heptachlorodibenzofuran 1,2,3,4,6,7,8-	067562-39-4	...	...	5.7E-7	...	...	2.1E-5	...	...	...	...
Heptachlorodibenzofuran 1,2,3,4,7,8,9-	055673-89-7	...	...	5.7E-7*	...	...	2.1E-5*	...	...	...	...
Hexabromobiphenyl (PBB)**	036355-01-8	...	...	...	...	...	...	...	...	...	...
Hexachlorobenzene	000118-74-1	1.0E-3	2.9E-2	5.3E-5	...	1.1E+0	2.0E-3	...	...	...	...
Hexachlorobutadiene	000087-68-3	...	7.3E-3	1.1E-3	...	2.7E-1	4.0E-2	...	...	...	...
Hexachlorocyclohexane, alpha-	000319-84-6	...	...	1.4E-5	...	...	5.0E-4	...	...	...	...
Hexachlorocyclohexane, beta-	000319-85-7	...	...	4.7E-5	...	...	1.8E-3	...	...	...	...
Hexachlorodibenzo-p-dioxin 1,2,3,4,7,8-	039227-28-6	...	...	1.4E-8	...	...	5.3E-7	...	...	...	...
Hexachlorodibenzo-p-dioxin 1,2,3,6,7,8-	057653-85-7	...	...	1.4E-8	...	...	5.3E-7	...	...	...	...
Hexachlorodibenzo-p-dioxin 1,2,3,7,8,9-	019408-74-3	...	...	1.4E-8	...	...	5.1E-7	...	...	...	...

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HAZARD RANKING SYSTEM
Hazardous Substance Benchmarks

Substance Name	CAS Number	Ground Water/Surface Water Pathway Drinking Water			Surface Water Pathway Food Chain			Surface Water Pathway Environmental			
								Acute		Chronic	
		MCL/MCLG (mg/L)	Reference Dose Screen Conc (mg/L)	Cancer Risk Screen Conc (mg/L)	FDAAL (ppm)	Ref. Dose Screen Conc (mg/kg)	Cancer Risk Screen Conc (mg/kg)	CMC (µg/L) *		CCC (µg/L) *	
								Fresh	Salt	Fresh	Salt
Hexachlorodibenzofuran 1,2,3,4,7,8-	070648-26-9	...	...	5.7E-8	...	...	2.1E-6	...	...	...	...
Hexachlorodibenzofuran 1,2,3,6,7,8-	057117-44-9	...	...	5.7E-8	...	...	2.1E-6	...	...	...	...
Hexachlorodibenzofuran 1,2,3,7,8,9-	072918-21-9	...	...	5.7E-8	...	...	2.1E-6	...	...	...	...
Hexachlorodibenzofuran 2,3,4,6,7,8-	060851-34-5	...	...	5.7E-8	...	...	2.1E-6	...	...	...	...
Hydrazine	000302-01-2	...	...	2.8E-5	...	...	1.1E-3	...	...	...	...
Hydrogen sulfide	007783-06-4	...	1.1E+0*	...	...	4.1E+1*	...	...	...	2.0E+0[F2]	2.0E+0[F2]
Indeno(1,2,3-cd)pyrene	000193-39-5	...	...	1.2E-4	...	...	4.3E-3	...	...	...	...
Iron	007439-89-6	...	...	...	...	...	...	...	...	1.0E+3[F2]	...
Lead	007439-92-1	1.5E-2	...	...	...	...	...	6.5E+1[D, E, bb, gg]	2.1E+2[D, bb]	2.5E+0[D, E, bb, gg]	8.1E+0[D, bb]
Lead chromate**	007758-97-6	...	...	...	...	...	...	...	...	...	...
Lindane	000058-89-9	2.0E-4	1.1E-2	6.6E-5	...	4.1E-1	2.4E-3	9.5E-1[K]	1.6E-1[G]	...	...
Manganese	007439-96-5	...	5.1E+0	...	...	1.9E+2	...	...	...	...	...
Mercury	007439-97-6	2.0E-3	1.1E-2	...	1.0E+0	4.1E-1	...	1.4E+0[D, K, hh]	1.8E+0[D, ee, hh]	7.7E-1[D, K, hh]	9.4E-1[D, ee, hh]

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** Indicates new hazardous substance in current version of chemical data (JAN04).

HAZARD RANKING SYSTEM
Hazardous Substance Benchmarks

Substance Name	CAS Number	Ground Water/Surface Water Pathway Drinking Water			Surface Water Pathway Food Chain			Surface Water Pathway Environmental			
								Acute CMC (µg/L) *		Chronic CCC (µg/L) *	
		MCL/MCLG (mg/L)	Reference Dose Screen Conc (mg/L)	Cancer Risk Screen Conc (mg/L)	FDAAL (ppm)	Ref. Dose Screen Conc (mg/kg)	Cancer Risk Screen Conc (mg/kg)	Fresh	Salt	Fresh	Salt
Methoxychlor	000072-43-5	4.0E-2	1.8E-1	...	...	6.8E+0	...	...	...	3.0E-2[F2]	3.0E-2[F2]
Methyl Parathion	000298-00-0	...	9.1E-3	...	...	3.4E-1	...	...	...	...	...
Methyl ethyl ketone	000078-93-3	...	2.2E+1	...	...	8.1E+2	...	...	...	...	...
Methyl isobutyl ketone	000108-10-1	...	2.9E+0	...	...	1.1E+2	...	...	...	...	...
Methyl phenol, 4-	000106-44-5	...	1.8E-1	...	...	6.8E+0	...	...	...	...	...
Methyl tert-butyl ether (MTBE)**	001634-04-4	...	...	...	...	...	...	...	...	...	...
Methylene chloride (dichloromethane)	000075-09-2	5.0E-3	2.2E+0	1.1E-2	...	8.1E+1	4.2E-1	...	...	...	...
Methylnaphthalene, 2-	000091-57-6	...	...	...	...	...	...	...	...	...	...
Naphthalene	000091-20-3	...	1.5E+0	...	...	5.4E+1	...	...	...	...	...
Nickel	007440-02-0	...	7.3E-1	...	...	2.7E+1	...	4.7E+2[D, E, K]	7.4E+1[D, bb]	5.2E+1[D, E, K]	8.2E+0[D, bb]
Nitrosodiphenylamine, N-	000086-30-6	...	...	1.7E-2	...	...	6.4E-1	...	...	...	...
Pentachlorodibenzo-p-dioxin 1,2,3,7,8-	040321-76-4	...	...	1.1E-9	...	...	4.2E-8	...	...	...	...
Pentachlorodibenzofuran 1,2,3,7,8-	057117-41-6	...	...	...*	...	...	...*	...	...	...	...
Pentachlorodibenzofuran 2,3,4,7,8-**	057117-31-4	...	...	5.7E-9	...	...	2.1E-7	...	...	...	...

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** Indicates new hazardous substance in current version of chemical data (JAN04).

HAZARD RANKING SYSTEM
Hazardous Substance Benchmarks

Substance Name	CAS Number	Ground Water/Surface Water Pathway Drinking Water			Surface Water Pathway Food Chain			Surface Water Pathway Environmental			
								Acute		Chronic	
		MCL/MCLG (mg/L)	Reference Dose Screen Conc (mg/L)	Cancer Risk Screen Conc (mg/L)	FDAAL (ppm)	Ref. Dose Screen Conc (mg/kg)	Cancer Risk Screen Conc (mg/kg)	CMC (µg/L) *		CCC (µg/L) *	
								Fresh	Salt	Fresh	Salt
Pentachlorophenol (PCP)	000087-86-5	1.0E-3	1.1E+0	7.1E-4	...	4.1E+1	2.6E-2	1.9E+1 F, K	1.3E+1 bb	1.5E+1 F, K	7.9E+0 bb
Perchlorate**	014797-73-0	...	3.7E-3	...	...	1.4E-1	...	...	...	...	...
Phenanthrene	000085-01-8	...	...	...	...	...	...	...	...	...	...
Phenol	000108-95-2	...	1.1E+1*	...	...	4.1E+2*	...	...	...	...	...
Plutonium	007440-07-5	...	...	...	...	...	...	...	...	...	...
Polychlorinated biphenyls (PCBs)	001336-36-3	5.0E-4	7.3E-4	4.3E-5	...	2.7E-2	1.6E-3	...	...	1.4E-2 N, aa	3.0E-2 N, aa
Pyrene	000129-00-0	...	1.1E+0	...	...	4.1E+1	...	...	...	...	...
Radium	007440-14-4	...	...	...	...	...	...	...	...	...	...
Radon	010043-92-2	...	...	...	...	...	...	...	...	...	...
Selenium	007782-49-2	5.0E-2	1.8E-1	...	...	6.8E+0	...	... L, R, T	2.9E+2 D, bb, dd	5.0E+0 T	7.1E+1 D, bb, dd
Silver	007440-22-4	...	1.8E-1	...	...	6.8E+0	...	3.2E+0 D, E, G	1.9E+0 D, G	...	...
Strontium	007440-24-6	...	...	...	...	...	...	...	...	...	...
Styrene	000100-42-5	1.0E-1	7.3E+0	...	...	2.7E+2	...	...	...	...	...

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HAZARD RANKING SYSTEM
Hazardous Substance Benchmarks

Substance Name	CAS Number	Ground Water/Surface Water Pathway Drinking Water			Surface Water Pathway Food Chain			Surface Water Pathway Environmental			
								Acute		Chronic	
		MCL/MCLG (mg/L)	Reference Dose Screen Conc (mg/L)	Cancer Risk Screen Conc (mg/L)	FDAAL (ppm)	Ref. Dose Screen Conc (mg/kg)	Cancer Risk Screen Conc (mg/kg)	CMC (µg/L) *		CCC (µg/L) *	
								Fresh	Salt	Fresh	Salt
Tetrachlorobenzene, 1,2,4,5-	000095-94-3	...	1.1E-2	...	...	4.1E-1	...	...	...	...	...
Tetrachlorodibenzo-p-dioxin**	041903-57-5	...	...	...	...	...	...	...	...	...	...
Tetrachlorodibenzo-p-dioxin 2,3,7,8- (TCDD)	001746-01-6	3.0E-8	...	5.7E-10	...	...	2.1E-8	...	...	...	...
Tetrachlorodibenzofuran 2,3,7,8-	051207-31-9	...	...	5.7E-9	...	...	2.1E-7	...	...	...	...
Tetrachloroethane, 1,1,2,2-	000079-34-5	...	...	4.3E-4	...	...	1.6E-2	...	...	...	...
Tetrachloroethylene	000127-18-4	5.0E-3	3.6E-1	1.6E-3	...	1.4E+1	6.1E-2	...	...	...	...
Thallium	007440-28-0	5.0E-4	...	...	...	...	...	...	...	...	...
Toluene	000108-88-3	1.0E+0	7.3E+0	...	...	2.7E+2	...	...	...	...	...
Toxaphene	008001-35-2	3.0E-3	...	7.7E-5	...	...	2.9E-3	7.3E-1	2.1E-1	2.0E-4[aa]	2.0E-4[aa]
Trichlorobenzene, 1,2,4-	000120-82-1	7.0E-2	3.6E-1	...	...	1.4E+1	...	...	...	...	...
Trichloroethane, 1,1,1-	000071-55-6	2.0E-1	...	...	...	...	...	...	...	...	...
Trichloroethane, 1,1,2-	000079-00-5	3.0E-3	1.5E-1	1.5E-3	...	5.4E+0	5.5E-2	...	...	...	...
Trichloroethylene (TCE)	000079-01-6	5.0E-3	...	7.7E-3	...	...	2.9E-1	...	...	...	...
Trichlorofluoromethane	000075-69-4	...	1.1E+1	...	...	4.1E+2	...	...	...	...	...

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HAZARD RANKING SYSTEM
Hazardous Substance Benchmarks

Substance Name	CAS Number	Ground Water/Surface Water Pathway Drinking Water			Surface Water Pathway Food Chain			Surface Water Pathway Environmental			
		MCL/MCLG (mg/L)	Reference Dose Screen Conc (mg/L)	Cancer Risk Screen Conc (mg/L)	FDAAL (ppm)	Ref. Dose Screen Conc (mg/kg)	Cancer Risk Screen Conc (mg/kg)	Acute CMC (µg/L) *		Chronic CCC (µg/L) *	
								Fresh	Salt	Fresh	Salt
Trichlorophenol, 2,4,6-	000088-06-2	...	...	7.7E-3	...	...	2.9E-1	...	...	...	...
Trichloropropane, 1,2,3-	000096-18-4	...	2.2E-1	1.2E-5	...	8.1E+0	4.5E-4	...	...	...	...
Trifluralin (Treflan)	001582-09-8	...	2.7E-1	1.1E-2	...	1.0E+1	4.1E-1	...	...	...	...
Trinitrobenzene, 1,3,5-	000099-35-4	...	1.1E+0*	...	...	4.1E+1*	...	...	...	...	...
Vanadium	007440-62-2	...	2.6E-1	...	...	9.5E+0	...	...	...	...	...
Vinyl acetate	000108-05-4	...	3.7E+1	...	...	1.4E+3	...	...	...	...	...
Vinyl chloride	000075-01-4	2.0E-3	1.1E-1*	5.7E-5	...	4.1E+0*	2.1E-3	...	...	...	...
Xylene**	001330-20-7	...	7.3E+0	...	...	2.7E+2	...	...	...	...	...
Xylene, m-	000108-38-3	1.0E+1	7.3E+1	...	...	2.7E+3	...	...	...	...	...
Xylene, o-	000095-47-6	1.0E+1	7.3E+1	...	...	2.7E+3	...	...	...	...	...
Xylene, p-	000106-42-3	1.0E+1	...	...	...	...	...	...	...	...	...
Zinc	007440-66-6	...	1.1E+1	...	...	4.1E+2	...	$1.2E+2^{D, E, K}$	$9.0E+1^{D, bb}$	$1.2E+2^{D, E, K}$	$8.1E+1^{D, bb}$

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HAZARD RANKING SYSTEM
Hazardous Substance Benchmarks

Substance Name	CAS Number	AIR PATHWAY			SOIL PATHWAY	
		NAAQS NESHAPS (ug/m^3)	Reference Dose Screen Conc (mg/m^3)	Cancer Risk Screen Conc (mg/m^3)	Reference Dose Screen Conc (mg/kg)	Cancer Risk Screen Conc (mg/kg)
Acenaphthene	000083-32-9	...	...	...	4.7E+3	...
Acenaphthylene	000208-96-8	...	...	...	...	...
Acetone	000067-64-1	...	...	...	7.0E+4*	...
Acrolein	000107-02-8	...	2.1E-5	...	3.9E+1*	...
Acrylamide	000079-06-1	...	...	1.9E-6	1.6E+1	1.4E-1
Alachlor**	015972-60-8	...	...	...	7.8E+2	8.0E+0
Aldrin	000309-00-2	...	...	5.0E-7	2.3E+0	3.8E-2
Aluminum	007429-90-5	...	...	...	...	...
Americium**	007440-35-9	...	...	...	...	...
Aniline	000062-53-3	...	1.0E-3	...	...	1.1E+2*
Anthracene	000120-12-7	...	...	...	2.3E+4*	...
Antimony	007440-36-0	...	4.2E-4*	...	3.1E+1	...
Arsenic	007440-38-2	...	...	5.7E-7	2.3E+1	4.3E-1
Asbestos	001332-21-4	...	...	Inhal Unit Risk: 2.3E-1 fibers/mL*	...	...

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HAZARD RANKING SYSTEM
Hazardous Substance Benchmarks

Substance Name	CAS Number	AIR PATHWAY			SOIL PATHWAY	
		NAAQS NESHAPS (ug/m^3)	Reference Dose Screen Conc (mg/m^3)	Cancer Risk Screen Conc (mg/m^3)	Reference Dose Screen Conc (mg/kg)	Cancer Risk Screen Conc (mg/kg)
Barium	007440-39-3	...	5.2E-4	...	5.5E+3	...
Benz(a)anthracene	000056-55-3	...	...	...	...	8.8E-1
Benzene	000071-43-2	...	3.1E-2*	3.1E-4	3.1E+2*	1.2E+1*
Benzidine	000092-87-5	...	...	3.6E-8	2.3E+2	2.8E-3
Benzo(a)pyrene	000050-32-8	...	...	...	...	8.8E-2
Benzo(g,h,i)perylene	000191-24-2	...	...	...	...	...
Benzo(j,k)fluorene (Fluoranthene)	000206-44-0	...	...	...	3.1E+3	...
Benzo(k)fluoranthene	000207-08-9	...	...	...	...	8.8E+0
Beryllium	007440-41-7	1.0E-2	2.1E+1*	1.0E-6	1.6E+2*	...*
Bis (2-ethylhexyl) phthalate	000117-81-7	...	...	...	1.6E+3	4.6E+1*
Boron	007440-42-8	...	2.1E-2	...	7.0E+3	...
Bromodichloromethane	000075-27-4	...	...	...	1.6E+3	1.0E+1
Butylbenzyl phthalate	000085-68-7	...	...	...	1.6E+4*	...
Cadmium	007440-43-9	...	9.4E-4*	1.4E-6	3.9E+1	...

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HAZARD RANKING SYSTEM
Hazardous Substance Benchmarks

Substance Name	CAS Number	AIR PATHWAY			SOIL PATHWAY	
		NAAQS NESHAPS (ug/m^3)	Reference Dose Screen Conc (mg/m^3)	Cancer Risk Screen Conc (mg/m^3)	Reference Dose Screen Conc (mg/kg)	Cancer Risk Screen Conc (mg/kg)
Carbazole	000086-74-8	...	...	...	...	3.2E+1*
Carbon disulfide	000075-15-0	...	7.3E-1	...	7.8E+3	...
Carbon tetrachloride	000056-23-5	...	2.1E-2*	1.6E-4	5.5E+1	4.9E+0
Cesium	007440-46-2	...	...	...	...	...
Chlordane	000057-74-9	...	7.3E-4*	2.4E-5	3.9E+1*	1.8E+0*
Chlordane, alpha-	005103-71-9	...	7.3E-4*	2.4E-5*	3.9E+1*	1.8E+0*
Chlordane, gama-	005566-34-7	...	7.3E-4*	2.4E-5*	3.9E+1*	1.8E+0*
Chlorobenzene	000108-90-7	...	2.1E-2	...	1.6E+3	...
Chloroform	000067-66-3	...	...	1.1E-4	7.8E+2	...*
Chromium	007440-47-3	...	8.3E-6*	...*	2.3E+2*	...
Chromium(III)	016065-83-1	...	...	...	1.2E+5*	...
Chromium(VI)	018540-29-9	...	8.3E-6*	2.0E-7	2.3E+2*	...
Chrysene	000218-01-9	...	...	...	...	8.8E+1*
Cobalt	007440-48-4	...	...	...	...	...
Copper	007440-50-8	...	...	...	...	...

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HAZARD RANKING SYSTEM
Hazardous Substance Benchmarks

Substance Name	CAS Number	AIR PATHWAY			SOIL PATHWAY	
		NAAQS NESHAPS (ug/m^3)	Reference Dose Screen Conc (mg/m^3)	Cancer Risk Screen Conc (mg/m^3)	Reference Dose Screen Conc (mg/kg)	Cancer Risk Screen Conc (mg/kg)
Cumene	000098-82-8	...	4.2E-1*	...	7.8E+3*	...
Cyanamide**	000420-04-2	...	...	...	...	...
Cyanide	000057-12-5	...	...	...	1.6E+3	...
DDD	000072-54-8	...	...	...	...	2.7E+0
DDE	000072-55-9	...	...	...	...	1.9E+0
DDT	000050-29-3	...	...	2.5E-5	3.9E+1	1.9E+0
Di-n-butyl phthalate	000084-74-2	...	...	...	7.8E+3	...
Di-n-octyl phthalate	000117-84-0	...	...	...	1.6E+3	...
Dibenz(a,h)anthracene	000053-70-3	...	...	...	...	8.8E-2
Dibenzofuran	000132-64-9	...	...	...	3.1E+2*	...
Dibromo-3-chloropropane, 1,2-	000096-12-8	...	2.1E-4	3.5E-3	...	4.6E-1
Dibromoethane, 1,2-	000106-93-4	...	2.1E-4	1.1E-5	...	7.5E-3
Dichlorobenzene, 1,4-	000106-46-7	...	8.3E-1	...	...	2.7E+1*
Dichloroethane, 1,1-	000075-34-3	...	5.2E-1*	...	7.8E+3	...

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HAZARD RANKING SYSTEM
Hazardous Substance Benchmarks

Substance Name	CAS Number	AIR PATHWAY			SOIL PATHWAY	
		NAAQS NESHAPS (ug/m^3)	Reference Dose Screen Conc (mg/m^3)	Cancer Risk Screen Conc (mg/m^3)	Reference Dose Screen Conc (mg/kg)	Cancer Risk Screen Conc (mg/kg)
Dichloroethane, 1,2-	000107-06-2	...	...	9.4E-5	...	7.0E+0
Dichloroethylene, 1,1-	000075-35-4	...	2.1E-1*	7.1E-6	3.9E+3*	...*
Dichloroethylene, 1,2-**	000540-59-0	...	...	...	7.0E+2	...
Dichloroethylene, cis-1,2-	000156-59-2	...	...	...	7.8E+2	...
Dichloroethylene, trans-1,2-	000156-60-5	...	...	...	1.6E+3	...
Dichlorophenol, 2,4-	000120-83-2	...	...	...	2.3E+2	...
Dichloropropane, 1,2-	000078-87-5	...	4.2E-3	...	...	9.4E+0
Dichloropropene, 1,3-	000542-75-6	...	2.1E-2	6.1E-4	2.3E+3*	6.4E+0*
Dieldrin	000060-57-1	...	...	5.3E-7	3.9E+0	4.0E-2
Diethyl phthalate	000084-66-2	...	...	...	6.3E+4*	...
Dimethyl phenol, 2,4-	000105-67-9	...	...	...	1.6E+3	...
Dinitrobenzene, 1,3-	000099-65-0	...	...	...	7.8E+0	...
Dioxin 1,4-**	000290-67-5	...	...	...	...	...
Diphenylhydrazine, 1,2-	000122-66-7	...	...	1.1E-5	...	8.0E-1
Disulfoton	000298-04-4	...	...	...	3.1E+0	...

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HAZARD RANKING SYSTEM
Hazardous Substance Benchmarks

Substance Name	CAS Number	AIR PATHWAY			SOIL PATHWAY	
		NAAQS NESHAPS (ug/m^3)	Reference Dose Screen Conc (mg/m^3)	Cancer Risk Screen Conc (mg/m^3)	Reference Dose Screen Conc (mg/kg)	Cancer Risk Screen Conc (mg/kg)
Endosulfan (I or II)	000115-29-7	...	...	...	4.7E+2	...
Endosulfan I**	000959-98-8	...	...	...	4.7E+2	...
Endosulfan II**	033213-65-9	...	...	...	4.7E+2	...
Endrin	000072-20-8	...	...	...	2.3E+1	...
Endrin aldehyde	007421-93-4	...	...	...	...	...
Ethyl benzene	000100-41-4	...	1.0E+0	...	7.8E+3	...
Ethyl chloride	000075-00-3	...	1.0E+1	...	...	...
Ethylene glycol monobutyl ether (EBGE)**	000111-76-2	...	2.1E-1	...	3.9E+4	...
Fluorene	000086-73-7	...	...	...	3.1E+3	...
Fluorine	007782-41-4	...	...	...	4.7E+3	...
Heptachlor	000076-44-8	...	...	1.9E-6	3.9E+1	1.4E-1
Heptachlor epoxide, alpha, beta, gamma	001024-57-3	...	...	9.4E-7	1.0E+0	7.0E-2
Heptachlorodibenzo-p-dioxin**	037871-00-4	...	...	...	...	...
Heptachlorodibenzo-p-dioxin 1,2,3,4,6,7,8-	035822-46-9	...	...	5.7E-8	...	4.3E-3

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HAZARD RANKING SYSTEM
Hazardous Substance Benchmarks

Substance Name	CAS Number	AIR PATHWAY			SOIL PATHWAY	
		NAAQS NESHAPS (ug/m^3)	Reference Dose Screen Conc (mg/m^3)	Cancer Risk Screen Conc (mg/m^3)	Reference Dose Screen Conc (mg/kg)	Cancer Risk Screen Conc (mg/kg)
Heptachlorodibenzofuran 1,2,3,4,6,7,8-	067562-39-4	...	...	5.7E-8	...	4.3E-3
Heptachlorodibenzofuran 1,2,3,4,7,8,9-	055673-89-7	...	...	5.7E-8*	...	4.3E-3*
Hexabromobiphenyl (PBB)**	036355-01-8	...	...	...	...	...
Hexachlorobenzene	000118-74-1	...	...	5.3E-6	6.3E+1	4.0E-1
Hexachlorobutadiene	000087-68-3	...	...	1.1E-4	1.6E+1	8.2E+0
Hexachlorocyclohexane, alpha-	000319-84-6	...	...	1.4E-6	...	1.0E-1
Hexachlorocyclohexane, beta-	000319-85-7	...	...	4.6E-6	...	3.5E-1
Hexachlorodibenzo-p-dioxin 1,2,3,4,7,8-	039227-28-6	...	...	1.4E-9	...	1.1E-4
Hexachlorodibenzo-p-dioxin 1,2,3,6,7,8-	057653-85-7	...	...	1.4E-9	...	1.1E-4
Hexachlorodibenzo-p-dioxin 1,2,3,7,8,9-	019408-74-3	...	...	1.9E-9	...	1.0E-4
Hexachlorodibenzofuran 1,2,3,4,7,8-	070648-26-9	...	...	5.7E-9	...	4.3E-4
Hexachlorodibenzofuran 1,2,3,6,7,8-	057117-44-9	...	...	5.7E-9	...	4.3E-4
Hexachlorodibenzofuran 1,2,3,7,8,9-	072918-21-9	...	...	5.7E-9	...	4.3E-4
Hexachlorodibenzofuran 2,3,4,6,7,8-	060851-34-5	...	...	5.7E-9	...	4.3E-4

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HAZARD RANKING SYSTEM
Hazardous Substance Benchmarks

Substance Name	CAS Number	AIR PATHWAY			SOIL PATHWAY	
		NAAQS NESHAPS (ug/m^3)	Reference Dose Screen Conc (mg/m^3)	Cancer Risk Screen Conc (mg/m^3)	Reference Dose Screen Conc (mg/kg)	Cancer Risk Screen Conc (mg/kg)
Hydrazine	000302-01-2	...	...	5.0E-7	...	2.1E-1
Hydrogen sulfide	007783-06-4	...	2.1E-3	...	2.3E+3*	...
Indeno(1,2,3-cd)pyrene	000193-39-5	...	...	...	...	8.8E-1
Iron	007439-89-6	...	...	...	...	...
Lead	007439-92-1	1.5E+0	...	...	...	...
Lead chromate**	007758-97-6	...	...	...	...	...
Lindane	000058-89-9	...	...	...	2.3E+1	4.9E-1
Manganese	007439-96-5	...	5.2E-5	...	1.1E+4	...
Mercury	007439-97-6	...	3.1E-4	...	2.3E+1	...
Methoxychlor	000072-43-5	...	...	...	3.9E+2	...
Methyl Parathion	000298-00-0	...	...	...	2.0E+1	...
Methyl ethyl ketone	000078-93-3	...	5.2E+0*	...	4.7E+4*	...
Methyl isobutyl ketone	000108-10-1	...	3.1E+0*	...	6.3E+3	...
Methyl phenol, 4-	000106-44-5	...	...	...	3.9E+2	...
Methyl tert-butyl ether (MTBE)**	001634-04-4	...	3.1E+0	...	...	...

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HAZARD RANKING SYSTEM
Hazardous Substance Benchmarks

Substance Name	CAS Number	AIR PATHWAY			SOIL PATHWAY	
		NAAQS NESHAPS (ug/m^3)	Reference Dose Screen Conc (mg/m^3)	Cancer Risk Screen Conc (mg/m^3)	Reference Dose Screen Conc (mg/kg)	Cancer Risk Screen Conc (mg/kg)
Methylene chloride (dichloromethane)	000075-09-2	...	3.1E+0	5.2E-3	4.7E+3	8.5E+1*
Methylnaphthalene, 2-	000091-57-6	...	...	...	...	...
Naphthalene	000091-20-3	...	3.1E-3*	...	3.1E+3	...
Nickel	007440-02-0	...	...	...	1.6E+3	...
Nitrosodiphenylamine, N-	000086-30-6	...	...	...	...	1.3E+2*
Pentachlorodibenzo-p-dioxin 1,2,3,7,8-	040321-76-4	...	...	1.1E-10	...	8.5E-6
Pentachlorodibenzofuran 1,2,3,7,8-	057117-41-6	...	...	...*	...	...*
Pentachlorodibenzofuran 2,3,4,7,8-**	057117-31-4	...	...	5.7E-10	...	4.3E-5
Pentachlorophenol (PCP)	000087-86-5	...	...	...	2.3E+3	5.3E+0
Perchlorate**	014797-73-0	...	...	...	7.8E+0	...
Phenanthrene	000085-01-8	...	...	...	...	...
Phenol	000108-95-2	...	...	...	2.3E+4*	...
Plutonium	007440-07-5	...	...	...	...	...
Polychlorinated biphenyls (PCBs)	001336-36-3	...	...	2.4E-5*	1.6E+0	3.2E-1*

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HAZARD RANKING SYSTEM
Hazardous Substance Benchmarks

Substance Name	CAS Number	AIR PATHWAY			SOIL PATHWAY	
		NAAQS NESHAPS (ug/m^3)	Reference Dose Screen Conc (mg/m^3)	Cancer Risk Screen Conc (mg/m^3)	Reference Dose Screen Conc (mg/kg)	Cancer Risk Screen Conc (mg/kg)
Pyrene	000129-00-0	...	...	...	2.3E+3	...
Radium	007440-14-4	...	...	...	...	...
Radon	010043-92-2	...	...	...	...	...
Selenium	007782-49-2	...	...	...	3.9E+2	...
Silver	007440-22-4	...	...	...	3.9E+2	...
Strontium	007440-24-6	...	...	...	4.7E+4*	...
Styrene	000100-42-5	...	1.0E+0	...	1.6E+4*	...
Tetrachlorobenzene, 1,2,4,5-	000095-94-3	...	...	...	2.3E+1	...
Tetrachlorodibenzo-p-dioxin**	041903-57-5	...	...	...	...	...
Tetrachlorodibenzo-p-dioxin 2,3,7,8- (TCDD)	001746-01-6	...	...	5.7E-11	...	4.3E-6
Tetrachlorodibenzofuran 2,3,7,8-	051207-31-9	...	...	5.7E-10	...	4.3E-5
Tetrachloroethane, 1,1,2,2-	000079-34-5	...	...	4.2E-5	...	3.2E+0
Tetrachloroethylene	000127-18-4	...	...	...	7.8E+2	1.2E+1
Thallium	007440-28-0	...	...	...	...	...
Toluene	000108-88-3	...	4.2E-1	...	1.6E+4*	...

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HAZARD RANKING SYSTEM
Hazardous Substance Benchmarks

Substance Name	CAS Number	AIR PATHWAY			SOIL PATHWAY	
		NAAQS NESHAPS (ug/m^3)	Reference Dose Screen Conc (mg/m^3)	Cancer Risk Screen Conc (mg/m^3)	Reference Dose Screen Conc (mg/kg)	Cancer Risk Screen Conc (mg/kg)
Toxaphene	008001-35-2	...	...	7.6E-6	...	5.8E-1
Trichlorobenzene, 1,2,4-	000120-82-1	...	2.1E-1	...	7.8E+2	...
Trichloroethane, 1,1,1-	000071-55-6	...	2.3E+0*	...	...	...
Trichloroethane, 1,1,2-	000079-00-5	...	...	1.5E-4	3.1E+2	1.1E+1
Trichloroethylene (TCE)	000079-01-6	...	...	...	...	5.8E+1*
Trichlorofluoromethane	000075-69-4	...	7.3E-1	...	2.3E+4*	...
Trichlorophenol, 2,4,6-	000088-06-2	...	...	7.8E-4	...	5.8E+1*
Trichloropropane, 1,2,3-	000096-18-4	...	...	...	4.7E+2	9.1E-2
Trifluralin (Treflan)	001582-09-8	...	...	...	5.9E+2	8.3E+1*
Trinitrobenzene, 1,3,5-	000099-35-4	...	...	...	2.3E+3*	...
Vanadium	007440-62-2	...	...	...	5.5E+2	...
Vinyl acetate	000108-05-4	...	2.1E-1	...	7.8E+4*	...
Vinyl chloride	000075-01-4	...	1.0E-1*	2.8E-4	2.3E+2*	4.3E-1*
Xylene**	001330-20-7	...	1.0E-1	...	1.6E+4	...

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HAZARD RANKING SYSTEM
Hazardous Substance Benchmarks

Substance Name	CAS Number	AIR PATHWAY			SOIL PATHWAY	
		NAAQS NESHAPS (ug/m^3)	Reference Dose Screen Conc (mg/m^3)	Cancer Risk Screen Conc (mg/m^3)	Reference Dose Screen Conc (mg/kg)	Cancer Risk Screen Conc (mg/kg)
Xylene, m-	000108-38-3	...	...	...	1.6E+5*	...
Xylene, o-	000095-47-6	...	...	...	1.6E+5*	...
Xylene, p-	000106-42-3	...	...	...	...	...
Zinc	007440-66-6	...	...	...	2.3E+4*	...

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HAZARD RANKING SYSTEM
Hazardous Substance Benchmarks

Substance Name	CAS Number	DRINKING WATER		FOOD CHAIN	AIR	SOIL		
		MCL (pCi/L)	Cancer Risk Screen Conc (pCi/L)	Cancer Risk Screen Conc (pCi/kg)	Cancer Risk Screen Conc (pCi/m3)	UMTRCA (pCi/kg)	Cancer Risk Soil Ing (pCi/kg)	Cancer Risk Soil Gam (pCi/kg)
Americium 241	014596-10-2	1.5E+1*	4.6E-1*	1.3E+1*	1.7E-4*	...	3.7E+3*	...
Antimony 125(+D) (radionuclide)	014234-35-6	3.0E+2*	9.3E+0*	2.4E+2*	2.5E-1*	...	6.0E+4*	...
Cadmium 109 (radionuclide)	014109-32-1	6.0E+2*	9.5E+0*	2.6E+2*	2.2E-1*	...	7.0E+4*	...
Cesium 137(+D) (radionuclide)	010045-97-3	2.0E+2*	1.6E+0*	4.7E+1*	4.0E-1*	...	1.8E+4*	...
Cobalt 57 (radionuclide)	013981-50-5	1.0E+3*	4.6E+1*	1.2E+3*	2.3E+0*	...	2.9E+5*	...
Cobalt 60 (radionuclide)	010198-40-0	1.0E+2*	3.0E+0*	7.9E+1*	1.3E-1*	...	2.0E+4*	...
Iron 55 (radionuclide)	014681-59-5	2.0E+3*	5.5E+1*	1.5E+3*	6.0E+0*	...	3.8E+5*	...
Lead 210(+D) (radionuclide)	014255-04-0	...	3.7E-2	5.1E-1*	3.4E-4	...	3.0E+2*	...
Manganese 54 (radionuclide)	013966-31-9	3.0E+2*	2.1E+1*	5.7E+2*	8.1E-1*	...	1.5E+5*	...
Nickel 59 (radionuclide)	014336-70-0	3.0E+2*	1.8E+2*	4.5E+3*	1.0E+1*	...	1.1E+6*	...
Nickel 63 (radionuclide)	013981-37-8	5.0E+1*	7.1E+1*	1.9E+3*	2.9E+0*	...	4.4E+5*	...
Plutonium 236 (radionuclide)	015411-92-4	...	6.4E-1	1.8E+1*	2.1E-4*	...	4.6E+3*	...
Plutonium 238 (radionuclide)	013981-16-3	1.5E+1*	3.6E-1*	1.0E+1*	1.4E-4*	...	2.9E+3*	...
Plutonium 239 (radionuclide)	015117-48-3	1.5E+1*	3.5E-1*	1.0E+1*	1.4E-4*	...	2.9E+3*	...
Plutonium 240 (radionuclide)	014119-33-6	1.5E+1*	3.5E-1*	1.0E+1*	1.4E-4*	...	2.9E+3*	...

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HAZARD RANKING SYSTEM
Hazardous Substance Benchmarks

Substance Name	CAS Number	DRINKING WATER		FOOD CHAIN	AIR	SOIL		
		MCL (pCi/L)	Cancer Risk Screen Conc (pCi/L)	Cancer Risk Screen Conc (pCi/kg)	Cancer Risk Screen Conc (pCi/m3)	UMTRCA (pCi/kg)	Cancer Risk Soil Ing (pCi/kg)	Cancer Risk Soil Gam (pCi/kg)
Plutonium 241(+D) (radionuclide)	014119-32-5	...	2.7E+1*	7.7E+2*	1.4E-2*	...	2.4E+5*	...
Plutonium 242 (radionuclide)	013982-10-0	1.5E+1*	3.7E-1*	1.1E+1*	1.5E-4*	...	3.0E+3*	...
Plutonium 243 (radionuclide)	015706-37-3	...	1.0E+2*	2.5E+3*	1.6E+1*	...	5.9E+5*	...
Plutonium 244(+D) (radionuclide)	014119-34-7	1.5E+1*	3.5E-1*	9.8E+0*	1.6E-4*	...	2.7E+3*	...
Radium 226(+D) (radionuclide)	013982-63-3	5.0E+0*	1.2E-1	3.4E+0*	4.1E-4	...	1.1E+3*	...
Radium 228(+D) (radionuclide)	015262-20-1	5.0E+0*	4.6E-2*	1.2E+0*	9.1E-4*	...	3.5E+2*	...
Radon 222 (+D)(radionuclide)	014859-67-7	...	...	...	6.3E-1	...	...	...
Silver 108m(+D) (radionuclide)	014391-65-2	...	5.8E+0*	1.6E+2*	1.8E-1*	...	4.1E+4*	...
Silver 110m (radionuclide)	014391-76-5	9.0E+1*	4.8E+0*	1.3E+2*	1.7E-1*	...	3.4E+4*	...
Strontium 90(+D) (radionuclide)	010098-97-2	8.0E+0*	6.4E-1*	1.8E+1*	4.2E-2*	...	5.5E+3*	...
Technetium 99 (radionuclide)**	014133-76-7	9.0E+2	1.7E+1	4.4E+2	3.4E-1*	...	1.0E+5	...
Thallium 204 (radionuclide)	013968-51-9	3.0E+2*	8.1E+0*	2.1E+2*	1.9E+0*	...	5.2E+4*	...
Thorium 227 (radionuclide)	015623-47-9	...	1.0E+0*	2.5E+1*	1.4E-4*	...	5.8E+3*	...
Thorium 228(+D) (radionuclide)	014274-82-9	1.5E+1*	1.6E-1	4.2E+0*	3.3E-5*	...	9.8E+2*	...

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HAZARD RANKING SYSTEM
Hazardous Substance Benchmarks

Substance Name	CAS Number	DRINKING WATER		FOOD CHAIN	AIR	SOIL		
		MCL (pCi/L)	Cancer Risk Screen Conc (pCi/L)	Cancer Risk Screen Conc (pCi/kg)	Cancer Risk Screen Conc (pCi/m3)	UMTRCA (pCi/kg)	Cancer Risk Soil Ing (pCi/kg)	Cancer Risk Soil Gam (pCi/kg)
Thorium 229(+D) (radionuclide)	015594-54-4	1.5E+1*	9.0E-2	2.5E+0*	2.1E-5*	...	6.2E+2*	...
Thorium 230 (radionuclide)	014269-63-7	1.5E+1*	5.2E-1*	1.5E+1*	1.7E-4*	...	3.9E+3*	...
Thorium 231 (radionuclide)	014932-40-2	...	2.2E+1*	5.4E+2*	3.1E+0*	...	1.2E+5*	...
Thorium 232 (radionuclide)	007440-29-1	1.5E+1*	4.7E-1*	1.3E+1*	1.1E-4*	...	3.4E+3*	...
Thorium 234 (radionuclide)	015065-10-8	...	2.1E+0*	5.8E+1*	1.6E-1*	...	1.2E+4*	...
Tritium	010028-17-8	...	4.3E+2*	1.2E+4*	2.4E+1*	...	3.6E+6*	...
Uranium 232 (radionuclide)	014158-29-3	2.0E+1*	1.6E-1*	4.6E+0*	2.4E-4*	...	1.4E+3*	...
Uranium 233 (radionuclide)	013968-55-3	2.0E+1*	6.6E-1*	1.8E+1*	4.1E-4*	...	5.0E+3*	...
Uranium 234 (radionuclide)	013966-29-5	2.0E+1*	6.7E-1*	1.8E+1*	4.2E-4*	...	5.0E+3*	...
Uranium 235(+D) (radionuclide)	015117-96-1	2.0E+1*	6.6E-1*	1.8E+1*	4.7E-4*	...	4.9E+3*	...
Uranium 236(+D) (radionuclide)	013982-70-2	2.0E+1*	7.1E-1*	1.9E+1*	4.5E-4*	...	5.3E+3*	...
Uranium 238(+D) (radionuclide)	007440-61-1	2.0E+1*	5.5E-1*	1.5E+1*	5.1E-4*	...	3.8E+3*	...
Zinc 65 (radionuclide)	013982-39-3	3.0E+2*	4.1E+0*	1.1E+2*	8.2E-1*	...	3.2E+4*	...

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Footnote Code	Footnote Description
A	This recommended water quality criterion was derived from data for arsenic (III), but is applied here to total arsenic, which might imply that arsenic (III) and arsenic (V) are equally toxic to aquatic life and that their toxicities are additive. In the arsenic criteria document (EPA 440/5-84-033, January 1985), Species Mean Acute Values are given for both arsenic (III) and arsenic (V) for five species and the ratios of the SMAVs for each species range from 0.6 to 1.7. Chronic values are available for both arsenic (III) and arsenic (V) for one species; for the fathead minnow, the chronic value for arsenic (V) is 0.29 times the chronic value for arsenic (III). No data are known to be available concerning whether the toxicities of the forms of arsenic to aquatic organisms are additive.
B	This criterion has been revised to reflect The Environmental Protection Agency's q1* or RfD, as contained in the Integrated Risk Information System (IRIS) as of May 17, 2002. The fish tissue bioconcentration factor (BCF) from the 1980 Ambient Water Quality Criteria document was retained in each case.
C	This criterion is based on carcinogenicity of 10^{-6} risk. Alternate risk levels may be obtained by moving the decimal point (e.g., for a risk level of 10^{-5}, move the decimal point in the recommended criterion one place to the right).
D	Freshwater and saltwater criteria for metals are expressed in terms of the dissolved metal in the water column. The recommended water quality criteria value was calculated by using the previous 304(a) aquatic life criteria expressed in terms of total recoverable metal, and multiplying it by a conversion factor (CF). The term "Conversion Factor" (CF) represents the recommended conversion factor for converting a metal criterion expressed as the total recoverable fraction in the water column to a criterion expressed as the dissolved fraction in the water column. (Conversion Factors for saltwater CCCs are not currently available. Conversion factors derived for saltwater CMCs have been used for both saltwater CMCs and CCCs). See "Office of Water Policy and Technical Guidance on Interpretation and Implementation of Aquatic Life Metals Criteria," October 1, 1993, by Martha G. Prothro, Acting Assistant Administrator for Water, available from the Water Resource center, USEPA, 401 M St., SW, mail code RC4100, Washington, DC 20460; and 40CFR§131.36(b)(1). Conversion Factors applied in the table can be found in Appendix A to the Preamble- Conversion Factors for Dissolved Metals (which is attached below).
E	The freshwater criterion for this metal is expressed as a function of hardness (mg/L) in the water column. The value given here corresponds to a hardness of 100 mg/L. Criteria values for other hardness may be calculated from the following: CMC (dissolved) = $\exp\{m_A [\ln(\text{hardness})] + b_A\}$ (CF), or CCC (dissolved) = $\exp\{m_C [\ln (\text{hardness})] + b_C\}$ (CF) and the parameters specified in Appendix B- Parameters for Calculating Freshwater Dissolved Metals Criteria That Are Hardness-Dependent (which is attached below).
F	Freshwater aquatic life values for pentachlorophenol are expressed as a function of pH, and are calculated as follows: CMC = exp(1.005(pH)-4.869); CCC = exp(1.005(pH)-5.134). Values displayed in table correspond to a pH of 7.8.
G	This Criterion is based on 304(a) aquatic life criterion issued in 1980, and was issued in one of the following documents: Aldrin/Dieldrin (EPA 440/5-80-019), Chlordane (EPA 440/5-80-027), DDT (EPA 440/5-80-038), Endosulfan (EPA 440/5-80-046), Endrin (EPA 440/5-80-047), Heptachlor (EPA 440/5- 80-052), Hexachlorocyclohexane (EPA 440/5-80-054), Silver (EPA 440/5-80-071). The Minimum Data Requirements and derivation procedures were different in the 1980 Guidelines than in the 1985 Guidelines. For example, a "CMC" derived using the 1980 Guidelines was derived to be used as an instantaneous maximum. If assessment is to be done using an averaging period, the values given should be divided by 2 to obtain a value that is more comparable to a CMC derived using the 1985 Guidelines.
H	No criterion for protection of human health from consumption of aquatic organisms excluding water was presented in the 1980 criteria document or in the *1986 Quality Criteria for Water*. Nevertheless, sufficient information was presented in the 1980 document to allow the calculation of a criterion, even though the results of such a calculation were not shown in the document.
I	This criterion for asbestos is the Maximum Contaminant Level (MCL) developed under the Safe Drinking Water Act (SDWA).
J	This fish tissue residue criterion for methylmercury is based on a total fish consumption rate of 0.0175 kg/day.

* Indicates difference between previous version of chemical data (JUN 96) and current version of chemical data (JAN04).
** Indicates new hazardous substance in current version of chemical data (JAN04).

Footnote Code	Footnote Description
K	This recommended criterion is based on a 304(a) aquatic life criterion that was issued in the *1995 Updates: Water Quality Criteria Documents for the Protection of Aquatic Life in Ambient Water*, (EPA-820-B-96-001, September 1996). This value was derived using the GLI Guidelines (60FR15393-15399, March 23, 1995; 40CFR132 Appendix A); the difference between the 1985 Guidelines and the GLI Guidelines are explained on page iv of the 1995 Updates. None of the decisions concerning the derivation of this criterion were affected by any considerations that are specific to the Great Lakes.
L	The CMC = 1/[(f1/CMC1) + (f2/CMC2)] where f1 and f2 are the fractions of total selenium that are treated as selenite and selenate, respectively, and CMC1 and CMC2 are 185.9 µg/l and 12.82 µg/l, respectively.
M	EPA is currently reassessing the criteria for arsenic.
N	This criterion applies to total pcbs, (e.g., the sum of all congener or all isomer or homolog or Aroclor analyses.)
O	The derivation of the CCC for this pollutant (Endrin) did not consider exposure through the diet, which is probably important for aquatic life occupying upper trophic levels.
P	Although a new RfD is available in IRIS, the surface water criteria will not be revised until the National Primary Drinking Water Regulations: Stage 2 Disinfectants and Disinfection Byproducts Rule (Stage 2 DBPR) is completed, since public comment on the relative source contribution (RSC) for chloroform is anticipated.
Q	This recommended water quality criterion is expressed as µg free cyanide (as CN)/L.
R	This value for selenium was announced (61FR58444-58449, November 14, 1996) as a proposed GLI 303(c) aquatic life criterion. EPA is currently working on this criterion and so this value might change substantially in the near future.
S	This recommended water quality criterion for arsenic refers to the inorganic form only.
T	This recommended water quality criterion for selenium is expressed in terms of total recoverable metal in the water column. It is scientifically acceptable to use the conversion factor (0.996- CMC or 0.922- CCC) that was used in the GLI to convert this to a value that is expressed in terms of dissolved metal.
U	The organoleptic effect criterion is more stringent than the value for priority toxic pollutants.
V	This value was derived from data for heptachlor and the criteria document provides insufficient data to estimate the relative toxicities of heptachlor and heptachlor epoxide.
W	Although EPA has not published a completed criteria document for butylbenzyl phthalate it is EPA's understanding that sufficient data exist to allow calculation of aquatic criteria. It is anticipated that industry intends to publish in the peer reviewed literature draft aquatic life criteria generated in accordance with EPA Guidelines. EPA will review such criteria for possible issuance as national WQC.
X	There is a full set of aquatic life toxicity data that show that DEHP is not toxic to aquatic organisms at or below its solubility limit.
Y	This value was derived from data for endosulfan and is most appropriately applied to the sum of alpha-endosulfan and beta-endosulfan.
Z	A more stringent MCL has been issued by EPA. Refer to drinking water regulations (40 CFR 141) or Safe Drinking Water Hotline (1-800-426-4791) for values.
aa	This criterion is based on a 304(a) aquatic life criterion issued in 1980 or 1986, and was issued in one of the following documents: Aldrin/Dieldrin (EPA 440/5-80-019), Chlordane (EPA 440/5-80-027), DDT (EPA 440/5-80- 038), Endrin (EPA 440/5-80-047), Heptachlor (EPA 440/5-80-052), Polychlorinated biphenyls (EPA 440/5-80-068), Toxaphene (EPA 440/5-86-006). This CCC is currently based on the Final Residue Value (FRV) procedure. Since the publication of the Great Lakes Aquatic Life Criteria Guidelines in 1995 (60FR15393-15399, March 23, 1995), the Agency no longer uses the Final Residue Value procedure for deriving CCCs for new or revised 304(a) aquatic life criteria. Therefore, the Agency anticipates that future revisions of this CCC will not be based on the FRV procedure.

* Indicates difference between previous version of chemical data (JUN 96) and current version of chemical data (JAN04).
** Indicates new hazardous substance in current version of chemical data (JAN04).

Footnote Code	Footnote Description
bb	This water quality criterion is based on a 304(a) aquatic life criterion that was derived using the 1985 Guidelines (*Guidelines for Deriving Numerical National Water Quality Criteria for the Protection of Aquatic Organisms and Their Uses*, PB85-227049, January 1985) and was issued in one of the following criteria documents: Arsenic (EPA 440/5-84-033), Cadmium (EPA 882-R-01-001), Chromium (EPA 440/5-84-029), Copper (EPA 440/5-84-031), Cyanide (EPA 440/5- 84-028), Lead (EPA 440/5-84-027), Nickel (EPA 440/5-86-004), Pentachlorophenol (EPA 440/5-86-009), Toxaphene, (EPA 440/5-86-006), Zinc (EPA 440/5-87- 003).
cc	When the concentration of dissolved organic carbon is elevated, copper is substantially less toxic and use of Water-Effect Ratios might be appropriate.
dd	The selenium criteria document (EPA 440/5-87-006, September 1987) provides that if selenium is as toxic to saltwater fishes in the field as it is to freshwater fishes in the field, the status of the fish community should be monitored whenever the concentration of selenium exceeds 5.0 µg/L in salt water because the saltwater CCC does not take into account uptake via the food chain.
ee	This recommended water quality criterion was derived on page 43 of the mercury criteria document (EPA 440/5- 84-026, January 1985). The saltwater CCC of 0.025 ug/L given on page 23 of the criteria document is based on the Final Residue Value procedure in the 1985 Guidelines. Since the publication of the Great Lakes Aquatic Life Criteria Guidelines in 1995 (60FR15393-15399, March 23, 1995), the Agency no longer uses the Final Residue Value procedure for deriving CCCs for new or revised 304(a) aquatic life criteria.
ff	This recommended water quality criterion was derived in *Ambient Water Quality Criteria Saltwater Copper Addendum* (Draft, April 14, 1995) and was promulgated in the Interim final National Toxics Rule (60FR22228- 222237, May 4, 1995).
gg	EPA is actively working on this criterion and so this recommended water quality criterion may change substantially in the near future.
hh	This recommended water quality criterion was derived from data for inorganic mercury (II), but is applied here to total mercury. If a substantial portion of the mercury in the water column is methylmercury, this criterion will probably be under protective. In addition, even though inorganic mercury is converted to methylmercury and methylmercury bioaccumulates to a great extent, this criterion does not account for uptake via the food chain because sufficient data were not available when the criterion was derived.
ii	This criterion applies to DDT and its metabolites (i.e., the total concentration of DDT and its metabolites should not exceed this value).
F2	The derivation of this value is presented in the Red Book (EPA 440/9-76-023, July, 1976).
G2	This value is based on a 304(a) aquatic life criterion that was derived using the 1985 Guidelines (*Guidelines for Deriving Numerical National Water Quality Criteria for the Protection of Aquatic Organisms and Their Uses*, PB85-227049, January 1985) and was issued in one of the following criteria documents: Aluminum (EPA 440/5-86-008); Chloride (EPA 440/5-88-001); Chloropyrifos (EPA 440/5-86-005).
I2	This value for aluminum is expressed in terms of total recoverable metal in the water column.
L2	There are three major reasons why the use of Water-Effect Ratios might be appropriate. (1) The value of 87 µg/l is based on a toxicity test with the striped bass in water with pH= 6.5-6.6 and hardness <10 mg/L. Data in "Aluminum Water-Effect Ratio for the 3M Plant Effluent Discharge, Middleway, West Virginia" (May 1994) indicate that aluminum is substantially less toxic at higher pH and hardness, but the effects of pH and hardness are not well quantified at this time. (2) In tests with the brook trout at low pH and hardness, effects increased with increasing concentrations of total aluminum even though the concentration of dissolved aluminum was constant, indicating that total recoverable is a more appropriate measurement than dissolved, at least when particulate aluminum is primarily aluminum hydroxide particles. In surface waters, however, the total recoverable procedure might measure aluminum associated with clay particles, which might be less toxic than aluminum associated with aluminum hydroxide. (3) EPA is aware of field data indicating that many high quality waters in the U.S. contain more than 87 µg aluminum/L, when either total recoverable or dissolved is measured.

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** Indicates new hazardous substance in current version of chemical data (JAN04).

Conversion Factors for Dissolved Metals				
Metal	**Conversion Factor Freshwater CMC**	**Conversion Factor Freshwater CCC**	**Conversion Factor Saltwater CMC**	**Conversion Factor Saltwater CMC**
Arsenic	1.000	1.000	1.000	1.000
Cadmium	1.136672-[(ln hardness)(0.041838)]	1.101672-[(ln hardness)(0.041838)]	0.994	0.994
ChromiumIII	0.316	0.860	--	--
Chromium VI	0.982	0.962	0.993	0.993
Copper	0.960	0.960	0.83	0.83
Lead	1.46203-[(ln hardness)(0.145712)]	1.46203-[ln hardness)(0.145712)]	0.951	0.951
Mercury	0.85	0.85	0.85	0.85
Nickel	0.998	0.997	0.990	0.990
Selenium	--	--	0.998	0.998
Silver	0.85	--	0.85	--
Zinc	0.978	0.986	0.946	0.946

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** Indicates new hazardous substance in current version of chemical data (JAN04).

Parameters for Calculating Freshwater Dissolved Metals That are Hardness Dependent						
					Conversion Factors (CF)	
Chemical	**m_A**	**b_A**	**m_C**	**b_C**	**CMC**	**CCC**
Cadmium	1.0166	-3.924	0.7409	-4.719	1.136672-[(ln hardness)(0.041838)]	1.101672-[(ln hardness)(0.041838)]
Chromium III	0.8190	3.7256	0.8190	0.6848	0.316	0.860
Copper	0.9422	-1.700	0.8545	-1.702	0.960	0.960
Lead	1.273	-1.460	1.273	-4.705	1.46203-[(ln hardness)(0.145712)]	1.46203-[(ln hardness)(0.145712)]
Nickel	0.8460	2.255	0.8460	0.0584	0.998	0.997
Silver	1.72	-6.59	--	--	0.85	--
Zinc	0.8473	0.884	0.8473	0.884	0.978	0.986

Hardness-dependent metals' criteria may be calculated from the following:

CMC (dissolved) = $\exp \{m_A [\ln(\text{hardness})] + b_A\}$ (CF)

CCC (dissolved) = $\exp \{m_C [\ln(\text{hardness})] + b_C\}$ (CF)

* Indicates difference between previous version of chemical data (JUN 96) and current version of chemical data (JAN04).

** Indicates new hazardous substance in current version of chemical data (JAN04).

CAS Number	Chemical Name	Synonyms
000083-32-9	Acenaphthene	Acenaphthylene, 1,2-dihydro
000067-64-1	Acetone	2-Propanone
000107-02-8	Acrolein	Propenal
000079-06-1	Acrylamide	Propenamide
000062-53-3	Aniline	Benzeneamine
000120-12-7	Anthracene	Paranaphthalene
000056-55-3	Benz(a)anthracene	Benzanthrene
000071-43-2	Benzene	Coal naptha
000092-87-5	Benzidine	(1,1'-biphenyl)-4,4'-diamine
000050-32-8	Benzo(a)pyrene	Benz(a)pyrene
000206-44-0	Benzo(j,k)fluorene (Fluoranthene)	Fluoranthene
000207-08-9	Benzo(k)fluoranthene	Dibenzo(b,j,k)fluorene
000117-81-7	Bis (2-ethylhexyl) phthalate	Benzenedicarboxylic acid, bis (2-ethylhexyl) ester, 1,2-
000075-27-4	Bromodichloromethane	Dichlorobromomethane
000085-68-7	Butylbenzyl phthalate	1,2-benzenedicarboxylic acid, butyl phenylmethyl ester
000075-15-0	Carbon disulfide	Dithiocarbonic anhydride
000056-23-5	Carbon tetrachloride	Tetrachloromethane
000057-74-9	Chlordane	Octachloro-4,7-methanotetrahydroindane
005103-71-9	Chlordane, alpha-	cis-Chlordane
005566-34-7	Chlordane, gama-	trans-Chlordane
000108-90-7	Chlorobenzene	Phenyl chloride
000067-66-3	Chloroform	Trichloromethane
007440-47-3	Chromium	Chrome
000218-01-9	Chrysene	Benzophenanthrene, 1,2-
000098-82-8	Cumene	Methylethylbenzene, 1-
000057-12-5	Cyanide	Hydrocyanic acid
000072-54-8	DDD	Dichlorodiphenyl dichloroethane
000072-55-9	DDE	Dichlorodiphenyldichloroethylene, p,p-
000050-29-3	DDT	Dichlorodiphenyltrichloroethane, 4,4-
000084-74-2	Di-n-butyl phthalate	Benzenedicarboxylic acid, dibutyl ester, 1,2-
000117-84-0	Di-n-octyl phthalate	Benzenedicarboxylic acid, dioctyl ester, 1,2-
000053-70-3	Dibenz(a,h)anthracene	Dibenz(a)anthracene, 1,2:5,6-
000132-64-9	Dibenzofuran	Diphenylene Oxide
000096-12-8	Dibromo-3-chloropropane, 1,2-	Nemazon
000106-93-4	Dibromoethane, 1,2-	Ethylene dibromide (EDB)
000106-46-7	Dichlorobenzene, 1,4-	Chlorophenyl chloride, p-
000075-34-3	Dichloroethane, 1,1-	Ethylidene chloride
000107-06-2	Dichloroethane, 1,2-	Ethylene chloride

CAS Number	Chemical Name	Synonyms
000083-32-9	Acenaphthene	Acenaphthylene, 1,2-dihydro
000067-64-1	Acetone	2-Propanone
000107-02-8	Acrolein	Propenal
000079-06-1	Acrylamide	Propenamide
000062-53-3	Aniline	Benzeneamine
000120-12-7	Anthracene	Paranaphthalene
000056-55-3	Benz(a)anthracene	Benzanthrene
000071-43-2	Benzene	Coal naptha
000092-87-5	Benzidine	(1,1'-biphenyl)-4,4'-diamine
000050-32-8	Benzo(a)pyrene	Benz(a)pyrene
000206-44-0	Benzo(j,k)fluorene (Fluoranthene)	Fluoranthene
000207-08-9	Benzo(k)fluoranthene	Dibenzo(b,j,k)fluorene
000117-81-7	Bis (2-ethylhexyl) phthalate	Benzenedicarboxylic acid, bis (2-ethylhexyl) ester, 1,2-
000075-27-4	Bromodichloromethane	Dichlorobromomethane
000085-68-7	Butylbenzyl phthalate	1,2-benzenedicarboxylic acid, butyl phenylmethyl ester
000075-15-0	Carbon disulfide	Dithiocarbonic anhydride
000056-23-5	Carbon tetrachloride	Tetrachloromethane
000057-74-9	Chlordane	Octachloro-4,7-methanotetrahydroindane
005103-71-9	Chlordane, alpha-	cis-Chlordane
005566-34-7	Chlordane, gama-	trans-Chlordane
000108-90-7	Chlorobenzene	Phenyl chloride
000067-66-3	Chloroform	Trichloromethane
007440-47-3	Chromium	Chrome
000218-01-9	Chrysene	Benzophenanthrene, 1,2-
000098-82-8	Cumene	Methylethylbenzene, 1-
000057-12-5	Cyanide	Hydrocyanic acid
000072-54-8	DDD	Dichlorodiphenyl dichloroethane
000072-55-9	DDE	Dichlorodiphenyldichloroethylene, p,p-
000050-29-3	DDT	Dichlorodiphenyltrichloroethane, 4,4-
000084-74-2	Di-n-butyl phthalate	Benzenedicarboxylic acid, dibutyl ester, 1,2-
000117-84-0	Di-n-octyl phthalate	Benzenedicarboxylic acid, dioctyl ester, 1,2-
000053-70-3	Dibenz(a,h)anthracene	Dibenz(a)anthracene, 1,2:5,6-
000132-64-9	Dibenzofuran	Diphenylene Oxide
000096-12-8	Dibromo-3-chloropropane, 1,2-	Nemazon
000106-93-4	Dibromoethane, 1,2-	Ethylene dibromide (EDB)
000106-46-7	Dichlorobenzene, 1,4-	Chlorophenyl chloride, p-
000075-34-3	Dichloroethane, 1,1-	Ethylidene chloride
000107-06-2	Dichloroethane, 1,2-	Ethylene chloride

CAS Number	Chemical Name	Synonyms
000075-35-4	Dichloroethylene, 1,1-	Dichloroethylene, 1,1-
000156-59-2	Dichloroethylene, cis-1,2-	cis-dichloroethylene
000156-60-5	Dichloroethylene, trans-1,2-	1,2-dichloroethylene
000120-83-2	Dichlorophenol, 2,4-	Dichlorophenol, 4,6-
000078-87-5	Dichloropropane, 1,2-	Propylene chloride
000542-75-6	Dichloropropene, 1,3-	Dichloropropylene, 1,3-
000060-57-1	Dieldrin	Aldrin epoxide
000084-66-2	Diethyl phthalate	Benzenedicarboxylic acid, didecyl ester, 1,2-
000105-67-9	Dimethyl phenol, 2,4-	1-Hydroxy-2,4-dimethylbenzene
000099-65-0	Dinitrobenzene, 1,3-	Dinitrobenzene, 1,2-
000122-66-7	Diphenylhydrazine, 1,2-	Hydrazodibenzene
000100-41-4	Ethyl benzene	Phenylethane
000075-00-3	Ethyl chloride	Chloroethane
000086-73-7	Fluorene	Methylenebiphenyl, 2,2-
007782-41-4	Fluorine	Fluorine-19
000076-44-8	Heptachlor	Chlorochlordene, 3-
001024-57-3	Heptachlor epoxide, alpha, beta, gamma	Epoxyheptachlor
000118-74-1	Hexachlorobenzene	Perchlorobenzene
000087-68-3	Hexachlorobutadiene	Perchlorobutadiene
000319-84-6	Hexachlorocyclohexane, alpha-	alpha-BHC
000319-85-7	Hexachlorocyclohexane, beta-	beta-BHC
000302-01-2	Hydrazine	Diamine
007783-06-4	Hydrogen sulfide	Hydrosulfuric acid
000058-89-9	Lindane	Hexachlorocyclohexane- gamma
000072-43-5	Methoxychlor	(2,2,2-trichloroethylidiene)bis(4-methoxy-benzene), 1,1'-
000298-00-0	Methyl Parathion	Dimethyl p-nitrophenyl thiophosphate
000078-93-3	Methyl ethyl ketone	Butanone
000108-10-1	Methyl isobutyl ketone	Methyl-2-pentanone, 4-
000106-44-5	Methyl phenol, 4-	Methyl phenol, 4-
000075-09-2	Methylene chloride (dichloromethane)	Dichloromethane
000091-57-6	Methylnaphthalene, 2-	Methylnaphthalene, 2-
000091-20-3	Naphthalene	Tar camphor
000086-30-6	Nitrosodiphenylamine, N-	Diphenylnitrosamine : Nitrosophenylbenzeneamine, –
000085-01-8	Phenanthrene	Phenanthren
000108-95-2	Phenol	Phenyl alcohol
001336-36-3	Polychlorinated biphenyls (PCBs)	Polychlorinated biphenyls
000129-00-0	Pyrene	Benzo(def)phenanthrene

CAS Number	Chemical Name	Synonyms
000100-42-5	Styrene	Vinylbenzene
000095-94-3	Tetrachlorobenzene, 1,2,4,5-	Tetrachlorobenzene, s-
001746-01-6	Tetrachlorodibenzo-p-dioxin 2,3,7,8- (TCDD)	2,3,7,8-Tetrachlorodibenzo-p-dioxin : Tetrachlorodibenzo-p-dioxin, 2,3,7,8-
000079-34-5	Tetrachloroethane, 1,1,2,2-	Acetylene tetrachloride
000127-18-4	Tetrachloroethylene	Tetrachloroethylene
007440-29-1	Thorium 232 (radionuclide)	Thorium 232
000108-88-3	Toluene	Methyl benzene
008001-35-2	Toxaphene	Chlorinated camphene
000071-55-6	Trichloroethane, 1,1,1-	Methyl chloroform
000079-00-5	Trichloroethane, 1,1,2-	Vinyl trichloride
000079-01-6	Trichloroethylene (TCE)	Trichloroethene
000075-69-4	Trichlorofluoromethane	Freon 11
001582-09-8	Trifluralin (Treflan)	Treflan
007440-61-1	Uranium 238(+D) (radionuclide)	Uranium 238
000108-05-4	Vinyl acetate	Acetic acid, vinyl ester
000075-01-4	Vinyl chloride	Chloroethene
000108-38-3	Xylene, m-	Dimethyl benzene, 1,3-
000095-47-6	Xylene, o-	Methyltoulene, o-
000106-42-3	Xylene, p-	Dimethylbenzene, 1,4-

Appendix F

Quickscore Sheets

WASTE CHARACTERISTICS

Waste Characteristics (WC) Calculations:

1 Flamingo Bay Landfil	Landfill	Ref:	3	WQ value	maximum
Area	8.86E+04 sq ft			2.61E+01	2.61E+01
Ref:					
2 Test Area 4	Pile	Ref:	3	WQ value	maximum
Area	5.28E+04 sq ft			4.06E+03	4.06E+03
Ref:					
3 Test Area 5	Pile	Ref:	3	WQ value	maximum
Area	1.17E+05 sq ft			8.97E+03	8.97E+03
Ref:					

WQ total 1.31E+04

** Only First WC Page Is Printed ** | Waste Characteristics Score: WC = 100

****** CONFIDENTIAL ******
******PRE-DECISIONAL DOCUMENT ******
****** SUMMARY SCORESHEET ******
****** FOR COMPUTING PROJECTED HRS SCORE ******

****** Do Not Cite or Quote ******

Site Name: Former Fort Segarra, Water Island, VI

Region: 2

City, County, State: Water Island, VI 00802 NA

Evaluator: Maargaret A. Lake

EPA ID#: VI0000591875

Date: 4/23/2004

Lat/Long: 18deg 18' 37.2"/64deg 57' 28.7"

T/R/S: Water Island

Congressional District: VI, at large

This Scoresheet is for: SI

Scenario Name: Former Fort Segarra

Description: Test Areas 4, 5, and the Flamingo Bay Landfill site investigation for hazardous materials, CWM and EO.

	S pathway	S^2 pathway
Ground Water Migration Pathway Score (S_{gw})	0.55	0.3025
Surface Water Migration Pathway Score (S_{sw})	0	0
Soil Exposure Pathway Score (S_s)	14.4	207.36
Air Migration Score (S_a)	0.198181818181818	0.0392760330578512
$S^2_{gw} + S^2_{sw} + S^2_s + S^2_a$		207.7018
$(S^2_{gw} + S^2_{sw} + S^2_s + S^2_a)/4$		51.92545
$\sqrt{(S^2_{gw} + S^2_{sw} + S^2_s + S^2_a)/4}$		7.21

✳ Pathways not assigned a score (explain): Groundwater on Water Island is not used as a source of drinking water on Water Island. Nor is groundwater used for any other purpose on the island. Shallow fresh groundwater probably discharges into the surrounding ocean. Since Water Island is seperated fro St. Thomas by an ocean channel, there is little likelyhood that the aquifer supplying St. Thomas is hydraulically connected to the shallow fresh water aquifer underlying Water Island. Furthermore, the direction of shallow groundwater flow in the southern part of Water Island is expected to be to the west-southwest and east-southeast away from ST; Thomas located tot he north.

TABLE 5-1 --SOIL EXPOSURE PATHWAY SCORESHEET

Factor categories and factors	Maximum Value	Value Assigned	
Likelihood of Exposure:			
1. Likelihood of Exposure	550		550
Waste Characteristics:			
2. Toxicity	(a)	10000	
3. Hazardous Waste Quantity	(a)	1	
4. Waste Characteristics	100		10
Targets:			
5. Resident Individual	50	50	
6. Resident Population:			
6a. Level I Concentrations	(b)	161	
6b. Level II Concentrations	(b)		
6c. Population (lines 6a + 6b)	(b)	161	
7. Workers	15	0	
8. Resources	5	5	
9. Terrestrial Sensitive Environments	(c)	0	
10. Targets (lines 5 + 6c + 7 + 8 + 9)	(b)		216
Resident Population Threat Score			
11. Resident Population Threat Score (lines 1 x 4 x 10)	(b)		1188000
Nearby Population Threat			
Likelihood of Exposure:			
12. Attractiveness/Accessibility	100	10	
13. Area of Contamination	100	40	
14. Likelihood of Exposure	500		5
Waste Characteristics:			
15. Toxicity	(a)	10000	
16. Hazardous Waste Quantity	(a)	1	
17. Waste Characteristics	100		10
Targets:			
18. Nearby Individual	1	1	
19. Population Within 1 Mile	(b)	70	
20. Targets (lines 18 + 19)	(b)		1
Nearby Population Threat Score			
21. Nearby Population Threat (lines 14 x 17 x 20)	(b)		50
Soil Exposure Pathway Score:			
22. Pathway Score[d] (S_s), [lines (11+21)/82,500, subject to max of 100]	100		14.4

[a] Maximum value applies to waste characteristics category
[b] Maximum value not applicable
[c] No specific maximum value applies to factor. However, pathway score based solely on terrestrial sensitive environments is limited to a maximum of 60
[d] Do not round to nearest integer

TABLE 6-1 --AIR MIGRATION PATHWAY SCORESHEET

Factor categories and factors	Maximum Value	Value Assigned	
Likelihood of Release:			
1. Observed Release	550	0	
2. Potential to Release:			
2a. Gas Potential to Release	500	0	
2b. Particulate Potential to Release	500	10	
2c. Potential to Release (higher of lines 2a and 2b)	500	10	
3. Likelihood of Release (higher of lines 1 and 2c)	550		10
Waste Characteristics:			
4. Toxicity/Mobility	(a)	2	
5. Hazardous Waste Quantity	(a)	1	
6. Waste Characteristics	100		1
Targets:			
7. Nearest Individual	50	20	
8. Population:			
8a. Level I Concentrations	(b)	1610	
8b. Level II Concentrations	(b)	0	
8c. Potential Contamination	(c)	0	
8d. Population (lines 8a + 8b + 8c)	(b)	1610	
9. Resources	5	5	
10. Sensitive Environments:			
10a. Actual Contamination	(c)	0	
10b. Potential Contamination	(c)	0	
10c. Sensitive Environments (lines 10a + 10b)	(c)	0	
11. Targets (lines 7 + 8d + 9 + 10c)	(b)		1635
Air Migration Pathway Score:			
12. Pathway Score (S_a) [(lines 3 x 6 x 11)/82,500][d]	100		0.198181818181818

[a] Maximum value applies to waste characteristics category
[b] Maximum value not applicable
[c] No specific maximum value applies to factor. However, pathway score based solely on sensitive environments is limited to a maximum of 60.
[d] Do not round to nearest integer

TABLE 3-1 --GROUND WATER MIGRATION PATHWAY SCORESHEET

Factor categories and factors	Maximum Value	Value Assigned	
Aquifer Evaluated: Groundwater score			
Likelihood of Release to an Aquifer:			
1. Observed Release	550	0	
2. Potential to Release:			
2a. Containment	10	10	
2b. Net Precipitation	10	10	
2c. Depth to Aquifer	5	5	
2d. Travel Time	35	35	
2e. Potential to Release [lines 2a(2b + 2c + 2d)]	500	500	
3. Likelihood of Release (higher of lines 1 and 2e)	550		500
Waste Characteristics:			
4. Toxicity/Mobility	(a)	10000	
5. Hazardous Waste Quantity	(a)	10	
6. Waste Characteristics	100		18
Targets:			
7. Nearest Well	(b)	0	
8. Population:			
8a. Level I Concentrations	(b)	0	
8b. Level II Concentrations	(b)	0	
8c. Potential Contamination	(b)	0	
8d. Population (lines 8a + 8b + 8c)	(b)	0	
9. Resources	5	5	
10. Wellhead Protection Area	20	0	
11. Targets (lines 7 + 8d + 9 + 10)	(b)		5
Ground Water Migration Score for an Aquifer:			
12. Aquifer Score [(lines 3 x 6 x 11)/82,5000][c]	100		0.5454545454545 4545
Ground Water Migration Pathway Score:			
13. Pathway Score (S_{gw}), (highest value from line 12 for all aquifers evaluated)[c]	100		0.5454545454545 4545

[a] Maximum value applies to waste characteristics category
[b] Maximum value not applicable
[c] Do not round to nearest integer

TABLE 4-1 --SURFACE WATER OVERLAND/FLOOD MIGRATION COMPONENT SCORESHEET

Factor categories and factors	Maximum Value	Value Assigned
Watershed Evaluated:		
Drinking Water Threat		
Likelihood of Release:		
1. Observed Release	550	
2. Potential to Release by Overland Flow:		
2a. Containment	10	
2b. Runoff	10	
2c. Distance to Surface Water	5	
2d. Potential to Release by Overland Flow [lines 2a(2b + 2c)]	35	
3.Potential to Release by Flood:		
3a. Containment (Flood)	10	
3b. Flood Frequency	50	
3c. Potential to Release by Flood (lines 3a x 3b)	500	
4. Potential to Release (lines 2d + 3c, subject to a maximum of 500)	500	
5. Likelihood of Release (higher of lines 1 and 4)	550	
Waste Characteristics:		
6. Toxicity/Persistence	(a)	
7. Hazardous Waste Quantity	(a)	
8. Waste Characteristics	100	
Targets:		
9. Nearest Intake	50	
10. Population:		
10a. Level I Concentrations	(b)	
10b. Level II Concentrations	(b)	
10c. Potential Contamination	(b)	
10d. Population (lines 10a + 10b + 10c)	(b)	
11. Resources	5	
12. Targets (lines 9 + 10d + 11)	(b)	
Drinking Water Threat Score:		
13. Drinking Water Threat Score [(lines 5x8x12)/82,500, subject to a max of 100]	100	
Human Food Chain Threat		
Likelihood of Release:		
14. Likelihood of Release (same value as line 5)	550	
Waste Characteristics:		
15. Toxicity/Persistence/Bioaccumulation	(a)	
16. Hazardous Waste Quantity	(a)	0
17. Waste Characteristics	1000	
Targets:		
18. Food Chain Individual	50	
19. Population		
19a. Level I Concentration	(b)	
19b. Level II Concentration	(b)	
19c. Potential Human Food Chain Contamination	(b)	
19d. Population (lines 19a + 19b + 19c)	(b)	
20. Targets (lines 18 + 19d)	(b)	
Human Food Chain Threat Score:		
21. Human Food Chain Threat Score [(lines 14x17x20)/82500, subject to max of 100]	100	
Environmental Threat		
Likelihood of Release:		
22. Likelihood of Release (same value as line 5)	550	
Waste Characteristics:		
23. Ecosystem Toxicity/Persistence/Bioaccumulation	(a)	
24. Hazardous Waste Quantity	(a)	0
25. Waste Characteristics	1000	

Targets:		
26. Sensitive Environments		
26a. Level I Concentrations	(b)	
26b. Level II Concentrations	(b)	
26c. Potential Contamination	(b)	
26d. Sensitive Environments (lines 26a + 26b + 26c)	(b)	
27. Targets (value from line 26d)	(b)	
Environmental Threat Score:		
28. Environmental Threat Score [(lines 22x25x27)/82,500 subject to a max of 60]	60	
Surface Water Overland/Flood Migration Component Score for a Watershed		
29. Watershed Score[c] (lines 13+21+28, subject to a max of 100}	100	
Surface Water Overland/Flood Migration Component Score		
30. Component Score (S_{sw})[c] (highest score from line 29 for all watersheds evaluated)	100	0

[a] Maximum value applies to waste characteristics category
[b] Maximum value not applicable
[c] Do not round to nearest integer

TABLE 4-25 --GROUND WATER TO SURFACE WATER MIGRATION COMPONENT SCORESHEET

Factor categories and factors	Maximum Value	Value Assigned
Aquifer Evaluated:		
Drinking Water Threat		
Likelihood of Release to an Aquifer:		
1. Observed Release	550	
2. Potential to Release:		
2a. Containment	10	
2b. Net Precipitation	10	
2c. Depth to Aquifer	5	
2d. Travel Time	35	
2e. Potential to Release [lines 2a(2b + 2c + 2d)]	500	
3. Likelihood of Release (higher of lines 1 and 2e)	550	
Waste Characteristics:		
4. Toxicity/Mobility	(a)	
5. Hazardous Waste Quantity	(a)	
6. Waste Characteristics	100	
Targets:		
7. Nearest Well	(b)	
8. Population:		
8a. Level I Concentrations	(b)	
8b. Level II Concentrations	(b)	
8c. Potential Contamination	(b)	
8d. Population (lines 8a + 8b + 8c)	(b)	
9. Resources	5	
10. Targets (lines 7 + 8d + 9)	(b)	
Drinking Water Threat Score:		
11. Drinking Water Threat Score ([lines 3 x 6 x 10]/82,500, subject to max of 100)	100	
Human Food Chain Threat		
Likelihood of Release:		
12. Likelihood of Release (same value as line 3)	550	
Waste Characteristics:		
13. Toxicity/Mobility/Persistence/Bioaccumulation	(a)	
14. Hazardous Waste Quantity	(a)	0
15. Waste Characteristics	1000	
Targets:		
16. Food Chain Individual	50	
17. Population		
17a. Level I Concentration	(b)	
17b. Level II Concentration	(b)	
17c. Potential Human Food Chain Contamination	(b)	
17d. Population (lines 17a + 17b + 17c)	(b)	
18. Targets (lines 16 + 17d)	(b)	
Human Food Chain Threat Score:		
19. Human Food Chain Threat Score [(lines 12x15x18)/82,500,suject to max of 100]	100	
Environmental Threat		
Likelihood of Release:		
20. Likelihood of Release (same value as line 3)	550	
Waste Characteristics:		
21. Ecosystem Toxicity/Persistence/Bioaccumulation	(a)	
22. Hazardous Waste Quantity	(a)	0
23. Waste Characteristics	1000	
Targets:		
24. Sensitive Environments		
24a. Level I Concentrations	(b)	
24b. Level II Concentrations	(b)	
24c. Potential Contamination	(b)	

24d. Sensitive Environments (lines 24a + 24b + 24c)	(b)	
25. Targets (value from line 24d)	(b)	
Environmental Threat Score:		
26. Environmental Threat Score [(lines 20x23x25)/82,500 subject to a max of 60]	60	
Ground Water to Surface Water Migration Component Score for a Watershed		
27. Watershed Score[c] (lines 11 + 19 + 28, subject to a max of 100)	100	
28. Component Score (S_{gs})[c] (highest score from line 27 for all watersheds evaluated, subject to a max of 100)	100	0

[a] Maximum value applies to waste characteristics category
[b] Maximum value not applicable
[c] Do not round to nearest integer