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**DRAFT
SITE CLOSEOUT REPORT
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**NON TIME-CRITICAL REMOVAL ACTION
INSTALLATION RESTORATION SITES 42, 44/45, AND SWMU 57
NAVAL WEAPONS STATION SEAL BEACH
SEAL BEACH, CALIFORNIA**

DCN: SES-TECH-07-0099

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EXECUTIVE SUMMARY

This Site Closeout Report describes the implementation of a Non-Time-Critical Removal Action (NTCRA) at Installation Restoration (IR) Site 42, IR Site 44/45, and Solid Waste Management Unit (SWMU) 57 at Naval Weapons Station Seal Beach, Seal Beach, California. This NTRCA was authorized by the U.S. Department of the Navy (DON), Naval Facilities Engineering Command, Southwest (NAVFAC SW) under Indefinite Delivery/Indefinite Quantity Environmental Remediation Contract No. N68711-04-D-1104, Contract Task Order No. 0006. The main purpose of the Site Closeout Report is to document the NTCRA, specifically: 1) the site conditions prior to the action; 2) the chronology and main phases leading to the removal action; 3) the implementation of various stages of the NTCRA; 4) the costs; and 5) the effectiveness of the NTCRA in achieving the Removal Action Objectives (RAOs) established for IR Sites 42, 44/45, and SWMU 57.

Under the DON's directive, SES-TECH, a joint venture between Sealaska Environmental Services LLC and Tetra Tech EC, Inc., was responsible for planning and implementing the subject NTCRA. The removal action was conducted in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and National Oil and Hazardous Substances Pollution Contingency Plan (NCP) requirements.

The DON previously determined (upon review of the sites' operational history and site-specific soil investigative data) that IR Site 42, IR Site 44/45, and SWMU 57 contained elevated concentrations of metals in soil (i.e., copper, nickel and zinc, and arsenic, respectively) requiring a response action. The DON initiated the subject removal action in order to reduce soil contaminant concentrations to acceptable levels and be protective of human health and the environment. The objective was to substantially eliminate the identified pathways of exposure to hazardous substances for current and future users of the site, as well as ecological receptors. This was accomplished through excavation and off-site disposal of the contaminated material at an appropriate disposal facility approved by the U.S. Environmental Protection Agency (EPA) to accept CERCLA off-site waste. The removal action at the NTCRA areas focused on potentially unacceptable human health risk and ecological concerns due to exposure to soils and sediments. Groundwater was not included within the scope of the removal action.

Based on a Phase II Focused Site Inspection (FSI) conducted by CH2M Hill in 2002 (CH2M Hill, 2002), the vertical extent of the contaminated soil was determined to be limited to 2.5 feet below ground surface (bgs) at IR Site 42, 0.25 feet bgs in the drainage ditch sediment at IR Site 44/45, and up to 2.5 feet bgs at SWMU 57.

The DON prepared an Engineering Evaluation/Cost Analysis for each site (MARRS Services, Inc. [MARRS], 2005a; 2005b; 2005c) recommending that the remediation of the NTCRA areas

be completed by means of excavation and off-site disposal of contaminated soils. This recommended alternative was the basis for the *Final NTCRA Work Plan* (SES-TECH, 2006). The remedial actions at IR Site 42, IR Site 44/45, and SWMU 57 were conducted in accordance with the *Final NTCRA Work Plan* (SES-TECH, 2006). Based on the vertical extent of site contaminants in the soil or sediment relative to the proximity of the groundwater, the EE/CAS (MARRS, 2005a; 2005b; 2005c) concluded that groundwater was not impacted at IR Site 42, IR Site 44/45 and SWMU 57. Therefore, groundwater is not part of this removal action. The intent of the NTCRA was to prepare the sites for future consideration for “No Further Action” status with respect to the site soils. The implementation of the NTCRA commenced on September 18, 2006, and was completed on November 3, 2006.

The RAOs for IR Sites 42, 44/45, and SWMU 57 were based on CERCLA, NCP, the risk assessment in the FSI (CH2M Hill, 2002), and applicable or relevant and appropriate requirements. The proposed cleanup goals discussed below were based on the stationwide upper limit background values identified in the FSI Phase II Report (CH2M Hill, 2002).

The RAOs for IR Site 42 were to minimize further migration of metal contaminants to the Seal Beach National Wildlife Refuge (SBNWR) area, reduce the risk to ecological receptors from copper-impacted soil to acceptable levels, and minimize impact to and preserve existing beneficial uses of the SBNWR by removing soil that exceeds the proposed cleanup goal of 39 milligrams per kilogram (mg/kg) for copper (MARRS, 2005a).

The RAOs for IR Site 44/45 were to minimize future releases of metals from past storage and recycling of metals and reduce the risk to ecological receptors from nickel and zinc-impacted sediments to acceptable levels by removing soil and sediment that exceed the proposed cleanup goals for nickel of 32.5 mg/kg and zinc of 177.2 mg/kg (MARRS, 2005b).

The RAOs for SWMU 57 were to minimize further migration of metal contaminants and reduce human-health risks from arsenic-impacted soil to acceptable levels by removing soil that exceeds the proposed cleanup goal for arsenic of 15.4 mg/kg (MARRS, 2005c).

For each of the three sites, intrusive work consisted of excavation of contaminated material and confirmation sampling to determine if the RAOs had been met. At IR Site 42, approximately 115 loose cubic yards of material were removed to a depth of 3 feet over an area approximately 75 feet long by 10 feet wide. At IR Site 44/45, approximately 275 loose cubic yards of material were removed over an area approximately 420 feet long by 12 feet wide, and up to 2 feet in depth. At SWMU 57, approximately 140 loose cubic yards of material were removed to a depth of 4 feet over a roughly rectangular-shaped area with approximate dimensions of 37 feet long by 20 feet wide.

The excavation of the contaminated soils began on September 20, 2006, and was completed on October 19, 2006. Confirmation sampling was performed at all three sites to verify that the proposed cleanup goals were achieved.

At IR Site 42, none of the 20 confirmation samples exceeded the RAO for copper. The mathematical mean of the copper concentrations in the samples was 12.51 mg/kg and the 95 percent upper confidence limit (UCL) for all the samples was 13.5 mg/kg; both are below the established RAO of 39 mg/kg.

At IR Site 44/45, 83 confirmation samples in total were collected during the course of this removal action and only one sample (6-44-141) exceeded the RAO for nickel (37.5 mg/kg) and zinc (188 mg/kg). For constituents detected above the regulatory threshold criteria, a statistical evaluation was performed in accordance with the methodology presented in Chapter 9 of EPA SW-846 guidance (EPA, 2005). The methodology includes calculating the 80 percent UCL of the mean concentration using the student “t” test. SW-846 explicitly states that a chemical of concern is not considered to be present in the waste at a hazardous level if the upper limit of the confidence interval is less than the applicable regulatory threshold. A more stringent UCL, namely 95 percent was used for these sites and the calculated 95 percent UCL for nickel and zinc was 23.42 mg/kg and 129.39 mg/kg, respectively, below the established RAOs for those constituents.

At SWMU 57, 13 confirmation samples in total were collected from the excavation floor and sidewalls. Only 2 samples, designated as 6-57-117 and 6-57-118, (collected along the western sidewall immediately adjacent to the east side of Building 59) exceeded the cleanup goal for arsenic with concentrations of 34.9 mg/kg and 23.7 mg/kg, respectively. Additional excavation at those sample locations along the western sidewall was not performed since it could have potentially undermined the structural integrity of Building 59. A plastic liner was placed over the entire surface area of the western sidewall and the excavation was backfilled with clean fill material. The calculated mean (10.54 mg/kg) for all the confirmation samples was below the established RAO of 15.4 mg/kg for the site. In addition, the calculated 95 percent UCL for arsenic (15.91 mg/kg) only slightly exceeded the established RAO for the site. The slight exceedance was due to the two samples collected from the western sidewall immediately adjacent to the east side of Building 59.

A total of 614.5 tons of soil was excavated and removed from IR Site 42, IR Site 44/45, and SWMU 57. The excavated soil was temporarily stockpiled on site and subsequently sampled for waste classification purposes. All 614.5 tons of soil was classified as non-hazardous waste.

The excavated soil was loaded onto twenty-six 24-ton capacity end-dump trucks or trailer trucks, and transported off site to Chemical Waste Management disposal facility located in Kettleman City, California, on October 23, 2006. This facility is a Resource Conservation and Recovery Act

permitted and CERCLA-approved disposal facility. Soil placed in truck beds was completely covered with tarp prior to leaving the site.

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ABBREVIATIONS AND ACRONYMS

° F	degrees Fahrenheit
µg/L	micrograms per liter
ARAR	applicable or relevant and appropriate requirement
bgs	below ground surface
BNI	Bechtel National, Inc.
Cal/EPA	California Environmental Protection Agency
CCR	California Code of Regulations
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
COPC	Chemical of Potential Concern
CQC	contractor quality control
DoD	Department of Defense
DON	Department of the Navy
DTSC	Department of Toxic Substances Control
EE/CA	Engineering Evaluation/Cost Analysis
ELCR	excess lifetime cancer risk
EPA	U.S. Environmental Protection Agency
FSI	Focused Site Inspection
HI	hazard index
HQ	hazard quotient
IR	Installation Restoration
J	estimated value
LCL	lower confidence limit
MARRS	MARRS Services, Inc.
mg/kg	milligrams per kilogram
mg/L	milligrams per liter
NA	not analyzed
NAVFAC SW	Naval Facilities Engineering Command, Southwest
NAVWPNSTA	Naval Weapons Station
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
NISZ	Newport-Inglewood structural zone
NTCRA	Non-Time-Critical Removal Action

ABBREVIATIONS AND ACRONYMS

(Continued)

OU	Operable Unit
PAH	polynuclear aromatic hydrocarbon
PQCM	Project Quality Control Manager
PPE	personal protective equipment
PRG	Preliminary Remediation Goal
PVC	polyvinyl chloride
QC	quality control
RAB	Restoration Advisory Board
RAO	Removal Action Objective
RCRA	Resource Conservation and Recovery Act
RFA	RCRA Facility Assessment
ROICC	Resident Officer in Charge of Construction
RPM	Remedial Project Manager
SBNWR	Seal Beach National Wildlife Refuge
SES-TECH	Sealaska Environmental Services LLC and Tetra Tech EC, Inc.
SHSS	Site Health and Safety Specialist
STLC	Soluble Threshold Limit Concentration
SVOC	semivolatile organic compound
SWDIV	Southwest Division Naval Facilities Engineering Command
SWMU	Solid Waste Management Unit
TCLP	Toxicity Characteristic Leaching Procedure
TSDF	treatment, storage, and disposal facility
U	not detected at or above the reporting limit (value indicates the reporting limit)
UCL	upper confidence limit
ULBV	upper limit background value
USC	United States Code
VOC	volatile organic compound
Work Plan	Site Work Plan

1.0 INTRODUCTION

This Site Closeout Report describes the implementation of a Non-Time-Critical Removal Action (NTCRA) at Installation Restoration (IR) Site 42, IR Site 44/45, and Solid Waste Management Unit (SWMU) 57 at Naval Weapons Station (NAVWPNSTA) Seal Beach, Seal Beach, California (Figures 1-1 and 1-2). This NTRCA was authorized by the U.S. Department of the Navy (DON), Naval Facilities Engineering Command, Southwest (NAVFAC SW) under Indefinite Delivery/Indefinite Quantity Environmental Remediation Contract No. N68711-04-D-1104, Contract Task Order No. 0006. The main purpose of the Site Closeout Report is to document the NTCRA, specifically: 1) the site conditions prior to the action, 2) the chronology and main phases leading to the removal action, 3) the implementation of various stages of the NTCRA, 4) the costs, and 5) the effectiveness of the NTCRA in achieving the Removal Action Objectives (RAOs) established for IR Sites 42, 44/45, and SWMU 57.

The DON, NAVFAC SW, directed this NTCRA in accordance with the requirements of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and the National Oil and Hazardous Substances Pollution Contingency Plan (NCP). The DON, with state regulatory oversight, was the lead agency for the removal action at these sites. Regulatory oversight and guidance for the removal action was provided by the California Environmental Protection Agency (Cal/EPA), Department of Toxic Substances Control (DTSC).

This NTCRA has been conducted pursuant to the CERCLA and the NCP under the delegated authority of the Office of the President of the United States by Executive Order 12580. This order provides the DON with the authorization to conduct and finance removal actions. NAVFAC SW is the administering entity for the DON's CERCLA program at NAVWPNSTA Seal Beach and manages the activities specific to development and execution of the recommended removal alternative. Under the DON's directive, SES-TECH, a joint venture between Sealaska Environmental Services LLC and Tetra Tech EC, Inc., was responsible for planning and implementing the subject NTCRA.

1.1 PROJECT OBJECTIVE

The DON previously determined (upon review of the sites' operational history and site-specific soil investigative data) that IR Site 42, IR Site 44/45, and SWMU 57 contained elevated concentrations of metals in soil (i.e. copper, nickel and zinc, and arsenic, respectively) requiring a response action. The DON initiated the subject removal action in order to reduce soil contaminant concentrations to acceptable levels and be protective of human health and the environment. The objective was to substantially eliminate the identified pathways of exposure to hazardous substances for current and future users of the site, as well as ecological receptors. This was accomplished through excavation and off-site disposal of the contaminated material at an

appropriate disposal facility approved by the U.S. Environmental Protection Agency (EPA) to accept CERCLA off-site waste. The removal action at the NTCRA areas focused on potentially unacceptable human health risk and ecological concerns due to exposure to soils and sediments. Groundwater was not included within the scope of the removal action.

Based on a Phase II Focused Site Inspection (FSI) conducted by CH2M Hill in 2002 (CH2M Hill, 2002), the vertical extent of the contaminated soil was determined to be limited to 2.5 feet below ground surface (bgs) at IR Site 42, 0.25 feet bgs in the drainage ditch sediment at IR Site 44/45, and up to 2.5 feet bgs at SWMU 57.

The DON prepared an Engineering Evaluation/Cost Analysis (EE/CA) for each site (MARRS Services, Inc. [MARRS], 2005a; 2005b; 2005c) recommending that the remediation of the NTCRA areas be completed by means of excavation and off-site disposal of contaminated soils. This recommended alternative was the basis for the NTCRA at IR Site 42, IR Site 44/45, and SWMU 57, which was conducted in accordance with the *Final NTCRA Work Plan* (SES-TECH, 2006). Based on the vertical extent of site contaminants in the soil or sediment relative to the proximity of the groundwater, the EE/CAs (MARRS, 2005a; 2005b; 2005c) concluded that groundwater was not impacted at IR Site 42, IR Site 44/45 and SWMU 57. Therefore, groundwater is not part of this removal action. The intent of the NTCRA was to prepare the sites for future consideration for “No Further Action” status with respect to the site soils. The implementation of the NTCRA commenced on September 18, 2006, and was completed on November 3, 2006. This Site Closeout Report documents the field activities.

1.2 REPORT ORGANIZATION

This Site Closeout Report is divided into nine sections. Section 1.0 provides an introduction as well as an overview of the project objective and report organization. Section 2.0 provides a description of IR Site 42, IR Site 44/45, and SWMU 57, summarizes the history of the sites and background information, summarizes field data from previous investigations, and briefly discusses risks to human health and the environment associated with contaminants at the sites. Section 3.0 discusses the applicable or relevant and appropriate requirements (ARARs) and the RAOs. Details of each aspect of the project field activities are described in Section 4.0. Section 5.0 provides a summary of the costs associated with this removal action. A brief discussion of public participation and involvement is provided in Section 6.0. Section 7.0 discusses the effectiveness of the NTCRA. Section 8.0 provides a brief summary and recommendations. References are included in Section 9.0. Laboratory analytical results for confirmation samples are included as Appendix A. A photographic log is included as Appendix B. Appendix C includes the statistical calculations for the project. Tables and figures are also included to supplement information in this report.

2.0 SITE CONDITIONS

This section describes the facility and site locations and provides a description of the past history of operations at IR Site 42, IR Site 44/45, and SWMU 57. This section also summarizes field data from previous investigations and includes a brief description of the nature and extent of the contamination, along with a discussion of the risk to human health and the environment. The information provided in this section has been extracted from the Final EE/CA for IR Site 42 (MARRS, 2005a), IR Site 44/45 (MARRS, 2005b), and SWMU 57 (MARRS, 2005c), as well as the Draft Final Focused Site Inspection Phase II Report (CH2M Hill, 2002).

2.1 FACILITY LOCATION AND BACKGROUND

NAVWPNSTA Seal Beach is located about 30 miles south of the Los Angeles urban center. NAVWPNSTA Seal Beach consists of approximately 5,000 acres of land along the Pacific Coast within the city of Seal Beach in Orange County, California (Figure 1-1). NAVWPNSTA Seal Beach is bordered on the southwest by Anaheim Bay, on the north by Interstate 405 (San Diego Freeway), on the east by Bolsa Chica Road, on the west by Seal Beach Boulevard, and on the southeast by a flood control channel. Originally commissioned in 1944, NAVWPNSTA Seal Beach is part of the Navy Region Southwest. This station provides fleet combatants with ready-for-use ordnance. Because of its geographic location, the station serves as a supply point for the operating DON and Marine Corps forces in the Southern California region. Figure 1-2 shows a map of NAVWPNSTA Seal Beach, including the location of IR Site 42, IR Site 44/45, and SWMU 57.

2.2 SITE LOCATIONS

A description of the site locations for IR Sites 42, 44/45, and SWMU 57 is provided herein.

2.2.1 IR Site 42

IR Site 42, referred to as the Auto Shop Sump/Waste Oil Tank, is near the corner of Net Road and Kitts Highway (Figure 2-1). The site encompasses Buildings 235, 236, and 237. A portion of the site lies within the Seal Beach National Wildlife Refuge (SBNWR), which is approximately 150 feet southeast of Building 236. Railroad tracks run parallel to Kitts Highway between Kitts Highway and the SBNWR. The excavation area is within the SBNWR.

2.2.2 IR Site 44/45

IR Site 44/45, referred to as the Former Waste Otto Fuel Drum Storage Area and Building 88 Floor Drain Outlet, is located between Bolsa Avenue and Mitigation Pond 2 and encompasses Building 88, the torpedo maintenance building (Figure 2-2). A drainage channel is located

approximately 150 feet south of Building 88, which runs parallel to Bolsa Avenue. The excavation area is within a portion of this drainage channel.

2.2.3 SWMU 57

SWMU 57 encompasses a paint locker (Building 86) and Building 59 and is bounded to the north by Missile Road (Figure 2-3). The excavation area is located east of Building 59. Vegetation at this site is typical of other developed areas at NAVWPNSTA Seal Beach and consists primarily of bare soil with non-native grasses. A few shrubs are located near the site's perimeter. There is no significant wildlife or vegetation habitat.

2.3 TYPE OF FACILITY AND OPERATIONAL HISTORY

This section describes each facility and includes a brief operational history.

2.3.1 IR Site 42

IR Site 42 includes the Building 235 auto maintenance shop, the Building 236 wash area, the Building 237 waste oil storage, an oil-water separator located east of Building 236, and the associated stormwater collection basin drainpipe that discharges into the SBNWR. The 1,500-gallon oil-water separator separates floatable oil from wastewater discharged from Building 236 (wash area) and had been in operation since 1978 until it was decommissioned in 2004. The oil-water separator discharged into a vitrified clay sewer pipe. A stormwater catch basin located immediately southeast of Building 236 discharges through an underground pipe to the SBNWR.

2.3.2 IR Site 44/45

IR Site 44/45 was used as a storage area for drums containing unused Otto fuel from the mid-1940s to the late 1970s. The drum storage area was bermed in the northeast portion of the Building 88 compound. No spillage was observed in this area. In the 1990s, the Building 88 compound was used for salvaging operations. Between 1991 and 1994, five underground storage tanks were removed from Building 88; no leaks were observed during their removal. Currently, Building 88 is used for minor maintenance work for torpedos.

2.3.3 SWMU 57

Building 59 was used for missile maintenance from 1989 to 1996. A paint shop room was located in the east corner of Building 59 during this time period (Wheeler, 1999). A paint locker (Building 86) is located east of Building 59. It is not known how long the paint locker was active.

2.4 STRUCTURES/TOPOGRAPHY

NAVWPNSTA Seal Beach is bordered to the north, west, and east by urban communities and to the southwest by Anaheim Bay. Most of NAVWPNSTA Seal Beach lies on flat, alluvial deposits that slope evenly from approximately 20 feet above mean sea level in the northeastern part of the

facility to mean sea level in the tidal flats in the southwestern portion of the base. Landing Hill, located on the western portion of NAVWPNSTA Seal Beach, is the most prominent topographic feature and reaches a maximum elevation of approximately 50 feet above sea level at the site (Jacobs Engineering Group, Inc., 1995).

2.4.1 IR Site 42

Three main structures lie within IR Site 42: the Building 235 auto maintenance shop, Building 236 wash area, and Building 237 waste oil storage. The areas around the buildings are paved with asphalt. In the vicinity of Building 237, gravel covers the asphalt. A stormwater catch basin is located southeast of Building 236. A portion of SBNWR lies within the IR Site 42 boundary, east of Kitts Highway and the railroad tracks.

2.4.2 IR Site 44/45

Building 88 is the only structure located within IR Site 44/45. The areas immediately surrounding Building 88 are paved. A drainage channel is located south of Building 88 and runs parallel to Bolsa Avenue. IR Site 44/45 discharges stormwater into portions of the SBNWR; therefore, these portions of the SBNWR are also included as part of this site.

2.4.3 SWMU 57

SWMU 57 contains two structures: Building 59 and Building 86 (paint locker). The terrain within SWMU 57 is uneven and is primarily bare soil with non-native grasses. The slope decreases from Building 59 toward Missile Road.

2.5 PHYSICAL CHARACTERISTICS

NAVWPNSTA Seal Beach is located in Orange County and is comprised of approximately 5,000 acres of land. Approximately 75 percent of NAVWPNSTA Seal Beach has explosive quantity distance arcs that restrict development to specific permitted uses. Two agricultural outleasements use approximately 2,000 acres for farming and maintenance. Approximately 100 acres are leased for oil production. In addition, the SBNWR encompasses approximately 900 acres established to preserve one of the largest remaining salt marshes in Southern California, which is an endangered species refuge. NAVWPNSTA Seal Beach also comprises other land uses including residential, administration/community support, ordnance transfer operations, storage (inert and explosive), evaluation, and quality assurance.

Geologic, hydrogeologic, and climatic conditions at IR Sites 42, 44/45, and SWMU 57 are briefly discussed below.

2.5.1 Geology

Most of NAVWPNSTA Seal Beach lies on flat, alluvial deposits that slope evenly from approximately 20 feet above mean sea level in the northeastern part of the facility to mean sea level in the tidal flats in the southwestern portion of the base. Bedrock in the vicinity of the base is a thick sequence of Tertiary and Quaternary sedimentary rocks deposited on a basement of pre-Tertiary metamorphic and crystalline rocks. Tertiary rocks range in age from Oligocene to Pliocene and include sandstone, siltstone, shale, and mudstone; they are almost exclusively of marine origin (CH2M Hill, 2002).

NAVWPNSTA Seal Beach is located adjacent to the Pacific Ocean at the seaward edge of the Orange County Coastal Plain, in the northwest corner of Orange County, California. The northwest-trending, Newport-Inglewood structural zone (NISZ) underlies the southwestern half of NAVWPNSTA Seal Beach. NISZ consists of a complex set of faults and folds that extend from Newport Beach, approximately 10 miles southeast of NAVWPNSTA Seal Beach, to Beverly Hills at the base of the Santa Monica Mountains, approximately 30 miles northwest of the station. Uplift along the NISZ has produced a line of low coastal hills and mesas near the southern end, including Landing Hill along the western edge of NAVWPNSTA Seal Beach. Adjacent to Landing Hill on the east is Sunset Gap, a wetlands comprising coastal salt marsh and tidal mudflats (Bechtel National, Inc. [BNI], 2000).

NAVWPNSTA Seal Beach soils typically contain abundant clay and silt and are poorly drained. Six soil types (Alo clay, beaches, Bolsa silt loam, Bolsa silt clay loam, Myford sandy loam, and tidal flats) have been identified at the station (Soil Conservation Service [SCS], 1978). The soil at IR Site 42, IR Site 44/45, and SWMU 57 consist primarily of silts and clays (CH2M Hill, 2002).

2.5.2 Hydrogeologic Setting

A tidal influence study was conducted at NAVWPNSTA Seal Beach that determined that the shallow groundwater gradient is toward the east-northeast at a relatively flat gradient of 0.0001 (BNI, 2000). Groundwater quality beneath the site is brackish on the west-northwest side of the site and becomes more saline toward the east.

Groundwater at IR Site 42 and SWMU 57 is expected to be within the range of 7 to 15 feet bgs. The groundwater depth at IR Site 44/45 varies due to the topographic variance and tidal fluctuations, but generally is 5 to 10 feet bgs near Mitigation Pond 2 and 10 feet bgs adjacent to Building 88 (CH2M Hill, 2002).

2.5.3 Climatic Conditions

The climate at NAVWPNSTA Seal Beach is typical of the southern California coastal region. The Pacific Ocean borders the site to the west and has a moderating effect on the temperature.

Maximum temperatures range from the mid to high 50s (degrees Fahrenheit [°F]) during the winter months and from the high 70s to low 80s °F in the summer months. Low temperatures vary during the summer months between the high 50s and low 60s °F (Naval Energy and Environmental Support Activity, 1987).

Rainfall averages from 10 to 12 inches in the coastal area of Seal Beach, with the greatest rainfall occurring during the winter months. Prevailing winds are from the west. Strong, dry, northeasterly winds occasionally descend from the mountains during fall, winter, and early spring. Santa Ana wind conditions are common during the winter months and last from several hours to a few days and can reach speeds of up to 60 miles per hour.

2.6 PREVIOUS INVESTIGATIONS

No previous removal actions have occurred at IR Site 42, IR Site 44/45, and SWMU 57. Investigations previously conducted at these locations are summarized in the remainder of this section.

2.6.1 IR Site 42

In 1989, a Resource Conservation and Recovery Act (RCRA) Facility Assessment (RFA) was conducted and identified that IR Site 42, referred to as SWMU No. 42 in that report, has a low potential for past and ongoing releases to soil, groundwater, surface water, air, and subsurface gas (Kearney, 1989). Visual observations conducted as part of the assessment indicated that IR Site 42 appeared intact and did not show signs of releases.

A soil sample collected 5 feet bgs adjacent to the oil-water separator (Building 236) had an elevated lead level of 255 milligrams per kilogram (mg/kg), suggesting that the soil in the vicinity of the drainpipe outfall in the SBNWR should be sampled (Southwest Division Naval Facilities Engineering Command [SWDIV], 1998).

A Phase II FSI (CH2M Hill, 2002) was conducted at IR Site 42 to determine the extent of volatile organic compounds (VOCs), semivolatile organic compounds (SVOCs), and metals in the area of the sump/waste oil release system and VOCs, polynuclear aromatic hydrocarbons (PAHs), and metals in the vicinity of the drainpipe outfall in the SBNWR. Surface soil samples were collected from 0.5 to 1.0 feet bgs and subsurface samples were collected from 2.0 to 2.5 feet bgs. Arsenic, cadmium, copper, lead, mercury, nickel, and zinc were detected at concentrations above their upper limit background values (ULBVs). The majority of these concentrations were observed in the surface samples and the maximum concentrations were found at the mouth of the discharge pipe outlet in the SBNWR. In addition, VOCs (1,1,1-trichloroethane, toluene, and p-xylene) were detected in the soil samples. Ten PAHs were detected in surface samples with the maximum concentrations predominantly located at the mouth of the discharge pipe outlet in the SBNWR.

Groundwater samples were also collected as part of the Phase II FSI (CH2M Hill, 2002). Total aluminum, cobalt, copper, lead, nickel, vanadium, and zinc were detected in groundwater samples at concentrations above their ULBVs. VOCs (1,1,1-trichloroethane, 1,1-dichloroethene [1,1-DCE], 1,1-dichloroethane [1,1-DCA], acetone, and methylene chloride) were detected in groundwater at the location nearest to the railway track and SBNWR. It is likely that the only SVOC, bis(2-ethylhexyl)phthalate, detected in groundwater samples may have been the result of laboratory contamination.

2.6.2 IR Site 44/45

The RFA, conducted in 1989, indicated that the floor drain outlet in Building 88 emptied into the tidal marsh at one time. The report determined that IR Site 44/45, referred to as SWMU No. 15 in the report, has a high potential for past surface water release, medium potential for past air release, and has a low potential for current and ongoing releases to soil groundwater, surface water, air, and subsurface gas.

As part of the Phase II FSI conducted at IR Site 44/45 in 2002 (CH2M Hill, 2002), surface soil samples were taken outside the drainage ditch (0.5 to 1.0 feet bgs); and sediment samples were collected within the ditch (zero to 0.25 feet bgs) and analyzed for nickel, zinc, and PAHs. Groundwater samples were also collected at IR Site 44/45 and were analyzed for dissolved nickel and zinc. Total nickel and zinc were detected in all of the surface soil samples, but not at concentrations above their ULBVs. Approximately 40 percent of the sediment samples contained nickel and zinc above their ULBVs. The majority of groundwater samples contained total nickel and zinc at concentrations above their ULBVs. At least one of the groundwater samples contained dissolved nickel and zinc above their ULBVs. PAHs (except acenaphthene, acenaphthylene, dibenzo[a,h]anthracene, fluorine, and naphthalene) were detected in at least one of the surface samples collected with the maximum concentrations detected near the Building 88 drainage outlet. Similarly, PAHs (except acenaphthene, acenaphthylene, dibenzo[a,h]anthracene, fluorine, fluoranthene, and naphthalene) were detected in at least one of the sediment samples collected within the drainage ditch.

2.6.3 SWMU 57

The 1989 RFA identified that SWMU 57 has a high potential for past soil and air release, medium potential for past subsurface gas release, and has a low potential for current and ongoing releases to soil, groundwater, surface water, air, and subsurface gas (Kearney, 1989). Visual observations of SWMU 57 did not show signs of releases during this assessment. In 2002, a Phase II FSI Study was conducted at SWMU 57 that detected arsenic, copper, and lead above their respective ULBVs primarily in surface samples (0.5 to 1.0 feet bgs) and arsenic in subsurface samples (2.0 to 2.5 feet bgs).

2.7 NATURE AND EXTENT OF CONTAMINATION

The nature and extent of contamination for IR Sites 42, 44/45, and SWMU 57 are discussed herein.

2.7.1 IR Site 42

Vehicle maintenance activities at Buildings 235, 236, and 237 have resulted in contamination at IR Site 42. The stormwater collection basin to the southeast of Building 236 discharges into the SBNWR through a drainpipe. Several metals were detected above their ULBVs in soil samples around the mouth of the drainpipe outfall; however, only copper was detected at the two farthest locations from the drainpipe outfall (approximately 30 feet in each streamline direction) (Figure 2-1).

2.7.2 IR Site 44/45

Metal-salvaging operations conducted within Building 88 are suspected to have resulted in contamination at IR Site 44/45. Nickel and zinc levels have been found above their respective ULBVs in the drainage ditch located south of Building 88 (Figure 2-2).

2.7.3 SWMU 57

The nature of contamination at SWMU 57 is believed to be the result of activities associated with the paint locker (Building 86) located east of Building 59. A paint shop room was located in the east corner of Building 59 from 1989 to 1996 (Wheeler, 1999). Several metals and VOCs that may be attributable to paints and solvent were detected in the near-surface soil samples (MARRS, 2005c). Figure 2-3 identifies the area of contamination and planned excavation.

2.8 RISK-SCREENING EVALUATION

Streamlined evaluations for human health and ecological risk were conducted as part of the EE/CAs prepared for IR Sites 42, 44/45, and SWMU 57 (MARRS, 2005a, 2005b, 2005c) and were based on soil, sediment, and groundwater screening results presented in the Phase II FSI Report (CH2M Hill, 2002). The results of the risk evaluations for each site are summarized below.

2.8.1 IR Site 42

A human health risk screening was not performed at IR Site 42 since the area around the sump/waste oil release system is paved with asphalt, reducing the likelihood of the soil to come into direct contact with humans; the potential for humans to enter the SBNWR is minimal; and because the site's proximity to the saline waters of the salt marsh presents no risk to human health from groundwater.

An ecological risk assessment screening was conducted for contaminants in soils at IR Site 42. VOCs, SVOCs, and PAHs detected in soil and groundwater samples were determined to be

below the ecological Preliminary Remediation Goals (PRGs) and do not present any risk to ecological receptors. Maximum concentrations of arsenic, cadmium, copper, lead, mercury, nickel, and zinc exceeded the ULBVs in soil samples near the drainpipe outfall. In addition, ecological PRGs for the American kestrel and clapper rail were exceeded with the maximum concentrations encountered for cadmium, copper, lead, and zinc. The highest concentrations for most of these metals, except copper, were confined to the immediate vicinity of the storm drain and were determined not to pose a significant risk. The FSI Phase II Report concluded that since the limits of copper distribution were not entirely defined by the samples collected and because the copper concentrations exceed the screening level, it was determined that copper presents a risk (CH2M Hill, 2002). The highest metals concentration was for copper (172 mg/kg) and was found in the vicinity of the drainpipe outfall. Based on the possible ecological risks to aquatic and terrestrial receptors, the Phase II FSI Report (CH2M Hill, 2002) recommended removal of soils with metal concentrations above ULBVs. The IR Site 42 EE/CA (MARRS, 2005a) also recommended removing soil with copper concentrations above the ULBV in conjunction with confirmation sampling.

2.8.2 IR Site 44/45

A human health risk screening evaluation was conducted for IR Site 44/45 as part of the Operable Unit (OU) 4 and OU5 FSI (CH2M Hill, 2002). The evaluation concluded that there are no significant risks to human health from chemicals of potential concern (COPCs) in soil at IR Site 44/45, and that the likelihood of humans coming into contact with the sediment in the drainage ditch is minimal. It was also determined that the groundwater pathway is incomplete since the water at IR Site 44/45 is saline and not potable. Therefore, there are no human health risk concerns (CH2M Hill, 2002).

An ecological risk assessment screening was performed for contaminants present in the groundwater, soil, and sediment. Groundwater samples collected nearest to Mitigation Pond 2 show lower nickel and zinc concentrations indicating that metals contamination of the pond via groundwater would not likely be significant. Maximum concentrations of PAHs in soil were found to be below the ecological PRGs for ground squirrel, the American kestrel, and the clapper rail. It was determined that there are no risks to terrestrial receptors using the adjacent salt marsh.

Ecological PRGs were exceeded in the sediment samples collected in the drainage ditch for nickel, zinc, and the PAH acenaphylene and may pose a threat to aquatic life in the ditch and potentially at the discharge location to the SBNWR. However, since concentrations of all other PAHs were below sediment screening levels, the FSI Phase II Report determined that ecological risks from PAHs in sediments in the ditch are low to absent (CH2M Hill, 2002). A cleanup goal for metals in the sediment was recommended in the FSI Phase II Report (CH2M Hill, 2002), based on possible risks to aquatic receptors. The IR Site 44/45 EE/CA (MARRS, 2005b) also recommended removing sediment with nickel and zinc concentrations above ULBVs in conjunction with confirmation sampling.

2.8.3 SWMU 57

A human health risk screening was performed for soils at SWMU 57 as part of the Phase II FSI (CH2M Hill, 2002). This screening was performed by comparing soil analytical results with ULBVs and residential PRGs and estimating excess lifetime cancer risk (ELCR) and hazard quotient (HQ) for each COPC. The maximum concentrations of chemicals were used instead of 95 percent upper confidence limit (UCL) concentrations due to the limited number of samples collected. VOCs in soil resulted in an ELCR of 1×10^{-7} and a noncancer HI less than 0.1. Metals in soils yielded an ELCR of 3×10^{-4} and a noncancer hazard index (HI) greater than 1. Based on the human health risk screening results, the FSI Phase II Report concluded that the only metal that presents a significant risk in soils is arsenic and recommended a removal action to clean up arsenic (CH2M Hill, 2002). The SWMU 57 EE/CA (MARRS, 2005c) also recommended removing soil with arsenic concentrations above the ULBV in conjunction with confirmation sampling.

An ecological risk screening was not performed at SWMU 57 since it is a small area located in a highly industrial area and is not considered a significant habitat for ecological receptors. In addition, the groundwater pathway for aquatic ecological receptors is incomplete since there are no nearby groundwater discharge points (CH2M Hill, 2002).

3.0 MAIN PHASES LEADING TO REMOVAL ACTION

This section provides a brief discussion of the significant ARARs, RAOs, and the selection of the remedial technology.

3.1 SIGNIFICANT APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS

Upon its completion, the remedial alternative selected for IR Site 42, IR Site 44/45, and SWMU 57 was intended to provide protection for human health and the environment. The level of protection was based on potential ARARs. The NCP requires on-site CERCLA removal actions to identify and comply with federal and state ARARs to the extent feasible, considering the urgency of the situation. In accordance with the NCP requirements, the ARARs for the removal action at IR Site 42, IR Site 44/45, and SWMU 57 were identified and documented in the Final EE/CA for each site (MARRS, 2005a, 2005b, 2005c). A summary of the ARARs is provided in the remainder of this section.

3.1.1 IR Site 42 and SWMU 57

- RCRA hazardous waste requirements at California Code of Regulations (CCR), Title 22, Sections 66261.21, 66261.22(a)(1), 66261.23, 66261.24(a)(1), and 66261.109
- Characterization of solid waste as toxic based on Toxicity Characteristic Leaching Procedure (TCLP) at 40 CFR 261.24(a) and CCR Title 22, Section 66261.24(a)(1)(B)
- Protection of Wetlands, Executive Order 11990
- Floodplain Management, Executive Order 11988
- Endangered Species Act of 1973, 16 United States Code (USC) 1531-1543
- Migratory Bird Treaty Act of 1972, 16 USC 703-712
- National Wildlife Refuge System Administration Act of 1966, 16 USC 668dd-668ee
- California Endangered Species Act, California Fish and Game Code Section 2080
- California Fish and Game Code Section 2080, regarding the protection of endangered species habitat
- California Fish and Game Code Section 3005(a), regarding the taking of birds and mammals
- California Fish and Game Code Section 3511, regarding the taking of fully protected birds
- California Fish and Game Code Section 3503(a), regarding the protection of nest(s) and egg(s) of any bird

3.1.2 IR Site 44/45

In addition to the ARARs identified for IR Site 42 and SWMU 57, the following additional ARAR was identified for IR Site 44/45:

- California Fish and Game Code Section 5650, prohibiting the discharge of materials that have a deleterious effect on species or habitat.

3.2 OBJECTIVES OF THE REMOVAL ACTION

The RAOs for IR Sites 42, 44/45, and SWMU 57 were based on CERCLA, NCP, the risk assessment in the FSI (CH2M Hill, 2002), and ARARs. The proposed cleanup goals discussed below were based on the stationwide ULBVs identified in the FSI Phase II Report (CH2M Hill, 2002).

The RAOs for IR Site 42 were to minimize further migration of metal contaminants to the SBNWR area, reduce the risk to ecological receptors from copper-impacted soil to acceptable levels, and minimize impact to and preserve existing beneficial uses of the SBNWR by removing soil that exceeds the proposed cleanup goal for copper of 39 mg/kg (MARRS, 2005a).

The RAOs for IR Site 44/45 were to minimize future releases of metals from ongoing storage and recycling of metals and reduce the risk to ecological receptors from nickel and zinc-impacted sediments to acceptable levels by removing soil and sediment that exceed the proposed cleanup goals for nickel of 32.5 mg/kg and zinc of 177.2 mg/kg (MARRS, 2005b).

The RAOs for SWMU 57 were to minimize further migration of metal contaminants and reduce human-health risks from arsenic-impacted soil to acceptable levels by removing soil that exceeds the proposed cleanup goal for arsenic of 15.4 mg/kg (MARRS, 2005c).

3.3 SELECTED REMEDIAL TECHNOLOGY

The removal action recommended for the contaminated soils at IR Site 42, IR Site 44/45, and SWMU 57 (presented in the EE/CA for each site [MARRS, 2005a, 2005b, and 2005c, respectively]) was excavation and off-site disposal. This alternative consisted of excavating, transporting, and disposing of contaminated soil off site and backfilling the excavation with clean fill. This alternative was recommended because it was determined to be the most effective in achieving the RAOs. This alternative was also determined to best meet the NCP criteria of overall protectiveness of human health; compliance with ARARs; long-term effectiveness; reduction of mobility, toxicity, and volume through treatment; short-term effectiveness; implementability; cost; and state and community acceptance. Implementation of the recommended removal action alternative required that waste soil and debris classified as RCRA hazardous, non-RCRA (California) hazardous, or non-hazardous waste be transported to a CERCLA-approved, licensed treatment, storage, and disposal facility (TSDF) for disposal.

4.0 ACTUAL WORK PERFORMED

This section provides a detailed description of the specific field activities performed during the removal action. These activities followed the procedures discussed in the *Final NTCRA Work Plan* (SES-TECH, 2006). Mobilization occurred on September 18, 2006. Excavation work commenced at IR Site 42 on September 20, 2006, progressed to IR Site 44/45 and SWMU 57, and was completed on October 19, 2006. The transportation and disposal of the excavated soil occurred on October 23, 2006, after evaluation of the stockpile analytical data. Upon completion of the removal activities, equipment and personnel were demobilized from the site on November 3, 2006.

The following is a list of the activities performed during the removal action:

- Preparatory activities including procurement and notifications
- Land survey to delineate the planned excavation limits
- Geophysical survey to identify the location of underground utilities within and around the planned excavation limits
- Mobilization of construction equipment and personnel
- Excavation of contaminated soil
- Stockpiling of excavated material
- Sampling, analysis, and classification of excavated soil
- Culvert cleaning at IR Site 44/45
- Post-excavation confirmation sampling and laboratory analysis
- Loading, transportation, and disposal of contaminated soil
- Site grading and restoration
- Demobilization

These activities are described in further detail in the remainder of this section.

4.1 SUBCONTRACTING/PROCUREMENT

All field activities were performed under the direct supervision of SES-TECH with assistance from specialty subcontractors. The procurement of the subcontractors, required services, and materials were performed in a manner consistent with the terms of the contract and applicable Federal Acquisition Regulations.

Several specialty subcontractors were procured to assist in specific aspects of the removal activities. These subcontractors included a geophysical survey contractor, land survey contractor,

culvert-cleaning contractor, hazardous waste hauler/transporter, TSDF, and an analytical laboratory.

ULS Services, Inc. (Pocatello, Idaho) was responsible for performing the geophysical survey. Coast Surveying, Inc. of Tustin, California, was responsible for land surveying. United Pumping Service, Inc. located in City of Industry, California, provided the culvert cleaning service.

SES-TECH conducted earthmoving activities including soil excavation, temporary stockpiling of the excavated material, and grading of the site. Quinn Shepherd Rentals, United Rentals, and Nations Rent provided construction equipment. Union equipment operators and laborers were hired on an as-needed basis. Building 240 was used for temporary office space and restroom facilities during field activities. Miscellaneous equipment and materials, such as sampling and testing equipment, construction tools, polyvinyl chloride (PVC) liners, and sandbags, were procured on an as-needed basis.

The hazardous waste hauler/transporter was Denbeste Transportation, Inc. (Windsor, California), which was responsible for the transportation of the impacted soils and waste material to Chemical Waste Management, Inc., a disposal facility located in Kettleman City, California.

EMAX Laboratories, located in Torrance, California, performed all of the required chemical analyses on the soil and water samples for waste characterization and confirmation results.

4.2 NOTIFICATIONS

Prior to the removal activities, the Resident Officer in Charge of Construction (ROICC) and the Remedial Project Manager (RPM) were contacted by SES-TECH to inquire about any NAVWPNSTA permits for the NTCRA, based on the nature of the anticipated work. No NAVWPNSTA permits were required. Underground Service Alert was also notified to obtain utility clearance prior to excavation activities.

A grading permit was not required as the federal government is exempt under county ordinance. No permits for temporary stockpiling of hazardous waste were necessary as the excavated soils and waste material were not stored on site for more than 90 days.

4.3 PREPARATORY ACTIVITIES AND MOBILIZATION

A kickoff meeting was held on September 14, 2006. The attendants included the NAVWPNSTA Seal Beach IR Program Coordinator, ROICC, SES-TECH Project Manager, SES-TECH Site Superintendent, and SES-TECH Project Quality Control Manager (PQCM)/Site Health and Safety Specialist (SHSS). The meeting included discussions regarding Contractor Quality Control (CQC) details, administration of the on-site work, coordination of the construction management, and submittal of daily production and CQC reports.

Mobilization activities occurred on September 18, 2006, and included site preparation, movement of equipment and materials to the site, and training and site orientation of field personnel. In order to minimize storage requirements, equipment and materials were mobilized to the site on an as-needed basis. All construction equipment was delivered to the site in a clean condition.

Site preparation included the construction of a soil stockpile area to contain the excavated material. A fenced area with locking access gates adjacent to Building 240 was used for this purpose. A 20-mil thick PVC liner was placed over the ground and the perimeter of the liner was bermed using sandbags. Prior to placing the liner, a thin layer of soil was placed on the ground and spread to provide a cushion to prevent punctures to the liner. After placing the liner, an additional thin layer of soil was placed on top of the liner to provide an additional cushion to prevent punctures during soil stockpiling operations. The soil used as cushion material was imported via 10-wheel dump truck from the stockpiled, clean fill at the wharf area located on NAVWPNSTA Seal Beach. This material was previously sampled and determined to be suitable for use as backfill at NAVWPNSTA Seal Beach.

4.4 LAND SURVEY

On September 18, 2006, Coast Surveying, Inc. performed a land survey at IR Site 42, IR Site 44/45, and SWMU 57. The purpose of the survey was to delineate the planned excavation boundaries. Ground surface elevations were measured to the nearest 0.01 foot. Horizontal control was established in accordance with the California State Plane Coordinates system, North America Datum, 1983. Vertical control was established in accordance with the National Geodetic Vertical Datum, 1929.

4.5 GEOPHYSICAL SURVEY

On September 18, 2006, ULS Services, Inc. performed a geophysical survey at IR Site 42, IR Site 44/45, and SWMU 57. The geophysical survey was performed to assist in marking the locations of any known or unknown underground utilities at the site. Electromagnetic line location equipment was used during the survey. The results of the geophysical survey were compared with the available as-built drawings obtained from the ROICC's office and the NAVWPNSTA Seal Beach Public Works Center to determine if any undocumented utilities or other features existed in the surveyed areas. No utilities were located within the planned excavation areas.

4.6 EXCAVATION AND CONFIRMATION SAMPLING ACTIVITIES

Excavation work commenced at IR Site 42 on September 20, 2006, progressed to IR Site 44/45 and SWMU 57, and was completed on October 19, 2006. After excavation work was completed to the planned limits, confirmation sampling was performed. Tables 4-1, 4-2 and 4-3 provide a

summary of the analytical results from the confirmations samples collected at IR Site 42, IR Site 44/45 and SWMU 57, respectively.

Confirmation soil samples were collected at mid-height every 20 linear feet along each excavation sidewall. For IR Site 42, confirmation samples were collected from the floor of the excavation at a frequency of one sample per 10-foot by 10-foot area. For IR Site 44/45 and SWMU 57, confirmation samples were collected from the excavation floor at a frequency of one sample per 10-foot by 12-foot area. Confirmation samples from the floor of each excavation were collected at the center of each grid. All samples were collected and analyzed in accordance with the Final Sampling and Analysis Plan, located in Appendix A of the *Final NTCRA Work Plan* (SES-TECH, 2006).

4.6.1 IR Site 42

Soil data collected during the Phase II FSI indicated that the area of contamination at IR Site 42 was limited to the area shown in Figure 2-1. A Caterpillar 330 excavator was used to remove approximately 115 loose cubic yards of material to a depth of 3 feet within the planned excavation boundaries (approximately 75 feet long by 10 feet wide). This material was loaded into a 10-wheel dump truck and transferred to the soil stockpile area adjacent to Building 240. This material was covered with a 10-mil-thick liner and kept segregated from excavated soil from IR Site 44/45 and SWMU 57 pending waste characterization. Initial excavation to the planned limits was completed at IR Site 42 on September 20, 2006. Confirmation sampling was performed on September 22, 2006. Based on confirmation sample results for total copper by EPA Method 6010B, the proposed cleanup goal for copper of 39 mg/kg was achieved after the initial excavation and no additional excavation was required. A total of 20 confirmation samples were collected from the excavation sidewalls and bottom, with the results for copper ranging from 9.12 to 16.6 mg/kg. Table 4-1 contains the confirmation sample results for IR Site 42. Based on statistical analysis of this data set, the mean, 80 percent UCL, and 95 percent UCL for copper are 12.51 mg/kg, 13.14 mg/kg, and 13.50 mg/kg, respectively. A summary of the statistical analyses is provided in Table 4-4.

The final excavation dimensions and sample locations were documented via land survey. Figure 4-1 depicts the final excavation extent and confirmation sample locations.

4.6.2 IR Site 44/45

Soil data collected during the Phase II FSI indicated that the area of contamination at IR Site 44/45 was limited to the area shown in Figure 2-2. On September 21, 2006, prior to commencing intrusive work at the site, a tidal dam was constructed across the drainage channel that runs through the site. The dam was constructed on the west side of the site at a strategic location to minimize both tidal inundation and wetlands disturbance based on the topography. The dam was constructed using the stockpiled, clean fill from the wharf area.

Excavation at IR Site 44/45 commenced on September 25, 2006. A Caterpillar 330 excavator was used to remove a 12-inch-thick layer of soil from the drainage channel sides and bottom along the 420-foot-long and 12-foot-wide planned excavation limit. The saturated material from the bottom of the channel was excavated first and temporarily stockpiled on top of the material to be excavated from the side of the channel in order to allow the saturated material to dewater back into the channel. After dewatering was complete, the material was loaded into a 10-wheel dump truck and transported to the soil stockpile area adjacent to Building 240. The material on the side of the channel was then excavated and moved to the soil stockpile area. Initial excavation to the planned limits was completed at IR Site 44/45 on October 3, 2006. Confirmation sampling was performed at IR Site 44/45 on October 4 and 5, 2006. A total of 83 samples were collected from the excavation floor and sidewalls and analyzed for total nickel and zinc using EPA Method 6010B. Fifteen of the confirmation samples exceeded the proposed cleanup goal for either nickel (32.5 mg/kg) or zinc (177.2 mg/kg), with the exceedances ranging from 33 to 51.2 mg/kg for nickel and 179 to 1,750 mg/kg for zinc.

The 15 locations along the drainage channel sides and bottoms were over-excavated an additional 6 inches in depth and re-sampled on October 17, 2006. Of the 15 locations that were re-sampled, only 1 location (sample number 6-44-141, location code D-2) indicated sample results (34.8 mg/kg for nickel and 186 mg/kg for zinc) exceeding the proposed cleanup goals for nickel and zinc. Sample number 6-44-141 (location code D-2) was located on the channel floor at the western-most end of the drainage channel excavation footprint and was submerged. This location on the channel floor was over-excavated an additional 6 inches in depth and re-sampled on October 19, 2006. The sample result indicated a continued exceedance for both nickel (37.5 mg/kg) and zinc (188 mg/kg).

Based on input by the DON RPM, the SES-TECH Project Manager, and the NAVWPNSTA Seal Beach IR Program Coordinator, the decision was made by the DON to cease excavation at that point and to validate the decision based on the 95 percent UCL for the nickel and zinc confirmation results. Statistical analysis of the complete data set showed that the mean, 80 percent UCL, and 95 percent UCL for nickel are 22.06 mg/kg, 22.94 mg/kg, and 23.42 mg/kg, respectively. The mean, 80 percent UCL, and 95 percent UCL for zinc are 122.17 mg/kg, 126.86 mg/kg, and 129.39 mg/kg, respectively. All of these values are below the respective cleanup goals for nickel (32.5 mg/kg) and zinc (177.2 mg/kg). Table 4-2 contains the confirmation sample results for IR Site 44/45 and Table 4-4 summarizes the statistical analyses.

In total, approximately 275 loose cubic yards were excavated from IR Site 44/45 and transferred to the soil stockpile area adjacent to Building 240. This material was covered with a 10-mil-thick liner and was kept segregated from excavated soil from IR Site 42 and SWMU 57 pending waste characterization. The final excavation dimensions and sample locations were documented via land survey. Figure 4-2 depicts the final extent of the excavation and confirmation sample locations.

There were 4 corrugated metal U-shaped drainage swales in the Building 88 parking lot that drained runoff from the parking lot into the SBNWR. Three of these drains were located in front of Building 88 and drained directly into the excavation footprint of the drainage channel. The fourth drain was located behind Building 88 and drained into the upland vegetated area adjacent to the parking lot. These drainage swales were removed on October 19, 2006, and replaced with 2-foot by 2-foot pre-cast concrete turf stones placed end to end and filled with ¾-inch diameter stone. At each location, both the inlet to the swale from the parking lot and the outlet to the drainage channel were constructed of cast-in-place concrete in order to facilitate proper drainage and prevent erosion.

A culvert runs under the access driveway to Building 88 from Bolsa Avenue. This culvert connects the east side of the drainage channel with the west side of the channel. The culvert was cleaned to remove the built-up sediment in order to maximize water flow through the culvert. This work was performed on October 19, 2006, by United Pumping Services, Inc. A vacuum truck with water application was used to remove the sediment. The water and sediment were transported via the vacuum truck to the soil stockpile area next to Building 240 and placed into two 20-yard roll-off bins pending waste characterization.

4.6.3 SWMU 57

Soil data collected during the Phase II FSI indicated that the area of contamination at SWMU 57 was limited to the area shown in Figure 2-3. Excavation at SWMU 57 commenced on October 4, 2006. A Caterpillar 330 excavator was used to remove approximately 140 loose cubic yards of material to a depth of 4 feet within the planned excavation boundaries (roughly rectangular-shaped with approximate dimensions of 37 feet long by 20 feet wide). This material was loaded into a 10-wheel dump truck and transferred to the soil stockpile area adjacent to Building 240. This material was covered with a 10-mil-thick liner and kept segregated from excavated soil from IR Site 42 and IR Site 44/45 pending waste characterization. Initial excavation to the planned limits was completed at SWMU 57 on October 5, 2006.

Confirmation sampling was performed on October 6, 2006. Thirteen samples were collected from the excavation floor and sidewalls and analyzed for total arsenic using EPA Method 6010B. Eleven of the 13 results were below the proposed cleanup goal of 15.4 mg/kg for arsenic, and ranged from 4.51 to 13.1 mg/kg. The remaining 2 samples, sample numbers 6-57-117 and 6-57-118 (location codes C-1 and C-2), showed arsenic concentrations of 34.9 and 23.7 mg/kg, respectively. These samples were collected from the sidewall immediately adjacent to the east side of Building 59. Additional excavation was not performed due to safety considerations for the building foundation. The details of the building foundation are unknown. The excavation sidewall in this area was sloped at a ratio of 1.5 feet horizontally to 1 foot vertically (i.e. the toe of the excavation sidewall was located 6 feet away [horizontally] from the side of the building, and the excavation depth at the toe was 4 feet bgs). This configuration allowed the continued safe support of the building while excavating to the planned limits. In lieu of additional

excavation, a 20-mil-thick PVC liner was placed over the entire sidewall prior to backfilling the excavation in order to mitigate exposure risk to the remaining soil on the excavation sidewall and to delineate the final extent of excavation in that area.

A statistical analysis was performed on the complete data set including all collected confirmation samples, and on the set excluding the two samples that exceeded the cleanup goal and were covered by the PVC liner. The mean, 80 percent UCL, and 95 percent UCL for arsenic using all data are 10.54 mg/kg, 13.88 mg/kg, and 15.91 mg/kg, respectively. The mean, 80 percent UCL, and 95 percent UCL for arsenic using data excluding the two samples beneath the PVC liner are 7.13 mg/kg, 8.10 mg/kg, and 8.71 mg/kg, respectively.

All statistical calculation values were below the proposed cleanup goal of 15.4 mg/kg except the 95 percent UCL value for the complete data set. However, the slight exceedance of this value is due to the two samples collected from the sidewall immediately adjacent to the east side of Building 59. Because the area where these samples were collected has been covered by PVC liner, the risk of exposure to soils in this area is considered negligible. Therefore, the 95 percent UCL was also calculated without the two sample results collected from beneath the liner. With these sample results removed, the 95 percent UCL is below the cleanup goal.

Table 4-3 contains the confirmation sample results for SWMU 57. Table 4-4 summarizes the mean, 80 percent UCLs, 95 percent UCLs and RAOs for the COPC at each site.

The final excavation dimensions and sample locations were documented via land survey. Figure 4-3 depicts the final excavation extent and confirmation sample locations for SWMU 57.

4.7 QUALITY CONTROL/QUALITY ASSURANCE OBJECTIVES

Confirmation soil samples were analyzed by a California-certified and DON-approved laboratory. Subsequently, a third-party validation company performed data validation of the confirmation soil samples. The validation was conducted in accordance with *Environmental Work Instruction (EWI) #1, 3EN2.1, Chemical Data Validation* (SWDIV, 2001); the Contract Laboratory Program *National Functional Guidelines for Inorganic Data Review, EPA 54D/R-04/004* (EPA, 2004); the Department of Defense (DoD) *Quality Systems Manual for Environmental Laboratories* (DoD, 2006); and the criteria specified in the Final Sampling and Analysis Plan, located in Appendix A of the *Final NTCRA Work Plan* (SES-TECH, 2006). Ten percent of the samples were validated in accordance with an EPA Level IV-equivalent protocol. The remainder of the samples was validated with an EPA Level III-equivalent protocol. The chain-of-custody records, laboratory analytical results, and data validation reports are included in Appendix A.

4.8 FUGIVE DUST CONTROL

Dust levels were visually monitored during the NTCRA at IR Site 42, IR Site 44/45, and SWMU 57, and were controlled using water application via a 2,000-gallon water truck. Dust control was implemented on a regular basis for the duration of the project. Each work day, prior to excavation or earthwork activities, water was sprayed over the planned excavation areas to minimize the amount of dust generated. In addition, a 10-mil PVC liner was placed over the stockpiled soil to control dust emissions.

4.9 WASTE HANDLING AND CHARACTERIZATION

The excavated material was kept segregated by site until a final waste classification was made for disposal purposes. The area under the stockpiles was covered with 20-mil PVC liner and bermed with sandbags to prevent surface water runoff from coming into contact with the stockpile. In addition, the stockpile was covered with 10-mil PVC liner to prevent wind-blown dust emissions and rain from coming into contact with the contaminated soil. Prior to sampling, the height, width, and length of the stockpile were measured and used to estimate the stockpile volume and weight. In accordance with the *Final NTCRA Work Plan* (SES-TECH, 2006) requirements, the stockpile was partitioned into approximate 100-cubic-yard segments for sampling. The 100-cubic-yard stockpile segments were marked and identified in the field using paint and surveying stakes. In accordance with the Sampling and Analysis Plan, located in Appendix A of the *Final NTCRA Work Plan* (SES-TECH, 2006), one unique stockpile sample identification number was assigned to each soil sample collected from each estimated 100-cubic-yard batch of stockpiled soil. In total, five samples were collected and analyzed for total metals, VOCs, SVOCs, pesticides, and PCBs. One sample collected from the IR Site 42 stockpile indicated a lead concentration of 96.3 mg/kg. Therefore, the Soluble Threshold Limit Concentration (STLC) and TCLP extraction tests were performed on that sample. The lead concentration for the STLC and TCLP extracts was below the regulatory limits for lead. Analytical results for stockpile samples are presented in Table 4-5.

The water and sediment generated from the culvert cleaning operation at IR Site 44/45 was contained in two 20-cubic-yard roll-off bins. The bins contained a mesh screen where the sediment/water mixture was placed that allowed the water to pass through the mesh and collect in the bottom of the roll-off bins, while the de-watered sediment remained on top of the mesh. The sediment was not sampled separately but rather was characterized for disposal based on the soil stockpile results.

4.10 WASTE CLASSIFICATION AND DISPOSAL

There were several waste streams that resulted from the NTCRA activities. These waste streams included excavated soil, used personal protective equipment (PPE), and water and sediment generated from the culvert cleaning operation at IR Site 44/45.

This subsection describes the disposal methods for the waste streams generated during the removal action. All waste material generated was disposed of at a CERCLA-approved waste disposal facility. The use of the disposal facility was subject to approval under SES-TECH Subcontractor Qualification Procedures.

4.10.1 Soil Disposal

Following excavation, stockpiling, and classification, the excavated soil was disposed of as non-hazardous waste. The soil was loaded onto truck trailers and hauled to the Chemical Waste Management, Inc., disposal facility located in Kettleman City, California. This facility is a CERCLA-approved and -permitted disposal facility. In total, 614.5 tons of non-hazardous soil were transported off site.

On October 23, 2006, 26 truck trailers in total were used to load and transport the excavated soil to the disposal facility. The truck trailers were supplied by Denbeste Transportation, Inc. A CAT 950 loader was used to load the truck trailers. A portable scale was mobilized and set up at the site during the loading operations to weigh each truck trailer before leaving the site to ensure compliance with Department of Transportation regulations. The scale was fitted with an electronic digital counter that displayed the weight of each truck axle. The scale had an accuracy of ± 5 percent. The trailer trucks had an average capacity of 24 tons. Care was taken not to overload the trucks. All trucks hauling waste off site were covered with plastic tarps before departing the site.

A non-hazardous waste manifest was filled out for each loaded truck trailer and submitted to the DON for signature. Original copies of the manifests and a DON-signed copy of the waste profile were provided to the transporter for shipment.

4.10.2 Used Personal Protection Equipment

The on-site excavation activities were performed in Level D or modified Level D PPE. All used PPE materials were placed in a 42-gallon trash bag within a 55-gallon drum for temporary storage. The trash bag containing PPE waste, along with miscellaneous trash, was later placed in a truck trailer, along with the excavated soil classified as non-hazardous waste, and hauled off site for disposal.

4.10.3 Water and Sediment Disposal

Based on the stockpile sample results, the water and sediment generated from the culvert-cleaning operation at IR Site 44/45 were classified as non-hazardous waste. The water and sediment were placed into two 20-cubic-yard bins for temporary storage pending waste characterization and to allow sufficient time for the water and sediment to separate.

The water was pumped into a vacuum truck on January 9, 2007, and hauled to the Santa Clara Waste Water disposal facility located in Santa Paula, California. This facility is a CERCLA-approved and -permitted disposal facility. After the water was loaded into the vacuum truck, a non-hazardous waste manifest was filled out for the water and submitted to the DON for signature. Original copies of the manifest and a DON-signed copy of the waste profile were provided to the transporter for shipment. Approximately 2,300 gallons of water were sent off site for disposal.

The bins containing the sediment were removed from the site on January 12, 2007, and hauled to the Chemical Waste Management, Inc. disposal facility located in Kettleman City, California. This facility is a CERCLA-approved and -permitted disposal facility. After the bins were loaded onto the truck, a non-hazardous waste manifest was filled out for the sediment and submitted to the DON for signature. Original copies of the manifest and a DON-signed copy of the waste profile were provided to the transporter for shipment. Approximately 20 cubic yards of sediment were sent off site for disposal.

4.11 SITE RESTORATION

Site restoration included backfilling and compaction of the excavated areas, grading the sites to blend with the surrounding grades, and partial revegetation. The excavated areas at IR Site 42 and SWMU 57 were backfilled using the stockpiled, clean fill from the wharf area located on NAVWPNSTA Seal Beach. This material was previously sampled and determined to be suitable for use as backfill at NAVWPNSTA Seal Beach. IR Site 44/45 was not backfilled, but the sidewalls of the drainage channel were graded to blend with the surrounding grade. A Caterpillar 446 backhoe and smooth-drum roller were used to backfill the excavated areas and re-grade the sites. The backfill material was placed in 9-inch loose lifts and compacted to a 6-inch thickness. A minimum of 90 percent of the maximum dry density was achieved.

After completing backfilling operations at SWMU 57, a 3-inch-thick layer of ¾-inch diameter rock was placed over the entire backfilled area and access way from Missile Road. Approximately 25 tons of rock were delivered to the site by West Coast Sand and Gravel.

At the completion of backfilling operations, the three sites were partially revegetated and/or seeded. As part of this process, rolls of jute mesh were placed along the slopes at all three sites where excavation had occurred (or where vegetation had been disturbed) to provide a foothold for new growth and to prevent erosion. At IR Site 42 and IR Site 44/45, plugs of pickleweed were planted to facilitate revegetation of the disturbed areas. At IR Site 44/45, the shoulder of Bolsa Avenue adjacent to the south side of the drainage channel was also seeded with an all-purpose mixture of grass seed containing Perennial Ryegrass, Annual Ryegrass, Fine Fescue, and Kentucky Bluegrass. This seed mixture was also placed along the slope adjacent to the backfilled area at SWMU 57.

4.12 DEMOBILIZATION

Demobilization consisted of decontamination and demobilization of all equipment, cleaning the project sites, and initial and final acceptance inspections.

4.12.1 Equipment Decontamination

Decontamination was performed on the sampling tools, earthmoving equipment (excavator, skip loader, and dump truck), and miscellaneous small equipment such as shovels. The decontamination procedures outlined below were supervised and accepted by the SHSS.

- All equipment that came into contact with contaminated soil was brushed clean before leaving the site.
- Special attention was paid to removal of material on and within the bucket and undercarriage of the excavator and skip loader.
- All equipment was inspected by the SHSS and the Site Superintendent before leaving the site.

4.12.2 Initial and Final Acceptance Inspections

An initial inspection of the completed work was conducted on November 1, 2006. The purpose of the inspection was to gain DON concurrence that all work items were completed as contracted. The initial inspection was attended by the DON RPM, NAVWPNSTA Seal Beach IR Program Coordinator, ROICC, and SES-TECH's PQCM. A punch list of items deemed incomplete was generated by the DON based on the initial inspection. The punch list items were completed by SES-TECH on November 3, 2006. A final inspection was performed by the ROICC, and concurrence of the completed punch list items was provided to SES-TECH by the ROICC on November 16, 2006.

4.13 PHOTOGRAPHIC LOG

Photographs of the site were obtained during the implementation of the removal activities. The photographs are presented in Appendix B.

4.14 PROJECT MANAGEMENT

This section provides an overview of the project management team that was responsible for all technical and administrative aspects of the removal action. Included among the team's responsibilities were the project schedule, staffing, data management, document control, project meetings, and reporting.

The NAVFAC SW RPM for this project is Mr. Si Le, who was responsible for project management, budget control, schedule maintenance, regulatory agency contacts, and community relations. Ms. Pei-Fen Tamashiro, the NAVWPNSTA Seal Beach IR Program Coordinator, was

responsible to ensure that the field and removal activities were in compliance with the applicable rules and regulations. Mr. David Crawley is the ROICC and was responsible for coordinating the field activities with different DON departments and personnel and for the technical oversight of field activities and quality assurance. SES-TECH's Project Manager, Mr. Abram Eloskof, was responsible for general project administration. Mr. Eloskof oversees budget, schedule, document preparation, and ensured the quality of all project activities and deliverables. The Site Superintendent, Mr. Glenn Nardin, managed the fieldwork and provided oversight to the subcontractors. Mr. Nardin coordinated the field activities with the senior technical staff and the Quality Control (QC) Program Manager, Ms. Mary Schneider, to ensure that all field activities were in compliance with the project specifications. Mr. Nardin also coordinated these activities with the SHSS, interacted with DON personnel, and coordinated efforts among all subcontractors. Mr. Carl Jones was the acting PQCM, as well as the SHSS.

The following is a list of the key contacts:

Agency	Contact	Project Title
Naval Facilities Engineering Command, Southwest 1220 Pacific Highway San Diego, CA 92132-5190	Mr. Si Le (619) 532-2295	DON RPM
NAVWPNSTA Seal Beach 800 Seal Beach Boulevard Building 110 Seal Beach, CA 90740-5000	Ms. Pei-Fen Tamashiro (562) 626-7897	NAVWPNSTA Seal Beach IR Program Coordinator
ROICC Los Angeles NAVWPNSTA Seal Beach Building 230 Seal Beach, CA 90740-5000	Mr. David Crawley (562) 626-7964	ROICC
California Environmental Protection Agency Department of Toxic Substances Control Office of Military Facilities Southern California Region 5796 Corporate Avenue Cypress, CA 90630	Ms. Katherine Leibel (714) 484-5446	DTSC RPM
California Regional Water Quality Control Board (Water Board) Santa Ana Region 3737 Main Street, Suite 500 Riverside, CA 92501-3339	Ms. Patricia Hannon (951) 782-4498	Water Board RPM
SES-TECH 1230 Columbia Street, Suite 750 San Diego, CA 92101-8536	Mr. Neil Hart (619) 471-3511	Program Manager

Agency	Contact	Project Title
SES-TECH 1940 E. Deere Avenue, Suite 200 Santa Ana, CA 92705-5718	Mr. Abram Eloskof (949) 756-7521 (714) 620-5530 (cellular)	Project Manager
SES-TECH 1940 E. Deere Avenue, Suite 200 Santa Ana, CA 92705-5718	Ms. Mary Schneider (949) 756-7586	QC Program Manager
SES-TECH 1940 E. Deere Avenue, Suite 200 Santa Ana, CA 92705-5718	Mr. Glenn Nardin (714) 822-4691 (cellular)	Site Superintendent
SES-TECH 1940 E. Deere Avenue, Suite 200 Santa Ana, CA 92705-5718	Mr. Carl Jones (949) 756-7513	SHSS and PQCM

5.0 COSTS OF THE REMOVAL ACTION

This section summarizes the estimated costs of the removal action. The estimated costs include SES-TECH's direct and indirect costs, subcontractor costs, taxes, bonds, and insurance.

<u>Activity</u>	<u>Estimated Cost</u>
Preparation of Site Work Plan and Closure Report	\$ 148,421
Geophysical and land surveying	\$ 8,627
Health and safety equipment (including air monitoring, supplies, and PPE)	\$ 3,708
Sampling and analysis	\$ 16,896
Excavation of contaminated soil (including labor and equipment)	\$ 212,799
Final grading and site restoration (including labor and equipment)	\$ 37,553
Culvert cleaning (IR Site 44/45)	\$ 11,218
Waste transportation and disposal	\$ 88,823
Miscellaneous expenses, travel	\$ 20,238
Fuel costs	\$ 10,700
Professional labor (project oversight)	\$ 17,824
Total Costs:	\$ 576,807

6.0 PUBLIC INFORMATION/COMMUNITY RELATIONS ACTIVITIES

Community relations activities were conducted by the DON to inform the public about the cleanup activities at IR Site 42, IR Site 44/45, and SWMU 57 and to encourage involvement in the review of relevant documents and discussion regarding the cleanup plan. These activities are briefly described below.

6.1 PUBLIC INFORMATION

The remediation process was conducted in accordance with the Community Relations Plan prepared by the DON to facilitate public involvement in the decision-making process. The DON, as the lead agency, has overall responsibility for public participation activities. To gain a more thorough understanding of the activities associated with this removal action, the public was encouraged to review documents contained in the Information Repository. This Site Closeout Report, the *Final NTCRA Work Plan* (SES-TECH, 2006), the Final Action Memorandum/Removal Action Work Plans for the 3 sites (MARRS, 2006a, 2006b, 2006c), the Final EE/CAs for the 3 sites (MARRS, 2005a, 2005b, 2005c), as well as other information concerning the sites were made available to the public via the Information Repository located in the Mary Wilson Branch of Seal Beach Public Library. This branch of the library is located at 707 Electric Avenue, Seal Beach, California, 90740, (562) 431-3584. The library is open during the following hours:

Monday and Tuesday	12 noon – 8:00 p.m.
Wednesday and Thursday	10:00 a.m. – 6:00 p.m.
Saturday	10:00 a.m. – 5:00 p.m.
Friday and Sunday	Closed

Documents, reports, newsletters, and Restoration Advisory Board (RAB) meeting agendas, minutes, and presentation materials concerning IR Site 42, IR Site 44/45, and SWMU 57 are included in the repository for public review. The Administrative Record Index is maintained by SWDIV and is available to the public at the NAVFAC SW, 1220 Pacific Highway, San Diego, California, 92132-5190.

6.2 PUBLIC PARTICIPATION

As part of the community outreach effort associated with the DoD IR Program, the DON established a RAB to encourage local participation in the hazardous waste cleanup program at NAVWPNSTA Seal Beach. The RAB is a citizen-based committee representing local community interests. To encourage local participation in the NAVWPNSTA hazardous substances cleanup program, the RAB held several meetings during this process. The availability of project-related documents was advertised locally in the *Seal Beach Sun* and the *Orange*

County Register newspapers in an effort to encourage public involvement. In addition, the DON has prepared a master mailing list of the local community members. Whenever significant cleanup activities are planned or whenever decisions are made, the community members are notified by mail for information purposes and involvement.

The *Draft NTCRA Work Plan* (SES-TECH, 2005) was submitted to the regulatory agencies and the RAB for review and comment on December 5, 2005. Prior to performing the removal action, SES-TECH, under direction of the DON, conducted a presentation for the RAB on May 9, 2006, to discuss the cleanup plan and to solicit RAB comments. Following agency and RAB review of the *Draft NTCRA Work Plan* (SES-TECH, 2005), the *Final NTCRA Work Plan* (SES-TECH, 2006) was issued in August 2006.

Following the completion of the removal activities, SES-TECH conducted a presentation for the RAB on November 14, 2006, to provide an overview of the work performed during the NTCRA.

7.0 EFFECTIVENESS OF THE REMOVAL ACTION

The results of the confirmatory sampling performed at the conclusion of the removal action are evaluated in this section. The main purpose of this evaluation is to ensure that the results have, in fact, achieved the RAOs for the site.

7.1 IR SITE 42

The RAOs for IR Site 42 were designed to minimize further migration of metal contaminants to the SBNWR area, reduce the risk to ecological receptors from the copper-impacted soil to acceptable levels, minimize the impact to and preserve existing beneficial uses of the SBNWR, and to remove soil that exceeds the proposed cleanup goal for copper of 39 mg/kg. None of the 20 confirmation samples exceeded the RAOs for copper. The mathematical mean of the copper concentrations in the samples was 12.51 mg/kg, the 80 percent UCL for all the samples was 13.14 mg/kg, and the 95 percent UCL for all the samples was 13.50 mg/kg; all of which are below the established RAO. Refer to Table 4-4 and Appendix C for statistical calculations.

7.2 IR SITE 44/45

The RAOs for IR Sites 44/45 were designed to minimize future releases of metals from ongoing storage and recycling of metals, reduce the risk to ecological receptors from nickel and zinc-impacted sediments to acceptable levels, and remove soil and sediment that exceeds the proposed cleanup goals for nickel of 32.5 mg/kg and zinc of 177.2 mg/kg.

Of the total 83 confirmation samples collected during the course of this removal action, only one sample (6-44-141) exceeded the RAO for nickel (37.5 mg/kg) and zinc (188 mg/kg). For constituents detected above the regulatory threshold criteria, a statistical evaluation was performed in accordance with the methodology presented in Chapter 9 of EPA SW-846 guidance (EPA, 2005). The methodology includes calculating the 80 percent UCL of the mean concentration using the student “t” test. SW-846 explicitly states that a COPC is not considered to be present in the waste at a hazardous level if the upper limit of the confidence interval is less than the applicable regulatory threshold. A more stringent UCL, namely 95 percent, was also calculated for these sites. The mean, 80 percent UCL, and 95 percent UCL for nickel are 22.06 mg/kg, 22.94 mg/kg, and 23.42 mg/kg, respectively. The mean, 80 percent UCL, and 95 percent UCL for zinc are 122.17 mg/kg, 126.86 mg/kg, and 129.39 mg/kg, respectively. All of these values are below the respective cleanup goals for nickel (32.5 mg/kg) and zinc (177.2 mg/kg). Refer to Table 4-4 and Appendix C for statistical calculations.

7.3 SWMU 57

The RAOs for SWMU 57 were designed to minimize further migration of metal contaminants to the SBNWR area, reduce human-health risks from arsenic-impacted soil to acceptable levels, and remove soil that exceeds the proposed cleanup goal for arsenic of 15.4 mg/kg. Furthermore, the site cleanup had to be implemented in a manner that would provide for unrestricted land use upon completion. Of the total 13 confirmation samples collected from the excavation floor and sidewalls, only 2 samples, designated as 6-57-117 and 6-57-118, (collected along the western sidewall immediately adjacent to the east side of Building 59) exceeded the cleanup goal for arsenic with concentrations of 34.9 mg/kg and 23.7 mg/kg, respectively. Additional excavation at those sample locations along the western sidewall could not be performed since it could have potentially undermined the structural integrity of Building 59. A plastic liner was placed over the entire surface area of the western sidewall to mitigate exposure and the excavation was backfilled with clean fill material.

The calculated mean (10.54 mg/kg) and 80 percent UCL (13.88 mg/kg) for all the confirmation samples were below the established RAO for the site. In addition, the calculated 95 percent UCL for arsenic (15.91 mg/kg) only slightly exceeded the established RAO for the site. Statistics were also calculated for the data set excluding the two samples collected beneath the liner, and the calculated mean (7.13 mg/kg), 80 percent UCL (8.10 mg/kg), and 95 percent UCL (8.71 mg/kg) were all below the cleanup goal. Thus it is clear that the slight exceedance observed in the 95 percent UCL for the complete data set is due to the two samples collected from the western sidewall immediately adjacent to the east side of Building 59. Exposure to soils in this area has been mitigated by the PVC liner. Refer to Table 4-4 and Appendix C for statistical calculations.

7.4 SUMMARY OF RESIDUAL RISK

As a result of this removal action, the following RAOs have been achieved:

- Because contaminated soil with levels above risk-based concentrations was removed from the sites, the residual risk is minimal.
- Based on the completed work, attainment of the RAOs now provides adequate protection for potential human and ecological receptors.

8.0 SUMMARY AND RECOMMENDATIONS

At IR Site 42, based on the possible ecological risks to aquatic and terrestrial receptors, the Phase II FSI Report (CH2M Hill, 2002) recommended a cleanup goal for metals. The IR Site 42 EE/CA (MARRS, 2005a) also recommended removing soil with metal concentrations above ULBVs in conjunction with confirmation sampling.

For IR Site 44/45, a cleanup goal for metals in the sediment was recommended in the FSI Phase II Report (CH2M Hill, 2002), based on possible risks to aquatic receptors. The IR Site 44/45 EE/CA (MARRS, 2005b) also recommended removing sediment with metal concentrations above ULBVs in conjunction with confirmation sampling.

For SWMU 57, a human health risk screening was performed for soils at SWMU 57 as part of the Phase II FSI (CH2M Hill, 2002). This screening was performed by comparing soil analytical results with ULBVs and residential PRGs and estimating ELCR and HQ for each COPC. Metals in soils yielded an ELCR of 3×10^{-4} and a noncancer HI greater than 1. VOCs in soil resulted in an ELCR of 1×10^{-7} and a noncancer HI less than 0.1. These results were based on the maximum concentrations of chemicals instead of 95 percent UCL concentrations due to the limited number of samples collected. In order to reduce the human health risks associated with exposure to soil, the SWMU 57 EE/CA (MARRS, 2005c) recommended removing soil with arsenic concentrations above the cleanup goal in conjunction with confirmation sampling.

The recommended alternative of excavation and off-site disposal proposed by the EE/CAs (MARRS, 2005a, 2005b, 2005c) was the basis for the *Final NTCRA Work Plan* (SES-TECH, 2006). The remedial actions at IR Site 42, IR Site 44/45, and SWMU 57 were conducted in accordance with the *Final NTCRA Work Plan* (SES-TECH, 2006) from September 18 to November 3, 2006.

Based on the completion of the removal action at IR Site 42, IR Site 44/45, and SWMU 57 as described in this report, the residual risk to human and ecological receptors for exposure to the soil/sediment at the three areas is considered to be minimal. It is therefore recommended that IR Site 42, IR Site 44/45, and SWMU 57 be considered for “No Further Action” status with respect to site soils.

9.0 REFERENCES

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TABLES

TABLE 4-1

SUMMARY OF ANALYTICAL RESULTS FOR IR SITE 42 CONFIRMATION SAMPLES

Sample Number	Location Code	Sample Date	Copper (mg/kg)
6-42-001	A-1	9/22/2006	12.2
6-42-002	A-2	9/22/2006	11.4
6-42-003	A-2	9/22/2006	14.5
6-42-004	A-3	9/22/2006	13.6
6-42-005	A-4	9/22/2006	15.2
6-42-006	A-5	9/22/2006	11.3
6-42-007	A-5	9/22/2006	11.7
6-42-008	A-6	9/22/2006	16.6
6-42-009	A-7	9/22/2006	11.6
6-42-010	A-8	9/22/2006	10
6-42-011	B-1	9/22/2006	9.63
6-42-012	B-2	9/22/2006	14.5
6-42-013	B-3	9/22/2006	11
6-42-014	B-4	9/22/2006	12.9
6-42-015	C-1	9/22/2006	16.4
6-42-016	C-2	9/22/2006	9.12
6-42-017	D-1	9/22/2006	12.7
6-42-018	D-2	9/22/2006	11.8
6-42-019	D-3	9/22/2006	13.3
6-42-020	D-4	9/22/2006	10.7

Notes:

mg/kg - milligram per kilogram

IR - Installation Restoration

TABLE 4-2

SUMMARY OF ANALYTICAL RESULTS FOR IR SITE 44/45 CONFIRMATION SAMPLES

Sample Number	Location Code	Sample Date	Nickel (mg/kg)	Zinc (mg/kg)
6-44-022	B-1	10/4/2006	21.8	123
6-44-023	B-2	10/4/2006	22	110
6-44-024	B-3	10/4/2006	16.5	70.7
6-44-025	B-4	10/4/2006	16.6	86
6-44-026	B-5	10/4/2006	17	79.3
6-44-027	B-6	10/4/2006	15.7	77.5
6-44-028	B-7	10/4/2006	14.8	70.4
6-44-029	B-8	10/4/2006	15.2	78.9
6-44-030	B-9	10/4/2006	15.6	108
6-44-031	B-10	10/4/2006	15.1	74.2
6-44-034	C-2	10/4/2006	28.9	128
6-44-035	C-3	10/4/2006	23.4	111
6-44-042	C-10	10/4/2006	6.34	49.1
6-44-044	A-1	10/4/2006	24	133
6-44-045	A-2	10/4/2006	30.8	164
6-44-047	A-4	10/4/2006	26.3	149
6-44-048	A-5	10/4/2006	23.6	121
6-44-051	A-8	10/4/2006	29.1	168
6-44-054	A-10	10/4/2006	24.5	111
6-44-055	A-11	10/4/2006	28.1	175
6-44-056	A-12	10/4/2006	29.5	145
6-44-057	A-13	10/4/2006	18.8	147
6-44-058	A-14	10/4/2006	15.8	140
6-44-059	A-15	10/4/2006	26.7	144
6-44-060	A-16	10/4/2006	20.4	140
6-44-061	A-17	10/4/2006	25.3	135
6-44-062	A-18	10/4/2006	13.6	60.5
6-44-064	A-19	10/4/2006	17.6	114
6-44-065	A-20	10/4/2006	21.6	138
6-44-066	D-1	10/4/2006	27.9	159
6-44-067	B-11	10/4/2006	16.7	92.9
6-44-068	B-12	10/4/2006	13	71.1
6-44-069	B-13	10/4/2006	12.1	67.3
6-44-070	B-14	10/4/2006	11.8	70.1
6-44-071	B-15	10/4/2006	29.2	167
6-44-072	B-16	10/4/2006	26.2	166
6-44-073	B-17	10/4/2006	28.3	161
6-44-077	C-11	10/5/2006	13.8	97.9
6-44-079	C-12	10/5/2006	18	119
6-44-080	C-13	10/5/2006	28.2	157
6-44-081	C-14	10/5/2006	20.2	109
6-44-082	C-15	10/5/2006	16.3	97.2
6-44-083	C-16	10/5/2006	24.7	159
6-44-084	C-17	10/5/2006	18.4	161
6-44-085	C-18	10/5/2006	31.7	161
6-44-087	A-22	10/5/2006	25.4	124

TABLE 4-2

SUMMARY OF ANALYTICAL RESULTS FOR IR SITE 44/45 CONFIRMATION SAMPLES

Sample Number	Location Code	Sample Date	Nickel (mg/kg)	Zinc (mg/kg)
6-44-089	A-23	10/5/2006	31.7	143
6-44-091	A-24	10/5/2006	17.7	114
6-44-092	A-25	10/5/2006	25.9	148
6-44-093	A-26	10/5/2006	26.1	140
6-44-094	A-27	10/5/2006	28	164
6-44-095	A-28	10/5/2006	28.4	157
6-44-096	A-29	10/5/2006	26.5	162
6-44-097	A-30	10/5/2006	30.7	148
6-44-098	A-31	10/5/2006	26.7	153
6-44-099	A-32	10/5/2006	18.8	109
6-44-100	A-33	10/5/2006	26.3	158
6-44-101	A-34	10/5/2006	28.1	145
6-44-102	A-35	10/5/2006	24.8	150
6-44-103	A-36	10/5/2006	24.2	125
6-44-124	C-1	10/17/2006	22.6	105
6-44-126	C-4	10/17/2006	23	118
6-44-127	C-5	10/17/2006	22.6	111
6-44-128	C-6	10/17/2006	26	130
6-44-129	C-7	10/17/2006	13.7	135
6-44-130	C-8	10/17/2006	12.2	61.8
6-44-131	C-9	10/17/2006	23.9	122
6-44-133	A-3	10/17/2006	22.2	102
6-44-134	A-6	10/17/2006	20.5	114
6-44-135	A-7	10/17/2006	14.6	67.2
6-44-136	A-9	10/17/2006	16.6	82.3
6-44-137	A-21	10/17/2006	11.3	74.5
6-44-138	B-18	10/17/2006	31.7	146
6-44-141	D-2	10/19/2006	37.5	188

Notes:

mg/kg - milligram per kilogram

IR - Installation Restoration

TABLE 4-3

SUMMARY OF ANALYTICAL RESULTS FOR SWMU 57 CONFIRMATION SAMPLES

Sample Number	Location Code	Sample Date	Arsenic (mg/kg)
6-57-111	A-1	10/6/2006	6.82
6-57-112	A-2	10/6/2006	6.83
6-57-113	A-3	10/6/2006	6.84
6-57-114	A-4	10/6/2006	6.41
6-57-115	A-5	10/6/2006	4.51
6-57-116	A-6	10/6/2006	6.14
6-57-117	C-1	10/6/2006	34.9
6-57-118	C-2	10/6/2006	23.7
6-57-119	B-1	10/6/2006	9.74
6-57-120	B-2	10/6/2006	13.1
6-57-121	D-1	10/6/2006	6.42
6-57-122	D-1	10/6/2006	5.7
6-57-123	D-2	10/6/2006	5.88

Notes:

mg/kg - milligram per kilogram

SWMU - Solid Waste Management Unit

TABLE 4-4**SUMMARY OF STATISTICAL ANALYSES**

Site/COPC	Mean (mg/kg)	80% UCL (mg/kg)	95% UCL (mg/kg)	RAO (mg/kg)
IR 42 / copper	12.51	13.14	13.50	39
IR 44/45 / nickel	22.06	22.94	23.42	32.5
IR 44/45 / zinc	122.17	126.86	129.39	177.2
SWMU 57 /arsenic	10.94	13.88	15.91	15.4
SWMU 57 /arsenic (does not include two samples results collected beneath the liner)	7.13	8.1	8.71	15.4

Notes:**% - percent**

COPC - chemical of potential concern

IR - Installation Restoration

mg/kg - milligram per kilogram

N/A - not applicable

RAO - removal action objective

SWMU - solid waste management unit

UCL - upper confidence limit

TABLE 4-5

WASTE SAMPLING RESULTS

Parameters	Units	6-42-21	6-44-107	6-44-108	6-44-109	6-57-110	6-44-142
		42 Waste Stockpile 9/22/2006	44/45 Stockpile N 10/5/2006	44/45 Stockpile E 10/5/2006	44/45 Stockpile S 10/5/2006	57 Stockpile C 10/5/2006	Wastewater 10/19/2006
<i>Pesticides</i>							
ALPHA-BHC	µg/kg	1.9 U	2.7 U	2.8 U	2.3 U	1.9 U	NA
GAMMA-BHC (LINDANE)	µg/kg	1.9 U	2.7 U	2.8 U	2.3 U	1.9 U	NA
BETA-BHC	µg/kg	1.9 U	2.7 U	2.8 U	2.3 U	1.9 U	NA
HEPTACHLOR	µg/kg	1.9 U	2.7 U	2.8 U	2.3 U	1.9 U	NA
DELTA-BHC	µg/kg	1.9 U	2.7 U	2.8 U	2.3 U	1.9 U	NA
ALDRIN	µg/kg	1.9 U	2.7 U	2.8 U	2.3 U	1.9 U	NA
HEPTACHLOR EPOXIDE	µg/kg	2.0	2.7 U	2.8 U	2.3 U	1.9 U	NA
GAMMA-CHLORDANE	µg/kg	13	2.2 J	50 U	40 U	33 U	NA
ALPHA-CHLORDANE	µg/kg	17	48 U	50 U	1.5 J	33 U	NA
ENDOSULFAN I	µg/kg	1.9 U	2.7 U	2.8 U	2.3 U	1.9 U	NA
4,4'-DDE	µg/kg	3.3 J	310	68	160	3.6 U	NA
DIELDRIN	µg/kg	2.7 J	3.4 J	5.5 U	2.5 J	3.6 U	NA
ENDRIN	µg/kg	3.7 U	5.2 U	5.5 U	4.4 U	3.6 U	NA
4,4'-DDD	µg/kg	36	42	10	21	3.6 U	NA
ENDOSULFAN II	µg/kg	3.7 U	5.2 U	5.5 U	4.4 U	3.6 U	NA
4,4'-DDT	µg/kg	8.8	3.0 J	3.5 J	11	3.6 U	NA
ENDRIN ALDEHYDE	µg/kg	3.7 U	5.2 U	5.5 U	4.4 U	3.6 U	NA
ENDOSULFAN SULFATE	µg/kg	3.7 U	5.2 U	5.5 U	4.4 U	3.6 U	NA
ENDRIN KETONE	µg/kg	3.7 U	5.2 U	5.5 U	4.4 U	3.6 U	NA
METHOXYCHLOR	µg/kg	19 U	27 U	28 U	23 U	19 U	NA
TOXAPHENE	µg/kg	67 U	94 U	98 U	79 U	64 U	NA
<i>PCBs</i>							
PCB-1016	µg/kg	56 U	79 U	83 U	67 U	55 U	NA
PCB-1221	µg/kg	56 U	79 U	83 U	67 U	55 U	NA
PCB-1232	µg/kg	56 U	79 U	83 U	67 U	55 U	NA
PCB-1242	µg/kg	56 U	79 U	83 U	67 U	55 U	NA
PCB-1248	µg/kg	56 U	79 U	83 U	67 U	55 U	NA
PCB-1254	µg/kg	56 U	79 U	83 U	67 U	55 U	NA
PCB-1260	µg/kg	62	79 U	83 U	67 U	55 U	NA

TABLE 4-5

WASTE SAMPLING RESULTS

Parameters	Units	6-42-21	6-44-107	6-44-108	6-44-109	6-57-110	6-44-142
		42 Waste Stockpile 9/22/2006	44/45 Stockpile N 10/5/2006	44/45 Stockpile E 10/5/2006	44/45 Stockpile S 10/5/2006	57 Stockpile C 10/5/2006	Wastewater 10/19/2006
<i>VOCs</i>							
1,1,1-TRICHLOROETHANE	µg/kg	5.3 U	9.5 U	11 U	6.1 U	6.5 U	NA
1,1,2,2-TETRACHLOROETHANE	µg/kg	5.3 U	9.5 U	11 U	6.1 U	6.5 U	NA
1,1,2-TRICHLOROETHANE	µg/kg	5.3 U	9.5 U	11 U	6.1 U	6.5 U	NA
1,1-DICHLOROETHANE	µg/kg	5.3 U	9.5 U	11 U	6.1 U	6.5 U	NA
1,1-DICHLOROETHENE	µg/kg	5.3 U	9.5 U	11 U	6.1 U	6.5 U	NA
1,2-DICHLOROETHANE	µg/kg	5.3 U	9.5 U	11 U	6.1 U	6.5 U	NA
1,2-DICHLOROPROPANE	µg/kg	5.3 U	9.5 U	11 U	6.1 U	6.5 U	NA
2-HEXANONE	µg/kg	11 U	19 U	22 U	12 U	13 U	NA
ACETONE	µg/kg	150	56	42 J	14 J	13 U	NA
BENZENE	µg/kg	5.3 U	9.5 U	11 U	6.1 U	6.5 U	NA
BROMODICHLOROETHANE	µg/kg	5.3 U	9.5 U	11 U	6.1 U	6.5 U	NA
BROMOFORM	µg/kg	5.3 U	9.5 U	11 U	6.1 U	6.5 U	NA
BROMOETHANE	µg/kg	11 U	19 U	22 U	12 U	13 U	NA
CARBON TETRACHLORIDE	µg/kg	5.3 U	9.5 U	11 U	6.1 U	6.5 U	NA
CHLOROBENZENE	µg/kg	5.3 U	9.5 U	11 U	6.1 U	6.5 U	NA
CHLOROETHANE	µg/kg	5.3 U	9.5 U	11 U	6.1 U	6.5 U	NA
CHLOROFORM	µg/kg	5.3 U	9.5 U	11 U	6.1 U	6.5 U	NA
CHLOROMETHANE	µg/kg	11 U	19 U	22 U	12 U	13 U	NA
CIS-1,2-DICHLOROETHANE	µg/kg	5.3 U	9.5 U	11 U	6.1 U	6.5 U	NA
CIS-1,3-DICHLOROPROPENE	µg/kg	5.3 U	9.5 U	11 U	6.1 U	6.5 U	NA
DIBROMOCHLOROMETHANE	µg/kg	5.3 U	9.5 U	11 U	6.1 U	6.5 U	NA
ETHYLBENZENE	µg/kg	5.3 U	9.5 U	11 U	6.1 U	6.5 U	NA
METHYL ETHYL KETONE (MEK)	µg/kg	8.7 J	12 J	22 U	12 U	13 U	NA
METHYL TERT-BUTYL ETHER (MTBE)	µg/kg	5.3 U	9.5 U	11 U	6.1 U	6.5 U	NA
METHYLENE CHLORIDE	µg/kg	21 U	38 U	43 U	24 U	26 U	NA
METHYL ISOBUTYL KETONE	µg/kg	11 U	19 U	22 U	12 U	13 U	NA
STYRENE	µg/kg	5.3 U	9.5 U	11 U	6.1 U	6.5 U	NA
TETRACHLOROETHENE	µg/kg	5.3 U	9.5 U	11 U	6.1 U	6.5 U	NA
TOLUENE	µg/kg	5.3 U	9.5 U	11 U	6.1 U	6.5 U	NA

TABLE 4-5

WASTE SAMPLING RESULTS

Parameters	Units	6-42-21	6-44-107	6-44-108	6-44-109	6-57-110	6-44-142
		42 Waste Stockpile 9/22/2006	44/45 Stockpile N 10/5/2006	44/45 Stockpile E 10/5/2006	44/45 Stockpile S 10/5/2006	57 Stockpile C 10/5/2006	Wastewater 10/19/2006
TRANS-1,2-DICHLOROETHENE	µg/kg	5.3 U	9.5 U	11 U	6.1 U	6.5 U	NA
TRANS-1,3-DICHLOROPROPENE	µg/kg	5.3 U	9.5 U	11 U	6.1 U	6.5 U	NA
TRICHLOROETHENE	µg/kg	5.3 U	9.5 U	11 U	6.1 U	6.5 U	NA
VINYL ACETATE	µg/kg	53 U	95 U	110 U	61 U	65 U	NA
VINYL CHLORIDE	µg/kg	11 U	19 U	22 U	12 U	13 U	NA
XYLENES (TOTAL)	µg/kg	5.3 U	9.5 U	11 U	6.1 U	6.5 U	NA
<i>SVOCs</i>							
1,2,4-TRICHLOROBENZENE	µg/kg	1900 U	1000 U	1100 U	880 U	360 U	NA
1,2-DICHLOROBENZENE	µg/kg	1900 U	1000 U	1100 U	880 U	360 U	NA
1,3-DICHLOROBENZENE	µg/kg	1900 U	1000 U	1100 U	880 U	360 U	NA
1,4-DICHLOROBENZENE	µg/kg	1900 U	1000 U	1100 U	880 U	360 U	NA
2,4,5-TRICHLOROPHENOL	µg/kg	1900 U	1000 U	1100 U	880 U	360 U	NA
2,4,6-TRICHLOROPHENOL	µg/kg	1900 U	1000 U	1100 U	880 U	360 U	NA
2,4-DICHLOROPHENOL	µg/kg	1900 U	1000 U	1100 U	880 U	360 U	NA
2,4-DIMETHYLPHENOL	µg/kg	1900 U	1000 U	1100 U	880 U	360 U	NA
2,4-DINITROPHENOL	µg/kg	3800 U	2100 U	2200 U	1800 U	730 U	NA
2,4-DINITROTOLUENE	µg/kg	1900 U	1000 U	1100 U	880 U	360 U	NA
2,6-DINITROTOLUENE	µg/kg	1900 U	1000 U	1100 U	880 U	360 U	NA
2-CHLORONAPHTHALENE	µg/kg	1900 U	1000 U	1100 U	880 U	360 U	NA
2-CHLOROPHENOL	µg/kg	1900 U	1000 U	1100 U	880 U	360 U	NA
2-METHYLPHENOL	µg/kg	1900 U	1000 U	1100 U	880 U	360 U	NA
2-NITROANILINE	µg/kg	3800 U	2100 U	2200 U	1800 U	730 U	NA
2-NITROPHENOL	µg/kg	3800 U	2100 U	2200 U	1800 U	730 U	NA
3,3'-DICHLOROBENZIDINE	µg/kg	3800 U	2100 U	2200 U	1800 U	730 U	NA
3-NITROANILINE	µg/kg	3800 U	2100 U	2200 U	1800 U	730 U	NA
4,6-DINITRO-2-METHYLPHENOL	µg/kg	3800 U	2100 U	2200 U	1800 U	730 U	NA
4-BROMOPHENYL-PHENYL ETHER	µg/kg	1900 U	1000 U	1100 U	880 U	360 U	NA
4-CHLORO-3-METHYLPHENOL	µg/kg	1900 U	1000 U	1100 U	880 U	360 U	NA
4-CHLOROANILINE	µg/kg	1900 U	1000 U	1100 U	880 U	360 U	NA
4-CHLOROPHENYL-PHENYL ETHER	µg/kg	1900 U	1000 U	1100 U	880 U	360 U	NA

TABLE 4-5

WASTE SAMPLING RESULTS

Parameters	Units	6-42-21	6-44-107	6-44-108	6-44-109	6-57-110	6-44-142
		42 Waste Stockpile 9/22/2006	44/45 Stockpile N 10/5/2006	44/45 Stockpile E 10/5/2006	44/45 Stockpile S 10/5/2006	57 Stockpile C 10/5/2006	Wastewater 10/19/2006
4-METHYLPHENOL	µg/kg	1900 U	1000 U	1100 U	880 U	360 U	NA
4-NITROANILINE	µg/kg	3800 U	2100 U	2200 U	1800 U	730 U	NA
4-NITROPHENOL	µg/kg	3800 U	2100 U	2200 U	1800 U	730 U	NA
BIS (2-CHLOROETHOXY) METHANE	µg/kg	1900 U	1000 U	1100 U	880 U	360 U	NA
BIS (2-CHLOROETHYL) ETHER	µg/kg	1900 U	1000 U	1100 U	880 U	360 U	NA
BIS (2-CHLOROISOPROPYL) ETHER	µg/kg	1900 U	1000 U	1100 U	880 U	360 U	NA
BIS (2-ETHYLHEXYL) PHTHALATE	µg/kg	1900 U	1000 U	1100 U	880 U	360 U	NA
BUTYLBENZYLPHTHALATE	µg/kg	1900 U	1000 U	1100 U	880 U	360 U	NA
DI-N-BUTYLPHTHALATE	µg/kg	1900 U	1000 U	1100 U	880 U	360 U	NA
DI-N-OCTYLPHTHALATE	µg/kg	1900 U	1000 U	1100 U	880 U	360 U	NA
DIBENZOFURAN	µg/kg	1900 U	1000 U	1100 U	880 U	360 U	NA
DIETHYL PHTHALATE	µg/kg	1900 U	1000 U	1100 U	880 U	360 U	NA
DIMETHYL PHTHALATE	µg/kg	1900 U	1000 U	1100 U	880 U	360 U	NA
HEXACHLOROENZENE	µg/kg	1900 U	1000 U	1100 U	880 U	360 U	NA
HEXACHLOROBUTADIENE	µg/kg	1900 U	1000 U	1100 U	880 U	360 U	NA
HEXACHLOROCYCLOPENTADIENE	µg/kg	1900 U	1000 U	1100 U	880 U	360 U	NA
HEXACHLOROETHANE	µg/kg	1900 U	1000 U	1100 U	880 U	360 U	NA
N-NITROSODIPHENYLAMINE	µg/kg	1900 U	1000 U	1100 U	880 U	360 U	NA
NITROBENZENE	µg/kg	1900 U	1000 U	1100 U	880 U	360 U	NA
PENTACHLOROPHENOL	µg/kg	3800 U	2100 U	2200 U	1800 U	730 U	NA
PHENOL	µg/kg	1900 U	1000 U	1100 U	880 U	360 U	NA
<i>PAHs</i>							
ACENAPHTHENE	µg/kg	110 U	63 U	67 U	54 U	22 U	NA
ACENAPHTHYLENE	µg/kg	110 U	63 U	67 U	54 U	22 U	NA
ANTHRACENE	µg/kg	110 U	63 U	67 U	54 U	22 U	NA
BENZO (A) ANTHRACENE	µg/kg	110 U	63 U	67 U	54 U	22 U	NA
BENZO (A) PYRENE	µg/kg	110 U	63 U	67 U	54 U	22 U	NA
BENZO (B) FLUORANTHRENE	µg/kg	110 U	63 U	67 U	54 U	22 U	NA
BENZO (K) FLUORANTHRENE	µg/kg	110 U	63 U	67 U	54 U	22 U	NA
BENZO (G, H, I) PERYLENE	µg/kg	99 J	63 U	67 U	54 U	22 U	NA

TABLE 4-5

WASTE SAMPLING RESULTS

Parameters	Units	6-42-21	6-44-107	6-44-108	6-44-109	6-57-110	6-44-142
		42 Waste Stockpile 9/22/2006	44/45 Stockpile N 10/5/2006	44/45 Stockpile E 10/5/2006	44/45 Stockpile S 10/5/2006	57 Stockpile C 10/5/2006	Wastewater 10/19/2006
CHRYSENE	µg/kg	69 J	63 U	67 U	54 U	22 U	NA
DIBENZO (A, H) ANTHRACENE	µg/kg	110 U	63 U	67 U	54 U	22 U	NA
FLUORANTHRENE	µg/kg	79 J	63 U	67 U	54 U	22 U	NA
FLUORENE	µg/kg	110 U	63 U	67 U	54 U	22 U	NA
INDENO (1, 2, 3-CD) PYRENE	µg/kg	57 J	63 U	67 U	54 U	22 U	NA
NAPHTHALENE	µg/kg	110 U	63 U	67 U	54 U	22 U	NA
N-NITROSO-DI-N-PROPYLAMINE	µg/kg	110 U	63 U	67 U	54 U	22 U	NA
PHENANTHRENE	µg/kg	110 U	63 U	67 U	54 U	22 U	NA
PYRENE	µg/kg	79 J	63 U	67 U	54 U	22 U	NA
<u>METALS</u>							
ANTIMONY	mg/kg	5.46 J	5.16 J	16.6 U	3.25 J	3.13 J	NA
ARSENIC	mg/kg	4.74	13.6	10.6	11.6	7.75	NA
BARIUM	mg/kg	68.1	82.2	99.1	72.7	161	NA
BERYLLIUM	mg/kg	0.338 J	1.15 J	1.01 J	0.832 J	0.491 J	NA
CADMIUM	mg/kg	2.73	1.52 J	1.37 J	1.07 J	0.614 J	NA
CHROMIUM	mg/kg	20.8	36.7	36.2	27.8	23.3	NA
COBALT	mg/kg	6.11	16.4	14.3	11.6	11.3	NA
COPPER	mg/kg	27.4	63.6	47.5	40.2	31.9	NA
LEAD	mg/kg	96.3	45.2	34.3	45.4	11.0	NA
MOLYBDENUM	mg/kg	5.65 U	4.18 J	2.52 J	3.02 J	5.45 U	NA
NICKEL	mg/kg	13.1	27.4	25.4	21.2	19.0	NA
SELENIUM	mg/kg	1.13 U	1.58 U	1.66 U	1.34 U	1.09 U	NA
SILVER	mg/kg	2.26 U	11.0	2.71 J	1.39 J	2.18 U	NA
THALLIUM	mg/kg	1.13 U	1.58 U	1.66 U	1.34 U	1.09 U	NA
VANADIUM	mg/kg	28.3	79.1	69.3	58.5	46.7	NA
ZINC	mg/kg	138	152	138	117	69.3	NA
MERCURY	mg/kg	0.392	0.158 U	0.166 U	0.134 U	0.0374 J	NA
STLC LEAD	mg/L	3.07	NA	NA	NA	NA	NA
TCLP LEAD	mg/L	5 U	NA	NA	NA	NA	NA

TABLE 4-5

WASTE SAMPLING RESULTS

Parameters	Units	6-42-21	6-44-107	6-44-108	6-44-109	6-57-110	6-44-142
		42 Waste Stockpile 9/22/2006	44/45 Stockpile N 10/5/2006	44/45 Stockpile E 10/5/2006	44/45 Stockpile S 10/5/2006	57 Stockpile C 10/5/2006	Wastewater 10/19/2006
<i>Pesticides</i>							
ALPHA-BHC	µg/L	NA	NA	NA	NA	NA	0.051 U
GAMMA-BHC (LINDANE)	µg/L	NA	NA	NA	NA	NA	0.051 U
BETA-BHC	µg/L	NA	NA	NA	NA	NA	0.31
HEPTACHLOR	µg/L	NA	NA	NA	NA	NA	0.051 U
DELTA-BHC	µg/L	NA	NA	NA	NA	NA	0.051 U
ALDRIN	µg/L	NA	NA	NA	NA	NA	0.051 U
HEPTACHLOR EPOXIDE	µg/L	NA	NA	NA	NA	NA	0.051 U
GAMMA-CHLORDANE	µg/L	NA	NA	NA	NA	NA	0.051 U
ALPHA-CHLORDANE	µg/L	NA	NA	NA	NA	NA	0.051 U
ENDOSULFAN I	µg/L	NA	NA	NA	NA	NA	0.051 U
4,4'-DDE	µg/L	NA	NA	NA	NA	NA	0.37
DIELDRIN	µg/L	NA	NA	NA	NA	NA	0.030 J
ENDRIN	µg/L	NA	NA	NA	NA	NA	0.10 U
4,4'-DDD	µg/L	NA	NA	NA	NA	NA	0.089 J
ENDOSULFAN II	µg/L	NA	NA	NA	NA	NA	0.10 U
4,4'-DDT	µg/L	NA	NA	NA	NA	NA	0.047 J
ENDRIN ALDEHYDE	µg/L	NA	NA	NA	NA	NA	0.10 U
ENDOSULFAN SULFATE	µg/L	NA	NA	NA	NA	NA	0.10 U
ENDRIN KETONE	µg/L	NA	NA	NA	NA	NA	0.10 U
METHOXYCHLOR	µg/L	NA	NA	NA	NA	NA	0.10 U
TOXAPHENE	µg/L	NA	NA	NA	NA	NA	0.10 U
<i>PCBs</i>							
PCB-1016	µg/L	NA	NA	NA	NA	NA	1.0 U
PCB-1221	µg/L	NA	NA	NA	NA	NA	1.0 U
PCB-1232	µg/L	NA	NA	NA	NA	NA	1.0 U
PCB-1242	µg/L	NA	NA	NA	NA	NA	1.0 U
PCB-1248	µg/L	NA	NA	NA	NA	NA	1.0 U
PCB-1254	µg/L	NA	NA	NA	NA	NA	1.0 U
PCB-1260	µg/L	NA	NA	NA	NA	NA	1.0 U

TABLE 4-5

WASTE SAMPLING RESULTS

Parameters	Units	6-42-21	6-44-107	6-44-108	6-44-109	6-57-110	6-44-142
		42 Waste Stockpile 9/22/2006	44/45 Stockpile N 10/5/2006	44/45 Stockpile E 10/5/2006	44/45 Stockpile S 10/5/2006	57 Stockpile C 10/5/2006	Wastewater 10/19/2006
<i>VOCs</i>							
1,1,1-TRICHLOROETHANE	µg/L	NA	NA	NA	NA	NA	5.0 U
1,1,2,2-TETRACHLOROETHANE	µg/L	NA	NA	NA	NA	NA	5.0 U
1,1,2-TRICHLOROETHANE	µg/L	NA	NA	NA	NA	NA	5.0 U
1,1-DICHLOROETHANE	µg/L	NA	NA	NA	NA	NA	5.0 U
1,1-DICHLOROETHENE	µg/L	NA	NA	NA	NA	NA	5.0 U
1,2-DICHLOROETHANE	µg/L	NA	NA	NA	NA	NA	5.0 U
1,2-DICHLOROPROPANE	µg/L	NA	NA	NA	NA	NA	5.0 U
2-HEXANONE	µg/L	NA	NA	NA	NA	NA	50
ACETONE	µg/L	NA	NA	NA	NA	NA	17 J
BENZENE	µg/L	NA	NA	NA	NA	NA	0.50 U
BROMODICHLOROETHANE	µg/L	NA	NA	NA	NA	NA	5.0 U
BROMOFORM	µg/L	NA	NA	NA	NA	NA	5.0 U
BROMOETHANE	µg/L	NA	NA	NA	NA	NA	5.0 U
CARBON TETRACHLORIDE	µg/L	NA	NA	NA	NA	NA	5.0 U
CHLOROBENZENE	µg/L	NA	NA	NA	NA	NA	5.0 U
CHLOROETHANE	µg/L	NA	NA	NA	NA	NA	5.0 U
CHLOROFORM	µg/L	NA	NA	NA	NA	NA	5.0 U
CHLOROMETHANE	µg/L	NA	NA	NA	NA	NA	5.0 U
CIS-1,2-DICHLOROETHANE	µg/L	NA	NA	NA	NA	NA	5.0 U
CIS-1,3-DICHLOROPROPENE	µg/L	NA	NA	NA	NA	NA	5.0 U
DIBROMOCHLOROMETHANE	µg/L	NA	NA	NA	NA	NA	5.0 U
ETHYLBENZENE	µg/L	NA	NA	NA	NA	NA	0.50 U
METHYL ETHYL KETONE (MEK)	µg/L	NA	NA	NA	NA	NA	50 U
METHYL TERT-BUTYL ETHER (MTBE)	µg/L	NA	NA	NA	NA	NA	1.0 U
METHYLENE CHLORIDE	µg/L	NA	NA	NA	NA	NA	10 U
METHYL ISOBUTYL KETONE	µg/L	NA	NA	NA	NA	NA	50 U
STYRENE	µg/L	NA	NA	NA	NA	NA	5.0 U
TETRACHLOROETHENE	µg/L	NA	NA	NA	NA	NA	5.0 U
TOLUENE	µg/L	NA	NA	NA	NA	NA	0.50 U

TABLE 4-5

WASTE SAMPLING RESULTS

Parameters	Units	6-42-21	6-44-107	6-44-108	6-44-109	6-57-110	6-44-142
		42 Waste Stockpile 9/22/2006	44/45 Stockpile N 10/5/2006	44/45 Stockpile E 10/5/2006	44/45 Stockpile S 10/5/2006	57 Stockpile C 10/5/2006	Wastewater 10/19/2006
TRANS-1,2-DICHLOROETHENE	µg/L	NA	NA	NA	NA	NA	5.0 U
TRANS-1,3-DICHLOROPROPENE	µg/L	NA	NA	NA	NA	NA	5.0 U
TRICHLOROETHENE	µg/L	NA	NA	NA	NA	NA	5.0 U
VINYL ACETATE	µg/L	NA	NA	NA	NA	NA	50 U
VINYL CHLORIDE	µg/L	NA	NA	NA	NA	NA	5.0 U
XYLENES (TOTAL)	µg/L	NA	NA	NA	NA	NA	1.5 U
<i>SVOCs</i>							
1,2,4-TRICHLOROBENZENE	µg/L	NA	NA	NA	NA	NA	9.5 U
1,2-DICHLOROBENZENE	µg/L	NA	NA	NA	NA	NA	9.5 U
1,3-DICHLOROBENZENE	µg/L	NA	NA	NA	NA	NA	9.5 U
1,4-DICHLOROBENZENE	µg/L	NA	NA	NA	NA	NA	9.5 U
2,4,5-TRICHLOROPHENOL	µg/L	NA	NA	NA	NA	NA	9.5 U
2,4,6-TRICHLOROPHENOL	µg/L	NA	NA	NA	NA	NA	9.5 U
2,4-DICHLOROPHENOL	µg/L	NA	NA	NA	NA	NA	9.5 U
2,4-DIMETHYLPHENOL	µg/L	NA	NA	NA	NA	NA	9.5 U
2,4-DINITROPHENOL	µg/L	NA	NA	NA	NA	NA	47 U
2,4-DINITROTOLUENE	µg/L	NA	NA	NA	NA	NA	9.5 U
2,6-DINITROTOLUENE	µg/L	NA	NA	NA	NA	NA	9.5 U
2-CHLORONAPHTHALENE	µg/L	NA	NA	NA	NA	NA	9.5 U
2-CHLOROPHENOL	µg/L	NA	NA	NA	NA	NA	9.5 U
2-METHYLPHENOL	µg/L	NA	NA	NA	NA	NA	9.5 U
2-NITROANILINE	µg/L	NA	NA	NA	NA	NA	47 U
2-NITROPHENOL	µg/L	NA	NA	NA	NA	NA	19 U
3,3'-DICHLOROBENZIDINE	µg/L	NA	NA	NA	NA	NA	19 U
3-NITROANILINE	µg/L	NA	NA	NA	NA	NA	47 U
4,6-DINITRO-2-METHYLPHENOL	µg/L	NA	NA	NA	NA	NA	47 U
4-BROMOPHENYL-PHENYL ETHER	µg/L	NA	NA	NA	NA	NA	9.5 U
4-CHLORO-3-METHYLPHENOL	µg/L	NA	NA	NA	NA	NA	19 U
4-CHLOROANILINE	µg/L	NA	NA	NA	NA	NA	19 U
4-CHLOROPHENYL-PHENYL ETHER	µg/L	NA	NA	NA	NA	NA	9.5 U

TABLE 4-5

WASTE SAMPLING RESULTS

Parameters	Units	6-42-21	6-44-107	6-44-108	6-44-109	6-57-110	6-44-142
		42 Waste Stockpile 9/22/2006	44/45 Stockpile N 10/5/2006	44/45 Stockpile E 10/5/2006	44/45 Stockpile S 10/5/2006	57 Stockpile C 10/5/2006	Wastewater 10/19/2006
4-METHYLPHENOL	µg/L	NA	NA	NA	NA	NA	9.5 U
4-NITROANILINE	µg/L	NA	NA	NA	NA	NA	47 U
4-NITROPHENOL	µg/L	NA	NA	NA	NA	NA	47 U
BIS (2-CHLOROETHOXY) METHANE	µg/L	NA	NA	NA	NA	NA	9.5 U
BIS (2-CHLOROETHYL) ETHER	µg/L	NA	NA	NA	NA	NA	9.5 U
BIS (2-CHLOROISOPROPYL) ETHER	µg/L	NA	NA	NA	NA	NA	9.5 U
BIS (2-ETHYLHEXYL) PHTHALATE	µg/L	NA	NA	NA	NA	NA	19
BUTYLBENZYLPHTHALATE	µg/L	NA	NA	NA	NA	NA	9.5 U
DI-N-BUTYLPHTHALATE	µg/L	NA	NA	NA	NA	NA	9.5 U
DI-N-OCTYLPHTHALATE	µg/L	NA	NA	NA	NA	NA	9.5 U
DIBENZOFURAN	µg/L	NA	NA	NA	NA	NA	9.5 U
DIETHYL PHTHALATE	µg/L	NA	NA	NA	NA	NA	9.5 U
DIMETHYL PHTHALATE	µg/L	NA	NA	NA	NA	NA	9.5 U
HEXACHLOROBENZENE	µg/L	NA	NA	NA	NA	NA	9.5 U
HEXACHLOROBUTADIENE	µg/L	NA	NA	NA	NA	NA	9.5 U
HEXACHLOROCYCLOPENTADIENE	µg/L	NA	NA	NA	NA	NA	47 U
HEXACHLOROETHANE	µg/L	NA	NA	NA	NA	NA	9.5 U
N-NITROSODIPHENYLAMINE	µg/L	NA	NA	NA	NA	NA	9.5 U
NITROBENZENE	µg/L	NA	NA	NA	NA	NA	9.5 U
PENTACHLOROPHENOL	µg/L	NA	NA	NA	NA	NA	47 U
PHENOL	µg/L	NA	NA	NA	NA	NA	9.5 U
ACENAPHTHENE	µg/L	NA	NA	NA	NA	NA	9.5 U
ACENAPHTHYLENE	µg/L	NA	NA	NA	NA	NA	9.5 U
ANTHRACENE	µg/L	NA	NA	NA	NA	NA	9.5 U
BENZO (A) ANTHRACENE	µg/L	NA	NA	NA	NA	NA	9.5 U
BENZO (A) PYRENE	µg/L	NA	NA	NA	NA	NA	9.5 U
BENZO (B) FLUORANTHRENE	µg/L	NA	NA	NA	NA	NA	9.5 U
BENZO (K) FLUORANTHRENE	µg/L	NA	NA	NA	NA	NA	9.5 U
BENZO (G, H, I) PERYLENE	µg/L	NA	NA	NA	NA	NA	9.5 U
CHRYSENE	µg/L	NA	NA	NA	NA	NA	9.5 U

TABLE 4-5

WASTE SAMPLING RESULTS

Parameters	Units	6-42-21	6-44-107	6-44-108	6-44-109	6-57-110	6-44-142
		42 Waste Stockpile 9/22/2006	44/45 Stockpile N 10/5/2006	44/45 Stockpile E 10/5/2006	44/45 Stockpile S 10/5/2006	57 Stockpile C 10/5/2006	Wastewater 10/19/2006
DIBENZO (A, H) ANTHRACENE	µg/L	NA	NA	NA	NA	NA	9.5 U
FLUORANTHRENE	µg/L	NA	NA	NA	NA	NA	9.5 U
FLUORENE	µg/L	NA	NA	NA	NA	NA	9.5 U
INDENO (1, 2, 3-CD) PYRENE	µg/L	NA	NA	NA	NA	NA	9.5 U
NAPHTHALENE	µg/L	NA	NA	NA	NA	NA	9.5 U
N-NITROSO-DI-N-PROPYLAMINE	µg/L	NA	NA	NA	NA	NA	9.5 U
PHENANTHRENE	µg/L	NA	NA	NA	NA	NA	9.5 U
PYRENE	µg/L	NA	NA	NA	NA	NA	9.5 U
<u>METALS</u>							
ANTIMONY	mg/L	NA	NA	NA	NA	NA	0.100 U
ARSENIC	mg/L	NA	NA	NA	NA	NA	0.0510
BARIUM	mg/L	NA	NA	NA	NA	NA	0.202
BERYLLIUM	mg/L	NA	NA	NA	NA	NA	0.0100 U
CADMIUM	mg/L	NA	NA	NA	NA	NA	0.0100 U
CHROMIUM	mg/L	NA	NA	NA	NA	NA	0.0112
COBALT	mg/L	NA	NA	NA	NA	NA	0.0111
COPPER	mg/L	NA	NA	NA	NA	NA	0.0392
LEAD	mg/L	NA	NA	NA	NA	NA	0.100 U
MOLYBDENUM	mg/L	NA	NA	NA	NA	NA	0.0693
NICKEL	mg/L	NA	NA	NA	NA	NA	0.0166 J
SELENIUM	mg/L	NA	NA	NA	NA	NA	0.0100 U
SILVER	mg/L	NA	NA	NA	NA	NA	0.0136
THALLIUM	mg/L	NA	NA	NA	NA	NA	0.00747 J
VANADIUM	mg/L	NA	NA	NA	NA	NA	0.0413
ZINC	mg/L	NA	NA	NA	NA	NA	0.0758
MERCURY	mg/L	NA	NA	NA	NA	NA	0.200 U

Notes:

µg/L - microgram per liter

mg/L - milligram per liter

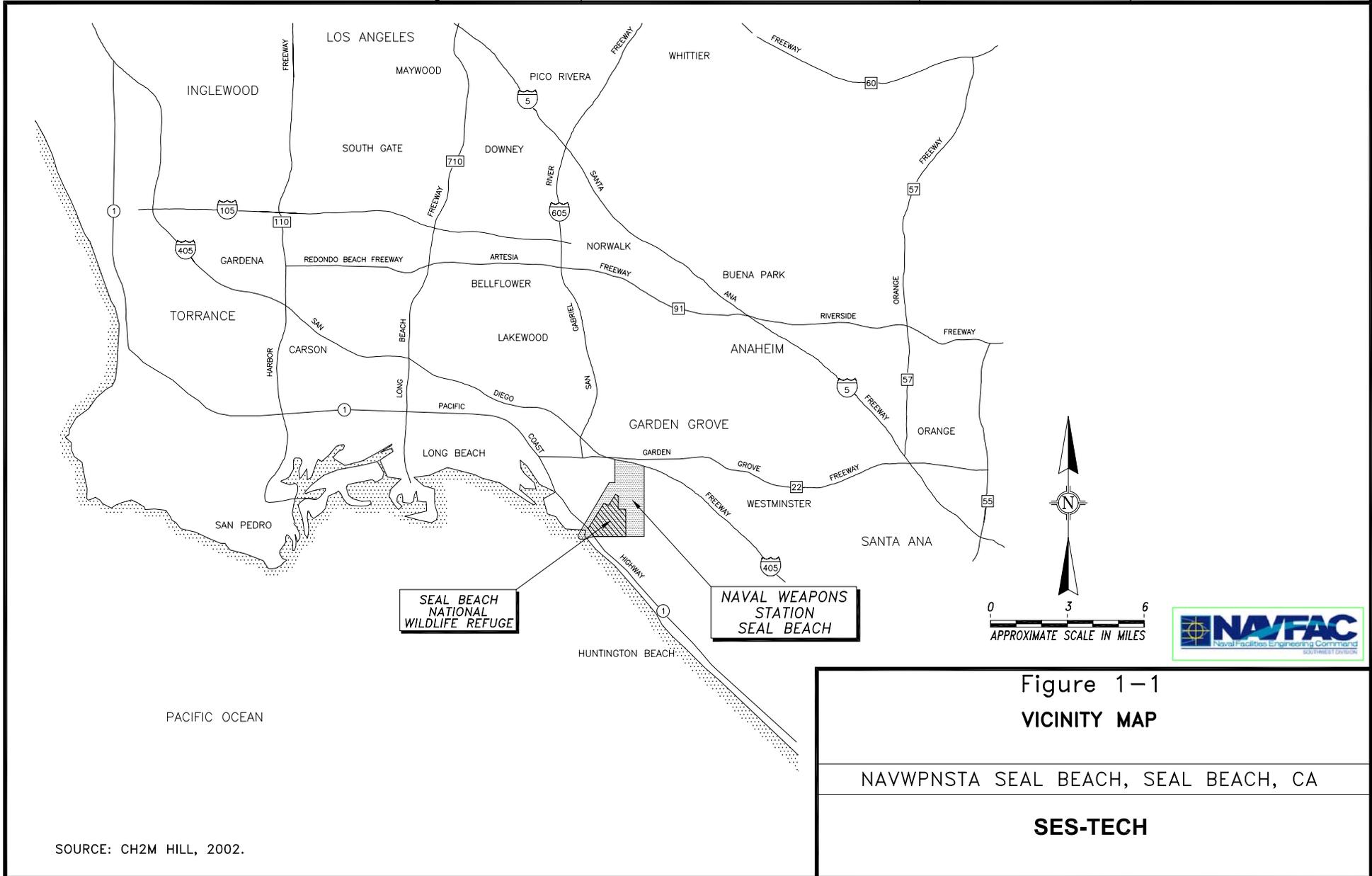
NA - not analyzed

U - not detected (value indicates detection limit)

J - estimated value

FIGURES

DRAWN BY: MD	CHECKED BY: JA	APPROVED BY: AE	DCN: SES-TECH-07-0099	DRAWING NO: 07009911.DWG
DATE: 04/03/07	REV: REVISION 0	CTO: #0006		

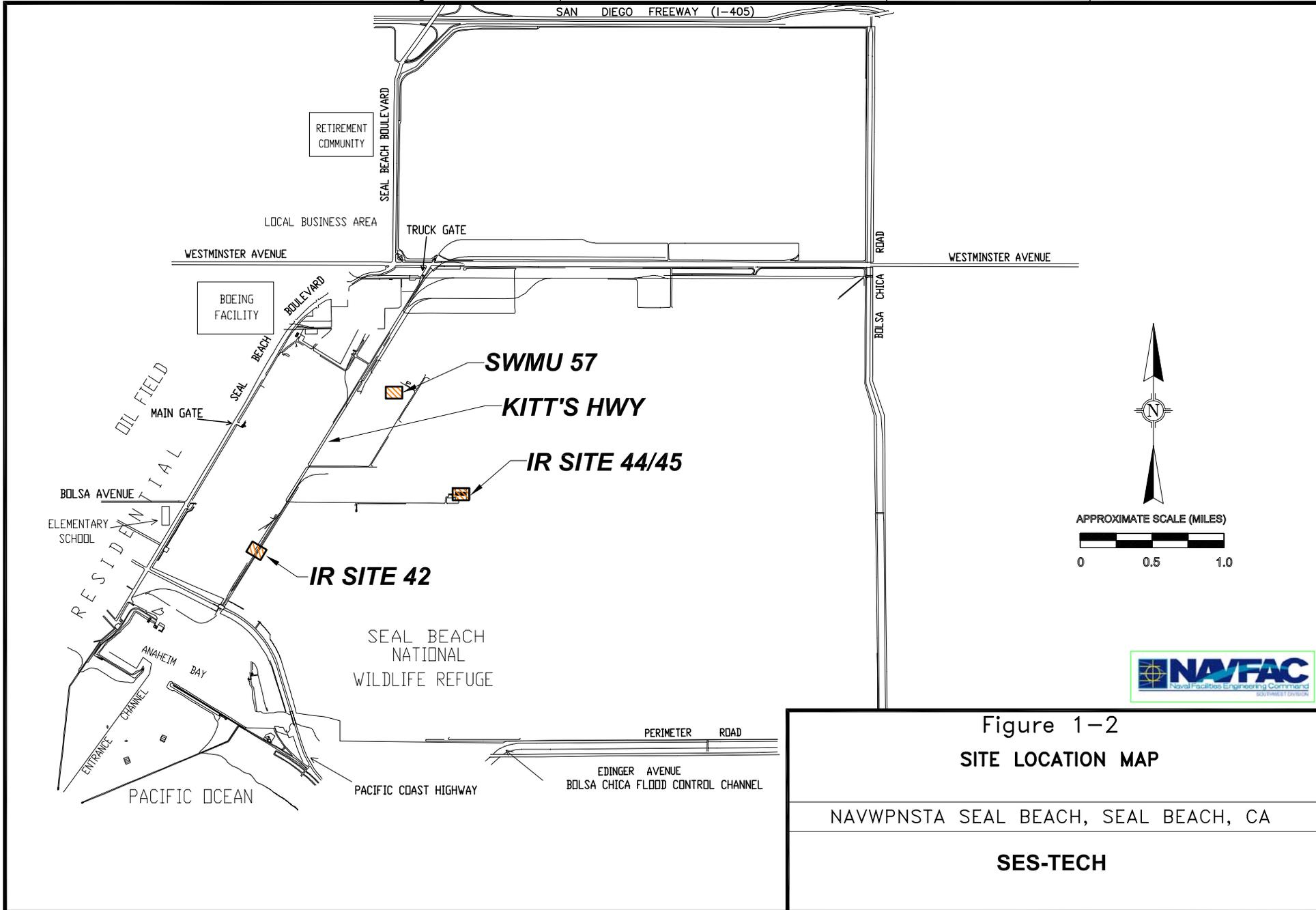


SOURCE: CH2M HILL, 2002.

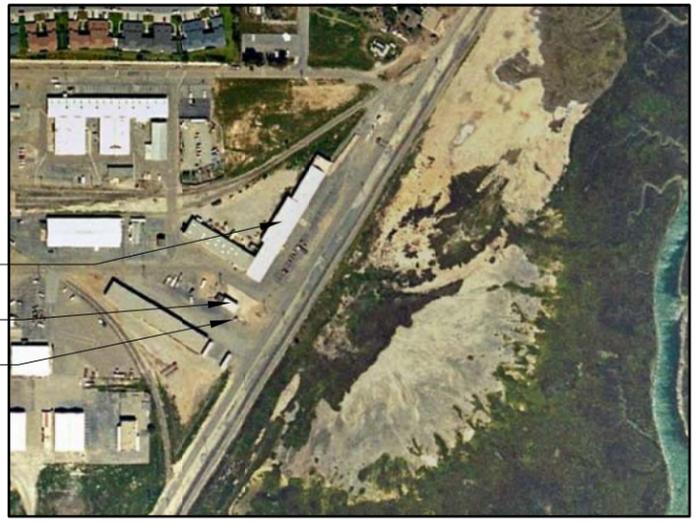
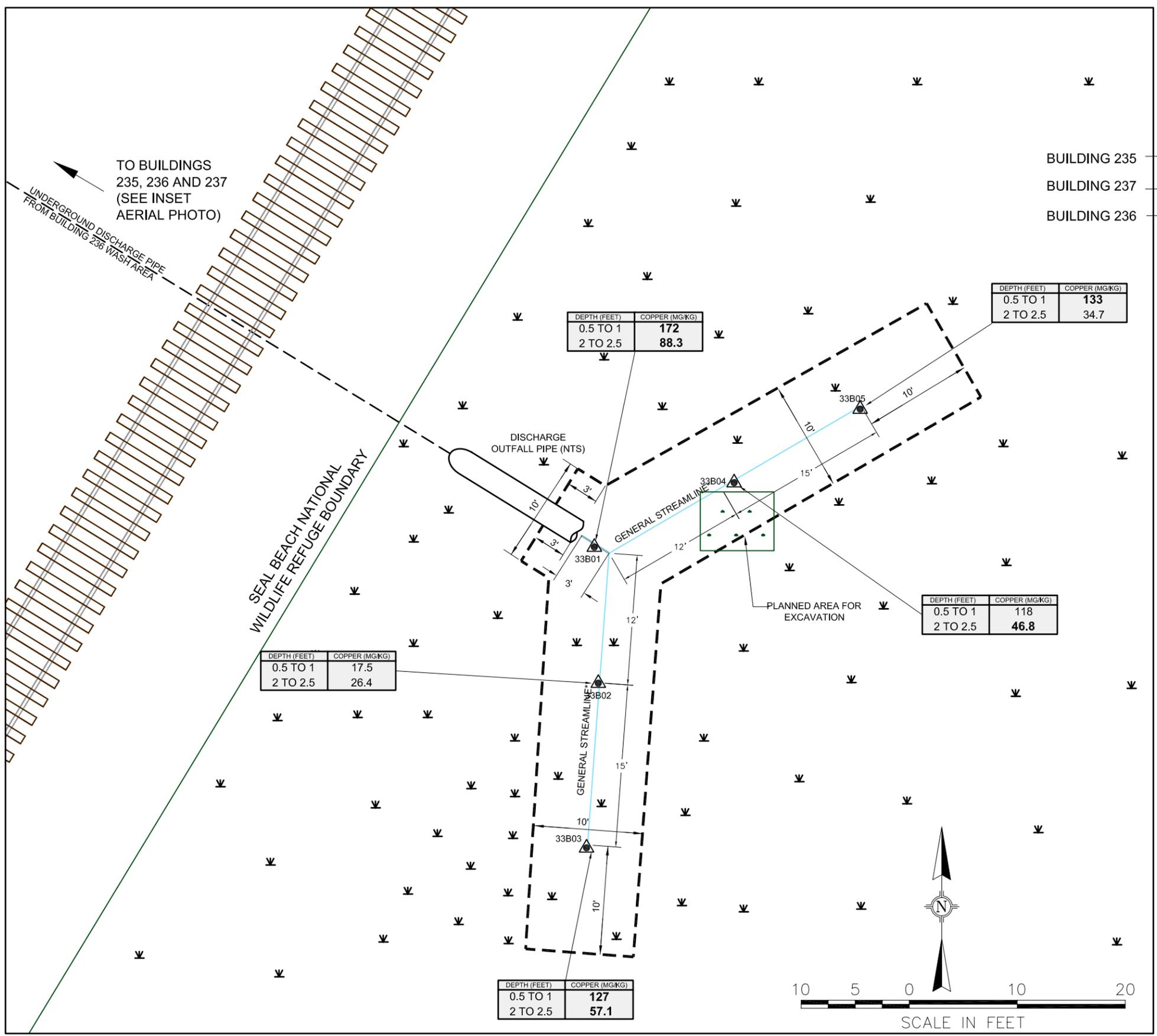
Figure 1-1
VICINITY MAP
 NAVWPNSTA SEAL BEACH, SEAL BEACH, CA
SES-TECH



DRAWN BY: MD	CHECKED BY: JA	APPROVED BY: AE	DCN: SES-TECH-07-0099	DRAWING NO: 07009912.DWG
DATE: 04/03/07	REV: REVISION 0	CTO: #0006		



DRAWING NO: 07002421.DWG
 DCN: SES-TECH-07-0024
 CTO: #0006
 APPROVED BY: AE
 CHECKED BY: LM
 REV: REVISION 0
 DRAWN BY: MD
 DATE: 01/19/07



AERIAL PHOTO-SITE 42 VICINITY

LEGEND:

- PLANNED EXCAVATION BOUNDARY
- SEAL BEACH NATIONAL WILDLIFE REFUGE
- SOIL SAMPLE LOCATION AND ID

SOIL SAMPLE ANALYTICAL RESULT CALLOUT DETAIL:

SAMPLE DEPTH

DEPTH (FEET)	COPPER (MG/KG)
0.5 TO 1	17.5
2 TO 2.5	26.4

ANALYTICAL RESULT

NOTES:
 COPPER CLEANUP GOAL = 39 MG/KG
 MG/KG = MILLIGRAMS PER KILOGRAM

SOURCE: MARRS SERVICES, INC., 2005a.

Figure 2-1
 IR SITE 42
 PRE-EXCAVATION DETAIL
 NAVWPNSTA SEAL BEACH, SEAL BEACH, CA
 SES-TECH

Figures 2-2 and 2-3

These detailed station maps have been deleted from the Internet-accessible version of this document as per Department of the Navy Internet security regulations.

DRAWING NO: 07009941_42_43.DWG
 DCN: SES-TECH-07-0099
 CTO: #0006
 APPROVED BY: AE
 CHECKED BY: CJ
 REV: REVISION 0
 DRAWN BY: AAS
 DATE: 04/03/07

LOCATION CODE	NORTHING	EASTING	ELEVATION (FEET)
A-1	2218406.93	6003088.53	3.47
A-2	2218398.27	6003081.45	3.50
A-3	2218397.35	6003071.04	3.80
A-4	2218389.30	6003066.30	4.29
A-5	2218390.29	6003058.60	4.89
A-6	2218380.92	6003060.78	4.45
A-7	2218371.31	6003060.30	4.34
A-8	2218357.64	6003061.41	4.03
B-1	2218396.80	6003082.37	5.13
B-2	2218391.33	6003071.99	4.34
B-3	2218379.99	6003065.77	5.36
B-4	2218359.13	6003063.87	5.38
C-1	2218407.13	6003094.18	4.33
C-2	2218355.21	6003057.11	4.60
D-1	2218407.52	6003084.87	4.34
D-2	2218396.84	6003065.07	5.98
D-3	2218379.63	6003057.59	6.55
D-4	2218365.67	6003056.73	6.47

SAMPLE NUMBER	LOCATION CODE	SAMPLE DATE	COPPER (mg/kg)
6-42-001	A-1	9/22/06	12.2
6-42-003	A-2	9/22/06	14.5
6-42-004	A-3	9/22/06	13.6
6-42-005	A-4	9/22/06	15.2
6-42-007	A-5	9/22/06	11.7
6-42-008	A-6	9/22/06	16.6
6-42-009	A-7	9/22/06	11.6
6-42-010	A-8	9/22/06	10.0
6-42-011	B-1	9/22/06	9.63
6-42-012	B-2	9/22/06	14.5
6-42-013	B-3	9/22/06	11.0
6-42-014	B-4	9/22/06	12.9
6-42-015	C-1	9/22/06	16.4
6-42-016	C-2	9/22/06	9.12
6-42-017	D-1	9/22/06	12.7
6-42-018	D-2	9/22/06	11.8
6-42-019	D-3	9/22/06	13.3
6-42-020	D-4	9/22/06	10.7

LEGEND
 mg/kg MILLIGRAMS PER KILOGRAM
 A-1 LOCATION CODE
 △ TEMPORARY SURVEY CONTROL POINT

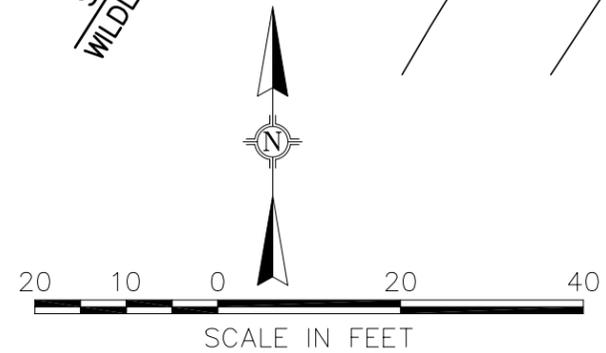
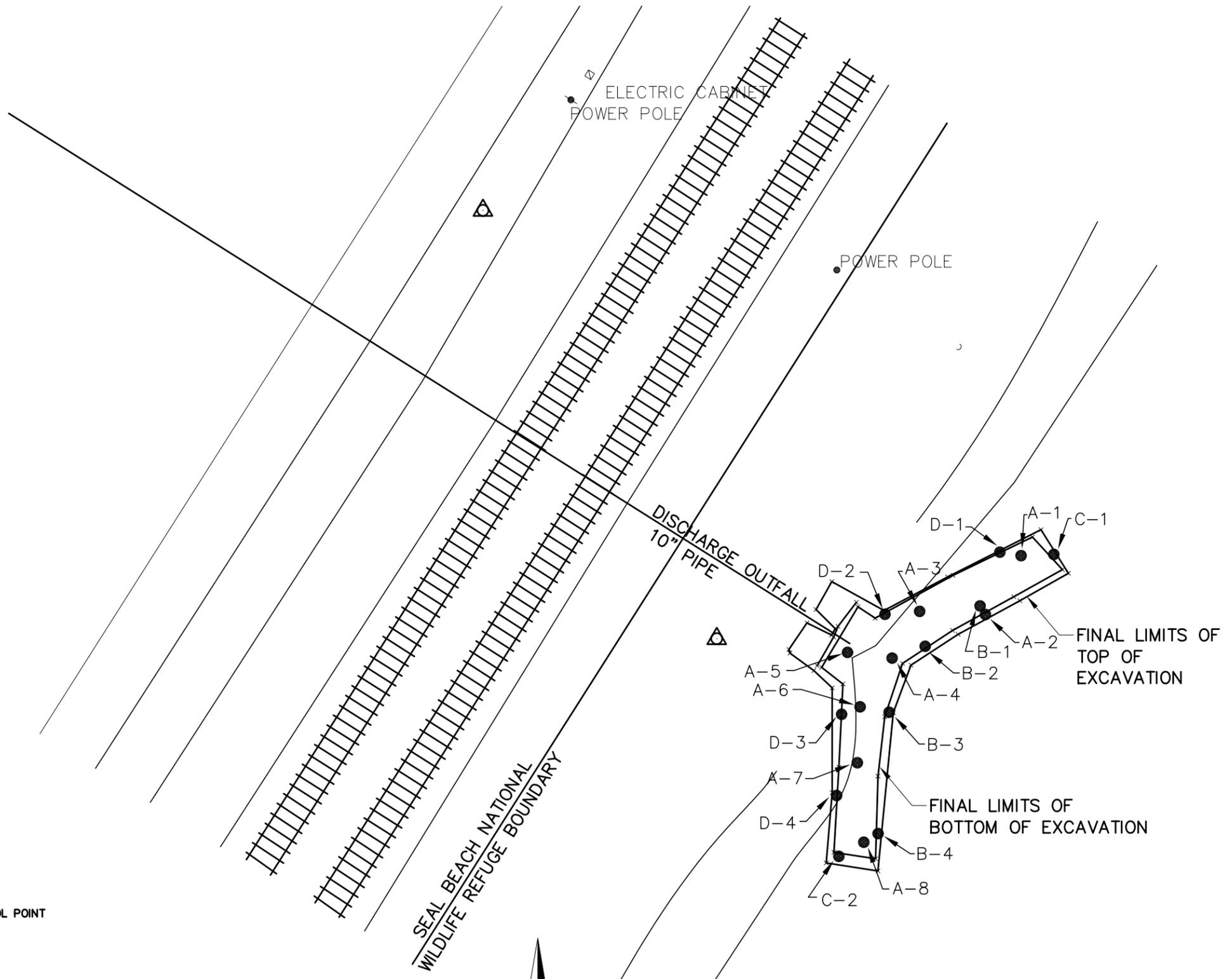
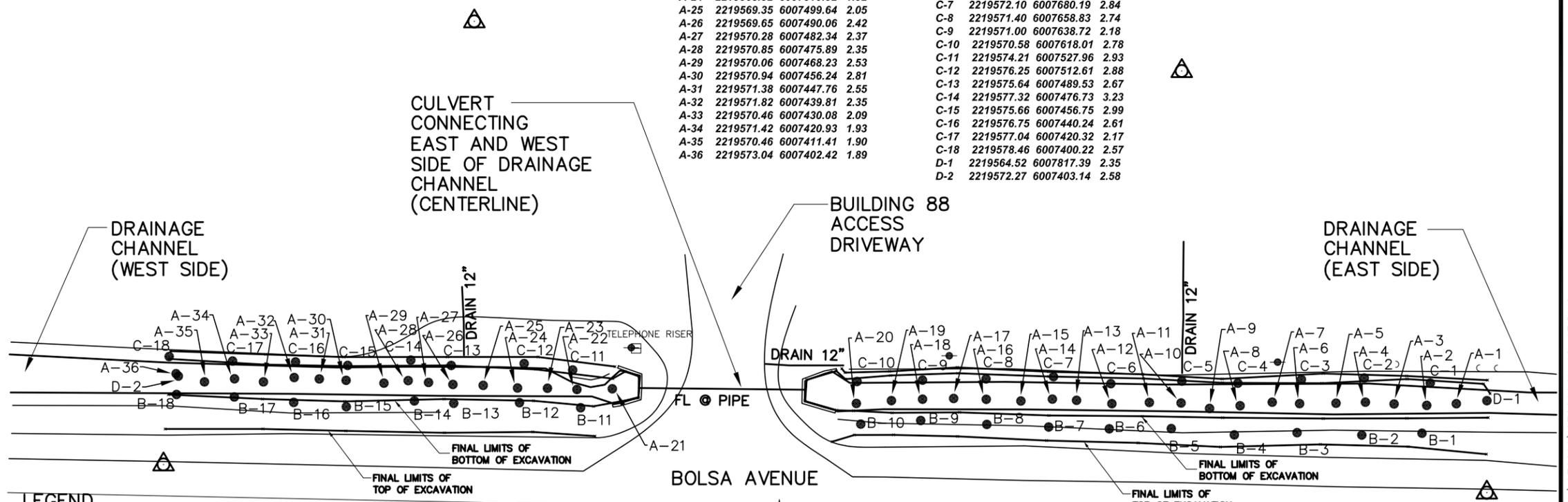


Figure 4-1
 IR SITE 42
 POST-EXCAVATION LIMITS AND CONFIRMATION
 SAMPLE LOCATIONS
 NAVWPNSTA SEAL BEACH, SEAL BEACH, CA
SES-TECH

DRAWING NO: 07009941_42_43.DWG
 DCN: SES-TECH-07-0099
 CTO: #0006
 APPROVED BY: AE
 CHECKED BY: CJ
 REV: REVISION 0
 DRAWN BY: AAS
 DATE: 02/28/07

SAMPLE NUMBER	LOCATION CODE	SAMPLE DATE	NICKEL (mg/kg)	ZINC (mg/kg)
6-44-022	B-1	10/04/06	21.8	123
6-44-023	B-2	10/04/06	22.0	110
6-44-024	B-3	10/04/06	16.5	70.7
6-44-025	B-4	10/04/06	16.6	86.0
6-44-026	B-5	10/04/06	17.0	79.3
6-44-027	B-6	10/04/06	15.7	77.5
6-44-028	B-7	10/04/06	14.8	70.4
6-44-029	B-8	10/04/06	15.2	78.9
6-44-030	B-9	10/04/06	15.6	108
6-44-031	B-10	10/04/06	15.1	74.2
6-44-034	C-2	10/04/06	28.9	128
6-44-035	C-3	10/04/06	23.4	111
6-44-042	C-10	10/04/06	6.34	49.1
6-44-044	A-1	10/04/06	24.0	133
6-44-045	A-2	10/04/06	30.8	163
6-44-047	A-4	10/04/06	26.3	149
6-44-048	A-5	10/04/06	23.6	121
6-44-051	A-8	10/04/06	29.1	168
6-44-054	A-10	10/04/06	24.5	111
6-44-055	A-11	10/04/06	28.1	175
6-44-056	A-12	10/04/06	29.5	145
6-44-057	A-13	10/04/06	18.8	147
6-44-058	A-14	10/04/06	15.8	140
6-44-059	A-15	10/04/06	26.7	144
6-44-060	A-16	10/04/06	20.4	140
6-44-061	A-17	10/04/06	25.3	135
6-44-062	A-18	10/04/06	13.6	60.5
6-44-064	A-19	10/04/06	17.6	114
6-44-065	A-20	10/04/06	21.6	138
6-44-066	D-1	10/04/06	27.9	159
6-44-067	B-11	10/04/06	16.7	92.9
6-44-068	B-12	10/04/06	13.0	71.1
6-44-069	B-13	10/04/06	12.1	67.3
6-44-070	B-14	10/04/06	11.8	70.1
6-44-071	B-15	10/04/06	29.2	167
6-44-072	B-16	10/04/06	26.2	166
6-44-073	B-17	10/04/06	28.3	161
6-44-077	C-11	10/05/06	13.8	97.9
6-44-079	C-12	10/05/06	18.0	119
6-44-080	C-13	10/05/06	28.2	157
6-44-081	C-14	10/05/06	20.2	109
6-44-082	C-15	10/05/06	16.3	97.2
6-44-083	C-16	10/05/06	24.7	159
6-44-084	C-17	10/05/06	18.4	161
6-44-085	C-18	10/05/06	31.7	161
6-44-087	A-22	10/05/06	25.4	124
6-44-089	A-23	10/05/06	31.7	143
6-44-091	A-24	10/05/06	17.7	114
6-44-092	A-25	10/05/06	25.9	148
6-44-093	A-26	10/05/06	26.1	140
6-44-094	A-27	10/05/06	28.0	164
6-44-095	A-28	10/05/06	28.4	157
6-44-096	A-29	10/05/06	26.5	162
6-44-097	A-30	10/05/06	30.7	148
6-44-098	A-31	10/05/06	26.7	153
6-44-099	A-32	10/05/06	18.8	109
6-44-100	A-33	10/05/06	26.3	158
6-44-101	A-34	10/05/06	28.1	145
6-44-102	A-35	10/05/06	24.8	150
6-44-103	A-36	10/05/06	24.2	125
6-44-124	C-1	10/17/06	22.6	105
6-44-126	C-4	10/17/06	23.0	118
6-44-127	C-5	10/17/06	22.6	111
6-44-128	C-6	10/17/06	26.0	130
6-44-129	C-7	10/17/06	13.7	135
6-44-130	C-8	10/17/06	12.2	61.8
6-44-131	C-9	10/17/06	23.9	122
6-44-133	A-3	10/17/06	22.2	102
6-44-134	A-6	10/17/06	20.5	114
6-44-135	A-7	10/17/06	14.6	67.2
6-44-136	A-9	10/17/06	16.6	82.3
6-44-137	A-21	10/17/06	11.3	123
6-44-138	B-18	10/17/06	31.7	146
6-44-141	D-2	10/17/06	37.5	188

LOCATION CODE	NORTHING	EASTING	ELEVATION (FEET)	LOCATION CODE	NORTHING	EASTING	ELEVATION (FEET)
A-1	2219563.56	6007807.72	2.39	B-1	2219554.25	6007796.85	4.40
A-2	2219563.03	6007798.35	2.22	B-2	2219553.67	6007777.79	4.62
A-3	2219563.48	6007788.01	2.14	B-3	2219554.43	6007757.30	4.49
A-4	2219564.05	6007778.93	2.07	B-4	2219553.72	6007737.44	5.27
A-5	2219563.73	6007769.63	2.00	B-5	2219555.70	6007717.48	3.98
A-6	2219563.59	6007758.10	1.91	B-6	2219555.64	6007697.85	4.31
A-7	2219564.04	6007749.43	1.81	B-7	2219556.21	6007678.67	4.30
A-8	2219562.92	6007739.26	1.71	B-8	2219557.02	6007659.09	4.24
A-9	2219562.07	6007729.60	1.61	B-9	2219558.26	6007638.15	4.21
A-10	2219563.80	6007720.59	1.51	B-10	2219557.13	6007619.17	4.80
A-11	2219563.95	6007710.54	1.41	B-11	2219562.29	6007530.49	3.42
A-12	2219563.57	6007698.68	1.49	B-12	2219563.89	6007511.13	2.71
A-13	2219564.64	6007687.49	1.57	B-13	2219563.70	6007490.31	3.16
A-14	2219565.02	6007679.83	1.63	B-14	2219564.44	6007477.86	3.42
A-15	2219564.42	6007669.87	1.71	B-15	2219562.60	6007456.31	4.07
A-16	2219564.96	6007658.91	1.77	B-16	2219563.98	6007439.66	3.88
A-17	2219565.22	6007648.58	1.77	B-17	2219565.68	6007420.86	3.37
A-18	2219564.99	6007638.73	1.77	B-18	2219566.47	6007402.56	3.32
A-19	2219564.54	6007628.87	1.77	C-1	2219570.08	6007799.46	3.36
A-20	2219563.64	6007617.78	1.78	C-2	2219571.67	6007778.57	3.18
A-21	2219568.28	6007540.52	1.50	C-3	2219571.22	6007758.66	2.80
A-22	2219568.06	6007529.32	1.58	C-4	2219570.05	6007738.55	2.79
A-23	2219568.44	6007519.99	1.55	C-5	2219570.68	6007720.82	2.99
A-24	2219568.52	6007510.52	1.52	C-6	2219569.88	6007698.33	2.27
A-25	2219569.35	6007499.64	2.05	C-7	2219572.10	6007680.19	2.84
A-26	2219569.65	6007490.06	2.42	C-8	2219571.40	6007658.83	2.74
A-27	2219570.28	6007482.34	2.37	C-9	2219571.00	6007638.72	2.18
A-28	2219570.85	6007475.89	2.35	C-10	2219570.58	6007618.01	2.78
A-29	2219570.06	6007468.23	2.53	C-11	2219574.21	6007527.96	2.93
A-30	2219570.94	6007456.24	2.81	C-12	2219576.25	6007512.61	2.88
A-31	2219571.38	6007447.76	2.55	C-13	2219575.64	6007489.53	2.67
A-32	2219571.82	6007439.81	2.35	C-14	2219577.32	6007476.73	3.23
A-33	2219570.46	6007430.08	2.09	C-15	2219575.66	6007456.75	2.99
A-34	2219571.42	6007420.93	1.93	C-16	2219576.75	6007440.24	2.61
A-35	2219570.46	6007411.41	1.90	C-17	2219577.04	6007420.32	2.17
A-36	2219573.04	6007402.42	1.89	C-18	2219578.46	6007400.22	2.57
				D-1	2219564.52	6007817.39	2.35
				D-2	2219572.27	6007403.14	2.58



LEGEND
 mg/kg MILLIGRAMS PER KILOGRAM
 A-1 LOCATION CODE
 △ TEMPORARY SURVEY CONTROL POINT

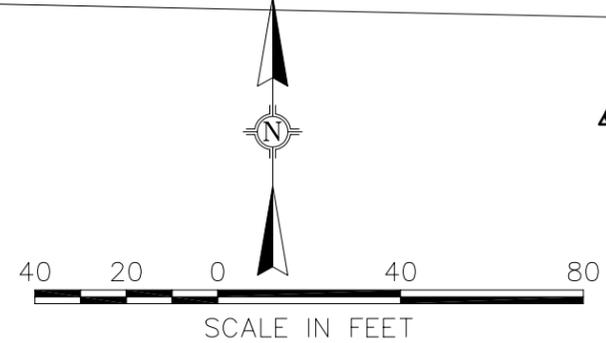
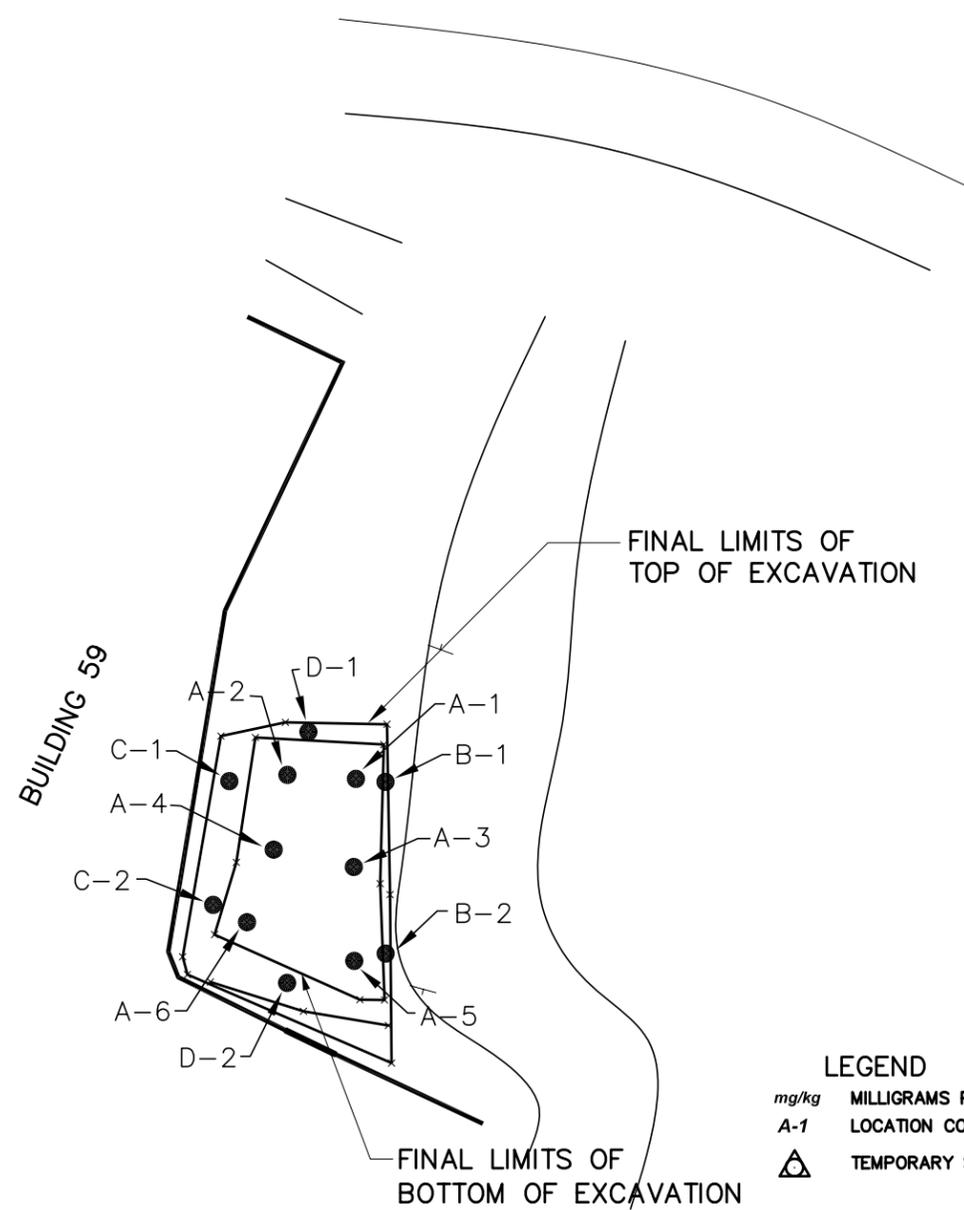


Figure 4-2
 IR SITE 44/45
 POST-EXCAVATION LIMITS AND CONFIRMATION
 SAMPLE LOCATIONS
 NAVWPNSTA SEAL BEACH, SEAL BEACH, CA
 SES-TECH

DRAWING NO: 07009941_42_43.DWG
 DCN: SES-TECH-07-0099 CTO: #0006
 APPROVED BY: AE
 CHECKED BY: CJ REV: REVISION 0
 DRAWN BY: AAS DATE: 02/28/07



LOCATION CODE	NORTHING	EASTING	ELEVATION (FEET)
A-1	2222179.01	6006237.57	10.33
A-2	2222179.45	6006230.07	11.16
A-3	2222169.40	6006237.33	10.71
A-4	2222171.29	6006228.57	11.22
A-5	2222159.16	6006237.38	10.73
A-6	2222163.38	6006225.66	10.87
B-1	2222178.69	6006240.80	11.73
B-2	2222159.95	6006240.82	12.00
C-1	2222178.77	6006223.72	12.82
C-2	2222165.27	6006221.95	12.49
D-1	2222184.15	6006232.36	12.22
D-2	2222156.75	6006230.04	12.73

SAMPLE NUMBER	LOCATION CODE	SAMPLE DATE	ARSENIC (mg/kg)
6-57-111	A-1	10/06/06	6.82
6-57-112	A-2	10/06/06	6.83
6-57-113	A-3	10/06/06	6.84
6-57-114	A-4	10/06/06	6.41
6-57-115	A-5	10/06/06	4.51
6-57-116	A-6	10/06/06	6.14
6-57-117	C-1	10/06/06	34.9
6-57-118	C-2	10/06/06	23.7
6-57-119	B-1	10/06/06	9.74
6-57-120	B-2	10/06/06	13.1
6-57-121	D-1	10/06/06	6.42
6-57-123	D-2	10/06/06	5.88



LEGEND
 mg/kg MILLIGRAMS PER KILOGRAM
 A-1 LOCATION CODE
 TEMPORARY SURVEY CONTROL POINT

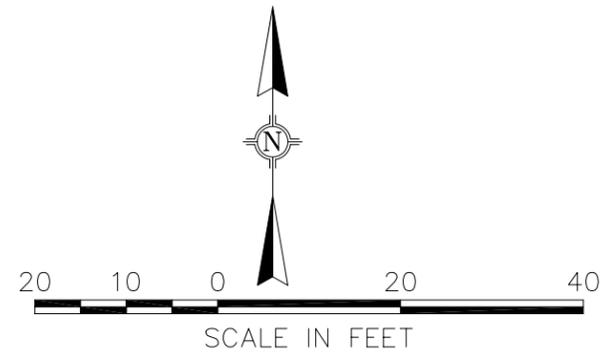


Figure 4-3
 SWMU 57
 POST-EXCAVATION LIMITS AND CONFIRMATION
 SAMPLE LOCATIONS
 NAVWPNSTA SEAL BEACH, SEAL BEACH, CA
SES-TECH

APPENDIX A

**CHAIN-OF-CUSTODY, LABORATORY ANALYTICAL REPORTS,
AND DATA VALIDATION SUMMARY REPORTS**



TETRA TECH
 1330 Columbia Street, Suite 500
 San Diego, CA 92101 (619) 234-9694

CHAIN-OF-CUSTODY RECORD

NUMBER **12354**

PROJECT NAME		PURCHASE ORDER NO.		ANALYSES REQUIRED				LABORATORY NAME	
LA 50112								EMMAX	
PROJECT LOCATION		PROJECT NO.		LABORATORY ID (FOR LABORATORY)				Project Information Section Do not submit to Laboratory	
San Pedro MWS				006T217					
SAMPLER NAME		AIRBILL NUMBER		COMMENTS				LOCATION	
MWS									
PROJECT CONTACT		PROJECT CONTACT PHONE NUMBER		NO. OF CONTAINER		LEVEL		DEPTH	
				3		4			
SAMPLE ID		DATE COLLECTED		TIME COLLECTED		T V P E		T A T	
411-001		11/15		10:00		X		1	
411-002		11/15		10:00		X		1	
411-003		11/15		10:00		X		1	
411-004		11/15		10:00		X		1	
411-005		11/15		10:00		X		1	
411-006		11/15		10:00		X		1	
411-007		11/15		10:00		X		1	
411-008		11/15		10:00		X		1	
411-009		11/15		10:00		X		1	
411-010		11/15		10:00		X		1	
411-011		11/15		10:00		X		1	
411-012		11/15		10:00		X		1	
411-013		11/15		10:00		X		1	
411-014		11/15		10:00		X		1	
411-015		11/15		10:00		X		1	
411-016		11/15		10:00		X		1	
411-017		11/15		10:00		X		1	
411-018		11/15		10:00		X		1	
411-019		11/15		10:00		X		1	
411-020		11/15		10:00		X		1	
411-021		11/15		10:00		X		1	
411-022		11/15		10:00		X		1	
411-023		11/15		10:00		X		1	
411-024		11/15		10:00		X		1	
411-025		11/15		10:00		X		1	
411-026		11/15		10:00		X		1	
411-027		11/15		10:00		X		1	
411-028		11/15		10:00		X		1	
411-029		11/15		10:00		X		1	
411-030		11/15		10:00		X		1	
411-031		11/15		10:00		X		1	
411-032		11/15		10:00		X		1	
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411-034		11/15		10:00		X		1	
411-035		11/15		10:00		X		1	
411-036		11/15		10:00		X		1	
411-037		11/15		10:00		X		1	
411-038		11/15		10:00		X		1	
411-039		11/15		10:00		X		1	
411-040		11/15		10:00		X		1	
411-041		11/15		10:00		X		1	
411-042		11/15		10:00		X		1	
411-043		11/15		10:00		X		1	
411-044		11/15		10:00		X		1	
411-045		11/15		10:00		X		1	
411-046		11/15		10:00		X		1	
411-047		11/15		10:00		X		1	
411-048		11/15		10:00		X		1	
411-049		11/15		10:00		X		1	
411-050		11/15		10:00		X		1	
411-051		11/15		10:00		X		1	
411-052		11/15		10:00		X		1	
411-053		11/15		10:00		X		1	
411-054		11/15		10:00		X		1	
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411-059		11/15		10:00		X		1	
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411-067		11/15		10:00		X		1	
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411-072		11/15		10:00		X		1	
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411-074		11/15		10:00		X		1	
411-075		11/15		10:00		X		1	
411-076		11/15		10:00		X		1	
411-077		11/15		10:00		X		1	
411-078		11/15		10:00		X		1	
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411-081		11/15		10:00		X		1	
411-082		11/15		10:00		X		1	
411-083		11/15		10:00		X		1	
411-084		11/15		10:00		X		1	
411-085		11/15		10:00		X		1	
411-086		11/15		10:00		X		1	
411-087		11/15		10:00		X		1	
411-088		11/15		10:00		X		1	
411-089		11/15		10:00		X		1	
411-090		11/15		10:00		X		1	
411-091		11/15		10:00		X		1	
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411-093		11/15		10:00		X		1	
411-094		11/15		10:00		X		1	
411-095		11/15		10:00		X		1	
411-096		11/15		10:00		X		1	
411-097		11/15		10:00		X		1	
411-098		11/15		10:00		X		1	
411-099		11/15		10:00		X		1	
411-100		11/15		10:00		X		1	
411-101		11/15		10:00		X		1	
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411-106		11/15		10:00		X		1	
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411-112		11/15		10:00		X		1	
411-113		11/15		10:00		X		1	
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411-136		11/15		10:00		X		1	
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411-138		11/15		10:00		X		1	
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411-144		11/15		10:00		X		1	
411-145		11/15		10:00		X		1	
411-146		11/15		10:00		X		1	
411-147		11/15		10:00		X		1	
411-148		11/15		10:00		X		1	
411-149		11/15		10:00		X		1	
411-150		11/15		10:00		X		1	
411-151		11/15		10:00		X		1	
411-152		11/15		10:00		X		1	
411-153		11/15		10:00		X		1	
411-154		11/15		10:00		X		1	
411-155		11/15		10:00		X		1	
411-156		11/15		10:00		X		1	
411-157		11/15		10:00		X		1	
411-158		11/15		10:00		X		1	
411-159		11/15		10:00		X		1	
411-160		11/15		10:00		X		1	
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411-162		11/15		10:00		X		1	
411-163		11/15		10:00		X		1	
411-164		11/15		10:					



TETRA TECH
 1130 Columbia Street, Suite 500
 San Diego, CA 92101 (619) 234-8696

CHAIN-OF-CUSTODY RECORD

NUMBER **122818**

PROJECT NAME		PURCHASE ORDER NO.		ANALYSES REQUIRED										LABORATORY NAME		Project Information Section Do not submit to Laboratory			
PROJECT LOCATION		PROJECT NO.												LABORATORY ID (FOR LABORATORY)					
SAMPLER NAME		AIRBILL NUMBER		LABORATORY ID (FOR LABORATORY)										COMMENTS		LOCATION			
PROJECT CONTACT		PROJECT CONTACT PHONE NUMBER		DATE COLLECTED		TIME COLLECTED		NO. OF CONTAINERS		LEVEL		TYPE		T A		DEPTH		QC	
										3		4		E		START		END	
RELINQUISHED BY (Signature)		DATE		RECEIVED BY (Signature)		DATE		RECEIVED BY (Signature)		LABORATORY INSTRUCTIONS/COMMENTS		COMPOSITE DESCRIPTION		SAMPLE CONDITION UPON RECEIPT (FOR LABORATORY)		TEMPERATURE:		COOLER SEAL:	
COMPANY		TIME		COMPANY		TIME		COMPANY		LABORATORY INSTRUCTIONS/COMMENTS		COMPOSITE DESCRIPTION		TEMPERATURE:		COOLER SEAL:		SAMPLING COMMENT:	
RELINQUISHED BY (Signature)		DATE		RECEIVED BY (Signature)		DATE		RECEIVED BY (Signature)		LABORATORY INSTRUCTIONS/COMMENTS		COMPOSITE DESCRIPTION		TEMPERATURE:		COOLER SEAL:		SAMPLING COMMENT:	
COMPANY		TIME		COMPANY		TIME		COMPANY		LABORATORY INSTRUCTIONS/COMMENTS		COMPOSITE DESCRIPTION		TEMPERATURE:		COOLER SEAL:		SAMPLING COMMENT:	
RELINQUISHED BY (Signature)		DATE		RECEIVED BY (Signature)		DATE		RECEIVED BY (Signature)		LABORATORY INSTRUCTIONS/COMMENTS		COMPOSITE DESCRIPTION		TEMPERATURE:		COOLER SEAL:		SAMPLING COMMENT:	
COMPANY		TIME		COMPANY		TIME		COMPANY		LABORATORY INSTRUCTIONS/COMMENTS		COMPOSITE DESCRIPTION		TEMPERATURE:		COOLER SEAL:		SAMPLING COMMENT:	
RELINQUISHED BY (Signature)		DATE		RECEIVED BY (Signature)		DATE		RECEIVED BY (Signature)		LABORATORY INSTRUCTIONS/COMMENTS		COMPOSITE DESCRIPTION		TEMPERATURE:		COOLER SEAL:		SAMPLING COMMENT:	
COMPANY		TIME		COMPANY		TIME		COMPANY		LABORATORY INSTRUCTIONS/COMMENTS		COMPOSITE DESCRIPTION		TEMPERATURE:		COOLER SEAL:		SAMPLING COMMENT:	



TETRA TECH
 1230 Columbia Street, Suite 750
 San Diego, CA 92101 (619) 296-6106

CHAIN-OF-CUSTODY RECORD

NUMBER 31203

PROJECT NAME		PURCHASE ORDER NO.		ANALYSES REQUIRED				LABORATORY NAME		Project Information					
1851E 44/45		0599106						EMAX		Section Do not submit to Laboratory					
PROJECT LOCATION		PROJECT NO.						LABORATORY ID (FOR LABORATORY)		LOCATION					
SAL DRAIN NWS		2093.0060						062030		DEPTH					
SAMPLE NAME		AIRBILL NUMBER						COMMENTS		START					
Lyon Jefferson		001109								END					
PROJECT CONTACT		PROJECT CONTACT PHONE NUMBER								QC					
Nico Anderson		44-980-7546													
SAMPLE ID	DATE COLLECTED	TIME COLLECTED	NO. OF CONTAINER	LEVEL		TYPE	TAT								
				3	4										
6-44-042	10/6/16	11:30	1	X		S	1 1/2 Hr	X				44/45 C10	0	6"	Rel
6-44-043	10/6/16	11:35	1		X	S	1 1/2 Hr	X				44/45 C10	0	6"	Dup
6-44-044	10/6/16	12:50	1	X		S	1 1/2 Hr	X				44/45 A1	0	6"	Rel
6-44-045	10/6/16	12:55	1	X		S	1 1/2 Hr	X				44/45 A2	0	6"	Rel
6-44-046	10/6/16	13:05	1	X		S	1 1/2 Hr	X				44/45 A3	0	6"	Rel
6-44-047	10/6/16	13:15	1	X		S	1 1/2 Hr	X				44/45 A4	0	6"	Rel
6-44-048	10/6/16	13:25	1	X		S	1 1/2 Hr	Y				44/45 A5	0	6"	Rel
6-44-049	10/6/16	13:35	1	X		S	1 1/2 Hr	Y				44/45 A6	0	6"	Rel
6-44-050	10/6/16	13:45	1	X		S	1 1/2 Hr	X				44/45 A7	0	6"	Rel
6-44-051	10/6/16	13:55	3	X		S	1 1/2 Hr	X				44/45 A8	0	6"	Rel
RELEINQUISHED BY (Signature)				RECEIVED BY (Signature)				LABORATORY INSTRUCTIONS/COMMENTS				SAMPLING COMMENT:			
Nico Anderson				EMAX											
DATE				DATE				COMPOSITE DESCRIPTION							
10/6/16				10/6/16											
COMPANY				COMPANY											
RELEINQUISHED BY (Signature)				RECEIVED BY (Signature)				SAMPLE CONDITION UPON RECEIPT (FOR LABORATORY)							
								TEMPERATURE: _____				SAMPLE CONDITION: <input type="checkbox"/> INTACT <input type="checkbox"/> BROKEN			
DATE				DATE				COOLER SEAL: <input type="checkbox"/> INTACT <input type="checkbox"/> BROKEN							
TIME				TIME											
COMPANY				COMPANY											



TETRA TECH
 1230 Columbia Street, Suite 750
 San Diego, CA 92101 (619) 234-8696

CHAIN-OF-CUSTODY RECORD

NUMBER **31204**

PROJECT NAME		PURCHASE ORDER NO.		ANALYSES REQUIRED										LABORATORY NAME	
1K Site 44/45		059906												EMAX	
PROJECT LOCATION		PROJECT NO.												LABORATORY ID (FOR LABORATORY)	
SRI Basin NWS		2973.0060												005030	
SAMPLER NAME		AIRBILL NUMBER												COMMENTS	
Lynn Johnson		1000000													
PROJECT CONTACT		PROJECT CONTACT PHONE NUMBER												LABORATORY ID (FOR LABORATORY)	
Nico Winkler		761-950-1580													
SAMPLE ID	DATE COLLECTED	TIME COLLECTED	NO. OF CONTAINER	LEVEL		TYPE		TAT		COMMENTS		LOCATION			
				3	4	Y	P	E	T	A	T	START	DEPTH	END	QC
6-44-052	10/1/10	1405	1	X		S						0	6"		Reg
6-44-053	10/1/10	1415	1		X	S						0	6"		Dup
6-44-054	10/1/10	1420	1	X		S						0	6"		Reg
6-44-055	10/1/10	1425	1	X		S						0	6"		Reg
6-44-056	10/1/10	1430	1		X	S						0	6"		Reg
6-44-057	10/1/10	1435	1	X		S						0	6"		Reg
6-44-058	10/1/10	1445	1	X		S						0	6"		Reg
6-44-059	10/1/10	1445	1	X		S						0	6"		Reg
6-44-060	10/1/10	1450	1	X		S						0	6"		Reg
6-44-061	10/1/10	1455	1	X		S						0	6"		Reg
RECEIVED BY (Signature)		RECEIVED BY (Signature)		LABORATORY INSTRUCTIONS/COMMENTS										SAMPLING COMMENT:	
[Signature]		[Signature]													
COMPANY		COMPANY		COMPOSITE DESCRIPTION											
EMAX		EMAX													
RELIQUISHED BY (Signature)		RECEIVED BY (Signature)		SAMPLE CONDITION UPON RECEIPT (FOR LABORATORY)											
[Signature]		[Signature]		TEMPERATURE: _____ SAMPLE CONDITION: <input type="checkbox"/> INTACT <input type="checkbox"/> BROKEN											
COMPANY		COMPANY		COOLER SEALS: <input type="checkbox"/> INTACT <input type="checkbox"/> BROKEN											

White - Laboratory; Pink - Laboratory; Canary - Project File; Manila - Data Management



TETRA TECH
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CHAIN-OF-CUSTODY RECORD

NUMBER 31205

PROJECT NAME	PURCHASE ORDER NO.	LABORATORY NAME	ANALYSES REQUIRED				COMMENTS	Project Information			
			DEPTH START	DEPTH END	QC	Section		Do not submit to Laboratory			
PROJECT NAME: IR Site 44/45	PROJECT NO.: 057906	LABORATORY ID (FOR LABORATORY): 060031	EMPTY					44/45 A18	0	6"	Recs
PROJECT LOCATION: SPN Beach NWS	AIRBILL NUMBER: 2193.0060	LABORATORY ID (FOR LABORATORY): 060031						44/45 A18	0	6"	Recs
SAMPLER NAME: Lynn Johnson	PROJECT CONTACT PHONE NUMBER: 761-750-7588	COMMENTS:						44/45 A19	0	6"	Recs
PROJECT CONTACT: Nick Wimbrey								44/45 A20	0	6"	Recs
SAMPLE ID: 6-44-062	DATE COLLECTED: 10/4/11	TIME COLLECTED: 1500	NO. OF CONTAINER: 1	LEVEL: 3 X	TYPE: S	STATUS: Intact		44/45 B11	0	6"	Recs
6-44-063	10/4/11	1505	1	3 X	S	Intact		44/45 B12	0	6"	Recs
6-44-064	10/4/11	1510	1	3 X	S	Intact		44/45 B13	0	6"	Recs
6-44-065	10/4/11	1515	1	3 X	S	Intact		44/45 B14	0	6"	Recs
6-44-066	10/4/11	1545	1	3 X	S	Intact		44/45 B15	0	6"	Recs
6-44-067	10/4/11	1555	1	3 X	S	Intact					
6-44-068	10/4/11	1556	1	3 X	S	Intact					
6-44-069	10/4/11	1557	1	3 X	S	Intact					
6-44-070	10/4/11	1558	1	3 X	S	Intact					
6-44-071	10/4/11	1559	3	3 X	S	Intact					
RELINQUISHED BY (Signature): [Signature]	DATE: 10/4/11	RECEIVED BY (Signature): [Signature]	DATE: 10/4/11	LABORATORY INSTRUCTIONS/COMMENTS: A	LABORATORY INSTRUMENTS/COMMENTS						
RELINQUISHED BY (Signature): [Signature]	DATE: 10/4/11	RECEIVED BY (Signature): [Signature]	DATE: 10/4/11	COMPANY: EPTA	COMPOSITE DESCRIPTION						
RELINQUISHED BY (Signature): [Signature]	DATE: []	RECEIVED BY (Signature): [Signature]	DATE: []	COMPANY: []	SAMPLE CONDITION UPON RECEIPT (FOR LABORATORY)						
RELINQUISHED BY (Signature): [Signature]	DATE: []	RECEIVED BY (Signature): [Signature]	DATE: []	COMPANY: []	TEMPERATURE: [] SAMPLE CONDITION: <input type="checkbox"/> INTACT <input type="checkbox"/> BROKEN						
RELINQUISHED BY (Signature): [Signature]	DATE: []	RECEIVED BY (Signature): [Signature]	DATE: []	COMPANY: []	COOLER SEAL: <input type="checkbox"/> INTACT <input type="checkbox"/> BROKEN						

White - Laboratory; Pink - Laboratory; Canary - Project File; Manila - Data Management



TETRA TECH
 1230 Columbia Street, Suite 750
 San Diego, CA 92101 (619) 234-8696

CHAIN-OF-CUSTODY RECORD

NUMBER **31206**

PROJECT NAME		PURCHASE ORDER NO.		ANALYSES REQUIRED										LABORATORY NAME		Project Information			
1R Site 44/45		659906												EMAX		Do not submit to Laboratory			
PROJECT LOCATION		PROJECT NO.												LABORATORY ID (FOR LABORATORY)		LOCATION			
S&I Blvd, NMS		2993.0060												0605031		DEPTH			
SAMPLE NAME		AIRBILL NUMBER												COMMENTS		START			
Lynn Johnson		Burton														END			
PROJECT CONTACT		PROJECT CONTACT PHONE NUMBER														QC			
Nick Weinberger		149-756-7588																	
SAMPLE ID	DATE COLLECTED	TIME COLLECTED	NO. OF CONTAINER	LEVEL				TYPE											
				3	4			T	Y	P	E	T	A	T					
6-44-012	11/4/16	16:00	1	Y				S	17	17	17	17	17	17	Y				
6-44-013	11/4/16	16:01	1	Y				S	17	17	17	17	17	17	Y				
6-44-014	11/4/16	16:05	1	Y				S	17	17	17	17	17	17	Y				
6-44-015	11/4/16	16:10	1	Y				S	17	17	17	17	17	17	Y				
6-44-016	11/4/16	16:12	1	Y				S	17	17	17	17	17	17	Y				
RELINQUISHED BY (Signature)				DATE				RECEIVED BY (Signature)				DATE				LABORATORY INSTRUCTIONS/COMMENTS			
Lynn Johnson				11/16/16				Nick Weinberger				11/16/16				LABORATORY INSTRUCTIONS/COMMENTS			
RELINQUISHED BY (Signature)				DATE				RECEIVED BY (Signature)				DATE				COMPOSITE DESCRIPTION			
Lynn Johnson				11/16/16				Nick Weinberger				11/16/16				COMPOSITE DESCRIPTION			
RELINQUISHED BY (Signature)				DATE				RECEIVED BY (Signature)				DATE				SAMPLE CONDITION UPON RECEIPT (FOR LABORATORY)			
Lynn Johnson				11/16/16				Nick Weinberger				11/16/16				TEMPERATURE: _____			
RELINQUISHED BY (Signature)				DATE				RECEIVED BY (Signature)				DATE				COOLER SEAL: <input type="checkbox"/> INTACT <input type="checkbox"/> BROKEN			
Lynn Johnson				11/16/16				Nick Weinberger				11/16/16				COOLER SEAL: <input type="checkbox"/> INTACT <input type="checkbox"/> BROKEN			
RELINQUISHED BY (Signature)				DATE				RECEIVED BY (Signature)				DATE				SAMPLING COMMENT:			
Lynn Johnson				11/16/16				Nick Weinberger				11/16/16				EQUIPMENT KEYS: 0 0 Ek			

White - Laboratory; Pink - Laboratory; Canary - Project File; Manila - Data Management



TETRA TECH
 1230 Columbia Street, Suite 750
 San Diego, CA 92101 (619) 234-6606

CHAIN-OF-CUSTODY RECORD

NUMBER **31209**

PROJECT NAME	PURCHASE ORDER NO.	PROJECT LOCATION	PROJECT NO.	SAMPLER NAME	AIRBELL NUMBER	PROJECT CONTACT NAME	PROJECT CONTACT PHONE NUMBER	ANALYSES REQUIRED				LABORATORY NAME	LABORATORY ID (FOR LABORATORY)	COMMENTS	Project Information Section Do not submit to Laboratory				
								DATE COLLECTED	TIME COLLECTED	NO. OF CONTAINER	LEVEL					TYP E	TAT	DEPTH START	DEPTH END
IR Site 44/45	059906	Seal Beach NWS	2993.0060	Lynn Jefferson	EMAX	Nick Weinberger	441-956-9588												
6-44-097		10/31	0930	1	X	S	100B Ni, Zn									44/45 A30	0	6"	2/45
6-44-098		10/31	0935	1	Y	S										44/45 A31	0	6"	2/45
6-44-099		10/31	0940	1	Y	S										44/45 A32	0	6"	2/45
6-44-100		10/31	0945	1	Y	S										44/45 A33	0	6"	2/45
6-44-101		10/31	0950	1	X	S										44/45 A34	0	6"	2/45
6-44-102		10/31	0955	1	X	S										44/45 A35	0	6"	2/45
6-44-103		10/31	1000	1	X	S										44/45 A36	0	6"	2/45
6-44-104		10/31	1005	1	X	S										44/45 A36	0	6"	2/45
6-44-105		10/31	1010	1	X	S										44/45 DL	0	6"	2/45
6-44-106		10/31	1500	1	Y	W										44/45 ER	-	-	ER
LABORATORY INSTRUCTIONS/COMMENTS																			
COMPOSITE DESCRIPTION																			
SAMPLE CONDITION UPON RECEIPT (FOR LABORATORY) TEMPERATURE: _____ SAMPLE CONDITION: <input type="checkbox"/> INTACT <input type="checkbox"/> BROKEN COOLER SEAL: <input type="checkbox"/> INTACT <input type="checkbox"/> BROKEN																			
SAMPLING COMMENT:																			

White - Laboratory; Pink - Laboratory; Canary - Project File; Manila - Data Management



TETRA TECH
 1230 Coltonville Street, Suite 500
 San Diego, CA 92101 (619) 744-6696

CHAIN-OF-CUSTODY RECORD

NUMBER **20416**

PROJECT NAME		PURCHASE ORDER NO.		LABORATORY NAME		Project Information	
Stock Pile 40/41 S		059906		EMMAX		Do not submit to Laboratory	
PROJECT LOCATION		PROJECT NO.		LABORATORY ID (FOR LABORATORY)		LOCATION	
SP-1 Beach, NWS		2793.0060		065054		4445	
SAMPLER NAME		AIRBILL NUMBER		COMMENTS		DEPTH	
Lamin Velocimetry		10417				START END	
PROJECT CONTACT		PROJECT CONTACT PHONE NUMBER				OC	
Nick Mendicino		761-956-9588				6' 6'	
SAMPLE ID	DATE COLLECTED	TIME COLLECTED	NO. OF CONTAINER	LEVEL	T	A	
				3			
				4			
6-44-109	10/31	1100	4	X	S	60103 NTK22	
6-44-108	10/31	1105	4	X	S	82602 VOC	
6-44-109	10/31	1115	4	X	S	82702 SVOC	
6-57-110	10/31	1120	4	X	S	8081 Rest	
				X	S	8082 PCB	
LABORATORY INSTRUCTIONS/COMMENTS							
COMPOSITE DESCRIPTION							
REINQUISHED BY (Signature) DATE TIME COMPANY RECEIVED BY (Signature) DATE TIME COMPANY							
REINQUISHED BY (Signature) DATE TIME COMPANY RECEIVED BY (Signature) DATE TIME COMPANY							
REINQUISHED BY (Signature) DATE TIME COMPANY RECEIVED BY (Signature) DATE TIME COMPANY							
REINQUISHED BY (Signature) DATE TIME COMPANY RECEIVED BY (Signature) DATE TIME COMPANY							
SAMPLING COMMENT:							

White - Laboratory; Pink - Laboratory; Canary - Project File; Manila - Data Management



TETRA TECH
 1230 Columbia Street, Suite 750
 San Diego, CA 92101 (619) 234-8696

CHAIN-OF-CUSTODY RECORD

NUMBER 31213

PROJECT NAME		PURCHASE ORDER NO.		ANALYSES REQUIRED		LABORATORY NAME	
TR 500 44/45		0597906		EPA 60100 (Ni, Zn)		E/MAX	
PROJECT LOCATION		PROJECT NO.		LABORATORY ID (FOR LABORATORY)		Project Information	
Soil Band MWS		2973.0060		060152		Section Do not submit to Laboratory	
SAMPLE NAME		AIRBILL NUMBER		COMMENTS		LOCATION	
Nick Wornberger		COPART				44/45 A6	
PROJECT CONTACT		PROJECT CONTACT PHONE NUMBER		LEVEL		DEPTH	
Nick Wornberger		949-332-7558		3 4		START END	
SAMPLE ID		DATE COLLECTED		TIME COLLECTED		NO. OF CONTAINER	
6-44-1341		10/17/06		1341		1	
6-44-135		10/17/06		1346		1	
6-44-136		10/17/06		135		1	
6-44-137		10/17/06		136		1	
6-44-138		10/17/06		137		1	
6-44-139		10/17/06		138		1	
6-44-140		10/17/06		139		1	
6-44-141		10/17/06		140		1	
6-44-142		10/17/06		141		1	
6-44-143		10/17/06		142		1	
6-44-144		10/17/06		143		1	
6-44-145		10/17/06		144		1	
6-44-146		10/17/06		145		1	
6-44-147		10/17/06		146		1	
6-44-148		10/17/06		147		1	
6-44-149		10/17/06		148		1	
6-44-150		10/17/06		149		1	
6-44-151		10/17/06		150		1	
6-44-152		10/17/06		151		1	
6-44-153		10/17/06		152		1	
6-44-154		10/17/06		153		1	
6-44-155		10/17/06		154		1	
6-44-156		10/17/06		155		1	
6-44-157		10/17/06		156		1	
6-44-158		10/17/06		157		1	
6-44-159		10/17/06		158		1	
6-44-160		10/17/06		159		1	
6-44-161		10/17/06		160		1	
6-44-162		10/17/06		161		1	
6-44-163		10/17/06		162		1	
6-44-164		10/17/06		163		1	
6-44-165		10/17/06		164		1	
6-44-166		10/17/06		165		1	
6-44-167		10/17/06		166		1	
6-44-168		10/17/06		167		1	
6-44-169		10/17/06		168		1	
6-44-170		10/17/06		169		1	
6-44-171		10/17/06		170		1	
6-44-172		10/17/06		171		1	
6-44-173		10/17/06		172		1	
6-44-174		10/17/06		173		1	
6-44-175		10/17/06		174		1	
6-44-176		10/17/06		175		1	
6-44-177		10/17/06		176		1	
6-44-178		10/17/06		177		1	
6-44-179		10/17/06		178		1	
6-44-180		10/17/06		179		1	
6-44-181		10/17/06		180		1	
6-44-182		10/17/06		181		1	
6-44-183		10/17/06		182		1	
6-44-184		10/17/06		183		1	
6-44-185		10/17/06		184		1	
6-44-186		10/17/06		185		1	
6-44-187		10/17/06		186		1	
6-44-188		10/17/06		187		1	
6-44-189		10/17/06		188		1	
6-44-190		10/17/06		189		1	
6-44-191		10/17/06		190		1	
6-44-192		10/17/06		191		1	
6-44-193		10/17/06		192		1	
6-44-194		10/17/06		193		1	
6-44-195		10/17/06		194		1	
6-44-196		10/17/06		195		1	
6-44-197		10/17/06		196		1	
6-44-198		10/17/06		197		1	
6-44-199		10/17/06		198		1	
6-44-200		10/17/06		199		1	
6-44-201		10/17/06		200		1	
6-44-202		10/17/06		201		1	
6-44-203		10/17/06		202		1	
6-44-204		10/17/06		203		1	
6-44-205		10/17/06		204		1	
6-44-206		10/17/06		205		1	
6-44-207		10/17/06		206		1	
6-44-208		10/17/06		207		1	
6-44-209		10/17/06		208		1	
6-44-210		10/17/06		209		1	
6-44-211		10/17/06		210		1	
6-44-212		10/17/06		211		1	
6-44-213		10/17/06		212		1	
6-44-214		10/17/06		213		1	
6-44-215		10/17/06		214		1	
6-44-216		10/17/06		215		1	
6-44-217		10/17/06		216		1	
6-44-218		10/17/06		217		1	
6-44-219		10/17/06		218		1	
6-44-220		10/17/06		219		1	
6-44-221		10/17/06		220		1	
6-44-222		10/17/06		221		1	
6-44-223		10/17/06		222		1	
6-44-224		10/17/06		223		1	
6-44-225		10/17/06		224		1	
6-44-226		10/17/06		225		1	
6-44-227		10/17/06		226		1	
6-44-228		10/17/06		227		1	
6-44-229		10/17/06		228		1	
6-44-230		10/17/06		229		1	
6-44-231		10/17/06		230		1	
6-44-232		10/17/06		231		1	
6-44-233		10/17/06		232		1	
6-44-234		10/17/06		233		1	
6-44-235		10/17/06		234		1	
6-44-236		10/17/06		235		1	
6-44-237		10/17/06		236		1	
6-44-238		10/17/06		237		1	
6-44-239		10/17/06		238		1	
6-44-240		10/17/06		239		1	
6-44-241		10/17/06		240		1	
6-44-242		10/17/06		241		1	
6-44-243		10/17/06		242		1	
6-44-244		10/17/06		243		1	
6-44-245		10/17/06		244		1	
6-44-246		10/17/06		245		1	
6-44-247		10/17/06		246		1	
6-44-248		10/17/06		247		1	
6-44-249		10/17/06		248		1	
6-44-250		10/17/06		249		1	
6-44-251		10/17/06		250		1	
6-44-252		10/17/06		251		1	
6-44-253		10/17/06		252		1	
6-44-254		10/17/06		253		1	
6-44-255		10/17/06		254		1	
6-44-256		10/17/06		255		1	
6-44-257		10/17/06		256		1	
6-44-258		10/17/06		257		1	
6-44-259		10/17/06		258		1	
6-44-260		10/17/06		259		1	
6-44-261		10/17/06		260		1	
6-44-262		10/17/06		261		1	
6-44-263		10/17/06		262		1	
6-44-264		10/17/06		263		1	
6-44-265		10/17/06		264		1	
6-44-266		10/17/06		265		1	
6-44-267		10/17/06		266		1	
6-44-268		10/17/06		267		1	
6-44-269		10/17/06		268		1	
6-44-270		10/17/06		269		1	
6-44-271		10/17/06		270		1	
6-44-272		10/17/06		271		1	
6-44-273		10/17/06		272		1	
6-44-274		10/17/06		273		1	
6-44-275		10/17/06		274		1	
6-44-276		10/17/06		275		1	
6-44-277		10/17/06		276		1	
6-44-278		10/17/06		277		1	
6-44-279		10/17/06		278		1	
6-44-280		10/17/06		279		1	
6-44-281		10/17/06		280		1	
6-44-282		10/17/06		281		1	
6-44-283		10/17/06		282		1	
6-44-284		10/17/06		283		1	
6-44-285		10/17/06		284		1	
6-44-286		10/17/06		285		1	
6-44-287		10/17/06		286		1	
6-44-288		10/17/06		287		1	
6-44-289		10/17/06		288		1	
6-44-290		10/17/06		289		1	
6-44-291		10/17/06		290		1	
6-44-292		10/17/06		291		1	
6-44-293		10/17/06		292		1	
6-44-294		10/17/06		293		1	
6-44-295		10/17/06		294		1	
6-44-296		10/17/06		295		1	
6-44-297		10/17/06		296		1	
6-44-298		10/17/06		297		1	
6-44-299		10/17/06		298		1	
6-44-300		10/17/06		299		1	
6-44-301		10/17/06		300		1	
6-44-302		10/17/06		301		1	
6-44-303		10/17/06		302		1	
6-44-304		10/17/06		303		1	
6-44-305		10/17/06		304		1	
6-44-306		10/17/06		305		1	
6-44-307		10/17/06		306		1	
6-44-308		10/17/06		307		1	
6-44-309		10/17/06		308		1	
6-44-310		10/17/06		309		1	
6-44-311		10/17/06		310		1	
6-44-312		10/17/06		311		1	
6-44-313		10/17/06		312		1	
6-44-314		10/17/06		313		1	
6-44-315		10/17/06		314		1	
6-44-316		10/17/06		315		1	
6-44-317		10/17/06		316			



TETRA TECH
 1250 Columbia Street, Suite 750
 San Diego, CA 92101 (619) 234-8696

CHAIN-OF-CUSTODY RECORD

NUMBER 31212

PROJECT NAME	PURCHASE ORDER NO.	ANALYSES REQUIRED	LABORATORY NAME	PROJECT INFORMATION						
				PROJECT NO.	LABORATORY ID (FOR LABORATORY)	LABORATORY ID (FOR LABORATORY)				
LA 504 44/MS	0500001		EMMAX	065152						
PROJECT LOCATION Sail Point MWS	PROJECT NO. 2753 0060									
SAMPLER NAME N/A	AIRBILL NUMBER C-3000									
PROJECT CONTACT Arlene Rosenberg	PROJECT CONTACT PHONE NUMBER 760-978-9923									
SAMPLE ID	DATE COLLECTED	TIME COLLECTED	NO. OF CONTAINER	LEVEL	TYP	ANALYSES	COMMENTS	LOCATION	DEPTH	QC
				3 4	P E	T A T			START END	
6-44-124	10/17/01	1205	1	X		X		44/MS c1	/	
6-44-125	10/17/01	1205	1	X		X		44/MS c1	/	
6-44-126	10/17/01	1205	1	X		X		44/MS c2	/	
6-44-127	10/17/01	1205	1	X		X		44/MS c5	/	
6-44-128	10/17/01	1206	3	X		X		44/MS c6	/	
6-44-129	10/17/01	1210	1	X		X		44/MS c7	/	
6-44-130	10/17/01	1216	1	X		X		44/MS c8	/	
6-44-131	10/17/01	1221	1	X		X		44/MS c9	/	
6-44-132	10/17/01	1221	1	X		X		44/MS c10	/	
6-44-133	10/17/01	1221	1	X		X		44/MS A3	/	
RECEIVED BY (Signature)	DATE	RECEIVED BY (Signature)	DATE	LABORATORY INSTRUCTIONS/COMMENTS						
	10/17/01	EMMAX								
RECEIVED BY (Signature)	DATE	RECEIVED BY (Signature)	DATE	COMPOSITE DESCRIPTION						
RECEIVED BY (Signature)	DATE	RECEIVED BY (Signature)	DATE	SAMPLE CONDITION UPON RECEIPT (FOR LABORATORY)						
				TEMPERATURE: _____ SAMPLE CONDITION: <input type="checkbox"/> INTACT <input type="checkbox"/> BROKEN						
RECEIVED BY (Signature)	DATE	RECEIVED BY (Signature)	DATE	COOLER SEAL: <input type="checkbox"/> INTACT <input type="checkbox"/> BROKEN						
RECEIVED BY (Signature)	DATE	RECEIVED BY (Signature)	DATE	SAMPLING COMMENT:						

White - Laboratory; Pink - Laboratory; Canary - Project File; Manila - Data Management



LABORATORIES, INC.

1835 W. 205th Street
Torrance, CA 90501
Tel: (310) 618-8889
Fax: (310) 618-0818

COPY

Date: 10-13-2006
EMAX Batch No.: 061217

Attn: Nick Weinberger

Tetra Tech EC, Inc.
1940 E Deere Ave, Suite 200
Santa Ana, CA 92705

Subject: Laboratory Report
Project: NWS Seal Beach, CTO 0006

Enclosed is the Laboratory report for samples received on 09/22/06.
The data reported include :

Sample ID	Control #	Col Date	Matrix	Analysis
6-42-001	1217-01	09/22/06	SOIL	COPPER
6-42-002	1217-02	09/22/06	SOIL	COPPER
6-42-003	1217-03	09/22/06	SOIL	COPPER
6-42-004	1217-04	09/22/06	SOIL	COPPER
6-42-005	1217-05	09/22/06	SOIL	COPPER
6-42-006	1217-06	09/22/06	SOIL	COPPER
6-42-007	1217-07	09/22/06	SOIL	COPPER
6-42-008	1217-08	09/22/06	SOIL	COPPER
6-42-009	1217-09	09/22/06	SOIL	COPPER
6-42-010	1217-10	09/22/06	SOIL	COPPER
6-42-011	1217-11	09/22/06	SOIL	COPPER
6-42-012	1217-12	09/22/06	SOIL	COPPER
6-42-013	1217-13	09/22/06	SOIL	COPPER
6-42-014	1217-14	09/22/06	SOIL	COPPER
6-42-015	1217-15	09/22/06	SOIL	COPPER
6-42-016	1217-16	09/22/06	SOIL	COPPER
6-42-017	1217-17	09/22/06	SOIL	COPPER
6-42-018	1217-18	09/22/06	SOIL	COPPER
6-42-019	1217-19	09/22/06	SOIL	COPPLR

Sample ID	Control #	Col Date	Matrix	Analysis
6-42-020	1217-20	09/22/06	SOIL	COPPER
6-42-021	1217-21	09/22/06	SOIL	VOLATILE ORGANICS BY GC/MS SEMIVOLATILE ORGANICS BY GCMS PESTICIDES ORGANOCHLORINE POLYCHLORINATED BIPHENYLS (PCBS) METALS CAM MERCURY SEMIVOLATILE ORGANICS SIM
6-42-018MS	1217-18M	09/22/06	SOIL	COPPER
6-42-018MSD	1217-18S	09/22/06	SOIL	COPPER

The results are summarized on the following pages.

Please feel free to call if you have any questions concerning these results.

Sincerely yours,



Kam Y. Pang, Ph.D.
Laboratory Director

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CLIENT: TETRA TECH EC, INC.
PROJECT: NWS SEAL BEACH, CTO 0006
SDG: 06I217

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GC-SVOA	METHOD 3550B/8081A	5000 – 5044
	METHOD 3550B/8082	5045 – 5073
HPLC	**	6000 –
METALS	METHOD 3050B/6010B	7000 – 7090
	METHOD 7471A	7091 – 7100
WET	**	8000 –
OTHERS	**	9000 –

** - Not Requested

CASE NARRATIVE

CLIENT: TETRA TECH EC, INC.
PROJECT: NWS SEAL BEACH, CTO 0006
SDG: 06I217

METHOD 5035/8260B VOLATILE ORGANICS BY GC/MS

One (1) soil sample was received on 09/22/06 for Volatile Organic analysis by Method 5035/8260B in accordance with USEPA SW846, 3rd ed.

1. Holding Time

Analytical holding time was met.

2. Tuning and Calibration

Tuning and calibration were carried out at 12-hour interval. All QC requirements were met.

3. Method Blank

Method blank was free of contamination at the reporting limit.

4. Surrogate Recovery

Recoveries were within QC limit.

5. Lab Control Sample/Lab Control Sample Duplicate

Recoveries were within QC limit.

6. Matrix Spike/Matrix Spike Duplicate

No MS/MSD sample was designated in this SDG.

7. Sample Analysis

Sample was analyzed according to the prescribed QC procedures. All criteria were met.

METHOD 5035/8260B
VOLATILE ORGANICS BY GC/MS

```

=====
Client      : TETRA TECH EC, INC.           Date Collected: 09/22/06
Project     : NWS SEAL BEACH, CTO 0006     Date Received: 09/22/06
Batch No.   : 061217                       Date Extracted: 09/27/06 16:19
Sample ID   : 6-42-021                     Date Analyzed: 09/27/06 16:19
Lab Samp ID: I217-21                       Dilution Factor: .94
Lab File ID: RIC572                         Matrix          : SOIL
Ext Btch ID: VO67145                       % Moisture     : 11.5
Calib. Ref.: RIC158                         Instrument ID   : T-067
=====

```

PARAMETERS	RESULTS (ug/kg)	RI (ug/kg)	MDL (ug/kg)
1,1,1-TRICHLOROETHANE	ND	5.3	2.1
1,1,2,2-TETRACHLOROETHANE	ND	5.3	2.1
1,1,2-TRICHLOROETHANE	ND	5.3	2.1
1,1-DICHLOROETHANE	ND	5.3	2.1
1,1-DICHLOROETHENE	ND	5.3	2.1
1,2-DICHLOROETHANE	ND	5.3	2.1
1,2-DICHLOROPROPANE	ND	5.3	2.1
2-HEXANONE	ND	11	5.3
ACETONE	150	21	5.3
BENZENE	ND	5.3	2.1
BROMODICHLOROMETHANE	ND	5.3	2.1
BROMOFORM	ND	5.3	2.1
BROMOMETHANE	ND	11	2.1
CARBON TETRACHLORIDE	ND	5.3	2.1
CHLOROETHANE	ND	5.3	2.1
CHLOROETHENE	ND	5.3	2.1
CHLOROFORM	ND	5.3	2.1
CHLOROMETHANE	ND	11	2.1
CIS-1,2-DICHLOROETHENE	ND	5.3	2.1
CIS-1,3-DICHLOROPROPENE	ND	5.3	2.1
DIBROMOCHLOROMETHANE	ND	5.3	2.1
ETHYLBENZENE	ND	5.3	2.1
METHYL ETHYL KETONE (MEK)	8.7J	11	5.3
METHYL TERT-BUTYL ETHER (MTBE)	ND	5.3	2.1
METHYLENE CHLORIDE	ND	21	2.1
METHYL ISOBUTYL KETONE (MIBK)	ND	11	5.3
STYRENE	ND	5.3	2.1
TETRACHLOROETHENE	ND	5.3	2.1
TOLUENE	ND	5.3	2.1
TRANS-1,2-DICHLOROETHENE	ND	5.3	2.1
TRANS-1,3-DICHLOROPROPENE	ND	5.3	2.1
TRICHLOROETHENE	ND	5.3	2.1
VINYL ACETATE	ND	53	2.1
VINYL CHLORIDE	ND	11	2.1
XYLENES (TOTAL)	ND	5.3	2.1

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	118	65-135
4-BROMOFLUOROBENZENE	125	65-135
TOLUENE-D8	103	65-135

Preservation Date: 09/22/06 14:10

CASE NARRATIVE

CLIENT: TETRA TECH EC, INC.
PROJECT: NWS SEAL BEACH, CTO 0006
SDG: 06I217

METHOD 3550B/8270C SEMI VOLATILE ORGANICS BY GC/MS

One (1) soil sample was received on 09/22/06 for Semi Volatile Organic analysis by Method 3550B/8270C in accordance with USEPA SW846, 3rd ed.

1. Holding Time

Analytical holding time was met.

2. Tuning and Calibration

Tuning and calibration were carried out at 12-hour interval. All QC requirements were met.

3. Method Blank

Method blank was free of contamination at the reporting limit.

4. Surrogate Recovery

Recoveries were within QC limit except Terphenyl-D14 due to low internal standard recovery.

5. Lab Control Sample/Lab Control Sample Duplicate

Recoveries were within QC limit.

6. Matrix Spike/Matrix Spike Duplicate

No MS/MSD sample was designated in this SDG.

7. Sample Analysis

Sample was analyzed according to the prescribed QC procedures. All criteria were met.

METHOD 3550B/8270C
SEMI VOLATILE ORGANICS BY GC/MS

```

=====
Client      : TETRA TECH EC, INC.           Date Collected: 09/22/06
Project     : NWS SEAL BEACH, CIO 0006     Date Received: 09/22/06
Batch No.   : 061217                       Date Extracted: 09/27/06 12:00
Sample ID   : 6-42-021                     Date Analyzed: 09/29/06 17:27
Lab Samp ID : 1217-21W                     Dilution Factor: 5
Lab File ID : RIX195                       Matrix          : SOIL
Ext Btch ID : SVI026S                      % Moisture     : 11.5
Calib. Ref. : RHX222                       Instrument ID   : I-042
=====

```

PARAMETERS	RESULTS (ug/kg)	RL (ug/kg)	MDL (ug/kg)
1,2,4-TRICHLOROBENZENE	ND	1900	940
1,2-DICHLOROBENZENE	ND	1900	940
1,3-DICHLOROBENZENE	ND	1900	940
1,4-DICHLOROBENZENE	ND	1900	940
2,4,5-TRICHLOROPHENOL	ND	1900	940
2,4,6-TRICHLOROPHENOL	ND	1900	1000
2,4-DICHLOROPHENOL	ND	1900	940
2,4-DIMETHYLPHENOL	ND	1900	940
2,4-DINITROPHENOL	ND	3800	940
2,4-DINITROTOLUENE	ND	1900	940
2,6-DINITROTOLUENE	ND	1900	940
2-CHLORONAPHTHALENE	ND	1900	940
2-CHLOROPHENOL	ND	1900	940
2-METHYLPHENOL	ND	1900	940
2-NITROANILINE	ND	3800	940
2-NITROPHENOL	ND	3800	940
3,3'-DICHLOROBENZIDINE	ND	3800	940
3-NITROANILINE	ND	3800	940
4,6-DINITRO-2-METHYLPHENOL	ND	3800	940
4-BROMOPHENYL-PHENYL ETHER	ND	1900	940
4-CHLORO-3-METHYLPHENOL	ND	1900	940
4-CHLOROANILINE	ND	1900	940
4-CHLOROPHENYL-PHENYL ETHER	ND	1900	960
4-METHYLPHENOL (1)	ND	1900	940
4-NITROANILINE	ND	3800	940
4-NITROPHENOL	ND	3800	940
BIS(2-CHLOROETHOXY)METHANE	ND	1900	940
BIS(2-CHLOROETHYL)ETHER	ND	1900	940
BIS(2-CHLOROISOPROPYL)ETHER	ND	1900	940
BIS(2-ETHYLHEXYL)PHTHALATE	ND	1900	940
BUTYLBENZYLPHthalate	ND	1900	940
DI-N-BUTYLPHthalate	ND	1900	940
DI-N-OCTYLPHthalate	ND	1900	940
DIBENZOFURAN	ND	1900	940
DIETHYL PHTHALATE	ND	1900	940
DIMETHYL PHTHALATE	ND	1900	940
HEXACHLOROBENZENE	ND	1900	940
HEXACHLOROBUTADIENE	ND	1900	1100
HEXACHLOROCYCLOPENTADIENE	ND	1900	940
HEXACHLOROETHANE	ND	1900	940
N-NITROSODIPHENYLAMINE (2)	ND	1900	940
NITROBENZENE	ND	1900	940
PENTACHLOROPHENOL	ND	3800	990
PHENOL	ND	1900	940
SURROGATE PARAMETERS	% RECOVERY	QC LIMIT	
2,4,6-TRIBROMOPHENOL	96	25-144	
2-FLUOROBIPHENYL	96	34-135	
2-FLUOROPHENOL	69	25-135	
NITROBENZENE-D5	69	25-135	
PHENOL-D5	78	25-135	
TERPHENYL-D14	157*	32-136	

(1): Cannot be separated from 3-Methylphenol
(2): Cannot be separated from Diphenylamine

CASE NARRATIVE

CLIENT: TETRA TECH EC, INC.
PROJECT: NWS SEAL BEACH, CTO 0006
SDG: 06I217

METHOD 3550B/8270C SIM SEMI VOLATILE ORGANICS BY GC/MS

One (1) soil sample was received on 09/22/06 for Semi Volatile Organic analysis by Method 3550B/8270C in accordance with USEPA SW846, 3rd ed.

1. Holding Time

Analytical holding time was met.

2. Tuning and Calibration

Tuning and calibration were carried out at 12-hour interval. All QC requirements were met.

3. Method Blank

Method blank was free of contamination at the reporting limit.

4. Surrogate Recovery

Recoveries were within QC limit.

5. Lab Control Sample/Lab Control Sample Duplicate

Recoveries were within QC limit.

6. Matrix Spike/Matrix Spike Duplicate

No MS/MSD sample was designated in this SDG.

7. Sample Analysis

Sample was analyzed according to the prescribed QC procedures. All criteria were met.

METHOD 3550B/8270C SIM
SEMI VOLATILE ORGANICS BY GC/MS

```

=====
Client   : TETRA TECH LC, INC.           Date Collected: 09/22/06
Project  : NWS SEAL BEACH, CTO 0006      Date Received: 09/22/06
Batch No. : 06I217                       Date Extracted: 09/27/06 12:00
Sample ID: 6-42-021                     Date Analyzed: 09/28/06 19:25
Lab Samp ID: I217-21                   Dilution Factor: 5
Lab File ID: RIZ129                    Matrix       : SOIL
Ext Btch ID: SVI026S                   % Moisture  : 11.5
Calib. Ref.: RIZ058                     Instrument ID : T-048
=====

```

PARAMETERS	RESULTS (ug/kg)	RL (ug/kg)	MDL (ug/kg)
ACENAPHTHENE	ND	110	56
ACENAPHTHYLENE	ND	110	56
ANTHRACENE	ND	110	56
BENZO(A)ANTHRACENE	ND	110	56
BENZO(A)PYRENE	ND	110	56
BENZO(B)FLUORANTHENE	ND	110	56
BENZO(K)FLUORANTHENE	ND	110	56
BENZO(G,H,I)PERYLENE	99J	110	56
CHRYSENE	69J	110	56
DIBENZO(A,H)ANTHRACENE	ND	110	56
FLUORANTHENE	79J	110	56
FLUORENE	ND	110	56
INDENO(1,2,3-CD)PYRENE	57J	110	56
NAPHTHALENE	ND	110	56
N-NITROSO-DI-N-PROPYLAMINE	ND	110	56
PHENANTHRENE	ND	110	56
PYRENE	79J	110	56
SURROGATE PARAMETERS	% RECOVERY	QC LIMIT	
TERPHENYL-D14	119	40-130	

CASE NARRATIVE

CLIENT: TETRA TECH EC, INC.
PROJECT: NWS SEAL BEACH, CTO 0006
SDG: 06I217

METHOD 3550B/8081A PESTICIDES

One (1) soil sample was received on 09/22/06 for Pesticides analysis by Method 3550B/8081A in accordance with "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", SW846, 3rd ed.

1. Holding Time

Analytical holding time was met.

2. Instrument Performance and Calibration

Initial calibration was at six-point for Pesticides, all RSDs were within 20%. All continue calibrations were analyzed at 10 samples interval and recoveries were within 80-120% except Toxaphene in column B in two DCCs had high bias, sample was not detected of this analyte. Endrin and DDT breakdown were within QC limits.

3. Method Blank

Method blank was free of contamination at the reporting limit.

4. Surrogate Recovery

Recoveries were within QC limit.

5. Lab Control Sample/Lab Control Sample Duplicate

All recoveries were within QC limits.

6. Matrix Spike/Matrix Spike Duplicate

No MS/MSD sample was designated in this SDG.

7. Sample Analysis

Sample was analyzed according to the prescribed QC procedures. All criteria were met with the aforementioned exception.

When sample results are confirmed by a second column, the relative percentage difference (RPD) between the two results is calculated. If RPD is less than 40%, and no evidence of chromatographic problems, the higher result is reported. If RPD is greater than 40%, the chromatogram is checked for anomalies and results are selected based on the best professional judgment. If no evidence of any chromatographic problems, the higher result is reported.

METHOD 3550B/8081A
PESTICIDES

```

=====
Client      : TETRA TECH EC, INC.           Date Collected: 09/22/06
Project     : NWS SEAL BEACH, CTO 0006     Date Received: 09/22/06
Batch No.   : 061217                       Date Extracted: 09/27/06 13:00
Sample ID   : 6-42-021                     Date Analyzed: 09/28/06 10:11
Lab Samp ID : 1217-21                       Dilution Factor: 1
Lab File ID : SI25159A                     Matrix          : SOIL
Ext Btch ID: CPI026S                       % Moisture     : 11.5
Calib. Ref.: SI25149A                     Instrument ID  : GCT008
=====

```

PARAMETERS	RESULTS (ug/kg)	RL (ug/kg)	MDL (ug/kg)
ALPHA-BHC	(ND) ND	1.9	0.68 0.68
GAMMA-BHC (LINDANE)	(ND) ND	1.9	0.68 0.68
BETA-BHC	(ND) ND	1.9	0.68 0.68
HEPTACHLOR	(ND) 0.95J	1.9	0.68 0.68
DELTA-BHC	(ND) 0.75J	1.9	0.68 0.68
ALDRIN	(ND) ND	1.9	0.68 0.68
HEPTACHLOR EPOXIDE	(2.0) 2.4	1.9	0.68 0.68
GAMMA-CHLORDANE	(13) 11	1.9	0.68 0.68
ALPHA-CHLORDANE	(17) 11	1.9	0.68 0.68
ENDOSULFAN I	(ND) ND	1.9	0.68 0.68
4,4'-DDE	(3.3J) 3.0J	3.7	1.4 1.4
DIELDRIN	(2.7J) 3.4J	3.7	1.4 1.4
ENDRIN	(ND) ND	3.7	1.4 1.4
4,4'-DDD	(36) 34	3.7	1.4 1.4
ENDOSULFAN II	(ND) ND	3.7	1.4 1.4
4,4'-DDT	(8.8) 9.8	3.7	1.4 1.4
ENDRIN ALDEHYDE	(ND) 4.7	3.7	1.4 1.4
ENDOSULFAN SULFATE	(ND) 2.0J	3.7	1.7 1.7
ENDRIN KETONE	(ND) 1.4J	3.7	1.4 1.4
METHOXYCHLOR	(ND) ND	19	4.5 4.5
TOXAPHENE	(ND) ND	67	11 11

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
TETRACHLORO-M-XYLENE	(108) 87	25-143
DECACHLOROBIPHENYL	(67) 69	25-143

RL : Reporting limit
Left of | is related to first column ; Right of | related to second column
Final result indicated by ()

CASE NARRATIVE

CLIENT: TETRA TECH EC, INC.
PROJECT: NWS SEAL BEACH, CTO 0006
SDG: 06I217

METHOD 3550B/8082 PCBs

One (1) soil sample was received on 09/22/06 for PCBs analysis by Method 3550B/8082 in accordance with "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", SW846, 3rd ed.

1. Holding Time

Analytical holding time was met.

2. Instrument Performance and Calibration

Initial calibration was five points for PCB-1016 and PCB-1260, all RSDs were within 20%. All continue calibrations were analyzed at 10 samples interval and all recoveries in column A were within 80-120%. Results were reported from column A.

3. Method Blank

Method blank was free of contamination at the reporting limit.

4. Surrogate Recovery

Recoveries were within QC limit.

5. Lab Control Sample/Lab Control Sample Duplicate

All recoveries were within QC limits.

6. Matrix Spike/Matrix Spike Duplicate

No MS/MSD sample was designated in this SDG.

7. Sample Analysis

Sample was analyzed according to the prescribed QC procedures. All criteria were met.

METHOD 3550B/8082
PCBs

```

=====
Client      : TETRA TECH EC, INC.           Date Collected: 09/22/06
Project     : NWS SEAL BEACH, CTO 0006     Date Received: 09/22/06
Batch No.   : 06I217                       Date Extracted: 09/27/06 13:00
Sample ID   : 6-42-021                    Date Analyzed: 09/28/06 10:11
Lab Samp ID: 1217-21                      Dilution Factor: 1
Lab File ID: SI25159A                     Matrix          : SOIL
Ext Btch ID: CPI026S                      % Moisture     : 11.5
Calib. Ref.: SI25151A                     Instrument ID  : GCT008
=====

```

PARAMETERS	RESULTS (ug/kg)	RL (ug/kg)	MDL (ug/kg)
PCB-1016	(ND) ND	56	23 23
PCB-1221	(ND) ND	56	23 23
PCB-1232	(ND) ND	56	23 23
PCB-1242	(ND) ND	56	23 23
PCB-1248	(ND) ND	56	23 23
PCB-1254	(ND) ND	56	23 23
PCB-1260	50J (62)	56	23 23
SURROGATE PARAMETERS			
	% RECOVERY	QC LIMIT	
TETRACHLORO-M-XYLENE	(115) 96	30-140	
DECACHLOROBIPHENYL	(86) 120	30-140	

Left of | is related to first column ; Right of | related to second column
Final result indicated by ()
* Out side of QC Limit

CASE NARRATIVE

CLIENT: TETRA TECH EC, INC.
PROJECT: NWS SEAL BEACH, CTO 0006
SDG: 06I217

METHOD 3050B/6010B METALS BY ICP

Twenty one (21) soil samples were received on 09/22/06 for Metals analysis by Method 3050B/6010B in accordance with "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", SW846, 3rd edition.

1. Holding Time

Analysis met holding time criteria.

2. Method Blank

Method blank was free of contamination at half of reporting limit.

3. Lab Control Sample/Lab Control Sample Duplicate

Lab control results were within QC limit.

4. Serial Dilution / Post-Analytical Spike

Samples I217-18 and -21 were analyzed for serial dilution and post-analytical spike. All QC requirements were met.

5. Matrix Spike/Matrix Spike Duplicate

Sample I217-18 was spiked. All recoveries were within QC limit.

6. Sample Analysis

Samples were analyzed according to the prescribed QC procedures. All criteria were met.

MRL was analyzed at the beginning of each sequence run. Recovery was within QC limit of 70-130%.

METHOD 3050B/6010B
METALS BY ICP

```

=====
Client      : TETRA TECH EC, INC.          Date Collected: 09/22/06
Project    : NWS SEAL BEACH, CTO 0006     Date Received: 09/22/06
SDG NO.    : 061217                       Date Extracted: 09/29/06 10:15
Sample ID  : 6-42-021                     Date Analyzed: 10/03/06 13:25
Lab Samp ID: 1217-21                      Dilution Factor: 1
Lab File ID: 107J004016                   Matrix          : SOIL
Ext Btch ID: IPI040S                      % Moisture     : 11.5
Calib. Ref.: 107J004010                   Instrument ID  : EMAX1107
=====
  
```

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
Antimony	5.46J	11.3	2.26
Barium	68.1	1.13	0.226
Beryllium	0.338J	1.13	0.226
Cadmium	2.73	1.13	0.565
Chromium	20.8	2.26	1.13
Cobalt	6.11	2.26	1.13
Copper	27.4	2.26	0.565
Molybdenum	ND	5.65	0.565
Nickel	13.1	2.26	1.13
Silver	ND	2.26	0.565
Vanadium	28.3	2.26	0.565
Zinc	138	1.13	0.565

^: Analyzed on 10/03/06 13:44 | File ID I31J002016.

METHOD 3050B/6010B
METALS BY TRACE ICP

```
=====  
Client      : TETRA TECH EC, INC.           Date Collected: 09/22/06  
Project     : NWS SEAL BEACH, CTO 0006      Date Received: 09/22/06  
SDG NO.    : 061217                        Date Extracted: 09/29/06 10:15  
Sample ID: 6-42-021                        Date Analyzed: 10/03/06 13:44  
Lab Samp ID: I217-21                       Dilution Factor: 1  
Lab File ID: I31J002016                    Matrix          : SOIL  
Ext Btch ID: IPI040S                       % Moisture     : 11.5  
Calib. Ref.: I31J002010                    Instrument ID  : EMAXT131  
=====
```

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
Arsenic	4.74	1.13	0.452
Lead	96.3	1.13	0.226
Selenium	ND	1.13	0.565
Thallium	ND	1.13	0.565

METHOD 3050B/6010B
METALS BY ICP

Client	: TETRA TECH EC, INC.	Date Collected:	09/22/06
Project	: NWS SEAL BEACH, CTO 0006	Date Received:	09/22/06
SDG NO.	: 06I217	Date Extracted:	09/29/06 09:30
Sample ID:	6-42-001	Date Analyzed:	09/29/06 15:20
Lab Samp ID:	I217-01	Dilution Factor:	1
Lab File ID:	I07I039015	Matrix	: SOIL
Ext Btch ID:	IPI039S	% Moisture	: 15.4
Calib. Ref.:	I07I039010	Instrument ID	: EMAXT107

PARAMETERS	RESULTS	RL	MDL
-----	(mg/kg)	(mg/kg)	(mg/kg)
-----	-----	-----	-----
Copper	12.2	2.36	0.591

METHOD 3050B/6010B
METALS BY ICP

Client	: TETRA TECH EC, INC.	Date Collected:	09/22/06
Project	: NWS SEAL BEACH, CTO 0006	Date Received:	09/22/06
SDG NO.	: 061217	Date Extracted:	09/29/06 09:30
Sample ID:	6-42-002	Date Analyzed:	09/29/06 15:24
Lab Samp ID:	I217-02	Dilution Factor:	1
Lab File ID:	I071039016	Matrix	: SOIL
Ext Btch ID:	IPI039S	% Moisture	: 13.1
Calib. Ref.:	I071039010	Instrument ID	: EMAXT107

PARAMETERS	RESULTS	RI	MDL
-----	(mg/kg)	(mg/kg)	(mg/kg)
-----	-----	-----	-----
Copper	11.4	2.30	0.575

METHOD 3050B/6010B
METALS BY ICP

Client	: TETRA TECH EC, INC.	Date Collected:	09/22/06
Project	: NWS SEAL BEACH, CTO 0006	Date Received:	09/22/06
SDG NO.	: 06I217	Date Extracted:	09/29/06 09:30
Sample ID:	6-42-003	Date Analyzed:	09/29/06 15:29
Lab Samp ID:	I217-03	Dilution Factor:	1
Lab File ID:	I07I039017	Matrix	: SOIL
Ext Btch ID:	IPI039S	% Moisture	: 13.6
Calib. Ref.:	I07I039010	Instrument ID	: EMAXTI07

PARAMETERS	RESULTS	RL	MDL
.....	(mg/kg)	(mg/kg)	(mg/kg)
.....
Copper	14.5	2.31	0.579

METHOD 3050B/6010B
METALS BY ICP

Client	: TEIRA TECH EC, INC.	Date Collected:	09/22/06
Project	: NWS SEAL BEACH, CTO 0006	Date Received:	09/22/06
SDG NO.	: 061217	Date Extracted:	09/29/06 09:30
Sample ID:	6-42-004	Date Analyzed:	09/29/06 15:33
Lab Samp ID:	I217-04	Dilution Factor:	1
Lab File ID:	I07I039018	Matrix	: SOIL
Ext Btch ID:	IPI039S	% Moisture	: 14.4
Calib. Ref.:	I07I039010	Instrument ID	: EMAXTI07

PARAMETERS	RESULTS	RL	MDL
-----	(mg/kg)	(mg/kg)	(mg/kg)
-----	-----	-----	-----
Copper	13.6	2.34	0.584

METHOD 3050B/6010B
METALS BY ICP

Client	: TETRA TECH EC, INC.	Date Collected:	09/22/06
Project	: NWS SEAL BEACH, C10 0006	Date Received:	09/22/06
SDG NO.	: 06I217	Date Extracted:	09/29/06 09:30
Sample ID:	6-42-005	Date Analyzed:	09/29/06 15:37
Lab Samp ID:	I217-05	Dilution Factor:	1
Lab File ID:	I07I039019	Matrix	: SOIL
Ext Btch ID:	IPI039S	% Moisture	: 14.2
Calib. Ref.:	I07I039010	Instrument ID	: EMAXT107

PARAMETERS	RESULTS	RL	MDL
-----	(mg/kg)	(mg/kg)	(mg/kg)
-----	-----	-----	-----
Copper	15.2	2.33	0.583

METHOD 3050B/6010B
METALS BY ICP

Client	: TETRA TECH EC, INC.	Date Collected:	09/22/06
Project	: NWS SEAL BEACH, CTO 0006	Date Received:	09/22/06
SDG NO.	: 061217	Date Extracted:	09/29/06 09:30
Sample ID:	6-42-006	Date Analyzed:	09/29/06 15:41
Lab Samp ID:	I217-06	Dilution Factor:	1
Lab File ID:	I07I039020	Matrix	: SOIL
Ext Btch ID:	IPI039S	% Moisture	: 15.8
Calib. Ref.:	I07I039010	Instrument ID	: EMAXTI07

PARAMETERS	RESULTS	RL	MDL
-----	(mg/kg)	(mg/kg)	(mg/kg)
-----	-----	-----	-----
Copper	11.3	2.38	0.594

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METHOD 3050B/6010B
METALS BY ICP

Client	: TETRA TECH EC, INC.	Date Collected:	09/22/06
Project	: NWS SEAL BEACH, CTO 0006	Date Received:	09/22/06
SDG NO.	: 06I217	Date Extracted:	09/29/06 09:30
Sample ID:	6-42-007	Date Analyzed:	09/29/06 15:45
Lab Samp ID:	I217-07	Dilution Factor:	1
Lab File ID:	I07I039021	Matrix	: SOIL
Ext Btch ID:	IPI039S	% Moisture	: 15.7
Calib. Ref.:	I07I039010	Instrument ID	: EMAXTI07

PARAMETERS	RESULTS	RL	MDL
-----	(mg/kg)	(mg/kg)	(mg/kg)
-----	-----	-----	-----
Copper	11.7	2.37	0.593

METHOD 3050B/6010B
METALS BY ICP

Client	: TETRA TECH EC, INC.	Date Collected:	09/22/06
Project	: NWS SEAL BEACH, CTO 0006	Date Received:	09/22/06
SDG NO.	: 061217	Date Extracted:	09/29/06 09:30
Sample ID:	6-42-008	Date Analyzed:	09/29/06 16:00
Lab Samp ID:	I217-08	Dilution Factor:	1
Lab File ID:	I071039024	Matrix	: SOIL
Ext Btch ID:	IPI039S	% Moisture	: 13.5
Calib. Ref.:	I071039022	Instrument ID	: EMAXT107

PARAMETERS	RESULTS	RL	MDL
-----	(mg/kg)	(mg/kg)	(mg/kg)
-----	-----	-----	-----
Copper	16.6	2.31	0.578

METHOD 3050B/6010B
METALS BY ICP

Client : TETRA TECH EC, INC. Date Collected: 09/22/06
Project : NWS SEAL BEACH, CTO 0006 Date Received: 09/22/06
SDG NO. : 061217 Date Extracted: 09/29/06 09:30
Sample ID: 6-42-009 Date Analyzed: 09/29/06 16:04
Lab Samp ID: I217-09 Dilution Factor: 1
Lab File ID: I07I039025 Matrix : SOIL
Ext Btch ID: IPI039S % Moisture : 15.2
Calib. Ref.: I07I039022 Instrument ID : EMAXT107

PARAMETERS	RESULTS	RL	MDL
-----	(mg/kg)	(mg/kg)	(mg/kg)
-----	-----	-----	-----
Copper	11.6	2.36	0.590

METHOD 3050B/6010B
METALS BY ICP

Client : TETRA TECH EC, INC. Date Collected: 09/22/06
Project : NWS SEAL BEACH, CTO 0006 Date Received: 09/22/06
SDG NO. : 06I217 Date Extracted: 09/29/06 09:30
Sample ID: 6-42-010 Date Analyzed: 09/29/06 16:08
Lab Samp ID: I217-10 Dilution Factor: 1
Lab File ID: I07I039026 Matrix : SOIL
Ext Btch ID: IPI039S % Moisture : 14.5
Calib. Ref.: I07I039022 Instrument ID : EMAXT107

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
Copper	10.0	2.34	0.585

METHOD 3050B/6010B
METALS BY ICP

Client	: TETRA TECH EC, INC.	Date Collected:	09/22/06
Project	: NWS SEAL BEACH, CTO 0006	Date Received:	09/22/06
SDG NO.	: 061217	Date Extracted:	09/29/06 09:30
Sample ID:	6-42-011	Date Analyzed:	09/29/06 16:12
Lab Samp ID:	I217-11	Dilution Factor:	1
Lab File ID:	I07I039027	Matrix	: SOIL
Ext Btch ID:	IPI0395	% Moisture	: 14.2
Calib. Ref.:	I07I039022	Instrument ID	: EMAXT107

PARAMETERS	RESULTS	RL	MDL
-----	(mg/kg)	(mg/kg)	(mg/kg)
-----	-----	-----	-----
Copper	9.63	2.33	0.583

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782210

METHOD 3050B/6010B
METALS BY ICP

Client	: TETRA TECH EC, INC.	Date Collected:	09/22/06
Project	: NWS SEAL BEACH. CTO 0006	Date Received:	09/22/06
SDG NO.	: 06I217	Date Extracted:	09/29/06 09:30
Sample ID:	6-42-012	Date Analyzed:	09/29/06 16:16
Lab Samp ID:	1217-12	Dilution Factor:	1
Lab File ID:	I07I039028	Matrix	: SOIL
Ext Btch ID:	IPI039S	% Moisture	: 15.5
Calib. Ref.:	107I039022	Instrument ID	: EMAXT107

PARAMETERS	RESULTS	RL	MDL
.....	(mg/kg)	(mg/kg)	(mg/kg)
.....	-----	-----	-----
Copper	14.5	2.37	0.592

METHOD 3050B/6010B
METALS BY ICP

Client	: TETRA TECH EC, INC.	Date Collected:	09/22/06
Project	: NWS SEAL BEACH, CTO 0006	Date Received:	09/22/06
SDG NO.	: 061217	Date Extracted:	09/29/06 09:30
Sample ID:	6-42-013	Date Analyzed:	09/29/06 16:20
Lab Samp ID:	I217-13	Dilution Factor:	1
Lab File ID:	I07I039029	Matrix	: SOIL
Ext Btch ID:	IPI039S	% Moisture	: 11.0
Calib. Ref.:	I07I039022	Instrument ID	: EMAXTI07

PARAMETERS	RESULTS	RL	MDL
-----	(mg/kg)	(mg/kg)	(mg/kg)
-----	-----	-----	-----
Copper	11.0	2.25	0.562

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7827

METHOD 3050B/6010B
METALS BY ICP

Client	: TETRA TECH EC, INC.	Date Collected:	09/22/06
Project	: NWS SEAL BEACH, CTO 0006	Date Received:	09/22/06
SDG NO.	: 06I217	Date Extracted:	09/29/06 09:30
Sample ID:	6-42-014	Date Analyzed:	09/29/06 16:24
Lab Samp ID:	I217-14	Dilution Factor:	1
Lab File ID:	I07I039030	Matrix	: SOIL
Ext Btch ID:	IPI0395	% Moisture	: 12.6
Calib. Ref.:	I07I039022	Instrument ID	: EMAXTI07

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
----- Copper	12.9	2.29	0.572

METHOD 3050B/6010B
METALS BY ICP

Client	: TETRA TECH EC, INC.	Date Collected:	09/22/06
Project	: NWS SEAL BEACH, CTO 0006	Date Received:	09/22/06
SDG NO.	: 061217	Date Extracted:	09/29/06 09:30
Sample ID:	6-42-015	Date Analyzed:	09/29/06 16:28
Lab Samp ID:	1217-15	Dilution Factor:	1
Lab File ID:	I07I039031	Matrix	: SOIL
Ext Btch ID:	IPI039S	% Moisture	: 13.9
Calib. Ref.:	I07I039022	Instrument ID	: EMAXI07

PARAMETERS	RESULTS	RL	MDL
.....	(mg/kg)	(mg/kg)	(mg/kg)
.....	-----	-----	-----
Copper	16.4	2.32	0.581

METHOD 3050B/6010B
METALS BY ICP

Client	: TETRA TECH EC, INC.	Date Collected:	09/22/06
Project	: NWS SEAL BEACH. CTO 0006	Date Received:	09/22/06
SDG NO.	: 06I217	Date Extracted:	09/29/06 09:30
Sample ID:	6-42-016	Date Analyzed:	09/29/06 16:32
Lab Samp ID:	I217-16	Dilution Factor:	1
Lab File ID:	I071039032	Matrix	: SOIL
Ext Btch ID:	IPI039S	% Moisture	: 13.9
Calib. Ref.:	I071039022	Instrument ID	: EMAXTI07

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
----- Copper	9.12	2.32	0.581

METHOD 3050B/6010B
METALS BY ICP

Client	: TETRA TECH EC, INC.	Date Collected:	09/22/06
Project	: NWS SEAL BEACH, CTO 0006	Date Received:	09/22/06
SDG NO.	: 061217	Date Extracted:	09/29/06 09:30
Sample ID:	6-42-017	Date Analyzed:	09/29/06 16:36
Lab Samp ID:	I217-17	Dilution Factor:	1
Lab File ID:	I07I039033	Matrix	: SOIL
Ext Btch ID:	IPI039S	% Moisture	: 15.9
Calib. Ref.:	I07I039022	Instrument ID	: EMAXTI07

PARAMETERS	RESULTS	RL	MDL
.....	(mg/kg)	(mg/kg)	(mg/kg)
.....
Copper	12.7	2.38	0.595

METHOD 3050B/6010B
METALS BY ICP

Client	: TETRA TECH EC, INC.	Date Collected:	09/22/06
Project	: NWS SEAL BEACH, CTO 0006	Date Received:	09/22/06
SDG NO.	: 06I217	Date Extracted:	09/29/06 09:30
Sample ID:	6-42-018	Date Analyzed:	09/29/06 17:06
Lab Samp ID:	I217-18	Dilution Factor:	1
Lab File ID:	I07I039039	Matrix	: SOIL
Ext Btch ID:	IPI039S	% Moisture	: 9.6
Calib. Ref.:	I07I039034	Instrument ID	: EMAXI07

PARAMETERS	RESULTS	RL	MDL
.....	(mg/kg)	(mg/kg)	(mg/kg)
.....
Copper	11.8	2.21	0.553

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METHOD 3050B/6010B
METALS BY ICP

Client	: TETRA TECH EC, INC.	Date Collected:	09/22/06
Project	: NWS SEAL BEACH, CTO 0006	Date Received:	09/22/06
SDG NO.	: 061217	Date Extracted:	09/29/06 09:30
Sample ID:	6-42-019	Date Analyzed:	09/29/06 17:14
Lab Samp ID:	I217-19	Dilution Factor:	1
Lab File ID:	I07I039041	Matrix	: SOIL
Ext Btch ID:	IPI039S	% Moisture	: 6.0
Calib. Ref.:	I07I039034	Instrument ID	: EMAXTI07

PARAMETERS	RESULTS	RL	MDL
-----	(mg/kg)	(mg/kg)	(mg/kg)
-----	-----	-----	-----
Copper	13.3	2.13	0.532

METHOD 3050B/6010B
METALS BY ICP

Client	: TETRA TECH EC, INC.	Date Collected:	09/22/06
Project	: NWS SEAL BEACH, C10 0006	Date Received:	09/22/06
SDG NO.	: 061217	Date Extracted:	09/29/06 09:30
Sample ID:	6-42-020	Date Analyzed:	09/29/06 17:18
Lab Samp ID:	I217-20	Dilution Factor:	1
Lab File ID:	I071039042	Matrix	: SOIL
Ext Btch ID:	IPI039S	% Moisture	: 11.1
Calib. Ref.:	I071039034	Instrument ID	: EMAXTI07

PARAMETERS	RESULTS	RL	MDL
-----	(mg/kg)	(mg/kg)	(mg/kg)
-----	-----	-----	-----
Copper	10.7	2.25	0.562



LABORATORIES, INC.

1835 W. 205th Street
Torrance, CA 90501
Tel: (310) 618-8889
Fax: (310) 618-0818

COPY

Date: 10-23-2006
EMAX Batch No.: 06J029

Attn: Nick Weinberger

Tetra Tech EC, Inc.
1940 E Deere Ave, Suite 200
Santa Ana, CA 92705

Subject: Laboratory Report
Project: NWS Seal Beach, CTO 0006

Enclosed is the Laboratory report for samples received on 10/04/06.
The data reported include :

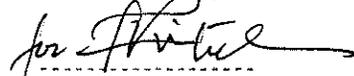
Sample ID	Control #	Col Date	Matrix	Analysis
6-44-022	J029-01	10/04/06	SOIL	METALS BY ICP
6-44-023	J029-02	10/04/06	SOIL	METALS BY ICP
6-44-024	J029-03	10/04/06	SOIL	METALS BY ICP
6-44-025	J029-04	10/04/06	SOIL	METALS BY ICP
6-44-026	J029-05	10/04/06	SOIL	METALS BY ICP
6-44-027	J029-06	10/04/06	SOIL	METALS BY ICP
6-44-028	J029-07	10/04/06	SOIL	METALS BY ICP
6-44-029	J029-08	10/04/06	SOIL	METALS BY ICP
6-44-030	J029-09	10/04/06	SOIL	METALS BY ICP
6-44-031	J029-10	10/04/06	SOIL	METALS BY ICP
6-44-032	J029-11	10/04/06	SOIL	METALS BY ICP
6-44-033	J029-12	10/04/06	SOIL	METALS BY ICP
6-44-034	J029-13	10/04/06	SOIL	METALS BY ICP
6-44-035	J029-14	10/04/06	SOIL	METALS BY ICP
6-44-036	J029-15	10/04/06	SOIL	METALS BY ICP
6-44-037	J029-16	10/04/06	SOIL	METALS BY ICP
6-44-038	J029-17	10/04/06	SOIL	METALS BY ICP
6-44-039	J029-18	10/04/06	SOIL	METALS BY ICP
6-44-040	J029-19	10/04/06	SOIL	METALS BY ICP

Sample ID	Control #	Col Date	Matrix	Analysis
6-44-041	J029-20	10/04/06	SOIL	METALS BY ICP
6-44-041MS	J029-20M	10/04/06	SOIL	METALS BY ICP
6-44-041MSD	J029-20S	10/04/06	SOIL	METALS BY ICP

The results are summarized on the following pages.

Please feel free to call if you have any questions concerning these results.

Sincerely yours,



Kam Y. Pang, Ph.D.
Laboratory Director

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CLIENT: TETRA TECH EC, INC.
PROJECT: NWS SEAL BEACH, CTO 0006
SDG: 06J029

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GC-VOA	**	4000 –
GC-SVOA	**	5000 –
HPLC	**	6000 –
METALS	METHOD 3050B/6010B	7000 – 7087
WET	**	8000 –
OTHERS	**	9000 –

** - Not Requested

CASE NARRATIVE

CLIENT: TETRA TECH EC, INC.
PROJECT: NWS SEAL BEACH, CTO 0006
SDG: 06J029

METHOD 3050B/6010B METALS BY ICP

Twenty (20) soil samples were received on 10/04/06 for Metals analysis by Method 3050B/6010B in accordance with "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", SW846, 3rd edition and DOD QSM (2002).

1. Holding Time

Analysis met holding time criteria.

2. Method Blank

Method blank was free of contamination at half of reporting limit.

3. Lab Control Sample/Lab Control Sample Duplicate

Lab control results were within QC limit.

4. Serial Dilution / Post-Analytical Spike

Sample J029-20 was analyzed for serial dilution and post-analytical spike. All QC requirements were met.

5. Matrix Spike/Matrix Spike Duplicate

Sample J029-20 was spiked. All recoveries were within QC limit.

6. Sample Analysis

Samples were analyzed according to the prescribed QC procedures. All criteria were met.

MRLs were analyzed at the beginning of each sequence run. Recoveries were within QC limit of 70-130%.

METHOD 3050B/6010B
METALS BY ICP

```
=====
Client   : TETRA TECH EC, INC.           Date Collected: 10/04/06
Project  : NWS SEAL BEACH, CTO 0006      Date Received: 10/04/06
SDG NO.  : 06J029                        Date Extracted: 10/05/06 09:15
Sample ID: 6-44-022                      Date Analyzed: 10/05/06 19:53
Lab Samp ID: J029-01                     Dilution Factor: 1
Lab File ID: I07J006040                  Matrix       : SOIL
Ext Btch ID: IPJ014S                     % Moisture   : 12.2
Calib. Ref.: I07J006034                  Instrument ID : EMAXT107
=====
```

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
Nickel	21.8	2.28	1.14
Zinc	123	1.14	0.569

METHOD 3050B/6010B
METALS BY ICP

```
=====  
Client      : TETRA TECH EC, INC.           Date Collected: 10/04/06  
Project     : NWS SEAL BEACH, CTO 0006     Date Received: 10/04/06  
SDG NO.    : 06J029                       Date Extracted: 10/05/06 09:15  
Sample ID: 6-44-023                       Date Analyzed: 10/05/06 18:18  
Lab Samp ID: J029-02                      Dilution Factor: 1  
Lab File ID: I07J006018                   Matrix       : SOIL  
Ext Btch ID: IPJ014S                      % Moisture  : 10.9  
Calib. Ref.: I07J006010                   Instrument ID : EMAXTI07  
=====
```

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
Nickel	22.0	2.24	1.12
Zinc	110	1.12	0.561

METHOD 3050B/6010B
METALS BY ICP

```
=====
Client   : TETRA TECH EC, INC.           Date Collected: 10/04/06
Project  : NWS SEAL BEACH, CTO 0006      Date Received: 10/04/06
SDG NO.  : 06J029                        Date Extracted: 10/05/06 09:15
Sample ID: 6-44-024                      Date Analyzed: 10/05/06 18:22
Lab Samp ID: J029-03                     Dilution Factor: 1
Lab File ID: 107J006019                  Matrix          : SOIL
Ext Btch ID: IPJ014S                     % Moisture      : 12.4
Calib. Ref.: 107J006010                  Instrument ID   : EMAXT107
=====
```

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
Nickel	16.5	2.28	1.14
Zinc	70.7	1.14	0.571

METHOD 3050B/6010B
METALS BY ICP

```
=====  
Client      : TETRA TECH EC, INC.          Date Collected: 10/04/06  
Project     : NWS SEAL BEACH, CTD 0006     Date Received: 10/04/06  
SDG NO.    : 06J029                       Date Extracted: 10/05/06 09:15  
Sample ID   : 6-44-025                     Date Analyzed: 10/05/06 18:26  
Lab Samp ID : J029-04                      Dilution Factor: 1  
Lab File ID : I07J006020                   Matrix          : SOIL  
Ext Btch ID : IPJ014S                      % Moisture     : 2.4  
Calib. Ref. : I07J006010                   Instrument ID  : EMAXT107  
=====
```

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
Nickel	16.6	2.05	1.02
Zinc	86.0	1.02	0.512

METHOD 3050B/6010B
METALS BY ICP

```
=====  
Client      : TETRA TECH EC, INC.           Date Collected: 10/04/06  
Project     : NWS SEAL BEACH, CTO 0006     Date Received: 10/04/06  
SDG NO.    : 06J029                       Date Extracted: 10/05/06 09:15  
Sample ID   : 6-44-026                   Date Analyzed: 10/05/06 18:30  
Lab Samp ID : J029-05                    Dilution Factor: 1  
Lab File ID : I07J006021                 Matrix          : SOIL  
Ext Btch ID : IPJ014S                    % Moisture     : 16.5  
Calib. Ref. : I07J006010                 Instrument ID  : EMAXT107  
=====
```

PARAMETERS	RESULTS (mg/kg)	RI (mg/kg)	MDL (mg/kg)
Nickel	17.0	2.40	1.20
Zinc	79.3	1.20	0.599

METHOD 3050B/6010B
METALS BY ICP

```
=====
Client      : TETRA TECH EC, INC.           Date Collected: 10/04/06
Project     : NWS SEAL BEACH, CTO 0006     Date Received: 10/04/06
SDG NO.    : 06J029                       Date Extracted: 10/05/06 09:15
Sample ID   : 6-44-027                   Date Analyzed: 10/05/06 18:45
Lab Samp ID: J029-06                     Dilution Factor: 1
Lab File ID: I07J006024                 Matrix          : SOIL
Ext Btch ID: IPJ014S                   % Moisture      : 9.5
Calib. Ref.: I07J006022                 Instrument ID   : EMAXT107
=====
```

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
Nickel	15.7	2.21	1.10
Zinc	77.5	1.10	0.552

METHOD 3050B/6010B
METALS BY ICP

```
=====
Client   : TETRA TECH EC, INC.           Date Collected: 10/04/06
Project  : NWS SEAL BEACH, CTO 0006      Date Received: 10/04/06
SDG NO.  : 06J029                        Date Extracted: 10/05/06 09:15
Sample ID: 6-44-028                      Date Analyzed: 10/05/06 18:50
Lab Samp ID: J029-07                     Dilution Factor: 1
Lab File ID: 107J006025                 Matrix          : SOIL
Ext Btch ID: IPJ014S                    % Moisture      : 13.2
Calib. Ref.: 107J006022                 Instrument ID   : EMAXT107
=====
```

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
Nickel	14.8	2.30	1.15
Zinc	70.4	1.15	0.576

METHOD 3050B/6010B
METALS BY ICP

```
=====
Client      : TETRA TECH EC, INC.           Date Collected: 10/04/06
Project     : NWS SEAL BEACH, CTO 0006     Date Received: 10/04/06
SDG NO.    : 06J029                        Date Extracted: 10/05/06 09:15
Sample ID: 6-44-029                        Date Analyzed: 10/05/06 18:54
Lab Samp ID: J029-08                       Dilution Factor: 1
Lab File ID: I07J006026                   Matrix          : SOIL
Ext Btch ID: IPJ014S                       % Moisture      : 10.4
Calib. Ref.: I07J006022                   Instrument ID   : EMAXTI07
=====
```

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
Nickel	15.2	2.23	1.12
Zinc	78.9	1.12	0.558

METHOD 3050B/6010B
METALS BY ICP

```
=====
Client      : TETRA TECH EC, INC.           Date Collected: 10/04/06
Project     : NWS SEAL BEACH, CTO 0006     Date Received: 10/04/06
SDG NO.    : 06J029                       Date Extracted: 10/05/06 09:15
Sample ID   : 6-44-030                    Date Analyzed: 10/05/06 18:58
Lab Samp ID: J029-09                      Dilution Factor: 1
Lab File ID: I07J006027                  Matrix       : SOIL
Ext Btch ID: IPJ014S                     % Moisture   : 12.4
Calib. Ref.: I07J006022                  Instrument ID : EMAXTI07
=====
```

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
Nickel	15.6	2.28	1.14
Zinc	108	1.14	0.571

METHOD 3050B/6010B
METALS BY ICP

```

=====
Client      : TETRA TECH EC, INC.           Date Collected: 10/04/06
Project     : NWS SEAL BEACH, CTD 0006     Date Received: 10/04/06
SDG NO.    : 06J029                       Date Extracted: 10/05/06 09:15
Sample ID   : 6-44-031                    Date Analyzed: 10/05/06 19:02
Lab Samp ID: J029-10                      Dilution Factor: 1
Lab File ID: 107J006028                   Matrix          : SOIL
Ext Btch ID: IPJ014S                      % Moisture     : 2.0
Calib. Ref.: 107J006022                   Instrument ID  : EMAXT107
=====

```

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
Nickel	15.1	2.04	1.02
Zinc	74.2	1.02	0.510

METHOD 3050B/6010B
METALS BY ICP

```
=====  
Client      : TETRA TECH EC, INC.           Date Collected: 10/04/06  
Project     : NWS SEAL BEACH, CTO 0006      Date Received: 10/04/06  
SDG NO.    : 06J029                        Date Extracted: 10/05/06 09:15  
Sample ID   : 6-44-032                     Date Analyzed: 10/05/06 19:06  
Lab Samp ID: J029-11                       Dilution Factor: 1  
Lab File ID: I07J006029                    Matrix          : SOIL  
Ext Btch ID: IPJ014S                        % Moisture     : 44.9  
Calib. Ref.: I07J006022                    Instrument ID   : EMAXT107  
=====
```

PARAMETERS	RESULTS	RL	MDL
-----	(mg/kg)	(mg/kg)	(mg/kg)
-----	-----	-----	-----
Nickel	51.2	3.63	1.81
Zinc	213	1.81	0.907

METHOD 3050B/6010B
METALS BY ICP

```
=====  
Client   : TETRA TECH EC, INC.           Date Collected: 10/04/06  
Project  : NWS SEAL BEACH, CTO 0006      Date Received: 10/04/06  
SDG NO.  : 06J029                        Date Extracted: 10/05/06 09:15  
Sample ID: 6-44-033                       Date Analyzed: 10/05/06 19:10  
Lab Samp ID: J029-12                       Dilution Factor: 1  
Lab File ID: 107J006030                    Matrix           : SOIL  
Ext Btch ID: IPJ014S                       % Moisture       : 35.3  
Calib. Ref.: 107J006022                    Instrument ID    : EMAXT107  
=====
```

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
Nickel	26.4	3.09	1.55
Zinc	127	1.55	0.773

METHOD 3050B/6010B
METALS BY ICP

```
=====
Client      : TETRA TECH EC, INC.           Date Collected: 10/04/06
Project     : NWS SEAL BEACH, CTO 0006     Date Received: 10/04/06
SDG NO.    : 06J029                       Date Extracted: 10/05/06 09:15
Sample ID   : 6-44-034                    Date Analyzed: 10/05/06 19:14
Lab Samp ID: J029-13                      Dilution Factor: 1
Lab File ID: I07J006031                   Matrix          : SOIL
Ext Btch ID: IPJ014S                      % Moisture     : 36.6
Calib. Ref.: I07J006022                   Instrument ID  : EMAXTI07
=====
```

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
Nickel	28.9	3.15	1.58
Zinc	128	1.58	0.789

METHOD 3050B/6010B
METALS BY ICP

```
=====  
Client      : TETRA TECH EC, INC.          Date Collected: 10/04/06  
Project     : NWS SEAL BEACH, CTO 0006    Date Received: 10/04/06  
SDG NO.    : 06J029                      Date Extracted: 10/05/06 09:15  
Sample ID   : 6-44-035                   Date Analyzed: 10/05/06 19:18  
Lab Samp ID: J029-14                    Dilution Factor: 1  
Lab File ID: I07J006032                 Matrix          : SOIL  
Ext Btch ID: IPJ014S                   % Moisture     : 37.9  
Calib. Ref.: I07J006022                 Instrument ID  : EMAXT107  
=====
```

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
Nickel	23.4	3.22	1.61
Zinc	111	1.61	0.805

METHOD 3050B/6010B
METALS BY ICP

```
=====
Client      : TETRA TECH EC, INC.           Date Collected: 10/04/06
Project     : NWS SEAL BEACH, CTO 0006      Date Received: 10/04/06
SDG NO.    : 06J029                         Date Extracted: 10/05/06 09:15
Sample ID   : 6-44-036                       Date Analyzed: 10/05/06 19:22
Lab Samp ID: J029-15                         Dilution Factor: 1
Lab File ID: I07J006033                      Matrix          : SOIL
Ext Btch ID: IPJ014S                         % Moisture     : 45.5
Calib. Ref.: I07J006022                      Instrument ID  : EMAXT107
=====
```

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
Nickel	35.2	3.67	1.83
Zinc	181	1.83	0.917

METHOD 3050B/6010B
METALS BY ICP

```
=====
Client      : TETRA TECH EC, INC.           Date Collected: 10/04/06
Project     : NWS SEAL BEACH, CTO 0006     Date Received: 10/04/06
SDG NO.    : 06J029                       Date Extracted: 10/05/06 09:15
Sample ID   : 6-44-037                    Date Analyzed: 10/05/06 19:37
Lab Samp ID: J029-16                      Dilution Factor: 1
Lab File ID: I07J006036                   Matrix          : SOIL
Ext Btch ID: IPJ014S                      % Moisture     : 46.0
Calib. Ref.: I07J006034                   Instrument ID  : EMAXT107
=====
```

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
Nickel	26.3	3.70	1.85
Zinc	1750	1.85	0.926

METHOD 3050B/6010B
METALS BY ICP

```
=====
Client      : TETRA TECH EC, INC.           Date Collected: 10/04/06
Project     : NWS SEAL BEACH, CTO 0006     Date Received: 10/04/06
SDG NO.    : 06J029                       Date Extracted: 10/05/06 09:15
Sample ID   : 6-44-038                    Date Analyzed: 10/05/06 19:41
Lab Samp ID: J029-17                      Dilution Factor: 1
Lab File ID: I07J006037                   Matrix          : SOIL
Ext Btch ID: IPJ014S                      % Moisture      : 49.1
Calib. Ref.: I07J006034                   Instrument ID   : EMAXT107
=====
```

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
Nickel	35.5	3.93	1.96
Zinc	174	1.96	0.982

METHOD 3050B/6010B
METALS BY ICP

```
=====  
Client      : TETRA TECH EC, INC.           Date Collected: 10/04/06  
Project     : NWS SEAL BEACH, CTO 0006      Date Received: 10/04/06  
SDG NO.    : 06J029                        Date Extracted: 10/05/06 09:15  
Sample ID   : 6-44-039                     Date Analyzed: 10/05/06 19:45  
Lab Samp ID: J029-18                       Dilution Factor: 1  
Lab File ID: 107J006038                   Matrix          : SOIL  
Ext Btch ID: IPJ014S                      % Moisture     : 50.0  
Calib. Ref.: 107J006034                  Instrument ID  : EMAXT107  
=====
```

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
Nickel	34.6	4.00	2.00
Zinc	169	2.00	1.00

METHOD 3050B/6010B
METALS BY ICP

```
=====
Client      : TETRA TECH EC, INC.           Date Collected: 10/04/06
Project     : NWS SEAL BEACH, CTO 0006     Date Received: 10/04/06
SDG NO.    : 06J029                       Date Extracted: 10/05/06 09:15
Sample ID: 6-44-040                       Date Analyzed: 10/05/06 19:49
Lab Samp ID: J029-19                      Dilution Factor: 1
Lab File ID: I07J006039                   Matrix          : SOIL
Ext Btch ID: IPJ014S                      % Moisture     : 51.6
Calib. Ref.: I07J006034                   Instrument ID  : EMAXTI07
=====
```

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
Nickel	36.1	4.13	2.07
Zinc	202	2.07	1.03

METHOD 3050B/6010B
METALS BY ICP

```
=====
Client      : TETRA TECH EC, INC.           Date Collected: 10/04/06
Project     : NWS SEAL BEACH, CTO 0006     Date Received: 10/04/06
SDG NO.    : 06J029                       Date Extracted: 10/05/06 09:15
Sample ID: 6-44-041                       Date Analyzed: 10/05/06 18:10
Lab Samp ID: J029-20                      Dilution Factor: 1
Lab File ID: 107J006016                   Matrix          : SOIL
Ext Btch ID: IPJ014S                      % Moisture     : 38.3
Calib. Ref.: 107J006010                   Instrument ID  : EMAX107
=====
```

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
Nickel	29.4	3.24	1.62
Zinc	182	1.62	0.810



LABORATORIES, INC.

1835 W. 205th Street
Torrance, CA 90501

Tel: (310) 618-8889
Fax: (310) 618-0818

Date: 10-23-2006
EMAX Batch No.: 06J030

Attn: Nick Weinberger

Tetra Tech EC, Inc.
1940 E Deere Ave, Suite 200
Santa Ana, CA 92705

Subject: Laboratory Report
Project: NWS Seal Beach, CTO 0006

COPY

Enclosed is the Laboratory report for samples received on 10/04/06.
The data reported include :

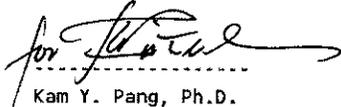
Sample ID	Control #	Col Date	Matrix	Analysis
6-44-042	J030-01	10/04/06	SOIL	METALS BY ICP
6-44-043	J030-02	10/04/06	SOIL	METALS BY ICP
6-44-044	J030-03	10/04/06	SOIL	METALS BY ICP
6-44-045	J030-04	10/04/06	SOIL	METALS BY ICP
6-44-046	J030-05	10/04/06	SOIL	METALS BY ICP
6-44-047	J030-06	10/04/06	SOIL	METALS BY ICP
6-44-048	J030-07	10/04/06	SOIL	METALS BY ICP
6-44-049	J030-08	10/04/06	SOIL	METALS BY ICP
6-44-050	J030-09	10/04/06	SOIL	METALS BY ICP
6-44-051	J030-10	10/04/06	SOIL	METALS BY ICP
6-44-052	J030-11	10/04/06	SOIL	METALS BY ICP
6-44-053	J030-12	10/04/06	SOIL	METALS BY ICP
6-44-054	J030-13	10/04/06	SOIL	METALS BY ICP
6-44-055	J030-14	10/04/06	SOIL	METALS BY ICP
6-44-056	J030-15	10/04/06	SOIL	METALS BY ICP
6-44-057	J030-16	10/04/06	SOIL	METALS BY ICP
6-44-058	J030-17	10/04/06	SOIL	METALS BY ICP
6-44-059	J030-18	10/04/06	SOIL	METALS BY ICP
6-44-060	J030-19	10/04/06	SOIL	METALS BY ICP

Sample ID	Control #	Col Date	Matrix	Analysis
6-44-061	J030-20	10/04/06	SOIL	METALS BY ICP
6-44-051MS	J030-10M	10/04/06	SOIL	METALS BY ICP
6-44-051MSD	J030-10S	10/04/06	SOIL	METALS BY ICP

The results are summarized on the following pages.

Please feel free to call if you have any questions concerning these results.

Sincerely yours,



Kam Y. Pang, Ph.D.
Laboratory Director

TABLE OF CONTENTS

CLIENT: TETRA TECH EC, INC.
PROJECT: NWS SEAL BEACH, CTO 0006
SDG: 06J030

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GC/MS-SVOA	**	3000 –
GC-VOA	**	4000 –
GC-SVOA	**	5000 –
HPLC	**	6000 –
METALS	METHOD 3050B/6010B	7000 – 7087
WET	**	8000 –
OTHERS	**	9000 –

** - Not Requested

CASE NARRATIVE

CLIENT: TETRA TECH EC, INC.
PROJECT: NWS SEAL BEACH, CTO 0006
SDG: 06J030

METHOD 3050B/6010B METALS BY ICP

Twenty (20) soil samples were received on 10/04/06 for Metals analysis by Method 3050B/6010B in accordance with "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", SW846, 3rd edition and DOD QSM (2002).

1. Holding Time

Analysis met holding time criteria.

2. Method Blank

Method blank was free of contamination at half of reporting limit.

3. Lab Control Sample/Lab Control Sample Duplicate

Lab control results were within QC limit.

4. Serial Dilution / Post-Analytical Spike

Sample J030-10 was analyzed for serial dilution and post-analytical spike. All QC requirements were met.

5. Matrix Spike/Matrix Spike Duplicate

Sample J030-10 was spiked. All recoveries were within QC limit.

6. Sample Analysis

Samples were analyzed according to the prescribed QC procedures. All criteria were met.

MRLs were analyzed at the beginning of each sequence run. Recoveries were within QC limit of 70-130%.

METHOD 3050B/6010B
METALS BY ICP

```
=====  
Client      : TETRA TECH EC, INC.          Date Collected: 10/04/06  
Project     : NWS SEAL BEACH, CTO 0006    Date Received: 10/04/06  
SDG NO.    : 06J030                      Date Extracted: 10/05/06 09:30  
Sample ID: 6-44-042                      Date Analyzed: 10/05/06 21:58  
Lab Samp ID: J030-01                     Dilution Factor: 1  
Lab File ID: I07J007015                 Matrix      : SOIL  
Ext Btch ID: IPJ015S                    % Moisture  : 28.0  
Calib. Ref.: I07J007010                 Instrument ID : EMAXTI07  
=====
```

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
Nickel	6.34	2.78	1.39
Zinc	49.1	1.39	0.694

METHOD 3050B/6010B
METALS BY ICP

```

=====
Client   : TETRA TECH EC, INC.           Date Collected: 10/04/06
Project  : NWS SEAL BEACH, CTO 0006      Date Received: 10/04/06
SDG NO.  : 06J030                       Date Extracted: 10/05/06 09:30
Sample ID: 6-44-043                     Date Analyzed: 10/05/06 22:02
Lab Samp ID: J030-02                    Dilution Factor: 1
Lab File ID: 107J007016                 Matrix           : SOIL
Ext Btch ID: IPJ015S                    % Moisture      : 41.3
Calib. Ref.: 107J007010                 Instrument ID   : EMAXT107
=====

```

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
Nickel	24.4	3.41	1.70
Zinc	222	1.70	0.852

METHOD 3050B/6010B
METALS BY ICP

```
=====
Client   : TETRA TECH EC, INC.           Date Collected: 10/04/06
Project  : NWS SEAL BEACH, CTO 0006      Date Received: 10/04/06
SDG NO.  : 06J030                       Date Extracted: 10/05/06 09:30
Sample ID: 6-44-044                     Date Analyzed: 10/05/06 22:06
Lab Samp ID: J030-03                    Dilution Factor: 1
Lab File ID: I07J007017                 Matrix          : SOIL
Ext Btch ID: IPJ015S                     % Moisture      : 45.1
Calib. Ref.: I07J007010                 Instrument ID   : EMAXT107
=====
```

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
Nickel	24.0	3.64	1.82
Zinc	133	1.82	0.911

METHOD 3050B/6010B
METALS BY ICP

```

=====
Client   : TETRA TECH EC, INC.           Date Collected: 10/04/06
Project  : NWS SEAL BEACH, CTO 0006      Date Received: 10/04/06
SDG NO.  : 06J030                        Date Extracted: 10/05/06 09:30
Sample ID: 6-44-045                      Date Analyzed: 10/05/06 22:10
Lab Samp ID: J030-04                     Dilution Factor: 1
Lab File ID: I07J007018                  Matrix           : SOIL
Ext Btch ID: IPJ015S                     % Moisture      : 47.2
Calib. Ref.: I07J007010                  Instrument ID    : EMAXTI07
=====

```

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
Nickel	30.8	3.79	1.89
Zinc	164	1.89	0.947

METHOD 3050B/6010B
METALS BY ICP

```
=====
Client      : TETRA TECH EC, INC.          Date Collected: 10/04/06
Project     : NWS SEAL BEACH, CTO 0006    Date Received: 10/04/06
SDG NO.    : 06J030                      Date Extracted: 10/05/06 09:30
Sample ID   : 6-44-046                   Date Analyzed: 10/05/06 22:14
Lab Samp ID: J030-05                     Dilution Factor: 1
Lab File ID: I07J007019                 Matrix          : SOIL
Ext Btch ID: IPJ015S                    % Moisture     : 56.3
Calib. Ref.: I07J007010                 Instrument ID   : EMAXTI07
=====
```

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
Nickel	34.1	4.58	2.29
Zinc	179	2.29	1.14

METHOD 3050B/6010B
METALS BY ICP

```
=====
Client   : TETRA TECH EC, INC.           Date Collected: 10/04/06
Project  : NWS SEAL BEACH, CTO 0006      Date Received: 10/04/06
SDG NO.  : 06J030                        Date Extracted: 10/05/06 09:30
Sample ID: 6-44-047                      Date Analyzed: 10/05/06 22:18
Lab Samp ID: J030-06                     Dilution Factor: 1
Lab File ID: 107J007020                 Matrix          : SOIL
Ext Btch ID: IPJ015S                    % Moisture     : 51.1
Calib. Ref.: 107J007010                 Instrument ID  : EMAX1107
=====
```

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
Nickel	26.3	4.09	2.04
Zinc	149	2.04	1.02

METHOD 3050B/6010B
METALS BY ICP

```
=====  
Client      : TETRA TECH EC, INC.          Date Collected: 10/04/06  
Project     : NWS SEAL BEACH, CTO 0006     Date Received: 10/04/06  
SDG NO.    : 06J030                       Date Extracted: 10/05/06 09:30  
Sample ID   : 6-44-048                    Date Analyzed: 10/05/06 22:22  
Lab Samp ID: J030-07                      Dilution Factor: 1  
Lab File ID: 107J007021                   Matrix          : SOIL  
Ext Btch ID: IPJ015S                      % Moisture     : 35.2  
Calib. Ref.: 107J007010                   Instrument ID  : EMAXT107  
=====
```

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
Nickel	23.6	3.09	1.54
Zinc	121	1.54	0.772

METHOD 3050B/6010B
METALS BY ICP

```
=====
Client   : TETRA TECH EC, INC.           Date Collected: 10/04/06
Project  : NWS SEAL BEACH, CTO 0006      Date Received: 10/04/06
SDG NO.  : 06J030                        Date Extracted: 10/05/06 09:30
Sample ID: 6-44-049                      Date Analyzed: 10/05/06 22:38
Lab Samp ID: J030-08                    Dilution Factor: 1
Lab File ID: 107J007024                 Matrix          : SOIL
Ext Btch ID: IPJ015S                    % Moisture     : 65.7
Calib. Ref.: 107J007022                 Instrument ID  : EMAX1107
=====
```

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
Nickel	29.2	5.83	2.92
Zinc	200	2.92	1.46

METHOD 3050B/6010B
METALS BY ICP

```
=====  
Client   : TETRA TECH EC, INC.           Date Collected: 10/04/06  
Project  : NWS SEAL BEACH, CTO 0006      Date Received: 10/04/06  
SDG NO.  : 06J030                        Date Extracted: 10/05/06 09:30  
Sample ID: 6-44-050                      Date Analyzed: 10/05/06 22:42  
Lab Samp ID: J030-09                     Dilution Factor: 1  
Lab File ID: I07J007025                  Matrix           : SOIL  
Ext Btch ID: IPJ015S                     % Moisture      : 42.1  
Calib. Ref.: I07J007022                  Instrument ID   : EMAXT107  
=====
```

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
Nickel	24.7	3.45	1.73
Zinc	196	1.73	0.864

METHOD 3050B/6010B
METALS BY ICP

```
=====
Client   : TETRA TECH EC, INC.           Date Collected: 10/04/06
Project  : NWS SEAL BEACH, CTO 0006      Date Received: 10/04/06
SDG NO.  : 06J030                        Date Extracted: 10/05/06 09:30
Sample ID: 6-44-051                      Date Analyzed: 10/05/06 23:00
Lab Samp ID: J030-10                    Dilution Factor: 1
Lab File ID: 107J007029                 Matrix       : SOIL
Ext Btch ID: IPJ015S                    % Moisture   : 53.1
Calib. Ref.: 107J007022                 Instrument ID : EMAXT107
=====
```

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
Nickel	29.1	4.26	2.13
Zinc	168	2.13	1.07

METHOD 3050B/6010B
METALS BY ICP

```
=====
Client      : TETRA TECH EC, INC.           Date Collected: 10/04/06
Project     : NWS SEAL BEACH, CTO 0006      Date Received: 10/04/06
SDG NO.    : 06J030                        Date Extracted: 10/05/06 09:30
Sample ID   : 6-44-052                     Date Analyzed: 10/05/06 23:08
Lab Samp ID: J030-11                       Dilution Factor: 1
Lab File ID: I07J007031                    Matrix          : SOIL
Ext Btch ID: IPJ015S                       % Moisture      : 39.7
Calib. Ref.: I07J007022                    Instrument ID   : EMAXT107
=====
```

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
Nickel	28.9	3.32	1.66
Zinc	157	1.66	0.829

METHOD 3050B/6010B
METALS BY ICP

```
=====
Client      : TETRA TECH EC, INC.           Date Collected: 10/04/06
Project     : NWS SEAL BEACH, CTO 0006     Date Received: 10/04/06
SDG NO.    : 06J030                       Date Extracted: 10/05/06 09:30
Sample ID   : 6-44-053                   Date Analyzed: 10/05/06 23:12
Lab Samp ID: J030-12                     Dilution Factor: 1
Lab File ID: I07J007032                  Matrix          : SOIL
Ext Btch ID: IPJ015S                     % Moisture     : 47.8
Calib. Ref.: I07J007022                  Instrument ID  : EMAXT107
=====
```

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
Nickel	29.0	3.83	1.92
Zinc	204	1.92	0.958

METHOD 3050B/6010B
METALS BY ICP

```
=====  
Client      : TETRA TECH EC, INC.           Date Collected: 10/04/06  
Project     : NWS SEAL BEACH, CTO 0006     Date Received: 10/04/06  
SDG NO.    : 06J030                       Date Extracted: 10/05/06 09:30  
Sample ID   : 6-44-054                   Date Analyzed: 10/05/06 23:16  
Lab Samp ID : J030-13                    Dilution Factor: 1  
Lab File ID : 107J007033                 Matrix          : SOIL  
Ext Btch ID : IPJ015S                    % Moisture     : 39.8  
Calib. Ref. : 107J007022                 Instrument ID  : EMAXT107  
=====
```

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
Nickel	24.5	3.32	1.66
Zinc	111	1.66	0.831

METHOD 3050B/6010B
METALS BY ICP

```

=====
Client   : TETRA TECH EC, INC.           Date Collected: 10/04/06
Project  : NWS SEAL BEACH, CTO 0006      Date Received: 10/04/06
SDG NO.  : 06J030                        Date Extracted: 10/05/06 09:30
Sample ID: 6-44-055                      Date Analyzed: 10/05/06 23:31
Lab Samp ID: J030-14                     Dilution Factor: 1
Lab File ID: I07J007036                 Matrix          : SOIL
Ext Btch ID: IPJ015S                    % Moisture     : 57.4
Calib. Ref.: I07J007034                 Instrument ID  : EMAXT107
=====
  
```

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
Nickel	28.1	4.69	2.35
Zinc	175	2.35	1.17

METHOD 3050B/6010B
METALS BY ICP

```
=====
Client      : TETRA TECH EC, INC.           Date Collected: 10/04/06
Project     : NWS SEAL BEACH, CTO 0006     Date Received: 10/04/06
SDG NO.    : 06J030                       Date Extracted: 10/05/06 09:30
Sample ID: 6-44-056                       Date Analyzed: 10/05/06 23:35
Lab Samp ID: J030-15                       Dilution Factor: 1
Lab File ID: I07J007037                   Matrix          : SOIL
Ext Btch ID: IPJ015S                      % Moisture     : 42.4
Calib. Ref.: I07J007034                   Instrument ID  : EMAXT107
=====
```

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
Nickel	29.5	3.47	1.74
Zinc	145	1.74	0.868

METHOD 3050B/6010B
METALS BY ICP

```

=====
Client      : TETRA TECH EC, INC.           Date Collected: 10/04/06
Project     : NWS SEAL BEACH, CTO 0006     Date Received: 10/04/06
SDG NO.    : 06J030                       Date Extracted: 10/05/06 09:30
Sample ID   : 6-44-057                   Date Analyzed: 10/05/06 23:39
Lab Samp ID: J030-16                     Dilution Factor: 1
Lab File ID: 107J007038                 Matrix          : SOIL
Ext Btch ID: IPJ015S                    % Moisture     : 40.9
Calib. Ref.: 107J007034                 Instrument ID   : EMAXT107
=====

```

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
Nickel	18.8	3.38	1.69
Zinc	147	1.69	0.846

METHOD 3050B/6010B
METALS BY ICP

```

=====
Client      : TETRA TECH EC, INC.           Date Collected: 10/04/06
Project     : NWS SEAL BEACH, CTO 0006     Date Received: 10/04/06
SDG NO.    : 06J030                       Date Extracted: 10/05/06 09:30
Sample ID   : 6-44-058                    Date Analyzed: 10/05/06 23:44
Lab Samp ID: J030-17                      Dilution Factor: 1
Lab File ID: I07J007039                  Matrix          : SOIL
Ext Btch ID: IPJ015S                     % Moisture      : 36.9
Calib. Ref.: I07J007034                  Instrument ID   : EMAXTI07
=====

```

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
Nickel	15.8	3.17	1.58
Zinc	140	1.58	0.792

METHOD 3050B/6010B
METALS BY ICP

```
=====
Client   : TETRA TECH EC, INC.           Date Collected: 10/04/06
Project  : NWS SEAL BEACH, CTO 0006      Date Received: 10/04/06
SDG NO.  : 06J030                        Date Extracted: 10/05/06 09:30
Sample ID: 6-44-059                      Date Analyzed: 10/05/06 23:48
Lab Samp ID: J030-18                     Dilution Factor: 1
Lab File ID: 107J007040                 Matrix          : SOIL
Ext Btch ID: IPJ015S                    % Moisture      : 44.9
Calib. Ref.: 107J007034                 Instrument ID   : EMAXT107
=====
```

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
Nickel	26.7	3.63	1.81
Zinc	144	1.81	0.907

METHOD 3050B/6010B
METALS BY ICP

```
=====  
Client      : TETRA TECH EC, INC.           Date Collected: 10/04/06  
Project     : NWS SEAL BEACH, CTO 0006      Date Received: 10/04/06  
SDG NO.    : 06J030                        Date Extracted: 10/05/06 09:30  
Sample ID: 6-44-060                        Date Analyzed: 10/05/06 23:52  
Lab Samp ID: J030-19                       Dilution Factor: 1  
Lab File ID: 107J007041                    Matrix          : SOIL  
Ext Btch ID: IPJ015S                        % Moisture     : 56.1  
Calib. Ref.: 107J007034                    Instrument ID  : EMAXT107  
=====
```

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
Nickel	20.4	4.56	2.28
Zinc	140	2.28	1.14

METHOD 3050B/6010B
METALS BY ICP

```
=====
Client      : TETRA TECH EC, INC.           Date Collected: 10/04/06
Project     : NWS SEAL BEACH, CTO 0006     Date Received: 10/04/06
SDG NO.    : 06J030                       Date Extracted: 10/05/06 09:30
Sample ID: 6-44-061                       Date Analyzed: 10/05/06 23:56
Lab Samp ID: J030-20                      Dilution Factor: 1
Lab File ID: 107J007042                   Matrix          : SOIL
Ext Btch ID: IPJ015S                      % Moisture     : 52.4
Calib. Ref.: 107J007034                   Instrument ID  : EMAXT107
=====
```

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
Nickel	25.3	4.20	2.10
Zinc	135	2.10	1.05



LABORATORIES, INC.

1835 W. 205th Street
Torrance, CA 90501
Tel: (310) 618-8889
Fax: (310) 618-0818

Date: 10-23-2006
EMAX Batch No.: 06J031

COPY

Attn: Nick Weinberger

Tetra Tech EC, Inc.
1940 E Deere Ave, Suite 200
Santa Ana, CA 92705

Subject: Laboratory Report
Project: NWS Seal Beach, CTO 0006

Enclosed is the Laboratory report for samples received on 10/04/06.
The data reported include :

Sample ID	Control #	Col Date	Matrix	Analysis
6-44-062	J031-01	10/04/06	SOIL	METALS BY ICP
6-44-063	J031-02	10/04/06	SOIL	METALS BY ICP
6-44-064	J031-03	10/04/06	SOIL	METALS BY ICP
6-44-065	J031-04	10/04/06	SOIL	METALS BY ICP
6-44-066	J031-05	10/04/06	SOIL	METALS BY ICP
6-44-067	J031-06	10/04/06	SOIL	METALS BY ICP
6-44-068	J031-07	10/04/06	SOIL	METALS BY ICP
6-44-069	J031-08	10/04/06	SOIL	METALS BY ICP
6-44-070	J031-09	10/04/06	SOIL	METALS BY ICP
6-44-071	J031-10	10/04/06	SOIL	METALS BY ICP
6-44-072	J031-11	10/04/06	SOIL	METALS BY ICP
6-44-073	J031-12	10/04/06	SOIL	METALS BY ICP
6-44-074	J031-13	10/04/06	SOIL	METALS BY ICP
6-44-075	J031-14	10/04/06	WATER	METALS BY ICP
6-44-076	J031-15	10/04/06	WATER	METALS BY ICP
6-44-071MS	J031-10M	10/04/06	SOIL	METALS BY ICP
6-44-071MSD	J031-10S	10/04/06	SOIL	METALS BY ICP

The results are summarized on the following pages.

Please feel free to call if you have any questions concerning these results.

Sincerely yours,

Kam Y. Pang, Ph.D.
Laboratory Director

TABLE OF CONTENTS

CLIENT: TETRA TECH EC, INC.
PROJECT: NWS SEAL BEACH, CTO 0006
SDG: 06J031

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GC/MS-SVOA	**	3000 –
GC-VOA	**	4000 –
GC-SVOA	**	5000 –
HPLC	**	6000 –
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WET	**	8000 –
OTHERS	**	9000 –

** - Not Requested

CASE NARRATIVE

CLIENT: TETRA TECH EC, INC.
PROJECT: NWS SEAL BEACH, CTO 0006
SDG: 06J031

METHOD 3010A/3050B/6010B METALS BY ICP

Two (2) water and thirteen (13) soil samples were received on 10/04/06 for Metals analysis by Method 3010A/3050B/6010B in accordance with "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", SW846, 3rd edition and DOD QSM (2002).

1. Holding Time

Analysis met holding time criteria.

2. Method Blank

Method blanks were free of contamination at half of reporting limit.

3. Lab Control Sample/Lab Control Sample Duplicate

Lab control results were within QC limit.

4. Serial Dilution / Post-Analytical Spike

Samples J031-10 and -14 were analyzed for serial dilution and post-analytical spike. All QC requirements were met.

5. Matrix Spike/Matrix Spike Duplicate

Sample J031-10 was spiked. All recoveries were within QC limit.

6. Sample Analysis

Samples were analyzed according to the prescribed QC procedures. All criteria were met.

MRLs were analyzed at the beginning of each sequence run. Recoveries were within QC limit of 70-130%.

METHOD 3050B/6010B
METALS BY ICP

```
=====  
Client      : TETRA TECH EC, INC.          Date Collected: 10/04/06  
Project     : NWS SEAL BEACH, CTD 0006    Date Received: 10/04/06  
SDG NO.    : 06J031                      Date Extracted: 10/05/06 09:35  
Sample ID   : 6-44-062                   Date Analyzed: 10/06/06 01:18  
Lab Samp ID : J031-01                    Dilution Factor: 1  
Lab File ID : 107J008015                 Matrix          : SOIL  
Ext Btch ID : IPJ016S                    % Moisture      : 25.1  
Calib. Ref. : 107J008010                 Instrument ID   : EMAXTI07  
=====
```

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
Nickel	13.6	2.67	1.34
Zinc	60.5	1.34	0.668

METHOD 3050B/6010B
METALS BY ICP

```
=====
Client      : TETRA TECH EC, INC.          Date Collected: 10/04/06
Project     : NWS SEAL BEACH, CTO 0006     Date Received: 10/04/06
SDG NO.    : 06J031                       Date Extracted: 10/05/06 09:35
Sample ID   : 6-44-063                    Date Analyzed: 10/06/06 01:22
Lab Samp ID: J031-02                      Dilution Factor: 1
Lab File ID: 107J008016                   Matrix          : SOIL
Ext Btch ID: IPJ016S                      % Moisture     : 38.2
Calib. Ref.: 107J008010                   Instrument ID  : EMAXT107
=====
```

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
Nickel	15.2	3.24	1.62
Zinc	91.1	1.62	0.809

METHOD 3050B/6010B
METALS BY ICP

```
=====  
Client      : TETRA TECH EC, INC.          Date Collected: 10/04/06  
Project     : NWS SEAL BEACH, CTO 0006     Date Received: 10/04/06  
SDG NO.    : 06J031                       Date Extracted: 10/05/06 09:35  
Sample ID   : 6-44-064                    Date Analyzed: 10/06/06 01:26  
Lab Samp ID: J031-03                      Dilution Factor: 1  
Lab File ID: 107J008017                   Matrix          : SOIL  
Ext Btch ID: IPJ016S                      % Moisture     : 30.4  
Calib. Ref.: 107J008010                   Instrument ID  : EMAXTI07  
=====
```

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
Nickel	17.6	2.87	1.44
Zinc	114	1.44	0.718

METHOD 3050B/6010B
METALS BY ICP

```
=====  
Client      : TETRA TECH EC, INC.          Date Collected: 10/04/06  
Project     : NWS SEAL BEACH, CTO 0006     Date Received: 10/04/06  
SDG NO.    : 06J031                       Date Extracted: 10/05/06 09:35  
Sample ID: 6-44-065                       Date Analyzed: 10/06/06 01:30  
Lab Samp ID: J031-04                       Dilution Factor: 1  
Lab File ID: 107J008018                   Matrix          : SOIL  
Ext Btch ID: IPJ016S                      % Moisture     : 47.3  
Calib. Ref.: 107J008010                   Instrument ID  : EMAX1107  
=====
```

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
Nickel	21.6	3.80	1.90
Zinc	138	1.90	0.949

METHOD 3050B/6010B
METALS BY ICP

```
=====
Client   : TETRA TECH EC, INC.           Date Collected: 10/04/06
Project  : NWS SEAL BEACH, CTO 0006      Date Received: 10/04/06
SDG NO.  : 06J031                        Date Extracted: 10/05/06 09:35
Sample ID: 6-44-066                      Date Analyzed: 10/06/06 01:34
Lab Samp ID: J031-05                     Dilution Factor: 1
Lab File ID: I07J008019                  Matrix          : SOIL
Ext Btch ID: IPJ016S                    % Moisture      : 59.9
Calib. Ref.: I07J008010                  Instrument ID   : EMAXT107
=====
```

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
Nickel	27.9	4.99	2.49
Zinc	159	2.49	1.25

METHOD 3050B/6010B
METALS BY ICP

```
=====  
Client      : TETRA TECH EC, INC.          Date Collected: 10/04/06  
Project     : NWS SEAL BEACH, CTO 0006     Date Received: 10/04/06  
SDG NO.    : 06J031                       Date Extracted: 10/05/06 09:35  
Sample ID: 6-44-067                       Date Analyzed: 10/06/06 01:38  
Lab Samp ID: J031-06                       Dilution Factor: 1  
Lab File ID: I07J008020                   Matrix       : SOIL  
Ext Btch ID: IPJ016S                      % Moisture  : 13.2  
Calib. Ref.: I07J008010                   Instrument ID : EMAXT107  
=====
```

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
Nickel	16.7	2.30	1.15
Zinc	92.9	1.15	0.576

METHOD 3050B/6010B
METALS BY ICP

```
=====  
Client      : TETRA TECH EC, INC.           Date Collected: 10/04/06  
Project     : NWS SEAL BEACH, CTO 0006     Date Received: 10/04/06  
SDG NO.    : 06J031                       Date Extracted: 10/05/06 09:35  
Sample ID   : 6-44-068                   Date Analyzed: 10/06/06 01:42  
Lab Samp ID: J031-07                     Dilution Factor: 1  
Lab File ID: 107J008021                  Matrix          : SOIL  
Ext Btch ID: IPJ016S                     % Moisture     : 14.7  
Calib. Ref.: 107J008010                  Instrument ID  : EMAXT107  
=====
```

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
Nickel	13.0	2.34	1.17
Zinc	71.1	1.17	0.586

METHOD 3050B/6010B
METALS BY ICP

```
=====  
Client      : TETRA TECH EC, INC.          Date Collected: 10/04/06  
Project     : NWS SEAL BEACH, CTO 0006    Date Received: 10/04/06  
SDG NO.    : 06J031                      Date Extracted: 10/05/06 09:35  
Sample ID   : 6-44-069                   Date Analyzed: 10/06/06 01:58  
Lab Samp ID: J031-08                     Dilution Factor: 1  
Lab File ID: I07J008024                  Matrix          : SOIL  
Ext Btch ID: IPJ016S                     % Moisture     : 20.3  
Calib. Ref.: I07J008022                  Instrument ID  : EMAXTI07  
=====
```

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
Nickel	12.1	2.51	1.25
Zinc	67.3	1.25	0.627

METHOD 3050B/6010B
METALS BY ICP

```
=====  
Client      : TETRA TECH EC, INC.           Date Collected: 10/04/06  
Project     : NWS SEAL BEACH, CTO 0006     Date Received: 10/04/06  
SDG NO.    : 06J031                       Date Extracted: 10/05/06 09:35  
Sample ID   : 6-44-070                   Date Analyzed: 10/06/06 02:02  
Lab Samp ID: J031-09                     Dilution Factor: 1  
Lab File ID: I07J008025                  Matrix       : SOIL  
Ext Btch ID: IPJ016S                     % Moisture   : 10.7  
Calib. Ref.: I07J008022                  Instrument ID : EMAXTI07  
=====
```

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
Nickel	11.8	2.24	1.12
Zinc	70.1	1.12	0.560

METHOD 3050B/6010B
METALS BY ICP

```
=====  
Client   : TETRA TECH EC, INC.           Date Collected: 10/04/06  
Project  : NWS SEAL BEACH, CTO 0006      Date Received: 10/04/06  
SDG NO.  : 06J031                        Date Extracted: 10/05/06 09:35  
Sample ID: 6-44-071                      Date Analyzed: 10/06/06 02:20  
Lab Samp ID: J031-10                    Dilution Factor: 1  
Lab File ID: 107J008029                 Matrix       : SOIL  
Ext Btch ID: IPJ016S                    % Moisture   : 57.8  
Calib. Ref.: 107J008022                 Instrument ID : EMAXT107  
=====
```

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
Nickel	29.2	4.74	2.37
Zinc	167	2.37	1.18

METHOD 3050B/6010B
METALS BY ICP

```
=====  
Client   : TETRA TECH EC, INC.           Date Collected: 10/04/06  
Project  : NWS SEAL BEACH, CTO 0006      Date Received: 10/04/06  
SDG NO.  : 06J031                       Date Extracted: 10/05/06 09:35  
Sample ID: 6-44-072                     Date Analyzed: 10/06/06 02:28  
Lab Samp ID: J031-11                    Dilution Factor: 1  
Lab File ID: I07J008031                 Matrix       : SOIL  
Ext Btch ID: IPJ016S                    % Moisture   : 59.2  
Calib. Ref.: I07J008022                 Instrument ID : EMAXT107  
=====
```

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
Nickel	26.2	4.90	2.45
Zinc	166	2.45	1.23

METHOD 3050B/6010B
METALS BY ICP

```
=====  
Client      : TETRA TECH EC, INC.           Date Collected: 10/04/06  
Project     : NWS SEAL BEACH, CTO 0006     Date Received: 10/04/06  
SDG NO.    : 06J031                       Date Extracted: 10/05/06 09:35  
Sample ID: 6-44-073                       Date Analyzed: 10/06/06 02:32  
Lab Samp ID: J031-12                      Dilution Factor: 1  
Lab File ID: I07J008032                   Matrix      : SOIL  
Ext Btch ID: IPJ016S                      % Moisture  : 47.5  
Calib. Ref.: I07J008022                   Instrument ID : EMAXT107  
=====
```

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
Nickel	28.3	3.81	1.90
Zinc	161	1.90	0.952

METHOD 3050B/6010B
METALS BY ICP

```
=====  
Client      : TETRA TECH EC, INC.      Date Collected: 10/04/06  
Project     : NWS SEAL BEACH, CTO 0006 Date Received: 10/04/06  
SDG NO.    : 06J031                   Date Extracted: 10/05/06 09:35  
Sample ID: 6-44-074                   Date Analyzed: 10/06/06 02:36  
Lab Samp ID: J031-13                   Dilution Factor: 1  
Lab File ID: I07J008033                 Matrix      : SOIL  
Ext Btch ID: IPJ016S                    % Moisture  : 62.9  
Calib. Ref.: I07J008022                 Instrument ID : EMAXT107  
=====
```

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
Nickel	32.4	5.39	2.70
Zinc	229	2.70	1.35

METHOD 3010A/6010B
METALS BY ICP

```
=====  
Client      : TETRA TECH EC, INC.          Date Collected: 10/04/06  
Project     : NWS SEAL BEACH, CTO 0006    Date Received: 10/04/06  
SDG NO.    : 06J031                      Date Extracted: 10/05/06 09:45  
Sample ID   : 6-44-075                   Date Analyzed: 10/06/06 03:13  
Lab Samp ID: J031-14                     Dilution Factor: 1  
Lab File ID: I07J008040                  Matrix          : WATER  
Ext Btch ID: IPJ013W                     % Moisture     : NA  
Calib. Ref.: I07J008034                  Instrument ID  : EMAXT107  
=====
```

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
Nickel	ND	20.0	10.0
Zinc	10.5	10.0	5.00

METHOD 3010A/6010B
METALS BY ICP

```
=====  
Client      : TETRA TECH EC, INC.           Date Collected: 10/04/06  
Project     : NWS SEAL BEACH, CTO 0006     Date Received: 10/04/06  
SDG NO.    : 06J031                       Date Extracted: 10/05/06 09:45  
Sample ID   : 6-44-076                   Date Analyzed: 10/06/06 03:21  
Lab Samp ID: J031-15                     Dilution Factor: 1  
Lab File ID: I07J008042                 Matrix       : WATER  
Ext Btch ID: 1PJ013W                    % Moisture   : NA  
Calib. Ref.: I07J008034                 Instrument ID : EMAXTI07  
=====
```

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
Nickel	ND	20.0	10.0
Zinc	5.14J	10.0	5.00



LABORATORIES, INC.

1835 W. 205th Street
Torrance, CA 90501
Tel: (310) 618-8889
Fax: (310) 618-0818

COPY

Date: 10-20-2006
EMAX Batch No.: 06J054

Attn: Nick Weinberger

Tetra Tech EC, Inc.
1940 E Deere Ave, Suite 200
Santa Ana, CA 92705

Subject: Laboratory Report
Project: NWS Seal Beach, CTO 0006

Enclosed is the Laboratory report for samples received on 10/05/06.
The data reported include :

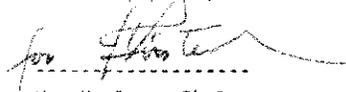
Sample ID	Control #	Col Date	Matrix	Analysis
6-44-087	J054-01	10/05/06	SOIL	METALS BY ICP
6-44-088	J054-02	10/05/06	SOIL	METALS BY ICP
6-44-089	J054-03	10/05/06	SOIL	METALS BY ICP
6-44-090	J054-04	10/05/06	SOIL	METALS BY ICP
6-44-091	J054-05	10/05/06	SOIL	METALS BY ICP
6-44-092	J054-06	10/05/06	SOIL	METALS BY ICP
6-44-093	J054-07	10/05/06	SOIL	METALS BY ICP
6-44-094	J054-08	10/05/06	SOIL	METALS BY ICP
6-44-095	J054-09	10/05/06	SOIL	METALS BY ICP
6-44-096	J054-10	10/05/06	SOIL	METALS BY ICP
6-44-107	J054-11	10/05/06	SOIL	METALS CAM MERCURY VOLATILE ORGANICS BY GC/MS SEMIVOLATILE ORGANICS BY GCMS PESTICIDES ORGANOCHLORINE POLYCHLORINATED BIPHENYLS (PCBS) SEMIVOLATILE ORGANICS SIM
6-44-108	J054-12	10/05/06	SOIL	METALS CAM MERCURY

Sample ID	Control #	Col Date	Matrix	Analysis
6-44-109	J054-13	10/05/06	SOIL	VOLATILE ORGANICS BY GC/MS SEMIVOLATILE ORGANICS BY GCMS PESTICIDES ORGANOCHLORINE POLYCHLORINATED BIPHENYLS (PCBS) SEMIVOLATILE ORGANICS SIM METALS CAM MERCURY
6-57-110	J054-14	10/05/06	SOIL	VOLATILE ORGANICS BY GC/MS SEMIVOLATILE ORGANICS BY GCMS PESTICIDES ORGANOCHLORINE POLYCHLORINATED BIPHENYLS (PCBS) SEMIVOLATILE ORGANICS SIM METALS CAM MERCURY
6-44-096MS	J054-10M	10/05/06	SOIL	VOLATILE ORGANICS BY GC/MS SEMIVOLATILE ORGANICS BY GCMS PESTICIDES ORGANOCHLORINE POLYCHLORINATED BIPHENYLS (PCBS) SEMIVOLATILE ORGANICS SIM
6-44-096MSD	J054-10S	10/05/06	SOIL	METALS BY ICP

The results are summarized on the following pages.

Please feel free to call if you have any questions concerning these results.

Sincerely yours,



 Kam Y. Pang, Ph.D.
 Laboratory Director

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CLIENT: TETRA TECH EC, INC.
PROJECT: NWS SEAL BEACH, CTO 0006
SDG: 06J054

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GC-SVOA	METHOD 3550B/8081A METHOD 3550B/8082	5000 – 5061 5062 – 5092
HPLC	**	6000 –
METALS	METHOD 3050B/6010B METHOD 7471A	7000 – 7159 7160 – 7171
WET	**	8000 –
OTHERS	**	9000 –

** - Not Requested

CASE NARRATIVE

CLIENT: TETRA TECH EC, INC.
PROJECT: NWS SEAL BEACH, CTO 0006
SDG: 06J054

METHOD 5035/8260B VOLATILE ORGANICS BY GC/MS

Four (4) soil samples were received on 10/05/06 for Volatile Organic analysis by Method 5035/8260B in accordance with USEPA SW846, 3rd edition and DOD QSM (2002).

1. Holding Time

Analytical holding time was met.

2. Tuning and Calibration

Tuning and calibration were carried out at 12-hour interval. All QC requirements were met.

3. Method Blank

Method blank was free of contamination at half of reporting limit.

4. Surrogate Recovery

Recoveries were within QC limit.

5. Lab Control Sample/Lab Control Sample Duplicate

Recoveries were within QC limit.

6. Matrix Spike/Matrix Spike Duplicate

No MS/MSD sample was designated in this SDG.

7. Sample Analysis

Samples were analyzed according to the prescribed QC procedures. All criteria were met.

METHOD 5035/8260B
VOLATILE ORGANICS BY GC/MS

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=====
Client      : TETRA TECH EC, INC.           Date Collected: 10/05/06
Project     : NWS SEAL BEACH, CTO 0006     Date Received: 10/05/06
Batch No.   : 06J054                       Date Extracted: 10/10/06 22:24
Sample ID   : 6-44-107                     Date Analyzed: 10/10/06 22:24
Lab Samp ID : J054-11                      Dilution Factor: 1.2
Lab File ID : RJC128                       Matrix          : SOIL
Ext Btch ID: V067J11                       % Moisture     : 36.9
Calib. Ref.: RIC158                        Instrument ID   : T-067
=====
  
```

PARAMETERS	RESULTS (ug/kg)	RL (ug/kg)	MDL (ug/kg)
1,1,1-TRICHLOROETHANE	ND	9.5	3.8
1,1,2,2-TETRACHLOROETHANE	ND	9.5	3.8
1,1,2-TRICHLOROETHANE	ND	9.5	3.8
1,1-DICHLOROETHANE	ND	9.5	3.8
1,1-DICHLOROETHENE	ND	9.5	3.8
1,2-DICHLOROETHANE	ND	9.5	3.8
1,2-DICHLOROPROPANE	ND	9.5	3.8
2-HEXANONE	ND	19	9.5
ACETONE	56	38	9.5
BENZENE	ND	9.5	3.8
BROMODICHLOROMETHANE	ND	9.5	3.8
BROMOFORM	ND	9.5	3.8
BROMOMETHANE	ND	19	3.8
CARBON TETRACHLORIDE	ND	9.5	3.8
CHLOROETHANE	ND	9.5	3.8
CHLOROETHENE	ND	9.5	3.8
CHLOROFORM	ND	9.5	3.8
CHLOROMETHANE	ND	19	3.8
CIS-1,2-DICHLOROETHENE	ND	9.5	3.8
CIS-1,3-DICHLOROPROPENE	ND	9.5	3.8
DIBROMOCHLOROMETHANE	ND	9.5	3.8
ETHYLBENZENE	ND	9.5	3.8
METHYL ETHYL KETONE (MEK)	12J	19	9.5
METHYL TERT-BUTYL ETHER (MTBE)	ND	9.5	3.8
METHYLENE CHLORIDE	ND	38	3.8
METHYL ISOBUTYL KETONE (MIBK)	ND	19	9.5
STYRENE	ND	9.5	3.8
TETRACHLOROETHENE	ND	9.5	3.8
TOLUENE	ND	9.5	3.8
TRANS-1,2-DICHLOROETHENE	ND	9.5	3.8
TRANS-1,3-DICHLOROPROPENE	ND	9.5	3.8
TRICHLOROETHENE	ND	9.5	3.8
VINYL ACETATE	ND	95	3.8
VINYL CHLORIDE	ND	19	3.8
XYLENES (TOTAL)	ND	9.5	3.8

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	111	65-135
4-BROMOFLUOROBENZENE	123	65-135
TOLUENE-D8	109	65-135

METHOD 5035/8260B
VOLATILE ORGANICS BY GC/MS

```

=====
Client      : TETRA TECH EC, INC.           Date Collected: 10/05/06
Project     : NWS SEAL BEACH, CTO 0006     Date Received: 10/05/06
Batch No.   : 06J054                       Date Extracted: 10/10/06 23:00
Sample ID   : 6-44-108                     Date Analyzed: 10/10/06 23:00
Lab Samp ID: J054-12                      Dilution Factor: 1.3
Lab File ID: RJC129                       Matrix          : SOIL
Ext Btch ID: V067J11                      % Moisture     : 39.9
Calib. Ref.: RIC158                       Instrument ID   : T-067
=====

```

PARAMETERS	RESULTS (ug/kg)	RL (ug/kg)	MDL (ug/kg)
1,1,1-TRICHLOROETHANE	ND	11	4.3
1,1,2,2-TETRACHLOROETHANE	ND	11	4.3
1,1,2-TRICHLOROETHANE	ND	11	4.3
1,1-DICHLOROETHANE	ND	11	4.3
1,1-DICHLOROETHENE	ND	11	4.3
1,2-DICHLOROETHANE	ND	11	4.3
1,2-DICHLOROPROPANE	ND	11	4.3
2-HEXANONE	ND	22	11
ACETONE	42J	43	11
BENZENE	ND	11	4.3
BROMODICHLOROMETHANE	ND	11	4.3
BROMOFORM	ND	11	4.3
BROMOMETHANE	ND	22	4.3
CARBON TETRACHLORIDE	ND	11	4.3
CHLOROBENZENE	ND	11	4.3
CHLOROETHANE	ND	11	4.3
CHLOROFORM	ND	11	4.3
CHLOROMETHANE	ND	22	4.3
CIS-1,2-DICHLOROETHENE	ND	11	4.3
CIS-1,3-DICHLOROPROPENE	ND	11	4.3
DIBROMOCHLOROMETHANE	ND	11	4.3
ETHYLBENZENE	ND	11	4.3
METHYL ETHYL KETONE (MEK)	ND	22	11
METHYL TERT-BUTYL ETHER (MTBE)	ND	11	4.3
METHYLENE CHLORIDE	ND	43	4.3
METHYL ISOBUTYL KETONE (MIBK)	ND	22	11
STYRENE	ND	11	4.3
TETRACHLOROETHENE	ND	11	4.3
TOLUENE	ND	11	4.3
TRANS-1,2-DICHLOROETHENE	ND	11	4.3
TRANS-1,3-DICHLOROPROPENE	ND	11	4.3
TRICHLOROETHENE	ND	11	4.3
VINYL ACETATE	ND	110	4.3
VINYL CHLORIDE	ND	22	4.3
XYLENES (TOTAL)	ND	11	4.3

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	108	65-135
4-BROMOFLUOROBENZENE	123	65-135
TOLUENE-D8	100	65-135

METHOD 5035/8260B
VOLATILE ORGANICS BY GC/MS

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=====
Client      : TETRA TECH EC, INC.           Date Collected: 10/05/06
Project     : NWS SEAL BEACH, CTO 0006     Date Received: 10/05/06
Batch No.   : 06J054                       Date Extracted: 10/10/06 23:38
Sample ID: 6-44-109                       Date Analyzed: 10/10/06 23:38
Lab Samp ID: J054-13                      Dilution Factor: .91
Lab File ID: RJC130                       Matrix          : SOIL
Ext Btch ID: V067J11                     % Moisture     : 25.3
Calib. Ref.: RIC158                      Instrument ID  : T-067
=====

```

PARAMETERS	RESULTS (ug/kg)	RL (ug/kg)	MDL (ug/kg)
1,1,1-TRICHLOROETHANE	ND	6.1	2.4
1,1,2,2-TETRACHLOROETHANE	ND	6.1	2.4
1,1,2-TRICHLOROETHANE	ND	6.1	2.4
1,1-DICHLOROETHANE	ND	6.1	2.4
1,1-DICHLOROETHENE	ND	6.1	2.4
1,2-DICHLOROETHANE	ND	6.1	2.4
1,2-DICHLOROPROPANE	ND	6.1	2.4
2-HEXANONE	ND	12	6.1
ACETONE	14J	24	6.1
BENZENE	ND	6.1	2.4
BROMODICHLOROMETHANE	ND	6.1	2.4
BROMOFORM	ND	6.1	2.4
BROMOMETHANE	ND	12	2.4
CARBON TETRACHLORIDE	ND	6.1	2.4
CHLOROENZENE	ND	6.1	2.4
CHLOROETHANE	ND	6.1	2.4
CHLOROFORM	ND	6.1	2.4
CHLOROMETHANE	ND	12	2.4
CIS-1,2-DICHLOROETHENE	ND	6.1	2.4
CIS-1,3-DICHLOROPROPENE	ND	6.1	2.4
DIBROMOCHLOROMETHANE	ND	6.1	2.4
ETHYLBENZENE	ND	6.1	2.4
METHYL ETHYL KETONE (MEK)	ND	12	6.1
METHYL TERT-BUTYL ETHER (MTBE)	ND	6.1	2.4
METHYLENE CHLORIDE	ND	24	2.4
METHYL ISOBUTYL KETONE (MIBK)	ND	12	6.1
STYRENE	ND	6.1	2.4
TETRACHLOROETHENE	ND	6.1	2.4
TOLUENE	ND	6.1	2.4
TRANS-1,2-DICHLOROETHENE	ND	6.1	2.4
TRANS-1,3-DICHLOROPROPENE	ND	6.1	2.4
TRICHLOROETHENE	ND	6.1	2.4
VINYL ACETATE	ND	61	2.4
VINYL CHLORIDE	ND	12	2.4
XYLENES (TOTAL)	ND	6.1	2.4

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	104	65-135
4-BROMOFLUOROBENZENE	114	65-135
TOLUENE-D8	96	65-135

METHOD 5035/8260B
VOLATILE ORGANICS BY GC/MS

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=====
Client      : TETRA TECH EC, INC.           Date Collected: 10/05/06
Project     : NWS SEAL BEACH, CTO 0006     Date Received: 10/05/06
Batch No.   : 06J054                       Date Extracted: 10/11/06 00:15
Sample ID   : 6-57-110                     Date Analyzed: 10/11/06 00:15
Lab Samp ID: J054-14                       Dilution Factor: 1.2
Lab File ID: RJC131                        Matrix          : SOIL
Ext Btch ID: V067J11                      % Moisture     : 8.3
Calib. Ref.: RIC158                       Instrument ID   : T-067
=====
  
```

PARAMETERS	RESULTS (ug/kg)	RL (ug/kg)	MDL (ug/kg)
1,1,1-TRICHLOROETHANE	ND	6.5	2.6
1,1,2,2-TETRACHLOROETHANE	ND	6.5	2.6
1,1,2-TRICHLOROETHANE	ND	6.5	2.6
1,1-DICHLOROETHANE	ND	6.5	2.6
1,1-DICHLOROETHENE	ND	6.5	2.6
1,2-DICHLOROETHANE	ND	6.5	2.6
1,2-DICHLOROPROPANE	ND	6.5	2.6
2-HEXANONE	ND	13	6.5
ACETONE	ND	26	6.5
BENZENE	ND	6.5	2.6
BROMODICHLOROMETHANE	ND	6.5	2.6
BROMOFORM	ND	6.5	2.6
BROMOMETHANE	ND	13	2.6
CARBON TETRACHLORIDE	ND	6.5	2.6
CHLOROBENZENE	ND	6.5	2.6
CHLOROETHANE	ND	6.5	2.6
CHLOROFORM	ND	6.5	2.6
CHLOROMETHANE	ND	13	2.6
CIS-1,2-DICHLOROETHENE	ND	6.5	2.6
CIS-1,3-DICHLOROPROPENE	ND	6.5	2.6
DIBROMOCHLOROMETHANE	ND	6.5	2.6
ETHYLBENZENE	ND	6.5	2.6
METHYL ETHYL KETONE (MEK)	ND	13	6.5
METHYL TERT-BUTYL ETHER (MTBE)	ND	6.5	2.6
METHYLENE CHLORIDE	ND	26	2.6
METHYL ISOBUTYL KETONE (MIBK)	ND	13	6.5
STYRENE	ND	6.5	2.6
TETRACHLOROETHENE	ND	6.5	2.6
TOLUENE	ND	6.5	2.6
TRANS-1,2-DICHLOROETHENE	ND	6.5	2.6
TRANS-1,3-DICHLOROPROPENE	ND	6.5	2.6
TRICHLOROETHENE	ND	6.5	2.6
VINYL ACETATE	ND	65	2.6
VINYL CHLORIDE	ND	13	2.6
XYLENES (TOTAL)	ND	6.5	2.6

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	106	65-135
4-BROMOFLUOROBENZENE	106	65-135
TOLUENE-D8	96	65-135

CASE NARRATIVE

CLIENT: TETRA TECH EC, INC.
PROJECT: NWS SEAL BEACH, CTO 0006
SDG: 06J054

METHOD 3550B/8270C SEMI VOLATILE ORGANICS BY GC/MS

Four (4) soil samples were received on 10/05/06 for Semi Volatile Organic analysis by Method 3550B/8270C in accordance with USEPA SW846, 3rd edition and QSM DOD (2002).

1. Holding Time

Analytical holding time was met.

2. Tuning and Calibration

Tuning and calibration were carried out at 12-hour interval. All QC requirements were met.

3. Method Blank

Method blank was free of contamination at half of reporting limit.

4. Surrogate Recovery

Recoveries were within QC limit.

5. Lab Control Sample/Lab Control Sample Duplicate

Recoveries were within QC limit.

6. Matrix Spike/Matrix Spike Duplicate

No MS/MSD sample was designated in this SDG.

7. Sample Analysis

Samples were analyzed according to the prescribed QC procedures. All criteria were met.

Extracts of J054-11 to -13 were cleanup up by GPC prior to analysis. The last internal standard in J054-13 was out of QC in the initial and reanalysis runs. Both sets of data were reported.

METHOD 3550B/8270C
SEMI VOLATILE ORGANICS BY GC/MS

```

=====
Client   : TETRA TECH EC, INC.           Date Collected: 10/05/06
Project  : NWS SEAL BEACH, CTO 0006      Date Received: 10/05/06
Batch No. : 06J054                       Date Extracted: 10/06/06 16:00
Sample ID: 6-44-107                      Date Analyzed: 10/11/06 19:37
Lab Samp ID: J054-11                     Dilution Factor: 2
Lab File ID: RJX036                      Matrix: SOIL
Ext Btch ID: SVJ012S                    % Moisture: 36.9
Calib. Ref.: RHX222                     Instrument ID: T-042
=====

```

PARAMETERS	RESULTS (ug/kg)	RL (ug/kg)	MDL (ug/kg)
1,2,4-TRICHLOROBENZENE	ND	1000	530
1,2-DICHLOROBENZENE	ND	1000	530
1,3-DICHLOROBENZENE	ND	1000	530
1,4-DICHLOROBENZENE	ND	1000	530
2,4,5-TRICHLOROPHENOL	ND	1000	530
4,6-TRICHLOROPHENOL	ND	1000	530
2,4-DICHLOROPHENOL	ND	1000	530
2,4-DIMETHYLPHENOL	ND	1000	530
2,4-DINITROPHENOL	ND	2100	530
2,4-DINITROTOLUENE	ND	1000	530
2,6-DINITROTOLUENE	ND	1000	530
2-CHLORONAPHTHALENE	ND	1000	530
2-CHLOROPHENOL	ND	1000	530
2-METHYLPHENOL	ND	1000	530
2-NITROANILINE	ND	2100	530
2-NITROPHENOL	ND	2100	530
3,3'-DICHLOROENZIDINE	ND	2100	530
3-NITROANILINE	ND	2100	530
4,6-DINITRO-2-METHYLPHENOL	ND	2100	530
4-BROMOPHENYL-PHENYL ETHER	ND	1000	530
4-CHLORO-3-METHYLPHENOL	ND	1000	530
4-CHLOROANILINE	ND	1000	530
4-CHLOROPHENYL-PHENYL ETHER	ND	1000	540
4-METHYLPHENOL (1)	ND	1000	530
4-NITROANILINE	ND	2100	530
4-NITROPHENOL	ND	2100	530
BIS(2-CHLOROETHOXY)METHANE	ND	1000	530
BIS(2-CHLOROETHYL)ETHER	ND	1000	530
BIS(2-CHLOROISOPROPYL)ETHER	ND	1000	530
BIS(2-ETHYLHEXYL)PHTHALATE	ND	1000	530
BUTYLBENZYL PHTHALATE	ND	1000	530
DI-N-BUTYL PHTHALATE	ND	1000	530
DI-N-OCTYL PHTHALATE	ND	1000	530
DIBENZOFURAN	ND	1000	530
DIETHYL PHTHALATE	ND	1000	530
DIMETHYL PHTHALATE	ND	1000	530
HEXACHLOROBENZENE	ND	1000	530
HEXACHLOROBUTADIENE	ND	1000	600
HEXACHLOROCYCLOPENTADIENE	ND	1000	530
HEXACHLOROETHANE	ND	1000	530
N-NITROSODIPHENYLAMINE (2)	ND	1000	530
NITROBENZENE	ND	1000	530
PENTACHLOROPHENOL	ND	2100	550
PHENOL	ND	1000	530

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
2,4,6-TRIBROMOPHENOL	60	25-144
2-FLUOROBIPHENYL	54	34-135
2-FLUOROPHENOL	45	25-135
NITROBENZENE D5	51	25-135
PHENOL-D5	53	25-135
TERPHENYL-D14	96	32-136

(1): Cannot be separated from 3-Methylphenol
(2): Cannot be separated from Diphenylamine

METHOD 3550B/8270C
SEMI VOLATILE ORGANICS BY GC/MS

```

=====
Client   : TETRA TECH EC, INC.           Date Collected: 10/05/06
Project  : NWS SEAL BEACH, CTO 0006      Date Received: 10/05/06
Batch No.: 06J054                        Date Extracted: 10/06/06 16:00
Sample ID: 6-44-108                      Date Analyzed: 10/11/06 20:03
Lab Samp ID: J054-12                    Dilution Factor: 2
Lab File ID: RJX037                     Matrix: SOIL
Ext. Btch ID: SVJ012S                   % Moisture: 39.9
Calib. Ref.: RHX222                     Instrument ID: T-042
=====

```

PARAMETERS	RESULTS (ug/kg)	RL (ug/kg)	MDL (ug/kg)
1,2,4-TRICHLOROBENZENE	ND	1100	560
1,2-DICHLOROBENZENE	ND	1100	560
1,3-DICHLOROBENZENE	ND	1100	560
1,4-DICHLOROBENZENE	ND	1100	560
2,4,5-TRICHLOROPHENOL	ND	1100	560
2,4,6-TRICHLOROPHENOL	ND	1100	610
2,4-DICHLOROPHENOL	ND	1100	560
2,4-DIMETHYLPHENOL	ND	1100	560
2,4-DINITROPHENOL	ND	2200	560
2,4-DINITROTOLUENE	ND	1100	560
2,6-DINITROTOLUENE	ND	1100	560
2-CHLORONAPHTHALENE	ND	1100	560
2-CHLOROPHENOL	ND	1100	560
2-METHYLPHENOL	ND	1100	560
2-NITROANILINE	ND	2200	560
2-NITROPHENOL	ND	2200	560
2,3-DICHLOROENZIDINE	ND	2200	560
3-NITROANILINE	ND	2200	560
4,6-DINITRO-2-METHYLPHENOL	ND	2200	560
4-BROMOPHENYL-PHENYL ETHER	ND	1100	560
4-CHLORO-3-METHYLPHENOL	ND	1100	560
4-CHLOROANILINE	ND	1100	560
4-CHLOROPHENYL-PHENYL ETHER	ND	1100	570
4-METHYLPHENOL (1)	ND	1100	560
4-NITROANILINE	ND	2200	560
4-NITROPHENOL	ND	2200	560
BIS(2-CHLOROETHOXY)METHANE	ND	1100	560
BIS(2-CHLOROETHYL)ETHER	ND	1100	560
BIS(2-CHLOROISOPROPYL)ETHER	ND	1100	560
BIS(2-ETHYLHEXYL)PHTHALATE	ND	1100	560
BUTYLBENZYLPHthalate	ND	1100	560
D1-N-BUTYLPHthalate	ND	1100	560
D1-N-OCTYLPHthalate	ND	1100	560
DIBENZOFURAN	ND	1100	560
DIETHYL PHTHALATE	ND	1100	560
DIMETHYL PHTHALATE	ND	1100	560
HEXACHLOROBENZENE	ND	1100	560
HEXACHLOROBTADIENE	ND	1100	630
HEXACHLOROCYCLOPENTADIENE	ND	1100	560
HEXACHLOROETHANE	ND	1100	560
N-NITROSODIPHENYLAMINE (2)	ND	1100	560
NITROBENZENE	ND	1100	560
PENTACHLOROPHENOL	ND	2200	580
PHENOL	ND	1100	560

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
2,4,6-TRIBROMOPHENOL	62	25-144
2-FLUOROBIPHENYL	52	34-135
2-FLUOROPHENOL	48	25-135
NITROBENZENE-D5	52	25-135
PHENOL-D5	56	25-135
TERPHENYL-D14	85	32-136

(1): Cannot be separated from 3-Methylphenol
(2): Cannot be separated from Diphenylamine

METHOD 3550B/8270C
SEMI VOLATILE ORGANICS BY GC/MS

```

=====
Client   : TETRA TECH EC, INC.           Date Collected: 10/05/06
Project  : NWS SEAL BEACH, CTO 0006     Date Received: 10/05/06
Batch No.: 06J054                       Date Extracted: 10/06/06 16:00
Sample ID: 6-44-109                     Date Analyzed: 10/11/06 20:28
Lab Samp ID: J054-13                    Dilution Factor: 2
Lab File ID: RJX038                     Matrix: SOIL
Ext Btch ID: SVJ012S                   % Moisture: 25.3
Calib. Ref.: RHX222                     Instrument ID: T-042
=====

```

PARAMETERS	RESULTS (ug/kg)	RL (ug/kg)	MDL (ug/kg)
1,2,4-TRICHLOROBENZENE	ND	880	450
1,2-DICHLOROBENZENE	ND	880	450
1,3-DICHLOROBENZENE	ND	880	450
1,4-DICHLOROBENZENE	ND	880	450
2,4,5-TRICHLOROPHENOL	ND	880	450
2,4,6-TRICHLOROPHENOL	ND	880	490
2,4-DICHLOROPHENOL	ND	880	450
2,4-DIMETHYLPHENOL	ND	880	450
2,4-DINITROPHENOL	ND	1800	450
2,4-DINITROTOLUENE	ND	880	450
2,6-DINITROTOLUENE	ND	880	450
2-CHLORONAPHTHALENE	ND	880	450
2-CHLOROPHENOL	ND	880	450
2-METHYLPHENOL	ND	880	450
2-NITROANILINE	ND	1800	450
2-NITROPHENOL	ND	1800	450
2,3-DICHLOROENZIDINE	ND	1800	450
3-NITROANILINE	ND	1800	450
4,6-DINITRO-2-METHYLPHENOL	ND	1800	450
4-BROMOPHENYL-PHENYL ETHER	ND	880	450
4-CHLORO-3-METHYLPHENOL	ND	880	450
4-CHLOROANILINE	ND	880	450
4-CHLOROPHENYL-PHENYL ETHER	ND	880	460
4-METHYLPHENOL (1)	ND	880	450
4-NITROANILINE	ND	1800	450
4-NITROPHENOL	ND	1800	450
BIS(2-CHLOROETHOXY)METHANE	ND	880	450
BIS(2-CHLOROETHYL)ETHER	ND	880	450
BIS(2-CHLOROISOPROPYL)ETHER	ND	880	450
BIS(2-ETHYLHEXYL)PHTHALATE	ND	880	450
BUTYLBENZYL PHTHALATE	ND	880	450
D1-N-BUTYL PHTHALATE	ND	880	450
D1-N-OCTYL PHTHALATE	ND	880	450
DIBENZOFURAN	ND	880	450
DIETHYL PHTHALATE	ND	880	450
DIMETHYL PHTHALATE	ND	880	450
HEXACHLOROBENZENE	ND	880	450
HEXACHLOROBUTADIENE	ND	880	510
HEXACHLOROCYCLOPENTADIENE	ND	880	450
HEXACHLOROETHANE	ND	880	450
N-NITROSODIPHENYLAMINE (2)	ND	880	450
NITROBENZENE	ND	880	450
PENTACHLOROPHENOL	ND	1800	470
PHENOL	ND	880	450
SURROGATE PARAMETERS	% RECOVERY	QC LIMIT	
2,4,6-TRIBROMOPHENOL	56	25-144	
2-FLUOROBIPHENYL	56	34-135	
2-FLUOROPHENOL	44	25-135	
NITROBENZENE-D5	47	25-135	
PHENOL-D5	52	25-135	
TERPHENYL-D14	114	32-136	

(1): Cannot be separated from 3-Methylphenol
(2): Cannot be separated from Diphenylamine

METHOD 3550B/8270C
SEMI VOLATILE ORGANICS BY GC/MS

```

=====
Client   : TETRA TECH EC, INC.           Date Collected: 10/05/06
Project  : NWS SEAL BEACH, CTO 0006     Date Received: 10/05/06
Batch No.: 06J054                       Date Extracted: 10/06/06 16:00
Sample ID: 6-44-109RE                   Date Analyzed: 10/11/06 22:08
Lab Samp ID: J054-13W                   Dilution Factor: 2
Lab File ID: RJX042                     Matrix: SOIL
Ext Btch ID: SVJ012S                    % Moisture: 25.3
Calib. Ref.: RHX222                     Instrument ID: T-042
=====

```

PARAMETERS	RESULTS (ug/kg)	RL (ug/kg)	MDL (ug/kg)
1,2,4-TRICHLOROBENZENE	ND	880	450
1,2-DICHLOROBENZENE	ND	880	450
1,3-DICHLOROBENZENE	ND	880	450
1,4-DICHLOROBENZENE	ND	880	450
2,4,5-TRICHLOROPHENOL	ND	880	450
2,4,6-TRICHLOROPHENOL	ND	880	490
2,4-DICHLOROPHENOL	ND	880	450
2,4-DIMETHYLPHENOL	ND	880	450
2,4-DINITROPHENOL	ND	1800	450
2,4-DINITROTOLUENE	ND	880	450
2,6-DINITROTOLUENE	ND	880	450
2-CHLORONAPHTHALENE	ND	880	450
2-CHLOROPHENOL	ND	880	450
3-METHYLPHENOL	ND	880	450
3-NITROANILINE	ND	1800	450
3-NITROPHENOL	ND	1800	450
3,3'-DICHLOROBENZIDINE	ND	1800	450
3-NITROANILINE	ND	1800	450
4,6-DINITRO-2-METHYLPHENOL	ND	880	450
4-BROMOPHENYL-PHENYL ETHER	ND	880	450
4-CHLORO-3-METHYLPHENOL	ND	880	450
4-CHLOROANILINE	ND	880	450
4-CHLOROPHENYL-PHENYL ETHER	ND	880	460
4-METHYLPHENOL (1)	ND	880	450
4-NITROANILINE	ND	1800	450
4-NITROPHENOL	ND	1800	450
BIS(2-CHLOROETHOXY)METHANE	ND	880	450
BIS(2-CHLOROETHYL)ETHER	ND	880	450
BIS(2-CHLOROISOPROPYL)ETHER	ND	880	450
BIS(2-ETHYLHEXYL)PHTHALATE	ND	880	450
BUTYLBENZYLPHTHALATE	ND	880	450
D1-N-BUTYLPHTHALATE	ND	880	450
D1-N-OCTYLPHTHALATE	ND	880	450
DIBENZOFURAN	ND	880	450
DIETHYL PHTHALATE	ND	880	450
DIMETHYL PHTHALATE	ND	880	450
HEXACHLOROBENZENE	ND	880	450
HEXACHLOROBUTADIENE	ND	880	510
HEXACHLOROCYCLOPENTADIENE	ND	880	450
HEXACHLOROETHANE	ND	880	450
N-NITROSODIPHENYLAMINE (2)	ND	880	450
NITROBENZENE	ND	880	450
PENTACHLOROPHENOL	ND	1800	470
PHENOL	ND	880	450

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
2,4,6-TRIBROMOPHENOL	55	25-144
2-FLUOROBIPHENYL	57	34-135
2-FLUOROPHENOL	43	25-135
NITROBENZENE-D5	48	25-135
PHENOL-D5	51	25-135
TERPHENYL-D14	130	32-136

(1): Cannot be separated from 3-Methylphenol
(2): Cannot be separated from Diphenylamine

METHOD 3550B/8270C
SEMI VOLATILE ORGANICS BY GC/MS

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=====
Client   : TETRA TECH EC, INC.           Date Collected: 10/05/06
Project  : NWS SEAL BEACH, CTO 0006      Date Received: 10/05/06
Batch No.: 06J054                        Date Extracted: 10/06/06 16:00
Sample ID: 6-57-110                       Date Analyzed: 10/11/06 20:53
Lab Samp ID: J054-14                       Dilution Factor: 1
Lab File ID: RJX039                         Matrix: SOIL
Ext Btch ID: SVJ012S                       % Moisture: 8.3
Calib. Ref.: RHX222                         Instrument ID: T-042
=====

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PARAMETERS	RESULTS (ug/kg)	RL (ug/kg)	MDL (ug/kg)
1,2,4-TRICHLOROBENZENE	ND	360	180
1,2-DICHLOROBENZENE	ND	360	180
1,3-DICHLOROBENZENE	ND	360	180
1,4-DICHLOROBENZENE	ND	360	180
2,4,5-TRICHLOROPHENOL	ND	360	180
2,4,6-TRICHLOROPHENOL	ND	360	200
2,4-DICHLOROPHENOL	ND	360	180
2,4-DIMETHYLPHENOL	ND	360	180
2,4-DINITROPHENOL	ND	730	180
2,4-DINITROTOLUENE	ND	360	180
2,6-DINITROTOLUENE	ND	360	180
2-CHLORONAPHTHALENE	ND	360	180
2-CHLOROPHENOL	ND	360	180
2-METHYLPHENOL	ND	360	180
2-NITROANILINE	ND	730	180
2-NITROPHENOL	ND	730	180
3,3'-DICHLOROBENZIDINE	ND	730	180
3-NITROANILINE	ND	730	180
4,6-DINITRO-2-METHYLPHENOL	ND	730	180
4-BROMOPHENYL-PHENYL ETHER	ND	360	180
4-CHLORO-3-METHYLPHENOL	ND	360	180
4-CHLOROANILINE	ND	360	180
4-CHLOROPHENYL-PHENYL ETHER	ND	360	190
4-METHYLPHENOL (1)	ND	360	180
4-NITROANILINE	ND	730	180
4-NITROPHENOL	ND	730	180
BIS(2-CHLOROETHOXY)METHANE	ND	360	180
BIS(2-CHLOROETHYL)ETHER	ND	360	180
BIS(2-CHLOROISOPROPYL)ETHER	ND	360	180
BIS(2-ETHYLHEXYL)PHTHALATE	ND	360	180
BUTYLBENZYLPHthalate	ND	360	180
DI-N-BUTYLPHthalate	ND	360	180
DI-N-OCTYLPHthalate	ND	360	180
DIBENZOFURAN	ND	360	180
DIETHYL PHTHALATE	ND	360	180
DIMETHYL PHTHALATE	ND	360	180
HEXACHLOROBENZENE	ND	360	180
HEXACHLOROBUTADIENE	ND	360	210
HEXACHLOROCYCLOPENTADIENE	ND	360	180
HEXACHLOROETHANE	ND	360	180
N-NITROSODIPHENYLAMINE (2)	ND	360	180
NITROBENZENE	ND	360	180
PENTACHLOROPHENOL	ND	730	190
PHENOL	ND	360	180

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
2,4,6-TRIBROMOPHENOL	72	25-144
2-FLUOROBIPHENYL	64	34-135
2-FLUOROPHENOL	57	25-135
NITROBENZENE-D5	66	25-135
PHENOL-D5	60	25-135
TERPHENYL-D14	136	32-136

(1): Cannot be separated from 3-Methylphenol
(2): Cannot be separated from Diphenylamine

CASE NARRATIVE

CLIENT: TETRA TECH EC, INC.
PROJECT: NWS SEAL BEACH, CTO 0006
SDG: 06J054

METHOD 3550B/8270C SIM SEMI VOLATILE ORGANICS BY GC/MS

Four (4) soil samples were received on 10/05/06 for Semi Volatile Organic analysis by Method 3550B/8270C SIM in accordance with USEPA SW846, 3rd edition and DOD QSM (2002).

1. Holding Time

Analytical holding time was met.

2. Tuning and Calibration

Tuning and calibration were carried out at 12-hour interval. All QC requirements were met.

3. Method Blank

Method blank was free of contamination at half of reporting limit.

4. Surrogate Recovery

Recoveries were within QC limit.

5. Lab Control Sample/Lab Control Sample Duplicate

Recoveries were within QC limit.

6. Matrix Spike/Matrix Spike Duplicate

No MS/MSD sample was designated in this SDG.

7. Sample Analysis

Samples were analyzed according to the prescribed QC procedures. All criteria were met.

Extracts of samples J054-11 to -14 were cleaned up by GPC prior to analysis.

METHOD 3550B/8270C SIM
SEMI VOLATILE ORGANICS BY GC/MS

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=====
Client      : TETRA TECH EC, INC.           Date Collected: 10/05/06
Project     : NWS SEAL BEACH, CTO 0006     Date Received: 10/05/06
Batch No.   : 06J054                       Date Extracted: 10/06/06 16:00
Sample ID   : 6-44-107                    Date Analyzed: 10/10/06 20:33
Lab Samp ID: J054-11                      Dilution Factor: 2
Lab File ID: RJ2163                       Matrix          : SOIL
Ext Btch ID: SVJ012S                      % Moisture     : 36.9
Calib. Ref.: R12058                       Instrument ID  : T-048
=====

```

PARAMETERS	RESULTS (ug/kg)	RL (ug/kg)	MDL (ug/kg)
ACENAPHTHENE	ND	63	32
ACENAPHTHYLENE	ND	63	32
ANTHRACENE	ND	63	32
BENZO(A)ANTHRACENE	ND	63	32
BENZO(A)PYRENE	ND	63	32
BENZO(B)FLUORANTHENE	ND	63	32
BENZO(K)FLUORANTHENE	ND	63	32
BENZO(G,H,I)PERYLENE	ND	63	32
CHRYSENE	ND	63	32
DIBENZO(A,H)ANTHRACENE	ND	63	32
FLUORANTHENE	ND	63	32
FLUORENE	ND	63	32
INDENO(1,2,3-CD)PYRENE	ND	63	32
NAPHTHALENE	ND	63	32
N-NITROSO-DI-N-PROPYLAMINE	ND	63	32
PHENANTHRENE	ND	63	32
PYRENE	ND	63	32
SURROGATE PARAMETERS			
-----	% RECOVERY	QC LIMIT	
TERPHENYL-D14	90	40-130	

METHOD 3550B/8270C SIM
SEMI VOLATILE ORGANICS BY GC/MS

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=====
Client      : TETRA TECH EC, INC.           Date Collected: 10/05/06
Project     : NWS SEAL BEACH, CTO 0006      Date Received: 10/05/06
Batch No.   : 06J054                        Date Extracted: 10/06/06 16:00
Sample ID   : 6-44-108                      Date Analyzed: 10/10/06 20:52
Lab Samp ID: J054-12                        Dilution Factor: 2
Lab File ID: RJZ164                         Matrix          : SOIL
Ext Btch ID: SVJ012S                       % Moisture      : 39.9
Calib. Ref.: R12058                         Instrument ID   : T-048
=====
  
```

PARAMETERS	RESULTS (ug/kg)	RL (ug/kg)	MDL (ug/kg)
ACENAPHTHENE	ND	67	33
ACENAPHTHYLENE	ND	67	33
ANTHRACENE	ND	67	33
BENZO(A)ANTHRACENE	ND	67	33
BENZO(A)PYRENE	ND	67	33
BENZO(B)FLUORANTHENE	ND	67	33
BENZO(K)FLUORANTHENE	ND	67	33
BENZO(G,H,I)PERYLENE	ND	67	33
CHRYSENE	ND	67	33
DIBENZO(A,H)ANTHRACENE	ND	67	33
FLUORANTHENE	ND	67	33
FLUORENE	ND	67	33
INDENO(1,2,3-CD)PYRENE	ND	67	33
NAPHTHALENE	ND	67	33
N-NITROSO-DI-N-PROPYLAMINE	ND	67	33
PHENANTHRENE	ND	67	33
PYRENE	ND	67	33

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
TERPHENYL-D14	71	40-130

METHOD 3550B/8270C SIM
SEMI VOLATILE ORGANICS BY GC/MS

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=====
Client      : TETRA TECH EC, INC.           Date Collected: 10/05/06
Project    : NWS SEAL BEACH, CTO 0006      Date Received: 10/05/06
Batch No.  : 06J054                         Date Extracted: 10/06/06 16:00
Sample ID  : 6-44-109                       Date Analyzed: 10/10/06 21:11
Lab Samp ID: J054-13                         Dilution Factor: 2
Lab File ID: RJZ165                          Matrix       : SOIL
Ext Btch ID: SVJ012S                         % Moisture   : 25.3
Calib. Ref.: RIZ058                          Instrument ID : T-048
=====

```

PARAMETERS	RESULTS (ug/kg)	RL (ug/kg)	MDL (ug/kg)
ACENAPHTHENE	ND	54	27
ACENAPHTHYLENE	ND	54	27
ANTHRACENE	ND	54	27
BENZO(A)ANTHRACENE	ND	54	27
BENZO(A)PYRENE	ND	54	27
BENZO(B)FLUORANTHENE	ND	54	27
BENZO(K)FLUORANTHENE	ND	54	27
BENZO(G,H,I)PERYLENE	ND	54	27
CHRYSENE	ND	54	27
DIBENZO(A,H)ANTHRACENE	ND	54	27
FLUORANTHENE	ND	54	27
FLUORENE	ND	54	27
INDENO(1,2,3-CD)PYRENE	ND	54	27
NAPHTHALENE	ND	54	27
N-NITROSO-DI-N-PROPYLAMINE	ND	54	27
PHENANTHRENE	ND	54	27
PYRENE	ND	54	27
SURROGATE PARAMETERS	% RECOVERY	QC LIMIT	
TERPHENYL-D14	88	40-130	

METHOD 3550B/8270C SIM
SEMI VOLATILE ORGANICS BY GC/MS

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=====
Client      : TETRA TECH EC, INC.           Date Collected: 10/05/06
Project     : NWS SEAL BEACH, CTO 0006     Date Received: 10/05/06
Batch No.   : 06J054                       Date Extracted: 10/06/06 16:00
Sample ID   : 6-57-110                     Date Analyzed: 10/10/06 21:31
Lab Samp ID: J054-14                       Dilution Factor: 1
Lab File ID: RJZ166                         Matrix        : SOIL
Ext Btch ID: SVJ012S                       % Moisture    : 8.3
Calib. Ref.: RIZ058                         Instrument ID  : T-048
=====

```

PARAMETERS	RESULTS (ug/kg)	RL (ug/kg)	MDL (ug/kg)
ACENAPHTHENE	ND	22	11
ACENAPHTHYLENE	ND	22	11
ANTHRACENE	ND	22	11
BENZO(A)ANTHRACENE	ND	22	11
BENZO(A)PYRENE	ND	22	11
BENZO(B)FLUORANTHENE	ND	22	11
BENZO(K)FLUORANTHENE	ND	22	11
BENZO(G,H,I)PERYLENE	ND	22	11
CHRYSENE	ND	22	11
DIBENZO(A,H)ANTHRACENE	ND	22	11
FLUORANTHENE	ND	22	11
FLUORENE	ND	22	11
INDENO(1,2,3-CD)PYRENE	ND	22	11
NAPHTHALENE	ND	22	11
N-NITROSO-DI-N-PROPYLAMINE	ND	22	11
PHENANTHRENE	ND	22	11
PYRENE	ND	22	11
SURROGATE PARAMETERS	% RECOVERY	QC LIMIT	
TERPHENYL-D14	111	40-130	

CASE NARRATIVE

CLIENT: TETRA TECH EC, INC.
PROJECT: NWS SEAL BEACH, CTO 0006
SDG: 06J054

METHOD 3550B/8081A PESTICIDES

Four (4) soil samples were received on 10/05/06 for Pesticides analysis by Method 3550B/8081A in accordance with "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", SW846, 3rd edition and DOD QSM (2002).

1. Holding Time

Analytical holding time was met.

2. Instrument Performance and Calibration

Initial calibration was at six-point for Pesticides, all RSDs were within 20%. All continue calibrations were analyzed at 10 samples interval and mean recoveries were within 85-115%. Endrin and DDT breakdown were within QC limits.

3. Method Blank

Method blank was free of contamination at half of reporting limit.

4. Surrogate Recovery

Recoveries were within QC limit.

5. Lab Control Sample/Lab Control Sample Duplicate

All recoveries were within QC limits.

6. Matrix Spike/Matrix Spike Duplicate

No MS/MSD sample was designated in this SDG.

7. Sample Analysis

Samples were analyzed according to the prescribed QC procedures. All criteria were met.

When sample results are confirmed by a second column, the relative percentage difference (RPD) between the two results is calculated. If RPD is less than 40%, and no evidence of chromatographic problems, the higher result is reported. If RPD is greater than 40%, the chromatogram is checked for anomalies and results are selected based on the best professional judgment. If no evidence of any chromatographic problems, the higher result is reported.

METHOD 3550B/8081A
PESTICIDES

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=====
Client      : TETRA TECH EC, INC.           Date Collected: 10/05/06
Project     : NWS SEAL BEACH, CTO 0006     Date Received: 10/05/06
Batch No.   : 06J054                       Date Extracted: 10/06/06 11:30
Sample ID   : 6-44-107                     Date Analyzed: 10/07/06 03:49
Lab Samp ID: J054-11                       Dilution Factor: 1
Lab File ID: SJ06030A                     Matrix          : SOIL
Ext Btch ID: CPJ005S                       % Moisture     : 36.9
Calib. Ref.: SJ06020A                     Instrument ID   : GCT008
=====

```

PARAMETERS	RESULTS (ug/kg)	RL (ug/kg)	MDL (ug/kg)
ALPHA-BHC	1.0J (ND)	2.7	0.95
GAMMA-BHC (LINDANE)	(ND) ND	2.7	0.95
BETA-BHC	(ND) 29	2.7	0.95
HEPTACHLOR	(ND) 2.4J	2.7	0.95
DELTA-BHC	(ND) ND	2.7	0.95
ALDRIN	(ND) ND	2.7	0.95
HEPTACHLOR EPOXIDE	15 (ND)	2.7	0.95
GAMMA-CHLORDANE	(2.2J) 20J	48	0.95
ALPHA-CHLORDANE	3.3J (ND)	48	0.95
ENDOSULFAN I	(ND) ND	2.7	0.95
4,4'-DDE	290E (300E)	5.2	1.9
DIELDRIN	(3.4J) 3.1J	5.2	1.9
ENDRIN	(ND) ND	5.2	1.9
4,4'-DDD	41 (42)	5.2	1.9
ENDOSULFAN II	(ND) ND	5.2	1.9
4,4'-DDT	3.0J (3.2J)	5.2	1.9
ENDRIN ALDEHYDE	(ND) ND	5.2	1.9
ENDOSULFAN SULFATE	(ND) ND	5.2	2.4
ENDRIN KETONE	(ND) ND	5.2	1.9
METHOXYCHLOR	(ND) ND	27	6.3
TOXAPHENE	(ND) ND	94	16

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
TETRACHLORO-M-XYLENE	(84) 83	25-143
DECACHLOROBIPHENYL	(77) 75	25-143

RL : Reporting limit
Left of | is related to first column ; Right of | related to second column
Final result indicated by ()

METHOD 3550B/8081A
PESTICIDES

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=====
Client      : TETRA TECH EC, INC.           Date Collected: 10/05/06
Project     : NWS SEAL BEACH, CTO 0006     Date Received: 10/05/06
Batch No.   : 06J054                       Date Extracted: 10/06/06 11:30
Sample ID   : 6-44-107DL                   Date Analyzed: 10/09/06 14:04
Lab Samp ID: J054-11T                      Dilution Factor: 10
Lab File ID: SJ09010A                      Matrix          : SOIL
Ext Btch ID: CPJ005S                       % Moisture      : 36.9
Calib. Ref.: SJ09003A                      Instrument ID   : GCT008
=====
  
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PARAMETERS	RESULTS (ug/kg)	RL (ug/kg)	MDL (ug/kg)
ALPHA-BHC	(ND) ND	27	9.5 9.5
GAMMA-BHC (LINDANE)	(ND) ND	27	9.5 9.5
BETA-BHC	(ND) 29	27	9.5 9.5
HEPTACHLOR	(ND) ND	27	9.5 9.5
DELTA-BHC	(ND) ND	27	9.5 9.5
ALDRIN	(ND) ND	27	9.5 9.5
HEPTACHLOR EPOXIDE	(ND) ND	27	9.5 9.5
GAMMA-CHLORDANE	(ND) 40J	480	9.5 9.5
ALPHA-CHLORDANE	(ND) ND	480	9.5 9.5
ENDOSULFAN I	(ND) ND	27	9.5 9.5
4,4'-DDE	300 (310)	52	19 19
DIELDRIN	(ND) ND	52	19 19
ENDRIN	(ND) ND	52	19 19
4,4'-DDD	(34J) 33J	52	19 19
ENDOSULFAN II	(ND) ND	52	19 19
4,4'-DDT	(ND) ND	52	19 19
ENDRIN ALDEHYDE	(ND) ND	52	19 19
ENDOSULFAN SULFATE	(ND) ND	52	24 24
ENDRIN KETONE	(ND) ND	52	19 19
METHOXYCHLOR	(ND) ND	270	63 63
TOXAPHENE	(ND) ND	940	160 160
SURROGATE PARAMETERS	% RECOVERY	QC LIMIT	
TETRACHLORD-M-XYLENE	(DO) DO	25-143	
DECACHLOROBIPHENYL	(DO) DO	25-143	

RL : Reporting limit
 Left of | is related to first column ; Right of | related to second column
 Final result indicated by ()

METHOD 3550B/8081A
PESTICIDES

```

=====
Client      : TETRA TECH EC, INC.           Date Collected: 10/05/06
Project     : NWS SEAL BEACH, CTO 0006      Date Received: 10/05/06
Batch No.   : 06J054                       Date Extracted: 10/06/06 11:30
Sample ID: 6-44-108                       Date Analyzed: 10/07/06 04:16
Lab Samp ID: J054-12                       Dilution Factor: 1
Lab File ID: SJ06031A                      Matrix       : SOIL
Ext Btch ID: CPJ005S                       % Moisture   : 39.9
Calib. Ref.: SJ06020A                      Instrument ID : GCT008
=====

```

PARAMETERS	RESULTS (ug/kg)	RL (ug/kg)	MDL (ug/kg)
ALPHA-BHC	(ND) ND	2.8	1.0 1.0
GAMMA-BHC (LINDANE)	(ND) ND	2.8	1.0 1.0
BETA-BHC	(ND) 160E	2.8	1.0 1.0
HEPTACHLOR	(ND) 1.2J	2.8	1.0 1.0
DELTA-BHC	(ND) ND	2.8	1.0 1.0
ALDRIN	(ND) ND	2.8	1.0 1.0
HEPTACHLOR EPOXIDE	2.3J (ND)	2.8	1.0 1.0
GAMMA-CHLORDANE	(ND) ND	50	1.0 1.0
ALPHA-CHLORDANE	(ND) ND	50	1.0 1.0
ENDOSULFAN I	(ND) ND	2.8	1.0 1.0
4,4'-DDE	(68E) 68E	5.5	2.0 2.0
DIELDRIN	(ND) ND	5.5	2.0 2.0
ENDRIN	(ND) ND	5.5	2.0 2.0
4,4'-DDD	(10) 9.7	5.5	2.0 2.0
ENDOSULFAN II	(ND) ND	5.5	2.0 2.0
4,4'-DDT	3.5J (4.5J)	5.5	2.0 2.0
ENDRIN ALDEHYDE	(ND) ND	5.5	2.0 2.0
ENDOSULFAN SULFATE	(ND) ND	5.5	2.5 2.5
ENDRIN KETONE	(ND) ND	5.5	2.0 2.0
METHOXYCHLOR	(ND) ND	28	6.7 6.7
TOXAPHENE	(ND) ND	98	17 17

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
TETRACHLORO-M-XYLENE	(83) 80	25-143
DECACHLOROBIPHENYL	(73) 73	25-143

RL : Reporting limit
Left of | is related to first column ; Right of | related to second column
Final result indicated by ()

METHOD 3550B/8081A
PESTICIDES

```

=====
Client      : TETRA TECH EC, INC.           Date Collected: 10/05/06
Project     : NWS SEAL BEACH, CTO 0006     Date Received: 10/05/06
Batch No.   : 06J054                       Date Extracted: 10/06/06 11:30
Sample ID: 6-44-108DL                     Date Analyzed: 10/09/06 14:30
Lab Samp ID: J054-12T                     Dilution Factor: 2
Lab File ID: SJ09011A                    Matrix          : SOIL
Ext Btch ID: CPJ005S                     % Moisture     : 39.9
Calib. Ref.: SJ09003A                    Instrument ID  : GCT008
=====

```

PARAMETERS	RESULTS (ug/kg)	RL (ug/kg)	MDL (ug/kg)
ALPHA-BHC	(ND) ND	5.7	2.0 2.0
GAMMA-BHC (LINDANE)	(ND) ND	5.7	2.0 2.0
BETA-BHC	(ND) 100E	5.7	2.0 2.0
HEPTACHLOR	(ND) ND	5.7	2.0 2.0
DELTA-BHC	(ND) ND	5.7	2.0 2.0
ALDRIN	(ND) ND	5.7	2.0 2.0
HEPTACHLOR EPOXIDE	(ND) ND	5.7	2.0 2.0
GAMMA-CHLORDANE	(ND) ND	100	2.0 2.0
ALPHA-CHLORDANE	(ND) ND	100	2.0 2.0
ENDOSULFAN I	(ND) ND	5.7	2.0 2.0
4,4'-DDE	66 (68)	11	4.0 4.0
DIELDRIN	(ND) ND	11	4.0 4.0
ENDRIN	(ND) ND	11	4.0 4.0
4,4'-DDD	9.0J (9.2J)	11	4.0 4.0
ENDOSULFAN II	(ND) ND	11	4.0 4.0
4,4'-DDT	4.3J (5.5J)	11	4.0 4.0
ENDRIN ALDEHYDE	(ND) ND	11	4.0 4.0
ENDOSULFAN SULFATE	(ND) ND	11	5.0 5.0
ENDRIN KETONE	(ND) ND	11	4.0 4.0
METHOXYCHLOR	(ND) ND	57	13 13
TOXAPHENE	(ND) ND	200	33 33

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
TETRACHLORO-M-XYLENE	(82) 78	25-143
DECACHLOROBIPHENYL	80 (82)	25-143

RL : Reporting limit
Left of | is related to first column ; Right of | related to second column
Final result indicated by ()

METHOD 3550B/8081A
PESTICIDES

```

=====
Client      : TETRA TECH EC, INC.           Date Collected: 10/05/06
Project     : NWS SEAL BEACH, CTO 0006     Date Received: 10/05/06
Batch No.   : 06J054                       Date Extracted: 10/06/06 11:30
Sample ID   : 6-44-109                    Date Analyzed: 10/07/06 04:42
Lab Samp ID : J054-13                     Dilution Factor: 1
Lab File ID : SJ06032A                   Matrix          : SOIL
Ext Btch ID : CPJ005S                    % Moisture     : 25.3
Calib. Ref.: SJ06020A                   Instrument ID  : GCT008
=====

```

PARAMETERS	RESULTS (ug/kg)	RL (ug/kg)	MDL (ug/kg)
ALPHA-BHC	(ND) ND	2.3	0.80 0.80
GAMMA-BHC (LINDANE)	(ND) ND	2.3	0.80 0.80
BETA-BHC	(ND) 47E	2.3	0.80 0.80
HEPTACHLOR	(ND) ND	2.3	0.80 0.80
DELTA-BHC	(ND) ND	2.3	0.80 0.80
ALDRIN	(ND) ND	2.3	0.80 0.80
HEPTACHLOR EPOXIDE	7.3 (ND)	2.3	0.80 0.80
GAMMA-CHLORDANE	(ND) 18J	40	0.80 0.80
ALPHA-CHLORDANE	(1.5J) 0.97J	40	0.80 0.80
ENDOSULFAN I	(ND) ND	2.3	0.80 0.80
4,4'-DDE	(150E) 150E	4.4	1.6 1.6
DIELDRIN	(2.5J) 1.8J	4.4	1.6 1.6
ENDRIN	(ND) ND	4.4	1.6 1.6
4,4'-DDD	20 (21)	4.4	1.6 1.6
ENDOSULFAN II	(ND) ND	4.4	1.6 1.6
4,4'-DDT	9.2 (11)	4.4	1.6 1.6
ENDRIN ALDEHYDE	(ND) ND	4.4	1.6 1.6
ENDOSULFAN SULFATE	(ND) ND	4.4	2.0 2.0
ENDRIN KETONE	(ND) ND	4.4	1.6 1.6
METHOXYCHLOR	(ND) ND	23	5.4 5.4
TOXAPHENE	(ND) ND	79	13 13

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
TETRACHLORO-M-XYLENE	(89) 85	25-143
DECACHLOROBIPHENYL	(69) 66	25-143

RL : Reporting limit
Left of | is related to first column ; Right of | related to second column
Final result indicated by ()

METHOD 3550B/8081A
PESTICIDES

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=====
Client      : TETRA TECH EC, INC.           Date Collected: 10/05/06
Project    : NWS SEAL BEACH, CTO 0006     Date Received: 10/05/06
Batch No.  : 06J054                       Date Extracted: 10/06/06 11:30
Sample ID  : 6-44-109DL                   Date Analyzed: 10/09/06 14:57
Lab Samp ID: J054-13T                     Dilution Factor: 5
Lab File ID: SJ09012A                     Matrix          : SOIL
Ext Btch ID: CPJ005S                      % Moisture     : 25.3
Calib. Ref.: SJ09003A                     Instrument ID  : GCT008
=====

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PARAMETERS	RESULTS (ug/kg)	RL (ug/kg)	MDL (ug/kg)
ALPHA-BHC	(ND) ND	11	4.0 4.0
GAMMA-BHC (LINDANE)	(ND) ND	11	4.0 4.0
BETA-BHC	(ND) 45	11	4.0 4.0
HEPTACHLOR	(ND) ND	11	4.0 4.0
DELTA-BHC	(ND) ND	11	4.0 4.0
ALDRIN	(ND) ND	11	4.0 4.0
HEPTACHLOR EPOXIDE	(ND) ND	11	4.0 4.0
GAMMA-CHLORDANE	(ND) 44J	200	4.0 4.0
ALPHA-CHLORDANE	(ND) ND	200	4.0 4.0
ENDOSULFAN I	(ND) ND	11	4.0 4.0
4,4'-DDE	150 (160)	22	8.0 8.0
DIELDRIN	(ND) ND	22	8.0 8.0
ENDRIN	(ND) ND	22	8.0 8.0
4,4'-DDD	(18J) 17J	22	8.0 8.0
ENDOSULFAN II	(ND) ND	22	8.0 8.0
4,4'-DDT	10J (12J)	22	8.0 8.0
ENDRIN ALDEHYDE	(ND) ND	22	8.0 8.0
ENDOSULFAN SULFATE	(ND) ND	22	10 10
ENDRIN KETONE	(ND) ND	22	8.0 8.0
METHOXYCHLOR	(ND) ND	110	27 27
TOXAPHENE	(ND) ND	390	67 67

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
TETRACHLORO-M-XYLENE	(87) 86	25-143
DECACHLOROBIPHENYL	(78) 78	25-143

RL : Reporting limit
Left of | is related to first column ; Right of | related to second column
Final result indicated by ()

METHOD 3550B/8081A
PESTICIDES

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=====
Client      : TETRA TECH EC, INC.           Date Collected: 10/05/06
Project     : NWS SEAL BEACH, CTO 0006     Date Received: 10/05/06
Batch No.   : 06J054                       Date Extracted: 10/06/06 11:30
Sample ID   : 6-57-110                     Date Analyzed: 10/07/06 05:08
Lab Samp ID: J054-14                       Dilution Factor: 1
Lab File ID: SJ06033A                     Matrix          : SOIL
Ext Btch ID: CPJ005S                      % Moisture     : 8.3
Calib. Ref.: SJ06020A                     Instrument ID  : GCT008
=====

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PARAMETERS	RESULTS (ug/kg)	RL (ug/kg)	MDL (ug/kg)
ALPHA-BHC	(ND) ND	1.9	0.65 0.65
GAMMA-BHC (LINDANE)	(ND) ND	1.9	0.65 0.65
BETA-BHC	(ND) ND	1.9	0.65 0.65
HEPTACHLOR	(ND) ND	1.9	0.65 0.65
DELTA-BHC	(ND) ND	1.9	0.65 0.65
ALDRIN	(ND) ND	1.9	0.65 0.65
HEPTACHLOR EPOXIDE	(ND) ND	1.9	0.65 0.65
GAMMA-CHLORDANE	(ND) ND	33	0.65 0.65
ALPHA-CHLORDANE	(ND) ND	33	0.65 0.65
ENDOSULFAN I	(ND) ND	1.9	0.65 0.65
4,4'-DDE	(ND) ND	3.6	1.3 1.3
DIELDRIN	(ND) ND	3.6	1.3 1.3
ENDRIN	(ND) ND	3.6	1.3 1.3
4,4'-DDD	(ND) ND	3.6	1.3 1.3
ENDOSULFAN II	(ND) ND	3.6	1.3 1.3
4,4'-DDT	(ND) ND	3.6	1.3 1.3
ENDRIN ALDEHYDE	(ND) ND	3.6	1.3 1.3
ENDOSULFAN SULFATE	(ND) ND	3.6	1.6 1.6
ENDRIN KETONE	(ND) ND	3.6	1.3 1.3
METHOXYCHLOR	(ND) ND	19	4.4 4.4
TOXAPHENE	(ND) ND	64	11 11

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
TETRACHLORO-M-XYLENE	(78) 76	25-143
DECACHLOROBIPHENYL	(72) 72	25-143

RL : Reporting limit
Left of | is related to first column ; Right of | related to second column
Final result indicated by ()

CASE NARRATIVE

CLIENT: TETRA TECH EC, INC.
PROJECT: NWS SEAL BEACH, CTO 0006
SDG: 06J054

METHOD 3550B/8082 PCBs

Four (4) soil samples were received on 10/05/06 for PCBs analysis by Method 3550B/8082 in accordance with "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", SW846, 3rd edition and DOD QSM (2002).

1. Holding Time

Analytical holding time was met.

2. Instrument Performance and Calibration

Initial calibration was five points for PCB-1016 and PCB-1260, all RSDs were within 20%. All continue calibrations were analyzed at 10 samples interval and all recoveries in column B were within 85-115%. Results were reported from column A.

3. Method Blank

Method blank was free of contamination at half of reporting limit.

4. Surrogate Recovery

Recoveries were within QC limit.

5. Lab Control Sample/Lab Control Sample Duplicate

All recoveries were within QC limits.

6. Matrix Spike/Matrix Spike Duplicate

No MS/MSD sample was designated in this SDG.

7. Sample Analysis

Samples were analyzed according to the prescribed QC procedures. All criteria were met.

METHOD 5550B/8082
PCBs

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=====
Client      : TETRA TECH EC, INC.           Date Collected: 10/05/06
Project     : NWS SEAL BEACH, CTO 0006     Date Received: 10/05/06
Batch No.   : 06J054                       Date Extracted: 10/06/06 11:30
Sample ID   : 6-44-107                    Date Analyzed: 10/07/06 03:49
Lab Samp ID : J054-11                     Dilution Factor: 1
Lab File ID : SJ06030A                    Matrix          : SOIL
Ext Btch ID : CPJ005S                     % Moisture     : 36.9
Calib. Ref. : SJ06022A                    Instrument ID  : GCT008
=====
  
```

PARAMETERS	RESULTS (ug/kg)	RL (ug/kg)	MDL (ug/kg)
PCB-1016	(ND) ND	79	32 32
PCB-1221	(ND) ND	79	32 32
PCB-1232	(ND) ND	79	32 32
PCB-1242	(ND) ND	79	32 32
PCB-1248	(ND) ND	79	32 32
PCB-1254	(ND) ND	79	32 32
PCB-1260	(ND) ND	79	32 32
SURROGATE PARAMETERS	% RECOVERY	QC LIMIT	
TETRACHLORO-M-XYLENE	(91) 92	30-140	
DECACHLOROBIPHENYL	(97) 129	30-140	

Left of | is related to first column ; Right of | related to second column
 Final result indicated by ()
 * Out side of QC Limit

METHOD 3550B/8082

PCBs

```

=====
Client      : TETRA TECH EC, INC.           Date Collected: 10/05/06
Project     : NWS SEAL BEACH, CTO 0006     Date Received: 10/05/06
Batch No.   : 06J054                       Date Extracted: 10/06/06 11:30
Sample ID: 6-44-108                       Date Analyzed: 10/07/06 04:16
Lab Samp ID: J054-12                      Dilution Factor: 1
Lab File ID: SJ06031A                    Matrix       : SOIL
Ext Btch ID: CPJ005S                     % Moisture   : 39.9
Calib. Ref.: SJ06022A                   Instrument ID : GCT008
=====

```

PARAMETERS	RESULTS (ug/kg)	RL (ug/kg)	MDL (ug/kg)
PCB-1016	(ND) ND	83	33 33
PCB-1221	(ND) ND	83	33 33
PCB-1232	(ND) ND	83	33 33
PCB-1242	(ND) ND	83	33 33
PCB-1248	(ND) ND	83	33 33
PCB-1254	(ND) ND	83	33 33
PCB-1260	(ND) ND	83	33 33

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
TETRACHLORO-M-XYLENE	(90) 93	30-140
DECACHLOROBIPHENYL	(93) 125	30-140

Left of | is related to first column ; Right of | related to second column

Final result indicated by ()

* Out side of QC Limit

METHOD 3550B/8082

PCBs

```

=====
Client      : TETRA TECH EC, INC.           Date Collected: 10/05/06
Project     : NWS SEAL BEACH, CTO 0006     Date Received: 10/05/06
Batch No.   : 06J054                       Date Extracted: 10/06/06 11:30
Sample ID   : 6-44-109                     Date Analyzed: 10/07/06 04:42
Lab Samp ID: J054-13                       Dilution Factor: 1
Lab File ID: SJ06032A                     Matrix          : SOIL
Ext Btch ID: CPJ005S                      % Moisture     : 25.3
Calib. Ref.: SJ06022A                     Instrument ID  : GCT008
=====
    
```

PARAMETERS	RESULTS (ug/kg)	RL (ug/kg)	MDL (ug/kg)
PCB-1016	(ND) ND	67	27 27
PCB-1221	(ND) ND	67	27 27
PCB-1232	(ND) ND	67	27 27
PCB-1242	(ND) ND	67	27 27
PCB-1248	(ND) ND	67	27 27
PCB-1254	(ND) ND	67	27 27
PCB-1260	(ND) ND	67	27 27
SURROGATE PARAMETERS	% RECOVERY	QC LIMIT	
TETRACHLORO-M-XYLENE	(93) 98	30-140	
DECACHLOROBIPHENYL	(87) 114	30-140	

Left of | is related to first column ; Right of | related to second column

Final result indicated by ()

* Out side of QC Limit

METHOD 3550B/8082
PCBs

```

=====
Client      : TETRA TECH EC, INC.           Date Collected: 10/05/06
Project     : NWS SEAL BEACH, CTO 0006     Date Received: 10/05/06
Batch No.   : 06J054                       Date Extracted: 10/06/06 11:30
Sample ID   : 6-57-110                    Date Analyzed: 10/07/06 05:08
Lab Samp ID : J054-14                     Dilution Factor: 1
Lab File ID : SJ06033A                   Matrix          : SOIL
Ext Btch ID: CPJ005S                     % Moisture     : 8.3
Calib. Ref.: SJ06022A                   Instrument ID  : GCT008
=====
  
```

PARAMETERS	RESULTS (ug/kg)	RL (ug/kg)	MDL (ug/kg)
PCB-1016	(ND) ND	55	22 22
PCB-1221	(ND) ND	55	22 22
PCB-1232	(ND) ND	55	22 22
PCB-1242	(ND) ND	55	22 22
PCB-1248	(ND) ND	55	22 22
PCB-1254	(ND) ND	55	22 22
PCB-1260	(ND) ND	55	22 22
SURROGATE PARAMETERS	% RECOVERY	QC LIMIT	
TETRACHLORO-M-XYLENE	(84) 86	30-140	
DECACHLOROBIPHENYL	(91) 123	30-140	

Left of | is related to first column ; Right of | related to second column
 Final result indicated by ()
 * Out side of QC Limit

CASE NARRATIVE

CLIENT: TETRA TECH EC, INC.
PROJECT: NWS SEAL BEACH, CTO 0006
SDG: 06J054

METHOD 3550B/8082 PCBs

Four (4) soil samples were received on 10/05/06 for PCBs analysis by Method 3550B/8082 in accordance with "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", SW846, 3rd edition and DOD QSM (2002).

1. Holding Time

Analytical holding time was met.

2. Instrument Performance and Calibration

Initial calibration was five points for PCB-1016 and PCB-1260, all RSDs were within 20%. All continue calibrations were analyzed at 10 samples interval and all recoveries in column B were within 85-115%. Results were reported from column A.

3. Method Blank

Method blank was free of contamination at half of reporting limit.

4. Surrogate Recovery

Recoveries were within QC limit.

5. Lab Control Sample/Lab Control Sample Duplicate

All recoveries were within QC limits.

6. Matrix Spike/Matrix Spike Duplicate

No MS/MSD sample was designated in this SDG.

7. Sample Analysis

Samples were analyzed according to the prescribed QC procedures. All criteria were met.

METHOD 3550B/8082
PCBs

```

=====
Client      : TETRA TECH EC, INC.           Date Collected: 10/05/06
Project     : NWS SEAL BEACH, CTO 0006     Date Received: 10/05/06
Batch No.   : 06J054                       Date Extracted: 10/06/06 11:30
Sample ID   : 6-44-107                    Date Analyzed: 10/07/06 03:49
Lab Samp ID : J054-11                     Dilution Factor: 1
Lab File ID : SJ06030A                   Matrix          : SOIL
Ext Btch ID : CPJ005S                     % Moisture      : 36.9
Calib. Ref. : SJ06022A                   Instrument ID   : GCT008
=====
  
```

PARAMETERS	RESULTS (ug/kg)	RL (ug/kg)	MDL (ug/kg)
PCB-1016	(ND) ND	79	32 32
PCB-1221	(ND) ND	79	32 32
PCB-1232	(ND) ND	79	32 32
PCB-1242	(ND) ND	79	32 32
PCB-1248	(ND) ND	79	32 32
PCB-1254	(ND) ND	79	32 32
PCB-1260	(ND) ND	79	32 32
SURROGATE PARAMETERS	% RECOVERY	QC LIMIT	
TETRACHLORO-M-XYLENE	(91) 92	30-140	
DECACHLOROBIPHENYL	(97) 129	30-140	

Left of | is related to first column ; Right of | related to second column
 Final result indicated by ()
 * Out side of QC Limit

METHOD 3550B/8082
PCBs

```

=====
Client      : TETRA TECH EC, INC.           Date Collected: 10/05/06
Project     : NWS SEAL BEACH, CTO 0006      Date Received: 10/05/06
Batch No.   : 06J054                       Date Extracted: 10/06/06 11:30
Sample ID   : 6-44-108                    Date Analyzed: 10/07/06 04:16
Lab Samp ID: J054-12                      Dilution Factor: 1
Lab File ID: SJ06031A                    Matrix       : SOIL
Ext Btch ID: CPJ005S                     % Moisture   : 39.9
Calib. Ref.: SJ06022A                    Instrument ID : GCT008
=====

```

PARAMETERS	RESULTS (ug/kg)	RL (ug/kg)	MDL (ug/kg)
PCB-1016	(ND) ND	83	33 33
PCB-1221	(ND) ND	83	33 33
PCB-1232	(ND) ND	83	33 33
PCB-1242	(ND) ND	83	33 33
PCB-1248	(ND) ND	83	33 33
PCB-1254	(ND) ND	83	33 33
PCB-1260	(ND) ND	83	33 33

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
TETRACHLORO-M-XYLENE	(90) 93	30-140
DECACHLOROBIPHENYL	(93) 125	30-140

Left of | is related to first column ; Right of | related to second column
Final result indicated by ()
* Out side of QC Limit

METHOD 3550B/8082
PCBs

```

=====
Client      : TETRA TECH EC, INC.           Date Collected: 10/05/06
Project    : NWS SEAL BEACH, CTO 0006      Date Received: 10/05/06
Batch No.  : 06J054                        Date Extracted: 10/06/06 11:30
Sample ID  : 6-44-109                      Date Analyzed: 10/07/06 04:42
Lab Samp ID: J054-13                       Dilution Factor: 1
Lab File ID: SJ06032A                      Matrix          : SOIL
Ext Btch ID: CPJ005S                       % Moisture      : 25.3
Calib. Ref.: SJ06022A                      Instrument ID   : GCT008
=====

```

PARAMETERS	RESULTS	RL	MDL
	(ug/kg)	(ug/kg)	(ug/kg)
PCB-1016	(ND) ND	67	27 27
PCB-1221	(ND) ND	67	27 27
PCB-1232	(ND) ND	67	27 27
PCB-1242	(ND) ND	67	27 27
PCB-1248	(ND) ND	67	27 27
PCB-1254	(ND) ND	67	27 27
PCB-1260	(ND) ND	67	27 27
SURROGATE PARAMETERS	% RECOVERY	QC LIMIT	
TETRACHLORO-M-XYLENE	(93) 98	30-140	
DECACHLOROBIPHENYL	(87) 114	30-140	

Left of | is related to first column ; Right of | related to second column
Final result indicated by ()

* Out side of QC Limit

CASE NARRATIVE

CLIENT: TETRA TECH EC, INC.
PROJECT: NWS SEAL BEACH, CTO 0006
SDG: 06J054

METHOD 3050B/6010B METALS BY ICP

Fourteen (14) soil samples were received on 10/05/06 for Metals analysis by Method 3050B/6010B in accordance with "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", SW846, 3rd edition and DOD QSM (2002).

1. Holding Time

Analysis met holding time criteria.

2. Method Blank

Method blank was free of contamination half of reporting limit.

3. Lab Control Sample/Lab Control Sample Duplicate

Lab control results were within QC limit.

4. Serial Dilution / Post-Analytical Spike

Samples J054-10 and -11 were analyzed for serial dilution and post-analytical spike. All QC requirements were met.

5. Matrix Spike/Matrix Spike Duplicate

Sample J054-10 was spiked. All recoveries were within QC limit except Zinc in MS was out the limit.

6. Sample Analysis

Samples were analyzed according to the prescribed QC procedures. All criteria were met with the aforementioned exception.

MRLs were analyzed at the beginning of each sequence run. Recoveries were within QC limit of 70-130% except Selenium was bias high. There was no corrective action since Selenium was ND in all associated samples.

METHOD 3050B/6010B
METALS BY ICP

```

=====
Client      : TETRA TECH EC, INC.           Date Collected: 10/05/06
Project     : NWS SEAL BEACH, CTO 0006     Date Received: 10/05/06
SDG NO.    : 06J054                       Date Extracted: 10/06/06 09:00
Sample ID: 6-44-107                       Date Analyzed: 10/09/06 20:13
Lab Samp ID: J054-11                      Dilution Factor: 1
Lab File ID: I73J010017                  Matrix       : SOIL
Ext Btch ID: IPJ017S                     % Moisture  : 36.9
Calib. Ref.: I73J010011                  Instrument ID : EMAXTI73
=====

```

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
Antimony	5.16J	15.8	3.17
Arsenic	13.6	1.58	0.634
Barium	82.2	1.58	0.317
Beryllium	1.15J	1.58	0.317
Cadmium	1.52J	1.58	0.792
Chromium	36.7	3.17	1.58
Cobalt	16.4	3.17	1.58
Copper	63.6	3.17	0.792
Lead	45.2	1.58	0.317
Molybdenum	4.18J	7.92	0.792
Nickel	27.4	3.17	1.58
Selenium*	ND	1.58	0.792
Silver	11.0	3.17	0.792
Thallium*	ND	1.58	0.792
Vanadium	79.1	3.17	0.792
Zinc	152	1.58	0.792

* : Analyzed on 10/09/06 21:23 | File ID 131J010016

METHOD 3050B/6010B
METALS BY ICP

```

=====
Client      : TETRA TECH EC, INC.           Date Collected: 10/05/06
Project     : NWS SEAL BEACH, CTO 0006     Date Received: 10/05/06
SDG NO.    : 06J054                       Date Extracted: 10/06/06 09:00
Sample ID: 6-44-108                       Date Analyzed: 10/09/06 20:25
Lab Samp ID: J054-12                       Dilution Factor: 1
Lab File ID: I73J010019                   Matrix          : SOIL
Ext Btch ID: 1PJ017S                      % Moisture     : 39.9
Calib. Ref.: I73J010011                   Instrument ID  : EMAXT173
=====
  
```

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
Antimony	ND	16.6	3.33
Arsenic	10.6	1.66	0.666
Barium	99.1	1.66	0.333
Beryllium	1.01J	1.66	0.333
Cadmium	1.37J	1.66	0.832
Chromium	36.2	3.33	1.66
Cobalt	14.3	3.33	1.66
Copper	47.5	3.33	0.832
Lead	34.3	1.66	0.333
Molybdenum	2.52J	8.32	0.832
Nickel	25.4	3.33	1.66
Selenium	ND	1.66	0.832
Silver	2.71J	3.33	0.832
Thallium	ND	1.66	0.832
Vanadium	69.3	3.33	0.832
Zinc	138	1.66	0.832

^ : Analyzed on 10/09/06 21:34 | File ID I31J010018

METHOD 3050B/6010B
 METALS BY ICP

```

=====
Client      : TETRA TECH EC, INC.           Date Collected: 10/05/06
Project     : NWS SEAL BEACH, CTO 0006      Date Received: 10/05/06
SDG NO.    : 06J054                        Date Extracted: 10/06/06 09:00
Sample ID: 6-44-109                        Date Analyzed: 10/09/06 20:31
Lab Samp ID: J054-13                        Dilution Factor: 1
Lab File ID: I73J010020                    Matrix          : SOIL
Ext Btch ID: IPJ017S                       % Moisture     : 25.3
Calib. Ref.: I73J010011                    Instrument ID  : EMAXT173
=====
  
```

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
Antimony	3.25J	13.4	2.68
Arsenic	11.6	1.34	0.535
Barium	72.7	1.34	0.268
Beryllium	0.832J	1.34	0.268
Cadmium	1.07J	1.34	0.669
Chromium	27.8	2.68	1.34
Cobalt	11.6	2.68	1.34
Copper	40.2	2.68	0.669
Lead	45.4	1.34	0.268
Molybdenum	3.02J	6.69	0.669
Nickel	21.2	2.68	1.34
Selenium	ND	1.34	0.669
Silver	1.39J	2.68	0.669
Thallium	ND	1.34	0.669
Vanadium	58.5	2.68	0.669
Zinc	117	1.34	0.669

: Analyzed on 10/09/06 21:39 | File ID I31J010019

METHOD 3050B/6010B
METALS BY ICP

```

=====
Client      : TETRA TECH EC, INC.           Date Collected: 10/05/06
Project    : NWS SEAL BEACH, CTO 0006      Date Received: 10/05/06
SDG NO.   : 06J054                        Date Extracted: 10/06/06 09:00
Sample ID: 6-57-110                       Date Analyzed: 10/09/06 20:38
Lab Samp ID: J054-14                       Dilution Factor: 1
Lab File ID: I73J010021                   Matrix       : SOIL
Ext Btch ID: IPJ017S                      % Moisture  : 8.3
Calib. Ref.: I73J010011                   Instrument ID: EMAXT173
=====
  
```

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
Antimony	3.13J	10.9	2.18
Arsenic	7.75	1.09	0.436
Barium	161	1.09	0.218
Beryllium	0.491J	1.09	0.218
Cadmium	0.614J	1.09	0.545
Chromium	23.3	2.18	1.09
Cobalt	11.3	2.18	1.09
Copper	31.9	2.18	0.545
Lead	11.0	1.09	0.218
Molybdenum	ND	5.45	0.545
Nickel	19.0	2.18	1.09
Selenium	ND	1.09	0.545
Silver	ND	2.18	0.545
Thallium	ND	1.09	0.545
Vanadium	46.7	2.18	0.545
Zinc	69.3	1.09	0.545

: Analyzed on 10/09/06 21:44 | File ID I31J010020

METHOD 3050B/6010B
METALS BY ICP

```
=====  
Client      : TETRA TECH EC, INC.          Date Collected: 10/05/06  
Project     : NWS SEAL BEACH, CTO 0006    Date Received: 10/05/06  
SDG NO.    : 06J054                      Date Extracted: 10/06/06 09:00  
Sample ID   : 6-44-087                   Date Analyzed: 10/06/06 19:18  
Lab Samp ID: J054-01                     Dilution Factor: 1  
Lab File ID: I07J010020                  Matrix       : SOIL  
Ext Btch ID: IPJ017S                     % Moisture  : 38.5  
Calib. Ref.: I07J010010                  Instrument ID : EMAXT107  
=====
```

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
Nickel	25.4	3.25	1.63
Zinc	124	1.63	0.813

METHOD 3050B/6010B
METALS BY ICP

```
=====  
Client      : TETRA TECH EC, INC.           Date Collected: 10/05/06  
Project     : NWS SEAL BEACH, CTO 0006     Date Received: 10/05/06  
SDG NO.    : 06J054                       Date Extracted: 10/06/06 09:00  
Sample ID   : 6-44-088                   Date Analyzed: 10/06/06 19:22  
Lab Samp ID: J054-02                     Dilution Factor: 1  
Lab File ID: 107J010021                 Matrix          : SOIL  
Ext Btch ID: IPJ017S                   % Moisture     : 41.5  
Calib. Ref.: 107J010010                 Instrument ID  : EMAXTI07  
=====
```

PARAMETERS	RESULTS	RL	MDL
-----	(mg/kg)	(mg/kg)	(mg/kg)
Nickel	23.8	3.42	1.71
Zinc	118	1.71	0.855

METHOD 3050B/6010B
METALS BY ICP

=====
Client : TETRA TECH EC, INC. Date Collected: 10/05/06
Project : NWS SEAL BEACH, CTO 0006 Date Received: 10/05/06
SDG NO. : 06J054 Date Extracted: 10/06/06 09:00
Sample ID: 6-44-089 Date Analyzed: 10/06/06 19:38
Lab Samp ID: J054-03 Dilution Factor: 1
Lab File ID: I07J010024 Matrix : SOIL
Ext Btch ID: IPJ017S % Moisture : 38.6
Calib. Ref.: I07J010022 Instrument ID : EMAX107
=====

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
Nickel	31.7	3.26	1.63
Zinc	143	1.63	0.814

METHOD 3050B/6010B
METALS BY ICP

```
=====  
Client      : TETRA TECH EC, INC.          Date Collected: 10/05/06  
Project     : NWS SEAL BEACH, CTO 0006    Date Received: 10/05/06  
SDG NO.    : 06J054                      Date Extracted: 10/06/06 09:00  
Sample ID: 6-44-090                     Date Analyzed: 10/06/06 19:42  
Lab Samp ID: J054-04                    Dilution Factor: 1  
Lab File ID: I07J010025                 Matrix       : SOIL  
Ext Btch ID: IPJ017S                    % Moisture  : 34.4  
Calib. Ref.: I07J010022                 Instrument ID : EMAXT107  
=====
```

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
Nickel	16.8	3.05	1.52
Zinc	85.5	1.52	0.762

METHOD 3050B/6010B
METALS BY ICP

```
=====  
Client      : TETRA TECH EC, INC.           Date Collected: 10/05/06  
Project     : NWS SEAL BEACH, CTO 0006     Date Received: 10/05/06  
SDG NO.    : 06J054                        Date Extracted: 10/06/06 09:00  
Sample ID   : 6-44-091                     Date Analyzed: 10/06/06 19:46  
Lab Samp ID: J054-05                       Dilution Factor: 1  
Lab File ID: 107J010026                   Matrix          : SOIL  
Ext Btch ID: IPJ017S                       % Moisture     : 38.0  
Calib. Ref.: 107J010022                   Instrument ID  : EMAXT107  
=====
```

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
Nickel	17.7	3.23	1.61
Zinc	114	1.61	0.806

METHOD 3050B/6010B
METALS BY ICP

```
=====  
Client      : TETRA TECH EC, INC.          Date Collected: 10/05/06  
Project     : NWS SEAL BEACH, CTO 0006    Date Received: 10/05/06  
SDG NO.    : 06J054                      Date Extracted: 10/06/06 09:00  
Sample ID: 6-44-092                      Date Analyzed: 10/06/06 19:50  
Lab Samp ID: J054-06                     Dilution Factor: 1  
Lab File ID: I07J010027                  Matrix          : SOIL  
Ext Btch ID: IPJ017S                     % Moisture     : 51.9  
Calib. Ref.: I07J010022                  Instrument ID  : EMAXT107  
=====
```

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
Nickel	25.9	4.16	2.08
Zinc	148	2.08	1.04

METHOD 3050B/6010B
METALS BY ICP

```
=====
Client      : TETRA TECH EC, INC.           Date Collected: 10/05/06
Project     : NWS SEAL BEACH, CTO 0006     Date Received: 10/05/06
SDG NO.    : 06J054                       Date Extracted: 10/06/06 09:00
Sample ID: 6-44-093                       Date Analyzed: 10/06/06 19:54
Lab Samp ID: J054-07                      Dilution Factor: 1
Lab File ID: I07J010028                   Matrix          : SOIL
Ext Btch ID: IPJ017S                      % Moisture     : 48.4
Calib. Ref.: I07J010022                   Instrument ID  : EMAXT107
=====
```

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
Nickel	26.1	3.88	1.94
Zinc	140	1.94	0.969

METHOD 3050B/6010B
METALS BY ICP

```
=====
Client      : TETRA TECH EC, INC.          Date Collected: 10/05/06
Project     : NWS SEAL BEACH, CTO 0006    Date Received: 10/05/06
SDG NO.    : 06J054                      Date Extracted: 10/06/06 09:00
Sample ID: 6-44-094                      Date Analyzed: 10/06/06 20:00
Lab Samp ID: J054-08                     Dilution Factor: 1
Lab File ID: 107J010029                  Matrix       : SOIL
Ext Btch ID: IPJ017S                    % Moisture   : 55.7
Calib. Ref.: 107J010022                 Instrument ID : EMAXT107
=====
```

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
Nickel	28.0	4.51	2.26
Zinc	164	2.26	1.13

METHOD 3050B/6010B
METALS BY ICP

```
=====
Client   : TETRA TECH EC, INC.      Date Collected: 10/05/06
Project  : NWS SEAL BEACH, CTO 0006 Date Received: 10/05/06
SDG NO.  : 06J054                   Date Extracted: 10/06/06 09:00
Sample ID: 6-44-095                 Date Analyzed: 10/06/06 20:04
Lab Samp ID: J054-09                Dilution Factor: 1
Lab File ID: I07J010030             Matrix          : SOIL
Ext Btch ID: IPJ017S                % Moisture     : 51.6
Calib. Ref.: I07J010022             Instrument ID  : EMAXT107
=====
```

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
Nickel	28.4	4.13	2.07
Zinc	157	2.07	1.03

METHOD 3050B/6010B
METALS BY ICP

```
=====
Client      : TETRA TECH EC, INC.           Date Collected: 10/05/06
Project     : NWS SEAL BEACH, CTO 0006     Date Received: 10/05/06
SDG NO.    : 06J054                       Date Extracted: 10/06/06 09:00
Sample ID   : 6-44-096                    Date Analyzed: 10/06/06 19:10
Lab Samp ID: J054-10                      Dilution Factor: 1
Lab File ID: I07J010018                   Matrix       : SOIL
Ext Btch ID: IPJ017S                      % Moisture   : 49.7
Calib. Ref.: I07J010010                   Instrument ID : EMAXT107
=====
```

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
Nickel	26.5	3.98	1.99
Zinc	162	1.99	0.994

CASE NARRATIVE

CLIENT: TETRA TECH EC, INC.
PROJECT: NWS SEAL BEACH, CTO 0006
SDG: 06J054

METHOD 7470A MERCURY BY COLD VAPOR

Four (4) water samples were received on 10/05/06 for Mercury analysis by Method 7470A in accordance with "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", SW846, 3rd edition and DOD QSM (2002).

1. Holding Time

Analysis met holding time criteria.

2. Method Blank

Method blank was free of contamination at the reporting limit.

3. Lab Control Sample/Lab Control Sample Duplicate

Lab control results were within QC limit.

4. Serial Dilution / Post-Analytical Spike

Sample I204-05 was analyzed for serial dilution and post-analytical spike. All QC requirements were met.

5. Matrix Spike/Matrix Spike Duplicate

MS/MSD sample was not designated in this SDG.

6. Sample Analysis

Samples were analyzed according to the prescribed QC procedures. All criteria were met.

CASE NARRATIVE

CLIENT: TETRA TECH EC, INC.
PROJECT: NWS SEAL BEACH, CTO 0006
SDG: 06J054

METHOD 7470A MERCURY BY COLD VAPOR

Four (4) water samples were received on 10/05/06 for Mercury analysis by Method 7470A in accordance with "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", SW846, 3rd edition and DOD QSM (2002).

1. Holding Time

Analysis met holding time criteria.

2. Method Blank

Method blank was free of contamination at the reporting limit.

3. Lab Control Sample/Lab Control Sample Duplicate

Lab control results were within QC limit.

4. Serial Dilution / Post-Analytical Spike

Sample I204-05 from another SDG was analyzed for serial dilution and post-analytical spike. All QC requirements were met.

5. Matrix Spike/Matrix Spike Duplicate

MS/MSD sample was not designated in this SDG.

6. Sample Analysis

Samples were analyzed according to the prescribed QC procedures. All criteria were met.

METHOD 7471A
MERCURY BY COLD VAPOR

Client : TETRA TECH EC, INC.
Project : NWS SEAL BEACH, CTD 0006
Batch No. : 06J054

Matrix : SOIL
Instrument ID : II047

SAMPLE ID	EMAX SAMPLE ID	RESULTS (mg/kg)	DLF	MOIST	RL (mg/kg)	MDL (mg/kg)	Analysis DATETIME	Extraction DATETIME	LFID	CAL REF	PREP BATCH	Collection DATETIME	Received DATETIME
MBLK1S	HGJ015SB	ND	1	NA	0.100	0.0330	10/11/0610:45	10/10/0618:30	M47J009010	M47J009008	HGJ015S	NA	10/10/06
LCS1S	HGJ015SL	0.852	1	NA	0.100	0.0330	10/11/0610:47	10/10/0618:30	M47J009011	M47J009008	HGJ015S	NA	10/10/06
LCS1S	HGJ015SC	0.857	1	NA	0.100	0.0330	10/11/0610:49	10/10/0618:30	M47J009012	M47J009008	HGJ015S	NA	10/10/06
6-44-107	J054-11	ND	1	36.9	0.158	0.0523	10/11/0611:39	10/10/0618:30	M47J009036	M47J009032	HGJ015S	10/05/06	10/05/06
6-44-108	J054-12	ND	1	39.9	0.166	0.0549	10/11/0611:41	10/10/0618:30	M47J009037	M47J009032	HGJ015S	10/05/06	10/05/06
6-44-109	J054-13	ND	1	25.3	0.134	0.0442	10/11/0611:43	10/10/0618:30	M47J009038	M47J009032	HGJ015S	10/05/06	10/05/06
6-57-110	J054-14	0.0374J	1	8.3	0.109	0.0360	10/11/0611:45	10/10/0618:30	M47J009039	M47J009032	HGJ015S	10/05/06	10/05/06



LABORATORIES, INC.

1835 W. 205th Street
Torrance, CA 90501
Tel: (310) 618-8889
Fax: (310) 618-0818

COPY

Date: 10-18-2006
EMAX Batch No.: 06J056

Attn: Nick Weinberger

Tetra Tech EC, Inc.
1940 E Deere Ave, Suite 200
Santa Ana, CA 92705

Subject: Laboratory Report
Project: NWS Seal Beach, CTO 0006

Enclosed is the Laboratory report for samples received on 10/05/06.
The data reported include :

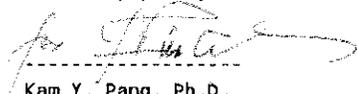
Sample ID	Control #	Col Date	Matrix	Analysis
6-44-077	J056-01	10/05/06	SOIL	METALS BY ICP
6-44-078	J056-02	10/05/06	SOIL	METALS BY ICP
6-44-079	J056-03	10/05/06	SOIL	METALS BY ICP
6-44-080	J056-04	10/05/06	SOIL	METALS BY ICP
6-44-081	J056-05	10/05/06	SOIL	METALS BY ICP
6-44-082	J056-06	10/05/06	SOIL	METALS BY ICP
6-44-083	J056-07	10/05/06	SOIL	METALS BY ICP
6-44-084	J056-08	10/05/06	SOIL	METALS BY ICP
6-44-085	J056-09	10/05/06	SOIL	METALS BY ICP
6-44-086	J056-10	10/05/06	SOIL	METALS BY ICP
6-44-097	J056-11	10/05/06	SOIL	METALS BY ICP
6-44-098	J056-12	10/05/06	SOIL	METALS BY ICP
6-44-099	J056-13	10/05/06	SOIL	METALS BY ICP
6-44-100	J056-14	10/05/06	SOIL	METALS BY ICP
6-44-101	J056-15	10/05/06	SOIL	METALS BY ICP
6-44-102	J056-16	10/05/06	SOIL	METALS BY ICP
6-44-103	J056-17	10/05/06	SOIL	METALS BY ICP
6-44-104	J056-18	10/05/06	SOIL	METALS BY ICP
6-44-105	J056-19	10/05/06	SOIL	METALS BY ICP

Sample ID	Control #	Col Date	Matrix	Analysis
6-44-106	J056-20	10/05/06	WATER	METALS BY ICP
6-44-086MS	J056-10M	10/05/06	SOIL	METALS BY ICP
6-44-086MSD	J056-10S	10/05/06	SOIL	METALS BY ICP

The results are summarized on the following pages.

Please feel free to call if you have any questions concerning these results.

Sincerely yours,



Kam Y. Pang, Ph.D.
Laboratory Director

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CLIENT: TETRA TECH EC, INC.
PROJECT: NWS SEAL BEACH, CTO 0006
SDG: 06J056

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GC-VOA	**	4000 –
GC-SVOA	**	5000 –
HPLC	**	6000 –
METALS	METHOD 3010A/3050B/6010B	7000 – 7080
WET	**	8000 –
OTHERS	**	9000 –

** - Not Requested

CASE NARRATIVE

CLIENT: TETRA TECH EC, INC.
PROJECT: NWS SEAL BEACH, CTO 0006
SDG: 06J056

METHOD 3010A/3050B/6010B METALS BY ICP

One (1) water and nineteen (19) soil samples were received on 10/05/06 for Metals analysis by Method 3010A/3050B/6010B in accordance with "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", SW846, 3rd edition and DOD QSM (2002).

1. Holding Time

Analysis met holding time criteria.

2. Method Blank

Method blanks were free of contamination at half of the reporting limit.

3. Lab Control Sample/Lab Control Sample Duplicate

Lab control results were within QC limit.

4. Serial Dilution / Post-Analytical Spike

Sample I056-10 and I056-20 were analyzed for serial dilution and post-analytical spike. All QC requirements were met.

5. Matrix Spike/Matrix Spike Duplicate

Sample I056-10 was spiked. Recoveries were within QC limit except Zinc in MSD was out of the limit.

6. Sample Analysis

Samples were analyzed according to the prescribed QC procedures. All criteria were met with the aforementioned exception.

MRLs were analyzed at the beginning of a sequence run. Recoveries were within QC limit of 70-130%.

METHOD 3010A/6010B
METALS BY ICP

```
=====  
Client      : TETRA TECH EC, INC.          Date Collected: 10/05/06  
Project     : NWS SEAL BEACH, CTO 0006    Date Received: 10/05/06  
SDG NO.    : 06J056                      Date Extracted: 10/09/06 10:00  
Sample ID: 6-44-106                      Date Analyzed: 10/11/06 13:11  
Lab Samp ID: J056-20                    Dilution Factor: 1  
Lab File ID: 107J014016                 Matrix       : WATER  
Ext Btch ID: 1PJ023W                    % Moisture  : NA  
Calib. Ref.: 107J014010                 Instrument ID : EMAXTI07  
=====
```

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
Nickel	ND	20.0	10.0
Zinc	ND	10.0	5.00

METHOD 3050B/6010B
METALS BY ICP

=====
Client : TETRA TECH EC, INC. Date Collected: 10/05/06
Project : NWS SEAL BEACH, CTO 0006 Date Received: 10/05/06
SDG NO. : 06J056 Date Extracted: 10/06/06 09:30
Sample ID: 6-44-077 Date Analyzed: 10/06/06 22:33
Lab Samp ID: J056-01 Dilution Factor: 1
Lab File ID: 107J011024 Matrix : SOIL
Ext Btch ID: IPJ019S % Moisture : 25.4
Calib. Ref.: 107J011022 Instrument ID : EMAXT107
=====

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
Nickel	13.8	2.68	1.34
Zinc	97.9	1.34	0.670

METHOD 3050B/6010B
METALS BY ICP

```
=====
Client      : TETRA TECH EC, INC.           Date Collected: 10/05/06
Project     : NWS SEAL BEACH, CTO 0006     Date Received: 10/05/06
SDG NO.    : 06J056                       Date Extracted: 10/06/06 09:30
Sample ID   : 6-44-078                    Date Analyzed: 10/06/06 22:37
Lab Samp ID: J056-02                      Dilution Factor: 1
Lab File ID: I07J011025                  Matrix       : SOIL
Ext Btch ID: IPJ019S                    % Moisture   : 23.1
Calib. Ref.: I07J011022                 Instrument ID : EMAXT107
=====
```

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
Nickel	12.7	2.60	1.30
Zinc	99.5	1.30	0.650

METHOD 3050B/6010B
METALS BY ICP

```
=====
Client      : TETRA TECH EC, INC.           Date Collected: 10/05/06
Project     : NWS SEAL BEACH, CTO 0006     Date Received: 10/05/06
SDG NO.    : 06J056                       Date Extracted: 10/06/06 09:30
Sample ID   : 6-44-079                    Date Analyzed: 10/06/06 22:41
Lab Samp ID: J056-03                      Dilution Factor: 1
Lab File ID: 107J011026                  Matrix       : SOIL
Ext Btch ID: IPJ019S                     % Moisture   : 41.8
Calib. Ref.: 107J011022                  Instrument ID : EMAXT107
=====
```

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
Nickel	18.0	3.44	1.72
Zinc	119	1.72	0.859

METHOD 3050B/6010B
METALS BY ICP

```
=====  
Client      : TETRA TECH EC, INC.          Date Collected: 10/05/06  
Project     : NWS SEAL BEACH, CTO 0006    Date Received: 10/05/06  
SDG NO.    : 06J056                      Date Extracted: 10/06/06 09:30  
Sample ID   : 6-44-080                   Date Analyzed: 10/06/06 22:45  
Lab Samp ID : J056-04                    Dilution Factor: 1  
Lab File ID : 107J011027                 Matrix          : SOIL  
Ext Btch ID : IPJ019S                    % Moisture     : 60.3  
Calib. Ref. : 107J011022                 Instrument ID  : EMAXT107  
=====
```

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
Nickel	28.2	5.04	2.52
Zinc	157	2.52	1.26

METHOD 3050B/6010B
METALS BY ICP

```
=====  
Client      : TETRA TECH EC, INC.           Date Collected: 10/05/06  
Project     : NWS SEAL BEACH, CTO 0006     Date Received: 10/05/06  
SDG NO.    : 06J056                       Date Extracted: 10/06/06 09:30  
Sample ID   : 6-44-081                   Date Analyzed: 10/06/06 22:49  
Lab Samp ID : J056-05                    Dilution Factor: 1  
Lab File ID : I07J011028                 Matrix          : SOIL  
Ext Btch ID : IPJ019S                    % Moisture     : 28.6  
Calib. Ref. : I07J011022                 Instrument ID  : EMAXT107  
=====
```

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
Nickel	20.2	2.80	1.40
Zinc	109	1.40	0.700

METHOD 3050B/6010B
METALS BY ICP

```
=====  
Client      : TETRA TECH EC, INC.           Date Collected: 10/05/06  
Project     : NWS SEAL BEACH, CTO 0006     Date Received: 10/05/06  
SDG NO.    : 06J056                       Date Extracted: 10/06/06 09:30  
Sample ID: 6-44-082                       Date Analyzed: 10/06/06 22:53  
Lab Samp ID: J056-06                      Dilution Factor: 1  
Lab File ID: I07J011029                   Matrix      : SOIL  
Ext Btch ID: IPJ019S                      % Moisture  : 64.3  
Calib. Ref.: I07J011022                   Instrument ID : EMAXT107  
=====
```

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
Nickel	16.3	5.60	2.80
Zinc	97.2	2.80	1.40

METHOD 3050B/6010B
METALS BY ICP

```
=====
Client   : TETRA TECH EC, INC.           Date Collected: 10/05/06
Project  : NWS SEAL BEACH, CTO 0006      Date Received: 10/05/06
SDG NO.  : 06J056                        Date Extracted: 10/06/06 09:30
Sample ID: 6-44-083                      Date Analyzed: 10/06/06 22:57
Lab Samp ID: J056-07                     Dilution Factor: 1
Lab File ID: I07J011030                  Matrix       : SOIL
Ext Btch ID: IPJ019S                     % Moisture   : 57.8
Calib. Ref.: I07J011022                  Instrument ID : EMAXTI07
=====
```

PARAMETERS	RESULTS (mg/kg)	RI (mg/kg)	MDL (mg/kg)
Nickel	24.7	4.74	2.37
Zinc	159	2.37	1.18

METHOD 3050B/6010B
METALS BY ICP

```
=====
Client      : TETRA TECH EC, INC.           Date Collected: 10/05/06
Project     : NWS SEAL BEACH, CTO 0006     Date Received: 10/05/06
SDG NO.    : 06J056                       Date Extracted: 10/06/06 09:30
Sample ID   : 6-44-084                   Date Analyzed: 10/06/06 23:01
Lab Samp ID: J056-08                     Dilution Factor: 1
Lab File ID: I07J011031                  Matrix          : SOIL
Ext Btch ID: IPJ019S                     % Moisture      : 67.8
Calib. Ref.: I07J011022                  Instrument ID   : EMAXTI07
=====
```

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
Nickel	28.4	6.21	3.11
Zinc	161	3.11	1.55

METHOD 3050B/6010B
METALS BY ICP

```
=====  
Client      : TETRA TECH EC, INC.           Date Collected: 10/05/06  
Project     : NWS SEAL BEACH, CTO 0006     Date Received: 10/05/06  
SDG NO.    : 06J056                       Date Extracted: 10/06/06 09:30  
Sample ID   : 6-44-085                   Date Analyzed: 10/06/06 23:05  
Lab Samp ID : J056-09                    Dilution Factor: 1  
Lab File ID : I07J011032                 Matrix          : SOIL  
Ext Btch ID : IPJ019S                    % Moisture     : 65.8  
Calib. Ref. : I07J011022                 Instrument ID  : EMAXTI07  
=====
```

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
Nickel	31.7	5.85	2.92
Zinc	161	2.92	1.46

METHOD 30508/6010B
METALS BY ICP

```
=====  
Client      : TETRA TECH EC, INC.           Date Collected: 10/05/06  
Project     : NWS SEAL BEACH, CTO 0006     Date Received: 10/05/06  
SDG NO.    : 06J056                       Date Extracted: 10/06/06 09:30  
Sample ID   : 6-44-086                   Date Analyzed: 10/06/06 22:05  
Lab Samp ID: J056-10                     Dilution Factor: 1  
Lab File ID: I07J011018                 Matrix      : SOIL  
Ext Btch ID: IPJ019S                    % Moisture  : 44.2  
Calib. Ref.: I07J011010                 Instrument ID : EMAXT107  
=====
```

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
Nickel	28.2	3.58	1.79
Zinc	181	1.79	0.896

METHOD 3050B/6010B
METALS BY ICP

```
=====  
Client      : TETRA TECH EC, INC.          Date Collected: 10/05/06  
Project     : NWS SEAL BEACH, CTO 0006    Date Received: 10/05/06  
SDG NO.    : 06J056                      Date Extracted: 10/06/06 09:30  
Sample ID   : 6-44-097                   Date Analyzed: 10/06/06 22:13  
Lab Samp ID: J056-11                     Dilution Factor: 1  
Lab File ID: I07J011020                  Matrix       : SOIL  
Ext Btch ID: IPJ019S                     % Moisture   : 52.2  
Calib. Ref.: I07J011010                  Instrument ID : EMAXT107  
=====
```

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
Nickel	30.7	4.18	2.09
Zinc	148	2.09	1.05

METHOD 3050B/6010B
METALS BY ICP

```
=====
Client   : TETRA TECH EC, INC.           Date Collected: 10/05/06
Project  : NWS SEAL BEACH, CTO 0006      Date Received: 10/05/06
SDG NO.  : 06J056                       Date Extracted: 10/06/06 09:30
Sample ID: 6-44-098                     Date Analyzed: 10/06/06 22:17
Lab Samp ID: J056-12                   Dilution Factor: 1
Lab File ID: 107J011021                Matrix       : SOIL
Ext Btch ID: IPJ019S                   % Moisture   : 56.4
Calib. Ref.: 107J011010                 Instrument ID : EMAXT107
=====
```

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
Nickel	26.7	4.59	2.29
Zinc	153	2.29	1.15

METHOD 3050B/6010B
 METALS BY ICP

```

=====
Client      : TETRA TECH EC, INC.           Date Collected: 10/05/06
Project     : NWS SEAL BEACH, CTO 0006     Date Received: 10/05/06
SDG NO.    : 06J056                       Date Extracted: 10/06/06 09:30
Sample ID   : 6-44-099                    Date Analyzed: 10/06/06 23:09
Lab Samp ID: J056-13                      Dilution Factor: 1
Lab File ID: I07J011033                   Matrix          : SOIL
Ext Btch ID: IPJ019S                      % Moisture      : 40.5
Calib. Ref.: I07J011022                   Instrument ID   : EMAXT107
=====
  
```

PARAMETERS	RESULTS (mg/kg)	RI (mg/kg)	MDL (mg/kg)
Nickel	18.8	3.36	1.68
Zinc	109	1.68	0.840

METHOD 3050B/6010B
METALS BY ICP

```
=====
Client   : TETRA TECH EC, INC.           Date Collected: 10/05/06
Project  : NWS SEAL BEACH, CTO 0006      Date Received: 10/05/06
SDG NO.  : 06J056                       Date Extracted: 10/06/06 09:30
Sample ID: 6-44-100                     Date Analyzed: 10/06/06 23:25
Lab Samp ID: J056-14                   Dilution Factor: 1
Lab File ID: I07J011036                Matrix          : SOIL
Ext Btch ID: IPJ019S                   % Moisture      : 63.7
Calib. Ref.: I07J011034                Instrument ID   : EMAXT107
=====
```

PARAMETERS	RESULTS	RL	MDL
-----	(mg/kg)	(mg/kg)	(mg/kg)
-----	-----	-----	-----
Nickel	26.3	5.51	2.75
Zinc	158	2.75	1.38



METHOD 3050B/6010B
METALS BY ICP

```
=====  
Client      : TETRA TECH EC, INC.           Date Collected: 10/05/06  
Project     : NWS SEAL BEACH, CTO 0006      Date Received: 10/05/06  
SDG NO.    : 06J056                        Date Extracted: 10/06/06 09:30  
Sample ID: 6-44-101                        Date Analyzed: 10/06/06 23:29  
Lab Samp ID: J056-15                       Dilution Factor: 1  
Lab File ID: I07J011037                   Matrix : SOIL  
Ext Btch ID: IPJ019S                       % Moisture : 65.8  
Calib. Ref.: I07J011034                   Instrument ID : EMAXT107  
=====
```

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
Nickel	28.1	5.85	2.92
Zinc	145	2.92	1.46

METHOD 3050B/6010B
METALS BY ICP

```
=====  
Client      : TETRA TECH EC, INC.           Date Collected: 10/05/06  
Project     : NWS SEAL BEACH, CTO 0006      Date Received: 10/05/06  
SDG NO.    : 06J056                        Date Extracted: 10/06/06 09:30  
Sample ID   : 6-44-102                     Date Analyzed: 10/06/06 23:33  
Lab Samp ID: J056-16                       Dilution Factor: 1  
Lab File ID: 107J011038                   Matrix          : SOIL  
Ext Btch ID: IPJ019S                       % Moisture     : 63.0  
Calib. Ref.: 107J011034                   Instrument ID  : EMAXT107  
=====
```

PARAMETERS	RESULTS	RL	MDL
-----	(mg/kg)	(mg/kg)	(mg/kg)
-----	-----	-----	-----
Nickel	24.8	5.41	2.70
Zinc	150	2.70	1.35

METHOD 3050B/6010B
 METALS BY ICP

```

=====
Client      : TETRA TECH EC, INC.           Date Collected: 10/05/06
Project     : NWS SEAL BEACH, CTO 0006     Date Received: 10/05/06
SDG NO.    : 06J056                       Date Extracted: 10/06/06 09:30
Sample ID: 6-44-103                       Date Analyzed: 10/06/06 23:37
Lab Samp ID: J056-17                      Dilution Factor: 1
Lab File ID: I07J011039                  Matrix          : SOIL
Ext Btch ID: IPJ019S                     % Moisture     : 60.9
Calib. Ref.: I07J011034                  Instrument ID  : EMAX1107
=====
  
```

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
Nickel	24.2	5.12	2.56
Zinc	125	2.56	1.28

METHOD 3050B/6010B
METALS BY ICP

=====
Client : TETRA TECH EC, INC. Date Collected: 10/05/06
Project : NWS SEAL BEACH, CTO 0006 Date Received: 10/05/06
SDG NO. : 06J056 Date Extracted: 10/06/06 09:30
Sample ID: 6-44-104 Date Analyzed: 10/06/06 23:41
Lab Samp ID: J056-18 Dilution Factor: 1
Lab File ID: 107J011040 Matrix : SOIL
Ext Btch ID: IPJ019S % Moisture : 58.2
Calib. Ref.: 107J011034 Instrument ID : EMAXT107
=====

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
Nickel	28.6	4.78	2.39
Zinc	154	2.39	1.20

METHOD 3050B/6010B
METALS BY ICP

```
=====
Client   : TETRA TECH EC, INC.           Date Collected: 10/05/06
Project  : NWS SEAL BEACH, CTO 0006      Date Received: 10/05/06
SDG NO.  : 06J056                        Date Extracted: 10/06/06 09:30
Sample ID: 6-44-105                      Date Analyzed: 10/06/06 23:45
Lab Samp ID: J056-19                     Dilution Factor: 1
Lab File ID: I07J011041                  Matrix : SOIL
Ext Btch ID: IPJ019S                     % Moisture : 58.7
Calib. Ref.: I07J011034                  Instrument ID : EMAXTI07
=====
```

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
Nickel	33.0	4.84	2.42
Zinc	180	2.42	1.21



LABORATORIES, INC.

1835 W. 205th Street
Torrance, CA 90501
Tel: (310) 618-8889
Fax: (310) 618-0818

COPY

Date: 11-01-2006
EMAX Batch No.: 06J152

Attn: Nick Weinberger

Tetra Tech EC, Inc.
1940 E Deere Ave, Suite 200
Santa Ana, CA 92705

Subject: Laboratory Report
Project: NWS Seal Beach, CTO 0006

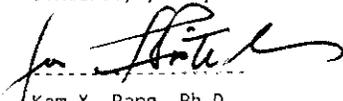
Enclosed is the Laboratory report for samples received on 10/17/06.
The data reported include :

Sample ID	Control #	Col Date	Matrix	Analysis
6-44-124	J152-01	10/17/06	SOIL	METALS BY ICP
6-44-125	J152-02	10/17/06	SOIL	METALS BY ICP
6-44-126	J152-03	10/17/06	SOIL	METALS BY ICP
6-44-127	J152-04	10/17/06	SOIL	METALS BY ICP
6-44-128	J152-05	10/17/06	SOIL	METALS BY ICP
6-44-129	J152-06	10/17/06	SOIL	METALS BY ICP
6-44-130	J152-07	10/17/06	SOIL	METALS BY ICP
6-44-131	J152-08	10/17/06	SOIL	METALS BY ICP
6-44-132	J152-09	10/17/06	SOIL	METALS BY ICP
6-44-133	J152-10	10/17/06	SOIL	METALS BY ICP
6-44-134	J152-11	10/17/06	SOIL	METALS BY ICP
6-44-135	J152-12	10/17/06	SOIL	METALS BY ICP
6-44-136	J152-13	10/17/06	SOIL	METALS BY ICP
6-44-137	J152-14	10/17/06	SOIL	METALS BY ICP
6-44-138	J152-15	10/17/06	SOIL	METALS BY ICP
6-44-139	J152-16	10/17/06	SOIL	METALS BY ICP
6-44-140	J152-17	10/17/06	WATER	METALS BY ICP
6-44-128MS	J152-05M	10/17/06	SOIL	METALS BY ICP
6-44-128MSD	J152-05S	10/17/06	SOIL	METALS BY ICP

The results are summarized on the following pages.

Please feel free to call if you have any questions concerning these results.

Sincerely yours,



Kam Y. Pang, Ph.D.
Laboratory Director

TABLE OF CONTENTS

CLIENT: TETRA TECH EC, INC.
PROJECT: NWS SEAL BEACH, CTO 0006
SDG: 06J152

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GC/MS-SVOA	**	3000 –
GC-VOA	**	4000 –
GC-SVOA	**	5000 –
HPLC	**	6000 –
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WET	**	8000 –
OTHERS	**	9000 –

** - Not Requested

CASE NARRATIVE

CLIENT: TETRA TECH EC, INC.
PROJECT: NWS SEAL BEACH, CTO 0006
SDG: 06J152

METHOD 3050B/6010B METALS BY ICP

One (1) water and sixteen (16) soil samples were received on 10/17/06 for Metals analysis by Method 3050B/6010B in accordance with "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", SW846, 3rd edition and DOD QSM (2002).

1. Holding Time

Analysis met holding time criteria.

2. Method Blank

Method blanks were free of contamination at half of reporting limit.

3. Lab Control Sample/Lab Control Sample Duplicate

Lab control results were within QC limit.

4. Serial Dilution / Post-Analytical Spike

Samples J152-05 and -17 were analyzed for serial dilution and post-analytical spike. All QC requirements were met.

5. Matrix Spike/Matrix Spike Duplicate

Sample J152-05 was spiked. All recoveries were within QC limit.

6. Sample Analysis

Samples were analyzed according to the prescribed QC procedures. All criteria were met.

MRLs were analyzed at the beginning of each sequence run. Recoveries were within QC limit of 80-120%.

METHOD 3050B/6010B
METALS BY ICP

=====
Client : TETRA TECH EC, INC. Date Collected: 10/17/06
Project : NWS SEAL BEACH, CTO 0006 Date Received: 10/17/06
SDG NO. : 06J152 Date Extracted: 10/17/06 17:15
Sample ID: 6-44-124 Date Analyzed: 10/18/06 12:34
Lab Samp ID: J152-01 Dilution Factor: 1
Lab File ID: I07J019020 Matrix : SOIL
Ext Btch ID: IPJ043S % Moisture : 31.9
Calib. Ref.: I07J019010 Instrument ID : EMAXT107
=====

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
Nickel	22.6	2.94	1.47
Zinc	105	1.47	0.734

METHOD 3050B/6010B
METALS BY ICP

=====
Client : TETRA TECH EC, INC. Date Collected: 10/17/06
Project : NWS SEAL BEACH, CTO 0006 Date Received: 10/17/06
SDG NO. : 06J152 Date Extracted: 10/17/06 17:15
Sample ID: 6-44-125 Date Analyzed: 10/18/06 12:38
Lab Samp ID: J152-02 Dilution Factor: 1
Lab File ID: I07J019021 Matrix : SOIL
Ext Btch ID: IPJ043S % Moisture : 34.0
Calib. Ref.: I07J019010 Instrument ID : EMAXT107
=====

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
Nickel	25.6	3.03	1.52
Zinc	116	1.52	0.758

8

METHOD 3050B/6010B
METALS BY ICP

```
=====
Client      : TETRA TECH EC, INC.           Date Collected: 10/17/06
Project     : NWS SEAL BEACH, CTO 0006     Date Received: 10/17/06
SDG NO.    : 06J152                       Date Extracted: 10/17/06 17:15
Sample ID   : 6-44-126                   Date Analyzed: 10/18/06 12:54
Lab Samp ID: J152-03                     Dilution Factor: 1
Lab File ID: I07J019024                  Matrix          : SOIL
Ext Btch ID: IPJ043S                     % Moisture      : 34.9
Calib. Ref.: I07J019022                  Instrument ID   : EMAXT107
=====
```

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
Nickel	23.0	3.07	1.54
Zinc	118	1.54	0.768

10

70000

METHOD 3050B/6010B
METALS BY ICP

```
=====
Client      : TETRA TECH EC, INC.           Date Collected: 10/17/06
Project     : NWS SEAL BEACH, CTO 0006     Date Received: 10/17/06
SDG NO.    : 06J152                       Date Extracted: 10/17/06 17:15
Sample ID   : 6-44-127                    Date Analyzed: 10/18/06 12:58
Lab Samp ID : J152-04                      Dilution Factor: 1
Lab File ID : I07J019025                  Matrix          : SOIL
Ext Btch ID : IPJ043S                     % Moisture     : 33.4
Calib. Ref.: I07J019022                  Instrument ID  : EMAXT107
=====
```

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
Nickel	22.6	3.00	1.50
Zinc	111	1.50	0.751

METHOD 3050B/6010B
METALS BY ICP

```
=====  
Client      : TETRA TECH EC, INC.           Date Collected: 10/17/06  
Project     : NWS SEAL BEACH, CTO 0006     Date Received: 10/17/06  
SDG NO.    : 06J152                       Date Extracted: 10/17/06 17:15  
Sample ID   : 6-44-128                   Date Analyzed: 10/18/06 12:26  
Lab Samp ID: J152-05                     Dilution Factor: 1  
Lab File ID: 107J019018                 Matrix          : SOIL  
Ext Btch ID: IPJ043S                    % Moisture     : 42.6  
Calib. Ref.: 107J019010                 Instrument ID  : EMAXT107  
=====
```

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
Nickel	26.0	3.48	1.74
Zinc	130	1.74	0.871

METHOD 3050B/6010B
METALS BY ICP

```
=====
Client      : TETRA TECH EC, INC.           Date Collected: 10/17/06
Project     : NWS SEAL BEACH, CTO 0006     Date Received: 10/17/06
SDG NO.    : 06J152                       Date Extracted: 10/17/06 17:15
Sample ID   : 6-44-129                    Date Analyzed: 10/18/06 13:02
Lab Samp ID: J152-06                      Dilution Factor: 1
Lab File ID: I07J019026                   Matrix          : SOIL
Ext Btch ID: IPJ043S                      % Moisture      : 28.3
Calib. Ref.: I07J019022                   Instrument ID   : EMAXT107
=====
```

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
Nickel	13.7	2.79	1.39
Zinc	135	1.39	0.697

0
12/28/06

METHOD 3050B/6010B
METALS BY ICP

```
=====
Client      : TETRA TECH EC, INC.           Date Collected: 10/17/06
Project     : NWS SEAL BEACH, CTO 0006     Date Received: 10/17/06
SDG NO.    : 06J152                       Date Extracted: 10/17/06 17:15
Sample ID  : 6-44-130                     Date Analyzed: 10/18/06 13:06
Lab Samp ID: J152-07                      Dilution Factor: 1
Lab File ID: I07J019027                   Matrix          : SOIL
Ext Btch ID: IPJ043S                      % Moisture      : 24.6
Calib. Ref.: I07J019022                   Instrument ID   : EMAXT107
=====
```

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
Nickel	12.2	2.65	1.33
Zinc	61.8	1.33	0.663

METHOD 3050B/6010B
METALS BY ICP

```
=====
Client      : TETRA TECH EC, INC.           Date Collected: 10/17/06
Project     : NWS SEAL BEACH, CTO 0006     Date Received: 10/17/06
SDG NO.    : 06J152                       Date Extracted: 10/17/06 17:15
Sample ID   : 6-44-131                   Date Analyzed: 10/18/06 13:10
Lab Samp ID: J152-08                     Dilution Factor: 1
Lab File ID: I07J019028                  Matrix       : SOIL
Ext Btch ID: IPJ043S                    % Moisture   : 33.8
Calib. Ref.: I07J019022                  Instrument ID : EMAX1107
=====
```

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
Nickel	23.9	3.02	1.51
Zinc	122	1.51	0.755

METHOD 3050B/6010B
METALS BY ICP

=====
Client : TETRA TECH EC, INC. Date Collected: 10/17/06
Project : NWS SEAL BEACH, CTO 0006 Date Received: 10/17/06
SDG NO. : 06J152 Date Extracted: 10/17/06 17:15
Sample ID: 6-44-132 Date Analyzed: 10/18/06 13:14
Lab Samp ID: J152-09 Dilution Factor: 1
Lab File ID: 107J019029 Matrix : SOIL
Ext Btch ID: IPJ043S % Moisture : 36.2
Calib. Ref.: 107J019022 Instrument ID : EMAXT107
=====

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
Nickel	23.9	3.13	1.57
Zinc	129	1.57	0.784

10

METHOD 3050B/6010B
METALS BY ICP

```
=====  
Client      : TETRA TECH EC, INC.          Date Collected: 10/17/06  
Project     : NWS SEAL BEACH, CTO 0006    Date Received: 10/17/06  
SDG NO.    : 06J152                      Date Extracted: 10/17/06 17:15  
Sample ID: 6-44-133                      Date Analyzed: 10/18/06 13:18  
Lab Samp ID: J152-10                     Dilution Factor: 1  
Lab File ID: I07J019030                  Matrix          : SOIL  
Ext Btch ID: IPJ043S                     % Moisture     : 26.9  
Calib. Ref.: I07J019022                  Instrument ID  : EMAXTI07  
=====
```

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
Nickel	22.2	2.74	1.37
Zinc	102	1.37	0.684

V

METHOD 3050B/6010B
METALS BY ICP

```
=====
Client      : TETRA TECH EC, INC.           Date Collected: 10/17/06
Project     : NWS SEAL BEACH, CTO 0006     Date Received: 10/17/06
SDG NO.    : 06J152                       Date Extracted: 10/17/06 17:15
Sample ID   : 6-44-134                    Date Analyzed: 10/18/06 13:22
Lab Samp ID: J152-11                      Dilution Factor: 1
Lab File ID: I07J019031                   Matrix          : SOIL
Ext Btch ID: IPJ043S                      % Moisture     : 51.0
Calib. Ref.: I07J019022                   Instrument ID   : EMAXTI07
=====
```

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
Nickel	20.5	4.08	2.04
Zinc	114	2.04	1.02

10

METHOD 3050B/6010B
METALS BY ICP

```
=====
Client      : TETRA TECH EC, INC.          Date Collected: 10/17/06
Project     : NWS SEAL BEACH, CTO 0006    Date Received: 10/17/06
SDG NO.    : 06J152                       Date Extracted: 10/17/06 17:15
Sample ID: 6-44-135                       Date Analyzed: 10/18/06 13:26
Lab Samp ID: J152-12                      Dilution Factor: 1
Lab File ID: I07J019032                   Matrix          : SOIL
Ext Btch ID: IPJ043S                      % Moisture     : 24.1
Calib. Ref.: I07J019022                   Instrument ID  : EMAXT107
=====
```

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
Nickel	14.6	2.64	1.32
Zinc	67.2	1.32	0.659

4

7/22/06

METHOD 3050B/6010B
METALS BY ICP

=====
Client : TETRA TECH EC, INC. Date Collected: 10/17/06
Project : NWS SEAL BEACH, CTO 0006 Date Received: 10/17/06
SDG NO. : 06J152 Date Extracted: 10/17/06 17:15
Sample ID: 6-44-136 Date Analyzed: 10/18/06 13:30
Lab Samp ID: J152-13 Dilution Factor: 1
Lab File ID: 107J019033 Matrix : SOIL
Ext Btch ID: IPJ043S % Moisture : 29.3
Calib. Ref.: 107J019022 Instrument ID : EMAXT107
=====

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
Nickel	16.6	2.83	1.41
Zinc	82.3	1.41	0.707

METHOD 3050B/6010B
METALS BY ICP

=====
Client : TETRA TECH EC, INC. Date Collected: 10/17/06
Project : NWS SEAL BEACH, CTO 0006 Date Received: 10/17/06
SDG NO. : 06J152 Date Extracted: 10/17/06 17:15
Sample ID: 6-44-137 Date Analyzed: 10/18/06 14:11
Lab Samp ID: J152-14 Dilution Factor: 1
Lab File ID: 107J019042 Matrix : SOIL
Ext Btch ID: IPJ043S % Moisture : 27.4
Calib. Ref.: 107J019034 Instrument ID : EMAXT107
=====

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
Nickel	11.3	2.75	1.38
Zinc	74.5	1.38	0.689

01

METHOD 3050B/6010B
METALS BY ICP

```
=====
Client      : TETRA TECH EC, INC.           Date Collected: 10/17/06
Project     : NWS SEAL BEACH, CTO 0006     Date Received: 10/17/06
SDG NO.    : 06J152                       Date Extracted: 10/17/06 17:15
Sample ID  : 6-44-138                     Date Analyzed: 10/18/06 14:15
Lab Samp ID: J152-15                      Dilution Factor: 1
Lab File ID: I07J019043                   Matrix          : SOIL
Ext Btch ID: IPJ043S                      % Moisture      : 50.5
Calib. Ref.: I07J019034                   Instrument ID   : EMAXT107
=====
```

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
Nickel	31.7	4.04	2.02
Zinc	146	2.02	1.01

METHOD 3050B/6010B
METALS BY ICP

```
=====
Client   : TETRA TECH EC, INC.           Date Collected: 10/17/06
Project  : NWS SEAL BEACH, CTO 0006      Date Received: 10/17/06
SDG NO.  : 06J152                        Date Extracted: 10/17/06 17:15
Sample ID: 6-44-139                      Date Analyzed: 10/18/06 14:20
Lab Samp ID: J152-16                     Dilution Factor: 1
Lab File ID: 107J019044                 Matrix          : SOIL
Ext Btch ID: IPJ043S                    % Moisture      : 56.0
Calib. Ref.: 107J019034                 Instrument ID   : EMAXT107
=====
```

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
Nickel	34.8	4.55	2.27
Zinc	186	2.27	1.14

10/18/06

METHOD 3010A/6010B
METALS BY ICP

```
=====  
Client      : TETRA TECH EC, INC.          Date Collected: 10/17/06  
Project     : NWS SEAL BEACH, CTO 0006    Date Received: 10/17/06  
SDG NO.    : 06J152                      Date Extracted: 10/17/06 17:15  
Sample ID   : 6-44-140                   Date Analyzed: 10/18/06 14:03  
Lab Samp ID : J152-17                    Dilution Factor: 1  
Lab File ID : 107J019040                 Matrix          : WATER  
Ext Btch ID : IPJ044W                    % Moisture     : NA  
Calib. Ref. : 107J019034                 Instrument ID  : EMAXT107  
=====
```

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
Nickel	ND	20.0	10.0
Zinc	ND	10.0	5.00

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LABORATORIES, INC.

1835 W. 205th Street
Torrance, CA 90501
Tel: (310) 618-8889
Fax: (310) 618-0818

Date: 11-03-2006
EMAX Batch No.: 06J212

Attn: Nick Weinberger

Tetra Tech EC, Inc.
1940 E Deere Ave, Suite 200
Santa Ana, CA 92705

Subject: Laboratory Report
Project: NWS Seal Beach, CTO 0006

COPY

Enclosed is the Laboratory report for samples received on 10/20/06.
The data reported include :

Sample ID	Control #	Col Date	Matrix	Analysis
6-44-141	J212-01	10/19/06	SOIL	METALS BY ICP
6-44-142	J212-02	10/19/06	WATER	VOLATILE ORGANICS BY GC/MS SEMIVOLATILE ORGANICS BY GCMS PESTICIDES ORGANOCHLORINE POLYCHLORINATED BIPHENYLS (PCBS) METALS CAM MERCURY

The results are summarized on the following pages.

Please feel free to call if you have any questions concerning these results.

Sincerely yours,

Kam Y. Pang, Ph.D.
Laboratory Director

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CLIENT: TETRA TECH EC, INC.
PROJECT: NWS SEAL BEACH, CTO 0006
SDG: 06J212

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GC/MS-VOA	METHOD 5030B/8260B	2000 – 2027
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GC-VOA	**	4000 –
GC-SVOA	METHOD 3520C/8081A METHOD 3520C/8082	5000 – 5037 5038 – 5068
HPLC	**	6000 –
METALS	METHOD 3010A/6010B METHOD 3050B/6010B METHOD 7470A	7000 – 7030 7031 – 7042 7043 – 7052
WET	**	8000 –
OTHERS	**	9000 –

** - Not Requested

CASE NARRATIVE

CLIENT: TETRA TECH EC, INC.
PROJECT: NWS SEAL BEACH, CTO 0006
SDG: 06J212

METHOD 5030B/8260B VOLATILE ORGANICS BY GC/MS

One (1) water sample was received on 10/20/06 for Volatile Organic analysis by Method 5030B/8260B in accordance with USEPA SW846, 3rd edition and DOD QSM (2002).

1. Holding Time

Analytical holding time was met.

2. Tuning and Calibration

Tuning and calibration were carried out at 12-hour interval. All QC requirements were met.

3. Method Blank

Method blank was free of contamination at half of the reporting limit.

4. Surrogate Recovery

Recoveries were within QC limit.

5. Lab Control Sample/Lab Control Sample Duplicate

Recoveries were within QC limit.

6. Matrix Spike/Matrix Spike Duplicate

No MS/MSD sample was designated in this SDG.

7. Sample Analysis

Sample was analyzed according to the prescribed QC procedures. All criteria were met.

METHOD 2030B/0200B
VOLATILE ORGANICS BY GC/MS

```

=====
Client      : TETRA TECH EC, INC.           Date Collected: 10/19/06
Project     : NWS SEAL BEACH, CTO 0006      Date Received: 10/20/06
Batch No.   : 06J212                       Date Extracted: 10/25/06 18:59
Sample ID   : 6-44-142                     Date Analyzed: 10/25/06 18:59
Lab Samp ID : J212-02R                     Dilution Factor: 1
Lab File ID : RJQ674                       Matrix          : WATER
Ext Btch ID : V005J52                     % Moisture     : NA
Calib. Ref.: RJQ124                       Instrument ID   : T-005
=====
  
```

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
1,1,1-TRICHLOROETHANE	ND	5.0	0.20
1,1,2,2-TETRACHLOROETHANE	ND	5.0	0.20
1,1,2-TRICHLOROETHANE	ND	5.0	0.20
1,1-DICHLOROETHANE	ND	5.0	0.20
1,1-DICHLOROETHENE	ND	5.0	0.20
1,2-DICHLOROETHANE	ND	5.0	0.20
1,2-DICHLOROPROPANE	ND	5.0	0.20
2-HEXANONE	ND	50	5.0
ACETONE	17J	50	5.0
BENZENE	ND	0.50	0.20
BROMODICHLOROMETHANE	ND	5.0	0.20
BROMOFORM	ND	5.0	0.30
BROMOMETHANE	ND	5.0	0.20
CARBON TETRACHLORIDE	ND	5.0	0.20
CHLOROBENZENE	ND	5.0	0.20
CHLOROETHANE	ND	5.0	0.20
CHLOROFORM	ND	5.0	0.20
CHLOROMETHANE	ND	5.0	0.20
CIS-1,2-DICHLOROETHENE	ND	5.0	0.20
CIS-1,3-DICHLOROPROPENE	ND	5.0	0.20
DIBROMOCHLOROMETHANE	ND	5.0	0.20
ETHYLBENZENE	ND	0.50	0.20
METHYL ETHYL KETONE (MEK)	ND	50	5.0
METHYL TERT-BUTYL ETHER (MTBE)	ND	1.0	0.20
METHYLENE CHLORIDE	ND	10	0.50
METHYL ISOBUTYL KETONE (MIBK)	ND	50	5.0
STYRENE	ND	5.0	0.20
TETRACHLOROETHENE	ND	5.0	0.20
TOLUENE	ND	0.50	0.20
TRANS-1,2-DICHLOROETHENE	ND	5.0	0.20
TRANS-1,3-DICHLOROPROPENE	ND	5.0	0.20
TRICHLOROETHENE	ND	5.0	0.20
VINYL ACETATE	ND	50	0.50
VINYL CHLORIDE	ND	5.0	0.20
XYLENES (TOTAL)	ND	1.5	0.50

SURROGATE PARAMETERS	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	125	75-125
4-BROMOFLUOROBENZENE	100	75-125
TOLUENE-D8	102	75-125

CASE NARRATIVE

CLIENT: TETRA TECH EC, INC.
PROJECT: NWS SEAL BEACH, CTO 0006
SDG: 06J212

METHOD 3520C/8270C SEMI VOLATILE ORGANICS BY GC/MS

One (1) water sample was received on 10/20/06 for Semi Volatile Organic analysis by Method 3520C/8270C in accordance with USEPA SW846, 3rd edition and DOD QSM (2002).

1. Holding Time

Analytical holding time was met.

2. Tuning and Calibration

Tuning and calibration were carried out at 12-hour interval. All QC requirements were met.

3. Method Blank

Method blank was free of contamination at half of the reporting limit.

4. Surrogate Recovery

Recoveries were within QC criteria.

5. Lab Control Sample/Lab Control Sample Duplicate

Recoveries were within QC limit.

6. Matrix Spike/Matrix Spike Duplicate

No MS/MSD sample was designated in this SDG.

7. Sample Analysis

Sample was analyzed according to the prescribed QC procedures. All criteria were met.

```

=====
Client   : TETRA TECH EC, INC.           Date Collected: 10/19/06
Project  : NWS SEAL BEACH, CTO 0006     Date Received: 10/20/06
Batch No.: 06J212                       Date Extracted: 10/23/06 14:00
Sample ID: 6-44-142                     Date Analyzed: 10/25/06 19:29
Lab Samp ID: J212-02                    Dilution Factor: .95
Lab File ID: RJK264                     Matrix: WATER
Ext Btch ID: SVJ031W                   % Moisture: NA
Calib. Ref.: RIK007                     Instrument ID: T-052
=====

```

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
1,2,4-TRICHLOROBENZENE	ND	9.5	4.8
1,2-DICHLOROBENZENE	ND	9.5	4.8
1,3-DICHLOROBENZENE	ND	9.5	4.8
1,4-DICHLOROBENZENE	ND	9.5	4.8
2,4,5-TRICHLOROPHENOL	ND	9.5	4.8
2,4,6-TRICHLOROPHENOL	ND	9.5	4.8
2,4-DICHLOROPHENOL	ND	9.5	4.8
3,4-DIMETHYLPHENOL	ND	9.5	4.8
3,4-DINITROPHENOL	ND	4.7	4.8
3,4-DINITROTOLUENE	ND	9.5	4.8
3,6-DINITROTOLUENE	ND	9.5	4.8
2-CHLORONAPHTHALENE	ND	9.5	4.8
2-CHLOROPHENOL	ND	9.5	4.8
2-METHYLPHENOL	ND	9.5	4.8
2-NITROANILINE	ND	4.7	4.8
2-NITROPHENOL	ND	19	4.8
3,3'-DICHLOROBENZIDINE	ND	19	4.8
3-NITROANILINE	ND	4.7	4.8
4,6-DINITRO-2-METHYLPHENOL	ND	4.7	4.8
4-BROMOPHENYL-PHENYL ETHER	ND	9.5	4.8
4-CHLORO-3-METHYLPHENOL	ND	19	4.8
4-CHLOROANILINE	ND	19	4.8
4-CHLOROPHENYL-PHENYL ETHER	ND	9.5	4.8
4-METHYLPHENOL (1)	ND	9.5	4.8
4-NITROANILINE	ND	4.7	4.8
4-NITROPHENOL	ND	4.7	4.8
BIS(2-CHLOROETHOXY)METHANE	ND	9.5	4.8
BIS(2-CHLOROETHYL)ETHER	ND	9.5	4.8
BIS(2-CHLOROISOPROPYL)ETHER	ND	9.5	4.8
BIS(2-ETHYLHEXYL)PHTHALATE	ND	19	4.8
BUTYLBENZYLPHTHALATE	ND	9.5	4.8
DI-N-BUTYLPHTHALATE	ND	9.5	4.8
DI-N-OCTYLPHTHALATE	ND	9.5	4.8
DIBENZOFURAN	ND	9.5	4.8
DIETHYL PHTHALATE	ND	9.5	4.8
DIMETHYL PHTHALATE	ND	9.5	4.8
HEXACHLOROBENZENE	ND	9.5	4.8
HEXACHLOROBUTADIENE	ND	9.5	4.8
HEXACHLOROCYCLOPENTADIENE	ND	4.7	4.8
HEXACHLOROETHANE	ND	9.5	4.8
N-NITROSODIPHENYLAMINE (2)	ND	9.5	4.8
NITROBENZENE	ND	9.5	4.8
PENTACHLOROPHENOL	ND	4.7	4.8
PHENOL	ND	9.5	4.8
ACENAPHTHENE	ND	9.5	4.8
ACENAPHTHYLENE	ND	9.5	4.8
ANTHRACENE	ND	9.5	4.8
BENZO(A)ANTHRACENE	ND	9.5	4.8
BENZO(A)PYRENE	ND	9.5	4.8
BENZO(B)FLUORANTHENE	ND	9.5	4.8
BENZO(K)FLUORANTHENE	ND	9.5	4.8
BENZO(G,H,I)PERYLENE	ND	9.5	4.8
CHRYSENE	ND	9.5	4.8
DIBENZO(A,H)ANTHRACENE	ND	9.5	4.8
FLUORANTHENE	ND	9.5	4.8
FLUORENE	ND	9.5	4.8
INDENO(1,2,3-CD)PYRENE	ND	9.5	4.8
NAPHTHALENE	ND	9.5	4.8
N-NITROSO-DI-N-PROPYLAMINE	ND	9.5	4.8
PHENANTHRENE	ND	9.5	4.8
PYRENE	ND	9.5	4.8
SURROGATE PARAMETERS	% RECOVERY	QC LIMIT	
2,4,6-TRIBROMOPHENOL	82	25-134	
2-FLUOROBIPHENYL	66	43-125	
2-FLUOROPHENOL	65	25-125	
NITROBENZENE-D5	71	52-125	
PHENOL-D5	71	25-125	
TERPHENYL-D14	22*	42-126	

(1): Cannot be separated from 3-Methylphenol
(2): Cannot be separated from Diphenylamine

CASE NARRATIVE

CLIENT: TETRA TECH EC, INC.
PROJECT: NWS SEAL BEACH, CTO 0006
SDG: 06J212

METHOD 3520C/8081A PESTICIDES

One (1) water sample was received on 10/20/06 for Pesticides analysis by Method 3520C/8081A in accordance with "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", SW846, 3rd edition and DOD QSM (2002).

1. Holding Time

Analytical holding time was met.

2. Instrument Performance and Calibration

Initial calibration was at six-point for Pesticides, all RSDs were within 20%. All continue calibrations were analyzed at 10 samples interval and mean recoveries were within 85-115%. Endrin and DDT breakdown were within QC limits.

3. Method Blank

Method blank was free of contamination at half of the reporting limit.

4. Surrogate Recovery

Recoveries were within QC limit.

5. Lab Control Sample/Lab Control Sample Duplicate

All recoveries were within QC limits except recoveries of three analytes in both LCS1W/LCD1W were bias high, but within EMAX QC limit.

6. Matrix Spike/Matrix Spike Duplicate

No MS/MSD sample was designated in this SDG.

7. Sample Analysis

Sample was analyzed according to the prescribed QC procedures. All criteria were met.

When sample results are confirmed by a second column, the relative percentage difference (RPD) between the two results is calculated. If RPD is less than 40%, and no evidence of chromatographic problems, the higher result is reported. If RPD is greater than 40%, the chromatogram is checked for anomalies and results are selected based on the best professional judgment. If no evidence of any chromatographic problems, the higher result is reported.

PESTICIDES

```

=====
Client      : TETRA TECH EC, INC.           Date Collected: 10/19/06
Project     : NWS SEAL BEACH, CTO 0006      Date Received: 10/20/06
Batch No.   : 06J212                        Date Extracted: 10/24/06 15:30
Sample ID: 6-44-142                         Date Analyzed: 10/25/06 15:37
Lab Samp ID: J212-02                        Dilution Factor: 1.01
Lab File ID: SJ25016A                       Matrix          : WATER
Ext Btch ID: CPJ027W                        % Moisture     : NA
Calib. Ref.: SJ25003A                       Instrument ID   : GCT008
=====
  
```

PARAMETERS	RESULTS	RL	MDL
	(ug/L)	(ug/L)	(ug/L)
ALPHA-BHC	(ND) ND	0.051	0.020 0.020
GAMMA-BHC (LINDANE)	(ND) ND	0.051	0.020 0.020
BETA-BHC	0.086 (0.31)	0.051	0.020 0.020
HEPTACHLOR	(ND) ND	0.051	0.020 0.020
DELTA-BHC	0.021J (ND)	0.051	0.020 0.020
ALDRIN	(ND) 0.032J	0.051	0.020 0.020
HEPTACHLOR EPOXIDE	0.033J (ND)	0.051	0.020 0.020
GAMMA-CHLORDANE	(ND) ND	0.051	0.020 0.020
ALPHA-CHLORDANE	(ND) ND	0.051	0.020 0.020
ENDOSULFAN I	(ND) ND	0.051	0.020 0.020
4,4'-DDE	0.33 (0.37)	0.10	0.020 0.020
DIELDRIN	(0.030J) 0.026J	0.10	0.020 0.020
ENDRIN	0.029J (ND)	0.10	0.020 0.020
4,4'-DDD	(0.089J) 0.088J	0.10	0.020 0.020
ENDOSULFAN II	(ND) ND	0.10	0.020 0.020
4,4'-DDT	(0.047J) 0.030J	0.10	0.020 0.020
ENDRIN ALDEHYDE	0.057J (ND)	0.10	0.020 0.020
ENDOSULFAN SULFATE	(ND) ND	0.10	0.020 0.020
ENDRIN KETONE	(ND) ND	0.10	0.020 0.020
METHOXYCHLOR	(ND) ND	0.51	0.20 0.20
TOXAPHENE	(ND) ND	2.0	1.0 1.0
SURROGATE PARAMETERS	% RECOVERY	QC LIMIT	
TETRACHLORO-M-XYLENE	(106) 94	25-143	
DECACHLOROBIPHENYL	(108) 108	25-143	

RL : Reporting limit
 Left of | is related to first column ; Right of | related to second column
 Final result indicated by ()

CASE NARRATIVE

CLIENT: TETRA TECH EC, INC.
PROJECT: NWS SEAL BEACH, CTO 0006
SDG: 06J212

METHOD 3520C/8082 PCBs

One (1) water sample was received on 10/20/06 for PCBs analysis by Method 3520C/8082 in accordance with "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", SW846, 3rd edition and DOD QSM (2002).

1. Holding Time

Analytical holding time was met.

2. Instrument Performance and Calibration

Initial calibration was five points for PCB-1016 and PCB-1260, all RSDs were within 20%. All continue calibrations were analyzed at 10 samples interval and all recoveries were within 85-115%.

3. Method Blank

Method blank was free of contamination at half of the reporting limit.

4. Surrogate Recovery

Recoveries were within QC limit.

5. Lab Control Sample/Lab Control Sample Duplicate

All recoveries were within QC limits.

6. Matrix Spike/Matrix Spike Duplicate

No MS/MSD sample was designated in this SDG.

7. Sample Analysis

Sample was analyzed according to the prescribed QC procedures. All criteria were met.

PCBs

```

=====
Client      : TETRA TECH EC, INC.           Date Collected: 10/19/06
Project     : NWS SEAL BEACH, CTO 0006     Date Received: 10/20/06
Batch No.   : 06J212                       Date Extracted: 10/24/06 15:30
Sample ID   : 6-44-142                     Date Analyzed: 10/25/06 15:37
Lab Samp ID : J212-02                      Dilution Factor: 1.01
Lab File ID : SJ25016A                    Matrix          : WATER
Ext Btch ID: CPJ027W                      % Moisture      : NA
Calib. Ref.: SJ25004A                    Instrument ID   : GCT008
=====
  
```

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
PCB-1016	(ND) ND	1.0	0.51 0.51
PCB-1221	(ND) ND	1.0	0.51 0.51
PCB-1232	(ND) ND	1.0	0.51 0.51
PCB-1242	(ND) ND	1.0	0.51 0.51
PCB-1248	(ND) ND	1.0	0.51 0.51
PCB-1254	(ND) ND	1.0	0.51 0.51
PCB-1260	(ND) ND	1.0	0.51 0.51
SURROGATE PARAMETERS			
	% RECOVERY	QC LIMIT	
TETRACHLORO-M-XYLENE	(127) 92	30-140	
DECACHLOROBIPHENYL	(104) 100	30-140	

Left of | is related to first column ; Right of | related to second column
 Final result indicated by ()
 * Out side of QC Limit

CASE NARRATIVE

CLIENT: TETRA TECH EC, INC.
PROJECT: NWS SEAL BEACH, CTO 0006
SDG: 06J212

METHOD 3010A/6010B METALS BY ICP

One (1) water sample was received on 10/20/06 for Metals analysis by Method 3010A/6010B in accordance with "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", SW846, 3rd edition and DOD QSM (2002).

1. Holding Time

Analysis met holding time criteria.

2. Method Blank

Method blank was free of contamination at half of the reporting limit.

3. Lab Control Sample/Lab Control Sample Duplicate

Lab control results were within QC limit, except for Silver in LCSD in file I07J035.

4. Serial Dilution / Post-Analytical Spike

Samples J212-01 and J500-02 from another SDG were analyzed for serial dilution and post-analytical spike. All QC requirements were met.

5. Matrix Spike/Matrix Spike Duplicate

No MS/MSD sample was designated in this SDG.

6. Sample Analysis

Sample was analyzed according to the prescribed QC procedures. All criteria were met with the aforementioned exception.

MRLs were analyzed at the beginning of each sequence run. Recoveries were within QC limit of 80-120% except for Copper and Vanadium in file I07J035.

METHOD 3010A/6010B
METALS BY ICP

```

=====
Client      : TETRA TECH EC, INC.           Date Collected: 10/19/06
Project     : NWS SEAL BEACH, CTO 0006     Date Received: 10/20/06
SDG NO.    : 06J212                       Date Extracted: 10/20/06 14:10
Sample ID   : 6-44-142                   Date Analyzed: 10/27/06 21:13
Lab Samp ID: J212-02                     Dilution Factor: 1
Lab File ID: I07J035018                 Matrix          : WATER
Ext Btch ID: IPJ052W                    % Moisture     : NA
Calib. Ref.: I07J035010                 Instrument ID  : EMAXTI07
=====

```

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)
Antimony	ND	0.100	0.0400
Barium	0.202	0.0100	0.00200
Beryllium	ND	0.0100	0.00100
Cadmium	ND	0.0100	0.00200
Chromium	0.0112	0.0100	0.00500
Cobalt	0.0111	0.0100	0.00500
Copper	0.0392	0.0100	0.00500
Molybdenum	0.0693	0.0500	0.0100
Nickel	0.0166J	0.0200	0.0100
Silver	0.0136	0.0100	0.00500
Vanadium	0.0413	0.0100	0.00500
Zinc	0.0758	0.0100	0.00500

METHOD 3010A/6010B
METALS BY TRACE ICP

Client : TETRA TECH EC, INC. Date Collected: 10/19/06
Project : NWS SEAL BEACH, CTO 0006 Date Received: 10/20/06
SDG NO. : 06J212 Date Extracted: 10/20/06 14:10
Sample ID: 6-44-142 Date Analyzed: 10/23/06 20:25
Lab Samp ID: J212-02 Dilution Factor: 1
Lab File ID: I31J020027 Matrix : WATER
Ext Btch ID: IPJ052W % Moisture : NA
Calib. Ref.: I31J020019 Instrument ID : EMAXI31

PARAMETERS	RESULTS (mg/L)	RL (mg/L)	MDL (mg/L)
Arsenic	0.0510	0.0100	0.00500
Lead [~]	ND	0.1000	0.03000
Selenium	ND	0.0100	0.00500
Thallium	0.00747J	0.0100	0.00500

^Analyzed @ DF10 on 10/26/06 12:13| File I31J022016

CASE NARRATIVE

CLIENT: TETRA TECH EC, INC.
PROJECT: NWS SEAL BEACH, CTO 0006
SDG: 06J212

METHOD 3050B/6010B METALS BY ICP

One (1) soil sample was received on 10/20/06 for Metals analysis by Method 3050B/6010B in accordance with "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", SW846, 3rd edition and DOD QSM (2002).

1. Holding Time

Analysis met holding time criteria.

2. Method Blank

Method blank was free of contamination at half of the reporting limit.

3. Lab Control Sample/Lab Control Sample Duplicate

Lab control results were within QC limit.

4. Serial Dilution / Post-Analytical Spike

Sample J212-01 was analyzed for serial dilution and post-analytical spike. All QC requirements were met.

5. Matrix Spike/Matrix Spike Duplicate

No MS/MSD sample was designated in this SDG.

6. Sample Analysis

Sample was analyzed according to the prescribed QC procedures. All criteria were met with the aforementioned exception.

MRLs were analyzed at the beginning of a sequence run. Recoveries were within QC limit of 80-120%.

METHOD 3050B/6010B
METALS BY ICP

=====
Client : TETRA TECH EC, INC. Date Collected: 10/19/06
Project : NWS SEAL BEACH, CTO 0006 Date Received: 10/20/06
SDG NO. : 06J212 Date Extracted: 10/20/06 14:00
Sample ID: 6-44-141 Date Analyzed: 10/23/06 11:16
Lab Samp ID: J212-01 Dilution Factor: 1
Lab File ID: I07J024016 Matrix : SOIL
Ext Btch ID: 1PJ051S % Moisture : 50.5
Calib. Ref.: I07J024010 Instrument ID : EMAXT107
=====

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
Nickel	37.5	4.04	2.02
Zinc	188	2.02	1.01

CASE NARRATIVE

CLIENT: TETRA TECH EC, INC.
PROJECT: NWS SEAL BEACH, CTO 0006
SDG: 06J212

METHOD 7470A MERCURY BY COLD VAPOR

One (1) soil sample was received on 10/20/06 for Mercury analysis by Method 7470A in accordance with "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", SW846, 3rd edition and DOD QSM (2002).

1. Holding Time

Analysis met holding time criteria.

2. Method Blank

Method blank was free of contamination at half of the reporting limit.

3. Lab Control Sample/Lab Control Sample Duplicate

Lab control results were within QC limit.

4. Serial Dilution / Post-Analytical Spike

Sample J184-01 from another SDG was analyzed for serial dilution and post-analytical spike. All QC requirements were met.

5. Matrix Spike/Matrix Spike Duplicate

MS/MSD sample was not designated in this SDG.

6. Sample Analysis

Sample was analyzed according to the prescribed QC procedures. All criteria were met.

METHOD 7470A
MERCURY BY COLD VAPOR

Client : TETRA TECH EC, INC.
Project : NWS SEAL BEACH, CTO 0006
Batch No. : 06J212

Matrix : WATER
Instrument ID : T1047

SAMPLE ID	EMAX SAMPLE ID	RESULTS (ug/L)	DLF	MOIST	RL (ug/L)	MDL (ug/L)	Analysis DATE/TIME	Extraction DATE/TIME	LFID	CAL REF	PREP BATCH	Collection DATE/TIME	Received DATE/TIME
MBLK1W	HGJ037WB	ND	1	NA	0.200	0.100	10/25/0614:40	10/24/0617:00	M47J025010	M47J025008	HGJ037W	NA	10/24/06
LCS1W	HGJ037WL	5.05	1	NA	0.200	0.100	10/25/0614:42	10/24/0617:00	M47J025011	M47J025008	HGJ037W	NA	10/24/06
LCD1W	HGJ037WC	5.01	1	NA	0.200	0.100	10/25/0614:44	10/24/0617:00	M47J025012	M47J025008	HGJ037W	NA	10/24/06
6-44-142	J212-02	ND	1	NA	0.200	0.100	10/25/0614:54	10/24/0617:00	M47J025017	M47J025008	HGJ037W	10/19/06	10/20/06

**Laboratory Data Consultants, Inc.
Data Validation Report**

Project/Site Name: NWS Seal Beach, CTO 90
Collection Date: September 22, 2006
LDC Report Date: November 29, 2006
Matrix: Soil
Parameters: Copper
Validation Level: EPA Level III & IV
Laboratory: EMAX Laboratories, Inc.



Sample Delivery Group (SDG): 06I217

Sample Identification

6-42-001	6-42-018MS
6-42-002	6-42-018MSD
6-42-003	
6-42-004**	
6-42-005	
6-42-006	
6-42-007	
6-42-008	
6-42-009	
6-42-010	
6-42-011	
6-42-012**	
6-42-013	
6-42-014	
6-42-015	
6-42-016	
6-42-017	
6-42-018	
6-42-019	
6-42-020	

**Indicates sample underwent EPA Level IV review

Introduction

This data review covers 22 soil samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 6010B for Copper.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (October 2004) as there are no current guidelines for the methods stated above.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified a P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blanks are summarized in Section III.

Field duplicates are summarized in Section XIII.

Samples indicated by a double asterisk on the front cover underwent a EPA Level IV review. A EPA Level III review was performed on all of the other samples. Raw data were not evaluated for the samples reviewed by Level III criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

II. Calibration

An initial calibration was performed.

The frequency and analysis criteria of the initial calibration verification (ICV) and continuing calibration verification (CCV) were met.

III. Blanks

Method blanks were reviewed for each matrix as applicable. No contaminant concentrations were found in the initial, continuing and preparation blanks.

IV. ICP Interference Check Sample (ICS) Analysis

The frequency of analysis was met.

The criteria for analysis were met.

V. Matrix Spike Analysis

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

VI. Duplicate Sample Analysis

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Results were within QC limits.

VII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

VIII. Internal Standards

ICP-MS was not utilized in this SDG.

IX. Furnace Atomic Absorption QC

Graphite furnace atomic absorption was not utilized in this SDG.

X. ICP Serial Dilution

ICP serial dilution analysis was performed by the laboratory. The analysis criteria were met.

XI. Sample Result Verification

All sample result verifications were acceptable for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

XII. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

XIII. Field Duplicates

Samples 6-42-002 and 6-42-003 and samples 6-42-006 and 6-42-007 were identified as field duplicates. No metals were detected in any of the samples with the following exceptions:

Analyte	Concentration (mg/Kg)		RPD
	6-42-002	6-42-003	
Copper	11.4	14.5	24

Analyte	Concentration (mg/Kg)		RPD
	6-42-006	6-42-007	
Copper	11.3	11.7	3

XIV. Field Blanks

No field blanks were identified in this SDG.

NWS Seal Beach, CTO 90
Copper - Data Qualification Summary - SDG 06I217

No Sample Data Qualified in this SDG

NWS Seal Beach, CTO 90
Copper - Laboratory Blank Data Qualification Summary - SDG 06I217

No Sample Data Qualified in this SDG

METHOD 3050B/6010B
METALS BY ICP

Client	: TETRA TECH EC, INC.	Date Collected:	09/22/06
Project	: NWS SEAL BEACH, CTO 0006	Date Received:	09/22/06
SDG NO.	: 06I217	Date Extracted:	09/29/06 09:30
Sample ID:	6-42-001	Date Analyzed:	09/29/06 15:20
Lab Samp ID:	I217-01	Dilution Factor:	1
Lab File ID:	I07I039015	Matrix	: SOIL
Ext Btch ID:	IPI039S	% Moisture	: 15.4
Calib. Ref.:	I07I039010	Instrument ID	: EMAXT107

PARAMETERS	RESULTS	RL	MDL
.....	(mg/kg)	(mg/kg)	(mg/kg)
.....
Copper	12.2	2.36	0.591

12/1/06 4 5
7010

METHOD 3050B/6010B
METALS BY ICP

Client : TETRA TECH EC. INC. Date Collected: 09/22/06
Project : NWS SEAL BEACH. CTO 0006 Date Received: 09/22/06
SDG NO. : 061217 Date Extracted: 09/29/06 09:30
Sample ID: 6-42-002 Date Analyzed: 09/29/06 15:24
Lab Samp ID: 1217-02 Dilution Factor: 1
Lab File ID: I07I039016 Matrix : SOIL
Ext Btch ID: IPI039S % Moisture : 13.1
Calib. Ref.: I07I039010 Instrument ID : EMAXT107

PARAMETERS	RESULTS	RL	MDL
-----	(mg/kg)	(mg/kg)	(mg/kg)
-----	-----	-----	-----
Copper	11.4	2.30	0.575

12/1/06 *cl*

7010

METHOD 3050B/6010B
METALS BY ICP

Client	: TETRA TECH EC, INC.	Date Collected:	09/22/06
Project	: NWS SEAL BEACH, CTO 0006	Date Received:	09/22/06
SDG NO.	: 06I217	Date Extracted:	09/29/06 09:30
Sample ID:	6-42-003	Date Analyzed:	09/29/06 15:29
Lab Samp ID:	I217-03	Dilution Factor:	1
Lab File ID:	I07I039017	Matrix	: SOIL
Ext Btch ID:	IPI039S	% Moisture	: 13.6
Calib. Ref.:	I07I039010	Instrument ID	: EMAXT107

PARAMETERS	RESULTS	RL	MDL
.....	(mg/kg)	(mg/kg)	(mg/kg)
.....
Copper	14.5	2.31	0.579

12/1/06
7017

METHOD 3050B/6010B
METALS BY ICP

Client	: TETRA TECH EC, INC.	Date Collected:	09/22/06
Project	: NWS SEAL BEACH, CTO 0006	Date Received:	09/22/06
SDG NO.	: 061217	Date Extracted:	09/29/06 09:30
Sample ID:	6-42-004	Date Analyzed:	09/29/06 15:33
Lab Samp ID:	I217-04	Dilution Factor:	1
Lab File ID:	I07I039018	Matrix	: SOIL
Ext Btch ID:	IPI039S	% Moisture	: 14.4
Calib. Ref.:	I07I039010	Instrument ID	: EMAXTI07

PARAMETERS	RESULTS	RL	MDL
.....	(mg/kg)	(mg/kg)	(mg/kg)
.....
Copper	13.6	2.34	0.584

12/1/06 R

7010

METHOD 3050B/6010B
METALS BY ICP

Client	: TETRA TECH EC, INC.	Date Collected:	09/22/06
Project	: NWS SEAL BEACH, CTO 0006	Date Received:	09/22/06
SDG NO.	: 061217	Date Extracted:	09/29/06 09:30
Sample ID:	6-42-005	Date Analyzed:	09/29/06 15:37
Lab Samp ID:	I217-05	Dilution Factor:	1
Lab File ID:	I07I039019	Matrix	: SOIL
Ext Btch ID:	IPI039S	% Moisture	: 14.2
Calib. Ref.:	I07I039010	Instrument ID	: EMAXTI07

PARAMETERS	RESULTS	RL	MDL
.....	(mg/kg)	(mg/kg)	(mg/kg)
.....	-----	-----	-----
Copper	15.2	2.33	0.583

12/1/06 ✓

7019

METHOD 3050B/6010B
METALS BY ICP

Client	: TETRA TECH EC, INC.	Date Collected:	09/22/06
Project	: NWS SEAL BEACH, CTO 0006	Date Received:	09/22/06
SDG NO.	: 061217	Date Extracted:	09/29/06 09:30
Sample ID:	6-42-006	Date Analyzed:	09/29/06 15:41
Lab Samp ID:	I217-06	Dilution Factor:	1
Lab File ID:	I07I039020	Matrix	: SOIL
Ext Btch ID:	IPI039S	% Moisture	: 15.8
Calib. Ref.:	I07I039010	Instrument ID	: EMAXT107

PARAMETERS	RESULTS	RL	MDL
-----	(mg/kg)	(mg/kg)	(mg/kg)
-----	-----	-----	-----
Copper	11.3	2.38	0.594

12/1/06 Q
7020

METHOD 3050B/6010B
METALS BY ICP

Client	: TETRA TECH EC, INC.	Date Collected:	09/22/06
Project	: NWS SEAL BEACH, CTO 0006	Date Received:	09/22/06
SDG NO.	: 06I217	Date Extracted:	09/29/06 09:30
Sample ID:	6-42-007	Date Analyzed:	09/29/06 15:45
Lab Samp ID:	I217-07	Dilution Factor:	1
Lab File ID:	I07I039021	Matrix	: SOIL
Ext Btch ID:	IPI039S	% Moisture	: 15.7
Calib. Ref.:	I07I039010	Instrument ID	: EMAXT107

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
----- Copper	11.7	2.37	0.593

12/1/06
7021

METHOD 3050B/6010B
METALS BY ICP

Client	: TETRA TECH EC, INC.	Date Collected:	09/22/06
Project	: NWS SEAL BEACH, CTO 0006	Date Received:	09/22/06
SDG NO.	: 061217	Date Extracted:	09/29/06 09:30
Sample ID:	6-42-008	Date Analyzed:	09/29/06 16:00
Lab Samp ID:	I217-08	Dilution Factor:	1
Lab File ID:	I071039024	Matrix	: SOIL
Ext Btch ID:	IPI039S	% Moisture	: 13.5
Calib. Ref.:	I071039022	Instrument ID	: EMAXTI07

PARAMETERS	RESULTS	RL	MDL
.....	(mg/kg)	(mg/kg)	(mg/kg)
.....
Copper	16.6	2.31	0.578

12/1/06
7022

METHOD 3050B/6010B
METALS BY ICP

Client	: TETRA TECH EC, INC.	Date Collected:	09/22/06
Project	: NWS SEAL BEACH, CTO 0006	Date Received:	09/22/06
SDG NO.	: 061217	Date Extracted:	09/29/06 09:30
Sample ID:	6-42-009	Date Analyzed:	09/29/06 16:04
Lab Samp ID:	I217-09	Dilution Factor:	1
Lab File ID:	I071039025	Matrix	: SOIL
Ext Btch ID:	IPI039S	% Moisture	: 15.2
Calib. Ref.:	I071039022	Instrument ID	: EMAXTI07

PARAMETERS	RESULTS	RL	MDL
.....	(mg/kg)	(mg/kg)	(mg/kg)
.....	-----	-----	-----
Copper	11.6	2.36	0.590

12/1/06 *Y*
7023

METHOD 3050B/6010B
METALS BY ICP

Client	: TETRA TECH EC, INC.	Date Collected:	09/22/06
Project	: NWS SEAL BEACH. CTO 0006	Date Received:	09/22/06
SDG NO.	: 06I217	Date Extracted:	09/29/06 09:30
Sample ID:	6-42-010	Date Analyzed:	09/29/06 16:08
Lab Samp ID:	I217-10	Dilution Factor:	1
Lab File ID:	I071039026	Matrix	: SOIL
Ext Btch ID:	IPI039S	% Moisture	: 14.5
Calib. Ref.:	I071039022	Instrument ID	: EMAXTI07

PARAMETERS	RESULTS	RL	MDL
-----	(mg/kg)	(mg/kg)	(mg/kg)
-----	-----	-----	-----
Copper	10.0	2.34	0.585

12/1/06 *[Signature]*

7024

METHOD 3050B/6010B
METALS BY ICP

Client	: TETRA TECH EC, INC.	Date Collected:	09/22/06
Project	: NWS SEAL BEACH, CTO 0006	Date Received:	09/22/06
SDG NO.	: 061217	Date Extracted:	09/29/06 09:30
Sample ID:	6-42-011	Date Analyzed:	09/29/06 16:12
Lab Samp ID:	I217-11	Dilution Factor:	1
Lab File ID:	I07I039027	Matrix	: SOIL
Ext Btch ID:	IPI039S	% Moisture	: 14.2
Calib. Ref.:	I07I039022	Instrument ID	: EMAXT107

PARAMETERS	RESULTS	RL	MDL
-----	(mg/kg)	(mg/kg)	(mg/kg)
-----	-----	-----	-----
Copper	9.63	2.33	0.583

12/1/06 *g*

7025

METHOD 3050B/6010B
METALS BY ICP

Client	: TETRA TECH EC, INC.	Date Collected:	09/22/06
Project	: NWS SEAL BEACH, CTO 0006	Date Received:	09/22/06
SDG NO.	: 061217	Date Extracted:	09/29/06 09:30
Sample ID:	6-42-012	Date Analyzed:	09/29/06 16:16
Lab Samp ID:	I217-12	Dilution Factor:	1
Lab File ID:	I071039028	Matrix	: SOIL
Ext Btch ID:	IP1039S	% Moisture	: 15.5
Calib. Ref.:	I071039022	Instrument ID	: EMAXT107

PARAMETERS	RESULTS	RL	MDL
.....	(mg/kg)	(mg/kg)	(mg/kg)
.....	-----	-----	-----
Copper	14.5	2.37	0.592

10/1/06 g

7026

METHOD 3050B/6010B
METALS BY ICP

Client	: TETRA TECH EC, INC.	Date Collected:	09/22/06
Project	: NWS SEAL BEACH, CTO 0006	Date Received:	09/22/06
SDG NO.	: 061217	Date Extracted:	09/29/06 09:30
Sample ID:	6-42-013	Date Analyzed:	09/29/06 16:20
Lab Samp ID:	I217-13	Dilution Factor:	1
Lab File ID:	I071039029	Matrix	: SOIL
Ext Btch ID:	IPI039S	% Moisture	: 11.0
Calib. Ref.:	I071039022	Instrument ID	: EMAX107

PARAMETERS	RESULTS	RL	MDL
-----	(mg/kg)	(mg/kg)	(mg/kg)
-----	-----	-----	-----
Copper	11.0	2.25	0.562

12/1/06 *[Signature]*

7027

METHOD 3050B/6010B
METALS BY ICP

Client	: TETRA TECH EC, INC.	Date Collected:	09/22/06
Project	: NWS SEAL BEACH, CTO 0006	Date Received:	09/22/06
SDG NO.	: 061217	Date Extracted:	09/29/06 09:30
Sample ID:	6-42-014	Date Analyzed:	09/29/06 16:24
Lab Samp ID:	I217-14	Dilution Factor:	1
Lab File ID:	I07I039030	Matrix	: SOIL
Ext Btch ID:	IPI039S	% Moisture	: 12.6
Calib. Ref.:	I07I039022	Instrument ID	: EMAXTI07

PARAMETERS	RESULTS	RL	MDL
.....	(mg/kg)	(mg/kg)	(mg/kg)
.....
Copper	12.9	2.29	0.572

12/1/06

7028

METHOD 3050B/6010B
METALS BY ICP

Client	: TETRA TECH EC, INC.	Date Collected:	09/22/06
Project	: NWS SEAL BEACH, CTO 0006	Date Received:	09/22/06
SDG NO.	: 061217	Date Extracted:	09/29/06 09:30
Sample ID:	6-42-015	Date Analyzed:	09/29/06 16:28
Lab Samp ID:	I217-15	Dilution Factor:	1
Lab File ID:	I07I039031	Matrix	: SOIL
Ext Btch ID:	IPI039S	% Moisture	: 13.9
Calib. Ref.:	I07I039022	Instrument ID	: EMAX107

PARAMETERS	RESULTS	RL	MDL
-----	(mg/kg)	(mg/kg)	(mg/kg)
-----	-----	-----	-----
Copper	16.4	2.32	0.581

12/1/06
0

7829

METHOD 3050B/6010B
METALS BY ICP

Client	: TETRA TECH EC, INC.	Date Collected:	09/22/06
Project	: NWS SEAL BEACH, CTO 0006	Date Received:	09/22/06
SDG NO.	: 061217	Date Extracted:	09/29/06 09:30
Sample ID:	6-42-016	Date Analyzed:	09/29/06 16:32
Lab Samp ID:	I217-16	Dilution Factor:	1
Lab File ID:	I07I039032	Matrix	: SOIL
Ext Btch ID:	IP1039S	% Moisture	: 13.9
Calib. Ref.:	I07I039022	Instrument ID	: EMAXT107

PARAMETERS	RESULTS	RL	MDL
.....	(mg/kg)	(mg/kg)	(mg/kg)
.....
Copper	9.12	2.32	0.581

12/1/06
↓

7030

METHOD 3050B/6010B
METALS BY ICP

Client : TETRA TECH EC. INC. Date Collected: 09/22/06
Project : NWS SEAL BEACH, CTO 0006 Date Received: 09/22/06
SDG NO. : 06I217 Date Extracted: 09/29/06 09:30
Sample ID: 6-42-017 Date Analyzed: 09/29/06 16:36
Lab Samp ID: I217-17 Dilution Factor: 1
Lab File ID: I07I039033 Matrix : SOIL
Ext Btch ID: IPI039S % Moisture : 15.9
Calib. Ref.: I07I039022 Instrument ID : ENAXTI07

PARAMETERS	RESULTS	RL	MDL
.....	(mg/kg)	(mg/kg)	(mg/kg)
.....
Copper	12.7	2.38	0.595

12/1/06

7831

METHOD 3050B/6010B
METALS BY ICP

Client	: TETRA TECH EC, INC.	Date Collected:	09/22/06
Project	: NWS SEAL BEACH, CTO 0006	Date Received:	09/22/06
SDG NO.	: 06I217	Date Extracted:	09/29/06 09:30
Sample ID:	6-42-018	Date Analyzed:	09/29/06 17:06
Lab Samp ID:	I217-18	Dilution Factor:	1
Lab File ID:	I071039039	Matrix	: SOIL
Ext Btch ID:	IP1039S	% Moisture	: 9.6
Calib. Ref.:	I071039034	Instrument ID	: EMAXTI07

PARAMETERS	RESULTS	RL	MDL
.....	(mg/kg)	(mg/kg)	(mg/kg)
.....	-----	-----	-----
Copper	11.8	2.21	0.553

12/1/06

7032

METHOD 3050B/6010B
METALS BY ICP

Client	: TETRA TECH EC, INC.	Date Collected:	09/22/06
Project	: NWS SEAL BEACH, CTO 0006	Date Received:	09/22/06
SDG NO.	: 061217	Date Extracted:	09/29/06 09:30
Sample ID:	6-42-019	Date Analyzed:	09/29/06 17:14
Lab Samp ID:	I217-19	Dilution Factor:	1
Lab File ID:	I071039041	Matrix	: SOIL
Ext Btch ID:	IPI039S	% Moisture	: 6.0
Calib. Ref.:	I071039034	Instrument ID	: EMAXTI07

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
..... Copper	13.3	2.13	0.532

12/1/06

7033

METHOD 3050B/6010B
METALS BY ICP

Client	: TETRA TECH EC, INC.	Date Collected:	09/22/06
Project	: NWS SEAL BEACH, CTO 0006	Date Received:	09/22/06
SDG NO.	: 06I217	Date Extracted:	09/29/06 09:30
Sample ID:	6-42-020	Date Analyzed:	09/29/06 17:18
Lab Samp ID:	1217-20	Dilution Factor:	1
Lab File ID:	I07I039042	Matrix	: SOIL
Ext Btch ID:	IPI039S	% Moisture	: 11.1
Calib. Ref.:	I07I039034	Instrument ID	: EMAXT107

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
.....	-----	-----	-----
Copper	10.7	2.25	0.562

12/1/06
7034

**Laboratory Data Consultants, Inc.
Data Validation Report**

Project/Site Name: NWS Seal Beach, CTO 90
Collection Date: October 4, 2006
LDC Report Date: November 29, 2006
Matrix: Soil
Parameters: Nickel & Zinc
Validation Level: EPA Level III & IV
Laboratory: EMAX Laboratories, Inc.

COPY

Sample Delivery Group (SDG): 06J029

Sample Identification

6-44-022	6-44-041MS
6-44-023	6-44-041MSD
6-44-024	
6-44-025	
6-44-026	
6-44-027	
6-44-028	
6-44-029	
6-44-030	
6-44-031	
6-44-032	
6-44-033**	
6-44-034	
6-44-035	
6-44-036	
6-44-037	
6-44-038	
6-44-039	
6-44-040	
6-44-041	

**Indicates sample underwent EPA Level IV review

Introduction

This data review covers 22 soil samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 6010B for Nickel and Zinc.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (October 2004) as there are no current guidelines for the methods stated above.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified a P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blanks are summarized in Section III.

Field duplicates are summarized in Section XIII.

Samples indicated by a double asterisk on the front cover underwent a EPA Level IV review. A EPA Level III review was performed on all of the other samples. Raw data were not evaluated for the samples reviewed by Level III criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UU Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

II. Calibration

An initial calibration was performed.

The frequency and analysis criteria of the initial calibration verification (ICV) and continuing calibration verification (CCV) were met.

III. Blanks

Method blanks were reviewed for each matrix as applicable. No contaminant concentrations were found in the initial, continuing and preparation blanks.

IV. ICP Interference Check Sample (ICS) Analysis

The frequency of analysis was met.

The criteria for analysis were met.

V. Matrix Spike Analysis

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

VI. Duplicate Sample Analysis

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable.

VII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

VIII. Internal Standards

ICP-MS was not utilized in this SDG.

IX. Furnace Atomic Absorption QC

Graphite furnace atomic absorption was not utilized in this SDG.

X. ICP Serial Dilution

ICP serial dilution analysis was performed by the laboratory. The analysis criteria were met.

XI. Sample Result Verification

All sample result verifications were acceptable for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

XII. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

XIII. Field Duplicates

Samples 6-44-032 and 6-44-033** were identified as field duplicates. No metals were detected in any of the samples with the following exceptions:

Analyte	Concentration (mg/Kg)		RPD
	6-44-032	6-44-033**	
Nickel	51.2	26.4	64
Zinc	213	127	51

XIV. Field Blanks

No field blanks were identified in this SDG.

**NWS Seal Beach, CTO 90
Nickel & Zinc - Data Qualification Summary - SDG 06J029**

No Sample Data Qualified in this SDG

**NWS Seal Beach, CTO 90
Nickel & Zinc - Laboratory Blank Data Qualification Summary - SDG 06J029**

No Sample Data Qualified in this SDG

METHOD 3050B/6010B
METALS BY ICP

```
=====  
Client      : TETRA TECH EC, INC.           Date Collected: 10/04/06  
Project     : NWS SEAL BEACH, CTO 0006      Date Received: 10/04/06  
SDG NO.    : 06J029                        Date Extracted: 10/05/06 09:15  
Sample ID   : 6-44-022                      Date Analyzed: 10/05/06 19:53  
Lab Samp ID: J029-01                        Dilution Factor: 1  
Lab File ID: I07J006040                    Matrix          : SOIL  
Ext Btch ID: IPJ014S                       % Moisture     : 12.2  
Calib. Ref.: I07J006034                    Instrument ID  : EMAX107  
=====
```

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
Nickel	21.8	2.28	1.14
Zinc	123	1.14	0.569

12/1/06 ✓

METHOD 3050B/6010B
METALS BY ICP

```
=====  
Client   : TETRA TECH EC, INC.           Date Collected: 10/04/06  
Project  : NWS SEAL BEACH, CTO 0006      Date Received: 10/04/06  
SDG NO.  : 06J029                        Date Extracted: 10/05/06 09:15  
Sample ID: 6-44-023                       Date Analyzed: 10/05/06 18:18  
Lab Samp ID: J029-02                      Dilution Factor: 1  
Lab File ID: I07J006018                  Matrix          : SOIL  
Ext Btch ID: IPJ014S                     % Moisture     : 10.9  
Calib. Ref.: I07J006010                  Instrument ID  : EMAXT107  
=====
```

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
Nickel	22.0	2.24	1.12
Zinc	110	1.12	0.561

12/1/06 8

7004

METHOD 3050B/6010B
METALS BY ICP

```
=====
Client   : TETRA TECH EC, INC.      Date Collected: 10/04/06
Project  : NWS SEAL BEACH, CTO 0006 Date Received: 10/04/06
SDG NO.  : 06J029                   Date Extracted: 10/05/06 09:15
Sample ID: 6-44-024                 Date Analyzed: 10/05/06 18:22
Lab Samp ID: J029-03                Dilution Factor: 1
Lab File ID: 107J006019             Matrix          : SOIL
Ext Btch ID: IPJ014S                % Moisture      : 12.4
Calib. Ref.: 107J006010             Instrument ID   : EMAXT107
=====
```

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
Nickel	16.5	2.28	1.14
Zinc	70.7	1.14	0.571

12/1/02 Y

7905

METHOD 3050B/6010B
METALS BY ICP

=====
Client : TETRA TECH EC, INC. Date Collected: 10/04/06
Project : NWS SEAL BEACH, CTO 0006 Date Received: 10/04/06
SDG NO. : 06J029 Date Extracted: 10/05/06 09:15
Sample ID: 6-44-025 Date Analyzed: 10/05/06 18:26
Lab Samp ID: J029-04 Dilution Factor: 1
Lab File ID: 107J006020 Matrix : SOIL
Ext Btch ID: IPJ014S % Moisture : 2.4
Calib. Ref.: 107J006010 Instrument ID : EMAXT107
=====

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
Nickel	16.6	2.05	1.02
Zinc	86.0	1.02	0.512

12/1/06

7886

METHOD 3050B/6010B
METALS BY ICP

```
=====  
Client      : TETRA TECH EC, INC.      Date Collected: 10/04/06  
Project     : NWS SEAL BEACH, CTO 0006 Date Received: 10/04/06  
SDG NO.    : 06J029                   Date Extracted: 10/05/06 09:15  
Sample ID   : 6-44-026                 Date Analyzed: 10/05/06 18:30  
Lab Samp ID: J029-05                   Dilution Factor: 1  
Lab File ID: 107J006021                Matrix          : SOIL  
Ext Btch ID: IPJ014S                   % Moisture     : 16.5  
Calib. Ref.: 107J006010                Instrument ID  : EMAXT107  
=====
```

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
Nickel	17.0	2.40	1.20
Zinc	79.3	1.20	0.599

12/1/06

7007

METHOD 3050B/6010B
METALS BY ICP

=====
Client : TETRA TECH EC, INC. Date Collected: 10/04/06
Project : NWS SEAL BEACH, CTO 0006 Date Received: 10/04/06
SDG NO. : 06J029 Date Extracted: 10/05/06 09:15
Sample ID: 6-44-027 Date Analyzed: 10/05/06 18:45
Lab Samp ID: J029-06 Dilution Factor: 1
Lab File ID: 107J006024 Matrix : SOIL
Ext Btch ID: IPJ014S % Moisture : 9.5
Calib. Ref.: 107J006022 Instrument ID : EMAXT107
=====

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
Nickel	15.7	2.21	1.10
Zinc	77.5	1.10	0.552

12/1/06 Q

7008

METHOD 3050B/6010B
METALS BY ICP

=====
Client : TETRA TECH EC, INC. Date Collected: 10/04/06
Project : NWS SEAL BEACH, CTO 0006 Date Received: 10/04/06
SDG NO. : 06J029 Date Extracted: 10/05/06 09:15
Sample ID: 6-44-028 Date Analyzed: 10/05/06 18:50
Lab Samp ID: J029-07 Dilution Factor: 1
Lab File ID: I07J006025 Matrix : SOIL
Ext Btch ID: IPJ014S % Moisture : 13.2
Calib. Ref.: I07J006022 Instrument ID : EMAXT107
=====

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
Nickel	14.8	2.30	1.15
Zinc	70.4	1.15	0.576

10/1/06 ✓

7000

METHOD 3050B/6010B
METALS BY ICP

```
=====  
Client      : TETRA TECH EC, INC.      Date Collected: 10/04/06  
Project     : NWS SEAL BEACH, CTO 0006 Date Received: 10/04/06  
SDG NO.    : 06J029                   Date Extracted: 10/05/06 09:15  
Sample ID: 6-44-029                   Date Analyzed: 10/05/06 18:54  
Lab Samp ID: J029-08                   Dilution Factor: 1  
Lab File ID: 107J006026                Matrix          : SOIL  
Ext Btch ID: IPJ014S                    % Moisture     : 10.4  
Calib. Ref.: 107J006022                Instrument ID  : EMAXT107  
=====
```

PARAMETERS	RESULTS (mg/kg)	RI (mg/kg)	MDL (mg/kg)
Nickel	15.2	2.23	1.12
Zinc	78.9	1.12	0.558

12/1/06 8

7010

METHOD 3050B/6010B
METALS BY ICP

=====
Client : TETRA TECH EC, INC. Date Collected: 10/04/06
Project : NWS SEAL BEACH, CTO 0006 Date Received: 10/04/06
SDG NO. : 06J029 Date Extracted: 10/05/06 09:15
Sample ID: 6-44-030 Date Analyzed: 10/05/06 18:58
Lab Samp ID: J029-09 Dilution Factor: 1
Lab File ID: 107J006027 Matrix : SOIL
Ext Btch ID: IPJ014S % Moisture : 12.4
Calib. Ref.: 107J006022 Instrument ID : EMAX107
=====

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
Nickel	15.6	2.28	1.14
Zinc	108	1.14	0.571

12/1/06 ♀

7011

METHOD 3050B/6010B
METALS BY ICP

```
=====  
Client      : TETRA TECH EC, INC.      Date Collected: 10/04/06  
Project     : NWS SEAL BEACH, CTO 0006 Date Received: 10/04/06  
SDG NO.    : 06J029                   Date Extracted: 10/05/06 09:15  
Sample ID: 6-44-031                   Date Analyzed: 10/05/06 19:02  
Lab Samp ID: J029-10                   Dilution Factor: 1  
Lab File ID: I07J006028                 Matrix          : SOIL  
Ext Btch ID: IPJ014S                    % Moisture     : 2.0  
Calib. Ref.: I07J006022                 Instrument ID  : EMAXT107  
=====
```

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
Nickel	15.1	2.04	1.02
Zinc	74.2	1.02	0.510

12/1/06 &

7012

METHOD 3050B/6010B
METALS BY ICP

=====
Client : TETRA TECH EC, INC. Date Collected: 10/04/06
Project : NWS SEAL BEACH, CTO 0006 Date Received: 10/04/06
SDG NO. : 06J029 Date Extracted: 10/05/06 09:15
Sample ID: 6-44-032 Date Analyzed: 10/05/06 19:06
Lab Samp ID: J029-11 Dilution Factor: 1
Lab File ID: 107J006029 Matrix : SOIL
Ext Btch ID: IPJ014S % Moisture : 44.9
Calib. Ref.: 107J006022 Instrument ID : EMAXT107
=====

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
Nickel	51.2	3.63	1.81
Zinc	213	1.81	0.907

12/1/06 Q

7013

METHOD 3050B/6010B
METALS BY ICP

```
=====
Client   : TETRA TECH EC, INC.           Date Collected: 10/04/06
Project  : NWS SEAL BEACH, CTO 0006      Date Received: 10/04/06
SDG NO.  : 06J029                        Date Extracted: 10/05/06 09:15
Sample ID: 6-44-033                      Date Analyzed: 10/05/06 19:10
Lab Samp ID: J029-12                     Dilution Factor: 1
Lab File ID: I07J006030                 Matrix          : SOIL
Ext Btch ID: IPJ014S                    % Moisture     : 35.3
Calib. Ref.: I07J006022                 Instrument ID  : EMAXT107
=====
```

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
Nickel	26.4	3.09	1.55
Zinc	127	1.55	0.773

12/1/06

7814

METHOD 3050B/6010B
METALS BY ICP

```
=====
Client   : TETRA TECH EC, INC.           Date Collected: 10/04/06
Project  : NWS SEAL BEACH, CTO 0006      Date Received: 10/04/06
SDG NO.  : 06J029                        Date Extracted: 10/05/06 09:15
Sample ID: 6-44-034                      Date Analyzed: 10/05/06 19:14
Lab Samp ID: J029-13                     Dilution Factor: 1
Lab File ID: I07J006031                  Matrix          : SOIL
Ext Btch ID: IPJ014S                     % Moisture     : 36.6
Calib. Ref.: I07J006022                  Instrument ID   : EMAXT107
=====
```

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
Nickel	28.9	3.15	1.58
Zinc	128	1.58	0.789

12/1/06

7015

METHOD 3050B/6010B
METALS BY ICP

=====
Client : TETRA TECH EC, INC. Date Collected: 10/04/06
Project : NWS SEAL BEACH, CTO 0006 Date Received: 10/04/06
SDG NO. : 06J029 Date Extracted: 10/05/06 09:15
Sample ID: 6-44-035 Date Analyzed: 10/05/06 19:18
Lab Samp ID: J029-14 Dilution Factor: 1
Lab File ID: I07J006032 Matrix : SOIL
Ext Btch ID: IPJ014S % Moisture : 37.9
Calib. Ref.: I07J006022 Instrument ID : EMAXT107
=====

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
Nickel	23.4	3.22	1.61
Zinc	111	1.61	0.805

10/1/06 Q

7015

METHOD 3050B/6010B
METALS BY ICP

=====
Client : TETRA TECH EC, INC. Date Collected: 10/04/06
Project : NWS SEAL BEACH, CTO 0006 Date Received: 10/04/06
SDG NO. : 06J029 Date Extracted: 10/05/06 09:15
Sample ID: 6-44-036 Date Analyzed: 10/05/06 19:22
Lab Samp ID: J029-15 Dilution Factor: 1
Lab File ID: 107J006033 Matrix : SOIL
Ext Btch ID: IPJ014S % Moisture : 45.5
Calib. Ref.: 107J006022 Instrument ID : EMAXT107
=====

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
Nickel	35.2	3.67	1.83
Zinc	181	1.83	0.917

10/10/06

METHOD 3050B/6010B
METALS BY ICP

=====
Client : TETRA TECH EC, INC. Date Collected: 10/04/06
Project : NWS SEAL BEACH, CTO 0006 Date Received: 10/04/06
SDG NO. : 06J029 Date Extracted: 10/05/06 09:15
Sample ID: 6-44-037 Date Analyzed: 10/05/06 19:37
Lab Samp ID: J029-16 Dilution Factor: 1
Lab File ID: I07J006036 Matrix : SOIL
Ext Btch ID: IPJ014s % Moisture : 46.0
Calib. Ref.: I07J006034 Instrument ID : EMAXTI07
=====

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
Nickel	26.3	3.70	1.85
Zinc	1750	1.85	0.926

12/1/06 &

7018

METHOD 3050B/6010B
METALS BY ICP

=====
Client : TETRA TECH EC, INC. Date Collected: 10/04/06
Project : NWS SEAL BEACH, CTO 0006 Date Received: 10/04/06
SDG NO. : 06J029 Date Extracted: 10/05/06 09:15
Sample ID: 6-44-038 Date Analyzed: 10/05/06 19:41
Lab Samp ID: J029-17 Dilution Factor: 1
Lab File ID: 107J006037 Matrix : SOIL
Ext Btch ID: 1PJ014S % Moisture : 49.1
Calib. Ref.: 107J006034 Instrument ID : EMAX107
=====

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
Nickel	35.5	3.93	1.96
Zinc	174	1.96	0.982

12/1/06

7019

METHOD 3050B/6010B
METALS BY ICP

=====
Client : TETRA TECH EC, INC. Date Collected: 10/04/06
Project : NWS SEAL BEACH, CTO 0006 Date Received: 10/04/06
SDG NO. : 06J029 Date Extracted: 10/05/06 09:15
Sample ID: 6-44-039 Date Analyzed: 10/05/06 19:45
Lab Samp ID: J029-18 Dilution Factor: 1
Lab File ID: I07J006038 Matrix : SOIL
Ext Btch ID: IPJ014S % Moisture : 50.0
Calib. Ref.: I07J006034 Instrument ID : EMAXT107
=====

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
Nickel	34.6	4.00	2.00
Zinc	169	2.00	1.00

12/1/06 8

7020

METHOD 3050B/6010B
METALS BY ICP

=====
Client : TETRA TECH EC, INC. Date Collected: 10/04/06
Project : NWS SEAL BEACH, CTO 0006 Date Received: 10/04/06
SDG NO. : 06J029 Date Extracted: 10/05/06 09:15
Sample ID: 6-44-040 Date Analyzed: 10/05/06 19:49
Lab Samp ID: J029-19 Dilution Factor: 1
Lab File ID: 107J006039 Matrix : SOIL
Ext Btch ID: IPJ014S % Moisture : 51.6
Calib. Ref.: 107J006034 Instrument ID : EMAXT107
=====

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
Nickel	36.1	4.13	2.07
Zinc	202	2.07	1.03

12/1/02 8

7821

METHOD 3050B/6010B
METALS BY ICP

```
=====
Client   : TETRA TECH EC, INC.      Date Collected: 10/04/06
Project  : NWS SEAL BEACH, CTO 0006 Date Received: 10/04/06
SDG NO.  : 06J029                   Date Extracted: 10/05/06 09:15
Sample ID: 6-44-041                 Date Analyzed: 10/05/06 18:10
Lab Samp ID: J029-20                Dilution Factor: 1
Lab File ID: I07J006016             Matrix : SOIL
Ext Btch ID: IPJ014S                % Moisture : 38.3
Calib. Ref.: I07J006010             Instrument ID : EMAX107
=====
```

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
Nickel	29.4	3.24	1.62
Zinc	182	1.62	0.810

12/1/06 &

Laboratory Data Consultants, Inc. Data Validation Report

Project/Site Name: NWS Seal Beach, CTO 90
Collection Date: October 4, 2006
LDC Report Date: November 29, 2006
Matrix: Soil
Parameters: Nickel & Zinc
Validation Level: EPA Level III & IV
Laboratory: EMAX Laboratories, Inc.



Sample Delivery Group (SDG): 06J030

Sample Identification

6-44-042	6-44-051MS
6-44-043**	6-44-051MSD
6-44-044	
6-44-045	
6-44-046	
6-44-047	
6-44-048	
6-44-049	
6-44-050	
6-44-051	
6-44-052	
6-44-053**	
6-44-054	
6-44-055	
6-44-056	
6-44-057	
6-44-058	
6-44-059	
6-44-060	
6-44-061	

**Indicates sample underwent EPA Level IV review

Introduction

This data review covers 22 soil samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 6010B for Nickel and Zinc.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (October 2004) as there are no current guidelines for the methods stated above.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified a P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

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Samples indicated by a double asterisk on the front cover underwent a EPA Level IV review. A EPA Level III review was performed on all of the other samples. Raw data were not evaluated for the samples reviewed by Level III criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

II. Calibration

An initial calibration was performed.

The frequency and analysis criteria of the initial calibration verification (ICV) and continuing calibration verification (CCV) were met.

III. Blanks

Method blanks were reviewed for each matrix as applicable. No contaminant concentrations were found in the initial, continuing and preparation blanks.

IV. ICP Interference Check Sample (ICS) Analysis

The frequency of analysis was met.

The criteria for analysis were met.

V. Matrix Spike Analysis

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

VI. Duplicate Sample Analysis

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable.

VII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

VIII. Internal Standards

ICP-MS was not utilized in this SDG.

IX. Furnace Atomic Absorption QC

Graphite furnace atomic absorption was not utilized in this SDG.

X. ICP Serial Dilution

ICP serial dilution analysis was performed by the laboratory. The analysis criteria were met with the following exceptions:

Diluted Sample	Analyte	%D (Limits)	Associated Samples	Flag	A or P
6-44-051L	Zinc	11 (≤ 10)	All samples in SDG 06J030	J (all detects)	A

XI. Sample Result Verification

All sample result verifications were acceptable for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

XII. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

XIII. Field Duplicates

Samples 6-44-042 and 6-44-043** and samples 6-44-052 and 6-44-053** were identified as field duplicates. No metals were detected in any of the samples with the following exceptions:

Analyte	Concentration (mg/Kg)		RPD
	6-44-042	6-44-043**	
Nickel	6.34	24.4	118
Zinc	49.1	222	128

Analyte	Concentration (mg/Kg)		RPD
	6-44-052	6-44-053**	
Nickel	28.9	29.0	0
Zinc	157	204	26

XIV. Field Blanks

No field blanks were identified in this SDG.

**NWS Seal Beach, CTO 90
Nickel & Zinc - Data Qualification Summary - SDG 06J030**

SDG	Sample	Analyte	Flag	A or P	Reason
06J030	6-44-042 6-44-043** 6-44-044 6-44-045 6-44-046 6-44-047 6-44-048 6-44-049 6-44-050 6-44-051 6-44-052 6-44-053** 6-44-054 6-44-055 6-44-056 6-44-057 6-44-058 6-44-059 6-44-060 6-44-061	Zinc	J (all detects)	A	ICP serial dilution (%D)

**NWS Seal Beach, CTO 90
Nickel & Zinc - Laboratory Blank Data Qualification Summary - SDG 06J030**

No Sample Data Qualified in this SDG

METHOD 3050B/6010B
METALS BY ICP

=====
Client : TETRA TECH EC, INC. Date Collected: 10/04/06
Project : NWS SEAL BEACH, CTO 0006 Date Received: 10/04/06
SDG NO. : 06J030 Date Extracted: 10/05/06 09:30
Sample ID: 6-44-042 Date Analyzed: 10/05/06 21:58
Lab Samp ID: J030-01 Dilution Factor: 1
Lab File ID: 107J007015 Matrix : SOIL
Ext Btch ID: IPJ015S % Moisture : 28.0
Calib. Ref.: 107J007010 Instrument ID : EMAXT107
=====

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
Nickel	6.34	2.78	1.39
Zinc	49.1 <i>S</i>	1.39	0.694

12/1/06 *g*

7000

METHOD 3050B/6010B
METALS BY ICP

=====
Client : TETRA TECH EC, INC. Date Collected: 10/04/06
Project : NWS SEAL BEACH, CTO 0006 Date Received: 10/04/06
SDG NO. : 06J030 Date Extracted: 10/05/06 09:30
Sample ID: 6-44-043 Date Analyzed: 10/05/06 22:02
Lab Samp ID: J030-02 Dilution Factor: 1
Lab File ID: 107J007016 Matrix : SOIL
Ext Btch ID: IPJ015S % Moisture : 41.3
Calib. Ref.: 107J007010 Instrument ID : EMAX107
=====

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
Nickel	24.4	3.41	1.70
Zinc	222 J	1.70	0.852

12/1/06 ✓

7004

METHOD 3050B/6010B
METALS BY ICP

=====
Client : TETRA TECH EC, INC. Date Collected: 10/04/06
Project : NWS SEAL BEACH, CTO 0006 Date Received: 10/04/06
SDG NO. : 06J030 Date Extracted: 10/05/06 09:30
Sample ID: 6-44-044 Date Analyzed: 10/05/06 22:06
Lab Samp ID: J030-03 Dilution Factor: 1
Lab File ID: 107J007017 Matrix : SOIL
Ext Btch ID: 1PJ015S % Moisture : 45.1
Calib. Ref.: 107J007010 Instrument ID : EMAXTI07
=====

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
Nickel	24.0	3.64	1.82
Zinc	133 J	1.82	0.911

12/1/06 ✓

7005

METHOD 3050B/6010B
METALS BY ICP

=====
Client : TETRA TECH EC, INC. Date Collected: 10/04/06
Project : NWS SEAL BEACH, CTO 0006 Date Received: 10/04/06
SDG NO. : 06J030 Date Extracted: 10/05/06 09:30
Sample ID: 6-44-045 Date Analyzed: 10/05/06 22:10
Lab Samp ID: J030-04 Dilution Factor: 1
Lab File ID: I07J007018 Matrix : SOIL
Ext Btch ID: IPJ015S % Moisture : 47.2
Calib. Ref.: I07J007010 Instrument ID : EMAX1107
=====

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
Nickel	30.8	3.79	1.89
Zinc	164 <i>J</i>	1.89	0.947

10/1/06 *JS*

7006

METHOD 3050B/6010B
METALS BY ICP

=====
Client : TETRA TECH EC, INC. Date Collected: 10/04/06
Project : NWS SEAL BEACH, CTO 0006 Date Received: 10/04/06
SDG NO. : 06J030 Date Extracted: 10/05/06 09:30
Sample ID: 6-44-046 Date Analyzed: 10/05/06 22:14
Lab Samp ID: J030-05 Dilution Factor: 1
Lab File ID: 107J007019 Matrix : SOIL
Ext Btch ID: IPJ015S % Moisture : 56.3
Calib. Ref.: 107J007010 Instrument ID : EMAXT107
=====

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
Nickel	34.1	4.58	2.29
Zinc	179 J	2.29	1.14

12/1/06 J

7007

METHOD 3050B/6010B
METALS BY ICP

=====
Client : TETRA TECH EC, INC. Date Collected: 10/04/06
Project : NWS SEAL BEACH, CTO 0006 Date Received: 10/04/06
SDG NO. : 06J030 Date Extracted: 10/05/06 09:30
Sample ID: 6-44-047 Date Analyzed: 10/05/06 22:18
Lab Samp ID: J030-06 Dilution Factor: 1
Lab File ID: 107J007020 Matrix : SOIL
Ext Btch ID: IPJ015S % Moisture : 51.1
Calib. Ref.: 107J007010 Instrument ID : EMAX1107
=====

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
Nickel	26.3	4.09	2.04
Zinc	149 <i>S</i>	2.04	1.02

12/1/02 8
7008

METHOD 3050B/6010B
METALS BY ICP

```
=====  
Client      : TETRA TECH EC, INC.      Date Collected: 10/04/06  
Project     : NWS SEAL BEACH, CTO 0006 Date Received: 10/04/06  
SDG NO.     : 06J030                   Date Extracted: 10/05/06 09:30  
Sample ID: 6-44-048                     Date Analyzed: 10/05/06 22:22  
Lab Samp ID: J030-07                     Dilution Factor: 1  
Lab File ID: 107J007021                 Matrix          : SOIL  
Ext Btch ID: IPJ015S                     % Moisture     : 35.2  
Calib. Ref.: 107J007010                 Instrument ID  : EMAXT107  
=====
```

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
Nickel	23.6	3.09	1.54
Zinc	121 J	1.54	0.772

12/1/06 Y

7009

METHOD 3050B/6010B
METALS BY ICP

```
=====  
Client      : TETRA TECH EC, INC.          Date Collected: 10/04/06  
Project     : NWS SEAL BEACH, CTO 0006     Date Received: 10/04/06  
SDG NO.    : 06J030                       Date Extracted: 10/05/06 09:30  
Sample ID: 6-44-049                       Date Analyzed: 10/05/06 22:38  
Lab Samp ID: J030-08                       Dilution Factor: 1  
Lab File ID: I07J007024                   Matrix          : SOIL  
Ext Btch ID: IPJ015S                      % Moisture     : 65.7  
Calib. Ref.: I07J007022                   Instrument ID  : EMAXT107  
=====
```

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
Nickel	29.2	5.83	2.92
Zinc	200 <i>J</i>	2.92	1.46

12/1/06 8

7010

METHOD 3050B/6010B
METALS BY ICP

=====
Client : TETRA TECH EC, INC. Date Collected: 10/04/06
Project : NWS SEAL BEACH, CTO 0006 Date Received: 10/04/06
SDG NO. : 06J030 Date Extracted: 10/05/06 09:30
Sample ID: 6-44-050 Date Analyzed: 10/05/06 22:42
Lab Samp ID: J030-09 Dilution Factor: 1
Lab File ID: 107J007025 Matrix : SOIL
Ext Btch ID: 1PJ015S % Moisture : 42.1
Calib. Ref.: 107J007022 Instrument ID : EMAX107
=====

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
Nickel	24.7	3.45	1.73
Zinc	196 <i>J</i>	1.73	0.864

12/1/06 *R*

7011

METHOD 3050B/6010B
METALS BY ICP

=====
Client : TETRA TECH EC, INC. Date Collected: 10/04/06
Project : NWS SEAL BEACH, CTO 0006 Date Received: 10/04/06
SDG NO. : 06J030 Date Extracted: 10/05/06 09:30
Sample ID: 6-44-051 Date Analyzed: 10/05/06 23:00
Lab Samp ID: J030-10 Dilution Factor: 1
Lab File ID: 107J007029 Matrix : SOIL
Ext Btch ID: IPJ015S % Moisture : 53.1
Calib. Ref.: 107J007022 Instrument ID : EMAXT107
=====

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
Nickel	29.1	4.26	2.13
Zinc	168 J	2.13	1.07

12/1/06 8

7012

METHOD 3050B/6010B
METALS BY ICP

=====
Client : TETRA TECH EC, INC. Date Collected: 10/04/06
Project : NWS SEAL BEACH, CTO 0006 Date Received: 10/04/06
SDG NO. : 06J030 Date Extracted: 10/05/06 09:30
Sample ID: 6-44-052 Date Analyzed: 10/05/06 23:08
Lab Samp ID: J030-11 Dilution Factor: 1
Lab File ID: 107J007031 Matrix : SOIL
Ext Btch ID: IPJ015S % Moisture : 39.7
Calib. Ref.: 107J007022 Instrument ID : EMAXT107
=====

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
Nickel	28.9	3.32	1.66
Zinc	157 <i>J</i>	1.66	0.829

12/1/06 *8*

7013

METHOD 3050B/6010B
METALS BY ICP

=====
Client : TETRA TECH EC, INC. Date Collected: 10/04/06
Project : NWS SEAL BEACH, CTO 0006 Date Received: 10/04/06
SDG NO. : 06J030 Date Extracted: 10/05/06 09:30
Sample ID: 6-44-053 Date Analyzed: 10/05/06 23:12
Lab Samp ID: J030-12 Dilution Factor: 1
Lab File ID: I07J007032 Matrix : SOIL
Ext Btch ID: IPJ015S % Moisture : 47.8
Calib. Ref.: I07J007022 Instrument ID : EMAXT107
=====

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
Nickel	29.0	3.83	1.92
Zinc	204 <i>S</i>	1.92	0.958

12/1/06 8

7014

METHOD 3050B/6010B
METALS BY ICP

=====
Client : TETRA TECH EC, INC. Date Collected: 10/04/06
Project : NWS SEAL BEACH, CTO 0006 Date Received: 10/04/06
SDG NO. : 06J030 Date Extracted: 10/05/06 09:30
Sample ID: 6-44-054 Date Analyzed: 10/05/06 23:16
Lab Samp ID: J030-13 Dilution Factor: 1
Lab File ID: 107J007033 Matrix : SOIL
Ext Btch ID: IPJ015S % Moisture : 39.8
Calib. Ref.: 107J007022 Instrument ID : EMAXT107
=====

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
Nickel	24.5	3.32	1.66
Zinc	111 <i>S</i>	1.66	0.831

12/1/02 8

7815

METHOD 3050B/6010B
METALS BY ICP

=====
Client : TETRA TECH EC, INC. Date Collected: 10/04/06
Project : NWS SEAL BEACH, CTO 0006 Date Received: 10/04/06
SDG NO. : 06J030 Date Extracted: 10/05/06 09:30
Sample ID: 6-44-055 Date Analyzed: 10/05/06 23:31
Lab Samp ID: J030-14 Dilution Factor: 1
Lab File ID: I07J007036 Matrix : SOIL
Ext Btch ID: IPJ015S % Moisture : 57.4
Calib. Ref.: I07J007034 Instrument ID : EMAXT107
=====

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
Nickel	28.1	4.69	2.35
Zinc	175 \bar{I}	2.35	1.17

10/1/06 8

7016

METHOD 3050B/6010B
METALS BY ICP

```
=====
Client   : TETRA TECH EC, INC.           Date Collected: 10/04/06
Project  : NWS SEAL BEACH, CTO 0006      Date Received: 10/04/06
SDG NO.  : 06J030                        Date Extracted: 10/05/06 09:30
Sample ID: 6-44-056                       Date Analyzed: 10/05/06 23:35
Lab Samp ID: J030-15                       Dilution Factor: 1
Lab File ID: I07J007037                   Matrix : SOIL
Ext Btch ID: IPJ015S                       % Moisture : 42.4
Calib. Ref.: I07J007034                   Instrument ID : EMAXT107
=====
```

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
Nickel	29.5	3.47	1.74
Zinc	145 J	1.74	0.868

12/1/06 X

7017

METHOD 3050B/6010B
METALS BY ICP

=====
Client : TETRA TECH EC, INC. Date Collected: 10/04/06
Project : NWS SEAL BEACH, CTO 0006 Date Received: 10/04/06
SDG NO. : 06J030 Date Extracted: 10/05/06 09:30
Sample ID: 6-44-057 Date Analyzed: 10/05/06 23:39
Lab Samp ID: J030-16 Dilution Factor: 1
Lab File ID: 107J007038 Matrix : SOIL
Ext Btch ID: IPJ015S % Moisture : 40.9
Calib. Ref.: 107J007034 Instrument ID : EMAXT107
=====

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
Nickel	18.8	3.38	1.69
Zinc	147 <i>J</i>	1.69	0.846

12/1/06 *R*

7019

METHOD 30508/60108
METALS BY ICP

=====
Client : TETRA TECH EC, INC. Date Collected: 10/04/06
Project : NWS SEAL BEACH, CTO 0006 Date Received: 10/04/06
SDG NO. : 06J030 Date Extracted: 10/05/06 09:30
Sample ID: 6-44-058 Date Analyzed: 10/05/06 23:44
Lab Samp ID: J030-17 Dilution Factor: 1
Lab File ID: I07J007039 Matrix : SOIL
Ext Btch ID: IPJ015S % Moisture : 36.9
Calib. Ref.: I07J007034 Instrument ID : EMAXT107
=====

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
Nickel	15.8	3.17	1.58
Zinc	140	1.58	0.792

12/1/06

METHOD 3050B/6010B
METALS BY ICP

=====
Client : TETRA TECH EC, INC. Date Collected: 10/04/06
Project : NWS SEAL BEACH, CTO 0006 Date Received: 10/04/06
SDG NO. : 06J030 Date Extracted: 10/05/06 09:30
Sample ID: 6-44-059 Date Analyzed: 10/05/06 23:48
Lab Samp ID: J030-18 Dilution Factor: 1
Lab File ID: I07J007040 Matrix : SOIL
Ext Btch ID: IPJ015S % Moisture : 44.9
Calib. Ref.: I07J007034 Instrument ID : EMAXT107
=====

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
Nickel	26.7	3.63	1.81
Zinc	144 J	1.81	0.907

10/1/06 X

7020

METHOD 3050B/6010B
METALS BY ICP

=====
Client : TETRA TECH EC, INC. Date Collected: 10/04/06
Project : NWS SEAL BEACH, CTO 0006 Date Received: 10/04/06
SDG NO. : 06J030 Date Extracted: 10/05/06 09:30
Sample ID: 6-44-060 Date Analyzed: 10/05/06 23:52
Lab Samp ID: J030-19 Dilution Factor: 1
Lab File ID: 107J007041 Matrix : SOIL
Ext Btch ID: IPJ015S % Moisture : 56.1
Calib. Ref.: 107J007034 Instrument ID : EMAXT107
=====

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
Nickel	20.4	4.56	2.28
Zinc	140 J	2.28	1.14

10/1/06 ✓

7021

METHOD 3050B/6010B
METALS BY ICP

=====
Client : TETRA TECH EC, INC. Date Collected: 10/04/06
Project : NWS SEAL BEACH, CTO 0006 Date Received: 10/04/06
SDG NO. : 06J030 Date Extracted: 10/05/06 09:30
Sample ID: 6-44-061 Date Analyzed: 10/05/06 23:56
Lab Samp ID: J030-20 Dilution Factor: 1
Lab File ID: I07J007042 Matrix : SOIL
Ext Btch ID: IPJ015S % Moisture : 52.4
Calib. Ref.: I07J007034 Instrument ID : EMAXT107
=====

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
Nickel	25.3	4.20	2.10
Zinc	135 J	2.10	1.05

12/1/06 Q

7022

**Laboratory Data Consultants, Inc.
Data Validation Report**

Project/Site Name: NWS Seal Beach, CTO 90
Collection Date: October 4, 2006
LDC Report Date: November 29, 2006
Matrix: Soil/Water
Parameters: Nickel & Zinc
Validation Level: EPA Level III & IV
Laboratory: EMAX Laboratories, Inc.

COPY

Sample Delivery Group (SDG): 06J031

Sample Identification

6-44-062
6-44-063**
6-44-064
6-44-065
6-44-066
6-44-067
6-44-068
6-44-069
6-44-070
6-44-071
6-44-072
6-44-073
6-44-074
6-44-075
6-44-076
6-44-071MS
6-44-071MSD

**Indicates sample underwent EPA Level IV review

Introduction

This data review covers 15 soil samples and 2 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 6010B for Nickel and Zinc.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (October 2004) as there are no current guidelines for the methods stated above.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified a P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blanks are summarized in Section III.

Field duplicates are summarized in Section XIII.

Samples indicated by a double asterisk on the front cover underwent a EPA Level IV review. A EPA Level III review was performed on all of the other samples. Raw data were not evaluated for the samples reviewed by Level III criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

II. Calibration

An initial calibration was performed.

The frequency and analysis criteria of the initial calibration verification (ICV) and continuing calibration verification (CCV) were met.

III. Blanks

Method blanks were reviewed for each matrix as applicable. No contaminant concentrations were found in the initial, continuing and preparation blanks with the following exceptions:

Method Blank ID	Analyte	Maximum Concentration	Associated Samples
ICB/CCB	Nickel	10.2 ug/L	All samples in SDG 06J031

Data qualification by the initial, continuing and preparation blanks (ICB/CCB/PBs) was based on the maximum contaminant concentration in the ICB/CCB/PBs in the analysis of each analyte. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated method blanks.

IV. ICP Interference Check Sample (ICS) Analysis

The frequency of analysis was met.

The criteria for analysis were met.

V. Matrix Spike Analysis

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

VI. Duplicate Sample Analysis

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable.

VII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

VIII. Internal Standards

ICP-MS was not utilized in this SDG.

IX. Furnace Atomic Absorption QC

Graphite furnace atomic absorption was not utilized in this SDG.

X. ICP Serial Dilution

ICP serial dilution analysis was performed by the laboratory. The analysis criteria were met with the following exceptions:

Diluted Sample	Analyte	%D (Limits)	Associated Samples	Flag	A or P
6-44-071L	Zinc	11 (≤10)	All soil samples in SDG 06J031	J (all detects)	A

XI. Sample Result Verification

All sample result verifications were acceptable for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

XII. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

XIII. Field Duplicates

Samples 6-44-062 and 6-44-063** were identified as field duplicates. No metals were detected in any of the samples with the following exceptions:

Analyte	Concentration (mg/Kg)		RPD
	6-44-062	6-44-063**	
Nickel	13.6	15.2	11
Zinc	60.5	91.1	40

XIV. Field Blanks

Sample 6-44-076 was identified as an equipment rinsate. No metal contaminants were found in this blank with the following exceptions:

Equipment Rinsate ID	Analyte	Concentration (ug/L)
6-44-076	Zinc	5.14

Sample 6-44-075 was identified as a source blank. No metal contaminants were found in this blank with the following exceptions:

Source Blank ID	Analyte	Concentration (ug/L)
6-44-075	Zinc	10.5

**NWS Seal Beach, CTO 90
Nickel & Zinc - Data Qualification Summary - SDG 06J031**

SDG	Sample	Analyte	Flag	A or P	Reason
06J031	6-44-062 6-44-063** 6-44-064 6-44-065 6-44-066 6-44-067 6-44-068 6-44-069 6-44-070 6-44-071 6-44-072 6-44-073 6-44-074	Zinc	J (all detects)	A	ICP serial dilution (%D)

**NWS Seal Beach, CTO 90
Nickel & Zinc - Laboratory Blank Data Qualification Summary - SDG 06J031**

No Sample Data Qualified in this SDG

METHOD 3050B/6010B
METALS BY ICP

=====
Client : TETRA TECH EC, INC. Date Collected: 10/04/06
Project : NWS SEAL BEACH, CTO 0006 Date Received: 10/04/06
SDG NO. : 06J031 Date Extracted: 10/05/06 09:35
Sample ID: 6-44-062 Date Analyzed: 10/06/06 01:18
Lab Samp ID: J031-01 Dilution Factor: 1
Lab File ID: I07J008015 Matrix : SOIL
Ext Btch ID: IPJ016S % Moisture : 25.1
Calib. Ref.: I07J008010 Instrument ID : EMAX107
=====

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
Nickel	13.6	2.67	1.34
Zinc	60.5 J	1.34	0.668

12/1/06 X

METHOD 3050B/6010B
METALS BY ICP

=====
Client : TETRA TECH EC, INC. Date Collected: 10/04/06
Project : NWS SEAL BEACH, CTO 0006 Date Received: 10/04/06
SDG NO. : 06J031 Date Extracted: 10/05/06 09:35
Sample ID: 6-44-063 Date Analyzed: 10/06/06 01:22
Lab Samp ID: J031-02 Dilution Factor: 1
Lab File ID: I07J008016 Matrix : SOIL
Ext Btch ID: IPJ016S % Moisture : 38.2
Calib. Ref.: I07J008010 Instrument ID : EMAXT107
=====

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
Nickel	15.2	3.24	1.62
Zinc	91.1 J	1.62	0.809

12/1/06 &

METHOD 3050B/6010B
METALS BY ICP

=====
Client : TETRA TECH EC, INC. Date Collected: 10/04/06
Project : NWS SEAL BEACH, CTO 0006 Date Received: 10/04/06
SDG NO. : 06J031 Date Extracted: 10/05/06 09:35
Sample ID: 6-44-064 Date Analyzed: 10/06/06 01:26
Lab Samp ID: J031-03 Dilution Factor: 1
Lab File ID: I07J008017 Matrix : SOIL
Ext Btch ID: IPJ016S % Moisture : 30.4
Calib. Ref.: I07J008010 Instrument ID : EMAXT107
=====

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
Nickel	17.6	2.87	1.44
Zinc	114 J	1.44	0.718

12/1/06 ✓

7005

METHOD 3050B/6010B
METALS BY ICP

=====
Client : TETRA TECH EC, INC. Date Collected: 10/04/06
Project : NWS SEAL BEACH, CTO 0006 Date Received: 10/04/06
SDG NO. : 06J031 Date Extracted: 10/05/06 09:35
Sample ID: 6-44-065 Date Analyzed: 10/06/06 01:30
Lab Samp ID: J031-04 Dilution Factor: 1
Lab File ID: 107J008018 Matrix : SOIL
Ext Btch ID: IPJ016S % Moisture : 47.3
Calib. Ref.: 107J008010 Instrument ID : EMAXT107
=====

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
Nickel	21.6	3.80	1.90
Zinc	138 J	1.90	0.949

12/1/06

7006

METHOD 3050B/6010B
METALS BY ICP

=====
Client : TETRA TECH EC, INC. Date Collected: 10/04/06
Project : NWS SEAL BEACH, CTO 0006 Date Received: 10/04/06
SDG NO. : 06J031 Date Extracted: 10/05/06 09:35
Sample ID: 6-44-066 Date Analyzed: 10/06/06 01:34
Lab Samp ID: J031-05 Dilution Factor: 1
Lab File ID: I07J008019 Matrix : SOIL
Ext Btch ID: IPJ016S % Moisture : 59.9
Calib. Ref.: I07J008010 Instrument ID : EMAXT107
=====

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
Nickel	27.9	4.99	2.49
Zinc	159 J	2.49	1.25

12/1/06

7007

METHOD 3050B/6010B
METALS BY ICP

=====
Client : TETRA TECH EC, INC. Date Collected: 10/04/06
Project : NWS SEAL BEACH, CTO 0006 Date Received: 10/04/06
SDG NO. : 06J031 Date Extracted: 10/05/06 09:35
Sample ID: 6-44-067 Date Analyzed: 10/06/06 01:38
Lab Samp ID: J031-06 Dilution Factor: 1
Lab File ID: 107J008020 Matrix : SOIL
Ext Btch ID: IPJ016S % Moisture : 13.2
Calib. Ref.: 107J008010 Instrument ID : EMAXT107
=====

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
Nickel	16.7	2.30	1.15
Zinc	92.9 J	1.15	0.576

12/1/06
7008

METHOD 3050B/6010B
METALS BY ICP

=====
Client : TETRA TECH EC, INC. Date Collected: 10/04/06
Project : NWS SEAL BEACH, CTO 0006 Date Received: 10/04/06
SDG NO. : 06J031 Date Extracted: 10/05/06 09:35
Sample ID: 6-44-068 Date Analyzed: 10/06/06 01:42
Lab Samp ID: J031-07 Dilution Factor: 1
Lab File ID: 107J008021 Matrix : SOIL
Ext Btch ID: IPJ016S % Moisture : 14.7
Calib. Ref.: 107J008010 Instrument ID : EMAXT107
=====

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
Nickel	13.0	2.34	1.17
Zinc	71.1 <i>S</i>	1.17	0.586

12/1/06 *Q*
7009

METHOD 3050B/6010B
METALS BY ICP

=====
Client : TETRA TECH EC, INC. Date Collected: 10/04/06
Project : NWS SEAL BEACH, CTO 0006 Date Received: 10/04/06
SDG NO. : 06J031 Date Extracted: 10/05/06 09:35
Sample ID: 6-44-069 Date Analyzed: 10/06/06 01:58
Lab Samp ID: J031-08 Dilution Factor: 1
Lab File ID: 107J008024 Matrix : SOIL
Ext Btch ID: IPJ016S % Moisture : 20.3
Calib. Ref.: 107J008022 Instrument ID : EMAXT107
=====

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
Nickel	12.1	2.51	1.25
Zinc	67.3 <i>J</i>	1.25	0.627

12/1/02 *J*
7010

METHOD 3050B/6010B
METALS BY ICP

=====
Client : TETRA TECH EC, INC. Date Collected: 10/04/06
Project : NWS SEAL BEACH, CTO 0006 Date Received: 10/04/06
SDG NO. : 06J031 Date Extracted: 10/05/06 09:35
Sample ID: 6-44-070 Date Analyzed: 10/06/06 02:02
Lab Samp ID: J031-09 Dilution Factor: 1
Lab File ID: I07J008025 Matrix : SOIL
Ext Btch ID: IPJ016S % Moisture : 10.7
Calib. Ref.: I07J008022 Instrument ID : EMAXT107
=====

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
Nickel	11.8	2.24	1.12
Zinc	70.1 <i>I</i>	1.12	0.560

12/1/02 *7*

7011

METHOD 3050B/6010B
METALS BY ICP

=====
Client : TETRA TECH EC, INC. Date Collected: 10/04/06
Project : NWS SEAL BEACH, CTO 0006 Date Received: 10/04/06
SDG NO. : 06J031 Date Extracted: 10/05/06 09:35
Sample ID: 6-44-071 Date Analyzed: 10/06/06 02:20
Lab Samp ID: J031-10 Dilution Factor: 1
Lab File ID: 107J008029 Matrix : SOIL
Ext Btch ID: IPJ016S % Moisture : 57.8
Calib. Ref.: 107J008022 Instrument ID : EMAXT107
=====

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
Nickel	29.2	4.74	2.37
Zinc	167 <i>J</i>	2.37	1.18

12/1/06 *g*

7012

METHOD 3050B/6010B
METALS BY ICP

=====
Client : TETRA TECH EC, INC. Date Collected: 10/04/06
Project : NWS SEAL BEACH, CTO 0006 Date Received: 10/04/06
SDG NO. : 06J031 Date Extracted: 10/05/06 09:35
Sample ID: 6-44-072 Date Analyzed: 10/06/06 02:28
Lab Samp ID: J031-11 Dilution Factor: 1
Lab File ID: 107J008031 Matrix : SOIL
Ext Btch ID: IPJ016S % Moisture : 59.2
Calib. Ref.: 107J008022 Instrument ID : EMAXT107
=====

PARAMETERS	RESULTS (mg/kg)	RI (mg/kg)	MDL (mg/kg)
Nickel	26.2	4.90	2.45
Zinc	166 <i>J</i>	2.45	1.23

12/1/06 *x*

7013

METHOD 3050B/6010B
METALS BY ICP

=====
Client : TETRA TECH EC, INC. Date Collected: 10/04/06
Project : NWS SEAL BEACH, CTO 0006 Date Received: 10/04/06
SDG NO. : 06J031 Date Extracted: 10/05/06 09:35
Sample ID: 6-44-073 Date Analyzed: 10/06/06 02:32
Lab Samp ID: J031-12 Dilution Factor: 1
Lab File ID: 107J008032 Matrix : SOIL
Ext Btch ID: IPJ016S % Moisture : 47.5
Calib. Ref.: 107J008022 Instrument ID : EMAXT107
=====

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
Nickel	28.3	3.81	1.90
Zinc	161 J	1.90	0.952

12/1/06

7014

METHOD 3050B/6010B
METALS BY ICP

=====
Client : TETRA TECH EC, INC. Date Collected: 10/04/06
Project : NWS SEAL BEACH, CTO 0006 Date Received: 10/04/06
SDG NO. : 06J031 Date Extracted: 10/05/06 09:35
Sample ID: 6-44-074 Date Analyzed: 10/06/06 02:36
Lab Samp ID: J031-13 Dilution Factor: 1
Lab File ID: I07J008033 Matrix : SOIL
Ext Btch ID: IPJ016S % Moisture : 62.9
Calib. Ref.: I07J008022 Instrument ID : EMAXT107
=====

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
Nickel	32.4	5.39	2.70
Zinc	229 J	2.70	1.35

12/1/06 Q

7015

METHOD 3010A/6010B
METALS BY ICP

=====
Client : TETRA TECH EC, INC. Date Collected: 10/04/06
Project : NWS SEAL BEACH, CTO 0006 Date Received: 10/04/06
SDG NO. : 06J031 Date Extracted: 10/05/06 09:45
Sample ID: 6-44-075 Date Analyzed: 10/06/06 03:13
Lab Samp ID: J031-14 Dilution Factor: 1
Lab File ID: I07J008040 Matrix : WATER
Ext Btch ID: IPJ013W % Moisture : NA
Calib. Ref.: I07J008034 Instrument ID : EMAXT107
=====

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
Nickel	ND	20.0	10.0
Zinc	10.5	10.0	5.00

12/1/06 8
7016

METHOD 3010A/6010B
METALS BY ICP

=====
Client : TETRA TECH EC, INC. Date Collected: 10/04/06
Project : NWS SEAL BEACH, CTO 0006 Date Received: 10/04/06
SDG NO. : 06J031 Date Extracted: 10/05/06 09:45
Sample ID: 6-44-076 Date Analyzed: 10/06/06 03:21
Lab Samp ID: J031-15 Dilution Factor: 1
Lab File ID: 107J008042 Matrix : WATER
Ext Btch ID: IPJ013W % Moisture : NA
Calib. Ref.: 107J008034 Instrument ID : EMAXT107
=====

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
Nickel	ND	20.0	10.0
Zinc	5.14J	10.0	5.00

12/1/06

7017

**Laboratory Data Consultants, Inc.
Data Validation Report**

Project/Site Name: NWS Seal Beach, CTO 90
Collection Date: October 5, 2006
LDC Report Date: November 29, 2006
Matrix: Soil
Parameters: Nickel & Zinc
Validation Level: EPA Level III & IV
Laboratory: EMAX Laboratories, Inc.

COPY

Sample Delivery Group (SDG): 06J054

Sample Identification

6-44-087
6-44-088**
6-44-089
6-44-090**
6-44-091
6-44-092
6-44-093
6-44-094
6-44-095
6-44-096
6-44-096MS
6-44-096MSD

**Indicates sample underwent EPA Level IV review

Introduction

This data review covers 12 soil samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 6010B for Nickel and Zinc.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (October 2004) as there are no current guidelines for the methods stated above.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified a P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blanks are summarized in Section III.

Field duplicates are summarized in Section XIII.

Samples indicated by a double asterisk on the front cover underwent a EPA Level IV review. A EPA Level III review was performed on all of the other samples. Raw data were not evaluated for the samples reviewed by Level III criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

II. Calibration

An initial calibration was performed.

The frequency and analysis criteria of the initial calibration verification (ICV) and continuing calibration verification (CCV) were met.

III. Blanks

Method blanks were reviewed for each matrix as applicable. No contaminant concentrations were found in the initial, continuing and preparation blanks.

IV. ICP Interference Check Sample (ICS) Analysis

The frequency of analysis was met.

The criteria for analysis were met.

V. Matrix Spike Analysis

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits with the following exceptions:

Spike ID (Associated Samples)	Analyte	MS (%R) (Limits)	MSD (%R) (Limits)	RPD (Limits)	Flag	A or P
6-44-096MS/MSD (All samples in SDG 06J054)	Zinc	71 (75-125)	-	-	J (all detects) UJ (all non-detects)	A

VI. Duplicate Sample Analysis

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable.

VII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

VIII. Internal Standards

ICP-MS was not utilized in this SDG.

IX. Furnace Atomic Absorption QC

Graphite furnace atomic absorption was not utilized in this SDG.

X. ICP Serial Dilution

ICP serial dilution analysis was performed by the laboratory. The analysis criteria were met.

XI. Sample Result Verification

All sample result verifications were acceptable for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

XII. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

XIII. Field Duplicates

Samples 6-44-087 and 6-44-088** and samples 6-44-089 and 6-44-090** were identified as field duplicates. No metals were detected in any of the samples with the following exceptions:

Analyte	Concentration (mg/Kg)		RPD
	6-44-087	6-44-088**	
Nickel	25.4	23.8	7
Zinc	124	118	5

Analyte	Concentration (mg/Kg)		RPD
	6-44-089	6-44-090**	
Nickel	31.7	16.8	61
Zinc	143	85.5	50

XIV. Field Blanks

No field blanks were identified in this SDG.

**NWS Seal Beach, CTO 90
Nickel & Zinc - Data Qualification Summary - SDG 06J054**

SDG	Sample	Analyte	Flag	A or P	Reason
06J054	6-44-087 6-44-088** 6-44-089 6-44-090** 6-44-091 6-44-092 6-44-093 6-44-094 6-44-095 6-44-096	Zinc	J (all detects) UJ (all non-detects)	A	Matrix spike/Matrix spike duplicates (%R)

**NWS Seal Beach, CTO 90
Nickel & Zinc - Laboratory Blank Data Qualification Summary - SDG 06J054**

No Sample Data Qualified in this SDG

METHOD 3050B/6010B
METALS BY ICP

```

=====
Client      : TETRA TECH EC, INC.           Date Collected: 10/05/06
Project    : NWS SEAL BEACH, CTO 0006      Date Received: 10/05/06
SDG NO.    : 06J054                         Date Extracted: 10/06/06 09:00
Sample ID: 6-44-087                         Date Analyzed: 10/06/06 19:18
Lab Samp ID: J054-01                        Dilution Factor: 1
Lab File ID: I07J010020                    Matrix          : SOIL
Ext Btch ID: IPJ017S                       % Moisture     : 38.5
Calib. Ref.: I07J010010                    Instrument ID  : EMAXT107
=====
  
```

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
Nickel	25.4	3.25	1.63
Zinc	124 J	1.63	0.813

12/1/06 8

METHOD 3050B/6010B
METALS BY ICP

```

=====
Client   : TETRA TECH EC, INC.           Date Collected: 10/05/06
Project  : NWS SEAL BEACH, CTO 0006     Date Received: 10/05/06
SDG NO. : 06J054                        Date Extracted: 10/06/06 09:00
Sample ID: 6-44-088                     Date Analyzed: 10/06/06 19:22
Lab Samp ID: J054-02                    Dilution Factor: 1
Lab File ID: I07J010021                Matrix       : SOIL
Ext Btch ID: IPJ017S                   % Moisture   : 41.5
Calib. Ref.: I07J010010                Instrument ID : EMAXT107
=====
  
```

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
Nickel	23.8	3.42	1.71
Zinc	118 <i>J</i>	1.71	0.855

12/1/06 *g*

METHOD 3050B/6010B
METALS BY ICP

=====
Client : TETRA TECH EC, INC. Date Collected: 10/05/06
Project : NWS SEAL BEACH, CTO 0006 Date Received: 10/05/06
SDG NO. : 06J054 Date Extracted: 10/06/06 09:00
Sample ID: 6-44-089 Date Analyzed: 10/06/06 19:38
Lab Samp ID: J054-03 Dilution Factor: 1
Lab File ID: 107J010024 Matrix : SOIL
Ext Btch ID: IPJ017S % Moisture : 38.6
Calib. Ref.: 107J010022 Instrument ID : EMAXT107
=====

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
Nickel	31.7	3.26	1.63
Zinc	143 <i>J</i>	1.63	0.814

12/10/06

METHOD 3050B/6010B
METALS BY ICP

=====
Client : TETRA TECH EC, INC. Date Collected: 10/05/06
Project : NWS SEAL BEACH, CTO 0006 Date Received: 10/05/06
SDG NO. : 06J054 Date Extracted: 10/06/06 09:00
Sample ID: 6-44-090 Date Analyzed: 10/06/06 19:42
Lab Samp ID: J054-04 Dilution Factor: 1
Lab File ID: 107J010025 Matrix : SOIL
Ext Btch ID: 1PJ017S % Moisture : 34.4
Calib. Ref.: 107J010022 Instrument ID : EMAXT107
=====

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
Nickel	16.8	3.05	1.52
Zinc	85.5 J	1.52	0.762

12/1/06 8

METHOD 3050B/6010B
METALS BY ICP

=====
Client : TETRA TECH EC, INC. Date Collected: 10/05/06
Project : NWS SEAL BEACH, CTO 0006 Date Received: 10/05/06
SDG NO. : 06J054 Date Extracted: 10/06/06 09:00
Sample ID: 6-44-091 Date Analyzed: 10/06/06 19:46
Lab Samp ID: J054-05 Dilution Factor: 1
Lab File ID: I07J010026 Matrix : SOIL
Ext Btch ID: IPJ017S % Moisture : 38.0
Calib. Ref.: I07J010022 Instrument ID : EMAXT107
=====

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
Nickel	17.7	3.23	1.61
Zinc	114 <i>J</i>	1.61	0.806

12/1/06 *Q*

METHOD 3050B/6010B
METALS BY ICP

=====
Client : TETRA TECH EC, INC. Date Collected: 10/05/06
Project : NWS SEAL BEACH, CTO 0006 Date Received: 10/05/06
SDG NO. : 06J054 Date Extracted: 10/06/06 09:00
Sample ID: 6-44-092 Date Analyzed: 10/06/06 19:50
Lab Samp ID: J054-06 Dilution Factor: 1
Lab File ID: 107J010027 Matrix : SOIL
Ext Btch ID: IPJ017S % Moisture : 51.9
Calib. Ref.: 107J010022 Instrument ID : EMAXT107
=====

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	NDL (mg/kg)
Nickel	25.9	4.16	2.08
Zinc	148 J	2.08	1.04

12/1/06 8

7017

METHOD 3050B/6010B
METALS BY ICP

=====
Client : YETRA TECH EC, INC. Date Collected: 10/05/06
Project : NWS SEAL BEACH, CTO 0006 Date Received: 10/05/06
SDG NO. : 06J054 Date Extracted: 10/06/06 09:00
Sample ID: 6-44-093 Date Analyzed: 10/06/06 19:54
Lab Samp ID: J054-07 Dilution Factor: 1
Lab File ID: 107J010028 Matrix : SOIL
Ext Btch ID: IPJ017S % Moisture : 48.4
Calib. Ref.: 107J010022 Instrument ID : EMAXT107
=====

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
Nickel	26.1	3.88	1.94
Zinc	140 J	1.94	0.969

12/1/06

METHOD 3050B/6010B
METALS BY ICP

=====
Client : TETRA TECH EC, INC. Date Collected: 10/05/06
Project : NWS SEAL BEACH, CTO 0006 Date Received: 10/05/06
SDG NO. : 06J054 Date Extracted: 10/06/06 09:00
Sample ID: 6-44-094 Date Analyzed: 10/06/06 20:00
Lab Samp ID: J054-08 Dilution Factor: 1
Lab File ID: 107J010029 Matrix : SOIL
Ext Btch ID: IPJ017S % Moisture : 55.7
Calib. Ref.: 107J010022 Instrument ID : EMAXT107
=====

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
Nickel	28.0	4.51	2.26
Zinc	164 <i>J</i>	2.26	1.13

12/1/06 8

7019

METHOD 3050B/6010B
METALS BY ICP

```

=====
Client      : TETRA TECH EC, INC.           Date Collected: 10/05/06
Project     : NWS SEAL BEACH, CTO 0006     Date Received: 10/05/06
SDG NO.    : 06J054                       Date Extracted: 10/06/06 09:00
Sample ID   : 6-44-095                    Date Analyzed: 10/06/06 20:04
Lab Samp ID: J054-09                      Dilution Factor: 1
Lab File ID: 107J010030                  Matrix          : SOIL
Ext Btch ID: 1PJO17S                     % Moisture     : 51.6
Calib. Ref.: 107J010022                  Instrument ID  : EMAXT107
=====
  
```

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
Nickel	28.4	4.13	2.07
Zinc	157	2.07	1.03

12/1/06 8

METHOD 3050B/6010B
METALS BY ICP

```

=====
Client      : TETRA TECH EC, INC.          Date Collected: 10/05/06
Project    : NWS SEAL BEACH, CTO 0006     Date Received: 10/05/06
SDG NO.    : 06J054                       Date Extracted: 10/06/06 09:00
Sample ID  : 6-44-096                     Date Analyzed: 10/06/06 19:10
Lab Samp ID: J054-10                      Dilution Factor: 1
Lab File ID: 107J010018                   Matrix          : SOIL
Ext Btch ID: IPJ017S                      % Moisture     : 49.7
Calib. Ref.: 107J010010                   Instrument ID  : EMAXT107
=====
  
```

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
Nickel	26.5	3.98	1.99
Zinc	162 <i>J</i>	1.99	0.994

12/1/06 *J*

**Laboratory Data Consultants, Inc.
Data Validation Report**

Project/Site Name: NWS Seal Beach, CTO 90
Collection Date: October 5, 2006
LDC Report Date: November 29, 2006
Matrix: Soil/Water
Parameters: Nickel & Zinc
Validation Level: EPA Level III & IV
Laboratory: EMAX Laboratories, Inc.

COPY

Sample Delivery Group (SDG): 06J056

Sample Identification

6-44-077	6-44-086MS
6-44-078**	6-44-086MSD
6-44-079	
6-44-080	
6-44-081	
6-44-082	
6-44-083	
6-44-084	
6-44-085	
6-44-086	
6-44-097	
6-44-098	
6-44-099	
6-44-100	
6-44-101	
6-44-102	
6-44-103	
6-44-104**	
6-44-105	
6-44-106	

**Indicates sample underwent EPA Level IV review

Introduction

This data review covers 21 soil samples and one water sample listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 6010B for Nickel and Zinc.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (October 2004) as there are no current guidelines for the methods stated above.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified a P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blanks are summarized in Section III.

Field duplicates are summarized in Section XIII.

Samples indicated by a double asterisk on the front cover underwent a EPA Level IV review. A EPA Level III review was performed on all of the other samples. Raw data were not evaluated for the samples reviewed by Level III criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UU Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

II. Calibration

An initial calibration was performed.

The frequency and analysis criteria of the initial calibration verification (ICV) and continuing calibration verification (CCV) were met.

III. Blanks

Method blanks were reviewed for each matrix as applicable. No contaminant concentrations were found in the initial, continuing and preparation blanks.

IV. ICP Interference Check Sample (ICS) Analysis

The frequency of analysis was met.

The criteria for analysis were met.

V. Matrix Spike Analysis

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits with the following exceptions:

Spike ID (Associated Samples)	Analyte	MS (%R) (Limits)	MSD (%R) (Limits)	RPD (Limits)	Flag	A or P
6-44-086MS/MSD (All soil samples in SDG 06J056)	Zinc	-	69 (75-125)	-	J (all detects) UJ (all non-detects)	A

VI. Duplicate Sample Analysis

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable.

VII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

VIII. Internal Standards

ICP-MS was not utilized in this SDG.

IX. Furnace Atomic Absorption QC

Graphite furnace atomic absorption was not utilized in this SDG.

X. ICP Serial Dilution

ICP serial dilution analysis was performed by the laboratory. The analysis criteria were met.

XI. Sample Result Verification

All sample result verifications were acceptable for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

XII. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

XIII. Field Duplicates

Samples 6-44-077 and 6-44-078** and samples 6-44-103 and 6-44-104** were identified as field duplicates. No metals were detected in any of the samples with the following exceptions:

Analyte	Concentration (mg/Kg)		RPD
	6-44-077	6-44-078**	
Nickel	13.8	12.7	8
Zinc	97.9	99.5	2

Analyte	Concentration (mg/Kg)		RPD
	6-44-103	6-44-104**	
Nickel	24.2	28.6	17
Zinc	125	154	21

XIV. Field Blanks

**NWS Seal Beach, CTO 90
Nickel & Zinc - Data Qualification Summary - SDG 06J056**

SDG	Sample	Analyte	Flag	A or P	Reason
06J056	6-44-077 6-44-078** 6-44-079 6-44-080 6-44-081 6-44-082 6-44-083 6-44-084 6-44-085 6-44-086 6-44-097 6-44-098 6-44-099 6-44-100 6-44-101 6-44-102 6-44-103 6-44-104** 6-44-105	Zinc	J (all detects) UJ (all non-detects)	A	Matrix spike/Matrix spike duplicates (%R)

**NWS Seal Beach, CTO 90
Nickel & Zinc - Laboratory Blank Data Qualification Summary - SDG 06J056**

No Sample Data Qualified in this SDG

METHOD 3010A/6010B
METALS BY ICP

=====
Client : TETRA TECH EC, INC. Date Collected: 10/05/06
Project : NWS SEAL BEACH, CTO 0006 Date Received: 10/05/06
SDG NO. : 06J056 Date Extracted: 10/09/06 10:00
Sample ID: 6-44-106 Date Analyzed: 10/11/06 13:11
Lab Samp ID: J056-20 Dilution Factor: 1
Lab File ID: I07J014016 Matrix : WATER
Ext Btch ID: IPJ023W % Moisture : NA
Calib. Ref.: I07J014010 Instrument ID : EMAXT107
=====

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
Nickel	ND	20.0	10.0
Zinc	ND	10.0	5.00

12/1/06 &

6

METHOD 3050B/6010B
METALS BY ICP

=====
Client : TETRA TECH EC, INC. Date Collected: 10/05/06
Project : NWS SEAL BEACH, CTO 0006 Date Received: 10/05/06
SDG NO. : 06J056 Date Extracted: 10/06/06 09:30
Sample ID: 6-44-077 Date Analyzed: 10/06/06 22:33
Lab Samp ID: J056-01 Dilution Factor: 1
Lab File ID: I07J011024 Matrix : SOIL
Ext Btch ID: IPJ019S % Moisture : 25.4
Calib. Ref.: I07J011022 Instrument ID : EMAXT107
=====

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
Nickel	13.8	2.68	1.34
Zinc	97.9 J	1.34	0.670

12/1/06 ✓

METHOD 3050B/6010B
METALS BY ICP

=====
Client : TETRA TECH EC, INC. Date Collected: 10/05/06
Project : NWS SEAL BEACH, CTO 0006 Date Received: 10/05/06
SDG NO. : 06J056 Date Extracted: 10/06/06 09:30
Sample ID: 6-44-078 Date Analyzed: 10/06/06 22:37
Lab Samp ID: J056-02 Dilution Factor: 1
Lab File ID: 107J011025 Matrix : SOIL
Ext Btch ID: IPJ019S % Moisture : 23.1
Calib. Ref.: 107J011022 Instrument ID : EMAXT107
=====

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
Nickel	12.7	2.60	1.30
Zinc	99.5 <i>J</i>	1.30	0.650

12/1/06 *Y*

7010

METHOD 3050B/6010B
METALS BY ICP

=====
Client : TETRA TECH EC, INC. Date Collected: 10/05/06
Project : NWS SEAL BEACH, CTO 0006 Date Received: 10/05/06
SDG NO. : 06J056 Date Extracted: 10/06/06 09:30
Sample ID: 6-44-079 Date Analyzed: 10/06/06 22:41
Lab Samp ID: J056-03 Dilution Factor: 1
Lab File ID: I07J011026 Matrix : SOIL
Ext Btch ID: IPJ019S % Moisture : 41.8
Calib. Ref.: I07J011022 Instrument ID : EMAXT107
=====

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
Nickel	18.0	3.44	1.72
Zinc	119 ✓	1.72	0.859

12/1/06 ✓

7011

METHOD 3050B/6010B
METALS BY ICP

=====
Client : TETRA TECH EC, INC. Date Collected: 10/05/06
Project : NWS SEAL BEACH, CTO 0006 Date Received: 10/05/06
SDG NO. : 06J056 Date Extracted: 10/06/06 09:30
Sample ID: 6-44-080 Date Analyzed: 10/06/06 22:45
Lab Samp ID: J056-04 Dilution Factor: 1
Lab File ID: 107J011027 Matrix : SOIL
Ext Btch ID: IPJ019S % Moisture : 60.3
Calib. Ref.: 107J011022 Instrument ID : EMAXT107
=====

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
Nickel	28.2	5.04	2.52
Zinc	157 J	2.52	1.26

12/1/06 ✓

7012

METHOD 3050B/6010B
METALS BY ICP

=====
Client : TETRA TECH EC, INC. Date Collected: 10/05/06
Project : NWS SEAL BEACH, CTO 0006 Date Received: 10/05/06
SDG NO. : 06J056 Date Extracted: 10/06/06 09:30
Sample ID: 6-44-081 Date Analyzed: 10/06/06 22:49
Lab Samp ID: J056-05 Dilution Factor: 1
Lab File ID: 107J011028 Matrix : SOIL
Ext Btch ID: IPJ019S % Moisture : 28.6
Calib. Ref.: 107J011022 Instrument ID : EMAXT107
=====

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
Nickel	20.2	2.80	1.40
Zinc	109 <i>J</i>	1.40	0.700

12/1/06 *Q*
7013

METHOD 3050B/6010B
METALS BY ICP

=====
Client : TETRA TECH EC, INC. Date Collected: 10/05/06
Project : NWS SEAL BEACH, CTO 0006 Date Received: 10/05/06
SDG NO. : 06J056 Date Extracted: 10/06/06 09:30
Sample ID: 6-44-082 Date Analyzed: 10/06/06 22:53
Lab Samp ID: J056-06 Dilution Factor: 1
Lab File ID: 107J011029 Matrix : SOIL
Ext Btch ID: 1PJ019S % Moisture : 64.3
Calib. Ref.: 107J011022 Instrument ID : EMAXT107
=====

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
Nickel	16.3	5.60	2.80
Zinc	97.2 J	2.80	1.40

12/1/06

7014

METHOD 3050B/60108
METALS BY ICP

=====
Client : TETRA TECH EC, INC. Date Collected: 10/05/06
Project : NWS SEAL BEACH, CTO 0006 Date Received: 10/05/06
SDG NO. : 06J056 Date Extracted: 10/06/06 09:30
Sample ID: 6-44-083 Date Analyzed: 10/06/06 22:57
Lab Samp ID: J056-07 Dilution Factor: 1
Lab File ID: I07J011030 Matrix : SOIL
Ext Btch ID: IPJ019S % Moisture : 57.8
Calib. Ref.: I07J011022 Instrument ID : EMAXT107
=====

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
Nickel	24.7	4.74	2.37
Zinc	159 <i>J</i>	2.37	1.18

12/1/06 &

7015

METHOD 3050B/6010B
METALS BY ICP

=====
Client : TETRA TECH EC, INC. Date Collected: 10/05/06
Project : NWS SEAL BEACH, CTO 0006 Date Received: 10/05/06
SDG NO. : 06J056 Date Extracted: 10/06/06 09:30
Sample ID: 6-44-084 Date Analyzed: 10/06/06 23:01
Lab Samp ID: J056-08 Dilution Factor: 1
Lab File ID: 107J011031 Matrix : SOIL
Ext Btch ID: IPJ019S % Moisture : 67.8
Calib. Ref.: 107J011022 Instrument ID : EMAX1107
=====

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
Nickel	28.4	6.21	3.11
Zinc	161 J	3.11	1.55

12/1/06 ✓
7015

METHOD 3050B/6010B
METALS BY ICP

=====
Client : TETRA TECH EC, INC. Date Collected: 10/05/06
Project : NWS SEAL BEACH, CTO 0006 Date Received: 10/05/06
SDG NO. : 06J056 Date Extracted: 10/06/06 09:30
Sample ID: 6-44-085 Date Analyzed: 10/06/06 23:05
Lab Samp ID: J056-09 Dilution Factor: 1
Lab File ID: I07J011032 Matrix : SOIL
Ext Btch ID: IPJ019S % Moisture : 65.8
Calib. Ref.: I07J011022 Instrument ID : EMAXTI07
=====

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
Nickel	31.7	5.85	2.92
Zinc	161 J	2.92	1.46

12/1/06 &
7817

METHOD 3050B/6010B
METALS BY ICP

```

=====
Client      : TETRA TECH EC, INC.           Date Collected: 10/05/06
Project     : NWS SEAL BEACH, CTO 0006     Date Received: 10/05/06
SDG NO.    : 06J056                       Date Extracted: 10/06/06 09:30
Sample ID: 6-44-086                       Date Analyzed: 10/06/06 22:05
Lab Samp ID: J056-10                      Dilution Factor: 1
Lab File ID: I07J011018                  Matrix          : SOIL
Ext Btch ID: IPJ019S                     % Moisture     : 44.2
Calib. Ref.: I07J011010                  Instrument ID  : EMAX1107
=====
  
```

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
Nickel	28.2	3.58	1.79
Zinc	181 <i>J</i>	1.79	0.896

12/1/06 *q*
7010

METHOD 3050B/6010B
METALS BY ICP

=====
Client : TETRA TECH EC, INC. Date Collected: 10/05/06
Project : NWS SEAL BEACH, CTO 0006 Date Received: 10/05/06
SDG NO. : 06J056 Date Extracted: 10/06/06 09:30
Sample ID: 6-44-097 Date Analyzed: 10/06/06 22:13
Lab Samp ID: J056-11 Dilution Factor: 1
Lab File ID: I07J011020 Matrix : SOIL
Ext Btch ID: IPJ019S % Moisture : 52.2
Calib. Ref.: I07J011010 Instrument ID : EMAXT107
=====

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
Nickel	30.7	4.18	2.09
Zinc	148 <i>S</i>	2.09	1.05

12/1/02 *CL*

7019

METHOD 3050B/6010B
METALS BY ICP

```

=====
Client      : TETRA TECH EC, INC.           Date Collected: 10/05/06
Project     : NWS SEAL BEACH, CTO 0006     Date Received: 10/05/06
SDG NO.    : 06J056                       Date Extracted: 10/06/06 09:30
Sample ID   : 6-44-098                   Date Analyzed: 10/06/06 22:17
Lab Samp ID: J056-12                     Dilution Factor: 1
Lab File ID: I07J011021                  Matrix      : SOIL
Ext Btch ID: IPJ019S                     % Moisture  : 56.4
Calib. Ref.: I07J011010                  Instrument ID : EMAXI107
=====
  
```

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
Nickel	26.7	4.59	2.29
Zinc	153 <i>J</i>	2.29	1.15

12/1/06 *g*

7020

METHOD 3050B/6010B
METALS BY ICP

=====
Client : TETRA TECH EC, INC. Date Collected: 10/05/06
Project : NWS SEAL BEACH, CTO 0006 Date Received: 10/05/06
SDG NO. : 06J056 Date Extracted: 10/06/06 09:30
Sample ID: 6-44-099 Date Analyzed: 10/06/06 23:09
Lab Samp ID: J056-13 Dilution Factor: 1
Lab File ID: I07J011033 Matrix : SOIL
Ext Btch ID: IPJ019S % Moisture : 40.5
Calib. Ref.: I07J011022 Instrument ID : EMAX1107
=====

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
Nickel	18.8	3.36	1.68
Zinc	109 J	1.68	0.840

10/1/06 &
7021

METHOD 3050B/6010B
METALS BY ICP

```

=====
Client      : TETRA TECH EC, INC.           Date Collected: 10/05/06
Project     : NWS SEAL BEACH, CTO 0006     Date Received: 10/05/06
IDG NO.     : 06J056                       Date Extracted: 10/06/06 09:30
Sample ID   : 6-44-100                     Date Analyzed: 10/06/06 23:25
Lab Samp ID : J056-14                      Dilution Factor: 1
Lab File ID : I07J011036                   Matrix          : SOIL
Ext Btch ID : IPJ019s                      % Moisture     : 63.7
Calib. Ref. : I07J011034                   Instrument ID   : EMAXT107
=====
  
```

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
nickel	26.3	5.51	2.75
zinc	158 <i>J</i>	2.75	1.38

171106 *8*

7022

METHOD 3050B/6010B
METALS BY ICP

```

=====
Client      : TETRA TECH EC, INC.           Date Collected: 10/05/06
Project     : NWS SEAL BEACH, CTO 0006      Date Received: 10/05/06
SDG NO.    : 06J056                        Date Extracted: 10/06/06 09:30
Sample ID   : 6-44-101                     Date Analyzed: 10/06/06 23:29
Lab Samp ID: J056-15                       Dilution Factor: 1
Lab File ID: 107J011037                    Matrix          : SOIL
Ext Btch ID: IPJ019S                       % Moisture     : 65.8
Calib. Ref.: 107J011034                    Instrument ID  : EMAXT107
=====
  
```

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
Nickel	28.1	5.85	2.92
Zinc	145 <i>J</i>	2.92	1.46

12/1/06 BQ

METHOD 3050B/6010B
METALS BY ICP

```

=====
Client      : TETRA TECH EC, INC.           Date Collected: 10/05/06
Project     : NWS SEAL BEACH, CTO 0006     Date Received: 10/05/06
IDG NO.    : 06J056                       Date Extracted: 10/06/06 09:30
Sample ID   : 6-44-102                    Date Analyzed: 10/06/06 23:33
Lab Samp ID: J056-16                     Dilution Factor: 1
Lab File ID: 107J011038                  Matrix          : SOIL
Xt Btch ID : IPJ019S                     % Moisture     : 63.0
Calib. Ref.: 107J011034                  Instrument ID  : EMAXT107
=====
  
```

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
Nickel	24.8	5.41	2.70
inc	150 <i>J</i>	2.70	1.35

12/14/06 08

METHOD 3050B/6010B
METALS BY ICP

=====
Client : TETRA TECH EC, INC. Date Collected: 10/05/06
Project : NWS SEAL BEACH, CTO 0006 Date Received: 10/05/06
DQ NO. : 06J056 Date Extracted: 10/06/06 09:30
Sample ID: 6-44-103 Date Analyzed: 10/06/06 23:37
Lab Samp ID: J056-17 Dilution Factor: 1
Lab File ID: 107J011039 Matrix : SDIL
Ext Btch ID: IPJ019S % Moisture : 60.9
Calib. Ref.: 107J011034 Instrument ID : EMAX1107
=====

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
nickel	24.2	5.12	2.56
inc	125 J	2.56	1.28

12/1/08 *CE*

METHOD 3050B/6010B
METALS BY ICP

```

=====
Client      : TETRA TECH EC, INC.           Date Collected: 10/05/06
Project     : NWS SEAL BEACH, CTO 0006     Date Received: 10/05/06
SDG NO.    : 06J056                       Date Extracted: 10/06/06 09:30
Sample ID   : 6-44-104                    Date Analyzed: 10/06/06 23:41
Lab Samp ID: J056-18                     Dilution Factor: 1
Lab File ID: 107J011040                  Matrix          : SOIL
Ext Btch ID: IPJ019S                    % Moisture     : 58.2
Calib. Ref.: 107J011034                  Instrument ID  : EMAXT107
=====
  
```

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
Nickel	28.6	4.78	2.39
Zinc	154 J	2.39	1.20

12/1/06 ~~WXX~~

METHOD 3050B/6010B
METALS BY ICP

=====
Client : YETRA TECH EC, INC. Date Collected: 10/05/06
Project : NWS SEAL BEACH, CTO 0006 Date Received: 10/05/06
SDG NO. : 06J056 Date Extracted: 10/06/06 09:30
Sample ID: 6-44-105 Date Analyzed: 10/06/06 23:45
Lab Samp ID: J056-19 Dilution Factor: 1
Lab File ID: 107J011041 Matrix : SOIL
Ext Btch ID: 1PJ019S % Moisture : 58.7
Calib. Ref.: 107J011034 Instrument ID : EMAXT107
=====

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
Nickel	33.0	4.84	2.42
Zinc	180 J	2.42	1.21

12/1/06 [Signature]

7027

**Laboratory Data Consultants, Inc.
Data Validation Report**

Project/Site Name: NWS Seal Beach, CTO 90
Collection Date: October 5, 2006
LDC Report Date: November 29, 2006
Matrix: Soil
Parameters: Arsenic
Validation Level: EPA Level III & IV
Laboratory: EMAX Laboratories, Inc.

COPY

Sample Delivery Group (SDG): 06J055

Sample Identification

6-57-111
6-57-112
6-57-113
6-57-114
6-57-115
6-57-116
6-57-117
6-57-118
6-57-119
6-57-120
6-57-121
6-57-122**
6-57-123
6-57-111MS
6-57-111MSD

**Indicates sample underwent EPA Level IV review

Introduction

This data review covers 15 soil samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 6010B for Arsenic.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (October 2004) as there are no current guidelines for the methods stated above.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified a P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blanks are summarized in Section III.

Field duplicates are summarized in Section XIII.

Samples indicated by a double asterisk on the front cover underwent a EPA Level IV review. A EPA Level III review was performed on all of the other samples. Raw data were not evaluated for the samples reviewed by Level III criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

II. Calibration

An initial calibration was performed.

The frequency and analysis criteria of the initial calibration verification (ICV) and continuing calibration verification (CCV) were met.

III. Blanks

Method blanks were reviewed for each matrix as applicable. No contaminant concentrations were found in the initial, continuing and preparation blanks.

IV. ICP Interference Check Sample (ICS) Analysis

The frequency of analysis was met.

The criteria for analysis were met.

V. Matrix Spike Analysis

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

VI. Duplicate Sample Analysis

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable.

VII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

VIII. Internal Standards

ICP-MS was not utilized in this SDG.

IX. Furnace Atomic Absorption QC

Graphite furnace atomic absorption was not utilized in this SDG.

X. ICP Serial Dilution

ICP serial dilution analysis was performed by the laboratory. The analysis criteria were met.

XI. Sample Result Verification

All sample result verifications were acceptable for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

XII. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

XIII. Field Duplicates

Samples 6-57-121 and 6-57-122** were identified as field duplicates. No metals were detected in any of the samples with the following exceptions:

Analyte	Concentration (mg/Kg)		RPD
	6-57-121	6-57-122**	
Arsenic	6.42	5.70	12

XIV. Field Blanks

No field blanks were identified in this SDG.

NWS Seal Beach, CTO 90
Arsenic - Data Qualification Summary - SDG 06J055

No Sample Data Qualified in this SDG

NWS Seal Beach, CTO 90
Arsenic - Laboratory Blank Data Qualification Summary - SDG 06J055

No Sample Data Qualified in this SDG

METHOD 3050B/60108
METALS BY TRACE ICP

Client : TETRA TECH EC, INC.
Project : NWS SEAL BEACH, CTO 0006
Batch No. : 06J055

Matrix : SOIL
Instrument ID : T-131

SAMPLE ID	EMAX SAMPLE ID	RESULTS (mg/kg)	DLF	MOIST	RL (mg/kg)	MDL (mg/kg)	Analysis DATE/TIME	Extraction DATE/TIME	LFTD	CAL REF	PREP BATCH	Collection DATE/TIME	Received DATE/TIME
MBLXIS	IPJ0185B	ND	1	NA	1.00	0.400	10/06/0619:18	10/06/0609:15	I31J008012	I31J008010	IPJ0185	NA	10/06/06
LCSIS	IPJ0185L	91.4	1	NA	1.00	0.400	10/06/0619:23	10/06/0609:15	I31J008013	I31J008010	IPJ0185	NA	10/06/06
LCOIS	IPJ0185C	92.3	1	NA	1.00	0.400	10/06/0619:28	10/06/0609:15	I31J008014	I31J008010	IPJ0185	NA	10/06/06
6-57-111AS	J055-01A	114	1	8.3	1.09	0.436	10/06/0619:33	10/06/0609:15	I31J008015	I31J008010	IPJ0185	10/05/06	10/05/06
6-57-111MS	J055-01S	99.2	1	8.3	1.09	0.436	10/06/0619:38	10/06/0609:15	I31J008016	I31J008010	IPJ0185	10/05/06	10/05/06
6-57-111	J055-01	6.82	1	8.3	1.09	0.436	10/06/0619:43	10/06/0609:15	I31J008017	I31J008010	IPJ0185	10/05/06	10/05/06
6-57-111DL	J055-01J	6.93	5	8.3	5.45	2.18	10/06/0619:55	10/06/0609:15	I31J008018	I31J008010	IPJ0185	10/05/06	10/05/06
6-57-112	J055-02	6.83	1	8.5	1.09	0.437	10/06/0620:00	10/06/0609:15	I31J008019	I31J008010	IPJ0185	10/05/06	10/05/06
6-57-113	J055-03	6.84	1	8.4	1.09	0.437	10/06/0620:05	10/06/0609:15	I31J008021	I31J008010	IPJ0185	10/05/06	10/05/06
6-57-114	J055-04	6.41	1	8.8	1.10	0.439	10/06/0620:24	10/06/0609:15	I31J008024	I31J008022	IPJ0185	10/05/06	10/05/06
6-57-115	J055-05	4.51	1	8.1	1.09	0.435	10/06/0620:29	10/06/0609:15	I31J008025	I31J008022	IPJ0185	10/05/06	10/05/06
6-57-116	J055-06	6.14	1	9.1	1.10	0.440	10/06/0620:34	10/06/0609:15	I31J008026	I31J008022	IPJ0185	10/05/06	10/05/06
6-57-117	J055-07	34.9	1	5.4	1.06	0.423	10/06/0620:39	10/06/0609:15	I31J008027	I31J008022	IPJ0185	10/05/06	10/05/06
6-57-118	J055-08	23.7	1	7.7	1.08	0.433	10/06/0620:44	10/06/0609:15	I31J008028	I31J008022	IPJ0185	10/05/06	10/05/06
6-57-119	J055-09	9.74	1	4.5	1.05	0.419	10/06/0620:49	10/06/0609:15	I31J008029	I31J008022	IPJ0185	10/05/06	10/05/06
6-57-120	J055-10	13.1	1	10.1	1.11	0.445	10/06/0620:54	10/06/0609:15	I31J008030	I31J008022	IPJ0185	10/05/06	10/05/06
6-57-121	J055-11	6.42	1	7.5	1.08	0.432	10/06/0620:59	10/06/0609:15	I31J008031	I31J008022	IPJ0185	10/05/06	10/05/06
6-57-122	J055-12	5.70	1	7.2	1.08	0.431	10/06/0621:04	10/06/0609:15	I31J008032	I31J008022	IPJ0185	10/05/06	10/05/06
6-57-123	J055-13	5.88	1	7.4	1.08	0.432	10/06/0621:09	10/06/0609:15	I31J008033	I31J008022	IPJ0185	10/05/06	10/05/06

10/1/06

**Laboratory Data Consultants, Inc.
Data Validation Report**

Project/Site Name: NWS Seal Beach, CTO 90
Collection Date: October 17, 2006
LDC Report Date: November 29, 2006
Matrix: Soil/Water
Parameters: Nickel & Zinc
Validation Level: EPA Level III & IV
Laboratory: EMAX Laboratories, Inc.

COPY

Sample Delivery Group (SDG): 06J152

Sample Identification

6-44-124
6-44-125
6-44-126**
6-44-127
6-44-128
6-44-129
6-44-130**
6-44-131
6-44-132
6-44-133
6-44-134
6-44-135
6-44-136
6-44-137
6-44-138
6-44-139
6-44-140
6-44-128MS
6-44-128MSD

**Indicates sample underwent EPA Level IV review

Introduction

This data review covers 18 soil samples and one water sample listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 6010B for Nickel and Zinc.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (October 2004) as there are no current guidelines for the methods stated above.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified a P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blanks are summarized in Section III.

Field duplicates are summarized in Section XIII.

Samples indicated by a double asterisk on the front cover underwent a EPA Level IV review. A EPA Level III review was performed on all of the other samples. Raw data were not evaluated for the samples reviewed by Level III criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

II. Calibration

An initial calibration was performed.

The frequency and analysis criteria of the initial calibration verification (ICV) and continuing calibration verification (CCV) were met.

III. Blanks

Method blanks were reviewed for each matrix as applicable. No contaminant concentrations were found in the initial, continuing and preparation blanks with the following exceptions:

Method Blank ID	Analyte	Maximum Concentration	Associated Samples
ICB/CCB	Nickel	10.1 ug/L	All samples in SDG 06J152

Data qualification by the initial, continuing and preparation blanks (ICB/CCB/PBs) was based on the maximum contaminant concentration in the ICB/CCB/PBs in the analysis of each analyte. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated method blanks.

IV. ICP Interference Check Sample (ICS) Analysis

The frequency of analysis was met.

The criteria for analysis were met.

V. Matrix Spike Analysis

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

VI. Duplicate Sample Analysis

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable.

VII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

VIII. Internal Standards

ICP-MS was not utilized in this SDG.

IX. Furnace Atomic Absorption QC

Graphite furnace atomic absorption was not utilized in this SDG.

X. ICP Serial Dilution

ICP serial dilution analysis was performed by the laboratory. The analysis criteria were met with the following exceptions:

Diluted Sample	Analyte	%D (Limits)	Associated Samples	Flag	A or P
6-44-128L	Zinc	11 (≤ 10)	All soil samples in SDG 06J152	J (all detects)	A

XI. Sample Result Verification

All sample result verifications were acceptable for samples on which a EPA Level IV review was performed. Raw data were not evaluated for the samples reviewed by Level III criteria.

XII. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

XIII. Field Duplicates

Samples 6-44-124 and 6-44-125 were identified as field duplicates. No metals were detected in any of the samples with the following exceptions:

Analyte	Concentration (mg/Kg)		RPD
	6-44-124	6-44-125	
Nickel	22.6	25.2	12
Zinc	105	116	10

XIV. Field Blanks

Sample 6-44-140 was identified as an equipment rinsate. No metal contaminants were found in this blank.

**NWS Seal Beach, CTO 90
Nickel & Zinc - Data Qualification Summary - SDG 06J152**

SDG	Sample	Analyte	Flag	A or P	Reason
06J152	6-44-124 6-44-125 6-44-126** 6-44-127 6-44-128 6-44-129 6-44-130** 6-44-131 6-44-132 6-44-133 6-44-134 6-44-135 6-44-136 6-44-137 6-44-138 6-44-139	Zinc	J (all detects)	A	ICP serial dilution (%D)

**NWS Seal Beach, CTO 90
Nickel & Zinc - Laboratory Blank Data Qualification Summary - SDG 06J152**

No Sample Data Qualified in this SDG

METHOD 3050B/6010B
METALS BY ICP

```

=====
Client      : TETRA TECH EC, INC.           Date Collected: 10/17/06
Project     : NWS SEAL BEACH, CTD 0006     Date Received: 10/17/06
SDG NO.    : 06J152                       Date Extracted: 10/17/06 17:15
Sample ID   : 6-44-124                   Date Analyzed: 10/18/06 12:34
Lab Samp ID : J152-01                     Dilution Factor: 1
Lab File ID : I07J019020                 Matrix          : SOIL
Ext Btch ID : IPJ043S                    % Moisture      : 31.9
Calib. Ref. : I07J019010                 Instrument ID   : EMAXT107
=====
  
```

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
Nickel	22.6	2.94	1.47
Zinc	105 <i>S</i>	1.47	0.734

12/1/02 *8*

7003 *8*

METHOD 3050B/6010B
METALS BY ICP

=====
Client : TETRA TECH EC, INC. Date Collected: 10/17/06
Project : NWS SEAL BEACH, CTO 0006 Date Received: 10/17/06
SDG NO. : 06J152 Date Extracted: 10/17/06 17:15
Sample ID: 6-44-125 Date Analyzed: 10/18/06 12:38
Lab Samp ID: J152-02 Dilution Factor: 1
Lab File ID: I07J019021 Matrix : SOIL
Ext Btch ID: IPJ043S % Moisture : 34.0
Calib. Ref.: I07J019010 Instrument ID : EMAXT107
=====

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
Nickel	25.6	3.03	1.52
Zinc	116 <i>S</i>	1.52	0.758

12/1/06 *Q*
Q

METHOD 3050B/6010B
METALS BY ICP

=====
Client : TETRA TECH EC, INC. Date Collected: 10/17/06
Project : NWS SEAL BEACH, CTD 0006 Date Received: 10/17/06
SDG NO. : 06J152 Date Extracted: 10/17/06 17:15
Sample ID: 6-44-126 Date Analyzed: 10/18/06 12:54
Lab Samp ID: J152-03 Dilution Factor: 1
Lab File ID: 107J019024 Matrix : SOIL
Ext Btch ID: IPJ043S % Moisture : 34.9
Calib. Ref.: 107J019022 Instrument ID : EMAXTI07
=====

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
Nickel	23.0	3.07	1.54
Zinc	118 J	1.54	0.768

12/1/02

7005

METHOD 3050B/6010B
METALS BY ICP

=====
Client : TETRA TECH EC, INC. Date Collected: 10/17/06
Project : NWS SEAL BEACH, CTO 0006 Date Received: 10/17/06
SDG NO. : 06J152 Date Extracted: 10/17/06 17:15
Sample ID: 6-44-127 Date Analyzed: 10/18/06 12:58
Lab Samp ID: J152-04 Dilution Factor: 1
Lab File ID: I07J019025 Matrix : SOIL
Ext Btch ID: IPJ043S % Moisture : 33.4
Calib. Ref.: I07J019022 Instrument ID : EMAXT107
=====

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
Nickel	22.6	3.00	1.50
Zinc	111 J	1.50	0.751

12/1/028
7005

METHOD 3050B/6010B
METALS BY ICP

```

=====
Client      : TETRA TECH EC, INC.           Date Collected: 10/17/06
Project     : NWS SEAL BEACH, CTO 0006     Date Received: 10/17/06
SDG NO.    : 06J152                       Date Extracted: 10/17/06 17:15
Sample ID: 6-44-128                       Date Analyzed: 10/18/06 12:26
Lab Samp ID: J152-05                      Dilution Factor: 1
Lab File ID: I07J019018                   Matrix          : SOIL
Ext Btch ID: IPJ043S                      % Moisture     : 42.6
Calib. Ref.: I07J019010                   Instrument ID  : EMAXT107
=====
  
```

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
Nickel	26.0	3.48	1.74
Zinc	130 J	1.74	0.871

12/1/06

7007

METHOD 3050B/6010B
METALS BY ICP

=====
Client : TETRA TECH EC, INC. Date Collected: 10/17/06
Project : NWS SEAL BEACH, CTO 0006 Date Received: 10/17/06
SDG NO. : 06J152 Date Extracted: 10/17/06 17:15
Sample ID: 6-44-129 Date Analyzed: 10/18/06 13:02
Lab Samp ID: J152-06 Dilution Factor: 1
Lab File ID: 107J019026 Matrix : SOIL
Ext Btch ID: IPJ043S % Moisture : 28.3
Calib. Ref.: 107J019022 Instrument ID : EMAX107
=====

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
Nickel	13.7	2.79	1.39
Zinc	135.5	1.39	0.697

12/1/06
7000

METHOD 3050B/6010B
METALS BY ICP

=====
Client : TETRA TECH EC, INC. Date Collected: 10/17/06
Project : NWS SEAL BEACH, CTO 0006 Date Received: 10/17/06
SDG NO. : 06J152 Date Extracted: 10/17/06 17:15
Sample ID: 6-44-130 Date Analyzed: 10/18/06 13:06
Lab Samp ID: J152-07 Dilution Factor: 1
Lab File ID: 107J019027 Matrix : SOIL
Ext Btch ID: IPJ043S % Moisture : 24.6
Calib. Ref.: 107J019022 Instrument ID : EMAXT107
=====

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
Nickel	12.2	2.65	1.33
Zinc	61.8 <i>J</i>	1.33	0.663

12/1/06 *J*

METHOD 3050B/6010B
METALS BY ICP

=====
Client : TETRA TECH EC, INC. Date Collected: 10/17/06
Project : NWS SEAL BEACH, CTO 0006 Date Received: 10/17/06
SDG NO. : 06J152 Date Extracted: 10/17/06 17:15
Sample ID: 6-44-131 Date Analyzed: 10/18/06 13:10
Lab Samp ID: J152-08 Dilution Factor: 1
Lab File ID: I07J019028 Matrix : SOIL
Ext Btch ID: IPJ043S % Moisture : 33.8
Calib. Ref.: I07J019022 Instrument ID : EMAXT107
=====

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
Nickel	23.9	3.02	1.51
Zinc	122 \bar{J}	1.51	0.755

12/1/06 *QV*

METHOD 3050B/6010B
METALS BY ICP

=====
Client : TETRA TECH EC, INC. Date Collected: 10/17/06
Project : NWS SEAL BEACH, CTO 0006 Date Received: 10/17/06
SDG NO. : 06J152 Date Extracted: 10/17/06 17:15
Sample ID: 6-44-132 Date Analyzed: 10/18/06 13:14
Lab Samp ID: J152-09 Dilution Factor: 1
Lab File ID: I07J019029 Matrix : SOIL
Ext Btch ID: IPJ043S % Moisture : 36.2
Calib. Ref.: I07J019022 Instrument ID : EMAXT107
=====

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
Nickel	23.9	3.13	1.57
Zinc	129 <i>J</i>	1.57	0.784

12/1/06 8 0

METHOD 3050B/6010B
METALS BY ICP

=====
Client : TETRA TECH EC, INC. Date Collected: 10/17/06
Project : NWS SEAL BEACH, CTO 0006 Date Received: 10/17/06
SDG NO. : 06J152 Date Extracted: 10/17/06 17:15
Sample ID: 6-44-133 Date Analyzed: 10/18/06 13:18
Lab Samp ID: J152-10 Dilution Factor: 1
Lab File ID: 107J019030 Matrix : SOIL
Ext Btch ID: IPJ043S % Moisture : 26.9
Calib. Ref.: 107J019022 Instrument ID : EMAXT107
=====

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
Nickel	22.2	2.74	1.37
Zinc	102 J	1.37	0.684

12/1/06 *WJ*

METHOD 3050B/6010B
METALS BY ICP

=====
Client : TETRA TECH EC, INC. Date Collected: 10/17/06
Project : NWS SEAL BEACH, CTO 0006 Date Received: 10/17/06
SDG NO. : 06J152 Date Extracted: 10/17/06 17:15
Sample ID: 6-44-134 Date Analyzed: 10/18/06 13:22
Lab Samp ID: J152-11 Dilution Factor: 1
Lab File ID: 107J019031 Matrix : SOIL
Ext Btch ID: IPJ043S % Moisture : 51.0
Calib. Ref.: 107J019022 Instrument ID : EMAXT107
=====

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
Nickel	20.5	4.08	2.04
Zinc	114 <i>J</i>	2.04	1.02

12/1/03 80

METHOD 3050B/6010B
METALS BY ICP

```

=====
Client      : TETRA TECH EC, INC.           Date Collected: 10/17/06
Project     : NWS SEAL BEACH, CTO 0006      Date Received: 10/17/06
SDG NO.    : 06J152                        Date Extracted: 10/17/06 17:15
Sample ID   : 6-44-135                     Date Analyzed: 10/18/06 13:26
Lab Samp ID: J152-12                        Dilution Factor: 1
Lab File ID: I07J019032                    Matrix          : SOIL
Ext Btch ID: IPJ043S                        % Moisture     : 24.1
Calib. Ref.: I07J019022                    Instrument ID  : EMAXT107
=====
  
```

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
Nickel	14.6	2.64	1.32
Zinc	67.2 <i>J</i>	1.32	0.659

12/1/03 *[Signature]*

7014

METHOD 3050B/6010B
METALS BY ICP

```

=====
Client      : TETRA TECH EC, INC.           Date Collected: 10/17/06
Project     : NWS SEAL BEACH, CTO 0006     Date Received: 10/17/06
SDG NO.    : 06J152                       Date Extracted: 10/17/06 17:15
Sample ID   : 6-44-136                    Date Analyzed: 10/18/06 13:30
Lab Samp ID : J152-13                     Dilution Factor: 1
Lab File ID : 107J019033                  Matrix          : SOIL
Ext Btch ID : IPJ043S                     % Moisture     : 29.3
Calib. Ref. : 107J019022                  Instrument ID   : EMAXT107
=====
  
```

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
Nickel	16.6	2.83	1.41
Zinc	82.3 <i>J</i>	1.41	0.707

12/1/06 *g*

METHOD 3050B/6010B
METALS BY ICP

=====
Client : TETRA TECH EC, INC. Date Collected: 10/17/06
Project : NWS SEAL BEACH, CTO 0006 Date Received: 10/17/06
SDG NO. : 06J152 Date Extracted: 10/17/06 17:15
Sample ID: 6-44-137 Date Analyzed: 10/18/06 14:11
Lab Samp ID: J152-14 Dilution Factor: 1
Lab File ID: 107J019042 Matrix : SOIL
Ext Btch ID: IPJ043S % Moisture : 27.4
Calib. Ref.: 107J019034 Instrument ID : EMAXTI07
=====

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
Nickel	11.3	2.75	1.38
Zinc	74.5 <i>J</i>	1.38	0.689

12/1/02 *Q*
7016

METHOD 3050B/6010B
 METALS BY ICP

```

=====
Client      : TETRA TECH EC, INC.           Date Collected: 10/17/06
Project     : NWS SEAL BEACH, CTO 0006      Date Received: 10/17/06
SDG NO.    : 06J152                        Date Extracted: 10/17/06 17:15
Sample ID   : 6-44-138                     Date Analyzed: 10/18/06 14:15
Lab Samp ID: J152-15                       Dilution Factor: 1
Lab File ID: I07J019043                    Matrix          : SOIL
Ext Btch ID: IPJ043S                       % Moisture     : 50.5
Calib. Ref.: I07J019034                    Instrument ID  : EMAXT107
=====
  
```

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
Nickel	31.7	4.04	2.02
Zinc	146 <i>J</i>	2.02	1.01

12/1/06 *g*

METHOD 3050B/6010B
METALS BY ICP

=====
Client : TETRA TECH EC, INC. Date Collected: 10/17/06
Project : NWS SEAL BEACH, CTO 0006 Date Received: 10/17/06
SDG NO. : 06J152 Date Extracted: 10/17/06 17:15
Sample ID: 6-44-139 Date Analyzed: 10/18/06 14:20
Lab Samp ID: J152-16 Dilution Factor: 1
Lab File ID: I07J019044 Matrix : SOIL
Ext Btch ID: IPJ043S % Moisture : 56.0
Calib. Ref.: I07J019034 Instrument ID : EMAXT107
=====

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
Nickel	34.8	4.55	2.27
Zinc	186	2.27	1.14

12/1/02
7018

METHOD 3010A/6010B
METALS BY ICP

=====
Client : TETRA TECH EC, INC. Date Collected: 10/17/06
Project : NWS SEAL BEACH, CTO 0006 Date Received: 10/17/06
SDG NO. : 06J152 Date Extracted: 10/17/06 17:15
Sample ID: 6-44-140 Date Analyzed: 10/18/06 14:03
Lab Samp ID: J152-17 Dilution Factor: 1
Lab File ID: I07J019040 Matrix : WATER
Ext Btch ID: IPJ044W % Moisture : NA
Calib. Ref.: I07J019034 Instrument ID : EMAXT107
=====

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
Nickel	ND	20.0	10.0
Zinc	ND	10.0	5.00

12/1/06

**Laboratory Data Consultants, Inc.
Data Validation Report**

Project/Site Name: NWS Seal Beach, CTO 90

Collection Date: October 19, 2006

LDC Report Date: November 29, 2006

Matrix: Soil

Parameters: Nickel & Zinc

Validation Level: EPA Level III

Laboratory: EMAX Laboratories, Inc.

Sample Delivery Group (SDG): 06J212

Sample Identification

6-44-141

COPY

Introduction

This data review covers one soil sample listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 6010B for Nickel and Zinc.

This review follows a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review (October 2004) as there are no current guidelines for the methods stated above.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified a P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blanks are summarized in Section III.

Field duplicates are summarized in Section XIII.

Raw data were not reviewed for this SDG. The review was based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.
- None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

II. Calibration

An initial calibration was performed.

The frequency and analysis criteria of the initial calibration verification (ICV) and continuing calibration verification (CCV) were met.

III. Blanks

Method blanks were reviewed for each matrix as applicable. No contaminant concentrations were found in the initial, continuing and preparation blanks.

IV. ICP Interference Check Sample (ICS) Analysis

The frequency of analysis was met.

The criteria for analysis were met.

V. Matrix Spike Analysis

The laboratory has indicated that there were no matrix spike (MS) analyses specified for the samples in this SDG, and therefore matrix spike analyses were not performed for this SDG.

VI. Duplicate Sample Analysis

The laboratory has indicated that there were no duplicate (DUP) analyses specified for the samples in this SDG, and therefore duplicate analyses were not performed for this SDG.

VII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

VIII. Internal Standards

ICP-MS was not utilized in this SDG.

IX. Furnace Atomic Absorption QC

Graphite furnace atomic absorption was not utilized in this SDG.

X. ICP Serial Dilution

ICP serial dilution analysis was performed by the laboratory. The analysis criteria were met with the following exceptions:

Diluted Sample	Analyte	%D (Limits)	Associated Samples	Flag	A or P
6-44-141L	Zinc	14 (≤ 10)	All samples in SDG 06J212	J (all detects)	A

XI. Sample Result Verification

Raw data were not reviewed for this SDG.

XII. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

XIII. Field Duplicates

No field duplicates were identified in this SDG.

XIV. Field Blanks

No field blanks were identified in this SDG.

**NWS Seal Beach, CTO 90
Nickel & Zinc - Data Qualification Summary - SDG 06J212**

SDG	Sample	Analyte	Flag	A or P	Reason
06J212	6-44-141	Zinc	J (all detects)	A	ICP serial dilution (%D)

**NWS Seal Beach, CTO 90
Nickel & Zinc - Laboratory Blank Data Qualification Summary - SDG 06J212**

No Sample Data Qualified in this SDG

METHOD 3050B/6010B
METALS BY ICP

```

=====
Client      : TETRA TECH EC, INC.           Date Collected: 10/19/06
Project     : NWS SEAL BEACH, CTO 0006     Date Received: 10/20/06
SDG NO.    : 06J212                       Date Extracted: 10/20/06 14:00
Sample ID   : 6-44-141                    Date Analyzed: 10/23/06 11:16
Lab Samp ID: J212-01                      Dilution Factor: 1
Lab File ID: I07J024016                  Matrix          : SOIL
Ext Btch ID: IPJ051S                     % Moisture     : 50.5
Calib. Ref.: I07J024010                  Instrument ID  : EMAXTI07
=====
  
```

PARAMETERS	RESULTS (mg/kg)	RL (mg/kg)	MDL (mg/kg)
Nickel	37.5	4.04	2.02
Zinc	188	2.02	1.01

12/1/06

APPENDIX B
SITE PHOTOGRAPHS



Photograph 1

SWMU 57. West sidewall of excavation. Excavation stopped at this point due to the close proximity to Building 59. Hand digging was used to remove the material from the top of the slope back to the building prior to placing PVC liner on the sidewall in order to eliminate the exposure pathway.



Photograph 2

SWMU 57. Compaction of backfilled soil with a smooth-drum roller. Note the PVC liner on the excavation sidewall and the top of the sidewall is at the building.



Photograph 3

SWMU 57. Compaction testing of backfilled soil with a nuclear gauge. 95 percent compaction was achieved.



Photograph 4

SMWU 57. Backfill completed.



Photograph 5

IR Site 42. Soil excavation is proceeding.



Photograph 6

IR Site 42. Soil excavation is proceeding.



Photograph 7

IR Site 42. Excavated soil is being loaded into a 10-wheel dump truck for transportation to the soil stockpile area.



Photograph 8

Soil stockpile area located by Building 240. This area was used to stockpile soil from all the sites; however, the material was kept segregated by site pending waste characterization sampling results. The material on the liner is from IR Site 42. The stockpile area was expanded to accommodate soil as the excavation progressed.



Photograph 9

Soil stockpile area located by Building 240. Note the segregated IR Site 42 material on the left. The stockpile area is being expanded in this photo.



Photograph 10

IR Site 44/45. Prior to the start of excavation. Looking east up the drainage channel at the eastern portion of the planned excavation. The survey lathe is delineating the planned excavation limits.



Photograph 11

IR Site 44/45. Prior to the start of excavation. Looking west up the drainage channel at the western portion of the planned excavation. The survey line is delineating the planned excavation limits. Note the temporary tidal dam is under construction.



Photograph 12

IR Site 44/45. Post excavation. Looking west up the drainage channel
at the western portion of the site.



Photograph 13

IR Site 44/45. Post excavation. Looking east up the drainage channel at the eastern portion of the site. The wider width of the channel is the result of the excavation work (center background).

Note the jute mesh on the south sidewall.



Photograph 14

IR Site 44/45. Post excavation. Looking east up the drainage channel at the eastern portion of the site. The wider width of the channel is the result of the excavation work (center background).

Note the jute mesh on the south sidewall.



Photograph 15

IR Site 44/45. Post excavation. Looking east up the drainage channel at the eastern portion of the site. Note the new concrete/rock V-ditch.



Photograph 16

IR Site 44/45. Post excavation. Looking at the culvert that was cleaned out to remove the sediment.



Photograph 17

IR Site 44/45. Post excavation. Looking north at one of the new concrete/rock V-ditches.
Note Building 88 is in the left background.

APPENDIX C
STATISTICAL CALCULATIONS

Test | Continuous summary descriptives

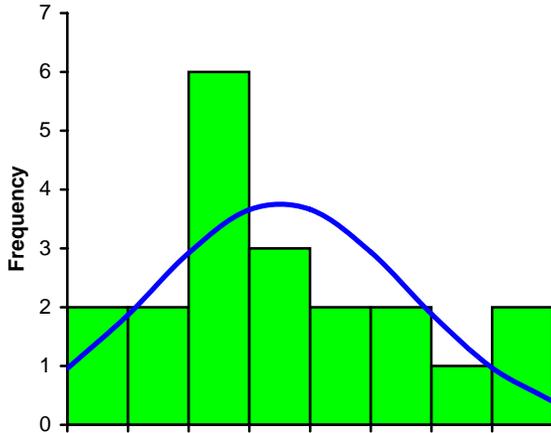
Variable | (mg/kg)

Performed by | stephanc

Date |

30 October 2006

IR SITE 42 - Copper Calculations



n | 20

Mean | 12.508

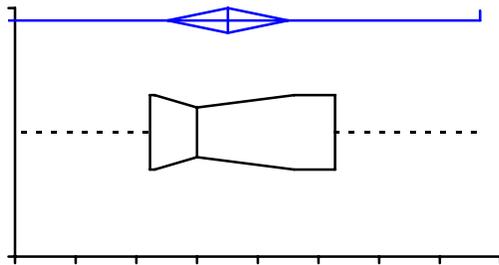
95% CI | 11.515 to 13.500

Variance | 4.4969

SD | 2.1206

SE | 0.4742

CV | 17%



Median | 12.000

95.9% CI | 11.300 to 13.600

Range | 7.48

IQR | 3.05

Percentile

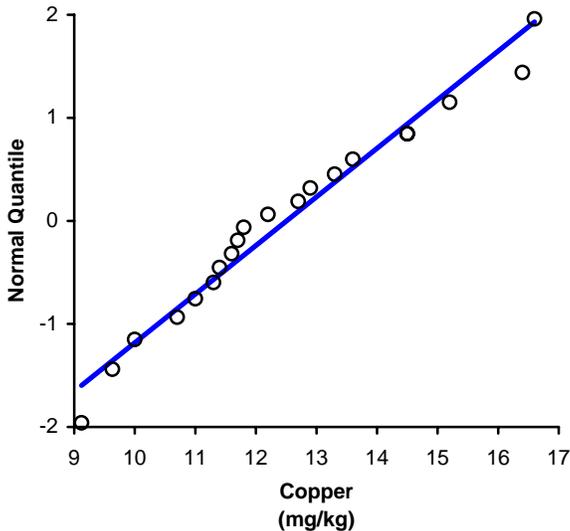
2.5th | -

25th | 11.225

50th | 12.000

75th | 14.275

97.5th | -



	Coefficient	p
Shapiro-Wilk	0.9630	0.6058
Skewness	0.4425	0.3661
Kurtosis	-0.4791	0.7144

Test | Continuous summary descriptives

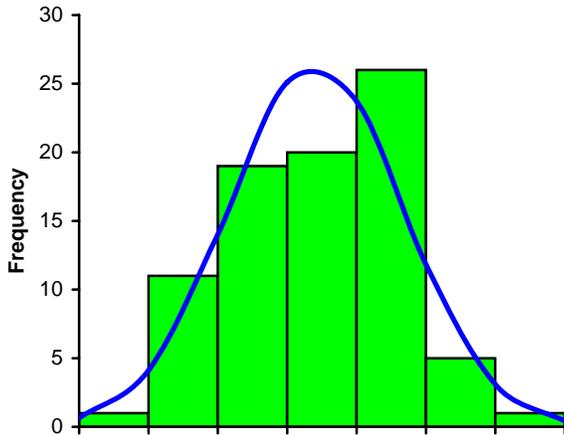
Variable | (mg/kg)

Performed by | stephanc

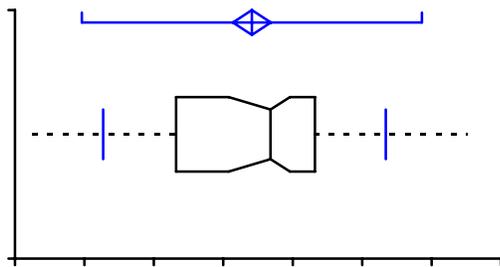
Date |

30 October 2006

IR SITE 44/45 - Nickel Calculations

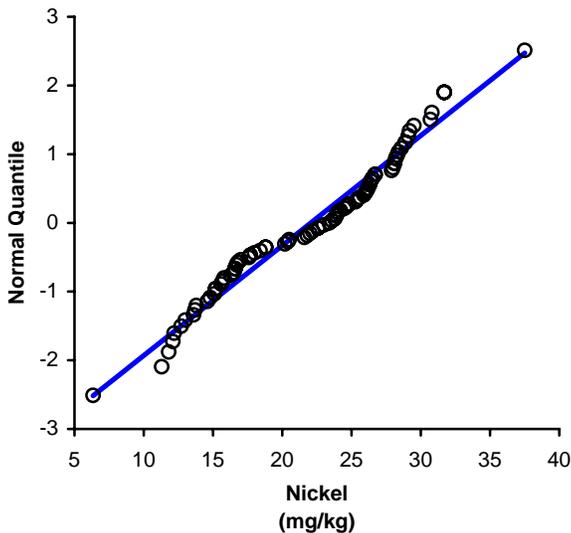


n	83
Mean	22.057
95% CI	20.693 to 23.421
Variance	39.0279
SD	6.2472
SE	0.6857
CV	28%



Median	23.400
95.2% CI	20.400 to 24.800
Range	31.16
IQR	10

Percentile	
2.5th	11.350
25th	16.600
50th	23.400
75th	26.600
97.5th	31.700



	Coefficient	p
Shapiro-Wilk	0.9696	0.0463
Skewness	-0.1639	0.5219
Kurtosis	-0.6921	0.0755

Test | Continuous summary descriptives

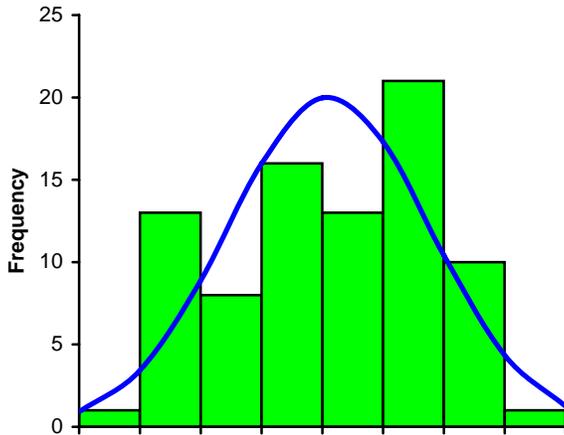
Variable | (mg/kg)

Performed by | stephanc

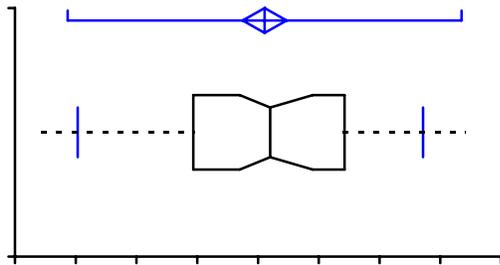
Date |

30 October 2006

IR SITE 44/45 - Zinc Calculations

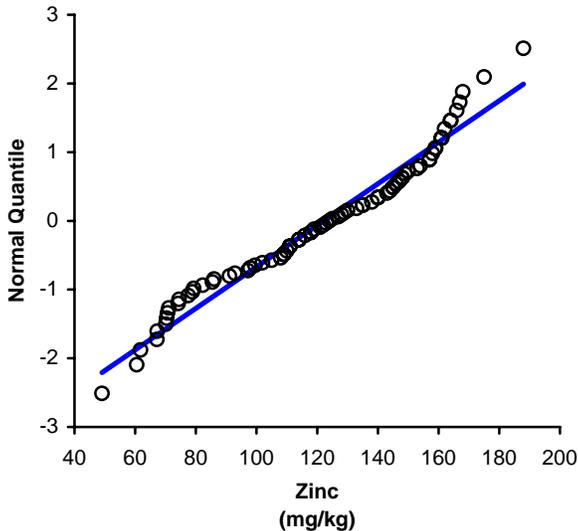


n	83
Mean	122.169
95% CI	114.945 to 129.393
Variance	1094.5541
SD	33.0840
SE	3.6314
CV	27%



Median	124.000
95.2% CI	114.000 to 138.000
Range	138.9
IQR	49.8

Percentile	
2.5th	60.630
25th	98.700
50th	124.000
75th	148.500
97.5th	174.300



	Coefficient	p
Shapiro-Wilk	0.9628	0.0168
Skewness	-0.3038	0.2406
Kurtosis	-0.8872	0.0070

Test | Continuous summary descriptives

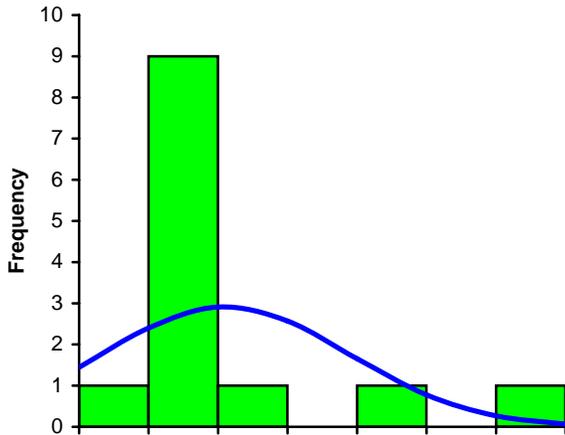
Variable | (mg/kg)

Performed by | stephanc

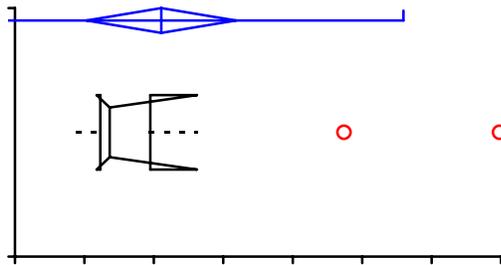
Date |

30 October 2006

SWMU 57 - Arsenic Calculations

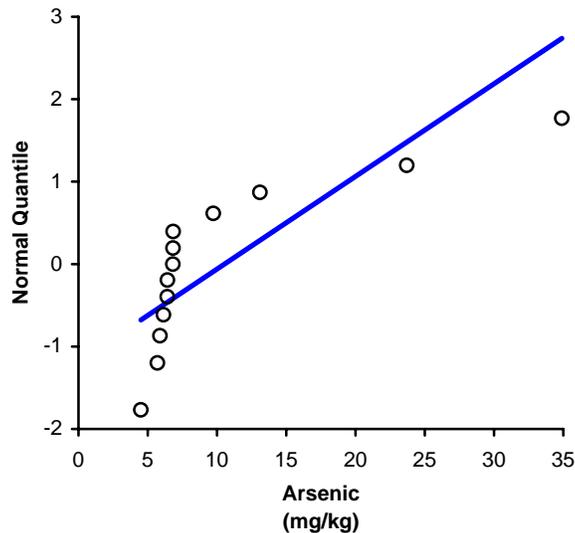


n	13
Mean	10.538
95% CI	5.161 to 15.914
Variance	79.1646
SD	8.8974
SE	2.4677
CV	84%



Median	6.820
97.8% CI	5.880 to 13.100
Range	30.39
IQR	3.6

Percentile	
2.5th	-
25th	6.140
50th	6.820
75th	9.740
97.5th	-



	Coefficient	p
Shapiro-Wilk	0.6419	0.0002
Skewness	2.2294	0.0013
Kurtosis	4.5690	-