Closure Report for the F-14 Accumulation Site, Camp Stanley Storage Activity, Texas EPA Identification No. TX2210020739 TNRCC Identification No. 69026

Prepared for

Armstrong Laboratory/OEB

Brooks AFB, Texas, and

Camp Stanley Storage Activity, Texas

April 1995

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Prepared by

Parsons Engineering Science, Inc.
Austin, Texas

April 1995

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PARTIAL FACILITY CLOSURE CERTIFICATION
F-14 LESS-THAN-90-DAY SOLID WASTE MANAGEMENT UNIT

Department of the Army
Camp Stanley Storage Activity
Boerne, Texas

I certify that the above-described closure was performed under my direction in accordance with the site closure plan and 30 TAC 335, subchapter S, and as described in the attached report, and that, to the best of my knowledge and belief, said closure has been successfully accomplished.

LTC Dean Schmelling
Commander, Camp Stanley Storage Activity

4/14/95
Date

J. David Highland
Professional Engineer 63539
Parsons Engineering Science, Inc.

4/13/95
Date

SECTION 1
INTRODUCTION

The F-14 less-than-90-day accumulation site at Camp Stanley Storage Activity (CSSA) requires closure as a waste management unit under state regulations as promulgated at Texas Natural Resource Conservation Commission (TNRCC) risk reduction rules 30 Texas Administrative Code (TAC) 335, Subchapter S. This report certifies actions associated with the closure and was prepared under contract F33615-89-D-4003, order 126, between Armstrong Laboratory/OEB, Brooks Air Force Base (AFB), and Parsons Engineering Science, Inc. (Parsons ES).

Based on assessment and analytical tests performed prior to closure actions, TNRCC risk reduction standard 1 was selected for closure criteria. Therefore, no closure plan was required for TNRCC approval prior to performing closure actions. The TNRCC was apprised of closure actions as required by 30 TAC 334.8(c). This closure report documents closure activities and results, and requests TNRCC approval for site closure.

1.1 SITE DESCRIPTION

CSSA is located within Bexar County approximately 19 miles northwest of downtown San Antonio and 10 miles south of Boerne. The installation is operated under jurisdiction of the U.S. Department of Defense, Red River Army Depot (RRAD) in Texarkana, Texas. The primary mission of CSSA is munition storage and maintenance of munitions.

CSSA is located on 4,004 acres and is comprised of inner and outer cantonment areas. The F-14 site is in the inner cantonment, which encompasses about 1,760 acres and is approximately 2.4 miles long (north to south) and 1.3 miles wide (Figure 1.1). The area surrounding CSSA is primarily rural with some residential and commercial development.

The F-14 area is located about 100 feet west of gravel road F-14 in the southeastern portion of CSSA's inner cantonment (Figure 1.1). The site is roughly oblong, oriented lengthwise east to west, and the interior portion is about 55 by 90 feet (Figure 1.2). The southern perimeter is a wall formed by excavation into the side of a natural limestone hill. The northern perimeter was bermed 1 to 3 feet in height with gravelly soils. The site floor is limestone rock with a thin covering (less than 1 inch) of limy soils and pea gravel. A locked fence surrounds the F-14 site.

1.2 SITE BACKGROUND

CSSA operated a less-than-90-day waste storage area as part of its operations during the 1980s. Installation records do not indicate the initial storage date of wastes at the F-14

site, but personnel interviews indicate that the site was probably used at least by 1984 (Engineering-Science, Inc., 1993a). At this designated and secured location, hazardous waste compounds were stored for less than 90 days before transport and disposal. Drummed wastes were stored on wooden pallets and in metal containers appropriate for the stored compound.

Wastes known to have been stored at the F-14 site are listed in Table 1.1. CSSA generated quantities that were below the RCRA limit for small-quantity generators. From 1984 until 1988, the drummed materials were disposed of through the U.S. Air Force DRMO Environmental Office at Kelly AFB, Texas. In 1988, the Kelly AFB DRMO Environmental Office began subcontracting the disposal work to contractors experienced in transport and disposal actions, including Safety Kleen of San Antonio.

Records included in the initial site assessment report were documentation of wastes, material safety data sheets, and waste disposal records (Engineering-Science, Inc., 1993a). "Annual Waste Summaries" were recorded with the TNRCC (formerly the Texas Water Commission) for the years 1988, 1989, 1990, and 1991. These summaries were manifests of waste quantities and indicated disposal of PCB-containing transformers, petroleum wastes, solvent, PCE, nickel nitrate, and chlordane. All wastes were recorded under EPA identification number TX2210020739 and TNRCC identification number 69026. As of March 25, 1992, CSSA removed all compounds and containers from the site (Engineering-Science, Inc., 1993a).

In August 1992, CSSA retained Parsons ES (previously Engineering-Science, Inc.) through the Armstrong Laboratory/OEB contract to perform a subsurface site assessment at F-14. The scope of work was to determine what, if any, effects to the subsurface might have occurred from the previous storage of drummed wastes. Field activities included collection of floor samples, one composite soil sample from the berm, and subsurface rock samples. Total petroleum hydrocarbons (TPH) and nickel were detected in eighteen subsurface samples and the berm composite sample. The berm sample and soil cuttings sample also contained concentrations of 1,1,1-trichloroethane (TCA). Further discussion of the site assessment and analytical results are found in Section 3.1.

The TNRCC risk reduction rules for solid waste management units were promulgated in June 1993 and are applicable to closure of this site. CSSA submitted a letter of closure notification to the TNRCC on December 13, 1993 (appendix A). The notification letter stated that CSSA intended to close the F-14 waste management unit under risk reduction standard number 1 and that efforts to achieve this standard would include resampling of the berm for TCA and determination of background nickel concentrations. Section 3.2 further describes closure field actions and analytical results.

1.3 GEOLOGY AND HYDROGEOLOGY

1.3.1 Physiography and Soil Classification

CSSA is located about 5 miles northwest of the Balcones Escarpment, a geomorphologic boundary between prairie lands to the southeast and the Edwards


OUTER CANTONMENT
INNER CANTONMENT
Steele Hill
Borrow Pit
Gravel Pit
COMAL CO
BEXAR CO
Cibolo
Creek
Fair Oaks Ranch
Sewage Disposal Ponds
Water Tanks
Salado
Creek
Well
Gravel Pits
BEXAR CO
Golf Course
Fair Oaks Ranch
Ridge
Taylor
4WD
ROAD
ATION
BM 1269

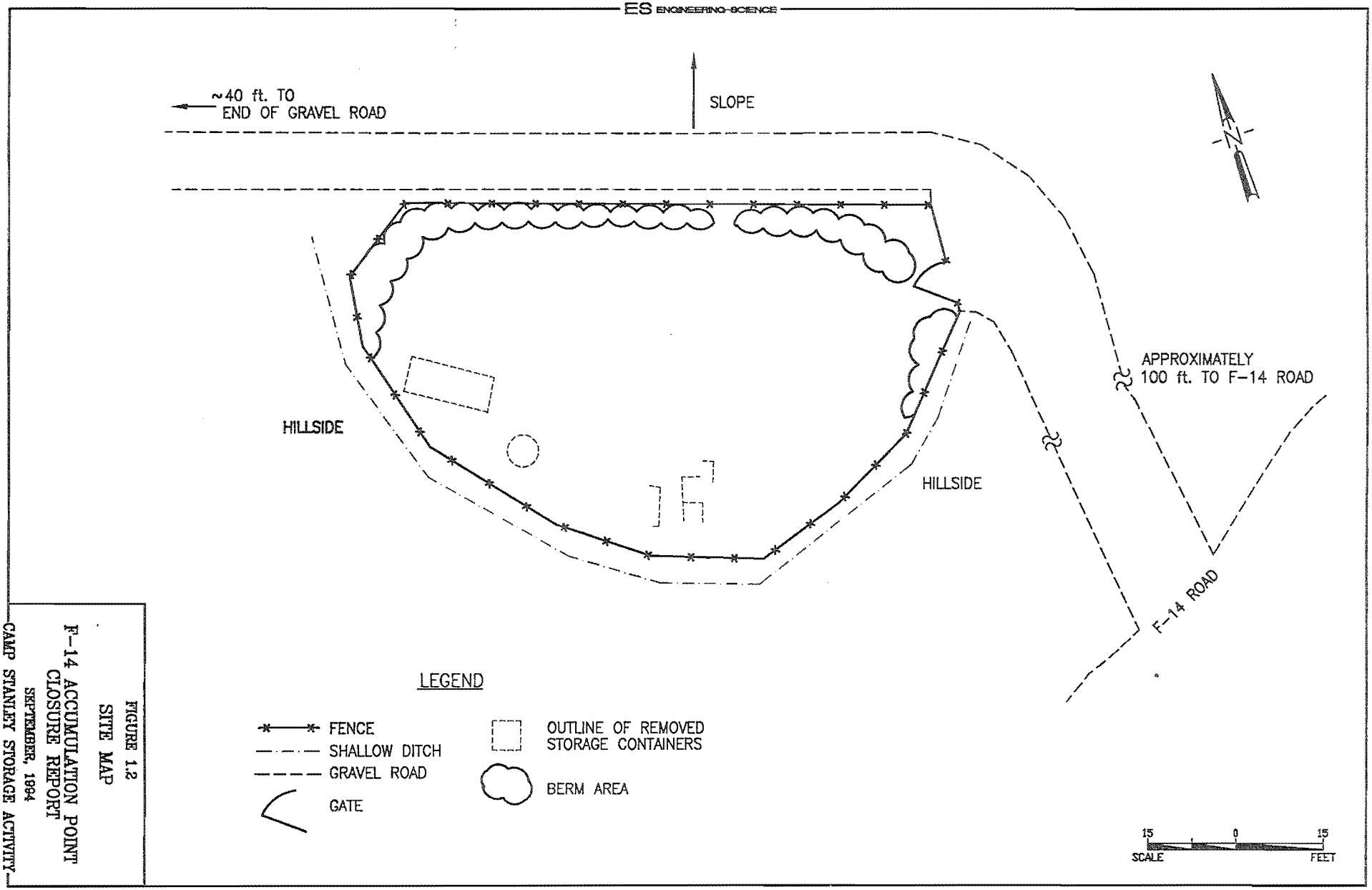

FIGURE 1.2
SITE MAP
F-14 ACCUMULATION POINT
CLOSURE REPORT
SEPTEMBER, 1994
CAMP STANLEY STORAGE ACTIVITY

BSLOC 9/16/94

Table 1.1. List of Wastes Stored at the F-14 Site

Waste Compound*
Tetrachloroethene
Various nonchlorinated solvents
Crankcase oil
Petroleum oils
Malathion
Chloradane
Veg-a-Kill plus 2,4-D
Transformer oils with PCBs
Transformer oils without PCBs
Nickel penetrate
Gasoline and diesel

* Compounds documented in CSSA records.

Plateau to the northwest. The Edwards Plateau is a hilly region dissected by small streams, a type of physiography which is observed at CSSA (Engineering-Science, Inc., 1993b). The majority of runoff from central CSSA drains east-southeast to Salado Creek, including the area around the F-14 site (Figure 1.1). Topographic relief at CSSA ranges from about 1,100 feet to 1,500 feet above sea level.

Three soil types are in the immediate area of the F-14 site. These include the Tarrant association, rolling, the Krum complex, and the Brackett soils with 12 to 30 percent slopes (USDA Soil Conservation Service, 1966).

The Tarrant association, rolling, soils are dark colored, very shallow, clayey, weakly calcareous, stoney soils that form over hard, fractured limestone with slopes of 5 to 15 percent gradient. The Krum complex occupy "foot" slopes below the Tarrant and Brackett soils on slopes of 2 to 5 percent. The soil is dark grayish-brown or very dark grayish-brown, calcareous, and approximately 30 inches thick. The Brackett soils are very shallow (about 4 inches thick), grayish-brown, strongly calcareous loamy and clayey soils containing gravel and cobblestones. These soils form on slopes of 12 to 30 percent over soft limestone and are underlain by hard limestone.

The F-14 site is located on Brackett soils; however, no true soils exist at the site. When the hill was excavated to form the floor, south perimeter wall, and road, all soils were removed. Currently, a layer of limy clay less than 1 inch thick covers the floor of the site and is a result of weathering of the underlying limestone.

1.3.2 Stratigraphy and Structure

CSSA is located on limestone outcrops of the upper and lower members of the Cretaceous-age Glen Rose Formation of the Trinity Group. The Glen Rose is characterized by thin-bedded dolomitic, hard limestone with alternating layers of soft marl to about 300 to 350 feet below ground surface. The upper and lower members are separated by a marker bed of *Corbula* pelecypods. When exposed to weathering and erosion, the alternating layers of limestone and marl form a "stairstep" topography. At the F-14 site and over most of CSSA, the upper Glen Rose is exposed in outcrop.

CSSA is structurally located on the uplifted Edwards Plateau about 5 miles northwest of the Balcones fault zone and associated escarpment. This zone is a series of high-angle normal faults that trend northeast-southwest. The downdropped blocks outcrop as younger strata from the northwest to the southeast. A set of minor faults trend northwest-southeast along the Balcones fault zone. These faults are laterally discontinuous and displacement is small. One fault about ½ mile south of the F-14 unit downdrops the southeast corner of CSSA.

1.3.3 Hydrogeology and CSSA Water Well Locations

Regional hydrogeologic information in this section is primarily from Texas Water Development Board Report 273 (Ashworth, 1983).

The Trinity Group comprises the major aquifers beneath CSSA. It is subdivided into the upper, the middle, and the lower Trinity aquifers. Underlying the lower Trinity aquifer are metamorphosed Paleozoic rocks of low permeability that act as a hydrologic barrier. The lower Trinity and underlying strata do not appear to be affected by surface activities at F-14 and are not further discussed in this report.

The upper Trinity aquifer consists of the upper Glen Rose Limestone. Recharge is from direct precipitation on the outcrop and from stream flow losses. The upper Trinity aquifer, where it exists, is generally under water table conditions. Groundwater movement is restricted to lateral flow along bedding planes and fractures, where solution has enhanced the permeability of the limestone. Transmissivity values have not been determined for the upper Trinity aquifer. Discharge from the aquifer is predominantly through seeps and springs. The F-14 area does not have any seeps or springs in its vicinity, and surface and subsurface data generated during the September 1992 site assessment did not indicate the presence of any near-surface aquifer (Engineering-Science, Inc., 1993a).

The middle Trinity aquifer consists of the lower Glen Rose Limestone, the Bexar Shale, and the Cow Creek Limestone, and has an average thickness of 460 feet. The lower Glen Rose is the only member found in outcrop north of CSSA along Cibolo Creek and in the southwest corner of CSSA. The middle Trinity receives recharge from direct precipitation on rock outcrops and stream flow losses crossing the outcrop. Based on CSSA water well data, the middle Trinity aquifer appears to be under water table conditions in the CSSA area. An average coefficient of transmissivity for the aquifer is 1,700 gallons per day per foot (gpd/ft). Groundwater movement is towards the south and southeast. Discharge from the middle Trinity aquifer occurs naturally via springs and seeps and artificially from pumping.

Between the towns of Boerne and Bulverde, Cibolo Creek is diverted underground through sinkholes in the channel. This is the only area of lower Glen Rose limestone that is considered to be part of the Edwards aquifer recharge zone. The northernmost boundary of the outer cantonment of CSSA is located about ½ mile from the Edwards aquifer recharge zone along Cibolo Creek; however, only surface water runoff from the northeasternmost part of CSSA reaches Cibolo Creek. The F-14 site is located approximately 3.25 miles south of this recharge zone and is within the Salado Creek drainage basin. Surface water in the area of F-14 flows southeasterly into Salado Creek drainage and does not interact with recharge to Cibolo Creek; therefore, operations at the F-14 unit have not affected the referenced recharge zone.

The middle Trinity aquifer has the best water quality and production rate of the three aquifers. It is the primary source of water at CSSA for drinking, livestock, and industrial uses. CSSA wells are completed as open hole wells without well screens to maximize yield. The F-14 site is located within 1 mile of active CSSA wells 1 and 9 (Figure 1.1). Other CSSA wells are greater than 1 mile in distance from F-14. The water levels in CSSA wells 1 and 9 were 108.02 and 243.41 feet below ground level (BGL), respectively, in May 1994. In September 1994, water levels declined in these wells by at least 100 feet, apparently due to low rainfall during summer 1994, though regional pumping may have also affected water levels. However, quarterly groundwater monitoring in 1992 through

spring 1995 at CSSA has not indicated any reversals in groundwater flow direction to the south-southeast. Groundwater was not encountered during investigative drilling at the F-14 site in September 1992.

1.4 CLOSURE STANDARD FOR THE F-14 SITE

Based on previous assessment of the site, analytical testing and results, and the probability of achieving a risk reduction standard, CSSA elected to close the F-14 site under TNRCC risk reduction standard 1. Analytical results from the September 1992 initial site assessment indicate the presence of TPH and nickel in subsurface rock samples to 20 feet BGL (see Tables 3.1, 3.2, and 3.3 in this report).

The highest concentration of TPH detected during the initial assessment was 67 milligrams per kilogram (mg/kg), detected in a rock sample collected from 17 to 18 feet BGL, and the highest nickel level was 12 mg/kg in a rock sample collected at 9 to 10 feet BGL. Butyl benzyl phthalate was also detected in the September 1992 berm sample at a concentration of 110 micrograms per kilogram (µg/kg), only 0.010 mg/kg above the laboratory detection limit. Phthalates are commonly used as plasticizers and are often associated with laboratory contamination. As no other phthalates were detected in soil, rock, or wastewater samples, the detection of this compound appears to be a result of laboratory contamination. Consequently, phthalates were not tested for during verification sampling performed in April 1994.

As TPH is an indicator parameter at 30 TAC 335.553(d), and there are no risk reduction standards or closure levels under 30 TAC 335 subchapter S for comparison, the Petroleum Storage Tank Division (PST) guidelines for TPH were used to determine acceptable TPH levels at the F-14 site. At leaking PST sites, a concentration of 100 mg/kg TPH is acceptable to leave in place if groundwater is not threatened. As discussed in Section 1.3, groundwater at the F-14 site appears to be greater than 150 feet BGL and is not threatened by activities at the site. In addition, when evaluated as an indicator parameter, TPH can be associated with other gasoline compounds such as benzene. During the assessment, no other such compounds were detected by gas chromatograph/mass spectrometry tests in accordance with EPA methods SW8260 and SW8270. Concentrations of TPH were below 100 mg/kg in all samples, with an average TPH concentration of 36.5 mg/kg, and in three samples, TPH was below detection limits. Because TPH concentrations at the F-14 site were significantly less than the 100 mg/kg state guidance for leaking PST sites where groundwater is not threatened, and no compounds normally associated with TPH were detected, TPH concentrations at the F-14 were considered to not constitute wastes or waste residues and to be acceptable to leave in place under TNRCC risk reduction standard 1.

Verification sampling and testing for 1,1,1-TCA in the berm and determination of background nickel levels were the next steps towards closure of the site. As stated in the CSSA letter dated December 13, 1993 (appendix A), the berm was resampled and analyzed for potential 1,1,1-TCA concentrations and background soil borings were drilled for collection and analysis of nickel for comparison to F-14 assessment results. Based on

the results of these actions, application of risk reduction standard 1 is further discussed in Sections 3 and 4 of this report.

SECTION 2
CLOSURE CHRONOLOGY

Date	Action performed by	Action
1984	CSSA	Operated a less-than-90-day hazardous waste storage facility identified at F-14 point-of-accumulation site.
1984 - 1988	DRMO, Kelly AFB	Disposed of drums and their contents produced by CSSA.
1984	DRMO, Kelly AFB	Began contracting transport and disposal actions to qualified contractors.
1988 - 1991	CSSA	Provided "Annual Waste Summaries" to TWC indicating disposal and testing of various wastes.
1990	CSSA	PCE, oils, solvent, and nickel penetrate wastes completely removed from F-14 site.
25 Mar 1992	CSSA	All other drums of wastes and storage pallets removed from F-14 site.
11 Aug 1992	CSSA	Contracted Parsons ES through Armstrong AL/OEB to perform F-14 site assessment.
September 1992	Parsons ES	Drilled 10 soil borings for subsurface rock sampling; collected floor samples and a composite berm sample.
February 1993	Parsons ES	Submitted F-14 assessment report to CSSA.

Chronology, continued

Date	Action performed by	Action
13 Dec 1993	CSSA	Sent TNRCC 90 working days notification of closure letter.
7 April 1994	CSSA	Sent TNRCC 10 working days notification of closure field actions letter.
20 April 1994	Parsons ES	Collected 7 berm samples at F-14 for verification analytical testing. Collected 10 background rock samples for testing of nickel levels.
May 1994	National Environmental Testing, Inc.	Analytical results did not indicate 1,1,1-TCA concentrations in the 7 berm samples. Total nickel levels in background rock samples were greater than those in F-14 subsurface rock samples.
June 1994	CSSA	Disposed of investigation-derived wastewater, which contained only 1.7 mg/L TPH that was less than the 15 mg/L TPH acceptable for surface discharge under TNRCC PST Division guidance, in the CSSA sanitary wastewater treatment facility.
October 1994	CSSA	Provided generator waste profile documentation to USPCI for disposal of soil/rock cuttings.
February 1995	USPCI	Transported drum of soil/rock cuttings to USPCI class I landfill in Waynoka, OK.
April 1995	Parsons ES	Submitted this closure report to CSSA.

SECTION 3
CLOSURE ACTIVITIES AND RESULTS

3.1 SUMMARY OF 1992 SITE ASSESSMENT

3.1.1 Field Actions

Prior to performing a site assessment when Parsons ES visited the site in March 1992, there were no visible stains on the limestone floor or noticeable odors in the area. Outlines of the removed storage containers and wooden pallets were visible in the shallow limy soil of the site floor. Photographs taken during the site assessment show the outline of removed storage containers (Engineering-Science, Inc., 1993a).

Field activities took place in September 1992. Because of the potential presence of pesticides and polychlorinated biphenyls (PCBs), shallow soil samples from the floor were first collected to evaluate the necessary level of health and safety protection for the subsurface investigation. The samples were analyzed in accordance with EPA method SW8080; laboratory results did not indicate the presence of pesticides or PCBs.

Drilling was performed on September 9 and 10, 1992, using a truck-mounted air rotary drilling rig. Ten soil borings were drilled using a 2-inch-diameter core barrel. The boring locations were selected to delineate possible areas of contamination inside the storage area and around its perimeter, including the entry gate. Figure 3.1 shows boring locations and other sampling points.

Logging of cores indicated that the site lithology consists of buff-colored, dry, hard limestone occasionally interbedded with marl or clay lenses. Some iron staining and shell fragments were also noted. No groundwater was observed. Field screening with a photoionization detector did not indicate significant levels of VOCs; therefore, two samples were collected for laboratory analysis based on core lithology and total depth of drilling in each borehole. Because of the potential for contaminant migration through less resistant rock types, marl intervals were typically selected for sampling.

Two soil samples from each boring were submitted for further testing. Sample analyses included TPH, aromatic and halogenated hydrocarbons, pesticides and PCBs, total nickel, base/neutral acid compounds (BNAs), and herbicides. Only a subsurface soil sample was selected for organophosphorous pesticide analysis, as these compounds have a half-life of 30 days and are rapidly degraded when exposed to air.

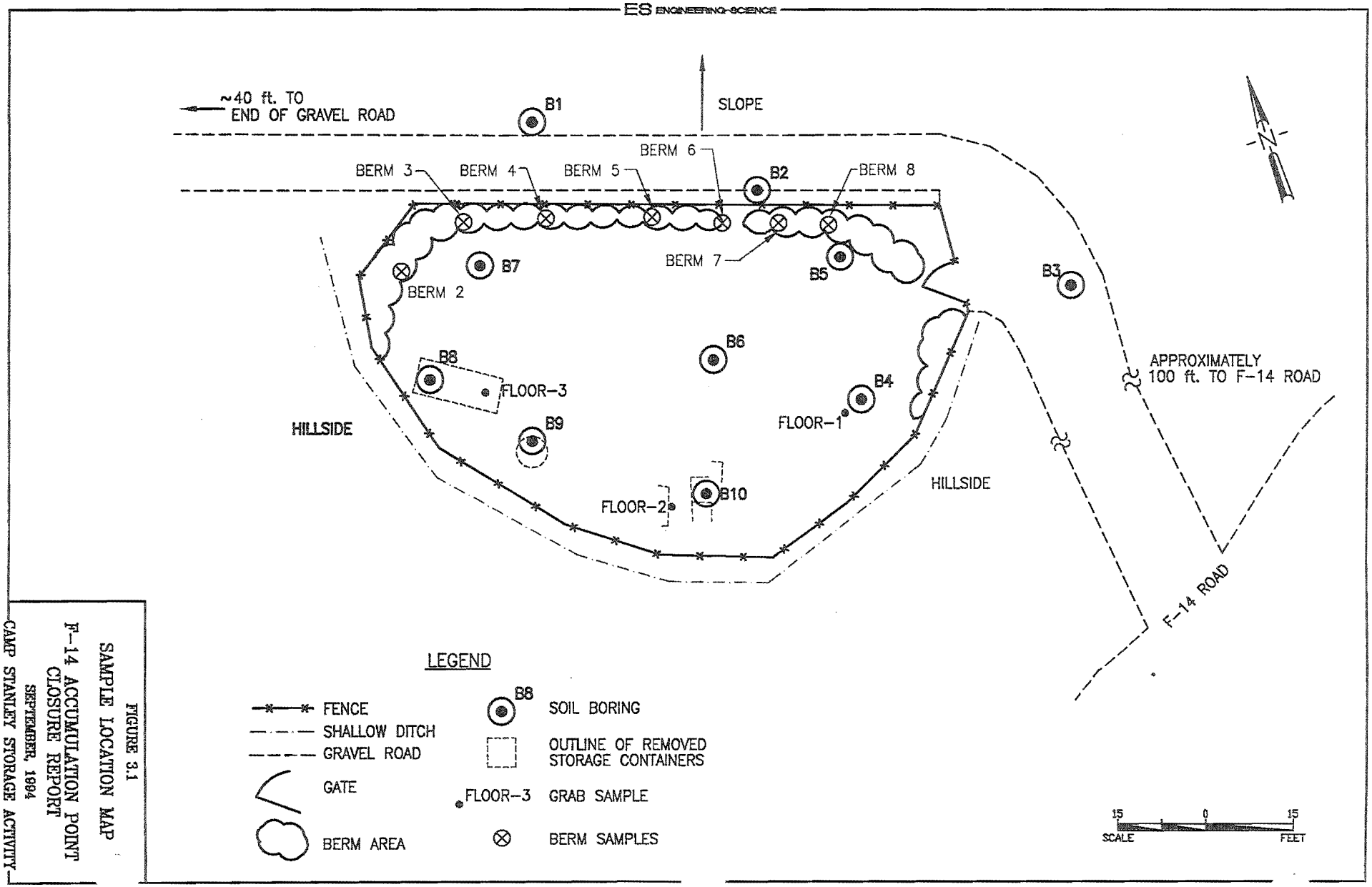

FIGURE 3.1

SAMPLE LOCATION MAP

F-14 ACCUMULATION POINT CLOSURE REPORT

SEPTEMBER, 1994

CAMP STANLEY STORAGE ACTIVITY

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One composite soil sample was collected from the berm, which is located along the north boundary parallel to the fence and is about 1 to 3 feet above grade (Figure 3.1). The composite sample was composed of soil from seven sampling points located approximately 15 feet apart along the interior berm (Figure 3.1). A composite sample was also collected from the drum of soil and rock cuttings, and a sample was obtained from the drum of decontamination water. These samples were analyzed for TPH, aromatic and halogenated hydrocarbons, pesticides and PCBs, total nickel, BNAs, and herbicides. The berm composite sample was also analyzed for organophosphorus pesticides.

3.1.2 Analytical Results

Analytical results are shown in Tables 3.1, 3.2, and 3.3 which were taken from the site assessment report (Engineering-Science, Inc., 1993a). Floor samples did not contain any pesticides or PCBs, but the composite berm sample contained 30 mg/kg TPH, 0.486 mg/kg 1,1,1-TCA, 0.11 mg/kg butyl benzyl phthalate, and 2.8 mg/kg total nickel (Table 3.1). TPH and total nickel were detected in most of the rock samples (Table 3.2). TPH concentrations ranged from below detection limits (BDL) to 67 mg/kg, and total nickel concentrations from BDL to 12 mg/kg. Other chemical constituents of the target compound analyses were not detected in the subsurface rock samples. The cuttings sample contained 1,1,1-TCA at 0.507 mg/kg and 7.7 mg/kg total nickel, while the decontamination water sample contained only 1.7 mg/L TPH (Table 3.3).

3.2 VERIFICATION SAMPLING AND ANALYTICAL RESULTS

After review of the site assessment report, the newly promulgated TNRCC risk reduction rules for waste management units (State of Texas, June 1993), and other factors discussed in Section 1.4, CSSA decided the most appropriate closure of the F-14 unit was under the strictest TNRCC standard - number 1. This standard requires that the site be closed after removal of all contaminated operating system components, wastes, and waste residues (30 TAC 335.554). If closure under standard 1 is attained and approved by the TNRCC Executive Director, then the owner is released from deed recordation requirements.

Potential waste residues at the F-14 site were determined by the site assessment data evaluation and results to be nickel in subsurface rock and 1,1,1-TCA in the berm (see Section 1.4 for discussion of potential waste residues). To best achieve standard 1 at the F-14 unit, CSSA notified TNRCC of the following actions selected to address potential waste residues defined by the 1992 site assessment (appendix A):

1. The berm would be resampled using the same sampling methodology at the original locations used to collect soil for a composite berm sample. The verification samples from the berm would be analyzed for 1,1,1-TCA and other halogenated volatile organics (HVO) in accordance with EPA method SW8010. If 1,1,1-TCA or other HVO compound was detected, soil would be removed from that portion of the berm and resampled for verification that all waste

Table 3.1

1992 Analytical Results for Shallow Soil Samples

Analytical Method:			SW418.1	SW8260	SW8270	SW8080	SW8140	SW8150	SW7520
Sample ID	Sample Date	Sample Depth (in. BGL)	TPH (mg/kg)	Aromatic and Halogenated Hydrocarbons (mg/kg)	BNAs (µg/kg)	Organochlorine Pesticides and PCBs (mg/kg)	Organophosphorous Pesticides (µg/kg)	Herbicides (µg/kg)	Total Nickel (mg/kg)
Floor 1	9-02-92	1-3	-	-	-	BDL	-	-	-
Floor 2	9-02-92	1-2	-	-	-	BDL	-	-	-
Floor 3	9-02-92	1-2	-	-	-	BDL	-	-	-
Berm 1	9-10-92	3-6	30	1,1,1-TCA 0.486	butyl benzyl phthalate 110	BDL	BDL	BDL	2.8

Notes:

Methods are from EPA "Test Methods for Evaluating Solid Waste Physical/Chemical Methods," EPA publication SW-846, 1986.

TPH = total petroleum hydrocarbons
PCBs = polychlorinated biphenyls
BNAs = base/neutral acids
- = not analyzed
in. BGL = inches below ground level
BDL = below detection limits
mg/kg = milligrams per kilogram
µg/kg = micrograms per kilogram

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Table 3. 2
1992 Analytical Results for Subsurface Soil Samples

Analytical Method:			SW418.1	SW8260	SW8270	SW8080	SW8140	SW8150	SW7520
Sample I.D.	Sample Date	Sample Depth (ft BGL)	TPH (mg/kg)	Aromatic and Halogenated Hydrocarbons (mg/kg)	BNAs (µg/kg)	Organochlorine Pesticides and PCBs (µg/kg)	Organophosphorous Pesticides (µg/kg)	Herbicides (µg/kg)	Total Nickel (mg/kg)
B1-2.5	9-09-92	2.5-3.5	49	BDL	BDL	BDL	-	BDL	6.5
B1-9.0	9-09-92	9.0-10.0	68	BDL	BDL	BDL	-	BDL	BDL
B2-1.0	9-09-92	1.0-2.0	BDL	BDL	BDL	BDL	BDL	BDL	BDL
B2-9.0	9-09-92	9.0-10.0	30	BDL	BDL	BDL	-	BDL	2.0
B3-1.0	9-09-92	1.0-2.0	36	BDL	BDL	BDL	-	BDL	4.8
B3-8.0	9-09-92	8.0-9.0	53	BDL	BDL	BDL	-	BDL	1.3
B4-2.0	9-09-92	2.0-3.0	20	BDL	BDL	BDL	-	BDL	4.8
B4-9.0	9-09-92	9.0-10.0	63	BDL	BDL	BDL	-	BDL	12
B5-1.0	9-09-92	1.0-2.0	14	BDL	BDL	BDL	-	BDL	8.3
B5-9.0	9-09-92	9.0-10.0	37	BDL	BDL	BDL	-	BDL	10
B6-1.5	9-10-92	1.5-2.5	26	BDL	BDL	BDL	-	BDL	4.3
B6-17.7	9-10-92	17.7-18.5	67	BDL	BDL	BDL	-	BDL	BDL
B7-1.0	9-10-92	1.0-2.0	BDL	BDL	BDL	BDL	-	BDL	2
B7-9.0	9-10-92	9.0-10.0	43	BDL	BDL	BDL	-	BDL	BDL
B8-2.5	9-10-92	2.5-3.5	49	BDL	BDL	BDL	-	BDL	7
B8-9.0	9-10-92	8.0-9.0	18	BDL	BDL	BDL	-	BDL	6.8
B9-2.9	9-10-92	2.9-3.9	27	BDL	BDL	BDL	-	BDL	1.6
B9-9.0	9-10-92	9.0-10.0	13	BDL	BDL	BDL	-	BDL	1.8
B10-1.5	9-10-92	1.5-2.5	30	BDL	BDL	BDL	-	BDL	1.6
B10-9.0	9-10-92	9.0-10.0	14	BDL	BDL	BDL	-	BDL	BDL

Notes:
Methods are from EPA "Test Methods for Evaluating Solid Waste Physical/Chemical Methods," EPA publication SW-846, 1986.

TPH = total petroleum hydrocarbons
PCBs = polychlorinated biphenyls
BNAS = base/neutral acids
- = not analyzed
ft. BGL = feet below ground level
BDL = below detection limits
mg/kg = milligrams per kilogram
µg/kg = micrograms per kilogram

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Table 3.3

1992 Analytical Results for Waste Disposition Samples

Analytical Method:		SW418.1	SW8260	SW8270	SW8080	SW8140	SW8150	SW7520
Sample ID	Sample Date	TPH (mg/L)	Aromatic and Halogenated Hydrocarbons (mg/kg-soil) mg/L-water)	BNAs (µg/kg-soil) (µg/L-water)	Organochlorine Pesticides and PCBs (µg/kg-soil) (µg/L-water)	Organophosphorous Pesticides (µg/kg-soil) (µg/L-water)	Herbicides (µg/kg-soil) (µg/L-water)	Total Nickel (mg/kg-soil) (µg/L-water)
Cuttings 1	9-10-92	BDL	1,1,1-TCA 0.507	BDL	BDL	BDL	BDL	7.7
Decon Water 1	9-11-92	1.7	BDL	BDL	BDL	BDL	BDL	BDL

Notes:

Methods are from EPA "Test Methods for Evaluating Solid Waste Physical/Chemical Methods," EPA publication SW-846, 1986.

TPH = total petroleum hydrocarbons
PCBs = polychlorinated biphenyls
BNAs = base/neutral acids
BDL = below detection limits
mg/kg = milligrams per kilogram
µg/kg = micrograms per kilogram
µg/L = micrograms per liter
mg/L = milligrams per liter

JPR/72146005/F14-T3.wk4

residues were removed. If no HVO compounds were detected during verification sampling and analysis, then previous assessment results would be considered temporally incomplete, i.e., any 1,1,1-TCA which may have been in the berm was most likely biodegraded or volatilized by sunlight and heat.

2. At least ten soil borings would be drilled in areas of CSSA that were not affected by any waste disposal actions and thus could be considered appropriate background sampling locations. The number of background samples was determined from 30 TAC 335.553[d][2]. Background samples would be from limestone rock below the soil horizon for analysis of background metals. The background metal results were statistically compared with nickel concentrations detected during the initial site assessment. If nickel concentrations in the site's subsurface were statistically greater than background, then the site would be remediated to reduce nickel levels to acceptable concentrations. If site nickel concentrations were less than background, then the site nickel concentrations would be considered attributable to native limestone rather than effects from wastes stored at the unit.

3. Arrangements would be made for disposal of investigation-derived soil/rock cuttings, decontamination water, and trash (Tyvek, gloves, etc.).

In December 1993, CSSA sent a letter of closure to Anthony Grigsby, Executive Director, TNRCC, to notify TNRCC of CSSA's intent to begin standard 1 closure actions under 30 TAC 335, Subchapter S, within 90 days (appendix A). On April 7, 1994, CSSA sent a letter to TNRCC Central and District 13 providing 10 working days notification of intent to proceed with closure actions in the field (appendix A).

Parsons ES personnel returned to the F-14 site during April 1994 to resample the berm and to collect background rock samples at CSSA-approved locations. Field activities occurred from April 20 to April 22, 1994.

3.2.1 Berm Sampling

3.2.1.1 Field Procedures

On April 20, Parsons ES personnel collected seven soil samples from the F-14 berm (Figure 3.1). One sample was collected from each of the seven sampling points used in collecting the September 1992 composite berm sample. The purpose of sampling each location was to determine the location of potential HVO contamination which might require site remediation.

Each berm sample was collected by using a pick to loosen the soil to 6 inches below the berm's surface. A stainless steel trowel was used to collect soil from the berm, which was placed in 8-ounce glass soil jars with Teflon®-lined lids. The hole was then scanned with an HNU photoionization detector to determine if VOCs were present. Field screening did not indicate the presence of any VOCs.

Decontamination of soil sampling equipment was performed before collection of each sample. Procedures included a phosphate-free soap wash, potable water rinse, and

isopropyl alcohol rinse, followed by a final distilled-water rinse. Decontamination fluids were contained in the wastewater drum from the September 1992 site assessment.

3.2.1.2 Analytical Results

After each sample was collected, it was capped, labeled, and packed on ice in coolers. The soil samples were shipped priority overnight to National Environmental Testing, Inc. (NET) for laboratory analysis of halogenated volatile organics by method SW 8010.

No concentrations of 1,1,1-TCA nor any other halogenated volatile organic compound were detected in the verification berm samples. The duplicate sample did not contain any of the analyzed chemical constituents. Table 3.4 shows the berm analytical results including date, time, and depth of sampling. The analytical reports for the berm samples are presented in appendix B.

3.2.2 Background Sampling

3.2.2.1 Field Procedures

Based on soil type, the underlying Glen Rose Formation, and history of the location, CSSA approved ten background sampling locations. Because analytical results from the samples were to represent background concentrations, locations were selected where no known waste management activities had taken place.

Between April 20 and April 22, 1994, background soil and subsurface rock samples were collected at CSSA (Figure 3.2). The surface soil samples were collected for analysis of background metals in different soil types at CSSA. The background soil samples do not apply to the F-14 unit, as there are no true soils at the site, and therefore soil analytical results are not discussed in this report.

Drilling for background rock samples was performed with a hollow stem auger rig with air coring capabilities. Because the samples to be collected were background samples and were not associated with contamination, monitoring for volatile organics and explosivity was not performed. All personnel remained upwind of the dust plume while drilling.

The subsurface rock sample was collected at the same location as the surface soil sample. The rock sample was obtained by drilling with a 2-inch air rotary drill. Drilling was performed by CCI/AEI Alliance Environmental, Inc. The rock was cored in 5-foot core barrels. Each section was lithologically described on soil boring logs (appendix C). Once competent limestone was encountered, a sample of the rock was collected for metal analysis. The 8-ounce glass soil jar was filled with rock, capped, labeled, and preserved on ice for shipment to the lab under chain-of custody procedures.

After sample collection, soil and rock cuttings from the boring were returned to the hole. Concrete was poured into the boring to fill the remaining void to surface level. A

Table 3.4. Verification Sample Analytical Results

Investigation Date:	Sept 1992	April 1994							
Sample ID:	Berm-1*	Berm-2	Berm-3	Berm-4	Berm-5	Berm-6	Berm-7	Berm-8	Trip Blank
Depth (in-BGL):	3-6	6-8	6-8	6-8	6-8	6-8	6-8	6-8	(liquid)
Date Collected:	09/10/92	04/20/94	04/20/94	04/20/92	04/20/94	04/20/94	04/20/94	04/20/94	
Results: (mg/kg)									
1,1,1-TCA	0.486	<2.3	<2.2(<2.2)	<2.2	<2.1	<2.2	<2.2	<2.1	<0.4 µg/L

Verification soil samples analyzed in accordance with EPA method SW8010.

Duplicate sample results in parentheses.

* BERM-1 was a composite sample taken from the seven locations identified during 1994 verification sampling as samples BERM-2 through BERM-8.

in-BGL = inches below ground level
1,1,1-TCA = 1,1,1-trichloroethane
mg/kg = milligrams per kilogram

monument bearing the sample identification, boring number, and date of sampling was placed in the concrete.

Each sample was collected from the upper Glen Rose limestone. Shell fragments were found in the limestone, but the distinctive *Corbula* pelecypod bed which marks the contact between the upper Glen Rose and the lower Glen Rose was not encountered. Limestone rock collected during the September 1992 site assessment was also from the upper Glen Rose, and no indications of *Corbula* fossils were observed.

3.2.2.2 Analytical Results

Each rock sample was analyzed for metals (aluminum, barium, cadmium, chromium, copper, iron, silver, tin, and zinc), in accordance with EPA method 6010 by ICP, and total arsenic, lead, mercury, nickel, and selenium in accordance with EPA methods under the 7000 series. Background metal data other than nickel were collected for a CSSA database and are presented in appendix D. Nickel is the only potential waste metal of concern at the F-14 site, and therefore is the only metal discussed in this section.

Nickel was detected in each of the ten background rock samples collected (Table 3.5). Concentrations ranged from 18 to 26 mg/kg (the laboratory reported nickel concentrations in micrograms per gram, equivalent to milligrams per kilogram). The analytical results are shown in Table 3.5, and the laboratory reports are in appendix D. The maximum concentration detected during the September 1992 F-14 site assessment subsurface rock samples was 12 mg/kg.

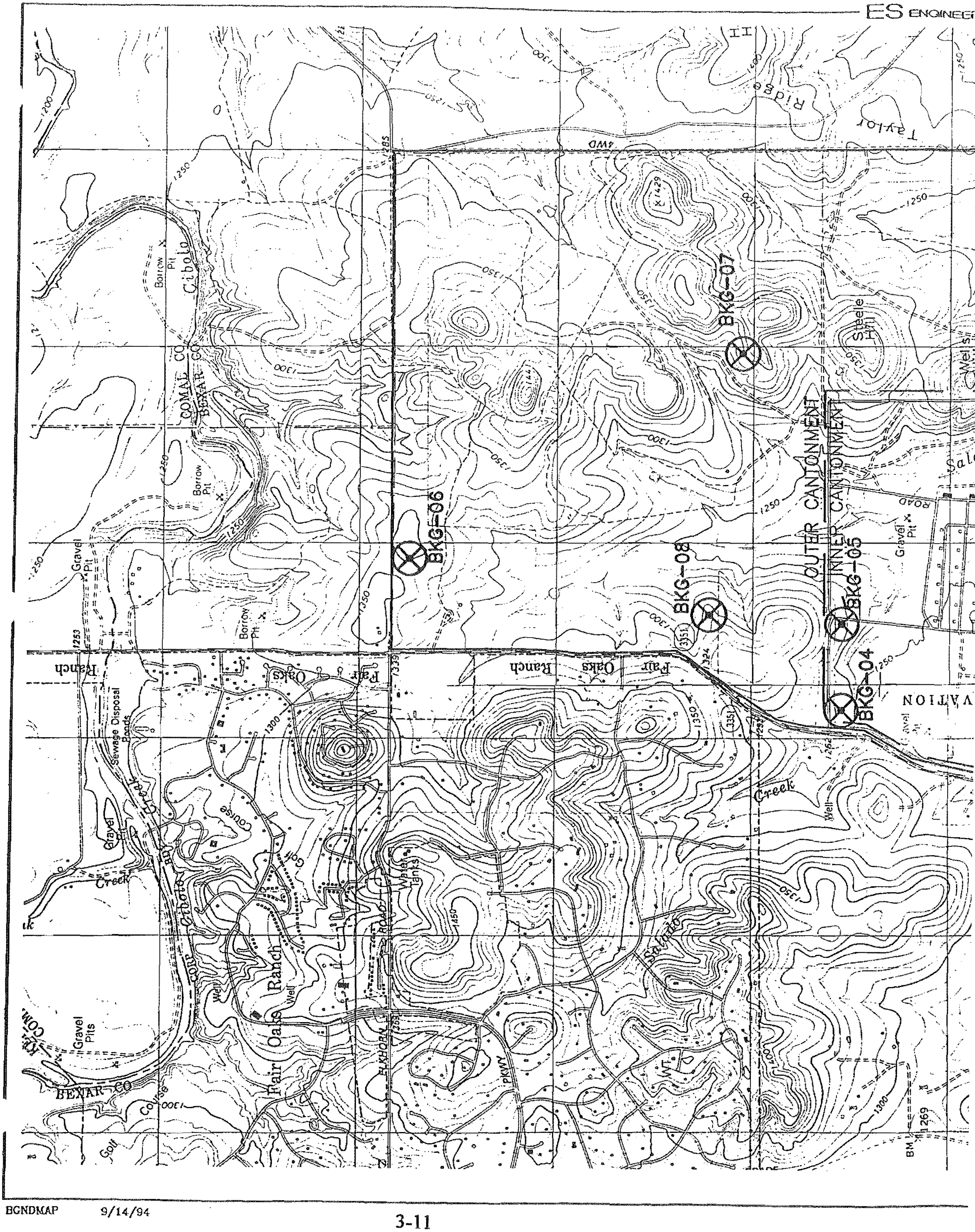
To ensure the quality of the background metals data, the laboratory reports were evaluated by Parsons ES personnel qualified in data validation. The analytical work was performed under Level 3 quality assurance/quality control (QA/QC), and the data validation team reviewed the data under the same level of QA/QC. No flags or QA/QC problems were observed regarding the nickel data. The data validation report is presented in appendix E.

3.2.2.3 Statistical Evaluation of Background Nickel Concentrations

The TNRCC risk reduction rules at 30 TAC 335.553(d)(2) allow statistical evaluation of populations using student "t" test values, e.g., for ten or more values, analytical results can be compared using the 95 per cent confidence limit of the mean population concentration. The population under evaluation by this method is nickel concentrations in ten background rock samples from CSSA for comparison to nickel concentrations detected in F-14 subsurface rock samples.

The sample mean of the background nickel levels is 21.9 mg/kg with a standard deviation of 0.8 mg/kg (see appendix F for calculations). For a population of n=10 and a mean = 21.9 ± 0.8 mg/kg, the calculated student-t distribution mean is 21.45 mg/kg.

Comparison of F-14 subsurface rock nickel concentrations (Table 3.2) to the mean at the 95 percent confidence interval shows that the F-14 population ranges from BDL to 12 mg/kg total nickel. The F-14 nickel values are almost half the 95 percent confidence



ES ENGINEERI
BKG-04
BKG-05
BKG-06
BKG-07
BKG-08
OUTER CANTONMENT
INNER CANTONMENT
Taylor
Ridge
Steele Hill
Cibolo
Creek
COMAL CO
BEXAR CO
Borrow Pit
Gravel Pit
Gravel Pits
Sewage Disposal Ponds
Fair Oaks Ranch
Golf Course
Water Tanks
ELKHORN
PKWY
ROAD
Well
Creek
Salado
4WD
1250
1300
1350
1400
1450

Table 3.5. Background Nickel Concentrations

Sample ID:	BKG-SB-01	BKG-SB-02	BKG-SB-03	BKG-SB-04	BKG-SB-05	BKG-SB-06	BKG-SB-07	BKG-SB-08	BKG-SB-09	BKG-SB-10
Depth (ft BGL):	4.5	10	19.5	17.5	10	18	24	5	5	20
Date Collected:	04/22/94	04/22/94	04/21/94	04/21/94	04/21/94	04/21/94	04/21/94	04/21/94	04/22/94	04/22/94
Results: (µg/g)										
Total nickel	26	23	24	24	20	22	20	21	21	18

Range of 1992 investigations analytical results for total nickel = <1.0 to 12 mg/kg

µg/g = micrograms per gram; equivalent to milligrams per kilogram (mg/kg)

ft BGL = feet below ground level

interval of 21.45 mg/kg total nickel, indicating that the F-14 subsurface rock contains nickel at well below background levels. Therefore, the statistical comparison of background nickel, versus nickel as a potential waste residue at the F-14 site, demonstrates that nickel at the site is attributable to native concentrations found in the Upper Glen Rose Formation. Nickel is not a waste residue at the F-14 site and does not require remediation.

3.3 WASTE DISPOSAL

One drum of soil and rock cuttings and one drum of decontamination waste water were generated during site assessment activities. Analysis of a composite sample of drummed berm soil and rock cuttings indicated the presence of 0.507 mg/kg 1,1,1-TCA and 7.7 mg/kg nickel (Table 3.3). The drum of wastewater was sampled for analysis after the site assessment and was found to contain only 1.7 mg/L TPH; no other chemical constituents were detected in the wastewater (Table 3.3).

The drum of berm soil and rock cuttings was characterized by USPCI/Laidlaw of San Antonio, Texas. The waste characterization indicated non-hazardous waste. Due to the previous detection of 1,1,1-TCA, the drum was transported to USPCI/Laidlaw's class I facility in Waynoka, Oklahoma, for disposal. Waste documentation records are in appendix G.

Detection of TPH in investigation-derived wastewater was considered to be a similar situation to that of TPH in subsurface rock discussed in Section 1.4. The TNRCC risk reduction rules consider TPH to be an indicator parameter and indicate that other chemical constituents should be evaluated. No other chemical constituents were detected in the wastewater (Table 3.3). In addition, guidelines for disposal of water produced from leaking PST investigations were used. Groundwater with less than 15 mg/L TPH can be discharged to the surface under the PST surface discharge program. Because decontamination wastewater at the F-14 site contained only 1.7 mg/L TPH, the waste water was placed in CSSA's permitted wastewater treatment plant on June 23, 1994 (appendix G).

Because contamination was not detected in investigative samples, plastic wastes generated during the site investigation were considered industrial waste and were placed in a trash dumpster for disposal. One plastic bag containing plastic from decontamination procedures, sampling gloves, and Tyvek was disposed of on June 23, 1994.

3.4 SITE RESTORATION

Due to the lack of wastes or waste residues as determined by the 1992 site assessment and the 1994 verification sampling and analysis, no site restoration is considered necessary. The site is currently fenced in with a locked gate. CSSA will determine in the future if their operations require the continued presence of the fence and locked gate.

SECTION 4
CLOSURE SUMMARY

The F-14 waste management unit at CSSA was taken out of service in March 1992 by removal of all stored wastes and storage containers. A site assessment of the F-14 surface and subsurface was performed in September 1992. No visible signs of potential contamination were noted at the surface. Drilling was performed for collection of subsurface rock samples in the Upper Glen Rose Formation; there was no indication of groundwater.

Analytical testing of shallow soil/rock samples, subsurface rock, and a composite berm sample did not generally indicate contaminants which might be anticipated from the list of known wastes at the site (petroleum hydrocarbons, nickel penetrate, aromatic or halogenated volatile hydrocarbons, pesticides, PCBs, or herbicides). The exceptions were nickel and TPH in subsurface rock, and 1,1,1-TCA, nickel, and butyl benzyl phthalate in the berm sample. TPH was detected in the drum of decontamination water, and 1,1,1-TCA was detected in the drum of soil/rock cuttings derived from the investigation.

After evaluation of the site assessment data, TPH was considered an indicator parameter that might be associated with other probable contaminants such as benzene and toluene. No such associated compounds were detected. Therefore, TPH was not considered a waste or waste residue, and was not further considered for potential remediation. The butyl benzyl phthalate detection in the berm sample, at a concentration just above the laboratory detection limit, was considered a laboratory contaminant. Thus, verification sampling and analysis at the F-14 unit to determine if the unit was acceptable for closure under risk reduction standard number 1 was designed to determine if nickel in subsurface rock and 1,1,1-TCA in the berm sample constituted waste residues.

Verification samples collected in April 1994 consisted of samples collected from the berm at the original sampling points for the 1992 composite berm sample, and drilling for background rock samples. The berm samples were analyzed for halogenated volatile organics, and the background rock samples for nickel. No 1,1,1-TCA was detected in the berm samples, indicating that if that compound ever was present in the berm, it subsequently volatilized under natural conditions. Background nickel concentrations were statistically greater than those detected in F-14 subsurface rock, which demonstrated that nickel levels at the site are attributable to native nickel in limestone rather than affects of wastes stored at the unit.

Analytical results of the 1992 site assessment and 1994 verification testing indicate that the F-14 unit is acceptable for closure under TNRCC risk reduction standard 1. CSSA therefore requests TNRCC approval of closure of the site.

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REFERENCES

Ashworth, 1983. Groundwater Availability of the Lower Cretaceous Formations in the Hill Country of South-Central Texas, Texas Water Development Board, Report 273, 1983.

Engineering-Science, Inc., 1993a. F-14 Accumulation Point Site Assessment Report, Camp Stanley Storage Activity, Texas, February 1993.

Engineering Science, Inc., 1993b. Environmental Assessment Report, Camp Stanley Storage Activity, Texas, September 1993.

State of Texas. Title 30, Texas Administrative Code (TAC), Chapter 335, Industrial Solid Waste and Municipal Hazardous Waste, subchapter S, June 15, 1993.

USDA Soil Conservation Service, 1966. *Soil Survey of Bexar County, Texas.* U.S. Department of Agriculture (USDA), Soil Conservation Service, June 1996.

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Appendix A

Closure Correspondence

FACSIMILE TRANSMITTAL

Total Pages Including This Cover Page	Proposal or Project Number	Date
4	72146D.05 000	4/25/94

To: Bill Brown
TNRCC · D13

Fax phone: 210/545-4329

From: Susan Roberts

ENGINEERING-SCIENCE, INC.

7800 Shoal Creek Blvd., Suite 222 West
Austin, Texas 78757
Voice: 512/467-6200
Telecopy: 512/467-7044

MESSAGE: Copy of closure notification letter for the Camp Stanley Storage Activity F-14 storage area, per your request.

Facility: Camp Stanley Storage Activity
Texas Regis. #: 69026
Site: Less-than-90-day storage area (F-14)

DEPARTMENT OF THE ARMY
CAMP STANLEY STORAGE ACTIVITY, RRAD
POST OFFICE BOX 690627, SAN ANTONIO, TEXAS 78269 - 0627

December 13, 1993

Office of the Commander

SUBJECT: Camp Stanley Storage Activity, RRAD, EPA Identification Number TX2210020739, Texas Registration Number 69026, 90 Day Notification of Closure Actions for the Inactive F-14, Less Than 90 Day, Storage Area

Mr. Anthony Grigsby, Executive Director
Texas Natural Resource Conservation Commission
P.O. Box 13807
Capitol Station
Austin, Texas 78711-3087

Dear Mr. Grigsby:

Camp Stanley Storage Activity (CSSA) intends to close a less than 90 day storage area identified as the CSSA F-14 accumulation point. This letter constitutes 90 day notification to Texas Natural Resource Conservation Commission (TNRCC) of intended closure activities pursuant to 31 TAC 335.6(g). By copy of this letter, notification is also provided to TNRCC Region 13. The risk reduction standard to be attained under 31 TAC 335, Subchapter S, is Standard 1.

Engineering-Science (ES) performed an August 1992 site assessment for CSSA. Concentrations of 13 to 67 milligrams per kilogram (mg/kg) total petroleum hydrocarbons (TPH) and nondetect to 12 mg/kg nickel were detected in subsurface rock samples to 20 feet below ground level (BGL). No groundwater was detected, and the first groundwater is approximately 140 feet BGL. One soil/rock sample collected from the site berm contained 30 mg/kg TPH, 0.486 mg/kg 1,1,1-trichloroethane (TCA), 0.11 mg/kg butyl benzyl phthalate, and 2.8 mg/kg nickel.

The TPH concentrations are indicator parameters rather than contaminants (31 TAC 335.553(d)). Butyl benzyl phthalate was also detected in only one sample at low concentrations attributable to laboratory contamination. Therefore, to attain Standard 1, all wastes and waste residues shall be removed or remediated to constituent background levels or to nondetect for 1,1,1-TCA. Background levels are not known at this site or elsewhere at CSSA.

Based on the site assessment results, CSSA will pursue risk reduction Standard 1 by the following means:

a. Remove or remediate 1,1,1-TCA in the berm:

Resample the berm in previous composite locations to determine the area(s) that contain 1,1,1-TCA, remove that portion(s) of soil, verify by sampling and analysis that the solvent wastes have been removed, and transport the to-be-determined amount of soil to a Class 1 nonhazardous facility.

b. Collect background samples to confirm subsurface nickel levels:

Sample a minimum data set of 10 unaffected background areas at CSSA and test for background metal levels. This background set of data shall then be used for comparison purposes. If nickel concentrations previously detected in the subsurface are at or below background, then no remediation of the site will be necessary. If nickel concentrations are above background, then those affected areas will be excavated and the soil/rock transported to a facility selected on the basis of the actual nickel concentrations. Completion of such remediation will be verified by sampling and analysis, and the remediated areas filled in with clean soil.

c. Closure actions will be conducted under the supervision of a state-registered professional engineer (P.E.) and certified for closure when the work meets P.E. approval. A closure report shall be submitted detailing the closure actions within 60 days of completion of closure activities.

Pursuant to 31 TAC 335.8(c), CSSA shall notify TNRCC in writing, at least 10 days prior to activities, of the facility/site name, the standard for closure, and the estimated time to complete the closure under Standard 1 (31 TAC 335.8(c)). Closure activities will commence 90 days from date of this notification letter. It is estimated that closure activities will be completed within 120 days of project initiation, and certification provided to the TNRCC within 180 days of initiation. CSSA will notify TNRCC Regional Office 10 days in advance of any sampling activities.

Should you have any comments or questions, please call Mr. Paul B. Oliver at (210) 221-7473 or Ms. Susan Roberts at (512) 467-6200.

Sincerely,

Joseph G. Robles
Lieutenant Colonel, U.S. Army
Commanding Officer

Copies Furnished:

Mr. Richard Garcia, TNRCC Region 13
LTC Montgomery, AL/OEB
Ms. Susan Roberts, E-S ✓

ES ENGINEERING-SCIENCE, INC.

MEMORANDUM TO FILE

JOB NUMBER 721460.05
FILE DESIGNATION F-14
DATE 4/18/94 TIME 1130 hrs

PHONE CALL FROM Susan Roberts PHONE NUMBER
PHONE CALL TO Billy Brown TNRCC · DIB PHONE NUMBER 210/490-3096, x324
~~Haz. & Solid Wst Division~~ Industrial & Haz. Waste
CONFERENCE WITH Federal Facility Inspector
PLACE

SUBJECT Billy Brown is not in all the week of April 18, 1994. I left a message on voice mail for Henry Kamei, who was recommended as person most likely to be dealing with any of Mr. Brown's sites.

4/19/94 No return call.

SIGNED Susan Roberts

E1/ADMIN/FORMS/TELMEMO.FRM

ES ENGINEERING-SCIENCE, INC.

MEMORANDUM TO FILE

JOB NUMBER 721460.05
FILE DESIGNATION F14
DATE 4/25/94 TIME 0935

PHONE CALL FROM Bill Brown, TNRCC D-13 PHONE NUMBER
PHONE CALL TO Susan Roberts PHONE NUMBER

CONFERENCE WITH
PLACE

SUBJECT He returned my phone call of last Monday. I said we called to see if he wished to meet ES at the F-14 site for initial closure actions, but his phone machine said he'd be out all week. However CSSA sent him a letter notifying him 10 days in advance of field work. He said it was not specific enough to indicate that he would have the opportunity to split samples. I assured him that these are initial field actions and that we have not decided on final actions necessary for closure. Last week we (ES) collected 7 samples from the F-14 berm to identify where 1,1,1-TCA compounds might be found — the previous soil sample was a composite. I asked what specifics he would like to see in future letters notifying him of field work; he said to include:

- 10 days advance notice (10 working days) + date of field work
- Specify action to be taken (investigative or verification sampling, excavation, drilling)
- Note that "the field action is an opportunity for TNRCC to split samples"

He also said he couldn't find a copy of the Dec. '93 closure notification letter. I noted that TNRCC must have received a copy, or he wouldn't have made his visit in late Dec. '93 to the F-14 site. He asked that I FAX a copy of the Dec. 93 letter to him. He also asked if it was a "closure plan" — I said the letter noted closure actions expected, but that as CSSA wishes to close the site under Risk Reduction Stn. 1, a closure plan is not required.

I told him that we expected analytical results next month & would decide at that time the next action, if any, necessary for closure.

SIGNED Susan Roberts

E1/ADMIN/FORMS/TELMEMO.FRM

DEPARTMENT OF THE ARMY
CAMP STANLEY STORAGE ACTIVITY, RRAD
POST OFFICE BOX 690627, SAN ANTONIO, TEXAS 78269 - 0627

April 7, 1994

Office of the Commander

SUBJECT: Camp Stanley Storage Activity, RRAD, EPA Identification Number TX2210020739, Texas Registration Number 69026, 90 Day Notification of Closure Actions for the Inactive F-14, Less Than 90 Day, Storage Area

Region 13
Texas Natural Resource Conservation Commission
Attn: Mr. Billy Brown
140 Heimer Road, Suite 360
San Antonio, Texas 78232-5028

Dear Mr. Brown:

Reference letter from Camp Stanley dated December 13, 1993, Subject as above, that informed your office that Camp Stanley intended to close a less than 90 day storage area identified as the CSSA F-14 accumulation point.

The purpose of this letter is to provide your office 10 working days notice that Camp Stanley intends to proceed, on April 20, 1994, with the sampling actions indicated in our letter.

Should you have any questions, please call Mr. Paul B. Oliver at (210) 221-7473.

Sincerely,

Joseph G. Robles
Lieutenant Colonel, U.S. Army
Commanding Officer

Copies Furnished:

LTC Montgomery, AL/OEB
Ms. Susan Roberts, E-S

Appendix B

Verification Analytical Results

NATIONAL ENVIRONMENTAL TESTING, INC.

Bartlett Division
850 W. Bartlett Rd.
Bartlett, IL 60103
Tel: (708) 289-3100
Fax: (708) 289-5445

CASE NARRATIVE

Ms. Susan Roberts
ENGINEERING-SCIENCE, INC.
8000 Centre Park Drive
Suite 200
Austin, TX 78754

05/16/1994

NET Job Number: 94.02699

Project Description: 721460.05 CSSA F-14 Closure

Sample Number	Sample Description	Date Taken	Date Received
257486	Berm 2	04/20/1994	04/21/1994
257487	Berm 3	04/20/1994	04/21/1994
257488	Berm 3 MS	04/20/1994	04/21/1994
257489	Berm 3 MSD	04/20/1994	04/21/1994
257490	Berm 4	04/20/1994	04/21/1994
257491	Berm 5	04/20/1994	04/21/1994
257492	Berm 6	04/20/1994	04/21/1994
257493	Berm 7	04/20/1994	04/21/1994
257494	Berm 8	04/20/1994	04/21/1994
257495	Berm 3.3	04/20/1994	04/21/1994
257496	Trip Blank		04/21/1994

Sample analysis in support of the project referenced above has been completed and results are presented on the following pages. Please refer to the enclosed "Key to Abbreviations" for definition of terms.

The following comments should be noted for the indicated fraction;

Volatile Organic Analysis

Sample analysis was subcontracted to NET Santa Rosa Division. The NET Santa Rosa Analytical and QC Report are attached for supporting QC documentation.

All sample holding times were met.
All QC indicators were within control limits.

This Quality Control report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your samples were analyzed. These results apply only to the samples analyzed. Reproduction of this report only in whole is permitted. Please refer to the enclosed "Key to Abbreviations" for definition of terms. Should you have questions regarding procedures or results, please do not hesitate to call. NET has been pleased to provide these analytical services for you.

Approved By:

Ray Kalicki
Quality Assurance Coordinator

NATIONAL ENVIRONMENTAL TESTING, INC.

Bartlett Division
850 W. Bartlett Rd.
Bartlett, IL 60103
Tel: (708) 289-3100
Fax: (708) 289-5445

Ms. Susan Roberts
ENGINEERING-SCIENCE, INC.
8000 Centre Park Drive
Suite 200
Austin, TX 78754

05/16/1994

NET Job Number: 94.02699

Enclosed is the Quality Control Data and Analytical Results for the following samples submitted to NET, Inc. Bartlett Division for analysis:

Project Description: 721460.05 CSSA F-14 Closure

Sample Number	Sample Description	Date Taken	Date Received
257486	Berm 2	04/20/1994	04/21/1994
257487	Berm 3 MS	04/20/1994	04/21/1994
257488	Berm 3 MSD	04/20/1994	04/21/1994
257489	Berm 3	04/20/1994	04/21/1994
257490	Berm 4	04/20/1994	04/21/1994
257491	Berm 5	04/20/1994	04/21/1994
257492	Berm 6	04/20/1994	04/21/1994
257493	Berm 7	04/20/1994	04/21/1994
257494	Berm 8	04/20/1994	04/21/1994
257495	Berm 3.3	04/20/1994	04/21/1994
257496	Trip Blank		04/21/1994

Results are presented on a dry weight basis.

Sample analysis in support of the project referenced above has been completed and results are presented on the following pages. These results apply only to the samples analyzed. Reproduction of this report only in whole is permitted. Please refer to the enclosed "Key to Abbreviations" for definition of terms. Should you have questions regarding procedures or results, please do not hesitate to call. NET has been pleased to provide these analytical services for you.

This Quality Control report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed.

Approved by:
Ray Kalicki
QA Coordinator, for:
Jean-Pierre C. Rouanet
Operations Manager

NATIONAL ENVIRONMENTAL TESTING, INC.

Bartlett Division
850 W. Bartlett Rd.
Bartlett, IL 60103
Tel: (708) 289-3100
Fax: (708) 289-5445

ANALYTICAL REPORT

Ms. Susan Roberts
ENGINEERING-SCIENCE, INC.
8000 Centre Park Drive
Suite 200
Austin, TX 78754

05/16/1994

Sample No. : 257486

NET Job No.: 94.02699

Sample Description: Berm 2
721460.05 CSSA F-14 Closure

Date Taken: 04/20/1994
Time Taken: 15:18
IEPA Cert. No. 100221

Date Received: 04/21/1994
Time Received: 11:00
WDNR Cert. No. 999447130

Parameter	Results		Units	Date of Analysis	Method PQL	Analyst	Batch No. Prep/Run	Analytical Method
Solids, Total	88.3	S	%	04/29/1994	0.1	mjs	938	2540 (4)
VOLATILES - 8010 NONAQUEOUS		S						
romodichloromethane	<2.3		ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
Bromoform	<2.3		ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
Bromomethane	<2.3		ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
Carbon Tetrachloride	<2.3		ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
Chlorobenzene	<2.3		ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
Chloroethane	<2.3		ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
2-Chloroethylvinyl ether	<5.7		ug/Kg	04/28/1994	5.0	mjs	15	8010 (1)
Chloroform	<2.3		ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
Chloromethane	<2.3		ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
Dibromochloromethane	<2.3		ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
1,2-Dichlorobenzene	<2.3		ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
1,3-Dichlorobenzene	<2.3		ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
1,4-Dichlorobenzene	<2.3		ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
Dichlorodifluoromethane	<2.3		ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
1,1-Dichloroethane	<2.3		ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
1,2-Dichloroethane	<2.3		ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
1,1-Dichloroethene	<2.3		ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
trans-1,2-Dichloroethene	<2.3		ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
Dichloromethane	<57		ug/Kg	04/28/1994	50	mjs	15	8010 (1)
1,2-Dichloropropane	<2.3		ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
cis-1,3-Dichloropropene	<2.3		ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
trans-1,3-Dichloropropene	<2.3		ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
1,1,2,2-Tetrachloroethane	<2.3		ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
Tetrachloroethene	<2.3		ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
1,1,1-Trichloroethane	<2.3		ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
1,1,2-Trichloroethane	<2.3		ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
Trichloroethene	<2.3		ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)

S : Parameter analysis was sub-contracted to another NET location.

NATIONAL ENVIRONMENTAL TESTING, INC.

Bartlett Division
850 W. Bartlett Rd.
Bartlett, IL 60103
Tel: (708) 289-3100
Fax: (708) 289-5445

ANALYTICAL REPORT

Ms. Susan Roberts
ENGINEERING-SCIENCE, INC.
8000 Centre Park Drive
Suite 200
Austin, TX 78754

05/16/1994

Sample No. : 257486

NET Job No.: 94.02699

Sample Description: Berm 2
721460.05 CSSA F-14 Closure

Date Taken: 04/20/1994
Time Taken: 15:18
IEPA Cert. No. 100221

Date Received: 04/21/1994
Time Received: 11:00
WDNR Cert. No. 999447130

Parameter	Results	Units	Date of Analysis	Method PQL	Analyst	Batch No. Prep/Run	Analytical Method
Trichlorofluoromethane	<2.3	ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
Vinyl chloride	<2.3	ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)

NATIONAL ENVIRONMENTAL TESTING, INC.

Bartlett Division
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ANALYTICAL REPORT

Ms. Susan Roberts
ENGINEERING-SCIENCE, INC.
8000 Centre Park Drive
Suite 200
Austin, TX 78754

05/16/1994

Sample No. : 257487

NET Job No.: 94.02699

Sample Description: Berm 3
721460.05 CSSA F-14 Closure

Date Taken: 04/20/1994
Time Taken: 15:00
IEPA Cert. No. 100221

Date Received: 04/21/1994
Time Received: 11:00
WDNR Cert. No. 999447130

Parameter	Results		Units	Date of Analysis	Method PQL	Analyst	Batch No. Prep/Run	Analytical Method
Solids, Total	90.2	S	%	04/29/1994	0.1	mjs	938	2540 (4)
VOLATILES - 8010 NONAQUEOUS		S						
omodichloromethane	<2.2		ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
romoform	<2.2		ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
Bromomethane	<2.2		ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
Carbon Tetrachloride	<2.2		ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
Chlorobenzene	<2.2		ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
Chloroethane	<2.2		ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
2-Chloroethylvinyl ether	<5.5		ug/Kg	04/28/1994	5.0	mjs	15	8010 (1)
Chloroform	<2.2		ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
Chloromethane	<2.2		ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
Dibromochloromethane	<2.2		ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
1,2-Dichlorobenzene	<2.2		ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
1,3-Dichlorobenzene	<2.2		ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
1,4-Dichlorobenzene	<2.2		ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
Dichlorodifluoromethane	<2.2		ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
1,1-Dichloroethane	<2.2		ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
1,2-Dichloroethane	<2.2		ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
1,1-Dichloroethene	<2.2		ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
trans-1,2-Dichloroethene	<2.2		ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
Dichloromethane	<55		ug/Kg	04/28/1994	50	mjs	15	8010 (1)
1,2-Dichloropropane	<2.2		ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
cis-1,3-Dichloropropene	<2.2		ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
trans-1,3-Dichloropropene	<2.2		ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
1,1,2,2-Tetrachloroethane	<2.2		ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
Tetrachloroethene	<2.2		ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
1,1,1-Trichloroethane	<2.2		ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
1,1,2-Trichloroethane	<2.2		ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
Trichloroethene	<2.2		ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)

S : Parameter analysis was sub-contracted to another NET location.

NATIONAL ENVIRONMENTAL TESTING, INC.

Bartlett Division
850 W. Bartlett Rd.
Bartlett, IL 60103
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Fax: (708) 289-5445

ANALYTICAL REPORT

Ms. Susan Roberts
ENGINEERING-SCIENCE, INC.
8000 Centre Park Drive
Suite 200
Austin, TX 78754

05/16/1994

Sample No. : 257487

NET Job No.: 94.02699

Sample Description: Berm 3
721460.05 CSSA F-14 Closure

Date Taken: 04/20/1994
Time Taken: 15:00
IEPA Cert. No. 100221

Date Received: 04/21/1994
Time Received: 11:00
WDNR Cert. No. 999447130

Parameter	Results	Units	Date of Analysis	Method PQL	Analyst	Batch No. Prep/Run	Analytical Method
Trichlorofluoromethane	<2.2	ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
Vinyl chloride	<2.2	ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)

NATIONAL ENVIRONMENTAL TESTING, INC.

Bartlett Division
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ANALYTICAL REPORT

Ms. Susan Roberts
ENGINEERING-SCIENCE, INC.
8000 Centre Park Drive
Suite 200
Austin, TX 78754

05/16/1994

Sample No. : 257488

NET Job No.: 94.02699

Sample Description: Berm 3
721460.05 CSSA F-14 Closure

(MS)

Date Taken: 04/20/1994
Time Taken: 15:00
IEPA Cert. No. 100221

Date Received: 04/21/1994
Time Received: 11:00
WDNR Cert. No. 999447130

Parameter	Results		Units	Date of Analysis	Method PQL	Analyst	Batch No. Prep/Run	Analytical Method
Solids, Total	90.6	S	%	04/29/1994	0.1	mjs	938	2540 (4)
VOLATILES - 8010 NONAQUEOUS		S						
romodichloromethane	102	103%	ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
romoform	99.3	100%	ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
Bromomethane	87.4	88.3%	ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
Carbon Tetrachloride	110	111%	ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
Chlorobenzene	98.8	99.8%	ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
Chloroethane	87.4	88.3%	ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
2-Chloroethylvinyl ether	90.8	91.7%	ug/Kg	04/28/1994	5.0	mjs	15	8010 (1)
Chloroform	107	108%	ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
Chloromethane	68.8	69.5%	ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
Dibromochloromethane	104	105%	ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
1,2-Dichlorobenzene	93.5	94.4%	ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
1,3-Dichlorobenzene	94.8	95.8%	ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
1,4-Dichlorobenzene	97.5	98.5%	ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
Dichlorodifluoromethane	92.6	93.5%	ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
1,1-Dichloroethane	106	107%	ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
1,2-Dichloroethane	110	111%	ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
1,1-Dichloroethene	84.9	85.8%	ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
trans-1,2-Dichloroethene	92.8	93.7%	ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
Dichloromethane	67.3	68.0	ug/Kg	04/28/1994	50	mjs	15	8010 (1)
1,2-Dichloropropane	106	107%	ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
cis-1,3-Dichloropropene	100	101%	ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
trans-1,3-Dichloropropene	102	103%	ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
1,1,2,2-Tetrachloroethane	128	129%	ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
Tetrachloroethene	106	107%	ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
1,1,1-Trichloroethane	109	110%	ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
1,1,2-Trichloroethane	115	116%	ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
Trichloroethene	110	111%	ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)

S : Parameter analysis was sub-contracted to another NET location.
Percentages listed under the "flag" column reflect spike recoveries.

NATIONAL ENVIRONMENTAL TESTING, INC.

Bartlett Division
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ANALYTICAL REPORT

Ms. Susan Roberts
ENGINEERING-SCIENCE, INC.
8000 Centre Park Drive
Suite 200
Austin, TX 78754

05/16/1994

Sample No. : 257488

NET Job No.: 94.02699

Sample Description: Berm 3
721460.05 CSSA F-14 Closure

(MS)

Date Taken: 04/20/1994
Time Taken: 15:00
IEPA Cert. No. 100221

Date Received: 04/21/1994
Time Received: 11:00
WDNR Cert. No. 999447130

Parameter	Results		Units	Date of Analysis	Method PQL	Analyst	Batch No. Prep/Run	Analytical Method
Trichlorofluoromethane	107	108%	ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
Vinyl chloride	120	121%	ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)

Percentages listed under the "flag" column reflect spike recoveries.

NATIONAL ENVIRONMENTAL TESTING, INC.

Bartlett Division
850 W. Bartlett Rd.
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ANALYTICAL REPORT

Ms. Susan Roberts
ENGINEERING-SCIENCE, INC.
8000 Centre Park Drive
Suite 200
Austin, TX 78754

05/16/1994

Sample No. : 257489

NET Job No.: 94.02699

Sample Description: Berm 3
721460.05 CSSA F-14 Closure (MSD)

Date Taken: 04/20/1994
Time Taken: 15:00
IEPA Cert. No. 100221

Date Received: 04/21/1994
Time Received: 11:00
WDNR Cert. No. 999447130

Parameter	Results		Units	Date of Analysis	Method PQL	Analyst	Batch No. Prep/Run	Analytical Method
Solids, Total	91.7	S	%	04/29/1994	0.1	mjs	938	2540 (4)
VOLATILES - 8010 NONAQUEOUS		S						
omodichloromethane	104	105%	ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
romoform	100	101%	ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
Bromomethane	67.0	67.7%	ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
Carbon Tetrachloride	116	117%	ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
Chlorobenzene	99.1	100%	ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
Chloroethane	67.0	67.7%	ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
2-Chloroethylvinyl ether	81.6	82.4%	ug/Kg	04/28/1994	5.0	mjs	15	8010 (1)
Chloroform	113	114%	ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
Chloromethane	61.7	62.3%	ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
Dibromochloromethane	103	104%	ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
1,2-Dichlorobenzene	97.3	98.3%	ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
1,3-Dichlorobenzene	102	103%	ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
1,4-Dichlorobenzene	105	106%	ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
Dichlorodifluoromethane	88.4	89.3%	ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
1,1-Dichloroethane	103	104%	ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
1,2-Dichloroethane	108	109%	ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
1,1-Dichloroethene	65.8	66.5%	ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
trans-1,2-Dichloroethene	72.7	73.4%	ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
Dichloromethane	41.5	41.9%	ug/Kg	04/28/1994	50	mjs	15	8010 (1)
1,2-Dichloropropane	108	109%	ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
cis-1,3-Dichloropropene	112	113%	ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
trans-1,3-Dichloropropene	110	111%	ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
1,1,2,2-Tetrachloroethane	130	131%	ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
Tetrachloroethene	109	110%	ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
1,1,1-Trichloroethane	116	117%	ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
1,1,2-Trichloroethane	115	116%	ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
Trichloroethene	110	111%	ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)

S : Parameter analysis was sub-contracted to another NET location.
Percentages listed under the "flag" column reflect spike recoveries.

NATIONAL ENVIRONMENTAL TESTING, INC.

Bartlett Division
850 W. Bartlett Rd.
Bartlett, IL 60103
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Fax: (708) 289-5445

ANALYTICAL REPORT

Ms. Susan Roberts
ENGINEERING-SCIENCE, INC.
8000 Centre Park Drive
Suite 200
Austin, TX 78754

05/16/1994

Sample No. : 257489

NET Job No.: 94.02699

Sample Description: Berm 3
721460.05 CSSA F-14 Closure

MSD

Date Taken: 04/20/1994
Time Taken: 15:00
IEPA Cert. No. 100221

Date Received: 04/21/1994
Time Received: 11:00
WDNR Cert. No. 999447130

Parameter	Results		Units	Date of Analysis	Method PQL	Analyst	Batch No. Prep/Run	Analytical Method
Trichlorofluoromethane	99.9	101%	ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
Vinyl chloride	117	118%	ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)

Percentages listed under the "flag" column reflect spike recoveries.

NATIONAL ENVIRONMENTAL TESTING, INC.

Bartlett Division
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ANALYTICAL REPORT

Ms. Susan Roberts
ENGINEERING-SCIENCE, INC.
8000 Centre Park Drive
Suite 200
Austin, TX 78754

05/16/1994

Sample No. : 257490

NET Job No.: 94.02699

Sample Description: Berm 4
721460.05 CSSA F-14 Closure

Date Taken: 04/20/1994
Time Taken: 15:04
IEPA Cert. No. 100221

Date Received: 04/21/1994
Time Received: 11:00
WDNR Cert. No. 999447130

Parameter	Results		Units	Date of Analysis	Method PQL	Analyst	Batch No. Prep/Run	Analytical Method
Solids, Total	92.9	S	%	04/29/1994	0.1	mjs	938	2540 (4)
VOLATILES - 8010 NONAQUEOUS		S						
romodichloromethane	<2.2		ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
Bromoform	<2.2		ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
Bromomethane	<2.2		ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
Carbon Tetrachloride	<2.2		ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
Chlorobenzene	<2.2		ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
Chloroethane	<2.2		ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
2-Chloroethylvinyl ether	<5.4		ug/Kg	04/28/1994	5.0	mjs	15	8010 (1)
Chloroform	<2.2		ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
Chloromethane	<2.2		ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
Dibromochloromethane	<2.2		ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
1,2-Dichlorobenzene	<2.2		ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
1,3-Dichlorobenzene	<2.2		ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
1,4-Dichlorobenzene	<2.2		ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
Dichlorodifluoromethane	<2.2		ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
1,1-Dichloroethane	<2.2		ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
1,2-Dichloroethane	<2.2		ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
1,1-Dichloroethene	<2.2		ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
trans-1,2-Dichloroethene	<2.2		ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
Dichloromethane	<54		ug/Kg	04/28/1994	50	mjs	15	8010 (1)
1,2-Dichloropropane	<2.2		ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
cis-1,3-Dichloropropene	<2.2		ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
trans-1,3-Dichloropropene	<2.2		ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
1,1,2,2-Tetrachloroethane	<2.2		ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
Tetrachloroethene	<2.2		ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
1,1,1-Trichloroethane	<2.2		ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
1,1,2-Trichloroethane	<2.2		ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
Trichloroethene	<2.2		ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)

S : Parameter analysis was sub-contracted to another NET location.

NATIONAL ENVIRONMENTAL TESTING, INC.

Bartlett Division
850 W. Bartlett Rd.
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ANALYTICAL REPORT

Ms. Susan Roberts
ENGINEERING-SCIENCE, INC.
8000 Centre Park Drive
Suite 200
Austin, TX 78754

05/16/1994

Sample No. : 257490

NET Job No.: 94.02699

Sample Description: Berm 4
721460.05 CSSA F-14 Closure

Date Taken: 04/20/1994
Time Taken: 15:04
IEPA Cert. No. 100221

Date Received: 04/21/1994
Time Received: 11:00
WDNR Cert. No. 999447130

Parameter	Results	Units	Date of Analysis	Method PQL	Analyst	Batch No. Prep/Run	Analytical Method
Trichlorofluoromethane	<2.2	ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
Vinyl chloride	<2.2	ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)

NATIONAL ENVIRONMENTAL TESTING, INC.

Bartlett Division
850 W. Bartlett Rd.
Bartlett, IL 60103
Tel: (708) 289-3100
Fax: (708) 289-5445

ANALYTICAL REPORT

Ms. Susan Roberts
ENGINEERING-SCIENCE, INC.
8000 Centre Park Drive
Suite 200
Austin, TX 78754

05/16/1994

Sample No. : 257491

NET Job No.: 94.02699

Sample Description: Berm 5
721460.05 CSSA F-14 Closure

Date Taken: 04/20/1994
Time Taken: 14:38
IEPA Cert. No. 100221

Date Received: 04/21/1994
Time Received: 11:00
WDNR Cert. No. 999447130

Parameter	Results		Units	Date of Analysis	Method PQL	Analyst	Batch No. Prep/Run	Analytical Method
Solids, Total	93.9	S	%	04/29/1994	0.1	mjs	938	2540 (4)
LATILES - 8010 NONAQUEOUS		S						
omodichloromethane	<2.1		ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
Bromoform	<2.1		ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
Bromomethane	<2.1		ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
Carbon Tetrachloride	<2.1		ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
Chlorobenzene	<2.1		ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
Chloroethane	<2.1		ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
2-Chloroethylvinyl ether	<5.3		ug/Kg	04/28/1994	5.0	mjs	15	8010 (1)
Chloroform	<2.1		ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
Chloromethane	<2.1		ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
Dibromochloromethane	<2.1		ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
1,2-Dichlorobenzene	<2.1		ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
1,3-Dichlorobenzene	<2.1		ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
1,4-Dichlorobenzene	<2.1		ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
Dichlorodifluoromethane	<2.1		ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
1,1-Dichloroethane	<2.1		ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
1,2-Dichloroethane	<2.1		ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
1,1-Dichloroethene	<2.1		ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
trans-1,2-Dichloroethene	<2.1		ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
Dichloromethane	<53		ug/Kg	04/28/1994	50	mjs	15	8010 (1)
1,2-Dichloropropane	<2.1		ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
cis-1,3-Dichloropropene	<2.1		ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
trans-1,3-Dichloropropene	<2.1		ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
1,1,2,2-Tetrachloroethane	<2.1		ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
Tetrachloroethene	<2.1		ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
1,1,1-Trichloroethane	<2.1		ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
1,1,2-Trichloroethane	<2.1		ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
Trichloroethene	<2.1		ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)

S : Parameter analysis was sub-contracted to another NET location.

NATIONAL ENVIRONMENTAL TESTING, INC.

Bartlett Division
850 W. Bartlett Rd.
Bartlett, IL 60103
Tel: (708) 289-3100
Fax: (708) 289-5445

ANALYTICAL REPORT

Ms. Susan Roberts
ENGINEERING-SCIENCE, INC.
8000 Centre Park Drive
Suite 200
Austin, TX 78754

05/16/1994

Sample No. : 257491

NET Job No.: 94.02699

Sample Description: Berm 5
721460.05 CSSA F-14 Closure

Date Taken: 04/20/1994
Time Taken: 14:38
IEPA Cert. No. 100221

Date Received: 04/21/1994
Time Received: 11:00
WDNR Cert. No. 999447130

Parameter	Results	Units	Date of Analysis	Method PQL	Analyst	Batch No. Prep/Run	Analytical Method
Trichlorofluoromethane	<2.1	ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
Vinyl chloride	<2.1	ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)

NATIONAL ENVIRONMENTAL TESTING, INC.

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Fax: (708) 289-5445

ANALYTICAL REPORT

Ms. Susan Roberts
ENGINEERING-SCIENCE, INC.
8000 Centre Park Drive
Suite 200
Austin, TX 78754

05/16/1994

Sample No. : 257492

NET Job No.: 94.02699

Sample Description: Berm 6
721460.05 CSSA F-14 Closure

Date Taken: 04/20/1994
Time Taken: 14:40
IEPA Cert. No. 100221

Date Received: 04/21/1994
Time Received: 11:00
WDNR Cert. No. 999447130

Parameter	Results		Units	Date of Analysis	Method PQL	Analyst	Batch No. Prep/Run	Analytical Method
Solids, Total	90.8	S	%	04/29/1994	0.1	mjs	938	2540 (4)
VOLATILES - 8010 NONAQUEOUS		S						
Bromodichloromethane	<2.2		ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
Bromoform	<2.2		ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
Bromomethane	<2.2		ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
Carbon Tetrachloride	<2.2		ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
Chlorobenzene	<2.2		ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
Chloroethane	<2.2		ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
2-Chloroethylvinyl ether	<5.5		ug/Kg	04/28/1994	5.0	mjs	15	8010 (1)
Chloroform	<2.2		ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
Chloromethane	<2.2		ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
Dibromochloromethane	<2.2		ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
1,2-Dichlorobenzene	<2.2		ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
1,3-Dichlorobenzene	<2.2		ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
1,4-Dichlorobenzene	<2.2		ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
Dichlorodifluoromethane	<2.2		ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
1,1-Dichloroethane	<2.2		ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
1,2-Dichloroethane	<2.2		ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
1,1-Dichloroethene	<2.2		ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
trans-1,2-Dichloroethene	<2.2		ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
Dichloromethane	<55		ug/Kg	04/28/1994	50	mjs	15	8010 (1)
1,2-Dichloropropane	<2.2		ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
cis-1,3-Dichloropropene	<2.2		ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
trans-1,3-Dichloropropene	<2.2		ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
1,1,2,2-Tetrachloroethane	<2.2		ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
Tetrachloroethene	<2.2		ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
1,1,1-Trichloroethane	<2.2		ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
1,1,2-Trichloroethane	<2.2		ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
Trichloroethene	<2.2		ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)

S : Parameter analysis was sub-contracted to another NET location.

NATIONAL ENVIRONMENTAL TESTING, INC.

Bartlett Division
850 W. Bartlett Rd.
Bartlett, IL 60103
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Fax: (708) 289-5445

ANALYTICAL REPORT

Ms. Susan Roberts
ENGINEERING-SCIENCE, INC.
8000 Centre Park Drive
Suite 200
Austin, TX 78754

05/16/1994

Sample No. : 257492

NET Job No.: 94.02699

Sample Description: Berm 6
721460.05 CSSA F-14 Closure

Date Taken: 04/20/1994
Time Taken: 14:40
IEPA Cert. No. 100221

Date Received: 04/21/1994
Time Received: 11:00
WDNR Cert. No. 999447130

Parameter	Results	Units	Date of Analysis	Method PQL	Analyst	Batch No. Prep/Run	Analytical Method
Trichlorofluoromethane	<2.2	ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
Vinyl chloride	<2.2	ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)

NATIONAL ENVIRONMENTAL TESTING, INC.

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ANALYTICAL REPORT

Ms. Susan Roberts
ENGINEERING-SCIENCE, INC.
8000 Centre Park Drive
Suite 200
Austin, TX 78754

05/16/1994

Sample No. : 257493

NET Job No.: 94.02699

Sample Description: Berm 7
721460.05 CSSA F-14 Closure

Date Taken: 04/20/1994
Time Taken: 14:28
IEPA Cert. No. 100221

Date Received: 04/21/1994
Time Received: 11:00
WDNR Cert. No. 999447130

Parameter	Results		Units	Date of Analysis	Method PQL	Analyst	Batch No. Prep/Run	Analytical Method
Solids, Total	90.3	S	%	04/29/1994	0.1	mjs	938	2540 (4)
VOLATILES - 8010 NONAQUEOUS		S						
Bromodichloromethane	<2.2		ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
Bromoform	<2.2		ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
Bromomethane	<2.2		ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
Carbon Tetrachloride	<2.2		ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
Chlorobenzene	<2.2		ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
Chloroethane	<2.2		ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
2-Chloroethylvinyl ether	<5.5		ug/Kg	04/28/1994	5.0	mjs	15	8010 (1)
Chloroform	<2.2		ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
Chloromethane	<2.2		ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
Dibromochloromethane	<2.2		ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
1,2-Dichlorobenzene	<2.2		ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
1,3-Dichlorobenzene	<2.2		ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
1,4-Dichlorobenzene	<2.2		ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
Dichlorodifluoromethane	<2.2		ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
1,1-Dichloroethane	<2.2		ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
1,2-Dichloroethane	<2.2		ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
1,1-Dichloroethene	<2.2		ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
trans-1,2-Dichloroethene	<2.2		ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
Dichloromethane	<55		ug/Kg	04/28/1994	50	mjs	15	8010 (1)
1,2-Dichloropropane	<2.2		ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
cis-1,3-Dichloropropene	<2.2		ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
trans-1,3-Dichloropropene	<2.2		ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
1,1,2,2-Tetrachloroethane	<2.2		ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
Tetrachloroethene	<2.2		ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
1,1,1-Trichloroethane	<2.2		ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
1,1,2-Trichloroethane	<2.2		ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
Trichloroethene	<2.2		ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)

S : Parameter analysis was sub-contracted to another NET location.

NATIONAL ENVIRONMENTAL TESTING, INC.

Bartlett Division
850 W. Bartlett Rd.
Bartlett, IL 60103
Tel: (708) 289-3100
Fax: (708) 289-5445

ANALYTICAL REPORT

Ms. Susan Roberts
ENGINEERING-SCIENCE, INC.
8000 Centre Park Drive
Suite 200
Austin, TX 78754

05/16/1994

Sample No. : 257493

NET Job No.: 94.02699

Sample Description: Berm 7
721460.05 CSSA F-14 Closure

Date Taken: 04/20/1994
Time Taken: 14:28
IEPA Cert. No. 100221

Date Received: 04/21/1994
Time Received: 11:00
WDNR Cert. No. 999447130

Parameter	Results	Units	Date of Analysis	Method PQL	Analyst	Batch No. Prep/Run	Analytical Method
Trichlorofluoromethane	<2.2	ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
Vinyl chloride	<2.2	ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)

NATIONAL ENVIRONMENTAL TESTING, INC.

Bartlett Division
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ANALYTICAL REPORT

Ms. Susan Roberts
ENGINEERING-SCIENCE, INC.
8000 Centre Park Drive
Suite 200
Austin, TX 78754

05/16/1994

Sample No. : 257494

NET Job No.: 94.02699

Sample Description: Berm 8
721460.05 CSSA F-14 Closure

Date Taken: 04/20/1994
Time Taken: 14:25
IEPA Cert. No. 100221

Date Received: 04/21/1994
Time Received: 11:00
WDNR Cert. No. 999447130

Parameter	Results		Units	Date of Analysis	Method PQL	Analyst	Batch No. Prep/Run	Analytical Method
Solids, Total	96.9	S	%	04/29/1994	0.1	mjs	938	2540 (4)
VOLATILES - 8010 NONAQUEOUS		S						
Bromodichloromethane	<2.1		ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
Bromoform	<2.1		ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
Bromomethane	<2.1		ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
Carbon Tetrachloride	<2.1		ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
Chlorobenzene	<2.1		ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
Chloroethane	<2.1		ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
2-Chloroethylvinyl ether	<5.2		ug/Kg	04/28/1994	5.0	mjs	15	8010 (1)
Chloroform	<2.1		ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
Chloromethane	<2.1		ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
Dibromochloromethane	<2.1		ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
1,2-Dichlorobenzene	<2.1		ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
1,3-Dichlorobenzene	<2.1		ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
1,4-Dichlorobenzene	<2.1		ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
Dichlorodifluoromethane	<2.1		ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
1,1-Dichloroethane	<2.1		ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
1,2-Dichloroethane	<2.1		ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
1,1-Dichloroethene	<2.1		ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
trans-1,2-Dichloroethene	<2.1		ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
Dichloromethane	<52		ug/Kg	04/28/1994	50	mjs	15	8010 (1)
1,2-Dichloropropane	<2.1		ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
cis-1,3-Dichloropropene	<2.1		ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
trans-1,3-Dichloropropene	<2.1		ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
1,1,2,2-Tetrachloroethane	<2.1		ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
Tetrachloroethene	<2.1		ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
1,1,1-Trichloroethane	<2.1		ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
1,1,2-Trichloroethane	<2.1		ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
Trichloroethene	<2.1		ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)

S : Parameter analysis was sub-contracted to another NET location.

NATIONAL ENVIRONMENTAL TESTING, INC.

Bartlett Division
850 W. Bartlett Rd.
Bartlett, IL 60103
Tel: (708) 289-3100
Fax: (708) 289-5445

ANALYTICAL REPORT

Ms. Susan Roberts
ENGINEERING-SCIENCE, INC.
8000 Centre Park Drive
Suite 200
Austin, TX 78754

05/16/1994

Sample No. : 257494

NET Job No.: 94.02699

Sample Description: Berm 8
721460.05 CSSA F-14 Closure

Date Taken: 04/20/1994
Time Taken: 14:25
IEPA Cert. No. 100221

Date Received: 04/21/1994
Time Received: 11:00
WDNR Cert. No. 999447130

Parameter	Results	Units	Date of Analysis	Method PQL	Analyst	Batch No. Prep/Run	Analytical Method
Trichlorofluoromethane	<2.1	ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
Vinyl chloride	<2.1	ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)

NATIONAL ENVIRONMENTAL TESTING, INC.

Bartlett Division
850 W. Bartlett Rd.
Bartlett, IL 60103
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ANALYTICAL REPORT

Ms. Susan Roberts
ENGINEERING-SCIENCE, INC.
8000 Centre Park Drive
Suite 200
Austin, TX 78754

05/16/1994

Sample No. : 257495

NET Job No.: 94.02699

Sample Description: Berm 3.3
721460.05 CSSA F-14 Closure

Date Taken: 04/20/1994
Time Taken: 15:00
IEPA Cert. No. 100221

Date Received: 04/21/1994
Time Received: 11:00
WDNR Cert. No. 999447130

Parameter	Results		Units	Date of Analysis	Method PQL	Analyst	Batch No. Prep/Run	Analytical Method
Solids, Total	90.8	S	%	04/29/1994	0.1	mjs	938	2540 (4)
VOLATILES - 8010 NONAQUEOUS		S						
romodichloromethane	<2.2		ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
Bromoform	<2.2		ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
Bromomethane	<2.2		ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
Carbon Tetrachloride	<2.2		ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
Chlorobenzene	<2.2		ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
Chloroethane	<2.2		ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
2-Chloroethylvinyl ether	<5.5		ug/Kg	04/28/1994	5.0	mjs	15	8010 (1)
Chloroform	<2.2		ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
Chloromethane	<2.2		ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
Dibromochloromethane	<2.2		ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
1,2-Dichlorobenzene	<2.2		ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
1,3-Dichlorobenzene	<2.2		ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
1,4-Dichlorobenzene	<2.2		ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
Dichlorodifluoromethane	<2.2		ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
1,1-Dichloroethane	<2.2		ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
1,2-Dichloroethane	<2.2		ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
1,1-Dichloroethene	<2.2		ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
trans-1,2-Dichloroethene	<2.2		ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
Dichloromethane	<55		ug/Kg	04/28/1994	50	mjs	15	8010 (1)
1,2-Dichloropropane	<2.2		ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
cis-1,3-Dichloropropene	<2.2		ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
trans-1,3-Dichloropropene	<2.2		ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
1,1,2,2-Tetrachloroethane	<2.2		ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
Tetrachloroethene	<2.2		ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
1,1,1-Trichloroethane	<2.2		ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
1,1,2-Trichloroethane	<2.2		ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
Trichloroethene	<2.2		ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)

S : Parameter analysis was sub-contracted to another NET location.

NATIONAL ENVIRONMENTAL TESTING, INC.

Bartlett Division
850 W. Bartlett Rd.
Bartlett, IL 60103
Tel: (708) 289-3100
Fax: (708) 289-5445

ANALYTICAL REPORT

Ms. Susan Roberts
ENGINEERING-SCIENCE, INC.
8000 Centre Park Drive
Suite 200
Austin, TX 78754

05/16/1994

Sample No. : 257495

NET Job No.: 94.02699

Sample Description: Berm 3.3
721460.05 CSSA F-14 Closure

Date Taken: 04/20/1994
Time Taken: 15:00
IEPA Cert. No. 100221

Date Received: 04/21/1994
Time Received: 11:00
WDNR Cert. No. 999447130

Parameter	Results	Units	Date of Analysis	Method PQL	Analyst	Batch No. Prep/Run	Analytical Method
Trichlorofluoromethane	<2.2	ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)
Vinyl chloride	<2.2	ug/Kg	04/28/1994	2.0	mjs	15	8010 (1)

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Bartlett Division
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ANALYTICAL REPORT

Ms. Susan Roberts
ENGINEERING-SCIENCE, INC.
8000 Centre Park Drive
Suite 200
Austin, TX 78754

05/16/1994

Sample No. : 257496

NET Job No.: 94.02699

Sample Description: Trip Blank
721460.05 CSSA F-14 Closure

Date Taken:
Time Taken:
IEPA Cert. No. 100221

Date Received: 04/21/1994
Time Received: 11:00
WDNR Cert. No. 999447130

Parameter	Results		Units	Date of Analysis	Method PQL	Analyst	Batch No. Prep/Run	Analytical Method
VOLATILES - 8010 AQUEOUS		S						
Bromodichloromethane	<0.4		ug/L	04/28/1994	0.4	mjs	15	8010 (1)
Bromoform	<0.4		ug/L	04/28/1994	0.4	mjs	15	8010 (1)
Bromomethane	<0.4		ug/L	04/28/1994	0.4	mjs	15	8010 (1)
Carbon Tetrachloride	<0.4		ug/L	04/28/1994	0.4	mjs	15	8010 (1)
Chlorobenzene	<0.4		ug/L	04/28/1994	0.4	mjs	15	8010 (1)
Chloroethane	<0.4		ug/L	04/28/1994	0.4	mjs	15	8010 (1)
2-Chloroethylvinyl ether	<1.0		ug/L	04/28/1994	1.0	mjs	15	8010 (1)
Chloroform	<0.4		ug/L	04/28/1994	0.4	mjs	15	8010 (1)
Chloromethane	<0.4		ug/L	04/28/1994	0.4	mjs	15	8010 (1)
Dibromochloromethane	<0.4		ug/L	04/28/1994	0.4	mjs	15	8010 (1)
1,2-Dichlorobenzene	<0.4		ug/L	04/28/1994	0.4	mjs	15	8010 (1)
1,3-Dichlorobenzene	<0.4		ug/L	04/28/1994	0.4	mjs	15	8010 (1)
1,4-Dichlorobenzene	<0.4		ug/L	04/28/1994	0.4	mjs	15	8010 (1)
Dichlorodifluoromethane	<0.4		ug/L	04/28/1994	0.4	mjs	16	8010 (1)
1,1-Dichloroethane	<0.4		ug/L	04/28/1994	0.4	mjs	15	8010 (1)
1,2-Dichloroethane	<0.4		ug/L	04/28/1994	0.4	mjs	15	8010 (1)
1,1-Dichloroethene	<0.4		ug/L	04/28/1994	0.4	mjs	15	8010 (1)
trans-1,2-Dichloroethene	<0.4		ug/L	04/28/1994	0.4	mjs	15	8010 (1)
Dichloromethane	<10		ug/L	04/28/1994	10	mjs	15	8010 (1)
1,2-Dichloropropane	<0.4		ug/L	04/28/1994	0.4	mjs	15	8010 (1)
cis-1,3-Dichloropropene	<0.4		ug/L	04/28/1994	0.4	mjs	15	8010 (1)
trans-1,3-Dichloropropene	<0.4		ug/L	04/28/1994	0.4	mjs	15	8010 (1)

S : Parameter analysis was sub-contracted to another NET location.

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ANALYTICAL REPORT

Ms. Susan Roberts
ENGINEERING-SCIENCE, INC.
8000 Centre Park Drive
Suite 200
Austin, TX 78754

05/16/1994

Sample No. : 257496

NET Job No.: 94.02699

Sample Description: Trip Blank
721460.05 CSSA F-14 Closure

Date Taken:
Time Taken:
IEPA Cert. No. 100221

Date Received: 04/21/1994
Time Received: 11:00
WDNR Cert. No. 999447130

Parameter	Results	Units	Date of Analysis	Method PQL	Analyst	Batch No. Prep/Run	Analytical Method
1,1,2,2-Tetrachloroethane	<0.4	ug/L	04/28/1994	0.4	mjs	15	8010 (1)
Tetrachloroethene	<0.4	ug/L	04/28/1994	0.4	mjs	15	8010 (1)
1,1,1-Trichloroethane	<0.4	ug/L	04/28/1994	0.4	mjs	15	8010 (1)
1,1,2-Trichloroethane	<1.0	ug/L	04/28/1994	0.4	mjs	15	8010 (1)
Trichloroethene	<0.4	ug/L	04/28/1994	0.4	mjs	15	8010 (1)
Trichlorofluoromethane	<0.4	ug/L	04/28/1994	0.4	mjs	15	8010 (1)
Vinyl chloride	<0.4	ug/L	04/28/1994	0.4	mjs	15	8010 (1)

NET Midwest, Bartlett Division

KEY TO ABBREVIATIONS and METHOD REFERENCES

<	:	Less than; When appearing in the results column indicates the analyte was not detected at or above the reported value.
mg/L	:	Concentration in units of milligrams of analyte per liter of sample. Measurement used for aqueous samples. Can also be expressed as parts per million (ppm).
ug/g	:	Concentration in units of micrograms of analyte per gram of sample. Measurement used for non-aqueous samples. Can also be expressed as parts per million (ppm) or mg/Kg.
ug/L	:	Concentration in units of micrograms of analyte per liter of sample. Measurement used for aqueous samples. Can also be expressed as parts per billion (ppb).
ug/Kg	:	Concentration in units of micrograms of analyte per kilogram of sample. Measurement used for non-aqueous samples. Can also be expressed as parts per billion (ppb).
B	:	Sample result flag indicating that the analyte was also found in the method blank analysis. The value after the B indicates the concentration found in the blank analysis.
D	:	Sample result flag indicating that the reported concentration is from an analysis performed at a dilution. The value following the D indicates the dilution factor of the analysis.
J	:	Sample result flag indicating that the reported concentration is below the routine reporting limit but greater than the Method Detection Limit. The value should be considered estimated.
TCLP	:	These initials appearing in front of an analyte name indicate that the Toxicity Characteristic Leaching Procedure (TCLP) was performed for this test.
%	:	Percent; To convert ppm to %, divide the result by 10,000. To convert % to ppm, multiply the result by 10,000.
Dry Weight (dw)	:	When indicated, the results are reported on a dry weight basis. The contribution of the moisture content in the sample is subtracted when calculating the concentration of the analyte.
ICP	:	Indicates analysis was performed using Inductively Coupled Plasma Spectroscopy.
AA	:	Indicates analysis was performed using Atomic Absorption Spectroscopy.
GFAA	:	Indicates analysis was performed using Graphite Furnace Atomic Absorption Spectroscopy.
PQL	:	Practical Quantitation Limit; the lowest level that can be reliably achieved within specified limits of precision and accuracy during routine laboratory operating conditions.

Method References

(1) Methods 1000 through 9999: see "Test Methods for Evaluating Solid Waste", USEPA SW-846, 3rd Edition, 1986.

(2) ASTM "American Society for Testing Materials

(3) Methods 100 through 499: see "Methods for Chemical Analysis of Water and Wastes", USEPA, 600/4-79-020, Rev. 1983.

(4) See "Standard Methods for the Examination of Water and Wastewater", 17th Ed, APHA, 1989.

(5) Methods 600 through 625: see "Guidelines Establishing Test Procedures for the Analysis of Pollutants", USEPA Federal Register Vol. 49 No. 209, October 1984.

(6) Methods 500 through 599: see "Methods for the Determination of Organic Compounds in Drinking Water," USEPA 600/4-88/039, Rev. 1988.

Engineering-Science Inc

Austin, Texas

CHAIN OF CUSTODY RECORD

PROJECT NO.	PROJECT NAME/LOCATION
721460.05	CSSA F.14 Closure

SAMPLERS (Signatures)

SAMPLE NO.	DATE	TIME	MATRIX	SAMPLE DESCRIPTION	NO. OF CONTAINERS	Analysis Required: SVOCs	REMARKS
Berm 2	4/20/94	1518	Soil		1	X	
Berm 3	"	1500	"		1		
Berm 3	"	1500	"	MS	1		
Berm 3	"	1500	"	MSD	1		
Berm 4		1504			1		
Berm 5		1438			1		
Berm 6		1440			1		
Berm 7		1428			1		
Berm 8		1425			1		
Berm 33	↓	1500	↓		1	↓	
Trip Blank	↓	1432	water		2	X	
							preserved on ICE

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Relinquished by: (Signature)	Date	Time	Received by: (Signature)
[signature]	4/21/94	11:00	[signature]				
[signature]	4/21/94	18:30	[signature]				

"Relinquished by" and "Received by" boxes must be completed for all transfers.

White: laboratory returns with data, yellow: laboratory copy, pink: sampler copy

Appendix C

Background Soil Boring Logs

SOIL BORING LOG

CLIENT: ARMSTRONG LABORATORY/OEB	BORING NUMBER: BKG-SB-01
SITE: CAMP STANLEY STORAGE ACTIVITY	BORING LOCATION: 45 FT N OF U-28
PROJECT: BACKGROUND SAMPLING	DRILLING CONTRACTOR: CCI
LOGGED BY: MICHELLE TOWN	DRILLER: SHELDON LAURITSEN
BOREHOLE DIAMETER: 7.25 IN.	DRILLING RIG: MOBILE B-61
BOREHOLE ELEVATION: APPROX. 1230 FT. MSL	SAMPLING METHOD: AIR CORE
WATER FOUND (FT. BGL): NONE	NO./TYPE OF SAMPLES: 1 SOIL SAMPLE
BORING COMPLETION: GROUTED TO SURFACE; TAGGED	BEGIN DRILLING: 0915 4/22/94
TOTAL DEPTH (FT. BGL): 5	END DRILLING: 0925 4/22/94

DEPTH (feet)	SAMPLE RECOVERY	ANALYTICAL SAMPLE	HNU HDSP (ppm)	LITHOLOGIC DESCRIPTION	GRAPHIC LOG	COMMENTS
0				CLAY: Dark brown, occasional limestone fragments, gravel and cobbles, dry to damp.		All recovery intervals are approximate.
				LIMESTONE: Coarse grained, calcite grains are very fine.		
				MARLY LIMESTONE: Soft, top of limestone gravel, 1 cm length, cemented.		
5				Solid LIMESTONE, Color range grayish yellow (5Y 8/1) to Pale yellowish orange (10YR 8/6). Breaks along coarse-grained infill, pelecypod macrofossils up to 15 mm long.		**Sample ID: BKG-SB-01 (4.5').**
				Same as above, veins of calcite less than 1mm dia.		No water detected during drilling.
				TD = 5.0 feet.		
10						
15						
20						
25						

File: BKGSB01.LOG

SOIL BORING LOG

CLIENT: ARMSTRONG LABORATORY/OEB	BORING NUMBER: BKG-SB-02
SITE: CAMP STANLEY STORAGE ACTIVITY	BORING LOCATION: 66 FT N OF U-26
PROJECT: BACKGROUND SAMPLING	DRILLING CONTRACTOR: CCI
LOGGED BY: MICHELLE TOWN	DRILLER: SHELDON LAURITSEN
BOREHOLE DIAMETER: 7.25 IN.	DRILLING RIG: MOBILE B-61
BOREHOLE ELEVATION: APPROX. 1230 FT. MSL	SAMPLING METHOD: AIR CORE
WATER FOUND (FT. BGL): NONE	NO./TYPE OF SAMPLES: 1 SOIL SAMPLE
BORING COMPLETION: GROUTED TO SURFACE; TAGGED	BEGIN DRILLING: 0817 4/22/94
TOTAL DEPTH (FT. BGL): 10.5	END DRILLING: 0832 4/22/94

DEPTH (feet)	SAMPLE RECOVERY	ANALYTICAL SAMPLE	HNU HDSP (ppm)	LITHOLOGIC DESCRIPTION	GRAPHIC LOG	COMMENTS
5				CLAY: Dark brown, 1 to 3 mm limestone fragments, subangular to sub round, clay, some gravel/coarse sand.		All recovery intervals are approximate.
				LIMY CLAY: Very pale orange (10YR 8/2) to grayish orange (10YR 7/4) 10-20% limestone, up to 1 cm long, subrounded, damp.		
				Same as above, slightly lighter, limestone & gravel up to 2" long, subangular, dry to damp.		Hollow stem auger grinding a little.
				Same as above, color lighter.		
10				LIMESTONE, limestone gravel.		Drilling harder.
				FOSSILIFEROUS LIMESTONE: Calcite replacement, 1 macrofossil, 1cm.		**Sample ID: SKG-SB-02 (10.0').**
				LIMESTONE, Grayish yellow (5Y 8/1), coarse grained, marly banding.		No water detected during drilling.
				TD = 10.5 feet.		
15						
20						
25						

File: BKGSBQ2.LOG

SOIL BORING LOG

CLIENT: ARMSTRONG LABORATORY/OEB	BORING NUMBER: BKG-SB-03
SITE: CAMP STANLEY STORAGE ACTIVITY	BORING LOCATION: S D-24, N U-26, 180 FT N OF DIRT ROAD
PROJECT: BACKGROUND SAMPLING	DRILLING CONTRACTOR: CCI
LOGGED BY: MICHELLE TOWN	DRILLER: SHELDON LAURITSEN
BOREHOLE DIAMETER: 7.25 IN.	DRILLING RIG: MOBILE B-61
BOREHOLE ELEVATION: APPROX. 1230 FT. MSL	SAMPLING METHOD: AIR ROTARY
WATER FOUND (FT. BGL): NONE	NO./TYPE OF SAMPLES: 1 SOIL SAMPLE
BORING COMPLETION: GROUTED TO SURFACE; TAGGED	BEGIN DRILLING: 1713 4/21/94
TOTAL DEPTH (FT. BGL): 20	END DRILLING: 1743 4/21/94

DEPTH (feet)	SAMPLE RECOVERY	ANALYTICAL SAMPLE	HNU HDSP (ppm)	LITHOLOGIC DESCRIPTION	GRAPHIC LOG	COMMENTS
				CLAY: Dark brown, limestone fragments, subangular to subrounded gravel, pebbles, coarse sand, damp to dry.		All recovery intervals are approximate.
				LIMY CLAY: Pale yellowish orange (10YR 8/6) to dark yellowish orange (10YR 6/6), damp.		
				LIMESTONE		Auger having some difficulty.
5				LIMY CLAY: Very pale orange (10YR 8/2) to pale yellowish orange (10YR 8/6).		
				Same as above, limestone 20%, less than 1 cm in size.		
10				Same as above, very pale orange (10yr8/2) to grayish orange (10YR 7/4).		
15				Same as above, Limestone subrounded to subangular up to 3.5cm.		
				LIMESTONE: Fine grained, grayish yellow (5Y 8/1) to very pale orange (10YR 8/2), with black oxide along bedding.		
				Same as above, dark yellowish orange (10YR 6/6) to light brown (5YR 5/6), Fossiliferous.		**Sample ID: SKG-SB-03 (19.5').**
20				*TD = 20.0 feet.*		No water detected during drilling.
25						

File: BKGSB03.LOG

SOIL BORING LOG

CLIENT: ARMSTRONG LABORATORY/OEB	BORING NUMBER: BKG-SB-04
SITE: CAMP STANLEY STORAGE ACTIVITY	BORING LOCATION: E INT. OF N OUTER DRIVE AND W OUTER DRIVE
PROJECT: BACKGROUND SAMPLING	DRILLING CONTRACTOR: CCI
LOGGED BY: MICHELLE TOWN	DRILLER: SHELDON LAURITSEN
BOREHOLE DIAMETER: 7.25 IN.	DRILLING RIG: MOBILE B-61
BOREHOLE ELEVATION: APPROX. 1230 FT. MSL	SAMPLING METHOD: AIR CORE
WATER FOUND (FT. BGL): NONE	NO./TYPE OF SAMPLES: 1 SOIL SAMPLE
BORING COMPLETION: GROUTED TO SURFACE; TAGGED	BEGIN DRILLING: 1600 4/21/94
TOTAL DEPTH (FT. BGL): 22.5	END DRILLING: 1633 4/21/94

DEPTH (feet)	SAMPLE RECOVERY	ANALYTICAL SAMPLE	HNU HDSP (ppm)	LITHOLOGIC DESCRIPTION	GRAPHIC LOG	COMMENTS
				SOIL: Dark reddish-brown, limestone fragments, moist to hard, stiff clay, dry, crumbles under finger pressure.		All recovery intervals are approximate.
5				LIMY CLAY: Moderate brown (5YR 4/4) to light brown (5YR 5/6), 40% limestone, 2 mm to 15 mm, dry to damp. Same as above, limestone dropped off to 25%.		
10				Same as above, limestone increasing to 70%. Same as above, color grayish orange (10YR 7/4) to dark yellowish orange (10YR 6/6). Same as above, very pale orange (10YR 8/2) to moderate orange pink (5Y 8/4), dry to damp.		
15				Same as above, very pale orange (10YR 8/2) and pale yellowish orange (10YR 8/6).		
20				LIMESTONE, fine grained, very pale orange (10YR 8/2) to grayish orange (10YR 7/4), trace of black oxide along bedding.		**Sample ID: SKG-SB-04 (17.5').** Very hard to break with a hammer. No water detected during drilling.
25				*TD = 22.5 feet.*		

File: BKGSB04.LOG

SOIL BORING LOG

CLIENT: ARMSTRONG LABORATORY/OEB	BORING NUMBER: BKG-SB-05
SITE: CAMP STANLEY STORAGE ACTIVITY	BORING LOCATION: SW OF OUTER DRIVE AND CENTRAL ROAD
PROJECT: BACKGROUND SAMPLING	DRILLING CONTRACTOR: CCI
LOGGED BY: MICHELLE TOWN	DRILLER: SHELDON LAURITSEN
BOREHOLE DIAMETER: 7.25 IN.	DRILLING RIG: MOBILE B-61
BOREHOLE ELEVATION: APPROX. 1230 FT. MSL	SAMPLING METHOD: AIR CORE
WATER FOUND (FT. BGL): NONE	NO./TYPE OF SAMPLES: 1 SOIL SAMPLE
BORING COMPLETION: GROUTED TO SURFACE; TAGGED	BEGIN DRILLING: 1515 4/21/94
TOTAL DEPTH (FT. BGL): 11.5	END DRILLING: 1530 4/21/94

DEPTH (feet)	SAMPLE RECOVERY	ANALYTICAL SAMPLE	HNU HDSP (ppm)	LITHOLOGIC DESCRIPTION	GRAPHIC LOG	COMMENTS
				SOIL: Med to dark brown silty clay, limestone pieces, coarse grains/gravel, subangular to subrounded, damp to dry.		All recovery intervals are approximate.
				LIMY CLAY: Very pale orange (10YR 8/2) to grayish orange (10YR 7/4), moist to damp.		
5				LIMESTONE pieces 2-20mm diameter.		
				LIMESTONE: Trace bed.		Auger grinding some.
				LIMY CLAY, Very pale orange (10YR 8/2) to pale yellowish orange (10YR 8/6). LIMESTONE: Subrounded to subangular.		
10		X				**Sample ID: SKG-SB-05 (10.0').**
	X			LIMESTONE, Pale yellowish orange (10YR 8/6) to dark yellowish orange (10YR 6/6). Banding, approx 5cm thick, very pale orange (10YR 8/2) to orange pink (5YR 8/1), fine to med grained.		No water detected during drilling.
				TD = 11.5 feet.		
15						
20						
25						

File: BKGSB05.LOG

SOIL BORING LOG

CLIENT: ARMSTRONG LABORATORY/OEB	BORING NUMBER: BKG-SB-06
SITE: CAMP STANLEY STORAGE ACTIVITY	BORING LOCATION: S 4TH POLE W OF FENCE AND E OF ROADBED
PROJECT: BACKGROUND SAMPLING	DRILLING CONTRACTOR: CCI
LOGGED BY: MICHELLE TOWN	DRILLER: SHELDON LAURITSEN
BOREHOLE DIAMETER: 7.25 IN.	DRILLING RIG: MOBILE B-61
BOREHOLE ELEVATION: APPROX. 1230 FT. MSL	SAMPLING METHOD: AIR CORE
WATER FOUND (FT. BGL): NONE	NO./TYPE OF SAMPLES: 1 SOIL SAMPLE
BORING COMPLETION: GROUTED TO SURFACE; TAGGED	BEGIN DRILLING: 1135 4/21/94
TOTAL DEPTH (FT. BGL): 20.0	END DRILLING: 1200 4/21/94

DEPTH (feet)	SAMPLE RECOVERY	ANALYTICAL SAMPLE	HNU HDSP (ppm)	LITHOLOGIC DESCRIPTION	GRAPHIC LOG	COMMENTS
				SOIL: Med to dark brown silty clay, 1/16" limestone gravel, moist to damp, crumbly to finger pressure.		All recovery intervals are approximate.
				LIMY CLAY: with 1/4 to 1" limestone. dark yellowish orange (10YR 6/6) to grayish orange (10YR 7/4), angular to subangular, damp.		
				SILTY CLAY Pale yellowish orange (10YR 8/6) and dark yellowish orange (10YR 6/6), 35-40% gravel, damp.		
5				Same as above, color between 10yr8/2 and 10yr8/6.		
				Same as above.		Auger starting to grind.
10						Start coring. 6" recovery.
15	X			LIMESTONE: Grayish orange (10YR 7/4) to dark yellowish orange (10YR 6/6), Fossiliferous, Pelycypods 50%, pale yellowish brown, (10YR 6/2) to very pale orange (10YR 8/2), Quartz grains up to 1mm.		Air Coring
	X	X		LIMESTONE: crystalline, grayish orange (10YR 7/4) to dark yellowish orange (10YR 6/6) fine to medium matrix less than 1mm diameter, marl layers thick, sparse bivalve fossils.		**Sample ID: SKG-SB-06 (18.0').**
20				*TD = 20.0 feet.*		No water detected during drilling.
25						

File: BKGSB06.LOG

SOIL BORING LOG

CLIENT: ARMSTRONG LABORATORY/OEB	BORING NUMBER: BKG-SB-07
SITE: CAMP STANLEY STORAGE ACTIVITY	BORING LOCATION: E OF STAND #25 E OF ROAD 29 FT N OF FENCE
PROJECT: BACKGROUND SAMPLING	DRILLING CONTRACTOR: CCI
LOGGED BY: MICHELLE TOWN	DRILLER: SHELDON LAURITSEN
BOREHOLE DIAMETER: 7.25 IN.	DRILLING RIG: MOBILE B-61
BOREHOLE ELEVATION: APPROX. 1230 FT. MSL	SAMPLING METHOD: AIR CORE
WATER FOUND (FT. BGL): NONE	NO./TYPE OF SAMPLES: 1 SOIL SAMPLE
BORING COMPLETION: GROUTED TO SURFACE; TAGGED	BEGIN DRILLING: 0930 4/21/94
TOTAL DEPTH (FT. BGL): 25.0	END DRILLING: 1015 4/21/94

DEPTH (feet)	SAMPLE RECOVERY	ANALYTICAL SAMPLE	HNU HDSP (ppm)	LITHOLOGIC DESCRIPTION	GRAPHIC LOG	COMMENTS
				SOIL: Dark brown to black silty clay, stony limestone, moist.		All recovery intervals are approximate.
				LIMY CLAY: with 1/8 to 1/4" limestone gravel, some silt. Grayish orange (10YR 7/4) to dark yellowish orange (10YR 6/6), moist, easily indented with thumb. Small fossils less than 1/4"		
5				Same as above. Beginning to hit harder material.		5
10				Same as above. Limestone pieces increasing in percentage, size 1-1.5" in length.		10
				Same as above, Very pale orange (10YR 8/2) to grayish orange (10YR 7/4). About 40% limestone pieces, dry to damp in clay with traces of silt.		
15				Yellowish gray (5Y 7/2) to pale olive (10Y 6/2). Small pelycypods and gravel size limestone pieces rounded by augers.		15 Auger starting to grind.
20				2.5 inch limestone pieces, fossils replaced with calcite.		20
25				MARLY LIMESTONE: Fairly hard, fossils increasing with depth from 45% to 85-90%, fine grain matrix, silty, some crystalline calcite (5%). Fossils, 2mm pelycypods.		25 **Sample ID: SKG-SB-07 (24.0').** Begin coring. 1.5 ft recovery.
				TD = 25.0 feet.		No water detected during drilling.

File: BKGSB07.LOG

SOIL BORING LOG

CLIENT: ARMSTRONG LABORATORY/OEB	BORING NUMBER: BKG-SB-08
SITE: CAMP STANLEY STORAGE ACTIVITY	BORING LOCATION: NORTH PASTURE
PROJECT: BACKGROUND SAMPLING	DRILLING CONTRACTOR: CCI
LOGGED BY: MICHELLE TOWN	DRILLER: SHELDON LAURITSEN
BOREHOLE DIAMETER: 7.25 IN.	DRILLING RIG: MOBILE B-61
BOREHOLE ELEVATION: APPROX. 1230 FT. MSL	SAMPLING METHOD: AIR CORE
WATER FOUND (FT. BGL): NONE	NO./TYPE OF SAMPLES: 1 SOIL SAMPLE
BORING COMPLETION: GROUTED TO SURFACE; TAGGED	BEGIN DRILLING: 1417 4/21/94
TOTAL DEPTH (FT. BGL): 5.5	END DRILLING: 1430 4/21/94

DEPTH (feet)	SAMPLE RECOVERY	ANALYTICAL SAMPLE	HNU HDSP (ppm)	LITHOLOGIC DESCRIPTION	GRAPHIC LOG	COMMENTS
				SOIL: Light gray brown silty clay, stony limestone, damp to dry.		All recovery intervals are approximate. Yellowish dust coming out of borehole.
5	X	X		LIMESTONE: Fine to medium grained, very pale orange (10YR 8/2) to grayish orange (10YR 7/4), small zone close to dark yellowish orange (10YR 6/6), 2cm cast of possible bivalve or bryozoa.		**Sample ID: SKG-SB-08 5.0 (5.0-5.5').** No water detected during drilling.
				TD = 5.5 feet.		
10						
15						
20						
25						

File: BKGSB08.LOG

SOIL BORING LOG

CLIENT: ARMSTRONG LABORATORY/OEB	BORING NUMBER: BKG-SB-09
SITE: CAMP STANLEY STORAGE ACTIVITY	BORING LOCATION: MOYER RD HI AREA ON TANBERG DR
PROJECT: BACKGROUND SAMPLING	DRILLING CONTRACTOR: CCI
LOGGED BY: MICHELLE TOWN	DRILLER: SHELDON LAURITSEN
BOREHOLE DIAMETER: 7.25 IN.	DRILLING RIG: MOBILE B-61
BOREHOLE ELEVATION: APPROX. 1230 FT. MSL	SAMPLING METHOD: AIR CORE
WATER FOUND (FT. BGL): NONE	NO./TYPE OF SAMPLES: 1 SOIL SAMPLE
BORING COMPLETION: GROUTED TO SURFACE; TAGGED	BEGIN DRILLING: 1005 4/22/94
TOTAL DEPTH (FT. BGL): 6	END DRILLING: 1030 4/22/94

DEPTH (feet)	SAMPLE RECOVERY	ANALYTICAL SAMPLE	HNU HDSP (ppm)	LITHOLOGIC DESCRIPTION	GRAPHIC LOG	COMMENTS
				SOIL: Dark brown, silt with some clay cobble limestone, up to 3" dia, angular, dry.		All recovery intervals are approximate.
				LIMESTONE: Gravel angular to subangular, average size 1.5 in. Coarse grained, some with fossils and calcite replacement. some fine grained.		
				LIMESTONE GRAVEL, most angular to subangular, some subrounded, 3 to 10mm dia.		
5	X	X		LIMESTONE, Pale yellowish orange (10YR 8/6) to grayish orange (10YR 7/4), Crystalline, calcite replacement, 10% black oxide, some anhydrite, 5 to 10mm long by 5mm wide openings partially infilled w/calcite.		**Sample ID: SKG-SB-09 (5.0').**
				TD = 6.0 feet.		No water detected during drilling.
10						
15						
20						
25						

File: BKGSB09.LOG

SOIL BORING LOG

CLIENT: ARMSTRONG LABORATORY/OEB	BORING NUMBER: BKG-SB-10
SITE: CAMP STANLEY STORAGE ACTIVITY	BORING LOCATION: F-14 AND BERNARD ROAD
PROJECT: BACKGROUND SAMPLING	DRILLING CONTRACTOR: CCI
LOGGED BY: MICHELLE TOWN	DRILLER: SHELDON LAURITSEN
BOREHOLE DIAMETER: 7.25 IN.	DRILLING RIG: MOBILE B-61
BOREHOLE ELEVATION: APPROX. 1230 FT. MSL	SAMPLING METHOD: AIR CORE
WATER FOUND (FT. BGL): NONE	NO./TYPE OF SAMPLES: 1 SOIL SAMPLE
BORING COMPLETION: GROUTED TO SURFACE; TAGGED	BEGIN DRILLING: 1115 4/22/94
TOTAL DEPTH (FT. BGL): 21	END DRILLING: 1200 4/22/94

DEPTH (feet)	SAMPLE RECOVERY	ANALYTICAL SAMPLE	HNU HDSP (ppm)	LITHOLOGIC DESCRIPTION	GRAPHIC LOG	COMMENTS
				SOIL: Dark brown, silt with some clay cobble limestone, up to 3" dia, angular, dry.		All recovery intervals are approximate.
				LIMY CLAY: With limestone, very pale orange (10YR 8/2) to pale yellowish orange (10YR 8/6). Grains subrounded, 3mm to 50mm, damp.		
5						5
10						10
15				LIMESTONE GRAVEL: .5 to 1.5 inches in length. Microcrystalline calcareous white pieces, very pale orange (10YR 8/2) to dark yellowish orange (10YR 6/6).		15
				MARL: Color very pale orange (10YR 8/2) to dark yellowish orange (10YR 6/6).		
				Same as above, MARL, about 35% limestone.		
20	X	X		MARLY LIMESTONE: orange mottling, banding, bivalve fossils 5mm or smaller, dark oxide staining. Very pale orange (10YR 8/2) to grayish orange (10YR 7/4).		20 **Sample ID: SKG-SB-10 (20.0').**
				TD = 21.0 feet.		No water detected during drilling.
25						25

File: BKGSB10.LOG

Appendix D

Analytical Results for Background Metals

NATIONAL ENVIRONMENTAL TESTING, INC.

Bartlett Division
850 W. Bartlett Rd.
Bartlett, IL 60103
Tel: (708) 289-3100
Fax: (708) 289-5445

May 31, 1994

Ms. Susan Roberts
ENGINEERING-SCIENCE, INC.
8000 Centre Park Drive
Suite 200
Austin, TX 78754

REF: QC Deliverables For NET Job #'s 94.02697, 94.02853 and 94.02856
Subcontract 712460.05000-C1

Dear Ms. Roberts,

As follow-up to my letter of May 23, 1994, included here are results of the ICP spectral analysis for Sn and Method of Standard Additions (MSA) analysis for Se, GFAA.

* Tin Spectral Analysis:

A graph showing a spectral diagram for Sn analysis is included here for all samples with an absolute value > the Sn MDL. Spectral analysis shows no detection of Sn, wavelength 224.605nm. The high negative result was caused by a matrix interference at the Lower Background Correction Point (LBGC).

* Se, MSA Analysis:

NET Bartlett sample numbers 258108, 258109 and 258110 (NET Rockford sample numbers 135574, 135575 and 135576) were analyzed using MSA due to poor matrix spike and post-digestion spike recoveries during Se, GFAA analysis. In order to obtain acceptable MSA spike recoveries, the samples were diluted 100x. The calculated MSA results for these samples is <20.0ug/g.

Raw data is attached.

Please call if you have any questions or if you need any additional information.

Sincerely,

Ray Kalicki
Quality Assurance
Coordinator

cc: Ms. Sandy Czarnecki
ES Raleigh Durham
1 Harrison Park
401 Harrison Oaks Blvd.
Suite 210
Cary, NC 27513

rck/esb

NATIONAL ENVIRONMENTAL TESTING, INC.

Bartlett Division
850 W. Bartlett Rd.
Bartlett, IL 60103
Tel: (708) 289-3100
Fax: (708) 289-5445

May 31, 1994

Ms. Susan Roberts
ENGINEERING-SCIENCE, INC.
8000 Centre Park Drive
Suite 200
Austin, TX 78754

REF: QC Deliverables For NET Job #'s 94.02697, 94.02853 and 94.02856
Subcontract 712460.05000-C1

Dear Ms. Roberts,

Enclosed is the original QC Report for Se, GFAA analysis.

Also enclosed are corrected pages 9 through 11 of job #94.02856 reflecting the Method of Standard Additions (MSA) analysis for Se, GFAA. Raw data for MSA analysis was sent with my May 31st letter.

Thank you for your follow-up on this project and please call if you have any questions or if you need any additional information.

Sincerely,

Ray Kalicki
Quality Assurance
Coordinator

cc: Mr. David Glover
ES Raleigh Durham
1 Harrison Park
401 Harrison Oaks Blvd.
Suite 210
Cary, NC 27513

rck/esc

NATIONAL ENVIRONMENTAL TESTING, INC.

Bartlett Division
850 W. Bartlett Rd.
Bartlett, IL 60103
Tel: (708) 289-3100
Fax: (708) 289-5445

ANALYTICAL REPORT

Ms. Susan Roberts
ENGINEERING-SCIENCE, INC.
8000 Centre Park Drive
Suite 200
Austin, TX 78754

05/16/1994

Sample No. : 258108

NET Job No.: 94.02856

Sample Description: BKG-SB01(4.5)
721460.05; CSSA F-14 Closures

Date Taken: 04/22/1994
Time Taken: 09:40
IEPA Cert. No. 100221

Date Received: 04/23/1994
Time Received: 09:00
WDNR Cert. No. 999447130

Parameter	Results		Units	Date of Analysis	Method PQL	Analyst	Batch No. Prep/Run	Analytical Method
Solids, Total	92.7		%	05/04/1994	0.1	dsf	923	2540 (4)
METALS - ICP 2 Non-Aq	Complete		ug/g	05/09/1994		jmt	63	6010(1) 200.7(3)
Aluminum,ICP	790		ug/g	05/09/1994	5.0	jmt	245 605	6010 (1)
Arsenic, GFAA	<2.2	S,D10	ug/g	05/16/1994	0.20	dmc	205 13	7060 (1)
Barium, ICP	3.5		ug/g	05/09/1994	1.0	jmt	245 675	6010 (1)
Cadmium, ICP	<0.54		ug/g	05/09/1994	0.50	jmt	245 646	6010 (1)
Chromium, ICP	<2.0		ug/g	05/09/1994	2.0	jmt	245 636	6010 (1)
Copper, ICP	0.61		ug/g	05/09/1994	0.50	jmt	245 858	6010 (1)
Iron, ICP	910		ug/g	05/09/1994	1.0	jmt	245 683	6010 (1)
Lead, AA	58	S	ug/g	05/04/1994	2.2	emh	205 222	7420 (1)
Mercury, CVAA	<0.03		ug/g	05/11/1994	0.02	jmt	200 318	7471 (1)
Nickel, AA	26	S	ug/g	05/11/1994	1.6	emh	205 100	7520 (1)
Selenium, GFAA	<20	S,M+	ug/g	05/15/1994	0.20	dmc	205 9	7740 (1)
Silver, AA	4.8		ug/g	05/05/1994	2.5	jmt	89 801	7760 (1)
Tin, ICP	<54		ug/g	05/09/1994	50	jmt	245 248	6010 (1)
Zinc, ICP	2.1		ug/g	05/09/1994	1.0	jmt	245 641	6010 (1)
Metals Prep, Nonaqueous	Complete			05/06/1994		jmt	245	3050 (1)
Metals Prep, Hg Nonaqueous	Complete			05/11/1994		jmt	200	7471 (1)
Metals Prep, Ag Nonaqueous	Complete			05/05/1994		mic	89	7760 (1)

CORRECTED REPORT

6.6.94

M+ : Parameter analysis performed by the Method of Standard Additions (MSA).

S : Parameter analysis was sub-contracted to another NET location.

NATIONAL ENVIRONMENTAL TESTING, INC.

Bartlett Division
850 W. Bartlett Rd.
Bartlett, IL 60103
Tel: (708) 289-3100
Fax: (708) 289-5445

ANALYTICAL REPORT

Ms. Susan Roberts
ENGINEERING-SCIENCE, INC.
8000 Centre Park Drive
Suite 200
Austin, TX 78754

05/16/1994

Sample No. : 258109

NET Job No.: 94.02856

Sample Description: BKG-SB09(5)
721460.05; CSSA F-14 Closures

Date Taken: 04/22/1994
Time Taken: 10:45
IEPA Cert. No. 100221

Date Received: 04/23/1994
Time Received: 09:00
WDNR Cert. No. 999447130

Parameter	Results		Units	Date of Analysis	Method PQL	Analyst	Batch No. Prep/Run	Analytical Method
Solids, Total	98.9		%	05/03/1994	0.1	dsf	924	2540 (4)
METALS - ICP 2 Non-Aq	Complete		ug/g	05/09/1994		jmt	63	6010(1) 200.7(3)
Aluminum,ICP	2,100		ug/g	05/09/1994	5.0	jmt	245 605	6010 (1)
Arsenic, GFAA	<2.0	S,D10	ug/g	05/16/1994	0.20	dmc	205 13	7060 (1)
Barium, ICP	7.8		ug/g	05/09/1994	1.0	jmt	245 675	6010 (1)
Cadmium, ICP	<0.51		ug/g	05/09/1994	0.50	jmt	245 646	6010 (1)
Chromium, ICP	2.0		ug/g	05/09/1994	2.0	jmt	245 636	6010 (1)
Copper, ICP	1.1		ug/g	05/09/1994	0.50	jmt	245 858	6010 (1)
Iron, ICP	1,830		ug/g	05/09/1994	1.0	jmt	245 683	6010 (1)
Lead, AA	40	S	ug/g	05/04/1994	2.2	emh	205 222	7420 (1)
Mercury, CVAA	<0.03		ug/g	05/11/1994	0.02	jmt	200 318	7471 (1)
Nickel, AA	21	S	ug/g	05/11/1994	1.6	emh	205 100	7520 (1)
Selenium, GFAA	<20	S,M+	ug/g	05/15/1994	0.20	dmc	245 9	7740 (1)
Silver, AA	4.8		ug/g	05/05/1994	2.5	jmt	89 801	7760 (1)
Tin, ICP	<51		ug/g	05/09/1994	50	jmt	245 248	6010 (1)
Zinc, ICP	2.0		ug/g	05/09/1994	1.0	jmt	245 641	6010 (1)
Metals Prep, Nonaqueous	Complete			05/06/1994		jmt	245	3050 (1)
Metals Prep, Hg Nonaqueous	Complete			05/11/1994		jmt	200	7471 (1)
Metals Prep, Ag Nonaqueous	Complete			05/05/1994		mic	89	7760 (1)

CORRECTED REPORT
6-6-94

M+ : Parameter analysis performed by the Method of Standard Additions (MSA).

S : Parameter analysis was sub-contracted to another NET location.

NATIONAL ENVIRONMENTAL TESTING, INC.

Bartlett Division
850 W. Bartlett Rd.
Bartlett, IL 60103
Tel: (708) 289-3100
Fax: (708) 289-5445

ANALYTICAL REPORT

Ms. Susan Roberts
ENGINEERING-SCIENCE, INC.
8000 Centre Park Drive
Suite 200
Austin, TX 78754

05/16/1994

Sample No. : 258110

NET Job No.: 94.02856

Sample Description: BKG-SB10(20)
721460.05; CSSA F-14 Closures

Date Taken: 04/22/1994
Time Taken: 12:05
IEPA Cert. No. 100221

Date Received: 04/23/1994
Time Received: 09:00
WDNR Cert. No. 999447130

Parameter	Results		Units	Date of Analysis	Method PQL	Analyst	Batch No. Prep/Run	Analytical Method
Solids, Total	91.0		%	05/03/1994	0.1	dsf	924	2540 (4)
METALS - ICP 2 Non-Aq	Complete		ug/g	05/09/1994		jmt	63	6010(1) 200.7(3)
Aluminum,ICP	1,870		ug/g	05/09/1994	5.0	jmt	245 605	6010 (1)
Arsenic, GFAA	<2.2	S,D10	ug/g	05/16/1994	0.20	dmc	205 13	7060 (1)
Barium, ICP	6.4		ug/g	05/09/1994	1.0	jmt	245 675	6010 (1)
Cadmium, ICP	<0.55		ug/g	05/09/1994	0.50	jmt	245 646	6010 (1)
Chromium, ICP	3.7		ug/g	05/09/1994	2.0	jmt	245 636	6010 (1)
Copper, ICP	2.8		ug/g	05/09/1994	0.50	jmt	245 858	6010 (1)
Iron, ICP	3,140		ug/g	05/09/1994	1.0	jmt	245 683	6010 (1)
Lead, AA	44	S	ug/g	05/04/1994	2.2	emh	205 222	7420 (1)
Mercury, CVAA	<0.03		ug/g	05/11/1994	0.02	jmt	200 318	7471 (1)
Nickel, AA	18	S	ug/g	05/11/1994	1.6	emh	205 100	7520 (1)
Selenium, GFAA	<20	S,M+	ug/g	05/15/1994	0.20	dmc	205 9	7740 (1)
Silver, AA	3.7		ug/g	05/05/1994	2.5	jmt	89 801	7760 (1)
Tin, ICP	<55		ug/g	05/09/1994	50	jmt	245 248	6010 (1)
Zinc, ICP	4.3		ug/g	05/09/1994	1.0	jmt	245 641	6010 (1)
Metals Prep, Nonaqueous	Complete			05/06/1994		jmt	245	3050 (1)
Metals Prep, Hg Nonaqueous	Complete			05/11/1994		jmt	200	7471 (1)
Metals Prep, Ag Nonaqueous	Complete			05/05/1994		mic	89	7760 (1)

CORRECTED REPORT
6-6-94

M+ : Parameter analysis performed by the Method of Standard Additions (MSA).

S : Parameter analysis was sub-contracted to another NET location.

NATIONAL ENVIRONMENTAL TESTING, INC.

Rockford Division
3548 35th Street
Rockford, IL 61109
Tel: (815) 874-2171
Fax: (815) 874-5622
(800) 807-2877

ANALYTICAL AND QUALITY CONTROL REPORT

Mr. Brian Wanner
NET-MIDWEST INC/BARTLETT
850 West Bartlett Road
Bartlett, IL 60103

05/16/1994

NET Job Number: 94.01454

IEPA Cert. No. 100220
WDNR Cert. No. 999447240

Enclosed is the Analytical and Quality Control reports for the following samples submitted to the Rockford Division of NET, Inc. for analysis:

Sample Number	Sample Description	Date Taken	Date Received
135557	257480, Soil 77.1	04/20/1994	04/28/1994
135558	257481, Soil 82.5	04/20/1994	04/28/1994
135559	257482, Soil 81.5	04/20/1994	04/28/1994
135560	257483, Soil 91.6	04/20/1994	04/28/1994
135561	258064, Soil 83.2	04/21/1994	04/28/1994
135562	258065, Soil 83.3	04/21/1994	04/28/1994
135563	258066, Soil 85.0	04/22/1994	04/28/1994
135564	258067, Soil 80.1	04/22/1994	04/28/1994
135565	258068, Soil 85.2	04/22/1994	04/28/1994
135566	258069, Soil 93.3	04/22/1994	04/28/1994
135567	258101, Soil 95.8	04/21/1994	04/28/1994
135568	258102, Soil 93.7	04/21/1994	04/28/1994
135569	258103, Soil 93.3	04/21/1994	04/28/1994
135570	258104, Soil 93.8	04/21/1994	04/28/1994
135571	258105, Soil 95.6	04/21/1994	04/28/1994
135572	258106, Soil 92.5	04/21/1994	04/28/1994
135573	258107, Soil 95.5	04/22/1994	04/28/1994
135574	258108, Soil 92.7	04/22/1994	04/28/1994
135575	258109, Soil 98.9	04/22/1994	04/28/1994
135576	258110, Soil 91.0	04/22/1994	04/28/1994

The Quality Control report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed.

National Environmental Testing, Inc. certifies that the analytical results contained herein apply only to the specific samples analyzed.

Diane Lohr

Diane Lohr, Operations Manager
Rockford Division

NATIONAL ENVIRONMENTAL TESTING, INC.

Bartlett Division
850 W. Bartlett Rd.
Bartlett, IL 60103
Tel: (708) 289-3100
Fax: (708) 289-5445

CASE NARRATIVE

Ms. Susan Roberts
ENGINEERING-SCIENCE, INC.
8000 Centre Park Drive
Suite 200
Austin, TX 78754

05/31/1994

NET Job Number: 94.02697

Project Description: 721460.01 CSSA Background

Sample analysis in support of the project referenced above has been completed and results are presented on the following pages. Please refer to the enclosed "Key to Abbreviations" for definition of terms.

The following comments should be noted for the indicated fraction;

Metals Analysis

Sample 257480 : The sample preparation log indicates the correct weight of sample used during the total digestion process for ICP analysis (2.00g). The ICP run log shows a transcription error in recording the sample weight for sample 257480 and its MSD. The results have been recalculated and presented here: page 2 of the original analytical report and the MS/MSD summary.

Sample 257483 : The run log indicates 0.98g of sample digested. The correct amount is 0.99g. Page 5 of your analytical report is presented here with a corrected silver result: 3.7ug/g, not 3.8ug/g as originally reported.

Supporting raw data is attached.

This Quality Control report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your samples were analyzed. These results apply only to the samples analyzed. Reproduction of this report only in whole is permitted. Please refer to the enclosed "Key to Abbreviations" for definition of terms. Should you have questions regarding procedures or results, please do not hesitate to call. NET has been pleased to provide these analytical services for you.

Approved By:

Ray Kalicki
Quality Assurance Coordinator

Faxed To: David Glover
Engineering Science
Phone: (919) 677-0080
Fax: (919) 677-0118

NATIONAL ENVIRONMENTAL TESTING, INC.

Bartlett Division
850 W. Bartlett Rd.
Bartlett, IL 60103
Tel: (708) 289-3100
Fax: (708) 289-5445

ANALYTICAL REPORT

Ms. Susan Roberts
ENGINEERING-SCIENCE, INC.
8000 Centre Park Drive
Suite 200
Austin, TX 78754

05/16/1994

Sample No. : 257480

NET Job No.: 94.02697

Sample Description: BKG-SS-04
721460.01 CSSA Background

Date Taken: 04/20/1994
Time Taken: 10:15
IEPA Cert. No. 100221

Date Received: 04/21/1994
Time Received: 18:30
WDNR Cert. No. 999447130

Parameter	Results		Units	Date of Analysis	Method PQL	Analyst	Batch No. Prep/Run	Analytical Method
Solids, Total	77.1		%	05/02/1994	0.1	knj	921	2540 (4)
METALS - ICP 2 Non-Aq	Complete					jmt	62	6010(1) 200.7(3)
Aluminum,ICP	29,800		ug/g	05/05/1994	5.0	jmt	244 603	6010 (1)
Arsenic, GFAA	<26	S,D100	ug/g	05/16/1994	0.20	dmc	205 13	7060 (1)
Barium, ICP	133		ug/g	05/05/1994	1.0	jmt	244 673	6010 (1)
Cadmium, ICP	0.67		ug/g	05/05/1994	0.50	jmt	244 644	6010 (1)
Chromium, ICP	29.3		ug/g	05/05/1994	2.0	jmt	244 634	6010 (1)
Copper, ICP	14.1		ug/g	05/05/1994	0.50	jmt	244 856	6010 (1)
Iron, ICP	29,600		ug/g	05/05/1994	1.0	jmt	244 681	6010 (1)
Lead, AA	36	S	ug/g	05/04/1994	2.2	emh	205 222	7420 (1)
Mercury, CVAA	<0.03		ug/g	05/03/1994	0.02	jmt	199 316	7471 (1)
Nickel, AA	32	S	ug/g	05/11/1994	1.6	emh	205 100	7520 (1)
Selenium, GFAA	<2.6	S,D10	ug/g	05/15/1994	0.20	dmc	205 9	7740 (1)
Silver, AA	<3.0		ug/g	05/05/1994	2.5	jmt	89 799	7760 (1)
Tin, ICP	<600	D10	ug/g	05/06/1994	50	jmt	244	6010 (1)
Zinc, ICP	41.2		ug/g	05/05/1994	1.0	jmt	244 639	6010 (1)
Metals Prep, Nonaqueous	Complete			05/04/1994		jmt	244	3050 (1)
Metals Prep, Hg Nonaqueous	Complete			05/03/1994		jmt	199	7471 (1)
Metals Prep, Ag Nonaqueous	Complete			05/05/1994		mic	89	7760 (1)

CORRECTED REPORT 5.31.94

D10 : Parameter analysis performed at a 10x dilution due to a matrix interference at lower dilutions.
D100 : Parameter analysis performed at a 100x dilution due to a matrix interference at lower dilutions.
S : Parameter analysis was sub-contracted to another NET location.

NATIONAL ENVIRONMENTAL TESTING, INC.

Bartlett Division
850 W. Bartlett Rd.
Bartlett, IL 60103
Tel: (708) 289-3100
Fax: (708) 289-5445

ANALYTICAL REPORT

Ms. Susan Roberts
ENGINEERING-SCIENCE, INC.
8000 Centre Park Drive
Suite 200
Austin, TX 78754

05/16/1994

Sample No. : 257483

NET Job No.: 94.02697

Sample Description: BKG-SS-08
721460.01 CSSA Background

Date Taken: 04/20/1994
Time Taken: 11:45
IEPA Cert. No. 100221

Date Received: 04/21/1994
Time Received: 18:30
WDNR Cert. No. 999447130

Parameter	Results		Units	Date of Analysis	Method PQL	Analyst	Batch No. Prep/Run	Analytical Method
Solids, Total	91.6		%	05/02/1994	0.1	knj	921	2540 (4)
METALS - ICP 2 Non-Aq	Complete					jmt	62	6010(1) 200.7(3)
Aluminum,ICP	4,800		ug/g	05/05/1994	5.0	jmt	244 603	6010 (1)
Arsenic, GFAA	<11	S,D50	ug/g	05/03/1994	0.20	dmc	205 13	7060 (1)
um, ICP	20.3		ug/g	05/05/1994	1.0	jmt	244 673	6010 (1)
mium, ICP	<0.55		ug/g	05/05/1994	0.50	jmt	244 644	6010 (1)
Chromium, ICP	4.7		ug/g	05/05/1994	2.0	jmt	244 634	6010 (1)
Copper, ICP	4.0		ug/g	05/05/1994	0.50	jmt	244 856	6010 (1)
Iron, ICP	4,500		ug/g	05/05/1994	1.0	jmt	244 681	6010 (1)
Lead, AA	49	S	ug/g	05/04/1994	2.2	emh	205 222	7420 (1)
Mercury, CVAA	0.04		ug/g	05/03/1994	0.02	jmt	199 316	7471 (1)
Nickel, AA	23.6	S	ug/g	05/11/1994	1.6	emh	205 100	7520 (1)
Selenium, GFAA	<2.2	S,D10	ug/g	05/15/1994	0.20	dmc	205 9	7740 (1)
Silver, AA	3.7		ug/g	05/05/1994	2.5	jmt	89 799	7760 (1)
Tin, ICP	<500	D10	ug/g	05/06/1994	50	jmt	244 247	6010 (1)
Zinc, ICP	7.5		ug/g	05/05/1994	1.0	jmt	244 639	6010 (1)
Metals Prep, Nonaqueous	Complete			05/04/1994		jmt	244	3050 (1)
Metals Prep, Hg Nonaqueous	Complete			05/03/1994		jmt	199	7471 (1)
Metals Prep, Ag Nonaqueous	Complete			05/05/1994		mic	89	7760 (1)

CORRECTED REPORT 5-31-94

D10 : Parameter analysis performed at a 10x dilution due to a matrix interference at lower dilutions.
D50 : Parameter analysis performed at a 50x dilution due to a matrix interference at lower dilutions.
S : Parameter analysis was sub-contracted to another NET location.

NATIONAL ENVIRONMENTAL TESTING, INC.

Bartlett Division
850 W. Bartlett Rd.
Bartlett, IL 60103
Tel: (708) 289-3100
Fax: (708) 289-5445

QUALITY CONTROL REPORT

MATRIX SPIKE/MATRIX SPIKE DUPLICATE

ENGINEERING-SCIENCE, INC.
8000 Centre Park Drive
Suite 200
Austin, TX 78754
Ms. Susan Roberts

05/16/1994

NET Job Number: 94.02697

Analyte	Prep Batch Number	Run Batch Number	Matrix Spike Result	Sample Result	Spike Amount	Units	Percent Recovery	MSD Result	MSD Spike Amount	Units	Percent Recovery	MS/MSD RPD
Aluminum, ICP*	244	603	MS/MSD not recovered due to high analyte concentration.									
Barium, ICP*	244	673	177	133	50.0	ug/g	88.0	198	50.0	ug/g	130.0	38.5
Cadmium, ICP	244	644	28.4	0.67	25.0	ug/g	110.9	31.3	25.0	ug/g	122.5	9.9
Chromium, ICP	244	634	83.2	29.3	50.0	ug/g	107.8	84.2	50.0	ug/g	109.8	1.8
Copper, ICP	244	856	42.0	14.1	25.0	ug/g	111.6	44.7	25.0	ug/g	122.4	9.2
Iron, ICP*	244	681	MS/MSD not recovered due to high analyte concentration.									
Silver, AA	89	798	58.7	3.1	50.0	ug/g	111.2	55.7	50.0	ug/g	105.2	5.5
Zinc, ICP	244	639	93.6	41.2	50.0	ug/g	104.8	87.2	50.0	ug/g	92.0	13.0

*Please see the raw data for post-digestion spike analysis.

CORRECTED REPORT 5.31.94

NOTE: Matrix Spike Samples may not be samples from this job.

Advisory Control Limits for MS/MSDs:

For Inorganic Parameters and GC Volatiles, the spike recovery should be 75 - 125% if the spike added value was greater than or equal to one fourth of the sample result value. If not, the control limits are not established. The RPD for the MS/MSD pair should be less than 20.

MS = Matrix Spike
MSD = Matrix Spike Duplicate
RPD = Relative Percent Difference

NATIONAL ENVIRONMENTAL TESTING, INC.

Bartlett Division
850 W. Bartlett Rd.
Bartlett, IL 60103
Tel: (708) 289-3100
Fax: (708) 289-5445

May 23, 1994

Ms. Susan Roberts
ENGINEERING-SCIENCE, INC.
8000 Centre Park Drive
Suite 200
Austin, TX 78754

REF: QC Deliverables For NET Job #'s 94.02697, 94.02853 and 94.02856

Dear Ms. Roberts,

Enclosed are the QC Deliverables for the NET Job #'s listed above submitted according to subcontract 712460.05000-C1.

As, GFAA; Pb, AA; Ni, AA and Se, GFAA were subcontracted to the NET Rockford Division. The Rockford Division Analytical and QC Report is attached with each Job.

* Included with the raw data (sample data sheets) and in summary form on your report are:

Continuing Calibration, Method Blank, Spike Sample Recovery, Replicate Samples and Laboratory Control Sample.

* Included with the raw data (sample data sheets) are:

Initial Calibration, ICP Interference Check Sample (ICP only), Post-Digestion Spike Sample Recovery (if required), Standard Addition Results (if required), ICP Serial Dilutions (performed on NET sample #257481), Preparation Log and Analysis Run Log.

* Also included in your package are:

Instrument Method Detection Limits (required to analyze annually), ICP Element Files showing background correction factors or interelement correction factors and ICP Linear Ranges (Linear Ranges are included with the sample data sheets on the Interference Check Standard for Fe and Al).

Tin, ICP shows results below the reporting limit but with a peculiarly high negative readout. A spectral analysis will be performed to further investigate this.

Se, GFAA requires a Method of Standard Additions. This will be forwarded to you upon receipt.

(Continued...)

NATIONAL ENVIRONMENTAL TESTING, INC.

Bartlett Division
850 W. Bartlett Rd.
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Tel: (708) 289-3100
Fax: (708) 289-5445

Ms. Susan Roberts
ENGINEERING-SCIENCE, INC.
8000 Centre Park Drive
Suite 200
Austin, TX 78754

REF: QC Deliverables For NET Job #'s 94.02697, 94.02853 and 94.02856

I will follow-up with you as soon as possible concerning the Sn, ICP and Se, GFAA analysis.

Please call if you have any questions or if you need any additional information.

Sincerely,

Ray Kalicki
Quality Assurance
Coordinator

cc: Ms. Sandy Czarnecki
ES Raleigh Durham
1 Harrison Park
401 Harrison Oaks Blvd.
Suite 210
Cary, NC 27513

rck/esa

NATIONAL ENVIRONMENTAL TESTING, INC.

Bartlett Division
850 W. Bartlett Rd.
Bartlett, IL 60103
Tel: (708) 289-3100
Fax: (708) 289-5445

Ms. Susan Roberts
ENGINEERING-SCIENCE, INC.
8000 Centre Park Drive
Suite 200
Austin, TX 78754

05/16/1994

NET Job Number: 94.02697

Enclosed is the Quality Control Data and Analytical Results for the following samples submitted to NET, Inc. Bartlett Division for analysis:

Project Description: 721460.01 CSSA Background

Sample Number	Sample Description	Date Taken	Date Received
257480	BKG-SS-04	04/20/1994	04/21/1994
257481	BKG-SS-06	04/20/1994	04/21/1994
257482	BKG-SS-07	04/20/1994	04/21/1994
257483	BKG-SS-08	04/20/1994	04/21/1994

Results are presented on a dry weight basis.

Sample analysis in support of the project referenced above has been completed and results are presented on the following pages. These results apply only to the samples analyzed. Reproduction of this report only in whole is permitted. Please refer to the enclosed "Key to Abbreviations" for definition of terms. Should you have questions regarding procedures or results, please do not hesitate to call. NET has been pleased to provide these analytical services for you.

This Quality Control report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed.

Approved by:

Ray Kalicki
QA Coordinator, for:
Jean-Pierre C. Rouanet
Operations Manager

NATIONAL ENVIRONMENTAL TESTING, INC.

Bartlett Division
850 W. Bartlett Rd.
Bartlett, IL 60103
Tel: (708) 289-3100
Fax: (708) 289-5445

QUALITY CONTROL REPORT

CONTINUING CALIBRATION VERIFICATION

ENGINEERING-SCIENCE, INC.
8000 Centre Park Drive
Suite 200
Austin, TX 78754
Ms. Susan Roberts

05/16/1994

NET Job Number: 94.02697

Analyte	Run Batch Number	CCV True Conc.	Conc. Found	Percent Recovery
Aluminum,ICP	603	2.00	2.06	103.0
Barium, ICP	673	2.00	2.12	106.0
Cadmium, ICP	644	1.00	1.09	109.0
Chromium, ICP	634	2.00	2.15	107.5
Copper, ICP	856	1.00	1.09	109.0
Iron, ICP	681	2.00	2.14	107.0
Mercury, CVAA	316	0.0025	0.0027	108.0
Silver, AA	799	0.500	0.459	91.8
Tin, ICP	247	2.12	2.00	106.0
Zinc, ICP	639	2.00	2.18	109.0

CCV - Continuing Calibration Verification

NATIONAL ENVIRONMENTAL TESTING, INC.

Bartlett Division
850 W. Bartlett Rd.
Bartlett, IL 60103
Tel: (708) 289-3100
Fax: (708) 289-5445

QUALITY CONTROL REPORT

BLANK ANALYSIS

ENGINEERING-SCIENCE, INC.
8000 Centre Park Drive
Suite 200
Austin, TX 78754
Ms. Susan Roberts

05/16/1994

NET Job Number: 94.02697

Analyte	Prep Batch Number	Run Batch Number	Blank Analysis Results	Units	Reporting Limit	Analytical Method
Aluminum,ICP	244	604	<5.0	ug/g	5.0	6010 (1)
Barium, ICP	244	674	<1.0	ug/g	1.0	6010 (1)
Cadmium, ICP	244	645	<0.50	ug/g	0.50	6010 (1)
Chromium, ICP	244	635	<2.0	ug/g	2.0	6010 (1)
Copper, ICP	244	857	<0.50	ug/g	0.50	6010 (1)
Iron, ICP	244	682	1.3	ug/g	1.0	6010 (1)
Mercury, CVAA	199	316	<0.02	ug/g	0.02	7471 (1)
Silver, AA	89	798	<2.5	ug/g	2.5	7760 (1)
Tin, ICP	244	247	<50.0	ug/g	50	6010 (1)
Zinc, ICP	244	640	<1.0	ug/g	1.0	6010 (1)

Advisory Control Limits for Blanks:

All compounds should be less than the Reporting Limit, except for phthalate esters, toluene, methylene chloride, acetone and chloroform should be less than 5 times the Reporting Limit.

OCEAN GROUP

NATIONAL ENVIRONMENTAL TESTING, INC.

Bartlett Division
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QUALITY CONTROL REPORT

LABORATORY CONTROL STANDARD

ENGINEERING-SCIENCE, INC.
8000 Centre Park Drive
Suite 200
Austin, TX 78754
Ms. Susan Roberts

05/16/1994

NET Job Number: 94.02697

Analyte	Prep Batch Number	Run Batch Number	True Conc.	Conc. Found	LCS % Recovery
Aluminum,ICP	244	609	50.0	48.8	97.6
Barium, ICP	244	679	50.0	48.4	96.8
Cadmium, ICP	244	650	25.0	23.5	94.0
Chromium, ICP	244	640	50.0	48.0	96.0
Copper, ICP	244	862	25.0	25.2	100.8
Iron, ICP	244	687	50.0	48.2	96.4
Mercury, CVAA	199	316	0.25	0.27	108.0
Silver, AA	89	798	50.0	48.8	97.6
Zinc, ICP	244	645	50.0	48.3	96.6

Advisory Control Limits - Inorganics - LCS recovery should be 80 - 120%.

NATIONAL ENVIRONMENTAL TESTING, INC.

Bartlett Division
850 W. Bartlett Rd.
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QUALITY CONTROL REPORT

MATRIX SPIKE/MATRIX SPIKE DUPLICATE

ENGINEERING-SCIENCE, INC.
8000 Centre Park Drive
Suite 200
Austin, TX 78754
Ms. Susan Roberts

05/16/1994

NET Job Number: 94.02697

Analyte	Prep Batch Number	Run Batch Number	Matrix Spike Result	Sample Result	Spike Amount	Units	Percent Recovery	MSD Result	MSD Spike Amount	Units	Percent Recovery	MS/MSD RPD
Aluminum, ICP*	244	603	MS/MSD not recovered due to high analyte concentration.									
Barium, ICP	244	673	177	136	50.0	ug/g	82.0	194	50.0	ug/g	116.0	34.2
Cadmium, ICP	244	644	28.4	0.53	25.0	ug/g	111.5	30.7	25.0	ug/g	120.7	7.9
Chromium, ICP	244	634	83.2	23.1	50.0	ug/g	120.2	82.5	50.0	ug/g	118.8	1.2
Copper, ICP	244	856	42.0	14.1	25.0	ug/g	111.6	43.8	25.0	ug/g	118.8	6.2
Ir ICP*	244	681	MS/MSD not recovered due to high analyte concentration.									
S , AA	89	798	58.7	3.1	50.0	ug/g	111.2	55.7	50.0	ug/g	105.2	5.5
Zinc, ICP	244	639	93.6	42.1	50.0	ug/g	103.0	85.5	50.0	ug/g	86.8	17.0

*Please see the raw data for post-digestion spike analysis.

NOTE: Matrix Spike Samples may not be samples from this job.

Advisory Control Limits for MS/MSDs:

For Inorganic Parameters and GC Volatiles, the spike recovery should be 75 - 125% if the spike added value was greater than or equal to one fourth of the sample result value. If not, the control limits are not established. The RPD for the MS/MSD pair should be less than 20.

MS = Matrix Spike
MSD = Matrix Spike Duplicate
= Relative Percent Difference

OCEAN GROUP

NATIONAL ENVIRONMENTAL TESTING, INC.

Bartlett Division
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QUALITY CONTROL REPORT

SPIKES

ENGINEERING-SCIENCE, INC.
8000 Centre Park Drive
Suite 200
Austin, TX 78754
Ms. Susan Roberts

05/16/1994

NET Job Number: 94.02697

Analyte	Prep Batch Number	Run Batch Number	Spiked Sample Result	Sample Result	Spike Added	Units	Percent Recovery
Mercury, CVAA	199	316	0.24	0.04	0.25	ug/g	80.0

NOTE: Spikes and Duplicates may not be samples from this job.

The values reported above are for post digestion/distillation spikes.

Advisory Control Limits for Spikes - Spike recovery should be 75 - 125%.

NATIONAL ENVIRONMENTAL TESTING, INC.

Bartlett Division
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QUALITY CONTROL REPORT

DUPLICATES

ENGINEERING-SCIENCE, INC.
8000 Centre Park Drive
Suite 200
Austin, TX 78754
Ms. Susan Roberts

05/16/1994

NET Job Number: 94.02697

Analyte	Prep Batch Number	Run Batch Number	Original Analysis	Duplicate Analysis	Units	RPD
Solids, Total		921	77.1	78.1	%	1.3
Mercury, CVAA	199	316	0.08	0.09	ug/g	11.8

NOTE: Spikes and Duplicates may not be samples from this job.

RPD - Relative Percent Difference

Advisory Control Limits for Duplicates - RPD should be less than 20.

NATIONAL ENVIRONMENTAL TESTING, INC.

Bartlett Division
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Ms. Susan Roberts
ENGINEERING-SCIENCE, INC.
8000 Centre Park Drive
Suite 200
Austin, TX 78754

05/16/1994

NET Job Number: 94.02856

Enclosed is the Quality Control Data and Analytical Results for the following samples submitted to NET, Inc. Bartlett Division for analysis:

Project Description: 721460.05; CSSA F-14 Closures

Sample Number	Sample Description	Date Taken	Date Received
258101	BKG-SB07(24)	04/21/1994	04/23/1994
258102	BKG-SB06(18)	04/21/1994	04/23/1994
258103	BKG-SB08(5)	04/21/1994	04/23/1994
258104	BKG-SB05(10)	04/21/1994	04/23/1994
258105	BKG-SB04(17.5)	04/21/1994	04/23/1994
258106	BKG-SB03(19.5)	04/21/1994	04/23/1994
258107	BKG-SB02(10)	04/22/1994	04/23/1994
258108	BKG-SB01(4.5)	04/22/1994	04/23/1994
258109	BKG-SB09(5)	04/22/1994	04/23/1994
258110	BKG-SB10(20)	04/22/1994	04/23/1994

Results are presented on a dry weight basis.

Sample analysis in support of the project referenced above has been completed and results are presented on the following pages. These results apply only to the samples analyzed. Reproduction of this report only in whole is permitted. Please refer to the enclosed "Key to Abbreviations" for definition of terms. Should you have questions regarding procedures or results, please do not hesitate to call. NET has been pleased to provide these analytical services for you.

This Quality Control report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed.

Approved by:

Ray Kalicki
QA Coordinator, for:

Jean-Pierre C. Rouanet
Operations Manager

OCEAN GROUP

NATIONAL ENVIRONMENTAL TESTING, INC.

Bartlett Division
850 W. Bartlett Rd.
Bartlett, IL 60103
Tel: (708) 289-3100
Fax: (708) 289-5445

QUALITY CONTROL REPORT

CONTINUING CALIBRATION VERIFICATION

ENGINEERING-SCIENCE, INC.
8000 Centre Park Drive
Suite 200
Austin, TX 78754
Ms. Susan Roberts

05/16/1994

NET Job Number: 94.02856

Analyte	Run Batch Number	CCV True Conc.	Conc. Found	Percent Recovery
Aluminum,ICP	605	2.00	1.94	97.0
Barium, ICP	675	2.00	2.07	103.5
Cadmium, ICP	646	1.00	0.983	98.3
Chromium, ICP	636	2.00	1.97	98.5
Copper, ICP	858	1.00	1.01	101.0
Iron, ICP	683	2.00	2.04	102.0
Mercury, CVAA	318	0.0025	0.0023	92.0
Silver, AA	801	0.500	0.501	100.2
Tin, ICP	248	2.00	2.05	102.5
Zinc, ICP	641	2.00	2.05	102.5

CCV - Continuing Calibration Verification

NATIONAL ENVIRONMENTAL TESTING, INC.

Bartlett Division
850 W. Bartlett Rd.
Bartlett, IL 60103
Tel: (708) 289-3100
Fax: (708) 289-5445

QUALITY CONTROL REPORT

BLANK ANALYSIS

ENGINEERING-SCIENCE, INC.
8000 Centre Park Drive
Suite 200
Austin, TX 78754
Ms. Susan Roberts

05/16/1994

NET Job Number: 94.02856

Analyte	Prep Batch Number	Run Batch Number	Blank Analysis Results	Units	Reporting Limit	Analytical Method
Aluminum,ICP	245	605	<5.0	ug/g	5.0	6010 (1)
Barium, ICP	245	675	<1.0	ug/g	1.0	6010 (1)
Cadmium, ICP	245	646	<0.50	ug/g	0.50	6010 (1)
Chromium, ICP	245	636	<2.0	ug/g	2.0	6010 (1)
Copper, ICP	245	858	<0.50	ug/g	0.50	6010 (1)
Iron, ICP	245	683	2.6	ug/g	1.0	6010 (1)
Mercury, CVAA	200	318	<0.02	ug/g	0.02	7471 (1)
Silver, AA	89	798	<2.5	ug/g	2.5	7760 (1)
Tin, ICP	245	248	<50	ug/g	50	6010 (1)
Zinc, ICP	245	641	1.2	ug/g	1.0	6010 (1)

Advisory Control Limits for Blanks:

All compounds should be less than the Reporting Limit, except for phthalate esters, toluene, methylene chloride, acetone and chloroform should be less than 5 times the Reporting Limit.

OCEAN GROUP

NATIONAL ENVIRONMENTAL TESTING, INC.

Bartlett Division
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QUALITY CONTROL REPORT

LABORATORY CONTROL STANDARD

ENGINEERING-SCIENCE, INC.
8000 Centre Park Drive
Suite 200
Austin, TX 78754
Ms. Susan Roberts

05/16/1994

NET Job Number: 94.02856

Analyte	Prep Batch Number	Run Batch Number	True Conc.	Conc. Found	LCS % Recovery
Aluminum,ICP	245	605	50.0	50.2	100.4
Barium, ICP	245	675	50.0	45.0	90.0
Cadmium, ICP	245	646	25.0	21.7	86.8
Chromium, ICP	245	636	50.0	46.1	92.2
Copper, ICP	245	858	25.0	23.0	92.0
Iron, ICP	245	683	50.0	47.7	95.4
Mercury, CVAA	200	318	0.25	0.23	92.0
Silver, AA	89	798	50.0	48.8	97.6
Zinc, ICP	245	641	50.0	45.2	90.4

Advisory Control Limits - Inorganics - LCS recovery should be 80 - 120%.

NATIONAL ENVIRONMENTAL TESTING, INC.

Bartlett Division
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QUALITY CONTROL REPORT

MATRIX SPIKE/MATRIX SPIKE DUPLICATE

ENGINEERING-SCIENCE, INC.
8000 Centre Park Drive
Suite 200
Austin, TX 78754
Ms. Susan Roberts

05/16/1994

NET Job Number: 94.02856

Analyte	Prep Batch Number	Run Batch Number	Matrix Spike Result	Sample Result	Spike Amount	Units	Percent Recovery	MSD Result	MSD Spike Amount	Units	Percent Recovery	MS/MSD RPD
Aluminum,ICP*	245	605	MS/MSD diluted out due to high analyte concentration.									
Barium, ICP	245	675	116	69.4	50.0	ug/g	93.2	114	50.0	ug/g	89.2	4.4
Cadmium, ICP	245	646	23.9	<0.60	25.0	ug/g	95.6	23.4	25.0	ug/g	93.6	2.1
Chromium, ICP	245	636	63.3	16.3	50.0	ug/g	94.0	60.0	50.0	ug/g	87.4	7.3
Copper, ICP	245	858	32.1	8.4	25.0	ug/g	94.8	33.3	25.0	ug/g	99.6	4.9
Iron, ICP*	245	683	MS/MSD diluted out due to high analyte concentration.									
Mercury, CVAA	200	318	0.23	<0.02	0.25	ug/g	92.0	0.24	0.25	ug/g	96.0	4.3
Silver, AA	89	798	58.7	3.1	50.0	ug/g	111.2	55.7	50.0	ug/g	105.2	5.5
Zinc, ICP*	245	641	68.6	21.8	50.0	ug/g	93.6	53.3	50.0	ug/g	63.0	39.1

*Please see the raw data for post-digestion spike analysis.

NOTE: Matrix Spike Samples may not be samples from this job.

Advisory Control Limits for MS/MSDs:

For Inorganic Parameters and GC Volatiles, the spike recovery should be 75 - 125% if the spike added value was greater than or equal to one fourth of the sample result value. If not, the control limits are not established. The RPD for the MS/MSD pair should be less than 20.

MS = Matrix Spike
MSD = Matrix Spike Duplicate
RPD = Relative Percent Difference

OCEAN GROUP

NATIONAL ENVIRONMENTAL TESTING, INC.

Bartlett Division
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QUALITY CONTROL REPORT

DUPLICATES

ENGINEERING-SCIENCE, INC.
8000 Centre Park Drive
Suite 200
Austin, TX 78754
Ms. Susan Roberts

05/16/1994

NET Job Number: 94.02856

Analyte	Prep Batch Number	Run Batch Number	Original Analysis	Duplicate Analysis	Units	RPD
Solids, Total		923	81.6	82.9	%	1.6
Solids, Total		924	98.9	98.3	%	0.6

NOTE: Spikes and Duplicates may not be samples from this job.

RPD - Relative Percent Difference

Advisory Control Limits for Duplicates - RPD should be less than 20.

NATIONAL ENVIRONMENTAL TESTING, INC.

Bartlett Division
850 W. Bartlett Rd.
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QUALITY CONTROL REPORT

CONTINUING CALIBRATION VERIFICATION

ENGINEERING-SCIENCE, INC.
8000 Centre Park Drive
Suite 200
Austin, TX 78754
Ms. Susan Roberts

05/16/1994

NET Job Number: 94.02853

Analyte	Run Batch Number	CCV True Conc.	Conc. Found	Percent Recovery
Aluminum,ICP	605	2.00	1.94	97.0
Barium, ICP	675	2.00	2.07	103.5
Cadmium, ICP	646	1.00	0.983	98.3
Chromium, ICP	636	2.00	1.97	98.5
Copper, ICP	858	1.00	1.01	101.0
Iron, ICP	683	2.00	2.04	102.0
Mercury, CVAA	318	0.0025	0.0023	92.0
Silver, AA	801	0.500	0.501	100.2
Tin, ICP	248	2.00	2.05	102.5
Zinc, ICP	641	2.00	2.05	102.5

CCV - Continuing Calibration Verification

NATIONAL ENVIRONMENTAL TESTING, INC.

Bartlett Division
850 W. Bartlett Rd.
Bartlett, IL 60103
Tel: (708) 289-3100
Fax: (708) 289-5445

QUALITY CONTROL REPORT

BLANK ANALYSIS

ENGINEERING-SCIENCE, INC.
8000 Centre Park Drive
Suite 200
Austin, TX 78754
Ms. Susan Roberts

05/16/1994

NET Job Number: 94.02853

Analyte	Prep Batch Number	Run Batch Number	Blank Analysis Results	Units	Reporting Limit	Analytical Method
Aluminum,ICP	245	605	<5.0	ug/g	5.0	6010 (1)
Barium, ICP	245	675	<1.0	ug/g	1.0	6010 (1)
Cadmium, ICP	245	646	<0.50	ug/g	0.50	6010 (1)
Chromium, ICP	245	636	<2.0	ug/g	2.0	6010 (1)
Copper, ICP	245	858	<0.50	ug/g	0.50	6010 (1)
Iron, ICP	245	683	2.6	ug/g	1.0	6010 (1)
Mercury, CVAA	200	318	<0.02	ug/g	0.02	7471 (1)
ilver, AA	89	798	<2.5	ug/g	2.5	7760 (1)
Tin, ICP	245	248	<50	ug/g	50	6010 (1)
Zinc, ICP	245	641	1.2	ug/g	1.0	6010 (1)

Advisory Control Limits for Blanks:

All compounds should be less than the Reporting Limit, except for phthalate esters, toluene, methylene chloride, acetone and chloroform should be less than 5 times the Reporting Limit.

NATIONAL ENVIRONMENTAL TESTING, INC.

Bartlett Division
850 W. Bartlett Rd.
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QUALITY CONTROL REPORT

LABORATORY CONTROL STANDARD

ENGINEERING-SCIENCE, INC.
8000 Centre Park Drive
Suite 200
Austin, TX 78754
Ms. Susan Roberts

05/16/1994

NET Job Number: 94.02853

Analyte	Prep Batch Number	Run Batch Number	True Conc.	Conc. Found	LCS % Recovery
Aluminum,ICP	245	605	50.0	50.2	100.4
Barium, ICP	245	675	50.0	45.0	90.0
Cadmium, ICP	245	646	25.0	21.7	86.8
Chromium, ICP	245	636	50.0	46.1	92.2
Copper, ICP	245	858	25.0	23.0	92.0
Iron, ICP	245	683	50.0	47.7	95.4
Mercury, CVAA	200	318	0.25	0.23	92.0
Silver, AA	89	798	50.0	48.8	97.6
Zinc, ICP	245	641	50.0	45.2	90.4

Advisory Control Limits - Inorganics - LCS recovery should be 80 - 120%.

NATIONAL ENVIRONMENTAL TESTING, INC.

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QUALITY CONTROL REPORT

MATRIX SPIKE/MATRIX SPIKE DUPLICATE

ENGINEERING-SCIENCE, INC.
8000 Centre Park Drive
Suite 200
Austin, TX 78754
Ms. Susan Roberts

05/16/1994

NET Job Number: 94.02853

Analyte	Prep Batch Number	Run Batch Number	Matrix Spike Result	Sample Result	Spike Amount	Units	Percent Recovery	MSD Result	MSD Spike Amount	Units	Percent Recovery	MS/MSD RPD
Aluminum, ICP*	245	605	MS/MSD diluted out due to high analyte concentration.									
Barium, ICP	245	675	116	69.4	50.0	ug/g	93.2	114	50.0	ug/g	89.2	4.4
Cadmium, ICP	245	646	23.9	<0.60	25.0	ug/g	95.6	23.4	25.0	ug/g	93.6	2.1
Chromium, ICP	245	636	63.3	16.3	50.0	ug/g	94.0	60.0	50.0	ug/g	87.4	7.3
Copper, ICP	245	858	32.1	8.4	25.0	ug/g	94.8	33.3	25.0	ug/g	99.6	4.9
ICP*	245	683	MS/MSD diluted out due to high analyte concentration.									
Mercury, CVAA	200	318	0.23	<0.02	0.25	ug/g	92.0	0.24	0.25	ug/g	96.0	4.3
Silver, AA	89	798	58.7	3.1	50.0	ug/g	111.2	55.7	50.0	ug/g	105.2	5.5
Zinc, ICP*	245	641	68.6	21.8	50.0	ug/g	93.6	53.3	50.0	ug/g	63.0	39.1

*Please see the raw data for post-digestion spike analysis.

NOTE: Matrix Spike Samples may not be samples from this job.

Advisory Control Limits for MS/MSDs:

For Inorganic Parameters and GC Volatiles, the spike recovery should be 75 - 125% if the spike added value was greater than or equal to one fourth of the sample result value. If not, the control limits are not established. The RPD for the MS/MSD pair should be less than 20.

MS = Matrix Spike
MSD = Matrix Spike Duplicate
RPD = Relative Percent Difference

NATIONAL ENVIRONMENTAL TESTING, INC.

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QUALITY CONTROL REPORT

DUPLICATES

ENGINEERING-SCIENCE, INC.
8000 Centre Park Drive
Suite 200
Austin, TX 78754
Ms. Susan Roberts

05/16/1994

NET Job Number: 94.02853

Analyte	Prep Batch Number	Run Batch Number	Original Analysis	Duplicate Analysis	Units	RPD
Solids, Total		923	81.6	82.9	%	1.6
Solids, Total		924	98.9	98.3	%	0.6

NOTE: Spikes and Duplicates may not be samples from this job.

RPD - Relative Percent Difference

Advisory Control Limits for Duplicates - RPD should be less than 20.

NET Midwest, Bartlett Division

KEY TO ABBREVIATIONS and METHOD REFERENCES

<	:	Less than; When appearing in the results column indicates the analyte was not detected at or above the reported value.
mg/L	:	Concentration in units of milligrams of analyte per liter of sample. Measurement used for aqueous samples. Can also be expressed as parts per million (ppm).
ug/g	:	Concentration in units of micrograms of analyte per gram of sample. Measurement used for non-aqueous samples. Can also be expressed as parts per million (ppm) or mg/Kg.
ug/L	:	Concentration in units of micrograms of analyte per liter of sample. Measurement used for aqueous samples. Can also be expressed as parts per billion (ppb).
ug/Kg	:	Concentration in units of micrograms of analyte per kilogram of sample. Measurement used for non-aqueous samples. Can also be expressed as parts per billion (ppb).
B	:	Sample result flag indicating that the analyte was also found in the method blank analysis. The value after the B indicates the concentration found in the blank analysis.
D	:	Sample result flag indicating that the reported concentration is from an analysis performed at a dilution. The value following the D indicates the dilution factor of the analysis.
J	:	Sample result flag indicating that the reported concentration is below the routine reporting limit but greater than the Method Detection Limit. The value should be considered estimated.
TCLP	:	These initials appearing in front of an analyte name indicate that the Toxicity Characteristic Leaching Procedure (TCLP) was performed for this test.
%	:	Percent; To convert ppm to %, divide the result by 10,000. To convert % to ppm, multiply the result by 10,000.
Dry Weight (dw)	:	When indicated, the results are reported on a dry weight basis. The contribution of the moisture content in the sample is subtracted when calculating the concentration of the analyte.
ICP	:	Indicates analysis was performed using Inductively Coupled Plasma Spectroscopy.
AA	:	Indicates analysis was performed using Atomic Absorption Spectroscopy.
GFAA	:	Indicates analysis was performed using Graphite Furnace Atomic Absorption Spectroscopy.
PQL	:	Practical Quantitation Limit; the lowest level that can be reliably achieved within specified limits of precision and accuracy during routine laboratory operating conditions.

Method References

(1) Methods 1000 through 9999: see "Test Methods for Evaluating Solid Waste", USEPA SW-846, 3rd Edition, 1986.

(2) ASTM "American Society for Testing Materials

(3) Methods 100 through 499: see "Methods for Chemical Analysis of Water and Wastes", USEPA, 600/4-79-020, Rev. 1983.

(4) See "Standard Methods for the Examination of Water and Wastewater", 17th Ed, APHA, 1989.

5) Methods 600 through 625: see "Guidelines Establishing Test Procedures for the Analysis of Pollutants", USEPA Federal Register Vol. 49 No. 209, October 1984.

(6) Methods 500 through 599: see "Methods for the Determination of Organic Compounds in Drinking Water," USEPA 600/4-88/039, Rev. 1988.

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CASE NARRATIVE

Ms. Susan Roberts
ENGINEERING-SCIENCE, INC.
8000 Centre Park Drive
Suite 200
Austin, TX 78754

05/16/1994

NET Job Number: 94.02697

Project Description: 721460.01 CSSA Background

Sample analysis in support of the project referenced above has been completed and results are presented on the following pages. Please refer to the enclosed "Key to Abbreviations" for definition of terms.

The following comments should be noted for the indicated fraction;

Metals Analysis

As, GFAA; Pb, AA; Ni, AA and Se, GFAA were analyzed at NET Rockford Division. Supporting QC documentation from NET Bartlett and NET Rockford will follow.

Ag, AA : Silver could not be analyzed by ICP due to a matrix interference during ICP aspiration. Silver was analyzed by AA.

This Quality Control report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your samples were analyzed. These results apply only to the samples analyzed. Reproduction of this report only in whole is permitted. Please refer to the enclosed "Key to Abbreviations" for definition of terms. Should you have questions regarding procedures or results, please do not hesitate to call. NET has been pleased to provide these analytical services for you.

Approved By:

Ray Kalicki
Quality Assurance Coordinator

NATIONAL ENVIRONMENTAL TESTING, INC.

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Ms. Susan Roberts
ENGINEERING-SCIENCE, INC.
8000 Centre Park Drive
Suite 200
Austin, TX 78754

05/16/1994

NET Job Number: 94.02697

Enclosed is the Quality Control Data and Analytical Results for the following samples submitted to NET, Inc. Bartlett Division for analysis:

Project Description: 721460.01 CSSA Background

Sample Number	Sample Description	Date Taken	Date Received
257480	BKG-SS-04	04/20/1994	04/21/1994
257481	BKG-SS-06	04/20/1994	04/21/1994
257482	BKG-SS-07	04/20/1994	04/21/1994
257483	BKG-SS-08	04/20/1994	04/21/1994

Results are presented on a dry weight basis.

Sample analysis in support of the project referenced above has been completed and results are presented on the following pages. These results apply only to the samples analyzed. Reproduction of this report only in whole is permitted. Please refer to the enclosed "Key to Abbreviations" for definition of terms. Should you have questions regarding procedures or results, please do not hesitate to call. NET has been pleased to provide these analytical services for you.

This Quality Control report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed.

Approved by:

Ray Kelick
QA Coordinator, for
Jean-Pierre C. Rouanet
Operations Manager

NATIONAL ENVIRONMENTAL TESTING, INC.

Bartlett Division
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ANALYTICAL REPORT

Ms. Susan Roberts
ENGINEERING-SCIENCE, INC.
8000 Centre Park Drive
Suite 200
Austin, TX 78754

05/16/1994

Sample No. : 257480

NET Job No.: 94.02697

Sample Description: BKG-SS-04
721460.01 CSSA Background

Date Taken: 04/20/1994
Time Taken: 10:15
IEPA Cert. No. 100221

Date Received: 04/21/1994
Time Received: 18:30
WDNR Cert. No. 999447130

Parameter	Results		Units	Date of Analysis	Method PQL	Analyst	Batch No. Prep/Run	Analytical Method
Solids, Total	77.1		%	05/02/1994	0.1	knj	921	2540 (4)
METALS - ICP 2 Non-Aq	Complete					jmt	62	6010(1) 200.7(3)
Aluminum,ICP	30,400		ug/g	05/05/1994	5.0	jmt	244 603	6010 (1)
Arsenic, GFAA	<26	S,D100	ug/g	05/16/1994	0.20	dmc	205 13	7060 (1)
Barium, ICP	136		ug/g	05/05/1994	1.0	jmt	244 673	6010 (1)
Cadmium, ICP	0.68		ug/g	05/05/1994	0.50	jmt	244 644	6010 (1)
Chromium, ICP	29.9		ug/g	05/05/1994	2.0	jmt	244 634	6010 (1)
Copper, ICP	14.1		ug/g	05/05/1994	0.50	jmt	244 856	6010 (1)
Iron, ICP	30,100		ug/g	05/05/1994	1.0	jmt	244 681	6010 (1)
Lead, AA	36	S	ug/g	05/04/1994	2.2	emh	205 222	7420 (1)
Mercury, CVAA	<0.03		ug/g	05/03/1994	0.02	jmt	199 316	7471 (1)
Nickel, AA	32	S	ug/g	05/11/1994	1.6	emh	205 100	7520 (1)
Selenium, GFAA	<2.6	S,D10	ug/g	05/15/1994	0.20	dmc	205 9	7740 (1)
Silver, AA	<3.0		ug/g	05/05/1994	2.5	jmt	89 799	7760 (1)
Tin, ICP	<600	D10	ug/g	05/06/1994	50	jmt	244	6010 (1)
Zinc, ICP	42.1		ug/g	05/05/1994	1.0	jmt	244 639	6010 (1)
Metals Prep, Nonaqueous	Complete			05/04/1994		jmt	244	3050 (1)
Metals Prep, Hg Nonaqueous	Complete			05/03/1994		jmt	199	7471 (1)
Metals Prep, Ag Nonaqueous	Complete			05/05/1994		mic	89	7760 (1)

D10 : Parameter analysis performed at a 10x dilution due to a matrix interference at lower dilutions.
D100 : Parameter analysis performed at a 100x dilution due to a matrix interference at lower dilutions.
S : Parameter analysis was sub-contracted to another NET location.

NATIONAL ENVIRONMENTAL TESTING, INC.

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ANALYTICAL REPORT

Ms. Susan Roberts
ENGINEERING-SCIENCE, INC.
8000 Centre Park Drive
Suite 200
Austin, TX 78754

05/16/1994

Sample No. : 257481

NET Job No.: 94.02697

Sample Description: BKG-SS-06
721460.01 CSSA Background

Date Taken: 04/20/1994
Time Taken: 12:15
IEPA Cert. No. 100221

Date Received: 04/21/1994
Time Received: 18:30
WDNR Cert. No. 999447130

Parameter	Results		Units	Date of Analysis	Method PQL	Analyst	Batch No. Prep/Run	Analytical Method
Solids, Total	82.5		%	05/02/1994	0.1	knj	921	2540 (4)
METALS - ICP 2 Non-Aq	Complete					jmt	62	6010(1) 200.7(3)
Aluminum,ICP	30,300		ug/g	05/05/1994	5.0	jmt	244 603	6010 (1)
Arsenic, GFAA	15.8	S	ug/g	05/16/1994	0.20	dmc	205 13	7060 (1)
Barium, ICP	112		ug/g	05/05/1994	1.0	jmt	244 673	6010 (1)
Cadmium, ICP	<0.61		ug/g	05/05/1994	0.50	jmt	244 644	6010 (1)
Chromium, ICP	24.2		ug/g	05/05/1994	2.0	jmt	244 634	6010 (1)
Copper, ICP	10.3		ug/g	05/05/1994	0.50	jmt	244 856	6010 (1)
Iron, ICP	22,800		ug/g	05/05/1994	1.0	jmt	244 681	6010 (1)
Lead, AA	36	S	ug/g	05/04/1994	2.2	emh	205 222	7420 (1)
Mercury, CVAA	0.03		ug/g	05/03/1994	0.02	jmt	199 316	7471 (1)
Nickel, AA	24	S	ug/g	05/11/1994	1.6	emh	205 100	7520 (1)
Selenium, GFAA	<2.4	S,D10	ug/g	05/15/1994	0.20	mjs	205 9	7740 (1)
Silver, AA	<3.0		ug/g	05/05/1994	2.5	jmt	89 799	7760 (1)
Tin, ICP	<600	D10	ug/g	05/06/1994	50	jmt	244 247	6010 (1)
Zinc, ICP	30.6		ug/g	05/05/1994	1.0	jmt	244 639	6010 (1)
Metals Prep, Nonaqueous	Complete			05/04/1994		jmt	244	3050 (1)
Metals Prep, Hg Nonaqueous	Complete			05/03/1994		jmt	199	7471 (1)
Metals Prep, Ag Nonaqueous	Complete			05/05/1994		mic	89	7760 (1)

10 : Parameter analysis performed at a 10x dilution due to a matrix interference at lower dilutions.

S : Parameter analysis was sub-contracted to another NET location.

NATIONAL ENVIRONMENTAL TESTING, INC.

Bartlett Division
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ANALYTICAL REPORT

Ms. Susan Roberts
ENGINEERING-SCIENCE, INC.
8000 Centre Park Drive
Suite 200
Austin, TX 78754

05/16/1994
Sample No. : 257482
NET Job No.: 94.02697

Sample Description: BKG-SS-07
721460.01 CSSA Background

Date Taken: 04/20/1994
Time Taken: 11:27
IEPA Cert. No. 100221

Date Received: 04/21/1994
Time Received: 18:30
WDNR Cert. No. 999447130

Parameter	Results		Units	Date of Analysis	Method PQL	Analyst	Batch No. Prep/Run	Analytical Method
Solids, Total	81.5		%	05/02/1994	0.1	knj	921	2540 (4)
METALS - ICP 2 Non-Aq	Compelte					jmt	62	6010(1) 200.7(3)
Aluminum,ICP	8,090		ug/g	05/05/1994	5.0	jmt	244 603	6010 (1)
Arsenic, GFAA	<12	S,D50	ug/g	05/16/1994	0.20	dmc	205 13	7060 (1)
Barium, ICP	40.9		ug/g	05/05/1994	1.0	jmt	244 673	6010 (1)
Cadmium, ICP	<0.61		ug/g	05/05/1994	0.50	jmt	244 644	6010 (1)
Chromium, ICP	8.7		ug/g	05/05/1994	2.0	jmt	244 634	6010 (1)
Copper, ICP	4.2		ug/g	05/05/1994	0.50	jmt	244 856	6010 (1)
Iron, ICP	7,500		ug/g	05/05/1994	1.0	jmt	244 681	6010 (1)
Lead, AA	49	S	ug/g	05/04/1994	2.2	emh	205 222	7420 (1)
Mercury, CVAA	0.04		ug/g	05/03/1994	0.02	jmt	199 316	7471 (1)
Nickel, AA	25	S	ug/g	05/11/1994	1.6	emh	205 100	7520 (1)
Selenium, GFAA	<2.5	S,D10	ug/g	05/15/1994	0.20	dmc	205 9	7740 (1)
Silver, AA	<3.0		ug/g	05/05/1994	2.5	jmt	89 799	7760 (1)
Tin, ICP	<600	D10	ug/g	05/06/1994	50	jmt	244 247	6010 (1)
Zinc, ICP	12.6		ug/g	05/05/1994	1.0	jmt	244 639	6010 (1)
Metals Prep, Nonaqueous	Complete			05/04/1994		jmt	244	3050 (1)
Metals Prep, Hg Nonaqueous	Complete			05/03/1994		jmt	199	7471 (1)
Metals Prep, Ag Nonaqueous	Complete			05/05/1994		mic	89	7760 (1)

D10 : Parameter analysis performed at a 10x dilution due to a matrix interference at lower dilutions.
D50 : Parameter analysis performed at a 50x dilution due to a matrix interference at lower dilutions.
S : Parameter analysis was sub-contracted to another NET location.

NATIONAL ENVIRONMENTAL TESTING, INC.

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ANALYTICAL REPORT

Ms. Susan Roberts
ENGINEERING-SCIENCE, INC.
8000 Centre Park Drive
Suite 200
Austin, TX 78754

05/16/1994
Sample No. : 257483
NET Job No.: 94.02697

Sample Description: BKG-SS-08
721460.01 CSSA Background

Date Taken: 04/20/1994
Time Taken: 11:45
IEPA Cert. No. 100221

Date Received: 04/21/1994
Time Received: 18:30
WDNR Cert. No. 999447130

Parameter	Results		Units	Date of Analysis	Method PQL	Analyst	Batch No. Prep/Run	Analytical Method
Solids, Total	91.6		%	05/02/1994	0.1	knj	921	2540 (4)
METALS - ICP 2 Non-Aq	Complete					jmt	62	6010(1) 200.7(3)
minum, ICP	4,800		ug/g	05/05/1994	5.0	jmt	244 603	6010 (1)
senic, GFAA	<11	S,D50	ug/g	05/03/1994	0.20	dmc	205 13	7060 (1)
Barium, ICP	20.3		ug/g	05/05/1994	1.0	jmt	244 673	6010 (1)
Cadmium, ICP	<0.55		ug/g	05/05/1994	0.50	jmt	244 644	6010 (1)
Chromium, ICP	4.7		ug/g	05/05/1994	2.0	jmt	244 634	6010 (1)
Copper, ICP	4.0		ug/g	05/05/1994	0.50	jmt	244 856	6010 (1)
Iron, ICP	4,500		ug/g	05/05/1994	1.0	jmt	244 681	6010 (1)
Lead, AA	49	S	ug/g	05/04/1994	2.2	emh	205 222	7420 (1)
Mercury, CVAA	0.04		ug/g	05/03/1994	0.02	jmt	199 316	7471 (1)
Nickel, AA	23.6	S	ug/g	05/11/1994	1.6	emh	205 100	7520 (1)
Selenium, GFAA	<2.2	S,D10	ug/g	05/15/1994	0.20	dmc	205 9	7740 (1)
Silver, AA	3.8		ug/g	05/05/1994	2.5	jmt	89 799	7760 (1)
Tin, ICP	<500	D10	ug/g	05/06/1994	50	jmt	244 247	6010 (1)
Zinc, ICP	7.5		ug/g	05/05/1994	1.0	jmt	244 639	6010 (1)
Metals Prep, Nonaqueous	Complete			05/04/1994		jmt	244	3050 (1)
Metals Prep, Hg Nonaqueous	Complete			05/03/1994		jmt	199	7471 (1)
Metals Prep, Ag Nonaqueous	Complete			05/05/1994		mic	89	7760 (1)

10 : Parameter analysis performed at a 10x dilution due to a matrix interference at lower dilutions.
D50 : Parameter analysis performed at a 50x dilution due to a matrix interference at lower dilutions.
S : Parameter analysis was sub-contracted to another NET location.

NET Midwest, Bartlett Division

KEY TO ABBREVIATIONS and METHOD REFERENCES

<	:	Less than; When appearing in the results column indicates the analyte was not detected at or above the reported value.
mg/L	:	Concentration in units of milligrams of analyte per liter of sample. Measurement used for aqueous samples. Can also be expressed as parts per million (ppm).
ug/g	:	Concentration in units of micrograms of analyte per gram of sample. Measurement used for non-aqueous samples. Can also be expressed as parts per million (ppm) or mg/Kg.
ug/L	:	Concentration in units of micrograms of analyte per liter of sample. Measurement used for aqueous samples. Can also be expressed as parts per billion (ppb).
ug/Kg	:	Concentration in units of micrograms of analyte per kilogram of sample. Measurement used for non-aqueous samples. Can also be expressed as parts per billion (ppb).
B	:	Sample result flag indicating that the analyte was also found in the method blank analysis. The value after the B indicates the concentration found in the blank analysis.
D	:	Sample result flag indicating that the reported concentration is from an analysis performed at a dilution. The value following the D indicates the dilution factor of the analysis.
J	:	Sample result flag indicating that the reported concentration is below the routine reporting limit but greater than the Method Detection Limit. The value should be considered estimated.
TCLP	:	These initials appearing in front of an analyte name indicate that the Toxicity Characteristic Leaching Procedure (TCLP) was performed for this test.
%	:	Percent; To convert ppm to %, divide the result by 10,000. To convert % to ppm, multiply the result by 10,000.
Dry Weight (dW)	:	When indicated, the results are reported on a dry weight basis. The contribution of the moisture content in the sample is subtracted when calculating the concentration of the analyte.
ICP	:	Indicates analysis was performed using Inductively Coupled Plasma Spectroscopy.
AA	:	Indicates analysis was performed using Atomic Absorption Spectroscopy.
GFAA	:	Indicates analysis was performed using Graphite Furnace Atomic Absorption Spectroscopy.
PQL	:	Practical Quantitation Limit; the lowest level that can be reliably achieved within specified limits of precision and accuracy during routine laboratory operating conditions.

Method References

(1) Methods 1000 through 9999: see "Test Methods for Evaluating Solid Waste", USEPA SW-846, 3rd Edition, 1986.

(2) ASTM "American Society for Testing Materials

(3) Methods 100 through 499: see "Methods for Chemical Analysis of Water and Wastes", USEPA, 600/4-79-020, Rev. 1983.

(4) See "Standard Methods for the Examination of Water and Wastewater", 17th Ed, APHA, 1989.

(5) Methods 600 through 625: see "Guidelines Establishing Test Procedures for the Analysis of Pollutants", USEPA Federal Register Vol. 49 No. 209, October 1984.

(6) Methods 500 through 599: see "Methods for the Determination of Organic Compounds in Drinking Water," USEPA 600/4-88/039, Rev. 1988.

Engineering Science Inc

Austin, Texas

CHAIN OF CUSTODY RECORD

Added Cr per discussion with Susan Roberts 4/25/94

PROJECT NO.	PROJECT NAME/LOCATION
721460.01	CSSA BACKGround

SAMPLERS (Signatures): [signature] Evan [signature] Jason Peters

SAMPLE NO.	DATE	TIME	MATRIX	SAMPLE DESCRIPTION	NO. OF CONTAINERS	Analysis Required	REMARKS
BKG-SS-04	4/20/94	1015	SOIL		1	X	
BKG-SS-06	4/20/94	1215			1		
BKG-SS-07		1127			1		Method 7471 OK to replace Method 7470 Per Susan Roberts 4/25/94
BKG SS-08		1145			1		
							preserved on ice

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Relinquished by: (Signature)	Date	Time	Received by: (Signature)
[signature] Jason Peters	4/20/94	1830	[signature] Audrey Ward 4/21/94 11:00				
Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Relinquished by: (Signature)	Date	Time	Received by: (Signature)

"Relinquished by" and "Received by" boxes must be completed for all transfers.

White: laboratory returns with data, yellow: laboratory copy, pink: sampler copy

NATIONAL ENVIRONMENTAL TESTING, INC.

Bartlett Division
850 W. Bartlett Rd.
Bartlett, IL 60103
Tel: (708) 289-3100
Fax: (708) 289-5445

CASE NARRATIVE

Ms. Susan Roberts
ENGINEERING-SCIENCE, INC.
8000 Centre Park Drive
Suite 200
Austin, TX 78754

05/16/1994

NET Job Number: 94.02853

Project Description: 721460.01 CSSA Background

Sample analysis in support of the project referenced above has been completed and results are presented on the following pages. Please refer to the enclosed "Key to Abbreviations" for definition of terms.

The following comments should be noted for the indicated fraction;

Metals Analysis

As, GFAA; Pb, AA; Ni, AA and Se, GFAA were analyzed at NET Rockford Division. Supporting QC documentation from NET Bartlett and NET Rockford will follow.

Ag, AA : Silver could not be analyzed by ICP due to a matrix interference during ICP aspiration. Silver was analyzed by AA.

This Quality Control report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your samples were analyzed. These results apply only to the samples analyzed. Reproduction of this report only in whole is permitted. Please refer to the enclosed "Key to Abbreviations" for definition of terms. Should you have questions regarding procedures or results, please do not hesitate to call. NET has been pleased to provide these analytical services for you.

Approved By:

Ray Kalicki
Quality Assurance Coordinator

NATIONAL ENVIRONMENTAL TESTING, INC.

Bartlett Division
850 W. Bartlett Rd.
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Tel: (708) 289-3100
Fax: (708) 289-5445

Ms. Susan Roberts
ENGINEERING-SCIENCE, INC.
8000 Centre Park Drive
Suite 200
Austin, TX 78754

05/16/1994

NET Job Number: 94.02853

Enclosed is the Quality Control Data and Analytical Results for the following samples submitted to NET, Inc. Bartlett Division for analysis:

Project Description: 721460.01; CSSA Background

Sample Number	Sample Description	Date Taken	Date Received
258064	BKG-SS-05	04/21/1994	04/23/1994
258065	BKG-SS-03	04/21/1994	04/23/1994
258066	BKG-SS-02	04/22/1994	04/23/1994
258067	BKG-SS-01	04/22/1994	04/23/1994
258068	BKG-SS-09	04/22/1994	04/23/1994
258069	BKG-SS-10	04/22/1994	04/23/1994

Results are presented on a dry weight basis.

Sample analysis in support of the project referenced above has been completed and results are presented on the following pages. These results apply only to the samples analyzed. Reproduction of this report only in whole is permitted. Please refer to the enclosed "Key to Abbreviations" for definition of terms. Should you have questions regarding procedures or results, please do not hesitate to call. NET has been pleased to provide these analytical services for you.

This Quality Control report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed.

Approved by:
Ray Kalick
QA Coordinator, for:
Jean-Pierre C. Rouanet
Operations Manager

NATIONAL ENVIRONMENTAL TESTING, INC.

Bartlett Division
850 W. Bartlett Rd.
Bartlett, IL 60103
Tel: (708) 289-3100
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ANALYTICAL REPORT

Ms. Susan Roberts
ENGINEERING-SCIENCE, INC.
8000 Centre Park Drive
Suite 200
Austin, TX 78754

05/16/1994

Sample No. : 258064

NET Job No.: 94.02853

Sample Description: BKG-SS-05
721460.01; CSSA Background

Date Taken: 04/21/1994
Time Taken: 15:10
IEPA Cert. No. 100221

Date Received: 04/23/1994
Time Received: 09:00
WDNR Cert. No. 999447130

Parameter	Results		Units	Date of Analysis	Method PQL	Analyst	Batch No. Prep/Run	Analytical Method
Solids, Total	83.2		%	04/29/1994	0.1	dsf	920	2540 (4)
METALS - ICP 2 Non-Aq	Complete		ug/g	05/09/1994		jmt	63	6010(1) 200.7(3)
Aluminum,ICP	5,060		ug/g	05/09/1994	5.0	jmt	245 605	6010 (1)
Arsenic, GFAA	20	S	ug/g	05/16/1994	0.20	dmc	205 13	7060 (1)
Barium, ICP	33.0		ug/g	05/09/1994	1.0	jmt	245 675	6010 (1)
Cadmium, ICP	<0.60		ug/g	05/09/1994	0.50	jmt	245 646	6010 (1)
Chromium, ICP	4.8		ug/g	05/09/1994	2.0	jmt	245 636	6010 (1)
Copper, ICP	5.8		ug/g	05/09/1994	0.50	jmt	245 858	6010 (1)
Iron, ICP	3,950		ug/g	05/09/1994	1.0	jmt	245 683	6010 (1)
Lead, AA	50	S	ug/g	05/04/1994	2.2	emh	205 222	7420 (1)
Mercury, CVAA	<0.03		ug/g	05/11/1994	0.02	jmt	200 318	7471 (1)
Nickel, AA	22	S	ug/g	05/11/1994	1.6	emh	205 100	7520 (1)
Selenium, GFAA	<2.4	S,D10	ug/g	05/15/1994	0.20	dmc	205 9	7740 (1)
Silver, AA	3.8		ug/g	05/05/1994	2.5	jmt	89 801	7760 (1)
Tin, ICP	<60		ug/g	05/09/1994	50	jmt	245 248	6010 (1)
Zinc, ICP	15.8		ug/g	05/09/1994	1.0	jmt	245 641	6010 (1)
Metals Prep, Nonaqueous	Complete			05/06/1994		jmt	245	3050 (1)
Metals Prep, Hg Nonaqueous	Complete			05/11/1994		jmt	200	7471 (1)
Metals Prep, Ag Nonaqueous	Complete			05/05/1994		mic	89	7760 (1)

D10 : Parameter analysis performed at a 10x dilution due to a matrix interference at lower dilutions.

S : Parameter analysis was sub-contracted to another NET location.

NATIONAL ENVIRONMENTAL TESTING, INC.

Bartlett Division
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ANALYTICAL REPORT

Ms. Susan Roberts
ENGINEERING-SCIENCE, INC.
8000 Centre Park Drive
Suite 200
Austin, TX 78754

05/16/1994

Sample No. : 258065

NET Job No.: 94.02853

Sample Description: BKG-SS-03
721460.01; CSSA Background

Date Taken: 04/21/1994
Time Taken: 17:15
IEPA Cert. No. 100221

Date Received: 04/23/1994
Time Received: 09:00
WDNR Cert. No. 999447130

Parameter	Results		Units	Date of Analysis	Method PQL	Analyst	Batch No. Prep/Run	Analytical Method
Solids, Total	83.3		%	04/29/1994	0.1	dsf	920	2540 (4)
METALS - ICP 2 Non-Aq	Complete		ug/g	05/09/1994		jmt	63	6010(1) 200.7(3)
Aluminum,ICP	20,300		ug/g	05/09/1994	5.0	jmt	245 605	6010 (1)
Arsenic, GFAA	20	S	ug/g	05/16/1994	0.20	dmc	205 13	7060 (1)
Barium, ICP	69.4		ug/g	05/09/1994	1.0	jmt	245 675	6010 (1)
Cadmium, ICP	<0.60		ug/g	05/09/1994	0.50	jmt	245 646	6010 (1)
Chromium, ICP	16.3		ug/g	05/09/1994	2.0	jmt	245 636	6010 (1)
Copper, ICP	8.4		ug/g	05/09/1994	0.50	jmt	245 858	6010 (1)
Iron, ICP	17,000		ug/g	05/09/1994	1.0	jmt	245 683	6010 (1)
Lead, AA	48	S	ug/g	05/04/1994	2.2	emh	205 222	7420 (1)
Mercury, CVAA	0.05		ug/g	05/11/1994	0.02	jmt	200 318	7471 (1)
Nickel, AA	26	S	ug/g	05/11/1994	1.6	emh	205 100	7520 (1)
Selenium, GFAA	<2.4	S,D10	ug/g	05/15/1994	0.20	dmc	205 9	7740 (1)
Silver, AA	<3.0		ug/g	05/09/1994	2.5	jmt	89 801	7760 (1)
Tin, ICP	<60		ug/g	05/09/1994	50	jmt	245 248	6010 (1)
Zinc, ICP	21.8		ug/g	05/09/1994	1.0	jmt	245 641	6010 (1)
Metals Prep, Nonaqueous	Complete			05/06/1994		jmt	245	3050 (1)
Metals Prep, Hg Nonaqueous	Complete			05/11/1994		jmt	200	7471 (1)
Metals Prep, Ag Nonaqueous	Complete			05/05/1994		mic	89	7760 (1)

D10 : Parameter analysis performed at a 10X dilution due to a matrix interference at lower dilutions.

S : Parameter analysis was sub-contracted to another NET location.

NATIONAL ENVIRONMENTAL TESTING, INC.

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ANALYTICAL REPORT

Ms. Susan Roberts
ENGINEERING-SCIENCE, INC.
8000 Centre Park Drive
Suite 200
Austin, TX 78754

05/16/1994

Sample No. : 258066

NET Job No.: 94.02853

Sample Description: BKG-SS-02
721460.01; CSSA Background

Date Taken: 04/22/1994
Time Taken: 08:15
IEPA Cert. No. 100221

Date Received: 04/23/1994
Time Received: 09:00
WDNR Cert. No. 999447130

Parameter	Results		Units	Date of Analysis	Method PQL	Analyst	Batch No. Prep/Run	Analytical Method
Solids, Total	85.0		%	04/29/1994	0.1	dsf	920	2540 (4)
METALS - ICP 2 Non-Aq	Complete		ug/g	05/09/1994		jmt	63	6010(1) 200.7(3)
Aluminum,ICP	17,500		ug/g	05/09/1994	5.0	jmt	245 605	6010 (1)
Arsenic, GFAA	26	S	ug/g	05/16/1994	0.20	dmc	205 13	7060 (1)
Barium, ICP	76.3		ug/g	05/09/1994	1.0	jmt	245 675	6010 (1)
Cadmium, ICP	<0.59		ug/g	05/09/1994	0.50	jmt	245 646	6010 (1)
Chromium, ICP	15.2		ug/g	05/09/1994	2.0	jmt	245 636	6010 (1)
Copper, ICP	5.9		ug/g	05/09/1994	0.50	jmt	245 858	6010 (1)
Iron, ICP	15,300		ug/g	05/09/1994	1.0	jmt	245 683	6010 (1)
Lead, AA	49	S	ug/g	05/04/1994	2.2	emh	205 222	7420 (1)
Mercury, CVAA	<0.02		ug/g	05/11/1994	0.02	jmt	200 318	7471 (1)
Nickel, AA	29	S	ug/g	05/11/1994	1.6	emh	205 100	7520 (1)
Selenium, GFAA	<2.4	S,D10	ug/g	05/15/1994	0.20	dmc	205 9	7740 (1)
Silver, AA	3.0		ug/g	05/05/1994	2.5	jmt	89 801	7760 (1)
Tin, ICP	<59		ug/g	05/09/1994	50	jmt	245 248	6010 (1)
Zinc, ICP	20.3		ug/g	05/09/1994	1.0	jmt	245 641	6010 (1)
Metals Prep, Nonaqueous	Complete			05/06/1994		jmt	245	3050 (1)
Metals Prep, Hg Nonaqueous	Complete			05/11/1994		jmt	200	7471 (1)
Metals Prep, Ag Nonaqueous	Complete			05/05/1994		mic	89	7760 (1)

D10 : Parameter analysis performed at a 10x dilution due to a matrix interference at lower dilutions.

S : Parameter analysis was sub-contracted to another NET location.

NATIONAL ENVIRONMENTAL TESTING, INC.

Bartlett Division
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ANALYTICAL REPORT

Ms. Susan Roberts
ENGINEERING-SCIENCE, INC.
8000 Centre Park Drive
Suite 200
Austin, TX 78754

05/16/1994

Sample No. : 258067

NET Job No.: 94.02853

Sample Description: BKG-SS-01
721460.01; CSSA Background

Date Taken: 04/22/1994
Time Taken: 09:10
IEPA Cert. No. 100221

Date Received: 04/23/1994
Time Received: 09:00
WDNR Cert. No. 999447130

Parameter	Results		Units	Date of Analysis	Method PQL	Analyst	Batch No. Prep/Run	Analytical Method
Solids, Total	80.1		%	04/29/1994	0.1	dsf	920	2540 (4)
METALS - ICP 2 Non-Aq	Complete		ug/g	05/09/1994		jmt	63	6010(1) 200.7(3)
Aluminum, ICP	22,300		ug/g	05/09/1994	5.0	jmt	245 605	6010 (1)
Arsenic, GFAA	21	S	ug/g	05/16/1994	0.20	dmc	205 13	7060 (1)
Barium, ICP	73.3		ug/g	05/09/1994	1.0	jmt	245 675	6010 (1)
Cadmium, ICP	<0.62		ug/g	05/09/1994	0.50	jmt	245 646	6010 (1)
Chromium, ICP	18.3		ug/g	05/09/1994	2.0	jmt	245 636	6010 (1)
Copper, ICP	7.9		ug/g	05/09/1994	0.50	jmt	245 858	6010 (1)
Iron, ICP	16,900		ug/g	05/09/1994	1.0	jmt	245 683	6010 (1)
Lead, AA	56	S	ug/g	05/04/1994	2.2	emh	205 222	7420 (1)
Mercury, CVAA	0.04		ug/g	05/11/1994	0.02	jmt	200 318	7471 (1)
Nickel, AA	28	S	ug/g	05/11/1994	1.6	emh	205 100	7520 (1)
Selenium, GFAA	<2.5	S,D10	ug/g	05/15/1994	0.20	dmc	205 9	7740 (1)
Silver, AA	<3.0		ug/g	05/05/1994	2.5	jmt	89 801	7760 (1)
Tin, ICP	<62		ug/g	05/09/1994	50	jmt	245 248	6010 (1)
Zinc, ICP	34.4		ug/g	05/09/1994	1.0	jmt	245 641	6010 (1)
Metals Prep, Nonaqueous	Complete			05/06/1994		jmt	245	3050 (1)
Metals Prep, Hg Nonaqueous	Complete			05/11/1994		jmt	200	7471 (1)
Metals Prep, Ag Nonaqueous	Complete			05/05/1994		mic	89	7760 (1)

10 : Parameter analysis performed at a 10x dilution due to a matrix interference at lower dilutions.

S : Parameter analysis was sub-contracted to another NET location.

NATIONAL ENVIRONMENTAL TESTING, INC.

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ANALYTICAL REPORT

Ms. Susan Roberts
ENGINEERING-SCIENCE, INC.
8000 Centre Park Drive
Suite 200
Austin, TX 78754

05/16/1994

Sample No. : 258068

NET Job No.: 94.02853

Sample Description: BKG-SS-09
721460.01; CSSA Background

Date Taken: 04/22/1994
Time Taken: 10:17
IEPA Cert. No. 100221

Date Received: 04/23/1994
Time Received: 09:00
WDNR Cert. No. 999447130

Parameter	Results		Units	Date of Analysis	Method PQL	Analyst	Batch No. Prep/Run	Analytical Method
Solids, Total	85.2		%	04/29/1994	0.1	dsf	920	2540 (4)
METALS - ICP 2 Non-Aq	Complete		ug/g	05/09/1994		jmt	63	6010(1) 200.7(3)
Aluminum,ICP	10,700		ug/g	05/09/1994	5.0	jmt	245 605	6010 (1)
Arsenic, GFAA	25	S	ug/g	05/16/1994	0.20	dmc	205 13	7060 (1)
Barium, ICP	65.0		ug/g	05/09/1994	1.0	jmt	245 675	6010 (1)
Cadmium, ICP	<0.59		ug/g	05/09/1994	0.50	jmt	245 646	6010 (1)
Chromium, ICP	13.4		ug/g	05/09/1994	2.0	jmt	245 636	6010 (1)
Copper, ICP	17.2		ug/g	05/09/1994	0.50	jmt	245 858	6010 (1)
Iron, ICP	11,900		ug/g	05/09/1994	1.0	jmt	245 683	6010 (1)
Lead, AA	92	S	ug/g	05/04/1994	2.2	emh	205 222	7420 (1)
Mercury, CVAA	0.04		ug/g	05/11/1994	0.02	jmt	200 318	7471 (1)
Nickel, AA	24.3	S	ug/g	05/11/1994	1.6	emh	205 100	7520 (1)
Selenium, GFAA	<2.4	S,D10	ug/g	05/16/1994	0.20	dmc	205 9	7740 (1)
Silver, AA	3.1		ug/g	05/05/1994	2.5	jmt	89 801	7760 (1)
Tin, ICP	<59		ug/g	05/09/1994	50	jmt	245 248	6010 (1)
Zinc, ICP	90.0		ug/g	05/09/1994	1.0	jmt	245 641	6010 (1)
Metals Prep, Nonaqueous	Complete			05/06/1994		jmt	245	3050 (1)
Metals Prep, Hg Nonaqueous	Complete			05/11/1994		jmt	200	7471 (1)
Metals Prep, Ag Nonaqueous	Complete			05/05/1994		mic	89	7760 (1)

D10 : Parameter analysis performed at a 10x dilution due to a matrix interference at lower dilutions.

S : Parameter analysis was sub-contracted to another NET location.

NATIONAL ENVIRONMENTAL TESTING, INC.

Bartlett Division
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ANALYTICAL REPORT

Ms. Susan Roberts
ENGINEERING-SCIENCE, INC.
8000 Centre Park Drive
Suite 200
Austin, TX 78754

05/16/1994

Sample No. : 258069

NET Job No.: 94.02853

Sample Description: BKG-SS-10
721460.01; CSSA Background

Date Taken: 04/22/1994
Time Taken: 11:13
IEPA Cert. No. 100221

Date Received: 04/23/1994
Time Received: 09:00
WDNR Cert. No. 999447130

Parameter	Results		Units	Date of Analysis	Method PQL	Analyst	Batch No. Prep/Run	Analytical Method
Solids, Total	93.3		%	04/29/1994	0.1	dsf	920	2540 (4)
METALS - ICP 2 Non-Aq	Complete		ug/g	05/09/1994		jmt	63	6010(1) 200.7(3)
Aluminum,ICP	6,280		ug/g	05/09/1994	5.0	jmt	245 605	6010 (1)
Arsenic, GFAA	4.7	S	ug/g	05/16/1994	0.20	dmc	205 13	7060 (1)
Barium, ICP	25.5		ug/g	05/09/1994	1.0	jmt	245 675	6010 (1)
Cadmium, ICP	<0.54		ug/g	05/09/1994	0.50	jmt	245 646	6010 (1)
Chromium, ICP	8.3		ug/g	05/09/1994	2.0	jmt	245 636	6010 (1)
Copper, ICP	4.8		ug/g	05/09/1994	0.50	jmt	245 858	6010 (1)
Iron, ICP	5,580		ug/g	05/09/1994	1.0	jmt	245 683	6010 (1)
Lead, AA	48	S	ug/g	05/04/1994	2.2	emh	205 222	7420 (1)
Mercury, CVAA	<0.03		ug/g	05/11/1994	0.02	jmt	200 318	7471 (1)
Nickel, AA	25	S	ug/g	05/11/1994	1.6	emh	205 100	7520 (1)
Selenium, GFAA	<2.1	S,D10	ug/g	05/15/1994	0.20	dmc	205 9	7740 (1)
Silver, AA	<3.0		ug/g	05/05/1994	2.5	jmt	89 801	7760 (1)
Tin, ICP	<54		ug/g	05/09/1994	50	jmt	245 248	6010 (1)
Zinc, ICP	31.0		ug/g	05/09/1994	1.0	jmt	245 641	6010 (1)
Metals Prep, Nonaqueous	Complete			05/06/1994		jmt	245	3050 (1)
Metals Prep, Hg Nonaqueous	Complete			05/11/1994		jmt	200	7471 (1)
Metals Prep, Ag Nonaqueous	Complete			05/05/1994		mic	89	7760 (1)

D10 : Parameter analysis performed at a 10x dilution due to a matrix interference at lower dilutions.

S : Parameter analysis was sub-contracted to another NET location.

NET Midwest, Bartlett Division

KEY TO ABBREVIATIONS and METHOD REFERENCES

<	:	Less than; When appearing in the results column indicates the analyte was not detected at or above the reported value.
mg/L	:	Concentration in units of milligrams of analyte per liter of sample. Measurement used for aqueous samples. Can also be expressed as parts per million (ppm).
ug/g	:	Concentration in units of micrograms of analyte per gram of sample. Measurement used for non-aqueous samples. Can also be expressed as parts per million (ppm) or mg/Kg.
ug/L	:	Concentration in units of micrograms of analyte per liter of sample. Measurement used for aqueous samples. Can also be expressed as parts per billion (ppb).
ug/Kg	:	Concentration in units of micrograms of analyte per kilogram of sample. Measurement used for non-aqueous samples. Can also be expressed as parts per billion (ppb).
B	:	Sample result flag indicating that the analyte was also found in the method blank analysis. The value after the B indicates the concentration found in the blank analysis.
D	:	Sample result flag indicating that the reported concentration is from an analysis performed at a dilution. The value following the D indicates the dilution factor of the analysis.
J	:	Sample result flag indicating that the reported concentration is below the routine reporting limit but greater than the Method Detection Limit. The value should be considered estimated.
TCLP	:	These initials appearing in front of an analyte name indicate that the Toxicity Characteristic Leaching Procedure (TCLP) was performed for this test.
%	:	Percent; To convert ppm to %, divide the result by 10,000. To convert % to ppm, multiply the result by 10,000.
Dry Weight (dw)	:	When indicated, the results are reported on a dry weight basis. The contribution of the moisture content in the sample is subtracted when calculating the concentration of the analyte.
ICP	:	Indicates analysis was performed using Inductively Coupled Plasma Spectroscopy.
AA	:	Indicates analysis was performed using Atomic Absorption Spectroscopy.
GFAA	:	Indicates analysis was performed using Graphite Furnace Atomic Absorption Spectroscopy.
PQL	:	Practical Quantitation Limit; the lowest level that can be reliably achieved within specified limits of precision and accuracy during routine laboratory operating conditions.

Method References

(1) Methods 1000 through 9999: see "Test Methods for Evaluating Solid Waste", USEPA SW-846, 3rd Edition, 1986.

(2) ASTM "American Society for Testing Materials

(3) Methods 100 through 499: see "Methods for Chemical Analysis of Water and Wastes", USEPA, 600/4-79-020, Rev. 1983.

(4) See "Standard Methods for the Examination of Water and Wastewater", 17th Ed, APHA, 1989.

(5) Methods 600 through 625: see "Guidelines Establishing Test Procedures for the Analysis of Pollutants", USEPA Federal Register Vol. 49 No. 209, October 1984.

(6) Methods 500 through 599: see "Methods for the Determination of Organic Compounds in Drinking Water," USEPA 600/4-88/039, Rev. 1988.

Engineering Science Inc

Austin, Texas

FedX Airbill # 895066 2431

Analyze by T.I.L. OK-P Robert Sugg 4/25/94

CHAIN OF CUSTODY RECORD

PROJECT NO.	PROJECT NAME/LOCATION
7214G0.01	CSSA Background

SAMPLERS (Signatures): Michelle Lew, Alison Roberts

SAMPLE NO.	DATE	TIME	MATRIX	SAMPLE DESCRIPTION	NO. OF CONTAINERS	Analysis Required: SW6010 - ICP Metals; SW7060 - Arsenic AA; SW7420 - Lead AA; SW7470 - Hg; SW7520 - Ni AA; SW7740 - Selenium AA	REMARKS
BKG-SS-05	4/21/94	1510	Soil		1	x x x x x x	ICP metals = Al, Ba, Ca, Cr, Cu, Fe, Ag, Tin, Zn
BKG-SS-03	4/21/94	1715	Soil		1	x x x x x x	
BKG-SS-02	4/22/94	0815	Soil		1	x x x x x x	
BKG-SS-01	4/22/94	0910	Soil		1	x x x x x x	
BKG-SS-09	4/22/94	1017	Soil		1	x x x x x x	
BKG-SS-10	4/22/94	1113	Soil		1	x x x x x x	Preserved on ice cooler 6° C

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Relinquished by: (Signature)	Date	Time	Received by: (Signature)
Michelle Lew, Alison Roberts	4/22/94	1700	Fed X				
Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Relinquished by: (Signature)	Date	Time	Received by: (Signature)

"Relinquished by" and "Received by" boxes must be completed for all transfers.

White: laboratory returns with data, yellow: laboratory copy, pink: sampler copy

NATIONAL ENVIRONMENTAL TESTING, INC.

Bartlett Division
850 W. Bartlett Rd.
Bartlett, IL 60103
Tel: (708) 289-3100
Fax: (708) 289-5445

CASE NARRATIVE

Ms. Susan Roberts
ENGINEERING-SCIENCE, INC.
8000 Centre Park Drive
Suite 200
Austin, TX 78754

05/16/1994

NET Job Number: 94.02856

Project Description: 721460.05 CSSA F-14 Closure

Sample analysis in support of the project referenced above has been completed and results are presented on the following pages. Please refer to the enclosed "Key to Abbreviations" for definition of terms.

The following comments should be noted for the indicated fraction;

Metals Analysis

As, GFAA; Pb, AA; Ni, AA and Se, GFAA were analyzed at NET Rockford Division. Supporting QC documentation from NET Bartlett and NET Rockford will follow.

Ag, AA : Silver could not be analyzed by ICP due to a matrix interference during ICP aspiration. Silver was analyzed by AA.

This Quality Control report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your samples were analyzed. These results apply only to the samples analyzed. Reproduction of this report only in whole is permitted. Please refer to the enclosed "Key to Abbreviations" for definition of terms. Should you have questions regarding procedures or results, please do not hesitate to call. NET has been pleased to provide these analytical services for you.

Approved By:

Ray Kalicki
Quality Assurance Coordinator

NATIONAL ENVIRONMENTAL TESTING, INC.

Bartlett Division
850 W. Bartlett Rd.
Bartlett, IL 60103
Tel: (708) 289-3100
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Ms. Susan Roberts
ENGINEERING-SCIENCE, INC.
8000 Centre Park Drive
Suite 200
Austin, TX 78754

05/16/1994

NET Job Number: 94.02856

Enclosed is the Quality Control Data and Analytical Results for the following samples submitted to NET, Inc. Bartlett Division for analysis:

Project Description: 721460.05; CSSA F-14 Closures

Sample Number	Sample Description	Date Taken	Date Received
258101	BKG-SB07(24)	04/21/1994	04/23/1994
258102	BKG-SB06(18)	04/21/1994	04/23/1994
258103	BKG-SB08(5)	04/21/1994	04/23/1994
258104	BKG-SB05(10)	04/21/1994	04/23/1994
258105	BKG-SB04(17.5)	04/21/1994	04/23/1994
258106	BKG-SB03(19.5)	04/21/1994	04/23/1994
258107	BKG-SB02(10)	04/22/1994	04/23/1994
258108	BKG-SB01(4.5)	04/22/1994	04/23/1994
258109	BKG-SB09(5)	04/22/1994	04/23/1994
258110	BKG-SB10(20)	04/22/1994	04/23/1994

Results are presented on a dry weight basis.

Sample analysis in support of the project referenced above has been completed and results are presented on the following pages. These results apply only to the samples analyzed. Reproduction of this report only in whole is permitted. Please refer to the enclosed "Key to Abbreviations" for definition of terms. Should you have questions regarding procedures or results, please do not hesitate to call. NET has been pleased to provide these analytical services for you.

This Quality Control report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed.

Approved by:
Ray Kalicki
QA Coordinator, for:
Jean-Pierre C. Rouanet
Operations Manager

NATIONAL ENVIRONMENTAL TESTING, INC.

Bartlett Division
850 W. Bartlett Rd.
Bartlett, IL 60103
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ANALYTICAL REPORT

Ms. Susan Roberts
ENGINEERING-SCIENCE, INC.
8000 Centre Park Drive
Suite 200
Austin, TX 78754

05/16/1994

Sample No. : 258101

NET Job No.: 94.02856

Sample Description: BKG-SB07(24)
721460.05; CSSA F-14 Closures

Date Taken: 04/21/1994
Time Taken: 10:20
IEPA Cert. No. 100221

Date Received: 04/23/1994
Time Received: 09:00
WDNR Cert. No. 999447130

Parameter	Results		Units	Date of Analysis	Method PQL	Analyst	Batch No. Prep/Run	Analytical Method
Solids, Total	95.8		%	05/04/1994	0.1	dsf	923	2540 (4)
METALS - ICP 2 Non-Aq	Complete		ug/g	05/09/1994		jmt	63	6010(1) 200.7(3)
Aluminum,ICP	1,130		ug/g	05/09/1994	5.0	jmt	245 605	6010 (1)
Arsenic, GFAA	2.7	S	ug/g	05/16/1994	0.20	dmc	205 13	7060 (1)
Barium, ICP	4.1		ug/g	05/09/1994	1.0	jmt	245 675	6010 (1)
Cadmium, ICP	<0.52		ug/g	05/09/1994	0.50	jmt	245 646	6010 (1)
Chromium, ICP	2.5		ug/g	05/09/1994	2.0	jmt	245 636	6010 (1)
Copper, ICP	1.2		ug/g	05/09/1994	0.50	jmt	245 858	6010 (1)
Iron, ICP	1,810		ug/g	05/09/1994	1.0	jmt	245 683	6010 (1)
Lead, AA	51	S	ug/g	05/04/1994	2.2	emh	205 222	7420 (1)
Mercury, CVAA	<0.03		ug/g	05/11/1994	0.02	jmt	200 318	7471 (1)
Nickel, AA	20	S	ug/g	05/11/1994	1.6	emh	205 100	7520 (1)
Selenium, GFAA	<2.1	S,D10	ug/g	05/15/1994	0.20	dmc	205 9	7740 (1)
Silver, AA	4.4		ug/g	05/05/1994	2.5	jmt	89 801	7760 (1)
Tin, ICP	<52		ug/g	05/09/1994	50	jmt	245 248	6010 (1)
Zinc, ICP	2.2		ug/g	05/09/1994	1.0	jmt	245 641	6010 (1)
Metals Prep, Nonaqueous	Complete			05/06/1994		jmt	245	3050 (1)
Metals Prep, Hg Nonaqueous	Complete			05/11/1994		jmt	200	7471 (1)
Metals Prep, Ag Nonaqueous	Complete			05/05/1994		mic	89	7760 (1)

D10 : Parameter analysis performed at a 10x dilution due to a matrix interference at lower dilutions.

S : Parameter analysis was sub-contracted to another NET location.

NATIONAL ENVIRONMENTAL TESTING, INC.

Bartlett Division
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Bartlett, IL 60103
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ANALYTICAL REPORT

Ms. Susan Roberts
ENGINEERING-SCIENCE, INC.
8000 Centre Park Drive
Suite 200
Austin, TX 78754

05/16/1994

Sample No. : 258102

NET Job No.: 94.02856

Sample Description: BKG-SB06(18)
721460.05; CSSA F-14 Closures

Date Taken: 04/21/1994
Time Taken: 12:05
IEPA Cert. No. 100221

Date Received: 04/23/1994
Time Received: 09:00
WDNR Cert. No. 999447130

Parameter	Results		Units	Date of Analysis	Method PQL	Analyst	Batch No. Prep/Run	Analytical Method
Solids, Total	93.7		%	05/04/1994	0.1	dsf	923	2540 (4)
METALS - ICP 2 Non-Aq	Complete		ug/g	05/09/1994		jmt	63	6010(1) 200.7(3)
Aluminum,ICP	2,200		ug/g	05/09/1994	5.0	jmt	245 605	6010 (1)
Arsenic, GFAA	4.3	S	ug/g	05/16/1994	0.20	dmc	205 13	7060 (1)
Barium, ICP	6.6		ug/g	05/09/1994	1.0	jmt	245 675	6010 (1)
Cadmium, ICP	<0.53		ug/g	05/09/1994	0.50	jmt	245 646	6010 (1)
Chromium, ICP	2.4		ug/g	05/09/1994	2.0	jmt	245 636	6010 (1)
Copper, ICP	3.5		ug/g	05/09/1994	0.50	jmt	245 858	6010 (1)
Iron, ICP	3,070		ug/g	05/09/1994	1.0	jmt	245 683	6010 (1)
Lead, AA	36	S	ug/g	05/04/1994	2.2	emh	205 222	7420 (1)
Mercury, CVAA	<0.03		ug/g	05/11/1994	0.02	jmt	200 318	7471 (1)
Nickel, AA	22	S	ug/g	05/11/1994	1.6	emh	205 100	7520 (1)
Selenium, GFAA	<2.1	S,D10	ug/g	05/15/1994	0.20	dmc	205 9	7740 (1)
Silver, AA	4.5		ug/g	05/05/1994	2.5	jmt	89 801	7760 (1)
Tin, ICP	<53		ug/g	05/09/1994	50	jmt	245 248	6010 (1)
Zinc, ICP	2.5		ug/g	05/09/1994	1.0	jmt	245 641	6010 (1)
Metals Prep, Nonaqueous	Complete			05/06/1994		jmt	245	3050 (1)
Metals Prep, Hg Nonaqueous	Complete			05/11/1994		jmt	200	7471 (1)
Metals Prep, Ag Nonaqueous	Complete			05/05/1994		mic	89	7760 (1)

D10 : Parameter analysis performed at a 10x dilution due to a matrix interference at lower dilutions.

S : Parameter analysis was sub-contracted to another NET location.

NATIONAL ENVIRONMENTAL TESTING, INC.

Bartlett Division
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ANALYTICAL REPORT

Ms. Susan Roberts
ENGINEERING-SCIENCE, INC.
8000 Centre Park Drive
Suite 200
Austin, TX 78754

05/16/1994

Sample No. : 258103

NET Job No.: 94.02856

Sample Description: BKG-SB08(5)
721460.05; CSSA F-14 Closures

Date Taken: 04/21/1994
Time Taken: 14:38
IEPA Cert. No. 100221

Date Received: 04/23/1994
Time Received: 09:00
WDNR Cert. No. 999447130

Parameter	Results		Units	Date of Analysis	Method PQL	Analyst	Batch No. Prep/Run	Analytical Method
Solids, Total	93.3		%	05/04/1994	0.1	dsf	923	2540 (4)
METALS - ICP 2 Non-Aq	Complete		ug/g	05/09/1994		jmt	63	6010(1) 200.7(3)
Aluminum,ICP	1,300		ug/g	05/09/1994	5.0	jmt	245 605	6010 (1)
Arsenic, GFAA	<2.1	S,D10	ug/g	05/16/1994	0.20	dmc	205 13	7060 (1)
Barium, ICP	3.8		ug/g	05/09/1994	1.0	jmt	245 675	6010 (1)
Cadmium, ICP	<0.54		ug/g	05/09/1994	0.50	jmt	245 646	6010 (1)
Chromium, ICP	<2.0		ug/g	05/09/1994	2.0	jmt	245 636	6010 (1)
Copper, ICP	1.3		ug/g	05/09/1994	0.50	jmt	245 858	6010 (1)
Iron, ICP	1,200		ug/g	05/09/1994	1.0	jmt	245 683	6010 (1)
Lead, AA	46	S	ug/g	05/04/1994	2.2	emh	205 222	7420 (1)
Mercury, CVAA	<0.03		ug/g	05/11/1994	0.02	jmt	200 318	7471 (1)
Nickel, AA	21	S	ug/g	05/11/1994	1.6	emh	205 100	7520 (1)
Selenium, GFAA	<2.1	S,D10	ug/g	05/15/1994	0.20	dmc	205 9	7740 (1)
Silver, AA	5.2		ug/g	05/05/1994	2.5	jmt	89 801	7760 (1)
Tin, ICP	<54		ug/g	05/09/1994	50	jmt	245 248	6010 (1)
Zinc, ICP	1.8		ug/g	05/09/1994	1.0	jmt	245 641	6010 (1)
Metals Prep, Nonaqueous	Complete			05/06/1994		jmt	245	3050 (1)
Metals Prep, Hg Nonaqueous	Complete			05/11/1994		jmt	200	7471 (1)
Metals Prep, Ag Nonaqueous	Complete			05/05/1994		mic	89	7760 (1)

D10 : Parameter analysis performed at a 10x dilution due to a matrix interference at lower dilutions.

S : Parameter analysis was sub-contracted to another NET location.

NATIONAL ENVIRONMENTAL TESTING, INC.

Bartlett Division
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ANALYTICAL REPORT

Ms. Susan Roberts
ENGINEERING-SCIENCE, INC.
8000 Centre Park Drive
Suite 200
Austin, TX 78754

05/16/1994

Sample No. : 258104

NET Job No.: 94.02856

Sample Description: BKG-SB05(10)
721460.05; CSSA F-14 Closures

Date Taken: 04/21/1994
Time Taken: 15:38
IEPA Cert. No. 100221

Date Received: 04/23/1994
Time Received: 09:00
WDNR Cert. No. 999447130

Parameter	Results		Units	Date of Analysis	Method PQL	Analyst	Batch No. Prep/Run	Analytical Method
Solids, Total	93.8		%	05/04/1994	0.1	dsf	923	2540 (4)
METALS - ICP 2 Non-Aq	Complete		ug/g	05/09/1994		jmt	63	6010(1) 200.7(3)
luminum,ICP	1,650		ug/g	05/09/1994	5.0	jmt	245 605	6010 (1)
senic, GFAA	2.1	S	ug/g	05/16/1994	0.20	dmc	205 13	7060 (1)
arium, ICP	6.9		ug/g	05/09/1994	1.0	jmt	245 675	6010 (1)
Cadmium, ICP	<0.53		ug/g	05/09/1994	0.50	jmt	245 646	6010 (1)
Chromium, ICP	2.7		ug/g	05/09/1994	2.0	jmt	245 636	6010 (1)
Copper, ICP	2.3		ug/g	05/09/1994	0.50	jmt	245 858	6010 (1)
Iron, ICP	3,360		ug/g	05/09/1994	1.0	jmt	245 683	6010 (1)
Lead, AA	39	S	ug/g	05/04/1994	2.2	emh	205 222	7420 (1)
Mercury, CVAA	<0.03		ug/g	05/11/1994	0.02	jmt	200 318	7471 (1)
Nickel, AA	20	S	ug/g	05/11/1994	1.6	emh	205 100	7520 (1)
Selenium, GFAA	<2.1	S,D10	ug/g	05/15/1994	0.20	dmc	205 9	7740 (1)
Silver, AA	4.0		ug/g	05/05/1994	2.5	jmt	89 801	7760 (1)
Tin, ICP	<53		ug/g	05/09/1994	50	jmt	245 248	6010 (1)
Zinc, ICP	3.2		ug/g	05/09/1994	1.0	jmt	245 641	6010 (1)
Metals Prep, Nonaqueous	Complete			05/06/1994		jmt	245	3050 (1)
Metals Prep, Hg Nonaqueous	Complete			05/11/1994		jmt	200	7471 (1)
Metals Prep, Ag Nonaqueous	Complete			05/05/1994		mic	89	7760 (1)

D10 : Parameter analysis performed at a 10x dilution due to a matrix interference at lower dilutions.

S : Parameter analysis was sub-contracted to another NET location.

NATIONAL ENVIRONMENTAL TESTING, INC.

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ANALYTICAL REPORT

Ms. Susan Roberts
ENGINEERING-SCIENCE, INC.
8000 Centre Park Drive
Suite 200
Austin, TX 78754

05/16/1994

Sample No. : 258105

NET Job No.: 94.02856

Sample Description: BKG-SB04(17.5)
721460.05; CSSA F-14 Closures

Date Taken: 04/21/1994
Time Taken: 16:35
IEPA Cert. No. 100221

Date Received: 04/23/1994
Time Received: 09:00
WDNR Cert. No. 999447130

Parameter	Results		Units	Date of Analysis	Method PQL	Analyst	Batch No. Prep/Run	Analytical Method
Solids, Total	95.6		%	05/04/1994	0.1	dsf	923	2540 (4)
METALS - ICP 2 Non-Aq	Complete		ug/g	05/09/1994		jmt	63	6010(1) 200.7(3)
Aluminum,ICP	1,070		ug/g	05/09/1994	5.0	jmt	245 605	6010 (1)
Arsenic, GFAA	<2.1	S,D10	ug/g	05/16/1994	0.20	dmc	205 13	7060 (1)
Barium, ICP	5.3		ug/g	05/09/1994	1.0	jmt	245 675	6010 (1)
Cadmium, ICP	<0.52		ug/g	05/09/1994	0.50	jmt	245 646	6010 (1)
Chromium, ICP	2.2		ug/g	05/09/1994	2.0	jmt	245 636	6010 (1)
Copper, ICP	1.2		ug/g	05/09/1994	0.50	jmt	245 858	6010 (1)
Iron, ICP	1,660		ug/g	05/09/1994	1.0	jmt	245 683	6010 (1)
Lead, AA	42	S	ug/g	05/04/1994	2.2	emh	205 222	7420 (1)
Mercury, CVAA	<0.03		ug/g	05/11/1994	0.02	jmt	200 318	7471 (1)
Nickel, AA	24	S	ug/g	05/11/1994	1.6	emh	205 100	7520 (1)
Selenium, GFAA	<2.1	S,D10	ug/g	05/15/1994	0.20	dmc	205 9	7740 (1)
Silver, AA	4.6		ug/g	05/05/1994	2.5	jmt	89 801	7760 (1)
Tin, ICP	<52		ug/g	05/09/1994	50	jmt	245 248	6010 (1)
Zinc, ICP	2.6		ug/g	05/09/1994	1.0	jmt	245 641	6010 (1)
Metals Prep, Nonaqueous	Complete			05/06/1994		jmt	245	3050 (1)
Metals Prep, Hg Nonaqueous	Complete			05/11/1994		jmt	200	7471 (1)
Metals Prep, Ag Nonaqueous	Complete			05/05/1994		mic	89	7760 (1)

D10 : Parameter analysis performed at a 10x dilution due to a matrix interference at lower dilutions.

S : Parameter analysis was sub-contracted to another NET location.

NATIONAL ENVIRONMENTAL TESTING, INC.

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ANALYTICAL REPORT

Ms. Susan Roberts
ENGINEERING-SCIENCE, INC.
8000 Centre Park Drive
Suite 200
Austin, TX 78754

05/16/1994

Sample No. : 258106

NET Job No.: 94.02856

Sample Description: BKG-SB03(19.5)
721460.05; CSSA F-14 Closures

Date Taken: 04/21/1994
Time Taken: 17:55
IEPA Cert. No. 100221

Date Received: 04/23/1994
Time Received: 09:00
WDNR Cert. No. 999447130

Parameter	Results		Units	Date of Analysis	Method PQL	Analyst	Batch No. Prep/Run	Analytical Method
Solids, Total	92.5		%	05/04/1994	0.1	dsf	923	2540 (4)
METALS - ICP 2 Non-Aq	Complete		ug/g	05/09/1994		jmt	63	6010(1) 200.7(3)
Aluminum,ICP	1,100		ug/g	05/09/1994	5.0	jmt	245 605	6010 (1)
Arsenic, GFAA	<2.2	S,D10	ug/g	05/16/1994	0.20	dmc	205 13	7060 (1)
Barium, ICP	4.5		ug/g	05/09/1994	1.0	jmt	245 675	6010 (1)
Cadmium, ICP	<0.54		ug/g	05/09/1994	0.50	jmt	245 646	6010 (1)
Chromium, ICP	2.2		ug/g	05/09/1994	2.0	jmt	245 636	6010 (1)
Copper, ICP	1.3		ug/g	05/09/1994	0.50	jmt	245 858	6010 (1)
Iron, ICP	1,190		ug/g	05/09/1994	1.0	jmt	245 683	6010 (1)
Lead, AA	52	S	ug/g	05/04/1994	2.2	emh	205 222	7420 (1)
Mercury, CVAA	<0.03		ug/g	05/11/1994	0.02	jmt	200 318	7471 (1)
Nickel, AA	24	S	ug/g	05/11/1994	1.6	emh	205 100	7520 (1)
Selenium, GFAA	<2.2	S,D10	ug/g	05/15/1994	0.50	dmc	205 9	7740 (1)
Silver, AA	4.7		ug/g	05/05/1994	2.5	jmt	89 801	7760 (1)
Tin, ICP	<54		ug/g	05/09/1994	50	jmt	245 248	6010 (1)
Zinc, ICP	2.5		ug/g	05/09/1994	1.0	jmt	245 641	6010 (1)
Metals Prep, Nonaqueous	Complete			05/06/1994		jmt	245	3050 (1)
Metals Prep, Hg Nonaqueous	Complete			05/11/1994		jmt	200	7471 (1)
Metals Prep, Ag Nonaqueous	Complete			05/05/1994		mic	89	7760 (1)

D10 : Parameter analysis performed at a 10x dilution due to a matrix interference at lower dilutions.

S : Parameter analysis was sub-contracted to another NET location.

NATIONAL ENVIRONMENTAL TESTING, INC.

Bartlett Division
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ANALYTICAL REPORT

Ms. Susan Roberts
ENGINEERING-SCIENCE, INC.
8000 Centre Park Drive
Suite 200
Austin, TX 78754

05/16/1994

Sample No. : 258107

NET Job No.: 94.02856

Sample Description: BKG-SB02(10)
721460.05; CSSA F-14 Closures

Date Taken: 04/22/1994
Time Taken: 08:45
IEPA Cert. No. 100221

Date Received: 04/23/1994
Time Received: 09:00
WDNR Cert. No. 999447130

Parameter	Results		Units	Date of Analysis	Method PQL	Analyst	Batch No. Prep/Run	Analytical Method
Solids, Total	95.5		%	05/04/1994	0.1	dsf	923	2540 (4)
METALS - ICP 2 Non-Aq	Complete		ug/g	05/09/1994		jmt	63	6010(1) 200.7(3)
Aluminum,ICP	1,700		ug/g	05/09/1994	5.0	jmt	245 605	6010 (1)
Arsenic, GFAA	<2.1	S,D10	ug/g	05/16/1994	0.20	dmc	205 13	7060 (1)
Barium, ICP	5.5		ug/g	05/09/1994	1.0	jmt	245 675	6010 (1)
Cadmium, ICP	<0.52		ug/g	05/09/1994	0.50	jmt	245 646	6010 (1)
Chromium, ICP	2.0		ug/g	05/09/1994	2.0	jmt	245 636	6010 (1)
Copper, ICP	2.0		ug/g	05/09/1994	0.50	jmt	245 858	6010 (1)
Iron, ICP	2,010		ug/g	05/09/1994	1.0	jmt	245 683	6010 (1)
Lead, AA	48	S	ug/g	05/04/1994	2.2	emh	205 222	7420 (1)
Mercury, CVAA	<0.03		ug/g	05/11/1994	0.02	jmt	200 318	7471 (1)
Nickel, AA	23	S	ug/g	05/11/1994	1.6	emh	205 100	7520 (1)
Selenium, GFAA	<2.1	S,D10	ug/g	05/15/1994	0.20	dmc	205 9	7740 (1)
Silver, AA	4.3		ug/g	05/05/1994	2.5	jmt	89 801	7760 (1)
Tin, ICP	<52		ug/g	05/09/1994	50	jmt	245 248	6010 (1)
Zinc, ICP	2.0		ug/g	05/09/1994	1.0	jmt	245 641	6010 (1)
Metals Prep, Nonaqueous	Complete			05/06/1994		jmt	245	3050 (1)
Metals Prep, Hg Nonaqueous	Complete			05/11/1994		jmt	200	7471 (1)
Metals Prep, Ag Nonaqueous	Complete			05/05/1994		mic	89	7760 (1)

D10 : Parameter analysis performed at a 10x dilution due to a matrix interference at lower dilutions.

S : Parameter analysis was sub-contracted to another NET location.

NATIONAL ENVIRONMENTAL TESTING, INC.

Bartlett Division
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Bartlett, IL 60103
Tel: (708) 289-3100
Fax: (708) 289-5445

ANALYTICAL REPORT

Ms. Susan Roberts
ENGINEERING-SCIENCE, INC.
8000 Centre Park Drive
Suite 200
Austin, TX 78754

05/16/1994

Sample No. : 258108

NET Job No.: 94.02856

Sample Description: BKG-SB01(4.5)
721460.05; CSSA F-14 Closures

Date Taken: 04/22/1994
Time Taken: 09:40
IEPA Cert. No. 100221

Date Received: 04/23/1994
Time Received: 09:00
WDNR Cert. No. 999447130

Parameter	Results		Units	Date of Analysis	Method PQL	Analyst	Batch No. Prep/Run	Analytical Method
Solids, Total	92.7		%	05/04/1994	0.1	dsf	923	2540 (4)
METALS - ICP 2 Non-Aq	Complete		ug/g	05/09/1994		jmt	63	6010(1) 200.7(3)
uminum,ICP	790		ug/g	05/09/1994	5.0	jmt	245 605	6010 (1)
senic, GFAA	<2.2	S,D10	ug/g	05/16/1994	0.20	dmc	205 13	7060 (1)
Barium, ICP	3.5		ug/g	05/09/1994	1.0	jmt	245 675	6010 (1)
Cadmium, ICP	<0.54		ug/g	05/09/1994	0.50	jmt	245 646	6010 (1)
Chromium, ICP	<2.0		ug/g	05/09/1994	2.0	jmt	245 636	6010 (1)
Copper, ICP	0.61		ug/g	05/09/1994	0.50	jmt	245 858	6010 (1)
Iron, ICP	910		ug/g	05/09/1994	1.0	jmt	245 683	6010 (1)
Lead, AA	58	S	ug/g	05/04/1994	2.2	emh	205 222	7420 (1)
Mercury, CVAA	<0.03		ug/g	05/11/1994	0.02	jmt	200 318	7471 (1)
Nickel, AA	26	S	ug/g	05/11/1994	1.6	emh	205 100	7520 (1)
Selenium, GFAA	<2.2	S,D10	ug/g	05/15/1994	0.20	dmc	205 9	7740 (1)
Silver, AA	4.8		ug/g	05/05/1994	2.5	jmt	89 801	7760 (1)
Tin, ICP	<54		ug/g	05/09/1994	50	jmt	245 248	6010 (1)
Zinc, ICP	2.1		ug/g	05/09/1994	1.0	jmt	245 641	6010 (1)
Metals Prep, Nonaqueous	Complete			05/06/1994		jmt	245	3050 (1)
Metals Prep, Hg Nonaqueous	Complete			05/11/1994		jmt	200	7471 (1)
Metals Prep, Ag Nonaqueous	Complete			05/05/1994		mic	89	7760 (1)

D10 : Parameter analysis performed at a 10x dilution due to a matrix interference at lower dilutions.

S : Parameter analysis was sub-contracted to another NET location.

NATIONAL ENVIRONMENTAL TESTING, INC.

Bartlett Division
850 W. Bartlett Rd.
Bartlett, IL 60103
Tel: (708) 289-3100
Fax: (708) 289-5445

ANALYTICAL REPORT

Ms. Susan Roberts
ENGINEERING-SCIENCE, INC.
8000 Centre Park Drive
Suite 200
Austin, TX 78754

05/16/1994

Sample No. : 258109

NET Job No.: 94.02856

Sample Description: BKG-SB09(5)
721460.05; CSSA F-14 Closures

Date Taken: 04/22/1994
Time Taken: 10:45
IEPA Cert. No. 100221

Date Received: 04/23/1994
Time Received: 09:00
WDNR Cert. No. 999447130

Parameter	Results		Units	Date of Analysis	Method PQL	Analyst	Batch No. Prep/Run	Analytical Method
Solids, Total	98.9		%	05/03/1994	0.1	dsf	924	2540 (4)
METALS - ICP 2 Non-Aq	Complete		ug/g	05/09/1994		jmt	63	6010(1) 200.7(3)
Aluminum,ICP	2,100		ug/g	05/09/1994	5.0	jmt	245 605	6010 (1)
Arsenic, GFAA	<2.0	S,D10	ug/g	05/16/1994	0.20	dmc	205 13	7060 (1)
Barium, ICP	7.8		ug/g	05/09/1994	1.0	jmt	245 675	6010 (1)
Cadmium, ICP	<0.51		ug/g	05/09/1994	0.50	jmt	245 646	6010 (1)
Chromium, ICP	2.0		ug/g	05/09/1994	2.0	jmt	245 636	6010 (1)
Copper, ICP	1.1		ug/g	05/09/1994	0.50	jmt	245 858	6010 (1)
Iron, ICP	1,830		ug/g	05/09/1994	1.0	jmt	245 683	6010 (1)
Lead, AA	40	S	ug/g	05/04/1994	2.2	emh	205 222	7420 (1)
Mercury, CVAA	<0.03		ug/g	05/11/1994	0.02	jmt	200 318	7471 (1)
Nickel, AA	21	S	ug/g	05/11/1994	1.6	emh	205 100	7520 (1)
Selenium, GFAA	<2.0	S,D10	ug/g	05/15/1994	0.20	dmc	245 9	7740 (1)
Silver, AA	4.8		ug/g	05/05/1994	2.5	jmt	89 801	7760 (1)
Tin, ICP	<51		ug/g	05/09/1994	50	jmt	245 248	6010 (1)
Zinc, ICP	2.0		ug/g	05/09/1994	1.0	jmt	245 641	6010 (1)
Metals Prep, Nonaqueous	Complete			05/06/1994		jmt	245	3050 (1)
Metals Prep, Hg Nonaqueous	Complete			05/11/1994		jmt	200	7471 (1)
Metals Prep, Ag Nonaqueous	Complete			05/05/1994		mic	89	7760 (1)

D10 : Parameter analysis performed at a 10x dilution due to a matrix interference at lower dilutions.

S : Parameter analysis was sub-contracted to another NET location.

NATIONAL ENVIRONMENTAL TESTING, INC.

Bartlett Division
850 W. Bartlett Rd.
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ANALYTICAL REPORT

Ms. Susan Roberts
ENGINEERING-SCIENCE, INC.
8000 Centre Park Drive
Suite 200
Austin, TX 78754

05/16/1994

Sample No. : 258110

NET Job No.: 94.02856

Sample Description: BKG-SB10(20)
721460.05; CSSA F-14 Closures

Date Taken: 04/22/1994
Time Taken: 12:05
IEPA Cert. No. 100221

Date Received: 04/23/1994
Time Received: 09:00
WDNR Cert. No. 999447130

Parameter	Results		Units	Date of Analysis	Method PQL	Analyst	Batch No. Prep/Run	Analytical Method
Solids, Total	91.0		%	05/03/1994	0.1	dsf	924	2540 (4)
METALS - ICP 2 Non-Aq	Complete		ug/g	05/09/1994		jmt	63	6010(1) 200.7(3)
Aluminum,ICP	1,870		ug/g	05/09/1994	5.0	jmt	245 605	6010 (1)
Arsenic, GFAA	<2.2	S,D10	ug/g	05/16/1994	0.20	dmc	205 13	7060 (1)
Barium, ICP	6.4		ug/g	05/09/1994	1.0	jmt	245 675	6010 (1)
Cadmium, ICP	<0.55		ug/g	05/09/1994	0.50	jmt	245 646	6010 (1)
Chromium, ICP	3.7		ug/g	05/09/1994	2.0	jmt	245 636	6010 (1)
Copper, ICP	2.8		ug/g	05/09/1994	0.50	jmt	245 858	6010 (1)
Iron, ICP	3,140		ug/g	05/09/1994	1.0	jmt	245 683	6010 (1)
Lead, AA	44	S	ug/g	05/04/1994	2.2	emh	205 222	7420 (1)
Mercury, CVAA	<0.03		ug/g	05/11/1994	0.02	jmt	200 318	7471 (1)
Nickel, AA	18	S	ug/g	05/11/1994	1.6	emh	205 100	7520 (1)
Selenium, GFAA	<0.22	S	ug/g	05/15/1994	0.20	dmc	205 9	7740 (1)
Silver, AA	3.7		ug/g	05/05/1994	2.5	jmt	89 801	7760 (1)
Tin, ICP	<55		ug/g	05/09/1994	50	jmt	245 248	6010 (1)
Zinc, ICP	4.3		ug/g	05/09/1994	1.0	jmt	245 641	6010 (1)
Metals Prep, Nonaqueous	Complete			05/06/1994		jmt	245	3050 (1)
Metals Prep, Hg Nonaqueous	Complete			05/11/1994		jmt	200	7471 (1)
Metals Prep, Ag Nonaqueous	Complete			05/05/1994		mic	89	7760 (1)

D10 : Parameter analysis performed at a 10x dilution due to a matrix interference at lower dilutions.

S : Parameter analysis was sub-contracted to another NET location.

NET Midwest, Bartlett Division

KEY TO ABBREVIATIONS and METHOD REFERENCES

<	:	Less than; When appearing in the results column indicates the analyte was not detected at or above the reported value.
mg/L	:	Concentration in units of milligrams of analyte per liter of sample. Measurement used for aqueous samples. Can also be expressed as parts per million (ppm).
ug/g	:	Concentration in units of micrograms of analyte per gram of sample. Measurement used for non-aqueous samples. Can also be expressed as parts per million (ppm) or mg/Kg.
ug/L	:	Concentration in units of micrograms of analyte per liter of sample. Measurement used for aqueous samples. Can also be expressed as parts per billion (ppb).
ug/Kg	:	Concentration in units of micrograms of analyte per kilogram of sample. Measurement used for non-aqueous samples. Can also be expressed as parts per billion (ppb).
B	:	Sample result flag indicating that the analyte was also found in the method blank analysis. The value after the B indicates the concentration found in the blank analysis.
D	:	Sample result flag indicating that the reported concentration is from an analysis performed at a dilution. The value following the D indicates the dilution factor of the analysis.
J	:	Sample result flag indicating that the reported concentration is below the routine reporting limit but greater than the Method Detection Limit. The value should be considered estimated.
TCLP	:	These initials appearing in front of an analyte name indicate that the Toxicity Characteristic Leaching Procedure (TCLP) was performed for this test.
%	:	Percent; To convert ppm to %, divide the result by 10,000. To convert % to ppm, multiply the result by 10,000.
Dry Weight (dw)	:	When indicated, the results are reported on a dry weight basis. The contribution of the moisture content in the sample is subtracted when calculating the concentration of the analyte.
ICP	:	Indicates analysis was performed using Inductively Coupled Plasma Spectroscopy.
AA	:	Indicates analysis was performed using Atomic Absorption Spectroscopy.
GFAA	:	Indicates analysis was performed using Graphite Furnace Atomic Absorption Spectroscopy.
PQL	:	Practical Quantitation Limit; the lowest level that can be reliably achieved within specified limits of precision and accuracy during routine laboratory operating conditions.

Method References

(1) Methods 1000 through 9999: see "Test Methods for Evaluating Solid Waste", USEPA SW-846, 3rd Edition, 1986.

(2) ASTM "American Society for Testing Materials

(3) Methods 100 through 499: see "Methods for Chemical Analysis of Water and Wastes", USEPA, 600/4-79-020, Rev. 1983.

(4) See "Standard Methods for the Examination of Water and Wastewater", 17th Ed, APHA, 1989.

(5) Methods 600 through 625: see "Guidelines Establishing Test Procedures for the Analysis of Pollutants", USEPA Federal Register Vol. 49 No. 209, October 1984.

(6) Methods 500 through 599: see "Methods for the Determination of Organic Compounds in Drinking Water," USEPA 600/4-88/039, Rev. 1988.

Engineerin ience Inc

Austin, Texas

Fed X Airbill # 895066 2431

Anal. Hg by 7471 Subc OK per Roberts 4/25/94

CHAIN OF CUSTODY RECORD

PROJECT NO.	PROJECT NAME/LOCATION
21960.05	CSSA F-14 Closures

SAMPLERS (Signatures) Adam Roberts

SAMPLE NO.	DATE	TIME	MATRIX	SAMPLE DESCRIPTION	NO. OF CONTAINERS	Analysis Required: SW6010 - ICP Metals; SW7060 - Arsenic; SW7420 - Lead; SW7470 - Hg; SW7520 - Ni; SW7740 - Selenium	REMARKS
~~BKG~~ SB07 (2½)	4/21/94	1020	Rock		1	X X X X X X	ICP metals =
BKG-SB06 (15)	4/20/94	1205	Rock		1	X X X X X X	Al, Ba, Cd, Cr,
BKG-SB04 (5)	4/21/94	1436	Rock		1	X X X X X X	Cu, Fe, Ag, Tin,
BKG-SB05 (10)	4/21/94	1538	Rock		1	X X X X X X	Zn
BKG-SB01 (17.5)	4/21/94	1635	Rock		1	X X X X X X	
BKG-SB03 (19.5)	4/21/94	1755	Rock		1	X X X X X X	
BKG-SB02 (10)	4/22/94	0845	Rock		1	X X X X X X	
BKG-SB01 (4.5)	4/22/94	0940	Rock		1	X X X X X X	
BKG-SB09 (5)	4/22/94	1045	Rock		1	X X X X X X	
BKG-SB10 (20)	4/22/94	1205	Rock		1	X X X X X X	Preserved on ice
							cooler 16°C

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Relinquished by: (Signature)	Date	Time	Received by: (Signature)
Adam Roberts	4/22/94	1700	x.23 9:00 for FedX				
Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Relinquished by: (Signature)	Date	Time	Received by: (Signature)

"Relinquished by" and "Received by" boxes must be completed for all transfers.

White: laboratory returns with data, yellow: laboratory copy, pink: sampler copy

Appendix E

Data Validation Report

MEMORANDUM

May 31, 1994

To: FILE

From: David M. Glover

Subject: CSSA WMU Closure Data Validation for Background Metals

---

Metals analyses conducted by National Environmental Testing (NET) for aluminum, arsenic, barium, cadmium, chromium, copper, iron, lead, mercury, nickel, silver, tin, and zinc were reviewed for the twenty (20) soil samples included in NET job numbers 94.02697, 94.02853, and 94.02856. Selenium results are incomplete at this time; analysis by the method of standard addition (MSA) was required, validation of selenium results has been deferred until MSA results are available.

Data validation of the analyses for metals has been completed for the following laboratory job numbers.

94.02697		94.02853		94.02856	
NET#	ES#	NET#	ES#	NET#	ES#
257480	BKG-SS-04	258064	BKG-SS-05	258101	BKG-SB07(24)
257481	BKG-SS-06	258065	BKG-SS-03	258102	BKG-SB06(18)
257482	BKG-SS-07	258066	BKG-SS-02	258103	BKG-SB08(5)
257483	BKG-SS-08	258067	BKG-SS-01	258104	BKG-SB05(10)
		258068	BKG-SS-09	258105	BKG-SB04(17.5)
		258069	BKG-SS-10	258106	BKG-SB03(19.5)
				258107	BKG-SB02(10)
				258108	BKG-SB01(4.5)
				258109	BKG-SB09(5)
				258110	BKG-SB10(20)

These samples have been checked for the following items.

I) DELIVERABLES

Each laboratory job delivery package was checked for the presence of required information as shown in Exhibit A of the Laboratory Standard Agreement. All deliverables were found to be present and accurate with the following exceptions.

1) No preparation (digest) log was provided for NET sample number 257480.
2) There is disagreement between the digest log and the atomic absorption (AA) analysis run log in the mass of NET sample number 257486. The digest log gives a value of 0.99g while the analysis log shows a value of 0.98g.
3) The MSA analyses for selenium have not yet been completed. All selenium results are preliminary values and have been qualified as estimated, flagged "J" or "UJ", because MSA data has not been provided.

The laboratory has been contacted about or is aware (see reference above) of these matters and is presently resolving them.

II) HOLDING TIMES

The holding time for mercury analysis is 28 days. The holding time for all other metals is 180 days. All analyses performed to date have met holding time criteria. Selenium MSA analyses finished before 10/17-19/94 will meet holding time criteria.

III) CALIBRATIONS

Calibration criteria require that the correlation coefficients for all AA analyses be greater than 0.995 and that percent recoveries for all calibration verifications be between 90 and 110% (80 and 120% for mercury). All criteria were met for all samples.

IV) BLANKS

No target compound should be present in any blank analyzed. Iron was found in many blank samples at very low levels. All sample results for iron were above the action level of five times (5X) the quantity found in the blank sample so no qualification of the iron results were made for blank contamination. The highest reported blank contamination of zinc in NET job number 94.02853 was 1.2 μg/g. All sample results in job number 94.02853 were above the 5X action level of 6.0 μg/g; no qualification of the data was made. The blank analyses summary sheet for job number 94.02856 reports blank contamination of 1.2 μg/g zinc. However, no blank sample which brackets a sample included in this job shows any zinc contamination. No qualification of zinc analyses in job 94.02856 was made due to blank contamination.

V) MATRIX SPIKE SAMPLE RECOVERY

Matrix spike sample percent recovery must be within the limits of 75-125%. However, these limits do not apply when the sample result exceeds the spiking amount by a factor of four (4) or more. All percent recoveries met these limits, where applicable, except for zinc (63.0%) in jobs 94.02853 and 94.02856. All zinc results in jobs 94.02853 and 94.02856 have been qualified as estimated and flagged with a "J" for detected concentrations of zinc, or "UJ" when zinc was not detected.

VI) ICP INTERFERENCE CHECK SAMPLE RECOVERY

Percent recovery of all ICP interference check sample results must be within 80-120%. All samples met this criteria.

VII) LABORATORY CONTROL SAMPLE RECOVERY

Percent recovery of all laboratory control sample results must be within 80-120%. All samples met this criteria.

VIII) DUPLICATE SAMPLE RECOVERY

The relative percent difference between a sample and its duplicate must be less than 35%. All duplicate samples met this criteria except for zinc in job numbers 94.02853 and 94.02856. All samples in these job numbers that had detectable zinc concentrations have been qualified as estimated and flagged with a "J".

IX) ICP SERIAL DILUTION

The percent difference between the sample result and the diluted sample result must be less than 10%. Iron and aluminum in job number 94.02697 required serial dilution and met this criteria.

X) AA METHOD OF STANDARD ADDITION

All selenium analyses required method of standard addition. These results have not yet been provided. All initial selenium results have been qualified as estimated and flagged "J" or "UJ".

cc: Susan Roberts, Austin
Sandy Czarnecki, Raleigh

ENGINEERING-SCIENCE, INC.

401 Harrison Oaks Boulevard, Suite 210 • Cary, North Carolina 27513 • (919) 677-0080 • Fax: (919) 677-0118

June 7, 1994

Ms. Susan Roberts
Engineering-Science, Inc.
8000 Centre Park Drive, Suite 200
Austin, TX 78754

RE: CSSA WMU Closure Data Validation for Background Metals

Dear Ms. Roberts:

As a follow-up to my letter of May 31, 1994, I have completed the review of the additional materials provided by National Environmental Testing (NET) in the three letters dated May 31, 1994 that were sent to you. NET has addressed all of my concerns regarding possible data entry errors, see my memorandum of May 31, 1994. The laboratory has also provided the results of the selenium analyses which were previously missing and/or uncompleted.

Revised validated sample results, based on the corrected reports and the additional data, are enclosed. Samples BKG-SS-04 and BKG-SS-08 have had sample weights for one or more analyses corrected as explained in the NET case narrative of May 31, 1994. The results for the selenium analyses by the method of standard addition (MSA) in samples BKG-SB01(4.5), BKG-SB09(5), and BKG-SB10(20) indicate that selenium is not present in any of these three samples above the level of 20 μg/g. Because of the additional steps required for MSA analyses these results have retained the estimated qualification and flagged "UJ". Qualification of all other selenium results have been removed.

Sincerely,

ENGINEERING-SCIENCE, INC.

David M. Glover
Associate Scientist

cc: Sandra M. Czarnecki

ENCLOSURE

NATIONAL ENVIRONMENTAL TESTING, INC.

Bartlett Division
850 W. Bartlett Rd.
Bartlett, IL 60103
Tel: (708) 289-3100
Fax: (708) 289-5445

ANALYTICAL REPORT

Ms. Susan Roberts
ENGINEERING-SCIENCE, INC.
8000 Centre Park Drive
Suite 200
Austin, TX 78754

05/16/1994

Sample No. : 258067

NET Job No.: 94.02853

Sample Description: BKG-SS-01
721460.01; CSSA Background

Date Taken: 04/22/1994
Time Taken: 09:10
IEPA Cert. No. 100221

Date Received: 04/23/1994
Time Received: 09:00
WDNR Cert. No. 999447130

Parameter	Results		Units	Date of Analysis	Method PQL	Analyst	Batch No. Prep/Run	Analytical Method
Solids, Total	80.1		%	04/29/1994	0.1	dsf	920	2540 (4)
METALS - ICP 2 Non-Aq	Complete		ug/g	05/09/1994		jmt	63	6010(1) 200.7(3)
[illegible]um,ICP	22,300		ug/g	05/09/1994	5.0	jmt	245 605	6010 (1)
A[illegible]ic, GFAA	21	S	ug/g	05/16/1994	0.20	dmc	205 13	7060 (1)
Barium, ICP	73.3		ug/g	05/09/1994	1.0	jmt	245 675	6010 (1)
Cadmium, ICP	<0.62		ug/g	05/09/1994	0.50	jmt	245 646	6010 (1)
Chromium, ICP	18.3		ug/g	05/09/1994	2.0	jmt	245 636	6010 (1)
Copper, ICP	7.9		ug/g	05/09/1994	0.50	jmt	245 858	6010 (1)
Iron, ICP	16,900		ug/g	05/09/1994	1.0	jmt	245 683	6010 (1)
Lead, AA	56	S	ug/g	05/04/1994	2.2	emh	205 222	7420 (1)
Mercury, CVAA	0.04		ug/g	05/11/1994	0.02	jmt	200 318	7471 (1)
Nickel, AA	28	S	ug/g	05/11/1994	1.6	emh	205 100	7520 (1)
Selenium, GFAA	<2.5	S,D10	ug/g	05/15/1994	0.20	dmc	205 9	7740 (1)
Silver, AA	<3.0		ug/g	05/05/1994	2.5	jmt	89 801	7760 (1)
Tin, ICP	<62		ug/g	05/09/1994	50	jmt	245 248	6010 (1)
Zinc, ICP	34.4 J		ug/g	05/09/1994	1.0	jmt	245 641	6010 (1)
Metals Prep, Nonaqueous	Complete			05/06/1994		jmt	245	3050 (1)
Metals Prep, Hg Nonaqueous	Complete			05/11/1994		jmt	200	7471 (1)
Metals Prep, Ag Nonaqueous	Complete			05/05/1994		mic	89	7760 (1)

: Parameter analysis performed at a 10x dilution due to a matrix interference at lower dilutions.

S : Parameter analysis was sub-contracted to another NET location.

NATIONAL ENVIRONMENTAL TESTING, INC.

Bartlett Division
850 W. Bartlett Rd.
Bartlett, IL 60103
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Fax: (708) 289-5445

ANALYTICAL REPORT

Ms. Susan Roberts
ENGINEERING-SCIENCE, INC.
8000 Centre Park Drive
Suite 200
Austin, TX 78754

05/16/1994

Sample No. : 258066

NET Job No.: 94.02853

Sample Description: BKG-SS-02
721460.01; CSSA Background

Date Taken: 04/22/1994
Time Taken: 08:15
IEPA Cert. No. 100221

Date Received: 04/23/1994
Time Received: 09:00
WDNR Cert. No. 999447130

Parameter	Results		Units	Date of Analysis	Method PQL	Analyst	Batch No. Prep/Run	Analytical Method
Solids, Total	85.0		%	04/29/1994	0.1	dsf	920	2540 (4)
METALS - ICP 2 Non-Aq	Complete		ug/g	05/09/1994		jmt	63	6010(1) 200.7(3)
Aluminum,ICP	17,500		ug/g	05/09/1994	5.0	jmt	245 605	6010 (1)
Arsenic, GFAA	26	S	ug/g	05/16/1994	0.20	dmc	205 13	7060 (1)
Barium, ICP	76.3		ug/g	05/09/1994	1.0	jmt	245 675	6010 (1)
Cadmium, ICP	<0.59		ug/g	05/09/1994	0.50	jmt	245 646	6010 (1)
Chromium, ICP	15.2		ug/g	05/09/1994	2.0	jmt	245 636	6010 (1)
Copper, ICP	5.9		ug/g	05/09/1994	0.50	jmt	245 858	6010 (1)
Iron, ICP	15,300		ug/g	05/09/1994	1.0	jmt	245 683	6010 (1)
Lead, AA	49	S	ug/g	05/04/1994	2.2	emh	205 222	7420 (1)
Mercury, CVAA	<0.02		ug/g	05/11/1994	0.02	jmt	200 318	7471 (1)
Nickel, AA	29	S	ug/g	05/11/1994	1.6	emh	205 100	7520 (1)
Selenium, GFAA	<2.4	S,D10	ug/g	05/15/1994	0.20	dmc	205 9	7740 (1)
Silver, AA	3.0		ug/g	05/05/1994	2.5	jmt	89 801	7760 (1)
Tin, ICP	<59		ug/g	05/09/1994	50	jmt	245 248	6010 (1)
Zinc, ICP	20.3 J		ug/g	05/09/1994	1.0	jmt	245 641	6010 (1)
Metals Prep, Nonaqueous	Complete			05/06/1994		jmt	245	3050 (1)
Metals Prep, Hg Nonaqueous	Complete			05/11/1994		jmt	200	7471 (1)
Metals Prep, Ag Nonaqueous	Complete			05/05/1994		mic	89	7760 (1)

D10 : Parameter analysis performed at a 10x dilution due to a matrix interference at lower dilutions.

S : Parameter analysis was sub-contracted to another NET location.

NATIONAL ENVIRONMENTAL TESTING, INC.

Bartlett Division
850 W. Bartlett Rd.
Bartlett, IL 60103
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ANALYTICAL REPORT

Ms. Susan Roberts
ENGINEERING-SCIENCE, INC.
8000 Centre Park Drive
Suite 200
Austin, TX 78754

05/16/1994

Sample No. : 258065

NET Job No.: 94.02853

Sample Description: BKG-SS-03
721460.01; CSSA Background

Date Taken: 04/21/1994
Time Taken: 17:15
IEPA Cert. No. 100221

Date Received: 04/23/1994
Time Received: 09:00
WDNR Cert. No. 999447130

Parameter	Results		Units	Date of Analysis	Method PQL	Analyst	Batch No. Prep/Run	Analytical Method
Solids, Total	83.3		%	04/29/1994	0.1	dsf	920	2540 (4)
METALS - ICP 2 Non-Aq	Complete		ug/g	05/09/1994		jmt	63	6010(1) 200.7(3)
[illegible]inum,ICP	20,300		ug/g	05/09/1994	5.0	jmt	245 605	6010 (1)
[illegible]ic, GFAA	20	S	ug/g	05/16/1994	0.20	dmc	205 13	7060 (1)
Barium, ICP	69.4		ug/g	05/09/1994	1.0	jmt	245 675	6010 (1)
Cadmium, ICP	<0.60		ug/g	05/09/1994	0.50	jmt	245 646	6010 (1)
Chromium, ICP	16.3		ug/g	05/09/1994	2.0	jmt	245 636	6010 (1)
Copper, ICP	8.4		ug/g	05/09/1994	0.50	jmt	245 858	6010 (1)
Iron, ICP	17,000		ug/g	05/09/1994	1.0	jmt	245 683	6010 (1)
Lead, AA	48	S	ug/g	05/04/1994	2.2	emh	205 222	7420 (1)
Mercury, CVAA	0.05		ug/g	05/11/1994	0.02	jmt	200 318	7471 (1)
Nickel, AA	26	S	ug/g	05/11/1994	1.6	emh	205 100	7520 (1)
Selenium, GFAA	<2.4	S,D10	ug/g	05/15/1994	0.20	dmc	205 9	7740 (1)
Silver, AA	<3.0		ug/g	05/09/1994	2.5	jmt	89 801	7760 (1)
Tin, ICP	<60		ug/g	05/09/1994	50	jmt	245 248	6010 (1)
Zinc, ICP	21.8 J		ug/g	05/09/1994	1.0	jmt	245 641	6010 (1)
Metals Prep, Nonaqueous	Complete			05/06/1994		jmt	245	3050 (1)
Metals Prep, Hg Nonaqueous	Complete			05/11/1994		jmt	200	7471 (1)
Metals Prep, Ag Nonaqueous	Complete			05/05/1994		mic	89	7760 (1)

: Parameter analysis performed at a 10x dilution due to a matrix interference at lower dilutions.

S : Parameter analysis was sub-contracted to another NET location.

NATIONAL ENVIRONMENTAL TESTING, INC.

Bartlett Division
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ANALYTICAL REPORT

Ms. Susan Roberts
ENGINEERING-SCIENCE, INC.
8000 Centre Park Drive
Suite 200
Austin, TX 78754

05/16/1994

Sample No. : 257480

NET Job No.: 94.02697

Sample Description: BKG-SS-04
721460.01 CSSA Background

Date Taken: 04/20/1994
Time Taken: 10:15
IEPA Cert. No. 100221

Date Received: 04/21/1994
Time Received: 18:30
WDNR Cert. No. 999447130

Parameter	Results		Units	Date of Analysis	Method PQL	Analyst	Batch No. Prep/Run	Analytical Method
Solids, Total	77.1		%	05/02/1994	0.1	knj	921	2540 (4)
METALS - ICP 2 Non-Aq	Complete					jmt	62	6010(1) 200.7(3)
Aluminum,ICP	29,800		ug/g	05/05/1994	5.0	jmt	244 603	6010 (1)
Arsenic, GFAA	<26	S,D100	ug/g	05/16/1994	0.20	dmc	205 13	7060 (1)
Barium, ICP	133		ug/g	05/05/1994	1.0	jmt	244 673	6010 (1)
Cadmium, ICP	0.67		ug/g	05/05/1994	0.50	jmt	244 644	6010 (1)
Chromium, ICP	29.3		ug/g	05/05/1994	2.0	jmt	244 634	6010 (1)
Copper, ICP	14.1		ug/g	05/05/1994	0.50	jmt	244 856	6010 (1)
Iron, ICP	29,600		ug/g	05/05/1994	1.0	jmt	244 681	6010 (1)
Lead, AA	36	S	ug/g	05/04/1994	2.2	emh	205 222	7420 (1)
Mercury, CVAA	<0.03		ug/g	05/03/1994	0.02	jmt	199 316	7471 (1)
Nickel, AA	32	S	ug/g	05/11/1994	1.6	emh	205 100	7520 (1)
Selenium, GFAA	<2.6	S,D10	ug/g	05/15/1994	0.20	dmc	205 9	7740 (1)
Silver, AA	<3.0		ug/g	05/05/1994	2.5	jmt	89 799	7760 (1)
Tin, ICP	<600	D10	ug/g	05/06/1994	50	jmt	244	6010 (1)
Zinc, ICP	41.2		ug/g	05/05/1994	1.0	jmt	244 639	6010 (1)
Metals Prep, Nonaqueous	Complete			05/04/1994		jmt	244	3050 (1)
Metals Prep, Hg Nonaqueous	Complete			05/03/1994		jmt	199	7471 (1)
Metals Prep, Ag Nonaqueous	Complete			05/05/1994		mic	89	7760 (1)

CORRECTED REPORT 5.31.94

D10 : Parameter analysis performed at a 10x dilution due to a matrix interference at lower dilutions.
D100 : Parameter analysis performed at a 100x dilution due to a matrix interference at lower dilutions.
S : Parameter analysis was sub-contracted to another NET location.

NATIONAL ENVIRONMENTAL TESTING, INC.

Bartlett Division
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ANALYTICAL REPORT

Ms. Susan Roberts
ENGINEERING-SCIENCE, INC.
8000 Centre Park Drive
Suite 200
Austin, TX 78754

05/16/1994

Sample No. : 258064

NET Job No.: 94.02853

Sample Description: BKG-SS-05
721460.01; CSSA Background

Date Taken: 04/21/1994
Time Taken: 15:10
IEPA Cert. No. 100221

Date Received: 04/23/1994
Time Received: 09:00
WDNR Cert. No. 999447130

Parameter	Results		Units	Date of Analysis	Method PQL	Analyst	Batch No. Prep/Run	Analytical Method
Solids, Total	83.2		%	04/29/1994	0.1	dsf	920	2540 (4)
METALS - ICP 2 Non-Aq	Complete		ug/g	05/09/1994		jmt	63	6010(1) 200.7(3)
inum,ICP	5,060		ug/g	05/09/1994	5.0	jmt	245 605	6010 (1)
enic, GFAA	20	S	ug/g	05/16/1994	0.20	dmc	205 13	7060 (1)
Barium, ICP	33.0		ug/g	05/09/1994	1.0	jmt	245 675	6010 (1)
Cadmium, ICP	<0.60		ug/g	05/09/1994	0.50	jmt	245 646	6010 (1)
Chromium, ICP	4.8		ug/g	05/09/1994	2.0	jmt	245 636	6010 (1)
Copper, ICP	5.8		ug/g	05/09/1994	0.50	jmt	245 858	6010 (1)
Iron, ICP	3,950		ug/g	05/09/1994	1.0	jmt	245 683	6010 (1)
Lead, AA	50	S	ug/g	05/04/1994	2.2	emh	205 222	7420 (1)
Mercury, CVAA	<0.03		ug/g	05/11/1994	0.02	jmt	200 318	7471 (1)
Nickel, AA	22	S	ug/g	05/11/1994	1.6	emh	205 100	7520 (1)
Selenium, GFAA	<2.4	S,D10	ug/g	05/15/1994	0.20	dmc	205 9	7740 (1)
Silver, AA	3.8		ug/g	05/05/1994	2.5	jmt	89 801	7760 (1)
Tin, ICP	<60		ug/g	05/09/1994	50	jmt	245 248	6010 (1)
Zinc, ICP	15.8 J		ug/g	05/09/1994	1.0	jmt	245 641	6010 (1)
Metals Prep, Nonaqueous	Complete			05/06/1994		jmt	245	3050 (1)
Metals Prep, Hg Nonaqueous	Complete			05/11/1994		jmt	200	7471 (1)
Metals Prep, Ag Nonaqueous	Complete			05/05/1994		mic	89	7760 (1)

) : Parameter analysis performed at a 10x dilution due to a matrix interference at lower dilutions.

S : Parameter analysis was sub-contracted to another NET location.

NATIONAL ENVIRONMENTAL TESTING, INC.

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ANALYTICAL REPORT

Ms. Susan Roberts
ENGINEERING-SCIENCE, INC.
8000 Centre Park Drive
Suite 200
Austin, TX 78754

05/16/1994

Sample No. : 257481

NET Job No.: 94.02697

Sample Description: BKG-SS-06
721460.01 CSSA Background

Date Taken: 04/20/1994
Time Taken: 12:15
IEPA Cert. No. 100221

Date Received: 04/21/1994
Time Received: 18:30
WDNR Cert. No. 999447130

Parameter	Results		Units	Date of Analysis	Method PQL	Analyst	Batch No. Prep/Run	Analytical Method
Solids, Total	82.5		%	05/02/1994	0.1	knj	921	2540 (4)
METALS - ICP 2 Non-Aq	Complete					jmt	62	6010(1) 200.7(3)
Aluminum,ICP	30,300		ug/g	05/05/1994	5.0	jmt	244 603	6010 (1)
Arsenic, GFAA	15.8	S	ug/g	05/16/1994	0.20	dmc	205 13	7060 (1)
Barium, ICP	112		ug/g	05/05/1994	1.0	jmt	244 673	6010 (1)
Cadmium, ICP	<0.61		ug/g	05/05/1994	0.50	jmt	244 644	6010 (1)
Chromium, ICP	24.2		ug/g	05/05/1994	2.0	jmt	244 634	6010 (1)
Copper, ICP	10.3		ug/g	05/05/1994	0.50	jmt	244 856	6010 (1)
Iron, ICP	22,800		ug/g	05/05/1994	1.0	jmt	244 681	6010 (1)
Lead, AA	36	S	ug/g	05/04/1994	2.2	emh	205 222	7420 (1)
Mercury, CVAA	0.03		ug/g	05/03/1994	0.02	jmt	199 316	7471 (1)
Nickel, AA	24	S	ug/g	05/11/1994	1.6	emh	205 100	7520 (1)
Selenium, GFAA	<2.4	S,D10	ug/g	05/15/1994	0.20	mjs	205 9	7740 (1)
Silver, AA	<3.0		ug/g	05/05/1994	2.5	jmt	89 799	7760 (1)
Tin, ICP	<600	D10	ug/g	05/06/1994	50	jmt	244 247	6010 (1)
Zinc, ICP	30.6		ug/g	05/05/1994	1.0	jmt	244 639	6010 (1)
Metals Prep, Nonaqueous	Complete			05/04/1994		jmt	244	3050 (1)
Metals Prep, Hg Nonaqueous	Complete			05/03/1994		jmt	199	7471 (1)
Metals Prep, Ag Nonaqueous	Complete			05/05/1994		mic	89	7760 (1)

D10 : Parameter analysis performed at a 10x dilution due to a matrix interference at lower dilutions.

S : Parameter analysis was sub-contracted to another NET location.

NATIONAL ENVIRONMENTAL TESTING, INC.

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ANALYTICAL REPORT

Ms. Susan Roberts
ENGINEERING-SCIENCE, INC.
8000 Centre Park Drive
Suite 200
Austin, TX 78754

05/16/1994

Sample No. : 257482

NET Job No.: 94.02697

Sample Description: BKG-SS-07
721460.01 CSSA Background

Date Taken: 04/20/1994
Time Taken: 11:27
IEPA Cert. No. 100221

Date Received: 04/21/1994
Time Received: 18:30
WDNR Cert. No. 999447130

Parameter	Results		Units	Date of Analysis	Method PQL	Analyst	Batch No. Prep/Run	Analytical Method
Solids, Total	81.5		%	05/02/1994	0.1	knj	921	2540 (4)
METALS - ICP 2 Non-Aq	Compelte					jmt	62	6010(1) 200.7(3)
·inum,ICP	8,090		ug/g	05/05/1994	5.0	jmt	244 603	6010 (1)
.nic, GFAA	<12	S,D50	ug/g	05/16/1994	0.20	dmc	205 13	7060 (1)
Barium, ICP	40.9		ug/g	05/05/1994	1.0	jmt	244 673	6010 (1)
Cadmium, ICP	<0.61		ug/g	05/05/1994	0.50	jmt	244 644	6010 (1)
Chromium, ICP	8.7		ug/g	05/05/1994	2.0	jmt	244 634	6010 (1)
Copper, ICP	4.2		ug/g	05/05/1994	0.50	jmt	244 856	6010 (1)
Iron, ICP	7,500		ug/g	05/05/1994	1.0	jmt	244 681	6010 (1)
Lead, AA	49	S	ug/g	05/04/1994	2.2	emh	205 222	7420 (1)
Mercury, CVAA	0.04		ug/g	05/03/1994	0.02	jmt	199 316	7471 (1)
Nickel, AA	25	S	ug/g	05/11/1994	1.6	emh	205 100	7520 (1)
Selenium, GFAA	<2.5	S,D10	ug/g	05/15/1994	0.20	dmc	205 9	7740 (1)
Silver, AA	<3.0		ug/g	05/05/1994	2.5	jmt	89 799	7760 (1)
Tin, ICP	<600	D10	ug/g	05/06/1994	50	jmt	244 247	6010 (1)
Zinc, ICP	12.6		ug/g	05/05/1994	1.0	jmt	244 639	6010 (1)
Metals Prep, Nonaqueous	Complete			05/04/1994		jmt	244	3050 (1)
Metals Prep, Hg Nonaqueous	Complete			05/03/1994		jmt	199	7471 (1)
Metals Prep, Ag Nonaqueous	Complete			05/05/1994		mic	89	7760 (1)

) : Parameter analysis performed at a 10x dilution due to a matrix interference at lower dilutions.
_0 : Parameter analysis performed at a 50x dilution due to a matrix interference at lower dilutions.
S : Parameter analysis was sub-contracted to another NET location.

NATIONAL ENVIRONMENTAL TESTING, INC.

Bartlett Division
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ANALYTICAL REPORT

Ms. Susan Roberts
ENGINEERING-SCIENCE, INC.
8000 Centre Park Drive
Suite 200
Austin, TX 78754

05/16/1994

Sample No. : 257483

NET Job No.: 94.02697

Sample Description: BKG-SS-08
721460.01 CSSA Background

Date Taken: 04/20/1994
Time Taken: 11:45
IEPA Cert. No. 100221

Date Received: 04/21/1994
Time Received: 18:30
WDNR Cert. No. 999447130

Parameter	Results		Units	Date of Analysis	Method PQL	Analyst	Batch No. Prep/Run	Analytical Method
Solids, Total	91.6		%	05/02/1994	0.1	knj	921	2540 (4)
METALS - ICP 2 Non-Aq	Complete					jmt	62	6010(1) 200.7(3)
Aluminum,ICP	4,800		ug/g	05/05/1994	5.0	jmt	244 603	6010 (1)
Arsenic, GFAA	<11	S,D50	ug/g	05/03/1994	0.20	dmc	205 13	7060 (1)
Barium, ICP	20.3		ug/g	05/05/1994	1.0	jmt	244 673	6010 (1)
Cadmium, ICP	<0.55		ug/g	05/05/1994	0.50	jmt	244 644	6010 (1)
Chromium, ICP	4.7		ug/g	05/05/1994	2.0	jmt	244 634	6010 (1)
Copper, ICP	4.0		ug/g	05/05/1994	0.50	jmt	244 856	6010 (1)
Iron, ICP	4,500		ug/g	05/05/1994	1.0	jmt	244 681	6010 (1)
Lead, AA	49	S	ug/g	05/04/1994	2.2	emh	205 222	7420 (1)
Mercury, CVAA	0.04		ug/g	05/03/1994	0.02	jmt	199 316	7471 (1)
Nickel, AA	23.6	S	ug/g	05/11/1994	1.6	emh	205 100	7520 (1)
Selenium, GFAA	<2.2	S,D10	ug/g	05/15/1994	0.20	dmc	205 9	7740 (1)
Silver, AA	3.7		ug/g	05/05/1994	2.5	jmt	89 799	7760 (1)
Tin, ICP	<500	D10	ug/g	05/06/1994	50	jmt	244 247	6010 (1)
Zinc, ICP	7.5		ug/g	05/05/1994	1.0	jmt	244 639	6010 (1)
Metals Prep, Nonaqueous	Complete			05/04/1994		jmt	244	3050 (1)
Metals Prep, Hg Nonaqueous	Complete			05/03/1994		jmt	199	7471 (1)
Metals Prep, Ag Nonaqueous	Complete			05/05/1994		mic	89	7760 (1)

CORRECTED REPORT 5-31-94

D10 : Parameter analysis performed at a 10x dilution due to a matrix interference at lower dilutions.
D50 : Parameter analysis performed at a 50x dilution due to a matrix interference at lower dilutions.
S : Parameter analysis was sub-contracted to another NET location.

NATIONAL ENVIRONMENTAL TESTING, INC.

Bartlett Division
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ANALYTICAL REPORT

Ms. Susan Roberts
ENGINEERING-SCIENCE, INC.
8000 Centre Park Drive
Suite 200
Austin, TX 78754

05/16/1994

Sample No. : 258068

NET Job No.: 94.02853

Sample Description: BKG-SS-09
721460.01; CSSA Background

Date Taken: 04/22/1994
Time Taken: 10:17
IEPA Cert. No. 100221

Date Received: 04/23/1994
Time Received: 09:00
WDNR Cert. No. 999447130

Parameter	Results		Units	Date of Analysis	Method PQL	Analyst	Batch No. Prep/Run	Analytical Method
Solids, Total	85.2		%	04/29/1994	0.1	dsf	920	2540 (4)
METALS - ICP 2 Non-Aq	Complete		ug/g	05/09/1994		jmt	63	6010(1) 200.7(3)
inum,ICP	10,700		ug/g	05/09/1994	5.0	jmt	245 605	6010 (1)
nic, GFAA	25	S	ug/g	05/16/1994	0.20	dmc	205 13	7060 (1)
Barium, ICP	65.0		ug/g	05/09/1994	1.0	jmt	245 675	6010 (1)
Cadmium, ICP	<0.59		ug/g	05/09/1994	0.50	jmt	245 646	6010 (1)
Chromium, ICP	13.4		ug/g	05/09/1994	2.0	jmt	245 636	6010 (1)
Copper, ICP	17.2		ug/g	05/09/1994	0.50	jmt	245 858	6010 (1)
Iron, ICP	11,900		ug/g	05/09/1994	1.0	jmt	245 683	6010 (1)
Lead, AA	92	S	ug/g	05/04/1994	2.2	emh	205 222	7420 (1)
Mercury, CVAA	0.04		ug/g	05/11/1994	0.02	jmt	200 318	7471 (1)
Nickel, AA	24.3	S	ug/g	05/11/1994	1.6	emh	205 100	7520 (1)
Selenium, GFAA	<2.4	S,D10	ug/g	05/16/1994	0.20	dmc	205 9	7740 (1)
Silver, AA	3.1		ug/g	05/05/1994	2.5	jmt	89 801	7760 (1)
Tin, ICP	<59		ug/g	05/09/1994	50	jmt	245 248	6010 (1)
Zinc, ICP	90.0 J		ug/g	05/09/1994	1.0	jmt	245 641	6010 (1)
Metals Prep, Nonaqueous	Complete			05/06/1994		jmt	245	3050 (1)
Metals Prep, Hg Nonaqueous	Complete			05/11/1994		jmt	200	7471 (1)
Metals Prep, Ag Nonaqueous	Complete			05/05/1994		mic	89	7760 (1)

D10 : Parameter analysis performed at a 10x dilution due to a matrix interference at lower dilutions.

S : Parameter analysis was sub-contracted to another NET location.

NATIONAL ENVIRONMENTAL TESTING, INC.

Bartlett Division
850 W. Bartlett Rd.
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ANALYTICAL REPORT

Ms. Susan Roberts
ENGINEERING-SCIENCE, INC.
8000 Centre Park Drive
Suite 200
Austin, TX 78754

05/16/1994

Sample No. : 258069

NET Job No.: 94.02853

Sample Description: BKG-SS-10
721460.01; CSSA Background

Date Taken: 04/22/1994
Time Taken: 11:13
IEPA Cert. No. 100221

Date Received: 04/23/1994
Time Received: 09:00
WDNR Cert. No. 999447130

Parameter	Results		Units	Date of Analysis	Method PQL	Analyst	Batch No. Prep/Run	Analytical Method
Solids, Total	93.3		%	04/29/1994	0.1	dsf	920	2540 (4)
METALS - ICP 2 Non-Aq	Complete		ug/g	05/09/1994		jmt	63	6010(1) 200.7(3)
Aluminum,ICP	6,280		ug/g	05/09/1994	5.0	jmt	245 605	6010 (1)
Arsenic, GFAA	4.7	S	ug/g	05/16/1994	0.20	dmc	205 13	7060 (1)
Barium, ICP	25.5		ug/g	05/09/1994	1.0	jmt	245 675	6010 (1)
Cadmium, ICP	<0.54		ug/g	05/09/1994	0.50	jmt	245 646	6010 (1)
Chromium, ICP	8.3		ug/g	05/09/1994	2.0	jmt	245 636	6010 (1)
Copper, ICP	4.8		ug/g	05/09/1994	0.50	jmt	245 858	6010 (1)
Iron, ICP	5,580		ug/g	05/09/1994	1.0	jmt	245 683	6010 (1)
Lead, AA	48	S	ug/g	05/04/1994	2.2	emh	205 222	7420 (1)
Mercury, CVAA	<0.03		ug/g	05/11/1994	0.02	jmt	200 318	7471 (1)
Nickel, AA	25	S	ug/g	05/11/1994	1.6	emh	205 100	7520 (1)
Selenium, GFAA	<2.1	S,D10	ug/g	05/15/1994	0.20	dmc	205 9	7740 (1)
Silver, AA	<3.0		ug/g	05/05/1994	2.5	jmt	89 801	7760 (1)
Tin, ICP	<54		ug/g	05/09/1994	50	jmt	245 248	6010 (1)
Zinc, ICP	31.0 J		ug/g	05/09/1994	1.0	jmt	245 641	6010 (1)
Metals Prep, Nonaqueous	Complete			05/06/1994		jmt	245	3050 (1)
Metals Prep, Hg Nonaqueous	Complete			05/11/1994		jmt	200	7471 (1)
Metals Prep, Ag Nonaqueous	Complete			05/05/1994		mic	89	7760 (1)

D10 : Parameter analysis performed at a 10x dilution due to a matrix interference at lower dilutions.

S : Parameter analysis was sub-contracted to another NET location.

NATIONAL ENVIRONMENTAL TESTING, INC.

Bartlett Division
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ANALYTICAL REPORT

Ms. Susan Roberts
ENGINEERING-SCIENCE, INC.
8000 Centre Park Drive
Suite 200
Austin, TX 78754

05/16/1994
Sample No. : 258108
NET Job No.: 94.02856

Sample Description: BKG-SB01(4.5)
721460.05; CSSA F-14 Closures

Date Taken: 04/22/1994
Time Taken: 09:40
IEPA Cert. No. 100221

Date Received: 04/23/1994
Time Received: 09:00
WDNR Cert. No. 999447130

Parameter	Results		Units	Date of Analysis	Method PQL	Analyst	Batch No. Prep/Run	Analytical Method
Solids, Total	92.7		%	05/04/1994	0.1	dsf	923	2540 (4)
METALS - ICP 2 Non-Aq	Complete		ug/g	05/09/1994		jmt	63	6010(1) 200.7(3)
Aluminum,ICP	790		ug/g	05/09/1994	5.0	jmt	245 605	6010 (1)
rsenic, GFAA	<2.2	S,D10	ug/g	05/16/1994	0.20	dmc	205 13	7060 (1)
arium, ICP	3.5		ug/g	05/09/1994	1.0	jmt	245 675	6010 (1)
Cadmium, ICP	<0.54		ug/g	05/09/1994	0.50	jmt	245 646	6010 (1)
Chromium, ICP	<2.0		ug/g	05/09/1994	2.0	jmt	245 636	6010 (1)
Copper, ICP	0.61		ug/g	05/09/1994	0.50	jmt	245 858	6010 (1)
Iron, ICP	910		ug/g	05/09/1994	1.0	jmt	245 683	6010 (1)
Lead, AA	58	S	ug/g	05/04/1994	2.2	emh	205 222	7420 (1)
Mercury, CVAA	<0.03		ug/g	05/11/1994	0.02	jmt	200 318	7471 (1)
Nickel, AA	26	S	ug/g	05/11/1994	1.6	emh	205 100	7520 (1)
Selenium, GFAA	<20 UJ	S,M+	ug/g	05/15/1994	0.20	dmc	205 9	7740 (1)
Silver, AA	4.8		ug/g	05/05/1994	2.5	jmt	89 801	7760 (1)
Tin, ICP	<54		ug/g	05/09/1994	50	jmt	245 248	6010 (1)
Zinc, ICP	2.1 J		ug/g	05/09/1994	1.0	jmt	245 641	6010 (1)
Metals Prep, Nonaqueous	Complete			05/06/1994		jmt	245	3050 (1)
Metals Prep, Hg Nonaqueous	Complete			05/11/1994		jmt	200	7471 (1)
Metals Prep, Ag Nonaqueous	Complete			05/05/1994		mic	89	7760 (1)

CORRECTED REPORT
6-6-94

M+ : Parameter analysis performed by the Method of Standard Additions (MSA).

S : Parameter analysis was sub-contracted to another NET location.

NATIONAL ENVIRONMENTAL TESTING, INC.

Bartlett Division
850 W. Bartlett Rd.
Bartlett, IL 60103
Tel: (708) 289-3100
Fax: (708) 289-5445

ANALYTICAL REPORT

Ms. Susan Roberts
ENGINEERING-SCIENCE, INC.
8000 Centre Park Drive
Suite 200
Austin, TX 78754

05/16/1994

Sample No. : 258107

NET Job No.: 94.02856

Sample Description: BKG-SB02(10)
721460.05; CSSA F-14 Closures

Date Taken: 04/22/1994
Time Taken: 08:45
IEPA Cert. No. 100221

Date Received: 04/23/1994
Time Received: 09:00
WDNR Cert. No. 999447130

Parameter	Results		Units	Date of Analysis	Method PQL	Analyst	Batch No. Prep/Run	Analytical Method
Solids, Total	95.5		%	05/04/1994	0.1	dsf	923	2540 (4)
METALS - ICP 2 Non-Aq	Complete		ug/g	05/09/1994		jmt	63	6010(1) 200.7(3)
Aluminum, ICP	1,700		ug/g	05/09/1994	5.0	jmt	245 605	6010 (1)
Arsenic, GFAA	<2.1	S,D10	ug/g	05/16/1994	0.20	dmc	205 13	7060 (1)
Barium, ICP	5.5		ug/g	05/09/1994	1.0	jmt	245 675	6010 (1)
Cadmium, ICP	<0.52		ug/g	05/09/1994	0.50	jmt	245 646	6010 (1)
Chromium, ICP	2.0		ug/g	05/09/1994	2.0	jmt	245 636	6010 (1)
Copper, ICP	2.0		ug/g	05/09/1994	0.50	jmt	245 858	6010 (1)
Iron, ICP	2,010		ug/g	05/09/1994	1.0	jmt	245 683	6010 (1)
Lead, AA	48	S	ug/g	05/04/1994	2.2	emh	205 222	7420 (1)
Mercury, CVAA	<0.03		ug/g	05/11/1994	0.02	jmt	200 318	7471 (1)
Nickel, AA	23	S	ug/g	05/11/1994	1.6	emh	205 100	7520 (1)
Selenium, GFAA	<2.1	S,D10	ug/g	05/15/1994	0.20	dmc	205 9	7740 (1)
Silver, AA	4.3		ug/g	05/05/1994	2.5	jmt	89 801	7760 (1)
Tin, ICP	<52		ug/g	05/09/1994	50	jmt	245 248	6010 (1)
Zinc, ICP	2.0 J		ug/g	05/09/1994	1.0	jmt	245 641	6010 (1)
Metals Prep, Nonaqueous	Complete			05/06/1994		jmt	245	3050 (1)
Metals Prep, Hg Nonaqueous	Complete			05/11/1994		jmt	200	7471 (1)
Metals Prep, Ag Nonaqueous	Complete			05/05/1994		mic	89	7760 (1)

D10 : Parameter analysis performed at a 10x dilution due to a matrix interference at lower dilutions.

S : Parameter analysis was sub-contracted to another NET location.

NATIONAL ENVIRONMENTAL TESTING, INC.

Bartlett Division
850 W. Bartlett Rd.
Bartlett, IL 60103
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Fax: (708) 289-5445

ANALYTICAL REPORT

Ms. Susan Roberts
ENGINEERING-SCIENCE, INC.
8000 Centre Park Drive
Suite 200
Austin, TX 78754

05/16/1994

Sample No. : 258106

NET Job No.: 94.02856

Sample Description: BKG-SB03(19.5)
721460.05; CSSA F-14 Closures

Date Taken: 04/21/1994
Time Taken: 17:55
IEPA Cert. No. 100221

Date Received: 04/23/1994
Time Received: 09:00
WDNR Cert. No. 999447130

Parameter	Results		Units	Date of Analysis	Method POL	Analyst	Batch No. Prep/Run	Analytical Method
Solids, Total	92.5		%	05/04/1994	0.1	dsf	923	2540 (4)
METALS - ICP 2 Non-Aq	Complete		ug/g	05/09/1994		jmt	63	6010(1) 200.7(3)
uminum,ICP	1,100		ug/g	05/09/1994	5.0	jmt	245 605	6010 (1)
senic, GFAA	<2.2	S,D10	ug/g	05/16/1994	0.20	dmc	205 13	7060 (1)
Barium, ICP	4.5		ug/g	05/09/1994	1.0	jmt	245 675	6010 (1)
Cadmium, ICP	<0.54		ug/g	05/09/1994	0.50	jmt	245 646	6010 (1)
Chromium, ICP	2.2		ug/g	05/09/1994	2.0	jmt	245 636	6010 (1)
Copper, ICP	1.3		ug/g	05/09/1994	0.50	jmt	245 858	6010 (1)
Iron, ICP	1,190		ug/g	05/09/1994	1.0	jmt	245 683	6010 (1)
Lead, AA	52	S	ug/g	05/04/1994	2.2	emh	205 222	7420 (1)
Mercury, CVAA	<0.03		ug/g	05/11/1994	0.02	jmt	200 318	7471 (1)
Nickel, AA	24	S	ug/g	05/11/1994	1.6	emh	205 100	7520 (1)
Selenium, GFAA	<2.2	S,D10	ug/g	05/15/1994	0.50	dmc	205 9	7740 (1)
Silver, AA	4.7		ug/g	05/05/1994	2.5	jmt	89 801	7760 (1)
Tin, ICP	<54		ug/g	05/09/1994	50	jmt	245 248	6010 (1)
Zinc, ICP	2.5 J		ug/g	05/09/1994	1.0	jmt	245 641	6010 (1)
Metals Prep, Nonaqueous	Complete			05/06/1994		jmt	245	3050 (1)
Metals Prep, Hg Nonaqueous	Complete			05/11/1994		jmt	200	7471 (1)
Metals Prep, Ag Nonaqueous	Complete			05/05/1994		mic	89	7760 (1)

D10 : Parameter analysis performed at a 10x dilution due to a matrix interference at lower dilutions.

S : Parameter analysis was sub-contracted to another NET location.

NATIONAL ENVIRONMENTAL TESTING, INC.

Bartlett Division
850 W. Bartlett Rd.
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ANALYTICAL REPORT

Ms. Susan Roberts
ENGINEERING-SCIENCE, INC.
8000 Centre Park Drive
Suite 200
Austin, TX 78754

05/16/1994

Sample No. : 258105

NET Job No.: 94.02856

Sample Description: BKG-SB04(17.5)
721460.05; CSSA F-14 Closures

Date Taken: 04/21/1994
Time Taken: 16:35
IEPA Cert. No. 100221

Date Received: 04/23/1994
Time Received: 09:00
WDNR Cert. No. 999447130

Parameter	Results		Units	Date of Analysis	Method PQL	Analyst	Batch No. Prep/Run	Analytical Method
Solids, Total	95.6		%	05/04/1994	0.1	dsf	923	2540 (4)
METALS - ICP 2 Non-Aq	Complete		ug/g	05/09/1994		jmt	63	6010(1) 200.7(3)
Aluminum,ICP	1,070		ug/g	05/09/1994	5.0	jmt	245 605	6010 (1)
Arsenic, GFAA	<2.1	S,D10	ug/g	05/16/1994	0.20	dmc	205 13	7060 (1)
Barium, ICP	5.3		ug/g	05/09/1994	1.0	jmt	245 675	6010 (1)
Cadmium, ICP	<0.52		ug/g	05/09/1994	0.50	jmt	245 646	6010 (1)
Chromium, ICP	2.2		ug/g	05/09/1994	2.0	jmt	245 636	6010 (1)
Copper, ICP	1.2		ug/g	05/09/1994	0.50	jmt	245 858	6010 (1)
Iron, ICP	1,660		ug/g	05/09/1994	1.0	jmt	245 683	6010 (1)
Lead, AA	42	S	ug/g	05/04/1994	2.2	emh	205 222	7420 (1)
Mercury, CVAA	<0.03		ug/g	05/11/1994	0.02	jmt	200 318	7471 (1)
Nickel, AA	24	S	ug/g	05/11/1994	1.6	emh	205 100	7520 (1)
Selenium, GFAA	<2.1	S,D10	ug/g	05/15/1994	0.20	dmc	205 9	7740 (1)
Silver, AA	4.6		ug/g	05/05/1994	2.5	jmt	89 801	7760 (1)
Tin, ICP	<52		ug/g	05/09/1994	50	jmt	245 248	6010 (1)
Zinc, ICP	2.6 J		ug/g	05/09/1994	1.0	jmt	245 641	6010 (1)
Metals Prep, Nonaqueous	Complete			05/06/1994		jmt	245	3050 (1)
Metals Prep, Hg Nonaqueous	Complete			05/11/1994		jmt	200	7471 (1)
Metals Prep, Ag Nonaqueous	Complete			05/05/1994		mic	89	7760 (1)

D10 : Parameter analysis performed at a 10x dilution due to a matrix interference at lower dilutions.

S : Parameter analysis was sub-contracted to another NET location.

NATIONAL ENVIRONMENTAL TESTING, INC.

Bartlett Division
850 W. Bartlett Rd.
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Fax: (708) 289-5445

ANALYTICAL REPORT

Ms. Susan Roberts
ENGINEERING-SCIENCE, INC.
8000 Centre Park Drive
Suite 200
Austin, TX 78754

05/16/1994

Sample No. : 258104

NET Job No.: 94.02856

Sample Description: BKG-SB05(10)
721460.05; CSSA F-14 Closures

Date Taken: 04/21/1994
Time Taken: 15:38
IEPA Cert. No. 100221

Date Received: 04/23/1994
Time Received: 09:00
WDNR Cert. No. 999447130

Parameter	Results		Units	Date of Analysis	Method PQL	Analyst	Batch No. Prep/Run	Analytical Method
Solids, Total	93.8		%	05/04/1994	0.1	dsf	923	2540 (4)
METALS - ICP 2 Non-Aq	Complete		ug/g	05/09/1994		jmt	63	6010(1) 200.7(3)
ninum,ICP	1,650		ug/g	05/09/1994	5.0	jmt	245 605	6010 (1)
nic, GFAA	2.1	S	ug/g	05/16/1994	0.20	dmc	205 13	7060 (1)
Barium, ICP	6.9		ug/g	05/09/1994	1.0	jmt	245 675	6010 (1)
Cadmium, ICP	<0.53		ug/g	05/09/1994	0.50	jmt	245 646	6010 (1)
Chromium, ICP	2.7		ug/g	05/09/1994	2.0	jmt	245 636	6010 (1)
Copper, ICP	2.3		ug/g	05/09/1994	0.50	jmt	245 858	6010 (1)
Iron, ICP	3,360		ug/g	05/09/1994	1.0	jmt	245 683	6010 (1)
Lead, AA	39	S	ug/g	05/04/1994	2.2	emh	205 222	7420 (1)
Mercury, CVAA	<0.03		ug/g	05/11/1994	0.02	jmt	200 318	7471 (1)
Nickel, AA	20	S	ug/g	05/11/1994	1.6	emh	205 100	7520 (1)
Selenium, GFAA	<2.1	S,D10	ug/g	05/15/1994	0.20	dmc	205 9	7740 (1)
Silver, AA	4.0		ug/g	05/05/1994	2.5	jmt	89 801	7760 (1)
Tin, ICP	<53		ug/g	05/09/1994	50	jmt	245 248	6010 (1)
Zinc, ICP	3.2 J		ug/g	05/09/1994	1.0	jmt	245 641	6010 (1)
Metals Prep, Nonaqueous	Complete			05/06/1994		jmt	245	3050 (1)
Metals Prep, Hg Nonaqueous	Complete			05/11/1994		jmt	200	7471 (1)
Metals Prep, Ag Nonaqueous	Complete			05/05/1994		mic	89	7760 (1)

) : Parameter analysis performed at a 10x dilution due to a matrix interference at lower dilutions.

S : Parameter analysis was sub-contracted to another NET location.

NATIONAL ENVIRONMENTAL TESTING, INC.

Bartlett Division
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ANALYTICAL REPORT

Ms. Susan Roberts
ENGINEERING-SCIENCE, INC.
8000 Centre Park Drive
Suite 200
Austin, TX 78754

05/16/1994

Sample No. : 258102

NET Job No.: 94.02856

Sample Description: BKG-SB06(18)
721460.05; CSSA F-14 Closures

Date Taken: 04/21/1994
Time Taken: 12:05
IEPA Cert. No. 100221

Date Received: 04/23/1994
Time Received: 09:00
WDNR Cert. No. 999447130

Parameter	Results		Units	Date of Analysis	Method PQL	Analyst	Batch No. Prep/Run	Analytical Method
Solids, Total	93.7		%	05/04/1994	0.1	dsf	923	2540 (4)
METALS - ICP 2 Non-Aq	Complete		ug/g	05/09/1994		jmt	63	6010(1) 200.7(3)
Aluminum,ICP	2,200		ug/g	05/09/1994	5.0	jmt	245 605	6010 (1)
Arsenic, GFAA	4.3	S	ug/g	05/16/1994	0.20	dmc	205 13	7060 (1)
Barium, ICP	6.6		ug/g	05/09/1994	1.0	jmt	245 675	6010 (1)
Cadmium, ICP	<0.53		ug/g	05/09/1994	0.50	jmt	245 646	6010 (1)
Chromium, ICP	2.4		ug/g	05/09/1994	2.0	jmt	245 636	6010 (1)
Copper, ICP	3.5		ug/g	05/09/1994	0.50	jmt	245 858	6010 (1)
Iron, ICP	3,070		ug/g	05/09/1994	1.0	jmt	245 683	6010 (1)
Lead, AA	36	S	ug/g	05/04/1994	2.2	emh	205 222	7420 (1)
Mercury, CVAA	<0.03		ug/g	05/11/1994	0.02	jmt	200 318	7471 (1)
Nickel, AA	22	S	ug/g	05/11/1994	1.6	emh	205 100	7520 (1)
Selenium, GFAA	<2.1	S,D10	ug/g	05/15/1994	0.20	dmc	205 9	7740 (1)
Silver, AA	4.5		ug/g	05/05/1994	2.5	jmt	89 801	7760 (1)
Tin, ICP	<53		ug/g	05/09/1994	50	jmt	245 248	6010 (1)
Zinc, ICP	2.5		ug/g	05/09/1994	1.0	jmt	245 641	6010 (1)
Metals Prep, Nonaqueous	Complete			05/06/1994		jmt	245	3050 (1)
Metals Prep, Hg Nonaqueous	Complete			05/11/1994		jmt	200	7471 (1)
Metals Prep, Ag Nonaqueous	Complete			05/05/1994		mic	89	7760 (1)

D10 : Parameter analysis performed at a 10x dilution due to a matrix interference at lower dilutions.

S : Parameter analysis was sub-contracted to another NET location.

NATIONAL ENVIRONMENTAL TESTING, INC.

Bartlett Division
850 W. Bartlett Rd.
Bartlett, IL 60103
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ANALYTICAL REPORT

Ms. Susan Roberts
ENGINEERING-SCIENCE, INC.
8000 Centre Park Drive
Suite 200
Austin, TX 78754

05/16/1994

Sample No. : 258101

NET Job No.: 94.02856

Sample Description: BKG-SB07(24)
721460.05; CSSA F-14 Closures

Date Taken: 04/21/1994
Time Taken: 10:20
IEPA Cert. No. 100221

Date Received: 04/23/1994
Time Received: 09:00
WDNR Cert. No. 999447130

Parameter	Results		Units	Date of Analysis	Method PQL	Analyst	Batch No. Prep/Run	Analytical Method
Solids, Total	95.8		%	05/04/1994	0.1	dsf	923	2540 (4)
METALS - ICP 2 Non-Aq	Complete		ug/g	05/09/1994		jmt	63	6010(1) 200.7(3)
[illegible]inum,ICP	1,130		ug/g	05/09/1994	5.0	jmt	245 605	6010 (1)
[illegible]ic, GFAA	2.7	S	ug/g	05/16/1994	0.20	dmc	205 13	7060 (1)
Barium, ICP	4.1		ug/g	05/09/1994	1.0	jmt	245 675	6010 (1)
Cadmium, ICP	<0.52		ug/g	05/09/1994	0.50	jmt	245 646	6010 (1)
Chromium, ICP	2.5		ug/g	05/09/1994	2.0	jmt	245 636	6010 (1)
Copper, ICP	1.2		ug/g	05/09/1994	0.50	jmt	245 858	6010 (1)
Iron, ICP	1,810		ug/g	05/09/1994	1.0	jmt	245 683	6010 (1)
Lead, AA	51	S	ug/g	05/04/1994	2.2	emh	205 222	7420 (1)
Mercury, CVAA	<0.03		ug/g	05/11/1994	0.02	jmt	200 318	7471 (1)
Nickel, AA	20	S	ug/g	05/11/1994	1.6	emh	205 100	7520 (1)
Selenium, GFAA	<2.1	S,D10	ug/g	05/15/1994	0.20	dmc	205 9	7740 (1)
Silver, AA	4.4		ug/g	05/05/1994	2.5	jmt	89 801	7760 (1)
Tin, ICP	<52		ug/g	05/09/1994	50	jmt	245 248	6010 (1)
Zinc, ICP	2.2 J		ug/g	05/09/1994	1.0	jmt	245 641	6010 (1)
Metals Prep, Nonaqueous	Complete			05/06/1994		jmt	245	3050 (1)
Metals Prep, Hg Nonaqueous	Complete			05/11/1994		jmt	200	7471 (1)
Metals Prep, Ag Nonaqueous	Complete			05/05/1994		mic	89	7760 (1)

D10 : Parameter analysis performed at a 10x dilution due to a matrix interference at lower dilutions.

S : Parameter analysis was sub-contracted to another NET location.

NATIONAL ENVIRONMENTAL TESTING, INC.

Bartlett Division
850 W. Bartlett Rd.
Bartlett, IL 60103
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ANALYTICAL REPORT

Ms. Susan Roberts
ENGINEERING-SCIENCE, INC.
8000 Centre Park Drive
Suite 200
Austin, TX 78754

05/16/1994

Sample No. : 258103

NET Job No.: 94.02856

Sample Description: BKG-SB08(5)
721460.05; CSSA F-14 Closures

Date Taken: 04/21/1994
Time Taken: 14:38
IEPA Cert. No. 100221

Date Received: 04/23/1994
Time Received: 09:00
WDNR Cert. No. 999447130

Parameter	Results		Units	Date of Analysis	Method PQL	Analyst	Batch No. Prep/Run	Analytical Method
Solids, Total	93.3		%	05/04/1994	0.1	dsf	923	2540 (4)
METALS - ICP 2 Non-Aq	Complete		ug/g	05/09/1994		jmt	63	6010(1) 200.7(3)
Aluminum,ICP	1,300		ug/g	05/09/1994	5.0	jmt	245 605	6010 (1)
Arsenic, GFAA	<2.1	S,D10	ug/g	05/16/1994	0.20	dmc	205 13	7060 (1)
Barium, ICP	3.8		ug/g	05/09/1994	1.0	jmt	245 675	6010 (1)
Cadmium, ICP	<0.54		ug/g	05/09/1994	0.50	jmt	245 646	6010 (1)
Chromium, ICP	<2.0		ug/g	05/09/1994	2.0	jmt	245 636	6010 (1)
Copper, ICP	1.3		ug/g	05/09/1994	0.50	jmt	245 858	6010 (1)
Iron, ICP	1,200		ug/g	05/09/1994	1.0	jmt	245 683	6010 (1)
Lead, AA	46	S	ug/g	05/04/1994	2.2	emh	205 222	7420 (1)
Mercury, CVAA	<0.03		ug/g	05/11/1994	0.02	jmt	200 318	7471 (1)
Nickel, AA	21	S	ug/g	05/11/1994	1.6	emh	205 100	7520 (1)
Selenium, GFAA	<2.1	S,D10	ug/g	05/15/1994	0.20	dmc	205 9	7740 (1)
Silver, AA	5.2		ug/g	05/05/1994	2.5	jmt	89 801	7760 (1)
Tin, ICP	<54		ug/g	05/09/1994	50	jmt	245 248	6010 (1)
Zinc, ICP	1.8 J		ug/g	05/09/1994	1.0	jmt	245 641	6010 (1)
Metals Prep, Nonaqueous	Complete			05/06/1994		jmt	245	3050 (1)
Metals Prep, Hg Nonaqueous	Complete			05/11/1994		jmt	200	7471 (1)
Metals Prep, Ag Nonaqueous	Complete			05/05/1994		mic	89	7760 (1)

D10 : Parameter analysis performed at a 10x dilution due to a matrix interference at lower dilutions.

S : Parameter analysis was sub-contracted to another NET location.

NATIONAL ENVIRONMENTAL TESTING, INC.

Bartlett Division
850 W. Bartlett Rd.
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ANALYTICAL REPORT

Ms. Susan Roberts
ENGINEERING-SCIENCE, INC.
8000 Centre Park Drive
Suite 200
Austin, TX 78754

05/16/1994

Sample No. : 258109

NET Job No.: 94.02856

Sample Description: BKG-SB09(5)
721460.05; CSSA F-14 Closures

Date Taken: 04/22/1994
Time Taken: 10:45
IEPA Cert. No. 100221

Date Received: 04/23/1994
Time Received: 09:00
WDNR Cert. No. 999447130

Parameter	Results		Units	Date of Analysis	Method PQL	Analyst	Batch No. Prep/Run	Analytical Method
Solids, Total	98.9		%	05/03/1994	0.1	dsf	924	2540 (4)
METALS - ICP 2 Non-Aq	Complete		ug/g	05/09/1994		jmt	63	6010(1) 200.7(3)
Aluminum,ICP	2,100		ug/g	05/09/1994	5.0	jmt	245 605	6010 (1)
Arsenic, GFAA	<2.0	S,D10	ug/g	05/16/1994	0.20	dmc	205 13	7060 (1)
Barium, ICP	7.8		ug/g	05/09/1994	1.0	jmt	245 675	6010 (1)
Cadmium, ICP	<0.51		ug/g	05/09/1994	0.50	jmt	245 646	6010 (1)
Chromium, ICP	2.0		ug/g	05/09/1994	2.0	jmt	245 636	6010 (1)
Copper, ICP	1.1		ug/g	05/09/1994	0.50	jmt	245 858	6010 (1)
Iron, ICP	1,830		ug/g	05/09/1994	1.0	jmt	245 683	6010 (1)
Lead, AA	40	S	ug/g	05/04/1994	2.2	emh	205 222	7420 (1)
Mercury, CVAA	<0.03		ug/g	05/11/1994	0.02	jmt	200 318	7471 (1)
Nickel, AA	21	S	ug/g	05/11/1994	1.6	emh	205 100	7520 (1)
Selenium, GFAA	<20 UJ	S,M+	ug/g	05/15/1994	0.20	dmc	245 9	7740 (1)
Silver, AA	4.8		ug/g	05/05/1994	2.5	jmt	89 801	7760 (1)
Tin, ICP	<51		ug/g	05/09/1994	50	jmt	245 248	6010 (1)
Zinc, ICP	2.0 J		ug/g	05/09/1994	1.0	jmt	245 641	6010 (1)
Metals Prep, Nonaqueous	Complete			05/06/1994		jmt	245	3050 (1)
Metals Prep, Hg Nonaqueous	Complete			05/11/1994		jmt	200	7471 (1)
Metals Prep, Ag Nonaqueous	Complete			05/05/1994		mic	89	7760 (1)

CORRECTED REPORT
6-6-94

M+ : Parameter analysis performed by the Method of Standard Additions (MSA).

S : Parameter analysis was sub-contracted to another NET location.

NATIONAL ENVIRONMENTAL TESTING, INC.

Bartlett Division
850 W. Bartlett Rd.
Bartlett, IL 60103
Tel: (708) 289-3100
Fax: (708) 289-5445

ANALYTICAL REPORT

Ms. Susan Roberts
ENGINEERING-SCIENCE, INC.
8000 Centre Park Drive
Suite 200
Austin, TX 78754

05/16/1994

Sample No. : 258110

NET Job No.: 94.02856

Sample Description: BKG-SB10(20)
721460.05; CSSA F-14 Closures

Date Taken: 04/22/1994
Time Taken: 12:05
IEPA Cert. No. 100221

Date Received: 04/23/1994
Time Received: 09:00
WDNR Cert. No. 999447130

Parameter	Results		Units	Date of Analysis	Method PQL	Analyst	Batch No. Prep/Run	Analytical Method
Solids, Total	91.0		%	05/03/1994	0.1	dsf	924	2540 (4)
METALS - ICP 2 Non-Aq	Complete		ug/g	05/09/1994		jmt	63	6010(1) 200.7(3)
Aluminum,ICP	1,870		ug/g	05/09/1994	5.0	jmt	245 605	6010 (1)
Arsenic, GFAA	<2.2	S,D10	ug/g	05/16/1994	0.20	dmc	205 13	7060 (1)
Barium, ICP	6.4		ug/g	05/09/1994	1.0	jmt	245 675	6010 (1)
Cadmium, ICP	<0.55		ug/g	05/09/1994	0.50	jmt	245 646	6010 (1)
Chromium, ICP	3.7		ug/g	05/09/1994	2.0	jmt	245 636	6010 (1)
Copper, ICP	2.8		ug/g	05/09/1994	0.50	jmt	245 858	6010 (1)
Iron, ICP	3,140		ug/g	05/09/1994	1.0	jmt	245 683	6010 (1)
Lead, AA	44	S	ug/g	05/04/1994	2.2	emh	205 222	7420 (1)
Mercury, CVAA	<0.03		ug/g	05/11/1994	0.02	jmt	200 318	7471 (1)
Nickel, AA	18	S	ug/g	05/11/1994	1.6	emh	205 100	7520 (1)
Selenium, GFAA	<20 UJ	S,M+	ug/g	05/15/1994	0.20	dmc	205 9	7740 (1)
Silver, AA	3.7		ug/g	05/05/1994	2.5	jmt	89 801	7760 (1)
Tin, ICP	<55		ug/g	05/09/1994	50	jmt	245 248	6010 (1)
Zinc, ICP	4.3 J		ug/g	05/09/1994	1.0	jmt	245 641	6010 (1)
Metals Prep, Nonaqueous	Complete			05/06/1994		jmt	245	3050 (1)
Metals Prep, Hg Nonaqueous	Complete			05/11/1994		jmt	200	7471 (1)
Metals Prep, Ag Nonaqueous	Complete			05/05/1994		mic	89	7760 (1)

CORRECTED REPORT
6-6-94

M+ : Parameter analysis performed by the Method of Standard Additions (MSA).

S : Parameter analysis was sub-contracted to another NET location.

ENGINEERING-SCIENCE, INC.

401 Harrison Oaks Boulevard, Suite 210 • Cary, North Carolina 27513 • (919) 677-0080 • Fax: (919) 677-0118

May 31, 1994

Ms. Susan Roberts
Engineering-Science, Inc.
8000 Centre Park Drive, Suite 200
Austin, TX 78754

RE: CSSA WMU Closure Data Validation for Background Metals

Dear Ms. Roberts:

As you had previously requested, I have reviewed the metals analyses of the background soil samples collected for the CSSA WMU Closures. Validated sample results accompany this letter. All sample results are usable; zinc results for samples BKG-SS-01, BKG-SS-02, BKG-SS-03, BKG-SS-05, BKG-SS-09, BKG-SS-10, BKG-SB01(4.5), BKG-SB02(10), BKG-SB03(19.5), BKG-SB04(17.5), BKG-SB05(10), BKG-SB06(18), BKG-SB07(24), BKG-SB08(5), BKG-SB09(5), and BKG-SB10(20) have been qualified as estimated (flagged with a "J" or "UJ") due to possible matrix interference effects identified by the Matrix Spike and Sample Duplicate samples analyzed along with these samples. All sample results for selenium, those samples listed above along with samples BKG-SS-04, BKG-SS-06, BKG-SS-07, and BKG-SS-08, have been qualified as estimated due to interferences indicated by the atomic absorption sample spikes; EPA protocol requires reanalysis under this condition. Final selenium analyses are not yet available, see NET letter of May 23, 1994, current selenium results should be considered preliminary values only. Please be sure that this office receives a copy of the selenium analyses results when they become available.

I am also enclosing the complete validation memorandum for your files.

Sincerely,

ENGINEERING-SCIENCE, INC.

David M. Glover
Associate Scientist

cc: Sandra M. Czarnecki

ENCLOSURE

NATIONAL ENVIRONMENTAL TESTING, INC.

Bartlett Division
850 W. Bartlett Rd.
Bartlett, IL 60103
Tel: (708) 289-3100
Fax: (708) 289-5445

ANALYTICAL REPORT

Ms. Susan Roberts
ENGINEERING-SCIENCE, INC.
8000 Centre Park Drive
Suite 200
Austin, TX 78754

05/16/1994

Sample No. : 258067

NET Job No.: 94.02853

Sample Description: BKG-SS-01
721460.01; CSSA Background

Date Taken: 04/22/1994
Time Taken: 09:10
IEPA Cert. No. 100221

Date Received: 04/23/1994
Time Received: 09:00
WDNR Cert. No. 999447130

Parameter	Results		Units	Date of Analysis	Method PQL	Analyst	Batch No. Prep/Run	Analytical Method
Solids, Total	80.1		%	04/29/1994	0.1	dsf	920	2540 (4)
METALS - ICP 2 Non-Aq	Complete		ug/g	05/09/1994		jmt	63	6010(1) 200.7(3)
Aluminum,ICP	22,300		ug/g	05/09/1994	5.0	jmt	245 605	6010 (1)
Arsenic, GFAA	21	S	ug/g	05/16/1994	0.20	dmc	205 13	7060 (1)
Barium, ICP	73.3		ug/g	05/09/1994	1.0	jmt	245 675	6010 (1)
Cadmium, ICP	<0.62		ug/g	05/09/1994	0.50	jmt	245 646	6010 (1)
Chromium, ICP	18.3		ug/g	05/09/1994	2.0	jmt	245 636	6010 (1)
Copper, ICP	7.9		ug/g	05/09/1994	0.50	jmt	245 858	6010 (1)
Iron, ICP	16,900		ug/g	05/09/1994	1.0	jmt	245 683	6010 (1)
Lead, AA	56	S	ug/g	05/04/1994	2.2	emh	205 222	7420 (1)
Mercury, CVAA	0.04		ug/g	05/11/1994	0.02	jmt	200 318	7471 (1)
Nickel, AA	28	S	ug/g	05/11/1994	1.6	emh	205 100	7520 (1)
Selenium, GFAA	<2.5 UJ	S,D10	ug/g	05/15/1994	0.20	dmc	205 9	7740 (1)
Silver, AA	<3.0		ug/g	05/05/1994	2.5	jmt	89 801	7760 (1)
Tin, ICP	<62		ug/g	05/09/1994	50	jmt	245 248	6010 (1)
Zinc, ICP	34.4 J		ug/g	05/09/1994	1.0	jmt	245 641	6010 (1)
Metals Prep, Nonaqueous	Complete			05/06/1994		jmt	245	3050 (1)
Metals Prep, Hg Nonaqueous	Complete			05/11/1994		jmt	200	7471 (1)
Metals Prep, Ag Nonaqueous	Complete			05/05/1994		mic	89	7760 (1)

D10 : Parameter analysis performed at a 10x dilution due to a matrix interference at lower dilutions.

S : Parameter analysis was sub-contracted to another NET location.

NATIONAL ENVIRONMENTAL TESTING, INC.

Bartlett Division
850 W. Bartlett Rd.
Bartlett, IL 60103
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Fax: (708) 289-5445

ANALYTICAL REPORT

Ms. Susan Roberts
ENGINEERING-SCIENCE, INC.
8000 Centre Park Drive
Suite 200
Austin, TX 78754

05/16/1994
Sample No. : 258066
NET Job No.: 94.02853

Sample Description: BKG-SS-02
721460.01; CSSA Background

Date Taken: 04/22/1994
Time Taken: 08:15
IEPA Cert. No. 100221

Date Received: 04/23/1994
Time Received: 09:00
WDNR Cert. No. 999447130

Parameter	Results		Units	Date of Analysis	Method PQL	Analyst	Batch No. Prep/Run	Analytical Method
Solids, Total	85.0		%	04/29/1994	0.1	dsf	920	2540 (4)
METALS - ICP 2 Non-Aq	Complete		ug/g	05/09/1994		jmt	63	6010(1) 200.7(3)
minum,ICP	17,500		ug/g	05/09/1994	5.0	jmt	245 605	6010 (1)
enic, GFAA	26	S	ug/g	05/16/1994	0.20	dmc	205 13	7060 (1)
Barium, ICP	76.3		ug/g	05/09/1994	1.0	jmt	245 675	6010 (1)
Cadmium, ICP	<0.59		ug/g	05/09/1994	0.50	jmt	245 646	6010 (1)
Chromium, ICP	15.2		ug/g	05/09/1994	2.0	jmt	245 636	6010 (1)
Copper, ICP	5.9		ug/g	05/09/1994	0.50	jmt	245 858	6010 (1)
Iron, ICP	15,300		ug/g	05/09/1994	1.0	jmt	245 683	6010 (1)
Lead, AA	49	S	ug/g	05/04/1994	2.2	emh	205 222	7420 (1)
Mercury, CVAA	<0.02		ug/g	05/11/1994	0.02	jmt	200 318	7471 (1)
Nickel, AA	29	S	ug/g	05/11/1994	1.6	emh	205 100	7520 (1)
Selenium, GFAA	<2.4 UJ	S,D10	ug/g	05/15/1994	0.20	dmc	205 9	7740 (1)
Silver, AA	3.0		ug/g	05/05/1994	2.5	jmt	89 801	7760 (1)
Tin, ICP	<59		ug/g	05/09/1994	50	jmt	245 248	6010 (1)
Zinc, ICP	20.3 J		ug/g	05/09/1994	1.0	jmt	245 641	6010 (1)
Metals Prep, Nonaqueous	Complete			05/06/1994		jmt	245	3050 (1)
Metals Prep, Hg Nonaqueous	Complete			05/11/1994		jmt	200	7471 (1)
Metals Prep, Ag Nonaqueous	Complete			05/05/1994		mic	89	7760 (1)

D : Parameter analysis performed at a 10x dilution due to a matrix interference at lower dilutions.

S : Parameter analysis was sub-contracted to another NET location.

NATIONAL ENVIRONMENTAL TESTING, INC.

Bartlett Division
850 W. Bartlett Rd.
Bartlett, IL 60103
Tel: (708) 289-3100
Fax: (708) 289-5445

ANALYTICAL REPORT

Ms. Susan Roberts
ENGINEERING-SCIENCE, INC.
8000 Centre Park Drive
Suite 200
Austin, TX 78754

05/16/1994

Sample No. : 258065

NET Job No.: 94.02853

Sample Description: BKG-SS-03
721460.01; CSSA Background

Date Taken: 04/21/1994
Time Taken: 17:15
IEPA Cert. No. 100221

Date Received: 04/23/1994
Time Received: 09:00
WDNR Cert. No. 999447130

Parameter	Results		Units	Date of Analysis	Method PQL	Analyst	Batch No. Prep/Run	Analytical Method
Solids, Total	83.3		%	04/29/1994	0.1	dsf	920	2540 (4)
METALS - ICP 2 Non-Aq	Complete		ug/g	05/09/1994		jmt	63	6010(1) 200.7(3)
Aluminum,ICP	20,300		ug/g	05/09/1994	5.0	jmt	245 605	6010 (1)
Arsenic, GFAA	20	S	ug/g	05/16/1994	0.20	dmc	205 13	7060 (1)
Barium, ICP	69.4		ug/g	05/09/1994	1.0	jmt	245 675	6010 (1)
Cadmium, ICP	<0.60		ug/g	05/09/1994	0.50	jmt	245 646	6010 (1)
Chromium, ICP	16.3		ug/g	05/09/1994	2.0	jmt	245 636	6010 (1)
Copper, ICP	8.4		ug/g	05/09/1994	0.50	jmt	245 858	6010 (1)
Iron, ICP	17,000		ug/g	05/09/1994	1.0	jmt	245 683	6010 (1)
Lead, AA	48	S	ug/g	05/04/1994	2.2	emh	205 222	7420 (1)
Mercury, CVAA	0.05		ug/g	05/11/1994	0.02	jmt	200 318	7471 (1)
Nickel, AA	26	S	ug/g	05/11/1994	1.6	emh	205 100	7520 (1)
Selenium, GFAA	<2.4 UJ	S,D10	ug/g	05/15/1994	0.20	dmc	205 9	7740 (1)
Silver, AA	<3.0		ug/g	05/09/1994	2.5	jmt	89 801	7760 (1)
Tin, ICP	<60		ug/g	05/09/1994	50	jmt	245 248	6010 (1)
Zinc, ICP	21.8 J		ug/g	05/09/1994	1.0	jmt	245 641	6010 (1)
Metals Prep, Nonaqueous	Complete			05/06/1994		jmt	245	3050 (1)
Metals Prep, Hg Nonaqueous	Complete			05/11/1994		jmt	200	7471 (1)
Metals Prep, Ag Nonaqueous	Complete			05/05/1994		mic	89	7760 (1)

D10 : Parameter analysis performed at a 10x dilution due to a matrix interference at lower dilutions.

S : Parameter analysis was sub-contracted to another NET location.

NATIONAL ENVIRONMENTAL TESTING, INC.

Bartlett Division
850 W. Bartlett Rd.
Bartlett, IL 60103
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Fax: (708) 289-5445

ANALYTICAL REPORT

Ms. Susan Roberts
ENGINEERING-SCIENCE, INC.
8000 Centre Park Drive
Suite 200
Austin, TX 78754

05/16/1994

Sample No. : 257480

NET Job No.: 94.02697

Sample Description: BKG-SS-04
721460.01 CSSA Background

Date Taken: 04/20/1994
Time Taken: 10:15
IEPA Cert. No. 100221

Date Received: 04/21/1994
Time Received: 18:30
WDNR Cert. No. 999447130

Parameter	Results		Units	Date of Analysis	Method PQL	Analyst	Batch No. Prep/Run	Analytical Method
Solids, Total	77.1		%	05/02/1994	0.1	knj	921	2540 (4)
METALS - ICP 2 Non-Aq	Complete					jmt	62	6010(1) 200.7(3)
Aluminum,ICP	30,400		ug/g	05/05/1994	5.0	jmt	244 603	6010 (1)
Arsenic, GFAA	<26	S,D100	ug/g	05/16/1994	0.20	dmc	205 13	7060 (1)
Barium, ICP	136		ug/g	05/05/1994	1.0	jmt	244 673	6010 (1)
Cadmium, ICP	0.68		ug/g	05/05/1994	0.50	jmt	244 644	6010 (1)
Chromium, ICP	29.9		ug/g	05/05/1994	2.0	jmt	244 634	6010 (1)
Copper, ICP	14.1		ug/g	05/05/1994	0.50	jmt	244 856	6010 (1)
Iron, ICP	30,100		ug/g	05/05/1994	1.0	jmt	244 681	6010 (1)
Lead, AA	36	S	ug/g	05/04/1994	2.2	emh	205 222	7420 (1)
Mercury, CVAA	<0.03		ug/g	05/03/1994	0.02	jmt	199 316	7471 (1)
Nickel, AA	32	S	ug/g	05/11/1994	1.6	emh	205 100	7520 (1)
Selenium, GFAA	<2.6 U	S,D10	ug/g	05/15/1994	0.20	dmc	205 9	7740 (1)
Silver, AA	<3.0		ug/g	05/05/1994	2.5	jmt	89 799	7760 (1)
Tin, ICP	<600	D10	ug/g	05/06/1994	50	jmt	244	6010 (1)
Zinc, ICP	42.1		ug/g	05/05/1994	1.0	jmt	244 639	6010 (1)
Metals Prep, Nonaqueous	Complete			05/04/1994		jmt	244	3050 (1)
Metals Prep, Hg Nonaqueous	Complete			05/03/1994		jmt	199	7471 (1)
Metals Prep, Ag Nonaqueous	Complete			05/05/1994		mic	89	7760 (1)

10 : Parameter analysis performed at a 10x dilution due to a matrix interference at lower dilutions.
D100 : Parameter analysis performed at a 100x dilution due to a matrix interference at lower dilutions.
S : Parameter analysis was sub-contracted to another NET location.

NATIONAL ENVIRONMENTAL TESTING, INC.

Bartlett Division
850 W. Bartlett Rd.
Bartlett, IL 60103
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Fax: (708) 289-5445

ANALYTICAL REPORT

Ms. Susan Roberts
ENGINEERING-SCIENCE, INC.
8000 Centre Park Drive
Suite 200
Austin, TX 78754

05/16/1994

Sample No. : 258064

NET Job No.: 94.02853

Sample Description: BKG-SS-05
721460.01; CSSA Background

Date Taken: 04/21/1994
Time Taken: 15:10
IEPA Cert. No. 100221

Date Received: 04/23/1994
Time Received: 09:00
WDNR Cert. No. 999447130

Parameter	Results		Units	Date of Analysis	Method PQL	Analyst	Batch No. Prep/Run	Analytical Method
Solids, Total	83.2		%	04/29/1994	0.1	dsf	920	2540 (4)
METALS - ICP 2 Non-Aq	Complete		ug/g	05/09/1994		jmt	63	6010(1) 200.7(3)
Aluminum,ICP	5,060		ug/g	05/09/1994	5.0	jmt	245 605	6010 (1)
Arsenic, GFAA	20	S	ug/g	05/16/1994	0.20	dmc	205 13	7060 (1)
Barium, ICP	33.0		ug/g	05/09/1994	1.0	jmt	245 675	6010 (1)
Cadmium, ICP	<0.60		ug/g	05/09/1994	0.50	jmt	245 646	6010 (1)
Chromium, ICP	4.8		ug/g	05/09/1994	2.0	jmt	245 636	6010 (1)
Copper, ICP	5.8		ug/g	05/09/1994	0.50	jmt	245 858	6010 (1)
Iron, ICP	3,950		ug/g	05/09/1994	1.0	jmt	245 683	6010 (1)
Lead, AA	50	S	ug/g	05/04/1994	2.2	emh	205 222	7420 (1)
Mercury, CVAA	<0.03		ug/g	05/11/1994	0.02	jmt	200 318	7471 (1)
Nickel, AA	22	S	ug/g	05/11/1994	1.6	emh	205 100	7520 (1)
Selenium, GFAA	<2.4 UJ	S,D10	ug/g	05/15/1994	0.20	dmc	205 9	7740 (1)
Silver, AA	3.8		ug/g	05/05/1994	2.5	jmt	89 801	7760 (1)
Tin, ICP	<60		ug/g	05/09/1994	50	jmt	245 248	6010 (1)
Zinc, ICP	15.8 J		ug/g	05/09/1994	1.0	jmt	245 641	6010 (1)
Metals Prep, Nonaqueous	Complete			05/06/1994		jmt	245	3050 (1)
Metals Prep, Hg Nonaqueous	Complete			05/11/1994		jmt	200	7471 (1)
Metals Prep, Ag Nonaqueous	Complete			05/05/1994		mic	89	7760 (1)

D10 : Parameter analysis performed at a 10x dilution due to a matrix interference at lower dilutions.

S : Parameter analysis was sub-contracted to another NET location.

NATIONAL ENVIRONMENTAL TESTING, INC.

Bartlett Division
850 W. Bartlett Rd.
Bartlett, IL 60103
Tel: (708) 289-3100
Fax: (708) 289-5445

ANALYTICAL REPORT

Ms. Susan Roberts
ENGINEERING-SCIENCE, INC.
8000 Centre Park Drive
Suite 200
Austin, TX 78754

05/16/1994

Sample No. : 257481

NET Job No.: 94.02697

Sample Description: BKG-SS-06
721460.01 CSSA Background

Date Taken: 04/20/1994
Time Taken: 12:15
IEPA Cert. No. 100221

Date Received: 04/21/1994
Time Received: 18:30
WDNR Cert. No. 999447130

Parameter	Results		Units	Date of Analysis	Method PQL	Analyst	Batch No. Prep/Run	Analytical Method
Solids, Total	82.5		%	05/02/1994	0.1	knj	921	2540 (4)
METALS - ICP 2 Non-Aq	Complete					jmt	62	6010(1) 200.7(3)
Aluminum, ICP	30,300		ug/g	05/05/1994	5.0	jmt	244 603	6010 (1)
Arsenic, GFAA	15.8	S	ug/g	05/16/1994	0.20	dmc	205 13	7060 (1)
Barium, ICP	112		ug/g	05/05/1994	1.0	jmt	244 673	6010 (1)
Cadmium, ICP	<0.61		ug/g	05/05/1994	0.50	jmt	244 644	6010 (1)
Chromium, ICP	24.2		ug/g	05/05/1994	2.0	jmt	244 634	6010 (1)
Copper, ICP	10.3		ug/g	05/05/1994	0.50	jmt	244 856	6010 (1)
Iron, ICP	22,800		ug/g	05/05/1994	1.0	jmt	244 681	6010 (1)
Lead, AA	36	S	ug/g	05/04/1994	2.2	emh	205 222	7420 (1)
Mercury, CVAA	0.03		ug/g	05/03/1994	0.02	jmt	199 316	7471 (1)
Nickel, AA	24	S	ug/g	05/11/1994	1.6	emh	205 100	7520 (1)
Selenium, GFAA	<2.4 UJ	S,D10	ug/g	05/15/1994	0.20	mjs	205 9	7740 (1)
Silver, AA	<3.0		ug/g	05/05/1994	2.5	jmt	89 799	7760 (1)
Tin, ICP	<600	D10	ug/g	05/06/1994	50	jmt	244 247	6010 (1)
Zinc, ICP	30.6		ug/g	05/05/1994	1.0	jmt	244 639	6010 (1)
Metals Prep, Nonaqueous	Complete			05/04/1994		jmt	244	3050 (1)
Metals Prep, Hg Nonaqueous	Complete			05/03/1994		jmt	199	7471 (1)
Metals Prep, Ag Nonaqueous	Complete			05/05/1994		mic	89	7760 (1)

D10 : Parameter analysis performed at a 10x dilution due to a matrix interference at lower dilutions.

S : Parameter analysis was sub-contracted to another NET location.

NATIONAL ENVIRONMENTAL TESTING, INC.

Bartlett Division
850 W. Bartlett Rd.
Bartlett, IL 60103
Tel: (708) 289-3100
Fax: (708) 289-5445

ANALYTICAL REPORT

Ms. Susan Roberts
ENGINEERING-SCIENCE, INC.
8000 Centre Park Drive
Suite 200
Austin, TX 78754

05/16/1994
Sample No. : 257482
NET Job No.: 94.02697

Sample Description: BKG-SS-07
721460.01 CSSA Background

Date Taken: 04/20/1994
Time Taken: 11:27
IEPA Cert. No. 100221

Date Received: 04/21/1994
Time Received: 18:30
WDNR Cert. No. 999447130

Parameter	Results		Units	Date of Analysis	Method PQL	Analyst	Batch No. Prep/Run	Analytical Method
Solids, Total	81.5		%	05/02/1994	0.1	knj	921	2540 (4)
METALS - ICP 2 Non-Aq	Compelte					jmt	62	6010(1) 200.7(3)
Aluminum,ICP	8,090		ug/g	05/05/1994	5.0	jmt	244 603	6010 (1)
Arsenic, GFAA	<12	S,D50	ug/g	05/16/1994	0.20	dmc	205 13	7060 (1)
Barium, ICP	40.9		ug/g	05/05/1994	1.0	jmt	244 673	6010 (1)
Cadmium, ICP	<0.61		ug/g	05/05/1994	0.50	jmt	244 644	6010 (1)
Chromium, ICP	8.7		ug/g	05/05/1994	2.0	jmt	244 634	6010 (1)
Copper, ICP	4.2		ug/g	05/05/1994	0.50	jmt	244 856	6010 (1)
Iron, ICP	7,500		ug/g	05/05/1994	1.0	jmt	244 681	6010 (1)
Lead, AA	49	S	ug/g	05/04/1994	2.2	emh	205 222	7420 (1)
Mercury, CVAA	0.04		ug/g	05/03/1994	0.02	jmt	199 316	7471 (1)
Nickel, AA	25	S	ug/g	05/11/1994	1.6	emh	205 100	7520 (1)
Selenium, GFAA	<2.5 UJ	S,D10	ug/g	05/15/1994	0.20	dmc	205 9	7740 (1)
Silver, AA	<3.0		ug/g	05/05/1994	2.5	jmt	89 799	7760 (1)
Tin, ICP	<600	D10	ug/g	05/06/1994	50	jmt	244 247	6010 (1)
Zinc, ICP	12.6		ug/g	05/05/1994	1.0	jmt	244 639	6010 (1)
Metals Prep, Nonaqueous	Complete			05/04/1994		jmt	244	3050 (1)
Metals Prep, Hg Nonaqueous	Complete			05/03/1994		jmt	199	7471 (1)
Metals Prep, Ag Nonaqueous	Complete			05/05/1994		mic	89	7760 (1)

D10 : Parameter analysis performed at a 10x dilution due to a matrix interference at lower dilutions.
D50 : Parameter analysis performed at a 50x dilution due to a matrix interference at lower dilutions.
S : Parameter analysis was sub-contracted to another NET location.

NATIONAL ENVIRONMENTAL TESTING, INC.

Bartlett Division
850 W. Bartlett Rd.
Bartlett, IL 60103
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Fax: (708) 289-5445

ANALYTICAL REPORT

Ms. Susan Roberts
ENGINEERING-SCIENCE, INC.
8000 Centre Park Drive
Suite 200
Austin, TX 78754

05/16/1994

Sample No. : 257483

NET Job No.: 94.02697

Sample Description: BKG-SS-08
721460.01 CSSA Background

Date Taken: 04/20/1994
Time Taken: 11:45
IEPA Cert. No. 100221

Date Received: 04/21/1994
Time Received: 18:30
WDNR Cert. No. 999447130

Parameter	Results		Units	Date of Analysis	Method PQL	Analyst	Batch No. Prep/Run	Analytical Method
Solids, Total	91.6		%	05/02/1994	0.1	knj	921	2540 (4)
METALS - ICP 2 Non-Aq	Complete					jmt	62	6010(1) 200.7(3)
Aluminum,ICP	4,800		ug/g	05/05/1994	5.0	jmt	244 603	6010 (1)
Arsenic, GFAA	<11	S,D50	ug/g	05/03/1994	0.20	dmc	205 13	7060 (1)
Barium, ICP	20.3		ug/g	05/05/1994	1.0	jmt	244 673	6010 (1)
Cadmium, ICP	<0.55		ug/g	05/05/1994	0.50	jmt	244 644	6010 (1)
Chromium, ICP	4.7		ug/g	05/05/1994	2.0	jmt	244 634	6010 (1)
Copper, ICP	4.0		ug/g	05/05/1994	0.50	jmt	244 856	6010 (1)
Iron, ICP	4,500		ug/g	05/05/1994	1.0	jmt	244 681	6010 (1)
Lead, AA	49	S	ug/g	05/04/1994	2.2	emh	205 222	7420 (1)
Mercury, CVAA	0.04		ug/g	05/03/1994	0.02	jmt	199 316	7471 (1)
Nickel, AA	23.6	S	ug/g	05/11/1994	1.6	emh	205 100	7520 (1)
Selenium, GFAA	<2.2 U	S,D10	ug/g	05/15/1994	0.20	dmc	205 9	7740 (1)
Silver, AA	3.8		ug/g	05/05/1994	2.5	jmt	89 799	7760 (1)
Tin, ICP	<500	D10	ug/g	05/06/1994	50	jmt	244 247	6010 (1)
Zinc, ICP	7.5		ug/g	05/05/1994	1.0	jmt	244 639	6010 (1)
Metals Prep, Nonaqueous	Complete			05/04/1994		jmt	244	3050 (1)
Metals Prep, Hg Nonaqueous	Complete			05/03/1994		jmt	199	7471 (1)
Metals Prep, Ag Nonaqueous	Complete			05/05/1994		mic	89	7760 (1)

10 : Parameter analysis performed at a 10x dilution due to a matrix interference at lower dilutions.
D50 : Parameter analysis performed at a 50x dilution due to a matrix interference at lower dilutions.
S : Parameter analysis was sub-contracted to another NET location.

NATIONAL ENVIRONMENTAL TESTING, INC.

Bartlett Division
850 W. Bartlett Rd.
Bartlett, IL 60103
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Fax: (708) 289-5445

ANALYTICAL REPORT

Ms. Susan Roberts
ENGINEERING-SCIENCE, INC.
8000 Centre Park Drive
Suite 200
Austin, TX 78754

05/16/1994

Sample No. : 258068

NET Job No.: 94.02853

Sample Description: BKG-SS-09
721460.01; CSSA Background

Date Taken: 04/22/1994
Time Taken: 10:17
IEPA Cert. No. 100221

Date Received: 04/23/1994
Time Received: 09:00
WDNR Cert. No. 999447130

Parameter	Results		Units	Date of Analysis	Method PQL	Analyst	Batch No. Prep/Run	Analytical Method
Solids, Total	85.2		%	04/29/1994	0.1	dsf	920	2540 (4)
METALS - ICP 2 Non-Aq	Complete		ug/g	05/09/1994		jmt	63	6010(1) 200.7(3)
Aluminum,ICP	10,700		ug/g	05/09/1994	5.0	jmt	245 605	6010 (1)
Arsenic, GFAA	25	S	ug/g	05/16/1994	0.20	dmc	205 13	7060 (1)
Barium, ICP	65.0		ug/g	05/09/1994	1.0	jmt	245 675	6010 (1)
Cadmium, ICP	<0.59		ug/g	05/09/1994	0.50	jmt	245 646	6010 (1)
Chromium, ICP	13.4		ug/g	05/09/1994	2.0	jmt	245 636	6010 (1)
Copper, ICP	17.2		ug/g	05/09/1994	0.50	jmt	245 858	6010 (1)
Iron, ICP	11,900		ug/g	05/09/1994	1.0	jmt	245 683	6010 (1)
Lead, AA	92	S	ug/g	05/04/1994	2.2	emh	205 222	7420 (1)
Mercury, CVAA	0.04		ug/g	05/11/1994	0.02	jmt	200 318	7471 (1)
Nickel, AA	24.3	S	ug/g	05/11/1994	1.6	emh	205 100	7520 (1)
Selenium, GFAA	<2.4 UJ	S,D10	ug/g	05/16/1994	0.20	dmc	205 9	7740 (1)
Silver, AA	3.1		ug/g	05/05/1994	2.5	jmt	89 801	7760 (1)
Tin, ICP	<59		ug/g	05/09/1994	50	jmt	245 248	6010 (1)
Zinc, ICP	90.0 J		ug/g	05/09/1994	1.0	jmt	245 641	6010 (1)
Metals Prep, Nonaqueous	Complete			05/06/1994		jmt	245	3050 (1)
Metals Prep, Hg Nonaqueous	Complete			05/11/1994		jmt	200	7471 (1)
Metals Prep, Ag Nonaqueous	Complete			05/05/1994		mic	89	7760 (1)

D10 : Parameter analysis performed at a 10x dilution due to a matrix interference at lower dilutions.

S : Parameter analysis was sub-contracted to another NET location.

NATIONAL ENVIRONMENTAL TESTING, INC.

Bartlett Division
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ANALYTICAL REPORT

Ms. Susan Roberts
ENGINEERING-SCIENCE, INC.
8000 Centre Park Drive
Suite 200
Austin, TX 78754

05/16/1994

Sample No. : 258069

NET Job No.: 94.02853

Sample Description: BKG-SS-10
721460.01; CSSA Background

Date Taken: 04/22/1994
Time Taken: 11:13
IEPA Cert. No. 100221

Date Received: 04/23/1994
Time Received: 09:00
WDNR Cert. No. 999447130

Parameter	Results		Units	Date of Analysis	Method PQL	Analyst	Batch No. Prep/Run	Analytical Method
Solids, Total	93.3		%	04/29/1994	0.1	dsf	920	2540 (4)
METALS - ICP 2 Non-Aq	Complete		ug/g	05/09/1994		jmt	63	6010(1) 200.7(3)
inum,ICP	6,280		ug/g	05/09/1994	5.0	jmt	245 605	6010 (1)
nic, GFAA	4.7	S	ug/g	05/16/1994	0.20	dmc	205 13	7060 (1)
Barium, ICP	25.5		ug/g	05/09/1994	1.0	jmt	245 675	6010 (1)
Cadmium, ICP	<0.54		ug/g	05/09/1994	0.50	jmt	245 646	6010 (1)
Chromium, ICP	8.3		ug/g	05/09/1994	2.0	jmt	245 636	6010 (1)
Copper, ICP	4.8		ug/g	05/09/1994	0.50	jmt	245 858	6010 (1)
Iron, ICP	5,580		ug/g	05/09/1994	1.0	jmt	245 683	6010 (1)
Lead, AA	48	S	ug/g	05/04/1994	2.2	emh	205 222	7420 (1)
Mercury, CVAA	<0.03		ug/g	05/11/1994	0.02	jmt	200 318	7471 (1)
Nickel, AA	25	S	ug/g	05/11/1994	1.6	emh	205 100	7520 (1)
Selenium, GFAA	<2.1 UJ	S,D10	ug/g	05/15/1994	0.20	dmc	205 9	7740 (1)
Silver, AA	<3.0		ug/g	05/05/1994	2.5	jmt	89 801	7760 (1)
Tin, ICP	<54		ug/g	05/09/1994	50	jmt	245 248	6010 (1)
Zinc, ICP	31.0 J		ug/g	05/09/1994	1.0	jmt	245 641	6010 (1)
Metals Prep, Nonaqueous	Complete			05/06/1994		jmt	245	3050 (1)
Metals Prep, Hg Nonaqueous	Complete			05/11/1994		jmt	200	7471 (1)
Metals Prep, Ag Nonaqueous	Complete			05/05/1994		mic	89	7760 (1)

1 : Parameter analysis performed at a 10x dilution due to a matrix interference at lower dilutions.

S : Parameter analysis was sub-contracted to another NET location.

NATIONAL ENVIRONMENTAL TESTING, INC.

Bartlett Division
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ANALYTICAL REPORT

Ms. Susan Roberts
ENGINEERING-SCIENCE, INC.
8000 Centre Park Drive
Suite 200
Austin, TX 78754

05/16/1994

Sample No. : 258108

NET Job No.: 94.02856

Sample Description: BKG-SB01(4.5)
721460.05; CSSA F-14 Closures

Date Taken: 04/22/1994
Time Taken: 09:40
IEPA Cert. No. 100221

Date Received: 04/23/1994
Time Received: 09:00
WDNR Cert. No. 999447130

Parameter	Results		Units	Date of Analysis	Method PQL	Analyst	Batch No. Prep/Run	Analytical Method
Solids, Total	92.7		%	05/04/1994	0.1	dsf	923	2540 (4)
METALS - ICP 2 Non-Aq	Complete		ug/g	05/09/1994		jmt	63	6010(1) 200.7(3)
Aluminum,ICP	790		ug/g	05/09/1994	5.0	jmt	245 605	6010 (1)
Arsenic, GFAA	<2.2	S,D10	ug/g	05/16/1994	0.20	dmc	205 13	7060 (1)
Barium, ICP	3.5		ug/g	05/09/1994	1.0	jmt	245 675	6010 (1)
Cadmium, ICP	<0.54		ug/g	05/09/1994	0.50	jmt	245 646	6010 (1)
Chromium, ICP	<2.0		ug/g	05/09/1994	2.0	jmt	245 636	6010 (1)
Copper, ICP	0.61		ug/g	05/09/1994	0.50	jmt	245 858	6010 (1)
Iron, ICP	910		ug/g	05/09/1994	1.0	jmt	245 683	6010 (1)
Lead, AA	58	S	ug/g	05/04/1994	2.2	emh	205 222	7420 (1)
Mercury, CVAA	<0.03		ug/g	05/11/1994	0.02	jmt	200 318	7471 (1)
Nickel, AA	26	S	ug/g	05/11/1994	1.6	emh	205 100	7520 (1)
Selenium, GFAA	<2.2 UJ	S,D10	ug/g	05/15/1994	0.20	dmc	205 9	7740 (1)
Silver, AA	4.8		ug/g	05/05/1994	2.5	jmt	89 801	7760 (1)
Tin, ICP	<54		ug/g	05/09/1994	50	jmt	245 248	6010 (1)
Zinc, ICP	2.1 J		ug/g	05/09/1994	1.0	jmt	245 641	6010 (1)
Metals Prep, Nonaqueous	Complete			05/06/1994		jmt	245	3050 (1)
Metals Prep, Hg Nonaqueous	Complete			05/11/1994		jmt	200	7471 (1)
Metals Prep, Ag Nonaqueous	Complete			05/05/1994		mic	89	7760 (1)

D10 : Parameter analysis performed at a 10x dilution due to a matrix interference at lower dilutions.

S : Parameter analysis was sub-contracted to another NET location.

NATIONAL ENVIRONMENTAL TESTING, INC.

Bartlett Division
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ANALYTICAL REPORT

Ms. Susan Roberts
ENGINEERING-SCIENCE, INC.
8000 Centre Park Drive
Suite 200
Austin, TX 78754

05/16/1994

Sample No. : 258107

NET Job No.: 94.02856

Sample Description: BKG-SB02(10)
721460.05; CSSA F-14 Closures

Date Taken: 04/22/1994
Time Taken: 08:45
IEPA Cert. No. 100221

Date Received: 04/23/1994
Time Received: 09:00
WDNR Cert. No. 999447130

Parameter	Results		Units	Date of Analysis	Method PQL	Analyst	Batch No. Prep/Run	Analytical Method
Solids, Total	95.5		%	05/04/1994	0.1	dsf	923	2540 (4)
METALS - ICP 2 Non-Aq	Complete		ug/g	05/09/1994		jmt	63	6010(1) 200.7(3)
ninum,ICP	1,700		ug/g	05/09/1994	5.0	jmt	245 605	6010 (1)
senic, GFAA	<2.1	S,D10	ug/g	05/16/1994	0.20	dmc	205 13	7060 (1)
Barium, ICP	5.5		ug/g	05/09/1994	1.0	jmt	245 675	6010 (1)
Cadmium, ICP	<0.52		ug/g	05/09/1994	0.50	jmt	245 646	6010 (1)
Chromium, ICP	2.0		ug/g	05/09/1994	2.0	jmt	245 636	6010 (1)
Copper, ICP	2.0		ug/g	05/09/1994	0.50	jmt	245 858	6010 (1)
Iron, ICP	2,010		ug/g	05/09/1994	1.0	jmt	245 683	6010 (1)
Lead, AA	48	S	ug/g	05/04/1994	2.2	emh	205 222	7420 (1)
Mercury, CVAA	<0.03		ug/g	05/11/1994	0.02	jmt	200 318	7471 (1)
Nickel, AA	23	S	ug/g	05/11/1994	1.6	emh	205 100	7520 (1)
Selenium, GFAA	<2.1 U J	S,D10	ug/g	05/15/1994	0.20	dmc	205 9	7740 (1)
Silver, AA	4.3		ug/g	05/05/1994	2.5	jmt	89 801	7760 (1)
Tin, ICP	<52		ug/g	05/09/1994	50	jmt	245 248	6010 (1)
Zinc, ICP	2.0 J		ug/g	05/09/1994	1.0	jmt	245 641	6010 (1)
Metals Prep, Nonaqueous	Complete			05/06/1994		jmt	245	3050 (1)
Metals Prep, Hg Nonaqueous	Complete			05/11/1994		jmt	200	7471 (1)
Metals Prep, Ag Nonaqueous	Complete			05/05/1994		mic	89	7760 (1)

D : Parameter analysis performed at a 10x dilution due to a matrix interference at lower dilutions.

S : Parameter analysis was sub-contracted to another NET location.

NATIONAL ENVIRONMENTAL TESTING, INC.

Bartlett Division
850 W. Bartlett Rd.
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ANALYTICAL REPORT

Ms. Susan Roberts
ENGINEERING-SCIENCE, INC.
8000 Centre Park Drive
Suite 200
Austin, TX 78754

05/16/1994

Sample No. : 258106

NET Job No.: 94.02856

Sample Description: BKG-SB03(19.5)
721460.05; CSSA F-14 Closures

Date Taken: 04/21/1994
Time Taken: 17:55
IEPA Cert. No. 100221

Date Received: 04/23/1994
Time Received: 09:00
WDNR Cert. No. 999447130

Parameter	Results		Units	Date of Analysis	Method PQL	Analyst	Batch No. Prep/Run	Analytical Method
Solids, Total	92.5		%	05/04/1994	0.1	dsf	923	2540 (4)
METALS - ICP 2 Non-Aq	Complete		ug/g	05/09/1994		jmt	63	6010(1) 200.7(3)
Aluminum,ICP	1,100		ug/g	05/09/1994	5.0	jmt	245 605	6010 (1)
Arsenic, GFAA	<2.2	S,D10	ug/g	05/16/1994	0.20	dmc	205 13	7060 (1)
Barium, ICP	4.5		ug/g	05/09/1994	1.0	jmt	245 675	6010 (1)
Cadmium, ICP	<0.54		ug/g	05/09/1994	0.50	jmt	245 646	6010 (1)
Chromium, ICP	2.2		ug/g	05/09/1994	2.0	jmt	245 636	6010 (1)
Copper, ICP	1.3		ug/g	05/09/1994	0.50	jmt	245 858	6010 (1)
Iron, ICP	1,190		ug/g	05/09/1994	1.0	jmt	245 683	6010 (1)
Lead, AA	52	S	ug/g	05/04/1994	2.2	emh	205 222	7420 (1)
Mercury, CVAA	<0.03		ug/g	05/11/1994	0.02	jmt	200 318	7471 (1)
Nickel, AA	24	S	ug/g	05/11/1994	1.6	emh	205 100	7520 (1)
Selenium, GFAA	<2.2 UJ	S,D10	ug/g	05/15/1994	0.50	dmc	205 9	7740 (1)
Silver, AA	4.7		ug/g	05/05/1994	2.5	jmt	89 801	7760 (1)
Tin, ICP	<54		ug/g	05/09/1994	50	jmt	245 248	6010 (1)
Zinc, ICP	2.5 J		ug/g	05/09/1994	1.0	jmt	245 641	6010 (1)
Metals Prep, Nonaqueous	Complete			05/06/1994		jmt	245	3050 (1)
Metals Prep, Hg Nonaqueous	Complete			05/11/1994		jmt	200	7471 (1)
Metals Prep, Ag Nonaqueous	Complete			05/05/1994		mic	89	7760 (1)

D10 : Parameter analysis performed at a 10x dilution due to a matrix interference at lower dilutions.

S : Parameter analysis was sub-contracted to another NET location.

NATIONAL ENVIRONMENTAL TESTING, INC.

Bartlett Division
850 W. Bartlett Rd.
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ANALYTICAL REPORT

Ms. Susan Roberts
ENGINEERING-SCIENCE, INC.
8000 Centre Park Drive
Suite 200
Austin, TX 78754

05/16/1994

Sample No. : 258105

NET Job No.: 94.02856

Sample Description: BKG-SB04(17.5)
721460.05; CSSA F-14 Closures

Date Taken: 04/21/1994
Time Taken: 16:35
IEPA Cert. No. 100221

Date Received: 04/23/1994
Time Received: 09:00
WDNR Cert. No. 999447130

Parameter	Results		Units	Date of Analysis	Method PQL	Analyst	Batch No. Prep/Run	Analytical Method
Solids, Total	95.6		%	05/04/1994	0.1	dsf	923	2540 (4)
METALS - ICP 2 Non-Aq	Complete		ug/g	05/09/1994		jmt	63	6010(1) 200.7(3)
luminum,ICP	1,070		ug/g	05/09/1994	5.0	jmt	245 605	6010 (1)
senic, GFAA	<2.1	S,D10	ug/g	05/16/1994	0.20	dmc	205 13	7060 (1)
Barium, ICP	5.3		ug/g	05/09/1994	1.0	jmt	245 675	6010 (1)
Cadmium, ICP	<0.52		ug/g	05/09/1994	0.50	jmt	245 646	6010 (1)
Chromium, ICP	2.2		ug/g	05/09/1994	2.0	jmt	245 636	6010 (1)
Copper, ICP	1.2		ug/g	05/09/1994	0.50	jmt	245 858	6010 (1)
Iron, ICP	1,660		ug/g	05/09/1994	1.0	jmt	245 683	6010 (1)
Lead, AA	42	S	ug/g	05/04/1994	2.2	emh	205 222	7420 (1)
Mercury, CVAA	<0.03		ug/g	05/11/1994	0.02	jmt	200 318	7471 (1)
Nickel, AA	24	S	ug/g	05/11/1994	1.6	emh	205 100	7520 (1)
Selenium, GFAA	<2.1 UJ	S,D10	ug/g	05/15/1994	0.20	dmc	205 9	7740 (1)
Silver, AA	4.6		ug/g	05/05/1994	2.5	jmt	89 801	7760 (1)
Tin, ICP	<52		ug/g	05/09/1994	50	jmt	245 248	6010 (1)
Zinc, ICP	2.6 J		ug/g	05/09/1994	1.0	jmt	245 641	6010 (1)
Metals Prep, Nonaqueous	Complete			05/06/1994		jmt	245	3050 (1)
Metals Prep, Hg Nonaqueous	Complete			05/11/1994		jmt	200	7471 (1)
Metals Prep, Ag Nonaqueous	Complete			05/05/1994		mic	89	7760 (1)

)10 : Parameter analysis performed at a 10x dilution due to a matrix interference at lower dilutions.

S : Parameter analysis was sub-contracted to another NET location.

NATIONAL ENVIRONMENTAL TESTING, INC.

Bartlett Division
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ANALYTICAL REPORT

Ms. Susan Roberts
ENGINEERING-SCIENCE, INC.
8000 Centre Park Drive
Suite 200
Austin, TX 78754

05/16/1994

Sample No. : 258104

NET Job No.: 94.02856

Sample Description: BKG-SB05(10)
721460.05; CSSA F-14 Closures

Date Taken: 04/21/1994
Time Taken: 15:38
IEPA Cert. No. 100221

Date Received: 04/23/1994
Time Received: 09:00
WDNR Cert. No. 999447130

Parameter	Results		Units	Date of Analysis	Method PQL	Analyst	Batch No. Prep/Run	Analytical Method
Solids, Total	93.8		%	05/04/1994	0.1	dsf	923	2540 (4)
METALS - ICP 2 Non-Aq	Complete		ug/g	05/09/1994		jmt	63	6010(1) 200.7(3)
Aluminum,ICP	1,650		ug/g	05/09/1994	5.0	jmt	245 605	6010 (1)
Arsenic, GFAA	2.1	S	ug/g	05/16/1994	0.20	dmc	205 13	7060 (1)
Barium, ICP	6.9		ug/g	05/09/1994	1.0	jmt	245 675	6010 (1)
Cadmium, ICP	<0.53		ug/g	05/09/1994	0.50	jmt	245 646	6010 (1)
Chromium, ICP	2.7		ug/g	05/09/1994	2.0	jmt	245 636	6010 (1)
Copper, ICP	2.3		ug/g	05/09/1994	0.50	jmt	245 858	6010 (1)
Iron, ICP	3,360		ug/g	05/09/1994	1.0	jmt	245 683	6010 (1)
Lead, AA	39	S	ug/g	05/04/1994	2.2	emh	205 222	7420 (1)
Mercury, CVAA	<0.03		ug/g	05/11/1994	0.02	jmt	200 318	7471 (1)
Nickel, AA	20	S	ug/g	05/11/1994	1.6	emh	205 100	7520 (1)
Selenium, GFAA	<2.1 UJ	S,D10	ug/g	05/15/1994	0.20	dmc	205 9	7740 (1)
Silver, AA	4.0		ug/g	05/05/1994	2.5	jmt	89 801	7760 (1)
Tin, ICP	<53		ug/g	05/09/1994	50	jmt	245 248	6010 (1)
Zinc, ICP	3.2 J		ug/g	05/09/1994	1.0	jmt	245 641	6010 (1)
Metals Prep, Nonaqueous	Complete			05/06/1994		jmt	245	3050 (1)
Metals Prep, Hg Nonaqueous	Complete			05/11/1994		jmt	200	7471 (1)
Metals Prep, Ag Nonaqueous	Complete			05/05/1994		mic	89	7760 (1)

D10 : Parameter analysis performed at a 10x dilution due to a matrix interference at lower dilutions.

S : Parameter analysis was sub-contracted to another NET location.

NATIONAL ENVIRONMENTAL TESTING, INC.

Bartlett Division
850 W. Bartlett Rd.
Bartlett, IL 60103
Tel: (708) 289-3100
Fax: (708) 289-5445

ANALYTICAL REPORT

Ms. Susan Roberts
ENGINEERING-SCIENCE, INC.
8000 Centre Park Drive
Suite 200
Austin, TX 78754

05/16/1994
Sample No. : 258102
NET Job No.: 94.02856

Sample Description: BKG-SB06(18)
721460.05; CSSA F-14 Closures

Date Taken: 04/21/1994
Time Taken: 12:05
IEPA Cert. No. 100221

Date Received: 04/23/1994
Time Received: 09:00
WDNR Cert. No. 999447130

Parameter	Results		Units	Date of Analysis	Method PQL	Analyst	Batch No. Prep/Run	Analytical Method
Solids, Total	93.7		%	05/04/1994	0.1	dsf	923	2540 (4)
METALS - ICP 2 Non-Aq	Complete		ug/g	05/09/1994		jmt	63	6010(1) 200.7(3)
minum,ICP	2,200		ug/g	05/09/1994	5.0	jmt	245 605	6010 (1)
senic, GFAA	4.3	S	ug/g	05/16/1994	0.20	dmc	205 13	7060 (1)
Barium, ICP	6.6		ug/g	05/09/1994	1.0	jmt	245 675	6010 (1)
Cadmium, ICP	<0.53		ug/g	05/09/1994	0.50	jmt	245 646	6010 (1)
Chromium, ICP	2.4		ug/g	05/09/1994	2.0	jmt	245 636	6010 (1)
Copper, ICP	3.5		ug/g	05/09/1994	0.50	jmt	245 858	6010 (1)
Iron, ICP	3,070		ug/g	05/09/1994	1.0	jmt	245 683	6010 (1)
Lead, AA	36	S	ug/g	05/04/1994	2.2	emh	205 222	7420 (1)
Mercury, CVAA	<0.03		ug/g	05/11/1994	0.02	jmt	200 318	7471 (1)
Nickel, AA	22	S	ug/g	05/11/1994	1.6	emh	205 100	7520 (1)
Selenium, GFAA	<2.1 UJ	S,D10	ug/g	05/15/1994	0.20	dmc	205 9	7740 (1)
Silver, AA	4.5		ug/g	05/05/1994	2.5	jmt	89 801	7760 (1)
Tin, ICP	<53		ug/g	05/09/1994	50	jmt	245 248	6010 (1)
Zinc, ICP	2.5 J		ug/g	05/09/1994	1.0	jmt	245 641	6010 (1)
Metals Prep, Nonaqueous	Complete			05/06/1994		jmt	245	3050 (1)
Metals Prep, Hg Nonaqueous	Complete			05/11/1994		jmt	200	7471 (1)
Metals Prep, Ag Nonaqueous	Complete			05/05/1994		mic	89	7760 (1)

D10 : Parameter analysis performed at a 10x dilution due to a matrix interference at lower dilutions.

S : Parameter analysis was sub-contracted to another NET location.

NATIONAL ENVIRONMENTAL TESTING, INC.

Bartlett Division
850 W. Bartlett Rd.
Bartlett, IL 60103
Tel: (708) 289-3100
Fax: (708) 289-5445

ANALYTICAL REPORT

Ms. Susan Roberts
ENGINEERING-SCIENCE, INC.
8000 Centre Park Drive
Suite 200
Austin, TX 78754

05/16/1994

Sample No. : 258101

NET Job No.: 94.02856

Sample Description: BKG-SB07(24)
721460.05; CSSA F-14 Closures

Date Taken: 04/21/1994
Time Taken: 10:20
IEPA Cert. No. 100221

Date Received: 04/23/1994
Time Received: 09:00
WDNR Cert. No. 999447130

Parameter	Results		Units	Date of Analysis	Method PQL	Analyst	Batch No. Prep/Run	Analytical Method
Solids, Total	95.8		%	05/04/1994	0.1	dsf	923	2540 (4)
METALS - ICP 2 Non-Aq	Complete		ug/g	05/09/1994		jmt	63	6010(1) 200.7(3)
Aluminum,ICP	1,130		ug/g	05/09/1994	5.0	jmt	245 605	6010 (1)
Arsenic, GFAA	2.7	S	ug/g	05/16/1994	0.20	dmc	205 13	7060 (1)
Barium, ICP	4.1		ug/g	05/09/1994	1.0	jmt	245 675	6010 (1)
Cadmium, ICP	<0.52		ug/g	05/09/1994	0.50	jmt	245 646	6010 (1)
Chromium, ICP	2.5		ug/g	05/09/1994	2.0	jmt	245 636	6010 (1)
Copper, ICP	1.2		ug/g	05/09/1994	0.50	jmt	245 858	6010 (1)
Iron, ICP	1,810		ug/g	05/09/1994	1.0	jmt	245 683	6010 (1)
Lead, AA	51	S	ug/g	05/04/1994	2.2	emh	205 222	7420 (1)
Mercury, CVAA	<0.03		ug/g	05/11/1994	0.02	jmt	200 318	7471 (1)
Nickel, AA	20	S	ug/g	05/11/1994	1.6	emh	205 100	7520 (1)
Selenium, GFAA	<2.1 UJ	S,D10	ug/g	05/15/1994	0.20	dmc	205 9	7740 (1)
Silver, AA	4.4		ug/g	05/05/1994	2.5	jmt	89 801	7760 (1)
Tin, ICP	<52		ug/g	05/09/1994	50	jmt	245 248	6010 (1)
Zinc, ICP	2.2 J		ug/g	05/09/1994	1.0	jmt	245 641	6010 (1)
Metals Prep, Nonaqueous	Complete			05/06/1994		jmt	245	3050 (1)
Metals Prep, Hg Nonaqueous	Complete			05/11/1994		jmt	200	7471 (1)
Metals Prep, Ag Nonaqueous	Complete			05/05/1994		mic	89	7760 (1)

D10 : Parameter analysis performed at a 10x dilution due to a matrix interference at lower dilutions.

S : Parameter analysis was sub-contracted to another NET location.

NATIONAL ENVIRONMENTAL TESTING, INC.

Bartlett Division
850 W. Bartlett Rd.
Bartlett, IL 60103
Tel: (708) 289-3100
Fax: (708) 289-5445

ANALYTICAL REPORT

Ms. Susan Roberts
ENGINEERING-SCIENCE, INC.
8000 Centre Park Drive
Suite 200
Austin, TX 78754

05/16/1994

Sample No. : 258103

NET Job No.: 94.02856

Sample Description: BKG-SB08(5)
721460.05; CSSA F-14 Closures

Date Taken: 04/21/1994
Time Taken: 14:38
IEPA Cert. No. 100221

Date Received: 04/23/1994
Time Received: 09:00
WDNR Cert. No. 999447130

Parameter	Results		Units	Date of Analysis	Method PQL	Analyst	Batch No. Prep/Run	Analytical Method
Solids, Total	93.3		%	05/04/1994	0.1	dsf	923	2540 (4)
METALS - ICP 2 Non-Aq	Complete		ug/g	05/09/1994		jmt	63	6010(1) 200.7(3)
uminum,ICP	1,300		ug/g	05/09/1994	5.0	jmt	245 605	6010 (1)
senic, GFAA	<2.1	S,D10	ug/g	05/16/1994	0.20	dmc	205 13	7060 (1)
Barium, ICP	3.8		ug/g	05/09/1994	1.0	jmt	245 675	6010 (1)
Cadmium, ICP	<0.54		ug/g	05/09/1994	0.50	jmt	245 646	6010 (1)
Chromium, ICP	<2.0		ug/g	05/09/1994	2.0	jmt	245 636	6010 (1)
Copper, ICP	1.3		ug/g	05/09/1994	0.50	jmt	245 858	6010 (1)
Iron, ICP	1,200		ug/g	05/09/1994	1.0	jmt	245 683	6010 (1)
Lead, AA	46	S	ug/g	05/04/1994	2.2	emh	205 222	7420 (1)
Mercury, CVAA	<0.03		ug/g	05/11/1994	0.02	jmt	200 318	7471 (1)
Nickel, AA	21	S	ug/g	05/11/1994	1.6	emh	205 100	7520 (1)
Selenium, GFAA	<2.1 UJ	S,D10	ug/g	05/15/1994	0.20	dmc	205 9	7740 (1)
Silver, AA	5.2		ug/g	05/05/1994	2.5	jmt	89 801	7760 (1)
Tin, ICP	<54		ug/g	05/09/1994	50	jmt	245 248	6010 (1)
Zinc, ICP	1.8 J		ug/g	05/09/1994	1.0	jmt	245 641	6010 (1)
Metals Prep, Nonaqueous	Complete			05/06/1994		jmt	245	3050 (1)
Metals Prep, Hg Nonaqueous	Complete			05/11/1994		jmt	200	7471 (1)
Metals Prep, Ag Nonaqueous	Complete			05/05/1994		mic	89	7760 (1)

D10 : Parameter analysis performed at a 10x dilution due to a matrix interference at lower dilutions.

S : Parameter analysis was sub-contracted to another NET location.

NATIONAL ENVIRONMENTAL TESTING, INC.

Bartlett Division
850 W. Bartlett Rd.
Bartlett, IL 60103
Tel: (708) 289-3100
Fax: (708) 289-5445

ANALYTICAL REPORT

Ms. Susan Roberts
ENGINEERING-SCIENCE, INC.
8000 Centre Park Drive
Suite 200
Austin, TX 78754

05/16/1994

Sample No. : 258109

NET Job No.: 94.02856

Sample Description: BKG-SB09(5)
721460.05; CSSA F-14 Closures

Date Taken: 04/22/1994
Time Taken: 10:45
IEPA Cert. No. 100221

Date Received: 04/23/1994
Time Received: 09:00
WDNR Cert. No. 999447130

Parameter	Results		Units	Date of Analysis	Method PQL	Analyst	Batch No. Prep/Run	Analytical Method
Solids, Total	98.9		%	05/03/1994	0.1	dsf	924	2540 (4)
METALS - ICP 2 Non-Aq	Complete		ug/g	05/09/1994		jmt	63	6010(1) 200.7(3)
Aluminum,ICP	2,100		ug/g	05/09/1994	5.0	jmt	245 605	6010 (1)
Arsenic, GFAA	<2.0	S,D10	ug/g	05/16/1994	0.20	dmc	205 13	7060 (1)
Barium, ICP	7.8		ug/g	05/09/1994	1.0	jmt	245 675	6010 (1)
Cadmium, ICP	<0.51		ug/g	05/09/1994	0.50	jmt	245 646	6010 (1)
Chromium, ICP	2.0		ug/g	05/09/1994	2.0	jmt	245 636	6010 (1)
Copper, ICP	1.1		ug/g	05/09/1994	0.50	jmt	245 858	6010 (1)
Iron, ICP	1,830		ug/g	05/09/1994	1.0	jmt	245 683	6010 (1)
Lead, AA	40	S	ug/g	05/04/1994	2.2	emh	205 222	7420 (1)
Mercury, CVAA	<0.03		ug/g	05/11/1994	0.02	jmt	200 318	7471 (1)
Nickel, AA	21	S	ug/g	05/11/1994	1.6	emh	205 100	7520 (1)
Selenium, GFAA	<2.0 UJ	S,D10	ug/g	05/15/1994	0.20	dmc	245 9	7740 (1)
Silver, AA	4.8		ug/g	05/05/1994	2.5	jmt	89 801	7760 (1)
Tin, ICP	<51		ug/g	05/09/1994	50	jmt	245 248	6010 (1)
Zinc, ICP	2.0 J		ug/g	05/09/1994	1.0	jmt	245 641	6010 (1)
Metals Prep, Nonaqueous	Complete			05/06/1994		jmt	245	3050 (1)
Metals Prep, Hg Nonaqueous	Complete			05/11/1994		jmt	200	7471 (1)
Metals Prep, Ag Nonaqueous	Complete			05/05/1994		mic	89	7760 (1)

D10 : Parameter analysis performed at a 10x dilution due to a matrix interference at lower dilutions.

S : Parameter analysis was sub-contracted to another NET location.

NATIONAL ENVIRONMENTAL TESTING, INC.

Bartlett Division
850 W. Bartlett Rd.
Bartlett, IL 60103
Tel: (708) 289-3100
Fax: (708) 289-5445

ANALYTICAL REPORT

Ms. Susan Roberts
ENGINEERING-SCIENCE, INC.
8000 Centre Park Drive
Suite 200
Austin, TX 78754

05/16/1994

Sample No. : 258110

NET Job No.: 94.02856

Sample Description: BKG-SB10(20)
721460.05; CSSA F-14 Closures

Date Taken: 04/22/1994
Time Taken: 12:05
IEPA Cert. No. 100221

Date Received: 04/23/1994
Time Received: 09:00
WDNR Cert. No. 999447130

Parameter	Results		Units	Date of Analysis	Method PQL	Analyst	Batch No. Prep/Run	Analytical Method
Solids, Total	91.0		%	05/03/1994	0.1	dsf	924	2540 (4)
METALS - ICP 2 Non-Aq	Complete		ug/g	05/09/1994		jmt	63	6010(1) 200.7(3)
Aluminum,ICP	1,870		ug/g	05/09/1994	5.0	jmt	245 605	6010 (1)
Arsenic, GFAA	<2.2	S,D10	ug/g	05/16/1994	0.20	dmc	205 13	7060 (1)
Barium, ICP	6.4		ug/g	05/09/1994	1.0	jmt	245 675	6010 (1)
Cadmium, ICP	<0.55		ug/g	05/09/1994	0.50	jmt	245 646	6010 (1)
Chromium, ICP	3.7		ug/g	05/09/1994	2.0	jmt	245 636	6010 (1)
Copper, ICP	2.8		ug/g	05/09/1994	0.50	jmt	245 858	6010 (1)
Iron, ICP	3,140		ug/g	05/09/1994	1.0	jmt	245 683	6010 (1)
Lead, AA	44	S	ug/g	05/04/1994	2.2	emh	205 222	7420 (1)
Mercury, CVAA	<0.03		ug/g	05/11/1994	0.02	jmt	200 318	7471 (1)
Nickel, AA	18	S	ug/g	05/11/1994	1.6	emh	205 100	7520 (1)
Selenium, GFAA	<0.22 UJ	S	ug/g	05/15/1994	0.20	dmc	205 9	7740 (1)
Silver, AA	3.7		ug/g	05/05/1994	2.5	jmt	89 801	7760 (1)
Tin, ICP	<55		ug/g	05/09/1994	50	jmt	245 248	6010 (1)
Zinc, ICP	4.3 J		ug/g	05/09/1994	1.0	jmt	245 641	6010 (1)
Metals Prep, Nonaqueous	Complete			05/06/1994		jmt	245	3050 (1)
Metals Prep, Hg Nonaqueous	Complete			05/11/1994		jmt	200	7471 (1)
Metals Prep, Ag Nonaqueous	Complete			05/05/1994		mic	89	7760 (1)

10 : Parameter analysis performed at a 10x dilution due to a matrix interference at lower dilutions.

S : Parameter analysis was sub-contracted to another NET location.

Appendix F

Statistical Evaluation of Background Nickel Concentrations

APPENDIX F
STATISTICAL EVALUATION OF BACKGROUND NICKEL CONCENTRATIONS

Sample Mean

$$\bar{x} = \frac{X_1 + X_2 + \ldots + Xn}{n}$$

$$\bar{x} = \frac{26 + 23 + 24 + 24 + 20 + 22 + 20 + 21 + 21 + 18}{10}$$

$$\bar{x} = \frac{219}{10} = 21.9 = \bar{\bar{x}} = 21.9 \text{ mg/kg}$$

Standard Deviation

$$S^2 = \Sigma i \frac{(yi - \bar{y})^2}{(n-1)^2} \qquad \bar{y} = 21.9 \quad n = 10$$

$$S^2 = \frac{(26-21.9)^2 + (23-21.9)^2 + (24-21.9)^2 + (24-21.9)^2 + (20-21.9)^2 + (22-21.9)^2 + (20-21.9)^2}{(10-1)^2}$$

$$+ \frac{(21-21.9)^2 + (21-21.9)^2 + (18-21.9)^2}{(10-1)^2} = \frac{50.9}{81} = 0.628$$

$$S = \text{SQRT}(S^2) = \text{SQRT}(0.628) = 0.793 \approx 0.8$$

Student-t distribution

$\bar{y} = 21.9$
$n = 10$
$S = 0.79$

alf = n-1

$$t = \frac{\bar{y} - \mu_o}{S/SQRT(N)}$$

for n = 10, t = 1.812

$$1.812 = \frac{21.9 - \mu_o}{0.79/SQRT(10)}$$

$$\frac{(1.812 \times 0.79)}{SQRT(10)} = 21.9 - \mu_o$$

$$\mu_o = 21.9 - (0.45)$$

$$\mu_o = 21.45$$

Appendix G

Waste Disposition Documentation

DEPARTMENT OF THE ARMY
CAMP STANLEY STORAGE ACTIVITY, RRAD
POST OFFICE BOX 690627, SAN ANTONIO, TEXAS 78269 - 0627

June 24, 1994

Support Division

Ms. Susan Roberts
Engineering-Science, Inc.
8000 Centre Park Drive, Suite 200
Austin, Texas 78754

Dear Susan:

Reference our telephone conversation on June 22, 1994, concerning disposal of waste water and plastic bags containing trash at the F-14 site.

The trash bags were deposited in a Garbage Gobbler dumpster on the installation on June 23.

The waste water was emptied into the sanitary sewer system, per your guidance, on June 23.

Please call if I can be of further assistance.

Sincerely,

Paul B. Oliver
Chief, Support Division

SEP 29 '94 14:09 SWEEPING-ECI, INC. 69026

TEXAS NATURAL RESOURCE CONSERVATION COMMISSION

REQUEST FOR TEXAS WASTE CODE
FOR SHIPMENT OF
CLASS 1, 2, 3 AND EPA HAZARDOUS WASTE

Pursuant to the generator notification requirements of 30 TAC Section 335.6, the generator of a solid waste is required to submit to the TNRCC detailed written information pertaining to the composition and characteristics of the waste.

Please type or print legibly:

Brian Murphy, Environmental Officer
Camp Stanley Storage Facility, RRAD
P.O. Box 690627
San Antonio, Texas 78269-0627

GENERATOR CONTACT PERSON
GENERATOR COMPANY NAME
GENERATOR MAILING ADDRESS
CITY, STATE, ZIP CODE
PHONE NO. (210) 221 - 7453

Solid Waste Registration No. 69026 U. S. EPA Identification No. TX2210020739
(Leave blank if not registered)

Generating Site Location 25800 Ralph Fair Road, Boerne, TX 78006
(STREET ADDRESS OR PHYSICAL LOCATION)

☐ Check box if same as above

Designated Treatment, Storage, and/or Disposal Facility Name and Address USPCI, 2 miles west, 1 mile north of junction hwys 412 and 281, Waynoka, OK 73860

DESCRIPTION OF WASTE (do not use DOT shipping or trade name)	TNRCC USE ONLY: TNRCC Assignment of Texas Waste Code Number	TEXAS WASTE CODES: FORM CODE	CLASS CODE	EPA CODE	DISPOSAL CODE
1. soil cuttings	CTNH3011	301	1	N/A	7
2.					
3.					
4.					

PROCESSED DATE: 10-6-94
PROCESSED BY: yd
TNRCC REGION: OFFICE

GENERATOR'S REPRESENTATIVE

I certify that the above information is correct to the best of my knowledge.

I, DEAN C SINNELLING, am employed by
(NAME, Please Print)

Camp Stanley Storage Activity, RRAD
(COMPANY NAME)

P.O. Box 690627, San Antonio TX 78269-0627
(COMPANY ADDRESS)

and am authorized to sign this certification for:

Camp Stanley Storage Activity, RRAD
(COMPANY NAME)

[signature] 9/29/94
(SIGNATURE) (DATE)

Mail to: TNRCC
Waste Report Audit Team
P.O. Box 13087
Austin, Texas 78711-3087
Phone: (512) 239-6832
FAX: (512) 239-6410

(210) 221-7416
(PHONE NUMBER)

TNRCC-0757 (Rev. 04-08-94)

TX WATER COMM 02/09/95 17:33

ENGINEERING-SCIENCE, INC.

8000 Centre Park Drive, Suite 200 • Austin, Texas 78754 • (512) 719-6000 • Fax: (512) 719-6099

February 15, 1995

Via Federal Express

Patricia Hoyle
Oklahoma Department of Environmental Quality
Waste Management Division
Solid Waste Compliance Unit
1000 NE 10th Street
Oklahoma City, OK 73117-1212

Re: Contract F33615-89-D-4003, Order 126
Submittal of Oklahoma non-hazardous industrial waste request form for F-14 soil cuttings

Dear Ms. Hoyle:

As we discussed over the phone in January 1995, Parsons Engineering-Science would like to submit the request form for our client, Camp Stanley Storage Activity (CSSA), Texas. The request is for a one-time shipment of non-hazardous industrial waste to the USPCI Lone Mountain facility in Waynoka, Oklahoma. The shipment is one 55-gallon drum of dry rock cuttings, derived from a subsurface investigation at the F-14 site on CSSA. The cuttings contained 1,1,1-trichloroethane at a concentration of 0.507 mg/kg and are acceptable as a Class I non-hazardous waste at the USPCI Lone Mountain facility.

Enclosed is an owner-signed copy of the Oklahoma Department of Environmental Quality "Non-hazardous Industrial Waste Disposal Request" form, USPCI notification of waste acceptance, waste stream analysis information, and analytical results for the soil cuttings. Copies of this information will also be sent to CSSA and USPCI Lone Mountain.

Should you need additional information, please feel free to call me at 512/719-6051.

Sincerely,

Susan V. Roberts
Project Manager

enclosure

xc: USPCI Lone Mountain
Brian Murphy, CSSA
Lt Col Montgomery, AL/OEB
D. Highland, Parsons ES

Oklahoma Department of Environmental Quality
Solid Waste & Groundwater Protection Bureau
1000 N. E. 10th
Oklahoma City, OK 73117-1212

Non-Hazardous Industrial Waste Disposal Request

Generator Name	Street Address	Mailing Address
Camp Stanley Storage Activity, RRAD	25800 Ralph Fair Road	P.O. Box 690627 San Antonio, TX 78269-0627

City	State	Zip Code	Telephone Number
Boerne	TX	78006	(210) 221 – 7453

Street Address Where Waste was/is Generated	City	State	Zip Code
same as above	Boerne	TX	78006

The generator listed above requests authorization to dispose of a non-hazardous industrial waste as described below (a separate form must be completed for each waste stream).

A. Name of waste: soil cuttings

B. Is this waste stream: ☒ New ☐ Previously approved, please provide Approval Number: _____

C. Describe the process that generates the waste (attach additional signed sheets if necessary):
Results of site investigation at the F-14 waste management unit indicated concentrations of 1,1,1-TCA (see attached tables and laboratory reports). One 55-gallon drum of rock cuttings was generated during the investigation. This drum has been accepted for nonhazardous disposal at USPCI Lone Mtn. facil.

D. What is the physical state of the waste? ☒ Solid ☐ Liquid ☐ Sludge

E. Moisture content: 100 % solids

F. Disposal Frequency and Amount

☒ One time disposal

☐ Ongoing waste stream (list below the amount of waste to be disposed of per year)

Amount of waste to be disposed of: 1 ☐ Cu. Yd. ☐ Tons ☐ Lbs. ☒ Drums(55 gal.)

☐ Gallons ☐ Other: _____

G. What Facility will be accepting this waste?

Name of Facility: USPCI Lone Mountain Facility Facility Permit No.: SD47002

Address: Route 2, Box 170 County: Major

City: Waynoka State: OK Zip: 73860

H. Attach the appropriate laboratory analysis sheets, MSDS sheets, or other information along with a description of the sampling procedures.

Form Continued on Page 2

ting Firm (if applicable)	Contact Person		Mailing Address
sons Engineering Science	Susan Roberts		8000 Centre Park Drive Suite 200
stin	State TX	Zip Code 78754	Telephone Number (512) 719 – 6000
porter	Contact Person		Mailing Address
USPCI	Brice Dille		24125 Aldine Westfield Road
Spring	State TX	Zip Code 77373	Telephone Number (713) 350 – 7200

I hereby certify that the information contained herein and in the attached documents is accurate, complete, and representative of the waste described. I certify that the waste described on Page 1 of this request and in the attached documents is not a "Listed Waste" and is not contaminated with a "Listed Waste" as described by 40 CFR 261 Subpart D. I certify that the waste described on Page 1 of this request and in the attached documents is not a "Characteristic Waste" as described by 40 CFR 261 Subpart C, or otherwise defined as a "Hazardous Waste" by the Oklahoma State Department of Health Rules and Regulations for Hazardous Waste Management (OSDH E etin 0525). I certify that the attached documents and my knowledge of process are adequate to satisfy the Hazardous Waste Determination requirements of 40 CFR 262.11. I understand that there are significant criminal penalties for purposely or knowingly making false statements, representations, or certifications, including the possibility of fine and imprisonment.

ator Signature	Printed or Typed Name	Position (Title)	Date
	Dean C. Schilling	Consultant	1/24/95

n Form To:
noma Department of Environmental Quality
d Waste Compliance Unit
N. E. 10th
noma City, OK 73117-1212

FOR OFFICE USE ONLY

☐ Logged ☐ Incomplete

☐ Approved ☐ Regular

Type:_____

L#_____ I#_____

USPCI
A Subsidiary of Union Pacific Corporation

NOTIFICATION OF WASTE ACCEPTANCE

11/09/94

Lone Mountain FIMS

CUSTOMER INFORMATION
EPA ID#: TX2210020739
USAF (CAMP STANLEY)
25800 RALPH FAIR RD
SAN ANTONIO, TX 78269
CONTACT: CLEO PFEIFFER
PHONE:

INVOICE INFORMATION
REF #: TXENGINEERIN
ENGINEERING SCIENCE INC
8000 CENTRE PARK DR STE 200
AUSTIN, TX 78754
CONTACT: KEVIN TYNES
PHONE: (713) 943-5432

PROFILE SHEET #: 158064 SAMPLE #: WP94-13909 WASTE STREAM #: LM94-0772
RECEIVED: 10/24/94 RECEIVED: 10/24/94 SOIL CUTTINGS
Last Change Date: 11/09/94

Thank you for selecting USPCI for your waste management requirements. Your waste stream has been reviewed and is acceptable for management at our facility based on the information provided on the profile sheet number listed above and conditions listed below. Our facility has the necessary permits to allow the storage, treatment, or disposal of this waste. The above referenced acceptance number should be listed on all shipping documents and correspondence. Please retain these documents for your records and future reference.

Prior to scheduling or shipping this waste for the first time, a non-hazardous Disposal Plan must be approved by the Oklahoma Department of Environmental Quality (DEQ).

Please contact Customer Service at (405) 697-3500 should you have any questions. To schedule a shipment, contact USPCI customer service at 1-800-877-2416.

USPCI Sales Representative: ROBERT KISER (210) 490-9790

ACCEPTANCE INFORMATION

The waste stream identified by the reference number above is
Acceptable for: CONTAINER STORAGE, LANDFILL/DISPOSAL.
This waste is acceptable for delivery beginning on 11/09/94 thru 11/08/95, at which time an update review may be required for continued acceptability.

Comments:
CLASS 6.

Shipping Requirements:
NON-HAZARDOUS certificate required per 40 CFR 261.4. and/or Part 261 where said waste is not classified a hazardous waste in Subpart C.
A current Disposal Plan must be on file with the DEQ and also with the Lone Mountain Facility.

Type of Container: CONTAINERS (DRUMS..)

11/09/94

PROFILE SHEET #: 1580(SAMPLE #: WP94-13909 STE NUMBER #: LM94-0772

WASTE STREAM ANALYSIS INFORMATION

Waste Name.....: SOIL CUTTINGS
Physical State.....: SOLID
ocess Producing Waste..: INVESTIGATION

EPA Waste Codes:
NONE

WasteColor:	BROWN	Free Liq..:	NEG
Sp. Grav..:	1.46	pH.....:	9.06
Normality.:	NA	Solids Scr:	NA
TLV Sniff.:	<200	Flash Pt..:	NEG
H2O Sol...:	NEG	CN Scr....:	NEG
S Scr.....:	NEG	HOC Scr...:	NEG
Water RX..:	NEG	Oxid. Scr.:	NEG
Radio Scr.:	NEG		

This analysis is solely for use by USPCI employees for the purpose of determining waste acceptability. No other claims are made or implied.

AUTHORIZATION

APPROVAL: Ken Odell DATE: Nov 9, 1994

Table 3.3

1992 Analytical Results for Waste Disposition Samples

Analytical Method:		SW418.1	SW8260	SW8270	SW8080	SW8140	SW8150	SW7520
Sample ID	Sample Date	TPH (mg/L)	Aromatic and Halogenated Hydrocarbons (mg/kg-soil) mg/L-water)	BNAs (µg/kg-soil) (µg/L-water)	Organochlorine Pesticides and PCBs (µg/kg-soil) (µg/L-water)	Organophosphorous Pesticides (µg/kg-soil) (µg/L-water)	Herbicides (µg/kg-soil) (µg/L-water)	Total Nickel (mg/kg-soil) (µg/L-water)
Cuttings 1	9-10-92	BDL	1,1,1-TCA 0.507	BDL	BDL	BDL	BDL	7.7
Decon Water 1	9-11-92	1.7	BDL	BDL	BDL	BDL	BDL	BDL

Notes:

Methods are from EPA "Test Methods for Evaluating Solid Waste Physical/Chemical Methods," EPA publication SW-846, 1986.

TPH = total petroleum hydrocarbons
PCBs = polychlorinated biphenyls
BNAs = base/neutral acids
- = not analyzed
BDL = below detection limits
mg/kg = milligrams per kilogram
µg/kg = micrograms per kilogram
µg/L = micrograms per liter
mg/L = milligrams per liter

JPR/72146005/F14-T3.wk4

CHEMRON
INCORPORATED

431 Isom Road • Suite 135 • San Antonio, Texas 78216-5141 • (512) 340-8121

Client: Engineering-Science Inc.
7800 Shoal Creek Blvd, Suite 222W
Austin, TX 78757

Report Date: 10/11/92
Chemron Sample #: 20063
Sample Matrix: Soil
Client's Job #: AU334.01
COC #:

Sample Description:
CSSA F14 Assessment
Cuttings 1

Date Received:
09/11/92

CHEMICAL ANALYSIS REPORT

Parameter	Value	Units	Date Analyzed	Test Method
)alapon	<1900	UG/KG	10/05/92	8150
)icamba	<90.	UG/KG	10/05/92	8150
)ichloroprop	<220.	UG/KG	10/05/92	8150
',4-D	<400.	UG/KG	10/05/92	8150
Silvex	<60.	UG/KG	10/05/92	8150
',4 -T	<70.	UG/KG	10/05/92	8150
',4 -3	<300.	UG/KG	10/05/92	8150
)inoseb	<23.	UG/KG	10/05/92	8150

Approved By: R. Richman

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Client: Engineering-Science Inc.
7800 Shoal Creek Blvd, Suite 222W
Austin, TX 78757

Report Date: 10/14/92
Chemron Sample #: 20063
Sample Matrix: Soil
Client's Job #: AU334.01
COC #:
Date Sampled: 09/10/92
Page # : 1

Sample Description:
CSSA F14 Assessment
Cuttings 1

Date & Time Received:
09/11/92, 18:00

CHEMICAL ANALYSIS REPORT

Parameter	Value	Units	Date Analyzed	Test Method
Acenaphthene	<100.	UG/KG	10/12/92	8270
Acenaphthylene	<100.	UG/KG	10/12/92	8270
Anthracene	<100.	UG/KG	10/12/92	8270
Benzo(a)anthracene	<100.	UG/KG	10/12/92	8270
Benzo(b)fluoranthene	<100.	UG/KG	10/12/92	8270
Benzo(k)fluoranthene	<100.	UG/KG	10/12/92	8270
Benzo(a)pyrene	<100.	UG/KG	10/12/92	8270
Benzo(g,h,i)perylene	<150.	UG/KG	10/12/92	8270
Benzidine	<200.	UG/KG	10/12/92	8270
Bis(2-chloroethyl) ether	<100.	UG/KG	10/12/92	8270
Bis(2-chloroethoxy) methane	<100.	UG/KG	10/12/92	8270
Bis(2-ethylhexyl) phthalate	<100.	UG/KG	10/12/92	8270
Bis(2-chloroisopropyl) ether	<100.	UG/KG	10/12/92	8270
4-Bromophenyl phenyl ether	<100.	UG/KG	10/12/92	8270
Butyl benzyl phthalate	<100.	UG/KG	10/12/92	8270
2-Chloronaphthalene	<100.	UG/KG	10/12/92	8270
4-Chlorophenyl phenyl ether	<100.	UG/KG	10/12/92	8270
Chrysene	<100.	UG/KG	10/12/92	8270
Dibenzo(a,h)anthracene	<100.	UG/KG	10/12/92	8270
Di-n-butyl phthalate	<100.	UG/KG	10/12/92	8270
3,3-Dichlorobenzidine	<150.	UG/KG	10/12/92	8270
Diethyl phthalate	<100.	UG/KG	10/12/92	8270
Dimethyl phthalate	<100.	UG/KG	10/12/92	8270
2,4,Dinitrotoluene	<100.	UG/KG	10/12/92	8270
2,6-Dinitrotoluene	<100.	UG/KG	10/12/92	8270
Diocytl phthalate	<100.	UG/KG	10/12/92	8270
1,2-Diphenylhydrazine	<100.	UG/KG	10/12/92	8270

Approved By: R. Adams

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C. ent: Engineering-Science Inc.
7800 Shoal Creek Blvd, Suite 222W
Austin, TX 78757

Report Date: 10/14/92
Chemron Sample #: 20063
Sample Matrix: Soil
Client's Job #: AU334.01
COC #:
Date Sampled: 09/10/92
Page # : 2

Sample Description:
CSSA F14 Assessment
Cuttings 1

Date & Time Received:
09/11/92, 18:00

CHEMICAL ANALYSIS REPORT

Parameter	Value	Units	Date Analyzed	Test Method
luoranthene	<100.	UG/KG	10/12/92	8270
luorene	<100.	UG/KG	10/12/92	8270
exachlorobenzene	<100.	UG/KG	10/12/92	8270
ex chlorobutadiene	<100.	UG/KG	10/12/92	8270
e loroethane	<100.	UG/KG	10/12/92	8270
exachlorocyclopentadiene	<100.	UG/KG	10/12/92	8270
ndeno(1,2,3-cd)pyrene	<100.	UG/KG	10/12/92	8270
sophorone	<100.	UG/KG	10/12/92	8270
aphthalene	<100.	UG/KG	10/12/92	8270
itrobenzene	<100.	UG/KG	10/12/92	8270
-Nitrosodimethylamine	<100.	UG/KG	10/12/92	8270
-Nitrosodi-n-propylamine	<100.	UG/KG	10/12/92	8270
-Nitrosodiphenylamine	<100.	UG/KG	10/12/92	8270
henanthrene	<100.	UG/KG	10/12/92	8270
yrene	<100.	UG/KG	10/12/92	8270
,2,4-Trichlorobenzene	<100.	UG/KG	10/12/92	8270
-Chloro-3-methylphenol	<100.	UG/KG	10/12/92	8270
-Chlorophenol	<150.	UG/KG	10/12/92	8270
,4-Dichlorophenol	<150.	UG/KG	10/12/92	8270
,4,-Dimethylphenol	<150.	UG/KG	10/12/92	8270
,4-Dinitrophenol	<250.	UG/KG	10/12/92	8270
-Methyl-4,6-Dinitrophenol	<250.	UG/KG	10/12/92	8270
-Nitrophenol	<150.	UG/KG	10/12/92	8270
-Nitrophenol	<150.	UG/KG	10/12/92	8270
entachlorophenol	<150.	UG/KG	10/12/92	8270
henol	<150.	UG/KG	10/12/92	8270
,4,6-Trichlorophenol	<150.	UG/KG	10/12/92	8270

pproved By: R. Adamson

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Client:
Engineering-Science Inc.
7800 Shoal Creek Blvd, Suite 222W
Austin, TX 78757

Report Date: 10/1/92
Chemron Sample #: 20063
Sample Matrix: Soil
Client's Job #: AU334.01
COC #:
Date Sampled: 9/10/92

Sample Description:
CSSA E14 Assessment
Cuttings 1

Date & Time Received:
9/11/92 18:00

Parameter	Value	Units	Analysis Date	Method
Acrolein	<1.5	mg/kg	10/1/92	8260
Acrylonitrile	<1.5	mg/kg	10/1/92	8260
Benzene	<0.3	mg/kg	10/1/92	8260
Bromodichloromethane	<0.3	mg/kg	10/1/92	8260
Styrene	<0.3	mg/kg	10/1/92	8260
Bromomethane	<0.6	mg/kg	10/1/92	8260
Carbon tetrachloride	<0.3	mg/kg	10/1/92	8260
Chlorobenzene	<0.3	mg/kg	10/1/92	8260
Chlorodibromomethane	<0.3	mg/kg	10/1/92	8260
Chloroethane	<0.8	mg/kg	10/1/92	8260
2-Chloroethyl vinyl ether	<0.4	mg/kg	10/1/92	8260
Chloroform	<0.4	mg/kg	10/1/92	8260
Chloromethane	<0.8	mg/kg	10/1/92	8260
1,2 Dichlorobenzene	<0.6	mg/kg	10/1/92	8260
1.3 Dichlorobenzene	<0.4	mg/kg	10/1/92	8260
1,4 Dichlorobenzene	<0.4	mg/kg	10/1/92	8260
Dichlorodifluoromethane	<0.8	mg/kg	10/1/92	8260
1,1 Dichloroethane	<0.3	mg/kg	10/1/92	8260
1,2 Dichloroethane	<0.3	mg/kg	10/1/92	8260
1,1 Dichloroethene	<0.3	mg/kg	10/1/92	8260
trans 1,2 Dichloroethene	<0.3	mg/kg	10/1/92	8260
1,2 Dichloropropane	<0.3	mg/kg	10/1/92	8260
cis 1,3 Dichloropropene	<0.3	mg/kg	10/1/92	8260
trans 1,3 Dichloropropene	<0.3	mg/kg	10/1/92	8260
Ethylbenzene	<0.3	mg/kg	10/1/92	8260
Ethylene-di-bromide	<0.4	mg/kg	10/1/92	8260
Methylene Chloride	<2.1	mg/kg	10/1/92	8260
MEK	<3.8	mg/kg	10/1/92	8260
Bromoform	<0.3	mg/kg	10/1/92	8260
1,1,1,2 Tetrachloroethane	<0.3	mg/kg	10/1/92	8260
1,1,2,2 Tetrachloroethane	<0.3	mg/kg	10/1/92	8260
Tetrachloroethene	<0.3	mg/kg	10/1/92	8260
Toluene	<0.3	mg/kg	10/1/92	8260
1,1,1 Trichloroethane	0.507	mg/kg	10/1/92	8260
1,1,2 Trichloroethane	<0.3	mg/kg	10/1/92	8260
Trichloroethene	<0.3	mg/kg	10/1/92	8260
Trichlorofluoromethane	<0.6	mg/kg	10/1/92	8260
Trichloropropane	<0.3	mg/kg	10/1/92	8260
m/p Xylene	<0.7	mg/kg	10/1/92	8260
o Xylene	<0.3	mg/kg	10/1/92	8260
Vinyl Chloride	<0.8	mg/kg	10/1/92	8260

Approved by: R. Adams

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lient: Engineering-Science Inc.
7800 Shoal Creek Blvd, Suite 222W
Austin, TX 78757

Report Date: 10/05/92
Chemron Sample #: 20063
Sample Matrix: Soil
Client's Job #: AU334.01
COC #:

ample Description:
SSA F14 Assessment
uttings 1

Date Received:
09/11/92

CHEMICAL ANALYSIS REPORT

Parameter	Value	Units	Date Analyzed	Test Method
inophos methyl	<.10	UG/KG	09/22/92	8140
lstar (Sulprofos)	<.07	UG/KG	09/22/92	8140
lorpyrifos	<.07	UG/KG	09/22/92	8140
umaphos	<.20	UG/KG	09/22/92	8140
meton, O, S	<.12	UG/KG	09/22/92	8140
azinon	<.20	UG/KG	09/22/92	8140
ch vos	<.80	UG/KG	09/22/92	8140
metnoate	<.26	UG/KG	09/22/92	8140
sulfoton	<.07	UG/KG	09/22/92	8140
N	<.04	UG/KG	09/22/92	8140
hoprop	<.20	UG/KG	09/22/92	8140
nsulfothion	<.08	UG/KG	09/22/92	8140
nthion	<.08	UG/KG	09/22/92	8140
lathion	<.11	UG/KG	09/22/92	8140
rphos	<.20	UG/KG	09/22/92	8140
vinphos	<.50	UG/KG	09/22/92	8140
led	<.50	UG/KG	09/22/92	8140
rathion - ethyl	<.06	UG/KG	09/22/92	8140
rathion - methyl	<.12	UG/KG	09/22/92	8140
orate	<.04	UG/KG	09/22/92	8140
nnel	<.07	UG/KG	09/22/92	8140
lfotep	<.07	UG/KG	09/22/92	8140
PP	<.80	UG/KG	09/22/92	8140
trachlorovinphos	<.80	UG/KG	09/22/92	8140
kuthion (Protothiofos)	<.07	UG/KG	09/22/92	8140
ichloronate	<.80	UG/KG	09/22/92	8140

proved By: R. Williams

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INCORPORATED

431 Isom Road • Suite 135 • San Antonio, Texas 78216-5141 • (512) 340-8121

Client: Engineering-Science Inc.
7800 Shoal Creek Blvd, Suite 222W
Austin, TX 78757

Client's Job #: AU334.01
COC #:
Report Date: 09/16/92

Date & Time Received:
09/11/92, 18:00

Date Sampled:
09/10/92

CHEMICAL ANALYSIS REPORT

Chemron #	Sample Description	Sample Matrix	Date Analyzed	TPH (PPM)
20063	CSSA F14 Assessment Cuttings 1	Soil	09/16/92	< 10.
20064	CSSA F14 Assessment Berm 1	Soil	09/16/92	30.

Approved By: R. Adams

Analytical Methods: TPH in Soil - 3540/418.1 or 3550/418.1, TPH in Water - 418.1

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INCORPORATED

431 Isom Road • Suite 135 • San Antonio, Texas 78216-5141 • (512) 340-8121

Client: Engineering-Science Inc.
7800 Shoal Creek Blvd, Suite 222W
Austin, TX 78757

Client's Job #: AU334.01
COC #:
Report Date: 09/23/92

Date & Time Received:
09/11/92, 18:00

Date Sampled:
09/10/92

CHEMICAL ANALYSIS REPORT

hemron #	Sample Description	Date Analyzed	Total Nickel (PPM)
)063	CSSA F14 Assessment Cuttings 1	09/22/92	7.7
)064	CSSA F14 Assessment Berm 1	09/22/92	2.8

pproved By: R. Richman

Analytical Methods: Solids/Soils - 3050/7520; Water - 3005/7520

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INCORPORATED

431 Isom Road • Suite 135 • San Antonio, Texas 78216-5141 • (512) 340-81

Client: Engineering-Science Inc.
7800 Shoal Creek Blvd, Suite 222W
Austin, TX 78757

Report Date: 10/03/92
Chemron Sample #: 20063
Sample Matrix: Soil
Client's Job #: AU334.01
COC #:

Sample Description:
CSSA F14 Assessment
Cuttings 1

Date Received:
09/11/92

CHEMICAL ANALYSIS REPORT

Parameter	Value	Units	Date Analyzed	Test Method
Aldrin	<1.3	UG/KG	09/30/92	8080
Alpha-BHC	<1.0	UG/KG	09/30/92	8080
Beta-BHC	<2.0	UG/KG	09/30/92	8080
Delta-BHC	<3.0	UG/KG	09/30/92	8080
Gamma-BHC	<1.3	UG/KG	09/30/92	8080
Chlordane	<4.7	UG/KG	09/30/92	808
4,4'-DDD	<3.7	UG/KG	09/30/92	808
4,4'-DDE	<1.3	UG/KG	09/30/92	8080
4,4'-DDT	<4.0	UG/KG	09/30/92	8080
Dieldrin	<.7	UG/KG	09/30/92	8080
Endosulfan I	<4.7	UG/KG	09/30/92	8080
Endosulfan II	<1.3	UG/KG	09/30/92	8080
Endosulfan Sulfate	<22.	UG/KG	09/30/92	8080
Endrin	<2.0	UG/KG	09/30/92	8080
Endrin Aldehyde	<7.7	UG/KG	09/30/92	8080
Heptachlor	<1.0	UG/KG	09/30/92	8080
Heptachlor Epoxide	<28.	UG/KG	09/30/92	8080
Methoxychlor	<59.	UG/KG	09/30/92	8080
Toxaphene	<80.	UG/KG	09/30/92	8080
PCB - 1016	<22.	UG/KG	09/30/92	8080
PCB - 1221	<22.	UG/KG	09/30/92	8080
PCB - 1232	<22.	UG/KG	09/30/92	8080
PCB - 1242	<22.	UG/KG	09/30/92	8080
PCB - 1248	<22.	UG/KG	09/30/92	8080
PCB - 1254	<22.	UG/KG	09/30/92	8080
PCB - 1260	<22.	UG/KG	09/30/92	8080

Approved By: R. Oldham

Engine g-Science Inc.
7800 Shoal Creek Blvd, Suite 222W
Austin, Texas 78757
512/467-6200 FAX 512/467-7044

CHAIN OF CUSTODY RECORD

PROJECT NO.	PROJECT NAME
AU344.01	PSCA TPI Assessment

SAMPLERS (Signatures)

DATE	TIME	MATRIX	SAMPLE IDENTIFICATION	NO. OF CONTAINERS	Analysis Required	REMARKS
9/10/92	[illegible]	Soil	B6 - 1'	2		
	[illegible]		B6 - [illegible]			
	1115		B7 - 1'			
	1115		B7 - [illegible]			
	1320		B8 - 2.5	2		
	1411		B8 - [illegible]	2		
	[illegible]		B9 - [illegible]	2		
	[illegible]		B9 - [illegible]	2		
	1415		B10 - 1'	2		
	1505		B10 - [illegible]	2		
	[illegible]		Duplicate 2	2	X	
↓	1630	↓	Berm 1	1		↓

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Relinquished by: (Signature)	Date	Time	Received by: (Signature)
[illegible] Fobes	9/14	1800					
Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Relinquished by: (Signature)	Date	Time	Received by: (Signature)

White: laboratory returns with data, yellow: laboratory copy, pink: sampler copy

ORIGINAL MANIFEST IS MAILED DIRECTLY TO GENERATOR FROM SITE

C O P Y

GENERATOR

UNIFORM HAZARDOUS WASTE MANIFEST	Generator US EPA ID: TX2210020739	Manifest No.: 50867	Page 1 Of 00001

Generator Name and Mailing Address

USAF (CAMP STANLEY)
25800 RALPH FAIR RD

SAN ANTONIO TX78269 -0627TX2210020739

State Manifest Doc No.: 00550867

State Generator ID:

Transporter 1 Company Name

State Trans ID: TXD988052494

Transport Phone:

Transporter 2 Company Name

State Trans ID:

Transport Phone:

Designated Facility Name and Address

LONE MOUNTAIN FACILITY
ROUTE 2 - BOX 170

WAYNOKA OK 073860-9622 OKD065438376

State Facility No.: OKD065438376

Facility Phone: (405)697-3500

US DOT Description (including name, hazard class, and ID number)	Container No.	Container Type	Total quantity	Unit Wt/Vl	Waste Number
E.NON-REGULATED	00001	DM	55.00	G	

Additional Description for Materials Listed Above

Handling Codes for Above: S01D80

Special Handling Instructions and Additional Information

Authorization — Date

TRANSPORTER

Transporter 1 Authorization — Date

Transporter 2 Authorization — Date

FACILITY

Discrepancy Indication Space

Authorization — Date

USPCI
A Subsidiary of
Union Pacific Corporation

CERTIFICATE OF DISPOSAL

U.S.Pollution Control,Inc.(USPCI), an Oklahoma corporation duly permitted and operating under the approval of the Oklahoma State Department of Health does hereby certify that the controlled industrial waste of

USAF (CAMP STANLEY)

MANIFEST # 50867

WITH THE FOLLOWING WASTE CODES

has been disposed of at the Lone Mountain Controlled Industrial Waste Surface Disposal Site, located in Major County, Oklahoma, and that such treatment, neutralization and disposal has been accomplished in accordance with all applicable rules and regulations of the State of Oklahoma and the U.S. EPA.

WASTE ID ---- LM94-0772
QUANTITY ---- 55 G

586 LBS

DISPOSAL DATE ---- 02/15/95

LOAD NUMBER ---- 01443

U.S. POLLUTION CONTROL, INC.
DISPOSAL SITE PERMIT NO. OKD065438376

G D Mellott
Facility Manager

Records Administrator