



**KLEINFELDER**

*An employee owned company*

**REMEDIAL EXCAVATION  
FORMER ARMORY SITE  
250 NORTH EASTERN AVENUE  
LAS VEGAS, NEVADA**

**December 16, 1999**

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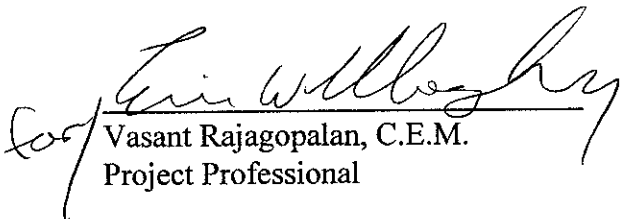
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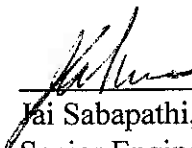
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**REMEDIAL EXCAVATION  
FORMER ARMORY SITE  
250 NORTH EASTERN AVENUE  
LAS VEGAS, NEVADA**

Kleinfelder Job No: 31-142644

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December 16, 1999

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LAS VEGAS, NEVADA**

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## LIST OF ACRONYMS AND ABBREVIATIONS

µg/L	Micrograms per liter, approximately equivalent to parts per billion
µg/kg	Micrograms per kilogram, approximately equivalent to parts per billion
AST	Aboveground storage tank
ASTM	American Society for Testing and Materials
bgs	below ground surface
CEM	Certified Environmental Manager
COC	Chain-of-custody
EPA	United States Environmental Protection Agency
ESA	Environmental site assessment
HMS	Hazardous Materials Storage Building
Kleinfelder	Kleinfelder, Inc.
LUST	Leaking underground storage tank
mg/kg	Milligrams per kilogram, approximately equivalent to parts per million
MTBE	Methyl-t-butyl-ether
ND	Not or none detected
NDEP	Nevada division of environmental protection
OMS	Organized maintenance shop
OWS	Oil/water separator
POL	Petroleum, Oils, and Lubricants Building
PID	Photo Ionization detector
PRG	Preliminary remedial goal
TPH	Total petroleum hydrocarbons
TPH-d	Total petroleum hydrocarbons as diesel
VOCs	Volatile organic compounds
USCS	Unified soil classification system
UST	Underground storage tank

## **1.0 INTRODUCTION**

This report describes the remedial activities conducted at the Former Armory Site located at 250 North Eastern Avenue, Las Vegas, Nevada (site). The remedial activities focused on the excavation, treatment and disposal of petroleum hydrocarbon impacted soil at the subject site, specifically, at the former Organized Maintenance Shop (OMS) building.

### **1.1 PURPOSE, OBJECTIVES AND SCOPE OF WORK**

The purpose of this remedial excavation was to conduct field activities in the vicinity of the OMS building as recommended in the Engineering Evaluation/Cost Analysis (EE/CA) report (Ninyo and Moore, October 20, 1999) prepared for the property. The primary objective of the remedial excavation was to remove the hydrocarbon impacted soil assessed at the subject property.

In order to meet these objectives, the following scope of work was implemented:

- Remedial excavation program; and
- Preparation of this remedial excavation report.

### **1.2 REPORT ORGANIZATION**

This report is organized into seven sections. This section describes the purpose, objectives, and general scope of work and organization of the report. Section 2 describes the site, its history and the activities performed previously. Section 3 describes the remedial activities. Conclusions and recommendations are presented in Section 4. The limitations of this report are described in Section 5. Section 6 contains the references listed in the report. Section 7 contains the Certified Environmental Manager (C.E.M.) Jurat.

In addition to the narrative descriptions in the main body of the report, Appendix A contains the analytical laboratory reports and chains-of-custody.

## 2.0 SITE DESCRIPTION

### 2.1 SITE DESCRIPTION

#### 2.1.1 Local Description, Surrounding Land Use and Climate

The site is located at 250 North Eastern Avenue, Las Vegas, Nevada. The location of this site is shown in Figure 1. The site occupies approximately 157,000 square feet in a commercially-zoned area. The site is bordered on the north by Stewart Avenue, on the west by Eastern Avenue, on the south by Armory Lane, and on the east by the Girl Scout Council office. Figure 2 is the site plan, that shows the location of the former structures.

Historically, the site was used by the Nevada National Guard as an armory. The site was developed with four permanent structures, three metal sheds on concrete pads, and a mobile office/trailer. The site has undergone demolition and no permanent building structures were present at the time of remedial excavation. The concrete pads were being removed in conjunction with the remedial excavation. The site was secured with a chain link fence.

The *main Armory building* was located at the northwest portion of the site (Figure 2). It was a one-story building constructed mostly of concrete masonry units, steel and wood. The center part of the building was a gymnasium-type area apparently used for military personnel formations and exercises. Offices and a boiler room surrounded the center part of the building. A concrete paved area, with chain link/barbed wire fencing to the east and south, was located directly to the south of the Armory building. Landscaped or gravel areas were located to the west, north and east.

The *Supply/Maintenance Shop building* was located at the southwest portion of the site (Figure 2). The building was a one and a half story building constructed mostly of concrete masonry units, concrete and corrugated asbestos cement panel roof. The north portion of the building appeared to be an open garage area and was reportedly used for vehicle storage. The south portion of the building was occupied by offices upstairs and at ground level.

The *Organized Maintenance Shop (OMS)* was located near the south-central portion of the subject site (Figure 2). This building was a one and a half story building constructed of concrete wood and steel. This building was a garage/office and was reportedly used for vehicle maintenance and repairs. A small office was located up a small flight of stairs at the southeast portion of this building. A caged storage area was located below the office. An adjustable hydraulic lift was located in the main part of the garage in a concrete vault. Hydraulic fluid was observed in the bottom of the vault prior to demolition of the building.

The *Petroleum, Oils & Lubricants (POL) building* was located near the southwest portion of the subject site. It was a small, one-story building, constructed of concrete and asbestos cement ceiling panels. The building was reportedly used for the storage of petroleum, oil and lubricants.



The *Hazardous Material Storage (HMS) building* was located in the southeast corner of the subject site. It was a small metal shed that was erected on a concrete pad and was historically used for the storage of hazardous material.

An in-ground oil/water separator and concrete wash rack was located directly south of the maintenance shop near the south-central portion of the site. The contents of the oil/water separator were sampled and the contents pumped out and disposed properly prior to demolition. The wash rack was used to wash equipment and trucks. The nature and extent of chemicals used for washing are unknown.

In the Las Vegas Valley area, summers are hot, especially at lower elevations, and winters are mild. Average annual precipitation for the Las Vegas Valley is approximately 4 inches.

### 2.1.2 Local Geology and Hydrogeology

The Las Vegas Valley is bounded on the west by the Spring Mountains; on the north by the Desert, Sheep, and Las Vegas Ranges; on the east by the Frenchman and Sunrise Mountains; and on the south by the River Mountains and the McCullough Range. The mountains to the north, east, and west in the younger topography consist primarily of Paleozoic and Mesozoic sedimentary rocks. The mountains to the south in the older topography consist predominantly of Tertiary volcanic rocks over Pre-Cambrian metamorphic and granitic rocks.

The surface drainage in the Las Vegas Valley consists of several relatively large desert washes including, from north to south; the Las Vegas Wash, Flamingo Wash, Tropicana Wash, Duck Creek Wash, and Pittman Wash. These washes merge and exit the valley as the Las Vegas Wash south of Frenchman Mountain. These washes are generally dry throughout the Las Vegas Metropolitan area, but occasionally flow after heavy rain or as the result of infiltration of irrigation water.

The hydrologic system in the Las Vegas Valley is characterized by artesian intrabasin flow. Years ago, there were numerous artesian springs in the central portion of the valley. The recharge area for the artesian basin consists of the Spring and Sheep Mountains to the west and north, respectively. Water levels have dropped over the last 40 years due to groundwater pumping in the Las Vegas area.

Most of the groundwater in the Las Vegas Valley is derived from the alluvial soils in the Basin Fill and Muddy Creek Formation. The aquifer system generally consists of an upper aquifer referred to as the "Near-Surface Reservoir" and lower aquifers referred to as the "Principal Aquifers". Most groundwater is obtained from the principal aquifers which underlie the Near-Surface Reservoir and have confined and semi-confined groundwater conditions.

Natural groundwater flow in the Las Vegas Valley is generally toward the Las Vegas Wash and then southeasterly; however, zones of groundwater pumping and caliche beds locally alter flow directions. Based on the results of this investigation, groundwater flows in an east-northeast

direction in the vicinity of the site, and the depth to groundwater is approximately 10 feet below ground surface.

## **2.2 PREVIOUS SITE INVESTIGATIONS**

Three investigations have been performed for the subject property. One report titled "Phase I Environmental Site Assessment and Preliminary Asbestos and Lead Based Paint Survey, Former Las Vegas Armory, 250 North Eastern, Las Vegas, Nevada", was prepared by Converse Environmental Consultants Southwest (Converse, 1998). Kleinfelder, Inc. (Kleinfelder) conducted an intrusive investigation and prepared a report titled "Tier I Environmental Site Assessment" dated October 4, 1999. Based on recommendation of the Tier II ESA, Kleinfelder conducted additional investigation and prepared a "Tier II Environmental Site Assessment" report, dated October 11, 1999. The following sections give a brief description of these reports.

### **2.2.1 Phase I ESA**

The Phase I ESA (Converse, 1998) identified environmental conditions that warranted further investigation, including:

- According to NDEP and CCHD files, the site had two USTs and two ASTs. The files indicated that the USTs and ASTs had been removed and the site received closure with no further action required at the time. Petroleum contamination of soils was reported to exist at the site, but at or below action levels;
- The OMS was observed to have a hydraulic lift in place. The vault of the lift appeared to have oil/hydraulic fluid at the bottom;
- The HMS building was locked and not accessible at the time of the report, however Kleinfelder later inspected this area and no staining was observed and no assessment of this area was performed;
- Several concrete pads with berms and apparent oil staining were observed to the east of the OMS building; and
- An in-ground oil/water separator and concrete wash pad was located directly south of the OMS building.

### **2.2.2 Tier I ESA**

Kleinfelder conducted a Tier I ESA to address the above-mentioned environmental conditions. A total of 22 soil samples were collected by drilling six soil borings and excavating four trenches. The Tier I ESA (Kleinfelder, October 4, 1999) identified the following:

- Total Petroleum hydrocarbons as diesel (TPH-d) was detected in three of the 22 soil samples analyzed. The concentrations were above the Nevada Division of Environmental Protection (NDEP) action level for TPH in soil. The three soil samples were collected in the vicinity of the hydraulic lift in the OMS building.
- Metals were not detected at concentrations in excess of their corresponding Preliminary Remedial Goals (PRGs) set by the U.S. Environmental Protection Agency (EPA) Region IX for industrial soil.
- Volatile Organic Compounds (VOCs) detected in the soil were below their respective EPA Region IX PRGs for industrial soil;

### 2.2.3 Tier II ESA

Kleinfelder conducted a Tier II ESA to address the recommendations of the Tier I ESA. The Tier I ESA (Kleinfelder, October 11, 1999) activities include the following:

- Tier II ESA activities consisted of utility survey, soil boring/sampling, monitoring well installation, and groundwater sampling.
- A sampling and analysis program was implemented to assess the extent of TPH impacts to soil in the vicinity of the OMS building. In addition, groundwater samples were collected and analyzed for potential impacts.
- A total of six soil borings were advanced to a maximum depth of 25-feet below ground surface (bgs) with soil samples collected at 5-foot intervals as the boring was advanced. A total of 12 primary soil samples were collected from the soil borings. These soil samples were analyzed for TPH-d.
- Six groundwater monitoring wells were installed in soil borings. A total of nine groundwater samples were collected and were analyzed for TPH-d and VOCs.
- TPH-d was not detected above the laboratory detection limits in the 13 (includes one duplicate) soil samples that were analyzed.
- TPH-d was not detected above the laboratory detection limits in the nine groundwater samples that were analyzed.
- Methyl-t-butyl-ether (MTBE) was detected in two groundwater samples collected from monitoring wells MW2 and MW6 at concentrations of 5.8 micrograms per liter ( $\mu\text{g/L}$ ) and 2.7  $\mu\text{g/L}$ , respectively. The MTBE levels are below the NDEP action level of 20  $\mu\text{g/L}$ . Chloroform was detected in the groundwater sample collected from monitoring well MW1 at a concentration of 1.6  $\mu\text{g/L}$ . The NDEP action level for chloroform is 100  $\mu\text{g/L}$ .

As a result of the Tier II ESA activities, the following impacts associated with the environmental conditions discussed during the Phase I ESA activities (Converse, 1998) and the Tier I investigation (Kleinfelder, October 1999) were identified:

- Limited soil impacts with TPH above the NDEP action level associated with the hydraulic lift located in the OMS building. It was estimated that approximately 600 cubic yards (40'x40'x10'/27 cubic feet per cubic yard) may be impacted with TPH.

### 3.0 REMEDIAL ACTIVITIES

#### 3.1 INTRODUCTION

This section summarizes the field activities performed during the remedial excavation. The field activities were performed from November 30 to December 3, 1999. The field activities discussed in this section include underground utility clearance procedures, soil excavation, treatment and disposal and excavation backfilling.

#### 3.2 UTILITY SURVEY

Prior to the implementation of remedial excavation activities, an aboveground/underground utility survey was performed to delineate their locations. The first phase of the utility survey consisted of contacting Underground Service Alert, who in turn alerted potential utility companies that could have lines crossing the property. The second phase of the survey consisted of a site walk to mark the location of any observable utilities, both aboveground and underground. The planned excavation limits were not impacted by the locations of utilities.

#### 3.3 REMEDIAL EXCAVATION

The remedial excavation was conducted during November 30 through December 3, 1999. The City of Las Vegas contracted with Goldstrum Construction to conduct the remedial excavation. During excavation the soil was screened by Kleinfelder personnel in the field for hydrocarbons using a Photo Ionization Detector (PID). Based on visual observations and field PID readings, TPH impacted soil was segregated for disposal from unimpacted soil. The excavation extended to approximately 14 feet bgs and was approximately 35 feet wide by 40 feet long.

#### 3.4 SOIL SAMPLING AND ANALYSES

Five discrete confirmation soil samples (S2-W-10', S3-S-10', S4-N-10', and S6-E-10') were collected at approximately 10 feet bgs along the perimeters of the remedial excavation. In addition, one discrete soil sample (S5-B-14') was collected at the center of the excavation at approximately 14 feet bgs. Figure 3 shows the approximate limits of the excavation and the approximate location of soil sample collection points. The soil samples were sent to Nevada Environmental Laboratory (NEL), located in Las Vegas for laboratory analysis. The five soil samples were submitted for TPH, VOCs and Metals analysis. The TPH concentration in soil sample S3-S-10 was above the NDEP remedial action level of 100 milligrams per kilogram (mg/kg). Based on this result, the eastern two-thirds of the south wall of the excavation was removed back five feet. Another discrete soil sample (S7-S-10') was collected from the southern wall and submitted for laboratory analyses. TPH was not detected above laboratory limits in this soil sample S7-S-10'. The VOCs and Metals analysis did not indicate the presence of analytes above regulatory limits. Table 1 lists the soil samples and the selected analysis. The analytical results for the confirmation soil samples are summarized in Tables 2 through 4.

### **3.5 BACKFILLING OF EXCAVATION**

The excavation contractor backfilled the bottom of the excavation with approximately four feet of drain rock. A geotextile fabric was placed on top of the drain rock and TYPE II backfill material was placed over the rock and compacted to the ground surface. Kleinfelder provided certified technicians to observe the backfilling operation and perform in-place density testing to confirm compliance with compaction requirements.

### **3.6 CONTAMINATED SOIL DISPOSAL**

The TPH-impacted soil was transported to Las Vegas Paving Corporation for treatment and disposal. Approximately 455 tons (approximately 300 cubic yards) of soil impacted with TPH was transported. A destruction certificate for the impacted soil will be forwarded to the appropriate agencies upon receipt from Las Vegas Paving Corporation.

## 4.0 CONCLUSIONS AND RECOMMENDATIONS

The conclusions and recommendations presented in this section are based on information collected and interpretations developed in this and the previous investigations performed at the property.

### 4.1 CONCLUSIONS

Analytical data collected during the remedial excavation were reviewed and evaluated by Kleinfelder in the context of current regulatory agency requirements, "action levels" and/or guidelines.

- In general, impacts of the environment by TPH are assessed on a case-by-case basis. The NDEP uses 100 mg/kg TPH as a minimum criterion for remediation.
- Staining of side walls or the bottom of the excavation was not observed after removal of TPH impacted soil.
- TPH was not detected above the laboratory detection limits in the closure soil samples.
- Analytical results for Metals and VOCs analyses did not indicate presence of any analytes above regulatory action levels or remediation guidelines.
- Approximately 455 tons (300 cubic yards) of TPH-impacted soil was transported for thermal treatment and disposal.

### 4.2 RECOMMENDATIONS

Kleinfelder makes the following recommendations concerning further activities at the Las Vegas Armory site:

- Submit this report to NDEP.
- Request for a "No Further Action" status for the site.

## 5.0 LIMITATIONS

The scope of services described here is not intended to be inclusive, to identify all potential concerns, or to eliminate the possibility of environmental problems. Within current technology, no level of assessment can show conclusively that a property or its structures are completely free of contaminated and/or hazardous substances. Therefore, Kleinfelder cannot offer a certification that the recommendations made in this report will clear the property of environmental liability.

The data points used during this investigation are necessarily limited due to economic and site constraints and should be viewed as generally, but not explicitly, representative of contamination likely to be associated with the site. Thus, Kleinfelder assumes no responsibility for the representation of the data as exact surface and/or subsurface conditions, but only for conditions at the data points. There is always the possibility that other contaminated areas exist in the subsurface environment underlying the property and that they were simply not encountered during the limited.

During the course of the performance of Kleinfelder's services, contaminated and/or hazardous materials were discovered. Our client or the property owner are solely responsible for notifying all governmental agencies, and the public at large, of the existence, release, treatment or disposal of any contaminated and/or hazardous materials observed at the project site, either before or during performance of Kleinfelder's services. Kleinfelder will assume no responsibility or liability whatsoever for any claim, loss of property value, damage, or injury which results from pre-existing hazardous materials being encountered or present on the project site, or from the discovery of such hazardous materials.

Kleinfelder performed the remedial excavation activities and evaluations in accordance with generally accepted standards of care that existed in Southern Nevada at the time the work was performed. No warranty, expressed or implied, is made.



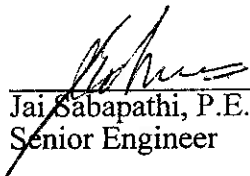
## 6.0 REFERENCES

- Converse Environmental Consultants Southwest., *Phase I Environmental Site Assessment and Preliminary Asbestos and Lead Based Paint Survey, Former Las Vegas Armory, 250 North Eastern, Las Vegas, Nevada*, dated January 13, 1998.
- Kleinfelder, Inc., *Tier I Investigation - Sampling and Analysis Plan For the Former Armory Site, 250 North Eastern Avenue, Las Vegas, Nevada*, dated April 5, 1999.
- Kleinfelder, Inc., *Tier I Environmental Site Assessment For the Former Armory Site, 250 North Eastern Avenue, Las Vegas, Nevada*, dated October 4, 1999.
- Kleinfelder, Inc., *Tier II Investigation - Sampling and Analysis Plan For the Former Armory Site, 250 North Eastern Avenue, Las Vegas, Nevada*, dated July 14, 1999.
- Kleinfelder, Inc., *Tier II Environmental Site Assessment For the Former Armory Site, 250 North Eastern Avenue, Las Vegas, Nevada*, dated October 11, 1999.
- Ninyo and Moore, Engineering Evaluation / Cost Analysis (EE/CA) *Report For the Former Armory Site, 250 North Eastern Avenue, Las Vegas, Nevada*, dated October 20, 1999.
- Nevada Bureau of Mines and Geology, 1985, Las Vegas Quadrangle. Map 38f, Groundwater Map.
- United States Geological Survey (USGS), 1967, Las Vegas NE Quadrangle, 1:24,000 series topographic map.

## 7.0 C.E.M. JURAT ATTACHMENT

As of March 26, 1996, Nevada Revised Statutes 459.500 requires: "A holder of a certificate who is responsible for a service requiring certification shall ensure that each document relating to the service includes:"

1. I hereby certify that I am responsible for the services described in this document and for the preparation of this document. The services described in this document have been provided in a manner consistent with the current standards of the profession and to the best of my knowledge comply with all applicable federal, state and local statutes, regulations and ordinances.

  
\_\_\_\_\_  
Jai Sabapathi, P.E., C.E.M.  
Senior Engineer

2. A description of the services provided

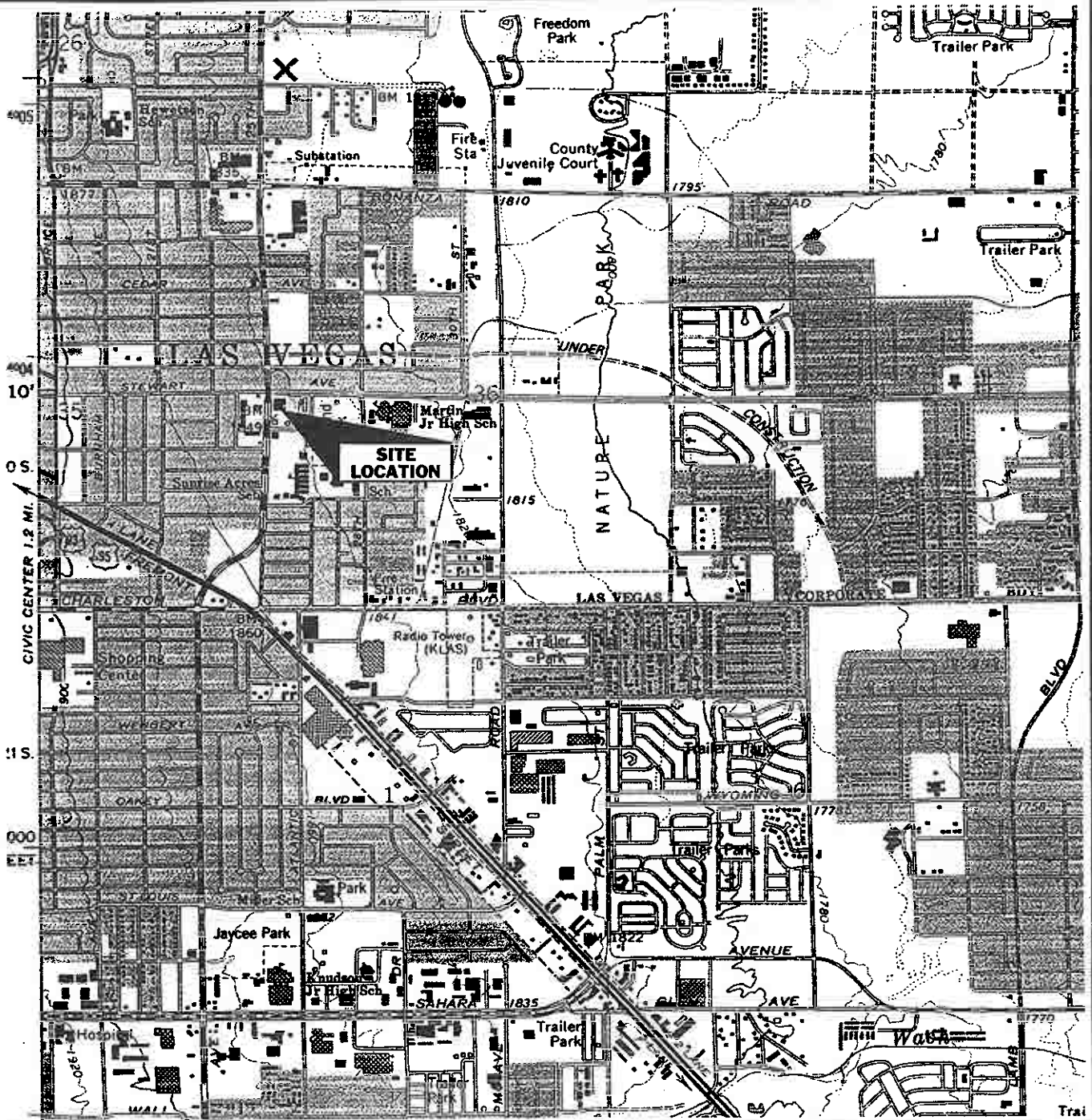
**REMEDIAL EXCAVATION  
FORMER ARMORY SITE  
250 NORTH EASTERN AVENUE  
LAS VEGAS, NEVADA**

3. The number of the certificate

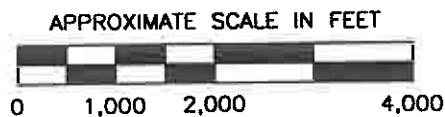
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4. The date of expiration of the certificate.

August 24, 2000



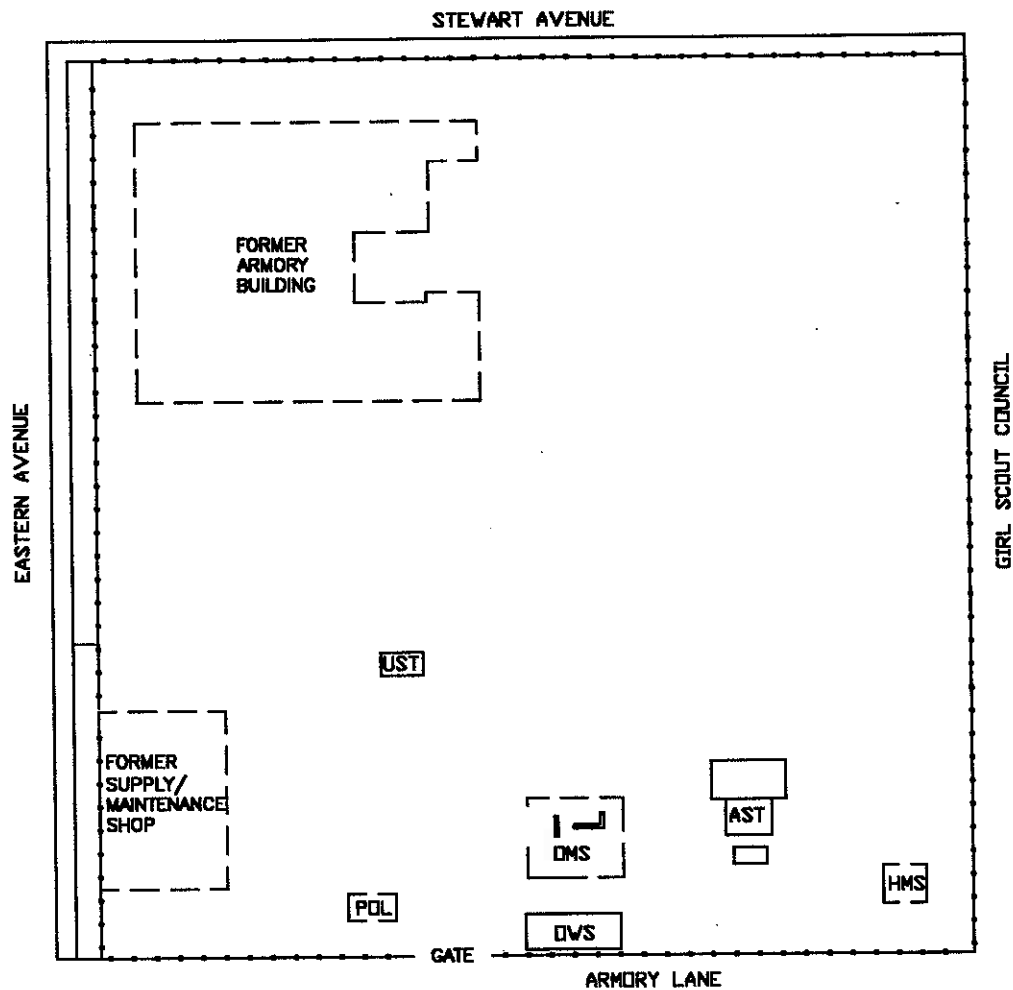
REFERENCE:  
 USGS LAS VEGAS NE, NEVADA  
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 PHOTOREVISED 1983, SCALE 1:24,000



**KLEINFELDER**  
 GEOTECHNICAL AND ENVIRONMENTAL ENGINEERS  
 SOILS AND MATERIALS TESTING  
 PROJECT NO. 31-142644

**SITE LOCATION MAP**  
 FORMER ARMORY SITE  
 250 EASTERN AVENUE NORTH  
 LAS VEGAS, NEVADA

FIGURE  
 1  
 12/13/99



### LEGEND

UST- FORMER UNDERGROUND STORAGE TANK  
 OMS- FORMER ORGANIZED MAINTENANCE SHOP  
 OWS- FORMER LOCATION OF OIL WATER SEPERATOR  
 AST- FORMER ABOVE GROUND STORAGE TANK  
 HMS - FORMER HAZARDOUS MATERIAL STORAGE BUILDING  
 POL - FORMER PETROLEUM, OIL & LUBRICANTS BUILDING

80 40 0 80  
APPROXIMATE SCALE (feet)

N

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### SITE PLAN

FORMER ARMORY SITE  
 250 EASTERN AVENUE NORTH  
 LAS VEGAS, NEVADA

FIGURE

**2**

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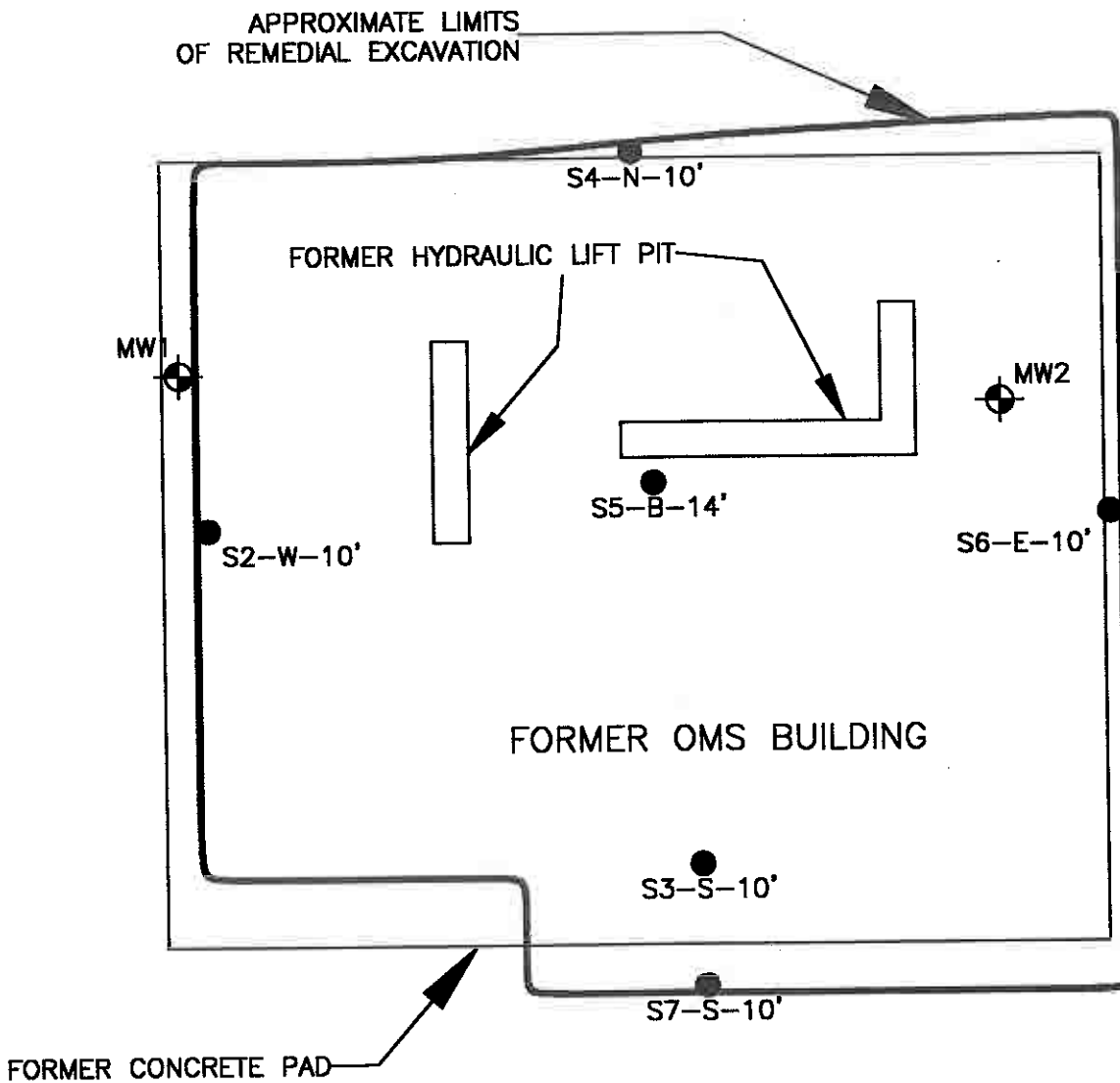
DATE: 12/15/99

CHECKED BY: JS2

DATE: 12/15/99

PROJECT NO. 31-142644

CAD FILE: I:\ACAD\31142644\SITEPLAN.dwg



### LEGEND

- S5-B-14' APPROXIMATE LOCATION OF SOIL SAMPLE SHOWING SAMPLE NUMBER
- ⊕ APPROXIMATE LOCATION OF FORMER GROUNDWATER MONITOR WELL

8 4 0 8  
APPROXIMATE SCALE (feet)



CAD FILE: I:\CAD\31142644\REMED\_EXCAV.dwg

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### LIMITS OF REMEDIAL EXCAVATION

FORMER ARMORY SITE  
250 EASTERN AVENUE NORTH  
LAS VEGAS, NEVADA

FIGURE

**3**

DRAFTED BY: VR

DATE: 12/15/99

CHECKED BY: JS2

DATE: 12/15/99

PROJECT NO. 31-142644

**Table 1 - Summary of Field Soil Sampling and Selected Analyses**  
**Former Armory Site**  
**250 North Eastern Avenue**  
**Las Vegas, Nevada**

Sample ID	Analytical Methods		
	Metals	TPH	VOCs
S2-W-10'	x	x	x
S3-S-10'		x	
S4-N-10'	x	x	x
S5-B-14'	x	x	x
S6-E-10'	x	x	x
S7-S-10'	x	x	x
TPH                      Total Petroleum Hydrocarbons VOCs                    Volatile Organic Compounds			

**Table 2 - Summary of Soil Sample Analytical Results - TPH**  
**Former Armory Site**  
**250 North Eastern Avenue**  
**Las Vegas, Nevada**

Sample ID	TPH (mg/kg)
S2-W-10'	<10
S3-S-10'	600
S4-N-10'	<20
S5-B-14'	<10
S6-E-10'	<10
S7-S-10'	<10
<b>NDEP Remedial Action Level</b>	<b>100</b>
mg/kg - milligrams per kilogram TPH - Total Petroleum Hydrocarbons	

**Table 3 - Summary of Soil Sample Analytical Results - Metals**  
**Former Armory Site**  
**250 North Eastern Avenue**  
**Las Vegas, Nevada**

Sample ID	Cadmium mg/kg	Chromium mg/kg	Lead mg/kg	Nickel mg/kg	Zinc mg/kg
S2-W-10'	<0.5	8.1	3.9	9.3	26
S4-N-10'	<0.5	8.2	3	9.5	28
S5-B-14'	<0.5	1.8	<2.5	2.3	7.1
S6-E-10'	<0.5	3.3	<2.5	3.1	11
S7-S-10'	<0.5	3.7	<2.5	3.6	10
<b>Action Level*</b>	<b>930</b>	<b>450</b>	<b>1,000</b>	<b>37,000</b>	<b>100,000</b>
* EPA Region IX Preliminary Remediation Goals for industrial soil					



**Table 4 - Summary of Soil Analytical Results - VOCs**  
**Former Armory Site**  
**250 North Eastern Avenue**  
**Las Vegas, Nevada**

Parameter	Units	Action Level*	S2-W-10'	S4-N-10'	S5-B-14'	S6-E-10'	S7-S-10'
Acetone	µg/kg	6,100,000	580	320	520	420	<25
Benzene	µg/kg	1,400	<5	ND	<5	<5	ND
Bromobenzene	µg/kg	92,000	<5	<5	<5	<5	<5
Bromochloromethane	µg/kg		<5	<5	<5	<5	<5
Bromodichloromethane	µg/kg	2,300	<5	<5	<5	<5	<5
Bromoform	µg/kg	380,000	<5	<5	<5	<5	<5
Bromomethane	µg/kg	13,000	<5	<5	<5	<5	<5
2-Butanone	µg/kg		<25	<25	<25	<25	<25
n-Butylbenzene	µg/kg	550,000	<5	<5	<5	<5	<5
sec-Butylbenzene	µg/kg	410,000	<5	<5	<5	<5	<5
tert-Butylbenzene	µg/kg	490,000	<5	<5	<5	<5	<5
Carbon Disulfide	µg/kg	1,200,000	<5	<5	<5	<5	<5
Carbon Tetrachloride	µg/kg	520	<5	<5	<5	<5	<5
Chlorobenzene	µg/kg	180,000	<5	<5	<5	<5	<5
Chloroethane	µg/kg		<5	<5	<5	<5	<5
Chloroform	µg/kg	520	<5	<5	<5	<5	<5
Chloromethane	µg/kg	2,600	<5	<5	<5	<5	<5
2-Chlorotoluene	µg/kg	560,000	<5	<5	<5	<5	<5
4-Chlorotoluene	µg/kg		<5	<5	<5	<5	<5
Dibromochloromethane	µg/kg	36,000	<5	<5	<5	<5	<5
1,2-Dibromo-3-chloropropane (DBCP)	µg/kg	2,100	<5	<5	<5	<5	<5
Dibromoethane(EDB)	µg/kg	29	<5	<5	<5	<5	<5
Dibromomethane	µg/kg		<5	<5	<5	<5	<5
1,2-Dichlorobenzene (o-DCB)	µg/kg	370,000	<5	<5	<5	<5	<5
1,3-Dichlorobenzene (m-DCB)	µg/kg	140,000	<5	<5	<5	<5	<5
1,4-Dichlorobenzene (p-DCB)	µg/kg	7,300	<5	<5	<5	<5	<5
Dichlorodifluoromethane (Freon 12)	µg/kg	310,000	<5	<5	<5	<5	<5
1,1-Dichloroethane(1,1-DCA)	µg/kg	2,000,000	<5	<5	<5	<5	<5
1,2-Dichloroethane(1,2-DCA)	µg/kg	760	<5	<5	<5	<5	<5
1,1-Dichloroethene(1,1-DCE)	µg/kg	120	<5	<5	<5	<5	<5
cis-1,2-Dichloroethene	µg/kg	150,000	<5	<5	<5	<5	<5
trans-1,2-Dichloroethene	µg/kg	210,000	<5	<5	<5	<5	<5
1,2-Dichloropropane	µg/kg	760	<5	<5	<5	<5	<5
1,3-Dichloropropane	µg/kg		<5	<5	<5	<5	<5
2,2-Dichloropropane	µg/kg		<10	<10	<10	<10	<10
1,1-Dichloropropene	µg/kg		<5	<5	<5	<5	<5
cis-1,3-Dichloropropene	µg/kg	180	<5	<5	<5	<5	<5
trans-1,3-Dichloropropene	µg/kg	180	<5	<5	<5	<5	<5
Ethylbenzene	µg/kg	230,000	<5	<5	<5	<5	<5
Hexachlorobutadiene	µg/kg	38,000	<5	<5	<5	<5	<5

**Table 4 - Summary of Soil Analytical Results - VOCs**  
**Former Armory Site**  
**250 North Eastern Avenue**  
**Las Vegas, Nevada**

Parameter	Units	Action Level*	S2-W-10'	S4-N-10'	S5-B-14'	S6-E-10'	S7-S-10'
2-Hexanone	µg/kg		<25	<25	<25	<25	<25
Iodomethane	µg/kg		<5	<5	<5	<5	<5
Isopropylbenzene	µg/kg		<5	<5	<5	<5	<5
p-Isopropyltoluene	µg/kg		<5	<5	<5	<5	<5
Methylene Chloride	µg/kg	20,000	130	47	280	110	<5
4-Methyl-2-Pentanone	µg/kg		<25	25	<25	<25	25
MTBE	µg/kg		<5	5	<5	<5	5
Naphthalene	µg/kg		<10	10	<10	<10	10
n-Propylbenzene	µg/kg	550,000	<5	<5	<5	<5	<5
Styrene	µg/kg	1,700,000	<5	<5	<5	<5	<5
1,1,1,2-Tetrachloroethane	µg/kg	210,000	<5	<5	<5	<5	<5
1,1,2,2-Tetrachloroethane	µg/kg	870	<5	<5	<5	<5	<5
Tetrachloroethene(PCE)	µg/kg	16,000	<5	<5	<5	<5	<5
Toluene	µg/kg	520,000	<5	<5	<5	<5	<5
1,2,3-Trichlorobenzene	µg/kg		<5	<5	<5	<5	<5
1,2,4-Trichlorobenzene	µg/kg	1,700,000	<5	<5	<5	<5	<5
1,1,1-Trichloroethane(1,1,1-TCA)	µg/kg	1,400,000	<5	<5	<5	<5	<5
1,1,2-Trichloroethane(1,1,2-TCA)	µg/kg	1,900	<5	<5	<5	<5	<5
Trichloroethene(TCE)	µg/kg	6,100	<5	<5	<5	<5	<5
Trichlorofluoroethane(freon 11)	µg/kg		<10	<10	<10	<10	<10
1,2,3-Trichloropropane	µg/kg	3	<5	<5	<5	<5	<5
1,2,4-Trimethylbenzene	µg/kg	170,000	<5	<5	<5	<5	<5
1,3,5-Trimethylbenzene	µg/kg	70,000	<5	<5	<5	<5	<5
Vinyl Chloride	µg/kg	48	<5	<5	<5	<5	<5
Xylenes	µg/kg	370,000	<5	<5	<5	<5	<5

\* EPA Region IX Preliminary Remediation Goal for industrial soil

# NEL LABORATORIES

Reno • Las Vegas  
Phoenix • So. California

Las Vegas Division  
4208 Arcata Way, Suite A • Las Vegas, NV 89030  
(702) 657-1010 • Fax: (702) 657-1577  
1-888-368-3282

CLIENT: Kleinfelder  
6380 South Polaris  
Las Vegas, NV 89118  
ATTN: Jai Sabapathi

PROJECT NAME: Armory Site  
PROJECT NUMBER: NA

NEL ORDER ID: L9912026

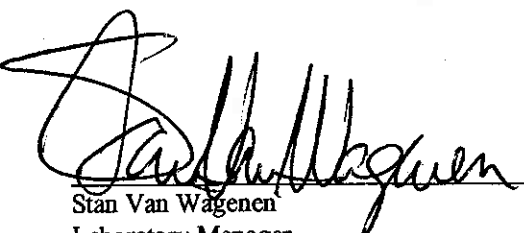
Attached are the analytical results for samples in support of the above referenced project.

Samples submitted for this project were not sampled by NEL Laboratories. Samples were received by NEL in good condition, under chain of custody on 12/2/99.

Should you have any questions or comments, please feel free to contact our Client Services department at (702) 657-1010.

DEC 08 1999

KLEINFELDER  
LAS VEGAS

  
Stan Van Wageningen  
Laboratory Manager

12/3/99  
Date

## CERTIFICATIONS:

	Reno	Las Vegas	S. California
Arizona	AZ0520	AZ0518	AZ0605
California	1707	2002	2264
US Army Corps of Engineers	Certified	Certified	

	Reno	Las Vegas	S. California
Idaho	Certified	Certified	
Montana	Certified	Certified	
Nevada	NV033	NV052	CA084
L.A.C.S.D.			10228

# NEL LABORATORIES

CLIENT: Kleinfelder  
PROJECT ID: Armory Site  
PROJECT #: NA

TEST: Total Extractable Petroleum Hydrocarbons by EPA Method 8015M, December 1996  
METHOD: EPA 8015M  
ORDER ID: L9912026  
MATRIX: Solid

ANALYST: SLB - Las Vegas Division

CLIENT	SAMPLE	NEL	RESULT		Reporting	Surrogate			
SAMPLE ID	DATE	SAMPLE ID	mg/kg	C.R.	Limit	Recovery*	EXTRACTED	ANALYZED	
S-7-S-10	12/2/99	L9912026-01	ND	ND	10. mg/kg	78 %	12/2/99	12/2/99	

## C.R.: Carbon Range

QUALITY CONTROL DATA (Total for Diesel Range):

Sample ID	Result	Acceptable Range	Surrogate Recovery*	Sample Number
Blank, 991202TP -BLK	ND	< 10 mg/kg	93 %	NA
LCS, 991202TPHS-LCS	82 %	57 - 114 %	89 %	NA
LCSD, 991202TPHS-LCSD	78 %	55 - 102 %	88 %	NA
MS, 991202TPHS-MS	78 %	38 - 117 %	89 %	L9912026-01
MSD, 991202TPHS-MSD	73 %	38 - 117 %	94 %	L9912026-01

\* Surrogate used was Octacosane, acceptance limits 54-130%.

ND - Not Detected

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K7912026

10 m	100%	
3		

The liability of NEL Laboratories Inc. is limited strictly to the price of sample analysis for those samples received in good condition by NEL. NEL is not responsible for loss, damage, resampling costs and/or qualified data related to samples not received in good condition, including adequate sample volume and number of containers. Customer signature of this CoC constitutes a purchase order for NEL to perform work and constitutes acceptance of all NEL Standard Terms and Conditions. Signature also constitutes acceptance of NEL Standard List Prices for all services ordered here on, except those specified otherwise via an NEL Quotation for Testing Services in effect at the time of sample receipt. NEL turnaround times are measured in regular working days. Samples received at the laboratory after 16:30 will be considered received on the next working day. Commitment of laboratory to the requested turnaround time will be confirmed via Sample Confirmation transmitted to the fax number provided above.

[illegible]

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(702) 657-1010 • Fax: (702) 657-1577  
1-888-368-3282

DEC 13 1999

KLEINFELDER  
LAS VEGAS

CLIENT: Kleinfelder  
6380 South Polaris  
Las Vegas, NV 89118  
ATTN: Jai Sabapathi

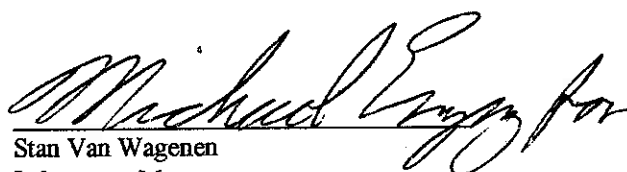
PROJECT NAME: Armory Site  
PROJECT NUMBER: NA

NEL ORDER ID: L9912026

Attached are the analytical results for samples in support of the above referenced project.

Samples submitted for this project were not sampled by NEL Laboratories. Samples were received by NEL in good condition, under chain of custody on 12/2/99.

Should you have any questions or comments, please feel free to contact our Client Services department at (702) 657-1010.

  
Stan Van Wagenen  
Laboratory Manager

12/9/99  
Date

## CERTIFICATIONS:

	Reno	Las Vegas	S. California
Arizona	AZ0520	AZ0518	AZ0605
California	1707	2002	2264
US Army Corps of Engineers	Certified	Certified	

	Reno	Las Vegas	S. California
Idaho	Certified	Certified	
Montana	Certified	Certified	
Nevada	NV033	NV052	CA084
L.A.C.S.D.			10228

# NEL LABORATORIES

CLIENT: Kleinfelder  
PROJECT ID: Armory Site  
PROJECT #: NA

CLIENT ID: S-7-S-10  
DATE SAMPLED: 12/2/99  
NEL SAMPLE ID: L9912026-01

EST: Volatile Organic Compounds by EPA 8260B, December 1996

METHOD: EPA 8260B

MATRIX: Solid

DILUTION: 1

EXTRACTED: 12/3/99

ANALYZED: 12/3/99

ANALYST: BJV - Las Vegas Division

PARAMETER	Result µg/kg	Reporting Limit	PARAMETER	Result µg/kg	Reporting Limit
acetone	ND	25. µg/kg	1,1-Dichloropropene	ND	5. µg/kg
benzene	ND	5. µg/kg	cis-1,3-Dichloropropene	ND	5. µg/kg
Bromobenzene	ND	5. µg/kg	trans-1,3-Dichloropropene	ND	5. µg/kg
bromochloromethane	ND	5. µg/kg	Ethylbenzene	ND	5. µg/kg
bromodichloromethane	ND	5. µg/kg	Hexachlorobutadiene	ND	5. µg/kg
Bromoform	ND	5. µg/kg	2-Hexanone	ND	25. µg/kg
Bromomethane	ND	5. µg/kg	Iodomethane	ND	5. µg/kg
Butanone	ND	25. µg/kg	Isopropylbenzene	ND	5. µg/kg
n-Butylbenzene	ND	5. µg/kg	p-Isopropyltoluene	ND	5. µg/kg
sec-Butylbenzene	ND	5. µg/kg	Methylene chloride (Dichloromethane)	ND	5. µg/kg
tert-Butylbenzene	ND	5. µg/kg	4-Methyl-2-pentanone	ND	25. µg/kg
Carbon disulfide	ND	5. µg/kg	MTBE	ND	5. µg/kg
Carbon tetrachloride	ND	5. µg/kg	Naphthalene	ND	10. µg/kg
chlorobenzene	ND	5. µg/kg	n-Propylbenzene	ND	5. µg/kg
chloroethane	ND	5. µg/kg	Styrene	ND	5. µg/kg
Chloroform	ND	5. µg/kg	1,1,1,2-Tetrachloroethane	ND	5. µg/kg
Chloromethane	ND	5. µg/kg	1,1,2,2-Tetrachloroethane	ND	5. µg/kg
Chlorotoluene	ND	5. µg/kg	Tetrachloroethene (PCE)	ND	5. µg/kg
4-Chlorotoluene	ND	5. µg/kg	Toluene	ND	5. µg/kg
Dibromochloromethane	ND	5. µg/kg	1,2,3-Trichlorobenzene	ND	5. µg/kg
1,2-Dibromo-3-chloropropane (DBCP)	ND	5. µg/kg	1,2,4-Trichlorobenzene	ND	5. µg/kg
1,2-Dibromoethane (EDB)	ND	5. µg/kg	1,1,1-Trichloroethane (1,1,1-TCA)	ND	5. µg/kg
Dibromomethane	ND	5. µg/kg	1,1,2-Trichloroethane (1,1,2-TCA)	ND	5. µg/kg
1,2-Dichlorobenzene (o-DCB)	ND	5. µg/kg	Trichloroethene (TCE)	ND	5. µg/kg
1,3-Dichlorobenzene (m-DCB)	ND	5. µg/kg	Trichlorofluoromethane (Freon 11)	ND	10. µg/kg
1,4-Dichlorobenzene (p-DCB)	ND	5. µg/kg	1,2,3-Trichloropropane	ND	5. µg/kg
Dichlorodifluoromethane (Freon 12)	ND	5. µg/kg	1,2,4-Trimethylbenzene	ND	5. µg/kg
1,1-Dichloroethane (1,1-DCA)	ND	5. µg/kg	1,3,5-Trimethylbenzene	ND	5. µg/kg
1,2-Dichloroethane (1,2-DCA)	ND	5. µg/kg	Vinyl chloride	ND	5. µg/kg
1,1-Dichloroethene (1,1-DCE)	ND	5. µg/kg	o-Xylene	ND	5. µg/kg
cis-1,2-Dichloroethene	ND	5. µg/kg	m,p-Xylene	ND	5. µg/kg
trans-1,2-Dichloroethene	ND	5. µg/kg			
1,2-Dichloropropane	ND	5. µg/kg			
1,3-Dichloropropane	ND	5. µg/kg			
1,2-Dichloropropane	ND	10. µg/kg			

## QUALITY CONTROL DATA:

Surrogate	% Recovery	Acceptable Range
p-Bromofluorobenzene	91	74 - 121
Dibromofluoromethane	95	80 - 120
Toluene-d8	95	81 - 117

ND - Not Detected

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# NEL LABORATORIES

CLIENT: Kleinfelder  
PROJECT ID: Armory Site  
PROJECT #: NA

CLIENT ID: Method Blank  
DATE SAMPLED: NA  
NEL SAMPLE ID: 991203SD60-BLK

TEST: Volatile Organic Compounds by EPA 8260B, December 1996

METHOD: EPA 8260B

MATRIX: Solid

ANALYST: BJV - Las Vegas Division

EXTRACTED: 12/3/99

ANALYZED: 12/3/99

PARAMETER	Result µg/kg	Reporting Limit	PARAMETER	Result µg/kg	Reporting Limit
Acetone	ND	25 µg/kg	1,1-Dichloropropene	ND	5 µg/kg
Benzene	ND	5 µg/kg	cis-1,3-Dichloropropene	ND	5 µg/kg
Bromobenzene	ND	5 µg/kg	trans-1,3-Dichloropropene	ND	5 µg/kg
Bromochloromethane	ND	5 µg/kg	Ethylbenzene	ND	5 µg/kg
Bromodichloromethane	ND	5 µg/kg	Hexachlorobutadiene	ND	5 µg/kg
Bromoform	ND	5 µg/kg	2-Hexanone	ND	25 µg/kg
Bromomethane	ND	5 µg/kg	Iodomethane	ND	5 µg/kg
Butanone	ND	25 µg/kg	Isopropylbenzene	ND	5 µg/kg
n-Butylbenzene	ND	5 µg/kg	p-Isopropyltoluene	ND	5 µg/kg
sec-Butylbenzene	ND	5 µg/kg	Methylene chloride (Dichloromethane)	ND	5 µg/kg
tert-Butylbenzene	ND	5 µg/kg	4-Methyl-2-pentanone	ND	25 µg/kg
Carbon disulfide	ND	5 µg/kg	MTBE	ND	5 µg/kg
Carbon tetrachloride	ND	5 µg/kg	Naphthalene	ND	10 µg/kg
Chlorobenzene	ND	5 µg/kg	n-Propylbenzene	ND	5 µg/kg
Chloroethane	ND	5 µg/kg	Styrene	ND	5 µg/kg
Chloroform	ND	5 µg/kg	1,1,1,2-Tetrachloroethane	ND	5 µg/kg
Chloromethane	ND	5 µg/kg	1,1,2,2-Tetrachloroethane	ND	5 µg/kg
Chlorotoluene	ND	5 µg/kg	Tetrachloroethene (PCE)	ND	5 µg/kg
4-Chlorotoluene	ND	5 µg/kg	Toluene	ND	5 µg/kg
Dibromochloromethane	ND	5 µg/kg	1,2,3-Trichlorobenzene	ND	5 µg/kg
1,2-Dibromo-3-chloropropane (DBCP)	ND	5 µg/kg	1,2,4-Trichlorobenzene	ND	5 µg/kg
1,2-Dibromoethane (EDB)	ND	5 µg/kg	1,1,1-Trichloroethane (1,1,1-TCA)	ND	5 µg/kg
Dibromomethane	ND	5 µg/kg	1,1,2-Trichloroethane (1,1,2-TCA)	ND	5 µg/kg
1,2-Dichlorobenzene (o-DCB)	ND	5 µg/kg	Trichloroethene (TCE)	ND	5 µg/kg
1,3-Dichlorobenzene (m-DCB)	ND	5 µg/kg	Trichlorofluoromethane (Freon 11)	ND	10 µg/kg
1,4-Dichlorobenzene (p-DCB)	ND	5 µg/kg	1,2,3-Trichloropropane	ND	5 µg/kg
Dichlorodifluoromethane (Freon 12)	ND	5 µg/kg	1,2,4-Trimethylbenzene	ND	5 µg/kg
1,1-Dichloroethane (1,1-DCA)	ND	5 µg/kg	1,3,5-Trimethylbenzene	ND	5 µg/kg
1,2-Dichloroethane (1,2-DCA)	ND	5 µg/kg	Vinyl chloride	ND	5 µg/kg
1,1-Dichloroethene (1,1-DCE)	ND	5 µg/kg	o-Xylene	ND	5 µg/kg
cis-1,2-Dichloroethene	ND	5 µg/kg	m,p-Xylene	ND	5 µg/kg
trans-1,2-Dichloroethene	ND	5 µg/kg			
1,2-Dichloropropane	ND	5 µg/kg			
1,3-Dichloropropane	ND	5 µg/kg			
1,2-Dichloropropane	ND	10 µg/kg			

## QUALITY CONTROL DATA:

Surrogate	% Recovery	Acceptable Range
4-Bromofluorobenzene	94	74 - 121
Dibromofluoromethane	98	80 - 120
Toluene-d8	96	81 - 117

ND - Not Detected

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# NEL LABORATORIES

CLIENT: Kleinfelder  
PROJECT ID: Armory Site  
PROJECT #: NA

CLIENT ID: S-7-S-10  
DATE SAMPLED: 12/2/99  
NEL SAMPLE ID: L9912026-01

TEST: Metals  
MATRIX: Solid

ANALYST: JY - Reno Division

<u>PARAMETER</u>	<u>RESULT</u> <u>mg/kg</u>	<u>REPORTING</u> <u>LIMIT</u>	<u>D. F.</u>	<u>METHOD</u>	<u>DIGESTED</u>	<u>ANALYZED</u>
Cadmium	ND	0.5 mg/kg	50	EPA 6010	12/7/99	12/8/99
Chromium	3.7	0.5 mg/kg	50	EPA 6010	12/7/99	12/8/99
Lead	ND	2.5 mg/kg	50	EPA 6010	12/7/99	12/8/99
Nickel	3.6	2. mg/kg	50	EPA 6010	12/7/99	12/8/99
Zinc	10	5. mg/kg	50	EPA 6010	12/7/99	12/8/99

D.F. - Dilution Factor

ND - Not Detected

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# NEL LABORATORIES

CLIENT: Kleinfelder  
PROJECT ID: Armory Site  
PROJECT #: NA

CLIENT ID: Method Blank  
DATE SAMPLED: NA  
NEL SAMPLE ID: S11036-C17-BLK

TEST: Metals

<u>PARAMETER</u>	<u>RESULT</u> <u>mg/kg</u>	<u>REPORTING</u> <u>LIMIT</u>	<u>D. F.</u>	<u>METHOD</u>	<u>DIGESTED</u>	<u>ANALYZED</u>
Cadmium	ND	0.5 mg/kg	50	EPA 6010	12/7/99	12/8/99
Chromium	ND	0.5 mg/kg	50	EPA 6010	12/7/99	12/8/99
Lead	ND	2.5 mg/kg	50	EPA 6010	12/7/99	12/8/99
Nickel	ND	2. mg/kg	50	EPA 6010	12/7/99	12/8/99
Zinc	ND	5. mg/kg	50	EPA 6010	12/7/99	12/8/99

D.F. - Dilution Factor

ND - Not Detected

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# NEL LABORATORIES

CLIENT: Kleinfelder  
PROJECT ID: Armory Site  
PROJECT #: NA

TEST: Total Extractable Petroleum Hydrocarbons by EPA Method 8015M, December 1996  
METHOD: EPA 8015M  
ORDER ID: L9912026  
MATRIX: Solid

ANALYST: SLB - Las Vegas Division

CLIENT SAMPLE ID	SAMPLE DATE	NEL SAMPLE ID	RESULT mg/kg	C.R.	Reporting Limit	Surrogate Recovery*	EXTRACTED	ANALYZED
S-7-S-10	12/2/99	L9912026-01	ND	ND	10. mg/kg	78 %	12/2/99	12/2/99

## C.R.: Carbon Range

QUALITY CONTROL DATA (Total for Diesel Range):

Sample ID	Result	Acceptable Range	Surrogate Recovery*	Sample Number
Blank, 991202TP -BLK	ND	< 10 mg/kg	93 %	NA
LCS, 991202TPHS-LCS	82 %	57 - 114 %	89 %	NA
LCSD, 991202TPHS-LCSD	78 %	55 - 102 %	88 %	NA
MS, 991202TPHS-MS	78 %	38 - 117 %	89 %	L9912026-01
MSD, 991202TPHS-MSD	73 %	38 - 117 %	94 %	L9912026-01

\* Surrogate used was Octacosane, acceptance limits 54-130%.

ND - Not Detected

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Phoenix • So. California

Las Vegas Division • 4208 Arcata Way, Ste. A • Las Vegas, NV 89030  
702-657-1010 • Fax: 702-657-1577 • 888-368-3282

Company: KLEINFELDER Attention: JAI SABAPATHI  
Address: 6350 S. JOLANDS AVE., LAS VEGAS, NV  
Phone Number: 736 2936 Fax Number: 361 9094  
Billing Address: \_\_\_\_\_  
Expected Date: 12/3

Requested Turnaround: 5-day ☒ 2-day ☒ 1-day ☐ Other ☐

Time/Date Sampled: 12/2/99 5:30 AM Customer Sample Identification: S-7-S-B NEL Identification: 01

Custody Seal intact? Y N None Temp. 18°C  
Condition when received Good

# CHAIN OF CUSTODY

NEL Work Order: L97120x6

Project Name: <u>ARMORY SITE</u>		Project Number: _____	
Purchase Order Number: _____		Sampled By: <u>JAI SABAPATHI</u>	
Analysis: <u>TPH (805cm) H/S-CD-5/47H 0960 12/2/99 5:30 AM</u>		Preservative (Box #2): <u>added by J.S. 12/2/99</u>	
# of Containers	Matrix (Box #1)	Preservative (Box #2)	Remarks
2	SD E X X		
			PLEASE SEND INVOICE
			TO JEFF DIX
			PLEASE HOLD
			SAMPLES FOR
			ADDITIONAL ANALYSES

Relinquished by (Print)	(Signature)	Date/Time	Received by (Print)	(Signature)	Date/Time
1 JAI SABAPATHI	<i>Jai Sabapathi</i>	12/2/99 9:30 AM	Will Belick	<i>Will Belick</i>	12/2/99 9:30 AM
2 Will Belick	<i>Will Belick</i>	12-2-99 9:55	Talia Fotev	<i>Talia Fotev</i>	12 Dec 99 10:30 AM
3					

The liability of NEL Laboratories Inc. is limited strictly to the price of sample analysis for those samples received in good condition by NEL. NEL is not responsible for loss, damage, resampling costs and/or qualified data related to samples not received in good condition, including adequate sample volume and number of containers. Customer signature of this CoC constitutes a purchase order for NEL to perform work and constitutes acceptance of all NEL Standard Terms and Conditions. Signature also constitutes acceptance of NEL Standard List Prices for all services ordered here on, except those specified otherwise via an NEL Quotation for Testing Services in effect at the time of sample receipt. NEL turnaround times are measured in regular working days. Samples received at the laboratory after 16:30 will be considered received on the next working day. Commitment of laboratory to the requested turnaround time will be confirmed via Sample Confirmation transmitted to the fax number provided above.

# NEL LABORATORIES

Reno • Las Vegas  
Phoenix • So. California

Las Vegas Division  
4208 Arcata Way, Suite A • Las Vegas, NV 89030  
(702) 657-1010 • Fax: (702) 657-1577  
1-888-368-3282

DEC 13 1999

KLEINFELDER  
LAS VEGAS

CLIENT: Kleinfelder  
6380 South Polaris  
Las Vegas, NV 89118  
ATTN: Jai Sabapathi

PROJECT NAME: Las Vegas Armory  
PROJECT NUMBER: NA

NEL ORDER ID: L9912001

Attached are the analytical results for samples in support of the above referenced project.

Samples submitted for this project were not sampled by NEL Laboratories. Samples were received by NEL in good condition, under chain of custody on 12/1/99.


Should you have any questions or comments, please feel free to contact our Client Services department at (702) 657-1010.

## Some results have been flagged as follows:

Di - Results reported from analysis at a higher dilution.

## Some QA results have been flagged as follows:

C - Sample concentration is a least 5 times greater than spike contribution. Spike recovery criteria do not apply.

  
Stan Van Wagenen  
Laboratory Manager

12/9/99  
Date

## CERTIFICATIONS:

	Reno	Las Vegas	S. California
Arizona	AZ0520	AZ0518	AZ0605
California	1707	2002	2264
US Army Corps of Engineers	Certified	Certified	

	Reno	Las Vegas	S. California
Idaho	Certified	Certified	
Montana	Certified	Certified	
Nevada	NV033	NV052	CA084
L.A.C.S.D.			10228

# NEL LABORATORIES

CLIENT: Kleinfelder  
PROJECT ID: Las Vegas Armory  
PROJECT #: NA

CLIENT ID: S6-E-10'  
DATE SAMPLED: 12/1/99  
NEL SAMPLE ID: L9912001-01

TEST: Volatile Organic Compounds by EPA 8260B, December 1996

METHOD: EPA 8260B

MATRIX: Solid

DILUTION: 5

EXTRACTED: 12/3/99

ANALYZED: 12/3/99

ANALYST: BJV - Las Vegas Division

PARAMETER	Result µg/kg	Reporting Limit	PARAMETER	Result µg/kg	Reporting Limit
Acetone	420 Di	125. µg/kg	1,1-Dichloropropene	ND	5. µg/kg
Benzene	ND	5. µg/kg	cis-1,3-Dichloropropene	ND	5. µg/kg
Bromobenzene	ND	5. µg/kg	trans-1,3-Dichloropropene	ND	5. µg/kg
Bromochloromethane	ND	5. µg/kg	Ethylbenzene	ND	5. µg/kg
Bromodichloromethane	ND	5. µg/kg	Hexachlorobutadiene	ND	5. µg/kg
Bromoform	ND	5. µg/kg	2-Hexanone	ND	25. µg/kg
Bromomethane	ND	5. µg/kg	Iodomethane	ND	5. µg/kg
1-Butanone	ND	25. µg/kg	Isopropylbenzene	ND	5. µg/kg
n-Butylbenzene	ND	5. µg/kg	p-Isopropyltoluene	ND	5. µg/kg
sec-Butylbenzene	ND	5. µg/kg	Methylene chloride (Dichloromethane)	110	5. µg/kg
tert-Butylbenzene	ND	5. µg/kg	4-Methyl-2-pentanone	ND	25. µg/kg
Carbon disulfide	ND	5. µg/kg	MTBE	ND	5. µg/kg
Carbon tetrachloride	ND	5. µg/kg	Naphthalene	ND	10. µg/kg
Chlorobenzene	ND	5. µg/kg	n-Propylbenzene	ND	5. µg/kg
Chloroethane	ND	5. µg/kg	Styrene	ND	5. µg/kg
Chloroform	ND	5. µg/kg	1,1,1,2-Tetrachloroethane	ND	5. µg/kg
Chloromethane	ND	5. µg/kg	1,1,2,2-Tetrachloroethane	ND	5. µg/kg
1-Chlorotoluene	ND	5. µg/kg	Tetrachloroethene (PCE)	ND	5. µg/kg
1-Chlorotoluene	ND	5. µg/kg	Toluene	ND	5. µg/kg
Dibromochloromethane	ND	5. µg/kg	1,2,3-Trichlorobenzene	ND	5. µg/kg
1,2-Dibromo-3-chloropropane (DBCP)	ND	5. µg/kg	1,2,4-Trichlorobenzene	ND	5. µg/kg
1,2-Dibromoethane (EDB)	ND	5. µg/kg	1,1,1-Trichloroethane (1,1,1-TCA)	ND	5. µg/kg
Dibromomethane	ND	5. µg/kg	1,1,2-Trichloroethane (1,1,2-TCA)	ND	5. µg/kg
1,2-Dichlorobenzene (o-DCB)	ND	5. µg/kg	Trichloroethene (TCE)	ND	5. µg/kg
1,3-Dichlorobenzene (m-DCB)	ND	5. µg/kg	Trichlorofluoromethane (Freon 11)	ND	10. µg/kg
1,4-Dichlorobenzene (p-DCB)	ND	5. µg/kg	1,2,3-Trichloropropane	ND	5. µg/kg
Dichlorodifluoromethane (Freon 12)	ND	5. µg/kg	1,2,4-Trimethylbenzene	ND	5. µg/kg
1,1-Dichloroethane (1,1-DCA)	ND	5. µg/kg	1,3,5-Trimethylbenzene	ND	5. µg/kg
1,2-Dichloroethane (1,2-DCA)	ND	5. µg/kg	Vinyl chloride	ND	5. µg/kg
1,1-Dichloroethene (1,1-DCE)	ND	5. µg/kg	o-Xylene	ND	5. µg/kg
cis-1,2-Dichloroethene	ND	5. µg/kg	m,p-Xylene	ND	5. µg/kg
trans-1,2-Dichloroethene	ND	5. µg/kg			
1,2-Dichloropropane	ND	5. µg/kg			
1,3-Dichloropropane	ND	5. µg/kg			
1,2-Dichloropropane	ND	10. µg/kg			

## QUALITY CONTROL DATA:

Surrogate	% Recovery	Acceptable Range
p-Bromofluorobenzene	91	74 - 121
Dibromofluoromethane	94	80 - 120
Toluene-d8	95	81 - 117

ND - Not Detected

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# NEL LABORATORIES

CLIENT: Kleinfelder  
PROJECT ID: Las Vegas Armory  
PROJECT #: NA

CLIENT ID: Method Blank  
DATE SAMPLED: NA  
NEL SAMPLE ID: 991203SD60-BLK

TEST: Volatile Organic Compounds by EPA 8260B, December 1996

METHOD: EPA 8260B

MATRIX: Solid

ANALYST: BJV - Las Vegas Division

EXTRACTED: 12/3/99

ANALYZED: 12/3/99

PARAMETER	Result µg/kg	Reporting Limit	PARAMETER	Result µg/kg	Reporting Limit
acetone	ND	25 µg/kg	1,1-Dichloropropene	ND	5 µg/kg
Benzene	ND	5 µg/kg	cis-1,3-Dichloropropene	ND	5 µg/kg
Bromobenzene	ND	5 µg/kg	trans-1,3-Dichloropropene	ND	5 µg/kg
Bromochloromethane	ND	5 µg/kg	Ethylbenzene	ND	5 µg/kg
Bromodichloromethane	ND	5 µg/kg	Hexachlorobutadiene	ND	5 µg/kg
Bromoform	ND	5 µg/kg	2-Hexanone	ND	25 µg/kg
Bromomethane	ND	5 µg/kg	Iodomethane	ND	5 µg/kg
Butanone	ND	25 µg/kg	Isopropylbenzene	ND	5 µg/kg
n-Butylbenzene	ND	5 µg/kg	p-Isopropyltoluene	ND	5 µg/kg
sec-Butylbenzene	ND	5 µg/kg	Methylene chloride (Dichloromethane)	ND	5 µg/kg
tert-Butylbenzene	ND	5 µg/kg	4-Methyl-2-pentanone	ND	25 µg/kg
Carbon disulfide	ND	5 µg/kg	MTBE	ND	5 µg/kg
Carbon tetrachloride	ND	5 µg/kg	Naphthalene	ND	10 µg/kg
Chlorobenzene	ND	5 µg/kg	n-Propylbenzene	ND	5 µg/kg
Chloroethane	ND	5 µg/kg	Styrene	ND	5 µg/kg
Chloroform	ND	5 µg/kg	1,1,1,2-Tetrachloroethane	ND	5 µg/kg
Chloromethane	ND	5 µg/kg	1,1,2,2-Tetrachloroethane	ND	5 µg/kg
Chlorotoluene	ND	5 µg/kg	Tetrachloroethene (PCE)	ND	5 µg/kg
4-Chlorotoluene	ND	5 µg/kg	Toluene	ND	5 µg/kg
Dibromochloromethane	ND	5 µg/kg	1,2,3-Trichlorobenzene	ND	5 µg/kg
1,2-Dibromo-3-chloropropane (DBCP)	ND	5 µg/kg	1,2,4-Trichlorobenzene	ND	5 µg/kg
1,2-Dibromoethane (EDB)	ND	5 µg/kg	1,1,1-Trichloroethane (1,1,1-TCA)	ND	5 µg/kg
Dibromomethane	ND	5 µg/kg	1,1,2-Trichloroethane (1,1,2-TCA)	ND	5 µg/kg
1,2-Dichlorobenzene (o-DCB)	ND	5 µg/kg	Trichloroethene (TCE)	ND	5 µg/kg
1,3-Dichlorobenzene (m-DCB)	ND	5 µg/kg	Trichlorofluoromethane (Freon 11)	ND	10 µg/kg
1,4-Dichlorobenzene (p-DCB)	ND	5 µg/kg	1,2,3-Trichloropropane	ND	5 µg/kg
Trichlorodifluoromethane (Freon 12)	ND	5 µg/kg	1,2,4-Trimethylbenzene	ND	5 µg/kg
1,1-Dichloroethane (1,1-DCA)	ND	5 µg/kg	1,3,5-Trimethylbenzene	ND	5 µg/kg
1,2-Dichloroethane (1,2-DCA)	ND	5 µg/kg	Vinyl chloride	ND	5 µg/kg
1,1-Dichloroethene (1,1-DCE)	ND	5 µg/kg	o-Xylene	ND	5 µg/kg
cis-1,2-Dichloroethene	ND	5 µg/kg	m,p-Xylene	ND	5 µg/kg
trans-1,2-Dichloroethene	ND	5 µg/kg			
1,2-Dichloropropane	ND	5 µg/kg			
1,3-Dichloropropane	ND	5 µg/kg			
1,2-Dichloropropane	ND	10 µg/kg			

## QUALITY CONTROL DATA:

Surrogate	% Recovery	Acceptable Range
4-Bromofluorobenzene	94	74 - 121
Dibromofluoromethane	98	80 - 120
Toluene-d8	96	81 - 117

ND - Not Detected

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# NEL LABORATORIES

CLIENT: Kleinfelder  
PROJECT ID: Las Vegas Armory  
PROJECT #: NA

CLIENT ID: S6-E-10'  
DATE SAMPLED: 12/1/99  
NEL SAMPLE ID: L9912001-01

TEST: Metals  
MATRIX: Solid

ANALYST: JY - Reno Division

<u>PARAMETER</u>	<u>RESULT</u> <u>mg/kg</u>	<u>REPORTING</u> <u>LIMIT</u>	<u>D. F.</u>	<u>METHOD</u>	<u>DIGESTED</u>	<u>ANALYZED</u>
Cadmium	ND	0.5 mg/kg	50	EPA 6010	12/7/99	12/8/99
Chromium	3.3	0.5 mg/kg	50	EPA 6010	12/7/99	12/8/99
Lead	ND	2.5 mg/kg	50	EPA 6010	12/7/99	12/8/99
Nickel	3.1	2. mg/kg	50	EPA 6010	12/7/99	12/8/99
Zinc	11	5. mg/kg	50	EPA 6010	12/7/99	12/8/99

D.F. - Dilution Factor

ND - Not Detected

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# NEL LABORATORIES

CLIENT: Kleinfelder  
PROJECT ID: Las Vegas Armory  
PROJECT #: NA

CLIENT ID: Method Blank  
DATE SAMPLED: NA  
NEL SAMPLE ID: S11036-C17-BLK

TEST: Metals

<u>PARAMETER</u>	<u>RESULT</u> <u>mg/kg</u>	<u>REPORTING</u> <u>LIMIT</u>	<u>D. F.</u>	<u>METHOD</u>	<u>DIGESTED</u>	<u>ANALYZED</u>
Cadmium	ND	0.5 mg/kg	50	EPA 6010	12/7/99	12/8/99
Chromium	ND	0.5 mg/kg	50	EPA 6010	12/7/99	12/8/99
Lead	ND	2.5 mg/kg	50	EPA 6010	12/7/99	12/8/99
Nickel	ND	2. mg/kg	50	EPA 6010	12/7/99	12/8/99
Zinc	ND	5. mg/kg	50	EPA 6010	12/7/99	12/8/99

D.F. - Dilution Factor

ND - Not Detected

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# NEL LABORATORIES

CLIENT: Kleinfelder  
PROJECT ID: Las Vegas Armory  
PROJECT #: NA

TEST: Total Extractable Petroleum Hydrocarbons by EPA Method 8015M, December 1996  
METHOD: EPA 8015M  
ORDER ID: L9912001  
MATRIX: Solid

ANALYST: SLB - Las Vegas Division

CLIENT SAMPLE ID	SAMPLE DATE	NEL SAMPLE ID	RESULT mg/kg	C.R.	Reporting Limit	Surrogate Recovery*	EXTRACTED	ANALYZED
S6-E-10'	12/1/99	L9912001-01	ND	ND	10. mg/kg	105 %	12/1/99	12/1/99

## C.R.: Carbon Range

QUALITY CONTROL DATA (Total for Diesel Range):

Sample ID	Result	Acceptable Range	Surrogate Recovery*	Sample Number
Blank, 991201TP -BLK	ND	< 10 mg/kg	87 %	NA
LCS, 991201TPHS-LCS	81 %	57 - 114 %	104 %	NA
LCSD, 991201TPHS-LCSD	85 %	55 - 102 %	93 %	NA
MS, 991201TPHS-MS	180 % C	38 - 117 %	D %	L9911247-01
MSD, 991201TPHS-MSD	-120 % C	38 - 117 %	D %	L9911247-01

\* Surrogate used was Octacosane, acceptance limits 54-130%.

ND - Not Detected

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2912001

Date/Time

The liability of NEL Laboratories Inc. is limited strictly to the price of sample analysis for those samples received in good condition by NEL. NEL is not responsible for loss, damage, resampling costs and/or qualified data related to samples not received in good condition, including adequate sample volume and number of containers. Customer signature of this CoC constitutes a purchase order for NEL to perform work and constitutes acceptance of NEL Standard List Prices for all services ordered here on, except those specified otherwise via an NEL Quotation for Testing Services in effect at the time of sample receipt. NEL turnaround times are measured in regular working days. Samples received at the laboratory after 16:30 will be considered received on the next working day. Commitment of laboratory to the requested turnaround time will be confirmed via Sample Confirmation transmitted to the fax number provided above.

# NEL LABORATORIES

Reno • Las Vegas  
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Las Vegas Division  
4208 Arcata Way, Suite A • Las Vegas, NV 89030  
(702) 657-1010 • Fax: (702) 657-1577  
1-888-368-3282

DEC 13 1999

CLIENT: Kleinfelder  
6380 South Polaris  
Las Vegas, NV 89118  
ATTN: Jai Sabapathi

KLEINFELDER  
LAS VEGAS

PROJECT NAME: Las Vegas Armory  
PROJECT NUMBER: NA

NEL ORDER ID: L9911254

Attached are the analytical results for samples in support of the above referenced project.

Samples submitted for this project were not sampled by NEL Laboratories. Samples were received by NEL in good condition, under chain of custody on 11/30/99.

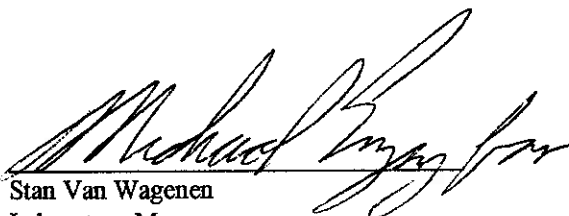
Should you have any questions or comments, please feel free to contact our Client Services department at (702) 657-1010.

## Some results have been flagged as follows:

- Di - Results reported from analysis at a higher dilution.
- E - Concentration exceeded calibration range.

## Some QA results have been flagged as follows:

- JI - The batch MS and/or MSD were outside acceptance limits. The batch LCS was acceptable.

  
Stan Van Wagenen  
Laboratory Manager

12/3/99  
Date

## CERTIFICATIONS:

	Reno	Las Vegas	S. California
Arizona	AZ0520	AZ0518	AZ0605
California	1707	2002	2264
US Army Corps of Engineers	Certified	Certified	

	Reno	Las Vegas	S. California
Idaho	Certified	Certified	
Montana	Certified	Certified	
Nevada	NV033	NV052	CA084
L.A.C.S.D.			10228

# NEL LABORATORIES

CLIENT: Kleinfelder  
PROJECT ID: Las Vegas Armory  
PROJECT #: NA

CLIENT ID: S2-W-10'  
DATE SAMPLED: 11/30/99  
NEL SAMPLE ID: L9911254-01

TEST: Volatile Organic Compounds by EPA 8260B, December 1996

METHOD: EPA 8260B

EXTRACTED: 12/6/99

MATRIX: Solid

ANALYZED: 12/6/99

DILUTION: 5

ANALYST: BJV - Las Vegas Division

PARAMETER	Result µg/kg	Reporting Limit	PARAMETER	Result µg/kg	Reporting Limit
Acetone	580	Di	1,1-Dichloropropene	ND	5. µg/kg
Benzene	ND	5. µg/kg	cis-1,3-Dichloropropene	ND	5. µg/kg
Bromobenzene	ND	5. µg/kg	trans-1,3-Dichloropropene	ND	5. µg/kg
Bromochloromethane	ND	5. µg/kg	Ethylbenzene	ND	5. µg/kg
Bromodichloromethane	ND	5. µg/kg	Hexachlorobutadiene	ND	5. µg/kg
Bromoform	ND	5. µg/kg	2-Hexanone	ND	25. µg/kg
Bromomethane	ND	5. µg/kg	Iodomethane	ND	5. µg/kg
n-Butanone	ND	25. µg/kg	Isopropylbenzene	ND	5. µg/kg
n-Butylbenzene	ND	5. µg/kg	p-Isopropyltoluene	ND	5. µg/kg
sec-Butylbenzene	ND	5. µg/kg	Methylene chloride (Dichloromethane)	130	Di
tert-Butylbenzene	ND	5. µg/kg	4-Methyl-2-pentanone	ND	25. µg/kg
Carbon disulfide	ND	5. µg/kg	MTBE	ND	5. µg/kg
Carbon tetrachloride	ND	5. µg/kg	Naphthalene	ND	10. µg/kg
Chlorobenzene	ND	5. µg/kg	n-Propylbenzene	ND	5. µg/kg
Chloroethane	ND	5. µg/kg	Styrene	ND	5. µg/kg
Chloroform	ND	5. µg/kg	1,1,1,2-Tetrachloroethane	ND	5. µg/kg
Chloromethane	ND	5. µg/kg	1,1,2,2-Tetrachloroethane	ND	5. µg/kg
p-Chlorotoluene	ND	5. µg/kg	Tetrachloroethene (PCE)	ND	5. µg/kg
m-Chlorotoluene	ND	5. µg/kg	Toluene	ND	5. µg/kg
Dibromochloromethane	ND	5. µg/kg	1,2,3-Trichlorobenzene	ND	5. µg/kg
1,2-Dibromo-3-chloropropane (DBCP)	ND	5. µg/kg	1,2,4-Trichlorobenzene	ND	5. µg/kg
1,2-Dibromoethane (EDB)	ND	5. µg/kg	1,1,1-Trichloroethane (1,1,1-TCA)	ND	5. µg/kg
Dibromomethane	ND	5. µg/kg	1,1,2-Trichloroethane (1,1,2-TCA)	ND	5. µg/kg
1,2-Dichlorobenzene (o-DCB)	ND	5. µg/kg	Trichloroethene (TCE)	ND	5. µg/kg
1,3-Dichlorobenzene (m-DCB)	ND	5. µg/kg	Trichlorofluoromethane (Freon 11)	ND	10. µg/kg
1,4-Dichlorobenzene (p-DCB)	ND	5. µg/kg	1,2,3-Trichloropropane	ND	5. µg/kg
Dichlorodifluoromethane (Freon 12)	ND	5. µg/kg	1,2,4-Trimethylbenzene	ND	5. µg/kg
1,1-Dichloroethane (1,1-DCA)	ND	5. µg/kg	1,3,5-Trimethylbenzene	ND	5. µg/kg
1,2-Dichloroethane (1,2-DCA)	ND	5. µg/kg	Vinyl chloride	ND	5. µg/kg
1,1-Dichloroethene (1,1-DCE)	ND	5. µg/kg	o-Xylene	ND	5. µg/kg
cis-1,2-Dichloroethene	ND	5. µg/kg	m,p-Xylene	ND	5. µg/kg
trans-1,2-Dichloroethene	ND	5. µg/kg			
1,2-Dichloropropane	ND	5. µg/kg			
1,3-Dichloropropane	ND	5. µg/kg			
1,2-Dichloropropane	ND	10. µg/kg			

## QUALITY CONTROL DATA:

Surrogate	% Recovery	Acceptable Range
1-Bromofluorobenzene	95	74 - 121
Dibromofluoromethane	95	80 - 120
Toluene-d8	95	81 - 117

ND - Not Detected

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# NEL LABORATORIES

CLIENT: Kleinfelder  
PROJECT ID: Las Vegas Armory  
PROJECT #: NA

CLIENT ID: S4-N-10'  
DATE SAMPLED: 11/30/99  
NEL SAMPLE ID: L9911254-03

TEST: Volatile Organic Compounds by EPA 8260B, December 1996

METHOD: EPA 8260B

MATRIX: Solid

DILUTION: 1

EXTRACTED: 12/8/99

ANALYZED: 12/8/99

ANALYST: BJV - Las Vegas Division

PARAMETER	Result µg/kg	Reporting Limit	PARAMETER	Result µg/kg	Reporting Limit
Acetone	320 E	25. µg/kg	1,1-Dichloropropene	ND	5. µg/kg
Benzene	ND	5. µg/kg	cis-1,3-Dichloropropene	ND	5. µg/kg
Bromobenzene	ND	5. µg/kg	trans-1,3-Dichloropropene	ND	5. µg/kg
Bromochloromethane	ND	5. µg/kg	Ethylbenzene	ND	5. µg/kg
Bromodichloromethane	ND	5. µg/kg	Hexachlorobutadiene	ND	5. µg/kg
Bromoform	ND	5. µg/kg	2-Hexanone	ND	25. µg/kg
Bromomethane	ND	5. µg/kg	Iodomethane	ND	5. µg/kg
n-Butanone	ND	25. µg/kg	Isopropylbenzene	ND	5. µg/kg
n-Butylbenzene	ND	5. µg/kg	p-Isopropyltoluene	ND	5. µg/kg
sec-Butylbenzene	ND	5. µg/kg	Methylene chloride (Dichloromethane)	47	5. µg/kg
tert-Butylbenzene	ND	5. µg/kg	4-Methyl-2-pentanone	ND	25. µg/kg
Carbon disulfide	ND	5. µg/kg	MTBE	ND	5. µg/kg
Carbon tetrachloride	ND	5. µg/kg	Naphthalene	ND	10. µg/kg
Chlorobenzene	ND	5. µg/kg	n-Propylbenzene	ND	5. µg/kg
Chloroethane	ND	5. µg/kg	Styrene	ND	5. µg/kg
Chloroform	ND	5. µg/kg	1,1,1,2-Tetrachloroethane	ND	5. µg/kg
Chloromethane	ND	5. µg/kg	1,1,2,2-Tetrachloroethane	ND	5. µg/kg
o-Chlorotoluene	ND	5. µg/kg	Tetrachloroethene (PCE)	ND	5. µg/kg
p-Chlorotoluene	ND	5. µg/kg	Toluene	ND	5. µg/kg
Dibromochloromethane	ND	5. µg/kg	1,2,3-Trichlorobenzene	ND	5. µg/kg
1,2-Dibromo-3-chloropropane (DBCP)	ND	5. µg/kg	1,2,4-Trichlorobenzene	ND	5. µg/kg
1,2-Dibromoethane (EDB)	ND	5. µg/kg	1,1,1-Trichloroethane (1,1,1-TCA)	ND	5. µg/kg
Dibromomethane	ND	5. µg/kg	1,1,2-Trichloroethane (1,1,2-TCA)	ND	5. µg/kg
1,2-Dichlorobenzene (o-DCB)	ND	5. µg/kg	Trichloroethene (TCE)	ND	5. µg/kg
1,3-Dichlorobenzene (m-DCB)	ND	5. µg/kg	Trichlorofluoromethane (Freon 11)	ND	10. µg/kg
1,4-Dichlorobenzene (p-DCB)	ND	5. µg/kg	1,2,3-Trichloropropane	ND	5. µg/kg
Dichlorodifluoromethane (Freon 12)	ND	5. µg/kg	1,2,4-Trimethylbenzene	ND	5. µg/kg
1,1-Dichloroethane (1,1-DCA)	ND	5. µg/kg	1,3,5-Trimethylbenzene	ND	5. µg/kg
1,2-Dichloroethane (1,2-DCA)	ND	5. µg/kg	Vinyl chloride	ND	5. µg/kg
1,1-Dichloroethene (1,1-DCE)	ND	5. µg/kg	o-Xylene	ND	5. µg/kg
cis-1,2-Dichloroethene	ND	5. µg/kg	m,p-Xylene	ND	5. µg/kg
trans-1,2-Dichloroethene	ND	5. µg/kg			
1,2-Dichloropropane	ND	5. µg/kg			
1,3-Dichloropropane	ND	5. µg/kg			
2,2-Dichloropropane	ND	10. µg/kg			

## QUALITY CONTROL DATA:

Surrogate	% Recovery	Acceptable Range
4-Bromofluorobenzene	88	74 - 121
Dibromofluoromethane	96	80 - 120
Toluene-d8	94	81 - 117

ND - Not Detected

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# NEL LABORATORIES

CLIENT: Kleinfelder  
PROJECT ID: Las Vegas Armory  
PROJECT #: NA

CLIENT ID: S5-B-14'  
DATE SAMPLED: 11/30/99  
NEL SAMPLE ID: L9911254-04

TEST: Volatile Organic Compounds by EPA 8260B, December 1996

METHOD: EPA 8260B

MATRIX: Solid

DILUTION: 1

EXTRACTED: 12/8/99

ANALYZED: 12/8/99

ANALYST: BJV - Las Vegas Division

PARAMETER	Result µg/kg	Reporting Limit	PARAMETER	Result µg/kg	Reporting Limit
acetone	520 E	25. µg/kg	1,1-Dichloropropene	ND	5. µg/kg
benzene	ND	5. µg/kg	cis-1,3-Dichloropropene	ND	5. µg/kg
Bromobenzene	ND	5. µg/kg	trans-1,3-Dichloropropene	ND	5. µg/kg
Bromochloromethane	ND	5. µg/kg	Ethylbenzene	ND	5. µg/kg
Bromodichloromethane	ND	5. µg/kg	Hexachlorobutadiene	ND	5. µg/kg
Bromoform	ND	5. µg/kg	2-Hexanone	ND	25. µg/kg
Bromomethane	ND	5. µg/kg	Iodomethane	ND	5. µg/kg
Butanone	ND	25. µg/kg	Isopropylbenzene	ND	5. µg/kg
Butylbenzene	ND	5. µg/kg	p-Isopropyltoluene	ND	5. µg/kg
sec-Butylbenzene	ND	5. µg/kg	Methylene chloride (Dichloromethane)	280 E	5. µg/kg
tert-Butylbenzene	ND	5. µg/kg	4-Methyl-2-pentanone	ND	25. µg/kg
Carbon disulfide	ND	5. µg/kg	MTBE	ND	5. µg/kg
Carbon tetrachloride	ND	5. µg/kg	Naphthalene	ND	10. µg/kg
Chlorobenzene	ND	5. µg/kg	n-Propylbenzene	ND	5. µg/kg
Chloroethane	ND	5. µg/kg	Styrene	ND	5. µg/kg
Chloroform	ND	5. µg/kg	1,1,1,2-Tetrachloroethane	ND	5. µg/kg
Chloromethane	ND	5. µg/kg	1,1,2,2-Tetrachloroethane	ND	5. µg/kg
Chlorotoluene	ND	5. µg/kg	Tetrachloroethene (PCE)	ND	5. µg/kg
Chlorotoluene	ND	5. µg/kg	Toluene	ND	5. µg/kg
Dibromochloromethane	ND	5. µg/kg	1,2,3-Trichlorobenzene	ND	5. µg/kg
1,2-Dibromo-3-chloropropane (DBCP)	ND	5. µg/kg	1,2,4-Trichlorobenzene	ND	5. µg/kg
1,2-Dibromoethane (EDB)	ND	5. µg/kg	1,1,1-Trichloroethane (1,1,1-TCA)	ND	5. µg/kg
Dibromomethane	ND	5. µg/kg	1,1,2-Trichloroethane (1,1,2-TCA)	ND	5. µg/kg
1,2-Dichlorobenzene (o-DCB)	ND	5. µg/kg	Trichloroethene (TCE)	ND	5. µg/kg
1,3-Dichlorobenzene (m-DCB)	ND	5. µg/kg	Trichlorofluoromethane (Freon 11)	ND	10. µg/kg
1,4-Dichlorobenzene (p-DCB)	ND	5. µg/kg	1,2,3-Trichloropropane	ND	5. µg/kg
Dichlorodifluoromethane (Freon 12)	ND	5. µg/kg	1,2,4-Trimethylbenzene	ND	5. µg/kg
1,1-Dichloroethane (1,1-DCA)	ND	5. µg/kg	1,3,5-Trimethylbenzene	ND	5. µg/kg
1,2-Dichloroethane (1,2-DCA)	ND	5. µg/kg	Vinyl chloride	ND	5. µg/kg
1,1-Dichloroethene (1,1-DCE)	ND	5. µg/kg	o-Xylene	ND	5. µg/kg
trans-1,2-Dichloroethene	ND	5. µg/kg	m,p-Xylene	ND	5. µg/kg
trans-1,2-Dichloroethene	ND	5. µg/kg			
1,2-Dichloropropane	ND	5. µg/kg			
1,3-Dichloropropane	ND	5. µg/kg			
1,2-Dichloropropane	ND	10. µg/kg			

## QUALITY CONTROL DATA:

Surrogate	% Recovery	Acceptable Range
1-Bromofluorobenzene	93	74 - 121
Dibromofluoromethane	96	80 - 120
Toluene-d8	92	81 - 117

ND - Not Detected

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# NEL LABORATORIES

CLIENT: Kleinfelder  
PROJECT ID: Las Vegas Armory  
PROJECT #: NA

CLIENT ID: Method Blank  
DATE SAMPLED: NA  
NEL SAMPLE ID: 991206SD60\_2-BLK

TEST: Volatile Organic Compounds by EPA 8260B, December 1996

METHOD: EPA 8260B

MATRIX: Solid

ANALYST: BJV - Las Vegas Division

EXTRACTED: 12/6/99

ANALYZED: 12/6/99

PARAMETER	Result µg/kg	Reporting Limit	PARAMETER	Result µg/kg	Reporting Limit
acetone	ND	25 µg/kg	1,1-Dichloropropene	ND	5 µg/kg
benzene	ND	5 µg/kg	cis-1,3-Dichloropropene	ND	5 µg/kg
Bromobenzene	ND	5 µg/kg	trans-1,3-Dichloropropene	ND	5 µg/kg
bromochloromethane	ND	5 µg/kg	Ethylbenzene	ND	5 µg/kg
bromodichloromethane	ND	5 µg/kg	Hexachlorobutadiene	ND	5 µg/kg
Bromoform	ND	5 µg/kg	2-Hexanone	ND	25 µg/kg
bromomethane	ND	5 µg/kg	Iodomethane	ND	5 µg/kg
Butanone	ND	25 µg/kg	Isopropylbenzene	ND	5 µg/kg
n-Butylbenzene	ND	5 µg/kg	p-Isopropyltoluene	ND	5 µg/kg
sec-Butylbenzene	ND	5 µg/kg	Methylene chloride (Dichloromethane)	ND	5 µg/kg
tert-Butylbenzene	ND	5 µg/kg	4-Methyl-2-pentanone	ND	25 µg/kg
Carbon disulfide	ND	5 µg/kg	MTBE	ND	5 µg/kg
Carbon tetrachloride	ND	5 µg/kg	Naphthalene	ND	10 µg/kg
chlorobenzene	ND	5 µg/kg	n-Propylbenzene	ND	5 µg/kg
chloroethane	ND	5 µg/kg	Styrene	ND	5 µg/kg
Chloroform	ND	5 µg/kg	1,1,1,2-Tetrachloroethane	ND	5 µg/kg
chloromethane	ND	5 µg/kg	1,1,2,2-Tetrachloroethane	ND	5 µg/kg
Chlorotoluene	ND	5 µg/kg	Tetrachloroethene (PCE)	ND	5 µg/kg
4-Chlorotoluene	ND	5 µg/kg	Toluene	ND	5 µg/kg
Dibromochloromethane	ND	5 µg/kg	1,2,3-Trichlorobenzene	ND	5 µg/kg
1,2-Dibromo-3-chloropropane (DBCP)	ND	5 µg/kg	1,2,4-Trichlorobenzene	ND	5 µg/kg
1,2-Dibromoethane (EDB)	ND	5 µg/kg	1,1,1-Trichloroethane (1,1,1-TCA)	ND	5 µg/kg
Dibromomethane	ND	5 µg/kg	1,1,2-Trichloroethane (1,1,2-TCA)	ND	5 µg/kg
2-Dichlorobenzene (o-DCB)	ND	5 µg/kg	Trichloroethene (TCE)	ND	5 µg/kg
3-Dichlorobenzene (m-DCB)	ND	5 µg/kg	Trichlorofluoromethane (Freon 11)	ND	10 µg/kg
1,4-Dichlorobenzene (p-DCB)	ND	5 µg/kg	1,2,3-Trichloropropane	ND	5 µg/kg
Trichlorodifluoromethane (Freon 12)	ND	5 µg/kg	1,2,4-Trimethylbenzene	ND	5 µg/kg
1,1-Dichloroethane (1,1-DCA)	ND	5 µg/kg	1,3,5-Trimethylbenzene	ND	5 µg/kg
1,2-Dichloroethane (1,2-DCA)	ND	5 µg/kg	Vinyl chloride	ND	5 µg/kg
1,1-Dichloroethene (1,1-DCE)	ND	5 µg/kg	o-Xylene	ND	5 µg/kg
cis-1,2-Dichloroethene	ND	5 µg/kg	m,p-Xylene	ND	5 µg/kg
trans-1,2-Dichloroethene	ND	5 µg/kg			
1,2-Dichloropropane	ND	5 µg/kg			
3-Dichloropropane	ND	5 µg/kg			
2-Dichloropropane	ND	10 µg/kg			

## QUALITY CONTROL DATA:

Surrogate	% Recovery	Acceptable Range
4-Bromofluorobenzene	102	74 - 121
Dibromofluoromethane	98	80 - 120
Toluene-d8	98	81 - 117

ND - Not Detected

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# NEL LABORATORIES

CLIENT: Kleinfelder  
PROJECT ID: Las Vegas Armory  
PROJECT #: NA

CLIENT ID: Method Blank  
DATE SAMPLED: NA  
NEL SAMPLE ID: 991208SD60-BLK

TEST: Volatile Organic Compounds by EPA 8260B, December 1996

METHOD: EPA 8260B

MATRIX: Solid

ANALYST: BJV - Las Vegas Division

EXTRACTED: 12/8/99

ANALYZED: 12/8/99

PARAMETER	Result µg/kg	Reporting Limit	PARAMETER	Result µg/kg	Reporting Limit
Acetone	ND	25 µg/kg	1,1-Dichloropropene	ND	5 µg/kg
Benzene	ND	5 µg/kg	cis-1,3-Dichloropropene	ND	5 µg/kg
Bromobenzene	ND	5 µg/kg	trans-1,3-Dichloropropene	ND	5 µg/kg
Bromochloromethane	ND	5 µg/kg	Ethylbenzene	ND	5 µg/kg
Bromodichloromethane	ND	5 µg/kg	Hexachlorobutadiene	ND	5 µg/kg
Bromoform	ND	5 µg/kg	2-Hexanone	ND	25 µg/kg
Bromomethane	ND	5 µg/kg	Iodomethane	ND	5 µg/kg
n-Butanone	ND	25 µg/kg	Isopropylbenzene	ND	5 µg/kg
n-Butylbenzene	ND	5 µg/kg	p-Isopropyltoluene	ND	5 µg/kg
sec-Butylbenzene	ND	5 µg/kg	Methylene chloride (Dichloromethane)	ND	5 µg/kg
tert-Butylbenzene	ND	5 µg/kg	4-Methyl-2-pentanone	ND	25 µg/kg
Carbon disulfide	ND	5 µg/kg	MTBE	ND	5 µg/kg
Carbon tetrachloride	ND	5 µg/kg	Naphthalene	ND	10 µg/kg
Chlorobenzene	ND	5 µg/kg	n-Propylbenzene	ND	5 µg/kg
Chloroethane	ND	5 µg/kg	Styrene	ND	5 µg/kg
Chloroform	ND	5 µg/kg	1,1,1,2-Tetrachloroethane	ND	5 µg/kg
Chloromethane	ND	5 µg/kg	1,1,2,2-Tetrachloroethane	ND	5 µg/kg
o-Chlorotoluene	ND	5 µg/kg	Tetrachloroethene (PCE)	ND	5 µg/kg
4-Chlorotoluene	ND	5 µg/kg	Toluene	ND	5 µg/kg
Dibromochloromethane	ND	5 µg/kg	1,2,3-Trichlorobenzene	ND	5 µg/kg
1,2-Dibromo-3-chloropropane (DBCP)	ND	5 µg/kg	1,2,4-Trichlorobenzene	ND	5 µg/kg
1,2-Dibromoethane (EDB)	ND	5 µg/kg	1,1,1-Trichloroethane (1,1,1-TCA)	ND	5 µg/kg
Dibromomethane	ND	5 µg/kg	1,1,2-Trichloroethane (1,1,2-TCA)	ND	5 µg/kg
1,2-Dichlorobenzene (o-DCB)	ND	5 µg/kg	Trichloroethene (TCE)	ND	5 µg/kg
1,3-Dichlorobenzene (m-DCB)	ND	5 µg/kg	Trichlorofluoromethane (Freon 11)	ND	10 µg/kg
1,4-Dichlorobenzene (p-DCB)	ND	5 µg/kg	1,2,3-Trichloropropane	ND	5 µg/kg
Dichlorodifluoromethane (Freon 12)	ND	5 µg/kg	1,2,4-Trimethylbenzene	ND	5 µg/kg
1,1-Dichloroethane (1,1-DCA)	ND	5 µg/kg	1,3,5-Trimethylbenzene	ND	5 µg/kg
1,2-Dichloroethane (1,2-DCA)	ND	5 µg/kg	Vinyl chloride	ND	5 µg/kg
1,1-Dichloroethene (1,1-DCE)	ND	5 µg/kg	o-Xylene	ND	5 µg/kg
cis-1,2-Dichloroethene	ND	5 µg/kg	m,p-Xylene	ND	5 µg/kg
trans-1,2-Dichloroethene	ND	5 µg/kg			
1,2-Dichloropropane	ND	5 µg/kg			
1,3-Dichloropropane	ND	5 µg/kg			
1,2-Dichloropropane	ND	10 µg/kg			

## QUALITY CONTROL DATA:

Surrogate	% Recovery	Acceptable Range
4-Bromofluorobenzene	97	74 - 121
Dibromofluoromethane	96	80 - 120
Toluene-d8	95	81 - 117

ND - Not Detected

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# NEL LABORATORIES

CLIENT: Kleinfelder  
PROJECT ID: Las Vegas Armory  
PROJECT #: NA

CLIENT ID: S2-W-10'  
DATE SAMPLED: 11/30/99  
NEL SAMPLE ID: L9911254-01

TEST: Metals  
MATRIX: Solid

ANALYST: JY - Reno Division

<u>PARAMETER</u>	<u>RESULT</u> <u>mg/kg</u>	<u>REPORTING</u> <u>LIMIT</u>	<u>D. F.</u>	<u>METHOD</u>	<u>DIGESTED</u>	<u>ANALYZED</u>
Cadmium	ND	0.5 mg/kg	50	EPA 6010	12/7/99	12/8/99
Chromium	8.1	0.5 mg/kg	50	EPA 6010	12/7/99	12/8/99
Lead	3.9	2.5 mg/kg	50	EPA 6010	12/7/99	12/8/99
Nickel	9.3	2. mg/kg	50	EPA 6010	12/7/99	12/8/99
Copper	26	5. mg/kg	50	EPA 6010	12/7/99	12/8/99

D.F. - Dilution Factor

ND - Not Detected

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# NEL LABORATORIES

CLIENT: Kleinfelder  
PROJECT ID: Las Vegas Armory  
PROJECT #: NA

CLIENT ID: S4-N-10'  
DATE SAMPLED: 11/30/99  
NEL SAMPLE ID: L9911254-03

EST: Metals  
MATRIX: Solid

ANALYST: JY - Reno Division

<u>PARAMETER</u>	<u>RESULT</u> <u>mg/kg</u>	<u>REPORTING</u> <u>LIMIT</u>	<u>D. F.</u>	<u>METHOD</u>	<u>DIGESTED</u>	<u>ANALYZED</u>
cadmium	ND	0.5 mg/kg	50	EPA 6010	12/7/99	12/8/99
chromium	8.2	0.5 mg/kg	50	EPA 6010	12/7/99	12/8/99
Lead	3.0	2.5 mg/kg	50	EPA 6010	12/7/99	12/8/99
Nickel	9.5	2. mg/kg	50	EPA 6010	12/7/99	12/8/99
inc	28	5. mg/kg	50	EPA 6010	12/7/99	12/8/99

D.F. - Dilution Factor

ND - Not Detected

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# NEL LABORATORIES

CLIENT: Kleinfelder  
 PROJECT ID: Las Vegas Armory  
 PROJECT #: NA

CLIENT ID: S5-B-14'  
 DATE SAMPLED: 11/30/99  
 NEL SAMPLE ID: L9911254-04

TEST: Metals  
 MATRIX: Solid

ANALYST: JY - Reno Division

<u>PARAMETER</u>	<u>RESULT</u> <u>mg/kg</u>	<u>REPORTING</u> <u>LIMIT</u>	<u>D. F.</u>	<u>METHOD</u>	<u>DIGESTED</u>	<u>ANALYZED</u>
cadmium	ND	0.5 mg/kg	50	EPA 6010	12/7/99	12/8/99
chromium	1.8	0.5 mg/kg	50	EPA 6010	12/7/99	12/8/99
Lead	ND	2.5 mg/kg	50	EPA 6010	12/7/99	12/8/99
Nickel	2.3	2. mg/kg	50	EPA 6010	12/7/99	12/8/99
inc	7.1	5. mg/kg	50	EPA 6010	12/7/99	12/8/99

D.F. - Dilution Factor

ND - Not Detected

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# NEL LABORATORIES

CLIENT: Kleinfelder  
PROJECT ID: Las Vegas Armory  
PROJECT #: NA

TEST: Total Extractable Petroleum Hydrocarbons by EPA Method 8015M, December 1996  
METHOD: EPA 8015M  
ORDER ID: L9911254

MATRIX: Solid ANALYST: SLB - Las Vegas Division

CLIENT SAMPLE ID	SAMPLE DATE	NEL SAMPLE ID	RESULT mg/kg	C.R.	Reporting Limit	Surrogate Recovery*	EXTRACTED	ANALYZED
S2-W-10'	11/30/99	L9911254-01	ND	ND	10. mg/kg	92 %	11/30/99	11/30/99
S3-5-10'	11/30/99	L9911254-02	600	O	20. mg/kg	76 %	11/30/99	11/30/99
S4-N-10'	11/30/99	L9911254-03	ND	ND	20. mg/kg	96 %	11/30/99	11/30/99
S5-B-14'	11/30/99	L9911254-04	ND	ND	10. mg/kg	88 %	11/30/99	11/30/99

## C.R.: Carbon Range

O Oil Range Organics (C18 to C34).

QUALITY CONTROL DATA (Total for Diesel Range):

Sample ID	Result	Acceptable Range	Surrogate Recovery*	Sample Number
Blank, 991130TP -BLK	ND	< 10 mg/kg	81 %	NA
LCS, 991130TPHS-LCS	81 %	57 - 114 %	78 %	NA
LCSD, 991130TPHS-LCSD	86 %	55 - 102 %	89 %	NA
MS, 991130TPHS-MS	34 %	38 - 117 %	81 %	L9911241-01
MSD, 991130TPHS-MSD	71 %	38 - 117 %	90 %	L9911241-01

\* Surrogate used was Octacosane, acceptance limits 54-130%.

ND - Not Detected

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# NEL LABORATORIES

CLIENT: Kleinfelder  
 PROJECT ID: Las Vegas Armory  
 PROJECT #: NA  
 DATE SAMPLED: NA  
 NEL SAMPLE ID: S11036-C17-BLK  
 METHOD: Method Blank

TEST: Metals

PARAMETER	RESULT	REPORTING LIMIT	D.F.	METHOD	DIGESTED	ANALYZED
Cadmium	ND	0.5 mg/kg	50	EPA 6010	12/7/99	12/8/99
Chromium	ND	0.5 mg/kg	50	EPA 6010	12/7/99	12/8/99
Lead	ND	2.5 mg/kg	50	EPA 6010	12/7/99	12/8/99
Nickel	ND	2. mg/kg	50	EPA 6010	12/7/99	12/8/99
Zinc	ND	5. mg/kg	50	EPA 6010	12/7/99	12/8/99

D.F. - Dilution Factor  
 D - Not Detected

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