

FOR CONTRACT NO.: 03-4E9904

INFORMATION HANDOUT

**AERIALY DEPOSITED LEAD SITE INVESTIGATION
REPORT, State Route 99 / Neal Road Intersection Improvement
Project, Butte County, California, dated February 26-2010**

ROUTE: 03-BUT-99-25.9/26.2

***AERIALLY DEPOSITED LEAD
SITE INVESTIGATION REPORT
State Route 99 / Neal Road
Intersection Improvements Project
Butte County, California***

***Prepared for:
David Evans and Associates
1544 Eureka Road, Suite 200
Roseville, California 95661***

***Prepared by:
Holdrege & Kull
792 Searls Avenue
Nevada City, California 95959***

***Project No. 3732-02
February 26, 2010***

Project No. 3732-02
February 26, 2010

David Evans and Associates, Inc.
1544 Eureka Road, Suite 200
Roseville, CA 95661

Attention: Mr. Mike Higgins, Senior Transportation Planner

Reference: *Neal Road / State Route 99 Intersection Improvements Project*
Butte County, California

Subject: *Aerially Deposited Lead Site Investigation Report*

Dear Mr. Higgins:

Holdrege & Kull (H&K) prepared this report to summarize the results of soil sampling and laboratory lead analysis for the State Route 99 / Neal Road Intersection Improvements Project located south of Chico in Butte County, California.

The purpose of H&K's investigation was to assess the potential for elevated soil lead concentrations resulting from aerially deposited lead (ADL). H&K previously performed an Initial Site Assessment (ISA; November 20, 2009) that identified the potential for ADL at the project site associated with past leaded fuel emissions from traffic on State Route 99.

The investigation was performed at two locations of proposed construction activity associated with the intersection improvements project. The investigation findings indicate that soil lead levels within the investigated areas are not significantly elevated.

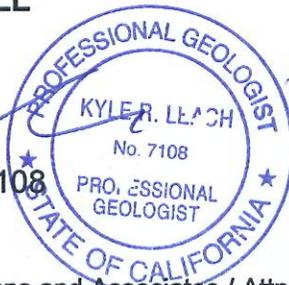
Please contact the undersigned if you have any questions regarding H&K's site assessment or the conclusions and recommendations presented in this report.

Sincerely,

HOLDREGE & KULL

Prepared by:


Kyle Leach, R.G. 7108
Project Geologist



Reviewed by:


Jason W. Muir, C.E. 60167
Principal Engineer



copies: 5 to David Evans and Associates / Attn: Mike Higgins
Electronic copy in PDF format to Mike Higgins, Msh@deainc.com

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LIST OF ACRONYMS

| | |
|-------|---|
| ADL | Aerially deposited lead |
| ASTM | American Society for Testing and Materials |
| BCAG | Butte County Association of Governments |
| CEQA | California Environmental Quality Act |
| CHHSL | California Human Health Screening Level |
| CV | Coefficient of variation |
| DEA | David Evans and Associates, Inc. |
| DTSC | California Department of Toxic Substances Control |
| EPA | United States Environmental Protection Agency |
| H&K | Holdrege & Kull |
| ISA | Initial Site Assessment |
| mg/kg | Milligrams per kilogram |
| MSL | Mean sea level |
| NA | Not analyzed |
| ppm | Parts per million |
| SI | Site investigation |
| TTLC | Total Threshold Limit Concentration |
| UCL | Upper Confidence Limit |
| USGS | United States Geological Survey |

1 INTRODUCTION

At the request of David Evans and Associates, Inc. (DEA), Holdrege & Kull (H&K) performed an Aerially Deposited Lead (ADL) Site Investigation (SI) at two locations of proposed construction activity associated with the State Route 99 / Neal Road Intersection Improvements Project (the Project) located south of Chico in Butte County, California. The ADL SI was performed in general accordance with H&K's proposal dated December 21, 2009. Findings of the assessment are presented herein.

1.1 PURPOSE OF ASSESSMENT

The purpose of the assessment was to investigate whether ADL is present at significant concentrations at the two locations of proposed construction activity, where soil disturbance may take place adjacent to the paved road surface. Soil within highway shoulders and medians that existed prior to 1986 and historically carried large volumes of traffic has the potential to be impacted by ADL associated with past leaded fuel vehicle emissions. ADL is commonly limited to the upper two feet in shoulders and medians if the soil has not been disturbed.

1.2 SCOPE OF ASSESSMENT

The ADL SI included the following tasks:

1. H&K performed a pre-work site visit in July 2009 as part of H&K's Phase I Initial Site Assessment (ISA; November 20, 2009) field reconnaissance.
2. H&K prepared a Health and Safety Plan dated January 2010 to outline health and safety procedures to be implemented during the ADL SI field activities.
3. To facilitate the ADL SI field activities, H&K performed shoulder and median closure pursuant to the California Department of Transportation (Caltrans) Standard Plan T10, which included advance warning sign and cones. The field activities were performed under an encroachment permit obtained by DEA.
4. H&K obtained 20 discrete soil samples from the upper 6 inches of exposed soil within the two proposed disturbance areas using hand tools. Sampling equipment was cleaned between sample locations to remove soil and reduce the chance of cross-contamination between sample locations.

5. H&K contracted with a California-certified analytical laboratory for analysis of total lead in 12 of the 20 soil samples. Based on the low levels of total lead detected in the samples, analysis for soluble lead was not performed.
6. H&K evaluated the laboratory data and prepared this ADL SI report, which includes a site description, laboratory test results, a vicinity map and sampling map, the results of statistical calculations, and a discussion of human health risk associated with the soil lead concentrations encountered at the site.

1.3 LIMITATIONS OF ASSESSMENT

The following limitations apply to the investigation and findings presented in this report:

The ADL SI scope of services was limited to the characterization of lead concentrations in near-surface soil. The information provided in this report is not meant to identify all potential environmental concerns, or to eliminate the risk associated with environmental conditions.

H&K used professional judgment and experience to arrive at the conclusions presented in this report. Therefore, the conclusions are not to be considered scientific certainties. Professional judgment and interpretation are inherent in the site investigation process, and no site investigation can eliminate all uncertainty. The concentrations detected in the samples collected during site investigation may not be representative of conditions between locations sampled. Other forms of contamination may be present within the site that H&K's limited investigation did not detect.

H&K prepared and issued this ADL SI report for the exclusive use of our client. The information, conclusions and recommendations presented apply only to the subject property. H&K is not responsible for any other party's interpretations of the reported information.

H&K performed this work in accordance with present, regional, generally accepted standards of care. This report does not represent a legal opinion. No warranty, expressed or implied, including any implied warranty of merchantability or fitness for the purpose is made or intended in connection with the work.

The findings of this report are valid as of the present date. However, changes in the conditions of the property can occur with the passage of time. The changes may be due to natural processes or to the works of man, on the project site or adjacent

properties. Changes in regulations, interpretations, and/or enforcement policies may occur at any time. Therefore, the usability of data collected as part of this ADL SI may have a finite lifetime depending on the application and use being made of the data. A qualified environmental professional should evaluate whether the generated data are appropriate for any subsequent use beyond the original purpose for which it was collected.

2 BACKGROUND

H&K previously performed an ISA (November 20, 2009) that identified the potential for aerially deposited lead (ADL) in soil. Soil within highway shoulders and medians that existed prior to 1986 and historically carried large volumes of traffic has the potential to be impacted by ADL associated with past leaded fuel vehicle emissions. ADL is commonly limited to the upper two feet in shoulders and medians if the soil has not been disturbed.

Within the Project site, the potential for ADL was greatest adjacent to the older, northbound lanes of State Route 99. Characterization of soil lead concentrations is appropriate at locations of proposed construction activity, because the disturbance of soil containing significantly elevated lead concentrations could present a potential health concern. Soil containing ADL, if identified in an area of proposed construction activity, would typically require management in accordance with the applicable Caltrans special provisions for ADL, as well as Variance No. V09HQSCD006 issued by the California Department of Toxic Substances Control (DTSC; July 1, 2009).

2.1 SITE DESCRIPTION

The Project site is located at the intersection of State Route 99 and Neal Road, approximately 2 miles south of Chico in Butte County, California. According to the Hamlin Canyon Quadrangle topographic map (United States Geological Survey (USGS), 1951, photorevised 1969) the property is located in the northeast quarter of the northwest quarter of Section 22, Township 21 North, Range 2 East. The approximate site elevations range from 190 to 200 feet above mean sea level (MSL). A location map is presented as Figure 1, and a site map is presented as Figure 2.

SR 99 consists of a four-lane divided highway with the two northbound lanes surfaced in asphalt and the two southbound lanes surfaced in concrete. An approximately 25-foot to 30-foot-wide median separates the northbound and southbound lanes. The center of the intersection is open and paved to allow turning traffic. Turn lanes border both sides of the northbound and southbound SR 99 to allow turns onto Neal Road.

SR 99 is elevated approximately 10 to 15 feet above surrounding topography. Neal Road slopes moderately down to the east and west of the intersection to an elevation slightly above the surrounding topography. The SR 99 shoulders are paved with curb and gutter, and the adjacent shoulder edges and right-of-ways are surfaced in soil

and/or gravel, sloping relatively steeply down to the adjacent agricultural fields. The site is bordered by undeveloped agricultural land on all four sides of the intersection.

2.2 PROPOSED IMPROVEMENTS

The following description of the proposed State Route 99/Neal Road Intersection Improvement Project was provided by De Novo Planning Group.

The Project is funded in part by Caltrans and by the County of Butte. Butte County has delegated the responsibility for design, engineering, environmental review, and project management to the Butte County Association of Governments (BCAG). As such, BCAG is assuming the lead agency role for compliance with the California Environmental Quality Act (CEQA). Additionally, BCAG will serve as liaison with Caltrans to ensure that the proposed Project complies with Caltrans' design and environmental standards.

The purpose of the Project is to reduce the potential for accidents at the existing intersection by eliminating uncontrolled left turn movements. The Project is needed to address higher than average accident rates at the intersection and potentially increased accident rates in the future.

To address safety and operational concerns at the intersection, the Project will install signals to eliminate the left turn conflicts with SR 99 traffic. The work will include the construction of a three phase signal system and the addition of a new dedicated right turn lane on the westbound approach of Neal Road. The new signal system will be located in the Caltrans right-of-way and designed to Caltrans standards. Bicycle loop detectors will be installed at the Neal Road approaches to accommodate cyclists utilizing Neal Road, which is identified as a significant bike route in Butte County's bicycle master plan. The dedicated right turn lane on westbound Neal Road will reduce traffic from backing up on Neal Road while motorists wait for a left turn signal. The northbound SR 99 left turn lane to westbound Neal Road will also be lengthened to accommodate future traffic volumes and to allow for deceleration to take place entirely off of the mainline.

Minor grading and earthwork will take place to lengthen the SR 99 northbound left turn lane, as well as on westbound Neal Road, where the side slope will be modified to accommodate the dedicated right turn lane. As outlined in an email from DEA dated December 17, 2009, H&K understands that soil disturbance is planned in two areas:

- The SR 99 northbound left turn lane, which is to be extended approximately 100 feet to the south; and
- The westbound Neal Road right turn lane, a 200-foot segment of which is to be widened up to approximately 20 feet.

These proposed soil disturbance areas are located adjacent to the older, northbound lanes which were in use prior to 1986.

2.3 SUMMARY OF PREVIOUS ASSESSMENT

H&K performed an ISA Project site in 2009. The ISA, which was performed in general conformance with the scope and limitations of ASTM Practice E 1527-05, identified evidence of potential recognized environmental conditions in connection with the property including aurally deposited lead and the potential for lead in yellow paint and thermoplastic striping.

The ISA recommended that, if soil that is potentially impacted by ADL (particularly adjacent to the older, northbound lanes of SR 99) is to be disturbed during the Project, or if striping or paint that has the potential to contain elevated lead levels is to be removed separately, the materials should be sampled and tested to determine whether special handling and disposal procedures are appropriate.

3 INVESTIGATION ACTIVITIES

3.1 RATIONALE FOR SAMPLING STRATEGY

Discrete, near-surface soil samples were obtained from the two areas of proposed construction activity. Sample locations are depicted on Figure 2. The sampling effort was designed to obtain uniform coverage of the exposed soil surface within the areas of proposed construction activity. Ten soil samples were obtained from each area to provide a sufficient population of data for statistical analysis in the event that statistical analysis was deemed necessary.

The westbound Neal Road right turn lane is to be widened up to approximately 20 feet extending east from its intersection with SR 99 for a distance of approximately 200 feet. At the time of H&K's investigation, soil was exposed in a relatively narrow shoulder, and a steep slope extended down to an adjacent agricultural field. Ten soil samples were obtained at 20-foot intervals evenly distributed along the shoulder, at distances of five to ten feet north of the edge of pavement.

The SR 99 northbound left turn lane is to be extended approximately 100 feet to the south of the beginning of the current turn lane. At the time of H&K's investigation, soil exposed at the surface of the median supported low grass and was covered by gravel adjacent to the paved surface. The proposed disturbance area was slightly lower in elevation than the adjacent roadway surface. Ten soil samples were obtained at 10-foot intervals evenly distributed along the proposed disturbance area, at distances of 10 to 12 feet west of the edge of the paved highway surface.

3.2 SOIL SAMPLING PROCEDURES

On January 28, 2010, H&K obtained 20 discrete soil samples from the upper 6 inches of exposed soil within the two proposed disturbance areas. Shallow excavations were advanced with clean hand tools, and the discrete soil samples were obtained from the excavations using pre-cleaned stainless steel or disposable single-use plastic scoops. The soil samples were transferred to laboratory-supplied glass jars, which were immediately sealed with Teflon-lined lids and labeled with a unique sample identification number, project name and number, and date and time of sampling. Photographs of the sampling event are presented in Appendix A.

3.3 LABORATORY ANALYSIS

The soil samples were delivered by courier under chain-of-custody documentation to Excelchem Environmental Labs of Rocklin, California. Excelchem is a California-certified analytical laboratory for analysis of total lead, and Excelchem's ELAP Certification Number is 2119. Twelve of the 20 soil samples (six samples from each area) were selected for laboratory analysis of total lead by EPA Method 6010B.

3.4 QUALITY ASSURANCE

The investigation included quality assurance procedures and laboratory techniques which provide quality control over the chemical analyses. H&K utilized written chain-of-custody records, which accompanied the sample shipment to the laboratory, to document sample collection and handling, to identify the persons involved in the chain of sample possession, and to document the requested analytical parameters. Laboratory quality control procedures are documented in the laboratory reports, which are presented in Appendix B. Excelchem's laboratory report identified surrogate recoveries within the recommended tolerance limits. Excelchem determined that the data satisfied their internal quality control requirements and are suitable for use.

4 EVALUATION AND PRESENTATION OF RESULTS

4.1 SITE CONDITIONS

Near-surface soil conditions encountered during the ADL SI were generally described as reddish brown, silty fine sand. Gravel and road base materials were encountered at some sample locations. No groundwater nor seepage was encountered in the shallow excavations.

4.2 ANALYTICAL LABORATORY RESULTS

Laboratory results are summarized in Table 1. The laboratory report, quality control data and chain-of-custody documentation are presented in Appendix B. Total lead concentrations ranged from 3.5 to 23.3 milligrams per kilogram (mg/kg). These values are more than an order of magnitude lower than the Total Threshold Limit Concentration (TTLC; 500 mg/kg) used for designation of hazardous waste, and are lower than the California Human Health Screening Level (CHHSL) for lead in commercial (320 mg/kg) and residential (80 mg/kg) soil.

Based on these results indicating lead concentrations did not exceed 50 mg/kg (ten times the soluble threshold limit concentration) in any of the analyzed samples, no additional analysis was performed for soluble lead.

4.3 STATISTICAL ANALYSIS

H&K analyzed the total lead data set using ProUCL Version 4.00.04 (USEPA, February 2009). ProUCL output is presented in Appendix C.

The total lead concentrations range from 3.5 to 23.3 mg/kg, and the mean concentration of the data set is 16.6 mg/kg. Based on the Shapiro Wilk distribution test, the data appear normal at a 5% significance level. Assuming a normal distribution, the 95% Student's-t Upper Confidence Limit (UCL) on the mean total lead concentration is 19.5 mg/kg.

The DTSC (1997) provides a framework in which ambient metals concentrations may be identified. Data drawn from just one population will typically display a range of detected values of no more than two orders of magnitude and a coefficient of variation (CV) no greater than 1. As is typical of data drawn from a single population, the range

of detected values is less than one order of magnitude, and the CV is 0.34. However, the lowest value (3.5 mg/kg) is identified as a possible outlier, indicating that ambient lead concentrations may be lower than the range of detected lead values.

A quantile-quantile (Q-Q) plot is presented in Appendix C. Excepting the lowest lead value (3.5 mg/kg), this cumulative probability plot of data is essentially a straight line, indicating that the data are drawn from a single population. Although these values may be slightly elevated above background soil lead concentrations, the contribution of ADL to the soil lead concentrations appears to be insignificant with respect to the regulatory benchmark values discussed above in Section 4.2 of this report.

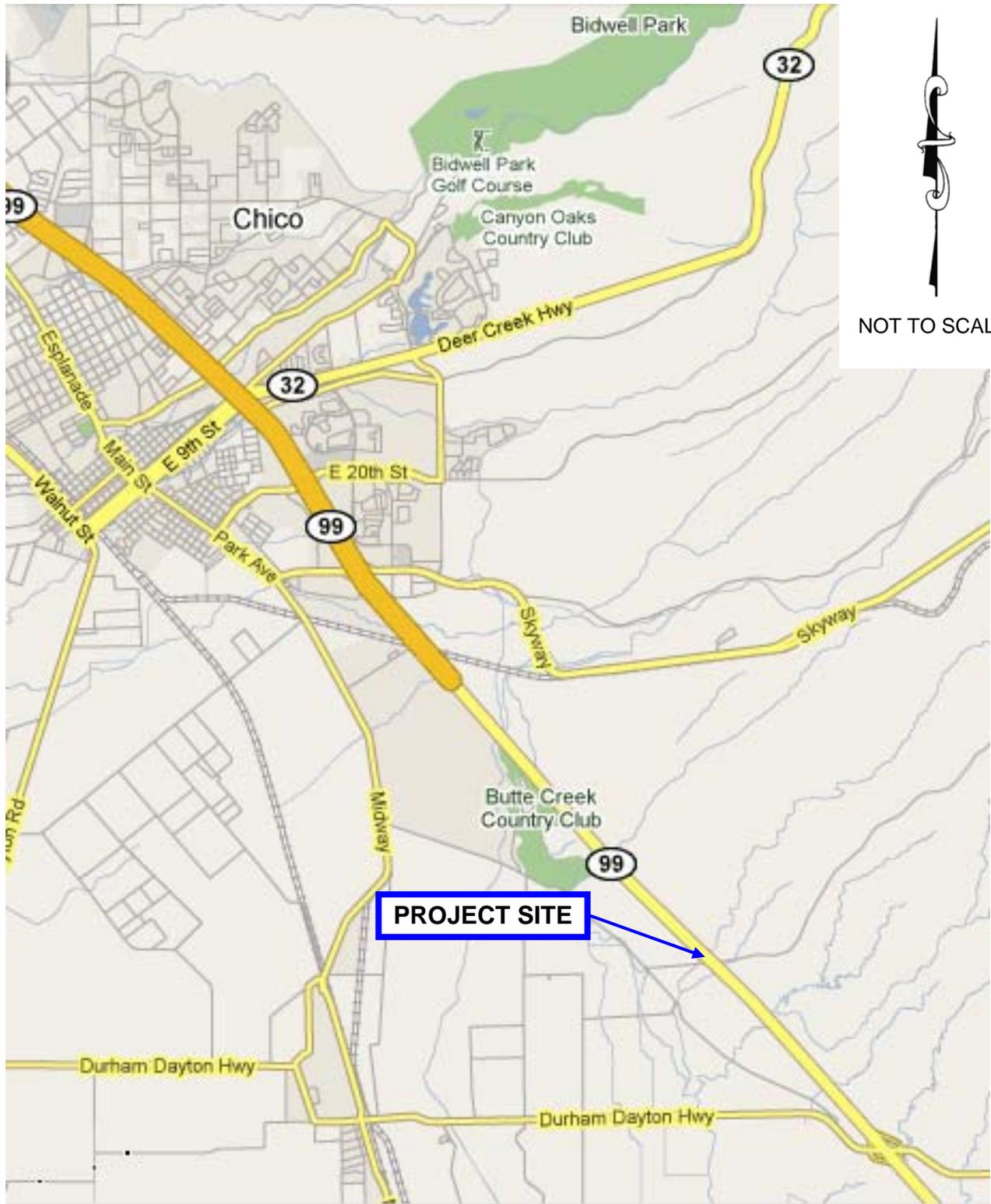
5 FINDINGS AND CONCLUSIONS

The soil lead concentrations encountered at the site are lower than the regulatory benchmarks typically applied to total lead in soil in California, as discussed in Section 4.2 of this report. Because the contribution of ADL to soil lead concentrations does not appear to be significant, this report does not present recommendations for waste disposal. H&K's opinion is that the lead concentrations encountered at the site do not suggest that soil management is required in accordance with the Caltrans special provisions for ADL, nor are the provisions of Variance No. V09HQSCD006 believed to be applicable to the soil lead concentrations detected at the site.

FIGURES

Figure 1 Site Location Map

Figure 2 Soil Sample Location Map



NOT TO SCALE

HK HOLDREG & KULL
 CONSULTING ENGINEERS • GEOLOGISTS
 792 Searls Avenue • Nevada City, CA 95959
 (530) 478-1305 • FAX (530) 478-1019

SITE LOCATION MAP
 NEAL ROAD / SR 99 INTERSECTION
 BUTTE COUNTY, CALIFORNIA

FIGURE 1
 PROJECT 3732-02
 FEBRUARY 2010



TABLES

Table 1 Total Lead in Soil Samples

Table 1 - Total Lead in Soil Samples, January 28, 2010

State Route 99 - Neal Road

Butte County, CA

| Sample No. | Date | Depth (feet) | Total Lead¹ (mg/kg) | Sample Location |
|-------------------|-------------|---------------------|---|----------------------------|
| Neal-S1 | 01/28/10 | 0 - 0.5 | 17.9 | Neal Road - North Shoulder |
| Neal-S2 | 01/28/10 | 0 - 0.5 | 18.5 | Neal Road - North Shoulder |
| Neal-S3 | 01/28/10 | 0 - 0.5 | 22.1 | Neal Road - North Shoulder |
| Neal-S4 | 01/28/10 | 0 - 0.5 | NA | Neal Road - North Shoulder |
| Neal-S5 | 01/28/10 | 0 - 0.5 | 13.9 | Neal Road - North Shoulder |
| Neal-S6 | 01/28/10 | 0 - 0.5 | NA | Neal Road - North Shoulder |
| Neal-S7 | 01/28/10 | 0 - 0.5 | 18.5 | Neal Road - North Shoulder |
| Neal-S8 | 01/28/10 | 0 - 0.5 | NA | Neal Road - North Shoulder |
| Neal-S9 | 01/28/10 | 0 - 0.5 | 23.3 | Neal Road - North Shoulder |
| Neal-S10 | 01/28/10 | 0 - 0.5 | NA | Neal Road - North Shoulder |
| SR99-S1 | 01/28/10 | 0 - 0.5 | 22.1 | State Route 99 - Median |
| SR99-S2 | 01/28/10 | 0 - 0.5 | NA | State Route 99 - Median |
| SR99-S3 | 01/28/10 | 0 - 0.5 | 19.6 | State Route 99 - Median |
| SR99-S4 | 01/28/10 | 0 - 0.5 | NA | State Route 99 - Median |
| SR99-S5 | 01/28/10 | 0 - 0.5 | 13.2 | State Route 99 - Median |
| SR99-S6 | 01/28/10 | 0 - 0.5 | 15.3 | State Route 99 - Median |
| SR99-S7 | 01/28/10 | 0 - 0.5 | NA | State Route 99 - Median |
| SR99-S8 | 01/28/10 | 0 - 0.5 | 3.5 | State Route 99 - Median |
| SR99-S9 | 01/28/10 | 0 - 0.5 | NA | State Route 99 - Median |
| SR99-S10 | 01/28/10 | 0 - 0.5 | 11.2 | State Route 99 - Median |

Notes:

¹ Lead analyzed by US EPA Method 6010B

NA = Not Analyzed

APPENDIX A

Photographs



Photo 1 – ADL sampling at Neal Road shoulder.



Photo 2 – ADL sampling at Neal Road shoulder.



Photo 3 – ADL sampling at State Route 99 median.



Photo 4 – ADL sampling at State Route 99 median.

APPENDIX B

Analytical Laboratory Report

Chain-of-Custody Documentation

EXCELCHEM
Environmental Labs

1135 W Sunset Boulevard
Suite A
Rocklin, CA 95765
Phone# 916-543-4445
Fax# 916-543-4449



ELAP Certificate No. : 2119

04 February 2010

Kyle Leach

Holdrege & Kull-Nevada City

792 Searls Avenue

Nevada City, CA 95959

RE: SR99 Neal Road Int.

Workorder number:1001153

Enclosed are the results of analyses for samples received by the laboratory on 01/28/10 11:40. All Quality Control results are within acceptable limits except where noted as a case narrative. If you have any questions concerning this report, please feel free to contact the laboratory.

Sincerely,

John Somers, Lab Director

Excelchem Environmental Labs

Holdrege & Kull-Nevada City
792 Searls Avenue
Nevada City, CA 95959

Project: SR99 Neal Road Int.
Project Number: 3732-02
Project Manager: Kyle Leach

Date Reported:
02/04/10 14:39

ANALYTICAL REPORT FOR SAMPLES

| Sample ID | Laboratory ID | Matrix | Date Sampled | Date Received |
|-----------|---------------|--------|----------------|----------------|
| Neal - S1 | 1001153-01 | Soil | 01/28/10 08:00 | 01/28/10 11:40 |
| Neal - S2 | 1001153-02 | Soil | 01/28/10 08:00 | 01/28/10 11:40 |
| Neal - S3 | 1001153-03 | Soil | 01/28/10 08:00 | 01/28/10 11:40 |
| Neal - S5 | 1001153-05 | Soil | 01/28/10 08:00 | 01/28/10 11:40 |
| Neal - S7 | 1001153-07 | Soil | 01/28/10 08:00 | 01/28/10 11:40 |
| Neal - S9 | 1001153-09 | Soil | 01/28/10 08:00 | 01/28/10 11:40 |
| SR99-S1 | 1001153-11 | Soil | 01/28/10 08:00 | 01/28/10 11:40 |
| SR99-S3 | 1001153-13 | Soil | 01/28/10 08:00 | 01/28/10 11:40 |
| SR99-S5 | 1001153-15 | Soil | 01/28/10 08:00 | 01/28/10 11:40 |
| SR99-S6 | 1001153-16 | Soil | 01/28/10 08:00 | 01/28/10 11:40 |
| SR99-S8 | 1001153-18 | Soil | 01/28/10 08:00 | 01/28/10 11:40 |
| SR99-S10 | 1001153-20 | Soil | 01/28/10 08:00 | 01/28/10 11:40 |

Excelchem Environmental Lab.

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Laboratory Representative

Excelchem Environmental Labs

Holdrege & Kull-Nevada City
792 Searls Avenue
Nevada City, CA 95959

Project: SR99 Neal Road Int.
Project Number: 3732-02
Project Manager: Kyle Leach

Date Reported:
02/04/10 14:39

**Neal - S1
1001153-01 (Soil)**

| Analyte | Result | Reporting Limit | Units | Batch | Date Prepared | Date Analyzed | Method | Notes |
|---------|--------|-----------------|-------|-------|---------------|---------------|--------|-------|
|---------|--------|-----------------|-------|-------|---------------|---------------|--------|-------|

METALS BY 6000/7000 SERIES

| | | | | | | | | |
|------|------|-----|-------|---------|----------|----------|-----------|--|
| Lead | 17.9 | 1.0 | mg/kg | ATB0007 | 01/29/10 | 02/01/10 | EPA 6010B | |
|------|------|-----|-------|---------|----------|----------|-----------|--|

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Excelchem Environmental Labs

Holdrege & Kull-Nevada City
792 Searls Avenue
Nevada City, CA 95959

Project: SR99 Neal Road Int.
Project Number: 3732-02
Project Manager: Kyle Leach

Date Reported:
02/04/10 14:39

**Neal - S2
1001153-02 (Soil)**

| Analyte | Result | Reporting Limit | Units | Batch | Date Prepared | Date Analyzed | Method | Notes |
|---------|--------|-----------------|-------|-------|---------------|---------------|--------|-------|
|---------|--------|-----------------|-------|-------|---------------|---------------|--------|-------|

METALS BY 6000/7000 SERIES

| | | | | | | | | |
|------|------|-----|-------|---------|----------|----------|-----------|--|
| Lead | 18.5 | 1.0 | mg/kg | ATB0007 | 01/29/10 | 02/01/10 | EPA 6010B | |
|------|------|-----|-------|---------|----------|----------|-----------|--|

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Laboratory Representative

Excelchem Environmental Labs

Holdrege & Kull-Nevada City
792 Searls Avenue
Nevada City, CA 95959

Project: SR99 Neal Road Int.
Project Number: 3732-02
Project Manager: Kyle Leach

Date Reported:
02/04/10 14:39

**Neal - S3
1001153-03 (Soil)**

| Analyte | Result | Reporting Limit | Units | Batch | Date Prepared | Date Analyzed | Method | Notes |
|---------|--------|-----------------|-------|-------|---------------|---------------|--------|-------|
|---------|--------|-----------------|-------|-------|---------------|---------------|--------|-------|

METALS BY 6000/7000 SERIES

| | | | | | | | | |
|------|------|-----|-------|---------|----------|----------|-----------|--|
| Lead | 22.1 | 1.0 | mg/kg | ATB0007 | 01/29/10 | 02/01/10 | EPA 6010B | |
|------|------|-----|-------|---------|----------|----------|-----------|--|

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Excelchem Environmental Labs

Holdrege & Kull-Nevada City
792 Searls Avenue
Nevada City, CA 95959

Project: SR99 Neal Road Int.
Project Number: 3732-02
Project Manager: Kyle Leach

Date Reported:
02/04/10 14:39

**Neal - S5
1001153-05 (Soil)**

| Analyte | Result | Reporting Limit | Units | Batch | Date Prepared | Date Analyzed | Method | Notes |
|---------|--------|-----------------|-------|-------|---------------|---------------|--------|-------|
|---------|--------|-----------------|-------|-------|---------------|---------------|--------|-------|

METALS BY 6000/7000 SERIES

| | | | | | | | | |
|------|------|-----|-------|---------|----------|----------|-----------|--|
| Lead | 13.9 | 1.0 | mg/kg | ATB0007 | 01/29/10 | 02/01/10 | EPA 6010B | |
|------|------|-----|-------|---------|----------|----------|-----------|--|

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Nevada City, CA 95959

Project: SR99 Neal Road Int.
Project Number: 3732-02
Project Manager: Kyle Leach

Date Reported:
02/04/10 14:39

**Neal - S7
1001153-07 (Soil)**

| Analyte | Result | Reporting Limit | Units | Batch | Date Prepared | Date Analyzed | Method | Notes |
|---------|--------|-----------------|-------|-------|---------------|---------------|--------|-------|
|---------|--------|-----------------|-------|-------|---------------|---------------|--------|-------|

METALS BY 6000/7000 SERIES

| | | | | | | | | |
|------|------|-----|-------|---------|----------|----------|-----------|--|
| Lead | 18.5 | 1.0 | mg/kg | ATB0007 | 01/29/10 | 02/01/10 | EPA 6010B | |
|------|------|-----|-------|---------|----------|----------|-----------|--|

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Laboratory Representative

Excelchem Environmental Labs

Holdrege & Kull-Nevada City
792 Searls Avenue
Nevada City, CA 95959

Project: SR99 Neal Road Int.
Project Number: 3732-02
Project Manager: Kyle Leach

Date Reported:
02/04/10 14:39

**Neal - S9
1001153-09 (Soil)**

| Analyte | Result | Reporting Limit | Units | Batch | Date Prepared | Date Analyzed | Method | Notes |
|---------|--------|-----------------|-------|-------|---------------|---------------|--------|-------|
|---------|--------|-----------------|-------|-------|---------------|---------------|--------|-------|

METALS BY 6000/7000 SERIES

| | | | | | | | | |
|------|------|-----|-------|---------|----------|----------|-----------|--|
| Lead | 23.3 | 1.0 | mg/kg | ATB0007 | 01/29/10 | 02/01/10 | EPA 6010B | |
|------|------|-----|-------|---------|----------|----------|-----------|--|

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Project: SR99 Neal Road Int.
Project Number: 3732-02
Project Manager: Kyle Leach

Date Reported:
02/04/10 14:39

**SR99-S1
1001153-11 (Soil)**

| Analyte | Result | Reporting Limit | Units | Batch | Date Prepared | Date Analyzed | Method | Notes |
|---------|--------|-----------------|-------|-------|---------------|---------------|--------|-------|
|---------|--------|-----------------|-------|-------|---------------|---------------|--------|-------|

METALS BY 6000/7000 SERIES

| | | | | | | | | |
|------|------|-----|-------|---------|----------|----------|-----------|--|
| Lead | 22.1 | 1.0 | mg/kg | ATB0007 | 01/29/10 | 02/01/10 | EPA 6010B | |
|------|------|-----|-------|---------|----------|----------|-----------|--|

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Nevada City, CA 95959

Project: SR99 Neal Road Int.
Project Number: 3732-02
Project Manager: Kyle Leach

Date Reported:
02/04/10 14:39

**SR99-S3
1001153-13 (Soil)**

| Analyte | Result | Reporting Limit | Units | Batch | Date Prepared | Date Analyzed | Method | Notes |
|---------|--------|-----------------|-------|-------|---------------|---------------|--------|-------|
|---------|--------|-----------------|-------|-------|---------------|---------------|--------|-------|

METALS BY 6000/7000 SERIES

| | | | | | | | | |
|------|------|-----|-------|---------|----------|----------|-----------|--|
| Lead | 19.6 | 1.0 | mg/kg | ATB0007 | 01/29/10 | 02/01/10 | EPA 6010B | |
|------|------|-----|-------|---------|----------|----------|-----------|--|

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792 Searls Avenue
Nevada City, CA 95959

Project: SR99 Neal Road Int.
Project Number: 3732-02
Project Manager: Kyle Leach

Date Reported:
02/04/10 14:39

**SR99-S5
1001153-15 (Soil)**

| Analyte | Result | Reporting Limit | Units | Batch | Date Prepared | Date Analyzed | Method | Notes |
|---------|--------|-----------------|-------|-------|---------------|---------------|--------|-------|
|---------|--------|-----------------|-------|-------|---------------|---------------|--------|-------|

METALS BY 6000/7000 SERIES

| | | | | | | | | |
|------|------|-----|-------|---------|----------|----------|-----------|--|
| Lead | 13.2 | 1.0 | mg/kg | ATB0007 | 01/29/10 | 02/01/10 | EPA 6010B | |
|------|------|-----|-------|---------|----------|----------|-----------|--|

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Project Number: 3732-02
Project Manager: Kyle Leach

Date Reported:
02/04/10 14:39

**SR99-S6
1001153-16 (Soil)**

| Analyte | Result | Reporting Limit | Units | Batch | Date Prepared | Date Analyzed | Method | Notes |
|---------|--------|-----------------|-------|-------|---------------|---------------|--------|-------|
|---------|--------|-----------------|-------|-------|---------------|---------------|--------|-------|

METALS BY 6000/7000 SERIES

| | | | | | | | | |
|------|------|-----|-------|---------|----------|----------|-----------|--|
| Lead | 15.3 | 1.0 | mg/kg | ATB0007 | 01/29/10 | 02/01/10 | EPA 6010B | |
|------|------|-----|-------|---------|----------|----------|-----------|--|

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Nevada City, CA 95959

Project: SR99 Neal Road Int.
Project Number: 3732-02
Project Manager: Kyle Leach

Date Reported:
02/04/10 14:39

**SR99-S8
1001153-18 (Soil)**

| Analyte | Result | Reporting Limit | Units | Batch | Date Prepared | Date Analyzed | Method | Notes |
|---------|--------|-----------------|-------|-------|---------------|---------------|--------|-------|
|---------|--------|-----------------|-------|-------|---------------|---------------|--------|-------|

METALS BY 6000/7000 SERIES

| | | | | | | | | |
|------|-----|-----|-------|---------|----------|----------|-----------|--|
| Lead | 3.5 | 1.0 | mg/kg | ATB0007 | 01/29/10 | 02/01/10 | EPA 6010B | |
|------|-----|-----|-------|---------|----------|----------|-----------|--|

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Nevada City, CA 95959

Project: SR99 Neal Road Int.
Project Number: 3732-02
Project Manager: Kyle Leach

Date Reported:
02/04/10 14:39

**SR99-S10
1001153-20 (Soil)**

| Analyte | Result | Reporting Limit | Units | Batch | Date Prepared | Date Analyzed | Method | Notes |
|---------|--------|-----------------|-------|-------|---------------|---------------|--------|-------|
|---------|--------|-----------------|-------|-------|---------------|---------------|--------|-------|

METALS BY 6000/7000 SERIES

| | | | | | | | | |
|------|------|-----|-------|---------|----------|----------|-----------|--|
| Lead | 11.2 | 1.0 | mg/kg | ATB0007 | 01/29/10 | 02/01/10 | EPA 6010B | |
|------|------|-----|-------|---------|----------|----------|-----------|--|

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Project: SR99 Neal Road Int.
Project Number: 3732-02
Project Manager: Kyle Leach

Date Reported:
02/04/10 14:39

METALS BY 6000/7000 SERIES - Quality Control

| Analyte | Result | Reporting Limit | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Notes |
|---------|--------|-----------------|-------|-------------|---------------|------|-------------|-----|-----------|-------|
|---------|--------|-----------------|-------|-------------|---------------|------|-------------|-----|-----------|-------|

Batch ATB0007 - EPA 6010B

Blank (ATB0007-BLK1)

Prepared: 01/29/10 Analyzed: 02/01/10

| | | | | | | | | | | |
|------|----|-----|-------|--|--|--|--|--|--|--|
| Lead | ND | 1.0 | mg/kg | | | | | | | |
|------|----|-----|-------|--|--|--|--|--|--|--|

LCS (ATB0007-BS1)

Prepared: 01/29/10 Analyzed: 02/01/10

| | | | | | | | | | | |
|------|------|-----|-------|-----|--|------|--------|--|--|--|
| Lead | 99.1 | 1.0 | mg/kg | 100 | | 99.1 | 80-120 | | | |
|------|------|-----|-------|-----|--|------|--------|--|--|--|

LCS Dup (ATB0007-BSD1)

Prepared: 01/29/10 Analyzed: 02/01/10

| | | | | | | | | | | |
|------|------|-----|-------|-----|--|------|--------|-------|----|--|
| Lead | 99.5 | 1.0 | mg/kg | 100 | | 99.5 | 80-120 | 0.455 | 25 | |
|------|------|-----|-------|-----|--|------|--------|-------|----|--|

Matrix Spike (ATB0007-MS1)

Source: 1001153-01

Prepared: 01/29/10 Analyzed: 02/01/10

| | | | | | | | | | | |
|------|-----|-----|-------|-----|------|-----|--------|--|--|--|
| Lead | 125 | 1.0 | mg/kg | 100 | 17.9 | 107 | 75-125 | | | |
|------|-----|-----|-------|-----|------|-----|--------|--|--|--|

Matrix Spike Dup (ATB0007-MSD1)

Source: 1001153-01

Prepared: 01/29/10 Analyzed: 02/01/10

| | | | | | | | | | | |
|------|-----|-----|-------|-----|------|------|--------|------|----|--|
| Lead | 114 | 1.0 | mg/kg | 100 | 17.9 | 96.3 | 75-125 | 8.91 | 25 | |
|------|-----|-----|-------|-----|------|------|--------|------|----|--|

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Excelchem Environmental Labs

Holdrege & Kull-Nevada City
792 Searls Avenue
Nevada City, CA 95959

Project: SR99 Neal Road Int.
Project Number: 3732-02
Project Manager: Kyle Leach

Date Reported:
02/04/10 14:39

Notes and Definitions

ND Analyte not detected at reporting limit.
NR Not reported

Excelchem Environmental Lab.



Laboratory Representative

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Holdrege & Kull-Nevada City
792 Searls Avenue
Nevada City, CA 95959

Project: SR99 Neal Road Int.
Project Number: 3732-02
Project Manager: Kyle Leach

Date Reported: 02/04/10 14:39

| CHAIN-OF-CUSTODY RECORD AND ANALYSIS REQUEST | | ANALYSIS REQUEST | |
|--|--|--|--|
| <p>1135 W. Sunset Blvd, Unit A Rocklin, CA, 95765 Ph: 916-543-4445 Fax: 916-543-4449</p> | | <p>Page 1 of 2</p> | |
| <p>Project Manager: Kyle Leach Company/Address: Holdrege & Kull 792 Searls Ave Nevada City Project Number/PO#: 3732-02 Project Location: Chico</p> | | <p>Electronic Data Deliverables Request:</p> | |
| <p>Phone #: 530 478 1305 Fax #: 478 1019 Project Name: SR99/Neal Rd Int. Sample Signature: <i>[Signature]</i></p> | | <p>Requested TAT: 12hr/24hr/48hr/72hr/Standard</p> | |
| <p>Method Preserved: Matrix</p> | | <p>Requested TAT: 12hr/24hr/48hr/72hr/Standard</p> | |
| <p>Container: SLEAVE, GLASS, PLASTIC, Summa or Tedlar</p> | | <p>Requested TAT: 12hr/24hr/48hr/72hr/Standard</p> | |
| <p>Sampling: Date, Time</p> | | <p>Requested TAT: 12hr/24hr/48hr/72hr/Standard</p> | |
| <p>Sample ID: Neal-S1 to Neal-S10</p> | | <p>Requested TAT: 12hr/24hr/48hr/72hr/Standard</p> | |
| <p>Reinquired by: <i>[Signature]</i></p> | | <p>Requested TAT: 12hr/24hr/48hr/72hr/Standard</p> | |
| <p>Reinquired by: <i>[Signature]</i></p> | | <p>Requested TAT: 12hr/24hr/48hr/72hr/Standard</p> | |
| <p>Date: 1/29/10 Time: 10:57</p> | | <p>Requested TAT: 12hr/24hr/48hr/72hr/Standard</p> | |
| <p>Date: 1/29/10 Time: 11:40</p> | | <p>Requested TAT: 12hr/24hr/48hr/72hr/Standard</p> | |
| <p>Received by: <i>[Signature]</i></p> | | <p>Requested TAT: 12hr/24hr/48hr/72hr/Standard</p> | |
| <p>Received by Laboratory: <i>[Signature]</i></p> | | <p>Requested TAT: 12hr/24hr/48hr/72hr/Standard</p> | |
| <p>Remarks/Condition of Sample: Hold samples for possible additional analyses</p> | | <p>Requested TAT: 12hr/24hr/48hr/72hr/Standard</p> | |
| <p>Bill To: <i>[Signature]</i></p> | | <p>Requested TAT: 12hr/24hr/48hr/72hr/Standard</p> | |

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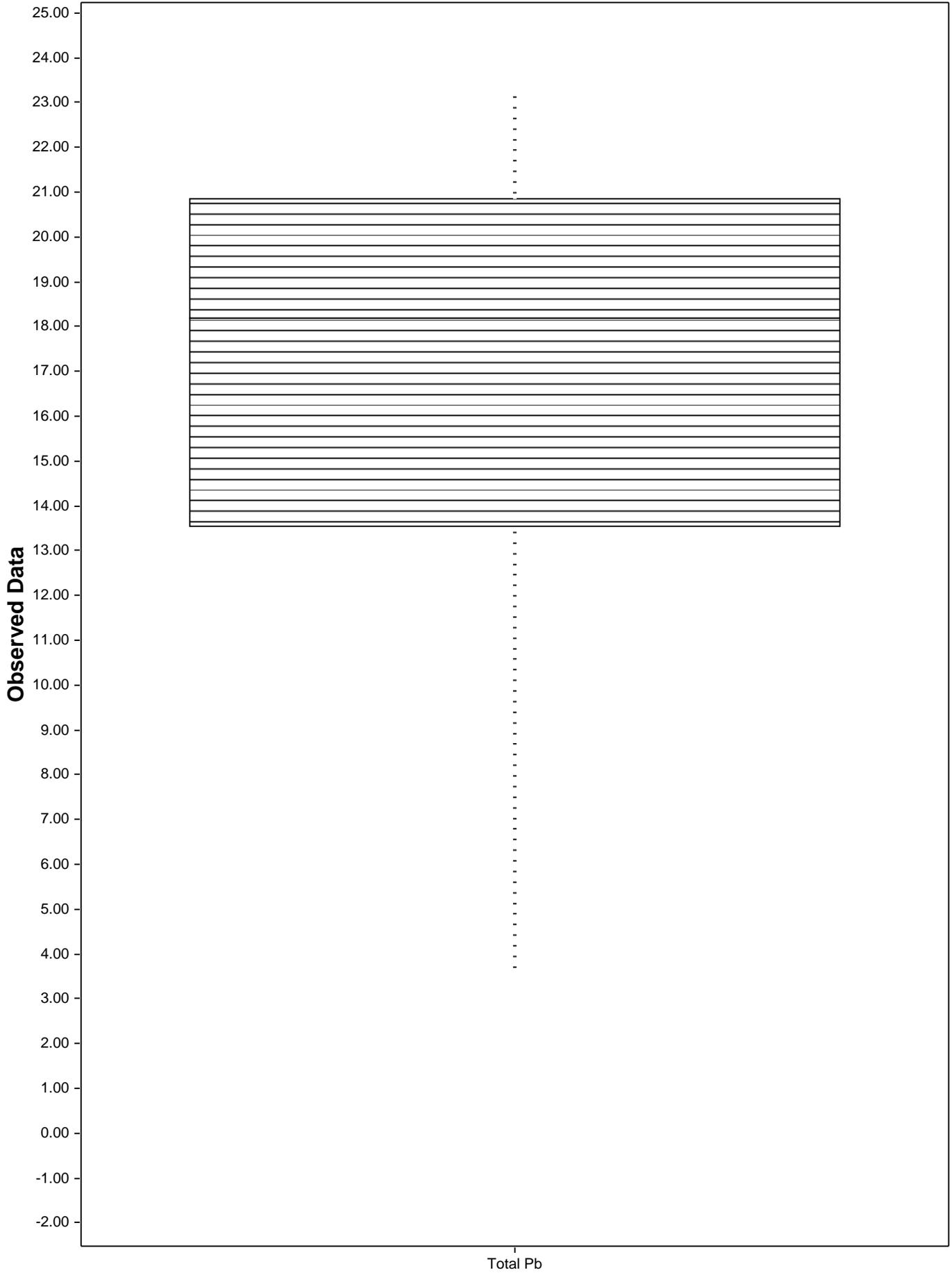
[Signature]

Laboratory Representative

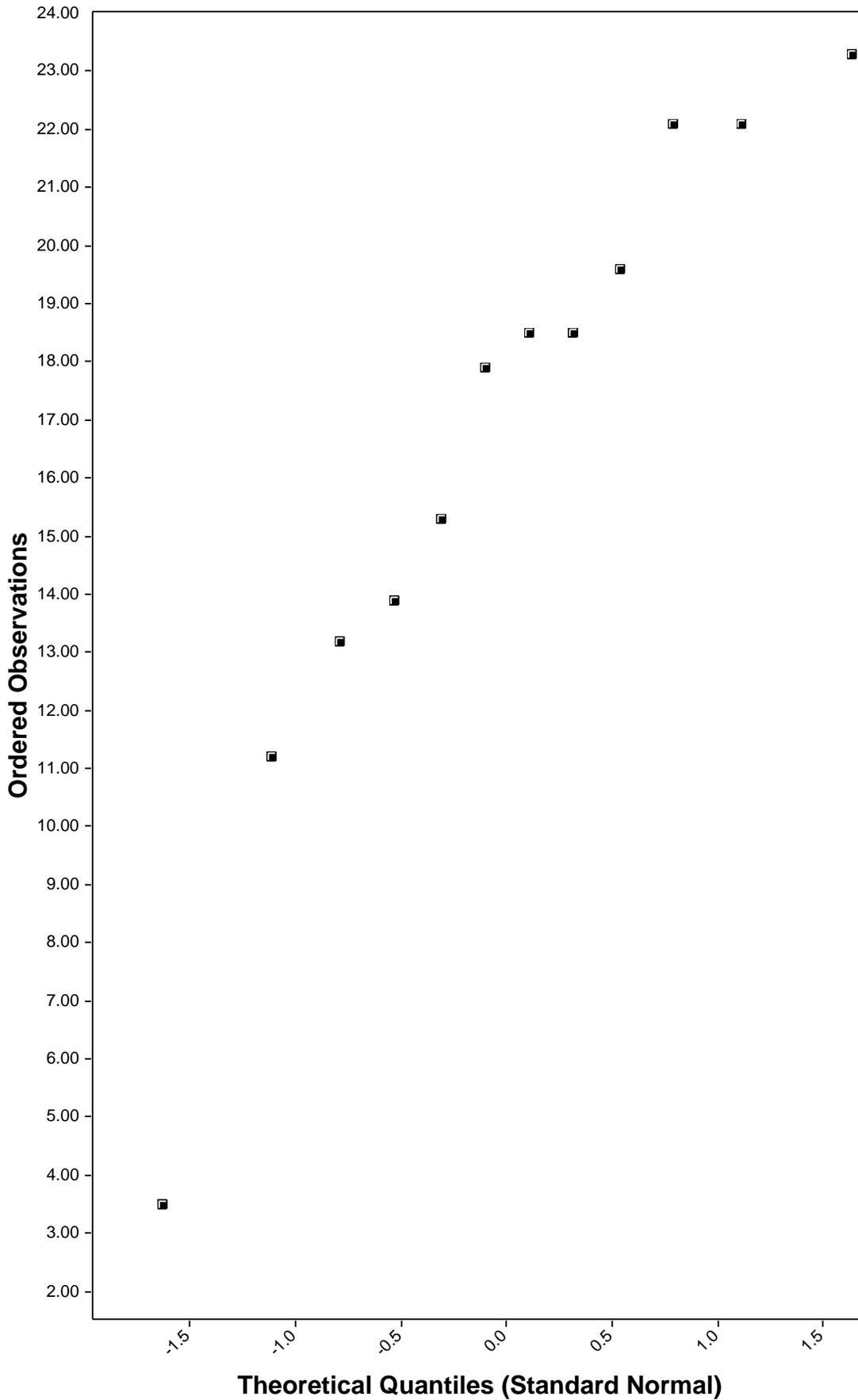
APPENDIX C

Statistical Summary

Box Plot for Total Pb



Q-Q Plot for Total Pb



Total Pb

N = 12

Mean = 16.5917

Sd = 5.5972

Slope = 5.6397

Intercept = 16.5917

Correlation, R = 0.9546

■ Total Pb

Summary Statistics for Raw Full Dataset

| Variable | NumObs | Minimum | Maximum | Mean | Median | Variance | SD | MAD/0.675 | Skewness | Kurtosis | CV |
|----------|--------|---------|---------|-------|--------|----------|-------|-----------|----------|----------|-------|
| Total Pb | 12 | 3.5 | 23.3 | 16.59 | 18.2 | 31.33 | 5.597 | 5.782 | -1.108 | 1.487 | 0.337 |

Percentiles for Raw Full Dataset

| Variable | NumObs | 5%ile | 10%ile | 20%ile | 25%ile(Q1) | 50%ile(Q2) | 75%ile(Q3) | 80%ile | 90%ile | 95%ile | 99%ile |
|----------|--------|-------|--------|--------|------------|------------|------------|--------|--------|--------|--------|
| Total Pb | 12 | 3.5 | 5.04 | 12 | 13.2 | 17.9 | 19.6 | 21.1 | 22.1 | 22.58 | 23.16 |

General Background Statistics for Full Data Sets

User Selected Options

| | |
|--------------------------------|---|
| From File | F:\1 Projects\3732 SR 99-Neal Rd\3732-02 ADL\Stats\3732-02 ProUCL Input.wst |
| Full Precision | OFF |
| Confidence Coefficient | 95% |
| Coverage | 90% |
| Different or Future K Values | 1 |
| Number of Bootstrap Operations | 2000 |

Total Pb

General Statistics

| | | | |
|------------------------------|----|---------------------------------|----|
| Total Number of Observations | 12 | Number of Distinct Observations | 10 |
|------------------------------|----|---------------------------------|----|

Raw Statistics

Log-Transformed Statistics

| | | | |
|--------------------------|--------|----------------|-------|
| Minimum | 3.5 | Minimum | 1.253 |
| Maximum | 23.3 | Maximum | 3.148 |
| Second Largest | 22.1 | Second Largest | 3.096 |
| First Quartile | 13.38 | First Quartile | 2.593 |
| Median | 18.2 | Median | 2.901 |
| Third Quartile | 21.48 | Third Quartile | 3.066 |
| Mean | 16.59 | Mean | 2.72 |
| SD | 5.597 | SD | 0.514 |
| Coefficient of Variation | 0.337 | | |
| Skewness | -1.108 | | |

Background Statistics

Normal Distribution Test

Lognormal Distribution Test

| | | | |
|-----------------------------|-------|-----------------------------|-------|
| Shapiro Wilk Test Statistic | 0.916 | Shapiro Wilk Test Statistic | 0.731 |
| Shapiro Wilk Critical Value | 0.859 | Shapiro Wilk Critical Value | 0.859 |

Data appear Normal at 5% Significance Level

Data not Lognormal at 5% Significance Level

Assuming Normal Distribution

Assuming Lognormal Distribution

| | | | |
|---------------------------|-------|---------------------------|-------|
| 95% UTL with 90% Coverage | 28.96 | 95% UTL with 90% Coverage | 47.32 |
| 95% UPL (t) | 27.05 | 95% UPL (t) | 39.71 |
| 90% Percentile (z) | 23.76 | 90% Percentile (z) | 29.35 |
| 95% Percentile (z) | 25.8 | 95% Percentile (z) | 35.38 |
| 99% Percentile (z) | 29.61 | 99% Percentile (z) | 50.23 |

Gamma Distribution Test

Data Distribution Test

| | |
|---------------------------|-------|
| k star | 4.411 |
| Theta Star | 3.761 |
| MLE of Mean | 16.59 |
| MLE of Standard Deviation | 7.9 |
| nu star | 105.9 |

Data appear Normal at 5% Significance Level

| | |
|-----------------------|-------|
| A-D Test Statistic | 0.832 |
| 5% A-D Critical Value | 0.732 |
| K-S Test Statistic | 0.21 |
| 5% K-S Critical Value | 0.246 |

Nonparametric Statistics

| | |
|----------------|-------|
| 90% Percentile | 22.94 |
| 95% Percentile | 23.3 |
| 99% Percentile | 23.3 |

Data follow Appx. Gamma Distribution at 5% Significance Level

| | | | | |
|---|-------|--|--|-------|
| Assuming Gamma Distribution | | | 95% UTL with 90% Coverage | 23.3 |
| 90% Percentile | 27.18 | | 95% Percentile Bootstrap UTL with 90% Coverage | 23.3 |
| 95% Percentile | 31.35 | | 95% BCA Bootstrap UTL with 90% Coverage | 23.06 |
| 99% Percentile | 40.22 | | 95% UPL | 23.3 |
| | | | 95% Chebyshev UPL | 41.99 |
| 95% WH Approx. Gamma UPL | 32.44 | | Upper Threshold Limit Based upon IQR | 33.63 |
| 95% HW Approx. Gamma UPL | 33.74 | | | |
| 95% WH Approx. Gamma UTL with 90% Coverage | 36.39 | | | |
| 95% HW Approx. Gamma UTL with 90% Coverage | 38.27 | | | |
| Note: UPL represents a preferred estimate of BTV | | | | |

General UCL Statistics for Full Data Sets

User Selected Options

| | |
|--------------------------------|---|
| From File | F:\1 Projects\3732 SR 99-Neal Rd\3732-02 ADL\Stats\3732-02 ProUCL Input.wst |
| Full Precision | OFF |
| Confidence Coefficient | 95% |
| Number of Bootstrap Operations | 2000 |

Total Pb

General Statistics

| | | | |
|------------------------------|----|---------------------------------|----|
| Number of Valid Observations | 12 | Number of Distinct Observations | 10 |
|------------------------------|----|---------------------------------|----|

Raw Statistics

Log-transformed Statistics

| | | | |
|--------------------------|--------|---------------------|-------|
| Minimum | 3.5 | Minimum of Log Data | 1.253 |
| Maximum | 23.3 | Maximum of Log Data | 3.148 |
| Mean | 16.59 | Mean of log Data | 2.72 |
| Median | 18.2 | SD of log Data | 0.514 |
| SD | 5.597 | | |
| Coefficient of Variation | 0.337 | | |
| Skewness | -1.108 | | |

Relevant UCL Statistics

Normal Distribution Test

Lognormal Distribution Test

| | | | |
|-----------------------------|-------|-----------------------------|-------|
| Shapiro Wilk Test Statistic | 0.916 | Shapiro Wilk Test Statistic | 0.731 |
| Shapiro Wilk Critical Value | 0.859 | Shapiro Wilk Critical Value | 0.859 |

Data appear Normal at 5% Significance Level

Data not Lognormal at 5% Significance Level

Assuming Normal Distribution

Assuming Lognormal Distribution

| | | | |
|---|-------|----------------------------|-------|
| 95% Student's-t UCL | 19.49 | 95% H-UCL | 24.22 |
| 95% UCLs (Adjusted for Skewness) | | 95% Chebyshev (MVUE) UCL | 28.48 |
| 95% Adjusted-CLT UCL | 18.7 | 97.5% Chebyshev (MVUE) UCL | 33.39 |
| 95% Modified-t UCL | 19.41 | 99% Chebyshev (MVUE) UCL | 43.05 |

Gamma Distribution Test

Data Distribution

| | |
|------------------------------------|-------|
| k star (bias corrected) | 4.411 |
| Theta Star | 3.761 |
| MLE of Mean | 16.59 |
| MLE of Standard Deviation | 7.9 |
| nu star | 105.9 |
| Approximate Chi Square Value (.05) | 83.13 |
| Adjusted Level of Significance | 0.029 |
| Adjusted Chi Square Value | 80.05 |

Data appear Normal at 5% Significance Level

Nonparametric Statistics

| | | | |
|--------------------------------------|-------|------------------------------|-------|
| | | 95% CLT UCL | 19.25 |
| | | 95% Jackknife UCL | 19.49 |
| | | 95% Standard Bootstrap UCL | 19.15 |
| Anderson-Darling Test Statistic | 0.832 | 95% Bootstrap-t UCL | 19.01 |
| Anderson-Darling 5% Critical Value | 0.732 | 95% Hall's Bootstrap UCL | 18.86 |
| Kolmogorov-Smirnov Test Statistic | 0.21 | 95% Percentile Bootstrap UCL | 18.91 |
| Kolmogorov-Smirnov 5% Critical Value | 0.246 | 95% BCA Bootstrap UCL | 18.82 |

Data follow Appr. Gamma Distribution at 5% Significance Level

Assuming Gamma Distribution

| | | | |
|--|--|-------------------------------|-------|
| | | 95% Chebyshev(Mean, Sd) UCL | 23.63 |
| | | 97.5% Chebyshev(Mean, Sd) UCL | 26.68 |
| | | 99% Chebyshev(Mean, Sd) UCL | 32.67 |

| | |
|---------------------------|-------|
| 95% Approximate Gamma UCL | 21.13 |
| 95% Adjusted Gamma UCL | 21.94 |

| Potential UCL to Use | | Use 95% Student's-t UCL | | | | | | | 19.49 | |
|----------------------|--|-------------------------|--|--|--|--|--|--|-------|--|