



July 2, 2001
1-91M-14061-0



LNR Affordable Housing
6420 S.W. Macadam Avenue
Portland, Oregon 97201

Attention: Mr. Chris Duffin

Subject: Limited Soil Sampling
581 and 583 Eastmont Avenue
East Wenatchee, Washington

Dear Mr. Duffin:

AMEC Earth & Environmental, Inc. (AMEC) is pleased to present soil sampling results for the above-referenced site located in East Wenatchee, Washington (Figure 1). This letter includes AMEC's observations, sampling methodology, laboratory analytical data, and conclusions.

SITE DESCRIPTION

The site is currently developed with two, six-unit apartment buildings and is located at the southeast corner of the Willamette Court apartment complex (Figure 3). The site covers approximately 9,720 square feet. The perimeter of the buildings are covered by grass, landscaping (bark, bushes, and shrubs), and gravel. The Willamette Court apartment complex is comprised of 12 apartment buildings, a lot currently under development, and an undeveloped lot.

BACKGROUND

Based on information provided by Tom Lindal, the former site owner, the site was historically developed with a fruit tree orchard. Mr. Lindal indicated that the orchard was likely removed between the 1940s and the 1960s. Following removal of the orchard, the site remained vacant until 1997, when the two apartment buildings currently on the property were constructed. Construction for the apartment complex, which included significant re-grading activities, begun in 1995. Prior to the start of construction and re-grading activities, Mr. Lindal collected soil samples from the north side of the apartment complex at depths ranging from 1 to 18 inches below grade. The soil samples were collected to assess whether pesticide associated with the former orchard had resulted in lead and arsenic contamination of near surface soils. Laboratory analytical data

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identified concentrations of lead and arsenic exceeding the Model Toxics Control Act (MTCA) Method A cleanup criteria in all three samples.

Mr Lindal reported that to prepare the site for construction of the two apartment buildings, an estimated 1,200 to 1,400 yards of soil was excavated from the subject site and the site grade was reduced by an estimated 4 feet. Re-grading activities included the surrounding properties for the construction of the ten other apartment buildings in the Willamette complex and the one building that is under construction. No documentation of the volume of soil excavated from the site or the disposal location of the exported soil was available at the time of this report. Mr. Lindal estimated that 600 to 700 yards of soil were excavated for each building footing and all excavated soils were reportedly disposed at a property located at the south end of Wenatchee. No fill material was imported onto the site.

PROJECT DESCRIPTION

LNR Affordable Housing contracted AMEC to collect near surface soil samples from the site to assess whether soils containing lead and arsenic above the MTCA Method A cleanup criteria continued to be present. AMEC utilized a steel hand auger to advance a total of eight hand augers to depths ranging from 18 to 22 inches below grade. Boring locations were selected to provide maximum coverage of the site. Two soil samples were collected from each boring at depths of 3 inches below grade and 18 inches below grade. A faint pesticide odor was observed in sample E581-0, collected south of the western building at 3 inches below grade. Sample locations are depicted on Figure 2.

LABORATORY RESULTS

A total of eight soil samples were submitted for analysis of total lead and total arsenic by EPA Method 6020. The samples were submitted under AMEC chain-of-custody procedures to OnSite Environmental analytical laboratory located in Redmond, Washington. The analytical data is summarized in Table 1 below.

TABLE 1 SUMMARY OF ANALYTICAL RESULTS		
Sample ID	Arsenic (As)	Lead (Pb)
N583-0	67	380
E583-0	67	380
S583-0	91	350
W583-0	51	370
N581-18	73	430
E581-0	70	420
S581-0	37	100
W581-18	44	130
MTCA Method A Cleanup Level	20	250
Notes:		
<p>Bold text denotes concentrations exceeding the MTCA Method A cleanup criteria All results reported in parts per million (ppm) concentration units.</p>		

All eight of the soil samples submitted for laboratory analysis contained concentrations of arsenic exceeding the MTCA Method A cleanup criteria of 20 ppm and six of the soil samples contained concentrations of lead exceeding the MTCA Method A cleanup criteria of 250 ppm.

CONCLUSIONS

Laboratory analytical data indicates that at least the upper 18 inches of soil appears to be impacted with lead and arsenic above the MTCA Method A cleanup standards. The vertical extent of contamination is unknown, as soils beyond 18 inches below grade were not assessed during this investigation. Based on the anecdotal information regarding the site, the elevated concentrations are likely due to pesticide use associated with the former orchard that historically covered the site. All of the onsite soils are covered by grass and landscaping, reducing the potential for direct contact with or ingestion of impacted soil.

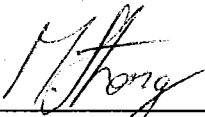
CLOSURE

This report has been prepared for the exclusive use of LNR Affordable Housing and their authorized agents. The conclusions presented in this report are based on the limited site assessment data collected, AMEC's professional experience, and AMEC's interpretation of the analytical results. The conclusions presented herein are relevant to the dates and locations that the field and analytical data were collected and should not be relied upon to represent site conditions in other areas or at later dates. In the event that additional information becomes available, AMEC should be allowed to review that information and modify the conclusions presented herein accordingly.

AMEC appreciates the opportunity to be of service to LNR Affordable Housing. If you have any questions or comments regarding the contents of this report, please feel free to contact the undersigned at (425) 820-4669, at your earliest convenience.


Sincerely,

AMEC Earth & Environmental, Inc.



Meg J. Strong
Associate

Reviewed by:



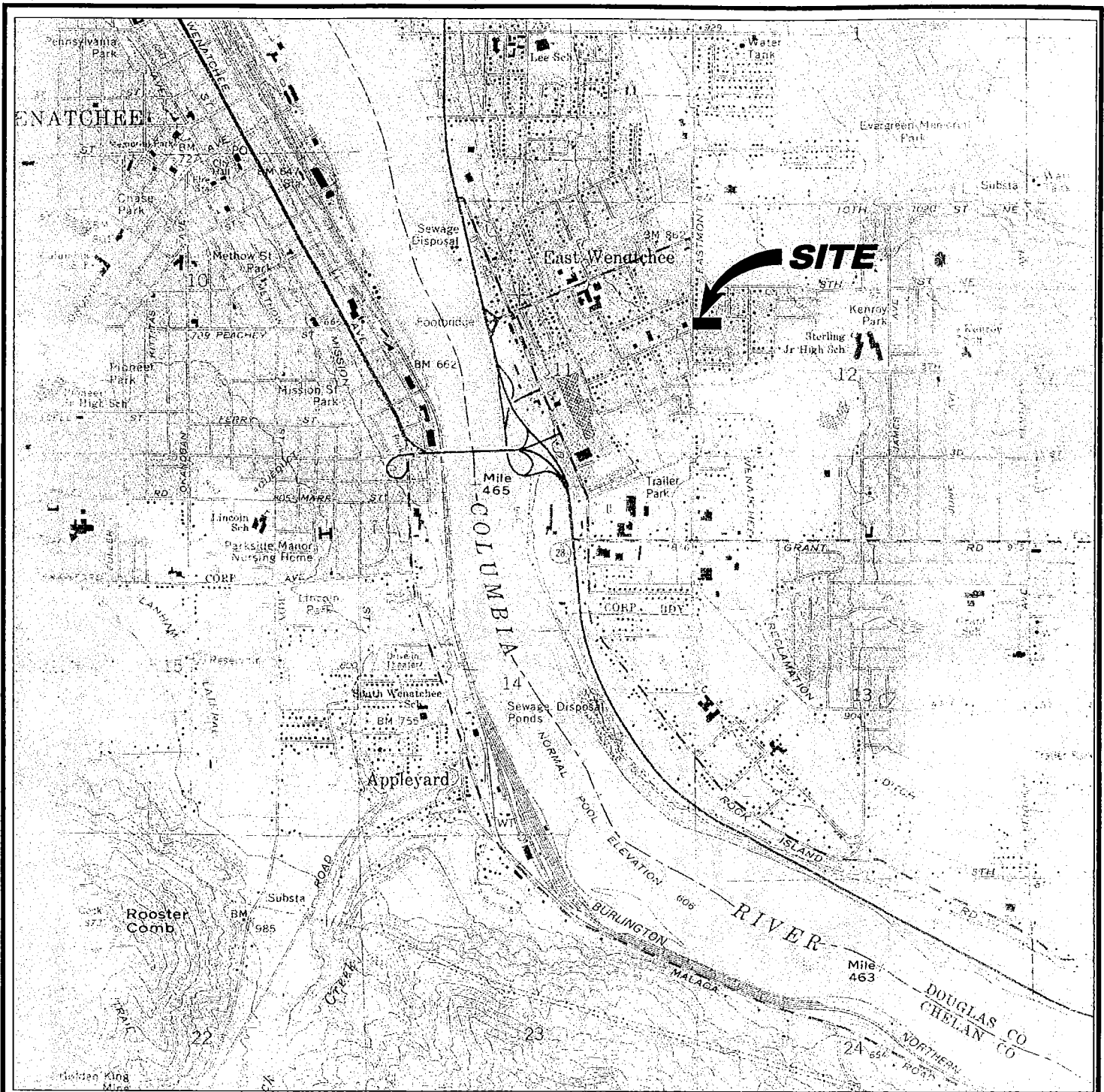
John G. Cowan
Principal

MJS/JGC/kms

Enclosure: Figure 1 – Location Map
 Figure 2 – Site and Exploration Plan
 Figure 3 – Site and Vicinity Plan
 Appendix A – Laboratory Analytical Reports and Chain of Custody Documentation

Cc Peter Serrurier – Stoel Rives LLP

JOB NO.: 1-91M-14061-0 | DWG DATE: 07-02-2001 | SCALE: N.T.S. | DESIGN BY: GAN | FILE NAME: LOCATION.DWG



N.T.S.

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amec
 AMEC EARTH AND ENVIRONMENTAL, INC.
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 Kirkland, WA, U.S.A. 98034-6918

LOCATION MAP
 WILLAMETTE COURT
 EAST WENATCHEE, WASHINGTON

FIGURE
 1

JOB NO.: 1-91M-14061-0 | DWG DATE: 07-02-2001 | SCALE: 1"=10' | DESIGN BY: GAN | FILE NAME: SITE-E.DWG

ADDITIONAL APARTMENTS

HOUSE

N583-ØA
N583-18

LANDSCAPING
-GRAVEL-

W583-ØA
W583-18

BUILDING
583

E583-Ø
E583-18A

TRANSFORMER

SIDEWALK

PARKING

S583-ØA
S583-38

LANDSCAPING

N581-Ø
N581-18A

E581-ØA
E581-18

METAL SHED

LANDSCAPING
-GRAVEL-

W581-Ø
W581-18A

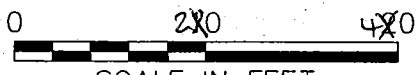
BUILDING
581

ENTRANCE
DRIVEWAY

SIDEWALK

S581-ØA
S581-18

HOUSE



SCALE IN FEET

SITE & EXPLORATION PLAN

WILLAMETTE COURT

EAST WENATCHEE, WASHINGTON

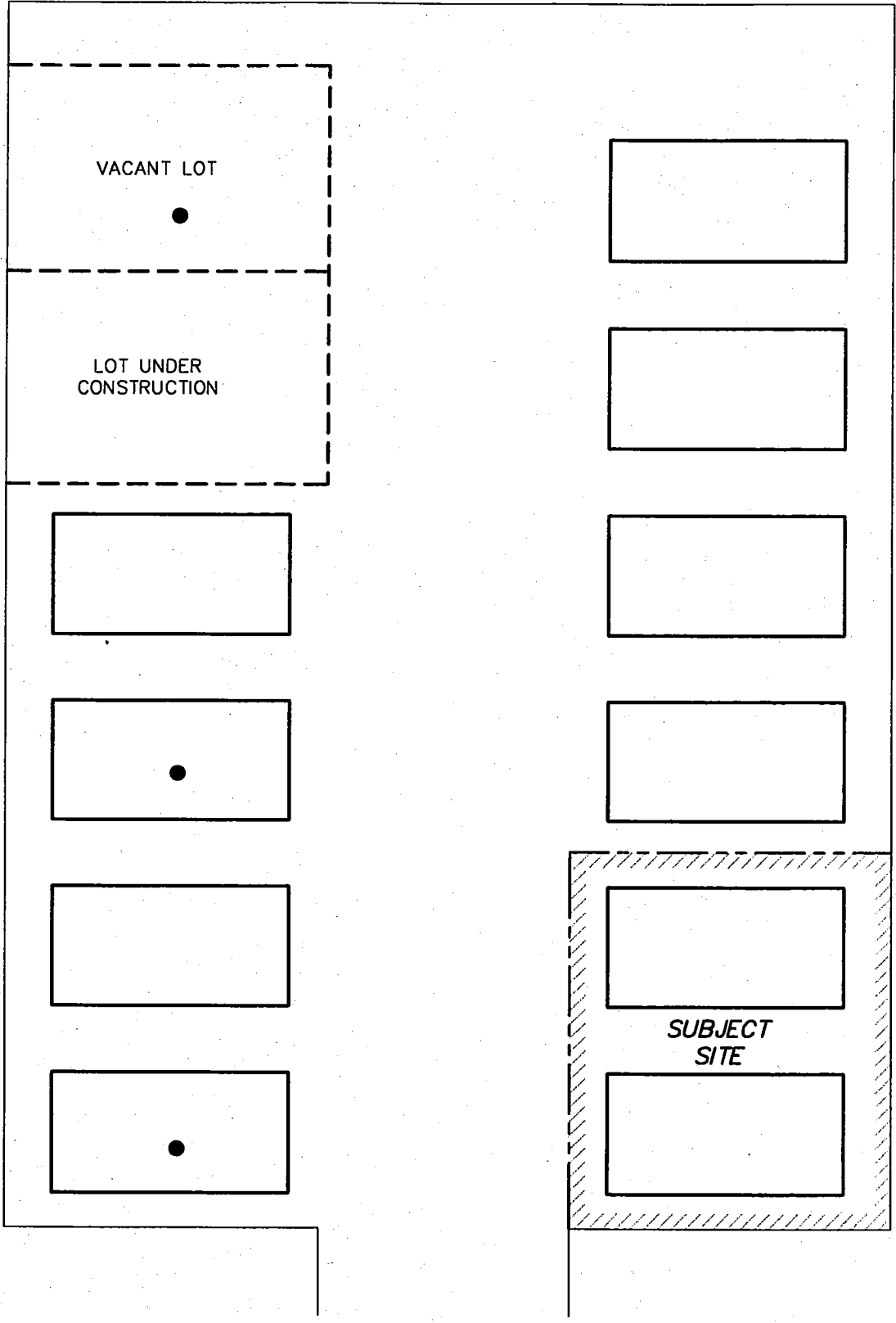
FIGURE

2



AMEC EARTH AND ENVIRONMENTAL, INC.
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JOB NO.: 1-91M-14061-0 | DWG DATE: 07-02-2001 | SCALE: N.T.S. | DESIGN BY: GAN | FILE NAME: SITE--A.DWG



N.T.S.

LEGEND

● APPROXIMATE LOCATION OF
 SAMPLES COLLECTED BY
 MR. LINDAL

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SITE & VICINITY PLAN
 WILLAMETTE COURT
 EAST WENATCHEE, WASHINGTON

FIGURE
3

APPENDIX A

**LABORATORY ANALYTICAL REPORTS AND
CHAIN OF CUSTODY DOCUMENTATION**



**OnSite
Environmental Inc.**

Analytical Testing and Mobile Laboratory Services

June 29, 2001

Meg Strong
AMEC Earth & Environmental, Inc.
11335 NE 122nd Way, Suite 100
Kirkland, WA 98034

Re: Analytical Data for Project Willamette Court
Laboratory Reference No. 0106-195

Dear Meg:

Enclosed are the analytical results and associated quality control data for samples submitted on June 27, 2001.

The standard policy of OnSite Environmental Inc. is to store your samples for 30 days from the date of receipt. If you require longer storage, please contact the laboratory.

We appreciate the opportunity to be of service to you on this project. If you have any questions concerning the data, or need additional information, please feel free to call me.

Sincerely,

David Baumeister
Project Manager

Enclosures

Date of Report: June 29, 2001
Samples Submitted: June 27, 2001
Lab Traveler: 06-195
Project: Willamette Court

**TOTAL ARSENIC AND LEAD
EPA 6020**

Date Extracted: 6-27-01
Date Analyzed: 6-28-01

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: 06-195-01
Client ID: N583-0

Analyte	Method	Result	PQL
Arsenic	6020	67	5.7
Lead	6020	380	5.7

Date of Report: June 29, 2001
Samples Submitted: June 27, 2001
Lab Traveler: 06-195
Project: Willamette Court

**TOTAL ARSENIC AND LEAD
EPA 6020**

Date Extracted: 6-27-01
Date Analyzed: 6-28-01

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: 06-195-02
Client ID: E583-0

Analyte	Method	Result	PQL
Arsenic	6020	67	5.6
Lead	6020	380	5.6

Date of Report: June 29, 2001
Samples Submitted: June 27, 2001
Lab Traveler: 06-195
Project: Willamette Court

**TOTAL ARSENIC AND LEAD
EPA 6020**

Date Extracted: 6-27-01

Date Analyzed: 6-28-01

Matrix: Soil

Units: mg/kg (ppm)

Lab ID: 06-195-03

Client ID: S583-0

Analyte	Method	Result	PQL
Arsenic	6020	91	5.7
Lead	6020	350	5.7

Date of Report: June 29, 2001
Samples Submitted: June 27, 2001
Lab Traveler: 06-195
Project: Willamette Court

**TOTAL ARSENIC AND LEAD
EPA 6020**

Date Extracted: 6-27-01
Date Analyzed: 6-28-01

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: 06-195-04
Client ID: W583-0

Analyte	Method	Result	PQL
Arsenic	6020	51	5.4
Lead	6020	370	5.4

Date of Report: June 29, 2001
Samples Submitted: June 27, 2001
Lab Traveler: 06-195
Project: Willamette Court

TOTAL ARSENIC AND LEAD
EPA 6020

Date Extracted: 6-27-01

Date Analyzed: 6-28-01

Matrix: Soil

Units: mg/kg (ppm)

Lab ID: 06-195-05

Client ID: N581-18

Analyte	Method	Result	PQL
Arsenic	6020	73	5.8
Lead	6020	430	5.8

Date of Report: June 29, 2001
Samples Submitted: June 27, 2001
Lab Traveler: 06-195
Project: Willamette Court

**TOTAL ARSENIC AND LEAD
EPA 6020**

Date Extracted: 6-27-01

Date Analyzed: 6-28-01

Matrix: Soil

Units: mg/kg (ppm)

Lab ID: 06-195-06

Client ID: E581-0

Analyte	Method	Result	PQL
Arsenic	6020	70	5.7
Lead	6020	420	5.7

Date of Report: June 29, 2001
Samples Submitted: June 27, 2001
Lab Traveler: 06-195
Project: Willamette Court

**TOTAL ARSENIC AND LEAD
EPA 6020**

Date Extracted: 6-27-01

Date Analyzed: 6-28-01

Matrix: Soil

Units: mg/kg (ppm)

Lab ID: 06-195-07

Client ID: S581-0

Analyte	Method	Result	PQL
Arsenic	6020	37	5.6
Lead	6020	100	5.6

Date of Report: June 29, 2001
Samples Submitted: June 27, 2001
Lab Traveler: 06-195
Project: Willamette Court

**TOTAL ARSENIC AND LEAD
EPA 6020**

Date Extracted: 6-27-01
Date Analyzed: 6-28-01

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: 06-195-08
Client ID: W581-18

Analyte	Method	Result	PQL
Arsenic	6020	44	5.4
Lead	6020	130	5.4

Date of Report: June 29, 2001
Samples Submitted: June 27, 2001
Lab Traveler: 06-195
Project: Willamette Court

**TOTAL ARSENIC AND LEAD
EPA 6020
METHOD BLANK QUALITY CONTROL**

Date Extracted: 6-27-01
Date Analyzed: 6-28-01

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: MB0627S2

Analyte	Method	Result	PQL
Arsenic	6020	ND	0.50
Lead	6020	ND	0.50

Date of Report: June 29, 2001
Samples Submitted: June 27, 2001
Lab Traveler: 06-195
Project: Willamette Court

**TOTAL ARSENIC AND LEAD
EPA 6020
DUPLICATE QUALITY CONTROL**

Date Extracted: 6-27-01
Date Analyzed: 6-28-01

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: 06-195-01

Analyte	Sample Result	Duplicate Result	RPD	PQL	Flags
Arsenic	58.8	57.7	2.0	5.0	
Lead	338	335	0.84	5.0	

Date of Report: June 29, 2001
Samples Submitted: June 27, 2001
Lab Traveler: 06-195
Project: Willamette Court

**TOTAL ARSENIC AND LEAD
EPA 6020
MS/MSD QUALITY CONTROL**

Date Extracted: 6-27-01
Date Analyzed: 6-28-01

Matrix: Soil
Units: mg/kg (ppm)

Lab ID: 06-195-01

Analyte	Spike Level	MS	Percent Recovery	MSD	Percent Recovery	RPD	Flags
Arsenic	100	157	98	155	96	1.2	
Lead	350	701	104	696	102	0.63	

Date of Report: June 29, 2001
Samples Submitted: June 27, 2001
Lab Traveler: 06-195
Project: Willamette Court

% MOISTURE

Date Analyzed: 6-27-01

Client ID	Lab ID	% Moisture
N583-0	06-195-01	12
E583-18	06-195-02	10
S583-0	06-195-03	12
W583-0	06-195-04	8.0
N581-18	06-195-05	14
E581-0	06-195-06	12
S581-0	06-195-07	11
W581-18	06-195-08	8.0



DATA QUALIFIERS AND ABBREVIATIONS

A - Due to a high sample concentration, the amount spiked is insufficient for meaningful MS/MSD recovery data.

B - The analyte indicated was also found in the blank sample.

C - The duplicate RPD is outside control limits due to high result variability when analyte concentrations are within five times the quantitation limit.

D - Data from 1:____ dilution.

E - The value reported exceeds the quantitation range, and is an estimate.

F - Surrogate recovery data is not available due to the high concentration of coeluting target compounds.

G - Insufficient sample quantity for duplicate analysis.

H - The analyte indicated is a common laboratory solvent and may have been introduced during sample preparation, and be impacting the sample result.

I - Compound recovery is outside of the control limits.

J - The value reported was below the practical quantitation limit. The value is an estimate.

K - Sample duplicate RPD is outside control limits due to sample inhomogeneity. The sample was re-extracted and re-analyzed with similar results.

L - The RPD is outside of the control limits.

M - Hydrocarbons in the gasoline range (toluene-naphthalene) are present in the sample.

O - Hydrocarbons outside the defined gasoline range are present in the sample; NWTPH-Dx recommended.

P - The RPD of the detected concentrations between the two columns is greater than 40.

Q - Surrogate recovery is outside of the control limits.

S - Surrogate recovery data is not available due to the necessary dilution of the sample.

T - The sample chromatogram is not similar to a typical _____.

U - The analyte was analyzed for, but was not detected above the reported sample quantitation limit.

V - Matrix Spike/Matrix Spike Duplicate recoveries are outside control limits due to matrix effects.

W - Matrix Spike/Matrix Spike Duplicate RPD are outside control limits due to matrix effects.

X - Sample extract treated with a silica gel cleanup procedure.

Y - Sample extract treated with an acid cleanup procedure.

Z -

ND - Not Detected at PQL

MRL - Method Reporting Limit

PQL - Practical Quantitation Limit

RPD - Relative Percent Difference

