

**Soil Sampling and Analysis Report
for
Former Wagstaff Battery Site**

**Vacant lot adjacent to
2124 N Williams Avenue
Portland, Oregon**

**City of Portland
Bureau of Environmental Services
1120 SW 5th Ave. Room 1000
Portland, Oregon 97204-1912**

January 24, 2002

Prepared By:

**City of Portland
Bureau of Environmental Services
Coordinated Site Analysis Program
Special Waste Division**

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Project Engineer

Background

The property located adjacent to 2124 N. Williams Avenue was formerly occupied by the Wagstaff Battery Manufacturing Company for more than 20 years. The Oregon Department of Environmental Quality (ODEQ) inspected this location in 1992 after it was vacated. Lead concentrations in the soil exceeded the Toxic Characteristic Leaching Procedure (TCLP) 5mg/l limit. ODEQ added this site to their Environmental Cleanup Site Information listing (ECSI) and assigned it site #1243.

Purpose

The northeast portion of this property (subject site) is currently a vacant lot in a mixed-use area. Soil sampling and analysis was requested by Bill Houston, the site manager for the owner, Port City Development Center. The owner's intention is to develop this site with assistance from an EPA Brownfields Redevelopment Grant administered through the Portland Bureau of Housing and Community Development (BHCD).

Field Activities

On October 18, 2001 and December 06, 2001, BES personnel visited the site and took a total of nine grab soil samples for analysis. Samples were taken from the surface to six inches below ground surface (bgs). Samples were collected using Nitrile gloves and a three-inch diameter stainless steel hand auger. The auger was cleaned using Alconox and rinsed with distilled water before and after each sampling event. Soil samples were immediately placed in laboratory cleaned 4-ounce sample jars and capped with Teflon lids. The jars were filled completely to eliminate headspace. They were then labeled and placed in a chilled container (4° C) for transportation to the City of Portland Water Pollution Control Laboratory (WPCL) for analysis under chain-of-custody procedures.

Analysis

Soil samples were analyzed for Resource Conservation and Recovery Act (RCRA-5) metals. The soil was analyzed using EPA method 6020. TCLP for lead followed EPA method 1311. The samples taken on October 18, 2001 were analyzed for Poly-Chlorinated Biphenyls (PCBs) utilizing EPA method 8082. Analytical reports are attached (Appendix A).

Analytical Results

Soil samples with the lab codes LAB 011796, LAB 011797, LAB 012096, LAB 012097, and LAB 012099 (see Map 1) showed concentrations of lead above the residential (OAR 340-122-045(7)) Maximum Allowable Soil Concentration (MASC) of 200 parts per million (ppm).

Except for LAB 011797 (2,590 ppm), all soil samples were below the industrial MASC of 2000 ppm. All soil samples analyzed for TCLP lead were below the MASC leachate concentration limit of 2.0 ppm. Lab 011796 and 011797 were analyzed for PCBs. PCBs were not detected in the samples.

Table 1					
Sample Designation	Lab Code	Date Collected	Lead levels (mg/kg)	TCLP Lead (mg/L)	PCB (µg/kg)
Wagstaff South	LAB 011796	10/18/01	215	<0.20	ND
Wagstaff North	LAB 011797	10/18/01	2,590	0.537	ND
S-1	LAB 012096	12/06/01	278	<0.200	NA
S-2	LAB 012097	12/06/01	72.3	n/a	NA
S-3	LAB 012098	12/06/01	40.3	n/a	NA
S-4	LAB 012099	12/06/01	1,660	1.10	NA
S-5	LAB 012100	12/06/01	136	<0.200	NA
S-6	LAB 012101	12/06/01	143	<0.200	NA
S-7	LAB 012102	12/06/01	135	<0.200	NA

NA Not analyzed

ND Not detected

Recommendations

If excavation is to occur at this site, the Lead Contaminated Soil (LCS) will have to be managed in a manner protective of human health and the environment. If soil is removed from this site, it will need to be disposed of at an approved facility.

Maps

Map-1

Total_Lead_ppm

- 1,660 to 2,590
- 210 to 1,660
- 40 to 210

feet

NE THOMPSON ST

278

1660

2590

135

72.3

40.3

136

143

2124 W/ N WILLIAMS AVE

N WILLIAMS AVE

N WILLIAMS AVE
N RUSSELL ST

NE THOMPSON ST

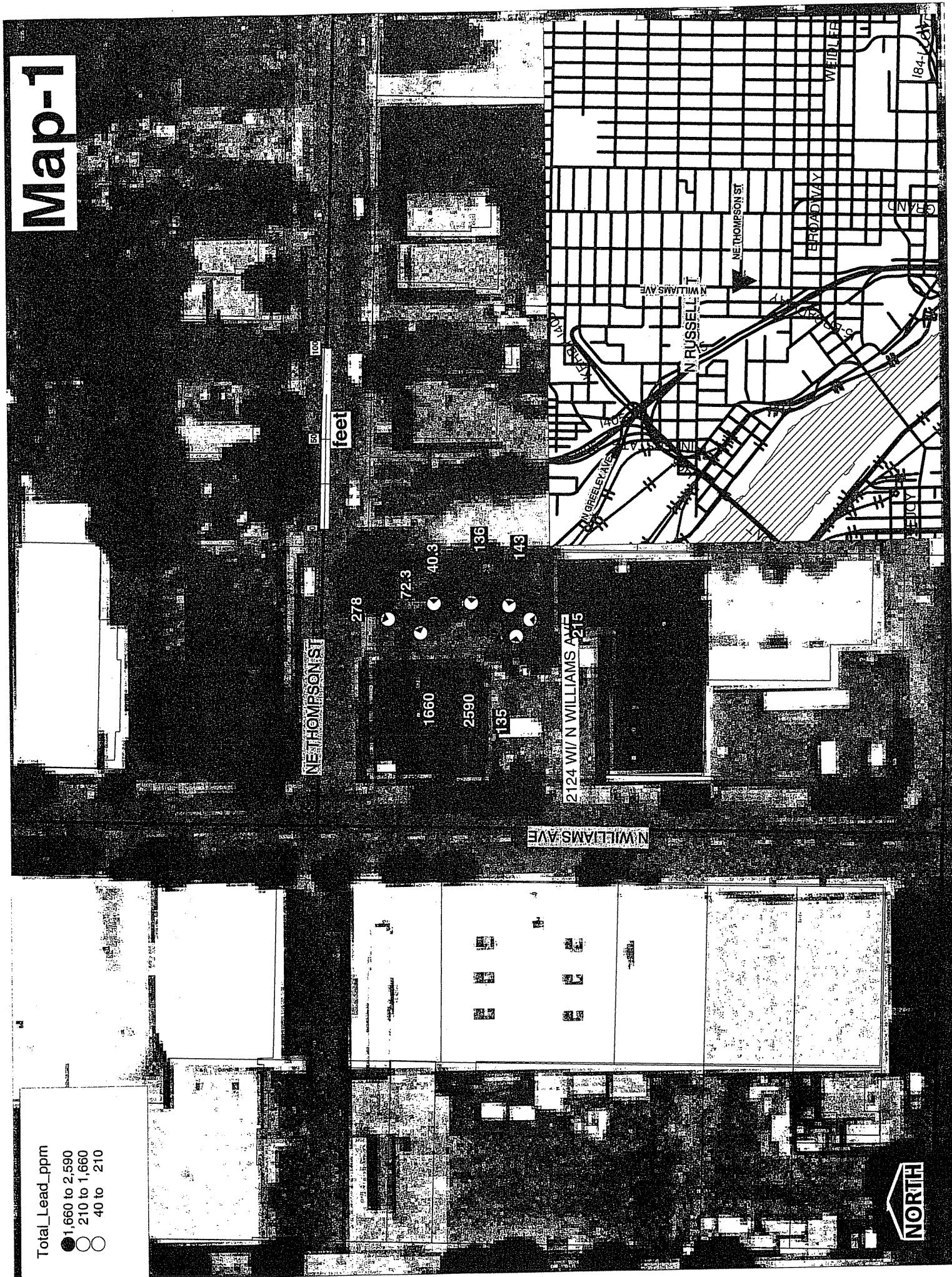
BROADWAY

W 101 ST

UNIV

184-101

NORTH





N WILLIAMS AVE

NE THOMPSON ST

2156 N Williams Ave

2124 N Williams Ave

20 NE Thompson St

Wagstaff sampling locations

- Sample date 10/18/01
- Sample date 12/06/01

LAB 012096

S-1

LAB 012097

S-2



S-3

LAB 012098

LAB 012099

S-4

S-5

LAB 012100



Wagstaff North

LAB 011797

LAB 012101

S-6

Wagstaff South

LAB 011796

S-7

LAB 012102

0

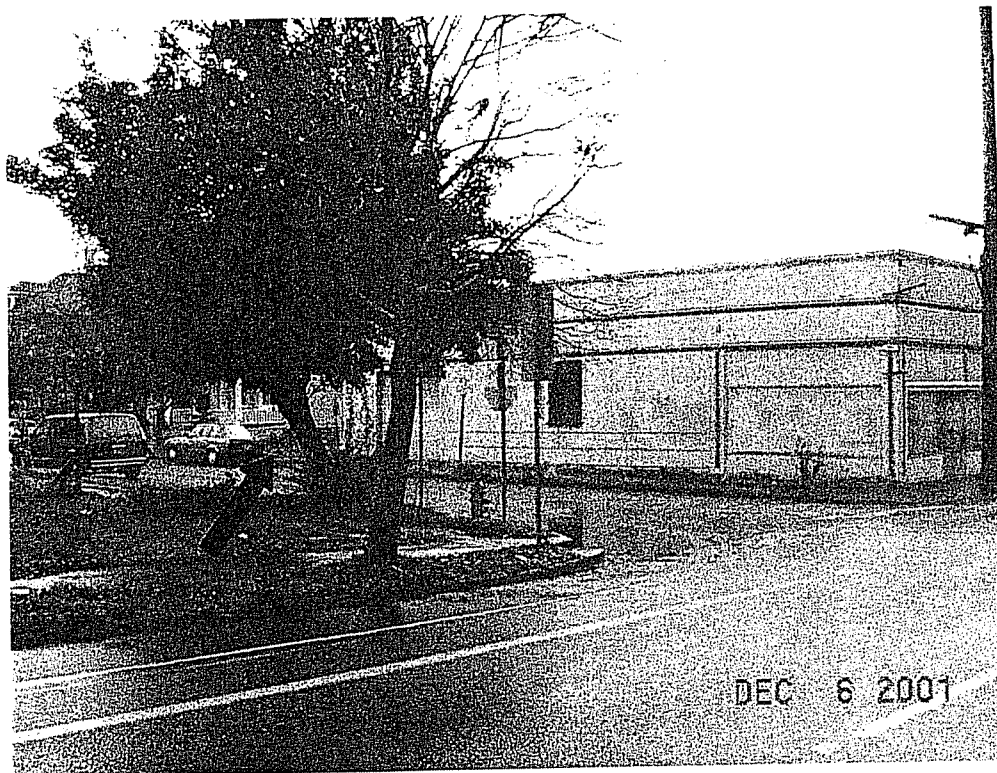
25

50

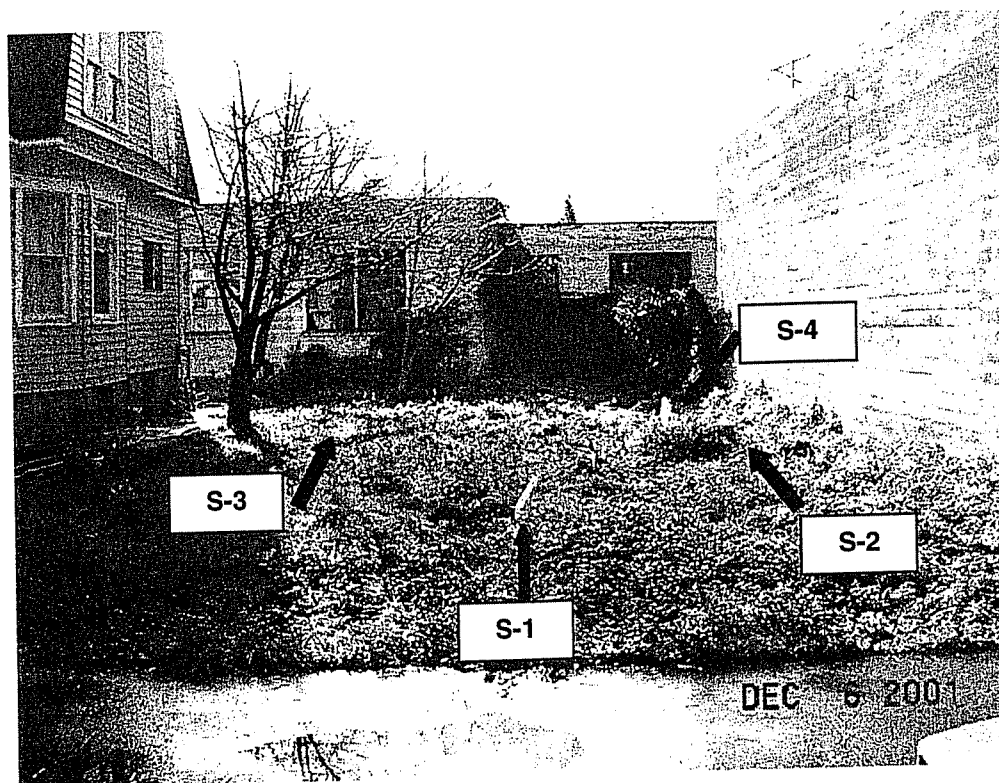
feet

Map 2

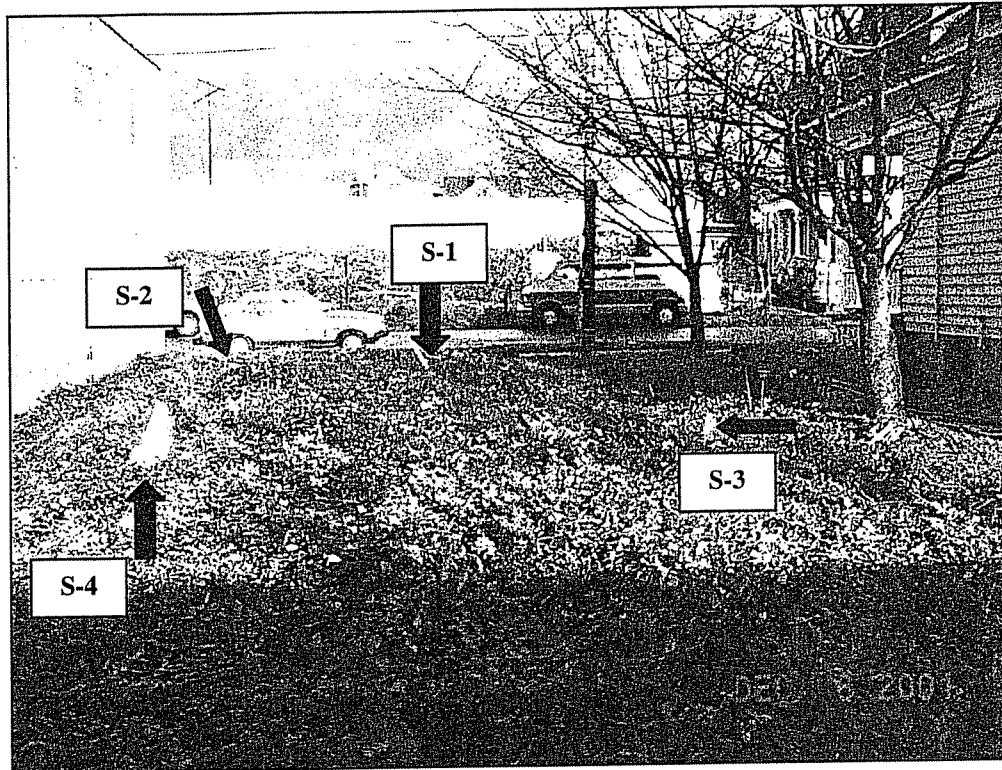
Photographs



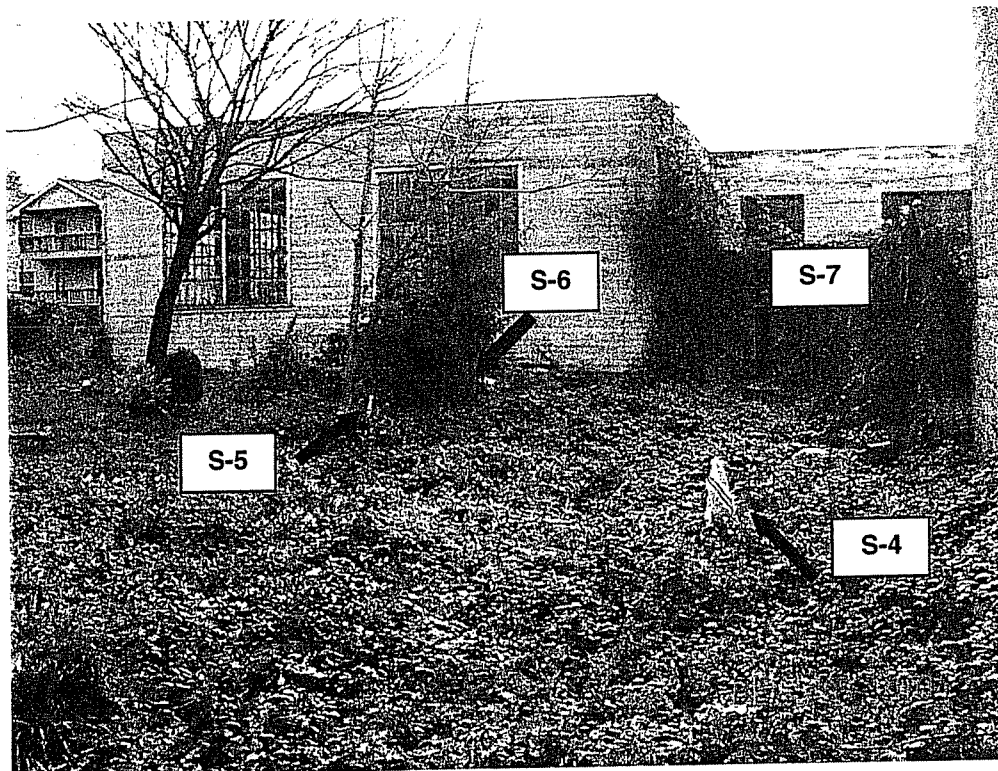
Vacant lot adjacent to 2124 N. Williams Avenue, looking southeast from N. Williams Avenue & N Thompson Street.



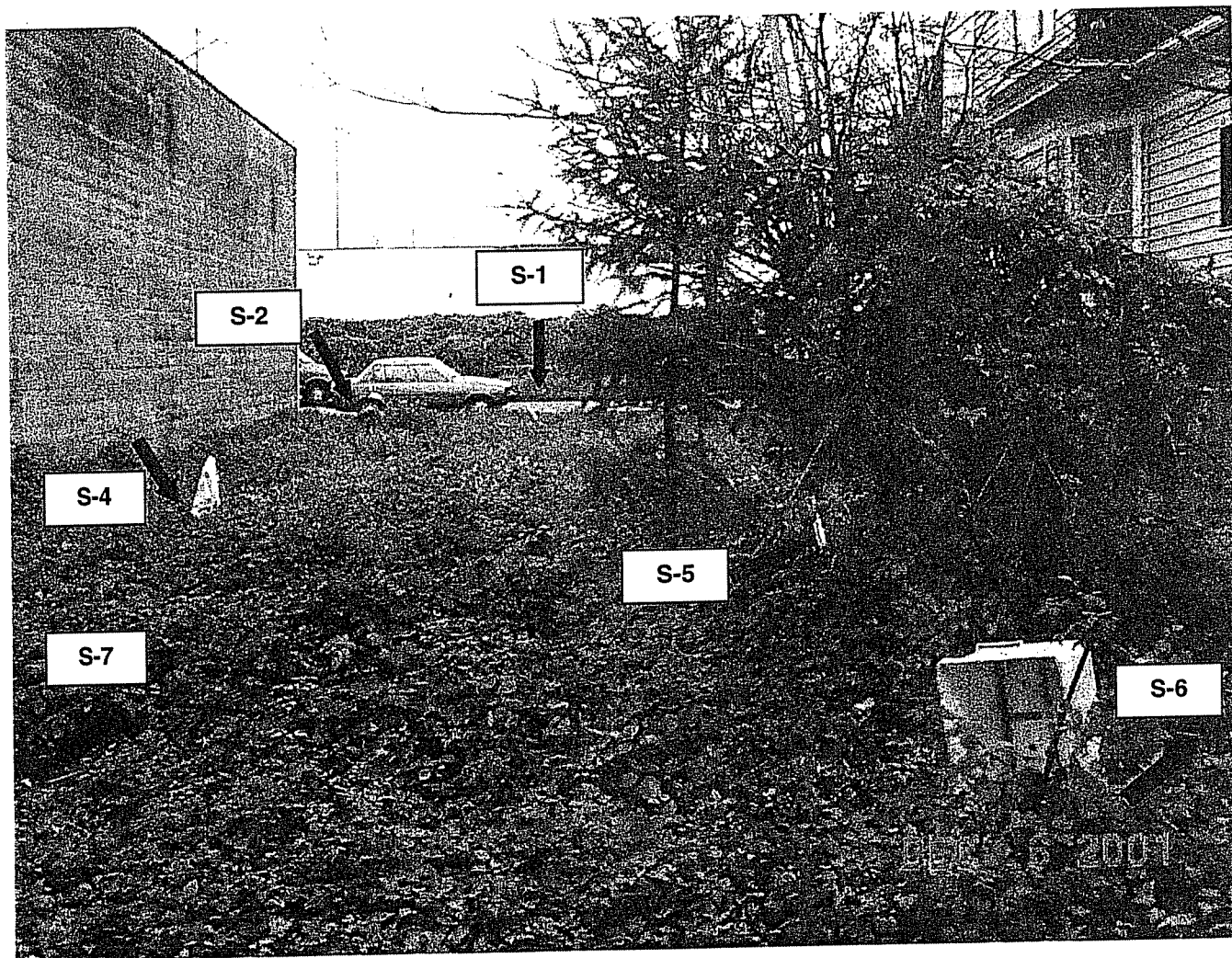
Vacant lot adjacent to 2124 N. Williams Avenue, looking south. Samples S-1 through S-4 indicated by arrows in northern half of lot.



Vacant lot adjacent to 2124 N. Williams Avenue, looking north. Samples S-1 through S-4 indicated by arrows in northern half of lot.



Vacant lot adjacent to 2124 N. Williams Avenue, looking south. Samples S4 through S-7 indicated by arrows in southern half of lot.



Vacant lot adjacent to 2124 N. Williams Avenue, looking north at entire lot. Samples S1 through S7 indicated by arrows.

Appendix A



City of Portland
Water Pollution Control Laboratory
Laboratory Analysis Report



Sample Date/Time 10/18/2001 12:30 System ID AF09541 Sample ID LAB011796

Proj./Company Name: WAGSTAFF SAMP
Address/Location: WAGSTAFF SOUTH
PROJ NO 7091

Page: 1
Date Received: 10/22/2001
Sample Status: COMPLETE AND
VALIDATED

Proj Subcategory: SPECIAL WASTE
Sample Point Code: 0
IMS File/Invoice #: 3030.028

Sample Type: GRAB
Sample Matrix: SOIL
Collected By: JPO

Comments: QA/QC: Unless otherwise noted, all analytical QA/QC criteria were met for this sample including holding times, calibration, method blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as applicable.

Test Parameter	Result	Units	MRL	Method
RCRA METALS (5) BY EPA 6020				
ARSENIC	5.26	mg/Kg	0.50	EPA 6020
CADMIUM	0.39	mg/Kg	0.10	EPA 6020
CHROMIUM	26.3	mg/Kg	0.50	EPA 6020
LEAD	215	mg/Kg	0.10	EPA 6020
MERCURY	0.151	mg/Kg	0.010	EPA 6020
TCLP METALS				
LEAD	<0.20	mg/L	0.20	EPA 1311
POLYCHLORINATED BIPHENYLS (PCB)				
PCB 1016	<67.0	µg/Kg	67.0	EPA 8082
PCB 1221	<134	µg/Kg	134	EPA 8082
PCB 1232	<67.0	µg/Kg	67.0	EPA 8082
PCB 1242	<67.0	µg/Kg	67.0	EPA 8082
PCB 1248	<67.0	µg/Kg	67.0	EPA 8082
PCB 1254	<100	µg/Kg	100	EPA 8082
PCB 1260	<67.0	µg/Kg	67.0	EPA 8082

End of Report for Sample ID: LAB011796



City of Portland
Water Pollution Control Laboratory
Laboratory Analysis Report



Sample Date/Time 10/18/2001 12:45 System ID AF09542 Sample ID LAB011797

Proj./Company Name: WAGSTAFF SAMP
Address/Location: WAGSTAFF NORTH
PROJ NO 7091

Page: 1
Date Received: 10/22/2001
Sample Status: COMPLETE AND
VALIDATED

Proj Subcategory SPECIAL WASTE
Sample Point Code: 0
IMS File/Invoice #: 3030.028

Sample Type: GRAB
Sample Matrix: SOIL
Collected By: JPO

Comments: QA/QC: Unless otherwise noted, all analytical QA/QC criteria were met for this sample including holding times, calibration, method blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as applicable.

Test Parameter	Result	Units	MRL	Method
RCRA METALS (5) BY EPA 6020				
ARSENIC	6.70	mg/Kg	0.50	EPA 6020
CADMIUM	2.04	mg/Kg	0.10	EPA 6020
CHROMIUM	54.5	mg/Kg	0.50	EPA 6020
LEAD	2590	mg/Kg	0.10	EPA 6020
MERCURY	1.30	mg/Kg	0.010	EPA 6020
TCLP METALS				
LEAD	0.537	mg/L	0.20	EPA 1311
POLYCHLORINATED BIPHENYLS (PCB)				
PCB 1016	<67.0	µg/Kg	67.0	EPA 8082
PCB 1221	<134	µg/Kg	134	EPA 8082
PCB 1232	<67.0	µg/Kg	67.0	EPA 8082
PCB 1242	<67.0	µg/Kg	67.0	EPA 8082
PCB 1248	<67.0	µg/Kg	67.0	EPA 8082
PCB 1254	<67.0	µg/Kg	67.0	EPA 8082
PCB 1260	<67.0	µg/Kg	67.0	EPA 8082

End of Report for Sample ID: LAB011797



City of Portland
Water Pollution Control Laboratory
Laboratory Analysis Report



Sample Date/Time 12/06/2001 10:00 System ID AF11212 Sample ID LAB012096

Proj./Company Name: WAGSTAFF SAMP
Address/Location: WAGSTAFF S-1
PROJ NO 7091

Page: 1
Date Received: 12/06/2001
Sample Status: COMPLETE AND
VALIDATED

Proj Subcategory SPECIAL WASTE
Sample Point Code: 0
IMS File/Invoice #: 3030.028

Sample Type: GRAB
Sample Matrix: SOIL
Collected By: DAW

Comments: QA/QC: Unless otherwise noted, all analytical QA/QC criteria were met for this sample including holding times, calibration, method blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as applicable.

Test Parameter	Result	Units	MRL	Method
RCRA METALS (5) BY EPA 6020				
ARSENIC	5.57	mg/Kg	0.50	EPA 6020
CADMIUM	0.35	mg/Kg	0.10	EPA 6020
CHROMIUM	24.6	mg/Kg	0.50	EPA 6020
LEAD	278	mg/Kg	0.10	EPA 6020
MERCURY	0.108	mg/Kg	0.010	EPA 6020
TCLP METALS				
LEAD	<0.200	mg/L	0.200	EPA 1311

End of Report for Sample ID: LAB012096



City of Portland
Water Pollution Control Laboratory
Laboratory Analysis Report



Sample Date/Time 12/06/2001 10:20 System ID AF11213 Sample ID LAB012097

Proj./Company Name: WAGSTAFF SAMP
Address/Location: WAGSTAFF S-2
PROJ NO 7091

Page: 1
Date Received: 12/06/2001
Sample Status: COMPLETE AND
VALIDATED

Proj Subcategory SPECIAL WASTE
Sample Point Code: 0
IMS File/Invoice #: 3030.028

Sample Type: GRAB
Sample Matrix: SOIL
Collected By: DAW

Comments: QA/QC: Unless otherwise noted, all analytical QA/QC criteria were met for this sample including holding times, calibration, method blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as applicable.

Test Parameter	Result	Units	MRL	Method
RCRA METALS (5) BY EPA 6020				
ARSENIC	5.84	mg/Kg	0.50	EPA 6020
CADMIUM	0.21	mg/Kg	0.10	EPA 6020
CHROMIUM	27.5	mg/Kg	0.50	EPA 6020
LEAD	72.3	mg/Kg	0.10	EPA 6020
MERCURY	0.087	mg/Kg	0.010	EPA 6020

End of Report for Sample ID: LAB012097



City of Portland
Water Pollution Control Laboratory
Laboratory Analysis Report



Sample Date/Time 12/06/2001 10:40 System ID AF11214 Sample ID LAB012098

Proj./Company Name: WAGSTAFF SAMP
Address/Location: WAGSTAFF S-3
PROJ NO 7091

Page: 1
Date Received: 12/06/2001
Sample Status: COMPLETE AND
VALIDATED

Proj Subcategory SPECIAL WASTE
Sample Point Code: 0
IMS File/Invoice #: 3030.028

Sample Type: GRAB
Sample Matrix: SOIL
Collected By: DAW

Comments: QA/QC: Unless otherwise noted, all analytical QA/QC criteria were met for this sample including holding times, calibration, method blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as applicable.

Test Parameter	Result	Units	MRL	Method
RCRA METALS (5) BY EPA 6020				
ARSENIC	6.07	mg/Kg	0.50	EPA 6020
CADMIUM	0.16	mg/Kg	0.10	EPA 6020
CHROMIUM	26.8	mg/Kg	0.50	EPA 6020
LEAD	40.3	mg/Kg	0.10	EPA 6020
MERCURY	0.039	mg/Kg	0.010	EPA 6020

End of Report for Sample ID: LAB012098



City of Portland
Water Pollution Control Laboratory
Laboratory Analysis Report



Sample Date/Time 12/06/2001 11:00 System ID AF11215 Sample ID LAB012099

Proj./Company Name: WAGSTAFF SAMP
Address/Location: WAGSTAFF S-4
PROJ NO 7091

Page: 1
Date Received: 12/06/2001
Sample Status: COMPLETE AND
VALIDATED

Proj Subcategory SPECIAL WASTE
Sample Point Code: 0
IMS File/Invoice #: 3030.028

Sample Type: GRAB
Sample Matrix: SOIL
Collected By: DAW

Comments: QA/QC: Unless otherwise noted, all analytical QA/QC criteria were met for this sample including holding times, calibration, method blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as applicable.

Test Parameter	Result	Units	MRL	Method
RCRA METALS (5) BY EPA 6020				
ARSENIC	6.09	mg/Kg	0.50	EPA 6020
CADMIUM	0.86	mg/Kg	0.10	EPA 6020
CHROMIUM	30.0	mg/Kg	0.50	EPA 6020
LEAD	1660	mg/Kg	0.10	EPA 6020
MERCURY	0.206	mg/Kg	0.010	EPA 6020
TCLP METALS				
LEAD	1.10	mg/L	0.200	EPA 1311

End of Report for Sample ID: LAB012099



City of Portland
Water Pollution Control Laboratory
Laboratory Analysis Report



Sample Date/Time 12/06/2001 11:15 System ID AF11216 Sample ID LAB012100

Proj./Company Name: WAGSTAFF SAMP
Address/Location: WAGSTAFF S-5
PROJ NO 7091

Page: 1
Date Received: 12/06/2001
Sample Status: COMPLETE AND
VALIDATED

Proj Subcategory SPECIAL WASTE
Sample Point Code: 0
IMS File/Invoice #: 3030.028

Sample Type: GRAB
Sample Matrix: SOIL
Collected By: DAW

Comments: QA/QC: Unless otherwise noted, all analytical QA/QC criteria were met for this sample including holding times, calibration, method blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as applicable.

Test Parameter	Result	Units	MRL	Method
RCRA METALS (5) BY EPA 6020				
ARSENIC	5.85	mg/Kg	0.50	EPA 6020
CADMIUM	0.46	mg/Kg	0.10	EPA 6020
CHROMIUM	28.6	mg/Kg	0.50	EPA 6020
LEAD	136	mg/Kg	0.10	EPA 6020
MERCURY	0.060	mg/Kg	0.010	EPA 6020
TCLP METALS				
LEAD	<0.200	mg/L	0.200	EPA 1311

End of Report for Sample ID: LAB012100



City of Portland
Water Pollution Control Laboratory
Laboratory Analysis Report



Sample Date/Time 12/06/2001 11:30 System ID AF11217 Sample ID LAB012101

Proj./Company Name: WAGSTAFF SAMP
Address/Location: WAGSTAFF S-6
PROJ NO 7091

Page: 1
Date Received: 12/06/2001
Sample Status: COMPLETE AND
VALIDATED

Proj Subcategory: SPECIAL WASTE
Sample Point Code: 0
IMS File/Invoice #: 3030.028

Sample Type: GRAB
Sample Matrix: SOIL
Collected By: DAW

Comments: QA/QC: Unless otherwise noted, all analytical QA/QC criteria were met for this sample including holding times, calibration, method blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as applicable.

Test Parameter	Result	Units	MRL	Method
RCRA METALS (5) BY EPA 6020				
ARSENIC	5.91	mg/Kg	0.50	EPA 6020
CADMIUM	0.32	mg/Kg	0.10	EPA 6020
CHROMIUM	29.7	mg/Kg	0.50	EPA 6020
LEAD	143	mg/Kg	0.10	EPA 6020
MERCURY	0.184	mg/Kg	0.010	EPA 6020
TCLP METALS				
LEAD	<0.200	mg/L	0.200	EPA 1311

End of Report for Sample ID: LAB012101



City of Portland
Water Pollution Control Laboratory
Laboratory Analysis Report



Sample Date/Time 12/06/2001 11:45 System ID AF11218 Sample ID LAB012102

Proj./Company Name: WAGSTAFF SAMP
Address/Location: WAGSTAFF S-7
PROJ NO 7091

Page: 1
Date Received: 12/06/2001
Sample Status: COMPLETE AND
VALIDATED

Proj Subcategory SPECIAL WASTE
Sample Point Code: 0
IMS File/Invoice #: 3030.028

Sample Type: GRAB
Sample Matrix: SOIL
Collected By: DAW

Comments: QA/QC: Unless otherwise noted, all analytical QA/QC criteria were met for this sample including holding times, calibration, method blanks, laboratory control sample recoveries, duplicate precision, matrix spike recoveries, and surrogate recoveries, as applicable.

Test Parameter	Result	Units	MRL	Method
RCRA METALS (5) BY EPA 6020				
ARSENIC	4.80	mg/Kg	0.50	EPA 6020
CADMIUM	0.28	mg/Kg	0.10	EPA 6020
CHROMIUM	25.8	mg/Kg	0.50	EPA 6020
LEAD	135	mg/Kg	0.10	EPA 6020
MERCURY	0.064	mg/Kg	0.010	EPA 6020
TCLP METALS				
LEAD	<0.200	mg/L	0.200	EPA 1311

End of Report for Sample ID: LAB012102