

FS
4/1/03

March 31, 2003

University Auto Center
P.O. Box 619
Ellensburg, WA 98926

Attention: Mr. Allen Faltus

**SUBJECT: ANALYTICAL RESULTS FOR SAMPLES COLLECTED AT THE
UNIVERSITY AUTO CENTER PCS TREATMENT SITE,
ELLENSBURG, WA.**

Dear Mr. Faltus,

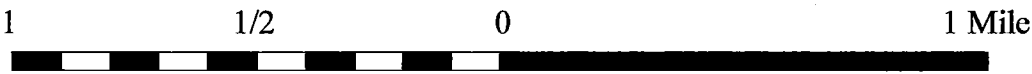
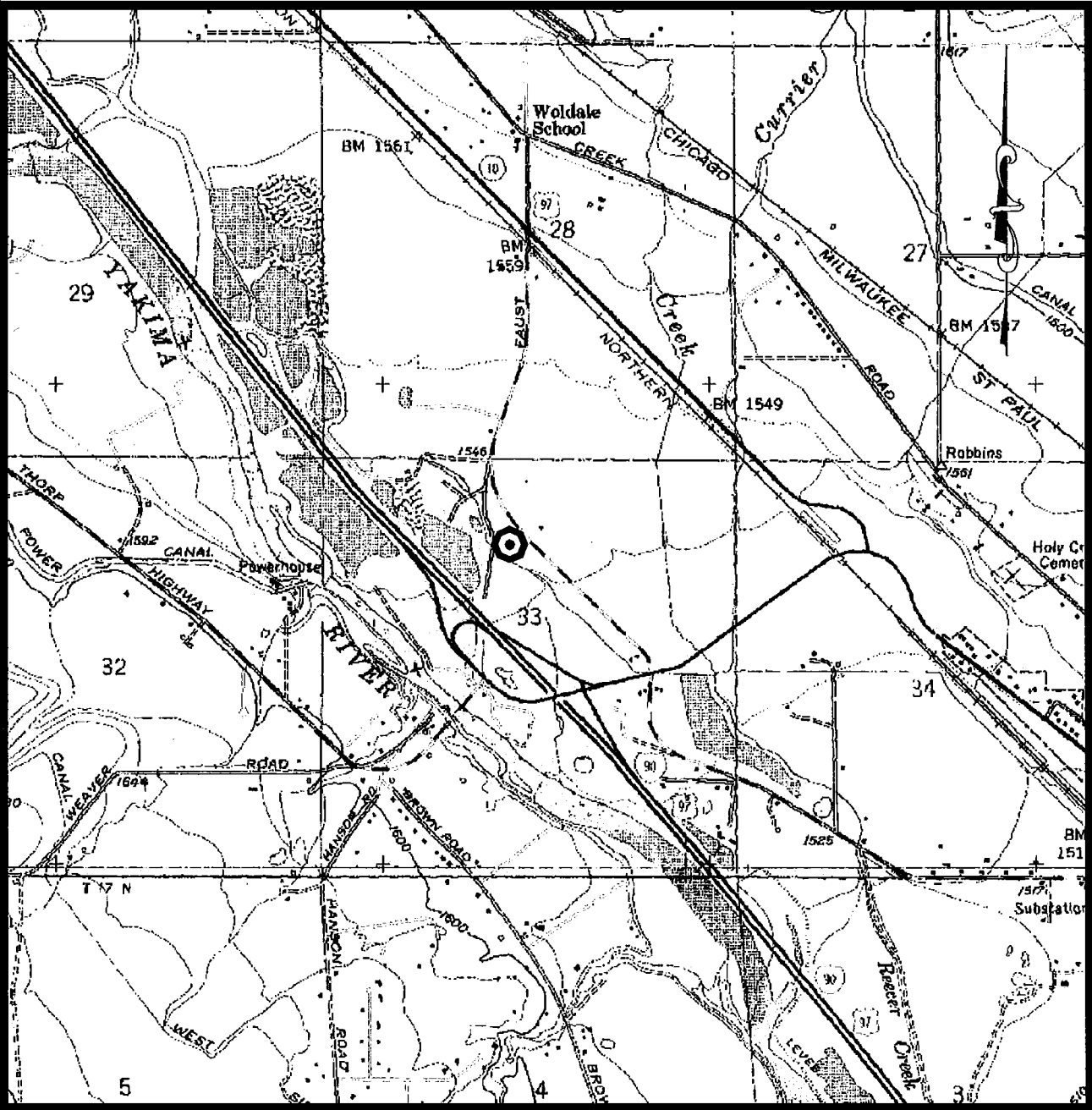
As you requested, Sage Earth Sciences, Inc. (Sage) collected soil samples to determine the progress of Petroleum Contaminated Soil (PCS) treatment activities at the University Auto Center PCS Treatment Site, located at 1817 SR97, Ellensburg, WA. The quantity of PCS currently being treated at the site is approximately 1,900 cubic yards, which was generated during remedial activities at the University Auto Center – Parts Service & Accounting facility located at 7th Avenue and Pearl Street, Ellensburg, WA. These remedial activities are documented in Sage's *Independent Remedial Action Report, November, 2002*.

Figure 1 shows the PCS treatment location. The soil was spread to a maximum thickness of sixteen inches. Sage collected ten (10) soil samples (UAC-0103-RS1 through UAC-0103-RS10) from the treatment area and submitted them to FBI for analysis using analytical methods: NWTPH-Gx (Total Petroleum Hydrocarbons as gasoline), EPA Method 8021B (Benzene, Toluene, Ethylbenzene and Xylenes) and NWTPH-Dx (Diesel and Motor Oil range Petroleum Hydrocarbons). Soil sampling methods are documented in Appendix A. Sage conducted soil sampling activities on March 17, 2003. The sampling locations are shown by Figure 2 and sampling descriptions are included as Appendix B. The FBI analytical results (Appendix C) for PCS treatment area samples are summarized by Table 1. FBI analyses of soil treatment area samples found:

- No detectable (less than 1 parts per million (ppm)) gasoline range petroleum hydrocarbons,
- No detectable (less than 50 ppm) diesel range petroleum hydrocarbons,
- No detectable (less than 0.02 ppm) benzene,
- No detectable (less than 0.02 ppm) toluene,
- No detectable (less than 0.02 ppm) and
- No detectable (less than 0.02 ppm) xylenes.

P.O. Box 1644 ■ Zillah, WA 98953

Phone: 509.829.6400 ■ Fax: 509.829.6443 ■ E-mail: sageearth@nwinfo.net



Graphic Scale

Contour Interval - 10 Feet

⊙ = PCS Treatment Location

Figure 1. PCS Treatment Area Location

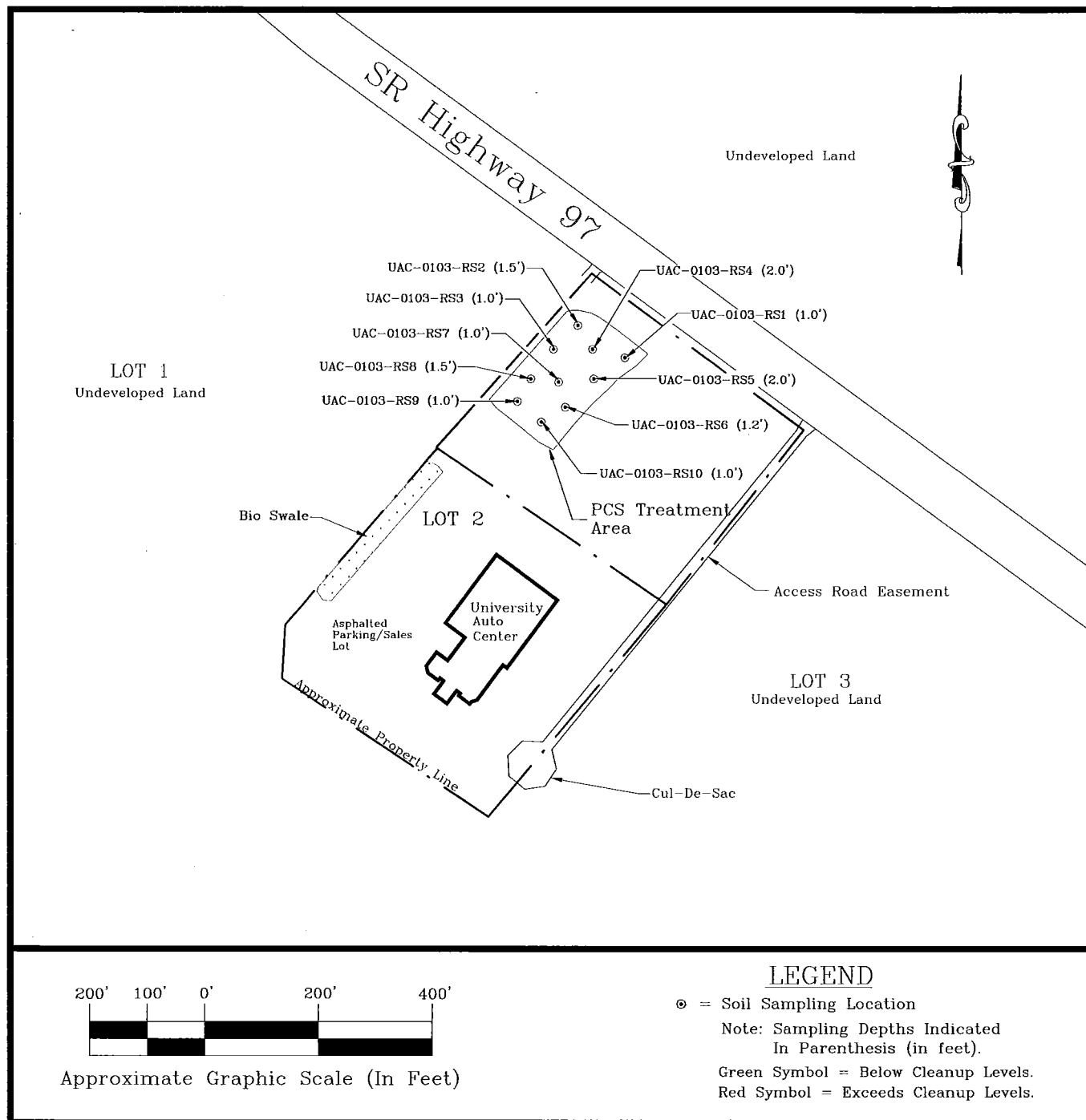


Figure 2. Soil Treatment Area Sampling Locations

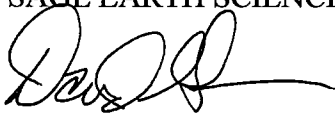
Table 1. FBI Analytical Results for Soil Treatment Area Samples							
Sample	Depth (feet)	Benzene (mg/Kg)	Toluene (mg/Kg)	Ethyl- benzene (mg/Kg)	Xylenes (mg/Kg)	WTPH-Gx (mg/Kg)	WTPH-Dx (mg/Kg)
UAC-0103-RS1	1.0	<0.02	<0.02	<0.02	<0.02	<1	<50
UAC-0103-RS2	1.5	<0.02	<0.02	<0.02	<0.02	<1	<50
UAC-0103-RS3	1.0	<0.02	<0.02	<0.02	<0.02	<1	<50
UAC-0103-RS4	2.0	<0.02	<0.02	<0.02	<0.02	<1	<50
UAC-0103-RS5	2.0	<0.02	<0.02	<0.02	<0.02	<1	<50
UAC-0103-RS6	1.2	<0.02	<0.02	<0.02	<0.02	<1	<50
UAC-0103-RS7	1.0	<0.02	<0.02	<0.02	<0.02	<1	<50
UAC-0103-RS8	1.5	<0.02	<0.02	<0.02	<0.02	<1	<50
UAC-0103-RS9	1.0	<0.02	<0.02	<0.02	<0.02	<1	<50
UAC-0103-RS10	1.0	<0.02	<0.02	<0.02	<0.02	<1	<50
Red Font indicates that concentration exceeds Method A Cleanup Levels of WAC 173-340-740 Green Font indicates that concentration does not exceed Method A Cleanup Levels of WAC 173-340-740 mg/Kg = parts per million (ppm)							

Comparison of the analytical results (Appendix C) with the WSDOE *End Use Criteria for Petroleum Contaminated Soils* (Appendix D) indicates that the treated soil is designated as “Class2 Soil” or lower. The WSDOE recommends that “Class 2 Soil” be used as follows:

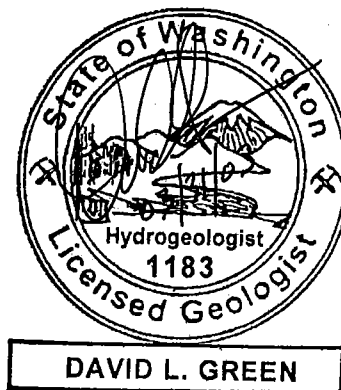
- Backfill at the cleanup site,
- Fill in commercial or industrial areas
- Cover or fill in permitted landfills
- Road subgrade or other road construction fill
- Fill in or near: wetlands, surface water, groundwater, drinking water wells, utility trenches or residential topsoil is NOT recommended.

Sage Earth Sciences, Inc. appreciates the opportunity to provide you with environmental services for your remediation project. Please contact us if you have any questions or comments.

Respectfully,
SAGE EARTH SCIENCES, INC.



David L. Green
Hydrogeologist



cc: WSDOE Toxics Cleanup Program, Yakima, WA
file

Appendix A

Appendix B

$$\frac{2-PPM}{NA} \text{ Units}$$

Appendix C

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

James E. Bruya, Ph.D.
Charlene Morrow, M.S.
Yelena Aravkina, M.S.
Bradley T. Benson, B.S.
Kurt Johnson, B.S.

3012 16th Avenue West
Seattle, WA 98119-2029
TEL: (206) 285-8282
FAX: (206) 283-5044
e-mail: fbi@isomedia.com

March 28, 2003

Rodney Heit, Project Manager
Sage Earth Sciences, Inc.
P.O. Box 1644
Zillah, WA 98953

Dear Mr. Heit:

Included are the results from the testing of material submitted on March 18, 2003 from the UAC-0103, F&BI 303161 project. There are 4 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you should have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.



Charlene Morrow
Chemist

Enclosures
SES0328R.DOC

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/28/03
 Date Received: 03/18/03
 Project: UAC-0103, F&BI 303161
 Date Extracted: 03/19/03
 Date Analyzed: 03/19/03

**RESULTS FROM THE ANALYSIS OF THE SOIL SAMPLES
 FOR BENZENE, TOLUENE, ETHYLBENZENE,
 XYLENES AND TPH AS GASOLINE
 USING EPA METHOD 8021B AND NWTPH-Gx**
 Results Reported on a Dry Weight Basis
 Results Reported as µg/g (ppm)

<u>Sample ID</u> Laboratory ID	<u>Benzene</u>	<u>Toluene</u>	<u>Ethyl Benzene</u>	<u>Total Xylenes</u>	<u>Gasoline Range</u>	<u>Surrogate (% Recovery)</u> (Limit 76-129)
UAC-0103-RS1 303161-01	<0.02	<0.02	<0.02	<0.02	<1	90
UAC-0103-RS2 303161-02	<0.02	<0.02	<0.02	<0.02	<1	92
UAC-0103-RS3 303161-03	<0.02	<0.02	<0.02	<0.02	<1	100
UAC-0103-RS4 303161-04	<0.02	<0.02	<0.02	<0.02	<1	94
UAC-0103-RS5 303161-05	<0.02	<0.02	<0.02	<0.02	<1	93
UAC-0103-RS6 303161-06	<0.02	<0.02	<0.02	<0.02	<1	89
UAC-0103-RS7 303161-07	<0.02	<0.02	<0.02	<0.02	<1	89
UAC-0103-RS8 303161-08	<0.02	<0.02	<0.02	<0.02	<1	90
UAC-0103-RS9 303161-09	<0.02	<0.02	<0.02	<0.02	<1	82
UAC-0103-RS10 303161-10	<0.02	<0.02	<0.02	<0.02	<1	78
Method Blank	<0.02	<0.02	<0.02	<0.02	<1	83

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/28/03
Date Received: 03/18/03
Project: UAC-0103, F&BI 303161
Date Extracted: 03/26/03
Date Analyzed: 03/26/03

**RESULTS FROM THE ANALYSIS OF THE SOIL SAMPLES
FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL
USING METHOD NWTPH-Dx**

Extended to Include Motor Oil Range Compounds

Results Reported on a Dry Weight Basis

Results Reported as µg/g (ppm)

<u>Sample ID</u> Laboratory ID	<u>Diesel Extended</u> (C ₁₀ -C ₃₆)	<u>Surrogate</u> (% Recovery) (Limit 45-153)
UAC-0103-RS1 303161-01	<50	78
UAC-0103-RS2 303161-02	<50	80
UAC-0103-RS3 303161-03	<50	82
UAC-0103-RS4 303161-04	<50	68
UAC-0103-RS5 303161-05	<50	77
UAC-0103-RS6 303161-06	<50	75
UAC-0103-RS7 303161-07	<50	84
UAC-0103-RS8 303161-08	<50	75
UAC-0103-RS9 303161-09	<50	82
UAC-0103-RS10 303161-10	<50	75
Method Blank	<50	77

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/28/03

Date Received: 03/18/03

Project: UAC-0103, F&BI 303161

**QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF SOIL SAMPLES
FOR BENZENE, TOLUENE, ETHYLBENZENE,
XYLENES AND TPH AS GASOLINE
USING EPA METHOD 8021B AND NWTPH-Gx**

Laboratory Code: 303065-02 (Duplicate)

Analyte	Reporting Units	Sample Result	Duplicate Result	Relative Percent Difference (Limit 20)
Benzene	µg/g (ppm)	<0.02	<0.02	nm
Toluene	µg/g (ppm)	<0.02	<0.02	nm
Ethylbenzene	µg/g (ppm)	<0.02	<0.02	nm
Xylenes	µg/g (ppm)	<0.02	<0.02	nm
Gasoline	µg/g (ppm)	<1	<1	nm

Laboratory Code: 303065-02 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Benzene	µg/g (ppm)	0.5	<0.02	76	88	60-131	15
Toluene	µg/g (ppm)	0.5	<0.02	78	88	68-129	12
Ethylbenzene	µg/g (ppm)	0.5	<0.02	81	92	69-131	13
Xylenes	µg/g (ppm)	1.5	<0.02	80	86	69-137	7

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Benzene	µg/g (ppm)	0.5	82	68-116
Toluene	µg/g (ppm)	0.5	82	75-114
Ethylbenzene	µg/g (ppm)	0.5	86	79-114
Xylenes	µg/g (ppm)	1.5	84	76-122
Gasoline	µg/g (ppm)	20	111	51-141

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Date of Report: 03/28/03

Date Received: 03/18/03

Project: UAC-0103, F&BI 303161

**QUALITY ASSURANCE RESULTS FROM THE ANALYSIS OF SOIL SAMPLES
FOR TOTAL PETROLEUM HYDROCARBONS AS DIESEL EXTENDED
USING METHOD NWTPH-Dx**

Laboratory Code: 303218-01 (Duplicate)

Analyte	Reporting Units	Sample Result	Duplicate Result	Relative Percent Difference (Limit 20)
Diesel Extended	µg/g (ppm)	<50	<50	nm

Laboratory Code: 303218-01 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Diesel Extended	µg/g (ppm)	500	<50	114	97	62-142	16

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Diesel Extended	µg/g (ppm)	500	101	66-132

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

CM 3/18/03 BOZ



P.O. Box 1644
601 Glenwood Drive
Zillah, WA 98953
Phone (509) 829-6400
Fax (509) 829-6443

CHAIN-OF-CUSTODY FORM

Project Name University Auto
Project Number UAC-0103
Sampler ReidNet
Date 3-17-03 Time 9:15 —
Destination FBI

[illegible]Relinquished by: K. Quinn Date: 3-17-03

Received By: Eng. P. A. P. P. P. Date: 03/10/03

Firm: Sao Esty Samson Time: 11:15

Firm: La. Dr. Time: 10:40

Relinquished by:

Date:

Received By:

Date:

Firm:

Time:

Firm:

time,

Container	Condition:	Good	Violated
1	Good	1	0
2	Good	1	0
3	Good	1	0
4	Good	1	0
5	Good	1	0
6	Good	1	0
7	Good	1	0
8	Good	1	0
9	Good	1	0
10	Good	1	0
11	Good	1	0
12	Good	1	0
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95	Good	1	0
96	Good	1	0
97	Good	1	0
98	Good	1	0
99	Good	1	0
100	Good	1	0

(°C): Yes No

Custody Seals: Intact Violated

Appendix D

