

March 1, 2017

Ms. Carol Johnston VCP Site Manager Department of Ecology Toxics Cleanup Program P.O. Box 47775 Olympia, Washington 98504-7775

### **RE:** Confirmation Sampling Results & NFA Request

Plum Street Chevron (aka MJMG Group, LLC) 1018 Plum Street, Olympia, Washington 98501 Facility/Site ID No. 25489377 AEG Project #16-121

Dear Ms. Johnston:

On behalf of the property owner of the above-referenced Site, Associated Environmental Group, LLC (AEG) is submitting the enclosed data for review in consideration of a No Further Action (NFA) determination. In July 2016, AEG enrolled this Site into the Washington State Department of Ecology (Ecology) Voluntary Cleanup Program (VCP). Included was a Phase II Environmental Site Assessment (Phase II), dated May 24, 2016, documenting the sampling of soil and groundwater performed by AEG in an effort to obtain closure for the Site. Upon review, Ecology requested an additional soil sample in the vicinity of the southwest dispenser island. This area historically exhibited the highest concentrations of gasoline-range petroleum hydrocarbon (TPH) and related constituents.

On February 1, 2017, AEG mobilized to the Site, and advanced a boring adjacent to the southwest dispenser and former trench sample T-1(2) (circa 1995) where gasoline-range TPH and benzene had been detect at 9,900 milligrams per kilogram (mg/kg) and 30 mg/kg, respectively, at 2 feet below ground surface (bgs). A soil vacuum was used to remove pea gravel fill around the dispensers, and a temporary casing was placed in the hole to keep it open, and prevent pea gravel from sloughing in. A hand auger was then used to collect a sample of the native soil at 3 feet bgs. The soil sample was submitted for laboratory analysis for gasoline-range TPH and benzene, toluene, ethylbenzene, and xylene (BTEX) compounds.

VCP Application

Plum Street Chevron, Olympia, WA
AEG Project No. 16-121
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Analytical results indicated the presence of gasoline-range TPH at 120 mg/kg. All BTEX constituents were non-detect. The location of the soil sample is illustrated in Figure 2, *Site Map*. The analytical results are summarized in Table 1, *Summary of Soil Results*, and the laboratory report is attached.

Reportedly, in November 2016, the on-Site monitoring wells (MW-1 through MW-5) were sampled by leidos on behalf of Chevron, and the Groundwater Monitoring Report, dated February 2, 2017, was received by Ecology on February 10, 2017. The groundwater samples were analyzed for gasoline-, diesel-, and oil-range TPH, BTEX compounds, and total and dissolved lead. Analytical results indicated that all constituents were either non-detect or below cleanup levels. However, the two previous quarters detected total lead in MW-5 just above the Model Toxics Control Act (MTCA) cleanup level of 15 micrograms per liter (μg/L) at 16.6 μg/L and 18.8 μg/L, respectively. Total lead had also historically exceeded the MTCA cleanup level in MW-3; however, it has been below for the last seven consecutive quarters. Concurrent analyses for dissolved lead has demonstrated that these detections of total lead are a result of suspended solids in the sample, and not indicative of a release at the Site. In addition, of the six soil samples and four groundwater samples collected by AEG from the Site in 2016 and analyzed for lead, all were either non-detect or well below MTCA cleanup levels.

It is AEG's professional opinion that an NFA determination is warranted for the Site for the following reasons:

- No soil or groundwater contamination was detected above MTCA Method A cleanup levels during AEG's April 2016 sampling event in the vicinity and downgradient of historical on-Site source areas.
- Groundwater data collected to date from the on-Site monitoring wells has been below MTCA Method A cleanup levels for at least seven consecutive quarters. The dissolved lead data and AEG's soil and groundwater lead data has shown that the sporadic total lead detections in the wells is likely due to suspended solids in the samples, and is not indicative of a release from the Site. Further, this Site is located in an urban setting, and groundwater is not used for drinking water.
- The confirmation soil sample collected by AEG adjacent the southwest dispenser identified gasoline-range TPH above MTCA cleanup levels (120 mg/kg). No BTEX compounds were detected. Given benzene was non-detect in this sample, as well as all other soil and groundwater samples collected by AEG from the Site, a cleanup level of 100 mg/kg for gasoline-range TPH would be more appropriate for current Site conditions. As such, in accordance with WAC 173-340-740(7)(d), this detection would be considered to have statistically met cleanup standards as follows:

VCP Application

Plum Street Chevron, Olympia, WA AEG Project No. 16-121 March 1, 2017

- The concentration of 120 mg/kg is less than twice the cleanup level.
- This detection occurred in less than 10% of the total number of soil samples collected from the Site (1 of 17) and analyzed for gasoline-range TPH.
- The upper one-sided 95% confidence limit on the true mean soil concentration (31.26 mg/kg) is less than the cleanup level (see attached analysis).

If you have any questions or concerns regarding this application, please don't hesitate to contact our office at (360) 352-9835.

Sincerely,

Associated Environmental Group, LLC

Scott Rose, L.H.G

Senior Hydrogeologist

SCOTTIROSE

cc: Mr. Satnam "Sonny" Singh, MJMG Group, LLC

Enclosures: - Figure 2, Site Map

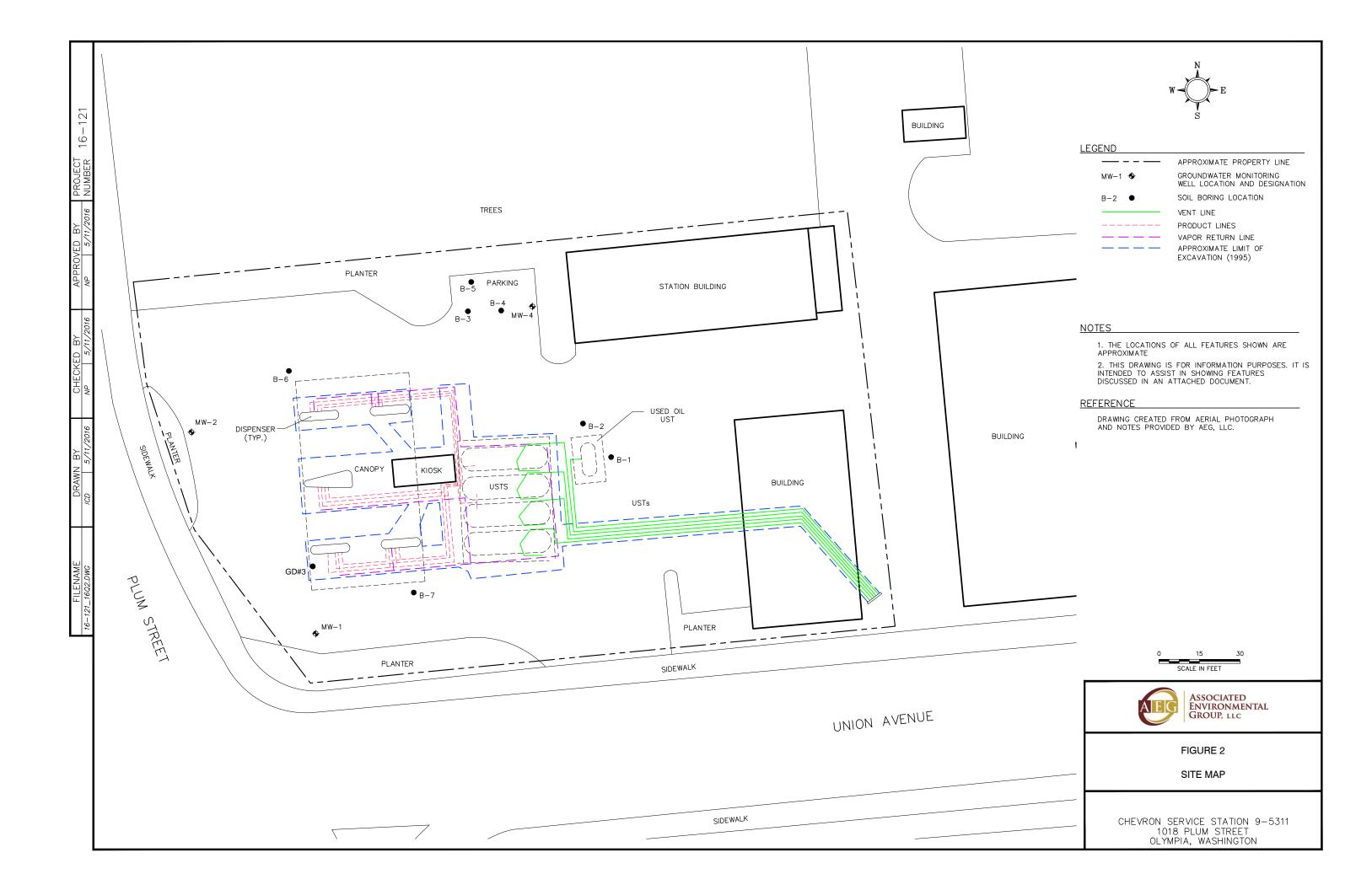
- Table 1, Summary of Soil Results

- Table 2, Summary of Groundwater Results

- Laboratory Report for Soil Sample for GD#3

- Leidos Table 1, Groundwater Monitoring Data and Analytical Results

- ProUCL Statistical Analysis



### Table 1 - Summary of Soil Results

Plum Street Chevron Olympia, Washington

	Sample	Date			V	olatile Orgar	nic Compoun	ds			Gasoline	Diesel	Lube Oil	Total		Total
Sample Number	Depth (feet)	Collected	Benzene	Toluene	Ethyl- benzene	Total Xylenes	EDC	EDB	Total Naphthalenes	MTBE	Range Organics	Range Organics	Range Organics	cPAHs	PCBs	Lead
B1-10	10	4/20/2016	< 0.02	< 0.05	< 0.05	< 0.15	< 0.05	< 0.005	-	< 0.05	<10	< 50	<100	< 0.02	< 0.2	-
B1-5	5	4/20/2016	< 0.02	< 0.05	< 0.05	< 0.15	< 0.05	< 0.005	-	< 0.05	<10	< 50	<100	< 0.02	< 0.2	5.5
B2-8.5	8.5	4/20/2016	< 0.02	< 0.05	< 0.05	< 0.15	< 0.05	< 0.005	-	< 0.05	28	< 50	<100	< 0.02	< 0.2	-
B2-12	12	4/20/2016	< 0.02	< 0.05	< 0.05	< 0.15	< 0.05	< 0.005	-	< 0.05	<10	< 50	<100	< 0.02	< 0.2	8.0
B3-5	5	4/20/2016	< 0.02	< 0.05	< 0.05	< 0.15	1	-	-	-	<10	-	-	-	-	-
B3-10	10	4/20/2016	< 0.02	< 0.05	< 0.05	< 0.15	< 0.05	< 0.005	< 0.02	< 0.05	15	-	-	-	-	< 5.0
B3-12	12	4/20/2016	< 0.02	< 0.05	< 0.05	< 0.15	< 0.05	< 0.005	< 0.02	< 0.05	<10	-	-	-	-	6.0
B4-5	5	4/20/2016	< 0.02	< 0.05	< 0.05	< 0.15	ı	-	-	-	<10	-	-	-	-	-
B4-10	10	4/20/2016	< 0.02	< 0.05	< 0.05	< 0.15	1	-	-	-	<10	-	-	-	-	-
B5-5	5	4/20/2016	< 0.02	< 0.05	< 0.05	< 0.15	1	-	-	-	<10	-	-	-	-	-
B5-8.5	8.5	4/20/2016	< 0.02	< 0.05	< 0.05	< 0.15	1	-	-	-	<10	-	-	-	-	-
B6-4	4	4/20/2016	< 0.02	< 0.05	< 0.05	< 0.15	ı	-	-	-	<10	-	-	-	-	-
B6-7	7	4/20/2016	< 0.02	< 0.05	< 0.05	< 0.15	< 0.05	< 0.005	< 0.02	< 0.05	<10	-	-	-	-	< 5.0
B6-10	10	4/20/2016	< 0.02	< 0.05	< 0.05	< 0.15	< 0.05	< 0.005	< 0.02	< 0.05	<10	-	-	-	-	< 5.0
B7-4.5	4.5	4/20/2016	< 0.02	< 0.05	< 0.05	< 0.15	1	-	-	-	<10	-	-	-	-	-
B7-6.5	6.5	4/20/2016	< 0.02	< 0.05	< 0.05	< 0.15	1	-	-	-	<10	-	-	-	_	-
GD#3@3	3	2/1/2017	< 0.02	< 0.05	< 0.05	< 0.15	-	-	-	-	120	-	-	-	-	-
	PQL		0.02	0.05	0.05	0.15	0.05	0.005	0.02/0.05	0.05	10	50	100	0.02	0.2	5.0
MTCA Metho	od A Cleanu	p Level	0.03	7	6	9	NA	0.005	5	0.1	30*	2000	2000	0.1	1	250

### Notes:

All results are in milligrams per kilograms (mg/kg)

- -- = Not analyzed for this constituent
- < = Not detected above laboratory limits
- \* TPH-Gasoline Cleanup Level with the presence of Benzene anywhere at the Site

PQL = Practical Quantification Limit (laboratory detection limit)

Red Bold indicates the detected concentration exceeds Ecology MTCA Method A cleanup level Bold indicates the detected concentration is below Ecology MTCA Method A cleanup levels

EDC = 1,2-Dichloroethane

EDB = Ethylene Dichloride

MTBE = Methyl Tert-Butyl Ether

cPAHs = Carcinogenic polycyclic aromatic hydrocarbons

PCBs = Polychlorinated biphenyls

NA = Method A cleanup level has not been established

### Table 2 - Summary of Groundwater Results

Plum Street Chevron Olympia, Washington

	Date			Volat	ile Organic	Compoun	ıds			Gasoline	Diesel	Oil Range	Total		
Sample Number	Collected	Benzene	Toluene	Ethylbenzene	Total Xylenes	EDC	EDB	Total Naphthalenes	MTBE	Range Organics	Range Organics	Organics	cPAHs	PCBs	Total Lead
B1-W	4/20/16	<1.0	<1.0	<1.0	< 3.0	<1.0	< 0.005	< 0.1	<1.0	<100	<250	< 500	< 0.1	< 0.1	2.7
B2-W	4/20/16	<1.0	<1.0	2.4	< 3.0	-	< 0.005	68	<1.0	630	<250	< 500	< 0.1	< 0.1	< 2.0
B3-W	4/20/16	<1.0	<1.0	<1.0	< 3.0	<1.0	< 0.005	< 0.1	<1.0	<100	-	-	-	-	< 2.0
B4-W	4/20/16	<1.0	<1.0	<1.0	< 3.0	-	-	-	-	<100	-	-	-	-	-
B5-W	4/20/16	<1.0	<1.0	<1.0	< 3.0	-	-	-	-	<100	-	-	-	-	-
B6-W	4/20/16	<1.0	<1.0	<1.0	< 3.0	<1.0	< 0.005	< 0.1	<1.0	<100	-	-	-	-	< 2.0
B7-W	4/20/16	<1.0	<1.0	<1.0	< 3.0	ı	-	-	-	<100	•	-	-	-	-
PQL		1.0	1.0	1.0	3.0	1.0	0.005	0.1	1.0	100	250	500	0.1	0.1	2.0
MTCA Method A Clea	nup Levels	5.0	1,000	700	1,000	5.0	0.01	160	20	800 ¹	500	500	0.1	0.1	15

Notes:

All results are in micrograms per liter (µg/L)

-- = Not analyzed for constituent

< = Not detected at the listed laboratory detection limits

PQL = Practical Quantification Limit (laboratory detection limit)

Red Bold indicates the detected concentration exceeds Ecology MTCA Method A cleanup level Bold indicates the detected concentration is below Ecology MTCA Method A cleanup levels

<sup>1</sup>TPH-Gasoline Cleanup Level with the presence of Benzene anywhere at the Site

EDC = 1,2-Dichloroethane

EDB = Ethylene Dichloride

MTBE = Methyl Tert-Butyl Ether

cPAHs = Carcinogenic polycyclic aromatic hydrocarbons

PCBs = Polychlorinated biphenyls

February 14, 2017

Becky Dilba Associated Environmental Group, Inc. 605 11th Ave. SE, Suite 201 Olympia, WA 98501 RECEIVED
FEB 2 1 2017
AEG

Dear Ms. Dilba:

Please find enclosed the analytical data report for the Plum Street Chevron in Olympia, Washington. One soil sample was analyzed for Gasoline by NWTPH-Gx and BTEX by Method 8260 on February 9, 2017.

The results of the analyses are summarized in the attached table. All soil values are reported on a dry weight basis. Applicable detection limits and QA/QC data are included. An invoice for this work is also enclosed.

ESN Northwest appreciates the opportunity to have provided analytical services to Associated Environmental Group, Inc. for this project. If you have any further questions about the data report, please give me a call. It was a pleasure working with you on this project, and we are looking forward to the next opportunity to work together.

Sincerely,

Michael A. Korosec

Michael a Korace

President

1210 Eastside Street SE, Suite 200 ■ Olympia, Washington 98501 ■ 360.459.4670 ■ FAX 360.459.3432 Web Site: www.esnnw.com E-Mail: info@esnnw.com

### **ESN NORTHWEST CHEMISTRY LABORATORY**

Associated Environmental Group PROJECT PLUM STREET CHEVRON PROJECT #16-121 Olympia, Washington ESN Northwest 1210 Eastside Street SE Suite 200 Olympia, WA 98501 (360) 459-4670 (360) 459-3432 Fax lab@esnnw.com

### Analysis of Gasoline Range Organics & BTEX in Soil by Method NWTPH-Gx/8260

Sample	Date	Date	Benzene	Toluene	Ethylbenzene	Xylenes	Gasoline Range Organics	Surrogate
Number	Prepared	Analyzed	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	Recovery (%)
Method Blank	2/9/2017	2/9/2017	nd	nd	nd	nd	nd	108
LCS	2/9/2017	2/9/2017	117%	131%	134%	136%	114%	95
LCSD	2/9/2017	2/9/2017	109%	102%	100%	105%		102
GD#3@3	2/1/2017	2/9/2017	nd	nd	nd	nd	120	112
Reporting Limits			0.02	0.05	0.05	0.15	10	

<sup>&</sup>quot;---" Indicates not tested for component.

ACCEPTABLE RECOVERY LIMITS FOR SURROGATE (Bromoflurorbenzene) & LCS: 65% TO 135%

<sup>&</sup>quot;nd" Indicates not detected at the listed detection limits.

<sup>&</sup>quot;int" Indicates that interference prevents determination.

### GROUNDWATER MONITORING DATA AND ANALYTICAL RESULTS CHEVRON SERVICE STATION NO. 95311 1018 Plum Street Olympia, Washington Concentrations reported in 189/L TABLE 1

ND <0.50
QN 005 0V
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08 10
03/18/99 (D)

# GROUNDWATER MONITORING DATA AND ANALYTICAL RESULTS<sup>1</sup> CHEVRON SERVICE STATION NO. 95311 1018 Plum Street Olympia, Washington Concentrations reported in µg/L TABLE 1

Γ	<del>-</del>		Т	Τ	Τ	T	T	Τ	T	T	Τ	Τ	Τ	T.,	Τ	Γ	Γ	Τ	Т	Т	Γ	Γ	Τ	Τ	<b>T</b>	Τ	Τ	Τ	Π	Τ	Τ	Τ	Γ	Τ	Т	Т	T
	T. 1 23d		;		1	. }	7.2	1	\$ 00	4	1	0.72	12	<0.085	0.18	14.4	0.17	25	3.6	8.6	66	<u></u>	4.5			ł	1		,	,	1	;	ł	1	1.5	1.7	:: *
	D. Lead		1	1	1	1	<0.87	1		,	1	1	ī	1	1	1	1	ł	<0.13	<0.13	<0.13	89'0	<0.090		0.12	ŀ	ł	. 1	ł		1	1	1	1	<0.87	1	
	MTRE		;		ŧ		\$ 0.5	2.0	5.05	\$0.5	,	1	1	,	,		-	,	{	ł	!	ŧ	1		<0.50	1	1	1	;		1	***	1	1	<0.5	\$0.5	
Total	Xvlenes		1	21.00	VI 00	<15	0.12	<0.5	<0.5	0.5	♡	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	5,5		QN	QN	×1.00	00.15	1	-	1		<1.00	4.5	0.1	<0.5	
F+by/	benzene		1	<0.500	<0.500	<0.5	<0.5	\$0.5	<0.5	\$0.5	⊽	<0.5	<0.5	<0,5	<0.5	<0.5	505	<0.5	<0.5	1	<0.5	\$0.5	<0.5		2	S	<0.500	<0.500	1	1	1	,	<0.500	\$0.5 \$	<0.5	<0.5	
	Toluene		,	<0.500	<0.500	<0.5	<0.5	<0.5	<0.5	<0.5	\$	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5		Q	QN	<0.500	<0.500	1	:	1	1	<0.500	<0.5	<0.5	<0.5	
	Benzene		,	<0.500	<0.500	<0.5	<0.5	<0.5	<0.5	<0.5	⊽	<0.5	<0,5	<0.5	<0.5	<0,5	<0,5	<0.5	<0.5	1.1	<0.5	<0.5	<0.5		S	QN	<0.500	<0.500	1	1	·		<0.500	<0.5	<0.5	<0.5	
	TPH-G		1	<50.0	<50,0	<48	<48	\$48	<48 <48	\$ <del>1</del>	2100	<50	<50	50	<50	53	<50	<\$0	<50	190	<50	<50	<50		ND	ND	<50.0	<50.0	1	1	1	:	<50.0	<48	<48	<48	
	ТРН-НО		05/2	<750	<750	66>	~100	<100	100	865	<400	99>	110	89>	<7.1	84	69>	<100	>99	<67	<68	99>	99>		ΩN	QN	<750	<750	1		1	-	<750	<100	<100	<100	
	TPH-D		\$250	\$ <del>25</del> 0	<250	6/>	8;	<82	670	<i>&lt;779</i>	\$200 \$200	\$25	8	<29	30	8	€5	446	85	6₹	<b>429</b>	872	228		QN	QN	<250	<250	1	1	1	1	<250	% %	\$1	₹\$5	
GWE	(11)		95.35	95.45	95.18	95.38	69:56	95.26	95.25	95.51	1	94.42	95.26	95.40	95.42	94.80	94.50	94.70	95.01	94.72	94.79	94.72	94.85		94.82	94.82	94.81	94.79	94.75	94.98	94.62	94.82	94.84	94.65	95.10	94.89	100
DTW	(AL)		1.88	1.78	2.05	1.85	1.54	1.97	1.98	1.72	1	2.81	1.97	1.83	1.81	2.43	2.73	2,53	2.22	2.51	2.44	2.51	2.38		5.16	5.16	5.17	5.19	5.23	5.00	5.36	5.16	5.14	5.33	4.88	5.09	(, 1,
$TOC^2$	(AL)		97.23	97.23	97.23	97.23	97.23	97.23	97.23	97.23	97.23	97.23	97.23	97.23	97.23	97.23	97.23	97.23	97.23	97.23	97.23	97.23	97.23		86.66	86.66	86.66	86.66	86.66	86.66	86.66	86.66	86.66	86.66	86.66	86.66	0000
Well ID/	Date	MW-2 (cont)	09/15/00	11/08/00	01/24/01	05/25/05	11/29/05	01/23/06	04/18/06	07/28/06	01/06/09	06/05/13	11/27/13	05/12/14	11/24/14	02/12/15	05/06/15	08/21/15	11/19/15	02/23/16	05/21/16	08/21/16	11/16/16	MW-3	03/18/99	05/27/99	08/27/99	11/05/99	03/28/00	06/12/00	09/12/00	11/08/00	01/24/01	05/25/05	11/29/05	01/23/06	70,01,00

### GROUNDWATER MONITORING DATA AND ANALYTICAL RESULTS CHEVRON SERVICE STATION NO. 95311 1018 Plum Street Olympia, Washington Concentrations reported in usf. TABLE 1

					Conce	ntrations re	Concentrations reported in µg/L	/L					
Well ID/	TOC	DTW	GWE					:	Ethyl-	Total	1	,	1
Date	( <b>4</b> .)	(A)	(JE)	TPH-D	трн-но	TPH-G	Benzene	Tolucae	репzепс	Xylenes	MTBE	D. Lead	T. Lead
MW-3 (cont)													
07/28/06	86.66	5.35	94.63	<79	<98	<48	<0.5	<0.5	<0.5	\$0.5	20.5	1	0.51
60/90/10	86.66	1	**	<200	<400	<100	: V	۵	ī.	v	1	1	;
06/05/13	86.66	INACCESSI	BLE- CONS	TRUCTION	BLE- CONSTRUCTION ACTIVITIES		1	-	-	+	l	1	ŀ
11/27/13	86.66	INACCESSI	BLE- CAR 1	IBLE- CAR PARKED ON WELL	WELL		1	ı	_		ŀ	1	
05/12/14	86.66	5.31	94.67	ŝ	29>	<20	<0.5	5.0>	<0.5	ځ.[>	I	l	27.8
11/24/14	86.66	5.14	94.84	30	69>	0\$>	<0.5	<0.5	<0.5	<1.5	ŀ	ŀ	0,31
02/12/15	86.66	5.37	94.61	050	93	.<50	<0.5	5'0>	<0.5	<1.5	ŧ	1	108
05/06/15	86.66	5.78	94.20	600	89>	\$0	<0.5	<0.5	<0.5		1	L	0.12
08/21/15	86.66	5.97	94.01	\$46	<100	< <u>5</u> 0	<0.5	<0.5	<0.5	<1.5	ł	ī	0.67
11/19/15	86.66	4.54	95.44	87	99>	<50	<0.5	<0.5	<0.5	<1.5	-	<0.13	1.6
02/23/16	86.66	5.58	94.40	\$2	99>	0\$≎	\$0.5	<0.5	<0.5	<1.5	1	0.2	10.7
05/21/16	86.66	5.96	94.02	<29	<68	<50	<0.5	<0.5	<0.5	<1.5	ł	<0.13	1.8
08/21/16	86.66	6.02	93.96	Ş	- 29>	0\$>	<0.5	<0.5	<0.5	<1.5	1	0,1	2.0
11/16/16	86.66	5.15	94.83	\$28	99>	<50	<0.5	<0.5	<0.5	<1.5	1	<0.090	1.4
MW-4													
03/18/99	99.31	7.66	91.65	Q.	QN	ζΩN	QN	ND	QN	ND	<0.50	0.[≥	-
05/27/99	99.31	7.53	91.78	ΩŽ	ND	<b>CIN</b>	QN	0.694	QN	1.61	ſ	ŀ	-
08/27/99	99.31	7.62	69:16	<250	05/>	0:0\$>	<0.500	<0.500	<0.500	<1.00	1	1	1
11/05/99	99.31	7.70	91.61	<250	<750	<50.0	<0.500	<0.500	<0.500	<1.00	1	ţ	1
03/28/00	99.31	7.60	91.71	1	1	i	ŀ	1	ł	1	3	ŧ	1
06/17/00	99.31	7.53	91.78	1	1	1	-	1		L	1	1	ŧ
09/15/00	99.31	7.70	91.61		ł	+	1		1		1	1	1
11/08/00	99.31	7.62	69'16	1	1	E	1		1	ı		;	1
01/24/01	99,31	7.63	91.68	<250	<750	<50.0	<0.500	<0.500	<0.500	<1.00	1	:	ī
05/25/05	99.31	7.43	88.16	6/>	66>	<48	<0.5	<0.5	<0.5	<1.5	1	ı	1
11/29/05	99.31	7,33	86.16	<81	<100	<48	<0.5	<0.5	<0.5	0.1>	<0.5	<0.87	8.5
01/23/06	99.31	7.33	86.19	08>	<100	<48	<0.5	<0.5	<0.5	<0.5	<0.5	1	8.2
04/18/06	99.31	INACCESS	IBLE- VEH	ICLE PARKI	SIBLE- VEHICLE PARKED OVER WELL	3LL	1	-		1	1	:	;
02/28/06	99.31	INACCESS	IBLE- VEH	ICLE PARK!	SIBLE- VEHICLE PARKED OVER WELL	HL	3	1	1	: 1	ł	. 1	ł
60/90/10	99.31	,	l	<200	<400	<100	7	0	⊽	V	. 1	1	1
06/05/13	99.31	INACCESS	BLE-SHE	SIBLE- SHED OVER WELL	רד		ł	1	i	1	1		1
11/27/13	99.31	INACCESS	IBLE-SHE	SIBLE- SHED OVER WELL	TE	1	1	ł	1	ı	;	1	1
05/12/14	99.31	INACCESS	IBLE-SHE	INACCESSIBLE- SHED OVER WELL	rr	1	1	1	ı	Į.	ı	1	-
11/24/14	99.31	INACCESS	RELE- SHE	INACCESSIBLE- SHED OVER WELL	LL	ſ	}	-	1	ł	1	ŧ	1
02/12/15	99.31	INACCESS	SIBLE- SHE	D OVER WE	11	1	1	-	;	;	ł		1

GROUNDWATER MONITORING DATA AND ANALYTICAL RESULTS
CHEVRON SERVICE STATION NO. 95311
1018 Plum Street
Olympia, Washington
Concentrations reported in µg/L TABLE 1

Γ	-г		Г	γ	Т	T	T	T	T	Т	7	T-	т	т	Τ.		_	1	_	1	1	Г	Ŧ"	Т-	Т.	<b>-</b>	<del>-</del>	7	T	Т	γ	т-	7-	<del>-</del>	7-	Ţ-	Т-
	T. Lead		0.09	6.2	2.8	2.8	3.9	4.5	0		1	4.8	4.6	175	0.39	2.5	0.18	2.4	4.2	5.4	16.6	18.8	12.1		1	1	1			1	-	1			1		ŀ
	D. Lead		ŀ	1	0.41	<0.13	<0.13	60 0>	0.00		1	ł	1	,	1		,	1	0.39	<0.13	<0.13	60.05	1.0		0 12	1	1	1	,		-	,			1	١	,
	MTBE		1	1	1	;		1			1	-	j	1		,		1	ı	1		,	:		\$0.50 \$0.50	-	;	ı	,	F			,		- 1	2.5	<0.5
Total	Xylenes		<1.5	<1.5	<1.5	< !>	5.15	<1.5	<15		V	<1.5	21.5	<1.5	<21.5	<1.5	4.5	<1.5	<1.5	<1.5	<1.5	4.5	2.5		Q.	QX	QN	QX	Q.	2	QN	QN	QX		> 5	<1.5	505
Ethyl-	benzene		<0.5	<0.5	<0.5	<0.5	<0.5 5.05	<0.5	<0.5		V	\$0.5	<0.5	&0.5 S	0,5	<0.5	<0.5	<0.5	<0.5	8.5	<0.5	80.5	<0.5		£	QX	QN	QN	QN	Ð	Q.	QZ	QN		<0.5	<0.5	<0.5
	Toluene		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	\$0.5		4	<0.5	<0.5	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5		£	£	£	£	Ð	£	£	£	QX		<0.5	<0.5	<0.5
	Benzene		<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5		⊽	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5		2	g	Ð	QN	QN	g	QN	ON	QN		<0.5	<0.5	<0.5
	TPH-G		<50	<50	<50	0\$>	5.0	<50	<50		80 ∇	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50		,QQ	Q	QN	QΝ	QN	ON.	Ð	ΩN	QN		<48	<48	<48
	TPH-HO		\$9>	VI 00	>99>	<73	<b>29&gt;</b>	<i>L</i> 9>	19>		<400	<i>-</i> 292	100	89>	99>	201	99>	8	<i>-</i> 292	69>	<67	<67	99>			J	1	1	1	ł	F	-	1		1	l	
	1PH-D		ŝ	×46	\$7		<29	6₹	65>		<200	<29	Š	65	\$	ŝ	87	\$	67	000	ŝ	87	<28		1	1	i.	1	1	;	1		1		1	1	
GWE	(75)		92.10	91.96	92.29	92.50	92.19	92.07	92.63		ŀ	1	1	1	ļ	;	•	,		1	ı	ł	:		1	1	1	1	Į	1	1	-			1	ı	ı
WTG	(70)		7.21	7.35	7.02	6.8]	7.12	7.24	6.68		}	3.98	1.79	4.77	1.98	3.94	4.07	4.10	3.88	3.98	3.78	4.02	3.86		;	1	1	1	ì	1	-		-		ł	1	ł
Toc	040		99.31	15.93	99.31	99.31	99.31	99.31	99.31		NE	NE NE	NE	R	S	NE	RE	Œ	NE	思	NE	NE S	SE														
Well ID/	MW 4 (cont)	W W (CODI)	05/06/15	08/21/15	11/19/15	02/23/16	05/21/16	08/21/16	11/16/16	MW-5	01/06/09	06/05/13	11/27/13	05/12/14	11/24/14	02/12/15	05/06/15	08/21/15	11/19/15	02/23/16	05/21/16	08/21/16	11/16/16	TRIP BLANK	03/18/66	05/27/99	08/27/99	11/05/99	03/28/00	06/12/00	09/12/00	11/08/00	01/24/01	OA	05/25/05	11/29/05	01/23/06

### GROUNDWATER MONITORING DATA AND ANALYTICAL RESULTS CHEVRON SERVICE STATION NO. 95311 1018 Plum Street Olympia, Washington Concentrations reported in ug/L TABLE 1

					Conce	ntrations re	Concentrations reported in ug/L	T.					
Well ID/	roc <sup>2</sup>	DTW	GWE					:	Ethyl	Total		,	
Date	(j)	(A)	(J.)	TPH-D	трн-но	TPH-G	Benzene	Tolucuc	benzene	Xylenes	MTBE	D. Lead	T. Lead
MW-3 (cont)													
90/87/20	86.66	5.35	94.63	<79	86>	48	0.5	<0.5	<0.5	<0.5	<0.5	1	<0.51
60/90/10	86.66	1	-	<2000	<400	<100	V	8	⊽	V	1	-	1
06/05/13	86.66	INACCESSIE	BLE-CONS	STRUCTION	3LE- CONSTRUCTION ACTIVITIES		1	į	1		+	1	ł
11/27/13	86.66	INACCESSI		SLE- CAR PARKED ON WELL	4 WELL	:	1	***	1	:	ė.	1	ŀ
05/12/14	86.66	5.31	94.67	₹5	<b>-</b> 67	<50	<0.5	<0.5	<0.5	<1,5	1	l	27.8
11/24/14	86.66	5.14	94.84	ő	69>	<\$0	<0.5	<0.5	<0.5	<1.5	1	ŧ	0.31
02/12/15	86.66	5.37	94.61	0 V	93	0\$	<0.5	<0.5	<0.5	<1.5	1	ţ	108
05/06/15	86.66	5.78	25.20	62>	89>	<50	<0.5	<0.5	<0.5	<1.5	;	1	0.12
08/21/15	86.66	5.97	94.01	<46	01v	<50	<0.5	<0.5	<0.5	<1.5	1	ł	0.67
11/19/15	86.66	4.54	95.44	<28	99>	<50	<0.5	<0.5	<0.5	<1.5	1	<0.13	1.6
02/23/16	86.66	5,58	94.40	8	99>	0\$>	<0.5	<0.5	<0.5	<1.5	·I	0,2	10.7
05/21/16	86.66	5.96	94.02	6₹	89>	05>	<0.5	5,0>	<0.5	<1.5	}	<0.13	1.8
08/21/16	86.66	6.02	93.96	8	<i>-</i> 29>	05>	<0.5	5,0>	5'0>	<1.5	1	0.1	2.0
11/16/16	86.66	5.15	94.83	228	99>	0\$>	<0.5	<0.5	<0.5	<1.5	1	060'0>	1,4
MW-4													
03/18/60	99.31	7.66	91.65	Q.	QX	,OX	QN	ND	QN	ND	<0.50	<1.0	ł
05/27/99	99.31	7.53	91.78	£	QN	QN	ON	0.694	QN	1.61	1	-1	
08/27/99	99.31	7.62	69.16	<250	<750	<50.0	<0.500	<0.500	<0.500	<1.00	;	1	,
11/05/99	15.66	7.70	19.16	<250	<750	<50.0	<0.500	<0.500	<0.500	21.00	3	ī	,
03/28/00	99,31	7.60	91.71	1	1	1		i	1	-	ł	í	1
06/12/00	99.31	7.53	91.78	1	ŀ	1	;	1	t	1	1	ł	1
09/12/00	99.31	7.70	19.16	1	I	: ł		1	1	1	1	t	;
11/08/00	99,31	7.62	91.69	1	ì	1		1	1	3	ı	;	1
01/24/01	99.31	7.63	91.68	250	<750	<50.0	<0.500	<0.500	<0.500	<1.00	1	-	-
05/25/05	99.31	7.43	91.88	612	<99	<48	<0.5	<0.5	<0.5	<1.5	I	1	1
11/29/05	99,31	7.33	91.98	\$31	<100	<48	<0.5	<0.5	<0.5	<1.0	<0.5	<0.87	8.5
01/23/06	99.31	7.33	91.98	-08>	<100	<48	<0.5	<0.5	<0.5	<0.5	<0.5	;	8.2
04/18/06	99.31	INACCESSI		TCLE PARK	BLE- VEHICLE PARKED OVER WELL	ELL	-	ì	;	1	1	ţ	1
07/28/06	99.31	INACCESS		TCLE PARK	BLE- VEHICLE PARKED OVER WEL!	311	1		1	ŧ	1	;	1
01/06/09	99.31	1		<200	<400	<100	ī	Ø,		8	1	-	. ]
06/05/13	99.31	INACCESS	SIBLE- SHED	D OVER WELI	ורר	ł	1	1	1	-	1		1
11/27/13	99.31	INACCESS	SIBLE-SHE	IBLE- SHED OVER WELL	TT	1	1	ı	'	;	1	-	1
05/12/14	99.31	INACCESS	SIBLE-SHE	IBLE- SHED OVER WELL	3LL	1	1	1	!	. !	1	1	ţ
11/24/14	99.31	INACCESS		BLE- SHED OVER WELL	ILL.	1	}	ł	+	1	1	I	-
02/12/15	99.31	INACCESS	SIBLE- SHE	IBLE- SHED OVER WELL	ILL	1	1	1	} 	į	1	1	
	-												

# GROUNDWATER MONITORING DATA AND ANALYTICAL RESULTS CHEVRON SERVICE STATION NO. 95311 1018 Plum Street Olympia, Washington Concentrations reported in µg/L TABLE 1

Г		_	ī	Т	1	ī.	_	_	1	т	1	Τ.	_	T	1	Т	1		_		т	т-	1	7	т.	7	7	7	T -	<del></del>	<b>7</b>	γ-	T		<del></del>	<u> </u>	<u> </u>
	T Lead		800	6.2	2.8	2.8	o c	¥ ₹	0 -			4.8	4.6	175	0.39	2.5	0.18	2.4	4.2	5.4	16.6	18.8	12.1			1	;		1							-	
	D I esd	200	1		0.41	\$0.13	0 13	S S	02.0	7		1	1	ł	,	,	,	1	0.39	<0.13	<0.13	60 Q	1.0		0 7	1	1	;	-	1	,	1	1		1	,	
	MTRE			-	ţ	,						1	1	1	1	,	1		,	1	1	,	1		05.00	1	ł	ſ		1	,	,	1			\$0	
Total	Xvlene		<15	<15	<1.5	<1.5	<1.5	< 15	\ \ \ \		♡	<1.5	<1.5	4.5	<1.5	<1.5	515	<1.5	<1.5	<1.5	<1.5	∆ .5	\$   \$		É	QN	QN	QN	QX	Q	Q	Q	S	2	<15	<u> </u>	1
F +41	Penzene		\$0.5	<0.5	\$0.5	\$0.5	505	\$ 65	\$ 65		V	<0.5	<0.5	\$0.5	\$0.5	<0.5	\$0.5	<0.5	<0.5	<0.5	<0.5	\$0.5	<0.5 0.5		g	2	Ð	QN	R	g	2	g	GZ		\$0.5	<0.5 50.5	5
,	Toluene		<0.5	<0.5	<0.5	<0.5 5.05	<0.5	<0.5	<u></u>		4	<0.5	<0.5	0.5	5.0>	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5		Q	£	QN	£	GN	£	Q	QN.	QN		<0.5	<0.5	800
A 111	Benzene		<0.5	<0.5	<0.5	<0.5	<0.5	<0,5	\$0.5		▽	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5		£	£	S	QN	QN	2	Q	ΩN	ΩN		<0.5	<0,5	<0.5
	TPH-G		000	0.50	\$50	50.5	550	\$0	050		~100	<50	0\$	<50	50	<\$0	05>	<50	<\$0	<\$0	<50	<50	050		Š	g	QN	Q	ΩN	QN	Q	ND	QN		84>	<48 48	<48
	тен-но		89>	00T>	99>	<73	<b>29&gt;</b>	- 29>	19>		2400	<67	100	89>	99>	100	99>	<100	-67	69>	<67	19>	99>		,	1	ı	ı	1		1		,		ı	l	
	TPH-D		6 <b>?</b>	<46	<28	31	\$29	67	65		005	429	31	<29	\$28	<29	\$25	<45	80	ŝ	6 7	<29	\$2			-	1	1	J	7	‡	-	t		}	1	;
GWE	(£)		92.10	91.96	92.29	92.50	92.19	92.07	92.63		;	ŀ	ı	ł	1	ı	-	1	1	1	1		ţ			1	ı	ŀ	ł	ł	1	1	1		1	1	!
DTW	( <del>Z</del> )		7.21	7.35	7.02	6.81	7.12	7.24	89.9		ŧ	3.98	1.79	4.77	1.98	3.94	4.07	4.10	3.88	3.98	3.78	4.02	3.86			1	Į	1	ł	,	i	1	ł		ł	-	į
TOC	(A.)		99.31	99.31	99.31	99.31	99.31	99,31	99.31		NE	NE	NE.	NE	NE	NE	NE E	岁	Ä	Ę.	Ę	NE	岂														
Well ID/	Date	MW-4 (cont)	05/06/15	08/21/15	11/19/15	02/23/16	05/21/16	08/21/16	11/16/16	MW-5	01/06/09	06/05/13	11/27/13	05/12/14	11/24/14	02/12/15	05/06/15	08/21/15	11/19/15	02/23/16	05/21/16	08/21/16	11/16/16	TRIP BLANK	03/18/99	05/27/99	08/27/99	11/05/99	03/28/00	06/12/00	09/12/00	11/08/00	01/24/01	ΟA	05/25/05	11/29/05	01/23/06

### GROUNDWATER MONITORING DATA AND ANALYTICAL RESULTS<sup>1</sup> CHEVRON SERVICE STATION NO. 95311 TABLE 1

Olympia, Washington Concentrations reported in ug/L 1018 Plum Street

	$roc^2$	WIG	GWE						Ethyl	Total			
	(At.)	(Æ)	(Æ)	TPH-D	трн-но	TPH-G	Benzene	Toluene	benzene	Xylenes	MTBE	D. Lead	T. Lead
		1	1	1	1	<48 <48	<0.5	<0.5	<0.5	<0.5	<0.5	3	]
		ı	-	+	}	<48	<0.5	<0.5	<0.5	<0.5	<0.5	}	-
		1		1	-	<48	<0.5	<0.5	<0.5	<0.5	<0.5	-	1
_		-		ī	-	05>	<0.5	<0.5	<0.5	<1.5	1	1	1
·		1	1	1	-	0\$>	<0.5	<0.5	<0.5	<1.5	ŧ	F	ł
_		1	ī	1	1	<50	<0.5	5.0>	<0.5	<1.5	}		ŀ
т		1	ł	,	1	050	<0.5	<0.5	<0.5	<1.5	1	+	Į.
		1	1		\$	<50	<0.5	<0.5	<0.5	<1.5	1	-	1
			_	ı		<50	<0.5	<0.5	<0.5	5.1>	I	]	1
$\overline{}$			1	, 1	***	<50	<0.5	<0.5	5.0>	<1.5	ı	1	1
_			1	1	4	<50	<0.5	<0.5	5.0>	5.I>	ł	_	1
		1	-			<\$0	<0.5	5.0>	5.0>	<1.5	77		ŀ
		-		-		<50	<0,5	<0.5	\$.0>	<1.5	1		-
		-		1	}	<50	5'0>	<0.5	<0.5	<1.5	ł	-	1
		_	1	1	**	<50	<0.5	<0.5	<0.5	5.1>	1		ı
O.3	tandard Lak	Standard Laboratory Reporting Limits:	orting Limits.	250	250	50	0.5	0.5	6.0	1.5	2.5	0.001	1
	MTCA	MTCA Method A Cle	canup Levels:	200	200	800/1.008	5	1,000	002	1,000	20	-	15
		Curr	ent Method3	NWTPH-D	ent Method "INWTPH-Dx + Extended INWTPH-Gx	NWTPH-GX			EPA 8021B			EPA 6020	EPA 6020
1													***************************************

### EXPLANATIONS:

Groundwater monitoring data and laboratory analytical results prior to June 5, 2013, were compiled from reports prepared by Cambria Environmental Technology, Inc., EPI and Gettler-Ryan, Inc.

TOC = Top of Casing	TPH-G = Total Petroleum Hydrocarbons as Gasoline	ND = Not Detected
DTW = Depth to Water	MTBE = Methyl Tertiary Butyl Ether	NE = Not Established
th. = Feet	D. Lead = Dissolved Lead	QA = Quality Assurance/Trip Blank
GWE = Groundwater Elevation	T. Lead * Total Lead	Not Measured/Not Analyzed
TPH-D = Total Petroleum Hydrocarbons as Diesel	μg/L = Micrograms per liter	MTCA = Model Toxics Control Act
TPH-HO = Total Petroleum Hydrocarbons as Heavy Oil	(D) = Duplicate	

1 Analytical results in bold indicate concentrations exceed MTCA Method A cleanup level.

2 TOC elevations are relative to an arbitrary benchmark of 100 ft.

3 Laboratory analytical methods for historical data may not be consistent with list of current methods. When necessary, consult original laboratory reports to verify methods used.

4 Analyzed with silica-gel cleanup.

5 Detection limit raised. Refer to analytical reports.
6 Laboratory report indicates that due to an anomaly during the extraction process the sample was lost in its entirety.

### **UCL Statistics for Data Sets with Non-Detects**

**User Selected Options** 

Date/Time of Computation 2/28/2017 5:01:30 PM

From File Plum St\_ProUCL2.xls

Full Precision OFF

Confidence Coefficient 95%

Number of Bootstrap Operations 2000

### DATA

### **General Statistics**

Total Number of Observations	17	Number of Distinct Observations	4
Number of Detects	3	Number of Non-Detects	14
Number of Distinct Detects	3	Number of Distinct Non-Detects	1
Minimum Detect	15	Minimum Non-Detect	10
Maximum Detect	120	Maximum Non-Detect	10
Variance Detects	3276	Percent Non-Detects	82.35%
Mean Detects	54.33	SD Detects	57.24
Median Detects	28	CV Detects	1.053
Skewness Detects	1.632	Kurtosis Detects	N/A
Mean of Logged Detects	3.609	SD of Logged Detects	1.067

### Normal GOF Test on Detects Only

Shapiro Wilk Test Statistic	0.841	Shapiro Wilk GOF Test
5% Shapiro Wilk Critical Value	0.767	Detected Data appear Normal at 5% Significance Level
Lilliefors Test Statistic	0.344	Lilliefors GOF Test
5% Lilliefors Critical Value	0.512	Detected Data appear Normal at 5% Significance Level

### Detected Data appear Normal at 5% Significance Level

### Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs

7.695	Standard Error of Mean	17.82	Mean
N/A	95% KM (BCA) UCL	25.91	SD
N/A	95% KM (Percentile Bootstrap) UCL	31.26	95% KM (t) UCL
N/A	95% KM Bootstrap t UCL	30.48	95% KM (z) UCL
51.37	95% KM Chebyshev UCL	40.91	90% KM Chebyshev UCL
94.39	99% KM Chebyshev UCL	65.88	97.5% KM Chebyshev UCL

### Gamma GOF Tests on Detected Observations Only Not Enough Data to Perform GOF Test

### Gamma Statistics on Detected Data Only

N/A	k star (bias corrected MLE)	1.44	k hat (MLE)
N/A	Theta star (bias corrected MLE)	37.74	Theta hat (MLE)
N/A	nu star (bias corrected)	8.638	nu hat (MLE)
N/A	MLE Sd (bias corrected)	N/A	MLE Mean (bias corrected)

### Gamma Kaplan-Meier (KM) Statistics

k hat (KM)	0.473	nu hat (KM)	16.09
		Adjusted Level of Significance (β)	0.0346
Approximate Chi Square Value (16.09, α)	8.029	Adjusted Chi Square Value (16.09, β)	7.438

### 38.57

### Lognormal GOF Test on Detected Observations Only

Shapiro Wilk Test Statistic	0.949	Shapiro Wilk GOF Test
5% Shapiro Wilk Critical Value	0.767	Detected Data appear Lognormal at 5% Significance Level
Lilliefors Test Statistic	0.269	Lilliefors GOF Test
5% Lilliefors Critical Value	0.512	Detected Data appear Lognormal at 5% Significance Level

### Detected Data appear Lognormal at 5% Significance Level

### **Lognormal ROS Statistics Using Imputed Non-Detects**

Mean in Original Scale	10.07	Mean in Log Scale	-1.321
SD in Original Scale	29.26	SD in Log Scale	3.267
95% t UCL (assumes normality of ROS data)	22.46	95% Percentile Bootstrap UCL	23.21
95% BCA Bootstrap UCL	32.35	95% Bootstrap t UCL	82.08
95% H-UCL (Log ROS)	14431		

### UCLs using Lognormal Distribution and KM Estimates when Detected data are Lognormally Distributed

KM Mean (logged)	2.533	95% H-UCL (KM -Log)	21.29
KM SD (logged)	0.618	95% Critical H Value (KM-Log)	2.161
KM Standard Error of Mean (logged)	0.184		

### **DL/2 Statistics**

DL/2 Normal		DL/2 Log-Transformed	
Mean in Original Scale	13.71	Mean in Log Scale	1.962
SD in Original Scale	28.02	SD in Log Scale	0.872
95% t UCL (Assumes normality)	25.57	95% H-Stat UCL	17.82

### DL/2 is not a recommended method, provided for comparisons and historical reasons

### Nonparametric Distribution Free UCL Statistics Detected Data appear Normal Distributed at 5% Significance Level

### Suggested UCL to Use

95% KM (t) UCL 31.26 95% KM (Percentile Bootstrap) UCL N/A

Note: Suggestions regarding the selection of a 95% UCL are provided to help the user to select the most appropriate 95% UCL.

Recommendations are based upon data size, data distribution, and skewness.

These recommendations are based upon the results of the simulation studies summarized in Singh, Maichle, and Lee (2006). However, simulations results will not cover all Real World data sets; for additional insight the user may want to consult a statistician.