Job No. 22192
Written Response Required? NO
Closes CCN: N/A
OU: 200-ZP-2
TSD: N/A
ERA: N/A
Subject Code: 8630

Environmental Restoration Contractor **ERC Team**

Interoffice Memorandum

TO: R. K. Tranbarger, H9-12 **DATE:** June 18, 1996

COPIES: See Below **FROM:** Duane Jacques
Analytical Services/Field Services
H9-10/372-9400

45576

SUBJECT: **200-ZP-2 SOIL GAS SURVEY RESULTS, MAY 1996, REV 0**

REFERENCES:

1. BHI, 1995a, *Field Screening (On-Site Measurements) Quality Assurance Plan*, BHI-EE-08, Bechtel Hanford, Inc., Richland, Washington.

2. BHI, 1995b, *Field Screening Procedures*, BHI-EE-05, Bechtel Hanford, Inc., Richland, Washington.

3. BHI, 1995, *200-ZP-2 Soil Gas Survey Logbook*, EL-1149, Bechtel Hanford, Inc., Richland, Washington.

This data package contains field screening results for soil gas samples analyzed to support the 200-ZP-2 Vapor Extraction System. The Quality Assurance level for this work corresponds to QA-2 as specified in the reference 1 (BHI 1995a). The samples were managed under SAF B96-112.

Attachment 1 contains Volatile Organic Compound (VOC) results for soil gas and quality control samples collected to support the referenced project. The VOC results were generated using a Photovac 10S Plus portable gas chromatograph operated in accordance with Field Screening Procedure (FSP) 1.6, *Analysis of Volatile Organic Compounds in Soil Gas* (BHI 1995b). Information concerning operation of the gas chromatograph is contained in the instrument logbook EL-1269.

Please contact me if you have any questions on this information.

Duane Jacques

Duane Jacques, Scientist

QA Review by: Claude Stevens 19 June '96

IDJ:idj

Attachments:

Attachment 1. 200-ZP-2 Soil Gas Survey, May 1996, Volatile Organic Compound Results
Attachment 2. 200-ZP-2 Survey, May 1996, Calibration Curves
Attachment 3. 200-ZP-2 Survey, May 1996, Minimum Detection Limits (MDL)

Copies:
G. W. Avolio, H9-03, w/a
J. D. Fancher, N1-28, w/a
A. M. Hopkins, H9-11, w/a
T. D. LeFrancois, H9-03, w/a
J. A. Lerch, B1-35, w/a
V. J. Rohay, H9-11, w/a
BHI Document Control, H4-79, w/a

200-ZP-2 Soil Gas Survey, May 1996

Volatile Organic Compound Results

SAF B96-112

Sample Location	*HEIS Number*	*Sample Date*	*Analysis Date*	*Purge mL Volume (mL)*	*Methylene Chloride (ppmv)*	*Chloroform (ppmv)*	*Carbon TetraCl (ppmv)*	*Trichloroethylene (ppmv)*
Cal Standard	B0HFK1	5/13/96	5/13/96	NA	1.5	1.0	0.80	0.96
Zero Air	B0HFK2	5/13/96	5/13/96	NA	<0.21	<0.095	<0.045	<0.045
Ambient Air	B0HFK3	5/13/96	5/13/96	180	<0.21	<0.095	<0.045	<0.045
71-04	B0HFK4	5/13/96	5/13/96	240	<0.21	<0.095	<0.045	<0.045
71-03	B0HFK5	5/13/96	5/13/96	240	<0.21	<0.095	<0.045	<0.045
79-03	B0HFK6	5/13/96	5/13/96	240	<0.21	<0.095	<0.045	<0.045
C-1	B0HFK7	5/13/96	5/13/96	240	<0.21	<0.095	<0.045	<0.045
79-04	B0HFK8	5/13/96	5/13/96	240	<0.21	<0.095	<0.045	<0.045
W-5	B0HFK9	5/13/96	5/13/96	240	<0.21	<0.095	<0.045	<0.045
79-02	B0HFL0	5/13/96	5/13/96	240	<0.21	<0.095	<0.045	<0.045
87-01R	B0HFL01	5/13/96	5/13/96	240	<0.21	<0.095	<0.045	<0.045
95-01	B0HFL2	5/13/96	5/13/96	240	<0.21	<0.095	0.023j	<0.045
N-5	B0HFL3	5/13/96	5/13/96	240	<0.21	<0.095	<0.045	<0.045
87-02	B0HFL4	5/13/96	5/13/96	240	<0.21	<0.095	<0.045	<0.045
95-02	B0HFL5	5/13/96	5/13/96	240	<0.21	<0.095	<0.045	<0.045
Cal Check/Recal	B0HFL6	5/13/96	5/13/96	240	1.7	1.2	0.95	1.1
79-05	B0HFL7	5/13/96	5/13/96	240	<0.21	<0.095	<0.045	<0.045
N-7	B0HFL8	5/13/96	5/13/96	240	<0.21	<0.095	<0.045	<0.045
87-03	B0HFL9	5/13/96	5/13/96	240	<0.21	<0.095	<0.045	<0.045
87-04	B0HFM0	5/13/96	5/13/96	240	<0.21	<0.095	<0.045	<0.045
79-06	B0HFM1	5/13/96	5/13/96	240	<0.21	<0.095	<0.045	<0.045
N-6	B0HFM2	5/13/96	5/13/96	240	<0.21	<0.095	<0.045	<0.045
79-11	B0HFM3	5/13/96	5/13/96	NA	<0.21	<0.095	<0.045	<0.045
Cal Check/Recal	B0HFM4	5/13/96	5/13/96	NA	1.5	0.99	0.80	0.96
CPT 33-40	B0HFM5	5/13/96	5/13/96	800	<0.21	<0.095	0.16	<0.045
CPT 33-60	B0HFM6	5/13/96	5/13/96	1200	<0.21	0.058j	0.47	<0.045
CPT 33-80	B0HFM7	5/13/96	5/13/96	1600	<0.21	0.070j	0.72	0.018j
CPT 33-80 duplicate	B0HFM8	5/13/96	5/13/96	1600	<0.21	0.094j	1.09	0.022j
CPT 1A-35	B0HFM9	5/13/96	5/13/96	700	<0.21	<0.095	0.49	<0.045
CPT 1A-55	B0HFN0	5/13/96	5/13/96	1100	<0.21	<0.095	0.027j	<0.045
CPT 1A-68	B0HFN1	5/13/96	5/13/96	1260	<0.21	<0.095	0.015j	<0.045
CPT 1A-91	B0HFN2	5/13/96	5/13/96	1820	<0.21	<0.095	0.024j	<0.045
CPT 1A-91 duplicate	B0HFN3	5/13/96	5/13/96	1820	<0.21	<0.095	<0.045	<0.045
Cal Check	B0HFN4	5/13/96	5/13/96	NA	1.5	0.98	0.80	0.96

200-ZP-2 Soil Gas Survey, May 1996

Volatile Organic Compound Results

SAF B96-112

Sample Location	*HEIS Number*	*Sample Date*	*Analysis Date*	*Purge mL Volume (mL)*	*Methylene Chloride (ppmv)*	*Chloroform (ppmv)*	*Carbon TetraCl (ppmv)*	*Trichloroethylene (ppmv)*
Cal Standard	B0HFN5	5/14/96	5/14/96	NA	1.5	1.0	0.80	0.96
Zero Air	B0HFN6	5/14/96	5/14/96	NA	<0.21	<0.095	<0.045	<0.045
Ambient Air	B0HFN7	5/14/96	5/14/96	240	<0.21	<0.095	<0.045	<0.045
CPT 33-80 replicate	B0HFN8	5/14/96	5/14/96	1600	<0.21	0.092j	0.94	0.028j
CPT 34-40	B0HFN9	5/14/96	5/14/96	680	<0.21	<0.095	0.94	<0.045
CPT 34-60	B0HFP0	5/14/96	5/14/96	1200	<0.21	<0.095	<0.045	<0.045
CPT 34-86	B0HFP1	5/14/96	5/14/96	1720	<0.21	<0.095	0.59	<0.045
Cal Check/Recal	B0HFP2	5/14/96	5/14/96	NA	1.4	0.97	0.76	0.94
CPT 31-25	B0HFP3	5/14/96	5/14/96	500	<0.21	<0.095	0.26	<0.045
CPT 31-50	B0HFP4	5/14/96	5/14/96	1000	<0.21	<0.095	<0.045	<0.045
CPT 31-76	B0HFP5	5/14/96	5/14/96	1520	<0.21	0.082j	4.5	<0.045
CPT 30-28	B0HFP6	5/14/96	5/14/96	560	<0.21	<0.095	<0.045	<0.045
CPT 30-48	B0HFP7	5/14/96	5/14/96	1000	<0.21	<0.095	0.051	<0.045
CPT 30-68	B0HFP8	5/14/96	5/14/96	1360	<0.21	<0.095	0.102	<0.045
CPT 32-25	B0HFP9	5/14/96	5/14/96	500	<0.21	<0.095	<0.045	<0.045
CPT 32-25 duplicate	B0HFQ0	5/14/96	5/14/96	500	<0.21	<0.095	0.038j	<0.045
CPT 32-50	B0HFQ1	5/14/96	5/14/96	1000	<0.21	<0.095	0.027j	<0.045
CPT 32-70	B0HFQ2	5/14/96	5/14/96	1400	<0.21	<0.095	0.15	<0.045
Cal Check/Recal	B0HFQ3	5/14/96	5/14/96	NA	1.5	1.01	0.85	0.96
CPT 4A-10	B0HFQ4	5/14/96	5/14/96	200	<0.21	<0.095	<0.045	<0.045
CPT 4A-25	B0HFQ5	5/14/96	5/14/96	500	<0.21	<0.095	0.13	<0.045
CPT 4A-50	B0HFQ6	5/14/96	5/14/96	1000	<0.21	<0.095	0.098	<0.045
CPT 4A-75	B0HFQ7	5/14/96	5/14/96	1500	<0.21	<0.095	<0.045	<0.045
CPT 4A-91	B0HFQ8	5/14/96	5/14/96	1820	<0.21	<0.095	0.19	<0.045
CPT 4F-10	B0HFQ9	5/14/96	5/14/96	100	<0.21	<0.095	<0.045	<0.045
CPT 4F-25	B0HFR0	5/14/96	5/14/96	500	<0.21	<0.095	<0.045	<0.045
CPT 4F-50	B0HFR1	5/14/96	5/14/96	1000	<0.21	<0.095	<0.045	<0.045
CPT 4F-75	B0HFR2	5/14/96	5/14/96	1500	<0.21	<0.095	<0.045	<0.045
CPT 4F-109	B0HFR3	5/14/96	5/14/96	2180	<0.21	<0.095	<0.045	<0.045
CPT 4F-109 duplicate	B0HFR4	5/14/96	5/14/96	2180	<0.21	<0.095	0.061	<0.045
Cal Check/Recal	B0HFR5	5/14/96	5/14/96	NA	1.4	0.94	0.76	0.92
CPT 4M-5	B0HFR6	5/14/96	5/14/96	100	<0.21	<0.095	<0.045	<0.045
CPT 4M-25	B0HFR7	5/14/96	5/14/96	500	<0.21	<0.095	<0.045	<0.045
CPT 4M-49	B0HFR8	5/14/96	5/14/96	1000	<0.21	<0.095	<0.045	<0.045
CPT 4M-66	B0HFR9	5/14/96	5/14/96	330	<0.21	<0.095	0.026j	<0.045
Cal Check	B0HFS1	5/14/96	5/14/96	NA	1.5	1.09	0.77	0.95

200-ZP-2 Soil Gas Survey, May 1996

Volatile Organic Compound Results

SAF B96-112

Sample Location	*HEIS Number*	*Sample Date*	*Analysis Date*	*Purge mL Volume (mL)*	*Methylene Chloride (ppmv)*	*Chloroform (ppmv)*	*Carbon TetraCl (ppmv)*	*Trichloroethylene (ppmv)*
Cal Standard	B0HFS2	5/15/96	5/15/96	NA	1.5	1.0	0.80	0.96
Zero Air	B0HFS3	5/15/96	5/15/96	NA	<0.21	<0.095	<0.045	<0.045
Ambient Air	B0HFS4	5/15/96	5/15/96	240	<0.21	<0.095	<0.045	<0.045
CPT 4M-80	B0HFS0	5/15/96	5/15/96	400	<0.21	<0.095	<0.045	<0.045
CPT 9A-70	B0HFS5	5/15/96	5/15/96	1400	<0.21	0.068j	29	<0.045
CPT 33-80 replicate	B0HFS6	5/15/96	5/15/96	1600	<0.21	0.089j	0.87	0.023j
CPT 9A-91	B0HFS7	5/15/96	5/15/96	1820	<0.21	0.092j	70.3	<0.045
CPT 9A-60	B0HFS8	5/15/96	5/15/96	1200	<0.21	<0.095	18	<0.045
CPT 24-45	B0HFS9	5/15/96	5/15/96	900	<0.21	0.072j	2.6	<0.045
CPT 24-70	B0HFT0	5/15/96	5/15/96	1400	<0.21	0.104	2.9	0.021j
CPT 24-95	B0HFT1	5/15/96	5/15/96	1900	<0.21	<0.095	0.038u	<0.045
CPT 24-118	B0HFT2	5/15/96	5/15/96	2360	<0.21	<0.095	1.7	<0.045
CPT 24-118 duplicate	B0HFT3	5/15/96	5/15/96	2360	<0.21	<0.095	2.02	<0.045
Cal Check/Recal	B0HFT4	5/15/96	5/15/96	NA	1.6	1.06	0.86	1.03
CPT 18-15	B0HFT5	5/15/96	5/15/96	300	<0.21	<0.095	0.17	<0.045
CPT 18-35	B0HFT6	5/15/96	5/15/96	700	<0.21	<0.095	0.23	<0.045
CPT 18-50	B0HFT7	5/15/96	5/15/96	1000	<0.21	<0.095	1.5	<0.045
CPT 18-75	B0HFT8	5/15/96	5/15/96	1500	<0.21	<0.095	0.30	<0.045
CPT 25-20	B0HFT9	5/15/96	5/15/96	400	<0.21	<0.095	0.29	<0.045
CPT 25-32	B0HFV0	5/15/96	5/15/96	640	<0.21	<0.095	0.13	<0.045
CPT 25-52	B0HFV1	5/15/96	5/15/96	1040	<0.21	<0.095	0.32	<0.045
CPT 29-23	B0HFV2	5/15/96	5/15/96	460	<0.21	<0.095	0.105	<0.045
CPT 29-46	B0HFV3	5/15/96	5/15/96	920	<0.21	<0.095	0.24	<0.045
CPT 28-40	B0HFV4	5/15/96	5/15/96	800	<0.21	0.51	99	0.11
CPT 28-60	B0HFV5	5/15/96	5/15/96	1200	<0.21	<0.095	1.7	<0.045
CPT 28-87	B0HFV6	5/15/96	5/15/96	1740	<0.21	0.93	290	0.20
Cal Check/Recal	B0HFV7	5/15/96	5/15/96	NA	1.5	0.99	0.82	0.98
CPT 21A-45	B0HFV8	5/15/96	5/15/96	900	<0.21	0.27	20.9	<0.045
CPT 21A-65	B0HFV9	5/15/96	5/15/96	1300	<0.21	<0.095	1.1	<0.045
CPT 21A-86	B0HFW0	5/15/96	5/15/96	1720	<0.21	0.87	100	<0.045
CPT 15-12	B0HFW1	5/15/96	5/15/96	240	<0.21	<0.095	0.32	<0.045
CPT 15-26	B0HFW2	5/15/96	5/15/96	520	<0.21	<0.095	0.21	<0.045
CPT 15-46	B0HFW3	5/15/96	5/15/96	920	<0.21	<0.095	0.23	<0.045
CPT 15-46 duplicate	B0HFW4	5/15/96	5/15/96	920	<0.21	<0.095	1.3	<0.045
Cal Check	B0HFW5	5/15/96	5/15/96	NA	1.5	1.0	0.82	0.95

200-ZP-2 Soil Gas Survey, May 1996

Volatile Organic Compound Results

SAF B96-112

Sample Location	*HEIS Number*	*Sample Date*	*Analysis Date*	*Purge mL Volume (mL)*	*Methylene Chloride (ppmv)*	*Chloroform (ppmv)*	*Carbon TetraCl (ppmv)*	*Trichloroethylene (ppmv)*
Cal Standard	B0HFW6	5/16/96	5/16/96	NA	1.5	1.0	0.80	0.96
Zero Air	B0HFW7	5/16/96	5/16/96	NA	<0.21	<0.095	<0.045	<0.045
Ambient Air	B0HFW8	5/16/96	5/16/96	240	<0.21	<0.095	<0.045	<0.045
CPT 33-80 replicate	B0HFW9	5/16/96	5/16/96	1600	<0.21	0.076j	0.77	0.032j
CPT 15-46	B0HFX0	5/16/96	5/16/96	920	<0.21	<0.095	0.103	<0.045
CPT 15-46 duplicate	B0HFX1	5/16/96	5/16/96	920	<0.21	<0.095	0.097	<0.045
CPT 16-10	B0HFX2	5/16/96	5/16/96	200	<0.21	<0.095	<0.045	<0.045
CPT 16-25	B0HFX3	5/16/96	5/16/96	500	<0.21	<0.095	0.036j	<0.045
CPT 16-45	B0HFX4	5/16/96	5/16/96	900	<0.21	<0.095	0.23	<0.045
CPT 16-65	B0HFX5	5/16/96	5/16/96	1300	<0.21	<0.095	0.15	<0.045
CPT 28-87 replicate	B0HFX6	5/16/96	5/16/96	1640	<0.21	1.3	350	0.32
Cal Check/Recal	B0HFX7	5/16/96	5/16/96	NA	1.5	1.04	0.87	0.98
RST 4-1	B0HFX8	5/16/96	5/16/96	240	<0.21	<0.095	0.062	<0.045
RST 4-2	B0HFX9	5/16/96	5/16/96	240	<0.21	<0.095	<0.045	<0.045
RST 4-3	B0HFY0	5/16/96	5/16/96	240	<0.21	<0.095	0.21	0.028j
95-07	B0HFY1	5/16/96	5/16/96	240	<0.21	<0.095	0.11	<0.045
Cal Check/Recal	B0HFY2	5/16/96	5/16/96	NA	1.5	1.05	0.84	1.0
86-03	B0HFY3	5/16/96	5/16/96	240	<0.21	<0.095	<0.045	0.094
86-04	B0HFY4	5/16/96	5/16/96	240	<0.21	<0.095	<0.045	<0.045
95-12	B0HFY5	5/16/96	5/16/96	240	<0.21	<0.095	<0.045	0.062
85-01R	B0HFY6	5/16/96	5/16/96	240	<0.21	<0.095	<0.045	0.027
95-10	B0HFY7	5/16/96	5/16/96	240	<0.21	<0.095	<0.045	0.088
86-06	B0HFY8	5/16/96	5/16/96	240	<0.21	<0.095	<0.045	<0.045
94-07	B0HFY9	5/16/96	5/16/96	240	<0.21	<0.095	<0.045	<0.045
95-11	B0HFZ0	5/16/96	5/16/96	240	<0.21	<0.095	<0.045	0.047
94-01	B0HFZ1	5/16/96	5/16/96	240	<0.21	<0.095	<0.045	<0.045
94-02	B0HFZ2	5/16/96	5/16/96	240	<0.21	<0.095	<0.045	<0.045
94-03R	B0HFZ3	5/16/96	5/16/96	240	<0.21	<0.095	0.17	0.039j
94-03R duplicate	B0HFZ4	5/16/96	5/16/96	240	<0.21	<0.095	0.13	0.056
Cal Check/Recal	B0HFZ5	5/16/96	5/16/96	NA	1.5	0.94	0.78	0.93
94-04	B0HFZ6	5/16/96	5/16/96	240	<0.21	<0.095	<0.045	<0.045
94-05	B0HFZ7	5/16/96	5/16/96	240	<0.21	<0.095	<0.045	<0.045
94-09	B0HFZ8	5/16/96	5/16/96	240	<0.21	<0.095	<0.045	0.048
95-09	B0HFZ9	5/16/96	5/16/96	240	<0.21	<0.095	<0.045	<0.045
CPT 15-6	B0HG00	5/16/96	5/16/96	330	<0.21	<0.095	0.12	<0.045
Cal Check	B0HG01	5/16/96	5/16/96	NA	1.5	0.94	0.78	0.93

NA - Not Applicable

j - Value less than Practical Quantitation Limit

Analyst: Duane Jacques 6/19/96

Duane Jacques

Instrument: Photovac 10S Plus, SN BGDJ203

Method: 11.7 eV lamp,UP air @ 5 mL/min, 1.0 mL sample injection

Logbook: Photovac 10S Plus Instrument Log, EL-1269, pages 0048-45 to 0048-49

200-ZP-2 Soil Gas Survey, May 1996
Calibration Curves

Calibration Data

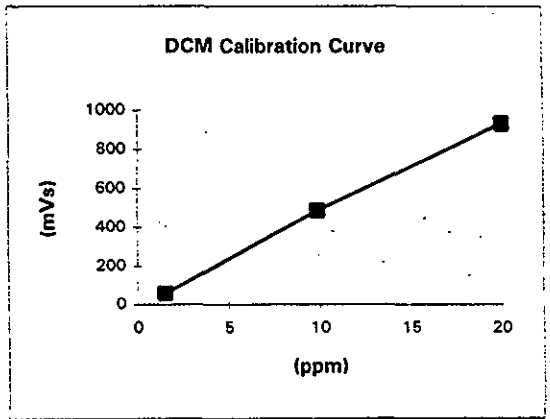
DCM (ppm)	*Response (mVs)*
1.5	57.9
9.9	487.8
20.0	933.0

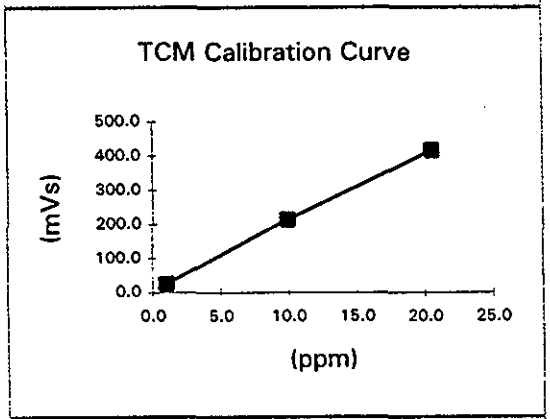
TCM (ppm)	*Response (mVs)*
1.0	26.0
9.9	214.5
20.5	417.2

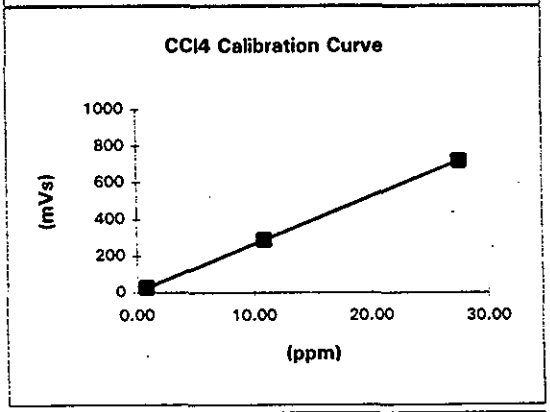
CCl4 (ppm)	*Response (mVs)*
0.80	27.2
10.9	288.9
27.6	720.5

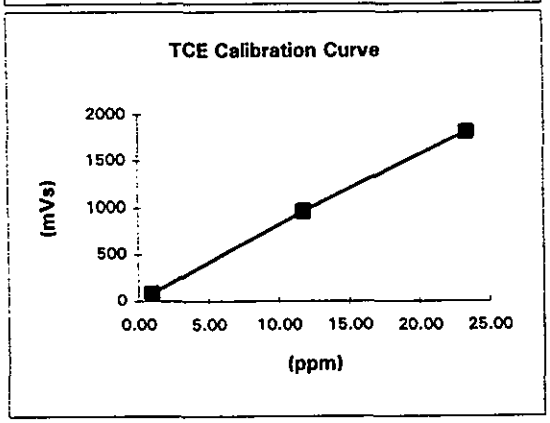
TCE (ppm)	*Response (mVs)*
0.96	88.5
11.8	965.3
23.4	1810

Calibration Curves









200-ZP-2 Soil Gas Survey, May 1996

Minimum Detection Limits (MDL)

MDL and PQL Determinations for DCM, TCM, CCl4, and TCE
Reference: BHI-EE-05, Field Screening Procedure 1.15.

Run #	*DCM*	*TCM*	*CCl4*	*TCE*
1	0.059	0.187	0.170	0.146
2	0.070	0.201	0.171	0.147
3	0.079	0.181	0.169	0.152
4	0.110	0.201	0.175	0.152
5	0.110	0.191	0.172	0.156
6	0.082	0.184	0.176	0.153
7	0.108	0.177	0.182	0.159
Average	0.088	0.189	0.174	0.174
MDL	0.069	0.031	0.015	0.015
PQL	0.208	0.093	0.045	0.045

Analyst: _____
Duane Jacques

Instrument: Photovac 10S Plus, SN BGDJ203
Method: 11.7 eV lamp,UP air @ 5 mL/min, 1.0 mL sample injection
Logbook: Photovac 10S Plus Instrument Log, EL-1269, page 0048-44