APPENDIX A: PRELIMINARY TEST DATA

TRC

Page of

40 CFR 60 Method 1 -- TRAVERSE POINT LOCATIONS

Project No.	184380	Date	07/07/11
Client	Exxon Mobil BTRF	Operator	KJ
Facility	SRU	Source	T-601 Stack

Dimensions

Circular / Rectangular

Far Wall to Outside of Port (in.)	53	Stack Width (in.)	
Port Length (in.)	5	Depth (in.)	
Stack Diameter or Depth (in.)	48	Equiv. Stack Diameter (in.)	

Point No.	A Internal Dimension (in.)	B Internal Dimension (%)	(A x B) Distance from Inside Wall (in.)	C Port Length (in.)	(A x B) + C Point Location (in.)
1	48	2.1	1.0	5	6.0
2		6.7	3.2	5	8.2
3		11.8	5.7	5	10.7
4		17.7	8.5	5	13.5
5		25.0	12.0	5	17.0
6		35.6	17.1	5	22.1
7		64.4	30.9	5	35.9
8		75.0	36.0	5	41.0
9		82.3	39.5	5	44.5
10		88.2	42.3	5	47.3
11		93.3	44.8	5	49.8
12		97.9	47.0	5	52.0

Comments:

Stack / Ports Stack Type: Circular / ___ Rectangular

Number and Type of Ports Available 2

Port Inside Diameter (in.) 48

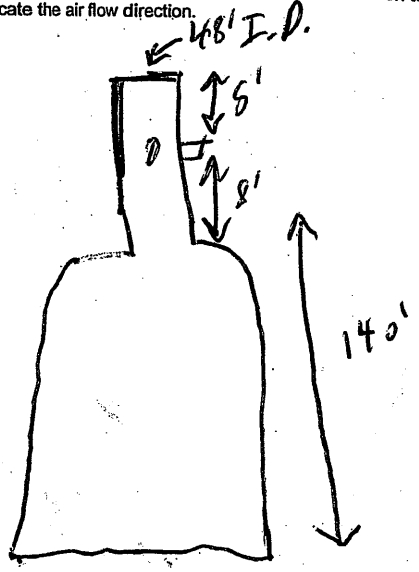
Distance to Flow Disturb. Reference: ___ Disturbance ___ Port

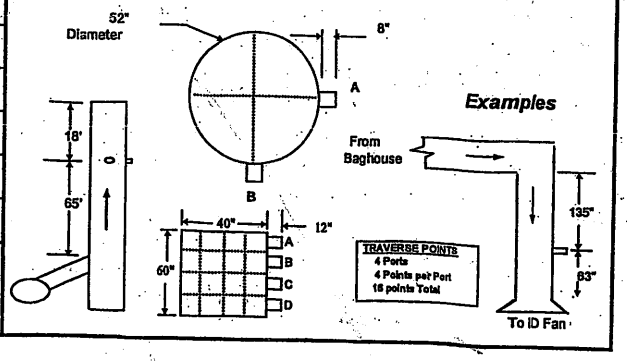
	Distance (ft)	Diameters
Upstream (U)	8	2
Downstream (D)	5	1.25

Number of Traverse Points	Particulates	Velocity
Minimum Required	24	
Number of Ports Used	2	
Points per Port	12	

Test Location Schematic(s)

1. Include distances to disturbances and note what they are.
2. Show and label all ports. Note which was used for each test type.
3. Indicate the air flow direction.





NA = Not Applicable
Rev. 2 (5/2007)

Checked By: _____ (Project Manager or QA Manager - sign and date)

APPENDIX B: EPA METHOD 18 SPECIATED VOLATILE ORGANIC HAPS

ExxonMobil BTRF ICR Test - SRU T-601 Vent Volatile Organics

Bags			Run 1 (ppmv)		Run 2 (ppmv)		Run 3 (ppmv)		Average (ppmv)
Compound	**CAS Number**								
Acetone	67-64-1		0.568	<	0.448			<	0.508
Acrolein	107-05-8	<	0.404	<	0.404			<	0.404
Benzene	71-43-2	<	0.279	<	0.279			<	0.279
1,3-Butadiene	106-99-0	<	0.268	<	0.268			<	0.268
Carbon disulfide	75-15-0	<	0.0412	<	0.0412			<	0.0412
1,2-Dibromoethane	106-93-4	<	0.257	<	0.257			<	0.257
Hexane	110-54-3		0.272	<	0.240			<	0.256
Methylene chloride	75-09-2	<	1.05	<	1.05			<	1.05
Pentane	109-66-0		0.593	<	0.257			<	0.425
Tetrachloroethene	127-18-4	<	0.291	<	0.291			<	0.291
Toluene	108-88-3		0.322	<	0.308			<	0.315
Trichloroethene	79-01-6	<	0.438	<	0.438			<	0.438

XAD Tubes		Run 1		Run 2		Run 3		Average
Sample Volume (liters):		**85.984**		**85.832**		**82.591**		**84.802**
		(ug/dscm)		**(ug/dscm)**		**(ug/dscm)**		**(ug/dscm)**
Compound	**CAS Number**							
Acetonitrile	75-05-8	< 7.91E-05	<	7.92E-05	<	8.23E-05	<	8.02E-05
Acrylonitrile	107-13-1	< 7.91E-05	<	7.92E-05	<	8.23E-05	<	8.02E-05
Chlorobenzene	108-90-7	< 1.58E-05	<	1.58E-05	<	1.65E-05	<	1.60E-05
Cumene (isoproylbenzene)	98-82-8	< 1.23E-05	<	1.23E-05	<	1.28E-05	<	1.25E-05
Ethylbenezene	100-41-4	1.16E-05	<	1.23E-05	<	1.28E-05	<	1.23E-05
Methy1 isobuty1 ketone	108-10-1	< 1.13E-05	<	1.14E-05	<	1.18E-05	<	1.15E-05
Methy1 t-buty1 ether	91-20-3	< 1.06E-05	<	1.06E-05	<	1.10E-05	<	1.07E-05
Nitrobenzene	98-95-3	< 1.71E-05	<	1.71E-05	<	1.78E-05	<	1.73E-05
2-Nitropropane	79-46-9	< 9.72E-05	<	9.74E-05	<	1.01E-04	<	9.86E-05
Styrene	100-42-5	< 1.29E-05	<	1.29E-05	<	1.34E-05	<	1.31E-05
2,4-Trimethylpentane	540-84-1	< 9.84E-06	<	9.86E-06	<	1.02E-05	<	9.98E-06
m,p-Xylene	1330-20-7	< 1.22E-05	<	1.22E-05	<	1.27E-05	<	1.24E-05
o-Xylene	1330-20-7	< 1.26E-05	<	1.26E-05	<	1.31E-05	<	1.27E-05

Methanol (Method 308)		Run 1		Run 2		Run 3		Average
Sample Volume (liters):		**85.984**		**85.832**		**82.591**		**84.802**
		(ug/dscm)		**(ug/dscm)**		**(ug/dscm)**		**(ug/dscm)**
Compound	**CAS Number**							
Methanol	67-56-1	1.01E-05	<	7.93E-05	<	8.25E-05	<	5.73E-05

Bags		Run 1 (ppmv)		Run 2 (ppmv)		Run 3 (ppmv)		Average (ppmv)
Compound	**CAS Number**							
Methane	74-82-8	33.6		2.62				18.11
Ethane	74-84-0	1.31	<	0.288			<	0.799

TEDLAR BAG/TUBE/IMPINGER SAMPLE COLLECTION

Date 7·7·11
Project No. 184380.0000.0000
Client ExxonMobil
Facility Baytown, TX Refinery
Source SRU T-601 Stack

Run No. 1
Operator KRA
Meter Box I.D. 3602456 H6-220-2058
Y Factor 1.000
Bar. Press. 29.90

Leak Checks

	Initial Vac. ("Hg)	Final Vac ("Hg)	Time (sec)	Vac Drop ("Hg)
Train before test:	22	22	60	0
Train after test:	21	21	60	0

Condensate volume: _____

Sample ID Em-R1-Bag-SRU

Time		Dry Gas Meter (L)	Rotameter (L/min)	Dry Gas Meter Temp (°C)	Dry Gas Meter (In. H2O)	Pump Vacuum (In. Hg)	Temperatures (°C)			
24 hour	Min						Probe	Filter	Condenser	Impinger
1132	0	0.000	.25	55		0				
	10	4.63	.25	55		0				
	20	–								
	30	–								
	40	10.04	.25	56		0				
	50									
1232	60	14.584	.25	57		0				

Date/Time

Comments: _____

Train Set Up By: KRA

To Location: T601

Received @ Location: _____

To Lab: _____

Received @ Lab: _____

TEDLAR BAG/TUBE/IMPINGER SAMPLE COLLECTION

Date 7.8.11
Project No. 184380.0000.0000
Client ExxonMobil
Facility Baytown, TX Refinery
Source SRU T-601 Stack

Run No. 2
Operator NSA
Meter Box I.D. 3602456 H6-220-2038
Y Factor 1.000
Bar. Press. 29.90

Leak Checks

	Initial Vac. ("Hg)	Final Vac ("Hg)	Time (sec)	Vac Drop ("Hg)
Train before test:	20	20	60	0
Train after test:	19	19	60	0

Condensate volume: _____

Sample ID Em-R2-Bag-SRU

Time		Dry Gas Meter	Rotameter	Dry Gas Meter Temp (°C)	Dry Gas Meter (In. H2O)	Pump Vacuum (In. Hg)	Temperatures (°C)			
24 hour	Min	(L)	(L/min)				Probe	Filter	Condenser	Impinger
1130	0	0.000	.20	101		0				
	10	1.71	.2	101		0				
	20	3.98	.2	101		0				
	30	6.25	.2	101		0				
1209	40	7.503	END							
	50									
	60									

Date/Time

Comments: _____

Train Set Up By: _____

To Location: _____

Received @ Location: _____

To Lab: _____

Received @ Lab: _____

TEDLAR BAG/TUBE/IMPINGER SAMPLE COLLECTION

Date 7.8.11
Project No. 184380.0000.0000
Client ExxonMobil
Facility Baytown, TX Refinery
Source SRU T-601 Stack

Run No. 3
Operator MA
Meter Box I.D. 3602456 H@ .220 .2058
Y Factor 1.00
Bar. Press. 29.90

Leak Checks

	Initial Vac. ("Hg)	Final Vac ("Hg)	Time (sec)	Vac Drop ("Hg)
Train before test:	15	15	60	0
Train after test:	10	10	60	0

Condensate volume: _____ Sample ID EM-B3-Bag-SRU

Time		Dry Gas Meter (L)	Rotameter (L/min)	Dry Gas Meter Temp (°C)	Dry Gas Meter (In. H2O)	Pump Vacuum (In. Hg)	Temperatures (°C)			
24 hour	Min						Probe	Filter	Condenser	Impinger
1400	0	0.000	.2	103		0				
	10	2.26	.2	102		0				
	20	4.49	.2	102		0				
	30	6.46	.2	102		0				
1440	40	8.371		END						
	50									
	60									

Date/Time

Comments: _____

Train Set Up By: _____

To Location: _____

Received @ Location: _____

To Lab: _____

Received @ Lab: _____

Project Name: ExxonMobil ICR Test - SRU T-601

Dates: July 7-8, 2011

Test Run	Bag ALL	Condition DGMCF	Normal 1.000	Source Dimension Barometric ("Hg)	NA 29.90

	Time	DGM (L)	DGM ("H_2O)	DGM In (F)	DGM Out (F)
Run 1 Sample ID	Start 1132	0.00	0.0	95	95
				95	95
				96	96
			0.0	97	97
	Stop 1232	14.884			
Run 2 Sample ID	Start 1130	0.00	0.0	101	101
				101	101
				101	101
			0.0	101	101
	Stop 1209	7.503			
Run 3 Sample ID	Start 1400	0.00	0.0	103	103
				102	102
				102	102
			0.0	102	102
	Stop 1440	8.371			

TEDLAR BAG/TUBE/IMPINGER SAMPLE COLLECTION

Date 7.7.11
Project No. 184380.0000.0000
Client ExxonMobil
Facility Baytown, TX Refinery
Source SRU T-601 Stack

Run No. 1
Operator [illegible]
Meter Box I.D. 3602457 HG-220-2038
Y Factor 1.000
Bar. Press. 29.90

Leak Checks

	Initial Vac. ("Hg)	Final Vac ("Hg)	Time (sec)	Vac Drop ("Hg)
Train before test:	22	22	60	0
Train after test:	20	20	60	0

Condensate volume: _____ Sample ID Em-R1-SG-SRU

Time		Dry Gas Meter	Rotameter	Dry Gas Meter	Dry Gas Meter	Pump Vacuum	Temperatures (°C)			
24 hour	Min	(L)	(L/min)	Temp (°C)	(In. H2O)	(In. Hg)	Probe	Filter	Condenser	Impinger
1132	0	0.000	.5	95	95	0				
	10	7.81	.5	95		0				
	20	16.26	.5	96		0				
	30	24.62	.5	97		0				
	40	32.81	.5	99		0				
	50	41.15	.5	99		0				
1232	60	49.214								

#2

Comments: Sample Rate .5 l/min

#370450156 SG Tube

Date/Time

Train Set Up By: _____

To Location: _____

Received @ Location: _____

To Lab: _____

Received @ Lab: _____

TEDLAR BAG/TUBE/IMPINGER SAMPLE COLLECTION

Date 7.8.11
Project No. 184380.0000.0000
Client ExxonMobil
Facility Baytown, TX Refinery
Source SRU T-601 Stack

Run No. 2
Operator [illegible]
Meter Box I.D. 5602457 H6-220-2058
Y Factor 1.000
Bar. Press. 29.90

Leak Checks	Initial Vac. ("Hg)	Final Vac ("Hg)	Time (sec)	Vac Drop ("Hg)
Train before test:	21	21	60	0
Train after test:	16	16	60	0

Condensate volume: _____ Sample ID Em-R2-SG-SRU

Time		Dry Gas Meter	Rotameter	Dry Gas Meter Temp (°C)	Dry Gas Meter (In. H2O)	Pump Vacuum (In. Hg)	Temperatures (°C)			
24 hour	Min	(L)	(L/min)				Probe	Filter	Condenser	Impinger
1130	0	0.000	.5	103		0				
	10	6.1	.5	103		0				
	20	11.34	.5	105		0				
	30	15.19	.5	103		0				
	40	19.15	.5	102		0				
	50	25.08	.5	102		0				
1230	60	30.964								

Date/Time

Comments: _____

Tobe 3704501521

Train Set Up By: _____

To Location: _____

Received @ Location: _____

To Lab: _____

Received @ Lab: _____

TEDLAR BAG/TUBE/IMPINGER SAMPLE COLLECTION

Date 7.8.11
Project No. 184380.0000.0000
Client ExxonMobil
Facility Baytown, TX Refinery
Source SRU T-601 Stack

Run No. 3
Operator HRH
Meter Box I.D. 3602457 H6.220.2058
Y Factor 1,000
Bar. Press. 29.90

Leak Checks

	Initial Vac. ("Hg)	Final Vac ("Hg)	Time (sec)	Vac Drop ("Hg)
Train before test:	20	20	60	0
Train after test:	16	16	60	0

Condensate volume: _____ Sample ID EM-R3-SG-SRU

Time		Dry Gas Meter	Rotameter	Dry Gas Meter Temp (°C)	Dry Gas Meter (In. H2O)	Pump Vacuum (In. Hg)	Temperatures (°C)			
24 hour	Min	(L)	(L/min)				Probe	Filter	Condenser	Impinger
1400	0	0.000	.5	103		0				
	10	5.81	.5	102		0				
	20	9.98	.5	102		0				
	30	14.71	.5	102		0				
	40	19.23	.5	102		0				
	50	23.94	.5	101		0				
1500	60	28.502		END						

Date/Time

Comments: _____

SG # 3704501597

Train Set Up By: _____

To Location: _____

Received @ Location: _____

To Lab: _____

Received @ Lab: _____

Project Name: ExxonMobil ICR Test - SRU T-601

Dates: July 7-8, 2011

Test Run	Methanol ALL	Condition DGMCF	Normal 1.000	Source Dimension Barometric ("Hg)	NA 29.90

	Time	DGM (L)	DGM ("H_2O)	DGM In (F)	DGM Out (F)
[redacted] Sample ID	Start 1132	0.00	0.0	95	95
				96	96
				97	97
[redacted]			0.0	99	99
	Stop 1232	49.214			
[redacted] Sample ID	Start 1130	0.00	0.0	103	103
				103	103
				103	103
[redacted]			0.0	102	102
	Stop 1230	30.964			
[redacted] Sample ID	Start 1400	0.00	0.0	103	103
				102	102
				102	102
[redacted]			0.0	101	101
	Stop 1500	28.502			
[redacted]					
[redacted]					

TEDLAR BAG/TUBE/IMPINGER SAMPLE COLLECTION

Date 7.7.11
Project No. 184380.0000.0000
Client ExxonMobil
Facility Baytown, TX Refinery
Source SRU T-601 Stack

Run No. 1A
Operator [illegible]
Meter Box I.D. 3602456 HG-220-2038
Y Factor 1.000
Bar. Press. 29.90

Leak Checks

	Initial Vac. ("Hg)	Final Vac ("Hg)	Time (sec)	Vac Drop ("Hg)
Train before test:	20	20	60	0
Train after test:	21	21	60	0

Condensate volume: _____

Sample ID Em-R1A-XAD-SRU

Time		Dry Gas Meter	Rotameter	Dry Gas Meter Temp (°F)	Dry Gas Meter	Pump Vacuum	Temperatures (°C)			
24 hour	Min	(L)	(L/min)	(°C)	(In. H2O)	(In. Hg)	Probe	Filter	Condenser	Impinger
1430	0	0.000	1.0	101		3				
17.03 ←	15	~~11.52~~	1.0	100		3				
	30	30.19	1.0	100		3				
	45	45.13	1.0	100		3				
	60	61.13	1.0	100		3				
	75	75.18	1.0	99		3				
1600	90	91.310								

Date/Time

Comments:
XAD 3507301969
Chm 382 202537

Train Set Up By: _____
To Location: _____
Received @ Location: _____
To Lab: _____
Received @ Lab: _____

TEDLAR BAG/TUBE/IMPINGER SAMPLE COLLECTION

Date 7-8-11
Project No. 184380.0000.0000
Client ExxonMobil
Facility Baytown, TX Refinery
Source SRU T-601 Stack

Run No. 2A
Operator MM
Meter Box I.D. 5602456 H6-220-2038
Y Factor 1.000
Bar. Press. 29.90

Leak Checks

	Initial Vac. ("Hg)	Final Vac ("Hg)	Time (sec)	Vac Drop ("Hg)
Train before test:	22	22	60	0
Train after test:	20	20	60	0

Condensate volume: _____ Sample ID EM-R2A-XAD-SRU

Time		Dry Gas Meter	Rotameter	Dry Gas Meter Temp (°C)	Dry Gas Meter (In. H2O)	Pump Vacuum (In. Hg)	Temperatures (°C)			
24 hour	Min	(L)	(L/min)				Probe	Filter	Condenser	Impinger
0900	0	0.000	1.0	88		3				
	15	14.47	1.0	89		3				
	30	29.55	1.0	91		3				
	45	44.72	1.0	93		3				
	60	59.64	1.0	95		3				
	75	74.67	1.0	98		3				
1030	90	89.887								

Comments:
XAD 3507301942
Char 222025525

Date/Time
Train Set Up By: _____
To Location: _____
Received @ Location: _____
To Lab: _____
Received @ Lab: _____

TEDLAR BAG/TUBE/IMPINGER SAMPLE COLLECTION

Date 7-8-11
Project No. 184380.0000.0000
Client ExxonMobil
Facility Baytown, TX Refinery
Source SRU T-601 Stack

Run No. 3A
Operator KAA
Meter Box I.D. 3602456 HB-220-2038
Y Factor 1.000
Bar. Press. 29.90

Leak Checks

	Initial Vac. ("Hg)	Final Vac ("Hg)	Time (sec)	Vac Drop ("Hg)
Train before test:	18	18	60	0
Train after test:	17	17	60	0

Condensate volume: _____

Sample ID EM-R3A-XAD-SRU

Time		Dry Gas Meter	Rotameter	Dry Gas Meter	Dry Gas Meter	Pump Vacuum	Temperatures (°C)			
24 hour	Min	(L)	(L/min)	Temp (°C)	(In. H2O)	(In. Hg)	Probe	Filter	Condenser	Impinger
1624	0	0.000	1.0	97		3				
	15	13.87	1.0	97		3				
	30	28.09	1.0	97		3				
	45	42.63	1.0	97		3				
	60	57.21	1.0	98		3				
	75	72.34	1.0	98		3				
1754	90	87.276								

Date/Time

Comments:

XAD 3507301941
Char 9222025411

Train Set Up By: _____

To Location: _____

Received @ Location: _____

To Lab: _____

Received @ Lab: _____

Project Name: ExxonMobil ICR Test - SRU T-601

Dates: July 7-8, 2011

Test Run	XAD Tube ALL	Condition DGMCF	Normal 1.000	Source Dimension Barometric ("Hg)	NA 29.90

	Time	DGM (L)	DGM ("H_2O)	DGM In (F)	DGM Out (F)
[redacted] Run 1 Sample ID	Start 1430	0.00	0.0	101	101
				100	100
				100	100
[redacted]			0.0	99	99
	Stop 1600	91.310			
[redacted] Run 2 Sample ID	Start 0900	0.00	0.0	88.5	88.5
				91	91
				93	93
[redacted]			0.0	96.5	96.5
	Stop 1030	89.887			
[redacted] Run 3 Sample ID	Start 1624	0.00	0.0	97	97
				97	97
				97	97
[redacted]			0.0	98	98
	Stop 1754	87.276			
[redacted]					
[redacted]					

TEDLAR BAG/TUBE/IMPINGER SAMPLE COLLECTION

Date _____
Project No. 184380.0000.0000
Client ExxonMobil
Facility Baytown, TX Refinery
Source SRU T-601 Stack

Run No. 1B
Operator KHA
Meter Box I.D. 3602457 HG-220.2038
Y Factor 1.000
Bar. Press. 29.90

Leak Checks

	Initial Vac. ("Hg)	Final Vac ("Hg)	Time (sec)	Vac Drop ("Hg)
Train before test:	20	20	60	0
Train after test:	20	20	60	0

Condensate volume: _____

Sample ID EM-R1B-XAD-SRU

Time		Dry Gas Meter	Rotameter	Dry Gas Meter Temp (°F)	Dry Gas Meter	Pump Vacuum	Temperatures (°C)			
24 hour	Min	(L)	(L/min)	(°C)	(In. H2O)	(In. Hg)	Probe	Filter	Condenser	Impinger
1430	0	0.000	1.0	101		3				
17:10 ←	15	~~44.44~~	1.0	100		3				
	30	30.18	1.0	100		3				
	45	45.23	1.0	100		3				
	60	61.41	~~99~~ 1.0	99		3				
	75	75.89	1.0	99		3				
1600	90	90.972								

Date/Time

Comments: _____

XAD 3507301497
Cbn 382202567

Train Set Up By: _____

To Location: _____

Received @ Location: _____

To Lab: _____

Received @ Lab: _____

TEDLAR BAG/TUBE/IMPINGER SAMPLE COLLECTION

Date 7-8-11
Project No. 184380.0000.0000
Client ExxonMobil
Facility Baytown, TX Refinery
Source SRU T-601 Stack

Run No. 2B
Operator RAT
Meter Box I.D. 3602457 HB-220-2038
Y Factor 1.000
Bar. Press. 29.90

Leak Checks

	Initial Vac. ("Hg)	Final Vac ("Hg)	Time (sec)	Vac Drop ("Hg)
Train before test:	21	21	60	0
Train after test:	20	20	60	0

Condensate volume: _____

Sample ID EM-RZB-XAD-SRU

Time		Dry Gas Meter	Rotameter	Dry Gas Meter	Dry Gas Meter	Pump Vacuum	Temperatures (°C)			
24 hour	Min	(L)	(L/min)	Temp (°C)	(In. H2O)	(In. Hg)	Probe	Filter	Condenser	Impinger
0900	0	0.000	1.0	88		2				
	15	14.48	1.0	90		2				
	30	30.16	1.0	93		2				
	45	44.71	1.0	95		2				
	60	60.88	1.0	98		2				
	75	76.83	1.0	100		2				
1050	90	90.494								

Date/Time

Comments:
XAD 3507 301899
Char 2222025 20

Train Set Up By: _____
To Location: _____
Received @ Location: _____
To Lab: _____
Received @ Lab: _____

TEDLAR BAG/TUBE/IMPINGER SAMPLE COLLECTION

Date 7.8.11
Project No. 184380.0000.0000
Client ExxonMobil
Facility Baytown, TX Refinery
Source SRU T-601 Stack

Run No. 3B
Operator KBA
Meter Box I.D. 5602457 H6-220-2038
Y Factor 1.000
Bar. Press. 29.90

Leak Checks

	Initial Vac. ("Hg)	Final Vac ("Hg)	Time (sec)	Vac Drop ("Hg)
Train before test:	16	16	60	0
Train after test:	16	16	60	0

Condensate volume: _____

Sample ID EM-R3B-XAD-SRU

Time		Dry Gas Meter	Rotameter	Dry Gas Meter Temp (°C)	Dry Gas Meter (In. H2O)	Pump Vacuum (In. Hg)	Temperatures (°C)			
24 hour	Min	(L)	(L/min)				Probe	Filter	Condenser	Impinger
1624	0	0.000	1.0	97		2				
	15	14.78	1.0	97		2				
	30	25.03	1.0	97		2				
	45	43.59	1.0	98		2				
	60	58.00	1.0	99		2				
	75	72.66	1.0	100		2				
1754	90	87.258								

Date/Time

Comments:

XAD 3507301850
Char 222024497

Train Set Up By: _____
To Location: _____
Received @ Location: _____
To Lab: _____
Received @ Lab: _____

Project Name: ExxonMobil ICR Test - SRU T-601

Dates: July 7-8, 2011

Test Run	Spiked XAD Tube ALL	Condition DGMCF	Normal 1.000	Source Dimension Barometric ("Hg)	NA 29.90

	Time	DGM (L)	DGM ("H_2O)	DGM In (F)	DGM Out (F)
Run 1 Sample ID	Start 1430	0.00	0.0	101	101
				100	100
				100	100
			0.0	99	99
	Stop 1600	90.972			
Run 2 Sample ID	Start 0900	0.00	0.0	89	89
				93	93
				95	95
			0.0	99	99
	Stop 1030	90.494			
Run 3 Sample ID	Start 1624	0.00	0.0	97	97
				97	97
				98	98
			0.0	99.5	99.5
	Stop 1754	87.258			

Hg-220 Console Calibration

Quality - Service - Reliability

ENVIRONMENTAL SUPPLY COMPANY

Console Model Number :	Hg-220
Console Serial Number :	HG-220-2038

DGM Model Number :	Actaris ACD G1.6
DGM Serial Number :	3602456

Calibration Date :	11/6/2010

Digital Counter	
Model Number :	Red Lion Cub 5000
Scale Factor :	1.8900
CPL :	529.1

Standard Pressure (in Hg)
29.92

Standard Temperature (°R)
528

Reference Meter	
Model Number :	Shinagawa WNK-1A
Serial Number :	538787
Y_c :	1.000

	Digital Volume Hg-220 Console						Reference Meter							
				DGM Temperatures									Y_c	
Flow Rate (lpm)	DGM Counter	Volume (liters)	Volume (std liters)	Initial (°F)	Final (°F)	AVG (°F)	Volume Initial (liters)	Volume Final (liters)	Volume Total (liters)	Temp (°F)	Bar. Pressure (in Hg)			% deviation
3.00	26277	49.665	48.857	66.0	67.0	66.5	223.509	273.206	49.697	67.0	29.35		1.000	0.03
1.00	9245	17.473	17.207	67.0	66.0	66.5	273.206	290.668	17.462	67.0	29.38		0.998	0.16
0.50	6551	12.382	12.193	66.0	67.0	66.5	290.668	303.085	12.417	67.0	29.38		1.002	-0.19

Y_c Avg	1.000

Dave Henry

signature

11/6/10

date

Hg-220 Console Calibration

Quality - Service - Reliability

ENVIRONMENTAL SUPPLY COMPANY

Console Model Number:	Hg-220
Console Serial Number:	HG-220-2038

DGM Model Number:	Actaris ACD G1.6
DGM Serial Number:	3602457

Calibration Date: 11/6/2010

Digital Counter	
Model Number:	Red Lion Cub 5000
Scale Factor:	1.8749
CPL:	533.4

Standard Pressure (in Hg)
29.92

Standard Temperature (°R)
528

Reference Meter	
Model Number:	Shinagawa W-NK-1A
Serial Number:	538789
Y_c:	1.000

	Digital Volume Hg-220 Console						Reference Meter						
Flow Rate (lpm)	DGM Counter	Volume (liters)	Volume (std liters)	DGM Temperatures Initial (°F)	Final (°F)	AVG (°F)	Volume Initial (liters)	Volume Final (liters)	Volume Total (liters)	Temp (°F)	Bar. Pressure (in Hg)	Y_c	% deviation
3.00	26381	49.462	48.566	67.0	68.0	67.5	837.477	886.875	49.398	67.0	29.35	1.000	0.03
1.00	9025	16.921	16.616	68.0	68.0	68.0	886.875	903.806	16.931	66.0	29.38	1.004	-0.44
0.50	7109	13.329	13.076	68.0	69.0	68.5	903.806	917.043	13.237	67.0	29.38	0.996	0.41

Dave Hess
signature

11/6/10
date

Y_c Avg	1.000

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APPENDIX C: SW-846 METHOD 0100 SPECIATED SEMI-VOLS ORGANIC HAPS

Project Number	184380			
Client / Location	ExxonMobil BTRF			
Source	T-601 SRU			
Sampling Location	Stack			
Sample Type / Method	0010(SemiVol)			
Condition	Normal	Normal	Normal	
Run No.	1	2	3	Average
Date	7/7/11	7/8/11	7/8/11	
Time Start	11:30	9:00	13:56	
Time Finish	16:29	12:26	17:23	
Flue Gas Moisture (%) (measured)	6.73	7.09	8.90	7.57
Flue Gas Moisture (%) (used in further calculations)	6.73	7.09	8.90	7.57
Gas Molecular Weight (Wet) (g/g-mole)	29.27	29.29	29.30	30.33
Absolute Stack Pressure (in. Hg)	29.60	29.68	29.68	29.65
Absolute Stack Temperature (R)	560.3	561.5	562.4	561.4
Average Gas Velocity (ft/sec)	109.63	108.45	111.78	109.95
Actual Flow Rate (acfh)	4,959,708	4,906,137	5,056,861	4,974,235
Corrected Flow Rate (wscfh)	4,624,283	4,576,672	4,708,769	4,636,575
Corrected Flow Rate (dscfh)	4,312,852	4,252,262	4,289,786	4,284,967
O_2 %, dry	0.00	0.03	0.00	0.01
CO_2 %, dry	7.93	8.04	8.15	8.04
CO ppmv, dry	347.84	350.04	367.38	355.09
CO lb/hr	109.06	108.20	114.57	110.61
THC ppmv, wet as C3	33.97	35.87	35.55	35.13
THC lb/hr	18.0	18.8	19.2	18.6

	Tabulated Data
	Calculations
	Data Entry

ExxonMobil BTRF ICR SRU T-601

Sample Volume (dscf) 197.906
T-601 Exhaust Flow Rate (dscfh) 4,312,795

Semivolatile Organic Compounds

	Amount Detected (ug)	Reporting Limit (ug)	Total (ug)	Run 1 Concentration (ug/dscm)	Run 1 Emission Rate (lb/hr)
Acenaphthene		20	20	3.57	9.61E-04
Acenaphthylene		20	20	3.57	9.61E-04
Aniline		20	20	3.57	9.61E-04
Anthracene		20	20	3.57	9.61E-04
Benz(a)anthracene	**17**		**17**	**3.03**	**8.17E-04**
Benzidine		200	200	35.7	9.61E-03
Benzo(b)fluoranthene		20	20	3.57	9.61E-04
Benzo(k)fluoranthene		20	20	3.57	9.61E-04
Benzo(g,h,i)perylene		20	20	3.57	9.61E-04
Benzo(a)pyrene		20	20	3.57	9.61E-04
Benzo(e)pyrene		20	20	3.57	9.61E-04
Biphenyl	**12**		**12**	**2.14**	**5.77E-04**
Chrysene		20	20	3.57	9.61E-04
Cresols		20	20	3.57	9.61E-04
Dibenz(a,h)anthracene		20	20	3.57	9.61E-04
Dibenzofuran		20	20	3.57	9.61E-04
Dibenzo(a,e)pyrene		20	20	3.57	9.61E-04
3,3'-Dimethoxybenzidine		200	200	35.7	9.61E-03
p-Dimethylaminoazobenzene		20	20	3.57	9.61E-04
7,12-Dimethylbenz(a)anthracene		20	20	3.57	9.61E-04
3,3'-Dimethylbenzidine		200	200	35.7	9.61E-03
alpha, alpha-Dimethylphenethylamine		50	50	8.92	2.40E-03
2,4-Dimethylphenol		20	20	3.57	9.61E-04
Fluoranthene		20	20	3.57	9.61E-04
Fluorene		20	20	3.57	9.61E-04
Indeno-1,2,3-cd-pyrene		20	20	3.57	9.61E-04
Isophorone		20	20	3.57	9.61E-04
3-Methylcholanthrene		20	20	3.57	9.61E-04
2-Methylnaphthalene		20	20	3.57	9.61E-04
Naphthalene	**22**		**22**	**3.93**	**1.06E-03**
Nitrobenzene		20	20	3.57	9.61E-04
Perylene		20	20	3.57	9.61E-04
Phenanthrene	**6.6**		**6.6**	**1.18**	**3.17E-04**
Phenol	**7.9**		**7.9**	**1.41**	**3.80E-04**
1,4-Phenylenediamine		200	200	35.7	9.61E-03
Pyrene	**11**		**11**	**1.96**	**5.28E-04**
o-Toluidine		20	20	3.57	9.61E-04

ExxonMobil BTRF ICR SRU T-601

Sample Volume (dscf) 196.590
T-601 Exhaust Flow Rate (dscfh) 4,252,262

Semivolatile Organic Compounds

	Amount Detected (ug)	Reporting Limit (ug)	Total (ug)	Run 2 Concentration (ug/dscm)	Run 2 Emission Rate (lb/hr)
Acenaphthene		20	20	3.59	9.54E-04
Acenaphthylene		20	20	3.59	9.54E-04
Aniline		20	20	3.59	9.54E-04
Anthracene		20	20	3.59	9.54E-04
Benz(a)anthracene	**17**		**17**	**3.05**	**8.11E-04**
Benzidine		200	200	35.9	9.54E-03
Benzo(b)fluoranthene		20	20	3.59	9.54E-04
Benzo(k)fluoranthene		20	20	3.59	9.54E-04
Benzo(g,h,i)perylene		20	20	3.59	9.54E-04
Benzo(a)pyrene		20	20	3.59	9.54E-04
Benzo(e)pyrene		20	20	3.59	9.54E-04
Biphenyl	**8.3**		**8.3**	**1.49**	**3.96E-04**
Chrysene		20	20	3.59	9.54E-04
Cresols		20	20	3.59	9.54E-04
Dibenz(a,h)anthracene		20	20	3.59	9.54E-04
Dibenzofuran		20	20	3.59	9.54E-04
Dibenzo(a,e)pyrene		20	20	3.59	9.54E-04
3,3'-Dimethoxybenzidine		200	200	35.9	9.54E-03
p-Dimethylaminoazobenzene		20	20	3.59	9.54E-04
7,12-Dimethylbenz(a)anthracene		20	20	3.59	9.54E-04
3,3'-Dimethylbenzidine		200	200	35.9	9.54E-03
alpha, alpha-Dimethylphenethylamine		50	50	8.98	2.38E-03
2,4-Dimethylphenol		20	20	3.59	9.54E-04
Fluoranthene		20	20	3.59	9.54E-04
Fluorene		20	20	3.59	9.54E-04
Indeno-1,2,3-cd-pyrene		20	20	3.59	9.54E-04
Isophorone		20	20	3.59	9.54E-04
3-Methylcholanthrene		20	20	3.59	9.54E-04
2-Methylnaphthalene		20	20	3.59	9.54E-04
Naphthalene	**11**		**11**	**1.98**	**5.25E-04**
Nitrobenzene		20	20	3.59	9.54E-04
Perylene		20	20	3.59	9.54E-04
Phenanthrene	**7.2**		**7.2**	**1.29**	**3.43E-04**
Phenol		20	20	3.59	9.54E-04
1,4-Phenylenediamine		200	200	35.9	9.54E-03
Pyrene	**11**		**11**	**1.98**	**5.25E-04**
o-Toluidine		20	20	3.59	9.54E-04

ExxonMobil BTRF ICR SRU T-601

Semivolatile Organic Compounds

Sample Volume (dscf) 199.998
T-601 Exhaust Flow Rate (dscfh) 4,289,786

	Amount Detected (ug)	Reporting Limit (ug)	Total (ug)	Run 3 Concentration (ug/dscm)	Run 3 Emission Rate (lb/hr)	**Average Concentration (ug/dscm)**
Acenaphthene		20	20	3.53	9.46E-04	3.56
Acenaphthylene		20	20	3.53	9.46E-04	3.56
Aniline		20	20	3.53	9.46E-04	3.56
Anthracene		20	20	3.53	9.46E-04	3.56
Benz(a)anthracene	**20**		**20**	**3.53**	**9.46E-04**	**3.21**
Benzidine		200	200	35.3	9.46E-03	35.6
Benzo(b)fluoranthene		20	20	3.53	9.46E-04	3.56
Benzo(k)fluoranthene		20	20	3.53	9.46E-04	3.56
Benzo(g,h,i)perylene		20	20	3.53	9.46E-04	3.56
Benzo(a)pyrene		20	20	3.53	9.46E-04	3.56
Benzo(e)pyrene		20	20	3.53	9.46E-04	3.56
Biphenyl	**8.5**		**8.5**	**1.50**	**4.02E-04**	**1.71**
Chrysene		20	20	3.53	9.46E-04	3.56
Cresols		20	20	3.53	9.46E-04	3.56
Dibenz(a,h)anthracene		20	20	3.53	9.46E-04	3.56
Dibenzofuran		20	20	3.53	9.46E-04	3.56
Dibenzo(a,e)pyrene		20	20	3.53	9.46E-04	3.56
3,3'-Dimethoxybenzidine		200	200	35.3	9.46E-03	35.6
p-Dimethylaminoazobenzene		20	20	3.53	9.46E-04	3.56
7,12-Dimethylbenz(a)anthracene		20	20	3.53	9.46E-04	3.56
3,3'-Dimethylbenzidine		200	200	35.3	9.46E-03	35.6
alpha, alpha-Dimethylphenethylamine		50	50	8.83	2.36E-03	8.91
2,4-Dimethylphenol		20	20	3.53	9.46E-04	3.56
Fluoranthene		20	20	3.53	9.46E-04	3.56
Fluorene		20	20	3.53	9.46E-04	3.56
Indeno-1,2,3-cd-pyrene		20	20	3.53	9.46E-04	3.56
Isophorone		20	20	3.53	9.46E-04	3.56
3-Methylcholanthrene		20	20	3.53	9.46E-04	3.56
2-Methylnaphthalene		20	20	3.53	9.46E-04	3.56
Naphthalene	**14**		**14**	**2.47**	**6.62E-04**	**2.79**
Nitrobenzene		20	20	3.53	9.46E-04	3.56
Perylene		20	20	3.53	9.46E-04	3.56
Phenanthrene	**8.2**		**8.2**	**1.45**	**3.88E-04**	**1.31**
Phenol		20	20	3.53	9.46E-04	2.84
1,4-Phenylenediamine		200	200	35.3	9.46E-03	35.6
Pyrene	**12**		**12**	**2.12**	**5.67E-04**	**2.02**
o-Toluidine		20	20	3.53	9.46E-04	3.56

Project Number	184380			
Client / Location	ExxonMobil BTRF			
Source	T-601 SRU			
Sampling Location				
Sample Type / Method	0010(SemiVol)			
Condition Number	Normal	Normal	Normal	Average
Run Number	1	2	3	
Method Number	0010	0010	0010	
Date	07/07/11	07/08/11	07/08/11	
Time Start (24-hr clock)	1134	900	1355	
Time Stop (24-hr clock)	1629	1326	1824	
Total Collection Time (min)	240	240	240	240
Pitot Tube Correction Factor	0.84	0.84	0.84	
Nozzle Diameter (in.)	0.162	0.162	0.162	
Nozzle Area (ft^2)	0.000143	0.000143	0.000143	
Equivalent Duct Diameter (in)	48.00	48.00	48.00	
Equivalent Duct Diameter (ft)	4.00	4.00	4.00	
Duct Cross-Sectional Area (ft^2)	12.566	12.566	12.566	
Barometric Pressure (in. Hg)	29.90	29.90	29.90	
Elevation of Sampling Location Relative to Barometer (ft)	150.00	150.00	150.00	
Barometric Pressure at Sampling Location (in. Hg)	29.75	29.75	29.75	
Static Pressure (in. H_2O)	-2.00	-0.96	-1.00	
Absolute Stack Pressure (in. Hg)	29.60	29.68	29.68	
O_2 (%)	0.0	0.0	0.0	0
CO_2 (%)	7.9	8.0	8.2	8
Dry Molecular Weight (g/g-mole)	29.27	29.29	29.30	29
Condensate (mL)	303.1	318.1	414.3	345
Moisture Content (%) (measured)	6.73	7.09	8.90	8
Moisture Content at Saturation (%)	6.57	6.79	6.99	7
Moisture Content (%) (used in further calculations)	6.73	7.09	8.90	8
Wet Molecular Weight (g/g-mole)	28.51	28.49	28.30	28
Initial Meter Volume (ft^3)	987.975	206.263	419.713	538
Final Meter Volume (ft^3)	1205.105	419.195	639.763	755
Leak Check Volume (ft^3)	0.402	0.540	0.744	1
Meter Volume (ft^3)	216.728	212.392	219.306	216
Meter Calibration Factor, Y	0.972	0.972	0.972	1
Average Meter Temperature (F)	105.1	97.4	105.9	103
Absolute Meter Temperature (F)	565.1	557.4	565.9	563
Average Delta H (in. H_2O)	2.4	2.4	2.5	2
Elevation of Meter Relative to Barometer (ft)	0.0	0.0	0.0	0
Corrected Meter Volume (dscf)	197.906	196.590	199.998	198
Average Stack Temperature (F)	100.3	101.5	102.4	101
Absolute Stack Temperature (R)	560.3	561.5	562.4	561
Average Delta P (in. H2O)	3.55	3.48	3.68	4
Average Square Root of delta P	1.87	1.85	1.90	2
Unadjusted Gas Velocity (ft/sec)	109.63	108.45	111.78	110
WAF	1.00	1.00	1.00	1
Adjusted Gas Velocity (ft/sec)	109.63	108.45	111.78	110
Adjusted Gas Velocity (ft/min)	6,578	6,507	6,707	6,597
Actual Flow Rate (acfh)	4,959,708	4,906,137	5,056,861	4,974,235
Actual Flow Rate (acfm)	82,662	81,769	84,281	82,904
Corrected Flow Rate (wscfh)	4,624,283	4,576,672	4,708,769	4,636,575
Corrected Flow Rate (wscfm)	77,071	76,278	78,479	77,276
Corrected Flow Rate (kwscfh)	4,624	4,577	4,709	4,637
Corrected Flow Rate (kwscfm)	77	76	78	77
Corrected Flow Rate (dscfh)	4,312,852	4,252,262	4,289,786	4,284,967
Corrected Flow Rate (dscfm)	71,881	70,871	71,496	71,416
Corrected Flow Rate (kdscfh)	4,313	4,252	4,290	4,285
Corrected Flow Rate (kdscfm)	72	71	71	71
Isokinetic Sampling Rate (%)	100.71	101.47	102.32	101.50

STP is defined as 528 R and 29.92 "Hg

Tabulated Data

Calculations

Data Entry

Run Data

Run 1

Impinger No.	Initial Wt. (g)	Final Wt. (g)	Total Gain (g)
1	482.3	738.5	256.2
2	712.9	705.5	-7.4
3	635.2	626.1	-9.1
4	583.5	591.0	7.5
5	990.8	1046.7	55.9
6			
		sum =	303.1

	Temperatures					
dP	Stack	Meter Inlet	Meter Outlet	dH	SQRT dP	SQRT dH
3.30	97	91	91	2.24	1.82	1.50
3.30	97	92	91	2.24	1.82	1.50
3.00	97	95	91	2.04	1.73	1.43
3.20	98	96	91	2.18	1.79	1.48
3.30	97	98	92	2.24	1.82	1.50
3.30	97	99	92	2.24	1.82	1.50
3.85	98	100	93	2.62	1.96	1.62
3.80	98	101	94	2.88	1.95	1.70
4.20	98	103	95	2.86	2.05	1.69
4.30	99	104	96	2.92	2.07	1.71
4.40	98	104	97	2.99	2.10	1.73
4.80	100	105	98	3.26	2.19	1.81
4.60	99	104	98	3.13	2.14	1.77
4.40	99	105	98	2.99	2.10	1.73
4.50	99	105	99	3.06	2.12	1.75
4.30	99	105	99	2.92	2.07	1.71
3.80	99	104	99	2.58	1.95	1.61
3.90	99	105	99	2.65	1.97	1.63
3.20	99	106	99	2.18	1.79	1.48
3.00	99	107	100	2.04	1.73	1.43
3.00	100	107	100	2.04	1.73	1.43
2.90	99	108	100	1.97	1.70	1.40
2.90	99	108	100	1.97	1.70	1.40
2.80	99	108	101	1.9	1.67	1.38
2.60	101	104	101	1.77	1.61	1.33
2.70	?	109	103	1.84	1.64	1.36
2.20	101	111	104	1.50	1.48	1.22
2.20	102	113	105	1.50	1.48	1.22
3.30	103	115	106	2.24	1.82	1.50
3.30	102	115	106	2.24	1.82	1.50
3.00	103	116	107	2.04	1.73	1.43
3.10	102	116	108	2.11	1.76	1.45
3.80	102	116	108	2.88	1.95	1.70
3.90	103	117	109	2.65	1.97	1.63
4.30	102	117	109	2.92	2.07	1.71
4.50	102	116	110	3.06	2.12	1.75
4.50	102	115	110	3.06	2.12	1.75
4.50	102	115	110	3.06	2.12	1.75
4.50	102	114	110	3.06	2.12	1.75
4.50	104	114	111	3.06	2.12	1.75
3.80	102	113	110	2.88	1.95	1.70
3.80	104	113	110	2.88	1.95	1.70
3.8	102	113	109	2.58	1.95	1.61
3.8	102	112	109	2.58	1.95	1.61
2.8	102	112	109	1.9	1.67	1.38
2.6	102	113	108	1.77	1.61	1.33
2.4	102	113	108	1.63	1.55	1.28
2.4	102	114	108	1.63	1.55	1.28
3.55	**100.3**	**105.1**		**2.44**	**1.87**	**1.55**

Run 2

Impinger No.	Initial Wt. (g)	Final Wt. (g)	Total Gain (g)
1	359.5	620.0	260.5
2	693.3	682.7	-10.6
3	710.0	710.2	0.2
4	607.5	629.3	21.8
5	906.8	953.0	46.2
6			0
		sum =	318.1

	Temperatures					
dP	Stack	Meter Inlet	Meter Outlet	dH	SQRT dP	SQRT dH
2.25	100	85	84	1.53	1.50	1.24
2.30	101	88	85	1.56	1.52	1.25
2.30	102	90	85	1.56	1.52	1.25
2.50	100	91	86	1.70	1.58	1.30
2.40	102	94	86	1.63	1.55	1.28
2.40	102	94	88	1.63	1.55	1.28
3.00	100	96	88	2.04	1.73	1.43
3.10	102	96	87	2.10	1.76	1.45
3.80	102	97	88	2.58	1.95	1.61
3.70	102	97	89	2.52	1.92	1.59
4.50	102	96	90	3.06	2.12	1.75
4.70	102	96	90	3.20	2.17	1.79
4.80	102	96	91	3.26	2.19	1.81
4.80	102	96	91	3.26	2.19	1.81
4.60	102	97	91	3.13	2.14	1.77
4.60	102	98	92	3.13	2.14	1.77
4.00	102	98	92	2.72	2.00	1.65
3.90	102	99	93	2.65	1.97	1.63
3.3	102	100	93	2.24	1.82	1.50
3.1	101	101	93	2.1	1.76	1.45
2.6	102	102	94	1.77	1.61	1.33
2.6	103	103	94	1.77	1.61	1.33
2.6	102	104	95	1.77	1.61	1.33
2.6	102	100	95	1.77	1.61	1.33
4.20	102	101	96	2.85	2.05	1.69
3.10	102	102	97	2.10	1.76	1.45
3.20	101	103	97	2.17	1.79	1.47
3.10	102	105	98	2.10	1.76	1.45
3.10	101	105	98	2.10	1.76	1.45
3.10	101	105	98	2.10	1.76	1.45
3.70	101	106	98	2.51	1.92	1.58
3.50	102	105	99	2.38	1.87	1.54
2.90	101	105	99	1.97	1.70	1.40
3.50	102	105	99	2.38	1.87	1.54
4.90	101	105	99	3.33	2.21	1.82
4.80	101	104	99	3.26	2.19	1.81
4.60	99	103	99	3.13	2.14	1.77
4.50	101	102	99	3.06	2.12	1.75
4.00	102	103	99	2.72	2.00	1.65
4.00	101	103	98	2.72	2.00	1.65
3.50	101	104	99	2.38	1.87	1.54
3.50	102	105	99	2.38	1.87	1.54
3.4	101	105	99	2.31	1.84	1.52
3.4	101	106	99	2.31	1.84	1.52
3.4	101	107	99	2.31	1.84	1.52
3.4	101	107	99	2.31	1.84	1.52
2.9	101	106	100	1.97	1.70	1.40
2.8	101	106	100	1.9	1.67	1.38
3.48	**101.5**	**97.4**		**2.36**	**1.85**	**1.53**

Run Data

Run 3

Impinger No.	Initial Wt. (g)	Final Wt. (g)	Total Gain (g)
1	482.5	848.6	366.1
2	705.0	701.1	-3.9
3	626.0	622.3	-3.7
4	584.0	589.2	5.2
5	980.6	1031.2	50.6
6			0
		sum =	414.3

	Temperatures					
dP	Stack	Meter Inlet	Meter Outlet	dH	SQRT dP	SQRT dH
4.60	102	102	101	3.12	2.14	1.77
2.60	102	105	102	1.77	1.61	1.33
2.70	102	107	102	1.84	1.64	1.36
2.70	102	107	102	1.84	1.64	1.36
2.90	103	108	103	1.97	1.70	1.40
3.80	102	105	104	2.58	1.95	1.61
3.50	102	110	105	2.38	1.87	1.54
3.70	102	109	105	2.51	1.92	1.58
4.60	103	110	105	3.12	2.14	1.77
4.60	104	111	106	3.12	2.14	1.77
4.60	103	111	106	3.12	2.14	1.77
4.60	103	111	107	3.12	2.14	#VALUE!
5.00	103	110	107	3.40	2.24	1.84
5.00	103	110	108	3.40	2.24	1.84
5.10	103	110	108	3.47	2.26	1.86
4.70	103	109	108	3.19	2.17	1.79
4.70	103	109	108	3.19	2.17	1.79
3.90	103	109	108	2.65	1.97	1.63
3.8	104	108	107	2.58	1.95	1.61
3.8	103	110	107	2.58	1.95	1.61
3.2	102	109	106	2.17	1.79	1.47
2.9	103	109	107	1.97	1.70	1.40
2.9	103	109	106	1.97	1.70	1.40
2.7	103	109	106	1.84	1.64	1.36
2.60	102	110	106	1.77	1.61	1.33
2.30	103	104	104	1.56	1.52	1.25
2.10	103	105	104	1.43	1.45	1.20
2.20	101	106	104	1.50	1.48	1.22
2.20	103	107	104	1.50	1.48	1.22
2.50	101	108	104	1.70	1.58	1.30
2.50	102	108	104	1.70	1.58	1.30
3.10	102	108	104	2.11	1.76	1.45
3.40	103	108	103	2.31	1.84	1.52
4.10	102	108	103	2.79	2.02	1.67
4.00	102	107	103	2.72	2.00	1.65
4.20	102	106	103	2.86	2.05	1.69
4.80	102	106	103	3.26	2.19	1.81
4.80	102	105	103	3.26	2.19	1.81
4.80	102	105	103	3.26	2.19	1.81
4.90	102	105	103	3.33	2.21	1.82
4.90	102	104	103	3.33	2.21	1.82
4.60	102	105	103	3.12	2.14	1.77
3.9	102	104	102	2.65	1.97	1.63
3.8	102	104	103	2.58	1.95	1.61
3.8	102	104	102	1.97	1.95	1.40
2.9	102	105	103	1.9	1.70	1.38
2.8	102	105	103	1.9	1.67	1.38
2.8	102	106	102	1.9	1.67	1.38
3.68	**102.4**	**105.9**		**2.47**	**1.90**	**#VALUE!**

Example Calculations
Run 1

Barometric Pressure at Sampling Site, corrected for elevation

$$P_{bar(corr)} = P_{bar,meas} - (Elev \times 0.001)$$

$P_{bar,meas}$ = Barometric pressure as measured at ground level	=	29.90	in. Hg
Elev = elevation of sampling location relative to barometer	=	150	feet
0.001 = Conversion factor	=	0.00100	in. Hg/ft of elevation

$$P_{bar(corr)} = 29.90 - 150 \times 0.001$$

$$P_{bar(corr)} = 29.75 \text{ in Hg}$$

Absolute Stack Pressure, Corrected, in. Hg, as per EPA Method 2, Section 6.5

$$P_s = P_{bar(corr)} + (Pg/13.6)$$

$P_{bar(corr)}$ = Barometric pressure at the sampling site	=	29.75	in. Hg
P_g = Stack Static Pressure	=	-2.00	in. H2O
13.6 = Conversion factor	=	13.6	in. H2O/in. Hg

$$P_s = 29.75 + \left(\frac{-2.00}{13.6} \right)$$

$$P_s = 29.60 \text{ in Hg}$$

Absolute Stack Temperature, R

$$T_s = T + 460$$

T = Average Stack Temperatue	=	100.3	degF
460 = Conversion factor from deg F to R	=	460	

$$Ts = 100.3 + 460$$

$$Ts = 560.3 \text{ R}$$

Absolute Meter Temperature, R

$$Tm = T + 460$$

T = Average Meter Temperatue	=	105.1	degF
460 = Conversion factor from deg F to R	=	460	

$$Tm = 105.1 + 460$$

$$Tm = 565.1 \text{ R}$$

Volume of Water Vapor Condensed, corrected to standard conditions, ft^3 - as per US EPA Method 5, Eq. 5-2

$$V_{w(std)} = \frac{V_{1c} \times R_w \times R \times T_{std}}{M_w \times P_{std}}$$

V_{1c} = Total weight of liquid collected	=	303.1	g
R_w = Density of water	=	0.002201	lb/ml
R = Ideal Gas Constant	=	21.85	inHg - ft^3/degR - lbmole
T_{std} = Standard absolute temperature	=	528.00	degR
M_w = Molecular Weight of Water	=	18.00	lb/lbmole
P_{std} = Standard absolute pressure	=	29.92	inHg

$$V_{w(std)} = \frac{303.1 \times 0.002201 \times 21.85 \times 528}{18 \times 29.92}$$

$$V_{w(std)} = 14.29$$

Example Calculations

Run 1

Dry Gas Volume, corrected to standard conditions, ft^3 - as per US EPA Method 5, Eq. 5-1

$$V_{m(std)} = V_m \times Y \times \frac{T_{std} \times (P_{bar} + (deltaH / 13.6))}{T_m \times P_{std}}$$

V_m = Volume of gas sample, dry	=	216.728	ft^3
Y = Dry gas meter calibration factor	=	0.972	
Tstd = Standard Temperature	=	528	R
P_{bar} = Barometric pressure at the sampling site	=	29.75	in. Hg
deltaH = Average pressure differential across the orifice meter	=	2.44	in. H_2O
13.6 = Conversion factor	=	13.6	in. H_2O/in. Hg
Tm = Absolute average DGM temperature	=	565.1	R
Pstd = Standard Pressure	=	29.92	in Hg

$$V_{m(std)} = \frac{216.73 \times 0.972 \times 528 \times (29.75 + (2.44 / 13.6))}{565.1 \times 29.92}$$

$V_{m(std)}$ = 196.920 dscf 0.02832 m3/ft3

$V_{m(std)}$ = 5.577 dscm

Moisture Content, proportion, by volume - as per US EPA Method 5, Eq. 5-3

$$\frac{V_{w(std)}}{V_{m(std)} + V_{w(std)}}$$

$V_{w(std)}$ = Volume of water vapor condensed	=	14.291	ft^3
$V_{m(std)}$ = Dry Gas Volume	=	196.920	ft^3

$$B_{ws} = \frac{14.291}{196.920 + 14.291}$$

B_{ws} = 0.0677

Moisture content at saturation

This calculated by polynomial fit: $(86.7222826792858 + T_s*(-0.645483277572566) + T_s^2*0.00181527101645074 + T_s^3 * (-2.28823297043421E-06) + (T_s)^4*1.09201445204276E-09)*100*29.92/P_s)$

86.722282679285800			=	86.7
-0.645483277572566	X	560.3	=	-361.7
0.00181527101645074	X	313933.7057	=	569.9
-2.28823297043421E-06	X	175896387.4	=	-402.5
1.09201445204276E-09	X	98554371605	=	107.6
		sum	=	0.0650
sum x 100 x		29.92 / 29.60	=	6.57 %

for further calculations

B_{ws} = 0.0657 6.57 %

Dry Molecular Weight of Stack Gas, lb/lb-mole - as per US EPA Method 3, Eq. 3-1

$$M_d = MW_{CO}(\%CO) + MW_{CO2}(\%CO_2) + MW_{O2}(\%O_2) + MW_{H2}(\%H_2) + MW_{CH4}(\%CH_4) + MW_{N2}(\%N_2)$$

MW_{CO}= Molecular weight of CO, divided by 100	=	0.28	lb/lb-mole
%CO = Percent CO by volume, dry basis	=	0.0	%
MW_{CO2}= Molecular weight of CO_2, divided by 100	=	0.44	lb/lb-mole
$\%CO_2$ = Percent CO_2 by volume, dry basis	=	1.1	%
MW_{O2} = Molecular weight of O_2, divided by 100	=	0.32	lb/lb-mole
$\%O_2$ = Percent O_2 by volume, dry basis	=	19.3	%
MW_{H2} = Molecular weight of H_2, divided by 100	=	0.02	lb/lb-mole
$\%H_2$ = Percent H_2 by volume, dry basis	=	0.0	%
MW_{CH4} = Molecular weight of CH_4, divided by 100	=	0.16	lb/lb-mole
$\%CH_4$ = Percent CH_4 by volume, dry basis	=	0.0	%
MW_{N2} = Molecular weight of N2, divided by 100	=	0.28	lb/lb-mole
$\%N_2$ = 100% - %CO - $\%CO_2$ - $\%O_2$ - %H2 - %CH4	=	79.7	%

$$M_d = \frac{(0.28 \times 0.0) + (0.44 \times 1.1) + (0.32 \times 19.3) + (0.02 \times 0.0) + (0.16 \times 0.0) + (0.28 \times 79.7)}{}$$

M_d = 28.94 lb/lb-mole

Example Calculations

Run 1

Molecular Weight of stack gas, lb/lb-mole - as per US EPA Method 2, Eq. 2-6

$$M_s = M_d (1-B_{ws}) + 18.0(B_{ws})$$

M_d= Dry molecular weight of stack gas	=	28.94	lb/lb-mole
B_{ws}= Proportion of water vapor, by volume	=	0.0657	proportion
18.0 = Molecular Weight of H_2O	=	18.00	lb/lb-mole

$$M_s = 28.94 \times (1 - 0.066) + (18.00 \times 0.066)$$

$$M_s = 28.22 \text{ lb/lb-mole}$$

Average Stack Gas Velocity, ft/sec - as per US EPA Method 2, Eq. 2-7

$$v_s = K_p \times C_p \times \text{deltaP}_{avg} \times \text{sqrt}(T_s/(P_s \times M_s))$$

K_p= Velocity equation constant	=	85.49	ft/sec[((lb/lb-mole)(in.Hg))/((degR)(in.H2O))]$^{1/2}$
C_p = S type pitot tube coefficient	=	0.84	
deltaP_{avg}=ave. sqrt. of the velocity head of stack gas	=	1.8737	in.H_2O
T_s = Absolute stack temperature	=	560.3	degR
P_s = Absolute stack pressure	=	29.60	in. Hg
M_s = Molecular Weight of stack gas	=	28.51	lb/lb-mole

$$v_s = 85.49 \times 0.84 \times 1.87 \times \left(\frac{560.3}{29.60 \times 28.51}\right)^{0.5}$$

v_s = 109.63 ft/sec 1.8272 ft/min

WAF = 1.00

v_s(WAF Adjusted)= 109.63 ft/sec

Stack Area

$$A = 3.14 \times (\text{Stack Diameter}/2)^2$$

3.1415927 = PI	=	3.14	
Stack Diameter		4.00	ft2

$$A = 3.14 \times \left(\frac{4.00}{2}\right)^2$$

A = 12.57 ft2

Average Stack Gas Volumetric Flow Rate - Actual Conditions

$$Q_{actual} = v_s \times A$$

v_s= Average stack gas velocity	=	109.63	ft/sec
A = Cross sectional area of stack	=	12.57	ft^2

$$Q_{actual} = 109.63 \times 12.57$$

Q_{actual} = 1378 ft3/sec

Q_{actual} = 82,662 ft3/min

Q_{actual} = 4,959,708 ft3/hr

Average Stack Gas Dry Volumetric Flow Rate, dscf/hr - as per US EPA Method 2, Eq. 2-8

$$Q = \frac{3600 \times (1-B_{ws}) \times v_s \times A \times T_{std} \times P_s}{T_s \times P_{std}}$$

3600= Conversion factor	=	3600	sec/hr
B_{ws} = Proportion of water vapor, by volume	=	0.0657	proportion
v_s= Average stack gas velocity	=	109.63	ft/sec
A = Cross sectional area of stack	=	12.57	ft^2
T_{std} = Standard absolute temperature	=	528	degR
P_s = Absolute stack pressure	=	29.60	in. Hg
T_s = Absolute stack temperature	=	560.3	degR
P_{std} = Standard absolute pressure	=	29.92	in. Hg

$$Q = \frac{3600 \times (1.00 - 0.066) \times 109.63 \times 12.566 \times 528 \times 29.60294}{560.3 \times 29.92}$$

Q = 4,320,401 dscfh

Q = 72,007 dscfm

Q = 4,320 kdscfh

Q = 72 kdscfm

Conversions

60 min/hr

$\frac{1}{1000}$ k

Example Calculations

Run 1

Average Stack Gas Wet Volumetric Flow Rate, wscf/hr

$$Q_w = \frac{Q}{(1-Bws)}$$

Q = Average Stack Gas Dry Volumetric Flow Rate	=	4,320,401	dscf/hr
B_{ws} = Proportion of water vapor, by volume	=	0.0657	proportion

$$Q_w = \frac{4{,}320{,}401}{(\ 1.00\ -\ 0.066\ )}$$

$$\frac{\text{Conversions}}{60\ \text{min/hr}}$$

$$\frac{1}{1000}\ k$$

Q_w = 4,624,283 wscfh

= 77,071 wscfm

= 4624 kwscfh

= 77 kwscfm

Nozzle Area

An = 3.1415927 x (Nozzle Diameter/12/2)^2

3.1415927 = PI	=	3.14	
12 = Conversion Factor		12.00	in/ft
Nozzle Diameter		0.162	in

$$An = 3.14 \times \left(\frac{0.16200}{12} \times \frac{1}{2}\right)^2$$

An = 1.43E-04 ft2

Isokinetic Variation, % - as per US EPA Method 5, Eq. 5-8

$$I = \frac{100 \times T_s \times V_{m(std)} \times P_{std}}{60 \times T_{std} \times P_s \times v_s \times A_n \times min \times (1 - B_{ws})}$$

100 = Conversion to percent	=	100	
T_s = Absolute stack temperature	=	560.3	degR
$V_{m(std)}$ = Dry Gas Volume	=	196.920	ft^3
P_{std} = Standard absolute pressure	=	29.92	in. Hg
60 = Sec/Min	=	60	Sec/Min
T_{std} = Standard absolute temperature	=	528	degR
P_s = Absolute stack pressure	=	29.60	in. Hg
v_s = Average stack gas velocity	=	109.63	ft/sec
A_n = Cross-sectional Area of nozzle	=	0.0001431	ft^2
min = Total sampling time	=	240	minutes
B_{ws} = Proportion of water vapor, by volume	=	0.0657	proportion

$$I = \frac{100 \times 560 \times 196.920 \times 29.92}{60.00 \times 528 \times 29.60 \times 109.63 \times 0.0001431 \times 240 \times (\ 1\ -\ 0.0657\ )}$$

I = 100.0 %

TRC

Source Collection Data Sheet

Contract No. 184380	Method 0010 (semi-Mod)		Page 1 of 2
Facility Exxon Mobil BTRF	Init. System Leak Rate (ft3 @ "Hg) 0.008 @ 13" Hg		Operator S. Lockwood
Source T-601 Stack SR4	Final System Leak Rate (ft3 @ "Hg) 0.006 @ 18" Hg		Pitot No.
Date 7-7-11	Start Time 11:34	Meter No. 1446	PTCF 0.84
Condition Normal	End Time 1629	DGMCF .9721	Init. Pitot Leak Check ✓
Run No. ~~2~~ Run 1	Duration (min) 240	ΔH@ ~~1.707~~	Final Pitot Leak Check ✓
Stat. Press. ("H2O) -2.0	Bar. Press. ("Hg) 29.90	Nozzle Diam. (") 0.162	Kf 0.68

Point	Time (24-hr)	Volume (ft3)	ΔP ("H2O)	ΔH ("H2O)	Temperatures (°F)						Vacuum ("Hg)	%AO
					Flue Gas	Probe	Filter	Impingers	Meter In	Meter Out		
W 0	11:34	987.475	3.3	2.24	97	250	252	72	91	91	8.0	44
1	11:39	992.23	3.3	2.24	97	251	253	72	92	91	8.5	44
1	11:44	996.56	3.0	2.04	97	262	247	72	95	91	8.0	43
2	11:49	1000.79	3.2	2.18	98	262	250	59	96	91	9.5	43
2	11:54	1005.050	3.3	2.24	97	267	250	54	98	92	10.0	43
3	11:59	1009.34	3.3	2.24	97	247	250	61	99	92	10.0	44
3	12:04	1013.72	3.85	2.62	98	265	248	51	100	93	11.5	35
4	12:09	1018.52	3.80	2.58	98	248	243	54	101	94	12.0	36
4	12:14	1023.05	4.2	2.86	98	258	244	54	103	95	12.0	41
5	12:19	1027.90	4.3	2.92	99	251	248	60	104	96	12.0	42
5	12:24	1032.86	4.4	2.99	98	249	249	63	104	97	13.0	55
6	12:29	1037.87	4.8	3.26	100	265	248	78	105	98	15.0	57
6	12:34	1043.01	4.6	3.13	99	253	246	75	104	98	14.5	60
7	12:39	1048.27	4.4	2.99	99	249	250	73	105	98	14.0	60
7	12:44	1053.26	4.5	3.06	99	248	249	74	105	99	14.5	60
8	12:49	1058.41	4.3	2.92	99	247	250	72	105	99	14.0	50
8	12:54	1063.45	3.8	2.58	99	267	250	65	104	99	12.0	52
9	12:59	1068.23	3.9	2.65	99	266	252	71	105	99	12.0	51
9	13:04	1073.00	3.2	2.18	99	265	249	71	106	99	11.0	52
10	13:09	1077.55	3.0	2.04	99	265	248	81	107	100	10.0	55
10	13:14	1081.85	3.0	2.04	100	265	251	75	107	100	10.0	56
11	13:19	1086.10	2.9	1.97	99	255	249	67	108	100	9.5	56
11	13:24	1090.32	2.9	1.97	99	262	250	74	108	100	9.0	58
12	13:29	1094.50	2.8	1.90	99	268	248	75	108	101	9.0	60
12	Stop	1098.693										
N 1	14:29	1099.005	2.6	1.77	101	264	238	81	104	101	9.0	74
1	14:34	1102.87	2.7	1.84	101	264	246	81	109	103	10.0	73
2	14:39	1106.66	2.2	1.50	101	262	246	83	111	104	10.0	73
2	14:44	1110.43	2.2	1.50	102	263	246	83	113	105	9.0	70
3	14:49	1114.18	3.3	2.24	103	266	248	83	115	106	12.0	70

Comments Interim Leak Checks

1- 0.004 @ 15" 2- 0.004 @ 15"

Checked By: _____ (Project Manager or QA Manager - sign and date)

TRC

Source Collection Data Sheet

Contract No. 184380	Method 0010 (Semi_Vol)		Page 2 of 2
Facility Exxon Mobil BTRF	Init. System Leak Rate (ft3 @ "Hg) 0.008 @ 13"		Operator S. Lakwood
Source T-601 Stack SRU	Final System Leak Rate (ft3 @ "Hg) 0.006 @ 18"		Pitot No.
Date 7-7-2014	Start Time 11:54	Meter No. 1446	PTCF 0.84
Condition Normal	End Time 16:29	DGMCF 9921	Init. Pitot Leak Check ✓
Run No. 1	Duration (min) 240	ΔH@ 1.707	Final Pitot Leak Check ✓
Stat. Press. ("H2O) -2.0	Bar. Press. ("Hg) 29.90	Nozzle Diam. (") 0.162	Kf 0.85

Point	Time (24-hr)	Volume (ft3)	ΔP ("H2O)	ΔH ("H2O)	Temperatures (°F)						Vacuum ("Hg)	XAD
					Flue Gas	Probe	Filter	Impingers	Meter In	Meter Out		
3	14:54	1118.57	3.3	2.24	108	264	246	84	115	106	12.5	73
4	14:59	1122.83	3.0	2.04	103	263	250	85	116	107	12.0	75
4	15:04	1127.12	3.1	2.11	102	265	248	89	116	108	12.0	80
5	15:09	1131.47	3.8	2.58	102	265	248	81	116	108	13.0	82
5	15:14	1135.86	3.9	2.65	103	263	247	79	117	109	14.0	70
6	15:19	1140.51	4.3	2.92	102	266	247	76	117	109	15.0	67
6	15:24	1145.37	4.5	3.06	102	263	245	75	116	110	16.5	66
7	15:29	1150.38	4.5	3.06	102	266	248	80	115	110	16.5	69
7	15:34	1155.56	4.5	3.06	102	264	260	83	115	110	16.5	72
8	15:39	1160.40	4.5	3.06	102	246	266	58	114	110	16.5	78
8	15:44	1165.48	4.5	3.06	104	260	266	90	114	111	16.5	81
9	15:49	1170.40	3.8	2.58	102	246	253	86	113	110	15.0	73
9	15:54	1175.29	3.8	2.58	104	264	249	89	113	110	14.5	75
10	15:59	1179.96	3.8	2.58	102	261	252	76	113	109	15.0	65
10	16:04	1184.70	3.8	2.58	102	259	256	75	112	109	14.5	63
11	16:09	1189.48	2.8	1.90	102	261	258	73	112	109	11.0	60
11	16:14	1193.50	2.6	1.77	102	261	253	72	113	108	10.5	58
12	16:19	1197.48	2.4	1.63	102	260	246	72	113	108	10.0	58
12	16:24	1201.38	2.4	1.63	102	264	264	74	114	108	9.5	59
End	16:29	1205.105										

Comments

Checked By: _____ (Project Manager or QA Manager - sign and date)

TRC

Sample Recovery Data Sheet

Contract No.	184380	Method	0010 Semi Volatiles
Condition	Normal	Run No.	2
Date	~~6-~~ 7-7-11	Operator	RMM

Impinger No.	Contents	Volume (mL)	Configuration	Final Wt. (g)	- Initial Wt. (g)	= Net Gain (g)
1	—	—	KO	738.5	482.3	256.2
2	DI H2O	100	Mod	705.5	712.9	-7.4
3	DI H2O	100	G-S	626.6	635.2	-9.1
4	—	—	Mod	591.0	583.5	7.5
5	Sigel	~600	Mod	1046.7	990.8	55.9
6					-	=
7					-	=
8					-	=
9					-	=
10					-	=
					Total Net Gain (g) =	303.1

Comments:

TRC

Source Collection Data Sheet

Contract No. 184380	Method 0010 Semi Volatiles		Page 1 of 2
Facility Exxon Mobil BTRF	Init. System Leak Rate (ft3 @ "Hg) 0.006 @ 17" Hg		Operator S. Lockwood
Source T-601 Stack SRU	Final System Leak Rate (ft3 @ "Hg) 0.004 @ 18" Hg		Pitot No.
Date 7-8-2014	Start Time 09:00	Meter No. 1446	PTCF 0.84
Condition Normal	End Time 13:26	DGMCF .9721	Init. Pitot Leak Check ✓
Run No. 2	Duration (min) 240	ΔH@ 1.707	Final Pitot Leak Check ✓
Stat. Press. ("H2O) -0.96	Bar. Press. ("Hg) 29.90	Nozzle Diam. (") 0.162	Kf 0.68

Point	Time (24-hr)	Volume (ft3)	ΔP ("H2O)	ΔH ("H2O)	Temperatures (°F) Flue Gas	Probe	Filter	Impingers	Meter In	Meter Out	Vacuum ("Hg)	XAD
J1	09:00	206.263	2.25	1.53	100	264	248	81	85	84	6.5	75
1	09:05	209.84	2.3	1.56	101	263	261	77	88	85	7.0	75
2	09:10	213.37	2.3	1.56	102	260	255	75	90	85	7.0	74
2	09:15	216.98	2.5	1.70	100	253	256	78	91	86	7.5	70
3	09:20	220.74	2.5	1.83	102	252	256	68	93	86	7.5	67
3	09:25	224.41	2.4	1.63	102	252	251	68	94	88	8.0	66
4	09:30	228.00	3.0	2.04	100	252	252	69	94	87	10.0	66
4	09:35	232.03	3.1	2.10	102	252	256	70	96	88	11.5	66
5	09:40	236.19	3.8	2.58	102	255	250	70	96	89	13.5	65
5	09:45	240.74	3.7	2.52	102	253	251	70	97	90	13.5	60
6	09:50	245.33	4.5	3.06	102	251	250	69	97	90	15.0	60
6	09:56	250.25	4.7	3.20	102	263	255	68	96	91	15.5	60
7	10:00	255.22	4.8	3.26	102	250	252	68	96	91	15.5	60
7	10:05	260.19	4.8	3.26	102	253	254	69	96	91	15.5	61
8	10:10	265.14	4.6	3.13	102	257	250	69	96	92	15.0	61
8	10:15	270.09	4.6	3.13	102	266	251	68	97	92	15.0	60
9	10:20	275.03	4.0	2.72	102	263	248	68	98	93	15.0	60
9	10:25	279.91	3.9	2.65	102	256	258	68	98	93	15.0	60
10	10:30	284.75	3.3	2.24	102	254	248	68	99	93	15.0	60
10	10:35	289.25	3.1	2.10	102	267	267	69	100	94	12.0	61
11	10:40	293.54	2.6	1.77	101	267	262	69	101	94	10.0	61
11	10:45	297.51	2.6	1.77	102	254	263	69	102	95	10.0	61
12	10:50	301.58	2.6	1.77	103	258	257	68	103	95	10.0	60
12	10:55	305.41	2.6	1.77	102	261	248	68	104	96	10.0	60
J2	11:00	309.462										
S1	11:26	310.002	4.2	2.85	102	250	255	70	100	97	14.0	63
1	11:31	314.74	3.1	2.10	102	263	253	70	101	97	11.5	63
2	11:36	319.04	3.2	2.17	102	255	258	70	102	98	11.5	63
2	11:41	323.38	3.1	2.10	101	247	255	69	103	98	11.5	62

Comments Interim Leak Checks

1- 0.006 @ 18" 2- 0.004 @ 18"

Checked By: _____ (Project Manager or QA Manager - sign and date)