APPENDIX F: FIELD DATA PRINTOUTS

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Field Data Printout

		Test Method:	**USEPA Method 5/29**
Location:	TE Outlet	**Analyte:**	**FPM/Metals**
Test Run:	1		
Client:	SIMS Metal Management	Bar. Press. (in. Hg): 29.67	Nozzle ID No: 200-1
Project No:	13318	Static P: -1.4	Nozzle Diameter (D_n): 0.200
Source Area (ft^2):	4.58694	O_2 (dry volume %): 20.96	Probe ID No: 5G-48-5
Meter Operator:	C. Meringer 649	CO_2 (dry volume %): 0.07	Pitot C_p: 0.840
Probe Operator:	C. Young 642	N_2+CO (dry volume %): 78.96	Pitot Leak Check: ☑Pass ☐Fail
Test Date:	9/15/17		
Start Time:	09:14		
Stop Time:	10:33	H_2O (condensate, ml or gm): 52.4	Meter Box ID. No: 68-Z
Leak Rate Before:	0.000 cfm @ 15 "Hg	H_2O (silica, g): 7.6	Meter ΔH@: 1.72160
Leak Rate After:	0.004 cfm @ 6 "Hg	Actual Moisture (%): 7.35	Meter Y_d: 0.99460

Traverse Point	Run Time 5.0 min/read	Pitot ΔP_s	Sample ΔH	Metered (dcf)	Stack T_s	Dry Gas Meter $T_{m\text{-}in}$	Dry Gas Meter $T_{m\text{-}out}$	$\sqrt{\Delta P_s}$ (calculated)	Volume (calculated)	Isokinetics (calculated)
	0.0	(in. H_2O)	(in. H_2O)	339.750	(°F)	(°F)	(°F)	($\sqrt{in.}$ H_2O)	(ft^3)	(%)
1-01	5.0	0.80	1.10	342.83	107	75	74	0.89	3.08	101.6
1-02	10.0	0.90	1.30	346.13	102	76	75	0.95	3.30	102.0
1-03	15.0	0.80	1.10	349.22	106	81	75	0.89	3.09	101.1
1-04	20.0	0.75	1.10	352.29	113	82	76	0.87	3.07	104.2
1-05	25.0	0.50	0.70	354.84	112	83	76	0.71	2.55	105.7
1-06	30.0	0.25	0.35	356.62	76	82	77	0.50	1.78	100.9
PORT CHANGE	30.0			356.68						
2-01	35.0	0.90	1.30	360.01	110	83	80	0.95	3.33	102.5
2-02	40.0	0.90	1.30	363.41	114	84	79	0.95	3.40	105.0
2-03	45.0	0.80	1.10	366.85	113	87	80	0.89	3.44	112.1*
2-04	50.0	0.70	1.00	369.53	86	86	80	0.84	2.68	91.2
2-05	55.0	0.50	0.70	372.02	110	86	80	0.71	2.49	102.4
2-06	60.0	0.40	0.60	374.290	99	87	83	0.63	2.27	103.0
Final	60.0		0.97083	34.48000	104.00000	80.29167		0.81489	34.48000	
12 points sampled		Sq.Rt.ΔP								
QC-Check: Field Averages		0.8149	0.9708	34.4800	104.0000	80.2900				
		☑Avg. OK	☑Avg. OK	☑Avg. OK	☑Avg. OK	☑Avg. OK				

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Field Data Printout

		Test Method:	**USEPA Method 5/29**
Location:	TE Outlet	**Analyte:**	**FPM/Metals**
Test Run:	3		
Client:	SIMS Metal Management	Bar. Press. (in. Hg): 29.75	Nozzle ID No: 220-1
Project No:	13318	Static P: -2.4	Nozzle Diameter (D_n): 0.220
Source Area (ft^2):	4.58694	O_2 (dry volume %): 20.97	Probe ID No: 5G-48-5
Meter Operator:	C. Meringer 649	CO_2 (dry volume %): 0.09	Pitot C_p: 0.840
Probe Operator:	C. Young 642	N_2+CO (dry volume %): 78.94	Pitot Leak Check: ☑Pass ☐Fail
Test Date:	9/18/17		
Start Time:	08:38		
Stop Time:	09:53	H_2O (condensate, ml or gm): 73.2	Meter Box ID. No: 68-Z
Leak Rate Before:	0.000 cfm @ 15 "Hg	H_2O (silica, g): 9.4	Meter ΔH@: 1.72160
Leak Rate After:	0.005 cfm @ 8 "Hg	Actual Moisture (%): 8.37	Meter Y_d: 0.99460

Traverse Point	Run Time 5.0 min/read	Pitot ΔP_s	Sample ΔH	Metered (dcf)	Stack T_s	Dry Gas Meter $T_{m\text{-}in}$	Dry Gas Meter $T_{m\text{-}out}$	$\sqrt{\Delta P_s}$ (calculated)	Volume (calculated)	Isokinetics (calculated)
	0.0	(in. H_2O)	(in. H_2O)	406.740	(°F)	(°F)	(°F)	($\sqrt{in.}$ H_2O)	(ft^3)	(%)
1-01	5.0	1.10	2.30	411.21	102	74	73	1.05	4.47	105.1
1-02	10.0	1.10	2.30	415.69	108	79	73	1.05	4.48	105.4
1-03	15.0	1.00	2.10	419.96	99	83	74	1.00	4.27	104.0
1-04	20.0	0.75	1.50	423.61	110	84	75	0.87	3.65	103.3
1-05	25.0	0.65	1.30	426.99	105	84	76	0.81	3.38	102.2
1-06	30.0	0.60	1.20	430.24	95	86	77	0.77	3.25	101.1
PORT CHANGE	30.0			430.34						
2-01	35.0	0.90	1.90	434.37	115	83	79	0.95	4.03	104.4
2-02	40.0	0.90	1.90	438.46	118	87	80	0.95	4.09	105.8
2-03	45.0	0.85	1.80	442.44	119	89	80	0.92	3.98	105.8
2-04	50.0	0.60	1.20	445.67	111	89	81	0.77	3.23	101.2
2-05	55.0	0.45	0.90	448.46	116	87	81	0.67	2.79	101.5
2-06	60.0	0.30	0.60	450.720	103	86	81	0.55	2.26	99.6
Final	60.0		1.58333	43.88000	108.41667	80.87500		0.86308	43.88000	
12 points sampled		Sq.Rt.ΔP								
QC-Check: Field Averages		0.8631	1.5833	43.8800	108.4167	80.8750				
		☑Avg. OK	☑Avg. OK	☑Avg. OK	☑Avg. OK	☑Avg. OK				

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Field Data Printout

		Test Method:	**USEPA Method 5/29**
Location:	TE Outlet	**Analyte:**	**FPM/Metals**
Test Run:	5		
Client:	SIMS Metal Management	Bar. Press. (in. Hg): 29.75	Nozzle ID No: 235-1
Project No:	13318	Static P: -2.3	Nozzle Diameter (D_n): 0.235
Source Area (ft^2):	4.58694	O_2 (dry volume %): 21.02	Probe ID No: 5G-48-5
Meter Operator:	C. Meringer 649	CO_2 (dry volume %): 0.03	Pitot C_p: 0.840
Probe Operator:	C. Young 642	N_2+CO (dry volume %): 78.95	Pitot Leak Check: ☑Pass ☐Fail
Test Date:	9/20/17		
Start Time:	08:58		
Stop Time:	12:20	H_2O (condensate, ml or gm): 77.5	Meter Box ID. No: 68-Z
Leak Rate Before:	0.000 cfm @ 15 "Hg	H_2O (silica, g): 11.7	Meter ΔH@: 1.72160
Leak Rate After:	0.002 cfm @ 10 "Hg	Actual Moisture (%): 7.64	Meter Y_d: 0.99460

Traverse Point	Run Time 5.0 min/read	Pitot ΔP_s	Sample ΔH	Metered (dcf)	Stack T_s	Dry Gas Meter $T_{m\text{-}in}$	Dry Gas Meter $T_{m\text{-}out}$	$\sqrt{\Delta P_s}$ (calculated)	Volume (calculated)	Isokinetics (calculated)
	0.0	(in. H_2O)	(in. H_2O)	500.755	(°F)	(°F)	(°F)	($\sqrt{in.}$ H_2O)	(ft^3)	(%)
1-01	5.0	0.85	2.30	505.13	102	75	71	0.92	4.38	102.0
PAUSE	5.0			505.72						
1-02	10.0	0.95	2.50	509.72	101	70	70	0.97	4.00	88.7*
1-03	15.0	1.00	2.70	514.57	105	73	70	1.00	4.85	104.9
1-04	20.0	0.80	2.10	518.89	115	76	71	0.89	4.32	104.9
1-05	25.0	0.70	1.90	523.01	104	77	71	0.84	4.12	105.7
1-06	30.0	0.65	1.70	526.94	111	78	71	0.81	3.93	105.2
PORT CHANGE	30.0			527.01						
2-01	35.0	1.00	2.70	531.78	120	76	72	1.00	4.77	104.1
2-02	40.0	0.95	2.50	536.49	119	80	73	0.97	4.71	104.8
2-03	45.0	1.00	2.70	541.37	119	81	73	1.00	4.88	105.8
2-04	50.0	0.70	1.90	545.50	111	82	74	0.84	4.13	105.9
2-05	55.0	0.65	1.70	549.43	112	81	74	0.81	3.93	104.7
2-06	60.0	0.55	1.50	553.100	112	82	74	0.74	3.67	106.1
Final	60.0		2.18333	51.68500	110.91667	74.79167		0.89943	51.68500	

	Sq.Rt.ΔP				
12 points sampled					
QC-Check: Field Averages	0.8994	2.1833	51.6850	110.9167	74.7917
	☑Avg. OK	☑Avg. OK	☑Avg. OK	☑Avg. OK	☑Avg. OK

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USEPA Method 3 Laboratory Data

Test Method: USEPA Method 5/29
Analyte: FPM/Metals

Location: TE Outlet
Client: SIMS Metal Management
Project No: 13318
Method: EPA Method 3A
Fuel Type: Select Fuel
F_o for Fuel: N/A

Analyst: B. Ansell
Analyst Emp No: 454

Run Number	Trial	Percent CO_2	Percent O_2+CO_2	Percent O_2	Percent N_2	Dry Mol. Weight	F_o	Method of Analysis: CEM
1	1							
	2							
	3							
	Avg.							
CEM or Other Avg:		0.1		21.0	78.96470	28.85004		☐ Fo value within expected range.

Run Number	Trial	Percent CO_2	Percent O_2+CO_2	Percent O_2	Percent N_2	Dry Mol. Weight	F_o	Method of Analysis: CEM
3	1							
	2							
	3							
	Avg.							
CEM or Other Avg:		0.1		21.0	78.94477	28.85296		☐ Fo value within expected range.

Run Number	Trial	Percent CO_2	Percent O_2+CO_2	Percent O_2	Percent N_2	Dry Mol. Weight	F_o	Method of Analysis: CEM
5	1							
	2							
	3							
	Avg.							
CEM or Other Avg:		0.03		21.0	78.95325	28.84512		☐ Fo value within expected range.

Run Number	Trial	Percent CO_2	Percent O_2+CO_2	Percent O_2	Percent N_2	Dry Mol. Weight	F_o	Method of Analysis:
	1							
	2							
	3							
	Avg.							
CEM or Other Avg:								☐ Fo value within expected range.

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USEPA Method 4 Laboratory Data

Location:	TE Outlet	Test Method:	USEPA Method 5/29
Client:	SIMS Metal Management	Analyte:	FPM/Metals
Project No:	13318	Analyst:	E. Doak
		Analyst Emp No:	349

Test Run: 1

	Contents	Gross (gm)	Tare (gm)	Net (gm)
Impinger 1	Empty	531.5	438.7	92.8
Impinger 2	5%HNO3/10%H2O2	606.1	599.4	6.7
Impinger 3	5%HNO3/10%H2O2	607.1	605.6	1.5
Impinger 4	Empty	504.3	503.9	0.4
Impinger 5	4%KMnO4/10%H2SO4	640.1	639.7	0.4
Impinger 6	4%KMnO4/10%H2SO4	621.2	620.6	0.6
Impinger 7	Silica Gel	734.5	726.9	7.6
Impinger 8				

102.4	Liquid (gm)	*Field Data Check*	
-50.0	less rinse (gm)		
52.4	Net Liquid (gm)	52.4	☑QA/QC OK
+ 7.6	Silica Gel (gm)	7.6	☑QA/QC OK
60.0	Total Vlc (gm)	60.0	☑QA/QC OK

Rinse: 50.0 (ml or gm)

Test Run: 3

	Contents	Gross (gm)	Tare (gm)	Net (gm)
Impinger 1	Empty	548.8	439.4	109.4
Impinger 2	5%HNO3/10%H2O2	621.0	610.7	10.3
Impinger 3	5%HNO3/10%H2O2	608.0	605.7	2.3
Impinger 4	Empty	504.9	504.9	0.0
Impinger 5	4%KMnO4/10%H2SO4	641.8	641.1	0.7
Impinger 6	4%KMnO4/10%H2SO4	617.8	617.3	0.5
Impinger 7	Silica Gel	743.5	734.1	9.4
Impinger 8				

123.2	Liquid (gm)	*Field Data Check*	
-50.0	less rinse (gm)		
73.2	Net Liquid (gm)	73.2	☑QA/QC OK
+ 9.4	Silica Gel (gm)	9.4	☑QA/QC OK
82.6	Total Vlc (gm)	82.6	☑QA/QC OK

Rinse: 50.0 (ml or gm)

Test Run: 5

	Contents	Gross (gm)	Tare (gm)	Net (gm)
Impinger 1	Empty	551.4	439.0	112.4
Impinger 2	5%HNO3/10%H2O2	623.6	613.4	10.2
Impinger 3	5%HNO3/10%H2O2	608.4	606.6	1.8
Impinger 4	Empty	505.3	504.7	0.6
Impinger 5	4%KMnO4/10%H2SO4	647.6	646.0	1.6
Impinger 6	4%KMnO4/10%H2SO4	622.3	621.4	0.9
Impinger 7	Silica Gel	754.3	742.6	11.7
Impinger 8				

127.5	Liquid (gm)	*Field Data Check*	
-50.0	less rinse (gm)		
77.5	Net Liquid (gm)	77.5	☑QA/QC OK
+ 11.7	Silica Gel (gm)	11.7	☑QA/QC OK
89.2	Total Vlc (gm)	89.2	☑QA/QC OK

Rinse: 50.0 (ml or gm)

Test Run:

	Contents	Gross (gm)	Tare (gm)	Net (gm)
Impinger 1	Empty			
Impinger 2	5%HNO3/10%H2O2			
Impinger 3	5%HNO3/10%H2O2			
Impinger 4	Empty			
Impinger 5	4%KMnO4/10%H2SO4			
Impinger 6	4%KMnO4/10%H2SO4			
Impinger 7	Silica Gel			
Impinger 8				

	Liquid (gm)	*Field Data Check*	
	less rinse (gm)		
	Net Liquid (gm)		☐QA/QC OK
	Silica Gel (gm)		☐QA/QC OK
	Total Vlc (gm)		☐QA/QC OK

Rinse: (ml or gm)

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Field Data Printout

		Test Method:	**USEPA Method 5/29**
Location:	TE Outlet	**Analyte:**	**FPM/Metals**
Test Run:	2		
Client:	SIMS Metal Management	Bar. Press. (in. Hg): 29.67	Nozzle ID No: 200-1
Project No:	13318	Static P: -1.4	Nozzle Diameter (D_n): 0.200
Source Area (ft^2):	4.58694	O_2 (dry volume %): 21.49	Probe ID No: 5G-48-5
Meter Operator:	C. Meringer 649	CO_2 (dry volume %): 0.07	Pitot C_p: 0.840
Probe Operator:	C. Young 642	N_2+CO (dry volume %): 78.44	Pitot Leak Check: ☑Pass ☐Fail
Test Date:	9/15/17		
Start Time:	12:21		
Stop Time:	13:36	H_2O (condensate, ml or gm): 44.9	Meter Box ID. No: 68-Z
Leak Rate Before:	0.000 cfm @ 15 "Hg	H_2O (silica, g): 6.5	Meter ΔH@: 1.72160
Leak Rate After:	0.001 cfm @ 6 "Hg	Actual Moisture (%): 7.57	Meter Y_d: 0.99460

Traverse Point	Run Time 5.0 min/read	Pitot ΔP_s	Sample ΔH	Metered (dcf)	Stack T_s	Dry Gas Meter $T_{m\text{-}in}$	Dry Gas Meter $T_{m\text{-}out}$	$\sqrt{\Delta P_s}$ (calculated)	Volume (calculated)	Isokinetics (calculated)
	0.0	(in. H_2O)	(in. H_2O)	374.890	(°F)	(°F)	(°F)	($\sqrt{in.}$ H_2O)	(ft^3)	(%)
1-01	5.0	0.70	1.00	377.84	103	87	88	0.84	2.95	101.4
1-02	10.0	0.75	1.10	380.97	101	90	88	0.87	3.13	103.5
1-03	15.0	0.75	1.10	384.06	107	91	88	0.87	3.09	102.6
1-04	20.0	0.55	0.80	386.71	109	93	89	0.74	2.65	102.6
1-05	25.0	0.35	0.50	388.81	97	93	89	0.59	2.10	100.7
1-06	30.0	0.20	0.30	390.42	97	91	90	0.45	1.61	101.9
PORT CHANGE	30.0			390.54						
2-01	35.0	0.55	0.80	393.14	107	88	88	0.74	2.60	101.0
2-02	40.0	0.65	0.90	395.95	102	89	89	0.81	2.81	99.8
2-03	45.0	0.70	1.00	398.91	107	88	88	0.84	2.96	102.0
2-04	50.0	0.55	0.80	401.51	97	88	87	0.74	2.60	100.2
2-05	55.0	0.40	0.60	403.75	116	89	87	0.63	2.24	102.8
2-06	60.0	0.30	0.40	405.700	117	89	87	0.55	1.95	103.4
Final	60.0		0.77500	30.68500	105.00000	88.91667		0.72129	30.68500	
12 points sampled		Sq.Rt.ΔP								
QC-Check: Field Averages		0.7213	0.7750	30.6850	105.0000	88.9167				
		☑Avg. OK	☑Avg. OK	☑Avg. OK	☑Avg. OK	☑Avg. OK				

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Field Data Printout

		Test Method:	**USEPA Method 5/29**
Location:	TE Outlet	**Analyte:**	**FPM/Metals**
Test Run:	4		
Client:	SIMS Metal Management	Bar. Press. (in. Hg): 29.75	Nozzle ID No: 220-2
Project No:	13318	Static P: -2.4	Nozzle Diameter (D_n): 0.220
Source Area (ft^2):	4.58694	O_2 (dry volume %): 20.94	Probe ID No: 5G-48-5
Meter Operator:	C. Meringer 649	CO_2 (dry volume %): 0.08	Pitot C_p: 0.840
Probe Operator:	C. Young 642	N_2+CO (dry volume %): 78.98	Pitot Leak Check: ☑Pass ☐Fail
Test Date:	9/18/17		
Start Time:	11:14		
Stop Time:	12:33	H_2O (condensate, ml or gm): 70.3	Meter Box ID. No: 68-Z
Leak Rate Before:	0.000 cfm @ 18 "Hg	H_2O (silica, g): 9.2	Meter ΔH@: 1.72160
Leak Rate After:	0.000 cfm @ 8 "Hg	Actual Moisture (%): 7.70	Meter Y_d: 0.99460

Traverse Point	Run Time 5.0 min/read	Pitot ΔP_s	Sample ΔH	Metered (dcf)	Stack T_s	Dry Gas Meter $T_{m\text{-}in}$	Dry Gas Meter $T_{m\text{-}out}$	$\sqrt{\Delta P_s}$ (calculated)	Volume (calculated)	Isokinetics (calculated)
	0.0	(in. H_2O)	(in. H_2O)	451.290	(°F)	(°F)	(°F)	($\sqrt{in.}$ H_2O)	(ft^3)	(%)
1-01	5.0	0.80	1.60	454.95	110	77	77	0.89	3.66	100.2
1-02	10.0	0.95	2.00	459.06	103	79	77	0.97	4.11	102.6
1-03	15.0	1.10	2.30	463.55	113	82	77	1.05	4.49	104.8
1-04	20.0	1.00	2.10	467.84	117	84	77	1.00	4.29	105.2
1-05	25.0	0.95	2.00	472.09	109	86	78	0.97	4.25	105.8
1-06	30.0	1.00	2.10	476.34	93	87	79	1.00	4.25	101.5
PORT CHANGE	30.0			476.39						
2-01	35.0	0.90	1.90	480.37	116	83	80	0.95	3.99	102.6
2-02	40.0	1.00	2.10	484.69	103	88	81	1.00	4.32	103.8
2-03	45.0	0.95	2.00	488.85	119	88	81	0.97	4.16	104.0
2-04	50.0	0.75	1.50	492.59	119	89	82	0.87	3.74	104.9
2-05	55.0	0.55	1.10	495.74	108	89	82	0.74	3.15	102.1
2-06	60.0	0.20	0.40	497.745	91	89	82	0.45	2.01	106.0
Final	60.0		1.75833	46.41000	108.41667	82.25000		0.90590	46.41000	
12 points sampled		Sq.Rt.ΔP								
QC-Check: Field Averages		0.9059	1.7583	46.4100	108.4167	82.2500				
		☑Avg. OK	☑Avg. OK	☑Avg. OK	☑Avg. OK	☑Avg. OK				

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		Test Method:	**USEPA Method 5/29**
Location:	TE Outlet	**Analyte:**	**FPM/Metals**
Test Run:	6		
Client:	SIMS Metal Management	Bar. Press. (in. Hg): 29.75	Nozzle ID No: 235-1
Project No:	13318	Static P: -2.3	Nozzle Diameter (D_n): 0.235
Source Area (ft^2):	4.58694	O_2 (dry volume %): 20.98	Probe ID No: 5G-48-5
Meter Operator:	C. Meringer 649	CO_2 (dry volume %): 0.03	Pitot C_p: 0.840
Probe Operator:	C. Young 642	N_2+CO (dry volume %): 78.99	Pitot Leak Check: ☑ Pass ☐ Fail
Test Date:	9/20/17		
Start Time:	13:44		
Stop Time:	15:33	H_2O (condensate, ml or gm): 51.5	Meter Box ID. No: 68-Z
Leak Rate Before:	0.000 cfm @ 15 "Hg	H_2O (silica, g): 10.8	Meter ΔH@: 1.72160
Leak Rate After:	0.002 cfm @ 8 "Hg	Actual Moisture (%): 5.26	Meter Y_d: 0.99460

Traverse Point	Run Time 5.0 min/read	Pitot ΔP_s	Sample ΔH	Metered (dcf)	Stack T_s	Dry Gas Meter $T_{m\text{-}in}$	Dry Gas Meter $T_{m\text{-}out}$	$\sqrt{\Delta P_s}$ (calculated)	Volume (calculated)	Isokinetics (calculated)
	0.0	(in. H_2O)	(in. H_2O)	553.970	(°F)	(°F)	(°F)	($\sqrt{in.}$ H_2O)	(ft^3)	(%)
1-01	5.0	0.85	2.30	558.380	108	71	71	0.92	4.41	101.6
1-02	10.0	0.85	2.30	562.860	108	74	71	0.92	4.48	102.9
1-03	15.0	1.10	2.90	567.890	102	77	72	1.05	5.03	100.8
1-04	20.0	0.95	2.50	572.630	106	79	72	0.97	4.74	102.3
1-05	25.0	0.85	2.30	577.140	106	80	73	0.92	4.51	102.7
1-06	30.0	0.65	1.70	581.095	114	80	73	0.81	3.96	103.5
PORT CHANGE	30.0			581.765						
2-01	35.0	0.95	2.50	586.400	106	77	74	0.97	4.63	100.0
2-02	40.0	1.00	2.70	591.280	100	79	74	1.00	4.88	102.0
2-03	45.0	1.00	2.70	596.180	106	80	74	1.00	4.90	102.8
2-04	50.0	0.80	2.10	600.510	111	81	74	0.89	4.33	101.8
2-05	55.0	0.70	1.90	604.640	105	82	75	0.84	4.13	103.0
2-06	60.0	0.65	1.70	608.560	110	82	75	0.81	3.92	101.9
Final	60.0		2.30000	53.92000	106.83333	75.83333		0.92563	53.92000	
12 points sampled		Sq.Rt.ΔP								
QC-Check: Field Averages		0.9256	2.3000	53.9200	106.8333	75.8333				
		☑ Avg. OK	☑ Avg. OK	☑ Avg. OK	☑ Avg. OK	☑ Avg. OK				

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USEPA Method 3 Laboratory Data

Test Method: USEPA Method 5/29
Analyte: FPM/Metals

Location: TE Outlet
Client: SIMS Metal Management
Project No: 13318
Method: EPA Method 3A
Fuel Type: Select Fuel
F_o for Fuel: N/A

Analyst: B. Ansell
Analyst Emp No: 454

Run Number	Trial	Percent CO_2	Percent O_2+CO_2	Percent O_2	Percent N_2	Dry Mol. Weight	F_o	Method of Analysis: CEM
2	1							
	2							
	3							
	Avg.							
CEM or Other Avg:		0.1		21.5	78.43904	28.87141		☐ Fo value within expected range.

Run Number	Trial	Percent CO_2	Percent O_2+CO_2	Percent O_2	Percent N_2	Dry Mol. Weight	F_o	Method of Analysis: CEM
4	1							
	2							
	3							
	Avg.							
CEM or Other Avg:		0.1		20.9	78.98269	28.85055		☐ Fo value within expected range.

Run Number	Trial	Percent CO_2	Percent O_2+CO_2	Percent O_2	Percent N_2	Dry Mol. Weight	F_o	Method of Analysis: CEM
6	1							
	2							
	3							
	Avg.							
CEM or Other Avg:		0.0		21.0	78.99163	28.84371		☐ Fo value within expected range.

Run Number	Trial	Percent CO_2	Percent O_2+CO_2	Percent O_2	Percent N_2	Dry Mol. Weight	F_o	Method of Analysis:
	1							
	2							
	3							
	Avg.							
CEM or Other Avg:								☐ Fo value within expected range.

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USEPA Method 4 Laboratory Data

Location:	TE Outlet	Test Method:	USEPA Method 5/29
Client:	SIMS Metal Management	Analyte:	FPM/Metals
Project No:	13318	Analyst:	E. Doak
		Analyst Emp No:	349

Test Run: 2

	Contents	Gross (gm)	Tare (gm)	Net (gm)
Impinger 1	Empty	530.1	446.8	83.3
Impinger 2	5%HNO3/10%H2O2	620.4	612.3	8.1
Impinger 3	5%HNO3/10%H2O2	612.3	611.4	0.9
Impinger 4	Empty	510.0	509.1	0.9
Impinger 5	4%KMnO4/10%H2SO4	646.0	607.9	38.1
Impinger 6	4%KMnO4/10%H2SO4	608.6	645.0	-36.4
Impinger 7	Silica Gel	766.1	759.6	6.5
Impinger 8				

Rinse: 50.0 (ml or gm)

94.9	Liquid (gm)	*Field Data Check*	
-50.0	less rinse (gm)		
44.9	Net Liquid (gm)	44.9	☑QA/QC OK
+ 6.5	Silica Gel (gm)	6.5	☑QA/QC OK
51.4	Total Vlc (gm)	51.4	☑QA/QC OK

Test Run: 4

	Contents	Gross (gm)	Tare (gm)	Net (gm)
Impinger 1	Empty	552.4	447.6	104.8
Impinger 2	5%HNO3/10%H2O2	628.1	617.1	11.0
Impinger 3	5%HNO3/10%H2O2	614.3	613.0	1.3
Impinger 4	Empty	511.6	510.8	0.8
Impinger 5	4%KMnO4/10%H2SO4	648.1	646.6	1.5
Impinger 6	4%KMnO4/10%H2SO4	607.0	606.1	0.9
Impinger 7	Silica Gel	774.5	765.3	9.2
Impinger 8				

Rinse: 50.0 (ml or gm)

120.3	Liquid (gm)	*Field Data Check*	
-50.0	less rinse (gm)		
70.3	Net Liquid (gm)	70.3	☑QA/QC OK
+ 9.2	Silica Gel (gm)	9.2	☑QA/QC OK
79.5	Total Vlc (gm)	79.5	☑QA/QC OK

Test Run: 6

	Contents	Gross (gm)	Tare (gm)	Net (gm)
Impinger 1	Empty	534.3	446.6	87.7
Impinger 2	5%HNO3/10%H2O2	716.2	707.6	8.6
Impinger 3	5%HNO3/10%H2O2	614.8	612.6	2.2
Impinger 4	Empty	510.7	510.1	0.6
Impinger 5	4%KMnO4/10%H2SO4	648.1	646.9	1.2
Impinger 6	4%KMnO4/10%H2SO4	610.6	609.4	1.2
Impinger 7	Silica Gel	784.9	774.1	10.8
Impinger 8				

Rinse: 50.0 (ml or gm)

101.5	Liquid (gm)	*Field Data Check*	
-50.0	less rinse (gm)		
51.5	Net Liquid (gm)	51.5	☑QA/QC OK
+ 10.8	Silica Gel (gm)	10.8	☑QA/QC OK
62.3	Total Vlc (gm)	62.3	☑QA/QC OK

Test Run:

	Contents	Gross (gm)	Tare (gm)	Net (gm)
Impinger 1	Empty			
Impinger 2	5%HNO3/10%H2O2			
Impinger 3	5%HNO3/10%H2O2			
Impinger 4	Empty			
Impinger 5	4%KMnO4/10%H2SO4			
Impinger 6	4%KMnO4/10%H2SO4			
Impinger 7	Silica Gel			
Impinger 8				

Rinse: (ml or gm)

	Liquid (gm)	*Field Data Check*	
	less rinse (gm)		
	Net Liquid (gm)		☐QA/QC OK
	Silica Gel (gm)		☐QA/QC OK
	Total Vlc (gm)		☐QA/QC OK

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End of Appendix