

**Air Liquide Rodeo Hydrogen Plant  
Title V Semi-Annual Monitoring Report**

**Site ID:** B7419  
**Address:** 1391 San Pablo Avenue  
 Rodeo, CA 94572

**Date:** March 30, 2014  
**Period:** September 1, 2013 to February 28, 2014

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<b>Source: All Sources</b>									
1	SO2	BAAQMD 9.1-301 BAAQMD Condition 23181, part A.2	Y		Ground level SO2 concentrations (0.5 ppm for 3 min; 0.25 ppm for 60 min; 0.05 ppm for 24 hr)	9-1-501 requires compliance with BAAQMD 1-510 BAAQMD Condition 23181, part A.2	C	SO2 GLM	Y
2	NH3	BAAQMD Condition 23181, part A.2	Y		Ammonia solution less than 20% by weight	BAAQMD Condition 23181, part A.2	P/E	Records	Y
3	Organic compounds	BAAQMD 8.2-301	Y		Emission streams with 15 lb/day AND 300 ppm total carbon on a dry basis prohibited	None	N	None	Y
<b>Source: S1 - Hydrogen Plant</b>									
1	POC	BAAQMD 8-10-301 BAAQMD Condition 23178, part 4	Y		Abatement of emissions from process vessel depressurization is required until pressure is reduced to less than 1000 mm Hg	8-10-401.2 (SIP) and 8-10-501 & 502 (non-SIP) BAAQMD Condition 23178, part 9a	P/E	Records	Y
2	POC	BAAQMD Condition 23178, part 6	Y		Deaerator vent POC emissions < 4.35 lb/day	BAAQMD Condition 23178, part 18	P/A	Source test Inspection and calculations	Y
3	POC	BAAQMD Condition 23178, part 6	Y		Fugitive mass emissions < 3,000 lb/yr	BAAQMD Condition 23178, part 18	P/Q	calculations	Y
4	POC	BAAQMD Condition 23181, part 2d	Y		13.9 tons per year for S1, S2, and S3	BAAQMD Condition 23181, part 4	P/A	Annual source tests, inspection data, and calculations	Y
5	Organic compounds	BAAQMD 8-2-301 BAAQMD Condition 23178, part 1	Y		Emission streams with 15 lb/day AND 300 ppm total carbon on a dry basis prohibited	BAAQMD Condition 23178, part 9a BAAQMD Condition 23178, part 1	P/A	Source test	Y
6	Throughput	BAAQMD Condition 23178, part 1	Y		120 MMsct H2/day, annual average	BAAQMD Condition 23178, part 1	P/D	Records	Y
7	NH3	BAAQMD 7-303 BAAQMD Condition 23178, part 5	N		5000 ppm	BAAQMD Condition 23178, part 9b	P/A	Source test	Y
8	NH3	BAAQMD Condition 23178, part 5	N		0.64 lb/hr	BAAQMD Condition 23178, part 9b	P/A	Source test	Y
9	Electrical production	BAAQMD Condition 23178, part 2	Y		< 12 MW	BAAQMD Condition 23178, part 2	C	Records	Y
10	Hydrogen production	BAAQMD Condition 23178, part 1	Y		120 MMsct H2/day	BAAQMD Condition 23178, part 1	C	Hydrogen flow monitoring	Y
11	NOx	BAAQMD Condition 23181, part 2a	Y		30.9 tons per year for S1, S2, and S3	BAAQMD Condition 23181, part 4	P/A	CEM data and calculations	Y

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12	SO <sub>2</sub>	BAAQMD Condition 23181, part 2b	Y		5.0 tons per year for S1, S2, and S3	BAAQMD Condition 23181, part 4	P/A	CEM and calculations Annual source test at S2 and calculations	Y
13	PM <sub>10</sub>	BAAQMD Condition 23181, part 2c	Y		13.8 tons per year for S1, S2, and S3	BAAQMD Condition 23181, part 4	P/A	CO CEM, annual source tests, and calculations	Y
14	CO	BAAQMD Condition 23181, part 2e	Y		46.2 tons per year for S1, S2, and S3	BAAQMD Condition 23181, part 4	P/A	Annual source tests, and calculations	Y
15	Sulfuric acid mist	BAAQMD Condition 23181, part 2f	Y		0.43 tons per year for S1, S2, and S3	BAAQMD Condition 23181, part 4	P/A	Annual source tests, and calculations	Y
<b>Source: S2 - Hydrogen Plant Furnace</b>									
1	Heat input	BAAQMD Condition 23179, part 2	Y		9,636,000 MMBtu (HHV) in any 12 months	BAAQMD Condition 23179, part 20	C	Fuel meters, fuel analyzers, and records	Y
2	Heat input	BAAQMD Condition 23179, part 3	Y		1,072 MMBtu (HHV) during any clock hour 5 ppmv @ 3% O <sub>2</sub> on a clock hour basis except during startup, shutdown, or drying of refractory	BAAQMD Condition 23179, part 20	C	Fuel meters, fuel analyzers, and records	Y
3	NOx	BAAQMD Condition 23179, part 5a	Y		7.5 lb/clock hour except during startup, shutdown, or drying of refractory	BAAQMD Condition 23179, part 13	C	CEM	Y
4	NOx	BAAQMD Condition 23179, part 7a.1	Y		50 lb per clock hour	BAAQMD Condition 23179, part 13	C	CEM	Y
5	NOx	BAAQMD Condition 23179, part 7b	Y		28.1 tons per any consecutive 12 months	BAAQMD Condition 23179, part 13	C	CEM	Y
6	NOx	BAAQMD Condition 23179, part 10a	Y		30.9 tons per year for S1, S2, and S3	BAAQMD Condition 23181, part 4	P/A	CEM data and calculations	Y
7	NOx	BAAQMD Condition 23181, part 2a	Y		40 ppmv, dry, @ 0% O <sub>2</sub> on a 24-hr rolling average basis	BAAQMD Condition 23181, part 4	P/A	CEM	Y
8	NOx	40 CFR 60.102a(g)(2)	Y		10 ppmv @ 3% O <sub>2</sub> on a clock hour basis except during startup, shutdown, or drying of refractory	40 CFR 60.107a(g)	C	CEM	Y
9	CO	BAAQMD Condition 23179, part 5b				BAAQMD Condition 23179, part 19b	C	CEM	Y
10	CO	BAAQMD Condition 23179, part 7a.2	Y		9.1 lb/clock hour except during startup, shutdown, or drying of refractory	BAAQMD Condition 23179, part 19b	C	CEM	Y

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11	CO	BAAQMD Condition 23179, part 10b	Y		34.2 tons per any consecutive 12 months	BAAQMD Condition 23179, part 19b	C	CEM	Y
12	CO	BAAQMD Condition 23181, part 2e	Y		46.2 tons per year for S1, S2, and S3	BAAQMD Condition 23181, part 4	P/A	CO CEM, annual source tests, and calculations	Y
13	SO2	BAAQMD Condition 23179, part 5e	Y		0.0012 lb/MMbtu on a clock hour basis except during startup, shutdown, or drying of refractory	BAAQMD Condition 23179, part 17	P/A	Source test	Y
14	SO2	BAAQMD Condition 23179, part 7a.5	Y		1.5 lb/clock hour except during startup, shutdown, or drying of refractory	BAAQMD Condition 23179, part 17	P/A	Source test	Y
15	SO2	BAAQMD Condition 23179, part 10	E		5.0 tons per any consecutive 12 months	BAAQMD Condition 23179, part 17	P/A	Source test	Y
16	SO2	BAAQMD Condition 23181, part 2b	Y		5.0 tons per year for S1, S2, and S3	BAAQMD Condition 23181, part 4	P/A	Sulfur monitoring or CEM and calculations	Y
17	SO2	40 CFR 60.102a(g) (1)	Y		20 ppmvd @ 0% O2 on a rolling 3 clock hour basis; 8 ppmvd @ 0% O2 on a rolling 365 calendar day basis	40 CFR 60.107a(e)(1)	C	CEM	Y
18	Sulfuric acid mist	BAAQMD Condition 23179, part 9	Y		0.098 lb/clock hour	BAAQMD Condition 23179, part 17	P/A	Source test	Y
19	Sulfuric acid mist	BAAQMD Condition 23179, part 12	Y		860 lb per any consecutive 12 months	BAAQMD Condition 23179, part 17	P/A	Annual source tests, and calculations	Y
20	Sulfuric acid mist	BAAQMD Condition 23181, part 2f	Y		0.43 tons per year for S1, S2, and S3	BAAQMD Condition 23181, part 4	P/A	Annual source tests, and calculations	Y
21	Sulfuric acid mist	BAAQMD Condition 23181, part 3	Y		2.35 lb/day for S1, S2, and S3	BAAQMD Condition 23181, part 4	P/A	Annual source tests and calculations	Y
22	POC	BAAQMD Condition 23179, part 5c	Y		0.0027 lb/MMbtu on a clock hour basis except during startup, shutdown, or drying of refractory	BAAQMD Condition 23179, part 17	P/A	Source test	Y
23	POC	BAAQMD Condition 23179, part 7a.3	Y		3.5 lb/clock hour except during startup, shutdown, or drying of refractory	BAAQMD Condition 23179, part 17	P/A	Source test	Y
24	POC	BAAQMD Condition 23179, part 10c	Y		11.5 tons per any consecutive 12 months	BAAQMD Condition 23179, part 17 and 23181, part B.4.f	P/A	Source test	Y

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25	POC	BAAQMD Condition 23181, part 2d BAAQMD Condition 23179, parts 6 and 21	Y		13.9 tons per year for S1, S2, and S3	BAAQMD Condition 23181, part 4 BAAQMD Condition 23179, part 17a	P/A	Annual source tests, inspection data, and calculations	Y
26	NH3	BAAQMD Condition 23179, parts 6 and 21	N		10 ppmv @ 3% O2, 1-hr average	BAAQMD Condition 23179, part 17a	P/A	Source test	Y
27	NH3	N/A	N		None	BAAQMD Condition 23179, part 22 BAAQMD Condition 23179, part 17a	C	Monitoring of ammonia injection rates	Y
28	NH3	BAAQMD Condition 23179, part 8	N		6.5 lb/clock hour	BAAQMD Condition 23179, part 17a	P/A	Source test	Y
29	NH3	BAAQMD Condition 23179, part 11	N		48,200 lb per any consecutive 12 months	BAAQMD Condition 23179, part 23	P/A or 4 times per year	Annual or quarterly source tests and calculations	Y
30	NH3	BAAQMD Condition 23181, part 2g	N		26.9 tons per year for S1, S2, and S3	BAAQMD Condition 23181, part 4	P/A	Ammonia injection and heat input monitoring	Y
31	O2		Y		No limit	BAAQMD 1-520.1	C	O2 Monitor	Y
32	Opacity	BAAQMD 6-1-301	N		Ringelmann 1 for no more than 3 minutes in any hour	None	N	None	Y
33	Opacity	SIP 6-301	Y		Ringelmann 1 for no more than 3 minutes in any hour	None	N	None	Y
34	FP	BAAQMD 6-1-305	N		Prohibition of nuisance	None	N	None	Y
35	FP	SIP 6-305	Y		Prohibition of nuisance	None	N	None	Y
36	FP	BAAQMD 6-1-310.3	N		0.15 grains/dscf @ 6% O2	None for gaseous fired sources	N	None	Y
37	FP	SIP 6-310.3	Y		0.15 grains/dscf @ 6% O2	None for gaseous fired sources	N	None	Y
38	PM10	BAAQMD Condition 23179, part 5d			0.037 lb/Mmbtu on a clock hour basis except during startup, shutdown, or drying of refractory	BAAQMD Condition 23179, part 17	P/A	Source test	Y
39	PM10	BAAQMD Condition 23179, part 7a.4	Y		4.8 lb/clock hour except during startup, shutdown, or drying of refractory	BAAQMD Condition 23179, part 17	P/A	Source test	Y
40	PM10	BAAQMD Condition 23179, part 10d	Y		13.8 tons per any consecutive 12 months	BAAQMD Condition 23179, part 17, and part 28181, part B.4.f	P/A	Source test and calculations	Y

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<b>Source: S3 - Hydrogen Plant Flare</b>									
1	Opacity	BAAQMD 6-1-301	N		Ringelmann 1 for no more than 3 minutes in any hour	BAAQMD Condition 23180, parts 8-10	P/E	Visible emissions monitoring	Y
2	Opacity	SIP 6-301	Y		Ringelmann 1 for no more than 3 minutes in any hour	BAAQMD Condition 23180, parts 8-10	P/E	Visible emissions monitoring	Y
3	FP	BAAQMD 6-1-305	N		Prohibition of nuisance	None	N	None	Y
4	FP	SIP 6-305	Y		Prohibition of nuisance	None	N	None	Y
5	FP	BAAQMD 6-1-310.3	N		0.15 grains/dscf @ 6% O <sub>2</sub>	None for gaseous fired sources	N	None	Y
6	FP	SIP 6-310.3	Y		0.15 grains/dscf @ 6% O <sub>2</sub>	None for gaseous fired sources	N	None	Y
7	SO <sub>2</sub>	60.100a(g)(1)	Y		(Standard stayed until further notice)	Exemption from monitoring for gas streams from hydrogen plants	N	None	Y
8	NO <sub>x</sub>	BAAQMD Condition 23180, part 4a	Y		2.8 tons per any consecutive 12 months	BAAQMD Condition 23180, part 5	P/M	Flow data and calculations	Y
9	NO <sub>x</sub>	BAAQMD Condition 23180, part 4c	Y		129 lb per any consecutive 60 minutes	BAAQMD Condition 23180, part 5	P/M	Flow data and calculations	Y
10	NO <sub>x</sub>	BAAQMD Condition 23181, part 2a	Y		30.9 tons per year for S1, S2, and S3	BAAQMD Condition 23181, part 4	P/A	CEM data and calculations	Y
11	POC	BAAQMD Condition 23181, part 2d	Y		13.9 tons per year for S1, S2, and S3	BAAQMD Condition 23181, part 4	P/A	Annual source tests, inspection data, and calculations	Y
12	PM <sub>10</sub>	BAAQMD Condition 23181, part 2c	Y		13.8 tons per year for S1, S2, and S3	BAAQMD Condition 23181, part 4	P/A	Annual source test at S2 and calculations	Y
13	CO	BAAQMD Condition 23180, part 4b	Y		12.1 tons per any consecutive 12 months	BAAQMD Condition 23180, part 5	P/M	Flow data and calculations	Y

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14	CO	BAAQMD Condition 23181, part 2e	Y		46.2 tons per year for S1, S2, and S3	BAAQMD Condition 23181, part 4	P/A	CO CEM, annual source tests, and calculations	Y
15	SO2	BAAQMD Condition 23181, part 2b	Y		5.0 tons per year for S1, S2, and S3	BAAQMD Condition 23181, part 4	P/A	Sulfur monitoring or CEM and calculations	Y
16	Sulfuric acid mist	BAAQMD Condition 23181, part 2F	Y		0.43 tons per year for S1, S2, and S3 No visible emissions except for 5 min in any two hours	BAAQMD Condition 23181, part 4	P/A	annual source tests, and calculations	Y
17	VE	40 CFR 60.18(c)(1)	Y			40 CFR 60.18(f)(1)	P/E	Method 22	Y
18	Presence of flame	40 CFR 60.18(c)(2)	Y		Flame present at all times	40 CFR 60.18(f)(2)	C	Thermocouple or equivalent device	Y
19	Velocity and heat content requirements	40 CFR 60.18(c)(3) (i) -- OR -- 40 CFR 60.18(c)(3) (ii) & (c)(4)(i) - OR -- 40 CFR 60.18(c)(3) (iii) & (c)(4)(ii)			1) If hydrogen content is equal to or greater than 8% by volume, velocity must be less than 122 ft/sec and less than Vmax; OR; 2) Net heating value of gas greater than 300 btu/scf and less than 1000 btu/scf and velocity less than 60 ft/sec; OR 3) Net heating value of gas greater than 1000 btu/scf and velocity greater than 60 ft/sec and less than 400 ft/sec	40 CFR 60.18(f)(3), (4), and 5	C	Volume measurements gas analysis	Y
<b>Source: S4 - Cooling Tower</b>									
1	Opacity	BAAQMD Regulation 6-1-301	N		Ringelmann No. 1 for no more than 3 minutes/hour	None	N	None	Y
2	Opacity	SIP 6-301	Y		Ringelmann 1 for no more than 3 minutes in any hour	None	N	None	Y
3	FP	BAAQMD 6-1-310	N		0.15 grains/dscf	None	N	None	Y
4	FP	SIP 6-310	Y		0.15 grains/dscf	None	N	None	Y
5	FP	BAAQMD 6-1-311	N		4.0 lb/hr	None	N	None	Y
6	FP	SIP 6-311	Y		4.10P0.67 lb/hr, where P is process weight, lb/hr	None	N	None	Y
7	PM	BAAQMD Condition 23414, part 2	Y		Dissolved solids < 3000 ppm	BAAQMD Condition 23414, part 6	P/M	Analysis total dissolved solids	Y

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8	Organic compounds	BAAQMD 8-2-301	Y		300 ppm as carbon and 15 lb organic compounds/day	BAAQMD Condition 23414, part 3	P/D	Visual inspection	Y
9	Organic compounds	BAAQMD 8-2-301	Y		300 ppm as carbon and 15 lb organic compounds/day	BAAQMD Condition 23414, part 4	P/3 times per week	Analysis of chlorine content	Y
10	Organic compounds	BAAQMD 8-2-301	Y		300 ppm as carbon and 15 lb organic compounds/day	BAAQMD Condition 23414, part 4	P/M	Analysis of VOC content	Y
11	Organic compounds	BAAQMD 8-2-301	Y		300 ppm as carbon and 15 lb organic compounds/day	BAAQMD Condition 23414, part 8 BAAQMD Condition 23414, part 5	P/M, after indication of hydrocarbon leak P/M	Estimate of daily VOC loss Records of NaOCl usage	Y
12	Chloroform				None				Y
<b>Source: Components</b>									
1	POC	BAAQMD 8-18-301	Y		General equipment leak < 100 ppm	BAAQMD 8-18-401.2	P/Q	Inspection	Y
2	POC	BAAQMD 8-18-302	Y		Valve leak < 100 ppm	BAAQMD 8-18-401.2	P/Q	Inspection	Y
3	POC	BAAQMD 8-18-303	Y		Pump and compressor leak < 500 ppm	BAAQMD 8-18-401.2 BAAQMD 8-18-401.2e & BAAQMD Condition 23178, part 18	P/Q	Inspection	Y
4	POC	BAAQMD 8-18-304	Y		Connection leak < 100 ppm	BAAQMD 8-18-401.2	P/Q	Inspection	Y
5	POC	BAAQMD 8-18-305	Y		Pressure relief valve leak < 500 ppm	BAAQMD 8-18-401.2	P/Q	Inspection	Y
6	POC	BAAQMD 8-18-306.1	Y		Valve, pressure relief, pump or compressor must be repaired within 5 years or at the next scheduled turnaround	BAAQMD 8-18-502.4	P/quarterly	Report	Y
7	POC	BAAQMD 8-18-306.2	Y		Awaiting repair Valves: < 0.5% Pressure Relief < 1% Pump and Connector < 1%	BAAQMD 8-18-401.5	P/within 24 hours	Inspection	Y
8	POC	BAAQMD 8-18-306.3.2	Y		Mass emissions & non-repairable equipment allowed: Valve < 0.1 lb/day & <1.0%; Pressure Relief < 0.2 lb/day & < 5%; and Pump and Connector < 0.2 lb/day & < 5%	BAAQMD 8-18-401.3	P/D	Inspection	Y
9	POC	BAAQMD 8-18-306.3.3	Y		Total valve, pressure relief, pump or compressor leaks > 15 lb/day, they must be repaired within 7 days	BAAQMD 8-18-502.4	P/Q	Sampling or equivalent	Y
10	POC	BAAQMD 8-28-303	Y		Vent Pressure Relief Devices to an Abatement Device with at least 95% by weight control efficiency or Meet Prevention Measures Procedures	BAAQMD 8-28-405	P/turn-around	None	Y

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11	POC	BAAQMD 8-28-304	Y		PHA within 90 days and meet Prevention Measures Procedures. After 2nd release Vent Pressure Relief Devices to an Abatement Device with at least 95% by weight control efficiency.	BAAQMD 8-28-405	P/prelease per 5 calendar year	None	Y
12	POC	40 CFR 60 Subpart VVa -60.482-2a (b)(1)	Y		Pump leak less than 2,000 ppm	40 CFR 60.482-2a (a)(1)	P/M	Measure for leaks	Y
13	POC	40 CFR 60 Subpart VVa -60.482-2a (b)(2)	Y		Pump leak indicated by dripping liquid	40 CFR 60.482-2a (a)(2)	P/W	Visual Inspection	Y
14	POC	40 CFR 60 Subpart VVa -60.482-2a (e)	Y		Designated "No detectable emissions" less than 500 ppm	40 CFR 60.482-2(e)(3)	P/A	Measure for leaks	Y
15	POC	40 CFR 60 Subpart VVa -60.482-3a (f)	Y		Leak is failure of seal or barrier system	40 CFR 60.482-3a(d)-(f)	C	Sensor for detection of seal or barrier system failure	Y
16	POC	40 CFR 60 Subpart VVa -60.482-7a (b)	Y		Valve leak > 500 ppm	40 CFR 60.482-7a (a)(1)	P/M unless 2 successive months w/o leak	Measure for leaks	Y
17	POC	40 CFR 60 Subpart VVa -60.482-7a	Y		Valve leak < 500 ppm; 2 successive months w/o leaking	40 CFR 60.482-7(c)	P/Q unless leak found, then monthly monitoring	Measure for leaks	Y
18	POC	40 CFR 60 Subpart VVa -60.482-7(f)	Y		Designated "No detectable emissions" < 500 ppm	40 CFR 60.482-7 (f)(3)	P/A	Measure for leaks	Y
19	POC	40 CFR 60 Subpart VVa -60.482-8a(a)	Y		Pumps and valves in heavy liquid service, Pressure Relief devices (light or heavy liquid), Flanges, Connectors leak shall be measured for leak in 5 days if detected by inspection	40 CFR 60.482-8a(a)	P/E	Visible, Audible, or olfactory inspection	Y
20	POC	40 CFR 60 Subpart VVa -60.482-8a(b)	Y		Pressure Relief devices (liquid), Flanges, Connectors leak > 10,000 ppm	40 CFR 60.482-8a(a)	P/E	Measure for leaks	Y
21	POC	BAAQMD Condition 23178, part 6	Y		Fugitive emissions of POC from hydrogen plant components < 3,000 lb/yr	BAAQMD Condition 23178, part 18	P/Q	Method 21 and calculations	Y
22	TOC	BAAQMD Condition 23178, part 11b	Y		< 100 ppm of TOC (measured as C1) at valves	BAAQMD Condition 23178, part 17	P/Q	Method 21	Y
23	TOC	BAAQMD Condition 23178, part 15	Y		< 100 ppm of TOC (measured as C1) at pumps and compressors	BAAQMD Condition 23178, part 17	P/Q	Method 21	Y



**Air Liquide Rodeo Hydrogen Plant  
Title V Semi-Annual Monitoring Report**

**Site ID:** B7419  
**Address:** 1391 San Pablo Avenue  
 Rodeo, CA 94572

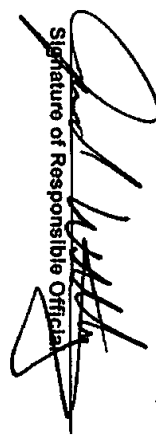
**Date:** March 30, 2014  
**Period:** September 1, 2013 to February 28, 2014

During the reporting period specified above, all required monitoring of the applicable limits as listed in Section VII of the Title V Major Facility Review Permit was conducted, except where indicated below. If a "No" is indicated in the column "Monitoring Compliance (Y or N)," see Attachment A for the deviation details.

E.g. Type of Limit	Emission Limit Citation	FE <sup>1</sup> Future Effective Y/N? Date	Emission Limits	Monitoring Requirements Citation	Monitoring Frequency <sup>2</sup> (P/C/N)	Monitoring Type	Monitoring Compliance <sup>3</sup> Y or N?
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<sup>1</sup> FE = Federally enforceable  
<sup>2</sup> Monitoring Frequency: P = Periodic; C = Continuous; N = None; Under Periodic: A = Annual; Q = Quarterly; M = Monthly; W = Weekly; D = Daily; H = Hourly; E = Per Event  
<sup>3</sup> Monitoring Compliance: Y = All required monitoring of the applicable limit was conducted; N = Not all required monitoring of the applicable limit was conducted. See noted deviation in Attachment A for details.

I certify under penalty of law that based on the information and belief formed after reasonable inquiry, the statements and information in this document and in all attachments and other materials are true, accurate, and complete.

  
 Signature of Responsible Official

Jared Wittry  
 Print Name

Plant Manager  
 Title

3/29/14  
 Date