DOCKETED	
Docket Number:	85-AFC-01C
Project Title:	Compliance - Watson Cogeneration Company AFC
TN #:	226423
Document Title:	Quarterly Emission Report- Fourth Quarter of 2018
Description:	The report contains emission limits, daily fuel and ammonia usage, daily emissions, and emissions during start up mode.
Filer:	Anwar Ali
Organization:	Watson Cogen Company
Submitter Role:	Applicant
Submission Date:	1/31/2019 12:16:02 PM
Docketed Date:	1/31/2019

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VIA EMAIL

January 29th, 2019

Mr. Anwar Ali
Compliance Project Manager
California Energy Commission
1516 9th Street, MS-2000
Sacramento, California 95814-5512

Subject: **Watson Cogeneration Company (Facility #06755)**
Quarterly Emissions Report – AQ 28 – 4th Quarter 2018
Submittal # 389

Dear Mr. Ali:

Attached is Watson Cogeneration Company's (Facility #06755) Quarterly Emissions Report for the fourth quarter of 2018. The report contains a table of emission limits (Table 1), a table of daily fuel and ammonia usage (Table 2A), a table of daily emissions (Table 2B), and a table of emissions during start up mode (Table 2C) for each of the site's four gas turbines. A CEC permit has been issued for a fifth train, but it has been removed from Table 1 since the unit has not been built. Along with the quarterly emissions report, please find copies of the last sulfur content analysis in the quarter for our refinery fuel gas and butane.

During the fourth quarter of 2018, Watson Cogeneration Company (WCC) experienced three breakdown events.

WCC experienced a breakdown event on November 29, 2018 resulting in the violation of CEC permit conditions AQ-13, AQ-15 and AQ-17. An AQMD breakdown notification was made and a subsequent report was submitted on December 21, 2018. The AQMD breakdown report is attached to this CEC report.

WCC experienced a breakdown event on December 1, 2018 resulting in the violation of CEC permit condition AQ-17. An AQMD breakdown notification was made and a subsequent report was submitted on December 21, 2018. The AQMD breakdown report is attached to this CEC report.

WCC experienced a breakdown event on December 18, 2018 resulting in the violation of CEC permit conditions AQ-13, AQ-15 and AQ-17. An AQMD breakdown notification was made and a subsequent report was submitted on January 17, 2019. The AQMD breakdown report is attached to this CEC report.

If you have any questions concerning this report, please do not hesitate to contact the undersigned.

Sincerely,

Michael Alexander
Cogen Operations Engineer

bcc: Connie Chow, Andeavor Los Angeles Refinery
Jimmie Espie, WCC
Hakan Civan, WCC

Table 1

Emission Limits as required by the California Energy Commission Conditions of Certification

Turbine Number	Concentration Limits (ppmv @ 15% O2)				Maximum Daily Emission Limits [4] (lbs/day)					Start-Up/Shutdown Emission Limits [5] (lbs/day)				
	NO_X	SO_2	CO	NH_3	NO_X	SO_2	CO	PM	ROG	NO_X	SO_2	CO	PM	ROG
1 - 4	8	2	2.5 [1] 4.5 [2]	20	2600	246	568	1244	531	2156	59	82	186	108
5	5	---	2.5 [3]	20	209	10	64	95	18	449	8	296	92	32

Notes:

1. Limit applies when turbine is operated at or above 85% capacity, except during startup and shutdown.
2. Limit applies when turbine is operated below 85% capacity, except during startup and shutdown.
3. Limit applies when turbine is operated at or above 50% capacity.
4. Limits do not apply on days when a start-up or shutdown has occurred. Limits pertain to combined emissions from Units 1-4.
5. Limits apply only on days when a start-up or shutdown has occurred. Limits pertain to stack emissions from individual Units.

Table 2A

Daily Fuel & Ammonia Usage

Date	Unit Start-Up or Shutdown	Fuel Usage - By Unit (mmbtu/hr)					Fuel Usage - By Fuel Type (mmbtu/hr)			Ammonia Usage - By Unit (lbs/day)			
		GTG #1	GTG #2	GTG #3	GTG #4	Boiler #42	Natural Gas	Refinery Gas	Butane	GTG #1	GTG #2	GTG #3	GTG #4
10/1/18	Y	1048	1133	1079	817	0	3166	818	93	1872	2201	1969	1319
10/2/18		1026	1115	1053	1044	0	3242	902	94	1759	2196	1853	1684
10/3/18		1062	1131	1071	1050	0	3195	979	140	1649	2197	1757	1652
10/4/18		1065	1137	1076	1063	0	3357	868	116	1657	2112	1715	1679
10/5/18		1058	1124	1066	1050	0	3306	870	123	1673	2128	1751	1729
10/6/18		1023	1082	1023	1002	0	3147	839	144	1744	2201	1849	1821
10/7/18		1015	1076	1016	999	0	3206	768	132	1777	2201	1879	1830
10/8/18	Y	1072	881	1092	1073	0	3156	845	117	1768	1601	1943	1888
10/9/18		1044	1102	1057	1035	0	3690	421	127	1557	2164	1716	1682
10/10/18		1038	1096	1051	1032	0	3644	460	114	1616	2205	1780	1722
10/11/18		1039	1103	1056	1037	0	3602	519	113	1724	2201	1795	1793
10/12/18	Y	908	1090	1041	1025	0	3384	578	102	1914	2201	1759	1631
10/13/18		0	1180	1106	1115	0	2705	636	67	1106	2201	2153	1957
10/14/18		0	1182	1104	1114	0	2793	548	66	0	2201	2349	2167
10/15/18		0	1217	1153	1156	0	2912	559	65	0	2201	2362	2214
10/16/18		0	1199	1126	1138	0	2854	552	67	0	2280	2356	2349
10/17/18		0	1202	1121	1139	0	2908	507	48	0	2201	2193	2030
10/18/18		0	1209	1132	1153	0	2542	907	44	0	2201	2279	2177
10/19/18		0	1236	1160	1180	0	2897	633	46	0	2209	2362	2332
10/20/18		0	1191	1101	1126	0	2753	616	49	0	2284	2362	2362
10/21/18		0	1182	1097	1116	0	2776	566	53	0	2240	2250	2142
10/22/18		0	1201	1117	1135	0	2877	526	50	0	2201	2103	1922
10/23/18		0	1211	1123	1146	0	2944	493	42	0	2201	2059	1869
10/24/18		0	1209	1125	1143	0	2809	619	60	0	2201	2306	2100
10/25/18		0	1204	1117	1138	0	2770	640	60	0	2201	2084	1883
10/26/18		0	1201	1115	1140	0	2883	534	48	0	2201	2058	1886
10/27/18		0	1174	1087	1109	0	2793	535	50	0	2201	2104	1890
10/28/18		0	1170	1085	1105	0	2818	496	54	0	2201	2120	1906
10/29/18		0	1204	1123	1136	0	2931	479	63	0	2201	1934	1744
10/30/18		0	1218	1137	1153	0	2853	607	57	0	2201	1902	1733
10/31/18		0	1235	1149	1170	0	2970	541	53	0	2201	2092	1954
11/1/18		0	1248	1161	1182	0	3033	513	54	0	2201	2317	2304
11/2/18		0	1200	1118	1139	0	2907	511	49	0	2201	2149	2133
11/3/18		0	1176	1087	1111	0	2753	575	55	0	2201	2280	2141
11/4/18		0	1185	1095	1118	0	2809	541	58	0	2201	2206	2018
11/5/18		0	1227	1148	1158	0	3020	449	74	0	2201	2201	2014
11/6/18		0	1238	1148	1170	0	3046	456	63	0	2201	2150	1984
11/7/18		0	1213	1129	1152	0	2786	665	51	0	2201	2030	1892
11/8/18		0	1222	1138	1160	0	2953	523	53	0	2201	2016	1914
11/9/18		0	1208	1127	1151	0	2870	574	51	0	2201	2265	2237
11/10/18		0	1207	1111	1138	0	2864	548	52	0	2201	2362	2362
11/11/18		0	1201	1108	1133	0	2873	524	53	0	2201	2362	2363
11/12/18		0	1199	1105	1132	0	2881	510	54	0	2201	2362	2363
11/13/18		0	1182	1122	1133	0	2787	606	53	0	2201	2362	2363
11/14/18		0	1178	1125	1133	0	2977	419	48	0	2201	2295	2273
11/15/18		0	1208	1142	1150	0	2977	480	52	0	2201	2303	2262
11/16/18		0	1200	1134	1155	0	3086	355	57	0	2201	2218	2030
11/17/18		0	1215	1136	1153	0	3052	400	61	0	2201	2255	2040
11/18/18		0	1208	1132	1146	0	3004	440	51	0	2201	2176	2053
11/19/18		0	1231	1146	1169	0	2995	496	63	0	2201	2198	2068
11/20/18		0	1215	1128	1153	0	3023	423	58	0	2201	2264	2196
11/21/18		0	1210	1160	1177	0	3020	471	65	0	2201	1976	1715
11/22/18		0	1249	1182	1195	0	3164	398	73	0	2201	2068	1894
11/23/18		0	1250	1169	1184	0	3096	452	64	0	2201	2248	2280
11/24/18		0	1221	1173	1173	0	3028	478	69	0	2201	1976	2007
11/25/18		0	1240	1151	1151	0	2998	501	51	0	2201	2177	2286
11/26/18		0	1258	1170	1176	0	3140	444	53	0	2201	2331	2301
11/27/18	Y	424	1220	1159	1164	0	3409	469	89	616	2201	2217	2049
11/28/18		1105	1111	1069	1042	0	3785	391	152	1884	2201	1856	1625

Table 2A

Daily Fuel & Ammonia Usage

Date	Unit Start-Up or Shutdown	Fuel Usage - By Unit (mmbtu/hr)					Fuel Usage - By Fuel Type (mmbtu/hr)			Ammonia Usage - By Unit (lbs/day)			
		GTG #1	GTG #2	GTG #3	GTG #4	Boiler #42	Natural Gas	Refinery Gas	Butane	GTG #1	GTG #2	GTG #3	GTG #4
11/29/18	Y	724	1146	1098	1075	0	3532	367	144	1086	2201	1934	1813
11/30/18		1061	1106	1092	1065	0	3761	446	118	1909	2201	1795	1862
12/1/18	Y	807	1129	1067	1061	0	3613	343	107	1401	2201	2308	2162
12/2/18		0	1260	1150	1179	0	3057	478	59	0	2201	2362	2362
12/3/18	Y	191	1223	1142	1156	0	3274	348	91	427	2201	2345	2327
12/4/18		0	1272	1183	1199	0	3204	393	65	0	2201	2336	2311
12/5/18	Y	266	1251	1170	1182	0	3478	310	80	548	2201	2362	2363
12/6/18		1114	1151	1118	1091	0	3897	437	139	1677	2201	2063	2011
12/7/18		1049	1106	1070	1052	0	3848	340	91	1785	2201	1987	1798
12/8/18		1047	1097	1046	1034	0	3761	379	83	1830	2201	2361	2361
12/9/18		1048	1100	1047	1034	0	3759	382	88	1803	2201	2337	2319
12/10/18		1055	1109	1066	1063	0	3790	411	92	1757	2201	2168	2011
12/11/18		1057	1110	1071	1046	0	3907	289	87	1749	2201	1892	1847
12/12/18		1054	1118	1088	1052	0	3902	311	100	1762	2201	1862	1880
12/13/18		1098	1110	1057	1048	0	3869	322	121	1813	2201	2094	1929
12/14/18	Y	1131	1130	1108	974	0	3911	305	126	2036	2201	2166	1772
12/15/18		1266	1258	1228	0	0	3336	306	116	2240	2201	2310	0
12/16/18	Y	1186	1179	1139	463	0	3474	376	118	2086	2201	2134	665
12/17/18		1126	1125	1086	1098	0	3932	388	115	1707	2201	1718	1601
12/18/18		1101	1100	1055	1076	0	3876	369	88	1629	2201	1718	1557
12/19/18		1094	1085	1046	1068	0	3824	380	89	1781	2201	1727	1598
12/20/18		1088	1090	1043	1063	0	3830	354	99	1779	2201	1930	1951
12/21/18		1097	1090	1046	1062	0	3841	339	114	1593	2201	1779	1710
12/22/18		1074	1061	1034	1039	0	3886	226	96	1729	2201	1749	1809
12/23/18		1078	1067	1016	1032	0	3791	295	107	1729	2201	1949	1933
12/24/18		1088	1082	1044	1060	0	3760	403	111	1727	2201	1825	1716
12/25/18		1067	1076	1045	1059	0	3755	398	94	1890	2201	1891	1922
12/26/18		1093	1085	1045	1052	0	3793	364	117	1927	2201	2054	2119
12/27/18		1078	1078	1023	1047	0	3874	223	127	1934	2201	2203	2125
12/28/18		1090	1083	1054	1070	0	3910	262	125	2108	2201	2361	2362
12/29/18		1092	1084	1038	1064	0	3763	407	109	2064	2201	2363	2363
12/30/18		1079	1088	1060	1061	0	3778	378	131	1984	2201	2240	2275
12/31/18		1094	1098	1059	1075	0	3844	361	121	1946	2201	2138	2073

Table 2B

Daily Emissions

Date	Unit Start-Up or Shutdown	Total Mass Emissions - GTG's #1 - 4 Midnight - Midnight (lbs/day)				
		NOX	SO2	CO	PM [1]	ROG [1]
10/1/18	Y	1198.8	4.3	39.4	386.5	259.3
10/2/18		1118.9	2.8	36.1	401.9	269.6
10/3/18		1135.5	4.2	32.9	409.3	274.7
10/4/18		1109.8	3.2	42.7	411.6	276.1
10/5/18		1104.5	4.1	36.6	407.5	273.4
10/6/18		1086.1	3.6	37.3	391.6	262.8
10/7/18		1087.4	3.8	38.7	389.2	261.1
10/8/18	Y	1076.4	4.2	42.2	390.4	262.0
10/9/18		1176.1	4.8	68.0	400.9	268.7
10/10/18		1152.7	4.3	81.6	399.0	267.5
10/11/18		1173.3	3.4	98.7	400.7	268.6
10/12/18	Y	1143.9	4.8	65.4	384.8	258.0
10/13/18		1191.5	2.5	41.8	323.0	216.7
10/14/18		1064.4	2.3	60.2	322.7	216.4
10/15/18		1231.9	4.4	49.0	334.9	224.6
10/16/18		1112.6	2.6	31.3	328.9	220.5
10/17/18		1155.7	2.7	56.4	327.8	219.8
10/18/18		1283.1	4.3	38.8	331.5	222.6
10/19/18		1299.5	4.2	22.0	338.7	227.2
10/20/18		1288.7	3.1	16.7	323.9	217.2
10/21/18		1090.9	2.0	30.4	321.5	215.6
10/22/18		1117.2	2.0	61.4	327.0	219.2
10/23/18		1083.8	3.5	77.9	329.4	220.8
10/24/18		972.6	2.4	59.9	330.4	221.6
10/25/18		1064.2	3.3	61.0	328.7	220.5
10/26/18		1056.6	2.5	68.5	328.1	220.0
10/27/18		1108.5	3.2	44.5	320.0	214.6
10/28/18		1097.2	2.1	45.0	318.9	213.8
10/29/18		1119.8	3.5	65.0	328.7	220.4
10/30/18		1261.9	4.2	63.3	333.2	223.5
10/31/18		1291.0	3.5	75.3	337.4	226.2
11/1/18		1235.8	1.5	68.4	340.8	228.4
11/2/18		1113.8	1.7	91.6	328.2	220.1
11/3/18		1158.1	2.7	44.5	320.5	214.9
11/4/18		1116.4	2.3	46.4	322.7	216.4
11/5/18		1088.1	2.5	58.1	335.3	224.7

Table 2B
Daily Emissions

Date	Unit Start-Up or Shutdown	Total Mass Emissions - GTG's #1 - 4 Midnight - Midnight (lbs/day)				
		NOX	SO2	CO	PM [1]	ROG [1]
11/6/18		1195.0	4.2	68.5	337.4	226.2
11/7/18		1217.6	1.4	95.4	332.0	222.7
11/8/18		1340.5	4.2	88.4	334.1	224.0
11/9/18		1413.6	3.6	34.3	331.0	222.0
11/10/18		1358.2	3.3	43.8	328.0	219.9
11/11/18		1218.1	2.2	43.5	326.7	219.1
11/12/18		1217.7	3.3	29.6	326.2	218.7
11/13/18		1041.2	3.0	30.8	326.4	218.9
11/14/18		1167.0	3.3	47.1	325.9	218.4
11/15/18		1240.9	2.1	51.9	332.1	222.6
11/16/18		1113.9	2.2	47.7	330.8	221.7
11/17/18		1159.7	2.6	57.3	332.3	222.7
11/18/18		1099.2	3.0	70.4	330.7	221.7
11/19/18		1122.0	4.2	68.6	336.5	225.6
11/20/18		1063.6	4.3	58.5	331.6	222.2
11/21/18		1109.9	2.6	49.4	336.6	225.6
11/22/18		1376.3	3.5	42.0	343.9	230.5
11/23/18		1175.0	1.8	48.4	341.8	229.1
11/24/18		1234.8	3.9	53.0	338.4	226.8
11/25/18		1191.5	3.9	59.0	336.1	225.3
11/26/18		1306.2	5.4	57.6	344.1	230.6
11/27/18	Y	1348.4	3.8	67.5	375.4	251.6
11/28/18		1179.8	3.5	141.0	409.4	274.3
11/29/18	Y	1581.0	6.4	70.3	382.4	256.3
11/30/18		1191.8	3.4	127.6	409.1	274.2
12/1/18	Y	1194.1	4.2	84.9	384.2	257.5
12/2/18		1538.3	4.3	55.3	340.2	228.0
12/3/18	Y	1282.1	2.9	54.9	351.2	235.3
12/4/18		1434.6	4.0	35.7	346.3	232.1
12/5/18	Y	1394.3	3.8	70.5	365.7	245.0
12/6/18		1381.9	4.0	116.0	423.2	283.6
12/7/18		1142.3	2.8	112.6	404.5	271.0
12/8/18		978.3	2.5	134.0	399.3	267.6
12/9/18		989.5	1.9	124.9	399.9	267.9
12/10/18		1042.0	2.6	120.8	405.9	272.0
12/11/18		1055.7	1.5	125.5	404.9	271.2

Table 2B

Daily Emissions

Date	Unit Start-Up or Shutdown	Total Mass Emissions - GTG's #1 - 4 Midnight - Midnight (lbs/day)				
		NOX	SO2	CO	PM [1]	ROG [1]
12/12/18		1049.6	2.7	121.2	407.7	273.1
12/13/18		1056.5	2.3	92.3	407.8	273.2
12/14/18	Y	1101.3	3.5	72.3	410.5	275.0
12/15/18		1197.1	3.0	42.7	355.4	238.1
12/16/18	Y	1057.8	2.6	64.2	375.3	251.5
12/17/18		1052.5	2.0	82.2	419.4	281.1
12/18/18		1206.2	7.0	99.8	409.6	274.4
12/19/18		1190.4	6.8	104.7	405.9	272.0
12/20/18		1141.6	3.0	99.3	404.9	271.3
12/21/18		1119.8	1.9	111.3	406.0	272.0
12/22/18		1131.3	2.5	112.9	397.6	266.3
12/23/18		1125.0	2.5	119.0	396.3	265.5
12/24/18		1128.3	2.5	122.2	404.2	270.9
12/25/18		1265.2	3.8	95.6	401.6	269.1
12/26/18		1146.4	4.1	87.4	404.2	270.8
12/27/18		1153.9	2.6	101.8	399.3	267.4
12/28/18		1285.8	3.4	98.2	406.1	272.1
12/29/18		1254.5	2.7	98.0	404.7	271.2
12/30/18		1093.6	2.9	117.9	405.5	271.7
12/31/18		1206.2	4.0	105.2	409.1	274.1

1. PM & ROG emission estimates were calculated using fuel based emission factors and fuel usage data.

Fuel	PM	ROG
Natural Gas:	0.00393	0.00263
Refinery Gas:	0.00402	0.00272
Butane:	0.00402	0.00272

The foregoing fuel based emission factors have been updated based on 1997 & 1998 stack testing.

Table 2C
Daily Emissions for Individual Units during Startup

Date	Unit	Total Mass Emissions - GTG's #1				
	Start-Up	Midnight - Midnight				
	or Shutdown	(lbs/day)				
		NOX	SO2	CO	PM 1	ROG 1
10/12/18	Y	190.6	2.2	0.0	86.0	57.6
11/27/18	Y	124.0	1.4	12.6	40.2	26.9
11/29/18	Y	144.8	0.4	15.1	68.5	45.9
12/1/18	Y	144.7	0.6	29.7	76.3	51.1
12/3/18	Y	40.4	0.3	6.5	18.1	12.2
12/5/18	Y	41.4	0.2	7.6	25.1	16.9

Date	Unit	Total Mass Emissions - GTG's #2				
	Start-Up	Midnight - Midnight				
	or Shutdown	(lbs/day)				
		NOX	SO2	CO	PM 1	ROG 1
10/8/18	Y	246.9	1.1	14.9	83.6	56.1

Date	Unit	Total Mass Emissions - GTG's #3				
	Start-Up	Midnight - Midnight				
	or Shutdown	(lbs/day)				
		NOX	SO2	CO	PM 1	ROG 1
	NONE					

Date	Unit	Total Mass Emissions - GTG's #4				
	Start-Up	Midnight - Midnight				
	or Shutdown	(lbs/day)				
		NOX	SO2	CO	PM 1	ROG 1
10/1/18	Y	301.3	1.0	3.5	77.4	51.9
12/14/18	Y	205.8	0.4	14.7	92.0	61.6
12/16/18	Y	77.8	0.2	9.1	43.8	29.3

Unit	Cogeneration Unit	
Sample Point	Eff.Before Compress	
Profile #	9007	
Date	12/31/2018	
Time	19:00	
Sample No.	1617175	
Status	Complete	
H2S - SCD-HiLvl	<1.0	ppm
COS - SCD-HiLvl	2	ppm
MeSH - SCD-HiLvl	<1.0	ppm
EtSH - SCD-HiLvl	<1.0	ppm
DMDS - SCD-HiLvl	1	ppm
Other S Compds-SCD-HiLvl	<1.0	ppm
Sulfur (sum)-SCD-Calc	3	ppm

Unit	Cogeneration Unit	
Sample Point	Butane - TK 79	
Profile #	9010	
Date	12/31/2018	
Time	19:00	
Sample No.	1617176	
Status	Complete	
H2S - SCD-LoLvl	<0.1	ppm
COS - SCD-LoLvl	<0.1	ppm
MeSH - SCD-LoLvl	<0.1	ppm
EtSH - SCD-LoLvl	1.0	ppm
DMDS - SCD-LoLvl	0.1	ppm
Other S Cmpds-SCD-LoLvl	2.0	ppm
Sulfur (sum)-SCD-Calc	3.1	ppm

Tesoro Refining & Marketing LLC
Tesoro Los Angeles Refinery - Carson Operations
2350 East 223rd Street
Carson, California 90810
(310) 816-8100

CERTIFIED MAIL NO. 7018 1130 0002 0342 0181
RETURN RECEIPT REQUESTED

January 17, 2019

Title V Administrator
South Coast Air Quality Management District
PO Box #4944
Diamond Bar, CA 91765

Subject: **Title V Deviation Breakdown Report for Cogen**
Notification # 541809
Facility ID No. 174655

Dear Title V Administrator:

Tesoro Los Angeles Refinery, Carson Operations is providing the enclosed Form 500-N for the Title V deviation notification made on December 18st, 2018 at 3:25 PM (Notification No. 541809). Please note that a breakdown extension was requested and granted by Supervising Inspector Eduardo Esparza with a due date of January 17th, 2019.

Please contact Connie Chow at (310) 847-5633 if you have questions or comments regarding this report.

Sincerely,

Jason Lo
Environmental Engineer
Attachments
A - SCAQMD Form 500N

CC: ENV File 3E05-0046708

ECC: ECC 2018-12-18 Cogen NOx Exceedance
George Lamont, SCAQMD
Hakan Civan, Tesoro
Robin Schott, Tesoro
Michael Alexander, Tesoro
Connie Chow, Tesoro

Attachment A

SCAQMD Form 500N

South Coast Air Quality Management District

Form 500-N
Deviations, Emergencies, & Breakdowns

Mail Application To:
PO Box 4944
Diamond Bar, CA 91765

Tel: (909) 396-3385
www.aqmd.gov

*This written report is in addition to requirements to verbally report certain types of incidents. Verbal reports may be made by calling AQMD at 1-800-288-7664 (1-800-CUT-SMOG) or AQMD enforcement personnel.

Section I - Facility Information

1. Permit to be issued to (Business name of operator to appear on permit): Tesoro Refining & Marketing Company LLC

2. Valid AQMD Facility ID (Available on Permit or Invoice Issued by AQMD): 174655

3. Address (where incident occurred): 2350 E 223rd St

City: Carson State: CA Zip Code: 90810

4. Mailing Address (if different from Item 2): 2350 E. 223rd St

City: Carson State: CA Zip Code: 90810

5. Provide the name, title, and phone number of the person to contact for further information

Name	Title	Phone
Connie Chow	Senior Environmental Engineer	310-847-5633

Section II - Reporting of Breakdowns, Deviations, and Emergencies

1. This written notification is to report a(n):

	Type of Incident	Verbal Report Due*	Written Report Due
a. ☐	Emergency under Rule 3002 (g)	Within 1 hour of discovery	Within 2 working days from when the emission limit was exceeded
b. ☑	Breakdown under:		
	☑ Rule 430 (Non-RECLAIM)	For Rules 430 2004 - Within 1 hour of discovery	For Rules 430 2004 - Within 7 calendar days after breakdown is corrected, but no later than 30 days from the start of the breakdown, unless a written extension is granted
	☐ Rule 2004 (RECLAIM)	For Rule 218 - Within 24 hours or next business day for failure/shutdown exceeding 24 hours.	For Rule 218 - With required semi-annual reports
	☐ Rule 218 (Non-RECLAIM) [See Rule 218 (f)(3)]		
c. ☐	Deviation with excess emissions [See Title V Permit, Section K, Condition No. 22B]	Within 72 hours of discovery of the deviation or shorter reporting period if required by an applicable State or Federal Regulation	Within 14 days of discovery of the deviation
d. ☐	Other Deviation [See Title V Permit, Section K, Condition Nos. 22D & 23]	None	With required semi-annual reports

2. The incident was first discovered by: Operations on? 12/18/2018 (Date) 3:05:00 PM (Time)

3. The incident was first reported to: AQMD Operator #7 on? 12/18/2018 (Date) 3:29:00 PM (Time)

a. (•) Via Phone

b. ( ) In Person Notification Number (Required): 541809

4. When did the incident actually occur? 12/18/2018 (Date) 3:05:00 PM (Time)

AQMD USE ONLY						
	Recieved By:		Assigned By:		Inspector:	
	Date/Time Recieved		Date/Time Assigned		Date/Time Recieved Assignmen	
	Date Delivered to Team:		Date Reviewed Inspector Repo		Date Facility Inspected:	
	Team:	Sector:	Breakdown/Deviation Notification		Date Completed Report:	
	Recommended Action:	Cancel Notification	Grant Relief	Issue NOV No _____	Other: _____	
	Final Action:	Cancel Notification	Grant Relief	Issue NOV No _____	Other: _____	

Deviation ID: 942

5. Has the incident stopped? a. (•) Yes, on: 12/18/2018 (Date) 3:25:00 PM (Time) b. ( ) No

6. What was the total duration of the incident? 0.33 Hours (Days)

7. For equipment with an operating cycle, as defined in Rule 430 (b)(3)(A), when was the end of the operating cycle during which the incident occured? N/A (Date) (Time)

8. Describe the incident and identify each piece of equipment (by permit, application, or device number) affected. Attach photos (when available) of the affected equipment and attach additional pages as necessary. Devices Affected: 1226, 1227

On December 18th at approximately 3:03 pm, Cogeneration Gas Turbine Generator (GTG) Unit 91 experienced a sudden drop in DeNOx steam flow. The reduction of DeNOx steam, and eventual loss of steam, caused GTG Unit 91's stack NOx concentration to exceed 8 ppm on a 15 min average at 15% O2 at 3:05 pm.

9. This incident may have resulted in a:

a. [✓] Violation of Permit Condition(s): A248.1, Administrative Condition E4

b. [✓] Violation of AQMD Rule(s): R203(b), R2004(f)(1), R3002(c)(1), R2005, NOX: 8 PPMV (4) [RULE 2005, 6-3-2011

10. What was the probable cause of the incident? Attach additional pages as necessary.

See Attachment

11. Did the incident result in excess emissions? ( ) No (•) Yes (Complete the following and attach calculations.)

[ ] VOC	lbs	[✓] NOX	See Attachm	lbs	[ ] SOx	lbs	[ ] H2S	lbs	
[ ] CO	lbs	[ ] PM		lbs	[ ] Other	lbs			pollutant

12. For RECLAIM facilities Subject to Rule 2004 (i)(3) ONLY: If excess emissions of NOx and/or SOx were reported in Item 11, do you want these emissions to be counted when determining compliance with your annual allocations?

a. ( ) Yes, for: [ ] NOx [ ] SOx b. ( ) No, for: [ ] NOx [ ] SOx

If box 12(b) above is checked, include all information specified in Rule 2004(i)(3)(B) and (C), as applicable.

13. Describe the steps taken to correct the problem (i.e., steps taken to mitigate excess emissions, equipment repairs, etc.) and the preventative measures employed to avoid future incidents. Include photos of the failed equipment if available and attach additional pages as necessary.

See Attachment

14. Was the facility operating properly prior to the incident?

a. (•) Yes b. ( ) No, because:

15. Did the incident result from operator error, neglect or improper operation or maintenance procedures?

a. ( ) Yes b. (•) No, because: See Attachment

16. Has the facility returned to compliance?

a. ( ) No, because:

b. (•) Yes (Attach evidence such as emissions calculations, contemporaneous operating logs or other credible evidence.)

Section III - Certification Statement

I certify under penalty of law that based on 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.

For Title V Facilities ONLY: [✓] I also certify under penalty of law that that I am the responsible official for this facility as defined in AQMD Regulation XXX.

Bradley Levi (Signature of Responsible Official)	Vice President, Tesoro Los Angeles Refinery (Title)	1-17-2019 (Date)
Brad Levi (Type or Print Name of Responsible Official)	310-816-8100 (Phone)	310-847-5475 (Fax)
2350 E. 223rd St (Address)	Carson (City:)	CA (State) 90810 (Zip Code)

Section IV - Attachments

10. What was the probable cause of the incident? Attach additional pages as necessary.

The loss in DeNOx steam flow and subsequent NOx exceedance at GTG Unit 91 occurred when the DeNOx steam valve began to close (as per design) in response to power fluctuations in the GTG. A malfunctioning digital output card had erroneously detected combustion issues and triggered a momentary shutdown of the GTG Unit 91's Digital Excitation Control System (DECS). This caused the power fluctuations that eventually tripped the DeNOx steam system.

13. Describe the steps taken to correct the problem (i.e., steps taken to mitigate excess emissions, equipment repairs, etc.) and the preventative measures employed to avoid future incidents. Include photos of the failed equipment if available and attach additional pages as necessary.

Operations immediately increased ammonia rates to reduce NOx emissions. Within a few minutes, DeNOx steam flow was re-established, bringing the NOx concentration down. The 15 min average NOx concentration dropped below the 8 ppm limit at 3:26 pm on the same day. To prevent reoccurrence of similar incidents, Tesoro replaced the malfunctioning digital output card and enhanced the maintenance program around these type of digital output cards. This includes more frequent replacement of aging cards.

15. Did the incident result from operator error, neglect or improper operation or maintenance procedures?

No. The incident was a result of a malfunctioning digital output card on the GTG DECS.

Additional Information:

Unit 91 - Excess NOx concentration of 41.05 ppm @15% O2 on a 15 min average.

Tesoro Refining & Marketing LLC
Tesoro Los Angeles Refinery - Carson Operations
2350 East 223rd Street
Carson, California 90810
(310) 816-8100

CERTIFIED MAIL NO. 7018 1130 0002 0342 0143
RETURN RECEIPT REQUESTED

December 20, 2018

Title V Administrator
South Coast Air Quality Management District
PO Box #4944
Diamond Bar, CA 91765

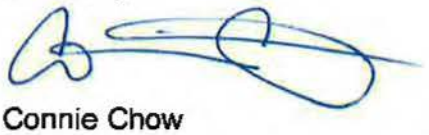
Subject: **Title V Deviation Breakdown Report for Cogen**
Notification # 540034
Facility ID No. 174655

Dear Title V Administrator:

Tesoro Los Angeles Refinery, Carson Operations is providing the enclosed Form 500-N for the Title V deviation notification made on December 1st, 2018 at 8:40 AM (Notification No. 540034). Please note that a breakdown extension was requested and granted by Supervising Inspector Eduardo Esparza with a due date of December 21st, 2018.

Please call me at (310) 847-5633 if you have questions or comments regarding this report.

Sincerely,



Connie Chow
Senior Environmental Engineer
Attachments
A - SCAQMD Form 500N

CC: ENV File 3E05-0046708

ECC: ECC 2018-12-1 Cogen NOx Exceedance
George Lamont, SCAQMD
Hakan Civan, Tesoro
Robin Schott, Tesoro
Michael Alexander, Tesoro

Attachment A

SCAQMD Form 500N

South Coast Air Quality Management District

Form 500-N
Deviations, Emergencies, & Breakdowns

Mail Application To:
PO Box 4944
Diamond Bar, CA 91765

Tel: (909) 396-3385
www.aqmd.gov

**This written report is in addition to requirements to verbally report certain types of incidents. Verbal reports may be made by calling AQMD at 1-800-288-7664 (1-800-CUT-SMOG) or AQMD enforcement personnel.*

Section I - Facility Information

1. Permit to be issued to (Business name of operator to appear on permit): Tesoro Refining & Marketing Company LLC

2. Valid AQMD Facility ID (Available on Permit or Invoice Issued by AQMD): 174655

3. Address (where incident occurred): 2350 E. 223rd St

City: Carson State: CA Zip Code: 90810

4. Mailing Address (if different from Item 2): 2350 E 223rd St

City: Carson State: CA Zip Code: 90810

5. Provide the name, title, and phone number of the person to contact for further information

Name	Title	Phone
Connie Chow	Senior Environmental Engineer	310-847-5633

Section II - Reporting of Breakdowns, Deviations, and Emergencies

1. This written notification is to report a(n):

	Type of Incident	Verbal Report Due*	Written Report Due
a ☐	Emergency under Rule 3002 (g)	Within 1 hour of discovery.	Within 2 working days from when the emission limit was exceeded
b ☑	Breakdown under:		
	☑ Rule 430 (Non-RECLAIM)	For Rules 430 2004 - Within 1 hour of discovery	For Rules 430 2004 - Within 7 calendar days after breakdown is corrected, but no later than 30 days from the start of the breakdown, unless a written extension is granted
	☐ Rule 2004 (RECLAIM)	For Rule 218 - Within 24 hours or next business day for failure/shutdown exceeding 24 hours.	For Rule 218 - With required semi-annual reports
	☐ Rule 218 (Non-RECLAIM) [See Rule 218 (f)(3)]		
c ☐	Deviation with excess emissions [See Title V Permit, Section K, Condition No. 22B]	Within 72 hours of discovery of the deviation or shorter reporting period if required by an applicable State or Federal Regulation	Within 14 days of discovery of the deviation
d ☐	Other Deviation [See Title V Permit, Section K, Condition Nos. 22D & 23]	None	With required semi-annual reports

2. The incident was first discovered by: Operations on? 12/1/2018 (Date) 5:35:00 PM (Time)

3. The incident was first reported to: AQMD operator #10 on? 12/1/2018 (Date) 6:16:00 PM (Time)

a. ◉ Via Phone

b. ○ In Person Notification Number (Required): 540034

4. When did the incident actually occur? 12/1/2018 (Date) 5:35:00 PM (Time)

AQMD USE ONLY					
	Recieved By:		Assigned By:		Inspector:
	Date/Time Recieved:		Date/Time Assigned:		Date/Time Recieved Assignmen
	Date Delivered to Team:		Date Reviewed Inspector Repo		Date Facility Inspected:
	Team	Sector:	Breakdown/Deviation Notification		Date Completed Report:
	Recommended Action:	Cancel Notification	Grant Relief	Issue NOV No _____	Other: _____
	Final Action:	Cancel Notification	Grant Relief	Issue NOV No _____	Other: _____

Deviation ID: 934

5. Has the incident stopped? a. (•) Yes, on: 12/1/2018 (Date) 5:49:00 PM (Time) b. ( ) No

6. What was the total duration of the incident? 0 (Days) 0.233 (Hours)

7. For equipment with an operating cycle, as defined in Rule 430 (b)(3)(A), when was the end of the operating cycle during which the incident occured? N/A (Date) (Time)

8. Describe the incident and identify each piece of equipment (by permit, application, or device number) affected. Attach photos (when available) of the affected equipment and attach additional pages as necessary. Devices Affected: D1226, D1227

On December 1st at approximately 5:32 pm, Cogeneration Gas Turbine Generator (GTG) Unit 91 experienced a sudden drop in DeNOx steam flow. The reduction of DeNOx steam caused GTG Unit 91's stack NOx concentration to exceed 8 ppm on a 15 min average at 15% O2 at 5.35 pm.

9. This incident may have resulted in a:

a. [x] Violation of Permit Condition(s): A248.1

b. [x] Violation of AQMD Rule(s): Rule 203(b), Rule 2004(f)(1), Rule 3002(c)(1), R2005

10. What was the probable cause of the incident? Attach additional pages as necessary.

See Attachment

11. Did the incident result in excess emissions? ( ) No (•) Yes (Complete the following and attach calculations.)

[ ] VOC	lbs	[x] NOX	See attached	lbs	[ ] SOx	lbs	[ ] H2S	lbs	
[ ] CO	lbs	[ ] PM		lbs	[ ] Other	lbs			pollutant

12. For RECLAIM facilities Subject to Rule 2004 (i)(3) ONLY: If excess emissions of NOx and/or SOx were reported in Item 11, do you want these emissions to be counted when determining compliance with your annual allocations?

a. ( ) Yes, for: [ ] NOx [ ] SOx b. ( ) No, for: [ ] NOx [ ] SOx

If box 12(b) above is checked, include all information specified in Rule 2004(i)(3)(B) and (C), as applicable.

13. Describe the steps taken to correct the problem (i.e., steps taken to mitigate excess emissions, equipment repairs, etc.) and the preventative measures employed to avoid future incidents. Include photos of the failed equipment if available and attach additional pages as necessary.

Once the unit was shut down, the 15 min average NOx concentration dropped below the 8 ppm limit at 5:49 pm on the same day. To prevent reoccurrence of similar incidents, Tesoro replaced the malfunctioning relay and will be adding this failure mechanism to the existing outage inspection scope.

14. Was the facility operating properly prior to the incident?

a. (•) Yes b. ( ) No, because:

15. Did the incident result from operator error, neglect or improper operation or maintenance procedures?

a. ( ) Yes b. (•) No, because: See Attachment

16. Has the facility returned to compliance?

a. ( ) No, because:

b. (•) Yes (Attach evidence such as emissions calculations, contemporaneous operating logs or other credible evidence.)

Section III - Certification Statement

I certify under penalty of law that based on 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.

For Title V Facilities ONLY: [x] I also certify under penalty of law that that I am the responsible official for this facility as defined in AQMD Regulation XXX.

AK

Bradley J Levi	Vice President, Tesoro Los Angeles Refinery	12-20-2018
Signature of Responsible Official	Title	Date
Brad Levi	310-816-8100	310-847-5475
Type or Print Name of Responsible Official	Phone	Fax
2350 E. 223rd St	Carson	CA 90810
Address	City	State Zip Code

Section IV - Attachments

10. What was the probable cause of the incident? Attach additional pages as necessary.

The reduction in DeNOx steam flow and subsequent NOx exceedance at GTG Unit 91 occurred when the DeNOx steam valve began to close (as per design) in response to sudden and severe fluctuations in GTG Unit 91's power output. Unit 91 subsequently tripped off line. Maintenance was able to determine that the sudden and severe fluctuations in power output were caused by a malfunctioning electrical relay on the Unit's Digital Excitation Control System (DECS) that failed to transmit output signals. It is believed that unit vibration and heat buildup caused the electrical relay coils to lose contact and trip the Unit.

15. Did the incident result from operator error, neglect or improper operation or maintenance procedures?

No. The incident was a result of a malfunctioning electrical relay on the GTG excitation control system.

Additional Information:

Excess Emissions for NOx:

Unit 91 - 10.37 ppm

Tesoro Refining & Marketing LLC
Tesoro Los Angeles Refinery - Carson Operations
2350 East 223rd Street
Carson, California 90810
(310) 816-8100

CERTIFIED MAIL NO. 7018 1130 0002 0342 0150
RETURN RECEIPT REQUESTED

December 20, 2018

Title V Administrator
South Coast Air Quality Management District
PO Box #4944
Diamond Bar, CA 91765

Subject: **Title V Deviation Breakdown Report for Cogen**
Notification # 539639
Facility ID No. 174655

Dear Title V Administrator:

Tesoro Los Angeles Refinery, Carson Operations is providing the enclosed Form 500-N for the Title V deviation notification made on November 29th, 2018 at 9:07 AM (Notification No. 539639). Please note that a breakdown extension was requested and granted by Supervising Inspector Eduardo Esparza with a due date of December 21st, 2018.

Please call me at (310) 847-5633 if you have questions or comments regarding this report.

Sincerely,

Connie Chow
Senior Environmental Engineer
Attachments
A - SCAQMD Form 500N

CC: ENV File 3E05-0046708

ECC: ECC 2018-11-29 Cogen NOx Exceedance
George Lamont, SCAQMD
Hakan Civan, Tesoro
Robin Schott, Tesoro
Michael Alexander, Tesoro

Attachment A

SCAQMD Form 500N

South Coast Air Quality Management District

Form 500-N
Deviations, Emergencies, & Breakdowns

Mail Application To:
PO Box 4944
Diamond Bar, CA 91765

Tel: (909) 396-3385
www.aqmd.gov

*This written report is in addition to requirements to verbally report certain types of incidents. Verbal reports may be made by calling AQMD at 1-800-288-7664 (1-800-CUT-SMOG) or AQMD enforcement personnel.

Section I - Facility Information

1. Permit to be issued to (Business name of operator to appear on permit): Tesoro Refining & Marketing Company LLC

2. Valid AQMD Facility ID (Available on Permit or Invoice Issued by AQMD): 174655

3. Address (where incident occurred): 2350 E 223rd St

City: Carson State: CA Zip Code: 90810

4. Mailing Address (if different from Item 2): 2350 E. 223rd St

City: Carson State: CA Zip Code: 90810

5. Provide the name, title, and phone number of the person to contact for further information

Name	Title	Phone
Connie Chow	Senior Environmental Engineer	310-847-5633

Section II - Reporting of Breakdowns, Deviations, and Emergencies

1. This written notification is to report a(n):

	Type of Incident	Verbal Report Due*	Written Report Due
a. ☐	Emergency under Rule 3002 (g)	Within 1 hour of discovery	Within 2 working days from when the emission limit was exceeded
b. ☑	Breakdown under:		
	☑ Rule 430 (Non-RECLAIM)	For Rules 430 2004 - Within 1 hour of discovery	For Rules 430 2004 - Within 7 calendar days after breakdown is corrected, but no later than 30 days from the start of the breakdown, unless a written extension is granted
	☐ Rule 2004 (RECLAIM)	For Rule 218 - Within 24 hours or next business day for failure/shutdown exceeding 24 hours.	For Rule 218 - With required semi-annual reports
	☐ Rule 218 (Non-RECLAIM) [See Rule 218 (f)(3)]		
c ☐	Deviation with excess emissions [See Title V Permit, Section K, Condition No. 22B]	Within 72 hours of discovery of the deviation or shorter reporting period if required by an applicable State or Federal Regulation	Within 14 days of discovery of the deviation
d ☐	Other Deviation [See Title V Permit, Section K, Condition Nos. 22D & 23]	None	With required semi-annual reports

2. The incident was first discovered by: Operations on? 11/29/2018 (Date) 9:15:00 AM (Time)

3. The incident was first reported to: AQMD Operator #4 on? 11/29/2018 (Date) 9:45:00 AM (Time)

a. ◉ Via Phone

b. ○ In Person Notification Number (Required): 539639

4. When did the incident actually occur? 11/29/2018 (Date) 9:07:00 AM (Time)

AQMD USE ONLY						
	Recieved By:		Assigned By:		Inspector:	
	Date/Time Recieved:		Date/Time Assigned:		Date/Time Recieved Assignmen	
	Date Delivered to Team		Date Reviewed Inspector Repo		Date Facility Inspected:	
	Team:	Sector:	Breakdown/Deviation Notification		Date Completed Report:	
	Recommended Action:	Cancel Notification	Grant Relief	Issue NOV No _____	Other _____	
	Final Action:	Cancel Notification	Grant Relief	Issue NOV No _____	Other: _____	

Deviation ID: 933

5. Has the Incident stopped? a. (•) Yes, on: 11/29/2018 (Date) 10:04:00 AM (Time) b. ( ) No

6. What was the total duration of the incident? 0.85 (Hours)

7. For equipment with an operating cycle, as defined in Rule 430 (b)(3)(A), when was the end of the operating cycle during which the incident occured? N/A (Date) (Time)

8. Describe the incident and identify each piece of equipment (by permit, application, or device number) affected. Attach photos (when available) of the affected equipment and attach additional pages as necessary. Devices Affected: D1239, D1240

See Attachment

9. This incident may have resulted in a:

a. [✓] Violation of Permit Condition(s): A248.1, Administrative Condition E4

b. [✓] Violation of AQMD Rule(s): Rule 203(b), Rule 2004(f)(1), Rule 3002(c)(1), Rule 2005 (NOx < 8ppm),

10. What was the probable cause of the incident? Attach additional pages as necessary.

See Attachment

11. Did the incident result in excess emissions? ( ) No (•) Yes (Complete the following and attach calculations.)

[ ]	VOC	lbs	[✓]	NOX	See attached lbs	[ ]	SOx	lbs	[ ] H2S lbs
[ ]	CO	lbs	[ ]	PM	lbs	[ ]	Other	lbs	pollutant

12. For RECLAIM facilities Subject to Rule 2004 (i)(3) ONLY: If excess emissions of NOx and/or SOx were reported in Item 11, do you want these emissions to be counted when determining compliance with your annual allocations?

a. ( ) Yes, for: [ ] NOx [ ] SOx b. ( ) No, for: [ ] NOx [ ] SOx

If box 12(b) above is checked, include all information specified in Rule 2004(i)(3)(B) and (C), as applicable.

13. Describe the steps taken to correct the problem (i.e., steps taken to mitigate excess emissions, equipment repairs, etc.) and the preventative measures employed to avoid future incidents. Include photos of the failed equipment if available and attach additional pages as necessary.

See Attachment

14. Was the facility operating properly prior to the incident?

a. (•) Yes b. ( ) No, because:

15. Did the incident result from operator error, neglect or improper operation or maintenance procedures?

a. ( ) Yes b. (•) No, because: See Attachment

16. Has the facility returned to compliance?

a. ( ) No, because:

b. (•) Yes (Attach evidence such as emissions calculations, contemporaneous operating logs or other credible evidence.)

Section III - Certification Statement

I certify under penalty of law that based on 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.

For Title V Facilities ONLY: [✓] I also certify under penalty of law that thet I am the responsible official for this facility as defined in AQMD Regulation XXX.

IK Bradley Levi — Signature of Responsible Official

Vice President, Tesoro Los Angeles Refinery — Title

12-20-2018 — Date

Brad Levi — Type or Print Name of Responsible Official

310-816-8100 — Phone

310-847-5475 — Fax

2350 E. 223rd St — Address

Carson — City:

CA — State

90810 — Zip Code

Section IV - Attachments

8. Describe the incident and identify each piece of equipment (by permit, application, or device number) affected. Attach photos (when available) of the affected equipment and attach additional pages as necessary.

On November 29th, Cogeneration Gas Turbine Generation (GTG) Unit 91 tripped offline. A few minutes later, at approximately 9:15 am, GTG Unit 94's DeNOx steam system tripped offline, resulting in an increase in the unit's NOx concentration. The 15-minute average limit of 8 ppm for Unit 94 was exceeded at 9:19 am.

10. What was the probable cause of the incident? Attach additional pages as necessary.

The loss of DeNOx steam and subsequent NOx exceedance at GTG Unit 94 occurred when the DeNOx steam valve closed (as per design) in response to the sudden shutdown of GTG Unit 91, a unit that shares the same steam system at GTG Unit 94. When GTG Unit 91 tripped offline, it caused pressure fluctuations in the 300 psig steam header, which supplies steam to the DeNOx steam system. The fluctuations caused the DeNOx steam system to trip on high flow at GTG Unit 94, resulting in a NOx exceedance on the same unit.

It was determined that Unit 91 tripped offline due to an electrical failure. Electrical wiring had become loose over time.

13. Describe the steps taken to correct the problem (i.e., steps taken to mitigate excess emissions, equipment repairs, etc.) and the preventative measures employed to avoid future incidents. Include photos of the failed equipment if available and attach additional pages as necessary.

Following the sudden decrease in DeNOx steam, Operations immediately increased ammonia flow to GTG Unit 94's selective catalytic reduction system (SCR) to reduce the NOx concentration at the stack. In addition, DeNOx steam flow automatically returned to normal rates when the fluctuation event ended. The NOx 15 min average dropped back below the 8 ppm limit shortly after, at 10:04 am.

To prevent reoccurrence of similar incidents, Tesoro repaired the loose wires and will be adding this failure mechanism to future major outage inspection scope.

15. Did the incident result from operator error, neglect or improper operation or maintenance procedures?

No. The incident was a result of wiring that became loose on the GTG excitation control system.

Additional Information:

Excess Emissions for NOx:

Unit 94 - 69.87 ppm