

<b>SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT</b>	<b>BACKGROUND &amp; FACILITY INFORMATION</b>	
<b>ENGINEERING &amp; COMPLIANCE</b>	A/N:	<b>486469</b>
	DATE:	<b>12/4/2013</b>
<b>RULE 1110.2 INSPECTION &amp; MONITORING (I &amp; M) PLAN EVALUATION</b>	PROCESSED BY:	<b>AS08</b>
	CHECKED BY:	

**BACKGROUND:**

SCAQMD Rule 1110.2 was amended on February 1, 2008 with additional rule language that significantly changed the way facilities are required to demonstrate compliance with the rule. Each facility is required to prepare an **Inspection and Monitoring Plan (I & M Plan)** which details the procedures which the facility will implement to ensure compliance with the requirements of Rule 1110.2. Although only one plan is required for each facility, the facility is required to specify in detail how they inspect and monitor every engine in the facility that is subject to Rule 1110.2. The basic I & M requirements are enumerated in Rule 1110.2 (f)(1)(D). An engine that is monitored by a NOx and CO Continuous Emissions Monitoring System (CEMS) is not required to be included in this I & M Plan. If CO CEMS is not required, an I&M plan for CO is still required.

The facility shown below has submitted the required I & M Plan. On the pages following this cover page is a detailed evaluation of whether or not the submitted I & M Plan will satisfy the basic requirements of Rule 1110.2 (f)(1)(D) for each engine that is subject to the plan. The evaluation will show whether or not each basic requirement is "Satisfied", "Deficient" or "Not Applicable". For every "Deficient" determination, additional information/explanation will be provided by the evaluating engineer.

**FACILITY INFORMATION:**

Facility Name: Waste Management Disposal & Recycling Services (Bradley Landfill)

ID No.: 050310

Equipment Location Address: 9227 Tujunga Avenue, Sun Valley, CA 91352-1542

Name of Person Responsible for Plan Compliance: Phil Perley

Telephone Number/Email Address: Tel: 818-252-3202, Fax: 832-668-3044, Cell: 818-298-4683

pperley@wm.com

Number of Engines at this Facility Subject to I & M Plan: 5

ENGINE INFORMATION:Permit No.: \_\_\_\_\_ Application No.: See below Device ID: \_\_\_\_\_Engine Make: Deutz Model No.: TBG-620 V16KBHP Rating: 1877 RPM: \_\_\_\_\_ Serial No.: \_\_\_\_\_I.C.E. Function: Elect. Gen.  Pump Driver  Compressor  Co-Gen  Other \_\_\_\_\_Fuel: Primary: Landfill Gas Stand-By (if any): \_\_\_\_\_Combustion Type: Rich Burn  Lean BurnPermit Emission Limits (dry corrected to 15% O2):NOx = 36 ppmvVOC = 40 ppmvCO = 2000 ppmvNH<sub>3</sub> = \_\_\_\_\_ ppmvPermits Included in this Evaluation:

<u>Permit Number</u>	<u>Application Number</u>
<u>G21916</u>	<u>A/N 510975</u>
<u>G21917</u>	<u>A/N 510976</u>
<u>G21918</u>	<u>A/N 510977</u>
<u>G21919</u>	<u>A/N 510978</u>
<u>G21920</u>	<u>A/N 510979</u>

CONTROL EQUIPMENT & COMPONENTS:**Emission Control (Check all that apply):** NSCR (3-way Cat.)  SCR (Selective Cat.)  Oxidation Catalyst**NSCR / SCR / OXID.CAT. Make & Model:** \_\_\_\_\_*If NSCR/Oxid Cat. Min. Inlet Temp.: \_\_\_\_\_ F; Max. Outlet Temp.: \_\_\_\_\_ F  
(Refer to permit conditions or NSCR manufacturer specs)**If SCR: Min. Inlet Temp.: \_\_\_\_\_ F; NH<sub>3</sub>/NO<sub>x</sub> Molar Ratio: \_\_\_\_\_***Max. Ammonia Slip:** \_\_\_\_\_ ppmv*(Refer to permit conditions or SCR manufacturer specs)***Air-To-Fuel Ratio Controller (AFRC) and Oxygen Sensor:****AFRC Make:** Deutz/MWM, Model Evolution part of Total Electronic Management (TEM) system **AFRC Model No.:** N/A**AFRC Setting:** Variable Set Points at Variable Loads  Single Set Point**Oxygen Sensor Type:** Unheated Narrow Band (EGO)  Heated Narrow Band (HEGO) Universal Wideband (UEGO)  Other (specify) : N/A**Optimum O<sub>2</sub> Sensor Range Setting:** N/A to N/A Millivolts / Lambda**Oxygen Sensor Location (relative to catalyst):** Upstream Only  Upstream and Downstream**Continuous Emissions Monitoring System (CEMS):** NO<sub>x</sub>  CO  None**Other Parameters (if any):** (for example, differential pressure - ΔP):Parameter(s): Heat input (mmBtu/hr), inlet gas flow rate, landfill gas BTU rating (heating value), NO<sub>x</sub> exhaust concentration, O<sub>2</sub> concentration.Compliance Limit (s): 16.8 mmBtu/hr heat input, 36 ppmv @ 15%O<sub>2</sub>

INSPECTION & MONITORING (I & M) PLAN EVALUATION:

Satisfied	Deficient	N/A	Requirements	Additional Info/Explanation
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<p><b><u>PORTABLE ANALYZER (PA) TESTING PROCEDURES:</u></b></p> <p>(1) The plan should have a set procedure for conducting a portable analyzer (PA) test (measuring NO<sub>x</sub>, CO and O<sub>2</sub>) on this engine which includes the following:</p> <p>a) Identification of the person or company who will perform the PA test, including a declaration that this person/company has undergone SCAQMD PA training and is certified in the use of the particular PA equipment,</p> <p>b) A declaration, supported with O &amp; M (operation and maintenance) information, indicating the proper calibration schedule and procedure used for the PA equipment,</p> <p>c) An declaration which indicates that the PA test will be conducted in accordance with the requirements in SCAQMD's "Protocol for the Periodic Monitoring of NO<sub>x</sub>, CO, and O<sub>2</sub> from Stationary Engines Subject to SCAQMD Rule 1110.2" (dated May 2009), OR, the most recently approved USEPA protocol. The facility also should indicate whether Protocol Forms 1, 2 or 3 will be used,</p> <p>d) An indication from the facility whether the PA equipment will measure both NO and NO<sub>2</sub>, or, just NO (Note: For NO only, the facility must provide test data that shows that NO<sub>2</sub> emissions are less than 10% of total NO<sub>x</sub> emissions), and</p> <p>e) An explanation of how the facility intends to store PA test printouts. This statement should indicate the manner, frequency and format of data storage.</p>	<p>1-a) <i>The facility identified Power Management Inc. (PMI) as the outside contractor that will perform the PA tests and has undergone training and is certified accordingly.</i></p> <p>1-b) <i>The facility declared proper calibration schedule and procedure for PA equipment with O &amp; M information.</i></p> <p>1 c) <i>The facility indicated the PA will be conducted in accordance with the Protocol. The facility indicated Protocol Form 1 will be used.</i></p> <p>1-d) <i>N/A. The facility will use PA equipment that measures CO, since NO<sub>x</sub> emissions are monitored with CEMS.</i></p> <p>1-e) <i>The facility indicated all PA readings are recorded in the ECOM Advanced Data Acquisition System (DAS) and electronically saved to the facility field computer and in a hard copy in the Quarterly CO Monitoring binder in the control room at the facility.</i></p>
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<p>(2) The plan should have a set schedule of performing PA tests on this engine at least <b>once a week</b>, or, <b>every 150 engine operating hours</b>, whichever occurs later. If the engine is in compliance for 3 consecutive emission checks, without any adjustments to the O<sub>2</sub> sensor set points, then the engine may be tested <b>once a month</b>, or, <b>every 750 engine operating hours</b>, whichever occurs later.</p> <p>If the facility opts for the 150 (or 750) engine operating hours criteria, the facility should indicate on the plan how they intend to get alerted on when a PA test is due.</p>	

Satisfied	Deficient	N/A	Requirements	Additional Info/Explanation
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<p>(3) For diesel engines and lean burn engines subject to Reg. XX or have a NO<sub>x</sub> CEMS, and:</p> <p>a) If the permit contains a CO limit <b>more stringent than 2000 ppmvd</b>, then, the plan should have a set procedure and schedule for performing a PA test for <b>CO only</b> at least <b>quarterly</b> or <b>every 2,000 engine operating hours</b>, whichever occurs later.</p> <p>If the facility opts for the 2,000 engine operating hours criteria, the facility should indicate on the plan how they intend to get alerted on when a PA test is due.</p> <p>b) If the permit contains a CO limit that is <b>NOT more stringent than 2000 ppmvd</b>, then, <b>no emission tests</b> are required.</p>	<p>3a) <i>The facility indicated the procedure for performing PA tests for CO only.</i></p> <p>3b) <i>Not applicable.</i></p>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<p>(4) The plan shall NOT contain a procedure for performing an engine or control system maintenance or tuning within <b>72 hours</b> prior to performing a PA test, unless the maintenance or tuning is a result of an unscheduled, required repair.</p>	
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<p>(5) If this engine is operated by a <b>public agency</b> or a <b>contractor hired by a public agency</b> solely to operate this engine, AND, if the public agency or contractor hired by the public agency opted to perform NO<sub>x</sub> and CO PA tests in lieu of the CEMS requirement of Rule 1110.2 (f)(1)(A)(ii)(I), THEN, the plan should have a set schedule of performing PA tests on this engine at least <b>once a week</b>, or, <b>every 150 engine operating hours</b>, whichever occurs later. If the facility opts for the 150 engine operating hours criteria, the facility should indicate on the plan how they intend to get alerted on when a PA test is due.</p>	
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<p>(6) If the facility is subject to RECLAIM, then only the CO emissions are to be tested.</p>	
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<p><b><u>NSCR, SCR, OXIDATION CATALYST I &amp; M PROCEDURES:</u></b></p> <p>(7) If this engine is a <b>rich burn engine</b> with an <b>NSCR (3-Way Catalyst)</b>, the plan should have a set procedure for monitoring the temperature of the exhaust gas entering and exiting the NSCR. Engine cold start-ups excluded, the plan should specify the minimum and maximum catalyst temperatures (based on permit conditions, or, if absent on the permit conditions, based on catalyst manufacturer specifications). The plan should have a set procedure for alerting the operator of deviations to the acceptable operating temperature range.</p>	
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<p>(8) If this engine is a rich burn engine with an NSCR (3-Way Catalyst), and a permit condition (or, the catalyst manufacturer specs) requires monitoring of the temperature increase (<math>\Delta T</math>) across the catalyst bed, then, the plan should have a set procedure for calculating and monitoring the <math>\Delta T</math> and for alerting the operator of any deviations to the acceptable <math>\Delta T</math>.</p>	

Satisfied	Deficient	N/A	Requirements	Additional Info/Explanation
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	(9) If this engine is a rich burn engine with an NSCR (3-Way Catalyst), and a permit condition (or, the catalyst manufacturer specs) requires monitoring of the pressure differential ( $\Delta P$ ) across the catalyst bed, then, the plan should have a set procedure for calculating and monitoring the $\Delta P$ and for alerting the operator of any deviations to the acceptable $\Delta P$ .	
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	(10) If a permit condition or the catalyst manufacturer specifications requires cleaning or replacement of the catalyst element upon reaching a parameter milestone (e.g., after a specified number of operating hours, or, when a $\Delta P$ or $\Delta T$ limit is reached), the plan should have a set procedure for alerting the operator when such parameter milestone is reached.	
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	(11) If this engine is a <b>lean burn engine</b> with an <b>SCR</b> , the plan has a set procedure for monitoring the following:  (a) The temperature of the exhaust gas entering the SCR. The plan should specify the minimum catalyst inlet temperature for proper reaction to occur in the SCR and the maximum temperature to prevent catalyst decomposition. The plan should have a set procedure to alert the operator whenever the minimum temperature is not reached beyond the normal cold start-up timeframe; and  (b) The NO <sub>x</sub> control algorithm which establishes the acceptable range of reactant (ammonia or urea) flow rate, as a function of engine load. The plan should have a set procedure for establishing the acceptable range of reactant flow rate using a portable NO <sub>x</sub> and O <sub>2</sub> analyzer.	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<b><u>AIR-TO-FUEL RATIO CONTROLLER (AFRC) I &amp; M PROCEDURES:</u></b>  (12) For an engine operated on <b>variable loads</b> , the plan should have a set procedure for establishing the optimum (i.e., compliant with NO <sub>x</sub> & CO emission limits) AFRC set-points at 25%, 60% and 95% load ( $\pm 5\%$ ). The loads may also be based on the minimum, midpoint and maximum loads that actually occur during <b>normal operation</b> ( $\pm 5\%$ ). Set points shall be established with the use of a portable NO <sub>x</sub> , CO and O <sub>2</sub> analyzer. Engine load shall be determined using acceptable means, including but not limited to: (a) generator kilowatt output; (b) fuel flow meter measurement; or (c) evaluation of pump or compressor curves with measurement of RPM and pressure.	12) <i>The facility indicated procedures for establishing the optimum (i.e., compliant with CO emission limits) AFRC set-points (based on average temperature of the 16 cylinders) at normal, min, midpoint, and max load during normal operation (<math>\pm 5\%</math>) using the CO PA. NO<sub>x</sub> emissions are monitored with CEMS.</i>

Satisfied	Deficient	N/A	Requirements	Additional Info/Explanation
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	(13) For an engine operated on a <b>single load</b> and is limited to this load by means of a permit condition, the plan should have a set procedure for establishing the optimum (i.e., compliant with NO <sub>x</sub> & CO emission limits) AFRC set-point based on the defined single load ( $\pm 10\%$ ). Set point shall be established with the use of a portable NO <sub>x</sub> , CO and O <sub>2</sub> analyzer. Engine load shall be determined using acceptable means, including but not limited to: (a) generator kilowatt output; (b) fuel flow meter measurement; or (c) evaluation of pump or compressor curves with measurement of RPM and pressure.	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(14) For both variable-load or single-load operation, the plan should have a set procedure for verifying that the AFRC is controlling the engine to the optimum set-point(s) during the required daily monitoring (see section on General I & M Procedures for details on daily monitoring requirement).	14) The facility indicated a set procedure for verifying the AFRC is controlling the engine to the optimum set-point(s) during the required daily monitoring. The average engine cylinder temperature (set point) is monitored daily. The set points are also evaluated and verified during the annual engine sources test and quarterly CO emission checks.
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(15) For both variable-load or single-load operation, the plan should have a set procedure for re-establishing the AFRC set-point(s) whenever a set-point must be <b>readjusted</b> or <b>within 24 hours after the replacement of an oxygen sensor</b> . If the engine is a <b>rich burn engine with a 3-way catalyst</b> , the plan should have a set procedure for re-establishing the AFRC set-point(s) <u>again between 100 and 150 engine operating hours</u> after an oxygen sensor replacement. The plan shall indicate how the operator will be alerted when 100 operating hours have been reached. Set point shall be re-established with the use of a portable NO <sub>x</sub> , CO and O <sub>2</sub> analyzer.	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(16) The AFRC shall have a malfunction indicator light and audible alarm and the plan shall have procedures for alerting the operator of emission control malfunctions (see item #17 under "General I&M Procedures).	16) The facility indicated malfunction codes are sent to the operator's cell phones when malfunctions occur.
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<b>GENERAL I &amp; M PROCEDURES:</b> (17) The plan should have a set procedure for alerting the operator of any malfunctions in the emission control system and the AFRC. If the facility has on-site personnel, operator-alert systems may include malfunction indicator lights on the defective system or an audible alarm. If the facility is unmanned, an operator shall be alerted remotely by either a Supervisor Control and Data Acquisition (SCADA) system or other similar systems. The plan should include a list of malfunctions that will be monitored by the alarm system (including malfunction codes).	17) The facility indicated procedures for alerting the operator of emission control malfunctions. The facility indicated a list of malfunctions that will be monitored by the alarm system (including malfunction codes).

Satisfied	Deficient	N/A	Requirements	Additional Info/Explanation
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(18) The plan shall describe how the operator will respond to, diagnose and correct breakdowns, faults, malfunctions, alarms, and emissions checks finding emissions in excess of rule or permit limits.	18) <i>The facility described how the operator will respond to, diagnose and correct breakdowns, faults, malfunctions, alarms, and emissions checks finding excess emissions of rule or permit limits.</i>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(19) For breakdown resulting in a violation of Rule 1110.2 or a permit condition, the plan shall contain procedures on how the operator shall correct the problem and demonstrate compliance with another emissions check or shut down the engine at the end of the operating cycle. The breakdown shall be reported per section (H) of Rule 1110.2.	19) <i>The facility indicates procedures how the operator corrects a breakdown and demonstrates compliance with another emissions check.</i>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(20) Within 15 days of the end of each calendar quarter, the operator will submit to the SCAQMD (Attention: Compliance) a completed Form - Rule 1110.2 - Quarterly Report for Stationary Engines that reports each occurrence of a breakdown, fault, malfunction, alarm, engine or control system operating parameter out of the acceptable range established by an I & M plan or permit condition, or an emission check that finds excess emissions. Operator will also report if no incidents occurred.	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(21) For other problems, such as parameters out-of-range, the operator shall correct the problem and demonstrate compliance with another emissions check within 48 hours of first knowing the problem.	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(22) Procedures and schedules for preventive and corrective maintenance. The maintenance schedule shall include the items on the engine and control system that are to be serviced (examples: O2 sensor replacement, catalyst replacements or washes, engines tunes ups, spark plug replacements). The plan shall indicate who will be responsible for maintenance, in-house or contractor. The format for record keeping of maintenance and repairs should include engine operating hours, explanation and description of what was done and why.	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(23) Procedures for recordkeeping of monitoring and other actions required by the plan.	23) <i>The facility indicated which documents are retained on site.</i>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(24) For any plan revision the operator shall file a new compliance plan.	

Satisfied	Deficient	N/A	Requirements	Additional Info/Explanation
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<b><u>GENERAL DAILY MONITORING PROCEDURES:</u></b> (25) The plan need NOT require daily parameter monitoring for diesel engines or lean burn engines which do not have either exhaust gas recirculation or catalytic control devices.	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(26) Engines will be monitored daily, including weekends and holidays by either remote monitoring or in person or a combination of the two.	26) <i>The facility indicated the engines will be monitored daily including weekends and holidays remotely and in person.</i>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(27) The Plan specifies which in-house personnel <b>or</b> which outside contractor will conduct the daily monitoring.	27) <i>The facility identified Power Management Inc. (PMI) as the outside contractor will conduct daily monitoring.</i>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(28) The format for the daily monitoring report shall include but not be limited to: name of person doing the monitoring (if not remote monitoring), date/time of monitoring, and all parameters to be monitored.	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<b><u>PARAMETERS TO BE MONITORED DAILY</u></b> (29) Engine load or fuel flow rate.	29) <i>The facility monitors both engine load and fuel flow rate.</i>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(30) The actual values of the AFRC set points.	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(31) The elapsed time meter operating hours.	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(32) The operating hours since the last emissions check.	
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	(33) For rich burn engines with 3-way catalysts, the difference between the inlet and outlet temperature ( $\Delta T$ ) of the catalytic converter.	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(34) Engine control systems and AFRC system faults or alarms that affect emissions	34) <i>The facility indicated the engine control systems and AFRC system faults or alarms that affect emissions will be monitored daily.</i>
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	(35) For lean burn engines with SCR, the exhaust temperature at the inlet to the SCR and the reactant flow rate.	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	(36) Other parameters to be monitored, for example, if the permit conditions have a pressure drop requirement ( $\Delta P$ ), the pressure drop should be monitored.	36) <i>The facility indicated water jacket outlet temperature, crankcase pressure, and cylinder/combustion temperature are to be monitored.</i>