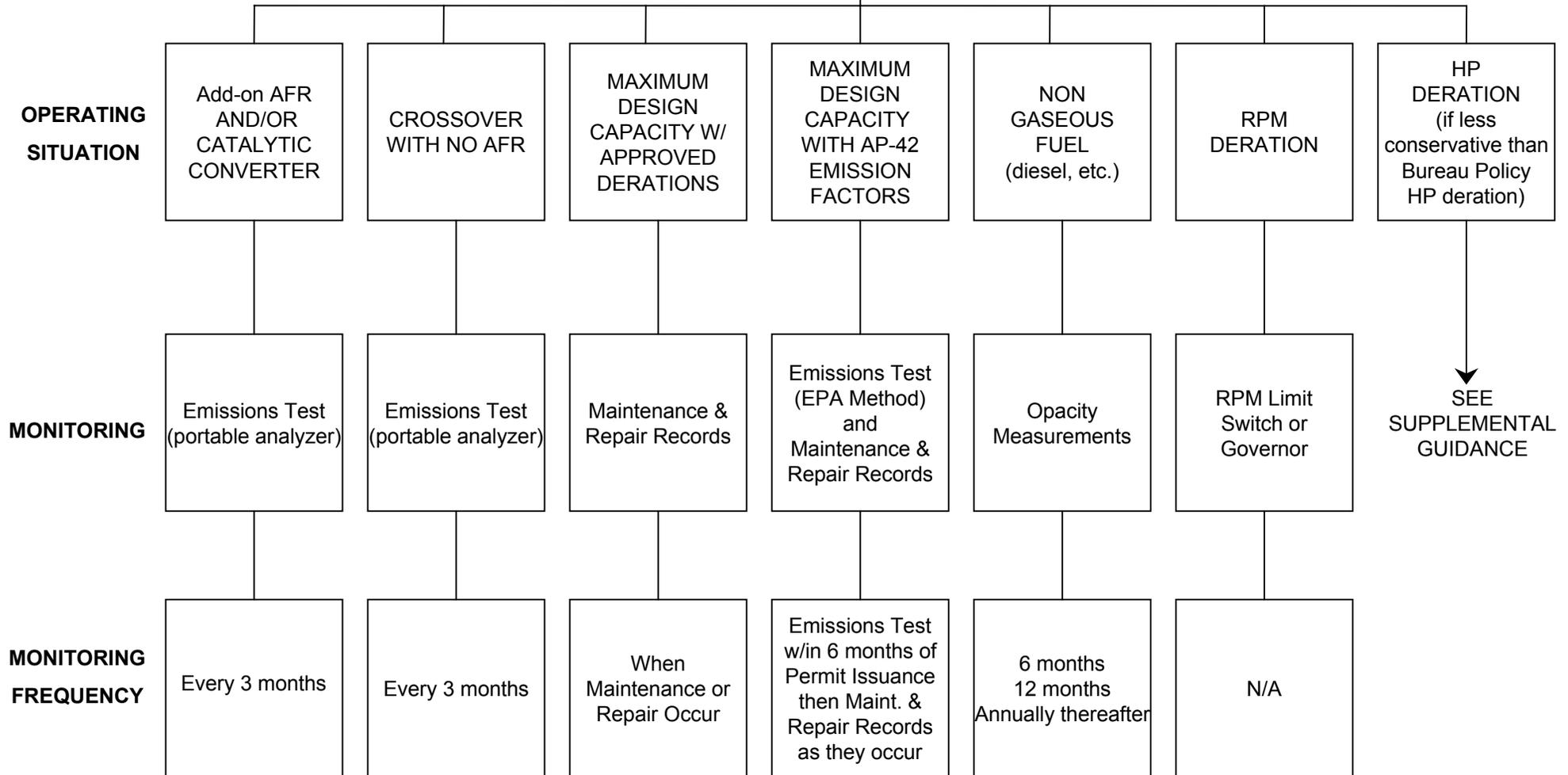


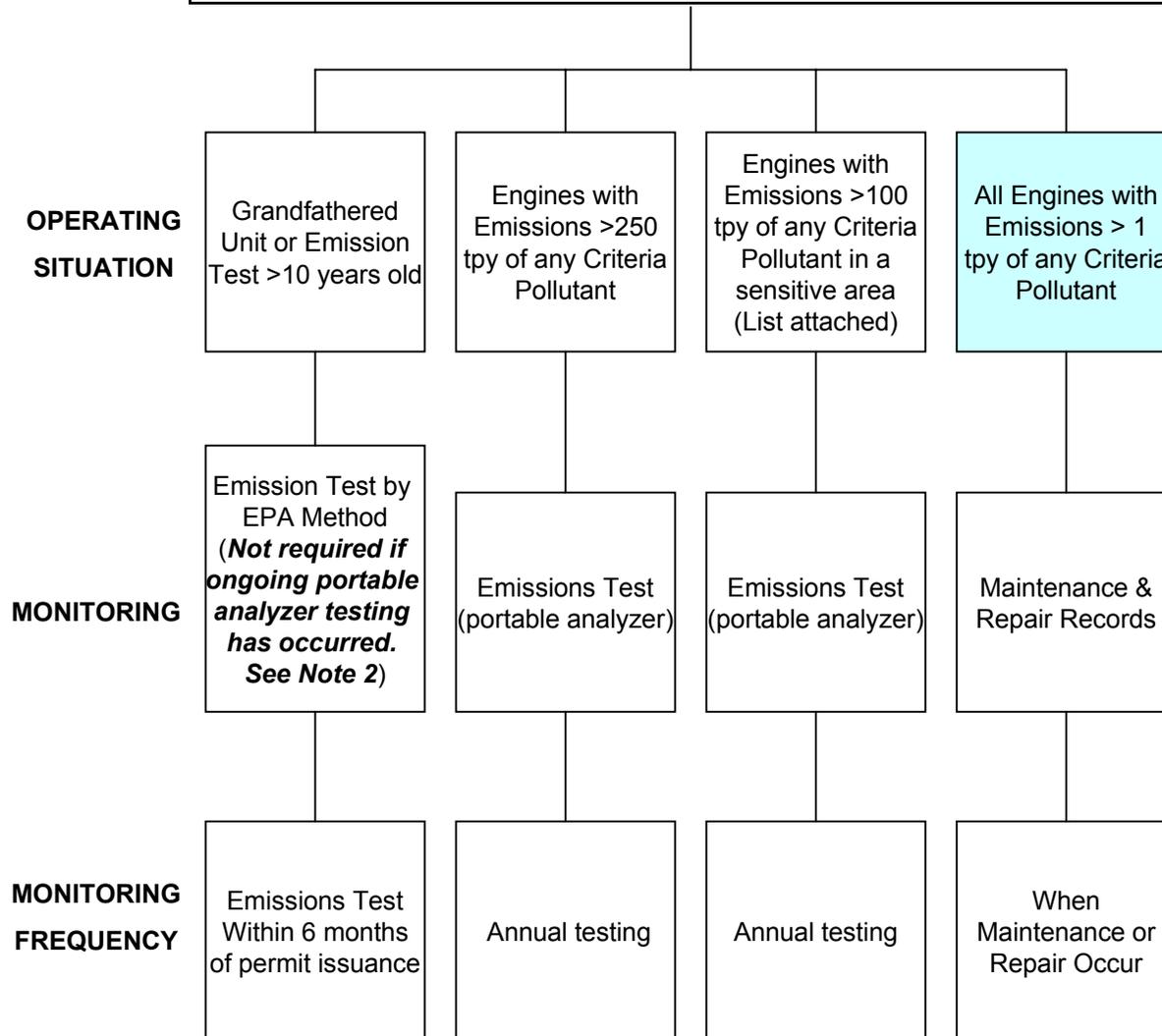
MONITORING FOR IC ENGINES

APPLICABLE REQUIREMENT AND FACILITY "MAJOR"
FOR CRITERIA POLLUTANT AND ENGINE > 1TPY
POLLUTANT



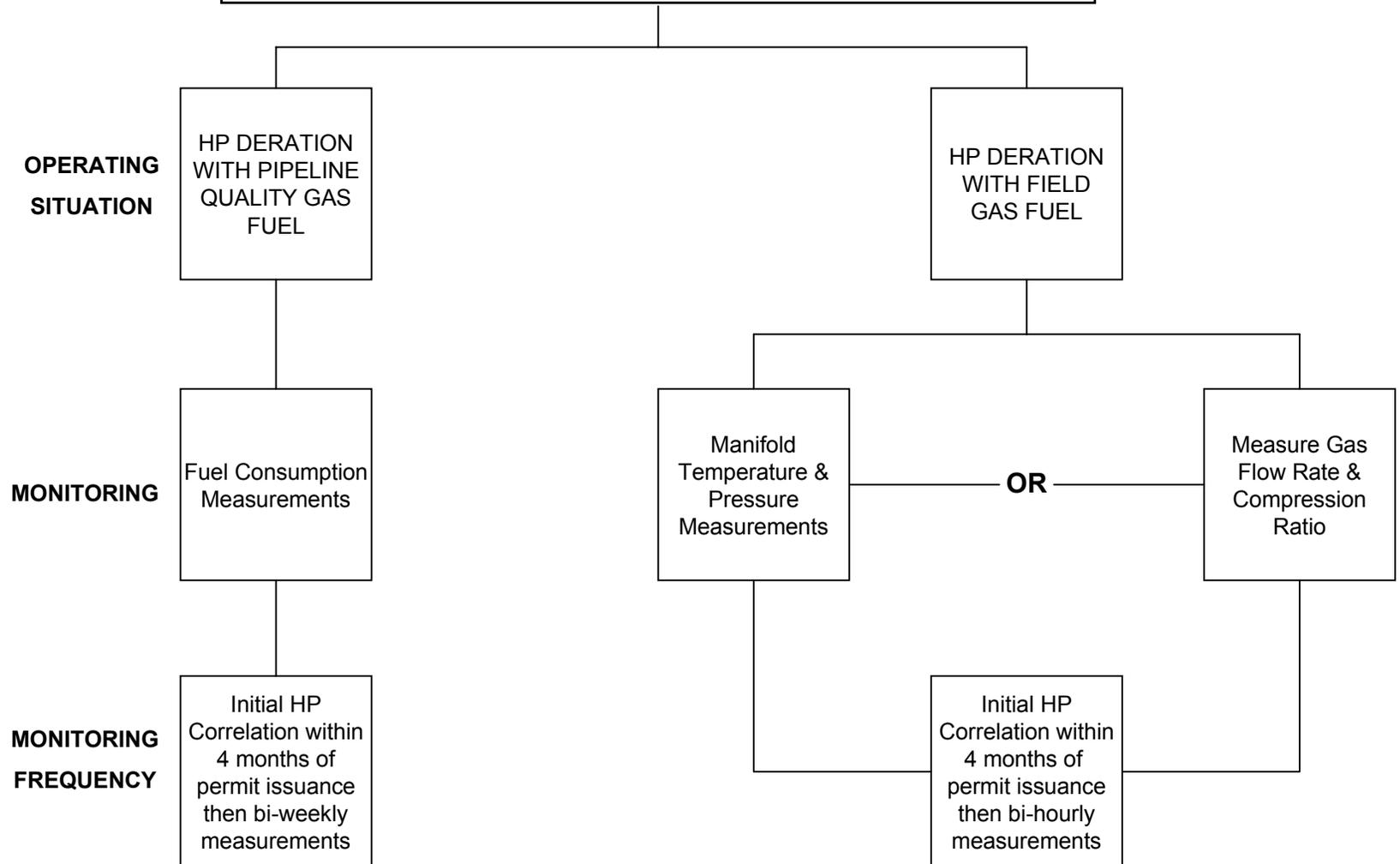
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NOTES

1. If more than one operating situation applies to an engine, monitoring requirements may be combined.
2. The original purpose of requiring an EPA Method test for engines that were grand-fathered or for which a test had not occurred for ten years was to determine the engines actual emissions. This applies to all engines, including identical engines of the same make and model. For engines in which current permit conditions exist that require periodic testing using a portable analyzer, the requirement for a EPA Method test every 10 years may not provide any value.
3. Jwk(1): 10/01/03, Replaced Text “Engines with Emissions 1-99 tpy of any Criteria Pollutant” with “All Engines with Emissions > 1 tpy of any Criteria Pollutant”.

MONITORING PROTOCOL FOR RECIPROCATING IC ENGINES

1. NOTES

{The following protocol is intended to provide monitoring guidance whenever reciprocating IC engine(s) with applicable requirements such as allowable emissions limitations are part of 20.2.70 NMAC operating permit. The actual permit conditions may be more or less stringent than this guidance depending on the circumstances of the facility. The following sections correspond to sections 3.4 of the Operating Permit Template and are intended to become part of the completed Operating Permit.

Note 1: We will not apply monitoring to IC engines that are in a “standby”, as defined in 20.2.71.7.L, or “emergency”, as defined in List of Insignificant Activities #7, use status.

Note 2: For any monitoring, a standard must be identified somewhere in the permit. For example, maintenance records should be compared with an acceptable standard from the manufacturer or equipment supplier; fuel usage should be compared to the appropriate calculated maximum; rpm should be compared to the value that limits horsepower.

Note 3: You may provide different monitoring options, but the permittee must choose an option and report on that option.

NOTE 4: For sets of newly installed identical engines (make and model), only 50% of the engines are required to have an EPA Method test. Inconsistent test results may cause the remaining units to be tested. If those sets of engines are within a sensitive area, then 100% of those engines must be tested. Sensitive areas are defined as 1) within a non-attainment area, 2) within the NSR Restricted Streamline list (see AQB website [http://www.nmenv.state.nm.us/aqb/modeling/modelingpubs.html]) or 3) a source for which the emissions exceed 80% of the NAAQS, not including background concentrations from other facilities. This policy does not apply to engines that have not been tested for ten years (see note 2 under corresponding graphical flow chart).

NOTE 5: When only one initial test is required for engines, such as those using AP 42, it must be by EPA method. When any series of tests are required, a portable analyzer may be used as currently allowed in the guidance.

2. MONITORING GUIDANCE

a. Opacity must be measured for each engine to show compliance with 20.2.61 NMAC. Use of natural gas or similar gaseous fuel will constitute compliance without measurements if such fuel is identified in the application.

b. Maintenance and Repair Record keeping is required for IC engines which are permitted at the maximum design capacity (worst case emission rates based on manufacturers specifications or actual testing with no control equipment installed,

and with only those derations allowed in the November 8, 1994 memo to Companies and Consultants from the Bureau), or that emit only 1-25 tpy of each pollutant.

c. For engines at maximum design capacity with no controls, but emissions are from AP42, (or similar survey) factors, an EPA Methods test is required. Subsequently, maintenance and repair records are the only monitoring required.

d. Periodic Emissions Testing is required for IC engines which have control equipment (AFR, catalytic converter, etc.) installed for the purpose of limiting emission rates or for IC engines operated at crossover (equal NO_x and CO emissions) with an AFR.

e. Periodic Emissions Testing or Fuel Usage Record keeping or RPM Record keeping or the use of Governor with Seals is required for those engines which limit emissions using deration schemes not included in the Nov. 8, 1994 memo to Companies and Consultants from the Bureau, or which employ RPM limitations for the purpose of lowering emissions. {Note: Fuel usage record keeping is not acceptable monitoring for engines which use field natural gas as fuel.} Maintenance and repair records may be combined with monitoring that is directed toward Rpm or horsepower derations.

f. Fuel Analysis is required when HAPs are an issue for any IC engine, or for fugitive emission sources. Fuel Analysis is also required for facilities that use field natural gas.

3. PERMIT LANGUAGE

3.4 Emissions Monitoring and Testing Requirements: {See Template for language}

3.4.1 General Monitoring Requirements {See Template for language}

3.4.2 Unit Specific Monitoring Requirements: {See Template for language}

Table 3.4.2, Required Monitoring

Emissions Unit Nos.	Parameters To Monitor	To Comply with	Monitoring Required	Monitoring Conditions
Monitoring for Reciprocating IC Engines				
1 to 7	NO _x , CO, VOC	Emissions Limits specified in section x.x.x	Annual or Quarterly Periodic Emissions Testing	3.4.2.1
1 to 7	Engine, RPM	Operational Requirements specified in section x.x.x	Operations	3.4.2.2
1 to 7	Fuel Flowrate	Emission limits specified in section x.x.x	Fuel Consumption	3.4.2.3
1 to 7	Fuel Content	Emission limits specified in section x.x.x	Fuel Analysis	3.4.2.4
1 to 7	Visible emissions	20.2.61 NMAC	Opacity	3.4.2.5 [1]
8-10	M&R Activities	Emission limits specified in section x.x.x	Maintenance and Repair	3.4.2.6
13	NO _x , CO, VOC	Emission limits specified in section x.x.x	EPA Methods test	3.4.2.7
5,6	As required in 40CFR 63.6580, Subpart ZZZZ	40CFR 63.6580, Subpart ZZZZ	Specific requirements of 40 CFR 63.6580, Subpart ZZZZ	3.4.2.8
1 (Engine)	“Special Req.”	40CFRxx Subpart xx, and NSR Condition 3. Attachment A to NSR Permit XXX-MX	3.4.2.3

{If any condition is brought forward from a NSR permit use the following sentence at the end of each condition. “This condition was brought forward from NSR Permit XXX-MX, Condition X.”}

3.4.2.1 Periodic Emissions Test Monitoring (For Engines, Units **x, y, x**): (see **3.4.3** below for the methods) **{When required}** These tests shall be conducted for NO_x and CO at the intervals in the following schedule. **(Unless a regulation or NSR permit has a more frequent schedule)**

- (a) The monitoring period shall be a calendar **[month, quarter, half year, or year]**.
- (b) Initial monitoring shall occur within the first monitoring period occurring after permit issuance.

(c) All subsequent monitoring shall occur in each succeeding monitoring period. No two monitoring events shall occur closer together in time than 25% of a monitoring period.

3.4.2.2 Operations Monitoring (For Engines, Units **x, y, x**): **{When required} {if engines have catalytic converters include the following}** The engine(s) shall be operated with the catalytic converter, specifically including during catalyst maintenance periods. During periods of catalyst maintenance, the permittee shall either (1) shut down the engine(s); or (2) replace the catalyst with a functionally equivalent spare to allow the engine to remain in operation.

A RPM governor or RPM limit switch, each with a tamper resistant seal, or a computer-based data management system shall be installed on each listed engine.

{or}

Engine RPM shall be measured once every 24 hours.

{or}

Hours of operation shall be recorded **{daily}**.

{or}

All engines shall be operated with a natural gas compressor that has a design limitation of 750 maximum RPM.

3.4.2.3 Fuel Consumption Monitoring (For Engines, Units **x, y, x**): **{When required}** Fuel Flow/Consumption shall be recorded for each unit (or for group of units if not available for each unit). Daily averages may be computed from weekly or monthly records.

3.4.2.4 Fuel Analysis Monitoring (For Engines, Units **x, y, x**): **{When required.}** A fuel analysis by methods acceptable to NMED shall be performed at least every six months. At a minimum, this analysis or test method shall include concentrations for H₂S, moisture, and Volatile Organic Compounds (VOC's) and include a thermal heating value in BTU's for the fuel. **{Unless HAPs are an issue, fuel analysis will not be required for facilities that certify the use of pipeline quality natural gas in the operating permit application}**

3.4.2.5 Opacity Monitoring (For Units **x, y, x**): **{When required}** Use of pipeline quality [nj2]natural gas fuel constitutes compliance with opacity requirements. At such time as fuel other than pipeline quality natural gas is used opacity shall be measured in accordance with the procedures at 40CFR60, Appendix A, Method 9. Opacity measurements shall continue on a quarterly basis until such time as pipeline quality natural gas is used. **{If required: This condition was brought forward from NSR Permit XXX-MX4, Condition X.}**
{or adjust schedule as required on a case by case basis}

3.4.2.6 Maintenance and Repair Monitoring (For Units **x, y, x**): Maintenance and repair activities that involve adjustment, replacement, or repair of functional components with the potential to affect operation of an emission [nj3] shall be documented as they occur for the following events:

- (a) Routine Maintenance that takes a unit out of service for more than two hours during any twenty-four hour period.

- (b) Unscheduled repairs that require a unit to be taken out of service for more than two hours in any twenty-four hour period.

3.4.2.7 EPA Method Test Monitoring (For Engines, Units **x, y, x**): **{When required}** An EPA Method Test shall be performed on each listed emission unit within 6 months of permit issuance, using EPA methods in 40CFR60. Emission testing is required for NO_x and CO. **{If facility is major for VOCs or NSR permit has VOC emission limits, then include following.}** Test results that demonstrate compliance with the NO_x and CO emission limits shall also be considered to demonstrate compliance with the VOC emission limits.

3.4.2.8 40 CFR 63.6580, Subpart ZZZZ (RICE MACT) Monitoring (For Engines, Units **x, y, z**): The specified IC engines are subject to NESHAP Subpart ZZZZ (40 CFR 63.6580) and shall meet the monitoring requirements of 40 CFR 63 Subpart A and ZZZZ.

{Note: Any other applicable requirement for these emissions unit(s) such as NSPS or NESHAPS must also be listed in this section along with the appropriate required monitoring. In addition, any other emissions unit(s) with applicable requirements such as heaters or boilers must also be listed in section 3.4.}

3.4.3 Emissions Test Equipment and Procedures (See Template): **{When required. If no portable analyzer testing is required, but an EPA method Test is required go directly to 3.4.3.2.2 and re-number accordingly.}**

3.4.3.1 Test Equipment For Portable Analyzers (For Engines, Units **x, y, x**): A portable analyzer may be used instead of the EPA method tests of 40 CFR 60 for periodic emissions tests, but it must be capable of measuring the specified pollutants and O₂ over the full range of expected allowable emissions measurements. The manufacturers specifications of the analyzer(s) to be used shall be submitted to the department for review as part of the emissions test protocol that is submitted to the Department prior to testing.

{Note: Test equipment for other emissions units must also be addressed in this section}

3.4.3.2 Analysis and Test Methods (For Engines, Units **x, y, x**): The following analysis procedures and test methods shall be performed as part of the emissions monitoring requirements. The permittee shall elect to use either EPA Reference Test Methods or sampling by portable analyzer, subject to the requirements and limitations of the first paragraph of section 3.4 (SEE PERMIT TEMPLATE). **{List and describe the analysis procedures and/or test methods that must be performed. See the basic requirements below.}** Periodic testing is required for total nitrogen oxides (NO_x) and carbon monoxide (CO). **(IF FACILITY IS MAJOR FOR VOC'S OR NSR PERMIT HAS VOC EMISSION LIMITS, THEN INCLUDE THE FOLLOWING)** Test results that demonstrate compliance with the NO_x and CO emission limits shall also be considered to demonstrate compliance with the volatile organic compound (VOC) emission limits.

3.4.3.2.1 Portable Emissions Analyzer Sampling (For Engines, Units **x, y, x**): When a portable emissions analyzer is used to measure emissions, the equipment shall be setup and operated in accordance with the manufacturer's instructions, with the current version of the Department's

Standard Operating Procedure for Use of Portable Analyzers in Performance Tests, and with the following conditions:

- (a) Equipment shall be tested in the "as found" condition. Equipment may not be adjusted or tuned prior to any test for the purpose of lowering emissions, and then returned to previous settings or operating conditions after the test is complete.
- (b) During emissions tests the moisture content, O₂ concentration, flow rate and temperature of the exhaust gas shall be monitored (or calculated by an acceptable method) and recorded. This information shall be included with the test report that is required to be furnished to the Department.
- (c) After the time a correlation is established between emission rate and concentration of a pollutant, the periodic emission test may consist of measuring the pollutant concentration. Exhaust flow rate at the time of correlation (by 40CFR60-method 19, by manufacturer's correlation, or by initial testing) may be used to calculate emission rates at later tests.

3.4.3.2.2 EPA Methods Test (For Engines, Units **x, y, x**): The following analysis procedures and test methods shall be performed as part of the EPA Method test requirement for the reciprocating engines, subject to the requirements and limitations of the first paragraph of section 3.4 (**SEE PERMIT TEMPLATE**). Compliance tests are required for total nitrogen oxides (NO_x) and carbon monoxide (CO). **{(IF FACILITY IS MAJOR FOR VOC's OR NSR PERMIT HAS VOC EMISSION LIMITS, THEN INCLUDE THE FOLLOWING)}** Test results that demonstrate compliance with the NO_x and CO emission limits shall also be considered to demonstrate compliance with the volatile organic compound (VOC) emission limits.} The tests shall be conducted in accordance with EPA Reference Methods 1 through 4, Method 7 (A-E) for NO_x, Method 10 for CO contained in CFR Title 40, Part 60, Appendix A, and with the requirements of Subpart A, General Provisions, 60.8(f). The results of the NO_x tests shall be expressed as nitrogen dioxide (NO₂) using a molecular weight of 46 lb/lb mole in all calculations (each ppm of NO/NO₂ is equivalent to 1.194×10^{-7} lb/SCF). When Method 7 is used and the stack gas O₂ is less than 3%, a method of injecting O₂ into the sample flask must be used for the correct transformation of NO to NO₂ in the sample flasks.

The owner or operator shall notify the Department at least thirty (30) days prior to the test date and allow a representative of the Department to be present at the test. The permittee shall arrange a pretest meeting with the Department at least thirty (30) days prior to the test date and shall observe the following pre-testing and testing procedures:

- (a) The test protocol and test report shall conform to the standard format specified by the Department. The most current version of the format may be obtained from the Enforcement Section of the Air Quality Bureau.
- (b) The permittee shall provide (a) sampling ports adequate for the test methods applicable to the facility, (b) safe sampling platforms, (c) safe access to sampling platforms and (d) utilities for sampling and testing equipment. Sample ports of a size compatible with the test methods shall be located on the stack of each engine in accordance with the provisions of EPA Method 1 of CFR, Title 40, Part 60, Appendix A.

The stack shall be of sufficient height and diameter so that a representative test of the emissions can be performed in accordance with EPA Method 1.

(c) During emission tests, the engine RPM, ignition timing, exhaust static pressure, intake manifold temperature and pressure, and fuel consumption, compressor suction and discharge pressures, suction volume, and horsepower output, shall be monitored and recorded. This information shall be included with the test report that is required to be furnished to the Department and shall be listed in tabular form or as part of the summary page of the test report.

(d) Where necessary to prevent cyclonic flow in the stack, flow straighteners shall be installed.

(e) The test shall be conducted at 90% or greater of full normal load as stated in this permit, or in the permit application if not in the permit, and at additional loads when requested by the Department. If the 90% load cannot be achieved, these tests may be conducted at the maximum achievable load under prevailing operating conditions [k4]. The load and the parameters used to calculate it shall be recorded to document operating conditions and shall be included with the test report that is required to be furnished to the Department.

{Note: Analysis and test methods for other emissions units must also be included in this section}

4.0 RECORDKEEPING

Conditions of 4.0 are pursuant to 20.2.70.302.D NMAC.

4.1 General Recordkeeping Requirements **{See Template for section 4.1}**

4.2 Unit Specific Recordkeeping Requirements: **{See Template for section 4.2}**

{If any condition is brought forward from a NSR permit use the following sentence at the end of each condition. "This condition was brought forward from NSR Permit XXX-MX, Condition X."}

4.2.1 Periodic Emissions Test Recordkeeping (For Engines, Units **x, y, x**): Records of periodic emissions tests shall be maintained for the reciprocating engines.

4.2.2 Operations Recordkeeping (For Engines, Units **x, y, x**): **{When required}** Documentation of a RPM governor or limit switch with seal, or a computer-based data management system, shall be provided for the engines required to have such equipment.

{or}

The permittee shall maintain manufacturer's specifications for each natural gas compressor, showing the maximum design operating speed (RPM).

{or}

Daily averages shall be computed and recorded for the item/s listed below if identified for reciprocating engines. **{Select the following as needed, based on the requirements in 3.4.2 or other conditions in the permit. Omit or expand this section as needed.}**

- (a) Engine RPM.
- (b) Hours of Operation

4.2.3 Fuel Consumption Recordkeeping (For Engines, Units **x, y, x**): Records of fuel consumption shall be maintained.

4.2.4 Fuel Analysis Recordkeeping (For Engines, Units **x, y, x**): Records of fuel analyses shall be maintained.

4.2.5 Opacity Recordkeeping (For Units **x, y, x**): The permittee shall record dates and duration of use of any fuel other than pipeline quality natural gas and the corresponding opacity measurements.

4.2.6 Maintenance and Repair Activities Recordkeeping (For Engines, Units **x, y, x**): **{When required}** Records of maintenance and repair activities shall be maintained for the reciprocating engines. Records of maintenance and repair activities shall include identification of emission units and the work involved.

4.2.6.1 The following items shall be recorded if they are performed as part of any operational check or as part of any maintenance or repair activity: **{When required}**

- (a) Air/Fuel Ratio Controller Settings

- (b) Condition of Catalytic Converter Unit. Inspect and ensure the external physical integrity of the catalytic converter.

4.2.7 EPA Methods Test Recordkeeping (For Engines, Units **x, y, x**): Records of periodic emissions tests shall be maintained for the reciprocating engines.

4.2.8 40CFR63.6580, Subpart ZZZZ (RICE MACT) Recordkeeping (For Engines, Units **X, Y, Z**): The specified IC engines are subject to NESHAP Subpart ZZZZ (40 CFR 63.6580) and shall meet the recordkeeping requirements of 40 CFR 63 Subpart A and ZZZZ.

5.0 REPORTING

5.1 General Reporting Requirements: **{See Template for section 5.1}**

5.1.3 Emissions Test Notification (For Engines/Turbines): **{Add this section if emissions tests are required}** Protocols for emissions tests shall be submitted to the Department at least thirty (30) days prior to the scheduled test date. Content of the test protocols shall be reported according to the current version of the Department's Standard Operating Procedure for Contents of Stack Test Protocols. If information remains the same as previously submitted protocols, test protocols shall reflect that fact and show only new information. This condition is pursuant to 20.2.70.302.E NMAC.

5.2 Unit Specific Reporting Requirements: **{See Template}**

{If any condition is brought forward from a NSR permit use the following sentence at the end of each condition. “This condition was brought forward from NSR Permit XXX-MX, Condition X.”}

{The following conditions should correspond to the monitoring and recordkeeping subsections, e.g. If there is no reporting then state that there is none.}

5.2.1 Periodic Emissions Test Reporting (For Engines, Units **X, Y, Z**): Test results shall be reported in accordance with the current version of the Department's Standard Operating Procedure for Content of Stack Test orts[jwk5].

5.2.2 Operational Reporting (For Engines, Units **X, Y, Z**): These reports shall include a summary of the activities listed in section **4.2.2** above.

5.2.3 Fuel Consumption Reporting (For Engines, Units **X, Y, Z**): Records of fuel consumption shall be reported.

5.2.4 Fuel Analysis Reporting (For Engines, Units **X, Y, Z**): Records of fuel analysis shall be reported.

5.2.5 Opacity Reporting (For Units **X, Y, Z**): The permittee shall report dates and duration of use of any fuel other than pipeline quality natural gas and the corresponding opacity measurements. **[If engines burn diesel fuel, certification of grade and characteristics as stated in permit application for fuel used during the period shall be reported.]**

5.2.6 Maintenance and Repair Reporting (For Engines, Units **X, Y, Z**): **[For new permits, enter the following:]**

These reports shall include a summary of the activities in section **4.2.6**, including a copy of the manufacturer's or permittee's recommended maintenance schedule with the initial report submitted for this Title V permit.

[For modifications or renewals, enter the following:]

These reports shall include a summary of the activities in section **4.2.6**.

5.2.7 EPA Methods Test Reporting (For Engines, Units **X, Y, Z**): EPA Methods Test results shall be reported in accordance with the current version of the Department's Standard Operating Procedure for Content of Stack Test orts[jwk6].

5.2.8 40CFR63.6580, Subpart ZZZZ (RICE MACT) Reporting (For Engines, Units **X, Y, Z**): The specified IC engines are subject to NESHAP Subpart ZZZZ (40 CFR 63.6580) and shall meet the reporting requirements of 40 CFR 63 Subpart A and ZZZZ.

Monitoring for Engine Horsepower

Background

Many natural gas compressor engines have been permitted at horsepower values that are not consistent with the current bureau policy for horsepower deration. A number of these engines have been permitted with physical constraints (governor seals, rpm limit kill switches, etc.) that lower the maximum RPM and thus limit the maximum available horsepower of the engine. However, some engines that have a physical RPM limit are still permitted at a horsepower that is below the maximum available horsepower at the lower RPM limit. This means that a compressor engine could utilize the remaining available horsepower without exceeding the RPM physical constraints. Therefore, physical RPM limitations are not adequate to assure compliance with the permitted horsepower or emission limits since emissions are directly related to horsepower.

Note that in some cases the compressor can accept no more than a specified maximum horsepower and RPM from the engine due to the design of the compressor or due to a transmission device (torque limiter) between the engine and compressor. This guidance does not address the situation where the engine is providing these maximum amounts.

Three monitoring options, depending on the specific operating conditions of the engine, can be utilized as a supplement to the existing RPM limitations:

- A. Engine fuel flow monitoring is only an option when an engine burns pipeline quality gas. This is due to the non-fluctuating btu content of pipeline gas and thus the relatively small variations in gas flowrate.
- B. Monitoring manifold temperature and absolute pressure is the second option since these two variables should maintain a steady proportional relationship and can be directly related to engine horsepower.
- C. Monitoring the gas flowrate and compression ratio is the third option since these variables are directly related to a theoretical horsepower requirement and can be directly correlated to the actual engine horsepower.

Manifold temperature and absolute pressure are already being measured and recorded at many Title V facilities and therefore would not be unduly burdensome for many facilities. However, if a facility does not currently measure these parameters, a complete data recording system capable of measuring temperature and pressure for six engines would cost less than \$2000.00 and would require no external A.C. power. Manifold temperature and absolute pressure correlations may be established for one engine in a group of identical (same make and model number) engines. The correlations for the one engine should not be used as a tightly enforceable condition due to the variability of the parameters and engines. However, the correlation shall be used to monitor trends in the data such as the general assumption that manifold temperature and absolute pressure tend to vary proportionally.

Gas flowrate and the compression ratio are already being measured and recorded at many Title V facilities and therefore would not be unduly burdensome for many facilities. However, if a

facility does not currently measure these parameters, a complete data recording system capable of measuring the gas flowrate and the inlet and outlet pressure of the facility would cost less than \$2000.00 and would require no external A.C. power. Gas flowrate and compression ratio shall be correlated to a facility wide available horsepower. Increases in one or both of the parameters shall be deemed to be out of compliance with the permitted horsepower limit. An increase in one and a decrease in another parameter will require further study to determine compliance.

Monitoring Requirements:

Pipeline Quality Natural Gas

For engines operating at a horsepower that is below the maximum available horsepower at the permitted RPM and is not limited by any physical constraint, a bi-weekly reading of engine fuel consumption is required. This means that every two weeks the fuel consumed by the facility or engine over the previous two weeks will be recorded.

The permittee shall establish a correlation of fuel gas flow to engine horsepower within 120 days of permit issuance.

Field Natural Gas

For engines operating at a horsepower that is below the maximum available horsepower at the permitted RPM and is not limited by any physical constraint, the permittee shall measure intake manifold temperature and absolute pressure every two hours, **or** measure the gas flowrate in cubic feet per hour (cfh) and the compressor inlet and outlet pressure every two hours.

The permittee shall establish a correlation between actual engine horsepower; manifold temperature and absolute pressure within 120 days of permit issuance. Correlations can be developed using manufacturer's data or by direct measurement of temperature and absolute pressure at a verified engine horsepower at six (6) ambient air temperatures. The manifold temperature and absolute pressure shall be recorded at a horsepower value that is within 20 percent of the permitted horsepower and at ambient air temperatures between 0° F and 100° F in increments of 5° F.

The permittee shall establish a correlation between actual engine horsepower, gas flowrate, and compression ratio, within 120 days of permit issuance. The gas flowrate and compressor inlet and outlet pressure shall be recorded at a horsepower value that is within 20 percent of the permitted horsepower.

Record Keeping

Fuel consumption, or engine manifold temperature and absolute pressure, or facility gas flowrate and compression ratio shall be recorded at least every two hours.

Correlation test data shall remain on file indefinitely.

Reporting

Correlation test data shall be submitted to the department upon completion of testing

Fuel consumption data shall be reported as a bi-weekly data point showing an average bi-hourly rate. The bi-weekly rate shall be graphed over a six-month period. Fuel consumption on the y-axis and 13 bi-weekly time periods on the x-axis.

Manifold temperature and absolute pressure bi-hourly values shall be graphed on the same graph over a six-month period. Each graph shall contain no more than 100 hours of data. Temperature on one y-axis, pressure on another y-axis and hours on the x-axis.

Bi-hourly values of gas flowrate in cubic feet per hour and the compression ratio shall be graphed on the same graph over a six-month period. Each graph shall contain no more than 100 hours of data. Gas flowrate on one y-axis, compression ratio on another y-axis and hours on the x-axis.

All data may be submitted on a computer disk or a hard copy.