

EXHIBIT A

Emissions Testing – Sludge Incinerator

1.1 WORK INCLUDED

- 1.1.1 The City operates a fluidized bed incinerator to dispose of solids produced by the operation of its wastewater treatment plant (WWTP). The incinerator uses a venturi and wet scrubber following combustion for emissions control. The incinerator has a Continuous Emissions Monitoring (CEM) system for monitoring carbon monoxide and oxygen in the stack exit gas. A 'sealed' ash handling system is used to remove the collected ash for disposal.
- 1.1.2 This ITB covers the work necessary to perform engineering level emissions testing of the incinerator stack in accordance with table two of sub-part Mmmm of Part 60 of the Model Rule for Emissions Limits and Standards for Existing Fluidized Bed Sewage Sludge Incineration units. **This is engineering level testing a formal report submitted to the Puget Sound Clean Air Agency is not required.**
- 1.1.3 The City will provide access to the sampling site and electrical power connections inside the incinerator building for use during testing. The stack has been sampled in the past and the sampling ports are accessible at the roof level. Four (4) - 4 inch test ports are provided at 90 degrees separation on the stack. The test ports are in sets of two with a vertical separation of two feet between the sets.

1.2 TESTING REQUIREMENTS

- 1.2.1 Testing shall involve sampling of the incinerator feed sludge and exhaust stream.
 - 1.2.1.1.1 The feed sludge shall be tested for the same metals as the exhaust gas stream. Sludge metals analysis shall be reported on a dry weight basis.
 - 1.2.1.1.2 The sludge shall be analyzed for total solids.
 - 1.2.1.1.3 City operating staff will collect the sludge samples. The vendor shall provide appropriate sample bottles and the required sample preservatives. Vendor shall have the lab that will be conducting the analysis send the bottles no less than one (1) week in advance of the test.
- 1.2.1.2 The following test methods shall be completed on the exhaust stream:
 - 1.2.1.2.1 Velocity: EPA Method 1 and 2
 - 1.2.1.2.2 Gas Moisture Content: EPA Method 4
 - 1.2.1.2.3 Filterable particulate Matter: EPA Method 5 (Front half only, condensable are not needed.)
 - 1.2.1.2.4 Visible Emissions: EPA Method 9 and Method 22
 - 1.2.1.2.5 Heavy Metals: EPA Method 29
 - 1.2.1.2.6 Mercury: EPA Method 101A
 - 1.2.1.2.7 Hydrogen Chloride: EPA method 26A
 - 1.2.1.2.8 Dioxins Furans: EPA method M23
 - 1.2.1.2.9 Oxides of nitrogen: EPA method 7 or 7E
 - 1.2.1.2.10 Sulfur Dioxide: EPA method 6 or 6C
- 1.2.2 Vendor may combine EPA Methods 5, 29, and 101A into a common sampling train. The minimum acceptable list of heavy metal parameters includes arsenic, beryllium, cadmium, chromium, copper, lead, mercury, molybdenum, nickel, selenium, and zinc. Analytical sensitivity shall be maximized to obtain miserable results. **A result of Non-detect is not acceptable.**

- 1.2.3 Operational data will be collected by the City for calculation of emission rates and for inclusion in the final results. This data will be provided to the vendor following the test completion.
- 1.2.4 Sampling runs for EPA Methods 5, 29, and 101A shall consist of three (3) each; 2-hour minimum integrated collection periods. These sampling runs shall be completed during the runs for Method M23.
- 1.2.5 To ensure adequate sensitivity Method M23 sampling shall consist of three (3) each; 2-6 hour sample collection periods. The sampling collection period for Method M23 shall be determined by the time needed to obtain a measurable value. **A result of Non-detect is not acceptable.**
- 1.2.6 Stack exhaust visible emissions observations may be completed for 1-hour readings during any of the test sample runs.
- 1.2.7 Test scope shall consist of one test at an operating load selected and maintained by the City operations staff.

1.3 REPORTING REQUIREMENTS

- 1.3.1 An engineering level report is required for this testing. A formal bound report for submission to the regulating agencies is not required. The report may be submitted electronically.
- 1.3.2 The report shall include a narrative description of test, test procedures, source operations, and complete lab reports for all analysis performed, including all QA/QC data.
- 1.3.3 All results must be reported at 7% oxygen, dry basis at standard conditions.
- 1.3.4 The summarized test results shall be provided in tables as a part of the narrative. Summaries of the following analysis are required:
 - 1.3.4.1 Particulate Matter Emissions Rate – the report must include the emissions rate in grams per kilogram of dried sludge input, in mg per dry standard cubic meter, in grains per dry standard cubic foot and pounds per dry ton.
 - 1.3.4.2 Visible Emissions
 - 1.3.4.3 Multiple Metals Emission Rate
 - 1.3.4.4 Control efficiency for Beryllium, Cadmium, Chromium, Nickel, Lead, and Mercury.
 - 1.3.4.5 Dioxins/Furans Emission Rate, reported on a mass basis and a toxic equivalency basis.
 - 1.3.4.6 Beryllium and Mercury NESHAP Emissions Rate
 - 1.3.4.7 Carbon Monoxide, Hydrogen Chloride, Oxides of Nitrogen and Sulfur Dioxide.
- 1.3.5 All reporting shall meet the requirements in 40CFR60.
- 1.3.6 The report shall include field data sheets, calibration records and laboratory data sheets.
- 1.3.7 Operational data collected during the course of the sampling period shall be included in the report. This data will be collected by the City and provided to the vendor at the end of the test.

1.4 TESTING AND REPORTING SCHEDULE

- 1.4.1 This section is intentionally blank.
- 1.4.2 The testing shall be conducted within 30 days of written notice to proceed.
 - 1.4.2.1 The City will make the site available to the vendor the day prior to the scheduled testing. Plant operating staffs normal working schedule is 7:00 a.m. to 7:00 p.m.
 - 1.4.2.2 City staff will have the incinerator ready for testing no later than 8:00 a.m. on the morning of the day the testing is to be conducted.
 - 1.4.2.3 The City will provide the collected sludge samples to the vendor at the end of each day of testing.

- 1.4.2.4 The City will provide the vendor the required operating data, for inclusion in the report, no later than one-week following the completion of the testing.
- 1.4.3 The first draft of the report shall be delivered to the City within 30 days of the testing
- 1.4.4 The final draft of the report shall be delivered to the City no later than one-week after the first draft is approved.