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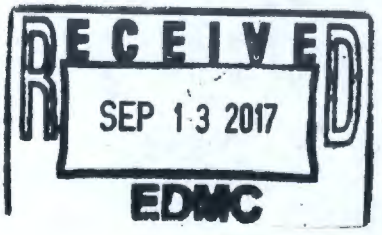
September 11, 2017 17-NWP-117



Mr. Doug Shoop, Manager
Richland Operations Office
United States Department of Energy
PO Box 550, MSIN: H5-20
Richland, Washington 99352

Re: Inspection Close-out Letter for Air Operating Permit (AOP) Discharge Points: 1.4.16, 1.4.17, 1.4.18, 1.4.19, 1.4.29, and 1.4.31

Dear Mr. Shoop:

As part of continuous compliance verification, the Department of Ecology (Ecology) conducts facility inspections of units subject to the Hanford Site AOP and Approval Orders. This letter communicates the results of an inspection performed on January 24, 2017 of discharge points 1.4.16, 1.4.17, 1.4.18, 1.4.19, 1.4.29, and 1.4.31.

Compliance with applicable conditions found in AOP 00-05-06 Renewal 2, Revision B and respective Approval Orders was the basis for the inspection. Records were reviewed for the time period January 1, 2015, to January 24, 2017. The results of the inspection and details of compliance determination are provided below.

1.4.16 E-282ED 001

Ecology has determined that discharge point 1.4.16 E-282ED 001 was in **continuous compliance** between January 1, 2015 and January 24, 2017. See below for details of compliance determination.

- **Condition: Engine E shall operate no more than 350 hours per year.**
  - The maintenance records provided indicate that the engine did not operate for more than 350 hours per year which demonstrates compliance with this condition.

- **Condition: 75.5 pounds per hour NOx.**
  - Vendor documentation of fuel purchases indicated the use of No. 2 fuel oil with sulfur content no more than 0.05 % weight percent which demonstrates compliance with this condition.

- **Condition: Engine E shall burn only No. 2 fuel oil with sulfur content no more than 0.05 weight percent.**
  Vendor documentation of fuel purchases indicated the use of No. 2 fuel oil with sulfur content no more than 0.05 weight percent which demonstrates compliance with this con

Condition: 10 % Opacity.

- Visible emissions surveys provided for 2015 and 2016 indicate the opacity had not exceeded 10% which demonstrates compliance with this condition. Visible emission surveys were provided every quarter for 2015 and 2016 except the first quarter of 2015. Ecology was notified that visible emissions surveys could not be performed for the first quarter of 2015, as the diesel fire generator was taken out of service for repairs.

1.4.17 E-282WD 001

Ecology has determined that discharge point 1.4.17 E-282WD 001 was in **continuous compliance** between January 1, 2015, and January 24, 2017. See below for details of compliance determination.

- **Condition: Engine E shall operate no more than 350 hours per year.**
  - The maintenance records provided indicate that the engine did not operate for more than 350 hours per year which demonstrates compliance with this condition.

- **Condition: 42 pounds per hour NOx.**
  - The records provided indicate the hours of operation and the rate of fuel consumption which demonstrates compliance with this condition.

- **Condition: Engine E shall burn only No. 2 fuel oil with sulfur content no more than 0.05 weight percent.**
  - Vendor documentation of fuel purchases were provided showing No. 2 fuel oil with sulfur content no more than 0.05 weight percent which demonstrates compliance with this permit condition.

- **Condition: 10 % Opacity.**
  - Visible emissions surveys were provided at least once per quarter for 2015 and 2016. The survey results indicated that the opacity had not exceeded 10% which demonstrates compliance with this permit condition.

1.4.18 Emergency Generators

There are three emergency engines associated with discharge point 1.4.18 Emergency Generators. Engine 3709A is managed by Mission Support Alliance (MSA) and Engines 331 and 325 are managed by Pacific Northwest National Laboratory (PNNL). Ecology has determined that discharge point 1.4.18 Emergency Generators was in **continuous compliance** from January 1, 2015, to January 24, 2017. See below for details of compliance determination.

MSA's emergency engine (3709A) has been inoperable since January 29, 2015. According to 5.8.1 of the Standard Terms and Conditions, the permittee is not required to conduct the monitoring and associated recordkeeping for any emission unit if the emission unit did not operate at any time between required monitoring events, including temporary shutdown of emission unit (5.8.1.2).

MSA provided documentation of when the 3709A was inoperable, and are not subject to the operation and maintenance requirements during that time. However, documentation shows weekly and monthly preventative maintenance, pre-start engine checks, and post-start engine operational tests were still performed.

PNNL has developed their own Operations and Maintenance manual entitled F&O Preventative Maintenance Standard (ADM-008, Appendix PS-005). Ecology has determined the manual provides for operation of the engines in a manner consistent with good air pollution control practices for minimizing emissions. The requirements in the F&O Preventative Maintenance Standard are also provided in work orders which document the actual work performed.

The work documents provided to Ecology indicate that the required maintenance for Engines 331 and 325 were performed accordingly for the timeframe in question. Currently, the work orders do not reference the previously mention, ADM-008, Appendix PS-005, but instead reference a Caterpillar Operations and Maintenance Manual for 3412C Generator Set Engines. **It is recommended to update the work orders to reference the developed Operations and Maintenance document.**

- **Condition: Total Emission Limits - A)** The activities described in the Notice of Construction application will be permitted without additional control technologies required, provided that the total emissions from all the activities will not result in an exceedance of WAC 173-460 ASILs. **B)** A new Notice of Construction will be required, if total emissions of toxic air pollutants exceed the Small Quantity Emissions Rates, unless dispersion modeling demonstrates that emissions would continue to result in concentrations less than the ASILs. Results of any such dispersion modeling demonstration/calculations will be maintained on file and made available upon inspection.
  - Ecology is not aware of any proposed changes or exceedance of ASILs.

- **Condition: Emission Controls – SO_x emissions will be controlled through use of #2 Diesel Fuel with sulfur content less than 0.5%.**
  - Vendor documentation of fuel purchases was provided showing No. 2 fuel oil with sulfur content no more than 0.5 % wt which demonstrates compliance with this condition.

- **Condition: Monitoring and Recordkeeping**
  - Maintenance records showing the hours of operation and the rate of fuel consumption were provided which demonstrates compliance with this permit condition.

1.4.19 P-2025E ETF

Ecology has determined that P-2025E ETF was in **continuous compliance** from January 1, 2015, to January 24, 2017. Emission estimates and calculations were not provided for the year 2015 as ETF was not operating during calendar year 2015. The facility was down in calendar year 2014 and did not begin operating until WRPS assumed operations from CHPRC in 2016 into 2017. See below for details of compliance determination.

- **Condition: Visible Emissions from the ETF stack shall not exceed five percent (5%).**
  - Compliance is to be demonstrated through Tier 3 Visible Emissions Survey requirements which state to maintain abatement control technology as required in Attachment 2 of the AOP for that particular emission unit. Records of Aerosol Tests for the HEPA Filters provided demonstrate compliance with this condition. Document RPP-RPT-54544, Rev. 2, *Tank Operations Contractor HEPA Filter Management Plan*, (dated March 8, 2017), states two (2) of the HEPA Filters at ETF are to be replaced in Fiscal Year 2018.

- **Condition: Volatile Organic Compounds (VOC) emissions from the ETF shall not exceed 0.55 grams per cubic meter (g/m^3) at standard conditions or 0.50 grams per minute (g/min).**
  - Compliance is to be determined based upon the tested arithmetic mean of three one-hour periods for the G6 stream using EPA Method 25A or Method 18. The records provided indicate the 2016 concentration and emission rate of VOCs were 1.7E-03 g/m^3 and 3.3E-02 g/min respectively, which are far below the respective limits of 0.55 g/m^3 and 0.50 g/min demonstrating compliance with this permit condition.

- **Condition: Volatile Organic Compounds (VOC) emissions from the ETF shall not exceed 4,000 lb/yr.**
  - Compliance is to be demonstrated through material emission estimates. The records indicate 2016 emissions of VOC were 0.69 lb/yr which are far below the established limit of 4,000 lb/yr which demonstrates compliance with this permit condition.

- **Condition: Particulate Matter emissions shall not exceed 1,500 lb/yr.**
  - Compliance is to be demonstrated through the maintenance and operating records of all filtration systems. The records provided indicate that the filtration systems are being maintained accordingly which demonstrates compliance with this permit condition. Document RPP-RPT-54544, Rev. 2 (dated March 8, 2017) entitled 'Tank Operations Contractor HEPA Filter Management Plan,' states two (2) of the HEPA Filters at ETF are to be replaced in Fiscal Year 2018.

- **Condition: TAPs in the NOC application and identified in Table 1 of DE07NWP-003 Amendment 2 and Revision 1, shall not exceed ASILs.**
  - Compliance is to be demonstrated through (1) Laboratory analysis results summaries of any waste influent samples undertaken which are examined for potential TAPS or identified TAPS in Table 1 of DE07NWP-003 Amendment 2 (9/27/2007) and Revision 1 (8/10/2010), and (2) waste stream influent volumetric records.

    The laboratory analysis results summaries that were provided indicate TAPs have not exceeded ASILs. Waste stream volumetric records were also provided. The above demonstrate compliance with this permit condition.

- **Condition: Emissions of ammonia from the ETF STU stack shall not exceed two pounds per hour.**
  - Compliance is to be demonstrated by grouted waste production records and material emission estimates. The records submitted provide material emission estimates for ammonia which were compared against and determined to be below the SQER limit (lb/averaging period) for ammonia. However, it appears these values were not compared against the permit emission limit of 2 lb/hr.

    The reported ammonia emissions from normal operations and chemical addition to the Evaporator were 0.35 and 5.1 lbs/24-hr, respectively. After performing addition and unit conversion, it appears the emissions of ammonia were 0.22 lb/hr which are below the specified emission limit of 2 lb/hr. **It is recommended in future submittals to also compare the material emissions estimates for ammonia to the emission limit of 2 lb/hr.**

1.4.29 100B-181B/182B

Ecology has determined that discharge point 1.4.29 100B-181B/182B was in **continuous compliance** between January 1, 2015, and January 24, 2017. See below for details of compliance determination.

- **Condition: Visible Emissions: (1)** Visible emissions will not exceed 20% during acceleration mode. **(2)** Visible emissions will not exceed 15% during lugging mode. **(3)** Visible emissions will not exceed 50% during peak in either acceleration or lugging mode.
  - The records indicate that visible emissions surveys were performed which indicate no exceedance of visible emissions, demonstrating compliance with this condition. Quarterly Visible Emissions surveys for 2015 and 2016 were provided for the 182-B (#2) engine. Quarterly visible emissions surveys were also performed in 2015 for the 182-B (#1) and 181-B engines. However, a couple of quarterly visible emissions surveys were not performed in 2016 for the 182-B (#1) and 181-B engines as they appeared to be out-of-service.

    For future reference, Ecology should be notified in the event that an engine becomes non-operational and visible emissions surveys cannot be performed accordingly. Also, Ecology noticed an asterisks at/near the bottom of the Data Sheets where Visible Emissions are recorded which reads "*If emissions are visible consistently for ten minutes, report to management immediately; occasional wisps of smoke don't require reporting and "Not Visible" shall be checked in the above table."

    Only a person certified in Method 9 should make the determination of what "wisps of smoke" are to correctly determine the percent opacity. **It is recommended to revise the language in the data sheets accordingly. It is also recommended to indicate which mode of operation (acceleration, lugging, or peak mode) the visible emissions surveys are being performed.**

- **Condition: Emissions of Polyromantic Hydrocarbons (PAHs) will not result in ambient concentrations exceeding 4.8E-04 ug/m^3.**
  - Compliance is to be demonstrated by calculation of the sum of PAH TAP emissions from all engines employing air pollution emissions factors of AP-42. The records indicate the proper emission factors were applied to the respective engines. The cumulative hours of operation for the respective engines and the subsequent fuel burned was documented. The emission factors and the amount of fuel burned was used to calculate sum of emissions from each engine which were then compared to their respective SQERs. In all instances, the records indicated that that the sum of emissions did not exceed the respective SQERs. Dispersion analysis need not be performed if the calculated emissions exceed the SQER to demonstrate that calculated emissions comply with the above standard.

- **Condition: Emissions of Toxic Air Pollutants (TAPs) will not exceed SQERs of WAC 173-460-080(2)(e).**
  - Compliance is to be demonstrated by calculations of the sum of TAP emissions from all engines employing air pollution emission factors of AP 42. The records indicate the proper emission factors were applied to the respective engines. The emission factors and the amount of fuel burned was used to calculate the sum of TAP emissions which were compared to their respective SQERs. In all instances, the records indicated that that total TAP missions from did not exceed the respective SQERs which does not require additional dispersion modeling to determine if ASILs have been exceeded.

- **Condition: Emissions of sulfur dioxide will not exceed two tons per year.**
  - Compliance is to be demonstrated by use of fuel containing (1) no greater than 0.05 weight percent sulfur (500 parts per million by weight) from installation to May 30, 2010, and (2) no greater than 0.0015 weight percent sulfur (15 parts per million by weight) on and after June 1, 2010. Certifications were provided for fuel purchases which indicate the fuel purchased contains a maximum of 15 ppm sulfur which demonstrates compliance with this condition.

- **Condition: (1) Emissions of Nitrogen Oxides (NO_x) and Non-methane Hydrocarbons (NMHC) will not exceed 14.2 tons per year. (2) Emissions of Carbon Monoxide (CO) will not exceed 5 tons per year. (3) Emissions of particulate matter (PM) will not exceed 0.75 tons per year.**
  - Compliance is to be demonstrated by (1) installation of engines certified to meet emission limitations of 40 CFR 89, (2) installation of one engine rated no higher than 450 horsepower (HP) and two engines rated no higher than 900 HP each, and (3) all recommended operation and equipment maintenance provisions supplied by the manufacturer(s) of the engine(s) will be current, (4) operational monitoring in accord with installed non-resettable hour meter on each engine, (5) operational hours of use for each engine, for the purposes of maintenance checks and readiness testing shall not exceed 100 hours per year unless approved by the Administrator of the United States EPA, and (6) operational hours of use during emergency conditions shall not be limited provided maintenance of records of emergency use are consistent with Required Records below.

The records provided include: (1) engine certifications that the engines meet 40 CFR 89,(2) engines power rating, (3) maintenance records, and (4) operational hours – the records indicate the engine did not run under emergency use. The above records demonstrate compliance with the permit conditions.

1.4.31 300 Area/339A

While reviewing records, Ecology discovered DOE letter 15-ESQ-0099 dated August 13, 2015, requesting the cancellation of Approval Order DE08NWP-001 and incorporation of the requirements found in 40 Code of Federal Regulations (CFR) 60 Subpart IIII into the AOP. In letter 15-NWP-194 dated October 28, 2015, Ecology approved the request with an effective date of September 30, 2015. The letter also stated that the requested Subpart IIII requirements would be incorporated into the Air Operating Permit (AOP). However, the requested changes were not incorporated into AOP Renewal 2, Revision B. Therefore, the requirements found in Subpart IIII, seen below and in the application (15-ESQ-0099) will be used as the basis for the inspection. The requirements found in 40 CFR 60 Subpart IIII will be incorporated into the next AOP renewal/revision and a new discharge point will likely be assigned.

Ecology has determined that the discharge point 1.4.31 300 Area/339A was in **intermittent compliance** from January 1, 2015, to January 24, 2017. See below for details of compliance determination.

- **Condition: (1) Hydrocarbons emission limit of 1.3 g/KW-hr, (2) Nitrogen Oxide (NOX) emission limit of 9.2 g/KW-hr, (3) Carbon Monoxide (CO) emission limit of 11.4 g/KW-hr, (4) Particulate Matter emission limit of 0.54 g/KW-hr.**
  - Compliance is to be determined by operating and maintaining the engine in accordance with the manufacturer's emission-related written instructions (40 CFR 60.4211(a)). The maintenance records and operations and maintenance (O&M) manual that were provided indicate: (1) check engine oil and coolant level, check fuel filter/water separator bowl, and check air cleaner dust valve restriction indicator gauge were not performed every two weeks as specified in the O&M, (2) change engine oil and replace oil filter, check PTO clutch adjustment, check coolant pump weep hole foam filter were not performed every six months as specified in the O&M manual, and (3) clean the cranckcase vent tube and replace the fuel filter elements were not performed every 600 hours or every 12 months specified in the O&M manual.

    It is recommended to follow the manufacturer's O&M manual or explore alternative maintenance options under 40 CFR 60.4211. Ecology has determined that the above do not satisfy this permit condition.

- **Condition: Use of fuel per 40 CFR 60.4207(b).**
  - Compliance will be demonstrated by use of fuel containing no greater than 0.0015 weight percent sulfur (15 parts per million by weight). Vendor documentation was provided which indicates fuel use of no greater than 15 parts per million by weight which satisfies this permit condition.

If you have any questions regarding this inspection, please contact me at daniel.heuston@ecy.wa.gov or (509) 372-7895.

Sincerely,

Daniel Heuston, P.E.

Daniel Heuston, PE
Environmental Engineer 3
Nuclear Waste Program

jvs

cc electronic:
Craig Cameron, EPA
Donald Dossett, EPA
Katie McClintock, EPA
Dennis Bowser, USDOE-ORP
Eric Faust, USDOE-RL
Reed Kaldor, MSA
Jon Perry, MSA
Matthew Barnett, PNNL
Ken Niles, ODOE
John Martell, WDOH
Robin Priddy, BCAA
Lilyann Bauder, Ecology
Philip Gent, Ecology
Daniel Heuston, Ecology
Ron Skinnarland, Ecology
Environmental Portal
Hanford Facility Operating Record
MSA Correspondence Control
USDOE-ORP Correspondence Control
USDOE-RL Correspondence Control

cc:
Matt Johnson, CTUIR
Jack Bell, NPT
Rose Longoria, YN
Susan Leckband, HAB
Administrative Record
NWP Central File