U.S. Department of Energy
Hanford Site

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REISSUE

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Addressees:

REISSUE REDUCTION-OXIDATION FACILITY NOTIFICATION OF ALTERNATIVES IDENTIFIED IN AIR MONITORING PLAN FOR REDUCTION-OXIDATION REMOVAL ACTION WORK PLAN DOE/RL-2018-46, REVISION 2

This letter is being reissued to change the author's initials and update the cc list. Based on discussions with the U.S. Environmental Protection Agency (EPA) and the Washington State Department of Health (WDOH), the U.S. Department of Energy (DOE) requests your concurrence of an alternate effluent flow measurement and sample extraction determination as a means of fulfilling 40 Code of Federal Regulations (CFR) 61.93(b)(3) requirements and substantive Washington Administrative Code (WAC) 246-247 Applicable or relevant and appropriate requirements (ARAR) at the Reduction Oxidation (REDOX) facility under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) removal action. This letter requests concurrence from the lead regulatory agency, EPA, working in conjunction with WDOH.

As a part of this removal action, the REDOX exhaust system is being replaced and the new system is anticipated to be online in 2023. The new system consists of three skid mounted exhausters that include a set of prefilters, two sets of high-efficiency particulate air (HEPA) filters (each set is a 4 by 5 array of HEPA filters placed in series), a 125-horsepower fan, and control instruments. Each in series filter unit is rated at 2,000 cubic feet per minute (CFM) for a maximum operational capacity of 40,000 CFM per exhauster.

Each fan is equipped with a variable frequency drive to enable fan speed adjustment. Two out of three exhausters will typically be in operation at any time with the third on standby. The maximum flow with two fans operating is approximately 70,688 CFM; however, the planned operating flow will be set at 60,000 CFM to ensure near-isokinetic sampling can be maintained, and the rated throughput capacity of each exhauster is not exceeded. The 40 CFR 61.93(d)[1] regulation is provided along with the rationale for the alternative approach. This letter also documents alternative use of the existing five-point rake probe that uses near-isokinetic sampling per the American National Standards Institute (ANSI) N13.1-1969 standard.

The Air Monitoring Plan for REDOX Removal Action Work Plan, DOE/RL-2018-46, Revision 2, delineates the application of the substantive ambient air-emission related regulations called out as ARAR in DOE/RL-2016-52, Action Memorandum for the REDOX Facility Complex, Revision 1. A mathematical engineering analysis, CP-ENG-0141, 291S Stack Sampling for New Exhauster System, was documented as a means of qualifying defensible sampling.

The 291-S-1 exhaust stack uses a rake probe that was grouted in place to sample emissions. Replacing the rake probe would require a large overhaul of the system and could potentially compromise the integrity of the stack structure itself. During the CERCLA planning and document development process it was determined that the requirements of 40 CFR 61.93(b)(1) and (2) or (c) are impractical. As stated in DOE/RL-2018-46, Revision 2, a limited set of the 40 CFR 61, Appendix B, Method 114, requirements will be implemented during this removal action, and the sampling system will be upgraded to the ANSI N.13.1-1999 standards where possible. Use of the rake probe and near-isokinetic sampling will maintain the recommendations of the ANSI N13.1-1969 standard. Explicitly stated, the desire for alternative use of the rake probe is due to DOE decision to maintain the utmost integrity of the stack structure to ensure the systems are operating in a manner that best protects the public from potential failure of an aging structure.

The current revision of the mathematical engineering analysis for increasing the effluent flows at REDOX is based on system design maximums (i.e., velocities, volumetric flows, etc.). A quarterly analysis of sample results and composites will be done as a verification method to ensure that the emissions are protective of human health and the environment. This will aid in ensuring that emissions are not underestimated, and that DOE will remain in compliance. The entirety of this process will be fully documented. The limited 40 CFR 61, Appendix B, Method 114 calibrations, ANSI N13.1-1969 and ANSI N.13.1-1999 standards, followed as delineated above, will ensure that emissions are not underestimated.

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[1] 40 CFR 61.93(d) states the following:
(d) When it is impractical to measure the effluent flow rate at a source in accordance with the requirements of paragraph (b)(1) or (c) of this section or to monitor or sample an effluent stream at a source in accordance with the site selection and sample extraction requirements of paragraph (b)(2) or (c) of this section, the facility owner or operator may use alternative effluent flow rate measurement procedures or site selection and sample extraction procedures provided that:
(1) It can be shown that the requirements of paragraph (b)(1) or (2) or (c) of this section are impractical for the effluent stream.
(2) The alternative procedure will not significantly underestimate the emissions.
(3) The alternative procedure is fully documented.
(4) The owner or operator has received prior approval from EPA

If you have any questions, please contact me, or you may contact Anders Wiborg, Project and Facilities Division, at (509) 376-9238.

Sincerely,

MARK FRENCH

Digitally signed by MARK FRENCH
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Mark S. French, Director
Project and Facilities Division

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Administrative Record
Environmental Portal, G3-35