

Statement of Basis

**Permit to Construct No. 023-00001
Project ID 62397**

**U S Dept. of Energy - INL 023
Idaho Falls, Idaho**

Facility ID 023-00001

Final



**May 29, 2020
Dan Pitman, PE
Permit Writer**

The purpose of this Statement of Basis is to satisfy the requirements of IDAPA 58.01.01. et seq, Rules for the Control of Air Pollution in Idaho, for issuing air permits.

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FACILITY INFORMATION

Description

The INL is a multipurpose national laboratory. It consists of nine distinct operational areas within an 890-square-mile area owned by the U.S. Government in southeastern Idaho. The operational areas include the following:

- Materials and Fuels Complex (MFC)
- Central Facilities Area (CFA)
- Idaho Nuclear Technology and Engineering Center (INTEC)
- Critical Infrastructure Test Range Complex (CITRC)
- Naval Reactors Facility (NRF)
- Test Area North (TAN)
- Advanced Test Reactor Complex (ATR Complex)
- Radioactive Waste Management Complex (RWMC)

This action involves the Test Reactor Area (TRA) Evaporation Pond which was initially issued a permit to construct on October 26, 1990, to replace an existing percolation pond serving the TRA. The pond receives discharge from the low level radioactive waste clean-up system at TRA.

Permitting History

The following information was derived from a review of the permit files available to DEQ. Permit status is noted as active and in effect (A), superseded (S), or terminated (T).

October 26, 1990	P-034-001, Initial PTC for TRA Evaporation Pond, Permit status (S)
December 13, 1995	P- 023-0001, Permit Modification to Update Monitoring, Permit status (S)
September 9, 2002	P-023-00001, Permit Revision to Update Monitoring, Permit status (T by this action)

Application Scope

DOE/INL has requested to terminate the TRA Evaporation Pond because if the pond were constructed today it would not need approval to construct in accordance with 40 CFR 61 Subpart H or in accordance with the Rules for the Control of Air Pollution in Idaho (IDAPA 01.01.221.02).

Application Chronology

March 2, 2020	DEQ received a request to terminate the TRA Evaporation Pond permit.
March 16, 2020	DEQ received information from DOE/INL documenting EPA approval to construct would not be required today per 40 CFR 61 Subpart H.
April 28 – May 28, 2020	DEQ provided a public comment period on the proposed action.

TECHNICAL ANALYSIS

Emissions Units and Control Equipment

Table 1 EMISSIONS UNIT AND CONTROL EQUIPMENT INFORMATION

Sources	Control Equipment
Low level radioactive waste clean-up system at TRA	<u>Control Device Name:</u> Ion Exchange Beds prior to discharge to pond.

REGULATORY ANALYSIS

Permit to Construct (IDAPA 58.01.01.201)

IDAPA 58.01.01.201 Permit to Construct Required

At the time the TRA Evaporation Pond was first permitted on October 26, 1990 the State Rules and Federal Regulations required that a prevention of significant deterioration (PSD) permit to construct be issued to the source because it emitted radionuclides. At that time, the radionuclide emissions threshold for requiring a prevention of significant deterioration (PSD) permit was “any increase”. Meaning that since the TRA Evaporation Pond emitted “any” radionuclides it was subject to the PSD permitting requirements solely because it would emit small quantities of radionuclides. The permit included a best available control technology (BACT) requirement which was that the liquid discharged to the pond was to be first passed through ion exchanged beds which ultimately reduces radionuclide emissions to the air. The primary radionuclides that are emitted are tritium and iodine.

The TRA Evaporation Pond permit was revised on December 13, 1995 and September 9, 2002 to include changes to monitoring, the best available control technology, ion exchange beds, remained the same.

Due to amendments to the Federal Regulations and State Rules that have occurred since October 26, 1990, the TRA Evaporation pond that is in operation today would not need a PSD permit construct under the current rules and regulations. Nor would a non-PSD permit to construct be required.

On November 15, 1990, 20 days after the initial TRA Evaporation pond was issued, EPA amended the PSD regulations at 40 CFR 52.21 to remove radionuclides from being subject the Federal PSD permitting requirements. However, the Rules for the Control of Air Pollution in Idaho continued to require a PSD permit when significant emissions rates of radionuclides occurred until the Rules were changed on April 6, 2005. After that date radionuclides were no longer subject to PSD requirements in Idaho. However, a non-PSD permit to construct for radionuclide emissions from DOE facilities may have been required depending on the predicted dose impact of the source.

The Rules for the Control of Air Pollution in Idaho were amended again on April 11, 2019 to include the following permit to construct exemption in accordance with IDAPA 58.01.01.221.02:

“No permit to construct is required for a source that satisfies the criteria set forth in Section 220¹ and the following: ...

Radionuclides. The source is not required to obtain approval to construct in accordance with the applicable radionuclides standard in 40 CFR Part 61, Subpart H.” [The approval to construct dose threshold is 0.1 mrem]

On March 16, 2020, DOE/INL provided documentation that approval to construct by 40 CFR Part 61, Subpart H would not be required today. Dose impacts were reported to range from 2.85E-3 mrem/yr to 6.90E-3 mrem/yr between 2011 and 2018. Therefore, the DOE/INL has requested to terminate the TRA Evaporation Pond permit. DEQ is proposing to grant that request.

1) Section 220 of the Rules applies to regulated New Source Review pollutants. There are no known emissions of these pollutants from the TRA pond.

The only volatile toxic air pollutant discharged to the pond is iodine. DOE/INL provided that uncontrolled annual emissions of iodine would be less than 1.06 E -7 pounds per year, which is many orders of magnitude below the exemption threshold for iodine (6.7 E -3 lb/hr) specified at IDAPA 58.01.01.223.

To summarize, the source qualifies for a permit to construction exemption at IDAPA 58.01.01.200, IDAPA 58.01.01.221 and IDAPA 58.01.01.223.

FEDERAL PSD PERMITS (40 CFR 52.21)

In accordance with 40 CFR 52.21(w) PSD permits may be rescinded provided it is demonstrated that the regulation would no longer apply. As described previously, on November 15, 1990 EPA amended the PSD regulations at 40 CFR 52.21 to remove radionuclides from being subject the Federal PSD permitting requirements. The PSD permit was issued solely based on radionuclide emissions and the permit may be rescinded because radionuclides are no longer subject the PSD requirements.

In accordance with 40 CFR 52.21(w)(4) DEQ shall post a notice of the rescission determination on a public Web site within 60 days of the rescission.

For the initial permit, BACT was determined to be the resin exchange beds. DOE/INL will continue to operate the resin exchange bed even though there is no regulatory requirement to do so. Dose impacts were reported to range from 2.85E-3 mrem/yr to 6.90E-3 mrem/yr, or approximately 1,440 times less than the 10 mrem standard, between 2011 and 2018 without consideration of the emissions reductions from the ion exchange beds even though they were operated.

NESHAP Applicability (40 CFR 61)

DOE/INL is subject to the emission standards, operating, monitoring and recordkeeping requirements detailed at 40 CFR 61 Subpart H (National Emission Standards for Emissions of Radionuclides Other Than Radon From Department of Energy Facilities). Termination of the TRA Evaporation Pond permit does not affect the applicability of this standard nor does it relax any of its applicable requirements.

§61.92 Standard

Emissions of radionuclides to the ambient air from Department of Energy facilities shall not exceed those amounts that would cause any member of the public to receive in any year an effective dose equivalent of 10 mrem/yr.

§61.93 Emission Monitoring and Test Procedures

Radionuclide emission measurements in conformance with the requirements of paragraph of this section shall be made at all release points which have a potential to discharge radionuclides into the air in quantities which could cause an effective dose equivalent in excess of 1% of the standard. All radionuclides which could contribute greater than 10% of the potential effective dose equivalent for a release point shall be measured. With prior EPA approval, DOE may determine these emissions through alternative procedures. For other release points which have a potential to release radionuclides into the air, periodic confirmatory measurements shall be made to verify the low emissions.

Environmental measurements of radionuclide air concentrations at critical receptor locations may be used as an alternative to air dispersion calculations in demonstrating compliance with the standard if the owner or operator meets the criteria listed at §61.92(5)(i) through (vi) including the requirement to receive prior approval from the EPA.

§61.94 Compliance and reporting.

Compliance with this standard shall be determined by calculating the highest effective dose equivalent to any member of the public at any offsite point where there is a residence, school, business or office. The owners or operators of each facility shall submit an annual report to both EPA headquarters and the appropriate regional office by June 30 which includes the results of the monitoring as recorded in DOE's Effluent Information System and the dose calculations required by §61.93(a) for the previous calendar year.

PUBLIC REVIEW

Public Comment Opportunity

A public comment period on this action was held and there were no comments received.