

Public Comment on the Idaho DEQ’s Draft Hazardous Waste Management Act/Resource Conservation and Recovery Act Storage and Treatment Partial Permit Renewal for the Radioactive Waste Management Complex Accelerated Retrieval Project on the Idaho National Laboratory, EPA ID# ID4890008952. [Also called the Partial Permit for Hazardous Waste Storage at the Idaho National Laboratory (EPA ID No. ID4890008952) (Docket No. 10HW-2201)]

Submitted by Tami Thatcher, June 7, 2022

Location of Permit Renewal is at <https://www.deq.idaho.gov/public-information/public-comment-opportunities> Documents: “DRAFT INL RWMC ARP Permit 2022.pdf” and “INL RWMC ARP Permit Books 1 and 2 December 2020.pdf.”

Background

On May 6, 2022, the Idaho Department of Environmental Quality (DEQ) issued a notice of intent to renew the partial permit, a ten-year permit renewal, for mixed waste (waste that is both hazardous and radioactive) and debris storage and treatment at the Radioactive Waste Management Complex (RWMC) Accelerated Retrieval Project (ARP), located at the Idaho National Laboratory (INL). The renewal application is by the U.S. Department of Energy (DOE) and is operated by the DOE contractor the Idaho Environmental Coalition, LLC. The Idaho Environmental Coalition (IEC) took over the cleanup contract on January 1, 2022 from exiting Fluor Idaho.

This partial permit renewal is for treatment and storage of mixed waste and the eventual closure of the units. The draft Partial Permit sets forth procedural requirements for treatment and storage of mixed waste and debris.

Recent Idaho Environmental Coalition Conduct of Operations Failures Have Not Been Addressed in the RWMC ARP Permit Submittal

“Less than adequate conduct of operations from multiple procedure violations” were reported for the Idaho Environmental Coalition in the Department of Energy Occurrence Report EM-ID—IEC-AMWTF-2022-0001, with notification date of February 24, 2022. Procedural non-compliance and procedures that could not be performed as written, and knocking drums to the floor were among the issues identified.

Furthermore, in this same Occurrence Report, was added from the Region 10 Environmental Protection Agency office on March 30, 2022, that EPA issued a Notice of Deficiency to the Idaho Environmental Coalition Advanced Mixed Waste Treatment Facility (AMWTF) and Department of Energy Idaho (DOE-ID).

The notice states, “This notice serves to document the circumstances regarding the Advanced Mixed Waste Treatment Facility’s violations of the conditions of the Risk-Based Disposal Approval dated June 30, 2021.” The notice went on to state the following: “The specific violations concern DOE-ID’s failure to implement two engineering controls addressing the potential for post-packaging thermal reactions associated with wastes being managed at the AWMTP. DOE-ID also failed to timely provide notification to the EPA of this deficiency.”

The notice issued the two following violations:

Violation 1: Failure to fully implement two elements of the engineering controls addressing the potential for post-packaging thermal reactions. These elements include impairing the in-cell fire suppression system during processing of FRP box number 10579405, and failure to installation of RFID devices used for post-packaging monitoring in the nine daughter containers consequent to filling and moving them to System 370 (central conveying corridor). The controls in question are part of a defense-in-depth approach to addressing the potential for thermal events associated with IDC RF-762 wastes. These engineering controls were established pursuant to Condition 4 of the cited, RBDA, and have been determined by the EPA to be necessary to ensure that processing activities subject to the cited RBDA do not pose an unreasonable risk of injury to health or the environment. As such, the failure to implement them triggered DOE-ID's obligation to report these deficiencies pursuant to Condition 16 of the June 30, 2021, RBDA.

Violation 2: Failure to timely provide notification to the EPA that these engineering controls were not in place. DOE-ID provided notification to IDEQ on February 15, 2022 but did not provide the same notification to the EPA pursuant to Condition 16 of the RBDA until February 28, 2022.

Later, not until March 1, it was discovered that Idaho Environmental Coalition had not performed, on 126 containers of waste, the RCRA permit required "drop test" (Method 1050 "Test Methods to Determine Substances Likely to Spontaneously Combust" – Method A) to confirm that the waste was no longer pyrophoric. There were 126 containers of 'indeterminate' waste form that the required drop test was not performed. It should be noted that the permit describes "indeterminate" waste as "indeterminate" uranium-bearing waste with greater than 250 grams of uranium. This is in contrast to waste identified as RF-762 which contains greater than 250 g of uranium but which the origin of the waste is supposed to be better understood.

The RWMC ARP is expected to accept waste from the AMWTP facility where the violations and conduct of operations problems occurred. Both are operated by the Idaho Environmental Coalition. The AMWTP's safety performance is directly relevant to the RWMC ARP permit renewal.

The failure of Idaho Environmental Coalition to follow procedures is not mitigated by excuses such as the permit was vague or that IEC procedures were unclear or that RCRA permit requirements are unimportant relative to nuclear safety requirements. It should be noted that the Department of Energy's nuclear safety requirements for transuranic waste facilities has been found by the Defense Nuclear Facilities Safety Board to generally underestimate the likelihood and the severity of the radiological releases from transuranic waste facilities.¹ The DNFSB has found the DOE to not provide adequate analysis of energetic chemical incompatibility events

¹ Defense Nuclear Facilities Safety Board, Technical Report, *Potential Energetic Chemical Reaction Events Involving Transuranic Waste at Los Alamos National Laboratory*, September 2020. (Many elements are applicable to the Idaho National Laboratory's transuranic waste program.)

such as occurred at the Waste Isolation Pilot Plant (WIPP) in 2014 and the Idaho National Laboratory in 2018.^{2 3}

Many ‘Conduct of Operations’ deficiencies disclosed for operations at the AMWTP last January and February are directly relevant to whether or not the DOE and IEC should be granted a permit renewal for the RWMC ARP.

The procedures that would not work as written appear to be inherited from the DOE’s previous contractor. However, the lack of rigor in the way that procedures are written and then no steps are checked off and procedures are on the shelf and not used during work processes provides strong indication that there should be no expectation that IEC will conduct work in a manner than implements RCRA permit requirements.

Informal Use of Procedures by Idaho Environmental Coalition Contributed to Multiple Unexecuted RCRA Permit Requirements

I was astounded by the informal use of procedures which directly contributed to the recent failures at AMWTP to execute RCRA permit required steps. Prevention of this problem has not been addressed in this RWMC ARP permit renewal.

The adequacy of training of workers and their management and the need to revoke qualifications must be addressed. Existing permit requirements are obviously ineffective.

Recent Idaho Environmental Coalition Unexplained Shipment to WIPP That Resulted in Liquid Found in TRUPACT-II Not Addressed in RWMC ARP Permit

Free liquid is a prohibited material in the transuranic waste sent to WIPP. The Idaho Environmental Coalition sent waste to the Waste Isolation Pilot Plant (WIPP) in New Mexico which prompted an evacuation of a WIPP area on April 9, 2022 due to the discovery of liquid outside the drums inside a TRUPACT-II shipping container.⁴ It is now June 7 and the Department of Energy and the Idaho Environmental Coalition have remained silent on what happened and why it happened. The TRUPACT-II was required to return to Idaho.

The current excuse is that they just don’t know enough about what happened, to even say a peep about what happened. But this actually means there should be more concern, not less. Was there some additional unknown, unanalyzed condition?

Or was it simply that the requirements of the current permit were not followed? And given the Idaho Environmental Coalition’s recent performance documented in the DOE Occurrence Report EM-ID—IEC-AMWTF-2022-0001, why should anyone expect that the requirements of

² Idaho Cleanup Project Core, *Formal Cause Analysis for the ARP V (WFM-1617) Drum Event at the RWMC*, RPT-1659, October 2018. https://fluor-idaho.com/Portals/0/Documents/04_%20Community/8283498_RPT-1659.pdf

³ Defense Nuclear Facilities Safety Board, Staff Report, Idaho Waste Drums with Elevated Methane Concentrations, December 10, 2018.

⁴ Maire O’Neill, *Los Alamos Reporter*, “Discovery of Radioactive Liquid in TRUPACT-II Container At WIPP Causes Evacuation of Contact-Handled Waste Bay,” April 11, 2022. <https://losalamosreporter.com/2022/04/11/discovery-of-radioactive-liquid-in-trupact-ii-container-at-wipp-causes-evacuation-of-contact-handling-bay/>

the existing permit would be followed? Why should anyone expect the requirements of the renewed permit to be followed?

Silence on the problems occurring this year with the handling of transuranic radioactive and chemical waste has been deafening. I've had to read out-of-state news articles for any information of the prohibited waste sent by Idaho Environmental Coalition to WIPP that caused the evacuation on April 9.

In the recent April 9, 2022 event, did the prohibited waste shipped to WIPP come from the AMWTP? Did it utilize the RWMC ARP facilities? One can only guess. The RWMC ARP facilities include facilities that are to ensure that liquids have been adequately absorbed and so there is an inability to know if the proposed permit is adequate.

The TRUPACT-II has since been returned to Idaho as WIPP would not accept the waste. It was non-conforming waste.

RCRA Requirements for Prevention of Liquid in Drums May Inadequate

The RWMC ARP permit authorizes WMF-1619 activities which include absorbent addition for liquids in drums, including drums from AMWTP. It has not been stated whether the liquid recently discovered in a TRUPACT-II at WIPP was treated at RWMC. Nor have the reasons for the liquid outside of waste containers been described. Nor have the reasons for violating the WIPP Waste Acceptance Criteria for liquids been identified.

If an inadequate number of freeze-thaw cycles have occurred, could insufficient liquid absorbent have been added? As little as one freeze-thaw cycle may result in separation of the liquid from waste sludge from Rocky Flats (see Books 1 and 2 for supplemental report RPT-228). Without the investigation of the reasons for the liquid found in the TRUPACT-II at WIPP on April 9, 2022, it cannot be concluded that drum inspections for liquid and/or absorbent addition are adequate.

This is particularly true for wastes that may be self-heating. The self-heating properties may not be adequately addressed even though the waste is not deemed to contain radioactive pyrophoric material.

RCRA Requirements to Prevent Chemical Reactions in Drums Causing Heatup and Loss of Containment of Waste May Still Be Inadequate

Without the investigation of the reasons for the liquid found in the TRUPACT-II at WIPP on April 9, 2022, it cannot be concluded that controls for chemical compatibility are adequate. It appears possible that heatup in a drum or drums caused expelling liquid through a drum vent. This could have occurred inside the WIPP underground storage area or other area with unprotected workers.

The way that chemical compatibility evaluations are deemed acceptable at IEC facilities has sometimes been based on inadequate knowledge of the chemical constituents present and incorrect underestimates of the amounts of problematic constituents and invites future chemical incompatibility events. Major events occurred at WIPP in 2014 and at INL in 2018. Minor events

could cause blowing liquid out of drum vents, it would seem. Liquids, such as polychlorinated biphenyls (PCBs) are particularly hazardous.

RWMC ARP Permit and Books 1 and 2 Attachments are Confusingly Out of Sync

The proposed permit attachments incorrectly callout Permit Condition “VI.C.1” as the Permit Condition defining pyrophoric waste. The actual Permit Condition is IV.C.1. This disjointness may be known and may be considered acceptable by saying that the permit wording overrides the attachments. But it creates even more opportunities for error and confusion of permit meaning.

Ambiguity of wording has tended to cause RCRA permit requirements to be ignored. This was the case in the 2018 RWMC ARP V overpressurization of four drums. Pyrophoric material was prohibited and yet large quantities of pyrophoric uranium metal were treated inside a fabric enclosure. The particular form of uranium metal was known to exhibit pyrophoric behavior, yet was treated in a facility despite the RCRA permit forbidding such material.

RWMC ARP Permit Lacks Specific Limit on Uranium Metal in Drums

The RWMC ARP permit needs to specify the grams of uranium in a container that must not be exceeded. The AMWTP RCRA permit has special requirements when there is greater than 250 grams of uranium in a waste container. If greater than 250 grams of uranium could be allowed in the RWMC ARP, then all RCRA requirements for AMWTP should also be included in the RWMC ARP permit.

RWMC ARP Permit Includes “Rake and Hold” As the Only Restriction for Pyrophoric or Reactive Material, in the Attachments

It is not clear why, when there is no gram limit on uranium in a waste container, why the “rake and hold” restrictions are included in the permit attachments (for WMF-1619) and yet no other restriction which are required for AMWTP such as specific thermal monitoring of newly packaged drums such as use of RFIDs and conducting a “drop test” for reactivity.

Are there any conditions that should require a “drop test” such as Method 1050 “Test Methods to Determine Substances Likely to Spontaneously Combust” Method A, for ignitability, for the waste that could be treated at the RWMC ARP?

Idaho DEQ Premature Approval of Previous RCRA Permits Has Been Contributing to the Failure of the Permittee to Implement Requirements

The pre-approval by the Idaho DEQ of RCRA permits for the RWMC and for the Advanced Mixed Waste Treatment Project (AMWTP) appears to have allowed the unverified, unreviewed and inadequately implemented RCRA permit requirements.

Idaho DEQ Failure to Monitor and Enforce RCRA Permit Violations Contributing to Ongoing Permit Violations

The Idaho DEQ failed to take timely and appropriate enforcement actions against DOE and its previous cleanup contractor, Fluor Idaho, when the four drums ejected their lids and expelled their contents in 2018.

The past failure of the Idaho DEQ to properly oversee the previous cleanup contractor and failure to enforce the previous permits with the DOE and Fluor Idaho has set the stage for the recent problems. This need for proper enforcement of RCRA permits has not been addressed in this RWMC ARP permit renewal.

Back in 2018, it was the sending of forbidden pyrophoric unoxidized uranium from the AMWTP to an RWMC ARP that caused four recently repackaged waste drums to forcefully blow off their lids and eject their powdery contents in the ARP fabric enclosure. This happened because of deliberate decisions by DOE's cleanup contractor, Fluor Idaho, to ignore the characteristics of the waste and their unsuitability for the ARP facility and to violate the RCRA permit. In addition, Fluor Idaho ignored the high concentrations of beryllium and the necessary limits for waste sent to WIPP containing beryllium. People could have been seriously harmed from the event, the environment could have and nearly was very seriously contaminated and yet the Idaho DEQ did not take timely enforcement action.

Fast forward to 2022, given that the procedures in use at AMWTP "did not work as written," and precautions in the permit were not taken, and the Idaho DEQ did not take any enforcement action for these issues identified in early 2022, the Idaho DEQ is not fit to provide oversight of the RCRA permit for either the AMWTP or RWMC ARP.

Given that the permit requirements were not being followed in early 2022, why would the Idaho DEQ expect that its permit requirements would be followed in the future?

IDAPA adopts 40 CFR 270.30(e) which states:

Proper operation and maintenance. The permittee shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the permittee to achieve compliance with the conditions of this permit. Proper operation and maintenance includes effective performance, adequate funding, adequate operator staffing and training, and adequate laboratory and process controls, including appropriate quality assurance procedures. This provision requires the operation of back-up or auxiliary facilities or similar systems only when necessary to achieve compliance with the conditions of the permit.

The gross procedural violations and inadequate implementation of RCRA requirements by the Idaho Environmental Coalition call for termination of the AMWTP RCRA permit and likely others, not the 10-year extension of the RWMC ARP permit.

Long-standing Inadequate Idaho DEQ RCRA Permit Compliance Monitoring

The adequacy of state programs is regulated under 40 CFR 239.1 which states in part:
40 CFR 239.7 Requirements for compliance monitoring authority.

(a) The [state](#) must have the authority to:

(1) Obtain any and all information necessary, including records and reports, from an [owner](#) or [operator](#) of a Subtitle D regulated [facility](#), to determine whether the [owner](#) or [operator](#) is in compliance with the [state](#) requirements;

(2) Conduct monitoring or testing to ensure that [owners](#) and [operators](#) are in compliance with the [state](#) requirements; and

(3) Enter any site or premise subject to the [permit](#) program or in which records relevant to the operation of [Subtitle D regulated facilities](#) or activities are kept.

(b) A [state](#) must demonstrate that its compliance monitoring program provides for inspections adequate to determine compliance with the [approved state permit](#) program.

(c) A [state](#) must demonstrate that its compliance monitoring program provides mechanisms or processes to:

(1) Verify the accuracy of information submitted by [owners](#) or [operators](#) of [Subtitle D regulated facilities](#);

(2) Verify the adequacy of methods (including sampling) used by [owners](#) or [operators](#) in developing that information;

(3) Produce evidence admissible in an enforcement proceeding; and

(4) Receive and ensure proper consideration of information submitted by the public.

If the RCRA permit requirements for the AMWTP were so inadequately implemented as the complete omission of required RCRA permit requirements such as (1) failure to follow fire protection requirements when treating high amounts of uranium metal, (2) failure to perform “drop tests” to confirm pyrophoric conformance, and (3) failure to conduct required thermal monitoring of recently repackaged waste containing high amounts of uranium metal — then the Idaho DEQ has not been providing adequate inspections and verification to ensure the implementation of the RCRA permit with the Idaho Environmental Coalition. The Idaho DEQ did not take any enforcement action for the AWMTP RCRA permit violations either.

RWMC ARP Permit Needs to Reduce Allowed Outdoor Storage of Transuranic Waste

The RWMC ARP permit allows virtually continuous storage of waste outside, on trailers or on pallets during ongoing operations. The storage is unmonitored, unfiltered, unconfined and unsafe. This is especially important given the unpredicted events that keep occurring regarding waste treated by the project (the 2018 4-drum event and the 2022 mystery liquid in the TRUPACT-II). In each of those events, the drum breach could have occurred with the drum(s) in the open air and could have resulted in far greater radiological releases to the environment.

RWMC ARP RCRA Permit Clearly Shows That Propane Tank Near WMF-1619 Not Adequately Protected and May Cause a Radiological Event

The concrete barriers next to the propane tank shown in a photograph near WMF-1619 are too close to the tank and too small to be effective. Notice the tire tracks near the propane tank. A simple driver error could result in a BLEVE, fire, and/or projectile. Basic precautions for the use of propane tanks near transuranic waste are still lacking and must be reexamined.

A 10-year Permit Renewal Should Not Be Granted for the RWMC ARP RCRA Permit

The serious problems in ignoring the compliance with the existing permit and the failure of the Idaho DEQ to enforce RCRA requirements means that the partial permit should be reviewed and revised. The current RWMC ARP RCRA permit submittal has numerous inadequacies. And even an improved permit should not be renewed for 10 years.

Granting the permit renewal for 10 years keeps the permit from being questioned, no matter what unsafe behavior or event happens next. Given the secrecy over the recent problems, citizens won't know about safety problems.

Yes, the waste is here in Idaho and we need it safely stored until safely shipped for disposal to WIPP or another Idaho or Utah facility that accepts the waste. But granting a 10-year permit renewal, given the recent months of errors and permit violations by Idaho Environmental Coalition is a terrible idea. And this RWMC ARP permit submittal lacks careful review that cannot be conducted until the reasons for the IEC's multiple permit violations in January and February at AMWTP are addressed and until the causes of the liquid found in a TRUPACT-II in April 9 at WIPP are addressed.