

**BEFORE THE DIRECTOR OF THE
IDAHO DEPARTMENT OF ENVIRONMENTAL QUALITY**

In re:

U.S. Department of Energy (DOE) and
Fluor Idaho, LLC

EPA ID No. ID4890008952

**PETITION FOR REVIEW
OF HWMA/RCRA HAZARDOUS WASTE
TREATMENT AND STORAGE
PERMIT RENEWAL FOR THE AMWTP**

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pages. See Environmental Protection Agency Freedom of Information document R10-100140488 at <https://foiaonline.gov/foiaonline/action/public/submissionDetails?trackingNumber=EPA-R10-2019-003499&type=request>2

The US Ecology Idaho facility at Grand View, permit attachment 2 describes the requirement to conduct chemical compatibility of the waste streams. It generally uses EPA-600/2-80-076 (see <https://www.epa.gov/sites/production/files/2016-03/documents/compat-haz-waste.pdf>) and <http://www.deq.idaho.gov/media/60178892/us-ecology-site-b-grand-view-att2.pdf>2

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Idaho Cleanup Project Core, “Formal Cause Analysis for the ARP V (WFM-1617) Drum Event at the RWMC,” October 2018. https://fluor-idaho.com/Portals/0/Documents/04_%20Community/8283498_RPT-1659.pdf6, 9, 12

“Site Treatment Plan” for the Idaho Site 2016 report is at the Idaho DEQ website at <https://www.deq.idaho.gov/media/60179380/inl-annual-site-treatment-plan-report-1116.pdf> and the 2017 report is on the Fluor Idaho website at https://fluor-idaho.com/Portals/0/7519317_SiteTreatmentPlan.pdf7

Department of Energy Office of Environmental Management, Accident Investigation Report, “Phase 2 Radiological Releases Event at the Waste Isolation Pilot Plant February 14, 2014,” April 2015. http://wipp.energy.gov/Special/AIB_WIPP%20Rad_Event%20Report_Phase%20II.pdf.....11

Idaho Cleanup Project Citizens Advisory Board (formerly the Idaho National Laboratory Citizens Advisory Board) meeting schedules and presentations at <https://energy.gov/em/icpcab/idaho-cleanup-project-citizens-advisory-board-icp-cab>, Meeting held April 25, 201911

INTRODUCTION

Pursuant to IDAPA 58.01.05.013, Tami Thatcher petitions for review of the Final Approval of Hazardous Waste Management Act (HWMA)/Resource Conservation and Recovery Act (RCRA) Hazardous Waste Treatment and Storage Permit for the Advanced Mixed Waste Treatment Project (AMWTP) at the Radioactive Waste Management Complex (RWMC) on the Idaho National Laboratory (INL), (EPA ID No. ID4890008952), which is to be issued to the U.S. Department of Energy (DOE) and Fluor Idaho, LLC on May 18, 2019, by the Idaho Department of Environmental Quality.¹

The State of Idaho has primacy for implementing regulations that are at least as stringent as the federal acts and regulations. The federal Resource Conservation and Recovery Act (RCRA) was enacted to protect human health and the environment from the potential hazards of managing hazardous waste. With only a few exceptions, Idaho has incorporated RCRA by reference into the state's Rules and Standards for Hazardous Waste, including IDAPA 58.01.05.004, 005, 008 and 010 through 013 [40 CFR 260, 261, 264, 266, 268, 270, and 124].

The permit at issue in this petition authorizes the Department of Energy and Fluor Idaho, LLC to continue to conduct unsafe and non-compliant storage and treatment of mixed radioactive and hazardous waste at the AMWTP with unresolved and widely acknowledged deficiencies in the hazard characterization and hazard mitigation of these wastes specifically with regard to explosion hazards from gas (typically hydrogen or methane) buildup which may arise from conditions such as chemical incompatibility. Petitioner contends that the Idaho Department of Environmental Quality's (DEQ) decision to grant the permit is based on incomplete understanding of the facts and inappropriate assumptions that the Permittees will soon begin to comply with the Permit despite numerous occurrences of non-compliance that are now documented. Strong RCRA permit enforcement actions by the Idaho DEQ are needed in order to discourage unsafe and noncompliant behavior of the Department of Energy and its cleanup contractor Fluor Idaho, the Permittees.

ISSUES PRESENTED FOR REVIEW

Specifically, petitioner challenges the following Idaho DEQ decisions:

Issue 1. The DNFSB in March 2019 issued a report explaining that the explosion hazards posed by the Department of Energy's waste drums are still not adequately understood and are still not adequately mitigated.

The Defense Nuclear Facilities Safety Board (DNFSB) has now stated in a report issued March 2019 that neither DOE or its contractors, including Fluor Idaho, adequately understand the technical issues involved with the hazards posed by gas buildup pertaining to waste drum

¹ Idaho Department of Environmental Quality, draft Partial Permit for the AMWTP at <http://www.deq.idaho.gov/news-archives/waste-amwtp-hz-permit-approval-042219/>

explosion hazards.² The DNFSB also stated in its report that currently DOE-ID and Fluor Idaho are *still* not providing adequate hazard mitigation at its facilities regarding waste drum explosion hazards. Idaho DEQ now acknowledges that the explosion of four drums at the Idaho Cleanup Project ARP V is relevant to the AMWTP permit, and says that future permit modifications may be needed. Idaho DEQ stated its intent to approve the AMWTP permit renewal as early as last August 2018 despite no published analysis of why four drums exploded at the Idaho Cleanup Project Radioactive Waste Management Complex in Accelerated Retrieval Project (ARP) V in April 2018.³ Idaho DEQ wrongly assumes that the existing permit is adequate. Idaho DEQ must ensure that all needed permit modifications in response to accident investigation of the four drums that exploded and in response to the March 2019 DNFSB report are made prior to permit approval. The Idaho DEQ has stated it plans to grant permit renewal despite the fact that the current permit is inadequate because of the inadequate technical basis for assumptions pertaining to understanding and preventing or responding to explosive levels of gas buildup in waste containers, according to the DNFSB. (Pertains to Idaho DEQ response to Thatcher public comment, Comment No. 3 (page 9), Comment No. 9 (page 10), Comment No. 10 (page 11) of April 18, 2019 Idaho DEQ letter “Response to Comments and Final Decision on Draft Renewal HWMA/RCRA Permit for the AMWTP at the RWMC on the INL (EPA ID No. ID4890008952).⁴

Issue 2. The failure of Idaho-state approved RCRA permittees to conduct adequate permit required chemical compatibility analyses Idaho DEQ appears to have caused two explosions at RCRA facilities in Idaho in 2018. The first explosion was at the Idaho Cleanup Project operated by Fluor Idaho and the second explosion occurred at the US Ecology Idaho RCRA disposal facility in Grandview, Idaho.^{5 6} The US Ecology facility accepts radioactive waste from around the country and the explosion caused a fatality and injured several workers. Although the RCRA permit required the analyses, two explosions in 2018 should be enough to cause the Idaho DEQ to rethink its assumption that RCRA permittees will adequately comply with the requirement to conduct chemical compatibility analyses.

² Defense Nuclear Facilities Safety Board, Letter to Secretary of Energy, March 12, 2019 with attached staff report “Idaho Waste Drums with Elevated Methane Concentrations,” See dnfsb.org or <https://ehss.energy.gov/deprep/2019/FB19M12A.PDF>

³ Keith Ridler, *The Idaho Statesman*, “Officials say radioactive sludge barrel ruptures now total 4,” April 25, 2018. <http://www.idahostatesman.com/latest-news/article209827149.html>

⁴ IDEQ responses and comment submittals for HWMA/RCRA Permit renewal for the AMWTP at the RWMC on the INL (EPA ID No. ID4890008952) <http://www.deq.idaho.gov/news-archives/waste-amwtp-hz-permit-approval-042219/>

⁵ US Ecology Idaho information regarding November 2018 explosion at Grandview, Idaho State Communications Center Hazmat, H-2018-00222, 11/17/2018 11:05 through 01/04/2019, 18 pages. See Environmental Protection Agency Freedom of Information document R10-100140488 at <https://foiaonline.gov/foiaonline/action/public/submissionDetails?trackingNumber=EPA-R10-2019-003499&type=request>

⁶ The US Ecology Idaho facility at Grand View, permit attachment 2 describes the requirement to conduct chemical compatibility of the waste streams. It generally uses EPA-600/2-80-076 (see <https://www.epa.gov/sites/production/files/2016-03/documents/compat-haz-waste.pdf>) and <http://www.deq.idaho.gov/media/60178892/us-ecology-site-b-grand-view-att2.pdf>

Given that two explosions last year in 2018 at facilities granted RCRA permits by the Idaho DEQ that were caused by either failure to conduct any chemical compatibility analysis, failure to conduct an adequate chemical compatibility analysis, or failure to understand what materials were actually in the waste, the Idaho DEQ should not continue to *assume* that the RCRA-permittees will conduct adequate analyses such as required chemical compatibility analyses.

At the Idaho Cleanup Project where four drums exploded, the Permittees deliberately choose to not comply with the RCRA requirement to conduct the needed chemical compatibility analysis. **More people will be injured or die if Idaho DEQ continues to inappropriately assume its RCRA permittees will conduct chemical compatibility analyses simply because the permit states that the required analyses will be conducted. Idaho DEQ must require that DEQ receive chemical compatibility analyses prior to waste handling or treatment. And analyses such as the RCRA-required chemical compatibility analyses must be required to have independent expert review.** (Pertains to Idaho DEQ response to Thatcher public comment, Comment No. 8, page 10 of April 18, 2019 Idaho DEQ letter “Response to Comments and Final Decision on Draft Renewal HWMA/RCRA Permit for the AMWTP at the RWMC on the INL (EPA ID No. ID4890008952).

Issue 3. The requirements for waste characterization are an invitation for the Permittees to inadequately characterize the waste, putting workers, the public and the environment at risk. At the Idaho Cleanup Project, the Permittees chose to ignore warnings from experts who understood the history of the waste and its problematic constituents including beryllium, graphite and unreacted depleted uranium that had not be incinerated. Large quantities of depleted uranium that had not been roasted pose different hazards than partially unreacted uranium that had in incinerated or “roasted.” The graphite or carbide metals pose known methane gas generation hazards which were deliberately ignored. Carbide metal hazards are known to the Department of Energy from spent nuclear fuel storage research.⁷ Because adequate waste sampling would have been costly and slowed progress and perhaps been made it more difficult to dispose of because the waste could not meet Waste Isolation Pilot Plant (WIPP) Waste Acceptance Criteria,⁸ the Permittees chose to ignore what they suspected or knew was present in the waste. The Permittees chose to ignore Process Knowledge (or Acceptable Knowledge) and chose to deliberately mis-characterize the contents of the waste by ignoring the warning that the waste likely came from

⁷ U.S. Nuclear Waste Technical Review Board, “Management and Disposal of U.S. Department of Energy Spent Nuclear Fuel – Report to the United States Congress and the Secretary of Energy,” December 2017. [http://www.nwtrb.gov/our-work/reports/management-and-disposal-of-u.s.-department-of-energy-spent-nuclear-fuel-\(december-2017\)](http://www.nwtrb.gov/our-work/reports/management-and-disposal-of-u.s.-department-of-energy-spent-nuclear-fuel-(december-2017)) ?? On p. 22 of this report, the NWTRB states that “Carbide-containing DOE SNF can create combustible gases such as methane and acetylene when contacted by water ... if the coatings on the carbide particles are damaged.” While what was in the transuranic (or uranium) waste drums was not spent nuclear fuel, the knowledge of potential reactions with carbide are well-known and yet no identification of this hazard was conducted for the waste being treated which they knew potentially contained beryllium carbide from Rocky Flats weapons production processes — that’s likely why the uranium had not be “roasted

⁸ Department of Energy, Carlsbad Field Office, WIPP Waste Acceptance Criteria, DOE/WIPP-02-3122, Revision 8 Effective July 5, 2016. [http://www.wipp.energy.gov/library/cra/CRA-2014/references/Others/US DOE 2002 WIPP Rev 6 TRU Waste Acceptance Criteria 02 3122.pdf](http://www.wipp.energy.gov/library/cra/CRA-2014/references/Others/US%20DOE%202002%20WIPP%20Rev%206%20TRU%20Waste%20Acceptance%20Criteria%203122.pdf)

Building 444 of the Rocky Flats facility.⁹ (Pertains to Idaho DEQ response to Thatcher public comment, DEQ General Statement on page 8 of April 18, 2019 Idaho DEQ letter “Response to Comments and Final Decision on Draft Renewal HWMA/RCRA Permit for the AMWTP at the RWMC on the INL (EPA ID No. ID4890008952).

Issue 4. The Permittees at the Idaho Cleanup Project violated Department of Energy Orders and Standards by shipping prohibited waste from the AMWTP to the ARP V where the waste was repackaged and then exploded within hours of workers going home, by wrongly accepting prohibited waste at the ARP V from the AMWTP, and by “hoping” that the waste would not need to meet the most current Waste Isolation Pilot Plant (WIPP) Waste Acceptance Criteria. The Idaho DEQ must not continue to assume that waste transfers among its RCRA facilities will be conducted in a safe or compliant manner. The DEQ has the role of approving the Site Treatment Plan and that is one vehicle for tracking and documenting waste that has no disposal path or is not in compliance with WIPP Waste Acceptance Criteria. (Pertains to Idaho DEQ response to Thatcher public comment, Comment No. 6, page 9 of April 18, 2019 Idaho DEQ letter “Response to Comments and Final Decision on Draft Renewal HWMA/RCRA Permit for the AMWTP at the RWMC on the INL (EPA ID No. ID4890008952).

Issue 5. The Permittees made the deliberate choice to not conduct required safety analysis required by the Department of Energy under federal regulation 10 CFR 830, “Nuclear Safety Management,” for the new SD-176 waste stream it planned to treat. The new waste stream was inadequately characterized, and safety analysis was not performed probably because an adequate safety analysis would have required more protection of workers, the public and the environment and likely would have found using the fabric-enclosed ARP V unsuitable. The Idaho DEQ should no longer assume that the Permittees will conduct required safety analyses or adequate safety analyses. (Pertains to Idaho DEQ response to Thatcher public comment, Comment No. 4, page 9 of April 18, 2019 Idaho DEQ letter “Response to Comments and Final Decision on Draft Renewal HWMA/RCRA Permit for the AMWTP at the RWMC on the INL (EPA ID No. ID4890008952).

Issue 6. Adequate emergency response planning and preparation requires an adequate understanding of what is in the waste and of the gas buildup and explosion hazards of the waste. DEQ’s has provided an inadequate response to public comment by failure to understand the fact that Attachment 7 of the RCRA permit wrongly assumes the existence of the necessary understanding of the technical aspects needed to prevent explosions. In fact, the technical understanding, necessary characterization, accident mitigation, status monitoring, and emergency response planning needed in order to prevent or mitigate excessive gas buildup is not being provided in the Department of Energy complex, as the DNFSB report states.¹⁰ Given the failure of the Permittees to assure that emergency responders understood the materials in the waste

⁹ Idaho Completion Project, Bechtel BWXT Idaho, LLC for the Department of Energy, “Historical Background Report for Rocky Flats Plant Waste Shipped to the INEEL and Buried in the SDA from 1954 to 1971,” ICP/EXT-04-00248, Revision 1, March 2005. <https://ar.icp.doe.gov/images/pdf/200504/2005040400022KAH.pdf>

¹⁰ Defense Nuclear Facilities Safety Board, Letter to Secretary of Energy, March 12, 2019 with attached staff report “Idaho Waste Drums with Elevated Methane Concentrations,” See dnfsb.org or <https://ehss.energy.gov/deprep/2019/FB19M12A.PDF>

drums that exploded last year at the Idaho Cleanup Project at the Radioactive Waste Management Complex's ARP V, it is illustrative of Idaho DEQ's failure to understand the information that must be readily available for emergency responders to effectively and safely provide adequate emergency response. For the information to be readily available, it must first exist. The Department of Energy has yet to address how it will remedy its waste drum gas generation explosion hazards. (Pertains to Idaho DEQ response to Thatcher public comment, Comment No. 5, page 9 of April 18, 2019 Idaho DEQ letter "Response to Comments and Final Decision on Draft Renewal HWMA/RCRA Permit for the AMWTP at the RWMC on the INL (EPA ID No. ID4890008952).

Issue 7. Idaho DEQ has stated RCRA enforcement is pending, but since the four waste drums exploded over a year ago, there has been no sign that the Idaho DEQ will provide any meaningful RCRA enforcement. The Permittees appear to have no expectation that meaningful enforcement actions will be conducted by the Idaho DEQ. (Pertains to Idaho DEQ response to Thatcher public comment, DEQ General Statement on page 8 of April 18, 2019 Idaho DEQ letter "Response to Comments and Final Decision on Draft Renewal HWMA/RCRA Permit for the AMWTP at the RWMC on the INL (EPA ID No. ID4890008952).

THRESHOLD PROCEDURAL REQUIREMENTS

Petitioner satisfies the threshold requirements for filing a petition for review under IDAPA 58.01.05.013 [40 C.F.R. part 1124.19(a)] because Tami Thatcher participated in the public comment period on the permit. See my public comments to the Idaho DEQ at <http://www.deq.idaho.gov/news-archives/waste-amwtp-hz-permit-approval-042219/> and specifically the comment response and comment submittals at <http://www.deq.idaho.gov/media/60182776/amwtp-hwma-hw-permit-response-to-comments.pdf> DEQ Response to Public Comments on Draft Renewal HWMA/RCRA Permit for the AMWTP at the RWMC on the INL (EPA ID No. ID4890008952),” April 18, 2019.

The issues raised by Petitioner in its petition were raised during the public comment period and therefore were preserved for review, see Tami Thatcher's comment submittals at <http://www.deq.idaho.gov/media/60182776/amwtp-hwma-hw-permit-response-to-comments.pdf> DEQ Response to Public Comments on Draft Renewal HWMA/RCRA Permit for the AMWTP at the RWMC on the INL (EPA ID No. ID4890008952),” April 18, 2019.

FACTUAL AND STATUTORY BACKGROUND

A causal analysis¹¹ has been issued for the four transuranic waste drums that blew off their lids in April 2018 at the U.S. Department of Energy's Radioactive Waste Management Complex. The waste that exploded came from the AMWTP and was to return to the AMWTP.

The causal analysis states that "Management failed to fully understand, characterize, establish and implement adequate process controls for treating waste which lacked documented origin or process information."

The first smoldering drum set off fire alarms. **The fire department responded, unaware of the radioactive airborne contamination inside the fabric tension membrane enclosure because of radiation monitor malfunction.** Radiation levels reached 5 million disintegrations per minute per 100 cm². It is no small miracle that workers and emergency responders were not present inside the enclosure when the drums exploded.

Of about 20,000 drums of waste that had been exhumed from burial in the 1970s, a few thousand drums of waste had been characterized for years simply as contents "unknown." The drums involved in the event were exhumed after 1973. Then a few years ago, the waste known to have resulted from various processes for weapons production was designated as SD-176 waste. Dozens of possible chemicals were ascribed to this catch-all category for powdery material considered "homogeneous solids." It was not unusual for Rocky Flats to apply Portland cement-like material to drums with various chemical, radionuclide and metal wastes.¹²

The Accelerated Retrieval Project V at the Idaho National Laboratory had more commonly dealt with less reactive depleted uranium in the form of "roaster oxide." The unreacted uranium — that had never been "roasted" — did not appear to spark as the material was raked and repackaged on that rainy humid day. But uranium oxidation caused the newly repackaged drums to heat up.

According to the causal report, the elevated temperatures facilitated the reaction of another material, beryllium carbide. The beryllium was later found in much higher levels than expected. Methane gas was released from the reaction which overpressurized the drums within a few hours of repackaging after workers had gone home.

The integrity of the enclosure was nearly compromised by the heat and also by one of the ejected lids which penetrated a layer of the enclosure.

Contrary to the RCRA permit approved by the Idaho Department of Environmental Quality for processing this hazardous waste, this SD-176 waste repackaging was conducted **without** the preparation of a chemical compatibility analysis, or reactivity or pyrophoric material analysis.

Contrary to Department of Energy regulations, no nuclear safety analysis was conducted for this new waste stream. The DOE also violated its radioactive waste management order by not having a plan for disposing of the waste prior to processing it. **Current Waste Isolation Pilot Plant (WIPP) waste acceptance criteria were not being applied at ARP V where the drums**

¹¹ Idaho Cleanup Project Core, "Formal Cause Analysis for the ARP V (WFM-1617) Drum Event at the RWMC," October 2018. https://fluor-idaho.com/Portals/0/Documents/04_%20Community/8283498_RPT-1659.pdf

¹² Idaho Completion Project, Bechtel BWXT Idaho, LLC for the Department of Energy, "Historical Background Report for Rocky Flats Plant Waste Shipped to the INEEL and Buried in the SDA from 1954 to 1971," ICP/EXT-04-00248, Revision 1, March 2005. <https://ar.icp.doe.gov/images/pdf/200504/2005040400022KAH.pdf>

exploded. ¹³ The SD-176 waste was exhumed from pits 11 and 12 during the Initial Drum Retrieval (IDR) Project in the 1970s after 1973. The wastes were stored above ground at the RMWC. The Site Treatment Plan is a document required by law that specifies what waste is at the INL and where the waste is going to be disposed of. ¹⁴

The contents of one drum were mixed into four other drums in order to reduce the level of radioactivity all without knowing the contents of the drums. No special precautions had been put in place and the assumption that any unreacted uranium would be visible during raking through the waste turned out to be incorrect. Despite the DOE saying that the repackaged drums had not been certified for shipment to WIPP, it appears that no effective process was planned that would have reacted the uranium in the drums. Unreacted uranium was prohibited in the WIPP Waste Acceptance Criteria.

It appears that Fluor Idaho was performing the work exactly the way the Department of Energy Idaho Field Office wanted. The report found that some personnel stated that “they did not feel comfortable identifying issues that were not consistent with management direction, would delay mission-related objectives, or would otherwise impact cost or schedule.”

The casual analysis identifies that numerous RCRA requirements had not been met. **The waste had not been adequately characterized and there was no plan to characterize the waste in order to ship the waste to the Waste Isolation Pilot Plant.** No attempt was made to meet earlier revisions or the current WIPP Waste Acceptance Criteria. ¹⁵ No chemical compatibility analysis had been conducted. No assessment of reactive and pyrophoric materials had been conducted. This is despite the illusion presented by hundreds of pages of RCRA documentation in approved permits and for proposed permit renewal.

The hazard of pyrophoric and unreacted uranium was not recognized even though its RCRA permit for ARP V prohibited pyrophoric material and the Fluor Idaho accepted the prohibited material from the AMWTP. According to the causal analysis, opportunities to understand that the unreacted uranium was pyrophoric included the box line fire event of December, 21 2017 at the AMWTP discussed at the February 2018 ICP Citizens Advisory Board meeting.

An opportunity to understand the beryllium carbide reaction was missed when several drums had high methane levels in the 2015 or 2016 timeframe, according to the causal report. The elevated methane levels disqualified sending those drums to WIPP. Those drums, the causal report states, are at the INL but I was unable to determine where or what the plan for their disposition is from the INL Site Treatment Plan that is updated annually. The intent of the Site Treatment Plan is to always know that waste has a plan for its disposal and that this information

¹³ Department of Energy, Carlsbad Field Office, WIPP Waste Acceptance Criteria, DOE/WIPP-02-3122, Revision 8 Effective July 5, 2016. [http://www.wipp.energy.gov/library/cra/CRA-2014/references/Others/US DOE 2002 WIPP Rev 6 TRU Waste Acceptance Criteria 02 3122.pdf](http://www.wipp.energy.gov/library/cra/CRA-2014/references/Others/US%20DOE%202002%20WIPP%20Rev%206%20TRU%20Waste%20Acceptance%20Criteria%203122.pdf)

¹⁴ “Site Treatment Plan” for the Idaho Site is difficult to find but the 2016 report is at the Idaho DEQ website at <https://www.deq.idaho.gov/media/60179380/inl-annual-site-treatment-plan-report-1116.pdf> and the 2017 report is on the Fluor Idaho website at https://fluor-idaho.com/Portals/0/7519317_SiteTreatmentPlan.pdf Note that a 55-gallon drum holds 0.208197648 cubic meters.

¹⁵ Department of Energy, Transuranic Waste Acceptance Criteria for the Waste Isolation Pilot Plant, DOE/WIPP-02-3122, Revision 8.0, Effective Date: July 5, 2016. <http://www.wipp.energy.gov/library/wac/WAC.pdf> Section 3.5 Chemical Properties states “Radioactive pyrophorics in concentrations greater than 1 percent by weight and all nonradioactive pyrophorics shall be reacted (or oxidized) and/or otherwise rendered nonreactive prior to placement in the payload container.”

is reviewed by the Idaho DEQ and made publicly available. Because it appears that the contents of those high methane drums were never understood, how can a plan to properly dispose of the drums have been created?

The absence of required analyses to properly mitigate the hazards of processing the SD-176 waste stream apparently did not concern the DEQ who approves the RCRA permits for the site. The DEQ also has stated its intent to approve renewal of the RCRA permit of the Advanced Mixed Waste Treatment Project, where the SD-176 drums came from, without consideration of the drum rupture investigation.¹⁶ There are penalties for a person who operates a RCRA facility and knowingly omits material information or makes any false statement in a RCRA permit — 2 years jail time and/or up to \$50,000 per day violation (42 U.S.C. 6928(d)(3)).

The causal report also proves my concerns raised to the DEQ last year that the **RCRA permits needed specific fire hazard planning documents to be reviewed prior to issuing RCRA permits** because of the Idaho National Laboratory's longstanding deficiencies regarding integrating fire protection planning with nuclear facility hazards.

In March 2019, the DNFSB issued a report documenting its technical findings pertaining to its review of the four waste drums that exploded in April 2018 and concluding that the Department of Energy still did not have an adequate technical basis for understanding and mitigating explosion hazards in waste drums in the DOE Complex.¹⁷

Although the Department of Energy didn't discuss it at the April 2019 Idaho Cleanup Project Citizens Advisory Board meeting, the Defense Nuclear Facilities Safety Board (DNFSB) has found that neither the Department of Energy nor its Idaho Cleanup contractor, Fluor Idaho, have yet developed adequate protections for waste drum explosion hazards. The waste drums typically contain transuranic radionuclides but can also contain radioactive uranium and fission products as well as chemical waste.

In the report the DNFSB stated that **“DOE-ID lacks effective controls to prevent or mitigate deflagrations in drums of repackaged waste.”** The report details why the Department of Energy's response to understanding how to prevent future transuranic waste drum explosions remains inadequate, and why the new mitigations put in place are inadequate. The DNFSB found that Fluor Idaho's limited mitigations, which included the use of thermal monitoring during and immediately following repackaging and a 24 hour hold time after sorting the waste prior to repackaging, do not provide adequate hazard protection.

Drum over-pressurization that forcefully ejected the lids from four drum last April at the Idaho National Laboratory's Radioactive Waste Management Complex, can also be described as explosions or as deflagrations. No matter what it is called, the DNFSB found that the DOE's response and its safety analyses that are supposed to protect workers and the environment have been and still remain inadequate. Last fall, U.S. Department of Energy cleanup contractor Fluor Idaho issued a report on the causes of the explosion of the four waste drums last April.¹⁸

¹⁶ Idaho Department of Environmental Quality, draft Partial Permit for the AMWTP at <http://www.deq.idaho.gov/news-archives/waste-amwtp-hz-permit-approval-042219/>

¹⁷ Defense Nuclear Facilities Safety Board, Letter to Secretary of Energy, March 12, 2019 with attached staff report “Idaho Waste Drums with Elevated Methane Concentrations,” See dnfsb.org or <https://ehss.energy.gov/dep/2019/FB19M12A.PDF>

¹⁸ Idaho Cleanup Project Core, “Formal Cause Analysis for the ARP V (WFM-1617) Drum Event at the RWMC,” October 2018. https://fluor-idaho.com/Portals/0/Documents/04_%20Community/8283498_RPT-1659.pdf

A meeting to be held in Washington D.C. on May 22 is being rescheduled to discuss how DOE plans to provide technically sound assumptions regarding excessive gas buildup in waste drums that exceeds what drum vents are capable of providing. The DNFSB found that the Department of Energy and its contractors have continued to make incorrect assumptions about gas buildup, the likelihood and consequence of drum explosions, and the efficacy of certain mitigative measures. The DNFSB found that DOE Standard 5506-2007, *Preparation of Safety Basis Documents for Transuranic (TRU) Waste Facilities*, contains assumptions that are not technically supported and actually promotes inadequate safety analysis by not requiring technical analysis when it is needed.¹⁹

DOE-ID had continued to assume that drum explosions were “extremely unlikely” despite discovering high levels of methane in nine drums in 2012. Had DOE-ID and its contractor correctly declared then that the condition indicated inadequate safety analysis, appropriate investigations could have been conducted. Only by the explosion of the four drums in April 2018 have Fluor Idaho and DOE-ID admitted that the likelihood of drum explosions is “anticipated” not “extremely unlikely.” More hazard mitigation is required to address higher likelihood and high consequence accidents and for a broader range of gas generation events, not just for drums with beryllium-carbide immediately following repackaging. All drums with carbide metals or unreacted uranium and during storage, not just soon after repackaging, require more hazard analysis and mitigation.

The four drums that exploded inside Accelerated Retrieval Project V (ARP V) last April could have had serious environmental consequences by causing a significant release to the environment because drums could have been stored in a building with no filtered confinement system or outside confinement when they exploded. Exploding drums also pose the risk of serious injury to workers and emergency responders.

Dozens of possible chemicals were ascribed to a catch-all category SD-176 for powdery material considered “homogeneous solids” of the kind from Rocky Flats nuclear weapons plant where Portland cement-like material had been added to drums with various chemical and finely divided radionuclide and metal wastes.²⁰

No analyses were conducted for chemical compatibility and reactive and pyrophoric materials for the SD-176 waste as required by hazardous waste RCRA laws. On top of that, no nuclear safety analysis was conducted to mitigate the hazards of this new SD-176 waste stream.

The day of the explosion of four waste drums, uranium from one drum was mixed with the unknown material in other drums to distribute the uranium among the drums. Now supplied with oxygen from the repackaging, the uranium began oxidizing and heating up the drums. The heat enabled another chemical reaction that rapidly produced methane from the beryllium carbide in the drums.

¹⁹ Defense Nuclear Facilities Safety Board, Letter to Secretary of Energy, March 12, 2019 with attached staff report “Idaho Waste Drums with Elevated Methane Concentrations,” See dnfsb.org or <https://ehss.energy.gov/deprep/2019/FB19M12A.PDF>

²⁰ Idaho Completion Project, Bechtel BWXT Idaho, LLC for the Department of Energy, “Historical Background Report for Rocky Flats Plant Waste Shipped to the INEEL and Buried in the SDA from 1954 to 1971,” ICP/EXT-04-00248, Revision 1, March 2005. <https://ar.icp.doe.gov/images/pdf/200504/2005040400022KAH.pdf>

The DOE also violated its radioactive waste management regulations by not having a plan for disposing of the waste prior to processing it. Current Waste Isolation Pilot Plant (WIPP) waste acceptance criteria were not being applied.²¹

DOE regulations and state and federal laws were ignored in order to save money and time in the processing of the radioactive and chemically hazardous waste. In Idaho, the DOE-ID, Fluor Idaho and the Idaho Department of Environmental Quality have all pretended that the waste was being treated in accordance with laws and regulations. But it wasn't. Idaho DEQ has indicated that enforcement actions in regard to the four drums that exploded last April are pending.

In 2012, nine drums were found to have excessive levels of methane gas in them that could not be shipped to WIPP. The reasons for the gas buildup in the waste drums, the unexpected trends in the methane gas, and the strategies for managing these drums still lack adequate technical basis and lack adequate safety analysis. Gas monitoring typically is not conducted until the drums are ready to be shipped to WIPP and is not required for drums shipped to other disposal facilities such as the one in Clive, Utah.

The repackaging of drums which increases oxygen levels can result in rapidly increasing methane buildup in drums containing beryllium carbide or other metal carbides, but neither drum sampling nor historical knowledge of what is in the drums have identified the amount of carbide metals. Gas buildup monitoring in the problem drums continued to rise in ways that were not predicted for many days.

The DNFSB report noted on page 7 that “re-arranging or disturbing the waste could renew a methane-generating reaction that had been slowing down.” I still am concerned that emergency response considerations are inadequate for accidental puncture of a drum that could also allow increases in oxygen and allow rapidly increasing methane buildup.

The DNFSB found that the Department of Energy missed several opportunities to recognize and prevent drum explosions: the drum explosion at the Waste Isolation Pilot Plant in 2014, and drum fires at the Idaho National Laboratory in 2005 during exhumation at the Radioactive Waste Management Complex Subsurface Disposal Area and in 2017 at the Advanced Mixed Waste Treatment Project.

Based on the DNFSB report and on information presented at Idaho Cleanup Project Citizens Advisory Board meetings, here's what I conclude: **The Department of Energy's narrow review of fire and explosion incidents has paved the way for more drum accidents at the INL and around the DOE Complex. The reduction in the number of drums handled as planned cleanup winds down could leave a higher number of problem drums and even further reduced attention to safety issues than the inadequate hazard mitigation today.**

DOE-ID had hoped that it would be satisfactory to “grandfather” already packaged drums to older WIPP Waste Acceptance Criteria created prior to the 2014 drum explosion at the WIPP underground disposal facility in New Mexico.²² DOE-ID has only recently been acknowledged

²¹ Department of Energy, Carlsbad Field Office, WIPP Waste Acceptance Criteria, DOE/WIPP-02-3122, Revision 8 Effective July 5, 2016. [http://www.wipp.energy.gov/library/cra/CRA-2014/references/Others/US DOE 2002 WIPP Rev 6 TRU Waste Acceptance Criteria 02 3122.pdf](http://www.wipp.energy.gov/library/cra/CRA-2014/references/Others/US%20DOE%202002%20WIPP%20Rev%206%20TRU%20Waste%20Acceptance%20Criteria%203122.pdf)

²² Department of Energy Office of Environmental Management, Accident Investigation Report, “Phase 2 Radiological Releases Event at the Waste Isolation Pilot Plant February 14, 2014,” April 2015. [http://wipp.energy.gov/Special/AIB WIPP%20Rad Event%20Report Phase%20II.pdf](http://wipp.energy.gov/Special/AIB_WIPP%20Rad_Event%20Report_Phase%20II.pdf)

at the April Citizens Advisory Board meeting that Idaho's drums will be required to meet the most recent WIPP Waste Acceptance Criteria, but the impacts of this were not explained.²³

At the Idaho National Laboratory, while the number of total number of drums is reduced as drums are shipped to WIPP, *known problem drums* that don't meet WIPP Waste Acceptance Criteria as well as *problem drums not yet known to have problems*, remain in Idaho and *still* lack adequate hazard mitigations. As the number of waste drums and the number of employees drop Fluor's waste drum operations, the risk of more drum accidents may not be dropping. And if Fluor Idaho is replaced by another cleanup contractor, cost pressures could continue to allow more waste drum accidents.

ARGUMENT

The Idaho DEQ's response to public comment has been to compile incomplete and ill-conceived excuses for accepting the flawed permit, all while ignoring the egregious behavior of the Permittees. The Idaho DEQ's response to public comment displays an incomplete grasp of the reasons that four drums exploded April 2018, and the associated technical issues. The Idaho DEQ wishes to assume that the Permittees will now stop ignoring state and federal requirements, despite the fact that the Permittees expect no enforcement. The Idaho DEQ wrongly assumes that had the existing permit been followed that the four drums would not have exploded, despite the inadequate technical assumptions made by the Permittees regarding gas buildup and explosion hazards. The Idaho DEQ wrongly assumes that had a chemical compatibility analysis been conducted, that it would have been adequate, despite the underestimate or complete omission of specific constituents in the waste. The Idaho DEQ ignores that the Permittees made the decision to improperly characterize the waste to make it easier to create the appearance of meeting unspecified and out-of-date versions of the waste acceptance criteria for disposal facilities, namely, WIPP. The Idaho DEQ, by choosing to ignore the Permittees deliberate unsafe decisions to ignore state and federal requirements, perpetuates unsafe operations at the AMWTP.

From the April 18, 2019 Idaho DEQ letter "Response to Comments and Final Decision on Draft Renewal HWMA/RCRA Permit for the AMWTP at the RWMC on the INL (EPA ID No. ID4890008952), each pertinent comment is addressed below.

²³ Idaho Cleanup Project Citizens Advisory Board (formerly the Idaho National Laboratory Citizens Advisory Board) meeting schedules and presentations at <https://energy.gov/em/icpcab/idaho-cleanup-project-citizens-advisory-board-icp-cab>, Meeting held April 25, 2019

DEQ General Statement on page 8: *“Many of Ms. Thatcher’s comments focus on the drum over pressurization event that occurred in the adjacent Advanced Retrieval Project (ARP) V hazardous waste management unit on April 11, 2018. The Formal Cause Analysis for the ARP-V (WMF1617) Drum Event at the RWMC (RPT-1659)²⁴ identified that the facility did not follow the waste analysis plan described in Attachment 2 of the ARP V RCRA permit and had not completely characterized and evaluated the chemical compatibility of the SD-176 waste before treating and repackaging in ARP V. The cause analysis report indicates that the ARP V drum event would not have occurred had DOE/Fluor (the Permittee) followed their existing HWMA/RCRA permit (Volume 18 partial permit). DEQ’s enforcement response to DOE for potential hazardous waste violations related to the exothermic event of the four drums inside the ARP V facility on April 11, 2018 is pending.”*

The Idaho DEQ’s General Statement above inadequately depicts the willfulness of the actions to not comply with the RCRA permit by the Permittee (the Department of Energy and Fluor Idaho). The statement also wrongly assumes that the Permittee had adequate technical understanding of the gas buildup and explosion hazards posed by the waste.

DEQ Response to Comment No. 2: *“DEQ processed the permit reapplication according to applicable federal and state hazardous waste regulations. DEQ conducted an extensive technical review of the AMWTP HWMA/RCRA permit renewal application submitted by DOE on December 5, 2017. DEQ submitted a notice of deficiency to DOE on May 3, 2018, requesting clarification and revisions to several items in the permit application. After reviewing the revised permit application, DEQ determined the application technically complete on August 9, 2018....”*

The Idaho DEQ incorrectly judged the AMWTP permit submittal to be technically complete and the Idaho DEQ lacked a complete causal analysis of the four drums that exploded on that date.

DEQ Response to Comment No. 3: *“DEQ believes the event at ARP-V would not have occurred had the existing HWMA/RCRA permit (Volume 18 partial permit) been followed. No changes were made to the permit as a result of this comment.”*

The Idaho DEQ fails to adequately comprehend the extent of the lack of adequate technical basis for understanding gas buildup and explosion hazards at the Department of Energy Complex including the AMWTP documented by the DNFSB.²⁵

²⁴ Idaho Cleanup Project Core, “Formal Cause Analysis for the ARP V (WFM-1617) Drum Event at the RWMC,” October 2018. https://fluor-idaho.com/Portals/0/Documents/04_%20Community/8283498_RPT-1659.pdf

²⁵ Defense Nuclear Facilities Safety Board, Letter to Secretary of Energy, March 12, 2019 with attached staff report “Idaho Waste Drums with Elevated Methane Concentrations,” See dnfsb.org or <https://ehss.energy.gov/deprep/2019/FB19M12A.PDF>

DEQ Response to Comment No. 4: *“The AMWTP Waste Analysis Plan does address this issue. A drum punctured incidental to handling is addressed by the emergency response procedures in Attachment 7. No changes were made to the permit as a result of this comment.”*

The original comment stated that “the draft permit has not considered the findings of why no one had recognized that unsealing waste containers could lead to explosive levels of hydrogen gas buildup. This could happen when repackaging the waste, or it could happen if a drum were punctured.” The Idaho DEQ fails to comprehend the extent of the inadequate technical basis for understanding gas buildup and explosion hazards at the Department of Energy Complex including the AMWTP documented by the DNFSB. The Idaho DEQ fails to understand that the existing emergency response procedures are still inadequate.

DEQ Response to Comment No. 5: *“As part of the corrective actions related to the ARP V drum event, DOE is revising the INL Fire Department Standard Operating Procedure. DOE conducted additional pre-incident plan training, including command and control, communications, approach paths and facility exit order and controls. The Training Plan in Attachment 5 of the AMWTP permit will be revised to include specific training on the ARP facilities for AMWTP Emergency Coordinators who respond to emergencies at ARP facilities, especially during off-hours.”*

Although the corrective actions above are positive signs, the Idaho DEQ fails to comprehend the extent of the inadequate technical basis for understanding gas buildup and explosion hazards at the Department of Energy Complex including the AMWTP documented by the DNFSB. The Idaho DEQ fails to understand that the existing emergency response procedures are still inadequate.

DEQ Response to Comment No. 6: *“This comment is beyond the scope of the AMWTP permit. No changes were made to the permit as a result of this comment.”*

The original comment was “Fluor had no plan as to how they would meet current WIPP Waste Acceptance Criteria even though it appears that Fluor expected to ship the waste drums to WIPP.” The Idaho DEQ response to Comment No. 6 is incorrect because the Idaho DEQ must approve via the Site Treatment Plan the waste disposal path for all RCRA waste at the Idaho National Laboratory. Insight is gained by the statement of DOE-ID at the April 2019 Idaho Cleanup Project Citizens Advisory Board meeting that it was appearing that the hope that they could “grandfather” the waste to earlier versions of the WIPP Waste Acceptance Criteria would not be allowed, and the Idaho waste would have to meet current WIPP Waste Acceptance Criteria. To save time and money, the DOE processed waste based on the “hope” that WIPP wouldn’t mind that the waste did not meet current WIPP Waste Acceptance Criteria. It’s not only lame — there is the appearance that Fluor Idaho and DOE-ID planned to deceive WIPP about the contents of the drums and the high amounts of beryllium and other constituents.

DEQ Response to Comment No. 8: *“As part of the corrective actions related to the ARP V drum event, the document used by the Permittee to perform chemical compatibility evaluations according to Attachment 6 of the Permit (RPT-ESH-14, Chemical Compatibility Evaluation of Wastes for AMWTP) will be updated with complete and accurate information. Please note that*

RPT-ESH-14, as well as RPT-TRUW-12 AMWTP Waste Stream Designations and RPT-TRUW-05 Waste Matrix Code Reference Manual, are part of the RCRA administrative record for the AMWTP facility and were submitted with the Part B permit application.”

The Idaho DEQ response fails to acknowledge that the documentation submitted to DEQ was incorrect and that no chemical compatibility analysis was conducted for the SD-176 waste that caused four drums to explode at ARP V. Nor does the Idaho DEQ admit that had a chemical compatibility analysis been attempted, it would have been based on inadequate understanding of the constituents and amounts in the waste. The Idaho DEQ fails to fully understand the Fluor Idaho causal analysis for the four waste drums that exploded and the Idaho DEQ fails to recognize the extent of the inadequate technical basis for understanding gas buildup and explosion hazards at the Department of Energy Complex including the AMWTP documented by the DNFSB.

DEQ Response to Comment No. 9: *“The depleted uranium component of the waste is regulated under the Atomic Energy Act of 1954 [RCRA exclusion in 40 CFR 261.4(a)(4)]. After the December 21, 2017, North Box Line fire event at AMWTP, the Permittee conducted an extent of conditions study to determine the number of containers with a higher uranium mass (>5 kg), primarily machine tailings, fines, and turnings, that needed processing at AMWTP. Based on the review, waste containers were changed to a different waste item description code if they held potentially pyrophoric U-238. A Class 1 permit modification request (PMR) requiring prior approval was submitted by the Permittee on June 22, 2018. The PMR addressed adding fire protection controls and procedures for the stainless-steel boxlines in WMF-676 (i.e., including adding magnesium oxide sand fire suppressant, removing all combustible materials and other waste before treatment, and processing one drum at a time) to support the conditioning of potentially unreacted depleted uranium contained in legacy mixed waste to be processed. DEQ approved the PMR on June 29, 2018. This effort aids in meeting the milestones specified by the Idaho Settlement Agreement for removing waste from Idaho. Attachment 2, Section C-21 of the AMWTP permit states unreacted depleted uranium is an expected component in some of the wastes received at the treatment facility, which was designed and constructed accordingly. No changes were made to the permit as a result of this comment.”*

The Idaho DEQ fails to recognize the difference between small quantities of unreacted uranium in roaster oxide which is uranium that has been incinerated in order to eliminate or reduce the amount of unreacted uranium AND uranium that was never incinerated at all. The non-roaster-oxide uranium is all unreacted uranium and it was present in large quantities in some of the waste. The AMWTP facility in some regards may have been designed for pyrophoric unreacted uranium; however, the facilities it was sending the waste to were not. Nor is it likely that a chemical compatibility would have addressed the large quantities of unreacted uranium and the potential effect on reactivity or ignitability, had any chemical compatibility analysis actually been performed as required. Nor does the Idaho DEQ recognize the extent of the inadequate technical basis for understanding gas buildup and explosion hazards at the Department of Energy Complex including the AMWTP documented by the DNFSB.

DEQ Response to Comment No. 10: *“The corrective actions resulting from the ARP V drum event may lead to future modifications of the ARP V HWMA/RCRA permit. The AMWTP renewal permit issued for public comment on September 28, 2018, is a comprehensive permit specific to storing and treating mixed waste at AMWTP. The attached list provides changes to the draft AMWTP permit. As a result of DEQ’s ARP V drum event evaluation and comments received on the draft AMWTP permit during the public comment period, the Training Plan in Attachment 5 of the AMWTP permit will be revised to include specific training for AMWTP Emergency Coordinators who respond to emergencies at ARP facilities, especially during off-hours. Attachment 4 (Inspections) of the AMWTP permit will be revised to include increased inspection frequencies of the CAMs in treatment areas, waste loading/unloading areas when operating, and mixed waste storage areas.”*

The Idaho DEQ should recognize that the further corrective actions resulting from the ARP V drum event, (the four drums that exploded), will require future modification of the AMWTP permit and that the current permit is inadequate. The Idaho DEQ fails to fully understand the Fluor Idaho causal analysis for the four waste drums that exploded and the Idaho DEQ fails to recognize the extent of the inadequate technical basis for understanding gas buildup and explosion hazards at the Department of Energy Complex including the AMWTP documented by the DNFSB.

CONCLUSION

Issue 1. The DNFSB in March 2019 issued a report explaining that the explosion hazards posed by the Department of Energy’s waste drums are still not adequately understood and are still not adequately mitigated.²⁶

Idaho DEQ stated its intent to approve the AMWTP permit renewal as early as last August 2018 despite no published analysis of why four drums exploded at the Idaho Cleanup Project Radioactive Waste Management Complex in Accelerated Retrieval Project (ARP) V in April 2018.

The Idaho DEQ has argued that the four waste drums would not have exploded had existing permit requirements been complied with, but this is incorrect when both the Fluor Causal Report and the DNFSB are both considered. The Idaho DEQ knows that more permit changes are expected to be made as part of corrective actions from the explosions and Fluor Idaho’s causal report, but nonetheless wishes to approve the permit as it is, without those unspecified changes.

Idaho DEQ wrongly assumes that the existing permit is adequate. The Idaho DEQ has stated it plans to grant permit renewal despite the fact that the current permit is inadequate because of the inadequate technical basis for assumptions pertaining to understanding and preventing or responding to explosive levels of gas buildup in waste containers, according to the DNFSB.

²⁶ Defense Nuclear Facilities Safety Board, Letter to Secretary of Energy, March 12, 2019 with attached staff report “Idaho Waste Drums with Elevated Methane Concentrations,” See dnfsb.org or <https://ehss.energy.gov/deprep/2019/FB19M12A.PDF>

Issue 1 Relief sought: The Idaho DEQ must not approve the inadequate AMWTP permit until needed changes are made and an adequate technical basis is developed for addressing gas building and explosion hazards.

Issue 2. Given that two explosions last year in 2018 at facilities granted RCRA permits by the Idaho DEQ that were caused by either failure to conduct any chemical compatibility analysis, failure to conduct an adequate chemical compatibility analysis, or failure to understand what materials were actually in the waste, the Idaho DEQ should not continue to *assume* that the RCRA-permittees will conduct adequate analyses such as required chemical compatibility analyses.

Both of the facilities that had serious explosions last year handle radioactive materials in addition to hazardous chemical waste and this seems to prompt Idaho DEQ to invoke less oversight, less enforcement for violation and less transparency.

Given that Idaho DEQ has wrongly assumed that Permittees would conduct adequate chemical compatibility analyses but the Permittees did not, DEQ needs to require in the Permit that a **documented** chemical compatibility analysis be submitted to DEQ prior to the Permittees handling the waste and needs to also require technically competent external review of the chemical compatibility analyses. The permit must also require documented and adequate evaluation of pyrophoric and reactive hazards and explosive gas buildup. This is problematic, however, since no adequate technical evaluation of explosive levels of gas buildup in Department of Energy waste drums currently exists, according to the DNFSB.

Issue 2 Relief sought: The Idaho DEQ must require that DEQ receive documented chemical compatibility analyses prior to waste handling or treatment. And analyses such as the RCRA-required chemical compatibility analyses must be required to have independent expert review.

Issue 3. The looseness of current requirements for waste characterization are an invitation for the Permittees to inadequately characterize the waste, putting workers, the public and the environment at risk. At the Idaho Cleanup Project, the Permittees chose to ignore warnings from experts who understood the history of the waste and its problematic constituents because adequate waste sampling would have been costly.

The Idaho DEQ should not assume that same Permittees that willfully decided to not comply with the State-issued RCRA permit at the Idaho Cleanup Project can, nonetheless, be trusted to from now on comply with the RCRA permit for the AMWTP. The Idaho DEQ's strong bias to promote the Idaho National Laboratory puts workers, the public and the environment at risk.

Issue 3 Relief sought: The Idaho DEQ must require additional and adequate sampling programs to support "acceptable knowledge" and to give confidence that the waste constituents are adequately characterized.

Issue 4. The Permittees at the Idaho Cleanup Project violated Department of Energy Orders and Standard in waste shipping and receipt and in not packaging waste to approved waste acceptance criteria. The Idaho DEQ must not continue to assume that waste transfers among its

RCRA facilities will be conducted in a safe or compliant manner. The DEQ has the role of approving the Site Treatment Plan and that is one vehicle for tracking and documenting waste that has no disposal path or is not in compliance with WIPP Waste Acceptance Criteria.

Issue 4 Relief sought: The Idaho DEQ must closely track where waste is stored and via the Site Treatment Plan, document any waste that is not treated to current waste acceptance criteria for disposal. Historical Site Treatment Plan documents should be made available on-line on the DEQ website in addition to the most recent Site Treatment Plan. The DEQ approves the Site Treatment Plan and needs to require more clarity and transparency in tracking the waste and tracking the changes to the plan.

Issue 5. The Permittees made the deliberate choice to not conduct required safety analysis required by the Department of Energy under federal regulations, 10 CFR 830, “Nuclear Safety Management,” for the new waste stream it planned to treat. An adequate safety analysis would have required more protection of workers, the public and the environment which Permittees sought to avoid due to cost and schedule concerns overriding safety. The Idaho DEQ should no longer assume that the Permittees will conduct required safety analyses or adequate safety analyses.

Issue 5 Relief sought: The Department of Energy has for years avoided conducted adequate technical studies of gas buildup and explosion hazards in its waste. The Idaho DEQ should pay more attention to inadequate safety analysis as signaled by the DNFSB and should require more evidence of adequate safety analyses for its RCRA-permitted facilities.

Issue 6. Adequate emergency response planning and preparation requires an adequate understanding of what is in the waste and of the gas buildup and explosion hazards of the waste. DEQ’s has provided an inadequate response to public comment by failure to understand the fact that Attachment 7 of the RCRA permit wrongly assumes the existence of the necessary understanding of the technical aspects needed to prevent explosions. In fact, the technical understanding, necessary characterization, accident mitigation, status monitoring, and emergency response planning needed in order to prevent or mitigate excessive gas buildup is not being provided in the Department of Energy complex, as the DNFSB report states. For the information to be readily available, it must first exist. The Department of Energy has yet to address how it will remedy its waste drum gas generation explosion hazards.

Issue 6 Relief sought: The Idaho DEQ must not assume that the Permittees have adequately improved emergency planning and preparation when assumptions about explosion hazards lack an adequate technical basis.

Issue 7. Idaho DEQ states that enforcement actions are pending regarding the permit violations that allowed the four waste drums to explode in April 2018 —yet over a year after the four drums exploded there’s been no enforcement action. The Idaho DEQ fails to acknowledge the willfulness of the Permittee violations.

The Idaho DEQ has documented that it intends to approve the entire AMWTP permit, despite its Permittees history of numerous deliberate decisions to not comply with the permit as

documented in the Fluor Causal Report. This is unacceptable and the Idaho DEQ must not approve the permit before conducting strict enforcement action of the Permittees.

Issue 7 Relief sought: Idaho DEQ must impose significant penalties for the multiple and deliberate RCRA permit violations associated with the explosion of four waste drums at ARP V in April 2018.

(sent by email)

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May 15, 2019
Date: _____

Statement of Compliance with Word Limitation

This petition complies with 40 CFR 124.19(d)(1)(iv) and (3) which are incorporated by reference in IDAPA 58.01.05.013. The length is 9,300 words or less using Microsoft Word and does not exceed 14,000 words.

(sent by email)

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