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Ricardo,

I am submitting comments on the January 31, 2018 Class 2 permit modification request (**PMR**), "Clarification of TRU Mixed Waste Disposal Volume Reporting," submitted by the US Department of Energy (**DOE**) Carlsbad Field Office and Nuclear Waste Partnership (**Permittees**) to the New Mexico Environment Department (**NMED**) for the Waste Isolation Pilot Plant (**WIPP**) Hazardous Waste Facility Permit (**Permit**). Please consider and provide responses to my comments when you deliberate whether to modify the permit as requested in the PMR.

The Permittees identify three main modifications in their PMR. These are:

- Create two new definitions in the Permit
    - TRU Mixed Waste Volume, and
    - Land Withdrawal Act TRU Waste Volume of Record (**LWA VOR**)
- Limit the Permit's concern with waste volume solely to the volume of waste disposed of in Underground Hazardous Waste Disposal Units (**HWDUs**) or Panels by removing all references to the maximum repository capacity of 6.2 million cubic feet
- Allow the DOE to "track and report" the LWA VOR separately from the Permit

In my comments below, I will provide reasons why I oppose this PMR and recommend that it only be approved with significant changes, or else be reclassified as a Class 3 PMR potentially subject to a public hearing.

1. The Permittees have put forth a misleading and incomplete narrative

The Permittees have constructed a PMR narrative that is both misleading and incomplete, suggesting (p. 6) that *"TRU mixed waste volumes recorded in the Permit are not consistent"* (in fact, they allege, have never been consistent), and that the solution is to remove information from the Permit that has always been there and replace it with new, "improved" information. This confusing narrative may be accepted by some people unfamiliar with the administrative record for the Permit, but is easily dismissed when considering the facts and including information conveniently left out by the Permittees.

DOE conveniently forgets their own history regarding waste container volumes

In providing a "brief chronology of the LWA limit" (pp. 7-8), the PMR ultimately implies that the LWA limit of 6.2 million ft^3 of TRU waste is open to interpretation. A statement from the September 1997 SEIS-II (p. 8) that is presented out of context insinuates that in one situation, *"the actual volume of waste in a drum or cask, therefore, may be much less than the volume of the drum or cask,"* whereas in another situation, *"the volume of the drum or cask is used, as if the drum or cask were full without void space."*[1]

Since at least 1982, DOE has carefully studied and estimated the inventory of retrievably stored and newly generated waste potentially destined for WIPP[2]. Although rarely stated explicitly in the record, DOE's historic method for estimating the volume of TRU and TRU mixed waste stored in containers at generator/storage sites relies on counting containers and using the internal gross volume of the disposal container. As a specific example, consider this quote from the March 1994 Integrated Data Base Report for 1993 (DOE/RW-0006, Rev 9) Overview, Section 0.4 Waste Characteristics and Units Reported (page 5):

> *"Principal characteristics reported for most radioactive wastes discussed in this report include volume, radioactivity, and thermal power. All characteristics are reported in metric units and, depending on the waste form, can be significant considerations in meeting the requirements for waste treatment, storage, and disposal.* ***Waste volume is reported in cubic meters (m^3) and generally reflects the amount of space occupied by the waste and its container****." (emphasis added)*

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[1] The Permittees left out the context for the statement from SEIS-II on page 8 of the PMR. On page S-12 of SEIS-II, there is a text box entitled, "Conservatism of TRU Waste Volume Estimates." The opening paragraph provides context:

> "TRU waste inventory estimates, as used throughout SEIS-II, embody many conservative assumptions to ensure bounding analyses of maximum, reasonably foreseeable impacts. The following reflect some of the conservative assumptions."

The cited assumption is then presented, along with others, followed by a concluding paragraph:

> "While volume changes to the TRU waste inventory could reduce or increase the effects calculated in SEIS-II, the best estimates available have been used and conservative assumptions have been incorporated to ensure that the results would actually be less than those presented. A text box entitled "Factors to Consider in Combining Alternatives" (presented in Chapter 5) explains in more detail how the results would change as inventory volumes change."

Thus, it is clear that assuming "the drum or cask were full without void space" is simply a conservative assumption to ensure bounding results from any modeling analyses performed, and is not a realistic expectation. Everybody involved in the original permit application process understood that few waste containers would ever be 100% full. Many solidified solid waste drums would be partially full due to weight limitations, and many debris waste drums would be loosely compacted, resulting in inefficiently packaged containers.

[2] Readily available waste inventory reports were and continue to be issued documenting DOE's waste volume estimates:

- "Integrated Data Base Report – Spent Fuel and Radioactive Waste Inventories, Projections, and Characteristics" (listed either as DOE/NE-0013 or DOE/RW-0006). Issued between 1982 and 1997.
- "WIPP Transuranic Waste Baseline Inventory Report" (**TWBIR**). Issued between 1994 and 2006.
- "Annual Transuranic Waste Inventory Report" (**ATWIR**). Issued annually beginning in 2008.

I will place this statement in historical context later in my comments, but will note here that this is the same assumption DOE continues to use today to create the Annual TRU Waste Inventory Reports, estimating waste volumes at generator/storage sites for a variety of purposes.

Similarly, the Permittees attempt to argue (PMR p. 9) that

> *"Experience with packaging waste at the generator/storage site has resulted in waste containers that are not full as assumed in the ROD. Generator/storage sites limit the amount of waste in a disposal container based on radiological and physical (e.g., weight) parameters. In some cases, smaller containers are placed into larger containers (referred to as overpacking) in order to deal with container integrity issues or to achieve more efficient shipping configurations. As more and more waste is packaged and shipped, the difference between the waste volume used to determine the ROD/C&C/LWA limits and the volume of the waste container increased such that it has reached the point where comparing disposed TRU mixed waste volume pursuant to the Permit limits no longer accurately reflects the authorized volume pursuant to the ROD/C&C/LWA."*

This argument is a false dichotomy, pitting "bad" Permit volumes (outer or overpack container volume) against the mythically "correct" volumes in the ROD/C&C/LWA (supposedly inner container volume, particularly for overpacked containers). However, there is no distinction among any of them – Permit, ROD, C&C, LWA – they are all the same volumes, originally based upon the gross internal volume of the outermost container. For evidence of this conclusion, consider DOE Order 5820.1, "Management of Transuranic Contaminated Material," which DOE issued on September 30, 1982 (and now archived). Among other things, it provided a definition for waste container, which states:

> *"Waste Container. The disposable containment vessel for waste materials, including any integral liner or shielding materials that are intended for disposal. In the case of contaminated, damaged, leaking, or breached containers,* ***any overpack shall be considered the waste container, and the original container shall be considered part of the waste****."*[3] *(emphasis added)*

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[3] As originally described in the 1995 RCRA Part B Permit Application, "overpacks would be used on damaged or otherwise contaminated drums, boxes, and canisters that it would not be practical to decontaminate." (Glossary, page 18 of 29)
Sometime after the Permit was issued (date uncertain, but early- to mid-2000's), the Permittees implemented a process called "payload management," whereby waste containers from the same waste stream could be overpacked not because of waste container condition, but in order to manage TRU alpha activity concentration in a waste package. Waste containers belonging to the same TRU waste stream may be overpacked into a payload container (e.g., SWB or TDOP) as long as the TRU alpha activity concentration of the payload container exceeds 100 nCi/g, which is determined by summing the individual TRU alpha activity values of the individual waste containers and dividing by the sum of the individual net waste weights to determine the activity per gram for the payload container.
Regardless of whether a container is overpacked for container integrity issues or for payload management, the original (or overpacked) container(s) are considered waste, and the overpack container is considered the waste container for volume calculation purposes.
If the Permittees are successful in convincing NMED and EPA to accept individual internal container volume instead of overpack container volume as the "official" LWA volume of record, there may be an unintended

This definition was also included in early versions of the TRU Waste Acceptance Criteria (**WAC**) for WIPP (e.g., WAC Rev 3, January 1989). These two definitions – what constitutes waste volume and waste containers – had to be integral parts of the calculation in DOE's June 22, 1990 Record of Decision (55 FR 25689) stating, *"The WIPP is designed to dispose of 6.2 million cubic feet (ft³) of contact-handled (CH) TRU waste and 250,000 ft³ of remote-handled (RH) TRU waste in the mined repository over a 25-year operational life."*[4] Similarly, the 1992 WIPP LWA total capacity limit of 6.2 million ft³ established just two years later must be understood in the same way:

- Overpacks are considered the waste container for disposal, and any overpacked containers are considered part of the waste.
- Waste volume is reported as the amount of space occupied by the waste and its container (i.e., gross internal volume of outermost container).

What can we conclude from DOE conveniently forgetting their own history regarding waste container volumes? **There is no basis for the Permittees to now propose two new definitions for how disposal waste volume should be calculated.** Instead, NMED should take this opportunity to explicitly state in the Permit what has been historically understood to constitute waste container volume. I will propose language later in my comments.

<u>DOE conveniently forgets their own history regarding the original permit application and permit issuance</u>

On p. 8 of the PMR, the Permittees state the following:

> *"When preparing the RCRA Part B Permit Application the Permittees made three fundamental assumptions regarding volume of waste:*
>
> - *As stated in the FEIS, ROD, C&C Agreement and LWA, the total amount of TRU waste to be disposed is 6.2 million ft³*
> - *As stated in the SEIS-II, containers would be totally full*
> - *The New Mexico Environment Department (NMED) would issue a Permit for the entire facility (i.e., all existing and future disposal units, all 10 panels described in the Part B Permit Application)"*

There is no debate with the first fundamental assumption. It is strictly a matter of law:

> *"The total capacity of WIPP by volume is 6.2 million cubic feet of transuranic waste." (WIPP LWA as amended, Section 7(a)(3))*

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consequence for DOE. EPA could determine that some internal containers used in payload management had been improperly disposed of, since many of the individual containers overpacked would have radioassayed below the LWA threshold of 100 nCi/g prior to overpacking and TRU alpha activity averaging.

[4] In this PMR, the Permittees seem to have ignored the significance of historic statements such as this about WIPP being "<u>designed</u> to dispose of 6.2 million ft³ of CH TRU waste" coupled with "in 10 panels," because the Permittees' calculation of disposal inefficiency (PMR p. 9, December 6, 2017 comparison of CH disposal volumes using outer vs. inner container volumes) suggests that they would need a total of 13 or 14 panels to dispose of the 6.2 million ft³ allowed if using the new LWA VOR definition. This would imply (by the Permittees' logic) that the original designers of WIPP underestimated the space required to dispose of 6.2 million ft³ of waste by roughly 40%, which seems highly unlikely.

If the Permittees second "fundamental assumption" was that the waste *"containers would be totally full,"* they obviously haven't reviewed their original permit application, which never states that assumption in any language. Neither does that "fundamental assumption" appear in any comments by the Permittees on the two draft Permits issued by NMED nor in any of their testimony as recorded in the Public Hearing Transcripts from 1999. Instead, the assumption was the definition of waste container volume used by DOE to estimate and report the inventory of TRU waste destined for WIPP, as noted in the previous section. Having been personally involved in the original WIPP Permit issuance, I can think of no person associated with the Permittees who ever publically stated that all containers managed, stored, and disposed of at WIPP would be full.

However, it's the third "fundamental assumption" that is the most misleading, because it provides a premise for the Permittees to propose removing the LWA total capacity limit of 6.2 million ft^3 from the Permit. I will demonstrate that the Permittees never really assumed NMED "*would issue a Permit for the entire facility (i.e., all existing and future disposal units, all 10 panels…"*

It is true that the WIPP RCRA Part B Permit Application (Revision 6 and subsequent revisions serving as the basis for the draft Permit) does appear to make this request. Chapter D, Facility and Process Information, Section D-10a(1) Description of Waste and Containment, states on p. D-53, lines 40-41:

> *"The DOE is requesting a permit to dispose of 6.2 million ft^3 (175,600 m^3) of CH and RH TRU mixed waste in the underground HWMUs designated as Panels 1 through 10."*

However, the PMR misstates what was actually requested in the Permit Application, as well as demonstrates a lack of understanding of the scope of RCRA permits. The Permit Application clearly stated in Chapter B, Facility Description, Section B-1 General Description, p. B-9, lines 1-17:

> ***In this application the DOE is seeking a permit for the disposal of TRU mixed waste at the WIPP facility.*** *Waste disposal will occur in the underground portion of the WIPP facility in areas designated as Panels 1 through 8. Each panel consists of seven rooms and two access drifts mined in a salt bed 2,150 ft (655 m) below the surface. The precise locations and descriptions of the TRU mixed waste units are given in Section B-1b. The underground disposal design capacity is for 6.2 million cubic ft (ft^3) (175,600 cubic m (m^3) of waste. If waste volumes disposed of in the eight panels fail to reach the stated design capacity, the DOE may choose to use the four disposal area access drifts for disposal; however, the DOE is only seeking to permit the construction of these areas at this time. A permit modification or future permit would be submitted describing the condition of those drifts and the controls exercised for personnel safety and environmental protection while disposing of waste in these areas.*
>
> ***For the ten year term of this permit****, the DOE plans to dispose of up to 1,840,000 cubic ft (52,110 cubic m) of contact-handled (CH) waste and 69,000 ft^3 (1,954 m^3) of RH waste, in Panels 1 to 3 (see Figure B-2). Figure B-2a shows the disposal HWMUs*

that may be covered by three successive permits. Construction of Panels 2, 3, 4, and the disposal area access drifts will begin during the term of the permit.

RCRA regulations limit the duration of a permit in 40 CFR §270.50(a), which states, *"RCRA permits shall be effective for a fixed term not to exceed 10 years."* Thus, in an initial permit, it is not possible to grant approval for any activities (e.g., construction) beyond the term of the permit. The Permit Application reflects this understanding in requesting a permit for disposal of waste in Panels 1 to 3 and for construction of Panels 2, 3, 4, and the access drifts that will likely occur during the initial 10-year term. It is simply not possible to issue a permit for "*all existing and future disposal units, all 10 panels…"* as the "fundamental assumption" presumes.

There is no evidence in the administrative record for the original permit issuance (e.g., Permittees' comments on the initial or revised draft Permits, testimony at the hearing, report of the Hearing Officer, etc.) that the Permittees objected to NMED limiting approval to activities anticipated to reasonably occur within the initial 10-year term of the Permit.

This suggests that the third "fundamental assumption" could be a knowingly misleading statement, and that it was possibly included in the PMR to establish the false premise that the Permit is only concerned with ensuring compliance with disposal volumes in permitted Underground HWDUs. Consider this statement on p. 9 of the PMR:

> *"When the Permit was issued by the NMED, the Permit did not authorize the proposed design capacity of the repository (i.e., all 10 panels). Instead, the NMED chose to authorize the facility on a unit-by-unit basis, as reflected by the capacities listed in Table 4.1.1. However, the reference to the LWA limits, either explicit or implicit, were not changed. Therefore, Section 7 of the Part A Permit Application should reflect the total maximum capacity of the permitted HWDUs shown in Table 4.1.1 since that is the current authorized capacity."*

To infer from the statement, "NMED chose to authorize the facility on a unit-by-unit basis," that one must somehow conclude that NMED has no regulatory interest in the ultimate repository capacity is patently false. NMED recognized the limitations of the 10-year term of the Permit, and yet was able to retain language from the application to reflect both the 10-year and the long-term perspectives on the repository. Consider the following facts:

- The RCRA Part A Permit Application (submitted as Chapter A of the RCRA Part B Permit Application and included in Attachment O of the original Permit) lists the Process Design Capacity of the Subpart X (X04) Process Code as *"175,600 m^3 TOTAL (54,064 m^3 in ten years)"* for 10 units. The attached page to this application contains additional process information that clarifies the value (selected emphases added):

  *"**During the Disposal Phase of the facility**, which is expected to last 25 years, **the total amount of waste received from off-site generators and any derived waste will be limited to 175,600 m^3 of TRU waste** of which up to 7,080 m^3 may be remote-handled (RH) TRU mixed waste. For purposes of this application, all TRU waste is managed as though it were mixed."*

*"**The process design capacity for the miscellaneous unit (composed of ten underground HWMUs in the geologic repository)** shown in Section XII B3, is for the maximum amount of waste that may be received from off-site generators plus the maximum expected amount of derived wastes that may be generated at the WIPP facility..."*

*"**During the ten year period of the permit**, up to 52,110 m^3 of CH waste and 1,954 m^3 of RH waste could be emplaced in Panels 1 to 3. A fourth HWMU (Panel 4), plus disposal area access drifts (designated as Panels 9 and 10), will be constructed under this permit. These latter areas will not receive waste for disposal under this permit."*

This language has persisted in the Permit from its inception, and NMED intentionally included it to provide the bridge between the "ten year period of the permit" and "the Disposal Phase of the facility." For the Permittees to now argue that an application that they have continually updated and regularly submitted to NMED for the past 20+ years is incorrect and even inappropriate is an astounding attempt to rewrite history.

- Table 4.1.1 (originally Table IV.A.1 in 1999) titled "Underground HWDUs" has evolved over time, but has always included the maximum capacity of CH and RH TRU mixed waste in each Panel, as well as the total authorized volume capacity for the 10-year term of the Permit. The footnotes were added as the table was revised, and the footnote regarding the "maximum repository capacity" was added as a reminder of the ultimate capacity of the repository as disposal approaches that limit. That footnote will likely be rendered moot during the next permit renewal term, when the panels approved for emplacement will likely achieve the 6.2 million ft^3/175,600 m^3 limit. At that time, the Total row for Maximum Capacity should in fact equal the LWA limit.

- Attachment G (originally Attachment I in 1999), Closure Plan, is written in part to anticipate the final facility closure and by necessity references the LWA total capacity limit of 6.2 million ft^3 as the trigger to initiate final closure in Sections G-1 and G-1c as well as in Part 6, Sections 6.5.2 and 6.10.2.

- There are a few other instances in the Permit where the 6.2 million ft^3 limit is mentioned (e.g., Table J-3, Underground Hazardous Waste Disposal Units; Attachment H1, Active Institutional Controls During Post-Closure), but these are pretty much informational in nature.

There is no need to remove any of these references to the LWA total capacity limit, and to do so in the manner proposed by the PMR would be highly detrimental to the regulatory oversight of WIPP by NMED, as will be discussed next.

DOE is attempting to self-regulate by redefining waste volume and removing LWA total capacity limits from the Permit

Although never clearly stated in the PMR, it appears that the Permittees' true intent in submitting this PMR and defining the LWA VOR is to exclude NMED from having any regulatory oversight and enforcement authority over determining when the Permittees have reached (or exceeded) the LWA total capacity limit of 6.2 million ft^3 of waste, and thus determining when to initiate final repository closure. Consider what the Permittees are proposing in these following excepts when describing the changes to be made to the Permit (p. 2) (selected emphases added to all quotes):

> *"**The TRU waste VOR will be tracked and reported, separately from the Permit**, by the DOE pursuant to the WIPP Land Withdrawal Act (LWA) so that the LWA total capacity limit for TRU waste is not exceeded."*

Later, on p. 3, they provide further information:

> *"**The LWA TRU waste VOR will be tracked and reported by the DOE** relative to the WIPP LWA TRU waste total capacity limit. The **DOE will establish and implement a written policy** to formalize the tracking and reporting of the TRU waste VOR. In this way, the tracking and reporting will be subject to the DOE Quality Assurance program which will assure consistent application of the policy. The **DOE intends to make the status of the WIPP LWA TRU waste volume tracking results publicly available**."*

And why is this change needed? (p. 6):

> *"It is now **apparent to the Permittees** that it is **inappropriate to associate the TRU mixed waste volume allowed by the Permit with the LWA TRU waste VOR** because the volumes serve separate and distinct purposes... Furthermore, **the association in the Permit constrains the permitting of future TRU mixed waste disposal capacity within the regulated unit.** Therefore, a mechanism that is not associated with the Permit will be used by DOE to track and report the VOR pursuant to the LWA."*

Finally, what has been the impact of this "constraint"? (pp. 8-9):

> *"The assumption that the Permit volume and the ROD/C&C/LWA volume are linked is not valid for the reasons stated […], and **language to this effect in the Permit constrains the DOE from achieving the goal of removing the inventory of TRU mixed waste from the generator/storage sites.**"*

What are the takeaway points from these excerpts?

1. The process of tracking and reporting waste volumes relative to LWA limits will not be in the Permit
2. DOE will track and report these volumes
3. DOE will establish and implement a policy
4. DOE will publish the tracking results publicly
5. Equating Permit disposal volumes with LWA limits constrains the permitting of future disposal capacity and achieving the goal of cleaning up sites

What do these points mean in the real world?

1. By removing regulatory requirements related to LWA capacity limits from the Permit, NMED has no authority to enforce the LWA limit.
2. DOE claims they will "track and report" these volumes, but never states in the PMR to whom they will report. When asked at the March 8 public meeting on the PMR in Santa Fe, the Permittees stated they would report it "up the chain"… in other words, it would be reported internally within DOE.
3. DOE promises to establish and implement a policy for tracking and reporting, but hasn't provided anything further than what is vaguely stated in the PMR. Even the proposed definition of LWA VOR is unclear *("… means the volume of TRU waste inside a disposal container"*). Seriously, what is that supposed to mean? **All containers** in Permit Section 4.3.1 are "disposal containers." On the one hand, a reference to the Appendix C in the PMR implies that they intend to count the internal gross volume of the innermost container. On the other hand, it could be interpreted to mean they would multiply the internal gross volume of each waste container by the fill factor percentage recorded for each container in the WWIS, which would be an even smaller volume. Because the PMR doesn't really commit to implement any explicit approach, it's totally unpredictable what the Permittees might ultimately choose. It could even change with time, becoming more restrictive and excluding more and more void space inside each container, in direct contradiction to the clear statement of waste volume published by DOE in the 1980s and 1990s.
4. Publishing the tracking results does not equal accountability. When asked at the Santa Fe public meeting what recourse a party would have if there was a dispute over tracking results in the report, the Permittees stated that it would probably be up to the courts to decide. In this scenario, NMED would have no different standing than a private citizen because the entire process would be outside of the Permit.
5. Finally, "constraint" appears to be the crux of the issue, and perhaps the real reason the PMR was submitted. Historic methods of calculating the volume of emplaced waste in the Permit are constraining DOE from permitting future disposal capacity and achieving the goal of cleaning up sites because… they are running out of room and have more waste than they expected. The March 7, 2018 edition of the Carlsbad Current Argus reported on the PMR public meeting on March 6 in Carlsbad, and included a significant quote by Bob Kehrman, long-time regulatory expert for the Permittees, recently retired but now serving as a WIPP consultant, and the primary spokesperson for the Permittees at the public meeting. He is reported to have said:

   > *…the change is necessitated by space being taken up at WIPP since the site's first emplacements in 1999, defeating past assumptions as to the amount of waste being produced, and the volumes at which it could be disposed. "In the past, it looked like you had all this space," he said. "Volumes keep growing, and we need to be more efficient."*

   In other words, the Permittees are constrained simply because they have been too successful in emplacing TRU waste in the repository.

DOE has no "mandate" to self-regulate at WIPP with respect to the LWA total capacity limit

DOE firmly believes that they alone have the responsibility to redefine how waste volume is calculated, as stated in the PMR (p. 10):

> *"The changes proposed in this PMR are appropriate because it is DOE's responsibility to manage the waste in a manner that assures that the mission of the WIPP facility is fulfilled. Congress has authorized the DOE to regulate TRU waste under its control."*

They cite Section 203(a)(8)(G) of the Department of Energy Organization Act (Pub. L. 95-91), which says:

> *(8) Nuclear waste management responsibilities, including—*
>
> > *(G) the promulgation of such rules and regulations to implement the authority described in this paragraph, except that nothing in this section shall be construed as granting to the Department regulatory functions presently within the Nuclear Regulatory Commission, or any additional functions than those already conferred by law.*

DOE further claims (p. 10):

> *"This mandate… would include the development of a method by which the DOE tracks the TRU waste volume that has been disposed against the WIPP LWA total capacity limit."*

More than 40 years have passed since the DOE Organization Act was signed into law August 4, 1977, and the PMR acknowledges two other relevant laws – the 1979 WIPP Authorization Act and the 1992 WIPP Land Withdrawal Act – that were passed in later years. However, they fail to mention one extremely significant law that undercuts their claim of a mandate – the Federal Facility Compliance Act (**FFCA**) (Pub. L. 102-386, October 6, 1992), which brought all federal facilities into compliance with applicable federal and state hazardous waste laws, waived federal sovereign immunity under those laws, and allowed the imposition of fines and penalties. The law also required DOE to submit an inventory of all its mixed waste to the EPA and authorized states, and to develop a treatment plan for mixed waste.

The timing of the FFCA's enactment (just three weeks prior to enactment of the WIPP LWA on October 30, 1992) leaves no doubt as to who is the regulator and who is the regulated entity. The FFCA amended the Solid Waste Disposal Act (**SWDA**) (42 U.S.C. 6901 et seq.), which includes RCRA. The LWA in Section 9(a)(1)(C) and (H) requires DOE to comply with the SWDA and RCRA, and with all regulations promulgated, and all permit requirements, under the SWDA and RCRA. So that there is no further doubt as to whom Congress intended to delegate authority over RCRA at WIPP, the LWA in Section 9(a)(2) explicitly identifies the State of New Mexico as the recipient of DOE's biennial environmental compliance reports with respect specifically to the SWDA and, by inference, RCRA.

The FFCA inventory requirement is particularly relevant to this PMR. The FFCA in Section 3021(1)(A) required DOE to submit, within 180 days of enactment, *"A report containing a national inventory of all such mixed wastes, regardless of the time they were generated, on a*

State-by-State basis." Section 3021(2)(B) and (C) specify two requirements for this report, namely:

> *"(B)* ***The amount of each type of mixed waste currently stored*** *at each Department of Energy facility in each State, set forth separately by mixed waste that is subject to the land disposal prohibition requirements of section 3004 and mixed waste that is not subject to such prohibition requirements.*
> *"(C)* ***An estimate of the amount of each type of mixed waste the Department expects to generate in the next 5 years*** *at each Department of Energy facility in each State."* (emphasis added)

DOE generated an "Interim Mixed Waste Inventory Report" within the 180 day deadline. The next inventory report incorporating requirements for the FFCA was the previously cited Integrated Data Base Report for 1993 (published March 1994) that first articulated the assumption for reporting waste amount by volume.

Finally, DOE makes this claim in the PMR with respect to the 1977 DOE Reorganization Act (p. 10):

> *"The changes proposed in this PMR are appropriate because it is DOE's responsibility to manage the waste in a manner that assures that the mission of the WIPP facility is fulfilled. Congress has authorized the DOE to regulate TRU waste under its control."*

Yes, "Congress authorized the DOE to regulate TRU waste under its control," but that was 1977, and a lot of water has passed under the proverbial bridge since then. DOE has been given no explicit "responsibility" to redefine waste volume for WIPP. They made their choice nearly 25 years ago in response to the FFCA requirement to report waste amounts, and the LWA sealed their fate by requiring WIPP to comply with RCRA. There is no looking back, and there is no longer a "mandate," especially for them to make up something drastically different now. NMED is the undisputed RCRA regulator for WIPP, and NMED should clearly and without reservation reject the idea of two different definitions for waste disposal volumes at WIPP, especially when one of the definitions eliminates NMED's enforcement authority.

2. The PMR is improperly classified

The PMR states (p. 6), *"This PMR is a Class 2 modification pursuant to 20.4.1.900 NMAC (incorporating 40 CFR §270.42, Appendix I, Item A. General Permit Provisions, 4. Changes in frequency of or procedures for monitoring, reporting, sampling, or maintenance activities by the permittee, b. other changes…2). This classification applies because the Permittees are proposing to change the procedure for reporting the volume of TRU mixed waste emplaced in the WIPP facility relative to the total capacity limit for TRU waste in the LWA and to clarify what volumes are reported pursuant to the Permit."* The PMR also indicates changes to the Closure Plan that are a Class 1 modification requiring agency approval (Class 1*).

However, the Permittees apparently failed to take into account the overarching impact of these changes, specifically, that of eliminating NMED's regulatory oversight and enforcement authority over a requirement of federal law (namely the LWA) that directly

pertains to the total disposal capacity of this specific RCRA facility. This type of change is not explicitly listed in 40 CFR §270.42 Appendix I, and thus would be more appropriately processed as an "other modification" under 40 CFR §270.42(d).

Although the PMR assures the reader (p. 1) that *"These changes do not reduce the ability of the Permittees to provide continued protection to human health and the environment,"* the changes would *eliminate* NMED's ability to provide adequate regulatory oversight related to waste volume accountability, and thus its ability to determine the ultimate cessation of waste disposal activities at WIPP.

3. Modifying the WIPP Permit is the wrong way for DOE to achieve its goals

Redefining how waste volumes are calculated 19 years into the WIPP Permit is like attempting to move the goalposts in the fourth quarter of a football game when you're behind… it can only be viewed as a desperate attempt to take an unfair advantage when the outcome isn't favorable to you.

Consider this language from the WIPP Authorization Act (Pub. L. 96-164), Section 213(a):

> *"Notwithstanding any other provision of law,* ***the Waste Isolation Pilot Plant is authorized*** *as a defense activity of the Department of Energy, administered by the Assistant Secretary of Energy for Defense Programs,* ***for the express purpose of providing a research and development facility to demonstrate the safe disposal of radioactive wastes*** *resulting from the defense activities and programs of the United States exempted from regulation by the Nuclear Regulatory Commission.*

The PMR readily admits that Congress limited WIPP to 6.2 million ft^3 of TRU waste in the LWA, and, in the various RODs and the RCRA Part B Permit Application, DOE estimated that the disposal phase would last anywhere from 25 to 35 years. In other words, Congress did not grant DOE a blank check for a "research and development facility" to achieve what the PMR states (p. 9) is *"the goal of removing the inventory of TRU mixed waste from the generator/storage sites."*

That did not inhibit DOE from seeking what may appear to be an easy solution, such as inappropriately requesting a minor (Class 2) modification to the WIPP Permit. Consider these statements at the March 6 Carlsbad public meeting on the PMR reported by the Carlsbad Current Argus and attributed to Roger Nelson, retired Chief Scientist for the DOE Carlsbad Field Office:

> *"This [redefining how volume is calculated] is the key to WIPP's ability to expand the amount of waste that is out there. There's more TRU waste out there than we assumed. There's really no rational limit. The possible volume is essentially unlimited," he said. "To unscientifically constrain it is stupid." Nelson said… DOE officials should focus on regulatory adjustments to ensure WIPP can continue to expand as more and more waste is sent in from national laboratories across the country.*

Rick Chavez, representing the Permittees at the same Carlsbad public meeting , is reported by the Current Argus to have said:

… the idea of redefining the federal waste calculations was considered for many years, but only after the plant was fully recovered from a 2014 radiological release and three-year cease in operations, was it the proper time to submit non-recovery-related modifications.

Chavez stated at the Santa Fe public meeting on March 8 that it was former Chief Scientist Roger Nelson who initially suggested redefining how waste volume is calculated as the solution back in the mid to late 2000s. While one may agree or disagree with Nelson's assertion that there is no rational limit to what WIPP could dispose of, there is a Congressionally mandated legal limit (regardless of how stupid it may seem to "unscientifically constrain it"). Under current law, WIPP will eventually reach the 6.2 million ft^3 disposal limit and initiate final repository closure – that is a fact difficult for many WIPP supporters to accept. My impression of Roger Nelson from my past professional interactions with him was that he embodied the perspective of the "old guard DOE" who chafed at external regulation, and perhaps he was hoping that a PMR such as this would be a way to get back at NMED for his perception that WIPP had been "stupidly" overregulated by the State.

But in the end, attempting to expand the amount of waste eligible for disposal at WIPP by redefining how waste volume is calculated is the wrong approach. The State didn't establish the limit of 6.2 million ft^3 at WIPP, Congress did through the LWA. The obvious solution to the concerns and constraints raised in the PMR is for DOE to seek an amendment to the LWA raising the volume limit in Congress, not attempt an inappropriate "regulatory adjustment" in the Permit. NMED should not be a partner in moving the goalposts.

Recommended action

NMED should not approve the PMR as submitted, and unless included in my comments below, none of the proposed changes should be incorporated into the Permit. However, because the PMR requested changes to specific sections of the WIPP Permit, NMED is able to make changes to those specific sections based upon public comment. Here are my suggested changes to the Permit as supported by my comments:

1. All proposed changes in the PMR related to striking or modifying the 6.2 million ft^3 limit should be denied. However, in Attachment H1, *Introduction*, page H1-3, line 13, I suggest changing "regulated capacity of the repository of 6,200,000 cubic feet (175,588 cubic meters) of TRU and TRU mixed waste" to "regulated capacity of the repository of 6.2 million cubic feet (175,564 cubic meters) of TRU and TRU mixed waste" for consistency with the rest of the Permit.
2. Also for consistency, change the LWA total capacity limit expressed in m^3 throughout the Permit to 175,564 m^3 (the volume as proposed in the PMR and the most accurate conversion of 6.2 million ft^3 to m^3):
    a. Attachment B, Hazardous Waste Permit Application Part A, page B-8, X04 Process Design Capacity, 175,600 to 175,564

b. Attachment B, Hazardous Waste Permit Application Part A, page B-13, lines 14 and 19, 175,600 to 175,564
c. Attachment H1, Active Institutional Controls During Post-Closure, Section, Introduction, page H1-3, line 14: 175,588 to 175,564 (in addition to the change proposed in comment 1 above)

3. Modify the proposed change in the PMR in Part 3, Section 3.3.1.8 for shielded containers to eliminate unnecessary language as follows:

3.3.1.8. Shielded Container~~~~*

Each shielded container has a gross internal volume of 7.4 ft³ (0.21 m³) ~~contains a 30-gallon inner container with a gross internal volume of 4.0 ft³ (0.11m³)~~. Shielded containers contain RH TRU mixed waste, but shielding will allow it to be managed and stored as CH TRU mixed waste. For the purpose of this Permit, shielded containers will be managed, stored, and disposed as CH TRU mixed waste, but will be counted towards the volume limits associated with RH TRU mixed waste.~~ ~~Shielded containers may be overpacked into standard waste box or ten drum overpack.~~

~~ "Shielded Container" refers to the container depicted in Figure A1-37.~~*

4. Modify the proposed change in the PMR in Part 6, Section 6.5.2, to instead reference the WIPP LWA with the final volume of TRU mixed waste as follows:

6.5.2. Final Facility Closure

After receiving the final volume of TRU mixed waste not to exceed 6.2 million ft³ [Pub. L. 102-579 (1992), the Permittees shall remove…

This construction is similar to that used elsewhere in the Permit (e.g., Permit Sections 1.5.1, 1.5.2, 1.5.3, 1.5.6, and 1.5.12)

5. Accept the proposed change in the PMR in Part 4, Table 4.1.1, to replace "7,500 ft³" with "7,600 ft³" and "214 m³" with "215 m³" in the RH TRU Waste Type for Panel 6.
6. The historic method for reporting volume (described in the Integrated Data Base Reports and DOE Order 5820.1) needs to be included in the Permit for clarity and to prevent future attempts to redefine it. However, simply creating a definition does not appear to be the best solution, as it would require multiple edits throughout the Permit. Instead, language should be inserted in the "Process – Codes and Design Capacities (continued)" page of the RCRA Part A Application (currently Permit Attachment B, page B-13). Suggested language follows:

"During the Disposal Phase of the facility, which is expected to last 25 years, the total amount of waste received from off-site generators and any derived waste will be limited to 175,564 m³of TRU waste of which up to 7,080 m³may be remote-handled (RH) TRU mixed waste. For purposes of this application, all TRU waste is managed as though it were mixed. Waste volume is reported as the gross internal volume of the outermost container."

7. Table 4.1.1 should summarize the Final Waste Volumes of CH and RH waste for all closed panels in the row for Total, in order to document the Permittees' progress toward reaching the permitted Total for the term of the Permit. I calculated the values for Panels 1 through 6 as 3,186,900 ft^3 (90,246 m^3) for CH TRU waste and 22,100 ft^3 (626 m^3) for RH TRU waste (using the updated values for Panel 6 with the change of volume for shielded containers).

If NMED is inclined to approve the underlying presumption in the PMR that there should be two distinct volume calculations – one for the Permit and a separate one outside of the Permit for the LWA – I strongly urge the department to instead reclassify this PMR as a Class 3 for the reasons stated above. I would likely request a hearing and be a party to such a hearing.

Please feel free to contact me if you have any questions or seek clarification about my comments. I can be reached at (505) 660-0353 or by email at steve_zappe@mac.com.

Sincerely,

Steve Zappe

Cited References and Web Links

Department of Energy Organization Act (Pub. L. 95-91, August 4, 1977)
https://www.gpo.gov/fdsys/pkg/STATUTE-91/pdf/STATUTE-91-Pg565.pdf

DOE Order 5820.1, "Management of Transuranic Contaminated Material" (September 30, 1982) *(archived)*
https://www.directives.doe.gov/directives-documents/5800-series/5820.1-BOrder

TRU Waste Acceptance Criteria for the Waste Isolation Pilot Plant Revision 3 (January 1989)
https://hwbdocuments.env.nm.gov/Waste%20Isolation%20Pilot%20Plant/890106.pdf

Federal Facility Compliance Act of 1992 (Pub. L. 102-386, October 6, 1992)
http://www.labtrain.noaa.gov/ppguide/ffpp_55.htm *(html version)*
https://www.gpo.gov/fdsys/pkg/STATUTE-106/pdf/STATUTE-106-Pg1505.pdf

Waste Isolation Pilot Plant Land Withdrawal Act (Pub. L. 102-579, October 30, 1992, as amended by Pub. L. 104-201, September 23, 1996)
http://www.wipp.energy.gov/library/cra/baselinetool/documents/regulatory%20tools/10%20wipplwa1996.pdf

Integrated Data Base Report for 1993 (DOE/RW-0006, Rev 9, March 1994) *(view and download individual pages)*
https://hdl.handle.net/2027/ien.35556023491582

Integrated Data Base Report for 1994 (DOE/RW-0006, Rev 11, September 1995) *(full download)*
http://www.iaea.org/inis/collection/NCLCollectionStore/_Public/27/029/27029606.pdf

WIPP RCRA Part B Permit Application (Rev 6 – 6.5, April 12, 1996 – November 19, 1997)
https://hwbdocuments.env.nm.gov/Waste%20Isolation%20Pilot%20Plant/960412/

WIPP Disposal Phase Final Supplemental Environmental Impact Statement (SEIS-II), DOE/EIS-0026-S-2 (September 1997)
https://www.energy.gov/nepa/downloads/eis-0026-s2-final-supplemental-environmental-impact-statement

"WIPP: Volume tracking adjustment could ensure plant's future" (Carlsbad Current-Argus, March 7, 2018)
https://www.currentargus.com/story/news/local/2018/03/07/wipp-volume-tracking-adjustment-could-ensure-nuclear-waste-plants-future/401517002/

Class 2 Permit Modification Request "Clarification of TRU Mixed Waste Disposal Volume Reporting" (January 31, 2018)
http://www.wipp.energy.gov/library/Information_Repository_A/Class_2_Permit_Modifications/18-0308_Redacted_enclosure.pdf