CARD
Citizens For Alternatives To Radioactive Dumping

Mr. Ricardo Maestas, WIPP Group Staff Manager April 19, 2023
Hazardous Waste Bureau
New Mexico Environment Department
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Santa Fe, New Mexico 87505-6303
By email: ricardo.maestas@env.nm.gov

Comments on the Waste Isolation Pilot Plant (WIPP)
Hazardous Waste Facility Draft Renewal Permit

Dear Mr. Maestas,

Citizens for Alternatives to Radioactive Dumping provides the following general and specific public comments about the WIPP Hazardous Waste Facility Draft Renewal Permit.

Introduction

Founded in 1978, Citizens for Alternatives to Radioactive Dumping (CARD) is a non-profit, statewide organization with steering committee members from Albuquerque, Dixon, Alamogordo, Eunice and Roswell. CARD is dedicated to safeguarding the peoples and land of New Mexico from nuclear contamination, and works with its constituency and other groups, to raise awareness of the dangers caused by the nuclear industry. CARD's mailing address is P.O. Box 485, Dixon, NM 87527.

Request for a Public Hearing
On the basis of the following comments, CARD requests that the New Mexico Environment Department (NMED) conduct a Public Hearing on the WIPP Hazardous Waste Facility Draft Renewal Permit.

Public Participation
NMED and the Hazardous Waste Bureau in particular have made great improvements in translating public notices, fact sheets, the NMED website and even the WIPP PIP into Spanish. The Bureau has also made efforts to make sure that radio stations reach potentially affected populations, that notices are posted where Spanish speakers are most likely to see them and that Spanish notices in newspapers run when Spanish readers are most likely to read them. This is a vast improvement over problems in the past. The Bureau's willingness to accommodate this writer's hearing disability is also much appreciated.

Unfortunately, NMED had previously spent decades ignoring the public participation needs of non-English speakers and even actively discouraged them from participating. This was the basis for the Title VI Complaint that led to the Informal Resolution Agreement between EPA and NMED and to three NMED Policies implementing that Agreement. People do not suddenly become comfortable participating after this history, so participation by non-English speakers has not yet been substantial, but providing translation and interpretation, as the Bureau has been doing, certainly opens the door.

Public Notice
Some changes still need to be made, however. It is clear that the regulatory requirements for public notice are not enough even to inform the Spanish speaking community that WIPP exists and what it is. Much more "advertising" about the WIPP facility and about public participation opportunities needs to be done. And, a variety of media and approaches are necessary. Not only online or social media approaches, but also print, radio, television, and in-person approaches are required since affected people speak different languages, more than a quarter of the people in the State have no internet access, and some affected communities, especially Native American communities, do not use written language.

CARD is aware of the difficulties and expense of doing what is necessary to adequately inform all potentially affected New Mexicans. We would be happy to work with the Hazardous Waste Bureau to create a plan for truly adequate public notice about WIPP and the WIPP Permit Hearing, and to find funding to implement it.

Fact Sheet

Again, there has been improvement in the Fact Sheet from the point of view of Spanish Speakers. For Low English Proficiency (LEP) persons, the Translated Public Notice, PIP, and Fact Sheet are all they have available to understand the complex WIPP facility. In the past, large portions of Fact Sheet simply referred everyone to English-only regulations or English-only sections of the Permit. There are far fewer referrals in this Fact Sheet and most regulations and permit entries are explained in layperson's language. The chart of NMED's proposed changes is particularly helpful.

That said, there could be quite a bit of improvement to the geology/hydrology section. The Permittees are proposing to expand Panels 11 and 12 and build additional panels in the western area, but there is no discussion of karst geology, interbeds, the pressurized brine pocket below WIPP (could it extend west?) or that there is massive resource development around WIPP that is especially close to the repository on the western border. There is no discussion of why it is not feasible to expand into the north, south or east as was explained by the Permittees' expert witness during the WIPP Shaft #5 modification hearing.

Since this Renewal Permit could allow the Permittees to excavate in a new area, geology and hydrology are just as important now as they were in 1999 when WIPP was first being permitted. In fact, the Environmental Protection Agency (EPA) is concerned about the possibility of drilling into a brine pocket below WIPP if one exists in the western area. EPA is also concerned about the resource extraction along WIPP's western border. (EPA letter of April 20th, 2021 to Reinhard Knerr, Manager of the Carlsbad Field Office, attached)

The public needs to be able to understand the important points of **all** the applicable geology from what is in in the Fact Sheet. This applies especially to the LEP public since they can't ask to have additional documents translated about the geology and hydrology if they aren't given at least a summary of all the geological issues in the Fact Sheet. Some fact sheets in the past about facilities in this area have devoted pages to the local geology and hydrology.

Finally, the Fact Sheet mentions an "annual analysis of the geomechanical pressures … in the WIPP underground." Instead of just mentioning the report, an explanation of what the report says would be useful. From news accounts, man-made earthquakes appear to be increasing in both frequency and in strength in the Permian Basin. What is the actual earthquake situation now at WIPP and what are predicted trends for the future? If

WIPP is allowed to remain open after 2024, could future earthquakes affect mine safety for workers and if so, what is the time frame for when that would occur? Could WIPP's integrity be affected in the long term? These are some of the questions that the public needs answers to in order to provide useful comments on the Permit and that NMED needs to know to decide whether to allow WIPP to stay open longer.

Language and organizational changes

The Permittees have proposed several language and organizational changes including "…the consolidation of Permit figures into Attachment M, except where they have been retained in Attachments C & D." Removing the figures to Attachment M adds confusion and hours of time flipping back and forth between Attachment M and the text where the figures are pertinent. Please keep the figures where they are.

NMED's Removal of lists of "Permit Attachments" at the end of each part also makes it harder to understand at a glance, what attachments are referenced in each part. Instead of removing this list completely, CARD recommends updating and revising the lists but leaving them where they are for convenience.

The Permittees' suggestions to reduce redundant language is also a problem. Correcting and updating language and removing obsolete language sound good but sometimes acronyms have been substituted for the previously fully written phrase making it again necessary for the public to flip back and forth to the acronym section. Other new language seems to have some new obscure meaning. The Permittees and NMED know these acronyms and specialized language by heart after many years of working with these phrases and concepts. But it is hard enough for the public just to get through the more than 1000 page Draft Permit document when the pictures are with what they are illustrating and with words written out and lists of attachments readily available. Please make sure that when making such formatting changes you are not adding an additional and excessive burden to the public who are reading the Draft Permit along with the Permittees and NMED.

WIPP as a Pilot Plant

CARD supports NMED's retention of language related to the mission of WIPP as a Pilot Plant in the Introduction of Attachment H1, Sections H1.1.1 and H1.1.2; and supports the addition of Part 2, Section 2.14.3 requiring an annual report on DOE's progress toward siting another repository for TRU-waste in a state other than New Mexico. From the very beginning WIPP had a limited mission to receive a limited amount of the inventory of Defense transuranic waste, and to close after a limited amount of time.

However, NMED's reporting requirement has no teeth in it as there are no consequences if DOE continues to do little or nothing to find another repository. If DOE is allowed to expand WIPP's size and continue to operate with no end date, where is the motivation for DOE to find another site? There is none.

Waste Volume Limits

CARD supports NMED's new Permit Condition in Part 1, Section 1.3.1 triggering revocation of the Permit if the Land Withdrawal Act (LWA) volume disposal limit is increased or changed by Congress. Time limits and other language probably need revising to keep in compliance with regulations but the condition itself is excellent and should be retained.

The Volume of Record Modification, however, makes clear that there are ways of getting around even a maximum volume limit as clear as was written into the C & C Agreement, the LWA, and the original Permit. In fact, it might be time now to re-visit the VR Modification and get rid of it. There was a good reason the original Permit measured the outer container rather than the solid waste itself—because it is the size of that container that determines how much space needs to be excavated to bury the waste, not the volume of the waste itself.

The Permittees have never been guaranteed that they could keep WIPP open in order to bury the maximum volume of waste, no matter how it is measured. It is, in fact, DOE's and WIPP's own massive mismanagement of both the LANL generator site and the WIPP disposal site that has caused them to run out of space for waste disposal underground. That, coupled with their desire to increase the waste volume in WIPP by "getting around" the language in the LWA has created this "need" for additional disposal space.

WIPP was designed to hold a certain amount of waste in a certain number of waste panels, rooms, and corridors arranged in a particular footprint. Now DOE wants to increase that footprint and with the VR Modification is increasing the volume of waste from what was originally intended to be in WIPP when WIPP was designed.

Panels 11 & 12

The Draft Permit acknowledges the Permittees' request to add two "replacement panels," Panels 11 and 12. NMED describes them, and leaves space for them in Permit Part 4, Table 4.1.1; Attachment J, Table J-3 and in other sections. However, it is far too premature to permit these two panels. Again, these are so-called replacement panels

for waste disposal space lost through WIPP's own mismanagement. It was this mismanagement that caused part of the Underground as well as the Exhaust Shaft to become contaminated after the 2014 explosion. It was also mismanagement that buried thousands of empty drums and closed panels when they were only partially filled in WIPP's earlier years.

But Panels 11 and 12 are also just the beginning of a great increase in WIPP's size and an expansion into the western part of the WIPP site. There are many reasons why it would not be good to rush ahead to permit these panels right now.

For one thing, there are a lot of unknowns about the western part of the WIPP site. In their letter of April 20th 2021 to Reinhard Knerr, Manager of the Carlsbad Field Office (attached), EPA stated they would require new data collection and site characterization of the western area along with a new probability distribution for a drilling intrusion hitting a brine pocket underneath the new waste area, and more characterization wells and new and better hydrological modeling of a release from a drilling intrusion. This characterization and EPA's new rulemaking would take years to complete which is why permitting these panels now, before it is know if extension into the western area is even geologically and hydrologically feasible, is premature.

For another thing, WIPP and the LANL generator sites both still have a very casual attitude toward safety, just recently reiterating that Safety is a Journey and the Destination is unimportant. In other words, they are in no hurry to put safety first. Both sites continue to have safety problems and there is no guarantee that they would manage the "replacement panels" any better than they have managed the rest of the repository. Perhaps they should take the time while they are doing site characterization and other studies to improve their safety culture so more billions of dollars and years of time aren't wasted at WIPP.

CARD recommends that NMED not permit any new waste panels, including Panels 11 and 12, at this time. The Permittees can easily request a modification to add the panels after all the rulemaking, modeling and characterization have been completed, if the geology of the area is found to be suitable.

Closure Date

In Part 6 and Attachments G, H and H1 NMED says that the closure date is tied to permit renewal and volume capacities. Though requiring an accurate inventory of waste awaiting clean-up is a very needed requirement, CARD cannot support the removal of any reference to an end date for WIPP.

Again, this language about closure has no teeth in it at all. The whole permit is *always* up for discussion and change when it is renewed. Even if there were a specific closure date written into the Permit, it could be changed during any Permit Renewal. The Permittees *always* have to make a case for Permit Renewal at the end of the Permit Term. This language gains us nothing and violates the promises that DOE made to the State when they convinced us to accept WIPP. Does NMED agree with the Permittees' apparent belief that such promises are meaningless? CARD hopes not.

The Permittees envision no end date at all, which is what is reflected in the Draft Permit. Even if NMED were to add an end date in the 2080s, which is when DOE says they will have emplaced all the new Pit Production Waste, that's three generations from now. Extending waste operations and shipping beyond WIPP's assumed operational end date of 2024 increases the likelihood of another release from WIPP and an accident with a release on our highways and roads. Is this really in the best interests of New Mexicans' health and our environment? CARD doesn't believe so.

DOE has mismanaged WIPP badly and continues to do so. They have no innate right to continually expand WIPP's size, waste volume and shipments forever. The original permit at I-1d *Schedule for Closure* said that the operating period was assumed to be 25 years for disposal operations. WIPP was never envisioned as operating forever and it's unclear if the integrity of the repository could be maintained with such a schedule. CARD recommends adding a condition that creates a specific operational end date of 2024 whether WIPP has met their maximum waste volume limit of 6.2 million cubic feet of waste or not.

New Mexico Legacy Waste

CARD supports NMED's new Permit section at Part 4, Section 4.2.1.4 requiring the prioritization of waste from New Mexico generator/storage sites for emplacement at WIPP. WIPP was originally "sold" to New Mexico as a repository that was part of a transuranic waste clean-up plan that would include the legacy transuranic waste at LANL, New Mexico's main generator site. The Land Withdrawal Act specifically talks about LANL's transuranic waste. Yet so far, almost at the end of the original end of waste operations, relatively little LANL waste has been emplaced at WIPP. Out-of-state generator and storage sites have had priority over us. So this new Permit section is badly needed and should be retained.

However, NMED has not included New Mexico Legacy waste in the new section and CARD requests that New Mexico Legacy waste—waste created before WIPP opened in 1999—specifically be prioritized over any newly generated waste. Much of that older

waste is still awaiting disposal after almost 25 years. A lot of it is not disposed of safely and has already caused pollution near LANL, a site that is home to many nearby Native American pueblos, and to other people of color and low-income people. We need to start cleaning up this Legacy waste now.

Without a requirement to prioritize the waste WIPP was originally intended to hold, this waste will never be cleaned up. More than half of WIPP is planned for new Pit Production waste—which is also New Mexico waste—instead of for Legacy waste. Since DOE plans to expand WIPP forever, there will never be an end to newly generated waste. Legacy waste at LANL will remain there forever, polluting the surrounding area, unless the Permit specifically requires prioritizing not only New Mexico waste but New Mexico Legacy waste for disposal at WIPP.

Surplus Plutonium

DOE plans to "Dilute and Dispose" many tens of metric tons of Surplus Plutonium in WIPP in an ill-conceived and dangerous plan to ship plutonium pits from Pantex to LANL, grind them up and oxidize the pits there, ship the "powdered" plutonium to Savannah River for further processing, and then ship the final powdered product, which they then call "transuranic waste," back to WIPP for disposal. Whether this is really transuranic waste or something else entirely is a serious question. Certainly, even US Senator Pete Domenici, a huge booster of WIPP, never wanted this to happen, and said,

> *I want to ensure that high level wastes can never be simply diluted in order to comply with criteria for WIPP disposal.*

But this is exactly what DOE wants to do now.

Even "diluted," this is no longer gloves and booties contaminated *with* plutonium but still highly concentrated plutonium itself. WIPP was never designed for this amount of concentrated plutonium and again, EPA has real questions about what the effect on WIPP's integrity will be from this major change in WIPP's mission.

EPA's letter of April 20th, 2021 talks about the increase in plutonium solubility from what it was expected to be 20 or 30 years ago. "Given that more plutonium is being considered for disposal at WIPP in more concentrated forms than previously anticipated, and that higher plutonium solubility would affect releases," there could be greater than expected plutonium releases to the accessible environment if WIPP is breached.

Thus, adding Surplus Plutonium to WIPP in such large quantities would add to the risk for people living, working and ranching near the repository, as a breach would be much more severe than original expected. However, the risk from the transportation of this very dangerous waste would be even greater. Powdered plutonium is the most dangerous form of plutonium because if there is an accident with a release, before first responders can even arrive on the scene, anyone nearby will have already inhaled it and it will already be spreading to people's homes, topsoil, and into our rivers and lakes. Once inhaled, the small plutonium particles remain in the lungs, irradiating them forever. And Sandia Labs say it is impossible to clean up the powdered plutonium. Topsoil would have to be dug up and carted away.

This kind of risk, especially for three generations or forever is totally unacceptable. The Draft Permit is silent about Surplus Plutonium and the Dilute and Dispose plan to bring this waste to WIPP. The risks from this waste are not at all supportive of preserving the health of New Mexicans and our environment. NMED must add a condition to the Draft Permit prohibiting the acceptance of this Surplus Plutonium waste stream no matter how it is diluted.

Oversight

Both LANL and WIPP have abysmal safety histories and horrible approaches to their current safety culture, as described above. WIPP got rid of the Environmental Evaluation Group (EEG) that used to provide additional WIPP and generator site oversight, claiming WIPP was so safe it didn't need the EEG anymore. Then the 2014 accidents and release occurred because of incorrect drum packaging at LANL. If the EEG had still been active, this never would have happened as they monitored WIPP and LANL both. Without this oversight, both sites became incredibly sloppy (as detailed in the WIPP Accident Report) making an accident almost inevitable. LANL is as bad and maybe worse than WIPP and when serious mistakes were found there, instead of working to increase safety, LANL tried to get rid of their oversight as well.

Even if waste operations were to end at WIPP in 2024, there would still be 10 years of closure and WIPP would need oversight for those 10 years. If operations extended beyond 2024, both WIPP and LANL would need oversight by a group paid for by DOE but answerable to the State of New Mexico. Somehow, this need for extra oversight must be incorporated into the Renewal Permit as we cannot afford another accident like the 2014 accident and release.

Incomplete Application

CARD asserts that the Permittees' Application for a Renewed Permit is incomplete because exposure pathways studies required to be in the Application are incomplete. 40 CFR §270.23 - *Specific part B information requirements for miscellaneous units* at (c) requires "information on the potential pathways of exposure of humans or environmental receptors to hazardous waste or hazardous constituents and on the potential magnitude and nature of such exposures."

NMED has accepted the Permittees' claims that only the VOCs in the waste need to be considered when looking at exposure pathways and that nothing has changed since the original exposure pathways studies decades ago. But there is a significant quantity of solid hazardous waste in the Mixed Waste at WIPP. Even if radioactive exposures are more significant, that doesn't necessarily mean that exposures from solid hazardous waste are insignificant. Certainly, such exposure pathways need to be calculated and studied.

For instance, NMED has concerns about waste reaching the accessible environment from drilling through the waste into the brine pocket underneath WIPP, and with good reason.

Near the top of the Castile Formation below WIPP, is a huge reservoir of pressurized brine and hydrogen sulfide gas. The WIPP site was moved twice to avoid brine reservoirs but either the reservoir is so large or there are so many brine pockets that it has been impossible to keep WIPP in the same area and also avoid brine. About 40% of the present site is underlain by this pressurized brine. Since oil and gas are present in the formations below the Castile, it is expected that the repository will be drilled into at least 4 times. If the borehole goes all the way through the repository and hits the brine, it could be a driving force to bring large amounts of mixed waste, including solid hazardous waste to the surface.

If this were to happen, what quantities of hazardous materials could escape to the accessible environment? How would the "wet" repository affect the solubility of the different solid hazardous wastes?

Much has changed in the decades since WIPP was first permitted and WIPP is now surrounded by oil & gas development. Plus, DOE's requested changes to the Permit would also change potential exposures and must be analyzed. What about the *Hartman Scenario,* for instance, another way that hazardous materials could be brought to the surface?. The Hartman lawsuit involved injected fluid that travelled for miles in the Salado Formation and rose 3000 feet from below the Salado where it was injected, to the Culebra Dolomite layer above the Salado where it reached the surface and blew out Hartman's well. This brine moved along a combination of horizontal and vertical pathways using interbeds, boreholes, and fractures and traveled horizontally farther

than the distance from the western WIPP border to the current repository footprint and waste panels.

The brine had been incorrectly injected by Exxon under high pressure—so high that when the brine blew out Hartman's borehole, thousands of gallons of brine gushed for days. WIPP is located between two interbeds, like the ones traveled by the Hartman brine. One is about 10 feet above the WIPP ceiling and the second is just about level with WIPP's floor. Again, how much solid hazardous waste could be brought to the surface under this scenario? This is not an incredible scenario; this has already happened. Hartman won his lawsuit against Exxon.

Conclusion

The Permittees want to make significant changes to the Renewal Permit—changes that are on the level of creating a whole new WIPP. They want to create a repository that will stay open and receiving waste for a minimum of three generations, and with no real end in sight. They want to change the size of the repository, expanding into the unknown geology of west because they already know that the geology on the east, south and north is unsuitable. Perhaps the west only seems suitable because they don't know much about it.

They have already increased the volume of waste they're allowed to put in WIPP by redefining how the waste is measured. That doesn't change the fact that there will be more waste in the repository than it was planned and designed for, and that the increased volume of the waste containers for this "expanded" waste will require more than doubling the size of the present footprint. And to make matters worse, DOE wants to dispose the most dangerous kind of plutonium waste in WIPP—powdered plutonium—after dragging it over our roads and highways in New Mexico three times—not to mention the climate cost of all those carbon miles.

Increasing the amount of time waste operations go on, increasing the amount of time and the miles traveled shipping waste to WIPP, increasing the riskiness of the waste form, and increasing the amount of plutonium in the repository are all a recipe for disaster. All of these increase the likelihood of an accident, a breach and a release. They also increase the seriousness of a release should one occur. Considering LANL's terrible safety history, adding in two new operations at LANL that would require Pit Production work and Surplus Plutonium oxidation work to go on at the same time, really seems completely reckless. How could there *not* be an accident? How could there *not* be a release?

NMED's mission is to protect human health and the environment. That means that NMED must stand firm against changing WIPP's original mission and design. WIPP has no right to stay open beyond 2024 and expand forever. It has no right to keep adding waste panels until the maximum 6.2 million cubic feet of waste has been emplaced—no matter how measured. WIPP lost any claim to expand it ever had by its continuing mismanagement and continuing reckless attitude toward safety.

NMED cannot allow the people of New Mexico to shoulder this huge burden, to be subject to almost assured radioactive and hazardous exposures for generations to come. WIPP must stop receiving waste in 2024 and begin final closure of the facility. Our children, grandchildren, and great grandchildren, deserve nothing less.

Sincerely,
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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
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April 20, 2021

OFFICE OF
AIR AND
RADIATION

Mr. Reinhard Knerr
Manager
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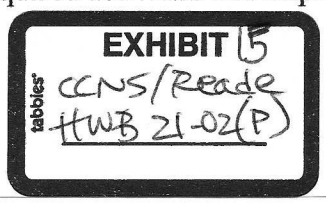
P.O. Box 3090
Carlsbad, New Mexico 88221-3090

Dear Mr. Knerr:

The U.S. Environmental Protection Agency understands that the U.S. Department of Energy (DOE) anticipates developing additional waste emplacement capacity at the Waste Isolation Pilot Plant (WIPP) to replace two lost waste panels in the current design and will likely develop new waste panels that could provide for sufficient disposal space for the additional waste more recently identified for disposal by the National Nuclear Security Administration (NNSA) (National Academy of Sciences "Review of the Department of Energy's Plans for Disposal of Surplus Plutonium in the Waste Isolation Pilot Plant," 2020). Physical changes of this nature to the repository require prior EPA approval. As DOE moves forward with planning additional panels to increase the physical capacity or footprint of the repository, I would like to share some of EPA's expectations for the approval process.

EPA's oversight role at WIPP focuses on the long-term performance of the disposal system. As such, DOE should, to the best of its ability, submit for EPA review information that represents the anticipated state of the repository at the time of closure. Given that DOE is going through procedural steps and public engagement relating to disposal of additional waste volumes at WIPP, it appears that DOE will need to add multiple panels by the time of closure, beyond the two replacement panels for existing waste as identified in the recent "Supplement Analysis for the Waste Isolation Pilot Plant Site-Wide Operations" [DOE/EIS-0026-SA-12]. The paragraphs below provide some perspective on the Agency's process for reviewing DOE's plans for new panels.

Under 40 CFR 194.4(b)(3), DOE must give EPA prior notice of "any planned . . . changes in activities or conditions pertaining to the disposal system that differ significantly from the most recent compliance application." If the Administrator determines that the proposed changes differ significantly from the most recent compliance application, such that modification or revocation of the certification may be appropriate, section 194.65(a) provides that EPA will publish a Notice of Proposed Rulemaking in the Federal Register and solicit public comment. EPA staff interpret the information available so far as indicating that new waste disposal panels constructed in previously undeveloped areas likely would depart significantly from the most recent compliance application and would likely require a rulemaking. If EPA were to undertake a rulemaking action that requires the opportunity for public notice and comment, EPA anticipates that the process could take at least two years, assuming DOE provides sufficient, appropriate information to EPA. Clarity on the full extent of DOE's plans for the WIPP would help EPA determine its path forward, provide for scheduling of required activities and improve coordination of activities with DOE.



As part of any planned change notification, EPA expects DOE to submit to EPA documentation relating to the planned change, including information to enable EPA to determine the possible effect or impact on the certification (see, for example, 40 CFR section 194.4(b)(2)). In connection with proposed new panels, the Agency anticipates needing information in these key categories: technical information identified and documented in the 2017 recertification decision (82 Fed. Reg. 33106 (July 19, 2017)); site characterization; information on future anticipated wastes; and the expected repository design.

Information from 2017 Recertification Decision:

- Actinide Solubility. In the 2017 recertification decision and subsequently, EPA identified the need to revisit the chemical conceptual models that affect actinide solubility, especially plutonium solubility. EPA has provided DOE with documentation of its view that the repository conditions will be more reducing (i.e., less oxygen will be present) than previously believed, resulting in an increase in the expected plutonium solubility, leading to higher calculated releases of radionuclides to the accessible environment than currently modeled by DOE. Given that more plutonium is being considered for disposal at WIPP in more concentrated forms than previously anticipated, and that higher plutonium solubility would affect releases, the Agency thinks that DOE's model of plutonium solubility under repository conditions needs to be updated in light of new information available since the initial certification in 1998.

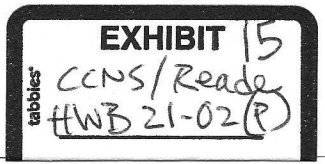
- Modeling the Salt Creep Closure of Open Areas. Another issue identified in the 2017 recertification decision is related to the movement of the salt over time, which helps to contain the radioactivity in the repository. In the 2017 decision, EPA stated that DOE needed improved long-term performance information describing the salt creep behavior of open waste areas and access drifts, given the DOE decision not to install panel closures in abandoned areas. That is, according to DOE's current plans, WIPP will have more open areas in the repository than originally assumed at closure, and their presence needs to be accounted for in the modeling.

Site Characterization:

DOE must provide EPA with site characterization information specific to the location for new repository panels located to the west of the current waste panels as described, in part, in the recent WIPP Supplement Analysis. For example, the DOE site characterization should identify the potential for brine pockets in the Castille Formation, which underlies the waste area in the Salado Formation. This would require new data collection. Once DOE increases the repository footprint beyond the current characterized area, DOE will need to develop an acceptable methodology for incorporating new remote sensing data in a new probability distribution for a drilling intrusion hitting a brine pocket (i.e., modeling parameter PBRINE) that accounts for the existing waste area and any new planned waste area. In addition, with general plans to enlarge the repository by development toward the west, the waste panels would come closer to the western facility boundary, thus shortening the distance between a release and the facility boundary. Potentially, EPA may request that DOE provide more refined hydrologic information, including data from additional characterization wells, to better model a release from a drilling intrusion at the western boundary

Information on the Range of Potential Waste:

The Agency expects DOE to conduct an analysis of the full range of reasonably expected waste that may be disposed of at WIPP. Although EPA has not received a relevant planned change notice or other formal submission, EPA generally is aware of at least two potential waste streams that would require substantial space in the repository: waste associated with resuming the production of pits to support the



nuclear stockpile stewardship program (which the NNSA estimates in DOE/EIS-0236-S4-SA-02 could generate over 50,000 cubic meters of transuranic waste [see page 65]) and 34 (or more) metric tons of surplus plutonium identified to undergo the "dilute and dispose" process.

General Design for New Repository:

Lastly, the Agency expects that DOE will provide the general design of the new repository, to the best of available knowledge, that would accommodate disposal of the total anticipated waste. The repository design at closure is important for representing the disposal system in the modeling required for compliance (see 40 CFR 191.13, for example). DOE will need to model the repository that is expected for the future. The Agency understands that any initial design could change and that could be addressed as needed through the established planned change process.

In sum, EPA requests that DOE, as part of a future planned change seeking regulatory approval of modifications to the WIPP, address the aforementioned issues and include all reasonably foreseeable information related to the condition of the repository at the time of closure, using a repository footprint that addresses the potential future waste disposal needs. EPA staff are ready to discuss DOE's plans for future repository design, the Agency's information needs, and the process associated with certifying a significant redesign of the repository.

I hope this information is helpful as DOE continues to plan for the future of WIPP. If you have questions or need more information, please contact me or Tom Peake, Director of the Center for Waste Management and Regulations, at (202) 343-9765 or peake.tom@epa.gov.

Sincerely,

LEE ANN VEAL Digitally signed by LEE ANN VEAL
Date: 2021.04.20 13:37:14 -04'00'

Lee Ann B. Veal
Director
Radiation Protection Division

Enclosure

cc: Mark Bollinger, DOE/CBFO
Mike Brown, DOE/CBFO
Anderson Ward, DOE/CBFO
Justin Marble, DOE/HQ
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