STATE OF NEW MEXICO
BEFORE THE SECRETARY OF THE ENVIRONMENT

IN THE MATTER OF:
HEARING DETERMINATION REQUEST
CLASS 3 "EXCAVATION OF A NEW SHAFT
AND ASSOCIATED CONNECTING DRIFTS" **Docket No. HWB 21-02**
PERMIT MODIFICATION TO THE WIPP
HAZARDOUS WASTE FACILITY PERMIT

STATEMENT OF INTENT TO PRESENT TECHNICAL TESTIMONY ON BEHALF OF SOUTHWEST RESEARCH AND INFORMATION CENTER

COMES NOW Southwest Research and Information Center ("SRIC") and notices its Intent to Present Technical Testimony in this proceeding, pursuant to 20.1.4.300.B(1) NMAC and Public Hearing Notice No. 20-03.

SRIC opposes the Draft Permit, as detailed in its various comments in the Administrative Record, including of August 11, 2020 (AR 200805.252), and in the accompanying Testimony and Exhibits.

SRIC intends to present one witness for direct testimony: Don Hancock.

Witness:
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Mr. Hancock's educational and work background is provided in Exhibit 1.

Mr. Hancock's direct testimony length is estimated at up to one hour.

Mr. Hancock's statement includes a total of ten exhibits, which are attached, and a summary of technical references upon which he relies. He also may refer to SRIC's comments of February 2, 2018 (AR 180205), March 8, 2019 (AR 190308), April 15, 2019 (AR 190408), October 16, 2019 (AR 191019.15), January 27, 2020 (AR 200124), and September 11, 2020 (AR 200908).

SRIC may introduce additional exhibits as evidence for the purpose of cross-examination or in rebuttal.

Respectfully submitted,

/s/ Don Hancock

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TECHNICAL TESTIMONY OF DON HANCOCK

Educational Background and Work Experience: I have a B.A. degree from DePauw University in 1970, with a major in Political Science. I have worked at Southwest Research and Information Center (SRIC), a non-profit educational and technical assistance organization, since 1975. A principal activity of my work has been nuclear waste issues, with special attention to the Waste Isolation Pilot Plant (WIPP), because of its status as first-of-its-kind facility in the United States and its location in New Mexico. I am also familiar with U.S. defense waste storage and commercial spent fuel storage facilities and the proposed Yucca Mountain, Nevada geologic repository.

My activities regarding WIPP have included: reviewing hundreds of technical documents, writing dozens of articles, making dozens of public presentations, having hundreds of interviews with academic and media representatives, submitting comments on the original WIPP Hazardous Waste Act, § 74-4-1 *et seq*. NMSA 1978 (HWA), Permit and Renewal Permit, submitting comments on dozens of WIPP permit modification requests, providing written and oral testimony before congressional and state legislative committees and scientific organizations, including National Academy of Sciences (NAS) panels, and the Canadian Deep Geologic Repository Joint Review Panel. Additional information is provided in the Curriculum Vitae in Exhibit 1.

The focus of my testimony is Permittees' obligation to speak the truth about the purpose and need for the new shaft and drifts, the almost four years' delay in processing the new shaft Permit Modification Request (PMR), and the history of the "social contract" between the Department of Energy (DOE) and New Mexicans. This PMR is governed by several legal provisions. The State-DOE Consultation and Cooperation (C&C) Agreement, the WIPP Land Withdrawal Act (Public Law 102-579, as amended) (LWA), and the HWA all impose legal requirements. Under HWA regulations, DOE must disclose the "need" that the PMR would serve (40 C.F.R. § 270.42(c)(1)(iii)) and include any other changes made necessary by the PMR (40 C.F.R. § 270.42, App. I), and the New Mexico Environment Department (NMED) must determine that the modification will be lawful and protect human health and the environment. 40 C.F.R. § 264.601. The basis for that determination has not been provided in the PMR or the draft permit. It is the Permittees' burden to establish the facts supporting their PMR. 20.1.4.400.A.1; 20.4.1.900.F.7a NMAC.

1. <u>The permittees have misstated the actual need for the new shaft and drifts. The new shaft is not needed for ventilation of the existing WIPP underground design.</u>

The PMR contends that the new shaft and drifts provide ventilation that is "needed to perform underground work concurrently and in a timely manner." AR 190815 at 9. This is a misrepresentation, because that need has been met historically by the existing four shafts and by the new ventilation system now included in the Permit. Simply put, the new shaft is not needed for the WIPP design of four shafts and ten underground disposal panels, which can accommodate the legal capacity of 6.2 million feet^3 of defense transuranic (TRU) waste. That WIPP design is included in the three WIPP Environmental Impact Statements (EISs), the State-DOE C&C Agreement and documents required by it, the WIPP Permit, and other documents. That design provided sufficient ventilation for all operations at WIPP from first receipt of waste on March 26, 1999 until February 2014, when the radiation release occurred.

The WIPP design managed the maximum annual waste volume, which occurred in Fiscal Year 2006, when WIPP received 1,128 shipments and disposed of 10,556 meters^3 of contact-handled (CH) waste – amounts that greatly exceed any expectations for future years. Ref 9 at 98. At that peak rate, the legal capacity limit of 168,485 cubic meters of CH waste would be achieved in 16 years. The existing four shafts, drifts, and panels were adequate at that peak disposal rate.

The WIPP design has been unchanged for almost 40 years. The 1980 Final Environment Impact Statement (FEIS) described the design of WIPP to manage 6.2 million feet^3 of defense transuranic (TRU) waste (FR[1] 801010, Vol. 1 at 2-17), which required four shafts to the underground disposal area (at 3-13, 8-16) of approximately 100 acres (at 8-16). The resulting 1981 WIPP Record of Decision (ROD) stated that WIPP is "designed to retrievably emplace approximately 6.2 million cubic feet of contact-handled TRU waste and as much as 250,000 cubic feet of remotely handled TRU waste in a mined repository." 46 Fed. Reg. 9163.

The 1990 Final SEIS confirmed the design with four shafts and 100 acres of underground disposal area, "designed to hold 6.2 million ft^3 of CH TRU and 250,000 ft^3 of RH TRU waste." The underground panels were reconfigured from north (as in the FEIS) to south. (FR 900102, Vol. 1 at 2-8; Figure 2.4 is Exhibit 2). That change of orientation was adopted based upon studies required by the C&C Agreement, and was recommended by the Environmental Evaluation Group (EEG) and State of New Mexico. Ref. 6 at 13.

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[1] "FR" refers to NMED's WIPP Facility Records, which have the AR numbers which are used in the December 11, 2020 AR for this PMR. https://hwbdocuments.env.nm.gov/Waste%20Isolation%20Pilot%20Plant/

The 1997 Final SEIS-II again stated that there were four shafts and that panel 1 (already mined) and seven additional panels plus panels 9 and 10 "would be necessary to accommodate the 175,600 cubic meters (6.2 million cubic feet) of TRU waste permissible under LWA." AR 971019 at 2-15. Figure 2-4 is Exhibit 3.

The C&C Agreement (Exhibit D, Motion to Dismiss, Mar. 10, 2021) also calls for four shafts: Exhaust and Waste Shafts. Art. VII, Key Events C.6 (exhaust shaft, waste shaft), C.7 – ventilation supply and service (later renamed Salt Handling), and air intake shaft (WA 1988 E.1). The C&C Agreement is referenced in the 1979 WIPP Authorization Act (Public Law 96-164, § 213(b)(1)) and statutorily was to be completed by September 1980. § 213(b)(2). The law further provided that consultation and cooperation shall include:

> the right of the State of New Mexico to comment on, and make recommendations with regard to, the public health and safety aspects of such project before the occurrence of certain key events identified in the agreement; § 213(b)(2)(A).

By the statutory date, DOE refused to sign the State's proposed C&C Agreement. Ref. 5. In 1981, DOE decided to proceed to construct the first two shafts, and the DOE WIPP Manager stated: "We don't need anything else from the state, legally or officially." Ref. 7 at 76. Attorney General Jeff Bingaman stated that he doubted DOE's "piecemeal approach" to WIPP "will lead to a rational, intelligent or safe solution to the radioactive waste disposal problem, either at the state or national level." *Id*. In May 1981, Bingaman filed suit (Federal District Court, District of New Mexico, Civil Action No. 81-0363 JB) to prevent construction until there was a binding agreement to protect the state's rights and address its technical concerns about site suitability and off-site impacts. Settlement talks followed, and in the resulting Stipulated Agreement *DOE agreed* that the C&C Agreement is "binding and enforceable" on the State and DOE. The C&C Agreement is signed by New Mexico Governor Bruce King and the Secretary of Energy, James B. Edwards. Under the C&C Agreement, *DOE agreed* to carry out specified activities and provide the State prior review, comment, and resolution of issues with specified key events. Bingaman stated that the C&C Agreement "provided important state review checkpoints in the decision-making process on WIPP prior to any decision to change the limited mission of WIPP." Ref. 1 at 10. The C&C Agreement is referenced and preserved in the 1992 WIPP LWA, § 21. Thus, the C&C Agreement is still binding and in effect.

As part of the C&C Agreement, *DOE agreed* to the Working Agreement, which focuses on a key DOE document, namely, the Safety Analysis Report (SAR),

which "constitutes the most comprehensive document concerning WlPP both in general and specifically as related to public health and safety as well as other matters." Art. III.A. *DOE agreed* to provide the SAR to the State in compliance with its obligations under the C&C Agreement. The SAR repeatedly describes and depicts the WIPP design of four shafts and eight underground panels. Exhibit 4.

Thus, DOE was only fulfilling its commitment in those documents when it applied for a WIPP HWA Permit which incorporates the WIPP design of four shafts (A-2), Figures A2-1 and A2-2, and up to ten panels to dispose of the legal capacity of 175,564 meters^3 of waste. Robert Kehrman, Permittees' witness at the permit hearing, explained how the waste volume limit determined the volume of the repository:

> A. The facility is laid out to have eight panels, starting with 1, 4, 5, 6, 7, 8. If, in fact, eight panels is insufficient for us to reach the capacity mandated by the Land Withdrawal Act, we also have available for disposal these areas between the panels. We refer to these—or will refer to these as "panels 9 and 10," should it be necessary to use them.

Permit Hearing Transcript, Feb. 22, 1999, at 81.

The WIPP design of four shafts and eight+two underground panels within 100 acres was sufficient to dispose of the legal TRU-waste capacity—6.2 million feet^3 of defense TRU waste—operating for no more than 25 years. A fifth shaft was not needed for that mission, nor is it included in the C&C Agreement, the SAR, or other documents.

2. <u>The new shaft is not required for the Permanent Ventilation System</u>.

After WIPP's February 2014 fire and radiation release, DOE issued the WIPP Recovery Plan (9/30/14), which included a new permanent ventilation system (PVS) and a new exhaust shaft and two drifts. (FR 140939 at 12). According to the Government Accountability Office (GAO) 2016 Report on the WIPP Recovery Plan, none of the three alternative PVS designs from 2015 required a new air intake shaft. Ref. 10 at 26. Yet the present PMR claims that air intake for the existing design is the new shaft's primary use, which is untrue. AR 190815 at 1.

The PVS, now called the Safety Significant Confinement Ventilation System (SSCVS), includes the Salt Reduction Building and New Filter Building (NFB), which were incorporated in the WIPP Permit by NMED's approval of the Class 2 modification request on March 23, 2018. As a result of that PMR, the permit now states:

> The Underground Ventilation Filtration System (**UVFS**) fans which are part of the New Filter Building (**NFB**) (Building 416) provide enhanced ventilation in the underground, sufficient to allow concurrent mining and waste emplacement while in filtration mode. A2-9.

The present PMR makes no change in that provision.

The NFB was supposed to be completed in 2020, according to Permittees' Planned Change request of June 9, 2017. FR 170606 at 1. Further, Permittees state, "The new filter building will supply additional air to the underground in order to achieve up to 540,000 actual cubic feet per minute (acfm) in filtration mode." A new shaft is not included in that ventilation upgrade. Additionally, DOE's recent depiction of the SSCVS (Exhibit 5) shows that it provides 540,000 cfm of air flow with the existing four shafts. Clearly, the new shaft is not necessary for the SSCVS to operate and provide the increased ventilation. The need claimed in the present PMR is already met.

3. <u>The Permittees have acknowledged for years that the new shaft is not required for the SSCVS</u>.

In October 2017, the Permittees posted on the WIPP website three draft Class 2 permit modification requests: "Excavation of a New Shaft and Associated Connecting Drifts," "Changes Due to Construction and Operation of a New Filter Building," and "Training Program Revision." At the November 9, 2017 pre-submittal meeting with stakeholders in Albuquerque, SRIC (and others) objected that the new shaft was not required to restore ventilation for WIPP operations; they stated that the new shaft was actually planned to expand the underground disposal area for additional waste, and that it should be a Class 3 PMR. AR 171106.5.

One option discussed at the meeting was combining the new shaft and NFB in a Class 3 permit modification, as a project supporting the SSCVS. Permittees refused this option, explaining that the NFB and Training Program Revisions could be combined in a Class 2 PMR, with a much faster schedule; while the new shaft *was not an essential component* of the upgraded ventilation system. Stakeholders proposed combining the new shaft and new waste panels in a Class 3 PMR, because they were both part of WIPP's underground expansion. Id. at 3. Ultimately, on November 29, 2017, Permittees submitted a Class 2 modification for the Training Program Revisions and NFB, without any mention of a new shaft. FR 171112. On March 23, 2018, NMED approved this PMR. FR 180310.

On January 21, 2020, the Permittees' Response to the Technical Incompleteness Determination (TID), stated: "The anticipated date for the SSCVS to become

operational is April 2022." AR 000114 at 5. That would be two years before the new shaft would be operational. That statement is another tacit admission that the new shaft is not needed for the SSCVS.

Thus, since November 2017, Permittees have taken the firm position that the new shaft is not needed for the SSCVS ventilation.

4. The Permittees delayed making the new shaft a priority for inclusion in the WIPP Permit.

Permittees' delay in proceeding with the new shaft PMR also confirms that the new shaft is not needed for the SSCVS. After the November pre-submittal meeting, on December 22, 2017, the Permittees requested a Class Determination for the new shaft PMR, "Excavation of a New Shaft and Associated Connecting Drifts." AR 171222 .

Next, on January 31, 2018 (FR 180121), Permittees submitted the Class 2 Volume of Record (VOR) PMR. Even though the VOR PMR was filed more than a month after the new shaft PMR, Permittees requested that the VOR PMR take priority, even after NMED elevated it to a Class 3 PMR (FR 180602). Permittees' request prevented NMED from acting on the new shaft PMR any time during 2018. Late in 2018, NMED held a public hearing on the VOR PMR, and the NMED Secretary approved it on December 21, 2018. FR 181218.

Permittees then sat on the new shaft PMR until August 15, 2019, when they withdrew the 2017 Class Determination request and submitted the present Class 3 PMR, which was substantively unchanged from the withdrawn PMR. Permittees' delays again confirm their recognition that the new shaft is not needed for ventilation of the existing facility.

5. The Permittees' certification of the truth of statements in their PMR is false and cannot be accepted, because Permittees actually seek the new shaft and drifts for a different and unstated purpose, namely: to physically expand WIPP, for which the new shaft is essential.

Since 2019, DOE has issued numerous documents, including EISs for other DOE sites, that discuss extending WIPP's disposal operations for decades beyond the permitted end date of 2024, which is 25 years after the first waste was received. At WIPP, continued operation, by definition, requires physical underground expansion. The new shaft is essential for that physical expansion of the underground disposal area.

(1) The DOE Carlsbad Field Office ("CBFO") Draft 2019-2024 Strategic Plan (AR 200422, Ex. L to Motion for Stay[2]) declares DOE's objective of operating WIPP through the year 2050 to emplace, not the statutory limit of 6.2 million ft^3 under LWA § 7(a)(3), but the entire "existing defense [transuranic] waste inventory." The document states that "State and U.S. Environmental Protection Agency approval for the development and use of additional panels for emplacement beyond Panel 8 are necessary." Id. The document includes a figure showing the proposed WIPP in 2022, with the new shaft and associated drifts. at 17.

(2) A memorandum dated December 16, 2019, submitted with DOE's draft renewal HWA Permit, estimates that WIPP will receive its last shipments in 2052. AR 200422, Ex. N to Motion for Stay: The recommended final waste receipt and emplacement date is 2052, and the facility closure date is 2062. Id.

(3) The Final Supplement Analysis of the Complex Transformation Supplemental Programmatic Environmental Impact Statement, DOE/EIS-0236-S4-SA-02 (Dec. 2019)(AR 200422, Ex. O to Motion for Stay), states that TRU waste from 50 years of production of plutonium pits will be disposed of at WIPP. at 65. If such production begins in 2030, it would end in 2080, indicating a closure date sometime after 2080.

(4) DOE's agencywide Environmental Management Strategic Vision 2020-2030 states that "the new Utility Shaft will provide a new air intake shaft to support the SSCVS and facilitate mining additional panels." AR 200422, Ex. M to Motion for Stay, at 59.

(5) On March 31, 2020, Permittees submitted the HWA Permit Renewal Application. FR 200318. The Application included numerous public comments, opposing changing the Permit's 2024 end date for disposal operations, while Permittees requested elimination of any end date for disposal operations: "As a result, no specific year for final facility closure is referenced in the Renewal Application since a final waste emplacement date is unknown at this time." at 59-60.

(6) In April 2020 DOE released the Draft Environmental Impact Statement for Plutonium Pit Production at the Savannah River Site in South Carolina, DOE/EIS-0541. It states that substantial quantities of TRU waste would be produced in the 2030-2080 timeframe, and it would all be disposed of at WIPP. AR 200422, Ex. P to Motion for Stay, at S-24, S-25. The Final EIS, released in September 2020,

[2] SRIC's Motion for Stay, April 27, 2020, (AR 200422) includes several exhibits, which are in the Record and therefore not reproduced again for this testimony.

states that WIPP will accommodate all of the TRU waste from pit production "over the next 50 years." Exhibit A, Motion to Dismiss, Mar. 10, 2021 at S-32.

(7) In March 2021, effective April 8, 2021, DOE approved the Supplement Analysis for the Waste Isolation Pilot Plant Site-Wide Operations, DOE/EIS-0026-SA-12. Exhibit A, SRIC Response to Prehearing Order, April 15, 2021 (SA). The SA states: "The DOE needs to excavate two replacement panels to take the place of lost disposal capacity." at 4. Thus, "The continuation of TRU waste emplacement would include two replacement panels beyond Panel 8, which would be designated as Panels 11 and 12." at 5. Further: "Excavation and use of the two replacement panels would not extend beyond the current estimated WIPP final facility closure date of 2033 and would not include the use of more than ten total equivalent disposal panels for the WIPP repository." at 16. Note that the WIPP Permit specifies the final facility closure date as 2034, based on ceasing waste disposal operations in 2024. SA Figure 2.1 (Exhibit 6) shows that the two "replacement" panels would be located to the west of the existing underground footprint and that the new shaft and associated drifts in the present PMR are essential for the two "replacement" panels.

(8) On April 13, 2021, DOE released EM Strategic Vision 2021-2031. Exhibit B to SRIC Response to Prehearing Order, April 15, 2021. The report confirms that DOE intends to operate WIPP beyond the date—2024—stated in the permit:

> By the end of 2024, a set of key infrastructure projects will be completed, improving WIPP capabilities in mining and waste emplacement. These include the new SSCVS, which will provide 540,000 cubic feet per minute of ventilation to the underground, allowing concurrent mining, waste emplacement, and ground control operations throughout the life of the facility. In addition, the new utility shaft will serve as an air intake entry point to support the SSCVS, and house a new, larger capacity hoisting capability to transport materials from the repository to the surface.

at 51. The report states:

> Initially, it was assumed that WIPP would complete its mission and cease operation in 2030. However, based on revised TRU waste estimates, it has been determined that additional time will be needed for WIPP to fully complete its mission.

at 52. Now, "WIPP is currently anticipated to operate beyond 2050." at 50.

Thus, physically expanding the WIPP underground disposal capacity is a major DOE priority. Before the 2014 radiation release, the Permittees had proposed expansion to the south of panels 4 and 5 as panels 9A and 10A. FR 130318 Contamination from the 2014 radiation release prevented that expansion.

DOE has now decided to expand to the west, with three additional drifts not included in the PMR and without seeking permission from NMED for those three drifts or providing any adequate justification for that decision. The new shaft and two associated drifts in the present PMR are to the west of the existing underground panels; the planned two "replacement" panels in the SA are to the west of the existing underground panels; and the nine planned panels shown in the 2020 GAO Report are also to the west of the existing underground panels. Exhibit C, Motion to Dismiss, Mar. 10, 2021; Figure on page 19 is Exhibit 7. Figures depicting those additional panels all show that the new shaft is located to the west to enable the construction and provide access, ventilation, and waste hoist capacity for the expansion area.

In sum, WIPP, DOE, and other agencies have revealed the basic design of the WIPP expansion plan, including the essential role that the new shaft and associated drifts have in physically expanding the WIPP underground to the west and to more than double the number of disposal panels, compared to the original design. The schedule for the shaft and drifts projects completion of construction in 2024—the same date when WIPP operations will cease. Response to TID, AR 200114 at 7; Permit at G-6. To propose a $197,000,000 improvement, to be followed immediately by the shutdown of the facility, clearly makes no sense and fails to disclose the true purpose. The forthcoming expansion requires operations for decades beyond what has been agreed to in the social contract and stated in the WIPP Permit. The reason for the expansion and much longer lifetime is clearly to dispose of much waste that was never part of the WIPP mission and is a much greater volume than allowed by the legal and permitted limits, as the 2020 National Academy of Sciences (NAS) Report found. Exhibit B, Motion to Dismiss, Mar. 10, 2021. None of this essential information is disclosed in the PMR or draft permit.

6. <u>One purpose of the physical expansion is to compensate for mismanagement of the existing disposal area</u>.

While the original WIPP design of four shafts and 8+2 underground panels could have accommodated the C&C and LWA waste volume capacity, SRIC has long pointed out that the existing underground panels have been mismanaged, so that they cannot actually accommodate 168,500 cubic meters of contact-handled (CH) waste and 7,069 cubic meters of remote-handled (RH) waste. Exhibit 8.

In 2017, GAO reported on WIPP's lack of capacity to dispose of 6.2 million cubic feet of TRU waste. GAO stated:

> "DOE does not have sufficient space at WIPP to dispose of all defense TRU waste….
> •DOE's TRU waste management plan, which includes planning for WIPP, covers a 5-year period and does not address possible expansion. Moreover, DOE's TRU waste management plan does not include a schedule for expanding DOE's disposal space before existing space is full.
> •Expanding WIPP's disposal space will require regulatory approval that is expected to take several years. However, DOE modeling that is needed to begin the regulatory approval process is not expected to be ready until 2024."

Ref. 11 at inside cover. GAO reviewed DOE's WIPP expansion plans (and the 2020 NAS Report, among other documents) and in November 2020 released GAO 21-48. Exhibit C, Motion to Dismiss, Mar. 10, 2021. That report confirmed that CBFO lacks the skills to manage the current capital asset projects (SSCVS and new shaft). DOE's shortcoming (and NWP's similar lack, which GAO did not evaluate) have been confirmed by the failure of the SSCVS construction, where the contractor was terminated in August 2020. On April 21, 2021, DOE announced that a new $163 million subcontract was awarded to The Industrial Company (TIC) to complete the SSCVS in 2025.[3]

On August 27, 2019, the Defense Nuclear Facilities Safety Board (DNFSB) reported to the DOE Secretary that WIPP officials had not adequately addressed safety problems with the new ventilation system, issues that DNFSB had been raising for more than a year. Ref. 2. The report also raises concerns about the lack of integration between the new shaft and ventilation system:

> The non-safety utility shaft project proposes fans to supply a total of 500,000 cubic feet per minute (cfm). SSCVS has the capacity to exhaust 540,000 cfm. If utility shaft fans are not automatically shut down when the SSCVS fans stop, an imbalance in the underground air flow has the potential to up-cast unfiltered air from the contaminated circuit.

[3] https://wipp.energy.gov/wipp_news_20210421.asp

at 2. DOE's mismanagement of the underground space since WIPP opened in 1999 has led to the supposed need for underground expansion. The new shaft is essential for that expansion. But that important information is not disclosed in the PMR or draft permit.

7. The new shaft violates the "social contract" with New Mexicans.

The C&C Agreement and its ongoing requirements, the LWA, and the WIPP Permit, along with numerous promises of public officials, comprise a "social contract" with New Mexicans. Breaking or changing the social contract requires multiple actions that have not been agreed to or even discussed. There is strong public concern about, and objection to, such changes.

Since WIPP's authorization in 1979, Congress, the State of New Mexico, and the public have understood that the WIPP social contract is a governmental agreement, constituting a public compromise by DOE and the State to authorize the initial geologic disposal facility, a pilot plant with a limited mission—***not*** the only disposal site for defense TRU waste—and that additional nuclear waste disposal sites would later be created. While DOE has proposed broader missions for WIPP, the 1981 litigation, the C&C Agreement and its modifications, and the LWA have limited WIPP's mission to defense TRU waste with a capacity limit of 6.2 million feet^3/175,564 meters^3. The LWA specifically incorporates the C&C Agreement (§ 21). The limited size of the facility and its limited mission were meant to ensure that WIPP is not the sole disposal site for all TRU waste, and not the disposal site for any high-level waste, spent nuclear fuel, or commercial waste.

The social contract has been repeatedly recognized by New Mexico government officials. For example:

In 1983, when Governor Toney Anaya opposed new WIPP construction because of technical concerns about the safety of the site, Sen. Jeff Bingaman stated: "The identification of these additional concerns was precisely the purpose we intended to accomplish when we set up the review procedure in the Stipulated Agreement…. In short, I heartily support your request to DOE that these concerns be resolved by a firm commitment to conduct these additional tests before construction occurs." Ref. 1 at 3.

Sen. Pete Domenici then insisted similarly upon the social contract, stating: "That Stipulated Agreement is, of course, still under the oversight of the court. The Department [of Energy] is legally bound by that Agreement." Ref. 3 at 3.

In 1987, during the congressional debate over the Nuclear Waste Policy Amendments Act, Carlsbad officials lobbied for making WIPP the high-level waste disposal site. But the New Mexico congressional delegation opposed the idea as contrary to the existing DOE-State agreements. Ref. 7 at 88. In the conference committee, when the WIPP idea was presented, Sen. Domenici blocked it from being adopted. Instead, Congress designated Yucca Mountain in Nevada as the site.

In 2002, Sen. Domenici wrote the DOE Secretary: "I want to ensure that high level or weapons material wastes can never be simply diluted in order to comply with criteria for WIPP disposal…. In fact, dilution of weapons materials, simply in order to facilitate disposal, raises serious questions about our adherence to the same international controls on weapon-related materials that we expect other nations to follow." Ref. 4.

Recently, in 2019, Sen. Tom Udall stated that WIPP's volume limits were critical to federal-state negotiations that led to WIPP's creation "and were a major reason New Mexico agreed to this mission in the first place.… I am encouraging the new [State] administration to take a hard look at this action, and hopeful that it will pause and reconsider this last-minute change that has major ramifications for our state." He added, "unilateral action (by DOE) is absolutely not an option." Ref. 8.

On April 20, 2021, the Environmental Protection Agency (EPA), acting pursuant to its LWA authority, sent a letter to WIPP, citing the 2020 NAS Report and the 2021 DOE SA regarding expansion plans, including additional underground panels. EPA flatly stated: "Physical changes of this nature to the repository require prior EPA approval." Further, such approval would likely require a rulemaking process that "EPA anticipates that the process could take at least two years, assuming DOE provides sufficient, appropriate information to EPA." (Emphasis in original.) SRIC Supplemental Memorandum, Ex. A, April 23, 2021.

The NAS Committee recognized that compliance with the social contract is essential. At the direction of Congress, and after spending 30 months examining DOE's plans to bring additional waste and highly concentrated "surplus" plutonium to WIPP, and consideration of WIPP's mission and history, the NAS Committee produced the *Review of the Department of Energy's Plans for Disposal of Surplus Plutonium in the Waste Isolation Pilot Plant* that was issued in April 2020. Exhibit B, Motion to Dismiss, Mar. 10, 2021. The report stated:

FINDING 5-4: By virtually any measure, the proposal to dilute 48.2 Metric Tons of surplus plutonium and dispose at the Waste Isolation Pilot Plant (WIPP) represents a substantial technical and "social contract" change for WIPP and the State of New Mexico.

Prior to any change in the social contract, the NAS Committee recommended:

RECOMMENDATION 5-5: The Department of Energy should implement a new comprehensive programmatic environmental impact statement (PEIS) to consider fully the environmental impacts of the total diluted surplus plutonium transuranic waste inventory (up to an additional 48.2 metric tons) targeted for dilution at the Savannah River Site and disposal at the Waste Isolation Pilot Plant (WIPP). Given the scale and character of the diluted surplus plutonium inventory, the effect it has on redefining the character of WIPP, the involvement of several facilities at several sites to prepare the plutonium for dilution, a schedule of decades requiring sustained support, and the environmental and programmatic significance of the changes therein, a PEIS for the whole of surplus plutonium that considers all affected sites as a system is appropriate to address the intent and direction of the National Environmental Policy Act and would better support the need for public acceptance and stakeholder engagement by affording all the opportunity to contemplate the full picture.

RECOMMENDATION 5-6: The Department of Energy's (DOE's) National Nuclear Security Administration, DOE's Office of Environmental Management, and DOE higher-level officials should take additional actions beyond those defined by the National Environmental Policy Act toward transparency and stakeholder engagement on the whole of the potential scope of surplus plutonium under consideration (48.2 metric tons) for disposal at the Waste Isolation Pilot Plant. Such actions include completing and publicizing the outcome of relevant safety analyses and cost estimates.

The NAS Committee emphasized that the incremental approach that DOE is following undermines required regulatory and public review:

FINDING 5-7: A segmented and incremental approach to revealing the full inventory under consideration for disposal as diluted surplus plutonium transuranic waste in the Waste Isolation Pilot Plant (WIPP)

(initially 6 metric tons [MT], then 7.1 MT, and 34 MT, and so on) obfuscates the total anticipated inventory expected for WIPP and its consequences. An incremental approach inhibits a comprehensive review by regulators and the public of the full impact of the proposed dilute and dispose program on a future WIPP. The punctuated (5-year) Environmental Protection Agency compliance recertification schedule and limited scope of the New Mexico Environment Department's reviews (which exclude nuclear material) add to these challenges.

DOE has not disputed the NAS's findings, but has not followed the two recommendations. No PEIS has been noticed. Instead, the most recent NEPA action is the SA, effective April 8, 2021. The SA does not mention the NAS Report or its recommendations. The SA concludes: "The DOE has therefore determined that no further NEPA documentation is required." at 58.

The EISs, C&C Agreement, LWA, and the entire social contract are the result of continuing public concern and involvement, dating back to the 1970's. Public opposition to plans to expand WIPP's physical size, volume capacity, and types of waste are reflected in the public comments received regarding the new shaft PMR:

Comments submitted from September 25, 2019 to February 27, 2020 (AR 200610) show that more than 97 percent of the 295 commenters opposed the PMR. Of the comments on the draft permit, 255 commenters specifically objected to the Temporary Authorization (TA) approval and shaft construction that prejudices the Class 3 process. Eighty-nine additional commenters objected to the draft permit and the new shaft, and 11 commenters supported the draft permit. AR 200805. Thus, 97 percent of those commenting object to the draft permit.

Since DOE has, so far, rejected the robust public process required by NEPA, recommended by the NAS, and apparently to be required by the EPA, the public has taken the opportunities under the WIPP Permit to highlight its concerns about DOE's flouting the social contract. WIPP's physical expansion directly violates the social contract. The new shaft directly violates the social contract.

8. DOE seeks to have WIPP expansion approved piecemeal, in violation of the HWA and the Permit.

As discussed on page 6, the Permittees delayed for 21 months after the November 2017 pre-submittal meeting to submit the present Class 3 PMR. The Permittees further delayed the permitting process by submitting a technically incomplete PMR, as noted by SRIC (AR 191019.15), that resulted in a TID from NMED. AR

191203. On January 16, 2020, rather than first responding to the TID so that the public process could move forward, the Permittees requested a Temporary Authorization (TA) from NMED to begin construction of the new shaft before the PMR was heard and decided. AR 200112. NMED approved the TA on April 24, 2020 (AR 200415), and construction began on April 27 and continued through October 22, 2020. On November 18, 2020, Permittees' request for reissuance of the TA was denied. AR 201108. But, by virtue of the TA, NMED now faces the hard choice of requiring construction performed under NMED's TA to be dismantled. This hard choice is the predictable outcome of NMED's acceptance of DOE's piecemeal, "foot-in-the-door" strategy. If the new shaft and drifts are built, DOE will predictably argue that, lest that investment be wasted, additional panels must be constructed.

SRIC has consistently objected to DOE's segmented presentation. SRIC and others have proposed legally compliant methods, as did the 2020 NAS Report. SRIC has proposed, starting at the November 9, 2017 pre-submittal meeting, that the present request could appropriately be considered in the permit renewal process or in a Class 3 PMR for new disposal panels. AR 171106.5. DOE has refused to follow those recommendations, nor explained why it does not do so.

On February 2, 2018, commenting on the class determination request, SRIC stated: "Thus, in actual fact, the underlying purpose of the new shaft and connecting drifts is to expand the underground footprint as essential components to substantially increase the underground capacity in order to dramatically increase the amount of waste that could be disposed." AR 180205.

On March 8, 2019, SRIC wrote: "The Permittees' continuing efforts to submit multiple permit modification requests and not discuss their future plans for WIPP and required permit modifications has been objected to by SRIC and other parties for several years." SRIC proposed that, rather than proceeding with the PMR, "An even better result would be agreement on which of the modification requests could be included in the permit renewal application that must be submitted in early 2020 and which could be submitted at an earlier date." AR 190308.

On April 15, 2019, following an April 11, 2019 meeting with the Permittees regarding the new shaft TID response, SRIC stated: "that it was very concerned about the lack of the Permittees' willingness to discuss the permit renewal process and the apparent lack of action on a permit renewal application, since the public process should have already begun." AR 190408.

On October 16, 2019, commenting on the PMR request, SRIC stated: "There are two principal reasons that the permittees want to expand the underground footprint:

(1) the historic mismanagement of the facility, including significantly underutilizing the permitted panel capacities, and (2) the goal of bringing more waste than the original design allows." at 4. Further: "But rather than pursuing other repositories and long-term on-site storage at waste generator sites, DOE wants to expand WIPP as the only repository." (at 5). Moreover: "The public concern and the gross deficiencies in the application indicate that if the request is not denied, the further modification process will be contentious and complex. For both NMED and the public, the time, effort, and cost of such a modification process will detract from the resources needed for the more important permit renewal process. Thus, if the new shaft modification request is not denied, SRIC renews its proposal of April 15, 2019 that further consideration of the request be postponed until after the conclusion of the permit renewal process." AR 191019.15 at 9.

On January 27, 2020, in response to the TA request, SRIC stated that the TA "would severely prejudice the required Class 3 process, including public notice and comment, negotiations and hearings." at 1. AR 200124.

The HWA and the regulations require that permits be renewed every ten years. 42 U.S.C. § 6925(c)(3); § 74-4-4.A(6) NMSA 1978; 20.4.1.900 NMAC; 40 C.F.R. § 270.50(a). The current WIPP Permit was issued on November 30, 2010, so the Permit has expired and been extended under 40 C.F.R. § 270.51. For more than two years, SRIC has repeatedly stated that the permit renewal process should have priority. Either after the permit renewal is approved, or as part of that process, the new shaft (and new panels) should be considered (if DOE still seeks such changes). Such an approach could have resulted in decisions much more quickly and effectively than the piecemeal approach.

Even as the present Class 3 process is underway, delaying the Permit renewal, DOE is proposing additional access drifts to the west, changes which would divert NMED and public resources, further delaying the Permit renewal. DOE has given those additional access drifts a high priority in 2021. At the virtual legislative briefing on February 9, 2021, WIPP Manager Knerr presented 2021 priorities, including: "Begin mining to the west of the current mine." Exhibit 9. Three weeks later, DOE Environment Management 2021 priorities were released and included: "Begin mining of the West Access Drifts at the Waste Isolation Pilot Plant." Exhibit 10. The SA illustrates five drifts needed for the underground expansion to the west, only two of which are included in the present PMR. Permittees have not discussed those additional drifts in the PMR or in any planned change notice.

Further, DOE "intends to mine the hallways that would connect the existing WIPP underground areas to the planned additional physical space prior to NMED's review and approval of the additional physical space. According to DOE officials, conducting this mining prior to NMED's approval of the permit modification is necessary in order to complete the additional physical space in time to prevent an interruption to waste disposal operations." Exhibit C, Motion to Dismiss, Mar. 10, 2021 at 40.

Permittees' piecemeal approach has delayed the permit renewal process and made it much more contentious and time and resource intensive for all parties. During a permit renewal process the entire Permit can be changed. Thus, the new shaft and associated drifts and the WIPP expansion will necessarily be part of the permit renewal process.

Conclusions

The Administrative Record shows:

1. In the PMR, the Permittees have misrepresented the actual need for the new shaft and associated drifts, which is not needed for ventilation of the long-standing WIPP design of four shafts and 8+2 underground panels, nor for the new SSCVS.

2. Since November 2017, the Permittees' words and actions, delaying this new shaft PMR, have demonstrated that this PMR is not needed for the existing WIPP design or the new ventilation system.

3. The Permittees have misrepresented the actual need for and purpose of the new shaft and associated drifts, which would be used for construction, ventilation and waste hoist capability for new waste panels, which are to be built to the west of the existing disposal area, and which directly violate the legal and social contract with New Mexicans.

4. The effect of the Permittees' piecemeal PMR process has been to delay the required HWA permit renewal process and resulted in increased public opposition to the new shaft PMR.

5. The present PMR should be denied, because it does not meet legal requirements and violates the social contract with New Mexicans. The permit renewal process should proceed without further delay, and any remaining PMRs should either be included in the renewal application or be considered subsequently.

References

1. Bingaman, Jeff, 1983. Letter of June 20, 1983 to Governor Toney Anaya.

2. Defense Nuclear Facilities Safety Board. Letter from Bruce Hamilton to DOE Secretary James Perry, Safety Issues Relating to the WIPP SSCVS, August 27, 2019. https://www.dnfsb.gov/sites/default/files/document/18841/Safety%20Issues%20Relating%20to%20the%20WIPP%20SSCVS%20%5B2019-100-037%5D.pdf

3. Domenici, Pete, 1983. Letter of June 22, 1983 to Governor Toney Anaya.

4. Domenici, Pete, 2002. Letter to DOE Secretary Spencer Abraham, February 5, 2002.

5. "King Calls State's Version of WIPP Pact Acceptable," *Albuquerque Journal*, October 1, 1980, page F-1.

6. Little, Marshall, 1985. Evaluation of the Safety Analysis Report for the Waste Isolation Pilot Plant Project. May 1985. EEG-29.

7. McCutcheon, Chuck. *Nuclear Reactions: The Politics of Opening a Radioactive Waste Disposal Site.* 2002, Albuquerque: University of New Mexico Press.

8. Oswald, Mark. "Udall suggests new administration reconsider WIPP volume change," *Albuquerque Journal*, January 13, 2019.

9. United States Department of Energy, 2008. *FY 2009 Congressional Budget Request Vol. 5, February* 2008. https://www.energy.gov/sites/default/files/FY09Volume5.pdf

10. United States Government Accountability Office, 2016. *NUCLEAR WASTE: Waste Isolation Pilot Plant Recovery Demonstrates Cost and Schedule Requirements Needed for DOE Cleanup Operations*. GAO-16-608, August 2016. https://www.gao.gov/assets/gao-16-608.pdf

11. United States Government Accountability Office, 2017. *PLUTONIUM DISPOSITION: Proposed Dilute and Dispose Approach Highlights Need for More Work at the Waste Isolation Pilot Plant*. GAO-17-390, September 2017. https://www.gao.gov/assets/gao-17-390.pdf

Exhibits

1. Don Hancock Curriculum Vitae.

2. United States Department of Energy, 1990. Final Supplement Environmental Impact Statement, DOE/EIS-0026-FS, January 1990, ("SEIS-I"), Vol. 1 of 13, at 2-9.

3. United States Department of Energy, 1997. Waste Isolation Pilot Plant Disposal Phase Final Supplemental Environmental Impact Statement, DOE/EIS-0026-S-2, September 1997 ("SEIS-II"), Vol. I, at 2-14.

4. United States Department of Energy, Waste Isolation Pilot Plant Safety Analysis Report, Figure 4.1.3 (October 11, 1996) at 4-12.

5. WIPP Depiction of the Safety Significant Confinement System (SSCVS).

6. United States Department of Energy, 2021a. Supplement Analysis for the Waste Isolation Pilot Plant Site-Wide Operations, DOE/EIS-0026-SA-12, March 2021, effective April 8, 2021. at 18.

7. United States Government Accountability Office, 2020. NUCLEAR WASTE DISPOSAL: Better Planning Needed to Avoid Potential Disruptions at Waste Isolation Pilot Plant. GAO-21-48, November 2020. at 19.

8. WIPP Permitted vs. Actual Capacity Used, as of April 24, 2021.

9. United States Department of Energy Carlsbad Field Office and Nuclear Waste Partnership, 2021. Legislative Update Waste Isolation Pilot Plant, February 9, 2021. at 21.

10. United States Department of Energy, 2021b. EM CY21 MISSION AND PRIORITIES.

DON HANCOCK

EDUCATION:

B.A. DePauw University, Greencastle, Indiana, 1970.
Major in Political Science, junior year spent in universities in Bogota, Colombia.

Graduate work at University of the Americas, Cholula, Mexico, Summer 1972.
Intercultural Relations program sponsored by the National Conference of Christians and Jews.

CURRENT EMPLOYMENT:

September 1975 to present - Director of Nuclear Waste Program and Administrator,
Southwest Research and Information Center, P.O. Box 4524, Albuquerque, NM 87196, (505) 262-1862; www.sric.org. SRIC is a nonprofit educational and technical assistance organization, working on various natural resources and environmental justice issues. Mr. Hancock has focused on policy, regulatory, legal, technical, and public information aspects of the Waste Isolation Pilot Plant (WIPP), the first U.S. geologic repository for nuclear waste, by providing public information, constant involvement in regulatory proceedings of the U.S. Environmental Protection Agency and New Mexico Environment Department, and federal policy issues. He has also followed efforts to site other nuclear waste facilities, including providing reports and making presentations to the Blue Ribbon Commission on America's Nuclear Future (BRC) and testifying before the Canadian Joint Panel on the Deep Geologic Repository.

SELECTED NUCLEAR WASTE ACTIVITIES:

October 21, 2020 – Presentation to the New Mexico Radioactive and Hazardous Materials Committee on WIPP and other issues (by videoconference).

November 4, 2019 – Presentation to the North Dakota High-Level Radioactive Waste Advisory Council on high-level nuclear waste issues and WIPP (by videoconference).

June 7, 2019 – Testimony on "Examining America's Nuclear Waste Management, Storage, and the Need for Solutions" before the Subcommittee on Environment of the House Oversight and Reform Committee, field hearing in Laguna Niguel, CA.

March 12, 2018 - Presentation to the National Academy of Sciences Panel on Disposal of Surplus Plutonium in the Waste Isolation Pilot Plant, Albuquerque, NM.

November 29, 2017 – Presentation to the National Academy of Sciences Panel on Disposal of Surplus Plutonium in the Waste Isolation Pilot Plant, Washington, DC (by videoconference).

June 1, 2016 – Presentation on Consent and Non-Consent in Nuclear Waste Siting at the ECAST Workshop on Consent-Based Siting in Boston, MA.

May 24, 2016 – Invited Presentation by the Department of Energy at its Consent Based Siting public meeting in Denver, CO.

March 9, 2016 – Presentation to the "Reset of U.S. Nuclear Waste Management Strategy and
Policy at Stanford University, CA.

September 9, 2014 - Presentation to the Canadian Joint Review Panel on "Recent Events at the Waste Isolation Pilot Plant (WIPP) and Initial Questions and Lessons for the Ontario Power Generation Proposed Deep Geologic Repository."
http://sric.org/nuclear/docs/DGR%20Hancock%20072114.pdf

September 24, 2013 – Presentation to the Canadian Joint Review Panel on "WIPP and International Experience with Deep Geologic Repositories." Kincardine, Ontario, Canada.
http://sric.org/nuclear/docs/Hancock_OntarioDeepGeologicRepository.pdf

September 13, 2011 – Presentation regarding the Blue Ribbon Commission on America's Nuclear Future Draft report. Denver, CO.
http://sric.org/nuclear/docs/091311%20SRIC%20Presentation.pdf

January 27, 2011 – Invited speaker to the Blue Ribbon Commission on America's Nuclear Future, regarding WIPP. Carlsbad, NM. http://brc.gov/january_26-28_meeting.html

December 7, 2010 – Speaker at International Atomic Energy Agency Workshop on Strengthening National Competencies in the Area of Stakeholder Dialogue for Radioactive Waste Disposal. Las Vegas, NV.

July 7, 2010 – Invited speaker to the Disposal Subcommittee of the Blue Ribbon Commission on America's Nuclear Future, regarding WIPP. Washington, DC. http://brc.gov/Disposal_SC/Disposal_Subcommittee_July_7_Meeting_info.html

March 26, 1999 – Testimony at the New Mexico Environment Department WIPP Permit Hearing, Santa Fe, NM.

November 7, 1991 – Testimony regarding WIPP Land Withdrawal before the Subcommittee on Energy and Power, House Committee on Energy and Commerce, Washington, DC.

April 16, 1991 – Testimony regarding WIPP before the Subcommittee on Energy and the Environment, House Committee on Interior and Insular Affairs, Washington, DC.

April 26, 1990 – Testimony regarding WIPP before the Senate Committee on Energy and natural Resources, Washington, DC.

December 8, 1987 – Testimony regarding WIPP Land Withdrawal Issues before the Subcommittee on Energy and the Environment, House Committee on Interior and Insular Affairs, Washington, DC.

October 12, 1987 – Testimony regarding WIPP Land Withdrawal Issues before the Subcommittee on Public Lands, National Parks and Forest, Senate Energy and Natural Resources Committee, Carlsbad, NM.

January 1983 – December 1987 – Consultant Technical Advisor to Serious Texans Against Nuclear Dumping (STAND) and (from January 1984 to December 1987) People Opposed to Wasted Energy Repositories (POWER) regarding proposed high-level waste repository in the Texas Panhandle.

March 1986 – April 1986 – Consultant to Lakes Environmental Association in Maine regarding draft Area Recommendation Report.

January 1986 – April 1986 – Consultant to Great Lakes Indian Fish and Wildlife Commission on draft Area Recommendation Report and socioeconomic and transportation impacts of waste disposal.

December 1985 – January 1986 – Consultant to State of Minnesota on socioeconomic issues to be considered in the area characterization plan.

August – October 1983 – Member of New Mexico Governor's Socioeconomic Task Force on WIPP.

March 1981 – Consultant to the (U.S.) State Planning Council on Radioactive Waste Management Transportation Task Force.

December 1979 – February 1981 – Member of Public Advisory Board for the University of New Mexico's study for the State of New Mexico on the socioeconomic impacts of WIPP.

October 1980 – January 1981 – Consultant to the (U.S.) State Planning Council on Radioactive Waste Management on the National Plan for Radioactive Waste Management.

June – July 1980 – Participant in the Second Keystone Conference on Public Participation in Radioactive Waste Management Decisionmaking.

1978 – present – Testimony at public hearings and written comments on more than 25 environmental impact statements regarding WIPP, nuclear waste facilities, and nuclear waste management.

1979 – 1991 - Testimony at more than a dozen congressional hearings on the federal government's nuclear waste management and the Waste Isolation Pilot Plant (WIPP), and before state legislative committees in New Mexico and Texas. Testimony in federal court cases and in regulatory proceedings regarding federal facilities.

Speaker at academic symposiums at various universities and before the National Academy of Sciences on federal nuclear facilities and nuclear waste policies.

Author of dozens of articles on WIPP and nuclear waste issues.

DOE/EIS-0026-FS

FINAL SUPPLEMENT ENVIRONMENTAL IMPACT STATEMENT

Waste Isolation Pilot Plant

Volume 1 of 13

January 1990

U.S. DEPARTMENT OF ENERGY
Office of Environmental Restoration
and Waste Management
Washington, D.C. 20585

2.2.2 Underground Facilities

The constructed underground facilities include four shafts, the waste disposal area, the experimental area, an equipment and maintenance facility, and connecting tunnels (FEIS Subsections 8.2 and 8.4). The four shafts (Figure 2.4) from the surface to the underground area are:

- Air intake shaft
- Salt handling shaft
- Waste handling shaft
- Exhaust shaft.

The underground facility, as described in Subsection 8.2.2.2 of the FEIS, was mined in the Salado Formation, 2,150 ft beneath the surface. The underground facility was mined in the same design as described in the FEIS, but was reconfigured from the north to the south of the shaft pillar area because of its proximity to pressurized brine reservoirs in the Salado Formation. The "room and pillar" arrangement includes two separate mined areas:

- CH and RH TRU waste disposal area (100 acres designed to hold 6.2 million ft^3 of CH TRU and 250,000 ft^3 of RH TRU waste). To date, about 15 acres have been mined.

- Experimental area (12 acres) used for repository safety and mine performance studies.

Not all waste disposal rooms have been mined at present because of the natural phenomenon of salt creep, which causes eventual room closure. Additional waste disposal rooms would be mined in advance of permanent waste emplacement.

2.3 WASTE TYPES AND FORMS

Post-1970 defense-generated TRU waste results primarily from plutonium reprocessing and fabrication as well as from research and development activities at various DOE defense program facilities. TRU waste is material contaminated with alpha-emitting radionuclides having atomic numbers greater than 92, half-lives greater than 20 years, and concentrations greater than 100 nanocuries per gram (nCi/g) of waste. Prior to 1982, TRU waste was defined as having greater than 10 nCi/g of alpha-emitting radionuclides. Waste with TRU concentrations between 10 and 100 nCi/g has been reclassified as low-level waste, and would be disposed of in low-level waste disposal facilities. TRU waste exists in a variety of physical forms, ranging from unprocessed laboratory trash (e.g., tools, paper, glassware, gloves) to solidified wastewater treatment sludges (Appendix B).

TRU waste is classified according to the radiation dose rate at the package surface. The greatest percentage of defense TRU waste by volume (97 percent) is CH TRU waste, which primarily emits alpha radiation. These radionuclides, while potentially dangerous if inhaled or ingested, do not represent an external radiation hazard.

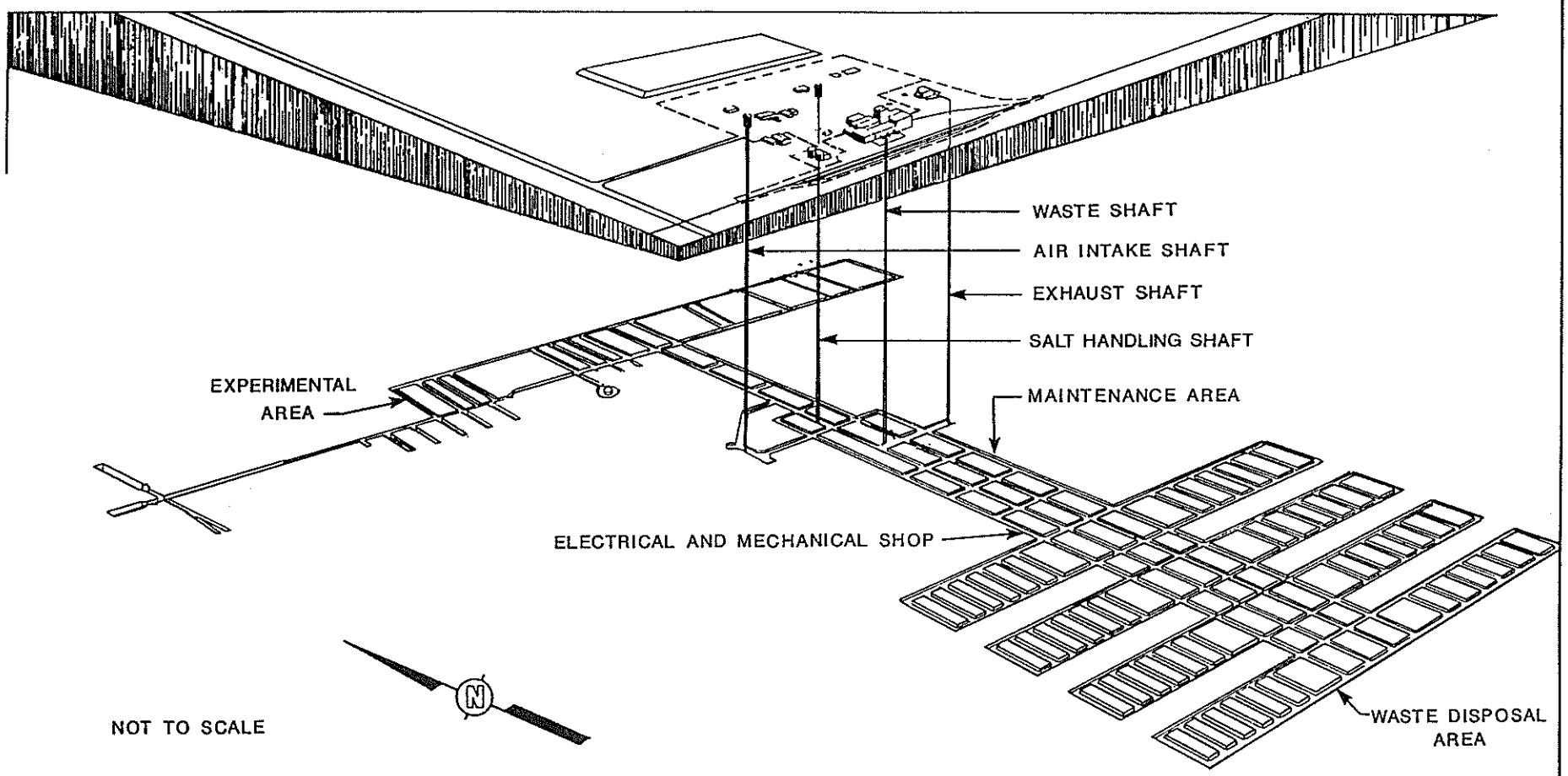


FIGURE 2.4
SCHEMATIC OF THE WIPP REPOSITORY

DOE/EIS-0026-S-2

Waste Isolation Pilot Plant Disposal Phase Final Supplemental Environmental Impact Statement

Volume I
Chapters 1-6

September 1997

Department of Energy
Carlsbad Area Office
Carlsbad, New Mexico

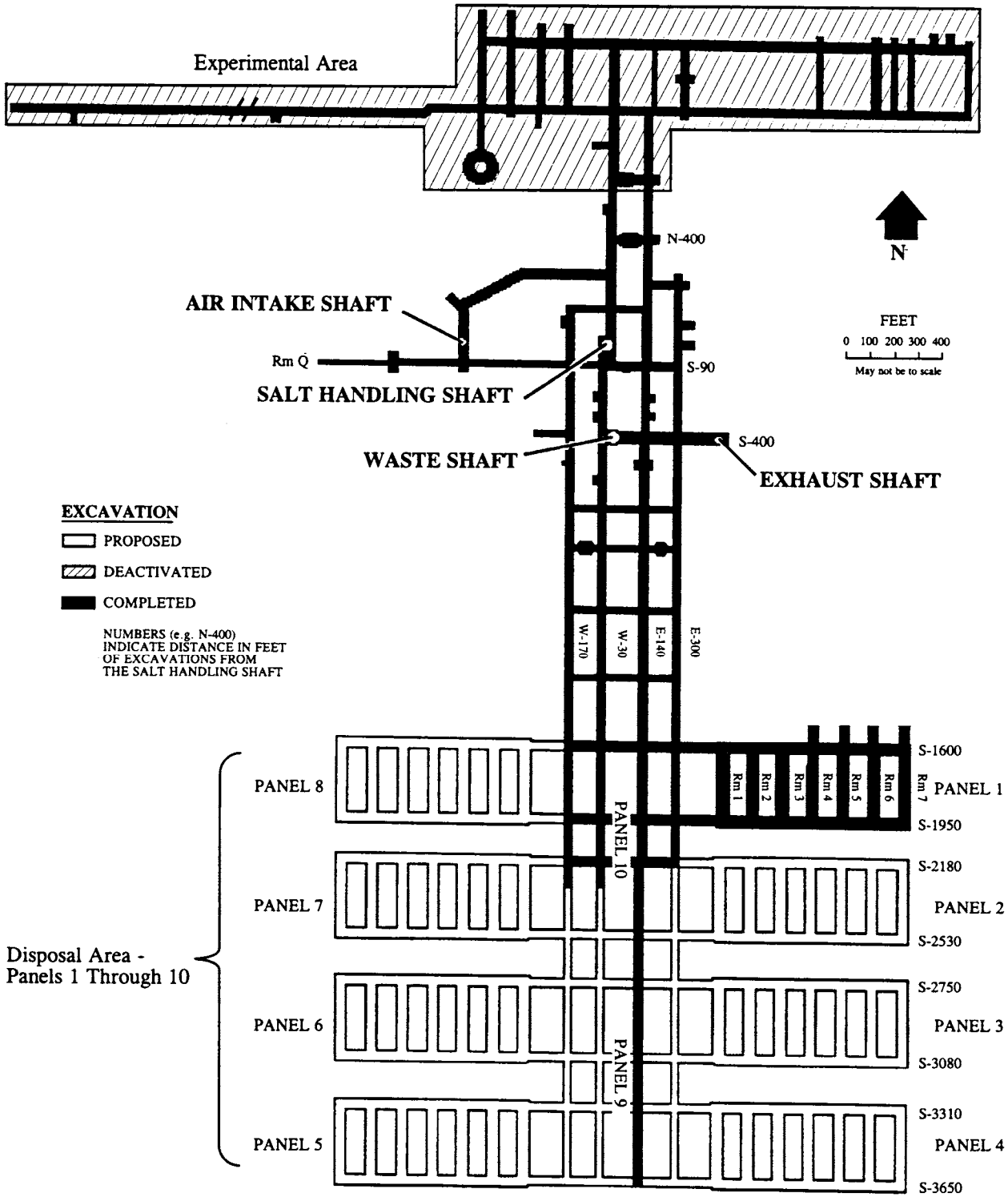


Figure 2-4
Plan View of WIPP Underground Facility
(655 meters [2,150 feet] below ground level)

One underground panel (panel 1) has been excavated. Seven additional panels and the north-south accessways (i.e., panel-equivalents 9 and 10) would be necessary to accommodate the 175,600 cubic meters (6.2 million cubic feet) of TRU waste permissible under LWA. Each panel would consist of seven waste disposal rooms, each about 91 meters (300 feet) long, 10 meters (33 feet) wide, and 4 meters (13 feet) high. Pillars between rooms would be 30 meters (100 feet) wide. Rockbolts or other types of ground control techniques would be used, as necessary, to ensure safe conditions during waste emplacement activities (DOE 1996c).

2.2 TRU WASTE TREATMENT

Although there are many different physical, chemical, and thermal treatment methods that have been previously tested or are in development for TRU waste treatment (DOE 1995c), the three types of treatment in SEIS-II are the same as those considered in the WM PEIS (DOE 1997). To ensure that the full range of potential impacts were considered, SEIS-II examined three types of treatment based on increasing levels of complexity: a minimal level of treatment needed to meet planning-basis WAC, an intermediate level of treatment using a shred and grout process, and a more complex level of thermal treatment sufficient to comply with the RCRA LDRs. DOE maintains that the impacts from these three levels of treatment represent a full range of impacts for available treatment methods.

The Proposed Action and one alternative would treat and package TRU waste only as needed to meet planning-basis WAC. A second alternative would use a shred and grout process, increasing the volume of the TRU waste by encapsulating it in cement. One alternative and one no action alternative would use a thermal treatment process to destroy organic components of the TRU waste and fuse the remainder into a glass or ceramic product, or possibly, into a metal ingot. Both CH-TRU and RH-TRU waste would be treated by the same processes; only the handling of the TRU waste would vary.

These three levels reasonably bound the potential environmental impacts for other types of treatment that might be developed for future TRU waste application. DOE will select the type of treatment necessary to satisfy disposal and storage criteria. The decisions that DOE makes on the basis of SEIS-II may be a combination of the treatment methods analyzed. This means that two or more of the treatment options may be selected for different portions of the waste.

OBJECTIVES OF TRU WASTE TREATMENT

TRU waste needs to be treated in order to put it in a form that would allow it to be safely handled, transported, and disposed of.

Treatment requirements are established to ensure compliance with requirements established by law, regulations, and DOE internal orders that are designed to protect the safety and health of workers. For example, planning-basis WAC prohibit waste containing over 50 parts per million of PCBs because land disposal of that waste would require a permit under TSCA. Other planning-basis WAC limitations, such as limitations on free liquids, are imposed because of the potential impacts of certain waste forms on the ability of WIPP to isolate the radioactive portion of the waste as required by EPA regulations (40 CFR Part 191).

Several RCRA requirements, including the prohibitions on explosives, compressed gases, and corrosive materials, are incorporated into the planning-basis WAC.

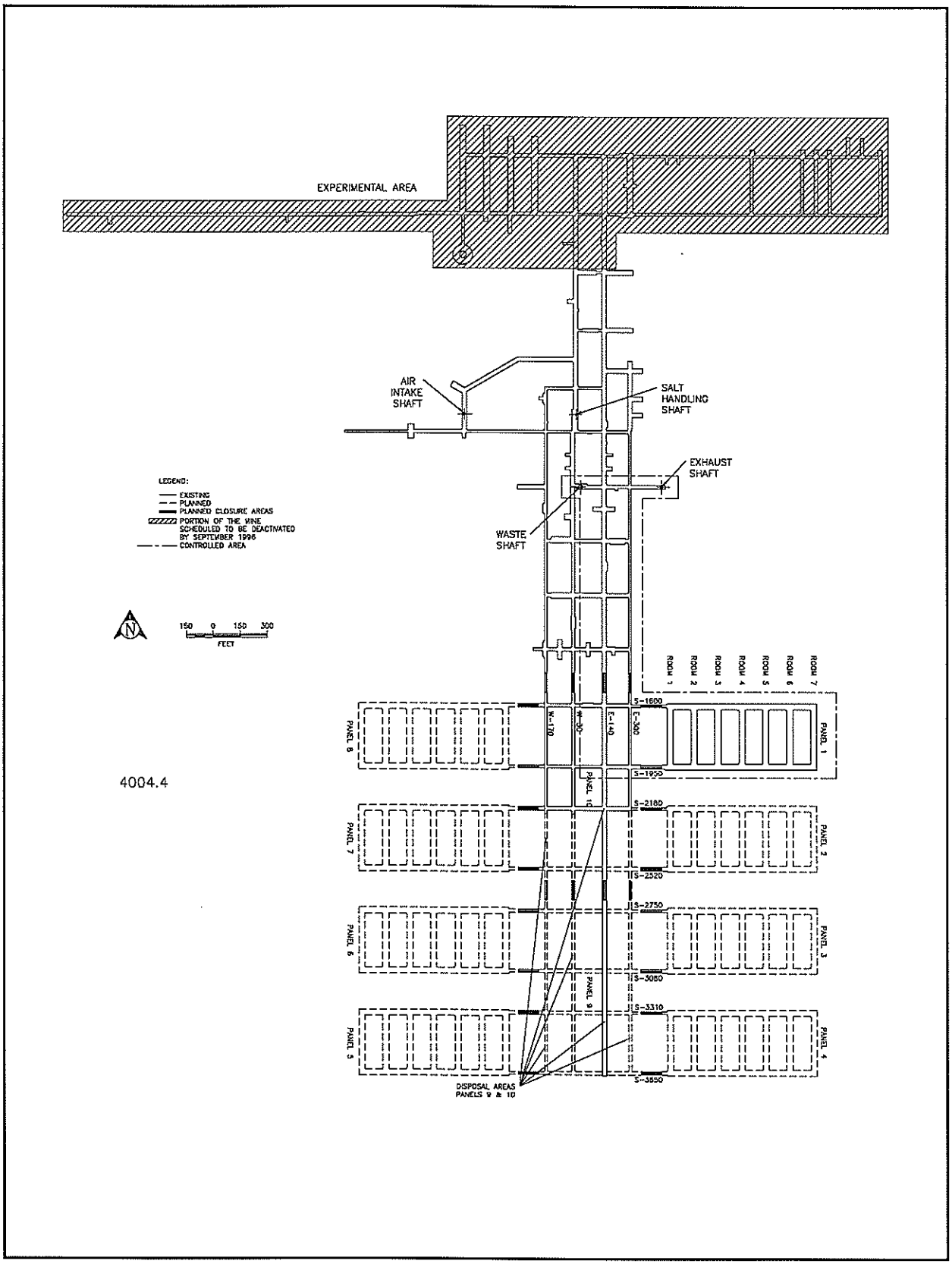
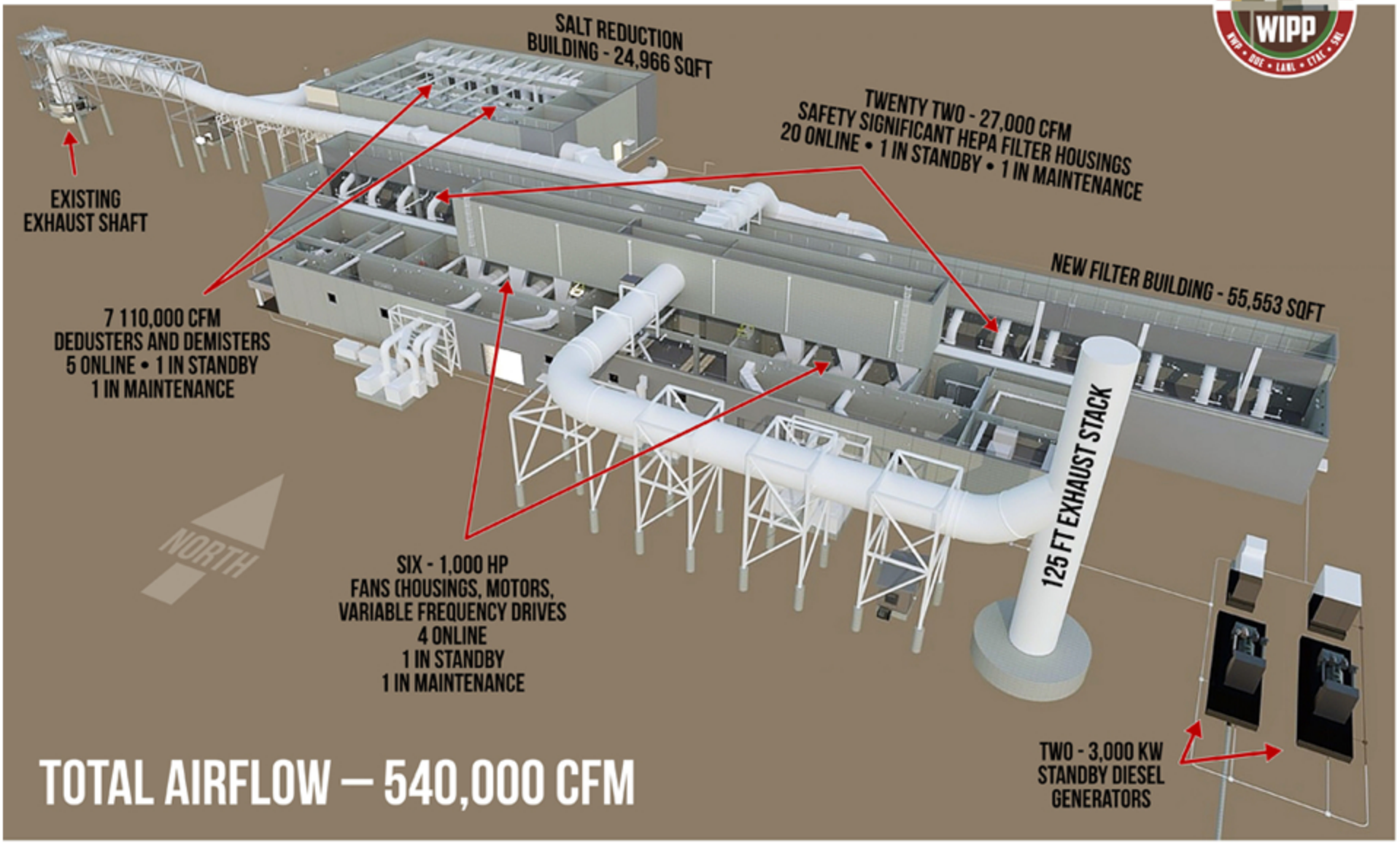


Figure 4.1-3, Planned Disposal Horizon

SAFETY SIGNIFICANT CONFINEMENT VENTILATION SYSTEM



SRIC EXHIBIT 5

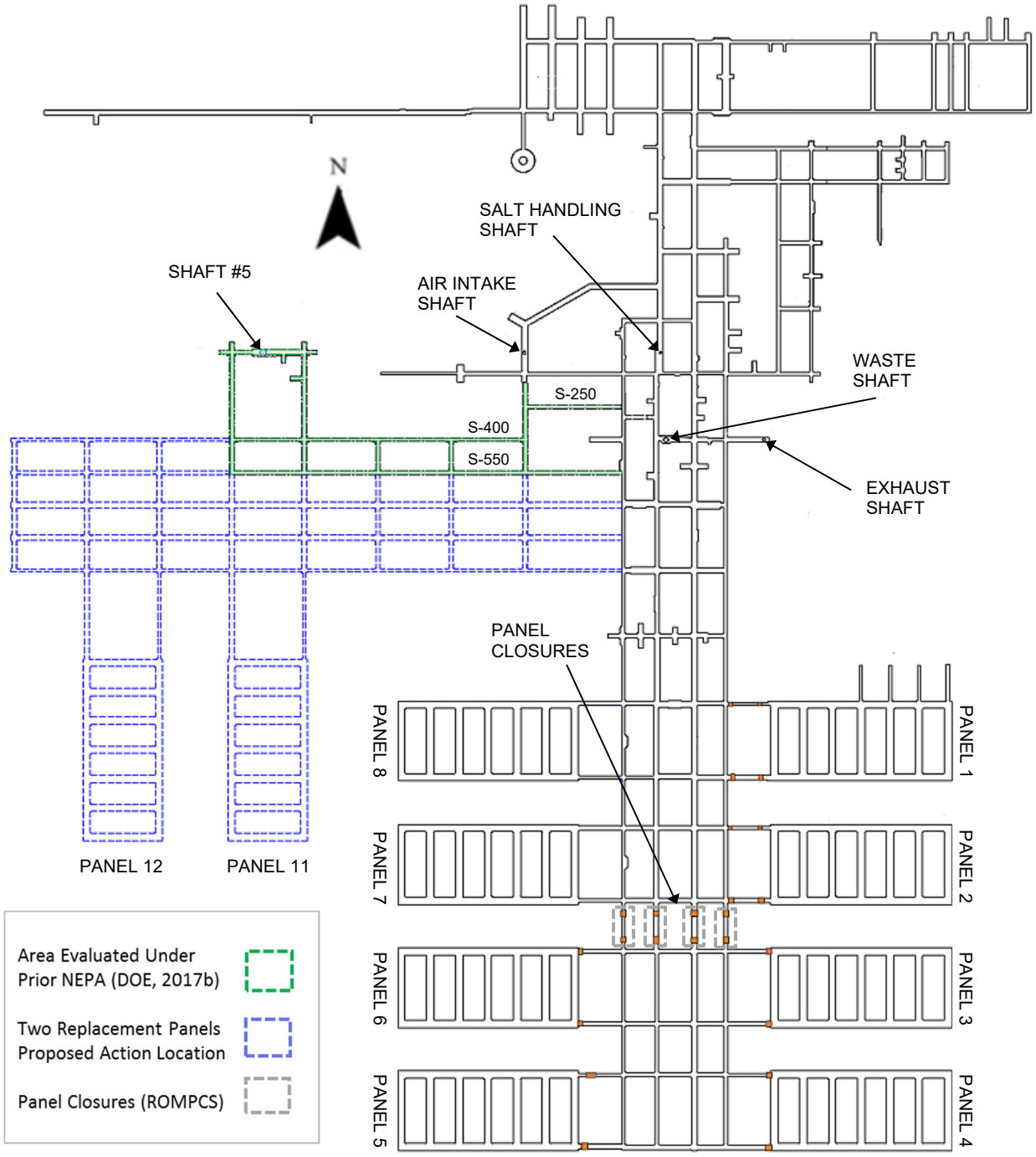
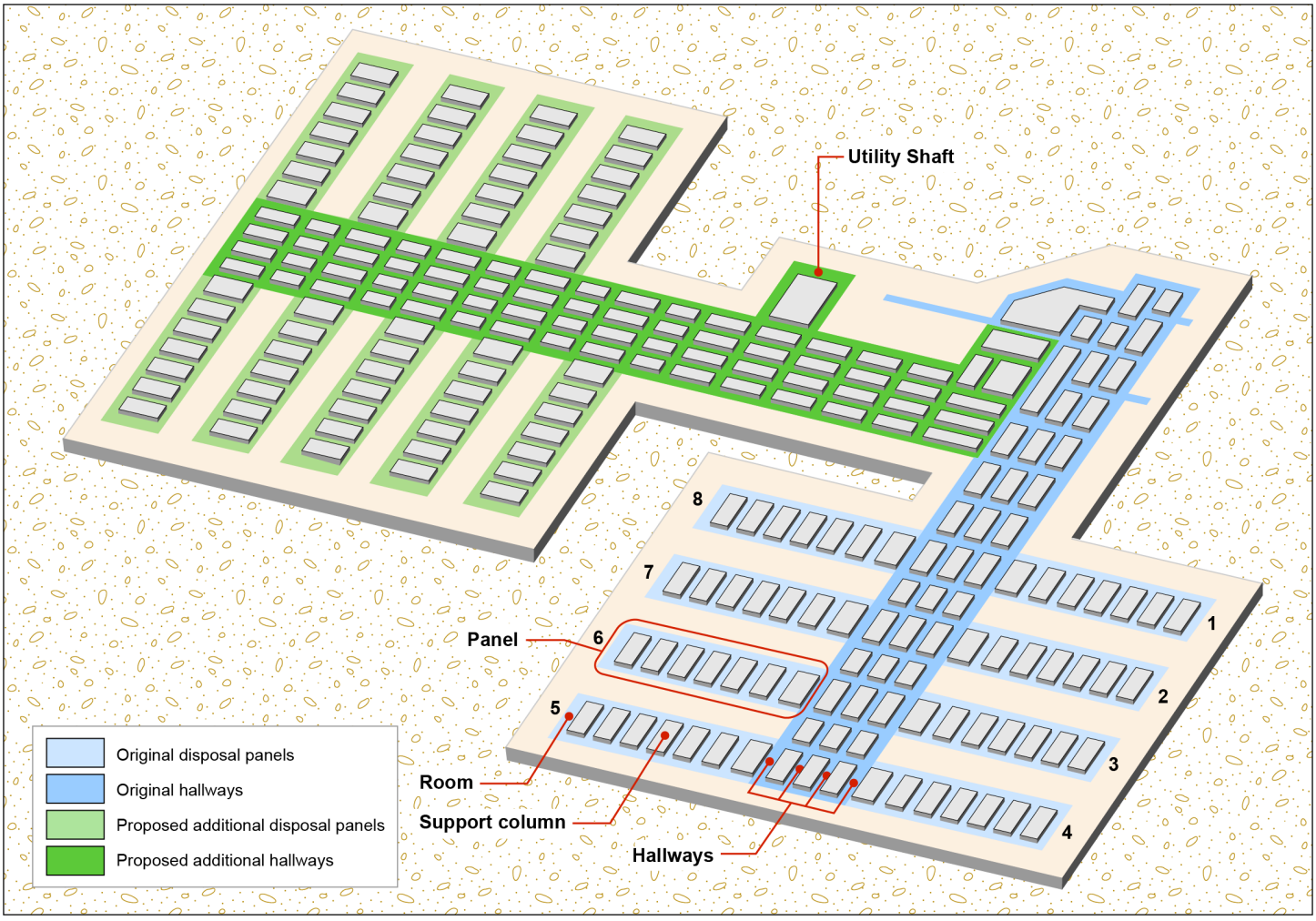


FIGURE 2-1, PROPOSED LOCATION FOR REPLACEMENT PANELS 11 AND 12

program. According to DOE officials, it was important to consider this waste because it would create a large number of overpacks with smaller pipe containers holding the diluted plutonium. DOE officials told us that only the volume of the pipes would count against the statutory capacity, so this waste would account for less than 1 percent of WIPP's statutory capacity but, due to the large number of drums, likely would require significant physical space for disposal.

Figure 4: Draft Conceptual Design for Additional Waste Disposal Physical Space at the Waste Isolation Pilot Plant (WIPP)



Source: GAO analysis of Department of Energy information. | GAO-21-48

Note: This figure does not include northern portions of the original WIPP underground area, which were mined during DOE's research and development phase for constructing WIPP, because these are not intended for use in transuranic waste disposal. A panel is an area in the underground area that consists of seven rooms where waste is disposed of.

WIPP PERMITTED VS. ACTUAL CAPACITY USED
(in cubic meters) - As of April 24, 2021

	CH-Permitted	Actual	% Used	RH-Permitted	Actual	% Used
Panel 1	18,000	10,497	58.32%	0		
Panel 2	18,000	17,998	99.99%	0		
Panel 3	18,750	17,092	91.16%	0		
Panel 4	18,750	14,258	76.04%	356	176	49.44%
Panel 5	18,750	15,927	84.94%	445	235	52.81%
Panel 6	18,750	14,467	77.16%	534	215	40.26%
Panels 1-6	**111,000**	**90,239**	**81.30%**	**1,335**	**626**	**46.89%**
Shortfall		**20,761**			**709**	
Panel 7	18,750	8,178 **1,500**		650	26	
Panel 8	18,750	**18,750**		650	**650**	
Panels 1-8	**148,500**	**118,667**		**2,635**	**1,302**	
Legal Capacity	168,485	118,667 ~ 71%		7,079	1,302 ~19%	

Notes:
"CH" is Contact-Handled waste; "RH" is Remote-Handled
"Permitted" refers to the capacity limits in the New Mexico WIPP permit
Volume is by outer container volume
Green amounts are estimates

Compiled by: Don Hancock, Southwest Research and Information Center
505/262-1862; sricdon@earthlink.net

2021 PRIORITIES

- Protecting people and the mine
  - Ground Control activities
  - Routine Safety
- Completion of the Salt Reduction Building structure
- Begin mining to the west of the current mine
- LANL Office of Environmental Management - Los Alamos Shipments
- WCS shipments
- 700-C fan restart
- Complete Panel 8 Floor trimming and outfitting
- Increase routine and steady waste shipments to meet generator site cleanup goals


Utility shaft headframe and Galloway work platform.

SRIC EXHIBIT 9

EM CY21 MISSION AND PRIORITIES

U.S. DEPARTMENT OF ENERGY | OFFICE OF ENVIRONMENTAL MANAGEMENT

MISSION STATEMENT:

To complete the safe cleanup of the environmental legacy brought about from decades of nuclear weapons development and government-sponsored nuclear energy research.

PRIORITY #1: ACHIEVE SIGNIFICANT CONSTRUCTION PROJECT MILESTONES

- Complete construction of the Tank-Side Cesium Removal system at Hanford
- Complete construction of the Saltstone Disposal Unit #7 at Savannah River Site
- Complete construction of the Salt Reduction Building at the Waste Isolation Pilot Plant

PRIORITY #2: EXECUTE KEY PROJECTS OF EM CLEANUP MISSION

- Start up the Integrated Waste Treatment Unit at the Idaho National Laboratory Site
- Complete processing of 6 million gallons of tank waste at the Savannah River Site
- Complete Biology Complex demolition at Oak Ridge
- Complete 30 shipments of transuranic waste from EM-Los Alamos
- Complete demolition of all DOE-owned buildings at the Energy Technology Engineering Center
- Complete demolition of 40 percent of Building X-326 at Portsmouth
- Complete disposition of remaining legacy EM-Los Alamos transuranic waste at Waste Control Specialists
- Begin mining of the West Access Drifts at the Waste Isolation Pilot Plant
- Complete stabilization of below grade cribs/tanks at Hanford
- Disposition 1.5 million pounds of hazardous refrigerant from Paducah
- Remove a cumulative 12 million tons of former uranium mill tailings at Moab
- Begin demolition of the Main Plant Processing Building at West Valley
- Complete demolition of Building 175 to slab at Lawrence Livermore National Laboratory
- Complete demolition of Old Town Building 7 to slab at Lawrence Berkeley National Laboratory

PRIORITY #3: REDUCE THE EM COMPLEX FOOTPRINT

- Transfer East Tennessee Technology Park real property to other DOE programs/community organizations
- Transfer 200 acres to the local community reuse organization at Portsmouth

PRIORITY #4: AWARD CONTRACTS THAT ENABLE ACCELERATED PROGRESS ACROSS THE EM ENTERPRISE

- Award Idaho Cleanup Contract
- Award Oak Ridge Reservation Cleanup Contract
- Award Integrated Mission Completion Contract at the Savannah River Site
- Award Portsmouth Infrastructure Contract
- Award new contracts for deactivation and decommissioning activities at Office of Naval Reactors sites

PRIORITY #5: DRIVE INNOVATION AND IMPROVED PERFORMANCE IN THE EM MISSION

- Issue an EM-wide succession plan for a long-term diverse and sustainable workforce
- Update the EM-wide strategic vision for 2021-2031
- Identify and complete an analysis for a second high-level waste interpretation waste stream
- Complete the waste incidental to reprocessing evaluation for Hanford Waste Management Area C

Certificate of Service

I hereby certify that a copy of this SRIC Notice of Intent and Technical Testimony was served on the following via electronic transmission on May 3, 2021:

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