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Room M-1500 (LE-131)
U.S. Environmental Protection Agency
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Washington, D.C. 20460



To the Docket:

The following comments are submitted on behalf of the State of New Mexico's Radioactive Waste Consultation Task Force (Task Force). These comments supplement the Task Force's comments of March 17, 1997, on the EPA's *Advance Notice of Proposed Rulemaking* (61 F.R. 58499; November 15, 1996) and the oral testimony I presented January 8, 1998, at EPA's public hearing in Santa Fe on its Proposed Rule to certify the Waste Isolation Pilot Plant (62 F.R. 58792; October 30, 1997).

The Task Force, created by state statute in 1979, is composed of the Cabinet Secretaries of the Energy, Minerals and Natural Resources Department, Environment Department, Department of Health, Department of Public Safety, Taxation and Revenue Department, and the State Highway and Transportation Department. Included among its statutory duties, the Task Force negotiates on behalf of the State of New Mexico with the Federal Government "...in all areas relating to the siting, licensing and operation of new federal disposal facilities, including research, development and demonstration, for high-level radioactive wastes, transuranic radioactive wastes and low-level radioactive wastes." [Section 74-4A-7 New Mexico Statutes Annotated 1978] Hence, the WIPP Project falls within the purview of the Task Force.

In EPA's Proposed Rule, the Agency states that it intends to certify that the U.S. Department of Energy's (DOE) WIPP facility will comply with the radioactive waste disposal regulations set forth at 40 CFR Part 191. EPA's certification of compliance, if finalized, would allow the emplacement of radioactive waste in the WIPP to begin. **The Task Force fully supports the EPA rule to certify WIPP's compliance with the applicable disposal regulations. This support extends to the various conditions proposed to accompany the certification rule, particularly the one requiring EPA to approve site-specific waste characterization measures and quality assurance plans before allowing other waste sites to make any shipments to WIPP. Such prior approval is warranted given the importance of accurately and definitively characterizing all transuranic waste destined for WIPP.**

The Proposed Rule is presumably based on the entire record available to EPA, as contained in Docket A-93-02. It is an unbelievably voluminous record containing literally hundreds of thousands of pages--beyond comprehension to the casual observer in terms of supporting

documentation on which to base a regulatory decision. As the Agency is well aware, this record consists of the DOE's Compliance Certification Application (CCA), supplementary information submitted by DOE in response to EPA requests for additional information, technical reports generated by EPA and its contractors, and public comments submitted on the 1996 *Advance Notice of Proposed Rulemaking*. Suffice it to say that the record stands in evidence of the intense and comprehensive scrutiny that every, even remotely relevant issue has been given concerning WIPP's performance as a permanent disposal facility.

Moreover, there have been numerous technical exchanges between EPA and DOE since the Agency became one of WIPP's two primary regulators in 1992. Task Force staff, many other State of New Mexico representatives, and members of the public have observed and participated in virtually every such exchange over that period. In our opinion, these forums in which technical issues are explored and discussed to an exhausting degree have revealed much with respect to the integrity of the WIPP scientific review process. DOE and its contractors, particularly the Performance Assessment (PA) staff at Sandia National Laboratories-Albuquerque, have in essence been made to present and defend all models, data, and assumptions which comprise the WIPP PA. In this type of open and frank environment, any suspect PA parameter or component is almost always identified and dealt with accordingly. Consequently, the EPA-DOE technical exchanges have enhanced not only the assessment of WIPP's long-term performance, but also our confidence in the rigor and integrity of that assessment process.

The extensive written record, as well as first-hand observations, upon which EPA will base its certification decision represents the culmination of approximately 24 years of scientific research, experiments, and documentation. Collectively, this body of evidence must demonstrate to the Agency's satisfaction that WIPP will comply with the disposal regulations. In essence, those EPA regulations specify the required safety of a deep geologic disposal system such as that which exists at WIPP. Certifying WIPP's compliance may therefore seem a simple and straightforward process to the uninitiated; however, it is anything but.

Several factors make EPA's decision on whether or not WIPP complies with the environmental radiation protection standards for disposal of transuranic (TRU) radioactive waste extremely difficult and complex. To begin, there is no regulatory precedent for the type of certification process that applies to WIPP. EPA has no historical examples of similar certifications upon which to draw for insight and guidance. The WIPP Project is truly a first-of-its-kind facility--and not just in the United States but worldwide. Consequently, EPA breaks new ground with every step of its review and deliberations. The Agency must therefore proceed with corresponding due caution, carefully considering all relevant information. In particular, EPA should pay especially close attention and give added weight to the comments and recommendations of those entities with long histories of active participation in the WIPP Performance Assessment process (*e.g.*, the National Academy of Sciences and the New Mexico Environmental Evaluation Group).

Another complicating element in EPA's decision is the long regulatory time frame embodied in the disposal standard WIPP must meet. That regulatory time frame is 10,000 years. EPA must be convinced, based on the content of DOE's application, that the WIPP disposal system can be reasonably expected to keep the off-site release of TRU wastes to within specified limits for a 10,000-year period. To be so convinced and go on record with a statement to that effect is the equivalent of EPA taking responsibility for the protection of untold future generations. This decision of WIPP's certification is a daunting one because the long-term future cannot be predicted with any real certainty. When it gets right down to it, the EPA is essentially making an informed judgment call about how WIPP will perform over many millennia. For that reason, it is imperative the Agency apply basic common sense in reviewing WIPP's postulated performance over the long term. Toward this end, conservatism and safety should always take precedent in deciding difficult issues which may impact public health and the environment far into the future.

One other area that confounds EPA's important task relates to the nature of WIPP's development. The study of the site where the repository has been constructed began in earnest in the mid-1970s. However, the EPA disposal standards were not promulgated in final form until September 1985. Two years later the U.S. Court of Appeals for the First Circuit vacated the standards and remanded them in their entirety to the Agency for its reconsideration. Enactment of the WIPP Land Withdrawal Act in October 1992 ultimately resulted in the availability of a complete set of regulatory disposal standards by December 1993--approximately 12 years after physical construction of the WIPP site began. Of equal significance is the fact that the disposal standards are generic in nature and more appropriately suited to apply to a <u>proposed</u> repository rather than an existing one.

The point here is that WIPP has been subjected to much regulatory uncertainty through most of its design, engineering and construction. And although EPA's issuance of WIPP-specific Compliance Criteria (40 CFR 194) has largely resolved for WIPP the lack of specificity inherent in the disposal standards, those criteria were not promulgated in final form until last year (1996). Hence, EPA's certification decision is complicated by this WIPP development chronology of fragmented, mistimed regulation. This history, much of which is attributable to EPA itself, must be considered and dealt with fairly in the decision-making process. Specifically, the project should not be penalized for circumstances beyond its control (*e.g.*, disqualification of useful geological or hydrological data generated before the now-applicable quality assurance guidelines were available). Reasoned judgment must be applied in formulating this certification decision.

In reviewing DOE's Compliance Certification Application, the Task Force was struck by the overwhelming amount of comprehensive, detailed information available on virtually every aspect of the WIPP disposal system and how it is expected to perform. We are convinced that no other site to date has been more thoroughly studied, probed, and evaluated than WIPP. It is therefore difficult to imagine that any potential "fatal flaws" which may render the WIPP site unsuitable as a

permanent repository could remain undetected after years of such intense scrutiny. Moreover, there is a limit to the amount of invasive scientific investigation one can perform before it starts to affect the future performance of the repository. Additional borehole drilling within the WIPP withdrawal area is but one example where an unsatiable thirst for site characterization data could adversely impact performance of the disposal system. EPA cannot not lose sight of this fact.

At this point in WIPP's development, the law of diminishing returns must also be considered and factored into the certification process. There comes a time in every project where additional effort yields fewer and fewer substantive results, where expenditure of more time and money does not contribute significantly to the overall quality of an endeavor. In general, we believe the WIPP project has reached the point where the law of diminishing returns is relevant and applicable.

For all the intricacies and complexities of WIPP's performance assessment, several extremely favorable characteristics about the WIPP site are evident and of paramount importance to the long-term isolation of TRU waste. First, the host rock (Salado) formation for the repository has remained essentially undisturbed for over 200 million years. This is due in large part to the fact the WIPP site is located in a seismically stable area. We believe there is no compelling reason to expect this would change over the prospective 10,000-year regulatory time frame for WIPP. Indeed, a severe global climate change is about the only scenario put forth to date that could possibly alter the Salado Formation to a significant degree. And even if this highly improbable event did occur, its effect on the WIPP repository would be among the least of society's worries stemming from such a dramatic change. Clearly, the constant stability of the host rock over millions of years makes the site an attractive one for its intended purpose.

Second, the host rock formation of bedded salt behaves plastically under the lithostatic pressures to which it is subjected at the repository horizon. For those who have toured WIPP, this phenomenon is readily apparent in the convex shape of the back (roof) in Room 1 of Panel 1. The plastic nature of salt is therefore significantly beneficial in that it will eventually creep closed and encapsulate the radioactive waste emplaced there for disposal. It is also self-healing, so that if any fractures do develop they will effectively seal themselves in a relatively short period. This (plasticity) is a rare, but extremely desirable, quality among the various geologic media being investigated throughout the world for burial of radioactive waste. It is precisely one of the primary reasons why, in the mid-1950s, the National Academy of Sciences recommended bedded salt deposits as a promising media for such deep geologic disposal.

Finally, the Salado Formation has been shown through numerous site investigations to contain little groundwater. And what little groundwater there is has been demonstrated to our satisfaction to be transmitted very poorly within the formation. In fact, the entire area encompassing at least a 10-mile radius in all directions from the center of the WIPP site has groundwater flows whose potential effects on repository performance we would characterize as minimal. Few would argue

that the aquifers immediately surrounding WIPP are among some of the least productive in the United States. Furthermore, there are no permanent surface waters in close proximity to the WIPP repository. Without question, it is an extremely arid region with a climate that minimizes hydrological impacts. This favorable characteristic provides yet another reason why the current site is generally well-suited for disposal of TRU waste.

It is obvious that the WIPP site has many positive attributes that make it a promising location for a permanent repository. Having been an active participant in its development and evaluation for over 15 years, the State of New Mexico strongly believes that--if left undisturbed by future generations--WIPP will be able to safely isolate its dangerous contents for well beyond the regulatory time frame of 10,000 years. We are convinced DOE's Performance Assessment results with respect to natural phenomena and processes (*e.g.*, earthquakes, tornadoes) are reasonable. Thus, the Task Force has no real problems with how WIPP is expected to perform over the long term in its undisturbed state.

We continue to find somewhat troubling, however, the potential impacts of inadvertent human intrusion on repository performance--and ultimately on public health and the environment. There are two site characteristics that are the predominant source of our concern: 1) the existence of significant quantities of energy and mineral resources in the immediate vicinity of the WIPP site; and 2) the likelihood that sizable pockets of pressurized brine exist in the Castile Formation beneath the repository waste panels. It is our belief that these characteristics greatly increase the probability and potential consequences of inadvertent human intrusion at WIPP. For this reason, EPA must take every reasonable precaution to preclude such intrusion from occurring.

One precaution that EPA must insist upon is the use of appropriate engineered barriers to ensure the transuranic radioactive waste does not migrate from the repository--no matter what conditions exist at the WIPP site over the many millennia during which these materials will continue to pose a danger to society. Specifically, the emplacement of magnesium oxide (MgO) backfill around the waste containers is a sound, defense-in-depth strategy that will unquestionably enhance WIPP's long-term performance. The use of backfill is also a legally binding requirement of the July 1, 1981 Agreement for Consultation and Cooperation between DOE and the State of New Mexico. The uncertainty inherent in accurately predicting what conditions may exist in any geologic repository many hundreds--much less thousands--of years hence warrants the application of MgO backfill as a continuing, integral component of waste disposal operations at WIPP.

In the late 1980s and early 1990s when the U.S. Congress was formulating what would become the WIPP Land Withdrawal Act (LWA), the State of New Mexico persistently and consistently lobbied for EPA to be given the role of independent WIPP regulator. Having witnessed the disastrous effects of DOE self-regulation as manifested today at myriad contaminated sites throughout the nuclear weapons complex, we were adamant in our resolve to preclude such

threats to public health and the environment from ever occurring at WIPP. Tough, but fair, independent regulation and oversight by EPA is what New Mexico demanded and what Congress ultimately determined was needed--for both the good of the WIPP Project and for the citizens of this Nation. Now more than ever is the time for EPA to truly embrace and fully exercise its Congressional regulatory authority over WIPP. We strongly believe that EPA must not simply certify WIPP will comply with the disposal regulations; it must be unwaveringly confident in that certification and impose whatever conditions are necessary to ensure WIPP performs as expected. The safety of current and future generations of New Mexicans must be your foremost priority.

Thank you for the opportunity to present these comments on behalf of the Task Force, the State of New Mexico, and its citizens.

Sincerely,

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Cabinet Secretary and Chair
N.M. Radioactive Waste Consultation Task Force

c: Governor Gary E. Johnson
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