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ENTERED

IN THE UNITED STATES COURT OF APPEALS
FOR THE DISTRICT OF COLUMBIA CIRCUIT

Nos. 96-1107, 96-1108, 96-1109

STATE OF NEW MEXICO, ex rel. TOM UDALL, ATTORNEY GENERAL,

Petitioner,

and

SOUTHWEST RESEARCH AND INFORMATION CENTER;
CONCERNED CITIZENS FOR NUCLEAR SAFETY; PATRICIO LARRAGOITE;
MICHAEL SUGARMAN,

Petitioners,

and

STATE OF TEXAS,

Petitioner,

-against-

U.S. ENVIRONMENTAL PROTECTION AGENCY;
CAROL M. BROWNER, ADMINISTRATOR,
U.S. ENVIRONMENTAL PROTECTION AGENCY,

Respondents.

ON PETITION FOR REVIEW

JOINT BRIEF FOR PETITIONERS

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CERTIFICATE OF PETITIONERS AS TO PARTIES,
RULINGS, AND RELATED CASES

Pursuant to Circuit Rule 28(a)(1), Petitioners submit the following certificate as to this case:

A. Parties and Amici: In this Court the following entities and persons are parties to these consolidated cases (Nos. 96-1107, 96-1108, and 96-1109):

1. State of New Mexico, Petitioner in No. 96-1107.
2. Southwest Research and Information Center, Petitioner in No. 96-1108.
3. Concerned Citizens for Nuclear Safety, Petitioner in No. 96-1108.
4. Patricio Larragoite, Petitioner in No. 96-1108.
5. Michael Sugarman, Petitioner in No. 96-1108.
6. State of Texas, Petitioner in No. 96-1109.
7. U.S. Environmental Protection Agency, Respondent in Nos. 96-1107, 96-1108, and 96-1109.
8. Carol M. Browner, Administrator, U.S. Environmental Protection Agency, Respondent in Nos. 96-1107, 96-1108, and 96-1109.

B. Rulings Under Review: The ruling under review is the issuance by the U.S. Environmental Protection Agency of the Criteria for the Certification and Re-Certification of the Waste Isolation Pilot Plant's Compliance with the 40 CFR Part 191 Disposal Regulations, 61 Fed. Reg. 5224 (Feb. 9, 1996).

C. Related Cases: This matter has not previously been before the Court. All cases known to counsel which concern the rule under review have been consolidated herein.

Respectfully submitted,

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GLOSSARY

AEC is the U.S. Atomic Energy Commission.

APA is the Administrative Procedures Act.

BID is EPA's Background Information Document.

CCA is the Compliance Certification Application.

CCDF is a complementary cumulative distribution function.

CCNS is Concerned Citizens for Nuclear Safety.

Compliance Criteria, 40 C.F.R. Part 194, are the criteria promulgated under §8(c) of the WIPP Act for the EPA Administrator's certification of compliance with the Disposal Regulations.

Disposal Regulations are the regulations for disposal of spent fuel, high-level, and transuranic nuclear waste, 40 C.F.R. Part 191, Subpart B.

DOE is the U.S. Department of Energy.

EPA is the U.S. Environmental Protection Agency.

NACEPT is National Advisory Council on Environmental Policy and Technology.

NRC is the U.S. Nuclear Regulatory Commission.

OMB is the U.S. Office of Management and Budget.

PA is performance assessment.

Part 191B is 40 C.F.R. Part 191, Subpart B.

Part 194 is 40 C.F.R. Part 194.

PICs is passive institutional controls.

QA is quality assurance.

Sandia is Sandia National Laboratories.

SRIC is the Southwest Research and Information Center.

Subpart B is 40 C.F.R. 191, Subpart B.

WIPP is Waste Isolation Pilot Plant.

WIPP Act is the Waste Isolation Pilot Plant Withdrawal Act of 1992, Pub. L. No. 102-579.

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CAROL M. BROWNER, ADMINISTRATOR,
U.S. ENVIRONMENTAL PROTECTION AGENCY,

Respondents.

JOINT BRIEF FOR PETITIONERS

Subject Matter and Appellate Jurisdiction

These are consolidated petitions for review of the issuance by the U.S. Environmental Protection Agency ("EPA") of Criteria for the Certification and Re-Certification of the Waste Isolation Pilot Plant's Compliance With the 40 C.F.R. Part 191 Disposal Regulations, 40 C.F.R. Part 194 (the "Compliance Criteria"), which were published on February 9, 1996. 61 Fed. Reg. 5224 (1996). Petitioners the State of New Mexico ("New Mexico"), Southwest Research and Information Center ("SRIC"), and Concerned Citizens for Nuclear Safety ("CCNS") commented on the rule. Petitions for review were filed on April 8, 1996, by New Mexico (No. 96-1107) and

by SRIC, CCNS, Matricio Larragoite, and Michael Sugarman (No. 96-1108) and on April 9, 1996, by the State of Texas (No. 96-1109). Section 18 of the Waste Isolation Pilot Plant Land Withdrawal Act of 1992, Pub.L No. 102-579, 106 Stat. 4777 (1992) (the "WIPP Act"), provides that judicial review may be initiated in this Court within 60 days of final action by the EPA. This Court has jurisdiction pursuant to the Hobbs Act, 28 U.S.C. §2342(4) (1994).

Issues Presented

This case concerns EPA's issuance of "Compliance Criteria" that will be used to determine whether the Waste Isolation Pilot Plant ("WIPP") can be operated in New Mexico in a manner which will adequately protect the public health and safety. The specific issues raised are:

1. Whether EPA violated the express language of the WIPP Act, which directs that the 40 C.F.R. Part 191B Disposal Regulations shall be in effect and instructs EPA to issue "criteria for the Administrator's certification of compliance with the final disposal regulations" when EPA issued Compliance Criteria that contain no standards, rules, or tests by which compliance can be judged, and other rules which nullify, rather than effectuate, the provisions of the Disposal Regulations.

2. Whether EPA violated the WIPP Act and the APA, when it used data and information conveyed to EPA in secret post-public-comment discussions with the regulated entity, the U.S. Department of Energy ("DOE"), and DOE's private contractors as the basis for Compliance Criteria, and the public had no opportunity to comment on such data and information before the Compliance Criteria were issued.

3. Whether EPA violated the WIPP Act and the APA in issuing the Compliance Criteria, when the notice of the proposed rule did not include sufficient factual detail and rationale for the proposed rule, did not describe the range of alternatives being considered with reasonable specificity, did not disclose the data used to develop the proposed rule, and, as to several vital provisions, contained no information at all, thus making it impossible for the public to offer useful comment.

4. Whether EPA violated the WIPP Act and otherwise acted arbitrarily and capriciously in violation of the APA when it adopted certain Compliance Criteria which conflict with their stated objectives, are based on sheer speculation, are not supported by an adequate explanation, and contain basic inconsistencies with other Compliance Criteria.

Statutes and Regulations

Pertinent statutes and regulations are contained in the Statutory and Regulatory Addendum to Joint Brief for Petitioners, separately bound and filed herewith.

Statement of the Case

WIPP is an underground nuclear waste repository designed by DOE and constructed in southeastern New Mexico to receive extremely hazardous transuranic nuclear waste from DOE weapons programs. DOE initiated the WIPP project in the mid-1970's. In 1979 Congress authorized the construction of WIPP but did not direct that it go into operation. Pub.L No. 96-164, §213, 93 Stat. 1259, 1265 (1979). DOE has since conducted exploratory investigations, dug four shafts, excavated facilities 2150 feet below the surface, and erected surface facilities to manage radioactive waste.

WIPP is designed to be the world's first underground repository for radioactive waste. If it goes into operation, WIPP will become one of the most hazardous disposal sites on earth, since it will contain wastes contaminated with deadly substances, such as plutonium.¹ Because the radioactive hazards associated with the wastes will persist for thousands of generations, and because the wastes disposed of at WIPP are, practically speaking, irretrievable, there is very substantial public interest in the project. Congress spent five years writing the WIPP Act, which sets forth the basic regulatory and public participation requirements. This case concerns the validity of the rules which will be applied to decide whether and under what conditions WIPP may actually go into operation. These rules purport to protect persons and the environment from releases of radioactivity beyond limits established to safeguard public health and safety, but, in fact, they will allow releases in excess of such limits, contrary to the directions of Congress.

These rules -- known as the "Compliance Criteria" -- will be applied by EPA in a subsequent compliance determination rulemaking to assess whether WIPP will permit the release of amounts of radioactivity in excess of established regulatory limits during a 10,000 year regulatory period. These release limits are specified in the previously-issued EPA regulations for disposal of spent fuel, high-level, and transuranic nuclear waste -- referred to as

¹ Transuranic waste is statutorily defined as waste containing more than 100 nanocuries of alpha-emitting transuranic (i.e., heavier-than-Uranium) isotopes per gram of waste, with half-lives greater than 20 years, with certain exceptions not applicable here. Waste disposed of at WIPP is limited to waste generated by atomic energy defense activities. WIPP Act §§2(20), (21).

the "Disposal Regulations," or "Part 191B." 40 C.F.R. Part 191B. The statutory and regulatory background is as follows.

a. The Disposal Regulations, Part 191B

EPA issued the Disposal Regulations in 1985, 50 Fed. Reg. 38,066 (1985), pursuant to the Atomic Energy Act². The Disposal Regulations are based on EPA's study of the feasible methods of radioactive waste disposal -- and, in particular, underground repositories -- and of the consequences to public health of releases of radioactivity from such disposal sites. EPA assumed that it would be acceptable for a repository to cause up to 1000 premature deaths of members of the public during 10,000 years. 50 Fed. Reg. 38,066, 38,069-71.

EPA studied various pathways that radionuclides might follow from the repository to human populations, ascertained the health impact of various levels of exposure to radioactivity, and developed release limits, which state the amount of various radioactive elements which may be released from a repository without causing unacceptable health impacts. The result of EPA's analysis is the containment requirement. 40 C.F.R. §191.13. The

² The Atomic Energy Act directed the Atomic Energy Commission ("AEC") to "establish . . . standards and instructions to govern the possession and use of special nuclear material, source material, and byproduct material as the Commission may deem necessary to desirable to promote the common defense and security or to protect health or to minimize danger to life or property." 42 U.S.C. §2201(b) (1994). After the AEC was abolished, Reorganization Plan No. 3 directed EPA to exercise these AEC functions, specifically consisting of "establishing generally applicable environmental standards for the protection of the general environment from radioactive material." Reorganization Plan No. 3 of 1970, §2(a)(6), 3 C.F.R. 1072 (1966-70). The Nuclear Waste Policy Act of 1982, 42 U.S.C. §10141(a) (1994), directed EPA to issue such standards with respect to offsite releases from "repositories."

containment requirement is stated in terms of the probability of releases of radioactivity in excess of specified release limits during a 10,000 year period:

Disposal systems for . . . transuranic wastes shall be designed to provide a reasonable expectation, based on performance assessments, that the cumulative releases of radionuclides to the accessible environment for 10,000 years after disposal from all significant processes and events that may affect the disposal system shall:

- (1) Have a likelihood of less than one chance in 10 of exceeding the quantities calculated according to Table 1 (appendix A); and
- (2) Have a likelihood of less than one chance in 1000 of exceeding ten times the quantities calculated according to Table 1 (appendix A).

40 C.F.R. §191.13(a).

The containment requirement further states that compliance is to be determined by means of a "performance assessment." 40 C.F.R. §191.13(b). A performance assessment ("PA") is defined as an analysis of all significant possible causes of releases of radioactivity, the releases caused thereby, and the probabilities of such releases. This analysis results in a representation of the probability and amount of cumulative releases of radioactivity during the 10,000 year period:

Performance assessment means an analysis that:

- (1) Identifies the processes and events that might affect the disposal system;
- (2) examines the effects of these processes and events on the performance of the disposal system; and
- (3) estimates the cumulative releases of radionuclides, considering the associated uncertainties, caused by all significant processes and events. These estimates shall be incorporated in an overall probability distribution of cumulative releases to the extent practicable.

40 C.F.R. §191.12.

EPA, in issuing Part 191B, acknowledged the numerous uncertainties in projecting the performance of a radioactive waste repository by PA and was unwilling to allow public safety to depend solely upon the PA projection. Thus, EPA directed that certain "assurance requirements" be followed to give separate grounds for confidence in the safety of the facility. 40 C.F.R. §194.14. EPA explained:

[T]he Agency has long recognized that the numerical standards chosen for Subpart B, by themselves, do not provide either an adequate context for environmental protection or a sufficient basis to foster public confidence in the national program. There are too many uncertainties in projecting the behavior of natural and engineered components for many thousands of years -- and too many opportunities for mistakes or poor judgments in such calculations -- for the numerical requirements on overall system performance in Subpart B to be the sole basis to determine the acceptability of disposal systems for these very hazardous wastes. . . . Therefore, the proposed standards also include qualitative assurance requirements chosen to ensure that cautious steps are taken to reduce the problems caused by these uncertainties.

50 Fed. Reg. 38,066, 38,079 (emphasis supplied).

Thus, the assurance requirements were adopted "[t]o provide the confidence needed for long-term compliance with the requirements of §191.13," and are mandatory. ("[D]isposal of . . . transuranic wastes shall be conducted in accordance with the following provisions . . .") 40 C.F.R. at §191.14.

The assurance requirements call for such fundamental protections as post-disposal monitoring of the facility; monuments and markers at disposal sites and records of disposal, collectively called "passive institutional controls" ("PICs"); and engineered

barriers to isolate the wastes. 40 C.F.R. §191.14(b)-(d). An additional assurance requirement restricts the use of sites which contain natural resources, such as minerals, unless other advantages outweigh the likelihood of intrusion by humans. 40 C.F.R. §191.14(e).

Part 191B was challenged and vacated based on defects in the individual protection and groundwater protection requirements. Natural Resources Defense Council v. EPA, 824 F.2d 1258 (1st Cir. 1987). However, DOE continued to prepare its PA based on Part 191B, and EPA continued to publish Part 191B in the Code of Federal Regulations.

b. The WIPP Land Withdrawal Act of 1992

In 1991, for the ostensible purpose of conducting experiments, DOE sought to introduce radioactive waste into WIPP without congressional authority. This Court held that DOE's action had violated the express terms of the Federal Land Policy and Management Act of 1976, 43 U.S.C. §1701 (1994), and that DOE's attempt to "open" WIPP should be enjoined. New Mexico v. Watkins, 869 F.2d 1122 (D.C.Cir. 1992).

In response, Congress adopted the WIPP Act, which specifically addressed the terms under which WIPP might be put in operation. The WIPP Act addresses public concerns over DOE secrecy and self-regulation by expressly establishing EPA's role as independent regulator of DOE at WIPP, and by requiring that EPA act through notice and comment rulemaking. WIPP Act §8(d). Congress specifically decided that WIPP's self-regulated status was "out of step with current regulatory practices for nuclear facilities and with public expectations for safety assurance." Waste Isolation

Pilot Plant Land Withdrawal Act, H.R. Rep. No. 241, 102nd Cong., 1st Sess., pt. 3, at 12 (1991). In short, Congress intended that EPA assume a role like that of the Nuclear Regulatory Commission ("NRC") toward a commercial facility:

The bill is intended to compensate for the lack of NRC regulatory authority over WIPP by augmenting the EPA's existing regulatory authority, and by giving EPA broad oversight authority over the major events in WIPP's operational cycle, including testing, disposal, possible retrieval of waste, and the eventual decommissioning of the facility.

Id.

c. The Compliance Criteria, Part 194

Congress directed EPA to issue "criteria for the Administrator's certification of compliance with the final disposal regulations" -- the Compliance Criteria at issue. Congress expected the Compliance Criteria to be adopted well before EPA was called upon to certify WIPP for permanent disposal. Thus, the WIPP Act as adopted provides for a Test Phase before certification of compliance. See WIPP Act §§5, 6. It allows the certification decision to be made up to ten years after waste is introduced for tests. See id. §8(d)(2). Rep. Kostmayer, a principal sponsor, stated that the testing would take "6, 7, maybe 8 years," 138 Cong. Rec. H6301 (daily ed. July 21, 1992), and that it might be "a good decade before" disposal, 138 Cong. Rec. H11869 (daily ed. Oct. 5, 1992). Compliance Criteria were to be proposed within one year and adopted within two years after enactment of the WIPP Act. See WIPP Act §8(c)(1), (2). Thus, the Compliance Criteria were to be issued in an atmosphere unaffected by consideration of a specific compliance application.

d. Adoption of Compliance Criteria

Congress gave EPA until October 30, 1993, to issue the proposed Compliance Criteria and until October 30, 1994, to issue the final Compliance Criteria. Neither deadline was met.³ On February 11, 1993, EPA published an Advance Notice of Proposed Rulemaking, 58 Fed. Reg. 8029 (1993), seeking comments on the forthcoming Compliance Criteria. On January 28, 1994, EPA circulated preliminary draft Compliance Criteria for comment. II-C-1.⁴ In July 1994, EPA completed its internal final draft. III-B-1(b). EPA submitted this draft to the Office of Management and Budget ("OMB") for interagency review pursuant to Executive Order No. 12,866. 58 Fed. Reg. 51,735 (1993).

Thereafter EPA, OMB, and DOE discussed the draft proposed rules in private sessions. EPA had made several decisions to which DOE objected. For example, a principal concern in assessing WIPP's performance is future "human intrusion" -- drilling, mining, or other human disruption of the repository -- which is a major risk, since oil, gas, potash, and other mineral deposits surround WIPP. Therefore, DOE wanted the Compliance Criteria to authorize DOE to include in its PA a risk discount for the projected future

³ Two of the petitioners herein sued EPA in this Court based on EPA's failure to meet the statutory deadlines. State of New Mexico v. EPA, No. 95-1273; Southwest Research & Information Center v. EPA, No. 95-1285. Relief was denied in light of the promise of prompt issuance of regulations. Order, July 19, 1995 (No. 95-1273); Order, Aug. 14, 1995 (No. 95-1285).

⁴ Citations in the form "II-C-1" refer to items in the Certified Index to the Record for Purposes of Judicial Review, certified on May 28, 1996. Certain items added to the record on review by the Court's Order dated October 3, 1996, are cited by their item numbers in the public rulemaking docket, which follow the same format.

effectiveness of PICs -- monuments and markers -- in preventing human intrusion. EPA had internally decided not to allow such a "credit." III-B-1(b) at 137-39. However, in the private discussions with DOE, EPA was persuaded to adopt a rule allowing credit, if "justified" based on unspecified factors. Id.

In addition, EPA's internal draft required PA to consider the effects of future mining and "other human activities that could affect a waste disposal system," id. at 105, but after private discussions with DOE mining and "other human activities" were eliminated. Id. Further, DOE persuaded EPA to limit the amount of future drilling to be projected, so that historical rates would apply, but only up to an arbitrary limit.⁵ Id. at 60-62, 130-33.

After these changes, the proposal was published on January 30, 1995. 60 Fed. Reg. 5766 (1995). Extensive comments were received, ending on September 15, 1995. EPA again completed an internal final draft and submitted it to OMB. IV-H-1. Thereafter, at least nine discussions took place among DOE, OMB, EPA, and contractors for DOE and EPA. IV-H-2, IV-H-8 through -13. Again, substantial revisions were made as a result of these private discussions. EPA had again resolved internally that it could not allow credit for the effectiveness of PICs, but DOE persuaded EPA to reinstate a limited allowance for credit. IV-H-7, rule at 44. EPA had also decided to require that existing (i.e., previously gathered) data be qualified for use by a quality assurance "program," but DOE

⁵ DOE obtained still other changes -- e.g., EPA's internal draft had specified four characteristics of WIPP-destined waste to be characterized, but in the discussions the list was cut to one. Id. at 123, and pre-closure monitoring parameters were cut from seven to three. Id. at 134-37.

successfully pressed EPA to allow such data to be used in the absence of such a program. Id., rule at 19-22. DOE further persuaded EPA to drop a requirement for scientific peer review of "decisions or interpretations that have been made with significant scientific uncertainties and that are important to compliance." Id., rule at 33. DOE induced EPA to delete specific requirements for pre-closure monitoring, Id., rule at 40-41, and to demand characterization of to-be-generated waste only if "practicable." Id., rule at 25. Following the private meetings with DOE, the final rule was published on February 9, 1996. 61 Fed. Reg. 5224.

Although Congress directed EPA to establish "criteria" by which compliance would later be judged, several of the final Compliance Criteria fail to contain any objective measurable standards. Thus, EPA simply deferred establishing criteria that it will use in determining compliance as to such fundamental issues as credit for PICs (§194.43(c)), engineered barriers (§194.44), quality assurance for old data (§194.22(b)), and waste characterization (§194.24).

With regard to other aspects of the "criteria," the final rule introduced new provisions or rationales which had never been subject to public comment. Thus, the final rule on PA consideration of future mining (§194.32(b)) was never proposed for public comment, nor were any of the underlying data publicly available during the comment period. EPA also announced for the first time limits on PA consideration of future injection of high-pressure water into wells, which may disrupt the WIPP site. 40 C.F.R. §§194.33(d), 194.32(c). Further, EPA entirely changed its rationale for calculating the projected rate of future drilling in

\PA, preventing public comment, and the final rules made compliance much easier for DOE to demonstrate. 40 C.F.R. §§194.2, 194.33(b)(3)(i), (4)(i). EPA also switched the rationale and the substance of the rule determining the radionuclide inventory -- which in turn determines the radionuclide release limits -- and the final rule is now much more favorable to DOE. 40 C.F.R. §194.31.⁶

e. The Compliance Certification Application

Review petitions were filed on April 8 and 9, 1996. On August 1, 1996, Congress adopted certain amendments to the WIPP Act, which direct that DOE submit its Compliance Certification Application ("CCA") by October 31, 1996. Pub.L No. 104-201, §§3181-3191, 110 Stat. 2422, 2851-54 (1996). The CCA has been submitted. The same legislation expresses the "sense of Congress" that DOE complete prerequisites for disposal by November 30, 1997, "provided that before that date all applicable health and safety standards have been met and all applicable laws have been complied with." Id. §3190, 110 Stat. 2422, 2853. The 1996 legislation did not address this litigation nor affect the status of the Compliance Criteria, which had been issued and were in litigation, nor did it purport to constrain this Court's ability to resolve the challenges to the Compliance Criteria and frame appropriate relief.

A principal component of the CCA is the PA. The WIPP PA, as carried out by DOE's contractor, Sandia National Laboratories ("Sandia"), is a complex computer modeling exercise. It incorporates several dozen variable parameters, i.e., values which

⁶ Petitioners believe that the Action Memorandum to the Administrator, submitted under seal to the Court by order of the Motions Panel (Order, October 3, 1996), may shed further light on EPA's reasoning with respect to the Compliance Criteria.

have not been quantified and, instead, are assigned a "probability distribution function," depicting the range of probabilities and the corresponding numerical values of the parameter. To conduct PA the range of parameter values is sampled, and sampled values for all variable parameters, together with certain fixed parameters, are propagated through computer models which calculate the consequence of postulated release scenarios. The results of each such "iteration" are used to construct a curve showing the probability and amount of cumulative releases. This curve is called the "complementary cumulative distribution function" ("CCDF"). Sampling and propagation is repeated, generating a "family" of curves. Compliance or noncompliance is determined by reference to such families of CCDF curves. Thus, PA seeks to show that WIPP will comply with Part 191B, even though numerous pertinent parameters have not been exactly quantified. V-B-1 at 8-1 through 8-5, 8-14 through 8-15.

Public participation in EPA's review of the pending CCA is severely limited by the inadequate Compliance Criteria, as we show below. Point IV(a). Thus, although EPA has stated that its public participation rules "bind[] the Agency to provide opportunities for public input -- written comments and public hearings -- at critical junctures in the certification rulemaking process," IV-C-1 at 20-2, participation is seriously compromised by the limited opportunities for comment and response furnished by the rules.

Summary of Argument

In the WIPP Act, Congress imposed strict environmental regulation upon WIPP, doing away with DOE self-regulation and secrecy, to assure an objective scientific determination of whether

WIPP will comply with the Disposal Regulations. Accordingly, Congress directed EPA to determine compliance by a two-step process, under which EPA, by separate public rulemakings, would first issue criteria for the EPA Administrator's determination of compliance with the Disposal Regulations, and second, determine whether WIPP will comply with those regulations.

Thus, §8 of the WIPP Act calls upon EPA to issue Criteria -- standards, rules, or tests by which compliance with the Disposal Regulations can be judged -- in a separate proceeding insulated from the pressures of a pending DOE application for a determination of compliance. Congress required that both the Compliance Criteria issuance and the later compliance determination be conducted in a public rulemaking, based upon full disclosure of the proposed rule, its rationale, the alternatives under consideration, and the data and studies that underlie the proposed rule. In several respects the Compliance Criteria have been published in contravention of Congress's design, as well as basic APA requirements.

1. EPA has issued Compliance Criteria which violate the plain terms of the congressional direction. Thus, some of the most critical provisions contain no "criteria" at all, e.g., as to the weight to be given to warning devices ("PICs") in deterring human intrusion in the distant future, the engineered barriers required to contain the waste, data quality assurance, and waste characterization.

Other Compliance Criteria nullify provisions of the Disposal Regulations, contrary to Congress's command that these provisions be "in effect." The Disposal Regulations require special scrutiny for resource sites like WIPP, but EPA has

nullified that requirement. The Disposal Regulations also require monitoring after disposal, but EPA's Compliance Criteria do not.

2. These substantive violations resulted, predictably, from EPA's insistence on allowing DOE, the regulated entity, a special right of input and access outside of, and contrary to, the normal APA process. Numerous rules were changed on the basis of matters communicated to EPA by DOE or DOE contractors in back-room sessions both before and after the public comment period. The rule allowing credit for PICs was completely changed, and other rules on data quality assurance, peer review, and monitoring were significantly weakened.

3. EPA also violated Petitioners' notice and comment rights by making unforeseeable changes between the proposal and the final version, precluding meaningful public input. Thus, there was no chance for public comment on EPA's model for calculating the consequences of future mining, projecting the rate of future drilling, estimating the consequences of future well injection, or assessing the radionuclide inventory of the repository.

4. The defective process also generated several actions that are simply arbitrary and capricious. The public participation rules are calculated to thwart public input at critical stages, contrary to EPA's declared purpose. The rule for quantifying the effectiveness of PICs contains no method to do so, and EPA declined to answer probing public comments. The rule on well injection is unsupported in fact and inconsistent with other rules. The rule fixing the necessary level of assurance for compliance fails to select or explain any particular level.

ARGUMENT

- I. Several of the Compliance Criteria violate the congressional mandate for the adoption of criteria for the determination of compliance. The rules on credit for effectiveness of passive institutional controls, engineered barriers, quality assurance for existing data, and waste characterization contain no criteria for determining compliance. The rules on the disincentive for resource sites and post-closure monitoring contradict the provisions they are suppose to enforce.

Congress directed EPA to issue "criteria for the Administrator's certification of compliance with the final disposal regulations." WIPP Act §8(c)(1), (2). In reviewing EPA's action, the Court inquires, as to each questioned regulation, "whether Congress has directly spoken to the precise question at issue." Chevron U.S.A., Inc. v. NRDC, 467 U.S. 837, 842 (1984); Nuclear Information Resource Serv. v. NRC, 969 F.2d 1169, 1173 (D.C.Cir. 1992) (en banc) (quoting Chevron, 467 U.S. at 842). If Congress has unambiguously expressed its intent, the Court's inquiry ends. Chevron, 467 U.S. at 842. Only if the statute is silent or ambiguous does the Court defer to the agency's interpretation. Id., quoting Chemical Mfrs. Ass'n v. EPA, 919 F.2d 158, 162-63 (D.C.Cir. 1990). On several issues Congress has spoken unambiguously, and the rules issued by EPA do not comply with the congressional direction.

The legislative direction is to issue "criteria." The term "criteria", although not statutorily defined in the WIPP Act, has a common meaning. Indiana Michigan Power Co. v. Department of Energy, 88 F.3d 1272, 1274-76 (D.C.Cir. 1996). A criterion is a "standard, rule, or test by which something can be judged."

Webster's New World Dictionary of the American Language, 2d Coll. Ed. (1982) (emphasis supplied). The statute, therefore, requires EPA to issue a standard, rule, or test by which compliance with provisions designed to defend the public health and safety can be judged. Specifically, the standard, rule, or test must equip EPA to judge "compliance with the final disposal regulations."

The Disposal Regulations, in turn, contain explicit requirements as to PA (§191.12), PICs (§191.14(c)), engineered barriers (§191.14(d)), monitoring (§191.14(b)), and the disincentive to use resource sites (§191.14(e)). When Congress enacted the WIPP Act, except as to certain parts not here relevant, it legislatively declared that these and other requirements "shall be in effect." WIPP Act §§8(a)(1), (2).

Accordingly, the rules at issue here -- the "criteria for the Administrator's certification of compliance with the final disposal regulations," WIPP Act §8(c)(2), must effectuate, and set forth a basis for assessing compliance with, these and other requirements. In short, Congress plainly intended that the Compliance Criteria meet two explicit requirements: They must be based on the "final disposal regulations" and they must set forth "criteria" -- i.e., standards or measures or tests -- whereby compliance with the final Disposal Regulations can be judged. The rules issued by EPA fall short of Congress's explicit command in critical respects: Certain rules contain no standards or measures or tests by which compliance can be judged. Other rules, far from being based on the Disposal Regulations, actually contradict and nullify those regulations, contrary to the direction of Congress.

a. Credit for the effectiveness of passive institutional controls (§191.43(c))

WIPP is surrounded by active potash mines and oil and gas production wells, and additional mineral resources are within the site. Therefore, there is a high likelihood that future drilling could cause releases of radioactivity. DOE has sought to reduce the amount of future drilling that must be projected in PA by obtaining "credit" for the effectiveness of PICs in deterring future intrusions. EPA's entire rule as to credit for the effectiveness of PICs is:

The Administrator may allow the Department to assume passive institutional control credit, in the form of reduced likelihood of human intrusion, if the Department demonstrates in the compliance application that such credit is justified because the passive institutional controls are expected to endure and be understood by potential intruders for the time period approved by the Administrator. Such credit, or a smaller credit as determined by the Administrator, cannot be used for more than several hundred years and may decrease over time. In no case, however, shall passive institutional controls be assumed to eliminate the likelihood of human intrusion entirely.

40 C.F.R. §194.43(c) (emphasis supplied).

This rule fails utterly as a standard, measure or test whereby something may be judged -- i.e., as a "criterion" -- because it speaks entirely in question-begging form. Of course, the purpose of PICs is "to indicate the dangers of the wastes, and their location," 40 C.F.R. §191.14(c), that is, to "endure and be understood by potential intruders," 40 C.F.R. §194.43(c). But EPA's rule contains no standard, rule or test to show how EPA shall decide whether the PICs will endure and be understood and, specifically, to quantify the probability, as PA requires.

The problem of quantifying the effectiveness of PICs has remained unsolved by EPA from the time Part 191B was under consideration. IV-D-120 at 24. The uncertainties are massive and call for assessment of, e.g., the likelihood that the markers may be destroyed; the likelihood of changes in government, language, or population; the likelihood of changes in technology and communications; and the likelihood of new resource needs. IV-D-41 at 31-32.

Confronted by these conundra, EPA has insistently asked DOE to present a "clear, consistent, and credible rationale for justifying the amount of credit that DOE's system of controls deserves. The methods chosen by DOE must: 1) estimate the ability of the [PICs] to survive and be understood over different time periods, and 2) quantify the probability of success at different time intervals." U.S. EPA, Evaluating Passive Institutional Controls, at 2-3 (1995). DOE never answered that request, and EPA's response is a provision which established no "criteria" at all.

Indeed, although DOE insisted that EPA allow credit for PICs, EPA's proposal to allow credit based on totally unarticulated standards drew fire even from DOE and Sandia. Sandia pointed out that EPA's proposed rule states no method, IV-D-10 at 194.43 p.4; see also IV-D-119 at 34, and DOE noted that "[n]either the Supplementary Information nor the proposed rule tells how credit for passive institutional controls is to be taken." IV-D-125 at 33. DOE requested that EPA "[p]rovide quantitative guidance for reducing the probability of human intrusion . . ." IV-D-90 at II-47.

Still seeking for a method to quantify credit, EPA asked its National Advisory Council on Environmental Policy and Technology (NACEPT)⁷ subcommittee how to award a credit "as a percentage reduction in the predicted drilling rate." IV-E-5 at 4-1. The committee said: "[T]here is no quantitative way to estimate a credit." Id. at 4-2. In fact, EPA's own preamble candidly observes that there is no "rigorous and non-speculative method" available to estimate PIC credit. 61 Fed. Reg. 5224, 5232.

Nevertheless, EPA issued a rule authorizing credit for the effectiveness of PICs -- but describing no method to do so. Plainly, EPA's obligation to issue "criteria" is not satisfied by a rule which merely invites speculation. Congress has directed EPA to exercise its authority to prescribe how the §191.13 PA shall be conducted. On its face the rule merely ducks the question of how to determine credit for PICs until EPA considers DOE's compliance application -- contrary to the direction of Congress.

EPA has not carried out Congress's directions: "[A]n 'exercise of statutory authority to prescribe or enforce standards' means more than merely holding authority to prescribe standards, or merely initiating rulemaking pursuant to that authority." Association of Am. R.R.s v. Department of Transp., 38 F.3d 582, 586 (D.C.Cir. 1994). In Natural Resources Defense Council v. Reilly, 983 F.2d 259 (D.C.Cir. 1993), Congress had directed EPA to issue standards requiring vehicle emission control devices. EPA had declined; the Court directed EPA to comply with the statutory

⁷ The National Advisory Council on Environmental Policy and Technology ("NACEPT") subcommittee is a committee convened pursuant to the Federal Advisory Committee Act, 5 U.S.C. App. 2 §§1-15 (1994), to advise EPA on environmental issues relating to WIPP.

requirement. at 273. See also Natural Resources Defense Council v. Reilly, 976 F.2d 36, 41 (D.C.Cir. 1992) (statutory direction to issue air pollution control standards enforced). Section 194.43(c) conflicts with the express direction of Congress and must be vacated.

b. Engineered barriers (§194.44)

The Disposal Regulations require engineered barriers:

Disposal systems shall use different types of barriers to isolate the wastes from the accessible environment. Both engineered and natural barriers shall be included.

40 C.F.R. §191.14(d).

Further, they define "barrier" to mean:

any material or structure that prevents or substantially delays movement of water or radionuclides toward the accessible environment. For example, a barrier may be a geologic structure, a canister, a waste form with physical and chemical characteristics that significantly decrease the mobility of radionuclides, or a material placed over and around waste, provided that the material or structure substantially delays movement of water or radionuclides.

40 C.F.R. §191.12.

However, rather than establish "criteria" for acceptability of such barriers, EPA's proposal merely restated the requirement of engineered barriers and called for a study of the benefits and detriments of engineered barrier alternatives. 60 Fed. Reg. 5766, 5789. Sandia itself complained that "the proposed rule provides no criteria or basis for the selection of engineered barriers other than the outcome of the benefit/detriment analysis." IV-D-10, 194.44 at 2-3; see also IV-D-90 at II-48. Westinghouse, another DOE contractor, asserted that the proposal gave "no guidance . . .

regarding the analysis for deciding which should be adopted and implemented and which should not." IV-D-81 at 16-17. Other comments requested a maximum radioactivity release rate criterion. IV-D-41 at 33-34, IV-D-120 at 26-28, IV-D-39 at 12 and Appx. B.

However, the final rule is nearly identical to the proposal. 61 Fed. Reg. 5224, 5243-44. EPA's rule merely restates Part 191B:

Disposal systems shall incorporate engineered barrier(s) designed to prevent or substantially delay the movement of water or radionuclides toward the accessible environment.

40 C.F.R. §194.44(a).

EPA stated that it would "have final say" on the sufficiency of DOE's engineered barriers, V-C-1 at 16-5, but it did not explain by what criteria it would do so. This rule contains no test or standard by which compliance can be measured.⁸ For example, no "criterion" is established for determining whether or not a proposed engineered barrier "prevents or substantially delays movement of water or radionuclides." 40 C.F.R. §191.12.

Subsections 194.44(b) through (e) also call for a cost-benefit study of various engineered alternatives and direct DOE to use it to justify selection of engineered alternatives. However, they do not state how various factors shall be analyzed or weighted, how benefits shall be compared to costs, nor to what extent a barrier must delay movement of water or radionuclides.

Again, Congress directed EPA to establish a criterion now, not to defer such establishment until the future rulemaking when a specific application for certification is considered, and EPA has

⁸ EPA ignored comments stating that the assurance requirements are independent requirements and require specific criteria. V-C-1 at 16-12, 16-13.

simply not complied. "[A]n 'exercise of statutory authority to prescribe or enforce standards' means more than merely holding authority to prescribe standards." AAR, 38 F.3d at 586. See also NRDC v. Reilly, 983 F.2d at 273.

c. Quality assurance for "old data" (§194.22(b))

Section 194.22(a) of the final Compliance Criteria requires DOE to adopt a specific quality assurance ("QA") program. However, most of the data supporting DOE's compliance application will have been gathered before adoption of such program and may be highly unreliable. Thus, the rule also addresses qualification of such "old data." 60 Fed. Reg. 5766, 5770.

EPA's proposal required "old data" to be qualified in accordance with a QA program "equivalent in scope and implementation" to the one required by §194.22(a), or "an alternative method approved by the Administrator for use at the WIPP." 60 Fed. Reg. 5766, 5786. EPA conceded the lack of "specific criteria" and promised to issue "guidance":

Today's proposal does not include any specific criteria identifying how such equivalence should be demonstrated, nor is there any specification about what the Agency will consider in approving QA plans. The Agency intends to issue guidance on this topic in the future.

60 Fed. Reg. 5766, 5770 (emphasis supplied).

EPA promised in February 1995 that "EPA is currently developing an internal decision document for evaluation of alternative methodologies for qualification of existing data." U.S. EPA, Qualification of WIPP Existing Data, at 2 (1995).

Commenters likewise urged that the proposal did not state criteria for alternative quality assurance methods, IV-D-41 at 8,

IV-D-120 at 6, nor answer questions as to (a) independence of data reviewers, (b) tests which show that data are qualified, (c) requirements of corroborative data, (d) relationship of corroboration to questioned data, (e) requirements for confirmatory data, (f) independence of peer reviewers, and (g) criteria for peer review of nonqualifying data. IV-D-120 at 7.

Thus, EPA drafted a final rule requiring "old data" to be "qualified in accordance with an alternate quality assurance program, approved by the Administrator, that is equivalent in scope and implementation to" programs required to be adopted by §194.22(a). IV-H-1, rule at 19-20 (emphasis supplied). However, in private discussions among DOE, OMB, and EPA, EPA was induced to drop the requirement of a contemporaneous QA "program" and to authorize data qualification after the fact by a "methodology" approved by the Administrator or his or her representative, employing one or more of: (a) a QA program equivalent in "effect" to the prospectively-required program, (b) peer review pursuant to NUREG-1297, (c) corroborating data, or (d) confirmatory testing.

But such a rule established no "criteria" on the most critical questions, as noted by EPA itself, e.g., how to assess corroborating data and the level of confidence needed from confirmatory data, V-C-1 at 4-11. When is a QA program "equivalent in effect"? Can peer review qualify data if, e.g., records are lacking (questions not answered by the reference to NUREG-1297)?

⁹ U.S. NRC, "Peer Review for High-Level Waste Repositories" (1988), III-B-1(h), states that "[p]eer reviews should not be used as a substitute for readily collectible data. Conclusions based on inadequate or limited data cannot be improved by subjecting those conclusions to the peer review process." (at 5).

EPA has conceded that "there is currently no implementation guidance available to use these [four] approaches to develop viable methodologies for data qualification," and it noted that, for that reason, totally ad hoc approval of the "methodology" by the Administrator would be required (V-C-1 at 4-11) -- approval which will not be based on notice and comment. EPA has plainly failed to issue "criteria" on the important issue of QA for old data; the statutory mandate has been ignored. AAR, 38 F.3d at 587-588; NRDC v. Reilly, 983 F.2d at 273.

d. Waste characterization (§194.24)

Waste characterization is the task of describing the chemical, radiological, and physical composition of waste. Characterization is required to understand the very heterogeneous nature of the more than 250,000 drums of wastes that have been generated over the past 25 years, often with little or no inventory records. In preparing proposed Compliance Criteria EPA specified four characteristics to be quantified, but in the first OMB-supervised review, the list was reduced to a single item: curie content of each radionuclide. III-B-1(b) at 123. The proposed rule also required DOE to study the effects of named waste characteristics on waste containment and to justify the decision not to provide information on any characteristic which DOE chose not to quantify. Id. at 124. Further, quantified characteristics were to be stated as a range of values, id., and DOE was required to show compliance for all combinations of quantified waste characteristics within the range. 60 Fed. Reg. 5766, 5786-8; proposed 40 C.F.R. §194.24(c).

Commenters objected that to require a study does not amount to issuance of Compliance Criteria. IV-D-41 at 9-13. However, the

final rule deletes even the requirement to characterize curie activity. Instead, it says only that (a) the compliance application shall "describe the chemical, radiological, and physical composition of" existing and future waste, including a list of waste components and "their approximate quantities in the waste," (b) DOE shall assess waste "characteristics influencing containment of waste in the disposal system" for their "impact on disposal system performance," and (c) DOE shall assess all waste "components influencing the waste characteristics" for their "impact on disposal system performance." 61 Fed. Reg. 5224, 5240-41; 40 C.F.R. §194.24.¹⁰ What characteristics must be studied, how the study will lead to limits on wastes, and how the limits are to be enforced are not set forth even in broadest outline¹¹.

EPA deems waste characterization a "critical component of any compliance application," V-C-1 at 6-20, and EPA asserts that it has drafted a rule "to ensure that extensive and dependable waste characterization is conducted in preparing a compliance application." Id. Yet, EPA's rule does not, according to any plain meaning of the word, contain "criteria" for waste characterization.¹²

¹⁰ In addition, DOE's analysis must show the limiting value (maximum or minimum) and the uncertainty for each assessed component, demonstrate that WIPP complies at such limit, and show a system of controls to enforce the limits.

¹¹ The rule was also modified in the second OMB-supervised review so that to-be-generated waste is to be described only "[t]o the extent practicable." 40 C.F.R. §194.24(a). The information which led EPA to make this change has not been revealed.

¹² The rule could be satisfied by a rudimentary inventory report with estimates of the proportions of some waste components, based on incomplete information, and an assessment of the impact of a few modeled characteristics which finds them unimportant. Such

Sooner or later EPA must agree with a method for waste characterization if WIPP is to be certified to operate. Contrary to the congressional direction, EPA has postponed decision; thus, EPA says, "[u]ltimately, as part of its certification determination, the Agency will determine if the chosen [characterization] methods are adequate and provide the level of detail necessary to confirm the conditions under which compliance is demonstrated through performance assessment," V-C-1 at 6-5, and "EPA will determine during its review of the certification application whether the assessment, limitation, and plans for confirmatory quantification of significant waste components are adequate." Id. at 6-20. Congress, however, directed that Compliance Criteria for making these judgments be issued in this rulemaking. Postponement until the compliance certification rulemaking is contrary to the explicit intent of Congress, and EPA's rule must be vacated. AAR, 38 F.3d at 587; NRDC v. Reilly, 983 F.2d at 273.

e. Resource disincentive (\$194.45)

The assurance requirements of the Disposal Regulations call for analysis of whether the favorable characteristics of a resource-rich site, such as WIPP, compensate for the higher probability of intrusion than at a non-resource site. 40 C.F.R. §191.14(e). EPA's proposed Compliance Criterion required DOE to show that

an application would not enable a compliance determination based on accurate knowledge of the waste as it may affect PA, nor would it constrain acceptance of waste components which may raise the risk of noncompliance.

the favorable characteristics of the disposal system compensate for the presence of resources in the vicinity of the disposal system and the likelihood of future human-initiated processes and events as a result of the presence of those resources.

60 Fed. Reg. 5766, 5790; 40 C.F.R. §194.45.

However, EPA stated that this rule would be met if WIPP meets "the requirements of 40 C.F.R. part 191":

If, after full consideration of the potential effects of resource recovery activities the WIPP is still predicted to meet the requirements of 40 C.F.R. part 191, then the Agency will assume that the requirements of this part and section 14(e) of 40 C.F.R. part 191 have been fulfilled.

60 Fed. Reg. 5766, 5780.

Comments contended that the supplementary language nullified the assurance requirement. IV-D-41 at 34-35, IV-G-4 at 10. However, the final rule expressly states that, if the containment requirement is met, EPA "will assume" that the requirements of Parts 191 and 194 as to a resource site are met. 61 Fed. Reg. 5224, 5244. Such a rule denies any effect to §191.14(e), which calls for a specific finding that the "favorable characteristics of" a resource site "compensate for the greater likelihood of being disturbed in the future." 40 C.F.R. §191.14(a).

A rule which eliminates a requirement cannot constitute a criterion to measure compliance with it. Congress was well aware of the independent assurance requirements of §191.14 when it enacted the WIPP Act; Congress expressly declared that such requirements be "in effect," WIPP Act §8(a)(1), and directed EPA to issue criteria for a determination of compliance with them. WIPP Act §8(c). Previously, where EPA was directed to issue new

regulations which describe methods of showing compliance with existing regulations, this Court has required the new rules to honor the substance of the existing rules. American Paper Inst., Inc. v. EPA, 996 F.2d 346, 351 (D.C.Cir. 1993) (regulation sustained, where it "provide[s] an eminently reasonable means of effectuating the intent of previously adopted narrative criteria . . ."). Congress directed EPA to issue criteria to carry out the intent of, inter alia, §191.14(e). The rule issued by EPA simply nullifies §191.14(e), and the statute has been violated.

f. Post-closure monitoring (§194.42)

The assurance requirements also call for monitoring after disposal:

- (b) Disposal systems shall be monitored after disposal to detect substantial and detrimental deviations from expected performance. This monitoring shall be done with techniques that do not jeopardize the isolation of the wastes and shall be conducted until there are no significant concerns to be addressed by further monitoring.

40 C.F.R. §194.42(b).

EPA's proposed criteria for this requirement would have directed DOE to submit a plan identifying the parameters to be monitored, indicating how each parameter relates to system performance, and discussing the duration of monitoring. 60 Fed. Reg. 5766, 5789. Comments stated that the rule should contain specific criteria for assessing the sufficiency of monitoring. IV-D-41 at 29.

The final rule, however, resembles the proposal. DOE is to conduct an analysis, select parameters, and present a plan for monitoring, but substantive monitoring criteria by which EPA will

assess these decisions by DOE are not stated. 61 Fed. Reg. 5224, 5243; 40 C.F.R. §§194.42(a), (e). For example, the rule might be satisfied if DOE unilaterally decided that monitoring is completely unnecessary for any parameters.

Such a rule is contrary to the WIPP Act. Congress instructed EPA to issue criteria for applying the Disposal Regulations to WIPP. Section 191.14(b) requires monitoring. But EPA has now issued a rule that affords no meaningful criteria at all for judging monitoring efforts and, further, which allows nullification of the requirement that Congress directed to be "in effect" and that was supposed to be the subject of criteria. Such a rule is contrary to the legislative direction and invalid. Compare API, 996 F.2d at 351.

II. Several rules were based on matters communicated in secret OMB-EPA-DOE discussions, precluding public comment on the matters communicated. The rules on credit for the effects of passive institutional controls, quality assurance for existing data, peer review, and preclosure monitoring were modified without the essential opportunity for public input.

EPA changed several rules based on private discussions among DOE, OMB, EPA, and contractors for DOE and EPA. The discussions are disclosed in part in EPA file memoranda, most of which were added to the docket pursuant to the Court's order dated October 3, 1996. IV-H-2, IV-H-8 through -13. Matters communicated in these post-comment discussions plainly induced EPA to change several Compliance Criteria. EPA's memo states:

[T]he following list is provided of substantive changes made between the EPA draft final rule submitted to OMB/OIRA for review on 11/28/95 and the final rule subsequently

signed by EPA on 1/31/96. All substantive changes were suggested during the OMB/OIRA process

IV-H-7, cover memo at 1.

EPA then lists the revisions allowing credit for PICs and reducing requirements for quality assurance as to old data, peer review, and for pre-closure monitoring. Id.

Congress has assigned EPA, not OMB, and certainly not DOE, the regulated entity, to propose and issue Compliance Criteria. Here, public processes were held, and with public input (including input from DOE) EPA arrived at its own decisions as to the necessary Compliance Criteria. Then secret meetings were held, at which DOE, the regulated entity, made new arguments for regulatory changes, which were not exposed to public comment and EPA responses, and the requested changes were made to accommodate DOE. The situation is analogous to the NRC holding secret meetings with a nuclear license applicant outside the public review process, on the basis of which licensing decisions were changed to suit the applicant.

But DOE and OMB have no congressional mandate to issue these regulations and no standards to guide them in doing so. In fact, it is clear from the legislative history that Congress meant to prevent DOE from acting as the judge of its own compliance and instead to ensure that these decisions would be aired and made in a public, responsive process in which DOE could participate on the public record. Yet DOE has returned as de facto self-regulator.

Thus, Congress clearly was disturbed by DOE's position as judge of its own environmental performance: "Essentially, DOE would prefer to self-regulate the WIPP project. We cannot allow this. If there is anything that we can learn from the

environmental nightmare that has been created over the past decades at the DOE weapons complex, it is that self-regulation is a prescription for environmental disaster." 125 Cong. Rec. H6305 (daily ed. July 21, 1992) (Statement of Rep. Miller, a principal sponsor). Again: "Without removing DOE's ability to regulate itself, I am convinced that DOE will continue to cut corners and manipulate the system to further its own institutional objectives to the detriment of taxpayers, scientific integrity, and the need to find a permanent solution to the nuclear waste problem." 125 Cong. Rec. H6306 (daily ed. July 21, 1992) (Statement of Rep. Synar). Therefore, the WIPP Act "firmly seats the [EPA] in place as primary regulator and overseer of" WIPP. 125 Cong. Rec. H6305 (daily ed. July 21, 1992) (Statement of Rep. Spratt).

Even in situations without such clear expressions of congressional intent, this Court has expressed concern as to the role of other agencies in rulemakings assigned to environmental enforcers:

OMB's participation in the EtO rulemaking presents difficult constitutional questions concerning the executive's proper role in administrative proceedings and the appropriate scope of delegated power from Congress to certain executive agencies. Courts do not reach out to decide such questions. See Ashwander v. Tennessee Valley Authority, 297 U.S. 288, 346, 56 S.Ct. 466, 482, 80 L.Ed. 688 (1936) (Brandeis, J., concurring). Since we have determined that OSHA's decision on the STEL cannot withstand our statutory review, we have no occasion to reach the difficult constitutional questions presented by OMB's participation in this episode.

Public Citizen Health Research Group v. Tyson, 796 F.2d 1479, 1507 (D.C.Cir. 1986).

Here, likewise, there are serious violations of the congressional delegation to EPA, particularly in DOE's pre- and post-comment special rights to influence the Compliance Criteria. The Court should find such result unlawful, and constitutionally unsupportable, if it is not deemed defective on other grounds.

Not surprisingly, with a process as divorced from Congress's design as this one, there are other severe defects. Since the public was excluded from the privileged access which allowed DOE to influence the rules for determining its own compliance, the subverted process violated APA rulemaking requirements.

Under the APA, EPA must "make available to the public, in a form that allows for meaningful comment, the data the agency used to develop the proposed rule." American Medical Ass'n v. Reno, 57 F.3d 1129, 1133 (D.C.Cir. 1995); Engine Mfrs. Ass'n v. EPA, 20 F.3d 1177, 1181-82 (D.C.Cir. 1994); Anne Arundel County v. EPA, 963 F.2d 412, 418 (D.C.Cir. 1992). Thus, "factual or methodological information which is critical to a proposed rule should be available in such a way as to provide an adequate opportunity for comment." Sierra Club v. Costle, 657 F.2d 298, 397 n.484 (D.C.Cir. 1981). The Court will not sustain a rule which is "based upon a complex mix of controversial and uncommented upon data and calculations." Solite Corp. v. EPA, 952 F.2d 473, 500 (D.C.Cir. 1991); American Iron & Steel Inst. v. OSHA, 939 F.2d 975, 1010 (D.C.Cir. 1991); Weyerhaeuser Co. v. Costle, 590 F.2d 1011, 1031 (D.C.Cir. 1978); Association of Data Processing Serv. Orgs. v. Board of Governors, 745 F.2d 677, 684 (D.C.Cir. 1984); Ober v. EPA, 84 F.3d 304, 312-13 (9th Cir. 1996). This principle has been violated in several particulars by the secret review process.

a. Credit for the effectiveness of PICs (\$194.43(c))

Before the private discussions with DOE, EPA reported the conclusion that there is "no justifiable rationale or methodology," IV-H-1, preamble at 37, to calculate the effectiveness of PICs, and EPA had decided that "the uncertainty surrounding any forecast of the effectiveness of PICs is great enough that awarding credit for their use, in any amount, could not be justified." Id.

In the post-comment discussions DOE asserted that "it should be assumed that [PICs] will be effective," IV-H-2 at 2, and later claimed as fact that "PICs could be effective for 1000 years or more," IV-H-8 at 2. Again, "DOE suggested that PICs could be effective over very long time frames." IV-H-9 at 1. EPA itself stated as fact that "depending on the measures, PICs could be partially effective in reducing human intrusion over several hundred years." Id. Further, "EPA indicated that it would entertain credit for PICs but only within these constraints." Id. Later, EPA stated that "the Agency believes that PICs could be effective in the near term (i.e., several hundred years after closure)." IV-H-10 at 2. Still later, DOE referred to a stated EPA position that PIC credit would be limited to 300-700 years. IV-H-12 at 1. After the discussions EPA asserted, contrary to its previous view, that it could calculate such "credit," and specifically, such credit would be available for "several hundred years," and, to be exact, up to "700 years." IV-H-7, rule at 44, preamble at 37. The statements by DOE and by EPA reflect claims of fact, and conclusions from facts, which underlie the final rule.

Public comment on these matters should have been permitted. Comments would have pointed out that there is no basis to conclude

that PICs can be shown effective for several hundred (or 300 to 700) years. EPA would have been required to respond to such comments, acknowledging their validity, and the final rule might have excluded PIC credit. But, because these issues were introduced in the post-comment discussion with DOE, comment was prevented, contrary to the APA.

b. Quality assurance for existing data §194.22(b)

In the private discussions "DOE expressed concern regarding alternative methodologies for assuring the quality of existing data." IV-H-12 at 2. Evidently DOE made claims about DOE's ongoing program retroactively to qualify "old data." IV-E-1, Tr. of Feb. 16, 1995, at 19-30.

Petitioners do not know precisely what DOE asserted. However, if it had been publicly stated, and EPA had allowed comment on the new matters communicated, EPA would have been required to respond to the comments. Instead, EPA was persuaded to revise §194.22(b) to permit after-the-fact qualification of "old data" by the DOE process, rather than a contemporaneous QA "program." The public had no opportunity to comment on the information that persuaded EPA to make that change, in violation of the APA.

c. Peer review (§194.27)

Peer review is the review of and reporting upon scientific work by persons of equal competence, to shed light on judgments underlying the original work. III-B-1(h) at 2-4. EPA's own advisory committee advised EPA that sensitivity analysis, based on PA, is useful in defining the scope of peer review. IV-E-5 at 4-3. In apparent response, EPA's final internal draft called for peer review, inter alia, of "[a]ny other decisions or interpretations

that have been made with significant scientific uncertainties and that are important to compliance with the disposal regulations." IV-H-7, rule at 33-34.

Yet DOE asserted as fact in the post-comment private discussions that "all programmatic decisions and interpretations are important to compliance and would thus require peer review." IV-H-2; see also IV-H-6 at 2, IV-H-8. DOE thus induced EPA to delete peer review of decisions "important to compliance." IV-H-7, rule at 33.

Had DOE's statements been made publicly and comment permitted, commenters could have pointed out that EPA's NACEPT committee itself had recommended that peer review be directed by sensitivity studies, which identify important data, IV-E-5 at 4-3, and that EPA's draft rule was not so all-encompassing as DOE alleged. EPA would have been required to respond to such points, conceding their correctness. But the process was not public, and EPA deleted the requirement of peer review of important decisions. The APA process was violated.

d. Pre-closure monitoring (§194.42(c))

EPA's final draft called for pre-closure monitoring of brine quantity, flux, composition, and spatial distribution; gas quantity and composition; temperature distribution; and any other parameter significant to the containment of waste, as identified in a study. IV-H-1, rule at 39. DOE in the post-comment discussions asserted that DOE "cannot determine the specific parameters that should be monitored prior to submittal of the compliance application, and that these parameters may be identified only after sensitivity analyses are conducted." IV-H-2 at 2 (emphasis supplied). DOE

argued that the rule should not specify monitoring parameters. IV-H-8 at 2. EPA responded that it would reconsider the rule and "recognized the reasonableness in first requiring DOE to analyze parameters." Id.

The final rule accepts DOE's assertions, calls only for pre-closure monitoring of parameters shown to be significant in the study, and specifies no mandatory parameters. 40 C.F.R. §194.42(c). Had EPA made public DOE's assertion that DOE "cannot determine" monitoring parameters before the very submission of its application, public comment could have pointed out that the sensitivity study, and any other necessary study, could have been prepared well before submission of the application, and monitoring parameters could have been contained in the rule. EPA would have been required to agree with such comments and might not have issued a rule which assumed the contrary. But the public process was not conducted, and the rule was issued on an erroneous premise and in violation of the APA.

III. EPA violated the APA in adopting other rules without opportunity for public comment on the decisive considerations. The rules as to the PA consideration of future mining, the parameters of future drilling, PA consideration of well injection, and the measurement of the radionuclide inventory were adopted in violation of the APA.

It is fundamental that EPA must first propose a rule with sufficient clarity to enable the public to comment. In 1987, the First Circuit vacated the Disposal Regulations, inter alia, because EPA had not publicly proposed certain rules, making it "impossible for the public to offer useful comment as to the scope of

protection that the new rule should provide." NRDC v. EPA, 824 F.2d at 1285.

The requisites of rulemaking notice are:

1. "Notice of a proposed rule must include sufficient detail on its content and basis in law and evidence to allow for meaningful and informed comment." AMA, 57 F.3d at 1132-33; Kooritzky v. Reich, 17 F.3d 1509, 1513 (D.C.Cir. 1994).

2. Notice must include "sufficient factual detail and rationale for the rule to permit interested parties to comment meaningfully." American Water Works Ass'n v. EPA, 40 F.3d 1266, 1274 (D.C.Cir. 1994), quoting Florida Power & Light Co. v. United States, 846 F.2d 765, 771 (D.C.Cir. 1988), cert. denied, 490 U.S. 1045 (1989); Engine Mfrs., 20 F.3d at 1182-83; McLouth Steel Prods. Corp. v. Thomas, 838 F.2d 1317, 1322-23 (D.C.Cir. 1988). EPA must "disclose in detail the thinking that has animated the form of the proposed rule." Home Box Office, Inc. v. FCC, 567 F.2d 9, 35 (D.C.Cir. 1977), cert. denied, 434 U.S. 829 (1977).

3. It is insufficient simply to announce that a rule may be adopted; rather, EPA must "describe the range of alternatives being considered with reasonable specificity. Otherwise, interested parties will not know what to comment on, and notice will not lead to better-informed agency decision-making." Horsehead Resource Dev. Co. v. Browner, 16 F.3d 1246, 1268 (D.C.Cir. 1994), cert. denied, 115 S.Ct. 72 (1994); Small Refiner Lead Phase-Down Task Force v. EPA, 705 F.2d 506, 549 (D.C.Cir. 1983). Notice must be clear and to the point. McLouth, 838 F.2d at 1323.

4. Notice must include the data the agency used to develop the proposed rule. AMA, 57 F.3d at 1133. "An agency commits

serious procedural error when it fails to reveal portions of the technical basis for a proposed rule in time to allow for meaningful commentary." Id., quoting Connecticut Light & Power Co. v. NRC, 673 F.2d 525, 530-31 (D.C.Cir. 1982), cert. denied, 459 U.S. 845 (1982).

5. Further public comment must be invited if the final rule is not a "logical outgrowth" of the proposal, i.e., if "a new round of notice and comment would provide the first opportunity for interested parties to offer comments that could persuade the agency to modify the rule." American Water Works, 40 F.3d at 1274; Anne Arundel, 963 F.2d at 418; Shell Oil Co. v. EPA, 950 F.2d 741, 751 (D.C.Cir. 1991); Fertilizer Inst. v. EPA, 935 F.2d 1303, 1311-12 (D.C.Cir. 1991).

Here, EPA has violated these requirements as to several of the Compliance Criteria.

a. The mining rule (§194.32(b))

The impact of future mining is to be considered in PA only under highly restricted rules, which were adopted without public comment. EPA's 1994 preliminary draft did not refer to mining, II-C-1 at 22-24, and commenters objected. E.g., II-D-25 at 14. EPA's internal draft proposal included mining, III-B-1(b) at 52, 104-05, but after the private discussions with DOE, see IV-D-1, enc. 2 at 20-21, mining was eliminated. 60 Fed. Reg. 5776, 5774.

Commenters protested, IV-F-1, Vol. 3 at 115; IV-D-41 at 18, 20-22, pointing out that EPA staff had emphasized the need to evaluate mining of potash, salt, or chlorine above, at, or below the repository and also horizontal exploratory drilling, Id. at 22, and adding that solution mining for minerals and for brine

production, fluid storage, or fluid disposal should be considered. Id.; see also IV-D-39 at 6-7, IV-D-49 at 6-7, IV-G-4 at 2.

The final rule calls for PA analysis of mining, but "limited to changes in the hydraulic conductivity of the hydrogeologic units of the disposal system from excavation mining for natural resources." 40 C.F.R. §194.32(b). Thus, solution mining, surface mining, horizontal drilling, and mining for fluid storage are not to be considered.

EPA explained at length that the final rule emerged from extensive study and contains specific modeling requirements limited to hydraulic conductivity of overlying strata:

The Agency has conducted a review of the data and scientific literature discussing the effects mining can induce in the hydrologic properties of a formation. Based on its review of available information, the Agency expects that mining can, in some instances, increase the hydraulic conductivity of overlying formations by as much as a factor of 1,000, although smaller or even negligible changes can also be expected to occur. Thus, the final rule requires DOE to consider the effects of mining on performance assessments. In order to consider the effects of mining in performance assessments, DOE may use the location-specific values of hydraulic conductivity, established for the different spatial locations within the Culebra dolomite, and treat them as sampled parameters with each having a range of values varying between unchanged and increased 1,000-fold relative to the value that would exist in the absence of mining.

61 Fed. Reg. 5224, 5229.

During the EPA-OMB-DOE review, EPA made the rule even more specific:

Assessments of mining effects may be limited to changes in the hydraulic conductivity of the hydrogeologic units of the disposal system from excavation mining for natural resources.

Mining shall be assumed to occur with a one in 100 probability in each century of the regulatory time frame. Performance assessments shall assume that mineral deposits of those resources, similar in quality and type to those resources currently extracted from the Delaware Basin, will be completely removed from the controlled area during the century in which such mining is randomly calculated to occur. Complete removal of such mineral resource shall be assumed to occur only once during the regulatory time frame.

40 C.F.R. §194.32(b).

Thus, EPA also determined that (a) the past 100 years of mining activity provides the relevant time period for establishing a frequency of mining, (b) the Delaware Basin provides a relevant sample area to establish the frequency of mining, (c) mining in the "immediate vicinity" of WIPP in the past 100 years has covered roughly one percent of the area of the Delaware Basin, (d) PA should assume that, if mining occurs in the controlled area, no further mining will occur, and (e) the mined area should be assumed to be the area of mineral deposits similar in quality and type to those currently mined. 61 Fed. Reg. 5224, 5229. EPA said that such specificity would:

avoid unbounded speculation that would result from the high uncertainty regarding whether, where and how mining would occur in the Land Withdrawal area. EPA's decision was based on a desire to include mining in performance assessment in a realistic fashion without recourse to such unconstrained speculation.

61 Fed. Reg. 5224, 5233.

EPA's 1996 Background Information Document ("BID"), which accompanied the final rule, contains 47 pages about mining, none of which was foreshadowed in the 1995 BID accompanying the proposal. V-B-1 at 9-23 through 9-70. The 1996 BID discusses, for the first

time, potash mining practices, location of potash zones, areas of "BLM Lease Grade" potash in the land withdrawal area, id. at 9-26; potash reserves of the Known Potash Leasing Area based on current prices, id. at 9-28; history of potash mining, id. at 9-29; and areas of potash reserves and mining, id. The 1996 BID reviews studies of effects of mining, id. at 9-32 through 9-38, and reports on modeling the effect of mining on hydraulic conductivity in the overlying strata, id. at 9-38 through 9-62. It also reports detailed technical studies justifying exclusion from PA of solution mining, id. at 9-60; change in flow direction, id. at 9-63; recharge impact, id. at 9-62, impacts on hydraulic gradient, id. at 9-67; shaft seal damage, id. at 9-68; and Salado conductivity effects, id.

EPA on January 24, 1996 through February 2, 1996, i.e., just before and immediately after the final rule was published, also docketed:

1. "Geologic Issues at the Waste Isolation Pilot Plant," August 30, 1994, which relates catastrophic mining subsidences and concludes that without "controlled studies in the WIPP area it is not possible at this time to quantitatively estimate the effect of subsidence" at WIPP. IV-A-4 at 2-3 to 2-7.

2. Another EPA contractor report, dated August 25, 1995, stating that "low standard" potash reserves "actually lie over the northwest corner of the repository footprint." IV-A-3 at 2 and Fig. 3.

3. An EPA staff memorandum, dated January 31, 1996, concluding, in contrast, that there is "no minable potash immediately above the planned waste panels The lack of

potash rules and scenarios that would involve direct connections between a potash mine and the waste panels." IV-B-7 at 1.

Clearly, EPA's mining model, described for the first time in the final rule, is subject to severe criticism. To project the frequency of mining in the potash-rich area surrounding WIPP based on the area of the entire Delaware Basin is indefensible. 61 Fed. Reg. 5224, 5233. To project that over 10,000 years mining will only occur in deposits profitable to mine now, and to anticipate only one mining event in 10,000 years are equally irrational. To omit to consider flow paths through mine workings, solution mining, horizontal drilling, fluid storage, and hydrologic effects other than transmissivity, and to disregard effects on recharge, flow direction, hydraulic gradient, shaft seals, and Salado conductivity simply ignores foreseeable risks.

However, there was no public notice of the mining rule and thus no opportunity for such criticisms; nothing was said in the proposal about its content or rationale or the range of alternatives -- except that EPA had decided not to have a mining rule. 60 Fed. Reg. 5766, 5774. Moreover, the data that EPA used to develop its mining rule were identified for the first time when the final rule was issued.

EPA may not adopt a new model for testing environmental compliance without allowing public comment. McLouth, 838 F.2d at 1322-23. EPA's failure to disclose the alternatives being considered left interested parties with nothing to comment on. Horsehead, 16 F.3d at 1268.

Further, an agency must also disclose "the data the agency used to prepare the proposed rule." AMA, 57 F.3d at 1133, quoting

Engine Mfrs., 20 F.3d at 1181. In AMA the agency declined to reveal the reasoning and data that underlay its calculation of cost assessments. In American Water Works, 40 F.3d at 1274, EPA failed to reveal the rationale under which it later deemed water systems to control service lines. In Engine Mfrs. EPA had not revealed the reasoning and data underlying its allocation of costs of engine testing. In Horsehead EPA had failed to disclose that it was considering the regulatory option that it later settled upon. Depriving the public of the technical data relied upon was deemed to be a "serious procedural error." AMA, 57 F.3d at 1133. The same conclusion must be reached here. EPA's mining rule "does not even come close to complying with the notice requirement of §553." Kooritzky, 17 F.3d at 1513.¹³

b. Parameters of future drilling: sample area (\$194.2)

EPA has determined that PA should use historical drilling rates to project the frequency of future drilling. 61 Fed. Reg. 5224, 5230. Such a projection requires (a) a sample area and (b) a sample time period. EPA proposed parameters based on one rationale and ultimately adopted different parameters based on an entirely different rationale. EPA first told the public that EPA would select a sample area containing similar geologic and hydrologic conditions and, specifically, resource potential and, on that rationale, had selected the Delaware Basin:

The Agency solicits comment on how, precisely, the Delaware Basin should be defined. The Agency believes that the Delaware Basin is an

¹³ The logical outgrowth concept has no application here, since "the subject [of mining] is not touched upon in any of the rules proposed," and "[s]omething is not a logical outgrowth of nothing." Kooritzky, 17 F.3d at 1513.

appropriate region because the WIPP is situated within it and, as a region, it represents the largest contiguous area which shares similar geologic and hydrologic conditions with the WIPP site. However, EPA solicits comment on whether a different area should be used (such as a subset of the Delaware Basin).

60 Fed. Reg. 5766, 5774.

When asked, EPA explained further that the Basin was selected because it is "most likely to contain resources comparable in type, quality, and distribution" to those at WIPP. IV-C-1 at 1.

EPA's proposal described the Delaware Basin as an "elongated depression that extends from just north of Carlsbad," 60 Fed. Reg. 5766, 5774, terms which define the Basin to include the Basin rim, which is underlain by the Capitan Reef. See IV-A-2. When asked, EPA said that there is "general agreement" on the boundaries of the Basin, on which reference documents show "slight variations," and EPA cited materials depicting the Basin as including the Capitan Reef area.¹⁴ IV-C-1.

But EPA's final rule defines the "Delaware Basin" to exclude the Capitan Reef. 61 Fed. Reg. 5224, 5236. EPA announced that it had excluded the Reef because it is "more permeable to the flow of water" and was "formed from organic material which differs from the

¹⁴ Figure 6.3-8 of the geological characterization report clearly includes the Capitan Reef within the Basin. Sandia National Laboratories, Draft Site Characterization Report for the Waste Isolation Pilot Plant (WIPP), Southeastern New Mexico, Report No. SAND78-1596, Vol. 2 (1978). Figure 3.4-1 does likewise. Id., Vol. 1. The Hills report includes a map and cross sections showing that the author considered the Capitan Reef to be within the defined Delaware Basin (figures 1-4). John M. Hills, *Sedimentation, Tectonism, and Hydrocarbon Generation in Delaware Basin, West Texas and Southeastern New Mexico*, 68-3, The American Association of Petroleum Geologists Bulletin, 250, 251-256 (1984).

salt formations which immediately surround WIPP." 61 Fed. Reg. 5224, 5234.

The final rule makes it significantly easier for DOE to show compliance. In the proposed sample area the drilling rate over the last 50 years has been at least 59 boreholes per square kilometer per 10,000 years; in the final sample area the 50-year rate has been at least 45 boreholes. IV-A-1 at 4-8, 4-13.

EPA's proposal failed to disclose the rationale which guided its final choice of area or the specific area it selected. Instead, EPA actively misled commenters to believe that the area being considered was the entire Delaware Basin including the Capitan Reef, that such area was selected because it is "similar" to the WIPP site based on its resource potential, that there was general agreement as to the Basin's boundaries, and that no specific alternatives were being considered. EPA never disclosed, in its proposal, that the permeability to water of a rock body or the organic origins of overlying strata were decisive. Such factors have no stated relevance to resource potential, which EPA claimed was the controlling factor.

A proposal must contain "sufficient factual detail and rationale for the rule to permit interested parties to comment meaningfully." American Water Works, 40 F.3d at 1274. Here, there was no opportunity to offer comment on the final rule, because EPA's proposal failed to set forth EPA's rationale or the facts deemed relevant under that rationale, failed to "disclose in detail the thinking that has animated the form of the proposed rule," HBO, 567 F.2d at 35, and utterly failed to "describe the range of alternatives being considered with reasonable specificity,"

Horsehead, 16 F.3d at 1268. EPA's adoption of a drilling area which could not be predicted from the proposal blocked "the possibility of meaningful participation," Horsehead, 16 F.3d at 1268, since "[i]nterested parties cannot be expected to divine the EPA's unspoken thoughts," Shell Oil, 950 F.2d at 751, and the APA was violated.

c. Parameters of future drilling: sample time period §§194.33(b)(3)(i), (4)(i)

EPA proposed a 50-year sample period, explaining that drilling information for such period "can be reasonably obtained." 60 Fed. Reg. 5766, 5774. EPA expressly stated its rationale, viz: to select a time period representing "current rates of drilling." Id. EPA refused to speculate about how drilling rates might change, based upon depletion of existing resources and new resources becoming valuable:

[EPA] recognizes that as one resource becomes depleted, the decrease in exploratory or production operations may be compensated for by an increase in drilling operations for another. Rather than engage in speculation about which resources will become more valuable in the future, and which will become depleted, EPA believes it is preferable to assume that current rates of drilling for each individual resource will remain constant.

Id.

In the final rule, however, EPA overtly changed its rationale, stating that it sought a time period containing a "spectrum of high and low" rates, rather than the "current rates":

While developing the final rule, the Agency recognized that drilling activity has been at a maximum during the past 50 years, whereas during the past 100 years, a broader spectrum of high and low drilling rates can be found. In the long-term future, it can be expected that the drilling rate will consist of periods

of high and low drilling activity which makes the past 100 years a more appropriate period for calculating the drilling rate.

61 Fed. Reg. 5224, 5234.

EPA also stated that EPA believed it "appropriate to use the longest historical record for which reliable drilling data is available." V-C-1 at 12-11. EPA said that it had ascertained that "accurate data on drilling activity dates back 100 years, rather than 50 years as was believed initially." 61 Fed. Reg. 5224, 5234. In announcing the rule, EPA docketed a two-paragraph statement by a staff member, stating that it was possible to find "data from the past 100 years of actual borehole drilling experience." IV-B-6. No data were docketed to support this conclusion.

EPA's final decision substantially eased DOE's compliance burden. A map, IV-A-2, shows that in the Delaware Basin (excluding the Capitan Reef), if the sample period is 100 years, the rate is 45 holes per square kilometer per 10,000 years, but if the sample period is 50 years, the rate is 87 holes per square kilometer per 10,000 years.

Again, EPA's proposal failed to disclose anything approximating the rationale of the final rule. EPA proposed a 50-year period, on the theory that (a) it would represent the "current rates of drilling" and (b) data for a 50-year period are available, 60 Fed. Reg. 5766, 5774, and EPA refused to speculate about "which resources would become more valuable in the future, and which will become depleted." Id. But in the final rule EPA adopted a 100-year period, on the rationale that (a) current rates of drilling are not relevant, because drilling has been at a "maximum during the past 50 years," and in the long-term future "the drilling rate

will consist of periods of high and low drilling activity." 61 Fed. Reg. 5224, 5234. Plainly, drilling rates would only change because of a change in resources values or depletion, about which EPA previously refused to speculate. EPA also said that 100 years is the appropriate sample period, because (b) EPA has discovered that "drilling activity dates back 100 years," 61 Fed. Reg. 5224, 5234, implying that the objective is the longest possible period, not current rates.

EPA's final rule is subject to several criticisms. EPA cited no data to support its expectations as to changing drilling rates, and the only record information about 100-year drilling information is the EPA staff statement that EPA could study drilling "trends" for more than one hundred years, IV-B-6, but nothing says that the information on 100 years of drilling is complete. But, of course, there was no opportunity to offer such comments.

Once more, EPA did not make its final rationale available for public review, contrary to American Water Works, 40 F.3d 1266; AMA, 57 F.3d 1129; Engine Mfrs., 20 F.3d 1177; and Horsehead, 16 F.3d 1246. Public participation and constructive comment were prevented, contrary to the APA.

d. Well injection rules (§§194.33(d), 194.32(c))

Commenters repeatedly stressed the need for PA to analyze well injection, in which pressurized water is pumped into a borehole. II-D-9 at 4, II-D-25 at 14. However, EPA's proposal confined PA analysis to "drilling events," 60 Fed. Reg. 5766, 5788, apparently excluding well injection without explanation. Comments pressed that well injection could cause "dissolution of strata, modified interactions of repository contents, and subsurface releases

through another borehole," IV-D-41 at 2 and that PA should include underground blowouts, waterflooding and salt water disposal, enhanced petroleum recovery, and human-induced crossflow between formations. IV-D-39 at 6-9, IV-D-120 at 18-19.

EPA's approach to well injection was not disclosed until the final rule. EPA then announced that in general PA should assume that current drilling practices prevail in the long-term (10,000 year) future:

Performance assessments shall document that in analyzing the consequences of drilling events, the Department assumed that:

- (1) Future drilling practices and technology will remain consistent with practices in the Delaware Basin at the time a compliance application is prepared. Such future drilling practices shall include, but not be limited to: The types and amounts of drilling fluids; borehole depths, diameters, and seals; and the fraction of such boreholes that are sealed by humans.

40 C.F.R. §194.33(c)(1).

However, EPA announced that PA could omit recovery techniques after the initial borehole, thus assuming that current-day well injection practices would not continue:

With respect to future drilling events, performance assessments need not analyze the effects of techniques used for resource recovery subsequent to the drilling of the borehole.

40 C.F.R. §194.33(d).

At the same time, EPA directed that PA analyze well injection in existing boreholes and the development of any existing leases that can reasonably be expected to be developed in the near future, including boreholes and leases that may be used for fluid injection activities.

Thus, the final rule assumes that, in general, present-day drilling practices continue, because "present-day drilling activities provide the only available basis for making assumptions in performance assessments," 61 Fed. Reg. 5224, 5233, and rejects speculation as to resource depletion: "[W]hile the rate of extraction for [depleted] resources may decrease, the increased rate of drilling for newly discovered resources will compensate for this decline," so that "today's drilling activities act as surrogates for the unknown resources that will be drilled for in the future." Id. Similarly, EPA's proposal expressly rejected "speculation about which resources will become more valuable in the future, and which will become depleted." 60 Fed. Reg. 5766, 5774 (emphasis supplied). But in the final rule EPA rejected present-day well injection practices, on the stated premise that resources extracted by such practices would be depleted:

However, because there is doubt as to whether the resources associated with today's specialized extraction techniques and fluid injection will remain available for 10,000 years, the final rule does not require that performance assessments assume that such extraction activities will occur during the entire regulatory time frame.

61 Fed. Reg. 5224, 5233.

Based on the proposal the public could not have divined that PA consideration of future well injection might be governed by EPA's "doubt" as to resource depletion, 61 Fed. Reg. 5224, 5233-34, nor that well injection on existing leases should be included in PA.

Plainly, much could have been said in comment. No factual basis has been given for the "doubt" as to the availability of oil

for secondary recovery. Further, refusal to consider long-term future well injection conflicts with EPA's reasoning that current mineral activities are a proxy for future minerals activities. 61 Fed. Reg. 5224, 5233. Moreover, it is inexplicable why well injection for waste disposal or solution mining should be tied to the availability of oil. But comment was blocked. Again, "[i]nterested parties cannot be expected to divine the EPA's unspoken thoughts," Shell Oil, 950 F.2d at 751, and the rulemaking violated the APA.

e. Date for determining radionuclide inventory (§194.31)

Under the Disposal Regulations releases of radioactivity are limited in proportion to the radionuclide inventory; thus, to assess compliance, one must know the repository's radionuclide inventory. See 40 C.F.R. §191.13(a) and Appendix A. Since radionuclides decay, the time of determination affects the calculation. Part 191B does not specify the time of determination. Pre-proposal comments had favored calculating the inventory at 100 years after disposal. II-D-25 at 10-11. EPA's proposal acknowledged the "question . . . concerning when the curie content of the waste should be fixed" and proposed the 100 year value, 60 Fed. Reg. 5766, 5773-74; proposed §194.31, 60 Fed. Reg. 5766, 5788. DOE, IV-D-90 at I-14, and its contractors, Sandia, IV-D-10 at 194.31, and Westinghouse, IV-D-81 at 13, objected and sought an earlier date. Others noted that, based on work done for EPA, use of the disposal-time inventory meant that release limits for WIPP would only be 8% to 16% as stringent as for a spent fuel repository, whereas the 100-year inventory would bring the

protections for transuranic waste much closer to those for spent fuel¹⁵. IV-D-120 at 17-18.

EPA told its NACEPT committee that it had at least two options: to calculate inventory at disposal or 100 years after disposal. IV-E-5 at 4-1. The committee reported that, of those with a view, all supported the 100-year value. Id.

But in the final rule, EPA announced that it had no discretion, and that the release limits must be based on the inventory at the time of disposal:

The Agency believes that the disposal regulations were designed to avoid the undue influence of short-lived radionuclides on the size of the release limits. The disposal regulations accomplished this purpose in Appendix A by eliminating the contribution of radionuclides having half-lives of less than twenty years.

61 Fed. Reg. 5224, 5235. See 40 C.F.R. §194.31; 61 Fed. Reg. 5224, 5242.

Plainly, the rationale of the final rule is very different from that of the proposal. Had EPA's final reasoning been disclosed, comment could have pointed out that it does not follow

¹⁵ EPA stated in preparing the Disposal Regulations that it sought to "require alpha-emitting radioactivity from either high-level or transuranic wastes to be isolated with about the same degree of effectiveness." 47 Fed. Reg. 58196, 58200, Dec. 29, 1982. An EPA contractor, Neil Numark, concluded that, using the "transuranic waste unit" (specified in 40 C.F.R. Part 191, Appx. A, Table 1, Note 1(d)), to apply the release limits to transuranic waste, if the inventory is measured at the date of disposal, the release limit for transuranic waste, as compared with spent fuel, is only 12% as stringent at the 100 year point, only 8% as stringent at the 1000 year point, and only 16% as stringent at 10,000 years. Neil J. Numark and Suzanne R. Phelps, *Equivalence to 1000 MTHM of Spent Fuel: Application of 40 C.F.R. Part 191 to Other Wastes* (1992), at 3. Numark suggested various formulas to account for the integrated amount of radioactivity contained in the wastes, considered over the 10,000 year regulatory period. Id. at 5-8.

from Part 191B exclusion of radionuclid with a half-life less than 20 years that only the disposal date may be used in calculating the inventory of other radionuclides.

Thus, EPA again changed its rationale and the resulting rule in the final version. There was no "possibility of meaningful participation." Horsehead, 16 F.3d at 1268. It is not enough that EPA gave notice that a rule on the subject would be issued, because it is insufficient for EPA to give "general notice that it might make unspecified changes" in the proposed rule. Small Refiner, 705 F.2d at 549. Rather, EPA must describe the rule with "sufficient detail on its content and basis in law and evidence to allow for meaningful and informed comment." AMA, 57 F.3d at 1132. That was not done, and the process violated the APA.

IV. EPA applied an unreasonable construction of the WIPP Act, and acted arbitrarily and capriciously, in adopting rules for the performance assessment which, curtail public participation, allow credit for passive institutional controls, limit the future well injection to be considered in PA, and fix the level of assurance for a showing of compliance.

"If the statute is silent or ambiguous with respect to the specific issue, the question for the court is whether the agency's answer is based on a permissible construction of the statute." Chevron, 467 U.S. at 843. The Court may then defer to the agency's interpretation, but it cannot accept an interpretation which is unreasonable. Id. at 864-65. EPA in several instances has failed to meet that standard.

Further, "Chevron review and arbitrary and capricious review overlap at the margins," Independent Petroleum Ass'n of America v. Babbitt, 92 F.3d 1248, 1258 (D.C.Cir. 1996). Thus, in promulgating

rules EPA may not act arbitrarily and capriciously or in violation of statute. Arent v. Shalala, 70 F.3d 610, 616 (D.C.Cir. 1995). The question here is whether EPA "was guided by the proper statutory factors, provided a reasoned explanation demonstrating reliance on those factors, and reached a determination in keeping with the statutory intent." Id. at 612. The Court must also "ensure that the [EPA] has examined the relevant data and articulated a satisfactory explanation for its action based on the materials that were before the [EPA]," Atlantic Tele-Network, Inc. v. F.C.C., 59 F.3d 1384, 1389 (D.C.Cir. 1995). See also National Treasury Employees Union v. Helfer, 53 F.3d 1289, 1292 (D.C.Cir. 1995) (Court inquires whether agency "considered the relevant factors and explained the facts and policy concerns on which it relied, and whether those facts have some basis in the record."). EPA has also failed to meet that standard.

a. Public participation (§194.61)

EPA has committed itself to "involve the public throughout the Agency's regulatory oversight at the WIPP." 60 Fed. Reg. 5766, 5781. EPA has specifically stated that its public participation rules "bind[] the Agency to provide opportunities for public input -- written comments and public hearings -- at critical junctures in the certification rulemaking process." V-C-1 at 20-1. However, EPA's rules are completely at odds with its stated objectives.

There are several "critical junctures" in the certification process. At some point, EPA will notify DOE whether "a complete application in accordance with this part [Part 194] has been received." 40 C.F.R. §194.11. In addition, "[s]hould DOE's initial submission be incomplete, the Administrator will explain

the nature of the deficiency and will request DOE to submit further information until the Administrator has notified the Secretary that all materials necessary for a complete application have been received." 61 Fed. Reg. 5224, 5226. EPA may also request additional information from DOE at any time. WIPP Act §8(d)(1), as amended by Pub.L No. 104-201, §3187, 110 Stat. 2422, 2852 (1996).

The completeness determination is critical, because if the application is deemed complete, such finding determines the content of the material to be considered in assessing compliance. Further, the statutory one-year period for determining compliance begins when EPA determines that the application is complete. 40 C.F.R. §194.11. Another critical stage is supplementation of the application, because it puts new material into the decision-maker's hands.

But under EPA's rules the public role is limited to a single comment period before a proposed decision. Thus, EPA "[u]pon receipt of a compliance application . . . will publish in the Federal Register an Advance Notice of Proposed Rulemaking announcing that a compliance application has been received, soliciting comment on such application," and providing a comment period of 120 days. 40 C.F.R. §§194.61(a), (c).

Critically, therefore, the §194.11 process of Agency completeness review and DOE supplementation of the application is out of phase with the §194.61 process of public input. EPA may make its completeness determination(s) before the public has submitted comments pursuant to the 120-day comment period, or after such comment period, and after DOE has supplemented its application, making previous comments irrelevant. EPA has not

committed to waiting public comment even reviewing any submitted comment when it makes its completeness determination. Most critically, the rules clearly do not call for public comment on supplementary material submitted by DOE, which may be submitted after a determination of incompleteness, in response to an EPA request under §8(d)(1) of the WIPP Act, or spontaneously. Under the Compliance Criteria, DOE may even postpone supplementation until after the 120-day public comment period, to preclude comment.

Comments pointed out that the public should be able to comment on the question of incompleteness, that DOE is likely to supplement its application, and that the public should be able to comment on such supplements. Such procedures would have been easy to adopt. II-D-25 at 20-22, IV-D-41 at 36-40, IV-D-49 at 13-15, IV-D-120 at 28. EPA has said only that it will decide under undisclosed standards whether the application is complete and that the public is free to comment on completeness, but EPA has never explained how the rules ensure that EPA will await and consider public comment on completeness, or why the rules do not expressly afford that opportunity. V-C-1 at 20-1, 20-7, 20-12, 20-13. EPA has also never stated how the public may expect to comment on supplementation of the application. Id. at 20-7. Indeed, EPA has stated that "[i]f EPA determines a final compliance application 'complete,' then the compliance application will be subject to public notice-and-comment rulemaking procedures," id. But this is simply untrue, because, as noted above, EPA may find completeness based on DOE's submissions made well after the 120-day public comment period.

Thus, as framed, the 120-day public comment period, §194.61, assertedly to allow "early input into EPA's certification decision," 61 Fed. Reg. 5224, 5782, completely disregards the EPA process, under which EPA will proceed (a) at an unannounced time and pursuant to unstated standards to ascertain whether DOE's application is "complete," §194.11; (b) to request DOE to submit further materials needed to make it complete, 61 Fed. Reg. 5224, 5226; (c) to receive additional submissions from DOE at indeterminate future times; (d) at an indeterminate time to determine whether "all materials necessary for a complete application have been received," 61 Fed. Reg. 5224, 5226; and (e) ultimately to conclude based on all DOE submissions whether certification should be granted. There is no provision which ensures that the public may participate in any of these vital stages of that EPA process.

The public participation rules threaten to do exactly the opposite of their stated purpose; they will ensure that the public does not have an opportunity for input on EPA's certification decision. For EPA's critical decisions will take place when at best the public does not know whether comments will be entertained by EPA and at worst the public cannot comment at all, because the comment period will have expired.

Agency action is arbitrary and capricious if the agency fails to "examine the relevant data and articulate a satisfactory explanation for its action including a rational connection between the facts found and the choice made." Arent, 70 F.3d at 616, quoting Motor Vehicle Mfrs. Ass'n. v. State Farm Mutual Ins. Co., 463 U.S. 29, 43 (1983). When an agency offers an explanation for

its action that runs counter to the evidence before the agency, or is so implausible that it could not be ascribed to a difference in view or the product of agency expertise," id., it violates the APA. Here, EPA has issued a rule that, contrary to the comments of many intensely interested members of the public, ignores both the timing and the standards for deciding completeness, allows public comment only on the application as it stands within 120 days of EPA's announcement of filing, bars comment thereafter no matter how significant the supplements filed by DOE, and thus cuts the public out of the formulation of EPA's initial published decision on compliance. Such a rule cannot be explained by EPA's stated purpose, -- to "provide opportunities for public input -- written comment and public hearings -- at critical junctures in the certification rulemaking process," V-C-1 at 20-1, and plainly is not "based on consideration of all aspects of the problem," Achernar Broadcasting Co. v. FCC, 62 F.3d 1441, 1447 (D.C.Cir. 1995), and disregards reasonable alternatives.

b. Credit for the effectiveness of PICs

DOE has repeatedly sought relief from the obligation to consider the impact of human intrusions in PA. Specifically, DOE has asked EPA to give weight to the "judgment" of DOE "experts" on the effectiveness of "passive institutional controls" or "PICs," and to discount the probability of drilling and mining. Part 191B requires PICs, 40 C.F.R. §191.14(c), and does not include a risk discount or credit based on PICs.

The problem of quantifying the effect of PICs has never been solved. A subcommittee of EPA's Scientific Advisory Board discussed the problem in 1983; EPA's staff member did not know what

credit would apply, and committee members were equally "at sea." IV-D-120 at 24. When it issued Part 191B EPA had no method to calculate credit. Id.

On circulating its preliminary draft of Part 194, EPA listed its first concern as how to calculate the effectiveness of PICs:

Passive institutional controls. To what extent, if any, and for how long can passive institutional controls be relied on to reduce the likelihood of inadvertent, intermittent human intrusion into the waste disposal system? Is it appropriate for performance assessments to consider contributions from passive institutional controls? If so, how would one ascertain the validity of such contribution?

II-C-1.

EPA's preliminary draft did not provide for credit. Id. at 26-27. DOE requested credit but proposed no method. II-D-32, enc. 1, at 1. Commenters stated that no method exists. II-D-25 at 15-16, II-D-29 at 1-2. EPA internally determined not to allow credit. III-B-1(b) at 137-39.

In OMB review DOE campaigned for credit, which DOE claimed could be quantified by "expert judgment." III-B-1(d)(iii) at 8. EPA's public proposal allowed credit for the effectiveness of PICs -- if "justified," 60 Fed. Reg. 5766, 5789; 40 C.F.R. §194.43(c) -- but stated no method.

Comments pointed out that to calculate whether PICs will survive and deter intruders in the distant future requires prediction of, e.g., (1) whether current languages will be understood, (2) whether people will understand radioactivity, (3) whether people will destroy or recycle monuments, (4) drilling and mining technology, (5) drilling and mining motives and incentives,

and (6) govern it and private institutio controlling drilling and mining. IV-D-41 at 31-32.

In February 1995, EPA held a technical workshop concerning, inter alia, credit for PICs. EPA emphasized the "vast range" of past expert estimates of the effectiveness of PICs:

The DOE, through Sandia National Laboratories (SNL) in Albuquerque, N.M., convened an expert panel in 1991-92 to study marker development for the WIPP. The panel was divided into two teams, each of which was asked to develop a marker system that could conceivably survive for 10,000 years. In addition, the teams developed survival probability estimates for time intervals less than 10,000 years. The probability of survivability and understandability ranged from one percent to 99.9 percent, depending on the panel member, the length of time, and the assumed technological sophistication of the future society. This vast range suggests that EPA will have difficulty determining the effectiveness of passive institutional controls and establishing a basis for giving credit . . .

U.S. EPA, Evaluating Passive Institutional Controls, at 2 (1995). EPA explicitly challenged DOE to supply a valid method to quantify credit:

DOE's challenge is to formulate a clear, consistent, and credible rationale for justifying the amount of credit that DOE's system of controls deserves. The methods chosen by DOE must: 1) estimate the ability of the passive institutional controls to survive and be understood over different time periods, and 2) quantify the probability of success at different time intervals.

Id. at 2-3 (emphasis supplied).

See also IV-E-1, Tr. of Feb. 14, 1995, at 226-28. Presenters at the workshop included authors of DOE reports on the subject, but no one presented a method to calculate credit, except to ask supposed experts. Id. at 33-35, 40-41, 110-11, 265-67. The EPA

representative flatly stated that DOE's previous work, Sandia National Laboratories, Expert Judgment on Inadvertent Human Intrusion into the Waste Isolation Pilot Plant, Report No. SAND90-3063 (1991); Sandia National Laboratories, Expert Judgment on Markers to Deter Inadvertent Human Intrusion into the Waste Isolation Pilot Plant, Report No. SAND92-1382 (1993); IV-E-1, Tr. of Feb. 14, 1995 at 237-38.

EPA asked its NACEPT subcommittee for "advice . . . on whether credit should be given for the use of [PICs] at the WIPP. Credit would be awarded as a percentage reduction in the predicted drilling rate that would be used in performance assessments." The committee concluded: "[T]here is no quantitative way to estimate a credit against the drilling rate." IV-E-5 at 4-1, 4-2.

Accordingly, EPA's internal final draft allowed no credit, IV-H-7, rule at 43-44; the draft preamble stated that the NACEPT committee had "concluded that no justifiable rationale or methodology existed with which to determine the percentage by which PICs might reduce the drilling rate," id., preamble at 47. Thus, EPA concluded, "awarding credit for their use, in any amount, could not be justified." Id.

As noted above, however, in OMB-EPA-DOE review, EPA relented and agreed to allow credit for up to several hundred years. Id., rule at 44. EPA also struck the preamble reference to the NACEPT committee's conclusions and said only that the committee had "expressed concern about the availability of a rigorous method" to determine credit. 61 Fed. Reg. 5224, 5231.

As issued, the rule authorizes EPA to allow "credit, in the form of reduced likelihood of human intrusion," based on a showing

that PICs "are expected to endure and be understood by potential intruders." 40 C.F.R. §194.43(c). EPA also announced that such credit would be available for "several hundred years," id., and, to be precise, up to "700 years." 61 Fed. Reg. 5224, 5231. EPA did not explain the basis for the 700 year limit, and the preamble states that credit can only be determined through "informed judgment." 61 Fed. Reg. 5224, 5232. Further, EPA expressly "agrees with the NACEPT Committee that no rigorous and non-speculative method is available to determine the appropriate amount of credit for PICs." Id.

Thus, EPA has wrestled with the problem of the lack of method to quantify the effect of PICs for more than a decade and has never solved it. Instead, it has thrown in the towel under pressure from DOE and issued a rule which states no method at all. Moreover, the single specific limit on the allowable credit -- the 700 year limit -- was seemingly plucked out of thin air, and no facts have been cited to support it.

EPA's action thrusts outright speculation into the certification process and does not qualify as "reasoned decisionmaking." EPA has offered no reasoned statement of the method it will use to quantify the effect of PICs, and it has totally failed to articulate the basis for the 700 year limit. But, "[w]here the agency has failed to provide a reasoned explanation, . . . [the Court] must undo its action." Petroleum Communications, Inc. v. FCC, 22 F.3d 1164, 1173 (D.C.Cir. 1994). Thus, a "rule without a stated reason is necessarily arbitrary and capricious." National Recycling Coalition, Inc. v. Browner, 984

F.2d 1243, 1252 (D.C.Cir. 1993). See also Alliance for Cannabis Therapeutics, Inc. v. DEA, 930 F.2d 936, 941 (D.C.Cir. 1991).

Nor may EPA support its rule by speculating that somehow "expert judgment" in the future, 61 Fed. Reg. 5224, 5232, will solve the problem of the lack of any reasonable method. So-called "expert judgment" cannot substitute for data in the record. City of Brookings Mun. Tel. Co. v. FCC, 822 F.2d 1153 (D.C.Cir. 1987), overturned a ratemaking regulation adopted without factual support and resting in part on supposed "expert judgment." Id. at 1159-60.

Comments pointed out that EPA had stated no method for quantifying credit. EPA made no response. V-C-1 at 15-4 to -7, 15-9. Similarly, in City of Brookings, 822 F.2d at 1167, the agency had entirely failed to explain "why the shortcomings pointed out with such scorching heat by petitioners did not lead to seriously flawed results." The Court was "forced to conclude that the FCC acted irrationally in glossing over gaping holes." Id. at 1168.

This Court has refused to sustain regulations where the agency has declined to respond to fundamental questions raised in the record and by public comments. Consumer Federation, 83 F.3d at 1506 (agency's explanation "simply too terse to support the agency's decision."); Oxy U.S.A., Inc. v. FERC, 64 F.3d 679, 693 (D.C.Cir. 1995) (agency "present[ed] no data" to support its rule.). See also Dickson v. Secretary of Defense, 68 F.3d 1396, 1405 (D.C.Cir. 1995) ("boilerplate language . . . makes it impossible to discern the Board's 'path'"); Dr. Pepper, 991 F.2d at 865 (agency's action "leaves too many questions unanswered to qualify as reasoned decisionmaking"); American Mining Congress v.

EPA, 907 F.2d 1179, 1191 (D.C.Cir. 1990) ("the points raised in the comments were sufficiently central that agency silence . . . demonstrate[s] the rulemaking to be arbitrary and capricious"); see also Horsehead, 16 F.3d at 1269 (D.C.Cir. 1994) ("agency actions based upon speculation are arbitrary and capricious").

Moreover, the PA is carried out by a computer model. Since "the accuracy of any computer model 'hinges on whether the underlying assumptions reflect reality,'" Sierra Club, 657 F.2d at 332:

the agency must sufficiently explain the assumptions and methodology used in preparing the model; it must provide a 'complete analytical defense of its model and respond to each objection with a reasoned presentation.'

Id. at 333.

See also Edison Electric Inst. v. EPA, 2 F.3d 438, 446 (D.C.Cir. 1993) (application of toxicity test to certain mineral wastes overturned, where there was no rational relationship between such wastes and the conditions modeled); Chemical Mfrs. Ass'n. v. EPA, 28 F.3d 1259, 1267-68 (D.C.Cir. 1994); Gas Appliance Mfrs. Ass'n. v. Department of Energy, 998 F.2d 1041, 1045-46 (D.C.Cir. 1993). EPA has not shown the rationality of this rule prescribing part of the PA model, and its rule authorizing PA credit is therefore invalid for that reason as well.

c. Well injection rules (§§194.33(d), 194.32(c), 194.33(c)(1))

Well injection is the pumping of fluids into existing boreholes for purposes such as enhanced resource recovery, disposal of produced water, and solution mining. Comments confronted EPA with the reality of mishaps caused by migrating injected water.

II-D-9, at 4, II-D-25 at 14, IV-D-41 at 22, IV-D-39 at 6-9, IV-D-120 at 18-19. EPA responded by adopting several rules which create massive inconsistencies in the PA treatment of future drilling and mineral extraction and which prescribe models which have no rational relationship with the prospective risks.

First, EPA has directed that PA should assume that drilling (i.e., making boreholes) for mineral exploration and extraction continues throughout the 10,000 year regulatory period, because EPA assumes that "drilling will never completely cease," 61 Fed. Reg. 5224, 5233, and because "present-day drilling activities provide the only available basis for making assumptions" in PA. Id. Thus, EPA assumes that, if currently-extracted resources become depleted, drilling for newly discovered resources will compensate for the decline, and "today's drilling activities act as surrogates for the unknown resources that will be drilled for in the future." Id. EPA similarly prescribes that all present drilling practices shall be assumed to prevail in the long-term future. 40 C.F.R. §194.33(c)(1).

But as to well injection (i.e., pumping fluids into boreholes) EPA has decided that, to the contrary, the PA model should be based on an estimate of the likely time during which well injection would be practiced in extracting currently-extracted resources. Id. Under this approach, which is far less protective of public health and safety from future disruptions of the repository, PA would assume that fluid injection stops when resources currently extracted with it are depleted, and PA would include no "surrogates for the unknown resources that will be" extracted "in the future" with well injection or other disruptive techniques. Id. EPA thus

assumes that no disruptive extraction techniques, and indeed no fluid injection for other purposes (e.g., disposal, solution mining) will take place in the long-term future at all.

EPA's unexplained inconsistent position renders the rule arbitrary and capricious. In Oxy, 64 F.3d at 695, the agency had valued different crude oil fractions using inconsistent systems; the result was deemed arbitrary and capricious. See also Air Line Pilots Ass'n. v. F.A.A., 3 F.3d 449, 453 (D.C.Cir. 1993) (agency decision arbitrary where it presents inconsistent statutory interpretations); Gulf Power Co. v. F.E.R.C., 983 F.2d 1095, 1101 (D.C.Cir. 1993) ("[B]ut when an agency takes inconsistent positions, as FERC did here it must explain its reasoning."); American Telephone & Telegraph Co. v. F.C.C., 974 F.2d 1351, 1355 (D.C.Cir. 1992) (Change in policy without adequate explanation is arbitrary and capricious).

There is another basic problem. The well injection rule is predicated on EPA stated "doubt" whether resources associated with well injection would be available for 10,000 years. 61 Fed. Reg. 5224, 5233. EPA cited no data to support its "doubt" on that issue (as distinguished from drilling), nor to support the assumption that well injection would not be useful for other current purposes, such as water disposal and solution mining. Thus, §§194.32(c) and 194.33(d) violate the requirement that environmental models must bear some rational relationship to the actual facts. Leather Indus. of America, Inc. v. EPA, 40 F.3d 392, 402-08 (D.C.Cir. 1994); Chemical Mfrs., 28 F.3d at 1264-68; Edison, 2 F.3d at 443-46; Gas Appliance Mfrs., 998 F.2d at 1045-46. When an agency "presents no data" to support its conclusions, its reasoning is

"arbitrary and capricious and . . . violates the APA." Oxy, 64 F.3d at 693; see also Center for Highway Safety v. F.H.A., 956 F.2d 309, 314 (D.C.Cir. 1992).

Moreover, EPA's rule limits PA consideration of well injection not to existing resources but to existing boreholes and existing leases. No data or explanation supports such limitation. Thus, no facts support limitation of PA analysis to existing boreholes and existing leases. Such a "decision resting solely on a ground that does not justify the result reached is arbitrary and capricious." MCI Telecommunications Corp. v. F.C.C., 10 F.3d 842, 846 (D.C.Cir. 1993).

d. Level of assurance (\$194.34)

The PA entails much uncertainty, calling for a decision as to the level of certainty sufficient for compliance with the Disposal Regulations. What is at stake, quite simply, is how sure EPA must be that the release limits, which protect public health and safety, will be met.

Thus, EPA has recognized that "it is incumbent on the Agency to define an acceptable level of certainty for compliance with the standards." 58 Fed. Reg. 8029.

EPA's specific task is to issue criteria which quantify the "reasonable expectation" test contained in the Disposal Regulations, 40 C.F.R. §191.13(b), which Congress placed "in effect." WIPP Act §8(a)(1).

In this rulemaking DOE itself expressly told EPA that the mean curve generated by the PA model would not be an appropriate test, because it does not express a specific level of certainty:

[i]t is possible that the distribution of CCDFs that results from subjective uncertainty can be used to determine a degree of confidence (e.g., 0.5, 0.7, 0.9) that the disposal system is in compliance with the EPA release limits. The use of the mean CCDF, as opposed to a distribution of CCDFs, does not present as much information as curves that characterize degrees of confidence in disposal system performance. This is because the mean CCDF is typically skewed toward low-probability, high-release events so that the degree of conservatism reflected by the mean varies widely over the range of releases.

II-D-12 at 5.

When EPA nevertheless specified the mean curve in its preliminary draft, II-C -1 at 24, commenters objected. II-D-25 at 16-17; II-D-29 at 3; II-D-22 at 2.

The published proposal, however, retained the mean curve. 60 Fed. Reg. 5766, 5786. EPA then explained that it had rejected a specific percentile value, because "the Agency believes that it would be extremely difficult to justify any specific higher [than 50%] value." 60 Fed. Reg. 5766, 5777.

Comments then noted that when considering Part 191B, EPA expected the containment requirement to be applied by NRC, based on a percentile value of approximately 90% assurance, IV-D-120 at 20-23, and that EPA had equated "reasonable expectation" with similar high levels of assurance, id. at 21.

However, the final rule retains the mean curve as the measure of compliance.¹⁶ EPA did not answer the comments on the need to

¹⁶ EPA either ignored or misunderstood the comments about the level of assurance. For example, EPA stated that "the location of the mean is, in a statistical sense, at the center of the group of CCDFs," V-C-1 at 11-5, which is erroneous; the central curve is the median. EPA stated that it had selected the mean curve as the compliance test--"provided that the final rule also impose many inherently conservative assumptions on the performance

select a percentile value, and instead defended the selection of the mean on irrelevant grounds, unrelated to the level of assurance reflected by it. V-C-1 at 11-16. EPA's selection of the mean curve is a "decision resting solely on a ground that does not justify the result reached" and is therefore "arbitrary and capricious." MCI, 10 F.3d at 846.

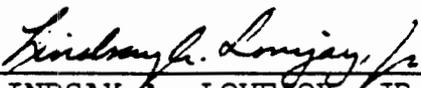
assessments," id. at 11-6, but it refused to inquire whether the assumptions underlying the release limit are conservative, id. at 11-16 to 11-18. EPA referred to "a 95 percent confidence of compliance," id. at 11-7, but the rule only requires 95 percent confidence that the mean show compliance, which is a different and lower level of assurance. EPA ignored comments about the need to constrain the formulation of probability distribution functions, id. at 11-10, 11-18, and did not respond to comments stating that, to effectuate §191.13, compliance must be determined by a high percentile curve, id. at 11-15, 11-16.

Conclusion

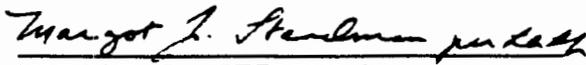
For the foregoing reasons, the Court should vacate the Compliance Criteria and should remand the rule to EPA for further consideration.

Respectfully submitted,

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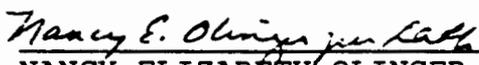

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Certificate of Service

I, Lindsay A. Lovejoy, Jr., a member of the bar of this Court, do hereby certify that on this 6th day of December, 1996, I caused copies of the foregoing Joint Brief for Petitioners and Statutory and Regulatory Addendum to be mailed by first-class mail to:

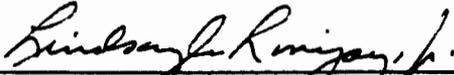
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CERTIFICATION OF WORD COUNT

I certify that the foregoing Joint Brief for Petitioners does not contain more than 18,750 words, as permitted by the Court's order, dated October 3, 1996.


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