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AGREEMENT FOR CONSULTATION AND COOPERATION BETWEEN DEPARTMENT OF ENERGY AND THE STATE OF NEW MEXICO ON THE WASTE ISOLATION PILOT PLANT

Updated April 18, 1988

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[The text herein reflects the current text including all amendments to pril 1, 1985. The text is that contained in the original 1981 version except where noted in **bold face type** and annotated to reflect the date of amendment.]

AGREEMENT FOR CONSULTATION AND COOPERATION

This Agreement is entered into effective as hereinafter provided by and between the State of New Mexico (hereinafter referred to as the "State") and the United States Department of Energy (hereinafter referred to as "DOE").

WHEREAS, DOE is proceeding with plans for the Waste Isolation Pilot Plant project (hereinafter referred to as "WIPP") in New Mexico, as more fully described below;

WHEREAS, the parties recognize: (1) the United States Government's responsibility for national security; (2) DOE's responsibility for environmental aspects in developing procedures, systems and facilities for safe disposal of radioactive wastes arising from past and future conduct of the Nation's defense programs; and (3) the State's responsibility for the welfare of its citizens including, but not limited to, public health and safety, environmental and socioeconomic aspects of the transportation, handling, storage and disposal of radioactive wastes in New Mexico;

WHEREAS, the Department of Energy National Security and Military Applications of Nuclear Energy Authorization Act of 1980, P. L. 96-164, attached as Appendix A, provides only with respect to WIPP that the Secretary of DOE shall enter into a written agreement with the appropriate State officials providing for consultation and cooperation with regard to the public health and safety aspects of the project;

WHEREAS, under P. L. 96-164 the State has the right to comment on and make recommendations with regard to the public health and safety aspects of WIPP;

WHEREAS, the Secretary shall receive, consider, resolve and act upon the comments and recommendations made by the State within time frames specified in Article IX of this Agreement; and

WHEREAS, the Agreement has been reached in accordance with P. L. 96-164.

NOW, THEREFORE, the parties agree as follows:

ARTICLE I - PURPOSE AND INTENT

A. This Agreement affirms the intent of the Secretary to consult and cooperate with the appropriate officials of the State with respect to the public health and safety concerns of the State, and to give consideration to such concerns and cooperate with such officials in

resolving such concerns consistent with P. L. 96-164. It also affirms the intent of the Governor of the State to express such concerns in a timely manner and to make all reasonable efforts to cooperate with DOE in resolving such concerns.

B. It is recognized that WIPP was an ongoing project at the time the parties commenced their negotiations of this Agreement. In the event the WIPP mission as described in Article VI of this Agreement is substantially changed, whether by amendment to P. L. 96-164 or otherwise, the parties may mutually agree to no longer be bound by this Agreement or provisions of it and the parties shall not be bound to comply with certain provisions of the Agreement if such changes in the WIPP mission make a particular provision impossible to perform or enforce. Any such agreement shall be reflected in a modification to this Agreement.

C. The purpose of this Agreement, in carrying out the intent expressed in Paragraph A of this Article, is to designate Key Events; set time frames for review, comment and resolution of comments; and establish procedures for review of WIPP and for resolving conflicts.

ARTICLE II - DEFINITIONS

For purposes of this Agreement:

A. The term "State" means the sovereign State of New Mexico, as represented by the Governor of the State of New Mexico or his duly authorized representative;

B. The term "DOE" means the United States Department of Energy as represented by the Secretary or his duly authorized representative;

C. The term "Secretary" means the Secretary of the United States Department of Energy, or anyone serving in that capacity, or any duly authorized representative of the Secretary;

D. The term "public health and safety" means the potential impact upon the citizens of New Mexico resulting from activity attendant to WIPP, and includes any environmental effects which can impact the health and safety of New Mexico citizens;

E. The term "defense waste" means radioactive wastes resulting from defense activities and defense programs of the United States Government exempted from regulation by the United States Nuclear Regulatory Commission. The term excludes any radioactive waste generated by the commercial nuclear power industry;

F. The term "transuranic waste" or "TRU waste" means defense waste, other than high level waste or spent reactor fuel, containing alpha emitting

transuranic elements (including Uranium-223), with radioactive half lives greater than one year, in excess of 10 nanocuries per gram of waste;

G. The term "high level waste" means defense waste, in the form of the solidified product of the first-cycle solvent extraction or similar process by means of which uranium and plutonium are recovered from irradiated reactor fuel;

H. The term "Key Event" means a significant activity in the development, design, construction, operation and decontamination and decommissioning of WIPP;

I. The term "Milestone" means an action which shall be achieved prior to the commencement by DOE of a Key Event; however, it is recognized that there may be revisions to Milestone documentation after commencement of the Key Event involved; and

J. The term "Working Agreement" means the document, incorporated herein by reference as Appendix B, which elaborates on the details of this Agreement and shall be further developed pursuant to this Agreement.

ARTICLE III - EFFECTIVE DATE

As required by P. L. 96-164, this Agreement shall become effective upon the elapse of forty-five days while Congress is in session unless the Committees on Armed Services of the Senate and House of Representatives, in writing, waive any portion of such forty-five days; the forty-five days to commence running upon submission of this Agreement as signed by the parties to the Committees. DOE shall advise the State in writing as to the date on which the foregoing requirement has been fulfilled and such date shall be deemed to be the effective date of this Agreement.

ARTICLE IV - POINTS OF CONTACT

A. The Chairman, Radioactive Waste Consultation Task Force, State of New Mexico, or such other person as designated by the Governor, is the principal representative of the State for maintaining liaison with DOE and for the consultation and cooperation process.

B. The Manager, Albuquerque Operations Office, DOE (Manager, ALO), or anyone serving in that capacity, is designated by the Secretary as the principal representative of DOE for maintaining liaison with the State and for the consultation and cooperation process.

C. The principal representatives may designate appropriate individuals or groups to conduct day-to-day activities for them.

ARTICLE V - MODIFICATIONS

A. The parties to this Agreement recognize that future developments, including but not limited to changes in applicable law, including but not necessarily limited to P. L. 96-164, may make it desirable or

necessary for one or both parties to seek to modify this Agreement. Either party to this Agreement may request a review of the terms and conditions contained herein upon written notice to the other party, setting forth the modification or modifications requested together with the reasons therefor. The other party agrees to consider the requested modification or modifications, to respond to the request in writing and to enter into negotiations in good faith within 30 days of receipt of the request.

B. Pursuant to P. L. 96-164, the Secretary shall notify the Committees on Armed Services of the Senate and the House of Representatives of modifications to this Agreement.

ARTICLE VI - WIPP MISSION

A. P. L. 96-164 authorized WIPP as a defense activity of DOE for the express purpose of providing a research and development facility to demonstrate the safe disposal of radioactive wastes resulting from defense activities and defense programs of the U. S. Government exempted from regulation by the United States Nuclear Regulatory Commission.

B. **WIPP is intended to include receipt, handling and permanent disposal of defense transuranic waste and temporary storage for experimental purposes of a limited amount of high-level defense waste.**

All of the high-level waste will be removed from the WIPP upon completion of the experiments and prior to decontamination and decommissioning of the facility. The transuranic waste will be subject to a period of retrievability prior to permanent disposal as set forth in the Retrievability Plan referenced in Article IV of the Working Agreement.

The WIPP FEIS analyzes the impacts on the public health and safety from the release of radioactive material from WIPP. DOE's position is that the bounds of these impacts are established by the estimated dose consequences, rather than by any of the particular characteristics of the waste to be emplaced at WIPP. It is the State's position that the impacts on public health and safety are bounded not only by dose estimates but by the site characterization, multiple containment barriers, QA programs, design criteria, operational controls, enforcement of safety programs and other good engineering practices. The analyses in the WIPP FEIS use the upper limit of 100 rem per hour as the maximum surface dose rate for a canister of remote handled transuranic (RH-TRU) waste and an expected maximum activity level of 23 curies per liter for the waste. The Record of Decision dated January 22, 1981 also limited the total volume of RH-TRU to be shipped to WIPP to 250,000 cubic feet.

A limited amount of RH-TRU waste, described below as falling within the 100 to 1000 rem per hour range, presently in existence has activity levels and characteristics which exceed the transuranic waste characteristics used in the WIPP FEIS. Since physically reducing such waste form to levels below 100 rem per hour may be impractical and since the WIPP Waste Acceptance Criteria (WAC) or its companion waste certification compliance requirements will permit exceptions to the WAC, the DOE will, prior to granting such exceptions for such waste and prior to the shipment of such waste: (1) perform analyses to ascertain the impact of such on the public health and safety, (2) consult with the State of New Mexico, including providing the State with a copy of the analyses for review and comment, and (3) provide to the State a period of forty-five (45) days to review and comment on such analyses prior to granting any such exceptions. In no instance will such an exception to the WAC be granted if it would cause a significant increase in the impacts on public health and safety discussed in the WIPP FEIS.

The DOE agrees that no defense RH-TRU with a surface dose rate in excess of 1000 rem per hour will be shipped to WIPP and that no more than 5% of the total volume of 250,000 cubic feet (or 12,500 cubic feet maximum) of defense RH-TRU shipped to WIPP will exceed 100 rem per hour surface dose rate. Defense RH-TRU waste shipped to WIPP will not exceed the 23 curies per liter maximum activity level (averaged over the volume of the canister). The total curies of defense RH-TRU shipped to WIPP shall not exceed 5.1 million curies. The concentrations of radionuclides in the RH-TRU canisters shall be determined by a procedure which shall include one or more of the following basic methods: (1) materials accountability; (2) classification by source; (3) gross radioactivity measurements; (4) direct measurements of major contributing radionuclides; or (5) such other methods as the parties may agree to.

Further, DOE agrees that the amount of defense high-level waste (DHLW) used on an experimental basis will not exceed 430,000 curies per canister and a total of 17.2 million curies. The DOE will disclose in writing to the State the upper limit of the surface dose rate of any DHLW canister to be brought to the WIPP for experimental purposes no later than February 28, 1985.

WIPP is not designed for the permanent disposal of high-level waste, nor has the WIPP site itself been characterized for such permanent disposal. [as amended, November 1984]

C. DOE, or its successor governmental agency, or the United States if no such agency, shall not abandon the WIPP site without decontamination and decommissioning having been completed, and DOE or its successor governmental agency, or the United States if no such agency, shall have the responsibility for ongoing post-closure institutional control at the WIPP site. As stated in the Working Agreement, the milestones and associated consultation and cooperation process provisions covering the decontamination and decommissioning of WIPP, including the consultation process concerning the length and extent of the post-closure institutional

control, shall be negotiated and resolved by the parties in the future, and at least one year prior to the start of the decontamination and decommissioning of WIPP.

[as amended, November 1984]

D. The DOE will not permit subsurface mining, drilling, or resource exploration unrelated to the WIPP Project on the WIPP site during facility construction, operation, or after decommissioning. This prohibition also precludes slant drilling under the site from within or from outside the site. The "WIPP site" as used here means the 4 x 4 mile (10,240 acres) area consisting of sections 15, 16, 17, 18, 19, 20, 21, 22, 27, 28, 29, 30, 31, 32, 33, and 34 of Township 22 South, Range 31 East, NMPM, in Eddy County, New Mexico; Sections 16 and 32 belong to the State and the exchange of those lands between the U.S. Department of the Interior and the State is pending.

At the conclusion of the WIPP project the DOE shall dispose of any residual salt tailings extracted from the WIPP site in an environmentally acceptable manner, to be determined in consultation with the State of New Mexico.

The DOE has no present intent to reorient the underground storage area toward the northern half of Zone II, as that zone is described in the WIPP Safety Analysis Report. In the unlikely event that DOE develops plans to reorient the storage area toward the north, DOE agrees to provide all available information and analysis regarding those plans to the State for review and comment at least forty five days before making a decision to reorient the storage area. If the State, after consulting with DOE about the State's comments, believes its concerns are still unresolved, the State may request that the matter be considered under the conflict resolution procedures set forth in Article IX of this Agreement.

[as amended, August 1987]

E. 1. In carrying out this stated mission, DOE and WIPP will comply, at a minimum, with all applicable state, federal, and local standards, regulations, and laws, including any applicable regulations or standards promulgated by the Environmental Protection Agency. Compliance by way of grandfathering, variance, waiver, or exemption shall in no way prevent or stop the State from requiring any similar health and safety measures at WIPP under separate applicable authority, nor shall such compliance prevent or stop the State from seeking conflict resolution under Article IX, herein, to resolve disputes about such health and safety measures.

2. The Final Safety Analysis Report which will be issued by DOE prior to the receipt of waste will document DOE's ability to comply with the provisions of Subpart A of the Environmental Standards of the Environmental Protection Agency for the Management and Disposal of Spent Nuclear Fuel, High Level and Transuranic Wastes (40 CFR 191, Subpart A). Upon initial receipt of radioactive waste at the WIPP, and thereafter, the DOE will comply in all respects with the said Subpart A in effect at the time.

In addition, the DOE agrees to provide the State by February 1, 1988 with a Plan describing the steps which the DOE will undertake to demonstrate compliance with the assurance requirements contained in 40 CFR 191.14 of Subpart B of the EPA standards. This Plan will contain an estimated schedule and a description of the process DOE will use to: identify needed active institutional controls, gather data for the implementation of such controls, develop and implement a monitoring plan for the underground facility, define and implement a plan for passive institutional controls, determine the barriers to be used, assess the selection of the WIPP site in view of the resources at the site, and review the recoverability of the waste for a reasonable period after disposal.

Prior to receiving more than 15 percent by volume of the transuranic waste capacity of the Waste Isolation Pilot Plant, described as 6.2 million cubic feet of transuranic waste in the Waste Isolation Pilot Plant Record of Decision (46 Federal Register 9162, dated January 23, 1981), the Secretary of Energy shall demonstrate that the Waste Isolation Pilot Plant meets the applicable environmental standards for the disposal of radioactive waste established in Subpart B of such Environmental Protection Agency Standards (40 CFR 191, Subpart B), including the Assurance Requirements under such Subpart B, in effect at that time.

The parties are aware of the opinion issued by the United States Court of Appeals for the First Circuit in Natural Resources Defense Council, et al. v. United States Environmental Protection Agency, et al., Nos. 85-1915, 86-1096, 86-1097, and 86-1098 regarding the aforementioned 40 CFR 191 standards. While the standards are on remand to the EPA for reconsideration pursuant to the July 17, 1987 opinion in that case, DOE agrees to continue its performance assessment planning as though the provisions of 40 CFR 191 effective November 19, 1985 remain applicable.

3. DOE shall use both engineered and natural barriers to isolate the radioactive waste after disposal in compliance with the EPA Standards. The barriers shall include, as a minimum, properly designed backfill, plugs and seals in the drifts and at the entries to the panels, and plugs and seals in the shafts and drillholes.

4. The transportation of radioactive waste to WIPP shall comply with the applicable regulations of the U.S. Department of Transportation and any applicable corresponding regulations of the U.S. Nuclear Regulatory Commission. All waste shipped to WIPP will be shipped in packages which the Nuclear Regulatory Commission has certified for use.

[as amended, August 1987]

F. The foregoing statement of the WIPP mission is based on the WIPP mission authorized by Congress in P.L. 96-164. The parties recognize that all or part of the statement of mission in this Agreement for Consultation and Cooperation would not be binding on the parties if, in the future, Congress enacts legislation specifically related to the WIPP mission which conflicts with this statement of the mission. The parties further recognize that this Agreement for Consultation and Cooperation in no way relieves or alters, in any respect, any requirements or responsibilities imposed on DOE by any other federal laws or regulations including but not limited to the National Environmental Policy Act.

[as amended, November 1984]

ARTICLE VII - KEY EVENTS AND MILESTONES

A. DOE shall consult and cooperate with the State as the project progresses through Key Events and Milestones identified in Paragraph C of this Article and in the Working Agreement. Such consultation and cooperation shall be on a regular, ongoing basis to facilitate an orderly process of State review and evaluation. It is recognized that neither the Key Events nor the Milestones so identified are necessarily sequential, particularly since some Key Events and Milestones may properly be carried on simultaneously under this Agreement.

B. DOE shall give prior written notice to the State of its intention to commence Key Events identified in Paragraph C of this Article.

C. **The following are currently identified as Key Events:**

1. **Draft Environmental Evaluation;**
2. **Preliminary Engineering - Title I;**
3. **Final Environmental Evaluation;**
4. **Site and Preliminary Design Validation (SPDV) Construction;**
5. **Detailed Design - Title II;**
6. **Construction of Exhaust and Waste Shafts;**
7. **Construction of Waste Handling Building;**
8. **Underground Development;**
9. **Construction of Exhaust Filter Building;**
10. **Computer Installation for the Facilities Alarm and Monitoring System;**
11. **Operations;**
12. **Retrievability Decision for TRU Waste;**
13. **High-Level Waste Retrieval and Shipping;**
14. **Decontamination and Decommissioning.**

[as amended, November 1984]

D. Other significant activities may from time to time be agreed upon as Key Events or one or more of the above Key Events may be deleted or revised pursuant to the provisions of Paragraph A of Article I of the Working Agreement.

ARTICLE VIII - CONSULTATION AND COOPERATION

A. DOE shall keep the State currently and fully advised relative to WIPP in accordance with this Agreement and the requirements of the Working Agreement so that the State may make independent reviews on public health and safety concerns relative to WIPP.

B. The data, reports and other material to be furnished the State in order to meet the foregoing requirement as to a particular Key Event shall be identified in the Working Agreement as work progresses toward achieving that Key Event. The types of data, reports and other material DOE shall furnish the State include, but are not limited to, draft and final

environmental impact assessments and statements; technical reports and program plans; administrative and technical progress reports; the safety analysis report and amendments; construction and engineering design documents; and legislative land withdrawal proposals.

C. In order for the State to make the independent reviews on public health and safety under this Article, the State shall have the right to conduct reasonable independent monitoring and testing of on-site activities related to the WIPP project; provided, however, that such monitoring and testing shall not unreasonably interfere with on-site activities.

D. It is recognized that as activities on WIPP are carried on, the Milestones involved in particular Key Events shall be identified with more precision.

E. The parties have negotiated a Working Agreement, identifying for each of the early Key Events the appropriate Milestones, the documents DOE is to submit to the State, the timing for such submissions, the timing for the State to identify public health and safety concerns and the process to be followed to try to eliminate those concerns before there is recourse to the procedure set forth in Article IX of this agreement. From time to time the Working Agreement shall be changed and added to as therein provided by agreement of the parties in consonance with the intent of this Agreement.

F. The Working Agreement, as agreed upon and changed and added to from time to time, shall be part of this Agreement as Appendix B. Revisions to the Working Agreement consistent with the provisions of this Agreement shall not be considered as modifications to this agreement for purposes of Paragraph B of Article V of this Agreement.

G. **It is understood by the parties that the State may disseminate to the public copies of all data, reports and other material furnished the State by DOE pursuant to the provisions of this Article or other requirements of this Agreement and may elicit comments and concerns from the public thereon for communication to the DOE.**
[as amended, November 1984]

H. **The parties recognize that neither DOE nor the State can require that New Mexico residents be employed by DOE and its subcontractors for the construction and operation of WIPP. Nevertheless, both parties agree that it is desirable, within the limits of the law, to encourage the employment of New Mexico residents. DOE agrees to establish with the State a monitoring and statistical reporting program for itself and its subcontractors in order to periodically report on the number of New Mexico residents hired and the steps taken to fully and effectively publicize the availability of WIPP jobs in New Mexico for prospective New Mexico employees. The details of this program will be agreed upon in writing by the State and DOE.**
[as amended, November 1984]

⁻ICLE IX - CONFLICT RESOLUTION

A. In the event that actions under Article VIII of this Agreement do not satisfy the State's concern or concerns as to the public health and safety (including the identification of Key Events and Milestones), the principal representative of the State and the Manager, ALO shall meet to discuss the matter in detail. Within 10 calendar days after conclusion of the discussion, the Manager, ALO shall advise the State in writing what DOE action, if any, is contemplated with respect to the State's particular concern or concerns. If the State is not satisfied by the written determination of the Manager, ALO, the Governor shall notify the Secretary in writing within 10 calendar days of receipt of such determination that the State intends to invoke the provisions of this Article and the reasons therefor. The Governor may not delegate his authority under this Paragraph. A copy of the notification shall be furnished the Manager, ALO.

B. Within 30 days after notification under Paragraph A of this Article, the principal representative of the State and the Manager, ALO shall appoint one (1) mutually agreed upon recognized, independent expert in the particular field involved as the conflict resolution hearing officer. The conflict resolution hearing officer may employ as many experts in the particular field or fields involved and support staff as he shall determine are necessary to assist him in making a recommendation or recommendations on the matter or matters before him.

C. Within 15 calendar days after the appointment of the conflict resolution hearing officer, the principal representative of the State and the Manager, ALO shall each submit to the hearing officer a written statement of their respective positions and the basis therefor. The hearing officer may hear oral presentations by the State and the Manager, ALO.

D. Nothing in this Article shall preclude the State or the Manager, ALO from asking for and receiving from the hearing officer a reasonable extension of the time limit set forth in Paragraph C of this Article for good cause, such as recourse to the advice of outside experts in the particular field or fields involved.

E. The conflict resolution hearing officer shall compile and maintain an accurate record of all written submissions and a transcript of any oral presentations made to him pursuant to Paragraph C of this Article.

F. The conflict resolution hearing officer shall consider all written submissions and oral presentations in the record and transcript required by Paragraph E of this Article and shall make written recommendations on the matter or matters before him which shall refer to the specific facts in that record relied upon by him. The responsibility for making written recommendations under this Paragraph shall not be delegated by the conflict resolution hearing officer.

The conflict resolution hearing officer shall transmit his written recommendations along with a copy of the record and transcript to the Secretary, the principal representative of the State and the Manager, ALO within 30 calendar days following his receipt and consideration of all written submissions and oral presentations authorized by Paragraph C of this Article.

H. Within 10 calendar days following receipt of the written recommendations of the conflict resolution hearing officer and the record and transcript, the Governor and the Manager, ALO may submit their own written comments and recommendations to the Secretary which shall be made a part of the record required by Paragraph E of this Article. An information copy of any such comments and recommendations by either party shall be transmitted to the other party.

I. Within 25 calendar days following receipt of the written recommendations of the conflict resolution hearing officer and the record and transcript, the Secretary shall issue a written decision on the matter or matters before him which shall include the basis in the record for such decision and shall constitute final agency action on and resolution of the matter or matters under this Agreement. Issuing a decision under this Paragraph may not be delegated by the Secretary. Copies of the decision shall be transmitted to the Governor and the Manager, ALO.

J. Upon notification to the Secretary under Paragraph A of this Article that the State intends to invoke this Article, DOE shall not commence any Key Event if the commencement of such Key Event is inconsistent with the concern or concerns of the State under consideration under this Article unless specifically authorized in writing by the Secretary or agreed to in writing by the Governor. In the event that the Secretary decides to authorize DOE to commence any Key Event pursuant to the provisions of this Paragraph, that written authorization shall include the basis for such decision and a copy of it shall be transmitted to the Governor at the same time that it is transmitted to the Manager, ALO. The Secretary may not delegate his authority under this Paragraph.

K. The decision of the Secretary under Paragraph I of this Article shall be implemented by DOE.

L. Nothing in this Article shall preclude the withdrawal, at the State's request, of a matter from further consideration under this Article.

M. Nothing in this Article shall preclude the State from seeking written public input at the State level which shall be transmitted by the State to the conflict resolution hearing officer and shall be made part of the record required by Paragraph E of this Article; provided, however, that neither such solicitation of input nor the input itself shall delay the conflict resolution process beyond the time limitations set forth in this Article.

N. Nothing in Article IX shall be construed to be a waiver by the State of New Mexico of judicial review of any final agency actions of the Secretary of DOE or of the Secretary's aforementioned written authorizations to commence Key Events.

ARTICLE X - DOE ASSISTANCE

The parties recognize that in order for the State to comment and make recommendations under this Agreement it must have adequate resources to carry out an independent review of WIPP. DOE shall continue to assist the State in obtaining the resources necessary for the State to undertake a meaningful independent review of the public health and safety aspects of WIPP.

ARTICLE XI - SCOPE OF AGREEMENT

A. It is recognized that a number of State and U.S. Government agencies, in addition to the Task Force and DOE, have jurisdiction over various matters involving WIPP. This Agreement does not supersede, limit, modify, relinquish or waive the authorities, rights, jurisdictions or responsibilities of such agencies. The parties recognize that such authorities, rights, jurisdictions and responsibilities do not necessarily remove a matter from discussion.

B. This Agreement is a binding enforceable agreement between the State of New Mexico and the Department of Energy. The provisions of this Agreement and the Working Agreement incorporated herein shall not be construed to limit, modify, relinquish or waive any right which the State, the U.S. Government or their citizens may have to seek administrative or judicial review of any action by the Secretary, DOE or the State on any matter relating to any activity conducted in connection with the WIPP project pursuant to any applicable regulation, law or constitutional provision of the State or the United States. Nothing in this Agreement shall confer or be deemed to confer any right to judicial review of any action by the Secretary except as otherwise provided by any applicable regulation, law or constitutional provisions of the State or the United States. The execution of this Agreement of itself does not constitute State approval of any specific past or future action or omission by the Federal Government with respect to the WIPP project.

[The original Agreement was signed by Governor Bruce King on behalf of the State of New Mexico on July 1, 1981, and by Secretary James B. Edwards on behalf of the United States Department of Energy on June 30, 1981. The First Modification to the Consultation and Cooperation Agreement was signed by Joseph Goldberg, Secretary of the Health and Environment Department and Chairman of the Radioactive Waste Task Force, on behalf of the State of New Mexico on November 27, 1984. It was signed by R. G. Romatowski, Manager, Albuquerque Operations Office, on behalf of the United States Department of Energy on November 30, 1984.]

APPENDIX A

PUBLIC LAW 96-164 (S.673); December 29, 1979

DEPARTMENT OF ENERGY NATIONAL SECURITY AND MILITARY APPLICATIONS OF NUCLEAR ENERGY AUTHORIZATION ACT OF 1980

TITLE II - GENERAL PROVISIONS

WASTE ISOLATION PILOT PLANT, DELAWARE BASIN, NEW MEXICO

Sec. 213. (a) The Secretary of Energy shall proceed with the Waste Isolation Pilot Plant construction project authorized to be carried out in the Delaware Basin of southeast New Mexico (project 77-13-f) in accordance with the authorization for such project as modified by this section. Notwithstanding any other provision of law, the Waste Isolation Pilot Plant is authorized as a defense activity of the Department of Energy, administered by the Assistant Secretary of Energy for Defense Programs, for the express purpose of providing a research and development facility to demonstrate the safe disposal of radioactive wastes resulting from the defense activities and programs of the United States exempted from regulation by the Nuclear Regulatory Commission.

Consultation and cooperation

(b)(1) In carrying out such project, the Secretary shall consult and cooperate with the appropriate officials of the State of New Mexico, with respect to the public health and safety concerns of such State in regard to such project and shall, consistent with the purposes of subsection (a), give consideration to such concerns and cooperate with such officials in resolving such concerns. The consultation and cooperation required by this paragraph shall be carried out as provided in paragraph (2).

Written agreement

(2) The Secretary shall seek to enter into a written agreement with the appropriate officials of the State of New Mexico, as provided by the laws of the State of New Mexico, not later than September 30, 1980, setting forth the procedures under which the consultation and cooperation required by paragraph (1) shall be carried out. Such procedures shall include as a minimum--

(A) the right of the State of New Mexico to comment on, and make recommendations with regard to, the public health and safety aspects of such project

before the occurrence of certain key events identified in the agreement;

(B) procedures, including specific time frames, for the Secretary to receive, consider, resolve, and act upon comments and recommendations made by the State of New Mexico; and

(C) procedures for the Secretary and the appropriate officials of the State of New Mexico to periodically review, amend, or modify the agreement.

Submittal to congressional committees

(3) As soon as practicable after the date on which the agreement referred to in paragraph (2) is entered into by the Secretary and the appropriate officials of the State of New Mexico, but not more than 15 days after such date, the Secretary shall transmit to the Committees on Armed Services of the Senate and the House of Representatives copies of such agreement, and a period of 45 days shall elapse while Congress is in session before such agreement becomes effective unless the Committees on Armed Services of the Senate and the House of Representatives, in writing, waive any portion of such 45-day period. The Secretary shall promptly notify such committees of any amendment or modification made to such agreement under paragraph (2)(C).

(c) No law enacted after the date of the enactment of this Act shall be held, considered, or construed as amending, superseding, or otherwise modifying any provision of this section unless such law does so by specifically and explicitly amending, repealing, or superseding this section.

Approved December 29, 1979.

APPENDIX B

WORKING AGREEMENT FOR CONSULTATION AND COOPERATION

This Working Agreement for Consultation and Cooperation forms part of the Agreement for Consultation and Cooperation between the State of New Mexico (hereinafter referred to as the "State"), as represented by the Chairman, Radioactive Waste Consultation Task Force, and the United States Department of Energy (hereinafter referred to as "DOE"), as represented by the Manager, Albuquerque Operations Office (hereinafter referred to as the "Manager, ALO"), and is identified as Appendix B.

ARTICLE I - PURPOSE AND INTENT

A. This Working Agreement is designed as a dynamic document which sets forth the working details of the consultation and cooperation process contemplated by the underlying Agreement for Consultation and Cooperation. The Manager, ALO and the State shall revise this Working Agreement from time to time as is agreed to be mutually desirable to facilitate and maximize the benefits of the intended process of consultation and cooperation. Any revision may be initiated at the written request of either party setting forth the revision or revisions requested together with the reason or reasons therefor. The other party shall consider the requested revision or revisions, shall respond to the request in writing and shall enter into negotiations in good faith within 30 days of receipt of the request.

B. It is agreed that the process described in this Working Agreement for the Key Events and Milestones shall establish the general pattern to be followed in the consultation and cooperation process, subject to such improvements as are deemed desirable by the parties, for the additional Key Events and Milestones to be added to this Working Agreement.

ARTICLE II - GENERAL

A. DOE shall give prior written notice to the State of its intention to commence Key Events identified in this Working Agreement.

B. If the State has any concern or concerns as to public health and safety, the State shall use its best efforts to advise DOE on such concerns (sic) or concerns within the time frames specified in this Working Agreement; provided, however, that notwithstanding any time frames specified in this Working Agreement, the State may at any time advise DOE of its concern or concerns as to public health and safety. It is recognized, however, that the status of WIPP at the time the State raises a concern may in itself place a limit on DOE's ability to accommodate the concern.

C. The State and DOE shall discuss the State comments with a view toward providing clarification and satisfying any concerns the State may have as to public health and safety. It is recognized that this shall be an ongoing process, with all reasonable efforts being made to resolve the matter by both parties at the lowest level of local authority.

D. In the event that actions under Paragraph C of this Article do not satisfy the State's concern or concerns as to the public health and safety, the provisions of Article IX of the underlying Agreement shall be followed.

E. The parties recognize that prior consultation cannot be carried out for those Key Events or Milestones that have already commenced or been completed, such as Title I design. However, the State may comment and make recommendations on Key Events and Milestones completed or underway.

F. Where a State or Federal permit is a prerequisite to any action by DOE (e.g., access roads, site development or discharge of pollutants), that action shall not be carried out until the appropriate permit has been obtained.

G. The data, reports and other material to be furnished to the State by DOE and to DOE by the State for each Key Event after commencement of that Key Event shall be as agreed to by the Manager ALO and the State. Each such agreement shall be reflected in a written modification to this Working Agreement.

ARTICLE III - SAFETY ANALYSIS REPORT

A. The Safety Analysis Report (SAR), as amended from time to time, constitutes the most comprehensive document concerning WIPP both in general and specifically as related to public health and safety as well as other matters. The SAR is a dynamic document describing all aspects of the WIPP design and shall be amended by way of revision and additions throughout the entire WIPP project. The degree of detail provided in this Article aids in the negotiation of Article IV of this Working Agreement.

B. DOE shall furnish to the State the various chapters of the SAR and amendments to the SAR in order to afford the State both the opportunity to review these chapters and amendments and the opportunity to express to DOE any public health and safety concerns the State may have. It is anticipated that the furnishing of this material, the State's review, the State's comments and recommendations and DOE's response shall be an ongoing process in accordance with the procedures identified in Paragraphs C and D of Article II of this Working Agreement. The State shall be represented by the Director of the State's Environmental Evaluation Group in matters relating to review of, and comments and recommendations on, the SAR and amendments and references thereto.

C. The SAR shall contain the following material:

Chapter 1 - Introduction and General Description

This chapter provides an overview of WIPP and sets forth general information on specific features of WIPP. Included is information on:

1. Location;
2. Mission;
3. Organization;
4. Facilities - both surface and underground;
5. Operations - including retrieval; and
6. Research and Development programs.

Chapter 2 - Site Characteristics

Information is included in the following areas:

1. Geography and Demography - including details on location, site description, traffic patterns, population distribution, land and water uses and agriculture;
2. Nearby Industrial, Transportation and Military Facilities - including current as well as growth projections;
3. Meteorology - including regional climatology, local meteorology, measurement programs, diffusion estimates, paleoclimatology and climatic changes;
4. Surface Hydrology - including a hydrologic description, floods, dam failures, effluents and chemical/biological composition of adjacent water courses;
5. Subsurface Hydrology - including ground water systems, utilization and monitoring;
6. Regional Geology - including physiography, geomorphology, history, stratigraphy, lithology, tectonics and pleistocene climate of the site region;
7. Site Geology - including further details for the site similar to 6 above;
8. Vibratory Ground Motion - including seismicity, tectonic activity and potential for earthquakes;
9. Surface Faulting - including discussions of capable faults and results of investigations to date;
10. Stability of Subsurface Materials and Foundations - including materials properties, soil and rock characteristics, ground water, design criteria and instrumentation; and
11. Slope Stability - including boring logs.

Chapter 3 - Principal Design Criteria

Specifically addressed are criteria on:

1. Definition of mission - including waste characterization, repository functions, storage capacities, retrievability and by-products;
2. Structural and mechanical design - including wind, tornado, flood, backfill, missile, seismic, snow, thermal and soil erosion;
3. Safety protection criteria - including confinement, handling, emplacement, retrieval, fire, explosion, radiological, criticality and mine safety;

4. Design classification - including definition of design classes and severe natural events; and
5. Decommissioning - including decontamination, backfilling, sealing, record maintenance and site markers.

Chapter 4 - Plant Design

This chapter provides a detailed facility description. This chapter shall be more frequently updated than any other SAR chapter to reflect the ongoing design and construction processes. Included are details on:

1. Location details;
2. Surface facilities - including all buildings for waste handling and support functions;
3. Shafts and subsurface facilities - including shafts and storage and experimental areas;
4. Service and utility systems - including ventilation, electrical, fire protection, waste water, salt handling, radwaste, transportation, alarms, maintenance, compressed air and underground fuel;
5. Emplacement and Retrieval - including equipment for all waste forms; and
6. Underground excavation equipment - including miners, roof bolters, etc.

Chapter 5 - Process Description

This chapter describes the processes utilized in transporting, handling, emplacing and retrieving all waste forms. Processes discussed include:

1. Contact-handled (CH) waste handling;
2. Remote-handled (RH) waste handling;
3. Experimental handling;
4. Plant generated radwaste;
5. General processes - including instrumentation, criticality safety and waste logging;
6. Underground excavation - including methods of materials handling, ventilation and backfill;
7. Control room;
8. Analytical Sampling; and
9. Retrievability of all waste forms.

Chapter 6 - Radiation Protection

This chapter is provided to address DOE requirements and existing federal laws governing occupational exposures, as well as to provide information on normal operation dose consequences. Information provided includes:

1. As low as reasonably achievable (ALARA);
2. Radiation sources;
3. Radiation protection;
4. On-site dose assessment;
5. Radiological control program; and
6. Off-site dose assessment.

Chapter 7 - Accident Analysis

This chapter provides the evaluation of potential impact on public health and safety of operational accidents which could result in off-site radiological releases. Specifically included are:

1. Accident classifications;
2. Source terms and analytical methods; and
3. Accident descriptions and actual analyses.

Chapter 8 - Long Term Waste Isolation Assessment

This chapter covers the long term impact on public health and safety following decommissioning and site control termination. Included are:

1. Identification of potential communication modes;
2. Modeling methods; and
3. Consequence analyses.

Chapter 9 - Conduct of Operations

This chapter provides information on facility operations specifically including:

1. Organizational structure;
2. Acceptance tests;
3. Training;
4. Operating procedures;
5. Security; and
6. Emergencies.

Chapter 10 - Operating Limits and Controls

This chapter provides limits on operation based on preservation of the assumptions used in the design and safety analyses. Specifically covered are:

1. Design Limits - including heat generation rates, waste content and containers;
2. Operating limits and surveillance requirements - including limits on conveyances, loading, underground fuel storage and backfill;
3. Design features;
4. Administrative controls; and
5. Guidelines for the operating organization - including monitoring instrumentation, electrical power systems and facilities.

Chapter 11 - Quality Assurance

This chapter provides information on organizational and administrative programs during site investigation, design, construction and operation. Quality Assurance programs are presented for each of the primary contracting organizations as well as DOE.

ARTICLE IV - KEY EVENTS AND ASSOCIATED MILESTONES

Where a Key Event has already commenced or been completed, DOE shall, at the State's request, review with the State the information already furnished by DOE to the State and provide such supplementary information as may be agreed upon. It is recognized, however, that DOE's ability to respond to any particular State concern may be limited after the commencement or completion of a Key Event or Milestone.

A. DRAFT ENVIRONMENTAL EVALUATION (already commenced)

1. Issuance of Geological Characterization Report - GCR

   This background document has been furnished to the State.

2. Issuance of Draft Environmental Impact Statement.

   (a) DOE has furnished this document to the State.
   (b) The State has reviewed and commented in accordance with NEPA.
   (c) DOE has acknowledged the State's comments after holding additional hearings at the State's request.

B. PRELIMINARY ENGINEERING - TITLE I (already commenced)

1. Conceptual Design and Design Criteria

   The State has been furnished this documentation.

2. Title I Design Report

   (a) The State has been furnished the technical portions of the Title I design report.
   (b) DOE shall furnish any supplements to these portions when completed.

3. Issuance of Safety Analysis Report (SAR) for Title I Design

   (a) The State has been furnished the SAR in five volumes.
   (b) The State's review is in progress and shall be an ongoing process.
   (c) DOE is responding and shall continue to respond to the State's comments.

(d) Consultation shall continue.
(e) DOE-initiated changes to the SAR shall follow this same ongoing process.

C. FINAL ENVIRONMENTAL EVALUATION (already commenced)

1. DOE Applications for State and Federal Permits or Approvals

2. Issuance of Final Environmental Impact Statement (FEIS)

DOE shall furnish copies to the State at the time of approval by the Secretary.

[as amended, April 1983]

D. SITE AND PRELIMINARY DESIGN VALIDATION (SPDV) CONSTRUCTION (already commenced)

1. Institutional (For Informational Purposes)*

(a) FEIS and Record of Decision
(b) Any required BLM cooperative agreement on land use
(c) Any required right-of-way acquisition
(d) Any leases that are required
(e) All applications for State and Federal permits and clearances
(f) All approved State and Federal permits and clearances

2. SPDV Design

Any State comments as to public health and safety concerns shall be provided to the DOE WIPP Project Manager within 60 calendar days after receipt of documentation from DOE. DOE shall respond to the State comments within 30 calendar days after receipt of such comments. Nothing herein shall preclude further discussions of the matter or any updates prepared by DOE. **Reasonable time frames for State comments and DOE response to any DOE updates shall be as negotiated by the WIPP Project Office (WPO) and EEG.**

(a) Design Criteria
(b) SPDV experimental program summary (SAR amendment - see Article III, Paragraph C, Chapter 1, item 6)
(c) Technical portions of the SPDV design (furnished as discrete construction contract packages)

[as amended, April 1983]

3. Notification (For Informational Purposes)

(a) 30 calendar day notification prior to site mobilization of first SPDV construction contractor
(b) Baseline SPDV schedule summary

*Wherever documents are indicated in this Working Agreement as being furnished "for informational purposes", the furnishing of the documents is intended to provide background information for other Milestones or Key Events. While the State need not furnish comments, the State may discuss such documents with DOE under this Working Agreement.

E. DETAILED DESIGN - TITLE II **(already commenced)**
[as amended, April 1983]

1. Title I

(a) Title I design package

DOE has provided this documentation to the State. Any State comments as to public health and safety concerns shall be provided to the DOE WIPP Project Manager within __*__ calendar days after receipt of documentation from DOE. DOE shall respond to the State comments within _____ calendar days after receipt of such comments. Nothing herein shall preclude further discussions of the matter or any updates prepared by DOE. **Reasonable time frames for State comments and DOE response to any DOE updates shall be negotiated by the WPO and EEG.**
[as amended April 1983]

(b) Title I design criteria

DOE has provided this document to the State. Any State comments as to public health and safety concerns shall be provided to the DOE WIPP Project Manager within _____ calendar days after receipt of documentation from DOE. DOE shall respond to the State comments within _____ calendar days after receipt of such comments. Nothing herein shall preclude further discussions of the matter or any updates prepared by DOE. **Reasonable time frames for State comments and DOE response to any DOE updates shall be negotiated by the WPO and EEG.**
[as amended, April 1983]

(c) Waste acceptance criteria

DOE has provided the Waste Acceptance Criteria document to the State. Any State comments as to public health and safety concerns shall be provided to the DOE WIPP Project Manager within _____ calendar days after receipt of documentation from DOE. **DOE shall respond to the State comments with _____ calendar days after receipt of such comments.** Nothing herein shall preclude further discussions of the matter or any updates prepared by DOE. **Reasonable time frames for State comments and DOE response to any DOE updates shall be negotiated by the WPO and EEG.**
[as amended, April 1983]

(d) SAR amendments

Reasonable time limits for State review and comment and the corresponding DOE response to the State shall be agreed upon between the EEG and the DOE WIPP Project Manager for each amendment.
[as amended, April 1983]

***Wherever in this Working Agreement time requirements are left blank, it is intended that such requirements be negotiated by the WPO and EEG.**
[as amended, April 1983]

2. Institutional (For Informational Purposes)

FEIS and Record of Decision (furnished for informational purposes under IV.D.1 above)

3. Notification (For Informational Purposes)

Project Progress Report (monthly)
[as amended, April 1983]

F. CONSTRUCTION OF EXHAUST AND WASTE SHAFTS (TWO SHAFTS)

The following Milestones are currently established for this Key Event. Additional Milestones shall be negotiated in the future, as appropriate. State comments will be provided within 30 days of receipt of the final document for review unless otherwise noted.

1. Title II

(a) Technical portions of the Title II design packages consisting of CCP-1D, including final construction drawings and specifications for the Exhaust Shaft and Waste Shaft.
(b) Technical Portions of the Title II design packages consisting of CCP-1Fb, including final construction drawings and specifications for underground development (experimental areas).
(c) Title II Amendments to the SAR. These amendments will reflect the cost reduced design of WIPP and the underground orientation of WIPP.

2. Institutional (for Informational Purposes)

(a) Federal Land withdrawal - full facility administrative land withdrawal.
(b) Lease acquisition.
(c) All applications and approvals for State and Federal permits and clearances.

(1) Air Quality Permit
(2) Water Quality Permit
(3) Approval to Install Septic Field(s)
(4) Archaeological Mitigation
(5) Rights-of-Way

3. Preliminary Geotechnical Suitability Determination

(a) Basic data reports for Site Characterization
(b) Dissolutioning of Evaporites in the Delaware Basin Report (SAND 82-0461)
(c) DMG Hydrology Report (TME 3166)
(d) Geohydrology of the Proposed WIPP Site - Los Medanos area,

Southeast New Mexico, USGS Water Resources Investigation #83-4016.

(e) Exploration of Disturbed Zone (Data File Report on ERDA-6 and WIPP-12 testing)
(f) Basic Data Report—Borehole WIPP-12 Deepening (TME 3148)
(g) Site Deformation Report (SAND 82-1069)
(h) Brine Reservoirs Report (TME 3153)
(i) Breccia Pipe Report (USGS Open File 82-968)
(j) Fracture Flow in the Rustler Aquifers Report (SAND 82-1012)
(k) Hydrogeochemical Parameters of Fluid Bearing Zones in the Rustler and Bell Canyon Formations (SAND 83-0210)
(l) Natural Resources Study Report (TME 3156)
(m) Interim Policy Statement on Resource Recovery

4. Preliminary Transportation Evaluation

(a) Radiological impacts under normal conditions
(b) Radiological impacts under accident conditions

5. Preliminary Experimental Program

(a) In-Situ Testing Plan for WIPP (SAND 81-2628)
(b) Simulated Waste Experiments Planned for the Waste Isolation Pilot Plant (SAND 82-0547)

6. SPDV Site and Design Validation

(a) Plans for SPDV Design Validation
(b) Plans for SPDV Site Validation (WIPP-DOE-116)
(c) Preliminary Design Validation Report, including field data
(d) Results of Site Validation Experiments, including field dat (sic)
(e) Site Validation Summary Report containing a summation of the results of all experiments and studies conducted during the SPDV phase and site validation phase at least sixty (60 (sic) days prior to issuance of the Final Validation Declaration, i.e., the "Decision to Construct the Full WIPP Repository."

(1) State and public shall have sixty (60) days in which to comment on the document.
(2) DOE shall review, consider and respond to any State or public comments before entering a final decision to construct the WIPP repository.

7. Cost Reduction Program Environmental Analysis (WIPP-DOE-136)

8. State shall have the opportunity to consult with DOE and comment on all materials contained in draft DOE Orders related to the health and safety considerations of the WIPP Project prior to promulgation of final Order(s) by DOE.

9. Notification

(a) Final decision on permanent facility construction. At least 30 calendar days, DOE notification to the State prior to site mobilization of first construction contractor
(b) Baseline master construction schedule
(c) Site Operations Weekly Report
(d) Project Progress Reports (monthly)
(e) Interim Resource Recovery Plan (Complete)

[as amended, April 1983]

G. CONSTRUCTION OF WASTE HANDLING BUILDING

The following Milestones are currently established for this Key Event. Additional Milestones, together with reasonable time limits for State comment and DOE response, shall be negotiated in the future, as appropriate.

1. Title II

(a) Technical portions of the CCP 14 design package
(b) Title II amendments to the SAR

2. Notification (For Informational Purposes)

(a) Project Progress Reports (monthly)
(b) Baseline schedule summary

3. State shall have the opportunity to consult with DOE and comment on all materials contained in draft DOE Orders related to the health and safety considerations of the WIPP Project prior to promulgation of final Order(s) by DOE.

[as amended, April 1983]

H. UNDERGROUND DEVELOPMENT

The following Milestones are currently established for this Key Event. Additional Milestones, together with reasonable time limits for State comment and DOE response, shall be negotiated in the future, as appropriate.

1. Title II

(a) Technical portions of the CCP 1E design package
(b) Title II amendments to the SAR

2. Notification (For Informational Purposes)

(a) Project Progress Reports (monthly)
(b) Baseline schedule summary
(c) Results of geologic mapping of the tunnels, the scope of which will be determined by WPO and EEG.

3. State shall have the opportunity to consult with DOE and comment on all materials contained in draft DOE Orders related to the health and safety considerations of the WIPP Project prior to promulgation of final Order(s) by DOE.

[as amended, April 1983]

I. CONSTRUCTION OF EXHAUST FILTER BUILDING

The following Milestones are currently established for this Key Event. Additional Milestones, together with reasonable time limits for State comment and DOE response, shall be negotiated in the future, as appropriate.

1. Title II

   (a) Technical Portions of the CCP 19 design package
   (b) Title II amendments to the SAR

2. Notification (For Informational Purposes)

   (a) Project Progress Reports (monthly)
   (b) Baseline schedule summary

3. State shall have the opportunity to consult with DOE and comment on all materials contained in draft DOE Orders related to the health and safety considerations of the WIPP Project prior to promulgation of final Order(s) by DOE.

[as amended, April 1983]

J. COMPUTER INSTALLATION FOR THE FACILITIES ALARM AND MONITORING SYSTEMS

The following Milestones are currently established for this Key Event. Additional Milestones, together with reasonable time limits for State comment and DOE response, shall be negotiated in the future, as appropriate.

1. Title II

   (a) Technical portions of the CCP 17 design package
   (b) Title II amendments to the SAR

2. **Notification (For Informational Purposes)**

   (a) Project Progress Reports (monthly)
   (b) Baseline schedule summary

3. **State shall have the opportunity to consult with DOE and comment on all materials contained in the draft DOE Orders related to the health and safety considerations of the WIPP Project prior promulgation of final Order(s) by DOE.**

[as amended, April 1983]

K. OPERATIONS

The following Milestones are currently established for this Key Event. Additional Milestones, together with reasonable time limits for State comment and DOE response, shall be negotiated in the future, as appropriate.

Any State comments as to public health and safety concerns shall be provided to the DOE WIPP Project Manager within _____ calendar days after receipt of documentation from DOE. DOE shall respond to the State comments within _____ calendar days after receipt of such comments. Nothing herein shall preclude further discussions of the matter or any updates prepared by DOE. Reasonable time frames for State comments and DOE response to any DOE updates shall be as negotiated by the principal representatives of the parties.

1. Final facility

   (a) Final facility amendments to the SAR
   (b) Operating and Monitoring Plan
   (c) Final site emergency response manual
   (d) Periodic reports on progress of excavation and geotechnical conditions encountered for mining performed prior to this Key Event.

2. Pre-Operational Testing

   Pre-operational Test Reports

3. Final Transportation Evaluation

   (a) Department of Transportation certification(s) of shipping cask(s) (For Informational Purposes)
   (b) Safety Analysis Report(s) on Packaging (SARP)
   (c) Information on the mode of transport and routing as available

4. Final Experimental Program

   (a) High level waste experimental plan and schedule including the continuing SWE
   (b) WAC and Certification Requirements for high level experimental wastes*.

5. Waste Certification

   (a) TRU Waste Acceptance Criteria (WIPP-DOE-069)
   (b) TRU Waste Certification Requirements
   (c) Quality Assurance Requirements for Certification of TRU Waste (DOE-WIPP 120)

*All sites' plans for all waste forms need not be complete to permit WIPP to start operations. Those sites shipping waste to WIPP must have approved plans covering the waste form being shipped.

(d) Site Specific TRU Waste Certification Plans*. DOE shall provide to the State drafts of the WAC compliance procedures for each certifying facility and will consider State comments on these procedures before such procedures are finalized.

6. Acquisition of State Land

7. Legislative or Administrative Land Withdrawal (For Informational Purposes)

8. DOE shall provide the following investigation and reports to the State and allow for a 45 day review and comment period by State and general public. DOE shall consider and respond to such comments prior to the decision to transport <u>any</u> waste into the State for emplacement at the WIPP site:

   (a) Results of Simulated Waste Experiments:
   Including all pertinent results and analyses of experiments as agreed upon by WPO and EEG.
   (b) Final results of design validation experiments and results of continuing site research and development studies, including all pertinent results and analyses of investigations and experiments as agreed upon by WPO and EEG.

9. Notification (For Informational Purposes)

   (a) Seven calendar day notification prior to RH/CH TRU and high level waste retrievability demonstration
   (b) Seven calendar day notification prior to expected start of operations (i.e., receipt of first waste)
   (c) <u>Project Progress Reports</u> (monthly)

10. State shall have the opportunity to consult with DOE and comment on all materials contained in draft DOE Orders related to the health and safety considerations of the WIPP Project prior to promulgation of final Order(s) by DOE.

[as amended, April 1983]

11. Retrievability Demonstration.

The objective of this activity is the demonstration of the retrievability of the three waste forms: i.e., remote-handled transuranic (RH-TRU), contact-handled transuranic (CH-TRU), and experimental defense high-level waste (DHLW), in accord with criteria established in WIPP-DOE-71, Design Criteria Waste Isolation Pilot Plant, as revised. DOE will provide to the State for its review and comment the following documents:

   (a) retrieval equipment design specifications for each waste form;
   (b) retrievability demonstration plan for each waste form, which will include a summary of the demonstration procedures and techniques to be followed, the <u>in situ</u> conditions to be simulated, and the criteria for evaluating the results of the demonstration of the procedures and techniques;

(c) report on the mock, onsite CH-TRU retrievability demonstration which documents the results of the demonstration of the applicable procedures and techniques;
(d) report on the mock, onsite RH-TRU retrievability demonstration which documents the results of the demonstration of the applicable procedures and techniques;
(e) report on each mock, onsite DHLW retrievability demonstration which documents the results of the demonstration of the applicable procedures and techniques.

The State shall review and comment on each report listed in paragraphs (c), (d), and (e) above in writing within sixty (60) days of its receipt. DOE shall consider and respond to such comments. The first shipment of each specific waste form or configuration of that form shall not occur until seventy-five (75) days after the DOE responds to the State's comments on DOE's report on the retrievability demonstration for that waste form or configuration. The State shall be invited to view the retrievability demonstrations.

The Manager, AL-DOE, shall advise the State in writing, on a quarterly basis, of the estimated first shipping date of each waste form.

12. Geotechnical Studies

As stated in WIPP-DOE-174, DOE will perform certain additional geotechnical studies at the WIPP site. The specific studies to be conducted for this purpose are listed at Appendix I and Appendix III to this Working Agreement. This list does not preclude performance of additional studies as needed to resolve scientific issues or questions. The parties may agree to amend Appendices I & II to this Working Agreement as needed in the future.
[as amended, March 1988]

DOE or its contractors will issue reports on these studies. The projected titles, anticipated completion dates for each report, and a detailed description of the scope of each will be provided to the State by March 31, 1985. Such information shall be incorporated herein as Appendix II to this Working Agreement.

The reports will be provided to the State for review and comment not later than January 1, 1988. A summary report on the additional geotechnical studies listed in Appendix I to this Working Agreement will be provided to the State by DOE not later than January 1, 1988. The State may, at its option, review and comment on such geotechnical studies and DOE's summary report.

The completion of these studies and the issuance of these reports may be concurrent with construction of WIPP, but will be completed and forwarded to the State prior to the shipment of any radioactive waste to WIPP or January 1, 1988, whichever is earlier.
[as amended, March 1988]

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The State's position on these studies is that they will answer some remaining uncertainties about the site. The DOE position concerning these studies is as set forth in WIPP-DOE-174.

[as amended, November 1984]

L. RETRIEVABILITY DECISION FOR TRU WASTE

The following Milestones are currently established for this Key Event. Additional Milestones, together with reasonable time limits for State comment and DOE response, shall be negotiated in the future, as appropriate.

1. Facility Performance Evaluation
2. Status of Experimental Programs (especially borehole plugging)
3. Final Geotechnical Suitability Determination (update of preliminary determination incorporating any additional data acquired)
4. Final Retrieval Plan (if retrieval is required)
5. Legislative land withdrawal (if not previously obtained)
6. Notification of Decision to Retrieve or Not to Retrieve
7. State shall have the opportunity to consult with DOE and comment on all materials contained in draft DOE Orders related to the health and safety considerations of the WIPP Project prior to promulgation of final Order(s) by DOE.
8. Periodic reports on progress of excavation and geotechnical conditions encountered for mining performed prior to this Key Event.

[as amended, April 1983]

M. HIGH LEVEL WASTE RETRIEVAL AND SHIPPING

The following Milestones are currently established for this Key Event. Additional Milestones, together with reasonable time limits for State comment and DOE response, shall be negotiated in the future, as appropriate.

1. Decommissioning and Decontamination Plan for Experimental Facility Underground Area
2. Transportation Modes and Routes (as available)
3. State shall have the opportunity to consult with DOE and comment on all materials contained in draft DOE Orders related to the health and safety considerations of the WIPP Project prior to promulgation of final Order(s) by DOE.
4. Periodic reports on progress of excavation and geotechnical conditions encountered for mining performed prior to this Key Event.

[as amended, April 1983]

N. DECONTAMINATION AND DECOMMISSIONING

The following Milestones are currently established for this Key Event. Additional Milestones, together with reasonable time limits for State comment and DOE response, shall be negotiated in the future, as appropriate.

WORKING AGREEMENT

1. Decontamination and Decommissioning Plan, including any remaining borehole plugging, decontamination of surface facilities, and disposition of underground and surface facilities and equipment.

2. Post-Closure Control Plan, including, but not limited to, active and/or passive control periods, specific organization responsibilities, control of resource recovery activities, active and passive control requirements, environmental monitoring and safety considerations. This plan will be implemented, and the implementation monitored, by DOE, its successor governmental agency or other designated federal agency.

3. Retrieval of last experimental waste.

4. Shipment offsite of last experimental waste.

5. Public Health and Safety Radiation Standards Plan. This plan shall include a description of DOE's implementation of applicable public health and radiation protection standards in effect at the time the facility is to be decommissioned.

6. The State shall have the opportunity to consult with DOE and comment on all materials contained in draft DOE orders related to the health and safety considerations of the WIPP Project prior to promulgation of final order(s) by DOE.

7. Periodic reports on progress of excavation and geotechnical conditions encountered for mining performed prior to this key event.

[as amended, November 1984]

ARTICLE V - INTERPRETATION AND IMPLEMENTATION

This Working Agreement shall be interpreted and implemented in a manner consistent with the underlying Agreement.
[The April 1983 amendments were made by Revision I to the Working Agreement signed by Robert P. McNeill, Chairman, Radioactive Waste Consultation Task Force, on behalf of the State of New Mexico on March 25, 1983, and by R. G. Romatowski, Manager, Albuquerque Operations Office, on behalf of the United States Department of Energy on April 8, 1983. The November 1984 amendments were made by the First Modification to the Consultation and Cooperation Agreement, previously described.]

[There are no Articles numbered VI thru XI.]

ARTICLE XII

The DOE agrees that the State of New Mexico may have one fixed air sampler at that point in the DOE's exhaust shaft air ventilation system referred to as Station A and one fixed air sampler at that point in DOE's system referred to as Station B. The parties understand that the State's fixed air sampler for Station A will extract a sample inside the exhaust shaft at approximately the same location below the surface as the DOE system. The location of Station B will be selected based on probe and duct studies and the ability to obtain a representative sample of the exhaust effluent.

The placement of the fixed air samplers and the design of the probe(s) to be sed in the samplers will be decided upon after completion of the assessment oeing conducted by consultants from Texas A&M and the peer review panel formed by the DOE. Installation of the State's samplers shall take place in conjunction with installation of DOE's changes in its system.

The DOE and the State will exchange with each other both the gross results and the analytical results of samples taken by their respective sampling systems. [as amended, March 1988]

APPENDIX I

to

WORKING AGREEMENT

Additional Geotechnical Studies

1.(a) Investigate the depression of the marker beds in the lower part of the Salado Formation, centered two miles north of the WIPP shafts (this structure is generally referred to as the "FC-92" structure).

DOE will investigate this depression by drilling the hole DOE-2. This hole will be drilled into the Delaware Mountin Group (DMG) Formation. It will be a multi-purpose hole, the primary purpose of which will be to answer the question about the origin of the marker bed depressions in the Salado Formation at this location. The secondary objectives will be to gather information about the Rustler and the DMG hydrologic parameters. In the event brine is encountered in the Castile, the DOE may examine the DMG elsewhere rather than deepen DOE-2.

1.(b) Provide data and any interpretive reports on artesian heads encountered at the levels of Salado and Castile Formations.

DOE has collected data of possible relationship to the origin the artesian heads which have been encountered at the levels o the Salado and Castile Formations at several deep boreholes, including AEC-7, WIPP-12 and Cabin Baby. DOE plans to underta a further investigation at DOE-2 to determine the origin of su heads if artesian heads are encountered at that location. Dat related to such heads from these deep boreholes, together with any interpretative reports thereon, will be made available to the State.

2. Perform hydrologic testing of the Rustler water-bearing zones.

Perform hydrologic testing at three-well hydropads at H-3 and H-11; long-term flow-tests at H-3; single well testing at several existing wells.

3. **Perform tracer testing in the Rustler aquifers.**

Perform convergent tracer tests at hydropads H-3 and H-4.
[as amended, March 1988]

4. Obtain water-chemistry data for the Rustler aquifers.

   Obtain water samples from several boreholes and different water-producing horizons in the Rustler Formation where such sampling has not already been done. Analyze these for major and minor dissolved constituents as well as for environmental isotopes such as, Cl-36, C-14, U-234, U-238, Ra-226, O-18/16 and H-2/1, to aid in the determination of flow-paths, groundwater velocity and the recharge/discharge areas.

5. Conduct a water balance study for the WIPP site.

   This study should try to answer the question of recharge and discharge; infiltration characteristics of surficial materials; evaporation from the WIPP ground surface, and from the lakes and the Pecos river; and the overall balance of the movement of water through the formations overlying the Salado at the WIPP site.

6. Perform computer modeling of groundwater flow and solute transport through the Rustler aquifers.

   Using the information obtained from the work described in items 2 to 5 above, perform computer modeling of groundwater flow and solute transport through the Rustler.

7. Study the mechanics of removal of salt from the Rustler Formation at and near the site.

   Questions to be addressed by this study include, (a) more precise areal definition of removal of salt from various zones in the Rustler (b) locations, characteristics and thickness of dissolution residues in the Rustler (c) recharge and discharge paths of fresh water and brine used in the dissolution process, and (d) the timing and the rate of dissolution.

8. Delineation of Castile brine.

   Evaluate and field-test non-invasive geophysical methods near the existing WIPP Project related deep boreholes to identify and delineate possible occurrences of brine in the Castile Formation. DOE will consult with EEG prior to the selection of such methods to be tested. If a method shows results which agree with interpretative data from existing drill holes, conduct a survey over the repository using this method to delineate possible occurrences of brine.

9. Investigation of suspected "Dolines."

   Investigate some of the prominent depressions at the site and in the surrounding area to address the question of their origin, particularly the suspicion of at least some of these being "dolines."

10. Study of MB-139.

Study the marker bed 139 underlying the repository horizon to determine its composition, structure and origin and the origin of brine and gases apparently associated with it.

[Appendix I was added by the November 1984 Modification]

APPENDIX II

TO

WORKING AGREEMENT

Reports to be Issued by DOE on

the Additional Geotechnical Studies

Study 1a

1. Projected Title and Availability: "Technical Report for DOE-2" (3/86).

   Description: This report will describe the drilling history, general stratigraphy, structural extent of the DOE-2 depression, and results of hydrologic testing of DOE-2. The hydrologic test data will be used to: 1) estimate the permeability of distinct zones within the Rustler, 2) determine if any appreciable permeability is present in the Salado or the Castile, 3) determine hydraulic properties of the upper portion of the Bell Canyon Formation (unless pressurized brine is encountered in the Castile). Drilling, coring, and core descriptions will be used to determine structural elevation of units and assess whether or not there is evidence of evaporite dissolution.

2. Projected Title and Availability: "Geologic Structures within the Salado and Castile Formations in Hole DOE-2" (5/86).

   Description: The major objective of this report will be to describe the structures and, if possible, determine their origin. This will include an analysis of drilling, coring, and core description data to: 1) determine the structural extent the depression of the marker beds, 2) assess whether or not evaporite dissolution has occurred within the Salado and/or Castile Formations, and 3) describe any significant deformation features encountered within the Salado and/or Castile Formations.

Study 1b

Projected Title and Availability: "A Compilation of Hydrologic Data from the Salado and Castile Formations at the WIPP Project" (3/86).

Description: This report will compile hydrologic (Artesian head) data from the Salado and Castile Formations from holes drilled for the WIPP Project. This will include AEC-7, WIPP-12, Cabin Baby, and previously unpublished U.S.G. data. This report will also include data from DOE-2 (see Study 1a).

Study 2

1. Projected Title and Availability: "Hydrologic Data Reports" (6/85 - 6/87).

   Description: This is a series of five reports that will present existing hydrologic data and to report future data in a timely manner. The first two reports will be used to publish the existing hydrologic data. Subsequent reports will present data as it becomes available. For the most part, these reports will contain "raw" data, without interpretation, but with sufficient annotation to allow an interpretation to be made. This will include data from hydrologic testing, tracer studies, and synoptic pressure surveys.

2. Projected Titles and Availability:

   "Multi-Pad and Single-Pad Aquifer Tests of the Culebra Dolomite at Hydropad H-3" (6/86).

   "Hydraulic Testing of the Culebra Dolomite at H-11" (8/86).

   Single-Well Hydraulic Testing of the Rustler Water-Bearing Zone" (3/87).

   Description: As the hydrologic test data are analyzed and interpreted, a series of interpretative reports will be prepared. These reports will include complete annotated listing of the test data, descriptions of the tested wells and instrumentation, testing histories, full explanation and documentation of the analysis techniques employed, analysis and/or numerical modeling of results, and interpretation of results. Reports will be prepared for multi-well testing on individual pads and for the large-scale pumping test(s). Single-well testing will be described in a separate report.

Study 3

1. Projected Title and Availability: "Hydrologic Data Report" (6/85 - 6/87).

   Description: The data from all tracer tests conducted to date will be reported in the first "Hydrologic Data Report." These data will be "raw," with no interpretation provided. Data from future tracer testing will be presented in the appropriate hydrologic data reports.

2. Projected Titles and Availability:

"Convergent-Flow Tracer Tests at Hydropad H-3" (1/87).

"Convergent-Flow Tracer Tests at Hydropad H-4" (10/86).

Description: **These reports will include complete annotated listings of the test data, descriptions of the wells and instrumentation configurations, discussions of the chemical composition of the tracers used, testing histories, full documentation and explanation of the analysis technique employed, analysis and modeling of results, and interpretation of those results.**

[as amended, March 1988]

Study 4

1. Projected Title and Availability: "Technical Report on Analysis of Water Samples from the Rustler Aquifers at the WIPP Site" (4/87).

   Description: This report will discuss results of the groundwater sampling program with respect to refined site characterization. This will include a discussion of the development of sampling criteria, procedures, and analytical methods. Basic water quality data for each well will be presented along with a discussion of the evaluation, selection, and application of isotopic and other geochemical parameters.

2. Projected Title and Availability: "Hydrogeochemical Facies in the Rustler Formation at the WIPP" (1/88).

   Description: This report will compare the solutes with host rock mineralogies at and between various well sites. This report will not apply an interpretative-origin model at each site, but will attempt to delineate hydrochemical facies in the Rustler Formation. An additional comparison of these facies with flow patterns derived solely from physical hydrology will be made for purposes of examining internal consistency.

Study 5

Projected Title and Availability: "A Regional Water Balance for the WIPP Site and Surrounding Area"; SAND84-2233 (3/85).

Description: This report contains discussions and compilations of available data concerning precipitation, evaporation,

water-table elevations, storage in lakes, irrigation, municipal use, potash refining, oil-field flooding, and dumping for the Pecos River drainage basin between Artesia and the Texas/New Mexico state line. This compilation includes detailed discussions of the sources of data, data uncertainties, and the ways in which the type of data contribute to the calculation of a water budget in the vicinity of the WIPP.

Study 6

Projected Title and Availability: "Groundwater Modeling Study of the Rustler Aquifers" (1/88).

Description: The modeling and interpretation in this report will deal with relatively "undisturbed" hydrologic conditions and will involve only transport of "naturally occurring" solutes. It will be an integral part of activities aimed at a refined site characterization of the WIPP site. The computer modeling will incorporate interpretations of Rustler stable-isotope and geochemical data.

Study 7

1. Projected Title and Availability: "Dissolution of Halite and Gypsum, and Hydration of Anhydrite to Gypsum, Rustler Formation, in the Vicinity of the Waste Isolation Pilot Plant, Southeastern New Mexico"; U.S. Geol. Survey Open - File Report (12/85).

   Description: This report will present an interpretation of evaporite dissolution within the Rustler in the vicinity of the WIPP site based on correlation of geophysical logs. It will include a description of lateral variability and evaporite dissolution within the Rustler Formation, based on detailed correlation of a small number of geophysical logs from holes at and near the WIPP site.

2. Projected Title and Availability: "Facies Variability and/or Evaporite Dissolution Within the Rustler Formation in the Vicinity of the WIPP Site, Southeastern New Mexico" (7/87).

   Description: This report will present the overall mineralogy and a detailed lateral correlation within the Rustler Formation in the vicinity of the WIPP. Included will be a detailed investigation of Rustler core from holes at and near the WIPP, as well as from at least one hole within Nash Draw. Emphasis will be placed on interpretation of sedimentation versus dissolution as the origin of lateral variability within the Rustler, especially relative to clay-rich zones often interpreted as dissolution residues. The work will include detailed lateral

correlations within the Rustler. The work will also include a general petrographic and mineralogical description of the Rustler Formation as a whole.

Study 8

Projected Title and Availability: "Evaluation of the TEM Method for Identification of Castile Brine Occurrences near the WIPP Site, Southeastern New Mexico" (3/86).

Description: This report will describe the trial field surveys using TEM. A comparison between CSAMT and TEM methods and results within the survey area will be included, as will a correlation of MT methods to drillhole data concerning Castile brine occurrences. On the basis of these geophysical field trials, DOE will consult with EEG to decide if a geophysical method shows significant promise to conduct a survey over the WIPP repository to identify and delineate possible occurrences of brine in the Castile Formation.

Study 9

Projected Title and Availability: "Assessment of Near-Surface Dissolution in the Vicinity of the Waste Isolation Pilot Plant"; SAND84-7178 (2/85).

Discription: This report presents the results of a field study of the distribution of near-surface dissolution phenomena in the WIPP site and Nash Draw area. The structures possibly resulting from dissolution are considered in terms of their relationships with the Gatuna Formation and the Mescalero Caliche. The approximate age and magnitude of past dissolution events are documented. The report includes a description and discussion of the field investigation of possible alluvial dolines in the vicinity of the WIPP site.

Study 10

Projected Title and Availability: "Marker Bed 139: A Study of Drillcore from a Systematic Array" (2/85).

Description: This report describes the macroscopic internal structure and mineral composition of Marker Bed 139 based on core from five holes drilled specifically for this purpose. The undulatory upper surface is described and sedimentary versus deformational interpretations of its origin are discussed. Fractures in the central part of the unit, which may provide local reservoirs for brine and gas, are described, and their origin is discussed in the framework of the sedimentary and erosional history of the Delaware Basin.

APPENDIX III

TO

WORKING AGREEMENT

The DOE agrees to perform certain additional studies in lieu of the sorbing tracer test. These studies are described below along with the target dates for completion of each study. Unless otherwise noted, each study will result in a report containing the analyses and results of the study.

A. Hydrologic characterization of the Rustler Formation

1. Conduct a multi-well flow test centered at H-11, to evaluate the high-transmissivity zone in the Culebra in the SE part of the WIPP site. One additional well (H-17) has been located in this area on the basis of the preliminary hydrologic model and electromagnetic surveys, and will be incorporated in this test. After completion and interpretation of the H-11 test, consideration will be given to drilling of an additional hole, if needed, to provide direct field confirmation of the high-transmissivity zone.

Target dates: Begin H-11 multi-well test: 2/88

Complete H-11 multi-well test: 5/88

Complete reporting of a multi-well test: 12/88

2. Conduct a conservative-tracer test at the H-11 pad. This test may necessitate drilling of a fourth hole near the H-11 pad, but at a sufficient distance from the pad to examine whether or not dual-porosity transport effects indeed decrease in importance with

increasing transport distance. If possible, the tracer test will be conducted as part of the H-11 multi-well interference test.

Target Dates: Begin H-11 conservative-tracer test: 2/88

Complete H-11 conservative-tracer test: 4/88

Complete reporting of H-11 tracer test: 12/88

3. Conduct additional radiocarbon studies on Rustler groundwater. The study will consist of two parts. At least 6 wells will be sampled to investigate further questions of contamination and system stability raised in SAND86-1054; completion of this study may require resampling of one or two wells known to be contaminated at the time of earlier sampling. In addition, several (approximately 10) new radiocarbon samples will be collected during sampling as part of the Water-Quality Sampling Program (WQSP), in the hope of obtaining direct evidence of groundwater residence times. Samples from the WQSP will be restricted to the near-WIPP environment (not including Nash Draw), and will include reasonable numbers of samples from both high- and low-transmissivity holes. Serious consideration will be given to conducting limited investigations of the metabolic pathways of modern vegetation at the WIPP, and to carbon analysis of both soil gas and soil carbonate, if evaluation indicates these studies would improve the confidence in modeling of WIPP release scenarios.

Target dates: Initiate additional radiocarbon sampling of Rustler fluids: This has already taken place, with 10/87 sampling of H-17.

Indicate additional radiocarbon analyses: 4/88

Complete reporting of additional radiocarbon analyses: 9/89

4. Complete the ongoing investigation of the areas and mechanisms of recharge to the water-bearing units of the Rustler. This ongoing study consists of an investigation of water levels in existing wells north and northwest of the WIPP site. Particular effort has been made to characterize the nature and extent of a possible groundwater divide between Clayton Basin and Nash Draw. The data and interpretations from this study will be provided to NM/EEG, either as technical memos or as a separate SAND report, and will be used in regional hydrologic modeling of the Rustler Formation.

Target dates: Decision concerning conversion of existing memo records into separate SAND report: 12/87

Complete of transfer of technical information to NM/EEG: 6/88

5. Geophysical surveys to delineate the lateral resistivity variability in the Rustler Formation. Disagreement between recent geophysical interpretations and field results from drilling and testing of hole H-17 indicate limitations in the reliability of geophysical studies to determine lateral variability within the Rustler Formation. However, a geophysical anomaly of unknown origin is present at H-17. If it can be determined from analysis that this anomaly is related to the Rustler Formation, a limited geophysical program will attempt to determine its origin. The merit of extending geophysical studies of Rustler variability beyond H-17 will be evaluated after interpretation of the H-11 multi-well experiment and decision concerning studies near H-17.

Target dates: Determination of validity of additional studies in area of hole H-17 to determine origin of geophysical anomaly: 12/87

Scheduling of additional work in vicinity of H-17, if appropriate: 12/87

As noted, any additional work, other than in the vicinity of H-17, would follow interpretation of the H-11 multipad interference test, approximately 10/88-12/88

6. Development of a generalized three-dimensional regional flow model extending from the ground surface to the Bell Canyon Formation. Care will be taken that, over the long term, geologic and modeling expertise and interpretations developed as part of WIPP site-characterization activities are included in such modeling.

Target dates: Completion of regional-scale three-dimensional hydrologic modeling as part of methodology-development report: 3/88

Initiation of numerical modeling of "altered" zone around WIPP shafts: 10/88

Completion of mechanistic three-dimensional numerical modeling in vicinity of WIPP shafts: 10/90

Completion regional-scale three-dimensional hydrologic modeling as part of final performance assessment: 12/91

7. Development of transport models for the Culebra, following a high-pressure (brine-reservoir) breach. The objectives of this work will be to estimate the significance of fracture flow in contaminant transport, and to determine the most important variables in regional transport in the event of a high-pressure breach. The approach will be analogous to that already completed in SAND87-7105.

Target dates: This work is ongoing.

Completion of reporting: 6/88

B. Laboratory Studies Related to Sorption

1. Evaluation of the solute-rock interactions relevant to transport within the Culebra, to estimate the effects of suchvariable as fluid composition, natural and introduced organics, mineral-surface reactions, and sulfide content on distribution behavior of radionuclides within the Culebra Dolomite.

Target dates: Initiate detailed mechanistic studies: 6/88

Initiate semi-empirical sorption/reaction studies: 8/88

Complete semi-empirical studies: 10/90

Complete detailed mechanistic studies: 10/91

2. Experiments designed to determine the matrix diffusivity and effective porosity of intact material from representative lithologies from the Culebra Dolomite.

Target dates: This work is ongoing.

Complete matrix-diffusion tests with conservative tracers: 8/88

Initiate additional studies of effective porosity: 8/88

Complete additional studies of effective porosity of Rustler samples: 10/90

3. Column or fracture-flow experiments on Culebra wafers, cores, and blocks, using both conservative and reactive tracers and organic and inorganic fluid compositions relevant to WIPP breach scenarios.

Target dates: Initiate detailed planning for block, wafer, and column studies: 10/87

Complete planning and experimental design for final block, wafer, and/or column studies: 12/88

Initiate first part of block, wafer, and/or column studies: 10/88

Complete block, wafer, and/or column studies: 10/91

DOE recognizes that radionuclide retardation within the Culebra remains to be proven experimentally and remains committed to demonstrate experimentally the actual range of Kd's to be expected for transport within the Culebra. It is unlikely that transport will involve a single set of Kd values, and performance assessment likely must consider a range of values for each element. DOE will select, after consultation with the State, a range of values to be conservative, but reasonable, based on the lowest reasonable values experimentally obtained. In the absence of experimentally justifiable values, Kd will equal zero, i.e., no credit for retardation will be taken in the performance assessment calculations.

C. Pressurized Brine-Occurrence Investigations

1. Completion of the interpretation of geophysical investigations into the extent of pressurized brine in the Castile Formation underlying the WIPP facility.

Target dates: The reporting of these studies is completed in draft.
Completion of final reporting: 12/87

D. This was inadvertently left out. Section D does not exist.

E. Assessment of the Effect of Shafts on Rustler Hydrology

1. Repeat of the H-3 multi-well interference test, if specific conditions arise. The test would be repeated after interpretation of the H-11 multi-well test and the regional response to sinking of the WIPP air-intake shaft, but only if: 1) such interpretation reveals

significant remaining uncertainties in Culebra transmissivity near the site center; 2) such interpretation relies on non-documented variations in leakage rates into the WIPP shafts; and 3) it is agreed between DOE and the State that another site is not preferable to H-3. The opinion of DOE is that, even if conditions 1 and 2 above were met, a test at ERDA-9 or H-1 would be best to examine Rustler properties at and near the site center, while a test at DOE-1 would be best to examine variability over the southwest portion of the site.

Target dates: Decision concerning need for additional multipad interference testing of the Culebra Dolomite in the SW quadrant of WIPP site (dependent on review of data from H-11 multipad test): 7/88

Decision concerning the need for additional multipad interference testing of the Culebra Dolomite at and near the center of WIPP site (dependent on review of data from H-11 multipad test): 1/89

2. Monitoring of the regional response in several wells around the WIPP air-intake shaft as this shaft is drilled.

Target dates: Monitoring instrumentation is largely in place; continuous monitoring of Rustler response to shaft sinking will begin prior to the time the shaft penetrates the top of the Rustler Formation.

3. Proper instrumentation of the WIPP air-intake shaft with piezometers, to continuously monitor hydrologic behavior and parameters around the shaft.

Target dates: Instrumentation and testing of the air-intake shaft will depend upon the schedule of shaft completion and access. The present schedule is for access and instrumentation to begin early in FY89.

[as amended, March 1988]