See Pkg 2 for encl.

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August 10, 1984

Mr. Robert E. Browning
Director, Waste Management Division
Office of Nuclear Materials Safety and Safeguards
Nuclear Regulatory Commission
MS 623-FS
Washington, DC 20555

Dear Bob:

At the request of Cathy Russell, I am sending copies of all the principle state comments on the Mission Plan, except Minnesota, which will be sent directly by them, and Washington, which was distributed at the NGA Task Force Meeting. I hope these materials will be useful to you.

Sincerely,

John H. Gervers

South Carolina's Comments

on the

Draft Mission Plan for the

Civilian Radioactive Waste

Management Program

SOUTH CAROLINA

NUCLEAR WASTE

CONSULTATION COMMITTEE

July 1984

State of South Carolina

Office of the Governor

RICHARD W. RILEY
GOVERNOR

POST OFFICE BOX 11450
COLUMBIA 29211

July 6, 1984

The Honorable Donald P. Hodel
Secretary of Energy
United States Department of Energy
Washington, D. C. 20585

Dear Secretary Hodel:

Enclosed is a copy of the South Carolina comments on the Draft Mission Plan for the Civilian Radioactive Waste Management Program from the State's Nuclear Waste Consultation Committee, which I chair.

The primary goal of the Nuclear Waste Policy Act is to provide repositories for permanent disposal of radioactive wastes. The South Carolina Nuclear Waste Consultation Committee remains concerned about the Department's current emphasis on temporary storage of nuclear wastes, particularly the way in which Monitored Retrievable Storage is treated in the Draft Mission Plan. The Committee is convinced that temporary storage will lead to delays in the permanent repository program.

In addition, the two-month period alloted for state comments is inadequate for in-depth review of an important document such as the Mission Plan. South Carolina is one of the states which formally involves the legislature and outside technical reviewers in our comment process. This effort placed unnecessary hardships upon these committed citizens because of the brief time period allowed for our official response. In the future, documents of this importance would more appropriately be alloted a 90-day comment period.

The Consultation Committee looks forward to hearing from you regarding the suggestions made by South Carolina and other states. Please direct any questions or comments to Dr. John J. Stucker of my staff.

Yours sincerely,

Richard W. Riley

Richard W. Riley

Copies: Nuclear Waste Consultation Committee
South Carolina Congressional Delegation

Enclosure

SOUTH CAROLINA'S COMMENTS

ON THE

DRAFT MISSION PLAN FOR THE CIVILIAN RADIOACTIVE WASTE MANAGEMENT PROGRAM

DOE/RW-0005 Draft, April, 1984

Reviewed June 1984

South Carolina
Nuclear Waste Consultation Committee

Prepared by
Office of the Governor of South Carolina

July 1984

CONTENTS

FOREWORD

This comment document is submitted to the U.S. Department of Energy on behalf of the State of South Carolina by the South Carolina Nuclear Waste Consultation Committee. The Committee has been established to officially consult with the Federal government concerning the management or disposal in South Carolina of nuclear waste as provided for in the Nuclear Waste Policy Act.

The members of the Committee are:

Governor Richard W. Riley, Chairman
Lt. Governor Michael R. Daniel
Senator Thomas L. Moore
Representative Harriet H. Keyserling
Representative Palmer Freeman, Jr.
Representative David H. Wilkins
Robert D. Hatcher, Jr., Ph.D.
Mary B. Crum

Copies of the DOE Draft Mission Plan (April 1984) were distributed to outside reviewers. Written comments received from these reviewers were compiled by staff and submitted to the Consultation Committee. The names of those who reviewed the Mission Plan are listed at the end of this document.

The present document was prepared for the Nuclear Waste Consultation Committee by the staff of the Office of the Governor and the South Carolina Geological Survey:

John J. Stucker, Office of the Governor
Patricia L. Jerman, Office of the Governor
Suzanne H. Rhodes, Office of the Governor
Norman K. Olson, State Geologist
William D. Marshall, Office of the Governor
William F. Newberry, Office of the Governor
Betty Davidson, Office of the Governor
Jane B. Dorn, Office of the Governor

Comments contained in this document do not necessarily represent a consensus of the views of all the outside reviewers who contributed to the Technical Comment document. The Executive Summary was approved by the Committee June 19, 1984, for submission to the U.S. Department of Energy. The technical comments were accepted by the Committee on June 19 for submission to the Department.

EXECUTIVE SUMMARY

The Department of Energy (DOE) Mission Plan, required by the Nuclear Waste Policy Act of 1982 (NWPA), should "provide an informational basis sufficient to permit informed decisions to be made in carrying out the repository program..." The April draft of the Mission Plan is a good beginning. Various aspects of the DOE management program for high level waste and spent fuel have been described in this document. However, there remain several important areas of concern to South Carolina.

A. Systems Integration

The implied priorities of the systems integration section of the Mission Plan are commendable: compatibility of components of the various systems through standardization; integrated design and change capability; reduced handling and radiation exposures; coordination of design of packaging, handling, transportation, storage and disposal activities to assure compatibility. These goals, however, are not reflected consistently throughout this draft of the Mission Plan.

B. Monitored Retrievable Storage

The Mission Plan appears to have placed the federal nuclear waste temporary storage program on an equal footing with the permanent repository program, thereby signigicantly increasing the effort, funds required, and the handling of the country's nuclear wastes. The Department proposes an approach to the monitored retrievable storage (MRS) concept which would provide for a program to store up to 70,000 metric tons of spent fuel - the equivalent of the first repository under the Act. If the Department attempts to establish such an MRS program for spent fuel and nuclear waste, it will find interested parties in conflict regarding the siting and design of this interim measure. The Department risks losing the consensus achieved with the Act when it departs from this program's most important goal - a permanent repository for this country's nuclear waste. The 20 billion dollars and 40 years we will invest in a permanent solution deserves a chance to succeed. The 70,000 metric ton interim measure stands in the way of success. South Carolinians,

with 30 years of experience with "temporary storage" of nuclear wastes, are concerned that the repository effort may lose the attention of those required to make a success of the Act: elected officials, federal and state agencies, the nuclear power industry, citizens, and researchers.

C. Linkage Between First and Second Repositories

DOE's experience gained in siting, designing, building, and operating the country's first permanent repository should be factored into DOE's planning for this country's second nuclear waste repository if the program is to make effective use of resources. The schedules for the two repositories, which are not now related except indirectly through milestone dates, should be linked. Specific outcomes, not specific dates, in the first repository program should trigger specific activities in the second repository program.

D. Legal Responsibilities

It has become clear through recent court decisions that federal facilities must abide by federal environmental laws and comply with enforcement authorities delegated to various state agencies. The Mission Plan does not seem sensitive to the state's responsibility under federal environmental laws, which will conflict with the Department's schedule and priorities.

E. Defense Wastes

The Act provides for disposal of defense wastes in repositories built under the Act, unless factors such as cost, health and safety, and national security require separate repository facilities. The 1983 Defense Waste Management Plan designates repositories developed under the Act as the reference mode for disposal of wastes from defense programs, pending a decision by the President in 1985 regarding national security requirements. The Plan should state a tentative acceptance schedule for defense wastes pending the decision by the President. It is important to the country and to South Carolina that the defense wastes stored at the Savannah River Plant for 30 years be included in the repository acceptance schedule.

GENERAL COMMENTS

(Newberry, Rhodes Olson, Till)

Given the historical significance of the Mission Plan, DOE should consider the following refinements for the Final document:

The substitution of active voice for passive voice would clarify responsibility for many assertions and decisions, and would give the document a less bureaucratic tone.

Where technical and scientific assertions are made in support of a decision, the document should cite supporting research and discuss any other findings that do not support the contentions.

Pagination should be made uniform throughout the document. Also, if there is a dichotomy of purpose between the first half and second half, these should be considered "parts" rather than "volumes". This would reduce confusion to bibliographers, since the two halves are bound together. There should be one title page and one table of contents in the front of the report.

Several subsections discuss different aspects of the Test and Evaluation Facility, Monitored Retrieval Storage, Subseabed Disposal, and other topics. Comprehensive treatment of each subject would be easier to assemble with a detailed index.

TECHNICAL COMMENTS ON VOLUME I

Page/ Reviewer	Section	Comments
		INTRODUCTION
1-1 (Rhodes)	Program Objectives #3	The Nuclear Waste Policy Act states that the repository will begin receiving spent fuel and/or high level waste in 1998. It is <u>not</u> necessary for the federal government to begin receiving waste and spent fuel on a massive scale in 1998, or at a rate faster than the repository can accept--particularly not from utilities which are capable of storing their own fuel. Federal resources should be focused upon important repository operations, not upon interim measures or unnecessary activities. (Also II 9-6).
1-2 (Rhodes)	3rd para	DOE's periodic update of the Mission Plan, with full review, is a good planning tool and is commended. Does "periodically" mean at regular intervals? If so, how often will it be reviewed?
		PROGRAM STRATEGY
2-1 (Rhodes)	A, para 2 & 3	Defense wastes should be tentatively included in the waste acceptance schedule pending the 1985 decision. These wastes would be a good test tool to begin repository operation, and should not be ignored. Furthermore, some of this waste is "the oldest spent fuel or high-level

		waste" available. (Also p. 9-4).
2-4 (Rhodes)	2nd para	Why should the Department "consider proposals from industry dealing with reprocessing of spent fuel that will require Federal acceptance and solidification of the resulting liquid high-level waste..."? Solidification is an unnecessary service to industry and should not be financed from the waste fund. Federal involvement in solidification of commercial reprocessing wastes should not extend beyond the West Valley project. If reprocessing of spent fuel is commercially viable, it must comply with Appendix F of 10 CFR 50, a decade-old regulation.
2-5 (Rhodes)	D. para 2	Who will decide if an MRS is needed? When will this be decided? (Also at 2-9, last paragraph; 2-10, first paragraph; 2-10 #5; 3-B-1 and 3-B-9c, second paragraph.)
2-8 (Rhodes)	#2	The Department appears to have made a decision to omit the TEF. Lacking a compelling need, the TEF should be eliminated now from DOE activities. It appears appropriate for DOE to notify Congress and NRC that a TEF is not necessary. This would free up Department resources to work on the repository effort. (Also at 3-A-17, and II 4-1).
2-8 (Rhodes)	#3 and elsewhere	Mission Plan discussions of reactor site federal ownership of utility spent fuel do not suggest any advantage for that concept over utility ownership. The Department should focus its activities on the repository effort, not on unnecessary services.
2-10 (Rhodes)	#5	Some provision for division of emergency response responsibilities should be outlined: emergency

		teams, funds for alleviating initial problems, forms of private insurance available, and proper state and local government responsibilities. Public concerns regarding transportation safety indicate that the Department should depend on prudent planning to forestall political problems. If new legislation such as Price-Anderson amendments are appropriate, this should be stated clearly in the Mission Plan. (Also II 3.12).
2-10 (Nettles)	#5	A recent U.S. Supreme Court decision (Varig Airlines vs. U.S.; United Scottish Insurance Co. vs. U.S., June 19, 1984) clearly holds that discretionary or regulatory activities of the government cannot give rise to a tort action or a civil suit for damages. Thus, government ownership and transportation of wastes may not provide recourse to injured parties under the Federal Tort Claims Act in all situations.
2-11 (Olson)	Para 4	DOE should involve the U.S. Department of Transportation at the earliest possible stage. Several map plans should be developed illustrating possible corridors (rail, highway and water, if applicable) to each of the final three candidate sites (first repository). A detailed description should be provided for each corridor indicating current structural conditions of roadbeds and bridges, degree of curves, number of urban areas along route, potential hazards--steep slopes landfalls, mud slides, flooding, sinkholes, earthquakes--and any other "baseline" characteristics. Then, with a <u>stringent set of high-performance standards</u> applicable to each transport mode

		DOE should evaluate the most feasible routes, considering both the technical and institutional issues. An integral part of the Mission Plan should include a plan for interaction between DOE and the Department of Transportation (DOT), with DOT taking responsibility for directed measures in upgrading the appropriate final route(s), including alternate routes.
2-11 (Olson)	Para. 4	Adequate provision via waste fund for transportation planning and management is vital and must be assured.
2-12 (Rhodes)	6	The Federal Interim Storage Regulations have not yet been finalized by the Nuclear Regulatory Commission (NRC).

PROGRAM PLANS-REPOSITORY

3-A-3 (Duncan and Knox)	para 5	DOE intends to place primary importance on the capabilities of the natural geologic system for waste isolation. Engineered barrier systems will not be relied on to compensate for significant uncertainties in the natural system. If this is to be the case, nuclear disposal sites to be located below the earth's surface should be restricted to desert areas of low rainfall and deep water tables. The only mechanism for transport of the wastes from the repositories would be via groundwater; therefore, the repositories should be located where contact with underground fluids can be naturally minimized.
3-A-6 (Duncan and Knox)	3A.6	There is a danger of the argument being made to utilize a site because of the amount of money spent on site characterization. This may be especially true as site characterization as proposed will involve construction of at least two exploratory shafts for tests and studies. The exploratory shaft for the first repository is estimated to cost in excess of $500 million (1983 dollars)
3-A-6 (Marshall)	3A.6	DOE should make it clear that prior dollars invested in characterization will not cause commitment to a site found technically inferior late in the process.
3-A-7 (Marshall)	3A.4 & .7 #4	Mission objectives and schedules for repository development should point out which second repository milestones <u>await</u> or are <u>pending</u> first repository developments. The advantage in this type of approach would be that problems

		encountered with the first repository might not be duplicated at the second repository, thereby resulting in a technically improved, more cost effective program. (also p. 3-A-27, #7).
(Marshall)		Presentation of an integrated schedule which parallels events of the second repository with the first repository should be included in the Mission Plan.
3 A 10 (Smith for Talwani)	3A.5.a. Para. 1	During the Area and Location surveys for the first repository, does the field testing include continuous, or at least regular, instrumental monitoring of seismic activity (microearthquakes and larger earthquakes) at each of the nine sites?
3-A-23 (Olson)	3A.6.b	Second repository treatment is too brief (also Vol.II, 2.8).
3-A-6 (Rhodes)		The Act states that DOE will begin to dispose (in a repository) of wastes beginning 1998. (Sec. 302(a)(5)). If DOE receives wastes in an MRS, the generators and owners of the waste are obliged to pay the costs. The Mission Plan should reflect these two important aspects of the Act.
3-A-7 (Till)	3A.3.a&b	The waste package design can be more specific than 300 - 1000 years. Release rates of 1 part per 100,000 years for each "significant" radionuclide requires definition (activity - dose conversion - environmental transport).
3-A-12 (Olson)	3A.5.a. Para. 2	The final Mission Plan should clearly state that the Department, in its "resequencing" of project activities intends to be guided <u>first</u>, by the approved final Siting Guidelines; and <u>second</u>, by the Region-To-Area Screening Methodology which

		will be circulated in draft form for public review and comment. This statement and its actual implementation (both in letter and spirit) will aid DOE's credibility immeasurably, but ignoring them now could lead to legal challenges in the future. (Also I, 3-A-17c).
3-A-14 (Till)	3A.5.a(3)(b)	Even though subseabed disposal is unacceptable to this country, the Europeans are definitely interested. We cannot afford to deprive ourselves of an understanding and must stay abreast unless and until an international forum undertakes such research.
3-A-18 (Jerman)	3A.5.d.(1) Para. 3	With respect to the provision of financial assistance to affected Indian tribes; it should be noted that for the second repository program, definition of "affected" Indian tribes has precluded involvement of--much less assistance to--tribes thus far, and may for another several years.
3-A-18 (Jerman)	(1)Para. 3	Clarify "non-Act technical consultation and cooperation agreements."
3-A-18 (Till)		Why go into detail regarding C & C agreements with the second repository when the first repository needs so much attention?
3A-18 (Newberry)	(1) Para. 3	What C & C agreement activities have been undertaken in first round states? This section mentions only second round C & C efforts.
3-A-24 (Olson and Rhodes)	3A.6.b Para. 2	In line 4, add at the end of the sentence (after ". . . will be issued") <u>following State Review and comment.</u> Public credibility of the Crystalline Rock Project depends upon DOE's honoring this additional State Participation step.
3-A-25 (Jerman)	3A.6.c.(1) Para. 1	How will the decision regarding additional media be made? What criteria will be used? Who makes

		the decision?
(Newberry)	(c)(1)	Will this decision be based on adequacy of currently targeted media, new information on suitability of other media, or both?
3-A-26 (Jerman)	(d)	What mechanisms does the Act provide for resolving institutional problems?
	(e)	The consultation and cooperation process is critical and requires detailed explanation, lacking in this Plan.
3-A-26 (Jerman)	(2)	"Current plans include discussions" to resolve a number of issues; the Mission Plan should include <u>results</u> of these discussions. What <u>is</u> the role of each party and the make-up of the management committee?

<u>PROGRAM PLANS-MRS</u>

3-B-1 (Rhodes)	3B	This planning document proposes an MRS concept which would implement a three step process and proceeds without an assessment of the <u>need</u> for an MRS. The considerable Department resources required to site and implement an MRS would be better applied to a repository with improved ultimate efficiency and success. Siting a 70,000 MTU MRS could be as politically difficult as siting a repository. This state requests that it be kept fully informed regarding the development of MRS activities and reminds DOE that MRS is not a program but a study that contains a proposal to be submitted to Congress. Repository activities are to proceed at the same pace regardless of whether the proposed MRS is authorized by Congress (Sec. 141(a)(4)).

		The Draft Mission Plan and the Director's comments suggest that DOE plans to construct a binding schedule and program which requires utilities to finance sending of their spent fuel to DOE for temporary storage in 1998 whether or not the fuel can be stored at the power plant where the spent fuel is generated. Such a plan may be challenged unless it contains adequate information to justify such services.
3-B-7 (Olson) (Rhodes)	Para. 1	Design requirement number 5 (MRS expandable to 70,000 MTU) is inappropriate. The proposed 70,000 MTU MRS suggests that DOE is ready to give up on a repository and proceed with an MRS before coming to grips with the challenge of developing disposal capacity.
3 B 9 (Rhodes)	c 2nd para	Although the Act does not require the Environmental Impact Statement (EIS) or the NRC to consider the need for the MRS, the subject of need deserves attention just before the decision to construct, if not earlier. Why 70,000 MTU storage capacity? MRS is not a functioning program, but a study that contains a proposal which will be judged by Congress next summer. There is no reason to prejudge the outcome at this time. The proposal before Congress should include a variety of technical and institutional alternatives to a centralized MRS. Before a need for MRS can be determined, it is important that DOE understand licensing requirements and costs of

		on-site storage, and options resulting from the Program Research and Development Announcement (PRDA) for a Nuclear Waste Packaging and Handling Design Initiative.

PROGRAM PLANS-TRANSPORTATION

3-C-1 (Tudor & Thompson)	C	In light of the lack of application of the Price-Anderson Act, specific provisions for the division of responsibilities should be described. Emergency response teams, alleviation of initial problems in the case of a transportation accident (which may not involve an actual radiation leak), the forms of private insurance, as well as proper state-federal and local roles and responsibilities must be acknowledged. Public concerns regarding transportation safety could be alleviated by careful Department planning.
3-C-3 (Tudor & Thompson)	Para. 2	Prenotification rules as stated are inconsistent with hazardous material regulations.
3-C-5 (Tudor & Thompson)	Para. 2	Fuel aged 10 years is described as "typical" of the fuel shipped to the first repository or MRS facility. What would be the minimum age?

PROGRAM PLANS-INTERIM STORAGE

3-D-1 (Rhodes)	1	Utility capacities will be exceeded as early as '86 according to "a recent analysis". Include citation.
3-D-2 (Rhodes)	Para. 2 5	Mention is made of "short notice" to the Department for accepting spent fuel into the Federal Interim Storage program (FIS). This short notice was written into the proposed regulations and could either be changed, or offset by complimentary activities to anticipate the formal two-year notice. (Also at 3-D-5).
3-D-2 (Till)	a.(1)	Describe the "cooperative demonstration programs". It is unrealistic to believe that either technical solutions which are politically unacceptable or political solutions which are technically unacceptable will be successful. Describe how responsibilities, funding and benefits would be shared.
(Rhodes)		Several issues need to be understood regarding rod consolidation, including problems related to: loss of water in fuel pool, age of spent fuel to be consolidated, need for consolidating all spent fuel, handling and occupational exposures, wastes generated during consolidation, affect on full-cycle cask concept and ultimate temperatures in the cask when buried. Does the Waste Fund pay for rod consolidation or do utilities pay? Who made the determination that consolidation is "cost effective?" (Also, p. 8-1, section 8.1). Michael Lawrence's testimony on March 22, 1984, (Subcommittee on Energy Research and Development of the Committee on Energy and Natural

		Resources, Question III-6) and utility experience contradicts information presented here.
3-D-4 (Rhodes)	2, para. 1	The dry storage alternative should be equal to reracking, consolidation, and additional fuel pools. No option is generically preferable at this time.
3-D-5 (Rhodes)	b.	Even South Carolinians are not so impatient that they believe that South Carolina defense wastes should be transferred from the Savannah River Plant to an MRS and then finally to a repository. Rather, all wastes should be stored wherever generated until they can be shipped to a repository. Unnecessary transportation and handling should not be undertaken without a demonstration of compelling need.

PROGRAM PLANS-SYSTEM INTEGRATION

3-E-1 (Rhodes)	General	Specific systems planning is not in evidence, this chapter needs to be applied to the other chapters to unify efforts. The entire systems portion of the Mission Plan is a valuable first step in systemetizing the DOE effort. Clearly the intent and preliminary thought has been productive and constructive, although the systems chapter needs to be refined and integrated with the other sections in a forthcoming draft.

PROGRAM MANAGEMENT

4-1 (Rhodes)	4.1	The Program Management section, like Systems section, is well intended, but needs integration with other sections--and probably needs more integration with DOE field offices, contractors, and interested parties (states, industry, and labs). The Quality Assurance activities should be indicated in the next draft of the Mission Plan.
4-2 (Rhodes)	General	The planning and control system should be prioritized by sequence and interactions.
4-2 (Olson)	Para. 1	For consistency, there should be five (not four) principal activities named at the top of page 4-2. The Quality Assurance program (page 4-4) should be listed as the second principal activity.
4-4 (Rhodes)	C	The brief paragraph on Quality Assurance makes elusive references, but provides no details about, Chapter III.A "discussions on quality assurance," a Civilian Radioactive Waste Management formal documentation program and "similar quality assurance programs."
4-6 (Rhodes)	E	The permanent Director and senior staff members are an essential component of the administrative services. There is a need for a detailed listing of administrative management in the final Mission Plan so that the management and reviewers understand that those who prepared this planning report are accountable for its implementation. The success of the program will hinge upon support from administrative offices throughout the agency, from the named Director throughout the various departments and

field offices. Telephone numbers, addresses and specific named directors are useful and imply the long-term organizational structure which a smoothly running program requires.

4-7 Chart
p. 4-8
(Rhodes)

Organization charts should include specific names as well as titles and a very brief description of areas of responsibility. If this planning document is to be an effective tool, responsible officials must be closely associated with tasks.

COMMENTS ON VOLUME II

INFORMATION NEEDS

General (Marshall and Williams)		Volume II of the Mission Plan often has the appearance of being a "progress report." More emphasis should be placed in developing this document as a detailed plan for filling the needs and carrying out the tasks of the NWPA and the repository program. Though it may be encouraging to reflect on the gains that have been made in the past, this mission planning document should emphasize and chart the course yet untravelled.
General (Duncan & Knox)		While the information needs identified for critical issues may be valid in many cases, the complex geologic/hydrologic questions will be subject to debate. For example, geologists are divided on the depths of erosion in response to crustal movements and climate during the past million years. How can a correct answer be determined, and how valid is a projection for the next million years?
1-3 (Marshall)	Para. 2	The technical information needs for resolving the issues "is stated broadly -- without mentioning specific parameters -- at this level." This paragraph should explain when information needs for specific parameters will be addressed. Some readers may miss the prior explanations and disclaimers.
1-4 (Duncan and Knox)	Para. 1	During the site characterization process, tests will be conducted on both the host material and waste containers. The demonstration of

		compliance is to be based on analysis using mathematical models and scientific data from site characterization, etc. Assuming these test were fully underway today, and were able to be continued through 1998 (mandated date for first repository start-up), how valid is it to extrapolate fifteen years of test data for three hundred to one thousand or a million years? Most mathematical models are only as good as the calibration techniques. In general, when used for prediction they can only accurately project as far into the future as matching data exist in the past.
1-9(-10) (Jerman)	Issue 1.5	All the information needs here seem to be derived from past climatic change. Future variables can be projected which may affect climatic change, for example, carbon dioxide effects and rising sea level.
1-12 (Jerman)	Issue 1.8	What about underground injection of hazardous wastes which are currently used extensively in certain areas, and may be used more as surface landfills prove less and less popular. People may feel that all the substances should be disposed of in one place.
1-13 (Kennedy)	Issue 1.9	Include the following in the major information needs for 1.9: A definition of allowable limits on repair (e.g. grouting of fractures etc.) of unexpected flaws in the host rock.
1-14 (Jerman)	Issue 2.1	What about population projections? Also, in certain areas there may be a difference between resident and business hours populations.
1-15 (Jerman)	Issue 2.2	This information should be coordinated with information regarding changes in climate, as that may affect (albeit subtly) meteorological

		conditions.
1-16 (Rhodes)	Issue 2.3	DOE and NRC-licensed facilities sometimes abut - there is no reason to exclude these cumulative effects.
1-17 (Williams)	Issue 3.1	There should be a description of the range in size or boundaries of the "affected area" within which environmental impacts will be assessed.
(Jerman)		Add soil characteristics - erodability on short term basis, versus long term discussed elsewhere.
1-18 (Jerman)	Issue 3.2	What about information needs for railroads? Also, list distance of transport routes from population centers, schools, etc.

PLANS-INFORMATION NEEDS

2-1 (Olson)	2.1 Para. 2	In line 6 to ". . . radionuclide sorption, solubility, . . ." (add) ". . . travel times, . . ."
2-2	2.2	Monitoring programs for geohydrological, geological, and ecological information are not adequately (or even minimally) handled in the Mission Plan.
2-46 (Duncan, Knox and Marshall)	2.8	
2-12 (Jerman)	2.2.1.6	Several assumptions are made here without basis in research. If such a casual approach to determining resource potential were made in crystalline rock states, affected states would strenuously object.
2-39 (Jerman)	2.6.1 mid-page	"Trade-off studies" should be defined.
2-44 (Jerman)	2.7.2	There should be a provision for mediation by an outside source to determine fair market value.
2-45 (Jerman)	2.7.2	Clarify "a withdrawal for protection pursuant to 43 USC 1714, etc."

2-46 (Duncan and Knox)	2.8	The information needs identified for critical issues when associated with locating sites in the crystalline rock units of the southeast will be very difficult to fulfill. To predict the geohydrologic setting in such rock units it is an absolute necessity to be able to accurately predict potential contaminant transport routes and then to design appropriate monitoring programs.
2-47 (Olson, Knox, and Marshall)	2.8.1 Para. 1	There is no mention of any specific hydrological activities to be performed during the area phase for the second repository. Given the difficulty of accurately characterizing groundwater movement throughout a crystalline rock mass, DOE should acknowledge this fact and cite specific plans for evaluation and monitoring of the flow regime within favorable crystalline sites. Major emphasis (not omission) should be given to data collection and evaluation of geohydrologic systems from this stage onward.

FINANCIAL, POLITICAL, LEGAL, AND INSTITUTIONAL PROBLEMS

3-1 (Rhodes)	General	The Chapter is severely deficient in light of its statutory purpose. Section 301(a)(3) of the NWPA requires the Mission Plan to contain "the plans of the Secretary to resolve (financial, political, legal, or institutional) problems and recommendations for any necessary legislation to resolve such problems." In addition, 301(a) requires that the Mission Plan be "a basis sufficient to permit informed decisions to be made..." If this Chapter presents all DOE presently knows and plans to do about the problems suggested therein, DOE simply lacks anything close to sufficient information "to permit informed decisions to be made." It is practically self-evident that financial, political, legal, and institutional problems which may arise with the program required under NWPA are far too broad to be dealt with in a 16-page chapter. Therefore, it is not enough for DOE to state, as it does on page 3-1, that it "is formulating plans for their resolution" and will "do all that is required."
3-1 (Stein)	Intro	There should be an emergency response plan. DOE and its contractors should be providing timely, accurate information to the public; the transfer of information is critical to the accuracy and credibility of the program.
3-2 (Rhodes)	3.1	Consultation and cooperation (C & C) plans and principal issues should be defined.
3-2 (Newberry)	3.1.1	Since many of the "resolution" sections under other problems refer to consultation and

		cooperation agreements, this section should discuss these complex contracts with greater specificity. The Mission Plan would benefit greatly from an outline of a C & C agreement in generic form as an appendix.
3-3 (Rhodes)	3.1.2 (Last para.)	This paragraph should spell out in detail <u>how</u> DOE will proceed in the absence of a C & C agreement. As presently written, it is simply a concluding remark that DOE <u>will</u> do so. (This problem is also evident in Section 3.1.1) It simply states that C & C agreements might not be entered into, but does not provide any information regarding those substantive problems with a C & C agreement that might lead to an impasse.
3-3 (Rhodes)	3.3.1	The problems with land acquisition which are set forth in this section are so broad and so little discussed that at best this section might be viewed as an "executive summary" of much larger document. However, there is nothing to indicate that that larger document has been prepared, or that the authors of this Mission Plan have anything but the vaguest idea of land acquisition problems.
3-4 (Stein)	3.2.1	Timetables for review processes should be specific.
3-4 (Newberry)	3.2.2	The most straightforward means to allow states full participation is to lengthen the review schedule to allow a <u>reasonable</u> amount of time to review documents such as this, for example, or to publically show why the review period should be truncated. Review cycle should be based on (1) length and complexity of the document, and (2) importance of the document to

		the program.
3-4 (Rhodes)	3.2.2	The start-up time problem is directly related to the problem of DOE's not having a realistic and relatively fixed schedule for its milestones under the Act. If realistic dates were set forth in this section (and complied with) the the states would be in a much better position to make timely responses based on fair notice.
3-4 (Rhodes)	3.2.2	The National Association of Attorneys General should be added to the list of interstate groups for which DOE will put on seminars, regardless of whether the seminar is fully funded by DOE.
3-5 (Stein)	3.3.2.	This section shows a failure to understand or even consider various state permitting systems.
3-5 (Rhodes)	3.3.2 (1st para.)	If the U.S. Army Corps of Engineers has considerable experience in this area, and if memoranda of understanding with other agencies are necessary, this section should set forth in detail what is involved with each. Again, this section merely makes a concluding statement in lieu of a discussion of the plans to resolve the problem.
3-6... (Rhodes)	3.4 & 3.5	These sections are far too general. They should contain a realistic discussion of specific state and local permit requirements (many of which arise when the states are delegated the authority to enforce federal laws) and state or local laws which will likely present problems. DOE has often taken extreme legal positions about its own authority; the courts, when such matters reach them, have quickly disposed of DOE's contentions, as in the Oak Ridge case. It would provide a service to

		states, the public, and to DOE's decision-makers to know how many more such positions DOE intends to take.
3-6 (Newberry)	3.4.2	Last sentence is a "truism" and sheds no light on how the permit problem will be resolved. This entire section does not provide an informational basis sufficient to permit informed decisions.
3-6 (Jerman)	3.5.1	Recent court decisions have confirmed the applicability of federal environmental laws to DOE facilities. The role of state agencies to whom EPA has delegated enforcement of these programs should be explicitly acknowledged.
3-6 (Newberry)	3.5.1	This discussion of the problems of state laws conflicting with the program is too cursory. What are the landmarks in these kinds of conflicts? What kinds of state/local laws have been thrown out by quick injunction and what kinds have stood up at least during long litigation period?
3-7 (Newberry)	3.5.2	2nd paragraph - When will DOE identify conflicting laws? Will this be before the end of the Area Phase? What "steps" will DOE "prepare" to resolve these problems? This planning document should outline these steps.
3-7 (Newberry)	3.6.1	Second sentence is adversarial. To collectivize into "they" all the states, local governments, Indian tribes, and special interest groups, makes DOE sound defensive.
3-8 (Newberry	3.7.2	This section on plans for overcoming public opposition is disappointing. Plans are (1) to communicate and share information (2) to "respond" to public concerns, and (3) to ensure an "effective process" for airing public

		views. These are the vaguest of promises. More detail would be appropriate.
3-9 (Newberry)	3.8.2	As this section indicates, DOE can do little to resolve state-local conflict. Funding public information/public participation programs at the state level would be one way to mitigate state-local conflict.
3-11 (Rhodes)	3.10-2	The free flow of information will significantly assist the substance of public participation, and the appearance of technically sound and defensible, unpolitical activities. DOE should ensure that it as well as its contractors and subcontractors including other federal agencies recognize and comply with the spirit of the Freedom of Information Act.
3-11 (Rhodes)	3.11	Small impact-mitigation planning grants should be made available during site characterization to a group of communities in a local area.
3-11 (Newberry)	3.11.2	Since the Department cannot award impact-mitigation grants before commencement of construction, could the Department establish a means by which states and local governments could finance funds for impact-mitigation, pending DOE grants?
3-12 (Gordon)	3.12	If and when the permanent repository is completed, the defense waste from Savannah River Plant will likely be shipped to it. The adequacy of the present shipping casks used for transport of high level waste has been questioned and to date, very few state or local officials seem to be aware of the seriousness of this problem. (Ref. Resnikoff, M. 1983. The Next Nuclear Gamble, Council on Economic Priorities; Lipschutz, R.D. 1980. Radioactive

Waste, Politics, Technology, and Risk, A Report to the Union of Concerned Scientists. Ballinger Publishing Co., Cambridge, MA.) Further, local communities in the Carolinas do not seem to have adequate plans or facilities for dealing with a serious transport accident as indicated by the Kearney survey (Kearney, R., 1982. Survey on Radiological Emergency Preparedness. Questionnaire and summary by author, Department of Government and International Studies, University of South Carolina). Since transport of HLW and spent fuel are integral parts of the repository program, contingencies for transportation emergencies should be presented in the Mission Plan.

3-12 (Rhodes) 3.12.1 There are various impediments to the transportation of waste:

1. Public apprehension regarding emergency response roles and responsibilities when/if there is an accident (with or without a radioactive release) needs to be addressed. Initial response roles of federal, state, and local governments should be defined and cited.
2. Forms of private and/or public insurance available for possible reimbursement should be cited.
3. Should the Price-Anderson Act be broadened to include federally owned, federally transported commercial fuel? What other mechanism should be considered?
4. Will the federal government never sue other parties?

3-12 (Stein) 3.12.2 The Department "supports the formation of new Federal and State coordinating bodies..." This

		proposal calls for more detail. For example, what type of structure, organization and authority would such a Federal body have?
3-14 (Rhodes)	3.13.2	Some idea of the substance of the memoranda of understanding described in this section should be set forth.
3-14 (Rhodes)	3.14	What "certain provisions" of the Act are likely to pose a problem in implementation? How can the Secretary or the appropriate committees of Congress make informed decisions about interpretation of the Act using this brief section as a guide.

TEST AND EVALUATION FACILITY

4-1 (Rhodes)	General	The Department appears to have made a decision to omit the TEF. This would free up Department resources to work on the repository effort. Lacking a compelling need, the TEF should be eliminated now from DOE activities. It appears appropriate for DOE to notify Congress and NRC that a TEF is not necessary. (Also at 3-A-17, and II 4-1).

RESEARCH & DEVELOPMENT

5-1 (Rhodes)	General	Citations to references listed at the end of this chapter and lists of references to research activities— other than the four disciplines discussed rather arbitrarily—would improve the informational quality of this chapter. Since this is a planning document, "an information basis sufficient to permit informed decisions", a scoping of R&D underway and anticipated would be an important ingredient of this chapter, and should be added in the next draft.
5-1 (Rhodes)	General	There is no clear, substantive reference to quality assurance programs, which presumably will require significant R&D to implement for example, monitoring and measurement tools (Also 3-A-19, IIIA). Other R&D issues which should be considered include minimized handling/systems options; occupational exposures of various management options; necessity for full core reserve; implications of extended burnup; saturated/unsaturated

		zone issues; management of wastes generated by fuel handling options (with or without rod consolidation, or repackaging of fuel).
5-17 (Olson and Marshall)	General 5.3	The hydrologic research section gives little to no treatment or explanation of groundwater flow modeling R & D. This should be of special concern to CRP states, given the extensive groundwater systems of the eastern U.S. and the difficulty of characterizing fracture flow systems in crystalline rock.

SITE CHARACTERIZATION

7-16 (Gordon)	7.3	Does DOE plan to eventually test the packaging and site characteristics with actual radioactive materials in the packages? The Mission Plan does not seem to indicate if and when this degree of testing will take place.

WASTE SOLIDIFICATION AND PACKAGING

8-1 (Rhodes)	8.1	Why consolidation of <u>all</u> spent fuel placed in repository after first 4 years of operation? Who pays for consolidation? Are there extra waste volume considerations? Is the waste low-level? This optimistic report of rod consolidation conflicts with industry experience and with M. Lawrence's testimony, March 22nd (Senate Committee on Natural Resources, Subcommittee on Energy Research and Development).
8-2 (Rhodes)	8.2	Management issues related to uranium enrichment mixed oxide fuels and/or breeder reactor programs should be described.
8-3 (Rhodes)	para 1-4	Progress in solidification of wastes should be acknowledged (West Valley demonstration, Savannah River Plant Defense Waste Processing Facility.)
8-3 (Olson)	Para. 4	Middle of p. 8-3 describes the containment period as 300-1000 years. That period seems at odds with the NRC requirement of a minimum 10,000 years.
8-4	1st para	Solidification facilities have been essential components of waste-treatment (reprocessing) for a decade according to 10 CFR 50, Appendix F. Solidification facilities are the responsibility of the commercial firm undertaking separation, and not a federal responsibility.
8-4 (Olson)	8.3 Para. 2	Sodium bentonite clay in the packing material is generally considered a higher swelling variety than calcium bentonite (and intermediate sodium-calcium varieties). Thorough tests should be conducted in order to use the most advantageous variety, given

		centuries-long moisture conditions.
8-5 (Rhodes)	8.4	The availability of materials is described inadequately. NWPA 301.(a) (8) "such materials including impacts on strategic supplies and any requirements for new or reactivated facilities to produce any such materials needed..." requires more information.
8-5 (Olson)	Para. 1	Chromium (and chromite ore from which chromium is extracted) is of scarce availability. According to the U.S. Bureau of Mines, there is no U.S. production of chromite at present.

WASTE GENERATION RATES, REQUIREMENTS FOR DISPOSAL CAPACITY AND REPOSITORY SCHEDULES

9-1 (Rhodes)	9.1	Waste generation rates should include defense wastes (10,000 MTU by 2020). New extended fuel burn-up schedules in reactors have decreased waste generation. This does not appear to be considered in Mission Plan waste generation projections.
9-3 (Logeman)	Table 9-1	The forecasts for nuclear capacity, and consequently waste generation, are based upon mid-growth scenarios developed by DOE for electrical load growth and construction. This mid-growth scenario appears to be too high given changing market conditions in the electric utility industry. The mid-growth scenario calls for installed capacity to rise from a 1982 level of 54 gWe to 230 gWe by 2020. Many others feel this increase in capacity will probably be lower, falling into the 130-150 range.
9-4 (Rhodes)	9.2.2 Para. 3	This section should include "Because defense waste has different thermal characteristics and

would provide suitable demonstration packages during repository start-up operations."

9-4 (Logeman) 9.2.3 The Plan makes mention of low-growth possibilities and points out that even an increase to 135 gWe would not negate the need for the second repository. While this is true, it would however, postpone the date required for completion of the second site.

COSTS

10-1 (Rhodes) Estimates of proposed MRS costs, although they will be borne by the utilities whose fuel is involved, should be included in the next draft in light of recent re-emphasis on the MRS proposal.

10-2 (Marshall) Para. 2 Under "Site Screening and Characterization", a vital cost element is omitted: assessment, monitoring and modeling of ground-water flow characteristics (hydraulic conductivity, porosity, flow paths--length and direction, and related factors) for both the first and second repositories. Modeling, even though included under "Design and Technology Development" (following paragraph), should also be an integral field and laboratory phase of the Site Characterization Plan (SCP).

SOCIOECONOMIC

11-1 (Logeman) General Care will need to be taken to see that local officials will be involved to provide comments and impact to the actual preparation of the study. Local laws concerning such issues as

		property zoning, for instance, vary greatly from state to state and even from city to city. The expertise of local planning officials will have to be used to ensure the integrity of each of the site-specific studies.
11-2 (Jerman)	11.1	How long is the construction phase? The best estimate should be reiterated here.
11-3 (Jerman)	11.2	Local job training or re-training to allow local workers to work in construction and operation is commended.
11-1 (Spence)	11.2	Boom-bust problem should be more fully discussed. Will population be lost due to undesirability of the repository?
11-3 (Jerman)	11.2	Important to bear in mind that the most extensive disruption in local labor market will occur in non-unionized, rural areas, such as the south-east. Impacts of this should be more fully explored in this planning document.
11-4 (Jerman)	11.4	There is no mention of social impacts particular to Indian communities. Again, emphasize that impacts will be worse in rural areas, where a repository is most likely to be sited.
11-6 (Jerman)	11.5	Will impact grants address the problem of front-end costs not covered by (slow) tax generation? Will DOE have a staff of specialists available to advise state and local governments regarding impact mitigation? (e.g. for advice in dealing with revenue distribution problems, boom-bust problems.

TECHNICAL REVIEWERS

Mr. Don Duncan, Water Resources Commission
Dr. Sam Finklea, Dept. of Health & Env. Control
Dr. Judy Gordon, Sierra Club
Mr. Ted Harris, Energy Research Foundation
Ms. Trish Jerman, Governor's Office
Mr. Danny Johnson, Water Resources Commission
Mr. Raymond Knox, Dept. of Health & Env. Control
Mr. Larry Lefebvre, Energy Forum
Mr. David Logeman, Governor's Office
Mr. Bill Marshall, Governor's Office
Mr. Truett Nettles, Attorney
Mr. Bill Newberry, Governor's Office
Mr. Norman Olson, State Geologist
Ms. Suzanne Rhodes, Governor's Office
Mr. Lewis Shaw, Dept. of Health & Env. Control
Ms. Betty Spence, Wildlife Federation
Mr. Dubie Thompson, Columbia
Dr. John Till, Consultant
Mr. Don Tudor, Governor's Office
Mr. Doug Warner, South Carolina Electric & Gas
Dr. William J. Westerkam, Pediatrician
Dr. James Williams, U.S.C.
Mr. Ken Woodington, Attorney General's Office

OFFICE OF THE GOVERNOR
STATE CAPITOL
AUSTIN, TEXAS 78711

MARK WHITE
GOVERNOR

July 9, 1984

Mr. Benard C. Rusche, Director
Office of Civilian Radioactive Waste Management
United States Department of Energy
1000 Independence Avenue
Washington, D.C. 20585

Dear Mr. Rusche:

Governor Mark White has requested that I respond to a letter to him from the former Acting Director of the Office of Civilian Radioactive Waste Management. That letter dated May 7, 1984 solicited comment as required by Section 301(b) of the Nuclear Waste Policy Act on the April, 1984 draft Mission Plan for the Civilian Radioactive Waste Management Program. This letter and the attachments are the comments of the State of Texas on the document cited.

We view the Mission Plan as second in importance only to the Nuclear Waste Policy Act in establishing the program under which management of high-level radioactive waste will be carried out. We, therefore, take very seriously the review of this draft and the earlier December, 1983 version of the Mission Plan. The consideration of locations in Texas for possible disposal of high-level waste demands that we comprehensively review plans and activities of the Office of Civilian Radioactive Waste Management to identify and correct any deficiencies that could compromise the integrity of any site or facility that may ultimately be located in Texas. The attached comments were prepared from that perspective and we urge you to carefully consider and implement our suggestions.

The comments are presented in three sections. The first section, General Comments, addresses concerns that apply to the document overall, or concerns that we consider of sufficient import to highlight in this first section. The next section, Specific Comments for Volume I, consists of a page-by-page presentation of particular points, some of which further support general comments. The third section of the response, Specific Comments for Volume II, was separated from the previous section simply to avoid confusion of the page references.

As noted above, the Mission Plan is one of the critical documents of the national high-level waste management program. The Nuclear Waste Policy Act requires that after preparation of this document in cooperation with the affected States, Indian tribes, and relevant federal agencies and submission to Congress, the Department of Energy will conduct waste management activities in accordance with the program described in the Mission Plan. We are, therefore, vitally concerned that the Mission Plan prescribe a realistic course of action which (1) is fully consistent with the purposes and provisions of the Nuclear Waste Policy Act, (2) describes the required activities and procedures in sufficient detail and with sufficient clarity to avoid ambiguity and unending interpretation, and (3) is sensitive to the critical role of institutional interactions.

If any of the attached comments require clarification or amplification please let me know. We look forward to your response.

Yours truly,

for Steve Frishman, Director
Nuclear Waste Programs Office

Attachments

GENERAL COMMENTS

1. Second Exploratory Shaft at Candidate Sites

The excavation of a second larger diameter shaft during the site characterization phase is an important new element in the Department effort to commence operation of a repository by January 31, 1998. The Department offers four reasons for the excavation of two shafts. First, they point out that for the safety of workers at the repository horizon an alternate exit route is necessary. But if mine safety is so critical that up to $120 million is to be invested at each candidate site for a second shaft, the Department should plan to wait until the second shaft is completed before initiating in-situ testing. Nevertheless, twice in the Mission Plan (Volume I, p. 3-A-20, Volume II, p. 2-17) the statement is made that initially a shaft will be sunk so that in-situ tests can begin as soon as possible and then the second shaft will be sunk. The in-situ testing in salt is purported to take only eight months (Volume I, p. 3-A-32), and the second shaft which is planned to be large in diameter (finished inside diameter of 12 to 25 feet) will take several months longer than the first shaft. This difference of only a few months would occur if both shafts are initiated simultaneously. However, the time of initiation of the second shaft relative to initiation of the first shaft has not yet been determined (Volume II, p. 2-20) and, even worse, is suggested to be somewhat after the initiation of the first (see reference repository schedule, Volume I, p. 3-A-38). The safety argument for construction of a second exploratory shaft is not compelling.

A second argument put forward to support a second exploratory shaft is the demonstration of the ability to sink such large shafts. Such a large diameter shaft is being sunk at the Waste Isolation Pilot Project in New Mexico, and monitoring and review of that operation would seem to represent a more cost effective demonstration of large diameter shaft excavation than the investment of nearby half a billion dollars at three sites which may or may not even be used.

Third, the Department proposes that a second shaft would provide flexibility in the in-situ testing program. However, the additional testing suggested -- demonstration of mining techniques, adjustment and verification of design parameters -- are all functions that should be conducted in a Test and Evaluation Facility. The Congress has defined specific conditions under which such testing can occur and the Department should not attempt to circumvent the intent of Congress by conducting TEF activities under the guise of in-situ testing. Furthermore, as noted below, continuation of testing beyond the needs for site characterization is prohibited by the NWPA.

The fourth and final reason offered by the Department is irrefutably useful for repository construction, but is, nevertheless, contrary to NRC regulations and the NWPA. This fourth reason is the use of the shaft as a repository access shaft to accelerate repository construction. As shown above, the shaft serves no legitimate pre-licensing function and so its construction prior to granting a construction authorization would violate

the NRC prohibition on pre-license construction (10 CFR 60.3(b)). Also, the NWPA allows only such activities at a candidate site as are necessary to evaluate the suitability of the site for a repository (Section 113(b)(3)) so this action would also violate federal law.

The construction of a second repository shaft amounts to circumvention of the NWPA and 10 CFR 60. The Department must alter the Mission Plan to eliminate this proposal or risk denial of a license for violation of the NRC regulations and/or appropriate penalties for violation of the Nuclear Waste Policy Act.

2. Draft Environmental Assessments

The draft environmental assessments (Volume I, p. 3-A-27) to be prepared in support of the nomination and recommendation of sites for characterization are the primary documents related to this phase of the siting process that will be available for review by interested groups and individuals. When in August of 1983 the Department agreed to include review of a draft EA in the process for selecting sites for characterization, the draft EA's were envisioned as the Department's best effort at preparation of the environmental assessments mandated by the NWPA. Following a reasonable public review period the comments received would be considered and incorporated if valid and the final EA's would then be published. Recent comments by some Department officials have clearly suggested that the draft EA's will not represent the Departments best effort to produce a final EA and that they will not include all of the elements required by the NWPA for the final EA's. The states did not request this EA review to simply obtain an opportunity to examine the EA's in whatever crude form is available two months prior to finalization and excluding whatever chapters the Department may regard as too sensitive because of assumptions that may be drawn regarding the sites to be recommended. The Mission Plan should specifically include in the discussion of the draft EA review process an explicit description of the condition and content of the draft EA to be submitted for review. Specifically, the Mission Plan must now answer the question, "If the Department had not agreed to submit a draft EA for review, would the final EA be identical to what will now be the draft EA?"

3. End of Site Characterization

Section 113(b)(3) of the NWPA permits the performance at a candidate site of only those activities necessary to provide data for evaluation of the suitability of the site for repository recommendation and for compliance with NEPA. Site characterization should therefore cease with the completion of data collection to be used in the Site Selection Report (SSR) and the EIS to accompany the SSR. However, the Mission Plan clearly specifies the continuation of investigations at candidate sites beyond the completion of data collection to support the EIS and recommendation of a site for the first repository (see Volume I, Figure 3-A-5, p. 3-A-38 and Volume II, Figure 2-1, p. 2-4). Figure 2.1 in

Volume II (Integrated Logic Diagram for the First Repository) most clearly shows that continued investigation at the candidate sites is to provide data only for the construction application authorization and will not even be used as a supplement to the final EIS. The Department must unambiguously define in the Mission Plan the end of site characterization consistent with the provisions of the NWPA and must revise the Mission Plan reference repository schedule logic diagram for the first repository, and the accompanying text to bring them into compliance with the NWPA.

4. Test and Evaluation Facility Plans

The current draft of the Mission Plan states that the need for a Test and Evaluation Facility (TEF) is uncertain at this time, but that such a facility, if constructed, would be colocated with the repository. A key question raised by the previous draft of the Mission Plan is the validity of the Department proposal to begin excavation and outfitting of subsurface TEF workings prior to granting a construction authorization by the NRC. The Mission Plan must explicitly state the Department's current interpretation of the NWPA on this issue and must also specify the Department's plans should they elect to construct a TEF.

The previously expressed Department position is entirely unwarranted. First, it is totally illogical to assert that the construction of the relatively insignificant surface facilities for a TEF should be prohibited but that the construction of the critically important underground facilities of a TEF should be allowed. Second, the NWPA floor debate among Congressmen Fuqua, Ottinger, and Swift on November 30, 1982 (Congressional Record, p. H8581) clarifies that the language of Section 305 of the NWPA is not intended to permit construction of any part of a TEF except surface facilities but rather is intended to specifically prohibit the construction even of surface facilities for a TEF prior to the issuance of a construction authorization by the NRC. Third, among the purposes of the licensing reviews by the NRC is the review of construction plans and methods to assess whether they will produce a repository that will satisfy the required performance criteria. Circumventing NRC review of any repository construction plans even if supposedly for a TEF could irreparably compromise the integrity of the repository site. The interpretation and intention of the Department must reject construction of subsurface TEF workings prior to issuance of a construction authorization and statements to this effect must be added to the Mission Plan.

5. Site Selection Report and Accompanying EIS

The site selection report and the environmental impact statement to support the final step in repository site selection are the two key documentary links to this step for the states, tribes, and the public. The only portion of the Mission Plan that offers any insight into Department plans to provide opportunities for the affected parties to review those documents is the Integrated Repository Logic Diagram (Volume II, Figure 2-1, p. 2-5). This chart indicates that public, state, agency, and Indian tribe review of the DEIS will be permitted. The SSR, according to this diagram contains no direct input from States

or Indian Tribes. This omission is contrary to the provisions of the NWPA (Section 114(a)(1)(F)) and should be modified to reflect those provisions. The text of the Mission Plan should also be altered to include discussion of opportunities for input on the EIS and the SSR.

6. Full Characterization of Three Sites

The assertion that the Department can proceed with a recommendation to the President even if one or two of the three sites characterized proves to be unsuitable for further consideration is not justified. The only argument for this position offered in the Mission Plan is simply that a delay of three to five years would ensue if characterization of additional sites were required. Technical conservatism and program credibility should not be sacrificed for schedule. Furthermore, the Nuclear Waste Policy Act (Section 114(a)) provides that the Department of Energy shall prepare a final environmental impact statement "...including an analysis of the consideration given by the Secretary to not less than 3 candidates sites for the first proposed repository ... with respect to which site characterization is completed ..." (emphasis added). Also, in Subsection 114(f) the Secretary is required to consider for proposes of the National Environmental Policy Act of 1969 "...3 candidate sites with respect to which (1) site characterization has been completed under Section 113; and (2) the Secretary has made a preliminary determination, that such sites are suitable for development as repositories consistent with the guidelines promogated under Section 112(a)." That same section of the Act further requires that the EIS prepared by the Department of Energy will, to the extent practible, be adopted by the Commission. The Commission, in reviewing the rationale for 10 CFR 60, specified that the important point in requiring the evaluation of alternate sites and the presentation of that analysis to the Commission was to allow them to evaluate real alternatives in a timely manner in compliance with the requirements of NEPA (46 Federal Register 13971). Furthermore, the NRC cautions in their regulations that "...in light of the significance of the decision selecting a site for a repository, the Commission fully expects the DOE to submit a wider range of alternatives than the minimum (3) required here" (10 CFR 51.40). The rationale above leads inescapably to the conclusion that in the event one of the three sites undergoing characterization is found to be unsuitable, the Department must select a replacement site and complete characterization on that site prior to submitting an application for repository construction authorization to the Nuclear Regulatory Commission.

7. References and Sources

Throughout both volumes of the Mission Plan assertions are made and data are presented without reference to the sources of the information. Genuinely comprehensive review of the Mission Plan requires that such assertions or data be accompanied by explicit references to allow

examination of the original sources and to provide access to additional relevant background information. For example, on page 3-A-32 of Volume I and on page 2-21 of Volume II the assertion is made that at depth testing in salt will require only eight months -- a rather startling statement which will require additional background and explanation to convince those concerned about the use of a salt site. Another example of the absence of references is the bedded salt repository cost figures on page 10-12 of Volume II. Substantial analysis must have led to those figures and the source of that analysis must be cited. Countless other examples of missing references appear throughout the Mission Plan. The failure to copiously cite sources for the information in the Mission Plan -- a document which can legitimately be considered second in importance only to the Nuclear Waste Policy Act -- must be attributed either to carelessness or to an attempt to thwart analysis and validation of the contents of the Mission Plan.

8. Level of Design

Throughout the Mission Plan specific designations are noted for the level of detail in engineering design that the Department considers appropriate at various stages -- in particular, the levels of detail to be achieved in documents such as the license application to be submitted to the NRC. For example, the Department expects Level I designs to suffice for the site selection report, the EIS, and the construction authorization application. The Level II design for the repository is to be finalized during NRC review of the construction authorization application. The NRC licensing provisions of 10 CFR 60 do not specify the level of detail required for various stages of NRC approval for repository development. This lack of specificity makes clarification of the required level of design detail all the more necessary for expedient conduct of the NRC review process. Another related issue mentioned elsewhere in these general comments is the potential confusion that may arise from use of the term construction authorization application in the NWPA and the Mission Plan, but not in the NRC regulations. The Department must established in consultation with NRC the required design detail for the required NRC reviews and must document the required levels of detail in the Mission Plan.

9. Construction Authorization Application

Throughout the Mission Plan and the NWPA the term construction authorization application is used, but the NRC procedural regulations for repository licensing do not mention such a document. The NRC does, in general, issue construction authorizations but they are based on preliminary review of license applications. This inconsistency appears to be only a matter of semantics at this time but confusion resulting from this inexact terminology could result in major deficiencies in the initial application to the NRC if the DOE views that document as distinct from a license application and, therefore omits elements that should be included in a license application.

10. Deadline for Waste Acceptance

In attempting to develop a schedule that achieves the 1998 deadline specified in the NWPA for initiation of waste acceptance, the Department

has developed a program that relies among other things on schedule acceleration through allowing inadequate time for proper attention to institutional issues and the assumption of minimum objection to Department activities even though lack of attention to these institutional issues will likely lead to profound institutional problems. For example, the Department bases the two month revision period for draft EA's on the assumption that comments received on the draft will not be voluminous and complex. The gravity of the high-level waste issue as well as consistently overwhelming response for review of earlier key documents for the high-level waste program makes the Department appear grossly uninformed. A similar poor judgement is the assumption that an EIS to support recommendation of a site for a repository can be completed in 12 months. Routine EIS's often require substantially more time, and an EIS for a project as controversial as this can not be realistically expected to take only one year.

Attempts have also been made by the Department to compress the schedules for investigations and construction with schemes which do not comply with statutory and regulatory requirements. As pointed out in accompanying comments, the Department intends to continue testing at candidate sites after the collection of the data necessary to establish suitability of a site as a repository (i.e., to support the site selection report and the associated EIS). In addition, several attempts have been made to improperly overlap development and construction schedules including excavation of an extra shaft during site characterization, two step construction authorization, and two phase license approval. A similar earlier proposal which the Department has not disavowed in the current Mission Plan is the proposal to begin construction of subsurface TEF workings prior to issuance of an NRC construction authorization. These schemes are inconsistent with statutory and regulatory provisions and are also inconsistent with sound scientific, engineering, and management practice. The Congress has agreed that the Department should not sacrifice the quality and credibility of the high-level waste program in order to meet the deadlines mandated in the NWPA and a number of earlier milestones have, in fact, been significantly delayed. Furthermore, several interim and longer term storage options are authorized under the Act in case the repository operation deadline specified in the NWPA cannot be met. The slavish adherence to the goal of repository operation by 1998 is severely straining the credibility of the high-level waste program and must be tempered by appropriate attention to other significant factors including scientifically conservative investigation and development, sound management, and recognition of and attention to legitimate institutional issues.

II. Transportation Analyses

The treatment of transportation in Volume I states that the Department will undertake generic analyses of the safety and environmental impacts of various storage and disposal facility siting options. Interpretation of this statement is difficult because analyses of the "various ... siting options" suggests site-specific analyses and yet the analyses are referred to as generic. The transportation discussion in the "Information Needs" chapter of Volume II provides some clarification but the conclusion to be drawn is unacceptable. This discussion indicates that the Department does

not see a need for information on the national system of highways and railroads, but does see a need for a determination of whether access routes can be constructed from local highways and railroads to the site without causing unacceptable risks to public health and safety or unacceptable environmental impacts.

Further clarification of the Department's plans for transportation analysis was sought in the cross referenced (see Table 2-2, p. 2-54, Volume II) sections of Chapter 2, Volume II, "Plans for Obtaining the Information Needed to Site, Construct, and Operate a Repository". Interestingly, the cross referenced sections do not even mention transportation and, at best, can be interpreted to be only remotely related. Finally, continuing difficulty in obtaining specific information from the Department on the codes to be used for transportation analyses makes review of this issue extremely difficult.

Reasonable site evaluations must include analyses of all segments of the transportation network. A methodology for projecting the proportions of rail shipments and truck shipments is necessary. The appropriate routes (national and local) for sites will exhibit differences in condition, terrain, nearby population density, and other parameters and the resulting variations in cumulative population dose and transportation risk must be considered in assessing the suitability of the potential sites. In order to permit legitimate site comparisons, the Mission Plan must be revised to provide for route specific transportation analyses based on credible projections of the mix of rail and truck shipments.

12. Lack of Parity in Technical Information

Sections of the Mission Plan that, on the basis of potential host rock, review information available and to be obtained, frequently indicate far less information available and to be obtained for salt than for the other two host potential host rocks being considered for the first repository (see, for example, Volume II, pp. 2-9, 2-14, 2-21 through 2-22, 2-23 through 2-34, and 2-35 through 2-36). Legitimate comparison of the potential sites must be based on comparable quantity and quality information for all of the potential sites. The necessity for establishing information parity among the potential sites is especially critical in view of the Department's frequent assumptions of suitability--that is, if no information on a parameter or characteristic is available, it is assumed to be acceptable. The Mission Plan must contain an explicit commitment to and development of equitable information bases for the media under consideration.

SPECIFIC COMMENTS ON OCRWM MISSION PLAN, VOLUME I

13. Page 1-1, paragraph 2 and Program Objective No. 1. Twice on this page statement is made that the Department of Energy is required "to license" repositories for high-level radioactive waste. This phrase should be modified to read "to obtain licenses" to avoid the possible misconception that the Department is authorized "to grant licenses".

14. Page 1-1, Objective No. 3. The Department's disposal contracts with Nuclear Utilities do not explicitly specify that acceptance of waste for disposal will commence on January 31, 1998. Therefore, it is inappropriate to cite those contracts as a mandate for commencement of disposal in 1998.

15. Page 1-2, last paragraph. The last sentence of this paragraph refers to the Department's intent to subject all revisions of the Mission Plan to review by various entities. To the list of reviewers should be added the Nuclear Regulatory Commission and other governmental agencies deemed appropriate by the Secretary. Furthermore, Section 301(b) of NWPA requires that objections raised in these comments which are not addressed by the Secretary in the revision of the Mission Plan be published in the Federal Register. Because this feature is unusual and extremely important, it should be explicitly stated in this introduction to the Mission Plan.

16. Page 2-3, paragraph 2. The amount of defense waste generated through the year 2020 is described as being "equivalent to approximately 10,000 MTU of commercial waste". Equivalence in this context could refer to any of a number of parameters including heat generation, Curie content, volume, and weight. The equivalence intended here must be explicitly stated.

17. Page 2-4, paragraph 2. This paragraph states that the Department will consider reprocessing proposals. The impact of reprocessing on cask needs and other transportation requirements should be reviewed either at this point in the report or in the later section 3.C, Transportation.

18. Page 2-4, paragraph 3. Rather than stating "the department believes that a second repository will be necessary" reference should be made to the later section of the Mission Plan (Volume 2, Chapter 9) which quanitatively establishes the need for a second repository and explicitly states the assumptions underlying the projections presented. A similar reference to the need for two repositories appears in the first paragraph on page 2-5. That statement will also be strengthened by a reference to the waste generation projections mentioned.

19. Page 2-6, paragraph 1. The second set of public hearings referred to here is required by the Nuclear Waste Policy Act and should be identified as such.

20. Page 2-6, paragraph 2. The opportunity provided by the Nuclear Regulatory Commission for comment on the guidelines was not a public hearing and should not be mentioned here. This language leaves the impression that it was a portion of the DOE consultation process on the guidelines.

21. Page 2-6, paragraph 1. Public review and comment and public hearings to be held on draft environmental assessments are not required by the NWPA. This recognition by the department of the value of public input to the repository development program is encouraging and should be promoted throughout the program.

22. Page 2-6, paragraph 2. Referring to "a site characterization plan" (emphasis added) may leave the impression that a single generic plan will be prepared for all sites recommended for site characterization. This sentence should refer to "plans" rather than a single "plan".

23. Page 2-6, paragraph 5. We fully concur with the Department's recognition of the need for agreement by the Nuclear Regulatory Commission on the site characterization plan and would adamantly object to deletion or alteration of this statement.

24. Page 2-7, paragraph 5. The Department has complied with many of the consultation and cooperation requirements of the Act but the activities have exhibited and continue to exhibit deficiencies. Therefore, the absolute statement that the Department has met and will continue to meet the spirit and letter of the law is unjustified and this statement should be modified accordingly.

25. Page 2-8, item e. This statement should specify which entities within a state are authorized to request establishment of outreach programs.

26. Page 2-8, paragraph 3. Because of the possibility that the Department may elect to construct a test and evaluation facility and the earlier assertion by the Department that subsurface TEF construction may begin prior to issuance of a construction authorization by the Nuclear Regulatory Commission, this discussion must include an explicit statement of the Department position on subsurface TEF construction. As pointed out in our letter of February 8, 1984 commenting on the December draft of the Mission Plan we totally disagree with and adamantly oppose the earlier position expressed by the Department of Energy.

27. Page 2-8, paragraph 3. A critical element of the test and evaluation facility program, should it be pursued, is the NWPA requirement for public hearings. The importance of that element dictates that it be explicitly mentioned in any TEF strategy.

28. Page 2-9, paragraph 3. Typographical error, line 3: ...canisters (vice cask as discussed above) ...

29. Page 2-10, paragraphs 4 & 5. This brief discussion of the monitored retrievable storage alternative indicates that the Department will not submit three alternative MRS sites in the proposal to Congress on or before June 1, 1985. In spite of the arguments presented on page 3-B-2 of this Mission Plan, we believe that the Department's interpretation is incorrect and that the three alternative sites can and should be identified earlier than is planned by the Department. Additional comment on this point is provided addressing the material on page 3-B-2.

30. Page 2-12, paragraph 1. In order to be consistent with the first paragraph in this section on Transportation, this paragraph should specify that federal services will be considered only in cases when the private sector is unable or unwilling to provide the needed equipment or services at reasonable cost.

31. Page 3-A-3, paragraph 5. The discussion of the purposes for which engineered barriers will be used, must be altered to reflect the agreement reached between the NRC and DOE during the final discussion of the guidelines on June 22, 1984. Specifically, engineered barriers will only be examined in the context of containment problems which they may precipitate through interaction with natural barriers.

32. Page 3-A-3, paragraph 6. Because of the critical importance of review and comment as will as public hearings on the draft environmental assessments these activities must be explicitly stated in this paragraph.

33. Page 3-A-5, paragraph 2. The statement that the site characterization plan "will also be available for public review and comment" should, because of the statutory nature of this requirement, be altered to read "must according to NWPA be available for public review and comment".

34. Page 3-A-5, paragraph 4. The Department has no intention of meeting the statutory deadlines for recommendation of the first and second repository. Statements in the Mission Plan which refer to those dates should therefore specifically mention the alternative dates which the department has established rather than perhaps leave the impression that the statutory deadlines will be met.

35. Page 3-A-6, paragraph 3. Because of the key role played in the repository siting program by Environmental Protection Agency standards, the Department should attempt to predict when these final standards will be available and should provide that information in the Mission Plan.

36. Page 3-A-7, first item a: The NRC retains the authority to select the required containment time within the range of 300 to 1,000 years. This statement should note that such authority remains with the NRC.

37. Page 3-A-7, first item b. The allowable release rate should be specified as "one part in 100,000 per year (of waste remaining after 1,000 years of decay) after the containment period".

38. Page 3-A-7, paragraph 2. This paragraph should state that actions will be taken "to make the NRC rule consistent with the EPA rule" rather than simply "to take the standard into account".

39. Page 3-A-7, item d. The imperious statement that after site characterization repository sites can ultimely be "accepted by the states and affected Indian tribes" is misleading, inappropriate, provocative, and condescending and must be changed to "considered" or "reviewed".

40. Page 3-A-12, item (a). Alternative media must be reexamined in a timely and useful manner. These alternatives should be considered for the first repositories as well. Consideration of alternative media should include an explicit statement that large geologic formations for which consideration was discontinued earlier in the program for political reasons should be re-examined.

41. Page 3-A-18, paragraph 3. The reference to the development of written consultation and cooperation agreements should specify that only one of the potential host states for the first repository has undertaken the negotiation of such an agreement and several issues such as liability and conflict resolution threaten to prevent completion of the agreement.

42. Page 3-A-18, paragraph 4. This paragraph should include a commitment to comprehensive investigation of impact avoidance methodologies. Conspicuously absent is any mention of transportation subsidies to help control the distribution of in-migrants and modification of construction and development schedules to minimize fluctuations in the required workforce.

43. Page 3-A-19, paragraph 3. This paragraph includes a commitment to development of a Quality Assurance Program to be applied to data collection. If data collected during the earlier region and area characterization phases are to be utilized, this paragraph must also include a commitment to subject those earlier data to a comparable review for quality assurance.

44. Page 3-A-20, paragraph 3. The version of the guidelines cited in this paragraph has been superceded by the finalized version and this paragraph should be modified accordingly.

45. Page 3-A-20, paragraph 4. Although this paragraph mentions most of the hearings to be held in conjunction with the nomination of sites for characterization, the hearings on the draft environmental assessments are not mentioned and should be added.

46. Page 3-A-23, paragraph 4. The capacity of the first repository is limited to 70,000 metric tons of spent fuel until operation of the second repository commences. A legitimate well-defined process for establishing the ultimate capacity of repositories must be included in the Mission Plan.

47. Page 3-A-23, paragraph 4. The basis for the decision to decontaminate and dismantle surface facilities at the repository after the underground facility is decommissioned must be presented.

48. Page 3-A-23, pargraph 4. We fully agree with the intention to conduct post-closure monitoring and surveillance. The plans for such activities must also specify that the facility license will remain in effect throughout the period of responsibility for monitoring.

49. Page 3-A-26, paragraph 3. Because of the gravity of the high-level waste disposal program and the unfortunately high turnover rate among Department personnel dealing with this issue, informal dialogue and pledges should be treated with great care and this paragraph should caution that all significant understandings and agreements should be committed to writing.

50. Page 3-A-26, paragraph 4. A major category of socioeconomic work which has been overlooked here and must be added is that of impact avoidance.

51. Page 3-A-26, paragraph 6. This paragraph should list the parties who will be involved in the discussions mentioned. Substantially more detail should be included in both this section and Chapter 11 of Volume II describing the planning process for identifing and coping with socioeconomic impacts.

52. Page 3-A-27, paragraph 5. This paragraph should be altered to reflect the recent concurrence of the NRC in siting guidelines and the subsequent issuance of final guidelines by the Department.

53. Page 3-A-28, Table III-A-1. Under the phase entitled "Characterize Sites" the first and most critical element, Acquire Necessary Land And Leases, must be added. Under the phase "Select Site And Obtain Site Approval" the third item should refer to a site selection report rather than a site recommendation report. The sixth item in that phase must recognize that Congress may or may not override a disapproval by a state or tribe and an additional item should be added to describe the additional steps in the event a disapproval stands. Under the phase "NRC Licensing Review" the first item should note that DOE submits a construction authorization application to NRC rather than the DOE issues a construction authorization.

54. Pages 3-A-27 through 3-A-32, Phase 1. At no point in the discussion of alternative phase 1 cases is there any time allocated to consultation on the methodology for selecting sites to be recommended from the slate of five nominated. We have long contended that such a methodology should have been specified in detail in the siting guidelines. Because that was not done, we are even more adamant that this section of the Mission Plan should include an explicit plan for development for such a methodology in consultation with the affected states and tribes.

55. Page 3-A-31, paragraph 1. The case described here (Case 1-C) is identified later in this Chapter as the basis for the Department reference repository construction schedule. An underlying assumption of this schedule is that comments on the environmental assessments not be voluminous or complex. Based on the gravity of the nuclear waste disposal issue and on the volume and complexity of the comments submitted on earlier critical program documents, this assumption is totally unwarranted and is inconsistent with the earlier statement on page 2-7 of the Mission Plan stating that the reference repository schedule is "based on the shortest time duration set of assumptions that the Department can confidently predict at this time as being achievable" (emphasis added). Case 1-C should not be selected as the phase 1 case for the reference repository schedule.

56. Page 3-A-32, Case 2-A. In view of the gravity of this project and the explicit requirements of the Nuclear Regulatory Commission, the presentation of this case is absolutely ludicrous. It serves no propose other than the presentation of a case of shorter duration than the one selected by the Department for use in describing phase 2 of the referenced repository schedule.

57. Page 3-A-32, Case 2-B. The assertion that only eight months of in-situ testing will be required to support a salt site recommendation is startling at best. Because this case has been selected to represent phase 2 of the reference repository schedule, references specifically citing studies, plans, or other documents substantiating this short in-situ testing period must be included in this paragraph.

58. Page 3-A-33, Case 2-D. The statement is made that the Secretary must make a preliminary finding of suitability for a repository at the time of nomination. In fact, the NWPA (Section 112(b)(1)(A)) merely specifies that the Secretary make a finding of suitability for characterization at this stage.

This same conclusion was reached during the deliberations concerning NRC concurrence on the guidelines and the discussion should be altered to reflect this interpretation.

59. Page 3-A-34, Case 3-A. This case was utilized as the basis for the reference repository schedule and includes the assumption that a draft environmental impact statement can be prepared within six months of completion of testing for site recommendation and, furthermore, that a final environmental impact statement can be completed six months after the draft. Past experience with the preparation of environmental impact statements, especially for an extremely complex undertaking such as high-level waste disposal, clearly indicates that such an ambitious schedule is not credible. Case 3-C which includes an additional nine months for preparation of the final environmental impact statement is more likely and should be utilized as the basis for phase 3 of the reference repository schedule.

60. Page 3-A-36, Case 5-A. This case was adopted as the basis for the reference repository schedule and includes a first step for construction and licensing of facilities sufficient to allow receipt of waste at a rate of 400 metric tons per year and subsequent construction and licensing of additional facilities to increase the rate of receipt to 3,000 metric tons per year. This piecemeal licensing process is unwarranted and should be rejected as a credible alternative for phase 5.

61. Page 3-A-37, paragraph 8. This paragraph simply states that the Department selected the alternative cases which would lead to limited operation of a repository by January 31, 1998. This statement is totally inconsistent with the statement in paragraph 4 of page 2-7 which states that the reference repository schedule was based on assumptions that the Department could confidently predict as being achievable. These statements are inconsistent and the one on page 3-A-37 should be deleted accompanied by revision of the assumptions underlying the reference repository schedule to reflect a time duration that the Department can confidently predict as being achievable.

62. Page 3-A-38, figure 3-A-5. The planned beginning and end for construction of the second exploratory shaft should be indicated to give an appreciation of the full sequence of major site characterization steps and their interrelationship.

63. Page 3-A-39, paragraph 3. The third specific milestone described for site characterization includes projected dates for completion of the initial exploratory shafts. Several reasons for the different completion dates for different media could be surmised from the accompaning text. The specific reasons leading to these differences should be explicitly stated.

64. Page 3-A-40, paragraph 1. Clarification of the necessity to have three suitable sites at the end of site characterization would indeed make a delay less likely because of the importance of this issue. The Department should develop a strategy for this clarification and present that strategy in the Mission Plan.

65. Page 3-A-41, paragraph 3. Included in this paragraph is the blunt statement that alternative Case 5-A was selected for the reference repository schedule "because it provides a mechanism for initial acceptance of waste in January, 1998". Use of this rationale disregards all other critical factors such as scientific conservatism, institutional processes, and economic feasibility. The rationale is totally unacceptable and should be rejected in favor of a less simplistic rationale which considers other legitimate criteria.

66. Page 3-A-41, paragraph 4. The basis for the Department's "belief" that exploratory shafts can be used in construction and operation of the repository should be presented and substantiated.

67. Page 3-A-43, Alternative Schedule 4. This proposal while referred to as a "two step construction authorization" is identical to the earlier proposal referred to as a "limited work authorization" which was soundly rejected by many of the involved parties including the Nuclear Regulatory Commission. The discussion does, in fact, point out that this alternative would require modification of the NRC regulation 10 CFR 60, but does not mention the very relevant comments regarding the strong opposition by the Commissioners themselves to such an approach. This discussion should either include sufficient relevant information to permit informed decisions on the likelihood of making the necessary modifications to 10 CFR 60 or alternative schedule 4 should not be presented in the Mission Plan.

68. Page 3-A-43, paragraph 5. The Department would be remiss in it's responsibility to develop a waste disposal system if they did not attempt to anticipate legal challenges to decisions and strategies. The stated reluctance to examine these possibilities is particularly puzzling in view of the recent statement by a DOE official who feels that all possible litigation will be exercised by the states to slow down the program. Furthermore, Section 301 of the NWPA specifically instructs the Department to include in the Mission Plan an evaluation of legal problems that may impede the implementation of the Act and "...the plans of the Secretary to resolve such problem ..." Section 3.6 of Volume II of the Mission Plan was prepared in response to Section 301 of the NWPA, but inadequately addresses that statutory mandate.

69. Page 3-B-2, paragraph 3. The argument presented in this paragraph is a legitimate reason for not selecting a final MRS site. It is, however, not legitimate in the case of identification of the three potential sites required by the Nuclear Waste Policy Act. This paragraph and other appropriate sections of the Mission Plan should be altered to include in the MRS report to Congress in June, 1985 three specific potential sites as required by the NWPA.

70. Page 3-C-1, paragraph 4. The Department commitment to addressing and resolving transportation concerns expressed by federal, state, local and tribal officials is commendable. However, the limited success states have had obtaining access to specific computer codes designed for use by the Department for transportation analysis compels us to insist that this section include an explicit commitment to providing detailed transportation information and access to analysis codes as requested by federal, state, local and tribal officials and the public.

71. Page 3-C-2, paragraph 1. The statement that radioactive waste will be transported in accordance with all applicable federal regulations is apparently based on recent federal court decisions finding that the DOE regulation HM-164 preempts New York City radioactive waste regulations. The courts did not, however, find in that case that DOT radioactive waste regulations will preempt all possible state and local regulations. This portion of the Mission Plan should therefore note that the transportation of commercial radioactive waste will be preformed in accordance with all applicable federal, state and local regulations.

72. Page 3-C-3, paragraph 2. The Department commitment in this paragraph to comply with all advance notification regulations in effect should include a specific commitment to compliance with federal, state, and local regulations.

73. Page 3-C-4, paragraph 4. The Department commitment to deal directly with States through which commercial waste will be transported is vague and should be clarified. This paragraph should include an explicit commitment to deal with access states on an individual basis and to the extent requested by each state.

74. Page 4-7, figure 4-3. This organizational chart should be revised to reflect the structure in place at the time of publication of the final Mission Plan.

75. Page 4-9, paragraph 1. The Secretary's insistence on a high-level of excellence in the report from the Special Advisory Panel on Alternative Means of Financing and Managing Radioactive Waste Facilities is praiseworthy but is not a legitimate reason for the Department's inability to meet the statutory January 7, 1998 deadline. The panel was, in fact, not appointed until December, 1983 which precluded the possibility of presentation of any report at all on January 7, 1984, regardless of quality.

SPECIFIC COMMENTS ON OCRWM MISSION PLAN, VOLUME 2

76. Page 1-1, paragraph 3. The reason for the necessity to present information on operation and permanent closure of a repository in much less detail is not apparent. A more explicit statement justifying the lesser detail on these activities must be presented.

77. Page 1-3, paragraph 1. As has been stated elsewhere in these comments, the necessity for more than one exploratory shaft for purposes of collecting in-situ test data has not been demonstrated. The last sentence of this paragraph should be altered to read "For these tests, it will be necessary to construct an exploratory shaft".

78. Page 1-8, paragraph 4. This discussion specifies that the repository should so situated that it will not be exposed by surface erosion during the next million years. This period seems reasonably long, however, the absence of rationale here or in previous literature for selecting this particular time makes it appear somewhat arbitrary. Substantiation for its selection must be presented.

79. Page 1-14, paragraph 4. In view of the substantial amounts of water that will be used in repository surface facilities for cooling and waste handling operation it is unclear why the assertion is made that releases that could reach people through water pathways are very unlikely. This section should either present substantiation of that statement or delete the statement.

80. Page 1-18, paragraph 3. Though it may be legitimate to separate transportation issues to separately deal with existing highways and railroads on the one hand and additional highways and railroads which must be built to the actual repository site on the other hand, it is not at all appropriate to ignore transportation on existing highways and railroads. Factors such as total transportation distance, condition of railroads and highways, and other parameters will have a direct bearing on the overall risk associated with specific sites and these issues must be addressed.

81. Page 2-5, figure 2-1. According to this diagram, testing for construction authorization applications will continue beyond the point at which the package of information for preparation of the environmental impact statement is completed. It seems illogical to prepare an environmental impact statement to support a construction authorization application which contains a different more comprehensive range of information than the EIS itself. The logic diagram should be modified to complete testing for the construction authorization applications and then to utilize the full range of information for development of the environmental impact statement.

82. Page 2-7, paragraph 2. At this time, the Paradox Basin confirmatory borehole mentioned in this paragraph is not finished and may not be completed in early FY '85 as stated. The sentence should be modified to reflect the status and current projections for that borehole.

83. Page 2-14, paragraphs 3 through 5. The discussion of hydrologic studies in salt presented in this section are minimal and significantly less thorough than the comparable discussions of hydrologic studies in basalt and tuff. The discussion of hydrologic studies in the vicinity of each of the salt formations under investigations should be presented in greater detail in this section.

84. Page 2-16, paragraph 2. Meteorology and air quality are both important factors in the site selection process. This paragraph indicates that equipment for monitoring those parameters might be installed at some sites when plans should definitely require such installations at all sites. This paragraph should be altered to state that such monitoring equipment will be installed at all sites.

85. Page 2-29, Salt Discussion. The tremendous importance of seal development and performance to the overall intregrity of a repository in salt demands that this discussion of the program for obtaining the needed information and validation be far more extensive than that presented here.

86. Page 2-33, paragraph 4. The performance of waste containment materials in each of the media under consideration is a relevant factor in selection of the site to be recommended. The long-term engineering-scale containment materials testing in the presence of packing materials should be completed before repository recommendation rather than four years afterwards as these plans provide.

87. Page 2-42, paragraph 5. The validation of performance assessment codes for salt after recommendation of the site for the first repository takes place is unacceptable. An informed repository recommendation cannot be made on the basis of information of questionable validity.

88. Page 2-44, paragraph 1. It is entirely unreasonable to expect the NRC to undertake comprehensive rigorous evaluation of a construction authorization application when the information provided by the Department is insufficiently validated and subject to alteration. The codes for subsystem modeling must be fully validated prior to their utilization in preparing a construction authorization application.

89. Page 3-5, Acquiring Access to or Control of Land. Information must be presented in this section regarding specifics of the Department plan to acquire binding leases for the purposes of protection of sites being characterized.

90. Page 3-7, paragraph 1. The assertion that state laws and regulations affecting the geologic repository program "may not be permissible under the constitution" is unsubstantiated, unwarranted and prejudicial. Such regulations may also be permissible under the constitution. The last sentence of paragraph 1 should be deleted.

91. Page 3-8, paragraph 1. The planned program-wide information procedures would certainly promote communications between the Department and the affected parties. The past 18 months should have been sufficient time to establish such a program or at least to develop comprehensive plans for one. A detailed description of that information program must be included in the Mission Plan.

92. Page 4-1, The Test and Evaluation Facility. This section should describe the Department's interpretation and intentions regarding construction of subsurface TEF facilities prior to the granting of a construction authorization by the NRC.

93. Page 5-13, paragraphs 4 & 5. The presence of more prolific oil and gas fields in areas surrounding the Palo Duro Basin has absolutely no bearing on the potential for exploration for those resources in the Palo Duro Basin itself. The Department's rationale regarding potential for mineral resource production must be revised to consider absolute potential for resources as opposed to potential relative to nearby rich resources.

94. Page 6-1, Guidelines for Recommending Sites for Repositories. This discussion should be revised to reflect the latest developments in the preparation of siting guidelines.

95. Page 9-2, paragraph 2. In view of the burden assumed by each State in which a repository is constructed, a commitment by the Department to build additional repositories rather than to dispose of more than 70,000 metric tons in each of the first two repositories is necessary. The situs states cannot reasonably be expected to forever shoulder the burden of high-level waste disposal for the entire nation.

96. Page 9-2, Section 9.2.1. This section examines possible implications for a repository of a reprocessing fuel cycle, but overlooks two relevant issues. In a reprocessing cycle, the waste package will in all likelihood be significantly different in shape and size from a package for spent fuel. The length of the waste package in particular could have significant bearing on the required thickness of the host rock formation. The second significant point is the much shorter average half-life of the waste to be disposed if plutonium is removed through reprocessing. This difference in average half life would have a significant impact on obtainable repository performance and definition of the control zone surrounding a repository. Both of these factors should be addressed in the Mission Plan.

97. Page 9-3, table 9-1. The column headings on this table are misplaced and should be corrected.

98. Page 11-1, Socioeconomic Impacts. Although the NWPA explicitly requires only an identification of possible adverse impacts, it would seem prudent in this chapter of the Mission Plan to also present in substantial detail activities and plans for impact avoidance and mitigation. With the designation of sites for characterization certain impact mitigation provisions of the NWPA are triggered and detailed information on those issues will be critical to the affected States and localities.

99. Pages A-1 through A-44. Appendix A should present the siting guidelines as concurred in and finalized in June of 1984.

DEPARTMENT OF ENERGY & TRANSPORTATION
Watkins Building, 510 George Street
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601/961-4733

July 9, 1984

Mr. Charles R. Head, Acting Director
Operations Division, Office of Civilian
Radioactive Waste Management
U. S. Department of Energy, RW-13
Forrestal Building
1000 Independence Avenue, S. W.
Washington, D. C. 20585

Re: State of Mississippi preliminary comments on DOE/RW-0005 DRAFT, Mission Plan for the Civilian Radioactive Waste Management Program

Dear Mr. Head:

Please accept for the record these preliminary comments on the April 1984 Draft Mission Plan. Several agencies of the State of Mississippi, as well as members of the Nuclear Waste Policy Advisory Council and citizens of this state, have developed additional comments on the Mission Plan which are attached to this letter as our interim final comments.

Through this correspondence, I intend to address only two of the more significant issues in the Mission Plan on which the state has comments. The intent of the State of Mississippi in submitting these comments is to as precisely as possible identify some of the areas of objection and/or concern we have with the Draft Mission Plan. This is in keeping with the requirements of Section 301.(b)(3) of the Nuclear Waste Policy Act of 1982. The first issue concerns the lack of description of the methodology by which the site recommendation process will be accomplished. The latter concerns the issue of the number of qualified sites from which to choose a candidate for a Construction Authorization Application.

This state has been on the record on several occasions appealing to the Department to develop and publish for comment the methodology to be utilized in recommending from among sites nominated pursuant to Section 112.b(1) of the Act, those sites to be characterized in detail. Section 301.(a)(3) of the Act requires "an evaluation of...institutional problems that may impede implementation of this Act..." It is the considered opinion of the State of Mississippi that the Mission Plan should address and describe in detail the site recommendation decision methodology. The Mission Plan fails to address the issue, and for that reason the state officially objects to such an omission.

The second issue upon which comments are submitted deals with an issue which we are in disagreement with the Department. Volume I of the Mission Plan has a treatise on the Repository-Program Approach. What is lacking in the Mission Plan site selection process is whether the Department must characterize and qualify three sites. It would appear that Section 114(f) of the Act requires "For purposes of complying with the requirements of the National Environmental Policy Act of 1969 (42 U.S.C. 1321 et seq) and this Section, the Secretary shall consider as alternate sites for the first repository to be developed under this subtitle three candidate sites with respect to which (1) site characterization has been completed under Section 113, and (2) the Secretary has made a preliminary determination that such sites are suitable for development as repositories consistent with the guidelines promulgated under Section 112(a)" (emphasis added). The Mission Plan must be made clear as to the Department's intent as to how many of the three sites must be qualified at the completion of site characterization.

Thank you for this opportunity to submit these comments for your perusal and response.

Very truly yours,

Wilbur G. Ball

Wilbur G. Ball
Executive Director

Enclosures
WGB:fnp

MEMORANDUM

TO: Ron Forsythe, Nuclear Waste Program Manager

FROM: Ken Goodwin, Chairman
Nuclear Waste Technical Review Committee
Mission Plan Subcommittee

DATE: July 6, 1984

SUBJECT: Review of Civilian Radioactive Waste Management Mission Plan, Volumes I and II

The comments presented here have been hastily put together to meet the DOE review deadline. Comments were previously submitted on Volume I and many are still applicable. The comments are divided into a general category and a page-by-page review.

GENERAL

1. The report is not specific. It is a collection of alternatives. It uses many vague words and disclaimers such as appropriate, reasonable, fair, equitable, etc. It contains more information about possibilities than plans.

2. The organization of the report is very mixed and confusing. The first repository is a project in itself and should have a Mission Plan separate from the second repository, interim storage, or an MRS.

3. Socioeconomic impact is not considered as a key issue, which follows past efforts of the federal program. People are not its primary focus.

4. The technical plan lacks details, particularly on salt. Considerably more detail is presented for tuff and basalt, yet statements are made that salt has the most research and technology available.

5. Many statements are written to appear conclusive to the reader when, in fact, they are backed up by only limited data and study.

6. The MRS siting is glossed over as being a simple process with few time delays when, in fact, it may be almost as difficult to site as a repository.

7. This report presents the first mention of two shafts being built during site characterization, which raises the question as to whether the repository will be located without the benefit of final design information and NRC approval.

8. The report contains no mention of specific procedures for negotiation of a consultation and concurrence agreement with the States.

9. The report contains no plan or explanation of exactly what the surface facilities will consist of or how they will be operated.

DETAILED PAGE-BY-PAGE CRITIQUE, VOLUME I

1. "These spent fuel assemblies are highly radioactive and must be isolated from the biosphere." This statement should also provide for the possibility of reuse through reprocessing. (Page 1-1)

2. The statement is made that DOE will regularly update the document and all revisions will be subject to State review. This is a good statement. (Page 1-2)

3. The statement is made that NRC standards will be used for defense waste, but it is implied that NRC will not have control. This is unacceptable. (Page 2-3)

4. A quote from the Act is given as follows: "State and public participation in the planning and development of repositories is essential in order to promote public confidence in the safety of disposal of such waste and spent fuel...." No mention is made of the current level of public confidence or that it has rapidly decreased since the start of the program. (Page 2-7)

5. It is questioned as to why new at-reactor pools could not be constructed to provide for additional interim storage. This would provide for no additional areas of potential contamination. (Page 2-9)

6. A statement is made under transportation that "much of the institutional framework (e.g., regulations and regulatory bodies) necessary to support these shipments already exist." I question their adequacy in light of regular problems with hazardous waste and the general inadequacies of our surface transportation system, e.g., overstressed bridges, regular derailments, etc. (Page 2-11)

7. It is questioned whether transportation contracts will be bid or negotiated. Do we want to trust the care of such a controversial item to the lowest bidder, who may have to bend the rules to make a profit? (Page 2-12)

8. The statement is made, "The principal concept of geologic disposal is to isolate the waste from the human environment without long-term dependence on the continued existence of contemporary institutions." Is this a practical concept based on how quickly technology changes and the potential reuse of the material, particularly spent fuel which has not been re-processed? (Page 3-A-1)

9. The following statement is made: "...environmental impact statement which concluded that geologic disposal is safe, environmentally sound, and the technology is at hand." This statement has no basis for such a conclusion. (Page 3-A-1)

10. It is mentioned that the repository must isolate the waste for 10,000 years, and yet we talk about 1,000-year existing groundwater travel time as being necessary. These appear to be inconsistent standards. We should be predicting future groundwater movement with heavy water withdrawals. (Page 3-A-7)

11. In item 4b, the words "at least" should be removed to be consistent with other parts of the report. The statement should read that three sites will be characterized. (Page 3-A-7)

12. A public confidence objective should be added to the mission and objectives section. (Page 3-A-7)

13. Under the basic questions to be answered regarding the suitability of a site for a geologic repository (Page 3-A-9), the following additional questions should be included:

    a. Can a surface facility be designed, constructed and operated to provide reasonable health protection to the citizens of the area, when compared to potential health effects in other areas?

    b. Can transportation to the site be provided with less health effects than other potential sites?

    c. Can the groundwater system be better protected from contamination at this site compared to other potential sites?

14. The site screening for the first repository was a very poor process. It did not include all the alternatives, i.e., granites, clays, etc. It did not use population, transportation, or hydrologic conditions as criteria. Parameters were inconsistently applied, levels of data were not comparable. (Pages 3-A-9, 3-A-10)

15. The results of technology development and system studies are highly speculative and require many assumptions which may be closer to guesses because of the future time period involved. Why are separate independent studies not used for verification? (Page 3-A-15)

16 It is questioned as to how the Peer Review Panel will be selected. (Page 3-A-15)

17. The consultation and cooperation process has had very poor results to date, and quality information programs have been lacking. This is not indicated in the material presented. (Page 3-A-18)

18. The socioeconomic accomplishments to date are overstated. (Page 3-A-18)

19. Table III-A-1 states, "DOE submits site recommendation reports to the President." There has been some past discussion that a site recommendation report would not be prepared. Is the statement true? (Page 3-A-28)

20. The statement is made that the MRS "concept should rely upon engineered features for safety and not upon geologic and geographic features that would restrict siting options." This is a very poor statement and engineering, geological, and geographic features should be considered. (Page 3-13-3)

21. The statements made relative to MRS siting are naive and inaccurate, and they illustrate a lack of understanding of nuclear facility siting given the current mood of the country toward nuclear facilities. To place labor rates as a major, let alone the controlling factor, is absurd. (Page 3-B-8)

22. The statement is made, "Routing of nuclear waste shipments is a primary concern of state, local, and tribal officials." Does this mean that federal officials will not be concerned with routing? (Page 3-C-2)

23. No mention is made under transportation of standards for vehicles and equipment, highway and rail facilities, or personnel qualifications and training. (Page 3-C-8)

24. The Nuclear Waste Program has a history of a very temporary and unstable organization in both personnel and contractors. A permanent management system is a necessity. Many decisions are currently being made by acting and temporary staff. (Pages 4-6, 4-7, 4-8, 4-9)

PAGE-BY-PAGE CRITIQUE, VOLUME II

1. The statement is made, "Most of the issues are related to the geologic, hydrologic, and geochemical characteristics of the repository site and other aspects of the natural environment." People and their socioeconomic considerations are again left out and not considered important. (Page 1-2)

2. In the discussion of climatic change, the statement is made, "The changes are global; they involve reductions in temperature and evaporation, and increases in precipitation and runoff." Sea level fluctuation should have been included. (Page 1-9)

3. The statement is made, "However, even in evaporite formations like salt, dissolution is a potentially disruptive process that is not expected to affect the long-term performance of the repository." This is an incorrect statement and the word "not" must be removed. (Page 1-10)

4. The Richton, Mississippi, site is in the center of a belt of oil exploration that extends across southern Mississippi. It appears that little consideration was given to this factor. (Page 1-13)

5. The environmental quality such as air and water quality must be forecast into the future, rather than relying exclusively on present information. Methods of data collection and interpretation should be presented. (Page 1-17)

6. The word "competent" should be replaced with the word "suitable" in line 4.3.1. (Page 1-21)

7. The logic diagram for site investigation (Figure 2-2) indicates that some borehole data and testing may not be available for preparation of the Site Characterization Plan. Supporting data should be available before shaft location is selected. (Page 2-6)

8. Under the heading, Dissolution, the potential dissolution at the salt-caprock interface at salt domes was not mentioned. (Page 2-11)

9. Different shaft diameters are shown for salt, tuff, and basalt. Why? (Pages 2-17, 2-18)

10. More information is needed on why the difference in time for shafts in basalt, tuff, and salt. Also, why are the tests to be performed so differently? (Pages 2-20, 2-21)

11. The eight-month testing program in salt is not adequate to predict performance for 10,000 years. (Page 2-21)

12. "In FY 84, emphasis is being placed on developing a sufficient data base of physical properties in order to relatively compare the seven salt sites from a geoengineering perspective." Any comparative data is important and good. (Page 2-25)

13. More information is needed on how seals will be tested for 10,000-year performance. The statement about sealing technology is incorrect as we have no history of long-term sealing. (Page 2-29)

14. "Spent fuel in the form of intact fuel rods with metal cladding is considered to be an acceptable waste form for the repository." This is the first mention in the Mission Plan of intact fuel rods being placed in a repository. How does its safety compare with other factors such as glass, etc.? (Page 2-30)

15. Is disturbed salt an adequate backfill? How has it been tested? (Page 2-36)

16. Under "System Engineering," a sixth item of basic information on each element should identify the weakest link of that element. (Page 2-39)

17. The preliminary safety analysis report is mentioned for the first time and, if it is properly prepared, should be a major factor in obtaining public confidence. (Page 2-44)

18. Land acquisition methods are presented and they are the traditional federal procedures including the use of condemnation. These procedures are not acceptable and will not help develop public confidence. (Page 2-44)

19. The first draft of Volume I of the Mission Plan indicated that State permits would be obtained. This report is hedging on this issue, indicating that they may take issue with some permits and State laws. (Page 3-7)

20. The current public information program is inadequate and the Mission Plan should indicate how it will be operated and how results will be tested. (Page 3-9)

21. Much detail is unknown about the Richton Salt Dome, including configuration of the caprock, dome dissolution, and saline anomolies. The dome is partially under the town of Richton, but the area studied has been offset from the town to obtain the distances required by law. This presents the problem of future expansion under the town as greater capacity is needed. (Page 5-6)

22. "Mineral exploration directly over the dome has included a sulfur exploration program which involved boreholes into the caprock. (LETCO, 1982a)." Some of these boreholes penetrated the salt stock. (Page 5-9)

23. Under "Salt Dome Pathways" is the statement, "Figure 5-11 is a simplification of the possible scenarios of release from the Richton dome to the various aquifer units." Figure 5-11 and the referenced paragraph are, in fact, grossly misleading representations of the geohyrdologic system around Richton. The fact that pathways along the dome sheath, vertically along radial and rim faults, along well casings, and along other pathways now utilized by the existing dissolution plume is purposely ignored. (Pages 5-30, 5-31, 5-32)

24. "Furthermore, because of their high salinities, the waters associated with salt deposits are not normally attractive for domestic and industrial uses." This is not true; potable water exists in the vicinity of the dome. (Page 5-59)

25. The validity of the discussion on groundwater around the salt dome at the top of page 5-60 is questioned. We do not believe the data will support the conclusions presented. (Page 5-60)

26. Table 5-4, in a purported attempt to list advantages and disadvantages of salt, ignores radial and rim faulting, inclusion of potential aquifer material, migration pathways created by extensive drilling and mineral exploration, and the prolific groundwater environment, which are all commonly associated with salt domes of the Gulf Interior Region. A case in point is the historical forced abortion of an attempt at large-diameter borehole drilling into the Tatum Salt Dome near Richton and Cypress Creek domes in Mississippi. What documentation on large-diameter borehole drilling through water-bearing strata is presently available? The lists presented are incomplete and many of the disadvantages for basalt and tuff are the same as in salt, but were left out. (Page 5-62)

27. The town of Richton is said to be two miles from the dome when, in fact, it is over the top of the dome and the area of investigation was offset to obtain the needed distance from a populated area. (Page 7-10)

28. In choosing a site, a mutual plan should be worked out with local authorities to best benefit all concerned. (Page 7-18)

29. It is said that a test and evaluation facility would not have socio-economic impacts. This is not true. It is nuclear waste and this will cause impact as long as the mood of the county is in its present state about nuclear facilities and their danger. (Page 11-1)

30. Under "Demographic Effects" of a repository, out-migration of long-term residents should be considered. (Page 11-1)

31. Under "Economic Impacts," short- and long-term impacts should be considered as well as the problems and needs of in-migrating families. It is possible that wage rates will be driven up to a point that many people in existing businesses will be driven out of business and newcomers take over. (Page 11-2)

32. Under "Social Impacts", there is little mention of the fear factor which is the source of much opposition. (Pages 11-4, 11-5)

33. The entire socioeconomic section is written as a conventional construction project and does not take into account the effects resulting from perceived danger or catastrophic disaster. (Pages 11-1 through 11-6)

Thie report is submitted by the Mission Plan Subcommittee, composed of:

Ken Goodwin, Mississippi Department of Economic Development
Bobby Redding, Mississippi Department of Health
Mike Bograd, Mississippi Department of Natural Resources
Phil Pepper, Mississippi Research and Development Center
Ron Forsythe, Mississippi Department of Energy and Transportation
Bob Woolsey, Mississippi Mineral Resources Institute.

Mr. Forsythe and Dr. Woolsey were unable to attend the critique discussions, but they will submit separate comments.

DEPARTMENT OF ENERGY & TRANSPORTATION

MEMORANDUM

TO: Ron Forsythe, Nuclear Waste Manager DATE: June 29, 1984

FROM: Kelly A. Haggard, Nuclear Waste Specialist KAH

SUBJECT: Mission Plan

This version of the Mission Plan was organized much better and much more readable than the first draft we received. Some of the concepts DOE has developed are an improvement but they still do not anticipate legal challenges that may delay their schedule. The following are my comments on Volume I, listed by page number:

1. (Page 1-1) The Mission Plan states "The Act requires the Department of Energy to site, license and operate repositories..." DOE does not license a repository. It should read "obtain a license". The same statement is made in the first program objective on the same page.

2. (Page 1-2) I concur in the last sentence where DOE states all revisions will be subjected to a full review by the public, State, Indian tribes, and Congress.

3. (Page 2-3) One of the principles DOE is using as a planning basis relative to the potential receipt of defense waste involves dedicating the receiving facility of the first phase of the initial repository to receipt of defense waste. This concerns me because a defense repository does not have to be licensed. Even though DOE states it will be required to meet the standards necessary to be compatible with licensing of the repository by the NRC, the fact still remains that it does not have to be licensed. The first phase of repository construction could begin without a license.

4. (Page 2-4), second paragraph) Will a reprocessing plant be located at the repository? This decision needs to be made. Risk analysis will be totally different if a reprocessing plant is located at the repository. This could effect the selection processes.

5. (Page 2-7) The last paragraph says DOE will provide mechanisms for (b) Consultation on key draft documents. Why should consultation take place on just <u>key</u> documents?

6. (Page 2-8) When and on what basis was the decision made to colocate a Test and Evaluation Facility at the repository? There should be a reference.

7. (Page 2-11) How will those States on the transportation routes be involved? Will DOE provide funding to these States?

8. (Page 3-A-7) One of DOE's objectives is to recommend at least three sites for site characterization. The Act says three period.

9. (Page 3-A-10) The Mission Plan says field and laboratory testing was underway at all nine sites when the Act was passed. This was not the case in Mississippi unless DOE violated the moratorium.

10. (Page 3-A-17) The emplacement hole packing mixtures being considered for basalt and tuff were given, but not for salt.

11. (Page 3-A-20) How will DOE select the three sites for characterization from the five nominated? The Mission Plan just states that three sites will be recommended. Isn't it about time DOE decides how they will get to the three?

12. (Page 3-A-21) The results of characterization work and any changes to the site characterization plan will be shared with affected parties but will the States be allowed to comment on them or at least consult with DOE on the results?

13. (Page 3-A-23) Postclosure monitoring or surveillance will be installed as necessary. What does "as necessary" mean? Certainly DOE is not considering a lack of monitoring.

14. (Page 3-A-26) Under Consultation and Cooperation part (c) it is stated "Consultation on the decision process for recommending sites for detailed characterization." I hope this plan will take place.

15. (Page 3-A-26) Will impact mitigation cover those impacts that have occurred prior to site characterization? Will the socioeconomic impacts be monitored after closure of the repository?

16. (Page 3-A-32) Case 2-A is unrealistic. Sound decisions cannot be made with incomplete data. Public confidence in the program would drop even further.

17. (Page 3-A-32) Case 2-B assumes 8 months of in situ testing in salt. Why is there a one year difference in the testing time for salt and tuff or basalt? From where do these numbers come? There should be a reference here.

18. (Page 3-A-33) The time when a preliminary finding of the suitability of a site as a repository is made by the Secretary should be changed to conform with the new Guidelines decision made at the NRC Concurrence Hearings on June 22, 1984.

19. (Page 3-A-40) The assumption that there will be no notice of disapproval by a State or affected Indian tribe is unrealistic.

20. (Page 3-A-40) NRC has already indicated it will take longer than 3 years to issue a construction authorization. At least 4 years should be used in the reference schedule.

21. (Page 3-A-43) Alternative Schedule 4 should not even be considered. A two-step construction authorization approach is unrealistic for a first-of-its-kind facility.

22. (Page 3-A-43) DOE believes it is inappropriate to anticipate any legal challenges. I question this belief. The nuclear industry has always been challenged. What makes DOE think this program would be any different?

23. (Page 3-B-1) DOE's approach of continuing with the plans for an MRS even though the decision to construct an MRS won't be made until a later date is a good approach. It is better to be prepared than not.

24. (Page 3-C-4) More detail needs to be given concerning the involvement of those States on the transportation routes.

These are my comments at this time. Further comments will be given at a later date.

MISSISSIPPI MINERAL RESOURCES INSTITUTE

COMMENTS ON THE MISSION PLAN FOR THE CIVILIAN RADIOACTIVE WASTE MANAGEMENT PROGRAM - APRIL, 1984 DRAFT

Many of our comments on the Mission Plan reflect our concern that there has apparently been less data collected and fewer studies made in salt than on basalt and tuff. We realize that reasons for this are likely many and varied, but we want to emphasize that this inequity should be rectified for any salt site(s) during the characterization phase. Since the salt site(s) will be chosen for characterization with less information in hand, we think it/they may require more intensive investigation to equalize the data bases prior to final site recommendation.

Mission Plan, Volume II

Issue	Comments
1.5	page 1-9 "Will future climatic conditions at a site lead to radionuclide releases greater than those allowed by regulations?" ONWI-120 reports typical supradomal elevations at Richton dome to be 160-190' above sea level (p. 13-24) and at Cypress Creek dome to be 180-270' above sea level (p. 13-16). ONWI-278 (p. 6) reports that the expected eustatic rises in sea level resulting from total melting of glacial ice is 270'(Lamb, 1971) or 360'(Andrews, 1975). Consideration of the possibility of marine inundation associated with drastic sea level fluctuations is needed.
1.6	page 1-10 "Will any subsurface rock dissolution within the geologic setting of the site lead to radionuclide releases greater than those allowed by regulations?" The Siting Guidelines (April, 1984) Subpart C, Section 960, 4-2-6(d) state: "The site shall be disqualified if it is likely that during the first 10,000 years after closure, active dissolution, as predicted on the basis of the geologic record, would result in a loss of waste isolation." ONWI-109, Section 5.2.2.4 states: "Evidence of dissolution, no matter how slight, represents a complexity that will be an issue in licensing and will increase the amount of effort required in the characterization process." Dissolution is a process ultimately associated with salt domes and merits more attentive consideration than is reflected by the Mission Plan.

SCOTT M. MATHESON
GOVERNOR

STATE OF UTAH
OFFICE OF THE GOVERNOR
SALT LAKE CITY
84114

July 9, 1984

Mr. Charles R. Head
Acting Director
Operations Division, Office of Civilian
Radioactive Waste Management
U.S. Department of Energy, RW-13
Forrestal Building
1000 Independence Avenue
Washington, D.C. 20585

Dear Mr. Head:

The state of Utah has reviewed the Department of Energy's Mission Plan for the Civilian Radioactive Waste Management Program, dated April 1984. We find this document to be an inadequate fulfillment of the department's responsibilities as set forth in the Nuclear Waste Policy Act of 1982.

The attached comments outline, in detail, the specific concerns of the state. In general these concerns embody the failure of DOE to provide: 1) an adequate baseline of information necessary for the development and implementation of the nation's first nuclear waste repository program; 2) an adequate description of the existing weaknesses of the research and development programs necessary for successful completion of the nuclear waste repository; 3) an adequate assessment of numerous unresolved financial, legal, political and institutional constraints associated with the program; 4) an adequate definition of capacity and waste types designated for disposal in the first repository and unrealistic reliance upon accelerated time schedules for construction of the second; 5) a sufficiently specific description of site characterization activities; and 6) an adequate assessment of environmental and socioeconomic considerations.

Revision of the Mission Plan to adequately address the concerns raised above must be undertaken before DOE proceeds with any further site selection activity. The state of Utah is willing to provide any additional information or assistance necessary to assist you in meeting your responsibilities set forth in the Nuclear Waste Policy Act.

Sincerely,

Governor

SMM:jh
Attachments

JULY 9,1984

TECHNICAL REVIEW and GENERAL COMMENTS

of the

STATE of UTAH

on the

DRAFT MISSION PLAN

FOR THE CIVILIAN RADIOACTIVE WASTE MANAGEMENT PROGRAM

The state of Utah has reviewed the Draft Mission Plan for the Civilian Radioactive Waste Management Program, April 1984, and finds the document to be inadequate both in technical content and in its ability to provide Congress with a comprehensive planning blueprint of current and future waste isolation activities. Specifically, the Mission Plan fails to provide the information and supporting sources necessary to adequately explain the Department of Energy's proposal for further program activities and has also failed to adequately address the requirements for the document specified in Section 301(a) of the Nuclear Waste Policy Act.

The following technical review of the Mission Plan is organized into critical issues identifying the major areas of concern. A brief summary of each critical issue is followed by discussion of more specific issues. Discussion of each specific issue includes critical comments, requests, and examples of Mission Plan inadequacies. Additional comments supporting the state's critique can be found in the attached Appendix. The state requests that DOE incorporate all comments and suggested changes made as part of this review, or respond in writing as to why such changes were not made, in accordance with the Act.

I. Inadequate Baseline Information.

The Mission Plan fails to present information that supports or explains Department of Energy decisions on repository program objectives, strategy, plans, scheduling, and management. The Mission Plan does not present the informational basis necessary to permit informed repository planning decisions, as required by the Nuclear Waste Policy Act Sec.301(a). Much of the information necessary to clarify program elements described in the Mission Plan has not been provided and it appears it will not be available until after the Mission Plan review period. Informational deficiencies in the Mission Plan, as currently drafted, reflect delayed or inadequate study, lack of documentary sources, information sources of uneven quality, and a tendency to delay release of critical documents and key, potentially controversial program

details.

The Mission Plan also reflects an unwillingness to discuss the Environmental Assessment and studies to be performed prior to, and as a part of that assessment. These deficiencies, discussed in more detail below, do not reflect a simple need for more information. More importantly, they require that the Mission Plan be upgraded to provide information that has been used to justify decisions and program details, and further provide a tabular accounting of studies, decisions and program details, anticipated for completion after publication of the Mission Plan.

1. Denial of timely access to technical information. The following actions are examples of DOE unwillingness to openly share technical information in a timely manner, despite their stated intention to do so.

a. The Transportation Business Plan (P.3-C-7) has been withheld from public distribution and comment, although DOE transportation engineers recently completed comments on the fourth draft of this plan. Furthermore, the state understands that only a condensed, incomplete version of the plan may be released for public comment. The state has repeatedly requested that a process be established which would allow timely participation in the development of such documents.

b. Copies of draft contractor reports have been available for examination but not for distribution at DOE-NRC hydrology and other data orientation meetings. Such reports must be made available in a timely fashion to the state in order to assure meaningful review.

c. The Mission Plan states (p.2-7) that at least four deep stratigraphic boreholes will be drilled and cored at the selected salt site. These holes will circumscribe the site and will be drilled beyond the repository level. In previous discussions DOE has not outlined in detail, nor with consistency, the components of their drilling program. The state continues to learn of different plans/locations for boreholes, making it difficult to assess the adequacy of a drilling program.

The state requests that DOE make all reports, studies, plans, and other project documents available for public review, and that all such documents cited and/or relevant to the the project be made available in sufficiently early form to assure meaningful state review and participation.

2. Delayed studies, inadequate studies, and lack of documentation. The Nuclear Waste Policy Act requires that the Mission Plan not only identify information, but additionally provide sufficient information to permit informed decision making at appropriate points in the process.

Figure 2-2, at p. 2-6, appears to be an outline of studies to be undertaken during site characterization. It is the state position that many of these activities should take place prior to the selection of a site for characterization in order to provide a meaningful basis for making a decision to proceed with site characterization. For example, "preliminary environmental studies" are an essential basis for the development of the environmental assessments, and such necessary items as detailed maps of the salt sites will not exist until after a site has been selected for characterization if the schedule outlined in 2-2 is followed (see p. 2-10). Additionally, the state has serious concerns regarding the order of the activities as described in Figure 2-2. For example, there is insufficient information available to "describe baseline environmental conditions" prior to conducting "preliminary environmental studies".

Chapter 5 discusses research and development in four disciplines pertaining to waste isolation and "constructability". However, many other areas of research in addition to geology, hydrology, geochemistry and geomechanics (e.g. socioeconomic, environment, transportation, cultural resources) will determine suitability of sites for characterization. Chapter 5 should fully discuss all determining factors.

In addition, many significant results that are discussed in the Mission Plan are not documented. For example:

a. DOE states that "(t)he Paradox Formation has experienced dissolution at certain locations within the Paradox Basin ... but similar conditions have not been found near the site" (p. 5-10). Even though similar conditions have not been identified near the site, investigations to date have been too limited to support DOE's suggestion that dissolution will not be a problem near the site. Similar conditions have not been found near the site because necessary field investigative work has not been performed.

b. DOE states at p. 5-26 that "(b)because the data necessary to quantify the various components of recharge are not sufficient at present, these topics are addressed only qualitatively here." Thus any statements about radionuclides are largely speculation (p. 5-29) and should be presented as such.

c. While the DOE appropriately recognizes its sparse geohydrological data sources (see pp. 5-23, 5-26, 5-27, 5-29), statements about site conditions which are not supported by data should specifically be identified as such.

d. Use of statements like "carnallite dewaters at fairly low temperatures and could act as a significant source of water" (p. 5-40) are unnecessarily vague. Even rough estimates would be better than descriptors such as "fairly low." For example, "fairly low" could be compared to the repository's operating and maximum expected temperatures.

Examples of inadequate data, research design, or documentation found throughout the Mission Plan include:

a. Specific stream monitoring, flood potential and other surface hydrological concerns are not mentioned in site investigations (p. 2-3) nor in the environmental studies (p. 2-16). Given the potential for flooding of the repository and potential pollution associated with salt storage at the surface, DOE should commit to describing the specific hydrologic studies it plans to undertake.

b. Chapter 11 lists several possible socioeconomic impacts (pp. 11-1/11-6). The state feels that this list is unnecessarily narrow and must be expanded to include a full range of possible socioeconomic impacts.

c. Reporting that brine and groundwater samples have been obtained "from several of the salt sites" (p. 2-30) for use in waste-package testing is unnecessarily vague. DOE should indicate which sites have been sampled and analyzed.

d. Many geologic studies that the Mission Plan has not included should be identified. These would include: mapping of joints and faults (as these features can transmit water), investigations of river-triggered seismic activity, mining induced seismicity, Colorado lineament, maximum credible earthquake, and local uplift, subsidence, and folding. These are necessary for the site selection process.

e. The confirmatory borehole which DOE says it will start in FY 1984 has not been drilled. Thus DOE is currently basing many assumptions in the environmental assessments on the results of one hole, GD-1 (p. 2-7). The state has repeatedly

requested that additional information be collected, but only after DOE provide appropriate assessment of the environmental impacts likely to occur from the data collection activities themselves. Tentative agreement has been reached regarding the assessment of environmental impacts prior to initiation of further field activities. (See May 4, 1984 letter, Governor Matheson to Secretary Hodel, and July 5, 1984 response, Secretary Hodel to Governor Matheson).

f. The Mission Plan states that:

> [t]he screening process that led to the identification of potentially acceptable sites included environmental considerations at every stage. Using this approach in the selection of study locations serves to reduce the requirements for restoration measures required and enhances the success of measures that might have to be implemented. In this way, restoration planning begins before an area is disturbed.

In fact, for example, reclamation has never been one of the environmental screening parameters considered (pp. 7-17, 7-18). ONWI-291, "Paradox Area Characterization Summary and Location Recommendation Report" that Secretary of Energy, Donald Hodel, has identified as the basis for determination of a potentially acceptable site in Utah contains no consideration of reclamation needs. While this is a specific example, ONWI-291 contains other deficiencies that require examination and thus condemns the conclusion drawn in the Mission Plan.

(See appendix for additional comments concerning inadequate studies, erroneous and undocumented conclusions)

3. Lack of an accurate representation of the amount of data available for sites under consideration. The Mission Plan states that "[o]f the potential repository rocks, rock salt has been the most thoroughly studied for the longest time." (p. 5-59) This is misleading unless qualified with site specific comparisons. To provide an important qualification of what otherwise might appear to be equally well researched "significant results", the state requests that an accurate reflection of available site specific data be included in the Mission Plan.

4. No clear identification or schedule of studies to be performed as part of the Environmental Assessment. The "information needs" detailed in Chapter 1 of the Mission Plan are not accompanied by a clear schedule of which research

activities would be conducted as part of each stage such as the EA, SCP, or licensing stages. Such a schedule is of critical importance if the State is to evaluate the advisability of DOE proceeding from one stage to another based on research results. The state demands that the Mission Plan include a timetable in which DOE commits itself to gathering specific kinds of data as part of the Environmental Assessment process or SCP process, as is appropriate.

For example, statements such as "meteorological and air quality monitoring equipment may be installed at some sites" should be clarified to state whether or not it will be installed and when (p. 2-16).

The environmental assessment stage does not even appear on the site investigation schedule (pp. 2-6) and discussion of this stage is minimal. The Mission Plan focuses almost entirely on post-environmental assessment (EA) study phases.

Screening of the nine potentially acceptable sites for site characterization will be based on the environmental assessments; yet the importance of the EA is minimized in the Mission Plan. In the Plan's present version it is difficult to determine which information needs will be resolved prior to development of the EAs or during site characterization.

5. Delaying key program details until after the Mission Plan is released, and interpretations of the Nuclear Waste Policy Act leave many questions unanswered. Vol. II of the Mission Plan "...is concerned almost exclusively with the repository program." (p. iii) DOE interprets this to mean that the Mission Plan need only discuss the repository site (p. 1-2) and not the whole program for transporting, packaging and emplacing waste in a repository. Thus national, regional and off-site questions of risks to public health and safety are not considered an issue even though "the transportation of waste to a repository site could affect the health and safety of the public, the environment, and the cost of the waste disposal" (p. 1-18). If DOE does not feel it should deal with the transportation and other off-site repository issues, the Mission Plan should outline how these concerns will be addressed, and how they will interface with DOE porgram plans. The overall attempt to focus only on site specific information needs, impacts, and problems neglects many of the broader, national and regional concerns associated with a facility of national significance.

II. Research and Development Program Problems.

The mined geologic repository proposed in the Mission Plan is an experimental facility. Furthermore, it is an experiment whose failure would have dire consequences for residents of the Colorado Plateau and the Intermountain West. In numerous instances the Mission Plan fails to recognize

technical uncertainties and avoids acknowledging that many of the technologies to be employed are experimental and represent prototypes. Assurances that technical problems will be solved are no substitute for a clear, forthright discussion of those problems. The Mission Plan should present details of these unknowns such that the goals, adequacy, integrity, and quality of the research and development program can be objectively assessed.

1. The Mission Plan should describe all specific technical questions and unknowns, and acknowledge the experimental nature of certain technologies to be employed.

The sinking of shafts will not resemble routine operations at deep mines throughout the world (p. 1-1). The Mission Plan misstates the issue when it is indicated that the technology for sinking a shaft is presently available for salt, avoiding mention of the technology's reliability and engineers' limited experience with sinking a 12 to 25 foot shaft thousands of feet. Similarly, how much actual experience have mining engineers had with sealing a shaft this large?

It is difficult to predict what will be learned in the course of future research. This is especially true for the Gibson Dome site where relatively little exploration activity has occurred to date. The Mission Plan should acknowledge the problems that may be encountered and will thus need to be addressed when collecting data under experimental conditions.

The Mission Plan incorrectly assumes that earth science research will resolve key issues (Chapter 1). Furthermore, the Mission Plan incorrectly concludes that regulatory and institutional activities, and test facilities are not directly aimed at the resolution of outstanding scientific or engineering issues (p. 2-2). On the contrary, regulatory and institutional activities are aimed at resolving issues defined in Chapter 1, especially since these include processes for arriving at definitions of "unacceptable risks" (Issue 3.2, p. 1-18), "reasonably available technology" (Issue 4, p. 1-19), "significant adverse environmental impacts" (Issue 3.1, p. 1-17), and a host of other issues. To state that the research and design program will resolve these issues unrealistically assumes a uniformity of scientific opinion of research results. An explanation is needed on the procedures by which competing scientific interpretation of DOE research results can and will be recognized, addressed, and resolved.

2. Specific research plans and schedules should be outlined such that the adequacy of the research and design program can be evaluated. The Mission Plan recognizes (p. 1-3) that the information needs outlined in Chapter 1 are of varying difficulty to resolve, of unequal importance and scheduling priority. However, no attempt is made to distinguish among those issues resolved easily or with difficulty; those that can be resolved only after construction of one or more exploratory

shafts; those that will be answered as part of an environmental assessment, or site characterization, or post SCP. The state requests identification of a time schedule for resolution of these issues as required by the Act. It is especially important in light of Utah's concerns that appropriate information be available prior to site characterization activities.

Specific study completion schedules are also important if the State is to evaluate the "...interdependencies among issues and information needs [which] are not shown..." in Chapter 1 of the Mission Plan (p. 1-3). The logic diagram for site investigations (Fig. 2-2) is unclear, omits the environmental assessment stage as a "milestone", is too general in its treatment of environmental studies and makes no mention of when socioeconomic studies are scheduled. In addition no schedule for these for socioeconomic studies is offered in Chapter 11, where socioeconomic considerations are addressed.

3. Inappropriate expectations for performance and quality assessments.

Quality Assurance: "A formal, quality assurance program has already been implemented by the Department and its contractors." (p.3-a-19) This program is supposed to ensure that data collected are accurate, verifiable, and retrievable (p.3-a-19). Details of this plan, like so many others, will not be available until the site characterization plan is submitted. If DOE is already using such a plan, details of it should be made available.

The Mission Plan attributes inappropriate expectations to the Quality Assurance Program. For example, Quality assurance programs are critical for monitoring, handling and storage of routine sample collections. However, much of the data to be collected will not fall into the category of routine procedures-- for example, tests employing new methods or equipment used in situations that have never before been encountered. It is also more difficult to apply a quality assurance program to secondary data; for example, most of the data informing the environmental assessment will be secondary data-- how will the quality assurance program be applied to this data? Perhaps even more important, a quality assurance program is data-oriented. Ultimately, the question is what measures is DOE using to encourage high quality research? What in-house methods are being used by contractors to preserve the quality and integrity of the research process? A quality assurance program is only one step in producing good research results. Data collection procedures do not assure that research conclusions are correct.

Performance Assessment: The Mission Plan states:

> critical to the performance assessment will be the definition of three major boundaries that are

> related to the regulatory requirements for the repository: the boundaries of the engineered-barrier system, the disturbed zone, and the accessible environment. These boundaries can be precisely defined only after completing site characterization as well as the design of the repository and the waste package. (p. 1-4).

However, it should be recognized that these definitions are currently under consideration by DOE and NRC who are reviewing a definition of the disturbed zone.

Performance assessment will include analyses of the "effects exerted by potentially disruptive processes and events"; however, more than dynamic processes (i.e. erosion, climatic change) can be disruptive; for example, disruptions such as the unexpected occurrence of a small breccia pipe or pockets of water during mining, should also be considered.

Performance assessment of the waste package is said to require "a computer code that is capable of handling a system of many interacting models" (2-40). What are the difficulties associated with a "model made of models"? Such mega-models are often too complex and muddled to offer guidance. What difficulties does DOE expect to encounter in building this system and how would they be resolved? In short, the state demands a more detailed plan for the performance assessment program which responds to these concerns.

4. The purpose and program of the TE facility has not but should be defined. One page of the Mission Plan is relegated to this topic. The Mission Plan discusses using the facility for various design, performance, technology development and demonstrations. However, The needs and ultimately its program and purpose (NWPA 301(a)(4)) have been left uncommitted until after site characterization plans have been issued.

5. The integrity of certain investigations may be compromised by DOE attempts to promote and prove, rather than monitor and evaluate, the reliabilty of its technology. The State raises this concern because of statements such as "this design will provide sufficient detail and analysis to confirm that the design is practical and capable of meeting all functional requirements" (p. 2-37). Confirmation of practicality and appropriate specifications are judgment calls based on the evaluation of the design and the data used to support that design. Similarly, the TE facility should not be "confirming the expected performance of the site" but instead should be testing those expectations against objective observations.

III. Unresolved financial, legal political, institutional problems.

A fundamental purpose of the Mission Plan is the identification of specific financial, legal, political, and institutional problems which may impede the implementation of the Nuclear Waste Policy Act. If meaningful measures for corrective action are to be devised, such identification must be coupled with both qualitative and quantitative evaluations of the impacts on the siting program of each identified problem. The DOE's problem identification and its evaluation of those problems in the Mission Plan are both wholly inadequate. Below, several specific areas are discussed and the deficiencies in the DOE's treatment in the Mission Plan are noted. The state requests that such a detailed identification/evaluation be performed, with state consultation, on potential problems in these and other pertinent areas. The state further requests it be consulted regarding the specific problems addressed and the procedures used for evaluation.

1. Serious institutional difficulties confront state and local governments planning for a nuclear project of this type, size, and complexity. DOE's extension of financial assistance to the states is important for providing the means to participate; however, financial assistance alone cannot "ensure that the affected states, Indian tribes, and others can fully and meaningfully participate in the plans and activities of the geologic repository program" (2-46). Factors other than financial ones affect the ability of a state to participate. For example, access to data, DOE's timely release of documents, delays associated with the need to pursue information through the Freedom of Information Act, timely communication and announcement of all meetings addressing project-related issues, and the availability of highly specialized technical expertise all affect participation. "Meaningful participation" has yet to be defined by DOE. These institutional difficulties should be explicitly recognized and suggestions for their resolution offered.

2. Financial problems and concerns of commercial nuclear energy producers supporting the facility should be outlined, and definition(s) of "cost effective" offered. The "reasonable costs" and "cost effective" concern is part of the key issues outline in Chapter 1 associated with repository construction, operation, closure, decommissioning, waste packaging, repository operations and worker safety (pp. 1-19 to 1-23). Who will have input into the decisions about what is "cost effective"? How will DOE balance industry concerns with cost effectiveness and public concerns with safety?

Program costs outlined in Chapter 10 are largely "guesstimates". According to earlier DOE admissions (p. 3-15), substantial uncertainties in revenues and life cycle costs are due to the fact that "... program costs are also very uncertain", "... the amount of waste to be disposed is uncertain", "... development costs are uncertain", "...transportation costs are uncertain", "... repository

construction and operations costs are uncertain", and "... there is uncertainty regarding the adequate level of funding for states ...". If the DOE is using best available techniques to identify and monitor the variables producing such uncertainty (p. 3-16), costs should be stated as ranges, the sources and amounts of cost variability projected, and details of the techniques used made public. At the same time the State questions how, in the face of such uncertainty, the DOE is sure that "cost reductions due to the shorter construction schedule will offset the near-term cost of sinking the second large exploratory shaft at each candidate site" (p. 7-15).

3. The DOE has placed unreasonable faith in conflict avoidance strategies and consultation-cooperative agreements that have, so far, failed to materialize. DOE intends to use consultation-and-cooperation agreements to resolve, or avoid permitting conflicts, state-federal jurisdiction questions, litigation, and other impediments to the Nuclear Waste Policy Act's implementation outlined in Chapter 3. The C & C agreement as proposed in this section by DOE is so loaded with controversial conflict resolution provisions that it may make the document impossible to adopt. Also, the DOE's thinking differs greatly from the C & C agreement as envisioned by Congress. The intent of the provisions in NWPA is to provide protection to both the DOE and the states. It is highly inappropriate that DOE load procedures or agreements into the C & C for shortcutting and meeting schedules considering that a primary, unresolved issue raised by the states in recent months is the unrealistic schedule. Still more inappropriate, is the Mission Plan publication of preliminary C & C recommendations, rather than their presentation to the state in the course of DOE-State negotiations. Finally, it is naive and overly optimistic for DOE to tie the resolution of so many problems into an agreement which will in fact accelerate the siting process to suit DOE objectives.

For DOE, failure to reach an effective C & C agreement will itself "be a major impediment to the implementation of the Act" (p. 3.2), an impediment which appears to have materialized already. The DOE says it will work "informally" with the states if a C & C agreement is not possible; however, these "informal" avenues are not explained, nor are other routes for addressing conflict explored. DOE has to date failed to develop either a formal or informal mechanism for working out problems with the states and the public. To assume that such can be done during the midst of the repository siting process is indeed optimistic.

Throughout Chapter 3 of the Mission Plan information sharing is offered as a conflict avoidance strategy; yet, as discussed in Issue I. above DOE has been less than cooperative in providing timely information access to data, documents, and notices of meetings. Thus DOE failure to establish a program of cooperation, consultation, and timely information sharing means the concerns outlined in Sec. 301(a)(3) of the Nuclear

Waste Policy Act have been inadequately addressed.

The reliance on "information sharing" as a conflict avoidance strategy is misplaced, based on the naive assumption that once people know the facts agreement will follow. The Mission Plan has failed to address the credibility problem created when the project promoter attempts to provide "information in a balanced manner", a process for "airing of public views", and procedures to "identify and respond to public concerns" (pp. 3-8/3-9). Given the problems of DOE credibility, and the credibility of the nuclear industry in general, more than public meetings and information will be needed to address public opposition. (See National Research Council Report on this very topic). DOE hopes to forestall notices of site disapproval by conducting site evaluation and selection" in such a manner as to give no cause for affected states ... to disapprove the site" (p. 3-11). Establishing such procedural credibility may be impossible considering the sources of opposition that have already emerged. How does the DOE plan to create this procedural credibility especially in light of existing conflicts and DOE threats to "define its position in court" (p. 3-7)? Is DOE willing to adjust its schedule to accommodate the extra efforts necessary to establish procedural and substantive credibility? Is it willing to establish neutral third party panels, and other means, beyond those referred to in the Mission Plan, to address existing and future conflicts?

The DOE has chosen to be less than direct in confronting conflicts; rather than addressing state level issues it has sought to use local governments as leverage to force modification of the issues. While the Mission Plan says DOE "would prefer a single point of contact, such as a state coordinating council", it maintains separate avenues of contact with local governments often excluding state leaders from DOE - local government meetings and communications. While state and local levels of government do not necessarily reflect the same points of view, DOE must avoid using the various levels of government against each other in order to achieve its own objectives.

<u>The state requests that the Mission Plan incorporate plans, procedures, and processes for resolving existing and furture financial, political, legal and institutional conflicts.</u>

4. <u>Potential Legal Impediments</u>. The potential for a significant number of substantive and procedural legal challenges to the siting program in Utah exists. Examples lie in the areas of land withdrawal, federal and state permitting requirements, NEPA requirements, and public involvement requirements. This list, while not exhaustive, suggests that obstructions or delays to performance of the siting program in Utah <u>do</u> exist. Without the identification evaluation called for in the introduction to this section, a determination of the magnitude of these impediments and the possible need for

Section	Comments
2.2.1.1	Tectonics; page 2-3
2.2.1.5	Dissolution; page 2-11
2.2.2	Hydrologic Studies; page 2-12 These are all examples of areas in which unequal emphasis has been given to the various salt sites under consideration for selection for characterization.
2.3.3	Testing; paragraph 4, page 2-21 "The in situ test program [in Basalt] is scheduled to start in May, 1987 and continue for approximately 24 to 29 months." paragraphs 5 and 6, page 2-21 "Current plans call for a site - suitability testing program of 8 months.....Detailed plans for the salt in situ test program are being developed in FY84 and will be revised after site selection in mid-FY85." paragraph 7, page 2-22 "The testing program in tuff is expected to take about 31 months beginning the last quarter of FY87." The Mission Plan does not define site - suitability testing. Is site - suitability testing synonymous with in situ testing? If so, we feel the estimated 8-month testing program will not be enough time to gather adequate information to be used for possible site recommendation.
2.5.2.1	Waste-Form Testing; page 2-33
2.5.2.2	Testing of Canisters and Overpacks; page 2-34
2.5.3	Package Design and Fabrication; page 2-37
2.6.2.1	Waste - Package Performance; page 2-40 Each of these sections is devoted to the waste and its packaging in basalt, tuff, and salt. The majority of the information involves basalt site conditions. Tuff is considered to a lesser extent, while salt is given the least consideration of all. It is obvious here that there is a need for further extensive testing in the salt sites.
3.3.1	Potential Issues and Problems (Acquiring Access to, or control of, Land); paragraph 2, page 3-5 This paragraph emphasizes concerns over potential legal problems involving negotiations with private landowners and the Federal Government possibly being obligated to exercise its right of eminent domain. Such resulting condemnation proceedings could create delays in implementing the repository program.

Section	Comments
3.3.2	Plans for Resolution; paragraph 1, page 3-5 The Department proposes to deal with the preceeding problem (section 3.3.1) through usage of the Uniform Relocation Assistance and Real Estate Acquisition Act of 1970 which "provides the Department with the basis for making equitable and comprehensive financial arrangements with private landowners and tenants who must be displaced." The Department plans to "work closely" with the U. S. Army Corps of Engineers in the negotiation process with the land owners. The Corps of Engineers may use out-of-state appraisers. If the appraisers are from out-of-state or are not familiar with the area they may not be as aware as they should be of the emotional effects that the news of a possible nuclear waste site may have had on the people of the area. The possibility that a nuclear waste repository might be located in Perry County, Mississippi was first heard in the area several years ago and therefore a future estimate of property values may not reveal a true picture of either a decrease or an increase in the property values of the area which may be condemned. Therefore, use of out-of-state appraisers gives rise to a possible dispute as to whether they can be "equitable" and "comprehensive" in their appraisal. The use of the Corps of Engineers may serve to create the legal problems which the Department seeks to avoid through their use of the Corps.
5.2.2.1	Salt Domes; paragraph 2, page 5-6 The second paragraph contains several confusing statements. In relation to upward domal movement, sentence 2 states: "...with the vertical movement ceasing some 20 million years ago, in Miocene time." Sentence 3 states: "There is no evidence of current tectonism at the domes. " Sentence 4 states: "Some faults near the Richton Dome have been hypothesized to have had movements during the last 2 million years (the Quaternary Period)." Sentence 5 states: "Faults with similarly questionable activity are likely to be identified at the other two domes." Sentence 4 and 5 appear to contradict the statements made in sentences 2 and 3. We believe there is evidence for Quaternary faulting associated with the dome sites and feel that the DOE should clearly state its position and the basis for its conclusions. paragraph 9, page 5-9 Statements in this paragraph involving economic hydrocarbons at Cypress Creek are not clear. Sentence 1 states: "There is a small producing oil field on the edge of Cypress Creek Dome" (emphasis added). Yet sentence 3 states: "The potential for production of hydrocarbons is rated as poor to fair." If there is current hydrocarbon production at Cypress Creek, the potential for hydrocarbon production is 100 percent. This is a rating better than "poor to fair". The presence of one producing field also increases the potential of other fields being discovered by future exploration.

8) (3-A-16) There has been no field activity in Mississippi.

9) (3-A-18) (i) Local and State libraries have not been well utilized in Mississippi. Information offices in Mississippi have been poorly located and disorganized. Documents obtained under the Freedom of Information Act demonstrate that D.O.E. has deliberately circumvented the State on numerous occasions.

(ii) The Socioeconomic Data Base Report for Mississippi is a superficial document based almost exclusively on census data.

10) (3-A-33(Case 2-D) If an exploratory shaft can't be successfully drilled because of rock instability or there is an inability to seal aquifers, why continue? The site is unsuitable.

11) What are the stages for site replacement? Will one of the five sites be resurrected? There is no scenario for zero (0) suitable sites.

12) (3-A-44) Congressional approval will be requested before a site is selected? This approach may be faster, but it is not logical.

Volume II

1) (5-9) How can the human intrusion rate be low after just describing how humans have already intruded the dome?

2) (5-29) Vertical transmissivity is not discussed. The 300 ft/yr rate computes to migration into the accessible environment in 20 years. It is interesting that the Bently Study is cited since Bently admits his estimates are the best he could do given the poor quality of the ERTEC work on which they are based. At any rate, the possible migration of radionuclides should be calculated at the fastest possible pathway, not an average.

3) (7-10) One-third (1/3) of Richton property is over the dome, not two (2) miles from the dome.

4) (Chapter 10) Costs do not include the cost of disposing of the mined salt. To pile salt mined from the site (as is shown in Fig. 3-A-1) would invite environmental disaster.

5) (Chapter 11) The major findings of the panel established by the Board of Radioactive Waste Management state well the shortcomings of this chapter.

Section	Comments
5.3.2.4	Salt Domes; paragraph 1, page 5-29 Sentence 1 states that fresh groundwater near Richton and Cypress Creek "occurs in discontinuous, lenticular sand deposits that are interbedded with clay, marl, and limestone." This statement implies all near-dome aquifers are lenticular sand deposits. We feel this statement is too general and should be modified. Sentence 1 is almost a word-for-word quote from the first sentence of the abstract of Water Resources Investigation Report 83-4169, USGS, 1983, by C. B. Bentley. The exception is that Bentley added "primarily of Miocene age" to the end of the sentence. We believe this last phrase of Bentley's report is important and should be included in some form to limit the part of the stratigraphic column to be considered. Sentence 1 also implies that limestones are not aquifers. Limestone beds often contain potable groundwater and should not be characterized in the manner of sentence 1. We feel that the amount of data collected on the hydrology of the salt dome sites is less than at other sites. If a salt dome site should be characterized, the DOE should focus additional work on the hydrologic settings to bring the amount of data on the domes to the same level as, for example, the basalt site. paragraph 3, page 5-30 Sentence 2 states that hydraulic conductivities have been estimated from about 200 tests in southern Mississippi. The type of tests are not specified nor is it clear if these data were gathered by the DOE or Spiers and Gandl(1980). We believe that the type of tests should be specified and a citation should be included as to where the original data may be found.
7.2.1	Safety and Programmatic Considerations for the Exploratory-Shaft Program; paragraph 9, page 7-15 "The second exploratory shaft at the selected site could be used as just such an access shaft and thereby accelerate repository construction."
7.5	Plans to Control Adverse Safety-Related Impacts; paragraph 2, page 7-17 "Both the boreholes and the exploratory shaft will have to be permanently filled and sealed." These statements both refer to the exploratory shaft used during site characterization, yet they appear to be contradictory. We feel this issue should be clarified.

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Comments on the Mission Plan for the Civilian Radioactive Waste Management Program submitted by the Mississippi Nuclear Waste Policy Advisory Council

While this version is an improvement over its predecessor in organization and clarity, it is found to be frequently inaccurate and still places more emphasis on meeting objects in a timely manner than on full State participation and human safety. Major flaws in the "Mission" are still glaringly obvious. The complexities of the transportation system are not yet addressed. D.O.E. could site a respoistory and be unable to transport the waste to it. There has been no significant progress in the development of above-ground waste system. No progress has been made in resolving the liability issue. Socioeconomic impacts are given little attention which is especially disturbing in light of the report of the panel established by the Board on Radioactive Waste Management (Social and Economic Aspects of Radioactive Waste Disposal). The possibility that none of the three sites be suitable is ignored. The most striking part of the Mission Plan, however, is how little the descriptions of the program to date resemble Mississippi's experience with the program.

Detailed Critique

Volume I

1) (Page 2-10) It is disturbing that D.O.E. still plans to take title at the site. It will complicate the liability question.

2) (Page 2-11) It is clear that the transporation system lags behind technical attention and progress.

3) (3-A-1) The above-ground design has not progressed beyond the original artist conception.

4) (Page 3-A-5) It is not enough to "obtain" comments. Comments should be given a full and complete response.

5) (3-A-7(4) Will data be generated only to "support" the siting decision?

6) The Background and Status sections are what should have been, not what was in Mississippi. There has been no field activity in this state in over two years. The area characterization studies were poorly done, and subsequently, Battelle dismissed the sub-contractor (LetCo). The U. S. Geological Survey seriously questioned the viability of dome salt.

7) (3-A-15) It is a surprise that engineering feasibility studies are nearly complete. Since salt domes differ from dome to dome, and since no field activity has taken place in Mississippi, how could truly feasible engineering studies applicable to Mississippi's domes be nearly complete?

additional legislation, cannot be made.

IV. Inadequate definition or repository capacity and contents.

The discussions of inclusion of reprocessed waste in the repository, of the repository filling schedule and of other parameters related to the capacity and contents of the first repository are all incomplete. Further, the Department has emphasized discussion of and reliance on the most accelerated of the schedules identified in the Mission Plan for the second repository. Delays in the siting process since the passage of NWPA indicate that such accelerated schedules are not realistic.

1. Changes in the nuclear industry and repository capacity. The Mission Plan should present a complete analysis of repository capacity based on several, independent low growth projections of nuclear generating capacity. This is important as the mid-growth projection used by the DOE (p.9-2) assumes an incredible doubling of nuclear generating capacity (from 57 to 114 GWe) between 1982 and 1990. A low growth scenario is mentioned (p.9-2) but never outlined on a year by year basis so that the "trigger date" for the need for a second repository is unknown. In DOE's opinion, a second repository would still be needed to accommodate 39,000 MTU of waste. What impact would this low growth projection have on repository design, the MRS program, and what are the technical alternatives to a second repository for this amount of waste?

The technology of nuclear power is changing. DOE admits that "actual spent fuel discharges will probably decline somewhat because it is expected that in the future the fuel will be kept in the reactors for longer periods " (p.9-1). Is this possibility reflected in Table 9-1 (Generating Capacity and Spent Fuel Discharge)? What kind of declines are projected? Do current research and development efforts hold the possibility of further reductions in waste discharges? How might this affect repository capacity? In short, the Mission Plan should provide alternative projections of needed repository capacity, based on a variety of assumptions, instead of attempting to justify the need for two 70,000 MTU reporitories.

Within this context the Mission Plan should also examine the impact of technological changes in energy conservation, and other fuel sources that may affect the demand for nuclear generated capacity. What assumptions underline the Mission Plan projections of growth in the nuclear industry? Have the projections taken account of growing public opposition and increased difficulties in financing nuclear plants?

The evaluation of the issue of using commercial waste repositories for defense waste disposal will not be completed until 1985 (p.9-4), leaving the parameters of repository capacity and design vague and uncertain. Nevertheless, DOE

should state the implications of accepting such waste on the repository, transportation, and all other parameters. Defense waste has thermal characteristics different from commercial waste (p.9-4). Although this may not affect capacity requirements, it could affect other design parameters. What other characteristics of defense waste may affect repository design, capacity, and the packaging of waste? A similar set of questions results from the statement "the transuranic waste produced in reprocessing may also be disposed of in a repository; however, this decision has not been made at this time" (p.9-2).

Whatever the final decision, the Mission Plan should address the implications of accepting reprocessing and defense waste on repository design and capacity.

2. The location and need for reprocessing and packaging facilities are undefined. Throughout the Mission Plan the assumption is that packaging of spent fuel into canisters will occur at the repository (p.2-35; p.8-1). The Mission Plan, however, leaves open the option for consolidation and packing operations to be performed away from the repository (p.8-2). The scope and impacts of the on-site development remain undefined until this decision is made. Even if a final decision cannot be made at this time, the Mission Plan should commit DOE to examining the environmental, cultural, socioeconomic, transportation, recreation and tourism, and other impacts created by the on-site packaging facility option.

DOE has also delayed consideration of the number of necessary waste treatment facilities, avoiding the NWPA requirement that the Mission Plan include "an analysis of the requirements for the number of solidification packaging facilities needed" (NWPA Sec.301(a)(8)). Consideration of the number of reprocessing plants (which in turn affects the number of waste treatment facilities) is also avoided by delegating the decision to the nuclear industry: "the number of reprocessing plants will be determined by the commercial nuclear industry" (p.8-4). Does this mean the commercial nuclear industry will direct DOE when to build a processing plant? By what authority does DOE delegate this decision to the nuclear industry? The Mission Plan should identify other factors, apart from commercial industry needs, affecting the need for reprocessing facilities.

Is the repository site also being, or will it be considered, as a site for a reprocessing facility and/or as a site for a waste solidification facility? Again, the DOE should examine the implications of reprocessing and waste solidification facilities at the repository site for transportation, environmental, safety, and all other relevant concerns.

V. Descriptions of sites and site characterization activities are too vague to be useful.

Consideration of this area in the Mission Plan is not adequate as a result of the vague or superficial nature of the descriptions given for both the site and for characterization activities. DOE justifies such cursory treatment by deferring consideration to a later date. Such deferral is in direct conflict with the specifically stated legal requirements of the Mission Plan.

1. The plans and site descriptions required by the NWPA (Sec. 301(a)(7)) have received only superficial attention. The DOE justifies this by deferring consideration of detailed site descriptions and plans until later stages of the siting process. Superficial attention is given in Chapter 7 to the "Descriptions of Sites" which states that the sites for characterization have not yet been selected, therefore, "this chapter presents a brief description of the potentially acceptable sites"; Site Characterization Activities (Sec. 7.2) which states "... this (site characterization) plan will be issued after the site has been recommended, ... it is therefore not possible to provide site-characterization plans at present"; Plans for On-site Testing (Sec. 7.3), which states "the decision for proceeding with (a test and evaluation facility) will not be made until 1987, ... therefore the plans are unavailable at this time"; Plans to Control Adverse Safety Related Impacts (Sec.7.5) which states "detailed plans will, ... be contained in the environmental assessments, ... and can only be described in general terms at present"; and the Plans for Decontaminating and Decommissioning Sites (Sec. 7.6), which states "... plans can be discussed only in general terms, detailed site specific discussions will be given in each site characterization plan." Unfortunately, the most detailed discussion in the entire chapter centers around DOE's justification for drilling an additional exploratory shaft.

In sum, the DOE deters its responsibility by stating in the Mission Plan that it is formulating plans, rather than actually presenting the plans as called for in this section under NWPA Section 301 (a)(3).

The state requests that the Mission Plan present plans that identify actual problems and offer actual solutions, instead of the categorical problems and solutions currently being offered.

2 The description of site characterization activities is too vague to permit determination of possible site impacts. This makes it impossible to determine if the site is one "at which site characterization activities should be undertaken" as required by the NWPA (Sec. 301(a)(7). The Department is in effect saying that because they have decided to list the site characterization activities in a site characterization report, they do not need to comply with the requirements of the NWPA to define those activities in the Mission Plan (p.7-13). Section 2.3 of the Mission Plan (referenced as containing more

information) is limited to discussion of the exploratory shaft. The environmental impacts of several non-shaft activities are critical to determining potential impacts on the Utah sites.

This entire approach is of particular concern because of the decision to defer many of the necessary environmental studies to site characterization. (See figure 2-2.) The result is that the pre-site characterization environmental assessment will be based on hypotheses, and the site characterization activities described in the Mission Plan provide little clue as to what activities will eventually be undertaken to substantiate the conclusions presented in the EA. The entire decision making process is thus critically flawed.

For example, the Mission Plan should recognize that the exploratory shaft will have similar socioeconomic impacts to the actual construction phase. Approximately 200 construction employees may be housed in a man-camp. Experience tells us that these men cannot come and go without interfering with area services. Married men who bring families with them will need access to many of local services.

The Mission Plan also states that identification of site specific issues and information needs will be delayed until the site characterization plan (p.1-1). If DOE can provide significant research results (Chapter 5), and provide plans for obtaining information by general site categories, e.g. salt sites (Chapter 2), then it should also identify the significant unknowns and information needs for each site (i.e. bedded salt sites).

Given the lack of sufficient baseline data (Issue I.) informed site characterization nominations cannot be made at this time and DOE should delay this decision until more thorough studies and assessments of site characterization impacts can be completed.

VI. Numerous serious environmental and human costs are neglected.

DOE consideration of socio-cultural, environmental, socioeconomic and other human costs and impacts of the siting program is again brief and general and not useful in planning or decision making. In addition, DOE has devoted much of the discussion on these topics to explaining the benefits of a repository, in an apparent attempt to justify the program. (Sec. 301(a)(11)) asks for "an identification of the possible adverse economic and other impacts" so that these may be avoided. This should be provided.

Such inadequate treatment is especially alarming in light of the strong emphasis placed on assurance of impact

mitigation in the Nuclear Waste Policy Act, and also in light of the screening criteria that "the site shall be located so that adverse social and economic impacts (from a repository) can be accommodated by mitigation or compensation strategies (NWTS Program Criteria for Mined Geologic Disposal of Nuclear Wastes--Site Performance Criteria. DOE.. 1981.)

1. DOE has not considered the full range of possible socioeconomic impacts. No schedule for socioeconomic studies is ever established. Chapter 2 excludes them from consideration in the log diagram (p. 2-6). Chapter 11 never establishes when this information or possible impacts will be collected. Socioeconomic concerns do not enter into "environmental studies" (Fig. 2.2). In any case, socioeconomic studies should not be seen as a site investigation equivalent to investigating local geology or geohydrology. Socioeconomic studies should encompass local (town, county) considerations through regional considerations. Influence of the site does not end at the Utah-Colorado border, especially as Grand Junction and other Colorado towns are possible sources of labor materials, and services.

The DOE outline of possible impacts (Chapter 11) is unacceptably arbitrary, as evidenced by the following examples, and many more contained in the Appendix:

a. Experience tells us in Utah that power plant construction or other large industries inhibit economic development because of the competition for wages. The only new industries likely to locate in the area will be service businesses related to the repository, or chemical waste companies looking for repository sites.

b. Costs of service provision will increase for cities and counties who must compete in the labor market for service personnel.

c. The quality of education cannot be equated with more students. Ability of an area to draw and keep quality teachers is the biggest problem. A male teacher being faced with inflated prices will often jump to industry in order to maintain a higher standard of living.

d. The same is true with medical services, filling up hospitals will not in and of itself improve health facilities. The availability of specialized doctors is the problem. Doctors demand not only good wages but also must have a high standard of living not usually equated with very rural areas. Keeping doctors in an area should be addressed in the Mission Plan.

The Mission Plan should identify and address the full

range of socioeconomic impacts prior to proceeding with the siting program.

2. The Mission Plan does not commit itself to a program of mitigation. According to the Mission Plan's interpretation the Nuclear Waste Policy Act, impact grants cannot be provided until initiation of construction activities. The Mission Plan should explore possible ways of interpreting the point of "initiation of construction". Experience with power plants in Utah shows that initiation of construction can be simply a commitment to begin moving equipment and materials on to the site, a time consuming activity that allows for infrastructure provision during that period.

Mitigation of impacts is best accomplished as preventive measures before onsite activities begin. Thus DOE statements of working "to ensure that impact-mitigation needs are met in a timely fashion" has a hollow ring to it, unless the Nuclear Waste Policy Act restrictions are removed - something which the Mission Plan does not recommend. Instead the Mission Plan suggests developing the following:

a. Impact avoidance strategies that would minimize front-end financing requirements (p. 3-12). What are examples of successes and failures of this kind of strategy?;

b. Preconstruction assistance made available by other agencies (p. 3-12). What would be the sources of financing for this assistance;

c. DOE provided infrastructure. This would certainly be helpful but DOE provided housing, water, sewer still leaves roads, police, schools and many other problems unanswered.

Funding and management of the mitigation effort itself presents many challenges; for example:

a. How will these funds be "managed to ensure that people are treated equitably (p. 11-3)?" How is equity defined in this case?;

b. Table 10-3 (p. 10-7) $600 million would cover socioeconomic impacts, yet this figure is based on assumptions that are subject to change. These assumptions are not made explicit nor is the procedure for estimating the $600 million figure documented.;

c. The fiscal analysis should fully explore innovative financing as well as allocation of mitigation funds. Other funds will be required to purchase the facilities in the future. The relationship of non-tax mitigation funds and

taxes should be established in the Mission Plan.

The Mission Plan's discussion of impact mitigation is oversimplified. At the minimum, the state requests that the Mission Plan be accompanied by supproting documents which detail mitigation problems and porposed solutions to each of those problems.

3. Only repository construction related impacts are considered. When identifying possible adverse economic and other impacts, "development" of a repository or a TE facility should not be interpreted to mean only those impacts associated with the construction phase. Many impacts will occur prior to construction, and many will only be evident during operations, closure or postclosure. All of these impacts should be considered and plans for their mitigation offered.

It now appears that postclosure impacts are much more significant than previously thought, e.g., communication programs proposed as solutions to human intrusion and security problems. The "Pandora's Box" myth recommended as a deterrent to human visitation of a decommissioned nuclear waste site is totally incompatible with an area promoted for tourism. The economic future of southern Utah is dependent on tourism and associated industries which will be adversely affected by security messages utilizing fear to keep people away from the site.

When comparing site impacts it should be remembered that all impacts are relative. If 400 or 500 people were to move into a metropolitan area it would not cause many disruptions. But to move this many people into the Monticello/Moab area of Utah creates major consequences. Monticello has a population of about 2000. A growth rate of 25% is large in any case.

Socioeconomic impacts associated with any stage of the TE facility are not even addressed in the Mission Plan, the assumption being that the facility will not cause significant impacts (p. 11-1). The State disagrees with the contention that the test and evaluation workforce will have the same characteristics of the full scale repository workforce. The major difference is the transient nature of the test and evaluation workers. They will have distinctly different housing requirements. Because there is no guarantee that this site will be chosen and no permanent infrastructure should be built to burden the local communities if the site is not chosen.

The Mission Plan must expand its consideration of the time-frame in which possible impacts will occur; the potential for impacts is as long as nuclear waste remains hazardous. The socioeconomic impacts must address the alternate futures for southern Utah -- one without the repository and one with. In this way, decision-makers can better see the consequences of their decisions.

4. Land use impacts and environmental conflicts are not considered, nor are plans for their consideration or resolution offered. As part of the environmental studies proposed in Chapter 2 "a report on repository impacts on the Canyonlands National Park will be prepared" (p. 2-16). No mention is made of when the study will be completed, an important consideration as the State of Utah feels such a study must be part of an evaluation of a site's suitability for characterization, considering the extensive, potential impacts on Canyonlands National Park associated with characterization activities. Other national and state parks, recreation areas, rivers, etc. in the vicinity are also likely to feel impacts ranging from increased recreation demand associated with population growth to noise produced by seismic exploration. A recreation and tourism study to examine the full range of impacts on a the full range (in addition to Canyonlands National Park) of recreation resources should be undertaken immediately.

Just a few of the other important recreation areas in the vicinity are Bridger Jack Mesa, Butler Wash, Indian Creek Wilderness Study Areas, and the BLM Dark Canyon Primitive Area -- part of a much larger wilderness resource, including the U.S. Forest Service Dark-Woodenshoe Canyon proposed wilderness (included in the Utah Wilderness Act of 1984), the BLM Middle Point Wilderness Study Area, and the National Park Service Dark Canyon Wilderness Proposal within the Glen Canyon National Recreation Area.

Tourism should be addressed in both a recreation study and in socioeconomic impact studies. The repository may have a major impact on the State's image; that is, will people view Utah as being blessed with scenic grandeur or cursed with a waste area? Moreover, how will future generations view the state and local governments that would allow a repository to be sited next to a national park? Image is of primary importance in establishing a tourist industry. Taken further, image may be described as the cultural identity of the area. The canyonlands area is the essence of the greater Colorado Plateau. Canyonlands National Park has been chosen to display this identity to the rest of the world. With the above in mind, it must be realized that the impact will have more than local significance. It will have national and international significance.

In the immediate future, the impacts of site characterization activities on pristine areas are of critical importance. For example, the decision to site a second ES, despite the statements to the contrary, is motivated by the decision to have a repository on line by 1998. Safety considerations do not require a second shaft to be larger than the first. The impacts of constructing two shafts are considerably greater than simply twice those of one shaft, particularly in terms of salt disposal, noise and air quality impacts, conflicts with users of the Park, water requirements,

and materials/labor costs. These last impacts are particularly important if the site is not chosen as a repository site. Arguments in favor of two shafts make sense only if the site is to be used as a repository site. THEREFORE, THE PARK ISSUE AT THE UTAH PAS'S MUST BE RESOLVED BEFORE THE EXPLORATORY SHAFTS ARE SUNK. The state has maintained that an irreconcilable conflict exists between a repository at either of the two Utah PAS's and the Canyonlands National Park. It is even more imperative to resolve this issue now that two ES's are to be sunk at the three sites selected for characterization.

Apart from regional and national land issues, concurrent land consuming activities in a region of scarce private and local government land must also be considered. Landfills, cemeteries, parks and recreation areas, school grounds, and playgrounds will all have to be accommodated along with extensive new housing areas. Additional public water and wastewater treatment capacities will be necessary. Public offices, jails, fire stations, courts, juvenile facilities, neighborhood recreational facilities, equipment sheds and yards will have to be expanded.

5. Public safety and emergency preparedness concerns and issues are not, and should be, integrally related to transportation issues and concerns. Satisfaction of State public safety needs is dependent upon acquisition and analysis of complete transportation data, projections, and risk analyses. The State must have an independent, autonomous assessment of mitigation, preparedness and response capabilities.

Independent of federal capabilities, a State level public safety-emergency response framework must be established for off-site transportation emergencies. Lack of critical assessment data has frustrated consideration of this framework. From the state's perspective, legitimation of the siting process requires that safety and transportation data be made available. The Mission Plan has not provided or cited sufficient data from which emergency response needs assessments and plans can be developed. Because the State has not been provided with a definitive transportation plan (including specific modal plans or clearly delineated hypothetical plans), public safety needs, projections and concerns cannot be clarified.

Should a repository be cited in Utah, sufficient lead time would be needed for adequate risk assessments. In order for the State to complete such assessments, substantial data and more definitive projections must be provided. The State needs: transportation mode selection or more carefully delineated hypothetical projections; improved and enhanced risk assessment information; container specification and testing data; and assurances that primary data and pertinent modeling results will be made readily available.

6. The regional nature of impacts should be considered. In this section, the state again reinforce previous arguments that Mission Plan emphasis on site related impacts neglects "wave effect" of impacts accompanying development of a large facility. For example, it is not enough to address land use conflicts from the perspective of adjacent, incompatible land uses. Land use has a regional component as well. Data on the location, parks, Native American resources, wilderness and other land uses (p. 1-18) assumes too narrow a distance/proximity definition of impacts. Needed data should be expanded to include the facility's impact on the desirability, value, character, and intensity of those land uses, and the impact of site specific land use on the regional identity of an area in which national parks, wilderness and numerous Native American sites are found.

As another example, it is not enough to examine the facility on an existing air quality situation; rather it should be inserted in a regional scenario of population growth and industrial development that may occur in addition to facility related impacts.

Completion of the railroad-corridor impact study (p. 2-16) should examine regional impacts. Will this study examine national rail corridor impacts? If not, when will they be examined? Will a utilities corridor impact study be done? This study would be another crucial element in evaluating the facility's impact on the regional environment.

7. Public safety. From a public safety standpoint, the state must have independent, autonomous problem assessment, mitigation, preparedness and response capabilities in order to assure an equitable local measure of program planning, oversight and operations safety for state residents.

A redundant state level public safety, emergency response framework must be established for off-site transportation emergencies, independent of federal level capabilities. Filling this minimal State demand or need is frustrated by the lack of critical assessment data. From the State's perspective, legitimation of the siting negotiations process will require the availability of such data (whether real or hypothetical).

DOE has not provided sufficient data or has offered fuzzy data upon which emergency response related needs assessment and plans may be developed. Because the State has not been provided with a definitive transportation plan (including specific modal plans or more clearly delineated hypothetical plans), public safety needs, projections and concerns cannot be clarified, making planning assessment impossible.

Should a repository be sited in Utah, sufficient lead time would be needed for adequate risk assessment and response

related preparations.

In order for the State to complete such planning and assessments, substantial data and more definitive projections must be immediately provided. Again, the data needs to include: transportation mode selection or more carefully delineated hypothetical projections, improved and enhanced risk assessment information, container specification and testing data and assurances that primary data and pertinent modeling results will be made readily available.

Following the outline of the Mission Plan for the CRWMP the following considerations should be raised.

The Plan states that the safe transportation of radioactive waste is critical to implementation of the Nuclear Waste Policy Act which guides the HLWR. The plan delineates three key tasks:

3-C-1 "Provide full institutional development of the system" to address regulatory issues and public concerns about nuclear waste transportation and resolving those issues which could become impediments to the safe, efficient functioning of the system.

DOE has not adequately addressed State and local concerns. There has not been a resolution of the issues which have or will become impediments, which the Mission Plan directs should be avoided. Specifically, conveyance mode delineation or adequate hypothetical routing with attendant projections and assessments, including risk assessments must be made available in order to enable and facilitate preparedness, planning, mitigation, compensation and reward negotiations.

3-C-1 Provide for technical or physical development of the system, including defining the technical requirements of the transportation system.

Again, indeterminancy about modal conveyance (choice) with attendant insufficient lead time to implement choices and critical path failure implications for such indeterminancy present major obstacles to successful and efficient siting negotiations. (The Business Plan for transportation is unavailable).

Establish the management structure and procedures for operation of the system.

Although this task will be critical to successful transportation operations, it is unimportant to the State's interest at this time primarily

because of the unavailability of specific transportation mode data, institutional system and technical/physical system information.

Incentives and Nuclear Waste Siting: Prospects and Constraints - S.A. Cunes, et al Energy, Health and Safety Research Divisions ORNL in Energy Systems and Policy, Vo. 7, No. 4 1983

Anecdotal evidence from existing incentive based facility sitings - indicate value of incentives classified by functional categories (i.e., mitigation, compensation and reward) and prerequisite to use of incentives (i.e., guarantee of public health and safety, some measure of local control, and a legitimation of negotiations during siting incentive packages such as independent monitoring and access to credible information [may be as important as monitoring incentives].

Extraordinary nature of a HLNR facility requires an extraordinary level of assessment, processing and management of risk cost and benefit issues. Many social and institutional problems attend.

VII. Unrealistic schedule.

The schedule for repository siting, construction and licensing is a critical concern of the candidate states and the public. In Section 3-A.7 of the Mission Plan, DOE lists several different scenarios for this schedule.

This section is flawed in that none of the time spans listed for various phases are backed up by specific tasks which may be necessary to complete the phase in the given timeframe. Additionally, none of the internal discussions, reports, memos or other documentation of the determination of these timeframes are cited in the Mission Plan.

Such arbitrary scheduling estimates are unrealistic. In spite of this, DOE is using the most ambitious of these arbitrary determinations to conclude in Chapter 3 of Volume II that no extension of the schedules in the Act is necessary at this time. This is inappropriate, particularly in light of the fact that DOE has failed to meet the deadlines for any of the major milestones in the program thus far, either by own internal estimates or by any of the deadlines set forth in the Nuclear Waste Policy Act.

The state therefore requests a comprehensive analysis of the schedule scenarios before the Mission PIan is submitted to Congress, and further requests that this analysis specifically identifiy each task necessary in a given phase, discuss the assumptions and evaluation methods used in estimating the time necessary to complete specific tasks, and

is performed with close consultation with the states and the public.

CONCLUSIONS

The above discussion of the Mission Plan is further supported with additional comments in the appendix. The state's comments describe numerous deficiencies in the repository program as currently proposed by DOE. These deficiencies are found in the underlying program assumptions, in the stated program goals and objectives, and in the Department's plans for addressing the numerous technical, financial, environmental, political, and institutional problems impeding implementation of the Nuclear Waste Policy Act.

An obvious, recurrent flaw is that key decisions have been delayed; documents outlining specific technical details and research and development plans are not referenced; and other program activities that are prerequisite for preparation of a meaningful plan have not been performed. In several instances, this immision and deferral occurs in spite of expressly stated requirements to the contrary in Section 301 of the Act.

The Mission Plan as currently drafted leaves the DOE with an unreasonable amount of discretion to interpret how the Nuclear Waste Policy Act will be implemented. Such a situation is very irresponsible and could lead to a lessoned trust from the public and states and ultimately to challenged to the most fundamental aspects of the waste disposal program.

MISSION PLAN

APPENDIX
ADDITIONAL COMMENTS

1-4 What events will the models portray other than those few examples given? Since postclosure guidelines and qualifying factors are most important in the siting process, the state would expect to see a more comprehensive and written out plan for determining the performance of the repository over time and after closure. The few examples given in 1-4 are inadequate.

1-14 Radiation dose to public is addressed by "setting up instrumentation." The Mission Plan should describe the scope and application of monitoring equipment. The State is interested in a comprehensive pre and postclosure monitoring scheme.

2-7 Will any of the four proposed boreholes be located in the Park or nearer to the Park than the presently identified Davis Canyon site?

2-9 Geochemical studies in salt should include the effects of heat on brine, and interactions between brine and the waste package. Brine could migrate towards a heat source and the potential effects, such as the corrosion of the waste package, must be analyzed.

2-9 Mineralogy studies need to be performed to assess changes in saline mineralogy and to assess the effects of a repository environment on carnallite. Studies are needed to assess the potential for hydration or dehydration of minerals including carnallite.

2-11 Future climates could affect groundwater systems and dissolution. The potential for future dissolution needs to be investigated in relation to climatic changes.

2-11 "In the Paradox Basin, areas of salt dissolution, perhaps several miles in extent, exist north and west of the potential sites. The character of this dissolution will be investigated..." There are other areas of potential dissolution, including some to the south and southwest of the site (Shay Graben), which will also need to be investigated.

2-11 If the dissolution features are north and west of the sites, will drilling be necessary within the Park? If not, how will the character of the dissolution features be determined?

2-12 The assumption here is that minerals of value are not present at the Davis or Lavendar Canyon sites. However, on June 11, 1984, the San Juan County filed and recorded 111 mining claims at the potential site at Davis Canyon. If mining claims are filed as late as 1984, then the question of mineral resource values is as yet unresolved.

2-12/2-14 The discussion of hydrologic investigations is very limited in the salt section and does not discuss Paradox Basin specifically. The Mission Plan states "a deep hydrologic hole in the western Palo Duro Basin will be started in late FY84 to confirm the nature of the deep-basin aquifer. This hole will be completed in FY85." UGMS/Geology Work Group recommended that a deep hydrologic hole be drilled near the site in Paradox Basin before the Environmental Assessment to expand the data base and gather more information. There is a significant lack of information in the Paradox Basin regarding flow directions, velocities, discharge and recharge points. Geohydrology is a critical issue in evaluating potential sites for storage of high-level nuclear waste and DOE discussion of geohydrologic studies at the salt sites is very scarce. This discussion needs to be expanded.

2-19 Design of the shaft section is very incomplete for an April 84 draft. During hearings and the State-DOE workshops, DOE spoke of a second shaft of 22 feet with a finished inside diameter of 18 to 20 feet. This is not even mentioned in this Mission Plan draft. It should be discussed.

2-27 If technology and equipment development fall behind schedule, will the schedules be set back?

2-29 What kinds of tests for seal performance will be used?

2-35 Why have these additional layers (overpacks) been eliminated from consideration in the first repository? Studies and tests have yet to be initiated, let alone concluded.

2-35 Why will an overpack not be used for spent fuel? Won't overpacks insure longer canister integrity

and, therefore, a greater probability for containment and isolation?

2-35 Why isn't a copper alloy canister material being considered? There are reports that copper canisters may offer advantages over other materials but may be more costly. Is cost a factor here? If so, how is the cost-effectiveness to be determined?

2-44,45 The Davis Canyon site in Utah has recently been filed on for mining claims by San Juan County. How will this complicate land acquisition processes?

3 The chapter is too general; rather than performing an evaluation of the problems and discussing plans of the Secretary for resolution of such problems, as required by NWPA section 301(a)(3), the Mission Plan defers such detailed consideration. This needs to be included.

3 No justification of the DOE decision not to ask for additional legislation or schedule extensions is contained in this section even though the Mission Plan identifies delays due to various problems as the principle impediment to implementation of the Act. A timetable of predicted delays and an evaluation of the effectiveness of the means for resolving the differences causing those delays should be prepared for public comment.

3 Not a single direct reference to the proximity to Canyonlands National Park is found in this section, even though this has long been recognized as perhaps the single greatest impediment to the implementation of the Act at the Utah sites.

3-2 There is no basis or discussion of the department's recommendation for no further legislation at this time. A primary manner in which the Act may be impeded is through delay. Virtually all the categorical problems identified create a potential for such delay. The Mission Plan does not describe the interrelationships among the problem groups identified; or to point out the actual problems and estimate the delay. For example, up to a year of air quality data is needed before any construction may begin. DOE should prepare for review a report showing actual problems, anticipated delays, extensive interrelationships, etc. to provide a basis for this section.

3-2 It is presumptuous of DOE to assume that all of the legal, financial, political and institutional problems can be solved in the consultation and cooperation agreement and to load the agreement full of such specificity in the Mission Plan without first consulting the states. The place for determining the contents of the C & C Agreement is during negotiations. It is also presumptuous of DOE to assume that the C & C Agreement will resolve the extensive delays which might arise as a result of the types of problems discussed in this section.

3-5 As mentioned above, 111 mining claims were filed at the Davis Canyon site on June 11, potentially complicating land acquisition activities. This last minute filing of mining claims may lead to the requirement for an environmental impact statement when requesting a land withdrawal. Compensation for these mining claims should take into consideration the time of filing and the demonstrable presence of minerals. In addition, if there is an arguable basis for mineral values, then future human interference problems would exist.

5-9 "At the Davis Canyon site, several potentially acceptable salt beds are present within the Paradox Formation evaporite sequence." In the Mission Plan DOE has based many of their assumptions on salt cycle 6. From the Environmental Assessment it is now apparent that DOE is considering salt cycle 9 as an option. What other salt beds is DOE considering? Many of the analyses to date have been performed on salt cycle 6. Would this data be the same for other salt beds?

5-10 "The Paradox Formation has experienced dissolution at certain locations within the Paradox Basin, such as Lockhart Basin and The Grabens, but similar conditions have not been found near the site." There could be other areas of dissolution, such as Beef Basin and Shay Graben; that similar conditions have not been found near (which is another debatable issue -- what does "near" mean?) The Gibson Dome site should not discount dissolution as an important consideration.

5-27 "Some discharge to the underlying units may occur in areas like the Lockhart Basin or, perhaps, Shay Graben, where structural features of salt dissolution may have created permeable

pathways." Some pathways may also occur in the Needles area -- another area in need of further research.

5-29 The data base for geohydrologic information in the Gibson Dome area is very limited because it is based on one borehole and a few old oil and gas drilling records with limited application.

5-62 The Mission Plan should state the retrievability considerations that will effect repository sealing and backfilling.

7-4 Does the exclusion of discussions regarding the Elk Ridge location formally eliminate it as a site?

7-5 The map on page 7-5 is unacceptable. It conveys no sense that the entire western boundary of the location lies directly adjacent to Canyonlands; that both the Davis Canyon site (less than two miles from the Park) and the Lavender Canyon site (less than five miles from the Park) lie in close proximity to Canyonlands; that the lands in close proximity to the site and throughout the surrounding
Colorado Plateau contain one of the highest densities of National Parks and recreational areas in the lower forty-eight states.

7-14 What is the basis for a second exploratory shaft of larger diameter? It would appear this is designed more to facilitate construction of a repository than to satisfy any of the other purported needs.

7-16 In the plans for onsite testing with radioactive materials, the Mission Plan states "current plans for site characterization do not include tests with radioactive materials. Sources of radiation will be used in some geophysical investigations and hydrologic studies (e.g. radioactive tracers)". Radioactive tracers <u>are</u> a radioactive material and tests using such tracers are not routine. Amounts and uses of radioactive materials should be clarified.

7-17 Has and will DOE commit to locating boreholes to coincide with shafts or pillars? To date the state has not seen such a commitment.

7-17 Again, the DOE defers site specific plans failing to comply with the Act. Also, no special discussion of the dissolution potential of salt is included.

7-17 The requirement for plans for the decontamination and decommissioning of such site is particularly critical for the environmentally sensitive Utah sites regardless of their eventual (un)suitability for a repository.

7-18 Specific reclamation plans are, of course, impossible to formulate until specific sites are chosen. Nevertheless, the Mission Plan should address the problems of reclaiming and revegetating sites especially in desert environments.

7-19 Reclamation of meteorological towers may be inadvisable in some cases if these towers are to serve long term monitoring purposes.

7-19 The lack of specific commitment to sealing of boreholes leaves the effectiveness of reducing dissolution in question. Similarly the failure to commit to revegetation leaves the effectiveness of decontamination and decommissioning of sites in question. The possibility that off-site boreholes will not be revegetated is in conflict with the purported concern for environmental consideration in Section 7.6 (pp 7-18 - 7-19). Discussion of location specific concerns (off-site facilities) is deferred. No commitment to borehole reclamation is made.

11-1 DOE should address the transient workforce separately from the full repository construction; it will result in different yet not insignificant impacts. If these people are to be housed in a man-camp it specifically should be evaluated for its impacts.

11-1 The statement that there may be "possible" in-migration of transient workers should be changed to a definite statement. We suggest changing possible to: a definite in-migration and out-migration of transient or temporary specialized labor will occur in the Utah potential sites.

11-1 The following should be added to "Demographic Impacts":

Changes in the health status of the population due to: immunization levels of in-migrants; the tendency of construction populations to impact teen pregnancy, alcohol & drug, crime, abuse, violent death, crime and accident rates.

Changes in the definition of the aereal labor market (attractive jobs will draw daily & weekly commuters from a much larger area than is now the case) will affect the aereal demographic and vital statistics of health and social services in 2 states and 4 counties.

Changes in the in and out migration patterns particularly in the 18-40 age group.

Changes in the political and religious composition of the communities.

Reduced community homogeneity.

11-2 The impact on the community cannot be fully addressed until it is determined where employment forces will be housed -- on site or in communities.

11-2 Changes in tourism should be listed as a significant economic impact.

The "highly skilled" workforce will bring changes in recreation preferences and should be noted in the social impacts.

11-2 <u>Change to read</u>

The significant economic impacts are likely to include the following:

Increased local employment, competition for labor and costs of labor.

Higher wages and fringe benefits.

Increased sales and new businesses at the retail level.

Higher living costs & reduced options for fixed income people.

Increased competition for resources and shortages in the non-repository sector of the economy.

Changes in land value, increased speculation, permanent commitment of lands without alternative values.

Changes in local government finances and an increased need for institutionally funded social, economic, health and educational services (vs the existing informal networks).

Potential major loss in the current primary economic sector (tourism/dispersed recreation).

Increased use of local facilities by a non-resident (non-tax payers), commuter work force and the on-site residents.

11-2 Overall business activity may not increase due to the negative impacts on tourism. How is business activity measured? Where is the data? How were tourism impacts measured? Were psychological fears (real or imagined) considered as an impact on tourism related businesses? Were any surveys used? How will the structure of business activity change?

11-3 The DOE should do more than "emphasize local job training and retraining; the Mission Plan should explain how local people will be trained in advance of need. The use of local people for operation versus construction is much more likely because training can occur during construction. The impacts to the Utah site will be much more dramatic than more highly populated areas. If the local community supplied its entire workforce, it would still be necessary to bring in 70-95% of the construction workforce.

11-3 The term "indirect impact" is misleading by lowering the significance level assessed to recreation and tourism.

The word "apprehension" suggests that fear will be the factor which would keep people from patronizing the area. Disgust for an intrusive facility in a natural area may be the real obstacle.

Tourism and the local economy - though important - tends to make one think that this is a local problem. Again, the issue is national as well and national impacts should also be discussed.

11-3 DOE should include in the analysis situations in which local rural labor forces have not had major benefits from energy projects.

11-3 Others hurt by project related wage escalation but not benefiting from it include: school teachers, city & county employees, retirees, State employees, tribal employees, local public health employees. This is in addition to agency problems of recruiting and keeping good personnel when competing with higher wages at the

repository.

11-3 "If the repository is viewed with apprehension" is a gross understatement. Tourism will not benefit from decreased natural values and vistas, increased traffic and urbanization, disrupted range lands and watercourses (road beds and rail lines), disrupted wildlife, reduced freedom of movement and activity (repository and transportation security). How will psychological impacts be measured, and mitigated?

11-3 Upgrading the community infrastructure has to occur prior to immigration. Infrastructure must be tied to ongoing O & M costs.

11-3 The evidence from other, similar scale, projects in this area indicates that enforcement capability and resolve are more important than unenforced planning and zoning ordinances.

11-3 How does mitigation assistance plan to attract new businesses to locate near a national nuclear repository? What attraction will be used and how will the kind of business that isn't sensitive to the repository affect the remnant recreation and tourism values of the area?

11-4 We agree communities will need to plan carefully for growth. The Mission Plan should give some guidelines on how this is to be done. In rural areas no staff is available to put together and implement the planning necessary to guide growth in the area.

11-4 The change in social structure will change recreational preferences and should be noted.

High quality roads and influxes of people will increase off-highway vehicle use. Environmental impacts and law enforcement problems should be addressed.

11-4 Where are the references to health and public health, ambulance facilities, EMT training, etc.? How will DOE participate in planning efforts?

11-4 There will be changes in the quality of life. Can we measure the quality of life level now for analysis and mitigation use later? If not, why not?

11-4 Social disorders will increase; the list should also include: abuse (child and spouse, physical

and sexual), violent crime, suicide, and teen pregnancy.

11-4 New sources of community leadership or control will emerge. How will the project assist the existing population to understand and accommodate such changes?

11-5 The general increase in the cost of goods as well as services should be listed as an impact.

11-5 In an area with a single trunk corridor for all transportation (#163), any roadway upgrades, bridge upgrades, and accidents (from increased traffic loads) will significantly restrict all travel through the area.

11-5 How will conflicts between new and old residents be dealt with?

11-5 The "nuclear" experience of family and friends in St. George seriously shadow the references to "complete and candid information about the possible hazards." Will a non-federal monitoring function be established and given authority to investigate and report independently about "hazards"?

11-5 The potential for opinion shifts in the community argues for a pre-project, baseline survey of social impacts.

11-5 The list of Fiscal Impacts should be revised to include:

Lack of tax revenue from developed federal lands.

Lack of sales tax revenue from out-of-area commuters and on-site workers who will use services and facilities.

Lost revenue from the tourism industry and the industry that will be dissuaded from locating near a nuclear repository.

11-6 By what process will mitigation dollars be allocated across governmental lines/jurisdictions?

11-6 Decisions such as where hiring takes place, where training is conducted, where workers are housed (i.e., on-site), where worker transportation is provided (from to, when, at what cost) all impact on the location of new workers. Upfront policy decisions help mitigate jurisdictional problems

as much, or more than, actual dollar subsidies.

11-6 Company or DOE location requirements can heavily affect the decisions of where a person will live. The Mission Plan should address policies which could be used to coordinate distribution of impacts and tax receipts.

RICHARD H. BRYAN
Governor

STATE OF NEVADA

NUCLEAR WASTE PROJECT OFFICE

OFFICE OF THE GOVERNOR
Capitol Complex
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July 6, 1984

Mr. Charles R. Head, Acting Director
Operations Division
Office of Civilian Radioactive Waste Management
U.S. Department of Energy, RW-13
Forrestal Building
1000 Independence Avenue
Washington, D.C. 20585

Dear Mr. Head:

Enclosed please find specific comments from the State of Nevada, including those of this office, the Nevada Legislature, and affected local governmental entities on the draft Mission Plan.

In general, we have found the draft Mission Plan to be inadequate. It doesn't appear to be a plan or a planning guide and doesn't meet the intent of Section 301 of the Nuclear Waste Policy Act of 1982. This document is a mere compilation of various actions, activities, and alternatives without any attempt to integrate systems, processes, or events. In fact, the "Plan" is riddled with numerous inconsistencies, conflilting dates and schedules, and inaccuracies. For example, in numerous places the dates for certain events to occur change from section to section, the description of the same events are different in different locations, and in many instances, these discrepancies directly conflict with other sections. The schedule, with alternatives, are totally unrealistic - all directed at meeting the 1998 date for commencing repository operation at all costs. In statements throughout the document, and in statements made by DOE officials, the commitment has been made that the schedule will not compromise the technical program or the institutional process. However, this document clearly compromises both in the Department's zeal for the 1998 date.

Specifically, the State of Nevada believes that the 60-day review time on the draft environmental assessment is totally inadequate, believing that a minimum of 90 to 120 days is necessary. We have written to DOE on this issue previously, with no response. We also believe that the site recommendation decision should be opened to allow state and public review of the methodology to make that decision and to allow review of the

decision itself prior to its finalization and submission to the Secretary. We have written to DOE about this issue as well, with no DOE response.

Finally, due to the number of issues, events and concepts contained in this "Plan", the State of Nevada reserves the right to provide additional comment to DOE on these matters at such future time as the opportunity is present to do so.

It is obvious and unfortunate that the Department of Energy has elected not to utilize the Mission Plan as a tool to promote the needed confidence of the public on the ability of the Federal government to carry out this most critical program. This document, in fact, adds to the concerns of an already skeptical public that the Department has no better idea about how to proceed with this program now than they did ten years ago. Another opportunity for the Department to demonstrate its commitment to technical excellence and meaningful involvement in the institutional process has been missed.

Should you have any questions regarding these comments or other issues, please do not hesitate to contact me.

Sincerely,

Robert R. Loux
Director

RRL:sk
Encls.

STATE OF NEVADA SPECIFIC COMMENTS

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PAGE 1-1 The second program objective is not a true objective. The Nuclear Waste Policy Act indicates that if a determination of need is made, then a proposal for development of a monitored retrievable storage facility is to be submitted to Congress. If Congress authorizes the development, then DOE will site, license, construct and operate the facility.

In addition, the State believes another program objective must be "to promote public confidence in the safety of disposal of radioactive waste".

Page 1-2, last paragraph The Mission Plan in and of itself cannot demonstrate conformance to the requirements of the Act. The Mission Plan should show how conformance will be demonstrated.

Page 2-1 First paragraph needs further clarification as to the storage of waste in the event of a delay in the repository schedule. Will the storage be interim storage at the reactor, monitored retrievable storage, or lag storage at the repository site?

Page 2-2 Table II suggests there is no "ramp up" of waste acceptance for the second repository. We endorse the ramp up concept for first repository and suggest it be incorporated into the second repository waste acceptance schedule.

Page 2-3 In the discussion of defense radioactive waste, no mention is made of the impact of defense waste on transportation, waste handling or processing and the safety implication of additional waste. There must be some impacts since it is stated that commercial acceptance schedules will not be changed for acceptance of defense wastes. How does the additional 10,000 MTU of defense waste impact the limit of 70,000 MTU per repository as specified in the Act?

Page 2-4, last paragraph DOE schedule for site characterization for the second repository is unrealistic. Congress cannot approve the second repository in the "early 1990s" because:

1. Selection of the first repository is scheduled for 1990, therefore alternatives cannot be considered for second repository prior to 1990.
2. Recommendation of second repository sites for characterization will not occur before 1989, to be followed by years of characterization, EIS preparation and review; therefore, selecting the second repository site in mid-to-late 1990s, not early 1990s.

Page 2-5, paragraph 1 Last sentence states that planning and analysis of additional repositories will be periodically undertaken. The Act does not specifically cover this activity. Who will be responsible for the costs?

Page 2-5 The Mission Plan fails to adequately define conditions which will trigger the construction of an MRS facility. Page 2-5 lists two conditions, but additional caveats found on page 2-9 lead to the conclusion DOE has no real criteria at all. It appears DOE has the leeway to do whatever it considers most expedient with respect to an MRS at any particular time.

Page 2-6, first paragraph Text gives the erroneous impression that DOE proposed hearings on the guidelines. All guidelines hearings were a direct result of concern by the states, affected tribes, and interested groups that their comments on the guidelines were not being addressed by DOE. Even proposed public hearings on the draft environmental assessments are a direct result of State demands for public input. It is likely these demands for public hearings will increase as the program intensifies.

Our request for additional hearings partially stems from what we view as a DOE-contrived plan to minimize substantive comment by scheduling public review of major decision documents as short as possible. We have pressed and continue to press for 120 days for review of major program documents such as the draft environmental assessment. The 45 days or 60 days announced by DOE is not acceptable and does not support the notion of public involvement put forth in the plan.

Page 2-6 Paragraph 3 discusses site characterization activities. Since there could be five years, according to the reference schedule, between SCP hearings and DEIS hearings, we request DOE commit in the Plan to yearly hearings to inform the public on plans and progress of site characterization and receive comments.

Page 2-6 Paragraph 4 does not address the State impact analysis called out in the Act and how this analysis will impact the DOE EIS process.

Page 2-8 Under item d, who determines what is full participation and what financial assistance will be provided?

Page 2-8 The Mission Plan states the Test and Evaluation Facility (TEF) will be directed at verifying the repository final design and confirming site performance. This is distressing since rocks under consideration may not be homogeneous over large distances. For this reason, it is not desirable to conduct all performance confirmation in the TEF. It would be preferable to perform most of the confirmation work at various locations in the actual repository itself as well as in the TEF. A comparison of results could then be conducted and a confidence level assigned

to results from the TEF.

Page 2-12 Under the section on federal interim storage, the Plan states that DOE will discuss potential sites with states and affected Indian tribes. What is the process here? Will states and affected tribes have input prior to identification of sites?

Page 3-A-3 The Mission Plan states "in evaluating the suitability of sites, engineered barrier systems will be considered to the extent necessary to meet the performance requirement specified by the NRC and the EPA...but will not be relied on to compensate for significant uncertainties in the natural system". While it is true the multibarrier approach allows performance standards to be developed for both the releases from the waste package and the repository itself, DOE's statement that engineered barriers will not compensate for site uncertainties is incorrect. 10 CFR 60 states in the July 1983 version that "An engineered barrier is required to compensate for uncertainties in predicting the performance of the geologic setting, especially during the period of high radioactivity. Similarly, because the performance of the engineered barrier system is also subject to considerable uncertainty, the geologic setting must be able to contribute significantly to isolation". What DOE should be saying is that engineered barriers will not be used to compensate for site deficiencies. The wording on this page should be changed to reflect the true purpose of engineered barriers.

Page 3-A-5 First sentence should be revised as follows: "By January 1, 1985, the Secretary is to recommend, with State or affected Indian tribe input, three of the nominated sites to the President for characterization."

The discussion on Page 3-A-5 relative to site characterization is incomplete. In addition to the development of site characterization plans, plans should also be developed and provided for public review on environmental, socioeconomic, and transportation issues. The description of activities in paragraph 3 should include proposed environmental, socioeconomics and transportation activities.

Page 3-A-5 Paragraph 4 states that the President is to recommend the first repository site to Congress by March 31, 1987. The reference repository schedule shows this action taking place in June, 1990.

Page 3-A-9 In section (a) Siting, how do the two basic questions on site suitability relate to DOEs preliminary determination of site suitability? Will the preliminary determination answer these questions?

Page 3-A-9 Under the section on site screening, the Plan states that the second screening approach was to evaluate lands dedicated to nuclear activities and owned by DOE and in that context reviewed Hanford and Nevada Test Site. Why were other

DOE-owned sites dedicated to nuclear activities (Idaho and Savannah River) not evaluated?

Page 3-A-15 In the section on Systems, define the term "parametric sensitivity analysis" in layman's terms.

DOE proposes to establish a national peer review panel to review aspects of performance assessments. Describe this panel in more detail: who are the members, what is the panel's charter, how will their input affect the program and this Plan?

Under the section on Systems, the Plan states that DOE is currently conducting preliminary performance assessments based on pre-site characterization data. The May 14, 1984, revisions to the DOE siting guidelines would suggest that prior to characterization there will not be sufficient technical data to perform a reasonable performance assessment. The quantity and quality of data before characterization varies widely among sites, making valid comparisons among sites based upon performance attributes inappropriate at best.

Page 3-A-16 First paragraph states "Conceptual design studies for surface and subsurface facilities in tuff at Yucca Mountain will begin in 1984". This statement prejudges the site characterization decision by implying that Yucca Mountain has been selected for characterization and repository design has been initiated.

Page 3-A-17 In the section on the Test and Evaluation Facility, the role of the TEF as envisioned in the Act is falsely stated. The role of the TEF is to conduct research in the geologic disposal of radioactive waste, not to conduct site verification activities.

Page 3-A-20 Description of the recommendation for site characterization process is very skimpy. What will be the siting criteria and methodology used in the process? What will be the degree of public involvement?

Last paragraph states that site characterization activities will begin following site approval. No site characterization activities, particularly the sinking of the exploration shaft, can begin prior to development of a site characterization plan, review by the public, and acceptance by the NRC.

Page 3-A-21 Excavation of a large diameter second shaft is not supported by health and safety concerns. Mine safety laws do not support this position. The only logical reason for a large diameter second shaft is to shorten the repository construction schedule. This is an obvious attempt to bypass NRC regulatory review.

In the last paragraph, the Plan states that preliminary (Title 1) designs will support preparation of the site selection report, the EIS, and the construction authorization application. This is

unacceptable. Final (Title II) designs must be presented with the construction authorization application so a full and complete review can be performed. Complete technical information must also be presented in the site selection report and the EIS so meaningful, informed decisions can be made.

Page 3-A-22 Paragraph three states that a memorandum of understanding with the NRC on the co-located test and evaluation facility will be prepared and signed. What is the State involvement in this process?

Page 3-A-22 and 3-A-23 In the section on Licensing it appears DOE has not done its homework relative to the NRC licensing process. From our understanding of NRC licensing and the history of NRC licensing decisions, NRC will not grant site construction approval based upon preliminary designs. We believe NRC will require the submittal of final designs prior to a detail review of any construction authorization application.

Separately, we have safety concerns in the repository operational area with the simultaneous underground excavation of waste emplacement rooms with handling and emplacement of waste in previously excavated rooms. It appears little thinking has gone into how this can be accomplished safely.

Page 3-A-26 Under the section on Consultation and Cooperation, specific plans include (c) consultation on the decision process for recommending sites for detailed characterization. Nevada agrees and supports a plan for consultation on the decision process for recomending sites, however, discussion with top DOE personnel and various presentations and testimony by DOE officials indicate there will be no consultation with states on the decision process. This conflict needs to be resolved.

Page 3-A-27 Last paragraph states that DOE will incorporate comments as appropriate. In the minds of the public affected by repository siting, all comments are appropriate. It is suggested that DOE plan to summarize these comments and include this summary as an appendix to the EAs.

Page 3-A-28 Table III-A-1 should include the following milestones: 1) State/tribe/public interaction points; 2) Congressional approval of site for development; 3) NRC licensing of sites to accept waste. Two points: Notice of site disapproval by states or tribes and Congress overrides disapproval, are based on DOE judgment of the process only. Site disapproval is an option granted to the states and may or may not be exercised. Table gives the impression the notice of disapproval is mandatory.

Page 3-A-29 In Table III-A-2 (Alternatives for Completion of First Repository), there are many other alternatives which could be considered. How were these alternatives selected? The Plan is silent. What is the most reasonable and realistic alternative given the various testing and delay scenarios described in the

Plan? The Plan is again silent.

Page 3-A-30 Alternative case 1-A identifies six months from issuance of final guidelines to the recommendation of three sites for characterization to the President. Such a schedule would require that a site reccomendation report for three sites be prepared prior to finalization of the environmental assessments for nomination of five sites. Given that schedule, what effect will public comment on the environmental assessments have on the siting decision process? This schedule suggests very little.

Page 3-A-31 Phase 2 states that DOE will complete the process of obtaining applicable state and/or local permits after issuing site characterization plans. It is unlikely that the states and/or local government will issue any permits prior to acceptance of the site characterization plan by the NRC.

Page 3-A-32 Case 2-A is not realistic. It assumes 1) DOE can obtain variances from all state and/or local government permits, and 2) there will be no comments on site characterization plan. Also, it is unlikely that any state and/or local governments will grant any permit variances prior to approval of the SCP by NRC.

Page 3-A-37 Under Reference Schedule - First Repository the Plan states the reference schedule was selected from the alternatives presented in the Plan. This statement is false and misleading. In fact, it appears the reference schedule was developed by selecting parts of the alternatives which allowed DOE to meet the dictates of the Act.

Page 3-A-39 There appears to be a conflict in dates. Plan indicates President will approve the recommended sites by March 1985, however, the next paragraph indicates a site characterization plan will be issued for basalt in January 1985. Separately from the issue of prejudging that a basalt site will be recommended and approved for characterization, the Plan indicates that a basalt SCP will be issued prior to Presidential approval. This violates the letter and spirit of the Nuclear Waste Policy Act (sec. 112(f)).

Also on the same page the duration of testing to support the environmental impact statement (more correctly site characterization) is identified. However, what is not stated is whether these durations consider the impact of excavation of a second shaft or if the durations are based on a single shaft concept.

Page 3-A-40 DOE believes that it is not necessary to have three suitable sites at the end of site characterization. The State of Nevada believes that three suitable sites are required at the end of characterization. We believe the Act and NEPA Regulations support our position. We also contend the NRC will be unable to adopt the DOE EIS because of the lack of three viable alternative sites. Delays are inevitable on this issue.

Page 3-A-41 Case 4-A does not identify the process to be utilized to resolve potential licensing issues. Also, the discussion does not consider intervenor action in the licensing process. History has shown intervention of interested groups has occured in practically all nuclear licensing proceedings; waste proceedings will be no different. Such intervention will cause further delay.

Page 3-B-1,2 As currently worded, the DOE will offer a proposal to Congress on the MRS at generic sites, and if approved by Congress, site selection activities would take place. This suggests states would not have the oportunity to conduct a technical review of the proposal prior to Congressional approval nor to participate in formulating the site selection criteria. The states should be able to review the MRS proposal at the same time the EPA and NRC reviews take place; prior to Congressional authorization.

Page 3-B-9 In Section c. Environmental Assessment, DOE will prepare a draft environmental impact statement, not a final.

Page 3-C-1 In the section on Transportation, the last two bullets provide for definition of technical requirements, working with industry, and establishes the management structure and procedures for operation of the transportation system. When will development of these activities occur? Will specific plans be formulated? Who will be involved in the process?

Page 3-C-3 Text states "the most efficient model mix for commercial waste shipments depends upon factors which must be continually addressed over the next several years. This includes carrier deregulation, repository design and location, on-going studies on model cost and risk impacts, and the development of new technologies for equipment such as transportable storage casks." What is the reference for these statements? Implicit to this statement is that DOE has used some assumptions in transportation planning to date. What are these assumptions?

Second paragraph discusses prenotification of nuclear waste shipments and identifies a joint DOE/DOT study of prenotification. What is the schedule for that study? A comprehensive study should include input from states and local governments. It is Nevada's position that prenotification is a state prerogative, and not a decision by the Federal government.

Page 3-C-4 Under Federal Level Coordination, what is the schedule for developing procedural agreements with other Federal agencies?

Section on State, Local and Tribal Coordination is extremely weak. What are the plans for coordinating transportation issues with states, tribes, and local governments?

Page 3-C-5 A major issue identified in the previous draft of the Mission Plan was whether or not there would be a sufficient supply of transportable casks. In the current draft, however, only the type of cask to be used is discussed. Does this mean DOE no longer considers the supply of casks to be an issue?

Page 3-C-6 Under Section c Long Term Requirements, DOE's preliminary draft of the Defense Waste Plan does not discuss how defense waste will be shipped. How does transportation of defense waste interact with the civilian transportation program? What is the plan to integrate the two?

Page 3-C-7 Text indicates first draft of transportation business plan will be available for public review in the spring of 1984. The State of Nevada has not seen this document.

Page 3-C-8 What is the "well established" transportation operational management system? The State requests a review of that system, plus any future plans.

Page 3-D-4 Pertaining to the section on Dry Cask Storage, the following comments require resolution:

1. Why are dry cask storage tests on Federal sites unlicensed?
2. Successful execution of this demonstration program assumes initial consultation with the affected state, as envisioned by the Act.
3. We understand only Federal sites in the west are being considered for this program. Why were not eastern sites, close to the source, considered?
4. Nevada is on record as being opposed to this demonstration program within its borders.

Page 3-E-1 Section E is titled Systems Integration; therefore the section should tie all the loose, nebulous items of the Civilian Radioactive Waste Management Program together. It fails.

Page 3-E-6 What are the plans for completing the Systems Design Description document? What is the schedule? Will the document be reviewable by the states?

Last paragraph makes reference to additional supplementary studies which may be conducted; provide examples of some of these supplementary studies.

Page 3-E-7 Three systems integration activities are identified: Program Research and Development Announcement, Supplementary Studies, and System Design Description. What are the documents connected with these activities? Are they reviewable by the states?

Page 4-2 The Civilian Radioactive Waste Program has been in existence for 18 months since the passage of the Nuclear Waste Policy Act in 1982. It is difficult for the State to believe

that during this period 1) no program-wide planning and control system is implemented and 2) no fund management system is implemented. What was the program planning guidance and system control for the last 18 months? The lack of planning at DOE/HQ is exemplified by the lateness of the Mission Plan and the inability to finalize siting guidelines within 180 days after passage of the Act. This section gives little confidence future planning will be different than previous "planning".

The second paragraph identifies the Mission Plan as the foundation for integrated planning and control. However, the third paragraph indicates that project control mechanisms that existed before passage of the Act will be incorporated into the control system. This contradicts the intent of the Nuclear Waste Policy Act.

Last sentence indicates that a single, integrated control system will be employed with the field offices. When will this be accomplished? Is it reviewable?

Page 4-9 Text states AMFM Panel meetings are open. However, the states and affected Indian tribes are not provided meeting minutes or other documents on the progress of the Panel. Draft of the Panel's report and the Secretary's response should be provided to interested organizations for review and comment.

Appendix A, Page A-1,2,3 The time schedule represented on these figures indicates Title II Design for the repository will not be complete until after construction authorization has been received by DOE for three out of four of the alternatives proposed. However, it is our understanding the NRC has requested Title II design to be "substantially complete" before any applications are submitted for construction authorization in order to have sufficient information to make an informed decision. How will this conflict be resolved, and what effect will this have on the time schedule?

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PAGE 1-4 The DOE states the boundaries of the engineered barrier systems cannot be accurately defined until after site characterization. In this case, what boundaries does DOE intend to use for the performance assessments which must take place prior to site characterization? How much validity will these initial boundaries have, especially since the performance assessments will be used in the decision to nominate sites?

Page 1-9 Issue 1.5 does not consider the prediction of higher ground water levels in the future at unsaturated zone sites.

Page 1-11 Issue 1.7 considers future igneous activity or tectonic processes. However, the discussion ignores igneous activity completely and centers on tectonic processes.

Page 1-12 Issue 1.8 fails to consider future value of natural resources.

Page 1-18 Issue 3.2 fails to identify transportation routes which conflict with other critical uses and avoids population centers.

Page 1-22 Issue 4.5 does not consider igneous activity.

Page 2-2 The statement is made "Other tasks (regulatory and institutional activities, land acquisition, test facilities, program management, financial assistance) are treated in less detail (see Section 2.7) because they are not directly aimed at the resolution of outstanding scientific or engineering issues." We believe the other activities (tasks) are just as important in repository siting as scientific or engineering activities and should be treated with the same depth.

Page 2-2 In the geologic and hydrologic studies described in Section 2.2 Site Investigations (pages 2-2 to 2-16) we have identified 10 major studies which are planned to be completed in FY 84, FY 85, or FY 86. In our view, this number is unrealistic given the accuracy, thoroughness, and completeness that the studies must achieve.

Page 2-3 Site investigations do not consider transportation studies as a major element. In our view, transportation issues are as critical to site characterization as geologic, hydrologic, environmental, or socioeconomic studies.

Page 2-3 The statement is made "The plans for geologic and hydrologic studies at the salt sites are based on the assumption that only one of the three sites recommended for detailed characterization (January 1985) will be a site in salt". What is the basis for assuming only one characterized site will be in

salt? Is DOE prejudicing the siting process? A justification for the statement is required.

Page 2-5 Figure 2-1 Integrated Logic Diagram suggests that final testing results will not be presented in EIS but will be presented in CAA. In our view, all testing must be completed and all results analyzed before a viable site can be recommended to the President for repository development, well before submittal of CAA to NRC.

On the same figure (2-1) Performance Assessment Input is identified in four places. Which will be the final input? We view that the final performance assessment must be included in the EIS.

Page 2-7 In the section on Tuff the Plan states that there are many active faults in the region and postulates that other faults could become active in the future. How will this future fault activity affect repository integrity? What will be the criteria used to identify future activity on faults? Faults are known to occur at the proposed site. What is known about their activity? The text gives the impression that a site in a geologically and tectonically complex area with numerous active faults and seismicity is suitable and viable. We view this impression with much skepticism.

Page 2-10 and 2-11 Sections on Erosion and Paleoclimatology identify that summary reports will be prepared at the conclusion of tuff studies. A summary report is unacceptable. A satisfactory review of these studies necessitates the development of comprehensive reports.

Page 2-12 The first sentence regarding previous exploration and mineral potential in tuff is misleading. The absence of previous exploration in and of itself is not indicative of a lack of minerals or other energy resources. This same statement could be said about most sites at one time or another. There are many reasons that previous exploration could be limited such as access problems and more attractive areas elsewhere. In addition, a statement is made regarding effects of inadvertent "wildcat" exploration. The term "wildcat" refers to a specific part of petroleum exploration; it is not applicable to mineral resource exploration.

Page 2-12 Text states potable ground water exists beneath the tuff site but extensive development is unlikely because of rugged terrain and poor soils. The discussion is misleading and prejudges the conclusion of the FY 87 study. Southern Nevada is an arid environment, potable water is in high demand both now and in the future. Many plans to increase the water resources will be researched, analyzed, and developed in the future. Direct water transfer is a viable scheme. When considering the 10,000-year "hazard-life" of the repository, consumptive use of potable ground water in the vicinity of the tuff site is likely.

Page 2-15 A preliminary model of flow in the tuff unsaturated zone is proposed to be developed in FY 89. Section 2.3.3 on Exploratory Shaft Testing indicates testing will be complete by mid-FY 89. This overlap of dates suggests a preliminary model and a final model will be developed in the same time period; not a technically-sound procedure.

Page 2-16 Description of the environmental studies for tuff is extremely general. Text indicates environmental studies were initiated in 1980. Surely more data has been developed than suggested in this brief discussion.

Page 2-16 and 2-17 Section on Exploratory Shafts does not consider the period required to review, comment and resolve issues on the site characterization plan. We expect that no exploratory shaft activities will begin until all issues are resolved and NRC has approved the Plan.

Page 2-19 Will the plan for excavation of exploratory shafts and tunnels and test plan be submitted to Federal OSHA and State Mine Inspector for their review?

Page 2-20 Last paragraph of Section 2.3.2 Construction conflicts with Section 2.3. Section 2.3 indicates two shafts will be excavated at all sites selected for characterization, but Section 2.3.2 indicates that the need for a second shaft in tuff remains to be established. Will the second shaft in tuff be excavated or not?

The use of two shafts at NTS must be carefully evaluated. Circulation of air between the shafts may allow excessive drying in the drifts used for measuring unsaturated permeabilities and soil moisture potentials. Unless provisions are made for this problem, the measurement of these parameters could be incorrect.

There appears to be a discrepancy in the construction and testing schedules presented here and the EIS schedule presented elsewhere in the Plan. Our analysis indicates the final EIS will be issued five months before site characterization testing is complete.

Page 2-22 In the section on Exploratory Shaft Testing in Tuff the first five "tests" in the construction phase and the first two "tests" in the in-situ phase are not tests. These are data gathering tasks - no testing is involved.

Only 31 months have been allocated for the entire testing program for tuff. In order to meet this schedule it will be necessary to conduct many tests concurrently. However, care must be taken to arrange both the temporal and spatial placement of certain tests to ensure there will be no cross interference. The time allotted may not be sufficient to do this.

Page 2-26 Text indicates Title II design will begin in FY 90 to support construction startup. It is our understanding NRC will require Title II design for review prior to approval of the

construction authorization. Therefore, Title II design must be completed by FY 90, according to the reference schedule in the Plan.

There is extensive discussion of engineering tradeoffs and cost-effectiveness of the repository design. How will safety influence design tradeoffs and cost effectiveness?

Page 2-35 Why is copper being evaluated as an alternative canister material? It is an inappropriate material for a repository in tuff. The unsaturated zone is an oxidizing environment.

Page 2-38 Section 2.5.4 discusses in-situ testing of waste packages. The discussion is brief. Is such testing "state-of-the-art" or experimental? How will two years of testing obtain sufficient data to assess the containment capability of the waste package for 300-1000 years?

Page 2-39 In Section 2.6.1 tradeoff studies need further definition. How will safety influence tradeoff studies?

Page 2-39 Text indicates performance assessment input for the EIS and the PSAR will be based upon preliminary data and designs. In our view, the Nuclear Waste Policy Act requires a determination of site suitability after characterization. The assessment of site performance is critical to that suitability determination. That determination cannot be based upon preliminary data and designs.

Page 2-41 Figure 2-6 indicates a long-term performance assessment for the repository will be finalized and submitted with the license application to accept waste. This is unacceptable. The complete assessment of the long-term performance of the site must be included in the DEIS so a final determination of site suitability can be made. There must be confidence that the repository selected by the President is based upon sound technical analysis of all data, not partial, preliminary or assumed data.

Page 2-42 and 2-43 Text has an extensive discussion of computer codes. There is no discussion about the confidence DOE has that these codes accurately model site conditions and repository performance. Are these codes state-of-the-art?

Page 2-49 Concerning estimated total cost, text states that regulatory and institutional activities are assumed to occur from 1983 through 1997. This is not realistic. The regulatory process will never stop, certainly not before the operating permit is issued and final closure is agreed to. Following the issuance of an operating permit, new information will constantly develop as new tunnels are opened, waste canisters are emplaced, backfilled and performance assessed. Allowances should be made for the continuation of this activity through the final closure of the repository.

Page 3-1 First paragraph states that DOE is in the process of formulating plans for the resolution of potential financial, political, legal, and institutional problems. Section 301(a) of the Act requires these plans to be formulated and completed at the time of submittal of the Mission Plan.

Page 3-4 Section 3.2.2 indicates DOE will adjust document review schedules to address state "start-up time delays". Published EA public draft review schedules now in circulation conflict with DOE's proposed commitment. The State of Nevada, as well as other states and interested groups, have repeatedly requested 90 - 120 days to properly review the EA, but DOE has steadfastly stated that 60 days is sufficient time. These kind of statements give little confidence that DOE intends to cooperate and interact in the reasonable fashion envisioned by the Act.

Page 3-6 In Section 3.4.2 on Plans for Resolution of State and Local Permit Requirements, it is unrealistic to assume that state and local permit problems can be resolved through the consultation and cooperation agreement process.

Page 3-7 The statement is made that two states have enacted legislation which adversely affects the geologic repository program. Many states have statutes that are legal and constitutional and must be adhered to which could adversely affect the repository program. That does not mean state statutes are unconstitutional. The tone of Section 3.5 leaves the impression that DOE is unwilling to work within the framework of state or local laws to resolve conflicts. Section should be rewritten in a positive tone, to give states and public confidence that DOE is willing to work with state and local governments to resolve differences.

Page 3-9 Text states DOE will develop a program-wide public information plan. Nevada requests the opportunity to review a draft of the plan.

Page 3-11 Section 3.10.2 states "The first component of this effort is to conduct site-evaluation activities in a technically thorough and rigorous manner, thereby allowing selection decisions to have a sound and defensible basis". In our view, the DOE guidelines for siting repositories do not lend confidence that site selection decisions will have a sound and defensible basis. According to the guidelines, siting decisions relative to selection of potential acceptable sites, nomination of sites and recommendation of sites for characterization will be based on findings made on factors which do not require characterization (i.e. site ownership, population density, offsite installations, and environmental quality). All technical factors require characteriztion before a finding of qualification or disqualification can be made, thus the siting process will be narrowed to three sites before technical data can affect siting decisions. This is hardly a technically sound, defensible siting process.

Page 3-12 Waste will be transported through a number of states. This will create additional financial demands on those states. Decisions must be made concerning mode, routes, financial implication, time of travel, notification, escorts, emergency response, liability and financial assistance. Institutional problems may arise from complexity of coordinating all Federal, State and local agencies that are concerned with the issues. All these items need discussion.

Page 3-13 We agree with DOE that a major first-of-a-kind national program could generate delays through changing licensing criteria and modifications of designs or systems. It also means that the NRC is not likely to look favorably towards any type of expedited authorization or licensing process and, in fact, should require extra time to ensure the safety of this first-of-a-kind facility.

Page 3-16 Statement is made "there is uncertainty regarding adequate levels of funding to ensure full participation of states and affected Indian tribes". What is certain is that as the process grows more complex and delays occur, grants to states must increase many fold.

Page 5-1 Chapter 5 discusses the significant results and the implication of research and development programs on the repository program. It fails to discuss any technical problems which have been encountered as a result of research and what plans have been developed to resolve the problems. Also, it is important to know what impacts these technical problems may have on repository siting and program schedules. We believe the discussion of problem areas is implicit in Section 301 (a)(5) of the Act.

Page 5-13,14,15,16,17 Section on the tuff site has few references to back up the technical discussion in the Plan. Are these discussions based upon facts or "conservative assumptions"?

Page 5-14 In the first paragraph the statement is made that a caldera may lie directly beneath the proposed repository. This is a bold statement without further explanation. What is the evidence for this feature? How old is it? What is the potential for renewed activity? How does this feature impact site suitability and isolation capability? Is the caldera a potential target for geothermal exploration? The implications of this statement gives the public little confidence that Yucca Mountain is a safe repository site.

Page 5-14 In paragraph six it is unclear how the 2000 acres relates to repository size and capacity. Is 2000 acres sufficient size to contain 70,000 MTU? Also, the text makes the optimistic statement that mining through the fracture zone is not a serious obstacle. It appears little data has been developed which might support such a statement. If a fault is present, it may be a ground water barrier. It is our understanding water

table levels are substantially higher to the north.

Page 5-16 The second paragraph discusses the potential for repository disruption by volcanism. What is the probability for eruption in Long Valley and subsequent blanketing of the area by thick layers of volcanic ash? In view of the USGS warning that such an eruption is probable, has the impact on health and safety during construction and operation been considered?

Paragraph three states that the estimated effect of underground nuclear weapons testing are of less consequence than the effects from probable natural earthquakes. What are the consequences of nuclear weapons testing? Are they significant? Given the high likelihood of occurrence, will these effects be considered in the repository design? How will they be handled during operation? What is the potential of future nuclear weapons testing areas moving closer to Yucca Mountain? Given the proximity of Yucca Mountain to NTS and Nellis Air Force Bombing Range, should the effect of a potential surface nuclear blast resulting from enemy attack or potential missile or plane impact be considered?

Paragraph four states that a fault zone that bounds the west edge of the site contains a small unfractured basalt dike dated as 10 million years old and another part contains unbroken mineral filling dated as more than 20,000 years old. It also states that the existence of a basalt dike at one point along a fault zone does not preclude activity on other parts of the same fault zone. The existence of unbroken mineral filling dated as more than 20,000 years old does not meet the NRC criteria (10 CFR 100, Appx. A) for determining fault capability.

Paragraph five states that there is a major gap in the geologic record between 11.5 million years and 400,000 years ago. If this is the case, then there is no basis for stating that fault movement has been minor since 11.5 million years ago. Without some kind of discernible geologic record, it will be difficult to define the full extent of Quaternary tectonics in the area. What type of studies are being considered to provide this information?

Page 5-31, 5-33, 5-34, 5-35 Text on hydrogeologic system in tuff is devoid of references.

Page 5-33 Text states concepts of the unsaturated zone flow system have been developed and will be tested in future studies. What other concepts were considered and why were they rejected? What tests will be performed to verify the concepts? How will water vapor be treated in these concepts?

Page 5-33 The last paragraph describes downward flow as the most likely path of radionuclide transport. In the geology section (5.2.3), the site is described as layers of tuff rock, heterogeneous vertically but homogeneous laterally. With that in mind, what is the potential for lateral movement of

radionuclides?

Page 5-40 Section 5.4.3 on Geochemistry of Ground Water contains little detail, especially in view of the key site suitability issues on ground water. It appears based on the Mission Plan that the site will be recommended for characterization with little or no information on unsaturated zone hydro-geochemistry. Project appears to be at some risk in proceeding in this fashion.

Page 5-57 Section 5.7 is a summary of the advantages and disadvantages of potential host rocks for the first repository. The first sentence states "Each potential host rock has certain intrinsic advantages and disadvantages". The discussion which follows for each host rock emphasizes only the advantages and minimizes the disadvantages, almost to the point of no mention. Table 5-4 on page 5-62 does not appear to relate to the text discussion. It is important that the Plan give a clear, honest picture of the suitability of the selected host rocks to contain and isolate the waste.

Page 5-58 Discussions adapted from the National Research Council (1983) are misleading and self-serving. The information that is contained in the 1983 report came from DOE and its contractors. The fact that this information is included in a National Research Council report does not necessarily validate the accuracy or completeness of the data.

Page 7-1 In our view, Chapter 7 is given very weak treatment. Nevada is left with the impression DOE does not have firm, detailed plans for site characterization. It is unknown whether there will be one shaft or two, whether testing will include radioactive materials, whether any characterization activities will compromise the isolation capabilities of the proposed sites, and whether site characterization activities will induce any adverse or safety-related impacts. Also, there is no discussion in Chapter 7 of how non-technical factors (i.e. environmental, socioeconomics, transportation) will be treated during site characterization.

Page 7-13 Regarding the site characterization program, it is suggested that an additional statement be made regarding the need for NRC approval of the site characterization plan prior to beginning the actual sinking of the shaft.

Page 7-13 Section 7.2.1 argues for a two-exploratory shaft site characterization program. From our view, the arguments are weak. From a safety aspect, the Federal Mine Safety Code concerning underground escapeways requires two or more separate, properly maintained escapeways from every producing mine. The Code does not require two escapeways from exploration activities. In addition, it is not mandatory the second escapeway be equivalent in size to the main shaft of the mine. From the economics perspective, it does not appear cost effective to excavate two shafts at each of three characterization sites, when there is the

possibility two of the sites will not be recommended for development. Utilizing DOE's cost figures for exploratory shafts (page 10-4), the program could save $275-300 million. Also, there is no basis to suggest that a large second shaft will be required to conduct tests perceived necessary for NRC licensing. NRC's review may not necessitate additional testing and surely a large second shaft is not mandatory to conduct the tests.

Page 7-14 The last paragraph concerning the need for in-situ testing to meet perceived NRC requirments is pure speculation designed to argue for a large diameter second shaft. The premise is false that NRC will require tests for performance confirmation design parameter verification, and mining feasibility. If DOE performs a comprehensive and quality technical characterization program, then the requirement for such may be negated. Given that the tests will be required, there is no justification for a large diameter second shaft to support that testing.

Page 7-16 Section 7.3 discusses plans for onsite testing with radioactive materials. The use of radioactive materials for testing purposes will require NRC approval prior to use.

Page 7-17 Under Section 7.6 there is no discussion of restoration of sites not recommended for characterization. That could be as many as six sites for the first repository program.

Page 10-1 DOE states they have been unable to complete cost estimates that are consistent with the current program strategy presented in Volume 1. In other words, the cost estimates provided in Volume II are wrong. DOE must correct these estimates before the final version of the Mission Plan is issued.

Page 10-5 Table 10-1 does not identify financial assistance after 1992. The licensing process will continue through construction, operation, and closure of a repository. The states intend to participate fully in that process and will demand funding. Also, we envision independent monitoring of the environment during construction, operation, and closure and will request funds to support those efforts.

Page 10-19 Table 10-3 There is no discussion in Chapter 10 as to the reasons for a repository in basalt to cost $2 billion more over the design life than repositories in other geologic media. In our view, the isolation capabilities of basalt must be clearly superior to justify the increased cost of the repository.

Page 11-1 Chapter 11 discussion of socioeconomic impacts is weak and incomplete. Chapter fails to identify the critical socioeconomic issues which need to be considered and the plans required to assess impacts and possible mitigation measures. The discussion also fails to consider impacts from site screening or characterization activities. There appears to be the presence of these impacts in Nevada already.

Clark County

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RECEIVED
JUL 06 1984
NUCLEAR WASTE PROJECT OFFICE

July 5, 1984

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DRAFT MISSION PLAN FOR THE CIVILIAN RADIOACTIVE WASTE PROGRAM

The Clark County Department of Comprehensive Planning provides the following comments to the Department of Energy's Draft Mission Plan. The response is divided into two sections; a general section in which we synthesize our major concerns and a section which details our thoughts on specific issues. We have focused our attention on issues of import to Clark County such as transportation, mitigation payment, institutional relations and a diverse array of socioeconomic questions.

1. Transportation

Perhaps the most significant issue to the citizens of Clark County is the transportation of nuclear waste. Given the present transportation network and the routing scenarios being employed by DOE subcontractors, it is conceivable that spent-fuel shipments could traverse the Las Vegas metropolitan area en route to the proposed Yucca Mountain facility, a potentially significant impact to the community. Because of the potential influence of the project, therefore, from a local perspective, it is felt that the Draft Mission Plan only superficially treats or ignores a number of substantive transportation issues. It also almost totally disregards a role for local governments in the process.

Our concerns are that the Mission Plan needs expansion with regard to the following:

(a) routing
(b) mode of transport
(c) institutional arrangements
(d) carriers
(e) liability

(a) Routing: As noted in 49CFR177-H.M.164, states have the flexibility to designate routes for the shipment of waste. Because of the fact that local communities will ultimately bear the brunt of transportation decisions, however, it is imperative that they be afforded a role in the route-selection process. Local government can more adequately identify local areas of sensitivity, such as areas of high traffic volume or accident potential, density of population, and environmental sensitivity, simply because they are closer to the problems. Likewise local government is closer to the concerns of the affected public. Early involvement of local government in the process can potentially reduce future problems and minimize disruption to residents.

(b) Mode of Transport: The federal government has selected rail or road as being the "prudent" transport mode options to be considered in the program. We question why air transport, which has a lower accident rate per vehicle mile than truck or rail and could potentially avoid some ground transportation issues, was not also selected. The most efficient modal mix should not solely be an economic question, as alluded to in the mission plan, but should weigh heavily environmental impacts and community impacts as well as public attitude issues, the latter often difficult to assign a cost/benefit. The public would probably opt for a mode mix that would minimize its potential contact with the waste and thus its exposure to potential accidents. Again, local input is essential to determining a mode mix formula.

(c) Institutional Arrangements: The DOE has gone to great length to illustrate that an accident that would potentially damage a cask and release radioactivity to the environment is virtually impossible. Despite assurances such as this by DOE, the manner in which the public perceives nuclear waste issues, notably transport, however, as evidenced in part by testimony at the March, 1983 public hearing in Las Vegas, indicates that a sense of distrust still exists. The potential disruption to Las Vegas' main industry, tourism, which could be the result of large-scale shipments of nuclear waste is another issue not totally satisfied by films of trucks being driven into walls and demolished. To allay public suspicions and fears concerning potential accidents, therefore, it is conceivable that additional steps may have to be taken by the federal government in conjunction with local authorities. Such steps should include agreements with states and locals on matters such as:

1) Prenotification of waste shipments
2) Routing (discussed earlier)
3) Timing of shipments
4) Vehicle inspection (also see following section on Carriers)
5) Escort of vehicles
6) Training of emergency response personnel in case of accident
7) Other (route modification necessary because of weather, construction, etc.)

An excellent agreement of this type was negotiated between the State of Ohio and a utility in Wisconsin in 1983. Although it is interesting to note that a federal analysis of this agreement viewed it as a "complication", we feel that a comprehensive regulatory system such as this is the only way to reduce public fears, as well as to responsibly deal with a potentially serious problem. We would rather have a "complication" than to trust a system with a potential for breakdown (as has already been demonstrated with the transport of other hazardous waste, notwithstanding comprehensive regulations) or one in which local government and the public have been totally unaware of shipments (as has been the case in Nevada where shipments of high-level spent fuel have been transported in recent years without the full knowledge of the public and local government).

(d) Carriers: The Nuclear Waste Policy Act of 1982 indicates intended reliance on commercial carriers to transport nuclear waste. From state and local experience in the transport of other hazardous wastes (which has resulted in numerous cases of accidents and other indiscretions), we feel that it is incumbent on DOE to implement the procedures cited in the previous section (c). Items such as inspection will ensure that the regulations are being followed.

The mission plan also did not explain in any detail how it intended to interact with private carriers during the program. Elements such as training of drivers and enforcement of regulations should be discussed in more detail.

With the potential complexities of attempting to coordinate a number of commercial firms, it may be less complicated for the federal government to develop its own capability for waste shipment.

(e) Liability: One issue that has been totally ignored in the Mission Plan is the question of transportation-related liability. While it is understood that Congress is currently addressing this issue in the Price-Anderson Act, this is obviously an important question to state and local government and deserves more comprehensive treatment in the Plan.

2. Mitigation Payment

A project of this magnitude can have significant influence on a community's ability to provide services for the influx of anticipated workers and their families. While in the case of the Yucca Mountain site this is especially critical in a small county such as Nye, which has few services, it can also be important in a rapidly-growing county such as Clark, which, without the project, is having problems maintaining services for its burgeoning population.

Aside from the brief mention of mitigation funding as an issue (Volume 2 - Pages 3-11, 12), however, there is almost no substantive discussion in the Mission Plan of such local concerns as the types of mitigation/compensation funding available to a state/community (for example, eligibility for economic impact assistance) and the process(es) by which a locale would initiate requests for funding. Also, in discussions with DOE it has indicated that there is currently no authorization by Congress to enable a government agency to negotiate with a local unit of government for mitigation funding. This issue deserves clarification as well in the Plan.

3. Institutional Arrangements

While we are fortunate in Nevada in the sense that state government is sensitive to the need for interaction with affected communities in all aspects of the program, we still don't see this sensitivity reflected in the Mission Plan. Our briefing meeting in Washington, D.C. seemed to reinforce our feeling that the federal government considers local governments as minor actors in the total program. By not considering local government as an integral element in the planning and implementation phase of the program, the federal government is raising the risk of incompletely addressing substantive issues.

4. Socioeconomic Impacts

The discussion of socioeconomic issues in the Mission Plan is perfunctory at best. This is in glaring contrast to the comprehensive treatment of various aspects of the on-site investigation process to which the majority of the volume is devoted. If the public is truly to have confidence in the process by which the repository is selected, issues related to the potential impact on the populace in the vicinity of the repository must be addressed in substance.

The socioeconomic discussion as it presently exists is unacceptable. Chapter 11 of Volume 2 of the Mission Plan, for example, is merely a six-page compendium of potential impacts. While this is useful in the context of understanding the problems involved in siting a repository, the discussion is incomplete without an analysis of how the federal government intends on mitigating these potential impacts. This link between problem and solution is important to local government and can have an important influence on community attitudes towards the repository. A suggestion would be to expand each individual section (Economic Impacts, for example) by stating the problem in the beginning and then providing an analysis of the manner in which the federal government will effect a solution.

To summarize, the Mission Plan while in general providing a comprehensive analysis of on-site issues related to the repository, is, nevertheless, deficient in those off-site questions important to the public and local government. This may ultimately have great bearing on the acceptance of a repository. While there appears to be a sensitivity on the part of DOE officials in Nevada on the need to interact more closely with local governments and consider their interests, on the Washington level, and as reflected in the Draft Mission Plan, local issues seem to remain a minor concern, subsidiary to detailed technical issues.

Specific comments referenced to pages of the Draft Mission Plan are attached.

Should you have questions regarding our comments, please contact Dennis Bechtel of my staff at (702) 386-4181.

Sincerely,

DEPARTMENT OF COMPREHENSIVE PLANNING

Richard B. Holmes

Richard B. Holmes
Director

RBH:sg
Attachment

cc: Robert Loux

CLARK COUNTY DEPARTMENT OF COMPREHENSIVE PLANNING

SPECIFIC MISSION PLAN COMMENTS

Volume I

General

1. Page 2-3 The volume of defense-related waste, its timing, etc., at the Yucca Mountain site could influence the magnitude of shipments of nuclear waste and thus be an important transportation issue.

   Would the "full cost allocated to permanent disposal of defense wastes..." apply to mitigation monies as well for potential impact up and above that resulting from commercial shipments.

2. Pages 2-4, 2-5 Is 70,000 MTU the absolute capacity of one repository? The wording in paragraph 3, page 2-4 seems inconsistent with that on page 2-5. If 70,000 MTU will handle all commercial waste what about defense-related waste?

3. Page 2-6 (top) Where were the public hearings held on the siting guidelines? Why weren't they held at the potential repository sites?

4. Page 2-6 (top) Will draft assessments be done (released) for those sites not amongst the five selected? If not, will all nine be evaluated in some manner that will permit an understanding of the selection rejection process?

5. Page 2-7 How much time is permitted for a disapproval notice to be filed?

6. Page 2-7 (last paragraph, Page 2-8 (first paragraph) Does public participation in the consultation and cooperation phase include interaction with local governments (substantive interaction and not merely listening to briefs)? If not, why not?

   Also needed to be clarified is the details on how mitigation and "in-lieu-of" monies are to be distributed (timing, etc.)

Test and Evaluation Facility

7. Page 2-8 What sort of testing will be performed at a repository site to ensure compliance, etc., if a TEF is not required.

8. Page 2-9 (Federal Storage.....) One or more MRSs?

Monitored Retrievable Storage

9. Page 2-10 Possible permanent solution if deep geologic repository concept doesn't work out?

Transportation

10. Page 2-10, 2-12 private industry and hauling? I have some problems with that. Given the present difficulties occurring from private haulers transporting hazardous waste it would seem that a more acceptable scheme would be to have DOE totally responsible for shipping the waste. It would be easier to control one carrier rather than a multitude. If private carriers are to be used, however, a strong statement should be made stating the means by which DOE will regulate shipments (including monitoring). A more comprehensive statement is also needed as to how the federal government intends on interacting with local and state government

to "resolve institutional questions in order to gain full public and intergovernmental support (Page 2-11 first paragraph)." needed to be discussed are questions of routing, notification, escort and liability which are of particular concern to local and state governments.

Federal Interim Storage

12. Page 2-12 Can a site being considered as a repository be also considered for Federal Interim Storage?

Regulatory Requirements for Licensed Repositories

13. Page 3-A-6 (paragraph 2) How are the EPA's standards "limits on radiation exposures, in the general environment outside the boundaries of locations under the control of persons possessing or using radioactive material" defined? Would the standards also extend to the transportation of waste?

14. Page 3-A-7(C) What are the definitions of "disturbed zone" and "accessible environment?"

Mission and Objective

15. (d) Institutional relations (last paragraph page 3-A-17). If this is truly important to the federal government then mention should be made of needed interaction with local governments, notably those in the vicinity of the repository which would be in the vicinity of transportation routes and bear the brunt of the transportation of nuclear waste.

The determination of "valid concerns" (last line page 3-A-17), should be mutually agreed upon between federal, state and local governments.

16. (1) Consultation and Cooperation (page 3-A-18) While there has been some "information dissemination" in Nevada over the past several years, the "exchange" of information (if that is what the statement refers to) has been virtually non-existent until the past several months. Briefings are not exchanges of information.

17. Monitored Retrievable Storage (MRS) (page 3-B-1) Given the probable unpopularity of a permanent, geologic repository anywhere, the MRS looms as a potential permanent solution to nuclear waste disposal. Because there are fewer physical constraints to the development of an MRS site (e.g., the dependence on engineered barriers) institutional constraints would appear to be the only checks to siting a facility anywhere in the country. It is, therefore, imperative that local governments be involved with the states and federal government in all aspects of the MRS siting and implementation issue. This does not mean reviewing information, etc., produced by others but rather being a part of decision-making activities from start to finish.

Volume II

Chapter 3 - Potential Financial, Political, Legal and Institutional Problems

1. 3.1 (Failure to Reach or Implement a Consultation-and-Cooperation (C and C) Agreement) - Page 3-2 - One way to assist in the resolution of issues is to include local affected governments in the C and C process.

   Page 3-3 (Last Paragraph) - This sounds ominously like the bottom line is, notwithstanding legitimate concerns by local/state governments, the federal government has the option of forging ahead unimpeded.

2. 3.7 (Public Apprehension and Resultant Public Opposition)

   Page 3-8 - To reiterate our concern noted in other sections of the program: while provision of information is helpful, interaction with the public and local governments will lead to the resolution of concerns.

3. 3.10 (State or Tribal Notice of Disapproval)

   Page 3-10 - To reiterate our concern noted in other sections of the program: while provision of information is helpful, interaction with the public and local governments will lead to the resolution of concerns.

4. 3.11 (Timing of Impact-Mitigation Grants)
This issue should be expanded to include procedural questions such as definition of mitigation/compensation needs and the process by which local/state governments can obtain funding.

5. 3.12 (Impediments to the Transportation of Waste)
To reiterate our concern noted in other sections of the program: while provision of information is helpful, interaction with the public and local governments will lead to the resolution of concerns.

6. Other issues that should be addressed in Chapter 3:

   (a) The Role of Local Governments in the Site-Selection and Implementation Process.

   (b) Failure of a deep geologic repository to be implemented resulting in the placement of a long-term MRS in a community (problems and resolution).

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July 3, 1984

State of Nevada
Nuclear Waste Project Office
Office of the Governor
Capitol Complex
Carson City, Nevada 89710

ATTENTION: Mr. Robert Loux

RE: Lincoln County/City of Caliente Comments To DOE Draft Mission Plan

Dear Mr. Loux:

On behalf of Lincoln County and the City of Caliente, the attached comments to the Department of Energy's Draft Mission Plan for the Civilian Waste Management Program are offered. This letter should be considered a part of the County/City official comments.

Because the Union Pacific Railroad mainline from the eastern United States passes through Lincoln County and the City of Caliente, the County and City are particularly concerned with the manner and extent to which transportation issues will be addressed in siting this nation's first and second nuclear waste repositories.

Clearly, the Mission Plan has fallen short in providing any clear description of how transportation modes and corridors will be evaluated and to what extent such evaluations will be considered in the site selection processes. The Mission Plan suggests that evaluations of transportation modes and corridors will not be a factor in narrowing the nine candidate sites to five and ultimately to three sites for site characterization. In fact, DOE appears to be grossly understating the significance of what ultimately may be the single greatest issue facing the siting process, that being transportation.

These concerns are specified in the attached comments.

Should you have any questions concerning these comments, please do not hesitate to contact this office.

Respectfully submitted,

Mike Baughman
Project Manager

MB:db
Enclosure

COMMENTS TO THE DOE DRAFT MISSION PLAN FOR THE CIVILIAN RADIOACTIVE WASTE MANAGEMENT PROGRAM

Submitted Jointly by
Lincoln County and the City of Caliente, Nevada

Page 1-1 Under Program Objectives #1, text should be changed to read, "To site, license, construct, and operate geologic repositories which allow for safe and environmentally acceptable means for transporting and disposing of radioactive waste".

Page 1-2 Under Program Objectives - an additional objective #6 should be added to read, "To involve affected states and local governments fully in the siting process".

Page 2-10 through 2-12. The section on transportation does not mention the extent to which alternate transportation modes will be analyzed to determine their relative environmental, social-health risk, and economic costs or benefits. The text also does not indicate that air transport will be considered when perhaps it offers the fewest negative attributes when compared to transport by truck, rail, or barge.

Page 3-A-9 Site Screening - The Plan should describe a detailed approach to evaluating transportation mode and corridor alternatives as a major factor in evaluating the suitability of alternate sites.

Page 3-A-18 Socioeconomic Impacts - This portion of the plan describes what has been done but leaves no clues as to how DOE proposes to assess socioeconomic impacts associated with each site. An approach to evaluating the full range of socioeconomic impacts should be presented in the text. Specifically, DOE needs to document the extent to which the mere proposal of a repository in an area may reduce investments in affected areas thereby impairing efforts to bring about economic diversification.

Page 3-A-20 Fourth full paragraph - While the text indicates that narrowing of 9 sites to 5 will be based largely upon Environmental Assessments, no basis for a decision to narrow sites from 5 to 3 is offered. The Plan should clearly discuss the basis by which 3 sites will ultimately be chosen from the 5 nominated.

Page 3-A-25 Institutional Strategy - The text indicates that the institutional strategy must be flexible enough so that these issues can be addressed in a comprehensive and timely fashion. A comprehensive review of each of the minimum five environmental assessments (as necessary to draw comparative analysis conclusions) can not be accomplished in the 60-day period presently anticipated by DOE. The Mission Plan should recognize that a 120-day review period is imperative.

Page 3-C-1 Transportation - The Plan seems to concentrate upon waste packaging and handling. Evaluation of alternate transportation modes and corridors is also critical.

Page 3-C-2 Current Issues - The last sentence of the first paragraph should be changed to read, "Specific environmental analyses will be conducted to assess the impacts of alternate transportation modes and corridors. Findgings of these analyses will be incorporated into Environmental Assessments, Site Characterization, and Environmental Impact Statements.

In addition, Lincoln County and the City of Caliente, as are other local governments, have implemented ambitious programs to bring about local economic development. The County and City are concerned that the mere possibility that frequent shipments of nuclear waste through the area may occur, is and will continue to act as a psychological deterent to investment in the County/City area.

The Mission Plan should recognize that this type of preconstruction impact may occur and are a current issue.

Page 3-C-4 Plans to Address Institutional Issues - The Mission Plan does not indicate at what point these plans would be prepared. It is suggested that they be available prior to nomination of sites for characterization to ensure that all appropriate factors are considered in the site narrowing process.

Page 3-E-1 Objectives - First paragraph, third sentence should include air as a possible mode of transportation.

STATE OF
WISCONSIN

RADIOACTIVE WASTE REVIEW BOARD

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July 6, 1984

Mr. Charles R. Head, Acting Director
Operations Division, Office of Civilian
Radioactive Waste Management
U.S. Department of Energy, RW-13
Forrestal Building
1000 Independence Avenue
Washington, D.C. 20585

Dear Mr. Head:

Enclosed are the comments of the Wisconsin Radioactive Waste Review Board on the draft Mission Plan for the Civilian Radioactive Waste Management Program. We appreciate the opportunity to review and comment upon this document.

On January 30, 1984, the Radioactive Waste Review Board submitted comments on an earlier draft version of Volume I. While Volume I shows stylistic improvement, we see little improvement in its substance. It appears to us that in revising Volume I, the Department has ignored the comments which we submitted in January. It was our hope that those comments would also assist you in preparing a draft of Volume II that would meet the requirements of Section 301 (a) of the Nuclear Waste Policy Act. After careful review however, we must conclude that Volume II does not meet those requirements.

The enclosed document contains 142 specific comments on Volumes I and II. The Radioactive Waste Review Board is especially concerned about five issues:

I. The Mission Plan does not present a realistic schedule for completion of the first repository by 1998, when the Department must begin taking title to spent fuel and high-level radioactive waste (See our comments Nos. 45, 47-48);

II. The Mission Plan asserts that two repositories will be needed to accommodate civilian radioactive waste, contrary to strong evidence that the anticipated inventory of civilian spent fuel could be accommodated in a single repository (See our comments No. 9, 116-119, and 121);

III. The Mission Plan's discussion of technology development for a repository in crystalline rock is clearly inadequate to support the site selection process currently underway (See our comments 17, 31-33, 75-81, 110-112, and 115);

IV. The Mission Plan presents a highly idealized and historically inaccurate view of the Department's consultation and cooperation activities, and does not acknowledge the concerns raised by the State of Wisconsin and other states about consultation and cooperation generally, and negotiation of formal written agreements with Department (See our comments Nos. 16, 35, 39, 44, 86 and 87); and

V. The Mission Plan does not adequately address state and local concerns regarding transportation of spent fuel and high-level waste, and does not fully explore way in which system planning could reduce transportation impacts by minimizing the number of shipments (See our comments Nos. 18, 21, and 24).

Our highlighting of these five areas in no way lessens our concern about the other issues which we have brought to your attention in the enclosed document.

We believe that the review and comment process can assist the Department in preparing a Mission Plan, which not only meets the requirements of Section 301(a), but which also provides a sound basis for implementing the other provisions of the Act. This cannot be the case, however, if the Department continues to ignore comments submitted by Wisconsin and other affected states. Therefore, we request that the Department send a high-level representative to meet with the members of the Board and discuss these comments before the Department revises the Mission Plan for submission to Congress. Furthermore, we are requesting a formal written response from the Department to each of our comments. Unless the Department is willing to address our comments in the revised Mission Plan, and provide satisfactory responses in those areas where our comments are not incorporated in the revised Mission Plan, we can only conclude that the Department's frequently stated commitment to consultation and cooperation is nothing more than a hollow ritual with little substance.

Thank you for this opportunity to assist in the improvement of the Department's high-level radioactive waste management program.

Sincerely,

Joe Strohl

Senator Joesph Strohl, Chairperson
Radioactive Waste Review Board

SJS:BH:lh/7918F

cc: Wisconsin Congressional Delegation

State of Wisconsin

Radioactive Waste Review Board

Final Review Comments

on

The U.S. Department of Energy's

Mission Plan for the Civilian Radioactive

Waste Management Program, Volumes I and II,

DOE/RW-0005 Draft (April, 1984)

July 6, 1984

SPECIFIC COMMENTS: VOLUME I

CHAPTER 1: INTRODUCTION

Comment #1, Page 1-2, last sentence.

Periodic Updating of the Mission Plan. How frequently does the Department plan to update the Mission Plan? We support the Department's commitment to subject "all such revisions" to full public review.

CHAPTER 2: PROGRAM STRATEGY

Comment #2, Pages 2-1 to 2-12.

Storage Options. DOE is trying to keep all storage options open. We agree that some form of either expanded nuclear plant on-site storage or a monitored retrievable storage facility (MRS) is needed because of the uncertainty in the 1998 start-up date for the first repository. More analysis needs to be done, however, on which combination of storage options will be the most cost-effective with the least environmental, socioeconomic and safety impacts. Once this analysis is complete, it should be clear in which direction the program should be developed. For example, it may be least expensive to expand nuclear plant on-site storage and avoid the impacts associated with a MRS facility. If this is the case, then further development of a MRS facility would not be required and we could place more emphasis on developing the technology associated with nuclear plant on-site storage.

DOE is currently proceeding by developing all options simultaneously. This approach may lead to duplication of facilities and wasted resources. It also tends to place less emphasis on the key programs than it otherwise would. DOE should indicate now which storage options it plans on primarily relying upon and which programs are being developed as backups. We haven't seen anything definitive on this in the Mission Plan.

Comment #3, Page 2-1, Para. 3-5.

Foreign Spent Fuel Acceptance Schedule. Does the quantity of spent fuel presented in the waste acceptance schedule (Table II-1) include any spent fuel from foreign reactors? What is the anticipated quantity of spent fuel from foreign reactors that will eventually be disposed of in the geologic repositories? What is the anticipated acceptance schedule for spent fuel from foreign reactors?

Comment #4, Page 2-1, Para 5.

Prioritization in Waste Acceptance Schedule. In its waste acceptance schedule, the DOE should also consider prioritizing spent fuel at plants which are experiencing technical difficulties with on-site storage (e.g., significant leakages in stainless steel storage pool liners, swelling racks,

leaking rods, etc.). Keeping abreast of on-site storage difficulties should be an integral function of the DOE as the waste acceptance schedule is updated and refined because of the potential hazards to workers and the public due to unsafe on-site storage of highly radioactive spent fuel.

Comment #5, page 2-2, Table II-1, Footnote (2).

Expanded Capacity of First and Second Repositories. For waste created after 2020, DOE contends that "the capacity of the first two repositories could be increased." What maximum capacity is technically feasible for the first two repositories? How will the potential need for expanded capacity be considered during site screening, in the environmental assessments, and in the final environmental impact statement? Will maximum capacity be determined prior to commencement of construction?

Comment #6, Page 2-3, Para. 3.

Defense Waste Acceptance at First Repository. There is no indication of how defense waste would impact the NWPA's 70,000 metric ton limit for the first repository until the second repository begins operations. Would such waste be excluded from the statutory limit, or would it be included?

Comment #7, Page 2-4, Para. 1.

Retrievability. If the "appropriate period" for retrievability is 50 years, as stated on page 3-A-23, it should be stated here as well.

Comment #8, Page 2-4, Para. 2.

Reprocessing. The Mission Plan continues to treat reprocessing of civilian spent fuel as a viable option, and the geologic repositories will be planned to allow acceptance of HLW from civilian reprocessing. Moreover, DOE will consider acceptance of liquid HLW from the nuclear industry, which implies solidification at federal facilities prior to emplacement in a repository. The DOE should assure that any industry plan for reprocessing spent fuel which will require acceptance of liquid waste and its solidification at federal facilities will be available for public review and incorporated in an updated mission plan. Commercial reprocessing and federal solidification may considerably lengthen the timeframe for the repository program and pose additional risks for workers, the public, and the global community. Any change in federal policy which consideres collocation of reprocessing facilities at an MRS or repositiory will require major revision of the site selection criteria to address additional environmental impacts and physical security requirements.

Comment #9, Page 2-4, Para. 3.

Need for Second Repository. DOE "believes that a second repository will be necessary to accommodate the spent fuel from the reactors currently operating, planned and projected." The State of Wisconsin believes that a single repository could potentially accommodate all of the civilian HLW projected to accumulate by 2020-2030. See comments 116-119 and 121.

Comment #10, Page 2-4, Para. 4.

Site Recommendation for Second Repository. DOE's strategy for the second repository calls for recommendation of three sites for characterization by July 1, 1989. DOE is to also consider sites not selected for the first repository, but selection of the first repository site will not occur until June, 1990. How will DOE reconcile the conflict in schedules? See also comments 42 and 76.

Comment #11, Page 2-5, Para. 1.

Repository Capacity. The statement that the two repositories are each planned with a 70,000 metric ton capacity conflicts with other statements regarding capacity at pages 9-4 amd 10-15. Technically, repositories with a much larger capacity are feasible. See comments 118 and 121.

Comment #12, Page 2-5, Para. 3.

Distinction Between First and Second Repositories. DOE suggests various contingencies to accommodate a serious delay in the first repository schedule. Are there any circumstances under which DOE would abandon the current distinction between the first and second repositories, and consider a crystalline rock site for the first repository?

Comment #13, Page 2-6, Para. 5.

Additional Activities. What are the "additional activities" that may be required beyond those provided in the repository schedule specified in this Mission Plan?

Comment #14, Page 2-7, Para. 2.

DOE's Good Intentions. DOE's stated objective is "to conduct the program so that a sound, defensible technical decision with full adherence to the institutional and legal requirements of both the letter and spirit of the Act will be made." We appreciate the Department's promise of good intentions, but point out that a radical departure from the Department's past practices will be necessary to achieve this objective. See also comments 15 and 103.

Comment #15, Page 2-7, Para. 5.

Consultation and Cooperation. We disagree with the characterization of DOE's track record in the area of consultation and cooperation. Timely consultation when preparing key documents remains a problem. It also is not enough merely to arrange for a comment procedure. We want to know whether you have considered our comments and we want justification for rejecting the proposals/modifications we put forth. If we do not get this feedback, it appears that DOE is wasting our time soliciting all kinds of comments but never seriously considering them.

Comment #16, Page 2-7, Para. 5.

Written Agreements. The DOE pledges to continue its commitment "...to meet the spirit as well as the letter of the law..." by providing mechanisms for the negotiation of written agreements according to Section 117 of the Nuclear Waste Policy Act. The DOE should also indicate a commitment to negotiate agreements upon the requests of states and tribes at whatever stage in the siting process the states and tribes so desire and to expedite having agreements in place before commencement of field studies if states and tribes so request. The cooperation of states and tribes is essential, and the DOE should exert every possible effort to enlist their help through agreements which they deem advisable.

Comment #17, Page 2-8, Para. 3-4.

T&E Facility for Second Repository. The DOE has determined that if a T&E facility is constructed, it will be collocated with the first repository (see Vol. II, pp. 1-2 and 4-2). If it is constructed, it will be because DOE has determined that a T&E facility would provide necessary site-specific geotechnical and engineering data (Vol. I, p. 3-A-17). If a T&E facility is found necessary for the first repository, it is logical to assume that the same type of site-specific data would be needed for the second repository, but the possibility of a second T&E facility is not discussed.

Comment #18, Pages 2-8 to 2-9.

Transportation Impact of At-Reactor Storage. One of the criteria that DOE will apply in evaluating the need for federal at-reactor storage is that "The transportation and handling of the spent fuel should be reduced as much as practical ..." We encourage the Department to follow this principle in all decisions related to away-from-reactor storage (AFR) and monitored retrievable storage (MRS) facilities as well.

Comment #19, Page 2-10, Para. 2-5.

Monitored Retrievable Storage. We agree that DOE should develop the MRS proposal for Congress but reiterate that analysis needs to be done on whether this is the best way to go. We also agree that the DOE should pay particular attention to the critical path aspects of the program siting and licensing. We suspect (contrary to DOE claims) that siting and licensing of this facility will not necessarily be any easier than a permanent repository.

Comment #20, Pages 2-10 to 2-12.

Transportation Issues. This and the other portions of the Mission Plan dealing with transportation issues center on compliance with existing regulations combined with a positive public information program. This will not suffice to resolve public concerns, particularly for a transportation program of this magnitude. On page 3-C-2, DOE does state that it "will work with other federal agencies to determine what changes, if any, should be made to the existing federal regulations to be responsive to public or

intergovernmental concerns." Any recommendations requiring legislative action should have already been identified and detailed in this Mission Plan in accordance with Sec. 301(a)(3) of the NWPA.

Comment #21, Page 2-10, Para. 7.

Transportation Requirements. We support the Department's stated goal of carrying out both its near-term and long-range transportation responsibilities "in a safe, environmentally acceptable, timely and cost-efficient manner minimizing to the extent possible the number of shipments." In order to achieve this goal, the Department must revise its transportation plans in three areas. First, DOE must return to its original commitment to rail transportation for all shipments to repositories. The Department's current willingness to consider large-scale truck transportation of HLW to the geologic repositories, which would increase the number of shipments compared to an all-rail scenario, is contrary to the stated goal, and also contrary to the planning assumptions in DOE's programmatic Environmental Impact Statement. DOE/EIS-0046F and its supporting technical study assume that all HLW and spent fuel deliveries to final repositories will be by rail, although spent fuel from reactors without rail access would be first shipped by truck to interim storage and packaging facilities for final shipment to the repository by rail [DOE/EIS-0046F, Vol. I, p. 4.64-4.65; DOE/ET-0028, p. 6.2.3-6.2.28]. Second, DOE must give greater consideration to exapnsion of at-reactor storage as a means of reducing HLW shipments. The transportation business plan should specifically evaluate the extent to which the number of shipments could be reduced if all spent fuel could be safely stored at the reactors until the first repository is operational. Third, the Mission Plan must address the inherent contradiction between the goal of minimizing shipments and the increased transportation requirements if one or more MRS facilities are constructed. The goal of minimizing shipments implies that MRS should not be part of the disposal solution, because such a facility, unless collocated with a repository (which NWPA prohibits), would result in additional shipments. The transportation business plan should discuss the conflict between reliance on MRS facilities and any strategy to minimize waste shipments.

Comment #22, Page 2-11, Para. 2.

Transportation Institutional Framework. The institutional framework which currently exists to support occasional spent fuel and/or high-level-waste shipments is not adequate to support the large numbers of shipments to a MRS or repository. For one thing, quality assurance becomes much more important when shipments become "routine." Secondly, emergency response capabilities, particularly in the region of the facility where shipments become concentrated, will have to be greater than they are now. The public will certainly demand that.

Wisconsin hospitals currently have limited capability to treat even a small number of patients in the event of a minor spent fuel or HLW transportation accident. This fact came to light during recent return shipments to Wisconsin of spent fuel from temporary storage facilities in New York and Illinois. The preparedness of only three hospitals in Wisconsin prompted the State Medical Society's Committee on Environmental and Occupational Health to request the

Governor to identify hospitals located ideally 40-50 miles from each other along the shipment routes, train personnel in the use of the Protocol for handling radiologically contaminated patients (which was facilitated by the Society's Committee and the State's Department of Health and Social Services), provide funds to equip the hospitals to handle three to four patients as spcified in the Protocol, and periodically conduct emergency response drills in these hospitals to assure preparedness. The first training session for hospital personnel is tentatively slated for late July, 1984, approximately a year after the shipments began. Because of the great number of shipments expected when the repository begins to accept spent fuel for disposal, the DOE must have a full grasp of emergency preparedness needs, plan well in advance of waste acceptance to assure preparedness, and provide the requisite funds for all components of emergency response.

Comment #23, Page 2-12, Para. 2.

Federal Interim Storage (FIS). We agree that the FIS program will not be of much use because of the 1900 MTU limit. The current plans for providing this storage capacity, however, still should be included in the Mission Plan. What are the current siting and licensing requirements for FIS facilities?

Comment #24, Page 2-12, Para. 3.

At-Reactor Storage. We support DOE's intent, expressed here and elsewhere, to encourage on-site storage of spent fuel until a repository is available.

CHAPTER 3: PROGRAM PLANS

Comment #25, Page 3-A-1, Para. 3.

Selection of Mined Geologic Repositories as Preferred Means of Disposal. DOE's selection of mined geologic repositories as the preferred means of dispoal "after evaluating various alternative means for the disposal of these materials in an environmental impact statement" suggests the continuing relevance of DOE/EIS-0046F. Since the EIS was prepared before the passage of the NWPA, and DOE has since deviated from some of the key planning assumptions in the EIS (e.g., the assumption that all shipments of spent fuel to repositories would be by rail), does DOE have any plans to revise or amend DOE/EIS-0046F?

The assertion that DOE/EIS-0046F "concluded that geologic disposal is safe, environmentally sound and the technology is at hand" is grossly inaccurate. No such statement appears anywhere in the EIS. What the EIS actually concluded was:

> A mined geologic repository is the preferred alternative based on evaluation of radiological effects during the operational period, non-radiological effects on the human environment, status of development, conformance with existing National and international law, independence from future development of the nuclear industry and potential for corrective or mitigating actions. The potential for and consequences of

unplanned events in the long term require further investigation. The only category in which an alternative technology might offer an advantage would be the radiological effects during the post-operational period for which space disposal appeared more preferable. However, this long term advantage would be more than offset by near term disadvantages. [DOE/EIS-0046F, Vol. I, p. 1.32]

If the Department prefers a shorter summary statement, we suggest the following:

In summary, there appear to be no environmental issues that would reasonably preclude pursuit of a program strategy favoring disposal of commercially generated radioactive wastes in deep geologic repositories (regardless of nuclear power growth assumptions). [DOE/EIS-0046F, Vol I, p. 1.33]

Comment #26, Page 3-A-1, Para. 4.

Mine Spoils. "When the repository has been filled to capacity, the surface facilities will be decommissioned..." What will happen to the storage piles of mine spoils which will remain after the repository has been backfilled and closed?

Comment #27, page 3-A-3, Para. 5.

Engineered Barriers. The statement that "In evaluating the suitability of sites, therefore, the use of an engineered barrier system will be considered to the extent necessary to meet the performance requirements specified by the NRC and will not be relied on to compensate for significant deficiencies in the capabilities of the natural barriers for waste isolation," does not address the major issue regarding credits for containment capability of engineered barrier systems. NRC regulations (10 CFR Part 60.113) and the proposed EPA radiation standards require that credit be given for engineered barrier system only after site specific data is available at the completion of site characterization. It is therefore inappropriate for DOE to make any plans for consideration of engineered barrier systems prior to the completion of characterization. Natural barriers must be the primary basis for containment.

Comment #28, Page 3-A-7, Items 4.d and 4.e.

Engineered Barriers. The chronological placement of the task for developing necessary engineering data to "complete designs for repositories and waste packages that will meet NRC licensing requirements for a repository at the selected site," after the task Item d, completion of site characterization, supports Wisconsin's contention that engineered barrier systems capable of incorporation in ultimate site selection decisions can only be made after the completion of site characterization.

Comment #29, Page 3-A-9, Para. 1.

Siting Considerations. The two basic questions underpinning the suitability of a site for a geologic repository must be expanded to add a third equally important one: Will preclosure operations at the site result in adverse impacts upon public health and safety and the environment?

Comment #30, Page 3-A-12, Para. 2.

Site Screening. The discussion of site screening for the second repository is reasonably accurate, but too brief to give much insight to a reader who is not already familiar with the regional characterization reports and the screening methodology. The reader is referred to section III-A-6-b, which is equally brief.

Comment #31, Page 3-A-14, Para. 1.

Alternative Media. Are these being proposed as alternatives to the first and second repositories or are they being developed solely for future waste disposal needs? This should be explicitly spelled out in the Mission Plan. If alternative media or deep seabed are being considered for a second repository, how will these studies be integrated into the siting process already underway?

Comment #32, Pages 3-A-15 to 3-A-16.

Preconceptual Design Studies for Second Repository. The Plan notes that preconceptual designs have been completed for repositories in salt, basalt and tuff. These preconceptual design studies, plus engineering feasibility studies, will be the basis for site-specific conceptual designs. Why is there no discussion of plans for preconceptual design studies for a crystalline repository? The second repository conceptual design studies are not scheduled to begin until 1987, and will not be completed until November, 1991.

Comment #33, Page 3-A-17, Para. 1.

Copper Canisters. More detail is required regarding DOE's plans to reopen "an investigation into the potential use of copper for waste containers." What is the schedule for completion of the copper canister investigation? Will copper canisters be evaluated for all host rock types under consideration for both the first and second repositories?

Comment #34, Page 3-A-17, Para. 2.

Test and Evaluation Facility. Will the need for a test and evaluation facility affect the schedule for the first repository? If it will not, why not? If it will, this should be incorporated into the discussion on the reference schedule.

Comment #35, Pages 3-A-17 to 3-A-18.

Institutional Relations. Three general institutional problems must be acknowledged and addressed in the Mission Plan. First, involved states and tribes are not really regarded by DOE as partners in the siting program, but rather as impediments which must be dealt with. States and tribes are addressed mostly in terms of creating institutional problems and potential delays in the program. Unless the final Mission Plan reflects an understanding by DOE that states and Indian tribes are integral members in the siting process, states and Indian tribes will no doubt be forced to continue the present policy of hostility, lack of cooperation, and even litigation. DOE must be made to understand that state and tribe support are absolutely necessary for DOE to ever obtain technical credibility with the public. The draft Mission Plan misses this point completely.

Second, the draft fails to discuss and rectify the communication problems which have arisen among DOE in Washington, D.C., regional DOE offices, and DOE contractors. In the past, it appeared that the right hand did not know what the left hand was doing. This problem, too, has adversely affected DOE's credibility with states, Indian tribes, and the public. The Plan does not acknowledge these past problems, much less offer any solution.

Third, the Plan appears to assume that all activities in all states will proceed at the same rate. Although the process of uniformity is administratively easier for DOE, there is no technical or policy reason why each state must be treated in the same manner as all others. To be useful, the Mission Plan should address the expected differences in technical data collection requirements among the states and tribes and prescribe methods for meeting each state's or tribe's needs. As in the past, efforts by the DOE to force all states and tribes to meet the same deadlines will only increase hostility and opposition.

Comment #36, Page 3-A-17, Para. 3.

Definition of Valid Concerns. Little weight can be attached to DOE's assertion that "all valid concerns" will be addressed without a prior definition of validity. Who decides what concerns are valid? The federal government—i.e. DOE? State government? A majority of the public? A vocal minority?

Comment #37, Page 3-A-17, last sentence.

Public Concerns. This sentence assumes that the concerns of the state and local populace are going to be with the social and economic impacts of a repository. Nowhere does the Mission Plan recognize that concerns about the surface environmental impacts and long-term health effects may equally influence relations with the public.

Comment #38, Page 3-A-18, Para. 3.

Consultation and Cooperation. The account of consultation and cooperation with the second repository states lacks detail. How many briefings have been held, and in how many states? How much financial assistance has been given,

totally and to each state? How many states have requested written pre-Section 117 consultation and cooperation agreements? The answers are not to be found in Chapter 3 of Volume II, to which the reader is referred.

Comment #39, Page 3-A-18, Para. 3.

Written Agreements. The DOE should offer to remain open and flexible to state and tribal requirements for agreements at whatever stage the state or tribe desires if the consultation and cooperative process is to serve any constructive purpose.

Comment #40, Page 3-A-18, Para. 4.

Socioeconomic Impacts. The discussion of work completed on socioeconomic impacts should note the general conclusion of these studies that, in addition to the normal impacts associated with large energy development or construction projects, there are special impacts unique to the siting, construction and operation of a nuclear waste repository.

Comment #41, Page 3-A-19, Para. 3.

Quality Assurance Program. According to the Mission Plan, a "formal, quality assurance program [for first repository site characterization] has been implemented by the Department and its contractors." How can the State of Wisconsin obtain a copy of this quality assurance program document?

Comment #42, Page 3-A-24, Para. 4.

Site Characterization for Second Repository. Site characterization at the three candidate sites for the first repository "will not be complete when sites for the second repository must be nominated." DOE "considers all three of these sites eligible for renomination for the second repository along with at least three additional sites as required by Section 112(b)(1)(c) of the Act." DOE's failure to recommend a site for the first repository before selecting sites to be characterized for the second repository could result in unnecessary characterization of one or two additional sites, wasting hundreds of millions of dollars. Moreover, such an approach will make it difficult, if not impossible, for DOE to carry out the NWPA's directive to consider regionality and diversity of rock types and hydrology in selecting a site for the second repository.

Comment #43, Page 3-A-25, Para. 4.

Subseabed Disposal.. The discussion does not adequately acknowledge the commitment that other countries have made to this disposal option.

Comment #44, Pages 3-A-25 to 3-A-26.

Institutional Strategy-Consultation and Cooperation. We are not satisfied with this process to date. Item (e) on page 3-A-26 is an area that we have been particularly unhappy with. The consultation process is meaningless unless the DOE seriously considers our comments and provides justification when disregarding our key points.

Comment #45, Pages 3-A-27 to 3-A-45.

Repository Schedule. According to our calculations, the minimum time for repository development is 10.9 years. The maximum amount of time is 35.8 years if all of the foreseeable delays in the program occur. In all likelihood, there will be unforeseeable delays that could affect the schedule as well. The reference schedule is based on a 14.2 year period until repository operation. This estimate appears to be on the short side of the reasonable range of schedule estimates. It also contains the assumed two-phase construction method described as case 5A in the Mission Plan "because it provides a mechanism for initial acceptance of waste in January 1998." The reference schedule should be DOE's best estimate at what is reasonably achievable, not what would have to occur to maintain a 1998 start-up date. The timing of the other storage facilities (such as the MRS) is critical and revolves around the first repository schedule. This timing is difficult to achieve if the repository schedule is purposely distorted to hit the 1998 target date even though it may not be achievable.

Comment #46, Page 3-A-26, Para. 4-5.

Socioeconomic Impacts. The socioeconomic work needed in general category (1) must be expanded to include identification of appropriate impacts to be assessed during site screening and impact assessment. Moreover, either this discussion or Chapter 11 of Volume II should include or reference a full list of all contract work efforts regarding socioeconomic impacts, and a listing of all published and unpublished reports delivered to DOE under these contracts.

The list of factors to be monitored must be expanded to include: out-migration from repository areas; impact on special industries, such as tourism and agriculture; local inflationary impacts, particularly regarding wage rates and housing costs; and injuries and fatalities resulting from repository construction. Collection of base-line health data must begin prior to repository operations.

Comment #47, Page 3-A-40, Para. 3-5.

Repository Schedule. The lack of realism which permeates the Mission Plan is highlighted on page 3-A-40 wherein the DOE assumes no additional review time for the environmental impact statement for the first repository, and that its "open consultation and cooperation process" will avoid a notice of disapproval. DOE's assumption of no litigation throughout the entire siting process borders on the fantastic.

Comment #48, Page 3-A-43, Para 2-4.

Repository Schedule. The DOE was wise to reject Alternative Schedule 4, which would require revisions to 10 CFR 60 to provide a two-step construction authorization. Before any construction of surface repository-related facilities, a full construction authorization should be acquired from the Nuclear Regulatory Commission to avoid becoming precipitiously locked into a site.

Comment #49, Page 3-B-3, Para. 3.

Monitored Retrievable Storage. It is stated here that the MRS concept should rely on engineered features to meet safety criteria and not geologic or geographic features. This approach may be appropriate if we knew that the MRS would only be used for a short period of time. Because of the uncertainty surrounding the first repository, however, it may be more appropriate to site this facility in an area which makes geologic or geographic sense as well. We really don't know if the MRS will have to function for 5 or 50 years. Additional geologic safeguards would yield a higher degree of assurance against unplanned radiation releases.

Comment #50, Page 3-B-7.

Monitored Retrievable Storage. The Mission Plan should include a discussion of why the other storage concepts, such as underground vaults, were eliminated from further consideration. It should also explain why the selected concepts (sealed storage and field dry well) were selected.

Comment #51, Page 3-B-8, Para. 5-6.

Monitored Retrievable Storage. Why were the three reference site types (arid, warm-wet, and cold-wet) selected? The Mission Plan should also explain why meteorological conditions are used as site discriminating factors in the first place.

Comment #52, Page 3-B-9, Para. 3.

Monitored Retrievable Storage. Although the Act precludes the siting of a MRS facility in a state with a candidate site approved for repository site characterization, it may make sense to site the facility as close to the first repository as possible. This would tend to mitigate the costs and risks associated with shipping the radioactive waste twice (once to the MRS and again to the permanent repository). This concept should be incorporated into the siting process.

Comment #53, Page 3-B-9, Para. 4-5.

Monitored Retrievable Storage. It is stated that the act does not require a discussion of the need for the MRS in the environmental impact statement. We still maintain that the need for this facility is still a very open question given the on-site storage possibilities. The need issue should be addressed at some point in the process such as in the MRS proposal to Congress.

Comment #54, Pages 3-C-1 to 3-C-10.

Transportation. The Mission Plan should include an analysis of all major considerations which should be made in transporting spent fuel or radioactive waste, not just equipment availability and the regulatory-political environment. Revised shipping cask standards and a more definitive approach to the Transportation Business Plan are needed. DOE has emphasized timely interaction and communication with the private sector in developing the

Business Plan. The "interested governmental bodies" should be involved from the outset. Phases I-III may take more time to develop than Phase IV (operations). Procurement of equipment and development of a traffic management plan may take longer than anticipated. DOE's transportation management system may not be adequate for the large-scale transportation responsibilities growing out of the NWPA. Given the amount of HLW projected to be transported, and the present limited availability of shipping casks, DOE's time schedule appears overly optimistic.

Comment #55, Pages 3-C-2 to 3-C-4.

Current Transportation Issues. The list of current issues must be expanded to include the following concerns: a) DOE's emphasis upon truck transportation is contrary to DOE/EIS-0046F, which concluded that dedicated trains were the safest shipment mode for HLW, and assumed that all deliveries to a repository would be made by rail; b) DOE's current risk assessment methodologies are not adequate; and c) DOE refuses to recognize legitimate state concerns about the limited ability and/or willingness of NRC and DOT to enforce the existing federal regulations.

The public concerns which were expressed most frequently about the recent shipments of spent fuel to the Point Beach reactors in Wisconsin from temporary storage facilities in New York and Illinois were 1) the ability of existing casks to withstand high-temperature fires and 2) the lack of destructive testing on casks in use. Neither of these are discussed under "Current Issues" in transportation. If the DOE is sincere in its statement that "Full public trust and confidence in both the institutions and technology for transport will be of fundamental importance" (p. 3-C-1), it will have to recognize these concerns and address them with more than a public relations program.

Comment #56, Page 3-C-3, Para. 5.

Hospital Preparedness. Hospital preparedness for radiological accidents along transportation routes has become an issue in Wisconsin's experience with spent fuel shipments. Would the DOE provide direct support for training of area medical personnel, in addition to its support for radiological monitoring and assessment at an accident scene and for training of the first responders? The DOE should provide funds for equipping strategically located hospitals along spent fuel/high-level radioactive waste transport routes to handle radiologically contaminated patients, training hospital personnel and emergency response teams, and holding drills to assure continued preparedness in the event of a mishap.

Comment #57, Page 3-C-7, Para. 2.

Public Review of Business Plan. DOE must provide a mechanism for state, tribe and public review of the draft Transportation Business Plan. Since the first draft was not available in Spring of 1984, we assume that there will still be time for public review when the draft is issued. What is the anticipated date of issue?

Comment #58, Pages 3-D-1 to 3-D-6.

Interim Storage. The key concern here is timely development of the on-site storage technologies. If some of the nuclear plants will be running out of storage capacity by 1986, what is the likelihood that these storage technologies will be available to resolve this problem by then? It should also be spelled out exactly what DOE is doing in this area to resolve this problem.

Comment #59, Page 3-D-1, Para. 4.

Interim Storage. The Mission Plan should include an analysis of which nuclear plants are going to run out of storage during the 1984 to 1998 period. It should also address whether the new technologies, such as rod consolidation and dry storage, will be available in time for these specific plants. This should demonstrate how much federal interim storage may ultimately be needed.

Comment #60, Page 3-D-4, Para. 2.

Dry Storage Casks. Are either the REA-2023 or CASTOR-1C casks capable of being transported like the transportable storage casks discussed on page 2-9? Are the current demonstration projects on schedule, so that NRC approval of license applications is still expected in 1986 or 1987?

CHAPTER 4: PROGRAM MANAGEMENT

Comment #61, Page 4-2, Para. 5-8.

Planning and Control. The discussion of the program control system is so vague as to be meaningless. There is no discussion of developing a system of comprehensive management audits to assure that the final products delivered by contractors fulfill their contracts. The general issue of how to improve the performance of contractors and subcontractors is ignored. How often will the performance reviews be conducted? We suggest this should be done on at least an annual basis in conjunction with the annual audit process.

Comment #62, Page 4-4, Para. 1.

Quality Assurance. Plans for quality assurance programs should be described in detail, not simply referred to since the discussion in Chapter III.A provides no more detail than the discussion on page 4.4.

Comment #63, Page 4-4.

Fund Management. It should be stated, if known, when the first review of the adequacy of the repository fund will be made. This will give the nuclear plant operators and associated regulatory agencies some idea about when to expect a change in the disposal fee assessment.

Comment #64, Page 4-6, Item 5.

Independent Annual Audit. When will the first independent annual audit be completed? When will it be available for public review?

Comment #65, Page 4-9, Para. 2-4.

Special Advisory Panel (AMFM). This section should provide more details about the membership and mission of the Special Advisory Panel on Alternative Means of Financing and Managing Radioactive Waste Facilities (AMFM). Who are the members? What provisions have been made for public input to the deliberations of the AMFM panel? Will the AMFM panel specifically address whether an agency or institution other than DOE should manage the civilian Radioactive Waste Program?

SPECIFIC COMMENTS ON VOLUME II

CHAPTER 1: INFORMATION NEEDS

Comment #66, Page 1-1, Para. 1.

Repository Mission and Performance Requirements. The siting guidelines have not "explicitly defined" the mission of the repository and requirements for its performance. Which regulations are being referred to here?

Comment #67, Page 1-4, Item 4.

Potentially Disruptive Events. There is no substantiation for with inference that human intrusion is not expected to influence the performance of a repository. The EPA estimates of projected population risks from a repository are dominated by the impacts of human intrusion (e.g. EPA 520/1-82-025, Table B-5). Inability to protect the intruder is one of the reasons why EPA has refused to promulgate an individual dose limit.

Comment #68, Page 1-8, Issue 1.4.

Erosion. It is not clear in the text that the writer recognizes the difference between erosion and weathering. In some areas, particularly the arid western states in areas underlain by coarse valley fill and a deep groundwater table, weathering may be more important than actual erosion and a disturbing process.

Comment #69, Page 1-9, Issue 1.5.

Future Climatic Conditions. It might be worthwhile to address what credible mechanism of climatic change might be possible. It is not clear in text whether one example given (glaciation) is viewed as a climatic condition or an erosive agent (covered under Issue 1.4). In addition to effects on the ground- and surface-water regimes, glaciation could place mechanical stress on the repository. This, too, should be estimated. In text, the information needs all address past climate, and do not really address future climatic change except by the past being a guide to the future.

Comment #70, Page 1-11, Issue 1.8.

Future Human Activities That Could Adversely Affect Isolation. The information needs are good and bad. Need 1.8.1 is good in that water resources are clearly identified. Need 1.8.2 is wrong in philosophy. Exploration for resources is not predicated on comparison to other equivalent resources. For example, in North America nonferrous massive sulfide deposits of less than several million tons are considered the minimum economic cutoff; whereas, elsewhere in the world, particularly in developing nations and in well-developed mineral districts, ore bodies of several hundred thousand tons are considered for development. Wide availability is not a limit to exploration. Molybdenum is a case in point. Property held by Amax can satisfy U.S. needs for molybdenum. This has not deterred other mineral

exploration companies from looking for molybdenum elsewhere. Needs 1.8.2 and 1.8.3 need to be rethought from a mineral exploration and exploitation context. Natural resources in the waste and waste containers themselves and the resulting potential for human intrusion should be considered. (Vierima)

Comment #71, Pages 1-13 to 1-15.

Projected Radiological Exposures. Baseline health data on people in the proposed repository area should be obtained for a better grasp of potential radiological impact on the public.

Comment #72, Page 1-15, Information Need 2.1.4.

Catastrophic Releases. In addition to routine releases, reasonably foreseeable and unlikely (but potentially catastrophic) releases should be analyzed.

Comment #73, Page 1-16, Issue 2.3.

Nearby Facilities. Potential military targets should also be considered here. Their presence would be just as hazardous as petrochemical plants.

Comment #74, Page 1-18, Issue 3.2.

Transportation. An assessment of the effect of surface meteorological conditions (e.g. snowfall, floods) on the ability of a repository to receive waste at the design rate of 3,000 MTU per year should be included.

CHAPTER 2: PLANS FOR OBTAINING THE INFORMATION NEEDED TO SITE, CONSTRUCT AND OPERATE A REPOSITORY

Comment #75, Pages 2-26 to 2-27.

Equipment and Technology Development—Monitoring. Nowhere is mentioned development of instrumentation for long-term monitoring of the site during operation and after closure as required by the EPA, except in the summary of the Nevada Test Site results on p. 5-54: "Two notable classes of instrumentation failures occurred, which highlight the need for further development of instrumentation for long-term monitoring."

Comment #76, Page 2-46, Para. 2.

Second Repository. The Mission Plan states "potentially acceptable sites identified but not nominated for characterization for the first repository and sites characterized for the second repository, but not selected, may also be considered for the second repository." Absence of any reference to timetables here obscures the fact that DOE intends to recommend three sites for characterization for the second repository by July 1989, before a site is recommended for the first repository (June, 1990). Indeed, DOE will not even issue the draft EIS supporting the first repository site recommendation until September, 1989.

Comment #77, Page 2-46, Para. 3-4.

Site Investigations for Second Repository--Data Bases. The Mission Plan states that regional phase evaluation of crysalline rock formations will be based upon "open-literature information on the geologic and environmental characteristics of the region." Does DOE intend to conduct any geologic field work on crysalline formations prior to issuance of the final Area Recommendation Report? If so, the Mission Plan should include a detailed statement of the field work tasks which will be performed, a schedule for their completion, and a plan for involving state geological experts in these efforts. Also, does DOE plan to use any corporate geotechnical data which may be considered proprietary and/or confidential prior to the beginning of area phase studies? The May 14, 1984 version of the siting guidelines states that "literature in the public domain and the private sector, when available" shall be used for identification of potentially acceptable sites (960.3-1-4-1). If DOE plans to use any proprietary and/or confidential corporate geotechnical data in the preparation of the Area Recommendation Report, the Mission Plan must spell out the procedures that will be employed to allow state review and evaluation of that data.

Comment #78, Page 2-46, Para. 4.

Site Investigations for Second Repository--Screening Methodology. The description of the second repository regional site investigations is too brief. The Mission Plan should provide a more detailed overview of the Crystalline Repository Project Office's work in developing the screening methodology, with specific discussions of the geologic and environmental variables identified, the data bases available for these variables, the scales for evaluating each variable, and the way in which the variables will be weighted and mapped to derive an aggregate measure of favorability that will identify the areas which should receive further study for repository development. Also, the Mission Plan should acknowledge the significant effort made by the states involved in the crystalline program to assist in the development of a technically objective screening methodology. It is particularly ironic that the Mission Plan says so little about federal/state interaction in developing the screening methodology, since many states consider this one of the more successful components of the entire Civilian Radioactive Waste Management Program.

Comment #79, Page 2-47, Para. 1-2.

Area Phase Studies for Second Repository. The area characterization plan (ACP) for the second repository will "describe the activities the Department will undertake during the area phase to evaluate site suitability for nomination and recommendation for site characterization and to resolve outstanding technical issues for these candidate areas." The Mission Plan fails to note that the final ACP will be issued in January, 1986, while work on the conceptual designs for a crystalline repository, waste form, and waste package will not even begin until 1987. There is no mention of preconceptual design studies, such as those for salt, basalt and tuff. This means that the final ACP will have to be formulated without the benefit of a detailed engineering design.

During the area phase "preliminary performance assessments will be used to evaluate areas under consideration and to identify site performance parameters for investigation during the area phase." How can these performance assessments be carried out before completion of the conceptual designs (or even preconceptual design studies) for a crystalline repository, waste form, and waste package? What will be the engineering basis of the performance assessments?

The listing of geologic and environmental studies to be performed during the area phase must be expanded to provide more specific detail on the types of studies envisioned. The discussion of studies to be undertaken during the area phase makes no reference to transportation. How will HLW transportation feasibility, impacts, and relative risks and costs be addressed during the area phase studies for the second repository?

Comment #80, Page 2-47, Para. 4.

Use of Information from First Repository Studies for Second Repository. According to the Mission Plan, studies carried out for the first repository "may provide a substantial base for guiding the design or test efforts in crystalline rock" regarding waste-package design concepts, materials testing for thermomechanical responses, and design of surface and subsurface facilities. Because of differences in geology, geohydrology, and geochemistry, not to mention environmental differences between the nine sites being considered for the first repository, and the three regions under consideration for the second repository, studies conducted for the first repository will probably be of limited value in planning for the second repository. The Mission Plan should present a detailed discussion for each of these three subissues - waste package design, thermomechanical response, and design of facilities - detailing the extent to which data from the first repository studies can and cannot address technical issues related to a repository in crystalline rock.

Comment #81, Pages 2-47 to 2-49.

Use of Information from Foreign Studies for Second Repository. The discussion of crystalline rock investigations in Canada, Sweden, France, and Switzerland must be expanded to include at the very minimum: a list of the particular geotechnical issues which are being addressed in each country; the sites at which the field investigations are being conducted; the principle researchers involved; the methodologies employed; and a schedule for the completion of those studies which are still in progress. Moreover, the Mission Plan must address those factors which will limit the transfer of information obtained in other countries to the crystalline program in the United States. At the very least, this discussion must address the different physical characteristics and geohydrologic settings of the crystalline rocks under investigation in these countries compared to the United States, and the extent to which the different waste management strategies followed by various countries limit the applicability of information from one country to another. The Mission Plan should explain, for example, the way in which the Swedish commitment to employ

long term interim storage at a central facility, resulting in considerable thermal cooling of spent fuel prior to repository emplacement, and the way in which the Swedish commitment to employ copper canisters for waste packaging, affect U.S. DOE's ability to use test results from the Swedish field investigations.

Comment #82, Pages 2-49 to 2-50.

Estimated Total Costs. The discussion of costs of research and development activities is referenced to the out-of-date figures provided in Chapter 10. Because of this, it is impossible to critique the costing methodology, since it will not be presented until the final Mission Plan is submitted to Congress. However, it is apparent from the discussion in Chapter 10 that DOE has not yet developed a justifiable rationale for estimating costs of the second repository tasks, based on the anticipated costs of the first repository. When the final version is published, DOE must spell out in detail the way in which all costs for the first and second repository were estimated.

CHAPTER 3: POTENTIAL FINANCIAL, POLITICAL, LEGAL, AND INSTITUTIONAL PROBLEMS

Comment #83, Page 3-1 and following.

Potential for Scientific Conflict. Not included among the factors which may impede development of the repository is the not-unlikely possibility of scientific conflict. Differing interpretations of scientific data will arise, and the DOE has not discussed its process for scientific peer review at all stages of development nor its plans for resolving scientific conflict and dispute.

Comment #84, Page 3-2, Para. 2.

Recommend Legislative Changes. The NWPA directs the DOE to include in this section of the Mission Plan "recommendations for any necessary legislation to resolve such problems [that may impede the implementation of this act]." The Mission Plan states "the Department does not recommend legislative changes at this time." What is the basis for the Department's decision not to recommend legislative changes at this time? Were no areas identified where legislative changes were required to resolve problems? Does DOE plan to recommend any legislative changes in the final version of the Mission Plan to be presented to Congress in August, 1984?

Comment #85, Page 3-2, Para. 8.

Termination of Written Agreements. Regarding consultation and cooperation agreements, the Mission Plan states that "A State or Indian tribe could decide to terminate the written agreement for a number of reasons." Has DOE identified any conditions under which the Department would seek to terminate a written agreement?

Comment #86, Page 3-3, Section 3.1.2.

Written Agreements Prior to Initiation of Field Studies. The DOE should assure that agreements are in place before field studies begin in states or tribal nations which desire agreements. The DOE's stated plans for resolving potential conflicts during agreement negotiations do not convey a real commitment to addressing the conflicts in a meaningful, expeditious way. Moreover, the DOE's intent to "...continue to fulfill both its responsibilities to site and construct a repository on schedule..." if an agreement is not achieved appears both heavy handed and confrontational, which most likely will adversely impact the respository siting schedule. A much greater and positive commitment to reaching agreements and hurdling obstacles must be conveyed in the Mission Plan. A method of conflict resolution (e.g., submission to a mutually-designated arbitrator) should be delinated prior to the DOE's having to submit to Congress the reasons why an agreement cannot be reached pursuant to Section 117. Every possible effort must be identified and expended to assure a constructive consultation and cooperation process which is acceptable to states and tribes.

Comment #87, Page 3-3, Para. 4.

Written Agreements Prior to Identification of Potentially Acceptable Sites. The Mission Plan states "the Department will express a continued willingness to negotiate a formal agreement at any time the State or tribe may determine that it is advantageous to have one." This statement does not accurately describe DOE's position to date in its negotiations with the State of Wisconsin. DOE's current policy is to negotiate formal agreements only after official notification of potentially acceptable sites.

Comment #88, Page 3-3, Para. 8.

Informal Consultation and Cooperation. In the event that a "written agreement cannot be achieved in a timely manner," the Mission Plan states that DOE will "encourage a thorough and effective informal process of consultation and cooperation." Has DOE developed any written guidelines for implementing such an informal process of consultation and cooperation?

Comment #89, Page 3-4, Para. 2.

Financial Assistance to States. The Mission Plan states that increases in the amount of financial assistance to states "may have financial implications." What are these financial implications? What is the amount of financial assistance granted to each potential repository host state since enactment of the NWPA? What share of the total program expenditures to date has been devoted to financial assistance to support state participation? What percentage of future funds will be devoted to state financial assistance? Please note that these questions cannot be answered on the basis of the information in Chapter 10. Also note that the State of Wisconsin requested the above fiscal information in our comments on the December draft of Volume I.

Comment #90, Page 3-4, Para. 3.

State Coordinating Councils. The Plan states that "to ensure smooth transfers of information, the Department will encourage the creation of State coordinating councils to interact with the Department and other agencies involved in the geologic-repository program." Exactly how will the DOE encourage the creation of State coordinating councils? State coordinating councils will require either state legislation or a Governor's executive order. The Plan could shed additional light on DOE's intentions in this area by reviewing the history of DOE relations with those states, such as Mississippi and Wisconsin, which have formally designated official bodies to interact with the DOE program.

Comment #91, Page 3-4, Para. 3.

Funding of Interstate Groups. The Plan states that "the Department may fund interstate groups, such as the National Governors' Association, National Conference of State Legislatures, the Council of Energy Resource Tribes, National Council of American Indians, to conduct such seminars [to explain the program and its implementation]." What grants has DOE made to such groups in the past? What grants is DOE currently making available to such groups? How much funding does DOE plan to make available for such groups during the next five fiscal years?

Comment #92, Page 3-4, Para. 4.

Multi-Year Grants. The Plan correctly acknowledges the value of multi-year grants in developing the State of New Mexico's expertise through the Environmental Evaluation Group formed to review the activities of the Waste Isolation Pilot Plant. Indeed, there are several other instances in this section, regarding consultation and cooperation agreements, and socioeconomic impact mitigation, where the Plan might refer to other provisions of the original court stipulated agreement and supplemental agreement between DOE and the State of New Mexico.

Comment #93, Page 3-5, Para. 1-4.

Site Acquisition. The Plan's listing of potential issues and problems with regard to acquiring access to, or control of, land, should be expanded to address two additional problems, those of obtaining title to Indian tribal lands (including reservation lands, non-reservation lands, and tribal rights to use public lands) and to the problem of obtaining severed mineral rights.

Comment #94, Page 3-5, Para. 5.

Ownership Considerations in Site Screening. Resolution of problems regarding access to, and control of, land should begin by addressing site ownership during the site screening process. In comments filed on DOE's proposed siting guidelines, the State of Wisconsin has repeatedly pointed out the problems that will result if DOE considers for repository development certain

categories of lands, such as Indian tribal lands, state-protected lands, and lands with severed mineral rights. We believe that the best way to avoid such problems is to disqualify sites which cannot reasonably be obtained through voluntary purchase, interagency transfer, or condemnation.

Comment #95, Page 3-5, Para. 5.

Role of U.S. Army Corps of Engineers. The Plan states "the Department will work in close cooperation with the U.S. Army Corps of Engineers" during land negotiations. What exactly is the nature of the relationship between DOE and the Corps of Engineers in this area? Are there any formal interagency agreements between DOE and the Corps of Engineers regarding land acquisition?

Comment #96, Page 3-6, Para. 4.

State Permits. The plan for resolving disputes with state authorities over permit requirements should state that DOE will attempt to facilitate the permitting process through early consultation with state authorities, and by making sure that permit applications are complete when filed.

Comment #97, Pages 3-6 to 3-7.

Appropriate State Regulation. The Plan's tone in discussing conflicts with state laws which in the DOE's opinion constitute "imposition of extensive substantive or procedural requirements that prevent the Department from fulfilling its responsibilities under the act in a timely manner" borders on slander. DOE should name the two states which are alleged to "have enacted legislation that in part either attempts to direct regulation of or otherwise adversely affects the geologic-repository program" if the Department truly feels that such "regulatory attempts may be impermissable under the Constitution." The Mission Plan is the appropriate place for DOE to explain in detail what it considers to be appropriate state regulation, as well as inappropriate state regulation.

Comment #98, Page 3-8, Para. 2-3.

Public Opposition to Repository Siting. The discussion of public opinion regarding high-level radioactive waste transportation and disposal suggests that DOE fails to recognize the magnitude of public opposition to its proposals. During the 1980 Waste Confidence Proceeding (NRC docket no. PR 50-51), Dr. John Kelly testified on behalf of the State of Wisconsin that a public opinion survey conducted in Wisconsin showed that an overwhelming 93% of the sample believe that the nuclear waste problem has not been solved. A 1979 survey by the Wisconsin Survey Research Laboratory found that nearly 90% of Wisconsin residents disapprove of long-term storage of high-level radioactive waste in Wisconsin. In a statewide referendum in April of 1983, the citizens of Wisconsin again expressed their opposition to becoming a repository host state by a seven-to-one margin.

Given the intensity of public opposition in Wisconsin, DOE's plan for "resolving" these "impediments" to implementation of its program by launching aggressive public information campaigns seems both inadequate and presumptuous. It should be obvious that DOE cannot explain away the public fears with respect to the risks associated with radioactive waste. Dr. Kelly's 1980 survey findings demonstrate that people in Wisconsin have little confidence in the federal government as an information source about radioactive waste issues. Only 6% of those polled consider the federal government to be the most reliable source of information about nuclear waste.

The survey also showed that most people in Wisconsin do not believe that the federal government is concerned with what local citizens think about having a waste repository in their community. If DOE truly hopes to resolve or dissolve public opposition to its programs, there will have to be opportunities for meaningful participation in the decision process. DOE must plan not only to inform the public, but also to listen and respond (with something more than an informational campaign) to concerns expressed by the public.

Comment #99, Page 3-8, Para. 3.

Local Support for Repository Siting. The statement that "Federal and State elected officials will be subjected to considerable pressure from constituents to oppose the location of a repository in their State or district" should also acknowledge that, in some states (Utah and Washington, for example) some local residents desire the location of a respository in their communities, and are pressuring their Federal and State elected officials in support of location of a repository.

Comment #100, Page 3-8, Para. 4.

Technical Objectivity of DOE Publications. DOE's plan for resolution of public apprehension includes development of "an extensive public information program" which will "provide this information in a balanced manner." To date, most DOE publications aimed at the general public have not been balanced in their presentation of issues in which technical controversies exist.

Comment #101, Page 3-9, Para. 2.

DOE's Public Information Plan. The Plan states that DOE project offices will continue to conduct public information activities "[u]ntil a program-wide public information plan is completed." When will DOE's public information plan be completed? What provision has DOE made to seek state and public input which would assist in the development of a technically objective public information plan? What provisions have been made for scientific peer review of information material?

Comment #102, Page 3-10, Para. 3.

State Coordinating Councils. In order to reduce the potential for conflicts between a state's executive and legislative branches, DOE intends to "strongly encourage each state to establish one focal point, such as a State

coordinating council for all interactions." How, in DOE's opinion, have state coordinating councils in specific states such as Mississippi and Wisconsin served this function?

Comment #103, Page 3-11, Para. 2.

Technical Objectivity of DOE Siting Program. Regarding efforts to prevent potential state or tribal disapproval, the Plan states that DOE "will make every effort to conduct site evaluation and selection in such a manner as to give no cause for affected states, Indian tribes, the President, or the Congress to disapprove the site it selects. The first component of this effort is to conduct site-evaluation activities in a technically thorough and rigorous manner, thereby allowing selection decisions to have a sound and defensible basis." Unfortunately, DOE has not conducted itself in such a manner to date, and questions about the technical objectivity of DOE's site selection process and program documents have become a major concern for the states. A case in point is the repeated efforts by the State of Wisconsin to point out serious technical deficiencies in the Department's program documents and proposed rules. The State of Wisconsin has repeatedly filed highly specific technical comments on documents such as the programmatic environmental impact statement (DOE/EIS-0046F), DOE's proposed national plan for siting repositories (DOE/NWTS-4, DOE-EA-151), DOE's Framework for Community Planning (ONWI-254), the proposed siting guidelines, the proposed screening methodology document and, most recently, the December draft of this Mission Plan, only to find that no response to the comments was made, or where a response was made, the response was either irrelevant, contradictory, or unsubstantiated with any documentation. The only way in which DOE can expect to convince states and tribes that the program is technically thorough and rigorous is to begin to provide the kind of substantive responses that the states expect. These comments on this draft of the Mission Plan provide DOE with a fine opportunity to show that it is, indeed, committed to a technically credible process.

Comment #104, Page 3-12, Para. 5.

Transportation Issues. To the list of issues that the Department expects to arise regarding transportation should be added the following: adequacy of current regulatory standards and test procedures for shipping casks; adequacy of transportation risk assessment methods and models employed by DOE and its contractors; and the Department's continuing assumption that the choice of transportation mode for HLW shipments to particular sites is not constrained by DOE/EIS-0046F and the supporting documentation in DOE/ET-0028, Vol. IV.

Comment #105, Pages 3-12 to 3-13.

Resolution of State Transportation Concerns. Regarding plans for resolution of transportation concerns, DOE "intends to provide ample opportunity for the states to identify issues of concern." However, the Plan does not spell out the mechanisms for one-on-one interaction between DOE and particular states, but states that the Department will "work through existing interstate organizations and supports the formation of new Federal and State coordinating

bodies through which states can express transportation-related concerns related to the repository program." This commitment is inadequate. DOE must publicly affirm its commitment to deal individually with the states regarding transportation concerns.

Comment #106, Pages 3-12 to 3-13.

Federal Regulation of Transportation. After acknowledging that institutional problems "may arise from the complexity of coordinating all the Federal, State and local agencies 'concerned with transportation,'" the Plan fails to suggest any legislative remedy for clarifying the existing federal regulatory divisions between DOE, DOT and NRC. The statement that DOE "will coordinate with the Department of Transportation and other Federal agencies" is meaningless.

Comment #107, Page 3-14, Para. 5.

Interpretation of Congressional Intent. The discussion of implementation problems which may arise out of disagreements over interpretation of congressional intent is pablum. The discussion does not reference a single specific conflict, such as the State of Wisconsin's contention that the Seiberling-Udall colloquy demonstrates congressional intent to protect national park and national forest lands from repository development. This section of the Plan should identify all of the specific conflicts over congressional intent which have arisen to date.

Comment #108, Page 3-16, Para. 3.

FInancing. Regarding plans to resolve concerns about financial uncertainty and adequacy of funds, the Plan references the discussion of costs in Chapter 10, which DOE admits is no longer relevant to the current program schedule.

Comment #109, Page 3-16, Para. 5.

Program Cost Control. The Plan states that DOE "will control program costs, while meeting program goals and addressing the concerns of affected states, Indian tribes, and the public." How does the Department propose to control program costs for tasks carried out by contractors and subcontractors, which constitute the largest portion of the program budget?

CHAPTER 5: SIGNIFICANT RESULTS AND IMPLICATIONS OF RESEARCH AND DEVELOPMENT PROGRAMS

Comment #110, Page 5-53 to 5-57.

Results of Research in Other Rock Types. The Mission Plan asserts that the results of current research at the Nevada Test Site (Climax Stock), the Stripa Mine (Sweden), and the Colorado School of Mines Experimental Mine "[c]learly...will be more directly transferable to the second repository program, which is exploring for sites in granite or other so-called crystalline rocks," than to the first repository program. How much more

transferable is not clear from this discussion, and certainly there is no indication that the results of these studies comprise an adequate data base for the development of repository, waste form, and waste package conceptual designs for crystalline rock sites in the three regions currently under investigation in the United States.

There are three basic problems with this section of the mission plan. First, the three research efforts are discussed too briefly to draw any meaningful conclusions. Second, there is no discussion of the extent to which the results of the three study efforts, individually and collectively, are or are not directly transferable to the crystalline rocks under consideration in the second repository program. Third, there is no discussion of geotechnical information needs specific to crystalline rocks, no systematic identification of outstanding geotechnical questions which cannot be answered by the three work efforts referenced here, and perhaps most importantly, there is no meaningful discussion of the additional research necessary to resolve the outstanding technical questions, let alone a schedule for development of such data.

If pages 5-53 to 5-57 constitute everything that DOE has to say about "the signficant results of research and development programs" for the second repository, then technology development for the second respository is clearly not adequate to support the current site selection process, and there is little likelihood that the second repository will be sited, licensed, and constructed according to the schedule on page 3-A-44 or Volume I.

CHAPTER 7: SITE CHARACTERIZATION

Comment #111, Pages 7-1 to 7-19.

Site Charactierization in Crystalline Rock. This chapter contains absolutely no discussion of the site characterization activities which DOE expects to conduct at crystalline rock sites, nor is there any discussion of the feasibility and impacts of constructing exploratory shafts in crystalline rock. This omission is wholly inexcusable since DOE plans to identify crystalline sites which are potentially acceptable for repository development by the end of 1985, and begin construction of exploratory shafts in early 1990. Moreover, the proposed siting guidelines require early identification and disqualification of sites where exploratory shaft construction and/or site characterization activities would cause unacceptable adverse environmental impacts [960.5-2-5(d)(1)], or require engineering measures beyond reasonably available technology [960.5-2-10(d) and 960.5-2-11(d)]. DOE must therefore present at least preliminary plans for exploratory shaft construction and site characterization in crystalline rock before proceeding to identify potentially acceptable sites.

CHAPTER 8: WASTE SOLIDIFICATION AND PACKAGING

Comment #112, Pages 8-1 to 8-6.

Waste Solification and Packaging. This chapter is simply too brief and too general to meet the requirements of Section 301(a)(8) of the NWPA. There is not an adequate discussion of the technical options available for spent fuel packaging, HLW solidification, and choice of canister materials. Given the high probability that defense wastes will be disposed of in civilian repositories, a much more detailed analysis of defense waste forms and packages is necessary.

Comment #113, page 8-3, Para. 3.

Selection of Borosilicate Glass. No justification for the selection of borosilicate glass over other materials is provided, except for the assertion that data "developed in work with defense waste indicate that borosilicate glass is the leading candidate waste form for existing commercial high-level waste." At the very least, this section should compare the performance of borosilicate glass with high-temperature, high-silica glass; glass-ceramics; calcine-ceramics; and synthetic rock. Composite waste forms should also be evaluated.

Comment #114, Page 8-3, Para. 4.

Integrity of Borosilicate Glass. No documentation whatsoever is presented to support the assertions that borosilicate glass will "maintain the integrity of the waste form for the containment period (300 to 1,000 years)," "withstand the stresses of repository emplacement and retrieval during a specified retrieval period" (presumably 50 years, as stated on page 3-A-23 of Vol. I), or be "compatible with a full range of geologic conditions expected in a repository." Known problems with borosilicate glass, such as fracturing of the waste form, are not discussed, while other concerns, such as leaching in heated water or brine, are summarily dismissed.

Comment #115, Page 8-4, Para. 7.

Copper and Copper-Alloy Canisters. No reference is made to Swedish research on copper canisters, or the recent decision by the Swedish Government to employ copper canisters in a crystalline rock repository. This is surprising given DOE's discussion of Swedish research on rock-mass permeability, in-situ stress, thermally induced stress, etc., at the Stripa Mine. Why has DOE chosen not to discuss the Swedish decision in KBS-3 to proceed with copper canisters?

CHAPTER 9: WASTE-GENERATION RATES, REQUIREMENTS FOR DISPOSAL CAPACITY, AND REPOSITORY SCHEDULES

Comment #116, Page 9-1, Para. 3-4.

Basis of Waste Generation Estimates. Use of EIA's 1983 mid-growth projection of 130 gigawatts installed nuclear capacity by the year 2000, and

230 gigawatts by 2020, greatly overstates the total quantity (134,000 metric tons of uranium [MTU]) of spent fuel which is likely to be discharged from nuclear power reactors, by 2020.

Comment #117, Page 9-2, Para. 3-4.

Basis of Waste Generation Estimates. The Mission Plan refers to EIA's low-growth nuclear scenario, resulting in an installed nuclear capacity of 145 gigawatts by the year 2020, producing a total spent fuel inventory of 109,000 MTU by that date. EIA's low-growth scenario should be considered an upper bound on expected nuclear capacity to be installed over the next 30 years. The latest information (January 1, 1984) provided by the Atomic Industrial Forum, Inc., shows 86 reactors (70 gigawatts) currently with operating licenses, and an additional 54 reactors (60 gigawatts) under construction or on order. Four planned reactors (Zimmer, River Bend 2, and Marble Hill 1 and 2) were cancelled between January and March, 1984, and at least another 6-10 reactors are likely to be cancelled. Total installed nuclear capacity in the year 2000 will probably be between 100 and 115 gigawatts, and there is no reason to assume that additional light water reactors will be constructed after 2000.

Comment #118, Page 9-2, Para. 2.

Need for Two Repositories. The Mission Plan states that, based on an anticipated spent fuel inventory of 134,000 MTU by year 2020, "only two repositories need be considered at present." It is possible, however, that even the inventory anticipated under EIA's mid-growth scenario could be accommodated in just one repository. The Mission Plan emphasizes only the NWPA's quantitative restriction on emplacement of waste in the first repository prior to operation of the second repository. In fact, there is no technical reason why a larger quantity of spent fuel could not be emplaced in the first repository.

DOE's Programmatic Environmental Impact Statement found that a conceptual spent fuel repository, depending upon host media, could hold up to 122,000 MTU, and that a reference repository for reprocessing waste, could accommodate more than 150,000 MTU (DOE/EIS-0046F, Vol. I, pp. 5.35, 5.41). Furthermore, the repository capacities calculated in DOE/EIS-0046F assumed thermal load limits resulting from emplacement of 6.5-year-old fuel in the repository. If we assume that 10-year-old fuel will be emplaced, as the Mission Plan states on page 3-C-5 (Volume I), then repository capacities could be substantially increased. Additionally, quantity of spent fuel and the thermal loading from emplaced canisters, whether reprocessed or not, could be reduced by other measures, such as extended burn-up rates, or interim storage, perhaps in an MRS, which would further increase the capacity of a repository. The Mission Plan must explain that there is no technical reason why the wastes anticipated under EIA's mid-growth nuclear scenario could not be accommodated in a single repository.

Comment #119, Page 9-2, Para. 4.

Need for Two Repositories. The Mission Plan states that installed nuclear capacity of 145 gigawatts in the year 2020 would produce a total spent fuel inventory of approximately 109,000 MTU, and concludes "even with a 37 percent reduction of the mid-growth projection for nuclear generating capacity by 2020, two repositories remain necessary." This statement is true only from a legal standpoint, recognizing the constraints contained in the NWPA. As noted above in Comment 3, there is no technical reason why the anticipated low-growth nuclear scenario spent fuel inventory could not be accommodated in a single repository.

Comment #120, Page 9-4, Para. 4.

Defense Waste Quantity Projections. The Mission Plan states that approximately 20,000 packages (about 10,000 MTU) of defense high-level waste will be available for disposal by the year 2020. What is the source of this projection? What are the assumptions upon which the projection is based? What is the confidence level associated with the 10,000 MTU figure? What is the maximum amount of defense high-level waste that might require disposal by the year 2020?

Comment #121, Page 9-4, Para. 6.

Repository Capacity. The Mission Plan states "the 70,000 MTU limit is not a minimum or maximum capacity requirement." The Mission Plan should note that repository capacity is a function of the age and radionuclide population of the spent fuel emplaced, and the thermal loading capability of the host rock, and that repository capacities of 140,000 MTU or greater are technically possible in the five host media currently under consideration for geologic disposal.

CHAPTER 10: COST OF MANAGING COMMERCIAL RADIOACTIVE WASTE

Comment #122, Pages 10-1 to 10-19.

Cost Control and Impact on Costs of Electricity. We strongly support any effort at cost control in this program, including annual audits by the General Accounting Office and an external auditor. We have seen little attention paid to this area to date and suspect that if more cost control is not applied, the disposal program could turn into a very expensive proposition. Although not required by the Nuclear Waste Policy Act of 1982, it would be desirable for this section to include a short section or table on the impact of the costs on the cost of producing electrical energy.

Comment #123, Page 10-1, Para. 4.

Lack of Updated Costs Estimates. DOE has been unable to complete an updated cost estimate consistent with the current program strategy for this draft of the Mission Plan. The Plan states "Updated cost estimates will be presented

in the final version of the Mission Plan." This is an unacceptable way of approaching the cost question. It means that DOE's final cost estimates will be published without the benefit of full review and comment by federal agencies, state officials, utility and other industry technical experts, as well as the general public.

Concurrent #124, Page 10-4, Para. 1-4.

Assumptions Underlying Cost Estimates. The cost estimates in Tables 10-1 to 10-3 indicate a cumulative cost for all development and evaluation activities estimated to be approximately $7.4 billion (1983 dollars). The Mission Plan states "It should be noted that the cost estimates are based on assumptions that are subject to change." What are these assumptions? The most important assumptions must be spelled out, as well as the range of values assumed. In particular, assumptions about the future rate of inflation must be spelled out. A sensitivity analysis should be performed to show the impact of each of the major variables on the total cumulative cost.

Comment #125, Page 10-4, Para. 2-3.

Cost of Site Characterization. In estimating costs of site characterization, the plan assumes that for the first repository, one site each in salt, basalt, and tuff will be selected for characterization, and for the second repository assumes that only one crystalline rock site and one additional salt site will be characterized. What are the specific cost items for characterizing each site in each geologic media? How were the comparative costs for characterization in each host rock type calculated? What would be the estimated cost of characterizing three candidate sites in crystalline rock?

Comment #126, Page 10-4, Para. 3.

Cost of At-Reactor Storage. How are the costs of at-reactor storage after the DOE has accepted title to the spent fuel and prior to shipment to the repository site accounted for in the current estimations?

Comment #127, Page 10-11, Para. 7.

Cost of Repository in Crystalline Rock. The Mission Plan states that the cost estimates for host rocks "where conceptual designs are not complete (e.g., tuff and granite)" were estimated using "parametric relations from other host rocks." This is an inadequate explanation. A detailed explanation and justification of the comparative cost estimates must be provided.

Comment #128, Page 10-11, Para. 8.

Degree of Uncertainty in Cost Estimates. Referring to Table 10-6, the Plan states, "While these estimates show some differences among media, they are insignificant in light of overall uncertainty in the estimates." The cost difference between a repository in granite and a repository in the basalt is more than 40 percent. If a 40 percent difference is insignificant compared to the overall uncertainty, then the overall uncertainty must be great. What numerical value has DOE established for the degree of uncertainty in these cost estimates?

Comment #129, Page 10-15.

Cost Estimates for Range of Repository Capacities. The Plan notes that "70,000 MTU is a statutory limit on the amount of waste that can be emplaced in the first repository before the second respository begins operations. It is neither the maximum nor the minimum capacity and could change for several reasons: site limitations, a presidential decision to include defense waste in the repository, or a change in the predicted inventory of spent fuel discharge by the year 2020." Given these uncertainties about the size of a repository, cost estimates for a range of repository capacities should be developed for each of the various host rocks under consideration. Costs for repositories with capacities of 100,000, 120,000 and 150,000 MTU in each of the five host rocks should be calculated.

Comment #130, Page 10-16, Para. 3.

Transportation Cost Methodology. The general methodology for calculation of unit transportation costs is referenced to Engel and White (1982). Since this document is probably not readily available to the majority of people reviewing the report, at least a brief summary of the cost methodology should be included in the text. The cost and capacity assumptions for shipping casks are appropriate, based on the cost and capacity of current transportation equipment.

Comment #131, Page 10-16, Para. 4.

Basis of Comparative Transportation Costs. How were the one-way hauling distance mileage estimates to each of two repositories calculated? How does the 1,800 miles average hauling distance for the repository in granite reflect the fact that granite formations in three different regions of the United States are currently under consideration?

CHAPTER 11: SOCIOECONOMIC IMPACTS

Comment #132, Pages 11-1 to 11-6.

Socioeconomic Impacts. Environmental and public health concerns among the local population are not acknowledged. More discussion is needed of the statewide impacts, such as costs of developing and/or implementing regulatory programs or emergency response capabilities. Although the Nuclear Waste Policy Act does not specifically call for it, an outline of DOE's preliminary plans to deal with these projected socioeconomic impacts is conspicuously absent.

Comment #133, Page 11-1, Para. 4.

Demographic Impacts. The list of demographic impacts of repository construction and operation must be expanded to include out-migration by local residents opposed to repository siting. The State of Wisconsin has previously documented the likelihood that a majority (53 percent) of the residents of a host community might abandon their community in the event that a repository is located there.

Comment #134, Page 11-2, Para. 6.

Limited Local Employment Benefits. The Mission Plan correctly recognizes that current local residents may receive only limited employment benefits as a result of repository construction and operation. The Mission Plan should give greater detail on the Department's plans to "emphasize local job training and retraining."

Comment #135, Page 11-3, Para. 2.

Potential for Local Wage Inflation. To the extent that large numbers of local workers are employed at the repository, and to the extent that the repository is "likely to pay its workers high wages," there is considerable potential for local wage inflation. Such local wage inflation could adversely affect existing businesses in the area, and could discourage the establishment of new plants or other facilities.

Comment #136, Page 11-3, Para. 3.

Adverse Impacts on Tourism and Agriculture. The Mission Plan correctly notes that "if the repository is viewed with apprehension, some visitors may stop patronizing local recreation facilities and tourist oriented establishments." The Plan should also recognize that other types of local economic activity may also be adversely affected by repository location, such as agriculture and development of retirement communities. Wisconsin is particularly concerned about impacts on areas well-known for dairying. Methods of assuring consumers that dairy products originating from an area near a repository are safe to eat or drink should be explored.

Comment #137, Page 11-3, Para. 5.

Adverse Impacts on Property Values. The Plan should acknowledge that repository land requirements and controls will not only change the use of some public and private lands, but could adversely affect the value of private lands near the repository site. In particular, agricultural lands, or lands used for recreation activities, could see a significant decline in value. Moreover, in the event of large scale local opposition to repository siting, out-migration could cause residential real estate values to decline substantially in the period prior to the arrival of construction force in-migrants.

Comment #138, Page 11-3.

Mitigation Payments and Local Acceptance. DOE repeatedly touts the availability of mitigation assistance to ameliorate negative effects of repository construction and operation. However, Dr. Kelly's survey of potential host communities in Wisconsin shows that the promise of mitigation payments is a relatively unimportant factor in the local decision to accept or reject a waste repository.

Comment #139, Page 11-3, Para. 7.

Equity in Mitigation Plans. The Plan correctly notes that "economic impacts may be unevenly distributed" among community members as well as among impacted communities. How will DOE's mitigation plans address such equity issues?

Comment #140, Page 11-4.

Health Care Facilities for Repository Workforce. The discussion of required community services must specifically address the health care needs of repository workers. DOE/EIS-0046F states that a large number of serious and disabling injuries are expected to occur among the repository construction workforce. Construction of a 100,000 MTHM capacity spent fuel repository in granite might result in 1200 disabling injuries. "These losses need to be recognized as perhaps the largest impact associated with the routine management of radioactive wastes..." [DOE/EIS-0046F, Vol. I, pp. 5.57-5.58] Special facilities may be required to provide medical services, retraining and vocational counseling, and mental health services.

Comment #141, Pages 11-4 to 11-5.

Social Impacts. This section should contain significantly more detail. For instance, what specific "changes in quality of life" are contemplated? Effects on human health and the environment were ranked as the top two concerns by those polled in Dr. Kelly's survey of Wisconsin communities. Where and how does DOE plan to address these concerns? The potential for psychological stress as a result of living near the repository, or near transportation routes to the repository, should be of evaluated. The psychological impacts of repository security requirements during the operations period should be examined, particularly if the repository is the only large-scale industrial facility in a rural area. Finally, the cultural impact of large-scale out-migration should be addressed here, as well as as in the section on demographic impacts.

Comment #142, Pages 11-5 to 11-6.

Local Fiscal Impacts. The Plan correctly notes that fiscal difficulties may occur at the community level since "the community that incurs increased costs may not receive the increased revenues." How does DOE plan to mitigate this problem? Similarly, DOE must present a mitigation plan which will address the lag-time problem, that is, the immediate demands for new services where the revenue necessary to provide those services will not be available until a later date. Because of local government reliance on property taxes, the net effect could be to require the existing residents to pay increased property taxes to provide services for the newcomers. The irony of this situation will not be lost on those local taxpayers who oppose the repository.

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