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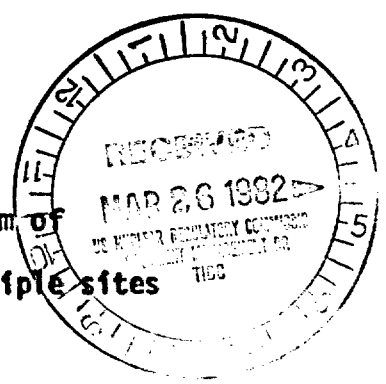
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MEMORANDUM FOR: John G. Davis, Director
Office of Nuclear Material
Safety and Safeguards

FROM: John B. Martin, Director
Division of Waste Management

SUBJECT: INFORMATION ON HIGH-LEVEL WASTE LICENSING

Attached are the fact sheets in response to your memorandum of
March 19, 1982 requesting the need for characterizing multiple sites
and information on TA/RES for HLW.



ORIGINAL SIGNED BY

John B. Martin, Director
Division of Waste Management

Enclosures: As stated

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NMSS BACKGROUND HLW

TOPIC: Need for Characterization Multiple Sites

DISCUSSION: Technical Need for Characterizing Multiple Sites

- 1) Characterizing multiple sites is the fastest way to qualify one site.
- 2) It also assures there are alternative s available in case fatal flaws are found with the lead site. The stakes are too high not to have some backups. There are known potential problems with each site DOE is looking at so there is the real possibility in each case that a site will fail.
- 3) It is needed to obtain the confidence of the public and technical community that the job of selecting sites and developing a repository is being done right. Without this, the overwhelming attitude would be one of suspicion and it would be nearly impossible to complete the licensing process in such an environment.
- 4) Without a backup, there would be enormous pressure on NRC if it were raising serious questions about safety of a site. Rigorous review of safety questions could be inhibited.
- 5) There are inherent uncertainties in characterizing sites and almost any site investigated will suffer from some flaw or questions which are difficult to resolve. It is important that there be knowledge of alternate sites to avoid a situation where such uncertainties and questions have to be dealt with in absolute terms. The process of deciding site suitability will be an interminable process without the ability to evaluate it in terms of the uncertainties and questions which have been characterized.
- 6) Multiple sites characterization is needed to avoid a State feeling it is being arbitrarily selected to host the repository without due consideration given to alternatives. Under such conditions, it would be virtually impossible to have a State cooperate in examining sites within its borders, much less accede to the repository itself.

NMSS BACKGROUND HLW

TOPIC: Need for Characterization Multiple Sites

DISCUSSION: Legal Need for Characterizing Multiple Sites

The basis used for promulgating the requirement for multiple sites in 10CFR60 (Procedural Rule) was NEPA. The Commission stated it was the only effective way to do the comparative evaluation required by NEPA.

It is also possible that such a requirement could be based upon the Atomic Energy Act for reasons discussed above but this was not the stated basis for the requirement in our regulations. (See the attached excerpts from 10CFR60).

Some of the commenters raised issues that will be covered in the technical criteria; those will be dealt with in connection with the ongoing rulemaking for those criteria.

a. *Site Characterization.* Comments on site characterization straddled the Commission position set forth in the proposed rule. Some commenters agreed with the requirement for multiple site characterization as presented in the proposed rule. Some commenters expressed the opinion that multiple site characterization was not required for the Commission to fulfill its NEPA obligation to consider alternatives. The Commission has carefully reviewed arguments presented by the commenters who stated that multiple site characterization is not necessary. The Commission continues to believe that required multiple site characterization provides the only effective means by which it can make a comparative evaluation as a basis for arriving at a reasoned decision under NEPA. Other commenters believed that the requirements for multiple site characterization were not stringent enough, and suggested that the rule specify the number of geologic media and sites to be characterized by the DOE. The Commission continues to believe that characterization of several sites will prevent a premature commitment by DOE to a particular site, and will assure that DOE's preferred site will be chosen from a slate of candidate sites that are among the best that can reasonably be found. The Commission considers three sites in two geologic media, at least one of which is not salt, to be the minimum number needed to satisfy NEPA. That is, the Commission can foresee no circumstance that would permit it to conclude, on the basis of a more limited investigation, that alternatives have been considered in accordance with the "rule of reason."

Another commenter raised the issue that in addition to the need to consider alternatives under the provisions of NEPA, the need for characterizing several sites in a variety of media is also justified by NRC's obligation under the Atomic Energy Act to protect public health and safety. The Commission recognizes that, under the provisions of the Atomic Energy Act, a consideration of alternatives might indeed be appropriate, where necessary or desirable to protect health. (Section 161g.) The Commission cannot say at this point that an examination of alternatives would be essential for this purpose. The Commission anticipates that its fundamental licensing inquiry in the context of evaluating radiological safety issues will be directed to determining whether the activities proposed by the DOE can be carried out in a manner consistent with generally applicable environmental standards established by the Environmental Protection Agency.

WM Fact Sheets

TOPIC: Need for Characterization on Multiple Sites

DISCUSSION: NRC Cost Estimates for Each Site Characterization

We estimate that costs of characterizing each site sufficient to make a finding of site suitability will range from \$100 million to \$200 million. This includes both surface and subsurface testing. It includes costs for planning, designing, constructing, and operating facilities. This is a very rough estimate based upon current DOE rates of expenditure and the assumption that site characterization operations will take about 5 years. The actual cost of site characterization is highly site specific, and depends upon such things as how much is already known about a site, the extent of surface investigations, how much underground testing is needed and the degree to which problems are encountered during characterization.

WM Fact Sheets

TOPIC: TA/RES for HLW

DISCUSSION: Purposes of Technical Assistance and Research Activities

The purpose of the contract activities of DOE, NRC RES and NRC DWM are fundamentally different.

- 1) DOE Contracts and Activities - These are aimed at obtaining basic data about sites and developing new technologies required for the construction and design of the high-level waste repository.
- 2) NRC DWM Contracts and Activities - These are aimed at reviewing DOE activities to assure that they are considering and focusing on the important technical issues and yielding data that is complete and of adequate quality for licensing. DWM projects are also aimed at defining specific technical information needs well in advance of licensing to avoid any delays in the process.
- 3) NRC Research - These projects are aimed at understanding the basic physical and chemical phenomena which are unique to geologic disposal of high-level waste and the limitations and uncertainties associated with methods of data collection. These projects consist primarily of laboratory and field studies that will allow NRC to independently review the data and designs submitted by DOE as part of its license application.

WM Fact Sheets

TOPICS: TA/RES for HLW

DISCUSSION: HLW Funding Levels:

NRC+	(Dollars in Thousands)		
	<u>FY81</u>	<u>FY82</u>	<u>FY83</u>
Division of WM	6146	7873	6730
Office of RES	5177	5470	6100
Total NRC	11,323	13,333	12,830
Dept. of Energy+ Commercial Waste			
Terminal Isolation	173,276	206,241	261,566
Waste Treatment and Storage	-	300	12,000
	173,276	206,241	273,566
Total NRC/DOE	184,599	219,874	286,396
% NRC	6.1%	6.1%	4.5%

+ NRC Budget Information from HLW Program Control Document

++ DOE Budget Data from DOE submittal to OMB of September 15, 1981

WM Fact Sheets

TOPIC: TA/RES for HLW

DISCUSSION: Efficiencies that WM has Accomplished by Tight Management

1. Reduction of Uncosted Obligations

A goal of the Division of Waste Management is to reduce year-end uncosted obligations to approximately 25 percent of the funds to be costed in the following fiscal year. The 25 percent level was chosen to carry the continuing contract through the first quarter of the new fiscal year to allow for the late passage of the appropriations bill.

This process was started with a significant reduction to the FY83 budget request, and will be continued for FY84.

SEE ATTACHED
FOR DETAILS **

2. Use of DOE R&D:

The DOE program for repository development includes plans for at-depth testing at at least 3 sites, and a Test and Evaluation Facility for in-situ testing.

DOE research and development which will be conducted at depth in these exploratory shafts and the T&E facility can provide data and information that would otherwise have to be funded independently by the NRC. It is NMSS's intention to provide recommendations of needed research to DOE and to utilize their results where appropriate.

This cooperative research effort is also being adopted in the areas of: waste form and packaging; repository siting; and repository design. To this end DWM last year signed a memorandum of understanding with DOE that "...permits the Agencies to coordinate their commercial high-level waste program without compromising the Commission's ability to independently license and regulate future commercial high-level waste storage and/or disposal facilities of the Department". As part of this agreement it is intended to establish a procedure for exchange of "Requests for Proposals" to further coordinate research efforts and reduce separate resource requirements. NRC will still however, sponsor research which may duplicate DOE activities where it is deemed prudent to have independent verification, e.g., in overall performance assessment modeling.

3. Better Focus of R&D

The publication of the HLW 10 CFR 60 final Procedural Rule on February 25, 1981 and the Draft Technical Rule for public comments on July 8, 1981, have served to better focus the issues of repository licensing. Both the NRC and the DOE can now apply their resources in a more effective manner on the resolution of the remaining problem areas.

4. Reorganization/Expertise of Staff:

In February 1980 the Division of Waste Management was reorganized to closely align the Division Structure with the responsibilities, workload, and span of control of the Division activities.

In addition, the expertise of the staff has drastically changed in the last few years to what now includes the mix of expertise that will be trained and available to thoroughly review Site Characterization Reports, and the license application.

5. Improvement In Program Coordination and Focus:

The coordination and focus of the overall NRC waste management program has improved significantly in the last 3 years, as recently recognized in the ACRS report to congress. This has resulted from the effective use of the management responsibility provided to the Program Area Manager.

Reduction in HLW Program Support FY82 Thru FY84Budget Revisions

The High-Level Waste Management Decision Unit has significantly reduced its program support budget request for FY 1982 thru FY 1984 as summarized in Table 1. This is the result of an NMSS management decision to institute a time phased reduction in year end uncosted obligations, and of the increasing review and use of DOE research and development efforts and better focus of the research and development needs as a result of NRC published regulations. The increase of two years (SY) in FY 1982 (from 39 to 41) is to support the staff's site characterization efforts, consistent with the latest DOE schedule.

Table I

Revisions to HLW Budget Requests
(Program Support in \$K)

	<u>FY82</u>			<u>FY83</u>			<u>FY84</u>	
	<u>SY</u>	<u>PS</u>		<u>SY</u>	<u>PS</u>		<u>SY</u>	<u>PS</u>
Pres. Budget	39	10640	EDO Ceil.	41	10930	EDO Ceil.	41	10930
Current Budget	41	8272	NMSS Reg.	41	6725	NMSS Reg.	41	6500
Difference	+2	-2368		0	-4205		0	-4430

Basis For Revision

The reduction in FY82 is due to delay in Division of Contracts in placing approximately 3 contracts. The reduction in program support funds for 83-84 is possible without impact on the NMSS planned accomplishments as a result of: a decision to institute a time-phased reduction in year-end uncosted obligations; an accelerated and coordinated DOE program which is more directed to NRC licensing requirements; and better focus of the research and development needs as a result of NRC published regulations.

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TRANSITION TYPE (Code Option) <input type="checkbox"/> 1. Add new items <input type="checkbox"/> 2. Delete items <input type="checkbox"/> 3. Change item date <input type="checkbox"/> 4. Update item status (close out) <input type="checkbox"/> 5. Revised due date <input type="checkbox"/> 6. Correct item status					
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