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Mr. Mark Logsdon
U.S. Nuclear Regulatory Commission
Division of Waste Management
Washington, D.C. 20555

Dear Mr. Logsdon:

SUBJECT: DRAFT REGION-TO-AREA SCREENING METHODOLOGY

Please find enclosed, for your information, a copy of the subject document. As you know, the methodology has been developed through a series of workshops involving representatives from the seventeen states involved in the Crystalline Repository Project (CRP). The methodology is based upon the DOE Siting Guidelines which have received Nuclear Regulatory Commission concurrence. State comments on the methodology have been requested by October 12, 1984.

In addition to describing the region-to-area screening methodology, Appendix A of the document responds to the state comments received following each of the three workshops. Appendix B summarizes, by category, the proposed treatment of state protected lands in region-to-area screening for each of the seventeen states.

Also enclosed for your information are copies of the press release announcing issuance of the document and the fact sheet which was prepared for responding to inquiries on the document.

Questions on this matter may be directed to me on FTS 972-2257, or Dr. Paul Kearns, of my staff, on FTS 972-2253.

Sally A. Mann

Sally A. Mann, Manager
Crystalline Repository Project Office

Enclosure:
As Stated

cc: L. Peters, NRC, w/encl.
D. Mattson, NRC, w/encl.

Encl is published DOE report, DOE/CH/10139-1, dtd 8/84

Draft Region-to-Area Screening Methodology Document

Errata Sheet

1. Page 11 - a new Figure 3 is attached.

2. Page 56, third paragraph, line 2 - "10 CFR 960.4-2-8-1(b)" should be "10 CFR 960.4-2-8-1(b)(1)".

3. Page 57, third full paragraph, line 1 - "Low Population Density Around Site" should be "Remoteness of Site From Highly Populated Areas."

4. Page 57, third full paragraph, line 3 - "Section 5.3.10" should be "Section 5.3.11".

5. Page 57, after third full paragraph - insert the following:

   Low Population Density Around Site (10 CFR 960.5-2-1(b)(1)). This favorable condition guideline is addressed in the Population Density variable, which is discussed in Section 5.3.2 of this document. Locating a repository in the vicinity of lower population densities would minimize risk to the public health and safety and disruption to the public caused by construction activity. Lower population densities are scaled more favorably, while higher population densities are scaled less favorably.

   Proximity of the Site to Highly Populated Areas, or to 1-Mile Square Areas with a Population Greater than 1,000 (10 CFR 960.5-2-5(c)(2)). This potentially adverse condition guideline is addressed in the Population Density and the Proximity to Highly Populated Areas variables discussed in Sections 5.3.2 and 5.3.11 of this document. Application and significance with respect to Population Density and to Proximity to Highly Populated Areas are as stated for 10 CFR 960.5-2-1(b)(2) and 10 CFR 960.5-2-11(b)(1), respectively.

6. Page 58, second paragraph, line 3 - "Sections 5.3.7 and 5.3.8" should be "Sections 5.3.8 and 5.3.9".

7. Page 58, third paragraph, line 4 - "Sections 5.3.7 and 5.3.8 "should be "Sections 5.3.8 and 5.3.9".

8. Page 59, second paragraph, first sentence - delete and replace with the following:

   "This potentially adverse condition guideline is addressed in the Proximity to State-Protected Lands, State Forest Lands, and State Wildlife Lands variables, which are discussed in Sections 5.3.4, 5.3.6, and 5.3.7."

9. Page 59, third paragraph, line 4 - "Section 5.3.7" should be "Section 5.3.8".

10. Page 60, first paragraph, line 2 - insert ", Components of National Forest Lands" between "Protected Lands" and "and State-Protected lands".

11. Page 60, first paragraph, line 3 - insert "5.1.2" after "5.1.1".

12. Page 60, second full paragraph, line 4 - "5.3.9" should be "5.3.10".

13. Page 62, first paragraph, line 8 - "Section 5.3.9" should be "Section 5.3.10".

14. Page 72, line 7 - "Quaternary Faulting" should be "Suspected Quaternary Faulting".

15. Page 72, line 8 - "560.5-2-11(c)(1) "should be "960.5-2-11(c)(1)".

16. Page 85 - a new page is attached.

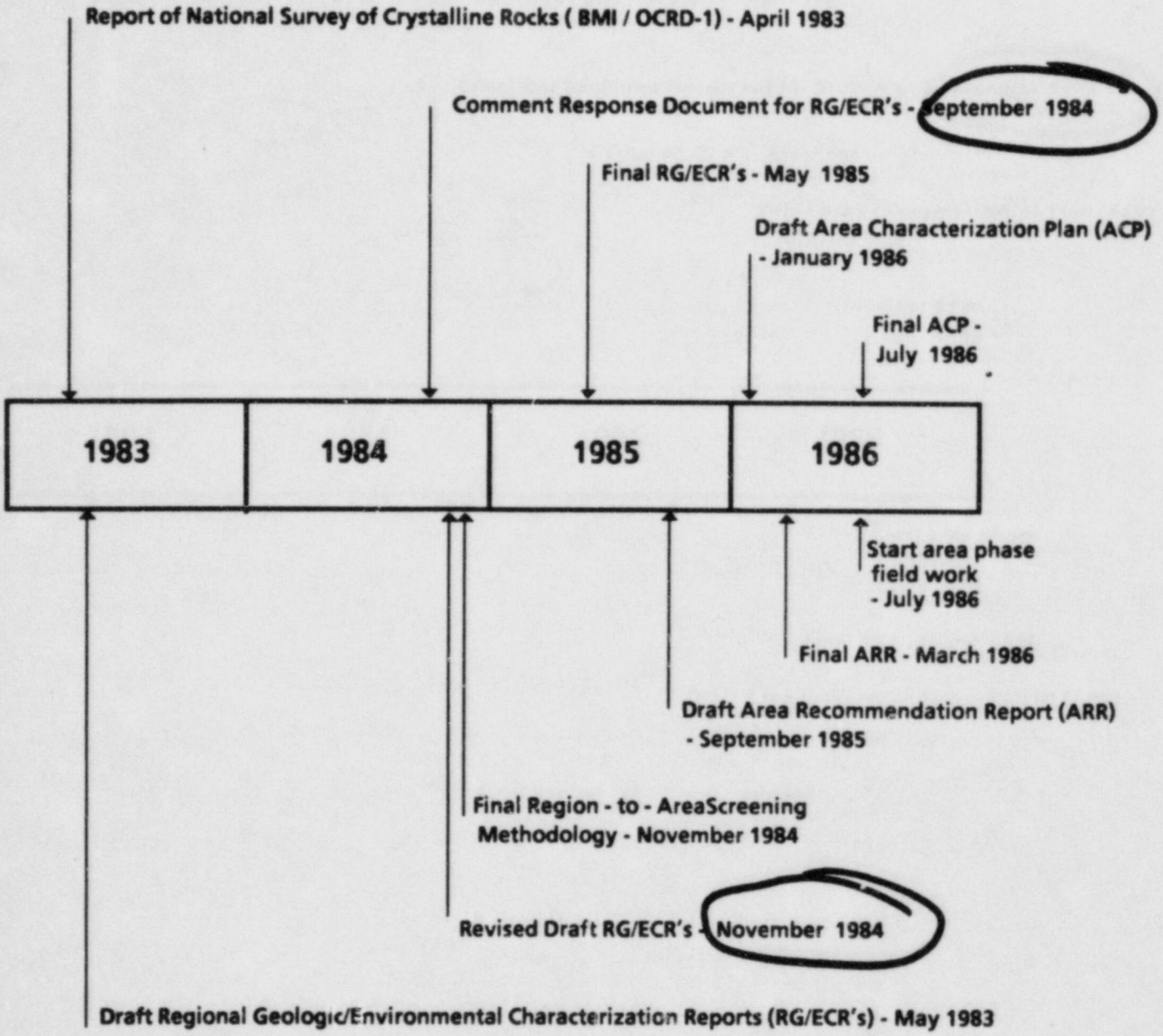

Figure 3. Crystalline Repository Project Report Schedule Leading to Initiation of Area Phase Field Work

references the environmental region-to-area screening variables to the appropriate section of the DOE Siting Guidelines.

Regional Screening Variable	DOE Siting Guidelines Section
Proposed Federal-protected lands	960.5-2-5(d)(2),(3)
Population density	960.5-2-1(b)(1), (c)(2)
Proximity to existing Federal-protected lands	960.5-2-5(c)(3)
Proximity to State-protected lands	960.5-2-5(c)(4)
National forest lands	960.5-2-5(c)(3)
State forest lands	960.5-2-5(c)(4)
State wildlife lands	960.5-2-5(c)(4)
Designated critical habitat for threatened and endangered species	960.5-2-5(c)(1), (2) (6)
Wetlands	960.5-2-5(c)(1),(2)
Surface water bodies	960.5-2-8(c) and 960.5-2-10(b)(2)
Proximity to highly populated areas	960.5-2-1(b)(2), (c)(2)

5.3.1 Proposed Federal Protected Lands

Definition. All lands which are, at any time, proposed to receive one of the designations included in the list of Federal-protected lands to be disqualified for further consideration. Generally, the term "proposed" will be defined to mean that some official Federal government action has been taken to consider designation of lands within the specific categories of Federal protection. More specific definitions for each subfactor are given below.

1. Components of National Park System. Official Federal actions taken that meet minimum sufficient conditions to constitute a proposal are: introduction of legislation in Congress to create such a unit; inclusion in a National Park Service master plan; or inclusion of acquisition funds for a specific area in an existing National Park Service budget program. Components of the National Park System consist of National Parks, National Monuments, National Preserves, National Lakeshores, National Seashores, National Historical Sites, National Military Parks, National Battlefield Parks, National Battlefield Sites, National Battlefields, National Historic Parks, National Memorials, National Recreation Areas, and National Parkways.

U. S. DEPARTMENT OF ENERGY
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DOE NEWS:

FOR IMMEDIATE RELEASE
SEPTEMBER 6, 1984

DEPARTMENT OF ENERGY ISSUES DRAFT SCREENING METHODOLOGY FOR CRYSTALLINE REPOSITORY PROJECT

The U.S. Department of Energy's Crystalline Repository Project Office issued its draft "Region-to-Area Screening Methodology" document today for state comment and review. This document describes the process that will be used to narrow the geographic focus from large regions to smaller areas in the studies to identify potential crystalline rock sites for the nation's second nuclear waste repository.

Under the Crystalline Repository Project (CRP), the U.S. Department of Energy (DOE) is conducting studies of crystalline rocks in 17 states for possible location of a repository. This Project is part of DOE's program mandated by the Nuclear Waste Policy Act of 1982, which requires DOE to site, construct and operate geologic repositories for the disposal of spent nuclear fuel and high level waste from commercial reactors. Potential sites have been identified for the first repository in

(more)

Washington, Nevada, Utah, Texas, Louisiana, and Mississippi. Crystalline rocks are intrusive igneous and high-grade metamorphic rocks such as granite. These 17 states are in three regions:

North Central Region	Southeastern Region	Northeastern Region
Michigan	Georgia	Connecticut
Minnesota	Maryland	Maine
Wisconsin	North Carolina	Massachusetts
	South Carolina	New Hampshire
	Virginia	New Jersey
		New York
		Pennsylvania
		Rhode Island
		Vermont

The proposed screening methodology consists of a three step process:

In the first step, DOE will use disqualifying factors, such as locations within national and state parks, national wilderness and wildlife areas, national and state wild and scenic rivers, and deep mine areas, to eliminate sites from further consideration;

In the second step, environmental and geologic variables such as national and state forests, state wildlife areas, surface water bodies, seismicity and geologic faulting will be used to evaluate potentially adverse and favorable conditions.

In the last step, differences in technical opinion from widely varying perspectives will be analyzed to identify the crystalline rock bodies most suitable for consideration.

(more)

This screening methodology has been developed in consultation with the involved states and is consistent with the General Guidelines for Recommendation of Sites for Nuclear Waste Repositories, required by the Nuclear Waste Policy Act of 1982 and concurred in by the Nuclear Regulatory Commission.

DOE's site screening process involves studies focusing on areas of successively decreasing size to determine whether they contain sites that might be suitable for the development of a repository. CRP's screening process consists of three phases--national survey, regional studies, and area studies.

Previously, a national survey identified the North Central, Southeastern and Northeastern regions with crystalline rock bodies as candidates for further study. In the current regional phase, DOE is developing a regional data base to be used with the screening methodology to select 15-20 candidate areas for the upcoming area phase. In the future, an Area Recommendation Report will be used to document the results of implementing the region-to-area screening methodology. Then, field investigations will determine if there are sites suitable for detailed site characterization, as mandated by the NWPA, within those candidate areas.

XXX

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DOE FACTS:

CRYSTALLINE REPOSITORY PROJECT REGION-TO-AREA SCREENING METHODOLOGY

The U.S. Department of Energy's Crystalline Repository Project Office issued its draft "Region-to-Area Screening Methodology" document today for state comment and review. This document describes the process that will be used to narrow the geographic focus from large regions to smaller areas in the studies to identify potential crystalline rock sites for the nation's second nuclear waste repository.

The Crystalline Repository Project is part of DOE's program mandated by the NWPA of 1982, which requires DOE to site, construct and operate geologic repositories for the disposal of spent nuclear fuel and high level waste from commercial reactors. Potential sites have been identified for the first repository in Washington, Nevada, Utah, Texas, Louisiana, and Mississippi.

The purpose of region-to-area screening is to narrow the number of rock bodies within the 17 crystalline states of the North Central, Northeastern, and Southeastern Regions to determine which areas will be studied in more detail during the area phase. The region-to-area screening process is designed to use regionally applicable data to identify areas most suitable for more detailed investigations. Subsequent field studies will determine if these areas actually contain sites which are potentially suitable for nomination and detailed characterization.

The region-to-area screening methodology was developed to incorporate:

- A systematic approach which has a logical progression of steps that indicate a trackable process including input from state representatives and peer review groups;

- A consistent approach including equitable treatment of all 17 crystalline states in the screening process through the use of a reasonably consistent regional data base and sensitivity analyses. Sensitivity analyses improve technical defensibility of the approach and the results;

- A comprehensive approach which uses regionally applicable disqualifying factors and screening variables in compliance with the DOE Siting Guidelines for identification of potentially acceptable sites for nuclear waste repositories.

The region-to-area screening methodology consists of a three-step process:

- Step 1 - This step directly applies appropriate disqualifying conditions specified in the DOE Siting Guidelines. This step will eliminate certain land units and rock bodies or parts of rock bodies from any further consideration. Disqualifying conditions to be used are:

  - Federally Protected Lands - components of the National Park System, National Wildlife Refuge System, National Wilderness Preservation System, and the National Wild and Scenic Rivers System;

  - Research Natural Areas of National Forest Lands;

  - State-Protected Lands - Comparably significant to federally protected lands, state protected lands, which are dedicated to resource preservation and were established prior to the enactment of the NWPA;

  - Population Distribution and Density - highly populated areas and areas of 1,000 or more persons per square mile;

  - Hydrologically Significant Natural Resources - rock and mineral resources greater than 100m in depth.

- Step 2 - This step applies to potentially adverse and favorable conditions specified by the DOE Siting Guidelines as scaled regional screening variables to identify the most suitable rock bodies/candidate areas that warrant further analysis in subsequent screening phases. Individual weights are associated with each variable in Step 2 to assign a relative importance to the variables and to help discriminate the most suitable candidate areas from alternate points of view on the relative importance of the variables. Step 2 screening variables are:

Rock mass extent
Major ground-water discharge zones
Rock and mineral resources
Seismicity
Quaternary faulting
Postemplacement faulting
Proposed Federal-protected lands
Population density
Proximity to existing Federal-protected lands
Proximity to State-protected lands
National forest lands
State forest lands
State wildlife lands
Designated critical habitat for threatened and endangered species
Wetlands
Surface water bodies
Proximity to highly populated areas

- Step 3 - This step (sensitivity analyses) is designed to accomplish four major objectives. The first is to explore the implications of modifying the scales of Step 2 variables in the selection of candidate areas. The second is to prepare summary composite maps derived by utilizing different sets of weights for the Step 2 variables. The third is to evaluate the effects of using different indices of aggregate favorability (e.g., the geometric mean instead of the weighted average). The fourth allows further differentation by incorporating other geologic factors based upon available rock-body-specific data. The geologic factors to be incorporated are:

  Thickness of rock mass
  Thickness of overburden
  State of stress
  Ground-water salinity
  Ground-water resources

The main body of the Document describes the Region-to-Area Screening Methodology which resulted from extensive consultation, including three workshops, with the crystalline states. Section 3.2.3 of the Document describes the proposed state involvement in the establishment of different sets of weights to be utilized in region-to-area screening.

Appendix A of the Document explains how DOE considered the comments received from the crystalline states following each of the workshops. Appendix B summarizes, by category, the proposed treatment of state protected lands in region-to-area screening.

xxx

FOR FURTHER INFORMATION:

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September 1984