March 18, 1985

COMMENTS OF STATE OF UTAH TO DRAFT ENVIRONMENTAL ASSESSMENTS DAVIS CANYON AND LAVENDER CANYON SITES INTRODUCTION AND SYNOPSIS

The accompanying comments represent a major effort by the State of Utah to perform a thorough, objective review of the evaluation made by the U. S. Department of Energy (DOE) of sites at Davis Canyon and Lavender Canyon in the Gibson Dome area of San Juan County, Utah, as possible sites for a high level nuclear waste repository. The comments relate specifically to the two Draft Environmental Assessments (EA's) covering the sites released by DOE on December 20, 1984. Since the two sites are so physically close to one another, the comments for both EA's are nearly identical. Davis Canyon receives greater emphasis, however, since DOE indicates in the EA that it intends to nominate Davis Canyon as one of five sites suitable for more intense study through the site characterization process. DOE has further indicated its intention not to include Davis Canyon as one of the three sites to be recommended to the President for site characterization.

The formal comment period on the draft EA's began on December 20, 1984, and extends to March 20, 1985. A change in State administration that occurred in January, and accompanying staff changes, created a pressing need for more time for the State to prepare comments. Formal request was made to DOE for a 60-day extension of the comment period. Notwithstanding early informal indications that the request would be favorably received, the State's requestwas denied by a letter dated February 26, 1985, and received March 5, 1985, from Ben C. Rusche, Director, DOE Office of Civilian Radioactive Waste Management. The State considers this action to have been unreasonable, arbitrary, and capricious and unfairly discriminatory against Utah. The refusal of DOE to extend the comment period has created severe prejudice to the State by requiring the compression of the large and vitally important task of EA review work into a completely inadequate time frame. Accordingly, comments of the State are not as thorough and extensive as they would have been if the additional time had been made available. This in turn causes a failure of the process, since the Nuclear Waste Policy Act (NWPA) requires that the State have a reasonable opportunity under exigent circumstances to participate in all phases of the site selection process. The NWPA requires the partcipation as a means of assuring the integrity of DOE decisions and to assure the consideration of State interests in the process.

Mr. Rusche's letter did say that DOE may consider late comments if time permits. Although there is a possibility that DOE will disregard them, the State does intend to submit supplementary materials after March 20. The State assumes that such comments will be part of the formal record whether DOE considers them or not.

The comments of the State being submitted now are nevertheless bulky and voluminous and by necessity very specific as to subjects covered in the EA's. A review of the perceived role of the State helps to place them in perspective.

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Background

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The EA's have been prepared by DOE in response to requirements of Section 112 of the "NMPA". Study of the Gibson Dome sites, however, began long before the NMPA became effective. DOE describes a long screening process that took place beforehand to select geologic media suitable for underground disposal, to identify regions where such media were present, to identify areas where favorable geologic conditions occurred, and to identify the best of several locations within those areas. That search for bedded salt sites in the Paradox Basin geohydrologic province ultimately resulted in DOE's settling upon Davis Canyon and Lavender Canyon as the two most favorable potential locations.

Description of Site

To best appreciate the function of the EA, one should visualize the general area and the nature of the activities that would take place there if either site were selected either for site characterization or for both characterization and use as a repository.

The terrain can best be described as red rock desert, which is typical of the terrain which occurs over much of southeastern Utah. Vegetation in the rocky cliffs and sandy bottoms is sparse, being made up of brush, isolated stands of juniper, and several varieties of low density grasses and desert plants. As a result, wildlife population is of low density, and domestic grazing is limited.

The most striking characteristics of the area are that it is relatively barren, rocky, and quite dry. It is also isolated, the nearest permanent habitation is Dugout Ranch, about 3.5 miles east of the sites. The nearest communities are LaSal Junction, located 28 miles to the northeast (population 100), Monticello located 21 miles to the southeast (population 1,929), Blanding, located 31 miles to the south (population 3,118), and Moab located 33 miles to the north (population 5,333). Human presence in the area is generally related to sightseeing, recreational excursions, uranium and oil and gas minerals exploration, and livestock tending. Traffic related to these activities is light and sporadic, with seasonal variations.

The current low level of occupancy in the vicinity of Davis and Lavender Canyons has not always been so. For a period of several centuries the area was occupied by members of ancient cultures who lived, hunted, and farmed throughout the region. Remnants of these cultures (preserved by the dry climate) which reflect the active use of the land in the distant past, are present in unusual quantities.

The eastern boundary of Canyonlands National Park runs essentially north-south less than a mile to the west of both the Davis and Lavender Canyon sites.

Permanent residents of the area subsist mainly on an economy that is tied to natural resources. Much of the area's economic activity is related to the exploitation of deposits of uranium, potash, and oil and gas. Due to natural resource market conditions, periods of regional prosperity have alternated with periods of decline, one of which is associated with currently high levels of unemployment in the uranium industry. Scenic resources such as those existing at Canyonlands National Park and along the Colorado River support an active tourist industry. Agriculture and government are significant sources of local employment. To the southeast, an essentially agrarian economy exists at the Navajo Indian Reservation.

For the DOE program, the characteristic of primary importance is the thick bed of salts lying approximately 2,900 feet below the surface. The DOE speculates on the basis of available information that the bedded salts are capable of serving as suitable host rock for a safe repository of high level nuclear waste. Reduced to the simplest of terms, the salt bed is a rock formation like a sheet of plywood in a stack of plywood. Its precise nature is unknown, but ideally it would be dry and of uniform consistency through its entire thickness and lateral extent.

Description of the Proposed Activities

As it is currently conceived, the development activity to be superimposed over this setting is essentially a large underground mining operation. During the site characterization phase, the operation would be typical. A shaft would be constructed using a headframe and hoist, and the ore, in this case salt, would be excavated and brought to the surface. Drill holes outlining the salt zone and measuring its characteristics, as well as those of adjoining rock formations, would be scattered around the central shaft area. Buildings and other surface installations in support of the mining operation and related testing activities would be constructed.

The mining operation would be greatly expanded if the site were to be used for the repository. Most significantly, both a new road 29 miles long and a railroad 37 miles long would be constructed for improved access to the site. Unlike conventional mining operations, however, the process would involve the transport of materials to be placed in the underground mine as well as the transport out of the mined salt. The material to be brought in is, of course, high-level nuclear waste. The waste requires special packaging and handling, because of the inherent danger associated with its high level of radioactivity.

Site Selection Process

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The NMPA, requires DOE to formally designate sites as being potentially acceptable sites for a respository. The DOE has designated nine sites, including both Lavender and Davis Canyons, DOE has also promulgated "guidelines" for the recommendation of sites for repositories. At least five of the nine sites must be nominated as being suitable for site characterization through use of the guidelines. Site characterization testing activities are defined by the NMPA as activities undertaken to establish geologic conditions and ranges of parameters relevant to the location of a repository at a site. Three of the nominated sites must be recommended to the President for site characterization. After characterization, one site will be recommended to the President and the Congress for application for a repository construction permit.

Congress has required that the nomination of each of the five sites considered to be suitable for characterization be accompanied by an environmental assessment. This environmental assessment must include a detailed statement of the basis for such recommendation, of the probable impacts of the site characterization activities planned for the site, and a discussion of alternative activities relating to site characterization that may be undertaken to avoid such impacts. The EA's must include:

> (i) an evaluation by the Secretary as to whether such site is suitable for site characterization under the guidelines;

(ii) an evaluation by the Secretary as to whether such site is suitable for development as a repository under each such guideline that does not require site characterization as a prerequisite for application of such guideline;

(iii) an evaluation by the Secretary of the effects of the site characterization activities at such site on the public health and safety and the environment;

(iv) a reasonable comparative evaluation by the Secretary of such site with other sites and locations that have been considered;

(v) a description of the decision process by which such site was recommended; and

(vi) an assessment of the regional and local impacts of locating the proposed repository at such site.

The EA's are structured to lead up to the application of guidelines to information that is developed. First the site is described (Chap. 3). A summary of the impacts of site characterization is then given (Chap. 4), and summary of the regional and local effects of locating a respository at the site then follows (Chap. 5). The guidelines are then applied in Chapter 6 to evaluate the strengths and weaknesses of the site and ultimately to determine whether it is suitable for characterization. Rankings of the Davis Canyon site with the other four sites to be nominated as suitable for characterization are then made in Chapter 7.

The siting guidelines are divided into implementation guidelines, postclosure guidelines, and preclosure guidelines. Postclosure and preclosure technical guidelines consider measurable characteristics of the site physical properties and physical phenomena. Each technical guideline identifies qualifying conditions that a site must meet in order to be considered further in the site selection process. Satisfaction of the condition in may cases is reduced to a matter of probability by DOE. Whether a site is likely to meet a qualifying condition is determined by weighing conclusions as to whether certain favorable and potentially adverse conditions exist. In addition, 17 disqualifying conditions are identified which, if found to be present, remove a site from further consideration in the site selection process. DOE then divides the guidelines into two categories, those that require site characterization as a prerequisite to their application and those that do not. In the EA's, DOE first evaluates whether the site is suitable for site characterization under all of the guidelines. It then evaluates whether the site is suitable for development as a repository, but <u>only</u> under each guideline that does not require site characterization for its application.

Nature of State Review

A proposal to store dangerous radioactive waste in Utah or anywhere else is bound to be both a subject of intense public interest and of controversy. Identification of a potentially-acceptable site in the State places a heavy burden on state government to ensure that DOE has done an adequate job of evaluating the basic suitability of the underground geologic medium as a place to store waste and of evaluating the impacts that the proposed site characterization and repository construction and operation activities would have on the natural environment and on the citizens of the State. Through its elected officials, the State must ultimately make an informed judgment as to whether the site has been shown, through a fair and rational process, to be a safe place to deposit nuclear waste. The State must also decide whether the impacts of the proposed activities have been adequately addressed, including transportation of waste throughout the State, and whether given those impacts, the resulting commitment of State, Federal and local resources is sensible. As noted earlier, Congress recognized the need for state involvement in the site review process and required DOE consultation and cooperation with affected states and funding of state review efforts.

The State recognizes the substantial effort that the EA's reflect and acknowledges that much good work was done. The task has been immense, particularly in light of the brief period allowed for it in the NWPA. However the ultimate achievement of the goals of the NMPA requires a critical review of what DOE has produced. The issue is of such vital importance that such a critical review by the State and all interested parties, one that looks for and challenges analytical weaknesses, is essential. The EA's must be able to withstand that review for DOE's conclusion of suitability to be defensible.

The State has strongly disagreed with procedures followed by DOE during the evaluation process and made those disagreements known. These actions may cause the State to appear as an adversary of the NWPA process, but in fact State criticism has been directed to DOE's failure to comply with its obligations and to fulfill its proper role under the law. The criticism is not directed to the process itself. It is important, however, that the State be aggressive, because the integrity of the EA's can only be established, and public confidence in them developed, if DOE can defend the EA adequately in response to such intensive scrutiny.

Function of the EA

DOE had already undertaken a major site review and selection process involving millions of dollars and extensive agency effort prior to passage of the NMPA. That process ultimately resulted in the designation of the nine potentially acceptable sites for further review, leading toward the nomination of five as being suitable for characterization. The DOE has often noted that it believes the provisions of the NMPA to be a partial endorsement of its pre-NWPA site selection program. Accepting, for the sake of argument, that this is accurate, the credibility of the pre-NWPA Program must stand or fall with the credibility of the determination that the nine sites are potentially acceptable and, in fact, suitable.

Recognizing this, and recognizing the very tight schedule imposed by the Act, one cold readily predict that DOE would ultimately conclude that all nine sites are suitable. If any of the sites were shown not to be suitable, then DOE could be considered to have erred in not seeing the problems earlier; if less than five sites were shown to be suitable, then DOE's screening program would be considered to have been a failure. Such a failure would be a blow to both DOE and the utilities who are footing much of the repository program bill. Repetition of earlier site review efforts would be extremely costly. The delay would not be well received by Congress and would aggravate concern over growing inventories of nuclear waste. DOE's institutional interest in having the sites be deemed to be suitable conflicts with its burden to perform an intense investigation which might reveal that they are not. This inherent conflict of interest within the agency can be dangerous, for it creates a setting where the EA and the work leading to it can be designed to be a justification of the earlier decision rather than a fair appraisal based on additional analysis.

This consideration makes it important to define the overall burden of DOE in supporting its conclusion in the EA's that the sites to be nominated have indeed been shown to be suitable for characterization and, preliminarily, for location of a repository.

A predictable approach on the part of DOE, in light of the background and urgency of the current program, would be to rely on existing data or to gather just enough additional data to suggest the desired result, and then adopt positive conclusions that go far beyond the capacity of available data to provide support. De-emphasis or disregard of conflicting data could also be expected. It is the uniform observation of State reviewers, as evidenced by the attached comments, that this is exactly what has happened. A further reflection of this attitude is that DOE makes initial presumptions of suitability as to major issues in the EA's that are maintained unless overcome by proof to the contrary. Since DOE does not feel compelled to gather sufficient data to determine whether negative factors exist, the result is that the favorable presumptions stand and DOE's preliminary selection of the site is justified. This suggests that DOE used the EA process primarily to rank the nine identified sites rather than to evaluate the sites for suitability in accordance with DOE's primary responsibility under the NMPA. The approach of DOE is neither consistent with good scientific method nor in accordance with legal requirements.

The State of Utah believes that reason dictates a much heavier burden on DOE than is manifested in DOE guidelines and in the EA's, and that the NWPA creates such a burden. In effect, that burden is to prove affirmatively that the site is suitable both for characterization and for a repository. To meet that burden, DOE must show the nonexistence of conditions that would refute the initial presumption of suitability. The magnitude of that burden is of course greater with each step of the site selection process. Having identified the Lavender Canyon and Davis Canyon sites as potentially acceptable for a repository, DOE should have undertaken studies sufficient to establish within reasonable limits that conditions working against suitability of the site for characterization and working against suitability of the site for characterization and for a repository are not present. DOE's effort, as illustrated in the State's comments, has fallen far short of that obligation.

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Certain of the guidelines encourage perfunctory efforts. According to a vital guideline, DOE is permitted to use existing data and to make free use of assumptions as to the characteristics or conditions considered to exist at a site or expected to occur in the future. 10 CFR Part 960.3-1-4-2. Such assumptions are supposed to be "realistic", but conservative enough to underestimate the potential for a site to meet the qualifying condition of a guideline. Certain assumptions made by DOE have not only failed to be conservative, they go so far as to provide a basis for leaps from inadequate data to unfounded affirmative conclusions as to suitability of the sites. The State of Utah believes that the guideline in its present form is in contravention of the NWPA and, as is shown in the State's comments, that it has been improperly applied.

Perhaps the clearest indication of DOE's inaccurate perception of its procedural burden is in paragraph 3 of Appendix III of the guidelines which provides that evidence will be considered sufficient to show that a qualifying condition has been met if it "does not support a finding that the site is not likely to meet the qualifying condition." (emphasis in original). Thus, DOE has put itself in a position where instead of having to prove that a qualifying condition has been met, particularly with respect to guidelines not requiring characterization before being applied, DOE can assume qualification (and commit vast amounts of federal resources) if evidence to the contrary is not revealed through a perfunctory data gathering process. The same analytical approach has been applied to the application of guidelines defining disqualifying conditions. Accordingly, satisfaction of qualifying conditions and avoidance of disqualifying conditions is facilitated by inadequate data. The NWPA was not designed to allow such a simplistic approach to such critical issues. It is too easy to find no evidence of an adverse condition by not looking for such evidence.

Another indicator of the absence of incentive is the statement in the EA that failure to meet a qualifying condition can usually be determined only after site characterization. That may be true with respect to some guidelines that require characterization, but in general it reinforces a tendency to put off a realistic evaluation of important data until site characterization. It creates a risk that conclusions reached in comparing sites will be skewed by erroneous assumptions, and that sites will not be recognized as being unsuitable for characterization until the process has already begun.

The States' comments are replete with evidence of fundamental deficiencies in DOE's approach. The deficiencies explain the repeated use by qualified expert EA reviewers of such comments as the following:

"No data was available to allow a meaningful review to be made."

"Mitigation is assumed to be achievable without explanation as to how it would be done."

"The model used by DOE allows the exclusion of critical data."

"The conclusion is reached without supporting data."

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"No explanation is given as to how the conclusion was reached."

"Data indicating the possible presence of adverse conditions was not considered."

These comments and many others like them illustrate how the mischaracterization by DOE of its burden in demonstrating the suitability of the Davis Canyon and Lavender Canyon sites has resulted in EA's that do not justify the conclusions of suitability that DOE intends to make. In fact, since DOE has failed to show through reasonable effort that negative conditions do not exist, the principle of conservatism dictates that the sites must be presumed not to be suitable either for characterization or for a repository.

Although DOE's guidelines are deficient, they nevertheless require more than DOE has described in the EA's. The guideline that establishes procedures for site nomination for characterization refers to evidence "required to support" the nomination of a site. 10 CFR Part 960.3-1-4-2. This suggests an affirmative burden to produce such evidence as opposed to a practice of relying on inconclusive, fragmentary data or flawed models.

A tempting response to concern over the inadequacies of work that has been done is to say that the additional needed information can be gathered during the site characterization phase. The way the process, with its increasing levels of scrutiny, is set up actually suggests such an easy answer. The costs, impacts, and significance of the site characterization process are too important, however, to permit complacency at the nomination stage. Nomination means that the site appears to be suitable. That decision must be supportable.

Even those guidelines that are classified as requiring site characterization before they can be applied are important at this stage. Each preferred site within a geohydrologic setting is to be evaluated as to whether such site is suitable for site characterization under the qualifying conditions of the guidelines that require characterization. 10 CFR Part 960.3-2-2-1. Thus, as the EA demonstrates in Section 6.3, even though DOE allows currently available information to be utilized and assumptions to be inferred from the technical data base, a preliminary analysis is still required. Even where DOE has this lesser burden, it must still properly consider all currently available information, and gather such additional information as is necessary to make a valid preliminary judgment of the site's suitability. To be suitable for characterization, the site must be affirmatively demonstrated by data and and conservative assumptions to be reasonably likely to be suitable for a repository. When assumptions are made, the degree of conservatism in those assumptions must reflect the extent to which data is not available or is uncertain. When no data is available, for example, a worst case scenario should be assumed. Many of the State's comments conclude that assumptions made by DOE are not conservative enough, or that they fail to reflect negative data.

Those guidelines that do not require characterization must be applied by DOE to evaluate whether the site is suitable for a repository. The implementation guidelines are not clear as to whether such guidelines must be applied to information derived from complete studies of the subjects in question and are deficient in that respect. The State believes that the NWPA requires that a sufficient review be done to produce a reasonable final conclusion of compliance and that DOE not be permitted to put off performance of a complete evaluation for the sake of expediency. DOE has clearly opted for a liberal interpretation by performing superficial analyses in many areas and deferring the detailed studies to characterization. DOE limits its responsibility by saying, without authority, that it is not required to have sufficient information available at the nomination stage to fully evaluate compliance of the site with the intent of these guidelines. EA p. 6-6. That loose approach is further encouraged by a statement that failure to meet a qualifying condition can usually be determined only after site characterization. It is the opinion of many State commentors that procedures reflecting this policy have often resulted in useless studies since not enough was done to permit a decent review to be made. Even if it were conceded that DOE need not perform a complete high-level data gathering and evaluation effort before applying such guidelines to the site, a reasonable professional effort to arrive at meaningful conclusions is required. State comments illustrate a strong difference with DOE's opinion that it has achieved that acceptable level of performance.

An illustrative example of the problem is provided by numerous comments that DOE has failed to perform any meaningful evaluation of impacts upon the environment or of requirements for protection of numerous archeological sites along potential transportation and utility corridors. DOE dodges its responsibilities, and the issues, by saying that such reviews need not be made until a choice of route is made during characterization and by performing a cursory evaluation of representative routes. The absence of data thus enables DOE to conclude that favorable conditions are present, that potentially adverse conditions do not exist, or that mitigation of adverse impacts along the transportation and utility corridors can be achieved without any data base to support those conclusions. The lack of adequate supporting data should lead to just the opposite conclusions.

Study of impacts that bear upon the suitability of the site for characterization cannot be deferred and conducted simultaneously with characterization. That would defeat the whole purpose of the site nomination process, and is not in accordance with the law.

Highlights of State Comments

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Comments of the State of Utah discuss in great detail the commentors' reactions to data and analyses presented in the EA's. These relate to the quality of the job DOE has done in superimposing the large underground mining operation over the area described earlier. The following are brief summaries of overall impressions derived from the comments. More detailed summaries follow. <u>Geology and Geohydrology</u>. The basic reason for considering Davis Canyon and Lavender Canyon as sites for a repository is that they are underlain by a bed of salt that is believed to have characteristics which make it a safe place to deposit high level nuclear waste at a tolerable cost. Ideally, the host rock would be a solid mass of dry, unbroken salt, sealed against intrusion by fluids emanating from underlying and overlying rock beds. Also, the physical and chemical integrity of the salt bed would ideally remain intact after disruption of the natural condition through penetration of the salt bed by shafts and bore holes, removal of salt to provide storage space, and placement of heat generating canisters of nuclear waste. A principal purpose of site characterization is to test whether actual conditions approach these ideals, and whether conclusions to that effect can be made within acceptable limits of confidence. This process, however, does not relieve DOE of the burden of assessing whether available data supports a preliminary determination that the ideal conditions for storage in the salt bed exist.

The NMPA mandates that DOE apply all guidelines, including those that require site characterization as a prerequisite for their application, to determine whether a site is suitable for site characterization. This suggests that DOE should do more than simply go through hypotheticals using non-site specific data that simply result in conjecture. The State comments illustrate that this just what DOE has done. Instead of recognizing and applying information showing that the site might not match the conceptual ideal, DOE has, by using an idealized model, produced nothing in the way of additional support for its preliminary conclusion of suitability. State commentors not only demonstrate the serious shortcomings of the approach used by DOE; they also identify observations and data suggesting that the ideal is likely not to exist. They show the potential of underground fractures and salt dissolution features that would provide lateral and vertical conduits for contaminated fluids and would increase radionuclide travel times beyond those estimated by DOE. They further illustrate that new conduits may be formed as a result of leaky seals around shafts and boreholes and that water movement and salt dissolution will be stimulated by heat from the decaying nuclear waste. There being no basis for the conclusions drawn by DOE, an appropriate conservative assumption would be that the destructive conditions identified by State commentors do exist.

Additional shortcomings in DOE's identification and evaluation of geological and other subsurface conditions at the Utah sites are contained in comments submitted by the U.S. Nuclear Regulatory Commission. The State shares the Commission's concerns expressed in those comments.

Integrity of the host environment and containment of escaping radionuclides are requirements about which no one can disagree. If a wrong analysis is made relative to the Utah sites, the consequences could be disastrous, because release of radioactivity to the natural environment would most likely occur where ground water aquifers emerge at the Colorado River. Distribution could then occur far beyond the respository site. Neither the State nor DOE can afford any guesswork on this issue.

Canyonlands National Park

It is regrettable that the sites identified after site screening as having the most favorable geological characteristics in the Paradox Basin geohydrologic setting are right next to a national park. What would have been a difficult process under any circumstances has become far more complex and controversial as a result of this unfortunate fact. The step taken by DOE in initially identifying such a location as a potential site for a respository without a more careful evaluation of the current pattern of federal laws and land use decisions can be criticized, but, in any event, it is now a reality and must be addressed.

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It is important that national parks be preserved, but it is also important to the State that the existence of parks not stifle all economically productive activities in their vicinity. In the vicinity of the Davis and Lavender Canyon sites, the local and regional economies and the presence of large expanses of state and national park lands are closely intertwined. The federal law and land use decisions affecting the area are of great importance to a broad array of decisions made by private parties and governmental entities. Federal decisions affect recreational choices, investment decisions, and local planning efforts. In this context it is essential to local, state, and federal interests that DOE decision standards reconcile the DOE mission with other federal standards.

DOE has concluded that the National Park Service Organic Act of 1916 (16 U.S.C. 1) is not applicable because no part of the site lies within a national park. (EA p. 6-25). The National Park Service Organic Act and the August 18, 1970 and March 27, 1984 amendments to the Act (16 U. S. C. 1a-1), together with official actions related to Canyonlands National Park, are relevant, however, to the determination of whether the site characterization and repository activities conflict with mandates in those directives relative to the protection of natural park values. In the final EA, DOE should expand its analysis to reconcile the apparent conflict between the proposed action and its impacts on Canyonlands National Park and Park values as derived from the National Park Service Organic Act, the Canyonlands National Park enabling legislation (78 Stat. 954), and the General Management Plan and Statement for Management for the Park. The proposed repository activities, like all others, must be reviewed objectively to determine the impacts upon the park from the proposed activity and to weigh these inputs against applicable standards.

The test for park impacts not involving activities within park boundaries adopted in the DOE guidelines states that proximity to or projected significant adverse effect of the repository or its support facilities on a component of the National Park System is s potentially adverse condition, but that a site is not disqualified unless the presence of the restricted area or the repository support facilities would conflict irreconcilably with the previously designated resource-preservation use of a component of the National Park System. 10 CFR Parts 960.5-2-5 (c) (3); (d) (3). The qualifying condition in the transportation guideline also requires a showing that the access routes constructed from existing local highways and railroads to the site not conflict irreconcilably with national parks. 10 CFR Part 960.5-2-7(a). Remarks of State commentors illustrate that DOE has not sufficiently addressed the impacts of its activities on recreational values and has failed to carefully articulate standards for evaluating such impacts.

The comments are critical of DOE for the purely numerical approach DOE has followed in evaluating impacts on Park values and for DOE's failure to consider the overall impact of the combined separate impacts. Evidence is also presented that DOE has erroneously applied tests for noise, visual, and air quality impacts and that the impacts, particularly with respect to noise, have been underestimated. Finally, after quantifying the impacts, DOE draws conclusions that the impacts are within acceptable limits (values would be "minimally affected") without explanation as to the standard that was applied to arrive at those conclusions. The ability to mitigate impacts is assumed within explanations, and when mitigation measures are described they are sometimes so ill-advised that to call them mitigation at all reflects an incomplete understanding of the issues surrounding noise impacts. For example after admitting the significance of noise impacts to park visitors, mitigation of noise impacts on visitor experience is proposed to be accomplished by suggesting that visitors go to areas of the park where the noise cannot be heard. (EA p.#4-124).

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Another manifestation of the effects of proximity to the park is found in DOE's layout of bore holes designed to test crucial parameters of ground water flow and other hydrologic criteria. To avoid having to drill within park boundaries, DOE has established a variant drill-hole pattern that is inconsistent with conventional practice. State commentors believe that the resulting drill hole pattern will not provide reliable data. DOE admits in the EA that conditions may require that drilling in the park take place. (EA p. 6-83).

A site will be disqualified if any part of the restricted area or repository support facilities would be located within the boundaries of a national park. 10 CFR Part 960.5-2-5 (d) (2). DOE has not indicated in the EA where the boundaries of the restricted area will be placed. A controlled area within which activities incompatible with waste management will be prohibited before and after permanent closure must also be established. Its boundaries can extend up to 6.2 miles in any direction from the underground operations area. Use of the full 6.2 miles would cause the controlled area to extend well within park boundaries. At present and until the boundaries of the two areas are drawn, it has to be assumed that a risk of encroachment upon the park exists, either through marking of the controlled area or extension of the restricted area. If the repository were expanded to a two-phase facility as described in Section 5.5 of the EA, both the surface and underground workings would be significantly expanded. Such expansion would make the potential of park encroachment, and possible disqualification of the site an acute problem. DOE has not adequately evaluated this subject in the EA and hence has skirted what could be an inescapable dilemma.

Uncertainties surrounding effects on park lands also bear upon the presence of the third disqualifying condition under the environmental protection category, which states that the site will be disqualified if the quality of the environment in the affected area cannot be adequately protected or projected environmental impacts from repository activities and support facilities cannot be mitigated to an acceptable degree, taking into account programmatic, technical, social, and economic factors. 10 CFR Part 960.5-2-5 (d)(2). Impacts upon the park must reasonably be considered as part of the cumulative impact of all environmental impacts in applying this disqualifying guideline. As will be noted, cumulative environmental impacts have not been adequately addressed.

A potentially serious barrier to further activities in the vicinity of the park could arise in connection with air quality. As discussed in the EA, the Federal Land Manager for Canyonlands National Park will be requested to assess whether the emissions of the proposed repository would have an adverse effect upon air quality related values in the park. EA p. 6-41. If an adverse impact were indicated, and the Executive Secretary of the Utah Air Conservation Committee concurs, then the State would not issue an approval order for the repository. Comments of the Utah Division of Environmental Health suggest that a clear basis would be available to support such a determination of adverse effect by the Federal Land Manager.

<u>Cultural Resources</u>. The Utah sites are unique among all others in regard to the presence of numerous archeological sites of historic importance. State commentors point out that DOE has neither demonstrated a sensitivity to the importance of protecting the sites nor accurately assessed the severity of potential direct and indirect impacts upon these remnants of ancient civilizations. DOE has in fact conducted operations in violation of the National Historic Preservation Act. Although DOE did do a survey at the site area, it did not inventory sites long the alternative transportation and utility corridors. State officials considered the data gap to be so significant that a state-sponsored survey was conducted. The result was a demonstration that numerous sites exist throughout the areas involved, and that the sites are so significant in some areas that any land disturbance should be avoided.

DOE's indifference to this vital issue is demonstrated by its failure to perform a regional study that is required in order to assess the significance of sites that would be affected by the repository. DOE also failed to consider all secondary impacts resulting from increased numbers of people in the area.

<u>Environmental Impacts</u>. An essential function of the EA is to evaluate environmental impacts that will result from site characterization and site construction and operations to determine not only the scope of such impacts but to determine whether adverse impacts can be mitigated to an acceptable degree. The absence of human habitation at the sites make them more for a repository, but it also necessitates greater conscientiousness of impacts on the natural environment. These relate to water quality, air quality, wildlife, vegetation, soils, visual impacts, noise, threatened and endangered species, an other factors, and the ability to reclaim the land after operations have ceased.

State commentors are especially critical of DOE's failure to gather adequate baseline data. The result is that no confidence exists in the conclusions that DOE has drawn as to the "insignificance" of impacts or as to their mitigability because without adequate baseline data these conclusions are just guesses. For example, DOE says that large quantities of salt can be disposed of offsite, but is extremely vague as to just where and how the disposal would occur.

The nonexistence of disqualifying conditions has easily been established in many instances by DOE's failure to look for evidence that might lead to a contrary result. For example, DOE has gathered no on-site meteorological data at all. Further, by simply assuming that mitigation can be performed, DOE easily concludes that impacts are not significant. There is no true analysis of impacts nor a true assessment of whether mitigation is feasible. Also, DOE has not considered cumulative effects on the environment or synergistic effects. A particular problem exists relative to the potential of additional salt reaching the Colorado River from the combined effects of flooding, spills, wind, and transportation and disposal.

DOE Has indicated that it will perform such baseline analysis prior to sinking a shaft, but it does not acknowledge that the time required for gathering that data would set back the timetable for site characterization activities.

Weaknesses in DOE's analytical methods are of concern to the State because they suggest that short and long term impacts on vegetations, soils, wildlife, water quality, and air quality are not fully understood. In particular, State comments on noise levels and air quality demonstrate both indifferent data gathering by DOE and perfunctory analysis of the data. For example, DOE data shows that discharges of certain air contaminants will exceed permitted levels, but DOE concludes that all State air pollution control requirements will be met. Also, State review indicates that DOE has made a premature and likely invalid assumption that new source Prevention of Significant Deterioration (PSD) permitting will not be necessary. Such permitting would require a one year period of monitoring before any activities that generate air pollutants could begin. If permitting requirements could not be met, the activity could not proceed.

<u>Socioeconomic Impacts</u>. As with any major industrial activity proposed for a sparsely populated area, the anticipated socioeconomic impacts of both site characterization and repository construction and operation need to be evaluated in advance. Based on in-depth reviews, State commentors point out repeated examples of DOE's failure to do a professional job in describing existing conditions, estimating the likely impacts of site characterization and site construction and operation activities, and discussing what realistic measures could be taken to deal with the impacts. State personnel know the problems; they have been through it before. Their frustration over the superficial job that has been performed reflects their concern that DOE is ready to commence site characterization without real regard to socioeconomic issues.

Potential impacts upon the tourist industry is a fundamental issue, and yet, as with many other areas, the question is presented and the conclusions of "no significant impact" reached without adequate analysis.

State comments provide an excellent discussion of recreation impacts, which in turn would have a very direct effect on the recreation habits of current residents. Such "quality of life" issues are vital to residents of the area, and yet they are given very little weight in the EA's.

There certainly is a potential benefit from new jobs and industrial activity in the area, but it cannot be determined from DOE data how significant those benefits will be. How the potential benefits from stimulation of the local economy measure up against possible negative impacts on tourism and certain social stresses that will be experienced in the local communities has not been clearly determined. The EA's again rely on broad generalizations to deal with these important issues.

Transportation.

The prospect of transportation of high-level nuclear waste into the State and to a Utah repository raises concerns as to public safety, environmental impacts, and costs. State comments highlight an absence in the EA's of site-specific studies that give an adequate measure of these parameters.

The transportation scenario contemplates haulage of waste by rail and by truck in specially-designed protective containers into the State from source and storage areas throughout the United States. Through a funneling effect, the various routes would converge in Utah and then extend along less traveled, and finally single purpose, roads and railroads to the site. These same routes would be used in reverse to haul salt out to yet unspecified disposal areas. The isolation from human habitation that makes the site desirable in one respect causes it to be less attractive relative to transportation because of the road and railroad upgrading and new construction that would have to be performed. These activities would substantially increase costs and impacts, and would raise unique questions regarding public safety.

State commentors express particularly strong concern over the superficiality of studies of site specific factors in DOE analysis. The DOE transportation risk assessment model, like others used in the EA, uses generic inputs and omits route/site-specific data, thereby producing results that are inconclusive. Almost no comment is made about risks associated with transporting waste through major Wasatch Front population centers. Careless statements are made such as that which says that access routes would bypass cities and towns when DOE maps show a major route passing directly through the center of Moab. Geologic hazards along steep rocky terrain and flash flood prone drainages are overlooked in the EA. Assessment of such risks is vital for even those studies DOE has done do not address whether a risk of accidents exists or whether there will be latent cancer fatalities; they assess how many will occur.

Perhaps the most neglected for the major impacts that would result from a repository at Utah site would be those associated with construction and operation of a new 37 mile railroad spur that would extend from the terminal point of an existing spur downstream from Moab, across and along the Colorado River, and then cross country along rocky canyons and through several tunnels to the site. Only the most cursory study along what State commentors suggest is not a very representative route have been made of geologic hazards, effects upon threatened and endangered species of plant and animals, effects on grazing patterns and wildlife, and disturbances of archeological sites. There is some likelihood that cumulative environmental impacts of the utility corridors will exceed those of the site itself. For example, noise from construction and operation of the railroad will not be confined to a single area but will be heard along the entire 37 mile route. The superficial review of those impacts in the EA does not support DOE's conclusion that the qualifying condition in the transportation guideline, that transportation operations can be conducted without causing an unacceptable risk to the public or unacceptable environmental impacts, can be met. State comments further demonstrate that the costs of construction and rehabilitation of roads and railroads to the site, which DOE admits will be higher than those for other sites, have been grossly underestimated.

A major problem could be encountered in obtaining rights of way for the railroad but the magnitude of the problem cannot be measured because DOE has provided no detailed discussion of the subject in the EA's.

Comparison of Sites.

The environmental assessment must contain a reasonable comparison of the Utah sites with other sites considered. DOE makes an effort to compare sites, but the reasonableness of the comparison is highly doubtful. For an adequate systematic comparison to be performed, the inputs must be reliable. As noted throughout the attached comments, data used in support of the comparison is grossly deficient. Data has also been misapplied, and assumptions used in lieu of data are excessively optimistic. The State of Utah believes that the comparison effort undertaken by DOE is not reasonable and does not conform to the NMPA.

In Chapter 6 of the EA, DOE used a pass/fail test in applying guidelines to each site. DOE then made a leap from the subjective pass/fail determination through some unexplained process to a numerical ranking under each guideline of the five sites to be nominated. Those rankings were then fed into statistical formulas to come up with final rankings. Without an explanation of how the individual guideline rankings were made, neither the State nor anyone else can ascertan how the crucial determination was made. Unless DOE provides an explanation, the rankings in Chapter 7 are without foundation and hence, without meaning. In addition, the ranking methodologies do not reflect variations in the amount of data available at each of the five sites. The failure to consider differences in data between sites assumes that ranking conclusions regarding the suitability of the candidate Utah sites are based upon substantially less data than is available for other sites. The failure of DOE's ranking system to acknowledge and consider the relatively greater uncertainties in the Department's conclusion regarding other sites, calls the validity of DOE's ranking of sites into question.

Effects of Possible Two-Phase Concept.

In Section 5.5 of the Davis Canyon EA, DOE describes the potential effects of possible redesign of the repository to a two-phase facility as described in the DOE Mission Plan. Such a two-phase facility would be so substantially different from the reference design set froth in the EA that a whole new evaluation would be needed. For example, surface facilities would use 500 acres instead of 400 acres, underground excavations would increase from 1,930 acres to 3,359 acres, and total excavated salt would almost double from 23.1 million tons to 45.5 million tons. The EA's being considered are not adequate to allow such a substantial change to be made. Impacts should be reevaluated with the new design in mind.

Import of State Comments

All statements in the materials submitted by the State that are critical of evidence considered and analyses made by DOE in making guideline determinations as to whether potentially adverse or favorable conditions exist, whether qualifying conditions have been met, and whether disqualifying conditions have been determined not to exist, are to be considered as objections to the determinations made by DOE notwithstanding that specific statements to that effect have not been made. All critical statements in the materials submitted by the State, including appended materials and those received subsequent to the initial package, are also to be considered as objections to the EA's even though they might not be specifically framed as such. The State of Utah has submitted objections to DOE as to the legal inadequacies of the process for designating the nine potentially acceptable sites and of precedures followed by DOE in promulgating and in applying the guidelines during the site nomination process. Although the State does not reiterate all of those objections in the comments, it does not waive them.

Conclusion

Comments of the State of Utah demonstrate serious inadequacies in the EA's for the Davis Canyon and Lavender Canyon sites. If the deficiencies identified by the State and other are not corrected prior to final release of the EA's, DOE will have failed to meet its burden to demonstrate the suitability of the sites for characterization.