



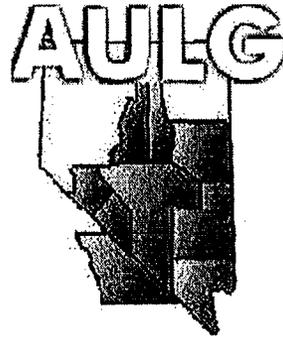
# **Affected Units of Local Government**

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**Nuclear Regulatory Commission  
Presentation**

**March 16, 1999**

*Legacy 1 March 21*



## **INTRODUCTION**

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**MARCH 16, 1999  
ROCKVILLE, MD**

**MIKE BAUGHMAN, PhD.**



## **INTRODUCTION - WHO WE ARE**

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- **AULG designated by Secretary of Energy pursuant to NWPA**
- **Collectively, AULG represent over 1.3 million people in Nevada and California**





## **INTRODUCTION - WHO WE ARE (cont.)**

- **The AULG's are in areas with multiple sources of potential radiation exposure including: historic weapons tests, current LLW disposal, and ongoing transportation of radioactive wastes through the region.**
- **The AULG's represent one of the fastest growing population centers in the United States.**





## **INTRODUCTION - WHAT WE'VE DONE**

- **Capacity building: county staff, consultants, advisory committees, data processing capabilities, tours of nuclear facilities**
- **Independent research: use of University of Nevada, Las Vegas; University of Nevada, Reno; independent consultants**
  - **Geotechnical/Geohydrology (Nye County Early Warning Drilling Program)**
  - **Risk assessment (RADTRAN evaluations of transportation risk)**
  - **Socioeconomic impact assessment and monitoring**





## **INTRODUCTION - WHAT WE'VE DONE (cont.)**

- **Review and comment on DOE and other documents**
- **Provided recommendations to the Secretary of Energy and Congress**
- **Designed and implemented effective public information programs**





## **INTRODUCTION - OUR CONCERNS**

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- **Uncertainties**
- **Unanticipated Consequences**
- **Mischaracterization of impacts**
- **Failure to consider impacts**
  - **Transportation**
  - **Cumulative risk**
- **Failure to identify impacts**





## **INTRODUCTION - OUR CONCERNS (cont.)**

- **Failure to identify and commit to implementation of mitigation measures**
- **Insufficient AULG input to NRC comments on key documents**





# **VIEWS OF AULG ON DOE VIABILITY ASSESSMENT**

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**MARCH 16, 1999  
ROCKVILLE, MD**

**MALACHY R. MURPHY, NYE COUNTY  
DENNIS BECHTEL, CLARK COUNTY**



## **VIABILITY ASSESSMENT**

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- **VA IS NOTHING MORE THAN A STATUS REPORT TO CONGRESS, AND WE CAUTION AGAINST USING IT FOR MORE THAN THAT.**
- **IS ENTIRELY PREMATURE TO TREAT VA AS ANY KIND OF PRELIMINARY SUITABILITY DETERMINATION.**
- **VA ITSELF ACKNOWLEDGES MUCH UNCERTAINTY REMAINS ABOUT YUCCA MOUNTAIN ITSELF, THE REGIONAL SETTING, THE PRELIMINARY DESIGN, AND HOW THE SITE AND DESIGN MIGHT INTERACT.**



## **VIABILITY ASSESSMENT**

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- **OUR REMARKS ARE DIRECTED AT THE PRINCIPAL AREAS OF UNCERTAINTY THAT WE SEE, AS WELL AS SOME PROGRAMATIC SHORTCOMINGS IN THE VA.**





## **VIABILITY ASSESSMENT - PROGRAMATIC**

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- **SITE DESCRIPTION IS INCOMPLETE.**
  - **DESCRIPTION DOES NOT MENTION LOCAL JURISDICTION (NYE COUNTY).**
- **DOES NOT SAY WHETHER DOE ASSUMES THAT THE LOCALE WILL REMAIN “UNPOPULATED” FOR THE NEXT 100, 1000, OR 10000 YEARS, WHICH HISTORY SHOWS CLEARLY WILL NOT BE SO.**



## **VIABILITY ASSESSMENT - PROGRAMATIC (cont.)**

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- **IGNORES THE POTENTIAL CUMULATIVE RADIOLOGICAL BURDEN PLACED ON A SINGLE COMMUNITY IN AN INVOLUNTARY SITING PROCESS.**
- **IGNORES POTENTIAL HYDROLOGIC IMPACT TO OTHER AULG OVER THE LIFE OF THE PROGRAM.**



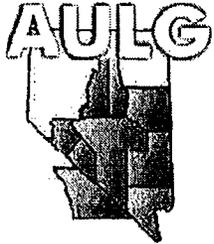


## **VIABILITY ASSESSMENT - PROGRAMATIC (cont.)**

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- **VA DISCUSSION OF EFFORT TO AMEND SITING GUIDELINES (10 CFR PART 960) IS INCOMPLETE.**
  - **SITE'S "PROMISE" IS DEPENDENT NOT ONLY ON TECHNICAL ASPECTS BUT ON WHETHER OR NOT IT CAN MEET VARIOUS REGULATORY STANDARDS AND REQUIREMENTS WHICH APPLY.**
  - **SHOULD FORTHRIGHTLY ACKNOWLEDGE PROBLEMS IN FINDING SITE SUITABLE UNDER CURRENT GUIDELINES**



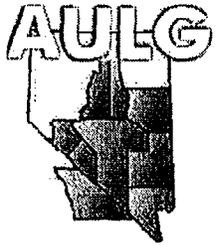


## **VIABILITY ASSESSMENT - PROGRAMATIC (cont.)**

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- **VA DISCUSSION OF EFFORT TO AMEND SITING GUIDELINES (10 CFR PART 960) IS INCOMPLETE. (CONT.)**
- **WHETHER DOE INTENDS TO REPLACE GUIDELINES OR PROCEED UNDER THE CURRENT ONES CONGRESS SHOULD BE TOLD.**





## **VIABILITY ASSESSMENT - PROGRAMATIC (cont.)**

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- **DOE HAS SERIOUS QUALITY ASSURANCE PROBLEMS, WHICH THE VA COMPLETELY IGNORES.**
- **THE VA UNDERSTATES THE COSTS OF THE PROGRAM.**
  - **INCONSISTENCY BETWEEN THE VA, VOLS 4 & 5 AND THE TSLCC REPORT.**
  - **WE DO NOT BELIEVE THE VA REFLECTS REALISTIC COSTS OF CARRYING OUT THE FULL PROGRAM, OR FINANCING MANY MAJOR CONTINGENCIES.**





## **VIABILITY ASSESSMENT - TECHNICAL**

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- **ANALYSES PRESENTED IN VA INDICATE THAT GEOLOGIC AND HYDROLOGIC BARRIERS DO NOT PROVIDE ADEQUATE PROTECTION BY THEMSELVES. ARE WE MOVING TOWARD ALMOST TOTAL RELIANCE ON EBS? IF SO VA SHOULD BE CLEAR.**
  
- **APPARENT LACK OF CONFIDENCE IN THE NATURAL SYSTEM NEGATES PURPOSE OF DEFENSE IN DEPTH**

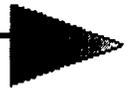


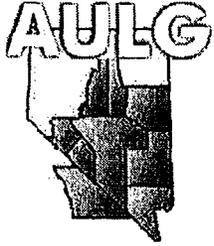


## **VIABILITY ASSESSMENT - TECHNICAL (cont.)**

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- **PERFORMANCE OF EBS IS BASED ON LIMITED EXPERIENCE OBTAINED OVER A SHORT PERIOD OF TIME.**
- **LIFETIME OF CANISTER MATERIAL SEEMS HIGHLY SPECULATIVE.**
- **NO EVIDENCE TO SUPPORT PROMISED PERFORMANCE OF CERAMIC COATING.**





## **VIABILITY ASSESSMENT - TECHNICAL (cont.)**

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- **SEEPAGE INTO DRIFTS IS UNDERESTIMATED.**
- **VA ESTIMATES ONLY 5% OF SURFACE INFILTRATION BECOMES PERCOLATION, AND 1% SEEPS INTO DRIFTS. TESTS IN ESF INDICATE THIS IS LOW BY FACTORS OF 40 TO 67.**



## **VIABILITY ASSESSMENT - TECHNICAL (cont.)**

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- **DATA IS NEEDED FROM THE CALICO HILLS. DOE IS NOT RELYING ON IT AS A NATURAL BARRIER BECAUSE OF LACK OF DATA. THIS MAY NOT BE ACCURATE.**
- **TREATMENT OF SATURATED ZONE IN VA IS INACCURATE. NYE EARLY WARNING DRILLING PROGRAM DATA IS BEGINNING TO SHOW LARGE HETEROGENEITY IN SZ. CURRENT MODELS ARE ENTIRELY MISCONCEPTUALIZED.**



## **VIABILITY ASSESSMENT - TECHNICAL (cont.)**

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- **SORPTION GEOCHEMISTRY IS POORLY TREATED AS A POTENTIAL RETARDATION MECHANISM. IT MAY BE UNDERESTIMATED IN FRACTURES AND OVER ESTIMATED UNDER MATRIX CONDITIONS.**

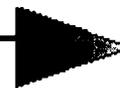


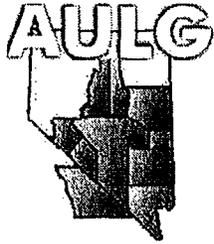


## **VIABILITY ASSESSMENT - TECHNICAL (cont.)**

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- **CURRENT BASE CASE DESIGN MAY NOT BE APPROPRIATE FOR OPTIMIZED PERFORMANCE OF A VENTILATED REPOSITORY. INCREASING ACCEPTANCE THAT A COOLER REPOSITORY WOULD AVOID MANY OF THE DIFFICULTIES AND UNCERTAINTIES IN MODELING RESULTING FROM A “HOT” REPOSITORY.**





## **VIABILITY ASSESSMENT - TECHNICAL (cont.)**

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- **USE OF CONSERVATISM IN TSPA-VA IS INCONSISTENT.**
  - **CONSERVATISM VARIES FROM HIGHLY CONSERVATIVE TO CONTROVERSIAL.**
  - **EFFECTS OF DIFFERING DEGREES OF CONSERVATISM COULD BE CONSIDERABLE.**





## **VIABILITY ASSESSMENT - TECHNICAL (cont.)**

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- **DATA BASES FOR MANY OF THE MODELS THAT MAKE UP THE OVERALL TSPA IS LIMITED.**
- **PRIORITY OF ANALYSES REGARDING DATA AND MODELING CONDITIONS SHOULD BE REEVALUATED, AND EMPHASIS SHOULD BE PLACED ON UNIQUE AREAS OF VULNERABILITY.**





## **VIABILITY ASSESSMENT - TECHNICAL (cont.)**

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- **OVERALL UNCERTAINTY IN THE TSPA-VA RESULTS FOR EXPECTED PERFORMANCE AT 10,000 YEARS SPANS 4-5 ORDERS OF MAGNITUDE.**
  - **UNCERTAINTY RESULTS FROM VARIABILITY OF PERFORMANCE FACTORS, LACK OF DATA IN MANY AREAS, AND COMPLEXITY OF THE SYSTEM, PARTICULARLY UNDER ELEVATED TEMPERATURES.**
  - **MORE RIGOR WILL BE NEEDED TO BRING MORE CERTAINTY TO LICENSING PROCESS.**





**NRC's ROLE IN THE NATIONAL ENVIRONMENTAL  
POLICY ACT (NEPA) COMPLIANCE FOR THE  
YUCCA MOUNTAIN PROJECT**

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**MARCH 16, 1999  
ROCKVILLE, MD**

**TAMMY MANZINI, LANDER COUNTY**

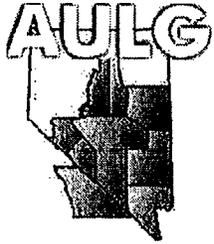


## NEPA COMPLIANCE - NEPA REQUIREMENTS UNDER THE NWPA

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- **Sec 407(a) and (b) State:**
  - *Sec. 407(a) In general. Issuance of a construction authorization for a repository or monitored retrievable storage facility under Section 405(b) shall be considered a major Federal action significantly affecting the quality of the human environment for purposes of the National Environmental Policy Act of 1969(42 U.S.C. 4321 et seq.).*





## NEPA COMPLIANCE - NEPA REQUIREMENTS UNDER THE NWPA (cont.)

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- **Sec 407(a) and (b) State:**
  - *Sec. 407(b) Preparation. A final environmental impact statement shall be prepared by the Secretary under such Act [42 U.S.C. 4321 et. seq] and shall accompany any application to the Nuclear Regulatory Commission for a construction authorization.*



## **NEPA COMPLIANCE - NEPA REQUIREMENTS UNDER THE NWPA (cont.)**

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- **Sec 407(a) and (b) imply:**
  - **Construction authorization is the major federal action of the EIS being prepared by DOE.**
  - **The EIS is to be prepared so that it coincides with the license application submitted to NRC.**
  - **The EIS must support the decision to issue a construction authorization.**
  - **Because the decision to issue a construction authorization lies solely with NRC, it appears that DOE is preparing the NRC's EIS.**





## NEPA COMPLIANCE - NEPA REQUIREMENTS UNDER THE NWPA (cont.)

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- **Sec 407(c)(1) states:**
  - *Any such environmental impact statement shall, to the extent practicable, be adopted by the Nuclear Regulatory Commission, in accordance with section 1506.3 of title 40, Code of Federal Regulations, in connection with the issuance by the Nuclear Regulatory Commission of a construction authorization and license for such a repository or monitored retrievable storage facility.*



## **NEPA COMPLIANCE - NEPA REQUIREMENTS UNDER THE NWPA (cont.)**

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- **Sec 407(c)(1) states:**
  - **NRC must comply with the Council on Environmental Quality (CEQ) regulations for implementing procedural provisions of the National Environmental Policy Act [40CFR1506.3] for adoption.**



## **NEPA COMPLIANCE - NEPA REQUIREMENTS UNDER THE NWPA (cont.)**

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- **CEQ regulations for implementing NEPA allow an agency to adopt an EIS if:**
  - **The proposed action for which the EIS was adopted is substantially the same.**
  - **NEPA requirements, comments and suggestions are addressed.**
  - **The EIS contains adequate information to support the agency's decision.**
  - **NRC must in it's own judgment determine whether the EIS is sufficient and adequate for adoption.**





## **NEPA COMPLIANCE - WHY IS THIS RELEVANT TO THE NRC?**

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- **It brings into question NRC's role with respect to the Yucca Mountain Project EIS. Clearly, NEPA and NWPAA contemplate an active role in it's preparation.**
- **What steps will NRC have to take to achieve NEPA compliance with respect to the major federal action referenced in NWPAA Section 407, construction authorization.**





## **NEPA COMPLIANCE - WHY IS THIS RELEVANT TO THE NRC? (cont.)**

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- **Will the Yucca Mountain EIS be adequate to support a decision to issue a construction authorization given the current uncertainties about the repository's performance and design? Such uncertainties include for example:**
  - **Issuance of new repository siting guidelines.**
  - **Final repository design which is key to the proposed action.**
  - **Completion of the postclosure and preclosure safety case.**



## **NEPA COMPLIANCE - AULG ISSUES WHICH REQUIRE REVIEW AND ANALYSIS IN THE EIS**

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- **Issues include, among others:**
  - **Site specific transportation impact analysis along corridors in and around the Yucca Mountain site.**
  - **A thorough cumulative analysis which takes into account past, present and reasonable foreseeable impacts from radiological exposure associated with Nevada Test Site operations.**
  - **A worst case scenario involving credible but unlikely events which lead to a substantial breach of waste packages and release of radioactive materials.**





## **NEPA COMPLIANCE - AULG ISSUES WHICH REQUIRE REVIEW AND ANALYSIS IN THE EIS (cont.)**

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- **The extent to which these and other issues of concern are addressed will be better understood with the release of the draft EIS this summer.**





## NEPA COMPLIANCE - CONCLUSIONS

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- **There is a need to better understand NRC's role with respect to NEPA compliance.**
- **With respect to the DOE EIS for the Yucca Mountain Project, NRC clearly has the authority and obligation to provide guidance for it's preparation.**



## NEPA COMPLIANCE - CONCLUSIONS (cont.)

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- **Such guidance needs to consider incorporation of site specific impacts along transportation routes near Yucca Mountain and technical data and analysis which influences overall system performance and final repository design.**
- **NRC should provide opportunities for the AULGs to discuss relevant issues which need to be addressed in an EIS which is adopted by NRC.**



## **REGULATORY COMPLIANCE**

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**MARCH 16, 1999  
ROCKVILLE, MD**

**BRAD METTAM, INYO COUNTY**



## **REGULATORY COMPLIANCE - PROPOSED REGULATORY CHANGES**

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- **The AULGs do not oppose a performance based standard, although we feel a dose based standard that requires hypothesizing on the life styles and habits of some future critical group introduces too many areas of conjecture and contention.**





## **REGULATORY COMPLIANCE - PROPOSED REGULATORY CHANGES (cont.)**

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- **The exclusive use of Total System Performance Assessment to determine repository performance**
  - **does not provide for defense in depth**
  - **requires the use of stacked and abstracted models in an analysis of system performance that is not easily comprehensible by the public**





## **REGULATORY COMPLIANCE - PROPOSED REGULATORY CHANGES (cont.)**

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- **The AULGs believe that a ground water travel time standard should be maintained as part of the requirements for repository performance.**
  - **to provide defense in depth by the use of the “safety net” of a limit for the most likely transport method — ground water**
  - **to increase public confidence**

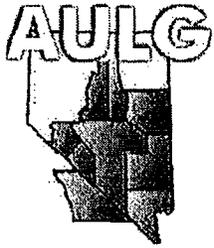


## **REGULATORY COMPLIANCE - PROPOSED REGULATORY CHANGES (cont.)**

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- **The decision by the NRC to release proposed standards prior to the release of standards by the EPA, while intended to provide DOE with a standard to use as a goal, creates additional confusion as to:**
  - **What the eventual standards may be**
  - **Who controls the different portions of the regulatory environment**





## **REGULATORY COMPLIANCE - TRANSPORTATION**

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- **The ten AULGs collectively represent the “end of the funnel” for transportation to Yucca Mountain.**
  - **The DOE budget for transportation planning has been substantially reduced**
  - **Additional low-level waste transportation to the Nevada Test Site, including potential intermodal shipments, increases the importance of transportation planning**





## **REGULATORY COMPLIANCE - TRANSPORTATION (cont.)**

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- **The AULGs believe that low-level waste transportation routes will likely set a precedent for high-level shipments which:**
  - **Avoid the metropolitan Las Vegas area**
  - **Use longer routes in rural areas on non-interstate roads**
  - **and relocate transportation routes to areas with less emergency response capability**





## **REGULATORY COMPLIANCE - TRANSPORTATION (cont.)**

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- **The AULGs believe that radioactive materials can be transported safely, provided:**
  - **Transportation planning and preparation is done in a timely manner, and done cooperatively with local governments**
  - **Sufficient resources are available to prepare local jurisdictions for routine transportation and potential impacts**



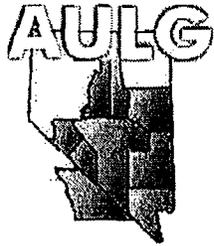


# **SUMMARY CONCLUSIONS/RECOMMENDATIONS**

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**MARCH 16, 1999  
ROCKVILLE, MD**

**MIKE BAUGHMAN, PhD.**



## **SUMMARY CONCLUSIONS & RECOMMENDATIONS**

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- **NRC should seek AULG input to NRC comments to the Viability Assessment and Draft Yucca Mountain Environmental Impact Statement.**
- **NRC should encourage DOE to increase its emphasis upon the early identification and resolution of transportation issues (routing, mode, etc.).**
- **NRC should require DOE to reduce uncertainties within the Draft Yucca Mountain Environmental Impact Statement.**



## **SUMMARY CONCLUSIONS & RECOMMENDATIONS (cont.)**

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- **NRC should encourage DOE to provide comprehensive inclusion of measures to mitigate impacts within the DEIS.**
- **NRC should plan on including measures to mitigate impacts as conditions to licenses to construct and operate the Yucca Mountain repository.**