UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

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DATE: September 21, 1993

TO: Joseph Holonich, Director
Repository Licensing and Quality Assurance Project Directorate

FROM: Philip S. Justus, Sr. On-Site Licensing Representative, HLPD

SUBJECT: YUCCA MOUNTAIN PROJECT ON-SITE LICENSING REPRESENTATIVE'S REPORT FOR JULY AND AUGUST 1993

INTRODUCTION

During the eleventh and twelfth months as On-Site Licensing Representative (OR), I participated in five site visits, two 90% Design Reviews, a public meeting on Section 803 of the Energy Policy Act of 1992, a workshop sponsored by Nye County in Pahrump, and a National Academy of Sciences meeting in Las Vegas, among other activities. This report summarizes those activities that I consider particularly relevant to staff work.

A principal purpose of these OR reports is to alert NRC staff, managers and contractors to information from DOE's programs for site characterization, repository design, performance assessment and environmental studies that may be of use in fulfilling NRC's role during prelicensing consultation. Relevant information includes such things as new technical data, DOE's plans and schedules and the status of activities to pursue site suitability and Exploratory Studies Facility (ESF) development. In addition to communication of information, any potential licensing concerns identified are reported, as appropriate. The principal focus of this and future ORs reports will be on DOE's programs for ESF, surface-based testing (SBT), performance assessment, data management systems and environmental studies (at this time, mainly water resources).

EXPLORATORY STUDIES FACILITY (ESF)

1) 90% DESIGN REVIEW OF ESF DESIGN PACKAGE 2A FOR NORTH RAMP TUNNEL CONTINUATION - (A) FACTS, PURPOSE, SCOPE. I attended the introduction to the 90% Design Review of Package 2A on 7/19 with

Wm. Boyle of NRC HQ staff (Dr. Boyle was the NRC observer). The scope of Package 2A was: drawings and specs for drill and blast from the end of the starter tunnel (1 + 98 ft) to near the Bow Ridge Fault (BRF; about 1 + 425 ft., 30m short of the projected location of the BRF), including TBM launch chamber and test alcoves; surface and subsurface conveyor procurement specs and layout drawings; long-lead electrical equipment procurement specs; drawings for support of TBM; transportation system study. The purpose of the review was to "provide assurance that the design is: technically correct; complies with upper-tier requirements." In addition, the meeting feedback was to help assure that the "implementation of design criteria yields a product that: meets mission needs; complies with federal and state regulations; complies with DOE orders." Package 2A begins at an elevation of about 3686 ft; the water table occurs at about 2394 ft below. The design basis is the approved ESF Design presented in ESF Technical Baseline (YMP/CM-0016, Rev.1). Package 2A implements a new requirements hierarchy (see GENERAL, item 1).

(B) EXCAVATION CONCEPTS. Current proposed concepts for the starter tunnel extension include the following: reduce gradient from 6.87% to 0%; TBM launch chamber location and design will be decided during construction of Package 2A; drill and blast experiences, including sequence of excavation, will be carried into Package 2A methods; primary ground controls will be grouted rockbolts and fibercrete, including split set rockbolts and wire mesh for worker safety.

2) CLARIFICATION OF SOME ESF DESIGN PACKAGE 2A ELEMENTS. On 8/26 T.Petrie and DOE contractor engineers addressed some points made by Wm.Boyle at the 90% Design Review of Package 2A (see ESF Item 1, above) to the ORs. Regarding methodology used by DOE for ground stability design- the software used continuum model with added seismic loading. Regarding use of static and dynamic load inputs- for seismic, both quasi-static and dynamic loads were considered; also, in situ and thermal stresses were considered. Regarding field inspection of tunnel opening and joints as input to ground support design- M&O staff inspect tunnel after blast and prior to mapping and provide expert judgment input to design of personnel safety measures, such as split set rockbolts/mesh.

3) 90% DESIGN REVIEW OF ESF DESIGN PACKAGE 1B FOR SURFACE FACILITIES NORTH PORTAL. I attended the introduction to the Package 1B review on 8/2. The scope of the Package included the Change House Bldg, Shop Bldg, Water Distribution System, Subsurface Waste Water Pond, Sanitary Sewer System, 69kv Powerline & Feeders, among other things. It is a continuation of Package 1A. The purpose of the review was to provide assurance that the design is technically correct and complies with upper-tier requirements.

4) DETERMINATION OF IMPORTANCE EVALUATIONS (DIEs). The DIE for the starter tunnel is a useful source of understanding aspects of

ESF development, such as the introduction of several hundred thousand gallons of fluids into the highwall and first 200 ft. of tunnel. The objectives of DIEs are to provide indication of an item or activity's (such as Package 2, drill and blast starter tunnel; or Package 2A, starter tunnel extension) potential impact on radiological safety, test interference or waste isolation; provide for QA controls, as appropriate; and satisfy 10 CFR 60.15 and 60.151; i.e., what is on Q-list. The DIEs also document which items are temporary or will be permanent parts of a pre- or post-closure repository. For example, in the starter tunnel (Package 2), split-set rockbolts are considered temporary items that are installed to protect workers, but other, grouted rockbolts, have been designated as permanent items, installed to ensure stability of the tunnel (however, it has been pointed out that the split-set bolts and associated wire mesh might become de facto permanent items because they are being encased in shotcrete). Several proposed 'DIE control requirements' for Package 2A appear to be more severe than for Package 2, for example, a) construction water is limited to 1000 gal/ft, not to exceed 325,000 gals in Package 2A section of tunnel, b) unrecovered spills of oils, fuels are limited to 1000 gals in Package 2A section, c) cement grout is limited to less than 10x the volume of the bolthole, d) grout injection pressure is limited to less than 30psi. The ORs have been probing the DIE process in general with YMPO staff and NRC staff has questioned the basis of some specific DIE results for Package 2A. YMPO has indicated that it intends to strengthen its DIE process by upgrading 'guidelines' to 'procedures.' The DIE process will likely be proposed as a discussion topic at the next ESF Technical Exchange. Several staff have reviewed DIEs in Las Vegas. The ORs can now facilitate communication between NRC staff and YMPO staff on DIE matters per Procedural Agreement.

5) THERMAL LOADING SYSTEM STUDY STATUS. At the Technical Project Officer (TPO) meeting that I attended on 7/30 a status report was presented on the FY93 Thermal Loading System Studies (Enclosure 1). A few highlights follow (see OR Report for May-June 93, ESF Item 6, for related preliminary conclusions). A decision on TL will be based upon the system studies report, modeling and code development, lab and field testing, performance assessments and multi-purpose canister (MPC) design studies. The decision process will be iterative to reflect evolving technology, design, knowledge of waste package environment, and performance assessment bases. On codes- it is expected that there will not be a single TL code, but a suite of codes. On field tests- the Fran Ridge large block test will begin in FY94; two in situ tests in the ESF, one of 5-6 yrs minimum duration, will begin in FY97. YMPO acknowledged that TL and MPC work has to be integrated, in fact they are interdependent; and the question of the quantity of waste that can be disposed of at Yucca Mountain (YM) in part depends upon the results of the integrated work.

6) TBM SCHEDULE & ACTIVITIES UPDATE. At the TPO meeting, 7/30, the following TBM schedule was announced (see Map of Topopah Springs Level (TSL) Ramp and Main Excavations in Enclosure 2, and schedule-chart in Enclosure 3): 4/94, start assembly of TBM on-site; 7/94, start excavation of North Ramp; 12/94, start excavation of TSL drift; 7/95, start excavation of South Ramp; 11/95, daylight at South Portal. Thus, the excavation of TSL test alcoves begins in FY95. The TBM launch chamber has been moved to Package 2A (see ESF, Item 1B). Current plans call for a "walking frame" to transport TBM from assembly area to Launch Chamber, rather than rail.

7) GO METRIC. The ESF design units will be in metric with English units in parentheses. It is prudent to keep the NRC Quick Reference Metric Conversion Tables card handy (NRC Form 535).

8) DOCUMENTATION OF CONCEPTUAL DESIGN CHANGES FROM SHAFT TO RAMP. The ORs were briefed by Mr. T. Petrie, ESF Branch Chief, on 7/28, on the recording of official notices of the evolving ESF designs, for example, the change from shafts to ramps. Mr. Petrie understood that the Semi-annual Progress Reports (PRs) are the appropriate mechanism for identifying such things (10 CFR Part 60.18(g). Basically, he reminded the ORs that the first notice of the change was advanced notice in PR #4, 10/91, p. 2-12. PR #5, 6/92, p. 2-15, identified implicitly the new 'ramp' concept design as "official," by reference to the SCP Baseline document, Rev.1. Apparently, YMPO intends to explicitly describe the ESF Title II design and its evolution within months.

9) FIELD CHANGES MADE TO SECURE ROCKBOLTS AND OTHER GROUND CONTROLS. The ORs were briefed by R.Saunders, M&O, on 8/3, on this subject. ORs requested such a briefing after making observations in the ESF over a period of months. Rock conditions encountered in the boxcut, high-wall, and first few tens of feet of starter tunnel caused more difficulty than expected. Conditions that caused problems included: (a) collapse or spalling of horizontal boreholes apparently due to fracture-bounded rock fragments moving into the hole; (b) larger, more interconnected and more frequent voids in the rock due to more than expected vugs, lithophysae and open fractures. Rock conditions improved with depth of penetration. Condition (a) in general did not favor installation of long rockbolts or long loads (explosives). This led to the use of six to ten feet rounds and to the occasional use of sacrificial drill bits on long bolts, 20 footers. Condition (b) foiled attempts to use the preferred resin grout (neat and easy to emplace and quick-setting). Apparently, the voids in the wall of the boreholes prevented adequate mixing of the epoxy and hardener in place. This was evidenced by too many failed pull-tests. This led to the extensive use of cementitious grout (HLN(cc)), which apparently needs more water and is slower setting. A future OR report will cover details of grout and grouting. Also, fibercrete with steel fibers replaced shotcrete, it added strength. A lighter

weight, wider mesh wire fabric (about 6") replaced the "chain-link" mesh. This was a welcome substitution for the geologic mappers and photographers. The geologists had to map and stereophotographers shoot after meshing, for safety reasons. The geologists couldn't readily get large rock samples or their Brunton compass-clinometers through the chain-links; the photogrammetrist couldn't readily "see" (resolve) fracture orientations when they were photographed through the chain-links.
Lattice girders were installed in the first 33 ft at about 5 ft spacing and fibercreted. Split set rockbolts were installed to support wire mesh for personnel safety. Monitoring of high-wall stability and tunnel convergence was instituted. This will be discussed in future reports. DOE expects ground support measures to evolve as different conditions are encountered and to learn from the experience. For example, ORs were informed that a menu of ground support methods is being developed to expedite the designs to stabilize drill and blast and TBM segments to be excavated in various rock types. DOE further expects more stringent D.I.E. requirements (tbd) to be imposed closer to the repository block.

10) WATER USE. Water is used in the ESF North Ramp for: 1) grout mix, 2) shotcrete mix, 3) cooling drill bits during drilling of rockbolt holes and trim and explosives holes, 4) dust control, 5) washing or misting of rock exposures for mapping ease, 6) drinking water. The first five uses require the water to be traced with lithium bromide; drinking water is not chemically treated and it is not monitored as spillage quantities are considered below level of concern. Initially, 305,000 gallons of water were authorized for use (first five uses, above) in the tunnel. This was increased to 500,000 gallons and includes use for excavating the first test alcove. As of 8/4, 252,000 gallons of water were used in the ESF; on 8/23, 268,000 gallons. The Determination of Importance Evaluation for the next phase of tunnel (i.e., from 200 ft. to the Bow Ridge Fault, about another 300 ft.) appears to require a water budget of 1000 gallons/foot of tunnel.

11) STARTER TUNNEL EXCAVATION TO HALT AT 200 FT. On 8/30, C. Gertz indicated that the starter tunnel drill and blast phase would likely stop at the 200 ft point. This decision is apparently due to a FY94 budget shortfall. A second section, approximately 300-ft-long was planned to be excavated by the drilling and blasting methods during the first three quarters of FY94, starting September 20th. A consequence of DOE's proposed decision is that no progress will be made on excavation of the North Ramp during the nine months the TBM is being procured and assembled. DOE expects the TBM to be in place and ready to bore in July 1994.

12) FIRST TEST ALCOVE SITE SELECTED. The first test alcove, for hydrologic and hydrogeochemical investigations under Study Plan 8.3.1.2.2.4 will be excavated at the 140 ft. point on the north side of the ramp. It will be about 60 ft. long. Construction is expected to be completed about mid-October.

13) ESF STATUS. At the TPO meeting, 7/30, ESF design and construction activities schedules and accomplishments for FY93 and plans for FY94 were presented (Enclosure 3). At end of July the portion of the starter tunnel above the spring line was excavated to 1 + 98, shotcreted and pattern bolts were installed). On August 5 bench removal will have been started.

SURFACE-BASED TESTING (SBT)

1) SEISMIC REFLECTION SURVEYS POSTPONED. At the TPO meeting on 7/30 that I attended, it was announced that there would be no seismic reflection surveys in FY93. Reasons given: bids for the surveying contract came in over budget and funds were redistributed for other scientific needs. USGS and YMPO will be reconsidering priorities for surveys in developing its RFP for FY94.

2) LOCATIONS OF ALCOVES FOR FIRST ESF TESTS SELECTED. At the TPO meeting, 7/30, it was stated that the alcoves for conducting the 'radial borehole' and hydrochemistry tests will be located around station 1 + 50 (two alcoves are planned for tests described in Study Plan 8.3.1.2.2.4 starting 11/93, see diagram in Enclosure 2). The alcoves will be excavated after the rock bench now present in ESF is removed (in a few months). The alcoves will be excavated beyond the zone of grout penetration which was generated by the need to cement rock bolts in the starter tunnel. The alcoves will not be rock bolted. Other means of rock stabilization, such as steel or wood sets and girders, are under consideration.

3) UZ-16 UNDERGOING TESTS FOR GEOCHEMICAL AND GEOPHYSICAL PROPERTIES. UZ-16 was the first borehole (BH) completed on site with the LM-300 dry-drilling rig (completed to depth of 1686.16 ft. on 3/11/93; cased to 52.25 ft). The primary purpose of the BH was to conduct geophysical logs/tests to characterize the rock structure and stratigraphy in addition to core analyses. Gases have been sampled for CO2, CH4, SF6 (tracer introduced in air used in drilling), C14, C13/12. Gas composition changes were monitored; air flow measured at various depths. Thirteen different geophysical tools were employed in July and August (Enclosure 4 provides additional details). The technique of vertical seismic profiling for the first time at YM was conducted the first week of August. The results are to be developed in FY94.

4) UZ-14 ENCOUNTERED WATER. At the TPO meeting, 7/30, the Site Investigation Branch Chief indicated that the UZ-14 BH (being drilled by the LM-300 rig) was nearing the depth (about 1250 ft.) that nearby BH UZ-1 encountered 'contaminated' water ten years earlier. [Note: this caused quite a stir among hydrologists at the time because a potential source of the contaminant, a polymer used in drilling fluid, was a well 1000 ft. down gradient (G-1). If G-1 were the source, then a fairly rapid rate of flow in fractures was considered a possible explanation]. The Principal

Investigator and the LLNL water level detection truck were on site. UZ-14...Fluid was encountered on 7/30 from 1256.6 to 1258.5 ft. in the lower non-lithophysal zone of the Topopah Spring unit. The static fluid level was at about 1250 ft. In August fluid was bailed for chemical analysis and hydraulic tests were conducted. The first of four pump tests was made on 8/17; discharges apparently ranged from about 1-2 gpm, total withdrawal was about 6000gal; transmissivities ranged from about 6-10 ft-squared/day. I understand that water is being archived in drums. The September report will summarize the results, as available.

5) ACCELERATED SURFACE-BASED TESTING PROGRAM. At the TPO meeting, 7/30, the USGS summarized its plan for accelerated SBT to provide baseline information on the undisturbed site ahead of ESF construction, to monitor construction effects and to assess certain impacts of TBM (Enclosure 5). This program is designed to collect "pre- and concurrent-ESF construction pneumatic, gas chemistry, and in situ moisture, pressure and temperature data...in order to account for ESF impacts on site characterization efforts." Ten key BHs have been identified for instrumentation (see map and descriptions in Enclosure 5): existing BHs NRG-6, UE-25a#4, NRG-4, NRG-5, UZ-7, UZ-16, planned BHs NRG-2b, SD-12, SRG-4 and UZ-14, in progress. The Deputy USGS TPO described a hierarchy of Study Plans (SP) that govern this program. Four SPs guide data collection: 8.3.1.-2.2.3, -2,2,4 (once underground activities begin), -.2.2.6 and -.2.2.7. These feed SP 8.3.1.2.2.8 which guides assessment of impacts, which, in sequence, feeds 8.3.1.2.2.9. It was stated that this program should be a sufficient response to the State of Nevada letter concerning need to consider "pneumatic effects." Also, the USGS acknowledged the high value of lessons learned from various completed and on-going prototype testing, such as the air-permeability tests with packer systems at the NRC Research- sponsored site at Apache Leap, AZ.

6) CHLORINE-36 IN UNSATURATED ZONE BOREHOLES SUGGESTS FAST TRANSPORT PATHS EXIST IN TIVA CANYON TUFF. At the TPO meeting, 7/30, the LANL PI presented the results of measuring Cl-36 in about 100 samples from trenches, pits and neutron BHs (Enclosures 6a, abstract of article, and 6b, copies of vu-graphs). The principal results suggested that alluvium attenuates infiltration and that, in at least one BH, fast paths through the Tiva Canyon unit exist that carried Cl-36 to a depth of about 140 ft in about 45 years. This work is guided by SP 8.3.1.2.2.2 and focuses on understanding near-surface infiltration rates. The limitations of the Cl-36 method were emphasized so that the results should be considered preliminary. Various assumptions behind the method need to be validated and the results need to be constrained by independent lines of evidence, perhaps by the tritium method. Some results will be made public at the FOCUS'93 conference in Las Vegas in September.

7) STATE OF NEVADA ISSUED STOP ORDER ON DRILLRIGS. On 7/12 the YMPO received a Stop Order from the Nevada Division of Environmental Protection to stop "dry drilling at site UZ-14 and NRG-4." The citation was for "operation of a source of air contaminants without air quality permits." At the TPO meeting, 7/30, Mr. Gertz explained that YMPO stopped work on both drillrigs on the afternoon of 7/12. The required permits had been applied for on 7/2 and were approved on 7/13. The Stop Order was lifted on 7/13, with an effective loss of one drill shift. As we discussed on 7/13, this situation did not warrant any NRC action.

8) CHANGES IN CORE LOGGING PROCEDURES PENDING. On 7/28 the ORs met with D. Williams who reviewed the status of proposed changes to core logging and BH cuttings logging procedures, BTP-SMF-008. The establishment of criteria (lithologic, physical, others) to help ensure and to facilitate consistent identification of strata within the Tiva Canyon and Topopah Springs units for various purposes (rock correlation, thermal modeling, others) by any participant is in progress.

9) SBT AND UNDERGROUND TESTING STATUS. At the TPO meeting, 7/30, the status of field testing activities in progress and planned were presented, including well tests, mapping, drilling and trenching (Enclosure 2).

GENERAL

1) OCRWM DOCUMENT HIERARCHY BEING REVISED. (A) REQUIREMENTS FLOW DOWN. At the TPO meeting, 7/30, and design reviews on 7/19, 8/2, presentations were made of the implementation plans for the revised OCRWM document hierarchy (for example, Enclosure 7). The principal reason for the revision appears to be to better ensure that all requirements are traceable from document to document, especially the allocation of requirements flowing down from parent or upper level documents. The new flow down of requirements from the program level (generic) to project level (YM-specific) is as follows:

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{ Program level }   {              Project level                }

                    -> RDR
 CRD  ->  MGDSRD    -> EBDR
                    -> SD&TRD  -> new ESFDR  and  -> new SBTFRD
                                     \/
                                  ESF BFD
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                                  ESF TBD
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[CRD =Civilian Radioactive Waste Mgmt. System Req. Doc;
MGDSRD =Mined Geol. Disp. System Req. Doc;
RDR =Repository Design Req. Doc;

EBDR =Engineered Barrier Design Req. Doc;
SD&TRD =Site Design & Test Req. Doc;
ESFDR =Explor. Studies Facility Design Req. Doc;
SBTFRD =Surface-Based Testing Facilities Req. Doc;
ESF BFD=Explor. Studies Facilities Basis for Design;
ESF TBD=Explor. Studies Facilities Technical Baseline Doc].

(B) BASIS FOR DESIGN DOCUMENT (BFD). The new document system is being implemented in support of the 90% Design Reviews of Packages 1B and 2A and the "Basis for Design" (ESF BFD, or, BFD) associated with them. The new BFD document is to clearly identify which design criteria implement the functional requirements in the ESFDR; which drawings and specs are linked to a design criterion; which analyses, including DIEs, support what design criteria. The BFD will include data from the Reference Information Base, RIB, and the Technical Data Base, ESFTDB. The BFD is to provide the traceability of requirements between the ESFDR and the design (ESFTBD; Design Package - Appendix A). The BFD is prepared according to M&O procedure QAP 3-11, Design Specs. The BFD will be baselined at Level 3 using M&O procedure QAP 3-4, Baseline Control. The BFD will be a record of all input criteria used in the design.

(C) ESF TECHNICAL BASELINE DOCUMENT (ESFTBD). The purpose of the ESFTBD is to provide a single baseline controlled document to describe the approved ESF design; provide a document that can evolve as the design changes; provide a traceable design history. The ESFTBD will contain such things as design description, design drawings, basis for costs/schedule/technical evaluations.

2) PUBLIC WORKSHOP TO REVIEW DOE'S HLW REPOSITORY PROGRAM. On 8/24-25 the ORs attended the Nye County sponsored workshop in Pahrump, NV with you (Enclosure 10a is agenda, 10b is background and overview, 10c is list of attendees). The purpose was to provide a forum by which the Affected Units of Local Government could "explore the range of issues and viewpoints regarding DOE's (program)." Copies of your presentation on the NRC and its role in the HLW program are on file in the OR office, as are most of the others. Other presentations included discussions of the EPA's standards on disposal of HLW, DOE's Alternative Licensing Strategy, status of the Nuclear Waste Negotiator's Office quest for MRS volunteer host, Nuclear Waste Technical Review Board's role, GAO's recent findings and recommendations, industry and public utility commission viewpoints. Several environmental group's, local government's and citizen's interests were discussed. The workshop included question and answer sessions on issues, NRC policy and activities pertaining to the program. A report on the workshop was promised by the conveners.

3) PUBLIC MEETING OF NATIONAL ACADEMY OF SCIENCES COMMITTEE ON TECHNICAL BASIS FOR YUCCA MOUNTAIN STANDARD. On 8/26-27 I attended the second meeting of the NAS/NRC Committee (see description of

first meeting in my May-June 93 report), along with four NRC HQ staff. The Committee heard discussions by experts on radionuclide release and transport scenarios, dose-response relationships and various types of standards (see Enclosure 11, agenda). Copies of presentation materials are on file in DHLWM, not in the OR office.

4) MAKING DOCUMENTS AVAILABLE IN DISK FORMAT. DOE and NRC staffs are investigating, within their respective organizations, the prospect of exchanging documents in computer disk format in addition to the hard copy currently required.

5) STATUS OF PROJECT. At the TPO meeting, 7/30, C. Gertz reviewed selected previous month's YMP activities (Enclosure 8a is Agenda and 8b are Mr. Gertz's handouts). Selected items are as follows: a) a stop order was issued on LM-300 rig for lack of air-quality permit on dust collector system (see Enclosure 8b for details); b) FY94 budget "is a disaster (Gertz)." Mr. Gertz considered that the YMP is about $75M short of a reasonable balanced approach and about $250M short of an all-out approach. This was a preliminary assessment and details were not available. Mr. Gertz reiterated that one solution to the recurring budget shortfall was to get "off-budget;" c) August 10 stakeholders meeting in Las Vegas is a substitute mechanism for the Keystone approach to fulfilling the Secretary of Energy's commitment to involve stakeholders in HLW decision process; d) charts show how long it takes to drill by LM-300 or TBM under various assumptions; the point is that for about a 2x expenditure about 4x the time is saved (Enclosure 8c); e) the YMP wants to make it clearer to observers of the OCRWM program where the $250M for YMP goes; the charts in Enclosure 8d outline the main categories of expenditures; f) various news items released in July were handed out (Enclosure 8e).

ON-SITE REP (OR) ACTIVITIES

1) SELECTED ACTIVITIES. (A) ATTEND SECTION 803 PUBLIC MEETING. (i) BACKGROUND. As you requested, I attended two meetings on 7/20 in Las Vegas held by DOE to observe comments by interested parties and individuals on DOE's draft report to Congress due Oct. 24, "Adequacy of Management Plans for the Future Generation of Spent Nuclear Fuel and High-Level Radioactive Waste" (Enclosure 9a is agenda, 9b is list of attendees). The report was mandated by Sec. 803 of the Energy Policy Act of 1992. The Act required DOE to consult with NRC and EPA, among others, on whether current programs and plans for management of nuclear waste as mandated by NWPA are adequate for management of any additional volumes or categories of nuclear waste that might be generated by any new nuclear power plants that might be constructed and licensed after 10/24/93. DOE seeks comments on the draft by 8/20.

(ii) OBSERVATIONS OF 803 MEETINGS. Both meetings were forums for discussion of the draft report (the Federal Register Notice, FR

v.58, no.117, 21 June 93, pp.33802-33804 and draft report are on file in OR office). Afternoon meeting was held mainly for invited speakers from State and Counties; evening meeting emphasized public participation. The draft report includes responses to comments made on the annotated outline, such as NRC's comments of 3/15/93. DOE's analysis focused on the need for a second repository, interim waste storage, transportation, waste acceptance, costs and funding, regulatory framework and decision to emplace both defense and commercial wastes. DOE concluded that its current programs and plans are adequate for management of nuclear waste from new power plants and from its own waste stabilization and disposal programs. I have no points to add to those raised at the meetings that I reported on 7/26.

(B) DOE/NRC TECHNICAL EXCHANGE ON ESF TITLE II DESIGN CANCELLED. On 7/19 I was notified of DOE's decision to cancel the Tech Exchange scheduled for 7/27-28 in Las Vegas and reported that immediately to you. The reason given was that DOE was not ready to discuss all of the topics on the agenda. Apparently, an important input to the DOE decision was the results of the previous week's audit of the M&O design control process.

(C) ATTEND CORE PARTY. I attended a core party at the SMF on 7/15. I obtained the preliminary lithologic logs for BH NRG-2, 2A, 5, 6 and observed the core for these intervals, respectively: NRG-2 0.0 to 294.0; NRG-2A 80.6 to 265.7; NRG-5 689.7 to 995.9; NRG-6 504.4 to 932.0. My purpose was to review, by cursory visual observation, the principal lithologic features described on the logs and compare them to the core intervals to which the descriptions applied. In particular, I was curious to observe the variations in lithologic features, such as mineralogy, clast types and degree of welding and vitrification within a unit (e.g., Topopah Spring) and the nature of the contacts between the units. The preliminary logs are available for inspection in the OR office.

(D) PROPOSED MINOR CHANGE TO 10 CFR PART 60 WAS MAJOR LOCAL NEWS. The NRC Press Release dated July 12, 1993, "NRC Proposed Amendments to Siting Requirements for High-Level Waste Repositories", was front page news in the Las Vegas Review Journal and the Las Vegas Sun on 7/15. At least two local TV stations aired a bite on the subject on the evening news programs. An editorial was published by the Review Journal on 7/16. The letter to the editor of the Review Journal by Mr. Youngblood was published on 7/20. These items are, as far as I know, the complete record of local coverage; except for the videos, they are on file at the OR office.

(E) VISIT HQ AND BRIEF STAFF AND MANAGERS. From 8/9 to 13 I visited DHLWM, NMSS Office and PR HQ staff and briefed management (J. Taylor, H. Thompson, R. Bernero, G. Arlotto, J. Youngblood, J. Linehan, DHLWM and RES Branch Chiefs) on principal aspects of YMP and answered a variety of questions on the project and OR interactions with DOE, State and affected County reps. I reviewed

significant staff products and activities with Section Leaders and key staff. At OR's request, a YMPO display board which contains actual rock specimens representative of YM stratigraphic units was received in DHLWM this week, courtesy of C. Gertz.

2) NRC STAFF VISITORS. The following NRC staff visited the site and/or attended meetings in Las Vegas in July: Wm. Boyle, C. Jensen; in August, J. Holonich, M. Federline, R. Boyle, J. Kotra, J. Furth.

Enclosure:

1.	TPO Meeting, Thermal Loading, Simecka,	7/30
2.	" " SBT Program, Williams	"
3.	TPO " ESF Status, Simecka,	"
4.	UZ-16, Geophysical Logging Update, Justus	7/29 & 8/5
5.	TPO Meeting, Accelerated SBT, Craig	7/30
6a.	TPO " Cl-36 Abstract, Fabryka-Martin	"
6b.	Copies of View-graphs	
7.	TPO Meeting OCRWM Documents, Rindskopf	"
8a.	TPO " Agenda, Gertz	"
8b.	TPO " TPO Meeting, Gertz	"
8c.	TPO " LM-300/TBM Schedules, Gertz	"
8d.	TPO " Categories of expenditures, Gertz	"
8e.	TPO " New items, Gertz	"
9a.	Public Meeting on Section 803 Report:Agenda	7/20
9b.	" " " " " " Attendees	7/20
10a.	Nye County Workshop Agenda	8/24-25
10b.	" " " Background	"
10c.	" " " Attendees	"
11.	National Academy of Sciences Comm. Agenda	8/26-27

cc w/encl: C. Gertz, DOE
D. Shelor, DOE
T. Hickey, State Senator
W. Patrick, CNWRA
R. Loux, State Nuclear Waste Project Office

cc w/o encl: C. Abrams, M/S 4 H 3
B. Youngblood, M/S M/S 4 H 3
J. Linehan, M/S 4 H 3
R. Bernero, M/S 6 E 6
H. Thompson, M/S 17 G 21
S. Gagner, M/S 2 G 5
S. Schwartz, M/S 3 D 23
J. Fouchard, M/S 2 G 5
E. O'Donnell, M/S NLS 260
G. Cook, Region V
J. Martin, Region V
D. Kunihiro, Region V
S. Jones, DOE
R. Dyer, DOE
D. Foust, M&O
S. LeRoy, M&O
J. Russell, CNWRA
L. Reiter, NWTRB
D. Bechtel, Clark Co.
L. Bradshaw, Nye Co.

TPO MEETING

FY93 THERMAL LOADING SYSTEM STUDY STATUS

PRESENTED BY

DR. WILLIAM SIMECKA

DIVISION DIRECTOR

ENGINEERING AND DEVELOPMENT DIVISION

JULY 30, 1993

Enclosure 1

Decision Strategy for Thermal Loading

- **Goal:** Develop a Civilian Radioactive Waste Disposal System (CRWMS) in which all system elements contribute to meeting applicable regulatory requirements
  - Mined Geologic Disposal System (MGDS) (pre-closure and post-closure)
  - Monitored Retrievable Storage (MRS) and transportation
- **Strategy:** Enhance the performance of the CRWMS by appropriate use of the repository waste heat

Regulatory Basis for Thermal-Loading Selection

- 60.133(i) "The underground facility shall be designed so that the performance objectives will be met taking into account the predicted thermal and thermomechanical response . ."
- 60.133(a) ". . . design of any engineered barriers . . . shall contribute to the containment and isolation of radionuclides"
- 60.133(h) "Engineered barriers shall be designed to assist the geologic setting in meeting the performance objectives for the period following permanent closure"
  - Others such as 10 CFR 60.111, 10 CFR 60.112, 10 CFR 60.113. . . .
- *Thermal loading is a key variable in EBS performance*

Importance of Thermal Loading

- Affects
  - Magnitude and content of site characterization
  - Material selection and design of waste package
  - Repository design and operation
- All of which affects
  - Overall system performance and licensability

Thermal-Loading Decision

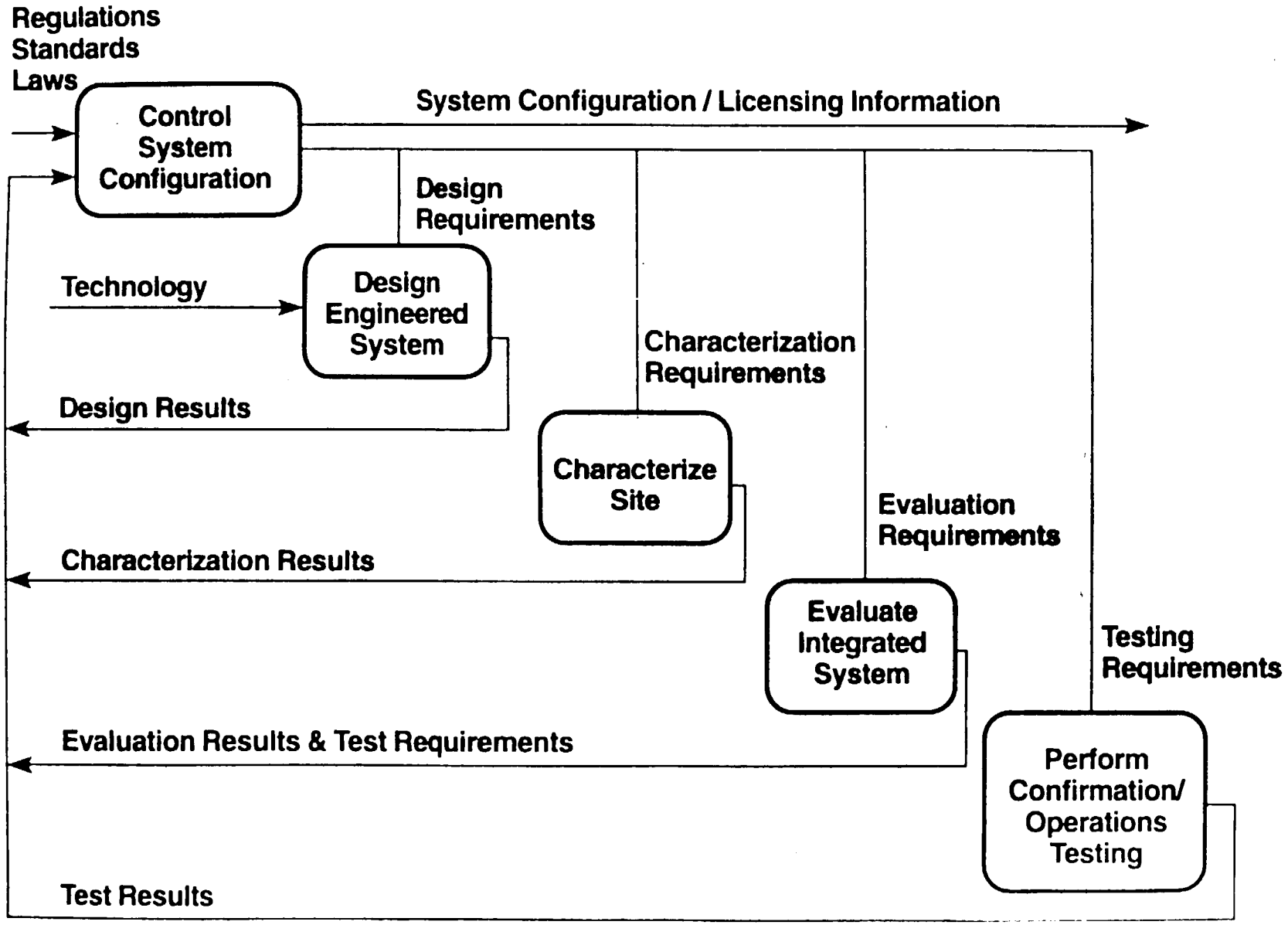
Requires Integration of

- Site characterization
- Design
- Performance Assessment
- Multi-Purpose Canister (MPC) studies

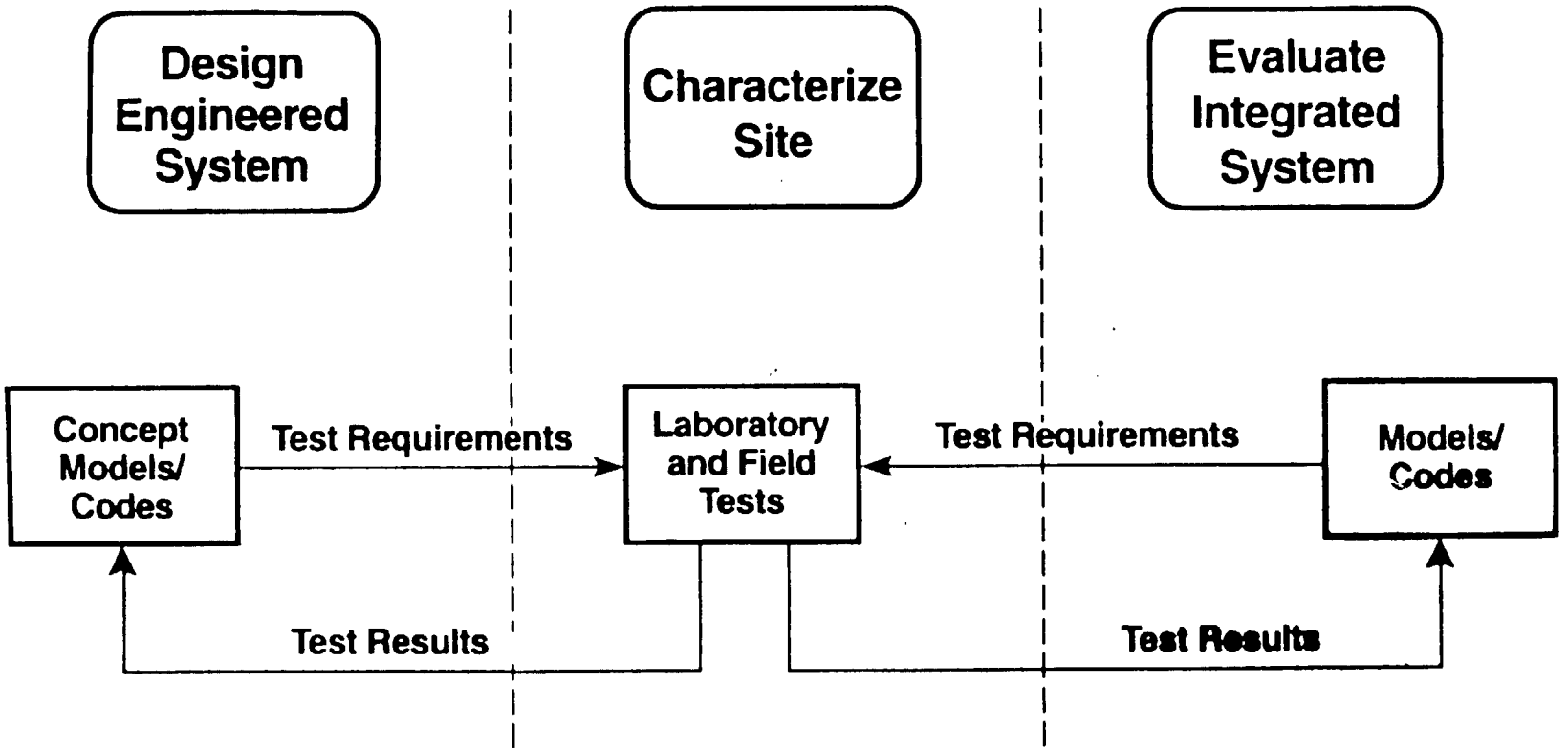
Through

- Thermal-loading study
- Modeling and code development
- Laboratory and field testing
- Performance calculations
- MPC design studies

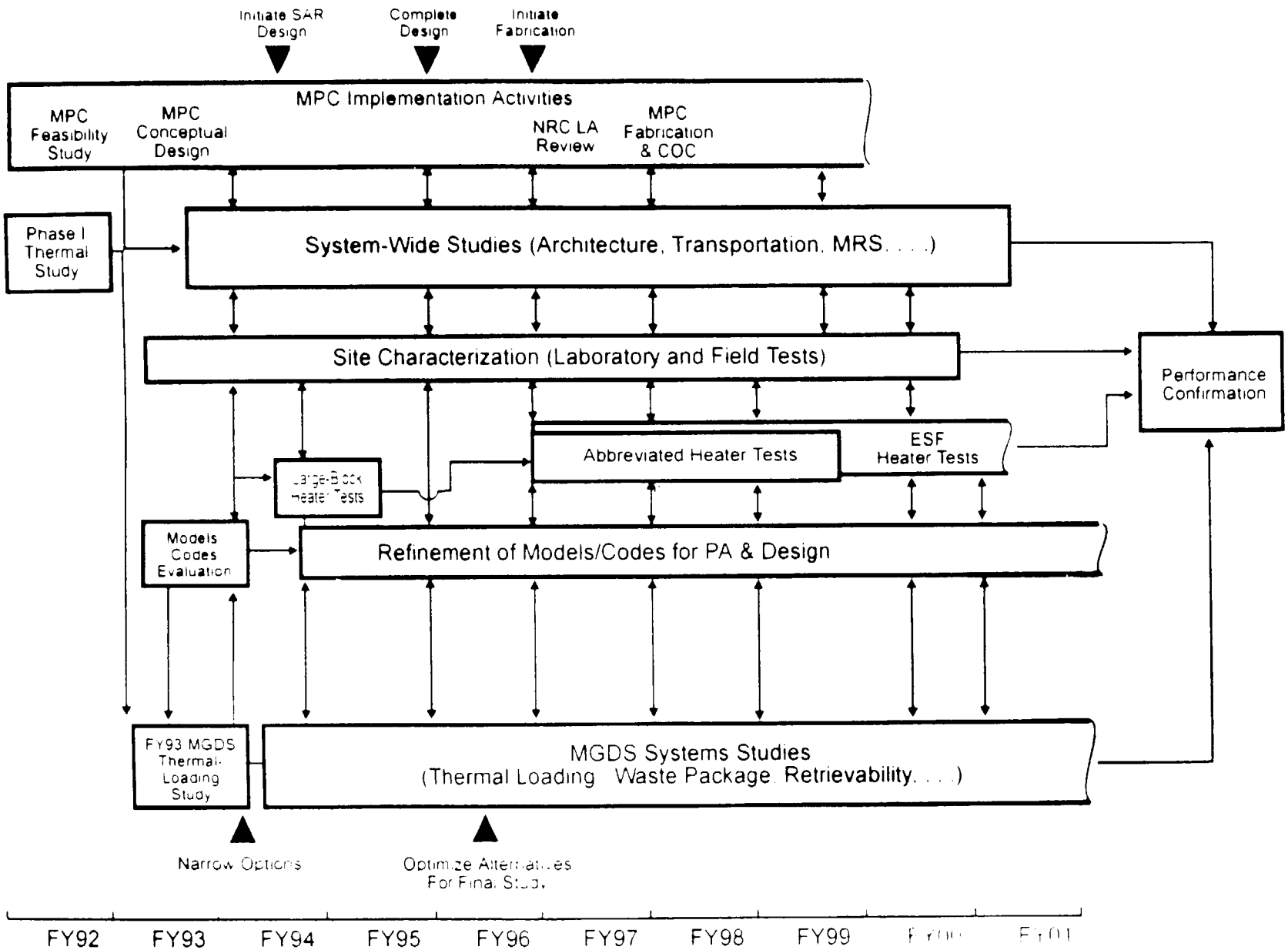
Decision Process



Thermal-Loading Model Development



Thermal-Loading Interactions



Questions Being Addressed

- Can it be demonstrated that the thermal option will achieve post-closure performance?
  - Release and containment limits
  - Adequate multiple barriers
- Will the thermal options meet pre-closure requirements?
  - Safety
  - Environmental (radiation dose and temperature)
  - Retrieval
- What analytic models can be used to adequately predict post-closure performance?
  - Validation
  - Coupled effects
- What test data is required to support the above efforts and to reduce uncertainty to an adequate level?
- Does sufficient suitable area exist in Yucca Mountain to emplace waste at the thermal option that will be selected eventually?

Status

- A wide range of thermal loadings are being evaluated in systems studies
- State-of-the-art models have been developed and are being used to evaluate performance of the options
- Models have identified key hypotheses important to the thermal-loading issue
- A test program has been identified to test these hypotheses, to support model enhancement, and to support the decision process

TPO MEETING

FY 93 JULY STATUS

SURFACE BASED TESTING PROGRAM

PRESENTED BY
DENNIS WILLIAMS
Branch Chief, Site Investigations Branch
REGULATORY AND SITE EVALUATION DIVISION

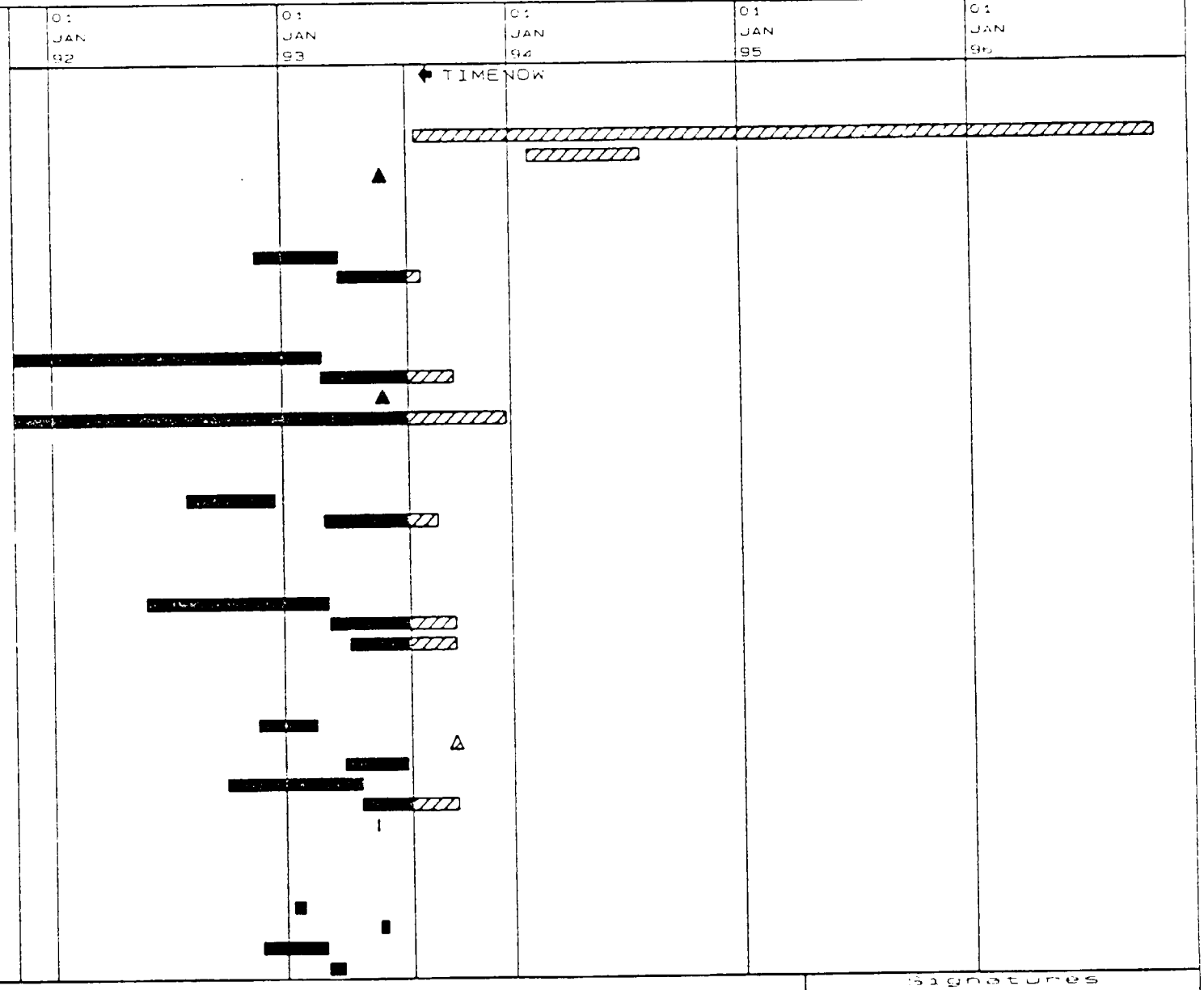
July 30, 1993

Report SURFACE
Project ROBIN
Time Now 20JUL94
Date 19JUL94
Page 1

YUCCA MOUNTAIN PROJECT
SURFACE BASED TESTING

OCRWM

TASKS	START	FINISH
NEW SITE INVESTIGATION ACTIVITIES		
SATURATED ZONE - C-WELLS	02AUG93	22OCT96
GEOPHYSICS-SEISMIC REFLEC	01FEB94	29JUL94
NRC TE		08JUN93
PROVIDE GEOLOGIC DATA FOR ESF DESIGN		
MAPPING		
PORTAL AND BOX CUT	20NOV92	01APR93
ESF STARTER TUNNEL	01APR93	09AUG93
COMPLETE VOLCANISM STUDIES		
DRAFT TECHNICAL REPORT	01NOV91	04MAR93
FINAL TECHNICAL REPORT	04MAR93	30SEP93
NRC TE		09JUN93
TEST PITS	01NOV91	23DEC93
UNSATURATED ZONE INFILTRATION		
UNSATURATED ZONE INFILTRATION		
PHASE IIA	31JUL92	17DEC92
PHASE IIB	08MAR93	03SEP93
UNSATURATED ZONE PERCOLATION		
UNSATURATED ZONE PERCOLATION		
UZ-16 DRILLING	27MAY92	11MAR93
UZ-16 TESTING	15MAR93	30SEP93
UZ-14 DRILLING	15APR93	30SEP93
QUATERNARY FAULT STUDIES		
QUATERNARY FAULT STUDIES		
TRENCH MAPPING-MIDWAY VAL	20NOV92	19FEB93
COMPLETE MIDWAY VALL		30SEP93
REGIONAL TRENCH EXCA.& MA	05APR93	12JUL93
COMP.PHASE I-Q.FAULTING S	30SEP92	30APR93
PHASE II EXCAV.& MAPPING	01MAY93	01OCT93
NRC SITE VISIT	25MAY93	25MAY93
SOIL AND ROCK PROPERTIES		
SOIL AND ROCK PROPERTIES		
NRG-2	12JAN93	28JAN93
NRG-2 DEEPENING	28MAY93	07JUN93
NRG-6	23NOV92	03MAR93
NRG-3	08MAR93	30MAR93



Legend
- In progress
- Planned
- Critical

Russ Dyer, Division Director

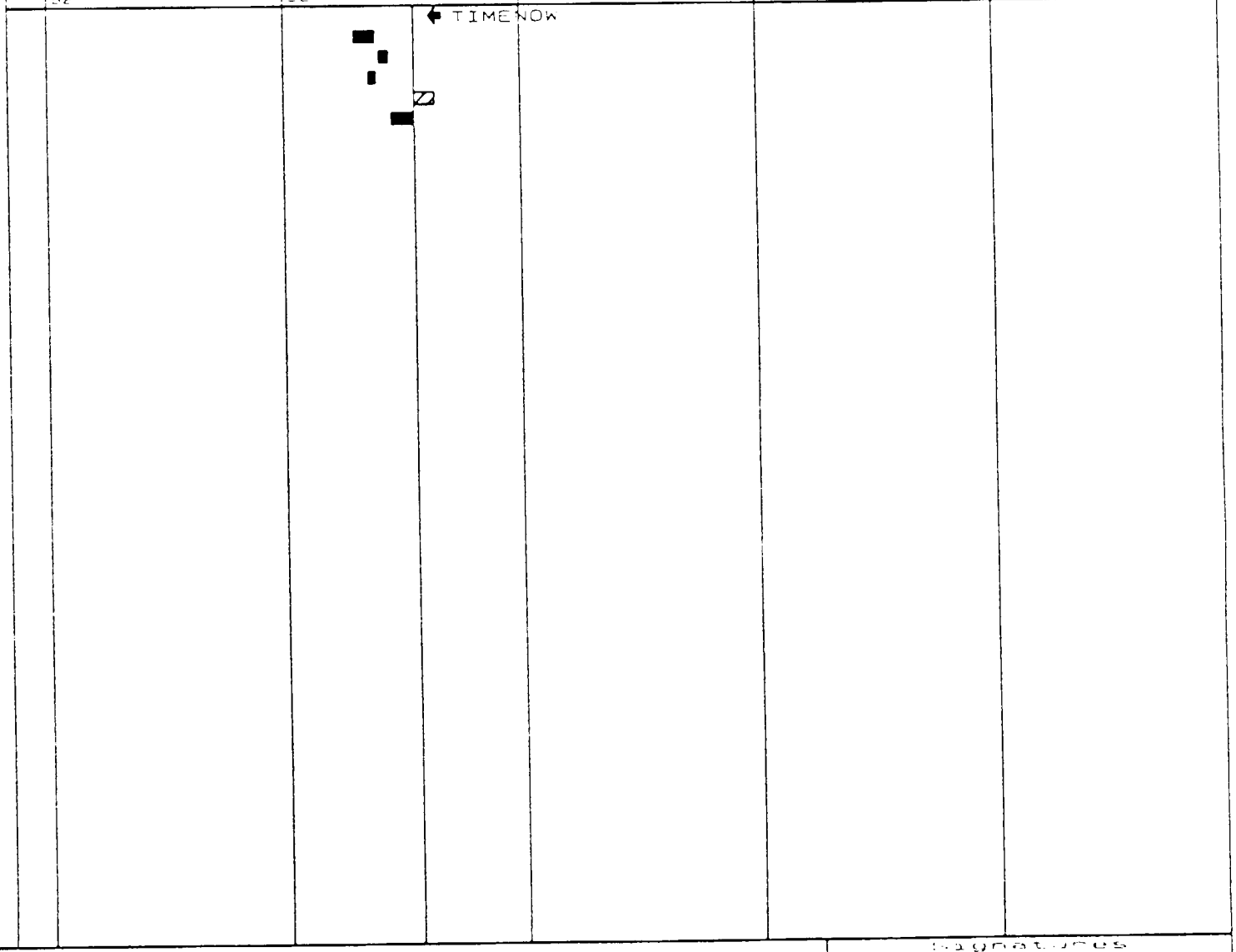
Signatures
PREP Edmund K. St. Clair 7/19/93
APPV [illegible] 7/19/93

Report: 5JAN94
Project: ROBIN
Time Now: 20JUL93
Date: 19JUL93
Page: 2

YUCCA MOUNTAIN PROJECT
SURFACE BASED TESTING

OCRWM

TASKS	START	FINISH
NRG-5	20APR93	20MAY93
NRG-5 DEEPENING	28MAY93	09JUN93
NRG-2A	12MAY93	21MAY93
NRG-2B	20JUL93	20AUG93
NRG-4	15JUN93	19JUL93



Legend
- In progress
- Planned
- Critical

Russ Dyer, Division Director

Signatures
PREP: 7/19/93
APPV: 7/19/93

Site Characterization Field Activities in Progress

SCP ACTIVITY	TITLE	ACTIVITY
8.3.1.3.2.1	Mineralogy, Petrology, and Rock Chemistry of Transport Pathways	Outcrop Sampling
8.3.1.3.2.2	Mineralogic and Geochemical Alteration	Outcrop Sampling
8.3.1.4.2.2	Structural Features Within Site Area	Surface & ESF Mapping
8.3.1.8.5.1	Characterization of Volcanic Features	Test pits, Trenching
8.3.1.14.2	Soil and Rock Properties of Potential Location of Surface Facilities	Test pits, trenching, ramp exploration holes
8.3.1.17.4.2	Location and Recency of Faulting Near Prospective Surface Facilities	Trench mapping
8.3.1.17.4.3	Quaternary Faulting Within 100 km of Yucca Mountain	Surface mapping
8.3.1.17.4.4	Quaternary Faulting in NE-Trending Fault Zones	Surface mapping
8.3.1.17.4.10	Geodetic Leveling	Traversing
8.3.1.17.4.6	Quaternary Faulting Within Site Area	Trench Mapping
8.3.1.2.1.1	Precipitation and Meteorological Monitoring for Regional Hydrology	On-going measurements
8.3.1.2.1.2	Runoff and Streamflow	Ongoing measurements

As of 7/30/93

Site Characterization Field Activities in Progress continued

SCP ACTIVITY	TITLE	ACTIVITY
8.3.1.2.2.1	Unsaturated Zone Infiltration	Drilling/logging of neutron-access holes; ponding tests
8.3.1.2.2.2	Water Movement Tracer Tests	Cl-36 measurements
8.3.1.2.2.3	Percolation in the Unsaturated Zone	UZ drilling/testing
8.3.1.2.6	Gaseous Phase Movement in the Unsaturated Zone	UZ drilling/testing
8.3.1.2.2.7	Unsaturated Zone Hydrochemistry	UZ drilling/testing
8.3.1.2.3.1	Site Saturated Zone Groundwater Flow System	On-going monitoring
8.3.1.2.3.2	Saturated Zone Hydrochemistry	On-going monitoring
8.3.1.15.1.8	In Situ Design Infiltration	Construction monitoring/ testing

As of 7/30/93

C-WELL TESTING
Study Plan: 8.3.1.2.3.1

Status:	Environmental cleanup of oil spills on pad will start 8/4/93
	Preparation of pad prior to packer installations and open hole testing (Phase I) to start 8/16/93
Concerns:	Resolution of National Electrical Code concerns on pump grounding and wiring
Planned Activities:	Resolve NEC concern, Meeting 8/3/93
	Undertake actions on pump based on resolution of NEC concerns
	Proceed with activities necessary to initiate Phase II of C-Well Tests

As of 7/30/93

GEOPHYSICAL REFLECTION SURVEY
SP: 8.3.1.4.2.1

Planned start date:	Postponed to FY 1994
Status:	Bids for the Seismic Reflection Contract came in over budget; decision was made to postpone activity to FY 1994 Funds set aside in FY 1993 for Seismic Reflection Survey were redistributed for other scientific needs
Concerns:	Ability to develop RFP for FY 1994 contract as soon as possible; availability of funds in FY 94
Solutions:	Work with USGS to identify priorities in developing RFP; request additional FY 94 funds for seismic line, address impacts of not funding

As of 7/30/93

ESF TESTING

Status:

Phased geologic mapping of crown drift in progress to Station 1+98

Mapping of Right and Left Slashes in progress as slash excavations reach crown drift face

Starter Tunnel Tests in progress
- Underground Mapping Test
- Consolidated Sampling Test
- Construction Monitoring Test

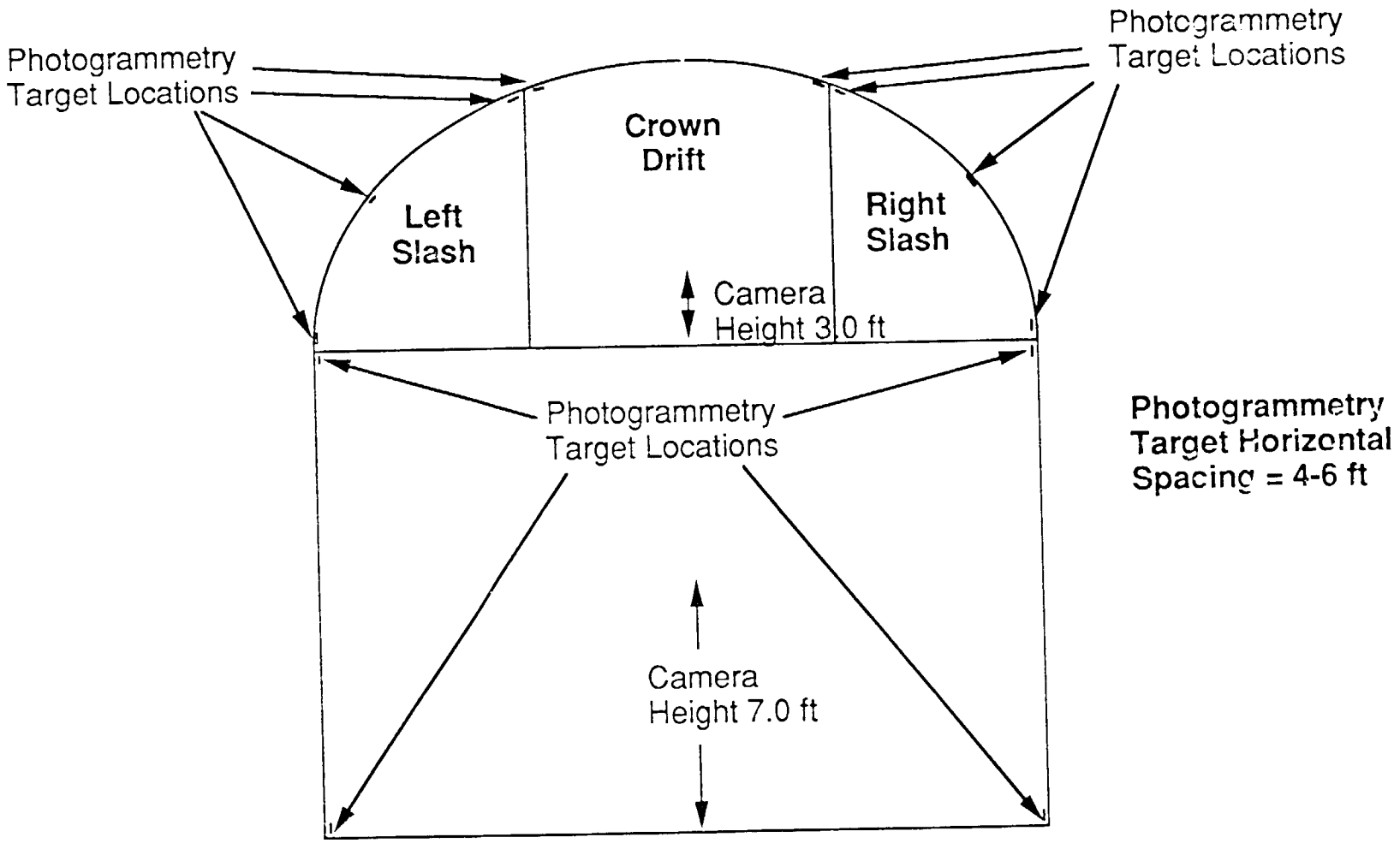
Selection of Starter Tunnel Testing Alcove at Station 1 + 50

Planned Activities:

Planning Underway
- Hydrochemistry Tests in the ESF
- Radial Borehole Tests in the ESF
- Hydrologic Properties of Major Faults Encountered in the ESF

As of 7/30/93

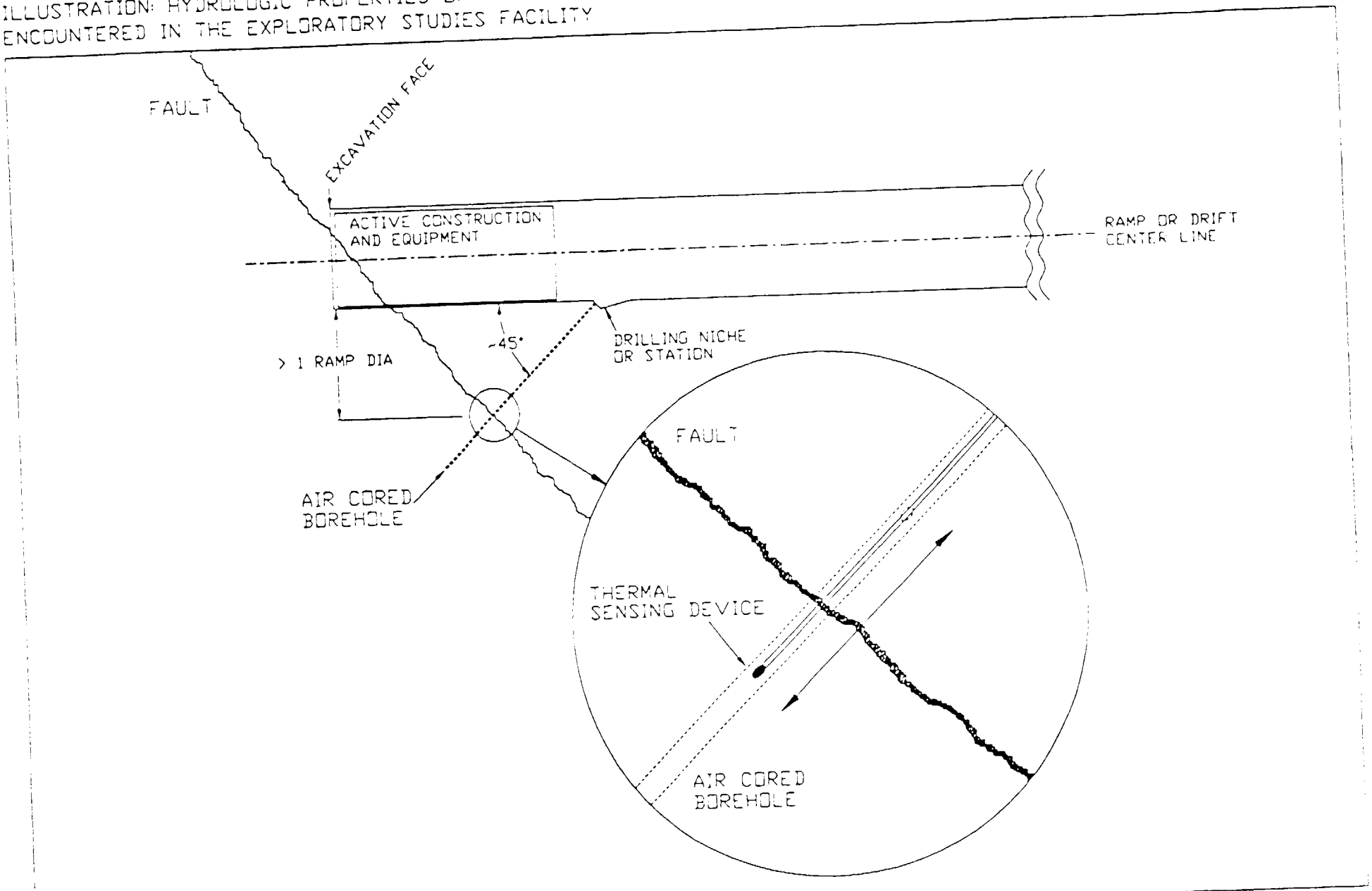
ESF Portal Mapping



Photogrammetry Target Horizontal Spacing = 4-6 ft

As of 7/30/93

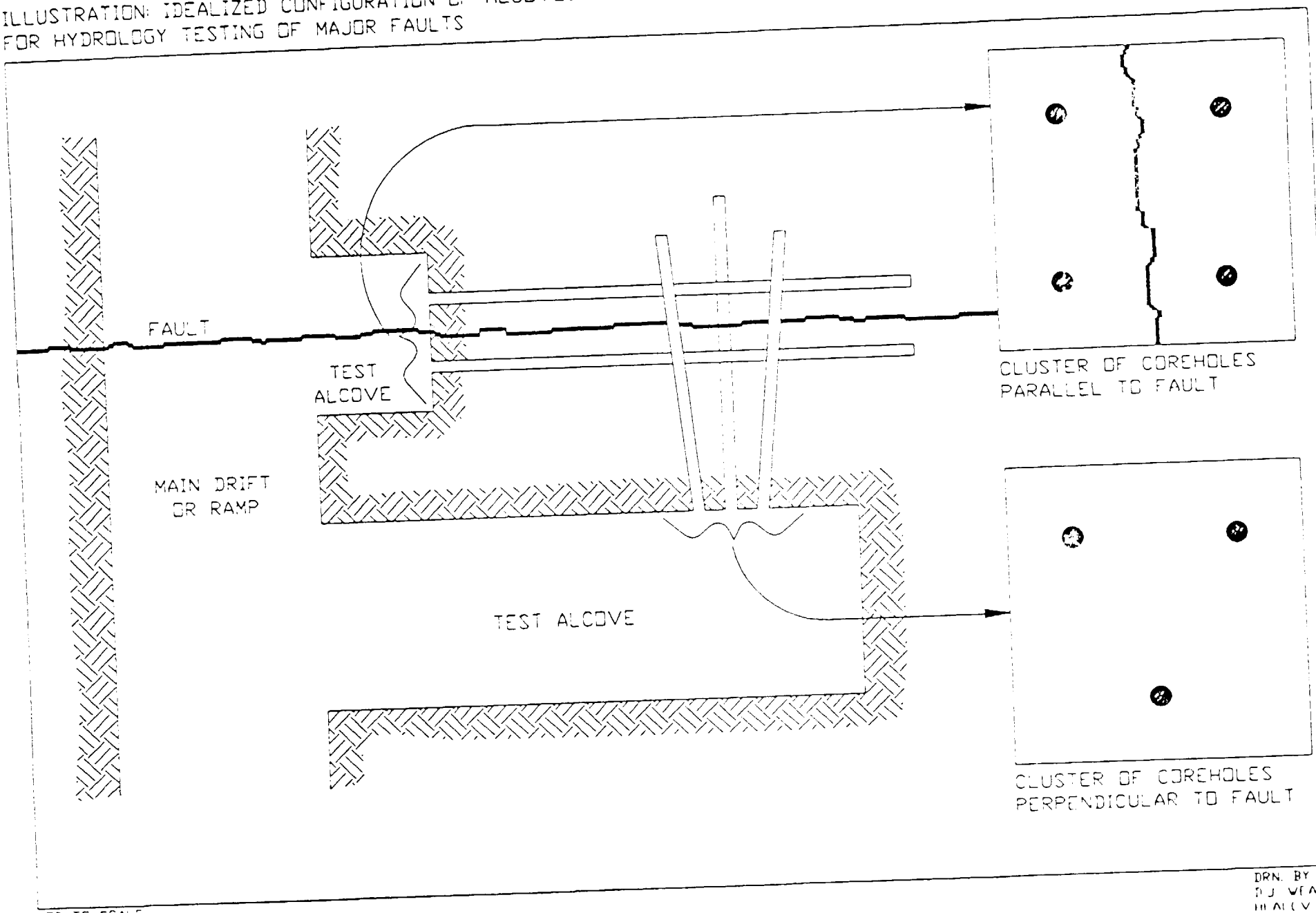
ILLUSTRATION: HYDROLOGIC PROPERTIES OF MAJOR FAULTS
ENCOUNTERED IN THE EXPLORATORY STUDIES FACILITY



NOT TO SCALE
ADMINISTRATIVE USE ONLY

DRN. BY
D.J. WEAVER
GEOMATRIX
5/19/93

ILLUSTRATION: IDEALIZED CONFIGURATION OF ALCOVES
FOR HYDROLOGY TESTING OF MAJOR FAULTS



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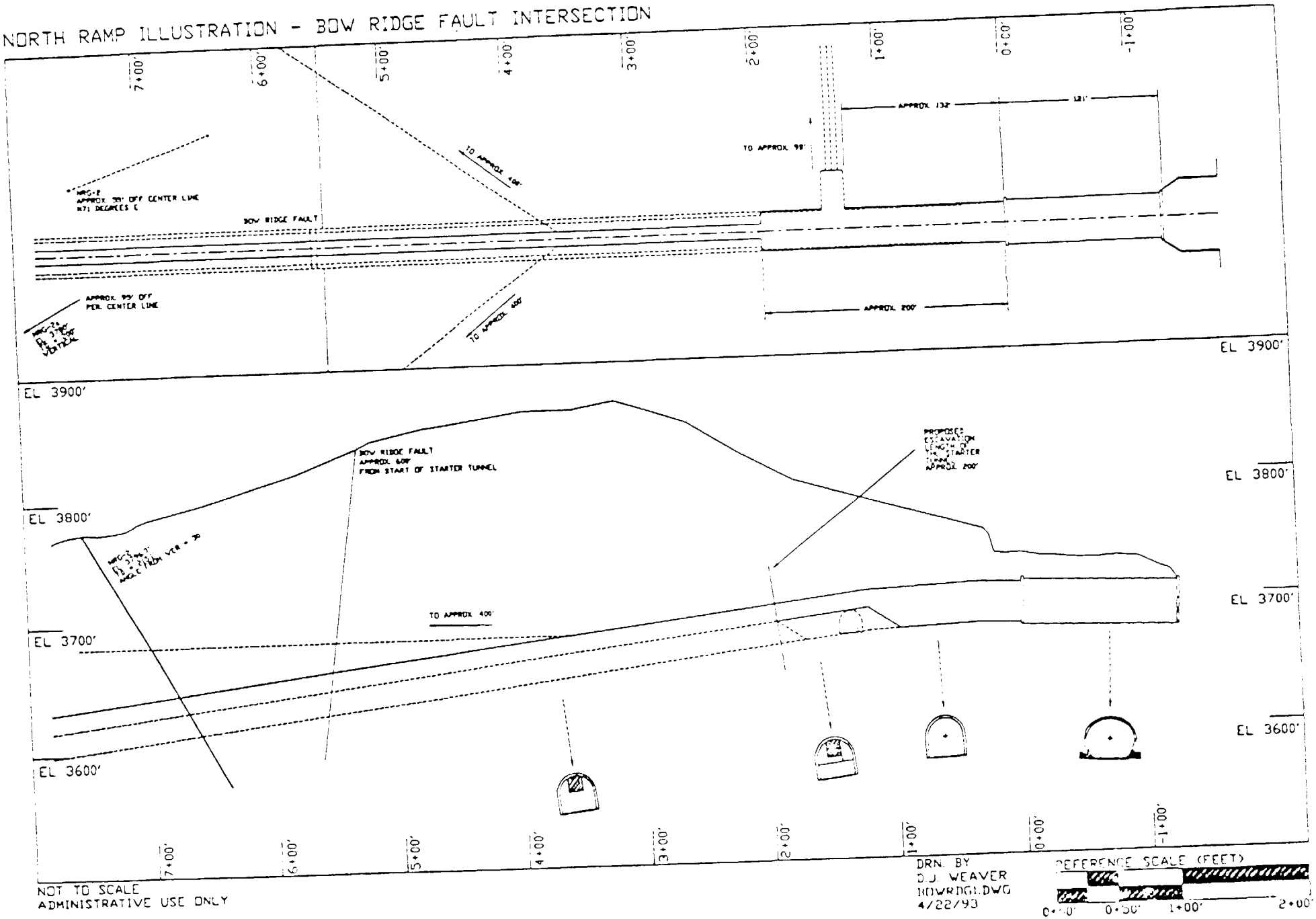
DRN. BY
D.J. WEAVER

NORTH RAMP ILLUSTRATION - BOW RIDGE FAULT INTERSECTION



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DRN. BY
D.J. WEAVER
BOWRDGE.DWG
4/22/93

REFERENCE SCALE (FEET)
0+00' 0+50' 1+00' 2+00'

ESF Testing Planning Prioritization

ESF TEST PLANNING--PHASE I

TCO Test Event Name	Test Name--(SCP Activity)	WBS Number SCP Number	Construction or Deferred	Start Date in Field
Geologic Mapping - North Portal Wall and Slot	Underground Geologic Mapping	1.2.3.2.2.1.2 8.3.1.4.2.2 R2	Construction	Ongoing (Feb 1993)

ESF TEST PLANNING--PHASE II

Geologic Mapping - Starter Tunnel	Underground Geologic Mapping	1.2.3.2.2.1.2 8.3.1.4.2.2 R2	Construction	April 2, 1993
Perched Water - Starter Tunnel (contingency)	Perched Water Testing in the ESF	1.2.3.3.1.2.4 8.3.1.2.2.4 R1	Construction	Contingency April 2, 1993
Consolidated Sampling - Starter Tunnel	Matrix Hydrologic Properties Testing	1.2.3.3.1.2.3 8.3.1.2.2.3	Construction/ Deferred	May 3, 1993
	History of Mineralogic and Geochemical Alteration of YM	1.2.3.2.1.1.2 8.3.1.3.2.2	Construction/ Deferred	May 1993
	Chloride and Chlorine-36 Measurements of Percolation at Yucca Mtn	1.2.3.3.1.2.2 8.3.1.2.2.2 R1	Construction/ Deferred	May 1993
Construction Monitoring - Starter Tunnel	Evaluation of Mining Methods	1.2.4.2.1.1.4 8.3.1.15.1.8	Construction	April 2, 1993
	Monitoring of Ground Support Systems	1.2.4.2.1.1.4 8.3.1.15.1.8	Construction	April 22, 1993

As of 7/30/93

ESF Testing Planning Prioritization continued

ESF TEST PLANNING--PHASE IIA

TCO Test Event Name	Test Name--(SCP Activity)	WBS Number SCP Number	Construction or Deferred	Start Date in Field
Radial Borehole Testing	Radial Borehole Tests in the ESF	1.2.3.3.1.2.4 8.3.1.2.2.4	Deferred	Nov 1993
Hydrochemistry Testing	Hydrochemistry Tests in the ESF	1.2.3.3.1.2.4 8.3.1.2.2.4	Deferred	Nov 1993
Hydrologic Properties of Major Faults	Hydrologic Properties of Major Faults Encountered in the ESF	1.2.3.3.1.2.4 8.3.1.2.2.4	Construction/ Deferred	TBD

As of 7/30/93

VOLCANISM STUDIES
SP: 8.3.1.8.1.1 and 8.3.1.8.5.1

Status:	LANL Technical Report (draft) completed 3/4/93 -- final report due 9/30/93
	Worked with Golder Assoc. on Risk Assessment Paper
	Effects Studies underway
	Geophysics review underway: External consultant George Thompson--Stanford University
	Study Plan 8.3.1.8.1.2 submitted
Concerns:	Geochronology Problems nearly resolved Magma Chambers--Teleseismic Tomography
Solutions:	Continue Geochronology Program--Lathrop Wells Study Complete, Starting Sleeping Butte/Crater Flat
Planned Activities:	Complete final LANL technical report - 9/93

As of 7/30/93

UNSATURATED ZONE
NATURAL INFILTRATION
SP: 8.3.1.2.2.1

Status:

Completed eleven Phase 2 boreholes (N-31, N-32, N-63, N-33, N34, N-57, N-58, N-59, N-61, N-35, N-62) as of 3-10-93

N-39 staked; waiting for environmental clearances

Planned Activities:

Drill N-39 when prerequistes complete

As of 7/30/93

UNSATURATED ZONE PERCOLATION USW UZ-16

Status:

Completed Drilling March 11, 1993
TD 1686.16'

Testing Underway:

- -- CO_2, CH_4, SF_6 , C14 and C13/12 samples taken
- -- Neutron log completed for baseline information
- -- Gas composition changes monitored
- -- Caliper, Resistivity, Neutron, Gamma-gamma and magnetic logs completed
- -- Air flow survey measurements completed with anamometers
- -- Downhole air flow testing at various depths
- -- Geophysical logging in progress

Planned Activities:

Continue Testing
Vertical Seismic Profiling scheduled for first week in August

As of 7/30/93

UNSATURATED ZONE PERCOLATION USW UZ-14

Status:	Drilling Started April 15, 1993 Core Depth as of July 28, 1993 - 1221.77'
Concerns:	Water (or drilling fluid from G-1) is expected at about 1250' based on UZ-1 drilling
Solutions:	The PI is at the Site and the LLNL water probe truck will be available if fluid or moist conditions are encountered
Planned Activities:	Evaluate water/drilling fluid if present and continue drilling

As of 7/30/93

MIDWAY VALLEY
SP 8.3.1.17.4.2

Status:	Mapping of trench MWVT-4 (Trench 17) completed Soils Descriptions in test pits in progress
Planned Activities:	Complete trench excavation at Alice Ridge trenches in late August Continue review of existing Midway Valley Trenches Prepare Midway Valley final report

As of 7/30/93

QUATERNARY FAULTING - REGION
SP: 8.3.1.17.4.3

Status:	Preparation of strip map along Bare Mountain fault is in progress
	USGS has identified four trench sites on the Bare Mountain fault and nine soil test pits to investigate alluvial fan chronology
	Benching of Trench BMT-2 and excavation of test pits BMTP-6 and -7 completed 7/15/93; mapping is underway
	Corrective scaffold building for north wall face was completed (Trench BMT-2) and PE safety inspection performed
Planned Activities:	Remaining trenches will be excavated this fiscal year following environmental compliance approval

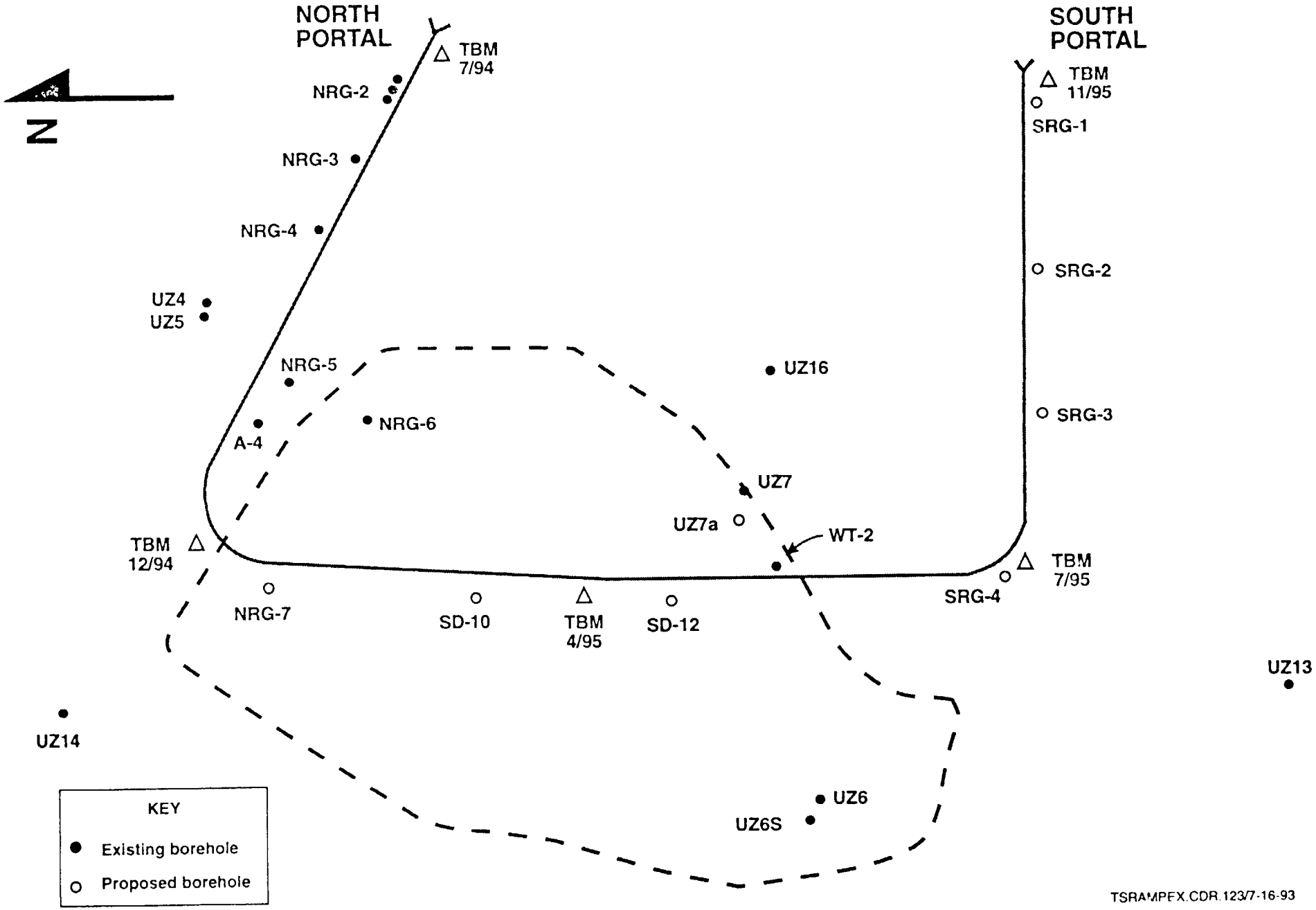
As of 7/30/93

QUATERNARY FAULTING - SITE AREA
SP: 8.3.1.4.2.2

Status:	Mapping of trenches and cleared exposures along Paintbrush Canyon fault, Stagecoach Road fault, and Solitario Canyon fault are in progress
Planned Activities:	Additional Solitario Canyon fault excavation scheduled to start 8/9/93 Ghost Dance fault excavation pending Corps of Engineers 404 Permit for drainage modification

As of 7/30/93

Topopah Springs Level Ramp & Main Excavations



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SOIL AND ROCK PROPERTIES
RAMP BOREHOLES
SP: 8.3.1.14.2

Status:

NRG-2 Borehole deepening completed 6/7/93

NRG-6 Borehole drilling completed 3/3/93
-- Geophysical logging conducted

NRG-3 Borehole drilling completed 3/30/93

NRG-5 Borehole deepening completed 6/25/93

NRG-2A Borehole drilling completed 5/21/93

NRG-4 Borehole drilling completed 7/22/93

FY 92 Test Pits Closure Completed

Planned Activities:

NRG-2B Borehole: drill rig set up; awaiting permits

NRG-7 Borehole sited

SD-12 Borehole sited, detailed planning initiated

As of 7/30/93

STUDY PLAN STATUS

	Initial Plans	Major Revisions
Not Submitted to YMPO	38	0
In Screening Review	0	0
In Project Office Review	3	1
Awaiting Comment Resolution	3	4
In Project Office Verification Audit	5	2
Preparing to submit or awaiting Project Office Approval	1	2
Awaiting submission to the NRC	0	0
NRC Phase 1 Review	11	0
NRC Acceptance	43	5
Total:	104	14

As of 7/30/93

TPO MEETING

STATUS OF ESF

PRESENTED BY

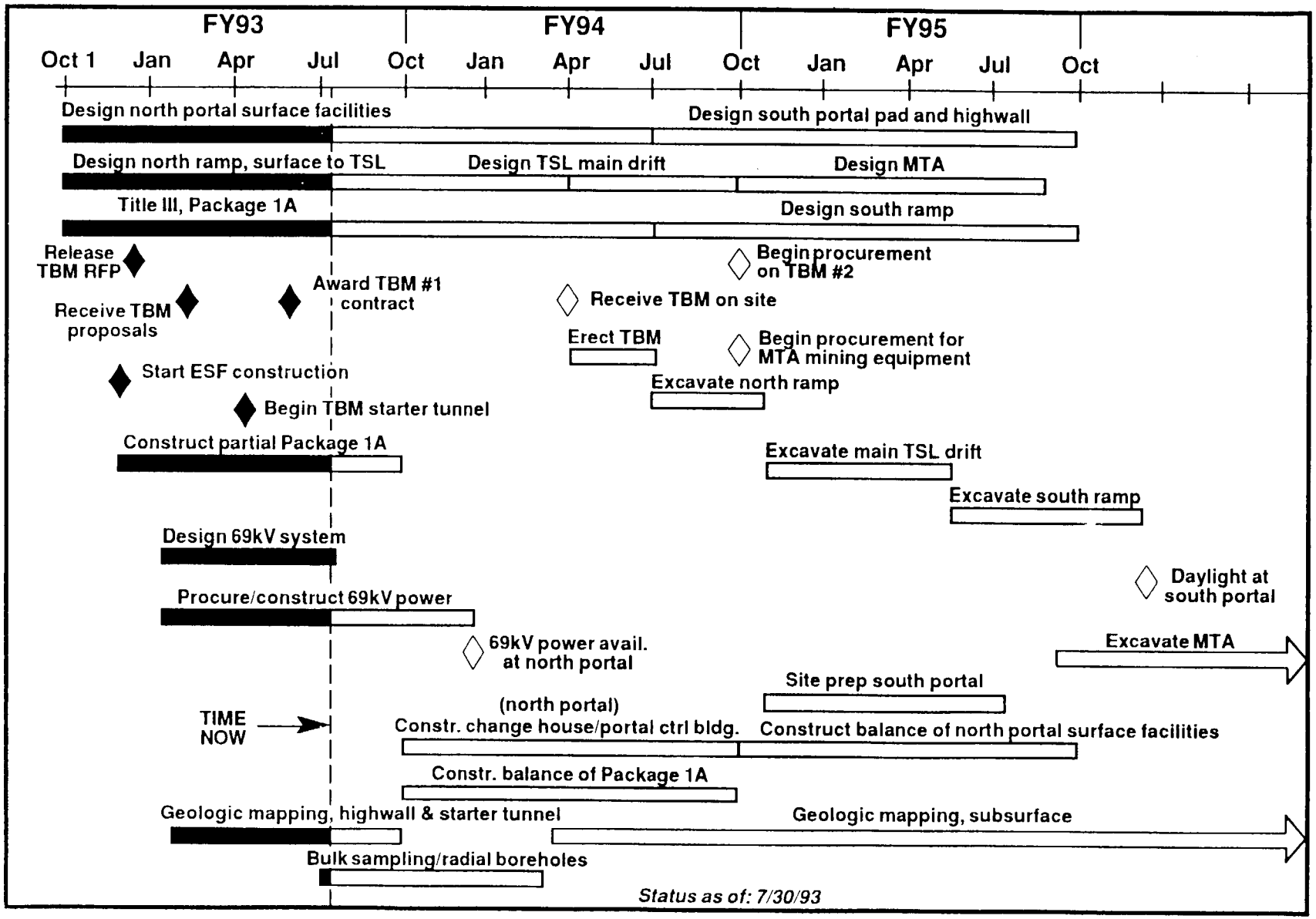
DR. BILL SIMECKA

DIRECTOR, ENGINEERING AND DEVELOPMENT DIVISION
YUCCA MOUNTAIN SITE CHARACTERIZATION PROJECT

JULY 30, 1993

Enclosure 3

PLANNED ESF DESIGN/CONSTRUCTION ACTIVITIES
FY 93 - 95



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ESF DESIGN MILESTONES

Milestone/Activity	Planned	Expected
Start Title II design activity Packages 1 and 2	10/1/92	10/1/92(A)
Start 50% review, Package 1B	4/12/93	4/12/93(A)
Start 50% review, Package 2	4/22/93	4/19/93(A)
Start 90% review, Package 2A	7/19/93	7/19/93(A)
Start 90% review, Package 1B	8/11/93	8/2/93(E)
Start 90% review, Package 2B	9/20/93	9/20/93(E)
Start 90% review, Package 2C	1/10/94	1/10/94(E)

ESF CONSTRUCTION MILESTONES

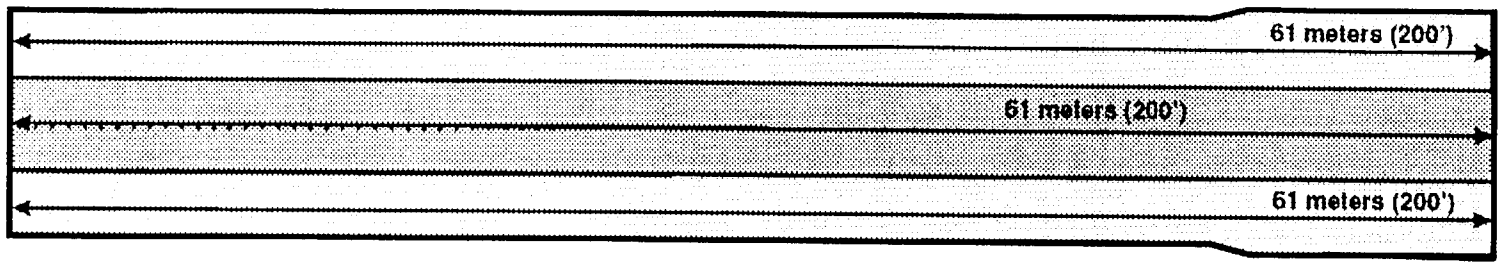
Milestone/Activity	Planned	Expected
Submit recommended ESF underground construction subcontractor to DOE for approval (award)	9/15/92	1/29/93(A)
Release TBM RFP	11/16/92	12/16/92(A)
Start ESF site preparation	11/30/92	11/30/92(A)
Hold TBM pre-bid meeting	1/6/93	1/7/93(A)

ESF CONSTRUCTION MILESTONES

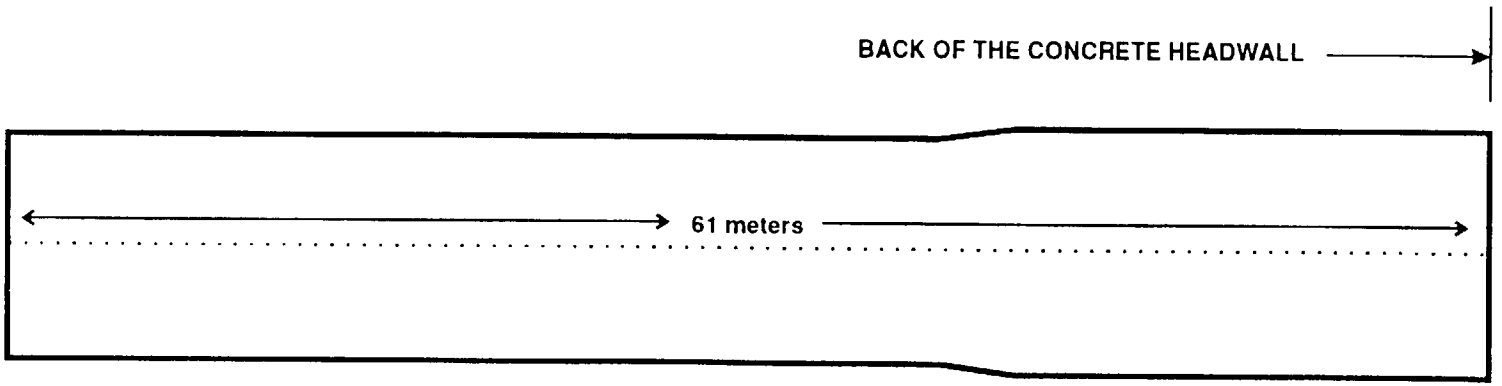
(CONTINUED)

Milestone/Activity	Planned	Expected
Receive proposals for 1st TBM	2/9/93	2/9/93(A)
Start excavation of North Ramp starter tunnel	4/2/93	4/2/93(A)
Award TBM contract	4/15/93	5/27/93(A)
Award underground construction contract	10/15/92	7/30/93(E)
Complete 61 meters (200ft) starter tunnel	6/20/93	9/20/93(E)

STARTER TUNNEL PROGRESS



TOP HEADING STARTER TUNNEL



BENCH HEADING STARTER TUNNEL

ESF ACCOMPLISHMENTS

- Construction
  - Completed excavation of top half (61M/200 ft.) of Starter Tunnel
  - Near completion of installation of pattern bolting and shotcrete application on top half of tunnel
  - Near completion of storm water drainage channel over tunnel entrance
  - Prepared pad for concrete batch plant near Well J-13

- Design
  - Started 90% Design Review for Package 2A (M&O)
  - Completed preparation for 90% Design Review of Package 1B (M&O)
  - Review in process for power upgrades (RSN)

ESF PLANNED ACTIVITIES FOR BALANCE OF FY93

- Construction
  - Complete full (61M/200 ft.) of Starter Tunnel
  - Initiate excavation of Test Alcove in Starter Tunnel
  - Complete drainage channel
  - Initiate operations at concrete batch plant
  - Initiate power upgrades to North Portal Pad

- Design
  - Issue Package 2A to REECo
  - Complete 90% Design Review of Package 1B and commence process to issue package to REECo
  - Prepare for 90% Design Review of Package 2B
  - Process C/SCR for revised ESF layout

ESF PLANNED ACTIVITIES FY94

- Continue drilling and blasting operations to extend Starter Tunnel
- Procure and install water system
- Procure and install sanitary sewer system
- Procure and install subsurface waste system
- Procure and install surface conveyor system
- Prepare partial of muck storage area
- Prepare and install compressed air system
- Prepare and install electrical distribution system
- Upgrade 69kV system
- Erect Switchgear building
- Procure and construct change house/portal control building
- Receive and set up Tunnel Boring Machine

ESF PLANNED ACTIVITIES FY94

(CONTINUED)

- Bring on Tunnel Boring Machine (TBM) operating contractor
- Operate TBM for approximately 3 months
- Install subsurface utilities
- Procure spares for TBM
- Procure and install rail system
- Complete design of Package 1, 2 and 8B (North Ramp extension)
- Start design of Package 8A (TSL Main Drift)
- Continue design of Integrated Data System (IDS) and install instrumentation
- Continue development of equipment (Colorado School of Mines)

Enclosure 4

29 July 1993

NOTE TO: Charlotte Abrams

FROM: Philip Justus PJ

SUBJECT: UPDATE ON GEOPHYSICAL LOGGING OF UZ-16

The following is a status report of geophysical logging of UZ-16 for the period July 26-28, 1993. UZ-16 was completed to TD of 1686.16 ft with a 12 1/4 in. ream to 1658.91 ft.; depth of surface casing was 52.25 ft.

The logging was performed by Schlumberger Well Services with a logging truck and a crane truck using a wireline unit.

26 July.

Tool #1. Dual Induction/Spectral Gamma Ray.
Assemble, calibrate and run tool from 1633' to surface. Print logs.

Tool #2. Oriented 4-arm Caliper.
Assemble, calibrate and run from 1636' to surface. Print logs.

27 July.

Tool #3. Dielectric Propagation.
Assemble, calibrate and run from 1635' to 52.25.'

Tool #4. Schlumberger Compensated Formation Density with Photoelectric Effect/Gamma Ray/Caliper.
Assemble, calibrate and run from 1653' to 52.25.'

Tool #5. Sidewall Neutron Porosity/Gamma Ray/Caliper.
Assemble, calibrate and run from 1653.5' to 52.25.'

Tool #6. EDCON Borehole Gravity Meter.
Assemble, calibrate downhole, take stationary measurements from bottom of hole for 8 1/2 hrs (into 28 July); run from 1639.4' to 41.' Total running time was 24.75 hrs.

28 July.

Tool #7. Schlumberger Geochemical.
Assemble, calibrate and begin run into 29 July (awaiting report for 29 July).

More reports on logging to follow. Also, I will determine details of YMPO plans and schedules for logging and deliverables.

Charlotte, if DHLWM/Center staff wish to observe logging in progress in the future, let me know. I will inquire about preparations/lead time and such.

5/8 August 1993

NOTE TO: Charlotte Abrams

FROM: Philip Justus

SUBJECT: GEOPHYSICAL LOGGING OF UZ-16 UPDATE

The following is an update of the geophysical logging of UZ-16 which began on 7/26. An earlier report covered the period 26-28 July 93 and was dated 29 July 1993. This update covers the period 29 July to August 2, 1993. A brief description of the logging tools, derived from draft information provided by YMPO, is provided in the enclosure.

UZ-16 was completed to TD of 1686.16 ft. at 4.38 in. OD with a 12 1/4 in. ream to a depth of 1658.91 ft.; depth of surface casing was 52.25 ft.

29 & 30 July

Tool #7. Schlumberger Geochemical Logging Tool (GLT). [A prototype logging tool].

Was run from 1633.0 ft to 52.25 ft. One of the detectors in GLT fluctuated; made two additional passes with entire drill string. Disassembled and removed gamma-spectroscopy portion of the GLT and ran back in hole with the aluminum activation portion of the GLT to complete data log acquisition.

Tool #8. Thermal Decay Time/Gamma Ray. [A prototype logging tool].

Was run from 1650 ft. to 98 ft. The tool ceased producing neutrons at 98 ft.; continued recording Gamma Ray to the surface.

Tool #9. Borehole Radar. [A prototype logging tool].

Assemble, calibrate and run from 1575 ft. to 0.0 ft. on 7/29-30. On 7/30 run 2nd pass at different antenna gain. Run 3rd pass using longer tool spacing and various gains; run 4th pass using shortest tool spacing.

2-3 August

Tool #10. Nuclear Porosity Lithology (NPLT)/Geochemical Reservoir Analyzer (GRA). [A prototype tool].

Assemble, calibrate and run from MAXIS truck the GRA from 1650.0 ft. to 52.25 ft. Make 2nd and 3rd runs from 1650.0 ft. to 52.25 ft. and record NPLT and GRA data, into 3 August.

Tool #7. Schlumberger Geochemical Logging tool.

Assemble, calibrate and run aluminum activation portion of tool from 1653.5 ft. to 670 ft. using the Schlumberger Cyber Service Unit truck and crew (CSU). At 670 ft. the tool detectors became saturated with gamma rays; retrieved tool to allow detectors to return to normal, 2 August. Reassemble and run, 3 August.

4-5 August

Tool #11. Schlumberger Seismic Tool.

Conduct walkaway seismic survey with tool at 1400 ft. in BH. Use Bolt Land Gun Impactor Source Trucks as seismic source with trucks moved in 1000 ft. increments along existing roads.

Conduct Vertical Seismic Profile (VSP) with one Bolt truck stationed 200 ft. north of BH (zero offset). Initial depth was 1640 ft and tool was raised in 48 ft. steps to 8 ft.; completed am of 8/5.

Enclosure: Description of Geophysical Logging Tools.

August 5, 1993

BASIC DESCRIPTION OF LOG MEASUREMENTS

Brief descriptions are summarized from a preliminary draft of a YMPO-proposed geophysical logging plan, Bud Thompson's handout from Geophysics Technical exchange of 6/8/93 and a RSN letter (7/19/93) which describes the sequence of tests by the various service contractors. This is an explanation of the tools used in UZ-16, for staff information only. Use these descriptions in conjunction with the UZ-16 Geophysical Logging Updates.

Video. Barbour Well Surveying Corp. performed Borehole Video Camera logging.

Tool #1. Dual Induction. Measures conductivity of two different coaxial volumes of rock at a far and close-in distance from BH wall.

Spectral Gamma Ray. Has casing collar locator. Measures individual contributions of selected naturally occurring radisotopes such as K, U, Th.

Tool #2. Caliper, 4-arm. Measures diameter of BH.

Tool #3. Dielectric. Propagates and measures travel time of high-frequency (25-50 Mhz) radio waves; dielectric constant.

Tool #4. Compensated Density. Photoelectric measurement of formation bulk density; when rock type is known, porosity can be calculated.

Gamma Ray. Measures total natural gamma ray activity.

Tool #5. Sidewall Epithermal Neutron. Measures hydrogen index of wall material. Hydrogen index can be used to calculate porosity.

Tool #6. Borehole Gravity Meter. Measures force of gravity along BH. Can be used to calculate bulk density between two stations (to be done by EDCON).

Tool #7. Geochemical Logging Tool (Schlumberger) - Prototype. Little info. Measures concentration of 12 elements.

Tool #8. Thermal Decay Time - Prototype. Little info. Measures rock 'sigma' which can be related to resistivity.

Tool #9. Borehole Radar - Prototype. Little info. Measures reflectivity/echoes.

Tool #10. Nuclear Porosity Lithology Tool - Prototype. Little info. Measures epithermal neutron (compensated) and thermal neutron (compensated) hydrogen index.

Geochemical Reservoir Analyzer - Prototype. Little info. Measures concentration of 12 elements.

Tool #10 may also measure dulk density and sigma.

Tool #11. Schlumberger Seismic Tool and trucks - Prototype. Uses new MAXIS computer truck unit. Seismic source is truck with high-frequency vibrator and Bolt impactor truck.

FUTURE: Pulsed Neutron Device-Inelastic Spectroscopy Log - Prototype.

FUTURE: Cooled-Germanium Detector Spectroscopy Log - Prototype.

TPO MEETING

ACCELERATED SURFACE-BASED TESTING TO PROVIDE INFORMATION ON THE UNDISTURBED SITE AHEAD OF ESF CONSTRUCTION

PRESENTED BY

ROBERT W. CRAIG
DEPUTY TPO, U.S. GEOLOGICAL SURVEY

July 30, 1993

Enclosure 5

OBJECTIVES

- Obtain data prior to pre-ESF construction
- Monitor effects of ESF construction on baseline conditions
- Assess impacts of ESF construction on site conditions

DATA COLLECTION COVERED PRIMARILY BY THREE STUDY PLANS

- Study 8.3.1.2.2.3: Characterization of the Percolation in the Unsaturated Zone - Surface-Based Study
- Study 8.3.1.2.2.6: Characterization of the Yucca Mountain Unsaturated-Zone Gaseous-Phase Movement
- Study 8.3.1.2.2.7: Hydrochemical Characterization of the Unsaturated Zone

DATA

- Pneumatic permeability
- Gas chemistry
- *In situ* distribution of moisture, pressure, and temperature

DATA USE TO ASSESS IMPACTS COVERED PRIMARILY BY ONE STUDY PLAN

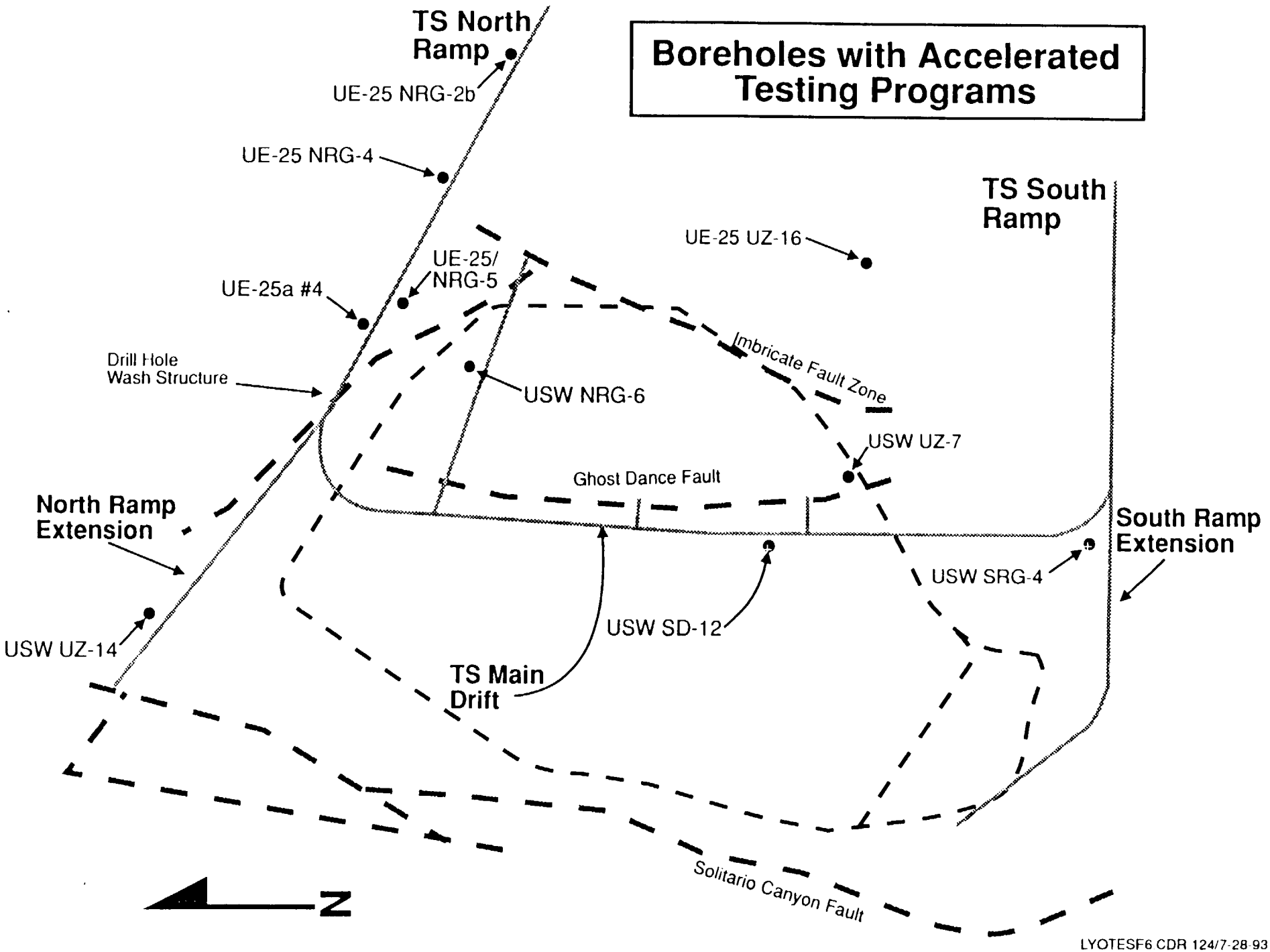
- **Study 8.3.1.2.2.8: Fluid Flow in Unsaturated, Fractured Rock**
  - Models to help design and interpret hydrologic and pneumatic tests
  - Provide information about model parameters that can be incorporated into site-scale models

APPLICABLE METHODS/TESTS

- **Gas-phase Circulation**
  - flow surveys
  - selected gas-chemistry
  - shut-in pressures
- **UZ Hydrochemistry**
  - large-scale borehole gas sampling
  - long-term periodic gas sampling
- **UZ Percolation, Surface-based Study**
  - Air-permeability testing
  - *in situ* long term monitoring of moisture, pressure, and temperature

EXPERIENCE TO DATE IN OBTAINING SIMILAR DATA

- **USW UZ-1**
  - Instrumentation
  - Gas sampling
- **G-Tunnel**
  - Development of instrumentation methods
- **Hydrologic Research Facility auger holes**
  - Demonstration of instrumentation methods
- **USW UZ-6/6s**
  - On-going study; topographic effects, barometric effects
- **Apache Leap**
  - Air-permeability prototype testing with packer systems



LYOTESF6 CDR 124/7-28-93

UE-25a#4	-monitor gas pressures; shut-in pressures to overlap with USW NRG-6
UE-25 NRG-2b	-flow surveys -selected gas chemistry collected from tubing in open-hole -seamist system; isolated gas chemistry and shut-in pressures; round-robin with seasons, continuous as TBM approaches
UE-25 NRG-4	-flow surveys -selected gas chemistry collected from tubing in open-hole -seamist system; isolated gas chemistry and shut-in pressures; round-robin with seasons, continuous as TBM approaches
UE-25 NRG-5	-flow surveys -selected gas chemistry collected from tubing in open-hole -seamist system; isolated gas chemistry and shut-in pressures; round-robin with seasons, continuous as TBM approaches
USW NRG-6	-flow surveys -selected gas chemistry collected from tubing in open-hole -seamist system; isolated gas chemistry and shut-in pressures -air permeability testing -instrument; long term monitoring for pressure, water potential, and temperature; periodic gas sampling
USW UZ-14	-geophysical logging -gas-phase testing -gas-chemistry sampling -air permeability testing -instrument for long-term monitoring; periodic gas-sampling
USW UZ-7	-geophysical logging -gas-phase testing -gas-chemistry sampling -air permeability testing -instrument for long-term monitoring; periodic gas-sampling
USW SD-12	-geophysical logging -gas-phase testing -gas-chemistry sampling -air permeability testing -instrument for long-term monitoring; periodic gas-sampling
USW SRG-4	-geophysical logging -gas-phase testing -gas-chemistry sampling -air permeability testing -instrument for long-term monitoring; periodic gas-sampling
UE-25 UZ#16	-geophysical logging -gas-phase testing -gas-chemistry sampling -air permeability testing -instrument with geophones for vertical seismic profiling

		STUDY			
		Gas Phase	UZ Hydrochemistry	UZ Percolation	
Well	**Status**			**Air-K**	**Instrument**
USW NRG-6	Existing	X	X	X	X
UE-25a#4	Existing	X			
UE 25 NRG-2b	Planned*	X			
UE 25 NRG-4	Existing*	X			
UE-25 NRG 5	Existing*	X			
USW UZ-7	Existing*	X	X	X	X
UE-25 UZ#16	Existing	X	X	X	
USW UZ-14	In progress	X	X	X	X
USW SD-12	Planned	X	X	X	X
USW SRG-4	Planned	X	X	X	X

*Requires 6 inch diameter borehole and/or casing pulled.

SUMMARY

Collection of pre- and concurrent-ESF construction pneumatic, gas chemistry, and *in situ* moisture, pressure and temperature data will be accomplished in order to account for ESF impacts on site characterization efforts.

Enclosure 6a
rec'd 7/30/93

Presentation for FOCUS'93: Site Characterization and Model Validation, to be held 26-29 September 1993 in Las Vegas, Nevada

DISTRIBUTION OF CHLORINE-36 IN THE UNSATURATED ZONE AT YUCCA MOUNTAIN: AN INDICATOR OF FAST TRANSPORT PATHS

J. Fabryka-Martin[1], S. Wightman[2], M. Wickham[2], W. Murphy[2], M. Caffee[3], G. Nimz[3], J. Southon[3], and P. Sharma[4]

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[2] Hydro Geo Chem, Inc., 1430 N. 6th Ave., Tucson AZ 85705
[3] Center for Accelerator Mass Spectrometry, Lawrence Livermore National Laboratory, Mail Stop L237, Livermore CA 93550
[4] Dept. of Physics, Purdue University, West Lafayette IN 47907

The $^{36}Cl/Cl$ ratio for chloride extracted from drillcore samples is being used to provide information on characteristics of water movement through the unsaturated zone at Yucca Mountain. The half-life of ^{36}Cl is 301,000 yr, and a useful unit of measurement is the CLU, where 1 CLU corresponds to a $^{36}Cl/Cl$ ratio of 1×10^{-15}. Typical CLU values for ^{36}Cl sources at Yucca Mountain are 500 for meteoric chloride prior to the testing of nuclear devices, a peak of about 10,000 CLU for global fallout of bomb-pulse ^{36}Cl, and 25 CLU for ^{36}Cl produced in the tuffs by the natural neutron flux. Local production of ^{36}Cl from Nevada Test Site activities, particularly testing of nuclear rocket engines near Yucca Mountain and atmospheric testing during the 1950s, is another possibly significant source.

The $^{36}Cl/Cl$ analyses can provide useful information for unsaturated-zone studies if an unambiguous bomb-pulse signal is detected, or if an unambiguous decay of the meteoric signal can be shown. Thus, the method is insensitive if the hydrologic response time is greater than 40 or less than about 100,000 years. Approximately 100 samples have thus far been measured for $^{36}Cl/Cl$ as part of Yucca Mountain site characterization activities. These include soil profiles from Midway Valley trenches and pits, profiles from neutron-access boreholes extending below the Paintbrush nonwelded unit into the top of the Topopah Spring unit, and a profile from USW UZ-16 extending from the surface to the base of the Topopah Spring unit.

The Midway Valley soil profiles were analyzed for chloride, bromide and chlorine-36. These provide the beginning of a data base for assessing the presence of local fallout of ^{36}Cl and variability in the meteoric background $^{36}Cl/Cl$ and Cl/Br ratios.

Detection of bomb-pulse ^{36}Cl signals in the sampled holes provides independent evidence for the role of alluvium in attenuating infiltration, and for fast transport paths to depths below the Tiva Canyon welded unit. The first of these applications is illustrated by analyses obtained in USW UZ-N37 and USW UZ-N54. In these boreholes, bomb-pulse ^{36}Cl is detected in the alluvium down to depths < 20 feet; below that depth, it is present in the alluvium only at background levels.

Evidence for fast transport of water via fractures through the Tiva Canyon welded unit is shown by detection of elevated levels of ^{36}Cl in the Paintbrush nonwelded unit in USW UZ-N11, -N37, and -N53.

A $^{36}Cl/Cl$ profile was also measured for USW UZ-N55. Samples throughout this borehole, extending from the Tiva Canyon welded unit at the surface, through bedded and nonwelded tuff units of the Paintbrush, to the Topopah Spring welded unit, all show values considerably higher than can be explained by global fallout of ^{36}Cl. The most likely explanation is contamination of the separator when it was used to drill several shallow holes near Test Cell C immediately prior to drilling N55. Calculations indicate that extremely high levels of ^{36}Cl (about six orders of magnitude above natural background) would have been produced near Test Cell C during testing of nuclear-powered rocket engines in the early 1960's. Such levels could easily account for those measured in the N55 cuttings samples.

PRELIMINARY RESULTS FROM CHLORINE-36 STUDIES (WBS 1.2.3.3.1.2; SCP 8.3.1.2.2.2)

Status Report Presented by
JUNE FABRYKA-MARTIN
Los Alamos National Laboratory

Yucca Mountain Project TPO Meeting
July 30, 1993

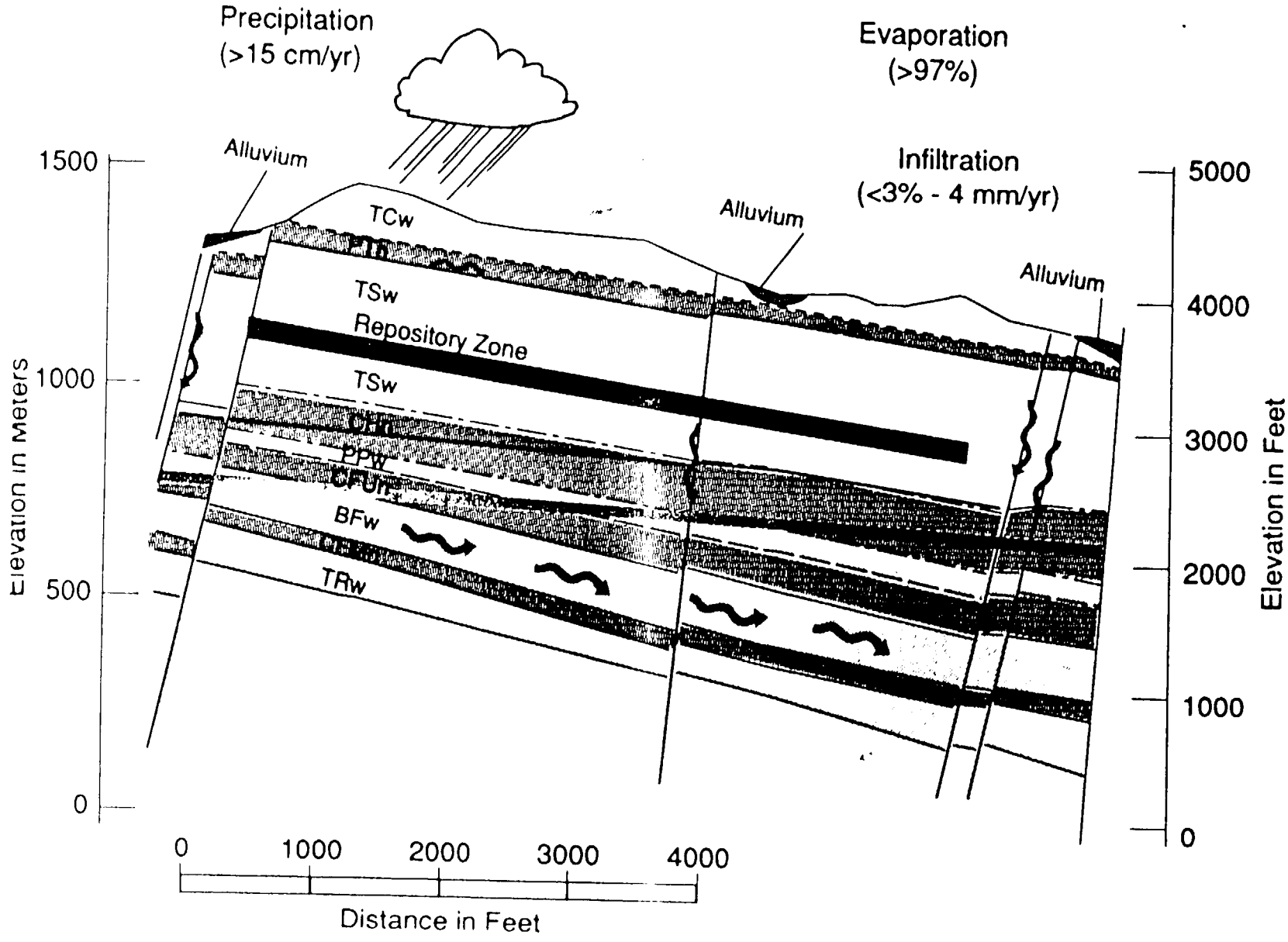
Enclosure 6b

PRESENTATION OUTLINE

- STUDY OBJECTIVES
- BACKGROUND INFORMATION
- LIMITATIONS OF APPROACH
- FOCUS ON SHALLOW BOREHOLE RESULTS
  - LOCATION MAP
  - SAMPLE COLLECTION AND PROCESSING
  - ALLUVIAL PROFILES
  - EVIDENCE FOR FRACTURE TRANSPORT TO PTn
- COMMENT ON UZ-N55 RESULTS
- FOCUS OF PRESENT WORK

STUDY OBJECTIVE:
CHARACTERIZE WATER MOVEMENT AT YUCCA MOUNTAIN

- SHALLOW INFILTRATION RATES
- DEEP PERCOLATION RATES
- FAULT AND FRACTURE FLOW
- REGIONAL GROUND-WATER FLOW


Precipitation
(>15 cm/yr)
Evaporation
(>97%)
Infiltration
(<3% - 4 mm/yr)
Alluvium
Alluvium
Alluvium
TCw
TSw
Repository Zone
TSw
CHn
PPw
CFUn
BFw
TRw
1500
1000
500
0
5000
4000
3000
2000
1000
0
Elevation in Meters
Elevation in Feet
0
1000
2000
3000
4000
Distance in Feet

TYPES OF SAMPLES BEING COLLECTED FOR THE WATER MOVEMENT TEST

- SURFACE SOIL SAMPLES
- SOIL PROFILES FROM TRENCHES
- SHALLOW DRILLHOLES
- DEEP SURFACE-BASED BOREHOLES
- ESF SAMPLES
- UZ GROUND-WATER SAMPLES (Yang)
- LOCAL GROUND-WATER SAMPLES (Steinkampf)
- REGIONAL GROUND-WATER SAMPLES (Czarnecki)

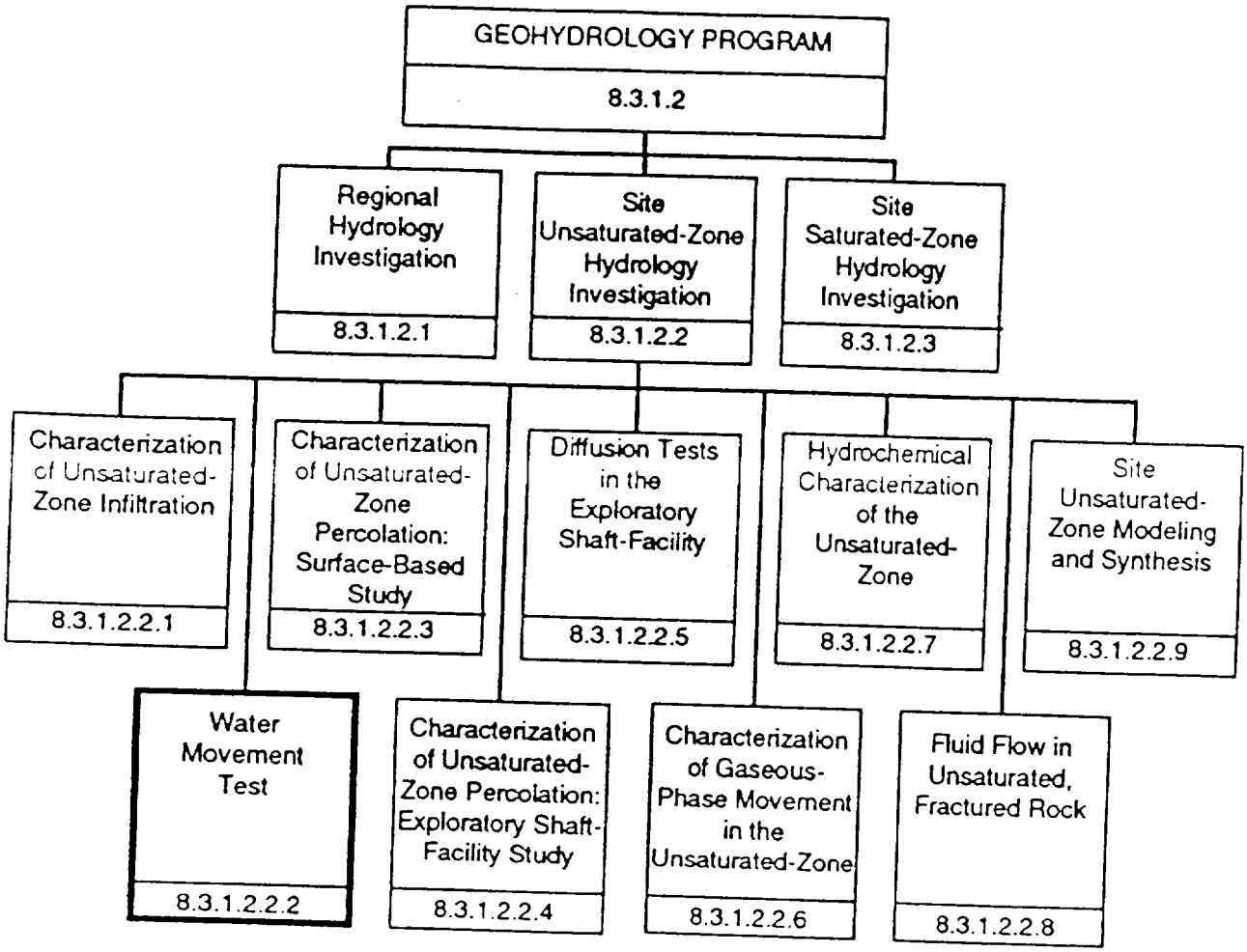


Figure 1. Diagram showing the location of the study plan within the unsaturated-zone investigation, and organization of the geohydrologic characterization program.

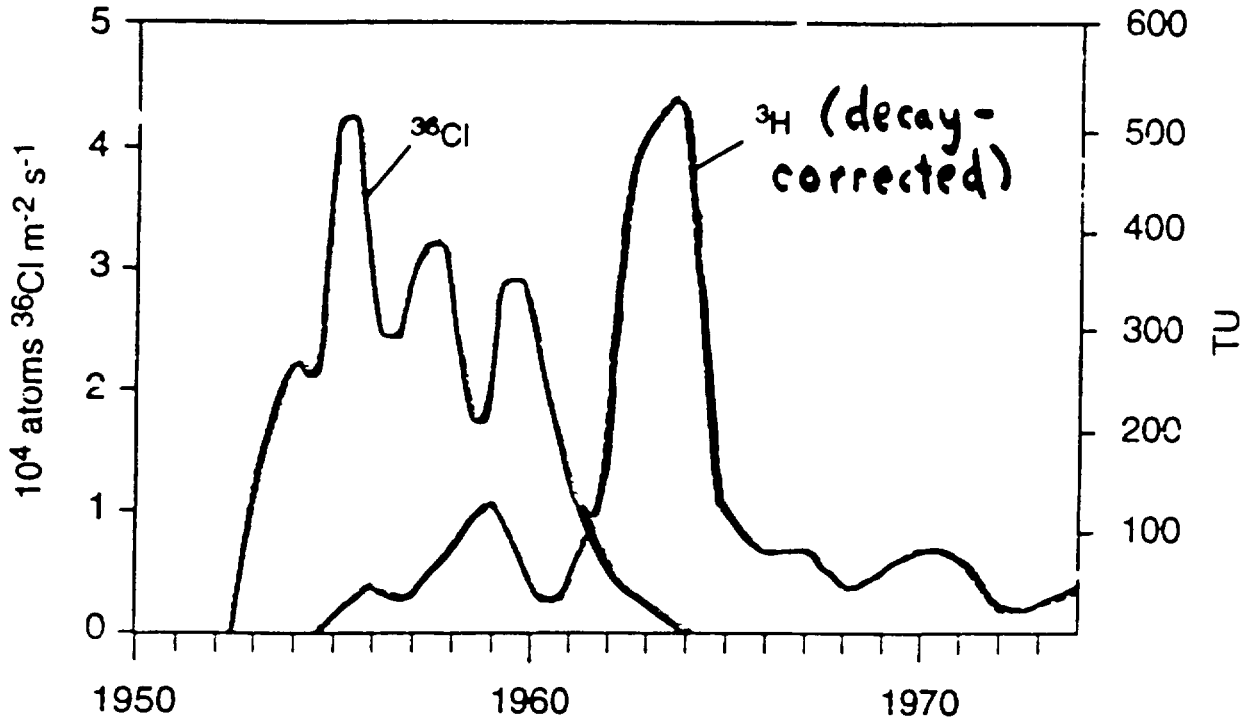


Figure 3. Temporal variations in predicted bomb ^{36}Cl fallout between 30°N and 50°N latitude (Bentley et al., 1986) and in bomb ^{3}H fallout (decay corrected to 1989) for the northern hemisphere (figure adapted from Scanlon, 1992a).

BACKGROUND INFORMATION

- $t_{1/2}$ = 301 000 yr for ^{36}Cl
  1 CLU = $^{36}Cl/Cl \times 10^{15}$

SOURCES OF ^{36}Cl AT YUCCA MOUNTAIN

	CLU
Prebomb meteoric Cl	500
Postbomb global fallout	20 000
Local NTS fallout	100 000
In-situ production in rock	25
Cosmogenic production at surface	5000
Anthropogenic	variable

SOURCES OF HALIDES AT YUCCA MOUNTAIN

	Cl/Br
Meteoric (dry and wet fallout) (accumulation rate ~100 mg Cl/m^2/yr)	150-210
Rock	~500
Anthropogenic	variable

LIMITATIONS OF APPROACH

Hydrologic response time

Magnitude or direction of flow

Validity of assumptions about flow field

Need to constrain conceptual models
using independent lines of evidence

OBJECTIVES OF SAMPLING SHALLOW BOREHOLES

ALLUVIUM

- Depth of bomb-pulse peak
- Integral of bomb-pulse
- Chloride mass balance age
- Maximum rooting depth (ET zone)
- Data base for meteoric $^{36}Cl/Cl$ and Cl/Br
- Role of alluvium in attenuating infiltration

BELOW ALLUVIUM

- Transport of bomb-pulse into specific lithologic units (evidence for fast transport paths)

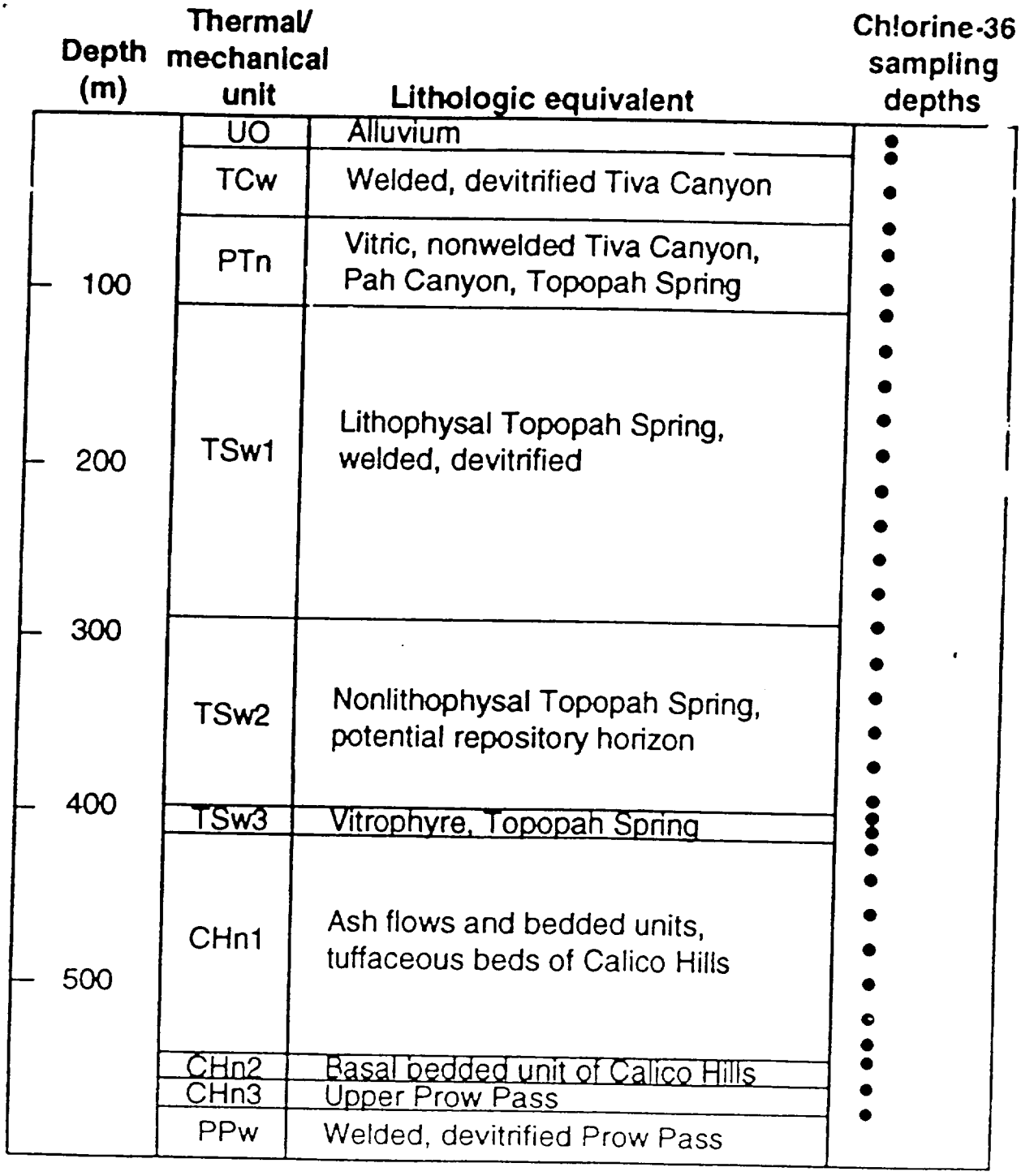
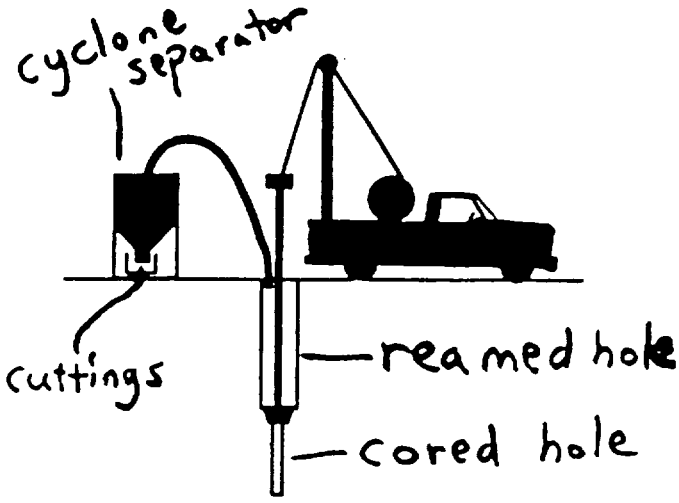


Figure 5. USW G-4 stratigraphic column with proposed chlorine-36 sampling locations shown as solid circles. Samples only to be collected above the water table

PROCESSING ROCK SAMPLES

FIELD COLLECTION
dry drilling, ream cycle,
~25 kg /sample from
5-foot intervals



STORE AT SMF
~100 barrels for
12 neutron holes

SHIP TO
HYDRO GEO CHEM
for processing

PROCESSING

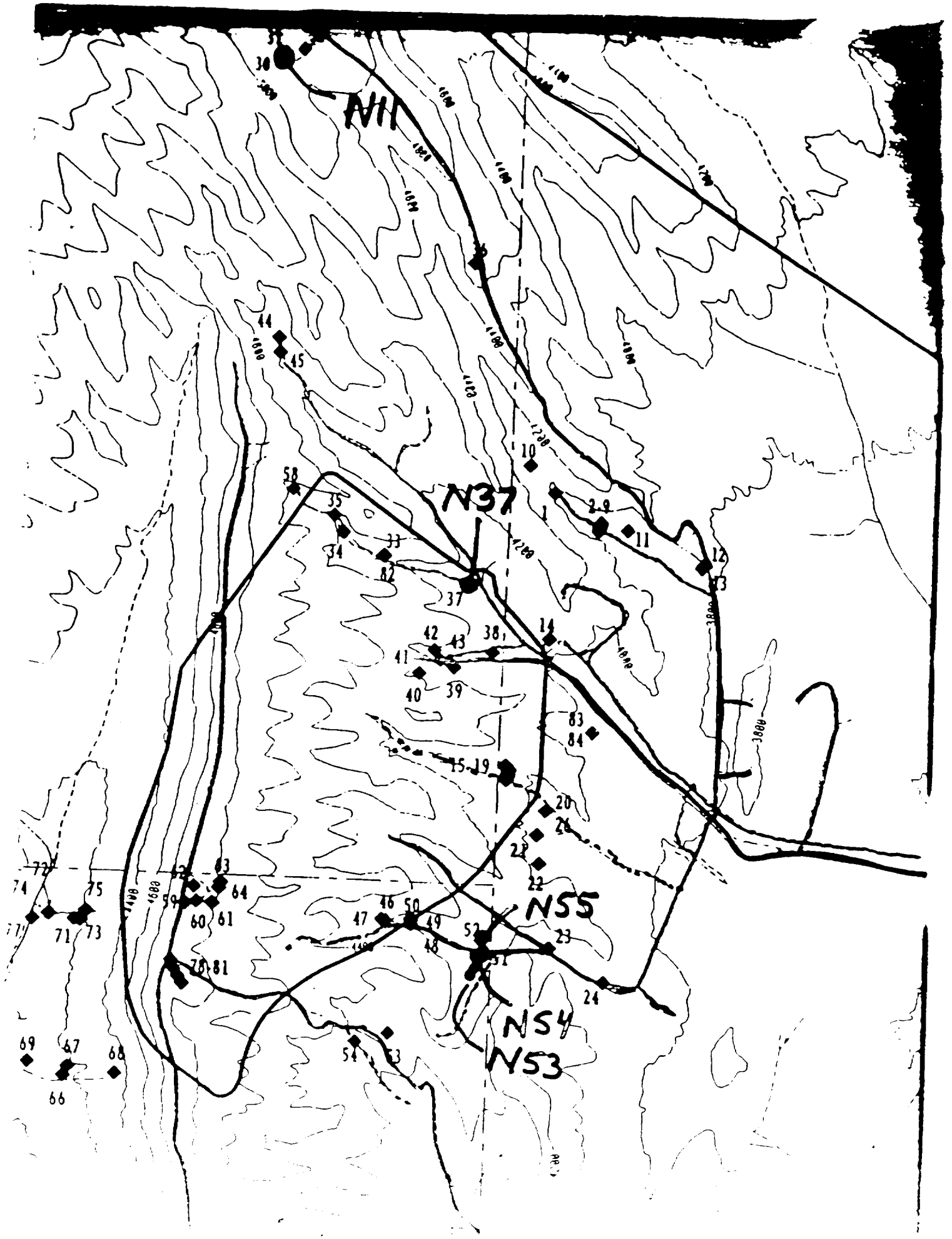
Leach ~ 5 kg for 48 hours in deionized water

Centrifuge, filter leachate

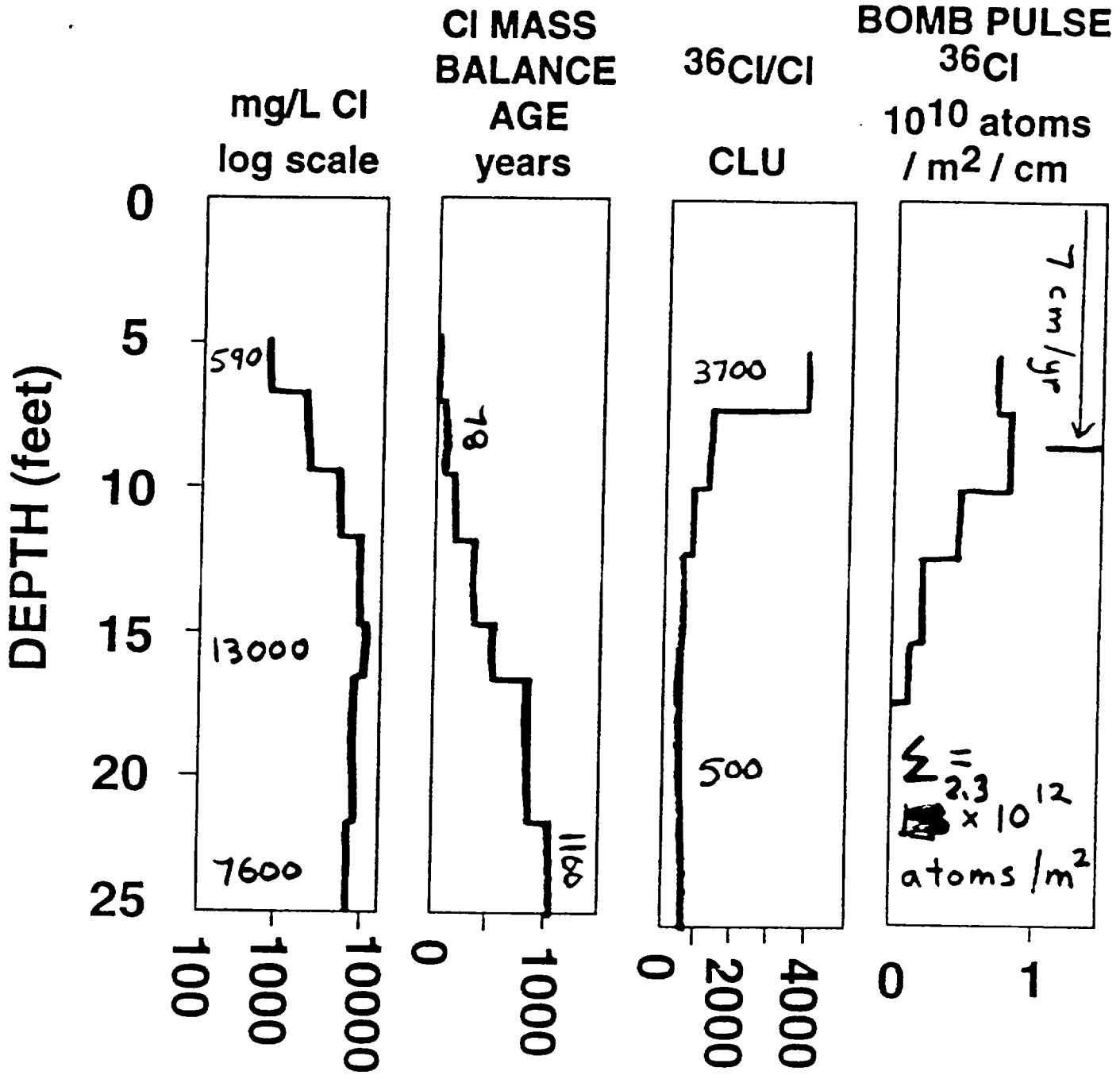
Measure Cl / Br

Precipitate AgCl

CHLORINE-36
ANALYSIS by AMS


N11
N37
N55
N54
N53

USW-UZN54
ALLUVIUM 0-25.5'



PM in rock = 9 to 170

Cl/Br = 170 to 260

$\bar{v}$ = 7 cm/yr

$\bar{q}$ = 0.4

OBSERVATIONS AND PRELIMINARY INTERPRETATION OF ALLUVIAL SAMPLES

1) INTEGRAL OF BOMB-PULSE 36Cl IS AS EXPECTED FOR GLOBAL FALLOUT
   - NO EVIDENCE OF LATERAL TRANSPORT
   - NO EVIDENCE OF SIGNIFICANT LOCAL FALLOUT

2) CONCENTRATING MECHANISM FOR Cl OCCURS AT 10-15 FT; PROBABLY INDICATES MAXIMUM ROOTING DEPTH (ET ZONE)

3) MOST OF BOMB-PULSE 36Cl IS CONCENTRATED WITHIN ZONE OF ET

4) ASSUMPTION THAT Cl IS CONSERVATIVE MAY BE INVALID SUCH THAT AGE-DATING METHODS ARE NOT APPLICABLE $\delta^{37}Cl$ data

5) HIGH Cl CONCENTRATIONS INDICATE DOWNWARD MOISTURE FLUX IS NEGLIGIBLE IN N54

6) DOWNWARD TRANSPORT OF Cl BELOW ROOT ZONE MAY BE DOMINATED BY DIFFUSION IN N54

USW-UZN54 PAINTBRUSH NONWELDED UNIT

DEPTH (FT)	LITHOLOGY	PPM Cl	MG/L Cl	Cl/Br RATIO	36Cl/Cl (CLU)
135-140	TIVA-COLUMNAR	11	360	—	277
140-145	TIVA-COLUMNAR	15	395	50	149
145-150	SHARDY BASE	9	107	220	—
155-160	SHARDY BASE	7	74	160	—
165-170	SHARDY BASE	8	87	72	405
175-179	SHARDY BASE	5	62	190	—
184-189	BEDDED	6	73	—	480
204-208	TS-NONWELDED	6	105	42	594
213-218	TS-NONWELDED	5	49	130	—
218-223	PUMICE FLOW	2	40	120	352
228-233	TS-MOD WELDED	2	86	195	332

HYPOTHESES:

1) Cl EXTRACTED FROM SAMPLES IS MOSTLY DERIVED FROM PRECIPITATION
   - Cl/Br RATIOS ARE METEORIC

2) WATER TRANSPORT THROUGH MATRIX OF TIVA-WELDED INTO PTn IS NEGLIGIBLE
   - 36Cl/Cl FROM BASE OF TIVA-COLUMNAR UNIT < METEORIC VALUE

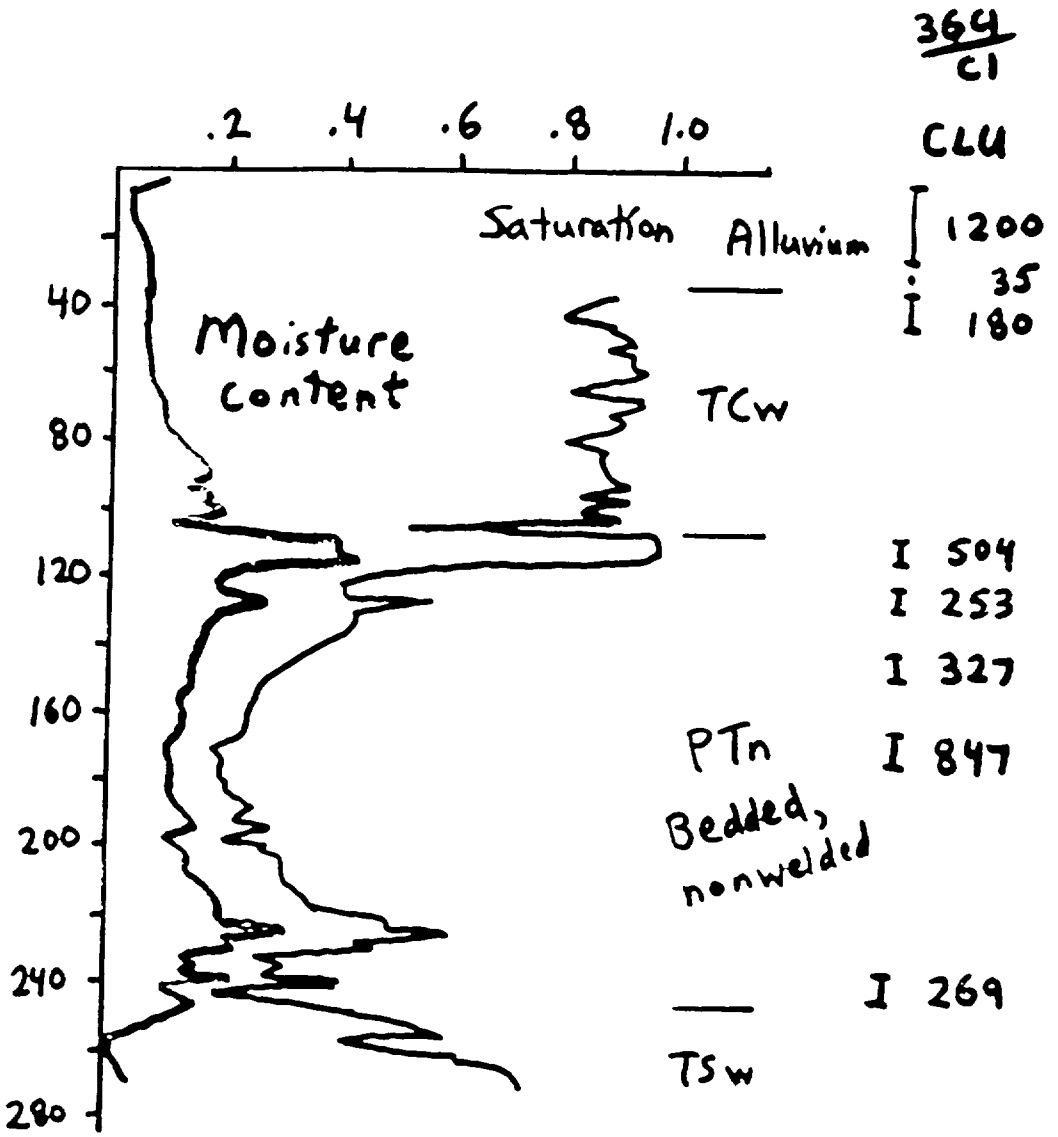
3) FRACTURE TRANSPORT THROUGH TIVA CANYON WELDED INTO PTn
   - BOMB-PULSE 36Cl IN PTn
   - MONOTONIC DECREASE ABOVE AND BELOW MAXIMUM 36Cl/CL VALUE
   - [Cl] IN PTn < [Cl] IN TIVA-COLUMNAR UNIT

USW UZ-N53

N53	0 - 2 ft	Alluvium
	2 - 140	Tiva Canyon densely welded
	140 - 150	Nonwelded
	150.4	Shardy Base contact
	150 - 180	Nonwelded
	180 - 200	Bedded
	200 - 210	Nonwelded
	221 - 235	Moderately-densely welded Topopah Spring

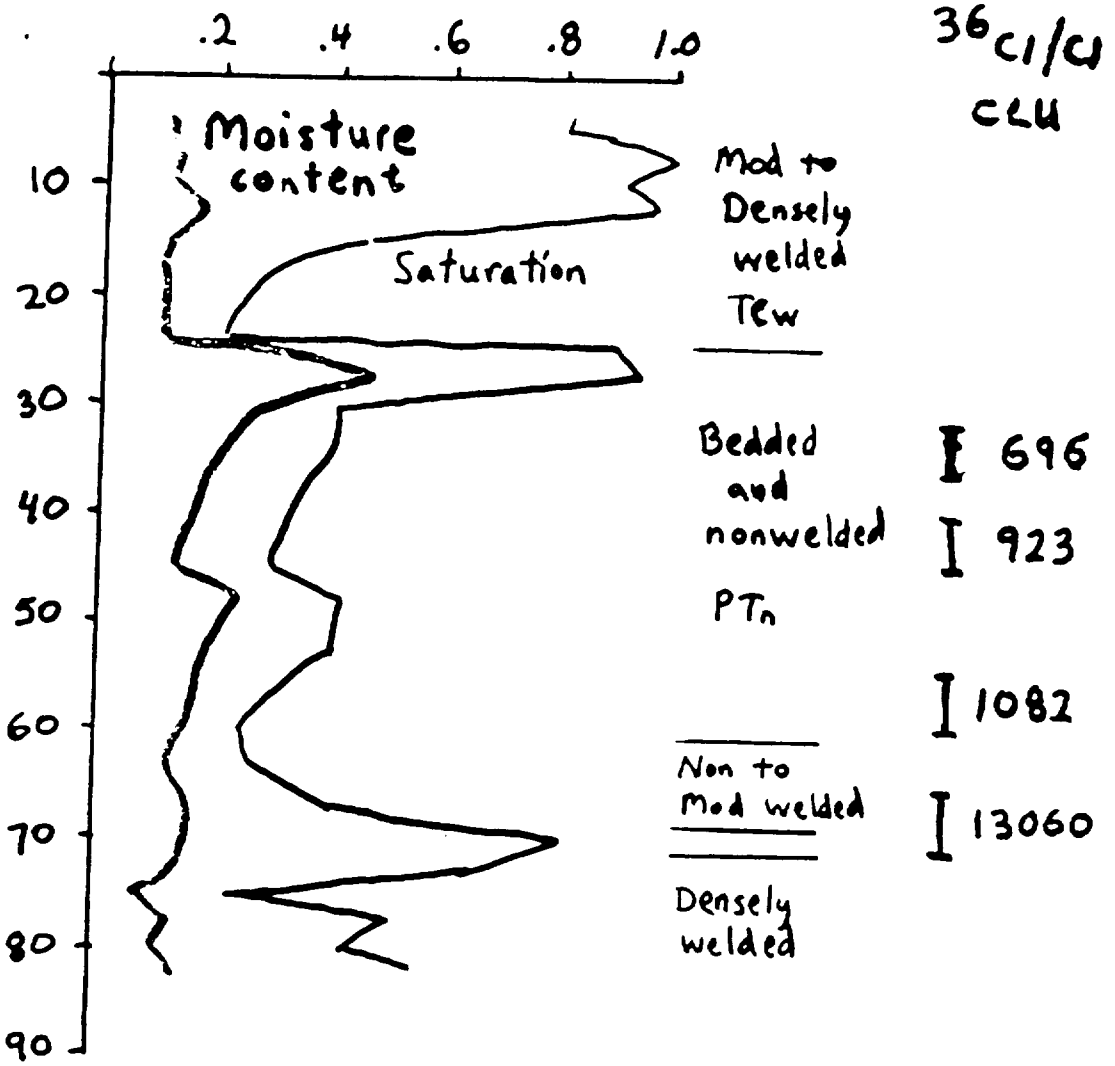
Submit ID	LANL ID	Source	Depth	$^{36}Cl/Cl \times 10^{-15}$	
YM078-1	PR353A-2	UZ-N53	144-149 ft	4561 ± 130	Nonwelded
YM079-1	PR361-2	UZ-N53	183-188 ft	2369 ± 34	Bedded
YM080-1	PR366-2	UZ-N53	208-210 ft	522 ± 17	Nonwelded

USW UZ-N37
WREN WASH



Moisture data from L. Flint

USW UZ-N11
Mile High Mesa



$^{36}Cl/Cl$ CCU

696

923

1082

13060

Moisture data from L. Flint

USW-UZN55 PAINTBRUSH NONWELDED UNIT

DEPTH (FT)	LITHOLOGY	PPM Cl	MG/L Cl	Cl/Br RATIO	36Cl/Cl (CLU)
165-170	SHARDY BASE	3.9	34	126	14,700
170-174	SHARDY/TIVA WELDED	4.1	34	154	11,000
174-180	TIVA-MOD WELDED	3.9	24	177	27,000
180-183	TIVA-NONWELDED	3.8	20	154	12,500
189-194	TIVA-NONWELDED	8.0	42	308	1,410
203-208	TS-BEDDED	6.1	46	164	27,000
218-223	TS-BEDDED	8.0	47	157	17,200
232-237	TS-BEDDED	5.2	29	200	6,580
237-242	TS-BEDDED	6.3	34	125	8,200
242-247	TS-MOD WELDED	3.2	54	103	9,190
247-252	VITROPHYRE	1.8	80	106	10,500
252-256	VITROPHYRE	2.1	254	223	17,000

ESTIMATED INTEGRAL OF BOMB-PULSE 36Cl IN PTn UNIT, UZN55

3×10^{13} ATOMS/M^2

COMPARE TO CALCULATED BOMB-PULSE INTEGRAL

3×10^{12} ATOMS/M^2

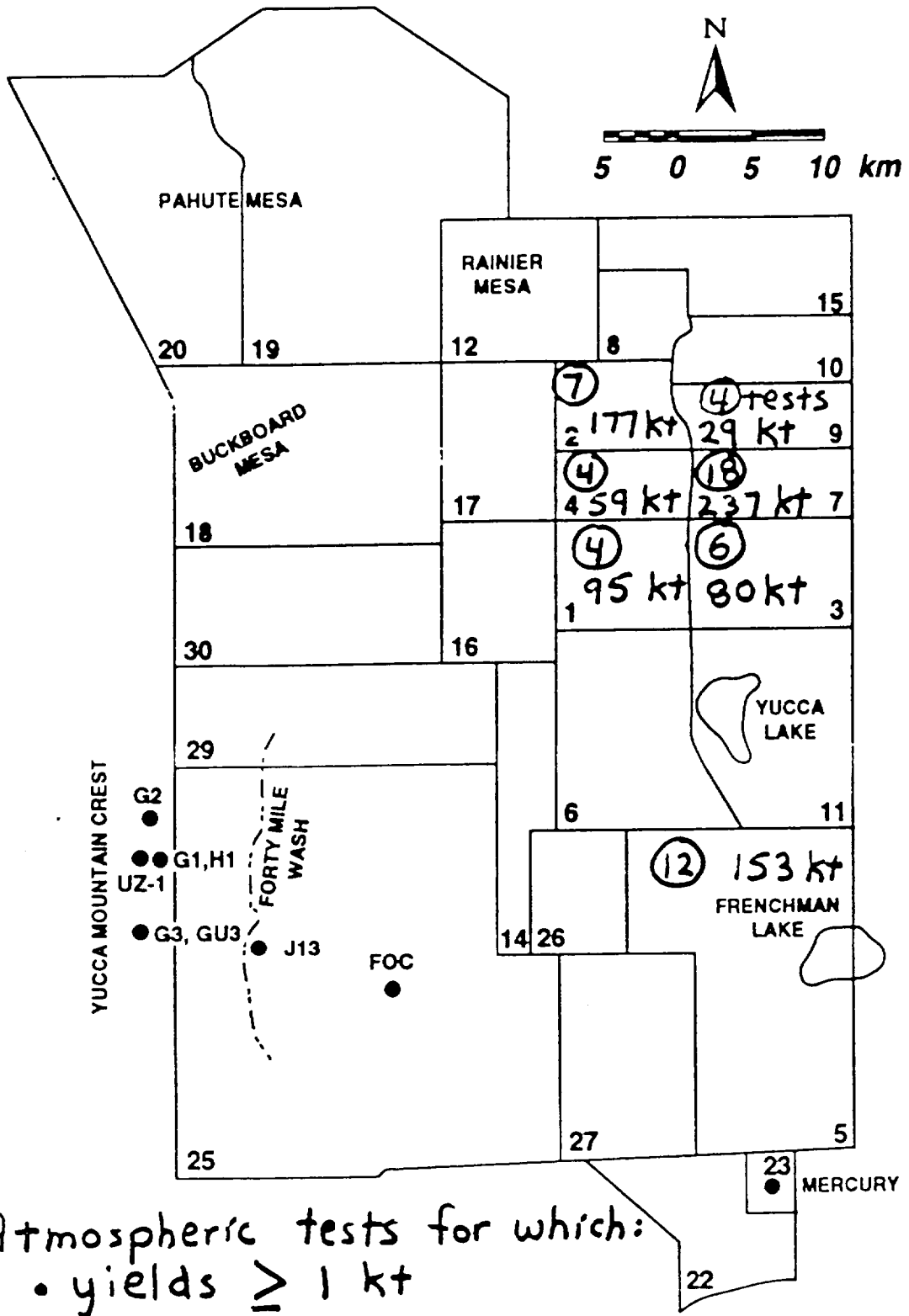
QUESTIONS - CONTAMINATION OR NATURAL PROCESSES?

1) WHAT IS SOURCE TERM?

2) HOW TRANSPORTED FROM SOURCE TO SURFACE NEAR N55?

3) HOW TRANSPORTED FROM SURFACE TO PTn UNIT?

NEVADA TEST SITE
AREA MAP

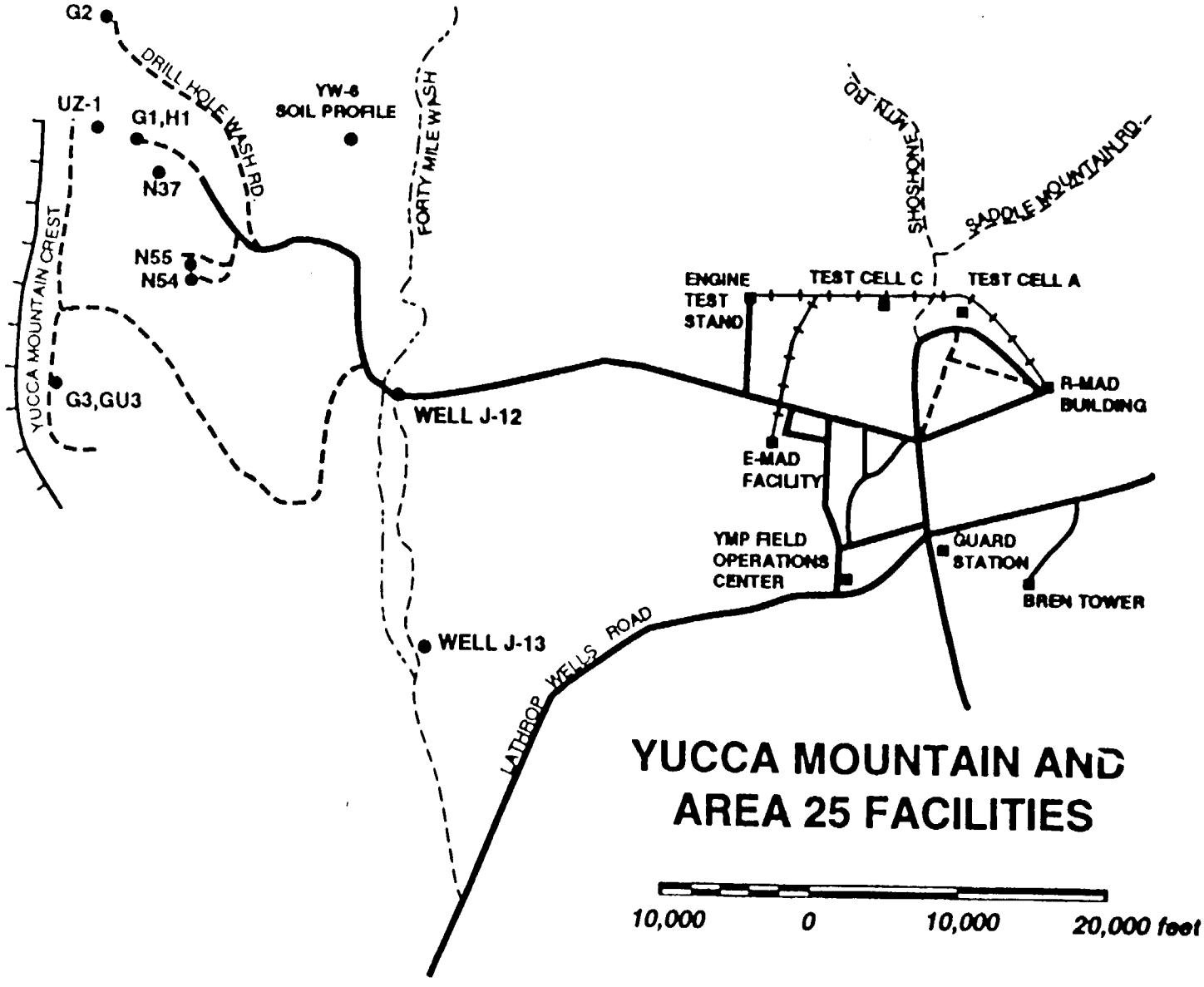


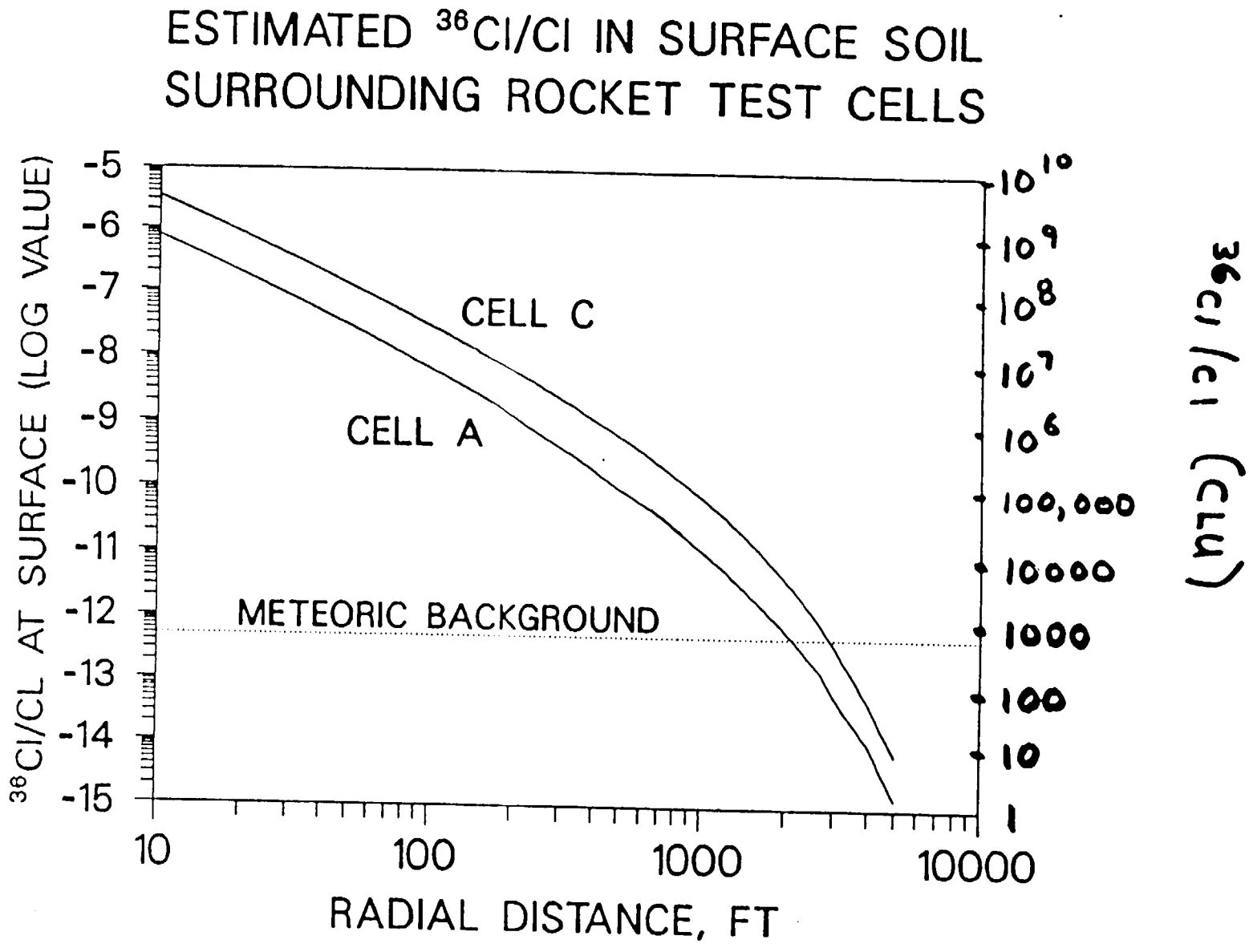
Atmospheric tests for which:

- yields $\geq$ 1 kt
- burst height < 2 km

Total of 55 tests, 830 kt, 1951-58

Max. $^{36}Cl/Cl$ at ground $\sim 10^{-8}$ to 10^{-7}, $r \geq 2$ km
(10^7 to 10^8 (LU))


G2
DRILL HOLE WASH RD
UZ-1
G1,H1
YW-6
SOIL PROFILE
FORTY MILE WASH
N37
N55
N54
YUCCA MOUNTAIN CREST
G3,GU3
WELL J-12
SHOSHONE MTN RD
SADDLE MOUNTAIN RD
ENGINE
TEST
STAND
TEST CELL C
TEST CELL A
R-MAD
BUILDING
E-MAD
FACILITY
YMP FIELD
OPERATIONS
CENTER
GUARD
STATION
BREN TOWER
WELL J-13
LATHROP WELLS ROAD
YUCCA MOUNTAIN AND
AREA 25 FACILITIES
10,000
0
10,000
20,000 feet



31 tests, 1959-69

FOCUS OF PRESENT WORK

Focus on identifying "fast paths"

Evaluate nature of transport into PTn

UZ-16 profile to Ghost Dance Fault

Testing Project Rover hypothesis

Building data base for background meteoric values

Local-scale modeling of results

Implementation Plans for the Revised

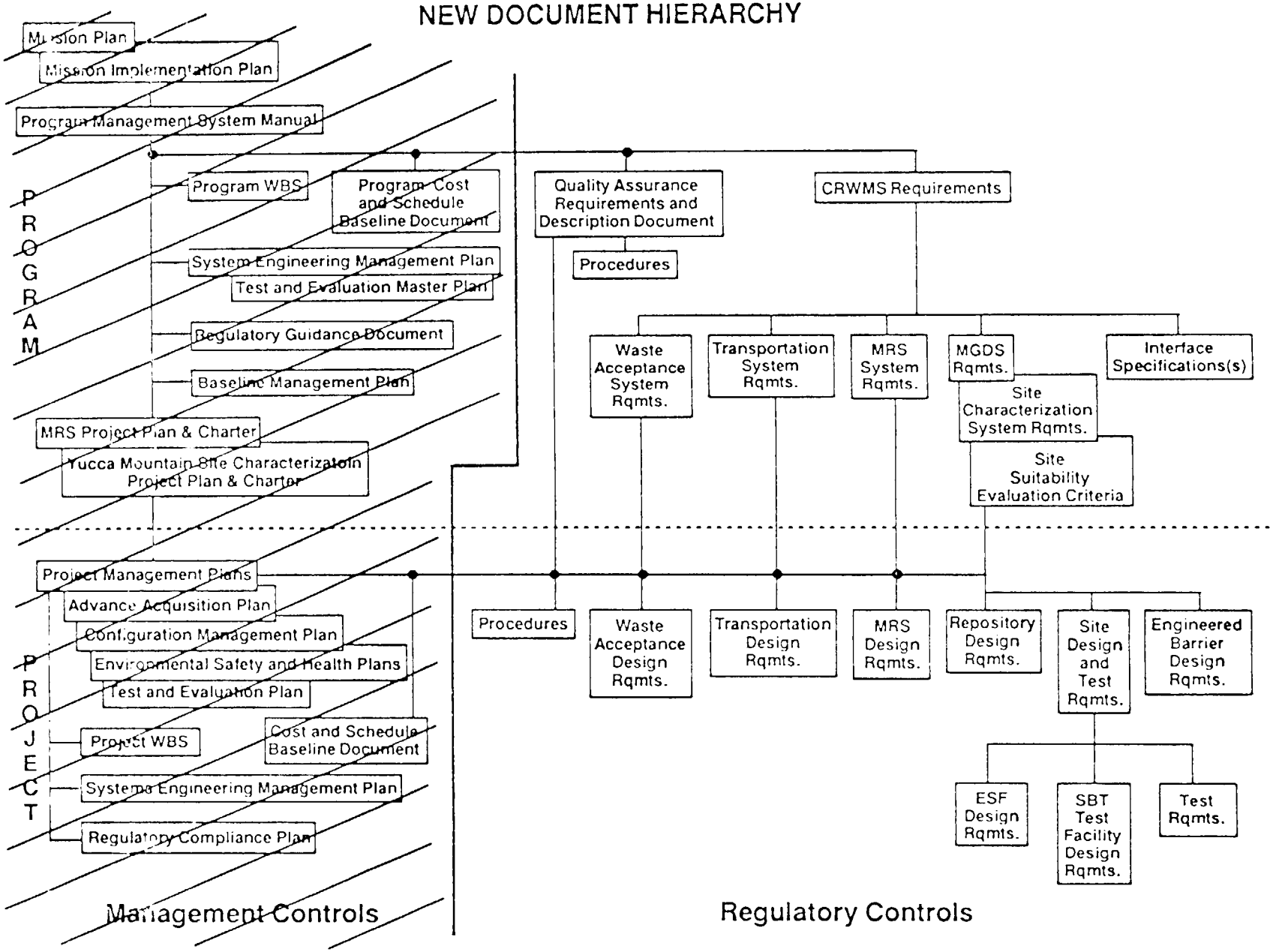
OCRWM Document Hierarchy

M. Sam Rindskopf
M&O/TRW
July 30, 1993

Briefing LV-MD-489

Enclosure 7

NEW DOCUMENT HIERARCHY

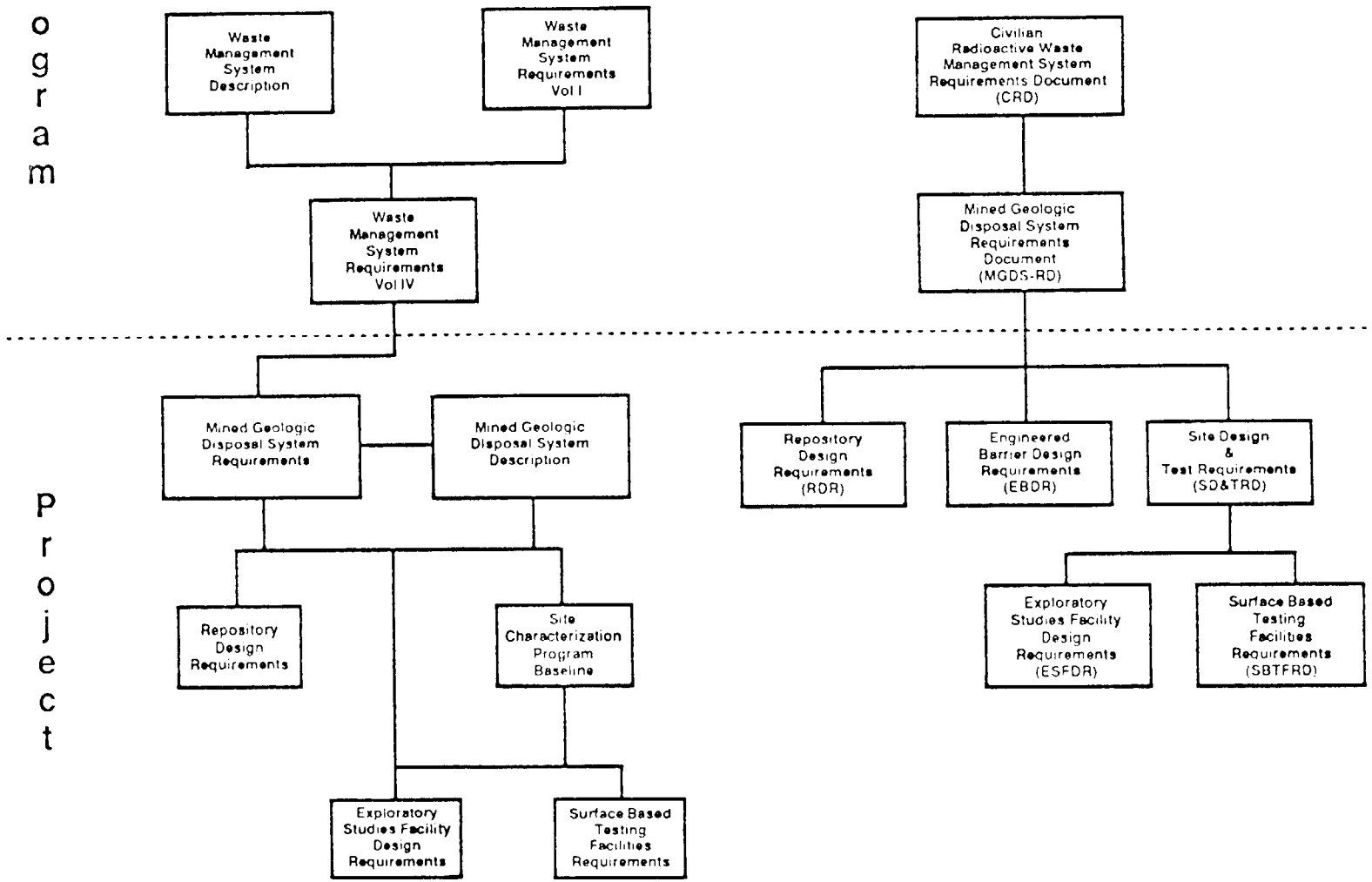


OldTechnical Requirements Document Hierarchy

New Technical Requirements Document Hierarchy

program

project



Document Status as of July 30, 1993

Document	Current Action
CRD	Approved by CCB (12/92)
MGDS-RD	Approved by CCB (1/93)
SD&TRD	Approved by CCB (6/93)
ESFDR	Approved by CCB (7/93)
SETFRD	Approved by CCB (7/93)
EBDR	Approved by CCB (7/93)
RDR	Approved by CCB (7/93)

Transition Plan

Objectives for Transition

1. Effect a "seamless" transition

2. Minimize redesign/redocumentation efforts

3. Support near term Yucca Mountain Project Office (YMPO) milestones

1. Seamless Transition

- Vertical traceability matrices have been prepared as part of each document to document the flow down and allocation of requirements
- Horizontal traceability matrices have been prepared for the System Requirements Documents to ensure top-level requirements from the old hierarchy were captured
- Horizontal traceability matrices have been prepared for the SD&TRD, ESFDR, SBTFRD, RDR, and EBDR, to identify new requirements and show where old requirements are captured

Traceability

- **Vertical**
  - Traceability to all requirements allocated from parent document

- **Horizontal**
  - Traceability to all requirements in current baseline

Baseline RDR	→	New RDR
Baseline ESFDR	→	New ESFDR
Baseline SBTFRD	→	New SBTFRD
SCPB	→	SD&TRD

Vertical Traceability Matrix Example
taken from the new ESFDR (YMP/CM-0019)

SOURCE	SD&TRD	ESFDR
10 CFR 60.15(c)(3)	3.2.7.1.A.2, 3.7.B.1	3.2.2.4.L
10 CFR 60.15(c)(3)	3.2.7.1.A.2, 3.7.B.1	3.2.2.4.L.1
10 CFR 60.15(c)(3)	3.2.7.1.A.2, 3.7.B.1	3.2.2.4.L.2
10 CFR 60.15(c)(3)	3.2.7.1.A.2, 3.7.B.1	3.2.2.4.L.6
10 CFR 60.15(c)(3)	3.2.7.1.A.2, 3.7.B.1	3.2.2.4.L.6(a)
10 CFR 60.15(c)(3)	3.2.7.1.A.2, 3.7.B.1	3.2.2.4.L.8
10 CFR 60.15(c)(3)	DERIVED	3.2.2.4.L.8(a)
10 CFR 60.15(c)(3)	3.2.7.1.A.2, 3.7.B.1	3.2.2.4.L.8(b)
10 CFR 60.15(c)(3)	3.2.7.1.A.2, 3.7.B.1	3.2.2.4.L.9
10 CFR 60.15(c)(3)	3.2.7.1.A.2, 3.7.B.1	3.2.2.4.L.10
10 CFR 60.15(c)(4)	3.7.2.2.D, 3.7.B.1	3.2.1.H.1(a)
10 CFR 60.15(c)(4)	3.7.2.2.D, 3.7.B.1	3.2.1.H.1(b)
10 CFR 60.15(c)(4)	3.7.2.2.D, 3.7.B.1	3.2.1.H.1(c)
10 CFR 60.15(c)(4)	3.7.2.2.D, 3.7.B.1	3.2.1.H.1(d)
10 CFR 60.15(c)(4)	3.2.7.1.A.3, 3.7.B.1	3.2.1.1.E
10 CFR 60.15(c)(4)	3.2.7.1.A.3, 3.7.B.1	3.2.1.2.B
10 CFR 60.15(c)(4)	3.2.7.1.A.3, 3.7.B.1	3.2.1.3.C
10 CFR 60.15(c)(4)	3.2.7.1.A.3, 3.7.B.1	3.2.1.4.H
10 CFR 60.15(c)(4)	3.2.7.1.A.3, 3.7.B.1	3.2.1.5.H
10 CFR 60.15(c)(4)	3.2.7.1.A.3, 3.7.B.1	3.2.1.6.E
10 CFR 60.15(c)(4)	3.2.7.1.A.3, 3.7.B.1	3.2.1.6.F
10 CFR 60.15(c)(4)	3.2.7.1.A.3, 3.7.2.2.D, 3.7.B.1	3.2.2.G
10 CFR 60.15(c)(4)	3.7.B.1	3.2.2.4.L.2
10 CFR 60.15(c)(4)	3.7.B.1	3.2.2.4.L.3
10 CFR 60.15(c)(4)	3.7.B.1	3.2.2.4.L.4
10 CFR 60.15(c)(4)	3.7.B.1	3.2.2.4.L.5

Horizontal Trace Matrix Example

taken from the New ESFDR

ESFDR Volume 1 Cross-Reference			
ESFDR Rev. 7/2/92, ICN-2	ESFDR	Comment	DAA
1.2.6.* B&I	3.2. 1 Z2	* Applies to all sections except 1.2.6.0; Changed "repository" to "potential repository"	N/A
1.2.6.0 B&I	3.2. 1 Z		N/A
1.2.6.0 C A	3.2. 1 L	Deleted everything after 'DOE' and replaced with ', with the exception of environmental requirements which are addressed in 3.2.1.24.A'	N/A
1.2.6.0 C B	3.2. 7		N/A
1.2.6.0 C C1	3.2. 1 M		N/A
1.2.6.0 C C2	3.2. 2 E		N/A
1.2.6.0 C C3	3.2. 2 F		N/A
1.2.6.0 C C4	3.2. 2 G		N/A
1.2.6.0 C Ci	3.2. 1 M1		N/A
1.2.6.0 C Cii	3.2. 1 M2	Changed "repository" to "potential repository"	N/A
1.2.6.0 C Ciii	3.2. 1 M3	Replaced repository testing with performance confirmation testing	N/A
1.2.6.0 C Civ	3.2. 1 M4		N/A
1.2.6.0 C Cv	3.2. 1 M5		N/A
1.2.6.0 C Cv [2]	3.2. 1 M5a		N/A
1.2.6.0 C Cv [3]	3.2. 1 M5b		N/A
1.2.6.0 C Cvi	3.2. 8		N/A
1.2.6.0 C Cvii	3.2. 2 G1		N/A
1.2.6.0 C Cviii	3.2. 1 M6		N/A

2. Redesign/Redocumentation
Areas Reviewed for Potential Impact

a. Study Plans

b. Procedures

c. Basis for Design

d. Design Specifications and Drawings

e. Job Packages in Progress or Completed

f. Test Planning Packages in Progress or Completed

g. Ongoing Design for Exploratory Studies Facility (ESF) and Surface Based Testing Facilities (SBTF)

h. Ongoing Construction for ESF and SBTF

i. Current YMP0 Baseline Documents

j. Project Controlled Documents

k. FY '93 Workscope and Milestones loaded in PACS

l. Funding Allocated to Participants for FY '93

m. Training Requirements

3. Near Term YMPO Milestones Supported by the Technical Requirements Document Hierarchy

- 90% Design Review and preparation of the Basis for Design for ESF Packages 2A and 1B

- Development of the initial Basis for Design of the potential Repository (in support of ESF Design)

Implementation of the New Technical Hierarchy

- Complete the QAP 6.2 review process for each document
- Complete the backup QA package for each document (traceability matrices, requirements sheets)
- Division Directors & Technical Project Officers identify the affected documents as part of implementing the change directive and define the schedule for revising the affected documents
- Change DCP-56 to allow effectivity of ESFDR & SBTFRD upon completion in support of ESF 90% Title II design reviews
- Implement RDR and EBDR upon approval of the latter of the two documents

Enclosure 8a
(Rev. 1, 7/29/93)

AGENDA

YUCCA MOUNTAIN PROJECT - PROJECT MANAGER'S/TPO MEETING

JULY 30, 1993, FRIDAY

SAIC CONFERENCE ROOM 450

TIME	WHAT	WHO	EXPECTED OUTCOME
9:00-9:15	Welcome & Introductions o Review Agenda	C. Gertz	
9:15-10:00	Status of Yucca Mountain Site Characterization Project	C. Gertz	Understand Current Status of Program and Project
10:00-10:15	Status of Design and Construction Effort Supporting the Exploratory Studies Facility (ESF)	W. Simecka	Understand Current Status of ESF Design and Construction Effort
10:15-10:30	Status of Site Characterization Testing Program and Preparation and Approval of Study Plans(SPs)	R. Dyer	Understand Current Status of Testing Program and SPs
10:30-10:45	**BREAK**		
10:45-11:00	Status of Mined Geological Disposal System (MGDS) Thermal Loading Study	W. Simecka	Focus the Range of MGDS Thermal Loading Options
11:00-11:30	Preliminary Results from the Chlorine 36 Studies	Fabryka-Martin	Understand Current Status of Studies
11:30-11:45	Implementation Plans for the Revised OCRWM Document Hierarchy	S. Rindskopf	Understand Status of Updates to YMP Documents
11:45-12:00	Accelerated Surface Based Testing to Provide Information on the Undisturbed Site Ahead of ESF Construction	R. Craig	Understand the Surface Based Tests That Need to be Accelerated
12:00	**ADJOURN FOR LUNCH**		

TPO MEETING

PRESENTED BY

CARL GERTZ

PROJECT MANAGER

JULY 30, 1993

Enclosure 8b

TPO AGENDA

- Affected Parties Meeting, July 9, 1993
- Air Quality Permits
- National Academy of Sciences 801 Meeting
- NWTRB Meeting July 13-14, 1993
- Stakeholders Meeting, August 10, 1993
- '94 Budget
- '95 Budget
- Secretary of Energy Visit
- Upcoming Events
- Video
  - ABC film coverage
  - Channel 3 film coverage

AFFECTED PARTIES MEETING
JULY 9, 1993

YUCCA MOUNTAIN PROJECT
AFFECTED PARTIES MEETING

DOE Large Conference Room
9 July 1993

FINAL AGENDA

9:00 a.m. - 9:05 a.m.	**Carl Gertz, *Project Manager, Yucca Mountain Site Characterization Project*:** Introduction
9:05 a.m. - 9:20 a.m.	**Linda Smith, *Associate Director, Office of Geologic Disposal* / A.C. Robison, *Director of Public Affairs, Yucca Mountain Site Characterization Project*:** General discussion of constituent involvement
9:20 a.m. - 9:45 a.m.	Open discussion / input
9:45 a.m. - 10:00 a.m.	**Carl Gertz** Technical update
10:00 a.m. - 10:15 a.m.	Open discussion / input
10:15 a.m. - 10:30 a.m.	**Robert Sandifer, *Director, Mined Geologic Disposal System Development*:** Status of ESF Design Evolution
10:30 a.m. - 10:45 a.m.	Open discussion / input
10:45 a.m. - 11:00 a.m.	Break ("New Work Update" video available for viewing)
11:00 a.m. - 11:15 a.m.	**J. Russel Dyer, *Director, Regulatory and Site Evaluation Division*:** Upcoming site characterization activities through Summer 1994
11:15 a.m. - 11:30 a.m.	Open discussion / input
11:30 a.m. - 11:45 a.m.	**Jeanne Cooper, *Physical Scientist, Regulatory and Site Evaluation Division*:** NWTRB overview
11:45 a.m. - 12:00 p.m.	Open discussion / input
12:00 p.m. - 12:15 p.m.	**A.C. Robison**

	Future involvement - methods and opportunities
12:15 p.m. - 12:30 p.m.	Open discussion / input

AIR QUALITY PERMITS

AIR QUALITY PERMIT
NOTICE-OF-VIOLATION SUMMARY

- Bureau of Air Quality (BAQ) issued a Notice of Alleged Violation on July 6, 1993 (officially received by DOE on July 12th) that included a stop-order pending issuance of the air quality permits necessary for the LM-300 drillrig

- BAQ stated that permits would be issued by close-of-business on July 13th or July 14th at the latest

- BAQ notified DOE that the permits were issued at 4:30pm on July 13, 1993. The stop-order was rescinded

Note: Out of operation less than 24 hours

NATIONAL ACADEMY OF SCIENCES
801 MEETING

NAS STUDY ON EPA STANDARD

- Next Committee meeting: August 26-27 (Alexis Park Hotel)

- Focus of meeting
  - Alternative scientific approaches for expressing health-based standards
  - Connection between releases and exposures
  - Comparison of health-based and technology-based standards

- Meeting agenda has not been developed

NAS STUDY ON EPA STANDARD

(CONTINUED)

- Future Committee meetings (topics/locations TBD)
  - November 9-10, 1993
  - December 16-17, 1993
  - February 7-8, 1994
  - April 28-29, 1994

- Committee will begin drafting their report in June 1994

NWTRB MEETING
JULY 13-14, 1993

NWTRB FULL BOARD MEETING
JULY 13-14, 1993

THERMAL LOADING: THE INTEGRATION OF SCIENCE AND ENGINEERING

- Topics discussed
  - DOE's plans for choosing a thermal-loading strategy
  - Insights from geothermal analogues
  - Current modeling efforts
  - Thermal issues related to and integration of conceptual designs
  - Effects of thermal strategies on the ecosystem
  - Performance assessment
- Board pleased with
  - Thermal loading decision has not been made and is not imminent
  - Impacts of thermal loading on the natural system
  - Use of geothermal analogues
  - Thermal testing plans
- Board still has concern with
  - System-wide analysis and approach
  - Integration of all aspects of the thermal loading decision

STAKEHOLDERS MEETING
AUGUST 10, 1993

DOE NEWS

News Media Contact:
Kathaleen Bechard, 202/586-5810
Samantha Williams, 702/794-1875

For Immediate Release:
July 27, 1993

Public Invited By DOE To Design Consultative Process

The Department of Energy's (DOE) Office of Civilian Radioactive Waste Management (OCRWM) is inviting key program stakeholders and interested members of the public to help design a broad-based consultative process that will be used to devise an acceptable strategy for the long-term management of nuclear waste.

The consultative process is part of Secretary of Energy Hazel R. O'Leary's new program direction for OCRWM to enhance the participation of external parties in program development and implementation.

A notice in the Federal Register issued July 27, 1993, announces OCRWM's plans to conduct a facilitated workshop in Las Vegas, Nevada, with program stakeholders and interested members of the public. The meeting is scheduled from 8:00 a.m. - 9:00 p.m. on August 10, 1993, at the Board Room in the Thomas & Mack Center, Tropicana & Swenson Street, University of Nevada, Las Vegas.

The workshop for invited participants will be held from 8:00 a.m. - 5:30 p.m. An open review session for the public will be held from 7:00 p.m. - 9:00 p.m. The public may attend both sessions.

At the workshop, OCRWM will seek input from participants on: 1) initiating a process for broad consultation on specific issues; 2) a draft public involvement policy; and 3) developing associated guidelines that will direct OCRWM's public involvement program.

The focus of the workshop is to develop a collaborative process whereby substantive issues can be comprehensively addressed in future meetings. This workshop is not intended to resolve specific, substantive issues.

For further information, please contact:

Allen Benson, Acting Director
Office of External Relations
Office of Civilian Radioactive Waste Management
(202) 586-2280

(MORE)

To confirm workshop attendance, please contact:

Patty Reyes
Roy F. Weston Inc.
(202) 646-6668

-30-

YMP-93-18

'94 BUDGET

'95 BUDGET

SECRETARY OF ENERGY VISIT

UPCOMING EVENTS

UPCOMING EVENTS

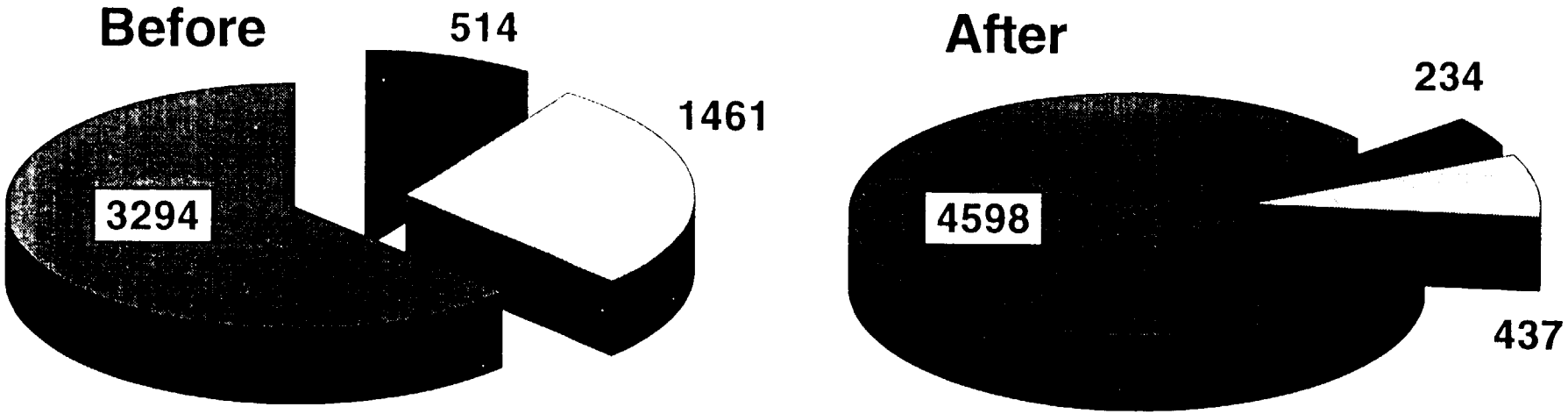
- 2nd International New Avenues in Risk & Crisis Management Conference
  Las Vegas, NV (UNLV) — 8/12/93

- Public Open House Tour
  Las Vegas, NV — 8/21/93

- Nevada State Fair
  Reno, NV
  - Exhibits on display — 8/25-29/93

- International Atomic Energy Course
  Argonne, IL — 9/8/93

POST-TOUR SURVEYS REVEALED 88% OF PUBLIC TOUR ATTENDEES FAVOR THE STUDY OF YUCCA MOUNTAIN



As of 7/24/93

62%	Completely or somewhat in favor of the study
28%	Undecided
10%	Completely or somewhat opposed to the study

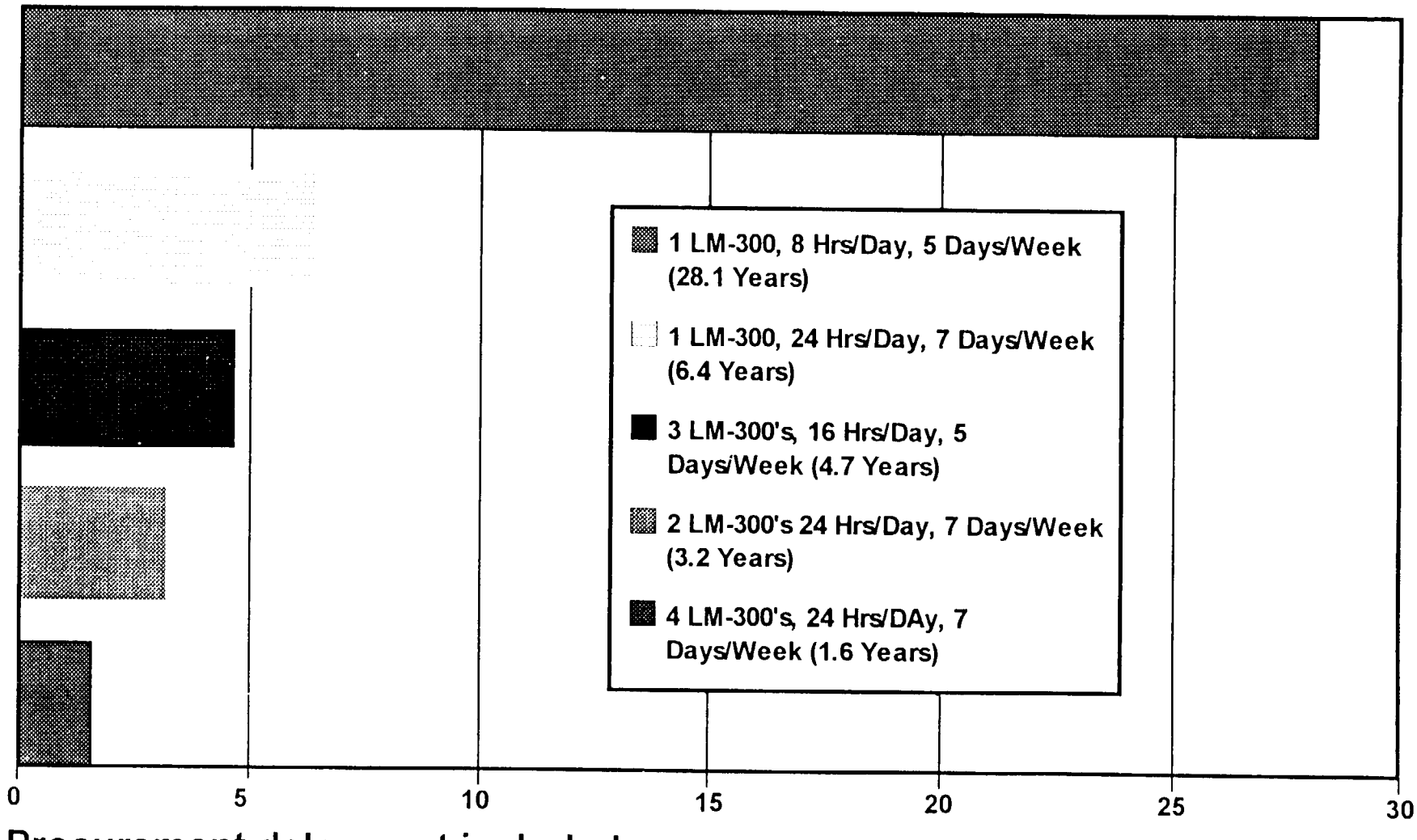
88%	Completely or somewhat in favor of the study
8%	Undecided
4%	Completely or somewhat opposed to the study

YMPIE5P.GERTZ/7-29-93

VIDEO

LM-300 SCHEDULE FOR 40 DEEP BOREHOLES (SCP PLAN)

(Based on UZ-14 Performance)

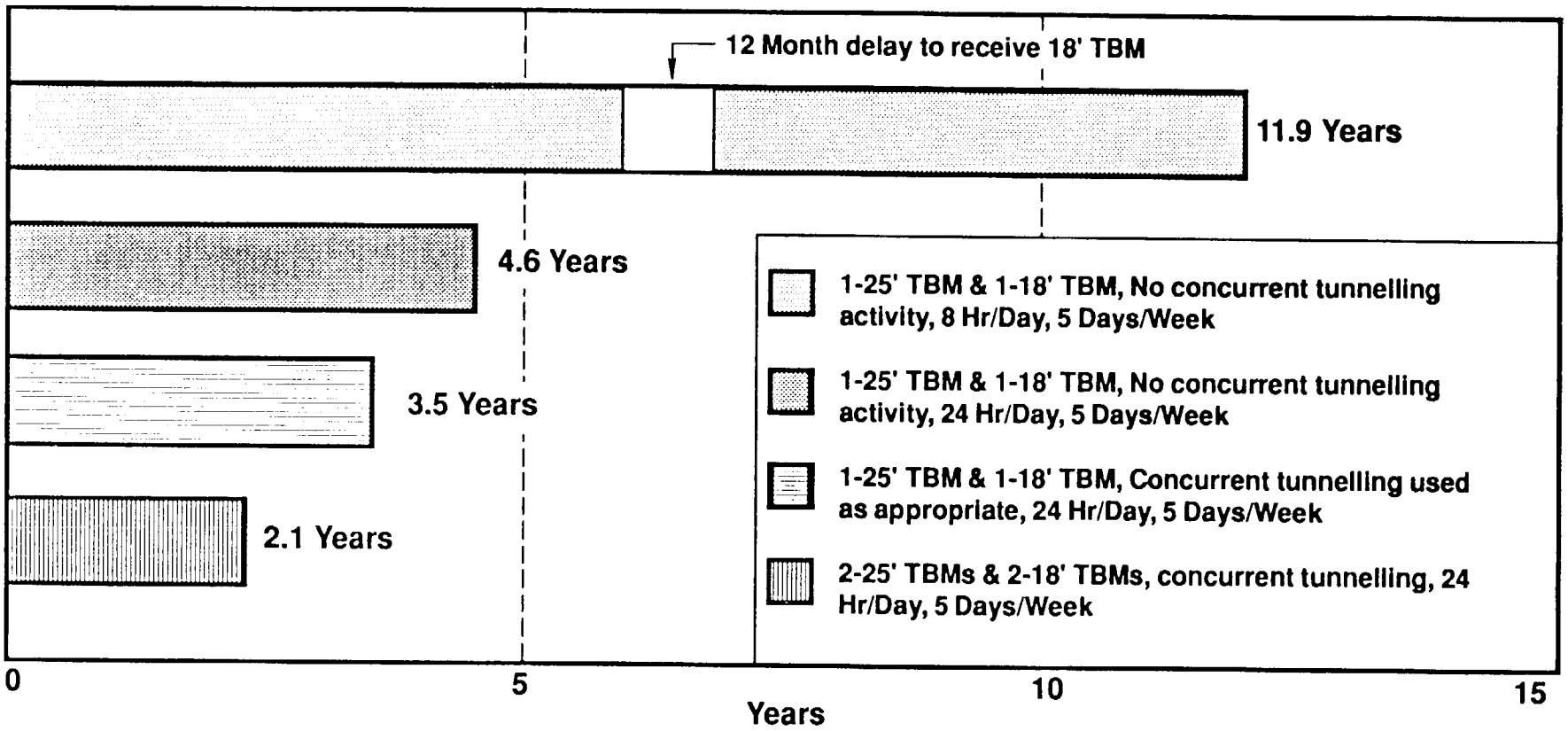


Procurement delays not included

LM3SCH1P GERTZ/7-29-93

Enclosure 8c

ESF TBM TUNNELLING SCHEDULE



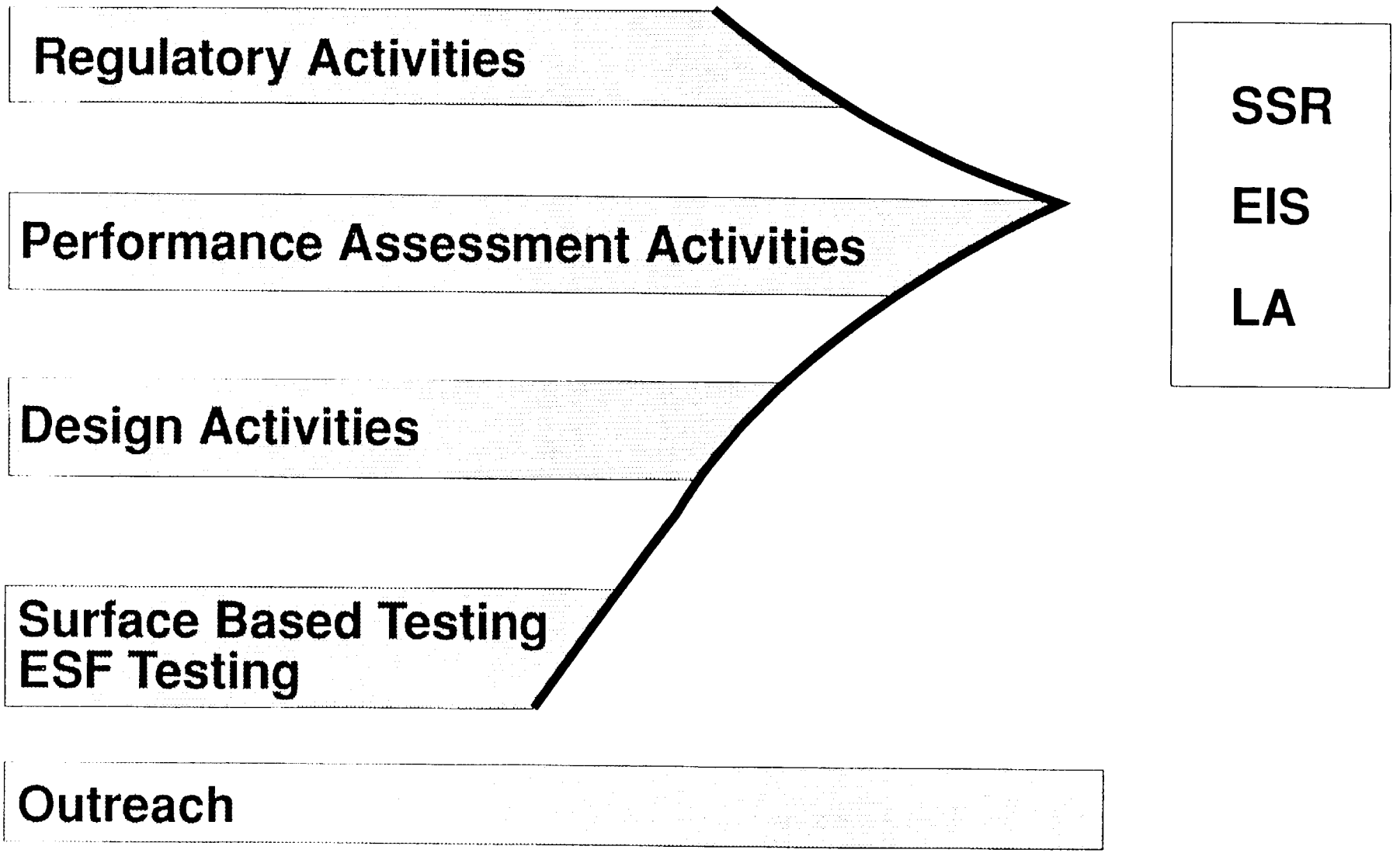
Total Length of TBM Drive 20,200M

TBM Advance Rate 1 M/Hr,
Includes effects of stoppages for scientific work

12MOESF2.126/7-29-93

Site Characterization

1993 — LA



Enclosure 8d

SITE CHARACTERIZATION ACTIVITIES

1993 — LA

Regulatory Activities

Interactions: NWTRB, NRC, ACNW, NV, NAS,
Issue Closure: Study plans, SCP, reports
NEPA, NWPA: EIS, Permitting, monitoring

Performance Assessment Activities

Model development: Geology, hydrology, climate
System performance: 10CFR60, 40CFR191

Design Activities

Repository design, Waste package design, Test facility design

Facility Construction

ESF: Drill & blast, TBM, test alcoves
SBT: Roads, drill pads, trenches

Characterization Testing Activities

Surface based tests: Drilling, trenching, mapping, geophysics, laboratory tests
ESF tests: Mapping, process testing, heated block, tracer tests
Environmental data: Meteorology, historical, radiological, flora, fauna, socio-economics

Outreach Activities

SITE SUITABILITY REPORT

ENVIRONMENTAL IMPACT STATEMENT

LICENSE APPLICATION

RAPAAP1.CPG/7 27-93

YUCCA MOUNTAIN NEWS ITEMS

TODAY'S DATE IS: July 30, 1993

1. ON REVIEW OF DOE'S HLW PROGRAM (Interview)
   OCRWM's Linda Smith in Nevada

2. HUNT URGED FOR SECOND DUMP SITE
   Las Vegas Review-Journal, 7/30/93

3. BRYAN OFFERS WASTE TO NEIGHBORS
   Las Vegas Sun, 7/29/93

4. WHY PRO DUMP?
   Reno Gazette-Journal, 7/15/93

5. BRYAN: NRC CHANGES RULES TO FIT YUCCA MTN
   Ely Daily Times, 7/16/93

6. CHANGE IS SUGGESTED IN NUCLEAR DUMP'S LICENSING GUIDELINES
   Elko Daily Free Press, 7/16/93

7. YUCCA GUIDELINES COULD CHANGE UNDER NEW RULES
   Sparks Daily Tribune, 7/15/93

NEVADA NEWSPAPER SOURCES:	CIRCULATION:	
Las Vegas Review-Journal	140,500 Daily	208,789 Week
Las Vegas Sun	34,011	208,789
Henderson Home News		16,000
Austin Reese River Reveille		500
Death Valley Gateway Gazette		5,500
Elko Free Daily Press	6,700	
Eureka Sentinel		500
Lincoln County Record		1,500
Mason Valley News		3,850
Moapa Valley Progress		2,800
Pahrump Valley Times		5,500
Record Courier (Gardnerville)	7,000	7,000
Tonopah Times		3,000
Reno Gazette-Journal	67,104	83,490
Carson City Nevada Appeal	11,500	12,520
Sparks Tribune	7,000	10,000
Ely Daily Times	2,392	2,600
Inyo Register		3,000

For further information or assistance please contact:

Corey Lieber, Institutional and External Affairs, SAIC, phone (702) 794-7246, FAX (702) 794-7623

Interview J-Pls copy this to everyone · Thanks Jane

ON REVIEW OF DOE'S HLW PROGRAM . . . . . OCRWM'S LINDA SMITH IN NEVADA

The Exchange *talked with Linda Smith, acting associate director for geologic disposal for the Department of Energy's (DOE) Civilian Radioactive Waste Management office in Nevada, on July 15. Smith, on her job for only a month at that point, said, "I think it's been a very positive experience....I'm extremely impressed with the quality of the people who are involved in the program. We have some very talented people that are very motivated and very involved."*

In the interview that follows, Smith said the Nevada office "is working on those [issues] that have to do with our internal organization, how we get our resources aligned. We don't have that many people, but we have to get them organized in a little better way. We've got to look at all of our contracting and across the board to see how we can make that a little more efficient."

I'd like to start by asking you to explain what your duties are and how responsibilities are split between you and Carl Gertz.

Two or three months ago, I was asked by the Civilian Radioactive Waste Management (OCRWM) officials in Washington to consider taking a senior management role with the Yucca Mountain Project on an interim basis—an undefined interim basis, because they have felt for a while an increasing need to see two senior management people (by senior management, I mean, at an SES level)—in the state of Nevada on Yucca Mountain issues, primarily because of the increasing activities at the site. Now we're actually characterizing and constructing a tunnels and seeing an increase in the surface-based testing aspects as well. So we need to have Carl Gertz, the project manager, focused very heavily on the scientific and technical aspects of the program.

DOE officials saw the need for an additional senior manager in Nevada to be a broad-based program manager, if you will, a person in charge of all Yucca Mountain activities in Nevada that would focus attention predominantly on the institutional or outreach aspects, as well as having those broad program management responsibilities. Carl had, over the years, served in both roles in what we call a collateral duty type of situation. That became very, very difficult to sustain as activities really started to grow exponentially.

I think there was also a feeling on the part of the management officials that we are in sort of a management evolutionary situation. We have yet to see who will be appointed for the position of OCRWM director, and we don't know quite when that will occur. But certainly, we are now looking at the program in a very, I think, constructive way to see what management changes may occur and to get some ground-based type of information on the program.

One of the attractive things about putting me in the position is that I am a senior manager in the Nevada Operations Office, which is the DOE entity here in Nevada that's responsible for the defense programs side of the house. And I'm pretty familiar with the Yucca Mountain side of it, at least from the standpoint of having supported it over the years. I have a close working relationship with the people here, particularly with Carl Gertz. I know a lot about the external aspects in Nevada because I have dealt with that in my role on the other side, and so it looked to be a reasonable thing to do and I accepted.

Did I hear you correctly to say that this is not yet a permanent position for you?

No, it's an acting role, just as Lake Barrett is in an acting role as OCRWM director, and he is my boss for this assignment. Our understanding is that it will be an indefinite interim position and that we will reassess as we go along, depending on who is permanently assigned from a headquarters perspective. Once an OCRWM director has been appointed, we'll reassess and see what we want to do.

How do you and Carl Gertz interact on a day to day basis?

Very closely. We're a very strong team, I think. We're very complementary. My skills are as a senior management person. I'm very experienced in the management, administrative and contracting aspects, and I bring to the project some of those skills. Carl is one of the best technical project managers in America, and we're very happy to work together in this regard.

I think it has been good for both of us. We make decisions daily that I think show that interactive relationship. We meet every day and make decisions about

who's going to be doing what, who's going to be talking with whom. So far, it's been quite good. I have a lot of respect for Carl and what he's been able to do with the program over the years, and I think he feels the same about me in the role he has seen me in on the other side of the house [Nevada Operations Office].

Do you anticipate much travel back and forth between Nevada and Washington?

Absolutely. It's a given.

Have you been to Washington yet?

Yes. A couple, three times. This position as associate director for geologic disposal is a Washington program office position, which is just stationed here in Nevada. This is actually a headquarters position. So, I will be probably spending at least 30 percent of my time in Washington.

Do you have any particular plans for expanding institutional interaction and stakeholder interactions in Nevada?

Yes. Let me talk a little bit about that because I think it's very important and this is clearly reflective of the style and the vision and the goals of the new Secretary of Energy. She is a profound student of total quality management and believes very strongly in involving stakeholders in the broadest sense of the word, in a pre-decisional way, on issues that are under her area of responsibility. That position has brought a breadth and a profundity to the process that I think exceeds anything that has been done in the past.

Let me share with you that, from my past experience and association with the Yucca Mountain Project, this has been one of the most open and stakeholder sensitive projects that I have ever seen in my federal career—and I've been involved in some that have really stressed stakeholder involvement, when I was with other agencies. This has been a very, very open project, and the nature of it requires that it be so.

Secretary O'Leary's view is that we should appreciably exceed those bounds that we have set and involve people in pre-decisional aspects of programs so that we have genuine team efforts in making decisions. And we're looking at that group of, as she puts it, customers out there and understanding their needs or objectives or desires, being clear with them about areas where we can't use that kind of involvement—being very honest with them in our communication, in other words, by setting up for them the areas where we can benefit from meaningful involvement, making clear that they understand those areas where we have to make decisions without that involvement, and doing it in a way that the secretary would call a consultative process.

Is there some sort of formal mechanism that will guide this consultative process?

What we are doing is working closely with Secretary O'Leary's staff so that we're able to see that process evolve and implement it in a way, hopefully, that is win-win for all concerned. She is setting forth right now her plans for reviewing this program, and those plans ought to be announced soon.

She will be going ahead with an independent sort of project management review of Yucca Mountain activities. That should take place, I would think, within the next couple of months. The details are yet to be announced. I'm not sure just how she'll set it up.

She's also looking at a broader management review that would set up some kind of a consultative process with a diverse group of stakeholders so that she can hear from them on a wide range of issues associated with civilian radioactive waste management, not just Yucca Mountain and geologic disposal, but everything—the MRS and all aspects of the program. So we're now looking for her to articulate to us just how she intends to approach that.

Is this the process that Lake Barrett referred to in his testimony before two House committees recently?

Yes. There will be a meeting here in Las Vegas Aug. 10. It will be a starting point for that consultative process. That meeting will be facilitated and will include a long list of people that will be invited to participate. It will be focused primarily on the process and the scope of what could be a meaningful consultative process, if you will. We're hopeful that what we will get out of that meeting are the conceptual designs from a lot of folks on how we can meaningfully involve them in the way we do business.

I think there's been a lot of discussion out there about the meeting. I've heard excitement. There's also a lot of skepticism, others who feel that there's no way you can engage in a consultative process on these issues because we have such divergent views. And then there's a kind of an in-between group that has a healthy skepticism, but says "We do want to be involved and we want to see what the results are."

You mentioned the difference between parties like the state of Nevada that hold vastly different views from DOE, and the sort of group that's in the middle. Is your intent to include everyone, including those that promote agendas that seem directly opposite to the department?

They must be included. The state of Nevada is a very key affected party. In fact, it's very important for them to be involved and I would be very disappointed if they elect not to be involved. I'll be very frank. It's critical to have them in order to understand how we can jointly open communications in a problem-solving way. However, when you hold the view that you shouldn't be here to begin with, and unless the activities cease completely, we can't even come to the table—if that is the view, then you have a very difficult issue to work.

So, I'm hoping that we can get beyond that. If we can just break the ice and say, listen, let's agree at least that a formal channel of communication on issues will be a starting point, we'll be in good shape.

Have Nevada officials given you any indication yet whether they will be there and be involved in this process?

Not at this point.

This meeting sounds a lot like the Strategic Principles workshops. Will it include many of the same participants?

Yes. Only it will be a lot bigger.

Speaking of the Strategic Principles workshops, they were part of an initiative of the former administration. Their intent originally was to put out a revised Mission Plan for the HLW program. Do you, or do any DOE officials to your knowledge, have any plans to revive that document and issue a final Mission Plan, or is it dead and buried?

We're going into an internal session on that, on the whole strategic planning process in view of the new administration and its objectives, within a couple of months. We're working on the details of that right now. So the proposed, revised Mission Plan may look different, but it's certainly not dead and buried. It's alive and well.

The strategic planning initiative, is that going to include a review of the proposed alternative strategy, which I think has come to be known as the Isaacs Report (*Exchange, Vol. 12 No. 8*)?

Yes. I'm sure that will be a very important subject. The alternative strategies paper is going to be sent out fo public comment [see *HLW Wrap-Up*]. I've read it myself. I've talked to Tom Isaacs, and I think he has some very interesting and creative ideas that suggest we may want to take a much broader look at all of these issues in a meaningful way and that our paradigms ought to be a little more flexible. So, I was very impressed with what I read. But, yes, the answer is that definitely will be one of the key agenda items.

You said this strategic planning process is something that's gearing up now and you expect to be in full swing in a couple months?

The internal strategic planning process—and by internal, I mean OCRWM, and the project—is now scheduled for a meeting in Washington, probably within a month to a month and a half. We will dedicate a couple of days just to what has been done in the past, discussing the key issues, the focus of the near term and the long term, and how we institutionalize that, how we develop our thinking and our papers consistent with the framework that has been set by the Secretary.

You mentioned earlier, I believe, that you're expecting an announcement from the Secretary in the next two or three weeks. Is it her review of the financial aspects of the program that you were referring to?

Yes.

Has she given any hints as to what she is going to say or what other issues she wants to be scrutinized in conjunction with this review?

I have heard her say, and again this is subject to her formal approval and issuance, that she intends to go ahead with an objective review of the project management aspects of the program using a very independent process. Beyond that, I haven't heard any definite detail. But that review process would give her recommendations to improve the program.

I believe the state has called for an independent review led by either the Vice President or the Presidential Science Advisor. Have you heard anything out of the Secretary's office on whether she is considering that request?

All I have heard is that they indeed have made that request. They have requested a broader based review

that would be at a higher level—under the auspices of either Vice President Gore or the Science Advisor. I have no idea how that's all going to turn out.

Are you involved at all in the interactions with local governments on the payments equal to taxes? The Secretary earlier this year made an announcement that she would like to begin negotiations on that issue, and I believe she met with some local government representatives earlier this month.

Yes. Some of those discussions are going on right now. We're working with a number of counties in discussing how that's going to be implemented. So, yes, we're working on that.

Is there a target for when a determination will be made?

Difficult to say now. I hesitate because it's going to take a little while to work through some of the issues, and I just can't quite put a date on it. But we're giving it high priority.

Secretary O'Leary announced earlier this year that she would like to appoint a chief scientist to the project. Is that an area that you're involved in?

Yes. We have, in fact, an approach for the Secretary to review. That is a very high priority item with us all, believe me.

I imagine you can't release any of the details until she makes her decision?

I really would prefer not to, except to say...I hope she approves of the approach. Let it suffice to say that it's an extremely high priority. I think we will all agree that it's got to be a federal position, and that we want to somehow involve the National Academy of Sciences in some preliminary discussions about appropriate candidates. I think there's no doubt that we all agree on that, and beyond that, I would prefer to wait until I see how she feels about it.

Has the department done anything since reassigning funding in the FY94 budget to scientific activities to address the criticism that a high proportion of funds going to support program infrastructure?

We have a couple of things going on in that area. First of all, the issue of infrastructure is not well understood. Let me just say why I make that comment. In recent reports, notably the GAO review, there were very high percentages of the expenditures which were identified as infrastructure expenditures. Coming new into the program, when I saw the percentage—and my experience has been that GAO is pretty accurate—I went back and looked at the figures.

Half of the expenditures that they identified as infrastructure were for activities that I would call, from my experience, regulatory requirements. In other words, your environmental programs, your safety programs, institutional programs, some of the things that are statutory requirements that are not directly attributable to infrastructure, which is overhead. It's about half of the amount that they identified for infrastructure, and that gets it down to a very reasonable level.

But that doesn't answer your question, because clearly we are looking very closely at the infrastructure aspects. We're doing a number of internal reviews. We have cost reduction teams that have been set up in a number of areas. We're seeing some of the recommendations coming out already from the teams on how we might downsize some of the areas that aren't the critical aspects of the program, looking at different ways of doing business, and we're going to be stressing that more and more. It's just critical that we do that. We're under a somewhat constrained funding scenario. We've got a lot of activity going on at the site, and we have a lot of the incentive to really get busy and make it a heck of a lot more efficient.

Are there other criticisms or recommendations from the GAO report or other reports on the program that you'd like to comment on, that the department has been addressing?

On the GAO report, a lot of the recommendations related to the issue of the construction work not being optimized because of the funding constraints. Let me just share with you that I think we all recognize that's the case. I see a strong push from a headquarters standpoint to look very carefully at the budget requests that go to the Hill, so that we're pulling money out of the headquarters arena and getting it back to the field, so that we can do a better job of optimizing the work that's going on.

By that I mean, if you've got a funding constraint that doesn't allow you to fully use your resources, it's going to cost you a lot more to build the exploratory studies facility because you're doing it for a lot longer. GAO commented on the fact that was the case. They saw that in the past; headquarters hadn't even asked for a funding level that would have allowed us to do it. It wasn't just

that Congress wasn't giving us the money, it was that headquarters wasn't asking for it in a way that was allowing us to do it the right way. So, I think I see a genuine push to not ask for more than you need, but to ask for an amount that is reasonable in order to build it in an effective and an efficient way.

The recommendation that has been made recently by the National Academy of Sciences related to the chief scientist is another area where we've seen quick action and an agreement by all parties that it is important to have someone in that position to assure a strong balance between the engineering and the construction aspects and the scientific aspects of the program. That's a major, major recommendation that we feel will be implemented, hopefully, fairly soon. So I think there's been serious consideration given to all the major comments that you've seen recently. ◂

Wrap Up (HLW)

IN THE COURTS

The **Minnesota Supreme Court** now has until September to decide whether to entertain Northern States Power's (NSP) June 11 appeal of a lower court decision requiring legislative action before the utility can construct dry storage casks for spent nuclear fuel (*Exchange*, Vol. 12 No. 11).

The Minnesota Public Utility Commission and Department of Public Service filed their own appeals July 8. Opposing parties have 20 days to respond to the petitions for appeal, after which time the court has 40 days to decide. One NSP official predicted the participation of the two state agencies in the appeals process "probably makes it more likely the Supreme Court will take the case."

IN THE DOE

The **Department of Energy's Office of Civilian Radioactive Waste Management** (OCRWM) is inviting written comments on the *Alternative Program Strategy Report* (*Exchange*, Vol. 12 No. 8). A July 16 *Federal Register* notice announced the availability of the report and request for comments.

According to a DOE prepared statement, "Secretary of Energy Hazel O'Leary has directed that any alternative strategy that DOE may eventually adopt will be the result of thorough public discussion with the program's stakeholders.

Accordingly, all comments received on this report will be provided, together with the report, for discussion by the participants in the Secretary's external consultative process." For copies of the report or more information, contact Christopher Kouts, Acting Director, Office of Strategic Planning and International Programs, OCRWM, DOE, 1000 Independence Ave., SW, M/S RW-4, Washington, DC 20585; telephone 202-586-1252.

OCRWM is holding a Yucca Mountain Project (YMP) **Waste Package Workshop** Sept. 21-13 in Las Vegas. DOE is seeking participants interested in presenting waste package concepts and perspectives at workshop.

The workshop is a follow-up to the Engineered Barrier System Workshop held in Denver in June 1991, according to DOE. Presentations will focus on containment barrier corrosion behavior, materials selection, waste package fabrication, closure and nondestructive evaluation techniques, and performance assessment, with an emphasis on the data/testing needed to support modeling and performance assessment.

The workshop's objective is to provide a forum to discuss ideas on these aspects of waste package development and to allow comments from all interested parties on the current status of waste package development as part of the Yucca Mountain site characterization process.

Participants will be selected on the basis of DOE's evaluation of their qualifications and technical analysis of their proposed concepts. Interested participants must submit a statement of qualifications along with a technical analysis of the concept or approach they would like to address at the workshop. Those selected for participation will receive information on the status of wast package concept exploration and analysis and associated requirements and constraints placed on the waste package.

Hunt urged for second dump site

The Energy Department is prodded to seek another repository or increase the Yucca Mountain capacity.

By Tony Batt
Donrey Washington Bureau

WASHINGTON -- The search for a second nuclear waste repository should begin now or the Energy Department should ask Congress to raise the amount of waste that can be stored at Yucca Mountain, government and industry officials told the department Thursday.

But Dwight Shelor, an associate director of the department's Office of Civilian Radioactive Waste Management, said there is no need to consider a second repository before the years 2007 to 2010, when Congress will be required to take up the issue.

"Everyone is well aware that a second repository is far off," Shelor said. "The real challenge is the first repository. We have to complete the site characterization studies at Yucca Mountain before we can know if a second repository is needed."

Shelor made his comments at a public hearing on an Energy Department report examining the government's ability to store nuclear waste from power plants that may come on line in the future. A similar hearing was held last week in Las Vegas.

The report, which must be submitted to Congress and President Clinton by Oct. 24, concludes the Energy Department's nuclear waste program can accommodate additional waste that may be generated in the near future.

Under current law, no more than 77,000 tons of nuclear waste can be stored at Yucca Mountain, 100 miles northwest of Las Vegas, unless a second repository is opened. The law was designed to prevent unlimited dumping at one site.

But even if no more nuclear plants are licensed, the report estimates 94,600 tons of nuclear waste will have to be disposed. Shelor has said Congress could decide to change the law so additional waste could be stored at Yucca Mountain and a second repository would not have to be opened.

Larry Weinstock, Environmental Protection Agency chief of radioactive waste standards, said the report "misses the point."

"The report implies that a change must be made (in the nuclear waste program to accommodate the additional waste)," Weinstock said during Thursday's hearing. "But it doesn't conclude whether or not a second repository is needed. That's why Congress ordered the report."

Shelor said such a conclusion could not be reached until scientific studies

Please see YUCCA/2B

Yucca

From 1B

at Yucca Mountain are completed.

"The point we are trying to make is that we need to know how much nuclear waste can be safely stored at Yucca Mountain," Shelor said. "We may find out that only 69,000 metric tons of nuclear waste can be safely stored there. But we need that information before we can proceed."

The report's conclusion that sufficient time is available to make adjustments to accommodate additional waste drew a skeptical remark from Chuck Rees of the Laborers Health and Safety Fund of North America.

"Based on your previous track record, I don't think you will have time," Rees told Shelor.

Mary Olson of the Nuclear Information & Resource Service criticized the report for assuming Yucca Mountain will be ready to accept nuclear waste by 2010.

Shelor acknowledged there are a "great many unknowns" and "formidable challenges" in the nuclear waste program, but he said the Energy Department still plans to begin placing nuclear waste at Yucca Mountain by 2010, and continue dumping for 35 years.

The Energy Department will accept written comments from the public on the report until Aug. 20.

A final version of the report will be reviewed internally and then sent to the Nuclear Regulatory Commission and EPA for additional comments before being submitted to the president and Congress.

Bryan offers waste to neighbors

By Carol Bradley
GANNETT NEWS SERVICE

WASHINGTON – For a moment, it sounded as if Sen. Larry Craig were willing to consider his home state of Idaho as the host of a temporary nuclear waste repository for the United States.

Asked facetiously by Sen. Richard Bryan, D-Nev., if he'd like to volunteer the Gem State as the site of a short-term waste dump, Craig said, "That's an option that might be discussed. Thank you."

Pressed afterward to elaborate, Craig downplayed his remark.

"I can't speak for Idaho and for a process," he said. "No, I won't even speak to that until we see a clear process.

"Geologically, Idaho would have difficulties because geologically we're an active state," he said.

His give and take with Bryan occurred during a hearing to examine the implications of a court order banning further shipments of naval nuclear waste to Idaho. Testifying before the Senate Armed Services subcommittee on strategic forces and nuclear deterrence, Craig faulted the federal government for failing to have a long-term nuclear waste repository in place.

"When it comes to the health and safety of the citizens of Nevada, I take a back seat to no one. Idaho can ... volunteer to host an MRS."

Sen. Richard Bryan

The government's preferred site is Nevada's Yucca Mountain. But Nevada is vehemently fighting the proposal, and new questions about the long-term suitability of the site have prompted the commission of another environmental study – one Craig thinks is unnecessary.

"That piece of paper is going to cost the ratepayers of this country $6 billion – just for a piece of paper that says this area is qualified," Craig protested.

That's when Bryan, who was sitting at the dais, took exception.

"When it comes to the health and safety of the citizens of Nevada, I take a back seat to no one," he told Craig. "Idaho can, if it chooses, volunteer to host an MRS (monitored retrievable storage site)," which would be a far less costly option.

"What I am saying," Craig explained later, "is we are probably at a time when – looking at what is going on at Yucca Mountain or responsibly looking at other solutions besides a deep geological repository – we have allowed politics to so effectively block what is going on there that we cannot now use reasonable science" to choose a permanent site.

Nuclear energy

Why pro dump?

Well if it wasn't obvious before, it is obvious now. R-GJ is pro nuclear dump in Nevada ("Nevada delegates playing nuclear politics"). What is your political motive? That would be much more interesting to find out. Of course politicians are political but why is a local newspaper? The politicans you cite represent people, people with jobs; they have to vote in favor on issues that concern those people. You know that.

What I want to know is how you are involved in the nuclear industry. Why do you want a dump in Nevada? Because there might be money coming in from it? Anything for a buck.

The difference between a nuclear dump and nuclear testing is immense. If the citizens of Nevada had been as informed and more organized than they are now there might not have been nuclear testing in Nevada in the first place. Remember the people who were exposed to above-ground testing? The government said it was safe. Do you want the public to forget that too? I like my politicians political and my newspaper informational; think you can handle that?

Pete Van Peborgh, *Reno*

EDITOR'S NOTE: The editorial did not support the dump. It asked how our congressional delegation can support nuclear testing when it already opposes the dump, saying this seems to be a two-faced approach. This newspaper has consistently opposed a resumption of nuclear testing, has deplored the cavalier fashion in which the above-ground tests were handled, and has demanded full reparation for people who got cancer as a result.

Ely Daily Times, Ely Nevada, Friday, July 16, 1993

Bryan: NRC changes rules to fit Yucca Mtn

LAS VEGAS (AP) — The Nuclear Regulatory Commission is suggesting a change in licensing guidelines for a nuclear waste dump that means earthquake, volcano and flood risks might not disqualify Yucca Mountain as the dump site.

An NRC guideline that the Energy Department must "adequately" investigate and evaluate potential hazards at the site would be eliminated under the change, according to a statement the commission released Wednesday.

Under the change, described as a clarification by one NRC official, those risks would be weighed against other site conditions or engineering features that could prevent radioactivity from spreading to the environment.

The proposal drew criticism from Nevada's senators, who called it is an attempt by the federal government to change licensing requirements to fit the Yucca Mountain site, which sits among 32 earthquake faults.

"Frankly, this came out of the blue," said Sen. Richard Bryan, D-Nev. "Whatever problem is encountered out there, the (DOE's) response is knee jerk."

He said the DOE believes it can "engineer around" any problem that arises.

"I am flabbergasted by this proposed rule because we should be increasing safety regulations, not weakening regulations," said Sen. Harry Reid, D-Nev.

"This has to show the NRC's total lack of judgment and kowtowing to the DOE," Reid said

Joe Youngblood, the NRC's High Level Waste Management Division director, said the agency does not intend to change its licensing policy, just clarify it "so you don't have to do something above and beyond what is necessary to evaluate the site."

"All that is saying is that you consider them (site conditions) in combination," Youngblood said. "You balance them all up and see if you can meet the EPA (Environmental Protection Agency) standards."

Yucca Mountain, 100 miles northwest of Las Vegas, is the only site being studied by the Energy Department to store 77,000 tons of high-level nuclear waste, primarily spent fuel rods from nuclear power reactors.

The Energy Department intends to spend $5 billion over the next 10 years constructing an exploratory tunnel in the mountain and studying whether the mountain can safely contain the waste for 10,000 years. After the studies are completed and if the site is found to be suitable, the Energy Department will apply for a license from the NRC to operate the repository.

Youngblood said the proposed rule change came from the NRC staff and the Center for Nuclear Waste Regulatory Analysis, a federally funded, nonprofit research and development firm that contracts with the NRC.

"The Department of Energy didn't have anything to do with this," Youngblood said.

"It's a minor modification of the rules that we want to get cleared away before we get to the licensing phase," he said.

Yucca Mountain Project Manager Carl Gertz agreed the change would not alter NRC policy.

"Because a potentially adverse condition may exist, it must be considered with the other characteristics of the site. And if waste isolation capability is not compromised, then the site would be considered licensable," Gertz said.

FRONT PAGE

Change is suggested in nuclear dump's licensing guidelines

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Yucca guidelines could change under new rules

Associated Press

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Enclosure 9a

recvd 7/20/93

PUBLIC MEETING ON THE SECTION 803 REPORT

AGENDA

July 20, 1993

University of Nevada at Las Vegas, Board Room

2:00-2:30 PM	Introductions and overview of meeting D. Shelor
2:30-3:00 PM	Brief overview of the Report D. Bechtel, Clark S. Frishman, State J. Jervers, Inyo
3:00-3:45 PM	Discuss Report Sections 1 to 8 and Executive Summary C. Brown Citizens Alert T. McGowan - Indiv.
3:45-4:00 PM	Break
4:00-5:15 PM	Continue to discuss Report
5:15-5:30 PM	Wrap-Up
5:30-6:30 PM	Dinner Break
6:30-7:00 PM	Introductions and overview of meeting
7:00-7:30 PM	Brief overview of the Report
7:30-8:15 PM	Discuss Report Sections 1 to 8 and Executive Summary
8:15-8:30 PM	Break
8:30-9:45 PM	Continue to discuss Report
9:45-10:00 PM	Wrap-Up

mail 7/20/93
(w/o evening public list)

THE SECTION 803 REPORT MEETING ON July 20, 1993

Name	Street Address	City & State
Mike Baughman	PO. Box 93537	Las Vegas NV
Affiliation	Zip Code	Area Code & Phone
Lincoln + White Pine Counties	~~89043~~ 89193	702 732-0970
Name	Street Address	City & State
Judy Treichel	4550 W. Oakey	Las Vegas NV
Affiliation	Zip code	Area Code & Phone
NV Nuclear W TF	89102	702-878-1285
Name	Street Address	City & State
Steve Frishman	State Capitol	Carson City NV
Affiliation	Zip code	Area Code & Phone
Nuclear Waste Proj. Office	78710	
Name	Street Address	City & State
Mayor Manning Lvsun	800 S Valley View -LV	NV 89107
Affiliation	Zip code	Area Code & Phone
PETER CUMMINGS		(702) 229-6863
Name	Street Address	City & State
CITY OF LAS VEGAS	400 E. STEWART	LV 89102
Affiliation	Zip code	Area Code & Phone
Chuck Lenoces	5845 DEARBORN	
Name	Street Address	City & State
US ATTY NUCLEAR WASTE		208-334-9876
Affiliation	Zip code	Area Code & Phone
~~Dr. Patricia Hanning~~		
Name	Street Address	City & State
Dr. Patricia Hanning		
Affiliation	Zip code	Area Code & Phone
Creighton University	Omaha, NE	(402) 280-2834

THE SECTION 803 REPORT MEETING ON July 20, 1993

Name	Street Address	City & State
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RETIRED UNIV C.FL		
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THE SECTION 803 REPORT MEETING ON July 20, 1993

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THE SECTION 803 REPORT MEETING ON July 20, 1993

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THE SECTION 803 REPORT MEETING ON July 20, 1993

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SAIC		
Name	Street Address	City & State
DAN BURNS		LAS VEGAS NV
Affiliation	Zip code	Area Code & Phone
SAIC		
Name	Street Address	City & State
Ben Cully		
Affiliation	Zip code	Area Code & Phone
SAIC		Las Vegas NV
Name	Street Address	City & State
TRW	101 Conv. Ctr. Dr	L.V. NV.
Affiliation	Zip code	Area Code & Phone
Richard Babcock		
Name	Street Address	City & State
Affiliation	Zip code	Area Code & Phone
Name	Street Address	City & State
Affiliation	Zip code	Area Code & Phone

Enclosure 10a

WORKSHOP TO REVIEW
U.S. DEPARTMENT OF ENERGY'S NUCLEAR WASTE REPOSITORY PROGRAM
YUCCA MOUNTAIN AFFECTED UNITS OF LOCAL GOVERNMENT

August 24 & 25, 1993 Bob Ruud Community Center Pahrump (Nye County), Nevada

WORKSHOP AGENDA

August 24

7:30 a.m.	Continental Breakfast
8:00 a.m.	Welcome/Workshop Overview • Les Bradshaw/Convenor • P. Niedzielski-Eichner/Facilitator
8:15 a.m.	Regulatory and Licensing • Environmental Protection Agency Bill Gunter • Nuclear Regulatory Commission Joe Holonich/Phil Justus/John Gilray
9:30 a.m.	Oversight and Analysis • General Accounting Office Dwayne Weigel
10:15 a.m.	Break
10:30 a.m.	Oversight and Analysis (con't) • Nuclear Waste Technical Review Board Bill Barnard
11:15 a.m.	Thermal Loading and Site Suitability • Larry Ramspott, Lawrence Livermore National Lab • Marty Mifflin, Mifflin and Associates
12:45 p.m.	Lunch (open)
2:00 p.m.	State of Nevada Policy, Oversight and Regulatory Perspectives • NV Agency for Nuclear Waste Projects/Nuclear Waste Project Office Bob Loux
3:45 p.m.	Break
4:00 p.m.	One Outside Observer's Analysis • Luther Carter, author *Nuclear Imperatives and Public Trust*
4:45 p.m.	Summary and Discussion
5:00 p.m.	Adjournment for Day 1

August 25

7:30 a.m.	Continental Breakfast
8:00 a.m.	Introduce Day 2
8:15 a.m.	Status of Secretary of Energy's Review • Linda Smith, OCRWM
8:45 a.m.	Fiscal Analysis: OCRWM FY83 to FY92 • Jim Williams, Planning Inform. Corp.
9:15 a.m.	Industry/Regulator Perspectives • American Nuclear Energy Council Ed Allison • Michigan Public Service Commission Ron Callen
10:00 a.m.	Break
10:15 a.m.	Industry/Regulator Perspectives (con't)
10:45 a.m.	Congressional Perspective • Senate Environment and Public Works Committee Dan Berkovitz, Counsel
11:30 a.m.	Environmental Perspective • National - Safe Energy Comm. Council Martin Gelfand • State - Nevada Citizen Alert Chris Brown
12:15 noon	Lunch
1:30 p.m.	Environmental Perspective (con't)
2:00 p.m.	Alternative Program Strategy • Tom Isaacs, Lawrence Livermore National Lab
3:00 p.m.	Break
3:15 p.m.	Office of Nuclear Waste Negotiator • Chuck Lempesis, Chief of Staff
4:00 p.m	Meeting Summary and Discussion
4:30 p.m.	Adjournment

WORKSHOP TO REVIEW
U.S. DEPARTMENT OF ENERGY'S NUCLEAR WASTE REPOSITORY PROGRAM
YUCCA MOUNTAIN AFFECTED UNITS OF LOCAL GOVERNMENT

August 24 & 25, 1993 Bob Ruud Community Center Pahrump (Nye County), Nevada

WORKSHOP BACKGROUND AND OVERVIEW

The United States is in its fifth year beyond the passage of the Nuclear Waste Policy Amendments Act of 1987 (NWPA), the legislation which designated Yucca Mountain as the country's sole candidate geologic site for storing high-level nuclear waste. The Clinton Administration has committed to completing a review of the Civilian Radioactive Waste Management Program. Secretary O'Leary has distinguished between a financial and management review, which will be independently conducted, and a program review, which is to be handled internally, but with stakeholder input. The General Accounting Office has called for an independent program review managed by someone at a high level outside DOE. The Western Governors' Association has also called for an independent program review, as has the State of Nevada.

Nye County, as the situs jurisdiction for Yucca Mountain, and the nine counties immediately adjacent to Nye[1], have been designated as "affected units of local government" (AULGs). While operating independently from one another on policy matters, the counties coordinate many of their technical oversight activities, particularly in the areas of geohydrology, socioeconomics, transportation, and emergency response. The AULGs meet periodically with the State, Tribes and cities on repository-related issues of common interest.

The counties recently advised the Secretary of Energy of their intent to contribute to the national examination of the high-level waste program, however the review becomes configured. To this end, Nye County is sponsoring a workshop on behalf of the other AULGs to explore the range of issues and viewpoints regarding DOE's past and current implementation of its charter under the NWPA.

The workshop will focus on the significant repository-related views held by the State, federal oversight agencies, the Nuclear Waste Negotiator, Congress, national and Nevada environmental groups, the nuclear power industry, and informed outside program observers. The counties will utilize the information derived from the Workshop to establish their own independent assessment. The opportunity will be taken by many of the AULGs to develop written comments that will be conveyed to the Secretary, as well as to any independent review process that may be established.

Perspectives will be provided by the State of Nevada, Congress, the General Accounting Office, Nuclear Regulatory Commission, Nuclear Waste Technical Review Board, representatives from national and State of Nevada environmental organizations, State Utility Regulators, the nuclear power industry, and the Office of the Nuclear Waste Negotiator. Special sessions will be provided on (1) thermal loading as a key site suitability issue, (2) an analysis of DOE/OCRWM expenditure history from FY83 to FY92, (3) an "insider's" alternative strategy to DOE/OCRWM's current program, and (4) a long-time high-level waste program outside observer's soon-to-be-published views on storing high-level nuclear waste and other long-lived radionuclides at Yucca Mountain and the Nevada Test Site. DOE has been invited to participate in the discussion of the issues.

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[1]In addition to Nye, the affected units of local government are Churchill, Clark, Esmeralda, Eureka, Inyo, Lander, Lincoln, Mineral, and White Pine Counties.

8/24

Enclosure 10c

AFFECTED UNITS OF LOCAL GOVERNMENT
YUCCA MOUNTAIN PROGRAM REVIEW

SIGN-IN SHEET

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AFFECTED UNITS OF LOCAL GOVERNMENT
YUCCA MOUNTAIN PROGRAM REVIEW

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AFFECTED UNITS OF LOCAL GOVERNMENT
YUCCA MOUNTAIN PROGRAM REVIEW

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AFFECTED UNITS OF LOCAL GOVERNMENT
YUCCA MOUNTAIN PROGRAM REVIEW

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HERMAN STAAT	MINERAL COUNTY	PO Box 1450 HAWTHORNE NEVADA 89415	945 2717	
CADY JOHNSON	WOODWARD-CLYDE FEDERAL SERVICES	101 CONVENTION CENTER DRIVE SUITE P-282 LAS VEGAS, NV 89109	702/ 794-1893	
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AFFECTED UNITS OF LOCAL GOVERNMENT
YUCCA MOUNTAIN PROGRAM REVIEW

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AFFECTED UNITS OF LOCAL GOVERNMENT
YUCCA MOUNTAIN PROGRAM REVIEW

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AFFECTED UNITS OF LOCAL GOVERNMENT
YUCCA MOUNTAIN PROGRAM REVIEW

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Catherine Felty	NV. Indian Environmental Coalition	PO Box 7440 Reno	702- 355- 0600	355- 0648

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AFFECTED UNITS OF LOCAL GOVERNMENT
YUCCA MOUNTAIN PROGRAM REVIEW

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AFFECTED UNITS OF LOCAL GOVERNMENT YUCCA MOUNTAIN PROGRAM REVIEW

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AFFECTED UNITS OF LOCAL GOVERNMENT
YUCCA MOUNTAIN PROGRAM REVIEW

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NATIONAL RESEARCH COUNCIL
COMMISSION ON GEOSCIENCES, ENVIRONMENT, AND RESOURCES
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Enclosure 11

PRELIMINARY AGENDA

COMMITTEE ON TECHNICAL BASES FOR YUCCA MOUNTAIN STANDARDS

Alexis Park Hotel
375 East Harmon Avenue
Las Vegas, NV

SECOND MEETING
August 26-27, 1993

All sessions are open to the public except as noted.

Thursday, August 26
Marketplace Room

8:30 am Introductions and Opening Remarks
Bob Fri, Committee Chairman

- Purpose of meeting
- Approval of agenda
- Format for discussions

8:45 am Characterization of radionuclide releases of importance in the accessible environment over time

speaker: Ralston Barnard (Sandia National Laboratory)

speaker: Paul Eslinger (Battelle Pacific Northwest Laboratory)

discussant: Robin McGuire (Risk Engineering, Inc)

11:15 am Biospheric transport from release to dose

speaker: Bruce Napier (Battelle Pacific Northwest Laboratory)

discussant: Don Shettel (Geosciences Management Institute, Inc)

12:30 pm Lunch

1:30 pm Environmental transport of gaseous releases of radionuclides

speaker: Richard Van Konynenburg (Lawrence Livermore National Laboratory)

discussant: Ben Ross (Disposal Safety, Inc)

Committee on Technical Bases for Yucca Mountain Standards

Second Meeting

Thursday, August 26 (continued)

3:00 pm Dose-response relationships

speaker: Niel Wald (Univ. of Pittsburgh)

4:00 pm Break

EXECUTIVE SESSION

4:15 pm Complete bias discussion

Friday, August 27 **OPEN SESSION**
Marketplace Room

8:30 am Technology-based standard v. health-based standard

speaker: Dade Moeller (Harvard University, Professor Emeritus)

discussant: Dave Kocher (Oak Ridge National Laboratory)

EPA's generic standard

10:30 am Alternative forms of health-based standards

speaker: Dade Moeller

discussant: Tom Cotton (J.K. Research Assoc.)

discussant: Bob Wilems (Del Mar Consultants)

discussant: Dave Kocher

12:30 pm Additional comments from the public

1:00 pm Committee discussion of future plans

- tasks and assignments
- schedule
- agenda for meetings on November 9-10 and December 16-17

1:30 pm Adjourn