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NUCLEAR REGULATORY COMMISSION
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M E M O R A N D U M

DATE: APRIL 13, 1993

FOR: Joseph Holonich
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 FEBRUARY AND MARCH, 1993

INTRODUCTION

During the sixth and seventh months as On-Site Licensing Representative (OR), I participated in four meetings held in Nevada, visited the Yucca Mountain site six times, briefed Yucca Mountain Project Office (YMPO) staff in Las Vegas and took two training classes, among other things. 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 pre-licensing 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 OR's 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).

The bulk of items of greatest interest in this report stems from ESF design and construction activities. The character of the field program has changed noticeably, in my opinion, with ESF groundbreaking. Indeed, in the last four months the on-set of development of the ESF appears to have eclipsed the also-important SBT program as the bell-weather of progress in site characterization, even though the underground testing program has not begun in earnest.

EXPLORATORY STUDIES FACILITY (ESF)

1) DISCOVERY OF "SOFT-GROUND" MAY LEAD TO ESF DESIGN MODIFICATION. In February, drilling along the north entry tunnel right-of-way indicated that the bedrock about 500ft. beyond the North Portal consists of poorly consolidated volcanic ash that will probably require structural supports in the tunnel. The inclined drillhole NRG-2 encountered crumbly Ranier Mesa tuff from near the ground surface to the level of the tunnel. The steeply dipping Bow Ridge Fault intersects the tunnel nearby and separates the soft-ground from the hard-ground of the Tiva Canyon tuff. It is unclear how much soft-ground will be encountered along the tunnel alignment because the closest existing geologic drillhole data (R-8) projects about 260ft. down-ramp. Therefore, YMPO considered drilling a new hole between NRG-2 and R-8 to better predict the stratigraphy. This proposed hole, NRG2A, has been surveyed. YMPO is reviewing the engineering options for supporting the tunnel through the soft-ground.

It is recognized by YMPO that unmapped faults may intersect the tunnel; that such faults may have caused rocks to have moved to positions different from what is currently projected to occur along the tunnel alignment; and that such faults, or fault zones, themselves, might present problems for a tunnel boring machine (TBM) that encounters them. YMPO will be relying on pilot drillholes, drilled from positions within the advancing tunnel, to detect rock conditions (such as lithology, fractures, mechanical properties) ahead of the TBM. Preliminary concept is to drill in increments (10's of feet) directed forward of and above the tunnel heading. The staff may (may not) want YMPO to consider potential effects, if any, on waste isolation, of, ultimately, thousands of feet of such pilot holes.

2) ESF GEOLOGIC MAPPING. Three phases of geologic mapping and sampling are planned: Phase 1) North Portal box-cut wings, main face, adjacent pavements and drainage ditches (see item 10, below); Phase 2) starter tunnel, consolidated sampling of Tiva Canyon for USGS, LANL mineralogy-chlorine36 studies; Phase 3) follow the TBM. Studies comparing techniques of mapping rocks and fractures in drill and blasted tunnel sections and machine bored sections by manual and stereophotogrammetric methods apparently will be conducted by U.S. Bureau of Reclamation for the USGS.

3) WAREHOUSE SPACE OBTAINED. YMPO has obtained the use of about 15000sqft. of warehouse space in Mercury for drilling and construction materials to support ESF development.

4) "DRYING EFFECT" OF ESF. Several YMPO managers that I spoke to are aware of the potential for change to underground rock/liquid/gas conditions prior to underground testing due to "drying effect on in situ properties due to comingling of surface air and underground air in the tunnel" (from Phase I review of Study Plan 8.3.1.2.2.5, "Diffusion Tests in ESF"). A DOE manager suggested that at least some concerns about contamination by surface air will be mitigated by injecting a tracer gas into the circulating air. It appears that this staff concern will not be pursued by YMPO in the context

of 8.3.1.2.2.5, based upon the Phase I review comments. If the staff wants YMPO to pursue this concern soon (for example, prior to a detailed review of 8.3.1.2.2.5 or another Study Plan relevant to the concern), then another way to bring it to YMPO's attention will be needed.

5) NRG-1 BOREHOLE. This borehole was drilled into the tunnel alignment from the Exile Hill slope above the area to be excavated for the boxcut at the North Portal. Initial plan called for the rocks penetrated by the borehole to be removed during excavation of the boxcut. However, due to a change in final position of the main face of the boxcut, the NRG-1 borehole will intersect the tunnel about 3-4 meters behind the main rock face. No other NRG or SRG borehole is likely to intersect the proposed ESF tunnel, because current plans call for them to be drilled at least 40 feet beyond any ESF tunnel-wall. The ORs will continue to report on NRG drilling, logging and consideration of their sealing.

6) CAUSE FOR REALIGNMENT OF NORTH RAMP AND DRIFT THROUGH REPOSITORY LEVEL. At the TPO meeting on 3/10, D. Williams stated that a DOE examination of new drillhole information indicated that the proposed repository rock layer under Yucca Mountain targeted for exploratory studies appears to be about 125 feet higher at its northern juncture with the ramp leading to it than previously thought. The proposed target, i.e., middle non-lithophysal unit of the Topopah Spring tuff, was identified in recently completed borehole NRG-6 which enabled a recalculation of the depth to the target.

DOE considers the proposed vertical adjustment to the alignment to be somewhat of a benefit because the slope of the north ramp would decrease to a little more than 6 percent from near North Portal to near NRG-5. Also, the gradient of the drift along the Topopah Spring tuff level would decrease to about 4 1/2% toward the NE (NRG-5). Incidentally, the South Ramp grade would be about 1 1/2% from South portal to near SRG-5. The ORs will report on the efficacy of the design control process by observing the DOE implementation of this example of changing input to ESF design.

7) CRITERIA FOR "PICKING" STRATIGRAPHIC UNITS. Current criteria applied to NRG-6 core used to distinguish ("pick") the rock units of concern, for example, the target repository unit (see item 6, above), included consideration of lithology (USGS), thermomechanical properties (Sandia National Labs) and geochemistry (Los Alamos National Labs). However, the previous picks and depth-to-target were apparently based on a limited examination of core. Also, the Sample Overview Committee (SOC) developed and applied criteria for identifying the contact between the upper lithophysal and middle non-lithophysal zones of the Topopah Spring tuff (J. Peck and others, to D. Dobson & J. R. Dyer, May 15, 1991). That SOC team made recommendations that were used to revise the elevations of the target (E. H. Petrie to R. L. Bullock, Oct. 10, 1991). At the TPO meeting on 3/10, D. Williams indicated that the YMPO is taking action to compile a unified set of criteria for "picking" the various rock units of concern to assure consistent picks. ORs will keep you informed of this process. The two referenced reports were sent to C. Abrams.

8) NOTIFICATION OF NEED TO SHOTCRETE UNSTABLE PARTS OF BOXCUT WALLS. As we discussed, on 3/26 I was notified by phone by YMPO that parts of the north and south wing walls and main face of the North Portal boxcut would likely be shotcreted beginning as soon as 4/2. The reason given was the need for worker protection from potential rock fall during drill and blast phase of the starter tunnel construction. I made a request that NRC staff observe the walls prior to their being covered and be briefed on the preliminary results of the geologic mapping that had apparently recently been completed on those walls. Response was quick from K. Skipper. He arranged a visit to the cut with the PI for 3/30 and, additionally, the PI would brief YMPO the next day (see items 10 and 11, below). On 3/29 I was notified that shotcreting was an option that could be used at any time, but would not likely occur on 4/2.

The ORs agreed, with your approval, to observe the boxcut and related briefings, as arranged. Also, at your urging, the ORs emphasized that NRC has no intention of interfering with or getting on critical path regarding safety decisions YMPO must make to protect its ESF workers.

9) TIMELY NOTIFICATION OF NRC OF SIGNIFICANT EVENTS AND CONDITIONS RELATED TO ESF CONSTRUCTION AND TESTING. 1) YMPO intends to initiate a dialogue on protocols and thresholds for notification of NRC staff/ORs of various matters that may arise during ESF development. For example, such things as aberrant geologic conditions, cf. AP-6.14, and certain ESF activities/events. As we discussed, J. Gilray and I will enter into the dialogue. This matter will be discussed in an OR report for April.

10) OBSERVATION OF NORTH PORTAL BOXCUT GEOLOGIC FEATURES AND NOTE ON "BRECCIA". On 3/30 the ORs observed the boxcut geologic features guided by the PI, Steve Beeson, US Bureau of Reclamation. Also attending were Ken Skipper, USBR; R. McDonald, Morrison-Knudsen; A. Williams, DOE; R. Kovach, LANL; Steve LeRoy, Duke Engr. See item 8, above, for background. Mr. Beeson explained the wall-mapping process. Basically, this required about three vertical and three horizontal ropes to be strung on each wall exposed at each lift, there were four lifts. The ropes formed a grid. Each gridline-fracture intersection was plotted, among other features. Fractures less than 3 ft. long generally were not plotted. Stereophotographs were taken of each face.

The entire boxcut is in the Upper Lithophysal Zone of the Tiva Canyon Formation, except for the eastern corner of the north wing. This corner exposes the Caprock unit of the Tiva Canyon; thus, according to S. Beeson, the fault separating the two units has at least 100 ft vertical offset.

At least four prominent faults were exposed and mapped. The western two faults will likely be encountered in the tunnel. These are approximately N-S-trending and dip from 70-90 degrees west. There is a "breccia" filling most of the exposed parts of these faults. The "breccia" appears to pinch-out in some places and anastomose in others. Its thickness varies from 0 to about six inches. Mr. Beeson preliminarily considers this "breccia" to be an in-filling from above the open fault, and not a fault gouge. [Note on breccia: it appears that at least five types of breccia have been identified

in the tuffs in the Yucca Mountain area. Earlier OR reports have referred to breccia mapped by the USGS associated with the Ghost Dance Fault zone, breccia mapped in bedrock exposed in Midway Valley trenches, and these in Exile Hill mapped by USBR. Another type, "silicified breccia," has been described from Trench 14 (Bow Ridge Fault) and Busted Butte (Paintbrush Canyon Fault).

A prominent, vertical, undulating cooling joint is exposed in the upper third of the cut, parallel to the main face. Mr. Beeson considers that this joint is extensive and will be encountered in the tunnel entry. This joint is a weak discontinuity. At his suggestion, the main face was excavated back to remove rocks up to the joint, in anticipation of those soon-to-be-undercut rocks falling.

Mr. Beeson indicated that, preliminarily, fractures mapped in plan views and fractures mapped in the nearby pavement correlate with the fracture orientations mapped in the boxcut. He plans to map geologic features of rocks in the drainage ditch being excavated above the portal. Working copies of maps were shown, but were not available for distribution. The ORs made no judgments of the mapping process or interpretations presented. The ORs will continue to report on mapping activities.

11) BRIEFING ON GEOLOGIC FEATURES OF ENGINEERING SIGNIFICANCE MAPPED IN BOXCUT. On 3/31 I attended a briefing by S. Beeson to the YMPO engineering staff on his preliminary results of geologic mapping of the boxcut and vicinity. For me this was a useful reminder of the engineering significance of the features that he pointed out to J. Gilray and me in the field on 3/30 (see item 10, above).

12) ATTEND WEEKLY ESF STATUS MEETING. The ORs attended the 3/31 ESF Status meeting, some selected items follow. Apparently, if the starter tunnel were flooded, waste isolation would not be adversely affected. The Energy Secretary will make the go-no go decision to begin the ESF drill and blast phase. Decision would likely be made after meeting with Governor Miller. That meeting was stated to occur on 4/1 (it actually occurred on 4/2; announcement to proceed with ESF plan was made by press release on 4/2; see April report for substance of Secretary's decision).

13) OBSERVE DIRECTIONAL GYRO AND VIDEO-LOGGING OF NRG-2, A PROPRIETARY TECHNIQUE. On 3/11 the ORs observed the down-hole gyro-orientation and camera technique of the Barbour Well Surveying Corp. in NRG-2. NRG-2 was cased to about 172.0 ft and had a total depth of 214.7ft. The ORs reviewed the technical and QA procedural controls and the implementation of these procedures pertaining to the NRG-2 and UZ-16 operations and found them to be in general agreement with QA program requirements. Because the logging of these boreholes utilizes proprietary techniques, the ORs (Gilray lead) are requesting details on the future use of proprietary technology and will continue to work with HQ staff to determine whether the controls associated with such technology satisfy licensing needs.

14) ESF STATUS. Dr. W. Simecka summarized the ESF status at the TPO meeting (Enclosure 1a, Agenda) on 3/10 (Enclosure 1b). Among other things, he

emphasized that the ESF is a phased design and construction project, meaning that it is flexible, able to respond to new findings and to testing needs, as they evolve. No change to design/construction milestones was reported, except delay in award to underground construction contractor from 10/15/92 to 6/30/93.

SURFACE-BASED TESTING (SBT)

1) OBSERVE RAINFALL AND POTENTIAL SURFACE-RUNOFF MONITORING STATIONS. On 2/4 I accompanied D. Chery (NRC-HQ staff hydrologist) to observe the slopes draining the west flank of Yucca Mountain into Solitario Canyon in order to consider the feasibility of measuring surface-water-runoff rate by in-channel gauges. I made no judgments about this matter. We observed the following stations: benchmark 1983 26TJS; stakes for seismic line 2; numerous perforated PVC pipe such as SW corner of Yucca #27; UNR Seismology Lab Station between N84/87 and N88; raingauges at N78, 79, 80, 82, 84/87, 88, 89/90 each with .12 - .15mm water.

2) DISCUSSION OF VOLCANISM WITH B. CROWE. On 2/8 I accompanied S. McDuffie, NRC-HQ staff, and C. Connor, CNWRA staff, on a visit (in accordance with Site Specific Agreement, Appendix 7) with B. Crowe, LANL (in his Las Vegas office); J. Cooper, DOE, and S. LeRoy, M&O, accompanied us. The purpose was for the new NRC and CNWRA volcanologists to discuss selected volcanological concepts with DOEs PI for volcanism issues. This was both a courtesy call and an opportunity for DOE to informally provide background information on its views of the volcanism issues and activities. The following is a brief selection of items discussed. Additional details can be found in McDuffie's and Connor's trip reports.

Dr. Crowe has concluded, preliminarily, that paleomagnetic methods of analysis cannot readily distinguish polycyclic volcanism from monocyclic in the Lathrop Wells and Sleeping Buttes centers. He considers this to be due in large part to the narrow spread of paleomagnetic vectors at those sites from the reference "mean Quaternary direction."

Poor soil development on some lava flows may not be indicative of youth or short exposure time as is often assumed because aa (blocky) texture and eolian stripping can cause such an apparent lack of development. This may be relevant at Lathrop Wells.

Dr. Crowe was concerned that the current controversy about the age of Lathrop Wells volcanism will look to the public like scientists don't agree on many points, thus detracting from what is known about the volcano. He is developing alternative models, which, preliminarily, he said, don't appear to make big differences in risk calculations. I stated that the staff, in its SCA, has encouraged DOE to develop alternative conceptual models (ACMs) throughout the site characterization process. I briefly discussed the GE Test Reactor (GETR) case where geoscience experts disagreed on interpretation of geology and alternative conceptual geologic models had to be evaluated by NRC staff. In the GETR case, the staff was able to make licensing recommendations on interpretations and models that it considered

to be both reasonable and conservative in the face of uncertainty. I stated my opinion that the "reasonable and conservative" approach could be applied to alternative volcanic models such that decisions might be made in the face of controversy.

He indicated that basaltic ash in Trench 14 and nearby trenches appears to be within the range of ages attributed to Lathrop Wells volcanism. He speculated that a hydrovolcanic component of Lathrop Wells volcanism could have yielded energy and ash quantities sufficient for airborne transport of ash as far north as Trench 14 area.

Dr. Crowe was concerned that the staff's comments on DOE's volcanism approach appears to require a robustness (i.e., statistically significant numbers) that his data set cannot achieve.

He acknowledged the presence of a deep seismic tomographic anomaly that some consider to be due to magma chambers. However, he suggested that these concepts be considered: Atwater's idea that the San Andreas fault zone cut off magma ascent; Wernicke's observation that there was little volcanism in the Basin and Range despite extensive extension; Hamilton's notion that the Death Valley bright spot is a meaningless artifact.

The logic diagram shown by DOE at the August 1992 teleconference has been modified. Calculations will be made of probability of exceeding regulatory requirements, but actual releases will not be calculated.

Dr. Crowe acknowledged that staff comments on the Study Plan on Probability of Magmatism persuaded him to delve into magmatism probability in addition to eruptive probability. He agrees that there could be intrusive activity without eruptions; he will make calculations for both concepts. Also, he will assess the boundaries of secondary hydrothermal effects.

Dr. Crowe will likely relocate to LANL this summer. He anticipates that there will be 3 co-PIs for volcanism: himself, G. Valentine, a third to be named; and a PI for effects of intrusions, C. Fridrich, USGS. He provided a revised map of basaltic volcanic centers grouped by age (in millions of years; Enclosure 2).

3) DISCUSSION OF VOLCANISM WITH PROF. G. SMITH AND COLLEAGUES. On 2/9 I accompanied Drs. S. McDuffie and C. Connor to UNLV - Dept. of Geology to visit with Prof. G. Smith and post-doctoral Fellows T. Bradshaw and J. Mills, Jr. The purpose was for the new NRC volcanologists to discuss the State of Nevada-sponsored research on basaltic volcanism; Prof. Smith is the PI. This was both a courtesy call and an opportunity for Prof. Smith and colleagues to informally provide background information on their volcanism studies. The following are selected highlights of the discussion. For additional details see McDuffie's and Connor's trip reports.

Dr. Bradshaw suggested that Black Cone and Red Cone in Crater Flat had a lithospheric mantle source (based on tantalum-niobium deficiency) and the magmas did not stall in the crust on the way to the surface (based on dearth of phenocrysts). The magmas evolved at high pressure. It's not

clear why the volcanoes have early lava flows and late cinder cone, unlike Paricutin and others in Mexico. He suggests that the Crater Flat cones are polycyclic (discrete events in time) and polygenetic (discrete spatial sources in the mantle).

Prof. Smith suggested that the plumbing system of Crater Flat volcanoes is analogous to that of Fortification Hills, AZ and certain Mexican volcanoes: feeder dikes are on the order of 1-10m thick, but perhaps 2000ft. long; dikes "balloon" at and near the surface; dikes most commonly intrude the footwall of faults causing erupted lavas to cascade down the fault; dikes tend to intrude parallel to existing faults, not necessarily into pre-existing faults; plumbing system is relatively uncomplicated.

Prof. Smith suggested the importance of the Death Valley-Pancake Range volcanic trend. Numerous caldera mark the trend. He suggests it represents the edge of the craton. The Rio Grande rift system appears to be an analog. He speculates that the basalt setting is that of a rift system. That the rift opened to the south. That the Crater Flat-Sleeping Butte centers lie at the southern end of a rift. He was in agreement with Crowe and Vaniman's concept of a great rift system in southern Nevada. He alerted us to the impending publication of the geologic maps of the Crater Flat and Reveille quadrangles by the NV Bureau of Mines.

4) AUTHORIZATION FOR KEEPING TRENCH T5A OPEN. Several hundred feet of the eastern end of Trench T5A, North Portal pad, remain open at the request of the PI. This portion of the trench overlies a buried geophysical anomaly. Quaternary sediments in this portion contain fractures. Staff appears to have been appropriately notified of DOE's decision to keep open the eastern portion of T5A.

5) UZ-16 BOREHOLE COMPLETED. The UZ-16 borehole was completed on 3/9. The total depth reached (preliminary determination) was 1689ft; the water table was penetrated at 1609ft. Geophysical logging commenced the week of 3/15 by Eastern Teleco with RSN providing verification of the processes. A down hole camera survey was completed by Barbour Well Surveying Corp. on 3/12. Sampling of gas and liquid and air permeability measurements are planned for UZ-16. A color lithologic/fracture density log was sent to you on 3/15. This borehole appears to have successfully demonstrated that DOE has developed the ability to drill tuffs dry (rocks and fluids in the hole are relatively uncontaminated compared to more common-wet-drilling techniques; and rock core could be reliably retrieved for study) and deep (penetrate the entire unsaturated zone).

6) SBT STATUS CHARTS. At the TPO meeting on 3/10, D. Williams indicated significant interactions with NRC, such as meetings and technical exchanges (Enclosure 3). Mr. Williams presented useful copies of location maps and cross-sections in his TPO report (Enclosure 3): borehole program activity; proposed seismic reflection profiling lines; YM site characterization project - trenches; ESF north portal plan view; ESF portal cross-section.

7) GEOPHYSICAL SURVEYS DELAYED. At the TPO meeting on 3/10, D. Williams indicated that seismic reflection survey startup has been slowed due to

contractor concerns over insurance of its expensive equipment which will be stored on public lands, among other reasons.

STUDY PLANS.

1) As of 3/10, DOE reported no ESF-oriented Study Plan review overdue from NRC; one was received early (Enclosure 3).

PERFORMANCE ASSESSMENT

1) "HOT" REPOSITORY. In February, the fact that various DOE organizations were discussing the pros and cons of a "hot" repository was mentioned at several meetings. If thermal loading was such that a heat-driven repository system would dominate for a "long" period, then an extended dryout might be achieved. However, convection might move water around in as yet undetermined ways. This concept, whether implemented or not, appears to have stimulated useful discussion of the significance of thermal loads on the evaluation of repository design and long-term performance. The ORs will report on developments/decisions regarding this topic.

2) CAVEAT ITERATIVE PERFORMANCE ASSESSMENT (IPA) PHASE 2 REPORT. At least one of the IPA Phase 2 activities that the staff briefed DOE on in Albuquerque last fall may be looked at in detail by DOE (e.g., representation of fracture density). It seems that DOE may want to adopt a particular simulation. I'm reporting this possibility to reinforce the need for the staff to continue to clearly indicate the purpose of the various IPA exercises and simulations and to caveat the limitations.

TOPICAL REPORTS

1) EXTREME EROSION TOPICAL REPORT. At the TPO meeting on 3/10, S. Jones summarized the status of the Topical Report on Extreme Erosion (Enclosure 4). DOE concluded that extreme erosion did not occur during the Quaternary Period at Yucca Mountain. This report has since been received by the staff. YMPO understands that the review of the report is awaiting discussion of the staff Topical Report Review Plan and its finalization. The Topical Report Review Plan and the Topical Report will be the subject of a Technical Exchange on May 3 in Las Vegas.

DOE PROGRAM MANAGEMENT

1) MISSION 2001 MAY NOT BE ACHIEVABLE. In February, DOE was projecting its proposed YMPO FY94 budget at about $240M - roughly level with FY93. This is about a factor of three less than what MISSION 2001 determined would be needed to meet the LA deadline of AD2001. Therefore, the 2001 license application target will not be achievable under the Mission 2001 assumptions. Mission 2001 is an implementation plan that, when fully funded, had ESF and SBT work going in parallel. Generally, the work will still need

to be done, so, with limited funds, it seems likely that a stretch-out will occur, with work being done in series.

2) SELECTED COMMENTS BY ACTING OCRWM DIRECTOR, LAKE BARRETT. At the TPO meeting on 3/10, Acting Dir., Lake Barrett, summarized the FY94 budget priorities, due on Capital Hill 4/5: i) Yucca Mountain suitability analysis; ii) multipurpose canisters; iii) keep science going/try to use Waste Fund monies; iv) remain responsible to the public. Also, budget outlook for FY94 about same as FY93 for OCRWM, about $375M. Other objectives: find a waste storage site by 1998; shift resources from HQ to YMPO and within YMPO from infrastructure to scientific activities at YM. He indicated that he would not be named the Director.

3) TASK FORCE ON 'ALTERNATIVE DISPOSAL PROGRAM STRATEGY.' At the TPO meeting on 3/10, YMPO Dir., C. Gertz, mentioned that a task force (TF) on ADPS is working on a report intended to be published in the Federal Register for public comment. Mr. T. Isaacs heads the TF; Dr. M. Blanchard is on the TF. There should be no surprise alternatives in this report. Alternatives under consideration have already been published, (YMP/90-47, Evaluation of Alternative Licensing Strategies for the Development of a High-Level Waste Repository, Oct. 1990). DOE is continuing investigating an ADPS in which "NRC would make periodically formal findings" (Enclosure 5).

4) "INCOME STREAM" OPTION FOR FY95. An optional budget proposal under consideration for the FY95 budget that I heard about, called income stream, would secure project funding from the interest accrued from the Nuclear Waste Fund.

5) CURRENT FY93 PRIORITIES. At the TPO meeting on 3/10, Mr. V. Iorii enumerated the 11 highest FY93 priorities (Enclosure 6). Most notable: construct ESF to 200ft; start Alternative Conceptual Design for Waste Package; start Alternative Conceptual Design for repository; focus on resolution for erosion and seismic hazards; perform Total System Performance Analyses (TSPA). Produce in FY93, among other things: MGDS Program Element specifications for MRS, Transportation, WAP; perform trade-off analyses for EBS and ESF design; issue LA Annotated Outline; issue working paper on calc-silica deposits; revise YMP regulatory compliance plan; issue problem definition for TSPA II; begin design of Central Area Complex (J13).

6) OTHER FY94 ACTIVITIES. At the TPO meeting on 3/10, Mr. Iorii mentioned planned FY94 activities in addition to those discussed by Mr. Barrett (see item 2, above), some of these follow: excavate north ramp about 1981 meters; start excavating Topopah Spring Level (TSL) main drift about 670 meters; complete TSL test areas and drift; begin Title III design (Enclosure 6).

GENERAL

1) DESIGN BASIS ACCIDENT (DBA) RULEMAKING. YMPO is interested in the DBA rulemaking for several reasons. One reason is its need to complete a functional analysis of the pre-closure systems to develop its Q-List. Mr.

R. Ballard discussed with me the pre-decisional nature of the rulemaking; the proposal is under consideration by the Commission. I reported the status of the rulemaking to YMPO.

2) ATTEND PUBLIC TOUR OF NEVADA TEST SITE (NTS). On 2/25 my wife and I attended a public tour of the NTS. A DOE press release announcing the tour stated, "another major point of interest, some 30 miles away on the opposite side of the NTS, is Yucca Mountain -where studies are underway to determine suitability for building the nation's first permanent underground repository for high-level radioactive waste." My principal purpose was to learn the views of DOE-NTS staff regarding the Yucca Mountain major point of interest, and, secondarily, to gain factual knowledge of NTS activities.

We toured Frenchman Flat, Control Point CP-1, Bilby Crater, Sedan Crater, and P-Tunnel. Also, we toured the Radioactive Waste Management Site (RWMS) used only for defense LLW. It's a fenced compound with yellow drums of TRU waste on wooden pallets (standing in rainwater) on an asphalt pad; and burial trenches. Some drums apparently have been at RWMS for 10 years waiting for WIPP emplacement. There are trenches about 25ft. deep in alluvium. I observed Trench 3 receiving waste in boxes. The trench was unlined, but dry. The guide stated that about 8 trucks/week for the past year arrive with 5-11 boxes each. The guide stated that NRC and DOT have some responsibility for the transportation of the waste. An important fact book on nuclear testing at NTS is U.S. DOE, NVO, Jan. 1991, Announced U.S. Nuclear Tests, July 1945 through Dec 1990: DOE/NV-209 (Rev. 11), UC-700. There was no information given about the Yucca Mountain project.

3) PROCEDURES/PROTOCOL FOR DOE INTERACTIONS WITH NRC STAFF AND ORs. At the TPO meeting on 3/10, Dr. S. Jones summarized the current DOE implementation mode for interactions with NRC staff (Enclosure 7). Some highlights: formal transmittals of documents to the NRC staff is thru YMPO/Regulatory Interactions Branch (S. Jones) then thru DOE HQ Office of Systems and Compliance (D. Shelor). Formal verbal communications, such as teleconferences for setting meeting agenda with NRC staff is thru DOE HQ Office of Systems and Compliance. There are no informal transmittals of written information to NRC staff. It was appropriately stated that, "anything you [DOE staff] discuss with NRC staff and ORs is never off the record."

OR ACTIVITIES

1) SELECTED ACTIVITIES. (a) Involved in discussions to establish a new category of technical interaction between NRC and DOE, to be called, to the effect, "site visits." Site visits apparently would enable interactions to occur (principally in the field) that would accommodate interested parties' need for frank discussion of newly acquired information without requiring DOE to release the preliminary data discussed during the visit, data such as draft trench logs. This type of interaction would facilitate opportunities for expeditious communication of information about the site in addition to the current 'technical exchange' and 'Appendix 7' visit formats. (b) Reported an individual apparent conflict of interest to you after

notifying the appropriate DOE manager of my observation; discussed matter further with R. Ballard.

(c) Prepared for visiting French delegation (see April report).

(d) Facilitated communication between YMPO and NRC on YMPO's intention to transmit in timely fashion to staff its comments on Format and Content Guide for LA which it compiled while preparing its Annotated Outline for LA. A FY93 transmittal to NRC, as soon as practicable, would be timely.

(e) Completed General Employee Radiological Training course required by DOE to allow me to retain authority for unescorted site access.

(f) Completed required Government Ethics course, 3/9.

(g) Brief, along with J. Gilray, Wm. Simecka's and W. Dixon's division staff on role of OR's, on 3/18. Used same outline as provided in Enclosure 5 of Dec 92-Jan 93 report dated 2/24/93.

(h) Escort Deputy Dir., NMSS, Mr. G. Arlotto, on Appendix 7 visit, 3/23-24.

NRC STAFF VISITORS. The following NRC staff visited the site and/or attended meetings in Las Vegas in February: S. McDuffie, D. Chery, K. Hooks, J. Buckley, W. Belke. In March: G. Arlotto.

Enclosures:
1a. Agenda - TPO meeting handout, 3/10
1b. Wm. Simecka - " " " "
2. B. Crowe - briefing map, 2/8
3. D. Williams - TPO meeting handout, 3/10
4. S. Jones - " " " (a) "
5. C. Gertz - " " " "
6. V. Iorii - " " " "
7. S. Jones - " " " (b) "

cc: w/enc.:
C. Gertz, DOE
D. Shelor, DOE
T. Hickey, State Senator
W. Patrick, CNWRA

w/o enc.:
C. Abrams, M/S 4 H 3
B. Youngblood, M/S 4 H 3
J. Linehan, M/S 4 H 3
R. Bernero, M/S 6 E 6
J. Thompson, MS 17 G 21
D. 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
R. Loux, State of NV
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

Enclosure 1a

(Rev. 1, 3/8/93)

AGENDA

YUCCA MOUNTAIN PROJECT - PROJECT MANAGER'S/TPO MEETING

MARCH 10, 1993, WEDNESDAY

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 Surface Based Testing (SBT) Program and the Preparation and Approval of Study Plans(SPs)	D. Williams	Understand Current Status of SBT Program and SPs
10:30-10:45	BREAK		
10:45-11:45	Discussion on the Proposed Fiscal Year (FY) 1994 Budget with Affected Parties	C. Gertz V. Iorii	Understand Current Proposals for the FY 1994 Budget
11:45-12:15	Guidelines for Interactions with the Nuclear Regulatory Commission (NRC)	S. Jones	Understand Current Status of Procedural Agreements with NRC
12:15-12:30	Status of the Preparation and Approval of the Erosion Topical Report and Submittal to the NRC	S. Jones	Understand Current Status of the Erosion Topical Report
12:30	ADJOURN FOR LUNCH		

102

TPO MEETING

STATUS OF ESF

PRESENTED BY

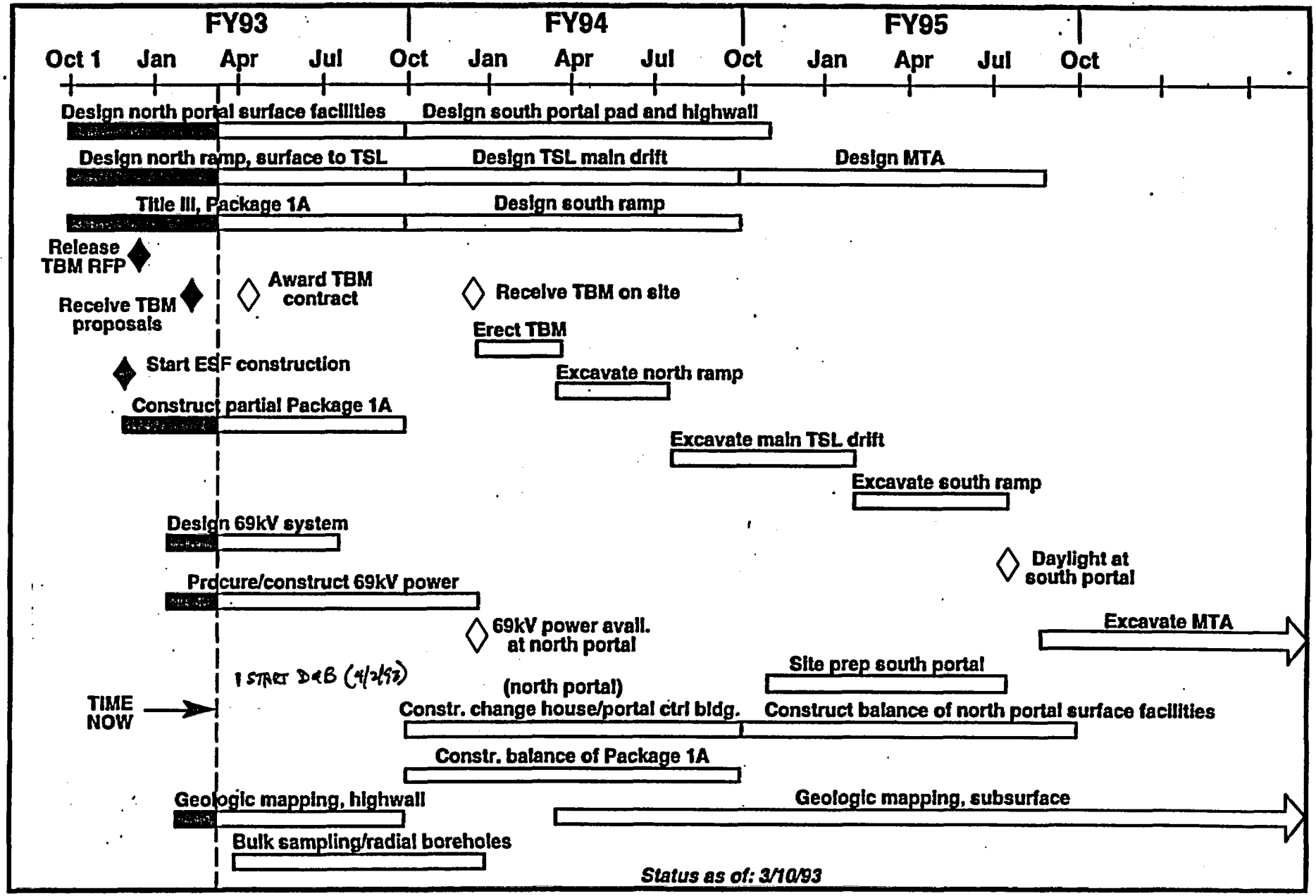
DR. WILLIAM SIMECKA

DIRECTOR, ENGINEERING AND DEVELOPMENT DIVISION

YUCCA MOUNTAIN SITE CHARACTERIZATION PROJECT

MARCH 10, 1993

PLANNED ESF DESIGN/CONSTRUCTION ACTIVITIES FY 93 - 95



TPOESFDC7P.126/3-9-93

ESF DESIGN MILESTONES

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

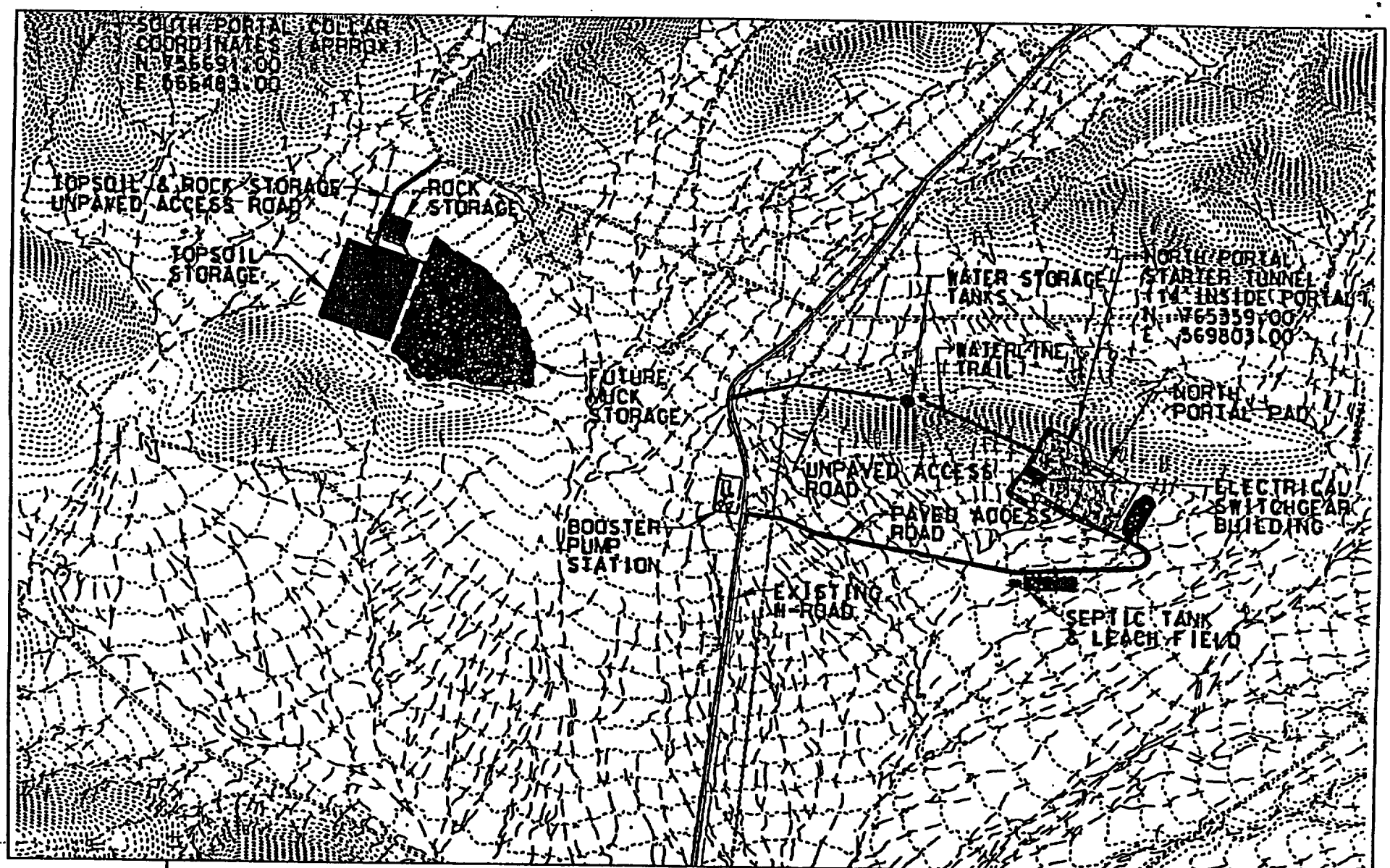
Milestone/Activity	Planned	Expected
Receive proposals for 1st TBM	2/9/93	2/9/93(A)
Start excavation of North Ramp starter tunnel	4/2/93	4/2/93(E)
Award TBM contract	4/15/93	4/15/93(E)
Award underground construction contract	10/15/92	6/30/93(E)

- *Kiewit Parsons Brinckerhoff*
  - *Decisions audit holding up YMPO*

SESFPM6P9.126/3-9-93

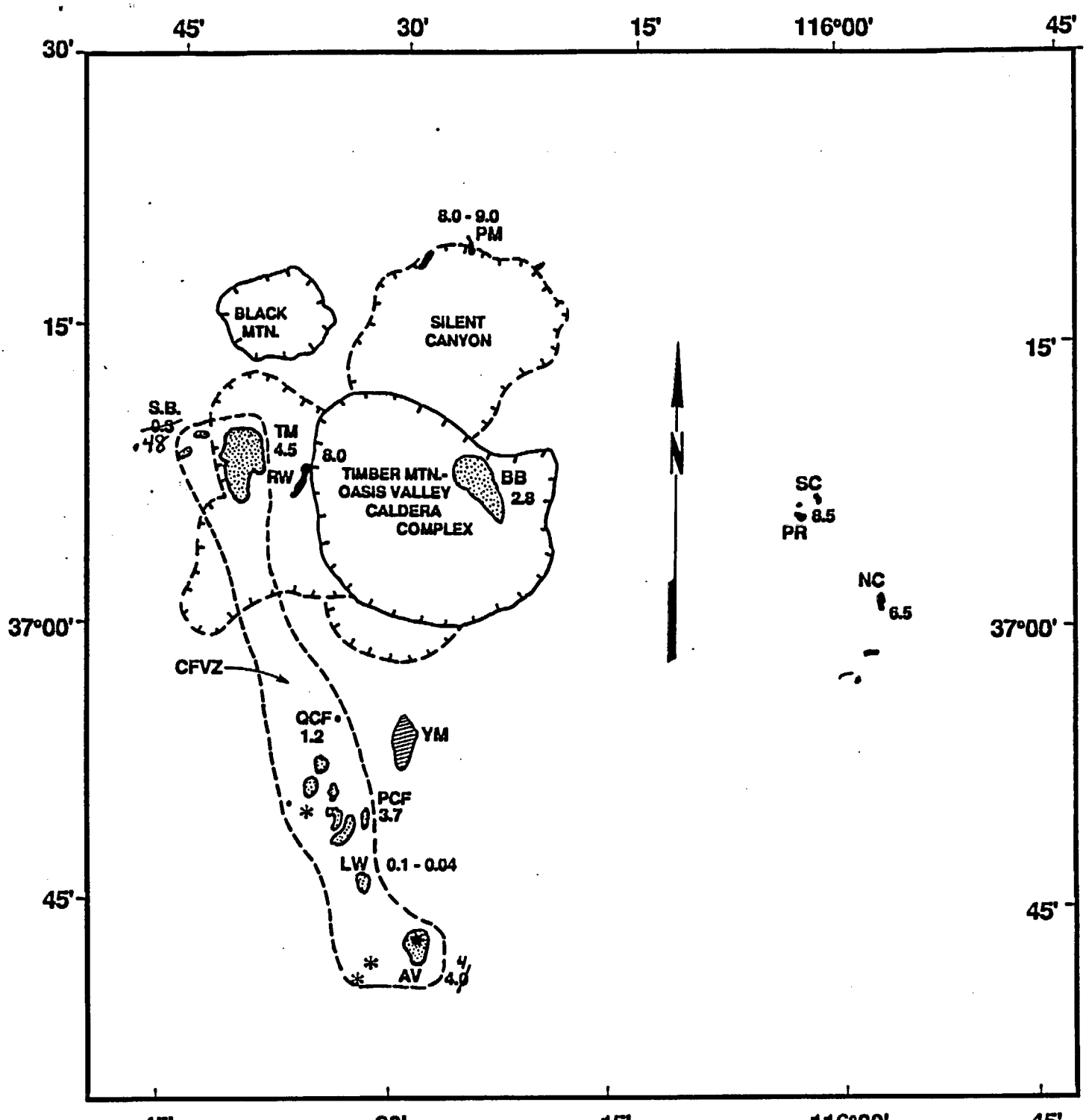
CONSTRUCTION STATUS
(END OF FEBRUARY)

- Began stripping in Fran Ridge borrow area
- Excavating third phase of slot
- Completed bolting and meshing first two phases of highwall and slot
- Began placing fill from Fran Ridge borrow area at north portal



TO BORROW AREA

Enclosure 2. C.



* ≡ anomaly - aeromagnetics

CROWEFIG3P/12-16-92

TPO MEETING

FY 93 FEBRUARY STATUS

SURFACE BASED TESTING PROGRAM

PRESENTED BY
Dennis Williams
Site Investigations Branch Chief
REGULATORY AND SITE EVALUATION DIVISION

March 10, 1993

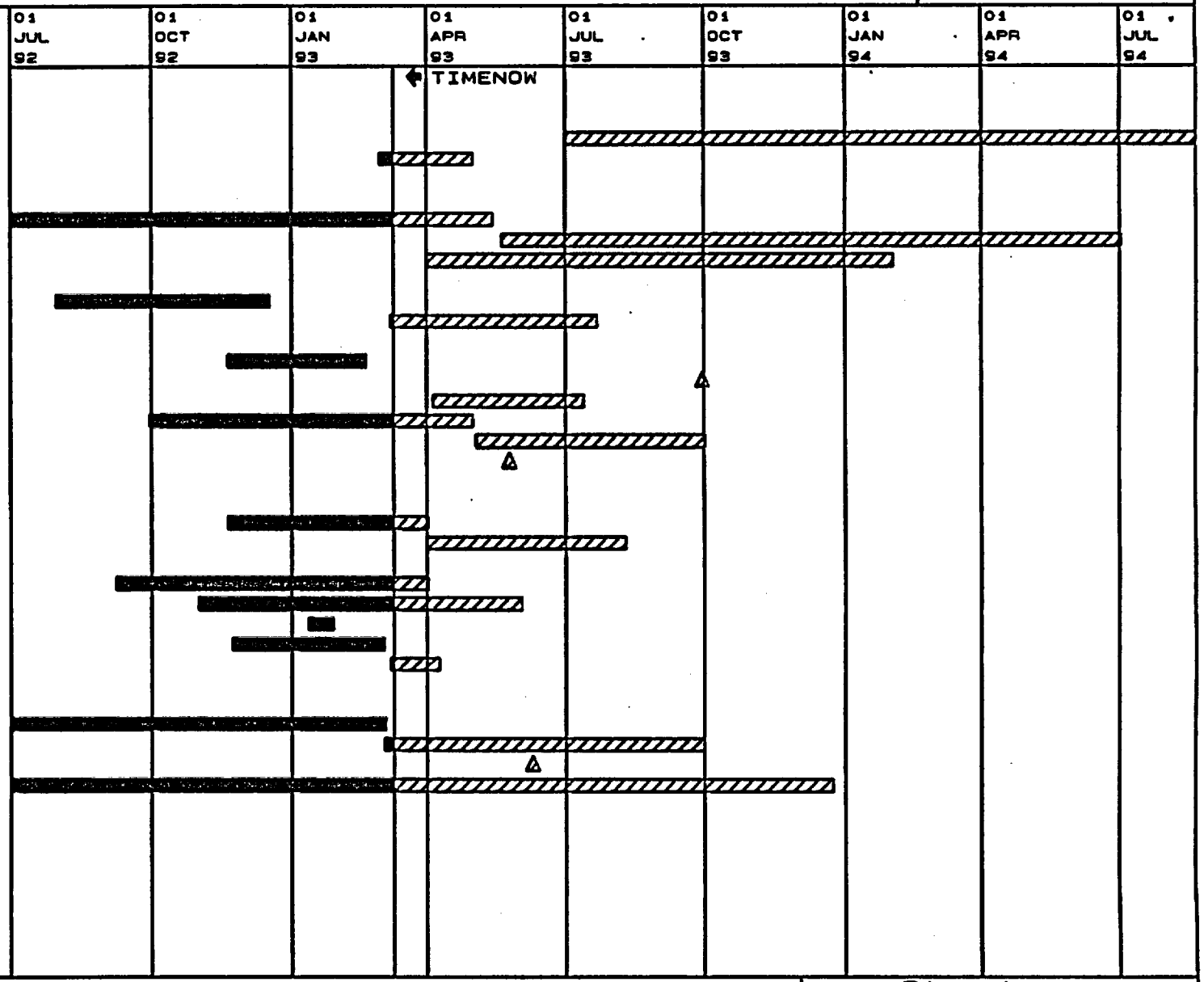
Enclosure 3

Report: SURFBAR
Project: ROBIN
Time Now: 10MAR93
Date: 09MAR93
Page: 1

YUCCA MOUNTAIN PROJECT
SURFACE BASED TESTING

OCRWM

TASKS	START	FINISH
NEW SITE INVESTIGATION ACTIVITIES		
SATURATED ZONE - C-WELLS	01JUL93	24DEC96
GEOPHYSICS - SEISMIC REFL	01MAR93	30APR93
CURRENT SITE INVESTIGATION ACTIVITIES		
UZ-16 DRILLING	27MAY92	13MAY93
UZ-16 TESTING	20MAY93	01JUL94
UZ-14 DRILLING	01APR93	01FEB94
PHASE IIA	31JUL92	17DEC92
PHASE IIB	08MAR93	21JUL93
TRENCH MAPPING-MIDWAY VAL	20NOV92	19FEB93
COMPLETE MIDWAY VALL		30SEP93
REGIONAL TRENCH EXCA.& MA	05APR93	12JUL93
CONP.PHASE I-D.FAULTING S	30SEP92	30APR93
PHASE II EXCAV.& MAPPING	03MAY93	01OCT93
NRC SITE VISIT		25MAY93
PROVIDE GEOLOGIC DATA FOR ESF DESIGN		
PORTAL AND BOX CUT	20NOV92	01APR93
ESF STARTER TUNNEL	01APR93	09AUG93
TEST PITS PHASE II	08SEP92	01APR93
NRG 2-6	01NOV92	01JUN93
NRG-2	12JAN93	26JAN93
NRG-6	23NOV92	03MAR93
NRG-3	08MAR93	08APR93
COMPLETE VOLCANISH STUDIES		
DRAFT TECHNICAL REPORT	01NOV91	04MAR93
FINAL TECHNICAL REPORT	04MAR93	30SEP93
NRC TE		09JUN93
TEST PITS	01NOV91	23DEC93

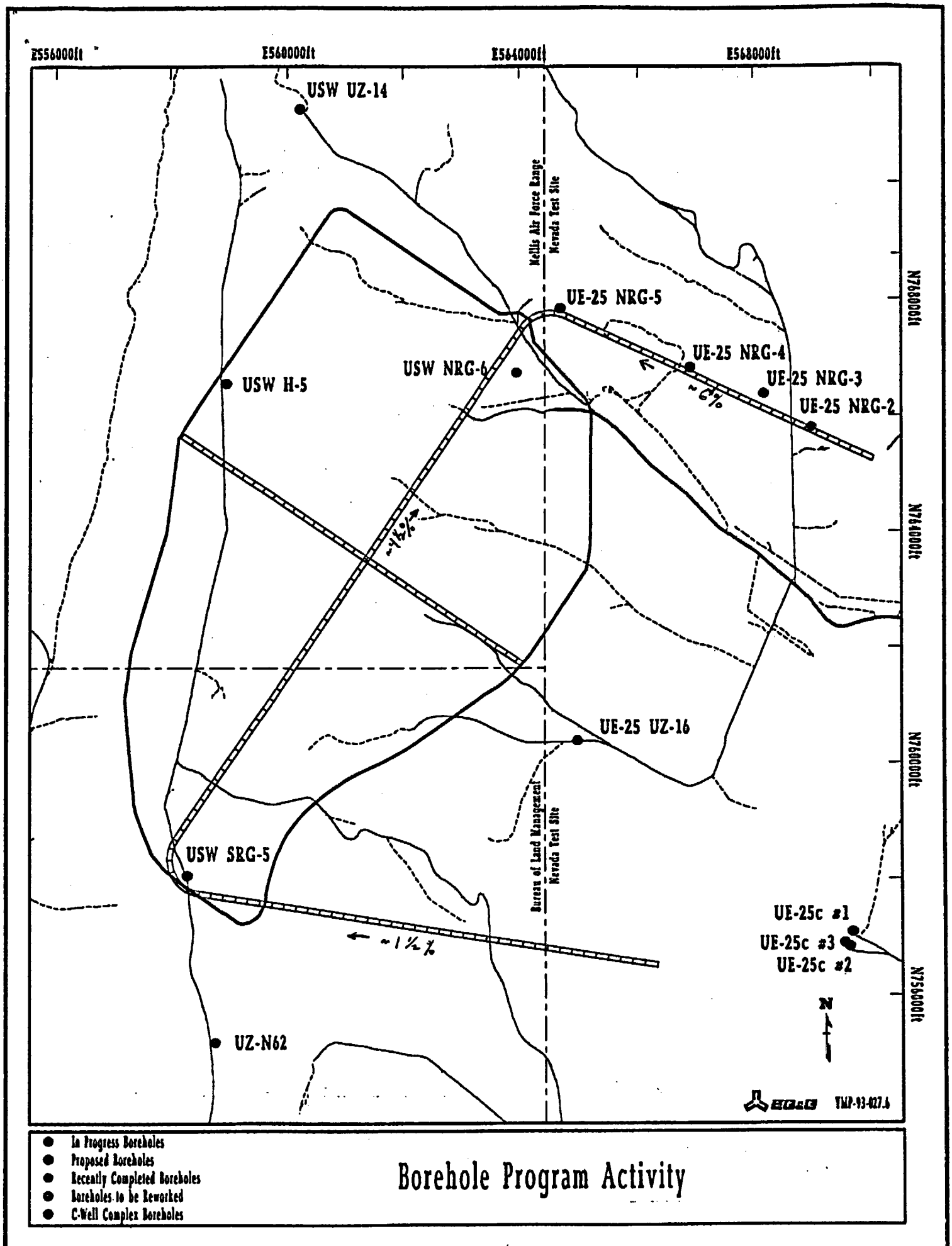


Legend
- =In progress
- =Planned
- =Critical

Russ Dyer, Division Director

Signatures
Prep: Robin K Clyde 3/9/93
Aprv: [signature] 3/9/93

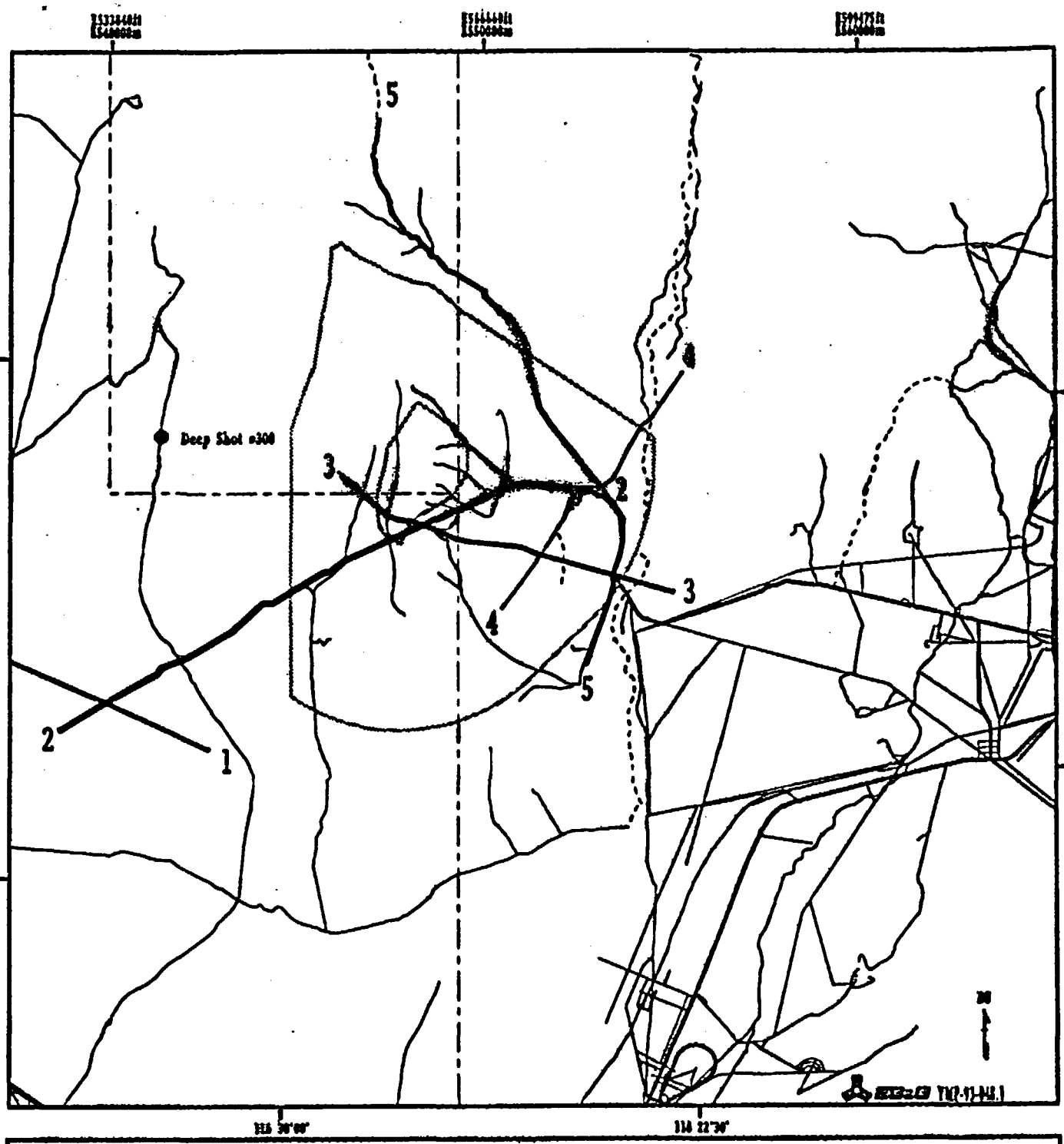
NRG-2A ?


E556000ft
E560000ft
E564000ft
E568000ft
N768000ft
N764000ft
N760000ft
N756000ft
USW UZ-14
Nellis Air Force Range
Nevada Test Site
UE-25 NRG-5
UE-25 NRG-4
UE-25 NRG-3
UE-25 NRG-2
USW NRG-6
USW H-5
~6%
~4½%
UE-25 UZ-16
Bureau of Land Management
Nevada Test Site
USW SRG-5
~1½%
UE-25c #1
UE-25c #3
UE-25c #2
N
UZ-N62
EG&G
YMP-93-027.6
In Progress Boreholes
Proposed Boreholes
Recently Completed Boreholes
Boreholes to be Reworked
C-Well Complex Boreholes
Borehole Program Activity

C-WELL TESTING
Study Plan: 8.3.1.2.3.1

Status:	USGS initiated prototype testing at Raymond Quarry 12/92 -- Ongoing LANL indicates readiness
Concerns:	None
Solutions:	N/A
Planned Activities:	Develop QA procedures during prototyping (USGS/LBL) Ongoing--Raymond Quarry, CA Complete 5-Zone Packer strings (USBR) Developing work program -- Estimate 1 July 1993 Start date (USGS & LANL Saturated Zone)

As of 3/10/93



Proposed Seismic Reflection Profiling Lines

GEOPHYSICAL REFLECTION SURVEY
SP: 8.3.1.4.2.1

Planned start date:	Pending USGS Contract Award
Status:	Test Planning Package has been initiated
	SCPB changes approved
	NRC Phase I review complete
	All data collection to be performed by subcontractor through contract
	Environmental compliance activities in progress
	Evaluation of Waste Isolation and Test Interference Complete--addenda required to accomodate new and relocated shothole locations
Concerns:	Award of USGS Contract and contractor availability--start date uncertain
Solutions:	Continue trying to accelerate contract process

As of 3/10/93

UNSATURATED ZONE PERCOLATION

Status:	Started Drilling UZ-16 with LM-300 on May 27, 1992 UZ-16 Coring depth to 1669 feet as of March 9, 1993 Established water table elevation at ~ 1606' TD will be 1686'
Concerns:	None
Solutions:	N/A
Planned Activities	Start UZ-14 drilling ~ April 1993 Start UZ-16 testing May 1993

As of 3/10/93

UNSATURATED ZONE
NATURAL INFILTRATION
SP: 8.3.1.2.2.1

Status:	Completed ten Phase 2 boreholes (N-31, N-32, N-63, N-33, N34, N-57, N-58, N-59, N-61, N-35) as of 1-11-93 Began drilling N-62 on March 5, 1993 Began N-85 artificial infiltration test on March 9, 1993
Concerns:	Operations permit needed for N-39 has not yet been granted by NTSO
Solutions:	Site Manager is providing additional information to NVO
Planned Activities:	Last borehole (N-39) may not be drilled until North Ramp boreholes are completed.

As of 3/10/93

MIDWAY VALLEY
SP 8.3.1.17.4.2

Status:	Mapping of trench MWVT-4 (Trench 17) in progress
	Soils Descriptions in test pits in progress
	Final interpretation of data from gravity and magnetic surveys conducted by USGS is in progress
Concerns:	Archaeological recovery proceeding for Alice Ridge trenches at North end of Paintbrush Canyon fault
Planned Activities:	Complete trench excavation at Alice Ridge trenches in April 1993

As of 3/10/93

QUATERNARY FAULTING - REGION
SP: 8.3.1.17.4.3

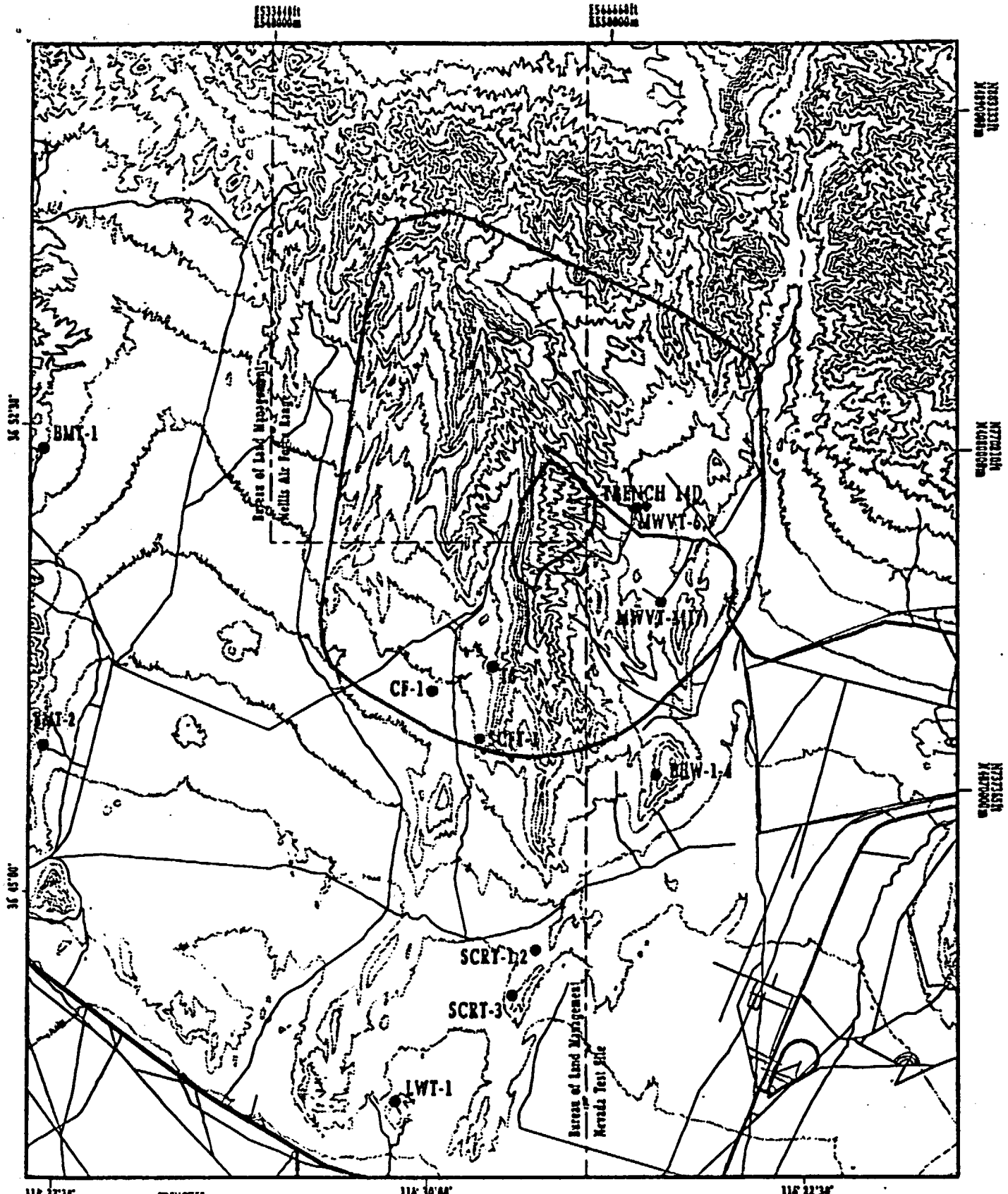
Status:	Study plan has been approved
	Preparation of strip map along Bare Mountain fault is in progress
	USGS has identified four trench sites on the Bare Mountain fault and nine soil test pits to investigate alluvial fan chronology
	Land access and environmental compliance reviews are in progress
	One of the four trench sites will require archaeological recovery
Planned Activities:	Begin trench and test pit excavations in April 1993

As of 3/10/93

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 Draft trench maps will be completed prior to NRC site visit in May 1993
Concerns:	None
Planned Activities:	Preliminary FY 93 trenching program has been provided to YMPO, schedule is being developed for additional new trenches in FY 93

As of 3/10/93


BMT-1
BMT-2
CF-1
TRENCH MD
MWVT-6
MWVT-11
NRW-1.4
SCRT-2
SCRT-3
LWT-1
Nellis Air Force Range
Bureau of Land Management
Nevada Test Site
116° 37'30"
116° 30'00"
116° 22'30"
TRENCHES
Existing
Backfilled
Planned
A. Conceptual Perimeter Drift Boundary
B. Test and Waste Isolation Evaluation Zone
MILES
KILOMETERS
N
YUCCA MOUNTAIN
SITE CHARACTERIZATION PROJECT
TRENCHES
YMP-93-023.0

FRAN RIDGE PIT AND PAVEMENT MAPPING
SP: 8.3.1.4.2.2

Status:	Pit excavation, pavement cleaning, and stereophotography are complete
	Detailed site mapping of pavement incomplete
Concerns:	Complete mapping before any deterioration of cleaned pavement
Solutions:	Needs to be rescheduled and completed
Planned Activities:	Prepare new schedule for completion of pavement mapping

As of 3/10/93

ESF TESTING

Status: Phased geologic mapping of north portal wall and slot in progress

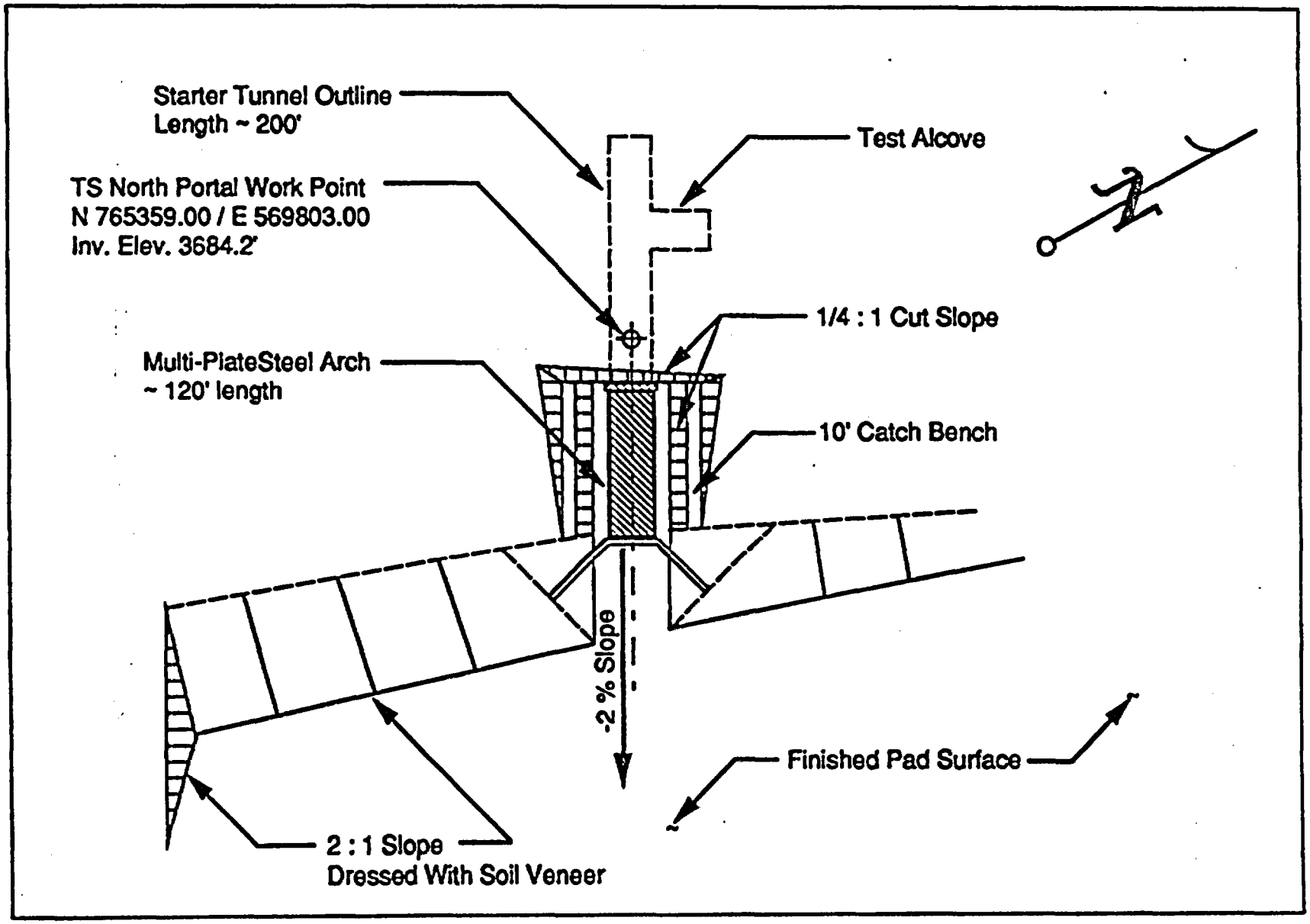
Concerns: None

Solutions: N/A

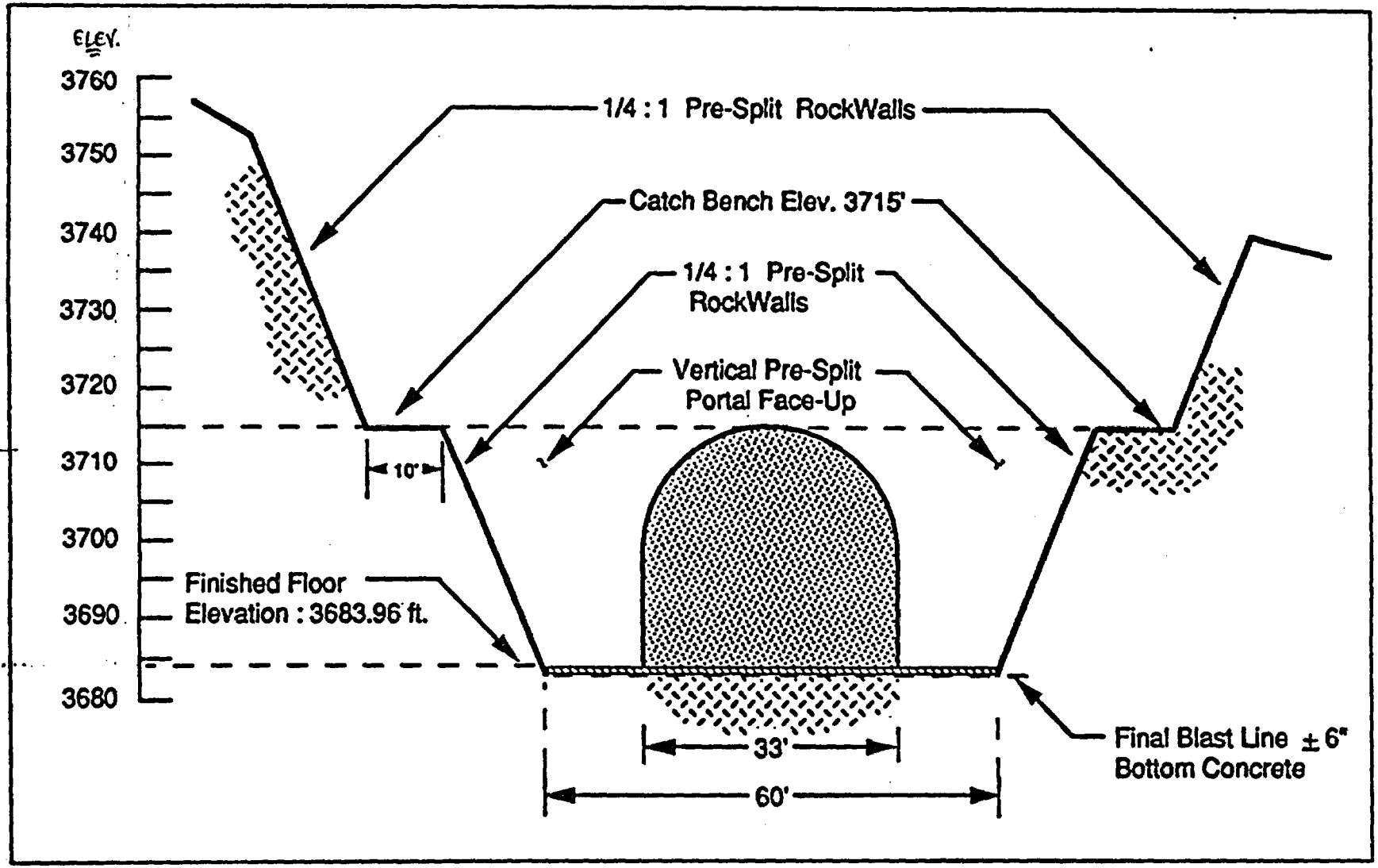
Planned Activities: Starter Tunnel Tests -- April 1993

- Field Underground Mapping Test
- Field Consolidated Sampling Test
- Field Construction Monitoring Test

As of 3/10/93



ESF NORTH PORTAL PLAN VIEW



MAPPED AREA OF ESF PORTAL CROSS-SECTION

ESF TEST PLANNING PRIORITIZATION
(SHADED ACTIVITIES ARE WBS 1.2.2. AND 1.2.4 TESTS)

ESF TEST PLANNING --PHASE 1

TCO TEST EVENT NAME	TEST NAME--(SCP ACTIVITY)	WBS ELEMENT	CONSTRUCTION OR DEFERRED	START DATE IN FIELD
Geologic Mapping - North Portal Wall and Slot	Underground Geologic Mapping	1.2.3.2.2.1.2	CONSTRUCTION	Ongoing (Feb. 1993)

ESF TEST PLANNING--PHASE 2

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

SOIL AND ROCK PROPERTIES
RAMP BOREHOLES
SP: 8.3.1.14.2

Status:	NRG-2 Borehole drilling completed 1/28/93
	NRG-6 Borehole drilling completed 3/3/93
	NRG-3 Borehole drilling started 3/9/93
Concerns:	None
Solutions:	N/A
Planned Activities:	Addition of Borehole NRG-2A to the program NRG-4 Borehole drilling start April 1993 NRG-5 Borehole drilling start April 1993 SRG-5 Borheole drilling start July 1993

As of 3/10/93

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 -- prelude to upcoming NRC interaction Responding to NRC Phase II comments on SP 8.3.1.8.1.1 Effects Studies underway
Concerns:	Uncertain Geochronology Magma Chambers--Teleseismic Tomography
Solutions:	Continue Geochronology Program Geophysics Review: External Consultant
Planned Activities:	Complete final LANL technical report and responses to NRC comments on SP 8.3.1.8.1.1 Submit Study Plan 8.3.1.8.1.2

As of 3/10/93

ESF STUDY PLANS

Study Plans Required Prior to Start of Launch Chamber

Characterization of Structural Features in the Site Area (8.3.1.4.2.2 R2)

Submitted to NRC	6 Jan 93
NRC Review Period completed	8 Feb 93

Study Plans Needed Soon After Start of Launch Chamber

Characterization of the Yucca Mountain Unsaturated Zone in the ESF (8.3.1.2.2.4 R1)

Submitted to NRC	21 Jan 93
NRC Review Period ends	21 Apr 93

need by YMPO

Water Movement Test (Chlorine-36 Activity) (8.3.1.2.2.2 R2)

Submitted to NRC	19 Feb 93
NRC Review Period ends	19 May 93

In-Situ Design Verification (8.3.1.15.1.8 R0)

Submitted to NRC	8 Feb 93
NRC Review Period ends	8 May 93

As of 3/10/93

STUDY PLAN STATUS

doesn't add up: mixed Revisions —

Total Study Plans assigned to cover 106 studies	104
Study Plans not yet submitted for review	36
Study Plans submitted for initial review	68
Revised Study Plans submitted for review	5
Revised ESF Study Plans submitted for review	6
Total Study Plans submitted for review	79

Study Plan Breakdown

In Screening Review	0
In Project Office Review	0
Awaiting Comment Resolution	13
Awaiting Author Revision	5
In Project Office Verification Audit	3
Preparing to submit or awaiting Project Office Approval	1
Awaiting submission to the NRC	1
NRC Phase 1 Review	19
NRC Acceptance	37
Total:	79

As of 3/10/93

(a)

STATUS OF THE TOPICAL REPORT

Assessment of the Potentially Adverse Condition "Evidence of Extreme Erosion During the Quaternary Period" at Yucca Mountain, Nevada

- Narrower scope than discussed at NRC meeting in May 1992
- Addresses only the PAC in 10 CFR 60.122(c)(16)
- States two DOE positions

Enclosure 4

POINT ONE: Assessment of potentially adverse conditions is a two-step process.

1. Does the condition exist?

If yes, is it potentially adverse?

Is it characteristic of the controlled area?

Might it affect isolation within the controlled area?

10 CFR 60.122(c)

2. If PAC exists, then assess the ability of the repository to meet its performance objectives.

Is the condition significant?

Do favorable conditions compensate for the PAC?

Can the PAC be remedied?

10 CFR 60.122(a)

POINT TWO: Concludes that extreme erosion did not occur during the Quaternary at Yucca Mountain.

STATUS

- Report sent to DOE/HQ on Monday, March 8
- RW-30 will transmit to NRC
- State and counties "cc'd" on NRC letter - will receive copy of report
- References go to NRC and State
- Counties may request references

TPO MEETING

PRESENTED BY

CARL GERTZ

PROJECT MANAGER

MARCH 10, 1993

APRTPG1.CPG/3-8-93

Enclosure 5

TOPICS

- Acting Director's remarks
- Alternate program strategies
  - Isaacs to brief National Academy of Science on March 12
- 93 & 94 Yucca Mountain budget outlook
- State of Project
  - LANL February 3, 1993
  - SNL February 4, 1993
- Waste Management '93
- High-Level Waste Conference
- Convergence Task Force update
- NWTRB Special Report
  - ESF ramp size
- Upcoming events
- Public tour schedule
- Recent polls

ACTING DIRECTOR'S REMARKS

Department of Energy
Washington, DC 20585

BIOGRAPHY

LAKE H. BARRETT

Lake H. Barrett is the Director of the Rocky Flats Program Office, Defense Programs, U.S. Department of Energy (DOE). In this position, he is responsible for activities leading to the resumption of operations at the Rocky Flats facility.

Previously, Mr. Barrett served in a variety of senior management positions in DOE's Office of Civilian Radioactive Waste Management (OCRWM). His various responsibilities within the high level radioactive waste program included Quality Assurance, Facilities Siting and Development, External Relations and Policy, Transportation, and Systems Engineering areas between 1985 and 1990.

Mr. Barrett has held various engineering, supervisory and managerial positions within General Dynamics/Electric Boat Division, Bechtel Power Corporation, and the Nuclear Regulatory Commission, before joining DOE in 1985. Between 1980 an 1984, he was Site Director for the Nuclear Regulatory Commission, stationed at the Three Mile Island reactor site, and was responsible for regulatory programs during the cleanup of the damaged Unit 2 reactor.

Mr. Barrett received his B.S. degree in mechanical engineering in 1967 and his M.S. degree in mechanical/nuclear engineering in 1971, both from the University of Connecticut. He is a registered professional engineer, member of the American Nuclear Society, and has served on various standard and industry committees. Among Mr. Barrett's honors are Meritorious Service and Performance Bonus Awards, a DOE Special Act Award, and the Congressional Award for Exemplary Service Finalist.

Mr. Barrett is married to the former Lynn Buckley. They have two children and currently reside in Derwood, Maryland.

ALTERNATE PROGRAM STRATEGIES

WATKINS NEW PROGRAM STRATEGY FOR DISPOSAL OF SPENT FUEL AND DEFENSE HIGH-LEVEL WASTE IN LETTER TO JOHNSTON, JANUARY 12, 1993

- DOE investigating an alternative disposal program strategy
  - NRC would make periodically formal findings
  - DOE focus on issues to resolve disposal safety
  - Provide conceptual revised strategy for public review by April 1, 1993
- DOE recommend that Nuclear Waste Fund be taken off-budget

The Secretary of Energy
Washington, DC 20585

January 12, 1993

The Honorable J. Bennett Johnston
Chairman
Committee on Energy and Natural Resources
United States Senate
Washington, D.C. 20510-6150

Dear Mr. Chairman:

Your letter of December 10, 1992 requested information on the Department's plans and progress for disposal of spent nuclear fuel (SNF). You also requested information on plans to assure that receipt of SNF from reactors can begin in 1998, which I provided to you in my response of December 17, 1992.

The enclosure to this letter describes for your information my recent initiatives to minimize disposal program costs and to build confidence as the program proceeds that substantive progress is being made and safe disposal can be accomplished. We are also investigating alternative strategies for interactions between the Department and the Nuclear Regulatory Commission (NRC). The potential exists that a petition for proposed rulemaking to the NRC may be a result of this investigation. As permitted by National Academy of Sciences (NAS), Environmental Protection Agency (EPA) and NRC procedures, we will participate in the proceedings of the NAS. These investigations will help assure that the EPA standards are soundly based and appropriately structured for implementation. We have also instituted management practices which will assure that program progress is as cost effective as possible.

I believe these new initiatives for the disposal program will meet the Nation's needs for safe, timely, and cost-effective disposal and will maintain our

WM-11
NH1207

options for sustained use of nuclear power as established in the Energy Policy Act of 1992. I urge your continued leadership for congressional action to achieve our mutual goals.

Sincerely,

James D. Watkins
Admiral, U.S. Navy (Retired)

Enclosure

cc:
The Honorable Malcolm Wallop
Ranking Minority Member

A NEW PROGRAM STRATEGY FOR DISPOSAL OF SPENT NUCLEAR FUEL AND DEFENSE HIGH-LEVEL WASTE

BACKGROUND

Pursuant to the Nuclear Waste Policy Act, as amended, the Department has been characterizing the Yucca Mountain site in Nevada to determine if it is a suitable location for disposal of spent nuclear fuel (SNF) and high-level waste (HLW). If the site were found suitable for disposal, DOE would have submitted a license application for construction of a waste repository at the site to the Nuclear Regulatory Commission (NRC) in 2001 and to begin disposal in 2010.

Under these plans and procedures, the process from start of preliminary site investigations to start of disposal would span more than 30 years, and more than $9 billion would be spent on site investigations, licensing, and construction before disposal begins. The only official findings concerning disposal safety occur at the end of the NRC licensing process, and these findings would be based on performance assessment models and predictions without any experimental evidence of disposal safety.

These procedures do not provide an opportunity to make disposal data available for licensing reviews or to build confidence in disposal program costs, schedules, and progress. The Department is taking the actions described below to put the disposal program on a sound track for demonstration of cost effective progress.

DISPOSAL PROGRAM STRATEGY

The Department is investigating an alternative disposal program strategy for progress through step by step DOE and NRC interactions. In contrast with the above-mentioned plans, under which the NRC makes no findings until the end of licensing proceedings, the NRC would periodically make formal findings concerning the progress toward environmentally sound and safe disposal as DOE advances the testing and data analysis program. The findings would guide the DOE program and would be based on the NRC disposal safety standards. The strategy could involve disposal test emplacement of limited quantities of waste in order to obtain experimental data as a basis for findings, and would provide for abandonment of the Yucca Mountain site and retrieval of that test waste at any time if there are findings that safe disposal at the site is not possible. This approach would avoid the possibility of expending some $9 billion before any findings are made.

The strategy would be designed to focus DOE's program activities on those that are essential to resolve disposal safety issues. It would also be designed to assure technical linkage to the new SNF interim storage and transport programs that I described in my December 17, 1992 letter to you.

A rulemaking by the NRC ultimately is required to implement a revised disposal program strategy.. The Department believes that an effective new strategy can be adopted within the flexibility offered by the NRC's existing statutory authority.

The Department expects to complete its investigations and provide a conceptual revised strategy for public review by April 1, 1993, and it is anticipated that a petition for proposed rulemaking will be submitted to the NRC if required. An improved strategy implemented through an NRC rulemaking is expected to produce a cost-effective program which provides information on progress and status to the public as the program proceeds.

DEVELOPMENT OF EPA DISPOSAL STANDARDS

As required by Section 801 of the Energy Policy Act of 1992, the National Academy of Sciences (NAS) will perform studies and make recommendations for the Environmental Protection Agency (EPA) safety standards for SNF and HLW disposal. The EPA will then develop standards and the NRC will revise its regulations to incorporate the EPA standards. As permitted by NAS, EPA, and NRC procedures, DOE will participate in these proceedings to help assure that the standards are soundly based and appropriately structured for implementation. The Department expects to perform technical analyses, prepare topical reports, and comment on proposed regulations. The Department's work will be reviewed by the Nuclear Waste Technical Review Board.

ASSURANCE OF COST CONTROL AND MANAGEMENT EFFECTIVENESS

The Department has begun implementation of a cost-controlling iterative process, which will operate under formal change procedures with the NRC, to revise and focus planned site characterization work on the basis of data already obtained. The first revision of plans established in the Yucca Mountain Site Characterization Plan will be completed in May 1993. It will be based on interpretation of site data obtained to date and the repository system safety performance assessment completed in July 1992.

The Department has also instituted practices such as self assessment and assessments by independent external parties to help assure management effectiveness. In addition, the Department is implementing actions to improve work efficiency and cost effectiveness such as optimization of drilling schedules and stringency in adherence to procurement schedules. These practices and actions will assure that program progress is as cost effective as possible.

Recent progress has been demonstrated with the successful resolution of litigation and the issuance by the State of Nevada of necessary environmental permits which have led to new surface-based testing and site preparation for underground exploration now under way at Yucca Mountain.

BUDGET ASSURANCE

To provide resources required to meet program needs and schedules, the Department recommended to the Office of Management and Budget that the Nuclear Waste Fund be taken off-budget, in a revolving fund subject to Congressional appropriation.

EVALUATE ADEQUACY OF NUCLEAR WASTE MANAGEMENT PROGRAMS

In accord with requirements of Section 803 of the Energy Policy Act of 1992, the Department is evaluating the adequacy of existing nuclear waste management plans and programs considering additional waste that might be generated by new nuclear power plants or renewal of existing plant licenses. We are also considering the potential impact of changes in the Nation's defense posture and of new waste management technologies. The draft report of this evaluation will be available for public review in May 1993.

93 & 94 YUCCA MOUNTAIN BUDGET OUTLOOK

FY 1994 BUDGET

" In Fiscal Year 1994, the Department of Energy's Civilian Radioactive Waste Management budget calls for approximately or slightly below level funding (in FY-93, the OCRWM budget is $375 million). The FY-93 OCRWM budget includes $100 million from the DOE defense programs and similar, perhaps larger, contribution may be a part of next year's total.

The technical program content will continue to emphasize the early evaluation of repository site suitability as well as 1998 high-level waste acceptance from the nuclear utilities. Waste acceptance initiatives include the development of a multipurpose canister and activities to find a waste storage site. Other emphases include further shifts of resources from headquarters to Yucca Mountain, and resource transfers within the overall YMPO program from infrastructure to perform scientific activities on the mountain."

Lake H. Barrett, Acting Director
Office of Civilian Radioactive Waste Management

STATE OF THE PROJECT

February 3, 1993

Yucca Mountain Site Characterization Project

State of the Project

Los Alamos National Laboratory

Presented by

Carl Gertz

Project Manager

February 4, 1993

Yucca Mountain Site Characterization Project

State of the Project

Sandia National Laboratories

Presented by

Carl Gertz

Project Manager

"GREAT THINGS ARE DONE WHEN MEN AND MOUNTAINS MEET"

WILLIAM BLAKE
1757 - 1827

WASTE MANAGEMENT '93

WASTE MANAGEMENT '93

February 28 - March 4, 1993
Tucson, Arizona

Tuesday, March 2, 1993

1:30 pm **Progress at Yucca Mountain - Compliance and Suitability**

	Title	Presenter
1.	1992: When Things Began to Move at Yucca Mountain	Carl Gertz
2.	Earl Evaluation of the Suitability of the Potential Repository Site at Yucca Mountain	Jean Younker
3.	Annotated Outline Process for a Potential Mined Geologic Disposal System License Application	April Gil
4.	Issue Resolution Process: Yucca Mountain Site Characterization Project	Susan Jones
5.	Performance of a potential Civilian Radioactive Waste Repository: Future Directions Derived from TSPA 1991 and Program Priorities	Jeremy Boak
6.	Application of Systems Engineering to the Licensing of a High-Level Nuclear Waste Repository	M Lee/NRC
7.	A functional Analysis Approach to Establishing OCRWM's Technical Requirements	M Duffy/Battelle

APRTPG7.CPG/3-8-93

HLW CONFERENCE
APRIL 26, 1993

CONVERGENCE TASK FORCE

STATUS OF DOE'S CONVERGENCE ACTIVITIES

- Draft Top-Level Strategy for Implementation of Office of Geologic Disposal responsibilities for Licensing, Suitability Evaluation, and Compliance with the National Environmental Policy Act (NEPA) briefed to OCRWM's Executive Committee 12/92
- Draft Implementation Plan for Site Suitability briefed to OCRWM's Executive Committee 12/92
- Draft Implementation Plan for NEPA Compliance briefed to Executive Committee 2/93
- Draft Implementation Plan for Licensing will be briefed to Executive Committee 3/93
- Implementation Plans to be revised on basis of feedback from Executive Committee
- Next step will be to obtain input from affected and interested parties

NWTRB SPECIAL REPORT

UNITED STATES
NUCLEAR WASTE TECHNICAL REVIEW BOARD
1100 Wilson Boulevard, Suite 910
Arlington, VA 22209

March 2, 1993
For Immediate Release

Contact: Karyn D. Severson
Congressional Liaison

Key Improvements to DOE's Radioactive Waste Management Program Could Speed Program Progress

In a *Special Report to Congress and the Secretary of Energy*, released today, members of the Nuclear Waste Technical Review Board make key recommendations they believe will improve the scientific and technical aspects of the Department of Energy's high-level waste management program and may actually "speed real program progress over the long run." In addition, the Board says that needed changes to the program "can and should be accomplished without slowing the progress of important site-characterization activities at Yucca Mountain." A site at Yucca Mountain, Nevada, currently is being evaluated by the DOE for its suitability for locating a permanent repository for the nation's civilian spent fuel and high-level defense waste. The report makes three key recommendations.

First, the report highlights the need to establish realistic target dates for achieving important *interim* goals, such as getting underground at Yucca Mountain, beginning critical testing, and determining the suitability of the site. The Board is concerned that current efforts to meet the program's unrealistic deadlines may force the DOE to make important technical decisions "without first performing the appropriate technical and scientific analysis." This could in turn lead to mistakes and costly remediation or potential licensing problems. Program plans call for beginning federal acceptance of spent fuel from the utilities in 1998 and commencing repository operations at Yucca Mountain, Nevada, in 2010.

Second, the Board recommends that the DOE develop a comprehensive, well-integrated plan for the management of "*all* spent fuel and high-level defense waste from generation to disposal." In the Board's view, the DOE has not considered sufficiently the interdependent nature of storage, transport, and disposal of spent fuel and high-level radioactive waste. The Board also believes additional effort should be made to evaluate the feasibility of developing multipurpose containers that can be used to store, transport, and dispose of spent fuel.

Third, the Board suggests the undertaking of an independent evaluation of the organization and management of the Office of Civilian Radioactive Waste Management. The review is needed, the report says, because the large number of organizations involved in implementing the program and the diffuse nature of the program's organizational structure seem to be creating substantial challenges for program managers. As a result, says the report,

(over)

"some technical aspects of the program are being affected adversely." The Board suggests examining some of the approaches being used in other countries with similar radioactive waste management programs.

The Nuclear Waste Technical Review Board was created by Congress in the Nuclear Waste Policy Amendments Act of 1987 to evaluate the technical and scientific validity of activities undertaken by the DOE in its program to manage the disposal of the nation's spent fuel and defense high-level waste.

This *Special Report* (Stock # 061-000-00789-0) is available for $2.50 from the Superintendent of Documents, Governmen: Printing Office, Washington, D.C. 20402; (202) 783-3238. Purchases can be made by check, money order, or Visa or MasterCard.

****

NWTRB Special Report

to Congress and the Secretary of Energy

Nuclear Waste Technical Review Board
March 1993

suitability of the site as a potential repository. Closely related considerations are the NRC requirements (10CFR60.15 and 10CFR60.21) for proper coordination between ESF design and repository design to ensure that the ESF, as constructed, will not interfere with the waste isolation capability of the site, to the extent practical. In particular, NRC has made it clear that during site characterization, the DOE must address specific licensing-related requirements that are contained within the Code of Federal Regulations, Title 10, Part 60 (10 CFR 60). NRC's insistence on compliance with these requirements is evident in their objections to the ESF design basis in both the Consultation Draft and Statutory Site Characterization Plans. The regulatory basis for NRC's position was summarized in NUREG-1439. Although neither the Nuclear Waste Policy Act nor the NRC's regulations require licensing of the ESF or approval of its design, the NRC procedural requirements of 10 CFR Part 60 require that those components of the ESF that could potentially become part of the repository be designed to meet the same regulatory requirements regarding containment and isolation that are applicable to the repository. The NRC staff position, as stated in NUREG-1439, is that "Conceptual design of the GROA (Geologic Repository Operations Area) should be considered in the design of the ESF. For example, to the extent practical, the shafts, ramps, and drifts for the ESF should be selected in locations where these features are planned for the GROA. . .." Requirements of particular importance are those listed below:

1. Limiting adverse effects on the long term performance of the potential repository, 60.15(c).

2. Comparison of alternatives to major design features, especially with respect to the alternatives that would provide longer radionuclide containment and isolation, 60.21(c)1(ii)d. The key issue here is that ESF ramp size is a 60.21(c)1(ii)d issue for the potential repository as well as the ESF. It should be noted that the NRC lifted Site Characterization Analysis Objection 1 primarily because of DOE actions that demonstrated commitment to addressing 60.21(c)1(ii)d issues associated with the ESF.

Yucca Mountain Site Characterization Project (YMP) program costs have been carefully developed and have been independently reviewed and validated; the costs have been found to be consistent with those of other programs of this nature. To support testing and operations, DOE must comply with its own orders, as well as federal laws such as the Mine Safety and Health Act (MSHA), Occupational Health and Safety Act (OSHA),

Resource Conservation and Recovery Act (RCRA) and the American Indian Religious Freedom Act (AIRFA). DOE must also be responsive to all of its oversight agencies. While we concur with your observation that these costs are high, they reflect the costs of compliance with a multitude of complex requirements in a highly visible national program.

We are, however, continuing to take a close look at the allocation of funds at YMP and the program as a whole, and as appropriate, making changes to those allocations. For example, we have applied eleven percent more of the YMP budget in fiscal year (FY) 1993 (from an FY 1992 base) to work that is "scientific and technical" in nature. I am enclosing a page of the presentation I have given NWTRB with respect to the YMP program funding (enclosure 2). This presentation depicts this changed allocation.

Although I cannot speak in specific terms with respect to FY 1994 funding in advance of submission of President Clinton's budget to Congress, I can assure you that this trend will continue. We will be applying an increasingly higher percentage of YMP funds to activities that are viewed as being "scientific and technical" in nature rather than those activities viewed as being infrastructure/overhead areas of budget.

It is clearly our goal to make the most cost effective and efficient use of available funds to make scientific and technical progress at the Yucca Mountain site, keeping in mind the regulatory and licensing requirements that overlay this project.

I would like to thank you for your clearly demonstrated interest in carrying out our project to the successful conclusion of determining the unsuitability or suitability of the Yucca Mountain site in the most expeditious manner. As indicated earlier, I encourage your comments and participation in our design and study activities. To facilitate this, we will continue to advise you of our review schedules, and invite your participation.

If you have any questions or desire additional information, please contact me at (702) 794-7920.

Carl P. Gertz
Project Manager

EDD:WBS-1921

Enclosures:
1. List of Issues
2. Page from TRB presentation, "Design and Test Program Based on Firm Foundation," (Comparison of FY92/FY93 Funding)

cc w/encls:
S. J. Brocoum, HQ (RW-22) FORS
J. P. Roberts, HQ (RW-30) FORS
M. A. Michewicz, HQ (RW-332) FORS
A. P. Hahn, M&O/TRW, Las Vegas, NV
M. D. Voegele, SAIC, Las Vegas, NV
C. P. Gertz, YMP, NV
M. B. Blanchard, YMP, NV
J. R. Dyer, YMP, NV
J. L. Cooper, YMP, NV
W. B. Simecka, YMP, NV

LIST OF ISSUES

1. With regard to efficient execution of the Topopah Spring loop Tunnel Boring Machine (TBM) drive, we concur that the lowest cost technique for obtaining the breakthrough from the North to the South portals would be to operate the TBM without interference. However, we must accomplish this in a manner that allows us to obtain all the data necessary for evaluating site suitability in a timely manner, while meeting the procedural requirements of 10CFR60 with respect to site characterization activities, including ESF design, construction, and testing. In summary, our current plans are to operate the TBM "continuously" from North to South, stopping only when necessary to gather irretrievable scientific or engineering data, or to pursue scientific study of significantly differing geologic conditions.

2. With regard to rail transport, and as indicated in our letter (reference 2), we concur that rail transport currently appears to have distinct advantages, and is an industry standard form of transport. These factors will be considered in the selection of men and material transport which will be determined by trade-off analyses conducted during Title II design. At this time, rail transport is our preferred choice; we encourage your comments and participation as the trade studies are conducted.

3. With regard to Core Test Area (Main Test Level) design to facilitate utilization of TBM excavation, we concur that the Title II design should include it as an alternative in the selection of the most cost effective and timely excavation techniques. We recognize the importance of initiating early the long-term in situ tests such as the heater test now planned for the Core Test Area. TBM excavation is currently considered the most promising approach; we again encourage your comments and participation during the Title II design.

4. With regard to the selection of a TBM, we concur that the selection should be made on the basis of providing adequate excavation capability to satisfy site characterization needs, while minimizing cost and risk to the success of the project. In fact, the current procurement (request-for-proposal) penalizes proposers which offer a TBM having a diameter larger than 25 feet. The minimum TBM size has been determined, in part, by an evaluation of the ventilation required to provide the capability and flexibility to maintain multiple headings if they are necessary to support required scientific investigations. Information supporting this evaluation is included in a report prepared by Raytheon Services Nevada, Report ST-MN-221, Revision 1, dated November 25, 1992, entitled "Exploratory Studies Facility

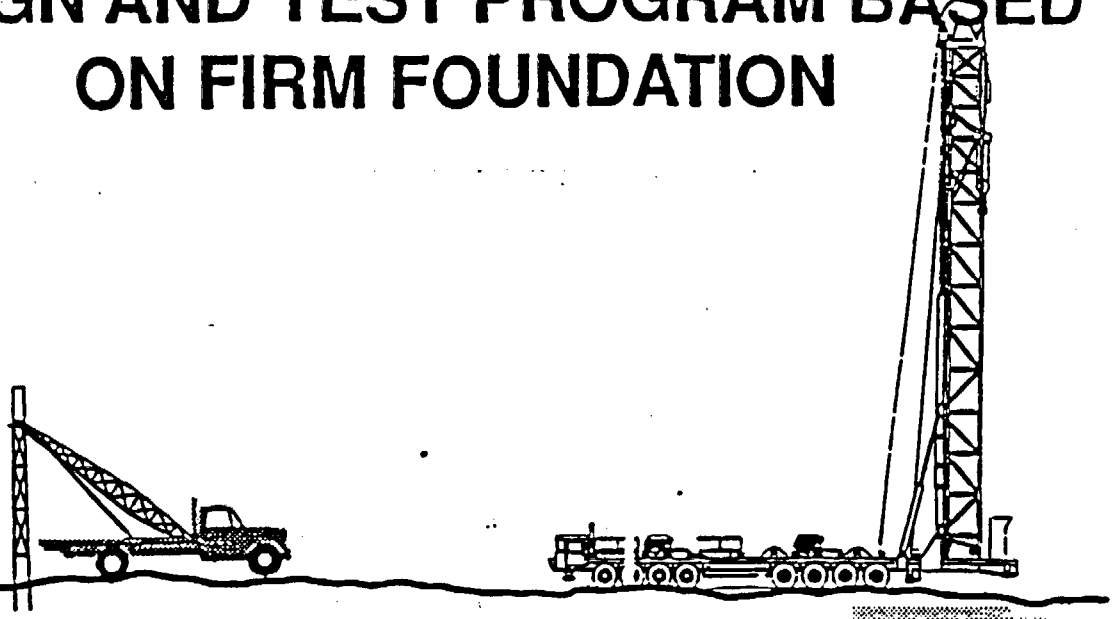
ENCLOSURE 1

Ramp and Main Drift Sizing Analysis." This report and other supporting details about the size were previously provided to you and the Nuclear Waste Technical Review Board staff by this office. We believe that it is imperative to maintain this flexibility to ensure that site characterization studies can proceed efficiently and that new areas of investigation can be supported as these studies progress. Any increase in marginal cost at the start of ESF construction is likely to be offset by the potential advantages associated with our current approach. It should be noted that the ESF will be in operation for approximately ten years during the characterization and licensing phases of the project. The approximately twenty-five foot diameter ramp and main drift provides an additional margin of safety during this operational period. In addition, we believe that the ESF ramp size determination should consider the ramp size that might be needed for the potential repository. This will minimize the potential for the adverse impacts of later reboring the ramp to a larger size, and/or constructing additional large ramps for potential repository operation. In our view, this is consistent with both 10CFR60.21(c)1(ii)d and NUREG-1439, as well as being consistent with prudent management practice.

5. With regard to the underground constructor contract, we concur that the appropriate incentives can and should be included in an award fee cost-reimbursable contract. The award fee criteria will include factors to ensure the underground contractor's operations are consistent with industry standards such as minimum crew size.

6. With regard to the minimization of overlapping and duplicate functions, we concur that organizational efficiency should be improved where possible. Our managers are continuously evaluating our contractors, with respect to their areas of responsibility, and modifying those responsibilities as needed. We do not believe we presently have any significant overlapping or duplicate functions. Further, we have only two major contractors accomplishing ESF design, construction management support, and construction: the Civilian Radioactive Waste Management System Management and Operating contractor is responsible for the first two, and Reynolds Electrical & Engineering Co., Inc. is responsible for the latter.

DESIGN AND TEST PROGRAM BASED ON FIRM FOUNDATION



	FY92	FY93
Other		
• SITE	33%	44%
- Drilling and trenching	$ 16.0	$ 17.7
- Non-surface-disturbing	$ 27.3	$ 27.9
• TESTS/STUDIES		
- Waste package	$ 5.4	$ 8.3
- Repository	$ 3.7	$ 4.5
- Exploratory Studies Facilities	$ 7.1	$ 49.0
Required		
• TEST FACILITIES	67%	56%
- Sample Management Facility	$ 3.5	$ 4.0
- Support facilities and equipment	$ 6.6	$ 6.2
• SYSTEMS	$ 8.5	$ 12.1
• REGULATORY & INSTITUTIONAL/ PERFORMANCE ASSESSMENT	$ 28.2	$ 27.5
• PROJECT MANAGEMENT		
- Management & administration	$ 36.1	$ 42.1
- Compliance & regulatory support	$ 23.1	$ 23.8
• FINANCIAL & TECHNICAL ASSISTANCE	$ 15.5	$ 17.6
• NTS Allowance	$ 1.0	$ 4.0
TOTAL	$182.0	$244.7

Preliminary

ENCLOSURE 2

UNITED STATES
NUCLEAR WASTE TECHNICAL REVIEW BOARD

December 11, 1992

Mr. Carl P. Gertz
U.S. Department of Energy
101 Convention Center Drive
Las Vegas, NV 89109

" We conclude that the TBM should not be increased above the 25 ft size."

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UNITED STATES
NUCLEAR WASTE TECHNICAL REVIEW BOARD
1100 Wilson Boulevard, Suite 910
Arlington, VA 22209

"INFORMATION COPY"

DEC 21 2 50 PM '00

December 11, 1992

Mr. Carl P. Gertz
U.S. Department of Energy
101 Convention Center Drive
Las Vegas, NV 89109

Dear Mr. ~~Gertz:~~ Carl

Thank you for your November 27, 1992, letter to Bill Barnard. I would also like to take this opportunity, on behalf of the entire Board, to express our appreciation to you, your staff, and contractors for so effectively supporting our recent workshop on ESF design and construction strategy on November 4 and 5, 1992. Your recommendation several months ago to consider a round-table venue was a good one. The comments and feedback we have received unanimously supported the round-table approach in lieu of the normal format for this meeting. Our assessment of the meeting is very positive. It appears that we agree on many of the issues discussed and that considerable progress was made. The participants clearly came away with a better understanding of contemporary tunneling technology and how it can be used in the ESF.

The Board is supportive of DOE efforts to begin underground exploration and testing for the ESF as soon as possible. Plans to start TBM excavation early in fiscal year 1994 appear to reflect an efficient schedule. Because so much of the program depends on progress in underground exploration and since excavation operations impact other portions of the program, delays should be avoided. We agree with plans to simplify the portal and the surface support facilities and encourage continued investigation of means of reducing costs so that the start of tunneling is not delayed and funds can be used for both underground exploration and surface-based testing.

Because changes become increasingly more costly and have a greater impact on the schedule as designs and plans develop, we would like to emphasize in this letter those items in the development of the ESF that need immediate attention — and not wait for the next Board report. Your comments during the November meeting regarding the difficulty in conducting a program in which funding levels are not consistent provided important insight into some of the DOE and NWTRB concerns and differences.

The DOE has developed a site-characterization program with an infrastructure that will support funding at planned levels. However, funding has been substantially lower than planned and even lower than requested — in the $200 million range per year — since fiscal year 1988. In the fall of 1989, the Secretary undertook a reassessment of the program and decided to emphasize determining early site suitability, with a goal of

Telephone: 703-235-4473 Fax: 703-235-4495

license application for 2001. Despite funding levels significantly lower than planned since fiscal year 1991, the target date is still 2001. As you noted early in 1992 and again at the November workshop, the target date can only be met if funds are ramped up to balance the less-than-planned funding of the past three years.

The "flexibility" that the DOE wishes to maintain was described at the November workshop as being the ability to respond to increased funding, should it occur. To maintain this flexibility, the ESF access tunnels and main drift have been sized to accommodate additional TBM and excavation operations from the same portal, should funds become available. This approach has two disadvantages: (1) The ramp-up in funding may not occur, but if it does, it would be inefficient and cause much interference — particularly in TBM operation. Testing and evaluation would be required to follow very optimistic schedules. (2) It appears that the annual planning for a ramped-up operation actually has resulted in substantial cost to the program and may have delayed progress. High program infrastructure and overhead costs have left only a small portion of the budget available for testing and exploration.

The Board continually has emphasized early start of tunneling to evaluate site suitability and has supported approaches that minimize interference, delays, and inefficiencies involved in trying to mobilize a large number of simultaneous operations. At its meetings with the DOE (March 6, 1991; July 15, 1991; August 13, 1991; September 18, 1991) the Board commented on these issues. In its fourth report the Board recommended that 16- to 20-ft diameters be considered with early access from one portal. In its fifth report the Board recommended an incremental approach to excavating the ESF using one or two smaller TBMs, and excavating opening sizes as small as functionally required.

The Board considers the major short-term goal of the program to be the early determination of the suitability of the Yucca Mountain site. Access across known and unknown faults and fractures to visually examine and evaluate these critical geologic features is a key milestone for determining site suitability and should be a high-priority activity. Until access to the underground can be achieved and the geologic conditions can be examined, the suitability of the site must be considered questionable.

We also support beginning heater tests as soon as possible because of the long lead time required for conducting the tests, their relation to site-suitability questions, and their impact on the repository design.

We believe that the following recommendations, if implemented, would help achieve key milestones for early determination of site suitability at minimum program cost and risk.

1. Efforts should be directed toward efficient execution of the main TBM drive from the North to the South portal without delays. Operating a TBM without interference provides one of the best opportunities to meet program schedules. With the rates of progress standard in the industry, the main drive should be

completed within approximately 12 months. This will provide access (and egress) from two portals and allow the earliest access for exploration and a safe start of testing.

2. The general conclusion from industry participants and consultants at the November workshop was that the *safest*, most efficient means of supporting TBM excavation is by rail vehicles rather than rubber-tired vehicles. Rail will provide similar advantages for supporting the exploration and testing program. We recommend the use of rail to support TBM operations. This too is standard U.S. industry practice.

3. The Core Test Area layout should be designed to facilitate excavation by TBM. Heater test rooms should be excavated by TBM to produce wall rock conditions that are similar to those that would be present in the emplacement drifts of a repository and to minimize introduction of water into the test area. A short-radius TBM should be considered for this. The layout of the Core Test Area should allow the heater test area to be completed and access provided before excavating other portions of the Core Test Area.

4. Presently, a DOE request for proposal is out for a TBM from 25 to 30 ft in diameter. We were surprised to learn that the tunnel size would be chosen based on machine availability and cost. During the discussion at the workshop, we stated that it is not appropriate to allow the cost of the TBM to control tunnel diameter. Increasing tunnel diameter from 25 to 30 ft is an increase in tunnel volume of 44 percent. The cost of the larger tunnel would be much greater than any cost savings achieved in the purchase of a used TBM. It was also noted that, for TBMs in the 30 ft-diameter class, the main bearing would probably have to be replaced prior to completing the north portal to south portal 26,000 ft run — a costly and time-consuming operation. We believe that minimum cost to the project and minimum risk would be achieved with smaller diameters. We conclude that the TBM should not be increased above the 25 ft size."

As noted at the workshop, by using rail transport and providing ventilation for one excavation heading, the tunnel size can even be reduced to 18 to 20 ft. This will allow the use of a class of TBMs that represent better than 90 percent of those manufactured since their first introduction in the early 1950s. Using this size of TBM would reduce both TBM and ESF construction costs, reduce program risks, and speed up construction. An additional advantage would be to provide program flexibility — the ability to excavate turnouts, the core test area, exploratory drifts, and subsequently to excavate the Calico Hills ramps and drifts. Small tunnel size offers the maximum potential for adjusting to an evolving repository design.

5. By using an award fee, cost-reimbursable contract, the cost and schedule incentives that encourage a construction contractor to develop efficient operations will be lacking. It was concluded at the November workshop that such incentives could be included in the construction contract, perhaps within the framework of the award fee. We also recommend that the contractor pursue efficient operating and support crew sizing for the TBM, based on proven tunnel industry practice.

6. The number of organizations and levels responsible for designing, constructing, and managing the ESF construction is greater than most other major federally funded underground projects. We encourage the DOE to consider ways to achieve cost and schedule efficiencies by minimizing overlapping and duplicated functions.

A number of questions were raised during the November workshop that were not adequately discussed, and we understand that further ESF studies are currently being conducted. We suggest that our staffs continue to exchange information and that various items be clarified through staff discussion so that we can reflect the latest information in our Board report on the ESF.

Again, I want to express my appreciation to you for your support of the round-table discussions and the cooperative, open environment you have encouraged within the Yucca Mountain Project. I look forward to additional interactions and reviews of progress of the design and construction of the ESF in the upcoming year.

Sincerely,

Edward J. Cording

Edward J. Cording
Member of the Board

cc:
Board members
J. W. Bartlett
F. G. Peters
J. P. Roberts
S. J. Brocoum
R. L. Robertson
L. D. Foust
R. M. Sandifer

UPCOMING EVENTS

UPCOMING EVENTS

- Media Day/ESF Progress — April 15
- NWTRB Fullboard Meeting — April 20-23
- High-Level Waste Conference — April 26-30
- Public Update Meetings — May 10-11 (NV, LV) & 13 (Reno)

APRTPG26.CPG/3-8-93

PUBLIC TOUR SCHEDULE

TOUR YUCCA MOUNTAIN

LAS VEGAS DEPARTURE

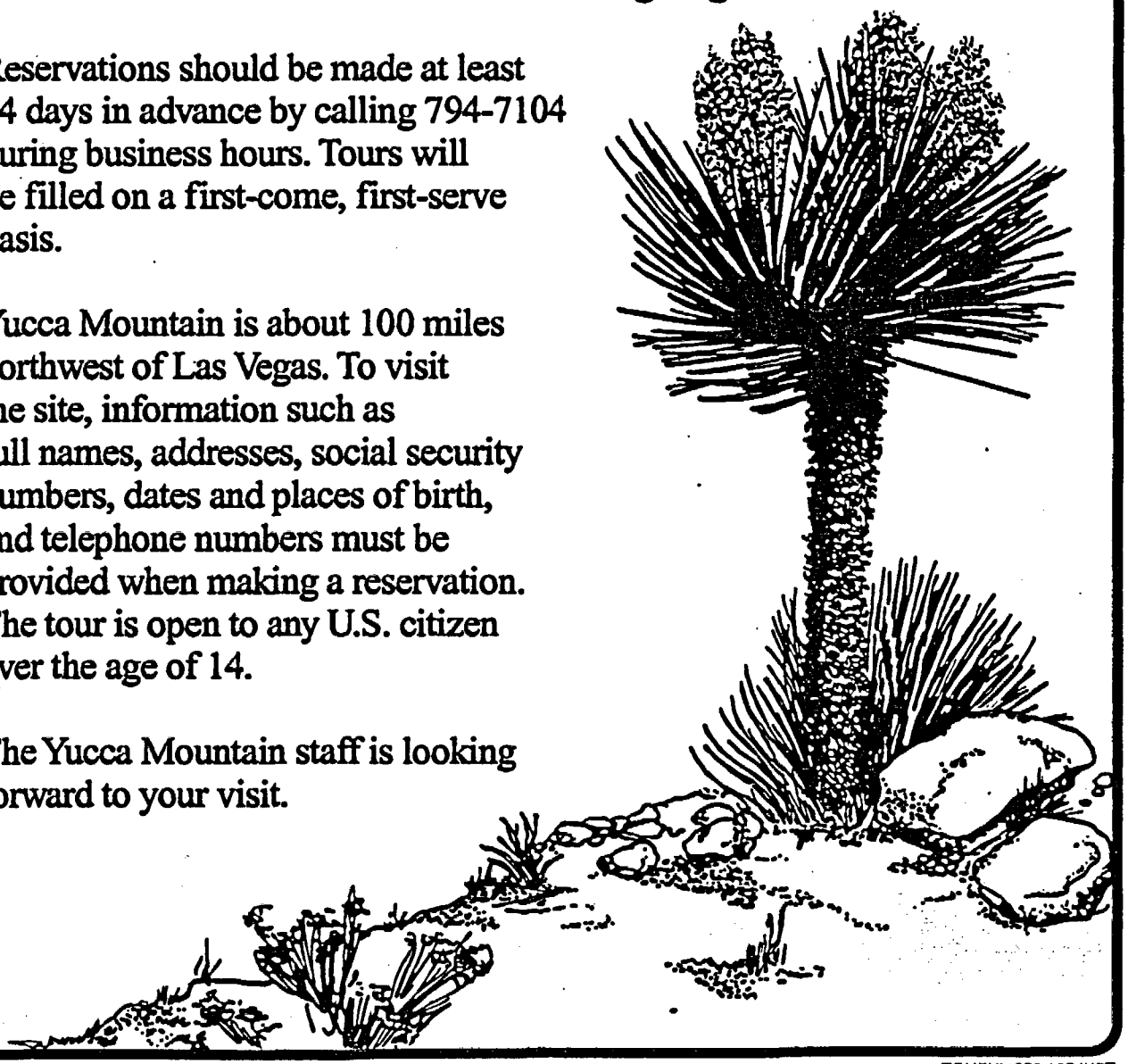
Saturday, March 27; Saturday, April 24; Wednesday, May 19; Saturday, June 19; Saturday, July 24; Saturday, August 21; and Saturday, September 25, 1993
7:30 a.m. - 4:30 p.m.

The U.S. Department of Energy's Yucca Mountain Project invites you to tour the Yucca Mountain area and talk to scientists and staff members about ongoing studies.

Reservations should be made at least 14 days in advance by calling 794-7104 during business hours. Tours will be filled on a first-come, first-serve basis.

Yucca Mountain is about 100 miles northwest of Las Vegas. To visit the site, information such as full names, addresses, social security numbers, dates and places of birth, and telephone numbers must be provided when making a reservation. The tour is open to any U.S. citizen over the age of 14.

The Yucca Mountain staff is looking forward to your visit.



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RECENT POLLS

Shift seen in nuclear dump attitudes

☐ Two polls indicate the residents of Nevada are becoming resigned to the Yucca Mountain dump site.

By Shaun McKinnon
Review-Journal

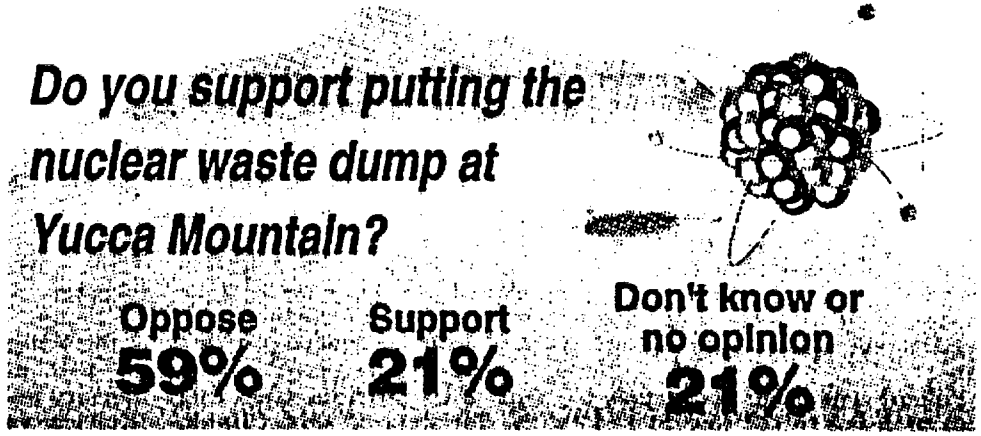
Most Nevadans still oppose plans to build a nuclear waste repository at Yucca Mountain, but they are convinced the dump will be built and are ready to make a deal with the federal government, according to two polls released this week.

Nearly three-fifths — 59 percent — of state residents surveyed in November by UNLV and UNR said they are against the Energy Department's proposal to bury 77,000 tons of high-level nuclear waste 100 miles northwest of Las Vegas.

Even so, in a separate poll conducted last week and paid for by the nuclear power industry, 73 percent said they believe construction of the repository at Yucca Mountain is inevitable, and 83 percent said state officials should begin negotiations with the government for cash or other benefits as compensation.

The two telephone polls appear to reflect a shift in public opinion about the repository — opposition in recent years has consistently topped 70 per-

Please see POLL/3A



Source: UNLV's Center for Survey Research
UNR's Bible Center for Applied Research

Mike Johnson / Review-Journal

Poll

From 1A

cent in some surveys — but the pollsters said the attitude changes are rooted in what people see as political and economic realities.

"I don't think it signals support for nuclear waste, but a wearing-down effect of time," said Donald Carns, a chief pollster at the UNLV Center for Survey Research. "I think there's a view that we're going to swallow it anyway, so let's cut a deal."

Douglas Schoen, a partner in the New York polling firm of Penn + Schoen Associates Inc., said what stuck out in his survey, paid for by the American Nuclear Energy Council, was the high level of support for opening talks with the government for a benefits package.

"In the face of tough financial times, people are strongly disposed to at least hearing what the federal government has to say," Schoen said in a telephone interview. "They believe the state can negotiate for benefits without making a final decision."

Repository opponents quickly attempted to discredit Schoen's poll, taken last week and released Thursday in Las Vegas.

"This proves the age-old theory that you can develop statistics to prove any point," Gov. Bob Miller said. "Look at the way it's phrased — Should we get money or not?

"Who's going to say we shouldn't get money? It doesn't explain the downside of taking the money," Miller said.

Jim Mulhall, a spokesman for Sen. Richard Bryan, said Schoen's poll results "mirror exactly what they want in the boardrooms of the nuclear power industry all over the country. They got the poll they paid for."

But Kent Oram, a Las Vegas advertising executive hired by the nuclear power industry to help sell the repository in Nevada, said the Penn + Shoen poll more accurately gauges public opinion than the more-often asked question of whether people favor building the dump.

"That is a meaningless question," he said. "It would be silly to say whether you favor the repository until the science is done."

He said his survey shows people realize site characterization studies are proceeding at Yucca Mountain, and "now we have to negotiate for benefits. We have a window, but the time to go is very quickly. There are a lot of people in Congress who would give us some help, but they can't invent it. We have to be specific."

The industry poll asked Nevadans specifically what benefits they would seek, offering as examples cash, help with water supplies and federal aid for education or infrastructure. Of 579 people who answered the question, 31 percent said they would ask for water, 25 percent wanted money and 15 percent would seek federal aid in specific areas such as infrastructure.

Support for accepting benefits was reflected in several questions. One asked, "Do you think the governor of Nevada should or should not begin discussions about finding out what benefits might be available to Nevada during the term of the study of Yucca Mountain as a possible site for the nuclear waste repository?" Of those who answered, 83 percent said Miller should begin talks and 15 percent said he should not.

The Penn + Schoen pollsters surveyed 756 registered voters from around the state and has a margin of error of 3.6 percentage points. The University of Nevada, Las Vegas-University of Nevada, Reno poll included responses from 1,252 Nevadans and has a margin of error of 4 points.

Should the governor negotiate for benefits for the nuclear waste repository at Yucca Mountain?

Begin Discussions	Don't Discuss	Don't Know
83%	15%	2%

Do you believe the state can stop the Yucca Mountain repository study?

Can Stop	Cannot Stop	Don't Know
38%	53%	9%

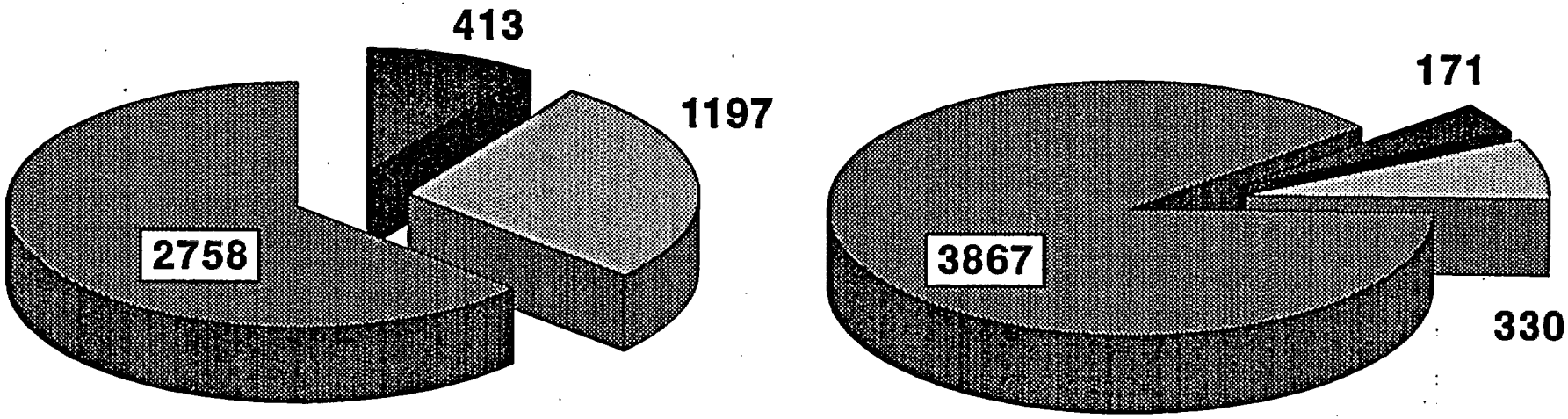
How certain are you that the nuclear waste repository will be built in Nevada?

Certain	Not Certain	Don't Know
77%	22%	4%

Source: Penn+Schoen Associates Inc. for the American Nuclear Energy Council

Mike Johnson / Review-Journal

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



As of 2/20/93

63%	Completely or somewhat in favor of the study
27%	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.CPG/2-26-93

TPO MEETING

PRESENTED BY

VINCENT F. IORII

MARCH 10, 1993

Enclosure 6

CURRENT ALLOCATION OF FY93 NEW BA

1.2.1	Systems Engineering	5.9
1.2.2	Waste Package	8.3
1.2.3	Site Investigations	50.0
1.2.4	Repository	4.5
1.2.5	Regulatory	24.5
1.2.6	Exploratory Studies Facility	49.0
1.2.7	Test Facilities	13.6
1.2.8	Reserved	0.0
1.2.9	Project Management	17.4
1.2.10	Financial Assistance	17.6
1.2.11	Quality Assurance	10.0
1.2.12	Information Management	11.0
1.2.13	Environment, Safety & Health	12.4
1.2.14	Institutional	3.5
1.2.15	Support Services	17.0
		244.7

3/9/93

FY 1993 PRIORITIES

- Construct ESF 200 ft underground
- Continue surface-based investigations including those supporting ESF design
- Start Advanced Conceptual Design for Waste Package
- Start Advanced Conceptual Design for Repository
- Focus site investigations on issue closure for erosion and seismic hazards
- Continue data collection and analysis supporting Total System Performance Assessment (TSPA)

FY 1993 PRIORITIES
(CONTINUED)

- Maintain sound environmental programs supporting field activities
- Assure continued implementation of QA program through audits and surveillances
- Conduct institutional and outreach activities
- Continue interactions with oversight and regulatory groups
- Continue focus on cost consciousness and PACS implementation

FY93 PLANNED ACTIVITIES FOR 1.2.1 SYSTEMS ENGINEERING ($5.9M)

- Develop specialty engineering plan in support of the ESF design and Advanced Conceptual Designs
- Develop, review, and issue Mined Geologic Disposal System (MGDS)-program element interface specifications: MGDS-Monitored Retrievable Storage, MGDS-Transportation, MGDS-Waste Acceptance
- Perform and review special studies and trade off analyses for ESF and Repository/Engineered Barrier System (EBS) Design activities
- Support new technical document hierarchy documents for both program and project

FY93 PLANNED ACTIVITIES FOR 1.2.2 WASTE PACKAGE ($8.3M)

- Start Waste Package Advance Conceptual Design
  - Mechanical, thermal, shielding, criticality calculations
  - Develop concepts to include operability and cost studies
  - Conduct analyses of thermal loading options
- Issue revised Waste Package Plan and Waste Package Implementation Plan
- Start laboratory large block tests
- Develop plans for testing in ESF
- Continue degradation mode survey and initiate iron based material testing of metal barriers

FY93 PLANNED ACTIVITIES FOR 1.2.3 SITE INVESTIGATIONS ($50.0M)

- Complete UZ-16 borehole, install instrumentation and begin testing
- Complete drilling/continue data collection to support study of shallow Unsaturated Zone (UZ) infiltration (neutron boreholes)
- Start UZ-14 borehole drilling
- Complete boreholes NRG -2 through NRG-6 and SRG-5; provide ESF ramp design data
- Complete/revise prerequisite study plans and job packages for ESF tests in starter tunnel
- Complete trenching program in Midway Valley; complete most of trenching program for Quaternary faults in the site area
- Carry out C-well pump test
- Continue collection of data (hydrologic, meteorologic, geochemical, seismic) that would otherwise be lost

FY93 PLANNED ACTIVITIES FOR 1.2.4 REPOSITORY ($4.5M)

- Complete engineering plan for repository ACD
- Revise study plans for ESF testing
- Continue ESF design analysis
- Continue laboratory rock mechanics tests
- Complete preliminary drawings of shafts/ramps and repository layouts, and selected surface facilities
- Initiate conceptual drawings of waste emplacement equipment
- Update Borehole Sealing Requirements Documents

FY93 PLANNED ACTIVITIES FOR 1.2.5 REGULATORY ($24.5M)

- Prepare and issue documents
  - Topical report on erosion
  - Working paper on Calcite-Silica
  - Topical report on seismic hazard methods
- Issue revised License Application Annotate Outline
- Revise YMP Regulatory Compliance Plan
- Support revision or issuance of ESF and SBT study plans
- Support monthly interactions with NRC/NWTRB/ACNW
- Problem Definition for Total System Performance Assessment (TSPA II)
- Specify next generation of EBS model

FY93 PLANNED ACTIVITIES FOR 1.2.6 EXPLORATORY STUDIES FACILITY ($49.0M)

- Continue ESF Title II Design, including Packages 1B and 2
- Start ESF site preparation
- Issue TBM RFP
- Receive proposals, and award contract for first large TBM and support equipment
- Start temporary power supply upgrade procurement for ESF
- Award subcontract for underground construction
- Complete design of north ramp and selected north access surface facilities
- Construct first 200' of north portal and ramp

FY93 PLANNED ACTIVITIES FOR 1.2.7 TEST FACILITIES ($13.6M)

- Begin design of the Central Area Complex (J13)
- Improve fire protection in the site office
- Mobilize surplus facilities from Tonopah Test Range
- Develop a conceptual design for Area 25 infrastructure improvements
- Maintain support to field site characterization activities

FY93 PLANNED ACTIVITIES FOR 1.2.9 PROGRAM MANAGEMENT ($17.4M)

- Maintain, integrate cost/schedule baseline
- Support management process for YMP
- Implement cost effective procedures and techniques
- Emphasize cost/schedule analysis
- Continue efforts to streamline plans and procedures and eliminate duplication
- Develop standardized Change Control Board procedures for the project
- Conduct compliance reviews for procurement, safety & health, and other appropriate functional areas
- Perform financial/schedule analysis

FY93 PLANNED ACTIVITIES FOR 1.2.10 FINANCIAL ASSISTANCE ($17.6M)

- Make direct payments to State of Nevada $5.0M
- Make direct payments to affected counties $6.0M
- Fund cooperative agreements with universities $3.7M
- Payments-Equal-To-Taxes $2.9M

FY93 PLANNED ACTIVITIES FOR 1.2.11 QUALITY ASSURANCE ($10.0M)

- Establish a consolidated Quality Suppliers List
- Provide required Quality Assurance (QA) support to all design and construction efforts for the Exploratory Studies Facility and for all drilling and field activities
- Maintain the approved QA program and implement the revised QA Requirements and Description Document (QARD)
- Perform procurement document reviews
- Conduct QA verification activities through audits and surveillances for YMPO and YMP participants

FY93 PLANNED ACTIVITIES FOR 1.2.12 INFORMATION MANAGEMENT ($11.0M)

- Accomplish VAXcluster hardware upgrades
- Provide records management system support for Project Office, site and eight participants
- Operate the Project document control and site document and records centers
- Provide Project-wide software development and maintenance
- Operate and maintain the Project computer center (VAXcluster)
- Support InfoSTREAMS implementation

FY93 PLANNED ACTIVITIES FOR 1.2.13 ENVIRONMENT, SAFETY & HEALTH ($12.4M)

- Continue pre-activity surveys at the FY92 level with emphasis on ESF, including the seismic line
- Continue environmental monitoring programs
- Continue environmental permitting and compliance activities
- Continue environmental audits and surveillances

FY93 PLANNED ACTIVITIES FOR 1.2.13 ENVIRONMENT, SAFETY & HEALTH

(CONTINUED)

- Implement the DOE Radiation Control Manual requirements
- Continue interactions with Native Americans
- Continue the socioeconomic and regional studies program
- Continue compliance review of S&H requirements

FY93 PLANNED ACTIVITIES FOR 1.2.14 INSTITUTIONAL ($3.5M)

- Support YMPO interactions with the State of Nevada, public interest groups, the Nevada business community, and local government agencies
- Continue operation of information offices in Las Vegas, Beatty, and Pahrump
- Continue outreach programs including speakers bureau, tours and exhibit programs
- Educational programs will continue to be developed and implemented
- Support DOE/YMP media relations
- Develop and update various publications, technical papers, audio-visuals, and exhibits

FY93 PLANNED ACTIVITIES FOR 1.2.15 SUPPORT SERVICES ($17.0M)

- Continue logistical support
  - Rent on office space in Las Vegas and public information office
  - Maintain motor pool
  - Maintain telecommunications system
  - Continue graphics and presentation support
  - Continue clerical support to YMP
- Continue Training
  - YMP orientation
  - General employee training
  - Instructor qualification
  - QA requirements
  - Participant support
  - Site visitor safety orientation

Yucca Mountain Site Characterization Project Office

Fiscal Year (FY) 1994
Budget Allocations

1.2.1	Systems Engineering
1.2.2	Waste Package
1.2.3	Site Investigations
1.2.4	Repository
1.2.5	Regulatory
1.2.6	Exploratory Studies Facility
1.2.7	Test Facilities
1.2.9	Project Management
1.2.10	Financial Assistance
1.2.11	Quality Assurance
1.2.12	Information Management
1.2.13	Environment, Safety & Health
1.2.14	Institutional
1.2.15	Support Services
Total	~~$246,464~~ 244.7

3/9/93

FY 1994 PRIORITIES

- ESF tunnelling/construction
- Site disqualifier/suitability investigations
- Issue closure
- Start ESF mapping/testing
- Collection of otherwise irretrievable data

YUCCA MOUNTAIN
SITE CHARACTERIZATION PROJECT
MAJOR FY1994 PLANNED WORK

1.2.1 Systems Engineering

Initiate repository HLW emplacement study and MGDS throughput study

Continue MGDS thermal loading study

Revise repository design requirements as impacted by ongoing system studies and updates to Advanced Conceptual Design and requirements

1.2.2 Waste Package

Initiate long term testing of one material

Continue small block test

Continue modeling and waste form testing

Continue Waste Package ACD

MAJOR FY1994 PLANNED WORK
(CONTINUED)

1.2.3 Site Investigations

Support evaluation of site suitability (disqualifying conditions only)

Using existing LM-300 drill rig, continue UZ drilling program

Support ESF design and testing

Continue collection of data (hydrologic, meteorologic, geochemical, seismic) that would otherwise be lost

MAJOR FY1994 PLANNED WORK
(CONTINUED)

1.2.4 Repository

- Continue repository ACD activities
- Complete selected engineering studies to choose design concepts
- Interface ESF
- Transporter
- Sealing (borehole & operation)

MAJOR FY1994 PLANNED WORK
(CONTINUED)

1.2.5 Regulatory

Prepare and issue documents

- Topical reports on volcanism, groundwater travel time, substantially complete containment, calcite-silica
- Site Characterization Progress Reports 9, 10

Maintain interaction with NRC, NWTRB, etc.

Issue revised License Application Annotated Outline

Continue post closure performance analyses of Waste Package and repository ACD

Continue analyses of impacts of site characterization

Maintain technical data base

MAJOR FY1994 PLANNED WORK
(CONTINUED)

1.2.6 Exploratory Studies Facility

ESF construction

- Excavate north ramp (~1981 meters)
- Start excavating Topopah Spring Level (TSL) main drift (~670 meters)
- Upgrade 69KV electrical distribution system
- Construct portal/change house building
- North portal utilities

ESF Title II and Title III Design

- Complete TSL main test area, and TSL main drifting
- Title III

MAJOR FY1994 PLANNED WORK
(CONTINUED)

1.2.7 Test Facilities

Operations and maintenance of Field Operations Center, support buildings, roads and utilities

Provide administrative and direct support activities

Nevada Test Site allocation

1.2.9 Project Management

Manage participants and technical activities

Perform participant and YMP project control

Support project change control

MAJOR FY1994 PLANNED WORK
(CONTINUED)

1.2.12 Information Management

Maintain records management system support

Maintain IRM project support

FINANCIAL & TECHNICAL ASSISTANCE BREAKDOWN

State	5,000
Counties	
Churchill	111
Clark	2,227
Esmeralda	188
Eureka	149
Lincoln	475
Inyo	290
Landor	111
Mineral	111
Nye	2,227
White Pine	111
	6,000
Universities	
UNLV	2,325
DRI	800
UNR	1,325
	4,450
PETT	2,150
	17,600

3/9/93

BACK UP

COUNTY FINANCIAL ASSISTANCE REQUIREMENTS

- Oversee DOE Repository activities
- Conduct Independent Assessment of the potential effects of the Repository
- Prepare recommendations to the Secretary of Energy
- Prepare and submit documentation to support
  - Claims for mitigation and/or
  - Compensation of Potential Impacts
- In addition Nye County is entitled to on-site representation

DOE INTERACTIONS

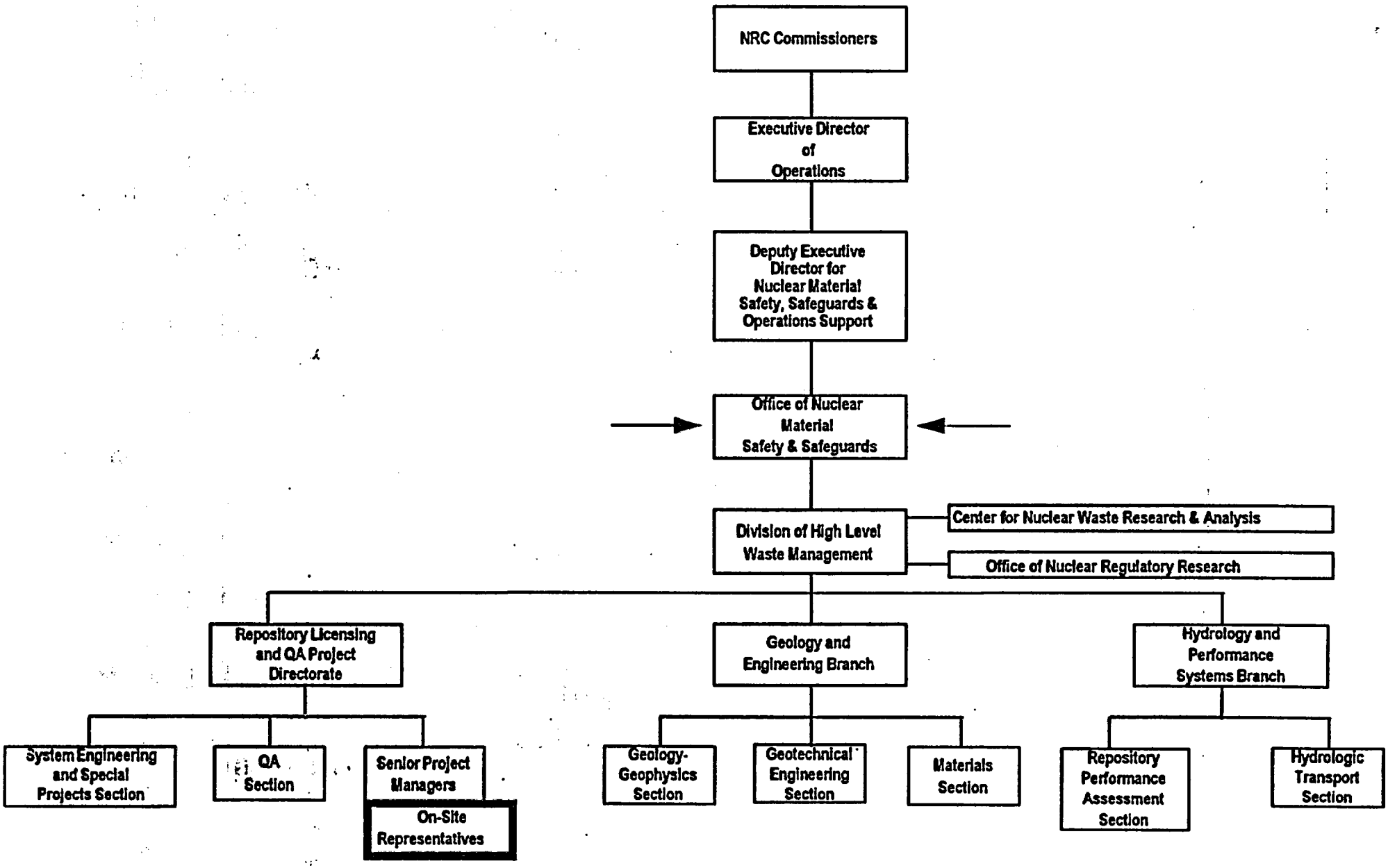
PRESENTED BY

SUSAN B. JONES

REGULATORY INTERACTIONS BRANCH CHIEF

Enclosure 7

The NRC Office of Nuclear Material Safety and Safeguards is the NRC organization that we interact with for MGDS



The protocol for interacting with the NRC is the "Procedural Agreement"

- Agreement in place since 1983 when it was originally called the Morgan-Davis Agreement
- Describes process and responsibilities for DOE to interact with the NRC
- Describes the responsibilities of NRC, RW-30, and YMPO
- Appendix 7 of Procedural Agreement specifically describes interactions with the NRC OR
- Agreement currently being revised

YMPO AP-7.1, "Yucca Mountain Project Interactions with the U.S. Nuclear Regulatory Commission":

- Describes process and responsibilities for YMPO and participants when interacting with the NRC
- Interactions not addressed by this AP are conducted per Procedural Agreement

Interactions with NRC Staff

- Formal transmittal of technical information to the NRC staff shall be through DOE HQ Office of Systems and Compliance via YMPO/Regulatory Interactions Branch
- Formal communications (e.g., telephone conferences for setting meeting agendas) with the NRC staff shall be through DOE HQ Office of Systems and Compliance
- THERE ARE NO INFORMAL TRANSMITTALS OF WRITTEN INFORMATION TO NRC STAFF

Interactions with NRC Staff

- Points of contact for informal, technical communications (e.g., telephone calls) between individual YMPO and NRC staff

AREA	YMPO Staff
QA	Director, QA
Performance Assessment	Chief, Technical Analysis Branch
Waste Package &Repository Engineering	Chief, Field Engineering Branch
ESF Design & Construction	Chief, ESF Branch
Site Characterization Testing	Chief, Site Investigation Branch
Regulatory or topics not covered above	Chief, Regulatory Interactions Branch (RIB)

Interactions with NRC On-site Representative (OR)

- Primary contacts for communications with OR are the YMPO RIB Chief, staff, or M&O Regulatory & Licensing (RL) representative
- Responsibilities of the OR
  - To serve as a point of contact for informational exchange and consultation
  - To preliminarily identify concerns about investigations related to potential licensing issues
- ORs are allowed access to
  - All Project personnel
  - Approved Project records
  - Site facilities
  - Research facilities
  - Contractor and subcontractor office and work areas

Interactions with NRC OR

- Local Points of Contact for
  - Consultation
  - Concerns
  - Communication

- ORs: Phillip Justus (Geosciences)
  John Gilray (Engineering/QA)

- Location : 301 E. Steward Avenue, Suite 203
  Las Vegas, NV 89101

- Phone: (702) 388-6125

Interactions with NRC
Summary

- Informal technical communications between YMPO and NRC staff and ORs - Always use appropriate contacts
- Formal transmittal of information to NRC - Always via YMPO Regulatory Interaction Branch (RIB)
- Formal communications with NRC staff - Always conducted through DOE HQ via RIB
- Items (document, etc.) given to ORs - Always obtain prior approval from YMPO RIB
- Concerns raised by ORs - Always forward to YMPO RIB
- Anything you discuss with NRC staff and ORs is never off-the-record

Interactions with NRC
Summary

- When in doubt, contact YMPO RIB
  - Susan Jones, Branch Chief (4-7613)
  - Thomas Bjerstedt (4-7590)
  - Jeanne Cooper (4-7930)
  - Richard Crawley (4-7585)
  - April Gil (4-7622)
- ALWAYS BE HONEST IN COMMUNICATING WITH NRC