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June 11, 1984

WM DOCKET CONTROL
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'84 JUN 15 A11:09

Memorandum for: ~~Robert E. Browning~~, Director
Division of Waste Management

From: Paul T. Prestholt, Sr. OLR - NNWSI

Subject: NNWSI Site Report for weeks of May 28, and June 4, 1984

1. The TPO - Project Management (NNWSI) meeting for the month of May was held on May 30 and 31. I attended both days. A copy of the agenda was sent with the last weekly report. The following items discussed are of interest:

- a. Ben Rusche has taken up his duties at DOE Hq. Don Vieth expects that the most immediate impact to the projects will be on budgets. Dr. Vieth expects that Rusche will be tough on future budgets and that every dollar will have to be justified.
- b. The TPO's are still uncertain as to what data reviews will accomplish and how to conduct them. Each data review (Sandia, USGS) will have to be handled separately and the NRC project will have to inform each DOE participant what is wanted and the approach NRC wants to take. The TPO's understand how the "data review" idea works when held in conjunction with a workshop. They don't understand what will be gained if the data review is in place of a workshop.
- c. Max Blanchard gave a presentation on the production of the NNWSI EA up to the draft that is due at DOE Hq on June 1. This presentation included the strategy of the Technical Overview team for future review. A copy is attached. Blanchard also discussed the cost to individuals and to the NNWSI program of producing a good draft by the June 1, deadline set by DOE Hq. Of importance to the NRC is the continuing delay in the NRC technical staff's ability to review the NNWSI project prior to the EA review.

It should be pointed out that the NNWSI project is the only project that met the June 1, deadline. This includes DOE Hq which is responsible for chapters 1 and 7.

- d. Also discussed was the NNWSI reaction to the IDCFR60 Unsaturated Zone Amended Performance Objectives. Copies of the SAI and Weston positions are enclosed.
2. On June 8, I attended an introductory (NRC OLR to LLNL) meeting at Lawrence Livermore National Lab. As with Sandia and Los Alamos, the meeting was most satisfactory from my viewpoint. The agenda for the meeting is attached.

The morning session consisted of a group of brief presentations by lead LLNL personnel on the various investigations being performed by LLNL for the NNWSI. As with the other Labs, the LLNL investigators are interested in the work they are doing for the NNWSI and feel that they are doing excellent work that is important to the nuclear waste storage problem.

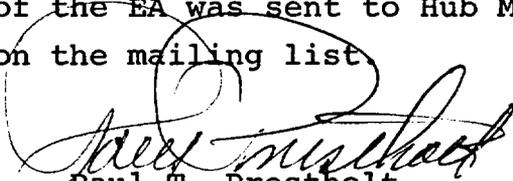
After lunch, we toured the various laboratories and were introduced to the men and women who actually do the work. Very, very impressive.

Items of particular interest:

- a. The presentation of the EQ3/6 code by Dana Isherwood. A copy of the modeling task plan (UCID-20069) is enclosed.
- b. The organization of the lab and the NNWSI project. A copy of the organization chart is enclosed.
- c. A group of documents that were given to me that may not have been sent to Washington, cover pages, are enclosed. I'll send copies of any needed.

Memorandum: Weekly port
June 11, 1984
Page 3

3. A copy of the June 1, draft of the EA was sent to Hub Miller on June 7. The NRC is back on the mailing list.



Paul T. Prestholt
Sr. OLR - NNWSI

enc.



Department of Energy

Nevada Operations Office
P. O. Box 14100
Las Vegas, NV 89114-4100

JUN 05 1984

J. William Bennett, Acting Assoc. Dir., Office of Geologic Repository
Deployment, DOE/HQ (RW-20), GTN

NNWSI WEEKLY HIGHLIGHTS FOR WEEK ENDING JUNE 1, 1984

I. Issues Requiring Involvement of HQ or other Projects

A. New Issues:

None to report.

B. Previously Reported Issues:

<u>Issue</u>	<u>Status</u>	<u>First Report Date</u>
1. A Bureau of Indian Affairs memo regarding Indians having Federal treaty rights was requested from Barry Gale previously. The Moapa Indians claim they are an affected tribe in Nevada and we want a copy of that memo in order to deal with that claim.	No response. Would like copy of BIA memo as soon as possible.	May 25, 1984
2. USGS informal proposal to DOE/HQ re: alternate means of getting slots for OCRWM/NNWSI support. NNWSI would like details.	No response from HQ.	May 5, 1984
3. Davis-Lawrence meeting on April 24 re: NRC/DOE agreement; NNWSI would like details.	No response from HQ.	May 5, 1984
4. Formal action needed to form RCG ad hoc committee to develop uniform statements on economics, safety, and technology with regard to horizontal vs. vertical emplacement and retrievability.	No response. Awaiting formal guidance from HQ (Virgil Lowry) on how to take action on this.	May 5, 1984

JUN 05 1984

II. Major Internal Concerns

None to report.

III. Significant Accomplishments (SA)/Information Items (II)

SA

Chapters 2-6 of the NNWSI Project Draft Environmental Assessment document were delivered to HQ on schedule, June 1.

II

The NNWSI Project public information meeting was held at the Beatty, Nevada community center on Tuesday, May 29. The presentations were given by Don Vieth and the technical Project officers. The meeting was informal and the Beatty citizens responded well to the information, asking questions about issues that concern them and questions to clarify their understanding about NNWSI Project tasks. Overall, the meeting was considered to be successful and informative.

The Las Vegas Sun created an issue out of receipt of foreign waste at a U.S. HLW repository. Don Vieth met with the Associated Press in Washington, D.C. to clarify the issue as published in the Sun.

The Nevada Legislative Commission's Subcommittee to Study Disposal of High Level Nuclear Waste in Nevada and Don Vieth met with Ben Rusche on June 1 in Washington.

IV. Upcoming Events

1. Coordination Group Meetings

None to report.

2. HQ Meetings

- o Monday, June 4: Program-wide WBS meeting in Denver.
- o Thursday, June 7: Program Manager's Meeting, Washington, D.C.

3. Internal Project and DOE/NV Meetings

- o Tuesday-Wednesday, June 5-6: NNWSI Project QA Workshop.
- o Monday, June 11: Don Vieth to make presentation at USGS Quarterly Coordination Meeting at GTN.
- o Wednesday-Thursday, June 13-14: ESTP Committee Meeting, Las Vegas.

JUN 05 1984

- o Thursday, June 21: WMPO/SAI Monthly Status Review Meeting.
- o Monday-Tuesday, June 26-27: Project Manager-Technical Project Officers meeting, Las Vegas.

4. State and Public Interaction

- o Wednesday, June 6: D. L. Vieth to make presentation to ANS Conference in New Orleans entitled, "Nevada: A Citizen's Look at the Back Yard."
- o Wednesday, June 6: M. P. Kunich to give briefing to the North Las Vegas City Council at their request.
- o Wednesday, June 20: NV Legislative Commission Subcommittee to Study Disposal of High-Level Nuclear Waste in Nevada public hearing.
- o Wednesday, June 27: North Las Vegas City Council tour of NTS Waste Management Facilities.
- o Thursday-Friday, June 28-29: D. L. Vieth presentation to National Research Council, Seattle.

WMPO:DLV-882


Donald L. Vieth, Director
Waste Management Project Office

NAME	ORGANIZATION	PHONE
MICHAEL REVERE	LLNL	FTS 532-1982
Bill Sheal	"	532-8369
Virginia OVERBY	"	543-2228
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Mary Juhas	LLNL	533-1254
Daniel McEright	LL	FTS 532-7051
WES PATRICK	LLNL	FTS 532-14195
JACK V. SMITH	SAI	702/295-1203
John J. DRONKERS	LLNL	FTS 532-1414
JOHN J. TRUHAN	LLNL	FTS 532-6925
HASKELL WEISS	LLNL	FTS 532-6268
Bob Glass	LLNL	FTS 533-7140
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Linda Ransen	WDL	532-6054
Maria Sherwood	LLNL	FTS 532-6496
LYN BALLOU	LLNL	532-4911
SYMANSKI	DOE	515-1503
Paul Prestholt	NRC	598-6125
Don Emerson	LLNL	532-6504

Voegele



L84-MDV-277

May 17, 1984

Dr. Donald Vieth, Director
Waste Management Project Office
Nevada Operations Office
U.S. Department of Energy
Post Office Box 14100
Las Vegas, NV 89114

Subject: 10 CFR 60 Unsaturated Zone Amendment Performance Objectives -
NNWSI Project Version

Dear Dr. Vieth:

Transmitted with this letter is a draft attachment, to support M. Lawrence's letter to NRC, summarizing possible performance objectives for an unsaturated zone repository. The format of the attachment is based upon and incorporates the Weston attachment. Additionally, the attachment incorporates concepts which you discussed with M.D. Voegele on May 15.

The enclosed attachment does not mention the fact that all arguments presented in the attachment are equally applicable to the saturated zone. Apparently, HQ-EP wants to limit the discussion to only the unsaturated zone, judging from the paragraphs they removed from the UZ Amendment letter which was sent to NRC.

Any questions should be directed to M.D. Voegele.

Sincerely,

SCIENCE APPLICATIONS, INC.

M.D. Voegele for

Michael E. Spaeth
Project Manager

MES:MDV:em

Enclosure:
As stated

cc: M. Blanchard, DOE/WMPD
M. Voegele, SAI/LV
D. Siefken, Weston
Project File 5.1.1.3
Record Center

Attachment

Unsaturated Zone Performance Objectives

① do TPO's
the TPO

The consensus position of the NNWSI Project technical staff is that ground-water travel time does not represent an appropriate measure to assess the capability of a site to isolate and contain radionuclides. An appropriate and direct assessment of potential cumulative radionuclide releases to the accessible environment depends upon the flux of ground water, which is a measure of both velocity and mass of water moving. Calculations of compliance with the EPA standard based upon ground-water travel time yield no information on the amount of radionuclides reaching the accessible environment. Calculations of compliance with the EPA standard must consider both mass transport and water velocity (i.e., flux) to determine cumulative releases of radionuclides at the accessible environment.

Evidence that the amount of radionuclides reaching the accessible environment is not sensitive to the ground-water travel time can be found in NUREG-0804. Figures 15 through 18 illustrate, for different media, the results of a numerical study of compliance with the EPA standard. The plots illustrate contours of the fraction of cases failing to comply with the EPA standard as a function of release rate from an underground facility and ground-water travel time. The conclusion that can be drawn from these figures is that ground-water travel time is not a significant factor in determining compliance with the EPA standard. Failure to comply with the standard is, however, seen to be sensitive to the release rate. Although none of the cases presented in NUREG-0804 directly address disposal in an unsaturated zone, the similarity of physical processes leads to the conclusion that compliance with the EPA standard in the unsaturated zone would have a similar insensitivity of the impact on health and safety to ground-water travel time. Consequently, a performance objective which considers physical phenomena which limit the release rate from an underground facility is a more logical choice than a performance objective which considers only travel time.

10 CFR 60.113(a)(2) promulgates a performance objective which states that the fastest likely path of radionuclide travel to the accessible environment shall be at least 1000 years, or such other travel time as may be approved or specified by the commission. The NNWSI Project understands, based upon interactions with the NRC technical staff, that satisfying this objective is meant to provide independent and redundant protection of health and safety during that period of time when wastes are most hazardous (46 FR 130 p35281).

The emplacement of radioactive wastes within the unsaturated zone leads to a situation where the heat generated by the wastes as they decay causes the moisture in the rock surrounding the waste canisters to migrate away from the canisters. This migration creates a zone around the canisters, extending for tens to hundreds of meters, in which there is no water available to either corrode the canisters or transport any radioactive material. This unique phenomenon provides the basis for two approaches to developing an alternate performance objective for the unsaturated zone. The first approach is based upon travel time and is logically similar to the site performance objective presently incorporated in 10 CFR 60. The second approach is different than the approach presently incorporated in 10 CFR 60; it is based upon the physical processes involved in transporting radioactive material in moving ground water.

An unsaturated zone performance objective based upon travel time must logically consider all components of the time required to transport radioactive material to the accessible environment. The total time of travel includes those times required for radionuclides to move through unsaturated as well as saturated media. The total travel time must also include the time of existence of the drying zone as well as the time following the heat pulse for the rock to return to nearly initial moisture conditions. The event sequence thus consists of two segments of time during which there is no water available to transport the waste followed by segments during which the radionuclides must travel in succession through unsaturated media and saturated media. The drying phase for a saturated zone is expected to last several hundred years before resaturation is complete (NUREG-0804). In an unsaturated zone the time required to return to initial moisture conditions is expected to be even longer because the rock will return to initial conditions only through capillary effects. It is not inconceivable that the time for drying added to the time for return to initial

moisture conditions could encompass the total 1000 year period required for fission products to decay to insignificant levels. When all four time-components are added together significantly higher confidence in protection of public health and safety is obtained than if only the times when radionuclides are actually moving is considered.

As noted previously, a performance objective for the unsaturated zone can also be developed in consideration of the physical processes which affect the transport of radionuclides. The groundwater flux must be considered when addressing the transport of radionuclides; there must be water present to physically move the radionuclides. Any phenomenon which acts to prevent water from contacting the waste packages thus provides an independent barrier to radionuclide movement. Furthermore, the prevention of water from contacting the waste package provides assurance that the potential waste package life will be realized. Either aspect of the effect of an initial dry zone surrounding the waste packages provides assurance that the waste packages will function as designed. This assurance is the purpose of the site performance objective -- to provide a redundant barrier equivalent in action to the waste package life. It has been noted that data in NUREG-0804 indicates that compliance with the EPA standard is sensitive to release rate. The dry zone created when wastes are emplaced in an unsaturated zone leads to an effective release rate of zero during the time of initial emplacement, heating, creation of the dry zone, and subsequent return to initial moisture conditions. Thus, calculations of site performance relative to cumulative release of radionuclides at the accessible environment and compliance with the EPA standard can be made with the assurance that the physical processes which take place during the time following waste emplacement do not allow radionuclides to be transported. The absence of water in the physical environment surrounding the emplaced wastes ensures that the waste package life and release rate performance objectives will be met. The absence of a medium to transport the radionuclides during the time following waste emplacement also provides confidence that public health and safety will be protected. Any calculations which address compliance with the EPA standard are based upon a physical situation wherein even if the canisters were to fail there is no mechanism to transport the radionuclides during most of the time when the fission decay products are most hazardous.

The first proposed performance objective could be incorporated in 10 CFR 60 by the addition of a sentence to par. 113(a)(2):

"For the unsaturated zone such travel time shall include the time of existence of the dry zone, the time required to return to initial moisture conditions, the time for water to travel through the unsaturated zone, and the time for water to travel through the saturated zone."

The second proposed performance objective could be incorporated in 10 CFR 60 by the addition of a section 113(a)(3):

"For a repository located in the unsaturated zone the geologic setting performance objective shall be satisfied by the presence of physical phenomena which provide redundant assurance that the waste package life and release rate performance objectives can be met."



2301 Research Blvd.
Suite 302
Rockville, Md 20850
Phone: (301) 963-6800

TELECOPIER TRANSMITTAL REQUEST

Date Sent 5/30/84

Total number of pages including cover sheet 8

Mike Voegele
TO: Person/Title

SAI / Las Vegas
Organization/Location

David Siefken
FROM: Person/Title

Weston / Rockville
Organization/Location

12:30
TIME: Started/Ended

Lynn Fogle
Sent by

(702) 295-1206
Telecopy number

(702) 295-1204
Verification number

Confirmation: (301) 963-6800

Date: _____ Time: _____

Comments:

FILE NO: 5.1.1.3

MAY 30 1984
KEYWORDS: 10 CFR 60
U2 Amendment
Performance Obj

Mike Voegelé
May 29, 1984

ADDITIONAL
COPY --
For Your
Information

Mr. Mark Frei
Acting Director
Engineering and Licensing Division
Office of Geologic Repository
Deployment
U.S. Department of Energy
RW-23 (GTN), Room J-413
Washington, DC 20545

SUBJECT: Proposed Performance Objective for 10 CFR Part 60

Dear Mr. Frei:

Enclosed please find the proposed performance objective for 10 CFR Part 60 and supporting rationale for sites located in the unsaturated zone. The attachments satisfy DOE's commitment in the comment letter to the NRC, dated April 17, 1984, to provide a proposed performance objective.

The enclosures are reasonably consistent with the letter from Mike Voegele, SAI, to Don Vieth, NNWSI, dated May 17, 1984, with the exception that WESTON has not included the second performance objective proposed by SAI. This was discussed with you at the meeting on Monday, May 21, 1984 in your office.

Please contact Hank Bermanis (301/963-6821) or myself (301/963-6817) if you have any questions concerning the enclosures.

Sincerely,

ROY F. WESTON, INC.

David L. Siefken, Coordination Manager
Office of Geologic Repository Deployment

Approval By:

Amir A. Metry, Ph.D., P.E.
Program Manager

Enclosures

2 P. 2 05/30/84 12:33

FROM WESTON INC 007

bcc: J. W. Bennett
R. Stein
J. Fiore
C. Newton
W. Hewitt
L. White
H. Bermanis
G. Beall

ENCLOSURE 1. RATIONALE FOR PROPOSED ALTERNATIVE
PERFORMANCE OBJECTIVE

As noted in the DOE comment letter to the NRC dated April 17, 1984, Dames & Moore concluded in NUREG/CR-3130 that the flux and the frequency of wetting events were the primary factors in determining releases from wastes disposed in the unsaturated zone. DOE also stated a belief that ground-water travel time does not represent an appropriate measure of performance for a site within the unsaturated zone and that the flux through the repository, both in the unsaturated and saturated zones, is a more appropriate and direct measure of potential cumulative releases to the accessible environment.

Accordingly, DOE has given considerable effort toward developing a proposed performance objective based on flux through a repository located in the unsaturated zone. Although this effort has reinforced the understanding that flux is the primary factor in determining releases from wastes disposed in the unsaturated zone, DOE has concluded that it is impractical to specify a minimum amount of flux or to otherwise define a performance objective based on the flux through the repository.

As a result, DOE reviewed the NRC rationale for the performance objective specifying a minimum 1000-year ground-water travel time from the disturbed zone to the accessible environment. DOE concludes, based on this review and interactions between NNWSI staff and the NRC staff, that satisfying this performance objective is meant to provide an independent and redundant barrier

to the engineered barrier system during that period of time when the wastes are most hazardous (46 FR 130, p. 35281).

DOE does not believe that the evidence presented in NUREG-0804, specifically Figures 15 through 18, provides definitive support that the minimum 1000-year ground-water travel time is significant in demonstrating compliance with the EPA standard (unless the ground-water travel approaches the 10,000 year period of interest). Rather, DOE interprets those figures to illustrate that, for different saturated media, the amount of radionuclides reaching the accessible environment is not sensitive to ground-water travel time until such travel time reaches several thousands of years, and that compliance with the EPA standard is instead sensitive to the release rate. Although none of the cases presented in NUREG-0804 directly address disposal in unsaturated media, DOE believes the similarity of physical processes leads to the conclusion that compliance with the EPA standard would have a similar insensitivity to ground-water travel time until the travel time approached the 10,000 year period of interest.

However, DOE believes that an independent and redundant barrier to the engineered barrier system during the period of time when the wastes are most hazardous is an appropriate basis for a performance objective for the geologic setting. DOE notes that, for sites located in the unsaturated zone, this same effect may be derived, either in whole or to a large extent, from the creation of a drying zone around the underground facility during the period of the heat pulse.

The emplacement of radioactive wastes within the unsaturated zone leads to a situation where the heat generated by the wastes as they decay causes the moisture in the rock surrounding the waste canisters to migrate away from the canisters. This migration creates a zone around the canisters, extending for tens to hundreds of meters, in which there is no water available to either corrode the canisters or transport any radioactive material. This unique phenomenon provides the basis for developing an alternate performance objective for the unsaturated zone which is based upon travel time and is logically similar to the site performance objective presently incorporated in 10 CFR 60.

An unsaturated zone performance objective based upon travel time must logically consider all components of the time required to transport radioactive material to the accessible environment. The total time of travel includes those times required for radionuclides to move through unsaturated as well as saturated media. The total travel time must also include the time of existence of the drying zone as well as the time following the heat pulse for the rock to return to nearly initial moisture conditions. The time sequence thus consists of two segments of time during which there is no water available to transport the waste followed by segments during which the radionuclides must travel in succession through unsaturated media and saturated media. The drying phase for a saturated zone is expected to last several hundred years before resaturation is complete (NUREG-0804). In an unsaturated zone, the time required to return to initial moisture conditions may be even longer because the rock will return to initial moisture conditions through capillary

effects. It is not inconceivable that the time for drying added to the time for return to initial moisture conditions could encompass the total 1000 year period required for fission products to decay to insignificant levels. When all four time components are added together, significantly higher confidence in protection of public health and safety is obtained than if only the time when radionuclides are actually moving are considered.

ENCLOSURE 2. PROPOSED ALTERNATIVE PERFORMANCE OBJECTIVE

DOE proposes that Section 60.113(a)(2) be revised to Section 60.113(a)(2)(i) and a Section 60.113 (a)(2)(ii) be added as follows:

For a geologic repository located in the unsaturated zone, the minimum 1000 year travel time to the accessible environment shall include the time of existence of the drying zone around the emplaced wastes, the time required for rewetting to initial moisture conditions, the time of travel through the unsaturated zone, and the time of travel through the saturated zone.

TECHNICAL OVERVIEW

TPO Meeting
5/30/84

MEMBERS - Blanchard
Foley
Spaeth
Twenhofel
Voegelé

STRATEGY - If 2 or more persons didn't understand a paragraph, then it was analyzed for clarity, relevance, logic to support conclusions

- METHOD -
- (1) Each person read every paragraph & made comments
 - (2) Team met & discussed each paragraph where a comment had been made. References were consulted when they were available.
 - (3) Changes occurred to:
 - Improve clarity
 - Identify inconsistencies between sections within a chapter & between chapters
 - Reconcile conflicting statements
 - Add topic sentences
 - Improve logic & flow within para so relevant data supports conclusion
 - Improve balance between sections
 - Establish consistent tone
 - Remove alarming & speculative words
 - Eliminate confusion between stratigraphic & geohydrologic terms
 - Check figures & tables

CATEGORIES OF CHANGES -

(1) editorial

(2) resolved confusion by rewriting sentence or changing data
(consulted references when available)

(3) flagged issue for technical editor to resolve;

A. better knowledge about topic

B. to contact original author

TECHNICAL EDITOR

MEMBERS: J. Younker

M. Brown

Chapter 6, 2, 3, 4

Chapter 5, 2, 3, 4

RESPONSIBILITIES:

- Assembled all sections from contributing authors & EA rewrite team
- Incorporate changes from
 - HQ
 - TPO
 - Technical Overview
- Compile marked up copy for typing
- Resolve technical comments:
 - (1) review original write ups
 - (2) discuss with author, TPO or reviewer
 - (3) incorporate or not incorporate comment
- Final reference check
- Assemble, reproduce & mail June 1st draft

CATEGORIES OF CHANGES:

- Pre-June 1st
- Post-June 1st

ITEMS NOT IN JUNE 1ST DRAFT

1. Remaining issues from Technical Overview & TPO review that couldn't be resolved in time
2. Comparisons with other projects where guideline called for one to be made
3. Mission Plan related items:
 - Laq storage
 - 2 Exploratory shafts
 - 5 year old waste
 - Burnup of 50,000 MWD/MTU LMA
33,000 MWD/MTU CHOR
 - Repository options & schedules
4. NRC approved version of 10CFR 960
5. Editing to improve clarity & flow for non-scientist/engineer



PLANS

1. Resolve remaining issues not in June 1st (TPD's provide letter to WMPO by June 8th that identifies any section by page # line where changes should be considered because of the following:
 - A. misquoted # or data
 - B. cited wrong information or reference
 - C. mistated an interpretation
 - D. drew wrong conclusion from relevant data

Effort begins June 4th. Estimate complete weeks

2. Incorporate 2nd Exploratory Shaft Concept into Chapter 4

Effort begins June 11th. Estimate complete 9 weeks

3. Determine a way to incorporate Mission Plan concepts into Chapters 3, 4, 5 & 6.

Effort begins June 4th. Estimate complete ?

WMPO letter # 856 estimates 30 weeks

4. Incorporate NRC approved version of 10CFR 91 into chapters 2 & 6

Effort begins June 18th. Estimate complete 4 weeks

RECOMMENDATIONS

1. NO MORE COMPREHENSIVE TECHNICAL REVIEWS OF ENTIRE EA, UNTIL FINAL EA VERSION IS EMINENT
2. TPO'S REVIEW ITEMS 1-4 AS ADDENDUMS WHEN THEY BECOME AVAILABLE
3. APPROVE JUNE 1ST DRAFT AS ADEQUATE FOR:
 - SUBMITAL TO HQ
 - INFO COPY TO STATE
 - OTHER OUTSIDE REVIEW (e.g. NRC)
4. MANAGEMENT APPROVAL* WILL OCCUR AFTER OUTSTANDING ITEMS HAVE BEEN INCORPORATED

* FOR RELEASE TO PUBLIC

NRC ONSITE VISIT
JUNE 8, 1984
T1478 FRANCISCAN ROOM

VISITORS:

Jerry Szymanski - WMPO/NVOD
Paul Prestholt - NRC
Mike Valentine - WMPO/NVOD

Jack Smith - SAI
Donald McDonald - SAI

A G E N D A

8:30 - 8:40	Paul Prestholt	NRC Organization
8:40 - 8:55	Larry Ranspott	LLNL Organizational Structure
8:55 - 9:15	Wes Patrick	Spent Fuel Test
9:15 - 9:25	Lyn Ballou	Waste Pkg Project Overview
9:25 - 9:40	Virginia Oversby	Waste Package Environment
9:40 - 10:00	Dana Isherwood	EQ3/6
10:00 - 10:15	BREAK	
10:15 - 10:35	Virginia Oversby	Waste Form Testing
10:35 - 10:55	Dan McCright	Metal Barrier Testing
10:55 - 11:05	Virginia Oversby	Other Package Materials Testing
11:05 - 11:20	Bill O'Neal	Package Design
11:20 - 11:40	Mike Revelli	Performance Analysis
11:40 - 12:00	Jesse Yow	Performance Testing; ESTP Planned Expts
12:00 - 1:30	LUNCH	Concannon Winery
1:30 - 2:00	Virginia Oversby	Tour B281 - Rock Interaction Lab; IC
2:00 - 2:30	Virginia Oversby	Tour B151 - Cameca Ion Probe; Electron Microprobe; parametric test lab
2:30 - 2:45	Dan McCright	B255 - Gamma Pit
2:45 - 3:15	Dan McCright	B241 - Metals Testing Laboratories
3:15 - 3:45	Virginia Oversby	B243 - Permeability Laboratory
3:45 - 4:00	Ken Street	AD Energy & Resource Programs
4:00 - 4:45	Wrap up Session	

COST

1. We did about 16 weeks of work in 8 weeks
2. Individuals gave up about 17 holidays
3. Hostility towards the effort developed during the last 3 weeks
4. During the last 2 weeks many believed the August 1st target for public release has no meaning
(RUMORS FROM HQ & WESTON STAFF)
5. Symptoms of burnout are evident
emotional displays
anger, depression, crying
6. Questions:
Was meeting the deadline really worth it?
What would the consequences be of not meeting the deadline?
Did we strive for a quality too high

50 SHEETS
100 SHEETS
200 SHEETS

22-141
22-142
22-144



E_FORT vs SCHEDULE

MONTH	DATES	HOURS		
		NORMAL WEEK	WORKED WEEK	LONGEST DAY
April	8-14	40	49	11 1/2
April	15-21	40	65	14
April	22-28	40	57	14 1/2
April / May	29-5	40	53.5	11 1/2
May	6-12	40	70.5	15 1/2
May	13-19	40	64.5	14 1/2
May	20-26	40	99.5	16
May	27-29	<u>24</u>	<u>32.5</u>	15
		304	491.5	

SCHEDULE IMPACT:

- (1) DID 12.3 WEEKS OF WORK IN 7.6 WEEKS
- (2) NOT VERY PRODUCTIVE AFTER 10 HOURS/DAY

PERSONAL IMPACT:

- (1) GAVE UP 10 OF 16 HOLIDAYS
- (2) HOSTILE ABOUT WORK INVADING PERSONAL LIFE

QUESTION:

- (1) HOW DO WE DETERMINE THE MINIMUM ACCEPTABLE LEVEL FOR A MILESTONE?
- (2) HOW DO WE AVOID A REPEAT EA ?

22-141 50 SHEETS
 22-142 100 SHEETS
 22-144 200 SHEETS
 AMPS

DRAFT

William Bennett, Acting Associate Director, Office of Geologic
Repository Deployment, DOE/HQ (RW-20) GTN

SUBMITTAL OF DRAFT CHAPTERS 2 THROUGH 6 OF THE NNWSI PROJECT ENVIRONMENTAL
ASSESSMENT (EA)

We are enclosing one copy of the draft Chapters 2 through 6 of the NNWSI
Project EA. This draft EA is a revision of our February 29, 1984 drafts and
have been through a technical overview and project management review by the
project participants (USGS, LLNL, LANL, SNL, SAI). These draft chapters were
prepared in accordance with 10CFR960, November 18, 1984. They, therefore, do
not incorporate the changes to 10CFR960 that have been submitted by DOE to NRC
to secure NRC's concurrence on the Siting Guidelines.

There are approximately 50 technical reports which are still in the process of
being written, reviewed, or published by the NNWSI Project organizations that
provide the relevant data and analyses to support the position statements
about the ability of Yucca Mountain to possess, or not possess, the conditions
specified in 10CFR960 technical guidelines (i.e. disqualification, potentially
adverse, favorable and qualifying conditions). Until all of these reports are
published by the project organizations the data, analyses and position
statements must be considered tentative all of these reports are expected to
be published before the EA's are formally issued to the public.

The most recent technical overview and management review identified some
inconsistencies which will be resolved in the future as our EA rewrite team

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continue to improve the quality of the draft chapters.

The following items have not yet been incorporated into this draft due to one of the following conditions: confusing guidance, insufficient data, or analysis, no design available, or insufficient time:

1. Remaining issues from technical overview and TPO review that could not be resolved in time to be included in June 1 draft.
2. Data analyses from SRPO and RL to complete those technical guidelines calling for comparisons (e.g. ease and cost of construction).
3. Mission Plan related items (i.e. lag storage, two exploratory shafts, five year old waste, burn-up, repository options, and schedules).
4. NRC approved version of 10CFR960.
5. Editing to improve clarity and flow for the reader who is not a scientist or engineer.

Our previous letter (Vieth to Bennett, May 25, 1984, WMPO:MBB-586) that explains the time we estimate will be required to incorporate item 3 (i.e. 30 weeks) given your guidance (letter Bennet to Vieth, May 9, 1984). Our estimates for item 4 is four weeks, and item 5 is not planned until the final EA is being prepared.

If you have any questions contact me or Maxwell Blanchard of my staff.

Donald L. Vieth, Director

Waste Management Project Office

WMPO:MBB-XXX

Enclosure:

(June 1, 1984 draft chapters 2-6
of NNWSI EA (two copies)

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NNWSI Project File

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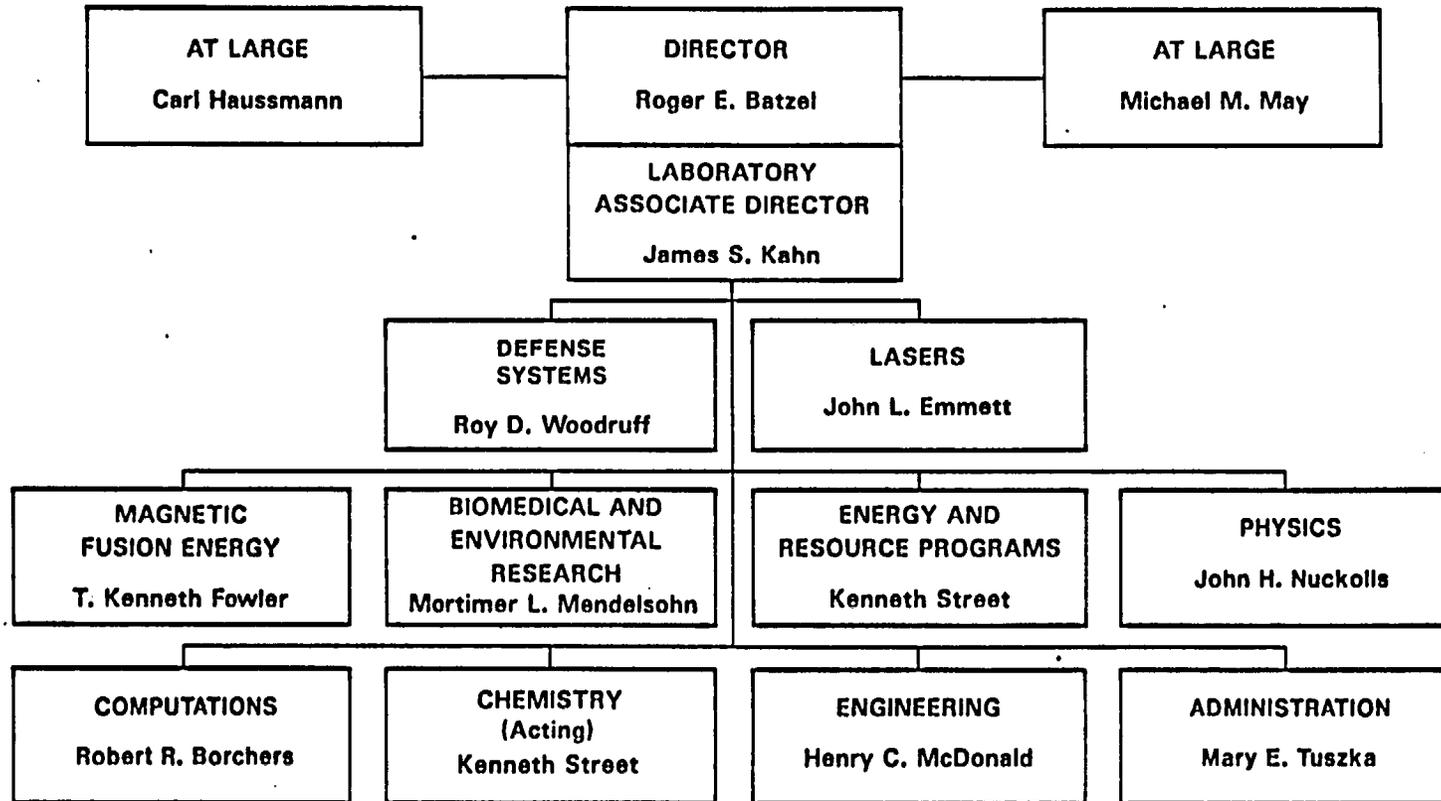
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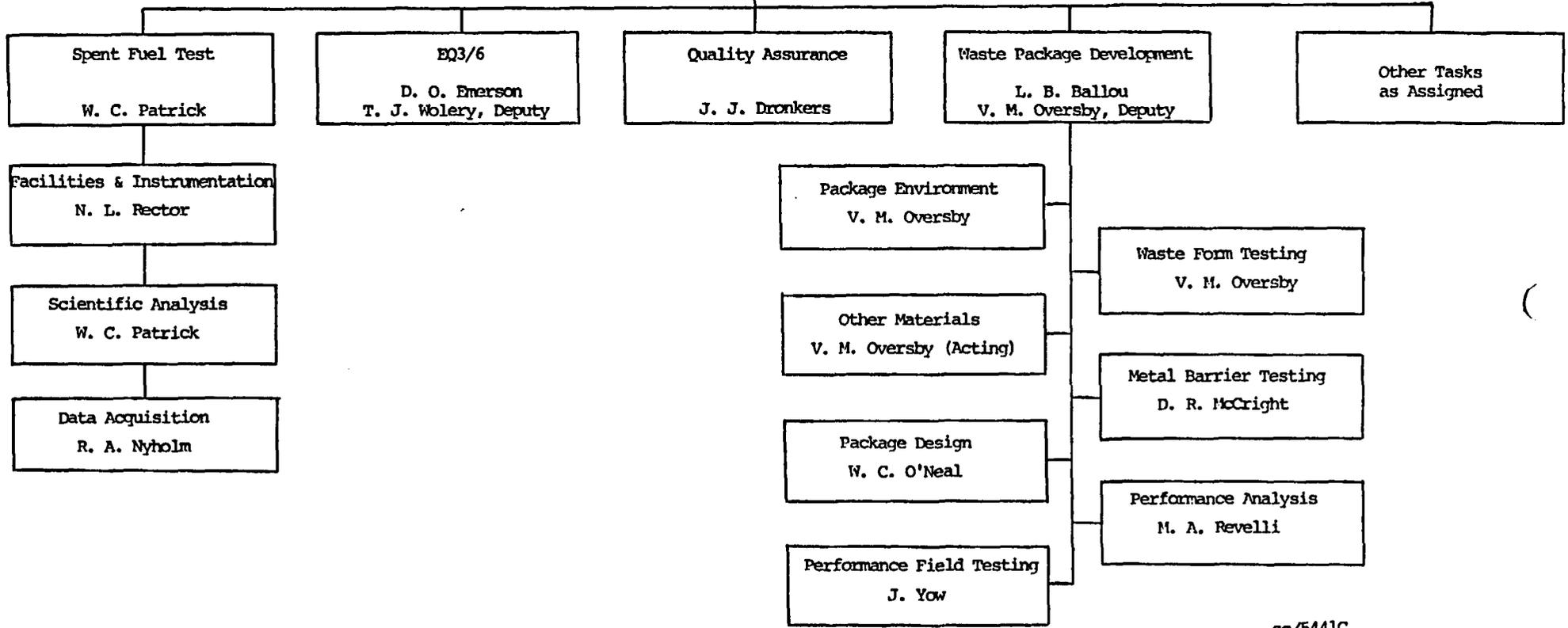
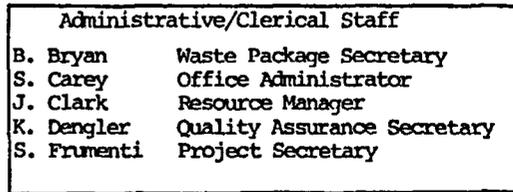
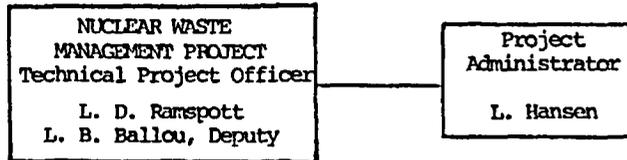
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Lawrence Livermore National Laboratory



LLNL ORGANIZATION CHART
FOR
NNSI PROJECTS

5/1/84



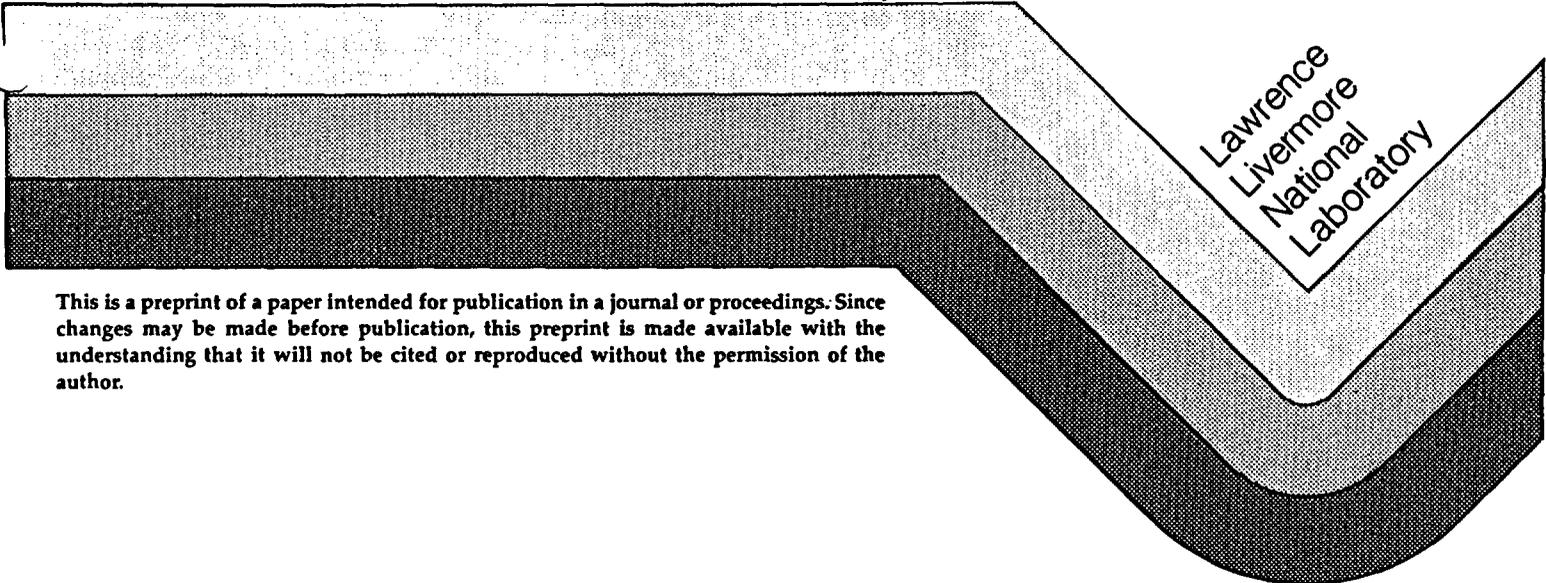
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PREPRINT

Post Emplacement Environment of Waste Packages

K. G. Knauss
V. M. Oversby
T. J. Wolery

Materials Research Society Symposium
Boston, MASS
November 14-17, 1983

November 14-17, 1983



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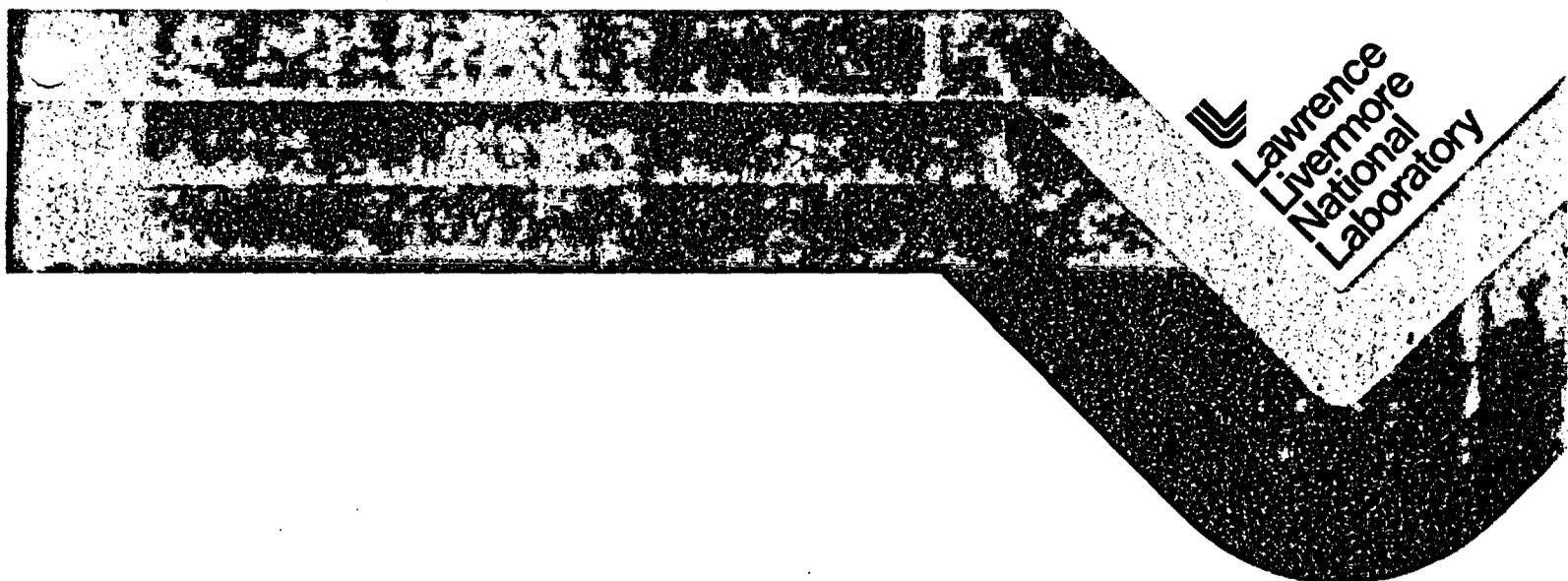
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Reaction of Bullfrog Tuff with J-13 Well Water at 90°C and 150°C

V. M. Oversby

K. G. Knauss

September 15, 1983



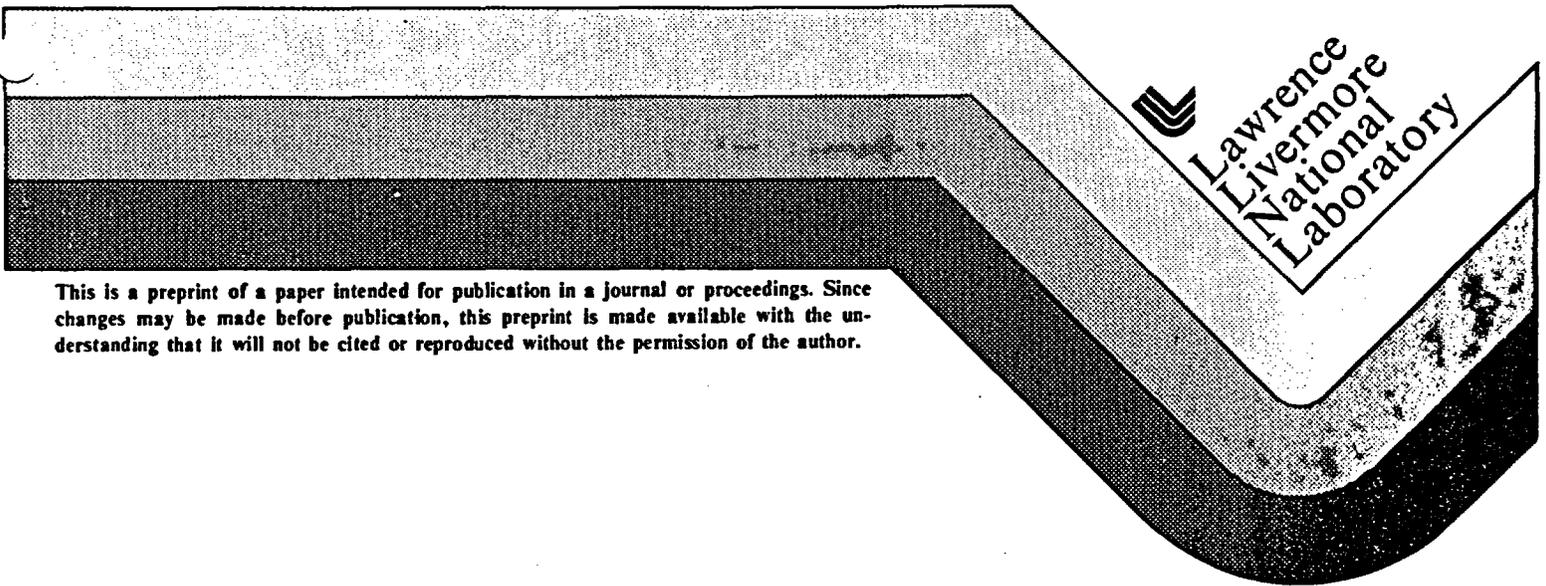
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PREPRINT

Performance Testing of Waste Forms
in a Tuff Environment

Virginia M. Oversby

Civilian Radioactive Waste Management
Information Meeting
Washington, D. C.
December 12-15, 1983

November 1983



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HEDL-TME 83-28
UC-70

THE CHARACTERISTICS OF SPENT LWR FUEL RELEVANT TO ITS STORAGE IN GEOLOGIC REPOSITORIES

Hanford Engineering Development Laboratory

HANFORD ENGINEERING DEVELOPMENT LABORATORY

Operated by Westinghouse Hanford Company

P.O. Box 1970 Richland, WA 99352

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Prepared for the U.S. Department of Energy

Assistant Secretary for Nuclear Energy

Office of Terminal Waste Disposal

under Contract No. DE-AC06-76FF02170

B&R No. AF-83-04-04

8354393

December 21, 1983

-Virginia Oversby
Lawrence Livermore National Laboratory
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Livermore, CA 94550

TEST PLAN FOR SPENT FUEL CLADDING CONTAINMENT CREDIT TESTS, HEDL TC-2353-2,
BY C. N. WILSON

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R. L. Knecht

R. L. Knecht, Manager
Spent Fuel Engineering

om

Enclosures:
As stated (15)

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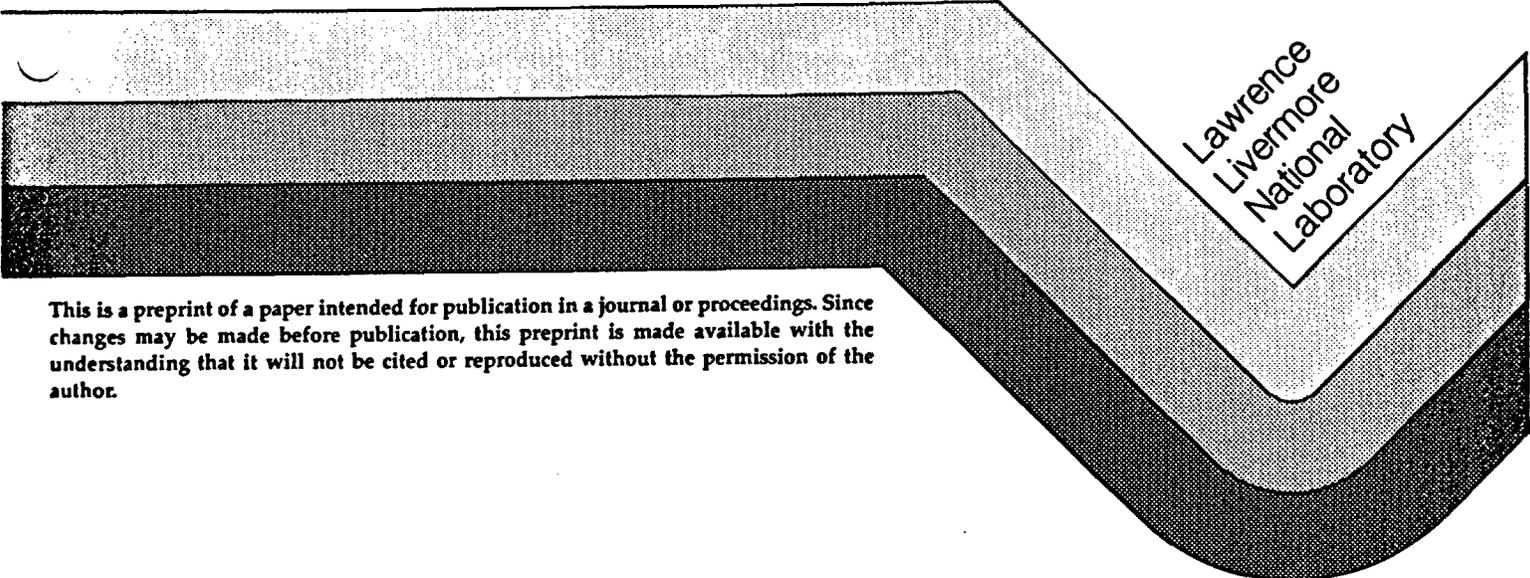
UCRL- 89869
PREPRINT

Spent Fuel Cladding
Containment Credit Tests

C. N. Wilson
V. M. Oversby

Waste Management 84 Conference
Tucson, Arizona
March 11-15, 1984

February 1984



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