



Lawrence Livermore National Laboratory
NUCLEAR SYSTEMS SAFETY PROGRAM

April 19, 1984
EG-84-033/DDD

WM Record File
A0294

WM Project: W, 11, 16
Docket No. (FDR. V. (BTS))
LPDR

Ms. Kristin Westbrook, Project Manager
Geotechnical Branch, MS-623ss
Division of Waste Management
Office of Nuclear Material Safety and Safeguards
U.S. Nuclear Regulatory Commission
Washington, D. C. 20555

Distribution:
Westbrook
(Return to W.M. 623-SS) No

SUBJECT: NRC Letter From K. Westbrook to D. Chung, Dated April 5, 1984
(Contract NRC FIN A0294)

- REFERENCES:
- (a) NRC letter from K. Westbrook to D. Chung dated April 5, 1984.
 - (b) NRC Meeting Agenda, February 9, 1984, prepared by K. Westbrook, Chairperson.
 - (c) Telephone Record: NRC Call from K. Westbrook to D. Chung January 27, 1984. NRC call from P. Justus to D. Chung on the same date.
 - (d) Draft 173 Statement of Work prepared jointly by K. Westbrook and D. Chung on February 10, 1984.
 - (e) NRC letter from K. Westbrook to D. Chung dated March 10, 1984.

Dear Ms. Westbrook:

The purpose of this letter is to respond to the subject letter as requested.

PROGRAM OBJECTIVES AND DESCRIPTIONS

Project Personnel: Overview

Dr. Don O. Emerson, Staff Geologist in the Earth Science Department, was appointed Project Leader within that Department's DOE programs, effective March 1, 1984. This appointment became known to us on Wednesday, February 16th, and we reported this appointment to Dr. Phil S. Justus and Ms. Kristin Westbrook on this same day. We advised the NRC staff that we anticipated no problems in our ability to perform our work assignment under Contract No. FIN A0294 since Don Emerson worked for our project only at the 20% level.

Dr. H. Lawrence (Larry) McKague, Geology Group Leader and Staff Geologist in the Earth Science Department, was immediately named to cover Don Emerson's BWIP task (in addition to our NNWSI task), until a suitable replacement is found. Larry McKague works at the 50% level for our project under my general direction.

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Dave W. Carpenter, Geologist in the Earth Science Department, works for our project at the 50% level as salt site task leader under my general direction.

Dr. D. Burton Slemmons, Professor of Geology and Geophysics at the University of Nevada at Reno and his team consisting of several graduate Ph.D. students, work on our project under a subcontract agreement with Lawrence Livermore National Laboratory (LLNL), where I serve as the program representative. Professor Slemmons' team works on our project at approximately 30% level. (Robert A. Whitney, a Ph.D. candidate, for example, is a Research Assistant within Professor Slemmons' team.)

Dae H. Chung, Ph.D., Staff Geophysicist, serves as project leader at LLNL, and he is responsible for all aspects of this project at LLNL. I worked for the project at a 50 to 75% level from the beginning in 1983. Since February 1984, I am working at a 75% to 100% level for the project.

It is important to note that we at LLNL work as a team on all aspects of the program to ensure continuity in professional interaction so that the loss of any team member is not disruptive to the project. For example, Dave Carpenter is familiar with our progress in work for the BWIP and NNWSI sites as well as salt sites, and Larry McKague and I are equally familiar with our progress in work for salt sites as well as the BWIP and NNWSI sites. Dr. Slemmons and his assistants at Reno work closely with us at LLNL via the use of conference calls and other means of electronic communication systems.

Reply to Numbered Points in Reference (a)

1. While we will miss Don Emerson's direct contribution, we have structured our effort so that no one is irreplaceable. Emerson, McKague, Carpenter, and myself, with Slemmons, all work together as a team. Much of what Emerson reviewed on the BWIP, for example the "ST-19" document was jointly prepared by the LLNL team. Larry McKague participated in every aspect of our work on the BWIP site, except for the First Geology/Tectonic Workshop and Site Visit in March 1983, but then even Don Emerson could not participate in the workshop because he was not included among the workshop participants (see Monthly Management Letter Report No. 1, dated May 20, 1983). Emerson's BWIP file had formally been transferred to us (Chung and McKague) as of March 1, 1984.
2. The qualification of Dr. H. Larry McKague as BWIP task leader is excellent, as he did his geology Master's thesis at Washington State University in Cascades near Leavenworth, Washington, about 90 miles northwest of the BWIP site. (McKague's resume is herewith attached for your perusal.)

If we get more than one Environmental Assessment (EA) report simultaneously, we will develop a plan and a schedule to meet the work load. The same concern exists for the salt task.

3. No additional cost of training a new BWIP task leader is anticipated. We started functioning as a team (including Slemmons and his assistants). We will continue our work in this manner to achieve our objectives in the work assignment. It is necessary to have a task leader to coordinate (or to serve) as a point technical contact, and to assume specific responsibility for completion of tasks. However, we involve all members of the team to a large extent in all sites so that there will be continuity within the project and the project will benefit from mutual exchange of information, input and ideas.

Reply to Other Points

Request:

"Please include a listing of documents, by site, that individuals have reviewed, or used in their preparation of site visits, general background, and site issue development."

Reply:

BWIP Site

- o Site Technical Position (STP) document, with discussion, dated February 28, 1984 (29 pages).
- o Participation of the LLNL team with the First and Second Tectonic Workshops at Richland, Washington.
- o First BWIP Tectonic Workshop and Field Trip Report, dated April 27, 1983 (7 pages).
- o Second BWIP Tectonic Workshop and Field Trip Reports, Part I dated March 29, 1984 and April 18, 1984 for Part II (9 pages total).
- o Report on our review and evaluation of SA-269-1, "The Impact of Seismicity on the Stability of an Underground Repository," dated June 13, 1983 (6 pages).
- o Report of our review and evaluation of ST-19-P, "Preliminary Interpretation of the Tectonic Stability of the Reference Repository Location, Cold Creek Syncline, Hanford Site," dated September 28, 1983 (17 pages).
- o Numerous interactions with Professor Stuart Smith and Dr. Adams Schultz of the University of Washington, Seattle, Washington on seismicity in the BWIP site region and on-going results on seismic network studies.
- o Numerous interactions with staff members of the U.S. Geological Survey and NRC/NRR Geosciences Branch on geology, tectonic and seismological investigations on the Skagit/Hanford Nuclear Project site.
- o Reference from the technical literature (a partial list is available).

NNWSI Site

- o Site Technical Position (STP) document, with discussion, dated July 13, 1983 (26 pages).
- o Participation of the First Geology/Geophysics/Tectonic Workshop on the NNWSI site, at Golden, Colorado and at the Nevada site.
- o Trip Report on the Workshop, dated October 31, 1983 (8 pages).

- o Numerous interactions with the U.S. Geological Survey team and staff members of the Los Alamos National Laboratory on geologic, seismic, and volcanic stability issues.
- o References from the professional literature (a partial list is available).

Salt Sites

Technical issues in seismo-tectonics pertinent to potential nuclear waste management facilities in bedded and domed salts are being identified by our team. Our effort in this regard is necessarily generic in nature because no specific salt sites have yet been identified. Draft lists dealing with these technical issues have been prepared. In compiling these lists, we have assumed that the bedded salt areas of principal interest are located in western Texas and southern Utah and that the area of interest for domed salt is eastern Texas and Louisiana.

Our literature review concerning mid-continental seismicity and salt dome tectonics is continuing effort. Large number of literature, including those by Jackson and Seni (1983), have been collected for our review. The results of our review will be used in future development of STP document(s) for salt sites.

DISCUSSION OF THE SECTION: "PROGRESS - FEBRUARY 1984"

On January 17, 1984, Ms. Kristin Westbrook, newly appointed NRC Project Manager for Contract FIN A0294, and Dr. Phil S. Justus, Geology/Geophysics Section Leader, WMGT, asked us to come to a meeting in Silver Spring, Maryland to discuss (1) contract modifications to include EA work and all the salt sites, and (2) new scope of work related to seismic hazard assessment of low-level waste management facilities and uranium mill-tailing sites (see Ref. (c) above). This meeting was set on February 9-10, 1984. The Meeting Agenda was developed by the NRC Project Manager (see Ref. (b) above), and it stated:

"Discussion of Modification to LLNL Contract A0294 to include Seismic Technical Assistance for Low-Level and Uranium Recovery Sites."

We successfully accomplished our discussion on February 9th. On February 10, 1984, the NRC Project Manager and I jointly prepared a "Draft Statement of Work" (draft SOW) entitled "Technical Assistance in Geologic Stability Impacts on Nuclear Waste Management Sites."

The NRC letter dated April 5, 1984 (Ref. (a) above) states:

"Under this item you have listed discussions of and preparation of a draft SOW for new technical assistance in low-level waste management and uranium recovery sites (facilities). Please understand that this is not in the scope of NRC FIN A0294 and cannot be charged to A0294. Please have a statement in your next report acknowledging that A0294 cannot and has not been charged for this type of work."

This NRC instruction appears to be somewhat in conflict with earlier instructions given to us as described in Refs. (b), (c), and (d) above and discussion thereof. We do not

understand the present NRC instruction. Please clarify.

PROJECT FINANCIAL STATUS

The NRC Project Manager made an error in reading our Attachment A. The total funds obligated to date under A0294 is \$500K (for both FY'83 and FY'84). As of March 1, 1984, we have depleted \$300.7K. This is about 60% of the funds obligated to date.

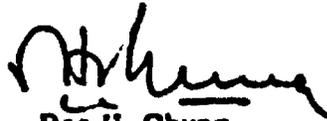
The NRC Project Manager has recently been informed by us that there is no concern for the project financial status, as long as the scope of the project work remains the same in the contract.

LIST OF CONSULTANTS/SUBCONTRACTORS

Our subcontractor agreement is with D. B. Stiemmons and Associated Geologists, Reno, Nevada. Mr. Robert A. Whitney is a Research Assistant in that organization. Bob Whitney, at the suggestion of the NRC project management (see Ref. (e) above) participated in the Second DOE/NRC Tectonic Workshop in Richland, Washington.

If you have any questions, please let us know.

Sincerely yours,



Dae H. Chung
Leader
Nuclear Waste Management Project

DHC/tp

Attachments: Refs. (a) through (e)

cc: P. S. Justus, NRC/WMGT
M. R. Knapp, NRC/WMGT