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Dr. Donald L. Vieth, Director
Waste Management Project Office
U.S. Department of Energy
Nevada Operations Office
P.O. Box 14100
Las Vegas, NV 89114-4105

(Return to WM, 623-SS)

SUBJECT: STATUS OF OPEN ITEMS - EXPLORATORY SHAFT DESIGN AND CONSTRUCTION
LETTER FROM NRC, DATED APRIL 14, 1983, AND NNWSI PROJECT/NRC
EXPLORATORY SHAFT DESIGN/CONSTRUCTION MEETING OF AUGUST 27-28, 1985.

Dear Dr. Vieth:

This letter is in response to your June 2, 1986 letter to me in which you discuss the status of open items from the NNWSI Project/NRC Exploratory Shaft Design/Construction meeting of August 27-28, 1985 and related open items from the NRC's April 14, 1983 letter to you (Enclosure I, reference 1) stating NRC concerns regarding exploratory shaft construction and sealing which must be addressed prior to the start of shaft construction. The dialogue between the NRC and the NNWSI Project on exploratory shaft-related matters goes back several years (Enclosure I, references 1-6) and has been marked by significant progress in several areas, e.g., agreement upon the acceptability of construction methods for the two exploratory shafts (Enclosure I, reference 4, agreement 1).

Such progress has helped to narrow the focus of the remaining concerns about exploratory shaft design and construction. Your most recent letter on the subject provides a tabulation of open and closed items in these areas. For purposes of comparison, Enclosures II-V document the NRC positions on the same items. You will note apparent disagreements in the NRC and NNWSI Project positions on some items.

There is value in tracking open items in an orderly manner to ensure that they are all addressed; however, it is important that the most significant of these items have the highest visibility so that they receive appropriate attention. For example, the revised performance analysis (Enclosure I, reference 4, open item 2) is critical in that the questions related to: the shaft and seal design considerations; construction plans and procedures; sealing or grouting plans and procedures; construction testing and inspection plans and procedures; plans and procedures for gathering specific information related to site characterization; and quality assurance can best be addressed on the basis of the results of an adequate performance analysis.

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PDR WASTE

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OFC	:WMEG	:WMP	:WMP	:WMP	:WMEG	:WMP	:WMP
NAME	:DGupta/km	:KStablein	:RLJohnson	:JEKennedy	:JTGreeves	:PJustus	:JJLinehan
DATE	:10/27/86	:10/27/86	:10/29/86	:10/30/86	:10/30/86	:10/30/86	:10/31/86

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Another especially significant open item requiring closure before other open items can be closed is the test plan for underground testing (Enclosure I, reference 4, open item 14). Until the NRC has the opportunity to review this plan, the NRC will be unable to assess the adequacy of the design of shafts and drifts and hence the testing layout itself.

Adequate plans and procedures for excavating the exploratory shaft are also significant due to their relation to several outstanding open items (Enclosure I, reference 1, item II; reference 4, NRC observation 12; reference 4, open item 25). These plans and procedures may affect the repository performance, shaft stability, and in situ testing results.

Finally, a satisfactory QA program must be in place prior to the start of shaft construction and testing (Enclosure I, reference 4, NRC observation 13); hence, the QA procedures for those activities need to be available to the NRC far enough in advance so that any remaining NRC concerns can be explored and resolved without delaying shaft construction.

Receipt of the documents referenced above by the NRC is the necessary first step in making progress toward resolution of the issues that must be addressed prior to the start of shaft construction. Having reviewed those documents, the NRC will be prepared to move ahead toward timely resolution of such issues via NRC-DOE technical meetings and other suitable mechanisms.

If you have any questions about the attached material, please contact King Stablein of my staff at (FTS) 427-4611 or Dinesh Gupta of the NRC's Division of Waste Management, Engineering Branch at (FTS) 427-4742.

Sincerely,

**John J. Linehan, Acting Branch Chief
Repository Projects Branch
Division of Waste Management
Office of Nuclear Material
Safety and Safeguards**

cc: J. Knight, DOE/HQ

[illegible]

I. References to letter

- II. NRC comments on NNWSI Project's letter of June 2, 1986 responding to NRC's letter of April 14, 1983 on Exploratory Shaft (ES) Construction and Sealing
- III. Table 1, Comparison of the NNWSI Project and the NRC staff Positions on the Status of Open Items from NRC letter of April 14, 1983 on Exploratory Shaft (ES) Construction and Sealing
- IV. NRC Staff position on Status of Open Items from August 27-28, 1985 NRC/NNWSI Project Meeting Summary
- V. Table 2, Comparison of the NNWSI Project and the NRC staff Positions on the Status of Open Items from the August 27-28, 1985 NNWSI Project/NRC Meeting Summary

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ENCLOSURE I

REFERENCES TO LETTER

- (1) Letter, Seth M. Coplan to Dr. Donald L. Vieth, dated April 14, 1983.
- (2) Letter, Dr. Donald L. Vieth to John J. Linehan, dated June 7, 1985.
- (3) Letter, T.O. Hunter (Sandia) to D.T. Oakley (Los Alamos), "Performance Analysis Studies to be Used in Determining Quality Assurance Levels for the Exploratory Shaft Design and Construction Activities," July 2, 1985 (Transmitted to NRC by Letter, D.L. Vieth to J.J. Linehan, July 15, 1985).
- (4) NNWSI/NRC Meeting Summary, Observations, Agreements and Open Items, dated August 27-28, 1985.
- (5) Letter, John J. Linehan to Dr. Donald L. Vieth, dated November 25, 1985.
- (6) Letter, Dr. Donald L. Vieth to John J. Linehan, dated June 2, 1986.

ENCLOSURE II

NRC STAFF COMMENTS ON NNWSI PROJECT'S LETTER OF JUNE 2, 1986
RESPONDING TO NRC LETTER OF APRIL 14, 1983
ON EXPLORATORY SHAFT (ES) CONSTRUCTION AND SEALING

I. Shaft and Seal Design Considerations

- A, B, C, D, and E. The NRC staff agrees with the NNWSI Project's position that these items remain open (see NRC Comment I, Reference 4).
- F. In response to the NRC staff request for the drilling history and results of geotechnical testing from the principal borehole USW G-4, the NNWSI Project has provided two reference documents entitled, "Stratigraphic and Structural Characteristics of Volcanic Rocks in Borehole USW G-4," USGS-OFR-84-789 and, "Uniaxial and Triaxial Compression Test Series on Topopah Spring Tuff from USW G-4, Yucca Mountain, Nevada," SAND84-1101. The former document provides the drilling history for the principal borehole, USW G-4. The later document provides the results of the uniaxial and triaxial compression experiments performed on samples from drillhole USW G-4. The NRC staff considers that these documents provide only a partial response to our information request.

To complete the response to this request, all available information related to geotechnical testing performed on samples obtained from this principal drillhole, which is not included in either of these two documents, should be identified and provided for NRC review. This information should include results from the geotechnical testing on USW G-4 samples identified in letter from Elmer Baltz, U.S.G.S., to Seth Coplan, NRC, dated August 28, 1984 (e.g., results from geotechnical tests identified on page number 22 and other pages of the enclosure to the said letter). Results of the draft data that were reviewed by the NRC staff during the NRC's Design/Rock Mechanics Data Review Meeting held on July 18-20, 1984 (e.g., results of thermal conductivity tests conducted on samples from drillhole USW G-4) should also be provided. Furthermore, several tests on samples from USW G-4 are listed in Sandia National Laboratories NNWSI Data catalogues (e.g., quarterly update of April 7, 1986). The NNWSI Project should provide the final results of these tests for NRC staff review.

In view of the information need identified above, we cannot agree with the NNWSI Project's position that this item is closed. Until all the available information related to the geotechnical testing performed on samples obtained from this drillhole is identified and test results transmitted to the NRC for review, we consider this item to be open.

II. Construction Plans and Procedures

- A. In response to the NRC request for the acceptance criteria for construction of the ES, the NNWSI Project states that specific acceptance criteria for the shaft construction are still being developed. In addition, it is stated that these criteria and their implementing construction controls need be no stricter than those required for short-term stability and will be representative of good quality, conventional shaft construction practices.

In view of the NNWSI Project recognition that the performance analysis has not been finalized and that the NRC staff concerns on the original performance analysis have not yet been addressed, the NRC staff considers that the NNWSI Project has not provided an adequate basis for its position that the acceptance criteria need be no stricter than those needed for short-term stability.

The NRC staff recommends that the NNWSI Project provide a schedule for completion of the acceptance criteria for the construction of the ES. After the acceptance criteria have been developed, the NNWSI Project should submit them to the NRC staff for review and comment.

In view of the information need identified above, we cannot agree with the NNWSI Project's position that this item is closed. We consider this item to be open.

- B. In response to the NRC's request to identify procedures used to minimize damage to the rock mass, the NNWSI Project states that the excavation procedures described in Enclosure A to Reference 2 (good commercial practices) will be adequate based on the insignificant impact of rock damage on the long-term repository performance.

The NRC staff considers that the excavation procedures, specified in Enclosure A to Reference 2, do not ensure that these procedures will limit rock damage to reasonable levels, especially because no construction controls have been specified for a substantial portion of the exploratory shaft. In addition, the NNWSI Project has not adequately justified the conclusion that the potential damage due to excavation would have no significant impact on the long-term repository performance (see NRC Comment II B, Reference 4). The NNWSI Project has also not addressed the potential impact of damage due to the use of inadequate excavation procedures on the quality of sampling and in-situ test results obtained during site characterization.

The NRC staff recommends that the plans and procedures described in Enclosure A to Reference 2 should be revised with the objective that the excavation induced damage to the rock mass around the shaft would be minimum. Inadequate excavation procedures, if used, may allow excessive fracturing of the rock mass around the shaft area and

excessive displacement and/or overbreak of the shaft walls. Such a damage to the rock mass would be of concern both from a short-term as well as a long-term performance point of view. Excessive fracturing of the rock mass around the shaft area could result in development of preferential pathways for upward travel of airborne or vaporborne radionuclides and the downward travel of waterborne radionuclides. It could also result in compromising the integrity of the shaft liner and seals, and could thus affect the short-term as well as long-term performance of the repository. Damage of the rock mass around the ES would be of particular concern for the area below the repository horizon because damage to this area may create preferential (and faster) downward flowpaths for radionuclides from the repository level to the groundwater table. Excessive overbreaks of the shaft walls, if not properly controlled, could also compromise the shaft stability, interfere with integrity of shaft liner and seals, and may thus affect the performance of the repository.

Inadequately controlled excavation may also compromise the reliability of geomechanical, hydrological, geochemical and other in-situ test data from the shaft area obtained during site characterization. The in-situ rock mass properties in the shaft area can be significantly altered by excessive vibrations and resulting fracturing. The quantity and composition of groundwater may be affected by water introduced for drilling and dust control and by blasting fumes.

It is our understanding that the ES is being planned to be used as an air intake for the ventilation system of the waste emplacement areas of the underground repository. Uncontrolled, excessive damage of the rock mass around the ES could affect the stability of the liner and the functional ability of the ES to work as an air intake for the ventilation system of the waste emplacement areas.

In view of these NRC staff observations and previous comments on NNWSI Project's original performance analysis (Comment I, Reference 4), we cannot agree with the NNWSI Project's position that this item is closed. The NRC staff considers this item to be open.

- C. In response to the NRC's request to identify the liner construction and placement technique, the NNWSI Project has presented a summary of the shaft and liner construction approach in Enclosure B of Reference 2 and has stated that the liner materials being considered have not been selected from a sealing point of view.

The NNWSI Project's selection of liner materials without regard for sealing capabilities cannot be supported by the NRC staff (see Comment II C, Reference 4). In addressing the liner placement technique, the NNWSI Project should address the measures to be taken for the protection of the freshly poured concrete liner from damage by blasting vibrations.

The NNWSI Project has also stated that the liner could be removed in the future, if necessary, to emplace suitable sealing components. Considering the length of time that the shaft will be in operation, the NNWSI Project should evaluate and discuss the potential problems of removing the liner in the future and the potential effects of such a removal on the rock surrounding the ES. In addition, unless a commitment is made by the NNWSI Project that the shaft liner will be removed, an analysis should be performed to evaluate the effect of leaving the liner in-place on the integrity of the site (i.e., consequences of potential liner degradation and chemical effects from liner degradation.)

In view of the information need identified above, we cannot agree with the NNWSI Project's position that this item is closed. The NRC staff considers this item to be open.

III. Sealing or Grouting Plans and Procedures

- A. In response to the NRC's request to describe the expected performance of seals in the ES, the NNWSI Project has stated that seals are not planned during the construction of the ES. This NNWSI Project position (also identified in the August 27-28, 1985, meeting) is apparently based on the results of the original performance analysis.

Based on the NRC staff comments on the conclusions of the original Performance Analysis Report (See Comment III A, Reference 4), we cannot accept the NNWSI Project's stated response to this question at this time. The level of performance that is necessary for the seals must be determined before it is possible to determine whether the sealing requirements can be met.

In view of the information need identified above, we cannot agree with the NNWSI Project's position that this item is closed. The NRC staff considers this item to be open.

- B. In response to the NRC request to describe the seal placement methods, the NNWSI Project has stated that it intends to further discuss the post-closure performance of seals in future meetings.

The NNWSI Project should provide a schedule for development of seal placement methods with respect to the need to establish design requirements for seals and describe the placement methods for NRC review.

In view of the information need identified above, we cannot agree with the NNWSI Project's position that this item is closed. The NRC staff considers this item to be open.

- C. In response to the NRC request to describe remedial methods to be used if sealing materials are not adequate, the NNWSI Project states

that remedial methods for seals intended to function during post-closure period are not planned.

The NRC staff considers that the DOE's conclusions regarding the need for remedial methods for seals are apparently based on the results of the original performance analysis and have not been adequately supported (see Comment III C, Reference 4).

The NNWSI Project should provide a schedule for completion of the remedial/contingency plans that can be implemented if sealing methods prove to be inadequate during performance confirmation testing. After completion of these plans, the NNWSI Project should provide them for NRC review and comment.

In view of the information need identified above, we cannot agree with the NNWSI Project's position that this item is closed. The NRC staff considers this item to be open.

IV. Construction Testing and Inspection Plans and Procedures

- A. In response to the NRC request to describe test and inspection procedures, the NNWSI Project states that test and inspection activities during ES construction other than for site characterization are being developed and will be specified in the ESF Title II Design.

When completed, the NNWSI Project should submit to the NRC for review and comment the test and inspection procedures that will be used in the shaft.

We agree with the NNWSI Project that this item remains open.

- B. In response to the NRC request for test and inspection procedures for the liner, the NNWSI Project states that this information request appears to be based on the blind bored shaft concept presented in LA-9179-MS and that a grouted steel liner which was to be used in connection with the blind bored shaft is no longer proposed because the exploratory shaft will be conventionally sunk.

Since the NNWSI Project is now planning conventionally sunk shaft, it should provide relevant construction testing and inspection plans and procedures to be used for this construction method. The information should include procedures to be used to inspect the integrity of the exposed rock; measure the overbreak; map the rock walls; document the location of rock bolts and steel sets, if used; occasionally measure the extent of damage zone; test concrete; measure blasting vibrations at freshly poured concrete; and install liner instrumentation.

When completed, the NNWSI Project should submit this information to the NRC for review and comment.

In view of the information need identified above, we cannot agree with the NNWSI Project's position that this item is closed. The NRC staff considers this item to be open.

- C. In response to the NRC request for test and inspection procedures to determine seal adequacy, the NNWSI Project has stated that seals are not planned and therefore test and inspection procedures should not be required.

The NNWSI Project's position on the need for seals is apparently based on the result of the original performance analysis. The NRC staff considers that the analysis results are not adequately supported, and therefore the NNWSI Project has not adequately justified its conclusions on the need for seals, and test and inspection procedures for the seals (see Comment IV C, Reference 4). When completed, the test and inspection procedures to be used for determining the seal adequacy should be submitted to the NRC staff for review and comment.

In view of the information need identified above, we cannot agree with the NNWSI Project's position that this item is closed. The NRC staff considers this item to be open.

- D. In response to the NRC request for detailed plans to document construction activities, the NNWSI Project states that documentation for shaft construction activities will be in the Title III summary reports on construction, and these reports should be available about six months after completion of construction.

The NRC staff considers that the information on detailed plans to document shaft construction activities related to NRC licensing should be developed before the construction activities actually begin. These documentation plans and procedures should form an integral part of the required QA program. When completed, the documentation plans for shaft construction activities should be submitted to the NRC staff for review and comment.

In view of the information need identified above, we cannot agree with the NNWSI Project's position that this item is closed. The NRC staff considers this item to be open.

V. Plans and Procedures for Gathering Specific Information Related to Site Characterization

- A. In response to the NRC request for a description of test plans used to obtain data during exploratory shaft construction, the NNWSI Project states that plans for gathering data during ES construction are discussed in the reference document entitled "Exploratory Shaft Test Plan" (ESTP). In addition, they state that detailed test and measurement procedures have not yet been completed.

The reference document, ESTP, is not available for review by the NRC staff at this time. When completed, the detailed procedures for data gathering should be submitted to the NRC staff for review and comment.

We agree with the NNWSI Project that this item remains open.

VI. Quality Assurance

- A. The NRC staff requested the NNWSI Project to identify the line of responsibility for implementing Quality Assurance. The line of responsibility identified by the NNWSI Project is satisfactory.

We agree with the NNWSI Project that this item is closed.

- B-1. In response to the NRC request that the NNWSI Project provide a schedule for the completion of the QA procedures for the ES construction and testing, the NNWSI has stated that these procedures will be transmitted to the NRC by March, 1987, with shaft construction to begin in May, 1987. Although a two month review and comment resolution period is possible, the length of time sufficient to resolve comments on the draft QA procedures is highly dependent upon the quality of the original materials submitted and the rationale for the QA procedures proposed. Based on prior reviews, it is likely that submittal of the draft QA procedures and subsequent NRC review may require an NRC/NNWSI Project meeting to discuss the NRC comments and then DOE submittal of revised QA procedures. Hence, allowing only a two month time period to resolve comments on the draft QA procedures seems overly optimistic.

The NRC staff considers that pending discussion of schedules between the NRC and the NNWSI Project, this item remains open.

- B-2, B-3 and B-4. With respect to the NRC request for information on QA levels assigned to specific construction activities, data gathering and QA classification of liner, rock structure and support, we agree with the NNWSI Project that these items remain open (see Comment VI B-2, B-3 and B-4, Reference 4).

GENERAL COMMENT

Since the NNWSI Project has proposed a different construction method (raise-bored) for the second shaft (Reference 3) as compared with that for the first shaft (drill and blast), we cannot agree with the NNWSI Project statement made in its June 2, 1986 letter that conclusions for the first shaft apply equally to the second shaft. The NRC staff considers that for each of the applicable information requests stated in the NRC to DOE letter (Coplan to Vieth, April 14, 1983), the NNWSI Project should explicitly discuss the second exploratory shaft that will be constructed.

ENCLOSURE III

TABLE 1

COMPARISON OF THE NNWSI PROJECT AND THE NRC STAFF POSITIONS
ON THE STATUS OF OPEN ITEMS FROM
NRC LETTER OF APRIL 14, 1983 ON
EXPLORATORY SHAFT (ES) CONSTRUCTION AND SEALING

INFORMATION REQUEST (NRC LETTER OF 4-14-83)	NNWSI PROJECT STATUS (LETTER OF 6-2-86)	NRC STAFF POSITION (SEE ENCLOSURE I)
I. A	OPEN	OPEN
B	OPEN	OPEN
C	OPEN	OPEN
D	OPEN	OPEN
E	OPEN	OPEN
F	CLOSED	OPEN
II. A	CLOSED	OPEN
B	CLOSED	OPEN
C	CLOSED	OPEN
III. A	CLOSED	OPEN
B	CLOSED	OPEN
C	CLOSED	OPEN
IV. A	OPEN	OPEN
B	CLOSED	OPEN
C	CLOSED	OPEN
D	CLOSED	OPEN
V. A	OPEN	OPEN
VI. A	CLOSED	CLOSED
B-1	CLOSED	OPEN
B-2	OPEN	OPEN
B-3	OPEN	OPEN
B-4	OPEN	OPEN

ENCLOSURE IV

NRC STAFF POSITION ON STATUS OF OPEN ITEMS FROM AUGUST 27-28, 1985
NRC/NNWSI PROJECT MEETING SUMMARY

The NRC staff agrees with the NNWSI Project that the following items of the list of open items from August 27-28, 1985 NRC/NNWSI Project meeting have been closed:

Item Nos. 1, 2, 3, 8, 9, 13, 17, and 19.

The NRC staff also agrees with the NNWSI Project that the following items from the August 27-28, 1985 remain open.

Item Nos. 4, 5, 6, 7, 10, 11, 12, 14, 15, 18, 23, 24, 25, 26, 27, and 28.

We, however, do not agree with the NNWSI Project that the following Open Items have been closed: Item Nos. 16, 20, 21, and 22. Our comments on the status of these items are as follows:

Open Item No. 16: The DOE will furnish the NRC with the document which contains recent information on thickness of Calico Hills.

NRC Staff Comment

This open item resulted from the NRC observation numbers 8, 9, and 10 documented in the NRC-NNWSI Project meeting summary for August 27-28, 1985 meeting.

During the various DOE presentations at the meeting, the term Calico Hills was apparently used to designate at least three different entities: a geological unit; a geohydrological unit; and a thermomechanical unit. The DOE should establish consistency in the use of the term Calico Hills. Also, there appears to be a discrepancy between the thickness of the Calico Hills presented in the original performance analysis document and that determined by the NRC from the DOE literature. The NRC review of the data indicates that the Calico Hills may be substantially thinner at the exploratory shaft location than stated in the original performance analysis document. This is important to the performance analysis in that the DOE assumes a thickness of 150-m for the Calico Hills unit as a bounding value.

The NRC staff has some concern about the penetration of the exploratory shaft into the Calico Hills because it may have an adverse effect on the ability of that unit to retard radionuclides especially if heated water resulting from contact with waste canisters alters the zeolites of the Calico Hills member. If the ES shaft-bottom is used as a sump, the impact of water flows during the construction and operational periods should also be considered.

In view of these NRC staff observations, it is important that reliable and consistent information be available regarding the thickness of Calico Hills.

In response to the NRC request for this information, the NNWSI Project has stated that the report entitled, "A Three-Dimensional Model of Reference Thermal/Mechanical and Hydrological Stratigraphy at Yucca Mountain, Southern Nevada" SAND84-1076, contains the information requested by the NRC. The NRC staff review of the report shows that the requested information is not available in the said report. We consider this item to be open.

Open Item No. 20: DOE will provide NRC with information relating to testing performed in/or on samples obtained from USW G-4 in addition to that presented in USGS-OFR-84-789.

NRC Staff Comment

In response to this request, the NNWSI Project has transmitted a report entitled, "Uniaxial and Triaxial Compression Test Series on Topopah Spring Tuff from USW G-4, Yucca Mountain, Nevada" SAND84-1101. The NRC staff review of this document shows that this document does not identify all the geotechnical testing performed in/or on samples obtained from drillhole USW G-4, and provides only partial response to the NRC request. The NNWSI Project should identify all geotechnical tests for USW G-4 and provide the results of these tests to close this open item (see NRC staff comment on Item I(F), Enclosure I).

Open Item No. 21: NRC requests that DOE identify the schedule for providing the items identified in DOE's response of June 7, 1985, as being under development.

NRC Staff Comment

In response to this request, the NNWSI Project has referred to Table I of the June 2, 1986 letter from Don Vieth, WMPO to John Linehan, NRC. The NRC staff review of the said Table I shows that several of the individual items are already considered closed by the NNWSI Project and that the requested schedule is not readily available from this Table. The NNWSI Project needs to clearly identify the requested schedule to close this open item.

Open Item No. 22: A decision (and the implications of such a decision) on whether the DOE will remove the liner at permanent closure or use it as part of the long-term sealing system has not been determined.

NRC Staff Comment:

The NNWSI Project has stated that the decision on removal or use of shaft liner has not been made (Reference 6, enclosure page 6). Also, the possible implications of such a decision have not been provided. However, the item is shown to be closed on Page 1 of the Table I of the June 2, 1986 letter from Don Vieth to John Linehan.

The NRC staff considers this item to be open until the requested decision is made by the NNWSI Project and the possible implications of such a decision analyzed by the NNWSI Project and provided to the NRC staff for its review and comment.

ENCLOSURE V

TABLE 2

COMPARISON OF THE NNWSI PROJECT AND THE NRC STAFF POSITIONS
ON THE STATUS OF OPEN ITEMS FROM THE
AUGUST 27-28, 1985 NNWSI PROJECT/NRC MEETING SUMMARY

OPEN ITEM FROM 8/27-28/85 MEETING SUMMARY	NNWSI PROJECT STATUS (LETTER OF 6-2-86)	NRC STAFF POSITION (SEE ENCLOSURE III)
1	CLOSED*	CLOSED
2	CLOSED	CLOSED
3	CLOSED	CLOSED
4	OPEN	OPEN
5	OPEN	OPEN
6	OPEN	OPEN
7	OPEN	OPEN
8	CLOSED	CLOSED
9	CLOSED	CLOSED
10	OPEN	OPEN
11	OPEN	OPEN
12	OPEN	OPEN
13	CLOSED	CLOSED
14	OPEN	OPEN
15	OPEN	OPEN
16	CLOSED	OPEN
17	CLOSED	CLOSED
18	OPEN	OPEN
19	CLOSED	CLOSED
20	CLOSED	OPEN
21	CLOSED	OPEN
22	CLOSED	OPEN
23	OPEN	OPEN
24	OPEN	OPEN
25	OPEN	OPEN
26	OPEN	OPEN
27	OPEN	OPEN
28	OPEN	OPEN

*Although Table I of the NNWSI Project's June 2, 1986 letter indicates the Item to be open, Item closed in the text of the letter.