UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 6
1445 ROSS AVENUE, SUITE 1200
DALLAS, TX 75202-2733

via Facsimile and Certified Mail
Return Receipt Requested

November 22, 2006

Mr. Larry Bush, President
United Nuclear Corporation
State Highway 566
21 miles northeast of Gallup
P.O. Box 3077
Gallup, NM 87305-3077

Re: N.A. Water Systems List of Preliminary Assembled Remedial Alternatives
United Nuclear Corporation Superfund Site
Administrative Order (Docket No.: CERCLA 6-11-89)

Dear Mr. Bush:

The U.S. Environmental Protection Agency (EPA) has completed its review of the N.A. Water Systems (NAWS) September 25, 2006 letter entitled: "List of Preliminary Assembled Remedial Alternatives for the Site-Wide Supplemental Feasibility Study" (NAWS Letter), prepared on behalf of the United Nuclear Corporation (UNC) for the UNC Superfund Site, Church Rock, New Mexico. The NAWS Letter summarizes the first two phases of UNC's Supplemental Feasibility Study (SFS): the development and screening of remedial alternatives. Based on its review, the EPA has several concerns regarding the NAWS Letter which must be adequately addressed before the development and screening phases of the SFS will be approved by EPA and the third and final phase of the SFS (detailed analysis of alternatives) can proceed. Enclosed please find the EPA comments.

It is noted that representatives of the U.S. Nuclear Regulatory Commission (NRC), New Mexico Environment Department (NMED), and The Navajo Nation Environmental Protection Administration (NNEPA) have also reviewed and discussed the NAWS Letter with the EPA.

The UNC was given a deadline of November 30, 2006 to complete the SFS. However, in light of the current status of the SFS and the extent and nature of the EPA comments enclosed, the EPA recognizes that such date is not reasonable. Therefore, the UNC is directed to submit a revised document which adequately addresses all the EPA comments enclosed by no later than January 30, 2007. Once the development and screening phases

of the SFS are deemed complete by the EPA, UNC will be given an additional 60 days to complete the Detailed Analysis of Alternatives.

The EPA recommends that a teleconference be scheduled between UNC, EPA, NRC, NMED, and the NNEPA sometime in early December, 2006, to discuss the enclosed comments.

If you have any questions, please contact me by telephone at 214-665-6707 or by e-mail at Purcell.mark@epa.gov.

Sincerely,

Mark D. Purcell
Remedial Project Manager
Superfund Division (6SF-R)

Enclosure

Cc: P. Michalak, NRC
D. Mayerson, NMED
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D. Malone, NNEPA
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November 22, 2006

USEPA COMMENTS

On the

United Nuclear Corporation's
List of Preliminary Assembled Remedial Alternatives
Site-Wide Supplemental Feasibility Study

Submitted by N.A. Water Systems
Dated: September 25, 2006

The U.S. Environmental Protection Agency (EPA) has completed its review of the N.A. Water Systems' (NAWS') September 25, 2006, letter addressed to Mark D. Purcell, the EPA Remedial Project Manager, on the list of preliminary assembled remedial alternatives for the Site-Wide Supplemental Feasibility Study (SWSFS) at the United Nuclear Corporation (UNC) Superfund site (Site). The NAWS letter was prepared on behalf of the UNC. The EPA's comments are stated below.

GENERAL COMMENTS:

1. The NAWS letter summarizes two of the three phases of a feasibility study (FS): the development of alternatives and the screening of alternatives. Those alternatives that remain following the screening-out phase, if approved by EPA, are to be carried forward into the detailed analysis of alternatives, the last phase of the Feasibility Study (FS). Overall, the NAWS letter lacks sufficient information to allow EPA to fully assess the merits of the remedial alternatives developed and screened by UNC. It is recognized that UNC proposed to develop the SWSFS as a companion document to the EPA's original 1988 FS, and one that acknowledges and builds on that FS. However, the SWSFS still needs to represent a comprehensive study that is consistent with all relevant and current regulations and guidance on the performance of an FS and supports future EPA decision-making.

2. The NAWS letter appears to be out of sync with the 1988 Record of Decision (ROD) and the National Oil and Hazardous Substances Contingency Plan (NCP), 40 CFR 300 et seq., and it also fails to consult, discuss, or reference several important, relevant EPA Superfund guidance documents.

   First, the statement that NAWS will not second-guess matters in the 1988 FS that are EPA decision making is beside the point. The FS is not a decision-making document, but is instead a developmental document that develops, assembles, and analyzes various remedial alternatives, and it is pre-decisional. It is a foundation-source document, along

with the Remedial Investigation (RI), for both the proposed plan and the ROD. The reason that EPA has directed the process now underway is because it wants to look at new potential remedial alternatives (and perhaps some old ones re-examined) for the Site in the light of several years of additional Site-related data that have been gathered during Site remediation and in light of possible additions to the body of scientific and engineering knowledge, as well as changes in potentially applicable or relevant and appropriate requirements (ARARs). In fact, this process arose out of the EPA's determination in the mandatory CERCLA five-year review of 2003 to engage in a Supplemental Feasibility Study (SFS), and it is consistent with the recognition in the 1988 ROD that it might be technically impracticable to clean up the ground water to meet all ARAR contaminant levels for ground water. *See* Appendix A to the 1988 ROD.

The NAWS letter adopts an operable unit approach to UNC alternatives development, based on hydro-geologic strata, even though the EPA has never adopted this approach to Site ground-water remediation and has not directed it. While under the 1988 Memorandum of Understanding, the U.S. Nuclear Regulatory Commission (NRC) is responsible for remediation of the licensed facility or source control, EPA has handled the ground-water remediation problem as a single operable unit. *See* the selected alternative from the 1988 ROD. The SWSFS must look at the full range of comprehensive alternatives, individually or in combination, for a single ground-water remedy. The EPA recognizes that while it may be appropriate to examine and analyze different remedial approaches and technologies with respect to different saturated zones or geologic strata, remedial alternatives should be developed that deal comprehensively with the Site, including the no-action alternative.

Further, the NAWS screening letter has missed the requirements of the NCP for the development of remedial alternatives as a necessary precursor to the process of screening them. The NCP mandates development and analysis of preliminary remediation goals (PRGs), along with identification of potential ARARs, and analysis of systemic toxicants and known or suspected carcinogens, including contaminant risk pathways and receptors, as required underpinnings to the development, analysis, and screening of remedial alternatives. *See* 40 C.F.R. 300.430(e)(2). While it is true that PRGs from the original FS, as well as the remediation goals and remedial action objectives (RAOs) from the 1988 ROD, may still be valid (as UNC indicated in its July 27, 2006 letter to EPA), these issues need to be visited in the SFS process per the NCP. This has not been done even though for example, the five-year review identified at least nine compounds that should be examined for potential ARAR changes in light of regulatory developments since the 1988 ROD. The following list is taken from the 2003 Second Five-Year Review Report at p.66:

a. Arsenic – The arsenic MCL was to have been reduced to 0.010 mg/l, effective January 2006.

b. Antimony – An MCL was promulgated for antimony (0.006 mg/l) in 1992.

c. Beryllium – An MCL was promulgated for beryllium (0.004 mg/l) in 1992.

d. Cadmium – The cadmium MCL was reduced to 0.005 mg/l in 1991.

e. Thallium – An MCL was promulgated for thallium (0.002 mg/l) in 1992.

f. Nitrate – The background value for nitrate was changed by the NRC to 190 mg/l on the basis of additional background studies it conducted in 1996. No decision has yet been made by the EPA on this change.

g. Sulfate – The background value for sulfate was changed by the NRC to 2,125 mg/l on the basis of additional background studies it conducted in 1996. No decision has yet been made by the EPA on this change.

h. TDS – The background value for TDS was changed by the NRC to 4800 mg/l on the basis of additional background studies it conducted in 1996. No decision has yet been made by the EPA on this change.

i. Uranium – The uranium MCL was reduced to 0.030 mg/l, effective December 2003.

It is noted that the New Mexico Environment Department (NMED) supported the NRC's changes of the post-mining, pre-milling background levels for nitrate, sulfate and TDS in a letter to EPA, dated January 6, 1998. In its review of the referenced document, the NMED has indicated to EPA that it would reexamine the Site data (both the pre-1998 data submitted in support of the background revisions, as well as data that have been collected since 1998) before supporting the formal request for such background level revisions in the SWSFS. Additionally, as stated in NMED's January 6, 1998 letter, "UNC would also need to apply for a variance from applicable state ground water standards for the non-compliant constituents through the New Mexico Water Quality Control Commission (NMWQCC)." The NMED informed the EPA that it is not aware that this has yet been done.

It is also noted that in revisiting the merits of existing RAOs and PRGs, including those health-based cleanup levels selected by EPA in the ROD, it may be necessary to reassess the risk at the Site based on current Site conditions. If this is deemed necessary, EPA will perform any reassessment of risk, as appropriate.

3. NAWS fails to note or analyze several relevant EPA guidance documents dealing with the subjects that it raises in its screening analysis. Instead, NAWS largely backs its conclusions with the prior recommendations of UNC counsel and contractors without analysis or support. The NAWS reference list contains only one reference to EPA guidance out of 17 references that are shown. That guidance has undergone important modification noted below that is not mentioned. Also, although Technical Impracticability (TI) Waivers are mentioned in the NAWS letter, there is no mention of

the requirements of, nor any reference to, the EPA Guidance for Evaluating the Technical Impracticability of Ground-Water Restoration, September 1993, OSWER Directive 9234.2-25.

The NAWS letter refers to remedy technologies (GRAs) that cost too much compared to their benefits, yet it does not reference the applicable costing guidance and cost benefit guidance, much less engage in analysis based upon them. While the EPA 1988 RI/FS Guidance is referenced overall by NAWS, the section in that guidance dealing with costing is not referenced and has in any event been superseded by two other guidance documents not referenced here. These are: A Guide to Developing and Documenting Cost Estimates During the Feasibility Study, (July 2000) OSWER Directive 9355.0-75, and Scoper's Notes – An RI/FS Costing Guide. Bringing in a Quality RI/FS on Time and Within Budget, EPA/540/G-90/002, NTIS: PB90-258369INX. Together, these supersede Section 6.2.3.7 of the Guidance for Conducting Remedial Investigations and Feasibility Studies under CERCLA – Interim Final, October 1988, EPA/540/G-89/004 (cited by NAWS).

Further, there are at least two guidance documents germane to the development and screening of remedial alternatives that also summarize the general RI/FS Guidance requirements. These have not been cited by NAWS and they are: Getting Ready: Scoping the RI/FS (November 1989), OSWER 9355.3-01FS1, NTIS: PB90-274390INX, and The Feasibility Study, Development and Screening of Remedial Action Alternatives (November 1989), OSWER 9355.3-01FS3, NTIS: PB90-274416INX. For analysis farther down the RI/FS process there is The Feasibility Study, Detailed Analysis of Remedial Action Alternatives (March 1990), OSWER 9355.3-01FS4, NTIS: PB90-272675INX.

The NAWS letter suggests consideration of Alternate Concentration Limits (ACLs). ACLs are governed by the NCP at 40 C.F.R. 300.430(e)(2)(i)(F) and the statute at 42 U.S.C. §9621(d)(2)(B)(ii). However, the analysis required by those provisions is not present, nor is a reference to, or explanation of, the provisions of EPA guidance relating to the use of ACLs for Superfund sites. That EPA guidance is: Alternate Concentration Limits (ACL's) in Superfund Cleanups, July 19, 2005, OSWER Directive 9200.4-39, 4p. That guidance supersedes 1987 Resource Conservation and Recovery Act Interim Final ACL Guidance with respect to Superfund cleanups.

All of these guidance documents are available in PDF file download on the EPA Headquarters web site for Superfund. In addition, under "technology considerations" on the EPA Superfund web site, there are a number of technology documents available as well as links to information sources on both commonly used and innovative technologies for Superfund cleanups.

4. In its June 23, 2006 letter to UNC, EPA specified that the analysis and data of UNC's previous TI evaluation shall be carried forward and discussed in the SWSFS if a TI Waiver is to be a component of any alternative. Although the TI Waiver is

included in the list of alternatives carried through the development and screening process, the analysis and data supporting the TI Waiver alternative were not, nor was the guidance on evaluating TI in ground-water restoration discussed or referenced (*see* EPA General Comment No. 2, above). As UNC is aware, the EPA put together a TI Waiver Review Team for evaluating the merits of invoking a TI Waiver of the standards for sulfate, TDS and manganese based on previous Site-related documents submitted by UNC. The SWSFS shall be included in the set of documents that the TI Waiver Review Team will review in performing such evaluation. Therefore, the SWSFS needs to be conducted without an initial bias towards waiving ARARs. The SWSFS needs to include the TI evaluation analysis and data to support carrying forward the TI Waiver into the detailed analysis of alternatives, but the discussion of such issues should follow only upon rigorous analysis of the possible effectiveness of all potential alternatives relative to Site-specific ARARs. This comment also pertains to the inclusion of ACLs as a component of any alternatives.

5. All cost documentation referenced in the MWH Supplemental FS (October 2004) should be included in the SWSFS.

6. The passive reactive barrier (PRB) alternative apparently was not evaluated for any of the aquifers. Please include the PRB alternative in the evaluation.

SPECIFIC COMMENTS:

1. Page 7, paragraph 6: The document states that "Government parties have agreed that there is no Zone 3 point-of-exposure (POE) in Section 1 (NRC, September 16, 1999)." The NMED does not support the NRC concept of point-of-exposure for the protection of the State of New Mexico's ground-water resources. The NMWQCC regulations and the NMED policy require ground water to meet established standards throughout the aquifer, including beneath the contaminant source area(s), not only at designated locations such as POE wells. Please delete or revise any statements in the referenced document that refer to POE.

2. Figure 1: The eleven process options referenced in the EPA's 1988 FS should be listed in the table.

3. Table 2, Southwest Alluvium Alternatives: This table lists alternatives that are retained after the initial screening process. Please retain the following remedial technologies in this table from Figure 1:

    a. Barriers – physical barriers were screened out from Figure 1 based on the fact that pumping to avoid spillover is required. Please retain the physical barrier with pumping alternative.

b. Hydraulic Flushing – this alternative was not screened out from Figure 1, yet was not retained as an alternative; please add it to Table 2.