UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 6
SUPERFUND DIVISION
Louisiana/New Mexico/Oklahoma Section
1445 Ross Avenue
Dallas, Texas 75202-2733

September 2, 2010

Sent Via Email Only

Mr. Larry Bush
Vice President
United Nuclear Corporation
P.O. Box 3077
Gallup, New Mexico 87305-3077

Re: Comments on the Site-wide Supplemental Feasibility Study Part 2 document dated July 2009 for the UNC Church Rock Mill Gallup, New Mexico Superfund Site and related Source Materials License SUA-1475, Docket No: 040-08907 and General Site-wide considerations for Part 3

Dear Mr. Bush:

The U.S. Environmental Protection Agency (EPA), the New Mexico Environment Department (NMED), and the Nuclear Regulatory Commission (NRC) have reviewed the Site-wide Supplemental Feasibility Study (SWSFS) Part 2 document dated July 2009 for the United Nuclear Corporation (UNC) Church Rock Mill Gallup, New Mexico Superfund Site and related Source Materials License SUA-1475, Docket No: 040-08907. The document was submitted to the reviewing parties under the signature of Chester Engineers, on behalf of United Nuclear Corporation, in accordance with Unilateral Administrative Order (UAO) Docket No. CERCLA 6-11-89. Consistent with the UAO, this response letter is addressed to the facility coordinator, identified as you.

At this time, the SWSFS Part 2 shows considerable improvement and progress when compared to the SWSFS Part 1 document dated February 2007. Based on document review and discussions held during the June 9, 2010, meeting in Albuquerque, New Mexico, between EPA Region 6, NMED, NRC, Navajo Nation Environmental Protection Administration, and UNC, the UNC SWSFS Part 2 document is considered complete given the following comments enclosed with this letter which will then be incorporated into the SWSFS Part 3. This letter provides UNC with Notice to Proceed with development of the SWSFS Part 3. This notice is provided with the understanding that Part 3 will be a compilation of Parts 1 and 2 as well as any associated supporting documentation including, but not limited to, the background statistical evaluation, risk

assessment revisions/updates, extraction/injection pilot study results, ground water attenuation and monitoring data, and ground water fate and transport modeling.

The Agencies look forward to the revised submittal. Should you have any questions or concerns, please call me at 214-665-8143.

Sincerely,

Katrina Higgins-Coltrain
Remedial Project Manager (6SF-RL)
LA/NM/OK Section

cc: Earle Dixon, NMED
Eugene Esplain, NNEPA
Yolande Norman, NRC
Roy Blickwedel, GE
Mark Purcell, EPA

Enclosure: Comments on the Site-wide Supplemental Feasibility Study (SWSFS) Part 2 document dated July 2009 for the UNC Church Rock Mill Gallup, New Mexico Superfund Site (Site) and related Source Materials License SUA-1475, Docket No: 040-08907 and General Site-wide considerations for Part 3

Site-wide Supplemental Feasibility Study (SWSFS) Part 2:

1. Cost Analysis: The description of each alternative was outlined conceptually, but there was insufficient detail on the gross cost estimates necessary to perform cost comparisons of the various process options/alternatives as well as conduct a cost and benefit analysis. These estimates are nearly absent, except for qualitative cost terms and the mention of the total cost estimates for a couple of remedial alternatives for Zone 3. Currently, this fails to meet and follow the EPA guidance criteria described in OSWER 9355.0-75 (July 2000).

   The cost screening evaluation is limited and judgmental in scope as each process option under the same technology is compared using dollar ranges or relative descriptors such as high, medium, and low. The suitability of a process option should be determined primarily on its technical merits thus, the cost of a specific remedial strategy should not be utilized solely to eliminate a corrective action from the evaluation. Part 2 states that qualitative cost estimates or first order estimates have been applied to screen out select process options, but the document does not provide this information to the reader. The lack of quantitative cost estimate information and cost comparison analysis weakens the technical credibility of the Part 2 document.

   For example, directional (predominantly horizontal) wells and tunnels appear to be more advantageous in capturing the tailings seepage-impacted groundwater than small diameter vertical wells. The directional wells and tunnels were screened out for Zone 3 because of excessive capital cost and potential collapse. Furthermore, it was stated that 'various vertical well alternatives will provide equivalent performance at a much lower cost'. However, the SWSFS Part 2 did not provide a performance analysis and comparison between directional wells/tunnel versus vertical wells.

   During the June 9, 2010, meeting, this was discussed in detail, and UNC indicated they acknowledged this comment, and would improve the cost presentation to contain the more detailed cost comparison. Please include such information in the SWSFS Part 3.

2. The SWSFS Part 2 screening analysis of remedial alternatives for the UNC ground water remedy did not include the following list. Part 3 will incorporate and give more discussion to:
   a. monitored natural attenuation of hazardous and non-hazardous constituents as a remedial alternative.

b. technical review and performance analysis of the covariant relationship of uranium concentration to bicarbonate concentration (e.g., GE, 2006 reference) as one of the primary parameters that indicates, locates, and monitors the position of tailings water seepage impact (pH is the other).
c. applicability of isotope geochemistry parameters to support the remedial alternative of monitored natural attenuation or other remedial alternatives.
d. consideration and further screening analysis of high pressure deep jet grouting in the lower part of the Southwest Alluvium and Zone 3 aquifers to stop plume migration as well as potential geochemical impacts to ground water quality from its application (See comment 8 below).
e. consideration and further screening analysis of permeable reactive barrier technologies in the lower part of the Southwest Alluvium and Zone 3 aquifers to stop plume migration as well as potential geochemical impacts to ground water quality from its application (See comments 8 and 16 below).
f. consideration and further screening analysis of bioremediation, at a minimum, to determine if bioremediation is suitable for the Site. Given that a large number of wells have already been installed within the seepage-impacted aquifer, these wells may be utilized as injection wells if bioremediation is screened to be an appropriate option. It is recognized that the ability to inject nutrients into Zone 3 may be limited due to the loss in porosity and permeability caused by the acidic seepage-impacted water and formation of kaolinitic clay (clay diagenesis). Nevertheless, bioremediation still should be screened in the FS process.
g. the potential problems experienced with each remedial technology. For example, the extraction and injection of these remedial strategies implemented to date include problems such as well clogging and loss of extraction/injection rate. The alternative description did not provide adequate/convincing arguments or propose measures to ensure the long-term effectiveness of a hydraulic containment/extraction alternative. These issues may affect overall effectiveness in obtaining the groundwater cleanup levels and will assist in the evaluation of technologies.

<u>Specific Section Comments:</u>

3. Section 4.2: Summarize the conceptual site model and highlight how the monitoring and pilot study data collected over the years have refined the current understanding of the subsurface environment as well as the contamination source. [See comments 11 and 13 below]. Such a summary may include relevant information on the processes used to recover the uranium, the types and quantity of reagents used in milling, historical tailings management storage and disposal practices, current performance of the tailings cover, the physical and chemical composition of the tailings/solution, and the current understanding of the contribution, or lack of, from the tailings-impacted seepage entering Zones 1 and 3 through the alluvium deposit that is in direct contact with the tailings material. These actions have/continue to influence(d) the behavior of the hydrogeological

system and solute transport, which ultimately will influence the selection of an appropriate remedial strategy(ies). Some of this information has been included under 4.2.2. Site characteristics should be consolidated under one section (see comment 13 below).

4. Section 4.2.1, paragraph 5: It states that EPA and the regulated community interpret the regulation to mean that the applicable or relevant and appropriate requirements (ARARs) are frozen as of the date of the record of decision and EPA is not required to adopt new standards. Although EPA is not required to adopt new standards, it is required by law to conduct a Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) five-year review to determine if the remedy is or will be protective of human health and the environment. Such reviews are required when remedial action results in contamination being left at the Site above levels that allow for unlimited use and unrestricted exposure. In accordance with EPA guidance (OSWER 9355.7-03B-P), such review includes an evaluation of significant changes in standards and assumptions that were used at the time of remedy selection. Changes in promulgated standards or to-be-considered information (TBCs) may impact the protectiveness of the remedy. If EPA determines that a Site is not protective based on the original standards and assumptions, and the adoption of new standards would provide protectiveness, then EPA will adopt the new standards (or waive them pursuant to the National Oil and Hazardous Substances Contingency Plan).

   Therefore, UNC shall strike the phase from the SWSFS Part 2 that states EPA is not required to adopt new standards and insert a statement that EPA may adopt new standards or assumptions if necessary to ensure protectiveness of the remedy. This revision will be applicable to all future documents.

5. Section 4.2.1:
   a. The first part of this section discusses the establishment of remediation goals and refers to Table 1. This is followed by the conclusion that it is "…improper for UNC to determine that the highlighted green values represent the remediation goals.." At this stage, remediation goals are not set. Remediation goals are set in the ROD; however, preliminary remediation goals (PRGs) are identified in order to fully evaluate the alternatives. It is further stated that "…UNC assumes that the green highlighted values in Table 1 are one set of values …" and "Existing ROD standards constitute other sets…". UNC should discuss the PRGs represented by each 'set' of comparison concentrations when evaluating the effectiveness of each alternative.
   b. Last paragraph: Please include the remedial action objectives. Part 1 discusses the ambiguity between the RAOs as listed in the ROD to those listed in the Operable Unit FS. This section should clarify that the terms Section 2, Tailings Disposal Area, and by-product materials disposal site are synonymous. This clarifies the areas of ground water contamination

being addressed under the CERCLA ground water remedial action and allows for future consistency and reporting of the RAOs. Please include this language in Part 3.

6. Section 4.2.2:
    a. Paragraph 4: This paragraph discusses geochemical equilibrium. This topic should be expanded as discussed in comments 11, 13, and 15 below.
    b. Paragraph 6: Revised cleanup levels (CL) and alternate concentration limits (ACLs) are not alternatives and should be removed from the list. These should be discussed in sections related to risk, background, revised MCLs, and revised health-based levels as was done in Part 1.

7. Section 4.2.3:
    a. Paragraph 3: Please revise the last sentence to clarify that the following text is only related to those general response actions (GRAs) that are being screened out. For example, "The following text provides explanation for screening out certain GRAs for specific ground water zones. All other GRAs listed in Table 3 are retained for further consideration."
    b. Paragraph 8: It is stated that there is a "…requirement to keep all injection and extraction wellheads on UNC property;..". This is not a requirement; however, it is a UNC preference. It is understood that installation of additional wells outside of the UNC property boundary would take considerable effort and lengthy negotiations with property owners/allotees. As such, the discussion should be revised to reflect this aspect of well installation, remove references to 'regulatory requirement', and include it as an implementation issue when evaluating alternatives. Please include this language in Part 3.

8. Section 4.2.4.3:
    a. Paragraph 9: The vibrating beam barrier discussion needs more detail related to process and depth of effectiveness prior to screening out this technology. Please include this language in Part 3.
    b. Paragraph 17: It is stated that physical barriers are screened out for Zones 1 and 3. The provided text discussion on Jet grouting indicates that this has been applied at depths up to 200 feet and is effective in stabilizing heavy clays. Zones 1 and 3 fit within these parameters. In addition, since hydraulic barriers using ground water injection is feasible, then one would conclude that jet grouting is feasible. Before screening this technology, further explanation is necessary and should be included in Part 3.
    c. Paragraph 23: *This comment assumes the arroyo is dry and is only wet when raining.* This paragraph discusses the dynamic nature of the arroyo with respect to physical barriers that would be used to contain ground water within the southwest alluvium. The arroyo is not in hydraulic connectivity with the alluvium water table. The placement of these barriers would need to span the saturated thickness as well as some vadose zone thickness. These barriers would not necessarily extend to the

surface, especially if coupled with ground water extraction to limit mounding. What is the estimated distance between the top of the ground water within the alluvium and the base of the arroyo? Erosional incision would have to overcome this distance before potential damage could be expected. Is it reasonable to assume the arroyo would incise 80 feet within the near future? Additional supporting information will need to be provided in Part 3 before these alternatives are eliminated based on erosion potential that may not impact the alternative until some time in the distant future.

d. Paragraph 24: This paragraph briefly mentions PRBs. As discussed during a conference call July 15, 2010, implementation of a PRB using zero valent iron (ZVI) would be an effective technology for the Site. Further discussion led to the dialogue regarding installation through injection using liquid carriers that would allow ZVI to be dispersed into the aquifer, creating a treatment zone. Hydraulic barriers using ground water injection is considered feasible for Zone 3; therefore, one would conclude that ZVI injection should also be considered feasible. Before screening this technology, further explanation is necessary and should be included in Part 3 (refer to comment 16 below).

9. Section 4.2.5.3: ICs should be proposed for Zone 3-Section 36 until the status of Section 36 with regards to long-term stewardship has been resolved. Please include this language in Part 3.

10. Section 4.2.8, paragraph 8: This paragraph discusses the excess water that may be generated during implementation of the enhanced extraction alternative and that it may overwhelm the capacity of the evaporation ponds. It is further stated that the excess water would have to be discharged to Pipeline Canyon. This is an issue that should be discussed during screening as it will affect the list of potential ARARs, the need for additional water management actions (including treatment), and if capacity is not allowed to be exceeded, then it may affect the potential effectiveness of the alternative.

General Site-wide Considerations for Part 3

The SWSFS Part 2 document is incomplete in that it does not fulfill the expectations and requirements of a remedial alternatives screening analysis that tries to find a comprehensive remedy for the UNC ground water problem. It is understood from the June 9, 2010, meeting that Part 3 of the SWSFS process will provide a more complete screening analysis of remedial alternatives for the UNC Site.

The Part 3 document will compile all previous information contained within Parts 1 and 2 as well as any associated supporting documentation. Part 3 will be a stand-alone document that will sufficiently describe Site conditions, Site alternative screening, and Site alternative analysis.

11. Comprehensive approach to Site completion: Although UNC makes clear it has reviewed the guidance documents cited by EPA to help support the screening analysis of alternatives and the various criteria, UNC states that the SWSFS Part 2 does not need to be, "built from the ground up." It is agreed that parts of the guidance for the FS include components that have already been developed and implemented at the UNC Site dating back to the late 1980s. However, Part 3 will need to summarize the high points in some manner to make the SWSFS document more complete and stand alone. Part 2 had a tendency to lean toward shortcutting a complete FS analysis and begin with screening the alternatives viewed by UNC as the only feasible technical options with merit.

    The Part 3 Report needs to present complete and comprehensive documentation of the feasibility study process being conducted to support future EPA decision-making with respect to the CERCLA remedy, as well as the potential process for alternate abatement standards under the NMED's Water Quality Act and related regulations and license requirements under NRC. The SWSFS should provide comprehensive reporting of current conditions, assumptions, screening values, and revised background, including identification of wells used in the studies, key maps, etc. The documents provided to date do not provide the level of detail needed to evaluate the alternatives, nor do they provide a comparison to current PRGs (refer to comment 5a above).

    A comprehensive discussion related to how these alternatives are consistent with and will satisfy and/or comply with the ARARs will eliminate the need for additional reporting, analysis, and evaluation and will compile all Site information into one resource that can be used to support future decision making related to Site action.

12. General Report Organization and Presentation: The following is a list of organizational comments that would have assisted the reader during document review. During the June 9, 2010, UNC acknowledged this comment, and agreed to improve the organization and format of Part 3 to help with readability. Incorporation of these suggestions is requested during development and drafting of Part 3.
    a. Please include an Executive Summary.
    b. Please include response to comments as an appendix.
    c. Please include an introduction that provides a general overview of the sections within the document and how they link and lead the reader through the development and screening of alternatives.
    d. Please use additional subheadings to assist with text organization so that the topic remains consistent and does not jump back and forth between topics or alternatives within the same paragraph or section.
    e. Please include case study information in an appendix and reference within the text of the document as necessary.
    f. The combination of tables and figures are full of information, but they are hard to follow with respect to specific parts of the text (i.e., where they are

referenced and discussed). In addition, it is difficult going back and forth between tables and figures when moving from one phase of alternative development and screening to the next.

i. Please use the tables as text summaries with each sequential table building off of the previous table. For example, Table 1 would summarize the entire universe of potential general response actions and associated applicability while Table 2 builds from there and lists the general response actions remaining along with associated process options. In this manner, the logic is easier to follow.
ii. Please include a reference in the table that links the reader to the associated document text and page number.
iii. Some items in the tables and figures are mentioned briefly by one sentence of discussion, where as other items are given paragraphs and pages of discussion. Those briefly discussed should be explained more thoroughly in order to provide supporting data/justification for screening.

13. Site Characterization:

a. Based on years of data collection, the understanding of the Site geology and hydrology has been expanded. The SWSFS needs to include an updated conceptual site model, an evaluation of maximum detected concentrations in wells, and updated contaminant distribution maps for each ground-water area. It should also provide an update on current geochemistry, ground water elevations, migration potential, contaminant transport, seepage potential, and recharge potential. It is understood that much of this information is provided in the Annual Monitoring reports [some provided under Part 2, Section 4.2.2]; however, for completeness it should be summarized here as supporting information related to alternative evaluation. See comment 3 above.
b. Background contaminant levels should be discussed in a separate section entitled Background Water Quality. Please provide a discussion of background levels of the contaminants in each of the three aquifers, including a comparison of historic background values to any proposed new background values and a comparison of the differences in background concentrations between the three aquifers. Also provide a detailed description of the information and assumptions about wells and data used to make such determinations on new background values. Please include a table of approved and proposed background levels for all existing and historic contaminants of concern (COCs) or contaminants of potential concern (COPCs) as part of the overall reassessment of remediation levels. Some of this information was provided in the N.A. Water Systems October and December 2008 submittals on statistics and Exposure Point Concentrations (EPCs); however, for completeness it should be summarized here as supporting information related to alternative evaluation. Additionally, information and assumptions related to the

statistics and development of EPCs by N.A. Water System in 2008 should be included in the SWSFS Part 3.

c. Previous discussions held in December 2006, indicated that Site-specific characteristics, data and analysis be presented to explain and support/provide the basis for why certain ROD cleanup levels, ARARs, and/or other relevant cleanup criteria may not be met [provided in Part 1]. Please include a discussion in Part 3.
d. Statistics (Table B1-6) – Please provide the database used in calculating the 95% UCL so that a complete review of the statistical approach can be made.

14. Nine Criteria: Two of the nine criteria are state acceptance and community acceptance. Under this topic, a discussion on the evaluation and acceptance by NMED and the NNEPA (regarding regulatory compliance and TI Waiver support) should be included. On June 9, 2010, NMED provided more explanation of the process and steps regarding state acceptance and TI Waivers. During the Alternative evaluation process, Part 3 of the SWSFS will need to generally consider and discuss the current understanding of the concerns and level of support provided by the community, State of New Mexico, NRC, and NNEPA.

15. Ground Water Modeling: The use of a Site ground water flow model as a tool to supplement and support the remedial alternative screening process for all technologies considered, including monitored natural attenuation, and post closure monitoring to ensure protection of human health should be considered. The ground water pathway evaluation needs to provide projected contaminant distributions, including contaminant transport, degradation, and attenuation mechanisms. Projections based on ground water flow and solute transport models should be calibrated on the basis of Site-specific empirical data. Based on discussions during the June 9, 2010 meeting, a ground water flow model may not be 'realistic' for the UNC Site because of the hydrogeology, decreasing aquifer thickness; overall uncertainties; and value to address scenarios long-term. However, it was discussed that perhaps a simple analytical model might be useful to look at analyte concentration values over time, estimate migration potential and/or aquifer de-watering, and approximate potential points of exposure which would then be used to show extent of potential/residual risk and the geographical extent of IC coverage. Please include a section discussing the merits, use, application, and outputs of such a tool to assist with alternative evaluation.

16. Pilot Study: Currently UNC is conducting a pilot study at the Site to determine the feasibility of injection/extraction as a means to control the migration of the ground water plume in Zone 3. Part 3 should be supplemented with the field data to assist with the evaluation of the hydraulic containment; enhanced extraction; and permeable reactive barrier alternatives.

    During conference call discussions held on July 15, 2010, UNC indicated a willingness to review additional references for permeable reactive barrier

technologies involving the use of carrier liquids to inject ZVI into the aquifer. At the conclusion of the call, UNC indicated that if current pilot study results were favorable, a field pilot study may be considered for ZVI injection. Conducting such a field study is supported by EPA. If completed, any pilot scale testing/data related to ZVI injection should be discussed and presented in Part 3.

17. Alternative Protection: Part of the SWSFS is to reassess existing or baseline remediation standards or levels set forth in EPA's 1988 ROD and potential changes to those remediation levels that may be necessary to ensure the protectiveness of the remedy. Protection of human health should be discussed in terms of cancer and non-cancer risk associated with exposure to ground water. Knowing the risk posed by ground water exposure will assist in the evaluation of alternatives with respect to demonstrating the potential for achieving the RAOs and ground water protection standards established at the Site; protection of human health; long-term and short-term effectiveness; and reduction in toxicity, mobility, and volume. Coupled with the ground water modeling discussed under comment 15, this will support the need for remedial action and potential implementation of ICs. In addition, the proposed alternatives need to demonstrate the ability to achieve ARARs [see comment 11 above and 18 below].

    This is further discussed in the comment below.

18. Risk Assessment: Since the initial risk assessment for the Site was performed in 1988, changes to ARARs, toxicology values, and risk assessment procedures for radiological contaminants require modification to previous risk calculations. Therefore, the historic assessment may no longer provide adequate assessment of risk under current Site conditions.

    At this time, EPA believes it appropriate to conduct an updated human health risk assessment for the Site and directs UNC to do so, especially in light of the work already performed for EPCs and the other information needed by the NRC regarding POE concentrations. The risk assessment update should be incorporated into the SWSFS. The risk assessment needs to be updated to address the carcinogenic and non-carcinogenic risk posed by the COCs, including both radiologic and non-radiologic COCs. The updated assessment should include relevant RAGS revisions, applicable exposure pathways (e.g. dermal (RAGS E) and inhalation (RAGS F), and current toxicological information for each COC.

    For the NRC, the exposure assessment component of the risk assessment should also identify a POC and POE concentration. It should determine the maximum permissible levels of COCs at the POC that are protective of human health and the environment at the POE. Given the potential for the seepage-impacted ground water to migrate off the UNC property, the POE should be estimated based on the projected downgradient extent of such migration, including areas beyond the UNC property boundary.

The SWSFS Part 3 will include the review of the existing and potentially new or revised COCs, ARARs, and TBCs conducted during Part 1. It will also include a background section discussing the wells selected, data used, and statistics performed. In addition, further discussion will be provided for the background calculations of the upper 95%UCL and EPCs completed in 2008.

In addition to the information already completed, the following will be discussed within the text of Part 3 for the risk assessment.

- A paragraph regarding the receptor population, expected land use, and ground water use [presented in Part 1].
- A paragraph regarding the exposure routes and pathways [presented in Part 1], including potential exposure through the inhalation pathway associated with the evaporation ponds.
- A paragraph discussing the changes in COC concentrations (EPCs derived from current ground water data within the 3 aquifers), receptor exposure parameters, and toxicity values [partly presented in Part 1], and data tables providing a comparison of maximum detected concentrations, the 95% UCL concentrations, and the current screening values.
- An updated risk estimate for those changes identified in the previous bullet using RAGS tables.
- An uncertainty discussion related to risk estimates.

The following comments are specific to and provided by each of the respective reviewing parties.

NRC: Additional Comments related to corrective action under the NRC License.

19. During the Alternative evaluation process, Part 3 of the SWSFS will need to consider and discuss how this impacts the requirements of 10 CFR Part 40 Appendix A, Criterion 5B(6).

20. Zone 1: The proposed Alternative Concentration Limit (ACL) application includes the ACL of 0.4 mg/L for nickel at POC well 604, of 0.3 mg/L for total trihalomethanes at POC well 614, and a potential point of exposure (POE) along a north-northwest trending vertical plane aligned through POC wells EPA-5 and EPA-7 in Section 1. The accomplished corrective actions related to Zone 1 include the neutralization, dewatering/removal of the tailings fluid and capping of Borrow Pit No. 2, and groundwater extraction through a series of wells between 1984 and 1999. Pump-back systems were installed around the north and east perimeter of the borrow pit to limit the seepage migration originated from the tailings disposal area. The groundwater extraction operation was reduced to a selective pumping schedule from relatively highly impacted locations after six years operation as result of decrease in pumping efficiency and contaminant concentrations. The remaining of a small number of pumping wells in zone 1

were decommissioned in July of 1999, with the approval from the NRC and the concurrence of EPA and NMEQ.

a. The NRC is currently holding UNC's ACL application request in abeyance. This issue will be addressed separately to the Licensee, shortly.

21. Southwest Alluvium: The chemical constituents of concern for the Southwest Alluvium aquifer include arsenic, beryllium, cadmium, gross alpha, lead, lead-210, nickel, radium-226 and 228, selenium, thorium-230, total trihalomethanes, uranium, and vanadium. Based on the recent ground water monitoring data collected in the 4th quarter 2009, the concentrations of chemical constituents of concern at the point of compliance wells did not exceed the respected levels specified in the current NRC license.

    a. The NRC has determined that the Southwest Alluvium aquifer is currently in full compliance with the NRC groundwater protection standards.

22. For Zone 3, the groundwater protection standards were still exceeded at the NRC license POC, as reported in the Annual Review Report – 2009, Groundwater Corrective Action, Church Rock Site, Church Rock, New Mexico (Chester Engineers, January 2010). The original goal of the remediation effort for restoring groundwater quality beyond the tailings disposal area appears to have changed to controlling the migration of the seepage-impacted ground water within the UNC property boundaries.

    The SWSFS did not include projections of the hazardous constituent concentration that each corrective action would likely produce at specific times at the point of compliance and the PO), nor was it clear how the SWSFS will address the contaminated ground water beyond the current POC. As indicated in the NRC license (License No. SUA-1475, Amendment No. 42), the licensee is required to submit either a modified active corrective action plan, an application for ACL) or an alternative to the specification requirements of 10 CFR Part 40, in accordance with 84.c of the Atomic Energy Act (AEA).

    In accordance with the NRC's requirements, new POC and POE may have to be established, along with ACLs for relevant chemical constituents at the POC that are protective of human health and the environment. The projected hazardous constituent concentration and risk that each corrective action could potentially achieve should be discussed in the context of ACLs or the revised cleanup goals to be developed and proposed to the US EPA and NMED.

NMED: Additional Comment related to remedial action.

23. In contrast to the NRC POE concept, the State of New Mexico Water Quality Control Commission (NMWQCC) regulations 20.6.2.4103, applies to ground-water at any place where the TDS concentration is 10,000 mg/L or less and shall

be abated to the standards where toxic pollutants shall not be present (Section 20.6.2.1101) and the standards of Section 20.6.2.3103 shall be met. Part E. of Section 20.6.2.4103 describes Technical Infeasibility and Part F. describes Alternative Abatement Standards. Part 3 of the SWSFS should address the NMWQCC requirements and discuss how those requirements will or will not be met by one or a combination of the remedial alternatives for the UNC Site.