

March 8, 2001

Mr. Roy S. Blickwedel
Remedial Project Manager
General Electric Company
640 Freedom Business Center
King of Prussia, PA 19406

SUBJECT: AMENDMENT 32, MODIFICATIONS TO CHURCH ROCK GROUNDWATER
MONITORING PROGRAM

Dear Mr. Blickwedel:

United Nuclear Corporation (UNC) requested, by letters dated February 17, 1999, May 17, 1999, January 13, 2000, and March 2, 2000, that the NRC amend their source material license to reflect a revision in their groundwater sampling program due to changes in groundwater conditions at the site. The U.S. Environmental Protection Agency (EPA) issued comments on UNC's January 13, 2000 submittal and UNC responded to these comments in their letter dated April 26, 2000. EPA indicated their satisfaction with the proposal in an e-mail dated November 27, 2000.

The U.S. Nuclear Regulatory Commission (NRC) staff has reviewed UNC's request. Based on this technical review, staff approves this request and has amended language in License Condition (LC) No. 30 of Source Material License SUA-1475 as indicated in the enclosed Technical Evaluation Report (TER). The stage II recovery wells, with the exception of well 716, will be converted to compliance monitoring points as discussed with the licensee in the meetings and site visit of November 14-17, 2000. Further discussion between the staff and UNC personnel on January 29, 2001, identified changes in the wells which had occurred since the initial UNC letters were written. These changes are reflected in the TER.

UNC proposed to eliminate ammonia from the list of parameters. This is denied based on the fact that ammonia is a constituent in the groundwater that resulted from site derived seepage and staff believes that it is necessary to continue to monitor it. Staff consulted with EPA and the New Mexico Environmental Department (NMED), who indicated that ammonia should not be dropped since it is a site derived contaminant. If you wish to contest the NRC denial of the requested change, you have the right to demand a hearing within 20 days from the date of this letter, according to 10 CFR 2.103(b).

Therefore, pursuant to Title 10, Code of Federal Regulations (10 CFR) Part 40, Source Materials License SUA-1475 is hereby amended by revising LC No. 30 as described in the TER (Enclosure 1). All other conditions of the license shall remain the same. The license is being reissued (Amendment 32) to incorporate the changes to LC No. 30 (Enclosure 2).

An environmental report is not required from UNC because the amendment does not meet the criteria of 10 CFR 51.60 (b)(2). An NRC environmental assessment for the action is not required, since this license revision is categorically excluded under 10 CFR 51.22(c)(11).

R. Blickwedel

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March 8, 2001

Please contact Ken Hooks, the NRC Project Manager for the Church Rock site, at 301-415-7777 or by e-mail at krh1@nrc.gov, if you have any questions concerning this letter or the enclosures.

In accordance with 10 CFR 2.790 of the NRC's "Rules of Practice," a copy of this letter will be available electronically for public inspection in the NRC Public Document Room or from the PUBLICLY Available Records (PARS) component of NRC's document system (ADAMS). ADAMS is accessible from the NRC Web site at <http://www.nrc.gov/NRC/ADAMS/index.html> (the Public Electronic Reading Room).

Sincerely,

/RA/

Philip Ting, Chief
Fuel Cycle Licensing Branch
Division of Fuel Cycle Safety
and Safeguards
Office of Nuclear Material Safety
and Safeguards

Docket No. 40-8907
License No. SUA-1475

Enclosures: 1. Technical Evaluation Report
2. Amendment No. 32

cc: Greg Lyssy, EPA Region 6
Marcy Leavitt, NMED Groundwater Quality Bureau
George Padilla, Navajo EPA Superfund Program
Arthur Kleinrath, DOE Grand Junction
Larry Bush, UNC Gallup NM
Suzie du Pont, Earth Tech PA
George Schuman, NMED Superfund Oversight Section
Beiling Liu, NMED Superfund Oversight Section

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Sincerely, **/RA/**
Philip Ting, Chief
Fuel Cycle Licensing Branch
Division of Fuel Cycle Safety
and Safeguards
Office of Nuclear Material Safety
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Docket No. 40-8907
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Larry Bush, UNC Gallup NM
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Case closed - L51821, L50954

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(Initials)

(Date)

**TECHNICAL EVALUATION REPORT
UNITED NUCLEAR CORPORATION CHURCH ROCK SITE
CHURCH ROCK, NEW MEXICO**

DATE: January 29, 2001

FACILITY: UNC Church Rock Site

**SOURCE MATERIAL
LICENSE:** SUA-1475

TECHNICAL REVIEWER: William von Till

PROJECT MANAGER: Ken Hooks

SUMMARY AND CONCLUSIONS:

United Nuclear Corporation (UNC) requested, by letters dated February 17, 1999; May 17, 1999; January 13, 2000; and March 2, 2000, that the NRC amend their source material license to reflect a revision in their groundwater sampling program due to changes in groundwater conditions at the site. The U. S. Environmental Protection Agency (EPA) issued comments on UNC's January 13, 2000 submittal and UNC responded to these comments in its letter dated April 26, 2000. EPA indicated their satisfaction with the proposal in an e-mail dated November 27, 2000).

The U.S. Nuclear Regulatory Commission (NRC) staff has reviewed UNC's requests. Based on this technical review, staff approves the requests and has proposed amended language in License Condition 30 as indicated in this Technical Evaluation Report (TER). The stage II recovery wells, with the exception of well 716, will be converted to compliance monitoring points as discussed with the licensee in the meetings and site visit of November 14-17, 2000.

The licensee proposed to eliminate ammonia from the list of parameters. This was denied based on the fact that ammonia is a constituent in the groundwater that resulted from site derived seepage and staff believes that it is necessary to continue to monitoring it. Staff consulted with EPA and the New Mexico Environment Department (NMED), which indicated that ammonia should not be dropped since it is a site derived contaminant.

BACKGROUND:

The Church Rock site, which is also an EPA Superfund site, is licensed by the NRC, the lead federal agency for the site under a Memorandum of Agreement between the NRC and the EPA. Groundwater monitoring is performed at the site to monitor the progress of corrective action activities and to monitor the movement of contamination over time and distance. Groundwater in the affected aquifers is the result of man-made activities that resulted in significant water saturation in these zones. The source of the man-induced recharge has been eliminated and therefore, water levels have been slowly lowered as conditions fall back into equilibrium. As

this occurs, some of the monitoring wells go dry or can not produce enough water to be a valid monitoring point. In addition, the EPA required UNC to revise their groundwater sampling methodology to a "low-flow" sampling technique. In the course of UNC testing wells for this type of sampling, some wells were identified as not being capable of being used due to continued water level decline.

TECHNICAL EVALUATION:

NRC staff, in consultation with the EPA, have reviewed the groundwater monitoring program revision and agree that it is appropriate for the change in conditions at the site. Monitoring well 801 will continue to be sampled due to increasing trends per discussions with the licensee in a November 14, 2000 meeting. Recovery wells 717, and 719 will be added to the sampling list as monitoring wells per discussions with the licensee during meetings of November 14-17, 2000, and phone conversation of January 29, 2001. At this time, these wells will not be used as pumping wells but will be converted to monitoring wells to adequately measure the rebound in conditions and to track plume movement. Converting these wells to monitoring wells was also suggested by the EPA in its September 1998 Five-Year Review Report on page 26. In a meeting with the licensee, it was agreed that an additional well (or wells depending on sampling results) will be installed in the vicinity of monitoring well EPA-11 in Zone 3 and downgradient of well 624 in the Southwest Alluvium for the purposes of defining the extent and severity of the contamination. Monitoring well EPA-13 was kept in the program due to elevated radium-226/228 levels as discussed with the licensee on January 29, 2001. The licensee requested that ammonia be eliminated from the parameter list. Since ammonia was originally in the tailings slime and has migrated into groundwater (EPA ROD, 1988) it will be kept as a parameter to be monitored. The EPA and New Mexico Environmental Department were consulted on this issue and commented that ammonia should be kept in the program because it was a site derived constituent.

All of the Point of Compliance (POC) wells within Zone 3 (501-B, 518, EPA-3, EPA-18), with the exception of well 517, have become unusable due to lowering water levels. Therefore, based on phone conversations with the licensee on November 29, 2000, and November 30, 2000, wells 613, 708, and 711, will replace the lost POC wells. POC well 708 is necessary to cover the approximately 1000 foot gap between POC wells 517 and 711 and because this is the central location of plume migration.

In phone discussions with the licensee, staff learned that POC wells EPA 22A in the Southwest Alluvium and 516A in Zone 1 are no longer usable due to dropping water levels. Per the staff phone discussion with the licensee on January 29, 2001, well GW-3 will replace well EPA 22A and EPA 5 will replace 516A as POC wells.

The temporary shut-down of the southwest alluvium was also incorporated in the proposed license per meetings with the licensee, EPA, NMED, and the Navajo EPA, on November 14-17, 2000, and in discussions with the licensee on January 29, 2001. Since standards in License Condition 30.B are currently exceeded, staff would not be able to accept the permanent cessation of active remediation without the acceptance of alternate concentration limits (ACLs) or an alternative compliance strategy, as allowed under the introduction to 10CFR40, App. A. The requirements of 10 CFR Part 40, Appendix A, Criterion 5D require that the licensee implement a corrective action program with the objective of returning hazardous constituents

concentration levels in groundwater to the concentration limits set as standards (License Condition 30.B) and that the licensee shall continue corrective action measures to the extent necessary to achieve and maintain compliance with the groundwater protection standard.

In the meetings of November 14-17, 2000 with the licensee, EPA, NMED, and Navajo EPA, the NRC and the other regulators agreed that a temporary shut-down of the groundwater recovery system would be acceptable (modification to the licensee's request). This temporary shut-down would be acceptable in order to properly evaluate remedial efforts in the Southwest Alluvium and to determine future activities. By monitoring the water quality after pumping, rebound trends can be properly evaluated so that the effectiveness of past and future remediation can be analyzed. It was agreed that monitoring will continue for a period of 12 to 18 months. After 12 months the licensee will be required to submit a Post-Pumping Monitoring Report to illustrate the results and then again in six months, if necessary. Based on the slow rate of plume migration and the lack of potential receptors in the vicinity, the staff finds this temporary shut down acceptable. Should conditions change that pose a potential health, safety, or environmental risk, the pumping system in the Southwest Alluvium will resume.

It was also agreed in the November 14-17, 2000 meeting that additional wells must be installed to determine the extent of groundwater contamination in Zone 3 near well EPA 11 and in the Southwest Alluvium downgradient from well 624.

PROPOSED LICENSE CHANGES:

License Condition 30 currently reads as follows:

30. The licensee shall implement a compliance monitoring program containing the following:
 - A. Sample wells GW-1-4; EPA Wells 1-28 and EPA-22A (excepting EPA Wells 6, 10, 16, 19, 20, 21, 22, 24 and 26); and Wells 411, 420, 501-B, 502-B, 504-B, 509-D, 515A, 516A, 517, 518, 604, 614, 619, 632, TWQ-90, TWQ-106D, TWQ-29A, TWQ-141, TWQ-142 and TWQ-143, on a quarterly frequency for chloride, nitrate, sulfate ammonia, manganese, calcium, magnesium, sodium, bicarbonate, potassium, field-pH, TDS and water level, and on a semiannual frequency for arsenic, beryllium, cadmium, chloroform, lead, lead-210, nickel, combined radium-226 and 228, selenium, thorium-230, uranium, gross alpha and vanadium. Well TWQ-126 shall be monitored for water level quarterly.

Notwithstanding the above, the licensee is only required to sample EPA wells after receipt of written authorization by the land owner to enter that area for the purpose of sampling groundwater from those specified wells. The licensee shall make every reasonable effort to obtain such authorization. If authorization is not obtained, the licensee shall inform the NRC, promptly.
 - B. Comply with the following groundwater protection standards at

point of compliance Wells GW-1, GW-2, 632, EPA-23, EPA-28, 509-D and EPA-22A in the alluvium; 614, 604, EPA-4, EPA-7 and 516-A in Zone 1; and 517, 518, EPA-3, 501-B and EPA-18 in Zone 3:

arsenic = 0.05 mg/l, beryllium = 0.05 mg/l, cadmium = 0.01 mg/l, chloroform = 0.001 mg/l, gross alpha = 15.0 pCi/l, lead = 0.05 mg/l, lead-210 = 1.0 pCi/l, nickel = 0.05 mg/l, radium-226 and 228 = 5.0 pCi/l, selenium = 0.01 mg/l, thorium-230 = 5.0 pCi/l, uranium = 0.3 mg/l and vanadium = 0.1 mg/l.

- C. Implement a corrective action program in Zone 1 in accordance with the June 14, 1990, and July 1, 1991, amendment requests, with the addition of EPA-7 as a seepage collection well. Implement a corrective action program in Zone 3 to achieve the groundwater standards in License Condition 30.B. Groundwater pumping in Zone 3 will cease temporarily to determine groundwater concentration trends for future remedial action for a period of 12 to 18 months, as determined by the NRC. A Post-Pumping Evaluation Report must be submitted to the NRC by December 1, 2001. This report must use tables, graphs, and iso-contour maps to illustrate groundwater quality trends. If necessary, as determined by the NRC, a Post-Pumping Evaluation Report must be submitted to the NRC by June 1, 2001. If NRC standards are still exceeded on June 1, 2001, the licensee must submit either a modified active corrective action plan, an application for alternate concentration limits (ACLs) or an alternative to the specific requirements of 10 CFR Part 40, Appendix A in accordance with 84.c of the Atomic Energy Act (AEA) by August 1, 2001. Implement a corrective action program in the alluvium in accordance with "Amendment 2, Reclamation Plan, License No. SUA-1475" submitted by letter dated March 29, 1989, with the objective of returning the concentrations of arsenic, beryllium, cadmium, chloroform, gross alpha, lead, lead-210, nickel, radium-226 and 228, selenium, thorium-230, uranium and vanadium to the concentration limits specified in Subsection (B). No corrective action program component, meeting the abandonment criteria stated in the March 29, 1989, submittal, shall be decommissioned without obtaining prior NRC approval. Additionally, a fourth seepage collection well shall be installed and operated in the alluvial aquifer as stated in the April 1, 1991, submittal.

The licensee shall on a semiannual frequency, submit a ground-water monitoring report as well as submit a corrective action program review, by December 31 of each year, that describes the progress towards attaining ground-water protection standards. In the 1994 corrective action program review, the effects of the modified seepage recovery efforts in Zone 3 shall be evaluated.

[Applicable Amendments: 2, 4, 5, 7, 11, 19, 21, 31]

The proposed amendment to License Condition 30 reads as follows:

30. The licensee shall implement a compliance monitoring program containing the following:
- A. Sample wells GW-1-3; EPA Wells 2, 4, 5, 7, 13, 14, 23, 25, and 28, and wells 420, 504-B, 509-D, 515-A, 517, 604, 613, 614, 624, 627, 632, 708, 711, 717, 719, 801, 802, 803, 808, and TWQ-142, on a quarterly frequency for chloride, ammonia, nitrate, sulfate, manganese, calcium, magnesium, sodium, bicarbonate, potassium, field-pH, TDS and water level, arsenic, beryllium, cadmium, chloroform, lead, lead-210, nickel, combined radium-226 and radium-228, selenium, thorium-230, uranium, gross alpha and vanadium. Wells EPA 8, 9, TWQ-143, 402, 412, 424, 446, 501A, 502A, 504A, 505A, 701, 702, 706, 707, 710, 712, 713, 714, 805, and 807, shall be monitored for water level on a quarterly basis.
- Notwithstanding the above, the licensee is only required to sample EPA wells after receipt of written authorization by the land owner to enter that area for the purpose of sampling groundwater from those specified wells. The licensee shall make every reasonable effort to obtain such authorization. If authorization is not obtained, the licensee shall inform the NRC, promptly.
- B. Comply with the following groundwater protection standards at point of compliance Wells GW-1, GW-2, GW-3, 632, EPA-23, EPA-28, and 509-D in the Southwest Alluvium; 614, 604, EPA-4, EPA-5, and EPA-7 in Zone 1; and 517, 613, 708, and 711 in Zone 3:
- arsenic = 0.05 mg/l, beryllium = 0.05 mg/l, cadmium = 0.01 mg/l, chloroform = 0.001 mg/l, gross alpha = 15.0 pCi/l, lead = 0.05 mg/l, lead-210 = 1.0 pCi/l, nickel = 0.05 mg/l, radium-226 and 228 = 5.0 pCi/l, selenium = 0.01 mg/l, thorium-230 = 5.0 pCi/l, uranium = 0.3 mg/l and vanadium = 0.1 mg/l.
- C. Implement a corrective action program in Zone 1 in accordance with the June 14, 1990, and July 1, 1991, amendment requests, with the addition of EPA-7 as a seepage collection well to achieve the groundwater standards in License Condition 30.B.

Implement a corrective action program in Zone 3 to achieve the groundwater standards in License Condition 30.B. Groundwater pumping in Zone 3 will cease temporarily to determine groundwater concentration

trends for future remedial action for a period of 12 to 18 months, as determined by the NRC. A Post-Pumping Evaluation Report must be submitted to the NRC by December 1, 2001. This report must use tables, graphs, and iso-contour maps to illustrate groundwater quality trends. If necessary, as determined by the NRC, a Post-Pumping Evaluation Report must be submitted to the NRC by June 1, 2002. If NRC standards are still exceeded on June 1, 2002, the licensee must submit either a modified active corrective action plan, an application for alternate concentration limits (ACLs) or an alternative to the specific requirements of 10 CFR Part 40, Appendix A in accordance with 84.c of the Atomic Energy Act (AEA) by August 1, 2002.

Implement a corrective action program in the Southwest Alluvium in accordance with "Amendment 2, Reclamation Plan, License No. SUA-1475" submitted by letter dated March 29, 1989, to achieve the groundwater standards in License Condition 30.B. Groundwater pumping in the alluvium will cease temporarily to determine groundwater concentration trends for future remedial action for a period of 12 to 18 months, as determined by the NRC. A Post-Pumping Evaluation Report must be submitted to the NRC by December 1, 2001. This report must use tables, graphs, and iso-contour maps to illustrate groundwater quality trends. If necessary, as determined by the NRC, a Post-Pumping Evaluation Report must be submitted to the NRC by June 1, 2002. If NRC standards are still exceeded on June 1, 2002, the licensee must submit either a modified active corrective action plan, an application for alternate concentration limits (ACLs) or an alternative to the specific requirements of 10 CFR Part 40, Appendix A in accordance with 84.c of the Atomic Energy Act (AEA) by August 1, 2002.

No corrective action program component, meeting the abandonment criteria stated in the March 29, 1989, submittal, shall be decommissioned without obtaining prior NRC approval. Additional wells must be installed in Zone 3 and the Southwest Alluvium to determine the extent of groundwater contamination. Once these wells have been installed, they will be sampled in accordance with the groundwater monitoring program in License Condition 30A.

The licensee shall on a semiannual frequency, submit a ground-water monitoring report as well as submit a corrective action program review, by December 31 of each year, that describes the progress towards attaining ground-water protection standards.

[Applicable Amendments: 2, 4, 5, 7, 11, 19, 21, 31, 32]

REFERENCES:

Earth Tech. May 1999. Letter from Suzie du Pont to King Stablein regarding supplemental submittal to February 17, 1999 License Amendment Request to Modify Groundwater Compliance Monitoring Program, May 17, 1999.

Earth Tech, January 2000. Letter to John Surmeier regarding supplemental submittal to February 17, 1999 License Amendment Request to Modify Groundwater Compliance Monitoring Program, January 13, 2000.

Environmental Protection Agency (EPA) October 1998. Record of Decision for the United Nuclear Corporation Groundwater Operable Unit, October 6, 1988.

Environmental Protection Agency (EPA) November 2000. Electronic mail from Mr. Greg Lyssy to William von Till concurring on Groundwater Compliance Monitoring modifications, November 27, 2000.

EPA, February 2000. Letter from Greg Lyssy to Roy Blickwedel regarding comments to Earth Tech January 13, 2000 letter, February 2, 2000.

EPA, September 1998. Five-Year Review Report, United Nuclear Corporation Ground Water Operable Unit, McKinley County, New Mexico, September 1998 (page 26).

General Electric Corporate, November 29-30, 2000, phone conversation with William von Till, regarding lost POC wells.

United Nuclear Corporation (UNC), March 2000. Letter from Larry Bush to Thomas Essig requesting License Amendment to Modify Groundwater Compliance Monitoring Program, March 2, 2000.

MATERIALS LICENSE

Pursuant to the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974 (Public Law 93-438), and the applicable parts of Title 10, Code of Federal Regulations, Chapter I, Parts 19, 20, 30, 31, 32, 33, 34, 35, 36, 39, 40, 51, 70, and 71, and in reliance on statements and representations heretofore made by the licensee, a licensee is hereby issued authorizing the licensee to receive, acquire, possess, and transfer byproduct, source, and special nuclear material designated below; to use such material for the purpose(s) and at the place(s) designated below; to deliver or transfer such material to persons authorized to receive it in accordance with the regulations of the applicable Part(s). This license shall be deemed to contain the conditions specified in Section 183 of the Atomic Energy Act of 1954, as amended, and is subject to all applicable rules, regulations, and orders of the Nuclear Regulatory Commission now or hereafter in effect and to any conditions specified below.

| | | | |
|---|----------------------------------|---|--|
| Licensee | | | |
| 1. UNC Mining and Milling Division of United Nuclear Corporation | | 3. License Number SUA-1475 | Amend No. 32 |
| 2. P.O. Box 3077 Gallup, New Mexico 87305-3077 | | 4. Expiration Date | Until NRC determines site Reclamation is adequate |
| | | 5. Docket or Reference Number | 40-8907 |
| 6. Byproduct, Source, and/or Special Nuclear Material | 7. Chemical and/or Physical Form | 8. Maximum Amount that Licensee May Possess at Any One Time Under This License | |
| Uranium byproducts | Any | Unlimited | |

9. Authorized place of use: The licensee's uranium milling facilities located in McKinley County, New Mexico.
10. The licensee is hereby authorized to possess byproduct material in the form of uranium waste tailings and other byproduct wastes generated by the licensee's past milling operations. [Applicable Amendment: 17]
11. Release of equipment or packages from the restricted area shall be in accordance with the attachment to this license entitled, "Guidelines for Decontamination of Facilities and Equipment Prior to Release for Unrestricted Use or Termination of Licenses for Byproduct, Source, or Special Nuclear Material," dated August 1987.

The mill site and buildings are released for unrestricted use, and the restricted areas will be limited to the tailings site, as described in UNC's letter dated November 10, 1993

[Applicable Amendment: 21]
12. The results of all effluent and environmental monitoring required by this license shall be reported in accordance with Title 10 of the Code of Federal Regulations Part 40, Section 65, with copies of the report sent to the NRC. Monitoring data shall be reported in the format shown in the attachment to this license entitled, "Sample Format for Reporting Monitoring Data." [Applicable Amendment: 21]
13. Before engaging in any activity likely to cause an environmental impact not previously assessed by the NRC, the licensee shall prepare and record an environmental evaluation of such activity. When the evaluation indicates that such activity may result in a significant adverse environmental impact that was not previously assessed or that is greater than that previously assessed, the licensee shall provide a written evaluation of such activities, and obtain prior approval of the NRC in the form of a license amendment.

[Applicable Amendment: 21]

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14. Prior to termination of this license, the licensee shall provide for transfer of title to byproduct material and land, including any interests therein (other than land owned by the United States or the State of New Mexico), which is used for the disposal of such byproduct material or is essential to ensure the long-term stability of such disposal site to the United States or the State of New Mexico at the State's option.
15. DELETED by Amendment No. 19.
16. DELETED by Amendment No. 29.
17. DELETED by Amendment No. 17.
18. The results of sampling, analyses, surveys and monitoring, the results of calibration of equipment, reports on audits and inspections, all meetings and training courses required by this license and any subsequent reviews, investigations, and corrective actions, shall be documented. Unless otherwise specified in the NRC regulations all such documentation shall be maintained for a period of at least 5 years.
19. The Radiation Safety Officer (RSO) shall possess the minimum qualifications as specified in Section 2.4.1 of Regulatory Guide 8.31, "Information Relevant to Ensuring that Occupational Radiation Exposures at Uranium Mills will be As Low As is Reasonably Achievable." [Applicable Amendment: 19]
20. Written procedures shall be established for the radiation safety and environmental monitoring programs, bioassay analyses, instrument calibrations, exposure determinations, ground-water sampling, etc. A current copy of each written procedure shall be maintained on-site. [Applicable Amendment: 17]
21. The licensee shall be required to use a Radiation Work Permit (RWP) for all work or nonroutine maintenance jobs where the potential for significant exposure to radioactive material exists and for which no standard written procedure already exists. The RWP shall be issued by the RSO or his designate, qualified by way of specialized radiation protection training, and shall at least describe the following:
- A. The scope of the work to be performed.
 - B. Any precautions necessary to reduce exposure to uranium and its daughters.
 - C. The supplemental radiological monitoring and sampling necessary prior to, during, and following completion of the work.
22. DELETED by Amendment No. 29.
23. Mill tailings, other than small samples for purposes such as research or analysis, shall not be transferred from the site without specific prior approval of the NRC in the form of a license amendment. The licensee shall maintain a permanent record of all transfers made under the provisions of this condition.
24. DELETED by Amendment No. 19.

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25. The licensee shall maintain an NRC-approved financial surety arrangement, consistent with 10 CFR 40, Appendix A, Criteria 9 and 10, adequate to cover the estimated costs, if accomplished by a third party, for decommissioning and decontamination of the mill and mill site, reclamation of any tailings or waste disposal areas, ground-water restoration as warranted, and the long-term surveillance fee.

Annual updates to the surety amount, required by 10 CFR 40, Appendix A, Criteria 9 and 10, shall be submitted to the NRC by March 31 of each year. Along with each proposed revision of the surety amount or annual update, the licensee shall submit supporting documentation showing a breakdown of costs and the basis for the cost estimates with adjustments for inflation, maintenance of a minimum 15 percent contingency fee, changes in engineering plans, activities performed, and any other conditions affecting estimated costs for site closure. The basis for the cost estimate is the NRC-approved reclamation/decommissioning plan as identified in License Condition Nos. 30 and 34, or NRC-approved revisions to the plan. The attachment to this license entitled, "Recommended Outline for Site Specific Reclamation and Stabilization Cost Estimates," outlines the minimum considerations used by the NRC in the review of site closure cost estimates. Reclamation/ decommissioning plans and annual updates should follow this outline.

The licensee's currently approved surety, a performance bond issued by the, American Home Assurance Company of New York, in favor of the NRC, shall be continuously maintained in an amount of no less than \$1,468,787 for the purpose of complying with 10 CFR 40, Appendix A, Criteria 9 and 10, until a replacement is authorized by the NRC. The licensee shall maintain a standby trust for the benefit of the NRC. The current established trust is with the Federal Insurance Company.

The licensee shall also continuously maintain an irrevocable standby letter of credit in favor of the United States Environmental Protection Agency, in an amount no less than \$2,000,000, for the purpose of complying with 10 CFR 40, Appendix A, Criterion 9. The issuing institution shall be an entity which has the authority to issue such instruments and whose operations are regulated and examined by a Federal or State agency. The licensee shall inform the NRC of changes to this letter of credit within 30 days of any such change. The amount of this letter of credit shall not be reduced without prior NRC approval.

[Applicable Amendments: 13, 18, 22, 26, 27, 28, 30]

26. DELETED by Amendment No. 17.

27. DELETED by Amendment No. 2.

28. DELETED by Amendment No. 29.

29. The licensee shall comply with the following regarding the bioassay program:

- A. The lower limit of detection to be utilized for the analysis of urine samples shall be 5 µg/l uranium or less.
- B. In-vivo counting shall be performed in accordance with Section 3 of Regulatory Guide 8.22 dated January 1987.
- C. Anytime an action level of 15 µg/l uranium for urinalysis or 9 nCi of natural uranium for in-vivo measurement is reached or exceeded, the licensee shall document the corrective actions which have been performed in accordance with Revision 1 of Regulatory Guide 8.22, dated January 1987. This documentation shall be submitted to the NRC, as part of the semiannual report required by 10 CFR 40.65.

**MATERIALS LICENSE
SUPPLEMENTARY SHEET**

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Docket or Reference Number 40-8907

Amendment No. 32

- D. Anytime an action level of 35 µg/l for two consecutive specimens or 130 µg/l uranium for one specimen for urinalysis or 16 nCi uranium for an in-vivo measurement is reached or exceeded, the licensee shall document the corrective actions which have been performed in accordance with Revision 1 of Regulatory Guide 8.22. This documentation shall be submitted to the NRC, within 30 days of exceeding the action level.

[Applicable Amendments: 2, 21]

30. The licensee shall implement a compliance monitoring program containing the following:

- A. Sample wells GW-1-3; EPA Wells 2, 4, 5, 7, 13, 14, 23, 25, and 28, and wells 420, 504-B, 509-D, 515-A, 517, 604, 613, 614, 624, 627, 632, 708, 711, 717, 719, 801, 802, 803, 808, and TWQ-142, on a quarterly frequency for chloride, ammonia, nitrate, sulfate, manganese, calcium, magnesium, sodium, bicarbonate, potassium, field-pH, TDS and water level, arsenic, beryllium, cadmium, chloroform, lead, lead-210, nickel, combined radium-226 and radium-228, selenium, thorium-230, uranium, gross alpha and vanadium. Wells EPA 8, 9, TWQ-143, 402, 412, 424, 446, 501A, 502A, 504A, 505A, 701, 702, 706, 707, 710, 712, 713, 714, 805, and 807, shall be monitored for water level on a quarterly basis.

Notwithstanding the above, the licensee is only required to sample EPA wells after receipt of written authorization by the land owner to enter that area for the purpose of sampling groundwater from those specified wells. The licensee shall make every reasonable effort to obtain such authorization. If authorization is not obtained, the licensee shall inform the NRC, promptly.

- B. Comply with the following groundwater protection standards at point of compliance Wells GW-1, GW-2, GW-3, 632, EPA-23, EPA-28, and 509-D in the Southwest Alluvium; 614, 604, EPA-4, EPA-5, and EPA-7 in Zone 1; and 517, 613, 708, and 711 in Zone 3:

arsenic = 0.05 mg/l, beryllium = 0.05 mg/l, cadmium = 0.01 mg/l, chloroform = 0.001 mg/l, gross alpha = 15.0 pCi/l, lead = 0.05 mg/l, lead-210 = 1.0 pCi/l, nickel = 0.05 mg/l, radium-226 and 228 = 5.0 pCi/l, selenium = 0.01 mg/l, thorium-230 = 5.0 pCi/l, uranium = 0.3 mg/l and vanadium = 0.1 mg/l.

- C. Implement a corrective action program in Zone 1 in accordance with the June 14, 1990, and July 1, 1991, amendment requests, with the addition of EPA-7 as a seepage collection well to achieve the groundwater standards in License Condition 30.B.

Implement a corrective action program in Zone 3 to achieve the groundwater standards in License Condition 30.B. Groundwater pumping in Zone 3 will cease temporarily to determine groundwater concentration trends for future remedial action for a period of 12 to 18 months, as determined by the NRC. A Post-Pumping Evaluation Report must be submitted to the NRC by December 1, 2001. This report must use tables, graphs, and iso-contour maps to illustrate groundwater quality trends. If necessary, as determined by the NRC, a Post-Pumping Evaluation Report must be submitted to the NRC by June 1, 2002. If NRC standards are still exceeded on June 1, 2002, the licensee must submit either a modified active corrective action plan, an application for alternate concentration limits (ACLs) or an alternative to the specific requirements of 10 CFR Part 40, Appendix A in accordance with 84.c of the Atomic Energy Act (AEA) by August 1, 2002.

**MATERIALS LICENSE
SUPPLEMENTARY SHEET**

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|----------------------------|----------|
| License Number | SMC-1559 |
| Docket or Reference Number | 40-8989 |
| Amendment No. 32 | |

Implement a corrective action program in the Southwest Alluvium in accordance with "Amendment 2, Reclamation Plan, License No. SUA-1475" submitted by letter dated March 29, 1989, to achieve the groundwater standards in License Condition 30.B. Groundwater pumping in the alluvium will cease temporarily to determine groundwater concentration trends for future remedial action for a period of 12 to 18 months, as determined by the NRC. A Post-Pumping Evaluation Report must be submitted to the NRC by December 1, 2001. This report must use tables, graphs, and iso-contour maps to illustrate groundwater quality trends. If necessary, as determined by the NRC, a Post-Pumping Evaluation Report must be submitted to the NRC by June 1, 2002. If NRC standards are still exceeded on June 1, 2002, the licensee must submit either a modified active corrective action plan, an application for alternate concentration limits (ACLs) or an alternative to the specific requirements of 10 CFR Part 40, Appendix A in accordance with 84.c of the Atomic Energy Act (AEA) by August 1, 2002.

No corrective action program component, meeting the abandonment criteria stated in the March 29, 1989, submittal, shall be decommissioned without obtaining prior NRC approval. Additional wells must be installed in Zone 3 and the Southwest Alluvium to determine the extent of groundwater contamination. Once these wells have been installed, they will be sampled in accordance with the groundwater monitoring program in License Condition 30A.

The licensee shall on a semiannual frequency, submit a ground-water monitoring report as well as submit a corrective action program review, by December 31 of each year, that describes the progress towards attaining ground-water protection standards.

[Applicable Amendments: 2, 4, 5, 7, 11, 19, 21, 31, 32]

31. The licensee shall conduct an annual survey of land use (grazing, residence, wells, etc.) in the area within two miles of the mill and submit a report of this survey annually to the NRC. This report shall indicate any differences in land use from that described in the licensee's previous annual report. The report shall be submitted by March 31 of each year. Notwithstanding the above, if access to private lands is required, the licensee is only required to conduct such survey after receipt of written authorization by the land owner allowing UNC access for the purpose of conducting said survey.

[Applicable Amendments: 2, 21]

32. The licensee is authorized to construct and operate an enhanced evaporation system in accordance with the system described in the submittal dated June 14, 1990. The southern cell enhanced evaporation system shall be designed as described in the June 29, 1992, submittal and have an operational schedule similar to that of the central cell.

[Applicable Amendments: 2, 7, 15]

33. DELETED by Amendment No. 17.

34. The approved tailings reclamation plan is that submitted by the licensee on August 30, 1991, and modified by licensee submittals dated March 5, April 10 and June 21, 1996.

[Applicable Amendments: 10, 17, 24, 25]

**MATERIALS LICENSE
SUPPLEMENTARY SHEET**

License Number SUA-1475

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35. The licensee shall complete site reclamation in accordance with the approved reclamation plan and groundwater corrective action plan, as authorized by license Condition Nos. 34 and 30, respectively, in accordance with the following schedules.

- A. To ensure timely compliance with target completion dates established in the Memorandum of Understanding with the Environmental Protection Agency (56 FR 55432, October 25, 1991), the licensee shall complete reclamation to control radon emissions as expeditiously as practicable, considering technological feasibility, in accordance with the following schedule:
- (1) Windblown tailings retrieval and placement on the pile - complete.
 - (2) Placement of the interim cover to decrease the potential for tailings dispersal and erosion - complete.
 - (3) Placement of final radon barrier designed and constructed to limit radon emissions to an average flux of no more than 20 pCi/m²/s above background - December 31, 1997.
- B. Reclamation, to ensure required longevity of the covered tailings and groundwater protection, shall be completed as expeditiously as is reasonably achievable, in accordance with the following target dates for completion.
- (1) Placement of erosion protection as part of reclamation to comply with Criterion 6 of Appendix A of 10 CFR Part 40 - December 31, 1997.
 - (2) Projected completion of groundwater corrective actions to meet performance objectives specified in the groundwater corrective action plan - December 31, 1997.
- [Applicable Amendment: 23]
- C. Any license amendment request to revise the completion dates specified in Section A must demonstrate that compliance was not technologically feasible (including inclement weather, litigation which compels delay to reclamation, or other factors beyond the control of the licensee).
- D. Any license amendment request to change the target dates in Section B above must address added risk to the public health and safety and the environment, with due consideration to the economic costs involved and other factors justifying the request such as delays caused by inclement weather, regulatory delays, litigation, and other factors beyond the control of the licensee.

FOR THE NUCLEAR REGULATORY COMMISSION

/RA/

Date: March 8, 2001

Philip Ting, Chief
Fuel Cycle Licensing Branch
Division of Fuel Cycle Safety and Safeguards
Office of Nuclear Material Safety
and Safeguards