

# UNITED NUCLEAR CORPORATION



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January 23, 2003

Mr. Daniel M. Gillen,  
US Nuclear Regulatory Commission  
Fuel Cycle Safety & Safeguards  
Fuel Cycle Licensing Branch  
Uranium Recovery Branch  
Division of Waste Management  
Office of Nuclear Material Safety  
and Safeguards  
11545 Rockville Pike  
Rockville, Maryland 20852-2738

Dear Mr. Gillen:

Pursuant to our License SUA-1475, submitted herewith are the results of our ALARA Audit conducted on December 17, 2002.

If you have any questions, please advise.

Sincerely,

  
Larry Bush  
Manager

LB:drb

Enclosure

Cc: US NRC, Region IV Div. Of Radiation Safety and Safeguards  
Steve Cline, GE  
Roy Blickwedel, GE

NMS501

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January 23, 2003

To: File

From: Larry Bush

Subject: ALARA Committee Meeting and Audit, December 17, 2002

The UNC Mining and Milling ALARA Committee met on December 17, 2002 to audit the result of the radiological monitoring program for the fourth quarter of 2001, and the first three quarters of data for 2002. Current committee members are: Mr. Larry Bush, Manager and Mr. Max Chischilly, Jr., Radiation Safety Officer. The Committee reviewed Mr. Chischilly's Annual Report entitled "Environmental Monitoring Program for Inactive Status 2002," dated December 2002, and "Data Summary between the fourth quarter of 2001 to the first three quarters of 2002."

#### Current Significant Findings and Event:

1. No radiation exposure was recorded for United Nuclear Corp. (UNC) employees, contractors, and the public due to our current site status conditions.
2. Training and refresher training of employees on Radiation Protection and Safety was done in 2002 as required.
3. All documentation required by our monitoring program is in order for 2002.
4. Available data for this Report is also reported as per suggested format in Regulatory Guide 4.14(see Attached table).
5. The annual landuse survey was done on 3/13/02 for 2001. Findings Include:
  - A.) An additional Monitoring Well No. NBL-1 was drilled on 7/26/01 in UNC's Section 36, Northern Boundary Line.
  - B.) Found no other significant differences in land usage since the 2001 report.



6. Presently, our environmental monitoring program is at a greatly reduced level and the reported items in the Environmental Monitoring Summary Data (pg. 6 of 8) are solely based on the available data only. The only required radiation monitoring program will be under an RWP (Radiation Work Permit), and no RWP was issued during this annual period.
7. The active radiation monitoring instruments are routinely calibration and the Radiation Monitoring program under RWP is still in effect, but is in a standby status awaiting the final pond closure reclamation activity (see also pg. 5 of 8).
8. The required monthly sampling of 14 Southwest Alluvium Well for 12 to 18 months under the NRC License SUA-1475, Amendment 31, Cond. 30 dated 12/29/00; is met, and had ended on 6/2002 after 18 months of sampling.
9. Currently, the main problem concerning the tailings site is livestock wandering inside the perimeter fenceline. This existing condition is caused by livestock creating/forcing openings in the barb wire fencing, and sometimes jumping over the fenceline. Corrective action include:
  - A.) Immediate repair or construction of additional fencing to prevent further entrance.
  - B.) Visual inspection of perimeter fenceline and area surveillance whenever possible.
  - C.) Informing the local livestock owners of the situation .
  - D.) Immediately, chase livestock out of the tailings area, and find out where the entrance point is.



Past Significant Events:

1. The mill site was release from our License SUA – 1475 as a restricted area by Amendment # 21 in 1995.
2. The final tailings reclamation was completed in 1995. The last of drainage channels were completed in 1996. The reclamation of evaporation ponds is being delayed until the ground water corrective Action Plan is deemed completed by the NRC and EPA.
3. The radon cap cover was completed in 1996 with the exception of the lined evaporation ponds.
3. The report submitted January 03, 1997 and January 13, 1998 on Radon Emanation Testing of UNC's Church Rock Tailings Site shows the average Radon Flux to be 5.71 pci/m2sec., which is less than the allowable of 20.0 pci/m2sec.

UNC MINING AND MILLING  
ENVIRONMENTAL SURVEILLANCE

Monitoring Program

- \* 1. The Radiation Safety Officer (RSO) inspects the restricted areas monthly.
- \* 2. Air sampling is continuously done at four locations; one located upwind of the tailings impoundment, two located downwind of the tailings impoundment, and one background sampling location (see EMP-2).
- \* 3. Gamma exposure is continuously monitored with TLDs at the same four locations as the air sampling. The TLDs are changed out and analyzed semi-annually (See Procedure EMP-3).
- \* 4. Ambient radon is continuously monitored with radon detectors at the same sites as air sampling. The detectors are changed out and analyzed quarterly and reported semi-annually (see Procedure EMP-4).
- \* 5. Groundwater samples are collected and analyzed quarterly at two locations near tailings, and one domestic water well at the mill site (see Procedures EMP-5 and EMP-5a).
- 6. Equipment being sold or for other purposes, leaving the restricted area is surveyed for compliance with guidelines for release to unrestricted use (see Procedure EMP-8A).
- \* 7. An Effluent Report will be submitted semi-annually within 60 days of each six-month period. All of the Environmental Monitoring Program data is included in this report, with the exception of the equipment surveys (see EMP-9).

Note: The above (\*) marked items are deleted as per NRC approved License amendment 29 dated 6-18-99 deleting condition's #16, #22, and #28.

Additional Note: Item #1 procedure is continued on 10-19-99, to show and maintain the integrity of the restricted tailings area. Effluent Report under Item #7 is reported when pertinent data is available.

*Max Chischilly Jr. 1/28/02    Max Chischilly Jr. 1-20-03*  
*Max Chischilly Jr. 1/29/01    M. Chischilly 1/22/99*  
*Max Chischilly Jr. 1/20/00*  
*E. Morata 1/19/95    E. Morata 1/20/97*  
*E. Morata 1/20/96    E. Morata 1/22/98*

UNC MINING AND MILLING  
PERSONNEL RADIATION PROTECTION PROGRAM

External Exposure Monitoring

1. Employees working within the tailings area wear a TLD badge which is changed out and analyzed semi-annually. (See Procedure PMP-2).

Internal Exposure Monitoring

2. Self-monitoring Alpha survey is done by employees working within the tailings area daily prior to leaving the area with occasional spot checks by the RSO or the Radiation Technician (see Procedure PMP-4).
3. Bioassays are done on employees working within the tailings area semi-annually (See Procedure PMP-5).
4. Continuous air samples are taken in the general tailings working area of employees for the purpose of calculating exposures (see Procedure PMP-6).
5. Surface surveys of eating areas, change room benches, and labs are done monthly.
6. TLD bioassays and air samples will also be done under the RWP program (see Procedure PMP-9).
7. Instrumentation and calibration (see Procedure PMP-10).

\*NOTE Rev. 4, PMP

Personnel Radiation Monitoring, 1 through 6, to be done as needed under an RWP.

*E. Morale*  
1/19/95

*ED Morale*  
1/20/97

*M. Chischilly* 1/22/99

*Max Chischilly* 1/20/00

1/20/96 *E. Morale*

1/22/98 *E. Morale*

*Max Chischilly* 1/29/01

*Max Chischilly Jr.* 1/28/02

*Max Chischilly Jr.* 1/20/03

**ENVIRONMENTAL MONITORING SUMMARY DATA  
FOR 4<sup>TH</sup> - QUARTER, 2001 TO 3<sup>RD</sup> QUARTER - 2002**

<b>Environmental Monitoring:</b>	<b>Required Analysis:</b>	<b>Highest Result Obtained:</b>	<b>Allowable:</b>
1. Quarterly Ground Water GW-Wells: (NOTE: Available data is on GW-3 Well)	U-Nat( $\frac{\text{mg}}{\text{l}}$ )	0.093 (dissolved)	0.30 (NRC) 5.0 (ARAR)
	Th-230( $\frac{\text{pci}}{\text{l}}$ )	<0.20 (dissolved)	5.0 (NRC) 15.0 (ARAR)
	RA-226( $\frac{\text{pci}}{\text{l}}$ )	0.50 (dissolved)	5.0 (NRC) 5.0 (ARAR)
	PB-210( $\frac{\text{pci}}{\text{l}}$ )	<1.0 (dissolved)	1.0 (NRC)
	PH (units)	6.95	6 - 9 (NMED)
2. Surface Alpha:	All Materials or equipment released, will meet the requirements for unrestricted use.		Removable is 1000 $\frac{\text{dpm}}{100 \text{ cm}^2}$ Fixed Average is 5000 $\frac{\text{dpm}}{\text{cm}^2}$ where area is not greater than 1m <sup>2</sup> Gamma is 40 ur/hr
3. Monthly Inspection:	Livestock entry into the reclaimed tailings area had occurred on 5/24/02, 8/27/02, and 7/31/02. Access was gained by low fenceline at the bottom of arroyo areas. This was caused by sediment buildup along the fenceline during stormwater flooding. Immediate corrective action was taken to remediate these problems, and all other months checked okay.		Checklist: *Fences *Air Monitoring (RWP only) *Rad. Warning Signs *Locked Gates

**PERSONNEL MONITORING SUMMARY DATA  
FOR 4<sup>TH</sup> - QUARTER 2001 TO 3<sup>RD</sup> QUARTER 2002**

<b>Personnel Monitoring Items:</b>	<b>Required Analysis:</b>	<b>Highest Result Obtained:</b>	<b>Allowable:</b>
1. Semi-Annual or as needed personnel TLD (DDE):	Gamma ( $\frac{\text{rem}}{\text{yr}}$ )	NM	0.500(Action Level)
2. Semi-Annual or as needed Bioassay	Total Uranium ( $\frac{\text{ug}}{\text{l}}$ )	NM	15-35 (Action Level)
3. Bi-weekly or Quarterly air sample	Gross Alpha( $\frac{\text{uci}}{\text{ml}}$ )	NM	$6\text{E}^{-11}$ (DAC)
(Also Note: Action Level is 10% of an applicable doses limit)	Th-230(uci)/ml	NM	$6\text{E}^{-12}$ (DAC)
	RA-226( $\frac{\text{uci}}{\text{ml}}$ )	NM	$3\text{E}^{-10}$
	PB-210( $\frac{\text{uci}}{\text{ml}}$ )	NM	$1\text{E}^{-10}$ (DAC)
	RN-222( $\frac{\text{uci}}{\text{ml}}$ )	NM	$4\text{E}^{-6}$ (DAC)
	(-Daughter)		
	U-Nat( $\frac{\text{uci}}{\text{ml}}$ )	NM	$2\text{E}^{-11}$ (DAC)
Personnel Exposure:			
4. Estimated Annual Total Effective Dose Equivalent (TEDE):	TEDE(rem)	NM	5.0 (MAX.) 2.0 (Action Level)

Note: The above items are only required under an RWP as needed (see PMP, REV. 4). An no RWP was issued during this reporting period.

NM-Not Monitored



TABLE - 1  
QUARTERLY LIQUID SAMPLES

<u>Date/Qr.</u>	<u>Location</u>	<u>Type</u>	<u>Radionuclide</u>	<u>Concentration</u>		<u>Error Est.</u> <u>µci/ml</u>	<u>LLD</u> <u>µci/ml</u>
				<u>Mg/l</u>	<u>µci/ml</u>		
<u>4th-Qr. 2001</u>	<u>GW-3</u>	<u>Ground</u>	<u>U-Nat (dissolved)</u> <u>or total</u>		<u>6.30E<sup>-8</sup></u>		<u>2.00E-10</u>
<u>to 3rd-Qr.</u>		<u>Water Well</u>					
<u>2002</u>			<u>Th-230 (dissolved)</u> <u>or total</u>		<u>&lt;2.00E<sup>-10</sup></u>		<u>2.00E-10</u>
			<u>Ra-266 (dissolved)</u> <u>or total</u>		<u>5.00E<sup>-10</sup></u>	<u>2.00E<sup>-10</sup></u>	<u>2.00E-10</u>
UNC Field Data:	PH (STD. Units) = 6.95						
	Cond. (µ MHOS) = 5,250						
	Water Depth (Ft.) = 50.45		<u>Pb-210 (dissolved)</u> <u>or total</u>		<u>&lt;1.00E<sup>-9</sup></u>		<u>1.00E-09</u>
	Temp. (°C) = 19.70						
			<u>Po-210 (dissolved)</u> <u>or total</u>				<u>1.00E-09</u>

COMMENTS: GW-4 is not producing enough water to pump since the 4th Qtr. of 1999.

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