

40-8907

# UNITED NUCLEAR CORPORATION



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January 29, 2004

Mr. Gary Jonosko  
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. Jonosko:

Pursuant to our License SUA-1475, submitted herewith are the results of our ALARA Audit conducted on December 12, 2003.

If you have any questions, please advise.

Sincerely,

A handwritten signature in black ink, appearing to read "Larry Bush", written over the typed name and title.

Larry Bush  
Manager

LB:drb

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

WMS501

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January 29, 2004

To: File

From: Larry Bush

Subject: ALARA Committee Meeting and Audit, December 12, 2003

The UNC Mining and Milling ALARA Committee met on December 12, 2003 to audit the result of the radiological monitoring program for the fourth quarter of 2002, and the first three quarters of data for 2003. 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 2003," dated December 2003, and "Data Summary between the fourth quarter of 2002 to the first three quarters of 2003."

#### 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 2003 as required.
3. All documentation required by our monitoring program is in order for 2003.
4. Available data for this Report is also reported as per suggested format in Regulatory Guide 4.14 (see attached Table-1).
5. The annual landuse survey was done on 3/13/03 for 2002. Findings Include:
  - 5.1 On 6/14, 19, 22, 24/02, additional Monitoring Wells PB-1, PB-2, PB-3, and PB-4 were drilled /installed respectively, on UNC's Sec. 36, T.17N, R.16W., NMPM. These wells were installed to locate and track the migration of the northernmost extent of the seepage impacted water or plume in Zone 3.



- 5.2 Residential homesites had decreased from twelve to nine on Sec. 10 (Indian Allotted) and from 22 to 21 on the northwest portion of the 2 mile radius (Navajo Reservation).
  - 5.3 The Circle Wash well located on Sec. 14 (Indian Allotted) once used for livestock, is currently not used and the well cover is locked up.
  - 5.4 The required monthly sampling of 14 Southwest Alluvium Wells located on Sec. 2 (UNC) and Sec. 3 (Indian Allotted) for 12 to 18 months in accordance to our License No. SUA-1475, Amendment 31, Condition 30 dated 12/29/00 has been met and ceased on 6/2002 after 18 months of sampling.
  - 5.5 Currently, UNC no longer has unpatented claims on Sec. 34 (BLM)
6. On 3/27/03; relocated and reposted the radioactive material caution/warning signs from the reclaimed tailings perimeter fenceline (overall total of thirty; one meter unshielded gamma ray exposure rate reading averaged 17.53 ur/hr. near or where the rad signs were formerly posted) to the tailings interior perimeter evaporation pond and material storage area (overall total of eighteen; one meter unshielded gamma ray exposure rate reading averaged 32.17 ur/hr. where the rad signs are now posted). Tailings perimeter fenceline area is still restricted with locked gates and no trespassing signs posted.
  7. An NRC inspection was done on 4/02/03 by Mr. Louis C. Carson II, and no violations or deviations were identified.
  8. From 6/09/03 to 7/31/03, four Zone 3 area test wells were drilled and installed on UNC's Sec. 36, T.17N., R16W. NMPM. Well description and purpose is listed below:
    - Test boring well and later plugged (CHHF-1).
    - Test boring and observation well (CHHF-2).
    - Pilot test and fracture well (HF-3).
    - Test boring and observation well (MWHF-3).

The above task was performed as part of UNC's exploratory studies to evaluate methods to enhance the extraction potential within the impacted area of this hydrostratigraphic unit and to prevent the seepage from migrating off site (MACTEC, December 2003).

9. On 8/18/03; two contracted fenceline workers commenced the task of replacing the tailings perimeter old existing barb wire fenceline with new 47" field fence, 7' steel t-post and barb wire. Replacement started approximately 650' westerly from the SW Section 36 Corner to the NE Section 2 Corner; to the SE Section 2 Corner and ended approximately 450' westerly from the SE Section 2 Corner. This project also included retightening and restrengthening the entire south perimeter fenceline and other task as needed. The project was under taken to further enhance the prevention of livestock entry into the reclaimed

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 Max Chischilly Jr. 1-20-04*  
*E. M. ... 1/19/95 E. M. ... 1/21/97*  
*E. M. ... 1/20/96 E. M. ... 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. Munk*  
1/19/95

*ED Munk*  
1/20/97

1/20/96

*E. Munk*

1/22/98

*E. Munk*

*M. Chisally* 1/22/99

*Max Chisally* 1/20/00

*Max Chisally* 1/29/01

*Max Chisally* 1/28/02

*Max Chisally* 1/20/03

*Max Chisally* 1-20-04

**ENVIRONMENTAL MONITORING SUMMARY DATA  
FOR 4<sup>TH</sup> - QUARTER, 2002 TO 3<sup>RD</sup> - QUARTER, 2003**

<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 ( $\frac{\text{mg}}{\text{l}}$ )	0.111 (dissolved or total)	0.30 (NRC) 5.0 (ARAR)
	Th-230 ( $\frac{\text{pci}}{\text{l}}$ )	<0.20 (dissolved or total)	5.0 (NRC) 15.0 (ARAR)
	RA-226 ( $\frac{\text{pci}}{\text{l}}$ )	0.50 (dissolved or total)	5.0 (NRC) 5.0 (ARAR)
	PB-210 ( $\frac{\text{pci}}{\text{l}}$ )	<1.0 (dissolved or total)	1.0 (NRC)
	PH (units)	6.67	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 $1\text{m}^2$  Gamma is 40 ur/hr
3. Monthly Inspection:	Livestock entry into the re-claimed tailings area had occurred on 11/26/03, 1/16/03, and 6/30/03. Access was gained via low and loose fenceline around the perimeter and arroyo areas. Immediate corrective action was taken to remediate these problems, which include the installment of new fencing (see page 2 under current significant findings and event, items # 9 ) and all other months checked okay.		Check list: * Fences *Air Monitoring (RWP only) *Rad. Warning Signs *locked gates

**PERSONNEL MONITORING SUMMARY DATA  
FOR 4<sup>TH</sup> - QUARTER 2002 TO 3<sup>RD</sup> - QUARTER 2003**

<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(Active Level)
2. Semi-Annual or as needed Bioassay	Total Uranium ( $\frac{\text{ug}}{\text{l}}$ )	NM	15-35 (Active Level)
3. Bi-Weekly or Quarterly air sample	Gross Alpha ( $\frac{\text{uci}}{\text{ml}}$ )	NM	6E <sup>-11</sup> (DAC)
(Also Note: Action Level is 10% of an applicable doses limit)	Th-230(uci)/ml	NM	6E <sup>-12</sup> (DAC)
	RA-226( $\frac{\text{uci}}{\text{ml}}$ )	NM	3E <sup>-10</sup>
	PB-210( $\frac{\text{uci}}{\text{ml}}$ )	NM	1E <sup>-10</sup> (DAC)
	RN-222( $\frac{\text{uci}}{\text{ml}}$ )	NM	4E <sup>-6</sup> (DAC)
	(-Daughter)		
	U-Nat( $\frac{\text{uci}}{\text{ml}}$ )	NM	2E <sup>-11</sup> (DAC)
<b>Personnel Exposure:</b>			
4. Estimated Annual Total Effective Dose Equivilent (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>ucl/ml</u>	<u>LLD</u> <u>ucl/ml</u>
				<u>Mg/l</u>	<u>ucl/ml</u>		
<u>4th-Qr. 2002</u>	<u>GW-3</u>	<u>Ground</u>	U-Nat (dissolved) or total		<u>7.51E<sup>-08</sup></u>		<u>2.00E-10</u>
<u>to 3rd-Qr.</u>		<u>Water Well</u>					
<u>2003 Highest Result</u>			Th-230 (dissolved) or total		<u>&lt; 2.00E<sup>-10</sup></u>		<u>2.00E-10</u>
			Ra-266 (dissolved) or total		<u>4.00E<sup>-10</sup></u>	<u>2.00E<sup>-10</sup></u>	<u>2.00E-10</u>
UNC Field Data:	PH (STD. Units) =	6.67					
	Cond. ( $\mu$ MHOS) =	5,860					
	Water Depth (Ft.) =	50.50	Pb-210 (dissolved) or total		<u>&lt; 1.00E<sup>-9</sup></u>		<u>1.00E-09</u>
	Temp. ( $^{\circ}$ C) =	18.5					
			Po-210 (dissolved) or total				<u>1.00E-09</u>

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

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