



To: File January 26, 2011
From: Max Chischilly Jr., RSO
Subject: ALARA Committee Meeting and Audit conducted on December 16, 2010

The UNC Mining and Milling ALARA Committee met on December 16, 2010 to audit the result of the radiological monitoring program for the fourth quarter of 2009 and the first three quarters of data for 2010. Current committee members are: Larry Bush, Manager, and Max Chischilly Jr., Radiation Safety Officer. The Committee reviewed Mr. Chischilly's Annual Report entitled "Environmental and Personnel Monitoring Program for Inactive Status Report from 4th Qr. 2009 to 3rd Qr. 2010.

Significant Finding 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 2010 as required.
3. All documentation and monitoring required by our radiation protection program and NRC License was in order for 2010.
4. Available GW-3 well data for this Report is also reported as per suggested format in Regulatory Guide 4.14 (see attached Table-1 on pg. 8 of 8).
5. The annual land use survey was done on 3-16-10 for 2009 (see report for findings).
6. The environmental monitoring program is limited and the reported items in the Environmental Monitoring Summary Data (pg. 4 of 8) are solely based on available data. The only required radiation-monitoring program will be under an RWP (Radiation Work Permit), in pg 5 of 8 of this report and no RWP was issued during this annual period.
7. The active radiation monitoring instruments are routinely calibrated and the Personnel 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. Continual monthly and/or quarterly monitoring is ongoing for well NBL-1, NBL-2, PB-2, PB-3, PB-4, RW-A and NW well series (1 thru 5) to track the northern most migration extent of the seepage impacted water or plume in Zone 3.
9. Continual pumping/extraction is ongoing in the Zone 3 seepage impacted water area for well RW-11, RW-16, RW-A, PB-2, NW-1, NW-2 and NW-4. The pumped water is discharged into the tailings North Evaporation Pond.
10. Ms. Linda Gersey and Mr. Bob Evans conducted a special NRC site inspection on October 14, 2010 and findings or results of this inspection will be forth coming.
11. Based on the routine annual ALARA committee meeting and audit on December 16, 2010; the program has met the requirement under 10 CFR Part 20, Subpart G – Radiation Protection Programs, Sec. 20.1101 (c).



Past Significant Events:

1. The Mill Site was released from a restricted to unrestricted area by License # SUA-1475 Amendment # 21 in 1995.
2. The final tailings reclamation was completed in 1995. The last of the 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 covers was completed in 1996 with exception of the lined evaporation ponds.
4. The report submitted January 03, 1997 and on January 13, 1998 on Radon Emanation Testing of UNC's Church Rock Tailings Site shows the average Radon Flux to be 5.67 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. 1/19/11 *Max Chischilly Jr. 1/7/09* *Max Chischilly Jr. 1/9/10*
Max Chischilly Jr. 1/28/02 *Max Chischilly Jr. 1-20-03* *Max Chischilly Jr. 1/17/05*
Max Chischilly Jr. 1/29/01 *M. Chischilly 1/22/99* *Max Chischilly Jr. 1/24/06*
Max Chischilly Jr. 1/20/00 *Max Chischilly Jr. 1-20-04* *Max Chischilly Jr. 1/25/07*
E. M. ... 1/19/91 *E. M. ... 1/22/98* *Max Chischilly Jr. 1/28/08*
E. M. ... 1/20/96



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.

Max Churchill Jr. 1/9/10
Max Churchill Jr. 1/7/09
Max Churchill Jr. 1/28/08
E. Mearns
1/15/95
1/20/96 E. Mearns

Max Churchill Jr. 1/19/11
Max Churchill Jr. 1/25/07
E. Mearns
1/20/97
1/22/98 E. Mearns

Max Churchill Jr. 1/24/06
Max Churchill Jr. 1/17/05
M. Churchill 1/22/99
Max Churchill 1/20/00
Max Churchill 1/29/01
Max Churchill Jr. 1/28/02
Max Churchill Jr. 1/20/03
Max Churchill Jr. 1-20-04



ENVIRONMENTAL MONITORING SUMMARY DATA
FROM 4TH QUARTER 2009 TO 3RD QUARTER 2010

Environmental Monitoring	Required Analysis:	Highest Result Obtained:	Allowable:
1. Quarterly Ground Water GW-Wells: (NOTE: Available data is on GW-3 Well)	U-Nat (<u>mg</u>) 1	0.194 (dissolved or total)	0.30 (NRC) 5.0 (EPA)
	TH-230 (<u>pci</u>) 1	0.04 (dissolved or total)	5.0 (NRC)
	RA-226 (<u>pci</u>) 1	0.25 (dissolved or total)	5.0 with RA-228 (NRC & EPA)
	PB-210 (<u>pci</u>) 1	3.20 (dissolved or total)	1.0 (NRC)
	PH (units)	6.38 (lowest)	6 – 9 (NMED)
2. Surface Alpha and Gamma:	Any Material or Equipment released, will meet the requirements for unrestricted use.		a. Removable is 1000 <u>dpm</u> 100 cm ²
			b. Fixed average is 5000 <u>dpm</u> 100 cm ² where area is not greater than 1m ²
			c. Gamma is 40 ur/hr
3. Monthly Inspection Findings:			
a.			Installment of additional fencing device was done on 10-27-09 at the bottom of SW pipeline arroyo after three cows had gained entry on 10-27-09.
b.			Flood events during July and August 2010 had slightly damaged the reclaimed tailings perimeter fence line at the bottom of pipeline arroyo areas (i.e. near main entrance gate and SW end) and repair work was completed on 11-9-10 after the rainy season. Continual surveillance was ongoing to keep out livestock and unauthorized entry.
c.			All other months checked OK.



**PERSONNEL MONITORING SUMMARY DATA
FROM 4TH QUARTER 2009 TO 3RD QUARTER 2010**

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

NOTE: The above items are only required under an RWP as needed (see PMP, Rev. 4 on page 5 of 8). And 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. 2009</u>	<u>GW-3</u>	<u>Ground</u>	U-Nat (dissolved) or total		<u>1.31E-07</u>		<u>2.00E-10</u>
<u>to 3rd-Qr. 2010</u>		<u>Water Well</u>					
<u>Highest Result</u>			Th-230 (dissolved) or total		<u>4.00E-11</u>	<u>1.00E-10</u>	<u>2.00E-10</u>
			Ra-266 (dissolved) or total		<u>2.50E-10</u>	<u>1.00E-10</u>	<u>2.00E-10</u>
UNC Field Data:	PH (STD. Units) = 6.64 Cond. (µ MHOS) = 5,520 Water Depth (Ft.) = 53.15 Temp. (°C) = 17.5		Pb-210 (dissolved) or total		<u>3.20E-09</u>	<u>1.90E-09</u>	<u>1.00E-09</u>
			Po-210 (dissolved) or total		<u>Not Monitored</u>		<u>1.00E-09</u>

COMMENTS: Lowest pH (std. units)= 6.38 during this period.

