

040-08907

UNITED NUCLEAR CORPORATION



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January 21, 2016

Mr. Jack E. Whitten, Chief
US Nuclear Regulatory Commission, Region IV
Division of Nuclear Materials Safety Branch B
612 East Lamar Blvd, Suite 400
Arlington, TX 76011-4125

Dear Mr. Whitten:

Pursuant to our License SUA-1475, submitted herewith are the results of our Annual ALARA Audit conducted on December 15, 2015.

If you have any questions, please advise.

Sincerely,

A handwritten signature in cursive script that reads "Max Chischilly, Jr.".

Max Chischilly, Jr
Radiation Safety Officer

Cc: Roy Blickwedel, GE
Andrew Persinko, USNRC
Jim Smith, US NRC

To: Ricky Spitz, Project Manager, AMEC FW

January 21, 2016

From: Max Chischilly Jr., RSO AMEC FW

Subject: ALARA Committee Meeting and Audit conducted on December 15, 2015

The UNC Mining and Milling ALARA Committee met on December 15, 2015 to audit the result of the radiological monitoring program for the fourth quarter of 2014 and the first three quarters of data for 2015. Current committee members are: Ricky Spitz, Scott Newsom, and Max Chischilly Jr. The Committee reviewed Mr. Chischilly's Annual Report entitled "Environmental and Personnel Monitoring Program for Inactive Status Report from 4th Qr. 2014 to 3rd Qr. 2015.

Significant Finding and Event:

1. No radiation exposure was recorded for UNC employees, contractors and the general public due to reporting period site status conditions.
2. Training and refresher training of employees on radiation protection and safety was done in 2015 as required.
3. All documentation and monitoring required by our radiation protection program and NRC License was in order for 2015.
4. Available GW-3 well high summary data results are also reported as per suggested format in Regulatory Guide 4.14 (see attached Table 1 pg. 8 of 8).
5. The annual land use survey was done on 3-31-15 for 2014 (see report for findings).
6. The environmental monitoring program is limited and the reported items in the Environmental Monitoring Summary Data (pg. 6 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-2, PB-2, PB-3, PB-4, RW-A and NW well series (1 thru 5), well MW-6 and MW-7 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- 17, RW-A, NW-2 and NW-4. The pumped water is discharged into the tailings North Evaporation Pond.
10. Domestic mill well water is discharged into North and South evaporation pond on 10-13-15 and 11-2-15 respectively, until a base minimum water depth of 0.5 feet is attained and maintained for both ponds as an interim radon barrier until final closure.
11. Based on the routine annual ALARA committee meeting and audit on December 15, 2015; 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 Chisnelly Jr. 1/19/11 *Max Chisnelly Jr. 1/20/12* *Max Chisnelly Jr. 1/7/09* *Max Chisnelly Jr. 1/9/10*
Max Chisnelly Jr. 1/28/02 *Max Chisnelly Jr. 1-20-03* *Max Chisnelly Jr. 1/17/05*
Max Chisnelly Jr. 1/29/01 *M. Chisnelly 1/22/99* *Max Chisnelly Jr. 1/24/06*
Max Chisnelly Jr. 1/20/00 *Max Chisnelly Jr. 1-20-04* *Max Chisnelly Jr. 1/25/07*
Max Chisnelly Jr. 1/21/13 *Max Chisnelly Jr. 1/22/15* *Max Chisnelly Jr. 1/28/08*
E. Morala 1/19/95 *E. Morala 1/22/98* *Max Chisnelly Jr. 1/23/14*
E. Morala 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
1/19/85

1/20/96 *E. Mearns*
Max Churchill Jr. 1/23/14

Max Churchill Jr. 1/22/15
Max Churchill Jr. 1/19/11
Max Churchill Jr. 1/25/07
ED Mearns
1/20/97

1/22/98 *E. Mearns*
Max Churchill Jr. 1/20/12
Max Churchill Jr. 1/21/13

Max Churchill Jr. 1-18-16
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 EFFLUENT MONITORING SUMMARY DATA
FROM 4TH QUARTER 2014 TO 3RD QUARTER 2015



Environmental Monitoring	Required Analysis:	Highest Result Obtained:	Allowable:
1. Quarterly Ground Water GW-Wells: (NOTE: Available data is on GW-3 well)	U-Nat (mg/l)	0.423 (dissolved or total)	0.30 (NRC) 5.0 (EPA)
	TH-230 (pci/1)	0.30 (dissolved or total)	5.0 (NRC)
	RA-226 (pci/1)	0.310 (dissolved or total)	5.0 with RA-228 (EPA) 5.2 (NRC)
	PB-210 (pci/1)	1.20 (dissolved or total)	1.0 (NRC)
	PH (units)	6.61 (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 dpm/100 cm ² b. Fixed Average is 5000 dpm/100 cm ² where area is no greater than 1m ² c. Gamma is 40 ur/hr

5. Monthly Inspection Findings:

- a. Fourteen weather worn radioactive material, caution signs (tailings pond area) and two weather worn or graffiti damaged no trespassing signs (perimeter tailings and mill area) were replaced on 6-24-15.
- b. Workers are reminded to ensure and keep perimeter tailing gates closed/locked prior to leaving site after a contract worker reported the main gate open/unlocked on 10-23-14 @0930 and further inspection checked OK.
- c. All other months checked OK.



PERSONNEL OCCUPATIONAL MONITORING SUMMARY DATA
FROM 4TH QUARTER 2014 TO 3RD QUARTER 2015

Personnel Monitoring Items:	Required Analysis:	Highest Result Obtained:	Allowable:
1. Semi-Annual or as Needed personnel TLD (DDE)	Gamma (rem/yr)	NM	0.500 (Action Level)
2. Semi-annual or as needed bioassay	Total Uranium (ug/l)	NM	15-35 (Action Level)
3. Grab Air sample	Gross Alpha (uci/l)	NM	2.7 E-12 (DAC)
(Also note: Action level is 10% of an applicable dose limit and TH-230, RA-226 & U-Nat results are based on secular equilibrium in ore - isotopic activity).	TH-230 (uci/ml)	NM	6E-12 (DAC)
	RA-226 (uci/ml)	NM	3E-10 (DAC)
	PB-210 (uci/ml)	NM	1E-10 (DAC)
	RN-222 (uci/ml) (-Daughter)	NM	4E-6 (DAC)
	U-Nat (uci/ml)	NM	2E-11(DAC)
Personnel Exposure:			
4. Estimated Annual Total Effective Dose Equivalent (TEDE):	TEDE (rem)	NM	2.0 (Action Level) 5.0 (max)

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/Qu.</u>	<u>Location</u>	<u>Type</u>	<u>Radionuclide</u>	<u>Concentration</u> Mg/l	<u>µci/ml</u>	<u>Error Est.</u> µci/ml	<u>LLD</u> µci/ml
4th-Qu. 2014	GW-3	Ground	U-Nat (dissolved) or total	2.86E-07			2.00E-10
to 3rd-Qu. 2015		Water Well	Th-230 (dissolved) or total	3.00E-10	1.30E-10	2.00E-10	
<u>Highest Result</u>			Ra-226 (dissolved) or total	3.10E-10	1.30E-10	2.00E-10	
UNC Field Data:			Pb-210 (dissolved) or total	1.20E-09	7.00E-10	1.00E-09	
			Po-210 (dissolved) or total	Not Monitored		1.00E-09	

PH (STD. Units) = 6.61 (Lowest)
 Cond. (µ MHOS) = 5,290
 Water Depth (Ft.) = 55.77
 Temp. (°C) = 23.5

COMMENTS:

