

UNITED NUCLEAR CORPORATION



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January 25, 2023
ATTN: Document Control Desk, Deputy Director
Division of Decommissioning, Uranium Recovery and Waste Programs
Office of Nuclear Materials Safety and Safeguards
U.S. Nuclear Regulatory Commission
11555 Rockville Pike
Mail Stop T-8F5
Rockville, MD 20852-2738

40-8907

RE: 2022 Annual ALARA Audit

Dear Deputy Director:

Pursuant to UNC-NRC License SUA-1475, submitted herewith are the results of our Annual ALARA Audit conducted on December 20, 2022.

If you have any questions or recommendations, please advise.

Sincerely,

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

Max Chischilly Jr.
Radiation Safety Officer

dy
Enclosures

Cc. Jim Smith, NRC
Ray L. Kellar, NRC Region IV
Jane Marshall, NRC
Lance Hauer, GE

AMSS01



To: Ricky Spitz, Project Manager, WSP January 25, 2023
From: Max Chischilly Jr., RSO, WSP
Subject: ALARA Committee Meeting and Audit conducted on December 20, 2022

On behalf of UNC Mining and Milling; Site's WSP, ALARA Committee met on December 20, 2022 to audit the result of the radiological monitoring program for the fourth quarter of 2021 and the first three quarters of data for 2022. Current committee members are: Ricky Spitz, Dorina Young, 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. 2021 to 3rd Qr. 2022".

Significant Finding and Event:

1. No significant radiation exposure was recorded for onsite WSP 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 2022 as required by WOOD Radiation Protection Program and UNC-NRC License No. SUA-1475 Condition 19.
3. All documentation and monitoring required by UNC Radiation Protection Program and NRC License was in order for 2022.
4. The annual land use survey was done on 3-23-22 for 2021 (see report for findings).
5. The environmental monitoring program is limited and the reported items in the Environmental Monitoring Summary Data (pg. 7 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.
6. 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).



7. Continual monthly and/or quarterly monitoring is ongoing for well NBL-2, RW-A and NW well series (1 thru 5), well MW-7 to track the northern most migration extent of the seepage impacted water or plume in Zone 3 (wells PB-2, PB-3, PB-4, MW-6 are dry and NW-1, NW-2 are monitored for water level only).
8. Continual pumping/extraction is ongoing in the Zone 3 seepage impacted water area for well RW-11, RW-16, RW- 17, RW-A and NW-5. The pumped water is discharged into the tailings North Evaporation Pond.
9. Domestic mill well water is intermittently discharged into North and South evaporation pond to maintain minimum water depth of 0.5 feet for both ponds as an interim radon barrier until final closure and minimize potential damage to the liner due to wind.
10. For the record, no Radiation Work Permit (RWP) was prepared or issued during 2022.
11. NRC inspectors Ms. Linda M. Gersey (Radiological Safety and Security) and Mr. Randall W. Fedors (Nuclear Material Safety and Safeguards) identified no violation or deviation during a routine announced NRC onsite inspection on September 22, 2022. They were accompanied by Mr. Gregory G. Warnick (Radiological Safety and Security), Mr. Doug T Mandeville (Nuclear Material Safety and Safeguards) and Mr. Michael M. LaFranzo (US NRC region III).
12. Based on the routine annual ALARA committee meeting and audit on December 20, 2022; 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 TLD's at the same four locations as the air sampling. The TLD's 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. Item #2, #3 and #4 could be under an RWP if needed.



UNC MINING AND MILLING

PERSONNEL RADIATION PROTECTION PROGRAM

External Exposure Monitoring

1. Employees working within the tailings area will wear a TLD badge which is changed out and analyzed semi-annually or until completion of job. (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 or beginning and ending project task. (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 or weekly.
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.



UNC MINING AND MILLING
ANNUAL REVIEW/APPROVAL OF
ENVIRONMENTAL AND PERSONAL RADIOLOGICAL
MONITORING AND PROTECTION PROGRAM
SOP

Name (print)	Signature	Date
		Reviewed/Approved
Max Chischilly Jr.	<i>Max Chischilly Jr.</i>	1-25-2017
RICK SPITZ	<i>Rick Spitz</i>	12-14-2017
AARON GAROUTTE	<i>Aaron Garoutte</i>	12/14/2017
Max Chischilly Jr.	<i>Max Chischilly Jr.</i>	12-14-2017
max Chischilly Jr.	<i>Max Chischilly Jr.</i>	1-22-2018
AARON GAROUTTE	<i>Aaron Garoutte</i>	12/14/2018
RICK SPITZ	<i>Rick Spitz</i>	12-14-2018
max Chischilly Jr.	<i>Max Chischilly Jr.</i>	12-14-2018
max Chischilly Jr.	<i>Max Chischilly Jr.</i>	1-23-2019
RICK SPITZ	<i>Rick Spitz</i>	12-17-2019
Aaron Garoutte	<i>Aaron Garoutte</i>	12-17-2019
max Chischilly Jr.	<i>Max Chischilly Jr.</i>	12-17-2019
max Chischilly Jr.	<i>Max Chischilly Jr.</i>	1-23-2020
RICK SPITZ	<i>Rick Spitz</i>	12-18-2020
Aaron Garoutte	<i>Aaron Garoutte</i>	12-18-2020
max Chischilly Jr.	<i>Max Chischilly Jr.</i>	12-18-2020
max Chischilly Jr.	<i>Max Chischilly Jr.</i>	1-21-2021
Aaron Garoutte	<i>Aaron Garoutte</i>	12-10-2021
RICK SPITZ	<i>Rick Spitz</i>	12-10-2021
Max Chischilly Jr.	<i>Max Chischilly Jr.</i>	12-10-2021
max Chischilly Jr.	<i>Max Chischilly Jr.</i>	1-24-2022
RICK SPITZ	<i>Rick Spitz</i>	12-20-2022
Dorie Young	<i>Dorie Young</i>	12-20-22
max Chischilly Jr.	<i>Max Chischilly Jr.</i>	12-20-22
max Chischilly Jr.	<i>Max Chischilly Jr.</i>	1-24-23

ENVIRONMENTAL AND EFFLUENT MONITORING SUMMARY DATA
FROM 4TH QUARTER 2021 TO 3RD QUARTER 2022



Environmental Monitoring	Required Analysis:	Highest Result Obtained:	Allowable:
1. Quarterly Ground Water GW-Wells: (NOTE: GW-3 well was not sampled during this reporting period)	U-Nat (mg/l)		0.30 (NRC) SWA 0.238(NRC & EPA) Zone 1 0.395 (NRC & EPA) Zone 3
	TH-230 (pci/1)		4.5 (NRC & EPA) SWA 1.6 (NRC & EPA) Zone1 17 (NRC & EPA) Zone 3
	RA-226 (pci/1) +RA-228		8.2 (NRC & EPA) SWA 12.1 (NRC & EPA) Zone 1 35.2 (NRC & EPA) Zone 3
	PB-210 (pci/1)		5.9 (NRC & EPA) SWA 4.7 (NRC & EPA) Zone 1 5.7 (NRC & EPA) Zone 3
	PH (units)		6.5 - 8.5 (NMED)
2. Surface Alpha and Gamma:	Any Material or Equipment released, will meet the requirements for unrestricted use		a. Removable is 1000 dpm/100 cm2 b. Fixed Average is 5000 dpm/100 cm2 where area is no greater than 1m2 c. Gamma is 40 ur/hr
3. Weekly and monthly Inspection Findings:			
a. Water depth/level is maintained at 0.5' in both North and South evaporation ponds during this reporting period.			
b. Re-locked perimeter fence line gate at South End tailings area and reminded worker to fully engage chain lock after exiting on 1-27-22.			
c. Due to high winds one No Trespassing sign was resecured/repositioned at South end tailings perimeter fence, one Rad caution was reinstalled/secured to post at perimeter edge of South evaporation pond on 4-6-22 and one Rad Caution sign reinstalled/resecured to post at East perimeter hill area of North Evaporation pond on 5-4-22.			
d. Findings on followup and routine monthly inspection on 8-2, 31/22 after major flood events included no indication of water entry into tailings restricted area or cover, still intact/no damage to perimeter fence line or gates and erosion damaged access roads were refilled/repared by field workers.			
e. All other months checked OK.			



PERSONNEL OCCUPATIONAL MONITORING SUMMARY DATA
FROM 4TH QUARTER 2021 TO 3RD QUARTER 2022

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