

UNITED NUCLEAR CORPORATION



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January 27, 2025
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

RE: 2024 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 18, 2024.

If you have any questions or recommendations, please advise.

Sincerely,

Chischilly, Max
(USMC714596)

Digitally signed by Chischilly, Max
(USMC714596)
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Date: 2025.01.30 12:47:10 -0700

Max Chischilly Jr.
Radiation Safety Officer

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Enclosures

Cc. Jim Smith, NRC
Jeremy Groom, NRC Region IV
Jane Marshall, NRC
Lance Hauer, GE
Brian McCarthy, GE

To: Ricky Spitz, Project Manager, WSP January 27, 2025
From: Max Chischilly Jr., RSO, WSP
Subject: ALARA Committee Meeting and Audit conducted on December 18, 2024

On behalf of UNC Mining and Milling, Site's WSP, ALARA Committee met on December 18, 2024 to audit the result of the radiological monitoring program for the fourth quarter of 2023 and the first three quarters of data for 2024. 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. 2023 to 3rd Qr. 2024".

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 2024 as required by WSP 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 2024.
4. The annual land use survey was done on 3-21-24 for 2023 (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 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 (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, NW-5 and NW-3. 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 2024.
11. For the record, no Radiation Work Permit (RWP) was issued on a coring/drilling project to install a new monitoring Zone 3 well MW-8 on UNC northern most Sec 36 adjacent to Navajo Nation property boundary line and a new Zone 3 Sentinel SW-2BW approximately 100 feet west of existing sentinel well SW-2B on Navajo Nation land. Task activities were performed in general public, unrestricted and controlled areas outside of UNC's restricted areas. No significant radiation exposure was foreseen nor anticipated, however for the purpose of ALARA and precaution radiation safety orientation/training were given to Cascade Drilling Co., and WSP/Denver office employees. Radiation exit survey was done on coring/drilling material and equipment for final release unrestricted use and on employees.
12. NRC inspectors Mr. Robert Evans, Mr. Eric McManus (Radiological Safety and Security Region IV), Mr. Randall W. Fedors and Mr. Douglas Mandeville (Nuclear Material Safety and Safeguards) identified no violation or deviation during a routine announced NRC onsite inspection on September 26, 2024. They were accompanied by Mr. Jeremy Groom, Ms. Tiffany Rushing (Radiological Safety and Safeguards Region IV) and Ms. Katheryn Robertson-Demers (Nuclear Materials Safety and Safeguards).
13. Based on the routine annual ALARA committee meeting and audit on December 18, 2024; 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 were 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.
5. Well reference elevation monitoring measurement points were updated/changed for all active monitoring wells in Southwest Alluvium, Zone 1 and Zone 3 on May 31, 2023.

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 tailing impoundment, two located downwind of the tailing 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 the Environmental Monitoring Program data is included in this report except for 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 conditions' #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 area, 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>Ricky Spitz</i>	12-14-2017
ARON GAROUTTE	<i>Aron B. 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
ARON GAROUTTE	<i>Aron B. Garoutte</i>	12/14/2018
RICK SPITZ	<i>Ricky 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>Ricky Spitz</i>	12-17-2019
ARON GAROUTTE	<i>Aron B. 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>Ricky Spitz</i>	12-18-2020
ARON GAROUTTE	<i>Aron B. 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
ARON GAROUTTE	<i>Aron B. Garoutte</i>	12-10-2021
RICK SPITZ	<i>Ricky 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>Ricky 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
Dorie Young	<i>Dorie Young</i>	12-29-23
RICKY SPITZ	<i>Ricky Spitz</i>	12-29-23
max Chischilly Jr.	<i>Max Chischilly Jr.</i>	12-29-23
max Chischilly Jr.	<i>Max Chischilly Jr.</i>	1-24-24
D. Young	<i>Dorie Young</i>	12-18-24
RICK SPITZ	<i>Ricky Spitz</i>	12-18-24
max Chischilly Jr.	<i>Max Chischilly Jr.</i>	12-18-24
max Chischilly Jr.	<i>Max Chischilly Jr.</i>	1-21-25

ENVIRONMENTAL AND EFFLUENT MONITORING SUMMARY DATA
FROM 4TH QUARTER 2023 TO 3RD QUARTER 2024

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/l)		4.5 (NRC & EPA) SWA 1.6 (NRC & EPA) Zone1 17 (NRC & EPA) Zone 3
	RA-226 (pci/l) +RA-228		8.2 (NRC & EPA) SWA 12.1 (NRC & EPA) Zone 1 35.2 (NRC & EPA) Zone 3
	PB-210 (pci/l)		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. On 1-30-24, relocked two perimeter fence line gates at SW end tailings area reminding workers to double check and fully engage chain lock. Livestock entry via damaging fence line were chased out and fence line was repaired.			
c. On 9-25-24, one weather worn "Caution Radioactive Materials" sign was replaced at SE corner of South Evaporation pond. Livestock entry near tailings collection tank were chased out and fence line was checked and resecured.			
d. All other months checked OK.			

PERSONNEL OCCUPATIONAL MONITORING SUMMARY DATA
FROM 4TH QUARTER 2023 TO 3RD QUARTER 2024

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