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January 30, 2018
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: 2017 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 14, 2017.

If you have any questions or recommendations, please advise.

Sincerely,

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

Max Chischilly Jr.
Radiation Safety Officer

dy
Enclosures

Cc. Jim Smith, NRC
Ray L. Kellar, NRC Region IV
Andrea Kock, NRC
Roy Blickwedel, GE

NM5501



To: Ricky Spitz, Project Manager, AMEC FW January 30, 2018
From: Max Chischilly Jr., RSO AMEC FW
Subject: ALARA Committee Meeting and Audit conducted on December 14, 2017

On behalf of UNC Mining and Milling; Site's AMEC Foster Wheeler, ALARA Committee met on December 14, 2017 to audit the result of the radiological monitoring program for the fourth quarter of 2016 and the first three quarters of data for 2017. Current committee members are: Ricky Spitz, Aaron Garoutte, 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. 2016 to 3rd Qr. 2017".

Significant Finding and Event:

1. No significant radiation exposure was recorded for onsite AMEC Foster Wheeler 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 2017 as required by AMEC Foster Wheeler 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 2017.
4. The annual land use survey was done on 3-31-17 for 2016 (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, 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 (well PB-2, PB-3, PB-4 and MW-6 are monitored for water level only due to wells drying up).
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-2 and NW-5. The pumped water is discharged into the tailings North Evaporation Pond.
9. Domestic mill well water is being 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 on various field work projects by different contractors pertinent to NECR Mine/Mill Removal Action during March, April and May of 2017 (i.e. road survey, wildlife survey, archeological survey and view shed analysis). Task activities were performed in controlled areas and outside boundaries of tailings evaporation ponds and radioactive material storage area. No significant radiation exposure was foreseen nor anticipated, however for the purpose of ALARA and precaution; radiation safety orientation/training were given to Stantec, Cedar Creek, DCRM and Intera employees. Radiation survey were done on personnel entering/exiting tailings site as a spot check and material/equipment for final release and unrestricted use. Completion of project task ranged from 1 to 8 days.
11. For the record, no Radiation Work Permit (RWP) was prepared on AMEC Foster Wheeler spray application of Arsenal Herbicide w/surfactant on Tamarisk's (Salt Cedar) in tailings evaporation ponds, central and south cells. No significant radiation exposure was foreseen nor anticipated due to site status conditions (i.e. cells are covered/capped and evaporation ponds are lined). However for the purpose of ALARA and precaution; employees annual refresher radiation safety training were current, daily personnel alpha survey, daily gamma exposure rate survey and material/equipment rad survey for final release and unrestricted use were performed. Total project work hours during September 14, 18 & 20 of 2017 were as follows: a) 5.3 in/around evaporation ponds, b) 1.0 on south cell and c) 2.3 on central cell.
12. Posted updated NRC Form 3 (8-2017) - Notice to Employees in conspicuous areas.
13. Based on the routine annual ALARA committee meeting and audit on December 14, 2017; 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

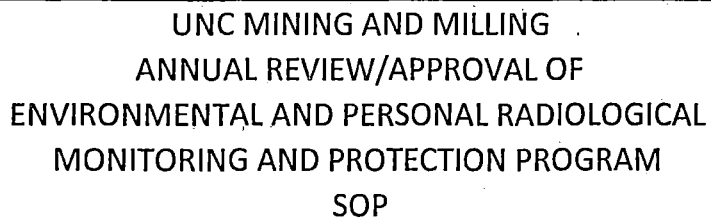
1. Employees working within the tailings area will wear a TLD badge which is changed out and analyzed semi-annually or until completion of job. (See Procedure PMP-2).

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.

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ENVIRONMENTAL AND EFFLUENT MONITORING SUMMARY DATA
FROM 4TH QUARTER 2016 TO 3RD QUARTER 2017

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)		6-9 (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
3. Monthly Inspection Findings:			
a. Relocked west perimeter tailings fenceline gate after finding it unlocked on 4-26-17 and reminded employees to check and make sure perimeter fence line gates are locked after exiting tailings area.			
b. All other months checked OK.			



PERSONNEL OCCUPATIONAL MONITORING SUMMARY DATA
FROM 4TH QUARTER 2016 TO 3RD QUARTER 2017

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