

URANIUM ONE U.S.A., INC.

**SHOOTARING CANYON MILL SITE
GROUND WATER MONITORING PLAN**

Submitted by

Uranium One USA, Inc.
3801 Automation Way, Suite 100
Fort Collins, Colorado 80525

Prepared by

Tetra Tech
3801 Automation Way, Suite 100
Fort Collins, Colorado 80525



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1.0 INTRODUCTION

This groundwater monitoring plan is part of the groundwater protection program for the proposed new tailings disposal facility at the Shootaring Canyon Mill site near Ticaboo Utah. This groundwater monitoring plan was based on information developed in the following two reports and is intended to implement the requirements of the GWPP and RML following requirements presented in R317-6.

- *Ground Water Geochemical Evaluation And Background Water Quality Determination For The Shootaring Canyon Mill Site* (Tetra Tech, June 2008)
- *Groundwater Modeling and Proposed Monitoring Wells for the Shootaring Canyon Mill Tailings Disposal Facility* (Gard, June 2008)

2.0 MONITORING WELLS

A total of 15 wells comprise the network to monitor the performance of the tailings disposal facility. There are 14 point of compliance (POC) wells and one up-gradient background well (RM-1). The wells are located at the locations shown on Figure 1. The new POC wells will be completed in the main Entrada aquifer which is the uppermost aquifer and will be screened over the top 100 feet of the saturated portion of the aquifer. Table 1 summarizes the specific location and construction details of each well.

3.0 MONITORING FREQUENCY AND CONSTITUENTS

The wells will be sampled on a quarterly basis for two years. This will provide information to allow for intra-well background values to be determined for each well as discussed below. After the initial two year period, subsequent monitoring will be conducted on an annual basis.

A total of 27 water quality constituents will be determined for each sample. 21 of these constituents are constituents which will have a ground water compliance limit and/or regulatory standards and the other 6 are constituents which will be monitored as indicator parameters. The list of constituents is presented on Table 2. In addition to these constituents, water levels and the field parameters (temperature, pH, and conductivity) will also be determined for each well at each sampling period.

Sampling and analysis will be conducted according to the attached quality assurance project plan (QAPP).

4.0 EVALUATION OF DATA

For the first two years, data from the POC wells will be evaluated using interim GWCLs. The GWCLs for each of the 21 regulated constituents is presented on Table 3.

After the initial two years of quarterly data are obtained, intra-well compliance standards will be developed for each POC well. The intra-well GWCLs for each well will be developed using the methodology presented in Figure 2.

If constituent values exceed compliance limits for any constituent in one or more POC wells, the analytical laboratory will be contacted to confirm results. On confirmation of the results the Executive Secretary will be notified in writing within 30 days and the well in question will be re-sampled and re-analyzed for the constituents that exceeded compliance criteria. If the new data still exceeds compliance criteria, quarterly sampling will be initiated. If two quarters of sampling indicates parameters still exceed compliance limits, the UDEQ/DRC will be consulted to develop the appropriate action. The protocols that will be followed are outlined in Figure 3.

5.0 REPORTING

Routine groundwater monitoring reports will be submitted on a semi-annual frequency for the first two years while quarterly monitoring is occurring. Once annual monitoring has commenced, reports will be submitted on an annual basis. The reports will include the following for each well:

- Ground Water Sampling Form
- Calibration Form
- All laboratory results in hard copy and electronic format
- All laboratory QA information.

In addition, a water table contour map will be developed for each sampling period.

Table 1. Location and completion details for monitoring wells

Note: This table to be generated after wells are installed

Table 2. Parameters for Compliance Monitoring

Analyte	Purpose
Arsenic, As	Regulatory Compliance
Barium, Ba	
Cadmium, Cd	
Chromium, Cr	
Copper, Cu	
Lead, Pb	
Mercury, Hg	
Molybdenum, Mo	
Selenium, Se	
Silver, Ag	
Zinc, Zn	
Ammonia as N (NH ₃ -N)	
Chloride, Cl	
Fluoride, F	
Nitrate + Nitrite as N, (NO ₃ +NO ₂)-N	
Sulfate, SO ₄	
TDS	
pH	
Uranium, U-nat	
Radium, Ra-226+ Ra-228 (1)	
Gross alpha, adjusted	
Carbonate, CO ₃	Performance
Bicarbonate, HCO ₃	
Calcium, Ca	
Magnesium, Mg	
Sodium, Na	
Potassium, K	

*mg/L except Ra-226 + Ra228, and gross alpha (pCi/L), and pH in standard units; average was calculated on data through 3rd quarter 2007

1) Historically only Ra-226 was measured but both Ra-226 and Ra-228 will be measured in the future.

Table 3. Interim Compliance Criteria

Analyte	Units	Compliance Criteria
Ca	mg/l	26.7
Mg	mg/l	28.8
Na	mg/l	23.4
K	mg/l	3.3
Cl	mg/l	15.3
F	mg/l	0.42
Gross Alpha	pCi/l	8.74
pH	s.u.	6.4-9.4
(NO ₃ +NO ₂)-N	mg/l	2.28
SO ₄	mg/l	36.8
TDS	mg/l	234
Unat	mg/l	0.0073
Ba	mg/l	0.2
As	mg/l	0.0163
Cd	mg/l	0.064
Cu	mg/l	0.06
Mo	mg/l	0.012
NH ₃ -N	mg/l	0.23
Pb	mg/l	0.0082
Ra ₂₂₆	pCi/l	1.8
Se	mg/l	0.006
Zn	mg/l	0.343
Ag	mg/l	0.025
Cr	mg/l	0.05
Hg	mg/l	0.005

Figure 1. Approximate Location of Proposed Monitoring Wells

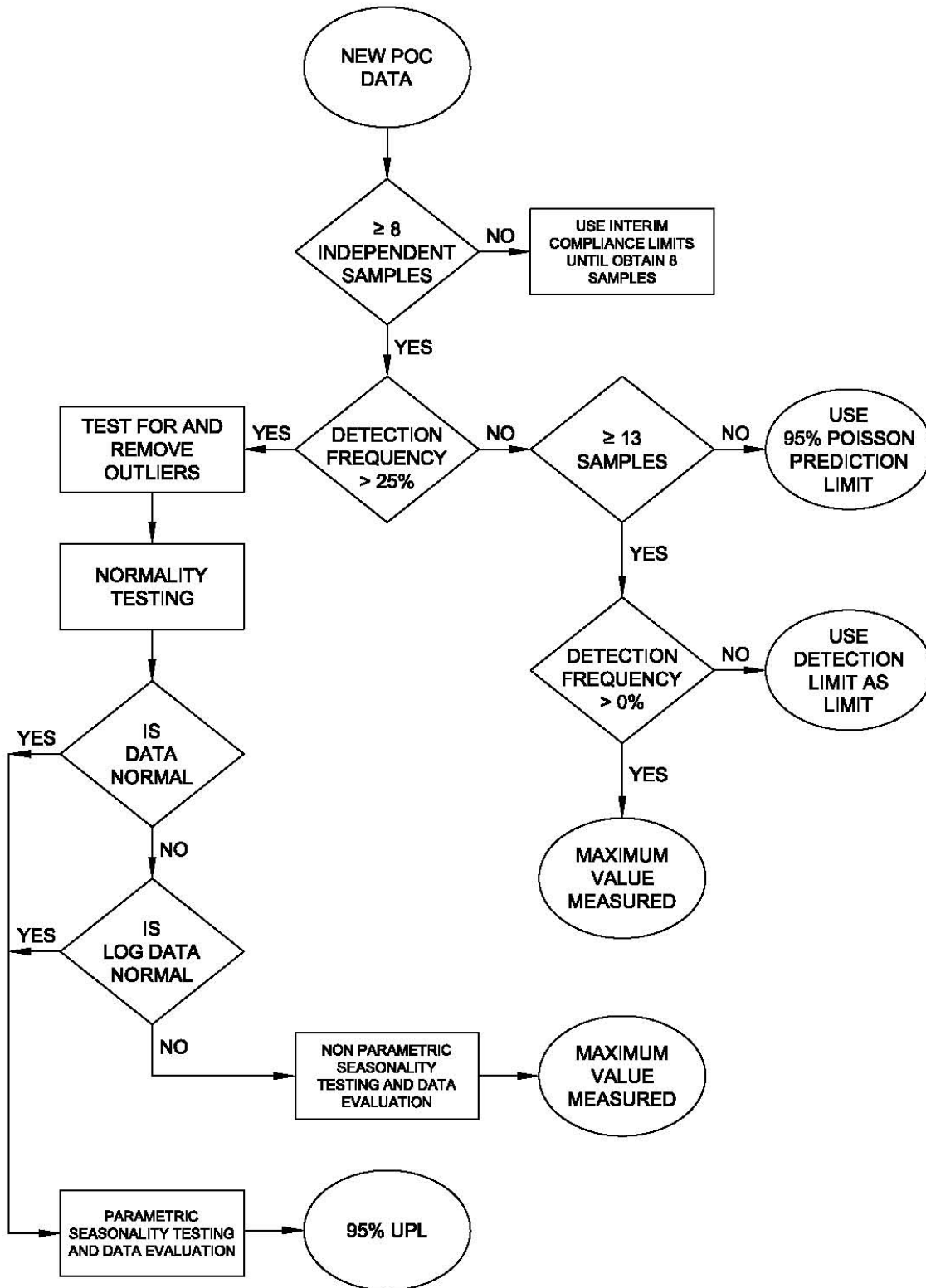


Figure 2. Groundwater Final (Intra-well) Compliance Limit Flow Chart

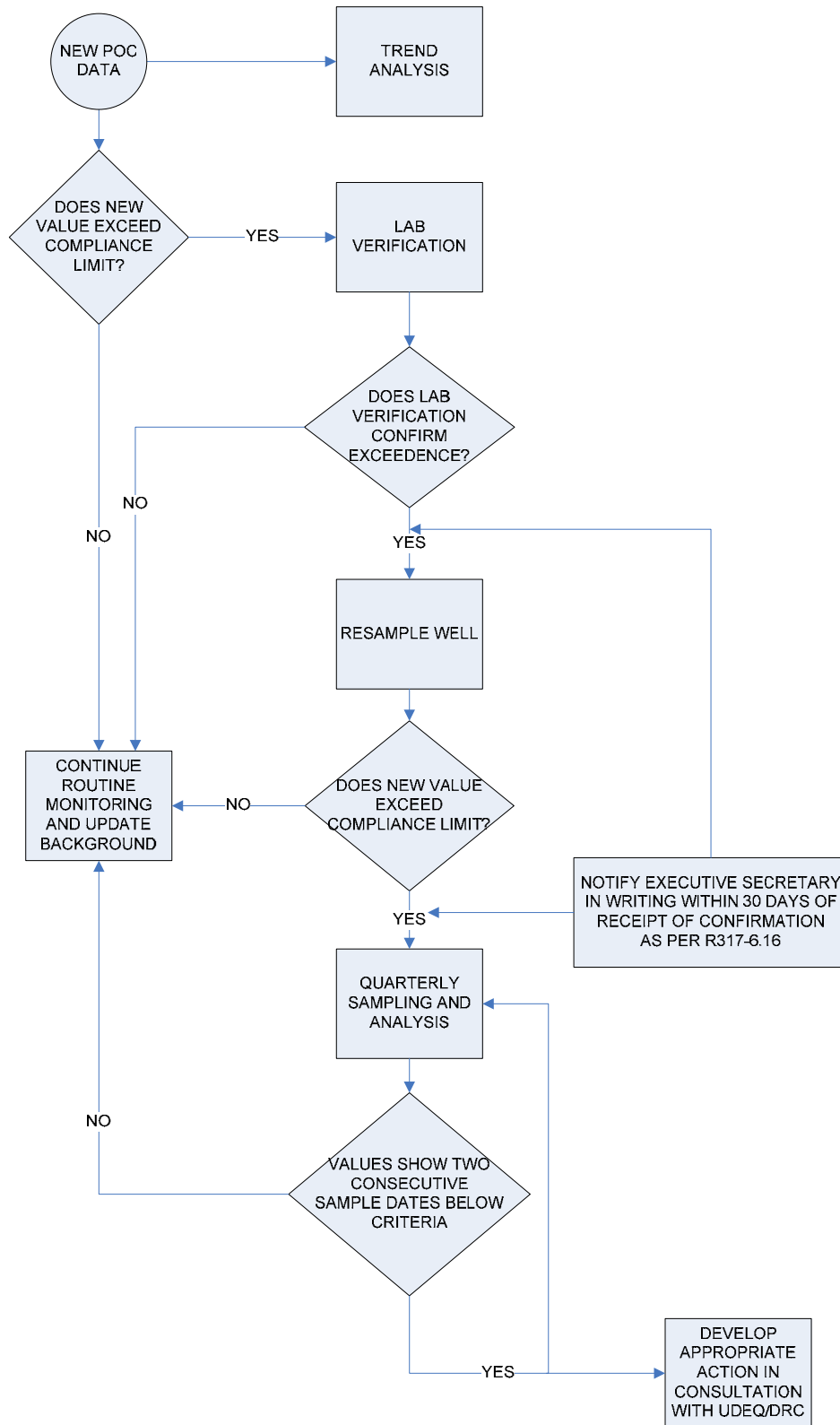


Figure 3. POC Monitoring Plan Flow Chart