

Technical Memorandum (Canon City Milling Facility)

**To: Jim Cain, Environmental Coordinator/Radiation Safety Officer,
Cotter Corporation**

From: Errol P. Lawrence, HydroSolutions

Date: May 31, 2011

**Subject: Review of the 1st quarter, 2011 water quality analytical results for the
Cotter Corporation Canon City Milling Facility**

A review of the water quality analytical results from the first quarter sampling round of 2011 was performed. The data included radionuclides, trace metals, major ions, TDS, pH, alkalinity and conductivity results. The analytical results for the first quarter sampling round were compared with historical results/trends to identify potential values that might be of concern with respect to changes in water quality and laboratory accuracy/validity.

Locations 15B, 035, 049, 347, 381, 386, 701, 710C, 711A and PW-2 were not sampled during the first quarter because they were either dry or had insufficient flow. Sampling locations 114, 129, 173, 231, 274, were not sampled because they were winterized.

Two monitor wells (051 and 052) were sampled three times in the first quarter and one monitor well (049) was sampled twice in the first quarter. These wells were installed and sampled as part of the investigation of groundwater quality between the SCS Dam and the Deweese Dye Ditch, north of the facility. That investigation is ongoing.

Changes between the first quarter of 2011 and fourth quarter of 2010 sampling events that are notable are indicated in the table below. In general, iron concentrations were substantially increased at most locations compared to previous sampling rounds. The increase is attributable to more accurate measurements from the newly implemented laboratory equipment.

Review of 1st Quarter, 2011 Water Quality Analytical Results, Canon City Mill Site

Location ID	Parameter	Description
015A, 019, 020, 048, 144, and 244	Water level (depth to water)	The depth to water increased by 5 feet or more at these locations compared to the previous measurement period. The increase is most likely attributable to the beginning of irrigation (and operation of pumps) throughout the area.
135	U	The uranium level was substantially higher than previous measurements at that location but still below the CGWQS for U

168	U	Highest value recorded at this location although still below the CGWQS
038	Mo	The value was twice what has been previously measured at this location
040	Mo	First time a detectable level of Mo was measured at this location, although still below the CGWQS for Mo
130	Mo	Highest value recorded at this location since January 2009 after a long decreasing trend
336	Mo	Over 5 times greater than recent measurements and higher than all but 1 historic measurement
024, 047 and 338	Na	Over 5 times greater than previous values
368	K	Value is approximately 5 times greater than any previous values
380	Cl	Value is approximately 50 percent greater than typical
360	SO4	Value is approximately 50 percent greater than typical
371	SO4	Value is substantially lower than previous measurements
336	TDS	Within the range of historic values but about 50 percent lower than recent measurements