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- Need to look for Suzanne's files for Glenda briefing for WO on social contracts.

October 22, 2009

Mr. Rusty Wilder
Contracting Officer Representative
U.S. Forest Service
Black Hills National Forest
1019 N. Fifth Street
Custer, SD 57730-8214

Reference: Recommendations for collection of final Remedial Investigation data
Contract AG-82X9-D-08-0179 for the Nemo Work Center RI/FS
(Weston BPA# NAB080002)

Dear Mr. Wilder:

Weston Solutions, Inc. (Weston®) and TEC Inc., (TEC) have prepared this summary of recommendations for the collection of additional Remedial Investigation (RI) data. These recommendations are based on preliminary data from the August 2009 RI field effort as presented in the Weston/TEC Team's draft Preliminary Data Evaluation Letter Report, dated September 29, 2009 and our subsequent teleconference with the U.S. Forest Service on October 15, 2009. To achieve the most rapid progression from the RI to the Feasibility Study (FS), we propose collecting additional RI data simultaneously with completion of the RI technical report and initiation of the FS technical report. Under this scenario, an addendum RI letter report will be submitted prior to completion of the FS, with results incorporated into the Final FS technical report.

Additional data is recommended to characterize the impact of new migration pathways identified in the August 2009 field effort. These include:

- Increasing ethylene dibromide (EDB) concentrations in groundwater wells located off U.S. Forest Service property;
- Elevated EDB concentrations in two new wells, including 125 µg/L at MW-29 near one suspected source area, and 2.75 µg/L at MW-31 west of the previously identified groundwater plume;
- EDB in seepage water entering Boxelder Creek at the northern perimeter of the study area and off U.S. Forest Service property; and
- EDB in shallow subsurface soil in a previously identified disposal pit location that may represent a continuing source to the underlying groundwater aquifer.

These new data represent migration pathways that were not previously identified and, if significant, should be addressed in the FS and final cleanup remedy. The following recommendations for additional data will determine whether these are significant pathways that should be addressed in the FS, or can be considered insignificant at the completion of the RI.

- 1) **Verification of August 2009 Groundwater and Seep Water Source Areas** – Two quarters of additional groundwater and seep water sampling for EDB are recommended. These will seek to verify an increasing trend in the concentration of EDB groundwater observed in the August 2009 data set, and assess the potential impact to Boxelder Creek. The August 2009 data set shows EDB returning to near maximum historical concentrations, contradicting earlier trends which showed EDB decreasing to undetectable levels in many offsite wells. The additional data will determine whether offsite concentrations will continue to increase and present an immediate concern to



Mr. Rusty Wilder
U.S. Forest Service

2

October 22, 2009

offsite receptors and long-term water quality. This information is imperative in determining cleanup alternatives to be evaluated in the FS.

The two verification sampling rounds should include all monitoring wells and seepage points sampled in the August 2009 sampling event. In addition, it is recommended that four more seepage water sampling points are installed and sampled along the bank of Boxelder Creek to further characterize potential EDB seepage between SWP01 and SWP03 and between SWP04 and SWP06. To assist with development of the FS, groundwater samples from all monitoring wells are recommended to be analyzed for pH, dissolved oxygen, and oxygen reduction potential as well as EDB.

- 2) **Additional Characterization of Potential Subsurface Soil Source Area** – Further investigation of the vertical extent of vadose zone EDB contamination in the vicinity of subsurface soil EDB detections at DD-SB03-1516 (1.78J ug/kg) and DD-SB-04-1516 (2.3J ug/kg) and the underlying aquifer is recommended. To date, these results are the only analytical evidence of a subsurface soil source of EDB and imply an original spill location. Vertical characterization is imperative to assess site-specific parameters that govern EDB migration via the soil to groundwater leachate pathway, which include retardation, soil/water/soil vapor partitioning coefficients, soil bulk density, soil porosity, saturated porosity, and soil bulk density, as well as the vertical EDB concentration profile beneath the source.

Installation of a boring to ten feet below the water table in the vicinity of the EDB detected in subsurface soil borings (DD-SB03 and DD-SB04) is recommended. This boring should be advanced using air rotary coring methods within the weathered bedrock, with samples collected for EDB analysis at selected intervals to provide data needed to confirm or eliminate the EDB subsurface soil as a significant secondary source. Selected core samples of fractured bedrock zones should undergo geotechnical analyses for gradation, porosity, moisture content, bulk density and permeability. It is recommended that the core hole be reamed to the required diameter to install a 4-inch groundwater monitoring well to be used for sampling and extraction, as necessary. The additional data would be used to evaluate the vadose zone migration pathway, refine the RI conceptual site model, and select FS alternatives for treatment of the source area, if necessary.

- 3) **Connect New Monitoring Well MW-29 to the Existing Carbon Treatment System** – The 125 ug/L concentration of EDB at MW-29 is the highest concentration detected during the August 2009 sampling event. Weston recommends converting MW-29 to an extraction well with subsurface conveyance piping to the carbon treatment system.
- 4) **Replacement of Carbon Canisters in the Existing Carbon Treatment System** – The carbon effluent sample collected during August indicated EDB breakthrough (0.021 ug/L). Replacement of the carbon canisters is recommended.



Mr. Rusty Wilder
U.S. Forest Service

3

October 22, 2009

The Weston/TEC Team is committed to meeting the data acquisition and evaluation needs that the U.S. Forest Service has set for the Nemo Work Center RI/FS and the proposed modifications described herein will help achieve that goal.

Please call me at (303) 729-6153 or John Bridenbaugh at (303) 729-6113 if you have any questions, comments, or need additional information. We look forward to continuing our support of the U.S. Forest Service.

Sincerely,
WESTON SOLUTIONS, INC.

A handwritten signature in black ink, appearing to read "Mark Bell", with a long horizontal flourish extending to the right.

Mark Bell
Senior Client Services Manager

Enclosures:
Proposal Text
Proposal Spreadsheets

Cc: Terry Ward CO, USFS
Christopher P. Carlson, USFS
Jeff Hart, TEC