Memorandum

To: *Josephine Newton-Lund, PMP, Senior Project Manager, Environmental Branch, U.S. Army Corps of Engineers*
Shannon Smith, PE, Program Manager, Veterans Health Administration

From: *Nathan Smith, PMP, Senior Project Manager, CDM Federal Programs Corporation*
Neil Smith, Project Technical Leader, CDM Federal Programs Corporation

Date: *December 4, 2020*

Subject: ***Modification #2 to Phase 2 Field Sampling Plan***
700 South 1600 East Tetrachloroethene Plume Superfund Site, Salt Lake City, Utah

On behalf of the U.S. Army Corps of Engineers (USACE), CDM Federal Programs Corporation (CDM Smith) prepared this minor field modification (MFM) #2 to the Phase 2 Field Sampling Plan (FSP). The FSP is an appendix to the Phase 2 Remedial Investigation Work Plan (RIWP) (CDM Smith 2020) for 700 South 1600 East Tetrachloroethene (PCE) Plume Site located near the George E. Wahlen Veterans Affairs Medical Center (VAMC) in Salt Lake City, Utah. This MFM #2 to the Phase 2 FSP proposes the removal of total dissolved solids (TDS) from the analyte list for all future groundwater monitoring events.

1.0 Scope of Work

This MFM includes the rationale for the removal of TDS from the analyte list for all future groundwater monitoring events. TDS is a measure of all inorganic and organic dissolved solids content, measured in milligram per liter (mg/L). TDS does not provide a direct measurement of contaminants or an understanding of geochemical conditions; rather, it provides a general indication of water quality. The primary chemical constituents typically measured by TDS are inorganic cations (specifically calcium, sodium, and potassium) and anions (specifically phosphates, nitrates, bicarbonate, sulfate, and chloride).

TDS was collected at all existing wells in September 2018 (18 wells), December 2018 (31 wells), March 2019 (31 wells), December 2019 (28 wells), June 2020 (35 wells), and September 2020 (53 wells). TDS in groundwater at the Site ranges from approximately 600-1,200 mg/L. Data from these samples confirm that the TDS in groundwater at the site is within the range for designated Class II aquifer (Drinking Water Quality Groundwater), which has a TDS range between 500 mg/L and 3,000 mg/L.

The groundwater monitoring program also includes sample collection for the analysis of cations (including calcium, sodium, and potassium) and anions (nitrates, sulfate, and chloride). Therefore, an indication of TDS can be provided by these analyses, and the analysis of TDS is unnecessary.

Further, specific conductance, which is measured during the collection of water quality parameters at all locations during the groundwater monitoring program, also provides an indication of TDS. Specific conductance measures the ability of water to pass an electrical current. As dissolved inorganic constituents conduct electrical current, specific conductance is directly related to TDS; therefore, the analysis of TDS is unnecessary.

In summary, water quality (as measured by TDS) can be estimated by both cation/anion analyses and measurement of specific conductance, making the collection of samples for the direct analysis of TDS redundant. Therefore, the groundwater monitoring program will no longer include the collection of groundwater samples for the direct analysis of TDS.

2.0 References

CDM Smith. 2020. *DRAFT FINAL Phase 2 Remedial Investigation Work Plan, Operable Unit 1, 700 South 1600 East PCE Plume, Salt Lake City, Utah*. Prepared for U.S. Army Corps of Engineers.