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Subject: September 2021 Virtual Meeting Summary & Proposed Actions

Ms. Kuhn:

On September 16, 2021, personnel from the South Carolina Department of Health and Environmental Control (DHEC), the Westinghouse Columbia Fuel Fabrication Facility (CFFF) and AECOM met to discuss the Phase II remedial investigation (RI) work completed at the CFFF. In attendance were Ken Taylor, Lucas Berresford, Kim Kuhn and Carolyn Moores of DHEC, Nancy Parr, Diana Joyner and David Wagoner of CFFF, and Jeremy Grant, Chuck Suddeth and Robin Mikeal of AECOM. The following agenda items were discussed during the meeting:

- Updated Conceptual Site Model (CSM) including plume analytics introduction
- Updated top of Black Mingo map
- New groundwater wells and analytical results
- Groundwater-surface water interaction
- Soil grain size analysis results

1) **Updated CSM**

The discussion about the updated CSM included the following:

- a) The most recent revision to the CSM includes additional lithologic data from Phase II of the RI as well as the addition of a new visual category for silty or clayey sands. AECOM has been working to show this new visual category within the CSM cross sections to assist in a better understanding of how the lower permeability sands may affect groundwater flow onsite at the CFFF.
- b) Statistical plume analytics were incorporated into the 2020/2021 Annual Groundwater Monitoring Report to evaluate changes in plume behavior over time.

2) **Top of Black Mingo Map**

Survey of the RI Phase II borings and monitoring wells contributed additional data to update the top of the Black Mingo confining clay contour map. The pertinent changes to the map were presented by AECOM personnel, and the updated map will be included in the Final RI Report.

3) **New groundwater wells, analytical results, and related plume figures**

The discussion about the latest groundwater data included the following:

- a) Chlorinated volatile organic compounds – As demonstrated in the results of the groundwater screening samples, there is a connection between impacted groundwater in the plant area and impacted groundwater from the Western Groundwater Area of Concern. The new monitoring wells needed to close this data gap were installed after the end of the 2nd quarter of 2021; therefore, this new understanding of CVOC impact is not depicted on figures in the 2020/2021 Annual Groundwater Monitoring Report. The connection will be depicted on figures resulting from the October 2021 groundwater sampling campaign.
- b) Other constituents of potential concern – Groundwater from well W-123 contained nitrate and fluoride above its maximum contaminant level (MCL) and Technetium-99 below its MCL. The additional data from monitoring well W-123 will result in very little change to the fluoride and nitrate plume figures but will allow closure of the inferred plume line on the eastern side of the Tc-99 impact.
- c) With the groundwater analytical results from the new monitoring wells, the horizontal and vertical extent of COPC plumes are fully defined.

4) **Groundwater-surface water interaction**

There are currently six pressure transducers in Mill Creek, one pressure transducer in the Gator Pond, ten pressure transducers in monitoring wells and one pressure transducer in a piezometer to measure surface water and groundwater levels on an hourly basis. Data collected from these pressure transducers is being used to assess the groundwater-surface water interaction. Water, both at the surface and within the ground, flows from points with higher elevations to points with lower elevations. Discussion of water elevations primarily focused on the period of time around August 22, 2021 when the site received 4.76 inches of rainfall. Multiple hydrographs of this data were presented to DHEC personnel from several areas of the site. These areas included:

- a) Gator Pond Area - There are four pressure transducers installed in upper zone of the surficial aquifer monitoring wells (W-4R, W-15, W-16 and W-27), one pressure transducer in a lower zone of the surficial aquifer monitoring well (W-92), and one pressure transducer in the Gator Pond. In general, the water table in the Gator Pond area is lower than the elevation of the surface of the Gator Pond, except for the water table elevation in monitoring well W-16. Data from monitoring well W-16 showed greater fluctuations in the water table elevation than the other upper zone wells of the surficial aquifer. AECOM personnel concluded that water was likely infiltrating into the well during rain events. Repairs to the well were conducted by AECOM personnel on September 16 to stop rainwater infiltration. Prior to the October 2021 groundwater sampling event, this well was redeveloped to prevent potential foreign material from clogging the well screen.

- b) Mill Creek Area – There are six pressure transducer locations within Mill Creek from the man-made diversion canal to near the spillway of the Lower Sunset Lake Dike. In general, the surface water elevations in Upper Sunset Lake are higher than the other surface water (e.g. Lower Sunset Lake, canal) elevations. The stormwater ditches on the property empty into Upper Sunset Lake and serve as the primary source of water because the majority of Mill Creek flow bypasses the Sunset Lakes through the diversion canal. Water from Upper Sunset Lake can flow both to the east into Lower Sunset Lake and to the west through the Entrance Dike towards the canal, depending upon the surface water elevation in Upper Sunset Lake and how much flow is coming down Mill Creek beyond the diversion canal.
- c) Lower Sunset Lake and Congaree River Floodplain Area – AECOM presented hydrographs from six monitoring wells (W-92, W-96, W-105, W-124, W-125, and W-126) and one piezometer (PZ-1) in relation to Lower Sunset Lake’s hydrograph. The elevation of the surface water in Lower Sunset Lake is consistently higher than water elevations in the surficial aquifer. In general, the lower zone of the surficial aquifer saw a greater increase in water elevation compared to the upper zone in response to the August 22, 2021 precipitation event except for the water level in piezometer PZ-1 screened in the upper zone. Additional data and evaluation are needed to continue to refine the understanding of groundwater-surface water interaction in this area.

5) Soil grain size analysis

In response to the Nuclear Regulatory Commission’s request for surficial soil properties, soil within the upper five feet of the subsurface from across a large portion of the property was collected during Phase II of the RI and submitted for grain size analysis with hydrometer. AECOM shared three observations as follows regarding the grain size analysis results.

- a) The analysis illustrated the fraction of sand, silt and clay in surficial soils.
- b) The field geologist’s description of silt versus clay is based upon the cohesive properties of the soil and its ability to be rolled out like play dough. Actual percentages of these lower permeability soils can vary from the field descriptions.
- c) In general, soils near the surface contained more silt and clay content than soils deeper in the subsurface.

The discussions resulted in the parties agreeing to the following actions:

- Addition of a new east-west trending cross section to the CSM that goes through the Gator Pond and is roughly parallel to the bluff.
- CFFF will evaluate how best to perform plume analytics using historical gross beta data.
- Continue gathering data from the pressure transducers to gain additional understanding of the groundwater to surface water interactions and influence of rainfall events and river levels (if a flood event occurs).
- Submission of the most recent survey data by AECOM to SCDHEC via an Excel file.
- Submission of water level data by CFFF to SCDHEC following the October 2021 groundwater sampling campaign.

At the end of the meeting, CFFF inquired whether DHEC concurred that Remedial Investigation Work Plan activities (i.e., fieldwork) had been completed in accordance with the Consent Agreement to assess “the source(s), nature and extent of” impact by historical releases. CFFF proposed that the next step was to complete the RI Report, including a risk assessment. DHEC concurred, stating they do not currently see any data gaps, however a complete review of the site data included in the RI Report would be needed to make a final determination. The parties in attendance agreed that submittal of a Remedial Investigation Report was the next step. CFFF will work on an outline and schedule for the report.

Respectfully,



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