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September 2, 2011

Edgar Ethington
Radiation Management Unit
Hazardous Materials and Waste Management Division
Colorado Department of Public Health and Environment
4300 Cherry Creek Drive South
Denver, CO 80246-1530

Ref: Lincoln Park NPL site

Dear Edgar:

Below please find our comments on the draft technical memorandum from HydroSolutions to the Cotter Corporation titled *Lincoln Park Monitor Well Installation Plan*, dated August 23, 2011. You emailed this document to me on August 26th, although I received it on August 29th when I returned to the office.

General Comments

This technical memo describes the installation of monitoring wells, the locations of which were discussed by Cotter, CDPHE and EPA during meetings and via email communication. However, the memo does not contain what would normally be considered an acceptable level of detail. Usually, more detail would be required for field methods, and a SAP or SOPs would be attached.

Additionally, EPA and CDPHE did not discuss removal of wells from the routine groundwater monitoring program as mentioned on page 5. While we agree that using wells with known well construction is preferable, we would like to discuss further the impact of changing the sampling frequency of these private wells. The owners of the wells and other community members may have concerns that should be addressed prior to discontinuing or reducing this sampling.

Specific Comments

1. Extent of Groundwater Impacts. The memo states: "*Groundwater contamination in the bedrock aquifer has not been measured within Lincoln Park. If groundwater contamination exists within the bedrock beneath Lincoln Park, it would most likely be restricted to the upper weathered portions of the bedrock.*" Rather than make this assumption without supporting data, it is recommended that either during this field event, or a future event, that monitoring wells be installed into bedrock (ideally paired with alluvial wells) to define the vertical extent of the plume.
2. Potential Sources of Groundwater Impacts. The memo states: "*No sources are known to exist within Lincoln Park. However, historic overland flow may have resulted in infiltration and sorption of U and Mo onto subsurface materials. Slow release*

(desorption) of U and Mo may be an ongoing secondary source of groundwater contamination in the Lincoln Park." It is recommended that soil samples be collected during the soil borings for the well installations to help determine whether sorption to subsurface material has occurred and/or to determine leachability.

3. Rationale for Proposed Locations (LP04). The memo states: "*Well LP04 will be also used to assess hydraulic and chemical aquifer conditions in the critical area near well 129 where elevated levels of Mo and U persist.*" By assessing hydraulic conditions, does the memo mean to suggest that the well will be used to better define the hydraulic gradient, or that an aquifer test is planned for well LP04? The text should be more specific.

4. Rationale for Proposed Locations. The memo states: "*It is also proposed that once these new wells have been installed and sampled for four quarters, that all of the wells with unknown depths and/or screen intervals be removed from the routine groundwater monitoring program and only be sampled as part of the 5-Year Lincoln Park Water Use Survey sampling.*" It is recommended that this section be reworded to say that following four quarters of data collection from the new wells, the groundwater monitoring plan will be reassessed to determine if any of the private or domestic wells can be removed from the program. Although monitoring wells will provide data that is more reliable and useful due to the known construction data, we should not discount the utility of sampling private or domestic wells.

5. Drilling/Coring. The memo states: "*The core will be appropriately stored and marked to allow for identification of the recovered interval for subsequent observation and or testing purposes.*" The memo should provide more detail regarding what appropriately stored means. If samples of the core are ever to be analyzed for U or Mo, or if the structural integrity of the cores is critical for future analysis, cores should be kept in sleeves and frozen.

6. Monitor Well Installation. The memo states: "*The screens will be placed from the alluvium bedrock contact to at least two feet above the first occurrence of groundwater.*" Based on the hydrogeology section, this would suggest that screens could be up to 32 feet long. Unless the subsurface saturated alluvium is homogeneous and isotropic, screens should be limited to 10 feet in length. A saturated thickness of 30 feet may require multiple monitoring wells screened at varying depths.

7. Monitor Well Installation. The memo states: "*The site geologist will determine the appropriate screen interval. The screens will be four (4)-inch schedule forty (40) PVC with 0.020 inch slots.*" A 0.020 slot size may be too large depending on the alluvial material.

8. Monitor Well Development. The memo is too general about the method of development. The memo should be more specific, and as per comment #1, should provide detailed information in a SAP or SOP.

9. Monitor Well Measurement and Sampling. The memo states: "*Groundwater samples will be collected from each of the newly installed monitoring wells using Cotter's standard water quality sampling protocols established in the Remedial Action Plan, Radiological Program Plan Procedures and the Quality Assurance Program Plan. Specifically, sampling will follow the procedures EV-040, EV-041 and EV-042 for sampling the monitor wells.*" Although the memo references the RAP, at a bare minimum it should

indicate the method of sampling and purging, what analytes will be sampled, the analytical method to be used, and whether QA samples will be collected.

10. Schedule. The memo states that CDPHE will be notified if there needs to be any modifications to the locations proposed in the plan. We would expect that EPA will also be notified and involved in the review and approval of alternate locations.

Please call me if you would like more information or would like to discuss these comments.

Sincerely,

Frances L. Costanzi

Frances L. Costanzi, P.E.
Remedial Project Manager

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