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February 4, 2010

SM4349-10-1038

Mr. Edgar Ethington Geologist Hazardous Materials and Waste Management Division HMWM-HWC-B2 4300 Cherry Creek Drive South Denver, CO 80246-1530

Subject: Work Plan Addendum, Draft Environmental Assessment and Characterization Work Plan, CSMRI Flood Plain Site, by S.M. Stoller Corporation

Dear Mr. Ethington,

Thank you for meeting with us on January 27, 2010, and providing us the opportunity to discuss with you the items presented below, which addend the Draft Work Plan dated January 8, 2010. Also presented below are modifications we will make to the Draft Work Plan to address issues you brought to our attention. Upon your receipt and approval of these addended items and our comment responses, we will incorporate these items into a final edition of the work plan.

Work Plan Addendum

Stockpile Relocation

The original Draft Work Plan depicted the impacted material stockpile as being located west of the west gate just below 6th Avenue. After careful consideration and improved understanding of the construction work the City was planning in this area, we have moved the intended location of this stockpile to within the boundaries of the original Site. The revised location is on the upper terrace between the new soccer field and the Site's west gate as depicted on the revised Figure 4-1.

Low Permeability Barrier Wall

After further discussions with wetland experts, we decided that a barrier designed to reduce the quantity of oxygen-rich creek water entering the flood plain will enhance our chances of creating self-sustaining wetlands. The barrier will also reduce the quantity of groundwater we have in our excavations. The planned barrier will consist of a bentonite slurry wall installed in the location shown on Figure 1-2. The slurry wall will be one bucket in width or approximately 2 feet and will extend from the ground surface to the bedrock contact. The wall will be keyed into bedrock where able, including the upper most reach up Clear Creek.



Comment Responses

Justification for the 27 ppm cleanup goal

The accurate determination of a site-specific soil cleanup level that is protective of groundwater requires determining multiple input parameters that would be difficult to determine with any certainty for this Site. The likely most complex of these is the substrate chemistry, because the flood plain area is known to be comprised of an assortment of formations from the upstream Rocky Mountains as well as any imported fill. The substrate chemistry would allow for determining the availability of uranium sorption sites from an array of compounds including FeO, Feldspar, quartz, and organic carbon. Without this information, commonly accepted models such as Phreak and Minacule would produce results which have a level of uncertainty that is unacceptable.

EPA Region 3 provides a regional screening level (RSL) for uranium that is protective of groundwater at 49 ppm in soil. Using similar compounds with similar solubility to infer a similar cleanup level is also a valid approach. The analogous use of Cr-6 (hexavalent chromium), which has a solubility very similar to uranium, has a soil action level protective of groundwater of 23 ppm.

Our use of the 27 ppm soil standard is based on precedence set for using this value at the Cotter Site in Canon City. We also know that we can use the proposed field screening techniques effectively to identify areas both exceeding this limit and below this limit.

Test Pits in the Purple Area

Stoller will dig test pits into the purple area as requested. Samples from these test pits will be evaluated with the field XRF and sent to the analytical laboratory. These samples will assist with assessing the contaminant distribution within this area as well as be used for XRF instrument correlation. The data obtained from the analysis of these samples will be used to guide the excavation in the area west of CSMRI MW-8.

XRF Correlation Revision

Stoller's XRF correlation plan will be modified to specifically include an evaluation of the impact resulting from moist, in-situ sampling versus dry, ex-situ sample results. Our understanding of the impact of moisture on XRF readings is that it tends to reduce the value indicated by approximately 20%. Our plan will initially provide for addressing this potential introduction of variability / uncertainty by performing both types of analyses on samples that have an in-situ XRF reading of between 15 ppm and 30 ppm. Additionally, the site specific effect of moisture will be determined and this range of readings maybe refined as the project progresses and additional data is acquired and evaluated.

Air Sampler

A single air sampler will be added to the project Site to quantify dust emissions from the flood plain area. The air sampler will be located east of the flood plain and be operated during project work hours.

Bedrock Uranium Concentrations

The uranium concentrations in bedrock were misstated in Section 6.11.1 as being naturally occurring. What was meant was that uranium concentrations above our tentative action level will not be chased into bedrock. Bedrock will be the lower most boundaries of our excavations.

Final Sampling Distribution

Throughout this project, the School and Stoller will work with the CDPHE to ensure appropriate confirmatory sampling is performed.



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All of these items will be incorporated into the Final Site Work Plan, which will be issued upon CDPHE final concurrence. Feel free to contact myself, Linn Havelick, or Joseph Gordon, with any questions or concerns.

Thank you.

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Steve Brinkman Project Manager

Enclosure







