FREEPORT-McMoRan

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Maria Galanti
Site Coordinator
Division of Environmental Response and Revitalization
Ohio Environmental Protection Agency
Southeast District Office
2195 Front Street
Logan, Ohio 43138

RE: Addendum No. 3 to the Preliminary Evaluation Report and Remedial Investigation/Feasibility Study Workplan for the Former Satralloy Site; Interim Action Schedule

Dear Ms. Galanti:

As a follow-up to our recent conversation on June 10, this is to inform you of additional fieldwork for the Remedial Investigation (RI), and to update you on the interim action schedule.

Addendum No. 3 to the Preliminary Evaluation Report and Remedial Investigation/Feasibility Study Workplan for the Former Satralloy Site

On behalf of Cyprus Amax Minerals Company (Cyprus) we propose Addendum No. 3 to the Preliminary Evaluation Report and Remedial Investigation/Feasibility Study for the Satralloy Site (RI/FS Workplan) to add Work to the RI. This Work consists of additional field work to complete the evaluation for the RI Report with expected completion this summer as follows:

- **Background Soil Sampling** – This work is in the RI Workplan, but was not completed last year.
- **New Kolmont Wells** – We propose to install two monitoring wells off the Site in the town of Kolmont: one screened in the alluvium and one screened in deeper rock. These two wells will be developed, sampled once, and the samples analyzed for TAL metals (total and dissolved) and wet chemistry parameters (geochemistry).
- **RBA-5 Redevelopment and Resampling** – Prior sampling of two nested wells at location RBA-5 yielded anomalous data that may not represent groundwater in this area. These two wells will be redeveloped, resampled once, and the samples analyzed for TAL metals (total and dissolved) and wet chemistry parameters (geochemistry).
- **Sample Shallow Groundwater North of Mine** – To better characterize shallow groundwater at seep locations north of the former coal mine, mechanized hand augering will be used to install passive diffusion samples in shallow groundwater at two locations. The groundwater samples will be analyzed for total TAL metals and wet chemistry parameters (geochemistry).
- **Clay Layer Evaluation** – There is a clay layer in much of the lowlands of the Site (Plant Area) that results in perched groundwater. Characterizing this groundwater is important to understanding the interaction of groundwater and surface water and how surface water discharges into Cross Creek. Preliminary evaluation of borehole and test pit data currently available for the site suggest the presence of two clay layers in the plant lowlands: (1) a shallow

brown (oxidized) clay, and (2) a deeper gray to gray/green/brown clay. These clays are commonly separated vertically by a variably thick sand and/or gravel layer. The field investigation is intended to refine our understanding of the areal distribution of these clays and to investigate the shallow groundwater chemistry above the clays. The investigation includes up to 30 shallow boreholes.

- **Installation and Sampling of Perched Groundwater Wells** – Shallow monitoring wells will be installed at up to six locations in the shallow unconfined aquifer above the perching clay layers. Falling and/or rising head slug tests will be conducted in the new shallow wells to aid in understanding the hydrogeological character of the shallow aquifer. Following well installation, a single round of groundwater sampling will be conducted to evaluate groundwater chemistry of the perched aquifer(s). The groundwater samples will be analyzed for TAL metals (total and dissolved) and wet chemistry parameters (geochemistry).
- **Install and Sample RBH-3S** – During installation of monitoring well RBH-3, a shallow groundwater sample from the borehole was found to contain hexavalent chromium. It is important to reliably characterize this groundwater. Accordingly, a new well RBH-3S will be installed next to existing well RBH-3, and screened in the shallow groundwater horizon. This well will be sampled and analyzed for TAL metals (total and dissolved) and wet chemistry parameters (geochemistry).
- **Delineate Anomalous Locations** – Two Site surface soil samples have anomalously elevated concentrations of arsenic. Soil data will be further evaluated to determine if there are additional anomalous locations. Two locations will be further delineated by collecting four samples around each location - and analyzing for TAL metals.
- **Bioaccessibility & pH Sampling/Analysis** – Up to 16 samples of soil and/or slag will be obtained from locations recommended by the risk assessors for bioaccessibility analysis. Specifically, in addition to total metals, acid-volatile sulfide/simultaneously extracted metals (AVS/SEM) analyses will be performed on these samples. These samples will also be analyzed for pH (paste pH).
- **Stream Sediment Sampling** – Up to 5 samples of stream sediment will be obtained and analyzed for TAL metals to better define the extent of metals in sediments.
- **Special-Status Species Surveys** – Preliminary ecological risk analysis will be performed to determine whether plant and animal species protected by federal and state laws (collectively, special-status species) potentially could be significantly affected if present at the Site. Then Site surveys will be performed to determine the presence or absence of the identified special-status species.

The attached map shows tentative well locations. However, the exact locations will be determined based on what is found during the subsurface investigation, and may be different from the locations shown.

Cyprus respectfully requests approval of the additional Work described above and incorporation of this letter into the RI/FS Workplan as Addendum No. 3.

INTERIM ACTION SCHEDULE

Cyprus and Golder Associates are currently negotiating the contract that we will use to complete Interim Action work. While we cannot give a precise schedule at this time, we still expect to be able to perform the interim action work scheduled for 2015 this year.

I look forward to your approval of Addendum No. 3 to the RI/FS Workplan. If you have any questions regarding the proposed field work or the Interim Action schedule, please call me.

Sincerely,

Barbara K. Nielsen
Manager, Remediation Projects

cc: Lee Holder, Golder Associates
Jim Lynch, Gallagher & Kennedy
Shane Farolino, Roetzel & Andress

Very truly yours,

Barbara K. Nielsen

Barbara Nielsen