March 6, 2014

Ms. Barbara Nielson

Manager, Remediation Division

Freeport-McMoRan Copper & Gold, Inc.

On Behalf of Cyprus Amax Minerals Company

333 N. Central Avenue

Phoenix, AZ 85004

RE: Addendum No. 2 to the Preliminary Evaluation Report and Remedial Investigation/Feasibility Study Workplan for the Former Satralloy Site.

Ms. Nielson,

I received Addendum No. 2 to the Preliminary Evaluation Report and Remedial Investigation/Feasibility Study Workplan for the former Satralloy Site (Site) on March 4, 2014. This Addendum requested approval of a sampling and analytical approach to sampling dust that will be placed in the Dust Staging Area. I have the following questions/comments and suggested additions to the sampling and analysis plan contained within Addendum No. 2.

* Section 1.2 Scope and Objectives. The scope for this sampling and analysis plan is stated to determine the appropriate disposition of the dust as part of the Site remedy. Since the appropriate disposition could include removal, wouldn’t a determination of the waste’s characteristic of toxicity be appropriate? If so, additional provisions TCLP analysis should be included in the sampling and analysis plan.
* Section 2.1 Grab Samples. Please include a description of the sampling device(s) and methods used to take grab samples as the sacks are filled.
* Section 2.2 Composite Samples. Please include a description of the compositing process. Include how each 1 gram grab sample will be acquired (to assure consistent weight or volume) and how each composite will be mixed to assure homogeneity.
* Section 2.2 Composite Samples. How will laboratory sub-sampling be performed for each composite sample?
* Section 2.3 Quality Control. Duplicate grab samples are proposed to be taken at a 10% frequency; however, the text does not describe how these grab samples will be used and nor propose what criteria will be used for assessment of precision. Please revise this section to include this information.
* Section 2.3 Quality Control. This section does not describe any quality control measures for composite sampling. Since the characterization of dust for each area is proposed from a single composite sample, it is important to verify that the sampling procedures are representative of each area. A composite from two of the proposed areas undergoing characterization should be duplicated. The acceptance criterion that Ohio EPA commonly uses for composite duplicates is 15% difference relative percent difference. If the criteria is not met, then additional grab samples should be analyzed to assess heterogeneity within the dust for each area.
* Section 3.0 Analysis. The current method for TAL metals is 6010C not 6010B.
* Section 3.0 Analysis. It should be stipulated that hexavalent chromium will be prepared using SW-846 3060A. The preparation method stipulates the measurement of ORP as well as pH. The total holding time for hexavalent chromium of 28 days is acceptable if the samples are maintained on ice or chilled in the laboratory. SW-846 Method 3060A requires that the laboratory has a technical holding time requirement of analyzing the sample within 24 hours after preparation. These changes should be incorporated into this section.
* Section 3.0 Analysis. SW-846 Method 7199A is a method commonly used for water samples. Please explain its use for the dust samples.
* Section 3.0 Analysis. pH measurement is designated as EPA 150 which is a water method. The appropriate soil or waste method is by SW-846 Method 9045D. Please update the table.

Please look over the comments and contact me with any questions that you might have.

Sincerely

Erik Hagen, Ph.D.

Site Coordinator

Ohio EPA, Division of Environmental Response and Revitalization