



Douglas A. Ducey
Governor

ARIZONA DEPARTMENT
OF
ENVIRONMENTAL QUALITY



Henry R. Darwin
Director

Via U.S. Mail and E-Mail

February 19, 2015
VRP 15-182

Mr. John Broderick
Freeport-McMoRan Inc. - Sierrita Operations
Post Office Box 527
Green Valley, Arizona 85622-0527

RE: Review of Response to Comments draft Baseline Human Health Risk Assessment Work Plan
Freeport-McMoRan Inc. Sierrita Operations
Green Valley, Arizona
VRP Site Code: 100073-03

Dear Mr. Broderick:

The Arizona Department of Environmental Quality (ADEQ) Waste Program's Division Voluntary Remediation Program Unit (VRP) in conjunction with Kleinfelder Inc., the third party risk assessor, has completed review of the document titled *Response to Comments VRP Baseline Human Health Risk Assessment Work Plan* (Letter) dated January 2, 2015 and received by the VRP on January 5, 2015. The Letter was submitted by Freeport-McMoRan Inc. Sierrita Operations (Sierrita) in response to an ADEQ comment letter dated November 18, 2014.

The VRP concurs and approves Sierrita's responses to the following ADEQ comments: Required Information, 1-3, 5, 6, 8, 9, 11, 13-16, 18, 22-33, and 35-40.

General Comments

Comment #4

The VRP acknowledges Sierrita's response; however, if Sierrita determines that a probabilistic risk assessment (PRA) is warranted, the VRP requests for Sierrita to submit a technical memorandum outlining PRA methods and assumptions 90 days prior to submittal of the draft Baseline Human Health Risk Assessment (BHRA) to the VRP for review and consensus.

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Comment #7

The VRP acknowledges Sierrita's response; however, the comment was intended to obtain information on the current use and the amount and type of vegetation at the former location of the Rhenium Ponds. Please provide.

Comment #10

The VRP acknowledges Sierrita's response; however please revise Section 3.0 to make clear that the chemicals of potential concern (COPCs) discussed in this section were identified as such in previous investigations but are not necessarily COPCs for the risk assessment that is to be prepared under this work plan. Also, please indicate in Section 3.0 that the issue of which COPCs are appropriate for the risk assessment will be revisited and that COPCs will be identified for the risk assessment as discussed in Section 4.3 of the work plan.

Comment #12

The VRP understands that Section 3.0 of the BHHRA work plan describes previous investigations and that this information will be updated for the risk assessment, however, groundwater investigations are described without providing a connection between these investigations and the risk assessment. If groundwater will not be evaluated in the risk assessment, then provide a discussion as to why groundwater will not be evaluated in the risk assessment.

Comment #17

As noted in Sierrita's response, please direct the VRP to the discussion of method detection limits that appear, "elsewhere in the Work Plan".

Comment #19

As discussed in Section 4.5.2 of the *Quality Assurance Project Plan – Addendum* prepared by URS, dated April 2008:

"A field duplicate is a second discrete sample volume collected at the same location as the original sample; homogenization is not performed between the original sample and the field duplicate... The sample containers are assigned an identification number in the field such that they cannot be identified (blind duplicate) as duplicate samples by laboratory personnel performing the analysis."

Since the quality assurance project plan stipulated that the field duplicate would be submitted to the laboratory as a blind sample, it would be considered a quality control sample. The duplicates were intended to be quality control samples of the parent sample not samples intended to characterize the site. Therefore, the duplicate should not be used to replace the parent sample nor should the duplicate be averaged with the parent sample. The duplicate and parent samples

should stand on their own for the purpose intended, i.e., the parent was intended to characterize the site and the duplicate was intended to address the quality of the parent.

Comment #20

See response to Comment 19. Parent and duplicate samples are not interchangeable. A parent sample with a higher detection limit does not necessarily have to be used in the quantification of risk. Such a sample can be omitted from the quantification as long as some discussion is provided to explain the handling of that sample. Therefore, a duplicate sample with a lower detection limit should not be used to replace a parent sample with a higher detection limit.

Comment #21

See response to Comment 19. Parent and duplicate samples are not interchangeable. The parent sample should be handled as the result for that location whether a chemical of concern is detected in that sample or not and regardless of the analytical result for the duplicate. As discussed in the response to Comment 19, the duplicate sample addresses the quality of the parent; the duplicate should not be used to replace the parent.

Comment #34

The VRP requests Sierrita provide a citation for site use factor (SUF). Since the SUF is typically "1", provide an explanation as to why Sierrita has chosen to utilize this factor in the risk assessment.

Recommendations

VRP recommends that Sierrita submit a revised BHHRA Work Plan along with a response to this letter within 30 calendar days from the date of this letter.

How to Submit

Please submit documents sent in response to this letter using the following methods:

1. Hard copy to:

ADEQ
Attention: Danielle Taber, Voluntary Remediation Program
1110 West Washington Street
Phoenix, AZ 85007

2. E-mail to dt3@azdeq.gov

In general, VRP requests two hard copies and one electronic copy (.pdf) of submitted documents.

Additional Information

The VRP site name and site code should be consistently used on all correspondence and reports relating to this site to ensure accuracy of file identification.

Information pertaining to the Voluntary Remediation Program can be obtained by accessing ADEQ's web page at www.azdeq.gov, or by visiting ADEQ's office at 1110 West Washington Street, Phoenix, Arizona. Information pertaining to Arizona Revised Statutes Title 49 can be obtained by accessing the Arizona State Legislature web page at www.azleg.gov. Information pertaining to Arizona Administrative Code rule citations may be found at www.azsos.gov.

You may contact the ADEQ Records Management Center staff about reviewing or copying file information at 602-771-4380.

The VRP appreciates Sierrita's continued efforts in characterizing this site. If you have any questions, please contact me by electronic mail at dt3@azdeq.gov or by telephone at (602) 771-4414.

Sincerely,

A handwritten signature in blue ink, appearing to read "D. Taber".

Danielle Taber, Project Manager
Voluntary Remediation Program, Waste Programs Division

cc: Stuart Brown, FMI, Senior Director – Remediation Projects
Deborah Chismar, FMI – Sierrita Operations, Senior Environmental Specialist
Diana Kelts, FMI – Sierrita Operations, Chief Environmental Engineer
Katy Brantingham, ARCADIS, Project Manager
Scott Dwyer, PhD, DABT, Kleinfelder, Practice Leader, Risk Analysis & Toxicology