



Copper Queen Branch  
36 West Highway 92  
Bisbee, Arizona 85603

**Fernando J. Alday**  
Senior Environmental Engineer  
520.432.6206  
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**VIA CERTIFIED MAIL # 7017 1450 0002 0320 0945**  
**Return Receipt Requested**

July 24, 2019

Mr. Oliver Navo and Mr. Jon Rezabek  
Groundwater Protection  
Arizona Department of Environmental Quality  
1110 West Washington Street  
Phoenix, Arizona 85007

**Re: Mitigation Order Compliance Conditions and Mitigation Plan Approval Status**  
**Mitigation Order on Consent No. P-121-07**

Dear Messrs. Navo and Rezabek

Freeport Minerals Corporation, Copper Queen Branch (CQB) received your emails of June 24<sup>1</sup> and June 26<sup>2</sup>, 2019 regarding the above referenced Mitigation Order. In the emails ADEQ requested information on the cost estimates stipulated in Section III.G of the Mitigation Order. Additionally, ADEQ indicated that the cost estimates were a compliance condition under Section III.G and that they may have been due to ADEQ on or about September 28, 2008.

This letter addresses the subject of ADEQ's correspondence and provides background information on the requirements of Section III.G of the order. As discussed below, the document submitted in 2008 was a work plan required by the Mitigation Order and not the Mitigation Plan referenced in Section III.G of the order. The cost estimate required under Section III.G has not been triggered because ADEQ has not provided written approval of the Mitigation Plan submitted by CQB.

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<sup>1</sup> Correspondence from Oliver Navo, ADEQ, to Fernando Alday, CQB, Subject: Old Compliance Conditions. Email dated June 24, 2019.

<sup>2</sup> Correspondence from Jon Rezabek, ADEQ, to Fernando Alday, CQB, Subject: Old Compliance Conditions. Email dated June 26, 2019.

### **MITIGATION ORDER BACKGROUND**

CQB's activities under the Mitigation Order have included submittal to ADEQ of a Work Plan<sup>3</sup> for Mitigation Order activities, an Aquifer Characterization Report<sup>4</sup>, a Feasibility Study<sup>5</sup>, and a Mitigation Plan<sup>6</sup>. The work plan, aquifer characterization and feasibility study reports described the methodology and results of technical work to identify the hydrogeology, the nature and extent of sulfate, the risk to drinking water supplies, and potential mitigation actions. The Mitigation Plan identified the mitigation actions proposed for implementation by CQB based on the results of the prior investigations, and is the document referred to in Section III.G of the order.

CQB submitted a Mitigation Plan with Respect to Drinking Water Supplies to ADEQ on May 28, 2014. On December 19, 2014, CQB received a letter<sup>7</sup> from ADEQ regarding the review of that plan. ADEQ reviewed the Mitigation Plan and made two recommendations for additional information. The Mitigation Plan was revised to include ADEQ's recommendations and CQB submitted this revised Mitigation Plan to ADEQ on March 6, 2015. On March 11, 2015, ADEQ communicated to CQB by email<sup>8</sup> that CQB had conditional approval to implement certain provisions of the Mitigation Plan; specifically bi-annual sampling, annual groundwater monitoring reports, and annual Community Advisory Group meetings. As of today, CQB has not received written notice that ADEQ has approved the Mitigation Plan. The December 19, 2014 letter from ADEQ and the transcript of an email conversation regarding the conditional approval of portions of the Mitigation Plan are enclosed.

### **MITIGATION ORDER SECTION III.G**

Section III.G of the Mitigation Order states the following. *"Within sixty (60) days after PD's receipt of written notice from ADEQ that ADEQ has approved the Mitigation Plan or a substantial modification of the Mitigation Plan in accordance with Section III.F, PD shall submit a cost estimate or a revised cost estimate to perform the mitigation measures required to be performed by PD under the Approved Mitigation Plan."* The Work Plan submitted in 2008 pursuant to Section III.A of the order is not the Mitigation Plan identified in Section III.G, nor did it identify mitigation measures for implementation. Therefore, there was no triggering of a

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<sup>3</sup> Hydro Geo Chem, Inc., 2008 Revision I Work Plan to Characterize and Mitigate Sulfate in the Vicinity of the Concentrator Tailing Storage Area, Cochise County, Arizona. July 3, 2008.

<sup>4</sup> Clear Creek Associates, 2010. Revision I Aquifer Characterization Report, Task 4 of the Aquifer Characterization Plan, Mitigation Order on Consent Docket No. P-121-07, Cochise County, Arizona. December 15, 2010.

<sup>5</sup> Clear Creek Associates, 2014. Feasibility Study for Drinking Water Supplies that May Be Affected by Sulfate in the Future, Mitigation Order on Consent Docket No. P-121-07. May 28, 2014.

<sup>6</sup> Clear Creek Associates, 2015 Mitigation Plan for Sulfate with Respect to Drinking Water Supplies, Mitigation Order on Consent Docket No. P-121-07. March 6, 2015.

<sup>7</sup> Correspondence from Madeline Keller, ADEQ, to Robert Quintanar, CQB, Re: Review of Mitigation Plan for Sulfate with Respect to Drinking Water Supplies, Mitigation Order on Consent Docket No P-121-06, dated May 28, 2014, prepared by Clear Creek Associates, P.L.C.

<sup>8</sup> Correspondence from Madeline Keller, ADEQ, to William Hart, CQB, Subject: RE: Mitigation Order on Consent P-121-07. March 11, 2015

compliance condition in 2008 and no requirement for CQB to submit cost estimates per Section III.G.

Section III.G pertains to financial assurance for mitigation measures implemented pursuant to the Mitigation Plan. Section III.G excludes contingent measures from cost estimates as follows: *“The cost estimate shall not include contingent measures, but shall include the cost of obtaining any necessary equipment and constructing any facilities necessary to implement those portion of the approved Mitigation Plan that have not already been implemented and the costs of supplying, operating and maintaining mitigation measures required by the approved Mitigation Plan, discounted to net present value.”* As cited in Section II.B.5 of the Mitigation Order, mitigation measures are identified as the provision of an alternative water supply, the mixing or blending of water supplies, water treatment, or other measures needed to render water usable.

### **MITIGATION PLAN IMPLEMENTATION**

CQB has implemented the Mitigation Plan as described in the quarterly status reports and Mitigation Performance Review reports submitted to ADEQ pursuant to the Mitigation Order. The actions required by the Mitigation Plan consist of the following:

- Expanded groundwater monitoring to track plume migration in the vicinity of the Arizona Water Company (AWC) and Naco Water Company (NWC) public water supplies near Naco for the purposes of establishing sentinel wells with action levels that, if exceeded, would trigger a contingent mitigation action at a public supply, if needed.
- Long term plume monitoring to document sulfate concentrations at public and private drinking water supplies, and to describe the groundwater flow system and large scale geometry of the plume over time.
- A water supply study to identify a potential alternate groundwater source for mitigation of a public water supply, if needed.
- An annual review of Arizona Department of Water Resources (ADWR) well registry records for wells within a mile of the plume edge to identify new drinking water supply wells for sampling.
- Implementation of contingent mitigation actions, if needed.

Specific work completed according to the timetable in the Mitigation Plan consists of the following:

- Completion of a water supply study to identify potential sources of an alternate drinking water supply, if needed as a contingency. The water supply study<sup>9</sup> was reported to ADEQ in February 2016.

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<sup>9</sup> Clear Creek Associates, 2016. Exploration Drilling and Hydraulic Testing for Water Supply Study. February 5, 2016.

- Installation and testing of 12 monitoring wells at the front of the sulfate plume for the expanded groundwater monitoring program as reported<sup>10</sup> to ADEQ in August 2015. The wells were sampled for eight consecutive quarterly to establish baseline conditions for the wells.
- Preparation and submittal to ADEQ of Mitigation Performance Review reports<sup>11,12,13,14,15</sup> for 2014, 2015, 2016, 2017 and 2018.
- Preparation and submittal to ADEQ of Annual Groundwater Monitoring reports<sup>16,17,18,19</sup> for 2015, 2016, 2017 and 2018, including reviews of the Arizona Department of Water Resources Well Registry.
- Development of a conceptual design and implementation schedule for an alternate drinking water supply if needed as a contingency. The conceptual design and implementation schedule for an alternate supply<sup>20</sup>, contingent upon whether sulfate levels trigger future action under the approved Mitigation Plan, is due to ADEQ by July 1, 2017.

By the time the Mitigation Plan was submitted, CQB had completed mitigation measures for water supplies that had been impacted by the sulfate plume, including connection of residences to the public supplies of AWC and NWC, the replacement of private wells, and the provision of bottled water. The mitigation measures implemented prior to the Mitigation Plan are identified in a Feasibility Study and Mitigation Plan<sup>21</sup> for affected drinking water supplies.

Any future implementation of additional mitigation measures under the Mitigation Plan would pertain to water supplies that are not now and may not ever be impacted by the sulfate plume at concentrations greater than the mitigation action level of 250 milligram per liter sulfate. Consequently, any future mitigation measures under the Mitigation Plan are contingent measures that would be undertaken if sulfate concentrations were to increase above mitigation action objective. Per Section III.G, a cost estimate is not required for contingent measures.

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<sup>10</sup> Clear Creek Associates, 2015. Results of Well Installation and Groundwater Monitoring Through the Second Quarter of 2015 for the Expanded Groundwater Monitoring Program. August 19, 2015.

<sup>11</sup> Clear Creek Associates, 2015. Mitigation Performance Review for 2014. April 15, 2015.

<sup>12</sup> Clear Creek Associates, 2016. Mitigation Performance Review for 2015. April 15, 2016.

<sup>13</sup> Clear Creek Associates, 2017. Mitigation Performance Review for 2016. April 12, 2017.

<sup>14</sup> Clear Creek Associates, 2018. Mitigation Performance Review for 2017. April 17, 2018.

<sup>15</sup> Clear Creek Associates, 2019. Mitigation Performance Review for 2018. March 28, 2019.

<sup>16</sup> Clear Creek Associates, 2016. Annual Groundwater Monitoring Report for 2015. March 1, 2016.

<sup>17</sup> Clear Creek Associates, 2017. Annual Groundwater Monitoring Report for 2016. March 1, 2017.

<sup>18</sup> Clear Creek Associates, 2018. Annual Groundwater Monitoring Report for 2017. February 28, 2018.

<sup>19</sup> Clear Creek Associates, 2019. Annual Groundwater Monitoring Report for 2018. March 6, 2019.

<sup>20</sup> Clear Creek Associates, 2017. Implementation Schedule for an Alternate Water Supply. June 22, 2017

<sup>21</sup> Clear Creek Associates, 2012. Feasibility Study and Mitigation Plan for Drinking Water Supplies Affected by Sulfate, Mitigation Order on Consent Docket No. P-121-07. March 28, 2012.

Mr. Oliver Navo and Mr. Jon Rezabek  
July 24, 2019  
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In conclusion, the cost estimate requirement of Section III.G has not been triggered because ADEQ has not provided written approval of the Mitigation Plan. If you have questions, need additional information regarding the Mitigation Plan, or want to schedule a site visit, please contact me at (520) 432-6206 or our project manager Dave Gosen at (602) 366-7312.

Sincerely,

A handwritten signature in black ink, appearing to read "F. Alday", written over a horizontal line.

Fernando Alday  
Senior Environmental Engineer  
Copper Queen Branch

cc w/ 2 enclosures:

Dave Dunaway/ADEQ  
Brad Vance/ADEQ  
Dave Gosen/Freeport Minerals Corporation  
Bryce Romig/Freeport Minerals Corporation  
Robert Quintanar/Freeport Minerals Corporation, Copper Queen Branch  
Sheila Deely/Freeport Minerals Corporation  
Jim Norris/Clear Creek Associates



Janice K. Brewer  
Governor

# ARIZONA DEPARTMENT OF ENVIRONMENTAL QUALITY

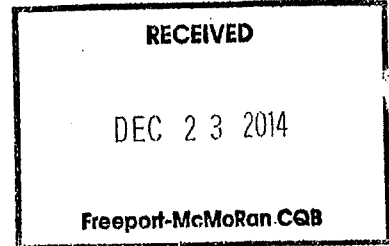
1110 West Washington Street • Phoenix, Arizona 85007  
(602) 771-2300 • www.azdeq.gov



Henry R. Darwin  
Director

December 19, 2014

Freeport-McMoRan  
Copper Queen Branch  
Attention: Robert Quintanar  
36 West Highway 92  
Bisbee, Arizona 85603-0527



**Re: Review of Mitigation Plan for Sulfate with Respect to Drinking Water Supplies, Mitigation Order on Consent Docket No. P-121-07, dated May 28, 2014, prepared by Clear Creek Associates, P.L.C.**

Dear Mr. Quintanar:

The Arizona Department of Environmental Quality received the following documents: **1) Mitigation Plan for Sulfate with Respect to Drinking Water, 2) Response to ADEQ Comments on the Feasibility Study and Mitigation Plan for Drinking Water Supplies that May be Affected by Sulfate in the Future; and Revised Feasibility Study for Drinking Water Supplies that May be Affected by Sulfate in the Future**, on May 28, 2014. Freeport-McMoRan submitted this document in accordance with Mitigation Order on Consent Docket No. P-121-07. The APP and Drywell Unit has reviewed the above documentation submitted by Freeport-McMoRan Copper Queen Branch (CQB). The following is recommended:

### Recommendations

1. The Permits Section recommends that CQB submit a work plan to ADEQ for approval of the proposed groundwater monitoring well locations for the expanded groundwater monitoring program.
2. The Permits Section recommends that if a trigger level is exceeded, and the Mitigation Performance Review Reports are being submitted every five years, that the performance report submittals revert back to annually until the contingency actions are taken or until the sulfate concentration drops below the trigger level and sulfate concentration trends indicate sulfate will remain below the trigger level. Performance reporting may then go back to being submitted to ADEQ on a five year interval.

Southern Regional Office  
400 West Congress Street • Suite 433 • Tucson, AZ 85701  
(520) 628-6733

**Response to ADEQ FS Report Comments**

The Permits Section has reviewed the response to ADEQ comments and the responses are adequate.

**Revised Feasibility Study for Drinking Water Supplies that May be Affected by Sulfate in the Future**

The Permits Section has reviewed the revised FS and found that it is adequate.

Thank you for your efforts to comply with Arizona's environmental requirements. Should you have any comments or questions regarding this matter, please do not hesitate to contact me at (602) 771- 7681 or mmk@azdeq.gov.

Sincerely,

A handwritten signature in cursive script that reads "Madeline Keller".

Madeline Keller, Environmental Program Specialist  
Water Quality Data & Enforcement Unit

Cc: Jim Norris, Clear Creek Associates  
Sheila Deely/Freeport-McMoRan  
Michael Fulton, Director, Water Quality Division, ADEQ  
Jerry Smit, Manager, Groundwater Section, ADEQ  
David Haag, Senior Hydrologist, Groundwater Section, ADEQ  
Facility file

**From:** Madeline Keller [<mailto:Keller.Madeline@azdeq.gov>]  
**Sent:** Wednesday, March 11, 2015 11:05 AM  
**To:** Hart, William  
**Subject:** RE: Mitigation Order on Consent P-121-07

Good morning Bill,

I had a chance to speak with Mindi and she is ok with moving forward with the conditional approval. She and Fred exchanged an email regarding this.

If you have any other questions, please let me know.

Regards,

Madeline Keller  
ADEQ-Environmental Program Specialist  
Water Quality Division  
Water Quality Enforcement Unit  
1110 W. Washington St.  
Phoenix, AZ 85007  
(602) 771-7681  
[mmk@azdeq.gov](mailto:mmk@azdeq.gov)

**From:** Hart, William [[mailto:William\\_Hart@fmi.com](mailto:William_Hart@fmi.com)]  
**Sent:** Thursday, March 05, 2015 9:56 AM  
**To:** Madeline Keller  
**Subject:** FW: Mitigation Order on Consent P-121-07

**William Hart**  
**Freeport Minerals Corporation**

**From:** Hart, William  
**Sent:** Monday, March 02, 2015 5:26 PM  
**To:** 'Mindi Cross'  
**Cc:** 'Madeline Keller'; Julian Stewart  
**Subject:** Mitigation Order on Consent P-121-07

Ms. Cross,

As you know Freeport Minerals Copper Queen Branch (CQB) submitted a Mitigation Plan with Respect to Drinking Water Supplies to Arizona Department of Environmental Quality (ADEQ) on May 28, 2014. On December 19, 2014, CQB received a letter from ADEQ regarding the review of that plan. The letter



from ADEQ contained two recommendations; 1) CQB should submit a Work Plan to ADEQ for approval of well locations, and 2) revise Section 4.2 , second paragraph, with language to revert Mitigation Performance Review Reports to annual reports if a trigger level is exceeded when reporting is on the five year cycle.

CQB has prepared the Work Plan and revised the Mitigation Plan per ADEQ's request. CQB will be submitting both documents together along with a transmittal letter asking for formal approval if everything meets with ADEQ's expectations. In light of the minor comments and recommendations from ADEQ, is it possible that CQB can proceed under the assumption of conditional approval with respect to bi-annual sampling, annual groundwater monitoring reports and annual CAG meetings?

Please review at your convenience, and if you wish to discuss further please contact me.

Best Regards,

**William S. Hart, R.G.**

**Sr. Environmental Scientist**

**Freeport Minerals Corporation**

**Copper Queen Branch**

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