

Janet Napolitano
Governor

ARIZONA DEPARTMENT OF ENVIRONMENTAL QUALITY

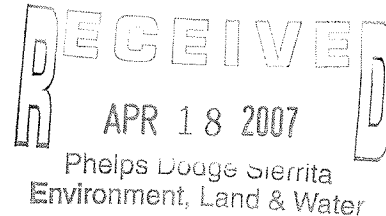
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Stephen A. Owens
Director

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April 17, 2007



E.L. (Ned) Hall, Chief Environmental Engineer
Phelps Dodge Sierrita Inc.
6200 West Duval Mine Road
P.O. Box 527
Green Valley, Arizona 85622-0527

Re: Mitigation Order on Consent, Docket No: P-50-06
Evaluation of the Current Effectiveness of the Sierrita Wellfield

Dear Mr. Hall:

ADEQ is in receipt of "Evaluation of the Current Effectiveness of Sierrita Wellfield," ("Wellfield Report") submitted by Phelps Dodge Sierrita ("PDSI") and received by ADEQ on March 2, 2007, and has reviewed the same. In addition, ADEQ has considered the presentation and discussion of this issue with PDSI on March 6, 2007, the comments made during the Community Action Group ("CAG") meeting on March 12, 2007 and written comments from CAG members that were submitted subsequent to the CAG meeting.

In the Wellfield Report, PDSI concludes that while the south wellfield and most of the middle wellfield provide sufficient hydraulic barrier to groundwater flows, the northernmost middle wellfield and north wellfield are ineffective in capturing or containing the sulfate plume from the PDSI tailings. PDSI bases its conclusion that portions of the wellfield are ineffective on limited aquifer thickness that prevents sufficient pumping to capture any migration of sulfate through the groundwater. PDSI used groundwater monitoring and modeling to analyze the effectiveness of the interceptor wellfield.

Section III(C)(4) of the Mitigation Order requires PDSI to conduct "[a]n analysis of the effectiveness of PDSI's current groundwater sulfate source control system" as a component of an Aquifer Characterization Report (ACR). Although the Wellfield Report provides some valuable information regarding the hydrogeologic characteristics of the aquifer and its impact on the effectiveness of sulfate removal via the wellfield, more information is necessary to obtain a complete understanding of the current source control system. Specifically, the Wellfield Report does not attempt to quantify or model either the mass of sulfate that has escaped through the wellfield, nor the mass of sulfate that has and continues to travel from the impoundment to the

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wellfield. This information would provide a more objective basis for assessing the effectiveness of the wellfield.

ADEQ believes the Wellfield Report reflects an assessment of pumping performance at the existing interceptor wells, and compares such performance over different time periods. However, the omission of information pertaining to annual sulfate mass discharged from PDSTI to the underlying aquifer does not allow for a complete evaluation of the wellfield performance. PDSI should address this matter in a revised Wellfield Report.

Under the section entitled “Tailing Impoundment Development and Operation” at page 6, paragraph 2, PDSI outlines the time periods during which it discharged tailing slurry from the Esperanza Concentrator to the Esperanza Tailing Impoundment (“ETI”). However, the Wellfield Report does not provide the location of the ETI with respect to the PDSTI, and does not comment on whether sulfate from the ETI is being discharged to the aquifer and is contributing additional loading to the plume under investigation. PDSI should address this matter in a revised Wellfield Report. In the same section at paragraph 3, PDSI provides a brief overview of the manner in which it discharges tailing slurry from the Sierrita Concentrator to the PDSTI. However, PDSI does not provide any quantitative information or data regarding slurry flow rates to the PDSTI, sulfate concentration and/or mass.

In the section entitled “Interceptor Wellfield Development and Operation,” PDSI states that Well IW-7 has been capped due to “small pumping capacity.” Considering the fact that this well is in the south portion of the wellfield where the basin fill thickness is greatest, ADEQ believes that maintenance, operation and capacity issues associated with this well should be addressed to provide additional removal capability. To affect maximum wellfield sulfate capture, it is imperative that all interceptor wells are optimized and fully functional at all times.

While the Wellfield Report provides valuable information that will be useful in preparing the ACR, both PDSI and ADEQ agree that characterization of the sulfate plume is not yet complete. Moreover, decisions regarding the Mitigation Plan, including selection of a method to address the source of the sulfate plume, are premature until PDSI completes the ACR.

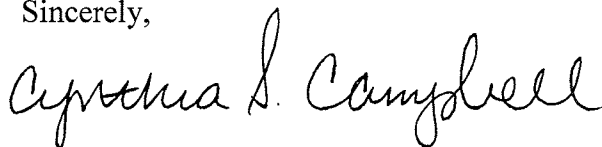
PDSI has proposed conducting a feasibility study to review alternatives to address the deficiencies of the wellfield. The stated purpose of the feasibility study is to identify a method to improve the effectiveness of the existing interceptor wellfield and subsequently implement the selected method in an expedited fashion instead of waiting for approval and implementation of the Mitigation Plan required by Section III(D) of the Mitigation Order. PDSI has requested that ADEQ “approve” this proposal as part of the Mitigation Order. ADEQ appreciates the benefits of conducting additional study of the interceptor wellfield and proposals to improve the performance of the wellfield in capturing and containing the source of the sulfate plume, especially as an immediate interim measure. Increasing the effectiveness of the wellfield would certainly have a positive impact on limiting the further migration and volume of the sulfate plume.

Although ADEQ does not object to PDSI’s proposal to conduct a feasibility study, it is not within the scope of the current Mitigation Order for ADEQ to “approve” the study. ADEQ is

concerned that “approval” of PDSI’s proposed feasibility study to address deficiencies in the existing interceptor wellfield might be misconstrued as selection of an alternative to address source control of the PDSI tailings impoundment. According to the Mitigation Order, the Mitigation Plan must include evaluation of more alternatives (“e.g. containment, collection and discharge with or without treatment . . .”) to source control than may be provided solely by increasing the effectiveness of the existing interceptor wellfield. Although PDSI’s proposed feasibility study and subsequent implementation of a method to increase the effectiveness of the existing interceptor wellfield might provide one alternative to source control, the proposed study would not be a substitute for the comprehensive feasibility study required by Section III(D) of the Mitigation Order.

In the event PDSI elects to conduct the proposed feasibility study for the interceptor wellfield, ADEQ is interested in reviewing the data or other information as part of the ACR. ADEQ appreciates the opportunity to review PDSI’s progress in addressing the sulfate plume in Green Valley in order to provide a drinking water supply that is safe for all residents. If you have any questions, please contact me at (602)771-2209.

Sincerely,



Cynthia S. Campbell, Manager
Water Quality Compliance Section

Cc: Stuart M. Brown, President, Bridgewater Group, Inc.
John Brack, Phelps Dodge Sierrita, Inc.
Ray Lazuk, Phelps Dodge Corporation
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