



March 12, 2012

Diane Tafoya  
Cibola National Forest  
2113 Osuna Road NE  
Albuquerque, NM 87113-1001

**RE: Addendum to Assessment of Potential Ground Water Level Changes  
Roca Honda Resources Underground Mine Dewatering Application**

Dear Ms. Tafoya:

On November 7, 2012 Roca Honda Resources (RHR) submitted its groundwater modeling report titled "Assessment of Potential Groundwater Level Changes From Dewatering at the Proposed Roca Honda Mine" prepared by INTERA, Inc. in support of RHR's application to dewater its proposed Roca Honda underground mine. At the same time we submitted the report to the New Mexico Mining and Minerals Division and the U.S. Forest Service in support of our mine permit application. Subsequent to our submitting the report to your office and the other agencies, an interagency Groundwater Hydrology Work Group was formed to jointly review the report.

A meeting took place on January 17, 2012 between the Work Group and RHR's groundwater hydrologist and modeling consultants at which the Work Group asked for clarification of a number of points. We were informed that our report did not contain sufficient information written in a fashion readily understood by the reviewers regarding choices made by our modelers in constructing the model. A number of specific areas were identified by the Work Group requiring further explanation. RHR agreed to prepare an addendum to the groundwater model report to provide the additional explanations and information requested by the Work Group. This submittal responds to their request.

Enclosed are five (5) packages containing the following materials for your review and disbursement;

- a. A replacement title sheet and spine insert to replace the title sheet and spine of our November 4, 2011 submittal. Please remove the sheet and spine from your November 4, 2011 report and insert those provided so that your report reflects that it was revised on March 8, 2012.

**Santa Fe, NM Office**

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Santa Fe, NM 87507  
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- b. A replacement title page for the inside of your November, 2011 report. Please replace the title page of your report found immediately behind the clear plastic divider on the inside of your report with this new title page.
- c. A new page that provides a list of the pages revised on March 8, 2012. Please insert this page between pages iv and v in your November 2011 report.
- d. A Replacement List of Figures, pages v, vi, and vii. Please replace these pages in your November 2011 report
- e. Replacement pages 22, 27, 28, 29, 43, 44, 46, 61, 62, 63, 64, 65, 66, and 84 for your November, 2011 report to be inserted in place of the corresponding pages. These pages are replacement figures revised per the request of the Working Group.
- f. A new report titled, "Addendum: Assessment of Potential Groundwater Level Changes from Dewatering at the Proposed Roca Honda Mine, March 9, 2012" prepared by INTERA that provides the information and clarifications requested by the Working Group. Please insert this new report at the front of your November 2011 report in front of the clear plastic divider.

This Addendum addresses the issues identified by the Work Group as follows;

1. *A request for a more thorough discussion of the overall philosophy; i.e. what the model is, what it is intended to be used for, and how it meets those expectations.*

Section 1.0 of the Addendum, "The RHR Groundwater Model", provides the requested discussion.

2. *A request that the measure of success of the model be spelled out more clearly so that it is clear to the reviewer that the calibration performed is appropriate. The Work Group emphasized the importance of explaining why RHR believes that the model does what it needs to do.*

Section 1.4 of the Addendum, "Success of the Model," specifically addresses this issue. Model success is also addressed in terms of calibration in Sections 2, 3, 4, 5, and 6.

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3. *A request for clarification of the reasons behind the selection of particular boundary conditions for the model. In particular, RHR should explain the rationale for the use of a General Head Boundary (GHB) in the center of the model, as well as a GHB at the base of Mt. Taylor and an assessment of whether the GHB at the base of Mt. Taylor supplies large quantities of water during transient simulations. RHR should clarify the simulation of certain ephemeral streams, but not others, with the Drain Package, provide clarification of the input used for the RIV Package to simulate streams, and further explain the justification behind distributing areal recharge. A request was also made for additional information on how dewatering wells are represented in the model.*

Section 2.0 of the Addendum, "Boundary Conditions", addresses the boundary condition issues.

4. *A request for a more detailed analysis of the impact of RHR's dewatering on springs, including impacts on springs physically located outside the modeled area.*

Section 4.0 of the Addendum, "Potential Impacts on Springs", provides the requested analyses.

5. *A request for a explanation of the rationale behind the representation in the model of Mount Taylor's volcanic core in the model as a low transmissivity zone below Mt. Taylor. RHR should conduct additional sensitivity analyses regarding the impact of the low hydraulic conductivity K zone. RHR should also discuss in more detail the reasons why the use of low K for the Mt. Taylor core and associated intrusive rocks is appropriate and, RHR should conduct additional sensitivity analyses concerning the effect of the low K zone by increasing the K values.*

Section 5.0 of the Addendum, "Mount Taylor Volcanic Cores", provides the requested information and analyses.

6. *A request for an explanation as to why more Mt. Taylor mine data was not used, as well as the use of the limited hydrogeologic data and pumping records in the model.*

Section 6.0 of the Addendum "Availability and Use of Data from Gulf Mt. Taylor Mine" addresses these issues.

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7. *A request for further explanation of where the groundwater removed from the RHR mine is actually coming from during the dewatering period and what locations/aquifers provide the source of groundwater during recovery from dewatering.*

Section 7.0 of the Addendum, "Source of Groundwater Removed during Roca Honda Dewatering and Source of Water during Recovery of Groundwater Levels", addressed these issues.

8. *A request that numerical issues such as mass balance error, river flow budget components, and excessive stream leakage be addressed in more detail.*

Section 8.0 of the Addendum, "Numerical Issues", addresses these issues.

9. *A request for clarification of how storage and hydraulic conductivity values were arrived at for each aquifer.*

Section 3.0 of the Addendum, "Hydraulic Parameters", addresses this issue.

Please note also that RHR is also providing separate copies of this submittal to the Office of State Engineer in Santa Fe and Albuquerque, the New Mexico Environment Department, the New Mexico Mining and Minerals Division, and the New Mexico State Land Office. Per your request, we have sent a copy of the report directly to Mangi.

We look forward to continuing to work with you and the other agencies represented in the Groundwater Working Group to resolve any issues. Please contact us if you have any questions or require additional information.

Sincerely,

A handwritten signature in black ink, appearing to read 'Juan R. Velasquez', is written over a horizontal line.

Juan R. Velasquez

cc: Kurt Vollbrecht – NMED (1 Copy)  
David Clark – NMMMD (2 Copies)  
Michael Mariano – NMSLO (1 Copy)  
NMOSE – (3 Copies)

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