FREEPORT-MCMORAN
COPPER & GOLD

Freeport-McMoRan Sierrita Inc.
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Green Valley, Arizona 85622-0527

May 8, 2009

Via Certified Mail # 7008 2810 0000 0983 2682
Return Receipt Requested

Ms. Cynthia S. Campbell
Arizona Department of Environmental Quality
Water Quality Compliance Section
1110 West Washington Street
Phoenix, Arizona 85007-2935

Re: Mitigation Order on Consent Docket No. P-50-06
Response to ADEQ Comments on the Feasibility Study

Dear Ms. Campbell:

On October 23, 2008, Freeport-McMoRan Sierrita Inc. (Sierrita) submitted a Feasibility Study (FS) to the Arizona Department of Environmental Quality (ADEQ) pursuant to Mitigation Order on Consent Docket No. P-50-06. On March 10, 2009, Sierrita received a letter from, ADEQ dated March 6, 2009, providing comments on the FS and requesting that Sierrita submit a Mitigation Plan. The purpose of this letter is to provide responses to ADEQ's comments and submit three copies of the enclosed Mitigation Plan. ADEQ's comments are presented below in italics, followed by Sierrita's responses.

All parties that have commented on the FS agree with Freeport's choice of Alternative 5 as the best mitigation alternative to address the sulfate plume in Green Valley. ADEQ also concurs with this choice. ADEQ has, however, a number of comments and concerns that should be addressed by Freeport. In the interest of expediting the ultimate mitigation actions, ADEQ prefers that Freeport address the following comments through the Mitigation Plan, which Freeport should submit to ADEQ within sixty (60) days of receipt of this letter.

1. ***Due to the contingent nature of Alternative 5, ADEQ requests that Freeport elect a substitute Mitigation Alternative and a description of the circumstances under which the substitute Mitigation Alternative would be implemented.***

Although ADEQ agrees that Alternative 5 is the preferred mitigation alternative, the execution of Alternative 5 is contingent on a number of circumstances outside the control of Freeport or ADEQ. The most critical contingency is Freeport's ability to obtain the necessary land from ASLD for both the new tailings impoundment (NTI) to the west of the STI and expanded interceptor well field to the east of the STI. Freeport anticipates that the process of obtaining the land and the appropriate permits will take eighteen (18) months. The Mitigation Plan should specifically identify a "substitution" mitigation alternative (from the list of mitigation alternatives presented in the FS) to be implemented in the event the contingencies inherent in Alternative 5 are not met. In addition, Freeport should identify with specificity the conditions under which Alternative 5 would be abandoned and the "substitute" mitigation alternative implemented.

Because large portions of Alternative 5 cannot be implemented for at least 18 months, ADEQ strongly suggests that the Mitigation Plan include a schedule for implementation of the remaining

mitigation response actions which are not dependent on the construction of the NTI. The investigation, design and permitting of the NTI should be initiated as soon as feasible. In particular, construction of the extraction wells and associated pipelines for Alternative 5 should be initiated as soon as possible after ADEQ approval of the Mitigation Plan.

Response:

The Mitigation Plan identifies Alternative 3 from the FS as the contingent alternative to implement if Sierrita determines that a new tailing impoundment is infeasible. The implementability of a new tailing impoundment is currently uncertain because it requires successful acquisition, geotechnical testing, and permitting of the proposed impoundment on Arizona State Land Department (ASLD) land west of the Sierrita Tailing Impoundment (STI). As is stated in the Mitigation Plan, the circumstances that could lead Sierrita to make a determination that a new tailing impounded is infeasible include: 1) inability to acquire the necessary ASLD land or find an alternate location, 2) inability to obtain the necessary permits, and 3) business reasons. The Mitigation Plan further states that if Sierrita makes such a determination it will notify ADEQ in writing and will implement Alternative 3.

It is important to note that with the exception of the new tailing impoundment, implementation of the technical and administrative tasks required to implement Alternative 5 are not dependent upon the construction of the new tailing impoundment. Alternative 5 includes the same well and conveyance systems as Alternative 3; the duration of pumping is expected to increase if Alternative 3 is implemented. As is stated in the Mitigation Plan, Sierrita will commence the final wellfield conceptual design immediately upon approval of the Mitigation Plan. Upon receiving ADEQ approval of the final wellfield conceptual design, Sierrita will commence with a phased approach to the design and construction of wells and conveyance systems. Wells and conveyance systems that are not dependent on the purchase of ASLD property east of the STI (i.e., the Source Control [SC] and Plume Stabilization [PS] wells and associated conveyance systems) will be constructed during the first phase. Engineering design and construction of the Focused Feasibility Study (FFS) and Mass Capture (MC) wells and associated conveyance systems will commence after the ASLD land purchase is finalized. Use of a phased approach will allow design and construction activities to proceed during the time that ASLD is reviewing the land purchase application. Finally, Sierrita has already taken steps toward the development of the new tailing impoundment and is not waiting for ADEQ to approve the Mitigation Plan. Land acquisition work has been initiated and Sierrita intends to submit its *Application to Purchase State Land* to ASLD in the near future.

2. ***Freeport should provide minimum and maximum pumping rates for the IW wellfield as well as wells used in mass removal and plume stabilization in the Mitigation Plan in order to balance the community's concerns about groundwater pumping with the need to adequately capture and reduce sulfate contamination in the aquifer.***

In the FS, Freeport proposed a substantial increase in groundwater pumping in order to implement the mass removal and plume stabilization goals of Alternative 5. Freeport reported that the increased pumping could result in a draw down of the water table of 15 to 40 feet. Freeport proposed to use the increased volume of this water in its Sierrita Mine production, which was anticipated to sharply increase over the next ten (10) years. Shortly after the FS was published, Freeport revised its pumping projections based on a changed business model which does not anticipate an increase in mine production. The Mitigation Plan should

reflect the revised modeling of pumping rates, water table draw down and impact to the anticipated length of mitigation actions, if any, based on the changes to the business assumptions included in the FS.

ADEQ received several comments regarding the impact of increased groundwater pumping on the community and surrounding aquifer, as well as concerns about the long term variations in pumping rates and effect on the effectiveness of the mitigation actions. ADEQ requests that the Mitigation Plan provide a minimum and maximum groundwater pumping rate to capture and reduce sulfate contamination in the aquifer. These flow rates may allow some variation in operation due to administrative and/or business considerations but the Mitigation Plan should identify the minimum pumping rate necessary to adequately capture and reduce sulfate contamination in groundwater. In addition, the Mitigation Plan should identify the maximum pumping rate Freeport may utilize during the term of the Mitigation Plan, taking into consideration the needs of the community and impact on the public water systems affected by increased groundwater pumping. ADEQ understands that in determining the appropriate groundwater pumping rate at any given time during the term of the Mitigation Plan, Freeport will use an adaptive management approach to address changing scientific data or other considerations in order to meet the mitigation objectives for the chosen mitigation alternative. However, the Mitigation Plan should provide that a capture analysis, using the following EPA guidance "A Systematic Approach for Evaluation of Capture Zones at Pump and Treat Systems, Final Project Report, 2008" (EPA/600/R-08/003), be conducted once a year to demonstrate that the mitigation objectives are being met.

While acknowledging that an adaptive management approach will be necessary for the duration of the mitigation actions, ADEQ believes the Mitigation Plan should provide a periodic meetings or reports to keep the CAG informed of changes to the rates of groundwater pumping. This information is especially important to the public water systems (CWC, Green Valley Water District and Farmers Investment Company (FICO)) which rely on the aquifer as a drinking water source. Impacts on the ability of the public water systems to continue to provide safe drinking water due to changes in the groundwater pumping rates should be considered by Freeport in determining whether to implement changes in the groundwater pumping rates. Finally, the Mitigation Plan should discuss potential measures if draw down due to mitigating the sulfate plume impacts upon a public water system's ability to meet the demands of its customers.

Response:

Sierrita would like to clarify that Alternative 5 does not entail a "substantial increase in groundwater pumping." The volume of water pumped for mining use under Alternative 5 would be the same as historical levels. What will change is the location of pumping for mine supply.

The Mitigation Plan states that immediately upon approval of the plan, Sierrita will commence with the preparation of a final wellfield conceptual design. The numerical model used to evaluate alternatives in the FS will be updated to include the results of the large-scale aquifer test conducted in February 2009 and reduced STI seepage rates due to the decision not to increase production. The updated model will be used to finalize well locations and estimate the minimum pumping rates needed to achieve source control, prevent downgradient plume migration, and protect drinking water supply wells. The updated model will also be used to identify the additional pumping needed to achieve mass removal goals. Water level changes

and anticipated impacts to the duration of pumping will be evaluated with the model. The results will be provided to ADEQ as part of the final wellfield conceptual design.

The Mitigation Plan includes annual performance reviews that will be performed annually for the first five years and every five years thereafter. The performance reviews will be conducted to determine if the mitigation measures are performing as expected and meeting performance goals. The performance review process will also be used to determine when pumping at certain wells can be reduced or terminated. The performance reviews will include capture zone analysis, and the evaluation of water level and water quality data collected in accordance with a post-implementation monitoring program to be developed as part of the Mitigation Plan. Adaptive management will be used to evaluate and modify the measures in the event that the performance review determines that performance goals are not being met.

The Mitigation Plan includes community involvement activities, such as annual meetings with the Community Advisory Group (CAG), a public information repository, and Sierrita's Internet document repository to keep the CAG and the public informed.

Finally, the Mitigation Plan identifies a series of administrative tasks that will need to be completed to implement the alternative, including complying with Arizona Department of Water Resources (ADWR) requirements related to potential drawdown impacts from pumping.

3. ***Freeport should include more detailed information in the Mitigation Plan regarding how and when Freeport will mitigate impacts to specific drinking water supplies during the course of the mitigation actions.***

In the FS, Freeport asserts that it does not anticipate additional plume migration having an adverse effect on drinking water supplies. However, based upon the information presented in the FS, ADEQ is not convinced by Freeport's conclusion that the sulfate plume would not migrate and impact drinking water supply wells. Freeport should include in the Mitigation Plan a list of proposed sentinel wells that would be monitored to provide early warning in the event that the plume migrates towards drinking water supply wells. The Mitigation Plan should also propose a schedule of sampling and provisions for increased sampling if sulfate concentrations are detected exceeding a proposed alert level.

The FS did not address how Freeport intends to mitigate impacts to specific drinking water sources from sulfate plume migration. The Mitigation Plan should include a plan for evaluating mitigation options in the event a drinking water source is impacted by the sulfate plume. The plan should include a collaborative process with the owner of the public water system or private well impacted by the sulfate plume, in order to determine the most effective mitigation option for the specific drinking water source. The evaluation should also provide for ADEQ evaluation of the mitigation option if distribution of water from the public water system is modified.

Response:

To date, ADEQ has not provided any technical analysis or justification as to why the agency believes that the plume could have an adverse affect on drinking water supplies. Sierrita's technical analysis and its conclusions are based on significant additional site characterization, years of groundwater monitoring, detailed groundwater modeling and related evaluations

conducted under the Mitigation Order. Regardless, the Mitigation Plan includes continued groundwater monitoring under an ADEQ-approved, pre-implementation monitoring plan and development of a post-implementation monitoring plan for submittal to and approval by ADEQ. Both plans include sampling at sentinel wells and drinking water supplies to determine whether a drinking water supply could be adversely affected and to trigger the development of a site-specific mitigation plan for that supply in collaboration with the owner/operator. The site-specific mitigation plan would be submitted to ADEQ prior to implementation. This contingency is specifically addressed in the Mitigation Plan.

4. ***Freeport should include a more thorough description of MNA for any mitigation alternative selected in the Mitigation Plan.***

Although MNA is only specifically mentioned as a component of Alternative 1, there appears to be a need for MNA in every mitigation alternative proposed by Freeport. The Mitigation Plan should provide an analysis and discussion of the use of MNA for each of the two alternatives selected by Freeport. In addition, the Mitigation Plan should include a discussion and proposal for groundwater monitoring, measurement of water levels to evaluate the effectiveness of MNA, as well as the performance of other mitigation actions. The results of the monitoring should be incorporated into the capture analysis previously mentioned.

Response:

Sierrita agrees that MNA is a component of all of the FS alternatives. Two elements of the Mitigation Plan address this comment. The first element is the final wellfield conceptual design. As was discussed in the response to Comment 2, the numerical model used to evaluate alternatives in the FS will be updated to include the results of the large-scale aquifer test conducted in February 2009 and reduced Sierrita tailing impoundment seepage rates due to Sierrita's decision not to increase mine production. Among other things, the updated model will be used to analyze what role MNA will play in the alternative. The results of this analysis will be provided to ADEQ as part of the final wellfield conceptual design. The second element is the post-implementation monitoring plan which will include provisions for monitoring MNA, as appropriate. As is stated in the Mitigation Plan, the monitoring results will be used in the performance review process, which includes capture zone analysis and determinations when pumping for mitigation can be reduced or eliminated.

5. ***Freeport should provide a more detailed discussion and plan in the Mitigation Plan for disposal of impacted water after the Sierrita Mine operations cease.***

As part of its source control base case, Freeport plans to dispose of water impacted by mitigation actions through in-pit storage at the Sierrita Mine or treatment by reverse osmosis (RO). Freeport assumes that the mining pit will provide a groundwater sink adequate to contain the impacted water without infiltration to the aquifer. The Mitigation Plan should include any data to support this assumption, as well as a method to reevaluate the water balance calculations for the Sierrita Mine pit once mine operations cease in order to insure the predicted results as a groundwater sink. In addition, the Mitigation Plan should include a discussion of the use of RO to treat impacted water, including the conditions upon which it would be implemented and possible uses for water treated by RO.

Response:

The data and analysis supporting the assumption that the pit will provide an adequate sink to contain impacted water are provided in Appendix E of the FS. Ongoing evaluation of the pit as a passive sink will be conducted in accordance with Sierrita's area-wide Aquifer Protection Permit (APP) which requires Sierrita to periodically report water levels in the pit and demonstrate the pit's ability to act as passive hydrologic containment. The Mitigation Plan includes a contingency in case this monitoring determines that the pit will not provide an adequate sink. If Sierrita makes such a determination, Sierrita will submit to ADEQ a plan, including a proposed design and implementation schedule, for an alternative method for water management that could include water treatment. The plan will be submitted in a timely manner so that Sierrita can both maintain compliance with its APP and avoid disruption of groundwater pumping as specified under the Mitigation Plan.

Please do not hesitate to contact Mr. Stuart Brown at (503) 675-5252 or myself at (520) 229-6470 if you have any question regarding this submittal.

Sincerely,

Chad D Fretz for ELH

E. L. (Ned) Hall
Manager – Water Quality Programs
Freeport-McMoRan Copper & Gold Inc.

ELH:ms
Attachment
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xc: Henry Darwin, Arizona Department of Environmental Quality
John Broderick, Sierrita
Chad Fretz, Sierrita
Stuart Brown, Bridgewater Group, Inc.
Jim Norris, Hydro Geo Chem, Inc.

MITIGATION PLAN FOR SULFATE WITH RESPECT TO DRINKING WATER SUPPLIES IN THE VICINITY OF THE FREEPORT-MCMORAN SIERRITA INC. TAILING IMOUNDMENT MITIGATION ORDER ON CONSENT DOCKET NO. P-50-06

Prepared for:

FREEPORT-MCMORAN SIERRITA INC.
6200 West Duval Mine Road
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May 8, 2009

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1. INTRODUCTION

1.1 Purpose of the Mitigation Plan and Mitigation Objective

This Mitigation Plan describes the process to implement, operate, monitor, adapt, terminate, and report measures to address sulfate with respect to drinking water supplies in the vicinity of the Freeport-McMoRan Sierrita Inc. (Sierrita) Tailing Impoundment (STI) (Figure 1). The Mitigation Plan was developed in accordance with the requirements of Mitigation Order on Consent Docket No. P-50-06 (Mitigation Order) between Sierrita and Arizona Department of Environmental Quality (ADEQ) and is subject to the terms of the Mitigation Order.

Under the Mitigation Order, the sulfate plume is defined as consisting of groundwater with sulfate concentrations greater than 250 milligrams per liter (mg/L) due to the STI. Aquifer characterization activities completed in accordance with the Mitigation Order identified the extent of the sulfate plume (Hydro Geo Chem, Inc. [HGC], 2009).

As described by the Feasibility Study (FS) (HGC, 2008), the mitigation objective is to practically and cost effectively provide the owner/operator of an existing drinking water supply impacted by the plume from the STI with a drinking water supply with sulfate concentrations less than 250 mg/L. The FS evaluated five mitigation alternatives that used different combinations of source control and plume management to accomplish the mitigation objective. The FS, which was submitted to ADEQ in October 2008, identified a recommended mitigation alternative based on consideration of a comparative analysis of the benefits and costs of the

alternatives, consistent with Arizona Revised Statute (ARS) 49-286. ADEQ approved the recommended mitigation alternative in March 2009 (ADEQ, 2009).

The remainder of this section introduces the approved mitigation alternative, summarizes the measures to be implemented, describes the schedule, and identifies contingency measures that may be triggered during implementation. Section 2 discusses implementation of the Mitigation Plan. Section 3 describes operations and monitoring under the Mitigation Plan. Section 4 identifies reporting and performance review responsibilities. Section 5 discusses adaptive management for adjustment of mitigation measures. Section 6 outlines community involvement activities.

1.2 Description of the Approved Mitigation Alternative

The mitigation alternative recommended in the FS and approved by ADEQ is Alternative 5, which calls for:

1. Moving the location of groundwater pumping needed to supply the Sierrita mining operations to locations where pumping will control migration of the sulfate plume into unimpacted portions of the basin fill aquifer and reduce the areal extent of the plume over time.

2. Developing a new tailing impoundment to replace the STI.

The objectives of Alternative 5 are to control seepage from the STI to the regional aquifer, stabilize the northern and eastern edges of the plume, and, to the extent practicable, remove sulfate from within the plume to reduce its extent. Under Alternative 5, Sierrita would replace some of the groundwater pumped to supply mine operations with groundwater pumped

to meet the above-described objectives. Groundwater required to be pumped under the Mitigation Plan would be rerouted to the Sierrita open pit when mining operations cease. Alternative 5 includes a new tailing impoundment to allow early retirement of the STI and an initiation of drain down to significantly reduce or eliminate the need for pumping after the end of mine life. Figures 2 and 3 show the locations of groundwater pumping facilities and the proposed new tailing impoundment, respectively.

1.3 Summary of Mitigation Measures

Based upon the approved mitigation alternative, the following Mitigation Measures[1] will be implemented:

1. Continue monitoring under the existing approved pre-implementation monitoring plan until a post-implementation monitoring plan is approved and new well systems and conveyance infrastructure are constructed and commissioned.

2. Continue pumping from existing Interceptor Well (IW) system.

3. Prepare Final Wellfield Conceptual Design.

4. Design and construct new well and conveyance systems: Focused Feasibility Study (FFS) wells, Source Control (SC) wells, Plume Stabilization (PS) wells and Mass Capture (MC) wells.

5. Prepare Post-Implementation Monitoring Plan.

6. Prepare Operation and Maintenance (O&M) Plan for well and conveyance facilities needed for the Mitigation Plan.

7. Commence operation of the complete well system and post-implementation monitoring.

[1] The term Mitigation Measures as used in this document encompasses all actions implemented under the Mitigation Plan at any particular point in time. Initially, the term includes the measures described in Section 1.3. If a contingency mitigation measure is implemented or implemented measures are changed due to adaptive management, then the term Mitigation Measures encompasses the implemented contingency or change.

1.4 Schedule

1. Continue monitoring: Groundwater monitoring is an existing ongoing program conducted in accordance with the pre-implementation monitoring plan.

2. Continue existing pumping: Pumping at the IW facilities is an existing ongoing program conducted for source control.

3. Final Wellfield Conceptual Design: Commence immediately upon approval of Mitigation Plan; complete by February 1, 2010 or 7 months after date of ADEQ approval of Mitigation Plan, whichever is later.

4. Finalize design and construct new well and conveyance system: Commence final design immediately upon completion of the approved final wellfield conceptual design; construct new wells and conveyance systems that are not dependent on the purchase of state land east of the STI, once appropriate permitting and land access requirements have been met; complete construction of remaining new wells and conveyance systems and commence operations July 1, 2013 or 48 months after date of ADEQ approval of Mitigation Plan, whichever is later.

5. Prepare Post-Implementation Monitoring Plan and O&M Plan; submit proposed plans to ADEQ February 1, 2013 or 5 months before scheduled date for commencement of operation of new well and conveyance system, whichever is later.

1.5 Contingency Measures

There are a number of possible contingency events that may require implementation of contingency measures. Contingency measures may be triggered if the following events occur:

1. Contingency event: Acquisition of state land east of the STI for construction of FFS wells (Section 3.3.1).
   Contingency measure: Design and construct wells at alternative locations on state lands.

2. Contingency event: Sierrita determines that a new tailing impoundment is infeasible (Section 3.3.2).
   Contingency measure: Implement Alternative 3 as described in the FS.

3. Contingency event: Monitoring results trigger implementation of mitigation to address a threat or actual impact to a specific drinking water supply well or system (3.3.3).

Contingency measure: Develop and implement additional mitigation actions consistent with alternatives described in the FS and the Interim Action Technical Memorandum (HGC, 2006) in consultation with the owner/operator of the affected water supply well or system.

4. Contingency event: Mining operations temporarily cease before the expected end of mine life or mine use of water decreases below the level of groundwater pumping required to meet performance goals (Section 3.3.4).
   Contingency measure: Prepare a water management plan for submittal to and approval by ADEQ to maintain groundwater pumping at the level needed to attain performance goals. The plan would propose how pumped water would be managed through methods like evaporation, storage, or water treatment for use.

5. Contingency event: Mining operations permanently cease before expected end of mine life (Section 3.3.5).
   Contingency measure: Reroute groundwater pumped as required to meet the performance goals from use in mining operations to placement in Sierrita open pit and monitor open pit regarding capture zone per Sierrita's area-wide Aquifer Protection Permit (APP).

6. Contingency event: Monitoring of open pit indicates potential loss of hydraulic capture (Section 3.3.6).
   Contingency measure: Design, construct and implement operation of water treatment system for water produced by groundwater pumping as required to meet performance goals.

2. IMPLEMENTATION OF MITIGATION PLAN

2.1 Groundwater Pumping

The primary component of the Mitigation Plan is to relocate the groundwater pumping needed for the Sierrita's mining operations to locations that address groundwater impacted by sulfate. Groundwater pumping will be conducted at five groups of wells: the IW, FFS, SC, PS, and MC (Figure 2). The IW, FFS, and SC wells will be pumped for source control to capture seepage from the STI. The PS wells at the northern edge of the plume will be pumped for plume stabilization to prevent additional downgradient movement of the plume. The MC and FFS wells will be pumped to reduce sulfate mass within the downgradient plume. The FFS wells have a dual role of source control and mass removal because they are to be pumped at rates greater than those needed for source control alone. Under Alternative 5 the sulfate plume is not expected to migrate into unaffected portions of the aquifer, the plume extent is expected to decrease over time, and existing drinking water supplies are expected to be protected from impact by the sulfate plume.

A preliminary conceptual design for wells and pipelines for Alternative 5 is reported in the FS. A final wellfield conceptual design will be prepared under this Mitigation Plan (Section 2.3.2). The wells, pipelines, and pumping facilities needed to implement the Mitigation Plan (Mitigation Facilities) will be developed and operated by Sierrita to supply water to its mining operations in lieu of groundwater pumping currently conducted at other locations.

This remainder of this section describes administrative and technical tasks to be undertaken to implement the Mitigation Plan based on Alternative 5. The administrative and technical tasks to establish the Mitigation Facilities are the same for Alternative 5 and the contingency alternative, Alternative 3 (Figure 2). Thus, implementation of Alternative 5 would also establish the Mitigation Facilities needed for Alternative 3 in the event the contingency measure number 2 is triggered (Sections 1.5 and 3.3.2).

2.2 Administrative Tasks

The primary administrative tasks are development of access to land and completion of permits required for construction of Mitigation Facilities. Sierrita will initiate and pursue these actions in a timely manner in order to meet the schedule set forth in this Mitigation Plan. If Sierrita is unable to obtain access, permits, and approvals in time to comply with the approved schedule, Sierrita may invoke the *force majeure* provision under the Mitigation Order.

2.2.1 Land Access

Sierrita owns the land needed for the IW and SC wells. Access will be secured for land used for Mitigation Facilities off of Sierrita property. Property owners from which land access may be needed are Pima County, Arizona State Land Department (ASLD), and private parties. Sierrita will research property ownership at well sites and along pipeline routes on property not under its control. Sierrita will contact property owners and negotiate land access for use during the mitigation.

2.2.1.1 Pima County

The Mitigation Facilities include installation of wells and pipelines on lands owned by Pima County. Sierrita will secure right-of-way use permits for Pima County properties needed for these Mitigation Facilities. Permit applications will be developed and submitted to the Permit Section of Development Services for Pima County.

2.2.1.2 Arizona State Land Department

Sierrita has initiated land purchase activities to acquire the ASLD property east of the STI. If the purchase is successful, Sierrita will implement contingency measure number 1 and place the FFS wells and pipeline facilities on the former ASLD property (Sections 1.5 and 3.3.1).

If the purchase is unsuccessful, Sierrita will use an existing right-of-way for a pipeline across the ASLD property east of the STI that would be modified as needed to accommodate the pipeline for Alternative 5. Also, a new right-of-way may need to be developed with ASLD for pipeline access along the south portion of the FFS wellfield

2.2.1.3 Private Parties

Construction of some of the Mitigation Facilities requires access to private land. Sierrita will work with landowners to secure access by lease, easement purchase, or other means for Mitigation Facilities.

2.2.2 Permits

County, state, and federal permits will be obtained as required to construct and operate the Mitigation Facilities. Sierrita will apply for the environmental and construction permits required to install the Mitigation Facilities and to pump groundwater. Sierrita will conduct environmental studies as needed to support permit applications. Potentially applicable permits and environmental studies include the following.

2.2.2.1 Pima County Construction Permits

Construction permits will be obtained as required from Pima County Development Services for the construction and installation of Mitigation Facilities. Construction permits are anticipated for the following:

- Electrical service installation
- Trenching and grading
- Road crossing
- Equipment compound walls
- Fences

2.2.2.2 Well Permits

Sierrita will comply with Arizona Department of Water Resources (ADWR) requirements for the drilling, construction, spacing, and operation of extraction and monitoring wells. ADWR requirements are anticipated to include the following:

- Permits to Drill or Operate a Non-Exempt Well Within an AMA Pursuant to Arizona Revised Statute 45-599
- Notices of Intent to Drill, Deepen, or Modify a Monitor/Piezometer/Environmental Well
- Modification of points of diversion for existing water rights and permits

In addition, de minimus discharge permits will be obtained from ADEQ, if needed, for well development activities.

2.2.2.3 Special Land Use Permit

A Special Land Use permit may need to be obtained from the ASLD for the construction and operation of pipelines on state land at the south end of the FFS wellfield. Additional right-of-way permits may need to be obtained, and a native plant study conducted, as required by the state.

2.2.2.4 Section 404 Permitting

Jurisdictional delineation of the waters of the United States will be required for the pipeline alignment under Section 404 of the Clean Water Act administered by the U.S. Army Corps of Engineers. Determination will be made as to the permitting requirements and impacts of pipeline crossings to waterways and if nationwide or individual permitting is required.

2.2.2.5 Biological Surveys

As part of Section 404 permitting, pertinent archival records of endangered species and surveys in the area will be reviewed. A determination of potential impacts to endangered species will be made with the assistance of the U.S. Fish & Wildlife. Biological surveys will be conducted where necessary and included in any Section 404 permitting documentation to the U.S. Army Corps of Engineers.

2.2.2.6 Cultural Resource Surveys

As part of Section 404 permitting, pertinent archival records of known archeological sites will be reviewed. Cultural resource surveys will be conducted where required to assess potential impacts of construction. Survey results will be included in Section 404 documentation to the U.S. Army Corps of Engineers.

2.3 Technical Tasks

The Mitigation Facilities plan (Figure 2) and pumping specifications identified in the FS for Alternative 5 are the preliminary design basis for the mitigation measures. The technical tasks needed to implement the preliminary design are completion of various environmental surveys, development of a final wellfield conceptual design, detailed engineering, procurement of resources and materials, construction, and commissioning of the Mitigation Facilities. Sierrita will provide or contract the technical resources needed to complete the design, construction, and operation of the mitigation measures. Technical tasks include the following.

2.3.1 Surveys

Surveys include those needed to assess permit requirements (native plant, biological, cultural resource, and jurisdictional waters), a topographic survey along pipeline alignments, and a telemetry survey.

2.3.2 Final Wellfield Conceptual Design

The FS presented a preliminary wellfield design for Alternative 5. The preliminary design in the FS was based on hydraulic capture zone modeling with a numerical model of groundwater flow and sulfate transport. The modeling results were used to estimate groundwater capture areas and required pumping rates. The preliminary design needs to be finalized based on field-scale estimates of aquifer hydraulic properties and the steady-state mining plan.

The magnitude of pumping necessary to achieve the capture required to control sulfate migration is directly proportional to the estimate of hydraulic conductivity of the aquifer. These groundwater extraction rates directly affect the sizing of wells and pumps, electrical specifications, sizing of piping, water treatment requirements and, hence, costs. To finalize the wellfield design, a large-scale aquifer test was conducted in February 2009 to measure field-scale hydraulic conductivity in the vicinity of future wellfields. The results of the aquifer test will be incorporated into the groundwater flow model and used to develop a final wellfield conceptual design.

The preliminary wellfield design in the FS assumed an increase in mine production with consequent increases in tailing deposition and seepage from the STI. Since the FS, Sierrita decided not to increase mine production. The numerical model will be updated so that the final wellfield conceptual design reflects reduced seepage from the STI due to the decision not to increase production.

The final wellfield conceptual design will specify well locations and provide pumping specifications for implementation. The final wellfield conceptual design will identify performance goals such as:

- Prevention of downgradient plume movement
- Prevention of impacts to drinking water supply wells
- Establishment of source control

The minimum pumping needed to achieve the performance goals of source control and plume stabilization will be identified. The design will also identify the additional pumping needed to achieve the mass removal goals of the implemented mitigation alternative as discussed in the Feasibility Study. Well design recommendations will be provided in the final wellfield conceptual design including the expected depth, screened interval, diameter, casing materials, and production target for the wells.

Performance reviews (Section 4.2) will be conducted periodically to assess the attainment of performance goals and to modify pumping, if needed, on the basis of operations and groundwater monitoring data (Section 3). Any changes in the pumping specifications of the final wellfield conceptual design needed to reflect actual performance or changes in mining operations will be addressed through adaptive management (Section 5).

2.3.3 Engineering Design

Engineering design documents, drawings, and specifications will be developed for the Mitigation Facilities, including extraction wells, groundwater pumps, electrical transmission and service, pumping stations, trenching, pipelines and valves, instrumentation and meters, and control and telemetry.

2.3.4 Pre-Construction

Pre-construction tasks consist of development of construction bid documents, solicitation of potential contractors, contractor selection, contract development, construction permitting, and equipment procurement.

2.3.5 Field Construction

Field construction tasks will build the Mitigation Facilities and related systems including roads, wells, pumps, wellhead meters and valves, trenching, pipelines, pumping stations, electrical systems, and telemetry systems. The SC wells may be installed first because they are located on Sierrita property close to existing infrastructure. The PS wells would likely be the second group of wells installed because their locations are not dependent upon where the FFS wells are located. The FFS and MC wells would be installed last because their locations are dependant on the purchase of state land east of the STI.

2.3.6 System Startup

Pumping at the existing IW wells will continue through implementation of the Mitigation Plan. The new wellfield and pipeline systems will be commissioned after construction quality assurance checks are completed. Subject to the Final Wellfield Conceptual Design, a phased startup of system components is expected. The SC wells may be commissioned first because they would be installed first and can be connected to the existing pipeline. The PS, FFS, and MC wells would be commissioned last because they require completion of the common pipeline to Sierrita.

3. SYSTEM OPERATION AND MONITORING

3.1 System Operation

Sierrita will operate the Mitigation Facilities. Groundwater pumping will be conducted initially using the pumping specifications developed for the final wellfield conceptual design. The Sierrita mitigation project manager will be responsible for overseeing operation of the Mitigation Facilities.

Groundwater pumping under the Mitigation Plan will be a continuous operation, although the pumping specifications may be changed from time to time based on periodic performance reviews (Section 4.2). As discussed in the FS, the pumping specifications are based on estimates of seepage from the STI over time and assumed average hydraulic properties for the basin fill aquifer. The performance reviews will allow modification of pumping specifications, if warranted, based on evaluation of the actual aquifer response to pumping (e.g., evaluation of water quality and water level monitoring data). System downtime will occur as required by the O&M plan.

An O&M plan will be developed for the Mitigation Facilities. The O&M plan will specify procedures for preventative maintenance and equipment replacement. Given the expected duration of the mitigation, O&M will be a key process for ensuring reliable and long-term operation of the Mitigation Facilities.

Groundwater pumped under the Mitigation Plan will be used for mining until the end of mine life and will be managed by placement in the Sierrita pit after mine closure as long as the pit has sufficient storage capacity. A detailed water balance for the Sierrita pit and an analysis of its ability to operate as a hydraulic sink are provided in the FS (Appendix E of FS). Monitoring of water levels in the pit to verify hydraulic sink conditions after mine closure is required by Sierrita's area-wide APP.

3.2 Monitoring Programs

Monitoring programs will be implemented to collect information on the operation and effects of the Mitigation Measures for use in evaluating mitigation performance. Monitoring data will be evaluated in performance reviews (Section 4.2) to assess the performance of the Mitigation Measures. If the results of performance reviews indicate that performance goals are not being met, adaptive management (Section 5) will be used to identify any changes to the Mitigation Measures to meet the performance goals.

3.2.1 Operations Monitoring

Operations monitoring will collect information on the availability and operation of the Mitigation Facilities. Initially, operations monitoring will focus on the existing IW wells. Other groundwater pumping wells will be incorporated into the operations monitoring program as they are commissioned. Information to be collected from operations monitoring includes the following:

- Average pumping rates of individual wells and total mitigation pumping.
- Operating hours and availability of well pumps and booster stations.
- Wellfield operational parameters such as pump electrical use and well drawdown.

Sierrita will implement an O&M plan for the Mitigation Facilities. The data from routine operations monitoring will be used to document groundwater pumping under the Mitigation Plan and to assess operating conditions.

3.2.2 Groundwater Monitoring

Groundwater monitoring will be conducted to document water quality and groundwater elevation conditions in the vicinity of the sulfate plume and the Mitigation Facilities. The objectives of groundwater monitoring before and after implementation of the mitigation measures differ. (As used here, implementation of the mitigation measures means the complete startup of all Mitigation Facilities.) The objectives of pre-implementation groundwater monitoring are to monitor wells along the plume edge for evidence of downgradient plume movement and to monitor sulfate in drinking water supply wells near the plume. The objectives of post-implementation groundwater monitoring are to monitor wells along the plume edge for evidence of downgradient plume movement, to monitor sulfate in drinking water supply wells near the plume, and to document water quality and water level conditions in the vicinity of the wellfields operated under the Mitigation Plan. Data collected for post-implementation monitoring will be used to evaluate the performance of the Mitigation Measures and to determine when pumping can be reduced or terminated (Section 4.2).

3.2.2.1 Pre-Implementation Groundwater Monitoring

Pre-implementation groundwater monitoring is described in the current monitoring plan approved by ADEQ. The groundwater monitoring follows the quality control and quality assurance procedures described in the work plan for investigation of the sulfate plume.

3.2.2.2 Post-Implementation Groundwater Monitoring

A plan for post-implementation groundwater monitoring will be developed for submittal to ADEQ (Section 1.4). The purpose of post-mitigation monitoring will be to collect information on the performance of the Mitigation Measures. The data collected by post-implementation monitoring will be used for performance reviews (Section 4.2). Mitigation performance will be evaluated based on performance goals to be developed for the final wellfield conceptual design.

The performance goals of the final wellfield conceptual design and the positions of wellfields and existing wells will be used to identify locations for additional monitoring wells that may be needed to document the performance of the Mitigation Measures and attainment of the performance goals. Quality assurance and quality control procedures for post-implementation monitoring will be consistent with those used throughout the investigation of the sulfate plume.

At a minimum, post-implementation groundwater monitoring would include water quality sampling at plume edge monitoring wells, drinking water supply sentinel wells, and mitigation wells; and water level measurement at wells in the vicinity of mitigation wellfields.

Water quality sampling will measure sulfate concentrations over time to document water quality trends and delineate the plume. Water level measurement will document potentiometric conditions for assessment of groundwater flow conditions, capture zone analysis, and evaluation of capture effectiveness.

Post-implementation groundwater monitoring data will also be used in conjunction with numerical analysis to determine whether performance goals can be met if pumping is reduced or terminated at one or more mitigation wells (Section 4.3). The post-implementation groundwater monitoring plan will be modified as needed to monitor drinking water supplies and natural attenuation as mitigation pumping is reduced or terminated at different wells over time. Sierrita may request termination of the Mitigation Plan and the Mitigation Order upon a demonstration satisfactory to ADEQ that the performance goals will continue to be met without additional groundwater pumping.

3.3 Implementation of Contingencies

Sierrita will respond to various contingency events that may occur during implementation and operation of the Mitigation Plan. The key contingency events and Sierrita's response are discussed below.

3.3.1 Contingency Event: Acquisition of State Land for Construction of FFS Wells

As described in the FS, Alternatives 5 and 3 position the FFS wells on Pima County right-of-way along the eastern boundary of ASLD land east of the STI (Figure 2). Sierrita is applying to purchase the ASLD property east of the STI at the same time it applies to purchase the ASLD property for the proposed new tailing impoundment (Section 1.2). If the property purchase is successful, Sierrita would locate the FFS wells on the former ASLD property. If the property purchase is not successful, Sierrita would construct the FFS wells on public and private property east of ASLD property. Sierrita will work to secure public and private land access during the time that ASLD is considering the land purchase so that construction can proceed on schedule regardless of ASLD's decision.

The ASLD decision is expected within 24 months after submittal of the purchase request. Sierrita expects to submit the purchase request in the near future. If the state land purchase has not been approved by June 1, 2011, then Sierrita will implement the design and construction of the wells at the locations identified off state lands, unless ADEQ approves an extension of the schedule to allow ASLD to complete a decision allowing Sierrita to acquire the necessary state lands.

3.3.2 Contingency Event: Sierrita Determines that a New Tailing Impoundment is Infeasible

If Sierrita determines that construction of a new tailing impoundment is infeasible, then Sierrita will implement Alternative 3 as described in the FS. Sierrita may conclude that a new tailing impoundment is not feasible either because it is unable to acquire the necessary lands or

find an alternative location, because it is unable to obtain the necessary permits, or because of business reasons. If Sierrita makes such a decision or if a new Tailing Impoundment is not implemented by June 1, 2016, Sierrita will notify ADEQ in writing and will implement Alternative 3 unless ADEQ approves an extension of the schedule. Alternative 5 and Alternative 3 would employ the same Mitigation Facilities and be subject to contingency measure 1 (Sections 1.5 and 3.3.1). The primary change to implement Alternative 3 will be changes to the O&M plan to reflect anticipated higher pumping volumes over time under Alternative 3 compared to Alternative 5.

3.3.3 Contingency Event: Monitoring Results Trigger Implementation of Mitigation to Address a Threat or Actual Impact to a Specific Drinking Water Supply Well or System

Existing drinking water supply wells are not expected to become impacted under the Mitigation Plan because the sulfate plume is not allowed to migrate downgradient. However, in the event groundwater monitoring identifies a drinking water supply well that is threatened to be impacted or that becomes impacted due to the plume from the STI, Sierrita would work cooperatively with the well owner to develop a specific plan for mitigation actions to address the well. Potential drinking water well mitigation actions are highly site-specific. The FS and the Interim Action Technical Memorandum describe the types of potentially applicable mitigation actions for drinking water supply wells.

The pre-implementation and post-implementation monitoring plans will assign a sentinel well or wells to monitor specific drinking water supply wells in the vicinity of the plume. If sulfate concentrations at a sentinel well are verified as exceeding 250 mg/L due to the plume

from the STI, Sierrita will notify ADEQ in writing and, in collaboration with the owner/operator of the drinking water well, develop a site-specific plan for mitigation actions that could be implemented at the drinking water supply well assigned to the sentinel well before it is impacted. A copy of the site-specific plan will be provided to ADEQ.

3.3.4 Contingency Event: Mining Operations Temporarily Cease before the Expected End of Mine Life or Mine Use of Water Decreases Below the Level of Mitigation Pumping Required to Meet Performance Goals

As long as Sierrita remains in operation, groundwater pumped under the Mitigation Plan will be used in mining operations, in lieu of water that otherwise would have been pumped from other Sierrita water supply locations. If mining operations undergo a temporary stoppage or reduction in water use such that the mining use of water is less than the pumping required to meet performance goals, Sierrita will implement water management actions that to maintain pumping sufficient to attain performance goals. Water management may include evaporation, storage, or water treatment for use. Sierrita will submit a proposed plan, including a design and implementation schedule, to ADEQ for approval to implement this contingency measure in a manner to avoid any reduction or stoppage of pumping under the Mitigation Plan that would impair meeting the performance goals.

3.3.5 Contingency Event: Mining Operations Permanently Cease before Expected End of Mine Life

If mining operations permanently cease before the expected end of mine life, groundwater pumped as required under this Mitigation Plan would be rerouted from use in mining operations to placement in Sierrita open pit.

3.3.6 Contingency Event: Monitoring of Open Pit Indicates Potential Loss of Hydraulic Capture

Sierrita's area-wide APP requires Sierrita to monitor water levels in the open pit to ensure that hydraulic capture of groundwater by the pit is maintained. If Sierrita implements placement of groundwater pumped under the Mitigation Plan in the open pit, Sierrita will monitor the water levels in the open pit to comply with the area-wide APP. If water levels rise to a point where loss of hydraulic capture by the open pit is threatened, Sierrita will design a system to treat and discharge water pumped under the Mitigation Plan, consistent with the potential water treatment and discharge options discussed in the FS. Sierrita will submit a proposed design and implementation schedule to ADEQ for approval. The schedule for design and construction will be developed in a timely manner so that Sierrita can both maintain compliance with its APP and avoid disruption of groundwater pumping as specified under this Mitigation Plan.

4. ROUTINE REPORTING AND MITIGATION PERFORMANCE REVIEWS

4.1 Routine Reporting

Operations monitoring reports and groundwater monitoring reports will be prepared to document actions taken under the Mitigation Plan. These reports may be prepared as a combined report if practical.

4.1.1 Operations Monitoring Report

Operations monitoring reports will be prepared annually and submitted to ADEQ. The operations monitoring reports are intended to be an accounting of the groundwater pumping under the Mitigation Plan and a description of any significant operational conditions during the period of interest. Operations monitoring reports will compile data on system availability, well pumping rates, and total system pumping. The actual system pumping will be compared to design goals to assess operational performance. Significant operational conditions that may influence meeting pumping goals will be reported.

4.1.2 Groundwater Monitoring Report

Groundwater monitoring reports will be prepared and submitted to ADEQ based on the frequency specified in the monitoring plan. The report will provide tables of the water quality and water level data collected for the period of interest. Maps will be prepared to show water

level and water quality data collected for groundwater monitoring. Laboratory analysis reports and associated quality assurance/quality control documentation will be provided in the groundwater monitoring reports.

4.2 Mitigation Performance Reviews

Performance reviews will be conducted and submitted to ADEQ annually for the first five years after full commissioning of the Mitigation Facilities and then every five years thereafter. Mitigation performance reviews will be conducted to determine whether the Mitigation Measures are performing as expected and meeting performance goals. The performance review process will also be used to evaluate when mitigation pumping can be reduced or terminated. Mitigation performance will be evaluated based on performance goals set in the final wellfield conceptual design. The performance goals would be evaluated using operations and groundwater monitoring data, and capture zone analysis.

Operations and groundwater monitoring data would include the following.

- Pumping data for individual wells and the entire system
- Water quality data for drinking water supply wells and sentinel wells located between the plume and the drinking supply wells
- Water quality data from plume monitoring wells located downgradient of the plume
- Water level data from wells positioned to monitor drawdown in the vicinity of wellfields operated under the Mitigation Plan

Operations monitoring data will be used to determine whether groundwater pumping meets the specifications of the wellfield design. Water quality data will be used to evaluate

sulfate trends at downgradient monitoring wells, plume edge monitoring wells, drinking water supply sentinel wells, and extraction wells. Sulfate concentrations over time will be shown on graphs to illustrate water quality trends. Water level data will be used to assess groundwater flow conditions in the vicinity of the plume and Mitigation Facilities, to identify the capture zone of mitigation pumping, and to evaluate capture effectiveness.

Capture zone analysis will be based on analysis of field measurements or analysis using analytical or finite-difference numerical groundwater models. Water level data in the vicinity of the Mitigation Facilities will be used to evaluate the degree of drawdown around the wellfields. Periodic review and updates of the numerical model would be conducted on an as-needed basis to assess the capture predicted for actual pumping under the Mitigation Plan.

The adaptive management process (Section 5) would be used to evaluate and modify the Mitigation Measures in the event that the performance review determines that performance goals are not being met. For example, adaptive management would be used to modify pumping if the performance review determines that the plume continues to move downgradient (i.e., performance goal not being met). Adaptive management would also be used to address modifications to Mitigation Measures necessitated by changes in the mining operation.

4.3 Reduction or Termination of Mitigation Pumping

The performance review will evaluate when source loading and the plume extent are at a point that mitigation pumping can be reduced or terminated. As described in the FS, mitigation

pumping is expected to be reduced over time as performance goals are met. For example, the PS and MC wells could be retired when the plume extent is reduced to the point that the plume can be controlled by source control pumping only. Source control pumping can be reduced or terminated as sulfate loading from the STI diminishes over time. Sierrita may request termination of the Mitigation Plan and the Mitigation Order upon a demonstration satisfactory to ADEQ that the performance goals will continue to be met without additional groundwater pumping.

The performance reviews will evaluate water quality and water level data to assess source loading, plume extent, and ambient sulfate concentrations. Numerical analysis of groundwater flow and sulfate transport would be used to evaluate the effects of reducing or terminating pumping in one or more wells. If analysis indicates that performance goals can be met by reducing or terminating pumping or that monitored natural attenuation would be sufficient to mitigate residual sulfate-impacted groundwater, Sierrita will prepare a recommendation to modify pumping and submit it to ADEQ for approval.

5. ADAPTIVE MANAGEMENT

Adaptive management is a process of review, analysis, and adaptation used to manage uncertainty in decision making in environmental projects. Adaptive management relies on an iterative process of data gathering and analysis to improve decision making in an uncertain environment. For purposes of this Mitigation Plan, application of adaptive management will involve comparing the actual performance of the Mitigation Measures to expected performance goals and implementation of changes if the alternative is not performing as expected.

The process of monitoring and performance review is integral to adaptive management because these activities will collect data on the effects of the Mitigation Measures and evaluate the effects against performance goals. If performance goals are not being met or if it is determined that pumping specifications are greater than necessary to meet performance goals, Sierrita will use adaptive management to evaluate the situation and to modify the Mitigation Measures based on operational experience and/or modeling.

The adaptive management process can be triggered by factors internal or external to Mitigation Measures. Examples of internal factors would be determinations by the performance review that the Mitigation Measures are not meeting a performance goal or that pumping exceeds the minimum needed to attain a performance goal based on operations monitoring, groundwater monitoring, or other analysis conducted for the mitigation. External factors would include administrative (e.g., the development of new environmental quality or water supply laws) or business (e.g., changes in mine life or production rate) developments that may impact the

Mitigation Measures. Adaptive management would be used to manage changes in administrative or business conditions that may impact attainment of the performance goals. Such conditions may trigger the need to adjust Mitigation Measures from time to time. Any triggering event that requires modification of the mitigation performance goals through adaptive management would be reported to ADEQ for approval in advance of implementation.

6. COMMUNITY INVOLVEMENT

Community involvement activities will consist of informing the community of activities conducted for the Mitigation Plan and responding to community concerns.

6.1 Community Advisory Group

A Community Advisory Group (CAG) was formed for the purpose of identifying and improving the public's access and understanding of information regarding the Mitigation Order. A CAG consisting of five persons selected from a cross section of the community will be maintained to meet annually throughout the mitigation or as needed based on community interest.

6.2 Public Information Repository

Sierrita will maintain the information repository at the Joyner Green Valley Public Library in Green Valley. Copies of correspondence and reports submitted to ADEQ for the Mitigation Order will be placed in the library for public access.

6.3 Sierrita Internet Document Repository

Sierrita will maintain the internet document repository at http://www.fcx.com/sierrita/home.htm. Copies of correspondence and reports submitted to

ADEQ for the Mitigation Order will be placed on the public access internet website for download.

7. REFERENCES

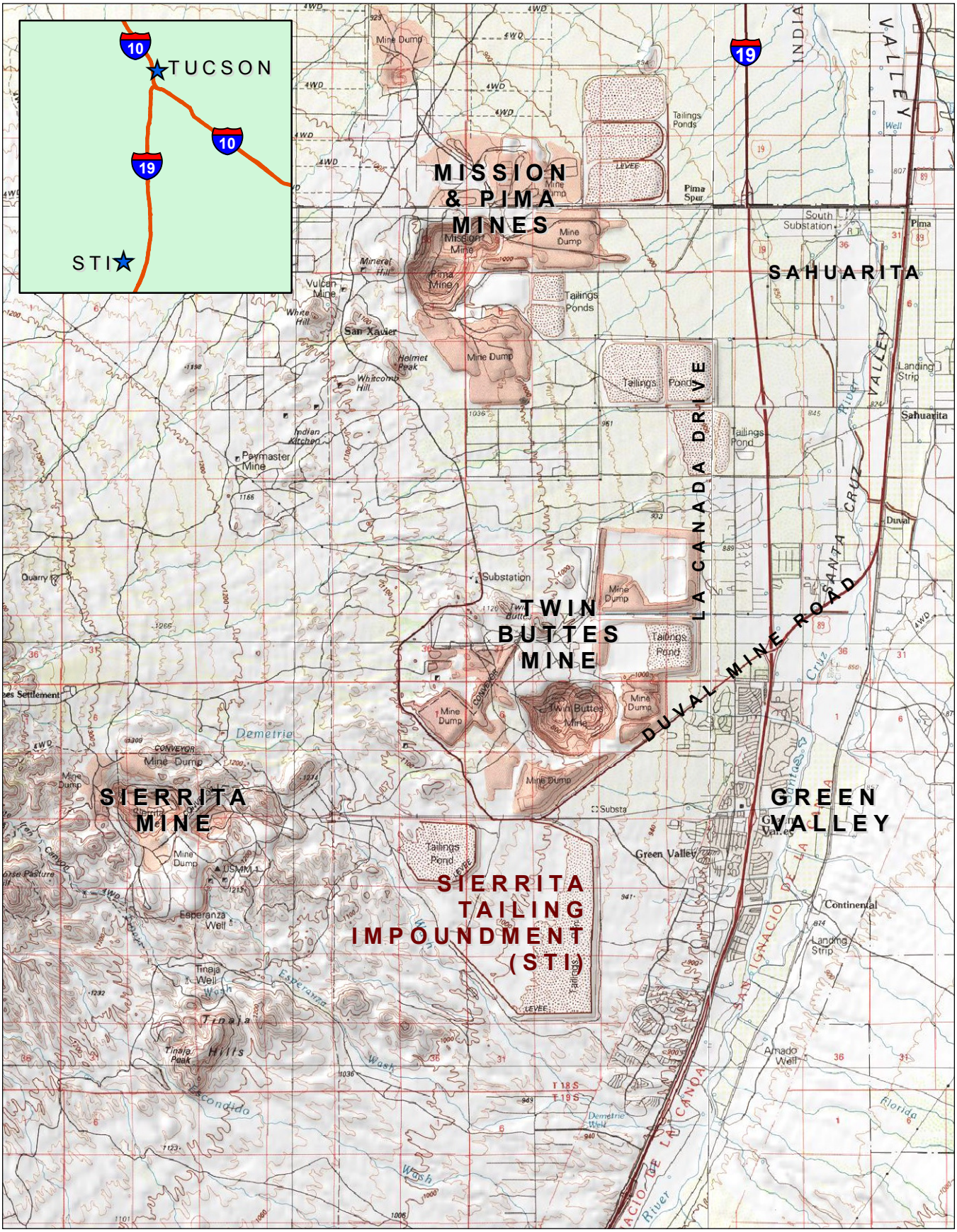
Hydro Geo Chem, Inc. (HGC). 2006. Interim Action Identification Technical Memorandum for Mitigation Order on Consent Docket No. P-50-06. December 22, 2006.

HGC. 2008. Feasibility Study Report for Sulfate with Respect to Drinking Water Supplies in the Vicinity of the Freeport-McMoRan Sierrita Inc. Tailing Impoundment, Mitigation Order on Consent Docket No. P-50-06. October 22, 2008.

HGC. 2009. Revision 1 Aquifer Characterization Report, Task 5 of Aquifer Characterization Plan, Mitigation Order on Consent Docket No. P-50-06. January 30, 2009.

Arizona Department of Environmental Quality. 2009. Correspondence from Cynthia S. Campbell, Water Quality Compliance Section, to E.L. (Ned) Hall, Sierrita, Re: Mitigation Order on Consent, Docket No. P-50-06 ADEQ's Response to Freeport's Feasibility Report. March 6, 2009.

FIGURES



0 5,000 10,000 Feet

PROJECTION:
UTM Zone12N NAD83

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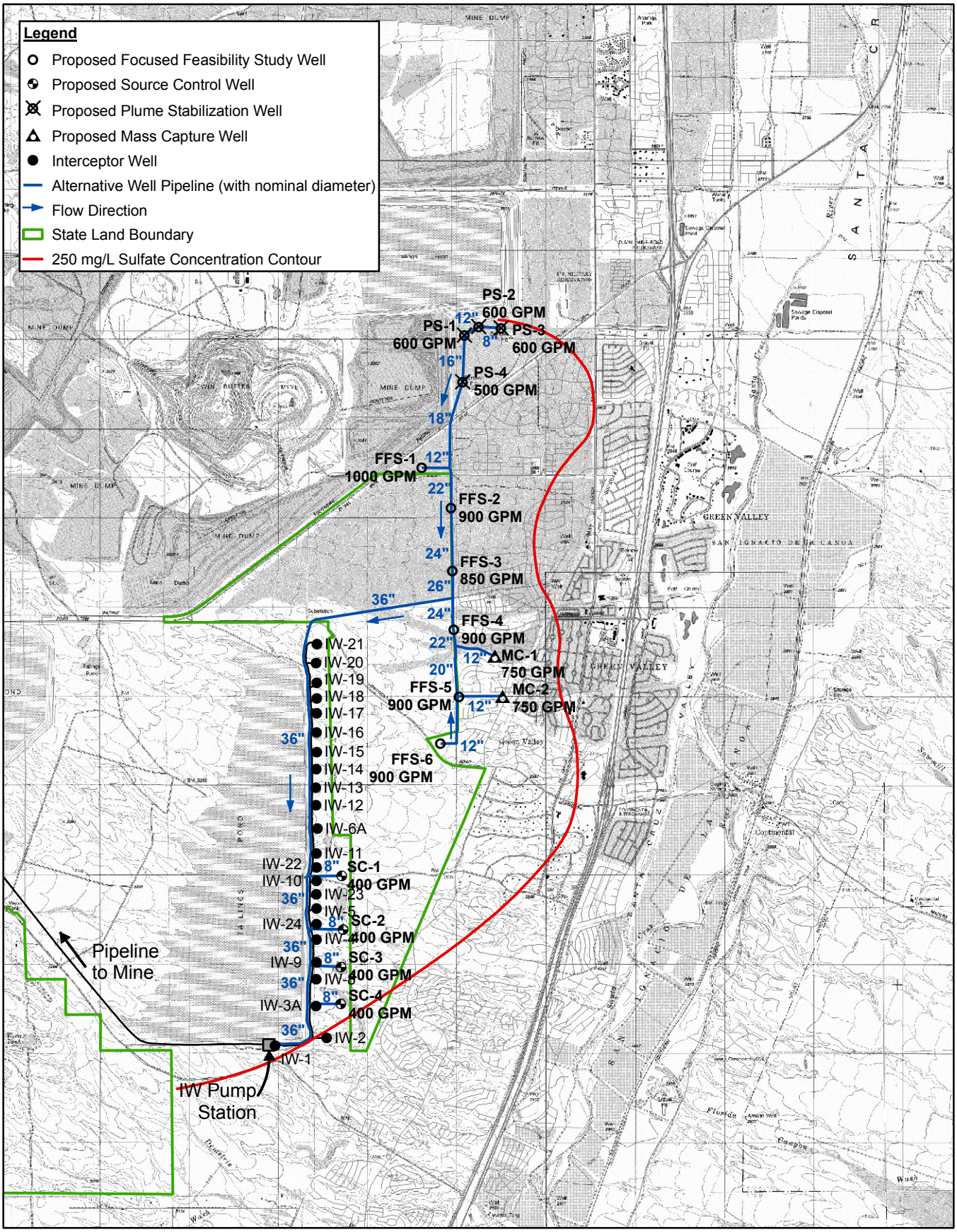
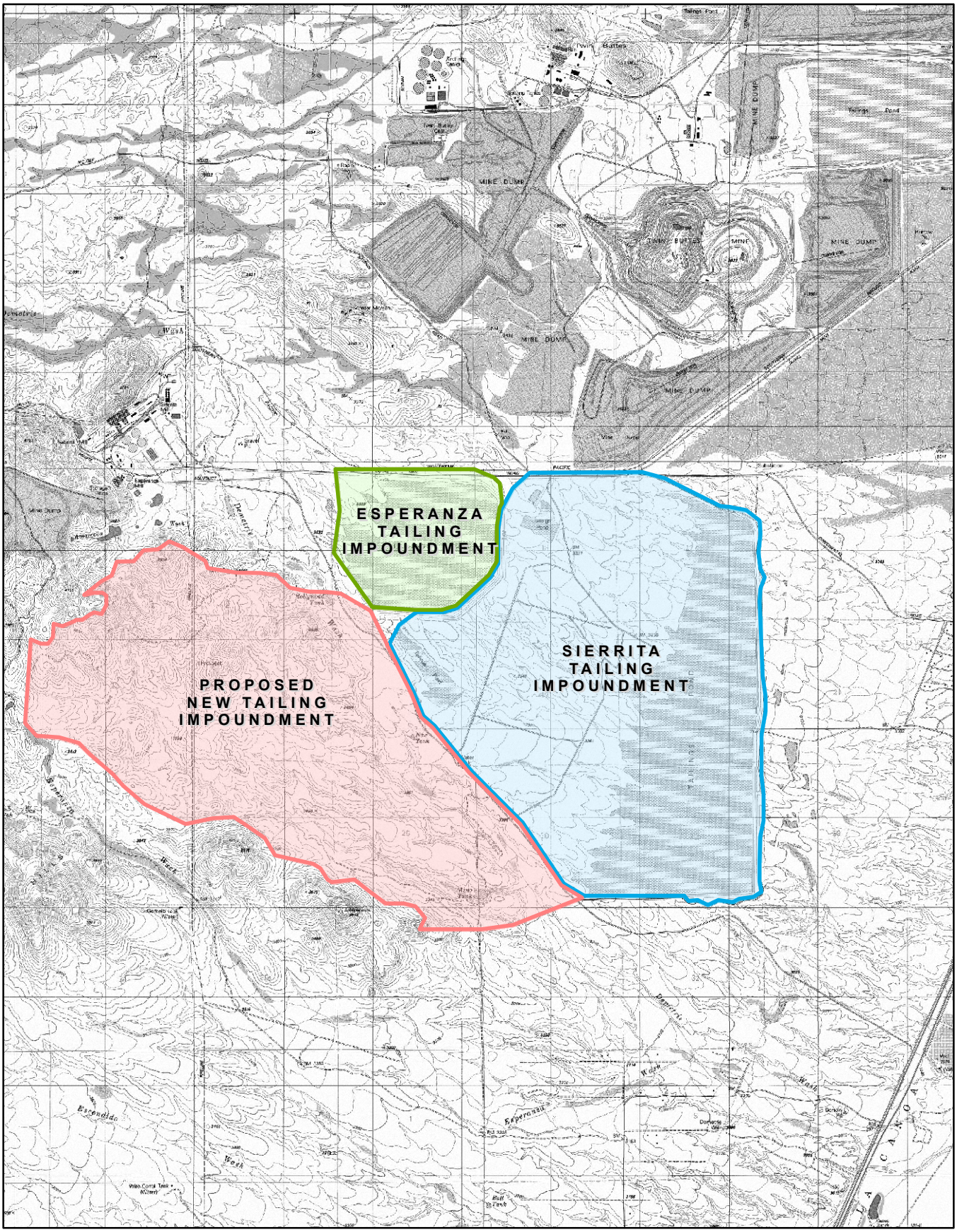
HYDRO GEO CHEM, INC.

LOCATION OF SIERRITA TAILING IMPOUNDMENT AND GREEN VALLEY

Approved	Date	Author	Date	File Name	Figure
JRN	05/07/09	AMC	05/07/09	78310118G	1


Legend
Proposed Focused Feasibility Study Well
Proposed Source Control Well
Proposed Plume Stabilization Well
Proposed Mass Capture Well
Interceptor Well
Alternative Well Pipeline (with nominal diameter)
Flow Direction
State Land Boundary
250 mg/L Sulfate Concentration Contour
PS-2
600 GPM
12"
PS-1
600 GPM
8"
PS-3
600 GPM
16"
PS-4
500 GPM
18"
FFS-1
1000 GPM
12"
22"
FFS-2
900 GPM
24"
FFS-3
850 GPM
26"
36"
24"
FFS-4
900 GPM
22"
12"
MC-1
750 GPM
20"
FFS-5
900 GPM
MC-2
750 GPM
12"
12"
FFS-6
900 GPM
36"
IW-21
IW-20
IW-19
IW-18
IW-17
IW-16
IW-15
IW-14
IW-13
IW-12
IW-6A
IW-11
IW-22
8"
SC-1
IW-10
400 GPM
36"
IW-23
IW-5
IW-24
8"
SC-2
400 GPM
36"
IW-9
8"
SC-3
400 GPM
36"
IW-8
IW-3A
8"
SC-4
400 GPM
36"
IW-2
IW-1
Pipeline
to Mine
IW Pump
Station
MINE DUMP
GREEN VALLEY
SAN IGNACIO DE LA CANOA
SANTA CR
0
2,500
5,000 Feet
PROJECTION:
UTM Zone 12N NAD83
N
HYDRO
GEO
CHEM, INC.
WELL AND PIPELINE FACILITIES FOR
THE RECOMMENDED MITIGATION ALTERNATIVE
AND CONTINGENCY MITIGATION ALTERNATIVE
Approved
JRN
Date
05/07/09
Author
AMC
Date
05/07/09
File Name
78310119G
Figure
2



0 2,500 5,000 Feet

PROJECTION:
UTM Zone 12N NAD83

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HYDRO GEO CHEM, INC.

LOCATION OF PROPOSED NEW TAILING IMPOUNDMENT

Approved	Date	Author	Date	File Name	Figure
JRN	05/07/09	AMC	05/07/09	78310120G	3