



Tyrone Operations
P.O. Drawer 571
Tyrone, NM 88065

March 9, 2011

Certified Mail #70100780000225013408
Return Receipt Requested

Mr. David R. Otori
Mining and Minerals Division
Mining Act Reclamation Program
1220 So. St. Francis Drive
Santa Fe, New Mexico 87505

Dear Mr. Otori:

Re: **Responses to Comments on the Tyrone Mine Waiver**
Modification Application of July 2010, GR010RE, Revision 10-1

This letter transmits Freeport-McMoRan Tyrone Inc.'s (Tyrone) responses to comments on the waiver application for the Tyrone Mine submitted on July 28, 2010. Tyrone received comments from the New Mexico Mining and Minerals Division (MMD), Department of Game and Fish (NMDG&F), Office of State Engineer (NMOSE), and the Gila Resource Information Project (GRIP) in an electronic mail message dated February 11, 2011. The comments are reproduced below in italics. The Tyrone response follows each comment. The comments are grouped by the organization that provided them.

Tyrone's proposed stockpile configuration and reclamation plan is intended to adhere to the requirements of 19.10.5.507.B and 19.10.5.506.J NMAC and applicable permit conditions in GR010RE and Discharge Permit 1341. The information submitted in the waiver application and clarifications listed below document the technical challenges and environmental and cost implications associated with reclamation in and around the open pit at Tyrone. In addition to the excessive costs to reclaim stockpile slopes inside the open pit area, the waiver application identifies the substantial adverse economic impact on future mining at Tyrone that would result from the loss of capacity of existing stockpiles if the waiver is not granted. Moreover, utilizing the capacity of an existing stockpile on already disturbed ground is an obvious environmental benefit, while minimizing hauling distances, reducing equipment hours, and not disturbing new ground results in a reduction in natural resource consumption. It is reasonable that agencies and the public would support policies that make effective use of disturbed areas for copper production while requiring reclamation of the majority of the disturbed area at the site, emphasizing the most visible areas associated with the perimeter of the site. Tyrone prepared its application to comply with these reasonable expectations and outcomes. The majority of the Tyrone mine site is currently being reclaimed and the reclamation effort will continue in the future. If the waiver request is approved, Tyrone is still required to achieve the approved Post Mining Land Use (PMLU) for 3,188 acres, 63% of the remaining disturbance. This percentage does not include over 3,000 acres of tailing, stockpile and other facilities that have already been reclaimed to wildlife PMLU at Tyrone.

RESPONSE TO MMD COMMENTS

MMD Comment 1 Section 2.2, Economic Infeasibility of Interior Stockpile Slopes, pages 8-9 of the application – Tyrone provided information regarding the estimated reclamation costs of the interior

stockpile slopes, summarized in Table 2.2.1, and in Attachment A, Stockpile Interior Area Cost Estimate Summary Report. MMD requests the “back-up” information used to generate the Total Reclamation Cost and the Cost per Acre for each of the stockpile units that are included in the waiver modification application. MMD needs this information in order to properly evaluate the reclamation costs that Tyrone has provided to support a waiver for the interior stockpile slopes based on economic infeasibility.

Tyrone Response 1 An electronic version of the details of the cost estimates was sent to the MMD (Mr. David Ohori and Mr. Chris Eustice) by file transfer on February 4, 2011. A paper copy of that information was sent by express delivery on February 10, 2011.

MMD Comment 2 *Section 2.2, Economic Infeasibility of Interior Stockpile Slopes, pages 9-10 of the application – Tyrone provided information regarding the economic loss due to reduction of storage volume, summarized in table 2.2.2, and in Attachment B, Tyrone Mine Life/Economics Information. During the 2/1 meeting, Attachment B including Figures B-1, Mine Production Impacts, and Figure B-2, Cross Sections Illustrating Lost Interior Stockpile Capacity were discussed, and Tyrone indicated that it would provide additional information including drawing(s) and cross sections that would further clarify Tyrone’s description of future stockpile configurations based on the comparison of 3H:1V slopes to “angle of repose” slopes.*

Tyrone Response 2 The attached Figures B-3 and B-4 illustrate the concept of lost storage space more clearly. Figure B-3 indicates the position of the two cross sections relative to the Tyrone mine features. Figure B-4 shows cross sections through Stockpiles 2A and 4A similar to those provided on Figure B-2 in the July 2010 application. The interior of the mine is on the left side of the sections. The highest elevation red line is the profile that could be obtained with a waiver (no interior slope reclamation) and the lower elevation red line is the profile that would be necessary if the interior stockpile slope is to be reclaimed. The loss of storage space is indicated by the shaded gray color. Tyrone has also indicated the extent of the July 2010 waiver request on the sections on Figure B-4. Tyrone trusts that these new cross sections adequately clarify the questions raised by the MMD reviewers.

The life of mine analysis presented in Section 2.2 and Attachment B of Tyrone’s waiver request illustrates the very significant economic impact that hinges on MMD’s decision regarding this waiver.

MMD Comment 3 Part 1 *Section 2.3, Environmental Unsoundness of Stockpile Sloping, pages 10-11 of the application – During the 2/1 meeting, Tyrone discussed how the requirement to reclaim the interior slopes of the stockpiles to a 3H:1V slope would likely cause difficulties on stormwater management and handling that could result in a less environmentally sound situation at the mine than if a waiver from regrading the was approved and the interior slopes of the built-out stockpiles were to be left at “angle of repose” or approximately 1.5H:1V. Tyrone indicated that it would provide a more detailed discussion of this issue in support of their waiver modification application.*

Tyrone Response 3 Part 1 Tyrone believes that to do otherwise is environmentally unsound. The rationale for this position is laid out in the waiver application and in the introduction of this response letter. Tyrone maintains that it is reasonable and sound policy to encourage full utilization of disturbed areas for copper production.

Reclamation of interior slopes that are directly adjacent to the open pit creates serious technical challenges and could require implementation of environmentally unsound practices. If the interior slopes are reclaimed and we want to compare costs and benefits with exterior slopes (where Tyrone and other

State agencies have agreed to reclaim outslopes), then to achieve the same environmental result, the management of runoff would be as described below.

Un-impacted water must be routed, collected and moved physically by pumps and pipelines to discharge into natural drainages outside of the mine area (achieving the same environmental result as a perimeter slope that discharges by gravity to a perimeter natural drainage). Construction of these water management features will require the creation of a complex network of multiple holding ponds/containments designed to handle large design storm events. In most cases (1A, 1B, 2B, 2C, 3B, 4A, portions of 5A, 6B and 6C) there is little to no space between the toe of the stockpile and the rim of the Pit to construct sufficient pond capacity in a location where they could be completely effective and safely managed. Figure 6 illustrates the lack of real estate to construct a stormwater containment berm along the reclaimed toe of the interior slope of the 2C Stockpile in order to segregate the fresh water runoff and pump it to a natural drainage on the perimeter of the mine. In this example, the containment for the runoff water would have to be constructed above the reclaimed stockpile surface. If the pond were to overflow in a large storm event or if the containment failed for other reasons, it would create a large concentrated flow that would cause great erosional damage and pit highwall instability. The erosional damage would be much more significant than the incidental erosion that we experience at the mines near the interface of pits and surrounding stockpiles now, even during large rain events. These containments would have to be maintained for very long periods. There is not a suitable location where water containment could be sited and managed to avoid potential slope and pit wall stability issues. Tyrone maintains that this is an environmentally unsound management practice for closure.

The proposed reclamation plan is to collect impacted water in the bottom of the pit and pump it to a treatment plant. The construction of these additional water management facilities will not eliminate the need for the pit lake management infrastructure. These facilities will also require long term maintenance and consumption of electricity however the maintenance problem is increased significantly with reclamation of interior stockpiles and the necessary construction of the additional water management infrastructure. All of these additional facilities and equipment would need to be routinely inspected and maintained which requires the utilization of more manpower and equipment than would be required if the interior slopes are not reclaimed.

Leaving the interior slopes at a steep angle allows more of the stockpile top surface runoff to drain toward the exterior of the mine by gravity where it can be practically managed. Regrading the interior slopes to a flatter configuration for reclamation causes more runoff water to drain toward the pit.

Based on the foregoing, Tyrone concludes that the difficulties in constructing sufficiently sized stormwater containments and the associated stormwater management and handling stockpile interior slope reclamation would result in a less environmentally sound situation than the Tyrone plan. Moreover, Tyrone concludes that the high cost and difficulty of reclaiming these slopes is not justified by the very marginal environmental benefits that would be achieved.

MMD Comment 3 Part 2 *In addition, Tyrone indicated that it may provide additional information to support its claim of economic infeasibility and environmental unsoundness of creating new stockpiles on undisturbed land in order to fully utilize the resources at the mine if a waiver is not approved for the interior slopes of the stockpiles.*

Tyrone Response 3 Part 2 The agencies requested information on the construction costs of a new stockpile to offset capacity lost if interior slopes were required to be regraded and reclaimed. This is a complex question because it is not clear that building a new stockpile in an area outside the current mine footprint could be permitted in a timely fashion for Tyrone's life of mine, nor is it clear that it would be economically feasible to do it. That is why Tyrone primarily presented the information as lost production. However, an estimate of the cost of constructing a new leach stockpile adjacent to the perimeter of the mine on undisturbed ground is \$105,000 to \$115,000 an acre, assuming that a full liner would be required. The estimate was taken from a commonly used mine feature cost estimating publication (Mine Cost Service, 2010). This is a generalized cost and does not include the added costs of permitting, extra haulage for the leach material, etc. For a typical 400 to 500 acre facility, these pad construction costs alone would be in the range of \$40 Million to \$60 Million.

More disturbed area also increases the company's reclamation liability and annual fee payments. The newly disturbed area will, for a period of time, not be suitable for use by wildlife.

Other Information on Interior Slope Reclamation

During meetings referenced by MMD in their comments, MMD requested additional cross sections in addition to the plan view maps (Figures 1 through 3 of the July 2010 waiver application) to illustrate the current waiver request. The location reference map for the additional cross sections is provided on Figure 4. The cross sections are provided on Figure 5.

Tyrone's waiver request is based on the existing configuration of pits and stockpiles. As stockpiles increase in height, Tyrone plans to request incrementally additional waiver areas for the interior-facing slopes. Tyrone also expects that if permits are granted and pits (such as the Savannah Pit) are backfilled for operational purposes, that additional flat surfaces will be created on the mine interior that may be reasonably reclaimed and would then be withdrawn from the waiver.

Tyrone believes that it is sound environmental and good public policy to encourage a mine to utilize its existing disturbance footprint to the maximum extent possible. This minimizes the overall impact incurred for a given amount of economic benefits to the local community and the state. Allowing the mine to place material at the angle of repose on the slope facing into a pit achieves this purpose.

RESPONSE TO NMDG&F COMMENTS

NMDG&F Comment 1 *It is evident from Figure 1 of the application, Existing Waiver & Proposed Waiver Areas that large extents of reclaimed area within the expanded waiver perimeter would become "islands" or "peninsulas" of habitat, surrounded by unreclaimed and/or industrial use areas. The loss of connectivity to surrounding undisturbed or reclaimed habitat would adversely affect the functionality of these areas in support of a wildlife PMLU. If the waiver is approved, in whole or in part, NMDG&F requests adjustment be made to the configuration of waiver areas such that corridors of connectivity are maintained to the extent feasible.*

Tyrone Response 1 Historically, Tyrone opposed building islands of reclaimed surfaces in and around the pit waiver areas for this same reason, yet the agencies have insisted that our planning and financial assurance include reclamation of isolated top surface areas. Tyrone has agreed with the agencies to

include them in the scope of reclamation and agrees that there is some limited value in reclaiming them. Only one area is illustrated as completely isolated and that is the top of the 6B stockpile. The other flat areas illustrated as reclaimed have a corridor to other reclaimed or native ground. Tyrone maintains that the corridors are already included to the extent feasible and that future plans for backfilling Savannah Pit for operational purposes will likely lead to even more connectivity opportunities at final closure.

NMDG&F Comment 2 *Regarding the wildlife protection measures to be taken inside the proposed waiver area (page 5-6), FMTI should prepare a list of ponds, sumps, tanks or other liquid impoundments that will remain after cessation of mining operations.*

Tyrone Response 2. If the waiver application is approved essentially as proposed, then the primary water feature that will remain at the cessation of mining is the pre-treatment sump at the bottom of the Main pit. Stormwater runoff would flow down the interior slopes and pit walls to the bottom of the pits. Runoff water from the unreclaimed interior slopes and pit walls is not expected to meet water quality standards for many years. It will be pumped from the collection ponds in the Main Pit, Copper Mountain Pit, Gettysburg Pit and Savannah Pit to a treatment plant located within the perimeter of the mine area. The treated water would be discharged outside the reclaimed mine perimeter or would be delivered to a location for authorized beneficial use. The sludge (calcium sulfate precipitate with alkaline water) from the treatment plant is to be placed into lined evaporation cells on the 8C stockpile top. Each of these cells would be reclaimed after being allowed to dry. Fencing and bird controls measures would be used to prevent wildlife from accessing the water and sludge in disposal cells prior to their reclamation.

NMDG&F Comment 3 *On page 11 of the application document, the last paragraph seems to imply that a change of PMLU for certain areas may be requested. Please provide additional details if a PMLU change is included in this closeout plan modification.*

Tyrone Response 3 This refers to areas that qualify for industrial post-mining land use rather than as wildlife habitat. These areas were described in our October 2007 closure/closeout plan renewal submittal.

RESPONSE TO NMOSE COMMENTS

NMOSE Comment 1 *Pages 8-9, Section 2.2. The cost estimation methods are different for FMTI 2010 than for Chino 2003. When considering the cost estimate methodologies, the average cost (\$66,000 to \$139,000) between Tyrone (2010) and Chino (2003) do not appear to be comparable.*

Tyrone Response 1 The \$66,000 is a number generated by MMD in its evaluation of the waiver application for the Chino Mine. This is the only number Tyrone has seen as a basis for MMD's decision-making for economic infeasibility and, therefore, Tyrone included it for comparison purposes. The criteria used by MMD in selecting this number are not available to Tyrone. Tyrone has provided the basis for the costs in the waiver application and maintains that economic infeasibility is easily justified for these interior slopes. If the economically infeasible unit cost from Chino of \$66,000/acre is escalated by a reasonable approximation of the rate of cost increase of 3% per year, the adjusted unit cost is approximately \$80,000/acre. The estimated cost at Tyrone for interior stockpile reclamation is approximately 70 to 80% higher than the inflation-adjusted Chino unit cost value that was considered to be infeasible.

NMOSE Comment 2 *Page 2, Attachment A; and Page B-2, Attachment B. Using an assumption that reclaimed slopes will be 3.5 to 1 with 3.0 to 1 interbench slopes, FMTI may overestimate the earthwork costs when compared to designs that have been implemented for Tyrone reclamation. The assumptions used in life of mine calculations compared 3.0 to 1 slopes to 1.5 to 1 slopes (horizontal to vertical) FMTI should clarify or justify why slope assumptions vary within the same document.*

Tyrone Response 2 The interbench slope value of 3H:1V is a specification of the settlement agreement with the NMED. Both agencies have advocated this steepness limit for many years. The only slopes at Tyrone that have been reclaimed at steeper angles are the Gila Conglomerate cover test plots at Stockpile 1 (2.5:1) and Little Rock leach cap test plots at the 7A area (2.5:1 and 2:1). Tyrone's experience in reclamation indicates that the overall slope of 3.5:1 is a realistic approximation of the overall slope in order to achieve interbench slopes of 3:1.

The life of mine calculations is based on the same approximation. Tyrone labeled the simplified cross sections (Figure B-2) as the nominal "3:1" interbench slope representing a reclaimed slope. Tyrone should have labeled it more clearly as an overall 3.5:1 slope.

NMOSE Comment 3 *Page 9, Section 2.2; Page 10, Section 2.2; Page 12, Section 3.1; Page 16, Section 3.4; and Table A-1, Appendix A. In several sections of the proposed Waivers, FMTI cites environmental unsoundness, unfavorable cost benefit analysis and potential negative economic impact on the community as the rationale for Waivers. While FMTI analyzed its costs and benefits plus potential economic impact from a loss in mine life, this cost benefit analysis lacks an assessment of the loss of natural resources, such as water.*

Tyrone Response 3 As allowed by 19.10.5.507.B, if the waiver is approved, some land area as specified in our application may not achieve a designated post-mining land use. For existing mines, the New Mexico Mining Act allows balancing, between incurring excessive costs and providing the economic benefit of the Tyrone deposit to the company, shareholders, state economy and the local communities.

Tyrone did not account for a loss of water resource because the modified waiver will not affect water resources. Tyrone's plan is to recover existing impacted waters. Both surface and subsurface waters will be captured and treated to designated quality standards and then returned into the surrounding environment where it will recharge the subsurface aquifers, supplement stream flow or be used for other beneficial purposes as allowed by state law.

NMOSE Comment 4 *Figure 1; Table A-1, Figure B1, Appendix B. The costs omit additional costs of maintenance that would be expected for un-reclaimed, steep sloped waste rock piles, leach ore stockpile and pit walls. The costs may underestimate infrastructure repairs necessary to maintain pumping locations and access in perpetuity. Due to headward erosion at the transition from un-reclaimed slopes to reclaimed top surfaces, the repair costs may be significantly different than where these reclaimed top surfaces adjoin reclaimed slopes. Steeper slopes are less stable and more susceptible to erosion than flatter slopes. FMTI assumes reclaimed areas for its operation and maintenance cost estimate of channels, pipelines, access roads and electrical transmission lines. FMTI should reconsider its assumptions about maintenance costs in un-reclaimed areas.*

Tyrone Response 4 The primary infrastructure that would remain post-reclamation under a waiver scenario was previously described (NMDG&F, Response 2). It is fairly simple; a road, a power line and a

pipeline. We do not expect this to present any more of a maintenance problem than it poses to current operations. Post-storm work with a grader or a front-end loader should take care of the needed access road maintenance. Maintenance of the water handling equipment at the pit bottom pond would be much as it is now and would not be much different for waived or a non-waived reclamation condition. Considerably more maintenance may be required under the non-waived, reclaimed scenario where multiple water control features, pumps, pipelines and power distribution lines may be needed.

Tyrone's requirement is to grade the top surfaces and create adequate stormwater conveyance infrastructure to drain away from unreclaimed interior slopes. This is a key step to avoid excessive erosion on the unreclaimed interior slopes.

RESPONSE TO GRIP COMMENTS


GRIP Comment 1. *GRIP... desires to examine the applicant's evidence and testimony regarding the measures that will be taken to ensure that the area affected by the waiver will meet all applicable federal and state laws, regulations and standards for air, surface water and ground water protection following closure and will not pose a current or future hazard to public health or safety.*

Tyrone Response 1. The waiver application is subject to review by NMED for the factors mentioned in the comment. NMED previously concluded that the referenced standards would be met in granting the existing waiver. NMED must make a new determination before the MMD can approve the waiver. We have committed to complying with the public safety requirements as they are specified in the mine permit.

A separate response to the letter from the Hopi tribe is not included because there are no cultural issues associated with the waiver application area. Cultural resource consideration would only become relevant if Tyrone had to construct new leach or waste stockpiles on undisturbed ground.

If you have questions concerning this submittal please contact Thomas Shelley at (575) 912-5773. Thank you for the opportunity to address the comments of the state agencies and other organizations that have an interest in the Tyrone's supplemental waiver application.

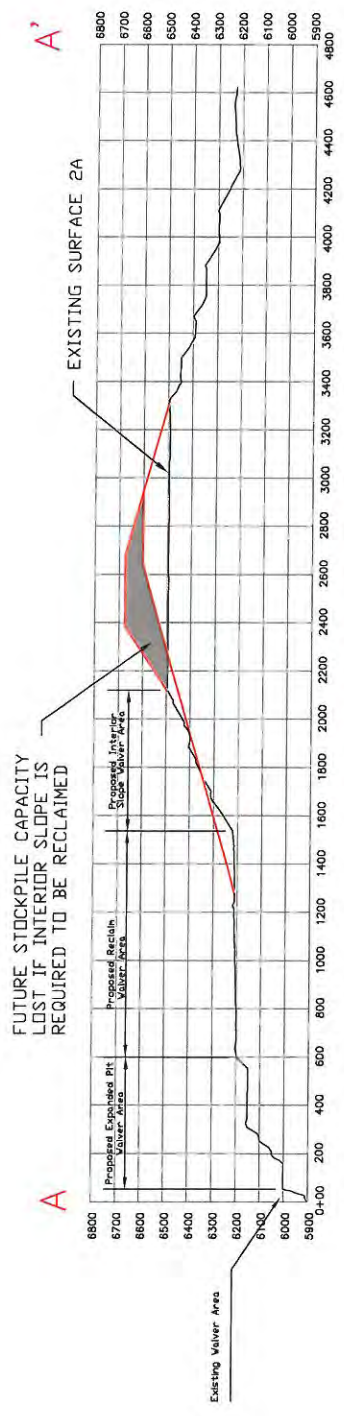
Sincerely,

for 

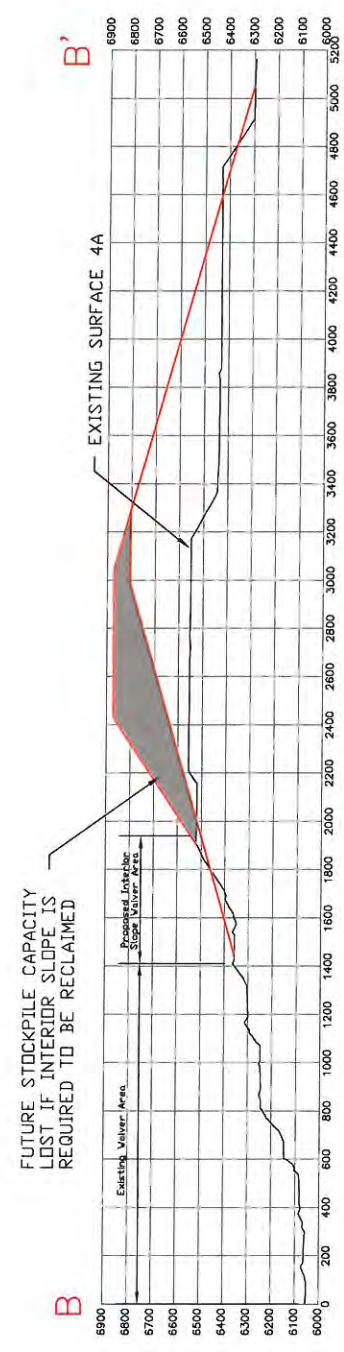
Timothy E. Eastep, Manager
Environment, Land & Water

TEE:cj
Attachments
20110222-101

c: GRIP



2A CROSS-SECTION

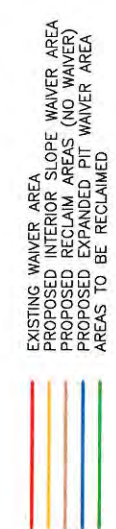
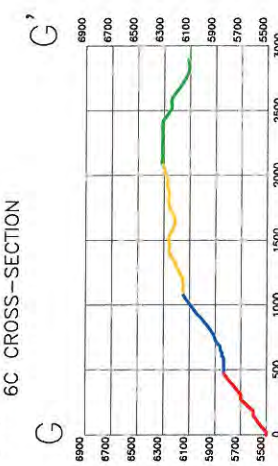
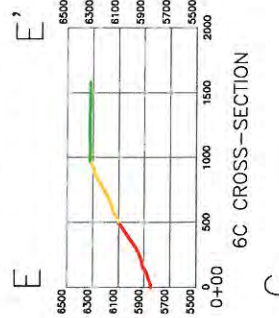
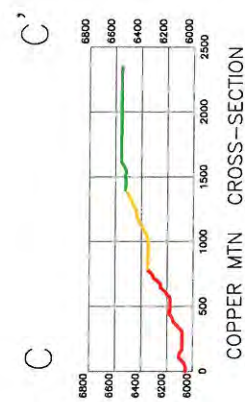
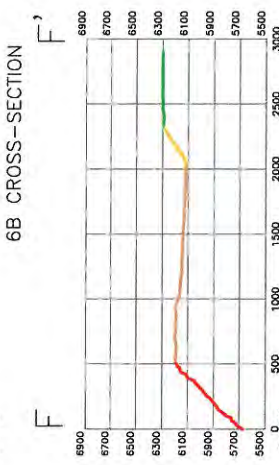
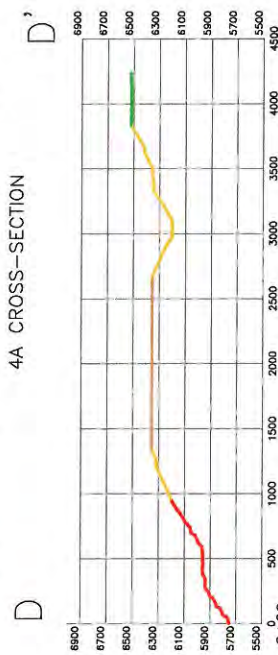
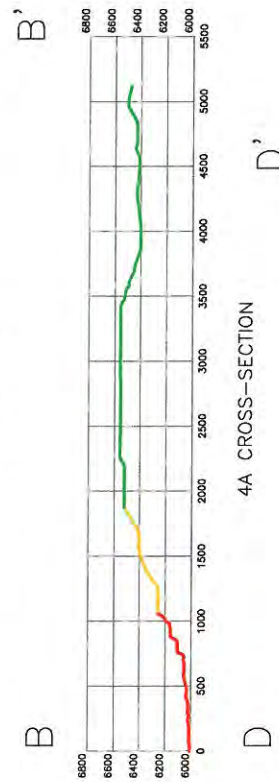
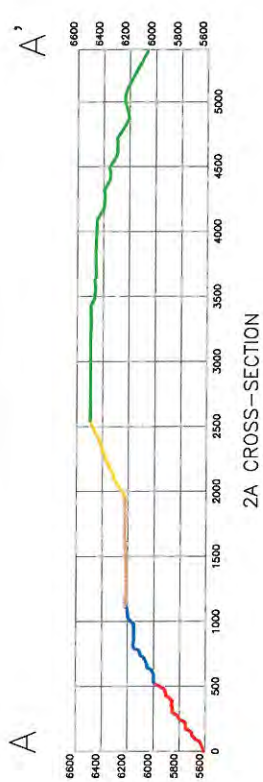


4A CROSS-SECTION

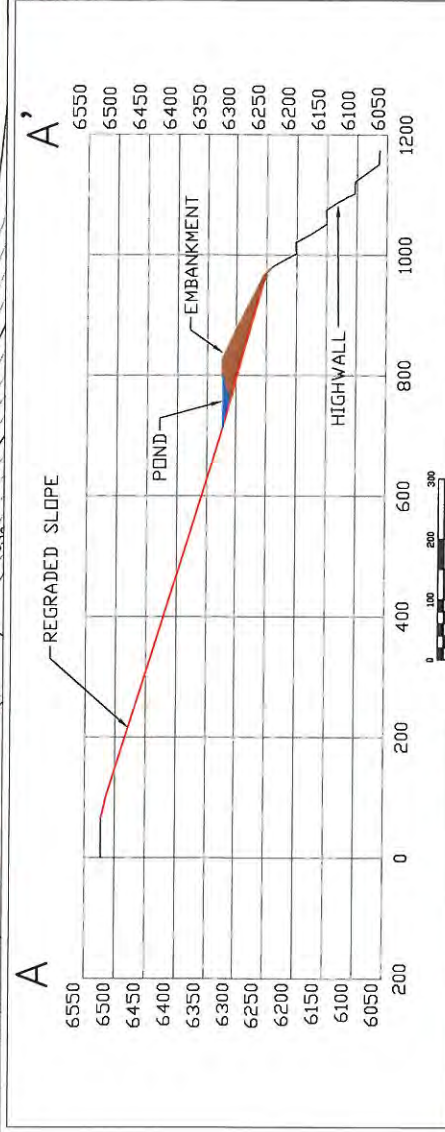
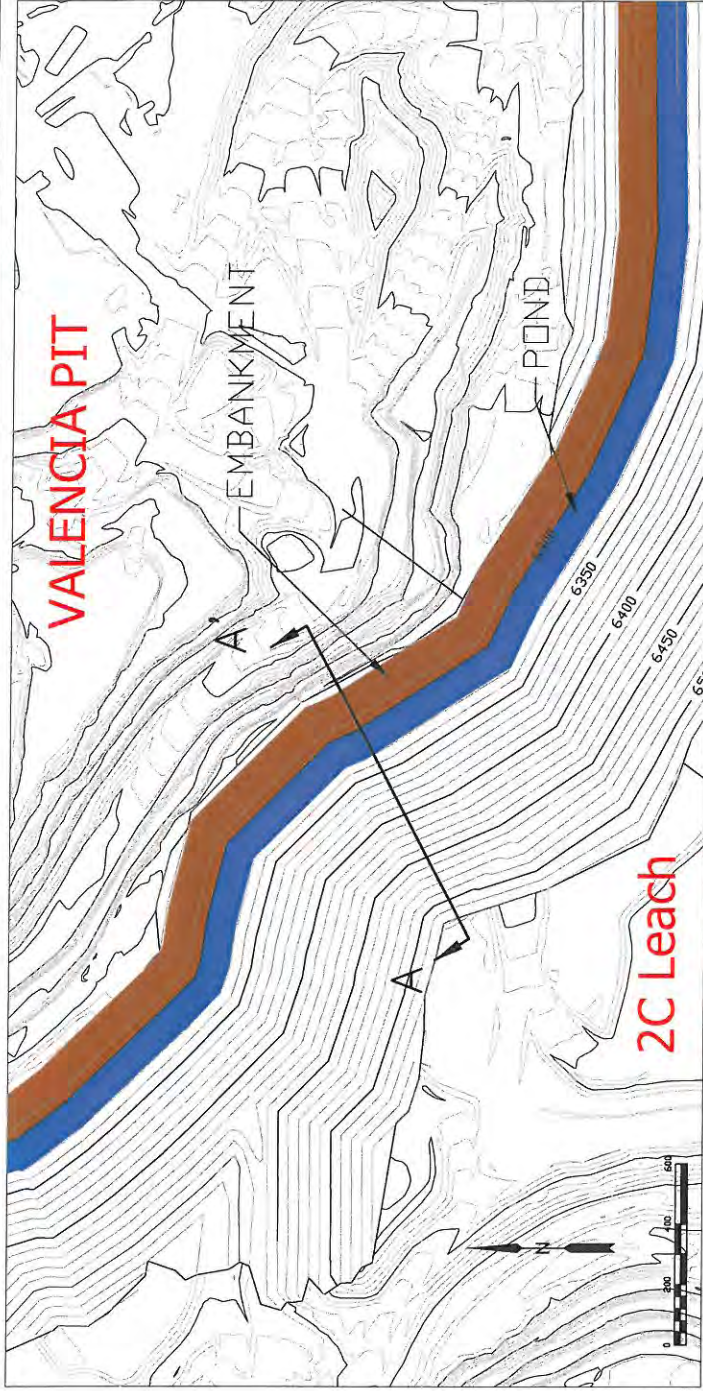


Drawn		MWH	<div> FREEPORT-McMORAN COPPER & GOLD</div> <div>TYRONE MINE Figure B-4 Mine Production Impact - Cross-Section</div>	Scale:
Designed		MWH		Dept.
Checked		TLS		
Date		03/07/2011		Rev.
Job No.			0	





<div> <div> <div>Drawn</div> <div>Designed</div> <div>Checked</div> <div>Date</div> <div>Job No.</div> </div> <div> <div>MWH</div> <div>MWH</div> <div>TLS</div> <div>03/07/2011</div> <div></div> </div> </div>		<div> <div> <div>TYRONE MINE</div> <div>Figure 5 - Proposed Waiver Area Cross-Sections</div> </div> <div> <div>Scale:</div> <div>Dept.</div> </div> </div>		<div> <div>Rev.</div> <div>0</div> </div>
--	--	--	--	---



Drawn Designed Checked Date Job No.	MWH	TYRONE MINE Figure 6-Pit Rim Water Management Conceptual Drawing 2C Stockpile Interior Slope	Scale:
	MWH		Dept.
	TLS		Rev.
	03/07/2011		0