ARIZONA DEPARTMENT
OF
ENVIRONMENTAL QUALITY

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Incomplete Response to Substantive Deficiencies

December 3, 2010

Rosemont Copper Co.
Attn: Katherine Arnold
4500 Cherry Creek South Dr. Ste 1040
Denver, Colorado 80246

Re: Rosemont Copper Company, Rosemont Copper Operations

Inventory Number: 106100 LTF ID: 49639
USAS Number: 509976-00 Place ID: 135845

Dear Ms. Arnold:

The Arizona Department of Environmental Quality (ADEQ) received the above-referenced application titled Aquifer Protection Permit Application, Rosemont Copper Company dated February 2009, and was received by the ADEQ Groundwater Section (GWS) on March 3, 2009. It was prepared for Rosemont Copper (Rosemont) by Tetra Tech. A Notice of Administrative Deficiencies was issued on April 8, 2009. A response to that notice was received from Rosemont on May 8, 2009. A Comprehensive Request for Additional Information was issued on April 14, 2010. A partial response to that notice was received from Rosemont on July 15, 2010 and the remaining final response was received from Rosemont on September 1, 2010. ADEQ's review of this application is subject to the requirements of the licensing time frames ("LTF") statute under Arizona Revised Statutes ("A.R.S.") § 41-1072 through § 41-1079 and the LTF rules under Arizona Administrative Code ("A.A.C.") R18-1-501 through R18-1-525. ADEQ is reviewing this application within the Substantive Review time frame and makes this Incomplete Response to Substantive Deficiencies under A.R.S. § 41-1075(A). This Request suspends the time frame for your application as of the date of this Request. To complete this application and resume the time frame you must provide the following missing information.

HYDROGEOLOGIC DEFICIENCIES

The hydrology deficiencies listed below are grouped according to the grouping of the original deficiencies in the April 14, 2010 Comprehensive Request for Additional Information, document IDU10:0127. The new deficiencies list is consecutively numbered, so that the new deficiencies list can be carried forward in a logical outline suitable for review and response.

Original Deficiency #1

The original Deficiency #1 requested the submittal of documents referenced in the original application and attachments that were not submitted with the original application. These documents were submitted with the Response, with the following deficiencies:

(1) Review of the Site Water Management Update (Tetra Tech, April 2010), Volume 1, notes references to the following documents, which are necessary to continue the review of the application:

Reclamation Concept Update Report (Tetra Tech, March 2010) – This report is referenced on page 1. It has not yet been submitted to the ADEQ, and is necessary to document the planned closure configuration.

Final Heap Leach Facility Design Report – Page 5 of Volume 1 indicates that this report is being prepared. Please submit this report to the ADEQ when completed.

Site Water Management Plan Final Report – Page 5 of Volume 1 indicates that the Site Water Management Update is not intended to be the final design package, and is presented for informational purposes only. The final design of the water management facilities is necessary to complete the review of the application.

(2) The document Groundwater Flow Modeling Conducted for Simulation of Proposed Rosemont Pit Dewatering and Post-Closure (Montgomery & Associates August 2010), page 83 cites a reference "(ASTM, 1993)." This reference does not appear on the reference list included in the document. Please provide a complete citation of this reference, and a copy of the standard for ADEQ review if practicable. The ADEQ will use this standard to evaluate the model calibration. If a more appropriate standard is available, please provide it and discuss its applicability.

Please note that the GWS has reviewed the referenced model to obtain a better understanding of the background data and predictions of future conditions. The APP requirements are geared toward the protection of groundwater quality, which will be established through a careful delineation of the pollutant management area (PMA), and the establishment of a series of point of compliance locations and an appropriate groundwater monitoring program, in conjunction with the establishment of Best Available Demonstrated Control Technologies (BADCT) for the regulated facilities. As the applicant is not utilizing a passive containment demonstration in the establishment of BADCT, the drawdown of groundwater in the area, and resulting groundwater quantity issues, are not relevant to the APP. Other than the above paragraph, there are therefore no further deficiencies at this time related to the referenced groundwater model. This same comment also applies to the document Rosemont Groundwater Flow Model Summary, prepared by Tetra Tech, dated August 31, 2010, received September 1, 2010, as a part of the Response.

(3) The document titled Geochemical Pit Lake Model (Tetra Tech, February 2010) was reviewed, with the following clarifications requested:

(a) The Conclusions, page 31, indicate that an estimated 95% of the water reporting to the pit lake will come from local groundwater, with the remaining comprised of direct precipitation and runoff from the pit walls. Review of Table 5.02 and Illustration 5.04 on page 22 does not appear to support this conclusion. Please clarify how this estimate was calculated.

(b) The Conclusions, page 31, indicate that all of the parameters modeled were below the Aquifer Water Quality standard (AWQS) at the end of the 200 year simulation. Review of Table 7.01, page 29 indicates that mercury is modeled, under the Low Chemical Loading Scenario, to be present at 0.0027 mg/L, which is above the mercury AWQS of 0.002. Please indicate if this is an error in the table, if the conclusion should be modified, or if the conclusion was intended to apply only to the Average Chemical Loading Scenario.

(c) Table 7.01, page 29, provides estimates of constituent concentrations in the pit lake under various loading scenarios at the end of a 200 year model run. Several constituents with AWQS were not included in the simulation. These are chromium, nickel, beryllium, and thallium. Please indicate if these metals were considered for the model run, if the model can accommodate them, or if they can be estimated using the behavior of the other metals.

(d) Appendix C, page 3, references an old draft ADEQ policy regarding the determination of acid generation potential during geochemical testing of materials. Please note that the proper reference for this evaluation is the Arizona Mining BADCT Guidance Manual, September 1998. This manual differs from, and supersedes, the cited draft policy.

Please note that the GWS has reviewed the referenced model to obtain a better understanding of the background data and predictions of future conditions. The APP requirements are geared toward the protection of groundwater quality, which will be established through a careful delineation of the PMA, and the establishment of a series of point of compliance locations and an appropriate groundwater monitoring program, in conjunction with the establishment of Best Available Demonstrated Control Technologies (BADCT) for the regulated facilities. The pit is not an APP-regulated facility, and the chemical quality of the pit lake water is relevant to the APP Program only to the extent that it impacts water quality at the points of compliance.

(4) The document Rosemont Area-Wide Fate and Transport and DIA Summary (Tetra Tech, August 31, 2010) was reviewed, with the following deficiency:

Attachment A, Figure 3 seems to indicate that particle tracks will move directly to the north from the waste rock and tailings storage facilities. This does not appear to be congruent with the observed groundwater flow directions in the area, including, most recently; Figure 25 of

the document Groundwater Flow Modeling Conducted for Simulation of Proposed Rosemont Pit Dewatering and Post-Closure, Montgomery & Associates, August 30, 2010, and the observed potentiometric surface map of Figure 39 of the document Groundwater Flow Model Construction and Calibration, Attachment C of the Rosemont Groundwater Flow Model Summary, Tetra Tech, August 31, 2010.

What consideration was given in the particle tracking model, and the underlying groundwater flow model, for the groundwater divide caused by the Santa Rita Mountains? If flow will occur directly to the north of the waste rock and tailings storage areas, additional points of compliance will be necessary in the Scholefield Canyon area, possibly in the vicinity of groundwater monitoring well HC4A/HC4B.

(5) The document Infiltration, Seepage, Fate and Transport Modeling Report, Revision 1 (Tetra Tech, August 2010) was reviewed, with the following deficiencies:

(a) Page 21 indicates the use of a permeability of 10^{-6} ft/hr (10^{-8} cm/sec) for the bedrock formation beneath the alluvial sediments. This value does not appear to be consistent with the Revised Montgomery Groundwater Model input (Montgomery & Associates, August 30, 2010), the Long-Term Aquifer Test Data (Errol L. Montgomery & Associates, May 2009), or the Rosemont Groundwater Flow Model Summary (Tetra Tech, August 31, 2010). Please provide additional detail on the source of the value for ADEQ review, and provide a discussion of the justification for the use of the proposed value. Please estimate the sensitivity of the value as used in the Report, so that the impact of changes in the value on the overall conclusions can be evaluated.

(b) The following constituents, for which there are aquifer water quality standards, do not appear to have been considered in the study starting solutions:

Table 6.1 – Waste Rock – Sb, Be, Cr, Hg, Tl

Table 6.3 – Heap Leach – Sb, Tl

Table 6.5 – Tailings – Sb, As, Be, Cd, Cr, Pb, Ni, Tl

Please indicate if these metals were considered during the fate and transport modeling process, or if they can be estimated using the behavior of the other metals.

Original Deficiency #3

(6) The ADEQ does not agree with the argument advanced by the applicant in the July 15, 2010 response, under which the PMA will be drawn to include the Compliance Point Dam and related sediment pond, which currently appear to qualify for an A.R.S. §49-245.01 general permit. The PMA under the individual area-wide permit should only circumscribe those facilities that are included in the individual area-wide permit. If the Compliance Point Dam were included in the area-wide APP as a discharging facility, a separate PMA and separate

point of compliance (POC) would still be necessary, as the dam and related two-acre sediment pond is not contiguous to the other APP facilities.

The original deficiency #3 remains open. The deficiency is repeated below:

Figure 23 of the application documents the proposed PMA. Please note that the PMA is the "limit projected in the horizontal plane of the area on which pollutants are or will be placed."(A.R.S. §49-244(1)). The proposed PMA in the location of POC 1 extends beyond the edge of the Dry Stack Tailings Impoundment all the way to Compliance Point Dam. Proposed POC 1 is more than 750 feet from the edge of the Dry Stack Tailings Impoundment, and will therefore not be suitable for use as a POC location.

Please resubmit the PMA so that it complies with the requirements of A.R.S. §49-244. It is particularly important that the downgradient edge of the PMA be located at the eastern edges of the proposed Dry Stack Tailings Impoundment and Waste Rock Storage Area (final configurations). The revised PMA should be drawn to circumscribe only the facilities proposed for inclusion in the APP (i.e. – do not include general permit facilities, including stormwater general permit facilities).

Original Deficiency #4

(7) Based upon ADEQ comments in #6 above, original deficiency #4 remains as an outstanding deficiency. The deficiency is repeated below:

Please resubmit the location of POC 1 so that it is on the downgradient edge of the PMA, upgradient of the currently proposed location, in McCleary Canyon.

Original Deficiency #5

The applicant submitted, in the July 15, 2010 response, a map depicting a revised PMA and the location of an additional proposed POC well.

(8) The eastern and southern PMA location on the revised Figure 23 appears to be as far as 1500 feet from the edges of the "main disturbed area." It is the understanding of the ADEQ that the "main disturbed area" boundary marks the edge of the waste rock and tailings impoundments. Please clarify that this is the case, and note that the PMA must be drawn at the edges of the impoundments, to include any horizontal space taken up by any liner, dike or other barrier designed to contain pollutants on the facility. Please redraw the PMA to meet these requirements. If necessary, please draw the applicable permitted facilities on Figure 23.

(9) It is noted that the edge of the "main disturbed area" has changed in the revised Figure 23, especially in those areas to the south of POC well RP-3B (POC #3) all the way to the vicinity of proposed POC well RP-5 (POC#5). Please note that any ADEQ agreement on POC

locations is tentative, pending the receipt of the final facility footprints and PMA location, and is therefore subject to change.

(10) The ADEQ request for the locations of two additional POC well locations (Original Deficiency #5) remains as an outstanding deficiency. The proposed POC #5 well location appears to be inside the PMA, and cross-gradient to the groundwater flow direction coming from the beneath the majority of the regulated facility footprint, and therefore may not be appropriate as a POC location. The distance between proposed POC Location #4 and proposed POC Location #5 is large enough to require an additional POC location, especially due to the presence of private wells in the downgradient area. The original deficiency is repeated below:

Figure #23, and the related hydrologic supporting data, indicate that the groundwater flow direction moves to the southeast from the southern portion of the site, which is overlain by the Waste Rock Storage Area. POC location #4 is the southernmost POC location proposed at this time, and it will not provide coverage for the above-referenced flow direction. Please propose one additional POC location on the southeast edge of the PMA, and one additional POC location on the southern edge of the PMA, to allow for monitoring of groundwater quality exiting the site in those areas.

Original Deficiency #6

The applicant has requested, in the July 15, 2010 response, that several of the constituents not be added to the biennial or quarterly monitoring tables until an evaluation of ambient sampling data is performed.

(11) The list of constituents to be monitored in groundwater was patterned after the FMI Sierrita Mine Aquifer Protection permit, P-101679. These lists were reviewed and commented on by members of the public residing in the area of the Rosemont Mine during the public comment period for P-101679, and will presumably reflect the expectations of interested parties in the area.

In addition, the ambient sampling data will be used by the ADEQ to establish aquifer quality limits and alert levels for the compliance monitoring program, and not to determine which constituents should be monitored. The ADEQ will require the additions to the constituent lists indicated in the original deficiency #6. The ADEQ will agree to move the cobalt analysis from the quarterly list to the biennial list. Also, carbon disulfide can be removed from the sampling list, if it is not used in any process at the project site.

Original Deficiency #7

The applicant provided, in the July 15, 2010 response, a list of wells in the area, and an updated map showing the locations of the wells.

(12) The information for well 603467 does not appear to be included on the list provided. Please provide the information for this well.

Original Deficiencies #10 and #11

(13) Table 2 on page 11 of the July 15, 2010 response indicates that the water level is above the screened interval in groundwater monitoring well RP-5 (proposed POC #5). Please indicate the drawdown typically encountered during the purging of this well, as was done in the response for groundwater monitoring wells RP-2B and RP-3A.

(14) The effect of the screened interval location relative to the water level will be significant during compliance sampling of the POC wells. The water level obtained after purging, and the recovery of that water level should be documented and considered when evaluating whether the compliance sample is representative of the water quality in the uppermost aquifer at the sampling location. The APP standard framework for permits currently being issued includes an alert level and related required evaluation when the water level is outside the screened intervals of POC wells.

Original Deficiency # 13

(15) The ADEQ remains concerned that the large screen lengths in the POC wells will result in significant dilution of groundwater compliance samples. The GWS typically asks for 60 foot well screens (10 feet above the water table, and 50 feet below) in alluvial aquifers, with additional length considered for fracture-flow bedrock aquifers and sites where water level fluctuations are expected. The GWS requests that the applicant evaluate options to mitigate the impact of the well screen lengths on the validity of groundwater samples. The applicant response to the original deficiency includes a request to meet with ADEQ to discuss this issue. The ADEQ would like to meet with the applicant to discuss and resolve this issue, and other hydrology-related issues.

ENGINEERING DEFICIENCIES

Original Deficiency #1

Geological Hazards
Please provide proposed design efforts to address the three areas identified in Geologic Hazards Map, Figure 16, namely: abandoned mine area such as shaft or adits, rockfall area(s) and area(s) with erosion potential that may present potential hazards to future construction activities associated with the heap leach facilities. ADEQ understands that certain hazards may only be uncovered during the construction phase of the project. Rosemont must document the mitigation efforts employed to address those hazards, notify ADEQ if requiring action beyond normal construction procedures, and must submit a copy to ADEQ as part of the as-built design.

Rosemont's Response

Rosemont's states that rockfall areas and abandoned mine workings are not located within the planned facility foot print (Phase 1 and Phase 2) of the Heap Leach Facility. Rosemont's response for the artificial fill material located within the footprint of the Heap Leach Facility to be either removed or re-compacted to subgrade specifications is acceptable.

HEAP LEACH FACILITIES

Original Deficiency #2

Subgrade Material
ADEQ will consider Rosemont's proposed placement of geosynthetic clay liner (GCL) of 6 millimeter (mm) thickness and a permeability of 1 x 10^{-9} cm/sec as an engineering equivalent provided it is demonstrated that:

a) Strength properties of compacted subgrade under the liner are suitable for bearing load to prevent significant differential settlement.

b) Foundation settlement beneath the proposed pad footprint should not adversely affect the integrity of the Linear Low Density Polyethylene (LLDPE) liner.

Rosemont's Response

The settlement calculations show that the maximum differential settlement on the foundation induced by the weight of the ore material will not damage any component of the proposed liner system. The strains imposed on the double-textured linear low density polyethylene (LLDPE) and underlying geosynthetic clay liner (GCL) will be within allowable limits. Rosemont's proposed placement of GCL of 6 millimeter (mm) thickness and a permeability of 1x 10^{-9} cm/sec as an engineering equivalent to prescriptive BADCT is acceptable.

Additional ADEQ's Comment #1

Because of the reduced allowable strain on seams perpendicular to the tensile stresses, ADEQ recommends that horizontal seams shall not be allowed on side slopes.

Original Deficiency #3

Leachate Collection Pipes Network
ADEQ will consider the leachate collection and header pipes network layout shown for the Heap Leach Facility Phase 1 and Phase 2 (DWG No. 080-C1-921 and DWG No.080-C1-928) provided the following design criteria are satisfied:

a) The maximum and average hydraulic head over the leach pad liner must not exceed 5 feet and 2 feet, respectively.

b) Pipe loading at the ultimate design height of heap does not threaten the structural integrity of the pipe. The collector and header pipes network can provide sufficient capacity for transporting leachate over the operational life of the facility; withstand the stresses caused by the maximum loading height of the ore heap without significant deformation or buckling and with adequate factor of safety. This demonstration should be based on manufacturer's technical data on product specification or case studies for the pipes (ADS N-12 Corrugated High Density Polyethylene pipe) used under similar application.

Rosemont's Response

a) Rosemont's response for maintaining hydraulic head within specified limits using the leachate collection and header pipes network design and the permeability of the drain layer is acceptable.

b) Based on the pipe deformation results, it appears that the collection pipes will withstand the stresses caused by the maximum loading of the ore heap and provide sufficient capacity for transporting leachate over the operational life of the facility without significant deformation or buckling.

Original Deficiency #4

Overliner Material
Placement of ¾ -inch, well draining material with a minimum thickness of 18 inches is a design requirement to meet prescriptive BADCT for a heap leach pad overliner protective/drainage layer. ADEQ will consider the proposed use of a 36-inch layer of 1 ½ -inch minus crushed material provided the following design criteria are satisfied:

a) As mentioned above, the maximum and average hydraulic head over the leach pad liner must not exceed 5 feet and 2 feet, respectively.

b) Particle size compatibility demonstration that material used will not clog the protective drainage layer and impair overliner drainage capacity.

c) Overliner Material Durability Test to demonstrate that the material used in the protective/drainage layer will not deteriorate when in contact with leachate solution during the service life of the facility.

Rosemont's Response

a) As indicated above, Rosemont response for maintaining hydraulic head within specified limits is acceptable.

b) Overliner drainage fill material will be screened and or crushed to produce a gradation with 100 percent of the material passing the1.5 inch screen and less than five percent passing the No. 200 screen. Rosemont's response that a low count of fines (minus 200 mesh) will maintain the required permeability of approximately 1 x 10^{-2} cm/sec and not clog or impair the overliner drainage capacity is acceptable.

c) The test results indicating that the drainage material will exhibit negligible degradation by abrasion and impact during the expected service life of the facility, when in contact with leachate solution, are acceptable.

The resistance to degradation test results shows that the material is fairly uniform in hardness. The drainage and durability analysis indicating that the overliner drainage fill capacity and durability will not be adversely affected during the operational life of the Heap Leach Pad is acceptable.

Original Deficiency #5

Geomembrane Protection and Liner Puncture Test
As stated above, placement of ¾ -inch minus, well draining material with a minimum thickness of 18 inches is a design requirement to meet prescriptive BADCT.

ADEQ will consider the use of 1 ½ -inch minus crushed overliner material if the proposed 60-mil double-sided textured LLDPE is demonstrated to show no severe indentations when puncture tested under simulated loading conditions by placing the subgrade material , geosynthetic(s), and the overliner material in the test cell. Rosemont has done puncture testing (3 tests) of 60-mil LLDPE with 1.5 inches minus overliner (QMP) drainage layer. However, the test results do not indicate the severity of indentation whether "minor", "moderate", or "severe" dimpling of the geomembrane sample has occurred. There is no indication how these indentation or dimpling affect durability of the geomembrane. ADEQ considers three trials of puncture tests inadequate to verify the liner system behavior under simulated field conditions. Please conduct additional tests. If severe dimpling is noticed in higher frequency which causes noticeable decrease in achievable strain, ADEQ recommends that a cushion or bedding layer should be included between the overliner and the geomembrane as an added protective layer.

Rosemont's Response

Rosemont has conducted seven (7) standard, high-compression testing for liner puncture using the proposed liner system cross-section consisting of the following (bottom to top):

- A prepared subgrade;
- A 6-mm geosynthetic clay liner (GCL);
- A 60-mil, double sided textured, linear low density polyethylene (LLDPE), and

- 1.5-inch minus QMP overliner drainage fill (ODF).

The results of all tests indicate minor to moderate indentations with no puncture failures when subjected to a geostatic load equivalent to 450 feet and 585 feet of stacked heap leach material. The maximum planned depth of material on the Heap Leach Pad will be approximately 330 feet. Based on the liner puncture tests, the 1.5-inch minus overliner drainage fill appears to show no severe indentations when tested under simulated loading conditions, is acceptable.

Original Deficiency #6

Anchor Trench
Please submit stability calculations supporting the design for the anchor trench within the perimeter containment berm This feature is a critical component with respect to pad stability.

Rosemont's Response

Rosemont's response indicating the anchor trench design will provide sufficient resistance to the forces developed in the geomembrane due to the differential settlement within the perimeter containment berm is acceptable.

Original Deficiency #7

Underdrain
Current leach pad layout (DWG. 080-C1-928) shows underdrain on western perimeter of Phase 2 of the Heap Leach Facility. (Ref. Rosemont Heap Leach Facility, Permit Design Report, Volume 1, May 2009)

Please indicate design criteria used for the underdrain indicating estimated amount of surface and subsurface flow designed for discharge through the underdrain system.

Rosemont's Response

Technical Memorandum: Rosemont Phase 2 Heap Leach Pad Underdrain Design, dated August 14, 2010 describes the design criteria used for the Underdrain System. The results indicate that the total inflow based on the 100-year, 24-hour storm event is 3.43 acre-feet (ac-ft). The total storage capacity upstream of the pipe is approximately 1.5 ac-ft. The time that the pipe will take to drain is about 19.5 hours with a minimum peak storage of 1.2 ac-ft.

It is also stated that the Phase2 Pad includes a sediment trap at the upstream end of the Underdrain System.

Additional ADEQ's Comment #2

The lack of storage capacity upstream of the perforated drain pipe and the amount of time taken by the underdrain system to convey a 100-year, 24-hour design storm is a concern for the ADEQ.

Please re-evaluate the underdrain design system in that it provides sufficient storage and drainage capacity to negotiate back-to-back design storm resulting in sufficient containment and conveyance of the up-gradient stormwater run-on underneath the Phase 2 Heap Leach Pad.

Please provide design details of the sediment trap designed to capture sediments upstream of the drain pipe and means of sediments removal.

Original Deficiency #8

Heap Leach Pad Design Modifications
In a meeting held on March 17, 2010, between ADEQ Project Team and Rosemont Personnel and Consultants, Rosemont indicated that the Heap Leach Pad originally designed as two phase construction is being revised as a single phase construction. Please submit the revised final design, including the final foot print, ultimate design height of the pile, approximate tonnage to be piled on the Heap Leach Pad, stability analysis of the final configuration of the ore heap, revised leachate collection pipes network and any other significant changes/modifications made in the final design of the Heap Leach Pad.

Rosemont's Response

Rosemont response indicating their preference for the originally submitted two phase heap leach design report to ADEQ (Heap Leach Facility Permit Design, prepared by Tetra Tech, dated May 2009) is acknowledged. The aforementioned design report is treated as the proposed facility design during ADEQ's review of the APP application.

Dry Stack Tailings Impoundment

Original Deficiency #9

Tailings Geochemistry
To date, four samples were tested for acid-generating potential and metal release for the tailings material. (Ref. Technical Memorandum – Tailings Geochemistry, March 24, 2009)

Though the test results indicate less than 0.01 percent sulfide-sulfur and possess a high capacity for acid neutralization, yet, the number of samples tested to establish tailings geochemistry is insufficient and cannot be considered representative of the varying lithology present in the orebody. The sampling program should be designed so that the collected samples are representative of the geochemical behavior of various rock units with respect to acid generation. Please submit a revised sampling plan.

Rosemont's Response

Rosemont tested 6 additional samples in addition to the previously tested 4 samples to better characterize the dry stack tailings. Tailings samples were generated from each of the five major sulfide ore rock units including one composite sample representing production years 4 through 7.

The test results indicate that tailings material generally contain less than 0.3 percent sulfide-sulfur with the exception of Epitaph sample containing 0.72 percent sulfide-sulfur.

Additional ADEQ's Comment #3

Rosemont Mine life of the sulfide ore production is expected to last some 20 years plus. However, the geochemical characterization of the ore samples is conducted up to 7 years of production. In order to characterize and make determination of geochemical properties of the sulfide ore material in the pit, please provide geochemical analysis of the currently delineated mineable ore to depth.
Please provide justification for not measuring a particular constituent in all the samples tested and using higher detection limit for some of the constituents in characterizing the geochemical behavior of the dry stack tailings as listed below:

- Be was not measured in 8 of 10 samples;
- Ni was not measured in 7 of 10 samples, and the detection limit is too high in 1 of 10 samples;
- Sb detection limit is too high (higher than AWQS);
- Tl was not measured in 8 of 10 samples, and the detection limit exceeds the AWQS in the 2 of 10 samples.

Original Deficiency #10

Rosemont definition of inert material is based on a draft ADEQ policy from 1998 and is not consistent with the definition of non-acid generating material specified in BADCT manual. The inert material used as buttress for the Dry Stack Tailing Impoundment, Waste Rock Storage Area, and material used as fill for the diversion structures and to construct the Central Drain should be characterized in accordance with the guidelines described under CHARACTERIZATION OF TAILING, SPENT ORE AND WASTE ROCK contained in the Arizona Mining BADCT Guidance Manual. Please acknowledge that the Arizona Mining BADCT Guidance Manual will be used for characterization of this material.

Rosemont's Response

ADEQ concurs with Rosemont that the Arizona Mining BADCT Guidance Manual does not contain a definition of "inert" material. "Inert" material is defined in Arizona Revised Statute (A.R.S) 49-201-20). ADEQ will evaluate characterization of the previous and additional new tailings material samples using procedures and tests described under CHARACTERIZATION OF TAILING, SPENT ORE AND WASTE ROCK contained in Appendix B of the Arizona Mining BADCT Guidance Manual.

Original Deficiency #11

Physical and Mechanical Properties of Tailings Material
To establish design parameters to be used for the seepage and stability analyses, two samples of tailings obtained from pilot plant studies, were tested. (Ref. Dry Stack Tailings Storage Facility Final Design Report by AMEC, April 15, 2009)

ADEQ considers that the assessment of physical and engineering properties of the dry stack tailings based on the two test results is inadequate. Please conduct additional testing to verify the properties of the dry stack tailings. Additionally, please clarify how a representative sample of the tailings that is made up of various rock units in the stratigraphical column of the orebody, was prepared in order to determine material properties to be used in the geotechnical analyses.

Rosemont's Response

Additional sampling conducted to verify the physical and mechanical properties of tailings and waste rock material indicate close similarity to the previous laboratory test results. The test results indicate that for the lithologies under consideration, all are considered hard, durable materials with the exception of the Gila Conglomerates which forms approximately 11 percent of the overall waste rock material. Gila Conglomerates will be blended with other waste lithologies and is considered suitable for buttress material.

Additional ADEQ's Comment #4

Rosemont is requested to develop a comprehensive plan so that the Gila Conglomerate, comprising approximately 11 percent of the overall waste rock, showing degradation under saturated, impact condition, does not get deposited in such concentration in any part of the buttress where it may threaten the integrity of the tailings facility. Please provide a copy of the comprehensive plan for comingling Gila Conglomerate with the waste rock material, for ADEQ's review and comments.

Original Deficiency #12

Compacted Tailings to be used as Founding Material for Waste Rockfill
It is stated that the zone of compacted tailings will act as the founding material for each successive lift of the waste rockfill buttress (Dwgs. 600-C1-908 and 600-C1-909). It is further stated that no rockfill samples were available for testing. (Ref. Dry Stack Tailings Storage Facility, Final Design Report by AMEC, Appendix G).

Comment: Vector Arizona LLC (Vector), in the Technical Memorandum of May 26, 2006, made recommendations for the detailed site investigations along the proposed waste rock buttress alignment to characterize foundation conditions; and laboratory testing on tailings and waste rock material. ADEQ concurs with the Vector's recommendations. These investigations shall consist of the following:

- Geologic mapping of the proposed dry stack area;
- Geologic drilling and seismic surveys along the proposed waste rock buttress alignment to characterize foundation conditions; and
- Laboratory testing on tailings and waste rock to provide engineering parameters for (facility) design.

Rosemont's Response

Geologic Investigation Plan (Drawing 600-C1-901) shows 10 test pits and 38 geotechnical borings within or near vicinity of the Dry Stack Tailing Storage facility and buttress. The geotechnical information/data is contained in the Appendix D-2 of the 'Dry Stack Tailing Storage Facility Final Design Report' prepared by AMC, dated April 15, 2009.

Additional ADEQ's Comment #5

Tetra Tech, in their recommendations (Section 6.9 Dry Stack Tailings Storage Facility Final Design Report Volume 1, April 15, 2009), indicates that the values presented in this 'Final Design Report' is considered preliminary and should be confirmed prior to construction. Please provide additional subsurface geotechnical information, including groundwater elevation and confirming the results of preliminary information used in the final design of the Dry Stack Tailings Storage Facility. Please address the concerns indicated by Vector Arizona LLC (Vector) and summarize the results of geologic mapping, geologic drilling and seismic surveys along the proposed waste rock buttress alignment to characterize foundation conditions, using the engineering properties, confirmed to date, of the waste rock and tailings material.

Original Deficiency #13

Dry Stack Tailings Storage Facility Final Design Report
It is stated that the piezometer at borehole TTBH-08-08C located within the center of the North Dry Stack Tailings Facility showed water level that ranged from 2.5 to 11.4 feet below ground surface (bgs) as recorded between June and October of 2008. Additional water level monitoring is being conducted by Errol L. Montgomery and Associates, Inc. (Ref. Geotechnical Addendum Volume 1 of 3, p. 23)

a) The central portion of Dry Stack Tailings appears to be situated just above the groundwater level. Please provide the results of the additional water level monitoring and clearly indicate its effect on the structural integrity of the tailings pile.

b) Please delineate the surface area of the tailings expected to be overlying the near surface groundwater contact and describe measures to mitigate the adverse effects, for example, liquefaction and stability, of near surface water below the tailings material.

Rosemont's Response

a, b) Rosemont response indicates that the estimated depth to groundwater is 30 feet at center coordinate point of the Dry Stack Tailings facility. (Ref. Attachment 17 – Table 3 Estimated Depth to Groundwater). The old corehole (P-899) downstream of the facility will be plugged at depth prior to placement of tailings or waste rock. With the flow through drainage underneath the Dry Stack Tailings Facility, it appears that the liquefaction or soil stability issues associated with near-surface groundwater are not expected to be an issue. For comment regarding Rosemont's underdrain system design, see Additional ADEQ's Comment #6 below.

Original Deficiency #14

Underdrains
Rosemont is requested to provide the following information for the underdrains:

a) Estimated amount of surface and subsurface flows designed for discharge through the underdrain system.

Rosemont's Response

a) Rosemont's responses for the estimated amount of discharge through the north and south drains of the underdrain system and methodology used for sizing of the flow through drains are contained in the Technical Memorandum, "Rosemont Flow-Through Drain Sizing, dated April 5, 2010" and Rosemont Flow-Though Drain Design, dated April 5, 2010, respectively. For comment regarding Rosemont's underdrain system design, see Additional ADEQ's Comment #6 below.

b) ADEQ recognizes that the underdrain system is designed to discharge the surface and subsurface flows below the tailings pile. However, Rosemont should demonstrate that the underdrain system will remain functional to effectively discharge surface and subsurface flows without threatening the integrity of the tailings pile. The flow computations should include sediment load for the underdrain system to determine underdrain stability. Underdrain stability in this context implies that there is no net aggredation or degradation of the underdrain bed or clogging of the CPe pipes used in the underdrain system.

Rosemont Response

The design of the underdrain system beneath the tailings impoundment has been revised to eliminate the use of all drainage pipes. The flow-through drains will be extended beyond the toe of the Rosemont Ridge Landform, thus facilitating maintenance of the filter geotextile, as needed. The results of the sediment loading calculations show that the pond storage capacities ahead of the flow-through drain inlets provide sufficient sediment storage capacity. The results of the sedimentology analysis using SEDCAD[1] program indicates a minimal to insignificant sedimentation would occur within the porous rock medium of the flow-through drains. For

comment regarding Rosemont's underdrain system design, see Additional ADEQ's Comment #6 below.

[1] SEDCAD (Sediment, Erosion, Discharge by Computer Aided Design) is a comprehensive sedimentology program that incorporates standard hydrology and hydraulic principals.

Original Deficiency #15

CPe Pipe Deflection – Appendix G-4
Three parallel CPe pipes, each 36-inch diameter, 500 LF (DWG NO. 600-C1-940) are used in the flow-through drain underneath the tailings pile. Please summarize the results of CPe pipe deflection and conclusion as to its effectiveness and suitability in the flow-through drain.

Rosemont Response

As a part of the re-design of the flow-through drain system, the use of the CPe pipes illustrated in the Tailings Storage Facility Design Report (AMEC, 2009) was eliminated. As a design modification, extension of the flow-through drains beyond the toe of the Rosemont Ridge Landform and use of geotextile filter will prevent sediments from filtering into the flow-through drains.

Additional ADEQ's Comment #6

Review of the Site Water Management Update, Volume 1 of 5 , page 35, indicates that the flow-through drain and finger drain design concept is developed after examining the operating Dry Stack Tailings Facility at Pogo, Coeur Alaska Mine Project, near Fairbanks, Alaska. ADEQ is not familiar with the flow-through drain and finger drain system at the Pogo mine. Please describe in detail how the flow-through drain and finger drain design at the Rosemont Dry Stack Tailings Facility compares with the Pogo Project. Please give an account of Pogo's operating and maintenance experience with the flow-through system and its anticipated long term reliability during operational life of the mine and post-closure period. ADEQ will make final assessment of the Rosemont's flow-through drain and finger drain system design underneath the Dry Stack Tailings Facility after reviewing and analyzing the requested information.

Process Water Temporary Storage (PWTS) Pond and Settling Pond

Original Deficiency #16

Comments that follow are based on the contents of the document titled, "Process Water Pond, Temporary Storage Pond, and Settling Basin Design Report, May 2009"

PWTS Dam *(p.2-4) – The PWTS Dam which forms the southeastern wall of the PWTS Pond has a maximum embankment height of 85 feet and a total storage capacity of 380 acre-feet.*

Pursuant to A.C.C. R-12-15-1206(B)(2)(a), the PWTS Dam, with 85 feet embankment height and a total storage capacity of 380 acre-feet appears to be a jurisdictional dam. Rosemont is advised to obtain ADWR approval for the construction and operation of PWTS Dam.

Rosemont's Response
Rosemont acknowledges that the PWTS Pond may be a jurisdictional structure.

Additional ADEQ's Comment #7

Please provide ADEQ a copy of ADWR approved construction drawings and operational requirements.

If the design of the structure changes from the current design, ADEQ will need to review the revised design and possibly revise the BADCT review.

Original Deficiency #17

Site Characterization (p. 2-3) – The PWTS Pond is located within the Wasp Canyon drainage area. Groundwater elevations within the area range from approximately 4,850 to 4,900 feet amsl. The lowest floor elevation of the PWTS Pond is about 4,892 feet amsl. Therefore, groundwater may be encountered during construction excavation.

Please provide an estimated amount of groundwater expected during construction of the PWTS Pond. Please also describe provision made to avoid accumulation and upward thrust of groundwater flow beneath the pond liner.

Rosemont's Response

M3 Engineering and Technology Corp - Consultant to Rosemont, does not expect to encounter groundwater during construction of the PWTS Pond. The pond is designed to minimize excavation below the elevation of the stream beds. Upgradient stormwater diversions and the proposed catchments (Truck Shop Stormwater Pond and SX/EW Stormwater Pond) will further reduce inflow to the PWTS Pond area.

Additional ADEQ's Comment #8
Because of shallow groundwater, Rosemont is requested to develop measures for safe conveyance of sub-surface flow as part of BADCT demonstration. Please submit a copy of the proposed plan, including construction specifications, for ADEQ's review and approval.

Original Deficiency #18

Stability (P. 9) Appendix B - it is stated that the groundwater elevations in the well HC-3B, located approximately 1,000 feet from the PWTS Ponds, range from approximately 4,785 to 4,815 feet amsl. Therefore, the groundwater elevation is below the modeling boundaries such that the stability of the facility is not affected.
Please clarify the discrepancies between the groundwater elevations ranging from 4,850 to 4,900 feet amsl indicated on P. 2-3 of the submittal and the reasons for using the lower elevations for the groundwater in the stability analysis.

Rosemont's Response

Rosemont's response clarifying the discrepancies of the groundwater elevations, and the ground elevation used for the stability analysis as explained in the technical memorandum: Rosemont BADCT Analysis for the PWTS Pond, is acceptable.

Original Deficiency #19

Site Water Management Report (p. 2-7) – It is stated that that Table 2.3 demonstrates that the proposed facilities are adequate to contain the Probable Maximum Flood

(PMF). Supporting documentation in greater detail will be provided in a revised Site Water Management Report to be prepared by and submitted by others.

Please provide the revised Site Water Management Report with documentation to demonstrate that the proposed facilities have sufficient capacity to contain the PMF as stated under Capacity and Storage Design.

Rosemont Response

Site Water Management Update by Tetra Tech, dated April 10, 2010 (Volume 1 of 5, page 5) report indicates that the site water management update is intended to supplement and refine information presented in previous submittals. Therefore, the information presented herein is for informational purposes only and is not intended to be a final design package. It further states that a final Heap Leach Facility design is being prepared that includes updated site water management and stormwater control features associated with the heap and related ponds.

Additional ADEQ's Comment #9

Based on the Rosemont's response, ADEQ will defer the review of the preliminary site water management plan until such time the final design package becomes available. Please submit a copy of the final report for review, clearly indicating how the Heap Leach Facility and related ponds are affected with the final design of site water management and stormwater control features.

Original Deficiency #20

PW Pond Leak Detection System (p. 2-9) - A fate and transport analysis is not required for the PWTS Pond because the facility has been designed to be non-discharging.

Pursuant to A.R.S. 49-241, PWTS will be treated as a discharging facility–under the Aquifer Protection Program (APP). Therefore, a fate and transport analysis for the facility will be required.

Rosemont's Response
Rosemont's response discussed in the fate and transport analysis for the PWTS Pond is acceptable.

Original Deficiency #21

PW Pond - Technical Memorandum - Rosemont Copper BADCT Analysis for the PWTS Ponds Alert Level Calculations, AL1 and AL2 for the PW Pond are calculated to be 9,686 gpd and 308,813 gpd, respectively.

Rosemont's proposed alert levels AL1 and AL2 appear to be excessively high and should be revised. Please submit new proposed alert levels. Analytical calculations should be based on system components, taking into account geomembrane defects, transmissivity of the drainage medium, design capacity of the leak collection and removal system (LCRS) rather than discharging capability of the pumping system alone at the LCRS.

Rosemont's Response

ADEQ acknowledges receipt of Rosemont's revised alert level calculations for the PWTS.

Additional ADEQ's Comment #10

The revised alert levels are considered still too high. Pursuant to A.C.C R-12-1206(B)(2)(a), the PWTS Dam, with 85 feet embankment height and a total storage capacity of 380 acre-feet appears to be a jurisdictional dam. The PWTS alert levels will be revised based upon the final facility design and operational requirements approved by ADWR. Please submit a copy of the ADWR approval of construction drawings and operational requirements.

Original Deficiency #22

TS Pond
The TS Pond is designed for temporary and emergency storage only and will be dry during normal operations. Additionally, a temporary or permanent pumping system will be utilized in the TS Pond to remove impounded water within 90 days and recycle the water into the reclaim water system.

To minimize discharge into the groundwater, ADEQ recommends that the provision should be made to remove the impounded water within 60 days.

Rosemont's Response

Rosemont response to remove the impounded water in the TS Pond within 60 days is acceptable.

Original Deficiency #23

Settling Basin (p. 3-5) - It is stated that a fate and transport analysis is not required for the Settling Basin because the facility will only be used on a temporary basis during process upset conditions. Pursuant to A.R.S. 49-241, Settling Basin will be treated as a discharging facility under the Aquifer Protection Program (APP). Therefore, please submit a fate and transport analysis for the facility.

Rosemont's Response

Rosemont response discussed in the fate and transport analysis for the Settling Basin is acceptable.

Original Deficiency #24

Table 3.1 (p.3-3). shows that the Settling Basin Total Volume Required is 190 acre-feet and the Total Volume Provided 188.3 acre-feet.

Please revise the capacity requirements for the Settling Basin so that the facility's designed storage capacity is equal to or greater than the storage capacity required.

Rosemont's Response

Rosemont's has provided explanation that there is sufficient system design capacity of the Settling Basin when considered in conjunction with PW Pond and TS Pond.

Original Deficiency #25

Technical Memorandum - Rosemont Copper BADCT Analysis for the Settling Basin, May 4, 2009 *(p.1) - The Settling Basin will receive process upset materials comprised of non-filtered tailings. Tailings could be stored in the Settling Basin for a period not to exceed 90 days.*

***Comment**: To minimize discharge into the groundwater, ADEQ recommends that the provision should be made to remove the impounded water within 60 days.*

Rosemont Response

Rosemont response to remove the impounded water in the Settling Basin within 60 days is acceptable.

Original Deficiency #26

(p.4) - The Settling Basin Embankment has a maximum height of 65 feet and a total storage capacity of 180 acre-feet.

Pursuant to A.C.C. R-12-15-1206(B)(2)(a), the Settling Basin, with 65 feet embankment height and a total storage capacity of 180 acre-feet appears to be a jurisdictional dam. The applicant is advised to obtain ADWR approval for the construction and operation of Settling Basin Embankment.

***Additionally,** Rosemont is requested to provide the following information concerning facility design and estimated performance (aquifer loading calculation):*

-maximum operating depth and design freeboard

-design capacity of the Settling Basin (maximum tonnage of tailings - solids that can be stored in the basin;

-longitudinal cross-section of the Settling Basin showing anchor trench or alternative method to secure GCL;

-demonstration that the downward thrust of stored tailings will not cause damage or puncture the GCL at the interface of 1.5-inch minus protective layer of rock material;

-aquifer loading calculation for the preferred BADCT alternative and comparison with other feasible alternatives for cost vs. discharge reduction.

Rosemont's Response

ADEQ acknowledges the information received concerning the Settling Basin Embankment and related issues.

Additional ADEQ's Comment #11

Rosemont acknowledges that pursuant to A.C.C. R-12-15-1206(B)(2)(a), the Settling Basin, with 65 feet embankment height and a total storage capacity of 180 acre-feet may be a jurisdictional dam. Because ADWR approval of the embankment is still pending, all the above issues and BADCT evaluation may need to be re-evaluated based upon the final facility design. Please submit a copy of the ADWR approved facility construction drawings and operational requirements.

Original Deficiency #27

Technical Memorandum Rosemont Heap leach Facilities – Liner Leakage Calculations April 27, 2009

The alert level AL2 (Rapid and Large Leakage) for each of the Raffinate Pond and the PLS Pond is calculated at 15,272 gpd and 46,812 gpd, respectively.

Rosemont's proposed alert level for each of the Raffinate Pond and the PLS Pond appears to be excessively high and should be revised. Analytical calculations should be based on system components, taking into account geomembrane defects, transmissivity of the drainage medium, design capacity of the leak collection and removal system (LCRS) rather than discharging capability of the pumping system alone at the LCRS.

Rosemont's Response

The revised alert levels AL2 for the Raffinate Pond and the PLS Pond calculated at 10,279 gpd and 31,208 gpd, respectively, are acceptable.

Original Deficiency #28

APP Volume 1, Table 7.16 – Raffinate Pond Volume Requirements

There is a discrepancy in the Raffinate Pond Volume Requirements and the Total Volume Required. Please reconcile the volumes (Minimum Pool Volume, Design Operating Volume and Freeboard Volume) to reflect the correct volume of raffinate required in the Raffinate Pond.

Rosemont's Response

The updated calculations (Revised Tables 7.15 and 7.16) showing that the Raffinate Pond has sufficient design capacity for the total volume required, is acceptable.

Original Deficiency #29

Diversion Channels
There are two permanent diversion channels: Channel No. 1 and Channel No. 2 shown in the Dwg. 600-C1-901) to intercept and divert storm events ranging between the 100-year/24-hour and the probable maximum flood. A series of detention basins, flow-through drains and channels will be used to intercept and divert the collected stormwater which will discharge to the Barrel Canyon Wash northeast of the Dry Stack TSF.

Rosemont is requested to provide design details (plan and cross-section) of the permanent channels: Channel No. 1 and Channel No. 2 discharging the collected stormwater to the Barrel Canyon Wash.

Rosemont's Response

ADEQ acknowledges the information received regarding the permanent channels: Channel No. 1 and Channel No. 2 discharging the collected stormwater to the Barrel Canyon. The information is contained in the Site Water Management Update, dated April 2010. Site Water Management Update (Volume 1 of 5, page 5) report indicates that the site water management update is intended to supplement and refine information presented in previous submittals. Therefore, the information presented herein is for informational purposes only and is not intended to be a final design package.

Additional ADEQ's Comment #12

Based on the Rosemont's response, ADEQ will defer the review of the preliminary site water management plan, including the design details (plan and section) of the permanent channels: Channel No. 1 and Channel No.2, until such time the final design package becomes available. Please submit a copy of the final design report when completed.

Original Deficiency #30

WASTE ROCK STORAGE AREA (Waste Rock Dump)(AR-WR-01)
Application Vol. 1, February 2009 states," Waste rock will be managed by monitoring potentially acid generating (PAG) and non-acid generating (NAG) materials and placing material in designated areas." It further states, "Because waste rock will be placed by segregating materials based on acid generating potential and testing results by source type and the Waste Rock Storage Area will achieve greater engineering control potential compared to a typical unsegregated waste rock pile."

Please provide the following information:

a) A detailed work plan for segregating potentially acid generating materials, including method of sampling, frequency of testing, and what triggers or activates segregation and testing procedures; (For characterizing waste rock to determine if the material is non-acid generating,

Rosemont is referred to the guidelines specified under CHARACTERIZATION OF TAILING, SPENT ORE AND WASTE ROCK contained in the Arizona Mining BADCT Guidance Manual)

b) Final design configuration (plan and section) of the Waste Rock Dump, including:
-ultimate height for the embankment;
-spacing and width of stability benches;
-buttress dimensions;
-maximum anticipated phreatic surface in the embankment and foundation;

c) Stability analysis (dynamic and pseudo static) along critical section(s) of the Waste Rock Dump.

d) The Application, Volume 1 (p.165) states," Results from the 2008 investigation which will be submitted to ADEQ based on the schedule presented in Table 7.13 appears to be in error. Please provide the correct reference and the results from the 2008 investigation.

Rosemont's Response

Rosemont acknowledges that, for segregating potentially acid generating materials, the guidelines described in the Arizona Mining BADCT Guidance Manual - - Characterization of Tailing, Spent Ore, and Waste Rock (part A of Appendix B) will be followed.

Additional ADEQ's Comment #13

a) Rosemont's proposed frequency of ABA testing on at least two random samples per week up to a maximum of 10 samples during one month and conduct quarterly Synthetic Precipitation Leaching Procedure, EPA Method 1312, on samples used as buttress or drain materials, is rather general and imprecise. ADEQ recommends that Rosemont should develop a more comprehensive plan to ensure segregation of potentially acid generating material using ABA testing and Synthetic Precipitation Leaching Procedure. Please submit a copy of the comprehensive plan for segregating potentially acid generating material.

b) and c) Rosemont's responses for the items b) and c) above are acceptable. For the final design configuration of the Waste Rock Dump, Rosemont is requested to provide the ultimate height above mean sea level (amsl) and the surface area of the footprint of the Waste Rock Storage Area.

d) ADEQ acknowledges Rosemont's response that Table 7.41 is the correct reference containing the schedule for outstanding reports and submittals.

Original Deficiency #31

CLOSURE AND POST-CLOSURE COSTS (A.A.C. R-9-A203(B)), and FINANCIAL ASSURANCE DEMONSTRATION (A.A.C. 18-9-A201(B)(5))

Rosemont's estimated closure and post-closure costs of the APP facilities, shown in Table 13.04 of the APP Application, amount to a total of $1,175,000.

Cost details, for example, quantities, unit cost and the basis how the unit cost is calculated for each major task/activity involved, are not included.

Rosemont, in determining post-closure costs, has allowed post-closure period of 3 years. Rosemont is requested to re-evaluate the post-closure costs based on a detailed post-closure plan for the APP facilities. The plan, shall include, at a minimum, a description of the activities/tasks, methods, procedures, and processes necessary to ensure continued effectiveness of compliance with applicable performance standards under the Aquifer Protection Program.

Additionally, the costs estimates should be performed under the assumption that closure and post-closure activities are performed by a third-party under contract to the regulatory agency. Indirect cost, such as mobilization/demobilization, engineering redesign, procurement, construction management, contractor overhead and profit, administration, regulatory oversight and contingency should be accounted for as part of the total costs to be used for evaluating financial assurance demonstration.

Rosemont's Response

ADEQ acknowledges the information/data received concerning the closure and post-closure costs, including the quantities, unit cost and the basis how the unit cost is calculated for each major task/activity during the closure/post-closure period. (Ref. Rosemont Reclamation and Closure Plan prepared by Tetra Tech, July 2007).

Additional ADEQ's Comment #14

a) Review of the closure and post-closure costs contained in the APP application, Volume 1, February 2009, Section 13.0, indicates that the Dry Stack Tailings Facility and Waste Rock Storage Area have been shown non-discharging based on the preliminary modeling results. Because the modeling results are preliminary and many of the constituents, for which there are aquifer water quality standards, do not appear to be included in the study, the facilities cannot be considered non-discharging. For example, in case of tailings, the metals: Sb, As, Be, Cd, Cr, Pb, Ni, Tl are not included. Similarly, for the waste rock, the constituents: Sb, Be, CR, Hg, Tl are not considered as part of the modeling study. Please explain justification for the exclusion of the afore-mentioned constituents in the Infiltration, Seepage, Fate and Transport Modeling Report, Revision 1 (Tetra Tech, August 2010).

Dry Stack Tailings Facility: Please note that pursuant to A.R.S. 49-241(B)(6), mine tailings pile is a categorical discharging facility. The facility is required to be closed in accordance with the requirements of A.A.C. R18-9-A201(B)(5).

Waste Rock Storage Area: Based on the information provided by Rosemont, ADEQ considers that the Waste Rock Storage Area is a potentially discharging facility. The facility is required to be closed in accordance with the requirements of A.A.C. R18-9-A201(B)(5).

Rosemont's proposed post-closure period of 3 years is unrealistic and is not acceptable. Rosemont is requested to re-evaluate the duration and associated monitoring and maintenance costs for the post-closure period. The duration of the post-closure period must be sufficient to ensure continued effectiveness of compliance with applicable standards under the Aquifer Protection Program.

Additional Engineering Deficiencies

Original Deficiency #32 and #33

APP Regulated Facility Locations Map, Figure No. 04L – please show map coordinates (Northings and Eastings) and contour intervals (elevations).

Facilities' Final Configuration – If modifications or changes are made to the facility design and configuration, please clearly mark these changes on the facility drawing (plan and cross-section) or produce an overlay and describe in the text if different from the documents submitted to-date.

Rosemont's Response

Rosemont has provided Figures 04A and 05A showing coordinates and existing ground contours for the APP regulated facilities and Figures 04B and 05B showing coordinates and ground contours for the Stormwater Management facilities.

Additional ADEQ's Comment #15

ADEQ acknowledges that Figures 04A and 05A show the coordinates and existing ground contours for the APP regulated facilities and Plant Site Facility Locations, respectively. However, the Figure 04A contours are not labeled. Rosemont should label Figure 04A contours and is requested to provide Figures 04A and 05A on a larger scale.

Rosemont should also label Figure 04B contours and is requested to provide Figures 04B and 05B (Stormwater Management Facilities) on a larger scale. During the APP application review process, ADEQ will treat the Figures 04A and 05A as the final configurations for the APP regulated facilities and the Plant Site Facility Locations, respectively; and the Figures 04B and 05B – the final configurations for the Stormwater Management facilities.

Original Deficiency #34

Please develop a table of groundwater elevation and elevation (bottom) of the above-lying APP facility indicating estimated depth to groundwater at or in the vicinity of the facility footprint.

Rosemont's Response

Rosemont's response addressing the groundwater elevation and bottom elevation of the above lying APP regulated facilities shown in Attachment 17, Table 3 of the Response document, dated August 31, 2010, is acknowledged.

ENGINEERING / SOLID WASTE DEFICIENCIES

Based on the review of the *Non-Municipal Solid Waste Landfill Application, Rosemont Copper Project, Pima County, Arizona*, prepared by Civil & Environmental Consultants, Inc. (CEC), dated August 2010, the Solid Waste Plan Review Unit (SWPRU) has the following comments:

1. Page ix, *List of Acronyms and Abbreviations*: Please change the acronym for "Non-municipal Solid Waste Landfill" from "NWSWLF" to NMSWLF.

2. Page 1, Section 1.0, *Introduction* [40 CFR § 257.3-2]: The environmental impact statement (EIS) development process being conducted under the National Environmental Policy Act (NEPA) is still ongoing. The findings contained in the final EIS may affect the development of the landfill. The comments provided by the ADEQ Solid Waste Plan Review Unit are based on the information provided in the application materials at this time, and may not reflect new issues that may arise from the issuance of a final EIS, in particular, any additional details regarding the impacts to any threatened or endangered species.

3. Page 3, Section 2.3, *Legal Description and Location of the Facility* [A.A.C. R18-9-A201(B)(1)(d)]: The statement that the NMSWLF will cover 2.6 acres is inconsistent with the size of the NMSWLF shown in the engineering drawings contained in Appendix N, *Preliminary Landfill Design Plans*. This is readily apparent from *Drawing No. 005 of 006, Stormwater Drainage Plan*, which shows the boundaries of two drainage areas, A (1.07 acres) and B (0.78 acres) that total 1.85 acres. The drainage area boundary expands beyond the limits of the waste footprint; therefore, the area of the landfill waste footprint must be less than 2.6 acres. Please revise the text of the landfill application to reflect the correct size of the waste footprint. However, it appears that the entire disturbed area, or limits of grading shown in red contours on *Drawing No. 005 of 006*, for the development of the landfill may be close to 2.6 acres. If this is the case, please revise the text with this information.

4. Page 4, Section 2.4, *Expected Operational Life of the Facility* [A.A.C. R18-9-A201(B)(1)(e)]: The length of post-closure care for the NMSWLF must be increased from 5 years to 30 years, which is the standard for solid waste landfills. Upon the completion of 5 years of post-closure care, a request for a reduced post-closure care period may be submitted

to ADEQ for consideration as an amendment to the area-wide aquifer protection permit (APP). Please revise the text of the NMSWLF application accordingly.

5. Page 5, Section 3.0, *Project Description* [A.A.C. R18-9-A201(B)(1)(d)]: This section must also state the size of the NMSWLF waste footprint (see comment #3). Please revise the text of the application accordingly.

6. Page 5, Section 3.1, *Types of Waste*: Please revise the second sentence to remove "putrescible waste" since a few of the acceptable wastes listed as items (a) through (k) are putrescible (vegetative wastes, landscape rubble and paper/cardboard). Also, regulated friable asbestos containing material must be added to the list of prohibited wastes in the first sentence.

7. Page 10, Section 3.6, *Restrictive Covenant* [A.R.S. § 49-771]: The application text refers to the draft restrictive covenant contained in Section 11.2, *Restrictive Covenant*. Section 11.2 only contains an example of the language to be used in the restrictive covenant. Please revise the text of Sections 3.6 and 11.2 to reflect the requirement that prior to ADEQ granting approval to operate the Rosemont NMSWLF, a restrictive covenant must be provided that has been signed by the Waste Programs Division Director and all landowners of the tract of land on which the NMSWLF is located, in accordance with A.R.S. § 49-771.

8. Page 13, Section 4.1, *Flood Plain* [40 CFR § 257.3-1, A.A.C. R18-9-A202(A)(3), A.R.S. § 49-243(B)]: The last sentence of this section states that the "final design of stormwater infrastructure required by the landfill will be included with the submission of final design plans at a later date." Pursuant to A.R.S. § 49-243(B), the final design of the landfill's stormwater infrastructure must be submitted for review. Please submit the final design.

9. Page 13, Section 4.3, *Threatened or Endangered Species* [40 CFR § 257.3-2]: The second paragraph of this section references information obtained from the Arizona Game and Fish Department (AGFD). Has a letter been issued by AGFD to the applicant stating that the construction and operation of this landfill will not cause or contribute to the taking of an endangered or threatened species or result in the destruction or adverse modification of critical habitat for such species? If so, please provide a copy for review. ADEQ cannot approve a statement that the landfill will not cause or contribute to the taking of an endangered or threatened species without proper authoritative research and documentation being provided. After searching online, the list of threatened/endangered species for Pima County was not found on the AGFD website, but was able to be located on the U.S. Fish and Wildlife Service and Pima County's Sonoran Desert Conservation Plan websites at http://www.fws.gov/southwest/es/arizona/Threatened.htm and http://www.pima.gov/cmo/sdcp/species/fsheets/facts.html, respectively.

   The draft *Biological Assessment, Rosemont Copper Project* (BA), dated July 2009, prepared by SWCA Environmental Consultants, contained in Appendix G, was not provided in its entirety (as alluded to in Section 2.5, *References to Previous Reports*). Other than the cover page, only pages i, 67-75, and a copy of Table 1 from the *Waste Management Plan for*

Rosemont Copper (Tetra Tech, 2007) were provided. For the NMSWLF application to be complete, the entire draft BA report must be included. However, since it is only a draft, ADEQ cannot approve the BA report until it has been finalized. The Pima pineapple cactus is of particular concern for development of the NMSWLF. Page 67 of the BA makes no mention of the NMSWLF specifically, but states that adverse impacts to 35 Pima pineapple cactus will result from the "Proposed Action." A survey specific to the proposed NMSWLF site must be conducted to verify that the construction and operation the NMSWLF will not cause or contribute to the taking of Pima pineapple cactus or disturb any Lesser long-nosed bat roosting site. Please correct the table provided after page 75 of the BA report to address the fact that the Pima pineapple cactus does indeed exist at the site.

Not mentioned in the BA report are other species of interest, including the Coleman's coral root orchid, Rosemont and Sonoran talus snails, and the Bartram stonecrop and beardless chinchweed. A finalized biological assessment report must address these species, as necessary, pending the results of filed Endangered Species Act listing petition(s). Approval of the landfill will only be granted by satisfying all required measures to avoid, minimize, and mitigate impacts to threatened or endangered species.

10. Page 34, Section 6.0, *Demonstration of Compliance with Aquifer Water Quality* [A.R.S. § 49-243(B)]: Please revise the third bullet describing the base layer of the NMSWLF cell by removing the word "minimum." The hydraulic conductivity of the 24-inch base layer must be 1×10^{-6} cm/sec or less.

11. Page 36, Section 6.4, *Monitoring* [A.A.C. R18-9-A202(A)(9)]: More details must be provided about how punch bars will be used to monitor the native underlying sediments on an annual basis. What is being monitored, and what action levels, if any, are proposed based on these measurements?

12. Page 38, Section 7.1.2, *Capacity and Storage Design* [A.A.C. R18-9-A202(A)(3)]: Please provide the details for how the total airspace of 43,548 cubic yards was calculated. Also, the maximum thickness of the waste to be placed in the NMSWLF must be changed from 40 feet to 44 feet, as shown in *Drawing No. 003 of 006, Isopach Contours, Depth of Waste*, in Appendix N.

13. Page 39, Section 7.1.4, *Surface Water Control* [A.A.C. R18-9-A202(A)(3)]: The size of sub-basin A is stated as 1.78 acres in the text, but is shown as 1.07 acres in *Drawing No. 005 of 006, Stormwater Drainage Plan,* in Appendix N. Please revise the text to be consistent with the drawing.

14. Page 40, Section 7.1.4, *Surface Water Control* [A.A.C. R18-9-A202(A)(3), A.R.S. § 49-243(B)]: The text references preliminary hydrology calculations contained in Appendix E, and states that the final design calculations will be provided in conjunction with final construction documents to be submitted at a later date. Pursuant to A.R.S. § 49-243(B), please provide the final design of the landfill's stormwater infrastructure for review.

15. Page 45, Section 7.1.7, *Landfill Gas Collection and Control* [40 CFR § 257.3-8(a)]: Please revise this section completely. ADEQ does not accept punch bar monitoring, as described in Appendix Q, as a stand-alone method for monitoring methane gas at landfills, and requires the installation of permanent gas monitoring probes. However, the punch bar method may be used as a tool to supplement quarterly landfill gas monitoring. The reason for requiring landfill gas monitoring probes is summed up in an excerpt from the *Ohio EPA, DSIWM Guidance 0531, Locating Explosive Gas Monitors* (January 7, 2004) that was provided in Appendix Q:

    "*Although use of a punch bar is adequate for monitoring general migration through the soil matrix near the surface, it is not effective in monitoring pathways beyond the reach of the punch bar. As a result, the explosive gas monitoring rule requirements were revised to limit the use of punch bar stations in favor of using probes. A probe can go to the depth necessary to monitor the pathway, and is not subject to the strength of the person using the punch bar and the hardness of the soil.*"

    The NMSWLF will be receiving putrescible materials including vegetative wastes, landscape rubble and paper/cardboard. Construction/demolition debris containing wood also produces methane as it decomposes. 40 CFR § 257.3-8(a) requires that methane gas concentrations do not exceed 25% of the lower explosive limit (LEL) in facility structures or the LEL at the property boundary. To fulfill this requirement, please provide a finalized methane monitoring plan that includes the following items:

    a. A minimum of at least two (2) permanent methane gas monitoring probes that shall be installed around the perimeter of the NMSWLF to the approximate depth of refuse;

    b. A figure showing the locations of the methane monitoring probes in relation to the waste footprint of the landfill;

    c. As-built diagrams of the methane monitoring probes, to be submitted upon installation. Generally, installation of landfill gas monitoring probes is required no later than 12 months after disposal operations commence, but may be negotiable based on the volume of waste accepted at the NMSWLF; and

    d. A schedule for quarterly landfill gas monitoring during the operational and post-closure periods of the landfill (frequency may be negotiated during the post-closure period after the landfill has been closed) including a contingency plan for a methane gas exceedance.

16. Page 46, Section 7.1.10, *Stability Design* [A.A.C. R18-9-A202(A)(3), A.R.S. § 49-243(B)]: No slope stability analysis has been performed yet for the NMSWLF. The text states that during final design, a stability analysis will be completed on the fill slopes based on a detailed investigation of soils at the proposed NMSWLF location. Pursuant to A.R.S. § 49-243(B), please submit the final design with the slope stability analysis for review.

17. Page 47, Section 7.1.11, *Performance Inspections and Operational Monitoring* [A.A.C. R18-9-A206(B)(3), A.R.S. § 49-243(K)(2)]: The last sentence of this section states that inspection records will remain on-site for a period deemed necessary by ADEQ. In general, facility records are required to be kept in an operating record and retained for a period of 10 years from the date of each inspection, and upon request, the permit and operating record must be made immediately available for review by ADEQ personnel.

18. Page 48, Section 7.4, *Operations Plan* [A.A.C. R18-9-A202(A)(3), A.R.S. § 49-243(B)]: The text states that an operations plan describing the NMSWLF's operation and maintenance that incorporates the planned development and specific design elements will be prepared during final design. Pursuant to A.R.S. § 49-243(B), please provide the operations plan incorporating final design elements for review.

19. Pages 49 and 50, Sections 7.5.1, *Model Parameters* and 7.5.4, *Soil Characteristics* [A.R.S. § 49-243(B)]: These sections refer to Table 1 for a list of HELP-3 model parameters, but there is no Table 1 located in the text. It appears that on page 51, *Table 3. Summary of HELP-3 Model Layer Parameters*, should be revised to say Table 1 instead of Table 3. Please revise the text as necessary.

20. Page 52, Section 7.5.6, *Vegetative and Intermediate Cover* [A.R.S. § 49-243(B)]: The text references Appendix N for the test pit location and moisture content results, but this information is not contained in Appendix N. The soil moisture value for test pit VATP-06-02 was found in *Table G.1, Laboratory Index Testing Results for Soil*, an excerpt from the *Plant Site Geotechnical Report* (Tetra Tech, 2009) that was included in Appendix S. However, no figure was provided in Appendix S that shows the location of test pit VATP-06-02. Please provide the missing information, and revise the text accordingly.

21. Page 53, Section 7.5.7, *Final Cover and Compacted Floor* [A.R.S. § 49-243(B)]: The hydraulic conductivity of the "floor layer" must be revised from 1.00×10^{-05} (no units) to 1.00×10^{-6} cm/s.

22. Page 53, Section 7.5.8, *Waste Layer* [A.R.S. § 49-243(B)]: Include the units of cm/s for the hydraulic conductivity.

23. Page 62, Section 9.0, *Contingency Plan* [A.A.C. R18-9-A204]: The word "not" must be added to the first sentence of the last paragraph of this section. Also, in the same paragraph, "as discussed in Section 8, the waste management includes a point of compliance" should be changed to "as discussed in Section 6, the PMA will include multiple points of compliance." Please revise as necessary.

24. Page 75, Section 11.1, *Closure Strategy* [A.A.C. R18-9-A202(A)(10)]: Based on the results of HELP-3 modeling, the permeability of 1×10^{-5} cm/s for the18-inch final cover layer would be acceptable, but is not consistent with the 2.95×10^{-5} cm/s (or 2.99999992 from the HELP-3 model or 2.99 from Table 3) hydraulic conductivity used for Layer 2 of HELP-3 model Scenario III (closed). Please revise the closure design to clarify which hydraulic conductivity

for the final cover will be used as the design specification for the final cover. Also, the closed scenario in *Figure 4, HELP-3 Scenario Cross-Sections*, must be revised to say Scenario III instead of Scenario I.

25. Page 76, Section 11.2, *Restrictive Covenant* [A.R.S. § 49-771]: Please refer to comment #7 for the revisions required for this section.

26. Pages 79 and 80, Sections 13.0 and 13.1, *Demonstration of Financial Capability* and *Estimation of Closure Costs*, and Appendix U, *Estimated Closure Costs* [A.A.C. R18-9-A201(B)(5), A.A.C. R18-9-A203(B)]: It appears that no post-closure costs were included based on the line-item details provided in Appendix U. At a minimum, amounts for 30 years of post-closure inspections and maintenance/repairs of the landfill final cover and stormwater controls must be provided, including costs for 30 years of quarterly landfill gas monitoring. The acreage of the NMSWLF in Appendix U, listed as 2.65 acres, must be clarified or revised, if necessary (see comment #3). The closure cost estimates, when finalized with the final design submittal, must be sealed by an Arizona registered professional engineer or geologist. The estimates must be based on the cost for a third-party to complete the work, which will substantially increase some of the tasks listed in Appendix U. The amounts for construction phase testing (compaction testing and QA/QC in task XI) and engineering (task XII) appear to be too low ($9,360 combined) for the work involved with construction QA/QC activities and final construction QA/QC report preparation. However, a reliable cost estimate cannot be determined without a detailed closure plan containing the design/testing specifications.

27. Appendix N, *Preliminary Landfill Design Plans* [A.A.C. R18-9-A202(A)(3), A.R.S. § 49-243(B)]: *Drawing No. 004 of 006, Proposed Final Grade Contours*, must be revised with accurate elevation labels (the same contour lines have inconsistent elevations of 5250/5260, 5260/5270, 5270/5280). To provide clarity, cross-sections A and B in *Drawing No. 005 of 006, Stormwater Drainage Plan*, should have endpoints labeled as A/A' and B/B' to correspond to the x-axis on each of the cross-section diagrams in *Drawing No. 006 of 006, Cross-Sections*.

If you fail to provide the additional information within 120 days of this Request, ADEQ may proceed to a final decision on your application without further notice. As an alternative to providing ADEQ with all of the additional information identified above, you may respond to this Request within 120 days with a Notice of Intent to Rely on the Application Components as Submitted in accordance with A.A.C. R18-1-205(B) and R18-1-520.

Please contact Steve Vevang at (602)771-4621 if you have questions regarding this Notice or the status of your application.

Sincerely,

Steve Vevang
APP & Drywell Unit
Groundwater Section
Water Quality Division

cc: Jamie Joggerst, Geotechnical Engineer, Tetra Tech
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