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Technical Memorandum Barrel and McCleary Alternative Noise Analysis

To:	<u>Kathy Arnold</u>	From:	<u>Robert Sculley</u>
Company:	<u>Rosemont Copper Company</u>	Date:	<u>January 9, 2010</u>
CC:	<u>Jamie Sturgess (Rosemont); David Krizek; Michael Dieckhaus (Tt)</u>	Doc #:	<u>014/10-320871-5.3</u>

1.0 Introduction

This Technical Memorandum was prepared by Tetra Tech and presents a Noise Analysis for the Barrel and McCleary Alternative being considered in the US Forest Service Environmental Impact Statement (EIS) for the proposed Rosemont Copper Project (Project). This analysis assesses the potential impacts that the Barrel and McCleary Alternative will have on noise conditions.

Tetra Tech published a comprehensive Supplemental Noise Study Report in April of 2009 that was based on the facility layouts in the Mine Plan of Operations (MPO). The Noise Study provided data on existing noise levels in the vicinity of the Project and noise levels measured at an active copper mine such as blasting and other operational activities. Modeling of the blasting vibrations was also performed. Noise effect contouring in the April 2009 study was based on the MPO facility layouts.

The following provides a comparison between the MPO and the Barrel and McCleary Alternative facility layouts:

- The top surface of the Dry Stack Tailings Facility would be about 5,250 feet above mean sea level (amsl) for both the MPO and Barrel and McCleary Alternative.
- The top surface of the Waste Rock Storage Area would be about 5,450 feet to 5,470 feet amsl for the MPO and the Barrel and McCleary Alternative, respectively.
- The Heap Leach Pad for the MPO would be constructed in two (2) phases. The leach pad for the Barrel and McCleary Alternative would be constructed in one (1) phase with a smaller total footprint. In both cases, the closed leach pad(s) would eventually be covered with waste rock.
- The combined footprints of the Waste Rock Storage Area and Dry Stack Tailings Facility under the Barrel and McCleary Alternative (about 2,505 acres) would be



slightly smaller than the combined footprints under the MPO (about 2,870 acres). The general facility footprints, however, are in the same basic location as in the MPO.

- The location and size of the Open Pit would be the same under both the MPO and the Barrel and McCleary Alternative.
- Under the Barrel and McCleary Alternative, the Plant Site would have a slightly different configuration and footprint than under the MPO, but in both cases the Plant Site would be shielded from State Route 83 (SR 83) by the Waste Rock Storage Area and the Dry Stack Tailings Facility.
- The Primary Access Road would be in the same location under both the MPO and the Barrel and McCleary Alternative.

The differences between the Barrel and McCleary Alternative and the MPO are mostly matters of small details, not major features that would affect noise impacts. Consequently, the noise and vibration impact discussions, and the associated noise contour figures in the April 2009 Noise Study, are applicable to the Barrel and McCleary Alternative.

The following sections of this Technical Memorandum explain why the results of the April 2009 Noise Study are still applicable to the Barrel and McCleary Alternative.

2.0 Blast Noise and Blast Vibration Impacts

The Open Pit would be in the same location and operated in the same manner under both the MPO and the Barrel and McCleary Alternative. Blasting events would be limited to one (1) event per day. Daily explosives usage is also expected to be the same under both scenarios.

In addition, the combined footprints of the Waste Rock Storage Area and the Dry Stack Tailings Facility would be similar under both the MPO and the Barrel and McCleary Alternative, with similar final elevations. Consequently, blast noise generation and localized shielding effects would essentially be the same under both scenarios.

Because blasting events would be similar under both the MPO and the Barrel and McCleary Alternative, groundborne vibrations would be the same. Thus, the discussions and associated noise contour figures for blast noise and blast-related vibrations, as presented in the April 2009 Noise Study, would be applicable to the Barrel and McCleary Alternative.

3.0 Construction Noise Impacts

Although the Plant Site would still be in the same general area, under the Barrel and McCleary Alternative the Plant Site would have a slightly different configuration and footprint than that of the MPO. However, there would be little if any difference in the construction activity noise levels between the MPO and the Barrel and McCleary Alternative. As noted in the April 2009 Noise Study, construction noise levels would attenuate to background noise levels over a relatively short distance and would not create any noise impacts at the nearest existing residences.



Therefore, the discussions and associated noise contour figure for construction noise impacts presented in the April 2009 Noise Study would be applicable to the Barrel and McCleary Alternative.

4.0 Equipment Operation Noise Impacts

As discussed in the April 2009 Noise Study, operational noise levels from the Plant Site area would be similar to the maximum construction noise levels. Operational noise levels are expected to attenuate to background noise levels over a distance of about two (2) miles and would therefore not create any noise impacts at the nearest existing residences or along SR 83.

As indicated in Section 1.0, the combined footprints of the Waste Rock Storage Area and Dry Stack Tailings Facility under the Barrel and McCleary Alternative (about 2,505 acres) would be slightly smaller than the combined footprints under the MPO (about 2,870 acres). However, the final top elevations for both the waste rock and the dry stack tailings areas would be similar.

The south end of the Waste Rock Storage Area would have a similar location and configuration under both the MPO and the Barrel and McCleary Alternative. Consequently, equipment operations on the Waste Rock Storage Area would occur at a similar distance from the nearest existing residences under both scenarios and would therefore have the same equipment operation noise contours.

Under the Barrel and McCleary Alternative, the north end of the Dry Stack Tailings Facility would be slightly south of the location affected under the MPO, and thus would be slightly further from the residences along SR 83 to the northeast of the Project. However, the differences in location and configuration of the north end of the Dry Stack Tailings Facility are not enough to appreciably alter the equipment operating noise contours presented in the April 2009 Noise Study. Thus, the discussions and noise contour figure for noise impacts from equipment operations, as presented in the April 2009 Noise Study, would be applicable to the Barrel and McCleary Alternative.

5.0 Traffic Noise Impacts

The Barrel and McCleary Alternative would not alter the basic employment level or operating material requirements for the Project as described in the MPO. In addition, this alternative would not alter the routing of the proposed Primary Access Road. Consequently, the MPO and the Barrel and McCleary Alternative would be expected to have the same traffic generation, and thus the same resulting traffic noise impacts. Therefore, the discussions and noise contour figures, as presented in the April 2009 Noise Study, would be applicable to this alternative.

6.0 Conclusion

A review of operational and facility changes was performed between the MPO and the Barrel and McCleary Alternative being considered in the EIS process. Because the facilities, operations, and anticipated traffic patterns are generally the same for both scenarios, the



discussions, noise contour figures, and analysis results presented in the April 2009 Noise Study are applicable to the Barrel and McCleary Alternative.

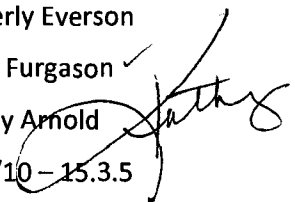


REFERENCES

Tetra Tech (2009) *Supplemental Noise Study, Rosemont Copper Project*. Prepared for Rosemont Copper Company. Report Dated April, 2009

WestLand (2007) *Rosemont Project Mine Plan of Operations*. Prepared for Rosemont Copper Company. Report Dated June, 2007

Memorandum

To: Beverly Everson
Cc: Tom Furgason
From: Kathy Arnold 
Doc #: 003/10 - 15.3.5
Subject: Transmittal of Technical Memoranda and Pit Lake Report
Date: February 8, 2010

Rosemont Copper is pleased to transmit the following twenty technical memoranda and one report:

1. Rosemont Hydrology Method Justification, a Tetra Tech memo dated January 7, 2010;
2. Barrel Only alternative –
 - a. Noise Analysis, a Tetra Tech memo dated January 15, 2010
 - b. Traffic Analysis, a Tetra Tech memo dated January 8, 2010
 - c. Geochemical Characterization of Facilities, a Tetra Tech memo dated January 10, 2010
 - d. Lighting, an M3 memo dated December 2009
3. Barrel and McCleary alternative –
 - a. Noise Analysis, a Tetra Tech memo dated January 9, 2010
 - b. Traffic Analysis, a Tetra Tech memo dated December 15, 2009
 - c. Geochemical Characterization of Facilities, a Tetra Tech memo dated December 16, 2009
 - d. Lighting, an M3 memo dated December 2009
4. Scholefield Tailings and McCleary Waste alternative –
 - a. Noise Analysis, a Tetra Tech memo dated January 15, 2010
 - b. Traffic Analysis, a Tetra Tech memo dated January 12, 2010
 - c. Geochemical Characterization of Facilities, a Tetra Tech memo dated January 10, 2010
 - d. Lighting, an M3 memo dated January 2010
5. Sycamore Tailings and Barrel Waste alternative –
 - a. Noise Analysis, a Tetra Tech memo dated January 15, 2010
 - b. Traffic Analysis, a Tetra Tech memo dated January 9, 2010
 - c. Geochemical Characterization of Facilities, a Tetra Tech memo dated January 10, 2010
 - d. Lighting, an M3 memo dated January 2010
6. Partial Backfill alternative –
 - a. Noise Analysis, a Tetra Tech memo dated January 23, 2010
 - b. Traffic Analysis, a Tetra Tech memo dated January 9, 2010
 - c. Geochemical Characterization of Facilities, a Tetra Tech memo dated January 10, 2010
7. Geochemical Pit Lake Predictive Model, prepared by Tetra Tech and dated February 2010

As per your request, I am transmitting three hardcopies and two disks (disks contain tech memos only) directly to the Forest Service and two copies and one disk directly to SWCA. The Pit Lake report includes a copy of the report on a CD on the inside of the back cover of each report.