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# Technical Memorandum
# Barrel and McCleary Alternative
# Geochemical Characterization

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## 1.0 Introduction

This Technical Memorandum was prepared by Tetra Tech and presents a geochemical characterization of the tailings and waste rock materials for the Barrel and McCleary Alternative being considered in the US Forest Service Environmental Impact Statement (EIS) for the proposed Rosemont Copper Project (Project).

In 2007, Tetra Tech published a Baseline Geochemical Characterization report and a Geochemical Characterization Addendum Report for the proposed Project as part of the Mine Plan of Operations (MPO). In addition to these two (2) reports, several technical memoranda have been prepared for the Project which provides supplemental geochemical information and testing. The Barrel and McCleary Alternative differs from the MPO primarily in the design and location of the Waste Rock Storage Area and the Dry Stack Tailings Facility. This alternative does not change the location of the proposed Open Pit or the source of waste rock and tailings materials.

Since the source of waste rock and tailings materials does not change in the Barrel and McCleary Alternative, the geochemical test results and conclusions published to date are still applicable to this alternative. The following sections of this Technical Memorandum provide a general summary of the overall geochemical characterization of the tailings and waste rock materials associated with the Project.

## 2.0 Waste Rock

Upon completion of the 2006-2007 geochemical testing program, a total of 180 waste rock samples were tested for acid-generating potential, metals content, and/or metal release. In 2008, an additional 46 waste rock samples underwent testing, bringing the total count to 226 samples. Less than 1% of 208 samples tested were classified as likely to generate acid. About 24% of the samples were classified as uncertain or moderately acid generating. These samples underwent additional evaluations, including leaching tests.

Based on all the geochemical testing of waste rock samples, the two (2) rock types which have the potential to be acid generating are the Bolsa Quartzite and Andesite. However, only leachates from a few Bolsa quartzite samples gave an acidic pH, and contained low acidity. This low acidity can be easily mitigated during placement of the waste rock by blending with acid-neutralizing rock types. Also, the Bolsa Quartzite and Andesite waste rock material account for a small percentage, 3% and 6% respectively, of the total waste rock volume.

## 3.0 Tailings

To date, four (4) samples of tailings material have been generated for the Project. All of the samples were tested for acid-generating capacity, metals content, and/or metal release. Results of the acid-generating tests did not indicate the potential to generate acid but exhibited a pronounced acid neutralizing potential. Thus, with respect to the potential for acidic drainage, the tailings are acid consuming, not acid generating. Additionally, when the tailings were tested for the potential release of chemical constituents using both static (Synthetic Precipitation Leaching Procedure) and kinetic (standard humidity cells), the results showed a very limited release of any chemical parameter, including metals.

## 4.0 Conclusion

The Barrel and McCleary Alternative being considered in the EIS for the proposed Rosemont Copper Project has the same geochemical characterization for the tailings and waste rock materials as the MPO design. This alternative does not change the location of the proposed Open Pit or the source of waste rock and tailings materials. Therefore, all the geochemical testing results, reports, and technical memoranda published to date are still valid and applicable to this alternative.

## REFERENCES


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