EXHIBIT 10

BADCT Analysis for the Heap Leach Pad
October 7, 2011

Mr. Richard Mendolia  
Arizona Department of Environmental Quality  
APP & Drywell Unit  
Groundwater Section  
1110 West Washington Street  
Phoenix, Arizona 85007

Re: Rosemont Copper Company  
Rosemont Copper Operations  
Inventory No. 106100  
Summary of APP-Regulated Facilities

Dear Mr. Mendolia,

This letter was prepared by Rosemont Copper Company (Rosemont) with regard to the facilities to be regulated under the aquifer protection permit (APP) program administered by the Arizona Department of Environmental Quality (ADEQ) for the Rosemont Copper Project (Project). The attached Rosemont Technical Memorandum provides a summary of physical attributes associated with each of the APP-Regulated Facilities, both Area-Wide and General Permit Facilities (memorandum titled Rosemont APP – Summary of Facility Information, dated October 7, 2011). This memorandum was prepared in response to discussions with Mr. Kuldip Khunkhun concerning the physical characteristics of the facilities. Since Mr. Khunkhun is no longer on the project, this memorandum was completed to assist Mr. Jeff Bryan and others with facility reviews, including pertinent references to submitted documentation. In addition to physical information, replacement memoranda are provided for the facilities related to BADCCT and stability analyses. Clarifications associated with the Settling Basin are also included as well as a discussion concerning the sewage treatment systems and point of compliance locations.

If you should have any questions regarding the above, please contact me at (520) 445-3502 or via e-mail at karnold@rosemontcopper.com.

Sincerely,

Katherine Ann Arnold, P.E.  
Vice President Environmental and Regulatory Affairs

Doc. No. 097/11-15.5.1.4

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Tucson, Arizona 85740  
TEL: (520) 495-3500  
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ATTACHMENT 3
Technical Memorandum prepared by Tetra Tech
titled
Rosemont Heap Leach Facilities Final Design Liner System BADCT Equivalence
(dated September 28, 2011)
Technical Memorandum

To: Kathy Arnold

Company: Rosemont Copper Company

Re: Rosemont Heap Leach Facilities Final Design Liner System BADCT Equivalence

CC: Joel Carrasco, P.E. (Tetra Tech), David Krizek, P.E. (Rosemont)

From: Morris I. Riback, P.E. and Ronson Chee, E.I.T.

Date: September 28, 2011

Doc #: 165/11 320877-5.3

This Technical Memorandum supersedes any previous liner leakage estimates for the Rosemont Copper Project (Project) Heap Leach Facility submitted in the document titled Rosemont Heap Leach Facility Permit Design Liner Leakage Calculations dated August 20, 2010 (Tetra Tech, 2010).

The purpose of this memorandum is to document the calculations used to evaluate the level of engineering control achieved for the various liner systems as part of the Best Available Demonstrated Control Technology (BADCT) analysis for the Heap Leach Facilities at the proposed Rosemont Copper Project (Project). The calculations were used to estimate potential leakage rates (PLRs) through geomembrane liner systems for the proposed facilities. Additionally, calculations were performed to determine Alert Level (AL) liner leakage rates for potential flow to the Leak Collection and Removal System (LCRS) in the Raffinate and PLS Ponds. This memorandum is organized as follows:

- Section 1.0 presents the equations used for the liner leakage calculations;
- Section 2.0 presents the BADCT analysis of alternative liner systems for the Stormwater Pond;
- Section 3.0 presents the BADCT analysis of alternative liner systems for the Heap Leach Pad;
- Section 4.0 presents the BADCT analysis of alternative liner systems Raffinate and PLS Ponds;
- Section 5.0 presents the calculations used to determine the proposed Alert Level 1 (AL1) and Alert Level 2 (AL2) for the Raffinate Pond;
- Section 6.0 presents the calculations used to determine the proposed AL1 and AL2 for the PLS Pond;
- Section 7.0 presents a summary of the previous sections; and
- Section 8.0 lists cited references.
As indicated in Table 2.4, GCL would be approximately 48,400 more expensive to install when compared with the LPS estimate. At most sites, GCL costs would far exceed the LPS costs due to the availability of onsite sources. However, the Project site does not have a source of LPS, thus requiring import from an offsite borrow source. Additionally, the GCL layer provides a greater degree of engineering control.

2.5 Conclusions

As indicated in Sections 2.1 through 2.3, the minimum TPL through the Stormwater Pond would be:

- 239 gpd for a geomembrane/LPS composite liner system;
- 82 gpd for a geomembrane/GCL composite liner system; and
- 2,679 gpd for a prescriptive BADCT liner system for a non-stormwater pond.

As stated by Giroud and Bonaparte (1989), "It also appears that unitized leakage rates due to permeation through the geomembrane may not be negligible in the case of liquid impoundments; however, additional research is needed in this area before firm conclusions are drawn." The permeation of fluid through the geomembrane is therefore not included in the calculated rates shown above.

Calculations were performed for the purpose of evaluating BADCT for different liner designs and to establish the degree of engineering control for each design. The proposed liner system for the Stormwater Pond is a geomembrane/GCL composite liner system. The BADCT comparison indicated that this liner system achieves a greater degree of engineering control when compared to that achieved by the prescriptive BADCT design for a non-stormwater pond.

3.0 BADCT Analysis for the Heap Leach Pad

This section presents calculations for the estimated TPL through the Heap Leach Pad liner system. TPLs were calculated for two (2) liner systems.

- A composite liner system consisting of one (1) foot of LPS (10⁻⁶ cm/sec material) and a geomembrane liner; and
- A composite liner system consisting of a GCL and a geomembrane liner.

Both systems were evaluated with a liner defect rate of one (1) hole per acre that is 11.3 mm in diameter. According to Giroud and Bonaparte (1989), a failure of the geomembrane due to accidental punctures may be represented by a single 11.3 mm diameter (a = 100 mm²) hole per acre.

The PLR through a Heap Leach Pad liner can be estimated using the Giroud’s Equation (Giroud, 1997) as described in Section 1.0. The following values were established to represent the variables of the equation for the heap leach pad liner leakage calculation.

- CQF (C_q): Typically, a GCL/geomembrane interface has a better CQF than a soil/geomembrane interface. For these calculations, a CQF of 0.21 (the appropriate CQF associated with GCL) was selected for both liner systems. Typically, a GCL/geomembrane interface has a better CQF than a soil/geomembrane interface. However, a good CQF was used for both systems to provide a uniform comparison;
- Height of liquid on top of geomembrane (h): An average hydraulic head of two (2.0) ft (0.6096 m) allowed on a heap leach pad liner by prescriptive BADCT was selected (ADEQ, 2004);
- Diameter of circular defect (d): A single 11.3 mm diameter hole per acre of liner was selected. This defect rate allows for damage incurred during placement of overliner materials or accidental punctures;
- Thickness of LPS or GCL ($t_b$): The prescriptive BADCT standard of one (1) foot (0.3048 m) of LPS was selected for the scenario presented in Table 3.01 (ADEQ, 2004). A standard GCL thickness of six (6) mm was selected for the GCL scenario presented in Table 3.02 (Cetco, 2009);

- Hydraulic conductivity of low permeability component ($k_b$): The prescriptive BADCT permeability standard of $1\times10^{-8}$ cm/s was selected for the LPS scenario presented in Table 3.01 (ADEQ, 2004). A standard GCL permeability of $5\times10^{-9}$ cm/s was selected for the GCL scenario presented in Table 3.02 (Cetco, 2009); and

- LSA: The three (3) dimensional LSA for the Heap Leach Pads is estimated to be 7,595,388 sf or 174.366 acres (170.165 plan acres).

3.1 Potential Leakage through a Geomembrane/LPS lined Heap Leach Pad

Table 3.1 presents the PLR through a heap leach pad liner system consisting of a one (1) foot thick LPS layer and a geomembrane liner.

**Table 3.1 PLR for the Heap Leach Pad (LPS and Geomembrane)**

<table>
<thead>
<tr>
<th>$C_{eq}$</th>
<th>0.21</th>
<th>(dimensionless)</th>
</tr>
</thead>
<tbody>
<tr>
<td>$h$</td>
<td>0.6096</td>
<td>(m)</td>
</tr>
<tr>
<td>$d$</td>
<td>0.0113</td>
<td>(m)</td>
</tr>
<tr>
<td>$t_b$</td>
<td>0.3048</td>
<td>(m)</td>
</tr>
<tr>
<td>$k_b$</td>
<td>1.0E-8</td>
<td>(m/s)</td>
</tr>
<tr>
<td>$Q$</td>
<td>7.683E-08</td>
<td>PLR (m³/s/defect)</td>
</tr>
</tbody>
</table>

The calculations yielded a PLR of $Q = 7.683E-08$ m³/s/defect. This can be converted to gpd per defect as follows:

$$7.683E \quad - \quad 8m^3/s \quad x \quad 264.17\text{gallons} \quad x \quad 60s \quad x \quad 60\text{min} \quad x \quad 24\text{hr} \quad x \quad \frac{1}{\text{day}} \quad x \quad \frac{1}{\text{defect}} \quad = \quad 1.75\text{gpd}$$

To establish the TPL, the PLR is multiplied by the defect rate and the LSA of the leach pad in acres. A defect rate of one (1) hole per acre was selected. This defect rate is based on empirical investigations published by J.P. Giroud and Bonaparte (1989). The Heap Leach Pad has a LSA of 174.366 acres.

$$TPL = \frac{1.75\text{gpd}}{\text{defect}} \quad x \quad \frac{1\text{defect}}{\text{acre}} \quad x \quad 174.366\text{acres} \quad = \quad 305\text{gpd}$$

Therefore, the TPL through the liner system of the Heap Leach Pad using LPS as the low permeability component is approximately 305 gpd.

3.2 Potential Leakage through a Geomembrane/GCL lined Heap Leach Pad

Table 3.2 presents the leakage through a heap leach pad liner system consisting of a GCL and a geomembrane liner.
Table 3.2 PLR for the Heap Leach Pad (GCL and Geomembrane)

<table>
<thead>
<tr>
<th>C_{eq}</th>
<th>0.21</th>
<th>(dimensionless)</th>
</tr>
</thead>
<tbody>
<tr>
<td>h</td>
<td>0.6096</td>
<td>(m)</td>
</tr>
<tr>
<td>d</td>
<td>0.0113</td>
<td>(m)</td>
</tr>
<tr>
<td>t_d</td>
<td>0.006</td>
<td>(m)</td>
</tr>
<tr>
<td>k_s</td>
<td>5.0E-11</td>
<td>(m/s)</td>
</tr>
<tr>
<td>Q</td>
<td>1.157E-08</td>
<td>PLR (m^3/s/defect)</td>
</tr>
</tbody>
</table>

The calculations yielded a PLR of \( Q = 1.157E-08 \text{ m}^3/\text{s}/\text{defect} \). This can be converted to gpd per defect as follows:

\[
\frac{1.157E-8 \text{ m}^3/\text{s}}{\text{defect}} \times \frac{264.17 \text{ gallons}}{\text{m}^3} \times \frac{60 \text{ s}}{\text{min}} \times \frac{60 \text{ min}}{\text{hr}} \times \frac{24 \text{ hr}}{\text{day}} = \frac{0.26 \text{ gpd}}{\text{defect}}
\]

To establish the TPL, the PLR is multiplied by the defect rate and the LSA of the leach pad in acres. A defect rate of one (1) hole per acre was selected. This defect rate is based on empirical investigations published by J.P. Giroud and Bonaparte (1989). The Heap Leach Pad has an LSA of 174.366 acres.

\[
\text{TPL} = \frac{0.26 \text{ gpd}}{\text{defect}} \times 1 \text{ defect/acre} \times 174.366 \text{ acres} = 45 \text{ gpd}
\]

Therefore, the TPL through the liner system of the Heap Leach Pad using GCL as the low permeability component is approximately 45 gpd.

3.3 Conclusions

As indicated in Sections 3.1 through 3.2, the TPL through the Heap Leach Pad liner system would be:

- 305 gpd for a geomembrane/LPS liner system; and
- 45 gpd for a geomembrane/GCL composite liner system.

These calculations were performed for the purpose of evaluating BADCT for different liner designs and to establish the degree of engineering control for each design. The proposed liner system for the Rosemont Heap Leach Pad is a composite liner consisting of a GCL and a geomembrane liner. This liner system provides a higher degree of engineering control than a prescriptive design.

In order to quantify the total degree of engineering control achieved by the prescriptive BADCT design of Heap Leach Pad, the PLR calculated using Bernoulli’s Equation is 148.8 gpd (assuming a driving head of 2.0 ft or 0.6096 m) for a liner system that did not include a GCL or a LPS layer.

4.0 BADCT Analysis for the Raffinate and PLS Ponds

In the design of the PLS and Raffinate Ponds, there were two (2) deviations from the prescriptive BADCT criteria. The first is the use on GCL instead of LPS for the low permeability component of the liner system. The second is the required slope of the pond. This section demonstrates that the proposed designs provide a greater degree of engineering control than the prescriptive BADCT liner system.