STATE OF NEW MEXICO
BEFORE THE WATER QUALITY CONTROL COMMISSION

In the Matter of:

PROPOSED AMENDMENT TO 20.6.2 NMAC (Copper Rule)

No. WQCC 12-01(R)

EXHIBIT SCOTT – D-36
INVESTIGATION AND DESIGN OF MINE DUMPS

INTERIM GUIDELINES

Prepared for the:

British Columbia Mine Dump Committee with funding provided from the Provincial Sustainable Environment Fund

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### TABLE 6.4
INTERIM GUIDELINES FOR MINIMUM DESIGN FACTOR OF SAFETY

<table>
<thead>
<tr>
<th>STABILITY CONDITION</th>
<th>SUGGESTED MINIMUM DESIGN VALUES FOR FACTOR OF SAFETY</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>CASE A</td>
</tr>
<tr>
<td>STABILITY OF DUMP SURFACE</td>
<td></td>
</tr>
<tr>
<td>Short Term (during construction)</td>
<td>1.0</td>
</tr>
<tr>
<td>Long Term (reclamation – abandonment)</td>
<td>1.2</td>
</tr>
<tr>
<td>OVERALL STABILITY (DEEP SEATED STABILITY)</td>
<td></td>
</tr>
<tr>
<td>Short Term (static)</td>
<td>1.3 – 1.5</td>
</tr>
<tr>
<td>Long Term (static)</td>
<td>1.5</td>
</tr>
<tr>
<td>Pseudo–Static (earthquake) ²</td>
<td>1.1 – 1.3</td>
</tr>
</tbody>
</table>

#### CASE A:
- Low level of confidence in critical analysis parameters
- Possibly unconservative interpretation of conditions, assumptions
- Severe consequences of failure
- Simplified stability analysis method (charts, simplified method of slices)
- Stability analysis method poorly simulates physical conditions
- Poor understanding of potential failure mechanism(s)

#### CASE B:
- High level of confidence in critical analysis parameters
- Conservative interpretation of conditions, assumptions
- Minimal consequences of failure
- Rigorous stability analysis method
- Stability analysis method simulates physical conditions well
- High level of confidence in critical failure mechanism(s)

#### NOTES:
1. A range of suggested minimum design values are given to reflect different levels of confidence in understanding site conditions, material parameters, consequences of instability, and other factors.

2. Where pseudo–static analyses, based on peak ground accelerations which have a 10% probability of exceedance in 50 years, yield F.O.S. < 1.0, dynamic analysis of stress–strain response, and comparison of results with stress–strain characteristics of dump materials is recommended.