

APPENDIX C1.3 – MEMPR ISSUES TRACKING, GEOTECHNICAL (Tim Eaton and Chris Carr)

Brule Mine Project - Application Review Stage				
Issues Tracking Document – Government Agencies – MEMPR, Chris Carr and Tim Eaton				
Category (geotechnical)				
# ID	Submitted by	Issues Raised	Proponent Response	Review Status
<i>B.C. Ministry of Energy, Mines and Petroleum Resources</i>				
1	Chris Carr, P.Eng. Manager, Geotechnical Engineering	<p><u>Screening Review</u></p> <p>The northeast and southeast waste rock dumps have been classified as moderate failure hazard and preliminary designs have been developed that satisfy the minimum stability criteria.</p>	Comments noted. No additional response required.	n/a. Comment only. No issue.
2		Open pit slope designs have been presented that appear reasonable.	Comments noted. No additional response required.	n/a. Comment only. No issue.
3		Short sections of the proposed haul road to the loadout facility cross steep terrain and areas of instability and recommendations have been provided to reduce the likelihood of instability.	Comments noted. No additional response required.	n/a. Comment only. No issue.
4		A formal risk assessment has not been undertaken to identify potential failure modes for the major structures, assess associated risks and develop risk reduction strategies.	A formal risk assessment was conducted and risk reduction strategies described. See Summary in Section 5 (Risk Assessment) of the EA Application, which addresses all major structures. Associated stability analyses for the two major dumps and Sed Pond 2 are provided in Appendix A-4	Response satisfactory. Issue addressed.
5	Tim Eaton, P.Eng., for Chris Carr, P.Eng. Manager, Geotechnical Engineering	<p><u>Final Review</u></p> <p>A final review was completed by Tim Eaton, P.Eng. of Klohn Crippen Berger Limited on behalf of the Ministry of Energy, Mines and Petroleum Resources. The attached comments are based on his review.</p> <p>Based on the feasibility level design information and recommendations the Brule Project can proceed from a</p>	Comments noted. No additional response required.	n/a. Comment only. No issue.

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		geotechnical perspective.		
6		Detailed designs should be submitted for the waste dumps (NED, SED) after the foundation toe areas are stripped and mapped in more detail.	Norwest Corporation is completing a dump design report for the Mine Permit Application. As a general design consideration, dump toes have been moved away from unstable or steeply inclined areas. Following redesign of dump footprint and assessment of dump foundation conditions, the requirement for extensive foundation stripping and mapping has been greatly reduced. During construction, large changes in dump configuration are not expected. Procedures for and requirements for localized dump foundation preparation will be documented in the Waste Dump OMS manual.	Response satisfactory. Issue to be addressed during permitting.
7		A detailed design should be submitted prior to construction of Sediment Pond 2.	A detailed design will be submitted prior to construction of Sediment Pond 2.	Response satisfactory. Issue to be addressed during permitting.
8		If a dam is required for Sediment Pond 1, a design is required prior to construction.	No additional dam construction is required for Sediment Pond 1. The current design accommodates the entire planned catchment for this facility. A site inspection for Sediment Pond 1 is planned for April 2006 after final snow melt at the sediment pond has occurred.	Response satisfactory. Issue addressed.

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			AMEC will submit a combination as-built and inspection report in May 2006.	
9		The Dillon Pit design is reasonable and could form the basis for the Brule Pit design, adjacent to it. A pit design document for the larger Brule Pit is required. Pit design updates should be submitted once mining has exposed enough bedrock to obtain more information and confirm the design basis.	A pit design document for Brule Pit is not currently warranted. The design parameters used for the Dillon Mine will be applied to the early phases of the Brule Project. The current phased approach (Brule Mine Permit Application) has interim pit walls developed in the Brule Finger Pit A, Blind, Brule South and Brule Central areas. Rock exposures and pit wall geotechnical performance will be monitored and findings incorporated into the final design parameters and into a geotechnical report for the Brule and Blind Ultimate Pit walls.	Response satisfactory. Issue addressed.
10		<p><u>Summary</u></p> <p>The information presented in the various reports provides a good geotechnical baseline for this mining project. Based on the information presented there appear to be no major geotechnical issues that could adversely impact EA certification. Additional work has been identified to develop designs for the Mines Act permit application.</p>	Comments noted.	n/a. Comment only. No issue.