

Project Report

24 Dec 2010

EGMK

Elkon Uranium Project Pre-Feasibility Report

DISTRIBUTION

Section 04 - Hydrogeology

Table of Contents

Disclaimer	ii
1. Introduction	1
2. Hydrogeology	1
2.1 Introduction	1
2.2 Data Sources	1
2.3 Hydrogeological Regime	1
2.3.1 Geographic Setting	1
2.3.2 Surface Water	1
2.3.3 Climatic Conditions	3
2.3.4 Geologic Setting	3
2.3.5 Hydrogeologic Units and Properties	6
2.3.6 Groundwater Levels, Recharge, and Discharge	8
2.3.7 Groundwater Geochemistry	8
2.4 Hydrogeological Modelling	11
2.4.1 Numerical Groundwater Flow Model	11
2.4.2 Model Calibration	14
2.5 Predictive Groundwater Inflows	15
2.5.1 Base Scenario	15
2.5.2 Potential Effects of River Diversions	16
2.5.3 Potential Water-Quantity Impacts to Rivers	17
2.5.4 Predicted Drawdown and Stream Flow Impacts due to Water-Supply Pumping	18
2.5.5 Estimation of Groundwater Inflow Water Chemistry	20
2.6 Hydrogeological Conclusions	20
2.7 Hydrogeological Recommendations	22
2.8 Hydrogeological References	24
3. Geomechanics	25
3.1 Data Collection	25
3.2 Rock Mass Characterisation	25
3.3 Slope Stability Analysis	27
3.3.1 Factor A	28
3.3.2 Factor B	28
3.3.3 Factor C	29
3.3.4 HR	29
3.4 Pastefill Strength	30
3.4.1 Analysis Methodology	30
3.4.2 Analysis	31
3.4.3 Discussion	32
3.4.4 Recommendations	32
3.5 Ground Support Requirements	32
3.5.1 Design Methodology	33
3.5.2 General Support Specifications	34
3.5.3 Specific Support Specifications	35
3.5.4 Areas of Increased Nominal Spans	35
3.6 Geomechanics Recommendations	38
3.7 Geomechanics References	38
Appendix A04-01 Hydrogeology	1
Appendix A04-02 Geomechanics	1