

TABLE OF CONTENTS

	PAGE
1.0 EXECUTIVE SUMMARY.....	1
1.1 BACKGROUND	1
1.2 PROPOSED PROJECT	1
1.3 EXISTING ENVIRONMENT	4
1.4 ENVIRONMENTAL MANAGEMENT	6
2.0 DESCRIPTION OF THE PROPOSED DEVELOPMENT	17
2.1 OBJECTIVES	17
2.2 LOCATION	17
2.3 OWNERSHIP AND TENURE.....	17
2.4 HISTORY	20
2.5 EXISTING FACILITIES	22
2.6 PROJECT DESCRIPTION.....	22
2.6.1 <i>Site Preparation</i>	23
2.6.2 <i>Mining</i>	23
2.6.3 <i>ROM</i>	28
2.6.4 <i>Ore Processing</i>	28
2.6.5 <i>Waste Rock Disposal</i>	31
2.6.6 <i>Mine Dewatering</i>	35
2.6.7 <i>Tailings Storage Facility (TSF)</i>	35
2.6.8 <i>Diversion Channel</i>	37
2.6.9 <i>Transportation Corridors</i>	38
2.6.10 <i>Support facilities</i>	41
2.6.11 <i>Infrastructure</i>	43
2.6.12 <i>Resource requirements</i>	43
2.6.13 <i>Fuel</i>	45
2.6.14 <i>Communications</i>	45
2.6.15 <i>Workforce</i>	45
2.6.16 <i>Housing and Accommodation</i>	46
2.6.17 <i>Sewage Treatment Plant</i>	48
2.6.18 <i>Waste disposal/landfill</i>	48
2.6.19 <i>Transport</i>	48
2.6.20 <i>Rehabilitation and Decommissioning</i>	49
3.0 PROJECT ALTERNATIVES AND JUSTIFICATION	52
3.1 ALTERNATIVES CONSIDERED	52
3.2 PROJECT BENEFITS.....	53

4.0	EXISTING ENVIRONMENT	54
4.1	CLIMATE.....	54
4.2	GEOLOGY	54
4.2.1	<i>Site Geology</i>	54
4.2.2	<i>Geotechnical</i>	56
4.2.3	<i>Geochemical</i>	57
4.3	REGIONAL SETTING.....	57
4.4	LAND SYSTEMS	58
4.4.1	<i>Dinkum Land System</i>	58
4.4.2	<i>Jinka Land System</i>	58
4.4.3	<i>Hann Land System</i>	58
4.5	SOILS.....	58
4.6	HYDROLOGY	59
4.6.1	<i>Surface Hydrology</i>	59
4.6.2	<i>Groundwater Hydrology</i>	59
4.6.3	<i>Groundwater Quality</i>	60
4.7	VEGETATION AND FLORA	63
4.7.1	<i>Vegetation</i>	63
4.7.2	<i>Flora</i>	63
4.7.3	<i>Weeds and Plant Disease</i>	64
4.8	FAUNA.....	64
4.9	ABORIGINAL HERITAGE.....	64
4.10	EUROPEAN HERITAGE.....	65
5.0	ENVIRONMENTAL MANAGEMENT	68
5.1	ENVIRONMENTAL MANAGEMENT PLAN.....	68
5.2	LAND CLEARING	68
5.3	SOIL AND LAND SYSTEMS.....	69
5.4	VEGETATION AND FLORA	70
5.4.1	<i>Vegetation</i>	70
5.4.2	<i>Native Flora</i>	70
5.4.3	<i>Weed Species</i>	71
5.5	FAUNA.....	71
5.6	WASTE ROCK DUMP POTENTIAL FOR ACID MINE ROCK DRAINAGE	73
5.7	GROUNDWATER	73
5.8	BOREFIELD & PIPELINE	74
5.9	SURFACE WATER DRAINAGE	74
5.10	ACCESS ROAD – CREEK CROSSINGS.....	75
5.11	TSF.....	75
5.11.1	<i>Operations</i>	75
5.11.2	<i>TSF Tailings</i>	76

5.11.3	<i>Fauna</i>	77
5.12	INDUSTRIAL AND DOMESTIC WASTE	78
5.13	DANGEROUS GOODS AND HAZARDOUS SUBSTANCES.....	79
5.14	GREENHOUSE GASES	79
5.15	DUST.....	82
5.16	NOISE	82
5.17	TRANSPORT	82
5.18	BITING INSECTS.....	83
5.19	BUSHFIRES.....	83
5.20	PUBLIC HEALTH	84
6.0	MANAGEMENT OF SOCIAL IMPACTS.....	85
6.1	COMMUNITY CONSULTATION.....	85
6.2	HERITAGE ISSUES.....	85
6.2.1	<i>Aboriginal Heritage</i>	85
6.2.2	<i>European Heritage</i>	85
6.3	SOCIO ECONOMIC.....	86
7.0	MONITORING	87
7.1	CLIMATOLOGY	87
7.2	AIR QUALITY	87
7.3	WATER QUALITY	87
7.4	TSF.....	87
7.5	FLORA	88
7.6	FAUNA	88
7.7	DECOMMISSIONING AND CLOSURE	88
8.0	HAZARDS AND RISKS	89
8.1	RISK ANALYSIS AND ISSUE PRIORITISATION.....	89
9.0	HEALTH AND SAFETY	104
9.1	WORKFORCE INDUCTION AND TRAINING	104
9.2	SAFETY	104
9.3	EMERGENCY RESPONSE	104
10.0	ENVIRONMENTAL COMMITMENTS	105
11.0	PUBLIC INVOLVEMENT & CONSULTATION	109
12.0	SOURCES OF INFORMATION	110
12.1	CONSULTANT STUDIES	110
12.2	BIBLIOGRAPHY	110
12.3	GLOSSARY	111

FIGURES

Figure 1 - Molyhil Project location plan	18
Figure 2 - Tenement plan	19
Figure 3 - Site layout of the Molyhil Project.....	25
Figure 4 - Cross-section of open pit	27
Figure 5 - Stage 1 and 2 material movement (tonnes/month).....	28
Figure 6 - Process flow sheet for the Molyhil Project	30
Figure 7 - Design of proposed waste dumps.....	33
Figure 8 - Access haulage route from Plenty Highway to site.....	39
Figure 9 - Location of airstrip and access road	42
Figure 10 – Location of production bores for Molyhil Project	44
Figure 11 - Workforce for Molyhil Project	46
Figure 12 - General arrangement of Molyhil camp.....	47
Figure 13 - Location of bores drilled for groundwater assessment	61
Figure 14 - Recorded aboriginal sites within and in the vicinity of the Molyhil project.....	67

TABLES

Table 1 – Summary of environmental factors and management measures for the Molyhil Project.....	7
Table 2 – Summary of the Molyhil Project.....	23
Table 3 - Mining Stage 1 and 2 summary statistics.....	24
Table 4 - Water requirements for the Molyhil Project	43
Table 5 - Reagent storage requirements.....	45
Table 6 - Climatic data of Jervois station from Bureau of Meteorology	55
Table 7 - Summary of rounded resource estimates - no lower cut.....	56
Table 8 – Soil analyses results.....	59
Table 9 - Groundwater analysis of water supply source	62
Table 10 - Disturbance area at Molyhil Project	69
Table 11 - Failure mechanisms considered in Fault mode and Effect Analysis on TSF	76
Table 12 - Estimated greenhouse gas emissions for the Molyhil Project.....	81
Table 13 - Greenhouse gas emissions for the Molyhil Project	81
Table 14 - Qualitative Risk Analysis Matrix	89
Table 15 - Qualitative Measures of Likelihood	90
Table 16 - Qualitative measures of Consequence	90
Table 17 - Prioritisation of Risks.....	90
Table 18 - Risk Definitions (AS/NZ 4630:1999)	91
Table 19 - Risk Assessment for the Molyhil Project	92
Table 20 - Summary of PER commitments	105

PLATES

Plate 1 – General view of existing pit	21
Plate 2 – Rehabilitated tailings dam used during previous operations	22
Plate 3 – Previously used residential area	22
Plate 4 - Location of proposed plant.....	30
Plate 5 - Location of eastern waste dump	31
Plate 6 - Proposed TSF location	37
Plate 7 - Existing airstrip which will be upgraded	41
Plate 8 - Pipeline route from Prices Bore to the plant located predominantly along an existing track.....	44
Plate 9 - Molyhil site of significance has been fenced to protect the site from unnecessary access.....	66

APPENDICES

Appendix 1	TSF Report – Golder Associates
Appendix 2	Tailings characterisation – Graeme Campbell & Associates
Appendix 3	Groundwater Investigation – Kevin Morgan & Associates
Appendix 4	Landscape, Flora and Fauna Survey – Low Ecological Services
Appendix 5	Draft Environmental Management Plan
Appendix 6	Thor Policies
Appendix 7	Vegetation Clearing Management Plan
Appendix 8	Weed Management Plan
Appendix 9	Fire Management Plan