



MIDWEST VANADIUM PTY LTD

WINDIMURRA VANADIUM PROJECT

VANDIUM RECOVERY AREA

PROJECT SPECIFICATION

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E N G I N E E R S

1.0 INTRODUCTION

This document defines the applicable documents to be prepared and implemented for the project management, engineering, procurement and construction management of the Windimurra Vanadium Project and its associated infrastructure.

For key project data and requirements, refer to Site Data and Project Requirements specification 6033-S-00-G-002.

2.0 APPLICABLE SPECIFICATIONS AND STANDARDS

2.1 General

The specifications listed in this section shall apply to the project.

2.2 Standards and Codes

All equipment shall conform to the requirements of the current and applicable Australian Standards, unless specifically nominated otherwise in any of the equipment specifications, drawings or contract documents. The requirements of relevant Statutory Authorities having jurisdiction shall be complied with, including (for Western Australia):

- Occupational Safety and Health Regulations 1996 (reprinted 15/10/99)
- Occupational Health and Safety Act 1984
- Mines Safety and Inspection Regulations 1995

2.3 Project Plans and Specifications

Proteus Doc No.	Project Doc No.	Title
06033-SG-001	6033-S-00-G-001	Project Specification
06033-SG-002	6033-S-00-G-002	Site Data and Project Requirements Specification
06033-SG-003	6033-S-00-G-003	Project Numbering Specification
06033-SZ-001	6033-S-00-X-001	Project Execution Plan – Stage 1 EPCM
06033-SZ-002	6033-G-00-X-0502	Project Execution Plan – Stage 2 EPCM
06033-SZ-003	6033-G-00-X-003	Construction Management Plan
06033-SY-001	6033-G-00-X-nn	Commissioning Plan
06033-SO-001	6033-G-00-X-nn	Environment, Health and Safety Management Plan
06033-SQ-001	6033-G-00-X-nn	Quality Management Plan
06033- -	6033-G-00-X-nn	HR and IR Management Plan

2.4 Project Design Criteria

The following specifications are prepared specifically for the project in each discipline.

Proteus Doc No.	Project Doc No.	Title
06033-SP-001	6033-G-00-F-001	Process Design Criteria
06033-SP-002	6033-G-00-F-002	Process Plant Description
06033-SP-003	6033-G-00-F-003	Process Control Philosophy
06033-CP-004	6033-G-00-F-004	Process Mass Balance
06033-BM-002	6033-G-00-M-002	Mechanical Design Criteria
06033-BX-002	6033-G-00-P-002	Piping Design Criteria
06033-BC-002	6033-G-00-C-002	Civil Design Criteria
06033-BB-002	6033-G-00-B-002	Concrete Design Criteria
06033-BS-002	6033-G-00-S-002	Structural Design Criteria
06033-SE-001	6033-S-00-E-001	Electrical / Instrumentation Design Criteria

2.5 Basis of Design

The following are standard specifications for basis of design in each discipline.

Proteus Doc No.	Project Doc No.	Title
06033-BC-001	6033-G-00-C-001	Civil Basis of Design
06033-BM-001	6033-G-00-M-001	Mechanical Basis of Design
06033-BX-001	6033-G-00-P-001	Piping Basis of Design
06033-BB-001	6033-G-00-R-001	Concrete Basis of Design
06033-BS-001	6033-G-00-S-001	Structural Basis of Design
06033-BE-001	6033-G-00-E-001	Electrical Basis of Design



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2.6 Project Standard Specifications

The following Project Standard Specifications shall apply to the project.

Project Doc No.	Title
	Civil
6033-S-00-C-001	Standard Specification for Bulk Earthworks
6033-S-00-R-001	Standard Specification for Concrete
	Electrical
6033-S-XX-M-XXX	Variable Speed Drives Units
6033-S-XX-M-XXX	Electrical and Instrumentation Equipment and Cabling Installation
6033-S-XX-M-XXX	Medium Voltage Switchboards
6033-S-XX-M-XXX	Supply of Power Transformers
6033-S-XX-M-XXX	Testing and Commissioning of Electrical and Instrumentation
6033-S-XX-M-XXX	Diesel Power Station
6033-S-XX-M-XXX	Power Plant Main Switchboard
6033-S-XX-M-XXX	Control Panels
6033-S-XX-M-XXX	Preparation of Electrical Drawings
6033-S-XX-M-XXX	High Voltage Switchgear
6033-S-XX-M-XXX	Low Voltage and High Voltage Induction Motors
6033-S-XX-M-XXX	Supply and Installation of Overhead Power Line
6033-S-XX-M-XXX	PLC and VDU Programming and Configuring Standards
6033-S-XX-M-XXX	Field Instrumentations
6033-S-XX-M-XXX	Wound Rotor Motor Rotor Resistance Starters
6033-S-XX-M-XXX	Transportable Mining Type Transformer Substation
	Mechanical
6033-S-00-M-001	General Mechanical Works and Equipment



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Project Doc No.	Title
6033-S-XX-M-XXX	Installation of Mechanical Equipment
6033-S-XX-M-XXX	Pre-commissioning of Mechanical Equipment
6033-S-XX-M-XXX	Roof and Wall Sheeting and Roof Plumbing
6033-S-XX-M-XXX	Thermal Insulation
6033-S-20-G-004	High Alumina Refractory for vanadium Kiln
6033-S-XX-M-XXX	Glass Fibre Reinforced Plastic and Thermoplastic Lined GRP Vessels
6033-S-XX-M-XXX	Fabrication and Installation of Piping Systems
6033-S-XX-M-XXX	Slurry Pumps
6033-S-XX-M-XXX	Impact Crushers
6033-S-XX-M-XXX	EOT Cranes and Hoists
6033-S-XX-M-XXX	Thickeners
6033-S-XX-M-XXX	Electro-Mechanical Vibrating Feeders
6033-S-XX-M-XXX	Vibrating Screens
6033-S-XX-M-XXX	Conveyor Belting
6033-S-XX-M-XXX	Conveyor Drives
6033-S-XX-M-XXX	Conveyor Idlers
6033-S-XX-M-XXX	Conveyor Pulleys and Low Speed Holdbacks
6033-S-XX-M-XXX	Apron Feeders
6033-S-XX-M-XXX	Scrubber Dust Collection Systems
6033-S-XX-M-XXX	Shop Fabricated Carbon Steel Platework Items
6033-S-XX-M-XXX	Valve Vendor Specification
6033-S-00-P-001	Piping Material and Valves Specifications
6033-S-XX-M-XXX	Valve Specification
	General



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Project Doc No.	Title
6033-S-00-G-009	Standard Specification for Painting and Protective Coatings
6033-S-XX-M-XXX	Vendor Drawings and Data
6033-S-XX-M-XXX	Equipment Number System
	Structural
6033-S-00-S-001	Standard Specification for Supply, Fabrication and Installation of Structural Steelwork



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2.7 Project Standard Drawings

The following standard Project Standard Drawings shall apply to the project.

Proteus Doc No.	Title
	Concrete Standard Drawings
6033-00-R-S001	Notes and Drawing Index
6033-00-R-S002	Concrete Details Sheet 1
6033-00-R-S003	Concrete Details Sheet 2
6033-00-R-S004	Wet Process Area Slab Joints
6033-00-R-S005	Dry and Non Process Area Slab Joints
6033-00-R-S006	Slab Joints Details
6033-00-R-S007	Joint Repair
6033-00-R-S008	Square and Rectangular Pedestals
6033-00-R-S009	Circular Pedestals
6033-00-R-S010	Pad Footings
6033-00-R-S011	Cast-in Items & Anchor Bolts
6033-00-R-S012	Trestle Footings
6033-00-R-S013	Security Fencing and Gates
	Civil Standard Drawings
6033-00-R-S014	Box Culvert Details
6033-00-R-S015	Manhole and Grate Details
6033-00-R-S016	Retaining Walls, Kerbs and Drains
6033-00-R-S017	Sumps
	Steelwork Standard Drawings
6033-00-S-S001	Notes and Drawing Index
6033-00-S-S002	Member Legend



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Proteus Doc No.	Title
6033-00-S-S003	Beam End Plate and Angle Cleat Connections
6033-00-S-S004	Copes, Web Side Plate and Bracing Connections
6033-00-S-S005	Vertical Bracing Connections
6033-00-S-S006	Bracing Connection Details
6033-00-S-S007	Base Plates and Shear Keys
6033-00-S-S008	Columns and Beam Splices
6033-00-S-S009	Knee Braces and Monorails
6033-00-S-S010	Moment and Beam Over/Under Column Connections
6033-00-S-S011	Welded Connections
6033-00-S-S012	Lifting Lugs
6033-00-S-S013	Stairs
6033-00-S-S014	Ladders
6033-00-S-S015	Handrail
6033-00-S-S016	Grating and Floor Plate
6033-00-S-S017	Overhead Travelling Crane Support Details
6033-00-S-S018	Cladding Sheet 1
6033-00-S-S019	Cladding Sheet 2
6033-00-S-S020	Cladding Sheet 3
6033-00-S-S021	Conveyor Module
6033-00-S-S022	Conveyor Trestles Sheet 1
6033-00-S-S023	10m and 15m Conveyor Trusses Arrangement
6033-00-S-S024	10m, 12m and 15m Conveyor Trusses Details
6033-00-S-S025	20m Conveyor Trusses Arrangement
6033-00-S-S026	20m, 25m and 30m Conveyor Trusses Details
6033-00-S-S027	Conveyor Truss Support Details



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Proteus Doc No.	Title
6033-00-S-S028	Conveyor Trestles Sheet 2
6033-00-S-S029	Conveyor Trestles - Details
6033-00-S-S030	12m Conveyor Truss Arrangement
6033-00-S-S031	25m and 30m Conveyor Trusses Arrangement
6033-00-S-S032	Conveyor Truss Typical Setout
6033-00-S-S033	Sump Pump Support Frame
	Mechanical Standard Drawings
6033-00-M-S001	General Notes and Index
6033-00-M-S002	Chutes & Platework Details
6033-00-M-S003	Wear Liner Details
6033-00-M-S004	Inspection Door Details
6033-00-M-S005	Concrete Filled Type
6033-00-M-S006	Conveyor Gravity Take-up Details, Steel PL Type
6033-00-M-S010	Conveyor Screw Take-up Frame Details
6033-00-M-S011	Conveyor Tail Frame Details
6033-00-M-S015	Return Belt Plough Details
6033-00-M-S016	Belt Scrapers Details
6033-00-M-S017	Pull Wire Switch and Belt Draft Switch Details
6033-00-M-S018	Shedder Plates Details
6033-00-M-S019	Under Speed Switch & Belt Weigher Speed Sensor
6033-00-M-S020	Conveyor Skirt Module and Cover Details
6033-00-M-S021	700 & 900 Belt Conveyor Cover Module Arrangement – Sheet 1
6033-00-M-S022	700 & 900 Belt Conveyor Cover Module Arrangement –Sheet 2
6033-00-M-S025	750 Belt Conveyor Cover Module Details



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Proteus Doc No.	Title
6033-00-M-S026	900 Belt Conveyor Cover Module Details
6033-00-M-S030	Bearing Mounting Details
6033-00-M-S031	Bearing Mountings
6033-00-M-S040	Flop Gate Details
6033-00-M-S050	Conveyor Guards Details
6033-00-M-S055	Sump Pump Frames Details
	Piping Standard Drawings
6033-00-P-S001	Piping Standards - General Notes and Drawing Index
6033-00-P-S002	Piping Standards - Sheet 1
6033-00-P-S003	Piping Standards - Sheet 2
6033-00-P-S004	Piping Standards - Sheet 3
6033-00-P-S010	Typical Pipe Supports - Sheet 1
6033-00-P-S011	Typical Pipe Supports - Sheet 2
6033-00-P-S012	Typical Pipe Supports - Sheet 3
6033-00-P-S013	Typical Pipe Supports - Sheet 4
6033-00-P-S014	Typical Pipe Supports - Sheet 5
	Tankage Standard Drawings
STD-DT-001	General Notes & Drawing Index
STD-DT-002	Tankage Standard Drawings Sheet 2
STD-DT-003	Tankage Standard Drawings Sheet 3
STD-DT-004	Tankage Standard Drawings Sheet 4
STD-DT-005	Tankage Standard Drawings Weld Details Sheet 1
STD-DT-006	Tankage Standard Drawings Weld Details Sheet 2
STD-DT-010	Tankage Standard Drawings Tank Data Sheet
	Electrical Standard Drawings



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Proteus Doc No.	Title
6033-00-E-1901	Standard Electrical Installation Details – Sheet 1
6033-00-E-1902	Standard Electrical Installation Details – Sheet 2
6033-00-E-1903	Standard Electrical Installation Details – Sheet 3
6033-00-E-1904	Standard Electrical Installation Details – Sheet 4
6033-00-E-1905	Standard Electrical Installation Details – Sheet 5
	Instrumentation Standard Drawings
6033-00-I-1901	Instrument Mounting Installation Details – Sheet 1
6033-00-I-1905	Flow Instruments Installation Details – Sheet 1
6033-00-I-1906	Flow Instruments Installation Details – Sheet 2
6033-00-I-1910	Analytical Instruments Installation Details – Sheet 1
6033-00-I-1915	Level Instruments Installation Details – Sheet 1
6033-00-I-1916	Level Instruments Installation Details – Sheet 2
6033-00-I-1920	Thermowells Installation Details – Sheet 1
6033-00-I-1921	Thermowells Installation Details – Sheet 2
6033-00-I-1925	Temperature Instruments Installation Details – Sheet 1
6033-00-I-1930	Density Instrument Installation Details – Sheet 1
6033-00-I-1935	Conveyor Pullwire Switch Installation Details – Sheet 1
6033-00-I-1936	Conveyor Pullwire Switch Installation Details – Sheet 2
6033-00-I-1937	Conveyor Instruments Installation Details – Sheet 1
6033-00-I-1938	Conveyor Instruments Installation Details – Sheet 2
6033-00-I-1940	Actuator-Solenoid-Separate Installation Details – Sheet 1
6033-00-I-1941	Actuator-Solenoid-Separate-Multi-Valve Installation Details – Sht. 1
6033-00-I-1942	Actuator-Solenoid-Integral Installation Details – Sheet 1
6033-00-I-1943	Actuator -Positioners Installation Details – Sheet 1
6033-00-I-1950	Pressure Instruments Installation Details – Sheet 1



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Proteus Doc No.	Title
6033-00-I-1951	Pressure Instruments Installation Details – Sheet 2
6033-00-I-1952	Pressure Instruments Installation Details – Sheet 3
6033-00-I-1953	Pressure Instruments Installation Details – Sheet 4
6033-00-I-1954	Pressure Instruments Installation Details – Sheet 5