Great South Land
Minerals Limited

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# DRILLING OPERATIONS MANUAL

| Revision Number | Revision Date | Revised Section | Revision Details | Revised By |
|---|---|---|---|---|
| 1 | Feb 2008 | All | New Operator | DMN |

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# CHAPTER 1
# INTRODUCTION

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## 1.1 DISTRIBUTION LIST

**Controlled** electronic copy held by Drilling manager
**Uncontrolled** hard copies of this document are distributed as follows:

| Copy No. | Holder |
|---|---|
| 1 | Drilling Manager (GSLM office copy) |
| 2 | Drilling Supervisor (Rig copy) |
| 3 | Drilling Contractor (Office copy) |
| 4 | Contractors Rig Manager (Rig copy) |
| 5 | Mineral Resources Tasmania |
| 6 | |

**Table 1 Holders of Copies of GSLM's Drilling Operations Manual**

## 1.2 PURPOSE

The purpose of the Drilling Operations Manual is to:

- Illustrate the policies, standards, guidelines, procedures and controls required during the drilling of wells.
- Provide a guide for relevant personnel on the procedures to be followed to ensure that a consistent, thorough and uniform approach is adopted to facilitate delivery of cost-effective wells.
- Provide sufficient information to allow the Drilling Supervisor to supervise, and monitor the drilling operation and control standards and reporting
- .Provide sufficient information which can be used as a reference in planning and field drilling operations.

## 1.3 APPLICATION

The Drilling Operations Manual is the reference manual for GSLM, Drilling Supervisors and Drilling Managers controlling the drilling operations of land wells in Tasmania.

## 1.4 INTRODUCTION

It is acknowledged that this manual is based on the Drilling Operations Manual used by several operators in the Cooper Basin of South Australia. It is expected that these operations will be very similar to those in Tasmania.

Tasmania is largely unexplored and therefore all personnel have to be aware that unplanned events could occur at any time. All personnel need to be aware of this and trained to react correctly. In all circumstances the safety of the public and personnel on the rig is the prime concern and operations should be carried out with safety as the top priority.

## 1.5 SAFETY

GSLM is committed to providing a safe and healthy work environment and to protecting its employees from the possibility of injury and risk to health while they are at work.

The company will make available the appropriate resources to ensure that it complies in all respects to the relevant occupational health and safety legislation and to ensure that the workplace is safe and healthy. In order to achieve this GSLM will ensure that:

- A safe working environment and safe systems of work are provided and maintained at the wellsite.
- Equipment is "Fit for Purpose" and maintained in safe condition.
- People working on the rig will be provided with the information, instruction, training, equipment and supervision needed to ensure their health and safety.
- Occupational health and safety standards and procedures are continually reviewed and improved.
- Risk management procedures are in place to identify, assess and control/eliminate hazards. These will include, Work Permits, JSA's, safety meetings, incident reports, rig inspections etc.

All personnel must be trained, capable and certified (where applicable) for the job they are doing. It is the responsibility for the contractor to ensure their personnel are qualified and trained for the job. The DSV should check qualifications where possible prior to the job commencing.

In the event of an incident or emergency at the rig the priorities will be as follows:

- Safety to the Public
- Safety to personnel on the rig
- Environmental Protection
- Prevention of damage to equipment

The current workplace health and safety legislation in Tasmania is:

- The Workplace Health and Safety Act 1995
- The Workplace Health and Safety Regulations 1998
- The Workers Rehabilitation and Compensation Act 1988

## 1.6 DEFINITIONS

This section contains the abbreviations and terminology used in this Manual. It is strongly recommended that all readers familiarise themselves with the abbreviations and terminology used, to avoid any misunderstanding arising from the use of the terms in the text.

### 1.6.1 Abbreviations

| | |
|---|---|
| **AC** | Alternating Current |
| **API** | American Petroleum Institute |
| **Bbls** | Barrels |
| **BOP** | Blowout Preventer |
| **BUR** | Build-up Rate |
| **CBL** | Cement Bond Log |
| **Cu** | Cubic |
| **DC** | Drill Collar |
| **DDR** | Daily Drilling Report |
| **DOM** | Drilling Operations Manual |
| **DSV** | Drilling Supervisor |
| **E & D** | Exploration and Development |
| **EMW** | Equivalent Mud Weight |
| **FIT** | Formation Integrity Test |
| **ft** | Feet |
| **gal** | Gallon |
| **gpm** | Gallons per Minute |
| **HSWE** | Health, Safety, Welfare and Environment |
| **HTB** | High Temperature Blend |
| **IADC** | International Association of Drilling Contractors |
| **IF** | Internal Flush |
| **KOP** | Kick-off Point |
| **LCM** | Lost Circulation Material |
| **MAASP** | Maximum Allowable Annular Test Surface Pressure |
| **MDT** | Modular Dynamic Tool |
| **MMS** | Magnetic Multi Shot |
| **MT** | Metric Tonnes |
| **MWD** | Measurement While Drilling |
| **N/A** | Not Applicable |
| **NDT** | Non Destructive Testing |
| **OD** | Outside Diameter |
| **OGL** | Operations Geologist |
| **P & A** | Plug and Abandon |
| **Pfc** | Final Circulating Pressure |
| **ppg** | Pounds per Gallon |
| **psi** | Pounds per square inch |
| **PVT** | Pressure Volume Temperature. |
| **QA/QC** | Quality Assurance/ Quality Control |
| **RFT** | Repeat Formation Tester |
| **ROP** | Rate of Penetration |
| **RT** | Rotary Table |
| **SCR** | Slow Circulating Rate |
| **SEO** | Statement of Environmental Objectives |
| **SICP** | Shut-in Casing Pressure |
| **SITHP** | Shut-in Tubing Head Pressure |
| **sx** | Sacks |
| **TOC** | Top of Cement |
| **TVD** | True Vertical Depth |
| **UHF** | Ultra High Frequency |
| **USIT** | Ultra sonic imaging tool) |
| **VDL** | Variable Density Log |
| **WGL** | Wellsite Geologist |
| **WOC** | Waiting on Cement |
| **wt** | Weight |
| **AHD** | Along Hole Depth |
| **BHA** | Bottom Hole Assembly |
| **bpm** | Barrels per Minute |
| **CCL** | Casing Collar Locator |
| **cmt** | Cement |
| **CET** | Cement Evaluation Tool |
| **DDE** | Directional Drilling Engineer |
| **DE** | Drilling Engineer |
| **DP** | Drill Pipe |
| **DST** | Drill Stem Test |
| **ECD** | Equivalent Circulating Density |
| **EOB** | End of Build-up |
| **FPIT** | Free Point Indicator Tool |
| **GSLM** | Great South Land Minerals |
| **GLG** | Geologist |
| **GR** | Gamma ray |
| **ht** | Height |
| **HWDP** | Heavy Weight Drill Pipe |
| **ID** | Inside Diameter |
| **KB** | Kelly Bushing |
| **LGS** | Low Gravity Solids |
| **MBT** | Methylene Blue |
| **min** | Minute |
| **MSS** | Magnetic Single Shot |
| **MSDS** | Materials Safety Data Sheet |
| **MW** | Mud Weight |
| **NBRR** | Near Bit Roller Reamer |
| **NMDC** | Non Magnetic Drill Collar |
| **NRV** | Non Return Valve System |
| **OE** | Operations Engineer |
| **OH** | Open Hole System |
| **PE** | Petroleum Engineer |
| **Pic** | Initial Circulating Pressure |
| **POOH** | Pull out of Hole |
| **ppm** | Parts per Million |
| **PV** | Plastic Viscosity |
| **RIH** | Run in Hole |
| **rpm** | Revolutions per Minute |
| **sec/ qt** | Seconds per quart |
| **SF** | Safety Factor |
| **SIDPP** | Shut-in Drill Pipe Pressure |
| **spm** | Strokes per Minute |
| **TP** | Tool Pusher |
| **TD** | Total Depth |
| **TLC** | Tough Logging Conditions |
| **WOB** | Weight on Bit |

### 1.6.2 Language

- **Shall** or **must** indicates a mandatory requirement.
- **Should** indicates a guideline which is strongly recommended.
- **May** indicates a guideline which is to be considered.

## 1.7 REFERENCES

All references applicable to a section of the text are identified at the foot of the text and prefixed by the 🕮 symbol.

This manual should be used in conjunction with the following references.

🕮 GSLM's Policies and Procedure
🕮 Dangerous Goods Act 1998
🕮 Mineral Resources Development Act 1995
🕮 Mineral Resources Regulations 2006
🕮 Mineral Exploration Code Of Practice
🕮 Schedule C of the Exploration License
🕮 The Workplace Health and Safety Act 1995
🕮 The Workplace Health and Safety Regulations 1998
🕮 The Workers Rehabilitation and Compensation Act 1988

# CHAPTER 2

# QUICKLOOK DRILLING OPERATIONS GUIDE

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## 2.1 OBJECTIVES

The objective of the Quicklook Drilling Operations Guide is to provide a quick reference for a newly assigned Rig Supervisor to the drilling activities carried out by GSLM. The table in Section 2.2 summarises and outlines the sequential steps involved in planning, constructing, evaluating and abandoning a typical conventional well. The table incorporates references to procedures contained in this Manual, and where relevant, the applicable forms which must be completed.