



Australian Government

Department of Education, Employment and Workplace Relations

RIINHB501A Plan drilling

Release: 1

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Modification History

Not applicable.

Unit Descriptor

This unit covers the planning of drilling programs in the drilling industry. It includes: liaising with clients and other relevant parties; inspect and researching site for accessibility, services, hazards, legal and environmental problems; selecting appropriate drilling methods, preparing cost estimates, quotes and tenders; arranging permits and licences; designing and organising drilling programs; and preparing occupational health and safety plans for sites.

Application of the Unit

This unit is appropriate for those working in management or technical specialist roles within:

- Drilling

Licensing/Regulatory Information

Refer to Unit Descriptor.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

<p>Elements describe the essential outcomes of a unit of competency.</p>	<p>Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.</p>
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Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Liaise with clients and other relevant parties	1.1. Access, interpret and apply compliance documentation relevant to the work activity 1.2. Define precise scope of work expected by client and other relevant parties 1.3. Communicate with all parties clearly and concisely to ensure that priorities and special requirements are understood and acted upon 1.4. Negotiate an achievable and acceptable contract with the client within the scope of the driller's legal requirements and legal responsibilities 1.5. Achieve and document agreement on the drilling plan, by communicating and clarifying intended objectives and contract requirements with all relevant parties 1.6. Develop a time schedule for all operations
2. Inspect/research site for accessibility, services, hazards, legal and environmental problems	2.1. Establish size and nature of intended drill sites and designated routes to reach them 2.2. Assess topographical and geological features and identify preferred drilling sites 2.3. Locate and interpret specific relevant information from maps, diagrams or from other data 2.4. Identify legal and environmental limitations, and hazards applying to site and take appropriate action 2.5. Identify and honour locations of socially or environmentally sensitive areas according to the site agreement 2.6. Check availability and distance of water and/or other local supplies
3. Select appropriate drilling method	3.1. Read and evaluate available data relevant to ground conditions 3.2. Select optimum method of drilling and down hole tools , in consultation with other personnel
4. Prepare cost estimates, quotes and tenders	4.1. Prepare data for quote listing all necessary activities, materials and sub-contracting services needed

	<p>4.2. Allow a contingency sum for identifiable but uncertain factors</p> <p>4.3. Use <i>mathematical calculations</i> and estimations to determine job costs</p> <p>4.4. Present quote/tender clearly</p>
5. Arrange permits and licences	<p>5.1. Determine and obtain the required <i>permits and licences</i></p> <p>5.2. Follow correct <i>application</i> procedures</p>
6. Design and organise drilling program	<p>6.1. Establish action plan to ensure completion of program to client satisfaction, within quality, time and cost parameters</p> <p>6.2. Communicate scope of work to crew involved in drilling program</p> <p>6.3. Prepare fieldwork instructions, detailing: project location, access, water supply, aims of project and detailed instructions</p> <p>6.4. Note variations to scope of work/contractual requirements on log</p> <p>6.5. Select appropriate and available crew and other resources for the job</p> <p>6.6. Communicate with crew(s) about job requirements, working conditions and role and responsibilities, clearly and concisely and if ambiguity occurs, immediately clarify</p> <p>6.7. Establish size and nature of intended drill rig sites, and routes for reaching them</p> <p>6.8. Specify any access track, clearing or bench construction sizes and compaction required to support rigs and equipment</p> <p>6.9. Clarify availability of site amenities and back up support</p> <p>6.10. Decide upon methods of controlling flow off site, disposing of wastes and restoring the site after the operations</p>
7. Prepare OHS plan for site	<p>7.1. Prepare plan to eliminate/mitigate hazards to designated level</p> <p>7.2. Read and follow signs, hazards and warnings and understand consequences</p> <p>7.3. Determine and acquire required safety equipment</p> <p>7.4. Incorporate safety rules and regulations, legislation and specific site instructions</p>

	7.5. Obtain sign-off on commitment to <i>occupational health and safety (OHS) plan</i> from crew
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Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.
Required skills
<p>Specific skills are required to achieve the performance criteria in this unit, particularly for the application in the various circumstances in which this unit may be applied. This includes the ability to carry out the following as required to plan drilling programs:</p> <ul style="list-style-type: none"> • apply legislative, organisation and site requirements and procedures • work in a team • apply negotiation skills with clients and other parties • prepare costing, estimations and tenders • apply metric and imperial conversions • apply mathematical skills, including: addition, subtraction, multiplication and division • use project management tools and programs
Required knowledge
<p>Specific knowledge is required to achieve the Performance Criteria of this unit, particularly its application in a variety of circumstances in which the unit may be used. This includes knowledge of the following, as required to plan drilling programs:</p> <ul style="list-style-type: none"> • equipment and characteristics, technical capabilities and limitations • inspection/research techniques for collection of data: <ul style="list-style-type: none"> • linear measurement • angular measurement • by manual/electronic means • communication systems, processes and procedures • communication documents including maps, geological and topographical data, diagrams • graphical representation (e.g. maps, diagrams and its uses for interpretation and prediction) • understanding of special requirements for seam gas drilling • environmental requirements for drill sites • OHS planning principles and application

Evidence Guide

<p>The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.</p>	
<p>Overview of assessment</p>	
<p>Critical aspects for assessment and evidence required to demonstrate competency in this unit</p>	<p>The evidence required to demonstrate competency in this unit must be relevant to worksite operations and satisfy all of the requirements of the performance criteria, required skills and knowledge and the range statement of this unit and include evidence of the following:</p> <ul style="list-style-type: none"> • knowledge of the requirements, procedures and instructions for the planning of drilling programs • implementation of procedures and techniques for the safe, effective and efficient planning of drilling programs • the identification of the relevant information and scope of the work required to meet the required outcomes • the identification of viable options and the selection of planning of drilling programs that best meet the required outcomes • working with others to undertake and complete the planning of drilling programs • consistent successful planning of drilling programs
<p>Context of and specific resources for assessment</p>	<ul style="list-style-type: none"> • This unit must be assessed in the context of the work environment. Where personal safety or environmental damage are limiting factors, assessment may occur in a simulated environment provided it is realistic and sufficiently rigorous to cover all aspects of workplace performance, including task skills, task management skills, contingency management skills and job role environment skills. • The assessment environment should not disadvantage the participant. For example, language, literacy and numeracy demands of assessment should not be greater than those required on the job. • Customisation of assessment and delivery

	<p>environment to sensitively accommodate cultural diversity.</p> <ul style="list-style-type: none"> • Aboriginal people and other people from a non English speaking background may have second language issues. • Assessment of this competency requires typical resources normally used in a civil works environment. Selection and use of resources for particular worksites may differ due to site circumstances. • Where applicable, physical resources should include equipment modified for people with disabilities. • Access must be provided to appropriate learning and/or assessment support when required.
<p>Method of assessment</p>	<p>This unit may be assessed in a holistic way with other units of competency. The assessment strategy for this unit must verify required knowledge and skill and practical application using more than one of the following assessment methods:</p> <ul style="list-style-type: none"> • written and/or oral assessment of the candidate's required knowledge to apply in undertaking of the planning of drilling programs • observed, documented and/or first hand testimonial evidence of the candidate's: <ul style="list-style-type: none"> • implementation of appropriate procedures and techniques for the safe, effective and efficient achievement of the required outcomes • identification of the relevant information and scope of the work required to meet the required outcomes • identification of viable options and the selection of options that best meet the required outcomes • consistently achieving the required outcomes • first hand testimonial and documentary evidence of the candidate's: <ul style="list-style-type: none"> • working with others to undertake and complete the planning of drilling programs • provision of clear and timely required

	support and advice on the implementation of drilling programs
Guidance information for assessment	Consult the SkillsDMC User Guide for further information on assessment including access and equity issues.

Range Statement

<p>The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.</p>	
<p>Relevant compliance documentation may include:</p>	<ul style="list-style-type: none"> • legislative, organisational and site requirements and procedures • manufacturer's guidelines and specifications • Australian standards • code of practice • Employment and workplace relations legislation • Equal Employment Opportunity and Disability Discrimination legislation
<p>Scope of work may include:</p>	<ul style="list-style-type: none"> • tendering/quoting • site inspections • liaising with clients • crew selection/training • purchase/acquisition of equipment
<p>Relevant parties may include:</p>	<ul style="list-style-type: none"> • landholders • geologists • engineers • drilling crews • government departments • utility providers
<p>Communication may include:</p>	<ul style="list-style-type: none"> • face to face • telephone • 2-way radio • written documentation • SAT phones
<p>Legal requirements may include:</p>	<ul style="list-style-type: none"> • environmental protection • groundwater protection • licensing • occupational health and safety
<p>Legal responsibilities may include:</p>	<ul style="list-style-type: none"> • notice to the licensing body of intention to start work on hole or well, or in certain areas • provision of dates when drilling would be in progress • provision of statutory records and samples by

	due date
Topographical and geological features may be determined by various methods, including:	<ul style="list-style-type: none"> • geological and topographical maps • air photos, photogrammetric methods generally • site inspection (foot, 2- or all wheel drive)
Relevant information may include:	<ul style="list-style-type: none"> • maps (e.g. road, geological and topographical maps, site mud maps) • surveys • written instructions • drawings • reports (e.g. mines reports, geological reports, logs from previous drilling)
Hazards may include:	<ul style="list-style-type: none"> • electricity wires (underground and overhead) • (pressured) water pipes • telephone lines/cables, fibre optic cables • gas pipes • pipes containing 'other' fluids (e.g. petroleum, stormwater, sewers) • predominant wind direction
Methods of drilling and down hole tools may include:	<ul style="list-style-type: none"> • cable tool • auger: <ul style="list-style-type: none"> • solid flight • hollow flight • bucket • short flight • rotary mud • rotary air: <ul style="list-style-type: none"> • rotary air blast • down hole hammer • reverse circulation hammer • air core • vibro core • directional drilling • coal seam drilling • sampling tools - push tubes, core barrels, bits and reamers
Data may include:	<ul style="list-style-type: none"> • checklists of all activities and material • wastage factors • contingency allowances • schedules of quantities and rates • organisation's procedures for calculating and

	<ul style="list-style-type: none"> presenting estimates • inspection of cores or chip samples from earlier drilling programs • bore logs and geological/geotechnical reports
Mathematical calculations may include:	<ul style="list-style-type: none"> • carrying out addition, subtraction, multiplication, division length • using appropriate instruments to measure: <ul style="list-style-type: none"> • width • height • diameter • weight • angle • temperature • using calculator • using estimating skills (e.g. mental arithmetic, visualisation of size and quantity)
Permits and licences may include:	<ul style="list-style-type: none"> • Drillers licence (water well and environmental sectors) • Breathing Apparatus (BA) Certificate • proof of attendance at occupational health and safety course • Bore licence • Exploration licence • Hot work permit • Confined space permit • Permit To Work authority • well control certification
Application for permits and licences may be made with:	<ul style="list-style-type: none"> • State and Territory governments • Water authorities • Fire department, Mines Rescue Organisations (BA Training) • Environment Protection Authorities (EPAs) • various groundwater consultants • industrial complex on which work is being conducted
Occupational Health and Safety (OHS) plan may include information, legislation and code of practice including:	<ul style="list-style-type: none"> • duties and responsibilities • materials safety data sheets (MSDS) • Hazchem registers • maintenance of records of occupational injury and disease • provision of information and training • setting up/working with occupational health

	and safety committees • emergency response plan
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Unit Sector(s)

Drilling (General)

Competency field

Refer to Unit Sector(s).

Co-requisite units

Not applicable.