Australian Government

RIINHB306X Conduct large diameter auger drilling

DRAFT

Release: 1

RIINHB306X Conduct large diameter auger drilling

Modification History

Release	Comments
1	This unit of competency was first released in RII Resources and Infrastructure Industry Training Package Release 13.0.

Application

This unit describes a participant's skills and knowledge required to conduct large diameter auger drilling in civil construction and drilling.

This unit is appropriate for those working in operational roles.

Licensing/Regulatory Information

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Pre-requisite unit(s)

No pre-requisite units

Competency field(s)

N/A

Unit sector(s)

Civil construction

Drilling

Elements and Performance Criteria

1. Plan and prepare for large diameter auger drilling	1.1 Access, interpret and apply large diameter auger drilling documentation, work requirements, site procedures and work instructions, and confirm the work activity is compliant with requirements 1.2 Compare approved drilling information with physical work area conditions and report any discrepancies according to workplace procedures

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	1.3 Identify and address potential risks, hazards and environmental issues and implement control measures according to workplace procedures 1.4 Select, inspect and wear personal protective equipment appropriate for work activities 1.5 Communicate and coordinate activities with others throughout the work activity according to work requirements 1.6 Select tools and equipment, including augers, buckets, drill bits and ancillary components, to carry out the work activity, check for serviceability and fit, and rectify or report any faults according to workplace procedures 1.7 Obtain and interpret emergency procedures, and be prepared for fire/accident/emergency
2. Operate large diameter auger drill	2.1 Carry out pre-start and start-up procedures and apply rig operational controls according to manufacturer specifications and workplace procedures 2.2 Select bits and augering method to suit the formation and hole specification, and make up drill string according to manufacturer specifications 2.3 Collar borehole, start hole and maintain hole alignment, taking corrective action for deflections according to manufacturer specifications 2.4 Handle and insert drill stems and change augers and bit components according to manufacturer specifications 2.5 Control gears, rotation, feed and holdback to keep flights or bucket substantially full for the soil being drilled, according to manufacturer specifications and workplace procedures 2.6 Maintain a clear hole and bottom, and insert surface casing or deepen the hole using a smaller diameter auger or bucket as required, according to manufacturer specifications and workplace procedures 2.7 Select and use water and drilling fluids, and recover dropped augers or drill string according to manufacturer specifications and workplace procedures 2.8 Manage spoil removal, pile base preparation and bore close-out, and complete required records, according to manufacturer specifications and workplace procedures
3. Respond to problems	3.1 Identify possible operational problems in equipment or process, and symptoms of problems needing remedial action, according to workplace procedures

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	3.2 Determine possible causes of problems and action required according to workplace procedures 3.3 Rectify problems within area of responsibility and follow through until final resolution has occurred according to workplace procedures 3.4 Report problems outside area of responsibility to designated person according to workplace procedures
4. Complete equipment maintenance and housekeeping	4.1 Carry out shutdown and secure equipment according to manufacturer specifications and workplace procedures 4.2 Monitor external wear in drill string, check all string and equipment elements for wear and proper function, and rotate string elements to ensure even wear, according to manufacturer specifications 4.3 Interchange drill bits or drill bit elements to maintain free cutting ability according to manufacturer specifications 4.4 Replace worn elements in string, bits and equipment and recycle out of specification equipment for repair or redundancy according to workplace procedures 4.5 Apply lubrication according to manufacturer specifications 4.6 Confirm housekeeping activities are completed according to workplace procedures 4.7 Process records according to workplace procedures

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit and are described below to support training and assessment.

SKILL	DESCRIPTION
Reading	Interpret position diagrams, plans and pile design specifications, beyond the general work documentation referenced in the performance criteria.
Numeracy	Interpret trends across successive torque, penetration-rate and depth readings, and verify hole and pile depth against design tolerance using depth-assessment devices.
Oral communication	Structure a shift handover or fault report so a colleague can act on it without needing to seek clarification.

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Problem solving	Weigh up severity and urgency when multiple equipment or process issues arise, to decide which require immediate action within the operator's own area of responsibility.
Self-management	Maintain systematic decision-making and safety checks when drilling parameters change rapidly.

Range of conditions

N/A

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Assessment Requirements for RIINHB306X Conduct large diameter auger drilling

Performance Evidence

The candidate must demonstrate the ability to complete the tasks outlined in the elements, performance criteria and foundation skills of this unit, including evidence of the ability to conduct large diameter auger drilling on at least two separate occasions, including at least one occasion involving changing ground or operating conditions requiring modification of technique.

In the course of the above, the candidate must:

- plan, prepare and coordinate large diameter auger drilling, including:
    - interpreting work documentation and confirming it against site conditions
    - identifying and controlling hazards, risks and environmental issues, and applying site safety and emergency requirements
    - selecting and checking tools and equipment for the work
    - communicating with others to clarify instructions, coordinate activities and report information throughout the work
- complete large diameter auger drilling safely, effectively and efficiently, including:
    - selecting bits, augers and drilling method to suit the ground and hole specification, and making up and extending the drill string
    - starting and collaring the hole and maintaining hole alignment
    - operating rig controls to keep flights or bucket loaded and the hole clear
    - using surface casing, water, drilling fluids or changes of tooling as required by ground and hole conditions
    - managing spoil removal, pile base preparation and bore close-out
    - identifying and responding to operational problems, including recovering dropped augers or drill string where required
    - shutting down, maintaining and securing equipment, and completing housekeeping
    - completing and processing required records

Knowledge Evidence

The candidate must be able to demonstrate knowledge to complete the tasks outlined in the elements, performance criteria and foundation skills of this unit, including knowledge of:

- organisation and site requirements and procedures for:
    - work health and safety, including hazard control, personal protective equipment and emergency response

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    - environmental protection
    - communication, reporting and recordkeeping
    - housekeeping
- types and purposes of augers, buckets, drill bits and ancillary components, and how they are selected to suit the formation and hole specification
- drill rig and equipment capabilities, limitations and operational controls
- purpose of pre-start, operational and maintenance checks, and consequences of undetected faults
- ground types likely to be encountered and how they influence drilling method, flight or bucket loading and the condition of the hole
- principles of controlling gears, rotation, feed and holdback to keep flights or bucket loaded, and consequences of incorrect loading
- purpose of surface casing, water and drilling fluids, and how ground conditions influence their use
- common operational problems, including dropped augers or drill string, their likely causes and suitable responses
- causes and consequences of hole deviation, and methods of maintaining hole alignment
- requirements for spoil removal, pile base preparation and bore close-out
- signs of wear in drill string, bits and equipment, and methods of rotating, interchanging, replacing and lubricating components

Assessment Conditions

The assessment must:

- include access to:
    - personal protective equipment
    - equipment required to conduct large diameter auger drilling
    - workplace documentation such as, drill plans, site plans and procedures, manufacturer instructions and safety data sheets
- be conducted in a safe environment
- be assessed in the context of this sector's work environment
- be assessed in compliance with relevant legislation/regulation and using policies, procedures and processes directly related to the industry sector for which it is being assessed
- confirm consistent performance can be applied in a range of relevant workplace circumstances.

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Where personal safety or environmental damage are limiting factors, assessment may occur in a simulated work environment* provided it is realistic and sufficiently rigorous to cover all aspects of this sector's workplace performance, including environment, task skills, task management skills, contingency management skills and job role environment skills.

*Guidance on simulated environments has been stipulated in the RII Companion Volume Implementation Guide.

Industry Experts

An industry expert engaged by an RTO to wholly or partially conduct assessment, independently or together with another assessor, or be involved in an assessment judgement, must also satisfy the assessor requirements in applicable vocational education and training legislation, frameworks and/or standards.

Assessors and industry experts delivering training in the drilling industry sector must also have a minimum of three (3) years industry experience, directly relevant to the training and assessment being provided.

Mandatory Workplace Requirements

Assessment of performance evidence may be in a workplace setting or an environment that accurately represents a real workplace.

Unit Mapping Information

Previous Code and Title	Equivalence	Comments
RIINHB306E Conduct large diameter auger drilling	Equivalent	Updates to application, elements and performance criteria, performance and knowledge evidence, and assessment conditions

Links

Companion volumes, including implementation guides, are found on the national training register - https://training.gov.au/training/details/RII.

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