Australian Government

RIINHB305X Conduct continuous flight auger drilling

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Release: 1

RIINHB305X Conduct continuous flight 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 the skills and knowledge required to conduct continuous flight auger drilling in the drilling and related resources and infrastructure work environments. It applies to operators working with continuous flight auger drills, who work within site, manufacturer and authorisation requirements, maintain situational awareness and adjust drilling techniques in response to changing ground and operating conditions.

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)

N/A

Elements and Performance Criteria

1. Plan and prepare for continuous flight auger drilling	1.1 Access, interpret and apply continuous flight auger drilling documentation, and ensure the work activity is compliant 1.2 Obtain, read, interpret, clarify and confirm work requirements 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

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	1.5 Communicate and coordinate activities with others throughout the work activity according to work requirements 1.6 Obtain and interpret emergency procedures, and be prepared for fire/accident/emergency
2. Operate continuous flight auger drill	2.1 Carry out pre-start and start-up procedures, and identify, select and apply rig operational controls, according to manufacturer specifications and workplace procedures 2.2 Select bits and augering method to suit formation being drilled and hole specification, and make up drill string to suit hole specification and ground conditions, according to manufacturer specifications 2.3 Collar borehole, start hole, maintain hole alignment and take corrective action for deflections according to manufacturer specifications 2.4 Handle and insert additional augers, and make and break auger string and drive head connections, according to manufacturer specifications 2.5 Apply rotation, feed and holdback so that flights remain substantially full for the soil being drilled, and interpret flow from the flights and other factors to determine conditions at the bit, according to manufacturer specifications and workplace procedures 2.6 Maintain a clear hole and a clear bottom, interpret or calculate actual depth, strata changes and fill depth, and describe and log soils being excavated, according to workplace procedures 2.7 Select strategies for recovery of dropped augers to suit the cause of the loss, and recover drill string using winch or head and kelly and disassemble drill string, according to manufacturer specifications and workplace procedures 2.8 Maintain spoil removal from the hole collar, abandon, cover or secure bores, and prepare and submit paperwork for daily activities including bore logs, according to 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 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

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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 geological maps, bore logs and site plans to inform drilling method, beyond the general work documentation referenced in the performance criteria.
Numeracy	Interpret trends across successive torque, penetration-rate and depth readings to identify a developing change, rather than a single reading in isolation.
Oral communication	Structure a shift handover or fault report so a colleague can act on it without needing to seek clarification.
Problem solving	Distinguish between normal equipment wear and an emerging fault from subtle changes in gauge readings, before the change becomes an operational problem.
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 RIINHB305X Conduct continuous flight 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:

The candidate must complete continuous flight auger drilling on at least two occasions, including:

- collaring borehole, starting hole, maintaining hole alignment, and taking corrective action for deflections
- making up appropriate drill string
- handling additional augers, inserting them in the drill string
- applying rotation, feed and holdback so that flights are substantially full for the soil being drilled at any given depth
- interpreting flow from the flights and other factors to determine conditions at the bit
- selecting appropriate strategies for recovery of dropped augers
- recovering drill string using winch and/or head/kelly, and disassembling drill string

In the course of the above, the candidate must:

- locate and apply relevant documentation, policies and procedures
- implement the requirements, procedures and techniques for the safe, effective and efficient completion of continuous flight auger drilling including:
    - identifying and reporting all potential hazards, risks and environmental issues
    - interpreting geological maps, bore logs, diagrams, plans and instructions used for recording and prediction
    - selects PPE suited to the identified hazards, and wearing it correctly throughout the work activity
- work effectively with others to undertake and complete the continuous flight auger drilling tasks that meets all of the required outcomes including:
    - complying with written and verbal reporting requirements and procedures
    - communicating clearly and concisely with others to receive and clarify work instructions
    - communicating clearly and concisely with others to resolve coordination requirements prior to commencing and during work activities

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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:
    - environmental issues
    - housekeeping
    - operating drill rig
    - personal protective equipment selection, inspection and use
- work, health and safety (WHS) requirements, including statutory regulations, codes and standards relevant to continuous flight auger drilling.
- the characteristics of common equipment spares, and the consequences of fitting an incorrect or incompatible spare for equipment performance and safety
- equipment technical capabilities and system limitations, and what a change in each gauge reading indicates about conditions at the bit
- the reasons pre-start and operational maintenance checks are conducted on the rig and equipment, and the consequences of an undetected fault for drilling performance and safety
- soil and rock types likely to be encountered in continuous flight auger drilling, their properties, and how each affects penetration rate, flight loading and hole stability
- how augers transport spoil to the surface, and the relationship between rotation, feed and holdback in keeping flights loaded for the soil being drilled
- the reasons flights must remain substantially full, and the consequences of over-feeding or under-feeding for spoil removal, hole stability and torque
- the reasons a hole becomes unstable or collapses in unconsolidated ground, and the consequences for auger recovery and hole integrity
- indicators of changing ground conditions observable at the surface, including:
    - changes in penetration rate, torque, spoil character and flight loading
    - what each indicates about conditions at the bit
- common causes of dropped or stuck augers, and how the cause informs the recovery strategy selected
- the reasons hole alignment is maintained and deflections corrected, and the consequences of departure from the design alignment
- the reasons ground water may be encountered, and its effect on spoil behaviour and hole stability
- how soils are described and logged, and the reasons accurate strata change and fill depth records are required

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- the reasons bores are abandoned, covered or secured on completion, and the consequences of leaving a bore unsecured
- preparation for fire/accident/emergency

Assessment Conditions

The assessment must:

- include access to:
    - personal protective equipment
    - equipment required to conduct continuous flight 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.

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.

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Unit Mapping Information

Previous Code and Title	Equivalence	Comments
RIINHB305E Conduct continuous flight 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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