Australian Government

Assessment Requirements for RIINHB412D Construct geothermal wells

Release: 1

INDUSTRY SKILLS COUNCILS
Creating Australia's Future

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Modification History

Not applicable.

Performance Evidence

Evidence is required to be collected that demonstrates a candidate's competency in this unit. Evidence must be relevant to the roles within this sector's work operations and satisfy all of the requirements of the performance criteria of this unit and include evidence that the candidate:

- locates and applies relevant legislation, documentation, policies and procedures
- works effectively with others to plan, prepare and conduct the construction of geothermal wells including:
  - communicating clear and timely instructions to those involved
  - preparing for and conducting briefings, toolbox and site meetings
  - maintaining clear and legible written records and the reports
- demonstrates consistent timely construction of geothermal wells that safely, effectively and efficiently meet all of the required outcomes on a minimum of one (1) occasion including:
  - determining most appropriate construction methods from the reading and interpretation of all available documented information and local geographic/geological knowledge
  - selecting appropriate bore/surface casing for the anticipated ground conditions and construction techniques
  - completing grouting operations to seal intermediate and/or production casing strings or to seal selected zones
  - maintaining plumbness and alignment of the hole within the required limitations
  - using development techniques to prevent collapsing of casing or blow outs
  - carrying out the decommissioning (abandonment) of test holes or wells in geothermal systems
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Knowledge Evidence

The candidate must demonstrate knowledge in, when constructing geothermal wells through:

  - work, health and safety
  - environmental issues
  - operating drill rig
  - housekeeping
- the equipment characteristics, technical capabilities and limitations
- the basic geological formations, i.e. basic knowledge of both soil and rock classifications and various formations which permit groundwater movement and factors affecting groundwater quality for aquifer systems, including drillability and stability
- potential safety hazards and sources of contamination when siting a well
- the necessity of having a signed agreement/contract with the client
- applying Blow Out Prevention procedures and techniques
- appropriate casing materials for various applications
- managing hole preparation for cementing (grouting) operations
- effects of various cement (grout) additives
- using pressure cementing methods

- casing collapse characteristics
- applying appropriate headworks design for geothermal well applications
- types of drilling fluids
- using grout placement methods and procedures
- applying a range of numerical calculations including:
  - volume (e.g. mud pits, drums, tanks or wells of given dimensions)
  - up hole velocity
  - cement/water/additives quantities
  - flow rates (e.g. L/sec, GPM)
  - conversion from imperial to metric and vice versa
  - required mud weight to control formation fluid pressures
- appropriate fishing operations for the type(s) of drilling being undertaken
- using of materials safety data sheets (MSDS)
- being prepared for fire/accident/emergency
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Assessment Conditions

- An assessor of this unit must satisfy the requirements of the NVR/AQTF or their successors; and Industry regulations for certification and licensing; and,
- this unit must be assessed in the context of this sector's work environment; and,
- this unit must be assessed using Resources and Infrastructure Industry sector specific policies, procedures, processes and operational manuals; and,
- an assessor must demonstrate the performance evidence, and knowledge evidence as outlined in this Unit of Competency, and through five (5) years of work in the Industry sector; and,
- where a co-assessment or partnership arrangement exists between a qualified assessor and an Industry technical expert, the Industry technical expert can hold the unit being assessed, and/or demonstrate equivalency of skills and knowledge at the unit level. An Industry technical expert must also demonstrate a minimum of three (3) years of continuous work in the Industry sector, with the preceding one (1) year in the unit they are co-assessing.
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