

Unscheduled Closure Cost -Motuoane Hennenman Exploration				
Rehabilitation / Closure Action	Comments/Assumptions	Units	Activity Cost	
Preparation for closure				
Establishment of Rig, TLB, Cementing equipment & accessories	Torque Africa Invoice to D3 Energy - #INV0003763, REFERENCE: 24-12-03-BR04 RBD03	/way	R	36 000.00
Setup of Site	Rate as per Forum SA Trading Invoice (Invoice nr GH13 01/10/2024). Assume 6 hours	Per hour	R	3 600.00
Setup of Drill Machine	Rate as per Forum SA Trading Invoice (Invoice nr GH13 01/10/2024). Assume 6 hours	Per hour	R	3 600.00
Water Supply for contractors	Water supply transport and monthly water supply of approximately 10 000l, as provided in the Forum SA Trading Invoice (Invoice nr GH13 01/10/2024).	Once off	R	30 000.00
Inter-hole move of Rig and equipment	Rates are from Torque Africa Quote (Quote ref: 24-12-03 BR04). Assumed 4 hours per move between wells.	Per hour	R	13 200.00
Clean out string to identify and investigate potential blockages/cavities within the well.	Running a clean out string to the bottom of the well. A drilling report (Motuoane Energy Daily Drilling report #19, 5/10/2024) was provided which indicates time taken to remove rod, change the drill bit and lower the rod again to a depth of 581m, giving a total of 6 hours. An additional 2 hours are included in the event blockages need to be cleaned out. Rates are from Torque Africa Quote (Quote ref: 24-12-03 BR04). This includes the unblocking, cleaning and flushing of the well.	Per hour	R	22 400.00
Cement Bond Logging to investigate the current integrity of the casing and grouting	Quicklog Geophysics Tax Invoice No. 1104 (10-12-2024), includes Establishment, Data Acquisition and Data Processing (Karoo CBL)	/well	R	28 833.33
Closure and sealing				
Dismantle of wellhead, booster compressor and coalescer filter	Rate as per Forum SA Trading Invoice (Invoice nr GH13 01/10/2024). Assumed 2 hours to remove each well head and associated infrastructure.	Per hour	R	1 200.00
Supply and install cement plug within well via squeezing technique (Develop cement formulation for cementing the entire well annulus. Develop cement formulation to top-up “no bond” or “poor bond” cemented sections between casing and formation walls – ensure cement seals and does not disperse into porous formations. Cement formulations and volumetric calculations to be approved by well engineer/cement specialist)	Grouting of the well (filling the annulus) is undertaken during drilling, therefore only cementing of the open well (production hole) will be required. The cost is assumed to be similar to that of grouting, for the well plugging. The well plug volume was calculated assuming a full 600m infill with Bentonite Grout in the 126mm diameter wellbore (7.5m3 base volume), plus a 25% excess to account for losses, resulting in a total required volume of 9.4m3.	Per cube	R	52 603.51
Operational Time - Prepping cementing equipment	Hours (4.5) based on Daily drilling reports (Motuoane Energy Daily Drilling report #8, 5/10/2024)	Per Hour	R	14 985.00
Operational Time - Cementing of well	Hours (1) based on Daily drilling reports (Motuoane Energy Daily Drilling report #8, 5/10/2024)	Per Hour	R	3 330.00
Operational Time - Cleaning of cementing equipment	Hours (1.5) based on Daily drilling reports (Motuoane Energy Daily Drilling report #8, 5/10/2024)	Per Hour	R	4 995.00
Cementation integrity testing	Integrity of the plugs must be confirmed by setting weight down on the upper most plug (using the drill string) as well as a differential pressure test for 4 hours at determined pressure with less than 10% bleed over the period. Pressure test data to be captured in 15-minute intervals for the entire 4-hour testing period.	Per hour	R	3 330.00
Removal of any surface infrastructure	Rate as per Forum SA Trading Invoice (Invoice nr GH13 01/10/2024). Assumed 4 hours per site.	Per Hour	R	2 400.00
Excavation of material and demolition hammer and casing	Rate as per Forum SA Trading Invoice (Invoice nr GH13 01/10/2024). Activity to be undertaken with a backhoe if needed. 5 hours assumed per side.	Per hour	R	3 000.00
Groundwater and Surface water monitoring	Assume bi-annual for first year (one surface water and two borehole monitoring points per well), and then annually for the next four years or until closure certificate is issued	/year	R	175 007.04
Fugitive emissions monitoring	Assume annually for five years after decommissioning	/year	R	133 858.63
ECO Compliance Audits	Assume annually for five years after decommissioning	/year	R	149 750.00
Ecosystem monitoring	Ecology specialist survey to monitor the reestablishment of the ecosystems during closure, including wetlands and biodiversity monitoring	/yr	R	109 477.50
General Surface Rehabilitation				
Rip footprint area	Ripping of compacted drill site area and redistributing subsoil and top soil.	/ha	R	1 731.90
Establish vegetation	Indigenous vegetation must be fully rehabilitated to its pre-disturbance condition, or in accordance with the landowner agreement. Assume surrounding area (approximately 50m x 50m) to be ripped as well due to compaction of vehicles and machinery movement.	/ha	R	35 549.55
Backfill excavated area	Sumps to be cleared and backfilled with excavated material, assuming three sumps per site, each sump 6x4x2, giving a total volume of 144m3 per drill site.	/m³	R	11 062.08
Removal of permanent infrastructure				
Waste				

Appendix 2a_Unscheduled Costing

Transport of demolition hazardous waste	Assume 32m2 per sump per site	/m ³	R	207 320.32
Disposal of demolition hazardous waste	Assume 32m2 per sump per site	/m ³	R	112 441.60
Latent and Residual Risk Provision				
Removal of plug and redrill	The latent and residual risk provision for well failure is based on an assumed long-term failure rate of 3.4% of drilled wells. Given that the total number of wells currently considered in this phase is five, the 3.4% failure rate calculates to less than one well ($5 \times 0.034 \approx 0.17$ wells). Therefore, no well failures are currently provisioned under this assumption. It should be noted that the 3.4% failure rate will only trigger the application of the Latent and Residual Risk provision once the total number of wells drilled reaches 30. At this point, the provision accounts for a single failed well ($30 \times 0.034 \approx 1$ well).	/well	R	292 132.66
Post Closure Monitoring				
Fugitive emissions monitoring	Gas leakage monitoring every 5 years for 45 years	/yr	R	240 945.53
P&Gs and Contingencies				
Preliminaries and general	Assume 10% of subtotal Sum of infrastructure and waste removal, well prep and closure, and general surface rehabilitation	%	R	105 019.80
Contingencies	Assume 10% of subtotal Sum of infrastructure and waste removal, well prep and closure, and general surface rehabilitation	%	R	105 019.80
Annual Rehabilitation				
			R	1 902 793.23