

D3 Energy

D3 ENERGY PROJECT

SCHEDULED Closure Costing

Comments/Assumptions	No.	Rehabilitation / Closure Action	Applicable	Unit Rate Code	Units	Quantity
EIMS to get update quote from Torque Africa based on D3 Enegrgy site conditions	1	Well Closure				
		Preperation				
Wells to be surveyed to determine depth as well as any blockages, that may prevent rehabilitation of wells.		Down Hole survey	No	A1,1	/well	16.00
Wells to be surveyed to determine depth as well as any blockages, that may prevent rehabilitation of wells.		Setup of Site	No	A1,20	/well	16.00
Rate confirmed by Torque Exploration Solutions (PTY) LTD, Jan 2024. Aligning machine onto hole		Setup of Drill Maching	No	A1,21	Per hour	160.00
Rate confirmed by Torque Exploration Solutions (PTY) LTD, Jan 2024. Average of 10 hours required for process		Conduct Calliper logging to identify and investigate potential blockages/cavities within well. Step 1 - Tagging of well. Lower tools down hole to ensure equipment can reach bottom of well.	No	A1,22	Per Hour	160.00
Rate confirmed by Torque Exploration Solutions (PTY) LTD, Jan 2024. Average of 5 hours required for process		Conduct Calliper logging to identify and investigate potential blockages/cavities within well. Step 2 - Lower camera down hole if blockage is detected to determin the blockage and next steps.	No	A1,23	Per hour	80.00
Provision was made for opening of 3 collapsed wells if encountered to ensure proper rehabilitation.		Un-block of collapsed boreholes	No	A1,2	/well	3.00
		Assume at unscheduled closure that the initial development will be completed which focuses on the wells located on the Virginia fault where there are 13 new well locations and 3 existing wells that will be utilised in the development.				16.00
Concrete base assumed to be light concrete (250 mm) around well with area 10 m x 10 m 2025: 14 Already removed		Concrete Base (Light concrete)	No	B1,1	/m³	400.00
Infill well with Bentonite Grout assume 750m depth and diameter 100 mm 2025: 7 Wells already plugged		Plug of well	No	A1,5	/well	16.00
Assume concrete capping 1 m x 1 m x 0,3 m		Surface Capping of Well	No	A1,6	/m³	4.80
Rate confirmed by Torque Exploration Solutions (PTY) LTD, Jan 2024. Item charged per hour - average of 10 hours required for process		Dismantle of wellhead, booster compressor and coalescer filter	No	A1,8	Per hour	160.00
Rate confirmed by Torque Exploration Solutions (PTY) LTD, Jan 2024. This is to produce a good bond down hole with cement - average of 10 hours required for process		Flusing & Cleaning of well	No	A1,9	Per hour	160.00
Rate confirmed by Torque Exploration Solutions (PTY) LTD, Jan 2024. Current cement formula is used for plugging as it is accepted by Client for bonds between hole analyst and casing. Assumed average depth per well will be 850 m, which gives 33 m³		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)	No	A1,10	Per cube	0.00
Rate confirmed by Torque Exploration Solutions (PTY) LTD, Jan 2024		Operational Time - Preping grouting equipment	No	A1,11	Per Hour	80.00
Rate confirmed by Torque Exploration Solutions (PTY) LTD, Jan 2024		Operational Time - Grouting of well	No	A1,12	Per Hour	48.00
Rate confirmed by Torque Exploration Solutions (PTY) LTD, Jan 2024		Operational Time - Cleaning of grouting equipment	No	A1,13	Per Hour	112.00
Rate confirmed by Torque Exploration Solutions (PTY) LTD, Jan 2024		Top up grouting - if required	No	A1,14	Per cube	16.00

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Rate confirmed by Torque Exploration Solutions (PTY) LTD, Jan 2024		Surface Capping of well	No	A1,15	Per hour	80.00
Rate confirmed by Torque Exploration Solutions (PTY) LTD, Jan 2024		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.)	No	A1,16	Per hour	64.00
Rate confirmed by Torque Exploration Solutions (PTY) LTD, Jan 2024. Item is charged per hour - average of 10 hours required for process		Removal of any surface infrastructure	No	A1,17	Per Hour	80.00
Rate confirmed by Torque Exploration Solutions (PTY) LTD, Jan 2024. Item charged per hour - average of 5 hours required for process		Excavation of material and demolition hammer and casing	No	A1,18	Per hour	80.00
Rate confirmed by Torque Exploration Solutions (PTY) LTD, Jan 2024. Assumed that the surface tag will include a pole with a flag with details of wells on a metal plate		Supply and install surface tags on each well for monitoring purposes	No	A1,19	/well	16.00
All require surface tags 2025						
Assume 10 m x 10 m area		Rip footprint area	No	G1,2	/ha	0.16
Assume 10 m x 10 m area will require vegetation		Establish vegetation	No	G1,4	/ha	0.16
No allowance was made for annual rehabilitation as a this is the first costing		Annual Rehabilitation Plan (Quantity 0)				0.00
Concrete base assumed to be light concrete (250 mm) around well with area 10 m x 10 m		Concrete Base (Light concrete)	No	B1,1	/m²	0.00
Infll well with Bentonite Grout assume 750m depth and diameter 100 mm		Plug of well	No	A1,5	/well	0.00
Assume concrete capping 1 m x 1 m x 0,3 m		Surface Capping of Well	No	A1,6	/m²	0.00
Rate confirmed by Torque Exploration Solutions (PTY) LTD, Jan 2024. Item charged per hour - average of 10 hours required for process		Dismantle of wellhead, booster compressor and coalescer filter	No	A1,8	Per hour	0.00
Rate confirmed by Torque Exploration Solutions (PTY) LTD, Jan 2024. This is to produce a good bond down hole with cement - average of 10 hours required for process		Flusing & Cleaning of well	No	A1,9	Per hour	0.00
Rate confirmed by Torque Exploration Solutions (PTY) LTD, Jan 2024. Current cement formula is used for plugging as it is accepted by Tetra4 for bonds between hole analyst and casing. Assumed average depth per well will be 850 m, which gives 33 m³		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)	No	A1,10	Per cube	0.00
Rate confirmed by Torque Exploration Solutions (PTY) LTD, Jan 2024		Operational Time - Preping grouting equipment	No	A1,11	Per Hour	0.00
Rate confirmed by Torque Exploration Solutions (PTY) LTD, Jan 2024		Operational Time - Grouting of well	No	A1,12	Per Hour	0.00
Rate confirmed by Torque Exploration Solutions (PTY) LTD, Jan 2024		Operational Time - Cleaning of grouting equipment	No	A1,13	Per Hour	0.00
Rate confirmed by Torque Exploration Solutions (PTY) LTD, Jan 2024		Top up grouting - if required	No	A1,14	Per cube	0.00
Rate confirmed by Torque Exploration Solutions (PTY) LTD, Jan 2024		Surface Capping of well	No	A1,15	Per hour	0.00
Rate confirmed by Torque Exploration Solutions (PTY) LTD, Jan 2024		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.)	No	A1,16	Per hour	0.00

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Rate confirmed by Torque Exploration Solutions (PTY) LTD, Jan 2024. Item is charged per hour - average of 10 hours required for process		Removal of any surface infrastructure	No	A1,17	Per Hour	0.00
Rate confirmed by Torque Exploration Solutions (PTY) LTD, Jan 2024. Item charged per hour - average of 5 hours required for process		Excavation of material and demolition hammer and casing	No	A1,18	Per hour	0.00
Rate confirmed by Torque Exploration Solutions (PTY) LTD, Jan 2024. Assumed that the surface tag will include a pole with a flag with details of wells on a metal plate		Supply and install surface tags on each well for monitoring purposes	No	A1,19	/well	0.00
Assume 10 m x 10 m area		Rip footprint area	No	G1,2	/ha	0.00
Assume 10 m x 10 m area will require vegetation		Establish vegetation	No	G1,4	/ha	0.00
		Concrete Bond Log testing				
Provision was made for CBL testing after wells are plugged		CBL Testing	No	A1,7	No.	0.00
Allowance was made for 3 wells		Latent and residual risk provision (Redrill and plugging of borehole)				3.00
Excavation of a 2m x 2m area around well to a depth of 2 meters.		Excavation of material to access plug	No	A1,24	/well	3.00
		Removal of plug and redrill	No	A1,25	/well	3.00
Infill well with Bentonite Grout assume 850m depth.		Plug of well	No	A1,26	/well	3.00
Rate confirmed by Torque Exploration Solutions (PTY) LTD, Jan 2024. Current cement formula is used for plugging as it is accepted by Tetra4 for bonds between hole analyst and casing. Assumed average depth per well will be 850 m, which gives 33 m ³		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)	No	A1,10	Per cube	0.00
Rate confirmed by Torque Exploration Solutions (PTY) LTD, Jan 2024		Operational Time - Preping grouting equipment	No	A1,11	Per Hour	15.00
Rate confirmed by Torque Exploration Solutions (PTY) LTD, Jan 2024		Operational Time - Grouting of well	No	A1,12	Per Hour	9.00
Rate confirmed by Torque Exploration Solutions (PTY) LTD, Jan 2024		Operational Time - Cleaning of grouting equipment	No	A1,13	Per Hour	21.00
Rate confirmed by Torque Exploration Solutions (PTY) LTD, Jan 2024		Top up grouting - if required	No	A1,14	Per cube	3.00
Rate confirmed by Torque Exploration Solutions (PTY) LTD, Jan 2024		Surface Capping of well	No	A1,15	Per hour	15.00
Rate confirmed by Torque Exploration Solutions (PTY) LTD, Jan 2024. Assumed that the surface tag will include a pole with a flag with details of wells on a metal plate		Supply and install surface tags on each well for monitoring purposes	No	A1,19	/well	3.00
		Surface Capping of Well	No	A1,27	sum	3.00
		Backfill excavated area	No	A1,28	/m ³	24.00
		2 Infrastructural Areas				
		Disposal of demolition waste				
		Concrete demolition waste				
		Crushing of concrete demolition waste	Yes	H1,1	/m ²	1661.44
Load and Haul of demolition waste to Welkom General landfill site		Transport of concrete demolition waste	Yes	H1,2	/m ³	1661.44
		Steel demolition waste				

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A practical estimating range for loose steel demolition scrap might be around 1000–2500 kg/m³, depending heavily on the type and how compacted it is. Average is used of 1800 kg/m³		Transport of steel demolition waste	Yes	H1,3	/m³	369.39
		General demolition waste				
		Transport of waste to dedicated demolition waste disposal site	Yes	H1,4	/m³	1135.30
		Disposal of demolition waste	Yes	H1,5	/m³	1135.30
Assume 2 % of general waste		Hazardous waste				
Load and Haul of Hazardous waste generated during demolition for disposal at Holfontein. (350km)		Transport of demolition hazardous waste	Yes	H1,6	/m³	22.71
Disposal cost		Disposal of demolition hazardous waste	Yes	H1,7	/m³	22.71
Very limited information available. Areas was based on a schematic. No engineering drawings are available.		Gas Plant				
Area from plant schematic		Guardhouse				
Assume that there will be a guard house (assume a 5m x 7m single storey brick building = 35m²)		Normal one storey brick buildings	Yes	E1,1	/m²	35.00
Concrete base assumed to be light concrete (200 mm)		Concrete Base (Light concrete)	Yes	B1,1	/m³	7.00
There are currently no designs for the offices. The office will be approximately 20m x 10m and sit on the left of the control room along with a workshop that will be approximately 24 m x 12 m. Can we work with the typical office building of bricks and steel roof sheets, we can update this once the designs are in place.		Mobile Offices				
Assume concrete thickness of 200 mm		Concrete Base (Medium concrete)	Yes	B1,2	/m³	40.00
Single storey brick building. Assume 4 buildings at 4m x 15m		Normal one storey brick buildings	Yes	E1,1	/m²	200.00
		Offices and Workshops				
Assume concrete thickness of 250 mm		Concrete Base (Medium concrete)	Yes	B1,2	/m³	87.50
Assume double storey brick building with area 150 m²		Normal one storey brick buildings	Yes	E1,1	/m²	150.00
Assume Building with area 200 m²		Remove Canopies/light steel structures (80 kg per square meter)	Yes	C1,5	/m²	200.00
Office area 343 m² (2 Offices)		Prefabricated building	No	E1,3	/m²	316.00
Assume medium plant over 25 % of surface area		Medium plant or structures (800 kg per square meter)	Yes	C1,2	/m²	87.50
1 Steel Containers to be removed (Confirmed by the aerial photograph received Feb 2023 and Jan 2024 and Jan 2025)		Remove Containers	Yes	L1,4	/Unit	1.00
Area from plant schematic		Refrigeration Copression and Dew Point Skid				
Assume concrete thickness of 300 mm		Concrete Base (Medium concrete)	Yes	B1,2	/m³	13.38
Assume canopy over entire area		Remove Canopies/light steel structures (80 kg per square meter)	Yes	C1,5	/m²	44.60
Assume Medium plant over 50 % of surface area		Medium plant or structures (800 kg per square meter)	Yes	C1,2	/m²	22.30
2 m wide along perimeter fire break to be demolished, assume 150 mm thick		Remove fire break (rock finish). Load and haul within the free haul distance	Yes	G1,1	/m³	8.41
Area from plant schematic		Inlet Seperation and Receiving				
Assume concrete thickness of 300 mm		Concrete Base (Medium concrete)	Yes	B1,2	/m³	13.38

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Assume canopy over entire area		Remove Canopies/light steel structures (80 kg per square meter)	Yes	C1,5	/m ²	44.60
Assume Medium plant over 50 % of surface area		Medium plant or structures (800 kg per square meter)	Yes	C1,2	/m ²	22.30
2 m wide along perimeter fire break to be demolished, assume 150 mm thick		Remove fire break (rock finish), Load and haul within the free haul distance	Yes	G1,1	/m ³	7.32
Area from plant schematic		Boost Compression/Membrane				
Assume concrete thickness of 300 mm		Concrete Base (Medium concrete)	Yes	B1,2	/m ³	8.36
Assume canopy over entire area		Remove Canopies/light steel structures (80 kg per square meter)	Yes	C1,5	/m ²	27.87
Assume Medium plant over 50 % of surface area		Medium plant or structures (800 kg per square meter)	Yes	C1,2	/m ²	13.94
2 m wide along perimeter fire break to be demolished, assume 150 mm thick		Remove fire break (rock finish), Load and haul within the free haul distance	Yes	G1,1	/m ³	7.32
Area from plant schematic		Helium Sales Compressor				
Assume concrete thickness of 300 mm		Concrete Base (Medium concrete)	Yes	B1,2	/m ³	4.18
Assume canopy over entire area		Remove Canopies/light steel structures (80 kg per square meter)	Yes	C1,5	/m ²	13.94
Assume Medium plant over 50 % of surface area		Medium plant or structures (800 kg per square meter)	Yes	C1,2	/m ²	6.97
2 m wide along perimeter fire break to be demolished, assume 150 mm thick		Remove fire break (rock finish), Load and haul within the free haul distance	Yes	G1,1	/m ³	4.57
Area from plant schematic		VP&A/Vavuum Pumps				
Assume concrete thickness of 300 mm		Concrete Base (Medium concrete)	Yes	B1,2	/m ³	13.38
Assume canopy over entire area		Remove Canopies/light steel structures (80 kg per square meter)	Yes	C1,5	/m ²	44.60
Assume Medium plant over 50 % of surface area		Medium plant or structures (800 kg per square meter)	Yes	C1,2	/m ²	22.30
2 m wide along perimeter fire break to be demolished, assume 150 mm thick		Remove fire break (rock finish), Load and haul within the free haul distance	Yes	G1,1	/m ³	9.51
Area from plant schematic		Helium Liquefier				
Assume concrete thickness of 300 mm		Concrete Base (Medium concrete)	Yes	B1,2	/m ³	15.08
Assume canopy over entire area		Remove Canopies/light steel structures (80 kg per square meter)	Yes	C1,5	/m ²	50.27
Assume Medium plant over 50 % of surface area		Medium plant or structures (800 kg per square meter)	Yes	C1,2	/m ²	25.13
2 m wide along perimeter fire break to be demolished, assume 150 mm thick		Remove fire break (rock finish), Load and haul within the free haul distance	Yes	G1,1	/m ³	7.54
Area from plant schematic		Instrument and Air Compressor and Dryer				
Assume concrete thickness of 300 mm		Concrete Base (Medium concrete)	Yes	B1,2	/m ³	5.57
Assume canopy over entire area		Remove Canopies/light steel structures (80 kg per square meter)	Yes	C1,5	/m ²	18.58
Assume Medium plant over 50 % of surface area		Medium plant or structures (800 kg per square meter)	Yes	C1,2	/m ²	9.29
2 m wide along perimeter fire break to be demolished, assume 150 mm thick		Remove fire break (rock finish), Load and haul within the free haul distance	Yes	G1,1	/m ³	5.49
Area from plant schematic		MCC				
Assume concrete thickness of 250 mm (Area 6.096 x 3.048 = 18*6 m ² *20% Contingencies = 22.3 m ²)		Concrete Base (Medium concrete)	Yes	B1,2	/m ³	5.58
Assume a single storey brick building area same as above 22.3 m ²		Normal one storey brick buildings	Yes	E1,1	/m ²	22.30

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Comments/Assumptions	No.	Rehabilitation / Closure Action	Applicable	Unit Rate Code	Units	Quantity
Building with area 22.3 m ² (Same size as brick building)		Remove Canopies/light steel structures (80 kg per square meter)	Yes	C1,5	/m ²	22.30
Assume medium plant over 25 % of surface area		Medium plant or structures (800 kg per square meter)	Yes	C1,2	/m ²	11.15
Area from plant schematic		Power Generation				
Assume concrete thickness of 300 mm		Concrete Base (Medium concrete)	Yes	B1,2	/m ³	6.97
Assume canopy over entire area		Remove Canopies/light steel structures (80 kg per square meter)	Yes	C1,5	/m ²	23.23
Assume Medium plant over 50 % of surface area		Medium plant or structures (800 kg per square meter)	Yes	C1,2	/m ²	11.61
2 m wide along perimeter fire break to be demolished, assume 150 mm thick		Remove fire break (rock finish), Load and haul within the free haul distance	Yes	G1,1	/m ³	6.40
Area from plant schematic		LNG Cryobox				
Assume concrete thickness of 300 mm		Concrete Base (Medium concrete)	Yes	B1,2	/m ³	13.26
Assume canopy over entire area		Remove Canopies/light steel structures (80 kg per square meter)	Yes	C1,5	/m ²	44.20
Assume Medium plant over 50 % of surface area		Medium plant or structures (800 kg per square meter)	Yes	C1,2	/m ²	22.10
2 m wide along perimeter fire break to be demolished, assume 150 mm thick		Remove fire break (rock finish), Load and haul within the free haul distance	Yes	G1,1	/m ³	10.53
Area from plant schematic		LNG Cryobox (option)				
Assume concrete thickness of 300 mm		Concrete Base (Medium concrete)	Yes	B1,2	/m ³	13.26
Assume canopy over entire area		Remove Canopies/light steel structures (80 kg per square meter)	Yes	C1,5	/m ²	44.20
Assume Medium plant over 50 % of surface area		Medium plant or structures (800 kg per square meter)	Yes	C1,2	/m ²	22.10
2 m wide along perimeter fire break to be demolished, assume 150 mm thick		Remove fire break (rock finish), Load and haul within the free haul distance	Yes	G1,1	/m ³	10.53
Area from plant schematic		Loading Manifolds				
Assume concrete thickness of 250 mm		Concrete Base (Medium concrete)	Yes	B1,2	/m ³	24.68
Canopy area 20.24 m x 4.87 m		Remove Canopies/light steel structures (80 kg per square meter)	Yes	C1,5	/m ²	98.71
Assume light plant over 20 % of the surface area with total area of 188 m ²		Light plant or structures (300kg per square meter)	Yes	C1,1	/m ²	0.00
Area from plant schematic		Flare Knock Out				
Assume concrete thickness of 300 mm		Concrete Base (Medium concrete)	Yes	B1,2	/m ³	4.18
Assume canopy over entire area		Remove Canopies/light steel structures (80 kg per square meter)	Yes	C1,5	/m ²	13.94
Assume Medium plant over 50 % of surface area		Medium plant or structures (800 kg per square meter)	Yes	C1,2	/m ²	6.97
2 m wide along perimeter fire break to be demolished, assume 150 mm thick		Remove fire break (rock finish), Load and haul within the free haul distance	Yes	G1,1	/m ³	4.57
Area from plant schematic		Produced Water Tanks				
Assume concrete thickness of 250 mm		Concrete Base (Medium concrete)	Yes	B1,2	/m ³	6.97
One JoJo tank used		Remove water tanks (JoJo tanks)	Yes	L1,1	/tank	2.00
Based on gas plant layout (limited detail)		Control Room (MCC Buildings)				
Assume concrete thickness of 250 mm (Area 6.096 x 3.048 = 18*6 m ² *20% Contingencies = 22.3 m2)		Concrete Base (Medium concrete)	Yes	B1,2	/m ³	5.58

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Assume a single storey brick building area same as above 22.3 m ²		Normal one storey brick buildings	Yes	E1,1	/m ²	22.30
Building with area 22.3 m ² (Same size as brick building)		Remove Canopies/light steel structures (80 kg per square meter)	Yes	C1,5	/m ²	22.30
Assume medium plant over 25 % of surface area		Medium plant or structures (800 kg per square meter)	Yes	C1,2	/m ²	11.15
		Gas Flare				
Limited information available. Assume concrete base with radius as indicated on gas plant layout/schematic. Area :Radius 25 meter (1963) x 300 mm thick concrete. No details is provided about the material of the 25 meter radius.		Concrete Base (Medium concrete)	Yes	B1,2	/m ³	589.05
Limited information available on the flare itself. Assume a radius of 3 meter (28m2). Assume medium plant rate af the area.		Medium plant or structures (800 kg per square meter)	Yes	C1,2	/m ²	28.00
		Pigging Stations (Quantity 0)				0.00
Light plant to be removed with area 4 m x 5,355 m		Dismantle of wellhead, Booster compressor and coalescer filter	Yes	A1,3	/m ²	0.00
Assume 300 mm concrete base		Concrete Base (Medium concrete)	Yes	B1,2	/m ³	0.00
Excavation of a 0,5 m x 0,5 m area around pigging station to a depth of 0,5 meters.		Excavation of material and demolition hammer and casing	Yes	A1,4	/m ³	0.00
Thickness of 115 mm, hight of 1,2 m and width of 1 m given (precast pit A)		Concrete Base (Medium concrete)	Yes	B1,2	/m ³	0.00
Thickness of 200 mm, hight of 0.65 m and width of 1.2 m given (concrete pit B)		Concrete Base (Medium concrete)	Yes	B1,2	/m ³	0.00
Fencing 500 mm from concrete base with area 6 m x 8 m		Dismantle fencing	Yes	D1,1	/m	0.00
Assume 6 m x 8 m area to be dozed 0.5 m depth		Levelling and shaping of area	Yes	G1,3	/m ³	0.00
Assume 6 m x 8 m area will require vegetation		Establish vegetation	Yes	G1,4	/ha	0.00
Assume light plant over 20 % of the plant area		Light plant or structures (300kg per square meter)	Yes	C1,1	/m ²	0.00
		Low Point Drains (Quantity 33)				33.00
Assume 1m x 1m concrete box with thickness 200 mm (deviation from drawing, but aligned to similar sites)		Concrete Base (Light concrete)	Yes	B1,1	/m ³	6.60
Excavation of a 0,5 m x 0,5 m area around well to a depth of 0,5 meters.		Excavation of material and demolition hammer and casing	Yes	A1,4	/m ³	4.13
		Rip footprint area	Yes	G1,2	/ha	0.02
Assume 1,5 m x 1,5 m area to be dozed 0.5 m depth		Levelling and shaping of area	Yes	G1,3	/m ³	37.13
Assume 1,5 m x 1,5 m area will require vegetation		Hydroseeding	Yes	G1,8	/ha	0.01
		Pipe Markers (Quantity 250)				250.00
Concrete pipe marker with base 0,5 m x 0,4 m x 0,4 m, pole 1,35 m x 0,15 m x 0,15 m, aerial marker 0,33 m x 0,8 m x 0,8 m		Concrete Base (Medium concrete)	Yes	B1,2	/m ³	80.39
		All Pipe Racks				
Assume steel frame used for the pipe racks with total length of 66 m x 3.048m from gas plant schematic. Assume additional 50% of pipe racks for connecting to different buidlings.		Remove Canopies/light steel structures (80 kg per square meter)	Yes	C1,5	/m ²	301.75

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		Gas Flare				
Limited information available. Assume concrete base with radius as indicated on gas plant layout/schematic. Area :Radius 25 meter (1963) x 300 mm thick concrete. No details is provided about the material of the 25 meter radius.		Concrete Base (Medium concrete)	Yes	B1,2	/m³	589.05
3 Concrete slabs assumed to be light concrete (assume 1 m x 1 m x 0,3 m slabs)		Concrete Base (Light concrete)	Yes	B1,1	/m³	0.90
Limited information available on the flare itself. Assume 5m x 10m. Assume medium plant rate of the area.		Medium plant or structures (800 kg per square meter)	Yes	C1,2	/m²	50.00
		Storm Water Channels				
Concrete base assumed to be medium concrete (150 mm), Assume the channel is 0,5 m wide and 489 m long (perimeter of the gas plant schematic.		Concrete Base (Medium concrete)	Yes	B1,2	/m³	73.26
		Backfill excavated area	Yes	G1,5	/m³	73.26
		Fire Break				
Assume around the perimeter at 2 m width, assume 150 mm thick		Remove fire break (rock finish), Load and haul within the free haul distance	Yes	G1,1	/m³	146.52
Based on plant layout schematic and section 3.1.5.1 in the scoping report (limited design information available)		Evaporation Pond				
Dam area 25m x 25 m = 625 m², assume 1000 mm deep		Pump Water Out of Dam	Yes	L1,2	/m³	625.00
Single HDPE liner used, area including 20 % for side slopes and anchor trenches		Remove Liner	Yes	L1,3	/m²	750.00
		Excavation - Remove all Material 500 mm below	Yes	G1,6	/m³	662.50
Assume 1 m over area		Levelling and shaping of area	Yes	G1,3	/m³	625.00
Dam Silt Trap, assume 25 x 5 m and 3 m deep with 250mm thickness concrete		Concrete Base (Medium concrete)	Yes	B1,2	/m³	76.25
Assume 1 m over area 25 x 5 m		Levelling and shaping of area	Yes	G1,3	/m³	125.00
		Culvert				
Assume 2 x concrete culverts (2.5 m x 2.4 m x 0.7 m)		Concrete Base (Medium concrete)	Yes	B1,2	/m³	8.40
3.2 m x 2,5 m area to be dozed to 0.5 m depth		Leveling and shaping of area	Yes	G1,3	/m³	8.00
		Rehabilitation of roads and paved surfaces				0.00
Provision was made for the rehabilitation of access roads that can not be practically transferred to post-closure land owners.		Rehabilitation of roads and paved surfaces, Access road (two track road)	Yes	F1,1	/m	150.00
Truck parking area assume 20m x 30m		Truck Parking Area	Yes	F1,2	/m²	600.00
Parking areas, Assume 4 x 20		Truck Parking Area	Yes	F1,2	/m²	80.00
Assume 1 x Weighbridge area 90 m², 250 mm thick		Concrete Base (Medium concrete)	Yes	B1,2	/m³	22.50
Control room with area 3 m x 3 m		Prefabricated building	Yes	E1,3	/m²	9.00
Assume medium plant over weighbridg area		Medium plant or structures (800 kg per square meter)	Yes	C1,2	/m²	90.00

D3 Energy

D3 ENERGY PROJECT

SCHEDULED Closure Costing

Comments/Assumptions	No.	Rehabilitation / Closure Action	Applicable	Unit Rate Code	Units	Quantity
		Dismateling of perimeter fence				
Assume 1.8 m high razor wire mesh with total length of 489 m long (perimeter of the gas plant schematic)		Dismantle fencing	Yes	D1,1	/m	489.00
	3	General Surface Rehabilitation				
		Infrastructural surface areas				
		Rip footprint area	Yes	G1,2	/ha	0.84
		General levelling and shaping	Yes	I1,6	/ha	0.84
		Import of topsoil (assume Topsoil will be available within 50km at R5.50/km)	Yes	G1,7	/m³	1255.38
		Establish vegetation	Yes	I1,7	/ha	0.84
	4	P&Gs and Contingencies				
Assume 13% of sub-total		Preliminaries and general	Yes	J1,1	%	R 5 966 670.56
Assume 11% of sub-total		Contingencies	Yes	J1,2	%	R 5 966 670.56
	5	Post Closure Phase				
Quarterly monitoring for 5 years		Surface water quality monitoring	Yes	K1,1	/yr	5.00
Annually monitoring for 50 years		Groundwater quality monitoring	No	K1,2	/yr	50.00
Gas leakage monitoring every 5 years for 50 years		Gas leakage Monitoring	No	K1,3	/5yr	10.00
Annually monitoring for 3 years		Rehabilitation monitoring of rehabilitated areas	Yes	K1,4	/yr	3.00
5 days per year for 3 years		Care and maintenance of rehabilitated areas	Yes	K1,5	/yr	3.00

TOTAL	
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D3 Energy						
D3 ENERGY PROJECT						
SCHEDULED Closure Costing						
Comments/Assumptions	No.	Rehabilitation / Closure Action	Applicable	Unit Rate Code	Units	Quantity

D3 Energy						
D3 ENERGY PROJECT						
SCHEDULED Closure Costing						
Comments/Assumptions	No.	Rehabilitation / Closure Action	Applicable	Unit Rate Code	Units	Quantity



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Rate	Activity Cost
	R -
R 30 824.91	R -
R 32 482.06	R -
R 3 450.25	R -
R 3 450.25	R -
R 1 725.12	R -
R 186 499.84	R -
R 698.84	R -
R 317 060.90	R -
R 10 167.56	R -
R 3 450.25	R -
R 3 450.25	R -
R 5 828.12	R -
R 3 450.25	R -
R 3 450.25	R -
R 3 450.25	R -
R 5 828.12	R -

Rate		Activity Cost	
R	3 450.25	R	-
R	3 450.25	R	-
R	3 450.25	R	-
R	3 450.25	R	-
R	777.08	R	-
R	7 430.31	R	-
R	76 258.65	R	-
R	698.84	R	-
R	317 060.90	R	-
R	10 167.56	R	-
R	3 450.25	R	-
R	3 450.25	R	-
R	5 828.12	R	-
R	3 450.25	R	-
R	3 450.25	R	-
R	3 450.25	R	-
R	5 828.12	R	-
R	3 450.25	R	-
R	3 450.25	R	-

Rate	Activity Cost
R 3 450.25	R -
R 3 450.25	R -
R 777.08	R -
R 7 430.31	R -
R 76 258.65	R -
R 74 510.20	R -
R 16 554.71	R -
R 313 332.32	R -
R 330 793.69	R -
R 5 828.12	R -
R 3 450.25	R -
R 3 450.25	R -
R 3 450.25	R -
R 5 828.12	R -
R 3 450.25	R -
R 777.08	R -
R 10 167.56	R -
R 530.08	R -
	R 5 342 314.89
R 103.41	R 171 810.10
R 495.24	R 822 816.38
	R -

Rate	Activity Cost
R 495.24	R 182 936.32
	R -
R 495.24	R 562 250.62
R 165.51	R 187 898.31
	R -
R 3 474.46	R 78 891.16
R 1 884.39	R 42 787.10
R 559.08	R 19 567.79
R 698.84	R 4 891.90
R 1 100.92	R 44 036.78
R 559.08	R 111 815.96
R 1 100.92	R 96 330.45
R 559.08	R 83 861.97
R 116.99	R 23 397.01
R 139.77	R -
R 1 770.15	R 154 888.51
R 5 931.59	R 5 931.59
R 1 100.92	R 14 728.75
R 116.99	R 5 216.98
R 1 770.15	R 39 470.27
R 20.28	R 170.62
R 1 100.92	R 14 729.75

[illegible]

Rate		Activity Cost	
R	116.99	R	2 608.77
R	1 770.15	R	19 737.22
R	1 100.92	R	7 670.91
R	116.99	R	2 717.07
R	1 770.15	R	20 556.59
R	20.28	R	129.82
R	1 100.92	R	14 596.87
R	116.99	R	5 170.27
R	1 770.15	R	39 116.87
R	20.28	R	213.54
R	1 100.92	R	14 596.87
R	116.99	R	5 170.27
R	1 770.15	R	39 116.87
R	20.28	R	213.54
R	1 100.92	R	27 168.07
R	116.99	R	11 547.65
R	442.54	R	-
R	1 100.92	R	4 602.54
R	116.99	R	1 630.24
R	1 770.15	R	12 333.95
R	20.28	R	92.73
R	1 100.92	R	7 670.91
R	633.79	R	1 267.58
R	1 100.92	R	6 137.63

Rate		Activity Cost	
R	559.08	R	12 467.48
R	116.99	R	2 608.77
R	1 770.15	R	19 737.22
R	1 100.92	R	648 496.60
R	1 770.15	R	49 564.32
R	921.96	R	-
R	1 100.92	R	-
R	16 554.71	R	-
R	1 100.92	R	-
R	1 100.92	R	-
R	60.58	R	-
R	27.75	R	-
R	76 258.65	R	-
R	442.54	R	-
R	698.84	R	4 612.36
R	16 554.71	R	68 288.20
R	7 430.31	R	122.60
R	27.75	R	1 030.06
R	47 215.46	R	350.57
R	1 100.92	R	88 507.04
R	116.99	R	35 300.47



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Rate		Activity Cost	
R	1 100.92	R	648 496.60
R	698.84	R	628.96
R	1 770.15	R	88 507.72
R	1 100.92	R	80 653.36
R	82.39	R	6 036.09
R	20.28	R	2 971.62
R	3.80	R	2 376.71
R	6.05	R	4 534.77
R	63.38	R	41 988.62
R	27.75	R	17 341.09
R	1 100.92	R	83 945.11
R	27.75	R	3 468.22
R	1 100.92	R	9 247.72
R	27.75	R	221.97
R	8.87	R	1 330.96
R	30.93	R	18 555.72
R	30.93	R	2 474.10
R	1 100.92	R	24 770.69
R	139.77	R	1 257.96
R	1 770.15	R	159 313.89

Rate		Activity Cost	
R 60.58	R	29 623.73	
	R	624 355.67	
R 7 430.31	R	6 218.56	
R 139 451.70	R	116 709.63	
R 348.58	R	437 605.26	
R 76 258.65	R	63 822.23	
	R	1 488 053.54	
14%	R	806 029.00	
11%	R	682 024.54	
	R	398 147.19	
R 47 154.01	R	235 770.07	
R 76 308.38	R	-	
R 28 714.51	R	-	
R 23 069.97	R	69 209.92	
R 31 055.73	R	93 167.20	
	R	7 852 871.30	

Rate	Activity Cost

Rate	Activity Cost