CUADRILLA RESOURCES LIMITED

APPENDIX - C

THE DRILLING OPERATION

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DETAILS OF TRANSPORTATION LOADS TO ERECT A ROTARY DRILLING RIG ON SITE

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DETAILS OF TRANSPORTATION LOADS TO CONSTRUCT AN EXPLORATION SITE

Cuadrilla Resources Limited
January 2010

Lower Stumble Hydrocarbon Exploration Site
Planning Application [January 2010].
Prepared by Phil Mason

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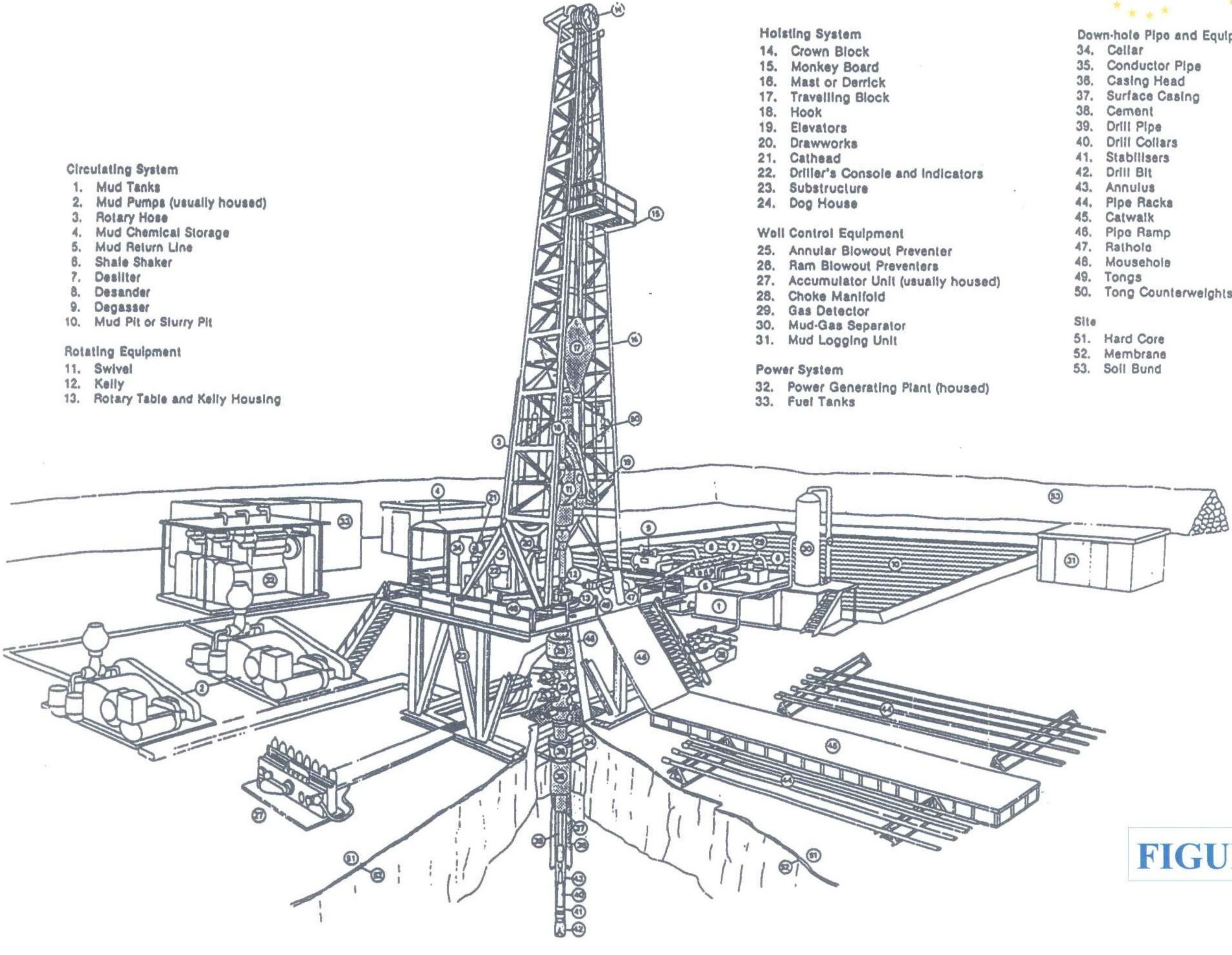
THE COMPONENTS OF A ROTARY DRILLING RIG

CUADRILLA RESOURCES



Circulating System
1. Mud Tanks
2. Mud Pumps (usually housed)
3. Rotary Hose
4. Mud Chemical Storage
5. Mud Return Line
6. Shale Shaker
7. Desilter
8. Desander
9. Degasser
10. Mud Pit or Slurry Pit

Rotating Equipment
11. Swivel
12. Kelly
13. Rotary Table and Kelly Housing

Hoisting System
14. Crown Block
15. Monkey Board
16. Mast or Derrick
17. Travelling Block
18. Hook
19. Elevators
20. Drawworks
21. Cathead
22. Driller's Console and Indicators
23. Substructure
24. Dog House

Well Control Equipment
25. Annular Blowout Preventer
26. Ram Blowout Preventers
27. Accumulator Unit (usually housed)
28. Choke Manifold
29. Gas Detector
30. Mud-Gas Separator
31. Mud Logging Unit

Power System
32. Power Generating Plant (housed)
33. Fuel Tanks

Down-hole Pipe and Equipment
34. Cellar
35. Conductor Pipe
36. Casing Head
37. Surface Casing
38. Cement
39. Drill Pipe
40. Drill Collars
41. Stabilisers
42. Drill Bit
43. Annulus
44. Pipe Racks
45. Catwalk
46. Pipe Ramp
47. Rathole
48. Mousehole
49. Tongs
50. Tong Counterweights

Site
51. Hard Core
52. Membrane
53. Soil Bund

FIGURE (C01)

20.11.09

WELLHEAD ASSEMBLY SCHEMATIC EXAMPLE ONLY

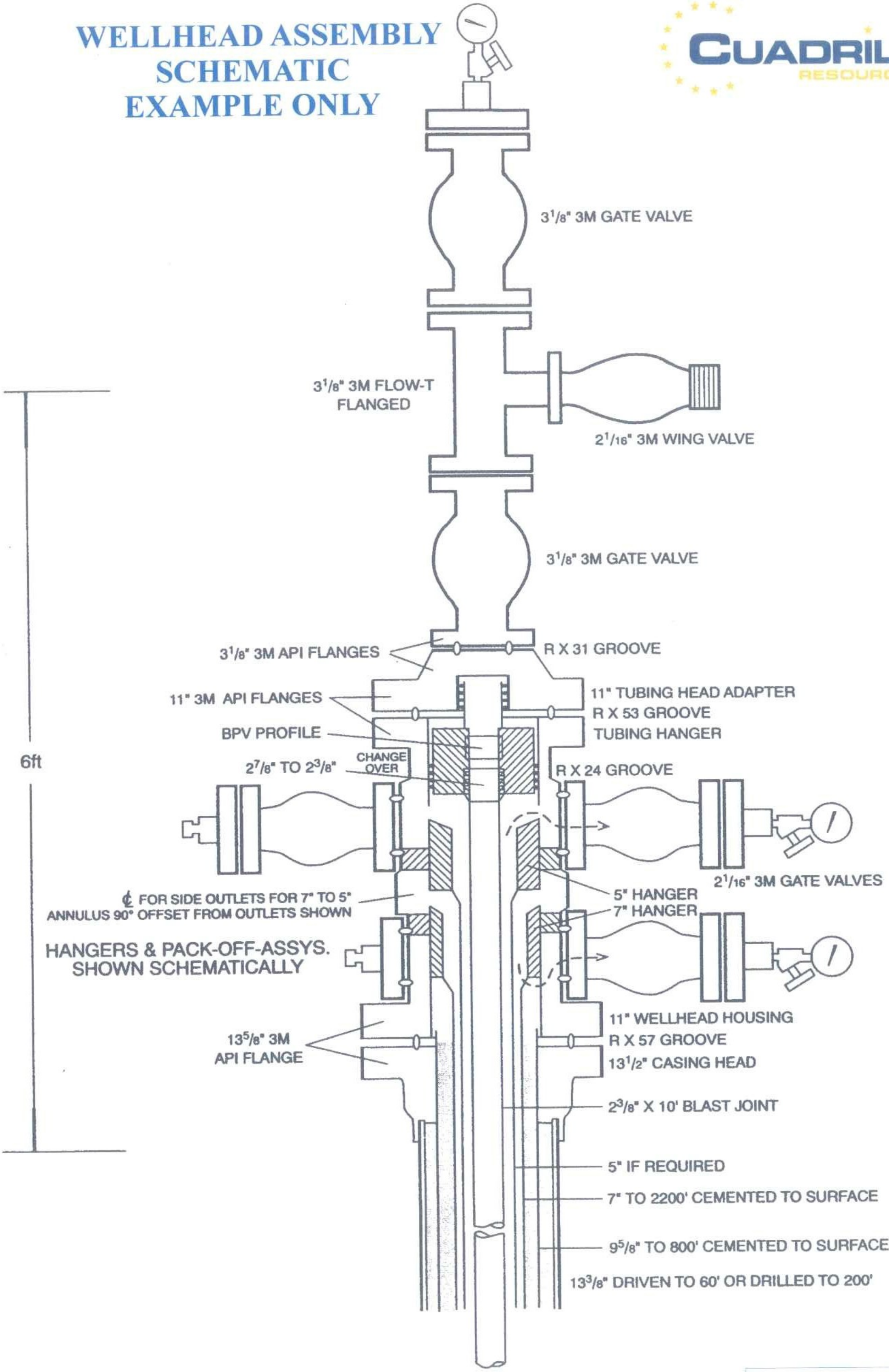


FIGURE (C02)

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DRILLING RIG / EXPLORATION SITE LAYOUT

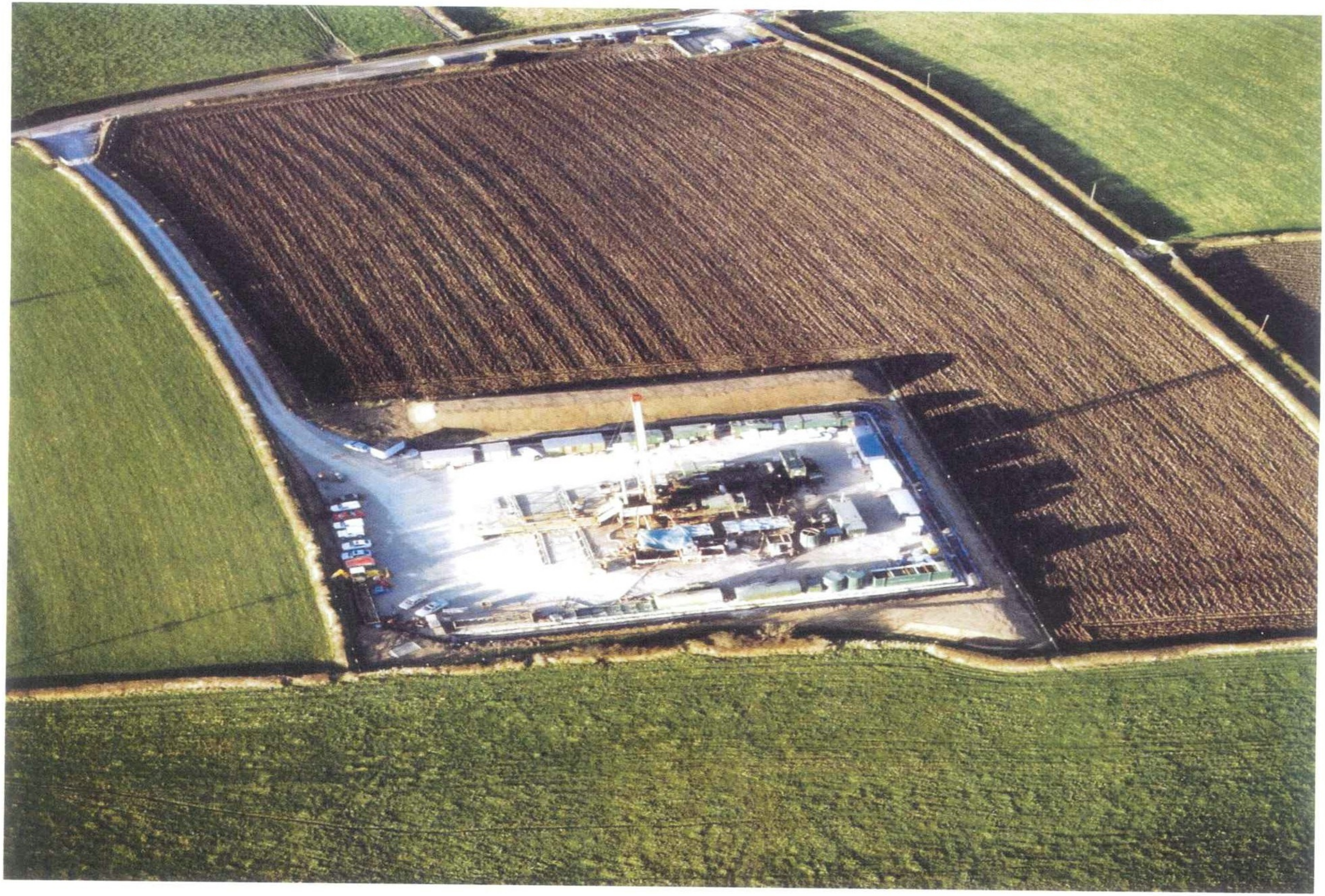


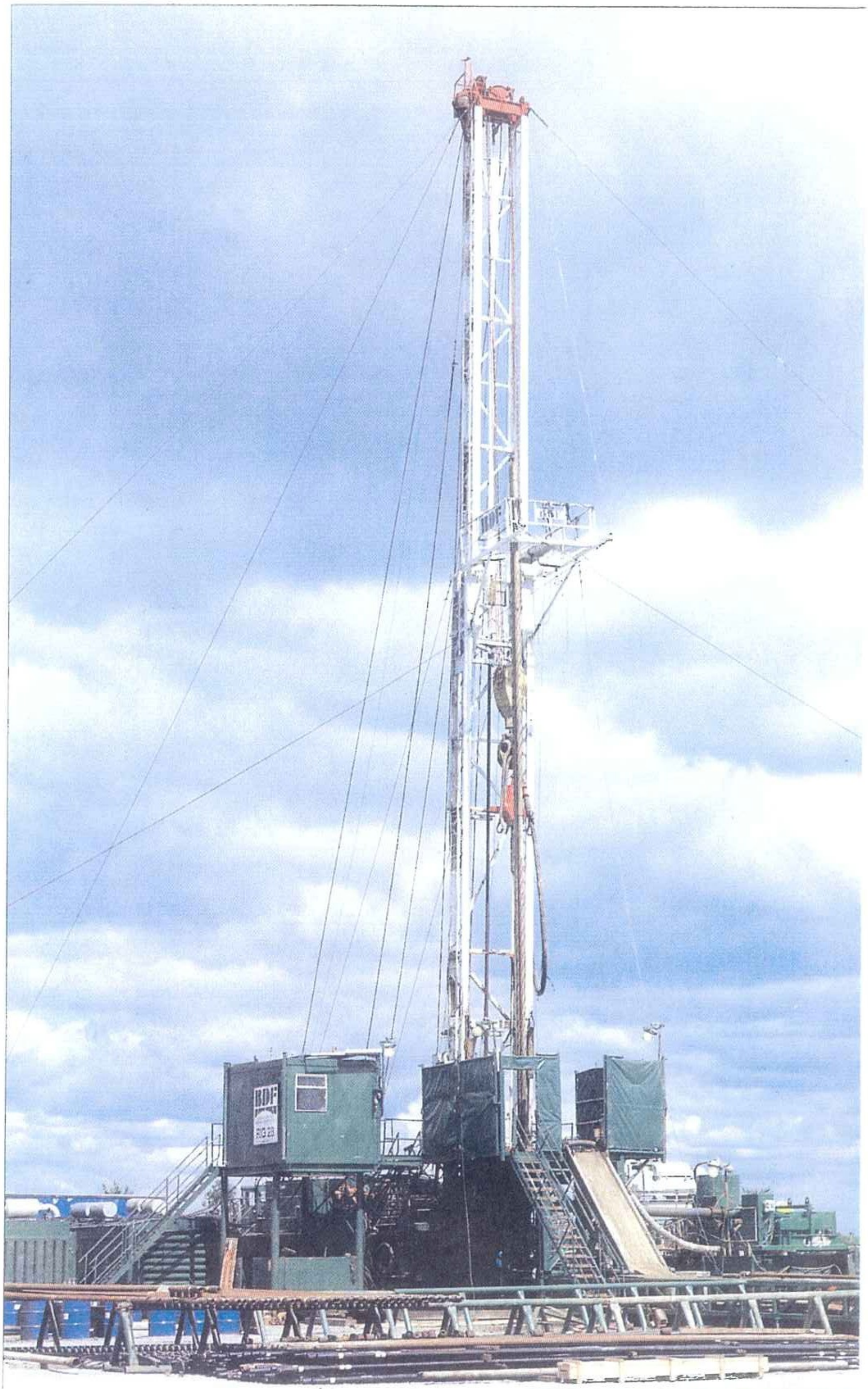
FIGURE (C03). 20.11.09

EXPLORATION DRILLING RIG

CUADRILLA RESOURCES

BRITISH DRILLING AND FREEZING COMPANY LIMITED

RIG 28 – IDECO BIR 5625



RIG 28 - IDECO BIR 5625

Rig 28, a five axle self propelled Back in Rambler (BIR), purchased in 1991, is ideally suited for drilling wells to depths of 2250 metres, re-entry and workover operations.

Major rig features include:

- IDECO H37 (500 H.P) double drum drawworks, with DETROIT 12 V 71 power.
- IDECO KM 108 270 KH telescopic mast with an API static hookload of 270,000 lbs and 108ft clear height to permit mousehole connections.
- IDECO substructure with 12ft clear working height enabling use of 13⅝″ double ram and annular B.O.P.S.
- IDECO 20½″ rotary table.
- 2 No triplex mud pumps - 500HP, 600HP and 800HP pumps available.
- High specification ancillary equipment.
- All electrical equipment conforms to the latest I.P. Code of Practice and BASEEFA approval.
- Compact modular design of components ensures minimum site area is required and maximises efficiency of rig moves.
- Extensive acoustic enclosures to all prime movers ensures the rig can operate in environmentally sensitive locations.

FIGURE (C04)

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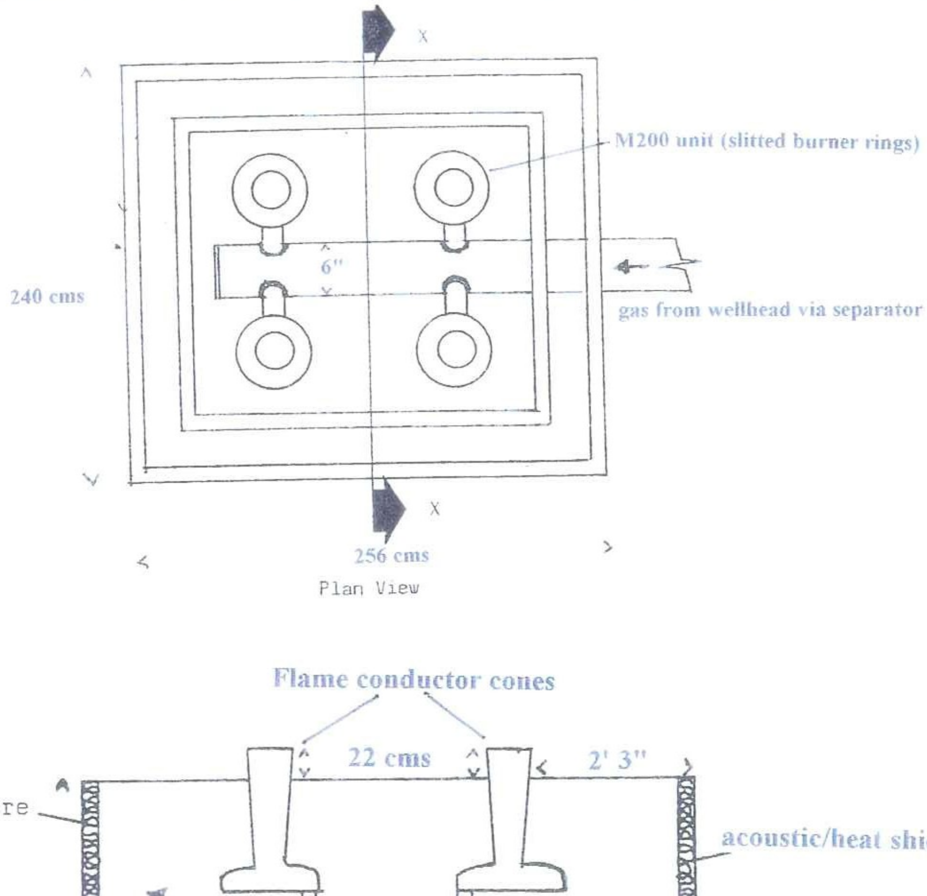
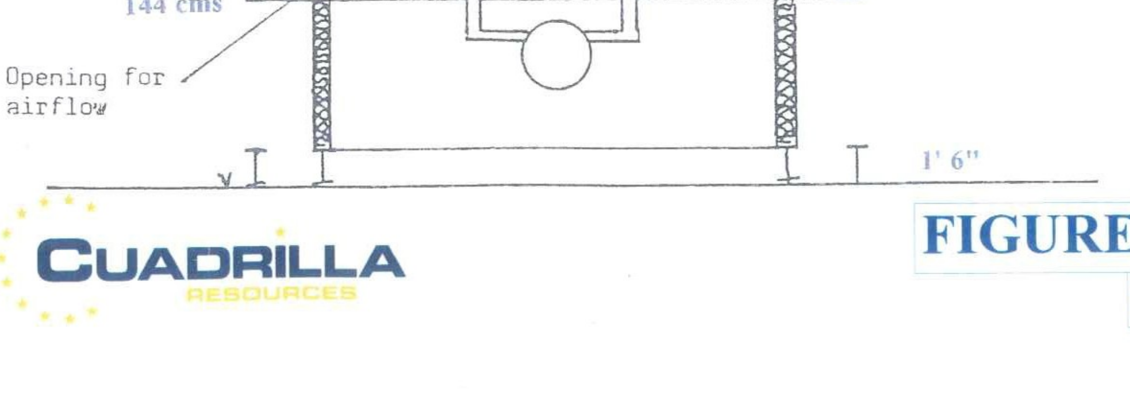
EXPLORATION TESTING GROUND FLARE





CUADRILLA RESOURCES

FIGURE (C05)

20.11.09

THE DRILLING OPERATION

Wells for oil and gas are drilled using a rotary drilling rig, see diagram overleaf which illustrates the various components. This is a well tried and efficient method and employs a vertical "derrick", inside which is suspended a column of hollow steel pipe, known as a "drill string", with a drill bit fitted to its lower end. This "string" is rotated and the bit cuts downward through the rock strata.

During drilling, a dense fluid known as "mud" is pumped down the inside of the drill string. The mud lubricates the drill bit and brings to the surface fragments of rock which are analysed both to identify and correlate the strata through which the bit is passing, and for signs of any oil or gas within any reservoir rocks encountered. An aspect of safety is provided by the weight of the column of mud which exceeds any underground reservoir pressures and thereby contains them and therefore it is important in maintaining the safety of the drilling operation. The rig is fitted with valves known as "blow-out preventers" which can be closed immediately if an unexpected increase in pressure should occur.

As the depth of the well increases, drilling must stop periodically so that new lengths of pipe can be added to the drill string. When the drill bit becomes worn the whole string must be pulled out so that a new bit can be fitted. This is known as "round tripping", or "pulling out" and "running in".

At pre-determined stages in the drilling of such a well the walls of the borehole are supported by steel casing which is cemented into place, to provide additional safety measures by preventing the collapse of the borehole sides and the ingress of groundwater under pressure. It is essential that drilling continues throughout the day and night to keep the hole open and to maintain control for both safety and operational reasons. During the drilling of an exploration well, the progress of the operation is monitored constantly and a range of tests and analysis carried out.

"Well logging" is used to obtain information both on the borehole itself (including its precise depth and direction at any time), and on the rock strata through which it passes. These tests can be either geophysical, using instruments lowered into the well as it is drilled, or can involve analysis of Chipping's brought to the surface in the mud stream. "Coring" is the recovery of sizeable rock samples which may be required from particular strata. This procedure involves the use of a special core bit to cut a cylindrical core of rock. The core is then brought to the surface for testing and analysis.

If, on reaching its target depth or before, the well reveals the presence of oil or gas, then testing is carried out to give a preliminary estimate of the extent and characteristics of the reservoir.

During testing operations any fluids flowing from the well are piped into a small storage tank and transported away by road. Gas is either vented to the atmosphere or burned in a flare. Following the final testing , the drilling rig will be dismantled and a well-head valve assembly, known as a "Christmas Tree" installed. Only small volumes of gas will be produced during such well testing. The data obtained are essential in enabling a decision to be taken on whether further appraisal is justified.

EXAMPLE OF CONVENTIONAL WELL TESTING PROGRAMME

Once we have established that potentially commercial oil exists we will embark on a test programme.

With the rig still on location we will run a 2⅞" tubing string and 7" packer assembly and set the packer some 100ft above the 7" casing shoe. The tubing will be pulled in tension and be permanently hung off in the wellhead and a production tree installed on the wellhead. The oil producing formation is now isolated from the existing casing strings by the packer and tubing and from the atmosphere by the valves on the production tree.

With the rig moved off location, a jet pump and surface power fluid package will be moved onto the location together with a suitable motor to power the power fluid package. In addition a separator, three stock tanks and flare assembly will also be brought in. The pump unit will be run in the well and located close to the bottom of the tubing. The surface equipment will be spotted, hooked up and pressure tested.

The jet pump utilises power fluid (such as water or crude oil) to pump the produced formation fluid to the surface. The power fluid is pumped down the tubing and returns through the 2⅞" tubing/7" casing annulus together with some produced formation fluid. The produced fluids then flow to the separator where the oil, water and gas are separated. Any produced oil then flows to one of two oil stock tanks, produced water flows to the water stock tank and any produced gas will be flared. Part of the produced oil is returned to be used as power fluid for the jet pump.

The testing phase is likely to last between 14 and 28 days and will operate 24 hrs per day. Once all the equipment has been installed, hooked up and pressure tested, two crews of two men per crew will be sufficient to run and monitor the well test over a 24hr period. The well and processing facility will be continuously monitored. Noise from the testing is minimal and is not audible beyond 50m from the site boundary.

Tankers will be required to transport the produced oil and any produced water to a processing facility. The frequency of the road tankers will be dependent upon the production rate, but numbers anticipated are a maximum of two/three round trips per day. Clearly we would try to limit tanker movements to coincide with the hours of daylight/working day. In addition there would be one or two car/light van visits per day.

TESTING PROCEDURE

The main aim of the Lower Stumble exploratory well is to test for natural gas/oil trapped in the shale and thin sandstone layers in the Upper Jurassic Formations which lie directly beneath the crest of the Bolney (Lower Stumble) Anticline. The company might test the Portland Sandstone if shows of gas are witnessed during the final stages of drilling. This would be a short test known as a drill stem test (or "DST") and is carried out with the drilling rig on site for a short period of up to 2 -8 hours. Testing the Portland would take a lesser priority than to test any discovered shale formations and would only be tested if the shale gas was not present during drilling. If it was decided to test the Portland then a typical DST would follow the example test procedure detailed below and depicted in the test equipment photograph No's 11 and 12 under Appendix I.

Testing the shale layers (known as stages) will be the main purpose of the Lower Stumble exploratory drilling operation and will only take place if sufficient gas or oil is encountered in each stage during the drilling operation.

Testing the stage or stages would take between 5 – 12 days and is generally carried out during daylight hours. The Company are expecting to encounter between three and six shale stages and would expect to see sufficient shows in at least three that would warrant testing within the 28 day period. This type of testing ie several stages is generally carried out in the United States within 14 days. The testing time scale is governed by the amount of stages encountered, rock porosity (pore space in the rock), permeability (ease of movement of natural gas through the pore space), and natural fractures in the formation. Both the porosity and permeability within the Lower Stumble structure are considered to be poor to good but the natural fractures are expected to be good to very good ie the wells should flow unstimulated. In any event the test would be complete within the usual 28 days requested to test a conventional hydrocarbons discovery. ie the period generally requested within a temporary drilling exploration planning application.

There may be a need to stimulate a stage which flows gas/oil but at a low rate to ascertain if the gas was being held back by poor porosity or permeability or lack of natural fracture or a combination of all three. Stimulation is carried out by pumping water under pressure into the natural fractures in the shale formations to open them up to allow the gas to flow more freely. In some cases silicone sand is then pumped in to hold open the fractures once the water is removed. The recovered water is retained on site for use on other stages or removed and disposed of if not needed. Testing of each stage will take up to two 10 hour days including any necessary stimulation. The water and sand will be brought to site by road using water tankers and 20 tonne tipper lorries. The amount of water and sand will depend on the permeability ie the gas flow rate of a stage and with the permeability via fractures expected to be good to very good the stimulation required will be none or small and therefore the number of water and sand deliveries required are expected to be few.

Any produced gas during testing will be flared using a screened low volume/pressure ground flare (see appendix C) and is generally carried out during daylight hours.

The testing and stimulation equipment will be brought to site if needed by a small number of HGV loads over a 1 -2 day period. The equipment will consist of a number of tanks for water and any produced fluids and water injection pumps.

The activity and noise testing a discovery is far less that that of the preceding drilling operation. The flow back activity (ie allowing the ejected water to return to surface) is a nil - low noise activity and therefore is occasionally allowed to occur over night thus shortening the overall testing period.

In any event the drilling rig will be removed from site a few days following the completion of the drilling and any drill stem testing and before the shale testing starts.

DRILL STEM TEST PROCEDURE

A “drill stem test”, or “DST” (as it commonly referred to), is a special type of reservoir test that is done inside the drill pipe during the drilling operation. When a well is drilled, a geologist is on-site to determine if oil or natural gas shows are observed as the drill bit goes through a potential reservoir rock (ex. Collyhurst Sandstone). If oil or gas shows have been observed the rig will temporarily suspend drilling operations for a short period of time to conduct a DST, in an effort to evaluate the potential reservoir.

To conduct a DST, the drill bit and drill pipe are first pulled from the hole. At surface, the drill bit is removed from the bottom of the drill pipe, and replaced by a DST “test string”. The test string is then run back into the well and landed at the depth of the potential reservoir. Then a bottom-hole valve is opened (by rotating the drill pipe), and the well is allowed to flow. The flow rate is measured at the surface, and the pressure data is measured and recorded at the bottom of the well (inside the test string.

A typical DST would involve flowing the well for 1 hour, shutting in the well for 1 hour, conducting a 2nd flow of 2 hours and shutting in for 4 hours. In effect, the well is flowed for about 3 hours, and the total test time is about 9 hours. The data will then be brought back to surface by pulling the drill pipe and down-hole test string. It is interpreted to give us some very basic reservoir properties including permeability and reservoir pressure. A DST is an excellent choice of test for high permeability sandstone formations (such as the Collyhurst), but it is a less effective test for lower permeability shale reservoirs.

GEOLOGICAL COLUMN AND CASING PROGRAMME

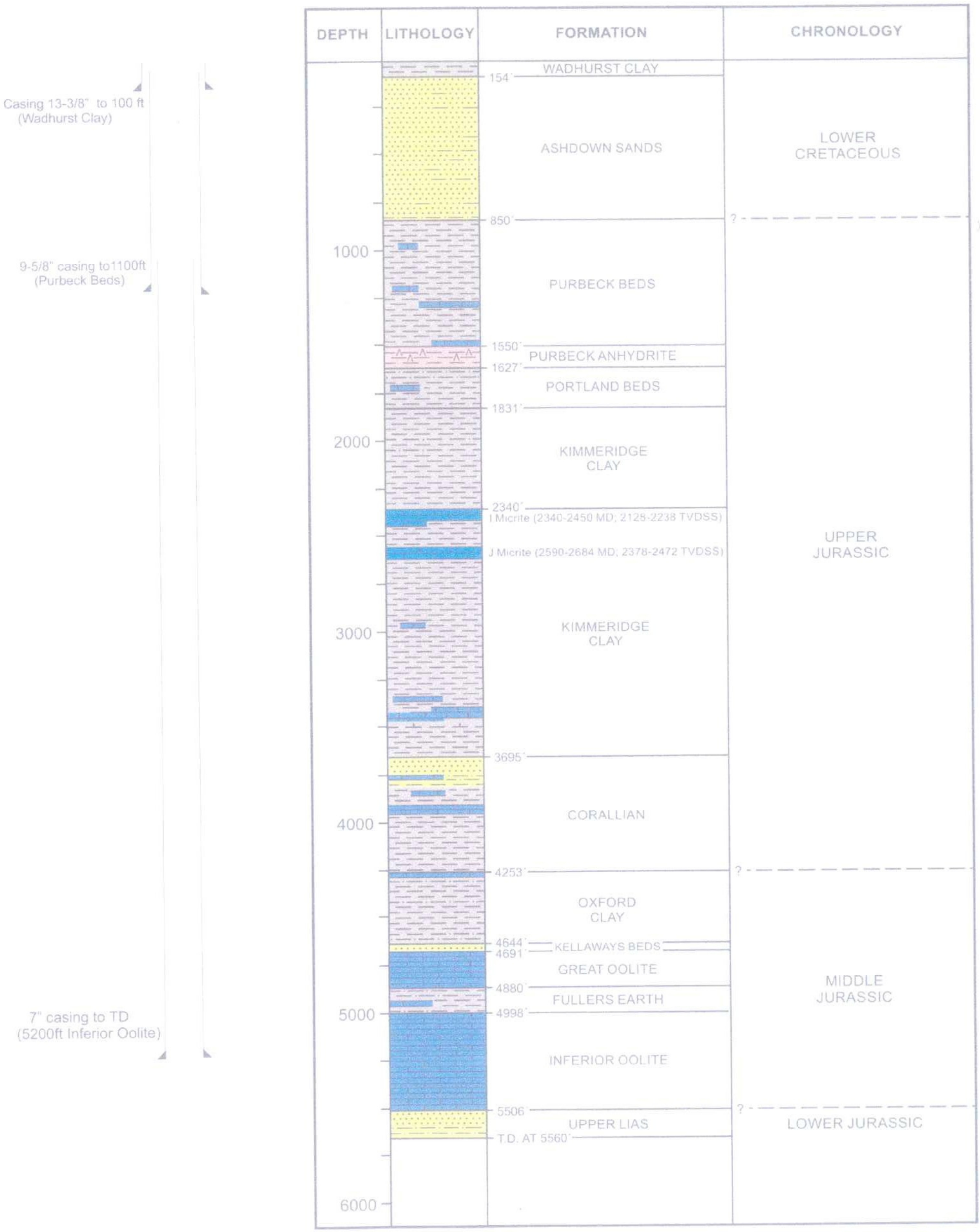


FIGURE (B03)

CUADRILLA RESOUCES LTD

DRILLING PROGNOSIS

Revised: 1 Dec, 2009 | Date:

Well Name:	Balcombe 2	**Prospect:**	KOSP - I and J micrites			
Operator:	Bolney Resources Ltd	**Total Depth:**	TVD	MD	Hz Length	Subsea Depth
Location:	51o02' 49.6" ; 00o07'49.7"	**vert.hole**	2667	4667	2000	4462
Surface Elev:	195 ft. above sea level	**lateral**				
County:	W. Sussex	**FM @ Total Depth:**	Kimmeridge Clay			
Country:	UK	**Classification:**	Exploration Well			
License:	PEDL 244	**AFE Number:**	???			
Geologic Basin:	Weald Basin					

Drilling Program Description: Drill a vertical well to the Kimmeridge Clay at 2667 ft. Collect and analyze core samples through the I and J micrite sections. Pull back up hole to base of Portland SS and kickoff. Drill 2000 ft horizontal into J micrite with 8-1/2 bit then set 5-1/2" casing in lateral hole.

Drilling & Casing Progra

	Hole Size:	Drill Depth	Casing Size:	Setting Depth:	Sx Cement
Vertical:					
Cellar:	6 ft	N/A		8 ft	
Conductor:	hammered	25 ft	20"	25 ft	
Surface:	17-1/2"	830	13-3/8"	820	
Intermediate:	12-1/4"	1630	12-1/4"	1620	
Production:	8-12"		5-1/2"		
Horizontal:					
Kick-Off Point	base of Portland SS				
Slotted Liner		N/A			

Drilling Contractor:	CWS	
Rig Number:	Rig 1	(HH220)
GL:	195	**KB:**
Spud Date:	Mar-09	
Projected Drilling Days:	36 days	

Bits:

	Type	In	Out	Est. Qty.
17-1/2"	mill tooth	25 ft	800 ft	1
12-1/4"	insert	800 ft	4300 ft	2
8-1/2"	insert	4300 ft	8100 ft	4

Drill Mud Program:

Type	Top	Bottom	MW	Vis
Fresh water /gel	surface	800 ft	9.0ppg	6
W/B -KCl / polymer	800 ft	4300 ft	10.6ppg	10
W/B -KCl / polymer	4300 ft	8100 ft	10.0ppg	15

Directional Surveys:

	Frequency	Top	Bottom
Single Shot	every 200ft	surface	total depth
Multi-Shot	at TD	surface	8100 ft

Projected Formation Tops:

	Drilling Depth	SubSea Depth	Projected Pay Zone Top	Bottom
Wadhurst Clay	0	-195		
Ashdown Beds	136	-59		
Purbeck Beds	813	618		
Purbeck Evaporites	1533	1338		
Portland Beds	1609	1414		
Kimmeridge Clay	1814	1619		
Upper Mid Kimmeridge Micrite	2323	2128		2238
Lower Mid Kimmeridge Micrite	2573	2378		2472
Kimmeridge Clay	2667	2472		
Corallian Sandstone	3676	3481		
Corallian Argillaceous	3801	3606		
Corallian Limestone	4224	4029		
Oxford Clay	4234	4039		

Mudlogging Program: | Top | Bottom

Mud Logging Interval:

Sample Interval:
20' Samples
10' Samples

Electric Logging Program:

Type	Top	Bottom	Formation
Res-Den-CNL-Sonic-GR- Caliper			
Res-Den-CNL-Sonic-GR- Caliper			
VSP / check shot seismic survey			

Coring Program:

	Formation	Top	Bottom
Interval:	I Micrite	2323	2433
	J Micrite	2573	2667

Desorption Program:

Sample Interval:	Formation	Top	Bottom

Contact Information:

Contacts:	Name:	Company:	Office	Mobile	E-Mail
Cuadrilla Resources Ltd:			01543266441		
Operations Manager:	Mark Miller	CRL			
Well Services Manager:	Eric Vaughar	CRL			
Drilling Manager:					
Wellsite Geologist:					
Drilling Engineer:					
Contractors:		TO BE TENDERED			
Drill Rig:					
Electric Logging:					
Mud Logging:					
Directional Drilling;					
Bits:					
Fishing Tools:					
Tubulars					
Wellhead					
Casing Crew					
Water					
Mud					
Emergency:					
Police Department:					
Fire Department:					
Regulatory:					
HSE					
DECC					
County Council	West Sussex				

DRILLING RIG VEHICLE MOVEMENT LOADS

DRILLING RIG & ASSOCIATED MACHINERY MOBILISATION & SET UP: 2 - 4 DAYS
Multiply numbers x (2) for total number of movements

No	PLANT/ LOAD DESCRIPTION	Weight (Tonnes)	Load Dimensions (Metres) L	W	H	Trailer Type
	Day 1					
1	Crane	25 - 45				
2	Cat Walk Extension	20	12.19	2.60	3.00	40FT
3	4 1/2" Pipe Bin + 2 x Pipe Rack	27	12.19	2.60	2.50	40FT
4	4 1/2" Pipe Bin	27	12.19	2.60	3.20	40FT
5	4 1/2" Pipe Bin	25	12.19	2.60	2.50	40FT
6	Deck Annular BOP + Trip Tank	25	12.19	2.92	3.35	Low Loader
7	Dog Hut, Junk Bin & Choke	20	12.19	2.74	2.90	40FT
8	Rig Pads	24	12.19	2.95	2.70	40FT
9	F.B.G	25	12.19	2.60	2.50	40FT
10	F.B.G	25	12.19	2.60	2.50	40FT
	Day 2					
11	Shaker Tank	25	12.19	2.86	3.16	40FT
12	Suction Tank	25	12.19	2.86	3.16	40FT
13	Mix Tank	25	13.10	2.60	2.80	40FT
14	Rig Ramp	24	12.19	2.95	2.70	40FT
15	Koomey	24	10.30	3.28	3.08	40FT
16	Camp & Ram BOP	24	10.00	2.55	2.61	40FT
17	Fuel, Pump & Screen Stores	25	12.19	2.60	2.70	40FT A.D.R
18	Stores & 2 Square Tanks	25	12.19	2.60	2.70	40FT T/L
	Day 3					
19	Fitters & Round Water Tanks	25	12.19	2.60	2.70	40FT T/L
20	RIG	50	18.19	1.17	4.26	Self Prop
21	4 3/4" D.C & 6 1/4 D.C	25	12.19	2.60	2.00	40FT
22	5" HW & 2 Pipe Racks Kelly + 6 x 6 1/4" D.C	25	12.19	2.60	2.00	40FT
23	PZ9 Pump No 2	20	6.00	3.06	2.54	T/Axle
24	PZ9 Engine No 2	20	9.40	2.80	3.40	Low Loader
25	PZ9 Pump N0 1	20	6.00	3.06	2.54	T/Axle
26	PZ9 Engine No 1	20	9.40	2.80	3.40	Low Loader
27	PZ9 Lift Beam Pump Suctions	20	12.19	2.95	2.50	40FT
	Day 4					
28	Logging Unit and BDF Stores					
29	Containers	25	12.19	2.60	2.50	40FT T/L
30	Fire Water Tank	16	9.50	2.75	3.35	Low Loader
31	Office ECT	18	9.70	2.60	3.12	45FT
32	Canteen & Drying Room	16	12.19	2.73	2.60	40FT T/L
33	3 x Hired Generators and Fuel Tanks	20	12.19	2.60	2.60	40FT
34	Forklift Truck and Shower Cabin	20	12.19	2.60	2.80	45FT

During day (4) and for the next (5) days there would be an additional 10 - 15 HGV loads delivering consumable such as drill pipe, drilling mud, casing, water, skips etc.

After the first (5) days of drilling the HGV deliveries range from none up to 3 - 5 per day.

During the rig set up i.e days 1 - 4 there would be 10 - 15 light van and car visits per day.

Once drilling starts on day (5) the light van and car visits increases to cover the 12 hour shift changes to 15 - 25 visits per 24hours.

SITE PREPERATION TRANSPORT LOADS

Site construction

20ton Trailer

Truck 1	Site Preparation Equipment delivery
Truck 2	Site Preparation Equipment delivery
Truck 3	Geo Membrane delivery

10ton Vehicle

Truck 4	Cellar concrete rings delivery
Truck 5	Fencing delivery

Cement Mixer Lorry

Truck 6	Concrete delivery
Truck 7	Concrete delivery
Truck 8	Concrete delivery

20ton Tipper Lorry

20 - 30 loads of base stone average loads per day = 2 - 3.

20ton Trailer

Truck 1	Removal of site preparation machinery
Truck 2	Removal of site preparation machinery

Car/light van movements will be 2 per day plus occasional visitors which would be 1/2 per week.

Restoration

Restoration is a reverse of the construction traffic/loads except where sections of the upgrade track/access point are seen as an improvement and could remain subject to planning approval.

LOWER STUMBLE VEHICLE MOVEMENT CHART

Period	Vehicle Use	Vehicle Type	No. Weekly	Daily	Total per working day	Total Movements day (x2)	Estimate movements per hour (based on a 12 hour day)	Approximately equates to 1 vehicle every
Initial mobilisation (first week)	360 excavator delivery , diesel tank	45ft trailer HGV		0.36 (based on 5.5 day week)				
	Cabin delivery	20 tonne HGV		0.18				
	Dump truck, heavy roller and bulldozer	45ft trailer HGV	2	0.36				
	Tarmac	20 tonne HGV	3	0.54				
	Concrete cellar rings	20 tonne HGV	1	0.18				
	Membrane	20 tonne HGV	1	0.18				
	personnel	Car/van		2	4.14	8.28	0.69	1hr 26mins
Construction (2 weeks)	Road stone and sand = 20/30 loads	20 tonne HGV	10/15	2/3 (based on 5.5 day week)				
	personnel	Car/van		2				
	concrete	HGV		2	17.6	35.2	2.9	1/2hours
Rig Set Up (4 days)		40ft HGV		5.75 (based on 4 day week)				
		Low loader		1				
		Twin axle		0.5				
	Rig	Self propelled		0.25				
		45ft HGV		0.5				
	personnel	Car/van		15	23	46	3.8	15 mins
Drilling (4 weeks)		HGV		5				
	Personnel	Car/van		25 (24 hrs)	30	60	(/24 hrs) 2.5	24 mins
Rig demobilisation (4 days)	Opposite of Rig set up							15 mins
Testing (2 - 4 weeks)	personnel	Car/Van		1				
	Removal of oil for testing	tanker		2	3	6	0.5	2hrs
Restoration (largely a reversal of construction, however low key operations such as planting (seasonally dependant) and monitoring will result in some additional movements.								Approximate reversal of construction.

DRILLING RIG VEHICLE MOVEMENT LOADS

DRILLING RIG & ASSOCIATED MACHINERY MOBILISATION & SET UP: 2 - 4 DAYS
Multiply numbers x (2) for total number of movements

No	PLANT/ LOAD DESCRIPTION	Weight (Tonnes)	Load Dimensions (Metres) L	W	H	Trailer Type
	Day 1					
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6	Deck Annular BOP + Trip Tank	25	12.19	2.92	3.35	Low Loader
7	Dog Hut, Junk Bin & Choke	20	12.19	2.74	2.90	40FT
8	Rig Pads	24	12.19	2.95	2.70	40FT
9	F.B.G	25	12.19	2.60	2.50	40FT
10	F.B.G	25	12.19	2.60	2.50	40FT
	Day 2					
11	Shaker Tank	25	12.19	2.86	3.16	40FT
12	Suction Tank	25	12.19	2.86	3.16	40FT
13	Mix Tank	25	13.10	2.60	2.80	40FT
14	Rig Ramp	24	12.19	2.95	2.70	40FT
15	Koomey	24	10.30	3.28	3.08	40FT
16	Camp & Ram BOP	24	10.00	2.55	2.61	40FT
17	Fuel, Pump & Screen Stores	25	12.19	2.60	2.70	40FT A.D.R
18	Stores & 2 Square Tanks	25	12.19	2.60	2.70	40FT T/L
	Day 3					
19	Fitters & Round Water Tanks	25	12.19	2.60	2.70	40FT T/L
20	RIG	50	18.19	1.17	4.26	Self Prop
21	4 3/4" D.C & 6 1/4 D.C	25	12.19	2.60	2.00	40FT
22	5" HW & 2 Pipe Racks Kelly + 6 x 6 1/4" D.C	25	12.19	2.60	2.00	40FT
23	PZ9 Pump No 2	20	6.00	3.06	2.54	T/Axle
24	PZ9 Engine No 2	20	9.40	2.80	3.40	Low Loader
25	PZ9 Pump N0 1	20	6.00	3.06	2.54	T/Axle
26	PZ9 Engine No 1	20	9.40	2.80	3.40	Low Loader
27	PZ9 Lift Beam Pump Suctions	20	12.19	2.95	2.50	40FT
	Day 4					
28	Logging Unit and BDF Stores					
29	Containers	25	12.19	2.60	2.50	40FT T/L
30	Fire Water Tank	16	9.50	2.75	3.35	Low Loader
31	Office ECT	18	9.70	2.60	3.12	45FT
32	Canteen & Drying Room	16	12.19	2.73	2.60	40FT T/L
33	3 x Hired Generators and Fuel Tanks	20	12.19	2.60	2.60	40FT
34	Forklift Truck and Shower Cabin	20	12.19	2.60	2.80	45FT

During day (4) and for the next (5) days there would be an additional 10 - 15 HGV loads delivering consumable such as drill pipe, drilling mud, casing, water, skips etc.

After the first (5) days of drilling the HGV deliveries range from none up to 3 - 5 per day.

During the rig set up i.e days 1 - 4 there would be 10 - 15 light van and car visits per day.

Once drilling starts on day (5) the light van and car visits increases to cover the 12 hour shift changes to 15 - 25 visits per 24hours.

SITE PREPERATION TRANSPORT LOADS

Site construction

20ton Trailer

Truck 1	Site Preparation Equipment delivery
Truck 2	Site Preparation Equipment delivery
Truck 3	Geo Membrane delivery

10ton Vehicle

Truck 4	Cellar concrete rings delivery
Truck 5	Fencing delivery

Cement Mixer Lorry

Truck 6	Concrete delivery
Truck 7	Concrete delivery
Truck 8	Concrete delivery

20ton Tipper Lorry

20 - 30 loads of base stone average loads per day = 2 - 3.

20ton Trailer

Truck 1	Removal of site preparation machinery
Truck 2	Removal of site preparation machinery

Car/light van movements will be 2 per day plus occasional visitors which would be 1/2 per week.

Restoration

Restoration is a reverse of the construction traffic/loads except where sections of the upgrade track/access point are seen as an improvement and could remain subject to planning approval.

LOWER STUMBLE VEHICLE MOVEMENT CHART

Period	Vehicle Use	Vehicle Type	No. Weekly	Daily	Total per working day	Total Movements day (x2)	Estimate movements per hour (based on a 12 hour day)	Approximately equates to 1 vehicle every
Initial mobilisation (first week)	360 excavator delivery , diesel tank	45ft trailer HGV		0.36 (based on 5.5 day week)				
	Cabin delivery	20 tonne HGV		0.18				
	Dump truck, heavy roller and bulldozer	45ft trailer HGV	2	0.36				
	Tarmac	20 tonne HGV	3	0.54				
	Concrete cellar rings	20 tonne HGV	1	0.18				
	Membrane	20 tonne HGV	1	0.18				
	personnel	Car/van		2	4.14	8.28	0.69	1hr 26mins
Construction (2 weeks)	Road stone and sand = 20/30 loads	20 tonne HGV	10/15	2/3 (based on 5.5 day week)				
	personnel	Car/van		2				
	concrete	HGV		2	17.6	35.2	2.9	1/2hours
Rig Set Up (4 days)		40ft HGV		5.75 (based on 4 day week)				
		Low loader		1				
		Twin axle		0.5				
	Rig	Self propelled		0.25				
		45ft HGV		0.5				
	personnel	Car/van		15	23	46	3.8	15 mins
Drilling (4 weeks)		HGV		5				
	Personnel	Car/van		25 (24 hrs)	30	60	(/24 hrs) 2.5	24 mins
Rig demobilisation (4 days)	Opposite of Rig set up							15 mins
Testing (2 - 4 weeks)	personnel	Car/Van		1				
	Removal of oil for testing	tanker		2	3	6	0.5	2hrs
Restoration (largely a reversal of construction, however low key operations such as planting (seasonally dependant) and monitoring will result in some additional movements.								Approximate reversal of construction.

DRILLING RIG VEHICLE MOVEMENT LOADS

DRILLING RIG & ASSOCIATED MACHINERY MOBILISATION & SET UP: 2 - 4 DAYS
Multiply numbers x (2) for total number of movements

No	PLANT/ LOAD DESCRIPTION	Weight (Tonnes)	Load Dimensions (Metres) L	W	H	Trailer Type
	Day 1					
1	Crane	25 - 45				
2	Cat Walk Extension	20	12.19	2.60	3.00	40FT
3	4 1/2" Pipe Bin + 2 x Pipe Rack	27	12.19	2.60	2.50	40FT
4	4 1/2" Pipe Bin	27	12.19	2.60	3.20	40FT
5	4 1/2" Pipe Bin	25	12.19	2.60	2.50	40FT
6	Deck Annular BOP + Trip Tank	25	12.19	2.92	3.35	Low Loader
7	Dog Hut, Junk Bin & Choke	20	12.19	2.74	2.90	40FT
8	Rig Pads	24	12.19	2.95	2.70	40FT
9	F.B.G	25	12.19	2.60	2.50	40FT
10	F.B.G	25	12.19	2.60	2.50	40FT
	Day 2					
11	Shaker Tank	25	12.19	2.86	3.16	40FT
12	Suction Tank	25	12.19	2.86	3.16	40FT
13	Mix Tank	25	13.10	2.60	2.80	40FT
14	Rig Ramp	24	12.19	2.95	2.70	40FT
15	Koomey	24	10.30	3.28	3.08	40FT
16	Camp & Ram BOP	24	10.00	2.55	2.61	40FT
17	Fuel, Pump & Screen Stores	25	12.19	2.60	2.70	40FT A.D.R
18	Stores & 2 Square Tanks	25	12.19	2.60	2.70	40FT T/L
	Day 3					
19	Fitters & Round Water Tanks	25	12.19	2.60	2.70	40FT T/L
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	Rig	**Self propelled**		**0.25**				
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