

SANTOS

COMPILED FOR

SANTOS LTD

(A.B.N. 80 007 550 923)

SEAMER-1

WELL COMPLETION REPORT

**Prepared By:
R. Subramanian
June 2003**

SEAMER-1 WCR

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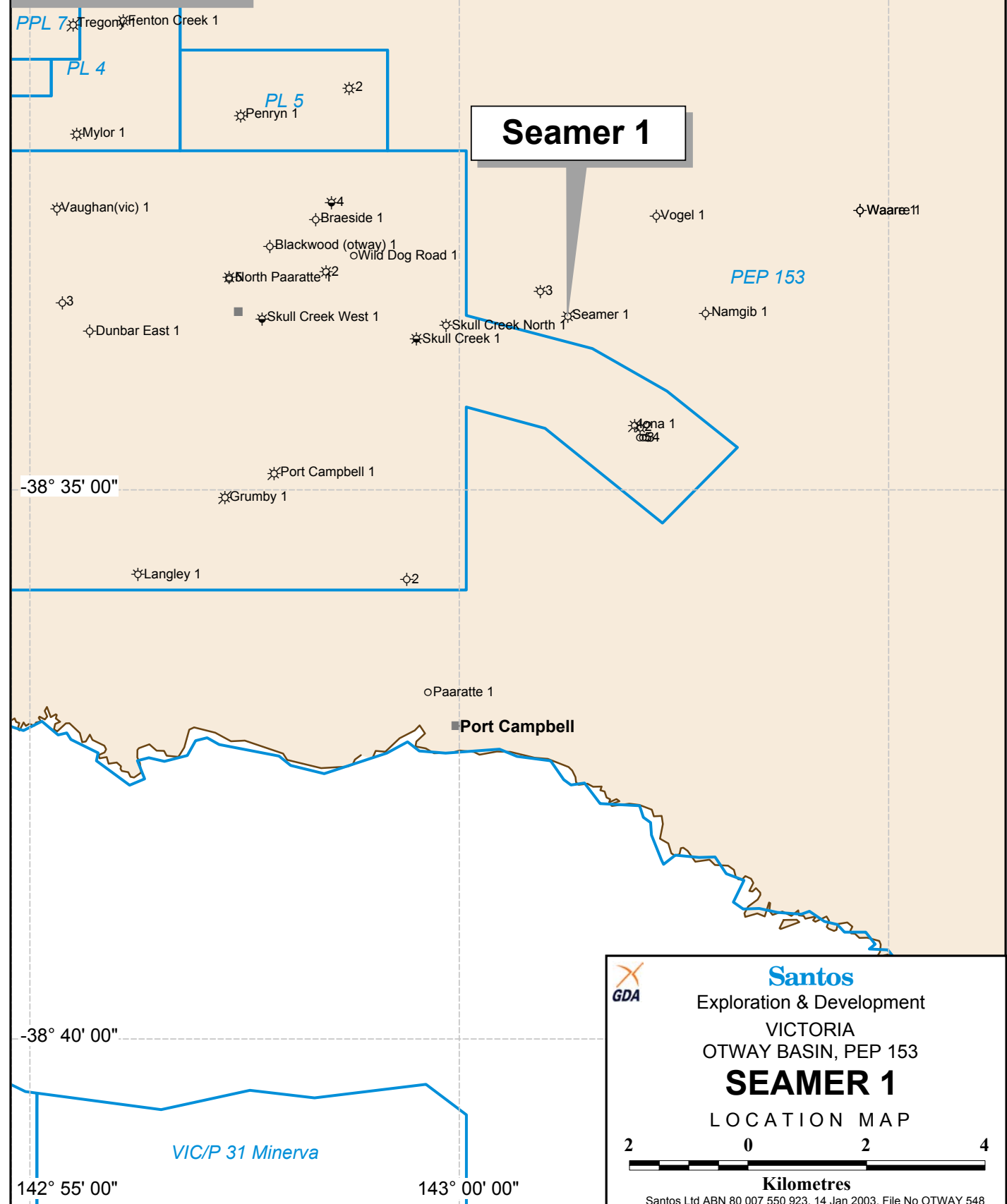
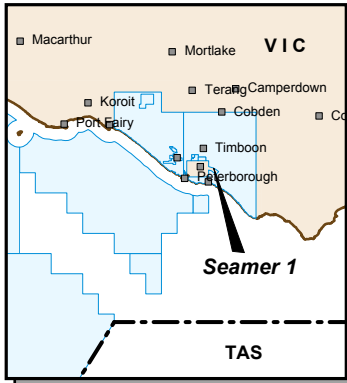
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LOCATION MAP




Santos
 Exploration & Development
 VICTORIA
 OTWAY BASIN, PEP 153
SEAMER 1
 LOCATION MAP
 2 0 2 4

Kilometres
 Santos Ltd ABN 80 007 550 923, 14 Jan 2003, File No OTWAY 548

WELL CARD

WELL HISTORY

1. GENERAL DATA

Well Name:	Seamer-1
Well Classification:	Exploration (Wildcat)
Interest Holders:	Santos (100%)
Participating Interests:	Santos (100%)
Operator	Santos
Block/Licence	PEP 153, Onshore Otway Basin, Victoria
Surface Location	Latitude: 38° 33' 24.29" South Longitude: 143° 01' 15.69" East
Surveyed Elevation	Ground Level: 59.45m Rotary Table: 64.72m
Seismic Survey	Iona 3D
Seismic Location	CDP 2555, LINE 5255
Total Depth	Driller: 1360m Logger: 1360m
Completion	112 joints of 3.5" 9.2 ppf L-80 production casing, set at 1356.0m
Status	Suspended Gas Well.

2. DRILLING DATA

Date Drilling Commenced	2000 hours, 18 th December 2002
Date Drilling Completed	1130 hours, 25 th December 2002
Date Rig Released	1100 hours, 29 th December 2002
Contractor	Century Drilling (CDL)
Rig	CDL Rig 11
Rig Specifications	Refer to Appendix XIII

3. DRILLING SUMMARY

(a) Drilling Summary (All Depths Driller's KB)

Seamer-1 was spudded at 2000 hours on the 18th December 2002. Tables I and II summarise the major drilling operations in this hole. A more comprehensive summary is appended to this report (Appendix XII: (Drilling - Final Well Report).

TABLE I: CASING, HOLE, AND CEMENT DETAILS

BIT SIZE	DEPTH	CSG SIZE	CSG DEPTH	JNTS	CSG TYPE	CEMENT
9 7/8"	442m	7 5/8"	434m	37	26.4ppf L80 BTC	<u>Lead</u> : 150sx, 68 bbls 11.8ppg Class 'G' <u>Tail</u> : 102sx, 21.4bbls 15.6 Class 'G'
6 3/4"	1360m	3 1/2"	1356m	112	9.2ppf L80	<u>Lead</u> : 192sx, 89.9 bbls 11.8ppg Class 'G' <u>Tail</u> : 290sx, 59.9 bbls 15.6ppg Class 'G' tail

TABLE II: SUMMARY OF MUD SYSTEMS

MUD TYPE	INTERVAL (m)
Spud Mud (Gel/Water)	Surface - 442
KCL/Polymer	442 - 1360

(b) Lost Time

Lost time at Seamer-1 – Please refer to Appendix XII (Drilling - Final Well Report).

(c) Water Supply

Make up water (Cl 700 mg/l, total hardness 100 mg/l, mf/pf 0.05/0.3, pH 8.5) was sourced from a local rain water dam called McKenzies's Dam. The analysis of the make water was performed at the wellsite.

(d) Mudlogging

Mudlogging services were provided by Unit 271 of Geoservices Ltd. Samples were collected, washed, and described at 10m intervals from the surface to 900m, then at 3m intervals from 900m to total depth at 1360m. All samples were checked for oil shows using ultraviolet fluorescence. Gas levels were monitored from the surface casing shoe to TD using a total gas detector and other parameters monitored included rate of penetration, weight on hook and mud pit levels.

(e) Testing

No DSTs were conducted in Seamer-1.

(f) Coring

No cores were cut in Seamer-1.

(g) Wireline Logging

One suite of wireline logs was run in Seamer-1 at Total Depth, as detailed below:

TABLE III: ELECTRIC LOG SUMMARY

LOG	SUITE/RUN	INTERVAL (ft)	BHT/TIME
<u>RUN-1: GRAND SLAM</u> GR (unfiltered) DLL-MLL-SP-CAL DSL ZDL-CN DAC : Full wave monopole (monopole shear) with WFT , semblance processed. DT	1 / 1	TD – Surface TD – Casing shoe TD – 900m TD – 900m TD – 900m 900m – Casing shoe	
<u>RUN 2: FMT-GR</u>	1 / 2	(2 trips)	
Total 24 points, 18 Good Tests, 4 lost Seals, 2 Curtailed		4 samples, 2 were opened at site, 2 sent to laboratory	
<u>RUN 3: SWC</u> 1 gun (25 shots – 20 Purchased)	1 / 3		

*Logger Contractor – Baker Atlas

(h) Geothermal Gradient

A Static Bottom Hole Temperature of 56.3°C at 1360m is calculated. This gives a geothermal gradient of 2.6°C/100m. An ambient temperature of 21°C was employed.

(i) Hole Deviation

Seamer-1 is a deviated well. The 6 ¾” production hole was designed to be deviated to intersect the two proposed targets (Nullawarre and Waarre). The well was kicked off from 574m and the angle was built to 20° at an azimuth of 181° by 840m with a build rate of approximately 3°/30m. This trajectory was held to the top of the Nullawarre Formation. Thereafter the direction of the well was turned and at total depth the azimuth was 175.7° with inclination remaining at 19.76°. At total depth of 1360mMD, the TVD was 1325.05m, and the well was 220.71m from the wellhead in a 178.17° azimuth.

(j) Velocity Survey

No velocity survey was run in Seamer-1.

(k) Completion Summary

Seamer-1 was cased and suspended.

GEOLOGY

Finlayson, D. M. (compiler), 1994 NGMA/PESA Otway Basin Symposium, Melbourne, 20 April 1994: extended abstracts. AGSO, Record 1994/14.

Foster, J.D. and Hodgson, A.J., 1995 Port Campbell Reviewed: Methane and Champagne. APEA Journal 35(1), pp. 418-435.

Partridge, A., 1997 New Upper Cretaceous Palynology of the Sherbrook Group Otway Basin. Biostrata Pty. Ltd. In PESA News, April/May, p.9.

Partridge, A. 1997 a Palynological analysis of sidewall cores from Seamer-1, Port Campbell Embayment, Otway Basin. Biostrata Report 1997/11, 27 May 1997. 26p.

SANTOS Ltd., 2003 Seamer-1 Raw Data Report. SANTOS Ltd. (Unpublished), prepared by Operations Geology.

APPENDIX I: LITHOLOGICAL DESCRIPTIONS

APPENDIX I (a): CUTTINGS

APPENDIX II: HYDROCARBON SHOW REPORTS

APPENDIX III: WIRELINE LOGGING REPORTS

APPENDIX III (a): LOGGING ORDER FORM

LOGGING ORDER

COMPANY: SANTOS

WELL: SEAMER 1 **FIELD:** WILDCAT EXPLORATION

RIG: CDL RIG 11 **STATE:** VICTORIA

LOCATION: OTWAY BASIN **BLOCK:** PEP 153

LATITUDE: 38° 33' 24.28" S **LONGITUDE:** 143° 01' 15.7" E

ELEVATIONS: **GL:** 58.5m **RT:** 63.7m **DF:** _____

9 7/8" HOLE: 442m **7 5/8" CSG:** 434m **WT:** 26.4# (L80)
ID=6.969"

6 3/4" HOLE: 1360m **CSG** **WT:** _____

TD (Drlr.): 1360m **TD (Logr.):** _____

MUD SYSTEM: KCl/PHPA/Polymer **CIRCULATION STOPPED:** 04:00 **HRS ON** 26/12/02

WT: 9.2 **VISC:** 37 **PV/YP:** 9 / 15 **PH:** 8.5 **FLUID LOSS:** 7.0 **CL:** 31000

*** See attached Mud Report for details

GEOLOGIST: R. Subramanian

INFORMATION GIVEN ABOVE IS TO BE USED ON LOG HEADING SHEETS.

HOLE CONDITIONS: (TIGHT SPOTS, DEVIATION, COALS, BARITE IN MUD, ETC)

Hole conditions expected to be good for logging run.

No Tight spots on trip out of hole.

See Anadrill Survey sheet for deviation data. Maximum deviation = 20°.

Barite in mud = Nil

DRILL STEM TESTS/CORED INTERVALS:

No DST's planned. No cores cut.

COMMENTS: (TO BE INCLUDED IN REMARKS SECTION ON HEADER SHEET)

LOGS:

PROGRAM CONFIRMED WITH OPERATIONS GEOLOGIST ON 26/12/02.

PROGRAM VARIES FROM PRE-SPUD NOTES: YES: NO:

LOG	INTERVAL	REPEAT SECTION / COMMENTS
<u>RUN-1: SUPER COMBO</u> GR (unfiltered) DLL-MLL-SP-CAL DSL ZDL-CN DAC : Full wave monopole (monopole shear) with WFT , semblance processed DT	TD – Surface TD – Casing shoe TD – 900m TD – 900m TD – 900m 900m – Casing shoe	
<u>RUN 2: FMT-GR</u> 20 points programmed	TBA, 4 samples, 2 to be opened at site	Use 20cc
<u>RUN 3: SWC</u> 25 shots – 1 gun	TBA	

REMARKS: (ALL OPERATIONS AS PER CURRENT SANTOS OPERATING PROCEDURES)

1. TENSION CURVE - TO BE DISPLAYED ON LOG FROM T.D. TO CASING SHOE.
2. ALL CALIBRATIONS IN CASING MUST BE VERSUS DEPTH.
3. ALL ZONES OF SONIC CYCLE SKIPPING OR POOR QUALITY DATA TO BE REPEATED AND NOTED IN REMARKS SECTION.
4. REPEAT SECTION NOT TO BE RUN IN 6” HOLES, COMPARE DOWN LOG FOR REPEAT ANALYSIS.
5. REPEAT SECTION TO BE LOGGED PRIOR TO MAIN LOG OVER INTERVAL OF INTEREST. (IF HOLE CONDITIONS ALLOW). CONFIRM REPEAT SECTION INTERVAL WITH OPERATIONS GEOLOGIST.
6. ALL THERMOMETER READINGS TO BE RECORDED ON LOG
7. ALL SCALES AND PRESENTATIONS TO CONFIRM TO STANDARDS UNLESS OTHERWISE ADVISED.
8. THE FIELD/EDIT TAPE MUST BE A MERGED COPY OF ALL LOGS RUN. SEPARATE TAPES ARE ONLY ACCEPTABLE AS AN INTERIM MEASURE.
9. ANY CHANGE FROM STANDARD PROCEDURES/SCALES TO BE NOTED IN REMARKS SECTION.
10. RM, RMF, RMC AND BHT MUST BE ANNOTATED ON FAXED LOGS. FAXED LOGS SHOULD ALSO INDICATE IF ON DEPTH OR NOT.
11. LOG DATA IS TO BE TRANSMITTED AS SOON AS POSSIBLE AFTER ACQUISITION. IF ANY DELAYS ARE LIKELY OR IF DATA TRANSMISSION WILL ADVERSELY EFFECT THE OPERATION THEN THE OPERATIONS GEOLOGIST MUST BE IMMEDIATELY INFORMED.
12. THE OPERATIONS GEOLOGIST MUST BE INFORMED IMMEDIATELY OF ANY TOOL OR HOLE PROBLEMS, LOST TIME OR ANY OTHER EVENT WHICH MAY AFFECT THE LOGGING OPERATIONS.

APPENDIX III (b): FIELD ELECTRIC LOG REPORT

SANTOS LIMITED

FIELD ELECTRIC LOG REPORT

WELL:	SEAMER 1	GEOLOGIST:	R. Subramanian
LOGGING ENGINEER:	Barrett / Gleeson		
RUN NO.:	1 to 3	DATE LOGGED:	26 to 27/12/02
DRILLERS DEPTH:	1360m	LOGGERS DEPTH:	1355m (Stuck)
ARRIVED ON SITE:	23/12/02		
ACTUAL LOG TIME:	12:45 hrs	LOST TIME LOGGER:	3:45 hrs
TOTAL TIME:	29:00 hrs	LOST TIME OTHER:	-

TYPE OF LOG	GRAND SLAM (RUN 1)	FMT (RUN 2 – TRIP 1)	FMT (RUN 2 – TRIP 2)	SWC-GR (RUN 3)
TIME CIRC. STOPPED	04:00 26/12/02	04:00 26/12/02	04:00 26/12/02	04:00 26/12/02
TIME TOOL RIG UP	10:15 26/12/02	20:30 26/12/02	04:30 27/12/02	07:00 27/12/02
TIME TOOL RUN IN HOLE	11:30 26/12/02	22:00 26/12/02	04:45 27/12/02	11:15 27/12/02
TIME TOOL RIG DOWN	20:30 26/12/02	04:30 27/12/02	07:00 27/12/02	15:15 27/12/02
TOTAL TIME	10:15 hrs	8:00 hrs	2:30 hrs	8:15 hrs

WIRELINE LOG	SUITE/RUN	INTERVAL (ft)	BHT/TIME
<u>RUN-1: GRAND SLAM</u> GR (unfiltered) DLL-MLL-SP-CAL DSL ZDL-CN DAC : Full wave monopole (monopole shear) with WFT , semblance processed DT	1 / 1	TD – Surface TD – Casing shoe TD – 900m TD – 900m TD – 900m 900m – Casing shoe	
<u>RUN 2: FMT-GR</u> Total 24 points, 18 Good Tests, 4 lost Seals, 2 Curtailed	1 / 2	(2 trips) 4 samples, 2 were opened at site, 2 sent to laboratory	
<u>RUN 3: SWC</u> 1 gun (25 shots – 20 Purchased)	1 / 3		

MUD SYSTEM:	WEIGHT: 9.2ppg
HOLE CONDITIONS: Good hole conditions reasonably good. Got stuck after tagging fill at 1355m. Worked free. Hole deviated at approx. 20°.	

REMARKS / RECOMMENDATIONS: Depth counter had problems. Later traced to computer problems. Communications/computer problems encountered during the SWC run. 3.75hrs total downtime. DLL failed above 900m. Downlog was spliced into the log.

WELLSITE LOG QUALITY CONTROL CHECKS

LOG ORDER FORM	✓	MUD SAMPLE RESISTIVITY	✓	TOOL NO. / CODE CHECK	✓
OFFSET WELL DATA	✓	CABLE DATA CARD	✓	LOG SEQUENCE CONFIRM.	✓

LOG TYPE	GR	CAL	DAC	DLL	MLL	LDL	CNL	SP	FMT	SWC	REMARKS
CASING CHECK		✓	✓								
SCALE CHECK	✓										
DEPTH Casing Total				✓							D=434m; L=434m
CALIBRATIONS OK											
REPEATABILITY	✓										Matched with MWD log
LOGGING SPEED											5 m/min
OFFSET WELL Repeatability											Matched with Penryn-1
NOISY / MISSING DATA				✓							DLL failed above 900m. Spliced from downlog.
CURVES/LOGS Depth Matched									✓	✓	Correlated to Run 1
Rm MEASUREMENT											
LLS / LLD / CHECK											
PERF / RHOB CHECK											
LOG HEADER / TAIL											
PRINT/FILM QUALITY											

COMMENTS:

ENGINEERS COMMENTS (If this report has not been discussed with the Engineer state reason)

APPENDIX IV: LOG EVALUATION

SEAMER 1

LOG ANALYSIS

APPENDIX V: PRESSURE SURVEY

APPENDIX VI: DRILL STEM TEST DATA

No Drill Stem Tests were conducted in Seamer-1.

APPENDIX VII: HYDROCARBON ANALYSIS

Four samples were collected during the FMT-GR logging run. Of these two were opened at the rigsite and two were sent to AMDEL Laboratories in Adelaide for analysis.

Field Results are displayed overleaf.

FIELD ANALYSIS OF FMT SAMPLES

	Sample 1	Sample 2
Formation	Nullawarre Greensand	Waarre Sandstone
Sample Depth (m)	996	1162
Chamber Pressure (psi)	1200	1300
Gas Volume (cubic feet)	5.0	7.0
CO ₂ (%)	1.8	3.25
Total Gas (units)	1300	1700
Gas Composition (%)	98 / 2 / trace / trace	97 / 3 / trace / trace
Liquid Volume (ml)	350	0
Liquid Resistivity (ohms)	0.15 @ 64°F	-
Liquid Hardness (mg/l)	360	-
Liquid Chlorides (mg/l)	30,000	-
Liquid pf/mf	0.0 / 0.06	-
Liquid pH	8.0	-
KCl (%)	4.4	-

Santos Limited
GPO Box 2319
ADELAIDE SA 5000
Australia



This Laboratory is accredited by the National Association of Testing Authorities, Australia. The test(s) reported herein have been performed in accordance with its terms of accreditation. This document shall not be reproduced except in full.

Accreditation No 2013

Attention: Andy Pietsch

Project 03PEAD00442

Customer Sample ID SEAMER-1
Well ID Nullawarre FMT sample 996m
Sample Type Gas
Date Sampled 16/01/2003
Time Sampled 1500 h

GAS ANALYSIS

Test/Reference Unit

Gas Analysis ASTM D 1945-96 (modified)

Nitrogen*	Mol %	2.63
Carbon Dioxide*	Mol %	4.09
Methane*	Mol %	90.35
Ethane*	Mol %	2.26
Propane*	Mol %	0.29
I-Butane*	Mol %	0.18
N-Butane*	Mol %	0.07
I-Pentane*	Mol %	0.03
N-Pentane*	Mol %	0.02
Hexanes*	Mol %	0.03
Heptanes*	Mol %	0.02
Octanes and higher hydrocarbons	Mol %	0.03
Total*	Mol %	100

Gas Parameters ASTM D 1945-96 (modified)

Average Molecular Weight		18.11
Lower Flammability Limit		5.19
Upper Flammability Limit		15.94
Ratio Of Upper To Lower		3.07
Wobbe Index		46.03
Compressibility Factor		0.9979
Ideal Gas Density (Rel to Air = 1)		0.625
Real Gas Density (Rel to Air = 1)		0.626
Ideal Nett Calorific Value	MJ/m ³	32.81
Ideal Gross Calorific Value	MJ/m ³	36.40
Real Nett Calorific Value	MJ/m ³	32.88
Real Gross Calorific Value	MJ/m ³	36.47
Gross Calorific Val Water-Sat Gas	MJ/m ³	35.75

Gas Parameters

The above results are calculated on an air and water free basis assuming only the measured constituents are present. The following parameters are calculated from the above composition at 15°C and 101.325 kPa (abs) using ISO 6976 and the physical constants from the GPSA SI Engineering Data Handbook 11 th Ed.

Authorised By: Michelle Fordham
Petroleum Chemist

Signature:



Final Report

- Indicates Not Requested

* Indicates NATA Accredited Test

Samples will be discarded after 30 days unless otherwise notified.

Amdel Limited shall not be liable for loss, cost, damages or expenses incurred by the client, or any other person or company, resulting from the use of any information or interpretation given in this report. In no case shall Amdel Limited be liable for consequential damages including, but not limited to, lost profits, damages for failure to meet deadlines and lost production arising from this report. This document shall not be reproduced except in full and relates only to the items tested. Unless indicated otherwise, the tests were performed on the samples as received.

The samples were not collected by Amdel staff.

APPENDIX VIII: WATER ANALYSIS

No Water Analysis was conducted on Seamer-1.

However mud filtrate recovered from the FMT chamber was analysed and the results are attached overleaf.

Santos Limited
 GPO Box 2319
 ADELAIDE SA 5000
 Australia

Attention: Mike Giulliano

Project Name **03PEAD00125**
 Collected by client
 Client Ref: 539489-606596

Customer Sample ID SEAMER-1
 Description FMT sample
 Date Received 07/01/2003
 Sample Type mud filtrate

ANIONS

Test/Reference	Unit	
APHA 20th ed		
Hydroxide as OH	mg/L	<1
Carbonate as CO ₃	mg/L	<1
Bicarbonate as HCO ₃	mg/L	1199
Total Alkalinity (calc as CaCO ₃)	mg/L	983
Chloride as Cl	mg/L	24612
Nitrate as NO ₃	mg/L	<1
Sulphate as SO ₄	mg/L	708
Total Anions	mg/L	26519
Hydroxide as OH	meq/L	<0.01
Carbonate as CO ₃	meq/L	<0.01
Bicarbonate as HCO ₃	meq/L	20
Chloride as Cl	meq/L	693.30
Nitrate as NO ₃	meq/L	<0.01
Sulphate as SO ₄	meq/L	14.74
Total Anions	meq/L	727.70

CATIONS

Test/Reference	Unit	
APHA 20th ed		
Potassium as K	mg/L	26500
Sodium as Na	mg/L	2515
Barium as Ba	mg/L	<1
Calcium as Ca	mg/L	324
Iron as Fe	mg/L	1
Magnesium as Mg	mg/L	174
Strontium as Sr	mg/L	12
Aluminium as Al	mg/L	3
Total Cations	mg/L	29526
Potassium as K	meq/L	677.75
Sodium as Na	meq/L	109.40
Barium as Ba	meq/L	<0.01
Calcium as Ca	meq/L	16.17
Iron as Fe	meq/L	0.05
Magnesium as Mg	meq/L	14.32
Strontium as Sr	meq/L	0.27
Aluminium as Al	meq/L	0.11
Total Cations	meq/L	817.96

Customer Sample ID SEAMER-1
 Description FMT sample
 Date Received 07/01/2003
 Sample Type mud filtrate

DERIVED PARAMETERS

Test/Reference	Unit	
APHA 20th ed		
Calculated Total Dissolved Solids	mg/L	47744
Ion balance (Diff * 100/Sum)	%	5.84
Acceptance Criteria	%	5
Satisfactory		No
APHA 20th Ed		
Total Cations + Anions	mg/L	56045
APHA 20th ed		
Hardness (calc as CaCO ₃)	mg/L	1526

PROPERTIES:

Test/Reference	Unit	
APHA 20th Ed		
Electrical Conductivity @ 25°C	µS/cm	74600
Resistivity @ 25°C	M.Ohm	0.13
pH		7.3

ION_BAL01

If the ion balance in this sample is unsatisfactory it is most likely due to a component or components of the sample that is not within the scope of this analysis.

Authorised By: Rebecca Navarro
Laboratory Assistant

Signature:



Final Report

- Indicates Not Requested

* Indicates NATA Accredited Test

Samples will be discarded after 30 days unless otherwise notified.

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The samples were not collected by Amdel staff.

APPENDIX IX: PALYNOLOGICAL ANALYSIS

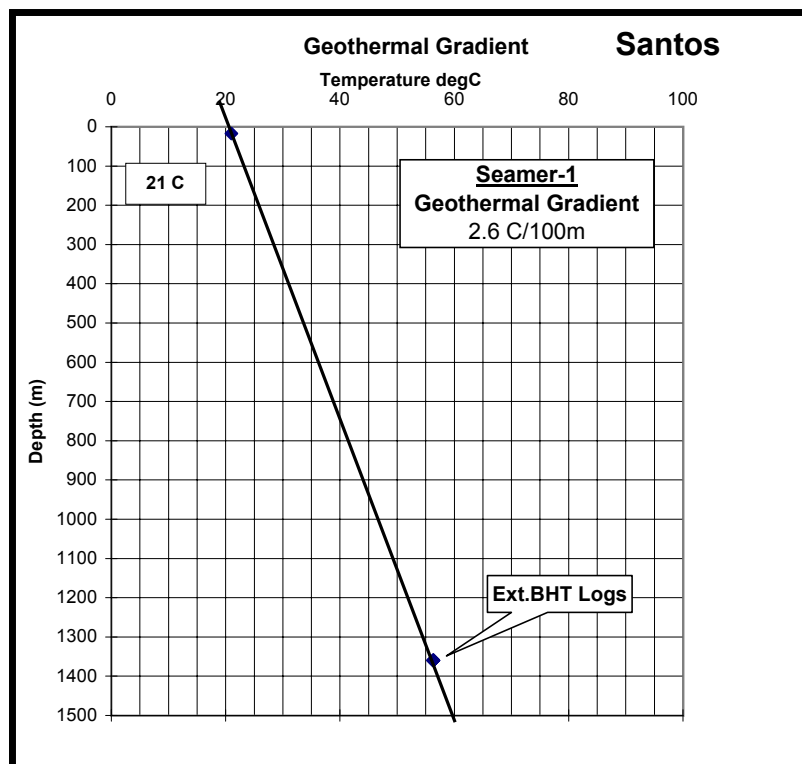
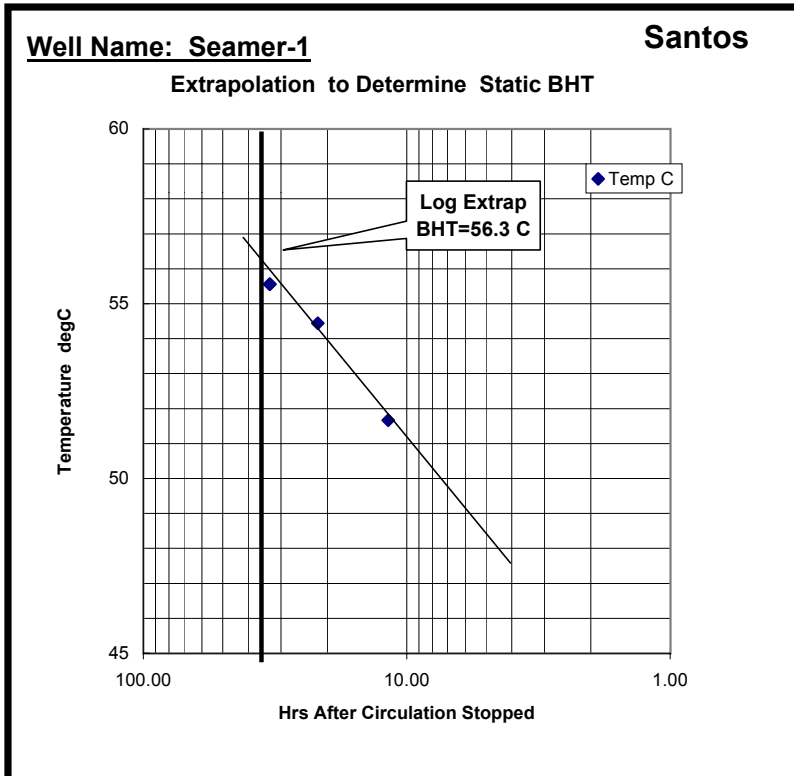
No Palynological Analysis was undertaken on Seamer-1.

APPENDIX X: GEOTHERMAL GRADIENT

A Static Bottom Hole Temperature of 56.3°C at 1360m is calculated. This gives a geothermal gradient of 2.6°C/100m. An ambient temperature of 21°C was employed.

Data used for the calculations is as follows:-

125°C after 11.75 hours from Run 2, Suite 1.
130°C after 21.75 hours from Run 2, Suite 1.
132°C after 33.10 hours from Run 3, Suite 1.



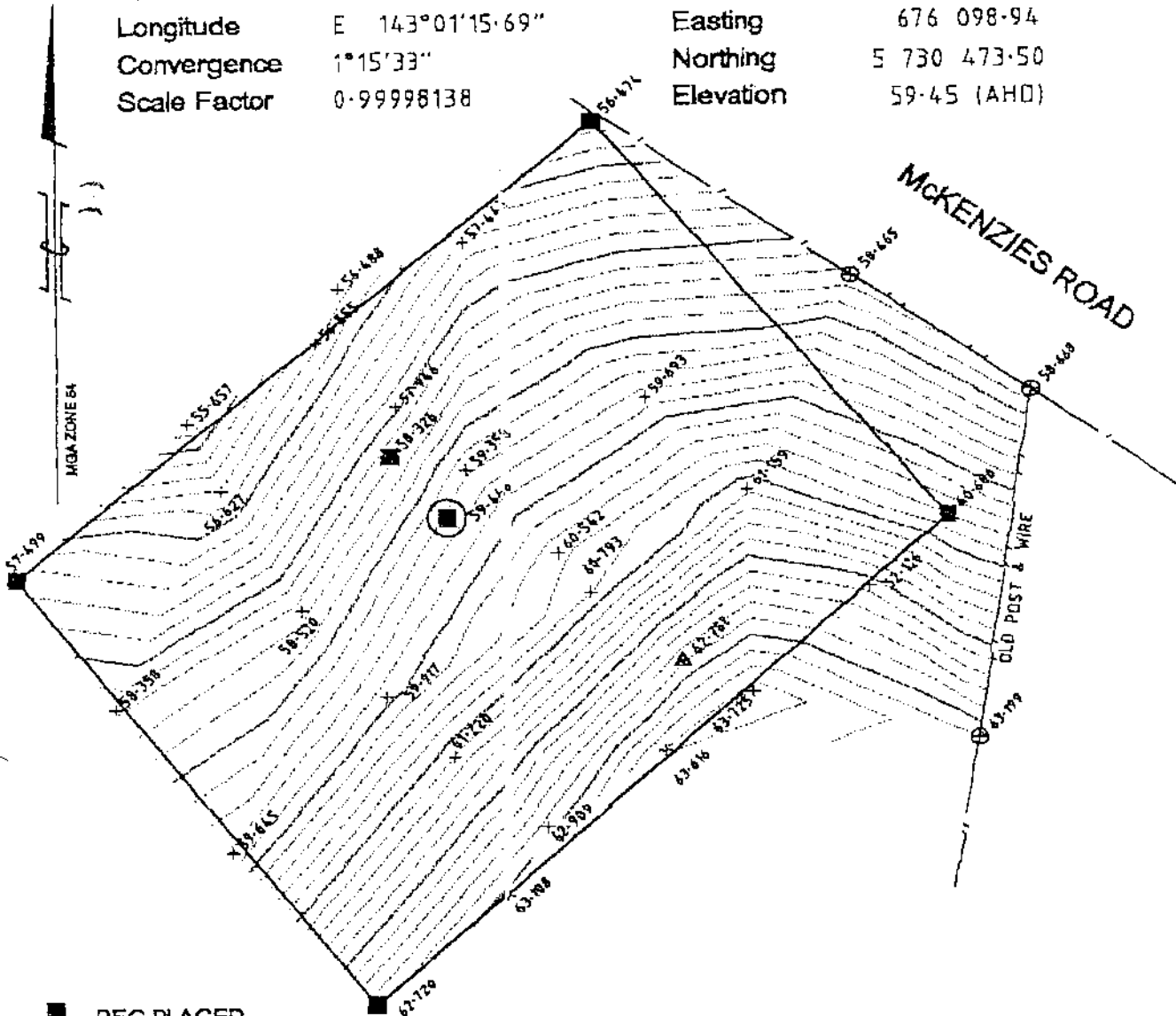
APPENDIX XI: WELL LOCATION SURVEY

VICTORIA PROPOSED GAS WELL LOCATION SKETCH PLAN EXPLORATION LICENCE PEP 153

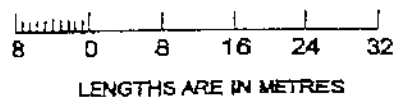
Well Name SEAMER # 1

Map

Spheroid	GDA94	MGA 94	ZONE 54
Latitude	S 38°33'24.29"	Measurement units (metres)	
Longitude	E 143°01'15.69"	Easting	676 098.94
Convergence	1°15'33"	Northing	5 730 473.50
Scale Factor	0.99998138	Elevation	59.45 (AHD)



- PEG PLACED
- ⊙ PEG PLACED AT PROPOSED WELL SITE
- BEARING OF AXIS BETWEEN CENTRE PEGS 319°
- VOLUME OF PROPOSED CUT 12,300 m³
- VOLUME OF PROPOSED FILL 1,900 m³
- PROPOSED LEVEL OF CUT SURFACE 58.3 m



Date of Survey : 5/11/2002

Paul Crowe Surveyor ABN 69621601183 "Ambleside" 192 Korait Street Warrambool 3280 Ph. (03) 5561 1500	REF 1151
------------------------------------------------------------------------------------------------------------------	-----------------

APPENDIX XII: DRILLING - FINAL WELL REPORT



Santos

FINAL WELL REPORT

SEAMER 01

Drilling Supervisor(s)	: Seton Porter
Report Author	: Tricia Robertson
Report Supervisor	: Brendan Berry
Date of Issue	: 13th January 2003

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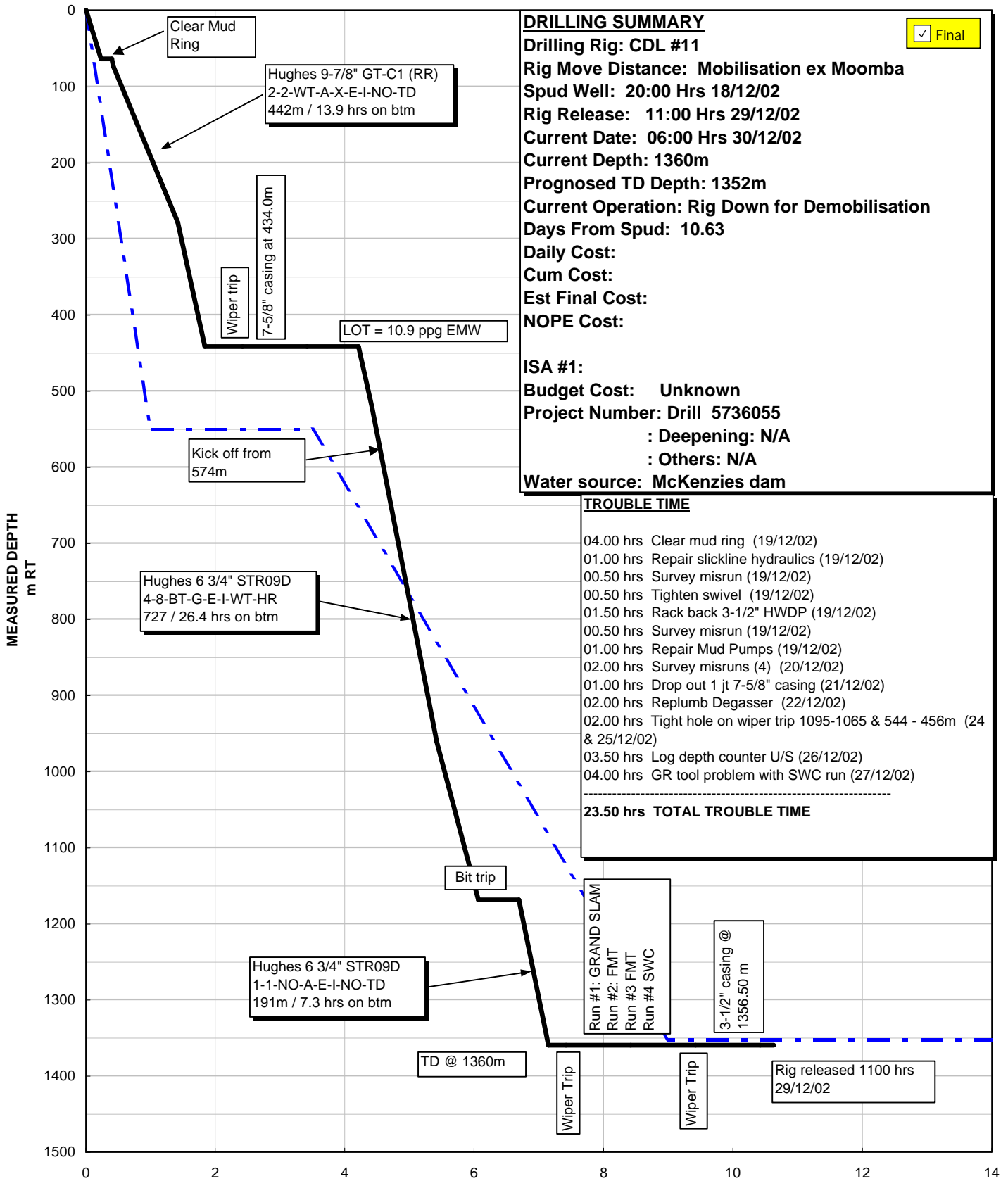
Section 1 – Well Summary
Time vs Depth Curve

SEAMER 1 TIME v DEPTH CURVE

Seamer 1
NOPE

Seamer 1
Actual

DAYS FROM SPUD



Final

DRILLING SUMMARY

Drilling Rig: CDL #11

Rig Move Distance: Mobilisation ex Moomba

Spud Well: 20:00 Hrs 18/12/02

Rig Release: 11:00 Hrs 29/12/02

Current Date: 06:00 Hrs 30/12/02

Current Depth: 1360m

Prognosed TD Depth: 1352m

Current Operation: Rig Down for Demobilisation

Days From Spud: 10.63

Daily Cost:

Cum Cost:

Est Final Cost:

NOPE Cost:

ISA #1:

Budget Cost: Unknown

Project Number: Drill 5736055

: Deepening: N/A

: Others: N/A

Water source: McKenzies dam

TROUBLE TIME	
04.00 hrs	Clear mud ring (19/12/02)
01.00 hrs	Repair slickline hydraulics (19/12/02)
00.50 hrs	Survey misrun (19/12/02)
00.50 hrs	Tighten swivel (19/12/02)
01.50 hrs	Rack back 3-1/2" HWDP (19/12/02)
00.50 hrs	Survey misrun (19/12/02)
01.00 hrs	Repair Mud Pumps (19/12/02)
02.00 hrs	Survey misruns (4) (20/12/02)
01.00 hrs	Drop out 1 jt 7-5/8" casing (21/12/02)
02.00 hrs	Replumb Degasser (22/12/02)
02.00 hrs	Tight hole on wiper trip 1095-1065 & 544 - 456m (24 & 25/12/02)
03.50 hrs	Log depth counter U/S (26/12/02)
04.00 hrs	GR tool problem with SWC run (27/12/02)

23.50 hrs TOTAL TROUBLE TIME	

Section 2 – Well History
Well History Report

RT above GL: 5 m Lat : 38 deg 33 min 24.62 sec Spud Date: 18/12/2002 Release Date: 29/12/2002
 GL above MSL : 58 m Long : 143 deg 1 min 15.95 sec Spud Time: 20:00:00 Release Time: 11:00:00

Well History

#	DATE	DEPTH	WELL HISTORY (24 Hr Summary)
1	09/12/2002	0	Rigging up & repairs to CDL 11
2	10/12/2002	0	Rigging up & repairs
3	11/12/2002	0	Rigging up & repairs
4	12/12/2002	0	Rigging up & repairs
5	13/12/2002	0	Rigging up & repairs
6	14/12/2002	0	Ice breaker course in Port Campbell
7	15/12/2002	0	Rigging up & repairs
8	16/12/2002	0	Rigging up & repairs
9	17/12/2002	0	Rigging up
10	18/12/2002	44	Drill & set Rat & Mouse holes. Prepare to spud, wrong size RKB Rollers. Repairs & prepare BOP's etc while waiting on new rollers from Brisbane. Spud in at 2000 hrs & drill to 44m, survey.
11	19/12/2002	198	Drill 9-7/8" hole from 44 to 198m. Trouble with mud rings, and some rig components
12	20/12/2002	442	Drill 9-7/8" hole to 442m, surface casing depth. Condition hole & hoist to run casing
13	21/12/2002	442	Run & cement 7-5/8" casing at 434m. NU BOP's
14	22/12/2002	442	Nipple up & test BOPE. Make up Anadrill Steerable BHA & run in hole to drill out
15	23/12/2002	884	Drill out shoe track & run L.O.T to 10.9 ppg, EMW. Drill ahead in 6-3/4" hole, begin kick-off at 574m, building angle.
16	24/12/2002	1,169	Drill 6-3/4" hole from 884 to 1169m. Trip for new bit
17	25/12/2002	1,360	Trip for new bit, change out MWD tool & NMDC, run in & drill to Total Depth
18	26/12/2002	1,360	Circulate & condition hole & hoist. Lay out directional tools. Run logs with Baker Atlas
19	27/12/2002	1,360	Run logs with Baker Atlas. Run in & begin laying out pipe
20	28/12/2002	1,360	Lay down pipe. Run & cement 3-1/2" casing at 1356m. Wait on cement & nipple down BOP's
21	29/12/2002	1,360	Set Slip & Seal Assembly. Nipple down & lay out BOP's. Nipple up & test Xmas Tree. Release rig

Section 3 – Drilling Data
Bit Record
FIT/LOT Report

SEAMER 01

Drilling Co.: Century

Rig : Century #11

RT above GL : 5 mtrs
GL above MSL : 58 mtrsLat : 38 deg 33 min 24.62 sec
Long : 143 deg 1 min 15.95 secSpud Date: 18/12/2002
Spud Time: 20:00:00Release Date: 29/12/2002
Release Time: 11:00:00**BIT RECORD**

DATE	BIT#	SIZE "	IADC	SER	MFR	TYPE	JETS	D.IN mtrs	D.OUT mtrs	MTRG	HRS o/b	SPP psi	FLW gpm	WOB k-lbs	RPM	MW ppg	TFA sq.in	VEL mps	HHP /sq"	ROP m/hr	I	O1	D	L	B	G	O2	R
20/12/2002	1	9.88	116	A39JW	HUGHES	GTC1	3x18	0	442	442	13.9	681	502	9.5	100	8.8	0.746	66	1.39	31.8	2	2	WT	A	E	I	NO	TD
25/12/2002	2	6.75	437	D88YU	HUGHES	STR09D	3x13	442	1,169	727	26.4	1478	251	12.0	74	9.1	0.389	0	0.00	27.5	4	8	BT	G	E	2	WT	HR
26/12/2002	3	6.75	437	X75JG	HUGHES	STR09D	3x12	1,169	1,360	191	7.3	1759	252	15.1	216	9.2	0.331	74	1.96	26.2	1	1	NO	A	E	I	NO	TD

WELL: Seamer 1

RIG: Century Resources - 11

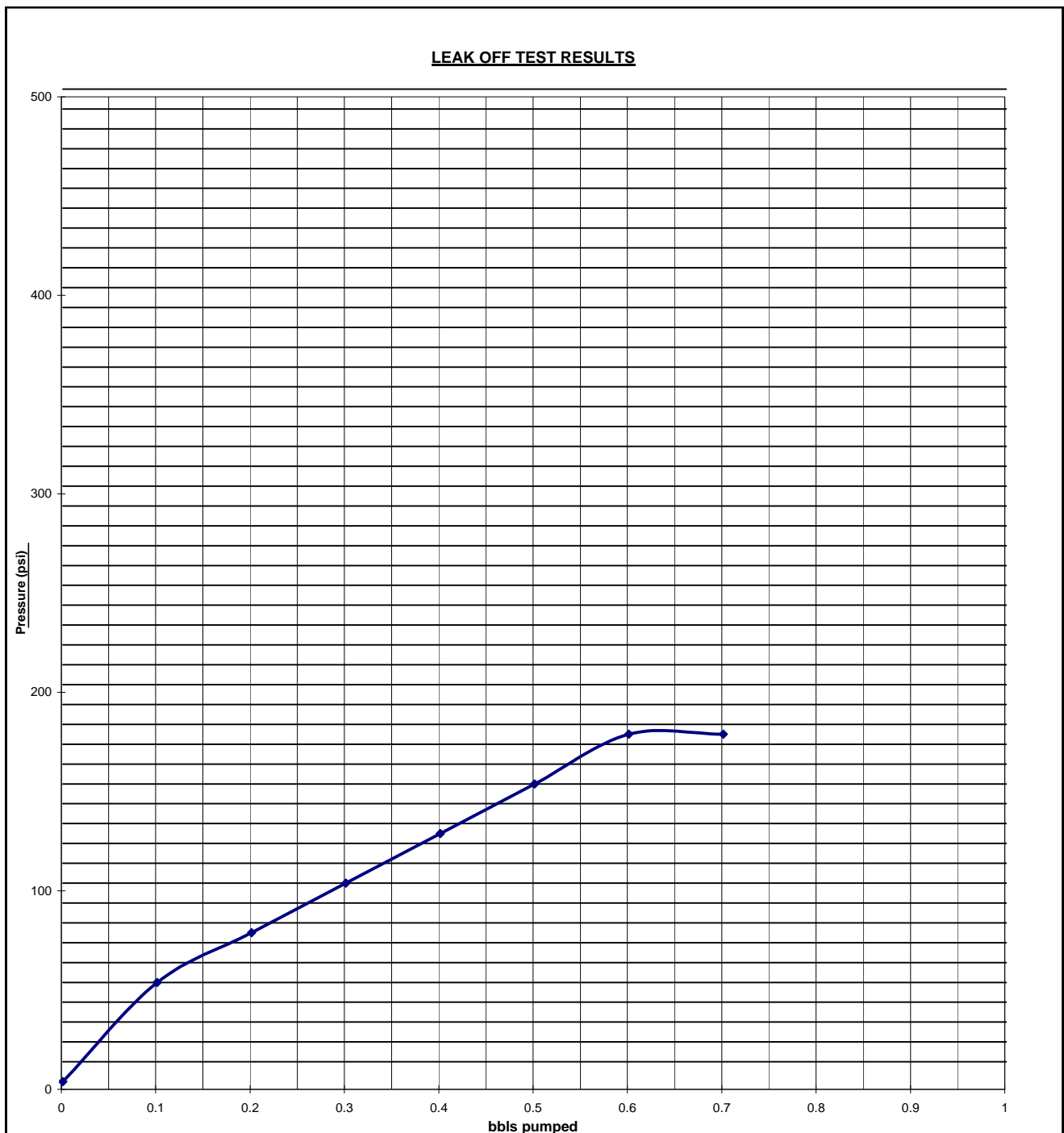
23-Dec-02

CASING SIZE: 9-5/8"

SANTOS SUPERVISOR: Seton Porter

A. MUD DENSITY IN USE:	8.50	ppg
B. HOLE DEPTH:	442	m
C. SHOE DEPTH:	434	m
D. LEAK-OFF PRESSURE (GRAPH):	175	Psi
E. EQUIVALENT DENSITY:	10.9	(ppg) (EMW)
$\frac{\text{LEAK-OFF PRES. (D) (psi)} + \text{MUD DENSITY IN USE (A) (ppg)}}{\text{SHOE DEPTH (C) (ft)} \times 0.05}$		
F. MAXIMUM PRESSURE RECORDED:	175	psi
G. VOLUME PUMPED:	0.7	bbls
H. VOLUME REGAINED:	0.5	bbls

bbls	0	0.1	0.2	0.3	0.4	0.5	0.6	0.7											
Psi	0	50	75	100	125	150	175	175											



Section 4 – Casing and Cementing

Casing and Cementing Report/s

Wellhead Installation Report/Plug and Abandonment Report

WELL: Seamer 1 **DATE:** 21-Dec-02
ELEVATIONS: RT: 63.71 m **T.D:** 442 m
 GL: 58.51.0 m **P.BTD:** 426 m
CASING BOWL SIZE: 11" 5K x 7-5/8" API BTC WG-22-L **SERIES:** 5000
STRING TYPE: Surface

CASING AND EQUIPMENT RECORD AS RUN FROM BOTTOM TO TOP

SIZE OD.	WEIGHT lb/ft	GRADE	No. of JOINTS	THREAD	LENGTH	FROM	TO	REMARKS
7-5/8"	---	L-80	---	BTC	0.37	433.63	434.00	Float Shoe
7-5/8"	26.4	L-80	1	BTC	11.58	422.05	433.63	
7-5/8"	---	L-80	---	BTC	0.31	421.74	422.05	Float Collar
7-5/8"	26.4	L-80	36	BTC	416.96	4.78	421.74	
7-5/8"	26.4	L-80	---	BTC	5.70	-0.92	4.78	Landing Joint
							-0.92	Stick up
		TOTAL JOINTS	37					

TALLY TOTAL **434.92**

CASING LANDED AT : **434.00 m**
 RT TO TOP OF BRADEN HEAD : **4.54 m**

CENTRALIZERS LOCATED AT - RT.

431	375
410	352
398	16

PREFLUSH **Dam Water**

Volume: 20 **Density:** 8.4 **Additives:** Water only

LEAD CEMENT

Brand: ABC Class: G No. sx: 150 Mixwater: 55.4 bbbs Slurry Vol: 68 bbbs Density: 11.8 ppg Gals/Sack 15.5 Yield: 2.56 cu.ft/sack	Additives % Amount Used Bentonite 2 585 lbs
-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	------------------------------------------------------------------------

TAIL CEMENT

Brand: ABC Class: G No. sx: 102 Mixwater: 12.6 bbbs Slurry Vol: 21.4 bbbs Density: 15.6 ppg Gals/Sack 5.18 Yield: 1.18 cu.ft/sack	Additives % Amount Used Nil
-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	----------------------------------------------

DISPLACEMENT

Fluid: Water **Calc. Displacement:** 66 bbbs **Plug Bump:** Yes
Density: 8.4 **Actual Displacement:** 67 bbbs **Bleed Back:** 0.5 bbbs

TIME:-	STARTED IN HOLE:	04:30 Hr.	CASING RECIPROCATED DURING
	FINISHED RUNNING CASING:	07:40 Hr.	
	START CIRCULATING:	08:25 Hr.	CIRCULATING: Yes
	STOP CIRCULATING:	10:25 Hr.	CEMENTING: Yes
	START CEMENTING:	10:50 Hr.	DISPLACING: Yes
	FINISH CEMENTING:	11:25 Hr.	WIPER PLUGS
	START DISPLACEMENT:	11:27 Hr.	TOP: Yes
	FINISH DISPLACEMENT:	11:40 Hr.	BOTTOM: Yes

CEMENT JOB DETAILS / REMARKS:-

Drilling Supervisor: Seton Porter

Casing ran to bottom OK. Circulated, pumped water pre-flush & pressure tested lines to 2500 psi. Mixed & pumped cement, displaced with Halliburton. Did not get any cement returns, nor water pre-flush. Bumped plug to 2000 psi, floats held.
 Ran a 95 sack Top-up job. Did not get mud returns for first 10 bbbs pumped. Left cement in conductor for over an hour, but it still slumped back to 4 metres below the cellar. Topped up with cement by hand.
 The landing joint is 1.5 metres too short. It was set the minimum height above the RT of 1m, to get the slips in/out, with the plug container removed. This put the Bradenhead 70cm above GL.

RT - top of Bradenhead = 4.54m

WELL: Seamer 1 **DATE:** 28-Dec-02
ELEVATIONS: RT: 63.71 m **T.D:** 1360 M
 GL: 58.51.0 m **PBTD:** 1343 M
TUBING SPOOL SIZE: 11 5K x 7-1/16" 5K **SERIES:** 5000
STRING TYPE: 3 1/2" Production Casing

CASING AND EQUIPMENT RECORD AS RUN FROM BOTTOM TO SURFACE

SIZE OD.	WEIGHT lb/ft	GRADE	No. of JOINTS	THREAD	LENGTH	TO	FROM	REMARKS
3-1/2"	---	---	---	Fox	0.36	1356.14	1356.50	Float Shoe
3-1/2"	9.2	K-55	1	Fox	12.38	1343.76	1356.14	
3-1/2"	---	---	---	Fox	0.32	1343.44	1343.76	Float Collar
3-1/2"	9.2	K-55	1	Fox	12.38	1331.06	1343.44	
3-1/2"	9.2	K-55	1	Fox	3.07	1327.99	1331.06	Marker Joint
3-1/2"	9.2	K-55	4	Fox	49.50	1278.49	1327.99	
3-1/2"	9.2	13Cr110	11	Fox	136.10	1142.39	1278.49	
3-1/2"	9.2	13Cr110	1	Fox	3.14	1139.25	1142.39	Marker Joint
3-1/2"	9.2	13Cr110	13	Fox	160.03	979.22	1139.25	
3-1/2"	9.2	13Cr110	1	Fox	3.04	976.18	979.22	Marker Joint
3-1/2"	9.2	13Cr110	79	Fox	977.09	-0.91	976.18	
							-0.91	Stick up
		TOTAL JOINTS	112					
				TALLY TOTAL	1357.41			

CASING LANDED AT: 1356.50 m
RT - Bradenhead: 4.54 m
R.T - Top of Xmas Cap: 2.90 m

CENTRALISERS LOCATED TO - RT.

1353	1266	1167	1077	979
1327	1241	1142	1052	951
1315	1216	1126	1028	432
1290	1191	1102	1003	407

PREFLUSH

Volume: 30 bbls water, SAPP **Additives:** 200 kgs SAPP

LEAD CEMENT

Brand:	Class:	No. sx:	Additives	%	Amount Used
ABC	G	192	Bentonite, BWOW	4	1148 lbs
McKenzies Dam	Slurry Vol: 89.9 bbls	Density: 11.8	Halad 344, BWOW	0.37	106 lbs
Gals/Sack 15.84	Mix Water: 72.0 bbls	Yield: 2.63 cu.ft/sack			
Cement top = 284 m	10% excess on caliper				

TAIL CEMENT

Brand:	Class:	No. sx:	Additives	%	Amount Used
ABC	G	290	Halad 413, BWOW	1.14	176 lbs
McKenzies Dam	Slurry Vol: 59.9 bbls	Density: 15.6	Halad 344, BWOW	0.92	142 lbs
Gals/Sack 4.94	Mix Water: 34.1 bbls	Yield: 1.16 cu.ft/sack	CFR-3, BWOW	0.69	106 lbs
Top of Tail = 936 m	10% excess on caliper				

DISPLACEMENT

Fluid: 2% KCL Brine **Calc. Displacement:** 38.4 bbls **Plug Bump:** 2000 psi
Density: 8.8 ppg **Actual Displacement:** 39.0 bbls **Bleed Back:** 0.5 bbls

TIME:			CASING RECIPROCATED DURING
STARTED IN HOLE:	09:10 Hr.		Yes
FINISHED RUNNING CASING:	17:35 Hr.		Casing Wt circulating: 44 klbs
START CIRCULATING:	18:05 Hr.		After pumping cement: 32 klbs
STOP CIRCULATING:	18:40 Hr.		After displacement: 30 klbs
START CEMENTING:	19:10 Hr.		
FINISH CEMENTING:	19:50 Hr.		
START DISPLACEMENT:	19:55 Hr.		
FINISH DISPLACEMENT:	20:25 Hr.		
			WIPER PLUGS
			TOP: Yes, preceded by a ball
			BOTTOM: Yes

CEMENT JOB DETAILS / REMARKS:-

Drilling Supervisor: Seton Porter

Casing went to bottom OK. Circulated hole clean & pumped ldcide treated mud. Pumped S.A.P.P Pre-Flush & 10 bbls of water. Pressure tested lines to 2500 psi & pumped further 10 bbls of water. Mixed & pumped Lead & Tail cement, some of the tail was a bit light, trouble with cement feed, bulker has too much air pressure. Displaced with 2% KCL brine, using Halliburton. Bumped the plug with 2000 psi, held for 10 minutes. Floats held OK. Getting SAPP pre-flush back at end of displacement.

Set Slip & Seal Assembly with 72 klbs net weight. String weight before cementing was 44 klbs, after, 30 klbs. Net weight, without blocks. Slip & Seal Assembly set with 42 klbs over string weight, 72 klbs, net

Nipple down BOP's & installed Adapter Flange & Xmas Tree. RT to top cap of Xmas Tree = 2.90 m

Seamer 1

Conventional 2 String Monobore



7-5/8" Surface Casing x 3-1/2" Tubing

Components

Xmas Tree Assembly No. 001004-17				Serial No. J380/3	
Description	Manufacturer	Part No.	Size/Rating	Model	Serial No.
Tree Cap	Wood Group	2233-3/R3	3-1/8"5K	Bowen Union	
Crown Valve	N/A				
Flow Cross	Wood Group	2255-3/R1	3-1/8"5Kx2-1/16"5K	Studded	J380/3
Kill/Vent Wing Valve	Wood Group	305025	2-1/16"5K	2200	J294/1
Companion Flange		306230	2-1/16"5Kx2"LP	Thru Bolt	
Production Wing Valve	Wood Group	305809	3-1/8"5K	2200	J334/4
Blind Flange		1140AU	3-1/8"5Kx2"LP	Thru Bolt	
Upper Master Valve	Wood Group	305809	3-1/8"5K	2200	J334/3
Lower Master Valve	Wood Group	308143	3-1/8"5K	2200	J261/4
Adaptor Flange	Wood Group	306308	11"5Kx3-1/8"5K	Single 'P' Seal	J301/3
Tubing Head					
Production Annulus Valve					
Companion Flange					
Casing Spool					
Intermediate Annulus Valve					
Companion Flange					
Casing Head	Wood Group	313513	11"5Kx7-5/8"BTC	WG-22-L	J324/2
Slip & Seal	Wood Group	318634	11"x3-1/2"	WG-22	
Surface Annulus Valve	Wood Group	305843	2-1/16"5K	2200	J393/1
Companion Flange	Wood Group	306230	2-1/16"5Kx2"LP	Thru Bolt	
Casing Swage	N/A				

BPV Prep :-

3" 'H' Type

General Comments :-

Tree Cap - 1x1/2" Needle valve P/N 24-125 & 1x0-5000psi Gauge P/N 83-353-003-02

SAV - 1x1/2" Needle valve P/N 24-125 & 1x0-5000psi Gauge P/N 83-353-003-02

Section 5 – Survey Data
Survey Report

RT above GL: 5 m Lat : 38 deg 33 min 24.62 sec Spud Date: 18/12/2002 Release Date: 29/12/2002

GL above MSL : 58 m Long : 143 deg 1 min 15.95 sec Spud Time: 20:00:00 Release Time: 11:00:00

Magnetic Declination (degs): 12.00

Projection:

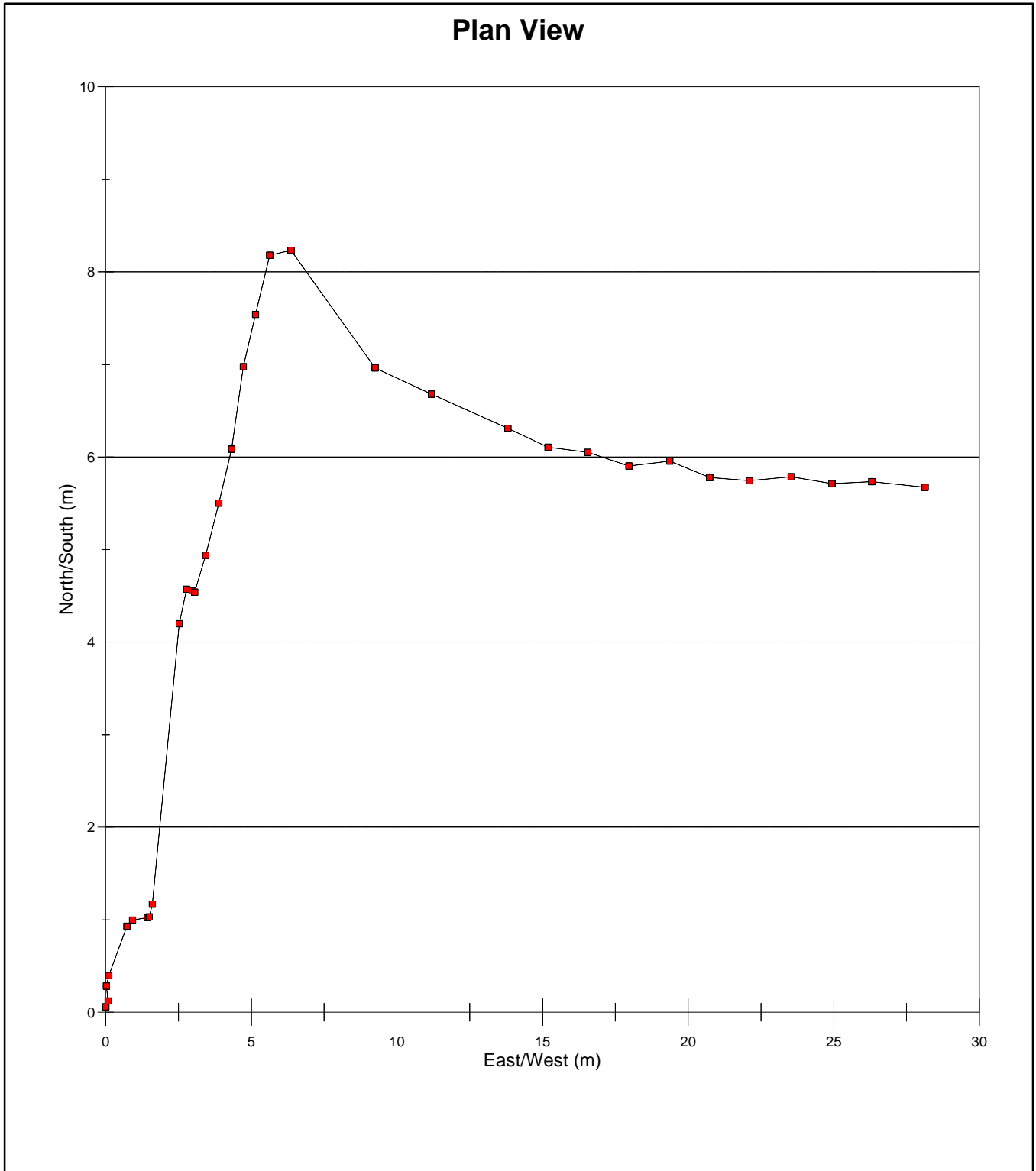
DEVIATION SURVEY

MD (m)	TVD (m)	INCL (deg)	AZIMUTH (deg)	CORRECT. AZ (deg)	DOGLEG (deg/30m)	'V' SECT (m)	N/S (m)	E/W (m)	CLOSURE (m)
28	28	0.25	75	87	0.3	0	0	0	0
56	56	0.25	295	307	0.3	0	0	0	0
103	103	0.25	85	97	0.2	0	0	0	0
131	131	0.50	103	115	0.6	0	0	0	0
248	248	0.75	117	129	0.3	1	1	1	1
278	278	0.75	94	106	1.3	1	1	1	1
354	354	0.25	140	152	0.3	1	1	1	2
393	393	0.25	95	107	0.4	1	1	1	2
431	431	0.50	155	167	0.5	1	1	2	2
577	577	2.93	167	179	0.7	4	4	3	5
606	606	4.50	166	178	7.6	5	5	3	5
626	626	4.50	166	178	13.4	5	5	3	5
635	635	4.41	166	178	29.5	5	5	3	5
665	665	6.06	168	180	10.4	5	5	3	6
694	694	8.48	172	184	15.0	6	6	4	7
723	723	11.02	176	188	20.1	6	6	4	7
752	751	14.80	176	188	26.7	7	7	5	8
782	781	17.23	175	187	32.0	8	8	5	9
810	808	20.20	176	188	40.1	8	8	6	10
869	866	20.56	169	181	20.7	8	8	6	10
957	952	19.30	166	178	13.6	7	7	9	12
1,003	997	19.00	165	177	24.7	7	7	11	13
1,063	1,056	18.67	163	175	18.7	6	6	14	15
1,092	1,084	18.19	163	175	37.8	6	6	15	16
1,120	1,113	18.32	163	175	37.5	6	6	17	18
1,150	1,142	18.05	163	175	37.0	6	6	18	19
1,178	1,170	18.61	163	175	37.9	6	6	19	20
1,207	1,198	18.25	163	175	37.7	6	6	21	22
1,237	1,227	18.47	163	175	37.3	6	6	22	23
1,265	1,255	18.99	164	176	38.6	6	6	24	24
1,295	1,284	19.08	164	176	38.6	6	6	25	26
1,323	1,312	19.56	164	176	39.8	6	6	26	27
1,360	1,348	19.76	164	176	31.9	6	6	28	29

RT above GL: 5 m Lat : 38 deg 33 min 24.62 sec Spud Date: 18/12/2002 Release Date: 29/12/2002
GL above MSL : 58 m Long : 143 deg 1 min 15.95 sec Spud Time: 20:00:00 Release Time: 11:00:00
Magnetic Declination (degs): 12.00

Projection:

DEVIATION SURVEY



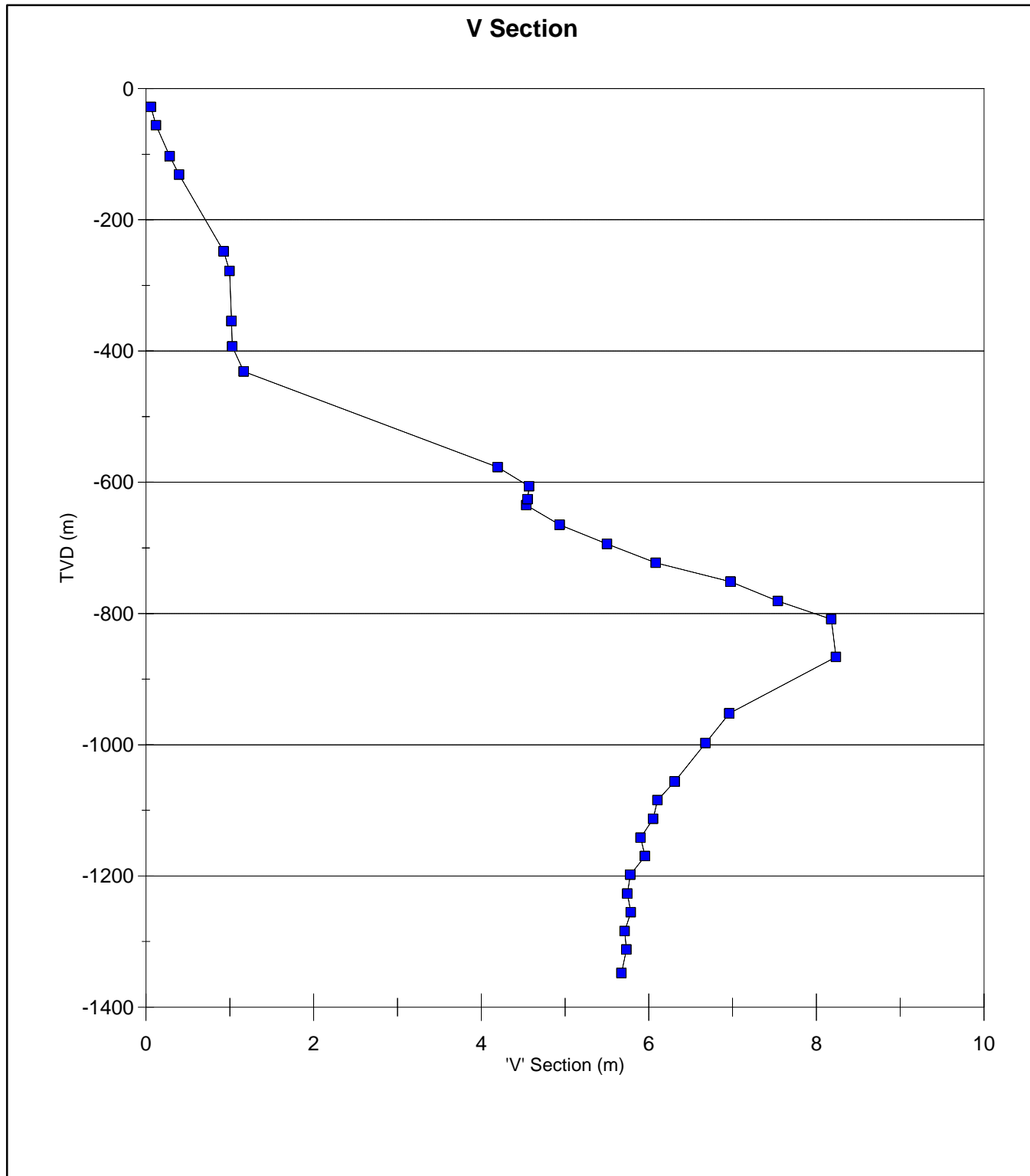
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GL above MSL : 58 m Long : 143 deg 1 min 15.95 sec Spud Time: 20:00:00 Release Time: 11:00:00

Magnetic Declination (degs): 12.00

Projection:

DEVIATION SURVEY



APPENDIX XIII: RIG SPECIFICATIONS

RIG INVENTORY FOR RIG # 11

CARRIER:	Cooper LTO 750 Carrier with triple front and rear axles 54,000lb front and 70,000lb rear. All necessary highway equipment. Unit levelled with hydraulic jacks when stationary
SUBSTRUCTURE:	17' floor height – 14' below table beams with plates in base
DRAWWORKS:	Cooper 750 HP Double Drum Drawworks 3000 metres $\frac{9}{16}$ " sandline
ENGINES:	Driven by 2 each Caterpillar 3406 TA Diesel Engines
BRAKE:	Parmac V80 Hydromatic
ROTARY TABLE:	National Rotary Table Model C-175
DERRICK:	Cooper Derrick Model 118-365. Ground height 118' Maximum rated static hook load 35,000 lbs with 10 lines Mast raised, lowered and telescoped hydraulically
CROWN BLOCK:	Cooper Crown Block with 4 working sheaves. Fast line sheave and dead line sheave. All grooved for $1\frac{1}{8}$ " line. Sandline sheave grooved for $\frac{9}{16}$ " line. National Hook Block Model 435 G-175. 175 ton capacity 4 - 35" sheaves grooved for $1\frac{1}{8}$ " line.
SWIVEL:	P-200 National
SLUSH PUMPS:	2 Gardner Denver PZ-7 Triplex Pumps driven by Cat 379TA Diesel Engines Rated 550 HP each. Liner sizes $5\frac{1}{2}$ " and 6".
MUD SYSTEM:	2 × 300 bbl tanks incorporating 80 bbl pill tank and 54 bbl trip tank.
SHAKERS:	2x Triton NNF Screening Machine (Linear Motion).
DEGASSER:	Drilco Atmospheric Degasser Standard Pit. $7\frac{1}{2}$ HP 60 Hz, 230v.
MUD / GAS SEPARATOR	Minimum 36" separator with 10ft. maximum mud seal.
VENT LINE:	Minimum 6" vent line from Separator to flare pit, 200 ft. length.
DESANDER:	Demco Model 122. Two, 12" cone with Warman 6" × 4" Centrifugal pump driven by 50 HP Electric Motor.
DESILTER:	Pioneer Economaster Model T12-E4. 12 × 4" cones with Warman 6" × 4" Centrifugal pump, driven by a 50 HP Electric Motor.
MUD MIXING PUMP:	Warman 6" × 4" Centrifugal pump driven by a 50 HP Electric Motor
MUD AGITATORS:	4 only Brandt Mud Agitator Model MA 7.5
BOP's & ACCUMULATOR:	Annular: 11" 5,000psi Shaffer Spherical 11" 5,000psi Shaffer Double Gate Model 'LWS' Complete with $2\frac{3}{8}$ ", $2\frac{7}{8}$ ", $3\frac{1}{2}$ ", $4\frac{1}{2}$ ", $5\frac{1}{2}$ ", 7" and Blind Rams Accumulator: Koomey Model 100-11S

CHOKE MANIFOLD:	Cameron 5,000 psi, as per attached drawing but with hydraulic choke fitted and pressure tested with remote control panel
KELLY COCK: (Upper)	Packard 5000 PSI upper kelly cock with 6 ⁵ / ₈ " reg. LH connections.
KELLY COCK: (Lower)	Packard 5000 PSI upper kelly cock with 4" IH connections
DRILL PIPE SAFETY VALVE:	1 x 4" IF Inside BOP (Gray) 1 x 4" IF full Operating Stab Valve
SPOOL:	1-11" 5,000psi Flanged Drilling Spool with 3 ¹ / ₈ " 5,000psi Flanged Choke Line out and 2 ¹ / ₁₆ " 5,000 psi Kill Line Outlet 1-11" 5,000 psi to 11" 3,000psi Kill Line Double Studded Adaptor 1-11" 5,000 psi to 7 ¹ / ₁₆ " 5,000 psi Double Studded Adaptor
KILL LINE VALVES:	2-2 ¹ / ₁₆ " 5,000psi Manual Flanged Valves
CHOKE LINE VALVES:	1-3 ¹ / ₈ " 5,000psi Manual Flanged Valve 1-3 ¹ / ₈ " 5,000 psi HCR Flanged Valve
INSTRUMENTATION:	Martin–Decker 6 pen Record-O-Graph Martin–Decker Weight Indicator Type FS Martin–Decker Mud Pressure Gauge Martin–Decker Rotary RPM Indicator Martin–Decker Pump Stroke Indicator (2 off) Martin–Decker Rota Torque Indicator Martin–Decker Tong Torque Indicator Martin–Decker Mud Flow Sensor Martin–Decker Mud Flow Fill System Martin–Decker Mud Volume Totaliser (MVT)
AUTOMATIC DRILLER:	Satellite Automatic Driller Model SA100-50-1500
KELLY SPINNER:	Foster Model K-77
KELLY:	1-5 ¹ / ₄ " Hex Kelly. 2 ¹³ / ₁₆ " ID × 40' long with 6 ⁵ / ₈ " API Reg LH Box up 4" IF Pin Down
UPPER KELLY VALVE:	Upper Kelly Cock. 10,000 test 6 ⁵ / ₈ " API Reg LH Connections.
LOWER KELLY VALVE:	1 – Hydril Kelly Guard 6 ¹ / ₄ " OD 10,000 psi, 4" IF (NC46) Pin and Box Connection
KELLY DRIVE BUSHING:	Varco Type 4 KRS Kelly Drive Bushing
DRILL PIPE AND TOOLS:	6 joints 4 ¹ / ₂ " Range II Hevi Wate Drill Pipe with 18 ⁰ Taper 4" IF (NC46) Connections. 10,000ft. 3 1/2" 13.3lbs/ft Grade 'G' Drill Pipe 30 x 4 3/4" slick Drill collars 3 1/2" IF 1 x 4 3/4" pony collar, 3 1/2" IF, 10 ft. long 9 x 3 1/2" HWDP, 3 1/2" IF 4 1/4" Hexagonal Kelly, 6 5/8" Reg LH Box up, 3 1/2" IF Pin Down 4 3/4" Lower Kelly Valve, 3 1/2" IF 4 3/4" Inside BOP / Stabbing Valve, 3 1/2" IF 4 3/4" Bit Sub, 3 1/2" IF Box Up, 3 1/2" Reg Box Down 3 1/2" rotary slips 3 1/2" elevators

All cross-over, lifting and saver subs to match above tools
4 3/4" drill collar slips

DRILL COLLARS:

4 - 8" Drill Collars, Range II, with 6 5/8" Reg. Connections.
24 - 6 1/4" Drill Collars, Range II, with 4" IF (NC46) Connections.
1 x 6 1/4" Monel Drill collar

FISHING TOOLS:

1 only Bowen 6 1/4" OD Type Z Fishing Jar
1 only Bowen 8 1/8" Series 150 FS Overshot
1 only Bowen 7 7/8" Reverse Circulating Junk Basket
1 only Junk Sub - 8 1/2" Hole
1 only Flat Bottom Mill - 8 1/2" Hole

HANDLING TOOLS:

Elevators:

1 Set 9 5/8" Casing
1 Set 7" Casing
1 Set 5 1/2" Casing
1 Set 9 5/8" Single Jt
1 Set 7" Single Jt
1 Set 5 1/2" Single Jt
2 Sets 4 1/2" DP 18 Degree
1 Set 3 1/2" Tubing Elevators
1 Set 2 7/8" Tubing Elevators
1 Set 2 3/8" Tubing Elevators

Safety clamp

1 Safety clamp for 8" and 6 1/4" Drill Collars.

Slips:

1 set 9 5/8" Casing
1 Set 7" Casing
1 Set 5 1/2" Casing
2 Sets 4 1/2" Drill Pipe
1 Set 3 1/2" Tubing Slips
1 Set 8" DC Slips
1 Set 6 1/4 DC Slips
1 Set 2 7/8 tubing slips

Tongs:

1 set BJ Type 'B' Rotary Tongs
1 set Farr Hydraulic Power Tongs
Jaws to suit 5 1/2", 7", 9 5/8" and 13 3/8"

PIPE SPINNER:

Varco SSW-10 Spinning Wrench

SUBS:

1 - 6 5/8" Reg. X 6 5/8" Reg. Bit Sub (Double Box)
2 - 4 1/2" Reg. X 4" IF (NC46) Bit Subs
1 - 6 5/8" Reg. X 4" IF (NC46) Crossover Sub (Pin x Box)
2 - 4" IF (NC46) Saver Subs (Pin x Box)
3 - 6 5/8" Reg. Lift Nubbins
11 - 4" IF (NC46) Lift Nubbins

CASING / TUBING DRIFTS:

1 - 9 5/8"	36 lb/ft
1 - 7"	26 lb/ft
1 - 7"	23 lb/ft
1 - 5 1/2"	17 lb/ft
1 - 5 1/2"	15.5 lb/ft

THREAD PROTECTORS:

3 - 9 5/8" Klampon Style
3 - 7" Klampon Style
3 - 5 1/2" Klampon Style

WELDING EQUIPMENT:	Lincoln Electric Welder Model 400AS
AIR COMPRESSORS:	Sullair compressor Package Model 10-30L - 100 cfm @ 125 psi Gardner Denver - 20 HP 80 cfm @ 110 psi.
AC GENERATOR:	2 each Caterpillar 3408TA AC Generator Model SR-4. 1,800 rpm 60 hz 275 kw.
FUEL TANKS:	2 each 10,000 litre - Skid Mounted
WATER TANK:	400 BBL tank with two Warman 3×2 pumps driven by 24 HP electric motors
PIPE RACKS:	5 sets 30ft in length
CATWALKS:	2 piece Catwalk drill pipe construction 42" height
COMMUNICATION:	Westinghouse Satellite Phone and Fax
SURVEY UNIT:	Totco 8 ⁰ Deg. Recorder
MUD LAB:	Baroid Rig Laboratory Model 821
RATHOLE DRILLER:	Manufactured Rat Hole Driller for 5 ¹ / ₄ " Kelly
MUD SAVER:	Harrisburg Unit with 4 ¹ / ₂ " Sealing Rubbers
CELLAR PUMP:	1 only 3" Pacific Diaphragm Unit
WATER PUMP:	1 only Centrifugal Pump Unit
FIRE EXTINGUISHER:	1 lot as per State Mining Regulations for Rig and Camp
PIPE BINS:	3 only 36' L × 10' W × 42" H
CUP TESTER:	Cameron Type 'F' Cup Tester Mandrel with 4" IF Connections. 9 ⁵ / ₈ " 47- 36 lbs rubber for cup tester.
PRESSURE TEST PUMP	1 "Nearwhich" 3000 psi test pump with chart recorder.
HAMMER UNIONS:	Replace all 2" hammer unions with 1502 Welded Hammer Unions.
TRANSPORTATION:	International 530 Payloader or equivalent Toyota 4 × 4 Pickup Toyota 4 × 4 Crew Vehicle
RIG ACCOMMODATION:	2 Skid-Mounted Rig Manager/Companyman Units 1 Communication Hut 40ft. X 10ft. which will accommodate Anadrill office requirements.
FORKLIFT:	One (1)
INTERCOM:	4 stations unit, borrowed from CDL 27 if possible.
CAMP:	1–Camp Generator House 31' long × 10' wide skid-mounted complete with 2 – 3304 T 80 Kw, 50 Hz, 200 – 400 volt generators, camp distribution panel. 6,794 litres fuel storage, 12,000 litres fresh water storage and 24,000 litres shower water storage.

1-Kitchen/Dining Room	40' × 10' × 10'
1-Recreation Room	40' × 10' × 10'
1-Ablution/Laundry	40' × 10' × 10'
4-12 Man Bunkhouses	40' × 10' × 10'
1-Cooler/Freezer	20' × 8' × 8'
1-Female Ablution Block	20' x 8' x 8'

ENCLOSURE I: 1: 200m COMPOSITE LOG



ENCLOSURE II: 1: 200m MUDLOG



ENCLOSURE III: STRUCTURE MAPS



ENCLOSURE IV: WELL EVALUATION SUMMARY PLOT

