



TRI-STAR ENERGY COMPANY

EXPLORATION PERMIT (EP) 134

REVISED WELL COMPLETION REPORT

NEW CROWN 1

Titleholder	Tri-Star Energy Company ABN 86 089 539 695
Operator	Tri-Star Coal Operations LLC ARBN 138 462 281
Titles / Tenements	EP 134
Report Title	Well Completion Report: New Crown 1
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Target Commodity	Coal Seam Gas
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WELL DATA CARD

General data

Well Name: New Crown 1	Spud date: 23rd February 2014
Well Status: Suspended	TD Date: 7th March 2014
(GDA 94) Latitude: 25° 35' 1.5" S	Rig release date: 14th March 2014
Longitude: 135° 13' 39.8" E	Depth reference: Kelly bushing
(MGA z53) Easting: 522869m E	Kelly Bushing elevation: 203.75m
Northing: 7170391m N	Total depth (driller): 960.44m
Ground elevation: 201.00m	Total depth (logger): 958.85m

Well construction data

Hole Section	Depth	Bit Size	Casing Interval	Casing Size	Cement Interval
Conductor	11.3m	24" (610mm)	0 – 10.5m	16" (406mm)	To surface
Surface	120.0m	12-1/4" (311mm)	0 – 119.0m	9-5/8" (244mm)	To surface
Production	544.0m	8-1/2" (216mm)	0 – 536.0m	7" (178mm)	To surface
Open	960.5m	6-1/8" (156mm)	-	-	-

Well logging details

Wireline log	Run	Interval	Mud log	Interval
Gamma Ray	1	958.75m – 530.00m	5m sampling	120.0 – 960.5m
Density	1	958.75m – 530.00m		
Caliper	1	958.75m – 530.00m		
Casing Collar Locator	1	542.85m – 410.00m		

Well suspension data

Tubing	Size	3-1/2" (89mm)
	Interval	0 – 532.4m
Assembly #1	Type	2.75" WXN nipple w/plug
	Depth	530.7 m
	Function	Primary down-hole barrier inside 3-1/2" tubing
Assembly #2	Type	7" A-I-X retrievable packer
	Depth	518.4m
	Function	Primary down-hole barrier in tubing-casing annulus
Assembly #3	Type	3.5" WXA sliding sleeve (in closed position)
	Depth	506.2m
	Function	Circulation between tubing and annulus when open
Assembly #4	Type	2.75" WX nipple w/plug
	Depth	496.0m
	Function	Secondary down-hole barrier in tubing-casing annulus
Wellhead	A Section	3000psi, one outlet w/gauge (cemented surface casing-production casing annulus) – Valve closed and locked
	B Section	3000psi, one outlet w/gauge (suspension tubing-production casing annulus), one outlet w/bull plug – Valves closed and locked
	C Section	3000psi, one outlet w/gauge (tubing) – Valve closed and locked

1. WELL SUMMARY

New Crown 1 is located south east of Alice Springs in the Northern Territory, close to the South Australia border (see Figure 1). The well was drilled as a vertical exploration well to evaluate the hydrocarbon potential in the Pedirka Basin. It was suspended with future testing and completion pending the results of analyses of the retrieved cutting samples and geophysical logs.

The well was spudded on 23 February 2014 using Mitchell Rig 1236. A 24" conductor hole was drilled to 11.3m, with 16" conductor casing set at 10.5m. A 12-1/4" surface hole was drilled to 120.0m with fresh water mud, with 9-5/8" surface casing run to 119.0m and cemented to surface. An 8-1/2" production hole was drilled to 544.0m with fresh water mud, with 7" production casing run to 536.0m and cemented to surface. A 6-1/8" open hole was then drilled with air to TD of 960.44m (RKB), reaching TD on 7 March 2014.

The time-depth curve for the well is shown in Figure 2, the time distribution chart is shown in Figure 3.

The originally planned TD for New Crown 1 was 1000m. As the final section was air-drilled, formation fluids and cuttings would flow into the hole as circulation stopped with each connection. Unloading this build up was time consuming and reasonably beyond the capability of the available air package as it would frequently engage its automatic shut off during the multiple attempts to blow the hole clean after each connection. After considering safety and the costs versus benefits of drilling further, the decision was made to cease drilling at the present depth of 960.44m.

The well was wireline logged in a single tool run combining gamma, density, caliper and casing collar locator tools, with the logger measuring a total depth of 958.85m (RKB).

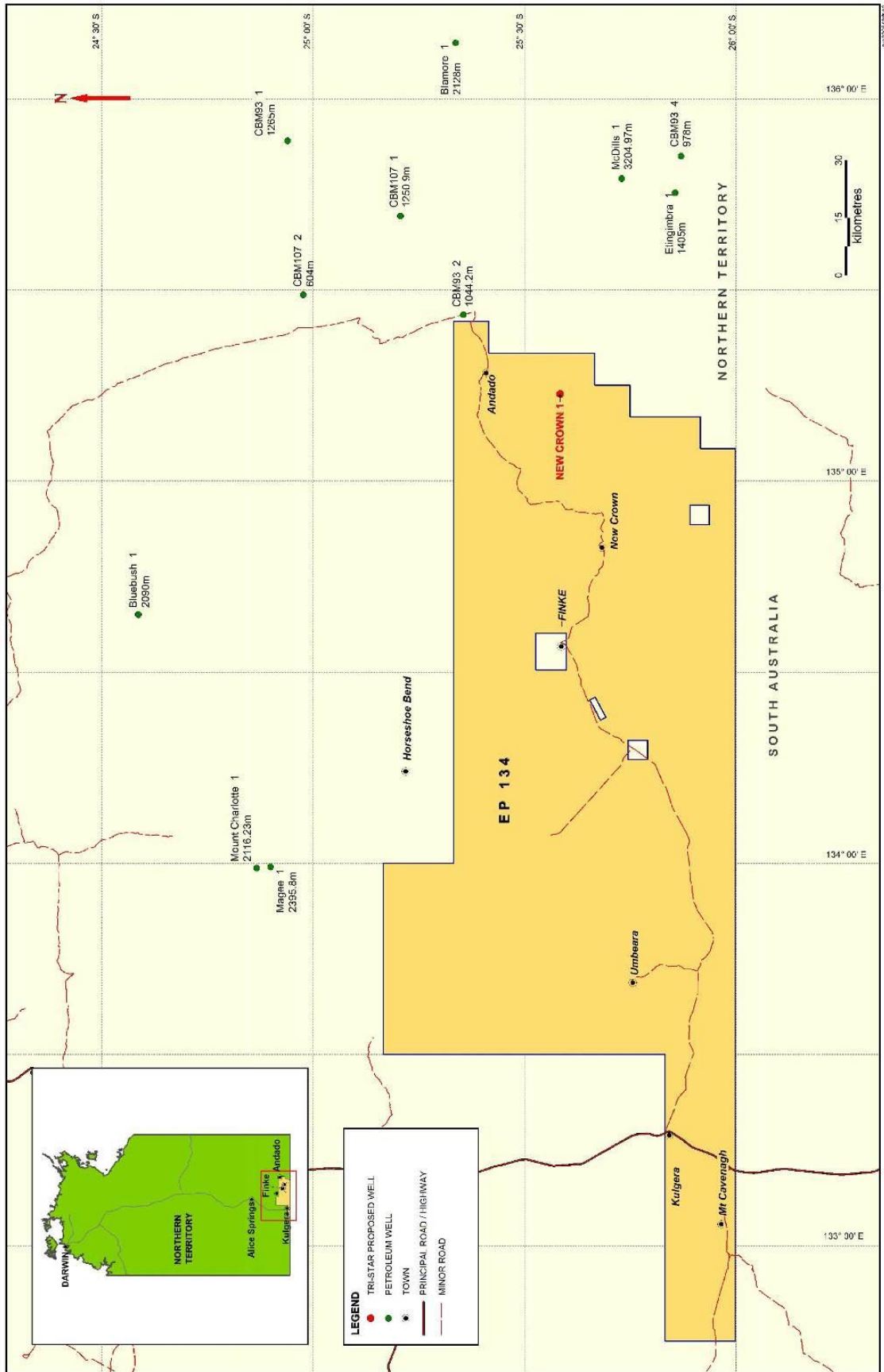
The well was suspended with a 3-1/2" tubing string run to 532.4m. The annulus between the suspension tubing and the production casing was sealed with a mechanically set packer at 519.6m. The inside of the tubing was then sealed by setting a plug at 531.0m. Water with 2% KCL was then circulated through the tubing and annulus by use of an open sliding sleeve at 507.3m. The sliding sleeve was then closed, and another plug set inside the tubing at 496.3m.

A 3000psi wellhead remains in place over the well with all valves shut and locked in place. Three pressure gauges are present to indicate pressures inside the tubing string, the annulus between the tubing and production casing, and the cemented annulus between the production and surface casing. The surface wellhead is isolated from exposed formations by the two plugs inside the tubing and the packer in the annulus between the tubing and production casing.

The release of the rig from the wellsite was notified to the Department in accordance with requirements of the Schedule of Onshore Petroleum Exploration and Production Requirements 2012.

Figure 1 - Well Location Map

TRI-STAR - EP134 WELL LOCATION MAP



2. GENERAL DATA

Well name: **New Crown 1**
Title area: **EP134**

(GDA 94) Latitude: **25° 35' 1.5" S**
Longitude: **135° 13' 39.8" E**
(MGA z53) Easting: **522869m E**
Northing: **7170391m N**
Ground elevation: **201.00m**
Kelly Bushing elevation: **203.75m**

Location: **Pedirka Basin, Northern Territory**
Map sheet: **SG53 Oodnadatta**
Graticular block: **1407 D**

Purpose: **CBM Exploration**
Outcome: **Suspended as a potential producer**

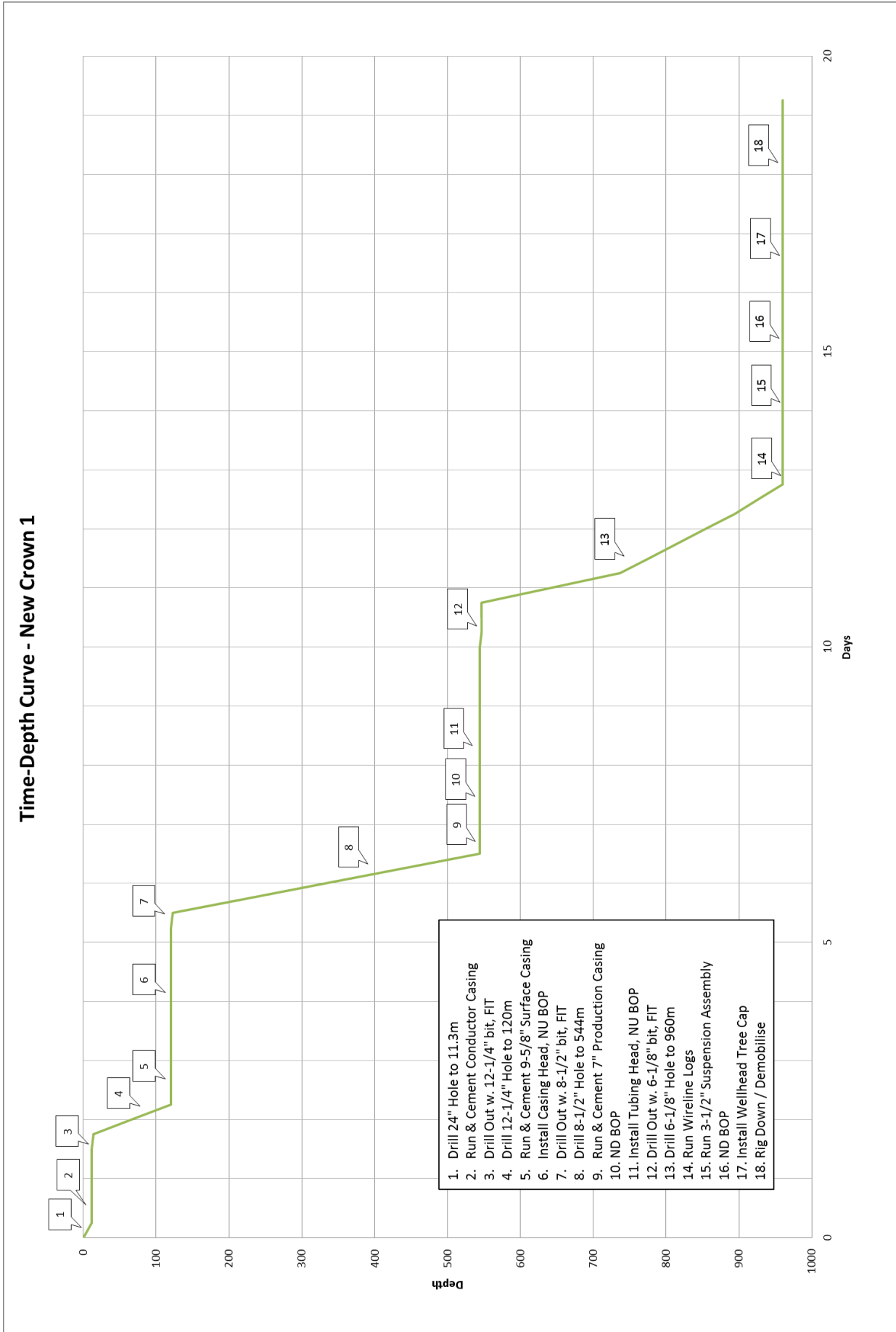
Spud date: **23rd February 2014**
TD Date: **7th March 2014**
Rig release date: **14th March 2014**

Depth reference: **Kelly bushing**
Total depth (driller): **960.44m**
Total depth (logger): **958.85m**

Drilling Contractor: **Mitchell Operations**
Rig: **#1236 – Schramm T130XD**

Cuttings sample list: **Appendix 1**
Wireline log raw data: **Appendix 2A and 2B**
Wireline log displays: **Appendix 3A, 3B and 3C**
Borehole deviation surveys: **Section 3.8 – Deviation Surveys**
Mud log data: **Appendix 4**
Mud log display: **Appendix 5**

Figure 3 - New Crown 1 Time Distribution



3. DRILLING DATA

This section is the operations summary for New Crown 1. It details the drilling parameters and equipment installed for each section of the well, and describes the suspension and well head assemblies.

3.1 Conductor Hole

Hole/Bit Size	24" (610mm)	
Hole Depth	11.3m	
Fluid	Type	Mud
Casing	Size	16" (406mm)
	Weight	75ppf
	Grade	J55
	Interval	0 – 10.5m
Cement	Top job through annulus to surface	

3.2 Surface Hole

Hole/Bit Size	12-1/4" (311mm)	
Hole Depth	120.0m	
Fluid	Type	Mud
	Weight	8.7 ppg
	PV	8 cp
	YP	10 lb/100ft ²
Casing	Size	9-5/8" (244mm)
	Weight	36ppf
	Grade	J55
	Interval	0 – 119.0m
Cement	Type	Class GP Cement
	Quantity	54.5 bbls of 15.6ppg (1.25ft ³ /sack)
	Interval	Shoe to surface

3.3 Production Hole

Hole/Bit Size	8-1/2" (216mm)	
Hole Depth	544.0m	
Fluid	Type	Mud
	Weight	9.1 ppg
	PV	14 cp
	YP	17 lb/100ft ²
Casing	Size	7" (178mm)
	Weight	26ppf
	Grade	J55
	Interval	0 – 536.0m

Production Hole (Continued)

Cement	Type	Lead: Class GP cement Tail: Class G Cement
	Quantity	Lead: 34.8 bbls of 12.5ppg (2.31ft ³ /sack) Tail: 14.2 bbls of 15.8ppg (1.22ft ³ /sack)
	Interval	Shoe to surface

3.4 Open Hole

Hole/Bit Size	6-1/8" (156mm)
Hole Depth	960.44m
Fluid	Type Air
Casing	Not cased
Cement	Not cemented

3.5 Suspension Assembly

Last casing	7" Production casing at 536.0m
Tubing	Size 3-1/2" (89mm) Weight 9.3ppf Grade J55 Interval 0 – 532.4m
Assembly #1	Type 2.75" WXN nipple w/plug Depth 530.7m Function Primary down-hole barrier inside 3-1/2" tubing
Assembly #2	Type 7" A-I-X retrievable packer Depth 518.4m Function Primary down-hole barrier in tubing-casing annulus
Assembly #3	Type 3.5" WXA sliding sleeve (in closed position) Depth 506.2m Function Circulation between tubing and annulus when open
Assembly #4	Type 2.75" WX nipple w/plug Depth 496.0m Function Secondary down-hole barrier in tubing-casing annulus

See Figure 4 for suspension schematic.

3.6 Wellhead Data

A Section : 3000 psi single valve (locked shut) w/gauge

B Section : 3000 psi double valve (both locked shut), one w/gauge one w/bull plug

C Section : 3000 psi single valve (locked shut) w/gauge

See Figure 5 for wellhead schematic.

3.7 Bit Record

Bit #	Size (in)	Mfg	Type	Serial #	Jets	In (m)	Out (m)	Metres Drilled	Hours	ROP (m/hr)	Grade out
1	12-1/4	HMI	PDC	1612028	4x16 3x18	11.3	120	108.7	7.5	14.5	0-1-NO-A-X-1-NO-TD
2	8-1/2	HMI	PDC	M76HPX	4x12 3x11	120	544	425	18.75	22.6	1-1-NO-A-X-1-NO-TD
3	6-1/8	HMI	PDC	15836	5x12	544	960	415	24.5	16.9	2-1-CT-G-X-X-WT-TD

3.8 Deviation Surveys

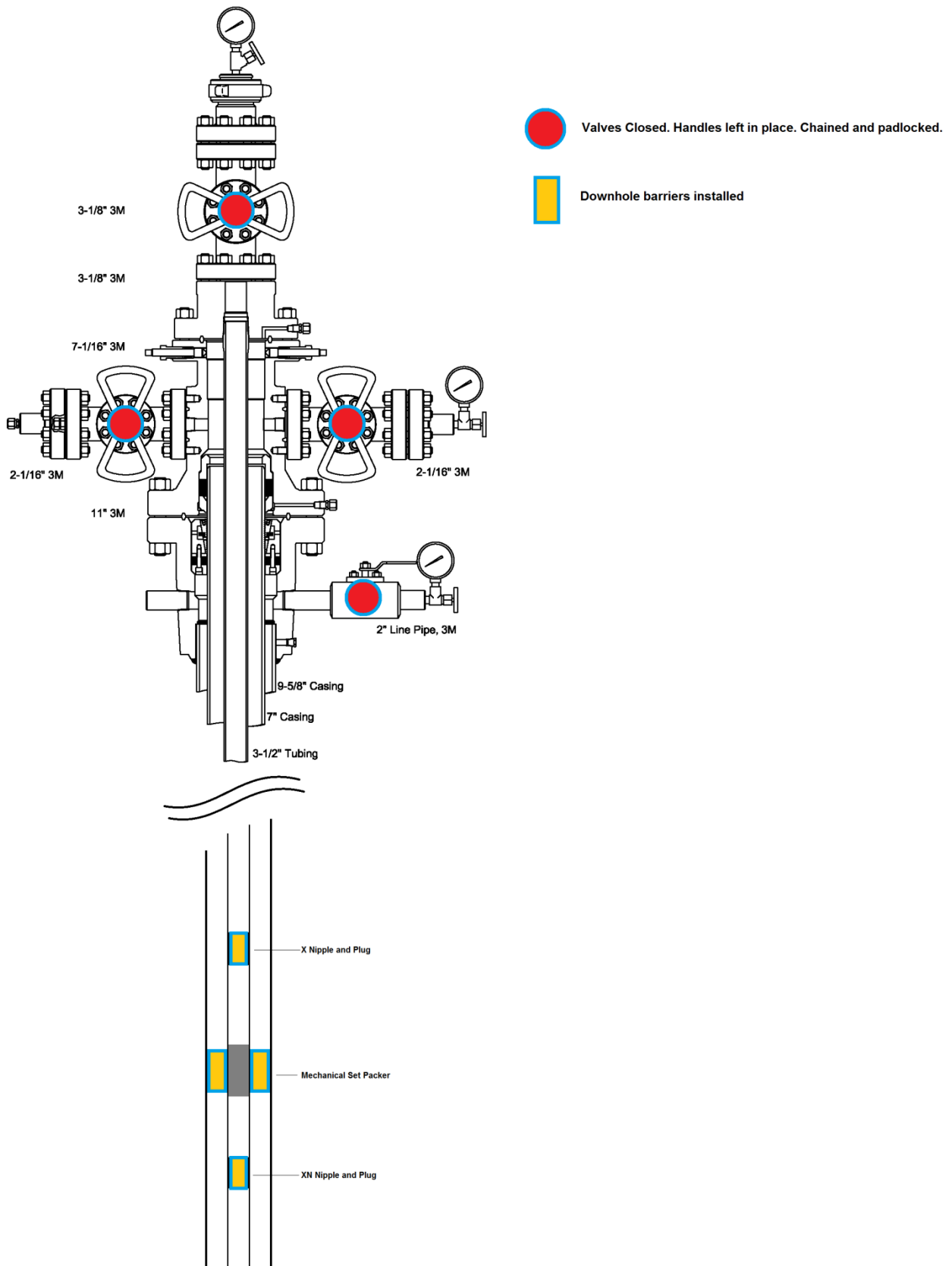
No	Date	Depth (m)	Deviation (deg)
1	25-2-2014	62	0.5
2	25-2-2014	120	0.4
3	1-3-2014	320	0.2
4	1-3-2014	369	0.6
5	1-3-2014	418	0.4
6	1-3-2014	475	0.4
7	1-3-2014	524	0.8

The rig's survey tool was broken after the final survey so additional surveys were not completed.

Figure 4 - Well Suspension Schematic

Hole Size (in) - Casing Setting Depth (m)	Description of Suspension Equipment		Casing Size (in) TOC (m)
24 - 12	Tubing Hanger 3-1/2" Pup Joint		16" TOC @ Sfc
Assy #5	c/w Dry Hole Tree 3-1/2", 9.3 ppf, J-55, 8RD EUE Suspension Tubing		9-5/8" TOC @ Sfc
12-1/4 - 120 9-5/8" set @ 119	3-1/2", 9.3 ppf, J-55, 8RD EUE Suspension Tubing		2% KCl Suspension Fluid
Assy #4	3-1/2" Pup Joint 3-1/2" X Landing Nipple 3-1/2" Pup Joint		Set @ 496m
Assy #3	1 joint 3-1/2" Tubing 3-1/2" Pup Joint 3-1/2" Sliding Sleeve 3-1/2" Pup Joint		Set @ 506m
Assy #2	3-1/2" Pup Joint 2-7/8" x 3-1/2" Adapter 7" PLS Mech-Set Perma Latch Retrievable Packer 2-7/8" x 3-1/2" Adapter 3-1/2" Pup Joint		Set @ 518m
Assy #1	1 joint 3-1/2" Tubing 3-1/2" Pup Joint 2-7/8" x 3-1/2" Adapter 2-7/8" XN Landing Nipple 2-7/8" x 3-1/2" Adapter		Set @ 530m
8-1/2 - 544 7" set @ 536	3-1/2" Pup Joint 3-1/2" Half Mule Shoe Guide		Mule Shoe set @ 532m 7" TOC @ Sfc
6-1/8 - 960	This section to be drilled with Air/Mist drilling fluid Open Hole f/ 536m to 960m		6-1/8" OH f/ 536 to 960 TD 960m/3149ft

Figure 5 - Wellhead Schematic



4. FORMATION EVALUATION

4.1 Sampling

Cutting samples were collected during the drilling of New Crown 1, starting at 12m and finishing at 960m in 5 metre intervals. The sample manifest is attached as Appendix 1. All cutting samples were transported to Weatherford lab's facility in Brendale for analysis.

Produced water was sampled throughout the air drilling section, and was transported to Eurofins for laboratory analysis. The results of this analysis, including the sample manifest with drilling depths at time of sampling, are attached as Appendix 7.

No coring of the New Crown 1 was conducted in accordance with the approved drilling program dated 18 December 2013 and therefore no cores are available.

4.2 Mud Logging

Mud logging was conducted from the start of the production hole until the total depth, from 120m until 960m. The mud log raw data is attached as Appendix 4; the mud log display is attached as Appendix 5.

4.3 Wireline Logging

Wireline logging was completed in the open hole section following TD, from 960m until inside the last casing at 530m. One run was performed which included gamma, density, caliper and casing collar locator tools. The raw data is attached as Appendices 2A and 2B, the log displays are attached as Appendices 3A, 3B and 3C.

4.4 Formation Integrity Tests

Formation integrity tests (FIT) were conducted after each casing shoe was drilled out, the results are summarised below:

Depth (m)	Shut in pressure (psi)	Mud weight (ppg)	Effective pressure at depth (psi)	Result	Fracture gradient (psi/ft)
120	77	8.5	251	Hold	> 0.63
546	135	8.8	955	Leak off	< 0.53

4.5 Production Tests

Not performed

4.6 Measurement/Logging While Drilling

Not performed

4.7 Petrophysical Analysis

Petrophysical analysis has not been carried out on any samples.

5. GEOLOGY

5.1 Stratigraphy

New Crown 1 was expected to encounter multiple known formations, with depths estimated from nearby seismic and offset well data. Most of these formations were identified as they were encountered on site. These are summarised below:

Formation	Predicted Top	Encountered Top
Tertiary-Eyre	7	7
Winton	20	20
Mackunda	198	200
Cadna-Owie	291	284
Algebuckina	314	305
Purni	512	537

Formation Descriptions from Cuttings

Tertiary-Eyre (7m to 20m) – Claystones, orange, grading to yellow and red brown, with traces of limonite fragments. White, fine to very fine sandstone is partly silicified and is identified as silcrete. Interbedded with light grey, white, fine to predominantly medium sandstone, clayey matrix, angular to subangular, subspherical to elongate fractured grains, loose, fair to good porosity.

Winton (20m to 200m) – Dominantly claystone with some siltstone at the bottom of the formation. Light grey, light brown, white, off white claystone, occasional brown to reddish interlamination, soft to moderately hard, sticky.

Mackunda (200m to 284m) - Medium grey to dark grey claystone, occasional light grey, interlamination, soft to moderately hard, sticky. Rare slightly silty, Tr. Pyrite lamina, non calcareous. Graded into a light grey to medium grey siltstone, very arenaceous, moderately hard, abundant dark green lithic fragments, non calcareous.

Cadna-Owie (284m to 305m) - White, off white grey, light yellow white, clear to translucent sandstone, fine to coarse, aggregates of fine grains, loose to friable, subangular to subrounded, spherical, moderately sorted, common white matrix, trace siliceous cement, rare brown stain grains, poorly inferred porosity, no show.

Algebuckina (305m to 537m) - White, off white, transparent to translucent sandstone, loose, fine to coarse, occasionally very coarse, subangular to subrounded, subspherical, moderate to well sorted, rare light brown stain grains, fair inferred porosity, no show.

Purni (537m to 960m) – Multiple seams of black to occasionally light brownish black coal, soft. Brittle, earthy to sub vitreous, hackly fracture. Coals are interbedded with white, off white, transparent to translucent sandstone, loose, medium to coarse, occasionally fine and very coarse, subangular to subrounded, tr. few very well rounded grain, subspherical, moderate to well sorted, tr. of mica, fair inferred porosity, no show. Occasionally some dark grey to medium grey siltstone, very carbonaceous in part, very arenaceous occasionally, micromicaeous, fissile to subfissile, moderately hard to hard, not calcareous.

5.2 Hydrocarbon Potential

No gas shows occurred during the drilling of New Crown 1, nor were any drill stem or production tests undertaken.

5.3 Reservoir Evaluation

The results will be assessed and the potential of this area for gas production will be better understood and an economic decision can be made regarding potential future drilling for potential petroleum production purposes.

5.4 Trap Integrity

New Crown 1 is not a conventional liquid or gas resource wherein the producible hydrocarbons have migrated into a stratigraphic trap. Therefore, stratigraphic trap analysis was not carried out.

6. BIBLIOGRAPHY

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7. APPENDICES

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Appendix 1
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