

**Schlumberger**



## **End of Well Report**

**INPEX Ichthys Pty Ltd  
BDC-1B-01  
Permit: WA-50-L**

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Date: 02-Oct-2015	Date:	Date:

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## 1 Introduction

### 1.1 Well Specification

<b>Client</b>	:	INPEX Ichthys Pty Ltd
<b>Well Name</b>	:	BDC-1B-01
<b>Well Type</b>	:	Production
<b>State</b>	:	Western Australia
<b>Location</b>	:	Browse Basin
<b>Drilling Contractor</b>	:	EnSCO
<b>Rig Name</b>	:	EnSCO 5006
<b>Rig Type</b>	:	Semi-submersible
<b>Water Depth</b>	:	261.20 m
<b>Drill Floor Height</b>	:	24.0 m
<b>Spud Date</b>	:	5-Aug-2015
<b>Date TD Reached</b>	:	29-Sep-2015
<b>Final Depth MDRT</b>	:	6109.00 mMDRT
<b>Final Depth TVDRT</b>	:	4105.14 mTVDRT

#### Well Coordinates & Geographical Coordinates

Map Grid of Australia GDA94/MGA94 Zone 51

N 8 469 187.560m, E 534 596.110 m

S 13° 50' 48.677", E 123° 19' 12.538"

#### Geomagnetic Data

<b>Geomagnetic Date</b>	:	5-Aug-2015
<b>Magnetic Field Strength</b>	:	47520.77 nT
<b>Magnetic Declination</b>	:	1.9410 °
<b>Grid Convergence</b>	:	-0.0766 °
<b>BGGM Model</b>	:	BGGM 2015

Note: Well surface co-ordinates, rig floor elevation and water depth as provided by INPEX Ichthys Pty Ltd

All depths referenced to drillers depth

## 1.2 **Introduction and Objectives**

The Ichthys Field is located approximately 220 km north-west of the Kimberley coast of Western Australia in the northern Browse Basin, around 450km north-north-east of Broome and 820km west-south-west of Darwin.

The primary objective of well BDC-1B-01 is to penetrate the Brewster Member and to complete the well for production. Data acquisition for refinement/validation of the reservoir model is also an objective.

The well will be drilled and completed in one continuous operation.

## 1.3 Schlumberger Services

### **Directional Drilling**

PowerPak Mud Motor

PowerDrive Xceed

### **Measurements While Drilling (MWD)**

Borehole Inclination and Azimuth

Continuous Direction & Inclination

Drill String Washout Detection

Modular Vibration Chassis

Annular Pressure and Temperature

Real Time LWD Tool Data Transmission

### **Surface Measurements**

Depth

Rate of Penetration

Total Hookload

Surface Weight on Bit

Standpipe Pressure

### **Logging While Drilling (LWD)**

Attenuation Resistivity

Phase Shift Resistivity

Gamma Ray

Formation Compressional

Formation Shear

Density

Neutron Porosity

Ultrasonic Caliper

Density Caliper

## 1.4 Schlumberger Personnel

### **Field Personnel:**

Anton Redko	MLWD
Emily Wisbey	MLWD
Djen Rofa Fauzi	MLWD
Jiehong Duan	MLWD
Daniel Flores	MLWD
Andrew Smith	MLWD
Matthew Blacker	Directional Driller
Michael Johnson	Directional Driller
Huy Pham Quoc	Directional Driller

### **Field Support Group:**

Saif Syed	West Coast Operations Manager
Aaron Nagorcka	Dual Service Manager

### **Drilling Engineering Support Group:**

Muhammad Naveed	Drilling Engineering Manager
Hrvoje Spoljaric	Drilling Engineer

1.5

## Well Summary

BHA #	Hole Size (in)	Date In to Date Out	MD In to MD Out (m)	TVD In to TVD Out (m)	Inc Out (deg)	Azi Out (deg)	Drill Hrs	Circ Hrs	BRT Hrs	Max Temp (deg C)	Bit grading
01	44	8-Aug-15 to 9-Aug-15	261.20 to 324.40	261.20 to 324.40	0.26	22.51	2.00	3.94	20	28	1-1-WT-A-1-I-NO-TD
02	26	10-Aug-15 to 11-Aug-15	324.40 to 659.0	324.40 to 658.99	0.41	73.81	7.68	15.32	25	32	1-1-WT-A-E-I-NO-TD
03	17.5	13-Aug-15 to 18-Aug-15	659.00 to 2387.00	658.99 to 2357.36	27.50	82.00	69.54	87.61	111.75	48	PDC:0-3-BT-N-X-I-ER-TD TCI: 1-1-WT-A-F-I-PN-TD
04	12.25	23-Aug-15 to 9-Sep-15	2387.00 to 5080.00	2357.36 to 3983.60	72.50	282.50	126.8	276.02	406.75	128	0-1-BT-G-X-I-NO-TD
05	8.5	20-Sep-15 to 26-Sep-15	5080.00 to 5414.00	39983.60 to 4055.32	86.00	269.00	66.14	85.12	130	123	1-3-WT-T-X-I-NO-DTF
06	8.5	26-Sep-15 to 30-Sep-15	5414.00 to 6109.00	4055.32 to 4105.14	86.10	270.20	44.38	68.21	114.5	141	0-1-BT-T-X-I-NO-TD

## 2 Operational Summary

### 2.1 BHA 01 – 44in. Section

261.2 mMD – 324.4 mMD = 63.2 mMD

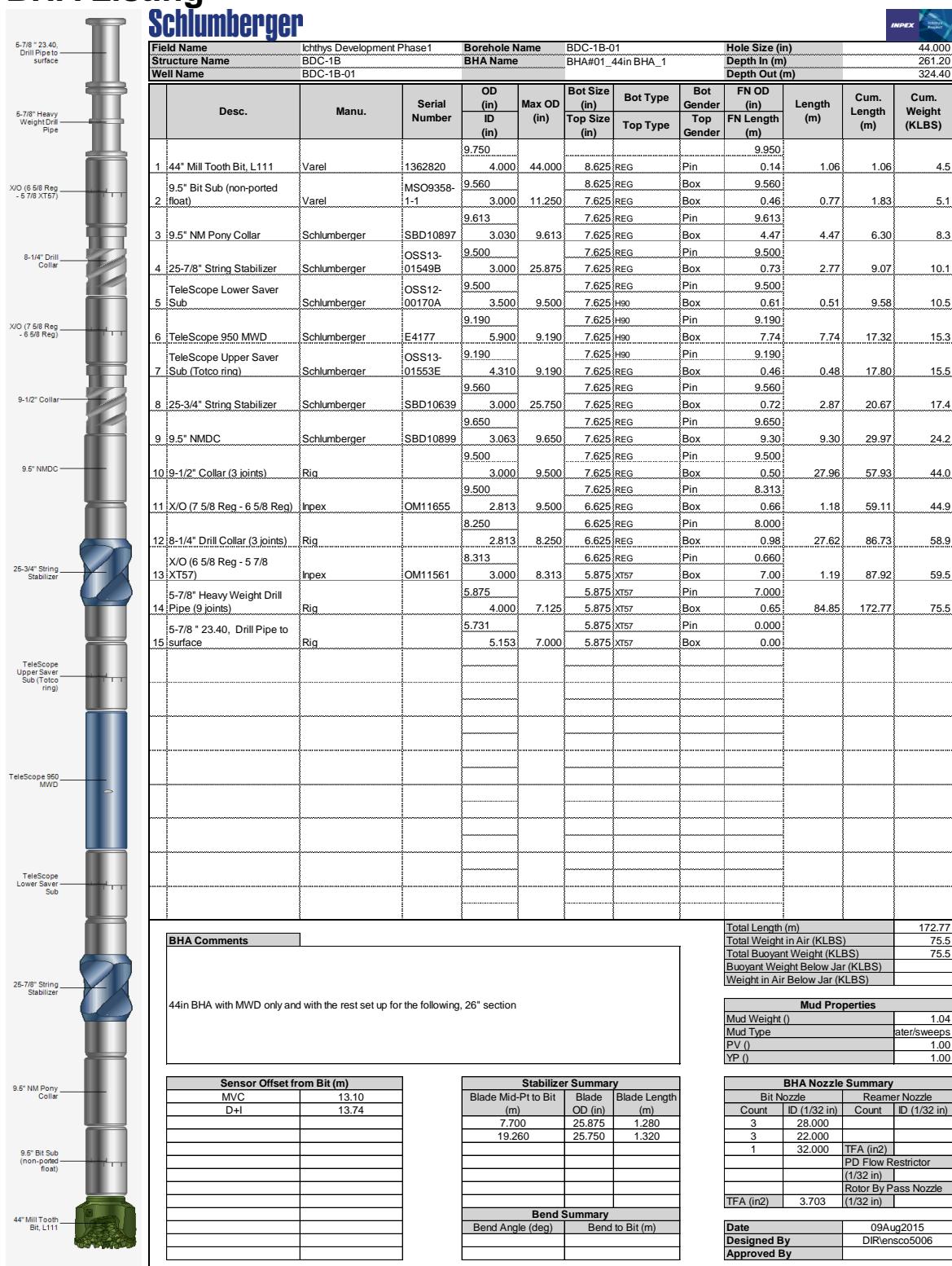
#### 2.1.1 BHA Performance Report

Schlumberger		BHA PERFORMANCE REPORT						INPEX Ichthys Project			
Client	Inpex	Field		Ichthys Development Phase1		Structure	BDC-1B				
Well	BDC-1B-01			Bit Type		Milled Tooth Bit					
BHA Run	BHA#01_44in BHA_1		Job Number		15AWA0104		BHA Type		Rotary BHA		
Lead DD		Matt Blacker		BHA In	Date	MD (m)	Inc (deg)	Azm (deg)	TVD (m)		
2nd DD		Mike Johnson			2015-08-08 12:00	261.2	0.00	0.00	261.2		
Client Representative		Peter Jones / Greg Watkins		BHA Out	2015-08-09 08:00	324.4	0.26	22.51	324.4		
Run Details			Bit Details			Motor Details		RSS Details			
Total Distance	63.2 (m)	Size	44 (in)	Type	RSS Type		BU Bit Size				
Rotating Distance	63.2 (m)	Vendor	Varel	Lobes	S/N BU		S/N CU				
Sliding Distance	0 (m)	Model	BIT	Sleeve Stab. Size	S/N CC		S/N CC				
Loggers	2	IADC Code	111	Bent Housing	CC Type		Flex Sub				
Drill Hours	2	Drilling Hours	1.98	Notch	Bearings Out	Stab Size		Flow Restrictor Size			
Loggers	0	Sliding Hours	0	Cutter Size	Previous Hours	RT Connection		Previous Hours			
Circ. Hours	3.94	reaming Hours	0	Gauge Length	0 (in)	Bit TFA	3,703 (in2)	Motor Revs/Gal	Total Circulating Hours		
		BRT Hours	20	Nozzles	3x22, 1x32 (1/32 in)	Differential Pressure	0		Total Circulating Hours		
		NPT Hours	0	Bit Pressure Drop	1362820		0		0		
		Average ROP	31.21 (m/h)	Loggers Bit kRev/s	Planned DLS Capacity		"/30m(m)		Actual DLS Capacity		
		Rotating ROP	31.21 (m/h)	Bit Serial No	Actual DLS Capacity		"/30m(m)		Planned Rotary Tendency		
		Sliding ROP	0 (m/h)		Actual DLS Capacity		"/30m(m)		Actual Rotary Tendency		
IADC Dull Bit Grading ( before / after )								BHA Tendency			
INNER	OUTER	DULL	LOC	BRG	GAUGE	OTHER	RSN	Planned DLS Capacity	0.0 "/30m(m)		
1	1	WT	A	1	I	NO	TD	Actual DLS Capacity	0.0 "/30m(m)		
1	1	WT	A	1	I	NO	TD	Planned Rotary Tendency	0.0 "/30m(m)		
Actual Rotary Tendency								Last Pick Up Weight			
Drilling Parameters								Last Slack Off Weight			
Average WOB	1.3 (KLBf)	Pump Liner Size	6.5	Max Pressure	770 (psi)	Max Torque	3 (1000 ft.lb)	Last Rotary Weight	146 (KLBf)		
Average surface RPM	35 (c/min)										
Average flow rate	601 (gal/min)										
Type	seawater/sweeps	VP	55.0					Mud PH	9.4		
Mud Weight	1.05	Sand	N/A					Solids	N/A		
PV	12.0	Lubricant	N/A					R6/R3	41/39		
Run Objectives											
<ul style="list-style-type: none"> <li>Spud well within 2.5m radius of planned location</li> <li>Drill 44" vertical hole to 324.4m as determined by 36" conductor tally</li> <li>Maintain inclination &lt; 0.5°</li> <li>Avoid washing out the formation as much as possible</li> </ul>											
Run Results											
<ul style="list-style-type: none"> <li>Made up 44" bit and bit sub, RIH and tagged seabed at 262.6m</li> <li>An MWD survey was taken 10m off bottom to check the tide effect and returned an inclination value of 0.35 degree inclination</li> <li>Jetted in for 1m with 210 GPM, initiated slow RPM and light WOB to drill ahead</li> <li>Drilled to 273m with 0-2khs WOB, slowly increasing flow to 500gpm</li> <li>Took MWD check shot survey, 0.38 deg inclination</li> <li>The flow rate was gradually staged up to 1000 gpm and the rotary speed increased to 50 rpm with controlled WOB of less than 3kLbf</li> <li>50 bbl. sweeps were pumped midstand and 100 bbls PHG was spotted around the BHA before connection</li> <li>A hard stringer approximately 1m thick was encountered at 322m. WOB was restricted to 3kLbs with ROP steady around 2m/hr and slight bit bounce observed.</li> <li>Official total depth was called at 324.4 m</li> </ul>											
Highlights											
<ul style="list-style-type: none"> <li>The inclination was kept at or below 0.50 degrees</li> <li>No wear was observed on the bit</li> <li>36" conductor was successfully run to TD</li> </ul>											
Lowlights											
<ul style="list-style-type: none"> <li>The extra stabiliser in the string exceeded the bridge racker weight capability for racking the BHA - as a result the NMDC was laid out to reduce the weight</li> </ul>											
Recommendations											
<ul style="list-style-type: none"> <li>Use same BHA in future</li> <li>Maintain low WOB while drilling through any stringers</li> </ul>											

BHA PERFORMANCE REPORT						<b>Schlumberger</b>
<b>Client</b>	Inpex	<b>Field</b>	Ichthys Development Phase1	<b>Structure</b>	BDC-1B	
<b>Well</b>			BDC-1B-01	<b>Bit Type</b>	Milled Tooth Bit	
<b>BHA Run</b>	BHA#01 44in BHA 1	<b>Job Number</b>	15AWA0104	<b>BHA Type</b>	Rotary BHA	
<b>Bit Performance Review (Steerability, Stability, ROP Performance, Durability)</b>						
<ul style="list-style-type: none"> <li>• No shock &amp; vibration observed</li> <li>• No wear was observed on the bit as expected</li> </ul>						
<b>Photo of Bit and Any unusual BHA wear</b>						
Before				After		
						
						

### 2.1.2

# BHA Listing



## 2.1.3 Drilling Parameters Report

BHA#01_44in BHA_1 Steering Sheet											
 											
<b>Location</b>	AUS - Australia PF	Casing Sh	BHA Run	<b>BHA#01_44in BHA_1</b>				<b>Bit Run #</b>	IRR10		
Client	Inpex	Casing Siz	Depth in	261.20	Depth out	324.40	Date In	2015-08-08 12:00	Drilling Hours	1.98	
Rig	ENSCO 5006	Casing WT	Incl in (d)	0.00	Incl out (d)	0.26	Date TD	2015-08-09 04:39	Pumping Hours	3.94	
Field	Ichthys Development Phase1	Mud Type	seawater/sweeps	Azimuth in (	Azimuth out (	22.51	Date out	2015-08-09 06:00	BRT Hours	20.00	
Well	BDC-1B-01	End MW (g)	1.04	Client Rep 1	Peter Jones	Lead DD			Mat Blacker		
Borehole	BDC-1B-01	Hole Size (	44.00	Client Rep 2	Greg Watkins	2nd DD			Mike Johnson		
<b>BIT INFORMATION</b>											
S/N	1362820	IADC	111	In Row	Out Row	Dull Char	Location	Bearings	Gauge	Other	Reason Pulled
TYPE	Milled Tooth Bit	Jets (1/32 i)	3x28, 3x22, 1x32	IN	1	1	WT	A	1	I	NO
Manuf/Model Name	Varel/L111	TFA (in2)	3.703	Out	1	1	WT	A	1	I	TD
<b>Bit Properties &amp; Grading</b>											
Date dd-mmm-yy	Operation Mode	Start Time	End Time	MD From m	MD To m	Course m	Calc ROP m/h	Flow gal/min	PP On Bo psi	SRPM c/min	WOB KLBf
9-Aug-15	Rotating	01:38	01:47	262.60	266.00	3.40	22.67	210	50.0	20	1.0
	Rotating	01:47	01:55	266.00	270.00	4.00	30.77	310	75.0	20	1.0
	Rotating	01:55	02:00	270.00	271.50	1.50	18.75	410	110.0	30	1.0
	Rotating	02:00	02:05	271.50	273.00	1.50	18.75	500	150.0	30	1.0
	Rotating	02:12	02:33	273.00	283.30	10.30	29.43	615	270.0	30	1.0
	Rotating	03:00	03:13	283.30	298.00	14.70	66.82	760	430.0	50	1.0
	Rotating	03:13	03:25	298.00	312.00	14.00	70.00	1000	750.0	50	1.0
	Rotating	03:53	04:39	312.00	324.40	12.40	16.10	1000	770.0	50	3.0
Min						16.10	210	50.0	20	1.0	2.0
Average						34.16	601	325.6	35	1.3	2.1
Max						70.00	1000	770.0	50	3.0	3.0
<b>DIRECTIONAL DRILLING PERFORMANCE SUMMARY</b>											
Drill Mode	Footage	Hrs	ROP	% Drill	Circulating	Connection	Reaming	Tripping	Other	NPT	SLB NPT
Rotating	61.80	1.98	31.2	100%	Hours	0	0	0	0	0	0
Drilling	61.80	1.98	31.2	100%							
<b>Comments</b>											
Mud Loggers Drill Hours			2	Mud Loggers Circulation Hours			3.94				

## 2.1.4

**End of Run Summary**

<b>Schlumberger</b>		<b>Bit Run Summary Report</b>		
		05-Oct-2015 08:59		
<b>Job Number:</b> 15AWA0104		<b>Company</b> INPEX BROWSE, LTD	<b>Rig Name:</b> Enasco 5006	
<b>Company Rep:</b> P.Jones/G.Watkins		<b>Location</b> ASA-APG-AWA	<b>Well</b> BDC-1B-01	
<b>Run Number:</b> 1				
<b>Run Information</b>				
		In	Out	
Date:	08-Aug-2015 12:00	09-Aug-2015 07:45	Drilling Distance:	63.2 m
Depth (MD):	261.2 m	324.4 m	Rotary Distance:	63.2 m
Depth (TVD):	261.2 m	324.4 m	Sliding Distance:	0 m
Inclination:	0 deg	0.26 deg	Reaming Distance:	0 m
Azimuth:	0 deg	22.51 deg	Drilling Cement Distance:	0 m
Max Inclination:	0.5 deg		Drilling Cement Hours:	0 hrs
Bore Hole:	0		Total Pumping Hrs:	3.94 hrs
Bore Hole Name:	Primary		Min DLS:	0.15 deg/30m
Hole Size:	44 in		Max DLS:	0.87 deg/30m
Last Casing Size:	0 in		North Ref Used:	Grid North
Last Hole Depth:	0 m (MD)		Magnetic Dec:	1.941 deg
Tool Face Arc:	0 cm		Grid Correction:	-0.077 deg
Tool Face Angle:	0 deg		Total Correction:	2.018 deg
			Est. Mag. Int:	0 deg
			Surface Screen:	No
			DFS Used:	No
			Inline Filter:	No
			Ditch Magnet:	Yes
<b>Rig Information</b>				
Rig Type: Semi-Submersible				
Water Depth:	237.2 m			
Air Gap:	24 m			
RKB Height:	24 m			
Ground Elevation:	-237.2 m			
<b>Run Objective</b>				
Spud BDC-1B-01 and drill the 44" section to TD taking surveys as per required (prior to spudding, 10m drilled and at TD) to ensure well verticality.				
<b>MWD Configuration</b>				
SPT Type: HC	Int Tool Face -	Bit Rate: 3	bos	Slimpulse Pulser Config:
Phy Telemetry: 3 bps	Eff Telemetry: 3 bps	Frequency: 10.5	Hz	Pred Sig Strength @ TD: 87.00 psi
Mod Type: QPSK	Turbine Config: 700 - 1400 galUS/min GPM	Mod Gap: 0.22	IN	
<b>Drilling Summary</b>				
BH Temperature:	32 degC	Max	Avg	Total DH Shocks (k): 0 k
Surface RPM:	50 rpm	32 degC	32 degC	Max Shock 0
Daily ROP:	8.15 m/h	50 rpm	50 rpm	Max Shock Duration: 0 s
Flow Rate:	1000 galUS/min	8.15 m	8.15 m	Torsional Vibration: 0 kft.lbf
WOB Sliding:	kblm	1000 galUS/min	1000 galUS/min	Axial Vibration: 0.12 g RMS
		kblm	kblm	Lateral Vibration: 0.5 g RMS
Avg SPP Off 770	psi	Avg SPP On Bottom: 770	psi	Checkshot Type: None
Turbine RPM @ Min Flow Rate: 3007	rpm	Average Diff 0	psi	Checkshot Depth:
Turbine RPM @ Max Flow Rate: 3007	rpm	H2S In Well: No		Checkshot Inclination:
				Checkshot Azimuth:
				Stick & Slip Ratio: 0
				Tool Operated out of spec: No
				Client Notified:

Schlumberger D&M EoWR – INPEX Ichthys Pty Ltd – BDC-1B-01

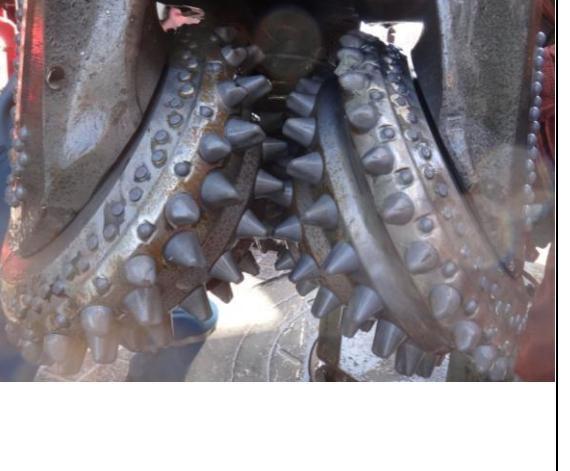
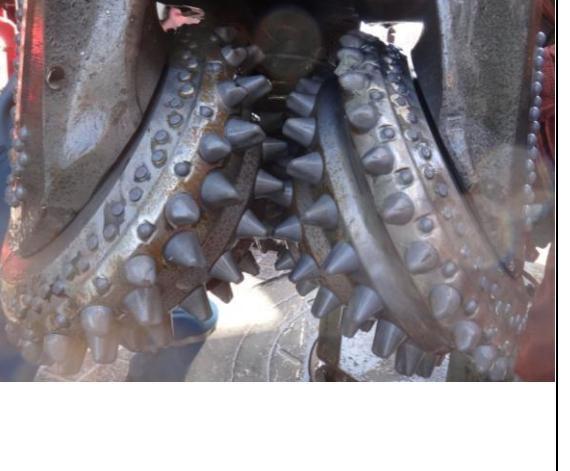
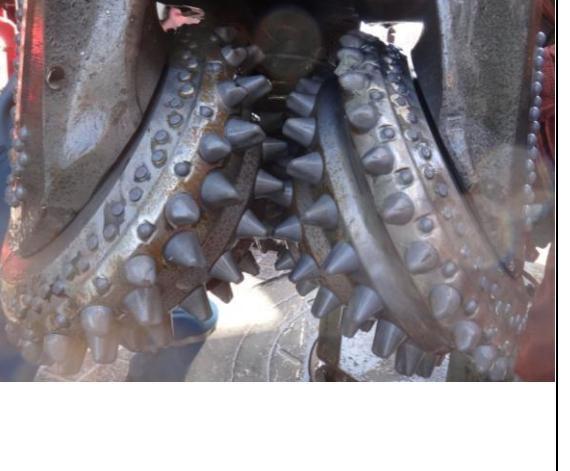
<b>IADC Bit Grading</b>							
Manufacturer	Varel	Total Revs:	5	krevs	IADC Code:		
Model:	Mill Thooth	Stick & Slip:	28		Number Jets :	3;3;1;	
Type:	MillTooth	Reason Pulled:	Section Total Depth		Jet Size/32 in :	353 in;277 in;403 in;	
Inner Row	Outer	Dull Char	Location	Bearings/Seals	Bit TFA:	587.746	in2
1	1	Worn Teeth/Cutters	All Areas/Rows	Non Sealed Bearing	In Gauge		No Dull
<b>End of Run - Summary</b>							
Sync Hours:	2.92 hrs	Downhole Noise:	No	SLB Trip:	No		
Jamming:	No hrs	Surface System Failure:	No	Low Oil Flag:	No	hrs	
Surface Vibration:	No	Surface Noise:	No	Filter Screen/Plug Shear:	No		
		H2S in Well:	No				
<b>Run Client Primary Key Objectives</b>							
<b>Client Objective</b>				<b>Achieved</b>			
Drill to casing point					TRUE		
Drill maintaining verticality					TRUE		
Wellbore avoidance / Anti-collision					TRUE		
No components LIH (Lost in Hole)					TRUE		
Operations without any HSE incident					TRUE		
Avoid Twist Off events					TRUE		
<b>Run Objective:</b>	Drill the 44" section to TD						
<b>Run Client Primary Key Objectives met? :</b>	TRUE						
<b>If not, Why? :</b>							
<b>Reason for POOH :</b>	Section Total Depth						
<b>Sub Reason for POOH :</b>	Spudding the well to TD at 324.4mMD. Drilling with PUP and TAPWD. No issue while drilling with MWD and APWD, ECD reading about 1.07-1.09 with 1.05MW. The first top section using PUP confid 10.5hz/3bps. Signal looking good and strong at 10psi signal strength. Tools being racked back and will be used for the next run 26in BHA.						
<b>Pump Data</b>							
Type	Pulse Damp Press	Number of Pumps	Pump Line ID	Pump Output	Stroke Len		
Triplex	10100 psi	3	6.50 in	2.01 galUS	14.00 in		
<b>Crew on the Run</b>							
Cell Manager :							
Name	Function	Name	Function				
Fauzi, Djen Rofa	DD - Pre-School Trainee	Smith, Andrew Jonathan	MLWD				
Johnson, Michael	DD	Blacker, Matthew	DD				
<b>Services on the Run</b>							
			<b>Real Time</b>		<b>Recorded Mode</b>		
Equipment	Service	Tool Name	Hours	Failed	Depth	Hours	Failed
MDCIX-KA - E4177	TeleScope D&I	MDC 900	3.94 h	No	63.20 m	3.94 h	No
MDCIX-KA - E4177	TeleScope Cont D&I	MDC 900	3.94 h	No	63.20 m	h	No
MDCIX-KA - E4177	TeleScope Shock and Vibration	MDC 900	3.94 h	No	63.20 m	3.94 h	No
MDCIX-KA - E4177	APWD	MDC 900	3.94 h	No	63.20 m	h	No
<b>Equipment on the Run</b>							
			<b>Pump Hours</b>				
Tool Name	Equipment	Start	Cumm Hrs on Run	Software Version			
MillTooth	- 1362820	0 h	3.94 h				
BIT Sub	- MS09358-1-1	0 h	3.94 h				
Non-Mag Pony DC	NMPC9 - SBD10897	0 h	3.94 h				
String Stabilizer	SZS9S-IBS - 25-7/8_OSS13-01549B	0 h	3.94 h				
MDC 900	MDCIX-KA - E4177	0 h	3.94 h				
String Stabilizer	SZS9S-IBS - SBD10639	0 h	3.94 h				
Non-Mag Drill Collar	NMDC9 - SBD10899	0 h	3.94 h				

## 2.2 BHA 02 – 26in. Section

$324.4 \text{ mMD} - 659 \text{ mMD} = 334.6 \text{ mMD}$

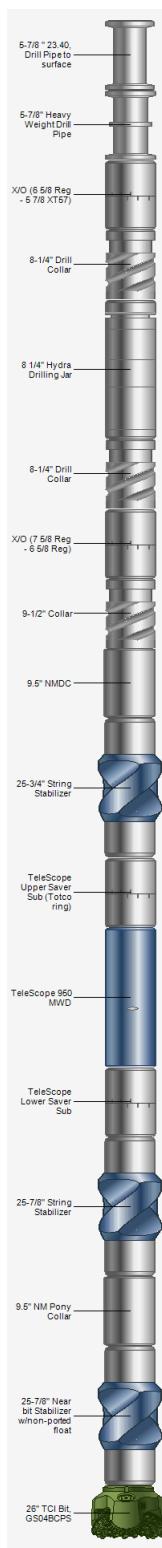
### 2.2.1 BHA Performance Report

<b>Schlumberger</b>		<b>BHA PERFORMANCE REPORT</b>						<b>INPEX Ichthys Project</b>				
<b>Client</b>		<b>Inpex</b>		<b>Field</b>		<b>Ichthys Development Phase1</b>		<b>Structure</b>				
<b>Well</b>				<b>BDC-1B-01</b>				<b>Bit Type</b>				
<b>BHA Run</b>		<b>BHA#02_26in Rotary BHA MWD on</b>		<b>Job Number</b>		<b>15AWA0104</b>		<b>BHA Type</b>				
Lead DD Matt Blacker 2nd DD Mike Johnson Client Representative Peter Jones / Greg Watkins				BHA In BHA Out	Date	MD (m)	Inc (deg)	Azm (deg)	TVD (m)			
					2015-08-10 13:00	324.4	0.26	22.51	324.4			
					2015-08-11 14:00	659	0.41	73.81	658.99			
<b>Run Details</b>			<b>Bit Details</b>			<b>Motor Details</b>		<b>RSS Details</b>				
Total Distance	334.6 (m)		Size	26 (in)		Type		RSS Type				
Rotating Distance	334.6 (m)		Vendor	Smith		Lobes		BU Bit Size				
Sliding Distance	0 (m)		Model	GS04BCPS		Sleeve Stab. Size		S/N BU				
Loggers			IADC Code	415X		Bent Housing		S/N CU				
Drill Hours	7.68		No. Blades			Bearings In		S/N CC				
Loggers			Cutter Size			Bearings Out		CC Type				
Circ. Hours	15.32		Reaming Hours	0	Gauge Length	0 (in)	Previous Hours	Stab Size				
			BrT Hours	25	Nozzles	22, 1x1 8 (1/32 in)	Serial No.	Flex Sub				
			NPT Hours	0	Bit TFA	1.362 (in2)	Differential Pressure	Flow Restrictor Size				
			Average ROP	45.16 (m/h)	Bit Pressure Drop		Motor Revs/Gal	RT Connection				
			Rotating ROP	45.16 (m/h)	Loggers Bit kRev/s	47.5K	Total Circulating Hours	Previous Hours				
			Sliding ROP	0 (m/h)	Bit Serial No.	PW0695		Total Circulating Hours	0			
<b>IADC Dull Bit Grading ( before / after )</b>								<b>BHA Tendency</b>				
INNER	OUTER	DULL	LOC	BRG	GAUGE	OTHER	RSN	Planned DLS Capacity	0.0 °/30m(M)			
1	1	WT	A	E	I	NO	TD	Actual DLS Capacity	0.0 °/30m(M)			
1	1	WT	A	E	I	NO	TD	Planned Rotary Tendency	0.0 °/30m(M)			
								Actual Rotary Tendency	0.0 °/30m(M)			
<b>Drilling Parameters</b>												
Average WOB	11.1 (KLBF)		Pump Liner Size	6.5		Last Pick Up Weight	183 (KLBF)					
Average surface RPM	91 (c/min)		Max Pressure	2020 (psi)		Last Slack Off Weight	192 (KLBF)					
Average flow rate	995 (gal/min)		Max Torque	10 (1000 ft.lbf)		Last Rotary Weight	190 (KLBF)					
Type	seawater/sweeps		YP	55.0		Mud PH	9.3					
Mud Weight	1.05		Sand	N/A		Solids	N/A					
PV	12.0		Lubricant	N/A		R6/R3	56/45					
<b>Run Objectives</b>												
<ul style="list-style-type: none"> <li>• Drill out cement/shoe track in 26° casing</li> <li>• Drill 26° vertical hole to 659m</li> <li>• Maintain the inclination &lt; 1.5°</li> <li>• Avoid washing out to keep the hole in gauge as much as possible</li> </ul>												
<b>Run Results</b>												
<ul style="list-style-type: none"> <li>• The BHA was successfully made up and RIH</li> <li>• The compensator was activated and then the BHA was stabbed into the funnel with the assistance of the ROV</li> <li>• MWD was tested and the BHA was washed down to tag TOC at 320mMD. Drilled out cement and conductor shoe with reduced parameters (approximately 1 1/2hrs to drill casing shoe)</li> <li>• Pumped PHG sweep and reamed the shoe. Worked BHA through the shoe without rotation as per Inpex instruction</li> <li>• The parameters were gradually staged up after the BHA had exited the shoe. Final drilling parameters were up to 100 RPM and 1150 GPM</li> <li>• Interbedded formation from approximately 400-450m resulted in erratic torque (2-12kft.lbs) and WOB was managed accordingly</li> <li>• Initially 5-10 klfb WOB achieved good drilling performance and the inclination remained below 0.5°</li> <li>• The formation became firmer from 570 m and WOB was increased to 20-25 klfb for the remainder of the section</li> <li>• Only one small stringer was encountered towards the end of the section</li> <li>• Section TD was achieved at 659m with a maximum hole angle of 0.78°</li> </ul>												
<b>Highlights</b>												
<ul style="list-style-type: none"> <li>• Good visibility and communication with ROV facilitated an easy stab into the wellhead</li> <li>• Able to reach TD with a maximum inclination of 0.78° (generally below 0.5°). The addition of the extra stabiliser above Telescope may have contributed to the low inclination</li> <li>• No problems acquiring surveys</li> </ul>												
<b>Lowlights</b>												
<ul style="list-style-type: none"> <li>• Nil</li> </ul>												
<b>Recommendations</b>												
<ul style="list-style-type: none"> <li>• Continue to utilize same BHA configuration for upcoming wells</li> </ul>												

BHA PERFORMANCE REPORT						<b>Schlumberger</b>						
<b>Client</b>	Inpex	<b>Field</b>	Ichthys Development Phase1	<b>Structure</b>	BDC-1B							
<b>Well</b>		BDC-1B-01		<b>Bit Type</b>	Insert Roller Cone							
<b>BHA Run</b>	HA#02_26in Rotary BHA MWD only	<b>Job Number</b>	15AWA0104	<b>BHA Type</b>	Rotary BHA							
<b>Bit Performance Review (Steerability, Stability, ROP Performance, Durability)</b>												
<ul style="list-style-type: none"> <li>• Bit performed well, ROP comparable to other Ichthys development wells</li> <li>• Minimal Stick Slip and low lateral vibration observed throughout this section</li> </ul>												
<b>Photo of Bit and Any unusual BHA wear</b>												
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%; text-align: center; padding: 2px;">Before</td> <td style="width: 50%; text-align: center; padding: 2px;">After</td> </tr> <tr> <td style="text-align: center; padding: 2px;">  </td> <td style="text-align: center; padding: 2px;">  </td> </tr> <tr> <td style="text-align: center; padding: 2px;">  </td> <td style="text-align: center; padding: 2px;">  </td> </tr> </table>							Before	After				
Before	After											
												
												

2.2.2

## BHA Listing



## 2.2.3 Drilling Parameters Report

Schlumberger

BHA#02\_26in Rotary BHA\_MWD only\_1 Steering Sheet



Location	AUS - Australia PF	Casing Sh	322.97	BHA Run	BHA#02_26in Rotary BHA_MWD only_1					Bit Run #	2RR5
Client	Inpex	Casing Siz	30.00	Depth in	324.40	Depth out	659.00	Date In	2015-08-10 13:00	Drilling Hours	7.41
Rig	ENSCO 5006	Casing WT	374.00	Incl in (de)	0.26	Incl out (d)	0.41	Date TD	2015-08-11 07:15	Pumping Hours	15.32
Field	Ichthys Development Phase1	Mud Type	seawater/sweeps	Azimuth in	22.51	Azimuth out	73.81	Date out	2015-08-11 14:00	BRT Hours	25.00
Well	BDC-1B-01	End MW (d)	1.04	Client Rep 1	Peter Jones	Lead DD					
Borehole	BDC-1B-01	Hole Size (t)	26.00	Client Rep 2	Greg Watkins	2nd DD					Mike Johnson

BIT INFORMATION				Bit Properties & Grading							
S/N	PW0695	IADC	415X	In Row	Out Row	Dull Char	Location	Bearings	Gauge	Other	Reason Pulled
TYPE	insert roller cone	Jets (1/32 i)	3x22, 1x18	IN	1	1	WT	A	E	I	NO
Manuf/Model Name	Smith/GS04BCPS	TFA (in2)	1.362	Out	1	1	WT	A	E	I	NO
											TD

Date dd-mmmyy	Operation Mode	Start Time	End Time	MD From m	MD To m	Course m	Calc ROP m/h	Flow gal/min	PP On Bo psi	SRPM c/min	WOB KLBf	Off Bot Torque 1000 ft.lb	Torque 1000 ft.lb	Rotating HKL KLBf	PU Weight KLBf	Jack Off Weig KLBf	Svy MD m	Incl deg	Azmth deg	TVD m	DLS deg/30m	Comment
10-Aug-15	Rotating	19:40	19:47	324.40	327.00	2.60	21.67	700	760.0	60	3.0	1.0	3.0	170.00	163.00	170.00						Drill 3m new formation and work bit through shoe with and without rotation
	Rotating	20:10	20:30	327.00	337.00	10.00	30.30	700	760.0	60	5.0	1.0	3.0									
	Rotating	21:05	21:23	337.00	367.00	30.00	100.00	801	920.0	80	3.0	1.0	3.0					350.21	0.78	43.04	350.21	0.40 Slowly stage up flow rate
	Rotating	21:50	22:19	367.00	398.00	31.00	64.58	900	1195.0	80	3.0	2.0	3.0					379.28	0.57	27.41	379.28	0.29
	Rotating	22:35	23:05	398.00	428.00	30.00	60.00	900	1520.0	100	3.0	2.0	5.0					408.07	0.45	37.66	408.06	0.16 Ratty drilling, torque 5-8kft/lbs
	Rotating	23:30	00:05	428.00	456.00	28.00	48.28	1000	1550.0	100	5.0	2.0	7.0					436.91	0.47	54.97	436.90	0.15 Erratic torque
11-Aug-15	Rotating	00:23	00:48	456.00	484.00	28.00	66.67	995	1460.0	100	10.0	2.0	5.0	175.00	170.00	179.00	465.40	0.52	65.92	465.39	0.11 Torque dropping to 5-6kft/lbs, smoother drilling conditions	
	Rotating	01:03	01:31	484.00	513.00	29.00	61.70	1110	1810.0	100	10.0	2.0	6.0									Increase flow, WOB 10-14kbs
	Rotating	01:45	02:20	513.00	542.00	29.00	50.00	1120	1825.0	100	10.0	2.0	7.0	177.00	177.00	183.00	525.47	0.30	60.93	525.46	0.11 Becoming firmer, torque 5-10kft/lbs	
	Rotating	02:34	03:20	542.00	570.00	28.00	36.36	1105	1770.0	100	17.0	3.0	7.0									Inc WOB to 15-22kbs, ROP 20-50m/hr
	Rotating	03:36	04:32	570.00	600.00	30.00	32.26	1146	1930.0	100	17.0	3.0	8.0					583.12	0.39	56.80	583.11	0.05 Torque 5-10kft/lbs
	Rotating	04:45	05:30	600.00	628.00	28.00	37.33	1140	1870.0	100	22.0	4.0	8.0	190.00	183.00	192.00	612.49	0.45	72.65	612.48	0.13 Inc WOB to 25kbs	
	Rotating	05:47	06:17	628.00	637.00	9.00	18.00	1150	1950.0	100	23.0	2.0	10.0									Pickup single
	Rotating	06:34	07:15	637.00	659.00	22.00	32.35	1160	2020.0	100	25.0	2.0	10.0					659.00	0.41	73.81	658.99	0.00 TD called @ 659m MD
Min							18.00	700	760.0	60	3.0	1.0	3.0	170.00	163.00	170.00		0.30	27.41		0.00	
Average							47.11	995	1524.3	91	11.1	2.1	6.1	178.00	173.25	181.00		0.48	54.80		0.15	
Max							100.00	1160	2020.0	100	25.0	4.0	10.0	190.00	183.00	192.00		0.78	73.81		0.40	

## DIRECTIONAL DRILLING PERFORMANCE SUMMARY

Drill Mode	Footage	Hrs	ROP	% Drill	Circulating	Connection	Reaming	Tripping	Other	NPT	SLB NPT
Rotating	334.60	7.41	45.2	100%	Hours	0	0	0	0	0	0
Drilling	334.60	7.41	45.2	100%							

## Comments

Mud Loggers Drill Hours 7.68

Mud Loggers Circulation Hours 15.32

## 2.2.4

## End of Run Summary

<b>Schlumberger</b>		<b>Bit Run Summary Report</b>		
		05-Oct-2015 09:18		
<b>Job Number:</b> 15AWA0104		<b>Company</b> INPEX BROWSE, LTD	<b>Rig Name:</b> EnSCO 5006	
<b>Company Rep:</b> P.Jones/G.Watkins		<b>Location</b> ASA-APG-AWA	<b>Well</b> BDC-1B-01	
<b>Run Number:</b> 2				
<b>Run Information</b>				
Date:	In 10-Aug-2015 Out 2015 13:00	Out 11-Aug-2015 14:00	Drilling Distance: 334.6 m Rotary Distance: 334.6 m Sliding Distance: 0 m Rearing Distance: 0 m Drilling Cement Distance: 33.4 m Drilling Cement Hours: 3.22 hrs	Drilling Hours: 7.68 hrs Rotary Hours: 7.68 hrs Sliding Hours: 0 hrs Rearing Hours: 0 hrs Hrs Below Rotary: 25 hrs Total Pumping Hrs: 15.32 hrs Min DLS: 0.05 deg/30m Max DLS: 0.39 deg/30m
Depth (MD):	324.4 m	659 m		
Depth (TVD):	324.4 m	658.99 m		
Inclination:	0.26 deg	0.41 deg		
Azimuth:	22.51 deg	73.81 deg		
Max Inclination:	0.52 deg			
Bore Hole:	0			
Bore Hole Name:	Primary		North Ref Used: Grid North Magnetic Dec: 1.941 deg	Depth Max DLS: 350.21 m Depth Min DLS: 583.11 m
Hole Size:	26 in		Grid Correction: -0.077 deg	Surface Screen: No
Last Casing Size:	36 in		Total Correction: 2.018 deg	DFS Used: No
Last Hole Depth:	324.4 m (MD)		Est. Mag. Int: 0 deg	Inline Filter: No
Tool Face Arc:	0 cm			Ditch Magnet: No
Tool Face Angle:	0 deg			
<b>Rig Information</b>				
Rig Type:	Semi-Submersible			
Water Depth:	237.2 m			
Air Gap:	24 m			
RKB Height:	24 m			
Ground Elevation:	-237.2 m			
<b>MWD Configuration</b>				
SPT Type: HC	Int Tool Face		Bit Rate: 3 bps	Slimpulse Pulser Config:
Phy Telemetry: 3 bps	Eff Telemetry: 3 bps		Frequency: 10.5 Hz	Pred Sig Strength @ TD: 10.00 psi
Mod Type: QPSK	Turbine Config: 700 - 1400 galUS/min GPM		Mod Gap: 0.22 IN	
<b>Drilling Summary</b>				
BH Temperature:	Min 28 degC	Max 28 degC	Avg 28 degC	Total DH Shocks (k): 0 k Max Shock 0
Surface RPM:	86 rpm	100 rpm	93 rpm	Max Shock Duration: 0 s
Daily ROP:	10.51 m/h	15.64 m	13.08 m	Torsional Vibration: 0 kft.lbf
Flow Rate:	889 galUS/min	1160 galUS/min	1024.5 galUS/min	Axial Vibration: 0 g RMS
WOB Sliding:	kblm	kblm	kblm	Lateral Vibration: 0 g RMS
Avg SPP Off 1589 psi	Avg SPP On Bottom: 1589 psi			Checkshot Type: None
Turbine RPM @ Min Flow Rate: 2187 rpm	Average Diff 0			Checkshot Depth:
Turbine RPM @ Max Flow Rate: 3437 rpm	H2S In Well: No			Checkshot Inclination:
				Checkshot Azimuth:
				Stick & Slip Ratio: 0.6
				Tool Operated out of spec: Yes
				Client Notified:
Parameters Drilling Fluid Minimum pH				
<b>Mud Summary</b>				
Mud Type: Water Base	Mud Clean: Yes		pH: 9.3	
Mud Company: M-I SWACO (SLB)	LCM Type:		Chlorides: 2000 mg/L	
Mud Brand: WBM	LCM Size:		Sand Content: %	
Funnel Viscosity: 120 s/qt	LCM		Solids: %	
Plastic Viscosity: 12 cP	Weighting		Percent Oil: %	
Yield Point: 55 lbf/100ft <sup>2</sup>	Mud Weight: 1.05 g/cc		Oxygen: %	
Rm: 0.16 ohm.m	Mud Cake Resistivity: 0.12 ohm.m		Rmf: 0.15 ohm.m	
Rm @: 31 degC	Mud Cake Resistivity: 31 degC		Rmf @: 31 degC	
Sample Temp.: 40 degC	Magnetic Debris:		LG Solids Content: %	
Rheology Vis300: rpm	Rheology Vis600: rpm			

Schlumberger D&M EoWR – INPEX Ichthys Pty Ltd – BDC-1B-01

<b>IADC Bit Grading</b>							
Manufacturer	Smith-SLB	Total Revs:	48	kevrs	IADC Code:		
Model:	TCI	Stick & Slip:	80		Number Jets :	3;1;	
Type:	MillTooth	Reason Pulled:	Section Total Depth		Jet Size/32 in :	22 in;18 in;	
Inner Row	Outer	Dull Char	Location	Bearings/Seals	Bit TFA:	1.362	in2
1	1	Worn Teeth/Cutters	All Areas/Rows	Sealed Bearing	Gauge		Other Chars
					In Gauge		No Dull
<b>End of Run - Summary</b>							
Sync Hours:	hrs	Downhole Noise:	No	SLB Trip:	No		
Jamming:	No hrs	Surface System Failure:	No	Low Oil Flag:		hrs	
Surface Vibration:	No	Surface Noise:	No	Filter Screen/Plug Shear:			
		H2S in Well:	No				
<b>Run Client Primary Key Objectives</b>							
<b>Client Objective</b>				<b>Achieved</b>			
Drill to casing point					TRUE		
Drill maintaining verticality					TRUE		
Wellbore avoidance / Anti-collision					TRUE		
No components LIH (Lost in Hole)					TRUE		
Operations without any HSE incident					TRUE		
Avoid Twist Off events					TRUE		
<b>Run Objective:</b>	Drilling to section TD						
<b>Run Client Primary Key Objectives met?</b>	TRUE						
<b>If not, Why?</b>							
<b>Reason for POOH :</b>	Section Total Depth						
<b>Sub Reason for POOH :</b>	The tools was racked back from previous run. Re run the tool without dumping it. Tools was running good. All the survey within the FAC. Low stickslip, and no shocj observed. VIB_lat showing in medium range while drilling. Signal was good using 10.5Hz 3 bps.						
<b>Pump Data</b>							
Type	Pulse Damp Press	Number of Pumps	Pump Line ID	Pump Output	Stroke Len		
Triplex	101.00 psi	3	6.50 in	2.01 gal/us	14.00 in		
<b>Crew on the Run</b>							
Cell Manager :							
Name	Function	Name	Function				
Fauzi, Djen Rofa	DD - Pre-School Trainee	Smith, Andrew Jonathan	MLWD				
Johnson, Michael	DD	Blacker, Matthew	DD				
<b>Services on the Run</b>							
			<b>Real Time</b>		<b>Recorded Mode</b>		
Equipment	Service	Tool Name	Hours	Failed	Depth	Hours	Failed
MDCIX-KA - E4177	TeleScope D&I	MDC 900	15.32 h	No	334.60 m	15.32 h	No
MDCIX-KA - E4177	TeleScope Cont D&I	MDC 900	15.32 h	No	334.60 m	h	No
MDCIX-KA - E4177	TeleScope Shock and Vibration	MDC 900	15.32 h	No	334.60 m	15.32 h	No
MDCIX-KA - E4177	APWD	MDC 900	15.32 h	No	334.60 m	h	No
<b>Equipment on the Run</b>							
			<b>Pump Hours</b>				
Tool Name	Equipment		Start	Cumm Hrs on Run	Software Version		
Non-Mag Pony DC	NMPC9 - SBD10897		3.94 h	19.26 h			
String Stabilizer	SZS9S-IBS - 25-7/8 _OSS13-01549B		3.94 h	19.26 h			
MDC 900	MDCIX-KA - E4177		3.94 h	19.26 h	V14.0C01		
String Stabilizer	SZS9S-IBS - SBD10639		3.94 h	19.26 h			
Non-Mag Drill Collar	NMDC9 - SBD10899		3.94 h	19.26 h			
NB Stabilizer	SZB9S-IBS - OSS13-01549C		0 h	15.32 h			
MillTooth	- PW0695		0 h	15.32 h			

## 2.3 BHA 03 – 17.5in. Section

659 mMD – 2387 mMD = 1728 mMD

### 2.3.1 BHA Performance Report

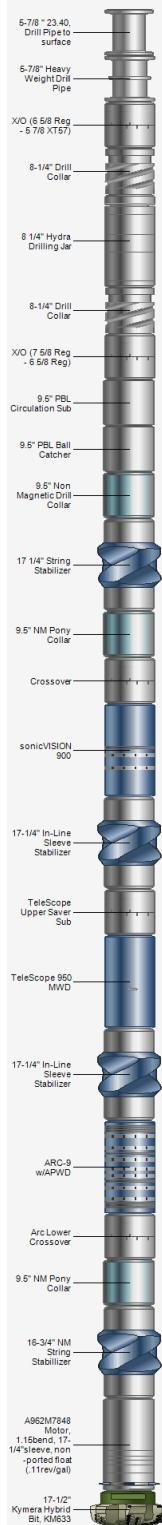
Schlumberger		BHA PERFORMANCE REPORT							INPEX Ichthys Project										
Client	Inpex	Field	Ichthys Development Phase1			Structure	BDC-1B												
Well	BDC-1B-01			Bit Type	PDC														
BHA Run	BHA#03 17.5in primary BHA 962m			Job Number	15AWA0104			BHA Type	Motor Steerable										
Lead DD Matt Blacker			BHA In BHA Out	Date	MD (m)	Inc (deg)	Azm (deg)	TVD (m)											
2nd DD Huy Pham Quoc				2015-08-13 14:15	659	0.41	73.81	658.99											
Client Representative Peter Jones / Carl Green				2015-08-18 06:00	2387	27.50	82.00	2357.36											
Run Details			Bit Details			Motor Details			RSS Details										
Total Distance	1728 (m)		Size	17.5 (in)	Type	A962M7848GT	RSS Type												
Rotating Distance	1369.7 (m)		Vendor	Hughes Christensen	Lobes	4.8/7	BU Bit Size												
Loggers	Sliding Distance 358.3 (m)		Model	PDC	Sleeve Stab. Size	17.25 (in)	S/N BU												
Drill Hours	69.54	Drilling Hours	67.18	IADC Code	KM633	Bent Housing	1.15 (deg)	S/N CU											
Loggers	Sliding Hours 21.9		No. Blades	3	Bearings In	3.0 mm	S/N CC												
Circ. Hours	87.61	Circ. Hours	87.61	Cutter Size	19 mm	Bearings Out	6.0 mm	CC Type											
reaming Hours 0			Gauge Length	4 (in)	Previous Hours	0	Stab Size												
BRT Hours 111.75			Nozzles	6x12, 3x13 (1/32 in)	Serial No.	1168360	Flex Sub												
NPT Hours 0			Bit TFA	1.052 (in2)	Differential Pressure	50 - 350	Flow Restrictor Size												
Average ROP 25.72 (m/h)			Bit Pressure Drop	780 psi	Motor Revs/Gal	0 (cgal)	RT Connection												
Rotating ROP 30.25 (m/h)			Loggers Bit kRev/s	566.K	Total Circulating Hours	87.61	Previous Hours												
Sliding ROP 16.36 (m/h)			Bit Serial No.	7086925	Total Circulating Hours			87.61											
IADC Dull Bit Grading ( before / after )								BHA Tendency											
INNER	OUTER	DULL	LOC	BRG	GAUGE	OTHER	RSN	Planned DLS Capacity	1.3	°/30m(M)									
0	3	BT	N	X	I	ER	TD	Actual DLS Capacity	3.4	°/30m(M)									
1	1	WT	A	F	I	PN	TCI	Planned Rotary Tendency	0.5	°/30m(M)									
								Actual Rotary Tendency	-0.3 to 0.8	/30m(M)									
Drilling Parameters																			
Average WOB	18.9 (KLBf)		Pump Liner Size		6.5	Last Pick Up Weight		357 (KLBf)											
Average surface RPM	41 (c/min)		Max Pressure		3560 (psi)	Last Slack Off Weight		312 (KLBf)											
Average flow rate	955 (gal/min)		Max. Torque		15 (1000 ft.lbf)	Last Rotary Weight		322 (KLBf)											
Type	WBM		YP	22.0	Mud PH	8.6													
Mud Weight	1.10	Sand		1.1	Solids	2.5													
PV	8.0	Lubricant		N/A	R6/R3	15/14													
Run Objectives																			
<ul style="list-style-type: none"> <li>• Drill to 13 3/8" casing point in one run</li> <li>• Maintain verticality through the Grebe until KOP at 1550mMD inside Bassett formation - small corrective slides may be required</li> <li>• Create the least possible mechanical damage while drilling the Grebe Sand and do not compromise formation stability - IKM MRR system in place</li> <li>• Build to 27.5° inclination toward Eastern direction at 90° azimuth then slowly turn to 85° azimuth which requires gradually increasing 0.75°, 1° then 1.25°/30m DLS.</li> <li>• Section TD will be ~20mTVD in the Woolaston Formation due to the shale instability of the Jamieson Formation</li> </ul>																			
Run Results																			
<ul style="list-style-type: none"> <li>• BHA was made up and RIH with a successful shallow hole test being completed above the WHIM. SHT standpipe pressure was high but not extraordinarily so</li> <li>• TOC was tagged at 641.8m MD. The cement was relatively hard and required 5-10kbf WOB to drill out. The bit was worked through 20° shoe with and without rotation to ensure there were no obstructions</li> <li>• The first 10m of formation was drilled with reduced parameters so as to avoid washing out under the shoe whilst attempting to start-up IKM MRR pump</li> <li>• Lined up WBM to displace the hole whilst drilling the first stand with controlled ROP until the well was fully displaced to WBM</li> <li>• Reduced drilling parameters were utilised for the first 50m until the last stabilizer was out of the shoe and then gradually increased to the recommended parameters. The flowrate was restricted at 800-900 GPM due to losses over shakers</li> <li>• The well had slightly deviated and built up to ~ 0.5° inclination, however there no collision risks and hence no correction slides were required</li> <li>• The top of the Grebe Sand was intersected at 1046.5mMD. Backreaming throughout this formation was minimised in order to limit any mechanical damage to formation</li> <li>• The flowrate was eventually increased to 1000 GPM once the shaker losses had reduced to an acceptable rate</li> <li>• Due to previously experienced poor BUR with the same Kymera Bit in a previous well (BDC-5-06) drilled with the Jack Bates, the well was initially kicked-off 4 stands earlier than planned</li> <li>• The kick off was initiated at 1427m where the motor was oriented to 90° MTF for a 15m slide but was interrupted after sliding 5m until further clarification regarding the KOP was ascertained</li> <li>• The kick off was resumed with three consecutive slide of 15m - 18m toward 85°-90° azimuth. The first 2 x 15 slides returned an average DLS of 0.11°/30m. The third slide produced a DLS of 1.8°/30m. The inclination at the planned KOP was 2.89° thus allaying fears of not being able to kick off with the Kymera</li> <li>• Sliding continued through the Bassett and Puffin formations with the motor oriented to high side. The BUR from each slide varied considerably due to the nature of the ratty formations. Minimum BUR: 0.0°/30m. Maximum BUR: 2.4°/30m</li> <li>• At 1800m MD the dispersed mud system was introduced to the well with the plan to be fully displace before entering the Fenelon at 1900mMD</li> <li>• The Fenelon formation was more conducive to sliding due to its homogenous nature. Although in saying that the toolface response times were very slow, most likely attributed to the clays within the Fenelon</li> <li>• Sliding/rotary BUR's within the Fenelon averaged 3.82°/30m whilst rotary drilling alone returned anything from a -0.3°/30m DROP to a 0.81°/30 BUR</li> </ul>																			
Highlights																			
<ul style="list-style-type: none"> <li>• 13 3/8" casing point achieved in 1 x run.</li> <li>• BHA components were bucked up offline by the bucking unit reducing rig floor handling time</li> <li>• The dispersive mud system worked well and allowed the changeover of systems to be done whilst drilling</li> <li>• The use of the Kymera bit vastly improved toolface control</li> </ul>																			
Lowlights																			
<ul style="list-style-type: none"> <li>• The Bassett and Puffin formations were interbedded and thus the BUR's were unpredictable as expected</li> <li>• A period of slow ROP 2181 - 2210m MD hampered the overall ROP</li> <li>• The trip out of hole was uneven apart from 3 tight spots which were wiped as a precautionary measure</li> <li>• Due to lack of availability, 7 x 8 1/4" DC's were run below jars instead of the planned 8 x 8 1/4" DC's</li> </ul>																			
Recommendations																			
<ul style="list-style-type: none"> <li>• Plan to initiate kick-off early with Kymera bit due to poor build rate when kicking-off from vertical</li> </ul>																			

BHA PERFORMANCE REPORT						<b>Schlumberger</b>
<b>Client</b>	Inpex	<b>Field</b>	Ichthys Development Phase1	<b>Structure</b>	BDC-1B	
<b>Well</b>			BDC-1B-01	<b>Bit Type</b>	PDC	
<b>BHA Run</b>	primary BHA_962Mohr-ARC-MWD	<b>Job Number</b>	15AWA0104	<b>BHA Type</b>	Motor Steerable	
<b>Bit Performance Review (Steerability, Stability, ROP Performance, Durability)</b>						
<ul style="list-style-type: none"> <li>Toolface control had improved significantly over previous runs</li> <li>With the final inclination build up to 27.5°, this was the highest angle 17.5° hole section achieved to date</li> <li>Other bit grading features: 3 x plug nozzles, early signs of ring out appearing on the nose, 1 x cone with excessive bearing play, excessive erosion around one of the nozzles (likely to have been enhanced by the other 3 x plugged nozzles)</li> </ul>						
<b>Photo of Bit and Any unusual BHA wear</b>						
<b>Before</b>	<b>After</b>					
						
						
						

### 2.3.2

## BHA Listing

Schlumberger



Field Name	Ichthys Development Phase1			Borehole Name	BDC-1B-01			Hole Size (in)			17.500		
Structure Name	BDC-1B			BHA Name	BHA#03 #17.5in primary			Depth In (m)			659.00		
Well Name	BDC-1B-01				BHA 962Motor-ARC-MWD-Sonic			Depth Out (m)			2387.00		
	Desc.	Manu.	Serial Number	OD (in)	Max OD (in)	Bot Size (in)	Bot Type	Bot Gender	FN OD (in)	Length (m)	Cum. Length (m)	Cum. Weight (KLBS)	
	ID (in)	Top Size (in)	Top Type	Top Gender	FN Length (m)								
1	17-1/2" Kymera Hybrid Bit, KM633	Baker Hughes Christensen	7086925	11.375	3.000	17.500	7.625 REG	Pin	11.375	0.17	0.48	0.48	
	A962M7848 Motor, 1.15bend, 17-1/4" sleeve, non-ported float (.11rev/gal)	Schlumberger	1168360	9.625	7.850	17.250	7.625 REG	Box	9.625				
2				9.700			7.625 REG	Box	1.20	10.49	10.97	7.6	
3	16-3/4" NM String Stabilizer	Schlumberger	MWS4589	3.000	16.750	7.625 REG	Box	0.66	2.09	13.06		8.9	
4	9.5" NM Pony Collar	Schlumberger	556815-1X	9.600		7.625 REG	Box	9.600					
				9.313		7.625 REG	Pin	9.313					
5	Arc Lower Crossover	Schlumberger	OSS12-00721G	3.500	9.313	6.625 FH	Pin	0.36	0.36	16.29		11.2	
				9.060		6.625 FH	Box	9.060					
6	ARC-9 w/APWD	Schlumberger	G0731	3.000	10.000	7.625 H90	Box	1.44	5.49	21.78		14.8	
	17-1/4" In-Line Sleeve	Schlumberger	SBD12093	9.940		7.625 H90	Pin	9.940					
7	Stabilizer	Schlumberger		4.230	17.250	7.625 H90	Box	0.60	1.41	23.19		15.7	
				9.190		7.625 H90	Box	9.190					
8	TeleScope 950 MWD	Schlumberger	G2407	5.900	9.190	7.625 H90	Box	7.74	7.74	30.93		20.5	
	TeleScope Upper Saver Sub	Schlumberger		9.500		7.625 H90	Pin	9.500					
9				4.250	9.500	7.625 H90	Box	0.47	0.47	31.40		20.8	
	17-1/4" In-Line Sleeve Stabilizer	Schlumberger	SBD12097	9.940		7.625 H90	Pin	9.940					
				4.240	17.250	7.625 H90	Box	0.68	1.48	32.88		21.8	
11	sonicVISION 900	Schlumberger	G2143	4.240	10.000	7.625 H90	Box	1.35	6.94	39.82		26.0	
				9.125		7.625 H90	Pin	9.125					
12	Crossover	Schlumberger	OM10829	3.000	9.125	7.625 REG	Box	0.47	0.47	40.29		26.3	
				9.660		7.625 REG	Pin	9.660					
13	9.5" NM Pony Collar	Schlumberger	OSS13-01567P	3.000	9.660	7.625 REG	Box	4.55	4.55	44.84		29.7	
				9.500		7.625 REG	Pin	9.500					
14	17 1/4" String Stabilizer	Schlumberger	SBD7747	3.000	17.250	7.625 REG	Box	0.74	2.36	47.20		31.2	
	9.5" Non Magnetic Drill Collar	Schlumberger	OSS13-015657C	9.570		7.625 REG	Pin	9.570					
15				3.000	9.625	7.625 REG	Box	0.35	0.35	56.55		37.9	
				9.500		7.625 REG	Pin	9.500					
16	9.5" PBL Ball Catcher	Weatherford	NOR950BP54B	3.500	9.500	7.625 REG	Box	1.35	1.35	57.90		38.8	
				9.500		7.625 REG	Pin	9.500					
17	9.5" PBL Circulation Sub	Weatherford	259619	3.500	9.500	7.625 REG	Box	1.38	1.38	59.28		39.7	
				9.500		7.625 REG	Pin	9.313					
18	X/O (7 5/8 Reg - 6 5/8 Reg)	Inpex	OM11655	2.813	9.500	6.625 REG	Box	0.66	1.18	60.46		40.6	
				8.500		6.625 REG	Pin	8.500					
19	8-1/4" Drill Collar (7 joints)	Rig		2.813	8.500	6.625 REG	Box	0.87	64.55	125.01		76.8	
				8.000		6.625 REG	Pin	8.000					
20	8 1/4" Hydra Drilling Jar	Weatherford	1762-1380	2.875	8.000	6.625 REG	Box	0.51	9.50	134.51		80.7	
				8.250		6.625 REG	Pin	8.000					
21	8-1/4" Drill Collar (3 joints)	Rig		2.875	8.250	6.625 REG	Box	0.40	28.40	162.91		95.5	
				8.313		6.625 REG	Pin	0.660					
22	X/O (6 5/8 Reg - 5 7/8 XT57)	Inpex	OM11561	3.000	8.313	5.875 XT57	Box	7.00	1.19	164.10		96.1	
				5.875		5.875 XT57	Pin	7.000					
23	5-7/8" Heavy Weight Drill Pipe (9 joints)	Rig		4.250	7.125	5.875 XT57	Box	0.65	84.84	248.94		112.1	
				5.731		5.875 XT57	Pin	0.000					
24	5-7/8" * 23.40, Drill Pipe to surface	Rig		5.153	7.000	5.875 XT57	Box	0.00					
<b>BHA Comments</b>													
17-1/2" Mud Motor BHA with ARC-MWD-Sonic LWD tools and with ILS and string stabilizers.													
<b>Sensor Offset from Bit (m)</b>				<b>Stabilizer Summary</b>				<b>BHA Nozzle Summary</b>					
APWD	17.68			Blade Mid-Pt to Bit (m)	Blade OD (in)	Blade Length (m)		Bit Nozzle ID (1/32 in)	Reamer Nozzle ID (1/32 in)				
Resistivity	18.39			1.220	17.250	0.430		6	12.000				
Gamma Ray	18.44			11.950	16.750	0.900		3	13.000				
MVC	26.11			22.330	17.250	0.440				TFA (in2)	0.000		
D+I	27.11			32.010	17.250	0.440				PD Flow Restrictor			
Sonic	37.12			46.040	17.250	0.860				(1/32 in)			
										Rotor By Pass Nozzle			
										TFA (in2)	1.052	(1/32 in)	
<b>Bend Summary</b>													
Bend Angle (deg)	Bend to Bit (m)			1.150	2.770								

## 2.3.3 Drilling Parameters Report

### Schlumberger BHA#03 17.5in primary BHA\_962Motor-ARC-MWD-Sonic-Stabs\_ Steering Sheet



Location	AUS - Australia PF	Casing Sh	65121	BHA Run	BHA#03 17.5in primary BHA_962Motor-ARC-MWD-Sonic-Stabs_1	Bit Run #	3
Client	Impex	Casing Siz	20.00	Depth in (ft)	659.00	Depth out	2387.00
Rig	ENSCO 5006	Casing WT	133.00	Incl in (deg)	0.41	Incl out (d)	27.50
Field	Ichthys Development Phase 1	Mud Type	WBM	Azimuth in (d)	73.81	Azimuth out	82.00
Well	BDC-1B-01	End MW (g)	1.10	Date rep 1	Peter Jones	Lead DD	
Borehole	BDC-1B-01	Hole Size (in)	17.50	Client Rep 2	Carl Green	2nd DD	Huy Pham Quoc

BIT INFORMATION										Bit Properties & Grading																
S/N	7086925	IADC	N/A	In Row	Out Row	Dull Char	Location	Bearings	Gauge	Other	Reason Pulled	1	2	3	4	5	6	7	PDC	TCI						
TYPE	KM633	Jets (1/32 i)	6x12, 3x13	IN	New																					
Manuf/Model Name	Mr Hughes Christensen	TFA (in2)	1.052	Out	0	3	BT	N	X	I	ER	TD														
Date	Operation Mode	Start Time	End Time	MD From m	MD To m	Course m	Calc ROP m/h	TF Mode	TF Angle deg	Flow gal/min	PP Off Bop psi	PP On Bop psi	SRPM c/min	WOB KLBf	Off Bot Torqu ft.lbf	Torque 1000 ft.lbf	ECD g/cm3	Rotating HKL KLBf	PU Weight KLBf	Jack Off Weig KLBf	Svy MD m	Incl deg	Azimt deg	TVD m	DLS deg/30m	Comment
13-Aug-15	Rotating	21:25	22:00	659.00	674.00	15.00	25.86			705	1500.0	1650.0	40	5.0	1.0	4.0		673.53	0.26	81.15	673.52	0.16	Drilling slowly whilst displace hole to WBM			
	Rotating	22:18	22:30	674.00	690.00	16.00	80.00			850	2200.0	2300.0	40	8.0	1.0	5.0	1.11	193.00	186.00	195.00			Gradually increase flowrate, SPP higher than expected.			
	Rotating	22:30	22:42	690.00	703.00	13.00	65.00			800	2100.0	2200.0	40	10.0	1.0	6.0			702.35	0.29	21.96	702.34	0.28	Losses over shakers- 130bbl/hr, cut back flowrate.		
	Rotating	22:57	23:28	703.00	732.00	29.00	55.77			755	1750.0	1850.0	60	5.0	1.0	12.0	1.14	199.00	187.00	196.00			Backream 1 single prior connection. Last Stab out of shoe, increase SRPM.			
	Rotating	23:42	00:26	732.00	762.00	30.00	41.10			760	1720.0	1880.0	60	6.0	2.0	7.0	1.15				761.54	0.12	70.58	761.53	0.19	Stringer @ 760mMD, high vibration, reduce RPM to mitigate.
14-Aug-15	Rotating	00:41	01:03	762.00	791.00	29.00	78.38			850	2000.0	2250.0	50	12.0	2.0	14.0	1.15				790.64	0.23	106.60	790.63	0.16	Losses rate reduce, gradually increase flowrate.
	Rotating	01:18	01:52	791.00	820.00	29.00	50.88			950	2500.0	2800.0	50	18.0	2.0	12.0	1.18	202.00	194.00	203.00	819.38	0.34	128.58	819.37	0.16	Stringer @ 752m Erratic torque & high ECD, backream half stand.
	Rotating	02:07	02:28	820.00	849.00	29.00	82.86			930	2450.0	2780.0	50	15.0	2.0	8.0	1.18								Partial losses - 70 bbl/hr, inter-bed formation, WOB 0-22kbt	
	Rotating	02:40	03:03	849.00	878.00	29.00	76.32			900	2400.0	2500.0	50	6.0	2.0	12.0	1.19	206.00	202.00	210.00	877.29	0.54	141.36	877.27	0.11	High ECD, backream half stand prior connection.
	Rotating	03:23	04:12	878.00	907.00	29.00	35.37			900	2400.0	2750.0	50	22.0	2.0	12.0	1.18								Missed survey 2x, Hard stringer @ 897m.	
	Rotating	04:39	05:04	907.00	936.00	29.00	69.05			930	2550.0	2900.0	60	15.0	2.0	12.0	1.20	214.00	206.00	215.00	935.02	0.36	151.43	935.00	0.05	Increase SRPM to drop building trend
	Rotating	05:21	05:51	936.00	965.00	29.00	58.00			840	2150.0	2280.0	60	12.0	2.0	8.0	1.20	216.00	209.00	217.00	964.48	0.44	158.71	964.46	0.10	Losing at the shakers
	Rotating	06:12	06:37	965.00	993.00	28.00	66.67			950	2620.0	2900.0	60	13.0	2.0	7.0	1.18				991.77	0.38	149.79	991.75	0.10	Reduc GPM at end of stand - shaker losses
	Rotating	06:50	07:13	993.00	1021.00	28.00	73.68			905	2440.0	2710.0	60	18.0	2.0	3.0	1.18	223.00	218.00	226.00	1019.93	0.42	180.56	1019.91	0.23	TBD w/pumps off, end stringer @ 1003m, b/ream stand
	Rotating	07:32	07:46	1021.00	1040.00	19.00	82.61			960	2750.0	2860.0	60	12.0	2.0	7.0	1.21								Stringers: 1032m, 1039m	
	Rotating	07:46	08:02	1040.00	1050.00	10.00	37.04			1000	2850.0	3000.0	60	12.0	2.0	7.0	1.19				1048.32	0.47	162.50	1048.30	0.16	Increase to 1000 GPM, MW 1.12 SG
	Rotating	08:15	08:35	1050.00	1078.00	28.00	84.85			1005	3000.0	3090.0	60	3.0	2.0	8.0	1.22				1076.05	0.55	152.49	1076.03	0.13	Stringer: 1074m
	Rotating	08:47	09:08	1078.00	1107.00	29.00	82.86			1005	2940.0	3050.0	60	3.0	3.0	8.0	1.23	227.00	222.00	230.00	1105.04	0.74	162.67	1105.02	0.23	Continue to lose at shakers
	Rotating	09:20	09:26	1107.00	1122.00	5.00	50.00			1010	2920.0	3010.0	60	3.0	4.0	8.0	1.20								Reduce RPM to minimise Grebe disturbance	
	Rotating	09:26	09:44	1122.00	1134.00	22.00	73.33			950	2630.0	2720.0	40	3.0	4.0	8.0	1.19								Reduce GPM for shaker losses	
	Rotating	09:59	10:40	1134.00	1163.00	29.00	42.65			1010	2950.0	3090.0	40	5.0	4.0	8.0	1.18				1134.37	0.92	169.17	1134.34	0.21	Stringer: 1145 - 1148m, 1147m = string stall
	Rotating	10:54	11:17	1163.00	1192.00	29.00	76.32			1000	2850.0	2950.0	40	3.0	3.0	4.0	1.15									
	Rotating	11:33	11:52	1192.00	1220.00	30.00	93.75			1000	2920.0	2960.0	40	3.0	3.0	5.0	1.19	233.00	230.00	238.00	1219.91	0.30	213.27	1219.88	0.27	Loss rate at shakers decreasing
	Rotating	12:06	12:25	1222.00	1251.00	29.00	90.63			1000	2920.0	2970.0	40	3.0	3.0	5.0	1.20				1250.74	0.32	207.97	1250.71	0.03	Maintain 1000 GPM through Grebe
	Rotating	12:37	13:03	1251.00	1279.00	28.00	65.12			1000	2940.0	3000.0	40	3.0	3.0	4.0	1.21								MW 1.09 SG	
	Rotating	13:20	13:42	1279.00	1308.00	29.00	78.38			1000	2900.0	2960.0	40	3.0	3.0	6.0	1.21				1307.93	0.20	236.05	1307.90	0.09	
	Rotating	13:56	14:16	1308.00	1337.00	29.00	87.88			1000	2860.0	2940.0	40	3.0	3.0	6.0	1.20	247.00	242.00	250.00	1336.15	0.45	257.15	1336.12	0.29	TQ spiking
	Rotating	14:37	15:14	1337.00	1366.00	29.00	46.77			1000	2930.0	2970.0	40	2.0	5.0	6.0	1.17								High TQ after connection and midstand - Grebe sand	
	Rotating	15:28	16:30	1366.00	1396.00	30.00	29.13			1000	2950.0	2970.0	40	2.0	5.0	6.0	1.16				1395.83	0.62	312.42	1395.80	0.66	1386-1390 = hard
	Rotating	16:43	16:55	1396.00	1400.00	4.00	20.00			1000	2880.0	2940.0	40	8.0	3.0	3.0	1.12									
	Rotating	16:55	18:40	1400.00	1427.00	27.00	15.43			900	2150.0	2350.0	30	15.0	3.0	4.0	1.11	252.00	250.00	256.00	1423.93	0.35	277.15	1423.90	0.42	Reduce parameters to aid bit preservation
	Sliding	19:20	19:40	1427.00	1432.00	5.00	15.15	Magnetic	90	840	2020.0	2150.0	0	10.0												Initial kick-off earlier for correction & ahead plan.
	Rotating	19:49	19:52	1432.00	1435.00	3.00	60.00			1000	2850.0	2900.0	40	2.0	3.0	5.0	1.12									
	Sliding	20:01	20:21	1435.00	1445.00	10.00	30.30	Magnetic	85	840	2050.0	2100.0	0	1.0												Stop sliding as per co-man.
	Rotating	20:22	20:27	1445.00	1454.00	9.00	112.50			1000	2900.0	2950.0	40	2.0	3.0	5.0	1.13	255.00	253.00	261.00	1451.10	0.37	92.96	1451.07	0.79	Inter-bed formation. Good TF control, RT ~100° @ 100psi pressure.
	Sliding	20:51	21:18	1454.00	1469.00	15.00	33.33	Magnetic	85	820	1900.0	2000.0	0	2.0												
	Rotating	21:20	21:36	1469.00	1481.00	12.00	70.59			1100	3150.0	3200.0	40	3.0	3.0	6.0	1.13	260.00	257.00	264.00	1479.12	0.45	84.50	1479.08	0.11	Soft formation.
	Sliding	21:50	22:04	1481.00	1496.00	15.00	65.22	Magnetic	80	810	1900.0	1950.0	1	1.0												
	Rotating	22:05	22:19	1496.00	1508.00	12.00	52.17			1100	3250.0	3300.0	40	3.0	3.0	6.0	1.13				1507.32	1.35	102.51	1507.28	0.99	
	Sliding	22:48	22:58	1508.00	1526.00	18.00	105.88	Magnetic	85	800	1900.0	1940.0	1	1.0			</									

# Schlumberger D&M EoWR – INPEX Ichthys Pty Ltd – BDC-1B-01

Date dd-mm-yy	Operation Mode	Start Time	End Time	MD From m	MD To m	Course m	Calc ROP m/h	TF Mode	TF Angle deg	Flow gal/min	PP Off Bottom psi	PP On Bottom psi	SRPM c/min	WOB KLBf	Off Bot Torque 1000 ft.lbf	Torque 1000 ft.lbf	ECD g/cm³	Rotating HKL KLBf	PU Weight KLBf	Jack Off Weight KLBf	Svy MD m	Incl deg	Azimuth deg	TVD m	DLS deg/30m	Comment		
15-Aug-15	Rotating	00:08	00:22	1552.00	1566.00	14.00	60.87			1100	3250.0	3300.0	40	3.0	3.0	5.0	1.15	262.00	264.00	267.00						Stringer @ 1566mMD.		
	Sliding	00:42	00:49	1566.00	1576.00	10.00	83.33	Magnetic	85	820	1950.0	2000.0		2.0			1.14				1566.28	3.21	84.30	1566.18	0.66			
	Rotating	00:49	00:56	1576.00	1585.00	9.00	75.00			1080	3200.0	3250.0	40	5.0	3.0	15.0	1.14									Stringer @ 1585, shock level 2.3 & erratic torque. TDS stalled several time.		
	Rotating	01:20	01:58	1585.00	1592.00	7.00	11.11			1080	3220.0	3270.0	20	3.0	3.0	10.0	1.14	263.00	266.00	270.00						Back ream & vary parameters to drill through stringers. Shock level 2.3.		
	Rotating	02:07	02:13	1592.00	1596.00	4.00	40.00			1080	3220.0	3270.0	20	3.0	3.0	6.0	1.14				1595.88	3.19	85.64	1595.74	0.08	Soft formation again, no shock & minimal Stick Slip.		
	Rotating	02:30	02:39	1596.00	1625.00	29.00	61.70			1100	3260.0	3310.0	40	3.0	3.0	5.0	1.14				1624.20	3.24	86.37	1624.01	0.07	Tendency slightly drop in rotation.		
	Rotating	03:21	03:49	1625.00	1655.00	30.00	63.83			1080	3240.0	3300.0	40	2.0	3.0	4.0	1.13	266.00	266.00	272.00						Missed Survey 2x as bad signal, re-survey good at 900pm.		
	Sliding	04:09	04:44	1655.00	1668.00	13.00	22.41	Magnetic	85	810	1900.0	2100.0		16.0			1.15				1656.64	3.34	89.91	1656.40	0.21	Hard interval, reactive torque ~ 150°.		
	Rotating	04:45	05:13	1668.00	1685.00	17.00	36.17			1075	3150.0	3250.0	40	10.0	3.0	7.0	1.13				1685.00	3.91	92.16	1684.70	0.62	Formation harder toward key down.		
	Sliding	05:30	06:02	1685.00	1699.00	14.00	26.42	Magnetic	85	810	1950.0	2150.0		18.0			1.12				1685.00	3.91	92.16	1684.70	0.62	Inter-bed formation.		
	Rotating	06:05	06:21	1699.00	1713.00	14.00	51.85			1100	3050.0	3150.0	40	3.0	3.0	5.0	1.12									Soft again		
	Sliding	06:38	07:13	1713.00	1728.00	15.00	25.86	Gravity	0	840	1970.0	2040.0	0	3.0			1.11	278.00	278.00	280.00	1714.35	4.74	91.16	1713.97	0.85	Interbedded, 1728m = stringer - use 25 kbf WOB		
	Rotating	07:13	07:37	1728.00	1741.00	13.00	32.50			1040	2920.0	3040.0	40	20.0	5.0	6.0	1.12				1739.85	5.19	94.67	1739.38	0.69	1728m / 1735m = firmer		
	Sliding	07:49	08:09	1741.00	1753.00	12.00	36.36	Gravity	0	810	1820.0	1880.0		3.0			1.12									Soft side		
	Rotating	08:12	08:38	1753.00	1770.00	17.00	39.53			1040	2940.0	3080.0	40	3.0	3.0	6.0	1.12				1767.36	5.65	97.29	1766.76	0.56	MW 1.11 SG		
	Sliding	08:54	09:39	1770.00	1787.00	17.00	22.67	Gravity	330	820	1900.0	2000.0		16.0			1.12									Commence changing to dispersed mud system		
	Rotating	09:41	10:34	1787.00	1796.00	9.00	10.23			1020	2780.0	2890.0	40	16.0	5.0	7.0	1.12	287.00	285.00	286.00	1794.76	7.01	91.92	1793.99	1.62	Motor still, interbedded, 0-15 kbf WOB		
	Sliding	10:50	11:27	1796.00	1811.00	15.00	24.19	Gravity	330	820	1860.0	2080.0		15.0			1.11									Indep request 30 lbf WOB, SPP drop at end of stand		
	Rotating	11:29	12:44	1811.00	1825.00	14.00	11.20			1040	2850.0	2950.0	40	30.0	4.0	5.0	1.11	289.00	290.00	286.00	1828.81	6.82	92.01	1828.82	0.19	String still, drop 0.4° #1 rotary		
	Rotating	13:13	14:10	1825.00	1855.00	30.00	31.58			1050	2680.0	2760.0	40	3.0	4.0	4.0	1.11				1854.67	6.39	93.54	1853.49	0.47	BHA hanging up		
	Sliding	14:25	14:40	1855.00	1857.00	2.00	8.00	Gravity	330	820	1600.0	1650.0		20.0			1.12									Rotate past ledge		
	Rotating	14:40	14:43	1857.00	1858.00	1.00	20.00			820	1600.0	1650.0	40	2.0	4.0	4.0	1.12									Reduce slide interval as firm formation		
	Sliding	14:43	15:14	1858.00	1878.00	20.00	38.46	Gravity	340	820	1600.0	1800.0		16.0			1.12										Rotate past ledge to initiate side	
	Rotating	15:17	15:27	1878.00	1886.00	8.00	47.06			1040	2740.0	2840.0	40	3.0	4.0	7.0	1.14	194.00	293.00	288.00	1884.64	8.02	89.36	1883.22	1.71			
	Sliding	15:47	16:32	1886.00	1908.00	22.00	29.33	Gravity	340	830	1650.0	1750.0		3.0			1.12										Rotate past ledge to initiate side	
	Rotating	16:34	16:48	1908.00	1915.00	7.00	35.00			1050	2800.0	2890.0	40	3.0	5.0	10.0	1.13				1913.13	9.36	86.97	1911.38	1.46	String still		
	Rotating	17:06	18:10	1915.00	1919.00	4.00	3.74			830	1800.0	1840.0	40	20.0	5.0	7.0	1.13									Attempt to slide - rotate past firm formation		
	Sliding	18:15	18:25	1919.00	1920.00	1.00	5.88	Gravity	-40	830	1800.0	1820.0		25.0													Hanging up, rotate through ledge.	
	Rotating	18:28	18:38	1920.00	1923.00	3.00	17.65			830	1800.0	2150.0		28.0	5.0	12.0	1.13										Erratic torque 5-20kft lbf	
	Sliding	18:41	19:19	1923.00	1941.00	18.00	28.57	Gravity	-20	830	1800.0	2050.0		28.0			1.12										Reduce slide interval as firm formation	
	Rotating	19:21	19:24	1941.00	1944.00	3.00	60.00			1060	2850.0	2950.0	40	4.0	5.0	8.0	1.12	297.00	296.00	290.00	1941.38	12.03	86.42	1939.14	2.84	Soft formation, easy sliding.		
	Sliding	19:42	20:09	1944.00	1961.00	17.00	37.78	Gravity	-10	800	1780.0	1850.0		5.0														
	Rotating	20:12	20:22	1961.00	1972.00	11.00	64.71			1065	1800.0	1950.0	40	2.0	5.0	7.0	1.12				1969.00	15.13	89.65	1965.98	3.47	Building in rotary.		
	Sliding	20:44	20:58	1972.00	1974.00	2.00	8.70	Gravity	0	840	1950.0	2000.0		30.0													Hang up, rotate through ledge.	
	Rotating	21:03	21:24	1974.00	1982.00	8.00	22.86			840	1950.0	2150.0	40	15.0	5.0	15.0	1.13										Erratic torque 5-25kft lbf	
	Sliding	21:29	21:37	1982.00	1983.00	1.00	7.69	Gravity	-10	840	1950.0	1980.0		30.0													Hanging up again, observed strong build in rotary.	
	Rotating	21:45	22:04	1983.00	2000.00	17.00	53.13			1070	2800.0	3100.0	60	28.0	5.0	12.0	1.12	300.00	298.00	292.00	1996.36	15.54	91.12	1992.37	0.62	Increase SRPM as TDS stalled.		
	Rotating	22:26	23:05	2000.00	2023.00	23.00	35.38			850	1860.0	2150.0	40	30.0	5.0	10.0	1.12									Reduce full stand whilst monitoring build rate.		
	Rotating	23:05	23:09	2023.00	2027.00	4.00	57.14			1060	2850.0	3050.0	40	28.0	5.0	9.0	1.13				2025.40	16.35	89.50	2020.29	0.95	Tendency build & walk right		
	Sliding	23:44	00:01	2027.00	2037.00	10.00	35.71	Gravity	-85	840	1930.0	2080.0		22.0													Corrected slide for azimuth.	
	Rotating	00:05	00:34	2037.00	2055.00	18.00	37.50			1064	2900.0	3170.0	40	30.0	5.0	9.0	1.13	302.00	308.00	300.00	2053.22	17.09	85.85	2046.94	1.38	Shakers over flow, reduced fowrate.		
	Rotating	00:51	01:16	2055.00	2067.00	12.00	28.57			1070	2900.0	3200.0	40	30.0	5.0	10.0	1.13										More left correction & building, bad TF control.	
	Sliding	01:22	01:43	2067.00	2074.00	7.00	20.00	Gravity	-55	840	1970.0	2120.0		25.0														
	Rotating	01:47	02:07	2074.00	2084.00	10.00	30.30			1090	2880.0	3180.0	40	30.0	6.0	10.0	1.13				2083.38	17.62	84.33	2075.72	0.69			
	Rotating	02:30	03:38	2084.00	2113.00	29.00	25.66			1047	2950.0	3150.0	40	25.0	6.0	10.0	1.14									Continue rotate whilst monitor continuous surveys.		
	Sliding	04:02	04:40	2113.00	2125.00	12.00	19.05	Gravity	-20	845	1950.0	2250.0		30.0								2116.02	18.25	84.60	2106.78	0.58	Build rate reduced, resume sliding.	
	Rotating	04:43	04:52	2125.00	2130.00	5.00	33.33			1060	2800.0	2850.0	40	28.0	5.0	10.0	1.14										SPP gradually drop, stop & check pumps.	
	Rotating	05:01	05:38	2130.00																								

Schlumberger D&M EoWR – INPEX Ichthys Pty Ltd – BDC-1B-01

Date dd-mm-yy	Operation Mode	Start Time	End Time	MD From m	MD To m	Course m	Calc ROP m/h	TF Mode	TF Angle deg	Flow gal/min	PP Off Bore psi	PP On Bore psi	SRPM c/min	WOB KLBf	Off Bot Torque 1000 ft.lbf	Torque 1000 ft.lbf	ECD g/cm3	Rotating HKL KLBf	PU Weight KLBf	Jack Off Weig KLBf	Svy MD m	Incl deg	Azimuth deg	TVD m	DLS deg/30m	Comment	
17-Aug-15	Rotating	00:46	01:32	2259.30	2270.00	10.70	13.90			1088	3230.0	3500.0	40	48.0	7.0	13.0	1.13										
	Sliding	01:42	03:48	2270.00	2280.00	10.00	4.76	Gravity	0	840	2000.0	2300.0		45.0											Reactive torque > 360°		
	Rotating	03:54	04:35	2280.00	2286.00	6.00	8.82			1094	3100.0	3400.0	40	48.0	7.0	13.0	1.14								Rotate ahead to TD as projection at Bit > 24° inclination		
	Rotating	04:52	06:50	2286.00	2316.00	30.00	15.23			1100	3150.0	3500.0	40	48.0	7.0	14.0	1.14										
	Sliding	07:05	08:52	2316.00	2326.00	10.00	5.62	Gravity	0	840	2080.0	2220.0		48.0											Continue to slide to achieve 27.5° inclination		
	Rotating	08:54	10:20	2326.00	2344.00	18.00	12.59			1100	3200.0	3500.0	40	48.0	7.0	14.0	1.15	320.00	355.00	306.00	2342.18	25.23	81.60	2317.34	1.35		
	Sliding	10:34	12:33	2344.00	2357.00	13.00	6.57	Gravity	0	850	2050.0	2300.0		48.0													
	Rotating	12:35	14:10	2357.00	2373.00	16.00	10.13			1090	3200.0	3330.0	40	50.0	7.0	12.0	1.15	322.00	357.00	312.00	2357.33	26.79	81.53	2330.96	3.09		
	Sliding	14:48	15:17	2373.00	2378.00	5.00	10.42			845	2000.0	2240.0		50.0													
	Rotating	15:20	16:02	2378.00	2387.00	9.00	12.86			1100	3200.0	3400.0	40	45.0	7.0	13.0	1.15								TD called at 2387m MD		
Min										1.52	-120	590	1080.0	1140.0	0	1.0	1.0	3.0	1.11	193.00	186.00	195.00	0.12	21.96	0.03		
Average										37.38		57	955	2522.8	2668.9	41	18.9	4.0	8.3	1.14	258.36	263.71	261.25	7.77	116.73	0.73	
Max										112.50		340	1100	3260.0	3560.0	60	50.0	7.0	15.0	1.23	322.00	357.00	312.00	27.50	312.42	3.47	

DIRECTIONAL DRILLING PERFORMANCE SUMMARY

Drill Mode	Footage	Hrs	ROP	% Drill	Circulating	Connection	reaming	Tripping	Other	NPT	SLB NPT
Rotating	1369.70	45.28	30.2	79%	Hours	0	0	0	0	0	0
Sliding	358.30	21.90	16.4	21%							
Drilling	1728.00	67.18	25.7	100%							

Comments

Mud Loggers Drill Hours 69.45 Mud Loggers Circulation Hours 87.61

## 2.3.4

## End of Run Summary

 <b>Bit Run Summary Report</b> 05-Oct-2015 10:08					
<b>Job Number:</b> 15AWA0104	<b>Company</b> INPEX BROWSE, LTD			<b>Rig Name:</b> Ensc 5006	
<b>Company Rep:</b> P.Jones/G.Watkins					
<b>Run Number:</b> 3	<b>Location</b> ASA-APG-AWA	<b>Well</b> BDC-1B-01			
<b>Run Information</b>					
In	Out	Drilling Distance:	1728 m	Drilling Hours:	69.54 hrs
Date: 13-Aug-2015 14:15	18-Aug-2015 06:00	Rotary Distance:	1331.39 m	Rotary Hours:	48.31 hrs
Depth (MD): 659 m	2387 m	Sliding Distance:	396.61 m	Sliding Hours:	26.64 hrs
Depth (TVD): 658.99 m	2357.36 m	Reaming Distance:	0 m	Reaming Hours:	0 hrs
Inclination: 0.41 deg	27.5 deg	Drilling Cement Distance:	17.2 m	Hrs Below Rotary:	111.75 hrs
Azimuth: 73.81 deg	82 deg	Drilling Cement Hours:	1.3 hrs	Total Pumping Hrs:	87.61 hrs
Max Inclination: 27.5 deg				Min DLS:	0.03 deg/30m
Bore Hole: 0				Max DLS:	3.47 deg/30m
Bore Hole Name: Primary		North Ref Used:	Grid North	Depth Max DLS:	1969.36 m
Hole Size: 17.5 in		Magnetic Dec:	1.941 deg	Depth Min DLS:	1250.74 m
Last Casing Size: 20 in		Grid Correction:	-0.077 deg	Surface Screen:	No
Last Hole Depth: 659 m (MD)		Total Correction:	2.018 deg	DFS Used:	No
Tool Face Arc: 69 cm		Est. Mag. Int:	0.34 deg	Inline Filter:	No
Tool Face Angle: 338.42 deg				Ditch Magnet:	Yes
<b>Rig Information</b>					
Rig Type: Semi-Submersible					
Water Depth: 237.2 m					
Air Gap: 24 m					
RKB Height: 24 m					
Ground Elevation: -237.2 m					
<b>Run Objective</b>					
Drill the 17.5" section to TD - arcVISION RES AND GR used in conjunction with ROP to pick casing point.					
<b>DH Motor Information</b>					
Manufacturer: SLB		Rubber: NBR-HR		Bearing Play:	
Motor Type: Motor		Sleeve: Bearing housing		Bent Sub Angle:	
Motor Size: 9.63		Sleeve Size: 17.25		Bent HSG Angle:	1.15
Serial No.: 1116830		Bit to Bend Dist:		Rotor Catcher Included:	Yes
Lobe Config: 7:8		Bearing Play In:		Elastomer Fit:	0.019in
Stage: 4.8 m		Bearing Type: Mud lubricated Angular Bearing			
<b>MWD Configuration</b>					
SPT Type: HC	Int Tool Face 338.42	Bit Rate: 6 bps		Slimpulse Pulser Config:	
Phy Telemetry: 6.000 bps	Eff Telemetry: 6.000 bps	Frequency: 10.5 Hz		Pred Sig Strength @ TD:	10.00 psi
Mod Type: QPSK	Turbine Config: 700 - 1400 GPM	galUS/min	Mod Gap: 0.195 IN		
<b>Drilling Summary</b>					
BH Temperature: 38 degC	Min 56 degC	Avg 44.67 degC		Total DH Shocks (k):	100 k
Surface RPM: 42 rpm	60 rpm	53 rpm		Max Shock 3	
Daily ROP: 5.46 m/h	33.29 m	15.46 m		Max Shock Duration:	1200 s
Flow Rate: 1005 galUS/min	1100 galUS/min	1068.33 galUS/min		Torsional Vibration:	0 kft.lbf
WOB Sliding: 50.04 kblm	50.04 kblm	50.04 kblm		Axial Vibration:	0 g RMS
				Lateral Vibration:	0 g RMS
Avg SPP Off: 3096.67 psi		Avg SPP On Bottom: 3150 psi		Checkshot Type:	None
Turbine RPM @ Min Flow Rate: 2850 rpm		Average Diff: 53.33 psi		Checkshot Depth:	
Turbine RPM @ Max Flow Rate: 3100 rpm		H2S In Well: No		Checkshot Inclination:	
				Checkshot Azimuth:	
				Stick & Slip Ratio:	4.25
				Tool Operated out of spec:	Yes
				Client Notified:	Yes
Parameters: Drilling Fluid Minimum pH					
<b>Mud Summary</b>					
Mud Type: Water Base		Mud Clean: Yes		pH:	9.2
Mud Company: M-I SWACO (SLB)		LCM Type:		Chlorides:	9000 mg/L
Mud Brand: M-I SWACO		LCM Size:		Sand Content:	1 %
Funnel Viscosity: 49 s/qt		LCM		Solids:	6 %
Plastic Viscosity: 12 cP		Weighting Barite		Percent Oil:	%
Yield Point: 17 lbf/100ft <sup>2</sup>		Mud Weight: 1.1 g/cc		Oxygen:	%
Rm: 0.44 ohm.m		Mud Cake Resistivity: ohm.m		Rmf: 0.44 ohm.m	
Rm @: 24.9 degC		Mud Cake Resistivity: 25 degC		Rmf @: 25 degC	
Sample Temp.: 24.9 degC		Magnetic Debris:		LG Solids Content:	%
Rheology Vis300: 29.00 rpm		Rheology Vis600: 41.00 rpm			

<b>IADC Bit Grading</b>						
Manufacturer	Hughes Christensen (Baker)	Total Revs:	566	kevs	IADC Code:	
Model:	Kymera Hybrid	Stick & Slip:			Number Jets :	6;
Type:	PDC	Reason Pulled:	Section Total Depth		Jet Size/32 in :	12 in;
Inner Row	Outer	Dull Char	Location	Bearings/Seals	Bit TFA:	0.663 in2
0 - No	3	Broken Teeth/Cutters	Nose	No Bearing	Gauge	Other Chars No Dull
<b>End of Run - Summary</b>						
Sync Hours:	hrs	Downhole Noise:	No	SLB Trip:	No	
Jamming:	No hrs	Surface System Failure:	No	Low Oil Flag:		hrs
Surface Vibration:	No	Surface Noise:	No	Filter Screen/Plug Shear:		
		H2S in Well:	No			
<b>Run Client Primary Key Objectives</b>						
Client Objective	<b>Achieved</b>					
Drill to casing point	TRUE					
Drill out cement and casing shoe	TRUE					
Wellbore avoidance / Anti-collision	TRUE					
No components LIH (Lost in Hole)	TRUE					
Real Time data for Decisions	TRUE					
Recorded Mode for Formation Evaluation	TRUE					
Operations without any HSE incident	TRUE					
Avoid Twist Off events	TRUE					
<b>Run Objective:</b> Drill the 17.5" section to TD						
<b>Run Client Primary Key Objectives met?</b> : TRUE						
<b>If not, Why?</b> :						
<b>Reason for POOH :</b> Section Total Depth						
<b>Sub Reason for POOH :</b>						
<b>Run Summary :</b> Successfully drilled 17.5" hole to section TD. All client objectives met. All surveys obtained were taken after the connection. Most of the time surveys were in FAC on the first attempt however there were some occasions where surveys were not demodulated fully/correctly at surface due to unstable flow following the connections. Based off a history of this type of issue the MWD was programmed with a 1 minute delayed survey, which for most of the surveys was more than sufficient. Recommendation going forward for this project is to use 1 minute delayed surveys as this provides the best time/quality tradeoff and provides reliable results >95% of the time.						
Surveys on CRPM cessation were disabled for this run due to the usage of a bent motor. DD advised that the delay in receiving toolface when entering sliding mode would be an unnecessary hindrance.						
Recommendation regarding the usage of CRPM cessation is to consult DD and decide if the advantage of using CRPM cessation outweighs the time lost without toolface when entering sliding mode.						
When pumps were stable the selected telemetry of 10.5hz/6bps was successful and provided a workable and stable signal. The only time telemetry failed to be demodulated at surface was when there were fluctuations in flow most noticeable following a change from sliding to rotary drilling and vice versa, and following connections. Recommendation going forward is that with the current surface setup 10.5hz/6bps be the primary telemetry selection while keeping 10.5hz/3bps as a backup. There were some difficulties in the last few stands before TD getting into sync before the survey frame is received. Pumps were cycled on these occasions. May consider enabling survey on CRPM cessation at the end of the run. At TD signal strength was less than 1 psi by RMS approximation method. total signal by the SPT was around 40 psi. Signal-to-noise ratio was 0.198. Overall, it seems the reduced gap size resulted in significantly increased signal quality. At start of this section ROP was at times much faster than planned which resulted in very sparse LWD data both at surface and in recorded mode. The client was informed of the implication of such high ROP however the importance of dense LWD data at in this section did not warrant restricting the ROP. Recommendation going forward is that the client be advised when ROP outstrips RM or telemetry so they can evaluate if ROP restriction is necessary.						
WBM was used for this section and every 6 hours attempts were made to test the mud, mud filtrate and mud cake. Throughout most of the run the resistivities were between 0.4 and 0.8 ohm meters. It is recommended that this practice continue and logs zoned accordingly. In accordance with APG best practice and the SLB D&M Corrosion Control Guidelines pH and Dissolved Oxygen (DO) should be checked with a calibrated Thermo Scientific pH/DO meter. During pre-run checks it was discovered that DO test probe was past its calibration date and would not allow the DO measurement to be taken.						
It is recommended that calibration expiry dates be tracked so that replacements can be arranged ahead of time. The measured pH in during the run remained outside of the D&M tool specifications. This range is 9.5 to 12, whereas measured pH varied between 7.7 and 9.2. The planned mud system for future 17.5in sections should be examined, and the client should be aware of our tool specifications. RT LWD data was reported to the client daily after zoning was applied for environmental corrections and labelling limits for compressional arrivals. for most of the section 80 us/ft						
<b>LWD Data</b>						
Tool			SW Version	RecRate	Tot Mem	Avail Mem
ARC 900			9.7	10	440.00	430.25
SonicVISION 900			7.1	10		
<b>Pump Data</b>						
Type	Pulse Damp Press	Number of Pumps	Pump Line ID	Pump Output	Stroke Len	
Triplex	10100 psi	3	6.50 in	2.01 gal/US	14.00 in	

Schlumberger D&M EoWR – INPEX Ichthys Pty Ltd – BDC-1B-01

Crew on the Run								
Cell Manager :								
Name	Function	Name	Function					
Smith, Andrew Jonathan	MLWD	Johnson, Michael	DD					
Blacker, Matthew	DD	Pham Quoc, Huy	DD					
Redko, Anton	DD - Pre-School Trainee							
Services on the Run								
			Real Time			Recorded Mode		
Equipment	Service	Tool Name	Hours	Failed	Depth	Hours	Failed	Depth
A962M - 1116830	PowerPak	A962 Motor	87.61 h	No	1,728.00 m	h	No	m
MDCIX-KA - G2407	TeleScope D&I	MDC 900	87.61 h	No	1,728.00 m	87.61 h	No	1,728.00 m
MDCIX-KA - G2407	TeleScope Cont D&I	MDC 900	87.61 h	No	1,728.00 m	h	No	m
MDCIX-KA - G2407	TeleScope Shock and Vibration	MDC 900	87.61 h	No	1,728.00 m	87.61 h	No	1,728.00 m
MDCIX-KA - G2407	TeleScope Collar RPM	MDC 900	87.61 h	No	1,728.00 m	87.61 h	No	1,728.00 m
ARC9D-BB - G0731	Resistivity	ARC 900	87.61 h	No	1,728.00 m	111.75 h	No	1,728.00 m
ARC9D-BB - G0731	Gamma Ray	ARC 900	87.61 h	No	1,728.00 m	111.75 h	No	1,728.00 m
ARC9D-BB - G0731	APWD	ARC 900	87.61 h	No	1,728.00 m	111.75 h	No	1,728.00 m
ARC9D-BB - G0731	ATMP	ARC 900	87.61 h	No	1,728.00 m	87.61 h	No	1,728.00 m
SD9C-AA - G2143	Compressional DT	SonicVISION 900	87.61 h	No	1,728.00 m	111.75 h	No	1,728.00 m
Equipment on the Run								
			Pump Hours					
Tool Name	Equipment		Start	Cumm Hrs on Run		Software Version		
PDC	- 7086925		0 h	87.61 h				
A962 Motor	A962M - 1116830		0 h	87.61 h				
String Stabilizer	SZS9N-IBS - MWS4589		0 h	87.61 h				
Non-Mag Pony DC	NMPC9 - 556815-1X		0 h	87.61 h				
MDC 900	MDCIX-KA - G2407		0 h	87.61 h	14			
ARC 900	ARC9D-BB - G0731		0 h	87.61 h	9.7			
SonicVISION 900	SD9C-AA - G2143		0 h	87.61 h	7.1			
Non-Mag Pony DC	NMPC9 - OSS13-01567P		0 h	87.61 h				
Non-Mag Drill Collar	NMDC9 - OSS13-01567C		0 h	87.61 h				
ARC6/8-ADN6/8-Sonic6/8 Batt	T6017257 - Q08875		0 h	87.61 h				
ARC6/8-ADN6/8-Sonic6/8 Batt	T6017257 - Q08877		0 h	87.61 h				
ARC6/8-ADN6/8-Sonic6/8 Batt	T6017257 - Q08879		0 h	87.61 h				
ARC6/8-ADN6/8-Sonic6/8 Batt	T6017257 - Q08881		0 h	87.61 h				
String Stabilizer	SZS9N-IBS - SBD7747		0 h	87.61 h				

2.4

## BHA 04 – 12.25in. Section

2387 mMD – 5080mMD = 2693 mMD

2.4.1

### BHA Performance Report

Schlumberger		BHA PERFORMANCE REPORT							INPEX Ichthys Project			
Client		Inpex		Field		Ichthys Development Phase1		Structure	BDC-1B			
Well		BDC-1B-01						Bit Type	PDC			
BHA Run		BHA#04 12.25in BHA Xceed-ARC-1		Job Number		15AWA0104		BHA Type	Rotary Steerable System (RSS)			
Lead DD Mike Johnson				BHA In	Date	MD (m)	Incl (deg)	Azm (deg)	TVD (m)			
2nd DD Huy Pham Quoc					2015-08-23 06:45	2387	27.50	82.00	2357.36			
Client Representative Paul Leathem / Carl Green				BHA Out	2015-09-09 05:30	5080	72.50	282.50	3983.6			
Run Details			Bit Details			Motor Details			RSS Details			
Total Distance	2693m		Size	12.25 (in)		Type			RSS Type	Xceed		
Rotating Distance	2693m		Vendor	Smith		Lobes			BU Bit Size	12.25 (in)		
Loggers Drill Hours	126.8		Model	MSIZ713 LHPBX		Sleeve Stab. Size			SN	CRSC-BA-234		
Loggers Sliding Hours	N/A		ADC Code			Bent Housing						
Circ. Hours	276.02		No. Blades	7		Bearings In						
Drill Hours	124.53		Cutter Size	13 mm		Bearings Out						
Sliding Hours	N/A		Gauge Length	3.5 (in)		Previous Hours						
Reaming Hours	N/A		Nozzles	10x13 (1/32 in)		Serial No.			Stab Size	12.25 (in)		
BRT Hours	406.75		Bit TFA	1.296 (in2)		Differential Pressure			Flex Sub	No / Her		
NPT Hours	0		Bit Pressure Drop	N/A		Motor Revs/Gal			Flow Restrictor Size	N/A		
Average ROP	21.68 (m/h)		Loggers Bit Revs	1240 K		Total Circulating Hours			RT Connection	Yes / □		
Rotating ROP	21.68 (m/h)		Bit Serial No.	JK6185					Previous Hours	0		
Sliding ROP	0 (m/h)								Total Circulating Hours	276.02		
IADC Dull Bit Grading ( before / after )								BHA Tendency				
INNER	OUTER	DULL	LOC	BRG	GAUGE	OTHER	RSN	Planned DLS Capacity	6.0	°/30m(m)		
NEW								Actual DLS Capacity	5.0	°/30m(m)		
0	1	BT	G	X	I	NO	TD	Planned Rotary Tendency	N/A	°/30m(m)		
								Actual Rotary Tendency	N/A	°/30m(m)		
Drilling Parameters												
Average WOB	24.4 (KLBf)		Pump Liner Size	6.5"		Last Pick Up Weight	498 (KLBF)					
Average surface RPM	159 (c/min)		Max. Pressure	4230 (psi)		Last Slack Off Weight	316 (KLBF)					
Average flow rate	947 (gal/min)		Max. Torque	24 (1000 ft.lb)		Last Rotary Weight	378 (KLBF)					
Type	Novatec SBM		YP	31.0		Mud PH	N/A					
Mud Weight	1.47-1.63sg		Sand	N/A		Solids	27.5					
PV	50.0		Lubricant	N/A		R6/R3	14/13					
Run Objectives												
<ul style="list-style-type: none"> <li>• Drill out cement, float collar and 13 3/8" casing shoe and drill to +/- 5079mMD in a single bit run.</li> <li>• Main directional 3-D profile: build from 27.5° to 72° inclination whilst turning left from 81° to 283° azimuth at EOC # 2 at 5042mMD. Then maintain short tangent section of 37m to 9 5/8" casing point.</li> <li>• Achieve the required trajectory without acquiring doglegs in excess of the plan to achieve as smooth a bore hole as possible, to reduce casing wear while drilling the next (8 1/2") hole section.</li> </ul>												
Run Results												
<ul style="list-style-type: none"> <li>• The BHA was successfully made up and RIH. TOC was tagged at 2333m with 10kbf WOB. The wiper plugs and float collar were drilled in approximately 2 hrs using sea water.</li> <li>• The well was displaced to SBM while drilling from 2363m (approximately halfway along the shoe track) to the connection depth at 2372m.</li> <li>• Drilled ahead 20m below shoe with the Xceed initial setting of 0 GTF/0% SR in Anti-Clockwise Rotation (ACW) as per Inpex's requirement to 2425m. Downlinked to 30% SR / -48° TF to initiate the build. However, only the first downlink to change the desired toolface was accepted, two consecutive downlinks were not detected by PD Xceed tool.</li> <li>• Immediately downlinked to toggle Xceed commands via Telescope using the LTB bus. Also downlinked to change Xceed to 36s bit period to ensure no duplicate response from the tool.</li> <li>• A strong drop tendency in rotary mode was observed and steer ratio was quickly increased to counteract the trend.</li> <li>• Gradually increased steer ratio to avoid excessive DLS until Xceed achieved the required DLS of 1.76°/30m with 60% to 70% steer ratio in ACW rotation.</li> <li>• The Xceed DLS response was both poor and inconsistent, from 1.5° to 2.5° between 60% and 70% SR. Xceed RTSTA_f 32 was observed on virtually every neutral phase of the drill cycle. Despite excellent toolface control while steering, toolface rotation was so slow in the neutral phase (&lt;0.5pm) that the net effect was to nullify much of the steering phase.</li> <li>• Drilling progressed with fairly high steer ratios required to control the unpredictable DLS response. Steering efficiency (TFSTRMAG d-point) was generally good (90-100%) and stick/slip low but rotating speed consistently show poor control with less than 0.5pm (TFROTMMAG d-point vary 10-80%).</li> <li>• At 3416mMD, downlinked to increase Drill Cycle Time (DCT) from 8min to 16min. This was immediately effective in that only 40 to 50% SR was needed to achieve ~ 1.7°/30m DLS. By extending the neutral phase from approximately 4 mins to 8 mins, the Xceed rotation could make a complete 360° rotation rather than the previous 180° rotation (where it was effectively steering low and right!).</li> <li>• Lost communication with SADN at 3455mMD while drilling. At 3487m the drillstring became stuck while making connection. The jars were fired 6 times and the drillstring was finally freed by slacking off weight and applying 35kft.lb torque.</li> <li>• As a precaution against sticking, surveys were taken before connections one single off-bottom. This also provided an additional MWD depth check every stand. The full stand was also back-reamed prior to the connection.</li> <li>• A decision was made by the client representative to continue drilling without real-time porosity/density data. However, at 3588mMD, suddenly regained communication with SADN but without the porosity measurement.</li> <li>• Steering response continued to be erratic and unpredictable, adding to the tortuosity on a difficult 3-D trajectory. At 3745mMD, toolface rotation was changed to a clockwise (CW) rotation. The first neutral cycle indicated the typical random toolface distribution but subsequent neutral cycles reverted to a very slow rotation. Steering response was improved slightly however and 30-60% steer ratios were adequate to achieve the planned trajectory.</li> <li>• Continued drilling ahead with Xceed in manual mode to 3887mMD.</li> <li>• The JF Caswell Mbr was encountered at 3784.1. Stick-Slip increased in the upper section of the interval and was eliminated by increasing rotary speed to 180rpm.</li> <li>• ROP improved in the lower Caswell and into the Upper Echuca at 3915m.</li> <li>• The interval from 3892m to 4607m, which comprised mainly left hand turn combined with low build/drop rates, was drilled almost entirely in HIT mode with 0.5° &amp; 1.0° nudges used to control inclination.</li> <li>• Steering response was more controlled and predictable in HIT mode. As planned build rates increased in conjunction with a fairly constant LH turn, the HIT 50% automatic steering limit made it difficult to achieve the planned DLS.</li> <li>• Xceed RSS was downlinked back to manual mode with 16min DCT (CW rotation) at 4578mMD and continued drilling to 4832mMD without any problems. Average 40-50% SR was needed to achieve the required 1.8°/30m DLS.</li> <li>• Observed +/- 15bbi/hr dynamic losses from 4,832m, reduced ROP and continued drilling to stand-down (backream twice prior to connection). Observed +/- 5 bbl/hr static losses on connection at 4,840m.</li> <li>• Drilled to 4,888m and observed 250psi increase in drill pipe pressure, increase in return flow and pit gain. Decision was made to shut in well and monitor pressures.</li> <li>• Four "wait and weight" well control procedures were performed with kill mud gradually increasing to 1.51, 1.53, 1.56 SG before drilling resumed with a final mud weight of 1.58 SG.</li> <li>• When drilling resumed, flow rate was restricted to around 680gpm in order to minimise ECD and mitigate against losses. WOB was limited to around 20kbf to minimise the power demand on the Xceed tool at the low flow rate. WOB was also restricted due to the available weight below the jar as the hole inclination increased towards TD.</li> <li>• With the reduced parameters over the final 200m, ROP averaged 7-12m/hr, however good steerability was maintained.</li> </ul>												

# Schlumberger D&M EoWR – INPEX Ichthys Pty Ltd – BDC-1B-01

• At TD the mud weight was gradually increased to 1.62sg. The BHA was pumped out of hole to 3800m with minimal resistance observed. After circulating bottoms-up the BHA was tripped out on elevators to 1916m. A slight discrepancy on displacement volumes was noted and the well was monitored on the trip tank. A decision was then made to run back to bottom, evaluate gas levels and increase mud weight to 1.63sg.
• The BHA was once again pumped out of hole to the 13 3/8" casing shoe then tripped on elevators to 1622m where a further inconsistency in displacement volume was observed and pumping out resumed.
• The bit was in very good condition with minimal wear and a few broken gauge cutters. Lower Xceed stabilizer in gauge, upper Xceed stabilizer 1/8" UG with small groove worn on lower edge.
<b>Highlights</b>
• Drilled a challenging 2693m trajectory in a single bit run
• Xceed RSS performed well throughout the run and all directional objectives were achieved. At TD the well path was 0.21m right and 0.44m below the Plan.
• The bit and other BHA components were pulled to surface in good condition after having drilled 2693m.
• Managed the jar placement "WOB No-Go Zone" successfully by running the jar in tension throughout the run.
• All downlinks were sent while drilling or back-reaming prior to connections.
• Xceed downlinks routed via Telescope were successful with very few missed downlinks
• While drilling with low flow rates towards the end of the section, the Quick Survey feature proved to be the best survey method. Acquiring steady demodulation after a pump re-cycle was problematic as lower signal strength was more susceptible to noise.
<b>Lowlights</b>
• Extended well control procedures added significantly to the overall drilling time
• Poor/erratic steering response with Xceed operating in ACW toolface rotation mode (very slow rotation in neutral cycle)
• Following the well control incident and concern over possible losses due to increased mud weight, the 700-1400gpm flow rate configuration for Telescope made it virtually impossible to operate below 680gpm due to the weak MWD signal.
<b>Recommendations</b>
• Ensure tools are configured for 600-1200gpm for future wells

BHA PERFORMANCE REPORT						<b>Schlumberger</b>
Client	Inpex	Field	Ichthys Development Phase 1	Structure	BDC-1B	
Well	I	BDC-1B-01		Bit Type	PDC	
BHA Run	in BHA Xceed-ARC-MWD-Sonic-SA	Job Number	15AWA0104	BHA Type	Rotary Steerable System (RSS)	
<b>Bit Performance Review (Steerability, Stability, ROP Performance, Durability)</b>						
<ul style="list-style-type: none"> <li>Steerability compromised due to erratic steering performance from Xceed in ACW toolface rotation mode.</li> <li>Chipped cutters on the gauge may have been sustained when drilling out the shoe track.</li> <li>Minimal stick slip experienced throughout the run that was overcome by increasing rotary speed to 180rpm.</li> </ul>						
<b>Photo of Bit and Any unusual BHA wear</b>						
 Before	 After	 Close-up view of the bit face showing significant wear and chipping of the cutters after use.	 Close-up view of the bit face showing significant wear and chipping of the cutters after use.			
 Close-up view of the bit face showing significant wear and chipping of the cutters after use.	 Close-up view of the bit face showing significant wear and chipping of the cutters after use.					

## 2.4.2

## BHA Listing

**Schlumberger**

Field Name			Ichthys Development Phase1			Borehole Name	BDC-1B-01			Hole Size (in)	12.250		
Structure Name			BDC-1B			BHA Name	BHA#04 12.25in BHA_Xceed-ARC-MWD-Sonic-SADN			Depth In (m)	2387.00		
Well Name			BDC-1B-01							Depth Out (m)	5080.00		
Desc.	Manu.	Serial Number	OD (in)	Max OD (in)	Bot Size (in)	Bot Type	Bot Gender	FN OD (in)	Length (m)	Cum. Length (m)	Cum. Weight (KLBS)		
					Top Size (in)	Top Type	Top Gender	FN Length (m)					
1 12-1/4" PDC Bit, MDSIZ713 (LHBPX)	Smith	JK6185	8.000	3.250	12.250	6.625 REG	Pin	0.00	0.29	0.29	0.2		
2 Xceed 900 12 1/8"	Schlumberger	CRSC-BA-234	9.125	6.750	12.125	6.625 REG	Box	9.063					
3 Xceed X/O	Schlumberger	143336-10	8.375	4.250	8.375	6.625 IF	Pin	8.375					
4 ARC-8 Lower X/O	Schlumberger	SBD12385	8.440	4.310	8.440	6.625 IF	Pin	8.440					
5 ARC-8 w/APWD	Schlumberger	3493	8.190	6.125	9.125	6.625 FH	Box	0.36	0.36	9.29	4.9		
6 12-1/8" NM ILS	Schlumberger	OM10662	8.250	4.250	12.250	6.625 FH	Pin	0.56	1.26	15.86	8.2		
7 Telescope 825 MWD w/MVC	Schlumberger	E8031	8.250	5.900	8.250	6.625 FH	Box	8.250					
8 TeleScope Upper Saver Sub	Schlumberger	SBD13380	8.438	4.250	8.438	6.625 FH	Pin	8.438					
9 12-1/8" NM ILS	Schlumberger	SBD13479	8.250	4.250	12.125	6.625 FH	Pin	0.42	1.09	25.04	12.1		
10 sonicVISION 825	Schlumberger	E1620-1	8.375	4.000	9.130	6.625 FH	Box	8.375					
11 SADN-8 Lower Saver Sub	Schlumberger	SBD11940	8.190	4.250	8.190	6.625 FH	Pin	8.190					
12 SADN-8	Schlumberger	50694	9.190	5.190	12.000	6.625 FH	Box	9.190					
13 SADN-8 Lower Saver Sub	Schlumberger	07792-8	8.250	3.250	8.190	6.625 REG	Pin	8.190					
14 8 1/4" NMDC	Schlumberger	SBD12076	8.250	2.750	8.250	6.625 REG	Box	8.250					
15 X/O (6 5/8 Reg - 5 7/8 XT57)	Rig	OM11561	8.250	3.000	8.250	5.875 XT57	Box	7.000	1.20	1.20	51.12	24.6	
16 5-7/8" Heavy Weight Drill Pipe (29 joints)	Rig		5.875	4.000	7.125	5.875 XT57	Pin	7.000					
17 7" Dailey Hydraulic Jar	Weatherford	1764-1506	7.000	2.750	7.000	5.875 XT57	Box	7.000					
18 5-7/8" Heavy Weight Drill Pipe (3 joints)	Rig		5.875	4.000	7.125	5.875 XT57	Pin	7.000					
19 Accelerator	Weatherford	1667-1001	7.000	2.750	7.000	5.875 XT57	Box	7.000					
20 5-7/8" Heavy Weight Drill Pipe (2 joints)	Rig		5.875	4.250	7.125	5.875 XT57	Pin	7.000					
21 5-7/8 " 23.40, Drill Pipe to surface	Rig		5.731	5.153	7.000	5.875 XT57	Box	7.000	0.50	18.60	386.90	91.1	
22 PowerPulse 825 MWD w/MVC													
23 12-1/8" NM ILS													
24 ARC-8 w/APWD													
25 ARC-8 Lower X/O													
26 Xceed X/O													
27 Xceed 900 12 1/8" Stabilizers w/ ported FV													
28 12-1/4" PDC Bit, MDSIZ713 (LHBPX)													

**BHA Comments**

"PowerDrive Xceed" type Rotary Steerable tool with ARC-MWD-Sonic-SADN set of LWD tools. High angle well, no Drill Collars used

**Sensor Offset from Bit (m)**

D-H	5.38
APWD	10.52
Resistivity	11.23
Gamma Ray	11.28
Multi-axis Vibration	18.59
D-H	19.59
Sonic	29.21
Ultrasonic Caliper	34.95
Density	35.11
Neutron	37.10

**Stabilizer Summary**

Blade Mid-Pt to Bit (m)	Blade OD (in)	Blade Length (m)
0.680	12.125	0.300
4.130	12.125	0.300
15.025	12.250	0.350
24.280	12.125	0.470
35.160	12.000	1.091
37.622	11.650	0.993

**Bend Summary**

Bend Angle (deg)	Bend to Bit (m)
0.500	0.784

**Total Length (m)** 386.90  
**Total Weight in Air (KLBS)** 91.1  
**Total Buoyant Weight (KLBS)** 74.7  
**Buoyant Weight Below Jar (KLBS)** 62.0  
**Weight in Air Below Jar (KLBS)** 75.5

**Mud Properties**

Mud Weight (g/cm3)	1.63
Mud Type	OBM
PV (cP)	50.00
YP (lbf/100ft2)	31.00

**BHA Nozzle Summary**

Bit Nozzle Count	ID (1/32 in)	Reamer Nozzle Count	ID (1/32 in)
10	13.000		
		TFA (in2)	
		PD Flow Restrictor (1/32 in)	0.000
		Rotor By Pass Nozzle	
TFA (in2)	1.296	(1/32 in)	

**Date** 23Aug2015  
**Designed By** DRensco5006  
**Approved By**

## 2.4.3 Drilling Parameters Report

**Schlumberger** BHA#04 12.25in BHA\_Xceed-ARC-MWD-Sonic-SADN\_No DCs\_1 Steering Sheet



Location	AUS - Australia PF	Casing Sh	2384.93	BHA Run	BHA#04 12.25in BHA_Xceed-ARC-MWD-Sonic-SADN_No DCs_1	Bit Run #	4
Client	INPEX	Casing Sz	13.38	Depth in (m)	2387.00	Depth out (m)	5098.00
Rig	ENSCO 5006	Casing WT	68.00	Incl in (deg)	27.50	Incl out (deg)	72.50
Field	Ichthys Development Phase1	Mud Type	SBM	Azimuth in (d)	82.00	Azimuth out (deg)	282.50
Well	WELL 1	End MW (g)	1.63	Date in	2015-08-23 06:45	Date out	2015-09-09 05:30
Borehole	BDC-1B-01	Hole Size	12.25	Client Rep 1	Paul Leathem	Lead DD	Mike Johnson
				Client Rep 2	Carl Green	2nd DD	Huy Pham Quoc

BIT INFORMATION				Bit Properties & Grading									
S/N	JK6195	AADC	N/A	In Row	Out Row	Dull Char	Location	Bearings	Gauge	Other	Reason Pulled		
TYPE	PDC	Jets (102)	10x13	IN		NEW							
Manuf/Model Name	Smiths MDSZ713.HBPX TFA (in2)		1.296	Out		0	1	BT	G	X	I	NO	TD

Date dd-mm-yy	Operation Mode	Start Time	End Time	MD From m	MD To m	Course m	Calc ROP m/h	TF Mode	Spud Inclined deg	Power Setting	TF Angle deg	Flow gal/min	PP On Bit psi	SRPM c/min	WOB KLBf	Off Bot Torque 1000 ft.lb	Torque KLBf	ECD g/cm3	Rotating HKLs KLBf	PU Weight KLBf	Back Off Weig KLBf	Svy MD m	Incl deg	Azimuth deg	TVD m	DLS deg/30m	Comment
24-Aug-15	High Definition	15:26	15:54	2387.00	2390.00	3.00	6.38				703	1100.0	60	10.0	3.0	7.0	1.41	290.00	290.00	285.00						Drill 3m new formation and circulate for FIT (EMW = 1.68sq)	
	High Definition	19:15	19:39	2390.00	2394.00	4.00	10.00				708	1630.0	60	18.0	4.0	6.0	1.41									DL Sonic to medium rate then rotate 20m tangent below shoe as Inpex requested.	
	High Definition	20:04	20:35	2394.00	2401.00	7.00	13.45	Gravity	0.0	-48	900	2010.0	60	22.0	4.0	9.0	1.41				2400.31	26.86	83.10	2369.31	0.50	Gradually increase flowrate. DL Xosed to -48° GTF	
	High Definition	20:35	21:20	2401.00	2407.00	15.00	19.00				708	1630.0	60	23.0	4.0	10.0	1.41									Start back to 2x118°. Toggle DL through TeleScope & DL Xosed to 30s (0.5)	
	High Definition	21:20	21:44	2407.00	2412.00	15.80	19.80				708	1630.0	60	23.0	4.0	11.0	1.41									Start back to 2x118°. Toggle DL through TeleScope & DL Xosed to 30s (0.5)	
	High Definition	21:43	23:43	2422.00	2440.00	18.00	26.87	Gravity	40.0	-36	998	2940.0	150	25.0	4.0	10.0	1.42				2427.67	26.43	84.12	2393.77	0.69	Last Sled off the shoe. Increased SRPM. PM3 problem cause had small, reliable survey.	
	High Definition	23:43	25:28	2440.00	2450.30	10.30	6.00				998	2950.0	150	25.0	4.0	10.0	1.42									Drop & right walk in rotate. Increase more SR. Back flush & calibrate FLAG system & conduct finger printing flow back at std down	
25-Aug-15	03:47	04:21	2450.30	2467.00	16.70	29.30	Gravity	60.0	-42	995	2920.0	150	22.0	4.0	9.0	1.43				2456.01	28.37	81.95	2418.93	2.31	ANGXRCS 118°. DL reduce 6° TF.		
	High Definition	04:21	04:45	2467.00	2478.50	11.50	27.75	Gravity	60.0	-48	995	2910.0	150	22.0	4.0	9.0	1.44									DL more left as not enough turn. TF speed control in neutral OK.	
	High Definition	05:04	06:08	2478.50	2508.00	29.50	27.57	Gravity	50.0	-48	995	2900.0	150	22.0	4.0	9.0	1.44				2485.33	29.86	80.88	2444.54	1.61	TSTA 32°. TF and neutral mode unstable	
	High Definition	06:36	07:28	2508.00	2537.00	29.00	33.33	Gravity	60.0	-54	995	2890.0	150	25.0	4.0	9.0	1.44				2500.00	31.69	79.59	2468.47	2.01	Inc SR and change TF 6 deg left	
	High Definition	07:45	08:28	2537.00	2560.00	23.00	31.94	Gravity	60.0	-72	995	2890.0	150	25.0	4.0	11.0	1.44				2514.34	31.89	79.79	2474.16	1.43	INC SR 32°. TF 6 deg left	
	High Definition	08:28	08:45	2560.00	2580.00	33.00	33.00	Gravity	60.0	-54	995	2890.0	150	25.0	4.0	11.0	1.44				2515.55	32.86	78.19	2486.16	2.02	Post DLS use very slow ACW rotation in neutral cycle	
	High Definition	09:12	09:55	2580.00	2608.00	22.00	30.56	Gravity	70.0	-60	995	2910.0	150	25.0	4.0	11.0	1.44				2572.74	33.02	76.06	2518.66	1.20	SR to 70%, reduce RPM	
	High Definition	09:55	10:11	2608.00	2620.00	21.00	30.56	Gravity	70.0	-59	995	2910.0	150	25.0	4.0	11.0	1.44									Turn slightly, adjust TF	
	High Definition	10:27	11:22	2620.00	2642.00	29.00	31.52	Gravity	70.0	-48	995	2920.0	150	25.0	5.0	11.0	1.44	296.00	304.00	296.00	2601.54	33.34	72.17	2542.83	2.63	DLS increasing, inc WOB to 25-30kft	
	High Definition	11:48	12:43	2642.00	2663.00	29.00	31.52	Gravity	70.0	-42	995	2920.0	150	25.0	5.0	9.0	1.44				2630.31	35.59	70.35	2566.21	1.67	INC TF 6 deg	
	High Definition	12:43	13:45	2663.00	2690.00	16.00	25.81	Gravity	70.0	-42	995	2920.0	150	25.0	5.0	11.0	1.44				2658.92	37.80	68.48	2586.16	2.62	25/28deg WOB	
	High Definition	13:45	14:07	2690.00	2681.00	12.00	24.43	Gravity	70.0	-42	994	2423.0	150	25.0	5.0	11.0	1.44									Reduced flow as per Co-man.	
	High Definition	14:53	15:36	2681.00	2710.00	29.00	36.25	Gravity	70.0	-48	994	2650.0	150	28.0	5.0	11.0	1.44	302.00	314.00	299.00	2867.11	38.86	65.67	2611.12	2.54	Inc WOB to 30-32deg, slight ROP increase	
	High Definition	15:55	16:46	2710.00	2738.00	28.00	32.94	Gravity	70.0	-48	994	2900.0	150	30.0	5.0	13.0	1.44				3127.77	41.75	64.10	2634.32	2.43		
	High Definition	17:14	18:18	2738.00	2787.00	29.00	32.22	Gravity	60.0	-42	995	2856.0	150	30.0	5.0	12.0	1.43	303.00	322.00	302.00	2144.67	43.80	62.13	2854.10	2.54		
	High Definition	18:45	19:44	2787.00	2796.00	29.00	29.55	Gravity	55.0	-42	995	2950.0	150	28.0	5.0	11.0	1.43				2732.27	45.03	60.83	2874.57	1.78	Atempt w/ 55% steering ratio (adult 50%), not enough DLS.	
	High Definition	20:00	20:52	2796.00	2825.00	29.00	34.94	Gravity	60.0	-42	995	2940.0	150	28.0	5.0	11.0	1.44	304.00	326.00	304.00	2802.45	45.91	60.39	2896.03	0.96	Increased back to 60% steering ratio.	
	High Definition	21:11	22:00	2825.00	2854.00	29.00	35.37	Gravity	60.0	-42	993	2980.0	150	28.0	5.0	11.0	1.44				2839.95	47.91	58.79	2714.50	2.44	Circulate via FLAG system again.	
	High Definition	22:52	23:49	2854.00	2882.00	28.00	29.47	Gravity	60.0	-48	900	2650.0	150	28.0	5.0	11.0	1.44				2889.54	49.45	58.53	2733.37	1.63	Reduced flow as per Co-man.	
	High Definition	00:26	01:17	2882.00	2911.00	29.00	34.12	Gravity	60.0	-48	993	3020.0	150	28.0	5.0	11.0	1.44	305.00	326.00	295.00	2987.91	50.56	57.10	2751.61	1.65	Flush choke & kill lines.	
	High Definition	01:36	02:24	2911.00	2940.00	29.00	36.35	Gravity	70.0	-48	993	3045.0	150	28.0	5.0	12.0	1.44				2919.47	52.17	54.78	2771.31	2.32	Increase 10% steering ratio then back to 60% at stand down.	
	High Definition	02:47	03:39	2940.00	2967.00	27.00	31.03	Gravity	60.0	-48	994	3050.0	150	30.0	5.0	12.0	1.43				2946.95	54.05	53.15	2787.21	2.58	Retake survey as bad signal. Intermittent RTSTAT 02 (unstable TF control in neutral).	
	High Definition	03:44	05:00	2967.00	2997.00	30.00	32.26	Gravity	60.0	-54	996	3065.0	150	30.0	5.0	11.0	1.43	308.00	338.00	280.00	2974.30	55.45	51.85	2803.57	1.86	Minimal StickSlip & no shock. Overpull - 30k, backream full stand.	
	High Definition	05:44	06:42	2997.00	3026.00	29.00	29.95	Gravity	60.0	-48	996	3060.0	150	23.0	5.0	12.0	1.43				3002.71	56.22	52.22	2819.44	1.89	Max 30 kft WOB to keep jars in tension.	
	High Definition	07:19	07:47	3026.00	3038.00	12.00	25.53	Gravity	60.0	-48	997	3081.0	150	25.0	5.0	13.0	1.44				3031.86	57.48	49.66	2835.30	1.01	DL TF -36 deg	
	High Definition	07:47	08:30	3038.00	3052.00	29.00	16.20	Gravity	60.0	-36	998	3110.0	150	23.0	5.0	13.0	1.44	309.00	325.00	280.00	3081.02	58.16	62.23	2850.81	1.80	Turn slightly right, change TF	
	High Definition	08:37	09:21	3052.00	3082.00	29.00	23.00	Gravity	60.0	-36	998	3100.0	150	23.0	5.0	13.0	1.44				3090.12	60.72	50.74	2865.19	1.67	Some StickSlip, reduce WOB	
	High Definition	10:10	11:10	3082.00	3102.00	19.00	23.75	Gravity	60.0	-48	993	3090.0	150	17.0	5.0	12.0	1.44									Not turning left inc SR	
	High Definition	11:10	11:47	3102.00	3122.00	10.00</td																					

# Schlumberger D&M EoWR – INPEX Ichthys Pty Ltd – BDC-1B-01

Date	Operation Mode	Start Time	End Time	MD From m	MD To m	Course deg	Calc ROP m/h	TF Mode	True Inclination deg	Power Setting	TF Angle deg	Flow gal/min	PP On Bed c/min	SRPM KLF	WOB 1000 ft.lbf	Bf Bot Torque 1000 ft.lbf	Torque 1000 ft.lbf	ECD	Rotating HKL KLF	PW Weight KLF	Jack Off Weight KLF	Svy MD m	Incl deg	Azimuth deg	TVD m	DLS deg/30m	Comment
28-Aug-15	High Definition	01:04	02:43	3690.00	3689.00	29.00	17.58	Gravty	50.0	-102	998	3495.0	150	20.0	8.0	17.0	8.0	150	330.00	367.00	302.00	3691.92	48.58	11.83	3201.40	3.36	IDS lost power. Attempt drilling in Low-Gear. Reduced SR 10%.
	High Definition	03:24	03:55	3689.00	3696.30	7.30	14.04	Gravty	40.0	-102	994	3515.0	150	30.0	8.0	18.0	150	330.00	367.00	302.00	3691.92	48.58	11.83	3201.40	3.36	IDS lost power. Attempt drilling in Low-Gear. Reduced SR 10%.	
	High Definition	04:03	05:01	3696.30	3717.00	20.70	21.34	Gravty	40.0	-84	994	3520.0	150	22.0	8.0	16.0	150	330.00	367.00	302.00	3721.76	47.85	12.00	3219.95	0.80	Hold & slightly right turn. Increase to 50% SR again. Inconsistency DLS produced.	
	High Definition	06:30	06:52	3717.00	3738.00	21.00	20.39	Gravty	50.0	-84	994	3600.0	150	20.0	8.0	16.0	150	336.00	375.00	312.00				DL to 20%. SR and change TF direction to SW on connection			
	High Definition	07:28	08:24	3738.00	3745.00	7.00	18.92	Gravty	20.0	-84	994	3570.0	150	20.0	8.0	16.0	150	336.00	375.00	312.00	3750.25	47.55	10.45	3239.13	1.25	Slow CW TF rotation in neutral, inc SR	
	High Definition	08:24	09:04	3737.00	3773.00	16.00	26.67	Gravty	40.0	-84	994	3600.0	150	20.0	8.0	16.0	150	336.00	375.00	312.00				Change TF			
	High Definition	09:38	10:15	3773.00	3787.00	14.00	18.67	Gravty	40.0	-72	981	3520.0	150	20.0	8.0	16.0	150	330.00	375.00	312.00	3781.64	47.12	7.48	3259.73	2.25	Slight drop, inc TF 6 degs. Erratic torque and SS, inc RPM. Top Caswell 3784.1m	
	High Definition	10:15	11:09	3787.00	3797.00	10.00	13.24	Gravty	40.0	-72	981	3520.0	150	20.0	8.0	16.0	150	330.00	375.00	312.00				Holding instruction, inc SR 6deg			
	High Definition	11:00	11:12	3797.00	3802.00	5.00	25.00	Gravty	40.0	-84	995	3650.0	150	25.0	8.0	15.0	150	340.00	385.00	310.00				Drilling, Change to -48 deg TF			
	High Definition	11:43	12:19	3802.00	3812.00	10.00	16.57	Gravty	40.0	-48	995	3600.0	180	32.0	8.0	16.0	148	345.00	388.00	316.00	3811.55	47.07	5.17	3280.77	1.64	Call dropping, Change SR to 60%	
	High Definition	12:19	13:00	3812.00	3825.00	13.00	19.12	Gravty	60.0	-48	995	3650.0	180	30.0	8.0	15.0	150	340.00	385.00	316.00				Holding instruction, inc SR again			
	High Definition	13:00	13:40	3825.00	3834.00	9.00	13.43	Gravty	70.0	-48	995	3650.0	180	28.0	8.0	17.0	150	340.00	385.00	316.00				Building quickly, change TF			
	High Definition	14:10	15:53	3834.00	3864.00	30.00	17.44	Gravty	50.0	-72	988	3680.0	180	28.0	8.0	17.0	150	340.00	385.00	316.00	3862.51	48.38	0.07	3314.88	2.65	Holding instruction, drill if break	
	High Definition	16:22	17:10	3864.00	3897.00	23.00	28.75	Gravty	50.0	-72	988	3680.0	180	28.0	8.0	17.0	150	340.00	385.00	316.00							
	HIT	17:16	17:22	3897.00	3929.00	6.00	25.00	Gravty	48.70	-	998	3200.0	180	28.0	8.0	17.0	150	340.00	385.00	316.00	3921.44	49.10	358.82	3324.14	1.02	b1-HIA	
	HIT	17:57	19:04	3929.00	3921.00	29.00	25.89	Gravty	48.70	-30.0	998	3260.0	180	28.0	8.0	17.0	150	342.00	388.00	316.00	3918.77	45.40	357.98	3352.34	0.77	Switched to HIT at 30% left, target H @ 48.7. Bottom Caswell @ 3915mMD.	
	HIT	19:30	20:22	3921.00	3947.00	26.00	29.89	Gravty	48.70	-40.0	998	3650.0	180	28.0	8.0	17.0	150	345.00	390.00	320.00				Increase 10% more left turn. Overall > 45%, backream twice more prior connection.			
	HIT	21:15	22:22	3947.00	3975.00	28.00	25.00	Gravty	48.70	-50.0	998	3650.0	180	28.0	8.0	17.0	150	345.00	394.00	318.00	3947.40	48.69	355.55	3371.30	1.16	Concluded SCRs at Kelly down. DL to max 50% left correction.	
	HIT	23:00	00:01	3975.00	4004.00	29.00	29.59	Gravty	48.70	-50.0	998	3680.0	180	28.0	8.0	17.0	150	345.00	410.00	318.00	3977.09	48.69	354.82	3309.90	1.31	Not enough turn, disengage HIT and back to manual mode.	
29-Aug-15	High Definition	00:30	01:37	4004.00	4034.00	30.00	26.79	Gravty	50.0	-84	998	3680.0	180	25.0	8.0	17.0	151	345.00	410.00	318.00	4007.05	48.66	351.69	3416.68	2.35	Drilling in manual mode with 16m DCT (CW rotation).	
	High Definition	02:05	02:50	4027.00	4052.00	25.00	33.33	Gravty	50.0	-84	994	3694.0	180	25.0	8.0	17.0	150	345.00	415.00	315.00	4038.39	48.99	346.01	3430.00	2.09	Good turn rate & safely build. FT STRMAG 100%.	
	HIT	02:58	03:12	4052.00	4053.00	11.00	29.00	Gravty	50.0	-90	994	3694.0	180	20.0	8.0	17.0	150	348.00	415.00	315.00				Attempt HIT again, engaged H@ 49.3 with 50% left correction.			
	HIT	03:49	04:24	4053.00	4082.00	28.00	30.53	Gravty	49.80	-50.0	998	3650.0	180	28.0	8.0	18.0	150	348.00	415.00	315.00	4084.94	49.19	346.22	3448.71	2.25	Slightly build instruction.	
	HIT	05:04	06:06	4082.00	4120.00	28.00	27.18	Gravty	49.80	-50.0	998	3700.0	180	28.0	8.0	18.0	150	348.00	415.00	315.00	4089.29	49.31	343.57	3466.96	2.15	Smooth drilling, no issues	
	HIT	06:38	07:45	4120.00	4148.00	28.00	25.00	Gravty	48.80	-50.0	994	3830.0	180	28.0	10.0	19.0	150	356.00	420.00	318.00	4120.54	49.19	340.48	3485.01	2.54	Decide not inc by 0.5 degrees	
	HIT	08:11	09:18	4148.00	4177.00	29.00	25.89	Gravty	48.80	-40.0	993	3830.0	180	28.0	11.0	19.0	150	356.00	420.00	318.00	4144.69	48.68	337.38	3503.50	2.55	Reduce SR to 40%	
	HIT	09:38	10:18	4177.00	4194.00	17.00	25.37	Gravty	48.80	-40.0	993	3850.0	175	28.0	11.0	19.0	150	356.00	420.00	318.00	4177.53	48.70	334.33	3522.55	2.38		
	HIT	10:18	10:40	4194.00	4204.00	10.00	27.03	Gravty	49.30	-40.0	995	3880.0	175	28.0	11.0	19.0	150	356.00	420.00	318.00				Inc Des Inc 0.5 degs			
	HIT	11:04	11:32	4204.00	4217.00	13.00	27.66	Gravty	49.30	-40.0	995	3870.0	165	35.0	11.0	21.0	150	360.00	430.00	319.00	4206.98	49.03	332.08	3541.92	1.76	Inc WOB to 32-35kft, slight ROP increase	
	HIT	11:32	12:12	4217.00	4235.00	18.00	26.87	Gravty	49.30	-40.0	995	3955.0	165	35.0	11.0	21.0	150	360.00	430.00	319.00				Slightly ahead on LH turn, reduce HIT to 30%			
	HIT	12:48	13:50	4235.00	4265.00	30.00	29.13	Gravty	49.80	-40.0	998	3860.0	165	32.0	11.0	21.0	150	360.00	437.67	49.29	330.12	3561.99	1.41	Right turn, LS & SR			
	HIT	14:20	15:24	4265.00	4295.00	30.00	26.09	Gravty	49.80	-30.0	998	3830.0	165	30.0	11.0	21.0	150	360.00	437.67	49.29	330.12	4270.96	49.63	327.32	3586.33	1.94	Decrease LH turn
	HIT	15:55	17:13	4295.00	4323.00	28.00	21.54	Gravty	50.80	-10.0	995	3870.0	165	30.0	11.0	21.0	149	360.00	443.00	320.00	4294.54	49.55	325.71	3599.76	1.49	2 degs ahead on azimuth, decrease LHT	
	HIT	17:40	19:07	4323.00	4352.00	29.00	20.00	Gravty	50.80	-30.0	998	3890.0	160	28.0	12.0	20.0	150	362.00	447.00	324.00	4324.00	49.68	322.63	3692.42	1.82	FLAG Flow line problem cause skimmer tank overflow.	
	HIT	20:25	21:32	4352.00	4378.00	26.00	23.21	Gravty	51.80	-30.0	998	3900.0	160	28.0	12.0	20.0	150	362.00	447.00	324.00	4324.00	49.74	322.63	3692.42	1.82	FLAG Flow line problem cause skimmer tank overflow.	
	HIT	21:48	22:38	4378.00	4404.00	26.00	23.21	Gravty	52.80	-40.0	998	3940.0	160	28.0	12.0	21.0	150	362.00	447.00	324.00	4409.18	51.74	321.09	3691.07	1.23	Switch to manual steer mode.	
	HIT	23:48	01:06	4404.00	4436.00	28.00	23.31	Gravty	52.80	-40.0	998	3940.0	160	28.0	12.0	21.0	150	365.00	450.00	324.00	4409.18	51.74	321.09	3691.07	1.23	Mixed downlink 1x, Nutup 1° more actively down.	
	HIT	01:41	02:57	4436.00	4466.00	30.00	23.62	Gravty	52.80	-40.0	998	4030.0	160	28.0	12.0	21.0	150	365.00	450.00	324.00	4439.35	52.58	312.94	3686.60	1.67	Mixed downlink 1x, Nutup 1° more actively down.	
	HIT	03:21	04:43	4466.00	4496.00	30.00	25.00	Gravty	53.80	-40.0	997	4040.0	160	28.0	13.0	21.0	150	365.00	450.00	324.00	4477.20	53.41	316.37	3709.68	2.19	Switch to 1° target H.	
	HIT	05:01	05:48	4496.00	4516.00	8.00	25.64	Gravty	54.80	-40.0	994	4060.0	160	28.0	13.0	22.0	150	365.00	465.00	326.00	4523.95	54.72	313.32	3739.81	1.81	DL to max 50% left correction.	
	HIT	06:																									

# Schlumberger D&M EoWR – INPEX Ichthys Pty Ltd – BDC-1B-01

4-Sep-15	High Definition	0125	02:01	4973.00	4980.50	7.50	12.50	Gravity	40.0	-72	680	2420.0	180	20.0	17.0	22.0	1.60	378.00	495.00	310.00		Reduced 10% SR. Take survey before connection @ tool joint.							
	High Definition	02:30	03:26	4980.50	4991.00	10.50	11.29	Gravity	40.0	-72	680	2420.0	180	20.0	17.0	23.0	1.60			4989.50	69.31	284.44	3954.62	2.01 TDS stalled & strip power. Inclination stop building.					
	HIT	03:33	05:33	4991.00	5006.80	15.80	7.90	Gravity	70.20	30.0	-90	680	2410.0	180	20.0	17.0	23.0	1.60							Engaged HIT 30% left then nudge up 1° target 1H @ 70.2°. String stalled 1x.				
	HIT	05:33	06:42	5006.80	5013.00	6.20	5.39	Gravity	70.70	30.0	-90	680	2490.0	180	20.0	17.0	23.0	1.60	378.00	490.00	310.00		MWD poor signal. Xeed steering up 70-80% but struggle to build, nudge up 0.5° more.						
	HIT	07:15	08:45	5013.00	5025.00	12.00	8.00	Gravity	71.70	30.0	-90	678	2490.0	180	20.0	17.0	23.0	1.60			5020.63	70.99	283.92	3965.17	1.69 Bad continuous data from Telescope and Xeed. Take survey on cessation to reset				
	HIT	08:45	10:05	5025.00	5035.00	10.00	7.52	Gravity	72.20	30.0	-90	678	2490.0	180	20.0	17.0	23.0	1.59							Max WOB = 20k to maintain jar in tension				
	HIT	10:05	10:53	5035.00	5040.00	5.00	6.25	Gravity	72.20	30.0	-90	678	2490.0	180	20.0	17.0	23.0	1.60	378.00	498.00	316.00		DL 80% SR lmt						
	HIT	11:24	12:20	5040.00	5050.00	10.00	10.75	Gravity	72.20	30.0	-90	690	2430.0	180	20.0	17.0	24.0	1.60											
	HIT	12:20	14:18	5050.00	5068.00	18.00	9.14	Gravity	72.20	50.0	-90	690	2490.0	180	20.0	17.0	24.0	1.60			5057.05	72.26	283.12	3976.65	1.22 Inc to 50% LH turn				
	HIT	14:58	16:35	5068.00	5080.00	12.00	7.41	Gravity	72.20	50.0	-90	686	2440.0	180	20.0	17.0	24.0	1.60			5080.00	72.50	282.50	3983.60	0.83 TD, DL Xeed to neutral				
Min									5.39			0.0		-114	674	1100.0	60	10.0	3.0	6.0	1.41	290.00	290.00	280.00	26.43	0.07	0.50		
Average												23.61			48.9	-75	947	3293.7	159	24.4	9.3	16.4	1.48	340.02	398.12	308.66	52.20	165.06	1.81
Max												66.67			90.0	0	998	4230.0	180	35.0	17.0	24.0	1.61	378.00	498.00	330.00	72.50	358.83	3.96

## DIRECTIONAL DRILLING PERFORMANCE SUMMARY

Drill Mode	Footage	Hrs	ROP	% Drill	Circulation	Connection	Reraming	Tripping	Other	NPT	SLB NPT
High Definition	1028.00	27.64	39.5	75%	Hours	0	0	0	0	0	0
HIT	732.00	36.89	19.8	21%							
Drilling	2700.00	124.53	21.7	100%							

## Comments

Mud Loggers Drill Hours 126.8 Mud Loggers Circulation Hours 276.02

## 2.4.4

## End of Run Summary

<b>Schlumberger</b>		<b>Bit Run Summary Report</b> 05-Oct-2015 10:47							
<b>Job Number:</b> 15AWA0104		<b>Company</b> INPEX BROWSE, LTD		<b>Rig Name:</b> Enso 5006					
<b>Company Rep:</b> P.Jones/G.Watkins									
<b>Location</b> ASA-APG-AWA									
<b>Run Number:</b> 4									
<b>Run Information</b>									
		<u>In</u>	<u>Out</u>						
Date:	23-Aug-2015 06:00	09-Sep-2015 05:30	Drilling Distance:	2693 m	Drilling Hours: 126.8 hrs				
Depth (MD):	2387 m	5080 m	Rotary Distance:	2693 m	Rotary Hours: 126.8 hrs				
Depth (TVD):	2357.36 m	3983.6 m	Sliding Distance:	0 m	Sliding Hours: 0 hrs				
Inclination:	27.5 deg	72.5 deg	Reaming Distance:	20 m	Reaming Hours: 0.28 hrs				
Azimuth:	82 deg	282.5 deg	Drilling Cement Distance:	0 m	Hrs Below Rotary: 407.5 hrs				
Max Inclination:	72.5 deg		Drilling Cement Hours:	0 hrs	Total Pumping Hrs: 276.02 hrs				
Bore Hole:	0				Min DLS: 0.5 deg/30m				
Bore Hole Name:	Primary		North Ref Used:	Grid North	Max DLS: 3.95 deg/30m				
Hole Size:	12.25 in		Magnetic Dec:	1.941 deg					
Last Casing Size:	13.625 in		Grid Correction:	-0.077 deg	Surface Screen: No				
Last Hole Depth:	2387 m (MD)		Total Correction:	2.018 deg	DFS Used: No				
Tool Face Arc:	0 cm		Est. Mag. Int:	0.1 deg	Inline Filter: No				
Tool Face Angle:	0 deg				Ditch Magnet: No				
<b>Rig Information</b>									
Rig Type: Semi-Submersible									
Water Depth:	237.2 m								
Air Gap:	24 m								
RKB Height:	24 m								
Ground Elevation:	-237.2 m								
<b>Run Objective</b>									
Drill 12.25in section to TD while executing turn and build. arcVISION GR RES combined with ROP to pick casing. SADN8 Density/Porosity used to for additional formation evaluation.									
<b>RSS Information</b>									
RSS Manufacturer:	SLB		Bit Period:		18 sec				
RSS Type:	Rotary Steerable		% Drop Flow:						
Ctrl Collar Size:	in		Bit to Ref Point:		3.86				
Software Version:	CPU39b00		Low Conn Fat. Cumu.:						
Ctrl Collar Stab:			Fat. Life Before Run:						
Stabilizer Size:			Mid Point to Bit:						
Fast Downlink:			Receiver Stabilized:						
iLink S/N:			Receiver Stabilizer						
Flow Restrictor Used:			Bias Unit Type:						
RT Comm Method:			Strike Ring Size:						
<b>MWD Configuration</b>									
SPT Type: HC	Int Tool Face		Bit Rate: 6	bps	Slimpulse Pulser Config:				
Phy Telemetry: 6.000 bps	Eff Telemetry: 6.000 bps		Frequency: 10.5	Hz	Pred Sig Strength @ TD: 10.00 psi				
Mod Type: QPSK	Turbine Config: 600 - 1200 galUS/min GPM		Mod Gap: 0.19	IN					
<b>Drilling Summary</b>									
	<b>Min</b>	<b>Max</b>	<b>Avg</b>						
BH Temperature:	54 degC	121 degC	98.67 degC	Total DH Shocks (k): 0	k				
Surface RPM:	60 rpm	181 rpm	156.78 rpm	Max Shock 0					
Daily ROP:	2.42 m/h	18.17 m	11.22 m	Max Shock Duration: 0	s				
Flow Rate:	680 galUS/min	998 galUS/min	903.44 galUS/min	Torsional Vibration: 0	kft.lbf				
WOB Sliding:	klbm	klbm	klbm	Axial Vibration: 0.12	g RMS				
				Lateral Vibration: 1	g RMS				
	Avg SPP Off: 3150 psi	Avg SPP On Bottom: 3150 psi		Checkshot Type: None					
Turbine RPM @ Min Flow Rate: 1850 rpm		Average Diff: 0 psi	Checkshot Depth:						
Turbine RPM @ Max Flow Rate: 2850 rpm		H2S In Well:	Checkshot Inclination:						
			Checkshot Azimuth:						
			Stick & Slip Ratio: 0.73						
			Tool Operated out of spec: Yes						
			Client Notified: Yes						
<b>Parameters</b> Jarring, Drilling Fluid Solids Content									

<b>Mud Summary</b>									
Mud Type:	Synthetic Oil Base	Mud Clean:	Yes			pH:			
Mud Company:	M-I SWACO (SLB)	LCM Type:			Chlorides:	25000	mg/L		
Mud Brand:	Novatec	LCM Size:			Sand Content:	0	%		
Funnel Viscosity:	88 s/qt	LCM		Ibm/bbl	Solids:	27.5	%		
Plastic Viscosity:	52 cP	Weighting	Barite		Percent Oil:	60	%		
Yield Point:	28 lbf/100ft <sup>2</sup>	Mud Weight:	1.63 g/cc		Oxygen:		%		
Rm:	ohm.m	Mud Cake Resistivity:	ohm.m		Rmf:		ohm.m		
Rm @:	degC	Mud Cake Resistivity	degC		Rmf @:		degC		
Sample Temp.:	42 degC	Magnetic Debris:			LG Solids Content:	1.7	%		
Rheology Vis300:	80.00 rpm	Rheology Vis600:	132.00 rpm						
<b>IADC Bit Grading</b>									
Manufacturer	Smith-SLB	Total Revs:	1240	krevs	IADC Code:				
Model:	MDSIZ713	Stick & Slip:	10		Number Jets :	10;			
Type:	PDC	Reason Pulled:	Section Total Depth		Jet Size/32 in :	13 in;			
Inner Row	Outer	Dull Char	Location	Bearings/Seals	Bit TFA:	1.296	in2		
0 - No	1	Broken Teeth/Cutters	Gauge	No Bearing	Gauge	In Gauge	Other Chars		
<b>End of Run - Summary</b>									
Sync Hours:	hrs	Downhole Noise:			SLB Trip:				
Jamming:	hrs	Surface System Failure:			Low Oil Flag:	No	0 hrs		
Surface Vibration:		Surface Noise:			Filter Screen/Plug Shear:	No			
<b>Run Client Primary Key Objectives</b>									
Client Objective	<b>Achieved</b>								
Drill to casing point	TRUE								
Drill out cement and casing shoe	TRUE								
Wellbore avoidance / Anti-collision	TRUE								
No components LIH (Lost in Hole)	TRUE								
Real Time data for Decisions	TRUE								
Recorded Mode for Formation Evaluation	TRUE								
Operations without any HSE incident	TRUE								
Avoid Twist Off events	TRUE								
<b>Run Objective:</b>	Drill to TD while executing turn and build.								
<b>Run Client Primary Key Objectives met? :</b>	TRUE								
<b>If not, Why? :</b>									
<b>Reason for POOH :</b>	Section Total Depth								
<b>Sub Reason for POOH :</b>									
<b>Run Summary :</b>	Overall good run with primary client objectives achieved. MU BH and RIH to the casing shoe – at which point rig performed slip and cut of drill line and calibration of top drive. SonicVISION was downlinked to default configuration 31 (sleep mode) after SHT to save memory and reduce battery consumption, tool was then downlinked back into main drilling configuration after LOT. From 3427mMD Real Time and Recorded Mode data is not present due to tool issue. Density – Ultrasonic data then returned at 3553mMD however Porosity did not recover – from this point counts on the helium tubes all showed zero in recorded mode.								
	Density readings were confirmed with WSG to be as expected. Status words HeHV out of range and SS/LS loops unstable on occasions – in future suggest to include ADNSTAT in repeating frame for earlier identification of voltage issues. Brief stuck pipe incident encountered at 3486.6mMD where jar was fired 6 times. At ~4888mMD a kick was detected and well shut in – rig remained on well control for the following three days while weighting up mud to 1.57sg. Maximum temperature seen on tools was 148degC seen on arcVISION, tool stayed at temps greater than 140degC for ~3hrs and 10 minutes. Temperature rapidly dropped when low circulation was commenced. WSG informed that RT density correction is not accurate due to change in Mud Weight.								
	Resumed drilling at reduced from rate (700gpm) – signal lost while downlinking to Xceed. From 4980mMD CRPM surveys were taken to limit high connection gas – as a result MWD was downlinked to turn off delayed surveys. Due to loss of sync when downlinking and low ROP TeleScope was downlinked to 3bps which showed improved signal strength. Due to sonicVISION memory full status at TD client decided not to downlink to sonicVISION POOH configuration. While circulating bottoms up mud was weighted to 1.62sg. During POOH at casing shoe rig observed unexplained discrepancies in fluid volumes, decision was made to RIH to bottom and circulate bottom up while weighting up 1.63sg. INPEX staging procedure was sent to SDSV, NDSV and WSG however due to well control decision was made not to stage. During After Action Review client asked why TeleScope was not set up for 600-1200gpm flow rate as per SID.								

Schlumberger D&M EoWR – INPEX Ichthys Pty Ltd – BDC-1B-01

LWD Data						
Tool			SW Version	RecRate	Tot Mem	Avail Mem
ARC 825			9.7b14	5	456.60	438.60
SonicVISION 825			7.1	10	264.50	246.50
SADN 825			8.7b11	10	274.40	256.40
Pump Data						
Type	Pulse Damp Press	Number of Pumps	Pump Line ID	Pump Output	Stroke Len	
Triplex		3	6.50 in	2.01 galUS	14.00 in	
Crew on the Run						
Cell Manager :						
Name	Function	Name	Function			
Smith, Andrew Jonathan	MLWD	Johnson, Michael	DD			
Blacker, Matthew	DD	Pham Quoc, Huy	DD			
Redko, Anton	DD - Pre-School Trainee	Del Carpio Flores, Daniel Serafin	MLWD - Cell Manager			
Wisbey, Emily	MLWD	Duan, Jiehong	MLWD			
Services on the Run						
			Real Time		Recorded Mode	
Equipment	Service	Tool Name	Hours	Failed	Depth	Hours
ARC8D-BB - 3493	Resistivity	ARC 825	### h	No	2,693.00 m	407.50 h
ARC8D-BB - 3493	Gamma Ray	ARC 825	### h	No	2,693.00 m	407.50 h
ARC8D-BB - 3493	APWD	ARC 825	### h	No	2,693.00 m	407.50 h
ARC8D-BB - 3493	ATMP	ARC 825	### h	No	2,693.00 m	276.02 h
NDDC-CA - 50694	Density	SADN 825	### h	Yes	1,069.00 m	407.50 h
NDDC-CA - 50694	Neutron	SADN 825	### h	Yes	1,201.00 m	111.40 h
NDDC-CA - 50694	Caliper	SADN 825	### h	Yes	1,069.00 m	407.50 h
SD8D-CA - E1620/1	Compressional DT	SonicVISION 825	### h	No	2,693.00 m	407.50 h
MDCIX-GA - E8031	TeleScope D&I	MDC 825	### h	No	2,693.00 m	276.02 h
MDCIX-GA - E8031	TeleScope Cont D&I	MDC 825	### h	No	2,693.00 m	h
MDCIX-GA - E8031	TeleScope Shock and Vibration	MDC 825	### h	No	2,693.00 m	276.02 h
MDCIX-GA - E8031	TeleScope Collar RPM	MDC 825	### h	No	2,693.00 m	276.02 h
MDCIX-GA - E8031	Quick Survey (TeleScope Survey CRPM Cessation)	MDC 825	### h	No	2,693.00 m	h
CRSCA-BA - 234	PowerDrive Xceed	Xceed 900	### h	No	2,693.00 m	h
Equipment on the Run						
			Pump Hours			
Tool Name	Equipment		Start	Cumm Hrs on Run	Software Version	
PDC	- JK6185		0 h	276.02 h		
Xceed 900	CRSCA-BA - 234		0 h	276.02 h	CPU39b00	
ARC 825	ARC8D-BB - 3493		0 h	276.02 h	9.7b14	
MDC 825	MDCIX-GA - E8031		0 h	276.02 h	14.0	
SonicVISION 825	SD8D-CA - E1620/1		0 h	276.02 h	7.1	
SADN 825	NDDC-CA - 50694		0 h	276.02 h	8.7b11	
Non-Mag Drill Collar	NMDC8 - SBD12076		0 h	276.02 h		
ARC6/8-ADN6/8-Sonic6/8 Batt	T6017257 - Q07691		0 h	276.02 h		
ARC6/8-ADN6/8-Sonic6/8 Batt	T6017257 - Q07692		0 h	276.02 h		
ARC6/8-ADN6/8-Sonic6/8 Batt	T6017257 - Q08876		0 h	276.02 h		
ARC6/8-ADN6/8-Sonic6/8 Batt	T6017257 - Q08874		0 h	276.02 h		
ARC6/8-ADN6/8-Sonic6/8 Batt	T6017257 - Q09349		0 h	276.02 h		
ARC6/8-ADN6/8-Sonic6/8 Batt	T6017257 - Q09348		0 h	276.02 h		

## 2.5 BHA 05 – 8.5 in. Section

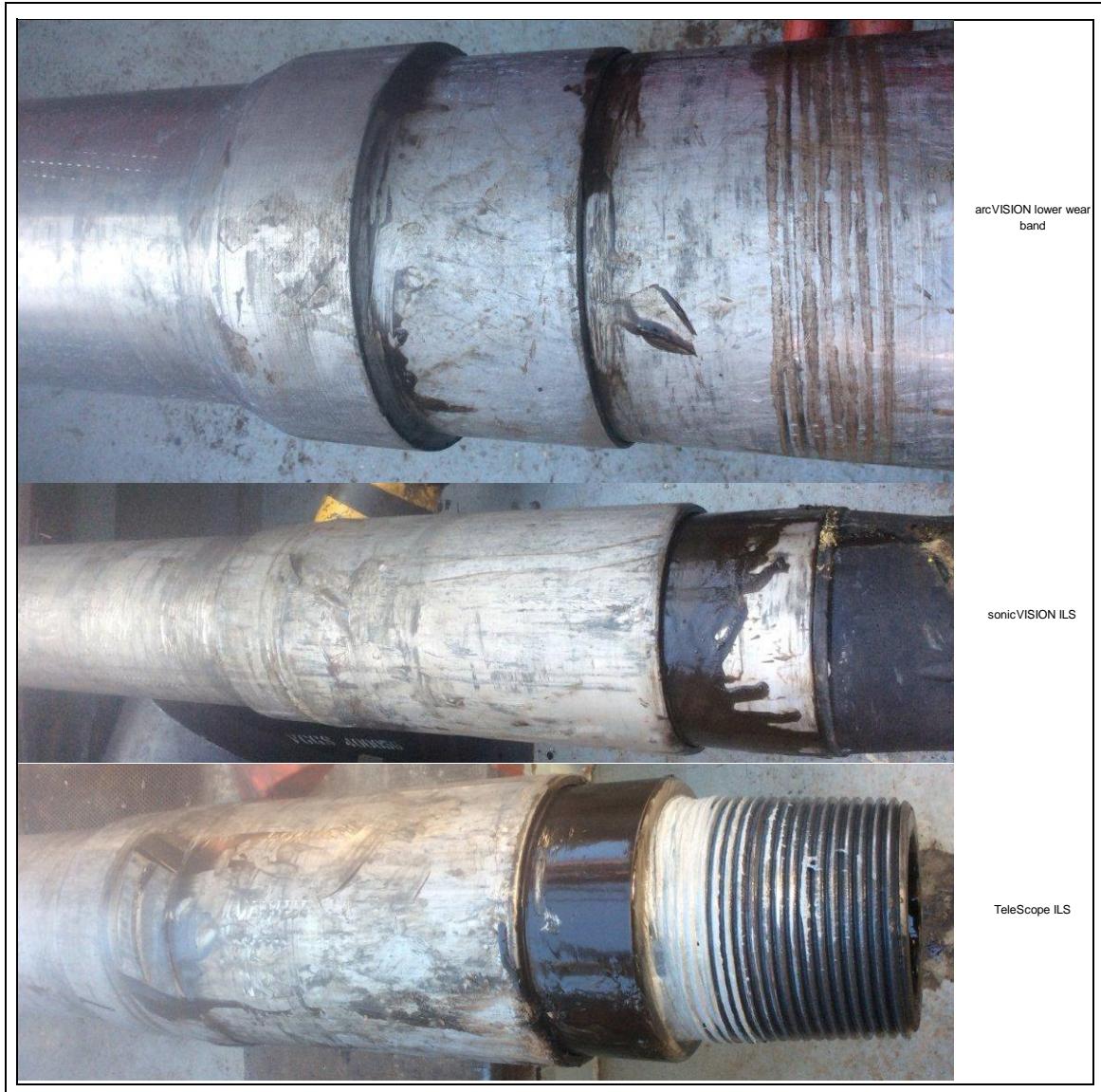
5080 mMD – 5414 mMD =334 mMD

### 2.5.1 BHA Performance Report

Schlumberger		BHA PERFORMANCE REPORT							INPEX Ichthys Project		
Client	Inpex	Field	Ichthys Development Phase1			Structure	BDC-1B				
Well	BDC-1B-01			Bit Type	PDC						
BHA Run	BHA#05 8.5in Xceed-ARC-MWD-S			Job Number	15AWA0104			BHA Type	Rotary Steerable System (RSS)		
Lead DD Matt Blacker			BHA In BHA Out	Date	MD (m)	Incl (deg)	Azm (deg)	TVD (m)			
2nd DD Huy Pham Quoc				2015-09-20 15:30	5080	72.50	282.50	3983.6			
Client Representative Peter Jones / Carl Green				2015-09-26 01:30	5414	86.00	269.00	4055.32			
Run Details			Bit Details			Motor Details			RSS Details		
Total Distance	334 (m)		Size	8.5 (in)		Type			RSS Type	Xceed	
Rotating Distance	334 (m)		Vendor	Baker		Lobes			BU Bit Size	9.875 (in)	
Sliding Distance	0 (m)		Model	TD408X		Sleeve Stab. Size			S/N BU	N/A	
Loggers Drill Hours	66.14		IADC Code			Bent Housing			S/N CU	N/A	
Loggers Sliding Hours	0		No. Blades	8		Bearings In			S/N CC	N/A	
Circ. Hours	85.12		Cutter Size	13 MM		Bearings Out			CC Type	N/A	
Reaming Hours	0		Gauge Length	5 (in)		Previous Hours			Stab Size	8.375 (in)	
BRT Hours	130		Nozzles	4x4 (1/32 in)		Serial No.			Flex Sub	No / Her	
NPT Hours	0		Bit TFA	0.601 (in2)		Differential Pressure			Flow Restrictor Size	N/A	
Average ROP	5.05 (m/h)		Bit Pressure Drop	250 psi		Motor Revs/Gal			RT Connection	Yes / Ja	
Rotating ROP	5.05 (m/h)		Loggers Bit kRev/s	385.5K		Total Circulating Hours	85.12		Previous Hours	0	
Sliding ROP	0 (m/h)		Bit Serial No.	7156619					Total Circulating Hours	85.12	
IADC Dull Bit Grading ( before / after )							BHA Tendency				
INNER	OUTER	DULL	LOC	BRG	GAUGE	OTHER	Planned DLS Capacity	2.0	"30m(M)		
New							Actual DLS Capacity	6.0	"30m(M)		
1	3	WT	T	X	I	NO	Planned Rotary Tendency	N/A	"30m(M)		
							Actual Rotary Tendency	N/A	"30m(M)		
Drilling Parameters											
Average WOB	27.8 (KLBF)		Pump Liner Size	6.5			Last Pick Up Weight	455 (KLBF)			
Average surface RPM	95 (c/min)		Max Pressure	1980 (psi)			Last Slack Off Weight	370 (KLBF)			
Average flow rate	418 (gal/min)		Max Torque	23 (1000 ft/lbf)			Last Rotary Weight	380 (KLBF)			
Type	Novatec SBM		YP	26.0			Mud PH	N/A			
Mud Weight	1.12		Sand	0.3			Solids	3.3			
PV	49.0		Lubricant	N/A			R6/R3	8/7			
Run Objectives											
<ul style="list-style-type: none"> <li>• Drill out cement, float collar and 9 5/8" casing shoe then 3m of formation and conduct FIT to 1.6sg EMW.</li> <li>• Continue build from 72° to 80° inclination whilst turning left from 283° to 270° azimuth at EOC#3 at 5339 mMD which is above top of Upper Brester Member 3m TVD. Continue building to 86° inclination toward Western direction at 270° azimuth to 5449mMD, then maintain tangent section to TD well at approx. 6109mMD.</li> <li>• Achieve the required trajectory without acquiring doglegs in excess of the plan to achieve as smooth a bore hole as possible.</li> <li>• Maintain ECD to maximum 1.22 SG. Adjust flowrate as required to balance ECD and minimise downhole losses</li> </ul>											
Run Results											
<ul style="list-style-type: none"> <li>• The BHA was made up then RIH and successfully performed SHT</li> <li>• RIH filling the pipe every 15 stands with 1.63sg MW to 4137mMD (~3500mTVD) and commenced pumping to cool down the tools as per the agreed staging procedure. The initial D&amp;I recorded temperature was 122°C. Maximum recorded temperature was 136°C at 4847mMD</li> <li>• At this point a SPP increase was noticed after the pumps had been shutdown. This was due to the u-tube effect from barite sag. The pumps were started again for ~30 minutes before tripping recommended. This was a sufficient time for the remaining stands to be tripped to bottom without being affected by u-tubing</li> <li>• The last stand was washed to bottom and TOC was tagged at 5030mMD</li> <li>• Commenced drilling out cement and half of the shoe track to 5064mMD with 1.63 SG SBM. Displaced choke, kill and boost lines to 1.12 SG SBM and then commenced displacing the well at a flowrate 520 GPM to 1.12 SG SBM as per displacement programme</li> <li>• After completing the displacement to 1.12 SG, the remainder of the shoe track was drilled out. The bit was worked through the shoe twice, with and without rotation. The well was circulated to ensure an even mud weight all around, the bit pulled inside the shoe and an FIT conducted to 1.6 SG equivalent mud weight</li> <li>• Flowrate was cut back to 475 GPM whilst displacing the mud in accordance with the latest Technical Information Release for the TeleScope</li> <li>• Resumed drilling with Xceed initial setting of 0% steering ratio (SR) set to high side for 10m below the shoe whilst downlinking to toggle Xceed commands to be sent via Telescope using the LTB bus. A downlink command of 20% SR was sent to Xceed to kick-off as per plan</li> <li>• An excellent DLS/steering response was received with a 20%SR and -54° tool face (TF). The first two surveys with the 20% SR achieved a average DLS of 1.9"/30m</li> <li>• At 5201mMD the string RPM was reduced as a precautionary measure to reduce BHA/bit wear before penetrating the Tiger Sands</li> <li>• At 5213m MD the Xceed began to flag with a low power fault. Consequently the flow rate was raised from 365 GPM to 380 GPM. The Xceed low power flag appeared again at 5231m and the flow rate was raised to 390 GPM to alleviate the issue. A 3rd incidence of low power occurred at 5233m and the flow rate was increased to 400 GPM</li> <li>• A downlink for 100% SR was sent to the tool between 5235m-5240m to test the tools response/capability after the recent low power flagging issues - the tool built as expected and was then returned to a 70% SR</li> <li>• Xceed was set to HIT (5min DCT) with 40% left correction at 5248m MD as the current trajectory required a slight turn and only needed to build 1°/30m. Two consecutive downlinks of nudge up 0.5° target IH as well as maximum 50% left correction was sent and the tool immediately began steering up at 100% SR as expected. However, a strong drop rate of -2°/30m 1.5°/30m right turn was observed the 10m drilled in HIT. This was despite the tool steering at 100% SR all the time</li> <li>• Downlink back to manual at 100% SR to counteract the drop &amp; right turn and Xceed was able to recover the trajectory. The steering ratio was adjusted accordingly as per the plan</li> <li>• Between 5317m MD and 5320m MD, two intervals of rough drilling generated high levels of torque which in turn required the Xceed to work harder and thus it required more power. As a result the flow rate was increased from 420 GPM to 455 GPM. The low power issue was further mitigated by reducing the WOB from 35 klbf down to 30 klbf</li> <li>• A flow check was conducted at 5347.5m MD due to a drilling break duration of 3m/hr at a rate above 10m/hr. Drilling resumed as per normal</li> <li>• From 5347m MD to 5357mMD, another attempt was made to engage Xceed into HIA (6min DCT) mode to avoid excessive dogleg &amp; minimize hole tortuosity due to any inconsistent DLS that may have been produced. Again, the same response as found earlier occurred and a strong drop and turn right with a DLS &gt; 5°/30m was observed. Decided to switch back to 100% manual (16min DCT) and trajectory was able to recover and slowly turn left to approach the plan</li> <li>• Despite an increased flowrate of 455 GPM, Xceed still occasionally flagged with a low power limit and difficulty was experienced with controlling the toolface in the neutral phase (slow rotation less than 0.5 rpm). In light of this the WOB was restricted to 30 klbf when Xceed started showing the power demand and then increased to a maximum 35 klbf WOB to optimize ROP once sufficient power was provided</li> <li>• Drilling progressed with very slow ROP as per expectations, however the ROP dropped to below 2m/hr upon reaching the Upper Brewster. Gradually the ROP dropped to 1m/hr despite very good porosity and resistivity which indicated good rock properties. Comparisons with offset wells suggested the ROP should have been considerably faster</li> <li>• A flow check was conducted at 5370.8m MD due to a positive drilling break. Drilling resumed as per normal</li> <li>• Once drilling had resumed after the flow check, it was observed that the Xceed continuous surveys had become erratic and unreliable. From this point forward, steering would be reliant on the continuous survey data from the TeleScope (20m behind the bit).</li> <li>• Downlinks were sent to Xceed in controlled 5m intervals to assess a range of steering ratios from 100% down to 70% to assist in tracking the behaviour of the tool at each different SR</li> <li>• The natural tendency indicated that the BHA was dropping and walking right and had the potential to provide a DLS of -5°/30m DLS if left untended. This tendency was countered with a 60-70% SR oriented to -24°/30° GTF</li> <li>• At 5399m MD Xceed suddenly lost communication with MWD tool. There were no discernible stick slip events or shocks observed throughout this run. The pumps were recycled twice but communication to surface was not able to be re-established. Drilling ahead continued with all downlinks to Xceed performed in the 60 second bit period to ensure that all commands would be received</li> <li>• At 5414m MD the decision was made to POOH for a bit trip. Xceed was downlinked to neutral before pumping out of the reservoir</li> </ul>											

Highlights
<ul style="list-style-type: none"> <li>Initial performance from Xceed was excellent. It coped well with acquiring trajectory despite encountering unpredictable formation tendencies due to hard &amp; abrasive inter-bedded formations</li> <li>Good management and control of drilling parameters to overcome the power limit flags from Xceed</li> <li>All downlinks were sent while drilling or back-reaming and as such did not hinder on bottom ROP's</li> <li>Xceed downlinks all routed via TeleScope. All downlinks were successful</li> <li>ECD was managed as per plan and helped in avoiding losses throughout the run</li> <li>Negligible stick slip and very few occasions of shock risk were recorded</li> <li>Bit came out in good condition and in gauge. The 8" string stabilizer and both Upper &amp; Lower Xceed Stabilizers also in gauge.</li> <li>Despite losing communication to surface, the Xceed tool was still able to receive downlinks</li> </ul>
Lowlights
<ul style="list-style-type: none"> <li>Flow rates for Xceed lead to power limit flags and poor toolface control</li> <li>Xceed real-time survey data unreliable from 5374m MD followed by the lost communication to surface</li> <li>Poor/erratic steering response with Xceed in ACW toolface rotation mode. Consequently it was toggled to CW mode</li> <li>The run ended prematurely due to low ROP</li> <li>Both 8 3/8" in-line stabilizers below Sonic &amp; TeleScope were completely worn down to the collar body (7 1/2" OD). The ARC wear bands wear worn out on the leading edge but the bottom suffered the most damage</li> </ul>
Recommendations
<ul style="list-style-type: none"> <li>Low flow kit for Xceed tool is recommended for future wells</li> <li>Consider using the Smith bits featuring the Stingblade technology as was run and proven on BDC-1A-01</li> </ul>

BHA PERFORMANCE REPORT						<b>Schlumberger</b>
<b>Client</b>	Inpex	<b>Field</b>	Ichthys Development Phase1	<b>Structure</b>	BDC-1B	
<b>Well</b>		BDC-1B-01		<b>Bit Type</b>	PDC	
<b>BHA Run</b>	05 8.5in Xceed-ARC-MWD-Sonic-A	<b>Job Number</b>	15AWA0104	<b>BHA Type</b>	Rotary Steerable System (RSS)	
Bit Performance Review (Steerability, Stability, ROP Performance, Durability)						
<ul style="list-style-type: none"> <li>• Very strong drop &amp; right walk tendency which required minimum 60% steering ratio to be able to maintain trajectory.</li> <li>• The bit performed worst than expected and was POH after delivering ROP's of ~1.5m/hr. The following Smith Stingblade bit achieved ROP's of 15-10m/hr when drilling recommenced</li> </ul>						
Photo of Bit and Any unusual BHA wear						
Before				After		



## 2.5.2

## BHA Listing

**Schlumberger**

Field Name	Ichthys Development Phase1			Borehole Name	BDC-1B-01			Hole Size (in)	8.500		
Structure Name	BDC-1B			BHA Name	BHA#05_8.5in_Xceed-ARC-MWD-Sonic-ADN 1			Depth In (m)	5080		
Well Name	BDC-1B-01							Depth Out (m)	5414		
Desc.	Manu.	Serial Number	OD (in)	Max OD (in)	Bot Size (in)	Bot Type	Bot Gender	FN OD (in)	Length (m)	Cum. Length (m)	Cum. Weight (KLBS)
ID (in)			Top Size (in)	Top Type	Top Gender			FN Length (m)			
1 8 1/2" PDC Bit, TD408X	Baker	7156619	6.000	1.750	8.500	4.500 REG	Pin		0.31	0.31	0.1
2 Xceed 675 8 3/8"	Schlumberger	CRSC-AA-424	6.750			4.500 REG	Box	6.750			
3 Stabilizers	Schlumberger	OSS15-00472A	5.160	8.375		5.500 FH	Box	0.33	7.65	7.96	2.7
4 ARC lower crossover	Schlumberger	1811-SRPC	6.750			5.500 FH	Pin	6.750			
5 ARC-6 w/APWD	Schlumberger	2.810	7.500			4.500 IF	Box	1.48	5.54	13.87	4.6
6 8 3/8" ILS	Schlumberger	SBD11982	6.688			5.500 FH	Pin	6.688			
7 Telescope 675 MWD w/MVC	Schlumberger	B0618	3.500	8.375		5.500 FH	Box	0.52	1.01	14.88	4.9
8 7" Drilling Jars	Schlumberger	BKS 13599-0102	3.875	6.875		5.500 FH	Pin	7.54	7.66	22.54	7.1
9 6.75" NMDC	Schlumberger	G5898	3.290	6.813		5.500 FH	Box	6.875			
10 6.5" X-O (NC50 - XT57)	Schlumberger	SBD12760	3.875	8.375		5.500 FH	Pin	6.750			
11 6.5" X-O (NC50 - XT57)	Schlumberger	A0916	3.875	8.375		5.500 FH	Box	0.51	1.03	23.99	7.5
12 6.5" X-O (NC50 - XT57)	Schlumberger	SBD12760	6.813			5.500 FH	Pin	6.813			
13 6.5" X-O (NC50 - XT57)	Schlumberger	G5898	3.290	6.813		5.500 FH	Box	1.44	7.27	31.26	10.0
14 6.5" X-O (NC50 - XT57)	Schlumberger	SBD12746	3.875	6.875		5.500 FH	Pin	6.875			
15 6.5" X-O (NC50 - XT57)	Schlumberger	A0916	3.875	8.250		5.500 FH	Box	1.88	5.33	37.00	11.7
16 6.5" X-O (NC50 - XT57)	Schlumberger	SBD12746	2.250	8.250		4.500 NC50 (4 1/2 IF)	Pin	6.750			
17 6.5" X-O (NC50 - XT57)	Rig	OM11633	3.000	7.000		4.500 NC50 (4 1/2 IF)	Box	0.79	0.79	37.79	12.0
18 6.5" X-O (NC50 - XT57)	Rig	OM11633	3.000	7.000		4.500 NC50 (4 1/2 IF)	Pin	7.000			
19 6.5" X-O (NC50 - XT57)	Rig	OM11633	3.000	7.000		4.500 NC50 (4 1/2 IF)	Box	0.96	0.96	53.53	17.0
20 6.5" X-O (NC50 - XT57)	Rig	OM11633	3.000	7.000		4.500 NC50 (4 1/2 IF)	Pin	7.000			
21 6.5" X-O (NC50 - XT57)	Rig	OM11633	3.000	7.000		4.500 NC50 (4 1/2 IF)	Box	0.61	46.93	100.46	25.9
22 6.5" X-O (NC50 - XT57)	Rig	OM11633	3.000	7.000		4.500 NC50 (4 1/2 IF)	Pin	6.940			
23 6.5" X-O (NC50 - XT57)	Rig	OM11633	3.000	7.000		4.500 NC50 (4 1/2 IF)	Box	0.50	9.89	110.35	29.6
24 6.5" X-O (NC50 - XT57)	Rig	OM11633	3.000	7.000		4.500 NC50 (4 1/2 IF)	Pin	7.000			
25 6.5" X-O (NC50 - XT57)	Rig	OM11633	3.000	7.000		4.500 NC50 (4 1/2 IF)	Box	0.62	84.19	194.54	45.4
26 6.5" X-O (NC50 - XT57)	Rig	OM11633	3.000	7.000		4.500 NC50 (4 1/2 IF)	Pin	6.940			
27 6.5" X-O (NC50 - XT57)	Rig	OM11633	3.000	7.000		4.500 NC50 (4 1/2 IF)	Box	0.50	8.94	203.48	48.6
28 6.5" X-O (NC50 - XT57)	Rig	OM11633	3.000	7.000		4.500 NC50 (4 1/2 IF)	Pin	7.000			
29 6.5" X-O (NC50 - XT57)	Rig	OM11633	3.000	7.000		4.500 NC50 (4 1/2 IF)	Box	0.62	18.73	222.21	52.1
30 6.5" X-O (NC50 - XT57)	Rig	OM11633	3.000	7.000		4.500 NC50 (4 1/2 IF)	Pin	0.000			
31 6.5" X-O (NC50 - XT57)	Rig	OM11633	3.000	7.000		4.500 NC50 (4 1/2 IF)	Box	0.00			
32 6.5" X-O (NC50 - XT57)	Rig	OM11633	3.000	7.000		4.500 NC50 (4 1/2 IF)	Pin	0.000			
33 6.5" X-O (NC50 - XT57)	Rig	OM11633	3.000	7.000		4.500 NC50 (4 1/2 IF)	Box	0.00			
34 6.5" X-O (NC50 - XT57)	Rig	OM11633	3.000	7.000		4.500 NC50 (4 1/2 IF)	Pin	0.000			
35 6.5" X-O (NC50 - XT57)	Rig	OM11633	3.000	7.000		4.500 NC50 (4 1/2 IF)	Box	0.00			
36 6.5" X-O (NC50 - XT57)	Rig	OM11633	3.000	7.000		4.500 NC50 (4 1/2 IF)	Pin	0.000			
37 6.5" X-O (NC50 - XT57)	Rig	OM11633	3.000	7.000		4.500 NC50 (4 1/2 IF)	Box	0.00			
38 6.5" X-O (NC50 - XT57)	Rig	OM11633	3.000	7.000		4.500 NC50 (4 1/2 IF)	Pin	0.000			
39 6.5" X-O (NC50 - XT57)	Rig	OM11633	3.000	7.000		4.500 NC50 (4 1/2 IF)	Box	0.00			
40 6.5" X-O (NC50 - XT57)	Rig	OM11633	3.000	7.000		4.500 NC50 (4 1/2 IF)	Pin	0.000			
41 6.5" X-O (NC50 - XT57)	Rig	OM11633	3.000	7.000		4.500 NC50 (4 1/2 IF)	Box	0.00			
42 6.5" X-O (NC50 - XT57)	Rig	OM11633	3.000	7.000		4.500 NC50 (4 1/2 IF)	Pin	0.000			
43 6.5" X-O (NC50 - XT57)	Rig	OM11633	3.000	7.000		4.500 NC50 (4 1/2 IF)	Box	0.00			
44 6.5" X-O (NC50 - XT57)	Rig	OM11633	3.000	7.000		4.500 NC50 (4 1/2 IF)	Pin	0.000			
45 6.5" X-O (NC50 - XT57)	Rig	OM11633	3.000	7.000		4.500 NC50 (4 1/2 IF)	Box	0.00			
46 6.5" X-O (NC50 - XT57)	Rig	OM11633	3.000	7.000		4.500 NC50 (4 1/2 IF)	Pin	0.000			
47 6.5" X-O (NC50 - XT57)	Rig	OM11633	3.000	7.000		4.500 NC50 (4 1/2 IF)	Box	0.00			
48 6.5" X-O (NC50 - XT57)	Rig	OM11633	3.000	7.000		4.500 NC50 (4 1/2 IF)	Pin	0.000			
49 6.5" X-O (NC50 - XT57)	Rig	OM11633	3.000	7.000		4.500 NC50 (4 1/2 IF)	Box	0.00			
50 6.5" X-O (NC50 - XT57)	Rig	OM11633	3.000	7.000		4.500 NC50 (4 1/2 IF)	Pin	0.000			
51 6.5" X-O (NC50 - XT57)	Rig	OM11633	3.000	7.000		4.500 NC50 (4 1/2 IF)	Box	0.00			
52 6.5" X-O (NC50 - XT57)	Rig	OM11633	3.000	7.000		4.500 NC50 (4 1/2 IF)	Pin	0.000			
53 6.5" X-O (NC50 - XT57)	Rig	OM11633	3.000	7.000		4.500 NC50 (4 1/2 IF)	Box	0.00			
54 6.5" X-O (NC50 - XT57)	Rig	OM11633	3.000	7.000		4.500 NC50 (4 1/2 IF)	Pin	0.000			
55 6.5" X-O (NC50 - XT57)	Rig	OM11633	3.000	7.000		4.500 NC50 (4 1/2 IF)	Box	0.00			
56 6.5" X-O (NC50 - XT57)	Rig	OM11633	3.000	7.000		4.500 NC50 (4 1/2 IF)	Pin	0.000			
57 6.5" X-O (NC50 - XT57)	Rig	OM11633	3.000	7.000		4.500 NC50 (4 1/2 IF)	Box	0.00			
58 6.5" X-O (NC50 - XT57)	Rig	OM11633	3.000	7.000		4.500 NC50 (4 1/2 IF)	Pin	0.000			
59 6.5" X-O (NC50 - XT57)	Rig	OM11633	3.000	7.000		4.500 NC50 (4 1/2 IF)	Box	0.00			
60 6.5" X-O (NC50 - XT57)	Rig	OM11633	3.000	7.000		4.500 NC50 (4 1/2 IF)	Pin	0.000			
61 6.5" X-O (NC50 - XT57)	Rig	OM11633	3.000	7.000		4.500 NC50 (4 1/2 IF)	Box	0.00			
62 6.5" X-O (NC50 - XT57)	Rig	OM11633	3.000	7.000		4.500 NC50 (4 1/2 IF)	Pin	0.000			
63 6.5" X-O (NC50 - XT57)	Rig	OM11633	3.000	7.000		4.500 NC50 (4 1/2 IF)	Box	0.00			
64 6.5" X-O (NC50 - XT57)	Rig	OM11633	3.000	7.000		4.500 NC50 (4 1/2 IF)	Pin	0.000			
65 6.5" X-O (NC50 - XT57)	Rig	OM11633	3.000	7.000		4.500 NC50 (4 1/2 IF)	Box	0.00			
66 6.5" X-O (NC50 - XT57)	Rig	OM11633	3.000	7.000		4.500 NC50 (4 1/2 IF)	Pin	0.000			
67 6.5" X-O (NC50 - XT57)	Rig	OM11633	3.000	7.000		4.500 NC50 (4 1/2 IF)	Box	0.00			
68 6.5" X-O (NC50 - XT57)	Rig	OM11633	3.000	7.000		4.500 NC50 (4 1/2 IF)	Pin	0.000			
69 6.5" X-O (NC50 - XT57)	Rig	OM11633	3.000	7.000		4.500 NC50 (4 1/2 IF)	Box	0.00			
70 6.5" X-O (NC50 - XT57)	Rig	OM11633	3.000	7.000		4.500 NC50 (4 1/2 IF)	Pin	0.000			
71 6.5" X-O (NC50 - XT57)	Rig	OM11633	3.000	7.000		4.500 NC50 (4 1/2 IF)	Box	0.00			
72 6.5" X-O (NC50 - XT57)	Rig	OM11633	3.000	7.000		4.500 NC50 (4 1/2 IF)	Pin	0.000			
73 6.5" X-O (NC50 - XT57)	Rig	OM11633	3.000	7.000		4.500 NC50 (4 1/2 IF)	Box	0.00			
74 6.5" X-O (NC50 - XT57)	Rig	OM11633	3.000	7.000		4.500 NC50 (4 1/2 IF)	Pin	0.000			
75 6.5" X-O (NC50 - XT57)	Rig	OM11633	3.000	7.000		4.500 NC50 (4 1/2 IF)	Box	0.00			
76 6.5" X-O (NC50 - XT57)	Rig	OM11633	3.000	7.000		4.500 NC50 (4 1/2 IF)	Pin	0.000			
77 6.5" X-O (NC50 - XT57)	Rig	OM11633	3.000	7.000		4.500 NC50 (4 1/2 IF)	Box	0.00			
78 6.5" X-O (NC50 - XT57)	Rig	OM11633	3.000	7.000		4.500 NC50 (4 1/2 IF)	Pin	0.000			
79 6.5" X-O (NC50 - XT57)	Rig	OM11633	3.000	7.000		4.500 NC50 (4 1/2 IF)	Box	0.00			
80 6.5" X-O (NC50 - XT57)	Rig	OM11633	3.000	7.000		4.500 NC50 (4 1/2 IF)	Pin	0.000			
81 6.5" X-O (NC50 - XT57)	Rig	OM11633	3.000	7.000		4.500 NC50 (4 1/2 IF)	Box	0.00			
82 6.5" X-O (NC50 - XT57)	Rig	OM11633	3.000	7.000		4.500 NC50 (4 1/2 IF)	Pin	0.000			
83 6.5" X-O (NC50 - XT57)	Rig	OM11633	3.000	7.000		4.500 NC50 (4 1/2 IF)	Box	0.00			
84 6.5" X-O (NC50 - XT57)	Rig	OM11633	3.000	7.000		4.500 NC50 (4 1/2 IF)	Pin	0.000			
85 6.5" X-O (NC50 - XT57)	Rig	OM11633	3.0								

### 2.5.3 Drilling Parameters Report



**Schlumberger** BHA#05 8.5in Xceed-ARC-MWD-Sonic-ADN 1 Steering Shee

Location	AUS - Australia PF	Casing Sh	5072.44	BHA Run	BHA#05 8.5in Xseed-ARC-MWD-Sonic-ADN_1	Bit Run #	5
Client	Impex	Casing Sz	9.63	Depth in (ft)	5080.00	Depth out (ft)	5014.00
Rig	ENSCO 5006	Casing Wt	53.50	Int cut (deg)	72.50	Int cut (deg)	69.80
Field	Ichthys Development Phase 1	Mud type	SBM	Angle in (deg)	282.50	Angle out (deg)	269.00
Well	WELL_1	Bottom Hole Assembly	1.12	Client Rep 1	Peter Jones	Lead DD	Mark Becker
Bottom hole assembly	Bottom hole assembly	Unit	1.12	Client Rep 2	John Smith	Lead DD	John Doe

DIRECTIONAL DRILLING PERFORMANCE SUMMARY

[REDACTED]

## Comments

## 2.5.4

## End of Run Summary

<b>Schlumberger</b>		<b>Bit Run Summary Report</b> 05-Oct-2015 10:58							
<b>Job Number:</b> 15AWA0104		<b>Company</b> INPEX BROWSE, LTD		<b>Rig Name:</b> Enso 5006					
<b>Company Rep:</b> P.Leathem/G.Watkins									
<b>Location</b> ASA-APG-AWA									
<b>Run Number:</b> 5		<b>Well</b> BDC-1B-01							
<b>Run Information</b>									
Date:	In 20-Sep-2015 2015 15:30	Out 26-Sep-2015 01:30	Drilling Distance: 334 m	Drilling Hours: 66.14 hrs					
Depth (MD):	5080 m	5414 m	Rotary Distance: 334 m	Rotary Hours: 66.14 hrs					
Depth (TVD):	3983.6 m	4055.32 m	Sliding Distance: 0 m	Sliding Hours: 0 hrs					
Inclination:	72.5 deg	86 deg	Reaming Distance: 0 m	Reaming Hours: 0 hrs					
Azimuth:	282.5 deg	269 deg	Drilling Cement Distance: 16 m	Hrs Below Rotary: 130 hrs					
Max Inclination:	83.47 deg		Drilling Cement Hours: 2.87 hrs	Total Pumping Hrs: 85.12 hrs					
Bore Hole:	0			Min DLS: 0.13 deg/30m					
Bore Hole Name:	Primary		North Ref Used: Grid North	Max DLS: 3.1 deg/30m					
Hole Size:	8.5 in		Magnetic Dec: 1.941 deg	Depth Max DLS: 5375.75 m					
Last Casing Size:	9.63 in		Grid Correction: -0.077 deg	Depth Min DLS: 5229.93 m					
Last Hole Depth:	5080 m (MD)		Total Correction: 2.018 deg	Surface Screen: No					
Tool Face Arc:	0 cm		Est. Mag. Int: 0.09 deg	DFS Used: No					
Tool Face Angle:	0 deg			Inline Filter: No					
				Ditch Magnet: No					
<b>Rig Information</b>									
Rig Type:	Semi-Submersible								
Water Depth:	237.2 m								
Air Gap:	24 m								
RKB Height:	24 m								
Ground Elevation:	-237.2 m								
<b>Run Objective</b>									
Drill 8.5in section to well TD. RES - DEN - PEB - TNPH used for RT reservoir quality evaluation and mobility/permeability models. RM RES - DEN - TNPH - PEB used for determining perforation intervals.									
<b>RSS Information</b>									
RSS Manufacturer:	SLB	Bit Period:	18 sec						
RSS Type:	Rotary Steerable	% Drop Flow:	10						
Ctrl Collar Size:	in	Bit to Ref Point:	3.45						
Software Version:	CPU39_1b01	Low Conn Fat. Cumu.:							
Ctrl Collar Stab:		Fat. Life Before Run:							
Stabilizer Size:		Mid Point to Bit:							
Fast Downlink:		Receiver Stabilized:							
iLink S/N:		Receiver Stabilizer							
Flow Restrictor Used:		Bias Unit Type:							
RT Comm Method:		Strike Ring Size:							
<b>MWD Configuration</b>									
SPT Type: HC	Int Tool Face	Bit Rate: 6 bps		Slimpulse Pulser Config:					
Phy Telemetry: 6.000 bps	Eff Telemetry: 6.000 bps	Frequency: 10.5 Hz		Pred Sig Strength @ TD:	4.06 psi				
Mod Type: QPSK	Turbine Config: 300 - 600 GPM	Mod Gap: 0.075 IN							
<b>Drilling Summary</b>									
BH Temperature:	119 degC	Max	120.43 degC	Total DH Shocks (k): 0 k					
Surface RPM:	80 rpm	122 degC		Max Shock 0					
Daily ROP:	0.42 m/h	110 rpm	102.13 rpm	Max Shock Duration: 0 s					
Flow Rate:	362 galUS/min	8.33 m	3.48 m	Torsional Vibration: 0 kft.lbf					
WOB Sliding:	kblm	456 galUS/min	406.38 galUS/min	Axial Vibration: 1 g RMS					
		klbm	klbm	Lateral Vibration: 1 g RMS					
Avg SPP Off: 1679.88 psi	Avg SPP On Bottom: 1679.88 psi			Checkshot Type: None					
Turbine RPM @ Min Flow Rate: 2930 rpm	Average Diff: 0 psi			Checkshot Depth:					
Turbine RPM @ Max Flow Rate: 3868 rpm	H2S In Well:			Checkshot Inclination:					
				Checkshot Azimuth:					
				Stick & Slip Ratio: 0.85					
<b>Parameters</b>									
				Tool Operated out of spec: No					
				Client Notified:					

<b>Mud Summary</b>						pH:	mg/L
Mud Type:	Synthetic Oil Base	Mud Clean:	Yes				
Mud Company:	M-I SWACO (SLB)	LCM Type:				Chlorides:	41000
Mud Brand:	Novatec	LCM Size:				Sand Content:	%
Funnel Viscosity:	100 s/qt	LCM		lbm/bbl		Solids:	12 %
Plastic Viscosity:	25 cP	Weighting	Barite			Percent Oil:	%
Yield Point:	15 lbf/100ft <sup>2</sup>	Mud Weight:	1.12 g/cc			Oxygen:	%
Rm:	ohm.m	Mud Cake Resistivity:	ohm.m			Rmf:	ohm.m
Rm @:	degC	Mud Cake Resistivity	degC			Rmf @:	degC
Sample Temp.:	41 degC	Magnetic Debris:				LG Solids Content:	4.7 %
Rheology Vis300:	40.00 rpm	Rheology Vis600:	65.00 rpm				
<b>IADC Bit Grading</b>							
Manufacturer:	Smith-SLB	Total Revs:	386 krevs			IADC Code:	
Model:	TD408X	Stick & Slip:	10			Number Jets :	4;
Type:	PDC	Reason Pulled:	Downhole Tool Failure (MLWD/DTR/Bit)			Jet Size/32 in :	14 in;
Inner Row	Outer	Dull Char	Location	Bearings/Seals	Gauge	Bit TFA:	0.601 in <sup>2</sup>
3	3	Worn Teeth/Cutters	All Areas/Rows	No Bearing	In Gauge		Other Chars No Dull
<b>End of Run - Summary</b>							
Sync Hours:	hrs	Downhole Noise:				SLB Trip:	
Jamming:	hrs	Surface System Failure:				Low Oil Flag:	No 0 hrs
Surface Vibration:		Surface Noise:				Filter Screen/Plug Shear:	No
		H2S in Well:					
<b>Run Client Primary Key Objectives</b>							
<b>Client Objective</b>		<b>Achieved</b>					
Drill to casing point		FALSE					
Drill to well TD		FALSE					
Drill out cement and casing shoe		TRUE					
Perform LOT (Leak Off Test) or FIT (Formation Integrity Test )		TRUE					
Wellbore avoidance / Anti-collision		TRUE					
No components LIH (Lost in Hole)		TRUE					
Real Time data for Decisions		FALSE					
Recorded Mode for Formation Evaluation		TRUE					
Identification of TOC (Top of Cement)		TRUE					
Target(s) hit within spec. tolerance		TRUE					
Identification of Top of formation		TRUE					
Operations without any HSE incident		TRUE					
Avoid Twist Off events		TRUE					
<b>Run Objective:</b> Drill to well TD							
<b>Run Client Primary Key Objectives met? :</b> FALSE							
<b>If not, Why? :</b> POOH for Bit trip as poor performance compare to nearby wells., Xceed raeltme							
<b>Reason for POOH :</b> Downhole Tool Failure (MLWD/DTR/Bit)							
<b>Sub Reason for POOH :</b> Other Drilling tools failure							
<b>Run Summary :</b> POOH due to poor ROP and loss of RT communication with PDXceed MU BHA and RIH Good SHT, at 4140mMD ( 3500mTVD) Started staging program DHAT= 122 deg continue staging procedure until 4993mMD DHAT=135 deg CSonicVISION was downlinked to default configuration 31 (sleep mode) after SHT to save memory and reduce battery consumption, tool was then downlinked back into main drilling configuration prior reassume drilling At 5374mMD, observed all Xceed continuous surveys was erratic and unreliable which caused difficult to control trajectory as unpredictable formation tendency, decision was made to continue drilling without Xceed surveys and only rely on MWD surveys which away 19m from Bit. At 5399mMD, Xceed suddenly lost communication with MWD tool, there was no Slickslip nor shock risk observed throughout this run until now.							
Recycle pumps twice but fail to reestablished communication, decided drilling ahead without any Xceed data and performed downlink at 60s bit period to ensure the tool receive commandsAt 541mMD, decision was made to POOH for Bit trip as poor performance compare to nearby wellsARC RM data showed saturated P16H while in Brewster. Investigated tool techlogs - no status words or anomalous amplitudes/phases. Uncorrected P16H also saturated - not caused by correction in surface system. Suspect high degree of resistive invasion in the Brewster caused saturated readings in shallowest measurement (P16H).RT azimuthal density and PEF data affected by incorrectly programmed Angle X. Error rectified in RM processing - will be discrepancy between quadrant densities and PEF in RT/RM.SonicVISION RM data presented some data gaps due to Low coherence and some incorrect downhole labelling - will be rectified during processing by PTS Both 8 3/8".							
In-Line Stabilizers below Sonic & TeleScope were completely worn out to collar body (7 1/2" OD). Most of the ARC wear bands worn out on the leading edge (bottom) but the bottom one was most damaged and less suffer on the top wear bands.							
<b>LWD Data</b>							
Tool		SW Version	RecRate	Tot Mem	Avail Mem		
SonicVISION 675		V71	10	264.00	255.50		
ARC 675		V97	5	445.00	436.50		
ADN 675		V85	10	513.00	504.50		
<b>Pump Data</b>							
Type	Pulse Damp Press	Number of Pumps	Pump Line ID	Pump Output	Stroke Len		
Triplex	101.00 psi	3	6.50 in	2.01 galUS	14.00 in		

Crew on the Run								
Cell Manager :								
Name	Function	Name	Function					
Smith, Andrew Jonathan	MLWD	Blacker, Matthew	DD					
Pham Quoc, Huy	DD	Redko, Anton	DD - Pre-School Trainee					
Del Carpio Flores, Daniel Serafin	MLWD - Cell Manager	Duan, Jiehong	MLWD					
Services on the Run								
			Real Time			Recorded Mode		
Equipment	Service	Tool Name	Hours	Failed	Depth	Hours	Failed	Depth
CRSCA-AA - 424	PowerDrive Xceed	Xceed 675	73.17 h	Yes	314.00 m	h	No	m
CRSCA-AA - 424	Cont D&I	Xceed 675	73.17 h	Yes	314.00 m	h	No	m
CRSCA-AA - 424	RT Comms	Xceed 675	73.17 h	Yes	314.00 m	h	No	m
MDCIX-UA - B0618	TeleScope D&I	MDC 675	73.17 h	No	334.00 m	85.12 h	No	334.00 m
MDCIX-UA - B0618	TeleScope Cont D&I	MDC 675	73.17 h	No	334.00 m	h	No	m
MDCIX-UA - B0618	TeleScope Shock and Vibration	MDC 675	73.17 h	No	334.00 m	85.12 h	No	334.00 m
MDCIX-UA - B0618	TeleScope Collar RPM	MDC 675	73.17 h	No	334.00 m	85.12 h	No	334.00 m
MDCIX-UA - B0618	Quick Survey (TeleScope Survey CRPM Cessation)	MDC 675	73.17 h	No	334.00 m	h	No	m
SD6D-FA - G5898	Compressional DT	SonicVISION 675	73.17 h	No	334.00 m	130.00 h	No	334.00 m
ADDC-CF - A0916	Density	ADN 675	73.17 h	No	334.00 m	130.00 h	No	334.00 m
ADDC-CF - A0916	Neutron	ADN 675	73.17 h	No	334.00 m	130.00 h	No	334.00 m
ADDC-CF - A0916	Caliper	ADN 675	73.17 h	No	334.00 m	130.00 h	No	334.00 m
ARC6D-BB - 1811-SRPC	Resistivity	ARC 675	73.17 h	No	334.00 m	130.00 h	No	334.00 m
ARC6D-BB - 1811-SRPC	Gamma Ray	ARC 675	73.17 h	No	334.00 m	130.00 h	No	334.00 m
ARC6D-BB - 1811-SRPC	APWD	ARC 675	73.17 h	No	334.00 m	130.00 h	No	334.00 m
ARC6D-BB - 1811-SRPC	Pressure on connection	ARC 675	73.17 h	No	334.00 m	130.00 h	No	334.00 m
ARC6D-BB - 1811-SRPC	ATMP	ARC 675	73.17 h	No	334.00 m	85.12 h	No	334.00 m
ARC6D-BB - 1811-SRPC	FIT	ARC 675	73.17 h	No	334.00 m	130.00 h	No	334.00 m
Equipment on the Run								
Pump Hours								
Tool Name	Equipment		Start	Cumm Hrs on Run	Software Version			
MDC 675	MDCIX-UA - B0618		0 h	85.12 h	14			
SonicVISION 675	SD6D-FA - G5898		0 h	85.12 h	V71			
Xceed 675	CRSCA-AA - 424		0 h	85.12 h	CPU39_1b01			
ARC 675	ARC6D-BB - 1811-SRPC		0 h	85.12 h	V97			
ADN 675	ADDC-CF - A0916		0 h	85.12 h	V85			
PDC	- 7156619		0 h	85.12 h				
String Stabilizer	SZS6S-IBS - OSS060193F		0 h	85.12 h				
Non-Mag Drill Collar	NMDC6 - SBD7298		0 h	85.12 h				
ARC6/8-ADN6/8-Sonic6/8 Batt	T6017257 - Q08882		0 h	85.12 h				
ARC6/8-ADN6/8-Sonic6/8 Batt	T6017257 - Q08893		0 h	85.12 h				
ARC6/8-ADN6/8-Sonic6/8 Batt	T6017257 - Q08878		0 h	85.12 h				
ARC6/8-ADN6/8-Sonic6/8 Batt	T6017257 - Q08887		0 h	85.12 h				
ARC6/8-ADN6/8-Sonic6/8 Batt	T6017257 - Q09350		0 h	85.12 h				
ARC6/8-ADN6/8-Sonic6/8 Batt	T6017257 - Q09344		0 h	85.12 h				
Well Commander	- B2007676		0 h	85.12 h				
Ball Catcher Sub	- B2004993		0 h	85.12 h				

2.6

## BHA 06 – 8.5 in. Section

5414 mMD – 6109 mMD =695 mMD

2.6.1

### BHA Performance Report

Schlumberger		BHA PERFORMANCE REPORT						INPEX Ichthys Project				
Client		Inpex		Field		Ichthys Development Phase1		Structure	BDC-1B			
Well		BDC-1B-01						Bit Type	PDC			
BHA Run		BHA#06 8.5in Xceed-ARC-MWD-S		Job Number		15AWA0104		BHA Type	Rotary Steerable System (RSS)			
Lead DD Matt Blacker 2nd DD Huy Pham Quoc Client Representative Peter Jones / Carl Green				BHA In BHA Out	Date	MD (m)	Incl (deg)	Azm (deg)	TVD (m)			
					2015-09-27 04:30	5414	86.00	269.00	4055.32			
					2015-09-30 23:00	6109	86.10	270.20	4105.14			
Run Details			Bit Details			Motor Details		RSS Details				
Total Distance	695 (m)		Size	8.5 (in)		Type		RSS Type	Xceed			
Rotating Distance	695 (m)		Vendor	Smith		Lobes		BU Bit Size	9.875 (in)			
Loggers			Model	M2813		Sleeve Stab. Size		S/N BU	N/A			
Drill Hours	44.38		IADC Code	N/A		Bent Housing		S/N CU	N/A			
Loggers			No. Blades	8		Bearings In		S/N CC	N/A			
Circ. Hours	68.21		Cutter Size	13 MM		Bearings Out		CC Type	-			
			Gauge Length	3.75 (in)		Previous Hours		Stab Size	8.375 (in)			
			Nozzles	11, 4x1/2 (1/32 in)		Serial No.		Flex Sub	-			
			Bit TFA	0.813 (in2)		Differential Pressure		Flow Restrictor Size	N/A			
			Bit Pressure Drop			Motor Revs/Gal		RT Connection	Yes / Ja			
			Loggers Bit kRev/s	266.95K		Total Circulating Hours	68.21	Previous Hours	0			
			Bit Serial No.	JJ3955				Total Circulating Hours	68.21			
IADC Dull Bit Grading ( before / after )							BHA Tendency					
INNER	OUTER	DULL	LOC	BRG	GAUGE	OTHER	Planned DLS Capacity	8.0	/30m(M)			
New							Actual DLS Capacity	8.0	/30m(M)			
0	1	BT	T	X	I	NO	Planned Rotary Tendency	N/A	/30m(M)			
						TD	Actual Rotary Tendency	N/A	/30m(M)			
Drilling Parameters												
Average WOB	30.2 (KLBF)		Pump Liner Size	6.5		Last Pick Up Weight	480 (KLBF)					
Average surface RPM	97 (c/min)		Max Pressure	17302 (psi)		Last Slack Off Weight	340 (KLBF)					
Average flow rate	423 (gal/min)		Max Torque	29 (1000 ft.lbf)		Last Rotary Weight	383 (KLBF)					
Type	Novatec SBM		YP	14.0		Mud PH	N/A					
Mud Weight	1.12 SG		Sand	N/A		Solids	3.3					
PV	26.0		Lubricant	N/A		R6/R3	9/8					
Run Objectives												
<ul style="list-style-type: none"> <li>Stage in hole from 4150m MD to 5414m MD. Continue drilling remainder of 8.5" section</li> <li>Maintain tangent section at 86° inclination toward Western direction at 270° azimuth to TD the well at approximately 6109m MD</li> <li>Achieve the required trajectory with minimum tortuosity</li> <li>Maintain ECD as low as possible by utilizing low flowrates and thus reduce the possibility of taking losses</li> </ul>												
Run Results												
<ul style="list-style-type: none"> <li>The BHA was made up and RIH to ~ 300m and a successful SHT was performed</li> <li>RIH filling the pipe every 20 stands with 1.12sg MW to 4130m MD (~3500mTVD) and commenced pumping to cool down the tools as per the agreed staging procedure. The initial D&amp;I recorded temperature was 126°C. Maximum recorded temperature was 136°C at 4815m MD</li> <li>At 5109m MD, encountered a tight spot which led to a temporary packed off when the pumps were started. The SPP reduced immediately and dropped back to normal once the pipe was rotated. This spot was reamed through and the decision was made to continue reaming down to bottom at 40 SRPM with 350 GPM</li> <li>Downlink command was sent to change the sonicVISION configuration and then commenced breaking in the bit with an Xceed initial setting of 0% steering ratio (SR) and then gradually increased to the</li> <li>It was observed that there was a strong build tendency which had occurred during the lost communication interval which was drilled during the previous run. A downlink to Xceed was executed to commence steering down to counteract the continuing build tendency</li> <li>The ROP was exceptionally high compared to the previous run as well as all nearby wells and at times achieved a 25m/hr average in the clean sandstones although it did reduce after encountering the inter-bedded claystones. There were negligible losses, low stick slip and no shock risks observed throughout this bit run. Wellbore strengthening agent was also pumped as per mud program to assist wellbore integrity stability.</li> <li>At 5453mMD, Xceed was downlinked to engage HIA mode using a 2min DCT then shortly after changed to a 5min DCT. This steering mode performed as expected and was successful in maintaining the tangent as per plan</li> <li>Despite the excellent steering response from Xceed, it was observed that the inclination was fluctuating between 1.5° to 2° around the target inclination as a result of the high steering response. In light of this a downlink command of 50% SR limit was send to Xceed which was immediately effective in reducing the porpoising effect.</li> <li>The formation tendency appeared to have a slight build through out this homogeneous sandstone reservoir which required an average SR of 10-20%</li> <li>TD well was called at 6109m MD (5105.14nTVD) as per the plan. The hole was circulated clean and then pumped out of the hole to casing shoe. Two tight spots were encountered at 5256m and 5294m. Each of these areas were worked through with ease and were not considered to be problematic. The well was then circulated clean again at the 9 5/8" shoe prior to POH on elevators</li> </ul>												
Highlights												
<ul style="list-style-type: none"> <li>Very high penetration rate compared to the previous Baker bit</li> <li>RSS Xceed was able to achieve the planned DLS and easily maintain the entire tangent section as required with a 10-20% steering ratio</li> <li>Excellent performance by all MLWD tools and good signal throughout this run</li> <li>No wear present on any of the stabilisers</li> <li>Effective utilisation of the bucking unit reducing BHA handling time on the rig floor</li> </ul>												
Lowlights												
<ul style="list-style-type: none"> <li>Nil</li> </ul>												
Recommendations												
<ul style="list-style-type: none"> <li>The use of PD Xceed avoided the requirement for set flow rates as needed by the PDX6. A low flow rate tool would be beneficial in reducing ECD</li> </ul>												

BHA PERFORMANCE REPORT						<b>Schlumberger</b>
<b>Client</b>	Inpex	<b>Field</b>	Ichthys Development Phase1	<b>Structure</b>	BDC-1B	
<b>Well</b>			BDC-1B-01	<b>Bit Type</b>	PDC	
<b>BHA Run</b>	06 8.5in Xeed-ARC-MWD-Sonic-A	<b>Job Number</b>	15AWA0104	<b>BHA Type</b>	Rotary Steerable System (RSS)	
<b>Bit Performance Review (Steerability, Stability, ROP Performance, Durability)</b>						
<ul style="list-style-type: none"> <li>• Smith MZ813 has proven itself in this formation with exceptionally high ROP which exceed expectations</li> </ul>						
<b>Photo of Bit and Any unusual BHA wear</b>						
Before			After			
						

## 2.6.2

## BHA Listing

**Schlumberger**

Field Name	Ichthys Development Phase1		Borehole Name	BDC-1B-01		Hole Size (in)	8.500				
Structure Name	BDC-1B		BHA Name	BHA#06_8.5in_Xceed-ARC-MWD-Sonic-ADN		Depth In (m)	5414.00				
Well Name	BDC-1B-01					Depth Out (m)	6109.00				
Desc.	Manu.	Serial Number	OD (in)	Max OD (in)	Bot Size (in)	Bot Type	Bot Gender	FN OD (in)	Length (m)	Cum. Length (m)	Cum. Weight (KLBS)
8 1/2" PDC Bit, MZ1813 (LUOEWPX)	Smith	JJ3955	6.000	1.750	8.500	4.500 REG	Pin		0.27	0.27	0.1
1 Xceed 675 8 3/8"	Schlumberger	DN559	6.750			4.500 REG	Box	6.750			
2 Stabilizers	Schlumberger	OM11902	5.160	8.375	5.500 FH	Box	0.34		7.65	7.92	2.7
3 ARC lower crossover	Schlumberger	BC2454	6.750		5.500 FH	Pin	6.750				
4 ARC-6 w/APWD	Schlumberger	SBD12761	3.875	7.375	4.500 IF	Pin	0.37		0.37	8.29	2.8
5 8 3/8" ILS	Schlumberger	G4224	6.688		5.500 FH	Box	6.750				
6 i/MVC	Schlumberger	SBD12030	5.109	6.875	5.500 FH	Pin	1.40		5.44	13.73	4.6
Telescope 675 MWD	Schlumberger	SBD13476	6.875		5.500 FH	Box	6.688				
7 TeleScope upper saver sub	Schlumberger	BA EW15	6.750		5.500 FH	Pin	6.875				
8 8 3/8" ILS	Schlumberger	SBD11955	3.290	7.375	5.500 FH	Box	0.46		0.94	14.67	4.9
9 sonicVISION 675	Schlumberger	OM10647	6.750		5.500 FH	Pin	6.875				
10 ADN lower saver sub	Schlumberger	OSO6019	3.875	6.750	5.500 FH	Box	0.35		0.35	31.31	10.0
11 ADN-6 w/ 8 1/4" Stabilizer	Schlumberger	G0291	2.250	8.250	4.500 NC50 (4 1/2 IF)	Box	1.88		5.34	36.65	11.6
12 ADN NM Pony Collar	Schlumberger	SBD7289	6.750		4.500 NC50 (4 1/2 IF)	Pin	6.750				
13 8" String Stabilizer	Schlumberger	SSO6019	2.813	8.000	4.500 NC50 (4 1/2 IF)	Box	0.73		1.70	39.24	12.5
14 6.75" NMDC	Schlumberger	SSO6019	6.500		4.500 NC50 (4 1/2 IF)	Pin	6.500				
15 Well Commander Catcher	Schlumberger MI	B2004993	7.000		4.500 NC50 (4 1/2 IF)	Box	9.12		9.12	48.36	15.2
16 Well Commander Bypass	Schlumberger MI	B2007676	3.000	7.000	4.500 NC50 (4 1/2 IF)	Pin	7.000		1.87	50.23	15.9
17 6.5" X-O (NC50 - XT57)	Rig	OM11633	7.000		4.500 NC50 (4 1/2 IF)	Box	0.96		0.96	53.28	16.9
18 5-7/8" Heavy Weight Drill Pipe (5 joints)	Rig		5.875		5.875 XT57	Pin	7.000				
19 7" Drilling Jars	Weatherford	1660-1053	4.250	7.125	5.875 XT57	Box	0.61		46.93	100.21	25.8
20 5-7/8" Heavy Weight Drill Pipe (9 joints)	Rig		7.000		5.875 XT57	Pin	6.940				
21 Accelerator	Weatherford	1667-1003	2.750	7.000	5.875 XT57	Box	0.50		8.94	203.23	48.5
22 5-7/8" Heavy Weight Drill Pipe (2 joints)	Rig		5.875		5.875 XT57	Pin	7.000				
23 5-7/8" 23.40, Drill Pipe to surface	Rig		4.250	7.125	5.875 XT57	Box	0.62		18.73	221.96	52.0
Telescope 675 MWD w/MVC			5.731		5.875 XT57	Pin	0.00				
8 3/8" ILS			5.153	7.000	5.875 XT57	Box	0.00				
Total Length (m)											221.96
Total Weight in Air (KLBS)											52.9
Total Buoyant Weight (KLBS)											45.6
Buoyant Weight Below Jar (KLBS)											22.4
Weight in Air Below Jar (KLBS)											25.8
Mud Properties											
Mud Weight (g/cm <sup>3</sup> )											1.12
Mud Type											SBM
PV (cP)											26.00
YP (lbf/100ft <sup>2</sup> )											14.00
BHA Nozzle Summary											
Bit Nozzle Count	ID (1/32 in)	Reamer Nozzle Count	ID (1/32 in)								
4	11.000										
4	12.000										
		TFA (in2)									
		PD Flow Restrictor									
		(1/32 in)									
		Rotor By Pass Nozzle									
TFA (in2)	0.813	(1/32 in)									
Date	26Sep2015										
Designed By	DIRENSCO5006										
Approved By											

Schlumberger D&M EoWR – INPEX Ichthys Pty Ltd – BDC-1B-01

### 2.6.3 Drilling Parameters Report

Schlumberger

BHA#06 8.5in Xceed-ABC-MWD-Sonic-ADN 1 Steering Sheet



BIT INFORMATION				Bit Properties & Grading							
S/N	J39355	IADC	N/A	In Row	Out Row	Dull Char	Location	Bearings	Gauge	Other	Reason Pulled
TYPE	PDC	Jets (1/32)	4x11.4x12	IN	New						
Manuf/Model Name	Smts/M2812	TFA (in2)	0.813	Out	0	1	BT	T	X	I	NO TD

Date dd-mm-yy	Operation Mode	Start Time	End Time	MD From m	MD To m	Course m	Calc ROP mph	TF Mode	biased Inclination deg	biased Azim deg	Power Setting	TF Angle deg	Flow gal/min	PP On Board psi	SRPM c/min	WOB KLBf	Off Bot Torque 1000 ft.lb	Torque 1000 ft.lb	ECD g/cm3	Rotating HKLBF	PU Weight KLBf	Jack Off Weig KLBf	Svy MD m	Incl deg	Azimuth deg	TVD m	DLS deg/36m	Comment
27-Sep-15	High Definition	03:00	04:20	5414.00	5417.00	3.00	2.26	Gravty			0.0	0	450	1720.0	80	15.0	18.0	20.0	1.20									DL to enable Sonic break in BitWx with Xceed in neutral.
	High Definition	04:20	04:49	5417.00	5422.00	5.00	10.42	Gravty			100.0	180	450	1750.0	80	22.0	18.0	21.0	1.20	380.00	470.00	365.00						Strong build tendency. Check shot survey then DL to Xceed. Pump#3 problem.
	High Definition	05:06	05:18	5422.00	5423.30	1.30	6.50	Gravty			0.0	180	450	1800.0	80	25.0	18.0	21.0	1.20									Survey during with Pump#1 & 2. CMC problem.
	High Definition	06:23	07:02	5423.30	5430.00	6.70	10.31	Gravty			100.0	180	450	1740.0	80	30.0	18.0	21.0	1.21									
	High Definition	07:02	07:16	5430.00	5433.00	3.00	13.04	Gravty			100.0	180	450	1690.0	80	30.0	18.0	21.0	1.21									MW 1.12 SG
	High Definition	07:16	07:33	5433.00	5438.00	5.00	17.86	Gravty			0.0	0	450	1690.0	80	30.0	18.0	21.0	1.21									
	High Definition	07:33	07:48	5438.00	5440.00	2.00	8.00	Gravty			0.0	0	455	1720.0	90	30.0	18.0	22.0	1.21									Increase RPM - may have hindered ROP - maybe just coincidence?
	High Definition	07:48	08:57	5440.00	5449.00	9.00	7.63	Gravty			0.0	0	455	1730.0	80	30.0	18.0	21.0	1.21	390.00	467.00	350.00						Reduce RPM, backream stand before SCRs
	High Definition	08:47	10:01	5449.00	5452.00	3.00	13.04	Gravty			0.0	0	450	1720.0	80	30.0	17.0	19.0	1.21									Trial DL before engaging HIA
	HIA	10:01	10:09	5452.00	5453.00	1.00	7.69	Gravty	87.50	267.90			450	1720.0	80	30.0	17.0	19.0	1.21									DL to 2 min HIA
	HIA	10:09	10:23	5453.00	5455.00	2.00	8.70	Gravty	86.50	267.90			450	1720.0	80	30.0	17.0	19.0	1.21									DL to reduce inclination 1*
	HIA	10:23	10:40	5455.00	5458.00	3.00	10.71	Gravty	85.50	267.90			435	1600.0	80	30.0	17.0	19.0	1.21									DL to reduce inclination 1*
	HIA	10:40	10:52	5458.00	5460.00	2.00	10.00	Gravty	85.00	267.90			430	1580.0	80	30.0	17.0	19.0	1.21									DL to reduce inclination 0.5*
	HIA	10:52	11:40	5460.00	5467.50	7.50	9.38	Gravty	85.00	267.90			430	1580.0	80	30.0	17.0	19.0	1.21									DL to remove HIA SR
	HIA	11:40	12:57	5467.50	5479.50	12.00	9.38	Gravty	85.00	267.90			430	1600.0	80	30.0	17.0	19.0	1.21	380.00	464.00	350.00						DL to 5.3 minute DCT
	HIA	13:17	13:55	5479.50	5510.00	30.50	13.26	Gravty	85.00	267.90			430	1590.0	80	30.0	17.0	19.0	1.21									
	HIT	15:51	17:27	5510.00	5530.00	20.00	12.50	Gravty	85.00	20.00	90	435	1620.0	80	30.0	17.0	19.0	1.21									DL to 10% right turn correction	
	HIT	17:27	17:37	5530.00	5532.00	2.00	11.76	Gravty	85.00	20.00	90	435	1640.0	100	30.0	17.0	19.0	1.21									Trial 100 RPM	
	HIT	17:37	17:47	5532.00	5538.00	6.00	11.54	Gravty	85.00	20.00	90	435	1720.0	100	30.0	18.0	22.0	1.21	380.00	455.00	352.00						Reduce to 10% right turn correction.	
	HIA	18:28	18:27	5538.00	5547.00	9.00	9.18	Gravty	85.00	20.00	90	435	1730.0	100	30.0	18.0	23.0	1.22									Xceed lagged power limit but not effected steering response.	
	HIA	18:27	19:01	5547.00	5550.00	24.00	10.40	Gravty	85.00	20.00	90	435	1735.0	100	30.0	18.0	24.0	1.22									DL to 10% right turn correction. Backream stand. Misaligned bit. Backream 1st stand 5 min check prior connection.	
	HIA	20:38	21:55	5550.00	5563.00	55.00	28.00	Gravty	85.00	27.50	430	1660.0	110	33.0	19.0	25.0	1.21	380.00	455.00	352.00	5572.93	84.31	270.12	4067.58	1.00	Bit build tendency. Xceed steering 10-40% down to maintain indication. Bad signal due to pump sweep.		
	HIA	22:21	23:34	5563.00	5622.00	29.00	23.77	Gravty	85.00	27.50	420	1670.0	110	32.0	20.0	24.0	1.22									Re-survey as bad signal. DLS possible disable drive, survey & nudge up 0.5° target incl. Gas peak 33%. SCR		
28-Sep-15	HIA	00:04	01:37	5622.00	5653.00	31.00	20.00	Gravty	86.00	27.50	420	1670.0	110	32.0	20.0	25.0	1.22	380.00	455.00	352.00	5567.02	86.07	270.66	4072.11	1.26	Nudge up 0.5° target. HIA. Misaligned survey. Xceed steering 70-80% down.		
	HIA	02:10	03:40	5653.00	5684.00	31.00	20.67	Gravty	86.00	27.50	420	1670.0	110	33.0	20.0	25.0	1.22	380.00	460.00	352.00	5661.12	85.55	270.26	4074.17	1.17	DL to apply 5% LMB to avoid trajectory porpoising.		
	HIA	04:01	05:58	5684.00	5684.00	28.00	14.36	Gravty	86.00	27.50	420	1690.0	110	33.0	20.0	25.0	1.22									Holding tendency, only 10% SR required to maintain tangent. Minimal Stick/Slip & no shock risk.		
	HIA	06:20	07:43	5684.00	5739.00	27.00	19.57	Gravty	86.00	27.50	400	1590.0	110	30.0	20.0	25.0	1.22									0.0001 lsb/s, reduce GPM		
	HIA	08:02	08:44	5739.00	5754.00	15.00	21.43	Gravty	86.00	27.50	400	1600.0	110	30.0	20.0	25.0	1.22									0.0001 TRFM = 3300, temperature from arcVISION = 132°C		
	HIA	08:44	09:25	5754.00	5768.00	12.00	17.65	Gravty	86.00	27.50	400	1560.0	110	30.0	20.0	25.0	1.22									DL to nudge inclination up 0.2°		
	HIA	09:48	11:19	5768.00	5794.00	28.00	18.42	Gravty	86.00	27.50	400	1550.0	110	30.0	20.0	25.0	1.22	380.00	465.00	346.00	577.44	85.24	269.90	4082.13	1.40	MW 1.12 SG		
	HIA	11:42	13:18	5794.00	5825.00	31.00	19.38	Gravty	86.00	27.50	400	1550.0	110	30.0	20.0	25.0	1.22	380.00	465.00	355.00	580.84	85.78	270.16	4064.88	0.49	ECD rise - backream stand		
	HIA	14:04	15:50	5825.00	5852.00	31.00	17.51	Gravty	86.00	27.50	400	1540.0	110	30.0	20.0	25.0	1.22									Backream stand. Misaligned survey as bad signal.		
	HIA	16:16	17:10	5852.00	5861.00	28.00	14.36	Gravty	86.00	27.50	400	1540.0	110	30.0	22.0	25.0	1.21	380.00	462.00	352.00	5862.73	86.16	269.46	4088.45	0.41	Inter-bedded Claystone, ROP stowing down - 10m/hr		
	HIA	17:10	20:10	5861.00	5901.00	17.00	12.41	Gravty	86.00	27.50	400	1570.0	110	32.0	22.0	28.0	1.21									Survey & increase target azimuth 0.5°. Xceed steering up 30-40% as drop tendency.		
	HIA	20:41	21:07	5901.00	5910.00	9.00	20.93	Gravty	86.00	27.50	400	1600.0	110	32.0	22.0	26.0	1.21									Resume drilling after flow check as ROP increased to ~20m/hr.		
	HIA	21:25	22:55	5910.00	5940.00	30.00	20.00	Gravty	86.00	27.50	400	1610.0	110	32.0	22.0	26.0	1.21	380.00	470.00	350.00	5917.28	86.16	269.74	4092.28	0.25			
	HIA	23:24	01:20	5940.00	5969.00	29.00	15.03	Gravty	86.00	27.50	400	1590.0	110	32.0	22.0	26.0	1.21									Bad MWD signal as pump sweep.		
	HIA	01:40	03:10	5969.00	5999.00	30.00	20.00	Gravty	86.00	27.50	400	1585.0	110	32.0	23.0	27.0	1.21	380.00	470.00	350.00	5976.74	86.16	269.67	4096.25	0.19	Sight drop & roll tendency. Xceed steering 10-20% loc right quadrant		
	HIA	03:31	04:57	5999.00	6029.00	30.00	20.98	Gravty	86.00	27.50	400	1570.0	110	33.0	24.0	28.0	1.21	380.00	480.00	340.00	6006.15	86.24	269.95	4098.20	0.12			
	HIA	05:19	06:48	6029.00	6056.00	27.00	27.84	Gravty	86.00	27.50	400	1590.0	110	33.0	24.0	28.0	1.21									6034.40		
	HIA	07:15	08:23	6056.00	6083.00	27.00	23.89	Gravty	86.00	27.50	400	1670.0	110	33.0	24.0	29.0	1.21									4010.44		
	HIA	08:48	10:15	6083.00	6109.00	26.00	17.93	Gravty	86.00	27.50	400	1590.0	110	30.0	24.0	29.0	1.21									4010.14 TD @ 610m MD, DL Xceed to neutral		
Min						2.26					0	0	450	1540	80	15.0	17.0	19.0	1.20	380.00	455.00	340.00	6109.00	84.31	267.84	0.12		
Average						14.86					27.7	83	423	2014.9	97	30.2	19.5	23.1	1.21	381.75	466.33	351.42	6109.00	85.27	269.75	0.73		
Max						24.66					100.0	180	455	1730.0	110	33.0	24.0	29.0	1.22	390.00	480.00	365.00	6109.00	87.42	270.66	1.83		

## DIRECTIONAL DRILLING PERFORMANCE SUMMARY

1

Comments	Middleman Distribution	44.20	Middleman Circulation	100
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## 2.6.4

## End of Run Summary

<b>Schlumberger</b>		<b>Bit Run Summary Report</b> 05-Oct-2015 11:52							
<b>Job Number:</b> 15AWA0104		<b>Company</b> INPEX BROWSE, LTD		<b>Rig Name:</b> Enso 5006					
<b>Company Rep:</b> P.Leathem/G.Watkins									
<b>Location</b> ASA-APG-AWA									
<b>Run Number:</b> 6		<b>Well</b> BDC-1B-01							
<b>Run Information</b>									
Date:	In 26-Sep-2015 2015 04:30	Out 30-Sep-2015 23:00	Drilling Distance: Rotary Distance: Sliding Distance: Reaming Distance: Drilling Cement Distance: Drilling Cement Hours:	695 m 695 m 0 m 0 m 0 m 0 hrs	Drilling Hours: Rotary Hours: Sliding Hours: Reaming Hours: Hrs Below Rotary: Total Pumping Hrs: Min DLS: Max DLS:	44.47 hrs 44.47 hrs 0 hrs 0 hrs 114.45 hrs 64.04 hrs 0.12 deg/30m 3.89 deg/30m			
Depth (MD):	5414 m	6109 m							
Depth (TVD):	4055.32 m	4105.14 m							
Inclination:	86 deg	86.1 deg							
Azimuth:	269 deg	270.2 deg							
Max Inclination:	87.42 deg								
Bore Hole:	0								
Bore Hole Name:	Primary		North Ref Used: Magnetic Dec:	Grid North 1.941 deg	Depth Max DLS: Depth Min DLS:	5400.96 m 6006.15 m			
Hole Size:	8.5 in		Grid Correction:	-0.077 deg	Surface Screen:	No			
Last Casing Size:	9.63 in		Total Correction:	2.018 deg	DFS Used:	No			
Last Hole Depth:	5414 m (MD)		Est. Mag. Int:	0.09 deg	Inline Filter:	No			
Tool Face Arc:	0 cm				Ditch Magnet:	Yes			
Tool Face Angle:	0 deg								
<b>Rig Information</b>									
Rig Type:	Semi-Submersible								
Water Depth:	237.2 m								
Air Gap:	24 m								
RKB Height:	24 m								
Ground Elevation:	-237.2 m								
<b>Run Objective</b>									
Drill 8.5in section to well TD. RES - DEN - PEB - TNPH used for RT reservoir quality evaluation and mobility/permeability models. RM RES - DEN - TNPH - PEB used for determining perforation intervals.									
<b>RSS Information</b>									
RSS Manufacturer:	SHTC		Bit Period:						
RSS Type:	Rotary Steerable		% Drop Flow:						
Ctrl Collar Size:	in		Bit to Ref Point:						
Software Version:			Low Conn Fat. Cumu.:						
Ctrl Collar Stab:			Fat. Life Before Run:						
Stabilizer Size:			Mid Point to Bit:						
Fast Downlink:			Receiver Stabilized:						
iLink S/N:			Receiver Stabilizer						
Flow Restrictor Used:			Bias Unit Type:						
RT Comm Method:			Strike Ring Size:						
<b>MWD Configuration</b>									
SPT Type: HC	Int Tool Face		Bit Rate: 6 bps		Slimpulse Pulser Config:				
Phy Telemetry: 6 bps	Eff Telemetry: 6 bps		Frequency: 10.5 Hz		Pred Sig Strength @ TD: 4.00 psi				
Mod Type: QPSK	Turbine Config: 300 - 475 galUS/min GPM		Mod Gap: 0.07 IN						
<b>Drilling Summary</b>									
BH Temperature:	136 degC	Max	137 degC	Total DH Shocks (k): 0	k				
Surface RPM:	108 rpm		110 rpm	Max Shock 0					
Daily ROP:	6.79 m/h		13.5 m	Max Shock Duration: 0	s				
Flow Rate:	400 galUS/min		400 galUS/min	Torsional Vibration: 0	kft.lbf				
WOB Sliding:	kblm		kblm	Axial Vibration: 0.25	g RMS				
				Lateral Vibration: 0.5	g RMS				
Avg SPP Off: 1620 psi			Avg SPP On Bottom: 1620 psi	Checkshot Type: None					
Turbine RPM @ Min Flow Rate: 3320 rpm			Average Diff: 0 psi	Checkshot Depth:					
Turbine RPM @ Max Flow Rate: 3320 rpm			H2S In Well:	Checkshot Inclination:					
				Checkshot Azimuth:					
				Stick & Slip Ratio: 0.14					
				Tool Operated out of spec: No					
				Client Notified:					
<b>Parameters</b>									

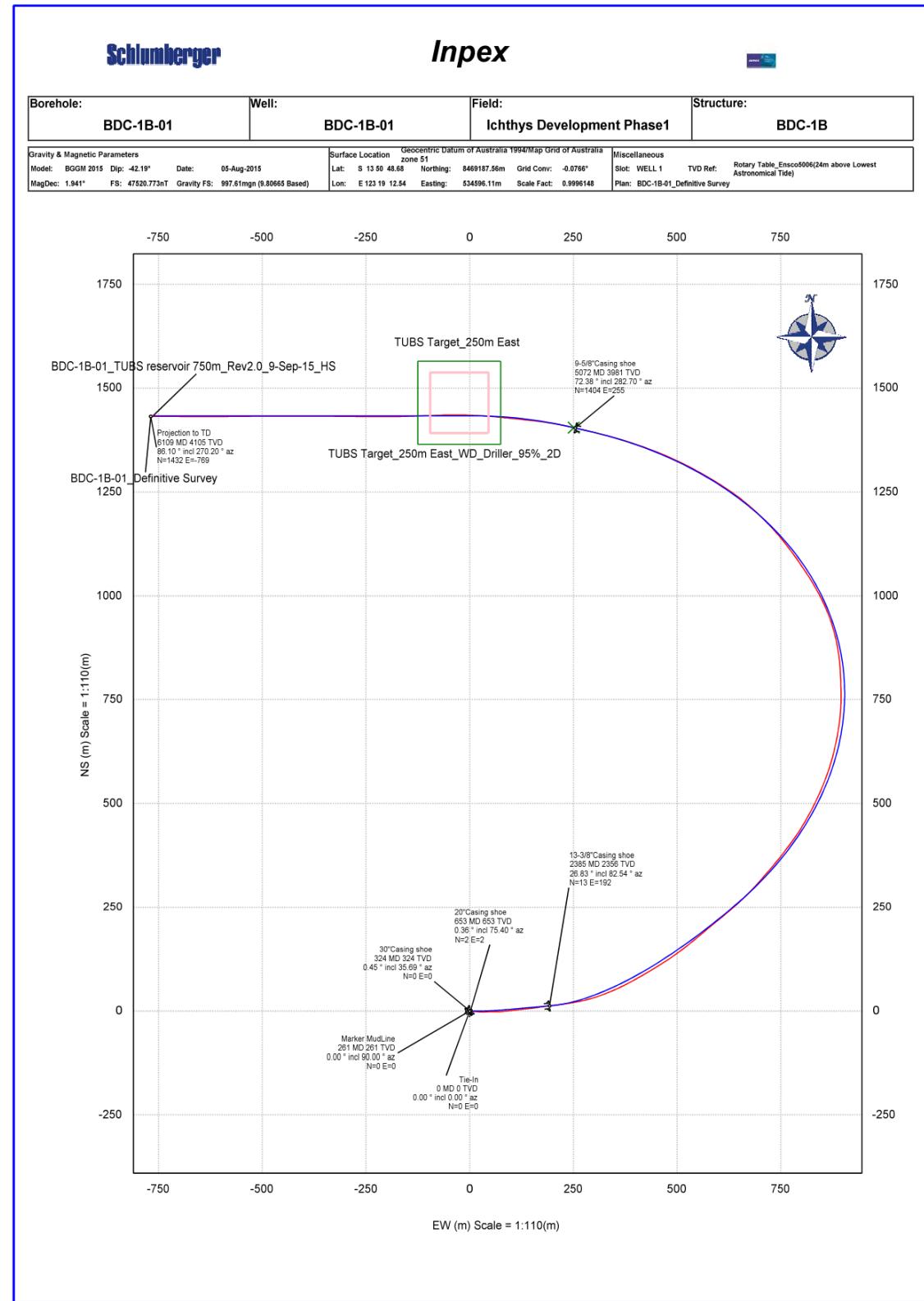
Mud Summary																	
Mud Type:	Synthetic Oil Base	Mud Clean:	Yes	pH:													
Mud Company:	M-I SWACO (SLB)	LCM Type:	Granules - Calcium Carbonate	Chlorides:	40000	mg/L											
Mud Brand:	SOBM	LCM Size:	Fine	Sand Content:	%												
Funnel Viscosity:	77 s/qt	LCM	35 lbm/bbl	Solids:	12.5	%											
Plastic Viscosity:	24 cP	Weighting:	Barite	Percent Oil:	75	%											
Yield Point:	18 lbf/100ft <sup>2</sup>	Mud Weight:	1.12 g/cc	Oxygen:	%												
Rm:	ohm.m		ohm.m	Rmf:													
Rm @:	degC	Mud Cake Resistivity:	degC	Rmf @:													
Sample Temp.:	37 degC	Mud Cake Resistivity:	degC														
Rheology Vis300:	42.00 rpm	Magnetic Debris:	440 g	LG Solids Content:	5.7	%											
Rheology Vis600: 66.00 rpm																	
IADC Bit Grading																	
Manufacturer	Smith-SLB	Total Revs:	267 krevs	IADC Code:													
Model:	MZI13	Stick & Slip:	10	Number Jets :	8;												
Type:	PDC	Reason Pulled:	Section Total Depth	Jet Size/32 in :	11 in;												
Inner Row	Outer	Dull Char	Location	Bearings/Seals	Bit TFA:	0.884	in2										
0 - No	1	Broken Teeth/Cutters	Taper	No Bearing	Gauge		Other Chars										
In Gauge																	
No Dull																	
End of Run - Summary																	
Sync Hours:	hrs	Downhole Noise:			SLB Trip:												
Jamming:	hrs	Surface System Failure:			Low Oil Flag:												
Surface Vibration:		Surface Noise:			Filter Screen/Plug Shear:												
		H2S in Well:			hrs												
Run Client Primary Key Objectives																	
Client Objective					Achieved												
Drill to casing point					TRUE												
Drill to well TD					TRUE												
Drill out cement and casing shoe					TRUE												
Perform LOT (Leak Off Test) or FIT (Formation Integrity Test )					TRUE												
Wellbore avoidance / Anti-collision					TRUE												
No components LIH (Lost in Hole)					TRUE												
Real Time data for Decisions					TRUE												
Recorded Mode for Formation Evaluation					FALSE												
Identification of TOC (Top of Cement)					TRUE												
Target(s) hit within spec. tolerance					TRUE												
Identification of Top of formation					TRUE												
Operations without any HSE incident					TRUE												
Avoid Twist Off events					TRUE												
<b>Run Objective:</b> TD the 8.5in section																	
<b>Run Client Primary Key Objectives met? :</b> FALSE																	
<b>If not, Why?</b> : adnVISION tool unable to be dumped in the field, delaying delivery of RM data																	
<b>Reason for POOH :</b> Section Total Depth																	
<b>Sub Reason for POOH :</b>																	
<b>Run Summary :</b> POOH due to successfully reaching well TD. MU BHA and RIH Good SHT, at 4100mMD ( 3500mTVD) Started staging program DHAT= 122 deg continue staging procedure until 5414mMD DHAT=131 deg CSonicVISION was downlinked to default configuration 31 (sleep mode) after SHT to save memory and reduce battery consumption, tool was then downlinked back into main drilling configuration prior reassume drilling Compared with last run ROP was greatly improved from approximately 1-3 m/hr to 10-25 m hr. This was assessed as being a result of the bit change.																	
Throughout the run demodulation was usually of high quality due multichannel successfully cancelling out dominant harmonic in bandwidth even with signal strength less than 0.03psi (RMS). This resulted in good quality signal most of the time, however when downlinking or pumping WSM sweeps signal was usually lost – WSG informed who accepted issue. Due to the length of some of the downlinks and sweeps these usually resulted in gaps in our RT data (data density high majority of run). When downlinking sonicVISION on sleep mode at TD TeleScope did not accept 2x 18second downlinks which were confirmed by assessing SONMODE and SON3 in utility frame.																	
Decision made to attempt 60 second downlink which was successful – downlink frame from TeleScope was not received however downlinked confirmed via utility frame. Once above the rotary table, tools were inspected and no excessive wear was observed. Telescope, arcVISION and sonicVISION tools were dumped and processed however RM data from adnVISION was unrecoverable in the field which will need to be addressed in town. This will result in a delay in getting the data to the client.																	
LWD Data																	
Tool					SW Version		RecRate	Tot Mem	Avail Mem								
ARC 675																	
SonicVISION 675																	
ADN 675																	
Pump Data																	
Type		Pulse Damp Press	Number of Pumps	Pump Line ID	Pump Output		Stroke Len										
Triplex		101.00 psi	3	6.50 in	2.01 galUS		14.00 in										

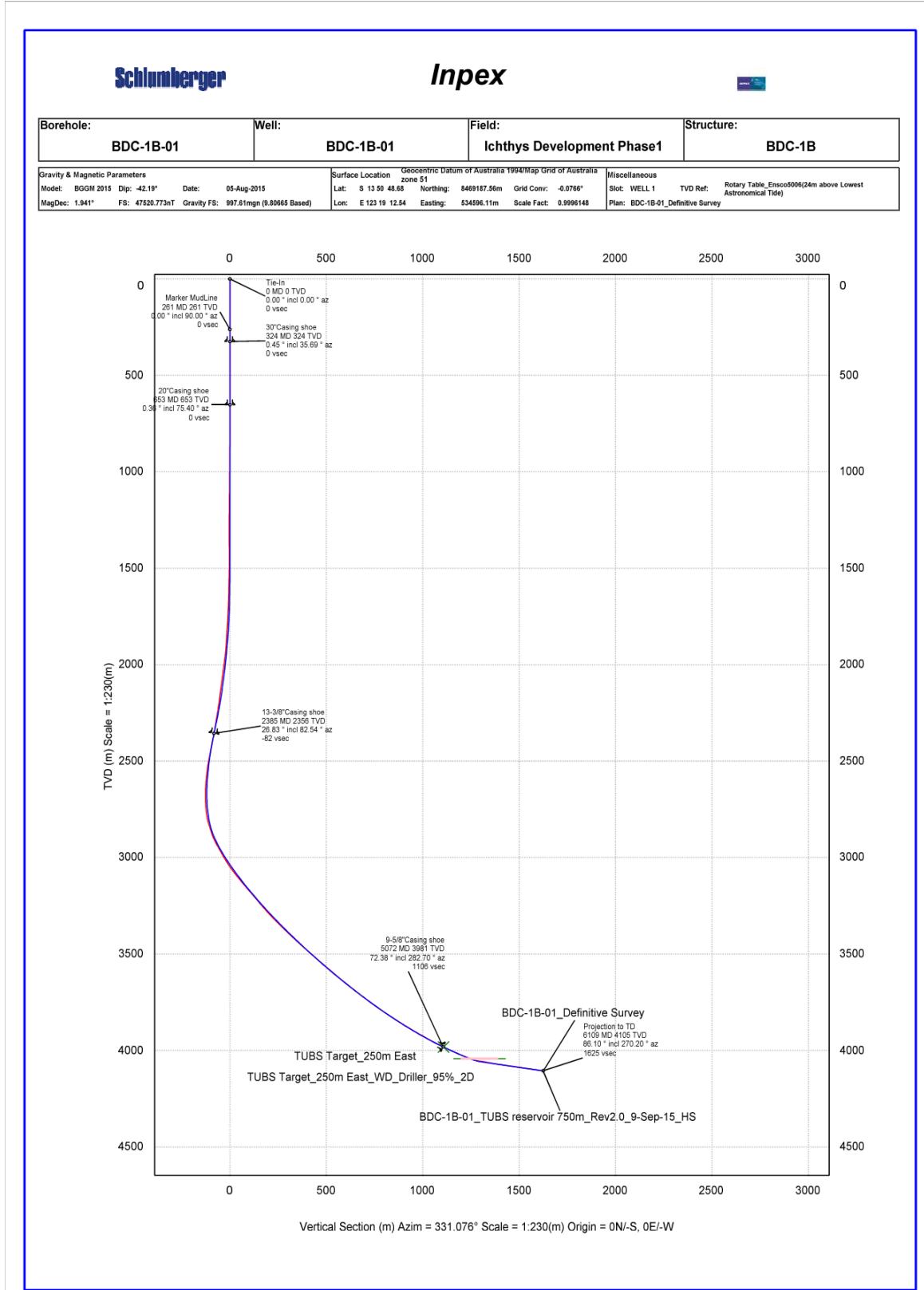
Schlumberger D&M EoWR – INPEX Ichthys Pty Ltd – BDC-1B-01

Crew on the Run											
Cell Manager :											
Name	Function	Name		Function							
Smith, Andrew Jonathan	MLWD	Blacker, Matthew		DD							
Pham Quoc, Huy	DD	Redko, Anton		DD - Pre-School Trainee							
Del Carpio Flores, Daniel Serafin	MLWD	Wisbey, Emily		MLWD							
Services on the Run											
Equipment	Service	Tool Name	Real Time			Recorded Mode			CAF		
			Hours	Failed	Depth	Hours	Failed	Depth			
ARC6D-BC - 2454	Resistivity	ARC 675	64.04 h	No	695.00 m	114.50 h	No	695.00 m	No		
ARC6D-BC - 2454	Gamma Ray	ARC 675	64.04 h	No	695.00 m	114.50 h	No	695.00 m	No		
ARC6D-BC - 2454	APWD	ARC 675	64.04 h	No	695.00 m	114.50 h	No	695.00 m	No		
ARC6D-BC - 2454	Pressure on connection	ARC 675	64.04 h	No	695.00 m	114.50 h	No	695.00 m	No		
CRSC-AA - DN559	PowerDrive Xceed	Xceed 675	64.04 h	No	695.00 m	h	No	m	No		
CRSC-AA - DN559	RT Comms	Xceed 675	64.04 h	No	695.00 m	h	No	m	No		
CRSC-AA - DN559	Cont D&I	Xceed 675	64.04 h	No	695.00 m	h	No	m	No		
MDCIX-AB - G4224	TeleScope D&I	MDC 675	64.04 h	No	695.00 m	64.04 h	No	695.00 m	No		
MDCIX-AB - G4224	TeleScope Cont D&I	MDC 675	64.04 h	No	695.00 m	h	No	m	No		
MDCIX-AB - G4224	TeleScope Shock and Vibration	MDC 675	64.04 h	No	695.00 m	64.04 h	No	695.00 m	No		
MDCIX-AB - G4224	TeleScope Collar RPM	MDC 675	64.04 h	No	695.00 m	64.04 h	No	695.00 m	No		
MDCIX-AB - G4224	Quick Survey (TeleScope Survey CRPM Cessation)	MDC 675	64.04 h	No	695.00 m	h	No	m	No		
SD6D-BA - EW15	Compressional DT	SonicVISION 675	64.04 h	No	695.00 m	114.50 h	No	695.00 m	No		
ADDC-CE - G0291	Density	ADN 675	64.04 h	No	695.00 m	114.50 h	Yes	0.00 m	No		
ADDC-CE - G0291	Neutron	ADN 675	64.04 h	No	695.00 m	114.50 h	Yes	0.00 m	No		
ADDC-CE - G0291	Caliper	ADN 675	64.04 h	No	695.00 m	114.50 h	Yes	0.00 m	No		
Equipment on the Run											
Tool Name	Equipment	Pump Hours									
		Start	Cumm Hrs on Run			Software Version					
PDC	- JJ3955	0 h	64.04 h								
Xceed 675	CRSC-AA - DN559	0 h	64.04 h								
ARC 675	ARC6D-BC - 2454	0 h	64.04 h								
MDC 675	MDCIX-AB - G4224	0 h	64.04 h								
SonicVISION 675	SD6D-BA - EW15	0 h	64.04 h								
ADN 675	ADDC-CE - G0291	0 h	64.04 h								
ARC6/8-ADN6/8-Sonic6/8 Batt	T6017257 - Q03063	35.8 h	99.84 h								
ARC6/8-ADN6/8-Sonic6/8 Batt	T6017257 - Q08231	35.8 h	99.84 h								
ARC6/8-ADN6/8-Sonic6/8 Batt	T6017257 - Q06756	107.5 h	171.54 h								
ARC6/8-ADN6/8-Sonic6/8 Batt	T6017257 - Q08875	87.61 h	151.65 h								
ARC6/8-ADN6/8-Sonic6/8 Batt	T6017257 - Q06084	0 h	64.04 h								
ARC6/8-ADN6/8-Sonic6/8 Batt	T6017257 - Q08898	0 h	64.04 h								
String Stabilizer	SZS6S-IBS - OSS060193F	85.12 h	149.16 h								
Non-Mag Drill Collar	NMDC6 - SBD7298	85.12 h	149.16 h								
Ball Catcher Sub	- B2004993	0 h	64.04 h								
Well Commander	- B2007676	0 h	64.04 h								

### 3 Post Job Analysis

#### 3.1 Borehole Trajectory Planned vs Actual





## 3.2 Survey Listing



### BDC-1B-01\_Definitive Survey Report

(Def Survey)

**Report Date:** September 30, 2015 - 10:01 AM  
**Client:** Inpex  
**Field:** Ichthys Development Phase1  
**Structure / Slot:** BDC-1B / WELL 1  
**Well:** BDC-1B-01  
**Borehole:** BDC-1B-01  
**UWI / API#:** Unknown / Unknown  
**Survey Name:** BDC-1B-01\_Definitive Survey  
**Survey Date:** August 08, 2015  
**Tort / AHD / DDI / ERD Ratio:** 242.398 ° / 3316.249 m / 6.594 / 0.808  
**Coordinate Reference System:** GDA94/MGA94 Zone 51  
**Location Lat / Long:** S 13° 50' 48.67706", E 123° 19' 12.53765"  
**Location Grid N/E Y/X:** N 8469187.560 m, E 534596.110 m  
**CRS Grid Convergence Angle:** -0.0766 °  
**Grid Scale Factor:** 0.9996148  
**Version / Patch:** 2.8.572.0

**Survey / DLS Computation:** Minimum Curvature / Lubinski  
**Vertical Section Azimuth:** 331.076 ° (Grid North)  
**Vertical Section Origin:** 0.000 m, 0.000 m  
**TVD Reference Datum:** Rotary Table\_Ensco5006  
**TVD Reference Elevation:** 24.000 m above Lowest Astronomical Tide  
**Seabed / Ground Elevation:** 237.200 m below Lowest Astronomical Tide  
**Magnetic Declination:** 1.941 °  
**Total Gravity Field Strength:** 997.6098mgn (9.80665 Based)  
**Gravity Model:** GARM  
**Total Magnetic Field Strength:** 47520.773 nT  
**Magnetic Dip Angle:** -42.190 °  
**Declination Date:** August 05, 2015  
**Magnetic Declination Model:** BGGM 2015  
**North Reference:** Grid North  
**Grid Convergence Used:** -0.0766 °  
**Total Corr Mag North->Grid**  
**North:** 2.0174 °  
**Local Coord Referenced To:** Well Head

Comments	MD (m)	Incl (°)	Azim Grid (°)	TVD (m)	TVDS (m)	VSEC (m)	NS (m)	EW (m)	DLS (/30m)	Northing (m)	Easting (m)	Latitude (N/S °'")	Longitude (E/W °'")
Tie-in	0.00	0.00	0.00	0.00	-24.00	0.00	0.00	0.00	N/A	8469187.56	534596.11	S 13 50 48.68	E 123 19 12.54
Marker MudLine	261.20	0.00	0.00	261.20	237.20	0.00	0.00	0.00	0.00	8469187.56	534596.11	S 13 50 48.68	E 123 19 12.54
	297.22	0.50	62.33	297.22	273.22	0.00	0.07	0.14	0.42	8469187.63	534596.25	S 13 50 48.67	E 123 19 12.54
	309.06	0.26	22.51	309.06	285.06	0.01	0.12	0.20	0.87	8469187.68	534596.31	S 13 50 48.67	E 123 19 12.54
30"Casing shoe	324.40	0.45	35.69	324.40	300.40	0.06	0.20	0.24	0.40	8469187.76	534596.35	S 13 50 48.67	E 123 19 12.55
	350.21	0.78	43.04	350.21	326.21	0.16	0.41	0.42	0.40	8469187.97	534596.53	S 13 50 48.66	E 123 19 12.55
	379.28	0.57	27.41	379.28	355.28	0.30	0.69	0.62	0.29	8469188.25	534596.73	S 13 50 48.65	E 123 19 12.56
	408.07	0.45	37.66	408.06	384.06	0.42	0.90	0.76	0.16	8469188.46	534596.87	S 13 50 48.65	E 123 19 12.56
	436.91	0.47	54.97	436.90	412.90	0.48	1.06	0.92	0.15	8469188.62	534597.03	S 13 50 48.64	E 123 19 12.57
	465.40	0.52	65.92	465.39	441.39	0.48	1.18	1.14	0.11	8469188.74	534597.25	S 13 50 48.64	E 123 19 12.58
	525.47	0.30	60.93	525.46	501.46	0.46	1.37	1.52	0.11	8469188.93	534597.63	S 13 50 48.63	E 123 19 12.59
	583.12	0.39	56.80	583.11	559.11	0.47	1.55	1.82	0.05	8469189.11	534597.93	S 13 50 48.63	E 123 19 12.60
	612.49	0.45	72.65	612.48	588.48	0.46	1.64	2.01	0.13	8469189.20	534598.12	S 13 50 48.62	E 123 19 12.60
	643.49	0.41	73.81	643.48	619.48	0.41	1.70	2.24	0.04	8469189.26	534598.35	S 13 50 48.62	E 123 19 12.61
20"Casing shoe	652.60	0.36	75.40	652.59	628.59	0.40	1.72	2.30	0.16	8469189.28	534598.41	S 13 50 48.62	E 123 19 12.61

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Comments	MD (m)	Incl (°)	Azim Grid (°)	TVD (m)	TVDSs (m)	VSEC (m)	NS (m)	EW (m)	DLS (°/30m)	Northing (m)	Easting (m)	Latitude (N/S °'")	Longitude (E/W °'")
	673.53	0.26	81.15	673.52	649.52	0.36	1.74	2.41	0.16	8469189.30	534598.52 S	13 50 48.62	E 123 19 12.62
	702.35	0.29	21.96	702.34	678.34	0.39	1.82	2.50	0.28	8469189.38	534598.61 S	13 50 48.62	E 123 19 12.62
	732.63	0.26	33.91	732.62	708.62	0.47	1.95	2.57	0.06	8469189.51	534598.68 S	13 50 48.61	E 123 19 12.62
	761.54	0.12	70.58	761.53	737.53	0.49	2.02	2.63	0.19	8469189.57	534598.74 S	13 50 48.61	E 123 19 12.63
	790.64	0.23	106.60	790.63	766.63	0.44	2.01	2.72	0.16	8469189.57	534598.83 S	13 50 48.61	E 123 19 12.63
	819.38	0.34	128.58	819.37	795.37	0.32	1.94	2.84	0.16	8469189.50	534598.95 S	13 50 48.61	E 123 19 12.63
	877.29	0.54	141.36	877.27	853.27	-0.10	1.62	3.14	0.11	8469189.18	534599.25 S	13 50 48.62	E 123 19 12.64
	907.12	0.41	152.08	907.10	883.10	-0.35	1.41	3.28	0.16	8469188.97	534599.39 S	13 50 48.63	E 123 19 12.65
	935.02	0.36	151.43	935.00	911.00	-0.54	1.25	3.37	0.05	8469188.81	534599.48 S	13 50 48.64	E 123 19 12.65
	964.48	0.44	158.71	964.46	940.46	-0.74	1.06	3.46	0.10	8469188.62	534599.56 S	13 50 48.64	E 123 19 12.65
	991.77	0.38	149.79	991.75	967.75	-0.94	0.89	3.54	0.10	8469188.45	534599.65 S	13 50 48.65	E 123 19 12.66
	1019.93	0.42	180.56	1019.91	995.91	-1.12	0.70	3.58	0.23	8469188.26	534599.69 S	13 50 48.65	E 123 19 12.66
	1048.32	0.47	162.50	1048.30	1024.30	-1.32	0.49	3.62	0.16	8469188.05	534599.73 S	13 50 48.66	E 123 19 12.66
	1076.05	0.55	152.49	1076.03	1052.03	-1.57	0.26	3.71	0.13	8469187.82	534599.82 S	13 50 48.67	E 123 19 12.66
	1105.04	0.74	162.67	1105.02	1081.02	-1.89	-0.04	3.83	0.23	8469187.52	534599.94 S	13 50 48.68	E 123 19 12.67
	1134.37	0.92	169.17	1134.34	1110.34	-2.30	-0.45	3.93	0.21	8469187.11	534600.04 S	13 50 48.69	E 123 19 12.67
	1192.08	0.28	162.95	1192.05	1168.05	-2.88	-1.04	4.06	0.33	8469186.52	534600.17 S	13 50 48.71	E 123 19 12.67
	1219.91	0.30	213.27	1219.88	1195.88	-2.98	-1.17	4.04	0.27	8469186.39	534600.15 S	13 50 48.71	E 123 19 12.67
	1250.74	0.32	207.97	1250.71	1226.71	-3.06	-1.31	3.96	0.03	8469186.25	534600.07 S	13 50 48.72	E 123 19 12.67
	1307.93	0.20	236.05	1307.90	1283.90	-3.16	-1.51	3.80	0.09	8469186.05	534599.91 S	13 50 48.73	E 123 19 12.66
	1336.15	0.45	257.15	1336.12	1312.12	-3.13	-1.56	3.65	0.29	8469186.00	534599.76 S	13 50 48.73	E 123 19 12.66
	1369.08	0.46	247.99	1369.05	1345.05	-3.08	-1.64	3.40	0.07	8469185.92	534599.51 S	13 50 48.73	E 123 19 12.65
	1395.83	0.62	312.42	1395.80	1371.80	-2.93	-1.58	3.20	0.66	8469185.98	534599.31 S	13 50 48.73	E 123 19 12.64
	1423.93	0.35	277.15	1423.90	1399.90	-2.74	-1.47	3.00	0.42	8469186.09	534599.11 S	13 50 48.72	E 123 19 12.64
	1451.10	0.37	92.96	1451.07	1427.07	-2.73	-1.46	3.00	0.79	8469186.10	534599.11 S	13 50 48.72	E 123 19 12.64
	1479.12	0.45	84.50	1479.08	1455.08	-2.83	-1.46	3.20	0.11	8469186.10	534599.31 S	13 50 48.72	E 123 19 12.64
	1507.32	1.35	102.51	1507.28	1483.28	-3.09	-1.52	3.64	0.99	8469186.04	534599.75 S	13 50 48.73	E 123 19 12.66
	1536.47	2.64	90.49	1536.41	1512.41	-3.65	-1.60	4.65	1.39	8469185.96	534600.75 S	13 50 48.73	E 123 19 12.69
	1566.28	3.21	84.30	1566.18	1542.18	-4.31	-1.52	6.16	0.66	8469186.04	534602.27 S	13 50 48.73	E 123 19 12.74
	1595.88	3.19	85.64	1595.74	1571.74	-4.98	-1.38	7.81	0.08	8469186.18	534603.92 S	13 50 48.72	E 123 19 12.80
	1624.20	3.24	86.37	1624.01	1600.01	-5.65	-1.27	9.39	0.07	8469186.29	534605.50 S	13 50 48.72	E 123 19 12.85
	1656.64	3.34	89.91	1656.40	1632.40	-6.50	-1.21	11.25	0.21	8469186.35	534607.36 S	13 50 48.72	E 123 19 12.91
	1685.00	3.91	92.16	1684.70	1660.70	-7.40	-1.24	13.05	0.62	8469186.32	534609.15 S	13 50 48.72	E 123 19 12.97
	1714.35	4.74	91.16	1713.97	1689.97	-8.52	-1.30	15.26	0.85	8469186.26	534611.36 S	13 50 48.72	E 123 19 13.05
	1739.86	5.19	94.87	1739.38	1715.38	-9.69	-1.42	17.46	0.65	8469186.14	534613.56 S	13 50 48.72	E 123 19 13.12
	1767.36	5.65	97.29	1766.76	1742.76	-11.18	-1.70	20.04	0.56	8469185.86	534616.15 S	13 50 48.73	E 123 19 13.21
	1794.76	7.01	91.92	1793.99	1769.99	-12.84	-1.93	23.05	1.62	8469185.63	534619.15 S	13 50 48.74	E 123 19 13.31
	1824.81	6.82	92.01	1823.82	1799.82	-14.69	-2.05	26.67	0.19	8469185.51	534622.77 S	13 50 48.74	E 123 19 13.43
	1854.67	6.39	93.54	1853.49	1829.49	-16.50	-2.22	30.10	0.47	8469185.34	534626.20 S	13 50 48.75	E 123 19 13.54
	1884.64	8.02	89.36	1883.22	1859.22	-18.38	-2.30	33.85	1.71	8469185.26	534629.95 S	13 50 48.75	E 123 19 13.67

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	1913.13	9.36	86.97	1911.38	1887.38	-20.34	-2.15	38.16	1.46	8469185.41	534634.25 S	13 50 48.75	E 123 19 13.81
	1941.38	12.03	86.42	1939.14	1915.14	-22.60	-1.85	43.39	2.84	8469185.71	534639.48 S	13 50 48.74	E 123 19 13.98
	1969.00	15.13	89.65	1965.98	1941.98	-25.56	-1.64	49.87	3.47	8469185.92	534645.96 S	13 50 48.73	E 123 19 14.20
	1996.36	15.54	91.12	1992.37	1968.37	-29.10	-1.69	57.10	0.62	8469185.87	534653.19 S	13 50 48.73	E 123 19 14.44
	2025.40	16.35	89.50	2020.29	1996.29	-32.99	-1.73	65.08	0.95	8469185.83	534661.16 S	13 50 48.73	E 123 19 14.70
	2053.22	17.09	85.85	2046.94	2022.94	-36.57	-1.40	73.07	1.38	8469186.16	534669.15 S	13 50 48.72	E 123 19 14.97
	2083.38	17.62	84.33	2075.72	2051.72	-40.23	-0.63	82.03	0.69	8469186.93	534678.11 S	13 50 48.69	E 123 19 15.27
	2116.02	18.25	84.60	2106.78	2082.78	-44.22	0.34	92.04	0.58	8469187.90	534688.11 S	13 50 48.66	E 123 19 15.60
	2144.98	19.33	84.74	2134.19	2110.19	-47.95	1.20	101.33	1.12	8469188.76	534697.40 S	13 50 48.63	E 123 19 15.91
	2169.59	19.51	83.23	2157.40	2133.40	-51.14	2.06	109.46	0.65	8469189.62	534705.53 S	13 50 48.61	E 123 19 16.18
	2200.68	19.29	82.59	2186.73	2162.73	-54.98	3.33	119.71	0.30	8469190.89	534715.77 S	13 50 48.56	E 123 19 16.52
	2229.12	20.17	84.10	2213.50	2189.50	-58.62	4.44	129.25	1.07	8469192.00	534725.31 S	13 50 48.53	E 123 19 16.84
	2255.62	22.13	83.91	2238.21	2214.21	-62.34	5.44	138.76	2.22	8469193.00	534734.81 S	13 50 48.49	E 123 19 17.16
	2287.75	24.07	82.89	2267.76	2243.76	-67.13	6.90	151.28	1.85	8469194.45	534747.33 S	13 50 48.45	E 123 19 17.57
	2316.01	24.11	82.47	2293.56	2269.56	-71.38	8.37	162.72	0.19	8469195.92	534758.76 S	13 50 48.40	E 123 19 17.96
13-3/8"Casing shoe	2342.18	25.23	81.60	2317.34	2293.34	-75.28	9.88	173.53	1.35	8469197.44	534769.58 S	13 50 48.35	E 123 19 18.32
	2357.33	26.79	81.53	2330.96	2306.96	-77.61	10.86	180.11	3.09	8469198.41	534776.15 S	13 50 48.32	E 123 19 18.53
	2384.96	26.83	82.54	2355.62	2331.62	-82.06	12.58	192.45	0.50	8469200.14	534788.48 S	13 50 48.26	E 123 19 18.95
	2400.31	26.86	83.10	2369.31	2345.31	-84.63	13.45	199.33	0.50	8469201.00	534795.36 S	13 50 48.23	E 123 19 19.17
	2427.67	26.43	84.12	2393.77	2369.77	-89.33	14.82	211.52	0.69	8469202.37	534807.55 S	13 50 48.19	E 123 19 19.58
	2456.01	28.37	81.95	2418.93	2394.93	-94.20	16.41	224.46	2.31	8469203.96	534820.48 S	13 50 48.13	E 123 19 20.01
	2485.33	29.86	80.88	2444.54	2420.54	-99.16	18.54	238.57	1.61	8469206.09	534834.58 S	13 50 48.06	E 123 19 20.48
	2514.34	31.69	79.59	2469.47	2445.47	-104.02	21.06	253.19	2.01	8469208.61	534849.20 S	13 50 47.98	E 123 19 20.97
	2543.55	32.86	78.19	2494.16	2470.16	-108.79	24.07	268.50	1.43	8469211.62	534864.50 S	13 50 47.88	E 123 19 21.48
	2572.74	33.02	76.06	2518.66	2494.66	-113.18	27.60	283.97	1.20	8469215.15	534879.97 S	13 50 47.77	E 123 19 21.99
	2601.54	34.34	72.17	2542.63	2518.63	-116.77	31.98	299.32	2.63	8469219.53	534895.31 S	13 50 47.62	E 123 19 22.50
	2630.31	35.56	70.35	2566.21	2542.21	-119.68	37.28	314.92	1.67	8469224.83	534910.91 S	13 50 47.45	E 123 19 23.02
	2658.92	37.80	68.48	2589.16	2565.16	-122.15	43.30	330.92	2.62	8469230.84	534926.90 S	13 50 47.25	E 123 19 23.56
	2687.11	39.86	66.57	2611.12	2587.12	-124.13	50.06	347.24	2.54	8469237.60	534943.22 S	13 50 47.03	E 123 19 24.10
	2717.77	41.75	64.10	2634.32	2610.32	-125.61	58.42	365.44	2.43	8469245.96	534961.41 S	13 50 46.76	E 123 19 24.70
	2744.67	43.60	62.13	2654.10	2630.10	-126.25	66.67	381.70	2.54	8469254.21	534977.67 S	13 50 46.49	E 123 19 25.25
	2773.27	45.03	60.83	2674.57	2650.57	-126.39	76.22	399.26	1.78	8469263.75	534995.21 S	13 50 46.18	E 123 19 25.83
	2802.45	45.91	60.39	2695.03	2671.03	-126.22	86.42	417.38	0.96	8469273.95	535013.33 S	13 50 45.85	E 123 19 26.43
	2830.95	47.91	58.79	2714.50	2690.50	-125.68	96.96	435.32	2.44	8469284.49	535031.27 S	13 50 45.50	E 123 19 27.03
	2859.54	49.45	58.53	2733.37	2709.37	-124.77	108.13	453.66	1.63	8469295.65	535049.60 S	13 50 45.14	E 123 19 27.64
	2887.91	50.56	57.10	2751.61	2727.61	-123.53	119.71	472.05	1.65	8469307.22	535067.98 S	13 50 44.76	E 123 19 28.25
	2919.47	52.17	54.76	2771.31	2747.31	-121.32	133.52	492.47	2.32	8469321.03	535088.39 S	13 50 44.31	E 123 19 28.93
	2945.95	54.05	53.15	2787.21	2763.21	-118.69	145.99	509.59	2.58	8469333.49	535105.50 S	13 50 43.90	E 123 19 29.50
	2974.30	55.45	51.85	2803.57	2779.57	-115.24	160.08	527.95	1.86	8469347.58	535123.86 S	13 50 43.45	E 123 19 30.11
	3002.71	56.62	50.22	2819.44	2795.44	-111.13	174.90	546.27	1.89	8469362.39	535142.17 S	13 50 42.96	E 123 19 30.72

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	3031.86	57.48	49.66	2835.30	2811.30	-106.40	190.64	564.99	1.01	8469378.13	535160.89 S	13 50 42.45	E 123 19 31.34
	3061.02	59.16	50.22	2850.61	2826.61	-101.61	206.61	583.99	1.80	8469394.09	535179.87 S	13 50 41.93	E 123 19 31.98
	3090.12	60.72	50.74	2865.19	2841.19	-96.98	222.64	603.42	1.67	8469410.11	535199.29 S	13 50 41.41	E 123 19 32.62
	3118.99	61.63	50.36	2879.11	2855.11	-92.36	238.71	622.95	1.01	8469426.18	535218.82 S	13 50 40.88	E 123 19 33.27
	3147.10	62.49	48.77	2892.28	2868.28	-87.40	254.81	641.85	1.76	8469442.28	535237.71 S	13 50 40.36	E 123 19 33.90
	3176.39	61.42	45.68	2906.05	2882.05	-81.22	272.36	660.82	3.00	8469459.82	535256.67 S	13 50 39.79	E 123 19 34.53
	3204.37	60.12	44.12	2919.72	2895.72	-74.42	289.66	678.05	2.02	8469477.11	535273.90 S	13 50 39.22	E 123 19 35.10
	3233.56	58.80	42.20	2934.55	2910.55	-66.69	307.99	695.25	2.17	8469495.43	535291.09 S	13 50 38.62	E 123 19 35.68
	3262.74	58.03	40.91	2949.83	2925.83	-58.38	326.59	711.74	1.38	8469514.03	535307.58 S	13 50 38.02	E 123 19 36.22
	3291.35	57.42	39.75	2965.11	2941.11	-49.82	345.03	727.40	1.21	8469532.46	535323.23 S	13 50 37.42	E 123 19 36.74
	3319.48	56.48	40.09	2980.45	2956.45	-41.31	363.11	742.53	1.05	8469550.53	535338.35 S	13 50 36.83	E 123 19 37.25
	3346.86	55.89	37.29	2995.69	2971.69	-32.65	380.87	756.75	2.63	8469568.28	535352.56 S	13 50 36.25	E 123 19 37.72
	3377.21	55.34	36.39	3012.83	2988.83	-22.36	400.91	771.76	0.91	8469588.32	535367.58 S	13 50 35.60	E 123 19 38.22
	3406.27	55.60	35.20	3029.31	3005.31	-12.14	420.33	785.77	1.05	8469607.73	535381.57 S	13 50 34.97	E 123 19 38.69
	3435.63	55.37	31.90	3045.94	3021.94	-0.96	440.49	799.13	2.79	8469627.88	535394.94 S	13 50 34.31	E 123 19 39.13
	3465.11	54.68	29.95	3062.84	3038.84	11.17	461.20	811.55	1.77	8469648.59	535407.35 S	13 50 33.63	E 123 19 39.54
	3493.34	54.75	27.71	3079.15	3055.15	23.46	481.39	822.66	1.94	8469668.77	535418.45 S	13 50 32.98	E 123 19 39.91
	3522.13	54.50	25.88	3095.82	3071.82	36.68	502.34	833.24	1.58	8469689.71	535429.03 S	13 50 32.29	E 123 19 40.26
	3549.59	53.84	24.40	3111.90	3087.90	49.75	522.50	842.70	1.50	8469709.85	535438.49 S	13 50 31.64	E 123 19 40.58
	3578.70	52.77	21.87	3129.29	3105.29	64.09	543.96	851.87	2.36	8469731.31	535447.65 S	13 50 30.94	E 123 19 40.88
	3610.70	51.82	20.31	3148.86	3124.86	80.36	567.57	860.98	1.46	8469754.92	535456.76 S	13 50 30.17	E 123 19 41.18
	3637.51	51.86	17.63	3165.43	3141.43	94.49	587.51	867.84	2.36	8469774.84	535463.61 S	13 50 29.52	E 123 19 41.41
	3666.68	50.48	15.84	3183.72	3159.72	110.37	609.27	874.38	2.02	8469796.59	535470.15 S	13 50 28.81	E 123 19 41.63
	3693.92	48.58	11.83	3201.40	3177.40	125.57	629.38	879.34	3.96	8469816.69	535475.12 S	13 50 28.16	E 123 19 41.79
	3721.76	47.85	12.00	3219.95	3195.95	141.27	649.69	883.63	0.80	8469837.00	535479.40 S	13 50 27.50	E 123 19 41.93
	3750.25	47.55	10.45	3239.13	3215.13	157.38	670.35	887.73	1.25	8469857.66	535483.50 S	13 50 26.83	E 123 19 42.07
	3780.64	47.12	7.48	3259.73	3235.73	175.01	692.42	891.22	2.20	8469879.72	535486.98 S	13 50 26.11	E 123 19 42.18
	3811.55	47.07	5.17	3280.77	3256.77	193.50	714.92	893.71	1.64	8469902.21	535489.48 S	13 50 25.38	E 123 19 42.27
	3841.48	48.38	2.59	3300.91	3276.91	212.11	737.02	895.20	2.32	8469924.29	535490.97 S	13 50 24.66	E 123 19 42.32
	3862.51	48.38	0.07	3314.88	3290.88	225.69	752.73	895.57	2.69	8469940.00	535491.33 S	13 50 24.14	E 123 19 42.33
	3891.44	48.10	358.83	3334.14	3310.14	244.68	774.31	895.36	1.00	8469961.57	535491.13 S	13 50 23.44	E 123 19 42.32
	3918.77	48.40	357.98	3352.34	3328.34	262.79	794.69	894.79	0.77	8469981.94	535490.56 S	13 50 22.78	E 123 19 42.30
	3947.40	48.69	356.55	3371.30	3347.30	282.04	816.12	893.77	1.16	8470003.37	535489.53 S	13 50 22.08	E 123 19 42.26
	3977.09	48.69	354.82	3390.90	3366.90	302.32	838.36	892.09	1.31	8470025.60	535487.86 S	13 50 21.36	E 123 19 42.21
	4007.05	48.66	351.69	3410.68	3386.68	323.15	860.70	889.45	2.35	8470047.93	535485.22 S	13 50 20.63	E 123 19 42.12
	4036.39	48.99	349.01	3430.00	3406.00	343.99	882.46	885.75	2.09	8470069.68	535481.52 S	13 50 19.92	E 123 19 41.99
	4064.94	49.16	346.22	3446.71	3424.71	364.67	903.53	881.12	2.22	8470090.74	535476.89 S	13 50 19.24	E 123 19 41.84
	4092.89	49.31	343.57	3466.96	3442.96	385.22	923.96	875.60	2.16	8470111.17	535471.38 S	13 50 18.57	E 123 19 41.65
	4120.54	49.19	340.48	3485.01	3461.01	405.78	943.88	869.14	2.54	8470131.08	535464.92 S	13 50 17.93	E 123 19 41.44
	4148.69	48.68	337.38	3503.50	3479.50	426.80	963.69	861.52	2.55	8470150.87	535457.29 S	13 50 17.28	E 123 19 41.18

Schlumberger D&M EoWR – INPEX Ichthys Pty Ltd – BDC-1B-01

Comments	MD (m)	Incl (°)	Azim Grid (°)	TVD (m)	TVDSs (m)	VSEC (m)	NS (m)	EW (m)	DLS (°30m)	Northing (m)	Easting (m)	Latitude (N/S ° ' ")	Longitude (E/W ° ' ")
	4177.53	48.70	334.33	3522.55	3498.55	448.38	983.45	852.66	2.38	8470170.63	535448.44 S	13 50 16.64	E 123 19 40.89
	4206.98	49.03	332.08	3541.92	3517.92	470.55	1003.25	842.66	1.76	8470190.42	535438.44 S	13 50 16.00	E 123 19 40.55
	4237.67	49.29	330.12	3561.99	3537.99	493.76	1023.57	831.44	1.47	8470210.74	535427.23 S	13 50 15.33	E 123 19 40.18
	4270.96	49.63	327.32	3583.63	3559.63	519.04	1045.19	818.30	1.94	8470232.34	535414.10 S	13 50 14.63	E 123 19 39.74
	4295.84	49.55	325.71	3599.76	3575.76	537.92	1060.99	807.85	1.48	8470248.14	535403.65 S	13 50 14.12	E 123 19 39.39
	4323.12	50.83	325.86	3617.23	3593.23	558.78	1078.31	796.07	1.41	8470265.46	535391.87 S	13 50 13.56	E 123 19 39.00
	4350.06	50.77	323.95	3634.25	3610.25	579.54	1095.39	784.07	1.65	8470282.53	535379.87 S	13 50 13.00	E 123 19 38.60
	4379.06	51.65	322.69	3652.42	3628.42	601.93	1113.52	770.56	1.36	8470300.65	535366.38 S	13 50 12.41	E 123 19 38.15
	4409.15	51.74	321.09	3671.07	3647.07	625.24	1132.10	755.99	1.25	8470319.22	535351.81 S	13 50 11.81	E 123 19 37.66
	4439.35	52.58	319.24	3689.60	3665.60	648.66	1150.41	740.71	1.67	8470337.53	535336.54 S	13 50 11.21	E 123 19 37.15
	4472.70	53.41	316.37	3709.68	3685.68	674.57	1170.13	722.83	2.19	8470357.24	535318.66 S	13 50 10.57	E 123 19 36.56
	4496.68	53.88	315.06	3723.89	3699.89	693.20	1183.96	709.34	1.44	8470371.06	535305.18 S	13 50 10.12	E 123 19 36.11
	4523.95	54.72	313.32	3739.81	3715.81	714.39	1199.39	693.46	1.81	8470386.49	535289.31 S	13 50 9.62	E 123 19 35.58
	4551.32	55.25	311.06	3755.51	3731.51	735.59	1214.44	676.85	2.11	8470401.54	535272.70 S	13 50 9.13	E 123 19 35.02
	4579.71	56.28	308.24	3771.48	3747.48	757.44	1229.42	658.78	2.69	8470416.50	535254.64 S	13 50 8.64	E 123 19 34.42
	4609.91	57.52	305.61	3787.98	3763.98	780.51	1244.61	638.56	2.51	8470431.69	535234.42 S	13 50 8.15	E 123 19 33.75
	4640.57	58.92	303.61	3804.13	3780.13	803.84	1259.41	617.11	2.15	8470446.48	535212.98 S	13 50 7.67	E 123 19 33.03
	4670.12	60.29	301.68	3819.08	3795.08	826.25	1273.15	595.65	2.19	8470460.22	535191.53 S	13 50 7.22	E 123 19 32.32
	4697.54	61.05	300.29	3832.51	3808.51	846.94	1285.46	575.15	1.56	8470472.52	535171.04 S	13 50 6.82	E 123 19 31.63
	4724.36	61.64	299.13	3845.37	3821.37	867.03	1297.12	554.71	1.32	8470484.18	535150.61 S	13 50 6.45	E 123 19 30.95
	4752.16	62.48	297.39	3858.40	3834.40	887.67	1308.75	533.08	1.89	8470495.80	535128.99 S	13 50 6.07	E 123 19 30.23
	4782.69	63.36	296.14	3872.30	3848.30	910.12	1320.99	508.81	1.39	8470508.04	535104.73 S	13 50 5.67	E 123 19 29.42
	4813.77	64.73	294.09	3885.90	3861.90	932.74	1332.85	483.51	2.22	8470519.89	535079.43 S	13 50 5.29	E 123 19 28.58
	4841.98	65.43	292.11	3897.79	3873.79	952.90	1342.88	459.98	2.05	8470529.92	535055.91 S	13 50 4.96	E 123 19 27.79
	4871.74	66.36	290.44	3909.94	3885.94	973.77	1352.74	434.67	1.80	8470539.77	535030.61 S	13 50 4.64	E 123 19 26.95
	4904.59	67.05	288.98	3922.93	3898.93	996.41	1362.91	406.26	1.38	8470549.95	535002.22 S	13 50 4.31	E 123 19 26.01
	4932.17	67.71	287.74	3933.54	3909.54	1015.11	1370.93	382.10	1.44	8470557.96	534978.06 S	13 50 4.05	E 123 19 25.20
	4953.28	68.19	286.76	3941.47	3917.47	1029.23	1376.73	363.41	1.46	8470563.76	534959.38 S	13 50 3.86	E 123 19 24.58
	4989.56	69.31	284.44	3954.62	3930.62	1052.94	1385.82	330.85	2.01	8470572.85	534926.83 S	13 50 3.57	E 123 19 23.49
	5020.63	70.99	283.92	3965.17	3941.17	1072.90	1392.98	302.52	1.69	8470580.00	534898.51 S	13 50 3.34	E 123 19 22.55
9-5/8" Casing shoe	5057.05	72.26	283.12	3976.65	3952.65	1096.23	1401.06	268.91	1.22	8470588.08	534864.92 S	13 50 3.08	E 123 19 21.43
	5072.40	72.38	282.70	3981.31	3957.31	1105.98	1404.32	254.66	0.81	8470591.34	534850.67 S	13 50 2.97	E 123 19 20.95
	5083.97	72.47	282.39	3984.80	3960.80	1113.29	1406.72	243.89	0.81	8470593.74	534839.91 S	13 50 2.89	E 123 19 20.60
	5114.25	73.33	280.51	3993.71	3969.71	1132.03	1412.46	215.53	1.97	8470599.48	534811.55 S	13 50 2.71	E 123 19 19.65
	5141.79	74.41	278.78	4001.36	3977.36	1148.53	1416.90	189.45	2.16	8470603.91	534785.48 S	13 50 2.57	E 123 19 18.78
	5171.59	75.15	277.20	4009.18	3985.18	1165.80	1420.89	160.97	1.71	8470607.90	534757.02 S	13 50 2.44	E 123 19 17.83
	5199.70	75.80	275.58	4016.23	3992.23	1181.52	1423.92	133.93	1.81	8470610.93	534729.99 S	13 50 2.34	E 123 19 16.93
	5229.93	75.71	275.68	4023.67	3999.67	1198.14	1426.79	104.77	0.13	8470613.80	534700.84 S	13 50 2.25	E 123 19 15.96
	5258.59	77.52	276.05	4030.31	4006.31	1214.05	1429.64	77.04	1.93	8470616.65	534673.12 S	13 50 2.16	E 123 19 15.04
	5285.99	78.39	274.87	4036.02	4012.02	1229.18	1432.19	50.36	1.58	8470619.20	534646.45 S	13 50 2.07	E 123 19 14.15

Schlumberger D&M EoWR – INPEX Ichthys Pty Ltd – BDC-1B-01

Comments	MD (m)	Incl (°)	Azim Grid (°)	TVD (m)	TVDSs (m)	VSEC (m)	NS (m)	EW (m)	DLS (°/30m)	Northing (m)	Easting (m)	Latitude (N/S ° ' ")	Longitude (E/W ° ' ")
	5314.77	78.01	272.97	4041.91	4017.91	1244.46	1434.12	22.26	1.98	8470621.13	534618.36 S	13 50 2.01	E 123 19 13.21
	5345.42	80.40	270.91	4047.65	4023.65	1259.90	1435.14	-7.83	3.07	8470622.14	534588.28 S	13 50 1.98	E 123 19 12.21
	5375.75	83.47	270.28	4051.91	4027.91	1274.70	1435.45	-37.85	3.10	8470622.45	534558.27 S	13 50 1.97	E 123 19 11.21
	5400.96	86.24	268.55	4054.17	4030.17	1286.61	1435.19	-62.96	3.88	8470622.20	534533.18 S	13 50 1.98	E 123 19 10.38
	5429.80	87.42	268.06	4055.76	4031.76	1299.79	1434.34	-91.74	1.33	8470621.35	534504.41 S	13 50 2.01	E 123 19 9.42
	5459.82	85.76	267.84	4057.55	4033.55	1313.33	1433.27	-121.69	1.67	8470620.27	534474.47 S	13 50 2.05	E 123 19 8.42
	5490.63	84.40	268.17	4060.19	4036.19	1327.24	1432.20	-152.36	1.36	8470619.21	534443.81 S	13 50 2.08	E 123 19 7.40
	5517.28	85.12	269.03	4062.62	4038.62	1339.50	1431.55	-178.89	1.26	8470618.56	534417.29 S	13 50 2.10	E 123 19 6.52
	5543.86	85.12	270.66	4064.88	4040.88	1352.25	1431.48	-205.38	1.83	8470618.49	534390.81 S	13 50 2.11	E 123 19 5.64
	5572.93	84.31	270.12	4067.56	4043.56	1366.42	1431.67	-234.32	1.00	8470618.68	534361.88 S	13 50 2.10	E 123 19 4.67
	5630.72	86.67	270.66	4072.11	4048.11	1394.62	1432.07	-291.93	1.26	8470619.08	534304.30 S	13 50 2.09	E 123 19 2.75
	5661.12	85.55	270.26	4074.17	4050.17	1409.50	1432.31	-322.26	1.17	8470619.32	534273.98 S	13 50 2.09	E 123 19 1.74
	5689.78	86.01	270.21	4076.28	4052.28	1423.43	1432.43	-350.84	0.48	8470619.44	534245.41 S	13 50 2.08	E 123 19 0.79
	5716.10	85.84	270.26	4078.15	4054.15	1436.22	1432.54	-377.09	0.20	8470619.54	534219.16 S	13 50 2.08	E 123 18 59.92
	5745.87	85.87	269.87	4080.30	4056.30	1450.61	1432.57	-406.78	0.39	8470619.58	534189.48 S	13 50 2.08	E 123 18 58.93
	5772.44	86.24	269.90	4082.13	4058.13	1463.39	1432.52	-433.29	0.42	8470619.52	534162.99 S	13 50 2.08	E 123 18 58.05
	5804.84	85.78	270.16	4084.38	4060.38	1479.03	1432.53	-465.61	0.49	8470619.54	534130.68 S	13 50 2.08	E 123 18 56.97
	5862.73	86.16	269.46	4088.45	4064.45	1506.79	1432.34	-523.36	0.41	8470619.35	534072.95 S	13 50 2.09	E 123 18 55.05
	5889.14	85.78	269.42	4090.31	4066.31	1519.31	1432.08	-549.70	0.43	8470619.09	534046.62 S	13 50 2.10	E 123 18 54.17
	5917.28	86.18	269.74	4092.28	4068.28	1532.71	1431.88	-577.77	0.55	8470618.89	534018.56 S	13 50 2.11	E 123 18 53.23
	5946.07	86.18	270.06	4094.20	4070.20	1546.56	1431.83	-606.50	0.33	8470618.84	533989.85 S	13 50 2.11	E 123 18 52.28
	5976.74	86.16	269.87	4096.25	4072.25	1561.34	1431.81	-637.10	0.19	8470618.82	533959.26 S	13 50 2.12	E 123 18 51.26
	6006.15	86.24	269.95	4098.20	4074.20	1575.49	1431.76	-666.44	0.12	8470618.77	533929.92 S	13 50 2.12	E 123 18 50.28
	6034.40	85.87	270.29	4100.14	4076.14	1589.17	1431.82	-694.63	0.53	8470618.83	533901.75 S	13 50 2.12	E 123 18 49.34
	6061.40	86.30	270.21	4101.98	4077.98	1602.31	1431.94	-721.56	0.49	8470618.95	533874.83 S	13 50 2.11	E 123 18 48.45
Projection to TD	6088.53	86.18	270.22	4103.76	4079.76	1615.49	1432.04	-748.63	0.13	8470619.05	533847.76 S	13 50 2.11	E 123 18 47.55
	6109.00	86.10	270.20	4105.14	4081.14	1625.43	1432.12	-769.06	0.12	8470619.12	533827.35 S	13 50 2.11	E 123 18 46.87

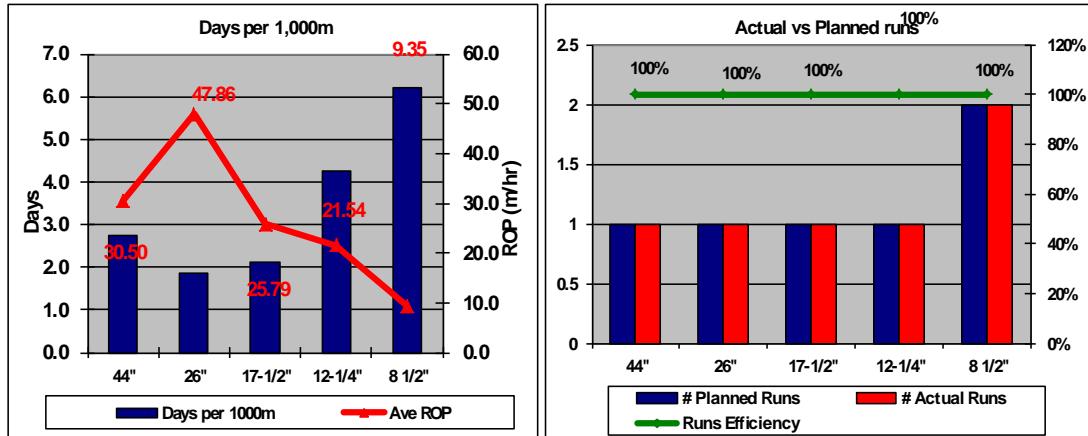
## 3.3 Drilling Performance KPI Charts

### KEY PERFORMANCE INDICATORS (KPIs) FOR DIRECTIONAL DRILLING SERVICES

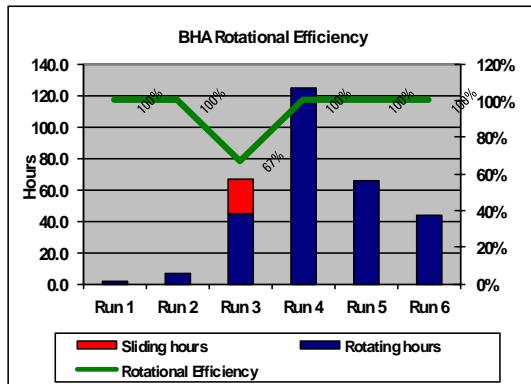
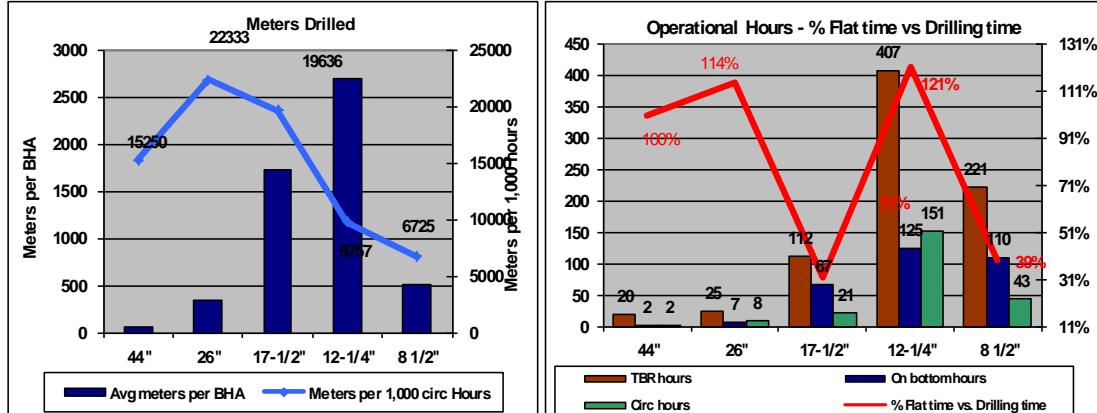
Client INPEX  
 Well BDC-1B-01  
 Rig Enserco 5006  
 Field Ichthys

Total Depth 6109.00 m  
 Date 29-Sep-15  
 D&M Yes

#### BHA Overview



#### Operational Performance



#### Summary Non-Productive Time

Non-Productive Time 0.0 hrs  
 Total Operating Time 311.0 hrs

#### Operating Efficiency

NPT per 1,000m 0.00 hrs/ 1000m  
 Meters per 1000 Circ Hour(D&M) 10906.72 m / K circ hr.

#### DD Efficiency

Tortuosity (Plan v Actual) 203 / 242  
 DDI (Plan v. Actual) 6.52 / 6.59

#### General Comments

**44" and 26" Section:** Drilled with rotary BHAs in one run with no hole issues and excellent ROP. Verticality maintained in 44" section "as usual" and in 26" addition of string stabilizer above MWD worked very well and no building trends were seen this time (max. Incl recorded 0.8deg).

**17 1/2" Section:** Drilled with motor BHA in one run with average on bottom ROP of 26 m/hr. Drilled through Grebe sands without any hole stability problems, MRR enabling closed mud system. Directional work was good this time, Kymera bit allowing good toolface control and no issues with weight stacking or motor stalling. Kymera type bit though possibly contributed to lower ROP, being slower than pure PDC, but on the other hand directional objective was fully accomplished. It also came out in reasonable shape but PDC / blades started showing signs of ringing out, 3 nozzles were blocked and one cone had excessive bearing play so it was probably right time to pull it out.

**12 1/4" Section:** Xceed rotary steerable tool was chosen on this well, as the directional demand was extremely difficult - 3D type trajectory with constant build from 27 to 76deg and with a full turn from 90 to 270 degrees. Executed to perfection and well landed 1m off the plan after 2700 meters of drilling. Drilling performance was exceptional, very stable BHA (packed) and use of good parameters resulted in benign downhole conditions-non existent shocks&vibration or stick-slip.

**8 1/2" Section:** Drilled in two runs, trip required after ROP went down to 1.5m/hr and at the same time Xceed tool developed RT comms problem and performance could not be proven quick enough. Second bit, Smith's MZ813 type then drilled remaining 695 meters with outstanding ROP, averaging 16m/hr, the best ever in the area (including vertical exploration wells). Medium flow Xceed worked very well as no fractures were encountered which would cause losses and flow rate was able to be kept at optimal 430-450gpm. Formations in the upper part (tiger sands) were very abrasive and heavy wear was found on all stabilizers and wear bends. Second run through the main Brewster reservoir did not show wear of any significance. Downhole conditions were very benign, parameters used resulted in minimal, mainly non-existent S&V or s-slip.

Overall, considering difficult conditions and directionally extremely demanding trajectory, this well saw exceptional performance by D&M, both personnel and equipment.

#### Well Trajectory

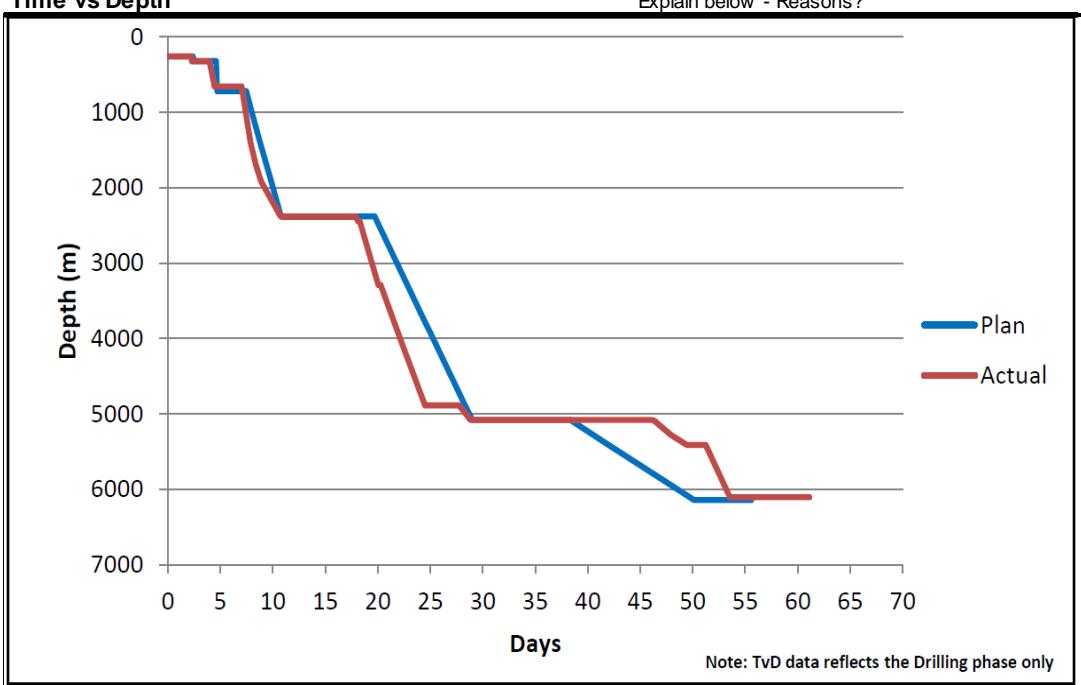
Deviations from plan	No
If yes, acceptable	N/A
Hit Drillers Target	Yes
Hole cleaning problems	No
Run casing OK	Yes
SF > 1.5	Yes
Zero well collisions	Yes
Slide in hole sections (If YES - Explain)	No

To maintain angle in unconsolidated formations

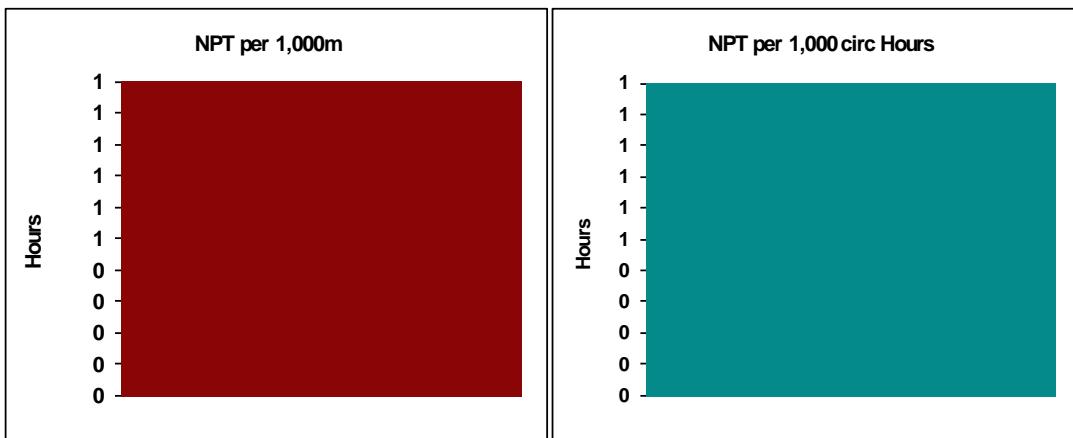
#### Tools & Delivery

Tools delivered fit for purpose	Yes
Backup tools available	Yes
Tools run within specifications	Yes
All tools pass shallow hole test	Yes
# of BHAs	Planned      6
	Actual      6
If # of actual BHAs > # of planned BHAs	
Explain below - Reasons?	

#### Time vs Depth

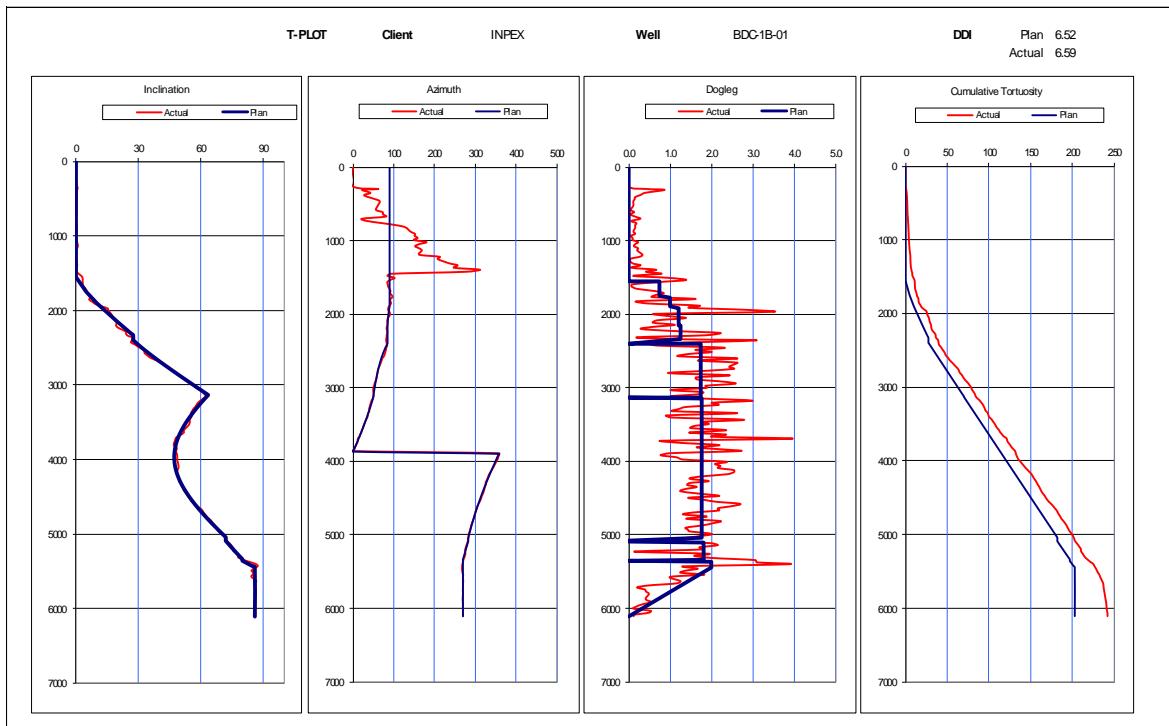


### Operational Performance



### Performance Summary

Overall exceptional performance, zero NPT attributed to D&M performance and all objectives of the well (drilling, directional, MWD and logging) achieved. On bottom drilling performance in all sections was very good (see slope of Actual Vs Planned time-depth curve above), especially considering extremely demanding "3D" trajectory drilled through very difficult and demanding formations. Main issue were long flat times for mitigating downhole conditions (losses and kicks in 12-1/4" section).



## 4 Appendices

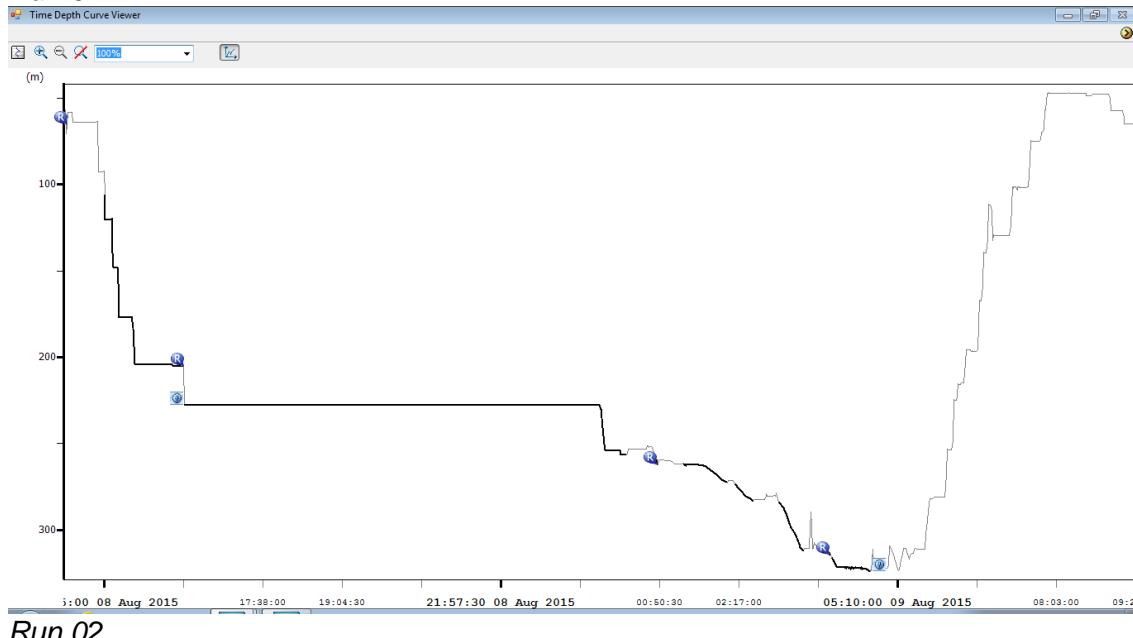
### 4.1 Depth Control Report

Control Standard (Version 2.0, 08-Jul-2014).

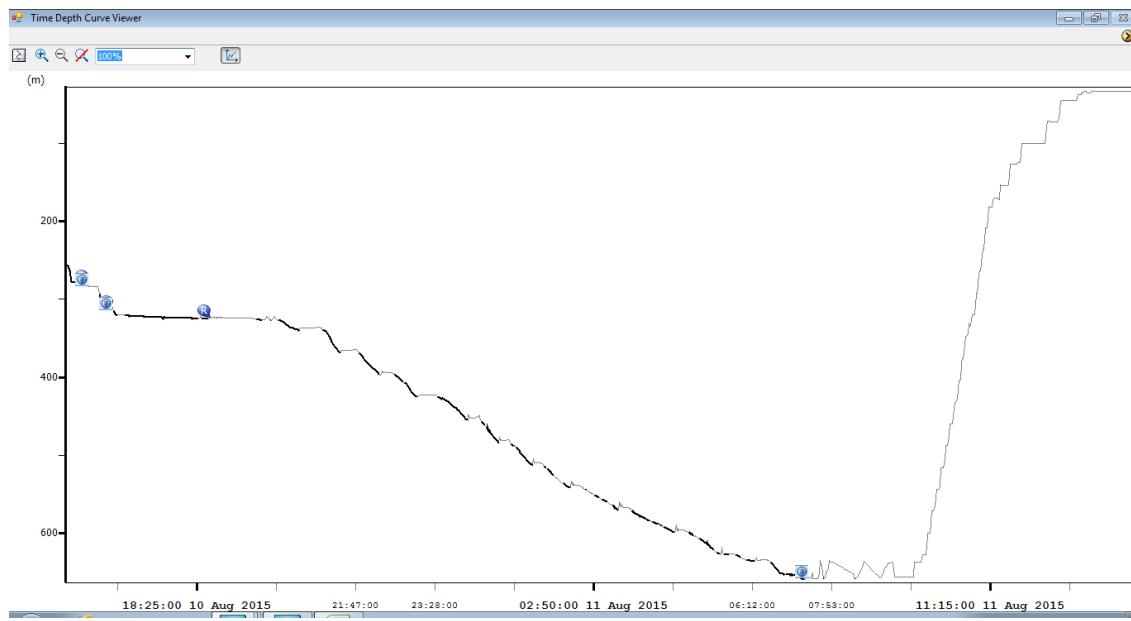
1. Depth acquisition was performed as per the procedure outlined in the D&M-SQ-S016 Depth
2. Depth is referenced to the Driller's Depth. The Driller's pipe tally is used to check acquired depth at frequent intervals. A Depth Control worksheet containing comparisons between the driller's pipe tally and the acquisition system bit depths is archived with Final Well Backup. This worksheet covers details description of any depth corrections made. A copy of Depth Control worksheet will be made available upon request.
3. Depth Acquisition Equipment: Floating rigs Depth control was undertaken with a Geograph depth tracking system. This was calibrated to operate at 328 pulses per meter prior to the job. A Heave Compensation Assembly (HCA) was used to obtain accurate determination of vertical rig motion due to heave. A calibrated Clamp Line Tensiometer (CLT) was also used to automate depth tracking. A drawworks encoder is also used as a backup system to the Geograph and for tracking depth while RIH/POOH quickly when the Geograph should be connected. It is calibrated at the rig site to calculate the number of pulses per foot generated for each wrap of the drawworks.

#### 4.1.1 Time Depth Files

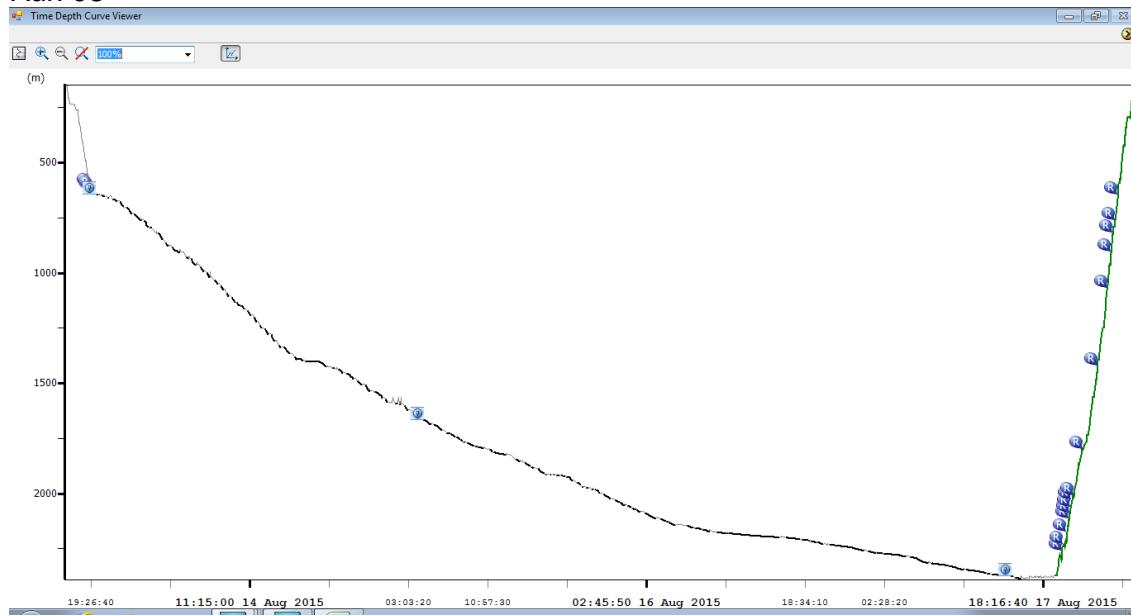
Run 01



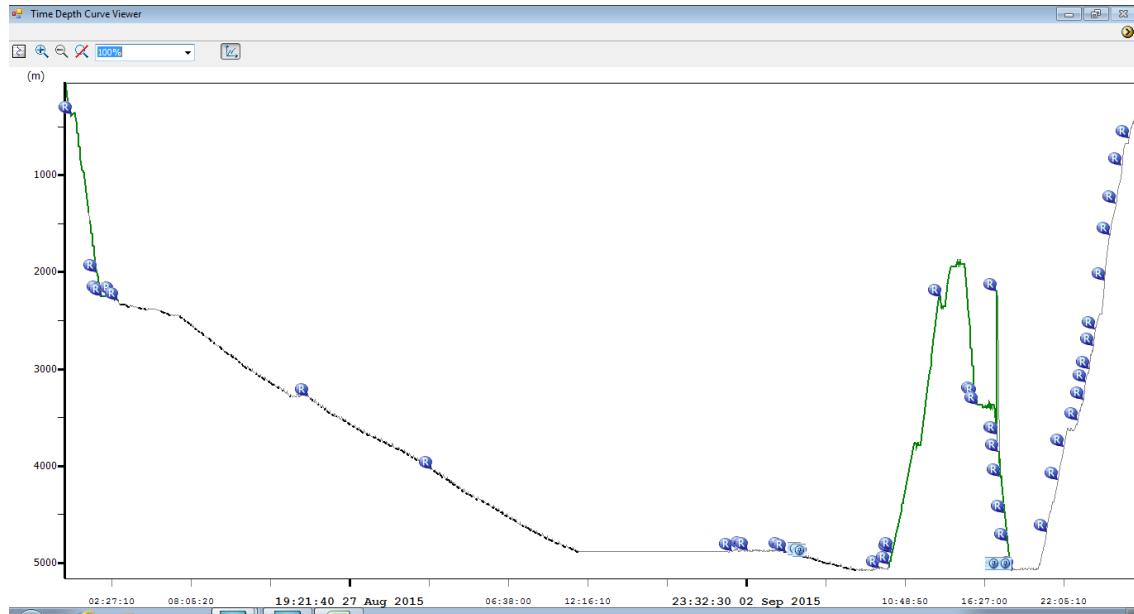
Run 02



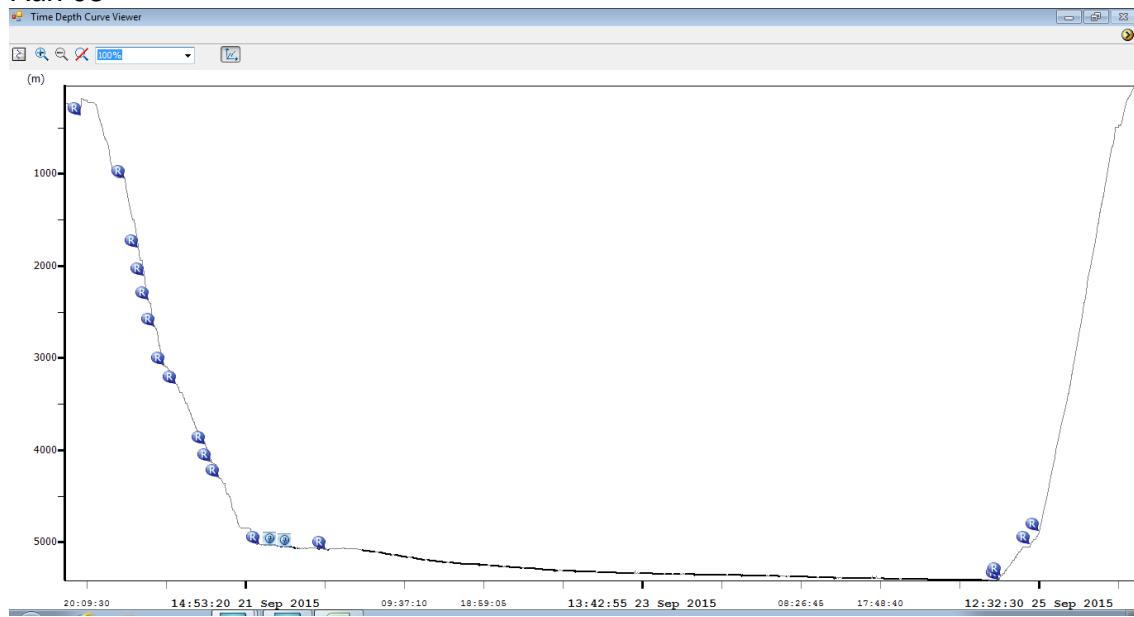
### Run 03



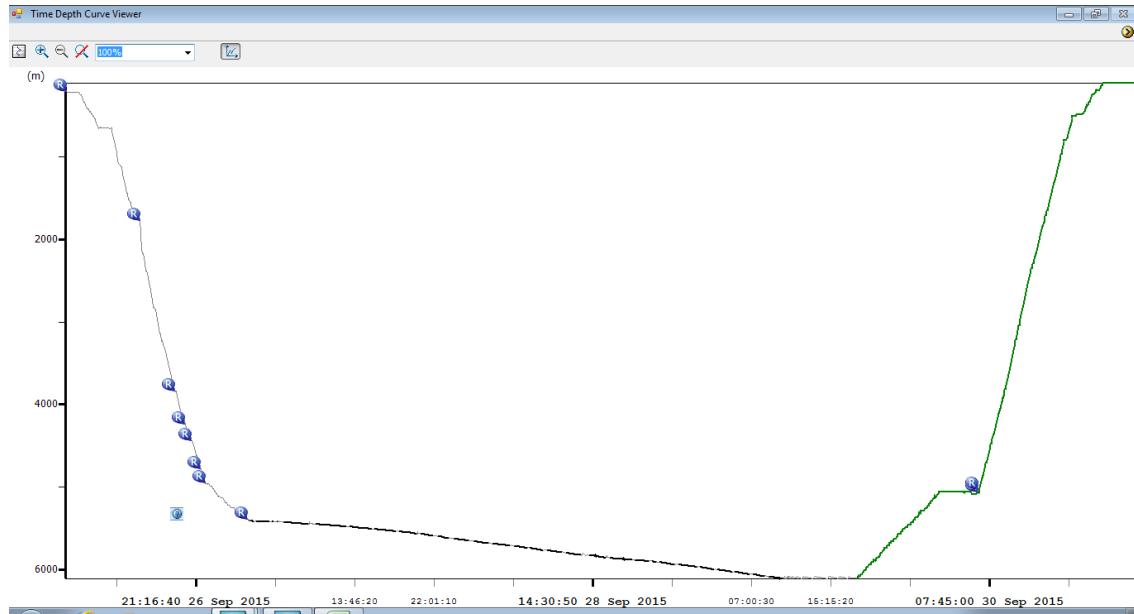
*Run 04*



*Run 05*



Run 06



## 4.2 Data Sign Off Sheet

APG WELLSITE KEY INFORMATION SIGNOFF SHEET									
HEADER									
1	WELL NAME		BDC-1B-01						
2	FIELD NAME		Ichthys Development Phase 1						
3	BLOCK NAME		WA-50-L						
4	LATITUDE		13° 50' 48.677" S		NORTHING	N 8 469 187.560 m			
5	LONGITUDE		123° 19' 12.538" E		EASTING	E 534 596.110 m			
6	SPUD DATE		5-Aug-15						
7	GRID CONVERGENCE		-0.0766°						
8	TOTAL CORRECTION		2.0176"						
9	ELEVATION OF LAT FROM MSL		-2.70 m	REFERENCE DATUM		LAT			
10	ELEVATION OF DRILL FLOOR FROM LAT		24.00 m						
11	ELEVATION OF GROUND LEVEL FROM LAT		-237.20 m						
12	COORDINATE SYSTEM		Map Grid of Australia Zone 51 (GDA)/ MGA94-51						
13	Sea Bed from RKB		261.20 m	6109.00m					
14	Total Log Interval for Well		Top	261.20mMD	Bottom	5404.28mMD			
Run Number	1	Run Record							
1	SECTION:	44" Section/36" x 30" Casing							
	DRILLED	DRILLERS TOP: 261.20m		DRILLERS BOTTOM: 324.40m		MD			
	CASED	DRILLERS TOP: 257.96m		DRILLERS BOTTOM: 322.97m		MD			
	CASING WEIGHT	GRADE	Pump Hrs		Drilling Hours				
	374 x 553ppf	X56 x X65	3.94		2				
	Mud Type	Sea Water	Mud Weight		8.762	ppg	1.05		
	Bit Type + IAADC		Mill Tooth Bit +111		KREVS	5			
	BIT GRADING		1	WT	A	1	NO		
	Inclination at Section TD		0.26	Date EoWR Section Sent into Town					
	Azimuth at TD		22.51	NA					
	Projected Measured Depth at Section TD		324.4	Date EoWR Section QC'd and Returned to Rig					
	Projected TVD Depth at Section TD		324.4	NA					
Run Number	2	Run Record							
2	SECTION:	26" Section/20" Casing							
	DRILLED	DRILLERS TOP: 324.40m		DRILLERS BOTTOM: 659.00m		MD			
	CASED	DRILLERS TOP: 257.16m		DRILLERS BOTTOM: 651.21m		MD			
	CASING WEIGHT	GRADE	Pump Hrs		Drilling Hours				
	133ppf	X56	15.32		7.68				
	Mud Type	Sea Water	Mud Weight		8.762	ppg	1.05		
	Bit Type + IAADC		26" TCI Bit GS04BCPS		KREVS	48			

	BIT GRADING	1	1	WT	A	E	I	NO	TD
Inclination at Section TD	0.41			Date EoWR Section Sent into Town					
Azimuth at TD	73.81			NA					
Projected Measured Depth at Section TD	659			Date EoWR Section QC'd and Returned to Rig					
Projected TVD Depth at Section TD	658.99			NA					

Run Number	3	Run Record									
3	SECTION:	17 1/2" Section/13 3/8" Casing									
	DRILLED	DRILLERS TOP: 659.00m				DRILLERS BOTTOM: 2387.00m					
	CASED	DRILLERS TOP: 257.16m				DRILLERS BOTTOM: 2384.93m					
	CASING WEIGHT	GRADE		Pump Hrs				Drilling Hours			
	68ppf	R95		87.61				69.54			
	Mud Type	WBM		Mud Weight				9.013	ppg		
						1.08					
	Bit Type + IAADC	17.5" Kymera Hybrid Bit KM633				KREVS					
	PDC BIT GRADING	0	3	BT	N	X	I	ER			
	TCI BIT GRADING	1	1	WT	A	F	I	PN			
	Inclination at Section TD	27.5				Date EoWR Section Sent into Town					
	Azimuth at TD	82				NA					
	Projected Measured Depth at Section TD	2387.00m				Date EoWR Section QC'd and Returned to Rig					
	Projected TVD Depth at Section TD	2357.36m				NA					

Run Number	4	Run Record									
4	SECTION:	12 1/4" Section/ 10 3/4" x 9 5/8" Casing									
	DRILLED	DRILLERS TOP: 2387.00m				DRILLERS BOTTOM: 5080.00m					
	CASED	DRILLERS TOP: 257.16m				DRILLERS BOTTOM: 5072.44m					
	CASING WEIGHT	GRADE		Pump Hrs				Drilling Hours			
	60.7 x 53.5ppf	SM95TS x SM22Cr125		276.02				126.8			
	Mud Type	SOBM		Mud Weight				12.26~13.60	ppg		
						1.47~1.63					
	Bit Type + IAADC	12 1/4" PDC Bit MDSiZ713				KREVS					
	BIT GRADING	0	1	BT	G	X	I	NO			
	Inclination at Section TD	72.5				Date EoWR Section Sent into Town					
	Azimuth at TD	282.5				NA					
	Projected Measured Depth at Section TD	5080				Date EoWR Section QC'd and Returned to Rig					
	Projected TVD Depth at Section TD	3683.6 -3938.6				NA					

Run Number	5	Run Record							
5	SECTION:	8.5 in Section							
	DRILLED	DRILLERS TOP: 5080.00m				DRILLERS BOTTOM: 5414.00m			
	CASED	DRILLERS TOP: 4968.63m				MD			

CASING WEIGHT	GRADE	Pump Hrs				Drilling Hours												
29 ppf	22 Cr	85.12				66.14												
Mud Type	SOBM	Mud Weight				9.34	ppg	1.12	SG									
Bit Type + IAADC	8 1/2" PDC Bit, TD408X				KREVS	387												
BIT GRADING	/1	3	WT	T	X	I	NO	DTF										
Inclination at Section TD	86		Date EOWR Section Sent into Town															
Azimuth at TD	269		NA															
Projected Measured Depth at Section TD	5414		Date EOWR Section QC'd and Returned to Rig															
Projected TVD Depth at Section TD	4055.32		NA															
Run Number	6	Run Record																
6	SECTION:	8.5 in Section																
	DRILLED	DRILLERS TOP: 5414.00m				DRILLERS BOTTOM: 6109.00m												
	CASED	DRILLERS TOP: 4968.63mMD				DRILLERS BOTTOM: 6106.00mMD												
CASING WEIGHT	GRADE	Pump Hrs				Drilling Hours												
29 ppf	22 Cr	68.21				44.38												
Mud Type	SOBM	Mud Weight				9.34	ppg	1.12	SG									
Bit Type + IAADC	8 1/2" PDC Bit, MZi813 (LUQEWPX)				KREVS	267												
BIT GRADING	0	1	BT	T	X	I	NO	TD										
Inclination at Section TD	86.1		Date EOWR Section Sent into Town															
Azimuth at TD	270.2		NA															
Projected Measured Depth at Section TD	6109		Date EOWR Section QC'd and Returned to Rig															
Projected TVD Depth at Section TD	4105.14		NA															
Operations Engineer					Wellsite Geologist													
NAME: Greg Morris			DATE	NAME:		DATE												
SIGNATURE: 				SIGNATURE: NOT PRESENT														

## 4.3 Service Quality Reports

<b>Schlumberger</b>		<b><u>SO Incident Report</u></b>	
		05-Oct-2015 12:12	
<b>Job Number:</b> 15AWA0104 <b>Run Number:</b> <b>SQ Incident</b> 901	<b>Compan</b> INPEX BROWSE, LTD <b>Location:</b> ASA-APG-AWA	<b>Rig Name:</b> EnSCO 5006 <b>Well Name:</b> BDC-1B-01	
<b>Is failure associated with run:</b> No <b>Associated Borehole:</b> 0	<b>Involves equipment?</b> Yes <b>Hole Size</b> 17.5 in		
<b>Report Type :</b> No Run - Equipment Involved <b>Fail Date Time:</b> 8/20/2015 15:00 <b>SQ Incident Severity:</b> Hazardous Situation	<b>Site :</b> Rig-Offshore <b>Site</b> EnSCO 5006		
<b>IPM Project Related?</b> No <b>Contractor Involved?</b> No <b>BHA Activity after Incident :</b> Continued Operation <b>Activity/Process/Service :</b> SLB Related & Internal Client <b>Incident Category:</b> Tool damages <b>Incident Sub Category:</b>	<b>Pump Hour @</b> <b>Drill Hours @ Fail:</b> <b>Depth @ Fail:</b> <b>Hours BRT @ Fail:</b>	<b>hrs</b> <b>hrs</b> <b>m</b> <b>hrs</b>	
<b>CAF:</b> No	<b>NPT - Client:</b> No <b>NPT - Schlumberger:</b> Yes <b>NPT - 3rd Party:</b> No	<b>Other - Reputation:</b> No <b>Other - Revenue:</b> No <b>Other - Process:</b> No <b>Other -</b>	No No No No
<b>Was this equipment Lost In</b> <b>Were these tools run outside of their Engineering</b>	No No		
<b>Failure Description and Symptoms</b> While breaking out pin connection of pony NMDC (# 556815-1X) from box conn of NM Stabilizer (# MWS4589), observed connection break easily but would not spin out using rollers. Continued with power-tong jaws, torque registering 30-50ft.lbs at times. Tried to spin with rollers several times with no success and continued to use power-tong until connection completely backed out. Threads half-way down the pin completely stripped away yet intact above and			
<b>Remedial Action Attempted on Location</b> No choice but to continue breaking out connection after resistance encountered as no basket on board was long enough to accomodate combined pony and stabiliser for transport back to tonw.			
<b>Failed Equipments</b>			
<b>Equipment</b>	<b>Service</b>		
Non-Mag Pony DC / Non-Mag Pony DC/Collar/NMPC9/556815-1X / NMPC9 / 556815-1X			
String Stabilizer / String Stabilizer/Stabilizers/SZS9N-IBS/MWS4589 / SZS9N-IBS / MWS4589			
<b>Reporter:</b> Johnson, Michael	<b>Reported Date:</b> 20-Aug-15		

<b>Schlumberger</b>		<b><u>SO Incident Report</u></b>	
		05-Oct-2015 14:03	
<b>Job Number:</b> 15AWA0104 <b>Run Number:</b> <b>SQ Incident</b> 902	<b>Compan</b> INPEX BROWSE, LTD <b>Location:</b> ASA-APG-AWA	<b>Rig Name:</b> EnSCO 5006 <b>Well Name:</b> BDC-1B-01	
<b>Is failure associated with run:</b> No <b>Associated Borehole:</b> 0	<b>Involves equipment?</b> Yes <b>Hole Size</b>		
<b>Report Type :</b> No Run - Equipment Involved <b>Fail Date Time:</b> 8/23/2015 9:00 <b>SQ Incident Severity:</b> Hazardous Situation	<b>Site :</b>	Rig-Offshore	
<b>IPM Project Related?</b> Yes <b>Contractor Involved?</b> No <b>BHA Activity after Incident :</b> Continued Operation <b>Activity/Process/Service :</b> SLB Related & External Client <b>Incident Category:</b> Non-applicable categories	<b>Pump Hour @ Fail:</b> 0	<b>hrs</b>	
	<b>Drill Hours @ Fail:</b> 0	<b>hrs</b>	
	<b>Depth @ Fail:</b> 0	<b>m</b>	
	<b>Hours BRT @ Fail:</b> 0	<b>hrs</b>	
<b>CAF:</b> No	<b>NPT - Client:</b> No <b>NPT - Schlumberger:</b> Yes <b>NPT - 3rd Party:</b> No	<b>Other - Reputation:</b> No <b>Other - Revenue:</b> No <b>Other - Process:</b> Yes <b>Other -</b> No	
<b>Was this equipment Lost In</b> <b>Were these tools run outside of their Engineering</b>	No No		
<b>Failure Description and Symptoms</b> The kit for AND/SAND handling tool sent to the rig has one of its middle assemblies with brazing around it, making it difficult to move the lower assembly cap while installing the nuclear source inside the tool, it needs to be milled at the base in order for the cap to slide the full length of the handling tool.			
<b>Remedial Action Attempted on Location</b>			
<b>Failed Equipments</b>			
<b>Equipment</b> Dual Source Handling Tool / Dual Source Handling Tool/Support Equipment/ADLU-AA/06-157 / ADLU-AA / 06-157		<b>Service</b>	
<b>Reporter:</b> Smith, Andrew Jonathan	<b>Reported Date:</b> 23-Aug-15		

<b>Schlumberger</b>		<b><u>SO Incident Report</u></b>	
		05-Oct-2015 13:35	
<b>Job Number:</b> 15AWA0104 <b>Run Number:</b> 4 <b>SQ Incident:</b> 1	<b>Compan</b> INPEX BROWSE, LTD <b>Location:</b> ASA-APG-AWA	<b>Rig Name:</b> Enso 5006 <b>Well Name:</b> BDC-1B-01	
<b>Is failure associated with run:</b> Yes		<b>Involves equipment?</b> Yes	
<b>Report Type :</b> On Run - Equipment Involved <b>Fail Date Time:</b> 8/27/2015 12:10 <b>SQ Incident Severity:</b> Hazardous Situation	<b>Site :</b> Site	<b>Rig-Offshore</b> Enso 5006	
<b>IPM Project Related?</b> Yes No <b>Contractor Involved?</b> Continued Operation <b>BHA Activity after Incident :</b> SLB Related & External Client <b>Activity/Process/Service :</b> LWD issue/failure	<b>Pump Hour @</b> 65.25      hrs <b>Drill Hours @ Fail:</b> 40.13      hrs <b>Depth @ Fail:</b> 3456      m <b>Hours BRT @ Fail:</b> 102.43      hrs		
<b>Incident Category:</b> CAF:	<b>NPT - Client:</b> No	<b>Other - Reputation:</b> Yes	<b>Other - Revenue:</b> No
	<b>NPT - Schlumberger:</b> NPT - 3rd Party:	<b>Other - Process:</b> No	<b>Other -</b> No
<b>Was this equipment Lost In</b> <b>Were these tools run outside of their Engineering</b>		No	
<b>Failure Description and Symptoms</b>			
adVISION RT Failure 1) Job Number - Run Number: 15AWA0104 - 4Well Name: BDC-1B-01 2) What Failed:SADN 825/NDDC-CA - 5064 3) Borehole - HoleSize: 0 - 12.25in 4) Pump Hours at incident: 65.25 hrsDrill Hours at incident: 40.13 hrsBRT Hours at incident: 102.43 hrsBit Depth at incident: 0m 5) Total Estimated NPT: 0 hrs 6) Description:After a connection at 12.10pm the pumps were brought back up with good signal and demodulation. The first repeating frame (prior to survey) showed no issue with any of the data, same for the utility frame which contains tool status words (SADN status word had no flags). After one repeating frame we observed maxed out data indicating communication issues with the SADN, the data was then good for one set of dpoints before returning to maxed out – OSC was informed immediately while initially troubleshooting of recycling the pumps (flow only brought down to ~400gpm with 700-1400gpm kit). This was unsuccessful and from this point all SADN data was maxed out (including the tool status word) and has not returned since.No shocks or stickslip were experienced during run at this point.As tool is running with LWD batteries Client decision to continue drilling. Going forward, we have the option to downlink to a contingency Frame Set List without the LWD dpoints from SADN8 – this will increase the real time data density by optimizing signal bandwidth and still allow us to monitor communication with the SADN.			
<b>Remedial Action Attempted on Location</b>			
Pumps recycled to attempt to soft reset the tool, however issues with communication were still present. OSC, Client and FSM informed, decision made from Client to drill ahead hoping for Recorded Mode memory data. Client was also informed of option to downlink to alternative FSL without ADN LWD dpoints (repeating frame includes ADNSTAT) to improve RT data.			
<b>Failed Equipments</b>			
<b>Equipment</b>	<b>Service</b>		
SADN 825 / Nuclear / NDDC-CA / 50694	Density		
SADN 825 / Nuclear / NDDC-CA / 50694	Neutron		
SADN 825 / Nuclear / NDDC-CA / 50694	Caliper		
<b>Reporter:</b> Wisbey, Emily	<b>Reported Date:</b> 27-Aug-15		

<b>Schlumberger</b>		<b><u>SO Incident Report</u></b>			
		05-Oct-2015 13:37			
<b>Job Number:</b> 15AWA0104 <b>Run Number:</b> 4 <b>SQ Incident</b> 2	<b>Compan</b> INPEX BROWSE, LTD <b>Location:</b> ASA-APG-AWA	<b>Rig Name:</b> EnSCO 5006 <b>Well Name:</b> BDC-1B-01			
<b>Is failure associated with run:</b> Yes		<b>Involves equipment?</b> Yes			
<b>Report Type :</b> Fail Date Time: <b>SQ Incident Severity:</b>	On Run - Equipment Involved 8/27/2015 20:00 Hazardous Situation	<b>Site :</b> Site	Rig-Offshore EnSCO 5006		
<b>IPM Project Related?</b> <b>Contractor Involved?</b> <b>BHA Activity after Incident :</b> <b>Activity/Process/Service :</b> <b>Incident Category:</b> <b>Incident Sub Category:</b>	No No Continued Operation SLB Related & External Client LWD issue/failure	<b>Pump Hour @ Fail:</b> <b>Drill Hours @ Fail:</b> <b>Depth @ Fail:</b> <b>Hours BRT @ Fail:</b>	72.45 hrs 47.12 hrs 3588 m 111.4 hrs		
<b>CAF:</b>	No	<b>NPT - Client:</b> <b>NPT - Schlumberger:</b> <b>NPT - 3rd Party:</b>	Yes Yes No	<b>Other - Reputation:</b> <b>Other - Revenue:</b> <b>Other - Process:</b> <b>Other -</b>	Yes Yes No No
<b>Was this equipment Lost In</b> <b>Were these tools run outside of their Engineering</b>		No No			
<b>Failure Description and Symptoms</b>					
advVISION Porosity Failure 1) Job Number - Run Number: 15AWA0104 - 4 Well Name: BDC-1B-01 2) What Failed: SADN 825/NDDC-CA - 5064 3) Borehole - HoleSize: 0 - 12.25in 4) Pump Hours at incident: 72.45 hrs Drill Hours at incident: 47.12 hrs BRT Hours at incident: 111.4 hrs Bit Depth at incident: 0m 5) Total Estimated NPT: 0 hrs 6) Description: Communication with the SADN was reestablished at 8.30pm in the middle of drilling a stand. While the density and caliper readings are good the (corrected) porosity readings have been stuck at -6.94p.u. (all raw values for porosity are stuck at 0). After recycling the pumps at the next connection the status word relating to the SADN flagged a voltage issue with the helium tubes used to detect neutrons returning from the formation. This indicates a serious issue with the neutron porosity sub-system on the tool which is likely to effect the recorded mode porosity data. In addition, there is no indication if the loss of communication and the porosity issues are directly related, we will have to review the tool's recorded diagnostics when it's at surface. OSC, FSM and Client informed.					
<b>Remedial Action Attempted on Location</b>					
OSC, FSM and Client informed. Proceed to closely monitor all readings from SADN8.					
<b>Failed Equipments</b>					
<b>Equipment</b>	<b>Service</b>				
SADN 825 / Nuclear / NDDC-CA / 50694	Neutron				
<b>Reporter:</b> Wisbey, Emily	<b>Reported Date:</b> 27-Aug-15				

<b>Schlumberger</b>		<b><u>SO Incident Report</u></b>		
		05-Oct-2015 14:04		
<b>Job Number:</b> 15AWA0104 <b>Run Number:</b> 5 <b>SQ Incident</b> 3	<b>Compan</b> INPEX BROWSE, LTD <b>Location:</b> ASA-APG-AWA	<b>Rig Name:</b> EnSCO 5006 <b>Well Name:</b> BDC-1B-01		
<b>Is failure associated with run:</b> Yes		<b>Involves equipment?</b> Yes		
<b>Report Type :</b> Fail Date Time: <b>SQ Incident Severity:</b>	On Run - Equipment Involved 9/24/2015 20:00 Hazardous Situation	<b>Site :</b> Site	Rig-Offshore EnSCO 5006	
<b>IPM Project Related?</b> <b>Contractor Involved?</b> <b>BHA Activity after Incident :</b> <b>Activity/Process/Service :</b> <b>Incident Category:</b> <b>Incident Sub Category:</b>	Yes No Continued Operation SLB Related & External Client Downhole BHA RT communication issue/failure	<b>Pump Hour @ Fail:</b> <b>Drill Hours @ Fail:</b> <b>Depth @ Fail:</b> <b>Hours BRT @ Fail:</b>	73.17 hrs 58.27 hrs 5394 m 100.77 hrs	
<b>CAF:</b>	No	<b>NPT - Client:</b> <b>NPT - Schlumberger:</b> <b>NPT - 3rd Party:</b>	No Yes No	<b>Other - Reputation:</b> No <b>Other - Revenue:</b> No <b>Other - Process:</b> No <b>Other -</b> No
<b>Was this equipment Lost In</b> <b>Were these tools run outside of their Engineering</b>		No No		
<b>Failure Description and Symptoms</b>				
Xceed675 Loss of communication 1) Job Number - Run Number: 15AWA0104 - 5 Well Name: BDC-1B-01 2) What Failed:Xceed 675/CRSCA-AA - 42 43) Borehole - HoleSize: 0 - 8.5in 4) Pump Hours at incident: 75.39 hrs Drill Hours at incident: 58.27 hrs BRT Hours at incident: 100.77 hrs Bit Depth at incident: 0m 5) Total Estimated NPT: 0 hrs 6) Description:1) Brief Description of Event:At 06:00:00, 24-Sep-2015 (5369.8mMD) the continuous inclination and azimuth data transmitted from the Xceed675 tool became erroneous. They did not correct themselves after pump recycles or various downlinks. At 20:00:00, 24-Sep-2015 all dpoints from the Xceed assumed their maximum values. They remained maximum value after two pump recycles. The decision was made to drill to the end of the stand and observe the directional tendency before making a decision regarding pulling out of hole and replacing BHA. A downlink was performed to the TeleScope to enable the LTB diagnostic MODF – it showed 100% retries to the Xceed, and normal retries to the other tools.2) Date of Occurrence:24th September 20153) Location:APG, AWA, Browse Basin, Ichthys Development Phase 1, EnSCO 50064) Name of Client:INPEX Ichthys Pty Ltd5) Name of Well:BDC-1B-016) Failed Assets:Xceed675 – loss of real time communication7) Estimated Lost Time/Revenue:Currently unknown8) Action Taken to Mitigate Failure, Negative Impact:Two pump recycles were performed after the maximum dpoints were received but had no impact. The Xceed was downlinked to multiple times, both at the 36 second pre-programmed it period, and through 60-second bit period forwarded by the TeleScope. The TeleScope LTB health MODF was enabled, but only showed 100% LTB retries to the Xceed and normal retries to the other tools. Suggests failure is related to either the Xceed or the lower extender of the arcVISION. Downlinks were performed on-bottom. Decision to POOH is pending, depending on directional response of the BHA.				
<b>Remedial Action Attempted on Location</b>				
Two pump recycles were performed after the maximum dpoints were received but had no impact. The Xceed was downlinked to multiple times, both at the 36 second pre-programmed it period, and through 60-second bit period forwarded by the TeleScope. The TeleScope LTB health MODF was enabled, but only showed 100% LTB retries to the Xceed and normal retries to the other tools. Suggests failure is related to either the Xceed or the lower extender of the arcVISION. Downlinks were performed on-bottom. Decision to POOH is pending, depending on directional response of the BHA.				
<b>Failed Equipments</b>				
<b>Equipment</b>	<b>Service</b>			
Xceed 675 / Rotary Steerable / CRSCA-AA / 424	PowerDrive Xceed			
Xceed 675 / Rotary Steerable / CRSCA-AA / 424	Cont D&I			
Xceed 675 / Rotary Steerable / CRSCA-AA / 424	RT Comms			
<b>Reporter:</b> Del Carpio Flores, Daniel Serafin	<b>Reported Date:</b> 24-Sep-15			

<b>Schlumberger</b>		<b><u>SO Incident Report</u></b>	
		05-Oct-2015 14:04	
<b>Job Number:</b> 15AWA0104 <b>Run Number:</b> 5 <b>SQ Incident:</b> 4	<b>Compan</b> INPEX BROWSE, LTD <b>Location:</b> ASA-APG-AWA	<b>Rig Name:</b> EnSCO 5006 <b>Well Name:</b> BDC-1B-01	
<b>Is failure associated with run:</b> Yes		<b>Involves equipment?</b> Yes	
<b>Report Type :</b> On Run - Equipment Involved <b>Fail Date Time:</b> 9/26/2015 0:05 <b>SQ Incident Severity:</b> Hazardous Situation	<b>Site :</b> Site Rig-Offshore EnSCO 5006	<b>Pump Hour @</b> 85.12      hrs <b>Drill Hours @ Fail:</b> 66.14      hrs <b>Depth @ Fail:</b> 1      m <b>Hours BRT @ Fail:</b> 130      hrs	
<b>IPM Project Related?</b> Yes <b>Contractor Involved?</b> No <b>BHA Activity after Incident :</b> Continued Operation <b>Activity/Process/Service :</b> SLB Related & External Client <b>Incident Category:</b> Tool damages	<b>CAF:</b> No	<b>NPT - Client:</b> NPT - Schlumberger: Yes NPT - 3rd Party: No	<b>Other - Reputation:</b> Other - Revenue: No Other - Process: Yes Other - No
<b>Was this equipment Lost In</b> <b>Were these tools run outside of their Engineering</b>		No No	
<b>Failure Description and Symptoms</b>			
1) Job Number - Run Number: 15AWA0104 - Well Name: BDC-1B-01 2) What Failed: MDC 675/MDCIX-UA - B0618 SonicVISION 675/SD6D-FA - G5898 ARC 675/ARC6D-BB - 1811-S RPC3 Borehole - HoleSize: 0 - 8.5in 4) Pump Hours at incident: 85.12 hrs Drill Hours at incident: 66.14 hrs BRT Hours at incident: 130 hrs Bit Depth at incident: 0m 5) Total Estimated NPT: 0 hrs 6) Description: Both 8 3/8" in-line stabilizers below Sonic & TeleScope were completely worn down to the collar body (7 1/2" OD). The ARC wear bands wear worn out on the leading edge but the bottom suffered the most damage			
<b>Remedial Action Attempted on Location</b>			
Inform to company man and team, request new backup tools, tool will be keep as backup until new set arrive to the rig.			
<b>Failed Equipments</b>			
<b>Equipment</b>	<b>Service</b>		
MDC 675 / Mud Pulse / MDCIX-UA / B0618			
SonicVISION 675 / Sonic / SD6D-FA / G5898			
ARC 675 / Resistivity / ARC6D-BB / 1811-SRPC			
<b>Reporter:</b> Del Carpio Flores, Daniel Serafin	<b>Reported Date:</b> 26-Sep-15		

<b>Schlumberger</b>		<b><u>SO Incident Report</u></b>	
		05-Oct-2015 14:05	
<b>Job Number:</b> 15AWA0104 <b>Run Number:</b> 6 <b>SQ Incident:</b> 5	<b>Compan</b> INPEX BROWSE, LTD <b>Location:</b> ASA-APG-AWA	<b>Rig Name:</b> EnSCO 5006 <b>Well Name:</b> BDC-1B-01	
<b>Is failure associated with run:</b> Yes		<b>Involves equipment?</b> Yes	
<b>Report Type :</b> On Run - Equipment Involved <b>Fail Date Time:</b> 9/30/2015 23:00 <b>SQ Incident Severity:</b> Hazardous Situation	<b>Site :</b> Site	<b>Rig-Offshore</b> EnSCO 5006	
<b>IPM Project Related?</b> Yes No	<b>Pump Hour @</b> 64.04 <b>hrs</b> <b>Drill Hours @ Fail:</b> 44.47 <b>hrs</b>	<b>Contractor Involved?</b>	<b>Depth @ Fail:</b> 0 <b>m</b>
<b>BHA Activity after Incident :</b> Continued Operation	<b>Hours BRT @ Fail:</b> 114.5 <b>hrs</b>	<b>Activity/Process/Service :</b> SLB Related & External Client	
<b>Incident Category:</b> LWD issue/failure		<b>NPT - Client:</b> Yes	<b>Other - Reputation:</b> Yes
<b>Incident Sub Category:</b>		<b>NPT - Schlumberger:</b> Yes	<b>Other - Revenue:</b> Yes
<b>CAF:</b> No		<b>NPT - 3rd Party:</b> No	<b>Other - Process:</b> No
<b>Other -</b>		<b>Other -</b>	No
<b>Was this equipment Lost In</b> No	<b>Were these tools run outside of their Engineering</b> No		
<b>Failure Description and Symptoms</b> Unable to dump RM Data from ADN 1) Job Number - Run Number: 15AWA0104 - 6 Well Name: BDC-1B-01 2) What Failed: ADN 675/ADDC-CE - G029 13) Borehole - HoleSize: 0 - 8.5in 4) Pump Hours at incident: 64.04 hrs Drill Hours at incident: 44.47 hrs BRT Hours at incident: 114.5 hrs Bit Depth at incident: 0m 5) Total Estimated NPT: 0 hrs 6) Description: MWD could not dump the RM Data from adnVISION when on surface though could communicate and monitor tool fine. NSWR = 88 flagging MEMORY IS FULL , NO CONFIGURATION RECORD FOUND. When attempting to read calibration file from tool, tool could not find any file. Also when monitoring tool programmed coefficients observed tool showing only default values for all parameters (including calibration coefficients).			
<b>Remedial Action Attempted on Location</b> HSPM ToolScope crashed repeatedly when trying to dump tool. Troubleshooting performed: Different adapter, TSIM1, TSIM 2 30V, TSIM 2 24V, dump through ROP and LTB, dump normally and attempting FLASH dump. Contacted base technicians who suggested to dump using shorter cable which was not possible. Tool sent to base for further analysis.			
<b>Failed Equipments</b>			
<b>Equipment</b>	<b>Service</b>		
ADN 675 / Nuclear / ADDC-CE / G0291	Density		
ADN 675 / Nuclear / ADDC-CE / G0291	Neutron		
ADN 675 / Nuclear / ADDC-CE / G0291	Caliper		
<b>Reporter:</b> Wisbey, Emily	<b>Reported Date:</b> 1-Oct-15		