

Recommendations

Attachments

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Report Attachments



Basalt creek.msg FW Rig 101 actions moving forward for operation commencement.msg Fwd Records of Test Head 04.msg



DFIT testing on Rig 101 - new procedures and operation.msg Re RIG 101 DFIT configuration engineered drawing.msg

RTI DL RELEASE - DNRM

## Rogan Stephanie

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**From:** [redacted]@easternwell.com.au  
**Sent:** Saturday, 20 October 2012 5:14 PM  
**To:** WRIGHT John; DITTMAN Andrew  
**Subject:** FW: Rig 101 actions moving forward for operation commencement  
**Attachments:** SOP0531 R101 Make Up Break Down DST Tools.doc

Sorry Gents  
I forgot to include the SOP that was referenced.

Regards

[redacted]  
s49 - personal information

Regional HSE Manager  
Easternwell Energy

10 Russell St, TOOWOOMBA QLD 4350

p: +61 7 4659 1555 f: +61 7 4659 1599 m: [redacted] s49 - mobile

[redacted]@easternwell.com.au  
s49 - personal information

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**From:** [redacted] - personal information  
**Sent:** Saturday, 20 October 2012 5:04 PM  
**To:** 'John.Wright@dnrm.qld.gov.au'; 'andrew.dittman@dnrm.qld.gov.au'  
**Cc:** [redacted] s49 - personal information  
**Subject:** Rig 101 actions moving forward for operation commencement

John, Andrew

The follow action plan will be in place for the commencement of operations on site at rig 101.

1. The DST equipment involved in the incident today is no longer required to complete the well and will be rigged out immediately.
2. All DST operations will be suspended on the rig site. This will remain so until you have viewed and approved the new controls and recommendations that we will put in place for the future use of DST tools on sites.
3. No more DST circulating operations are required on this rig at this time.

The removal of the existing DST circulating head will involve the following

1. Lower the drill string down
2. Set the slips to retain drill string
3. Break the DST circulating head, and lay out as per SOP 05-31-R101
4. Trip out of the hole entire drill string.
5. Prepare to run 5 ½ " casing.

We are prepared to continue operations given the conditions above and await your authority to operate to complete the well.

Regards

[redacted]  
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RTI DL RELEASE - DNRM

Rev No	Prepared By	Date	Approved By	Date
0	s49 - personal information	03/06/2010	s49 - personal information	28/07/10

## 1 PURPOSE

The purpose of this Standard Operating Procedure is to identify the process steps, hazards involved with each process step and the control measures implemented for **Make Up / Break Down DST Tools**. Hazards that are not included in this SOP but become identified must be documented and a formal Job Hazard Analysis (JHA) carried out. The JHA can form part of this SOP as an attachment. Employees / subcontractors involved in the work activity must be instructed in this SOP prior to beginning any work activity and must also be involved in any further JHA process of identifying further hazards and identifying control measures

## 2 SAFETY EQUIPMENT AND PPE

The following safety equipment and PPE are to be utilised at all times while carrying out the work activity.

- Safety Boots
- Long Sleeved cotton Shirts and Trousers
- Safety Glasses
- Gloves to be worn
- Hearing protection when required
- Hard Hat when on site

## 3 PROCESS TABLE

The process table on page 2 contains the Process steps, potential hazards and control measures for **Make Up / Break Down DST Tools**. All personnel involved in the activity must be instructed on the contents process table prior to the commencement of the activity. All personnel and subcontractors are required to acknowledge in writing that they have received process/safety instruction in the activity by signing the attached crew sign off sheet.

**LEGEND:**

Black Text represents (Generic)

Blue Text represents (Rig Specific)

Green Text represents: (proposed changes generated from site)

Red Text represents (Important Information)

Purple Text represents (REDP Task Book Reference) e.g. TB1 S14 B

<b>PRELIMINARY</b>			
1. Meeting / Permit Requirements (eg. Excavation, PTW, Con Space)	▪		
2. Assessment Needs (eg. Haz Chem Assessments-MSDSs)	▪		
3. Special Notes	▪		
Process Step	Potential Hazards	Control Measures	Responsible Person/s
1. Hold PJSM with all rig crew and third party contractors	<ul style="list-style-type: none"> <li>▪ 3<sup>rd</sup> party absent from meeting</li> <li>▪ Un-experienced crew members</li> <li>▪ Misunderstandings</li> <li>▪ Noisy area</li> </ul>	<ul style="list-style-type: none"> <li>▪ Ensure all 3<sup>rd</sup> party contractors who will be involved with the test are present</li> <li>▪ Green hands need to be guided and should ask questions if unsure at any stage</li> <li>▪ Meetings are usually conducted in the dog house</li> </ul>	<ul style="list-style-type: none"> <li>▪ All involved</li> </ul>
2. Pick up/ lay out DST tools from skid or trailer via the 'V' Door	<ul style="list-style-type: none"> <li>▪ Winch line snagging on top drive</li> <li>▪ Incorrect slinging or lifting equipment</li> <li>▪ Incorrect body placement</li> <li>▪ Swinging loads</li> <li>▪ Miss-communications and confusion</li> <li>▪ Too many people on the rig floor causing confusion and obstructing the winch operators view</li> <li>▪ Crush and pinch points between the subs coming up to the floor and hand rails, rig floor and mast</li> </ul>	<ul style="list-style-type: none"> <li>▪ Look up and make sure winch line is not snagged on top drive. Also check that line is neatly spooled on winch drum</li> <li>▪ Only use rated lifting equipment (lifting nubbins and slings) and use correct slinging techniques</li> <li>▪ Competent operator on the winch and one person giving positive directions</li> <li>▪ Be aware of body placement</li> <li>▪ Only designated personnel to be on rig floor</li> <li>▪ Never stand below suspended loads</li> <li>▪ Use a tag line to guide subs into 'V' door and 2 people for the larger and heavier subs</li> </ul>	<ul style="list-style-type: none"> <li>▪ Drill crew</li> <li>▪ DST crew</li> </ul>

<p>3. Place the pickup Sub in the elevators then start screwing in /out each tool picking up / coming down with the Top Drive as required</p>	<ul style="list-style-type: none"> <li>▪ Incorrect elevator inserts for pick up sub</li> <li>▪ Hand pinch and crush points when closing the elevators around the pickup sub</li> <li>▪ Dropped tools onto the rig floor</li> <li>▪ Incorrect threading of tools</li> <li>▪ Manual handling</li> <li>▪ Chain tong use</li> <li>▪ Suspended load</li> <li>▪ Obstructing drillers view</li> </ul>	<ul style="list-style-type: none"> <li>▪ Driller to verify that the correct elevator inserts are installed for the pickup sub</li> <li>▪ Keep hands clear of elevators when closing around pick up sub and indicate to driller when safe to do so</li> <li>▪ Qualified competent personnel on floor</li> <li>▪ Supervision from DST supervisor at all times</li> <li>▪ Chalk lines on all joints so if anything was to come loose it would be seen</li> <li>▪ Good communication between Driller and Floor man</li> <li>▪ Be aware of foot and body placement when using chain tong to spin tools</li> <li>▪ Use a sling on the winch line to support the weight of longer sub</li> <li>▪ Stay out of the drillers line of sight when stabbing into tools</li> </ul>	<ul style="list-style-type: none"> <li>▪ Driller</li> <li>▪ Floor man</li> <li>▪ DST Supervisor</li> </ul>
<p>4. Make up or break out tools with the iron roughneck</p>	<ul style="list-style-type: none"> <li>▪ String slipping in slips</li> <li>▪ Pinch points in and around the roughneck</li> <li>▪ Incorrect torque settings on the roughneck</li> <li>▪ Backing out joints above</li> <li>▪ Driller not slacked off</li> </ul>	<ul style="list-style-type: none"> <li>▪ Always use dog collar whenever the elevators are not going to be supporting the string weight</li> <li>▪ Stand clear when roughneck is in use</li> <li>▪ Verify the correct torques and settings with DST supervisor and make up the connections as indicated by the supervisor.</li> <li>▪ Look up and make sure joints are not backing out</li> <li>▪ Driller and AD to communicate with each other and ensure that weight is slacked off where ever possible as sometimes slips have to be set around packer assemblies</li> </ul>	<ul style="list-style-type: none"> <li>▪ Driller</li> <li>▪ Crew</li> <li>▪ DST supervisor</li> </ul>
<p>5. Make up &amp; RIH with remainder of string as per SOP.05.16 – Tripping - RIH</p>	<ul style="list-style-type: none"> <li>▪</li> </ul>	<ul style="list-style-type: none"> <li>▪</li> </ul>	<ul style="list-style-type: none"> <li>▪</li> </ul>
<p><b><u>CONCLUDING</u></b></p>			
<p>1. Job Review</p>	<ul style="list-style-type: none"> <li>▪</li> </ul>		
<p>2. Special Precautions and Notes</p>	<ul style="list-style-type: none"> <li>▪</li> </ul>		

## Rogan Stephanie

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**From:** WRIGHT John  
**Sent:** Sunday, 21 October 2012 12:11 PM  
**To:** DITTMAN Andrew  
**Subject:** Basalt creek

Basalt Creek East 1 23.85%	CSG Appraisal Corehole	ATP526P Bowen Basin	24°38'8"S 148°59'56.4"E	GL 457.9m	461.9m	EWG 101	02/10/11	In progress  1378m
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John Wright  
Regional Petroleum and Gas Inspector

s49 - mobile

Sent from my iPad

RTI DL RELEASE - DNRM

## Rogan Stephanie

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**From:** WRIGHT John  
**Sent:** Tuesday, 23 October 2012 2:29 PM  
**To:** DITTMAN Andrew  
**Subject:** Fwd: Records of Test Head 04

Andrew  
FYI

John Wright  
Regional Petroleum and Gas Inspector

s49 - mobile

Sent from my iPad

Begin forwarded message:

**From:** Greg Ottaviano <[GregOttaviano@pro-test.com.au](mailto:GregOttaviano@pro-test.com.au)>  
**Date:** 23 October 2012 1:49:24 PM AEST  
**To:** "Wright, John" <[John.Wright@dnrm.qld.gov.au](mailto:John.Wright@dnrm.qld.gov.au)>  
**Subject:** RE: Records of Test Head 04

Hi John

This plate is not NDT inspected nor cycled out of service at any particular period.

I am still waiting on the load rating from our supplier.

I'm heading to a meeting with Santos at 3pm today to discuss changes to procedures to ensure this doesn't happen again.

Thanks

Greg

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**From:** Wright, John [<mailto:John.Wright@dnrm.qld.gov.au>]  
**Sent:** Monday, 22 October 2012 5:56 PM  
**To:** Greg Ottaviano  
**Subject:** Re: Records of Test Head 04

Hi Greg

Is the retaining plate subjected to NDT, or changed out after a certain period of time? We will need the load rating from your supplier and what procedural changes will ProTest be making to prevent a recurrence of this event?

Regards

John Wright  
Regional Petroleum and Gas Inspector

s49 - mobile

Sent from my iPad

On 22/10/2012, at 2:43 PM, "Greg Ottaviano" <[GregOttaviano@pro-test.com.au](mailto:GregOttaviano@pro-test.com.au)> wrote:

Hi Jon

Attached are the service records of the test head involved in the incident.

Also attached is the schematic of the head assembly from the supplier and the material heat certificates for that test head.

We have requested a load rating of the outlet from the supplier.

We reviewed the rig up of the surface equipment several months ago internally and updated our crews on this change – this procedure was distributed and is attached as well.

There is no document that deals specifically with how equipment transitions from one contractor to another – but I would have thought the JSEA that is conducted on site would cover these issues and would be the best way to capture and deal with any issues.

Please let me know if there is anything else or if you need elaboration on anything.

Greg Ottaviano | Engineering & Operations Manager

<image001.png>

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e: [gregottaviano@pro-test.com.au](mailto:gregottaviano@pro-test.com.au) | <http://www.pro-test.com.au>

<RPL 1368 Heat Certs Invoice.pdf>

<4 Inch FH Test head assembly.pdf>

<110924 HD04.pdf>

<111002 HD04.pdf>

<111028 HD04.pdf>

<120626 HD04.pdf>

<120717 HD04 KV04.pdf>

<120823 HD04 KV04.pdf>

<120917 HD04 KV04.pdf>

<SOP016 4 Stage Tool DFIT 111013 Using Cement Pump.pdf>

RTI DL RELEASE - DNRM

## Rogan Stephanie

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**From:** [redacted]@easternwell.com.au>  
**Sent:** Thursday, 1 November 2012 11:53 AM  
**To:** WRIGHT John; DITTMAN Andrew  
**Cc:** [redacted] Energy HSE 1; [redacted]  
[redacted] Rig 101 Rig Manager  
**Subject:** DFIT testing on Rig 101 - new procedures and operation  
**Attachments:** DFIT Rig Up.pdf; SOP016 4 Stage Tool DFIT 121028 Using Cement Pump.doc.doc; FW: Side entry sub; SOP0002 R101 Rig Up and Pressure Test DST Surface Lines and Head.docx; JHA DFIT operation pdf.pdf

**Importance:** High

John / Andrew

Find attached the information in relation to the controls and documentation that has been introduced in relation to DFIT testing on rig 101.

We are looking at conducting a DFIT test later this evening on the rig and wish that you examine the information to see that we have captured all the areas following the recent incident, and if there are any other recommendations. Included is as follows:

1. A schematic of the new rig up for DFIT testing, including the equipment required, the support for the equipment including the secondary retention and whip checks.
2. The SOP from Pro-test on the DFIT testing and how this will be conducted.
3. The Easternwell rig 101 SOP for the rig up of DST and DFIT testing and the controls in place.
4. The Easternwell rig 101 drafted JHA for the DFIT operations to remove the person from the floor when moving the string up and down. This will be reviewed closer to the task and signed off. This will become an SOP following another DFIT test and further review.
5. The email from Pro-test discussing the change of configuration, and that is now reflected in the schematic attached and will be used on site.
6. All JHAs and SOPs will be signed off by all personnel involved.

We are seeking the information from Schlumberger for JHA/SOP for their operation and will forward that once received.

Easternwell is also working on the third party equipment and personnel procedure to reflect the improved requirements that third party need to have on site when conducting operations. This is being worked through by stakeholders at the present.

If there is anything else you may require, please do not hesitate to contact me.

Regards

[redacted]  
s49 - personal information

Regional HSE Manager  
Easternwell Energy

10 Russell St, TOOWOOMBA QLD 4350

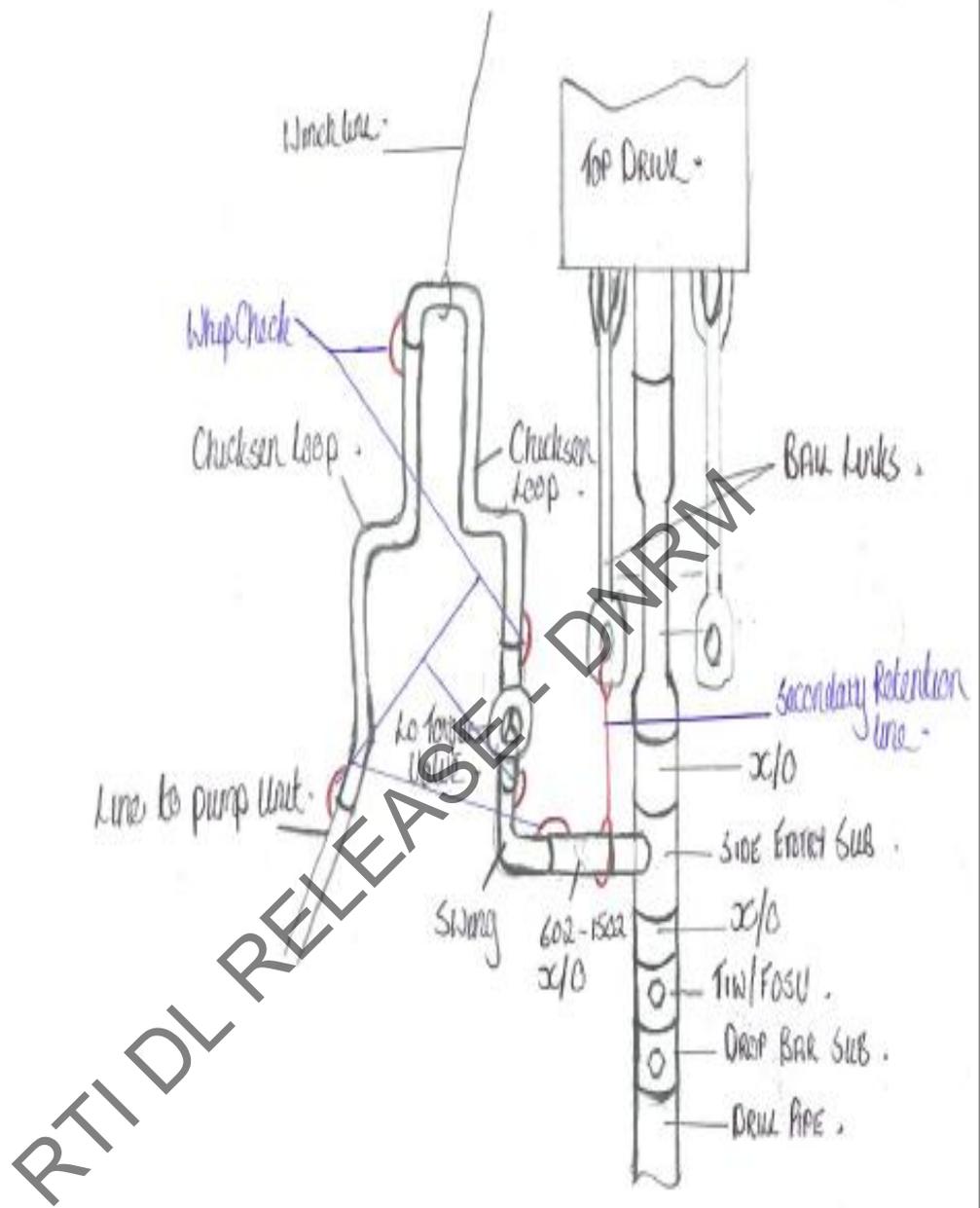
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## 1. Context

This is a specific procedure relating to DFITs using the 4 Stage Testing Tools and a cementing pump unit to inflate and conduct the fluid injection. In short the injection test will consist of two periods:

1. Pumping injection period with a relatively high constant flow rate (flow period)
2. Falloff period with closed shut-in tool (period of pressure recovery)

These tests are designed to fracture the formation and force fluid into the tested zone. A cementing service company will be providing pumping services. Further to this, the magnitude of the rates expected is between 1 – 3bpm.

## 2. Terminology

WSS – Well Site Supervisor	BHA – Bottom Hole Assembly
WSG – Well Site Geologist	GL - Ground Level
RT – Rotary Table	DST – Drill Stem Test
DFIT – Diagnostic Fracture Injection Test	LOP – Leak Off Pressure
POOH – Pull Out of Hole	SPP – Stand Pipe Pressure

## 3. Pre-Test Procedure

- 3.1. Client to send preliminary information with estimated test details to Pro-Test.
- 3.2. Client to communicate timing with DST and pumping contractors and call out to site when required.
- 3.3. Confirm test interval from WSS in writing.
- 3.4. Tester to complete Test Checklist.
- 3.5. The 4 Stage CBM Test Tools will be serviced disassembled, inspected, reassembled and tested in the Pro-Test workshop prior to the job.
- 3.6. Ensure the shipping list and accessories check list is completed prior to shipping.
- 3.7. Ensure the correct crossovers are available for the test string to be used
- 3.8. Check that the test string ID will be suitable for Wireline Real Time and Ball Activated Circulating Sub if required. Ensure WLRT gauge is RIH if it is required.

## 4. Pre-Test Notes

- 4.1. Check caliper log (if available) for washout at designated packer seat intervals.
- 4.2. Check other logs or core samples for suitable sealing lithology at designated packer seat intervals.
- 4.3. Calculate the maximum expected downhole and surface pressures to ensure that the maximum pressure rating of gauges is not exceeded and to indicate an expected formation breakdown pressure. See Appendix A for a useful Lithostatic correlation chart that can be used as a guide.

- 4.4. Depending on rig suitability use rabbit to ensure pipe is clear of loose rust scale. If necessary consideration should be given to mechanical high pressure water blasting cleaning or acid pickling of the test string to ensure it is free of scale.
- 4.5. WSS to discuss test program, pressures to be reached and specific procedures with the Drilling, DST and pumping contractors.
- 4.6. DST contractor will provide a detailed BHA tally including length of each component.  
**Note: pressure activated pump-out subs must be removed from the BHA.**
- 4.7. Good communication is necessary between WSS, Drilling and testing contractor to ensure that the correct space out is achieved. Stick-up on the BHA sheet should be referenced to either RT or GL as designated by WSS.
- 4.8. OPTIONAL STEP: A radioactive PIP tag or marker joint can be placed in an appropriate location (usually at the top of collars – avoid any hollow pin shear bars)
- 4.9. All times, pressures and pump rates are to be recorded.
- 4.10. Prepare JSA and EHS documentation and hold safety meeting prior to operation. If the operation extends over the drilling crew tour period ensure that the incoming crew has completed JSA and EHS requirements and hold safety meeting prior to continuing operations.

## 5. Tool Make up and RIH

- 5.1. The Setting Tool and Packer(s) are shipped disassembled and some on-site assembly is required. Typically, the system is shipped in separable parts as follows:
  - 86mm 4 Stage DST TOOL which has 2 break points;
  - 86mm Straddle Assembly (Shipped as Top and Bottom Assembly)
- 5.2. Please note the following points for onsite assembly:
  - a) Owing to the length of this tool and the relatively fine threads used, extreme caution must be used to ensure that parts to be threaded together are clean, well greased, properly aligned and supported while screwing them together. Ideally when possible made up in a vertical position provides easier make up in terms of alignment.
  - b) Throughout all assembly procedures:
    - All threads should be checked for cleanliness and adequate lubrication prior to assembly;
    - All O-rings should be similarly checked and lubricated;
    - Nip up all threaded connections with chain wrenches/pipe wrenches being careful not to over-tighten and avoiding placement of wrenches on thin section of female threads.
  - c) When making up the tool, grease and torque any API threads to specified requirement.
  - d) When making up the relatively finer threads on the IPI 4 STAGE TOOL and PACKERS using pipe wrenches (48") will suffice.
- 5.3. Make up the LOWER PACKER, X/OVER and STRADDLE PIPE – Fill the pipe as they are being made up with fresh water (this will ensure the bottom packer is less likely to get clogged). It is the driller's responsibility to use the appropriate slips/dog collars.  
**Note: use weighted water for well control above the 4 Stage Setting Tool, remembering this fluid will be displacing annular fluid when the tool is in the Circulating Position. If the drill stem fluid density is less than the annulus fluid density, only employ reverse circulation until balanced.**

- 5.4. When the Straddle Interval has been made up leave the string in the slips (with dog collar if required).
- 5.5. Make up the testing tool offline, including all EMGs and other Data Acquisition Systems. Pick up the tool with a Hauling Sub, taking care when doing so not to damage or bend the tool.

*NOTE: If the Wireline Real Time Logging Provision is not in use MAKE SURE to make up a 1/16" NPT Plug into the bottom of the VALVE PISTON PLUG (Pt#35) and the Grease Injector (fitted with a plug) into the MEMORY GAUGE MOUNT (Pt#5) otherwise system function will be affected.*

- 5.6. Make up the 4 STAGE DST TOOL into the TOP PACKER X/OVER SUB (Pt#1). The TOP PACKER ASSEMBLY will have on it the INJECTION SUB (Pt#18) and INJECTION – STRADDLE X-OVER SUB (Pt#18A). Be sure to place a thread protector on the Straddle X-OVER SUB when lifting the tool up over the borehole.
- 5.7. Once the 4 STAGE TOOL/TOP PACKER ASSEMBLY is on the rig floor, before stabbing it in, make up the MEMORY GAUGE CARRIER (Pt#21, 23-24) into the Injection Sub.
- 5.8. Make up 4 STAGE TOOL/TOP PACKER ASSEMBLY onto the rest of the BHA.

#### **Perform the following checks on the Tools prior to RIH**

- 5.9. Connect top drive to crossover on top of tools
- 5.10. Pressure up slowly until elements begin to inflate. Record Inflation initiation pressure.
- 5.11. Bleed off pressure and set slips below tool
- 5.12. Move down 6" to place tool in circulating position.
- 5.13. With a rag tied around circulation ports to disperse flow pump slowly to confirm flow to ports.
- 5.14. Move down 24" to the Open Position.
- 5.15. With a rag tied around circulation ports to disperse flow pump slowly to confirm flow to ports
- 5.16. Pick up and continue to RIH
- 5.17. If available install the Ball Activated Circulating Sub a minimum of 6m above the top of the test tools.  
*Note: It is recommended to perform a trial inflation near surface to verify that the tool is functional and it also serves to prime the tool.*
- 5.18. To perform the trial inflation, stab in with the rig top drive to the top of the drill pipe. Pump through this connection to inflate the packers up to the required pressure (ref Pressure vs. Hole Diameter Chart). Shut in the pump and monitor the packer pressure for at least 10 minutes.

*Note: It is normal to see a gradual reduction in pressure due to stabilisation of the packers, but this should progressively decrease. If the operator notices a substantial pressure drop, then this indicates a leak and the system should be retrieved, assessed, re-assembled and this test be repeated till leak free performance is noted.*

*Note: With a casing test it will not be possible to function the tool into the circulating position due to pressure lock between the packers unless a one way valve is installed.*

- 5.19. Having established that the packer inflation system is leak free, vent off pressure at the surface (which also assists in priming the system) and then run in to the required depth

on the appropriate drill pipe.

*Note: Fill rods/stands every 30 to 60m when running in to prevent trapping too much air in the tool which will give a poor packer seat. Fill the pipe with clean fluid of sufficient density to maintain well control.*

*Caution: Ensure the level of water/mud in the annulus is full. If the level in the rods is significantly higher than the static water level in the borehole, the packers may inflate prematurely.*

- 5.20. For each pipe pressure test in open hole, make the last movement up to ensure the 4 Stage DST Tool is in the fully extended position (inflate/deflate). It is recommended to draw a horizontal chalk line on the rods opposite a convenient datum to monitor subsequent rod movement.
- 5.23. Stab into the pipe stump with the top drive. Start pumping to inflate packers. Slowly increase the rod pressure to inflate the packers to the required pressure – 1000psi. Hold this pressure for at least 5 minutes to allow the packers to stabilise and then, while still holding the pressure in the pipe, lower the pipe 6” to shift the Testing Tool into Circulate Stage. This will be evident by a sudden reduction in SPP as the tool opens to the borehole.
- 5.24. Continue to lower the pipe another 9” to place the valve downhole in the closed position.
- 5.25. To pressure test the pipe, start pumping again slowly increasing the pipe pressure to the required pressure. Hold this pressure as long as required to satisfy pipe pressure testing specifications. Release the pressure when the test is complete.
- 5.26. Shift up 15” to the tool deflate position which will release pressure in the packers. Continue to the next pressure test depth or testing depth.
- 5.27. Over run the test depth by at least 2-3 meters (if the hole conditions allow), pull back into test depth to ensure the 4 Stage test tool is in the fully extended position (inflate/deflate). It is recommended to draw a horizontal chalk line on the rods opposite a convenient datum to monitor subsequent rod movement.

a. (datum)	First Stage	→	INFLATION/DEFLATION
b. ↓152mm (6”)	Second Stage	→	CIRCULATE/DISPLACE
c. ↓305mm (9”)	Third Stage	→	SHUT IN
d. ↓305mm (15”)	Fourth Stage	→	INFLOW

- 5.28. Check and record static string weight as well as the up and down string weights.
- 5.29. Rods should be reasonably full from RIH. Top up if necessary. Rig up the following surface stack up from the pipe stump upwards:

Kelly Cock  
Side Entry Sub (with crossovers as required)  
Blank off sub (or Top Drive Kelly Cock)  
Top Drive Quill

<b>Safety Pre-Cautions for Surface Rig Up</b>
<b>From the side outlet of the Side Entry Sub, the first connection has to be one that minimises the bending moment of any associated pipe work – eg a swivel swing or a rigid elbow.</b>
<b>Minimise any valves that come off the elbow connection (have them on the ground where possible and not suspended).</b>
<b>Use a sling line if required to suspend any hard line or chocks - do not sling onto any steel unless it has a pivot point somewhere either side of it. Ensure the tool can move the full stroke length plus more without the surface lines hitching on anything.</b>
<b>Do not attach a winch line to any fitting that is fixed to the head unless it is between a swivel point – this can overload winch safe working loads.</b>
<b>Pressure test all hard lines while isolation valves are in reach – then raise them to ensure correct pipe stick up.</b>

5.30. Bleed any air out of the lines by opening the upper and lower Kelly Cocks. Refrain from breaking any hammer union connections to do this where possible. Test surface lines against a valve to at least 1000psi.

*Note: The cores or caliper log should be examined prior to deciding on packer seat locations to avoid setting the packers in potentially washed out or highly fractured zones, which may lead to packer over-expansion and subsequent failure. Ideally, the packers should only be set in a gauged hole in competent rock.*

5.31. Start pumping and slowly increase the pipe pressure to inflate the packers. Be aware not to exceed the rated pressure for the borehole size

Inflation pressure of 1000psi is standard.

5.32. Upon reaching the required pressure, hold this pressure for ~5 minutes to allow the packers to stabilise and then, while still holding the pressure in the rods, check for a solid packer seat with over pull and hold this overpull for 1 minute, then lower the rods 6" to shift the testing tool into Circulate Stage. This will be evident by a sudden reduction in rod pressure as the tool opens to the borehole.

*Note: Two ways to check for a positive packer seat are to take over pull with pressure shut in the rods or by shifting into the open position and sitting weight on the packers without applied pressure. Apply/take up just enough weight to get an indication (1-2 tonnes) don't apply excessive weight as excessive weight can cause the packers to fail.*

5.33. Continue lowering the rods another 9" to shift the testing tool into the shut in position.

5.34. Pressure test the test string as before keeping in line with all pressure test safety guidelines. (Note: if the downhole valve does not hold pressure, the tool can be shifted back to the inflate position to check the integrity of the pipe).

5.35. Leave the tools in the shut in position. Release all surface applied pressure.

## **6. Final Rig Up and Checks**

6.1. When on depth, run correlation log (if required) to check depth of the radioactive PIP

- tag or marker joint.
- 6.2. Fill surface tanks of pumping unit with clean weighted fluid.
  - 6.3. Zero displacement tanks. Open test head valve.
  - 6.4. Ensure that the test pressure plus the calculated hydrostatic pressure does not exceed the maximum rating of the fluid recorder gauge.
  - 6.5. Shift the test string down 15" to open the downhole valve to the interval.

## 7. INJECTION TEST PUMPING PROCEDURE

- 7.1. Commence pumping – building rapidly to the pre-determined rate – and maintain the pumping rate constant.
- 7.2. Monitor the annulus to check for packer seat failure or pipe leaks.
- 7.3. Keep pumping at the constant rate allowing the pressure to build. If the formation begins to break down the pressure should peak and then ease. Pump at the constant rate until the specified volume of fluid has been moved.
- 7.4. Once the pumping is complete shut-in at surface (not downhole). If this is the case, shut-in the surface valve and bypass all flow. Shut down the pump. This will enable the fall off to be monitored at surface. Monitor the bleed-off.
- 7.5. Leave shut-in as specified by the client.
- 7.6. Alternatively, if the pipe is leaking slightly the client may want to shut-in the downhole valve. Simultaneously either stop the pump or bypass all flow or ramp down to prevent damage to the downhole valve seals as the tool string is raised 15" to the shut in position. Bleed off the surface pressure to ~100psi to monitor for leaks.
- 7.7. Monitor fall off pressures from the interval.
- 7.8. Compare datalogged pumped volumes with actual tank volumes.
- 7.9. At the completion of the fall off period, if shut in down hole, bleed off any remaining applied surface pressure. If the well was only shut-in at surface, shift into the downhole shut in position, then open the surface valve and bleed off pressure to atmosphere, wait 10 minutes for complete system stabilisation. (The pressure should be bled off slowly - over 1 minute - to avoid sudden contraction of the pipe and damage to connections.)
- 7.10. Note the amount of fluid that flows back into the tank.
- 7.11. Download digital data and pressure plot from pumping contractor.
- 7.12. If well bore conditioning is required before running a reset test, shift tool to circulating position and condition the well bore and mud system (ENSURE THAT THE FLUID DENSITY INSIDE THE PIPE IS BALANCED WITH THE ANNULUS FLUID DENSITY). If well bore conditioning is not required, shift the tool to deflate the packers and move to the next testing zone.
- 7.13. If a reset test is not required, shift the tools to the deflate position, activate the drop ball – drop bar circulating / drainage sub, condition the well bore if required (again ensuring that the fluid densities are balanced), POOH, break down tools and download gauges for test verification.

## 8. POST TEST

With gauges at surface, examine the charts and transfer data to WSS (if not in real time). If there is any evidence of a compromised test prepare for second run.

- 8.1. These reports need to be as accurate as possible and record all relevant information on events that occur before, during and after testing.
- 8.2. It is mandatory that the reports are completed and finalised prior to departure from the rig as once a crew has returned to base, chasing down missing information takes time and delays answers to clients.

## Rogan Stephanie

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**Subject:** FW: Side entry sub

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**From:** Greg Ottaviano [<mailto:GregOttaviano@pro-test.com.au>]  
**Sent:** Wednesday, 24 October 2012 14:33  
**To:** Malone, Dean; Stevenson, Jay  
**Cc:** [redacted] s49 - personal information  
**Subject:** RE: Side entry sub

Thanks for that Dean.

Before I get too far ahead of myself here's what I'm proposing for a surface stack up for DFIT's on 101 from the drill pipe stub upwards:

Drop Bar Sub / Kelly Cock: 4" FH p x b (Pro-Test)

Side Entry Sub with cross overs to 4" FH: (EWE)

Optional Blank off Sub: 4" FH (Pro-Test)

And the rig top drive can stab into this.

On the side outlet we should have an elbow (or swivel elbow): Not sure if EWE have one of these?

Cross over union from 2" 602 x 2" 1502: (Cementing contractor or EWE?)

Low torque valve – I believe the likes of Halliburton and Schlumberger like to pressure test all their hard line with their own valves?

Cementing contractor iron as required (slung and supported by winch line if required).

Isolation valves & pressure transducers on the floor.

I'll also recommend that when the pipe is being moved that someone is dedicated to the winch line that is supporting the hard line (if fitted).

How does this sound?

Greg Ottaviano | Engineering & Operations Manager



p: + 61 (0) 7 4622 6800 | m: + 61 [redacted] s49 - mobile  
f: + 61 (0) 7 4622 6900 | Skype: [redacted] s49 - personal information  
e: [gregottaviano@pro-test.com.au](mailto:gregottaviano@pro-test.com.au) | <http://www.pro-test.com.au>

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**From:** Malone, Dean [<mailto:Dean.Malone@santos.com>]  
**Sent:** Wednesday, 24 October 2012 10:54 AM  
**To:** Sharma, Amit  
**Cc:** Stevenson, Jay; Greg Ottaviano  
**Subject:** FW: Side entry sub

Amit,

This is the side entry sub on EWE 101.

Side Entry is 4 ½ IF Box – 4 ½ IF Pin With 602 hammer union.

**Dean Malone | Drilling Operations Superintendent | CSG Drilling & Completions |**  
Santos Limited, Level 20 Santos Place, 32 Turbot Street, Brisbane Qld 4000  
PH: 07 38383829 | Mob: s49 - mobile [Dean.Malone@santos.com](mailto:Dean.Malone@santos.com) |

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**From:** s49 - personal information [easternwell.com.au](mailto:easternwell.com.au)  
**Sent:** Tuesday, 23 October 2012 16:25  
**To:** r101rigmanager; Malone, Dean  
**Subject:** Fwd: Side entry sub

Thanks Dusty,

Please could you verify what the pin and box threads are?

Dean, please see attached photo's of side entry sub

s49 - personal information  
Operations Superintendent  
Easternwell Energy  
10 Russell Street  
Toowoomba  
M: s49 - mobile  
T: (07) 4659 1303  
Sent from my iPad

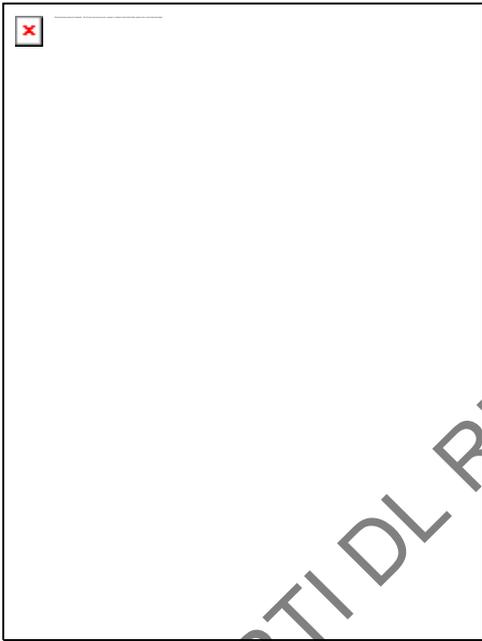
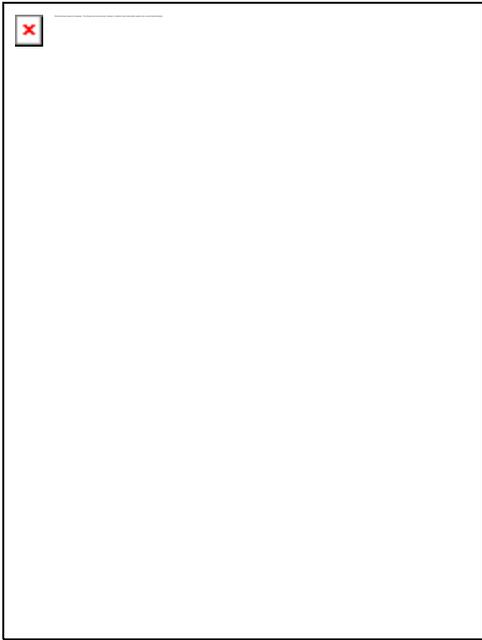
Begin forwarded message:

**From:** Dustin Anthony <[dustin.r.anthony@gmail.com](mailto:dustin.r.anthony@gmail.com)>  
**Date:** 23 October 2012 4:02:48 PM AEST  
**To:** s49 - personal information <[s49@easternwell.com.au](mailto:s49@easternwell.com.au)> s49 - personal information <[s49@easternwell.com.au](mailto:s49@easternwell.com.au)>  
**Subject:** Side entry sub

Please see attached



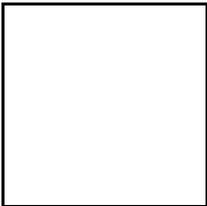
Dustin Anthony



RTI DL RELEASE - DNRM

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RTI DL RELEASE - DNRM

## Rogan Stephanie

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**From:** WRIGHT John  
**Sent:** Friday, 2 November 2012 4:58 PM  
**To:** s49 - personal information  
**Cc:** DITTMAN Andrew  
**Subject:** Re: RIG 101 DFIT configuration engineered drawing

s49 - personal information

Thanks for the information. As long as your engineers are prepared to sign off on the new design, the rig can begin using the new configuration and safe work procedure. I assume the new design will be adopted by all Eastern Well rigs?

It is not the role of the P&G Inspectorate to approve designs but you have provided information that the process have been adequately reviewed, and you will no doubt fine tune the system during the implementation phase.

Kind Regards

John Wright  
Regional Petroleum and Gas Inspector

s49 - mobile

Sent from my iPad

On 02/11/2012, at 4:42 PM, s49 - personal information <[redacted]>@easternwell.com.au> wrote:

John / Andrew

Find attached the engineered drawing as discussed in relation to the DFIT operations and the configuration to be used. This should provide the detail you were seeking in relation to the configuration. I have also attached a photograph of the side entry sub so you are able to see what the sub looks like.

If you require any more information please do not hesitate to contact me.

Regards

s49 - personal information

Regional HSE Manager  
Easternwell Energy

10 Russell St, TOOWOOMBA QLD 4350

p: +61 7 4659 1555 f: +61 7 4659 1599 m: s49 - mobile

e: s49 - personal information@easternwell.com.au

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<RIG 101A.pdf>

<P1016185.jpg.jpg>

RTI DL RELEASE - DNRM

