elogix as

digital well engineering solutions

Elogix
iWellBook

Automation of Workflow management and Well Information gathering

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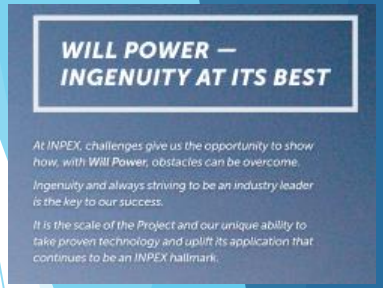
ELOGIX BACKGROUND

- ELOGIX - Stavanger based, established late 2016
- We facilitate digitalization of existing workflow and engineering systems in the well construction space
- We provide ‘Software as a Service’ fully supporting implementation and management
- ELOGIX *iWellBook*
  - ELOGIX: Awarded Norwegian Industry Development Grant Q2 17, for joint industry development with INPEX

iWellBook Test bed: INPEX Ichthys Project

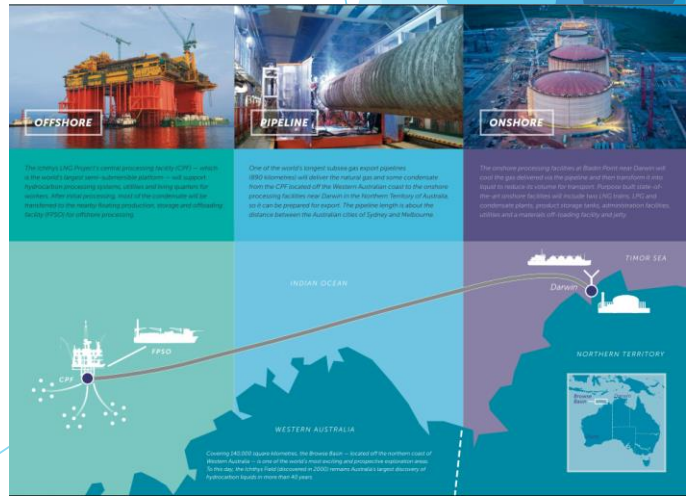


Significant drilling workflow improvement and greater assurance of well construction quality management

"Currently no other known commercial products on the market which can provide the ability to integrate Well Integrity Management System (WIMS) and Well Execution Workflow processes to provide STEP Change Modernisation and Transformation Benefits"

iWellBook – iWell Acceptance Book has been successfully implemented on all Ichthys wells to date including pre-iWellbook wells.

This is:
50 WAC plans for Drilling, Completion and LWI
1500 plus WAC lines items
2000 plus documents



iWellBook –Key Features

iWellBook, an intelligent well book: The iWellBook group of products is focused on simplification, standardisation and minimising the change. We understand the path to better ways of working.

1. Integrates Rig Provider, Service Providers, Onshore and Offshore Operator – See only relevant data
2. Provides Intelligent Well Construction Data – interactive, linked and adaptable
3. Delivers Standardization of Well Acceptance Test, Well Barriers, Well Handovers - master testing parameters, cloning, consistent deliverables

https://www.elogix.no/solutions/

- **iWell Construction Book:** The world leading, assurance and verification tool for well construction. Make the change to a standardised approach with the iWell Construction Book.
- **iWell Barrier Book:** Safety and well barriers are critical. The iWell Barrier Book ensures you can prove and verify these elements during the life of your well.
- **iWell Handover Book:** Simplifies the Handover process.
- **iWell As-Built Book:** SEE IT and FIND IT with the iWell As-Built Book.
- **iWell EOWR Book:** Generating End of Well Reports is a breeze with the iWell EOWR Book. Capture information automatically as you go.

(Note: INPEX is currently utilising the iWell Construction Book module only)

iWellBook: Time Management

INPEX

Landing Page | Feedback Form | Administrator

Home / View a Plan : **plan-96**

View a Plan

- INPEX
  - Ichthys
    - Completion XX
      - WBCU
      - Cement Evaluation Log
      - Install Tubing Head Spool
      - Install TCP Guns
      - Install Completion
      - Install XT
      - Install CWOR
      - Well Flow Back
      - Suspend Well

Configurator of Phase Activities for Cement Evaluation Log

No.	Description	Step	Budget	Actual (hours)	Planned (hours)	NPT	Started At	Completed At	Actual Days	Target Days	Actions
1	RIH Shooting Nipple	2.1	0.00	0.00	2.00	0	17/11/2018 01:00 AM	17/11/2018 03:00 AM	0.00	0.08	
2	Rig up surface equipment and logging tools	2.2	0.00	0.00	28.00	0	17/11/2018 03:00 AM	18/11/2018 07:00 AM	0.00	1.16	
3	C3: Conduct Pressure Log	2.3	0.00	0.00	1.00	0	18/11/2018 07:00 AM	18/11/2018 08:00 AM	0.00	0.04	
4	Rig Down PCE and install	2.4	0.00	0.00	5.00	0	18/11/2018	18/11/2018	0.00	0.20	

iWellBook: dashboard

Completed	Pending	Outstanding	To Be Completed
1	5	3	40

LINK to Assurance Deliverables View All

Assurance No.	Assurance Phase	Description	Performing Party	Status
100	Planning and Scheduling	Review & Accept Basis for Well Intervention	Woodside	Manage
110	Planning and Scheduling	Prepare Well Schedule	Woodside	Manage
120	Planning and Scheduling	Prepare Well Cost and obtain PO for all services	-	Manage
130	Planning and Scheduling	Define Materials, Equipment & Services	-	Manage
200	Intervention Design	Initiate Daily Reporting and Cost Tracker Initiate IDS	-	Manage

Quick Link to Assurance documentation View All

Assurance No.	Assurance Phase	Description	Key Documents
100	Planning and Scheduling	Review & Accept Basis for Well Intervention	Example Doc.docx

iWellBook:
Uploading Documents Deliverable Portal

Hello

You are the designated performing party for this deliverable.Please upload the requested document to enable review and approval.

Please note that the below well acceptance criteria (WAC) test has been executed.

1. WellName:
2. Plan: plan-22
3. WAC Drilling Test Number: 42
4. WAC Test Number: 42 Production Liner Casing make up
5. Test Description: Premium casing connections are made up correctly and optimally.
6. Deliverable: 42 Make up Jam Report 7'' Liner

Please follow the below link to updated the supporting information

Link to : Click on this link to log in and go the test

From WESC: WAC System Administrator

or

wesc.administrator@tlx.no

Id : #8 (222) Date: 21/09/2018 1:35 PM

Details : Examination of mud logging data and drill pipe tally.

Well Phase : Drill 26" Hole Section

WAC Phase : Structural surface casing (20")

Description : Section TD is 460m +0/-50m below the mud line.
Show Less

Service Provider

Document Title / Type	File Name
Well Trajectory Survey Report 26" Section (**Document Type : GENERAL**	Survey Report_711m_26in TD.xlsx

iWellBook: Deliverable Portal

Well Name: Well X - plan-95

Performing Party: -Select Performing Party-

Well - Well X - plan-95

Look Ahead | Test Status

48	1	2	0	51
Completed	Pending	Outstanding	To Be Completed	All

Deliverable Information	Performing Parties	Actions
Id : #7 (221) Date: 21/09/2018 12:35 PM Details : Examination of directional survey. Show More	Party 1	
Id : #8 (222) Date: 21/09/2018 1:35 PM Details : Examination of mud logging data and drill pipe tally. Show More	Party 2	
Id : #9 (223) Date: 21/09/2018 6:35 PM Details : Observation with ROV video. Show More	Party 3	
Id : #10 (224) Date: 21/09/2018 7:35 PM Details : Observation with ROV video of bullseyes on DGB.. Show More	Party 4	
Id : #11 (229) Date: 21/09/2018 8:35 PM Details : Observation with ROV video. Record of 20" set-down weight just prior to when housings engage and record overpull	Party 5	

iWellBook: iWell Sign Off Dashboard

Well XX: Sign Off dashbaord

Test	Phase	Description	PP Expected Doc	Key Documents	Result Stmt	Sign Off	Performing Party	Actions
8	Structural surface casing (20”)	Section TD is 460m +0/-50m below the mud line.	1.1 - Well Trajectory Survey Report 26" Section (QC'd by SLB Well Planner)	1.1 XX 3_Sur GID	Accepted. Section TD: 711.00mMDRT (444.00m below mud line) See attachment WAC #7.	XX OPE 21/09/18 XX DSV 24/09/18 Show less	XX	Manage
9	Structural surface casing (20”)	Elevation of HPWH datum above mud line Show more	1.1 - INPEX DDR (Issued by Technical Assistant)	1.1 XX 3 DDF GID	Accepted. Datum of HPWH: 263.25mMDRT.	XX OPE 26/09/18 XX DSV 26/09/18 Show less	XX	Manage
10	Structural surface casing (20”)	DGB after structural surface casing land Show more	1.1 - ROV Bullseyes Survey (Post landing)	1.1 - 18-09-21 12.29.! GID - XX DDR_0!	Accepted. Bullseye reading: 0.5deg	XX OPE 22/09/18 XX OIM 25/09/18 XX DSV 24/09/18 XX Dril... 26/09/18 Show less	XX	Manage
11	Structural surface casing (20”)	Successful rigidising of LPWH to HPWH. Show more	1.1 - INPEX DDR (Issued by Technical Assistant)	1.1 - XX DDF GID	Accepted. Took 50klbs overpull. Applied 180klbs set-down weight.	XX OPE 26/09/18 XX DSV 26/09/18 Show less	XX	Manage

iWellBook: Well Construction Book

WAC #	Opera-tional NOTE 1	Barrier NOTE 2	Hand-over NOTE 3	Phase	Description	Result	Key Documents	DSV Sign off	CSV Sign off	SSV Sign off	OIM Sign off	DS Sign off	Status
C35		Y		Install XT	Pressure test 7.00 in Production line between THS and XT via VCCS pressure cap to 6,500 psi for 15 min.		• WAC #C35 Pressure test 7in prod line.pdf						Completed
C36	Y			Install XT	Pressure test 2.00 in MEG line between THS and XT via VCCS pressure cap to 5,000 psi for 10 min.		• WAC #C36 Pressure test MEG.pdf						Completed
C37	Y			Install CWOR	Premium landing string connections made up correctly.		• WAC#C37 7.58in landing string.pdf						Completed
C38		Y		Install CWOR	Pressure test 7-5/8" landing string, SFT and surface lines to 5,000 psi for 10 min.		• WAC#C38 Pressure test LS, SFT and surfaceline to 5,000 psi.pdf						Completed
C39	Y			Install CWOR	35,000 lb over-pull test on LRP connector.		• WAC #C39 35klb overpull test on LRP connector.pdf						Completed
C40			Y	Install CWOR	Successful Communication test with XT Control System – SCM Housekeeping.		• WAC #C40 Successful Communication test with XT Control System – SCM Housekeeping.pdf						Completed
C41		Y		Install CWOR	Successful pressure test LRP to XT production connection to 7,000 psi for 10 min.		• WAC#C41 Pressure test LRP and XT production side to 7,000 psi.pdf						Completed
C42		Y		Install CWOR	Successful pressure test LRP to XT annulus connection to 5,000 psi for 10 min.		• WAC #C42 Pressure test LRP and XT annulus side to 5,000 psi.pdf						Completed
C43		Y		Install CWOR	Successful pressure test of LRP SSR (from below) to 5,000 psi for 10 min.		• WAC #C43 Pressure test LRP SSR to 5,000 psi.pdf	Paul 15/06/18		Jade 13/06/18	James 18/06/18	Matt Jobe 20/06/18	Completed

Live Links to Documentation

INPEX

Well Execution Support Centre

Well Acceptance Criteria Report

Date :12/08/2018 04:00 AM

Operator : INPEX

Field : Ichthys

Well : Completion XX

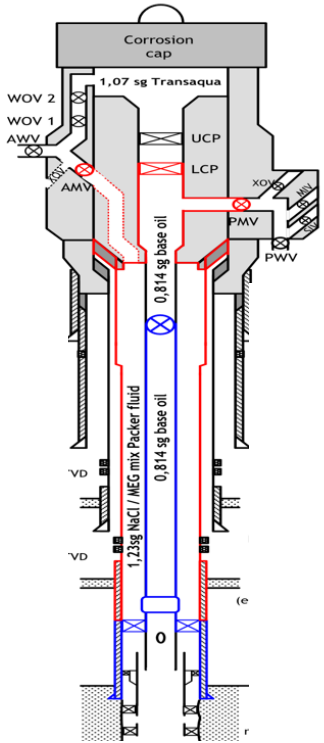
Download WAC to ZIP

C1 Inflow test 7 liner	File folder
C2 Verify brine cleanliness	File folder
C3 Cement evaluation log	File folder
C4 Pressure test suspension packer	File folder
C5 Successful lock down	File folder
C6 Pressure test suspension packer	File folder
C7 THS orientation	File folder
C8 THS locked to HPWH	File folder
C9 Successful pressure test of THS HPWH	File folder
C10 TCP guns installed on depth	File folder
C11 Confirm communication	File folder
C12 External pressure test of TEC	File folder

iWellBook: iWell Barrier Book

Well Barrier Envelope: Ichthys XX

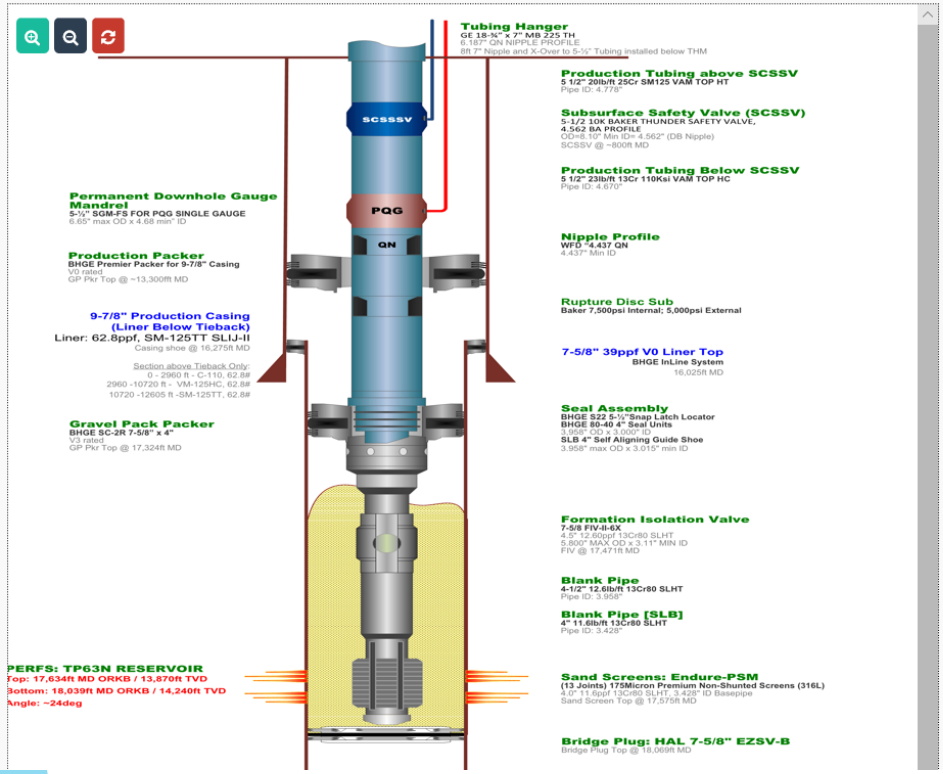
Back to WBE Activity Page



Primary Well Barrier | Secondary Well Barrier

PWB ID	Element	Verification	Links to the documents	Status	Action
1	OH x 7'''' & 9 5/8'''' Annulus: 9 5/8'''' Casing Cement	More than 60 m of good cement above Gas reservoir, based on cement quality log.	Well X 1_7in Liner...		
2	OH x 7'''' & 9 5/8'''' Annulus: 9 5/8'''' Casing	5,000 psi w/1.12 SG Brine.	Well X 1 DDR#21...		
3	Inside Casing/ Tubing: 7'''' Liner Top Packer	Inflow tested to 1,500 psi below rerservoir pressure. 5000 psi w/1.12SG Brine	Well X 7in Liner Tally ... - Operating Envelop...		
4	Inside Casing/ Tubing: 7'''' Liner above perforations	Inflow tested to 1,500 psi below rerservoir pressure. 5000 psi w/1.12SG Brine	Well X 1 DDR#20...		
5	Inside Casing/ Tubing:Production Packer	4,750 psi from below / 4,600psi from below			
6	Inside Casing/ Tubing:Production	4,600 psi from internal / 4,75psi			

iWellBook: iWell As-Built Book



Primary Well Barrier | Secondary Well Barrier

PWB ID	Element	Verification	Links to the documents	Status	Action
1	Tubing Hanger -	18 3/4 inch x 7inch MB 225 TH . PN 33421345. SN see attached	- TH As installed M... - TH BOM.pdf		
2	Production Tubing above SCSSV	5 1/2 20 lb/ ft 25 Cr SM 125 VAM TOPHT	- 5 1-2 inch 20 lb pe... - 5 1-2 inch JAM ch...		
3	Subsurface Safety Valve -	SSCSV Thunder 5- 1/2inch 10K 4.625 BA Profile. PN T2343 SN see attached	- SCSSV API Certific... - SCSSV GA.pdf		
4	Control Line	1/4 10K CL and associated equipment	- Control Line and F...		
5	Permanent Downhole Gauges Mandrel -	PDHG Mandrel 5 1/2 SGM -FS PN 3425 SN see attaced	- PDHG Mandrel Su...		
6	Permanent Downhole Gauges	PDHG . PN 32345 and associated information	- PDHG Installation...		

We Also

- ELOGIX has partnered with Rider to develop Smart Procedures combined with iWellBook
- Developed Guyana first Mobile Safety Observation Application
- Provide Engineering and Development support to Maersk Drilling utilising RFID technology for Safety Management

Conclusion

Automation of Workflow management and Well Information gathering:

iWellBook

1. Integrates all parties (Operator and 3rd parties), onshore and offshore
2. Digitization of well execution workflows and deliverables
3. Standardises processes and controls. Sets upfront engineering deliverables, what, when, why, who provides, who approves
4. Efficient use of Well Site Frontline leaders' time supervising the worksite rather than handling paperwork

Modules

- iWell Construction Book
- iWell Barrier Book
- iWell EOWR Book (End of Well Report)
- iWell As-Built Book

Benefits

- **Operation teams efficiency** – digitised interface management (including 3rd Party)
- **Reduction of rig time** – efficient approval and management (onshore/offshore) and of critical activities and tests (offshore)
- **Improved efficiency during the operating phase**
- **Standarisation of Execution Repeatabiltiy** - best in class standardisation of critical and core deliverables

INPEX Well Engineering Team Leader:
"Currently no other known commercial products on the market which can provide the ability to integrate Well Integrity Management System (WIMS) and Well Execution Workflow processes to provide STEP Change Modernisation and Transformation Benefits"

Conclusion

- ELOGIX iWell Construction Book;
  - Is Field Proven
  - Australian Well Acceptance Criteria ‘Focussed’
  - This Results in the ability to ‘take existing’ workflows, customise, digitise and implement at a low cost with immediate affect.

- We get straight to the heart of the assurance and verification problem, and solve it.

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