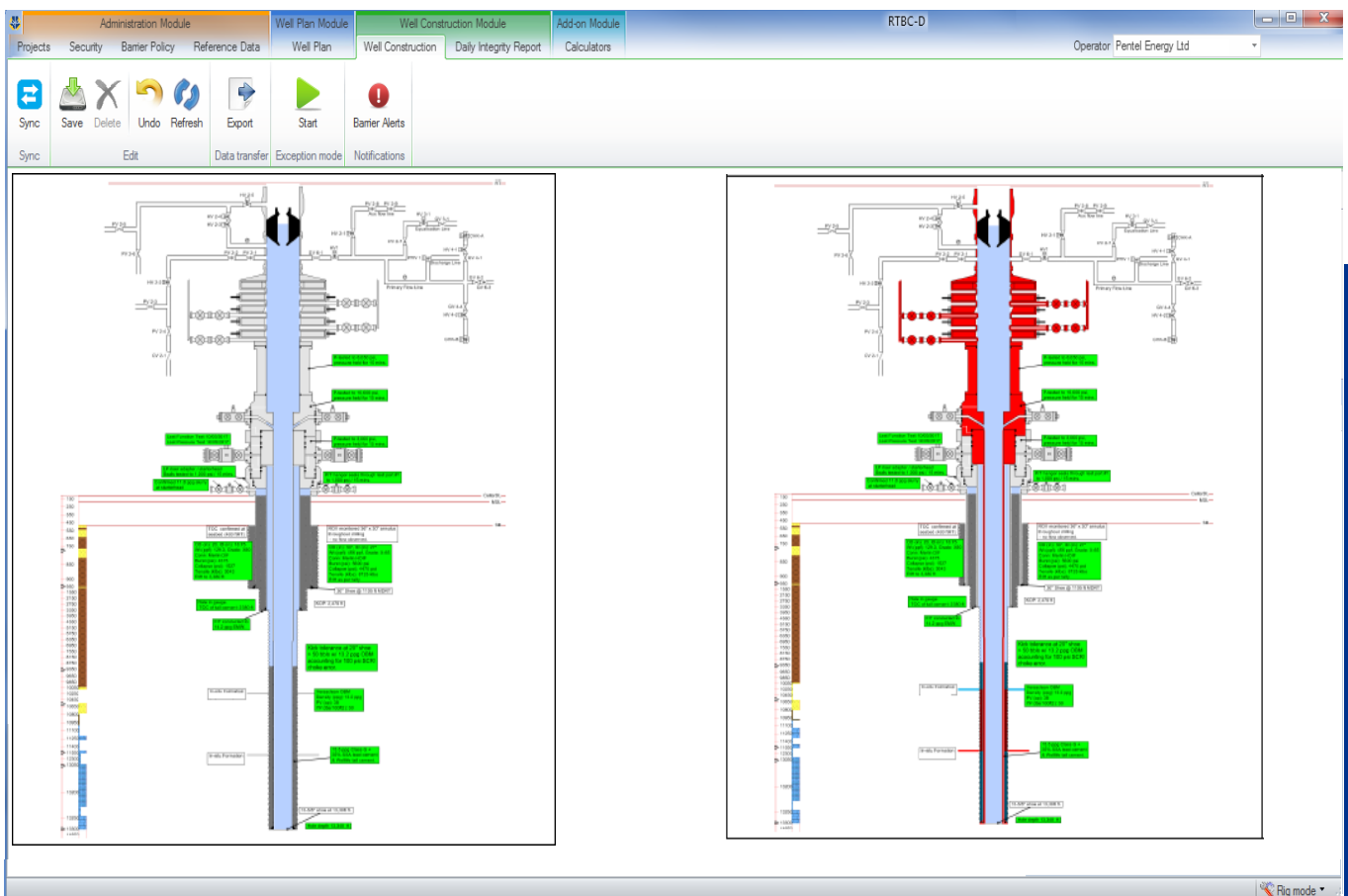


## RIGHT TIME BARRIER CONDITION - DURING DRILLING & COMPLETIONS

### Reduce your Well cost and blowout risks

- Enhance your barrier integrity tracking throughout well life
- Access quality well data at all times
- Have a visual display of your barriers, anywhere, at any time
- Make smarter and faster decisions with accurate information
- Demonstrate to management, partners and regulators you are in control



A field proven, user friendly encrypted cloud based system that provides instant clarity on downhole and surface barriers conditions.  
In use by operators and regulators in the North Sea and Australia.

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# Pre Spud

## Incorporates your Standards:

- Identifies barrier rules and Critical Acceptance Criteria
- Creates unique RTBC-D digital barrier policy library

## Creates a Barrier Well Plan:

- Sets up planned “Activities” as per Drilling Program
- Defines Primary and Secondary barrier elements in each Activity
- Applies specific barrier rules from “Policy” library to every barrier element

# Post Spud

## Creates a Well Build:

- Rig user identifies actual barrier element condition according to company policy
- Reports compliances/non compliances daily, including barrier restoration actions
  - Provides accurate context rich as-built wellbore diagrams
- Upload barrier validation evidence documents into repository
- Sends real-time SMS and e-mail alerts to personnel in charge



Daily Integrity Report		
Well, Hole Section and Activity Summary		
Item	Description	Status
Well	XYZ-1	In Progress
Hole Section	17 1/2" Hole Section	In Progress
Activity	Install and Pressure Test HP Riser, Drilling BOP & MPD	In Progress
Report and Well Data Details		
Report Number:	70	Actual Air Gap (ft): 189.30
Date:	25/12/17	Actual Water Depth (ft): 291.20
Spud Date:	3/02/16	Current (MD): 13348.00ft
Spud Time (hrs):	1600	Current (TVD): 12805.00ft
Country:	United Kingdom	Plan TD (MD): 13348.00ft
Block:	---	Plan TD (TVD): 12805.00ft
Permit/Lease:	---	---
Rig:	---	---
Rig Manager:	---	Current Hole Size: 17.500in
Day Rig Supervisor:	---	Casing OD: 20.000in
Night Rig Supervisor:	---	Casing MD: 3380.00ft
Drilling Contractor:	---	Casing TVD: 3380.00ft
Wellsite Geologist:	---	TOL MD: -
Offshore Drilling Engineers:	---	TOL TVD: -
---	---	Liner Shoe MD: -
---	---	Liner Shoe TVD: -
Operations Summary		
Current Ops:	@ 0600	Preparing to drill 13-5/8" shoe-track.
24-Hr Summary:		P/U & RH 12-1/4" RSS BHA to top of cement. Circulated B/U and commenced displacing well from 13.2 ppg Versaclean OBM to 15.2 ppg Versatherm OBM.
24-Hr Planned Ops:		Finish displacing well from 13.2 ppg Versaclean OBM to 15.2 ppg Versatherm OBM. Drill 1/4 of 13 5/8" shoe-track. Perform HPHT and MPD fingerprinting.
Barrier Elements' Summary Traffic Light Status		Reduced As-Built Wellbore Diagram
Primary Barrier[s]		
Barrier Element Type	Display Name	WI Status
In-Situ Formation	In-situ formation (top XXX-1)	✓
In-Situ Formation	In-situ formation (13 5/8" shoe)	✓
Intermediate Casing Cement	13 5/8" Casing Cement (below XXX-2)	✓
Intermediate Casing Cement	13 5/8" Casing Cement (above XXX-1)	✓
Shoe Track	13 5/8" Shoe Track	✓
Secondary Barrier[s]		
Barrier Element Type	Display Name	WI Status
MPD System	MPD System	⚠
B Section Casing Head	B Section Casing Head	✓
Drilling BOP	18 3/4" 15k BOP	✓
HP Riser Adaptor	13 5/8" 15k HP Riser	✓
In-Situ Formation	In-situ formation (XXX-2)	✓
Intermediate Casing	14" x 13 5/8" Casing	✓
Intermediate Casing Cement	13 5/8" Casing Cement (below XXX-1)	✓
Intermediate Casing Hanger + Seals	14" Casing Hanger + Seals	✓

Wellbore Diagram										
Detailed Well Integrity Status										
Primary Barrier Condition in each of barrier verification checks										
Barrier Element Type	Display Name	Traffic Light Status	Barrier Rating	Evidence Based Verification Requirement	Default Rig Response	Default Operations Management Response	Default Asset/Interruption Management Response	Response Action	MXC Status	Additional Comments
Casing Cement	9 5/8" Casing Cement	🔴	🔴	Physical cement and fluid volume present to the planned program.	No issue with fluid with respect to the cement volume present to the planned program. No issue with fluid volume present to the planned program. No issue with fluid volume present to the planned program.	Inform operations management team.	Verify that the physical cement and fluid volume present to the planned program is sufficient to provide sufficient cementation (i.e. 100% cementation) and appropriate cementation (i.e. 100% cementation).	Conduct compliance audit against Corporate Standards (Internal Audit and Organizational Disruption)	No action required	Not performed
Casing Cement	9 5/8" Casing Cement	🟢	🟢	Hydrostatic cementation must be established to the planned program.	The time required to the hydrostatic cementation is 100% of the planned program.	Continue as Planned	Monitor as per normal	No action required	-	-
Casing Cement	9 5/8" Casing Cement	🟢	🟢	No presence of untested casing cementation is monitored.	No 100% observed.	Continue as Planned	Monitor as per normal	No action required	-	-
Casing Cement	9 5/8" Casing Cement	🟢	🟢	The cement properties that are being used are within the planned program.	Cement properties are within the planned program.	Continue as Planned	Monitor as per normal	No action required	-	-
Casing Cement	9 5/8" Casing Cement	🟢	🟢	The cement must be used in accordance with the planned program.	Bumped plug successfully with 100% psi.	Continue as Planned	Monitor as per normal	No action required	-	-
Secondary Barrier Condition in each of barrier verification checks										
Barrier Element Type	Display Name	Traffic Light Status	Barrier Rating	Evidence Based Verification Requirement	Default Rig Response	Default Operations Management Response	Default Asset/Interruption Management Response	Response Action	MXC Status	Additional Comments
Casing Cement	13 5/8" Casing Cement	🔴	🔴	Hydrostatic cementation must be established to the planned program.	The time required to the hydrostatic cementation is 100% of the planned program.	Inform operations management team.	Evaluate necessary why the hydrostatic cementation is not established to the planned program.	Conduct compliance audit against Corporate Standards (Internal Audit and Organizational Disruption)	No action required	Not performed
Casing Cement	13 5/8" Casing Cement	🟢	🟢	No presence of untested casing cementation is monitored.	No 100% observed.	Continue as Planned	Monitor as per normal	No action required	-	-
Casing Cement	13 5/8" Casing Cement	🟢	🟢	The cement properties that are being used are within the planned program.	Cement properties are within the planned program.	Continue as Planned	Monitor as per normal	No action required	-	-
Casing Cement	13 5/8" Casing Cement	🟢	🟢	The cement must be used in accordance with the planned program.	Bumped plug successfully with 100% psi.	Continue as Planned	Monitor as per normal	No action required	-	-

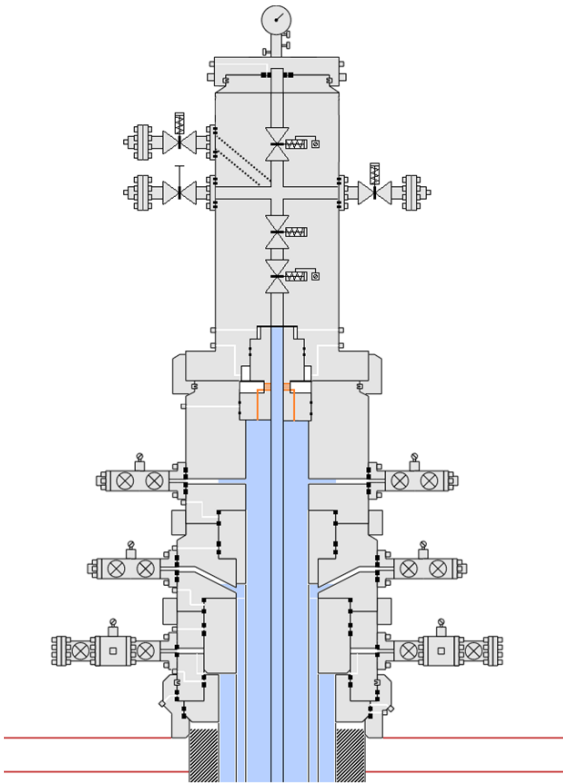
## Completions Phase

### Enhanced Drawing Package for Completions + Interventions:

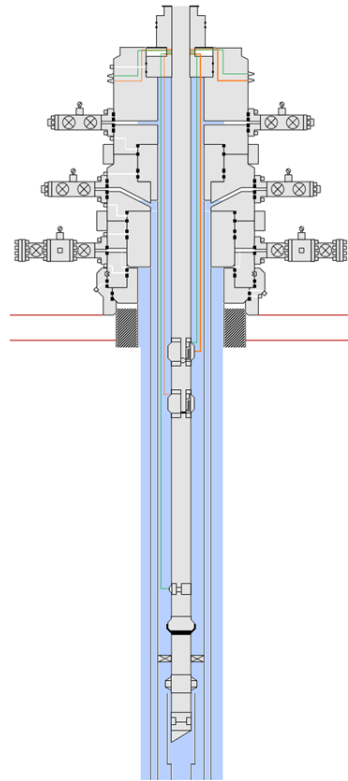
- Accurate representation through user customizable Xmas Tree, downhole detailed completions, Coil Tubing & surface PCE



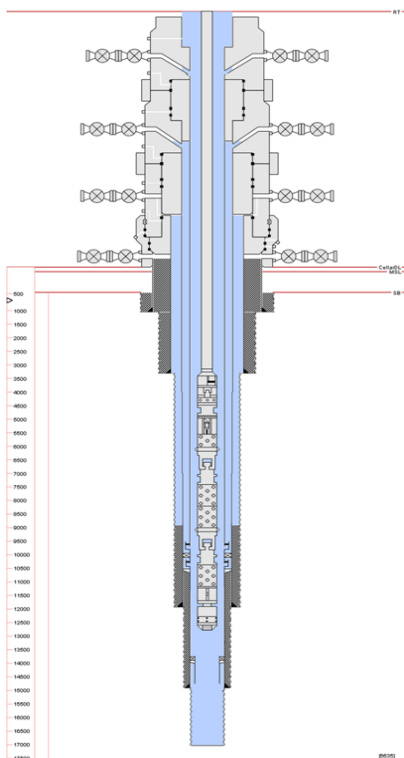
Xmas Tree



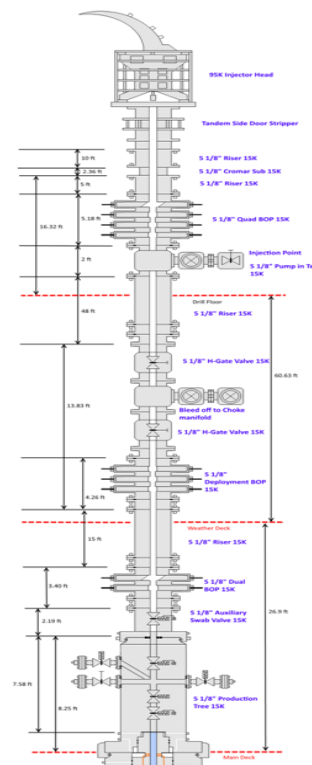
Completions



Coil Tubing



Intervention PCE



# Well Test + Production Phase

## Surface Equipment Drawing Package for Well Test and Annulus Pressure Management Spread:

- Accurate representation of Well Test Spread including flow paths, critical valves, manifolds and Separators that are easily user customizable.
- Accurate representation of Annulus Pressure Management network, including line up to wellhead annulus outlet(s), bleed manifold and Surge tanks.
- All safety critical systems (ESD) and alarms can also be represented.

