DataCo
Data & Information Management
http://www.dataco.co.uk/

GeoRes
Subsurface Analysis & Evaluation
http://geores-global.com/

Well Decommissioning

Decom North Sea – L&L 29 Nov 2016

Fabrizio Conti and Chris Frost

Well P&A is a large part of Decommissioning expenditure (40-50%) and potentially an area for significant cost savings

Organised and QC'd data are essential to compile the well design input data sheets and to optimise the P&A strategy of each well

Subsurface teams in charge of well P&A spend half of their time looking for data and understanding their quality

DataCo uses powerful DataCo IQ technologies to identify, manage, collate and clean up your Data & Information

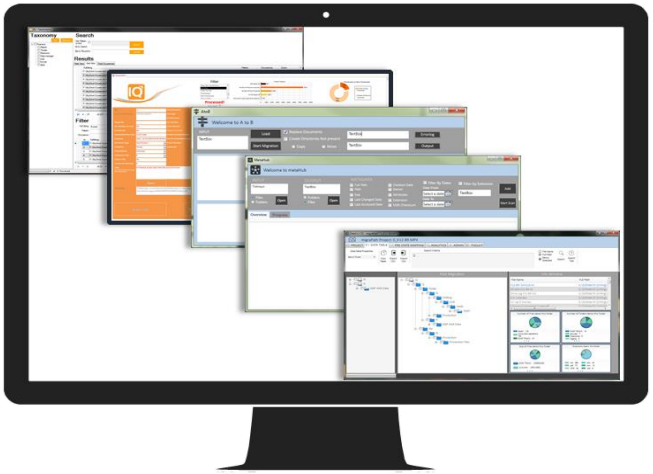
GeoRes has the expertise to quality control and compile all well data and information relevant to well abandonment

DataCo GeoRes can speed up the process of finding, QC'ing and compiling all well data, allowing the Operator's teams to focus on the operations and decisions relevant to well P&A

Oil & Gas UK Abandonment Guidelines

- Apply to all Exploration, Appraisal and Development Wells
- Each well-bore is unique and assessed on an individual basis
- Objective is to isolate all formations with flow potential:
  - Flow units to be isolated from each other and from surface
    - Defined by permeability and a pressure differential
    - Low permeability rocks that may be fractured
  - Future scenarios (eg. re-development) to be accounted for
  - Two barriers required for hydrocarbon bearing zones
  - Same applies to over-pressured water bearing zones

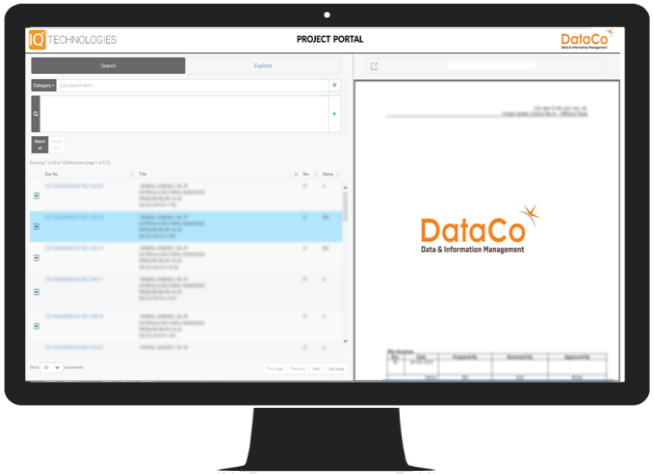
IQ PROPRIETARY SUITE



Technological support across 4 steps of data migration:

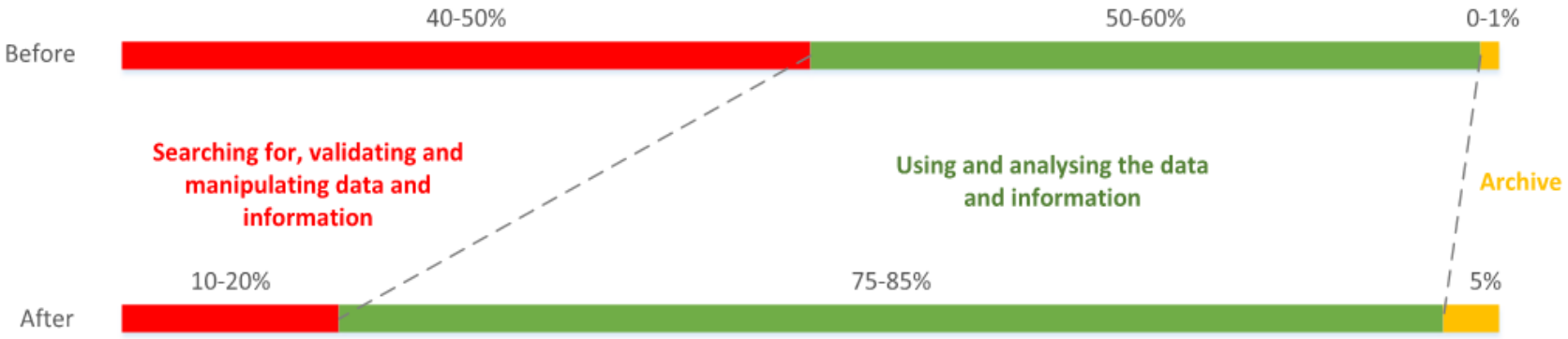
- Data gathering
- Data rationalisation (identifies duplicates)
- Data processing (adds metadata for cataloguing)
- Data migration and reporting (audit trail)

IQ - Portal



- Easy and intuitive search interface supersedes the functionality of EDMS search engines
- Inline Document Viewer allows users to check documentation is correct instantly
- Explorer view creates virtual folders for speed

Improving efficiency through DataCo IQ

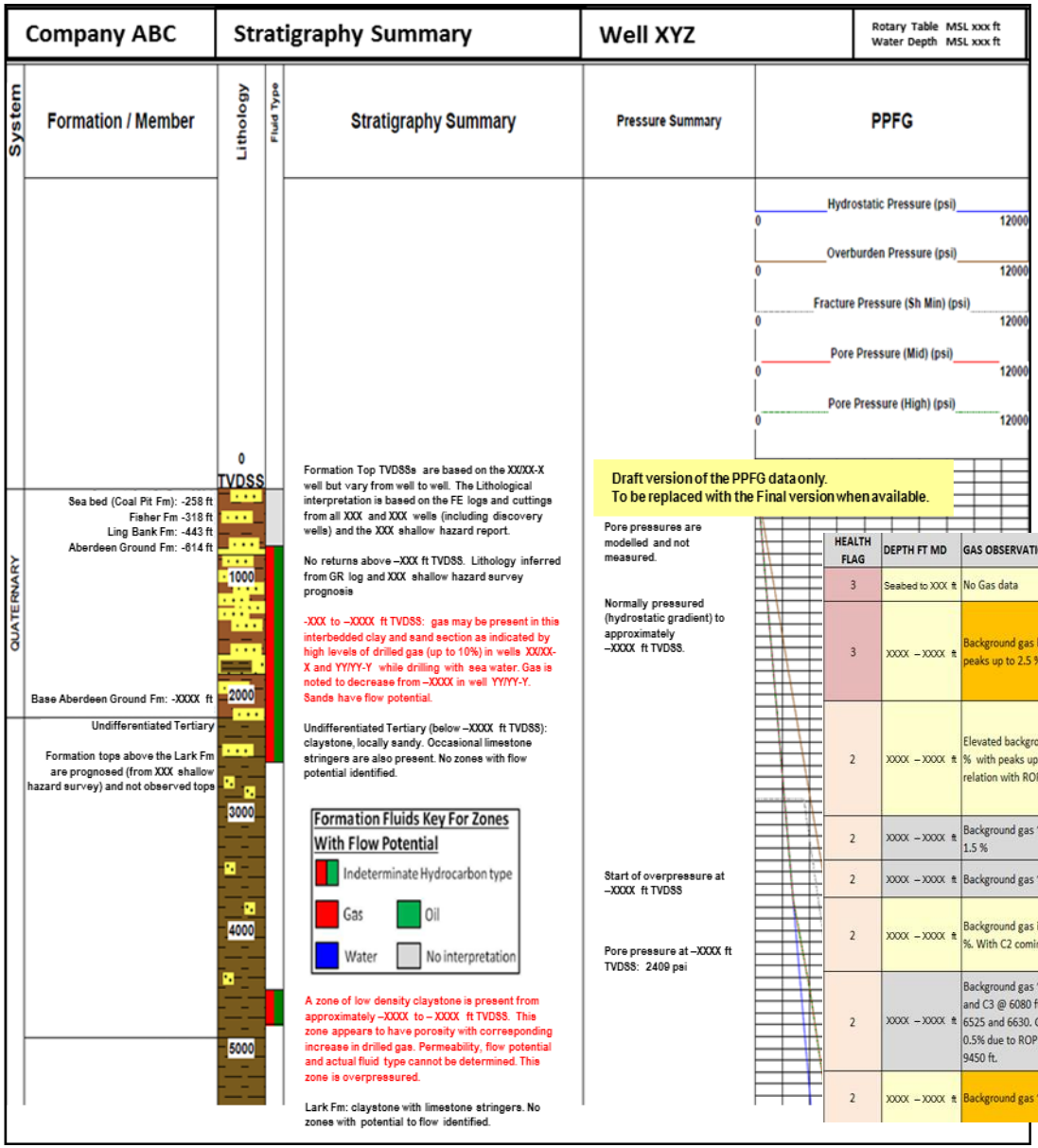


Increase in value added time by 25-35%

All figures are based on user feedback from a survey carried out with an existing Supermajor Oil Company Client

Deliverables: Well Design Input Data Sheet & Flow Zone Tables

DataCo Data & Information Management GeoRes Subsurface Analysis & Evaluation



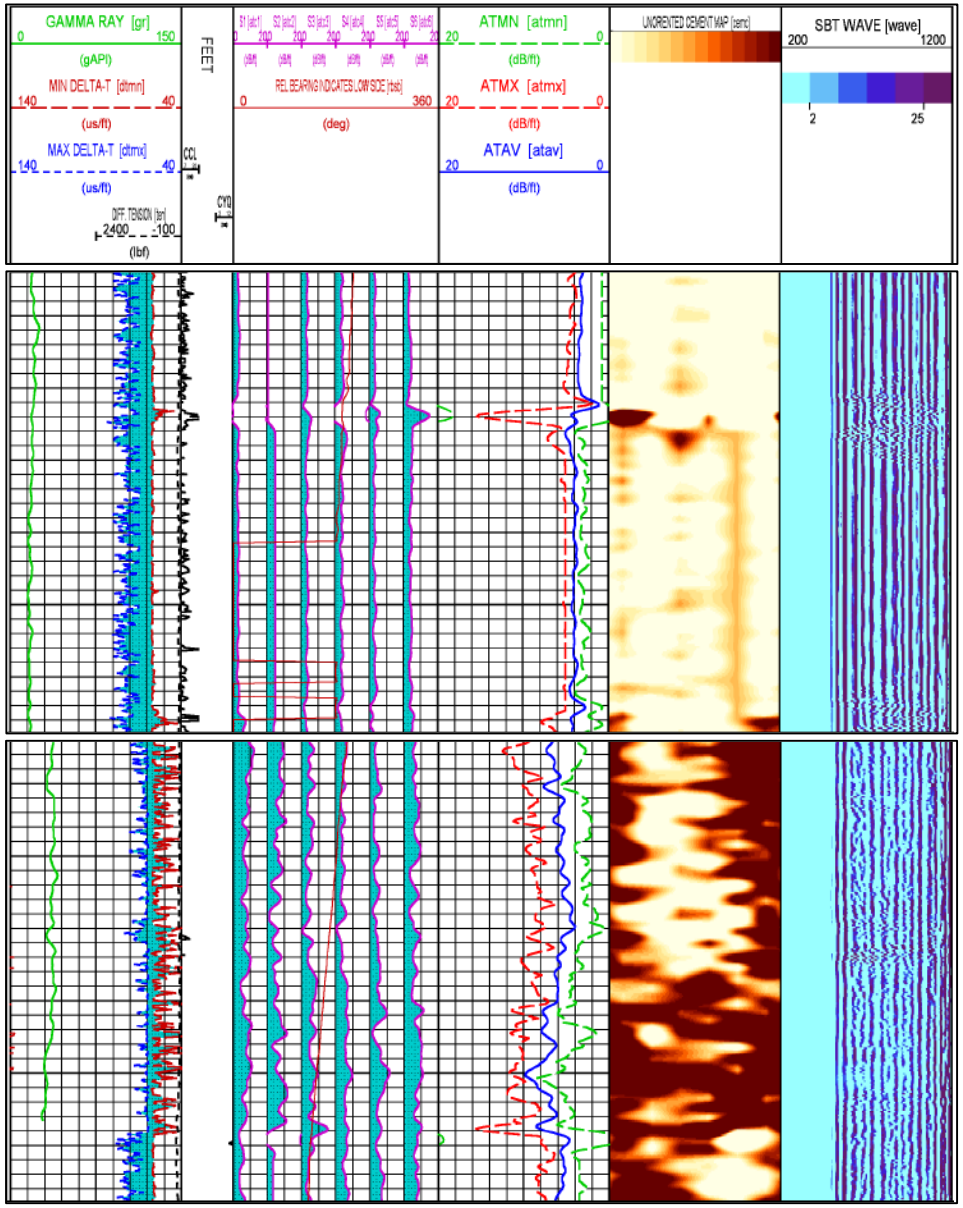
HEALTH FLAG	DEPTH FT MD	GAS OBSERVATIONS	FLUID COMMENT	FORMATION	COMMENT	DATA SOURCE
3	Seabed to XXX ft	No Gas data	NA	Undifferentiated Quaternary /	Returns to seabed. GR log indicates the potential for sand rich layers in this interval	Comp Log
3	XXXX – XXXX ft	Background gas between 0.5 to 1.5 % with peaks up to 2.5 % (@1050 ft)	HC based on gas peak @ 1050 but limited data	Undifferentiated Quaternary / Tertiary	Claystone with interbeds of sandstone and occasionally grading into siltstone. Might have potential to Flow. No oil show was noted. High gas seems to correlate with thin sandlayers (5 to 40 ft thick) based on the gamma ray. Sand is described as well sorted. associated gas peaks @ 1050 ft, 1210 ft.	Comp Log & FEL
2	XXXX – XXXX ft	Elevated background gas between 2 and 3 % with peaks up to 4.75 %. Suspected relation with ROP.	Cannot confirm fluid type due to lack of data	Undifferentiated Quaternary / Tertiary	Claystone with interbeds of sandstone (1805 - 1878 ft) and occasionally grading into siltstone. Might have potential to Flow. No show was noted. Changes in Total gas level appears to be related to ROP changes (intervals of higher ROP appear to yield higher gas) rather than lithology. Example: Gas peak @1975, 2055, 2355 ft. Background gas through the sands @2.2 % MW: 10.1	Comp Log & FEL
2	XXXX – XXXX ft	Background gas ~ 0.5% with peaks up to 1.5 %	NA	Undifferentiated Tertiary	Claystone, occasionally grading into Siltstone. Can be sandy in part. Can be carbonaceous. MW: 10.2	Comp Log & FEL
2	XXXX – XXXX ft	Background gas ~ 0.5%	NA	Undifferentiated Tertiary	Claystone with no expected potential to flow	Comp Log & FEL
2	XXXX – XXXX ft	Background gas increases from 0.5% to 2.5 %. With C2 coming in @ 4730	NA	Undifferentiated Tertiary	Lower Gamma ray indicates less shaly interval. resistivity reduces, suggesting the formation contains more water indicating the formation is either undercompacted or is more porous. Acoustic log slows down which may indicate that the formation is more porous.	Comp Log & FEL
2	XXXX – XXXX ft	Background gas ~2.5% with presence of C2 and C3 @ 6080 ft. C4 present between 6525 and 6630. Gas decreases @6740 to 0.5% due to ROP changes. C4 present from 9450 ft.	NA	Undifferentiated Tertiary	Claystone with Limestone stringers. Claystone locally grading into Siltstone and can be carbonaceous. Limestone described as being argillaceous with no visible porosity and are considered to be tight.	Comp Log & FEL
2	XXXX – XXXX ft	Background gas ~ 0.2% with trca C2 and C3	HC?	Balder	Claystone with tuff. Tuff is known to be able to retain porosity/potential to flow. Noted drop in GR, increase of resistivity. **Statement needed.**	Comp Log & FEL

Evaluation of Cement Bond Logs

Example of SBT log in 13 3/8” casing

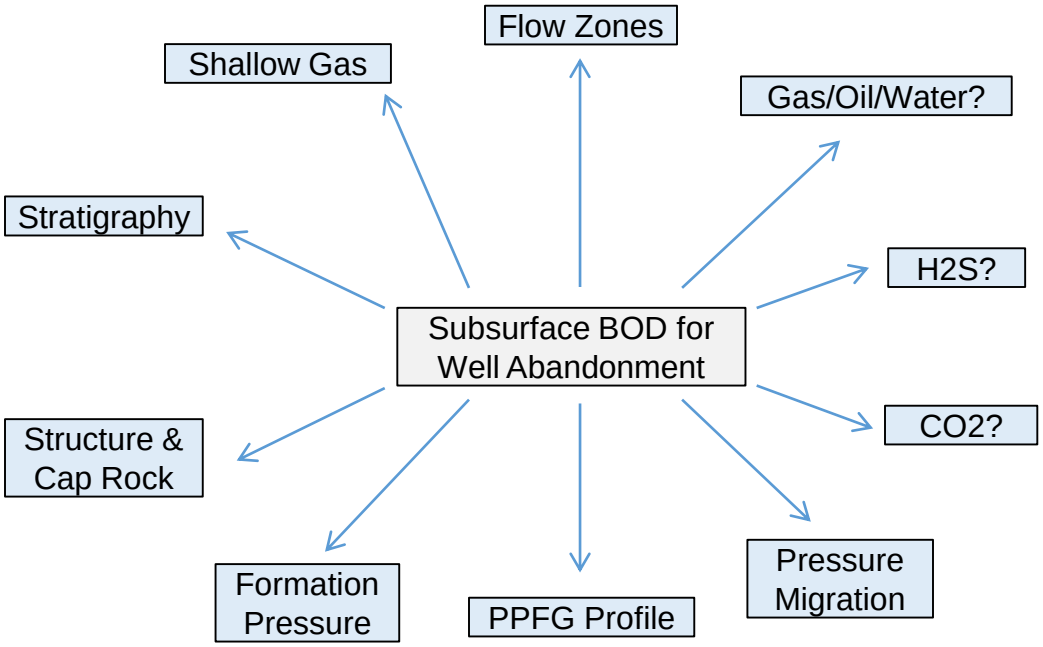
9.5 PPG Water Based Mud

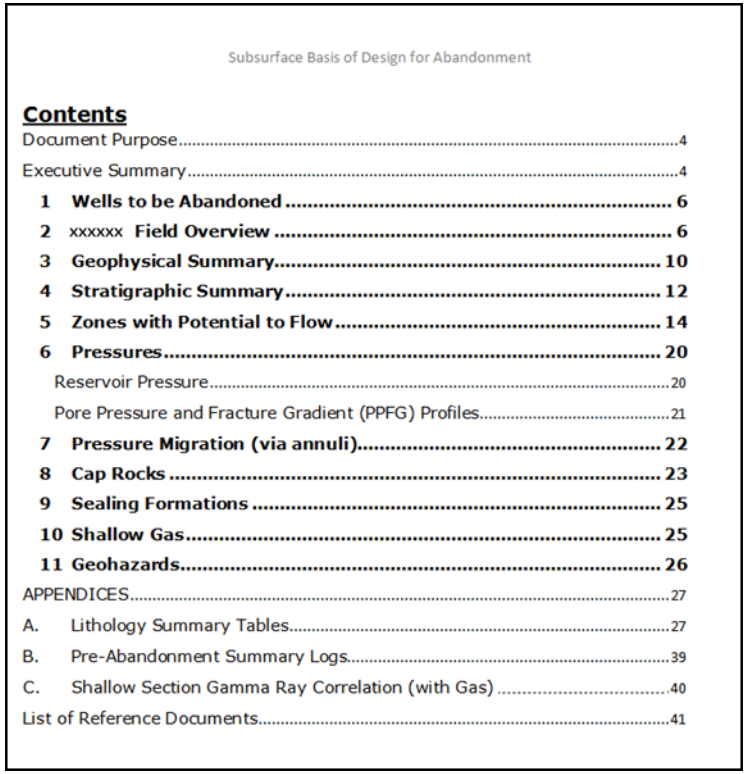
Class G cement 16/12 PPG bottom/top



Objective of Subsurface input to well abandonment:

Provide the Drilling department with a clear and concise reference document to plan and execute the abandonment of each well.





Subsurface Basis of Design for Abandonment

Contents

Subsurface input to well decommissioning

DataCo GeoRes can provide:

1. Data Management: identify, clean-up, organise all well data

2. Compile well input datasheets with all information for P&A

3. Subsurface Basis Of Design for abandonment of all wells

All services enable regulatory compliance with CDA - NHDA

Thank you