

Decommissioning Subsea Developments Holistic Engineering and Planning

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Decommissioning Subsea Developments

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Analogue Subsea Development

- Two wells.
- Piled manifold structure.
- Production pipelines and control umbilical.
- Tied back to 3rd party host.
- Dwindling production.
- Host CoP forecast for two years hence.

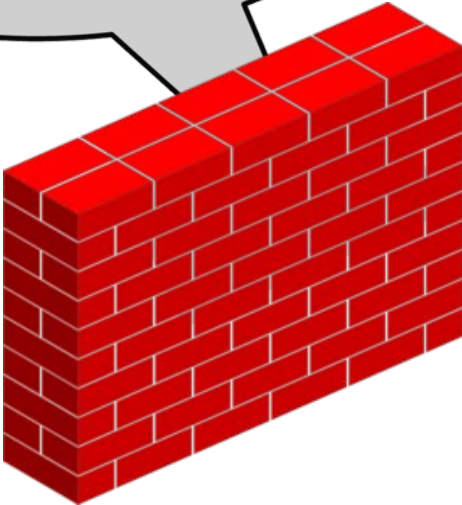
The Brief

- Develop an outline decommissioning plan.
- Perform a deterministic cost estimate.
- Meet arbitrary criteria.
- Make it defensible to; host operator, regulator and other stakeholders.

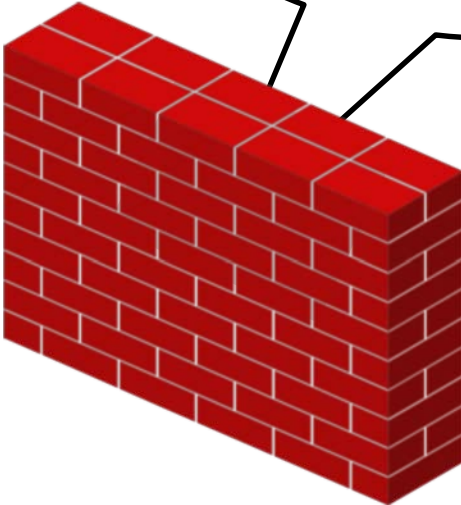
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“Done by others”



Wells P&A planning will
be done by others.



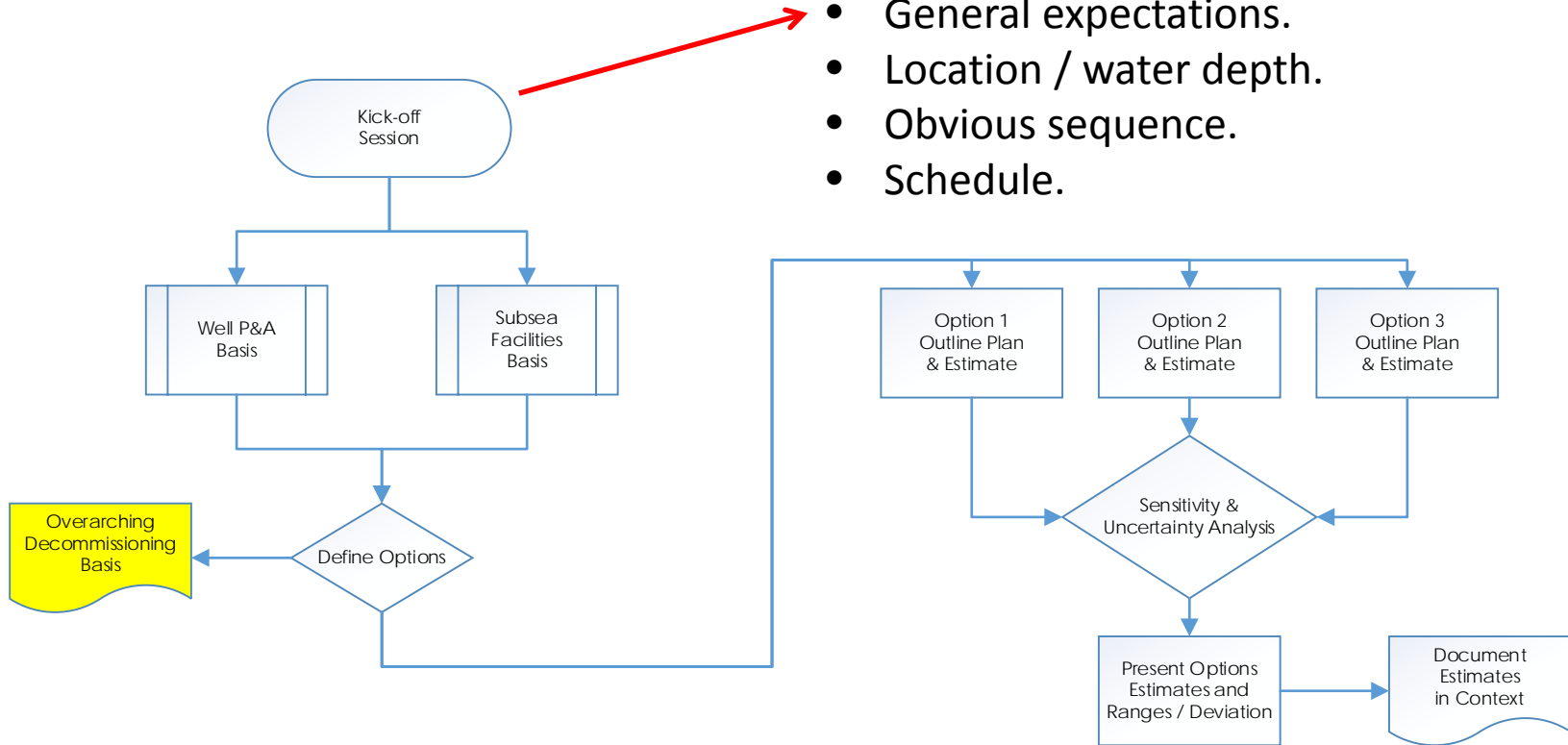
Subsea decommissioning
will be done by others.

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A joined up approach?

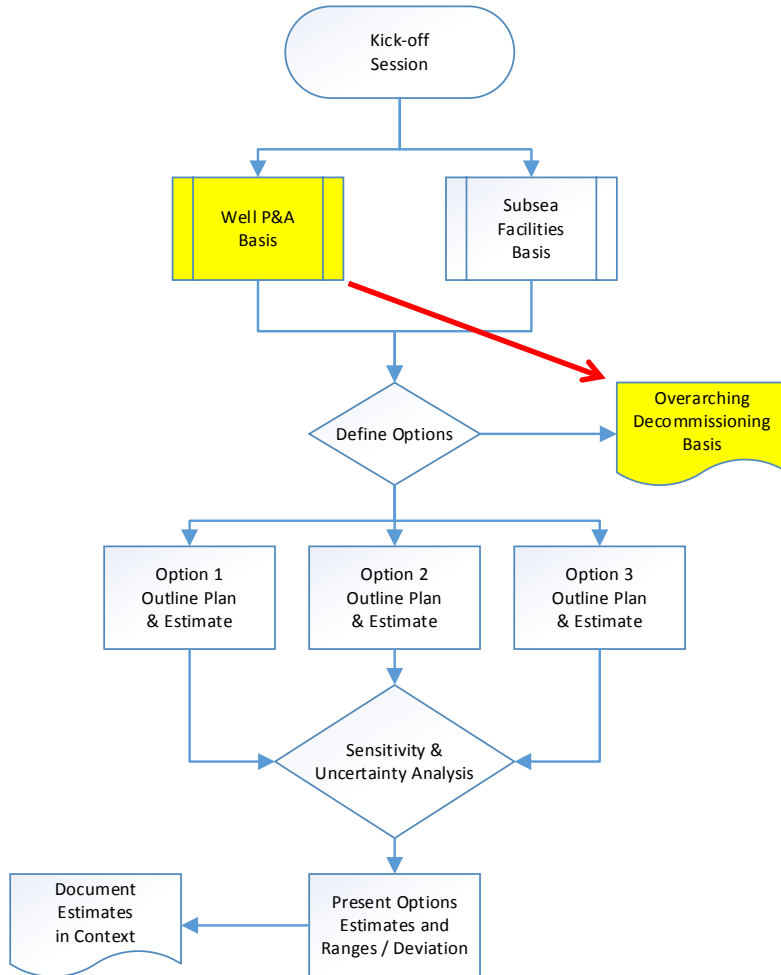
- General expectations.
- Location / water depth.
- Obvious sequence.
- Schedule.



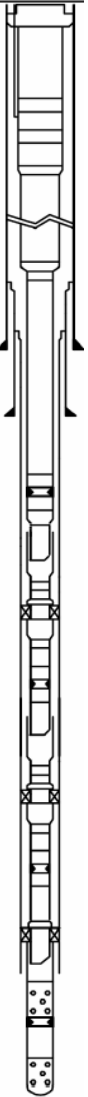
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Wells considerations



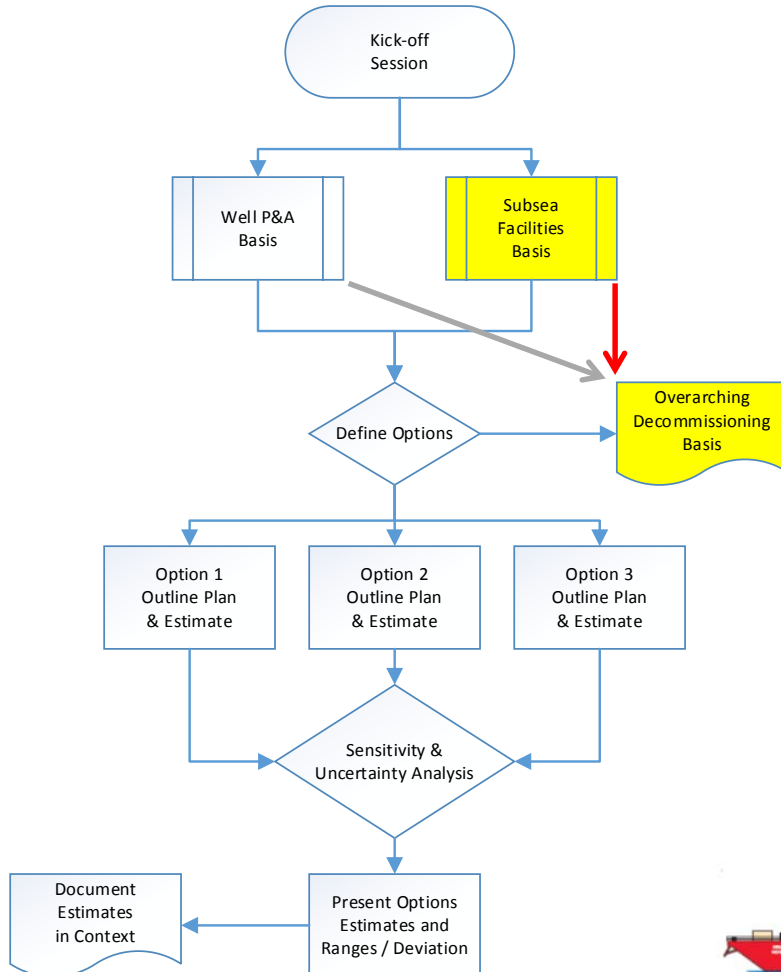
- Safety and environment basics.
- Well complexity.
- Possible integrity issues.
- Can it be done rigless?
- LWIV practicality.
- Coil spread requirement.
- Casing / tubing removal.
- Plug setting requirements.
- Pumping and returns handling.
- Crane / deck / accommodation constraints.



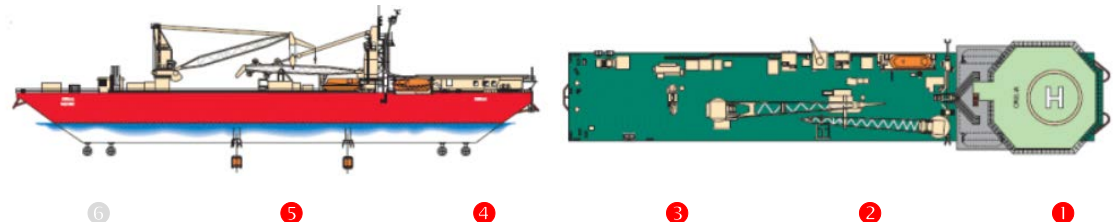
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Subsea considerations



- Safety and environment basics.
- Possible integrity issues.
- Current regulator attitude.
- What has to be recovered.
- What will be decommissioned in situ.
- Cleaning / flushing requirements.
- Crane capacity / deck space requirements.
- Waste handling and associated risks.
- SIMOPs limitations.
- Equipment reuse potentials.



Combining criteria / defining cases

Sequence delineating opportunities

- MODU, jack-up or other.
- Controls implications.
- Flushing methodology.
- Structure recovery from rig.
- Wellhead removal by DSV.
- Isolations and barrier criteria.
- Can a LWIV do everything?

Objectives

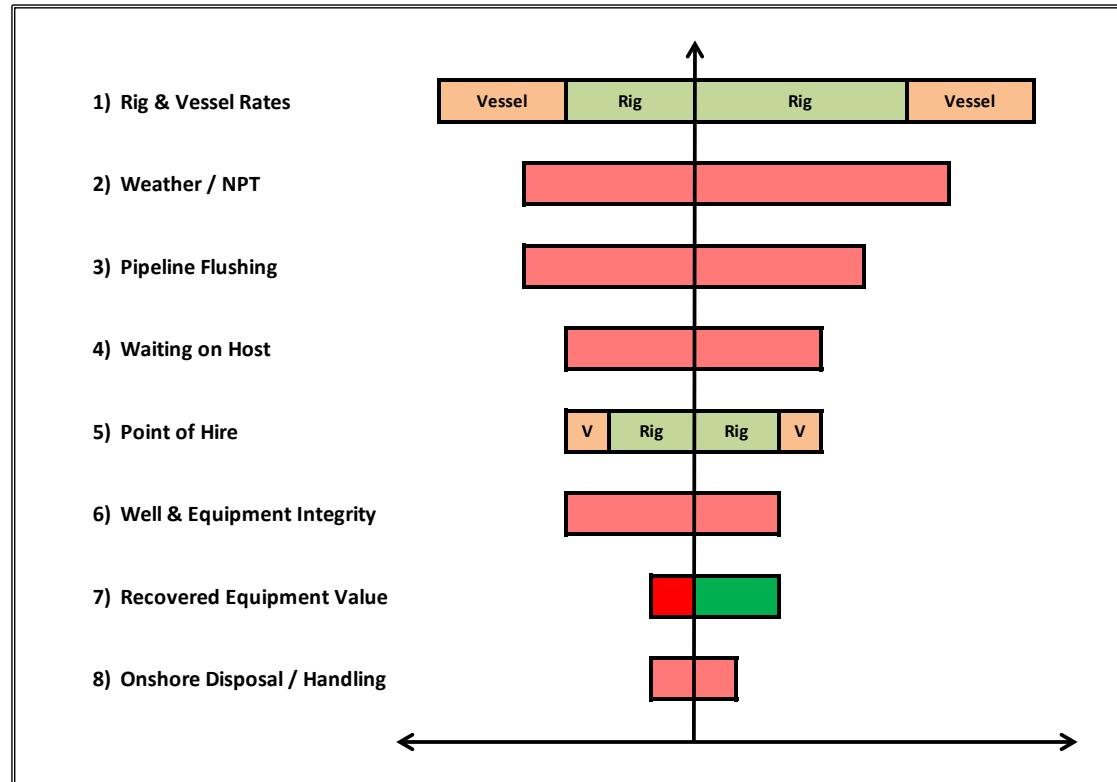
- Define a manageable set of options.
- Cover the sequence permutations.
- Maintain market flexibility.
- Develop functional scopes and contract strategy.
- Leave the door open for new ideas.

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Uncertainties and sensitivities

- Define primary influences on bottom line.
- Agree limits for each.
- Illustrate bottom line swing.
- Apply probabilistic analysis as appropriate.
- Develop range for each option.
- Easy to revisit and manipulate.
- Be mindful of additional uncertainties.



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Presenting the story

- Overarching decommissioning basis is key.
- Summarise each option in clear and concise terms.
- Define base deterministic cost for each option.
- List influencing variables and related assumptions.
- Present multidimensional estimate range.
- Configure to allow revisits and change.



Summary

- Consider well P&A and subsea facilities decommissioning as being integrated.
- Define fundamental parameters and objectives – create a basis.
- Assess risks and synergies.
- Identify a manageable set of options to cover a range of market perspectives.
- Perform deterministic baseline estimate for each.
- Resolve the significant influences on bottom line and perform sensitivity analysis.
- Present multidimensional estimate range by option and variable.
- Understand the key risks and uncertainties.
- Be open to new ideas and market developments.
- *It's all in the preparation.*