

DECISION STRATEGIES



Reining In the Data Junkies ~ Having the Guts Not to Appraise ~

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Value of Information Analysis

Information can be valued based on its ability to change decisions and the impact of those paths.

Value comes from altering plans to either capture upside or to avoid downside.

There are several good papers on the method.

Two of my favorites are:

Bratvold et al 2009, SPE 110378

and

Leach et al 2007, SPE 108175

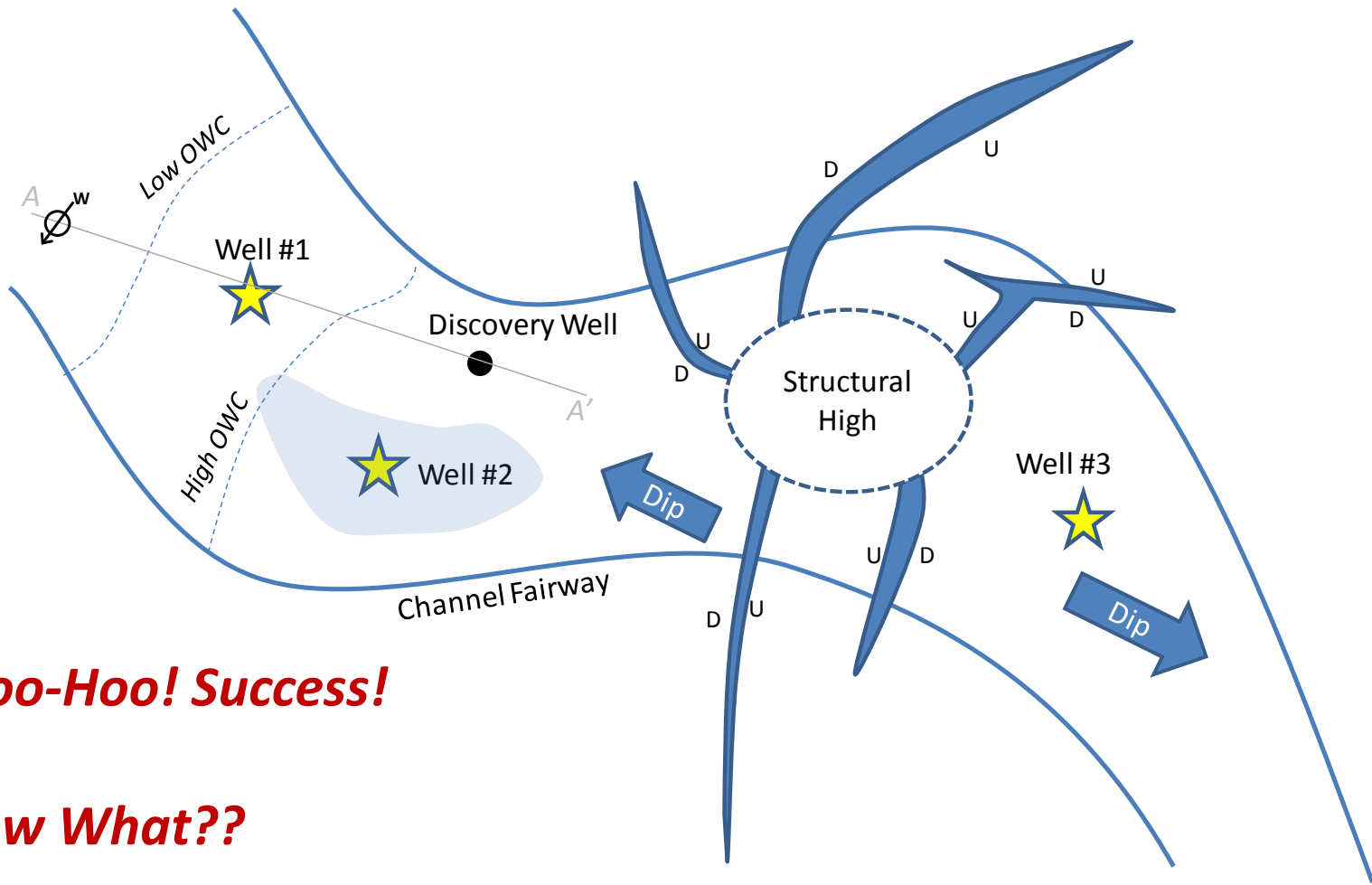
Why Use Value of Information in Appraisal?

- Appraisal, like almost every early stage activity in O&G project development involves gathering information.
- Tremendous institutional appetite for information
- Decision focus is critical
- Focus stays on what is important
- Improved subsurface assessments

Challenges to Value of Information

- Unfamiliar
- No established workflow
- Requires probabilistic resource assessments
- Requires clear understanding of uncertainties and their associated probabilities.
- Dangers of Group Think and Individual Dominance

Subsurface Map of the Project



Woo-Hoo! Success!

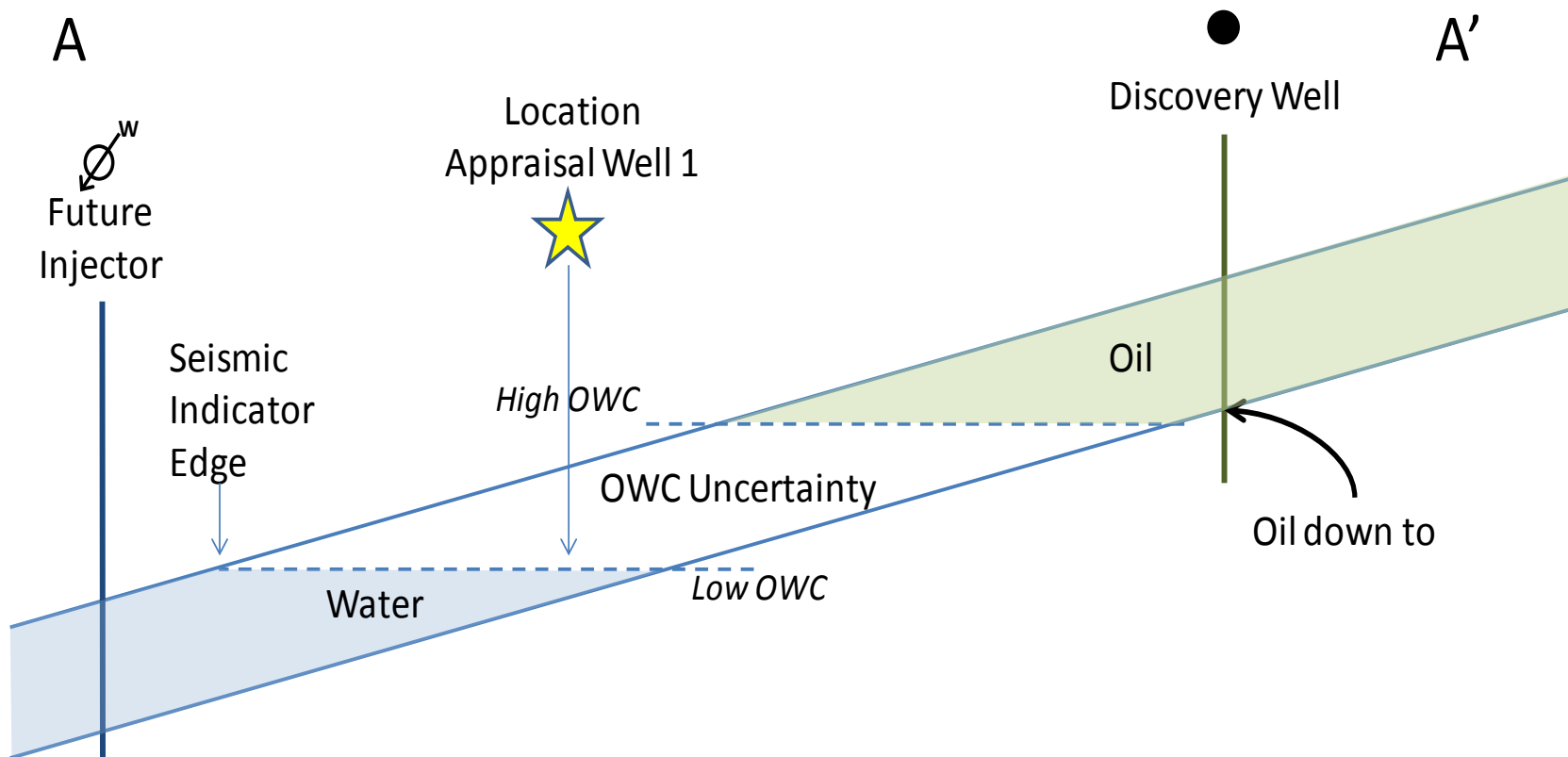
Now What??



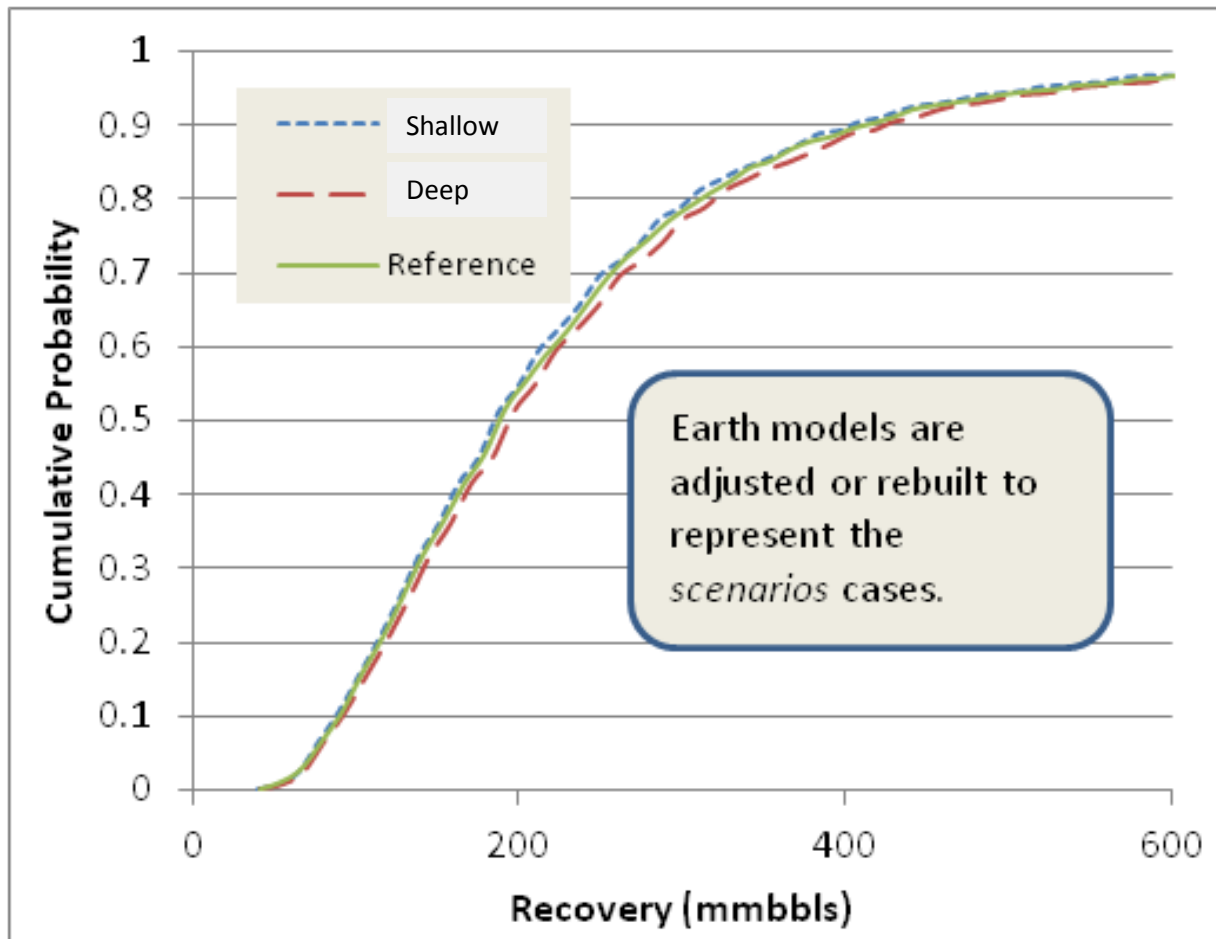
Well #1

- Uncertainty: Oil – Water Contact
- Decisions:
 - Go / No-Go
 - Well Count / Location
 - Facility Capacity

Well #1 - Oil Water Contact Scenarios



Well #1 - Oil Water Contact Scenarios

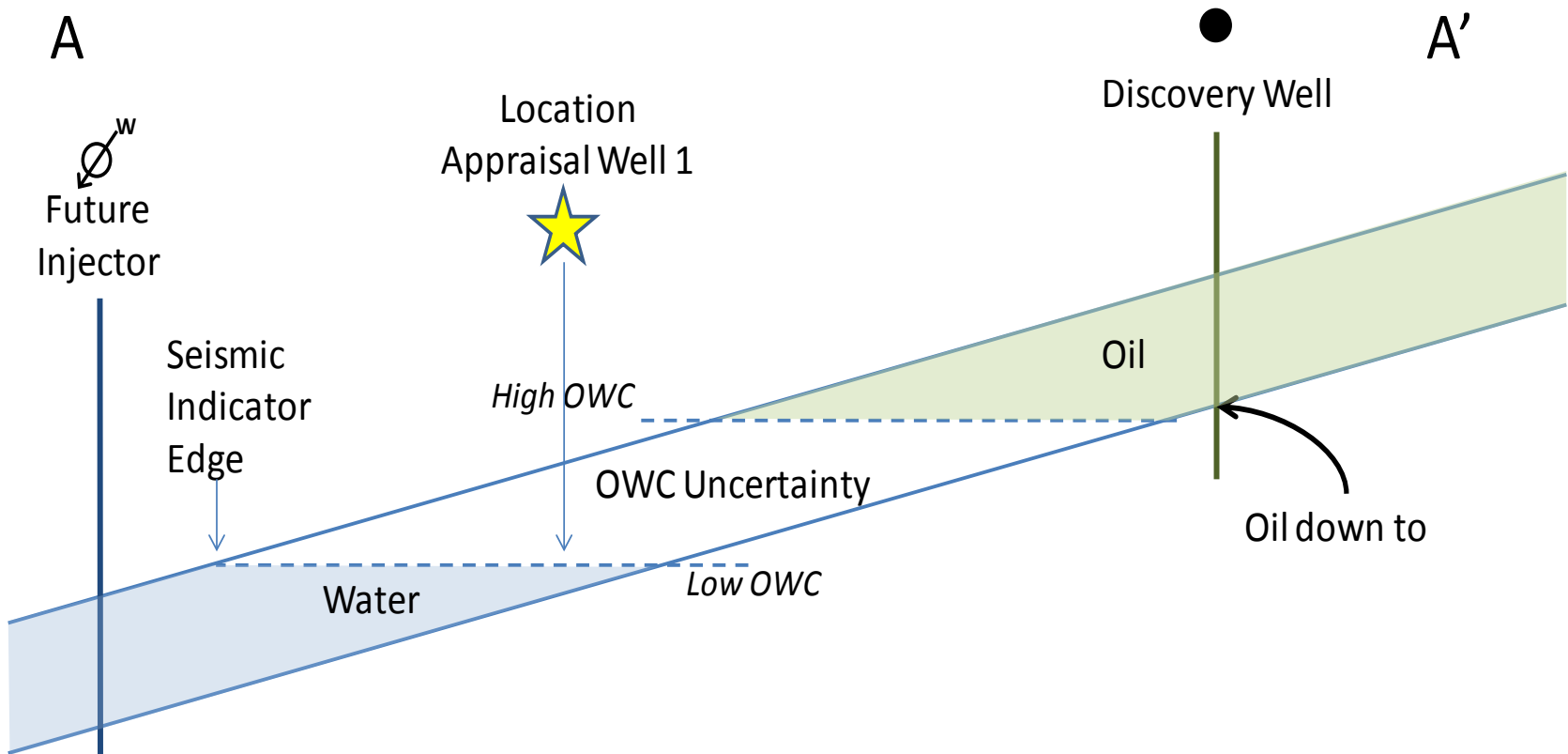




Well #1 - VOI

- Subsurface team expectation: **Information was valuable**
- VOI conclusion: **NO VALUE.**
- Information does not change:
 - the Go / No-Go decision – shallow OWC still OK
 - capacity decision – value does not merit cost
 - injector well location – initial placement worked in both scenarios

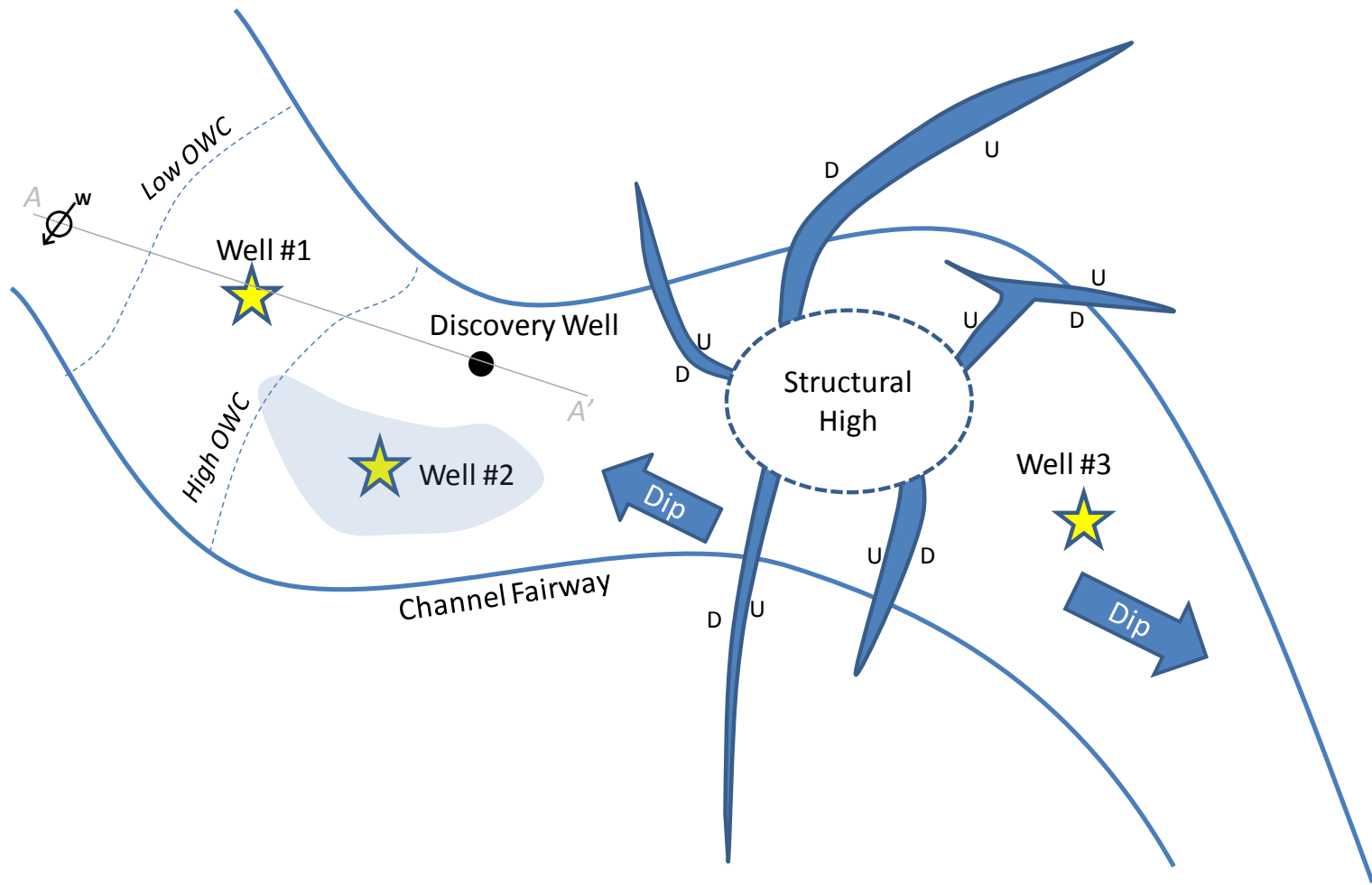
Well #1 - Oil Water Contact Scenarios



Key Observations

- 1. Robust development plan carries advantage***
- 2. Nature doesn't change with information***
- 3. All uncertainties should be included in the reference case***
- 4. Signposting – carry out “what-ifs”***

Subsurface Map of the Project

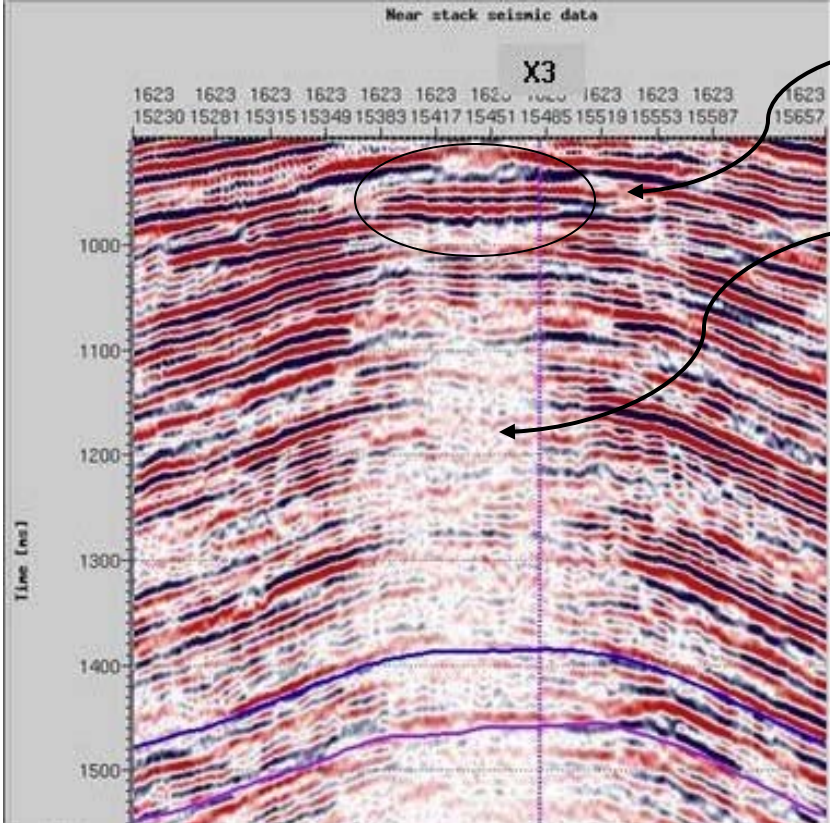




Well #2

- Uncertainty: Shadow zone Net-to-Gross
- Decisions:
 - Go / No-Go
 - Well Count / Location
 - Facility Capacity

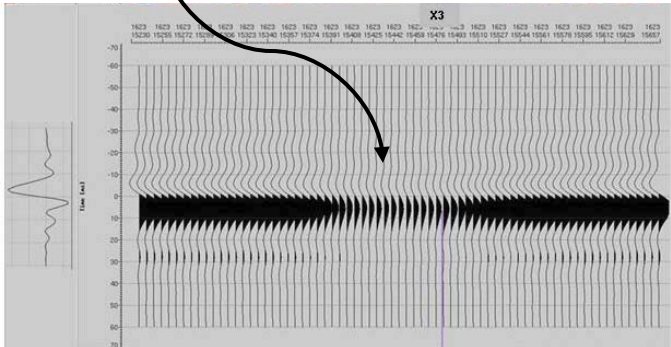
Well #2 – “Shadow” zone



Shallow Gas causing deeper seismic attenuation.

Seismic “shadow” zone

Amplitude effect.

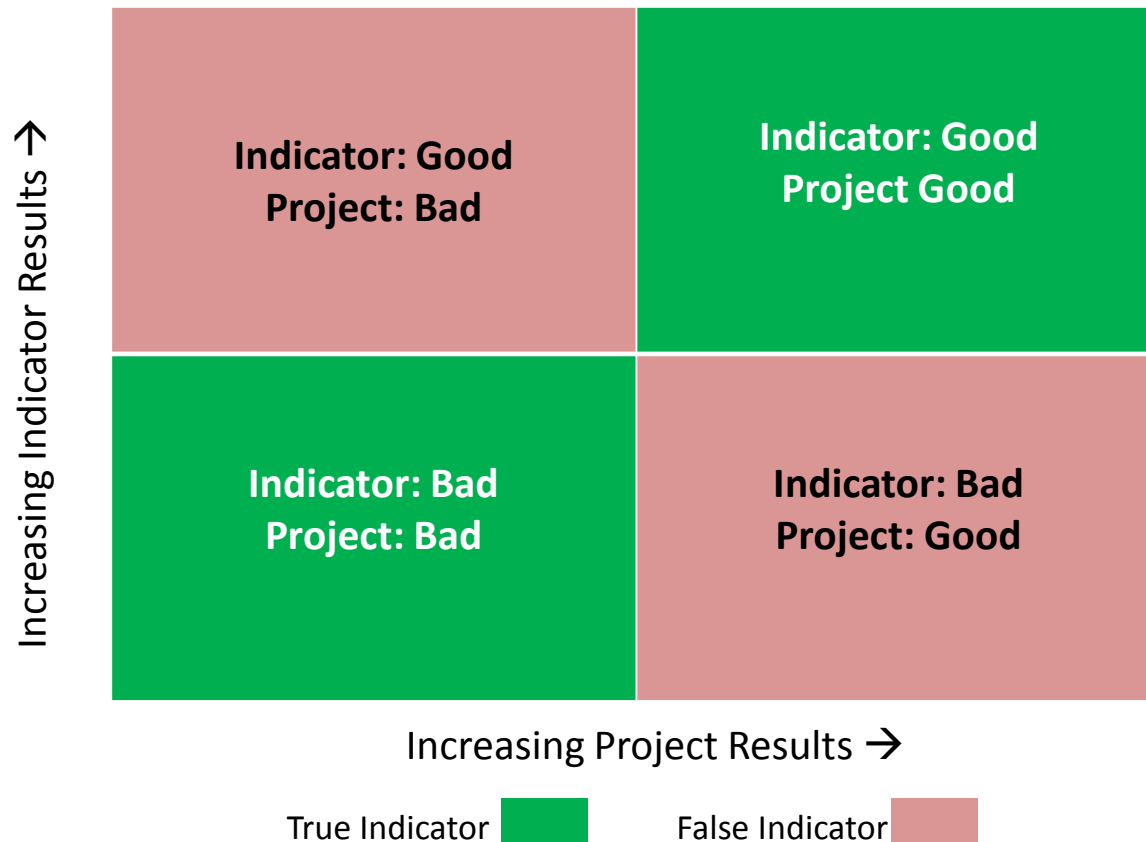


Well #2 – VOI(p)

- Subsurface team expectation: **Information was valuable**
- VOI conclusion with perfect information: **Information was valuable**
- Information changes:
 - the Go / No-Go decision – Low NTG kills project

But the information was not perfect!


Imperfect Information





Well #2 – Information Reliability

- Perfect information is the starting point
- Reliability assessment is critical, but subjective
 - Good interviewing techniques are important
- Poor reliability degrades value dramatically
- Indifference Assessment is helpful



Well #2 – VOI(i)

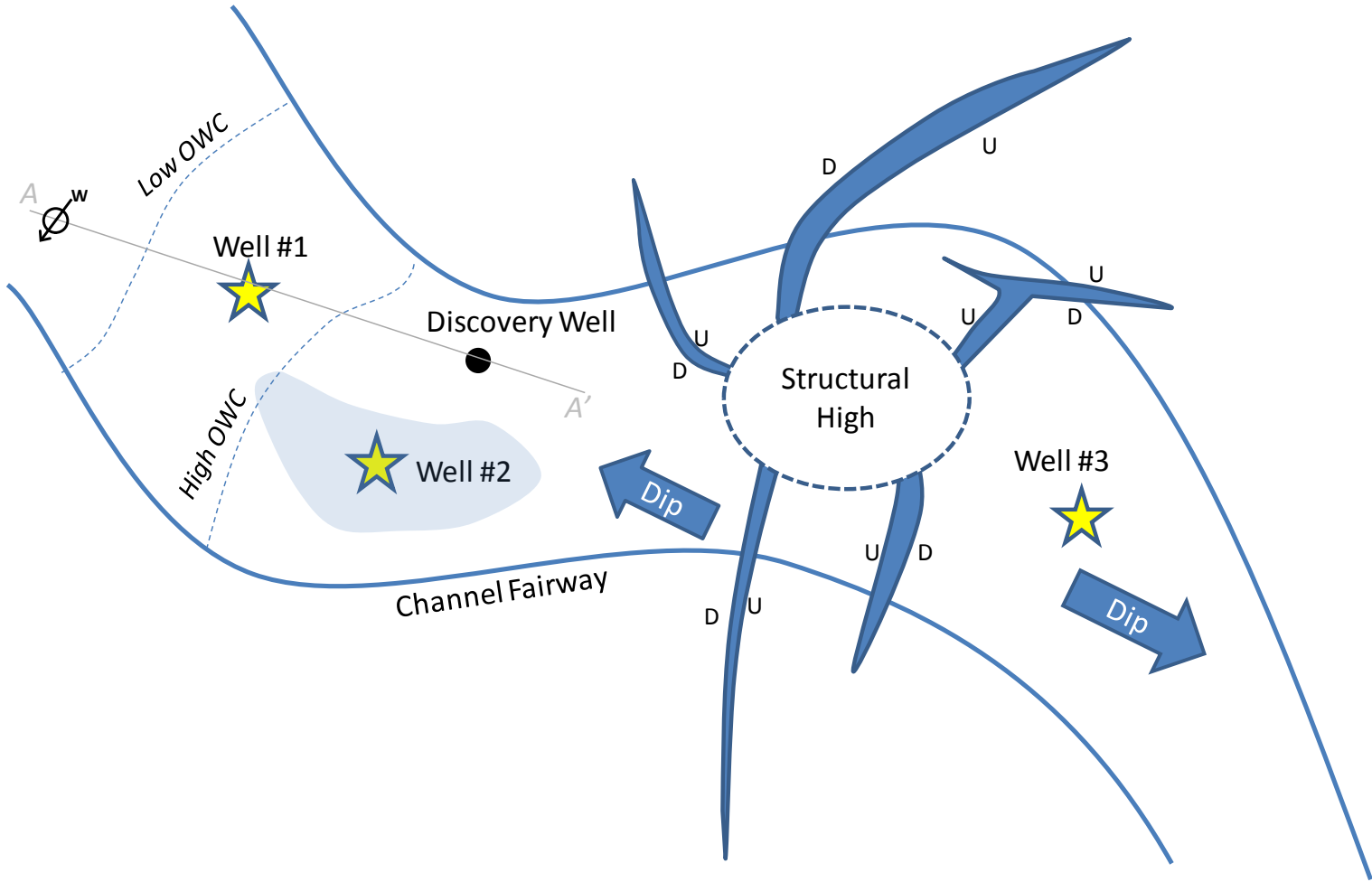
- Subsurface team expectation: **Information was valuable**
- VOI conclusion: **NO VALUE.**
- Information does not change:
 - the Go / No-Go decision – NTG information not reliable enough



Key Observations

1. *Robust development plan*
2. *Nature doesn't change with information*
3. *All uncertainties should be included in the reference case*
4. *Signposting*
5. *Know your true walk-away point*

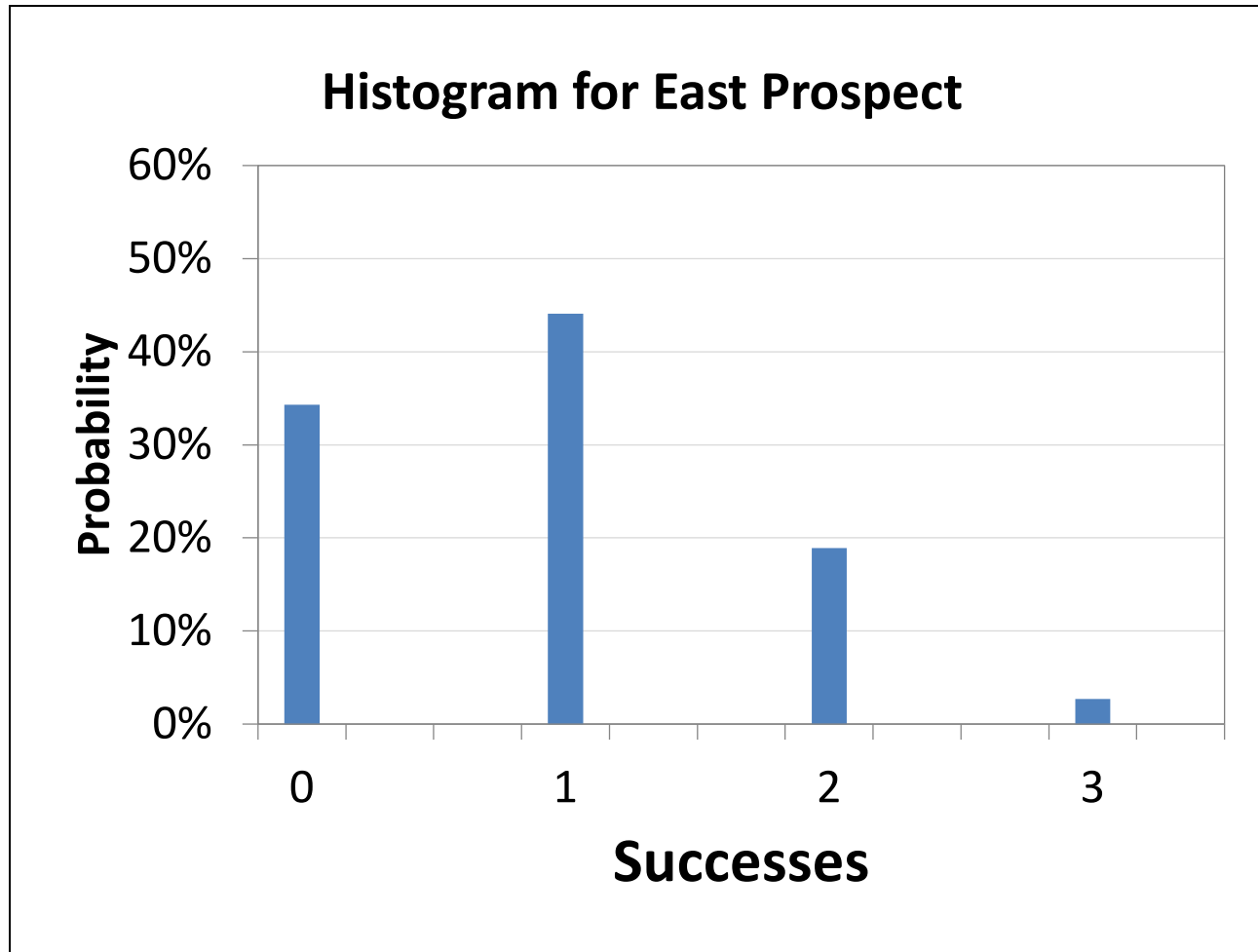
Subsurface Map of the Project



Well #3

- Uncertainty: COS risk
- Decisions:
 - Well Count
 - Facility Capacity

Well #3 – East Prospect



Well #3 - VOI

- Subsurface team expectation: **Information was valuable**
- Conventional conclusion: **Information had no value.**
- VOI conclusion: **Information HAS VALUE**
- Information changes:
 - Well count decision – East would be included in development



Key Observations

1. *Robust development plan*
2. *Nature doesn't change with information*
3. *All uncertainties should be included in the reference case*
4. *Signposting*
5. *Know your true walk-away point*
6. *The sum can be greater than its parts.*

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