

Making Deepwater More Competitive – a Mid Stream Company's Perspective!

Tom Preli



DEEPWATER
EXECUTIVE SUMMIT

Greater Collaboration between the Development Operator, Supplier/Vendor Base and the Mid Stream Company



Plan the Work and Work the Plan



What does Technical Limit mean?

Technical Limit is a term that describes a theoretical maximum in safety, efficiency and production during drilling operations. Our model at Relentless Pursuit of Perfection builds on previous step-changes in Technical Limit methodologies created by companies such as Shell and Hess in the 1990's.

The “Perfect Job” is the best possible outcome, limited only by (existing) technology and nature. It is achieved by getting the right people, doing the right things, with the right tools and equipment, at the right time and in the right environment.

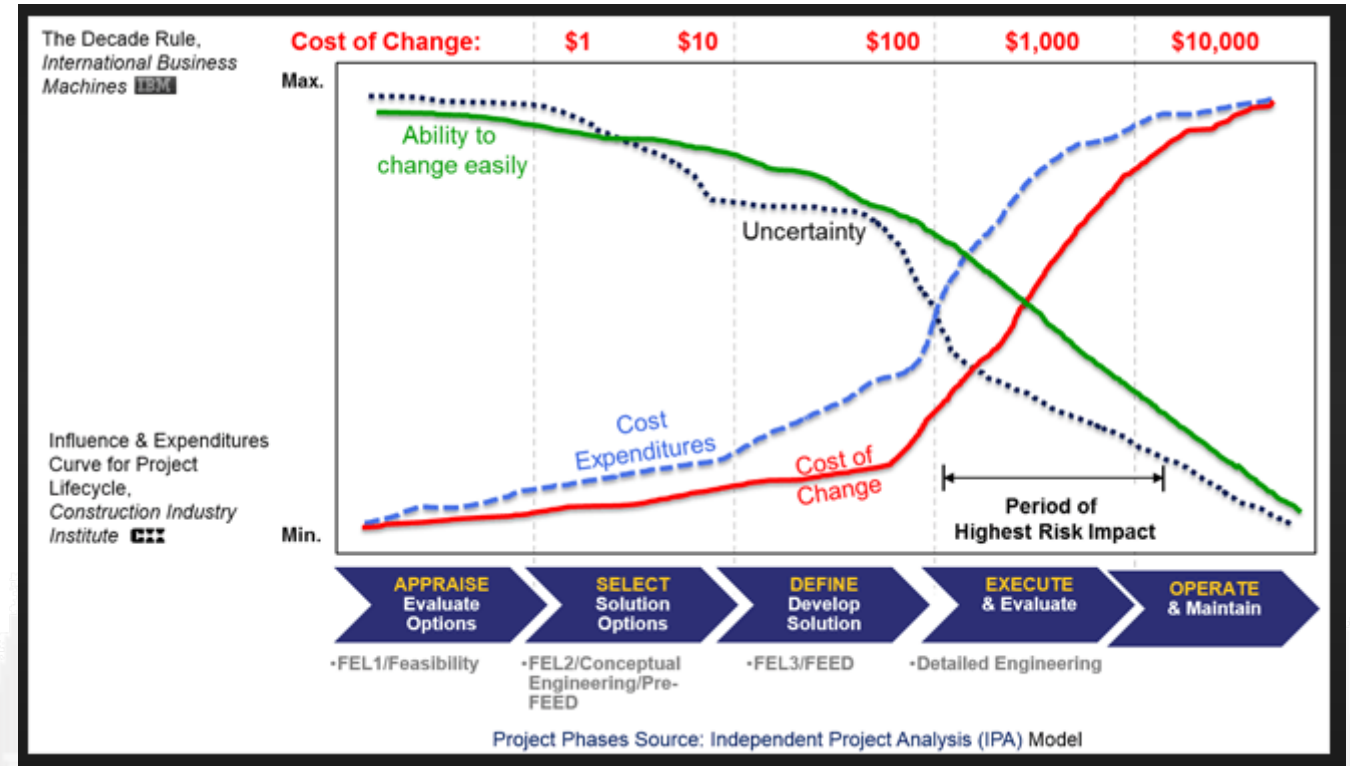
The right people.

The right time.

The right things.

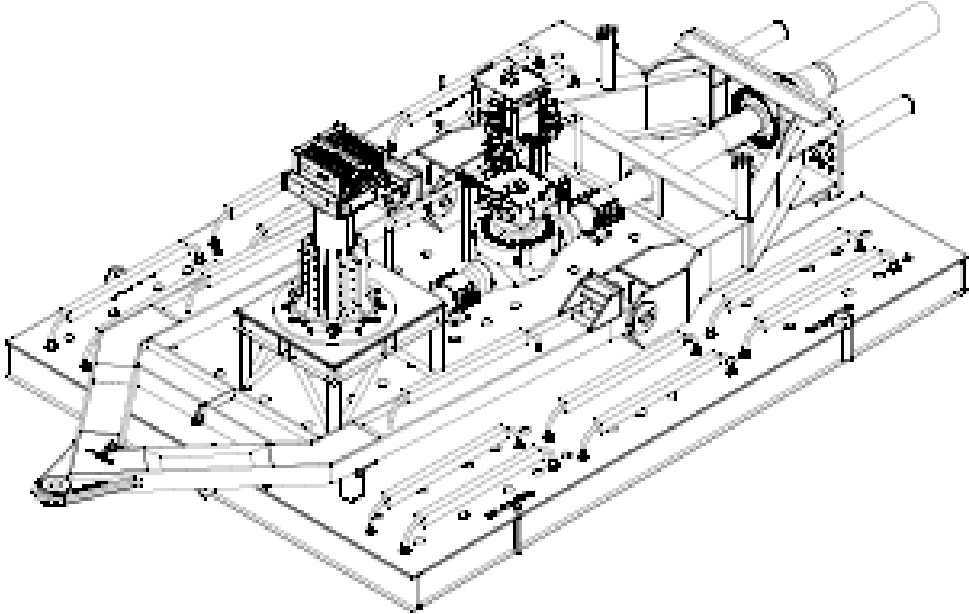
The right work environment.

The right tools & materials.



Just as world class athletes do everything twice, once in the mind and once during competition, this is the approach in the Technical Limit process. So that when the physical work starts, the team can quickly get back into the mental state of champions, ready to break the next record.

Standardize Designs



Re-Cycle / Re-Use

“Sweating the Installation Aids”



Marine Warranty Surveyor (MWS) Code of Practice (COP) for Construction All Risk (CAR) Insurance

- Joint Rig Committee
- Upstream Construction Code of Practice,
- Upstream Construction Scope of Work and
- Upstream Construction Certificate of Approval Requirements and Examples

Joint Rig Committee

Marine Warranty Surveyors' Code of Practice (COP)

The purpose of this COP is to:

- Clarify the roles of the Marine Warranty Surveyor (MWS), assured and underwriters in the performance and specification of a Marine Warranty survey;
- Establish agreed standards for the attending MWS when conducting a survey;
- Define the lines of communication between underwriters and the MWS;
- Establish agreed qualifications for the attending MWS when conducting a survey;
- Where applicable, outline the basic requirements for the Certificate(s) of Approval (COA).
- **Nothing in this COP shall relieve any party of any legal obligations existing in the absence of this document and nothing contained in this COP shall take precedence over any provisions of the Policy.**
- This Code of Practice has been produced to accompany the attached Joint Rig Committee Scope of Work (SOW). A tailored Project Specific Scope of Work (PSSOW) may be substituted with the explicit prior agreement of underwriter(s).

Name	Date of issue	Version	Changes
JR2004/005	15 July 2004	1	Original COP
JR2005/005	26 October 2005	1	Original SOW
JR2010/010	23 July 2010	2	Combined JR2004/005 and JR2005/005
JR2016/013	20 December 2016	3	Update to COP & SOW, introduction of JR2016/013A and pro-forma COAs
JR2019-006	03 September 2019	4	Update to COP & SOW

Deepwater Pipeline Repair Systems Consolidation (Overbuilt?)



November 6, 2000

Deepwater Pipeline Repair System uses Proven Tools

by Tom A. Preli, Shell IE&P Co., Houston and
Jeffrey M. McCalla, Big Water Inc., New Orleans

After years of planning and design, Shell International Exploration & Production Co., Houston, has developed a deepwater pipeline repair system (DPRS) that uses proven technology.

The repair system incorporates many of the tools and connection systems that the company has used on several construction projects.

- Low Probability; High Consequences
- Repair Solutions
- Connectors
- Gantry Frame, PLEM
- Lift Frames; Hooks
- ROV Tooling
- Cutting Module
- Concrete, FBE Removal Tool
- End-Preparation Tool
- Power Supply; Docking Skid
- Containment Tent
- Hydrate-Detection Tool
- Lift Frame; Measurement Tool
- Spoolpiece
- Hydrate Location



deepwater



Deepwater Response to Underwater Pipeline Emergencies - Part II

by: Armando Rebello, P.E. and Ray Ayers, Ph.D., P.E.

BACKGROUND

In the 2008 issue of *Stress Talk*, we described the development of the Deepwater Response to Underwater Pipeline Emergencies (DW RUPE) since its inception in 2005. Over the past year the DW RUPE Pipeline Group has evolved from the Prototype Qualification Phase to the Asset Acquisition Phase, which is expected to be completed in early 2009. At this stage, about \$11 million of tools and equipment will be incorporated into inventory, ready for use by the co-owners.

The DW RUPE Flowline Group has also made progress with the proposed development of a wet insulation removal tool JIP (Figure 1).

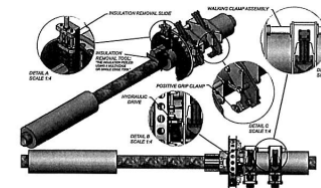


Figure 1: Wachs Conceptual Wet Insulation Removal Tool

CURRENT STATUS

Last year, most of the efforts were concentrated on development, fabrication, and manufacturing of the Pipeline Group assets.

In support of manufacturing and fabrication efforts, Stress Engineering developed the

interfaces between different suppliers to ensure that all equipment functions together as seamlessly as possible.

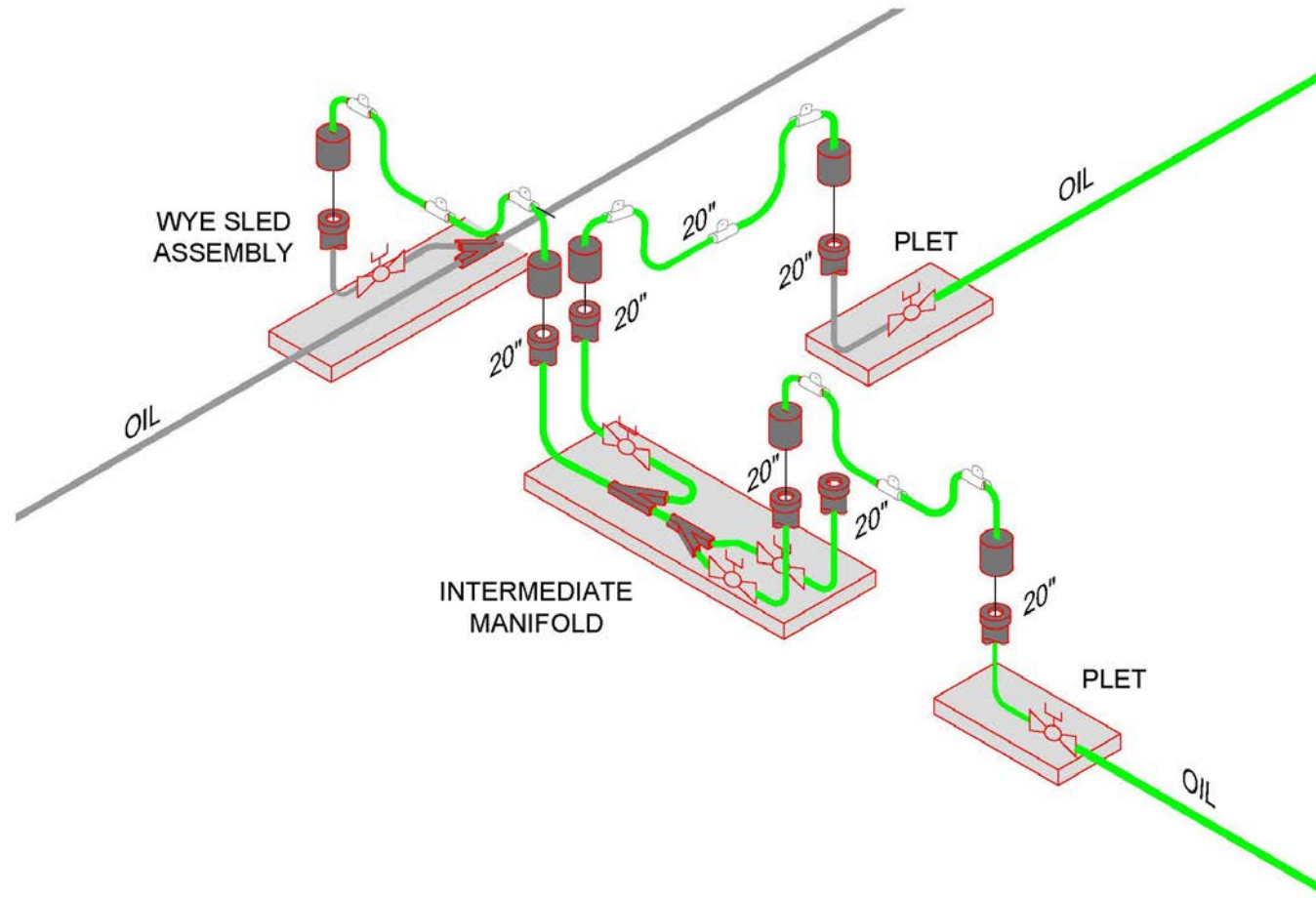
High oil and gas prices prompted the startup of many new projects and forced the oil and gas industry to stretch its personnel and material resources. This in turn delayed the delivery of some forgings and machined components. Despite delays, the DW RUPE project is anticipating completion at 8.6% below budgeted costs, and is planning to invest in additional inventory equipment including a set of smaller, diverless "A" frames and a pipe cutting tool. The 100 kip lift frames (Figure 2) and respective indexing bases have passed Factory Acceptance Tests (FATs) and are in the process of being coated, prior to incorporation to inventory and storage.

Once the lifting frames, indexing bases and other key components have been incorporated into the DW RUPE inventory, Stress Subsea will conduct Site Integration Tests to ensure that the equipment operates as intended.

PATH FORWARD

As with its predecessor the Shallow Water RUPE, DW RUPE will implement tools and equipment inspection protocols to ensure inventory readiness. As part of a damage prediction model, project pipeline dedications will be plotted on a chart to help define the expansion of future inventory quantities. If the pipe dedication map

Deepwater Tie-ins to Existing Infrastructure – Should the Industry Develop a guideline or Recommended Practice?



Deepwater Pipeline Crossings – Should the Industry Develop a Guideline/Standard?



Conclusion

Plan Forward?

Additional thoughts from the Audience?

