

## **Small Bore Connection Inspection Campaign to Reduce Risk of Pipe Work Failure from Vibration and Incorrect Installation**

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The oil and gas industry have a need for reliability and integrity improvement program in small bore connection (SBC) and piping system to prevent from SBC failure both from fatigue and improper installation. This is very important to detect and monitor condition of vibration and evaluate improper installation on SBC, this will be reduced risk of failure from SBC crack and increase the lifetime of SBC and mainline. There were many cases of pipe work failure in oil and gas industry in Thailand, each failure is economically for repair and launching small bore connection inspection campaign.

Implementing SBC inspection campaign by vibration analysis and engineering assessment. The implementation will start with database assessment, vibration survey on filed, engineering site survey to find likely hood failure (LOF) and final assessment. In some case might need deep detail engineering study such as pulsation and vibration analysis, finite element analysis (FEA), Computational Fluid Dynamic, strain measurement and etc.

Over the last year Prompt Solutions company limited (Prompt) have provide SBC inspection campaign included with piping vibration survey, SBC assessment and non-destructive testing on SBC to reduce risk of SBC failure. Major advantage for this campaign is integrated of inspection technology and engineering assessment. The integrated of inspection will provide the most useful information and effective mitigation plan. The vibration measurement principle base on velocity vibration analysis for transient recording which relate to fatigue indicator then compare with guideline from Energy Institute and/or Beta Machinery Guideline.

Outcome of SBC inspection is risk matrix of each SBC that show result related to each inspection technology and engineering assessment. This campaign has been proving for effective inspection and mitigation result, with success implementation from oil and gas industry.