

A3: WEST DELTA 143 FLANGE LEAK INCIDENT

Background

Gas Fugitive Emissions – Due to a 12" flange leak on the URSA Ultrasonic Meter run at West Delta 143.

Current Conditions

Where things stand today.

- We still have the potential for a similar type incident on other locations across the fleet.
- UAD does not currently have defined torque tables for various materials and lubricants.
- We currently referencing Shell Pipeline torque tables in the EPr Construction Quality Plan which is general in nature.

Goal(s)

The specific outcome required for the business.

- No LOPC's associated with Flanges and Tubing as a result of construction activities at all assets.

Analysis

Contributing Factors:

- This scope was added to Turnaround scope late as an addenda.
- Work Pack was developed by Construction PM (not familiar with the EPr Work Pack Structure.)
- Flange Management was not developed for this job.
- There are no UAD approved torque value tables.
- Torque contractor used their own torque values to torque flanges.

Proposed Countermeasure(s)

Your proposal to reach the future state, the target condition.

- Ensure EPr Quality Plan with Joint Management is being used.
- All Torque values will be approved by Static Mechanical TA
- Epr / M&I will develop specific torque tables to be used by Construction PM's while developing Work Packs for future use.

Plan

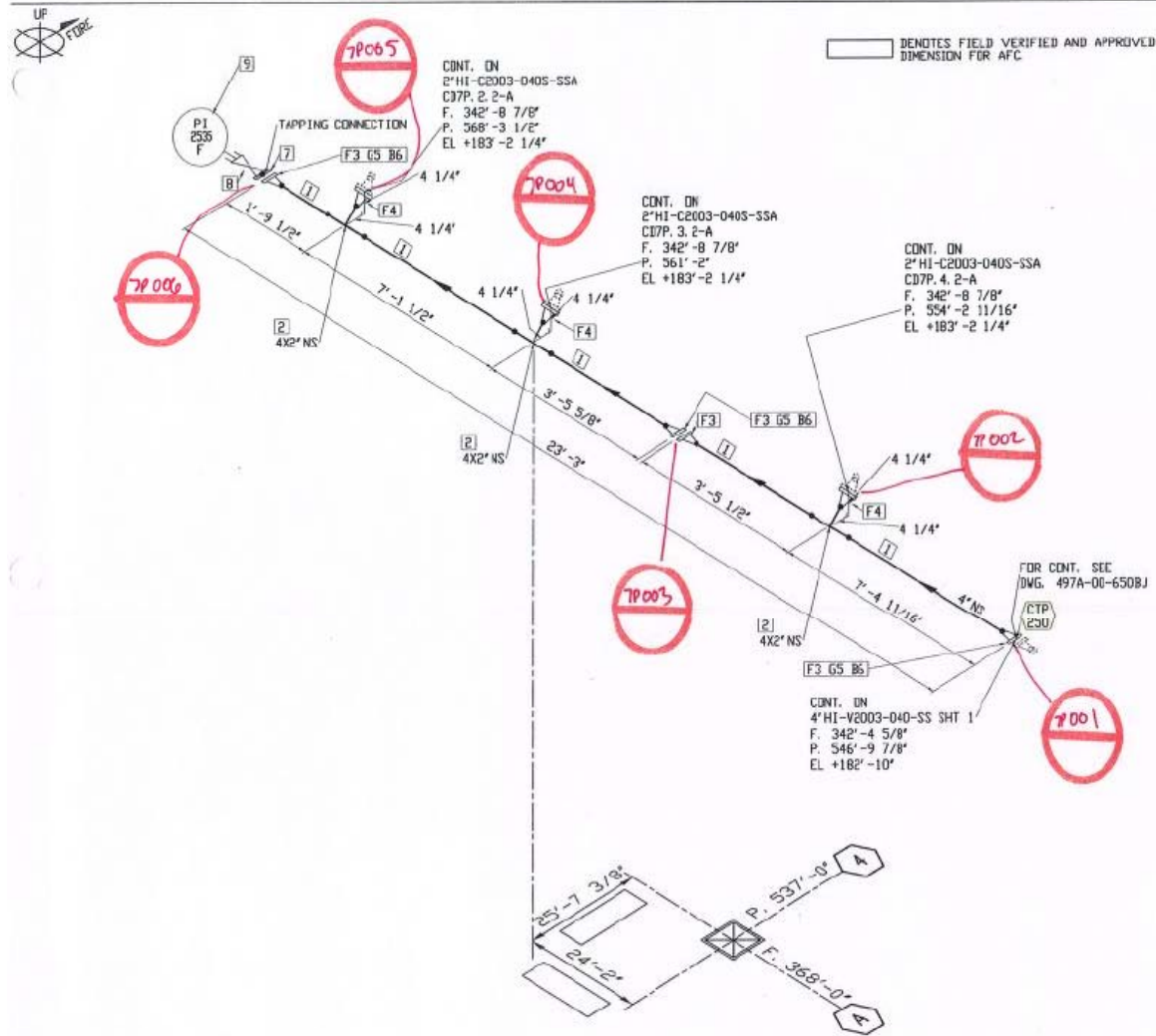
| Milestone | Proposed Date | Comments |
|---|-----------------------|--|
| Identify what flanges we are going to torque | 3/26/2014 | As of now 8 bolt hydrocarbon, Chemical, High Pressure, Fire Water & Steam containing systems |
| Identify certifications / training required for torque personnel | 5/15/2014 | Review OQ requirement as mandated by Pipeline. |
| Develop UAD approved Torque Tables | 5/30/2014 | |
| Audits to ensure use and effectiveness (Joint Management, Proper torque Tables and certifications of personnel) | Ram Powell Turnaround | |
| | | |

Followup

Remaining issues that can be anticipated

- Construction Coordinator to monitor KPI's and Fountain data for positive results in terms of injuries and exposures.
- Audit Work Packs to ensure adherence to Joint Management Policy and execution by field.

Mark-up Isometric Drawings



| PART NO. | QTY | SIZE (INCH) | COMPONENT DESCRIPTION | WT. |
|--------------------------|--------|-------------|---|-------|
| 1 | 20' 3" | 4 | PIPE SCH 40S ASME B36.19 ASTM A-312 GR. TP316L SMLS | 217.8 |
| 2 | 3 | 4X2 | TEE, RED BV SCH 40S ASME B16.9 ASTM A-403 GR. WP316L, CLASS WPS, SMLS | 33.5 |
| 3 | 4 | 4 | FLANGE 150# RFWN SCH 40 ASME B16.5 ASTM A-182 GR. F316/F316L | 66.0 |
| 4 | 3 | 2 | FLANGE 150# RFWN SCH 40 ASME B16.5 ASTM A-182 GR. F316/F316L | 18.0 |
| 5 | 3 | 4 | GASKET 150# RF 1/8" THK ASME B16.20 SPIRAL WOUND NON-ASBESTOS FLEXITIC SUPER FILLER W/316 SS WINDING, FLEXITALIC STYLE CG | 1.5 |
| 6 | 24 | 5/8 | BOLTING 5/8" x 3 1/2" STUD BOLTS ASTM A-193 GRADE B8M & A-194 GRADE BH (316 SS), CL 2 STRAIN HARDENED HH SEMI-FINISHED NUTS | 18.9 |
| 7 | 1 | 4 | FLANGE 150# RF BLIND ASME B16.5 DMT FOR 1/2" NPT ASTM A-182 GR. F316/F316L | 17.0 |
| 8 | 1 | 1/2 | INSTRUMENT ROOF VALVE VMMT-903 SS | 1.3 |
| 9 | 1 | 1/2 | PRESSURE INDICATOR (SEE INSTRUMENT DATA SHEET) P12535F | 3.3 |
| TOTAL FABRICATION WEIGHT | | | | 371.1 |

17.43

OCT 29 2012

FOR REFERENCE
 FOR MATERIAL ORDER
 FOR FIELD VERIFICATION
 FOR FABRICATION
 AS NOTED
 APPROVED _____
 WORK ORDER # _____

METHANOL FROM CHARGE PUMPS TO INJECTION PUMPS

BY: *AP* CHK: *AB* APP'D: *FR* / *CHW*

JACOBS
PROJECT NUMBER: LUN-3207

| | | | |
|----------|-------------------------------|--------------------------------|----------------|
| A | ISSUED FOR FIELD VERIFICATION | DATE: 10/25/12 BATCH REF: 1 | 10/12 |
| LINE NO. | 4" HI-C2003-040S-SSA | SH 1 OF 1 | MAT'L SPEC SSA |

Shell Offshore Inc. CD7P.1.2-A

WATERL. VER. F. DISAPPE. WATERL. VER. F. DISAPPE.

