

UNITED STATES DEPARTMENT OF THE INTERIOR -  
BUREAU OF SAFETY AND ENVIRONMENTAL ENFORCEMENT -  
GULF OF MEXICO REGION -

ACCIDENT INVESTIGATION REPORT

For Public Release

1. OCCURRED

DATE: 16-FEB-2015 TIME: 1240 HOURS

2. OPERATOR:

Bennu Oil & Gas, LLC

REPRESENTATIVE:

TELEPHONE: -

CONTRACTOR: Shamrock Management, LLC (Sharm

REPRESENTATIVE: -

TELEPHONE:

- STRUCTURAL DAMAGE
- CRANE
- OTHER LIFTING DEVICE
- DAMAGED/DISABLED SAFETY SYS.
- INCIDENT >\$25K
- H2S/15MIN./20PPM
- REQUIRED MUSTER
- SHUTDOWN FROM GAS RELEASE
- OTHER

3. OPERATOR/CONTRACTOR REPRESENTATIVE/SUPERVISOR  
ON SITE AT TIME OF INCIDENT:

6. OPERATION:

4. LEASE: G16661

AREA: MC LATITUDE: 28.03364844 -

BLOCK: 941 LONGITUDE: -89.10075833 -

- PRODUCTION
- DRILLING
- WORKOVER
- COMPLETION
- HELICOPTER
- MOTOR VESSEL
- PIPELINE SEGMENT NO. 19091
- OTHER

5. PLATFORM: -

A (Mirage/Titan)

RIG NAME:

6. ACTIVITY:

- EXPLORATION (POE)
- DEVELOPMENT/PRODUCTION (DOCD/POD)

8. CAUSE:

- EQUIPMENT FAILURE
- HUMAN ERROR
- EXTERNAL DAMAGE -
- SLIP/TRIP/FALL
- WEATHER RELATED
- LEAK
- UPSET H2O TREATING
- OVERBOARD DRILLING FLUID
- OTHER \_\_\_\_\_

7. TYPE:

- HISTORIC INJURY -
  - REQUIRED EVACUATION
  - LTA (1-3 days)
  - LTA (>3 days)
  - RW/JT (1-3 days)
  - RW/JT (>3 days)
  - Other Injury -

- FATALITY
- POLLUTION
- FIRE
- EXPLOSION

- LWC -  HISTORIC BLOWOUT
  - UNDERGROUND
  - SURFACE
  - DEVERTER
  - SURFACE EQUIPMENT FAILURE OR PROCEDURES

9. WATER DEPTH: 4000 FT.

10. DISTANCE FROM SHORE: 67 MI.

11. WIND DIRECTION: SE -  
SPEED: 2 M.P.H.

12. CURRENT DIRECTION: ESE  
SPEED: M.P.H.

13. SEA STATE: 8 FT.

COLLISION  HISTORIC  >\$25K  <=\$25K

At 12:40 pm on 2-16-2015, the (Titan Platform OSC-G 16661) experienced an O-Ring failure on a 1" 15,000 psig Aceco compact valve, the Telemark (AT 63 No. 4) Incoming Flowline (Pipeline Segment 19091, ROW OCS-G 29233). This valve is not an inline valve (it is a block valve under a Pressure Safety High Transmitter on the incoming riser). The valve is physically positioned on the flowline between the manual block valve and automated Boarding Shut Down Valve on the incoming flowline.

The flowline was previously displaced with methanol as part of recent hydrate remediation operations. Operators were in the process of flowing the well back through the platform's Test Separator. Methanol from the separator was then directed into 100 bbl temporary tanks and then offloaded to a boat standing by in the field for disposal at a shore-based facility. The flow back procedure was submitted to and approved by both BSEE Pipeline Section and USCG.

Telemark well (AT 63 No. 4) was the only well open to flow at the time of the incident and the flow-back was the only production operation taking place at that time. All other wells on the facility were shut-in for equipment maintenance during the flow-back. Immediately upon detecting the failure of the O-ring, the Control Room Operator initiated a facility Emergency Shut Down and sounded the general alarm. The Telemark well was secured by closing the SCSSV, PMV, PWV and FLIV. All personnel mustered and were accounted for and it was determined there were no injuries or fatalities. The Titan's emergency response team was activated and utilized Fire Water hose reels to disperse the methanol leaking from the valve. For safety reasons, the riser pressure was bled down to 2,000 psig +/- before the emergency response team moved in and closed the manual boarding valve to stop the leak. Once the situation was under control, phone lines were restored. Facility personnel reported the leak and spill to Witt O'Brien, who in turn, made the appropriate notification to NRC (No. 1108280) and BSEE. Bennu estimates that a maximum of 438 barrels of methanol with some nitrogen and a small amount of crude oil (approximately 0.0023 gallons) leaked into the Gulf of Mexico, creating a barely-visible sheen covering 20% of the approximate 1,320' by 10' spill area, which was dissipated by natural wave action shortly thereafter.

On 2-19-2015, The BSEE Investigation Team arrived on the MC 941 Titan Platform to investigate the incident. Photos and statements were taken to get the facts of the incident. During the walk-through of the investigation, operators demonstrated that the Flange Cap Screws were loose by using a wrench to turn clockwise showing it did not take much strength to turn the screws. Operator attempted to loosen the Flange Cap Screws identical valve that was repaired that same day. Both BSEE and the Operator witnessed that the valve could not be loosened. Photos and video show that the valve was not properly seated at the time of the investigation.

During the course of the investigation the inspectors researched the Aceco Valve Company Installation Procedure and Operations & Maintenance Procedures for installing the valve in the system. It was discovered that the technician did not verify the correct positioning of the face seals and the end flange bolts were not torqued properly according to the Operations & Maintenance Manual.

#### 18. LIST THE PROBABLE CAUSE(S) OF ACCIDENT:

During the insulation of the 1" O-Ring by the Shamrock Employee (Tech) on 2-10-2015, the Flange Cap Screw was not tightened down to close the 1/8" to 1/4" gap between the Blind Flange Port and the Body of the Aceco Valve properly sealing the Face seal as seen in Investigation Photos.

Proper torquing methods were not used in tightening the end flange bolts.

The Outlet Flange was found by the Bennu Investigation Team to be an incorrect flange for establishing a Metal-to-Metal seal with the 1", 15,000 psig Aceco Compact ball valve "BV1"(incorrect surface finish & raised face).

The third party technician failed to identify that the wrong flange was in place on the outlet end of the valve.

After the incident, the valve "B" cap screws were found to have been both over & under torqued during the installation.

19. LIST THE CONTRIBUTING CAUSE(S) OF ACCIDENT:

Tech did not adhere to the manufacturer's recommendation to utilize a torque wrench for tightening the bolts to secure the body of the Aceco Valve and 1" O-Ring Face Seal material.

Technician did not follow the (ACECO VALVE) Installation, Operations & Maintenance procedures when installing the valve in the system by not using the proper size and type mating Flanges; and not verifying the face seals were installed correctly.

20. LIST THE ADDITIONAL INFORMATION:

Based on the valve inspection that was conducted by an independent third party service provider and authorized distributor of Aceco valves. Expectations for inspection were communicated to Precision Tech to ensure a detailed review. Precision Tech started the valve tear down on Friday, March 6, 2015. After an inspection and rebuild of each valve, Valve "A" failed the pressure test and was removed from service. Valve "B", the leaking valve in question, failed the pressure test and was removed from service. Valve "C" passed the pressure test and was returned to service. Valve "B" was sequentially disassembled with breaking torque values recorded for each cap screw. The manufacturer recommends a torque value of 70 ft-lbs.

During the removal of the valve, the #1 cap screw on the outlet flange (top) was significantly over-torqued at 210+ ft-lbs. After torque values were recorded on all cap screws, the valve was removed by releasing the screws on the inlet flange (bottom). The outlet flange (top) cap screws were then unscrewed. Upon inspection, there was no (O-Ring )present nor any evidence of deteriorated particles in the high-pressure leak , precluding any definitive conclusions as to whether the O-Ring disintegrated during the leak or was never installed. The outlet flange for Valve "B" (leak location) was found to be the incorrect flange for establishing a metal-to-metal seal with the 1", 15,000 psig Aceco compact ball valve (Incorrect surface finish & raised face) (Figure 5). This flange had been in service for several years. Both faces of the valve were cleaned and the line flange blinded off. During the valve bench test at 16,500 psig, Valve "B" leaked from the inlet-sealing surface.

21. PROPERTY DAMAGED:

NATURE OF DAMAGE:

ESTIMATED AMOUNT (TOTAL):

22. RECOMMENDATIONS TO PREVENT RECURRANCE NARRATIVE:

The BSEE New Orleans District makes no recommendations to the Agency.

23. POSSIBLE OCS VIOLATIONS RELATED TO ACCIDENT: YES

24. SPECIFY VIOLATIONS DIRECTLY OR INDIRECTLY CONTRIBUTING. NARRATIVE:

E-100 254.46/250.300(a) Lessee failed to prevent the unauthorized discharge of pollutants into offshore waters.

\* At 12:40 pm on 2-16-2015 the Titan Facility experienced an O Ring failure on a 1" 15,000 psig Aceco compact valve associated with Telemark Well (AT 63 No. 4) incoming flowline (Pipeline Segment 19091, ROW OCS-G 29233). It was estimated to have discharged pollution between the amount 250 bbls to 438 bbls of the mixture of Methanol and well fluids into the Gulf of Mexico. The area covered by the sheen was 1320 ft. by 10 ft. with a NRC# of 1108280.

G-111 250.107 Lessee did not maintain all equipment in a safe condition to provide for the protection of the Lease.

\*The Outlet Flange was found to be incorrect flange for establishing a Metal to Metal Seal with the 1" 15,000 psig Aceco Compact ball valve "BV1" (incorrect surface finish & raised face).

\*After the Incident the Aceco Compact ball valve "BV1" Cap Screws was found to have been both over & under torqued during the installation.

G-110 250.107 (a) Lessee Did Not Mention in the Job Safety Analysis (JSA) of the Tighten of flange bolts using the bolt torquing methods of the Aceco 15K psig valve dated 2-10-2015

\*Lessee Did Not Follow the Factory Installation, Operations, and Maintenance procedures in the Job Safety Analysis JSA dated 2-10-2015

\*Lessee did not ensure all parties involved in the job were knowledgeable and experienced for the repair in recognizing incompatible Flange installed.

\*Lessee Did Not Follow Procedures for equipment to be maintained / repaired in accordance with manufacturer recommendations ( torquing procedures and valves)

25. DATE OF ONSITE INVESTIGATION:

19-FEB-2015

26. ONSITE TEAM MEMBERS:

Pierre Lanoix / Jason Bowens / Cody Jones / Carl Bohling /

29. ACCIDENT INVESTIGATION

PANEL FORMED: NO

OCS REPORT:

30. DISTRICT SUPERVISOR:

David Trocquet

## INJURY/FATALITY/WITNESS ATTACHMENT

<input checked="" type="checkbox"/> OPERATOR REPRESENTATIVE	<input type="checkbox"/> INJURY
<input type="checkbox"/> CONTRACTOR REPRESENTATIVE	<input type="checkbox"/> FATALITY
<input type="checkbox"/> OTHER _____	<input checked="" type="checkbox"/> WITNESS

NAME:

HOME ADDRESS:

CITY:

STATE:

WORK PHONE:

TOTAL OFFSHORE EXPERIENCE:

YEARS

EMPLOYED BY:

BUSINESS ADDRESS:

CITY:

STATE:

ZIP CODE:

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# INJURY/FATALITY/WITNESS ATTACHMENT

*For Public Release*

OPERATOR REPRESENTATIVE

INJURY

CONTRACTOR REPRESENTATIVE

FATALITY

OTHER \_\_\_\_\_

WITNESS

NAME :

HOME ADDRESS :

CITY :

STATE :

WORK PHONE :

TOTAL OFFSHORE EXPERIENCE :

YEARS

EMPLOYED BY :

BUSINESS ADDRESS :

CITY :

STATE :

ZIP CODE :

# POLLUTION ATTACHMENT

1. VOLUME: GAL 438 BBL  
YARDS LONG X YARDS WIDE -

APPEARANCE: **BARELY VISIBLE -**

- 2. TYPE OF HYDROCARBON RELEASED:  OIL
- DIESEL
- CONDENSATE
- HYDRAULIC
- NATURAL GAS
- OTHER Methanol

3. SOURCE OF HYDROCARBON RELEASED: **Telemark incoming flowline 1" compact valve leak.**

4. WERE SAMPLES TAKEN? **NO**

5. WAS CLEANUP EQUIPMENT ACTIVATED? **NO**

- IF SO, TYPE:
- SKIMMER
  - CONTAINMENT BOOM
  - ABSORPTION EQUIPMENT
  - DISPERSANTS
  - OTHER \_\_\_\_\_

6. ESTIMATED RECOVERY: GAL BBL

7. RESPONSE TIME: HOURS

8. IS THE POLLUTION IN THE PROXIMITY OF AN ENVIRONMENTALLY SENSITIVE AREA (CLASS I)? **NO**

9. HAS REGION OIL SPILL TASK FORCE BEEN NOTIFIED? **NO**

10. CONTACTED SHORE: **NO** IF YES, WHERE:

11. WERE ANY LIVE ANIMALS OBSERVED NEAR: **NO**

12. WERE ANY OILED OR DEAD ANIMALS OBSERVED NEAR SPILL: **NO**