UNITED STATES DEPARTMENT OF THE INTERIOR
MINERALS MANAGEMENT SERVICE
GULF OF MEXICO REGION

ACCIDENT INVESTIGATION REPORT

1. OCCURRED
   DATE: **31-OCT-2008** TIME: **1430** HOURS

2. OPERATOR: **Chevron U.S.A. Inc.**
   REPRESENTATIVE: **Matthews, Justin**
   TELEPHONE: **(337) 989-3435**
   CONTRACTOR:
   REPRESENTATIVE:
   TELEPHONE:

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

4. LEASE: **G01146**
   AREA: **VR** LATITUDE:
   BLOCK: **245** LONGITUDE:

5. PLATFORM: **G**
   RIG NAME:

6. ACTIVITY:
- [ ] EXPLORATION(POE)
- [X] DEVELOPMENT/PRODUCTION (DOCD/POD)

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
  - [X] SURFACE EQUIPMENT FAILURE OR PROCEDURES
- COLLISION [ ] HISTORIC [ ] >$25K [ ] <=$25K
- [ ] STRUCTURAL DAMAGE
- [ ] CRANE
- [ ] OTHER LIFTING DEVICE
- [ ] DAMAGED/DISABLED SAFETY SYS.
- [ ] INCIDENT >$25K
- [ ] H2S/15MIN./20PPM
- [ ] REQUIRED MUSTER
- [ ] SHUTDOWN FROM GAS RELEASE
- [ ] OTHER

6. OPERATION:
- [X] PRODUCTION
- [ ] DRILLING
- [ ] WORKOVER
- [ ] COMPLETION
- [ ] HELICOPTER
- [ ] MOTOR VESSEL
- [ ] PIPELINE SEGMENT NO.
- [ ] OTHER

8. CAUSE:
- [X] EQUIPMENT FAILURE
- [ ] HUMAN ERROR
- [X] EXTERNAL DAMAGE
- [ ] SLIP/TRIP/FALL
- [X] WEATHER RELATED
- [ ] LEAK
- [ ] UPSET H2O TREATING
- [ ] OVERBOARD DRILLING FLUID
- [ ] OTHER _____

9. WATER DEPTH: **132** FT.

10. DISTANCE FROM SHORE: **64** MI.

11. WIND DIRECTION:
    SPEED: M.P.H.

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

13. SEA STATE: FT.

17. DESCRIBE IN SEQUENCE HOW ACCIDENT HAPPENED:

Subsequent to conducting platform repairs of damage caused by Hurrican Ike, Chevron was in the process of returning the VR 245 G,OCS-G 1146 platform to production. Upon opening the SCSSVs, gas leaks were detected from Wells G-1, G-3 and G-4. The leaks occurred from two locations on the wellheads, including: the flange connection located immediately above the tubing head and the flange connection just above the wellhead spacer piece. At this time, Chevron attempted to close all SCSSVs to control the gas leaks. The leaks from Wells G-1 and G-3 stopped. However, Well G-4's SCSSV would not fully close /seal. As a result, gas leaked uncontrolled from Well G-4's tree flange connection located immediately above the tubing head bonnet. Gas flowed/escaped through the loose mating surfaces of the ring gaskets and grooves. Well G-4 was then opened to the flare to minimize gas leakage from around the wellhead and route most of the gas to a safe location. Well G-4's tubing pressure was estimated to be 0 psi before opening its SCSSV. After opening its SCSSV, G-4's tubing pressure built to approximately 100 psi with an external flange leak occurring below the master valve. When G-4 was routed to the flare, the tubing pressure dropped to about 50 psi. After several hours of flowing the G-4 well to the flare, its SCSSV fully closed/sealed. On the following day, successful repair procedures were initiated on the wellheads.

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

Large Hurricane Ike forces acted on the wellhead flange studs, causing the studs to stretch beyond their elastic limit. This resulted in loss of seal integrity of the tree flange connections. All leaks were repaired by changing out the studs, nuts, and ring gaskets on wells G-1, G-3, and G-4. Subsequent to the repair, the trees were tested to their rated capacities.

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

Forces generated during Hurricane Ike caused the stabilizers, which are supports or gussets that attach the well's caisson to the bell guide, to fail. The purpose of the stabilizers is to minimize movement of the caissons relative to the platform structure. Possibly the failed stabilizers contributed to the large forces acting on the flowlines, and the increased flowline forces could have imparted enough moment force to the wellhead studs to stretch them beyond their elastic limit. Excessive flowline forces were evidenced by the flowline u-bolts that failed/broke during the Hurricane.

20. LIST THE ADDITIONAL INFORMATION:

21. PROPERTY DAMAGED:

Property damaged related to the repair of the loss of well control for Well G-4 only: Studs, nuts, ring gaskets.

NATURE OF DAMAGE:

Studs were stretched beyond their elastic limit. Ring gaskets may have been cut due to escaping gas/debris, and some nuts may have also been damaged.

ESTIMATED AMOUNT (TOTAL): **$25,000**

22. RECOMMENDATIONS TO PREVENT RECURRANCE NARRATIVE:

The Lake Charles District Office recommends that the MMS Office of Safety Management (OSM) issue a Safety Alert to inform operators that subsequent to severe weather events, collision's etc., visual inspection of wellhead studs, flowline u-bolts, and stabilizers should be made. If the inspections indicate that the wellhead studs, flowline u-bolts and/or stabilizers may have been subjected to forces greater than design limitations, the following action should be exercised to prevent possible loss of well control:
i. Verify zero pressure on the SCSSV control line.
ii. Isolate the SCSSV control line from the wellhead.
iii. Isolate wellbore pressure from the damaged equipment.
iv. Repair/replace all damaged equipment.
v. Test the wellheads to the maximum anticipated surface pressure prior to opening the SCSSV.

23. POSSIBLE OCS VIOLATIONS RELATED TO ACCIDENT: **NO**

24. SPECIFY VIOLATIONS DIRECTLY OR INDIRECTLY CONTRIBUTING. NARRATIVE:

25. DATE OF ONSITE INVESTIGATION:

15-DEC-2008

26. ONSITE TEAM MEMBERS:

Scott Mouton / Mark Osterman /

29. ACCIDENT INVESTIGATION PANEL FORMED: **NO**

OCS REPORT:

30. DISTRICT SUPERVISOR:

Larry Williamson

APPROVED

DATE: **29-DEC-2008**