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: **29-MAY-2012** TIME: **1205** HOURS

2. OPERATOR: **Energy XXI GOM, LLC**
   REPRESENTATIVE:
   TELEPHONE:
   CONTRACTOR: **ISLAND OPERATORS CO. INC.**
   REPRESENTATIVE:
   TELEPHONE:

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

4. LEASE: **G01619**
   AREA: **SP** LATITUDE: **28.669635**
   BLOCK: **93** LONGITUDE: **-89.393492**

5. PLATFORM: **B**
   RIG NAME:

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

7. TYPE:
- [ ] HISTORIC INJURY
- [X] REQUIRED EVACUATION **1**
- [ ] LTA (1-3 days)
- [X] LTA (>3 days **1**
- [ ] RW/JT (1-3 days)
- [ ] RW/JT (>3 days)
- [ ] Other Injury
- [ ] FATALITY
- [ ] POLLUTION
- [X] FIRE
- [X] EXPLOSION

LWC
- [ ] HISTORIC BLOWOUT
- [ ] UNDERGROUND
- [X] SURFACE
- [ ] DEVERTER
- [ ] SURFACE EQUIPMENT FAILURE OR PROCEDURES

COLLISION [ ] HISTORIC [ ] >$25K [ ] <=$25K

- [ ] STRUCTURAL DAMAGE
- [ ] CRANE
- [ ] OTHER LIFTING DEVICE
- [ ] DAMAGED/DISABLED SAFETY SYS.
- [ ] INCIDENT >$25K
- [ ] H2S/15MIN./20PPM
- [X] REQUIRED MUSTER
- [ ] SHUTDOWN FROM GAS RELEASE
- [X] OTHER **Loss of Well Control**

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

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

9. WATER DEPTH: **400** FT.

10. DISTANCE FROM SHORE: **20** MI.

11. WIND DIRECTION: **WNW**
    SPEED: **5** M.P.H.

12. CURRENT DIRECTION: **WNW**
    SPEED: **5** M.P.H.

13. SEA STATE: **4** FT.

17. INVESTIGATION FINDINGS:

At approximately 12:00 p.m. on Tuesday, May 29, 2012, a fire occurred aboard the Energy XXI Platform South Pass 93B in the Gulf of Mexico. Wireline operators were performing a Bull Head solvent treatment on Well B-21D. Energy XXI swabbed the well in using wireline. They directed the flowback of the chemicals into an open topped flowback tank/equipment. After bumping up the tool string, it was noted the well was starting to unload. Gauge pressure on the wireline valve indicated 300 psi. The Injured Person (IP), a consultant, was made aware of the increased pressure, climbed onto the tank to check the flow. The wireline helper was instructed to clamp the wire. The gauge pressure on the wireline valve increased to just under 900 psi and continued to build. The IP was still monitoring the well flow into the tank, when a "thumping" sound occurred with combustion, flames, and heat waves came out of the tank. The wireline operator ducked out of the way, but stopped and noticed the IP was jumping off the gas buster. The Emergency Shut Down (ESD) was activated and "Fire On Platform" was announced on the Gai-tronics system. Personnel went to the muster area. An attempt to fight the fire was unsuccessful and the decision was made to evacuate the platform. Personnel descended to the +10 level, and it was noticed that the IP, who appeared hurt, had to be assisted to the lower level and everyone boarded the motor vessel, Ms. Mary.

Investigation revealed that:
- Using unapproved open topped flowback equipment.
- Possible static discharge from flow of liquid into an ungrounded system.
- High pressure hose connected to header system was draped into open top tank with a metal fitting that could have caused a spark.
- Uncontrolled escaping combustible vapor.
- Improperly grounded equipment i.e. Gas buster and open top tank was not properly grounded, which could have contributed to the ignition to the vapors in the tank.
- Personnel too close to the open top flowback equipment.
- Uncontrolled well flow (During flowback operation, personnel were not located where they could control flow coming out of the well).
- Diesel air compressor exhaust was located within 10' of the open top tank.
- Inadequate fire prevention plan (i.e. Facility approved for dry chemical only, however, addition of 100 bbls open top tank and gas buster voided that approval).
- Not following approved plan (Did not route produced well fluids to platform production system).
- No man in attendance to shut-in well in case of emergency.
- Manual Master Valve not easily operable i.e. missing handle.
- Surface Safety Valve (SSV) capped due to wireline operation.
- Surface Control Subsurface Safety Valve (SCSSV) out of well due to wireline operation.
- No sign identifying SCSSV Out of Well (Confusion of what well was in need to be shut-in).
- Uncontrolled well flow (Platform personnel failed to shut-in B 21D well prior to evacuating the platform.
- Did not perform adequate Job Safety Analysis (JSA), Hazard and Operability Study (HAZOP), and Hazard Identification Study (HAZID) for flowback operation. Obvious lack of communication by all parties involved as to their designated job responsibilities and federal regulation requirements.
- High flammability of chemical being used to treat well.

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

- Using unapproved open topped flowback equipment.
- Possible static discharge from flow of liquid into an ungrounded system.
- High pressure hose connected to header system was draped into open top tank with a metal fitting that could have caused a spark.
- Uncontrolled escaping combustible vapor.
- Improperly grounded equipment i.e. Gas buster and open top tank was not properly grounded, which could have contributed to the ignition to the vapors in the tank.-
- Personnel to close to the open top flowback equipment.
- Uncontrolled well flow (During flowback operation, personnel were not located where they could control flow coming out of the well).
- Diesel air compressor exhaust was located within 10' of the open top tank.

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

- Inadequate fire prevention plan (i.e. Facility approved for dry chemical only, however, addition of 100 bbls open top tank and gas buster voided that approval).
- Not following approved plan (Did not route produced well fluids to platform production system).-
- No man in attendance to shut-in well in case of emergency.
- Manual Master Valve not easily operable i.e. missing handle.
- SSV capped due to wireline operation.
- SCSSV out of well due to wireline operation.
- No sign identifying SCSSV Out of Well (Confusion of what well was in need to be shut-in).-
- Uncontrolled well flow (Platform personnel failed to shut-in B 21D well prior to evacuating the platform.
- Did not perform adequate JSA, HAZOPs, and HAZIDs for flowback operation. Obvious lack of communication by all parties involved as to their designated job responsibilities and federal regulation requirements.
- High flammability of chemical being used to treat well.

20. LIST THE ADDITIONAL INFORMATION:

Based on a Forensic Report prepared on June 5, 2012 by McDowell Owens Engineering, Inc.; their engineers determined that the fire was caused by a static discharge in the immediate area of the gas buster and/or open atmosphere storage tank. The static discharge ignited the combustible vapors generated by the high velocity fluid flow exiting into the gas buster and/or storage tank. In this incident, the ignition occurred at the interface between the liquid and gas flow as the flow exited the piping system and entered into the gas buster or as it exited the gas buster into the tank. The expansion of the gas as the fluid exits the piping system results in an acceleration of the fluid flow, which creates a much higher propensity for static generation. In this case, it was reported that the ignition occurred as witnesses heard a discernible change in the flow from liquid to gas, which is consistent with the presence of an explosive mixture of air and gas.

It was reported to BSEE Inspectors that the IP was injured by the ignition of the gas and chemical vapors venting out of the open top flowback tank. It was reported that he received 1st and 2nd degree burns over his face and arms, however, he would be okay and was being released from the hospital the day of this accident investigation.

PROPERTY DAMAGE:
The majority of the direct fire damage was contained to the storage tank and gas buster located at and above the north end of the storage tank. There were some radiant fire damage on the piping, manifold, and cables routed on the east side of the tank due to the flames being pushed in an easterly direction during suppression activities from the water below, which were spraying water and foam.

INCs continued from Item 24:

F-121 Energy XXI failed to ensure that all metal equipment was grounded in accordance with API RP 14 F. The open top flowback equipment was not properly grounded. There were no visible welds, grounding straps, cables or wires.

G-115 Operator failed to conduct operations in accordance with their approved application. Energy XXI failed to follow their approved Dry Chemical Plan due to the addition of the 95 bbl open top flowback tank. Approval had not been requested or approved from BSEE to provide additional fire protection. This invalidated Energy XXI approved fire protection plan.

G-115 Energy XXI failed to conduct operations in accordance with their approved application. The temporary use of the open top flowback tank was not approved for use in this swabbing/flowback operation by BSEE.

P-265 Energy XXI failed to ensure that personnel was assigned to the immediate vicinity of the B-21 Well, with the SSV capped and the SCSSV removed, to shut in the well in the event of a fire or other undesirable event.

P-270 Energy XXI failed to ensure that a well with the SCSSV device removed was not identified with a sign. At the time of the BSEE investigation the Inspector observed that the B-21 Well was not identified by a sign indicating the SCSSV had been removed.

21. PROPERTY DAMAGED: NATURE OF DAMAGE:

See Item 20: PROPERTY DAMAGE **Fire**

22. RECOMMENDATIONS TO PREVENT RECURRANCE NARRATIVE:

The New Orleans District recommends that a Safety alert for use of open top tanks for flammable liquids should be issued. Further clarification needs to take place to discuss "Man in attendance" responsibilities while a well's surface safety devices are removed, capped, bypassed or taken out of service. We will also require that all manual valves have proper operating handles at all times.

The BSEE New Orleans District recommends to the BSEE Regional Office of Safety Management that the Regional SEMS Coordinator identify to the National SEMS Coordinator that Energy XXI GOM LLC be listed as a possible SEMS audit candidate

for the following reasons:-

Management of Change (MOC)-
Energy XXI GOM LLC did not receive prior approval for temporary flowback equipment before commencing operations.-

Safe Work Practices-
Energy XXI GOM LLC failed to use a proper JSA and written procedures to perform operations that resulted in a fire on the platform and an injury.-

23. POSSIBLE OCS VIOLATIONS RELATED TO ACCIDENT: **YES**

24. SPECIFY VIOLATIONS DIRECTLY OR INDIRECTLY CONTRIBUTING. NARRATIVE:

The following "After the Fact" INCs were issued to Energy XXI on 14-NOV-2012 as a result of BSEE's Accident Investigation (AI) conducted on 30-MAY-2012 through 18-OCT-2012.

G-110 Operator failed to perform operations in a safe and workmanlike manner to provide for the safety of personnel. Energy XXI failed to ensure that their policies and safe work practices were followed. Personnel involved in the flowback operations did not perform adequate JSA, HAZOPS and HAZIDS for flowback operations.

G-111 Energy XXI failed to maintain equipment in a safe condition to provide for the protection of the Lease and associated facilities. Well B-21 had no tree valve handles on its manually operated bottom master valve, manual wing valve and manual swab valve. All handles had been removed previously.

G-112 Energy XXI failed to provide for the safety of all personnel and take necessary precautions to correct and remove the following health, safety, or fire hazards:Energy XXI used open top flowback equipment for its swabbing/flowback operation that BSEE had deemed unsafe for this particular type of operation. BSEE denied approval to Energy XXI prior to the start of this operation.

INCs continued in Item 20:

25. DATE OF ONSITE INVESTIGATION:

30-MAY-2012

26. ONSITE TEAM MEMBERS:

Lee Carter / Otho Barnes / Tom Meyer / Gerald Taylor /

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

OCS REPORT:

30. DISTRICT SUPERVISOR:

David Trocquet

APPROVED DATE: **19-MAR-2014**

FIRE/EXPLOSION ATTACHMENT

1. SOURCE OF IGNITION: **Possible Static Discharge.-**

2. TYPE OF FUEL:
- [X] GAS
- [X] OIL
- [X] DIESEL
- [ ] CONDENSATE
- [ ] HYDRAULIC
- [ ] OTHER

3. FUEL SOURCE: **Contents in flowback tank comming from the B-21 Well.**

4. WERE PRECAUTIONS OR ACTIONS TAKEN TO ISOLATE KNOWN SOURCES OF IGNITION PRIOR TO THE ACCIDENT ? **NO**

5. TYPE OF FIREFIGHTING EQUIPMENT UTILIZED:
- [ ] HANDHELD
- [ ] WHEELED UNIT
- [ ] FIXED CHEMICAL
- [ ] FIXED WATER
- [ ] NONE
- [X] OTHER **Emergency response vessels.**

INJURY/FATALITY/WITNESS ATTACHMENT

[X]-

INJURY/FATALITY/WITNESS ATTACHMENT

[ ] OPERATOR REPRESENTATIVE
[ ] CONTRACTOR REPRESENTATIVE
[X] OTHER _____

[ ] INJURY
[ ] FATALITY
[ ] WITNESS

NAME:

HOME ADDRESS:

CITY: STATE:

WORK PHONE: TOTAL OFFSHORE EXPERIENCE: YEARS

EMPLOYED BY:

BUSINESS ADDRESS:

CITY: STATE:

ZIP CODE:

[X] OPERATOR REPRESENTATIVE
[ ] CONTRACTOR REPRESENTATIVE
[ ] OTHER _____

[ ] INJURY
[ ] FATALITY
[X] WITNESS

NAME:

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