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

ACCIDENT INVESTIGATION REPORT

1. OCCURRED
   DATE: **09-MAY-2025** TIME: **1530** HOURS

2. OPERATOR: **Anadarko Petroleum Corporation**
   REPRESENTATIVE:
   TELEPHONE:
   CONTRACTOR: **EnerMech**
   REPRESENTATIVE:
   TELEPHONE:

- [ ] STRUCTURAL DAMAGE
- [ ] CRANE
- [ ] OTHER LIFTING
- [X] DAMAGED/DISABLED SAFETY SYS. **Firewater System**
- [X] INCIDENT >$25K **$250,000.00**
- [ ] H2S/15MIN./20PPM
- [X] REQUIRED MUSTER
- [ ] SHUTDOWN FROM GAS RELEASE
- [X] OTHER **Dropped Objects**

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

4. LEASE: **G19925**
   AREA: **MC** LATITUDE: **28.86601399**
   BLOCK: **127** LONGITUDE: **-88.05626441**

5. PLATFORM: **A(Horn Mountain**
   RIG NAME:

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

7. TYPE:
   INJURIES:
- [ ] HISTORIC INJURY

	OPERATOR	CONTRACTOR
[ ] REQUIRED EVACUATION		
[ ] LTA (1-3 days)		
[ ] LTA (>3 days)		
[ ] RW/JT (1-3 days)		
[ ] RW/JT (>3 days)		
[ ] FATALITY		
[ ] Other Injury		

- [ ] POLLUTION
- [ ] FIRE
- [ ] EXPLOSION

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

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

8. OPERATION:
- [X] PRODUCTION
- [ ] DRILLING
- [ ] WORKOVER
- [ ] COMPLETION
- [ ] HELICOPTER
- [ ] MOTOR VESSEL
- [ ] PIPELINE SEGMENT NO.
- [ ] OTHER
- [ ] TEMP ABAND
- [ ] PERM ABAND
- [ ] DECOM PIPELINE
- [ ] DECOM FACILITY
- [ ] SITE CLEARANCE

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

10. WATER DEPTH: **5400** FT.

11. DISTANCE FROM SHORE: **87** MI.

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

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

14. SEA STATE: FT.

15. PICTURES TAKEN:

16. STATEMENT TAKEN:

INCIDENT SUMMARY:

On 09 May 2025, at approximately 1530 hours, a disabled safety system incident occurred at Mississippi Canyon (MC) 127 A (Horn Mountain) platform. MC 127 A is a Single Point Anchor Reservoir (SPAR) platform located in the Gulf of America that is owned by Anadarko Petroleum Corporation (Anadarko) and operated by Occidental Petroleum (Occidental). During the incident, an Emergency Shutdown (ESD) event took place on the platform. The ESD was initiated from the loss of pressure on the Temperature Safety Element (TSE) loop in Zone 14 area. Zone 14 is an area on the North Main Deck used to tie in temporary equipment into the platform TSE system. There is no permanent equipment in this area and the equipment in this area changes based on what type of project is being performed. While in the process of bringing the platform power back online from the ESD event, a water hammer event occurred in the fire water system piping, which is made up of FiberBond piping. The water hammer event caused the piping to rupture in multiple locations. Due to the piping rupturing and releasing seawater into the Gulf of America, a metal clamp, weighing approximately 1.5 pounds, that was supporting the piping broke loose and fell to the main deck near the location of Lifeboat number 4. The metal clamp fell 30 feet and landed approximately 5-6 feet from an individual who was near the lifeboat. There were no injuries associated with the incident. The incident did, however, result in damage to the Fire Water piping system.

SEQUENCE OF EVENTS:

On 09 May 2025, an EnerMech crew was attempting to start up and commission a third-party EnerMech air compressor. At 1132 hours, the Rig Up/Rig down Pre-test Sub-Sea Commissioning Spread permit was approved and the permit state was live. The EnerMech technicians started the air compressor and had it running before having to shut it down due to an approaching storm. According to Anadarko's investigation report, the compressor was shut down at 1230 hours due to a storm offshore. The EnerMech supervisor stated that, prior to the shutdown of the air compressor for the storm, there were no previous issues with the air compressor. After the storm passed, an EnerMech Technician tried to restart the air compressor at approximately 1430 hours. The EnerMech Technician stated that he could not get the air compressor to start. The EnerMech Technician called his supervisor who then assisted in troubleshooting the issue. The EnerMech technicians stated that they confirmed all the connections looked good, and the air supply gauge was reading 120 Pounds per Square Inch (PSI), which is normal pressure to start the air compressor. During troubleshooting, the Technician noticed that the air from the platform air system was bypassing the starter for the compressor. The Technician and his supervisor then heard the platform muster alarm sound and the platform's flare ignited. They both went to their appropriate muster locations and stood by for further instructions.

At 1455 hours, an ESD was initiated in Zone 14 of the platform due to the Temperature Safety Element (TSE) loop losing pressure. Simultaneously, at 1455 hours, the Fire Water Pumps (FWP) A and B along with the Emergency Generator (E-Gen) automatically started, as designed. Personnel were then dispatched to load the E-Gen and get the Air Compressors started on the platform. The E-Gen was successfully loaded, and Air Compressors were successfully started. At 1512 hours, the Occidental Control Room Operator (CRO) requested that both FWPs be shut down because the ESD event was over and there was no longer a potential fire threat. After the FWPs were shut off, the Jockey Water Pump (JWP) did not automatically start to maintain firewater main pressure due to the 2E-52 Breaker not being closed to power the AMCC 2001 Buss. At 1514 hours, an Occidental platform mechanic discovered that the firewater main had low pressure. The Mechanic stated that the JWP should have already been running due to the platform running on E-Gen power. He was then able to pull up the JWP screen and found that the JWPs were not running, and the main water pressure was only reading 27 PSI on

the Human-Machine Interface system (HMI). Once realizing this issue, the Mechanic contacted the CRO and requested that the JWP be started, if possible. Occidental Electricians then closed the 2E-52 Breaker to regain power to the AMCC 2001 Buss and start the JWP. The CRO concurred and the JWP was started by the CRO. The pressure then increased from 25 PSI to 160 PSI on FW P Main. At 1523 hours, the T-gen was started, and the E-gen went in cool down mode. The JWP was now running on T-gen power.

At 1523 hours, the 1E-52 Breaker opened, resulting in the isolation of E-gen from Emergency switchgear MCC ESWG 2002. At 1524 hours, the T-gen ran out of diesel due to the Shut Down Valve (SDV) 2082 being in the closed position, as the SDV 2082 valve was never opened after the ESD event to supply the T-gen with fuel. This caused the JWP to lose power once again. At 1524 hours, the E-gen was unable to load the ESWG 2002 and AMCC 2001 Buss 2. The Electricians could not close the 1E-52 breaker on ESWG 2002 due to a low voltage trip. The resulted in the inability to power the JWP from the E-gen.

At 1530 hours, the Mechanic that originally noticed the low water main pressure received a call from the CRO requesting him to start the FWPs, which seemed unnecessary due to the platform recently having the JWPs turned on. The Mechanic radioed back to the CRO to confirm and the CRO confirmed the startup. As he was headed to the FWPs he noticed another member of the Occidental maintenance team was already there and had already started the FWPs. After starting the FWPs at 1530 hours, an instant rush of water pressure created a water hammer effect that damaged sections of the firewater piping underneath the helideck and near the living quarters. The water pipes rupturing prevented the platform from having adequate firefighting water and Aqueous Film Forming Foam (AFFF) at the helideck and some of the hose reel stations around the living quarters. After the water piping ruptured, a call was made to shut down the FWPs.

When the firewater piping ruptured, it damaged 3 gaskets, created 2 piping joint leaks, 3 piping elbow leaks, 2 T-piping leaks, 3 piping spool leaks, and 1 instance of wear at the spool. Additionally, when the piping ruptured, a piece of a metal support clamp for the piping fell to the main deck. The piece landed approximately 5 to 6 feet from an individual who was standing by Lifeboat number 4 at the time of the event.

BSEE INVESTIGATIONS:

On 26 May 2025, Anadarko submitted an incident report to the Bureau of Safety and Environmental Enforcement (BSEE) for an incident that occurred on MC 127 A on 09-May-2025. The incident report provided a brief description of the incident, photographs, witness statements and other relevant information concerning the incident.

On 28 May 2025, the incident was assigned to a BSEE Accident Investigator (AI). Once the incident was assigned to the AI, the AI requested additional information concerning the incident. The AI then reviewed the information provided, as well as Anadarko’s internal investigation report.

Per the Anadarko internal investigation and BSEE’s review of the information collected during the investigation, there were multiple scenarios that led to the fire water piping rupturing. The first item that contributed to the event was the accidental initiation of the ESD while EnerMech technicians were troubleshooting the air compressor. An internal investigation revealed that during troubleshooting of the air compressor, an EnerMech technician accidentally turned the Bypass Rig Air switch on the compressor which caused the TSE system to lose pressure, initiating the ESD event.

After the ESD occurred, FWPs A and B automatically started as designed. The platform mechanic shut down the FWPs as directed by CRO. At this point, the JWPs did not automatically start to maintain the firewater main pressure due to no electrical power as the breaker 2E-52 did not close to provide power to the AMCC 2001 bus. Once the

breaker was closed, electrical power was restored to the JWP. The Jockey pump was then turned on by the CRO. The discharge valve PCV 6650 was closed at that time. The current firewater startup procedure references opening a Sea Chest Valve which does not exist. As such, the FWP startup procedure should have referenced opening the PCV 6650, not the Sea Chest Valve, which does not exist in the field. The FWP startup procedure referring to the SEA Chest Valve, not PSV-6650 was an error in the procedure. As such, the current FW procedures do not reflect the FW system as currently designed.

The next factor that contributed to the event was that SDV 2082 (main diesel outlet valve) was not manually opened after the ESD event occurred. This prevented the startup of the T Gen due to a lack of fuel. This caused the JWP to lose power once again, causing the water pressure to drop, likely due to a leaking check valve (FSV 6650-004). This check valve was stated in Anadarko's internal investigation as having a history of leaks. This resulted in a partial vacuum developing in the Fire Water system, which allowed air into the system, contributing to the Fire Water piping rupturing.

After the fire water system developed air in the system and the main FWPs were turned on, it allowed for a very high volume of water to rush through the piping, which led to the rupture. The firewater hose reels were never opened to allow an escape route for the air that was trapped in the system. Had the firewater hose reels been opened, as called for in the procedures, it would have allowed the air to be purged out of the system and helped prevent the rupturing of the firewater piping. Due to the air being trapped in the system, a water hammer effect occurred in the piping, resulting in extensive damage to the firewater system piping. In addition to the damage that occurred, there was also a dropped object hazard that occurred when a piece of metal clamp fell approximately 30 feet and landed near an individual below at the lifeboat number 4 muster area.

As stated in Anadarko's internal investigation and through witness statements, there was a lack of communication throughout the ESD event. Operating procedures were not followed, and procedures were not properly aligned with the platform layout. Anadarko's internal investigation indicates that Anadarko will be taking the necessary corrective actions to prevent this type of incident from occurring in the future.

IN CONCLUSION:

The BSEE investigation concluded that there were multiple factors that caused the water hammer effect in the Firewater piping system. BSEE believes that pressure was unable to be maintained due to a leaking check valve in the Firewater main system. BSEE investigation also concluded that there were multiple procedures that were either not followed correctly or not properly identified in MC 127 A's operating procedures. One of the procedures that was not properly identified included not opening the SDV 2082 valve for the T-gen after the ESD event, which caused the T-gen to lose power due to lack of fuel at an important time during the event. This step was not listed in the procedure to reestablish power generation after an ESD event of this type occurs. There was also a failure to restart the JWP in order to provide a prime for the water main system. This occurred due to the Power Protection and Life Support System procedures not being updated to reflect the use of a JWP that the platform is equipped with currently. Lastly, the CRO did not follow the Firewater System Operating procedure in place and failed to request the opening of the helideck hose reels to bleed the air from the system prior to starting the FWPs.

Anadarko has recognized that multiple references and procedures were not utilized properly during the ESD event. These procedures include the Power Generation System Procedure, Firewater System Operating Procedure, Diesel System Procedure, Power Protection and Life Support Systems Procedures. Anadarko has stated that they will be

adding additional equipment, replacing or having already replaced faulty equipment, and will be reviewing all operating procedures to prevent similar incidents from occurring in the future.

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

EQUIPMENT FAILURE: Inadequate equipment repair- Suspected leaking check valve. Anadarko states that in their internal investigation report that there is history of leaking check valves in the FW Main.

COMMUNICATION: Inaccurate job instructions provided- Due to not having correct procedures in place, the instructions given were not accurate for the specific ESD event.

MANAGEMENT SYSTEM: Inadequate written job procedures- Incorrect/ inaccurate operating procedures in place for the specific ESD event.

COMMUNICATION: Instructions not understood and not followed- Correct Fire Water system procedure was not followed.

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

HUMAN ERROR: Inexperience knowledge of equipment operation- EnerMech not familiar with the operations of the air compressor system installed on the facility.

20. LIST THE ADDITIONAL INFORMATION:

21. PROPERTY DAMAGED:	NATURE OF DAMAGE:
3 failed gaskets, 2 piping joints, 3 piping elbows, 2 T-piping sections, 3 piping spool leaks, 1 wear at spool, 1 broken support clamp	**Raptured/ Leaks/ Broken**

ESTIMATED AMOUNT (TOTAL): **$250,000**

22. RECOMMENDATIONS TO PREVENT RECURRANCE NARRATIVE:

BSEE New Orleans District has no recommendations for the Office of Incident Investigations at this time.

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

24. SPECIFY VIOLATIONS DIRECTLY OR INDIRECTLY CONTRIBUTING. NARRATIVE:

25. DATE OF ONSITE INVESTIGATION:

26. Investigation Team Members/Panel Members:

27. OPERATOR REPORT ON FILE:

28. ACCIDENT CLASSIFICATION:

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

OCS REPORT:

30. DISTRICT SUPERVISOR: **Michael Saucier**

APPROVED DATE: **08-SEP-2025**