

UNITED STATES DEPARTMENT OF THE INTERIOR  
BUREAU OF SAFETY AND ENVIRONMENTAL ENFORCEMENT  
PACIFIC OCS REGION

For Public Release

# ACCIDENT INVESTIGATION REPORT

1. OCCURRED

DATE: **18-JUN-2023** TIME: **1835** HOURS

2. OPERATOR: **Chevron U.S.A. Inc.**

REPRESENTATIVE:

TELEPHONE:

CONTRACTOR: **Clark Engineering Construction,**

REPRESENTATIVE:

TELEPHONE:

- STRUCTURAL DAMAGE
- CRANE
- OTHER LIFTING **Casing Jacks**
- 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:

4. LEASE: **P00205**

AREA: **LA** LATITUDE:

BLOCK: **6912** LONGITUDE:

5. PLATFORM: **GAIL**

RIG NAME:

6. ACTIVITY:  EXPLORATION(POE)  
 DEVELOPMENT/PRODUCTION  
(DOC/POD)

TYPE:

INJURIES:

HISTORIC INJURY

OPERATOR

CONTRACTOR

REQUIRED EVACUATION

1

LTA (1-3 days)

1

LTA (>3 days)

RW/JT (1-3 days)

RW/JT (>3 days)

FATALITY

Other Injury

1

**AMPUTATION**

POLLUTION

FIRE

EXPLOSION

7. LWC  HISTORIC BLOWOUT

UNDERGROUND

SURFACE

DEVERTER

SURFACE EQUIPMENT FAILURE OR PROCEDURES

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

8. OPERATION:

- PRODUCTION
- DRILLING
- WORKOVER
- COMPLETION
- HELICOPTER
- MOTOR VESSEL
- PIPELINE SEGMENT NO.
- DECOMMISSIONING
- PA  PIPELINE  SITE CLEARANCE
- TA  PLATFORM
- OTHER

9. CAUSE:

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

10. WATER DEPTH: **739** FT.

11. DISTANCE FROM SHORE: **11** 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:

## 17. INVESTIGATION FINDINGS:

## Incident Summary:

On June 18, 2023, an injury occurred during decommissioning operations at Chevron USA's (Chevron) relinquished Lease P00205 Area/Block LA/6012 Platform Gail. Chevron contracted Clark Engineering Construction (CEC) to work a marine growth removal system (MGRS) that used chains to scrape off marine growth while surface conductors were being lifted out of the water and cut into lengths for transport. Other contractors employed during this operation included Weatherford (lifting jack operations), Beacon West (crane lift operations), and Control Cutter (hydraulic cutting equipment operations).

The injury occurred just at the beginning of the night shift when the injured person (IP) was trying to make chain adjustments in the MGRS. IP requested an "all stop" to proceed, and seeing movement stop, IP placed his left hand fingers under the chain just as the conductor began rising again. This motion caused the chain to tighten, trapping IP's left hand and amputating the tip of two fingers.

## Sequence of Events:

Conductor removal commenced after the wells on Platform Gail were plugged and abandoned. Chevron initially used a chain with a link diameter close to 0.5 inches to scrape off the marine growth. But after a welded lug attachment point was pulled free from its welds, Chevron decided to use a chain with a link diameter closer to 0.25 inches.

On the day of the incident, the day shift on Well E-13 had removed five sections of conductor and left the sixth one to the night shift. At 18:00, the night shift conductor removal crew held a safety meeting and received pass-over information from the day shift. During the meeting, personnel discussed that a collar was just below the +44 platform level, and all involved will need to be ready for an "all stop" to make adjustments.

Around 18:15, crewmembers inspected their workstation and equipment. Shortly thereafter, the Weatherford Lead, who was the casing jack operator, called over the radio for an "all clear" so he could begin the lift. All stations except the +44 platform level gave an "all clear." The CEC contractor at that station called out over the radio that he was not ready. The CEC contractor was a trainee working on the MGRS for the first time and was waiting for the experienced worker (IP) to show up. Acknowledging the trainee's radio communication, the Weatherford Lead announced a "hold" over the radio.

At approximately 18:30, IP arrived on station and told the trainee to call out over the radio to the Weatherford Lead that the +44 level was "all clear." The Weatherford Lead got an "all clear" from all stations and began lifting the conductor. According to his witness statement, after lifting began, he paused to check the conductor's weight. Simultaneously, IP instructed the trainee to call an "all stop" on the radio so the chains could be adjusted around the collar, and the trainee complied.

A call for an "all stop" came over the radio from the trainee on the +44 level, but no one confirmed it. The conductor did stop moving briefly as the Weatherford Lead checked the weight. IP used this stop to adjust the chain, neither getting "all stop" confirmation nor realizing the conductor would start rising again after the weight check.

Close to 18:35, the trainee called over the radio another "all stop" and announced an injury emergency. The injury consisted of the middle and ring finger of IP's left hand being amputated between the fingernail and the first knuckle.

Operations were stopped and IP was helped to make his way to the medic. After

administering first aid and a pain killer, the medic decided to evacuate IP by boat and requested that IP's digits be recovered for possible reattachment. Next, the Chevron representative who was in charge at the time of the incident ("Rep 1") and a platform operator coordinated with the Weatherford Lead, via radio, to lower the conductor three inches, loosening the chain enough to recover the rubber glove with the digits still inside. The gloves were put in a reclosable plastic bag and added to another reclosable plastic bag containing ice and brought to the medic.

At 19:46, IP was transferred by crane on to the M/V Glenn C and escorted to shore with the medic and IP's supervisor. An ambulance waiting onshore then transported IP to the Ventura hospital, where his injuries were attended to; however, the digits were not able to be reattached.

A Beacon West contractor reported the incident to the BSEE Regional Supervisor via email that same day.

#### The BSEE Investigation:

On June 19, 2023, BSEE conducted an onsite Incident Follow-Up investigation. The investigation included interviewing a Chevron representative ("Rep 2"), who was not working at the time of the incident; taking photos of the incident scene; reading witness statements that Chevron had collected from its personnel and contractors; and reviewing work permits, operating procedures, and Job Safety Analyses (JSAs).

Chevron reported that work on the conductor removal had been placed on a stand down immediately after the incident, and it still was in effect at the time of BSEE's onsite investigation. BSEE noted IP's work environment was in the lower well bay where most of the light is provided by artificial light, with little daylight. Rep 2 told BSEE that the floor is constantly wet. Rep 2 also said that marine growth was causing a strong odor, which BSEE noted as smelling like rotting fish. IP's duty was not only adjusting chains, but also the cleanup and discarding of marine growth removed from the conductors. The work environment is considered a high-hazards area with entrance by permission only.

Prior to departure, BSEE requested copies of all relevant documents, including JSAs, work permits, witness statements, and photos. Chevron later provided this information to BSEE via email.

#### Conductor Removal Communications

BSEE observed that during conductor removal operations, visual signals were not possible due to workstation locations being separated by solid decks, thus preventing a line of sight between workers. Instead, BSEE learned that workers communicated on a radio frequency unique to those involved with lifting and cutting the conductors.

According to Rep 2, conductor removal communications were centered on the Weatherford Lead operating the casing jack, meaning that different tasks associated with conductor lifting, pinning, and cutting (e.g., crane movement, shear cutting, and MGRS chain adjustment) would begin only upon the Weatherford Lead's confirmation to do so. Stations responding to calls over this radio frequency were the south crane operator (Beacon West), conductor cutters (Control Cutter), lower slips (Weatherford), upper slips (Weatherford), and marine growth removal (CEC). After getting confirmation of an "all clear" from each station, the Weatherford Lead engaged the casing jack to begin lifting the conductor. According to Chevron's procedures, any station can request an "all stop," and the Weatherford Lead will acknowledge the "all stop" and select a control to stop the casing jack.

Besides emergencies, "all stops" are called before: (1) facilitating a collar coming through the MGRS, (2) adjusting the upper and lower slips, (3) adding lifting pins to the conductor, and (4) conductor cutting. A collar is the location where the conductor's sections are coupled with a male/female threaded couple during

installation. Collars are around 12 inches high and approximately an inch larger in diameter than the conductor. Conductors were close to 800 feet in length for Platform Gail, cut into sections between 25 and 35 feet. As the conductor cutting crew lifts the conductor out of the water for removal, the crew must make adjustments to the upper and lower slips of the casing jack and to the chains used in the marine growth removal.

During a phone call with BSEE to clarify his witness statement, Rep 1 mentioned that he was at the same safety briefing as the Weatherford Lead, where Rep 1 confirmed that a collar was close to the +44 level. According to procedure, Weatherford Lead should be ready for the call of an "all stop" after lifting the conductor through the +44 level so that the chains could be adjusted around the collar. Rep 1 also confirmed that he himself did hear over the radio the "all stop" intended for the chain adjustment, but did not hear the Weatherford Lead confirm it. The Weatherford Lead reported in his witness statement that the only "all stop" he heard was from the trainee who had reported that there had been an injury.

#### Marine Growth Removal Methods

According to web site <https://www.boem.gov/santa-clara-unit-well-conductor-removal>, in May 2021, BOEM published the Final Environmental Assessment (EA) analyzing the potential environmental impacts of Chevron's removal of 66 well conductors from Platforms Grace and Gail (together known as the "Santa Clara Unit"). BOEM's analysis was based on the project's technical and environmental information provided by Chevron in support of its application for permit to modify (APM) to BSEE to initiate the removal of these well conductors. Upon completing the Final EA, BOEM issued a Finding of No Significant Impact.

As a result, BSEE subsequently approved the APMS to begin removal of the well conductors at the Santa Clara Unit. In October 2021, BSEE issued a Determination of National Environmental Policy Act (NEPA) Adequacy, finding that the description of the proposed operations was consistent with the scope of the activities analyzed in the Final EA. BSEE therefore concluded that the permanent abandonment and conductor removal operations may proceed under the existing Final EA, in compliance with NEPA, and that any supplemental NEPA analysis was not required.

#### Diver Method

The technical and environmental documentation that Chevron provided to BOEM specified that prior to completing conductor removal, divers would remove marine growth on the upper 60 feet of the conductors with hand-held water jet wands. The divers additionally would attach a water jetting ring to each conductor below the water line prior to jacking operations to continue removal of any attached marine growth on the lower sections of the conductor. Chevron, however, did not use this method during marine growth removal operations at Platform Gail. Chevron instead decided to use two different MGRS methods: one that incorporated chains as the scraping medium and another incorporating chain-link fence fabric as the scraping medium.

#### Chain Method

Rep 2 explained the initial method of conductor removal for Platform Gail, which was the chain method. This method was comprised of two loops of chain around the surface conductor. The chains were attached to lugs welded to the deck and suspended in place by four natural fiber ropes tied from above with elasticized rubber cords on their ends. With chains suspended and against the conductor, friction as the conductor was lifted caused the chain to tighten around the conductor. This tension allowed the conductor to slide through and the softer material (marine growth) to be scraped off and fall to the seafloor. This MGRS required the CEC contractor to be near the chains and the moving conductor.

Rep 2 demonstrated to BSEE at the incident site where IP was holding a chain to attach an elasticized rubber cord when the conductor began to rise. Rep 2 explained that initially a heavy chain was used until a welded lug attachment was pulled off the deck. With the heavy chain having more tensile strength than the lug, Rep 2 explained Chevron's decision to switch to a lighter chain. Chevron's thinking, according to Rep 2, was that it is better to have the chain break than the lug pull free.

#### Chain-Link Fence Fabric Method

Rep 2 then went on to describe Chevron's decision to switch to an alternative system, the chain-link fence fabric method, and then back again to the chain method. He described the chain-link fence fabric method as wrapping a conductor with a 4-foot wide chain-link fence fabric with three of four layers. Furthermore, Chevron specially fabricated four pieces of 2-inch pipe with metal plates welded to the bottom of each. The pipes were placed vertically at equal distances around the wrapped fence fabric and held in place by two or three ratchet straps. Straps were tightened and metal plates were shackled to four welded lugs on the floor. Marine growth was scraped off as the conductor slid through the fabric.

This MGRS allowed CEC contractors to not have to work near the conductor's movement. But, according to Rep 2, it was used only for a brief time due to time efficiency: The chain-link fence fabric would foul quickly and need to be replaced with a new one, which required stopping the lifting of the conductor for each fabric replacement. These stops lengthened the time required to remove a conductor. Although this method was potentially safer with workers being more hands off, Chevron decided to return to the chain as a scraping medium.

However, when conductor removal operations recommenced after the safety stand down on July 7, 2023, following the incident, Chevron resumed using the chain-link fence fabric method.

#### Chevron's Risk Analysis

Title 30 CFR § 250.1912 specifies the criteria for management of change that a Safety and Environmental Management Systems (SEMS) program must meet. Paragraph (a)(2) states that modifications to operating procedures require development and implementation of written management of change procedures. Paragraph (c) further states that these changes must be reviewed prior to implementation. And paragraph (d) lists the items that must be included in management of change procedures, including "[t]he technical basis for the change" (d)(1) and the "[i]mpact of the change on safety, health, and the coastal and marine environments" (d)(2).

Furthermore, according to the American Petroleum Institute's Recommended Practice for Development of a Safety and Environmental Management Program for Offshore Operations and Facilities (API RP 75) (as incorporated by reference in 30 CFR § 250.198), "[t]he management program should establish procedures to identify and control hazards associated with change and maintain the accuracy of safety information."

After reviewing Chevron's APM where Chevron stated that marine growth would be removed using a water jet system, BSEE requested that Chevron provide to BSEE its management of change (MOC) procedures for switching to the other MGRS methods. Chevron did not produce any MOC records, stating that it did not perform a comprehensive risk analysis of changing from one MGRS method to another. Chevron stated that it had relied on the JSAs and the work permits for its risk analysis of the marine growth removal task. BSEE reviewed the JSAs and work permits for the task of marine growth removal and determined that the JSAs cautioned workers, including IP, about hand placement and good communication prior to the incident.

According to Table 2-3, Environmental protection measures, in the Final EA:

- At least 30 workdays prior to commencement of well conductor removal activities, Chevron will submit to BSEE for approval an environmental compliance monitoring plan to monitor and track compliance with all environmental protection mitigation measures incorporated into this Project. Mitigation measures include those described in this analysis and any other conditions of the Project Chevron's plan will specify submittal dates to report progress to BSEE in ensuring operations were conducted in accordance with the approved plan and supporting information, noting any deviations from the approved APM or supporting information.
- If Chevron needs to make a change outside of the Project scope or if there is an emergency impact to biological resources, Chevron must contact BSEE immediately.

At no time prior to or during conductor removal operations did Chevron submit to BOEM or BSEE an amended APM with documentation stating that it was going to use, or was considering using, MGRS methods other than the diver method. Nor did Chevron conduct a risk or hazards analysis on the chain or chain-link fence fabric MGRS methods prior to their use. As such, Chevron did not follow the "general compliance" environmental protection measures as specified in Table 2-3. Chevron likewise did not follow the MOC requirements of 30 CFR § 250.1912 or the guidance in API RP 75.

#### Chevron's Investigation Report

Chevron completed its own investigation report on June 29, 2023, which Beacon West submitted on Chevron's behalf to BSEE on September 25, 2023. Chevron identified two root causes (inadequate verbal communication and no risk assessment) and two contributing factors (MOC inadequate for design change and inadequate written communication) of the incident. The report also identified human performance factors present at the incident, as well as the effectiveness of various protective systems/layers of protection that either did not exist, existed and did not work, or existed and worked at the time of the incident. The report further identified action items for Chevron to take to address the incident's root causes and contributing factors.

#### Conclusion:

Chevron's report acknowledges that one of the root causes of the incident was the lack of a risk assessment of the marine growth removal activity. BSEE's investigation found that Chevron did not properly or thoroughly analyze the risks posed by any of the MGRS methods it had used. Industry standards (e.g., API RP 75) call for breaking down complex risks, such as those in this operation, and reducing the likelihood or severity of outcomes through implementation of mitigation measures. BSEE also found that Chevron's reliance on the JSAs and work permits for conductor removal operations was insufficient to identify and evaluate risks and ensure that safeguards were in place for the specific activity of marine growth removal. Specifically, the operator failed to mitigate hazards of workers in proximity of moving machinery and chains pulled to extreme tensions that potentially could come into contact with body parts.

Additionally, BSEE concluded that Chevron switched through three different MGRS methods without developing and implementing written MOC procedures, as required by 30 CFR § 250.1912(a)(2), and thus not knowing what possible gaps might have existed in its management of risks. Furthermore, Chevron deviated from its approved APM and failed to provide any notification to BSEE of the amended course of action in which it intended to engage in cleaning the conductors.

As Chevron noted in its report, radio communication was in place but was ineffective for providing and confirming operational commands. As BSEE found, a call for an "all stop" came over the radio from the trainee on the +44 level, but no one confirmed it. The conductor did stop moving briefly as the Weatherford Lead checked the conductor's weight. Against Chevron's operating procedures, IP used this pause to adjust the chain without getting "all stop" confirmation.

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

Human performance error - Inattention to task.  
Management system - Inadequate management of change procedure.

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

Communication - No response to initiation of "stop work" procedure.

20. LIST THE ADDITIONAL INFORMATION:

21. PROPERTY DAMAGED:

NATURE OF DAMAGE:

None

ESTIMATED AMOUNT (TOTAL):

22. RECOMMENDATIONS TO PREVENT RECURRANCE NARRATIVE:

23. POSSIBLE OCS VIOLATIONS RELATED TO ACCIDENT: YES

24. SPECIFY VIOLATIONS DIRECTLY OR INDIRECTLY CONTRIBUTING. NARRATIVE:

1. I-190 (C): Is all material-handling equipment operated and maintained in a manner that ensures safe operations and prevents pollution?

During the conductor removal operation, the operator failed to operate the casing jack in coordination with the marine growth removal system in a safe and workman-like manner, which led to an amputation injury.

2. G-112 (C): Does the lessee provide for the safety of all personnel and take all necessary precautions to correct and remove any hazardous oil and gas accumulation or other health, safety, or fire hazards?

This operation placed workers in proximity of moving conductors and chains pulled to extreme tensions.

3. G-115 (C): Are operations conducted in accordance with approved applications?

At no time does Chevron indicate any alternative method to be considered for the removal of the marine growth from the conductors. The fact remains that Chevron did use alternative methods for the removal of the marine growth depriving BSEE and BOEM information pertinent to our review.

25. DATE OF ONSITE INVESTIGATION:

28. ACCIDENT CLASSIFICATION:

19-JUN-2023

26. Investigation Team Members/Panel Members:

29. ACCIDENT INVESTIGATION PANEL FORMED:

NO

27. OPERATOR REPORT ON FILE:

OCS REPORT:

30. DISTRICT SUPERVISOR:

John P. Kaiser

APPROVED  
DATE:

11-JUL-2024

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