

BSEE Panel Report 2020-002

# Investigation of June 1, 2019 Fatality

Lease OCS-G05911  
Green Canyon Area Block 205-A  
Genesis Spar  
Gulf of Mexico Region,  
Houma District - Off Louisiana Coast

December 1, 2020



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## **List of Abbreviations and Acronyms**

BOP	- Blowout Preventer
BSEE	- Bureau of Safety and Environmental Enforcement
CFR	- Code of Federal Regulations
CRO	- Control Room Operator
ERT	- Emergency Response Team
GOM	- Gulf of Mexico
GOMR	- Gulf of Mexico Region
GC	- Green Canyon
HD	- Houma District
JSA	- Job Safety Analysis
OCS	- Outer Continental Shelf
OCSLA	- Outer Continental Shelf Lands Act
OIM	- Offshore Installation Manager
OJT	- On the Job Training
PTW	- Permit to Work
QES	- Quality Energy Services
SOP	- Standard Operating Procedure
USCG	- United States Coast Guard

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## **Executive Summary**

On Saturday, June 1, 2019, an incident resulting in a single fatality occurred while a contract crew was rigging up to perform slickline operations on the “Genesis” facility, operated by Chevron U.S.A. Inc (Chevron). The Genesis facility is located approximately 150 miles southwest of New Orleans, Louisiana in the Green Canyon Area (GC), Block 205-A in the Gulf of Mexico (GOM).

Chevron contracted Quality Energy Services (QES) to perform slickline operations on designated Genesis wellbores. The slickline operations took place at night in order to accommodate for other operations during the day. QES routinely performed work at the Genesis facility.

On May 13, 2019, a four-person QES crew, along with a Sparrows Crane Operator, arrived on the Genesis facility. The crew was called out to the facility to fix casing/tubing communication issues and to install gas lift valves on the A-14 Well. From May 13 to May 31, the crew worked from 6 p.m. to 6 a.m. every night on the A-14 Well. On May 31, 2019, the slickline operation on the A-14 Well was successfully completed. The QES crew planned to perform slickline operations on the A-4 Well next. They began to rig down equipment on the A-14 Well and move equipment to the A-4 Well. Meanwhile, one QES crewmember was sent to shore for a possible health concern, so the Victim went out to the Genesis facility as a replacement - arriving on the morning of June 1, 2019.

When their shift began on the evening of June 1, 2019, QES personnel participated in a safety discussion pertaining to the future operations of moving and rigging up the riser and slickline equipment to the A-4 Wellbore. Once they moved and installed the riser, the QES crew took a break while scaffolding was built around the A-4 Well Hatch. After the break, the crew discussed that their next task was to rig up the slickline equipment. While not specifically covered in the pre-shift safety discussions or the pre-job tailgate discussion, two QES employees decided to re-install the hatch cover over the A-14 Well Hatch.

The QES workers intended to pick up and move the A-14 Hatch Cover, which they did not realize at the time was located beside the Well Bay Area on the Drilling Deck. Instead, they mistakenly picked up a hatch cover from inside the Well Bay Area that was covering the A-13 Well Hatch. While moving this hatch cover, one QES employee stepped into the newly exposed hole and fell approximately 90 feet to a lower deck, suffering fatal injuries.

The Bureau of Safety and Environmental Enforcement (BSEE) conducted a Panel Investigation into the incident resulting in a fatality. The Panel identified the probable causes, the contributing causes and the contributing factors that led to the fatality. In addition, the panel identified recommendations on how to strengthen implementation of the existing safety and environmental management systems. The Panel consisted of professionals from both BSEE and the U.S. Coast Guard (USCG). The Panel travelled to the Genesis facility, conducted interviews and reviewed documents.

For the purpose of this report, the Panel defines the incident which resulted in a fatality as the removal of the well hatch cover and the Victim falling through the newly created open hole.

The Panel concludes this incident occurred due to the following **probable causes**:

- Lack of situational awareness while picking up hatch cover.
- Lack of physical barrier installed to mitigate the risks introduced by inadvertently removing the hatch covers.
- Performing activities outside the scope of work without an effective hazard analysis.
- Lack of labeling to indicate hatch cover to hatch placement.

The Panel identified the following **contributing cause**:

- Lack of adequate written job procedures for maneuvering hatch covers.
- Hatch cover design.

The Panel identified the following **contributing factor**:

- Lack of job task focus

To strengthen implementation of existing safety and environmental management systems, the Panel makes the following **recommendations**:

- Document and implement a facility-specific detailed procedure for the removal, temporary storage and re-installation of well hatch covers.
- Establish a general lifting procedure requirement to maintain a complete visual of the walking path when lifting and transporting objects. Incorporate a “Don’t step where you can’t see” policy.
- Incorporate at least one physical barrier for removal of the hatch covers, such as a lock-out/ tag-out safety program and/ or additional hatch cover weight to prevent maneuverability by personnel without mechanical assistance.
- Ensure all hatch covers are clearly labeled with the corresponding well identification.
  - Ensure labels are installed on the deck that correspond to the hatch cover labels.
  - Maintain consistent terminology for all well hatch locations in documents and diagrams.
- Ensure employees receive practical training in the removal and installation of well hatch covers, as well as for the storage of well hatch covers when removed from the well hatch.
- When removing or installing a well hatch cover, consider using a crane or other material handling method that limits the potential for personnel to be close to open holes.
- Ensure contractor personnel are specifically familiarized to the area where they will work and are aware of any existing or potential open hole hazards that could be created.
- Encourage personnel to stop work and evaluate hazards with all personnel involved in the job safety analysis (JSA) before considering activities outside the scope of work.
- Incorporate a hatch cover design that allows personnel to clearly identify a hatch cover in a well hatch, as opposed to one laying on the deck.

## **Introduction**

Pursuant to 43 U.S.C. § 1348(d)(1), (d)(2) and (f) [Outer Continental Shelf Lands Act (OCSLA), as amended] and Department of the Interior regulations 30 CFR Part 250, the Bureau of Safety and Environmental Enforcement (BSEE) is required to investigate and prepare a public report for this incident. BSEE convened an investigation Panel that included:

Nicholas M. Fraiche P.E. (Panel Chair), Petroleum Engineer, Office of Incident Investigations, GOMR

Micah Charpentier, Petroleum Engineer, Productions Operations Unit, Houma District GOM OCS Region

Andrew Gros, Inspector/ Accident Investigator, Production Operations Inspection Unit, Houma District (HD), GOMR

Lt. Natasha Hope, Investigator, Investigations Unit, New Orleans Sector, US Coast Guard

Ross Laidig, Special Investigator, Safety and Incident Investigations Division

The purpose of this investigation report is to identify the probable cause(s), the contributing cause(s) and the contributing factors that led to the incident that resulted in a fatality on the Genesis Spar. In addition, it includes recommendations on how to strengthen implementation of existing safety and environmental management systems. Ultimately, these recommendations will assist in preventing a similar incident from occurring. For the purpose of this report, the ‘Panel’ will refer to the Panel Investigation Team listed above.

The BSEE Panel collected and reviewed electronic and written material, including but not limited to bridging documents, daily activity reports, Job Safety Analysis (JSA), emails and other records related to management systems, supervision of employees and contractors, communications, performance and training of personnel, relevant company policies and practices, and work environment. The BSEE Panel members also conducted multiple interviews of offshore and office personnel associated with the GC 205 operations. The documents produced and interviews were a result of clear and timely communication between BSEE, Chevron and their contractors.

## Lease Location and Information

Lease OCS-G 05911 (the lease) is approximately 150 miles southwest of New Orleans, Louisiana and covers approximately 5,760 acres, encompassing all of Green Canyon Area Block 205 (GC 205) in the Gulf of Mexico Central Planning Area (Figure 1). The water depth at this location was approximately 2,590 feet.

The lease was purchased on July 1, 1983, by Tenneco Oil Company and Gulf Oil Corporation, each with 50% interest. After a series of changes with the record title interest, Chevron U.S.A. Inc. (Chevron) became an interest holder in 1985 and was designated as the Operator in 1988; which it has remained to date. At the time of this report, Chevron was assigned approximately 60% interest in the lease, with the remaining ~40% assigned to Exxon Mobil Corporation.

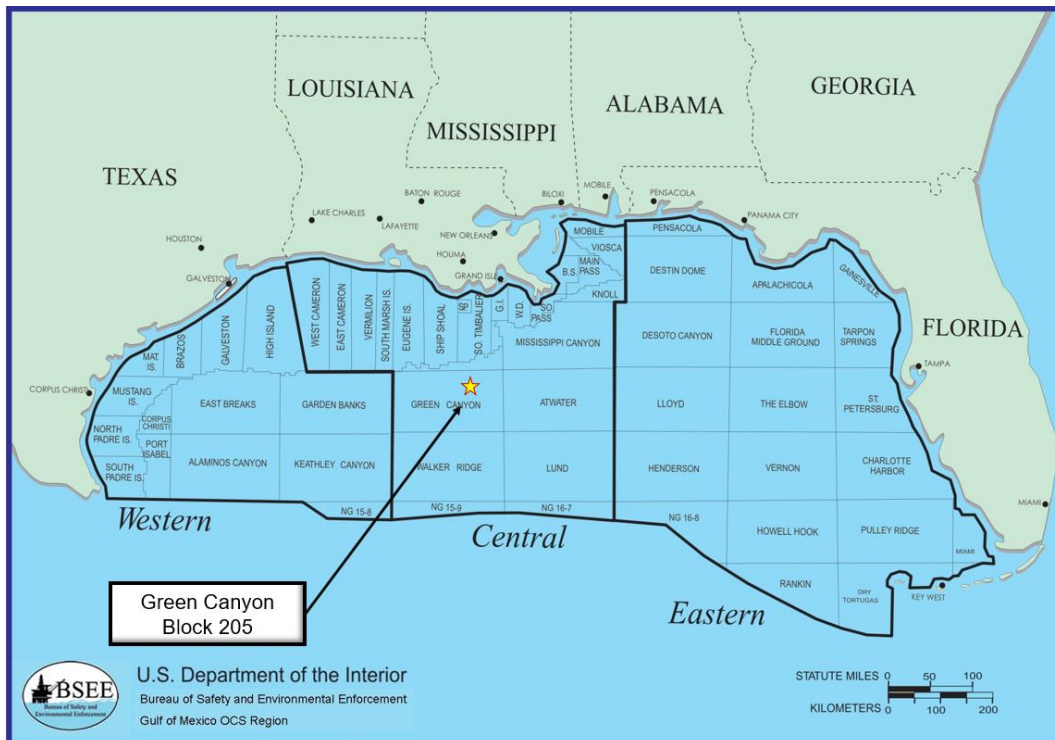


Figure 1: Approximate lease location of the Genesis Spar

## Genesis Spar

The Genesis Spar (Genesis) is a drilling and production platform located in Green Canyon Block 205 (GC 205). Genesis was installed on July 21, 1998 and began the first oil and gas production in early 1999. The project was developed jointly by Chevron U.S.A. Production Co. (56.67 percent), Exxon Company, U.S.A. (38.38 percent), and PetroFina Delaware Inc. (4.95 percent).

The Genesis facility consists of four main components: hull, mooring system, risers and topside decks. The hull is 122 ft across and 705 ft tall, the majority of which is below the water's surface. It is moored to the seabed utilizing a 14-point mooring system with anchor pile assemblies. The facility was designed for up to 20 production risers, two export pipeline risers for gas and oil, and one drilling riser.

The topsides consist of multiple main decks. The top deck, referred to as the Drilling Deck, includes the Well Bay Area, comprising of 25 hatches with hatch covers, as well as utilities, crew



quarters, cranes and a heliport. The utility deck is approximately 40 feet below the Drilling Deck, and the production deck is approximately 30 feet below the utility deck. About 20 feet below the Production Deck is the top of the SPAR, at approximately the same level as Deck 10. The Utility and Production Decks were not continuous, which allowed open access from the Drilling Deck down to the wellheads below. Underneath some hatch covers, there was open and unobstructed access from the Drilling Deck to Deck 10, approximately 90 feet below.

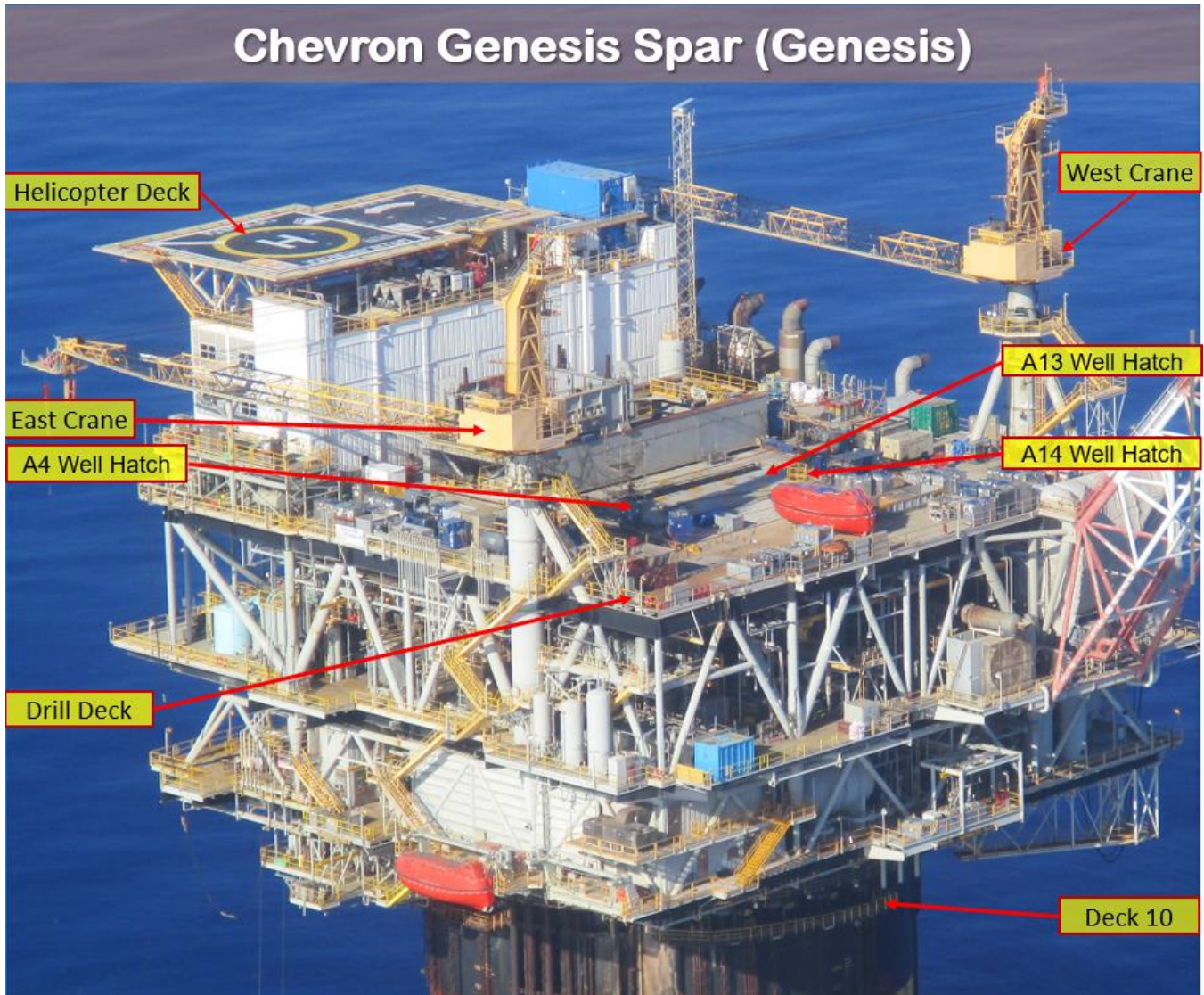


Figure 2: Genesis Spar

## **Companies Involved**

### **Chevron U.S.A. Inc.**

According to their 2018 Annual Report, Chevron U.S.A. Inc. (Chevron) is a major subsidiary of Chevron Corporation, which with its subsidiaries manage and operate most of Chevron's U.S. businesses. Assets include those related to the exploration and production of crude oil, natural gas and natural gas liquids (NGLs) and those associated with the refining, marketing, supply and distribution of products derived from petroleum, excluding most of the regulated pipeline operations of Chevron.

Chevron used a combination of company and contract personnel to operate the Genesis Spar. On the morning of the incident there were approximately 50 persons on board (POB). Of those, there were approximately 12 personnel from Chevron and 38 from a variety of contractors, including Quality Energy Services, Inc. and Sparrows Group. Of the 12 Chevron personnel, positions included the Offshore Installation Manager (OIM); Health, Environment and Safety (HES); Field Coordinator; Electrician; Ballast Control Officer; Automation; and several Operators. The OIM was the person in charge (PIC) on the Genesis facility; followed by the Field Coordinator as second in command.

### **Quality Energy Services, Inc.**

Quality Energy Services (QES) is a contract company that provides wellbore, production, intervention, workover and plug and abandonment services to the offshore sector. At the time of the incident on the Genesis facility, QES personnel were onboard for workover operations that involved replacing the pack-off assembly, running production logging tools, running wellbore paraffin removal tools and installing live gas lift valves. QES routinely performed work at the Genesis Spar.

The four-man QES crew performed their activities during the night shift of 6:00 p.m. to 6:00 a.m. The crew consisted of a QES Supervisor, QES Operator and two QES Helpers. The Victim of this incident was one of the two QES Helpers.

In many of the interviews and documents provided to the Panel, the terms "wireline" and "slickline" were used to describe the same QES operations. For the purposes of this report, the Panel will use "slickline" to describe the operations performed by QES during the relevant time period.

### **Sparrows Group**

Sparrows Group (Sparrows) is a global provider of crane, equipment and lifting services and equipment that provided a contract Crane Operator on the Genesis Spar, specifically for slickline work. As discussed later in this report, a Sparrows Crane Operator was planning to assist the QES crew with crane operations related to their work when the incident occurred.

## **Background**

On April 17, 2019, Chevron noticed the A-14 tubing annulus was building pressure, indicating possible communication from the pack-off. Chevron began monitoring the issue and then contacted BSEE on April 24, 2019, to discuss the situation. Chevron then began a 30-day diagnostic period.

On May 6, 2019, Chevron notified BSEE that the pack-off was leaking. The leaking pack-off allowed pressure to travel from the tubing to the production casing. BSEE denied an alternate compliance request from Chevron, stating the diagnostic test conditions demonstrated the loss of integrity in the wellbore, and required Chevron immediately shut-in the well and submit plans that outline the corrective measures. The same day, Chevron submitted an application for permit to modify (APM) to repair the casing pressure issues on the A-14 Well. The APM, approved on May 8, 2019, described the remediation procedure to replace the leaking pack-off and install gas lift valves.

## **Description of Activities**

Chevron's approved procedure to correct the casing / tubing communication required through wellbore tubing access using slickline equipment. During slickline operations, crews run a thin cable into a well to place and recover wellbore equipment such as plugs, gauges and valves; adjust valves and sleeves located downhole; or repair tubing within the wellbore.

The procedure for these activities included: rigging up equipment to the A-14 Well, performing pressure verification test of the pressure control equipment, pulling the pack-off assembly, running production logging tool(s), installing a new pack-off assembly, performing pressure verification testing to ensure no tubing / casing communication, and installing live gas lift valves.

The QES crew would need to gain access to the A-14 Wellbore and rig up equipment with support from the Sparrows Crane Operator, Chevron and contractor personnel. This should include barricading around the A-14 Hatch on the Drilling Deck then removing the A-14 Hatch Cover, located vertically above the A-14 Well Jacket. They would need to remove the A-14 production flange from the well jacket, located under the Drilling Deck. With the hatch cover out of the way, a crane operator would lower a riser through the A-14 Hatch opening to attach to the A-14 Well at the jacket. Scaffolding and pollution control equipment would be built around the hatch opening on the Drilling Deck to allow for the crew, in conjunction with the Crane Operator, to install the pump-in sub, the slickline blowout preventer (BOP) valves, and the lubricator assembly. The crew would rig up additional equipment to allow for the operations to begin.

With all the slickline equipment rigged up to the A-14 Well, the QES Supervisor, QES Operator and QES Helpers would perform much of the permitted well activities from the Drilling Deck. These activities included replacing the pack-off assembly, running production logging tools, running wellbore paraffin removal tools and installing live gas lift valves.

Upon completion of work on the A-14 Well, QES planned to work on the A-4 Well. To do so, they needed to rig down and transfer the equipment from the A-14 Well to the A-4 Well and perform similar rig up activities as described for the A-14 Well.

The slickline operations took place at night in order to accommodate for other operations during the day. There was no anticipated work to be performed on the near-by A-13 Well.

## **Incident Timeline**

### **Pre-Incident History**

A four-man QES crew, along with a Sparrows Group (Sparrows) Crane Operator, arrived on the Genesis facility on May 13, 2019. The QES crew consisted of a QES Supervisor, QES Operator, and two QES Helpers. The Victim had not yet arrived on the facility.

The slickline operations required crane support, so the QES employees worked as a team with the Sparrows Crane Operator to perform the slickline operations. The East and West Cranes, located on opposite sides of the Well Bay Area, functioned to assist the team. The boom for each crane was equipped with lights, providing extra illumination for the QES crew to work at night.

On May 13 and 14, 2019, QES rigged up equipment to perform slickline operations on the A-14 Well. A Chevron-contracted construction crew installed a barricade around the well hatch on the Drilling Deck. Two QES Helpers removed the A-14 Hatch Cover and placed it on the Drilling Deck, off the Well Bay Area (see Figure 3). The QES crew installed the riser and pollution control equipment.

Between May 13 and May 31, 2019, the QES slickline crew replaced a pack-off assembly in the A-14 Well in order to isolate the casing / tubing communication. The crew also installed gas lift valves in the A-14 Well. They worked strictly night operations in order to negate simultaneous operational hazards caused by the Genesis welding crew working during the day.

On May 31, 2019, the crew began rigging down the equipment on the A-14 Well. The crew removed the slickline blowout preventer (BOP) from the riser on A-14 Well. Additionally, the QES crew mobilized slickline equipment on deck to prepare for work on A-4 Well. This included cleaning the work areas and preparing for riser removal on their next shift.

One of the QES crewmembers, who had been working as a QES Helper, was sent to shore for a medical evaluation on the morning of May 31, 2019. Therefore, the QES crew only consisted of three members (QES Supervisor, QES Operator and QES Helper) on the night shift from 6:00 p.m. on May 31 to 6:00 a.m. on June 1, 2019. To replace the QES Helper that was sent in, the Victim was sent to the Genesis facility to assist with the slickline operations.

The Victim arrived on the Genesis facility at approximately 6:20 a.m. on June 1, 2019, which was around the time the onboard QES crew was finishing their shift from the previous evening. QES personnel indicated the QES crew got plenty of rest. The QES crew woke up at approximately 4:30 p.m. and prepared to start the night shift. The crew proceeded to the galley to eat prior to going to the safety meeting.

### **Pre-Shift Job Safety Meeting**

At approximately 5:30 p.m., a Chevron Night Operator, the QES crew, the Crane Operator, and other personnel conducted a Pre-Shift Job Safety Meeting. Interviews and documentation indicated the meeting focused on working safely, hazard identification and incident prevention, including topics such as: the safety hazards and fall protection required while moving the riser from the A-14 to the A-4 Well Jacket; the hazards while working around the lubricator; the lubricator pressure hazards; the spill hazard of trapped fluids in the lubricator during bleed off; fall prevention procedures relevant to scaffolding; inspection of life saving equipment; location of anchor points for safety harness lines; Fall Rescue Plan;

and Fall Prevention Checklist. During the Pre-Shift Job Safety Meeting, there was as no mention of installing the A-14 Hatch Cover back to its original position covering the A-14 Well Hatch.

The QES Supervisor requested and received two Chevron Permits to Work (PTWs). One was for crane operations working with QES slickline, lubricator and staging equipment, and the other for slickline operations on the A-14 Well. The QES Supervisor assigned the Crane Operator to manage control of work for the crane operations, and the QES Operator to manage control of work over the slickline operations.

The QES crew engaged in an additional safety discussion with the production crew, which included the exposure risk from picking up the riser onto the Drilling Deck. After the safety discussions, the group went to work for their shift from 6:00 p.m. to 6:00 a.m.

### **Work started for night crew**

Shortly after the shift began, the crane operator, while operating the facility crane, removed the scaffolding around A-14 Well Hatch and placed it by the A-4 Well Hatch. A 42-inch tall yellow hard barricade was then installed around the A-14 Well Hatch. At around 7:00 p.m., QES started purging the riser on the A-14 Well. The purging process included pressuring the riser with nitrogen, holding for approximately 15 minutes, then bleeding off the system. The QES Supervisor described that this process was done at least three times and until no contaminants could be observed during the bleed off period.

At approximately 9:00 p.m., the crew successfully completed the riser purge and prepared the riser to be lifted. Next, the Crane Operator brought the East Crane boom over the A-14 Well Hatch and latched onto and lifted the riser through the A-14 Hatch and above the Drilling Deck. The crane transferred the riser across the deck, and safely rested the bottom riser flange in a corner on the top deck. With the riser lifted out of the way, the QES crew worked at the A-14 Well Jacket location under the Drilling Deck to safely install the A-14 Production Flange and turn the well over to the Chevron Production Operators.

With the riser removed, the A-14 Well Hatch became a three feet diameter opening with barricades surrounding the perimeter. The hatch cover was not placed on the A-14 Well Hatch but instead remained laying on the Drilling Deck outside the Well Bay Area on the west side and adjacent to the A-14 Well Hatch (see Figure 3).

In order to run the riser through the A-4 Well Hatch, the QES crew removed the A-4 Well Hatch Cover earlier in the shift. Like the A-14 Hatch Cover, the A-4 Hatch Cover was placed onto the Drilling Deck and outside of the Well Bay Area; this time adjacent to the A-4 Well Hatch.

The East Crane safely maintained control of the riser as the crane rested a portion of the riser weight on the top deck. The QES crew then moved from the A-14 Well Jacket area to the A-4 Well Jacket location. This included moving the necessary fall protection equipment over to the A-4 Well Jacket and removing the A-4 Production Flange.

The QES crew then moved away from the A-4 Well Jacket while the Crane Operator lowered the riser down through the A-4 Well Hatch to the A-4 Well. The QES crew then connected the riser flange to the top of the A-4 Well Tree.



Once the riser had been run and connected to the A-4 Well, the QES crew needed to attach the pump-in-sub and slickline BOP to the riser. Since the riser extended above the Drilling Deck, the QES crew required scaffolding and pollution control be built surrounding the A-4 Well Hatch on the Drilling Deck. The scaffolding allowed for access to the slickline pressure control equipment installed above the riser.

Installing scaffolding was a responsibility of the contract construction crew on the Genesis. Therefore, QES took an early break while the construction crew installed the scaffolding and pollution control equipment around and over the A-4 Well Hatch.

The construction crew then notified the QES Supervisor when they completed the scaffolding. With the A-4 Hatch Cover removed, the scaffolding and a drip pan installed around the riser then served to protect the crew from open hole hazards on the A-4 Well Hatch. See Figure 3 for the approximate locations of the relevant items and structures.

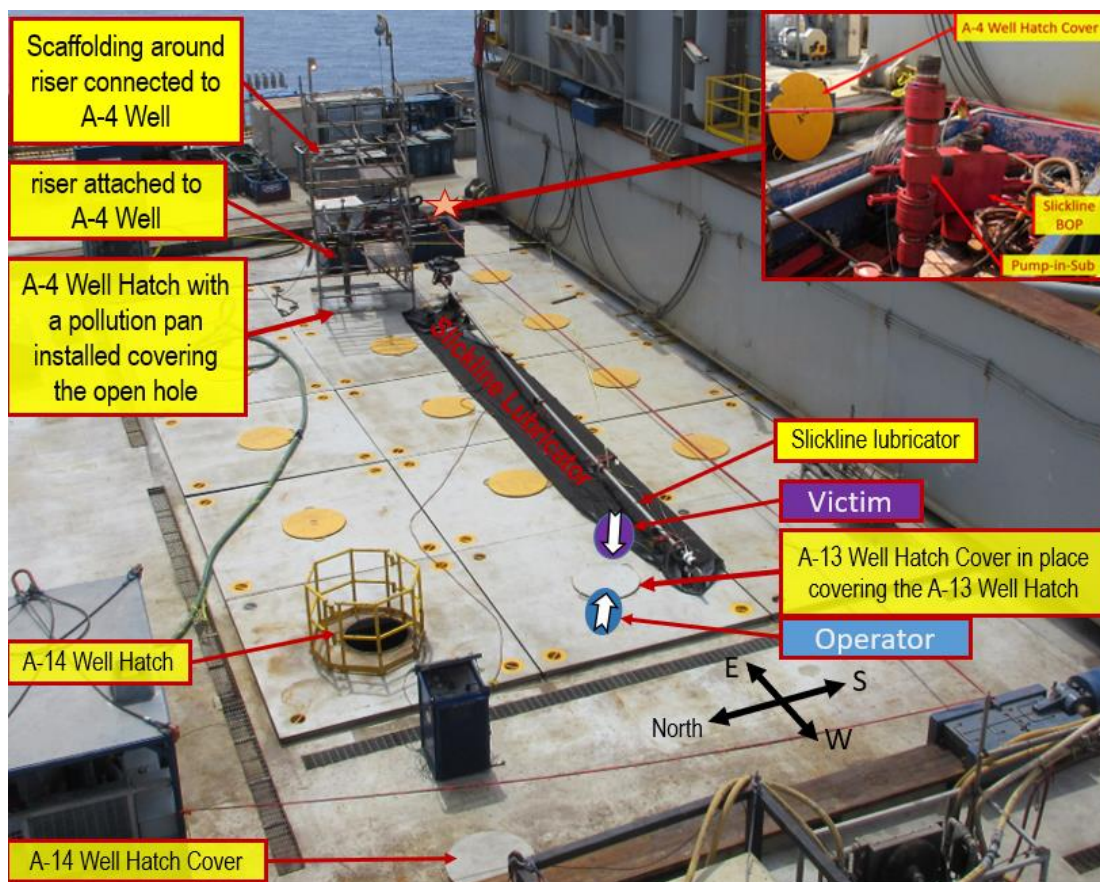


Figure 3: Well Bay Area and surrounding area (June 4, 2019)

### Pre-Job Safety Meeting and Pre-Job Tailgate Talk

Just after the break, the QES crew had a job safety discussion about the future work. The QES Supervisor reviewed the next job tasks with the QES Operator, QES Helper, and the Victim. Until this point, the operational tasks were performed safely and, according to the QES Supervisor, ahead of schedule.

The QES Supervisor reviewed the remaining job task procedures with the QES crew in the team room, which included removing the lifting cap from the riser, making up the slickline BOP rams to the pump-in-sub with crane assistance, making up the slickline BOP/ Pump-in-sub to the top of the riser with crane assistance. The QES Supervisor had to contact another supervisor with QES on a different Chevron facility, so he was going to stay inside when the rest of the crew went out to the deck.

The Crane Operator was not present at this meeting, so the QES Supervisor told the QES crew to review the job tasks with the Crane Operator prior to the operation. In the post interview discussion, the QES Supervisor remembered telling the QES crew at the safety meeting “Well, just tell him (referring to the Crane Operator) we’re gonna go make the two lifts...” and “We’ll be done for the night.”

After the safety discussion with the QES crew, the QES Operator, QES Helper and Victim went to the smoke porch to hold a tailgate meeting to review and discuss the job tasks and upcoming operations with the Crane Operator. The QES crew members reviewed with the Crane Operator the two lifts that needed to be made. According to all accounts, the topic of re-installing the hatch cover on the A-14 Well Hatch was not discussed in either the safety meeting or tailgate meeting.

### Work commences on Well Bay Area

With a job scope of rigging up the pump-in-sub and slickline BOP’s on the riser attached to the A-4 Well, the QES Operator, QES Helper and Victim began walking toward the A-4 Well Hatch. They all took a path to this location which included walking onto the Well Bay Area from the west to east. A camera installed on the West Crane Boom positioned above the Well Bay Area recorded the QES crew (see figure 5). They walked between the barricade on the A-14 Well Hatch (to the north) and the lubricator that had been laid down just south of the A-13 Well Hatch (see Figure 4, from the approximate vantage point of QES personnel as the crew walked from the smoking area to the Well Bay Area). They all walked past the A-13 and A-14 Well Hatches, seemingly each stepping on the gray A-13 Hatch Cover which was covering the A-13 Well Hatch. The QES Helper also seemed to step on the yellow painted A-18 Hatch Cover.



Figure 4: Eye-level view of Well Bay Area (facing east)(June 4, 2019)



The QES Operator and the Victim stopped near the barricaded A-14 Well Hatch, which was a few steps past the A-13 Well Hatch, while the QES Helper continued to the scaffolding that had just been built around the A-4 Well Hatch. The QES Operator and Victim stood facing each other and spoke in that location for approximately 23 seconds. The QES Operator described during the post incident interview that the Victim asked him if he wanted to put the hatch cover back on the A-14 Well Hatch; to which the QES Operator agreed.

Without realizing the A-14 Hatch Cover was located off the Well Bay approximately 15 ft away from the barricaded A-14 Well Hatch to their northwest, the QES Operator and Victim then took a few steps and stood on opposite sides of the A-13 Well Hatch Cover (see Figure 5). Mistakenly thinking the A-13 Well Hatch Cover was the removed A-14 Hatch Cover, the QES Operator, identified by the **Blue circle** (see Figure 3), stood to the north side (closer to the A-14 Well Hatch) and the Victim, identified by the **Purple circle**, stood to the southeast (adjacent to the lubricator) to position themselves to pick up the hatch cover.

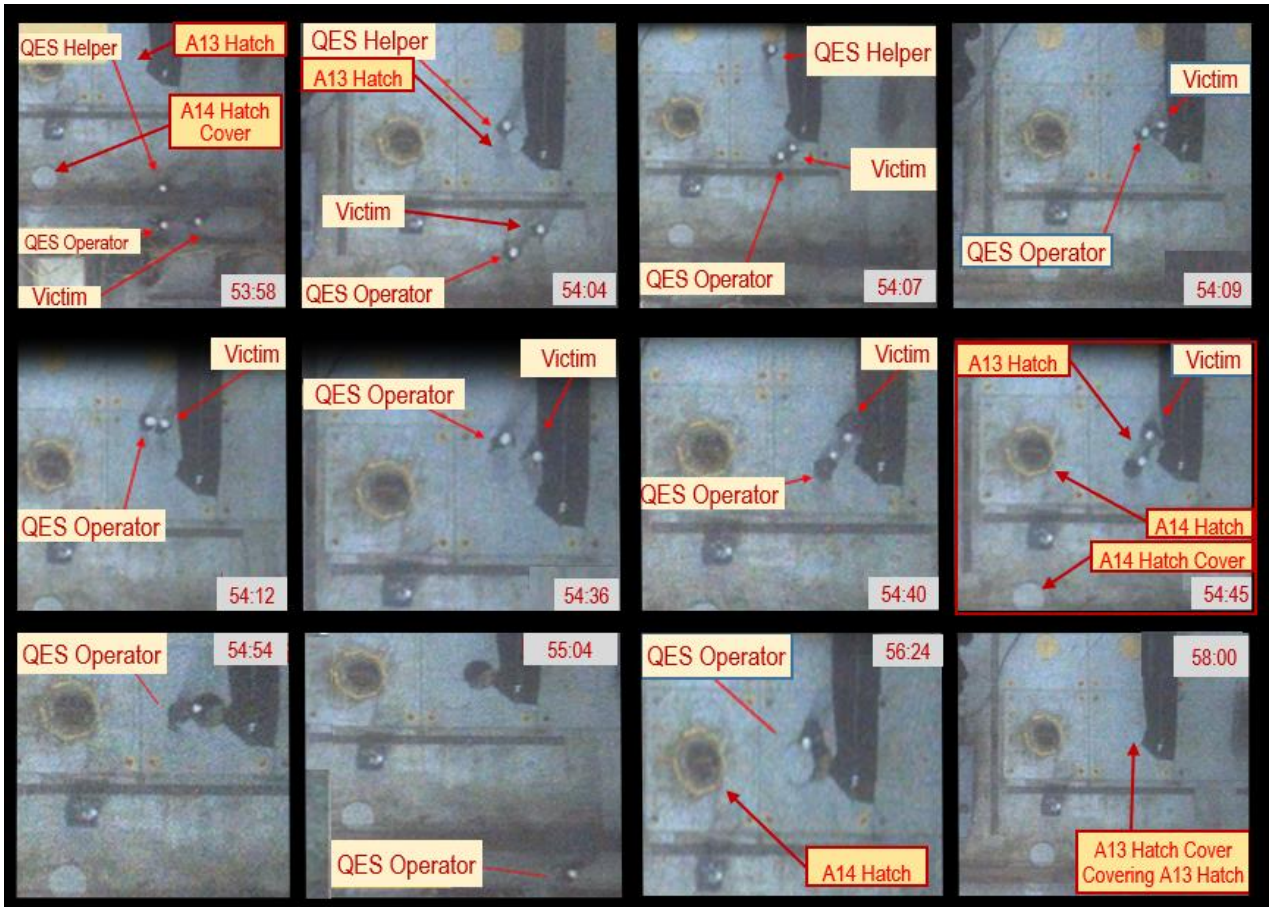


Figure 5: Still images of the Genesis camera located on the West Crane Boom (June 1, 2019)

Note: The camera video count (minute: second) started when the boom lights turned on (~ 9:55p.m.).

At approximately 10:49 p.m., the QES Operator and the Victim crouched down and lifted the A-13 Hatch Cover. The QES Operator described that he picked it up to where he was able to look towards the A-14 Well Hatch, and when he saw the actual A-14 Hatch Cover, he yelled. However, by the time he noticed their situation and yelled, with the intention of moving toward the A-14 Well Hatch, the Victim had already taken an initial step into the A-13 Well Hatch. This action caused him to fall



through the open hole, landing on Deck 10 approximately 90 feet below. See Figure 5 for images of these actions from the camera located on the boom of the West Crane.

## Incident Response

At the time of the incident, the QES Helper stood with his back to the Victim on the scaffolding deck while removing the lifting cap on the riser attached to the A-4 Well. He then heard the QES Operator calling for him from across the Well Bay Area, who told him the Victim had fallen. The QES Helper told the QES Operator to notify the QES Supervisor. The QES Helper then ran to look down the A-13 Hatch (see Figure 6).

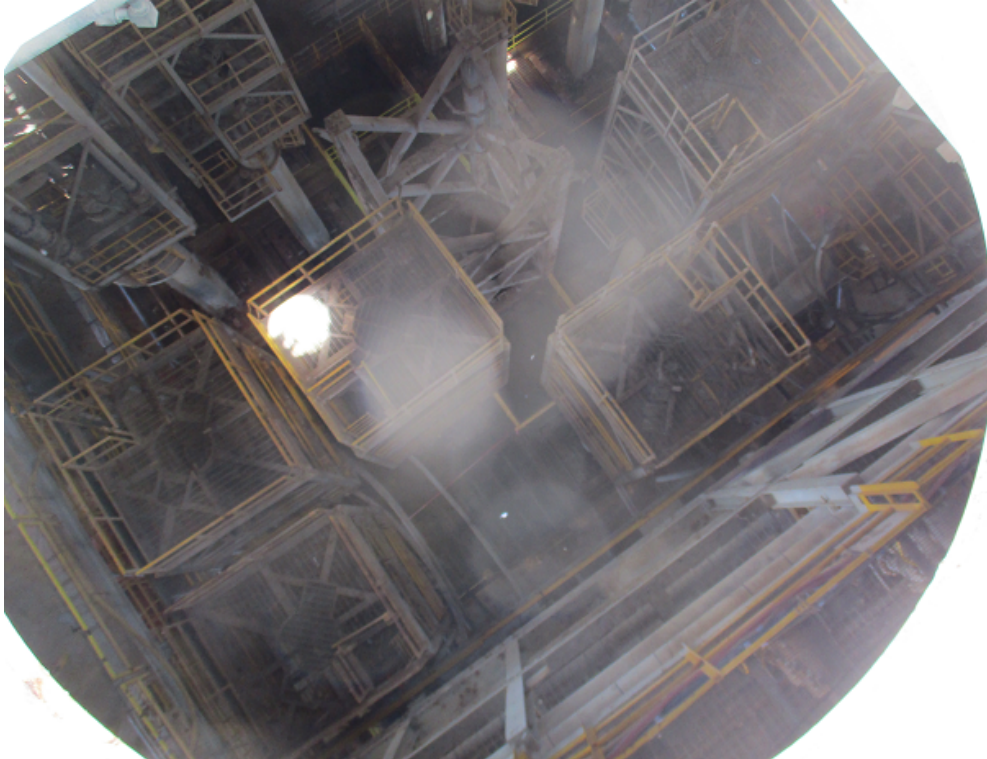


Figure 6: Viewpoint looking down A-13 Hatch to Deck 10 (June 4, 2019)

To aid the Victim, the QES Helper ran downstairs to Deck 10 and became the first person to reach the Victim. The QES Operator radioed the QES Supervisor to meet him on the west smoke porch, where he was informed of the incident. The QES Supervisor then notified the Chevron Control Room Operator (CRO), while also contacting the QES Helper via radio.

After informing the QES Supervisor of the incident, the QES Operator then returned to the Well Bay and covered the open hole created when they picked up the A-13 Well Hatch Cover – potentially preventing another person from falling through (see Figure 5 at 56:24).

The CRO contacted the Chevron Deck Operator to find the Victim, who reported back that the Victim had fallen to Deck 10. The CRO said he attempted to page the emergency responders but got no response, so he sounded the platform alarm. The alarm prompted the Genesis responders to report to the control room and then to the Victim's location. Other personnel reported to muster stations, including the QES Operator and Crane Operator.

The Genesis Emergency Response Team (ERT) of emergency medical responders arrived on scene at the Victim's location at approximately 11:05 p.m. The control room also began contacting a medevac and an on-call doctor onshore. The emergency responders assessed the situation and identified that the Victim was non-responsive, had no pulse and no respirations, as well as significant visible injuries. They began and continued resuscitation efforts while communicating with the control room and the onshore doctor.

Chevron's Medevac Summary indicated the call for medevac was received at approximately 11:05 p.m. and an aircraft was immediately available. The mission was approved, and the helicopter departed from shore at approximately 11:26 p.m.

The ERT's resuscitation efforts were not successful. At 11:47 p.m. the onshore doctor instructed ERT to stop resuscitation efforts. The medevac arrived on the facility at approximately 12:12 a.m. on June 2, 2019 with additional support. After notifying the USCG of the incident and getting permission to move the Victim, the platform crane then lifted the Victim to an area where he was loaded onto the medevac. The medevac spent two hours and 18 minutes on the facility to attend to the incident, the Victim, and his belongings, before departing at approximately 2:30 a.m. The medevac arrived at West Jefferson Hospital at approximately 3:35 a.m.

Chevron's night shift Control Room Operator notified the BSEE Houma District about this incident on June 1, 2019 at approximately 11:58 p.m. BSEE informed Chevron to preserve the scene until BSEE investigators arrived on location. BSEE investigators arrived on the Genesis platform on June 2, 2019, where they gathered documents and conducted initial interviews and scene documentation.

## BSEE Investigation & Findings

A BSEE Panel was convened to conduct a full investigation. Panel members traveled to the Genesis facility to complete documentation of the incident location and speak to platform crewmembers. The BSEE Panel reviewed electronic and written material, conducted interviews of personnel and observed the operation of relevant activities.

### Well Bay Area

The Well Bay Area discussed in this report describes a five by five grid of 25 deck plates approximately 11'9" x 11'9" in size located on the Drilling Deck of the Genesis facility. In order to enter the Well Bay Area on their route from the smoke porch, QES personnel had to first step over an approximately 14-inch skid beam, then walk a few paces before stepping over drainage grating and up a four-inch elevation onto the deck plates. The QES Operator and Victim followed this route just prior to the incident on the evening of June 1, 2019.

The exposed Well Bay Area where the QES crew was working was laid out with 15 square deck plates. The deck plates covered the entire well slot. The heavy deck plates required a crane to lift and included a pad-eye in each of its four corners to facilitate lifting utilizing a 4-part sling. Ten additional deck plates with hatches and hatch covers laid behind the drilling skid on the south side of the Well Bay Area.

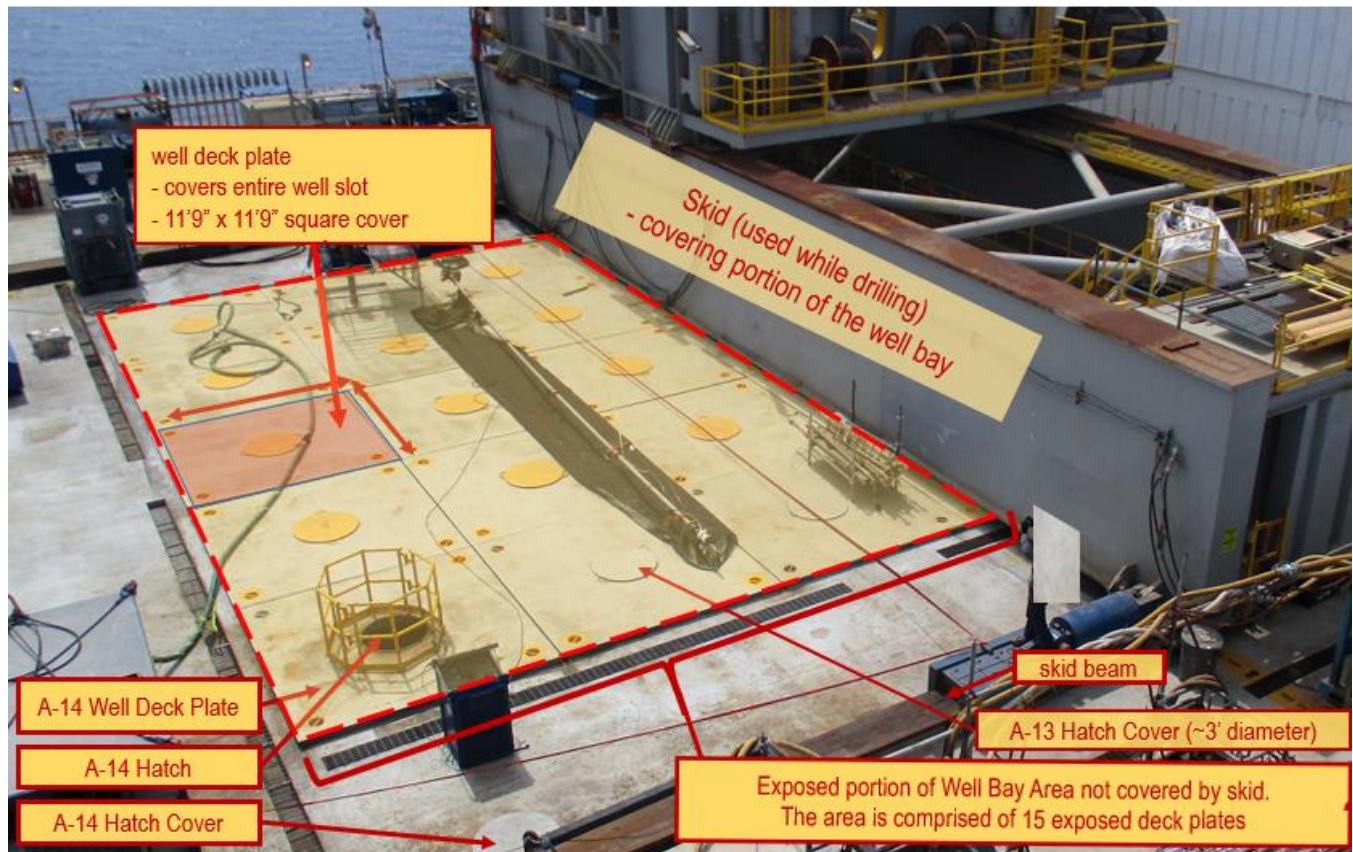


Figure 7: Overhead view of Well Bay Area (facing east) (June 4, 2019)

On each deck plate was a well hatch opening (well hatch). Each hatch was covered by a hatch cover. All the deck plates had one hatch and one hatch cover. None of the plates had a hatch cover that



did not have a well opening underneath. All the hatches and hatch covers were in the center of each deck plate.

There were no hatch covers in the exposed Well Bay Area laying on top of another hatch cover or on the deck plates without laying on a well hatch. The only hatch covers that were removed in the exposed Well Bay Area at the time of the incident were the A-4 and A-14 Hatch Covers, both of which had been moved to outside of the Well Bay Area to the east and west of their respective well hatch while work was being done.

Other than the 14-inch skid beam, there was no physical barrier to prevent personnel from walking into the Well Bay Area.

The Panel believes the lighting on the deck at the time of the incident was adequate based on interview statements from QES, Chevron, and Sparrow personnel and video footage on the night of the incident. The video taken on the night of the incident indicated the Well Bay Area was sufficiently illuminated with the overhead crane lights. Based on interviews with the personal working on the facility at the time of the incident, Well Bay Area lighting was not an issue.

### Hatch Covers

The diameter of the circular well hatch openings (well hatch) spanned approximately 36-inches from its inner edges. The round hatch covers were slightly larger than the well hatches, so they would not fall through the hatch. The hatch covers were approximately 0.25-inches thick.

In order to keep the hatch covers from sliding on the deck plates of the Well Bay Area, the underside of the hatch covers had a two-inch tall metal frame that fit inside the approximate 0.75-inch lipped edge of the well hatch (see Figure 8). The metal frame was welded to the underside of the circular cover in an 'X' pattern.



Figure 8: hatches and hatch cover (June 4, 2019)

The topside of the A-13 Hatch Cover that was sitting over the A-13 Hatch was approximately one-inch above the deck. The topside of the A-14 Hatch Cover laying on the deck plate was approximately 2.25-inches above the deck. Therefore, the hatch cover laying only on the deck plate was approximately 1.25-inches higher than the one that was covering the A-13 Well Hatch. In neither case would the hatch cover be flush with the deck. Each hatch cover had two handles, one on either side, to assist with lifting (see Figure 9).

Figure 9 (below) shows the difference in these heights off the deck plates for demonstration. It is important to note they were not next to each other like this on June 1, 2019. As shown in Figure 9, the visible difference between a hatch cover covering a hatch vs. laying on the deck may not be obvious to personnel walking by.

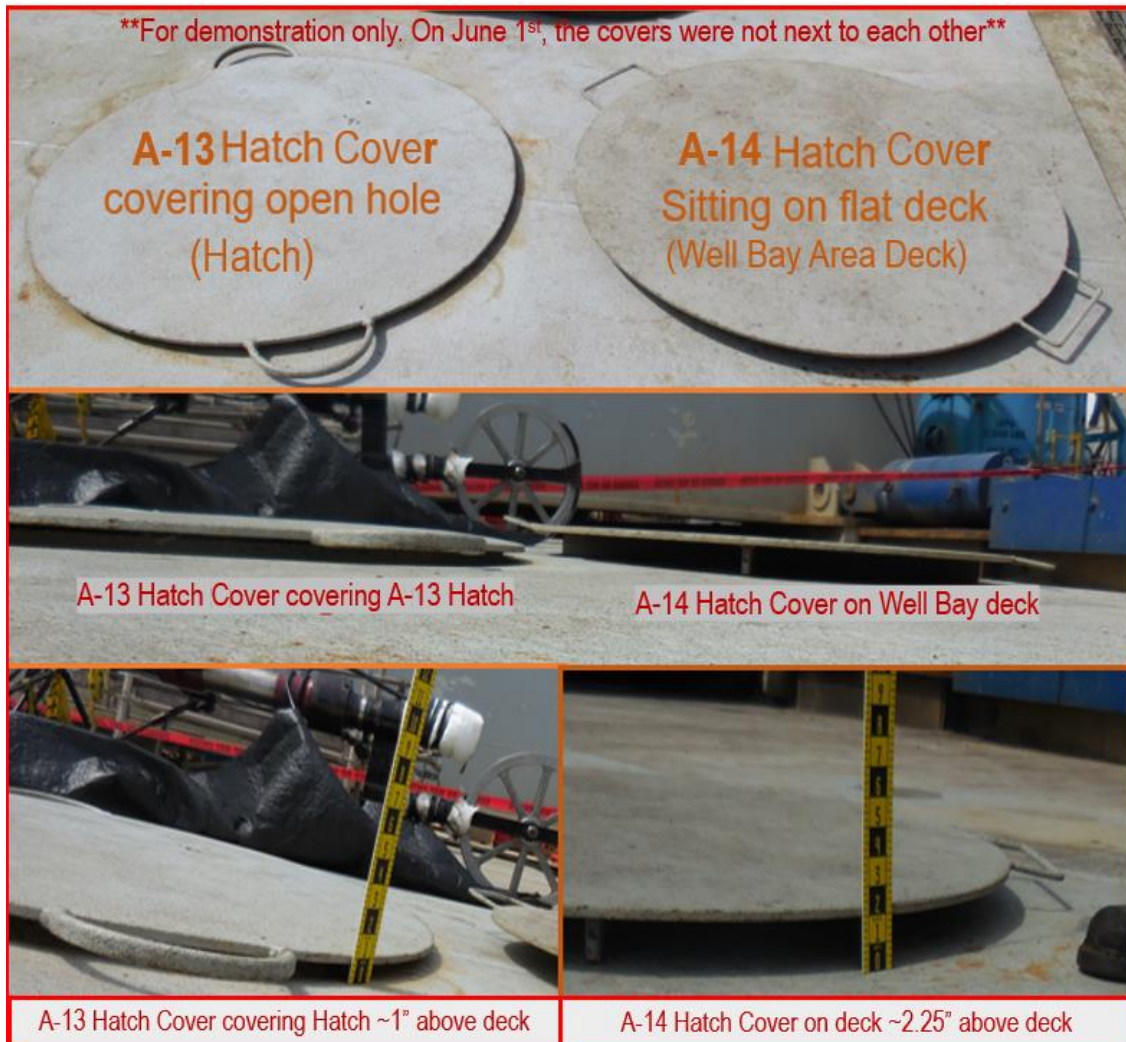


Figure 9: Hatch cover on hatch (left) and hatch cover on the Well Bay Area Deck (right) (June 4, 2019)

The QES Operator described that he thought there was a gap underneath the [A-13] hatch cover that sometimes indicated to them it was sitting on a solid metal deck and not an open hole, so they could pull the hatch or pick it up.

The hatch covers were not physically secured to the deck plates, as there were no substantial physical barriers to prevent personnel from lifting them. Except for the welded frame on the underside of the hatch covers to prevent them from sliding out of place, none of the hatch covers had extensive physical barriers to prevent personnel from moving them. The weight and size of the hatch covers rendered them difficult, but not impossible, for a single person to lift. Two people could lift one hatch

cover without significant effort. Based on post incident discussions with Chevron representatives, the hatch covers, and deck plates were held down by gravity alone.

## **Hatch Cover Identification**

There is no regulatory requirement for the lease holder to label the hatch covers located on the Drilling Deck of the Genesis facility. They did not need to be a specific color, nor did they need to be numbered to correspond with the relevant well or slot number. However, the Panel believes the absence of labeling played a significant role in the incident.

Most of the 15 hatch covers in the exposed area of the Well Bay Area on June 1, 2019 were painted yellow, but three covers remained gray. Personnel indicated the drilling skid was located overtop of those wells when the other covers were painted yellow and they intended to paint the remaining hatch covers yellow when the skid was moved, but they had not gotten to it yet at the time of the incident.

Of the three hatch covers in the exposed Well Bay Area that remained gray, two were the A-13 and A-14 Hatch Covers. In fact, the A-13 and A-14 covers were nearly identical. The only noticeable differences were that the A-14 Hatch Cover had a slightly dirtier appearance and squared off handles, whereas the A-13 Hatch Cover had rounded handles (see Figure 9).

Out of the 12 yellow hatch covers, four were also painted with their corresponding well number in black, including the A-4 Hatch Cover that was removed earlier on June 1, 2019; and the A-5 Hatch Cover, which was the slot immediately to the east of A-14. Chevron intended to paint the hatch covers yellow and put labels on the covers, but the three gray covers never got painted. Neither the A-13 nor A-14 Hatch Covers had been painted with their corresponding well numbers or contained any other type of identification for their corresponding well numbers.

In addition, all the deck plates in the Well Bay Area were gray, matching the same general gray color as both the A-13 and A-14 Hatch Covers. This appeared to also be the same color paint used on the majority of the Drilling Deck, including where the A-14 Hatch Cover was located at the time of the incident. The similar gray colors of the hatch cover and the Drilling Deck and deck plates could potentially make a hatch cover laying on the Drilling Deck out of the way less likely to be noticed.

Further, none of the deck plates had a well number or any other identification on them to indicate the corresponding well or slot number. Without identification on the hatch covers and deck plates, there was no obvious means to connect a specific hatch cover to a corresponding hatch opening.

In speaking with the QES Operator, who picked up the A-13 Hatch Cover with the Victim, he described how the A-13 and A-14 Well Hatch Covers had no numbers and were the exact same color; so he thought the hatch cover they picked up (the A-13 Hatch Cover) was for the A-14 Hatch.

The QES Operator explained that if the hatch cover would have said "13," he would have never pulled it and he was pretty sure the Victim would have never touched it. He said he would have realized they just got off the A-14 Well, they should not mess with the A-13 Hatch Cover, and they would find the A-14 Hatch Cover. He continued to explain that if the hatch cover would have said A-13, he knew

for a fact he or the Victim would have never touched it; and if the Victim would have tried to grab it, he would have stopped him.

The A-13 Well Hatch was the access point for the GC 205 007 well, which was permanently abandoned in 2017 and no longer an active well. There were no markings or other indications to display the well in this opening had been abandoned; nor was there any physical barrier to prevent access to the abandoned well hatch on the Drilling Deck. The A-13 Well Hatch cover was not physically secured to the deck plate; nor were any of the other active or inactive wells on the Drilling Deck.

In addition, while not believed to have caused the incident, well terminology for the hatches in the Well Bay Area was not clear on the Genesis platform. On one diagram alone, located in the room where some pre-job discussions took place, the BSEE Panel identified that a single well opening could be identified in three different ways. In the case of the A-14 Well Hatch, it was identified on this diagram as Q 1, Well #9 and A-14. While onsite, BSEE Panel members recommended Chevron choose a consistent way to identify the wells.

## **Procedures for Removing and Installing the Hatch Cover**

Chevron's post incident investigation report indicated there no written procedure for manipulating hatch covers, but QES had a practice that no hatch cover was removed or replaced without a protective barricade in place. QES Personnel indicated the standard practice also included supervisory oversight and a verification step to confirm that there were no personnel below the deck.

QES's Health, Safety and Environmental Manual described basic safety rules applicable to all jobs. Among those, was that prior to beginning operations, a competent person shall identify, correct, and/or remove potential unsafe conditions. Manholes and open hatches were included as posing potential hazards. The only QES documentation provided regarding policies and procedures for QES personnel on the Genesis facility relating to the removal, storage and installation of hatch covers at the time of the incident was a statement in their un-dated Standard Operating Procedure (SOP) for *Rigging Up Drilling / Workover Rig Operations*, which indicated, "Remove the grating hatch (cover) over the wellhead. Then install barricade tape around open hole."

The Panel finds it important to note the difference between a grating hatch, which due to its open latticed design might allow personnel to see through it, and the hatch covers on the Drilling Deck of the Genesis facility that were solid metal and on a solid metal deck. The significance of this difference being that personnel may be able to see through and identify an open hole, or lack thereof, under a grating hatch even before picking it up, as opposed to a solid metal deck that did not allow personnel to see through prior to lifting or moving.

None of the QES personnel interviewed described either a Chevron or QES written policy or procedure for removing, installing, placing or storing well hatch covers. Instead, they generally described doing what was safer and easier, and learning the process through on-the-job experience such as from watching people do it and doing it themselves. The QES Operator said everything just followed the JSAs, which described the rigging-up process. He described that they would just talk about it and go from there.

In speaking with the QES crew, they described slightly different processes for removing a hatch cover from a well hatch. From all accounts they described first placing a barricade or scaffolding around the well hatch before the hatch cover was removed, and some mentioned tying a rope or strap to one handle of the hatch cover. There was no mention of installing barricade tape around an open hole, as described in the SOP, which would be insufficient as a physical barrier in protecting personnel from fall hazards.

Some QES personnel explained that while standing outside the barricade they would pull the rope or strap until the cover was vertical, then lift the hatch cover over the barricade and place it to the side. Other personnel indicated they would use the rope or just the handle to pull and slide the hatch under the barricade while another person lifted the barricade, or between the barricade's vertical poles. Some personnel also mentioned they would use the crane to move hatch covers occasionally. They indicated that they would reverse the process to install a hatch cover on a hatch.

To put the hatch covers on, the QES Operator said they would pick up the hatch cover together by each handle, walk it close to the barricade, throw a rope under the barricade and walk the rope around. One person would pull the hatch cover while the other lifted the barricade until the hatch cover fit in the hole. He said that once the actual hatch was sealed, they would remove the barricade, untie the rope, and then go to the job they were supposed to do.

## **Removed Hatch Cover Locations**

QES personnel described that there was not a procedure about where to put the hatch cover after it was removed and there was no designated spot they would put a hatch cover after removing it. They explained that they would pull them away from the well, out of the walkway to eliminate the trip hazard and out of walking distance to where they could rig up everything. The QES Operator indicated they would "drag it 5 feet away maybe. Just to where it's out the way to where nobody could trip over it." The OIM also confirmed that at the time of the incident they did not have a formal procedure or idea of where they would put a hatch cover once removed from a hatch.

The Operator and Victim could have seen the A-14 Hatch Cover when they walked into the Well Bay Area or from where they discussed replacing the hatch cover. However, they may not have been facing it at times or they may have had a partially obstructed view of where the actual A-14 Hatch Cover was located due to a blue QES control box that was adjacent to the A-14 Well (Figures 10 and 11).



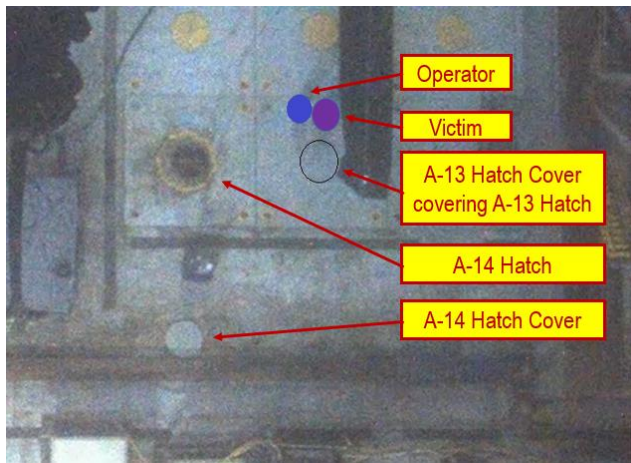


Figure 10: Operator and Victim speaking less than one minute prior to the incident (June 1, 2019) (location of A-13 Hatch Cover outlined by BSEE)



Figure 11: View of Well Bay Area from approximate location of A-14 Hatch Cover (June 4, 2019)

Neither the QES Supervisor nor Operator could recall who took off the A-14 Hatch Cover, each indicating it could have been them. However, information from Chevron indicated that the two QES Helpers (one of which had left the facility) removed the A-14 Hatch Cover and placed it off the Well Bay Area on May 13 or 14, 2019. The QES Operator mentioned that it had been 20-something days since they went out there and began working on the well, and they “kinda lost sight about everything, you know, about the well itself.” In looking at a post-incident picture of the facility, he said they knew they did not go anywhere near where the A-14 Hatch Cover was located because, “why would you drag it from way over there.”

Personnel indicated that hatch covers may be moved around throughout a job if they were in the way of other work. However, at least one individual believed the A-14 Hatch Cover was left in the location it was at the time of the incident since it was removed from the A-14 Hatch at the beginning of the hitch in mid-May 2019, and there was no indication otherwise.

Also, without a designated location to put it, after the A-4 Well Hatch Cover was removed on June 1, 2019 it was placed outside of the Well Bay Area on the east side – behind their equipment basket and leaning against a short barrier wall.

### **Covering the A-14 Well Hatch**

None of the interviews or documentation provided to the Panel indicated that covering the A-14 Well Hatch was discussed in their meetings, was part of the immediate job task/scope, was in the JSA or that the Operator or Victim was instructed to cover it before the incident occurred.

The QES personnel were just finishing a break and walking out to their work locations. While it

was not specifically identified as a job task, covering the A-14 Well Hatch was an activity that needed to get done at some point after completion of activities on the A-14 Well.

The QES Supervisor said they would have either gone to put the hatch cover on the A-14 Hatch with the crane or by hand. He said that once they got to that step, they would have discussed it to see what was better. He indicated that they tried to cover the hatches at a time where they knew where personnel would be located, like when Chevron took their break at 3:00 a.m., to mitigate the impact if something were to fall. The OIM also mentioned that if they were rigging up they cleared the decks below to make sure they did not have an issued if there were any dropped objects through the hatch.

The QES Operator described that they would talk about pulling hatch covers off a hatch prior to doing it, including talking with Chevron personnel. However, he said they did not follow the same process for putting hatch covers back on and did not have any real tailgate meetings about doing it. He indicated that covering the hatch was something they would normally talk about, but also not really because they were done with the well and already rigged onto the other well, and they would have had to start cleaning up the deck. He indicated that the QES Supervisor would not tell them to do it, he would just ask if everything was clear and secure. He explained that it was a routine thing that only took about five seconds, and they were going to have to cover up the hole anyway, so he agreed when the Victim told him they should just do it then so they did not have to do it later.

## **Permit to Work (PTW), Job Safety Analysis (JSA) and other documentation**

The QES Supervisor requested and received two Chevron Permits to Work (PTW). One was for crane operations working with QES [slickline], lubricator and staging equipment, which the Crane Operator signed as the person managing control of work. The other PTW was for slickline operations on the A-14 well, which the QES Operator signed as the person managing control of work.

A Job Safety Analysis (JSA) was completed for both the crane operations and slickline work, which each person involved signed to acknowledge they understood. Additional documents completed included a Lifting and Rigging checklist, Hot Work Permit, and Daily Non-Welding checklist. More documents included Working at Heights and Fall Prevention Checklists and a Fall Arrest Rescue Plan for climbing onto the well jackets under the Drilling Deck.

The JSAs displayed key job steps of:

### **Slickline Work**

1. Crossing over from platform to well jacket
2. Picking up and stabbing lubricator
3. Changing out slickline tools
4. Open & close valves on well
5. Blowing riser down
6. Testing riser and lubricator / high pressure testing and pumping meg down well.

### **Crane Operations**

1. Perform crane pre-use inspection;
2. Verify the size and weights of all lifts and attach the appropriate serviceable & approved stinger, lifting slings or other approved lifting devices according to the lift that is to be made to winch ball and ensure two approved tag lines are properly attached to each load;
3. Make static onboard lifts and/or dynamic lifts from DSC boat;
4. Remove all tag lines from loads to prevent trip hazards or entanglement, remove and properly stow lifting rigging equipment from crane ball and properly secure the crane; and
5. Fuel Cranes.

None of the job steps in the June 1, 2019 JSA for slickline work or crane operations specifically addressed the actions of removing a hatch cover, storing a hatch cover, placing a hatch cover or installing a hatch cover. Therefore, the JSA did not address the hazards or safeguards regarding those actions.

The job scope for the shift on June 1, 2019 was different from the operations they had been doing for the previous couple of weeks, since rather than conducting slickline activities on one well, this shift they would be moving equipment and operations from the A-14 Well to the A-4 Well. The job scope included purging, unbolting and transferring the riser from the well jacket to the top deck of the facility structure, preparing the A-4 Well, and then lifting, lowering and installing the riser on the A-4 Well; as well as removing the A-4 Hatch Cover and potentially installing the A-14 Hatch Cover. The QES crew would also be working on the well jackets which required wearing safety harnesses. The 40-plus foot riser suspended over the Well Bay Area added additional risks. The different operations on June 1, 2019 meant different tasks, and therefore different risks than on previous days. However, the key job steps, hazards and safeguards for these two JSA documents on June 1, 2019 were largely similar to those of the previous days.

The QES Supervisor discussed that the JSA form was the steps they went by almost every time, and if it changed, they would adjust and revise it. He said when they did the JSAs, it was pretty much the process and they talked about all of it even if they might not get to it, in order to cover their bases and discuss the potential of what they could do. He mentioned that at the time of the incident, the crew should have been on Step 2 of the JSA for crane operations, because they were doing crane operations.

QES personnel said the meetings on the evening of June 1, 2019 were about how they just got off the A-14 Well, they were getting on the A-4 Well, put on the BOPs and pump-in-sub, and get everything ready for the following day to wake up and go in the hole. There was no indication that the topic of covering the A-14 Well Hatch or picking up A-14 Hatch Cover was in the JSA or discussed during the meetings.

## **Attention to Task / Job Focus**

The Panel discussed with personnel the ‘Error Traps’ identified on the Prejob Safety Analysis Document checked for Individual Factors on the June 1, 2019 JSA, which included: stress, fatigue, distraction and fitness for duty. Personnel described that many of them had been offshore for a while and the Victim had just arrived, so they checked these items on the JSA so they would talk about them before they went to work as a precaution. The QES Supervisor expressed checking with the Victim about how he was doing, and he said he was good. The QES Operator said everybody felt “wonderful” and ready to go. The OIM also indicated the Victim was doing good before he started their shift.

The QES Supervisor described how he had a habit of using ‘three-way communication’, in which he would tell the crew what to do and have them tell it back to him to keep down the confusion and miscommunication. ‘Three-way communication’ as written on the Prejob Safety Analysis document is a Chevron recommended Human Performance Tool. The QES Supervisor said that after their break for the scaffolding to be built and before the tailgate meeting at the smoke porch, he had the QES Operator repeat back to him that they would be going to lift the BOPs, put it on the pump-in-sub and put it on the riser. They then went to the smoke porch and had the tailgate meeting with the Crane Operator.

In his initial interview, the QES Operator described that he and the Victim were finishing up a conversation about Disney World as they were walking over to the riser, prior to the Victim suggesting they pick up the hatch cover to move it to the A-14 Well Hatch.

The QES Operator said he guessed “we just both caught tunnel vision.” He continued to describe how in the tailgate meeting nothing was mentioned about pulling a hatch, setting a hatch or anything like that, it was just that they fell into that tunnel vision. He said they did not think that underneath the hatch cover could be a well. He said they should have picked it up and looked, but it was the same color, it was right by the well and they just picked it up. He indicated that it was an honest mistake, and showed they had to pay more attention to things like picking up hatch covers.

## Experience / Chain of Command

On the night of the incident the QES crew consisted of a QES Supervisor, QES Operator, and two QES Helpers, with one of the two QES Helpers being the Victim. The QES Supervisor position oversaw the QES crew and was the lead liaison between Chevron and QES slickline operations on the platform. In general, he would rely on the crew to perform much of the physical handling of slickline equipment. The QES Operator position carried out the direction of the QES Supervisor and served as a lead for the two Helpers.

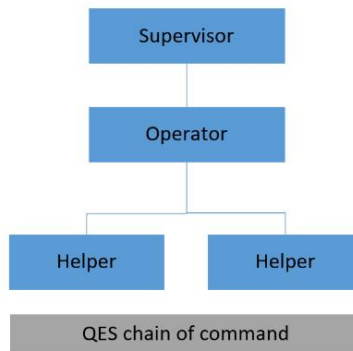


Figure 12: QES chain of command

The QES Operator had been working for QES since October 2017 and had been working in the oil and gas industry for over a year prior. He began working for QES as a Helper, and prior to the incident he had risen to the Operator position. He estimated he worked two jobs as an Operator prior to the incident, and the third was when the incident happened. He said it was his first time on Genesis as an Operator.

The QES Operator’s recollection and training certificates from QES described how he had taken several safety related trainings, including fall rescue. However, he also described that he had not received classroom training that was strictly [slickline]. He explained that there was no specific training for just the wireline / slickline itself. He said he had to physically hustle to understand things about wireline / slickline and he had the right co-workers to show him things; and he went to the shop to put his hands on everything and learn. He said QES supervisors and coworkers showing him things as hands-on or on-the-job training (OJT) was pretty much the only wireline / slickline training he had. He indicated he had not received any training on lifting hatch covers or tools, or how to use tools. He said they learned on the platforms as they went. He indicated he felt he was adequately trained.

The Victim had been working for QES since May 2016. He began working for QES as a Helper, but personnel described how he had also moved his way up to Operator. QES provided a number of trainings and certifications for the Victim, which included Well Servicing Wireline in March 2019.

The Victim was called out mid-hitch as a replacement to a QES employee who was sent in due to sickness. Therefore, while he may have worked as an Operator on other jobs, on the night of the incident he was working as a Helper. However, the Victim appeared to have more years of experience than the Operator, and the QES Operator described that the Victim had been his leader for a couple of months and he had always looked at him as his leader, so he agreed when the Victim suggested they go ahead and pick up the hatch. He said he had looked at the Victim as someone who had been doing this longer than him, so he could help him. He said that “you see somebody, you know, that’s been doin’ this longer than you, you’re gonna, you know, to look up for respect for them. And yes, sir, let’s get it.”

Interviews and documentation suggested that much of the work performed by the QES crew on the shift of the incident was on the well jackets, located below the Drilling Deck. Personnel were also advised to stay clear of the top deck due to the hazards associated with the overhead crane lifted riser load. Therefore, until the minutes before the incident, the Victim was not believed to have spent much time around the Well Bay Area on the Drilling Deck since the shift began and possibly since arriving on the facility that morning. However, personnel described that he had been on the Genesis platform before during previous hitches. The QES Operator indicated that the Victim was familiar with how things were done on the platform.

Multiple QES crewmembers described working with the Victim on Genesis and another Chevron facility a few times, so they believed the Victim was familiar with the facility. They described him as a safe worker. The QES Operator said he thought, that the hatch cover was for the A-14 Well because they were both gray and they were “right by the well.”

## **Work at Height**

Chevron had a standard for Work at Height, which was for work performed where there was a potential for a person to sustain injury by falling, including below ground level or in the course of gaining access or egress. Among other requirements, the standard discussed conducting a hazard analysis prior to conducting Work at Height and noted that fall protection was always required when working at heights of six feet and above. In addition, the standard stated that fall protection systems must be worn by workers when making an opening in a surface at height (e.g. decks, floor openings, etc.).

The A-14 Well Hatch was surrounded by a barricade at the time of the incident. The barricade, held down by gravity alone at that time, sat on the deck and did not lock or latch to the structure. Some personnel described that during certain activities they would strap or chain it down with extra straps. One individual indicated that the barricade was not strapped down at the time of the incident because they removed everything from it when they moved to the A-4 Well.

When installed properly, the heavy-duty barricade locked together was an effective way to mitigate the risk of open hole fall hazards. When performing activities outside of a properly secured barricade, personnel would not require fall protection equipment.

There was no indication that the QES Operator or Victim were aware they would be creating an opening in the surface when they picked up the hatch cover. Instead, they thought it was the A-14 Hatch Cover laying on the deck. Had they recognized the cover was over a hatch opening, they could and should have followed the requirements of the Work at Heights Standard.

## Conclusions

The purpose of this investigation report is to identify the probable cause(s), the contributing cause(s) and the contributing factors that led to the incident that resulted in a fatality on the Genesis Spar. In addition, it includes recommendations on how to strengthen implementation of existing safety and environmental management systems. Ultimately, these recommendations will assist in preventing a similar incident from occurring.

For the purpose of this report, the Panel defines the incident which resulted in a fatality as the removal of the well hatch cover and the victim falling through the newly created open hole. The conclusions reached by the BSEE Panel are based on the observations made during the investigation, interviews conducted, and a review of documentation collected from Chevron, Sparrows, and QES.

### Probable Causes

BSEE investigation team followed the BSEE National Investigations Handbook's definition of probable causes as those actions, events, or conditions that: a) Would have prevented the incident event from occurring, if corrected; b) Contributed significantly to the incident; and c) Have the most compelling supporting evidence as to both existence of the cause and the degree of its contribution to incident. The Panel identified the following as probable causes of the incident.

- **Lack of situational awareness while picking up hatch cover.**

The Panel believes the QES Operator and Victim had the knowledge and experience to recognize the potential hazards of picking up the hatch cover while in the Well Bay Area, however, they did not demonstrate situational awareness at the time of the incident. The QES Operator described it as a "tunnel vision." This lack of situational awareness was evident in the way the Victim and QES Operator picked up the hatch cover without verifying the hatch cover was not covering a well hatch. Further, the way the hatch cover was moved gave the victim no way to ensure a hazard-free walking path.

The Panel concluded the QES Operator and Victim lacked situational awareness when they stood in the Well Bay Area yet seemingly failed to recognize that the hatch cover they chose to pick up was the wrong hatch cover and was covering a hatch opening. Thus, also seemingly failing to recognize the open hole hazard if the hatch cover was removed.

- **Lack of physical barrier installed to mitigate the risks introduced by inadvertently removing the hatch covers.** The size and weight of the hatch covers on the Genesis facility left them capable of being manually removed from hatches by personnel without the assistance of lifting devices, which could create potential open hole hazards. The hatch covers had no hard barrier or locking devices to prevent inadvertent removal of those hatch covers.
- **Performing activities outside the scope of work without an effective hazard analysis.** While on the Well Bay Area the QES Operator and QES Victim made a spontaneous decision to perform a job task outside the scope of work discussed by their Supervisor and in their tailgate meeting immediately preceding the incident. If the QES workers continued to the A-4 Well to conduct the activities discussed in their meetings, the incident would not have happened

at that time or possibly ever. Additionally, if the task of installing the A-14 Hatch Cover was part of the scope of work at that time, a discussion of the task, hazards and mitigations may have taken place in the meeting prior to walking toward the Well Bay Area. An effective discussion and hazard analysis should have identified the correct location of the A-14 Hatch Cover, as well as the hazards and safeguards associated with this task, and prevented the incident.

- **Lack of labeling to indicate hatch cover to hatch placement.** The A-13 and A-14 Hatch Covers were the same size, shape and general color, with no specific labels to identify the corresponding well number – leaving them nearly identical. Additionally, the deck plates were not labeled for personnel to identify hatch locations or be able to place a hatch cover on its assigned hatch location. Further, removed hatch covers were not uniquely tagged, labeled or placed in a location to make it obvious they were not covering an open hole. Adding to potential confusion was that the A-13 and A-14 Hatch Covers were two of only three hatch covers exposed outside of the drilling skid that were painted gray, with the remaining 12 exposed hatch covers being yellow. As indicated by the QES Operator, the BSEE Panel believes the QES workers would not have picked up the A-13 Hatch Cover if the hatch covers and deck plates were clearly labeled.

## Contributing Cause

BSEE investigation team followed the BSEE National Investigations Handbook's definition of contributing causes as those actions, events, or conditions that: a) May have prevented the incident event from occurring, if corrected; b) Contributed somewhat to the incident; and c) Have less compelling evidence than the probable causes. The Panel identified the following as contributing causes of the incident.

- **Lack of adequate written job procedures for maneuvering hatch covers.** Field personnel were unaware of any official written procedure for removing, storing or installing hatch covers, and the procedure that existed was not adequate to address the hazards of the task. On the night of the incident the Operator and Victim perceived the A-13 Hatch Cover was the A-14 Hatch Cover. If a detailed procedure existed at the time of the incident for safely maneuvering hatch covers that required personnel to maintain a complete and continuous line of sight of one's own stepping path, then the victim may have followed the policy to prevent the incident from occurring. Additionally, if a procedure existed for where to store removed hatch covers, then QES personnel may have known that the actual A-14 Hatch Cover was located elsewhere.
- **Hatch cover design.** The low-profile design of the hatch covers resulted in little noticeable difference (approximately 1.25 inches) between a hatch cover in a well hatch and one laying on a deck. If it were more obvious to identify a hatch cover in a well hatch as opposed to one on the deck, the QES personnel may not have picked up the A-13 Hatch Cover from over the well hatch.



## Contributing Factor

BSEE investigation team followed the BSEE National Investigations Handbook's definition of contributing factors as those actions, events, or conditions that would not have prevented incident from occurring but contributed significantly to occurrence and/or severity of the incident. The Panel identified the following as contributing factors of the incident.

- **Lack of job task focus.** The video archive shows the three QES crew members walking directly toward the A-4 Well Hatch minutes prior to the incident (see Figure 5). However, the QES Operator and Victim stopped walking with the QES Helper shortly after they all stepped onto the Well Bay Area. In a post incident interview, the QES Operator recalled discussing non-job-related items with the Victim as the two exited the tailgate meeting in the smoke shack and proceeded to walk on the Well Bay Area. Given the totality of the circumstances, the BSEE Panel Team concludes the lack of job task focus was a contributing factor.

## Recommendations

To strengthen implementation of existing safety and environmental management systems, the Panel makes the following recommendations:

- Document and implement a facility-specific detailed procedure for the removal, temporary storage and re-installation of well hatch covers.  
Establish a general lifting procedure requirement to maintain a complete visual of the walking path when lifting and transporting objects. Incorporate a “Don’t step where you can’t see” policy.  
Incorporate at least one physical barrier for removal of the hatch covers, such as a lock-out/ tag-out safety program and/ or additional hatch cover weight to prevent maneuverability by personnel without mechanical assistance.
- Ensure all hatch covers are clearly labeled with the corresponding well identification.
  - Ensure labels are installed on the deck that correspond to the hatch cover labels.
  - Maintain consistent terminology for all well hatch locations in documents and diagrams.
- Ensure employees receive practical training in the removal and installation of well hatch covers, as well as for the storage of well hatch covers when removed from the well hatch.
- When removing or installing a well hatch cover, consider using a crane or other material handling method that limits the potential for personnel to be close to open holes.
- Ensure contractor personnel are specifically familiarized to the area where they will work and are aware of any existing or potential open hole hazards that could be created.
- Encourage personnel to stop work and evaluate hazards with all personnel involved in the job safety analysis (JSA) before considering activities outside the scope of work.
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- Incorporate a hatch cover design that allows personnel to clearly identify a hatch cover in a well hatch, as opposed to one laying on the deck.