UNITED STATES COAST GUARD

REPORT OF THE INVESTIGATION

INTO THE
HEAVY LIFT DERRICK BARGE EPIC HEDRON (ON 002056), LOSS OF LIFE IN THE GULF OF MEXICO, EUGENE ISLAND BLOCK 276, ON AUGUST 25, 2024

MISLE ACTIVITY NUMBER: 7996866

U.S. Department of Homeland Security
United States Coast Guard

Commandant
United States Coast Guard

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16732/IIA #7996866
30 June 2025

LOSS OF LIFE ABOARD THE HEAVY LIFT DERRICK BARGE EPIC HEDRON (O.N. 002056) IN EUGENE ISLAND BLOCK 276 IN THE GULF OF AMERICA, 65 NAUTICAL MILES OFFSHORE OF ST. MARY PARISH, LOUISIANA ON AUGUST 25, 2024

ACTION BY THE COMMANDANT

The record and the report of the investigation completed for the subject marine casualty have been reviewed. The record and the report, including the findings of fact, analysis, conclusions, and recommendation are approved subject to the following comments. This marine casualty investigation is closed.

ACTION ON RECOMMENDATION

Administrative Recommendation 1: As a result of the findings from this investigation, it is recommended that Triton Diving Services LLC and Helix Applied Technologies LLC take the following proposals into consideration:

1. Implement a formal policy within the Safety Management System (SMS) requiring the assignment of a designated personnel spotter during all crane and lifting operations. The spotter's roles would include continuous monitoring of personnel movements within the designated hazardous areas (crane swing zones and pinch points) and give them the authority to stop operations immediately if unsafe behavior or proximity to hazardous areas is observed.

2. Implementation of hazardous area marking and barricade systems into Job Safety Analysis and operational workflows. Use visual markers (painted lines, cones, or physical barriers) and auditory alerts to demarcate crane swing zones, pinch points and other hazardous areas. Incorporate these controls into pre-shift safety briefings and ensure that personnel are clearly informed of zones and risks involved.

3. Amend the Job Safety Analysis process to include a behavioral risk assessment that accounts for human factors such as fatigue, complacency, and situational distractions.

> **Action**: I concur with the intent of this recommendation. Alternatively, the Coast Guard Office of Investigations and Casualty Analysis (CG-INV) is issuing a Findings of Concern to help inform all maritime stakeholders about the causal factors that contributed to this incident. Findings of Concern 007-25 (U.S. Coast Guard Findings of Concern 007-25: Crane Swing Zone Hazards During Lifting Operations) has been

published on CG-INV's public website (https://www.dco.uscg.mil/Our-Organization/Assistant-Commandant-for-Prevention-Policy-CG-5P/Inspections-Compliance-CG-5PC-/cginv/Office-of-Investigations-Casualty-Analysis-Copy/).

E. B. SAMMS
Captain, U. S. Coast Guard
Chief, Office of Investigations & Casualty Analysis (CG-INV)

U.S. Department of Homeland Security
United States Coast Guard

Commander
Eighth Coast Guard District

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16732
APR 8 2025

HEAVY LIFE DERRICK BARGE EPIC HEDRON (ON 002056), LOSS OF LIFE IN THE GULF OF MEXICO, EUGENE ISLAND BLOCK 276, ON AUGUST 25, 2024

ENDORSEMENT BY THE COMMANDER, EIGHTH COAST GUARD DISTRICT

The record and the report of the investigation convened for the subject casualty have been reviewed. The record and the report, including the findings of fact, analysis, conclusions, and recommendations are approved. It is recommended that this marine casualty investigation be closed.

COMMENTS ON THE REPORT

1. The loss of the Lead Mechanic was a tragic and preventable accident. I offer my sincere condolences to the friends and family of the member who lost his life.

2. The investigation and report contain valuable information which can be used to address the factors that contributed to this marine casualty and prevent similar incidents from occurring in the future.

[redacted]

J. E. FOTHERGILL
Commander, U.S. Coast Guard
Chief of Prevention, Acting
Eighth Coast Guard District
By Direction

U.S. Department of Homeland Security
United States Coast Guard

Commanding Officer
United States Coast Guard
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16732
April 3, 2025

HEAVY LIFT DERRICK BARGE EPIC HEDRON (ON 002056), LOSS OF LIFE IN THE GULF OF MEXICO, EUGENE ISLAND BLOCK 276, ON AUGUST 25, 2024

ENDORSEMENT BY THE OFFICER IN CHARGE, MARINE INSPECTION

The record and the report of the investigation convened for the subject casualty have been reviewed. The record and the report, including the findings of fact, analysis, conclusions, and recommendations, are approved subject to the following comments. It is recommended that this marine casualty investigation be closed.

COMMENTS ON THE REPORT

The loss of life in this marine casualty was a tragic yet preventable accident. I offer my sincerest condolences to the family and friends of the crewmember who lost his life because of this incident.

ENDORSEMENT ON RECOMMENDATIONS

Administrative Recommendation 1. As a result of the findings from this investigation, it is recommended that TRITON DIVING SERVICES LLC and HELIX APPLIED TECHNOLOGIES LLC take the following proposals into consideration:

1. Implement a formal policy within the Safety Management System (SMS) requiring the assignment of a designated personnel spotter during all crane and lifting operations. The spotter's roles would include continuous monitoring of personnel movements within the designated hazardous areas (crane swing zones and pinch points) and give them the authority to stop operations immediately if unsafe behavior or proximity to hazardous areas is observed.

2. Implementation of hazardous area marking and barricade systems into Job Safety Analysis and operational workflows. Use visual markers (painted lines, cones, or physical barriers) and auditory alerts to demarcate crane swing zones, pinch points and other hazardous areas. Incorporate these controls into pre-shift safety briefings and ensure that personnel are clearly informed of zones and risks involved.

3. Amend the Job Safety Analysis process to include a behavioral risk assessment that accounts for human factors such as fatigue, complacency, and situational distractions.

Endorsement: Concur – Although there is a level of human error that undoubtably contributed to this incident, there are clear actions the Owner/Operator of the EPIC HEDRON can implement into the vessel's SMS to best prevent a similar incident like this from occurring in the future. Implementing enhanced control measures, such as designated spotters and physical barriers, would provide additional layers of safety for high-risk operations, further mitigating the potential for human error. Had controls like these been in place on August 25, 2024, it is very likely that the Lead Mechanic would have been physically prevented from entering the swing zone, either by a barrier or by a designated spotter, ultimately saving his life. In addition to these control measures, I fully support the recommendation to amend current Job Task Analysis process to include discussions on identifying and addressing human factors such as fatigue, complacency, and situational distractions.

Administrative Recommendation 2. Recommend this investigation be closed.

Endorsement: Concur – recommend this investigation be closed.

[redacted]

J. S. Franz
Captain, U.S. Coast Guard
Officer in Charge, Marine Inspection
Houma, Louisiana

U.S. Department of Homeland Security
United States Coast Guard

Commanding Officer
United States Coast Guard
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16732
February 13, 2025

HEAVY LIFT DERRICK BARGE EPIC HEDRON (ON 002056), LOSS OF LIFE IN THE GULF OF MEXICO, EUGENE ISLAND BLOCK 276, ON AUGUST 25, 2024

EXECUTIVE SUMMARY

On August 24, 2024, at approximately 1200 hours, the crew of the Vanuatu flagged heavy lift derrick barge EPIC HEDRON commenced decommissioning and reefing operations in the Gulf of Mexico, Eugene Island Block 276. Prior to the incident a shift change occurred, during which the Lead Mechanic led the pre-shift toolbox meeting and Job Safety Analysis (JSA). The meeting emphasized avoiding crane "pinch points" and maintaining situational awareness. By 1205, the barge resumed its operations to lower an offshore platform ("jacket") onto the seafloor.

At 1303, the barge's 1600 Wilson Derrick Crane began lowering the jacket to the seabed, and by 1313, the jacket was positioned securely. Shortly thereafter, at 1315, the 14000 Deck Crane began transferring personnel from the barge onto the jacket to assist with removing air hoses. Visual and audio signals, including beeping alarms and radio communications, were activated to alert the crew of the crane's movements.

At approximately 1401, the Lead Mechanic, who had initially moved to a safe area, re-entered the crane's swing zone and was subsequently fatally pinned under the crane's counterweight as it swung over the guardrail that the Lead Mechanic was standing at.

An "all-stop" was immediately called, and medical assistance was requested. Despite lifesaving efforts, the Lead Mechanic was pronounced deceased at the scene. Operations were suspended, and the site was secured while the crew assessed the incident. The Deck Crane equipment was functioning properly, and no mechanical issues contributed to the incident.

Through its investigation, the Coast Guard determined the initiating event to be the death of the lead mechanic. Causal factors contributing to the casualty include: (1) Unsafe Re-Entry into Crane Swing Zone by Lead Mechanic, (2) Lack of Safety Barriers Around Crane Operations, (3) Complacency Due to Familiarity with Operations, (4) Absence of Dedicated Spotters for Pinch Points, (5) Overreliance on Individual Awareness, and (6) Insufficient Visual and Audio Cues for Dynamic Hazards.

U.S. Department of Homeland Security
United States Coast Guard

Commanding Officer
United States Coast Guard
Marine Safety Unit Houma

423 Lafayette Street
Houma, LA 70360
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16732
February 13, 2025

HEAVY LIFT DERRICK BARGE EPIC HEDRON (ON 002056), LOSS OF LIFE IN THE GULF OF MEXICO, EUGENE ISLAND BLOCK 276, ON AUGUST 25, 2024

INVESTIGATING OFFICER'S REPORT

1. Preliminary Statement

1.1. This marine casualty investigation was conducted, and this report was submitted in accordance with Title 46, Code of Federal Regulations (CFR), Subpart 4.07, and under the authority of Title 46, United States Code (USC) Chapter 63.

1.2. The Investigating Office did not designate any individuals, organizations, or parties as party-in-interest in accordance with 46 CFR Subsection 4.03-10.

1.3. The Coast Guard was the lead agency for all evidence collection activities involving this investigation. Due to this incident involving a loss of life, the Coast Guard Investigative Service (CGIS) was notified and agreed to provide technical assistance as required. The Bureau of Safety and Environmental Enforcement (BSEE) assisted in this investigation.

1.4. All times listed in this report are approximate, and in Central Standard Time using a 24-hour format.

2. Vessel Involved in the Incident

Official Name:	EPIC HEDRON
Identification Number:	002056 (Foreign Official Number)
Flag:	VANUATU
Vessel Class/Type/Sub-Type:	Barge / Industrial Barge / Derrick/Crane Barge
Build Year:	2008
Gross Tonnage:	19906 GT (ITC)
Length:	393.7 ft
Beam/Width:	118.1 ft
Draft/Depth:	24.6 ft
Main/Primary Propulsion:	None
Owner/Operator	HEDRON HOLDINGS, LLC / EPIC APPLIED TECHNOLOGIES

Figure 1. Photograph of barge EPIC HEDRON taken from HELIX ENERGY SOLUTIONS' website on 17 January 2025.

3. Deceased, Missing, and/or Injured Persons

Relationship to Vessel	Sex	Age	Status
Lead Mechanic	Male	41	Deceased

4. Findings of Fact

4.1. The Incident

4.1.1. On August 24, 2024, at 1200, a shift change occurred onboard the EPIC HEDRON, and the Lead Mechanic conducted the toolbox meeting and Job Safety Analysis (JSA). The meeting emphasized crane safety, avoiding "pinch points," and maintaining awareness of crane and tugger movements. 38 personnel signed the safety briefing log and began work.

4.1.2. By 1205, the barge continued moving into position for lowering the platform ("jacket") onto the seafloor.

4.1.3. At 1303, the barge's 1600 Wilson Derrick Crane began lowering the jacket to the seafloor. The jacket was then positioned on the seabed, and the process of bleeding air from its legs commenced.

4.1.4. At 1315, the 14000 Deck Crane began transferring personnel from the barge's deck to the jacket to assist in removing the air hoses. A Designated Signal Person was monitoring the overhead load.

4.1.5. At 1400, the Lead Mechanic was observing the personnel transfer from the deck of the EPIC HEDRON in a safe area, outside of the deck crane's swing circle.

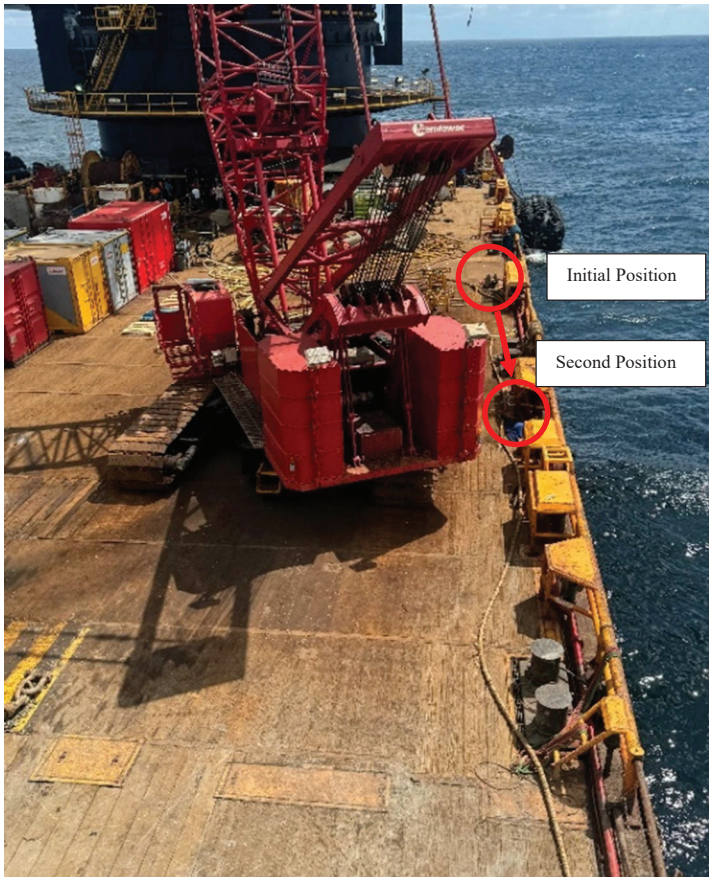

Figure 2. Photograph of the 14000 deck crane on EPIC HEDRON taken by USCG on 24 August 2024

Figure 3. Photograph of the deck crane and deck railing on EPIC HEDRON taken by USCG 24 August 2024

4.1.6. At 1401, the Lead Mechanic moved their position from the safe area on the deck to the railing next to the 14000 Deck Crane to observe the transfer. See Figures 2 and 4.

4.1.7. The deck crane began rotating counterclockwise to transfer a Yokohama marine fender from the rig back to the barge. Visual and audio signals, including beeping alarms and radio notifications, were used during crane operations to provide warnings about the crane's movement.

4.1.8. The Lead Mechanic was fatally injured after being crushed between the counterweight of the crane and the deck railing.

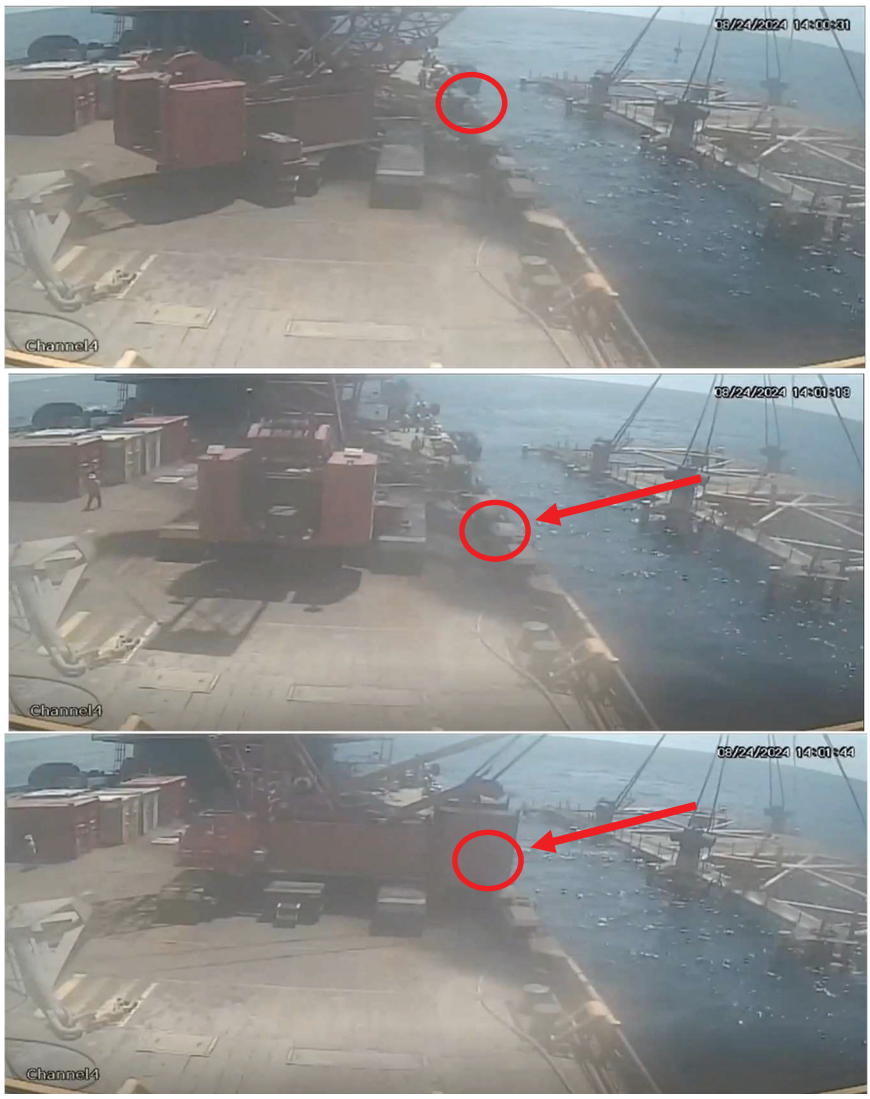

Figure 4. Screenshots of movement of deck crane and Lead Mechanic on 24 August 2024 from EPIC HEDRON surveillance tape.

4.1.9. At 1402, the Lead Mechanic was spotted crushed between the crane and the deck railing by a crewmember. An "all stop" was called and the Crane Operator stopped crane operations upon receiving a radio call to halt movement.

4.1.10. At 1403, the crane operator began rotating their crane clockwise to free the Lead Mechanic, medical response was called, and a helicopter was arranged to retrieve the Lead Mechanic.

4.1.11. At 1601, the helicopter arrived and began a medical assessment of the Lead Mechanic who was pronounced dead on scene.

4.2. Additional/Supporting Information

4.2.1. The EPIC HEDRON was a Vanuatu-flagged heavy lift derrick barge engaged in offshore oil rig decommissioning and artificial reef construction. It operated with two cranes: the 1600 Wilson Crane (used for heavy platform lowering) and the smaller 14000 Deck Crane (used for personnel and equipment transfers).

4.2.2. The Crane Operator had 15 years of crane operating experience and was 21 days into a 28-day shift at the time of the incident. The Crane Operator confirmed adherence to pre-operation crane inspections and audible warnings during crane movements.

4.2.3. The Lead Mechanic was an experienced crew member well-versed in crane operations and safety protocols. The Lead Mechanic participated in the pre-shift toolbox meeting, which emphasized the importance of avoiding "pinch points."

4.2.4. The EPIC HEDRON's Safety Management System: Crane, Lifting Operations / Lifting Appliance and Gear outlined specific responsibilities for crew members involved in crane operations, including:

4.2.4.1. Crane Operators, who were required to conduct pre-use inspections, adhere to weight limits, monitor operations, and sound audible alarms during crane movements.

4.2.4.2. Designated Signal Persons (DSPs), who were required to maintain direct visual contact with the load and remain solely responsible for signaling during operations.

4.2.4.3. Riggers, who were required to inspect equipment, secure loads, and enforce "hands-free" protocols.

4.2.4.4. All personnel must avoid standing or working beneath suspended loads. Personnel were empowered to halt operations if unsafe conditions were identified.

4.2.4.5. The EPIC HEDRON's Safety Management System: Crane, Lifting Operations / Lifting Appliance and Gear aligned with industry standards, emphasizing safety training, communication protocols, and hazard awareness during crane operations

4.2.5. The Barge Foreman conducted daily safety briefings and reiterated the importance of adhering to crane safety protocols. Following the incident in an interview with the Lead USCG Investigator, the Barge Foreman suggested that a designated spotter could enhance safety by ensuring no personnel entered hazardous areas.

4.2.6. Video footage confirmed that the Lead Mechanic made eye contact with the Crane Operator before crane operations began and initially moved out of harm's way. The footage then showed the Lead Mechanic re-entering the swing zone then being pinned under the crane's counterweight.

4.2.7. Post-incident investigations confirmed no violations of operational procedures or mechanical failures.

5. Analysis

5.1. **Unsafe Re-Entry into Crane Swing Zone by Lead Mechanic:** On August 24, 2024, the Lead Mechanic onboard the EPIC HEDRON was fatally injured after re-entering the swing zone of the 1600 Wilson Deck Crane and being pinned under the crane's counterweight. The Lead Mechanic initially complied with the vessel's safety protocols by moving to a safe area during crane operations. Video footage and witness accounts confirmed that the Lead Mechanic re-entered the swing zone while the crane was in operation. Although visual and audible warnings were active, the mechanic either failed to heed these alerts or underestimated the danger. Once within the swing zone, the mechanic's proximity to the crane's counterweight left no opportunity for avoidance or rescue once the crane moved. The Lead Mechanic's decision to re-enter the swing zone was a critical lapse in judgment with the operations being conducted. Had the Lead Mechanic not re-entered the swing zone it is likely that the fatal incident could have been prevented.

5.2. **Lack of Safety Barriers Around Crane Operations**: The EPIC HEDRON did not implement physical safety barriers or exclusion zones around the crane swing zone during operations. While safety protocols emphasized the importance of avoiding pinch points and remaining clear of crane movements, the absence of physical barriers left crew members reliant solely on individual awareness and adherence to safety procedures. The Lead Mechanic initially moved to a safe area during operations but later re-entered the swing zone, where he was fatally injured by the crane's counterweight. The lack of barriers created a permissive environment where the responsibility for avoiding danger rested entirely on personnel behavior, rather than a combination of human vigilance and engineered safeguards. Studies on workplace safety, including reports from the International Journal of Environmental Research and Public Health, indicate that physical barriers are among the most effective measures to prevent accidental entry into hazardous areas. Barriers provide a visual and physical deterrent that reinforces safe behavior and limits access to high-risk zones. A well-designed safety system might have included retractable barriers, painted exclusion zones, or interlocked gates to prevent unauthorized entry into the crane's swing area. These measures could have also been supplemented by signage and lighting to clearly delineate hazardous areas. For instance, dynamic barriers that activate during crane operations would have provided an additional layer of protection, effectively communicating to all personnel that the area was off-limits. Had physical barriers been in place, the Lead Mechanic would have encountered a visible and physical obstacle upon attempting to enter the swing zone, which might have prevented the incident entirely.

5.3. **Complacency Due to Familiarity with Operations:** The Lead Mechanic was an experienced crew member with many years of service onboard heavy lift vessels. This familiarity with crane operations likely contributed to a diminished sense of risk, resulting in complacency. Despite participating in safety briefings and toolbox meetings that emphasized the importance of avoiding pinch points, the Lead Mechanic re-entered the swing zone during crane operations, contrary to safety protocols. Behavioral research on workplace safety indicates that familiarity with tasks can lead to " normalization of deviance," where individuals underestimate the hazards associated with repetitive activities. Over time, tasks that initially require high attention and adherence to protocol become routine, and the

perceived need for vigilance diminishes. Mitigation strategies for combating complacency include regular refresher training, scenario-based safety drills, and behavioral audits. Refresher training reinforces awareness of potential hazards and emphasizes the importance of maintaining vigilance during routine operations. Scenario-based drills simulate dynamic risk situations, keeping personnel alert to the unpredictable nature of offshore work. Behavioral audits, conducted by safety officers, help identify and address complacent behaviors before they escalate into incidents**.** If complacency had been addressed proactively, the Lead Mechanic may have maintained the heightened vigilance necessary to avoid re-entering the swing zone, preventing the fatality.

5.4. **Absence of Dedicated Spotters for Pinch Points**: The EPIC HEDRON's crane operations did not include a designated signal person (DSP) or spotter to monitor personnel movements near pinch points, swing zones and hazardous areas. While the crane operator relied on visual and audio signals to warn crew members of movements, this system did not actively prevent personnel from entering hazardous zones. The absence of a dedicated spotter allowed the Lead Mechanic to re-enter the swing zone without immediate intervention. Spotters play a critical role in high-risk operations by providing real-time oversight and communication to ensure that personnel remain clear of hazardous areas. According to the Occupational Safety and Health Administration (OSHA) guidelines, spotters are essential in environments with dynamic hazards, such as crane operations. Their responsibilities include maintaining a clear line of sight, providing warnings to personnel approaching hazardous areas, and coordinating with equipment operators to halt operations if risks are identified. The inclusion of a spotter on the EPIC HEDRON could have provided an additional layer of oversight. A spotter positioned near the swing zone would have observed the Lead Mechanic's movements and intervened before he entered the swing zone. This intervention could have included verbal warnings or physical redirection to a safe zone. Additionally, the spotter could have communicated directly with the crane operator to temporarily halt operations until the area was clear. Had a designated hazardous area spotter been present during crane operations, the Lead Mechanic's entry into the hazardous area could have been identified and addressed immediately, possibly preventing the fatal incident.

5.5. **Overreliance on Individual Awareness:** The EPIC HEDRON's Safety Management System (SMS) relied heavily on individual awareness and adherence to safety protocols, placing the burden of risk mitigation on personnel. While safety briefings and visual/audio warnings were effective in principle, they failed to account for human factors such as distraction, complacency, and misjudgment. This reliance on individual awareness created a single point of failure. Once the Lead Mechanic's vigilance lapsed, there were no additional safeguards to prevent the incident. Research from the National Institute for Occupational Safety and Health (NIOSH) highlights the importance of layered safety systems that combine individual awareness with engineered controls and procedural safeguards. Mitigation measures could have included redundant safety systems, such as automated motion sensors that halt crane operations when personnel enter restricted areas. By reducing reliance on individual awareness and incorporating additional engineering and procedural safeguards, the likelihood of the Lead Mechanic re-entering the swing zone could have been significantly diminished, possibly preventing the fatality.

5.6. **Insufficient Visual and Audio Cues for Dynamic Hazards:** Although visual and audio signals were active during crane operations, their effectiveness was limited by the dynamic and noisy offshore environment. The constant presence of alarms and beeping sounds may

have led to desensitization among crew members, reducing their responsiveness to these cues. Dynamic hazardous environments require redundant and varied alert systems to maintain personnel awareness. Enhancements such as motion-activated strobe lights, barriers to entry, or colored lighting to demarcate active zones could have improved hazard communication. These additional cues are particularly effective in environments with high ambient noise or competing visual stimuli. If enhanced visual and audio cues had been implemented, they could have provided a more robust warning system, which could have reinforced the Lead Mechanic's awareness of the hazard and prevented his re-entry into the swing zone.

6. Conclusions

6.1. Determination of Cause:

6.1.1. The initiating event was the death of the Lead Mechanic. Causal factors leading to this event were:

6.1.1.1. The unsafe Re-Entry into Crane Swing Zone by Lead Mechanic.

6.1.1.2. Lack of Safety Barriers Around Crane Operations to prevent entry into swing zone.

6.1.1.3. Complacency of crewmembers due to familiarity with operations.

6.1.1.4. Absence of Dedicated Spotters for Pinch Points.

6.1.1.5. Overreliance on Individual Awareness within safety management system.

6.1.1.6. Insufficient Visual and Audio Cues for Dynamic Hazards.

6.2. Evidence of Act(s) or Violation(s) of Law by Any Coast Guard Credentialed Mariner Subject to Action Under 46 USC Chapter 77: There were no potential acts or violations of law by any Coast Guard credentialed mariner.

6.3. Evidence of Act(s) or Violation(s) of Law by U.S. Coast Guard Personnel, or any other person: There were no potential acts of misconduct, incompetence, negligence, unskillfulness, or violations of law by Coast Guard Employees that contributed to this casualty.

6.4. Evidence of Act(s) Subject to Civil Penalty: This investigation did not identify any potential violations of U.S. law warranting Coast Guard civil penalty actions.

6.5. Evidence of Criminal Act(s): Coast Guard Investigative Services (CGIS) reviewed the evidence in this investigation and did not identify any potential violations of criminal law.

6.6. Need for New or Amended U.S. Law or Regulation: This investigation did not identify matters needing new or amended U.S. law or regulation.

6.7. Unsafe Actions or Conditions that Were Not Causal Factors: This investigation did not identify any unsafe actions or conditions that were not causal factors.

7. Actions Taken Since the Incident

7.1. No actions have been taken since the incident.

8. Recommendations

8.1. Safety Recommendation:

8.1.1. There were no proposed actions to add new or amend existing U.S. laws or regulations, international requirements, industry standards, or USCG policies and procedures as part of this investigation.

8.2. Administrative Recommendations:

8.2.1. As a result of the findings from this investigation, it is recommended that TRITON DIVING SERVICES LLC and HELIX APPLIED TECHNOLOGIES LLC take the following proposals into consideration:

8.2.1.1. Implement a formal policy within the Safety Management System (SMS) requiring the assignment of a designated personnel spotter during all crane and lifting operations. The spotter's roles would include continuous monitoring of personnel movements within the designated hazardous areas (crane swing zones and pinch points) and give them the authority to stop operations immediately if unsafe behavior or proximity to hazardous areas is observed.

8.2.1.2. Implementation of hazardous area marking and barricade systems into Job Safety Analysis and operational workflows. Use visual markers (painted lines, cones, or physical barriers) and auditory alerts to demarcate crane swing zones, pinch points and other hazardous areas. Incorporate these controls into pre-shift safety briefings and ensure that personnel are clearly informed of zones and risks involved.

8.2.1.3. Amend the Job Safety Analysis process to include a behavioral risk assessment that accounts for human factors such as fatigue, complacency, and situational distractions.

8.2.2. Recommend this investigation to be closed.

[redacted]

Lieutenant, U.S. Coast Guard
Investigating Officer