OCS Report
BSEE 2014-02

Investigation of October 27, 2013, Fatality
Vermilion Area Block 200 Platform "A"
Lease No. OCS-G 09500, Complex ID No. 24098-01

Gulf of Mexico
Off the Louisiana Coast

U.S. Department of the Interior
Bureau of Safety and Environmental Enforcement

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Executive Summary

On October 27, 2013, a fatal incident occurred on the "A" Platform, of Vermilion Block 200, Lease number OCS-G 9500. This location is approximately 53 miles south of Lake Charles, Louisiana in the Gulf of Mexico.

At approximately 7:05 p.m., a 130 ton dry oil storage tank skid assembly, consisting of one (1) 16 feet diameter x 85 feet long horizontal cylindrical tank and two (2) 83 feet long flare booms mounted to and extending away from the skid at a 17-degree angle, toppled over and fell 115 feet into the Gulf of Mexico from the Vermilion Block 200 Platform "A". A welder, working for Offshore Specialty Fabricators, LLC (OSF) and performing preliminary welding cuts, was standing on the walkway attached to the top of the cylindrical tank when the skid assembly toppled overboard. The dry oil storage tank skid assembly, along with the welder, sank within minutes. Despite man overboard procedures and a concerted search effort, the welder was not rescued. After 2 days of surface and undersea searching, divers located and recovered the body of the welder.

Vermilion Block 200 Platform "A" is owned by Talos Energy, LLC (formerly Energy Resources Technology or ERT). Talos/ERT had contracted with OSF to decommission and remove the platform. Following a bid process, OSF was awarded the work as a "lump sum" contract, based on their previous work history with Talos/ERT, the availability of a large derrick barge (DB) *William Kallop* which provided the desired operating flexibility, and price. The contract specified that OSF was to be responsible for managing and carrying out all tasks associated with this job including the planning, preparation and ultimate dismantling of Vermilion Block 200 Platform "A". A SEMS Bridging Agreement between Talos/ERT and OSF outlined the respective expectations and responsibilities for safety policies and procedures, work practices and ultimate safety performance for this job.

The OSF Barge Superintendent was in charge of all platform removal activities, including the sequencing of activities and any decisions related to the weather. Talos/ERT had one Onsite Representative on board, whose primary role was to monitor the work for compliance to the contract. The decommissioning crew of the DB *William Kallop* included personnel with various skill sets, one of which was welding. A primary work activity for a welder during the decommissioning/removal of a platform is to cut infrastructure components of the platform such as the piping, production skid supports, catwalks, and other structures into smaller "packages" prior to the lifts or removal by crane to the material barge. The sequence of the lifts is a critical component in the planning of the job and is largely determined by engineering assessments of the size, weight, and configuration of the "packages", the DB crane capacity, and material barge size.

The lift sequence for removal of Vermilion Block 200 Platform "A" was identified in the Work Plan developed by the OSF Project Manager and reviewed by the Talos/ERT Platform Removal Engineer.

Upon the arrival of the DB *William Kallop* to the Vermilion Block 200 Platform "A" location on October 26, 2013, the OSF Barge Superintendent, with the support of the Talos/ERT Onsite Representative, delayed the planned heavy lifts using the DB *William Kallop*'s large crane due to weather and sea conditions. Until such time as the weather conditions improved, the work crews were assigned to preparation work, also known as "prep" work. This "prep" work consisted of the cutting away of the welded mount plates to equipment skid assemblies, under the standing instruction that the cutting each of the welds was not to exceed "50%". The DB *William Kallop* and its' crew had been moored adjacent to the Vermilion Block 200 Platform "A" and had been carrying out their

"prep" work for less than 24 hours when the dry oil storage tank skid assembly and the OSF welder fell into the water.

The Bureau of Safety and Environmental Enforcement (BSEE) conducted a panel investigation into the death of the OSF welder and the causal factors that led to the incident. The panel consisted of professionals from both BSEE and the United States Coast Guard (USCG). The panel identified key failures that led to the death of the OSF welder. These included:

- The lack of recognition that "prep" work should have been integrated directly with the planned steps for the removal of the platform.
- Lack of consistent communication to and understanding by workers of what "cutting 50%" meant.
- Inadequate recognition and implementation of the Safety and Environmental Management System (SEMS) elements outlined in the SEMS Bridging Agreement between Talos/ERT and OSF:

    - Weak management oversight, tracking, and documentation of "prep" work (Management Oversight)
    - No recognition that the decisions that resulted due to the weather should have triggered application of the company's *change management* procedures. (Management of Change (MOC))
    - Failure to stop work and assess the situation after an unexpected "pop" was heard and movement of the skid assembly occurred. (Stop Work Authority, Hazard Recognition/Risk Assessment)
    - Failure to stop work, communicate and assess the situation when work practices began to deviate from work instructions (MOC, Hazard Recognition, Management Oversight)
    - No recognition of the potential risks posed by the smaller package lifts or that the platform history and change in configuration from "as designed" required some level of review by a qualified engineer. The engineering/planning focus was only on the lifts associated with the platform's superstructure and jacket. (Risk Assessment and Hazard Identification)
    - Failure to follow OSF's SEMS policies and procedures as written (Safe Work Practices)

- The Talos/ERT Onsite Representative was focused on OSF's compliance to the contract. Compliance to the SEMS Bridging Agreement was not considered.

Based on the Panel's interviews with Talos/ERT and OSF personnel and contractors and on the document review, the Panel investigation yielded a number of recommendations aimed at improving the safety of offshore platform decommissioning and removal. In addition, the Panel recognized three recurring themes throughout this investigation which can broadly apply to all OCS oil and gas safety programs and practices. The Panel recommends that all OCS lease holders and their contractors:

- incorporate seemingly routine activities including the preparation work into the overall project planning, implementation and oversight.
- confirm a common understanding of the expectations, hazards, and safety procedures when communicating job assignments.
- enable and enforce a safety culture where work practices reflect the written policies, procedures, and SEMS elements; and, where written policies and procedures reflect realistic work scenarios and mitigation steps.

The Panel has also identified several recommendations for the Bureau of Safety and Enforcement to consider:

- The Bureau should consider allocating additional resources to perform inspections of platform during abandonment, and/or decommissioning operations.
- SEMS audits should include verifying the expectations included in a SEMS bridging document or agreements per 30 CFR 250.1914 are actually being followed and enforced by both the operator and contractor.

Introduction

BSEE's Investigation and Process:

Pursuant to The Outer Continental Shelf Lands Act (OCSLA), as amended 43 U.S.C 1348(d)(1), (2) and (f) [Outer Continental Shelf Lands Act, 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 of this incident. Panel members included Susan Dwarnick (chair), Michael Idziorek, Stephen Kovacs, Edward Welsch, Darron Miller, and Lt. Sandi Carmine (United States Coast Guard).

The purpose of this investigation was to identify the causes of this fatal incident that occurred during the early stages of the decommissioning and removal of Vermilion Block 200 Platform "A" and issue recommendations for improvement in order to reduce the likelihood of a similar event occurring in the future. In this report, the Panel identified the factors that led to this fatality as a cause or a contributing cause. While all the causes and contributing causes led to the fatal incident, the Panel wanted to differentiate between a one-off breakdown in a management, equipment or procedural barrier and an underlying systemic problem in the way the work was conducted. All issues identified as a cause or a contributing cause are addressed in the recommendations.

BSEE regulations require all operations, including decommissioning and removal operations, to be performed in a safe and workmanlike manner and that all equipment and work areas are maintained in a safe condition. BSEE regulations also set forth, in 30 CFR 250.1909, the general responsibilities for operators in establishing and implementing a safety and environmental management system. By extension, as required by 30 CFR 250.1914, and implemented through a SEMS Bridging Agreement, these responsibilities are also applied to the contractors performing the actual work activities.

The panel began by reviewing observations made by the BSEE Inspectors who arrived at the Vermilion Block 200 Platform "A" shortly after the incident was reported. Additionally, the panel members visited the Vermilion Block 200 Platform "A" to conduct an onsite examination of the platform. The observations made during that visit were documented with photographs.

As part of the investigation, document requests were sent to Talos/ERT and OSF. The review of responsive documents was focused to accomplish two goals:

- First, to allow the panel team to trace the chain of events and work activities of both the Operator (Talos /ERT) and its Contractor (OSF) from the planning, engineering, and mobilization of resources to support the removal of the Vermilion Block 200 "A" Platform prior to, during, and immediately following the fatal incident on October 27, 2013.
- Second, to define the standard of safety performance established and agreed upon by both Talos/ERT and OSF prior to beginning work, as documented in the Talos Energy-Contractor SEMS Bridging Agreement and supporting documentation (30 CFR 250.1914).

References to specific Talos/ERT and OSF documents are made throughout the Findings and Recommendations sections to demonstrate those areas where actual practices deviated from written operating procedures or company policy documents.

In addition to the document review, the Panel interviewed both on-shore and off-shore employees from both Talos/ERT and OSF.

Lease Information

Lease OCS-G 09500 (the Lease) covers approximately 5,000 acres and is located in Vermilion Block 200, Gulf of Mexico, off the Louisiana Coast (see Figure 1 for Lease location). The Lease was originally purchased in GOM Central Lease Sale 113 by Shell Offshore Inc. and effective July 1, 1988.

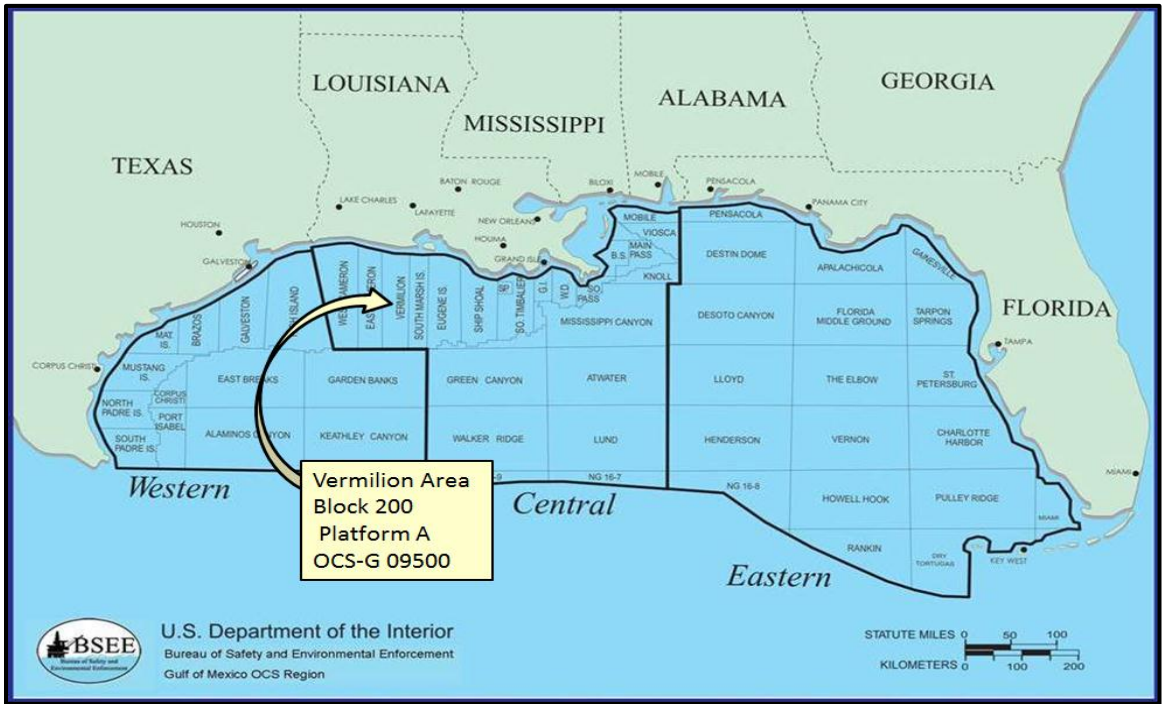

Figure 1: Location of Lease OCS-G 09500, Vermilion Block 200, Platform "A"

Shell Offshore Inc. installed one platform, Platform "A", in Vermilion Block 200. Platform "A" is an 8-leg, 24-slot steel structure (see Figure 2). It is a reused structure: it was originally installed by Shell in 1982 at East Cameron Block 240 (water depth = 127 feet), and then salvaged in May of 1994. The jacket and superstructure were then reanalyzed, modified and reinstalled by Shell in Vermilion Block 200, on September 9, 1994. In this location, the platform was in a water depth of 110 feet and was approximately 53 miles offshore Lake Charles, Louisiana. This production platform started producing on December 13, 1994. Energy Resources Technology, Inc. became the platform operator as of March 1, 1999. Production ceased on February 1, 2012, and the Lease was terminated on July 30, 2012.

Figure 2: Pre-Incident Aerial Photo of Vermilion Block 200 Platform "A" (Photo from Talos/ERT-OFS June 28, 2012 Site Visit)

Platform Decommissioning Project Background

On May 30, 2013, Energy Resources Technology, an entity of Talos Energy LLC (Talos/ERT), retained the services of Offshore Specialty Fabricators, LLC (OSF) to conduct and direct all operations related to the decommissioning and removal of Vermilion Block 200 Platform "A". This was a "lump sum" or "turnkey" contract and was awarded to OSF based on Talos/ERT's past experience with OSF on 19 previous platform decommissioning activities, extra crane capacity available and reduced weather risk available with the use of OSF's Derrick Barge (DB) *William Kallop*, and overall pricing.

As this project was awarded to OSF as a lump sum contract, OSF was responsible for planning, managing and supervising all work activities, including the preparing of the work plan and procedures. The work plan was reviewed by the Talos/ERT Platform Removal Engineer; a registered Professional Engineer in Louisiana. As a result of this review, Talos/ERT did request an independent structural engineering analysis on the removal lifts for the platform's superstructure and jacket and on the associated lifting pad eyes[*]. Pinnacle Engineering was hired by OSF to conduct this independent engineering review. The OSF Barge Superintendent was in charge of all platform removal activities, including the sequencing of activities and any decisions related to the weather. Talos/ERT had one company representative on board, the Talos/ERT Onsite Representative, whose primary role was to monitor the work for compliance to the contract. There was a SEMS Bridging Agreement in place between Talos/ERT and OSF which specified that the Contractor's SEMS Program would be utilized.

[*] A pad eye is a steel plate attached to an object that is to be lifted. The steel plate has a hole through which the lifting attachment, usually a shackle, can be attached to the pad eye for the lift.

The OSF employees and their sub-contractors directly involved in the platform removal were experienced workers, with most individuals having over 15 years of experience with this type of work. The training records documented that all workers were current with their training requirements.

Incident Description

On October 26, 2013 @ 6:30 p.m., the DB *William Kallop* arrived on location at Vermilion Block 200 Platform "A" and set anchors. Based on weather forecasts of high seas, the OSF Barge Superintendent decided to set the anchors in a different configuration than originally planned. Additionally, the Barge Superintendent made the decision to delay any larger lifts until the weather conditions improved. Workers were divided into two shifts; one working 12:00 a.m. to 12:00 p.m., the other 12:00 p.m. to 12:00 a.m.

Even with the Barge Superintendent's intention to delay large lifts which required the use of the high capacity big block of the crane, the crane's smaller capacity auxiliary line (i.e., fast line) was deemed safe to use. Preparation work was then assigned to the work teams. Workers were instructed to prepare or "prep" the dry oil storage tank ABJ332 skid assembly so that it could be ready for the lift by the DB once the weather improved. Work began with a general safety brief, which was then followed by a review of the Job Safety Analysis (JSA)

The dry oil storage tank ABJ332 skid assembly consisted of one (1) 16 foot diameter x 85 foot long horizontal cylindrical tank (designated ABJ332), two (2) 83 feet long flare booms mounted to and extending away from the skid at a 17-degree angle, and miscellaneous process piping and catwalks. The skid assembly was anchored on each end to the platform's steel I-beams extending out from the north side of the superstructure. The main connection points that held the skid assembly in place were 4 rectangular steel pads. The pads consisted of three 2 inches thick plates stacked and welded together. Each plate measured 24 inches long by 20 inches wide. The pads were welded to the I-beams and the skid sat on top of the pads attached by additional welds. Process piping and catwalks that were welded to the tank and platform also provided some additional anchorage of the skid to the platform (see Figure 3 for a pre-incident photograph of one of the steel pads). The horizontal cylindrical tank had been emptied, cleaned, and opened to atmosphere by decommissioning work that occurred prior to the mobilization of the DB *William Kallop*.

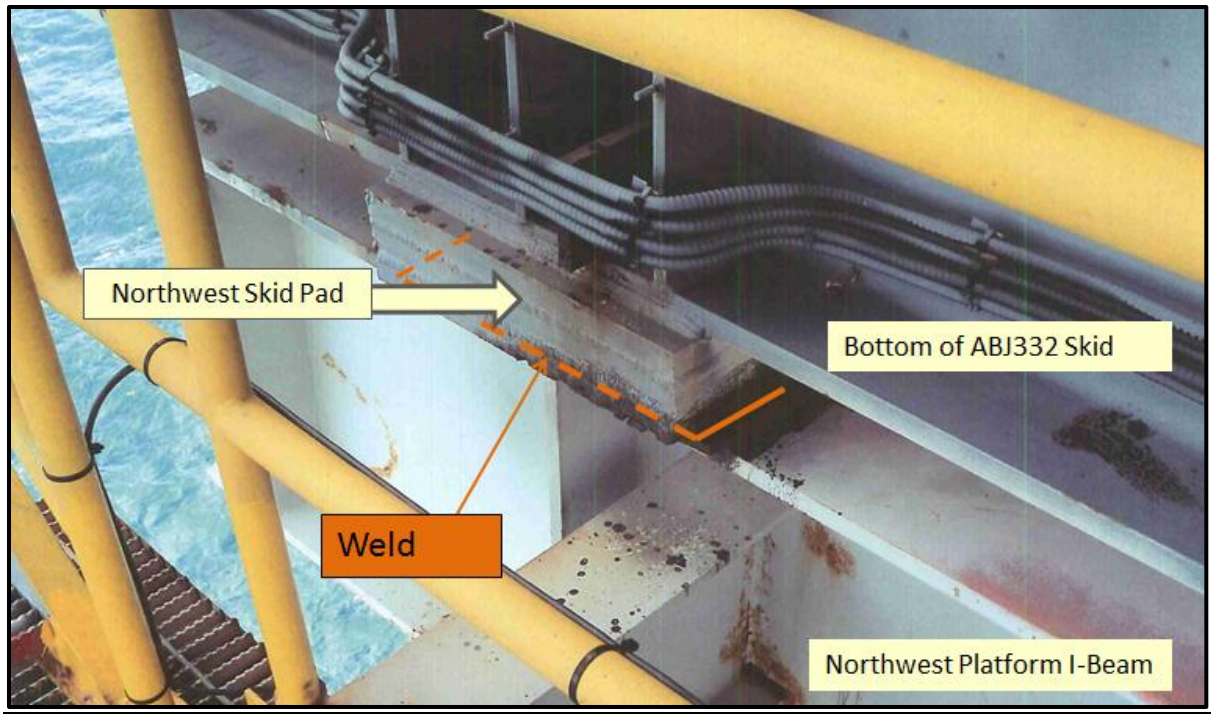

Figure 3: Pre-Incident Photo of One of the Rectangular Steel Pads Supporting the Dry Oil Storage Tank ABJ332 Skid Assembly at Vermilion Block 200 Platform "A" (Photo provided by Talos/ERT)

By daylight on October 27, 2013, at approximately 6:00 a.m., the crew began cold cutting the process piping and installing temporary work platforms around the dry oil storage tank ABJ332 skid assembly. Two of the welders began cutting the welds for the four pads that held the dry oil storage tank ABJ332 skid assembly to the platform skid I-beams.

At 11:45 am, the 12:00 p.m. to 12:00 a.m. (12p/12a) shift reported in and began with a general safety brief, which was then followed by a review of the Job Safety Analysis (JSA).

After the safety meeting, the DB crew for the 12p/12a shift broke into 2 main welding teams; one team was to work around the ABJ332 skid assembly, the second welding team reported for work at the top of platform jacket area for cutting of the well conductors (Figure 4).

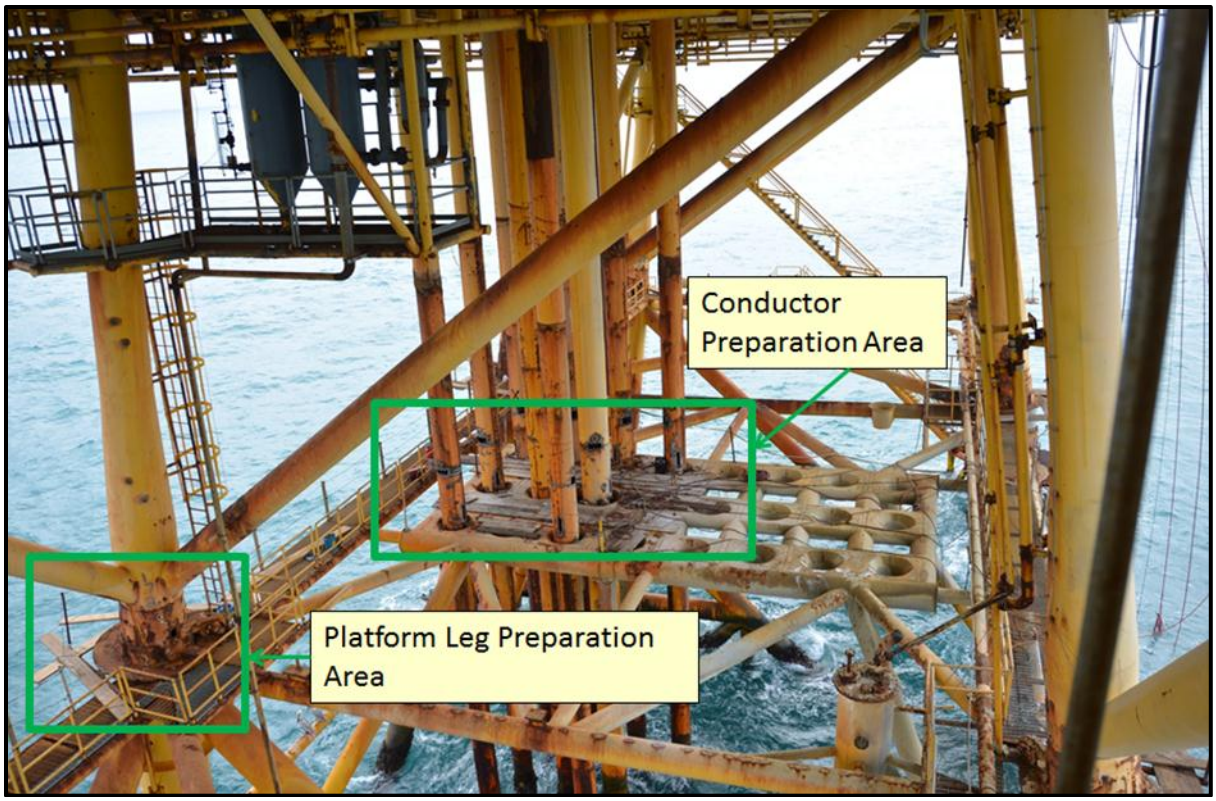

Figure 4: Platform Jacket Work Area (Post-Incident Photo taken by Panel Site Visit on November 14, 2013)

From 12:00 p.m. to 4:00 p.m., two welders continued cutting the welds of the four pads anchoring the dry oil storage tank ABJ332 skid assembly. The work instruction to "cut 50%" was in effect. At approximately 4:00 p.m., several individuals reported that a loud pop was heard in the vicinity of the dry oil storage tank ABJ332 skid assembly. According to one welder at the site, the weld on one side of a pad broke and the skid assembly lifted approximately 3/8 inches to 1/2 inches. The Welding Foreman at the ABJ332 skid assembly area inquired as to the well-being of the welder positioned under the skid assembly that had just shifted. After the welder stated that he was "still ok", the cutting work on the skid assembly pads continued.

Although large lifts such as the flare booms and the ABJ332 skid assembly had been delayed, the crane was still being used for smaller lifts. This included lifting away vent boom piping. The catwalk that went from the top of the ABJ332 tank to the adjacent (inboard) ABJ334 rectangular tank was also to be lifted off using the crane's fast line.

The welding foreman overseeing work around the tanks radioed to the foreman working around the well conductors to send up one of his welders. The welder that was sent up was then directed to the top of ABJ332 tank and instructed to cut away the catwalk where it connected to the tanks. The crane rigging had been attached to the handrails of the catwalk. The welder completed cutting one side of the catwalk mounts on top of the ABJ332 tank.

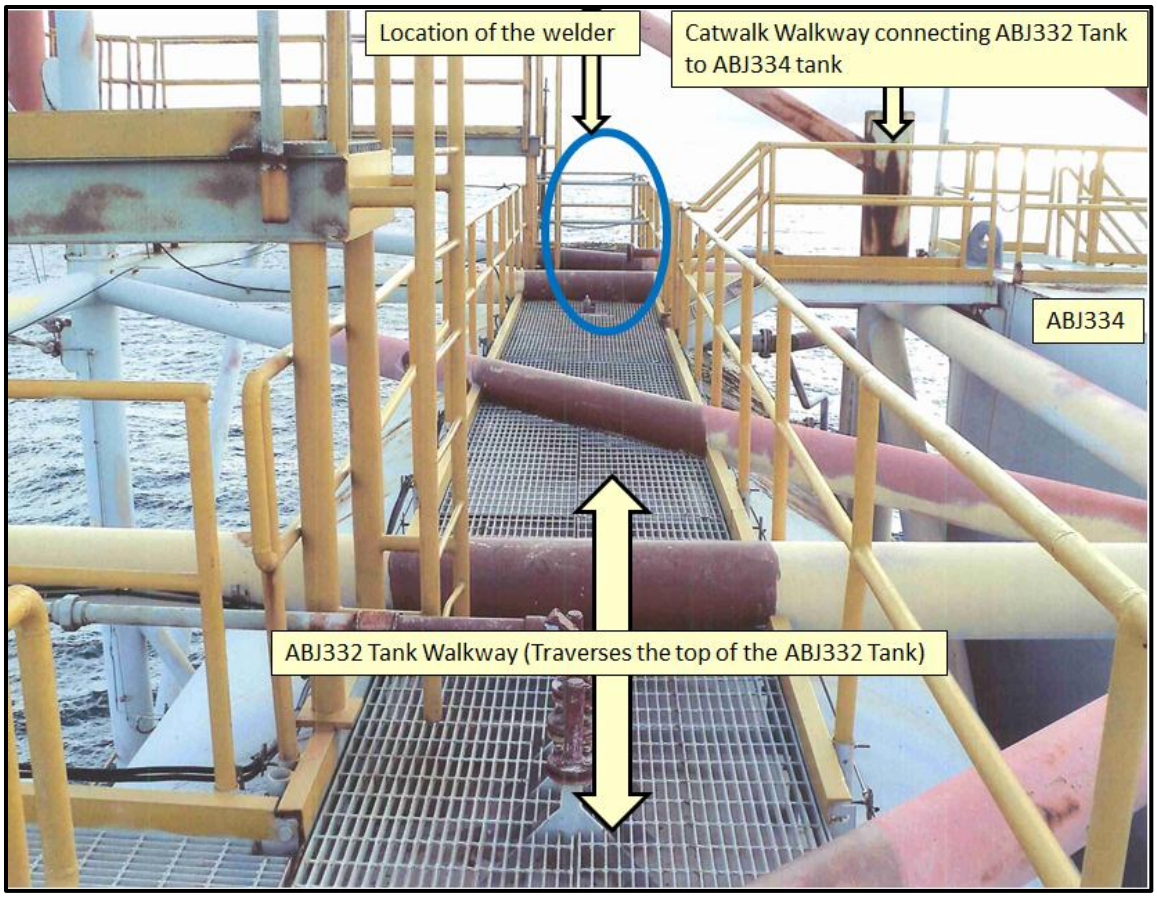

Figure 5: Pre-Incident Photo of the walkway on top of the ABJ332 Tank skid at Vermilion Block 200 Platform "A" (Photo provided by Talos/ERT)

At approximately 7:05 p.m., the welder was standing on the walkway of the ABJ332 tank (outboard side of the catwalk) and began cutting the base of the catwalk's handrail where it attached to the tank (Figure 5). The welder cut one side of the catwalk's handrail completely. As he made the final cut to the remaining contact point, the catwalk and the dry oil storage tank ABJ332 skid assembly began to vibrate. The entire skid package, including the flare booms rotated outward away from the platform and fell 115 feet into the water below. (see Figure 6 for an aerial Before & After of the platform structure). The welder was last seen by the deck foreman still standing on the tank as it rotated away from him.

The man overboard emergency plan was initiated and all crewmembers were mustered for a head count. The welder was identified as being only person missing. The tank package was observed floating for a brief time after hitting the water before sinking. The welder however, was not observed at or around the tank. Service vessels in the area began a search, and were ultimately joined by assets from the USCG. Despite these efforts, the welder was not located. After two days of surface and underwater searching, the divers recovered the body of the welder from amidst the tank wreckage on the seafloor.

Figure 6: Aerial Before & After Photos of Vermilion Block 200 Platform "A" (Top Photo from Talos/ERT-OFS June 28, 2012 Site Visit; Bottom Photo from Panel Site Visit, November 14, 2013)

Investigative Findings

The Vermilion Block 200 Platform "A" removal had been awarded to OSF as a lump sum contract on May 30, 2013. OSF was to use the DB *William Kallop* for the project. The crane on the DB *William Kallop* has a large lifting capacity of 1700 tons. However since the weight of the Vermilion Block 200 Platform "A" superstructure was 2800 tons, OSF planned to remove the structure in multiple lifts. In addition, the superstructure weight was to be managed by first removing multiple skids (i.e. the large oil storage tanks, production vessels, compressor, quarters, etc.) as separate individual lifts. The superstructure was then to be split into two sections, allowing it to be removed as two separate lifts. The jacket and piling would then be removed.

OSF's Project Manager visited the Block 200A on August 23, 2013 to conduct a pre-job site visit. As stated during the investigation interview with OSF's Project Manager, this site visit was the first and only time the project manager was on the platform and was able to inspect the actual layout. This site visit lasted approximately 2 hours. Talos/ERT's Onsite Representative was already on location overseeing the cleaning out of the remaining hydrocarbons from the vessels. The vessel cleanout work was completed on August 27, 2013. The third party pipeline decommissioning was completed on October 4, 2013, at which point the platform was declared to be isolated and hydrocarbon free by Talos/ERT.

Project Planning

Using the engineering drawings of the site and the observations collected during the site visit, OSF drafted a job procedure and submitted it to Talos/ERT for their review. This procedure was reviewed by the Talos/ERT Platform Removal Engineer and the Talos/ERT Onsite Representative. The purpose of this review was to ensure that scope of work was understood by OSF and that OSF had conducted the necessary engineering calculations per Talos/ERT's expectations. At that time, Talos/ERT requested that OSF conduct additional structural engineering assessments on the removal lifts for the platform's superstructure and jacket and on the associated lifting pad eyes. Pinnacle Engineering was hired by OSF to review the existing drawings and pictures of the offshore structure, estimate the overall weight of the deck and jacket, and to determine the actual lift weight as well as the loads going to each of the pad eyes.

During interviews conducted by the Panel and document reviews, the following was learned regarding the planning:

- Platform "A" had been relocated to Vermilion Block 200 from another location in 1994. Many of the engineering drawings provided to OSF for planning purposes reflected the original installation data and the 1994 modified structural components. Due to a shallower water depth at the Vermilion Block 200 location, the platform sat approximately 17-18 feet higher in the water than it did in the original location. This change in platform height would impact the lifting calculations for removal of any equipment from the platform.
- The vent booms that were attached to the dry oil storage tank ABJ332 skid assembly were relocated from another platform and installed on Vermilion Block 200 Platform "A" in 1995.
- It was not evident from the engineering drawings that the impact of this additional equipment on the center of gravity or weight distribution on the dry oil storage tank ABJ332 skid assembly was recognized, documented, or accounted for in the decommissioning job procedure. The job procedure did, however, reflect that the vent booms were to be removed prior to the removal of the ABJ332 skid assembly.
- As noted in the Talos/ERT's internal post-incident investigation (Vermilion Block 200 Platform "A" Salvage Incident Timeline), which was submitted to the panel, an engineering evaluation was conducted after the incident of the dry oil storage tank ABJ332 skid assembly (with the vent booms attached). Results of the evaluation indicated that "combining two components creates a skid with slight overturning moment".
- Talos/ERT requested that OSF provide additional engineering review and confirmation on three major lifts (the jacket and the two sections of the superstructure). This was provided by the Pinnacle Engineering study; report dated October 14, 2013. In its report, Pinnacle Engineering clearly identified that OSF intended to remove several large skids off the decks of the superstructure prior to cutting the superstructure in half and separating it from the jacket. Included in these large skids to be taken off the top level of the deck individually were the 3-story quarter/helideck module estimated to weigh 400 tons, two (2) vent booms weighing 25 tons each,

a compressor weighing 125 tons, two (2) dry oil storage tanks each weighing 130 tons, a 3-level production skid weighing 350 tons, and a free water knockout skid weighing 60 tons. These lifts were not included in the scope of the Pinnacle Engineering study.

- The Talos/ERT Request for Quotation (RFQ) prepared for the Platform Removal Derrick Barge Work 2013 identified the following as a Contractor Responsibility:

  > "Provide engineering, at minimum, to perform the following design and analysis in accordance with the appropriate codes and specifications …calculate weights and centers of gravity of deck sections and other components…."

  The only engineering assessments prepared for this project focused on the three major lifts analyzed by Pinnacle Engineering in the aforementioned review requested by Talos/ERT.
- During the Panel interviews, Talos/ERT was asked what would trigger the need for formal engineering assessments to be prepared. The response was that a change from the design or drawings would require an engineering assessment to be submitted to Talos/ERT prior to commencing the work. There was no engineering review of the impact of the change of height of the platform in this second location, the reconfiguration of the platform, and the addition of the two vent booms to the dry oil storage tank ABJ332 skid assembly.
- The latest version (10/21/2013) of the job procedure "Complete Removal 8-Pile Structure W/9 Conductors & Misc. Equipment Packages" prepared by OSF for the Vermilion Block 200 "A" Project and reviewed and approved by Talos/ERT, identifies the key components of the work activities, including a pre-job safety check-off list, additional equipment required, additional personnel required, preparations prior to arrival and the lift component weights. The "Derrick Barge Activities" section presents the work plan itself and the primary work tasks are listed in sequential order. Panel interviews with Talos/ERT and OSF confirmed the supervisors' expectations, work force understanding, and verbal work instructions to be that the lifts would be performed in the order listed in the work plan. However, the sequencing of "prep" work, the need to assess the job safety hazards of prep work as part of the overall work plan, and the impact of cutting the welds on the overall stability of the equipment, skids and structures were not included in the job procedures.

Reporting Lines, Lines of Communication, Project Oversight

Talos/ERT's Onsite Representative arrived on the DB *William Kallop* at 1:30 p.m. on October 25, 2013 and soon after a pre-job review meeting was held between the Talos/ERT Onsite Representative and the OSF Barge Superintendent. The job procedure was discussed as were the weather conditions and conditions at the work site. The OSF Barge Superintendent is the position identified as being responsible for the safe operation of the barge, and in charge of all on site work activities for the Vermilion Block 200 Platform "A" platform removal operation.

Under the Barge Superintendent, a Deck Foreman was the primary supervisor on the platform during work activities. Each welding crew had a designated supervisor who reported to the Deck Foreman.

The workers were made up of a mixture of American and Filipino welders. In an effort to ensure that communication between supervisors and workers was effective and understood by everyone, the Filipino welders were supervised directly by a Filipino foreman fluent in English.

The derrick barge arrived on location at 6:30 p.m. on October 26, 2013. The barge had completed another project in the South Pelto Area. Based on the weather forecast, OSF made the decision to delay any heavy lifts until the weather forecast improved. As described in the job procedure, the first planned lift was to have been the removal of the two vent booms, followed by a second lift to remove the dry oil tank ABJ-332. Instead, the decision was made by the Barge Superintendent to

begin to prepare the tank skid assembly for removal so that they would be ready to lift once the weather conditions improved. This skid assembly included the skid frame, the dry oil storage tank ABJ332, and the two connected vent booms. At 11:45 p.m. on October 26, the morning shift change safety meeting was held with the OSF Barge Superintendent, and the OSF Barge Foremen and the crew prior to beginning the work shift.

During Panel interviews and document review the following was learned regarding the reporting lines, lines of communication, and project oversight:

- The OSF Project Manager, the author of the job procedure, was identified as the person responsible for overall project management. It was reported that any deviations from the job plan would be discussed between the OSF Project Manager (onshore – not at the offshore job site) and the OSF Barge Superintendent (offshore at the job site) prior to making any significant change to the written procedure.
- Aside from the requested Pinnacle Engineering review of the three large lifts, the only engineering oversight of this project was provided by the Talos/ERT Platform Removal Engineer during the preparation and planning of RFQ and bid review. He is a licensed Professional Engineer in Louisiana. Responsibility for the daily work activities and change management decisions were assigned to the OSF Barge Superintendent and the OSF Project Manager. Neither of these OSF individuals are licensed engineers.
- The decision to defer the lifting operations until the weather conditions improved resulted in the verbal work instructions to start preparing (i.e. "prepping") the ABJ332 skid assembly, and conductors for removal. This change was not considered by OSF's management or work crew as a deviation from the work plan. Therefore, OSF's Management of Change procedure was not applied.
- Vermilion Block 200 Platform "A" was one of 23 platforms in Talos/ERT's plan to remove, transport and dispose of their "Idle Iron"[**]. Because the contract with OSF for Vermilion Block 200 Platform "A" was written as a lump-sum project, Talos/ERT saw their management oversight role as minimal. A signed SEMS (Safety and Environment Management Systems) Bridging Agreement, per 30 CFR 250.1914, between Talos/ERT and OSF was in place at the time of the incident. However, the Talos/ERT Onsite Representative, although aware that the OSF SEMS Plan existed, had not seen the OSF SEMS Plan or the OSF written safe work procedures, nor had he been given any instructions from OSF or Talos/ERT management as to their expectations for safe work practices as presented in the SEMS Bridging Document and in the OSF SEMS Plan.
- The Talos/ERT Onsite Representative stated during his interview regarding expectations for safe work practices, "From a corporate level? You'd have to ask someone else, I am not that guy". The individual stated that he was relying on the fact that the management (at ERT and Talos) has reviewed their (OSF) safety procedures and their training. The Talos/ERT Onsite Representative's primary job task was described as being to determine if the work is covered by the contract or if "extra work" not covered by the contract has occurred. He approves the written JSAs, may or may not be present for the JSA discussions, and has full authority to shut down work.
- According to OSF company policies, HSE (Health, Safety & Environmental) oversight on the project was provided by the OSF HSE Manager. This position was identified as being responsible for all HSE policy, training, enforcement of the safe work practices, as well as being

[**] Idle Iron is the term used to reference idle oil and gas infrastructure as defined by BSEE in its Notice to Lessees (NTL) 2010-G05 "Decommissioning Guidance for Wells and Platforms." Idle Iron includes wells that are no longer capable of producing in paying quantities, wells and platforms that are no longer useful for operators and toppled platforms.

identified as the "Competent Person in Authority" for certain specialty areas such as rigging, program administration and implementation. Currently the Director of Administration has assumed the responsibilities of the HSE Manager. Although the Director Administration/Acting HSE Manager signed the SEMS Bridging Agreement for OSF, he did not provide any direct oversight of the work activities on Vermilion Block 200 Platform "A".

- The responsibility for HSE on the work site was provided by the Medics. Based on information provided by OSF, these medics were fully qualified to provide emergency care to an injured person. However no information, other than records documenting attendance in safety training, was provided demonstrating that these medics were experienced in or actively played a role in recognizing and mitigating the hazards associated with work activities supporting the decommissioning of the facility. Specifically, the need to identify the assembly's center of gravity prior to cutting the connection points was not documented in any JSA nor reported during the interviews with OSF personnel.

Safety Meetings, Job Safety Analysis (JSA), Safe Work Practices

The Panel reviewed all JSAs that were conducted as part of the shift change meeting. The JSAs focused on the overall activities planned for the shift. As there were no lifts planned during the October 27 12a/12p shift, assigned work was limited to "prepping" activities, which included installing temporary work platforms (Figure 7), cutting piping, and performing 50% cuts to the skid supports. There were to be two locations where the initial "prep" work was to be carried out during the shift (in daylight): (1) on the well conductors on the top of jacket area, and (2) on the flare boom piping and the dry oil storage tank ABJ332 skid assembly around the main deck. Following the JSA, the OSF Barge Superintendent and the OSF Welding Foremen conducted a platform walk around. The standing work instructions from the OSF Barge Superintendent to the welders were to "cut the tank skid 50% free".

By the end of the first shift, the welders had reportedly cut over half of the 16 welds around the perimeter of the four pads of the dry oil storage tank ABJ332 skid assembly. The weather conditions had not improved, so the Barge Superintendent made the decision to again postpone the heavy lifts and instead to continue with the "prep" work. The 12p/12a shift change safety meeting was held at 11:45 a.m., where the work instructions to continue the "prep" work were communicated to the work crew. "Prep" work was planned for both the conductor area as well as topside at the dry oil storage tank ABJ332 skid assembly. JSAs were conducted for both the welding and rigging crew. Then informal "toolbox" meetings occurred as a part of the shift change at both work locations. These discussions were focused on the job tasks assigned for the shift.

From 12:00 p.m. to 4:00 p.m. two OSF welders continued cutting the welds of the pads supporting the dry oil storage tank ABJ332 skid assembly.

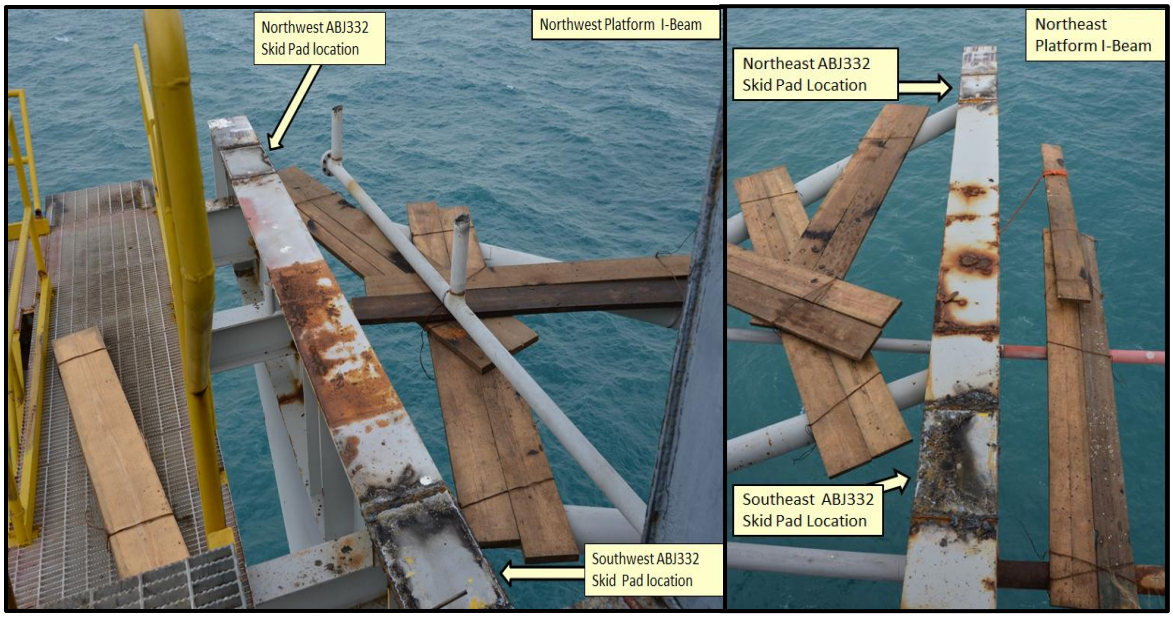

Figure 7: Post-Incident Photos of the Wood Scaffolding. Northwest Platform I-Beam (Left) and Northeast Platform I-Beam (Right) that Supported the Dry Oil Storage Tank ABJ332 Skid Assembly at Vermilion Block 200 Platform "A" (Photo from Panel Site Visit, November 14, 2013)

During Panel interviews and document review the following was learned regarding safety meetings, Job Safety Analysis (JSA), and safe work practices:

- The JSA was conducted as a part of the shift change safety meeting. The JSAs were broad in scope and generic in instructions. Additional JSA's were not conducted during the shift as work progressed. Panel interviews with several of the workers onsite following the incident indicated that the JSA discussions were focused on the describing the generic work tasks and standard safety practices rather than discussing the job specific hazards and available mitigation actions.
- The unfavorable weather conditions and resulting change in work plans did not trigger the OSF Management of Change (MOC) Procedure.
- The decision to "prep" the conductors and the pads supporting the dry oil storage tank ABJ332 skid assembly instead of proceeding with Item 6 of the approved work plan, "the removal of the two vent booms and secure on cargo barge" was not viewed by OSF or Talos/ERT as a deviation from plan. Therefore, no additional Risk Assessment, or location specific JSA was identified and requested prior to instructing the work teams to "prep" the areas.
- The approved work procedure did not include any written procedures, instructions or guidance regarding "prepping" the site prior to any specific lift. There were no written procedures, instructions or guidance as to a sequence of "prepping" activities, or how to integrate "prepping" activities into the planned heavy lift sequence.
- The standing verbal work instruction for the "prepping" activities conducted on October 27, 2013 was to "cut 50%". This work instruction was verbally communicated to both shifts. During the Panel Interviews with both OSF and Talos/ERT personnel, this work instruction was consistently referred to as a "standard procedure", "standard policy" or "routine practice". However, no one could produce a written procedure or work instruction that describes what "cut 50%" translates to in terms of actions. The JSAs do not contain any reference to this work instruction.

- During the Panel interviews, the interviewees were asked to draw a picture of what "cut 50%" would look like when cutting the pads supporting the dry oil storage tank ABJ332 skid assembly (see Figure 8 for a sampling of these drawings). Based on the inconsistencies in the drawings and supporting explanations provided by supervisors, foremen, workers and management, there did not appear to be a consistent understanding of this work instruction in place at the time of the incident. Some described "50%" as fully cutting two of the four pads, either two outboard (the platform) or two inboard. Others described that "50%" meant cut away half the weld on each of the four pads.

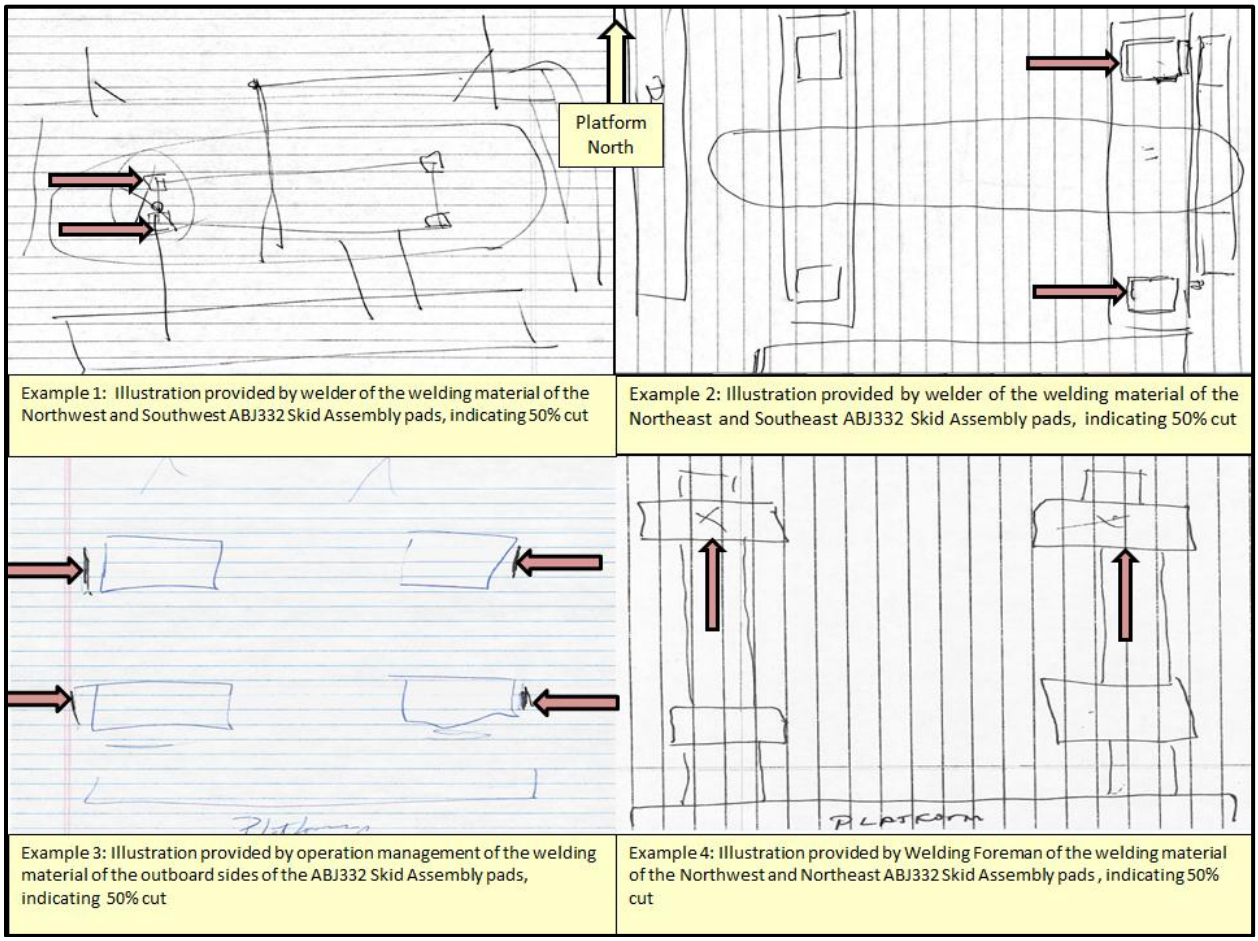

Figure 8: Sampling of Post-Incident Sketches Drawn by OSF and Talos/ERT Personnel to "Describe the Process of Cut 50%" (from Panel Interviews). Panel found inconsistent depiction of not only "50%" but of inboard vs. outboard weld

- The OSF Welding Foreman on duty for the 12a/12p shift on October 27, 2013 identified the risks of cutting the pads under the dry oil storage tank ABJ332 skid assembly as a job hazard during the shift safety meeting with his crew.
- Although the Panel received several conflicting accounts of what was actually communicated to the welders cutting the skid pads, multiple individuals reported that they understood that they were to minimize the time working under the skid.
- There was no check/inspection of the ABJ332 skid assembly preparation activity during the shift or shift change handover by either the OSF supervisors or Talos/ERT Onsite Representative.

- During the handover at the midday (11:45 a.m.) shift change, there was no structured communication on the status of work completed, identification or tracking of the location of the cutting activities that occurred during the shift, or further clarification or direction for the standing instruction to "cut 50%" at the foreman/supervisor level. There is no documentation of the cutting of the pads supporting the dry oil storage tank ABJ332 skid assembly in the daily work log. The daily job report is intended to track work activities that occur during the shift and is forwarded at the end of the day to both Talos/ERT and OSF onshore management to update the status of the project.
- The OSF foremen did not discuss or explain the standing work instructions to "cut 50%" with their welding crews at the beginning of each shift.

The Activities Leading up to the Incident

At approximately 4:00 p.m., several individuals reported that a loud "pop" was heard in the vicinity of the dry oil storage tank ABJ332 skid assembly. The OSF welders working around the dry oil storage tank ABJ332 skid assembly reported that the skid moved or lifted approximately 3/8 inch to 1/2 inch. The OSF welder working under the skid, cutting the welds on the skid pads, reported that the weld on one side of the skid pad broke. Both the OSF welder and the on-site OSF Welding Foreman acknowledged the noise and the skid movement and conversed briefly to confirm the OSF welder was not injured and to verify that the skid pad the OSF welder had been cutting was cut free. The OSF welder confirmed that the remaining welds of the ABJ332 skid package pads were "cut free". The welder was then tasked to start cutting the welding material around the adjacent ABJ334 rectangular storage tank.

After the final cuts were made to the ABJ332 skid assembly pads, a welder, who previously had been working in the conductor area, was asked to report to the top of the ABJ332 tank, to assist with additional cutting.

During Panel interviews and document review the following incident background was provided:

- There was no "stop work" initiated or recognition of a "near-miss" after the unexpected "pop" and skid lifting. Although the foreman did inquire as to the welder's well-being, "are you alive?" immediately following the tank lifting, there was no attempt to formally assess the condition or stability of the tank and surrounding piping to confirm that it was safe to proceed.
- The skid "pop" and status of the skid pad welds was not reported up to the Barge Superintendent or the Talos/ERT Onsite Representative.
- The "Stop Work Authority" was cited by both Talos/ERT and OSF as a critical component of their safety management systems. During the Panel interviews, this procedure was referenced by management and supervisory levels within Talos/ERT and OSF as evidence of a strong safety culture within their respective organizations. However, the unexpected skid "pop" and movement was not recognized by personnel from either OSF or Talos/ERT as something that should have triggered a need to stop work and assess the risks of the work activity.
- At the time of the "pop" and skid lifting, it was recognized by the OSF welder and OSF Welding Foreman that all of the pads at the dry oil storage tank ABJ332 skid assembly were being/ had been cut through (i.e., cut 100%). This state of the welding cuts conflicts directly with the standing work instruction of "cut 50%," as described by OSF supervisors during the Panel interviews. No action was taken by the OSF Welding Foreman to report this discrepancy to the Barge Superintendent.
- The consequences of cutting the skid pads through completely (i.e., 100%) during the "prep" work was not recognized by OSF personnel. Recognition that the center of gravity of the tank

skid and vent booms might present a hazard was never identified as an issue on the work plan, during the shift change walk around, or during the safety meetings/ JSA's.

- When the welder was moved to a new work location during his shift, he did not receive a JSA or safety briefing at the new location to identify the job specific hazards or instructions. It was reported that he was told to cut the catwalk free.

Search and Recovery of the Victim and Subsequent Autopsy

When the tank package fell into the water, it floated briefly. Workers on the platform and the barge, alerted to the situation, began to scan the water in the hopes of seeing the welder who was the only person missing after the muster had been called to account for personnel.

In addition to a continued surface search, divers were called in to search the debris of the tank package which had come to rest adjacent to one of the barge anchor lines. After two days divers did locate the body of the welder amidst the tank wreckage on the seafloor.

His body was recovered and ultimately transported to the Vermilion Parish (Louisiana) Coroner.

An autopsy conducted concluded that the cause of death was "Drowning with contribution of blunt force injuries to head."

Conclusions

Cause of the Worker Falling Overboard

This incident was caused by the failure to recognize that the dry oil storage tank ABJ332 skid assembly, with the two vent booms still attached, represented an unstable configuration if not secured by multiple welded connection points. The removal of the welded connection points directly led to the skid assembly rotating on the two outboard pads and falling 115 feet into the Gulf of Mexico when the last connection point, the base of the catwalk handrail, was severed. The welder, who was standing on the catwalk that traverses the top of the ABJ332 tank, was carried overboard with the skid assembly. Although the welder was wearing a fall protection harness, he was not required to anchor to a secure point as he was working within the handrails of the catwalk. The Panel concluded that the use of fall protection equipment would not have prevented the individual being carried overboard as the entire tank skid assembly, including the tank walkway toppled overboard (refer to Figure 5 for the location of the welder).

Both Talos/ERT and OSF have documented policies, procedures, and safety management systems in place within their respective organizations that, if followed as written, would have supported the identification of this risk, allowed for appropriate mitigation measures to be implemented, and supported the safe removal of the equipment. However, deficiencies in the way these corporate level documents were translated into work practices for the Vermilion Block 200 Platform "A" removal project directly contributed to the fatal incident as follows:

- OSF, as well as the contractual oversight from Talos/ERT, failed to apply the same planning, supervisory, and procedural rigor to "prep" work as would have been in place for a lift.

- The work plan developed by OSF and approved by Talos/ERT focused on the major lifts involved in the demolition and removal of Vermilion Block 200 Platform "A". "Prep" work procedures were not developed as part of the work plan.
- The risks or hazards of preparing the site for a lift were not evaluated in the context of the lift. The JSAs focused on the tasks of cutting a weld, not on the bigger picture of changing the structural integrity of the work site.
- There was no formal plan for tracking of "prep" work. Job assignments for the "prep" work were communicated in general terms, e.g., "cut 50%", without a clear expectation of what was to be accomplished during a shift. During the shift change handoff discussion, there was no review or discussion around the progress of the cutting activities. There was no documented record of what had been cut and where. "Prep" work at the dry oil storage tank ABJ332 skid assembly was not reflected in the daily job report.
- "Prep" work on October 27, 2013 was assigned because the weather did not allow for the planned heavy lift. It was viewed as routine and something to do until the weather cleared, not an integral part of the job.

- There was no documentation or common understanding of the critical work instruction "cut 50%".

  - There was no written description of what this instruction would look like in practice. The instructions were delivered to the work force verbally, without any clarification or site specific guidance.
  - The supervisors on this job had different opinions of what "cut 50%" would look like.
  - There was no direct oversight during the cutting activities to ensure that all workers were cutting to the same standard. Although supervisors were walking the job sites, no one was tracking the location of the cuts, verifying compliance to the "cut 50%" standing instruction, and documenting completed work. When cuts greater than 50% were identified, work was not stopped or questioned.

Contributing Causes

The Panel concluded that if the "prep" work had been managed to a comparable level as the heavy lifts, and if the work instruction of "cut 50%" had been consistently understood and applied, the impact of the following deficiencies may have been mitigated:

- The engineering oversight and planning of the removal of Vermilion Block 200 Platform "A" was not adequate.

  - The Talos/ERT Request for Quotation for this job included a requirement to calculate weights and centers of gravity of deck sections and other components. Only three heavy lifts were confirmed by an engineering study performed by Pinnacle Engineering (requested by Talos/ERT). Seven additional lifts, including the dry oil storage tank ABJ332 skid assembly, were identified in the Pinnacle Engineering report as not within their scope. Talos/ERT accepted OSF's bid for the work without further engineering verification of their work plan.
  - The vent booms were attached to the dry oil storage tank ABJ332 skid assembly years after the original design and construction of the platform. The platform itself had been relocated to a different location from the original design which resulted in the platform being 18 feet higher above the water. These changes did not trigger a full engineering review of the proposed lifts or validation of the facility drawings.
  - The OSF Project Manager was responsible for developing the work plan for the job. He was also identified as a control for authorizing changes to approved work plan. The individual in

this position is not an engineer by discipline or certification. Changes to the work plan would not be routinely reviewed or approved by a certified engineer or engineering group, unless the Project Manager/ERT requested a third party (engineering) review.

- Job Safety Analysis (JSA) discussions were focused on the work tasks rather than the hazards and were generic in content.

    - JSAs were conducted at the beginning of each shift. They were included as part of the shift change safety meetings, and were general enough to cover all work activities scheduled for that shift. However, a separate JSA discussion was delivered at each of the two work sites.
    - The forms documenting the JSAs were generic in content and did not support that a detailed discussion of the job specific hazards had been conducted. The JSA's documented that the use of personal protective equipment was discussed. In addition, there were general items such as reminders for fire and spill hazards, potential slips, trips and falls, damaged tools and "unsafe work conditions" included on the JSA. There was no documentation that the risks associated with the assigned work task, e.g., working around equipment that was being cut free in preparation for removal, were introduced or discussed during the JSA discussions.
    - Panel interviews with several workers supported the panel's conclusion that the JSA discussions did not present the job hazards and mitigation options for the tasks being assigned during the shift. The workers did sign their respective JSAs.
    - No additional JSA was held when a worker was moved from one work location to another during a shift. The only JSA's delivered to the work crews were the one's discussed at the beginning of each shift.

- The Talos/ERT/OSF Safety and Environmental Management Systems Bridging Agreement was signed and available for review; however, evidence of implementation, management oversight, and employee understanding at the Vermilion Block 200 Platform "A" work site could not be verified by the Panel.

    - The Talos/ERT Onsite Representative on Vermilion Block 200 Platform "A" had not seen the SEMS bridging document, was not familiar with the expectations and commitments made by both Talos/ERT and OSF, and had not seen the written OSF policies and standards operating procedures for Management of Change, Hazard Identification and Risk Assessment, and Scaffold Use. He knew that a SEMS plan existed, but stated that it was dealt with at a Corporate Level. The Talos/ERT Onsite Representative was tracking OSF performance to their contract, but was not focused on the commitments made in the SEMS Bridging Agreement.
    - The "Stop Work Authority" policy was consistently cited by both Talos/ERT and OSF managers and supervisors as evidence of a strong safety culture. It was also identified as a barrier to a potential incident, as everyone can stop work if they feel it is unsafe. No one evoked the "stop work" authority following a pronounced "pop" and unexpected shift in tank position.
    - The OSF Welding Foreman did not question nor report the inconsistencies in the way welders were cutting the ABJ332 skid assembly pads. The situation of the pads being cut through was not reported back to the Barge Superintendent, prior to and following the audible and visual observation that the pad on the South East corner had "popped" and that the skid had moved.
    - The apparent change in work instructions from "cut 50%" to finish cutting the remaining pads 100% free was not communicated to or discussed with the Barge Superintendent.
    - During the post incident site visit by Talos/ERT-OFS, visual evidence of the deviation between the SEMS documents and actual practice did not raise questions or concerns amongst company leaders. The temporary work platforms or scaffolds constructed for this

job did not meet the company standards, i.e., OSF "Policy for Scaffold Use" which referenced the OSHA standard. When asked if what was constructed for the Vermilion Block 200 Platform "A" job (Figure 7) was the usual OSF/ERT scaffolding standard, the response from Talos/ERT was "as I did not see people working off these platforms, I could not say. Fall protection may have been used."

- The condition of the scaffolding was recognized as being less than what Talos/ERT would publically claim as their standard in an internal Talos/ERT email (November 9, 2013) discussing the upcoming visit by BSEE to the incident site. When discussing the visit, the Talos/ERT employee states " the platform is not in the shape we would have it to prepare for a BSEE Inspection as far as housekeeping and the way boards are set up for access to platform piles for workers" (i.e., temporary scaffolding). The standard of scaffolding installed at the platform (Figure 7) was not consistent with the standards for safety (e.g., OSHA) promoted by both Talos/ERT and OSF throughout their SEMS policy documents.
- The Panel concluded that the condition of the scaffolding/temporary work platforms was an indicator of the safety culture at the work site.

Other Conclusions

The Panel also looked into the language differences between American supervisors/workers and the Filipino supervisors/workers. There were no indications that language skills i.e., speaking and understanding played a contributing role in the incident. The crew compliment of the barge at the time of the incident had been on board for in some cases several weeks. Many of the workers had several multiple-week contracts working for OSF, and were, by all accounts, familiar with each other. This included the welder involved in the fatality, who according to the Persons on Board (POB) list, had been on the barge since June 3, 2013. That same record showed that he was on his fifth contract with OSF.

The advantages of employing a crew familiar with working with each other, however, were minimized when it was found that there were multiple interpretations of work instructions, specifically in the instruction to "cut 50%." The use of this term was characterized as being a standard practice and commonly understood. However, the panel found significant variations in what this term meant in actual practice. This lack of a consistent understanding of the work instruction extended across both companies, and was identified at multiple levels within the OSF and Talos/ERT organizations.

The panel concluded that any communication barriers were the result of an undefined meaning surrounding the "cut 50%" instruction rather than a language issue.

Recommendations

Under the Outer Continental Shelf Lands Act ("OCSLA"), 43 U.S.C 1348(b), the Secretary of the Interior is authorized to manage and regulate the leasing, exploration, development, and production of resources on the Outer Continental Shelf ("OCS"). The Secretary has delegated this authority to BSEE. OCSLA provides that lease or permit holders have an affirmative duty to:

(1) maintain all places of employment within the lease area or within the area covered by such permit in compliance with occupational safety and health standards and, in addition, free from recognized hazards to employees of the lease holder or permit holder or of any

contractor or subcontractor operating within such lease area or within the area covered by such permit on the OCS;

(2) maintain all operations within such lease area or within the area covered by such permit in compliance with regulations intended to protect persons, property and the environment on the OCS; and

(3) allow prompt access, at the site of any operation subject to safety regulations, to any inspector, and to provide such documents and records which are pertinent to occupational or public health, safety or environmental protection, as may be requested.

This Section sets forth the Panel's findings related to the involved companies' regulatory obligations, as well as the commitments and obligations under the SEMS Bridging Agreement Talos/ERT and OSF had in place on October 27, 2013. The SEMS Bridging Agreement between Talos/ERT and OSF fulfills the operator/contractor performance requirements in 250.1914. As such, the HSE performance for both Talos/ERT and OSF was assessed against the standards, policies, and practices referenced in this document.

Throughout this investigation, the Panel identified examples of where the job planning, hazards recognition and analysis, safe work practices (specifically the three critical processes: job safety analysis, management of change, and stop work authority), and management oversight did not adhere to expectations of either Talos/ERT or OSF as described in their SEMS Bridging Agreement and written HSE Policies and procedures. There was an approved work plan in place for the decommissioning of Vermilion Block 200 Platform "A", and based on the panel interviews of both Talos/ERT and OSF personnel, the plan appeared to be well communicated and understood. However, no one involved with this job recognized the need to incorporate the seemingly "routine" preparation work into the overall project planning, implementation and oversight activities or within the controls of the respective SEMS program elements. To summarize:

OSF

- The work plan focused on the heavy lifts and did not identify or define a sequence for the respective prepping activities.
- There were no engineering or hazard assessments which evaluated the sequence and nature of the "prep work" in conjunction with the planned lifts.
- The work activities conducted as prep work, e.g., the cutting 50%, were not formally communicated during the safety meeting, were not tracked against a plan, were not documented or inspected at shift change.
- Recognized deviations to a standing instruction to cut 50% were not reported to the Barge Superintendent nor did they trigger the need to stop work, assess the hazards and adjust the work plan accordingly.

Talos/ERT

- The Talos/ERT On-board Representative did not recognize or question the lack of compliance to OSF's HSE Company Policies during the prepping activities.
- The Talos/ERT Platform Removal Engineer was aware that the platform configuration had changed over the life of the facility due to it being relocated from its original location and structural modifications e.g., addition of vent booms to the ABJ332 skid assembly. Talos/ERT accepted OSF's bid for the work without further engineering verification of their work plan.

Violation of Federal Regulations—Talos/ERT and OSF

Potential Incidents of Non Compliance

The Panel recommends the appropriate BSEE office review the Panel Report in detail. BSEE should consider the complex Contractor and Operator relationship that existed at the time of the Incident, and consider issuing an Incident of Non-Compliance (INC) to Talos/ERT with the Potential Incident of Non-Compliance (PINC) reference of G-110. *"The operator failed to perform operations in a safe and workmanlike manner."* BSEE should consider any additional authorities supported by specific findings and bullet the individual items accordingly.

BSEE should also consider issuing an Incident of Non-Compliance to OSF for the "failure to perform operations in a safe and workmanlike manner," in accordance with BSEE guidelines and policy for "Contractor INCs."

Safety and Environmental Management System (SEMS)

Potential SEMS Deviations

As a part of the BSEE Panel Investigation into the fatality, the Panel reviewed Talos/ERT and OSF SEMS program documents, including bridging agreement documents between Talos/ERT and OSF. The Panel's focus on the respective SEMS programs, and most importantly on the bridging document itself, was to determine the expectations for safety performance set by both organizations at the start of this job and to compare actual practice to these expectations. Although written SEMS plans and supporting documentation were in place within both Talos/ERT and OSF, the actual planning and hazard analysis/risk management, safe work practices and management oversight in place at the time of the incident were not to the standard or expectations described in the SEMS documentation. Neither Talos/ERT nor OSF's SEMS plans were implemented as written in their documentation. The Panel has identified the following SEMS findings and recommends Talos/ERT and OSF to consider the following:

- Strengthen the levels of engineering review, hazard analysis and planning of decommissioning work, including formal evaluations of all component lifts. This evaluation may include identification of all discrepancies between the engineering drawings provided to the contractor for planning purposes and the "as is" state on the structure. These discrepancies should be assessed to identify the impact on the work plan and trigger the creation of mitigation procedures in the work plan, and communicated to the personnel responsible for implementing the work plan.
- When planning a decommissioning project, contractors should incorporate preparation work into the work plan. This may include identification of critical paths when incorporating preparation work into the sequence of component lifts.
- Strengthen the levels of HSE oversight during decommissioning work. SEMS procedures for Management of Change, risk management and hazard identification, and management oversight should be applied and enforced for preparation work as well as to the main work activities.

- Formalize shift change hand-over procedures, including documentation of work planned and completed. Shift change "walk arounds" should consider including the inspection of the work areas for continuity of the work plan.
- Strengthen the Job Safety Analysis (JSA) procedures to reflect the specific work task assigned and the identified hazards and mitigation actions. JSA's should not be generic, covering all work assigned during a shift. A JSA incorporate of the local work plan, highlight the task specific risks, and be tailored to the strengths and skill of the worker assigned to the job. When a worker changes locations during the shift, even when doing similar or the same work assignment, a new JSA should be conducted before starting work to identify the location specific issues.
- Document standard work practices, including those that are assumed to be "standard operating practice". Documentation could include a written procedure or a brief description or drawing included in the JSA.
- Confirm that work instructions have been understood.
- Operators and Contractors should review their Stop Work Authority procedures and ensure employees understand when an imminent risk exists, including when work practices deviate from work instruction, and how to properly communicate and assess situations that require the responsibility and utilization of Stop Work Authority. Operators and contractors should review methods of initiating a "stop work" event, looking for actual and perceived barriers, to ensure that the system adopted will actually be effective.
- Written work procedures should reflect the actual expectation of the work practices. Assign responsibility to appropriate position(s) within the organization rather than a broad based statement the HSE manager is responsible for ensuring the procedures are implemented, conducting inspections, enforcing the procedure, training etc.
- Consider expanding the job responsibilities for the Operator's On Board representative(s) to include confirming HSE performance during decommissioning is being performed to the standards presented in the SEMS Bridging document, or similar agreement. A SEMS Bridging Agreement (or any instrument or mechanism that fulfills the requirements of 30 CFR 250. 1914) between an operator and a contractor should reflect actual expectations for HSE performance and oversight for the specific activities covered by the formal project contract. HSE policies and procedures referenced in the bridging document should establish a standard of performance for the contractor as well as for the operator. Compliance to this performance standard should be verified by both the contractor and operator during the project.

Recommendations for BSEE

- SEMS audits should include verifying the expectations included in a SEMS bridging document or agreements per 30 CFR 250.1914 are actually being followed and enforced by both the operator and contractor.
- The Bureau should consider allocating additional resources to perform more frequent inspections of platforms during abandonment, and/or decommissioning operations.