



OCS Report
MMS 2004-046

**Investigation of Fatality
South Marsh Island Block 130
OCS-G 02280
December 6, 2003**

Gulf of Mexico
Off the Louisiana Coast



U.S. Department of the Interior
Minerals Management Service
Gulf of Mexico OCS Regional Office

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Frank Pausina – Chairman
Marty Rinaudo
Mark Malbrue

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accident

Investigation and Report

Authority

An accident that resulted in one fatality occurred on the Rowan Companies, Inc.'s (Rowan) *Rowan Alaska # 17* drilling rig on Energy Resources Technology's (ERT) Platform C, South Marsh Island Block 130, Lease OCS-G 02280, in the Gulf of Mexico, offshore the State of Louisiana, on December 6, 2003, at approximately 2115 hours. Pursuant to Section 208, Subsection 22 (d), (e), and (f), of the Outer Continental Shelf (OCS) Lands Act, as amended in 1978, and Department of the Interior Regulations 30 CFR 250, Minerals Management Service (MMS) is required to investigate and prepare a public report of this accident. By memorandum dated December 31, 2003, the following personnel were named to the investigative panel (panel):

Frank Pausina, Chairman – Office of Safety Management, GOM OCS Region
Marty Rinaudo – Lafayette District, Field Operations, GOM OCS Region
Mark Malbrue – Lafayette District, Field Operations, GOM OCS Region

Procedures

Four MMS representatives, including a member of the panel, visited the accident scene on December 8, 2003.

On February 11, 2004, at the MMS District Office in Lafayette, Louisiana, the panel interviewed two Rowan roustabouts and a Rowan crane operator, all of whom participated in the task involving the fatality; also interviewed at that time were a Rowan tool pusher and the Rowan Vice President for health, safety, environmental, and regulatory matters.

On February 18, 2004, at the MMS District Office in Lafayette, Louisiana, the panel interviewed Rowan's rig superintendent and ERT's company representative on the rig at the time of the accident, an employee of Petroleum Solutions, Incorporated (PSI) .

On April 1, 2004, at ERT's office in Houston, Texas, the panel interviewed ERT's drilling and operations vice presidents, the co-owner of PSI, and a Rowan floorman.

Various documents from ERT, Rowan, and PSI pertinent to the investigation were collected by the panel.

The panel met numerous times throughout the investigation and, after having considered all of the information available, produced this report.

Introduction

Background

Lease OCS-G 02280 covers approximately 5,000 acres and is located in South Marsh Island Block 130, Gulf of Mexico, off the Louisiana Coast. *For lease location, see Attachment 1.* The lease was issued effective January 6, 1976. ERT became the Designated Operator of the lease on July 1, 2002.

Brief Description of Accident

On the evening of December 6, 2003, contractor personnel were engaged in the task of lifting bundles of 5-inch drill pipe by crane from the pipe rack to the adjacent cat walk for eventual placement on the rig floor. On the third or fourth lift, a bundle (9 joints) weighing approximately 5,760 lbs. began to swing horizontally. A contract employee, in an attempt manually to stop the horizontal movement of the bundle, was pushed backward by the momentum of the bundle to a pipe rack post that prevented any farther backward movement of the employee. The bundle continued to swing and struck the employee in the chest while his back was positioned against the pipe rack post. The resulting injuries were fatal.

Findings

The Accident

On the evening of December 6, 2003, the Rowan crane operator and three Rowan roustabouts began the task of lifting bundles of 5-inch drill pipe by crane from the pipe rack to the adjacent cat walk for eventual placement on the rig floor. *For a photograph of the pipe rack taken from the derrick, see Attachment 2. For a photograph of the pipe rack taken from the opposite direction (from the living quarters), see Attachment 3.*

The crane sling assembly consisted of two choker slings, each of which was attached to the crane hook and to opposite ends of a pipe bundle. *For a photograph of the choker slings, see Attachment 4.*

On the fatal lift, one roustabout (R-1), who was also the designated signalman, attached the slings to the end of a bundle on the derrick side of the pipe rack and assumed his position to signal the crane operator (CO). The other two roustabouts (R-2 and R-3) attached the other sling to the opposite end of the bundle. According to R-1 and R-2, this lift was the third or fourth lift of the task, while the CO stated it was the first. The CO stated that, prior to the lift, he saw R-3 standing on the I-beam of the catwalk side of the pipe rack. As the lift commenced or immediately prior to the lift, R-2 stated that he stepped down from the pipe rack and stepped to the quarters/crane corner of the pipe rack with his back to the pipe rack. R-1 stated that he saw R-3 standing on the catwalk side of the rack, holding the tag line that was attached to the quarters side of the bundle.

As the lift was being made, after R-1 signaled for the lift to commence, both R-1 and the CO stated that they next saw R-3 on the crane side of the pipe rack attempting with extended hands to stop the bundle from swinging. They next saw the bundle strike R-3 in the chest as his back was pressed against the pipe rack post. No one saw R-3 walk from the catwalk side to the crane side of the pipe rack. They then saw R-3 fall approximately four feet from the I-beam of the pipe rack to the skid deck. This occurred at approximately 2115 hours. *For a photograph taken from the crane operator's console panel of the pipe rack and the position simulation of the roustabouts at the time of the accident, see Attachment 5. For a photograph taken from the deck of the pipe rack and the position simulation of the roustabouts at the time of the accident, see Attachment 6.*

Post Accident

Immediately after the accident, R-1 and R-2 approached R-3, perceived the gravity of the situation, and summoned the rig medic. A floorman who was on the rig floor at the time of the accident stated that he witnessed someone administering CPR to R-3 at the accident site. R-3 was then taken to the hospital room. The rig superintendent, the day tool pusher (TP-1), stated that when he was alerted of the accident he immediately went to the hospital room, where he observed CPR being administered to R-3 by the medic with R-1, R-2, and the evening shift's Rowan tool pusher (TP-2) providing assistance. R-3 arrived at Terrebonne General Hospital via helicopter at approximately 2250 hours. Prior to his arrival, R-3 was pronounced dead on the helicopter. TP-1 stated that hospital representatives informed the medic that R-3 should have been declared a fatality on the rig. ERT was informed of the accident by their company representative (PSI-1) on the rig, an employee of Petroleum Solution, Incorporated (PSI).

Lifting Conditions

R-1, R-2, and the CO stated that the weather conditions were good with no wind loading being experienced. They also stated that lighting was sufficient with all task participants clearly visible to one another.

Pre-Job Activities

The B Crew's tour/shift began at 1200 hours on the day of the accident. The B Crew consisted in part of R-1, R-2, R-3 and the CO, who is the supervisor of the referenced roustabouts. The B Crew attended the pre-tour safety meeting, as did TP-2. TP-2 stated that PSI-1 did not attend the meeting. Interviews indicated that various safety issues were discussed at the meeting, including the task of moving the pipe. A report of the meeting signed by members of the B Crew shows that "watch for pinch points, use tag lines, wear proper PPE, and keep good communication" were discussed. There was no formal Job Safety Analysis (JSA) performed for the task.

The CO stated that, prior to the task of moving the drill pipe, the referenced roustabout's activities consisted of housekeeping and cleaning activities. R-2 stated that, later in evening, the

CO assembled R-1, R-2, and R-3 to perform the task of moving the drill pipe from the pipe rack. The CO stated that he assigned the task of moving the pipe only to R-1, R-2, and himself and that he assigned R-3 and another roustabout the task of cleaning the starboard side of the rig. The CO stated that, at some point immediately prior to the actual lift, he saw R-3 at the rack location and decided to let him remain because he seemed to be performing the job adequately. There was no evidence of an immediate pre-task meeting being held.

Employee Performance

The employee was an 18-year old male who, at the time of the accident, was into the fifth day of his first tour offshore. R-1 stated that R-3 was a quick and eager learner and that he was “over-anxious” to do the job and make a good impression. R-1 stated that he was told by the CO that R-3 was doing a good job and would make a “good hand”. The CO stated that R-3 was an eager learner and “good hand” who seemed to enjoy the work. TP-1 stated that R-3 was an eager learner and that he told others that R-3 would make a “good hand.” TP-2 stated R-3 was a fine hand and a “go getter.”

R-1 stated that, in one instance, he was reprimanded by the CO because, as an experienced employee, he allowed R-3 to be in a possible pinch point situation during a routine crane lifting operation that occurred two days prior to the fatality. TP-1 stated that he was aware of the incident and that R-1 had been reprimanded by the CO for that incident. There was no indication that R-3 was reprimanded by the CO for that incident.

In another instance, TP-1 stated that he observed R-3 in the area where the blowout preventer (BOP) was being nipped down. He told R-3 that he was not experienced enough to be in that area and that, as a consequence he, R-3, could be injured. He then instructed R-3 to leave the area and scrub the deck in an area away from that operation. R-3 left the area. After a while, TP-1 observed that R-3 was back in the area assisting one of the floor hands. TP-1 allowed him to remain.

Employee Supervision

As a new employee, R-3 was a roustabout and assigned to the B Crew under the supervision of the CO. R-1 stated that the CO emphasized at the start of the hitch that everyone needed to “keep an eye on the new guy.” Both tool pushers were aware that R-3 was a new employee. TP-2 stated that the CO was a good trainer and supervisor and that the B Crew was the best overall crew.

TP-1 stated that he believed that R-1 had been assigned to oversee R-3.

Employee Training

R-3 had no training by Rowan prior to his initial arrival on the rig. While on the rig, R-3 was given Rowan’s *Welcome Aboard* basic orientation booklet that does not reference rigging.

Documentation shows that R-3 participated in an orientation briefing. The document states “New employees are given specific and detailed instructions on the following items upon arrival on the rig. The immediate supervisor shall complete this orientation with the new employee within the first hitch after the employee arrives on the rig. The employee and the supervisor shall initial off on an item only after both are satisfied that the new employee fully understands each safety related item.” All 18 items were initialed and the document signed both by R-3 and the rig medic, who was not R-3’s immediate supervisor, and all were initialed on December 2, 2003. Item 9.B. of the checklist reads, “Explain dangers/precautions referring to pinch points and ‘caught between’, with examples.” Item 12 reads “Safety and Health Procedures Acknowledgement – Sections 1, 2, 7.” Sections 2 and 7 reference rigging. Section 2 states that tag lines are recommended to maintain good control when large, awkward loads are lifted or drill pipe is moved. Section 7, under crane operations, states that tag lines for controlling loads should always be used unless the crane operator or rig superintendent believes the tag line poses unusual hazards.

According to Rowan documentation, R-3 did not receive any formal course instruction in rigging or crane operations.

Documentation shows that R-3 also participated in another, more detailed safety orientation program covering 13 major headings. Some of the headings required the viewing of videos. Under one of the headings involving cranes, which did not require video viewing, it is stated, “Avoid positioning yourself between a suspended load and an immovable object” and “Be aware of your surroundings, always have a way out.” The items under each heading were initialed by R-3 and, again, the medic during the period from December 2 through 4.

A “Safety and Health Procedures Manual Acknowledgement” document signed by R-3 on December, 2, 2003, states that the signer acknowledges receipt of the manual, understands it is his responsibility to become familiar with its contents, and agrees that it is his duty and responsibility to ask his immediate supervisor or rig superintendent for clarification of a safety rule or procedure that he does not understand.

R-2, who has been employed by Rowan since May 2002, received his first rigger training by Rowan on December 10, 2003, four days after R-3’s fatal accident. R-2 stated that, prior to his employment by Rowan, he had had rigger training with Pride Drilling. R-1, who has been employed by Rowan since June 2002, received crane operation/rigger training in November 2003. The CO, who has been employed by Rowan since 1989, received his last rigger training in September 2000 and crane operation training and performance evaluation in October 2001. The CO also passed a crane operator physical in November 2001.

The CO stated that he was unaware that R-3 had no rigging training. TP-2 stated that he was aware of R-3’s absence of formal training in that area.

Rowan Policies and Procedures

Rowan’s Safety and Health Procedures document states, with respect to new employees, that new employees (a) will be given the opportunity to familiarize themselves with procedures and practices with the help of their supervisors and more experienced crew members, (b) will be briefed on various safety issues, and (c) will be given a rig orientation tour.

The investigation did not reveal any Rowan official documents that restrict new employees from participating in rigging tasks without official course training in rigging. TP-2 stated that Rowan normally observes and supervises new employees while they receive on the job training (OTJ).

The Rowan Vice President for health, safety, environmental, and regulatory matters stated that it is Rowan policy not to document the evaluation of employees, whether positive or negative, for legal reasons. However, TP-2 stated that, while no written evaluations were done for Rowan employees, he did keep written documentation on poor performances. TP-1 stated that Rowan has no evaluation program in place, but that the Rig Manager does evaluate the OIM, i.e., TP-1. One of the duties of crane operators, as documented, is the evaluation of roustabouts for possible promotion or needed training.

Rowan's "Safety and Environmental Management System" document states that JSA's are not required to be completed for simple routine jobs and/or jobs that are not associated with a particular hazard.

Rowan, at the time of the interviews, was conducting an investigation of the accident. Rowan Vice President for HSE and Regulations, in response to a request from the panel for a copy of the investigation report when completed, stated that Rowan's legal counsel, who is in charge of the investigation, advised Rowan not to comply with the request.

ERT Policies and Procedures

The ERT Vice President for drilling stated that ERT does not have a set procedure for selecting contractors. He stated that no ERT safety plan is imposed on the drilling contractor and that ERT relies on the safety plan of the contractors. He stated that ERT's expectations of their company representative on the platform is to be ERT's "eyes and ears" for the operation, to see that the job is done safely, and to attend daily safety meetings. The ERT vice president stated that ERT does not review the training certificates of their contractors and that Rowan was responsible for verifying that their employees were properly trained. He also stated that ERT does not collect any safety meeting documentation. ERT, at the time of the panel's interview of their personnel, was not conducting an investigation of the accident.

PSI

The co-owner of PSI (PSI-2) was hired by ERT as a drilling consultant/engineer and was located at ERT's office. PSI also provided PSI-1 as the ERT representative on the rig who reported daily to PSI-2. PSI-2 stated that PSI's expectations of PSI-1, in addition to following the written technical drilling program, were to attend safety meetings, conduct JSA's for major operations, attend all meetings, and address all safety concerns. PSI-2 stated that there was no pre-spud meeting held between Rowan, ERT, and PSI.

PSI-2 stated that he had no discussion with ERT regarding safety issues and that PSI-1 did not receive a set of safety guidelines from either ERT or PSI.

PSI-1 stated he did not receive a written description of responsibilities as a company representative from ERT. He also stated that he was not instructed to conduct an investigation of the accident.

Crane Operation / Inspection / Maintenance

The investigation revealed no documentation indicating that the crane was improperly inspected or maintained.

Interview statements indicated that, at the time of the fatal lift, the bundle had been evenly secured with the crane hook located directly over the bundle.

According to rig personnel, the crane lowered the bundle of pipe immediately after the accident and was touched for the first time since the accident two days later when it lifted the bundle in the presence of MMS personnel, including a panel member. The MMS personnel witnessed that the slings were evenly spaced and that the crane performed with no irregularities.

Conclusions

The Accident

R-3 abandoned the tag line and walked unobserved to the crane (port) side of the pipe rack. Whether he went to the crane side of the rack to intervene manually in an effort to stop the swinging of the suspended load or walked to that side of the rack to move away from the intended placement area (cat walk) of the load is not known. However, once on the crane side of the rack, he attempted stop the load from swinging and was fatally pinned between the load and the pipe rack post. The reason the bundle swung is not known.

Causes

Employee:

The employee's decision to intervene manually in attempting to stop the load from swinging is a cause of the accident. Whether the intervention was more reflexive or more thoughtful is not known. In either case, the intervention was fatal.

The employee's apparent enthusiasm for the job placed him on more than one occasion in a dangerous situation, and thus must be considered a nominal contributing cause of the accident. Nominal, in that immediate supervisory constraints of such inexperience and enthusiasm were lacking (to be discussed later).

Mechanical:

It is concluded that neither sling placement, the crane's performance, nor the crane's operation are causes of the accident.

Supervision:

Given his awareness of R-3's inexperience and enthusiasm, of at least one previous instance in which R-3 was in a pinch point situation, and his instruction to R-3 to, in effect, not be involved in the lifting operation, the CO's decision to allow R-3 to participate in the lifting operation is considered to be a cause of the accident.

The CO's ignorance of R-3's lack of formal training in rigging is considered a cause of the accident in that, had he known of the lack of training, it is reasonable to conclude that he would not have continued with the lift with R-3 participating.

TP-1's decision to allow R-3 to remain in the area of the BOP operation after having ordered him from the area for safety reasons, together with the CO's failure to address R-3 personally in the earlier pinch point incident, are considered contributing causes of the accident. The allowing of insubordination on the part of R-3 by TP-1 and the CO's "chewing out" of R-1 instead of reprimanding R-3 directly are concluded by the panel to have created a confusing atmosphere of authority and accountability for the new employee.

The failure of all supervision at the pre-tour meeting to perform a formal JSA or reference an existing JSA for the lifting operation is considered a contributing cause of the accident. Even though the meeting report indicates that pinch points and tag line usage was discussed, a completed list of task steps, associated hazards, and actions to be taken to minimize the hazards, as is done in a JSA, can reasonably be expected to have heightened the safety awareness of all involved in the lift.

Employee Training:

R-3's lack of formal rigger training is a cause of the accident.

Rowan Management:

Rowan's failure to restrict official participation in rigging without formal rigger training is a cause of the accident.

Rowan's apparent lack of a scheduled training policy is a contributing cause of the accident. Such a policy could have eliminated the previously mentioned cause by scheduling certain training as a prerequisite for pre-task participation.

Rowan's failure to have a policy on employee evaluation, together with an explicit policy of not documenting evaluations, is a contributing cause of the accident. A clear and formalized evaluation and documentation process that would include the recording and formal addressing of subordination and task performance problems could reasonably be expected to have resulted in a modification of that aspect of R-3's behavior that contributed to the accident.

Rowan's apparent failure to have a mechanism that ensures that supervisors are aware of their subordinates training experience is a contributing cause of the accident. This failure is supported by the fact that none of R-3's training documentation available to the panel were initialed or signed by his supervisor, the CO. Such a mechanism would have alerted the CO to R-3's lack of training.

ERT Management

ERT's failure (1) to have a procedure for selecting drilling contractors, (2) to conduct reviews of contractors' new employee and overall training policies, and (3) to conduct reviews of contractor training documents are contributing causes of the accident. All of the above failures, if eliminated, would have enabled ERT to discover and address the aforementioned deficiencies of their prospective contractor, Rowan.

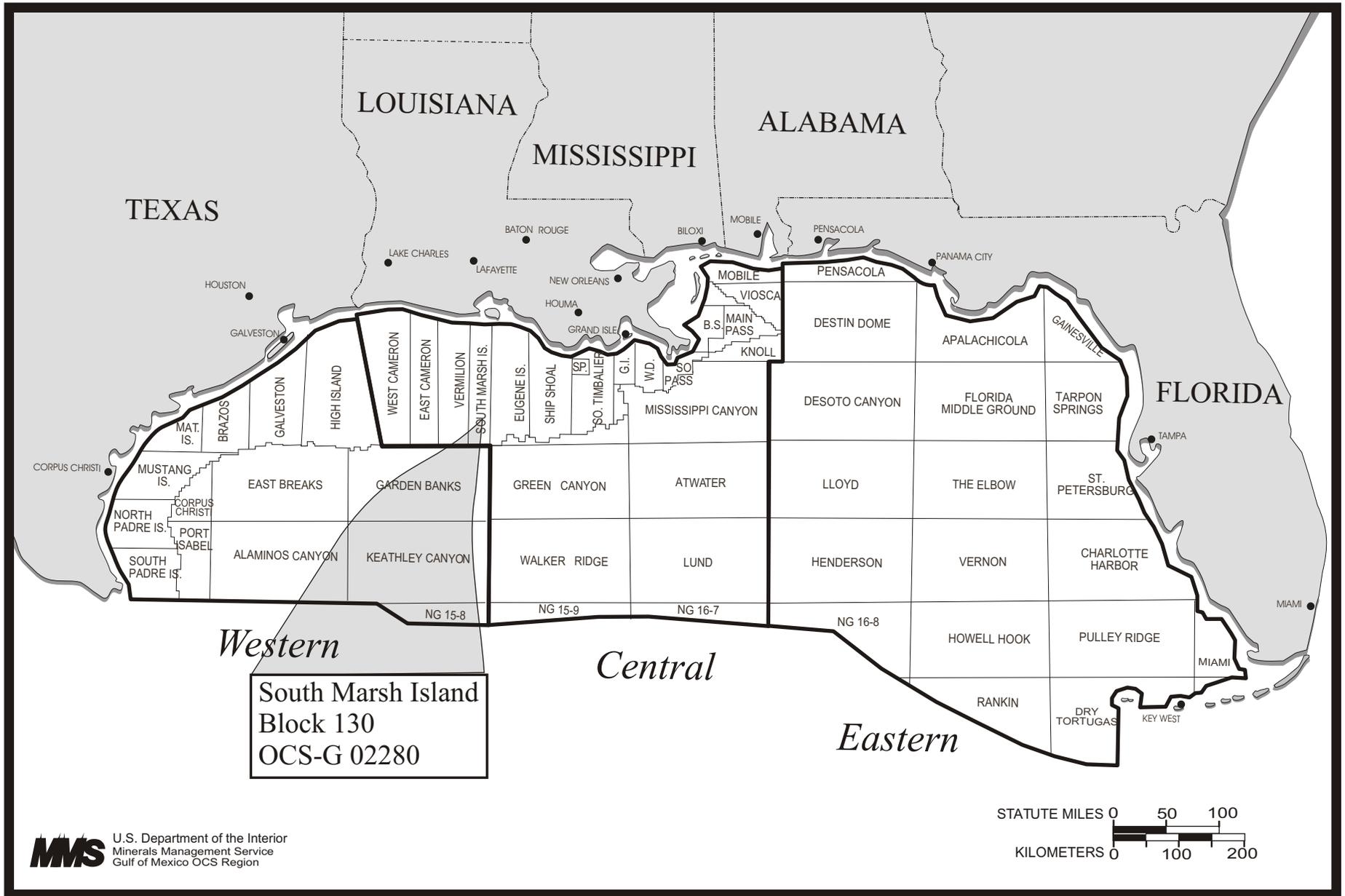
ERT's failure to have clear, documented directives for their representative on the rig, PSI-1, with respect to the monitoring and reporting of safety issues is a contributing cause of the accident.

Recommendations

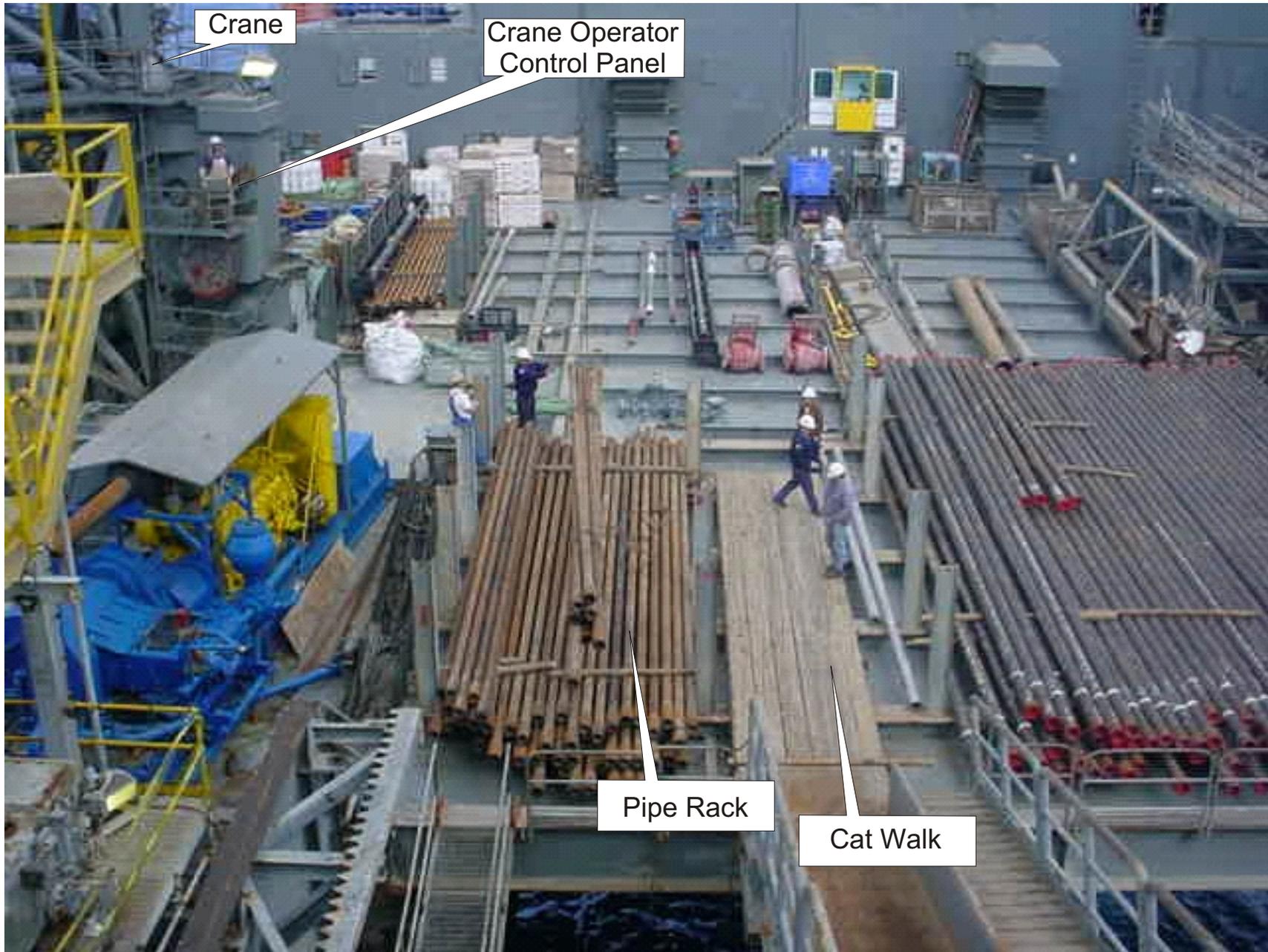
The MMS should issue a Safety Alert to all lessees and operators containing the following:

1. A brief description of the accident,
2. A summary of the causes, and
3. The following recommendations:
 - a) Lessees and Operators should review their policies regarding the selection of contractors and the safety performance monitoring of selected contractors.
 - b) Lessees and Operators should communicate clearly and in writing what is expected of their field representatives especially with respect to the issues of safety enforcement and monitoring.
 - c) JSA's should be performed or referenced for all tasks involving hazards, regardless of the routine nature of the task.
 - d) All personnel involved in rigging/lifting operations should have formal rigger training prior to participating in such operations.

MMS should study the feasibility of expanding the regulations to include additional training requirements, such as crane and rigging operations on mobile offshore drilling units.



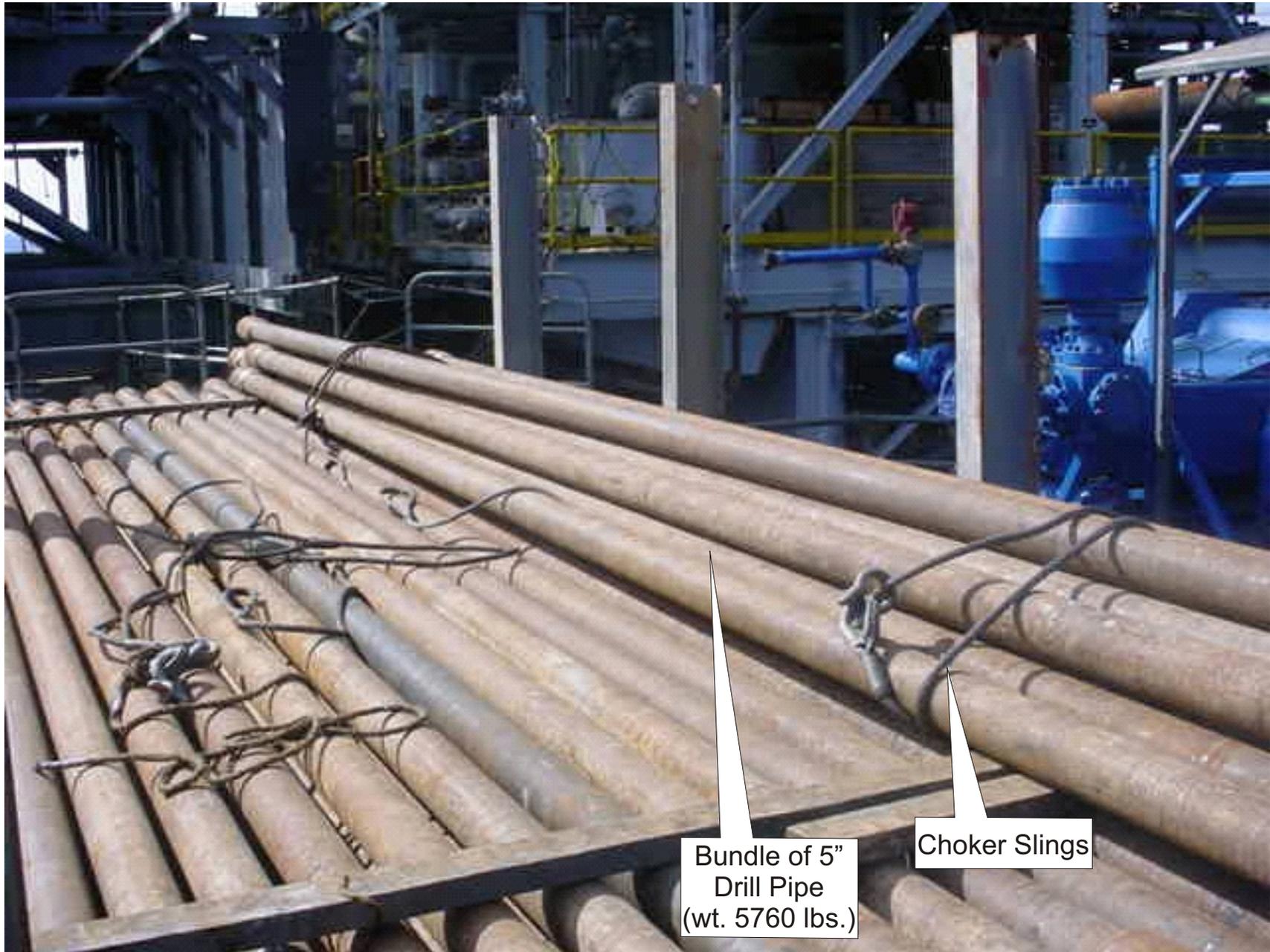
Location of Lease OCS-G 02280, South Marsh Island Block 130.



Photograph of pipe rack as seen from derrick.



Photograph of pipe rack as seen from living quarters.



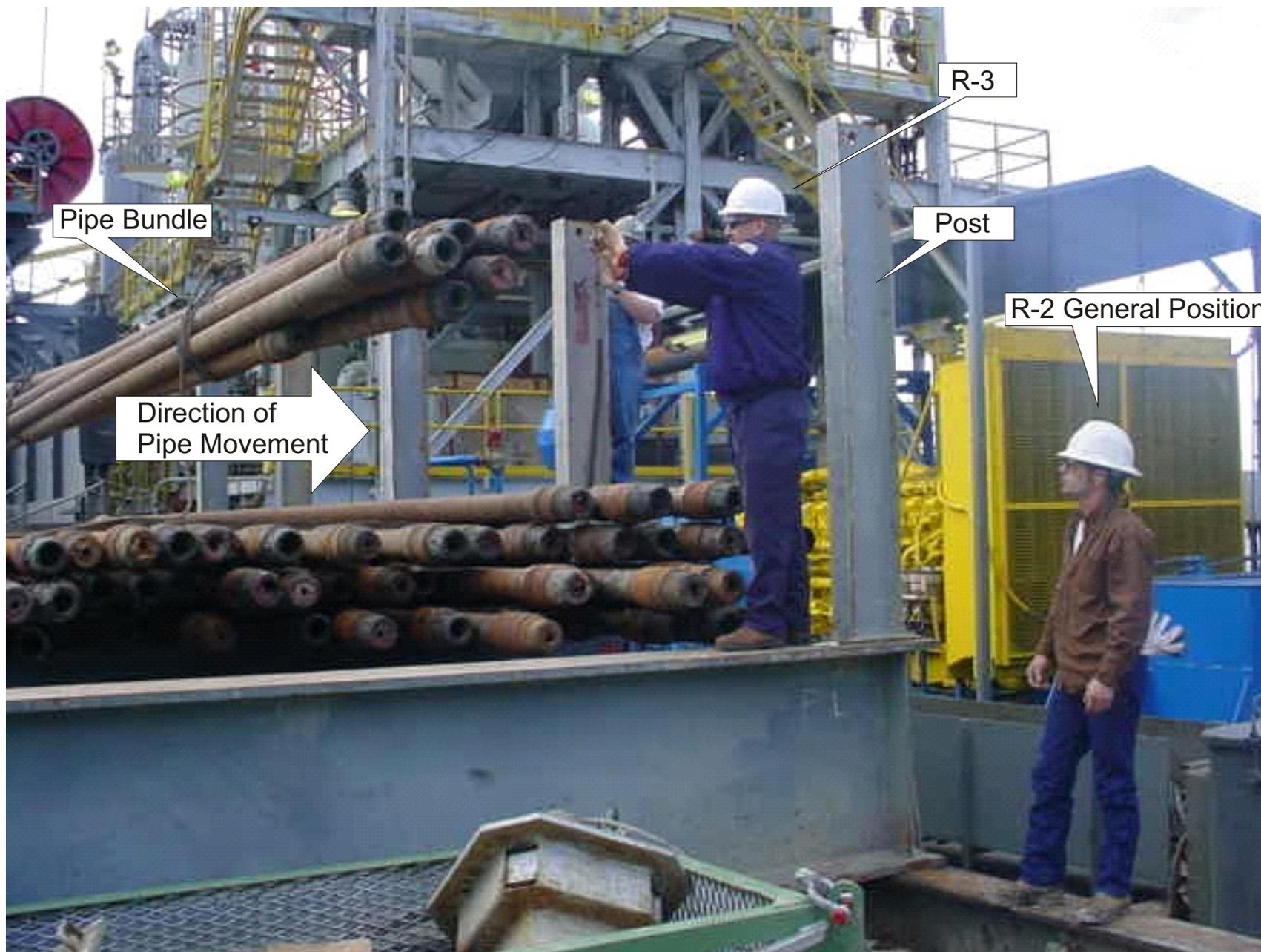
Bundle of 5"
Drill Pipe
(wt. 5760 lbs.)

Choker Slings

Photograph of choker slings.



Photograph of position simulation of roustabouts at time of accident.



Photograph of position simulation of roustabouts at time of accident.



The Department of the Interior Mission

As the Nation's principal conservation agency, the Department of the Interior has responsibility for most of our nationally owned public lands and natural resources. This includes fostering sound use of our land and water resources; protecting our fish, wildlife, and biological diversity; preserving the environmental and cultural values of our national parks and historical places; and providing for the enjoyment of life through outdoor recreation. The Department assesses our energy and mineral resources and works to ensure that their development is in the best interests of all our people by encouraging stewardship and citizen participation in their care. The Department also has a major responsibility for American Indian reservation communities and for people who live in island territories under U.S. administration.



The Minerals Management Service Mission

As a bureau of the Department of the Interior, the Minerals Management Service's (MMS) primary responsibilities are to manage the mineral resources located on the Nation's Outer Continental Shelf (OCS), collect revenue from the Federal OCS and onshore Federal and Indian lands, and distribute those revenues.

Moreover, in working to meet its responsibilities, the **Offshore Minerals Management Program** administers the OCS competitive leasing program and oversees the safe and environmentally sound exploration and production of our Nation's offshore natural gas, oil and other mineral resources. The MMS **Minerals Revenue Management** meets its responsibilities by ensuring the efficient, timely and accurate collection and disbursement of revenue from mineral leasing and production due to Indian tribes and allottees, States and the U.S. Treasury.

The MMS strives to fulfill its responsibilities through the general guiding principles of: (1) being responsive to the public's concerns and interests by maintaining a dialogue with all potentially affected parties and (2) carrying out its programs with an emphasis on working to enhance the quality of life for all Americans by lending MMS assistance and expertise to economic development and environmental protection.