



Investigation of May 1987 Fire Lease OCS-G 2937 West Delta Block 109

Gulf of Mexico
Off the Louisiana Coast

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by
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Authority and Procedures for the Investigation and Public Report

Authority

A fire occurred on May 2, 1987, on Platform A, Lease OCS-G 2937, West Delta Block 109, Gulf of Mexico, off the Louisiana Coast. Pursuant to Section 208, Subsection 22(d), (e), and (f) of the Outer Continental Shelf Lands Act Amendments of 1970, and the United States Department of the Interior Regulations, 30 CFR Part 250, an investigation and public report must be made. The following Minerals Management Service (MMS) personnel were assigned as the panel to investigate and prepare a public report:

Jack Hendricks
Rufus P. Kirk
William D. Terrebonne, Sr.
Carl A. Walker
Boyd S. Bennett

Procedures

An examination of the platform and scene of the fire was made on May 2, 3, and 5, 1987.

An informal interrogation of witnesses was held May 3, 1987, on Texaco's Platform C, South Pass Block 37, and at the Chevron boat dispatcher's office in Venice, Louisiana.

The compressor package was removed from the platform and taken to Houma Industries in Harvey, Louisiana. The investigative panel inspected this equipment on May 13, 1987.

The oil pipeline pump units were removed from the platform and taken to Louisiana Compressor Services, Inc., in Houma, Louisiana. The investigative panel inspected this equipment on May 15, 1987.

A formal investigative hearing was held on June 3, 1987, at the MMS Office, 1201 Elmwood Park Blvd., New Orleans, Louisiana, with Jack Hendricks presiding as chairman. Individuals who attended the hearing are listed in attachment 1.

Introduction

Background

Lease OCS-G 2937 covers 3,500.85 acres and comprises Block 109 in the southeast portion of the West Delta Area, Gulf of Mexico, off the Louisiana coast approximately 35 miles south-southwest of Venice, Louisiana (see attachment 2). The lease was issued to Texaco Inc. on November 1, 1974, for a cash bonus of \$78,887,000.00 with a fixed royalty rate of 16-2/3 percent and an annual rental of \$3.00 per acre.

Exploratory drilling began on December 6, 1974, by the semi-submersible rig *Ocean Driller* and continued until December 5, 1976. Five wells were drilled and subsequently, permanently abandoned. Platform installation was completed on September 25, 1980 (for platform location, see attachment 3). The first development well was spudded November 4, 1980, by Bokencamp Rig No. 4. First production was on March 20, 1981. Twenty-four wells, all directional, have been drilled, the last one completed September 19, 1985. Five of the wells were drilled to adjacent blocks.

Preliminary Activities

Prior to May 2, 1987, operations on Platform A were normal. On April 2, 1987, MMS technicians had finished a complete inspection of the platform and no Items of Non-Compliance (INC's) were in evidence. About one week before the fire, the clutch on the No. 2 pipeline pump was changed, and subsequent use of the pump indicated it was operating

normally. At approximately 4:00 a.m. on the day the fire occurred, operations seemed to be normal, with no indications of any problems in the pipeline pump area.

Description of Incident

At approximately 4:00 a.m. on May 2, 1987, the night pumper on the platform, Timothy Guidry, went through the pipeline pump area, on the lower deck, making his rounds (for a diagram of the lower deck, see attachment 4). The Nos. 1 and 2 pipeline pumps were running at the time and the No. 3 pump (outboard pump) was shut down. The normal sequence is to have two pipeline pumps running at any one time.

He returned to the pumper's shack where he and the night roustabout started working on the morning reports. At approximately 4:30 a.m., the main platform panel horn sounded, signifying an abnormal condition. They immediately started toward the panel; enroute, the high-pitched compressor station horn sounded. When they got to the main platform panel, they found that the Nos. 1 and 2 pipeline pump relays were tripped. They pinned out the pipeline pump relays and silenced the master panel alarm and the compressor station alarm.

The night pumper proceeded to the pipeline pump area, and the night roustabout went to the well bay area on the upper deck to put the producing wells back on line (they were shut-in by the abnormal condition). (For a diagram of the upper deck, see attachment 5.) When the night pumper got

to the pipeline pump area, the platform fire alarm sounded. The alarm was probably set off by the thermal detectors located in the compressor building directly above the pipeline pump area. The night pumper checked the east fire wall door to the pipeline pump area and it was not hot. He opened the door and saw a fire toward the ceiling above the No. 2 (middle) pipeline pump. The night roustabout was on the upper deck and could see black smoke coming out from beneath the compressor building. At this point in time, only about a minute had elapsed since the main platform panel horn sounded.

Findings

Fire Fighting

Timothy Guidry, the night pumper, was the first person to arrive at the fire scene. He could not enter the fire area from the east fire wall due to the heat but did enter from the north fire wall area with a saltwater hose. He was able to put out some of the small spot fires but found the hose too short to effectively fight the main fire. He then grabbed a 30-pound dry chemical fire extinguisher stored nearby and appeared to be making some headway against the flames until he was forced back by black smoke and chemicals coming back into his face. Continuing to fight the fire from a less effective position on the south side near the vapor recovery room, he was able temporarily to put out a fire in the control panel for the No. 1 pump, but it re-ignited when the extinguisher ran out of chemical.

Larry Ryan, the night roustabout, took measures to wake everyone in the living quarters. He then proceeded to the fire scene with a 30-pound dry chemical fire extinguisher but he, too, was unable to effectively fight the fire at its source.

Platform personnel who had been sleeping responded to the fire alarm and began assisting with the fire fighting effort. The production supervisor took charge when he arrived at the scene of the fire.

Personnel manually started the fire water pump and responded with nearly every item of fire fighting equipment available on the platform: light

water, salt water, and 30- and 150-pound dry chemical fire extinguishers, but they were unable to subdue the flames.

The fire walls were very valuable inasmuch as they kept the fire confined to the pipeline pump area. However, they prohibited the personnel from ready access to the source of the fire to wage an effective battle.

The generators went down at approximately 5:10 a.m. It then became evident that the firefighters were not going to be able to extinguish the flames, so an order was given to abandon the platform.

Chevron offered the use of the motor vessel *Flood Tide* to help put water on the fire. The M/V *Flood Tide* started pumping water on the fire, and the fire was extinguished by 7:00 a.m. It is possible that the source of fuel for the fire had been exhausted, which aided in extinguishment of the fire.

Evacuation

When attempts to control or extinguish the fire with chemical and fire water hoses failed, Kirby Boudreaux, production foreman, ordered evacuation of the platform. After all personnel were accounted for, they entered the south-end escape capsule, and evacuation was accomplished quickly and safely. The capsule was lowered into the water and moved away from the platform. The evacuees were later picked up by the M/V *Thunder Power*, contracted to Chevron U.S.A., Inc.

Damage

The pipeline pumps and gas engines were severely fire damaged and the pipeline pump control panels destroyed. All other equipment in the pipeline pump area within the fire walls was extensively damaged or destroyed, including the piping.

The compressor package received moderate structural damage due to bending of the supporting beams. The platform was extensively damaged in the area of the pipeline pumps and the compressor package. It is estimated that the total damage was in excess of 2 million dollars.

The compressor package and the pipeline pumps will be re-installed on the platform after extensive inspection and overhauling.

Conclusions

Proximate Cause of Incident

The primary fuel source cannot be definitely established. Early descriptions of the fire indicate the fire was primarily fueled by gas, since there were no liquids burning on the deck and the fire was at an elevated location. It is believed that the most likely primary fuel source was gas escaping from a brass petcock located on top of the fuel gas filter adjacent to the No. 2 oil pipeline pump. After the fire, this brass petcock bleed valve was found partially missing from the top of the fuel gas filter head connection. This fuel gas filter was located directly under the 3-inch gas lift line and the 6-inch compressor interstage discharge line and near a 12-inch oil discharge line. These two gas lines ruptured during the fire and a set of flanges in the oil discharge line developed a leak due to flange bolt elongation. The area where this occurred appears to have been the hottest area of the fire. Some of the probable secondary fuel sources were the following:

1. Pipeline pump air flex clutch assemblies — natural gas operated.
2. Uncured paint — painting operations had been conducted the day prior to the fire.
3. Gas piping leaks — instrument gas from the oil pipeline pump control panel, fireloops, and gas from the ruptured 3-inch gas lift line and the 6-inch compressor discharge line.
4. Lubricating oil — from the day tank mounted on the fire wall, end devices on the oil pipeline pump, and from two drums on a rack next to the No. 2 pump.

5. Crude oil — from the 12-inch oil pipeline flange, which was found to have elongated flange bolts.

Proximate Ignition Source

No evidence was available to determine the actual source of ignition. However, the most probable ignition source was the exhaust systems on the Waukesha gas engines driving the pipeline pumps. Other possible ignition sources were static electricity, engine ignition systems, or other electrical system components.

Deluge System

The deluge system was not set on automatic and was not manually activated during the fire fighting operations. It would probably not have extinguished the fire, but it might have controlled or cooled it enough to allow the personnel to get fire deterrents to the source of the fire more effectively.

Recommendations

- A. Use only stainless steel needle valves for hydrocarbon bleed service.

- B. Consider the use of instrument air for future safety system installations where feasible.

- C. Perform monthly fire drills for all crews with emphasis on location and use of available fire fighting equipment.

- D. Where a deluge system is installed, provide a means to activate the system from just outside of all firewall entrances.

- E. Salt water fire hoses should be long enough to adequately reach high fire-risk areas on platform.

Personnel Attending Formal Hearing

West Delta Block 109, Platform A

Texaco Inc.

Wednesday, June 3, 1987

TEXACO

Doug K. Carriger
C. D. Journey
R. R. Hardy
C. K. Hotard
Robert E. Plumb, Jr.
Harry P. LeBouef
Timothy D. Guidry
Larry S. Ryan
Jeffery A. Long
Vernon A. Crochet
Kirby J. Boudreaux

MINERALS MANAGEMENT SERVICE

Jack Hendricks
Rufus P. Kirk
William D. Terrebonne, Sr.
Carl A. Walker
Boyd S. Bennett

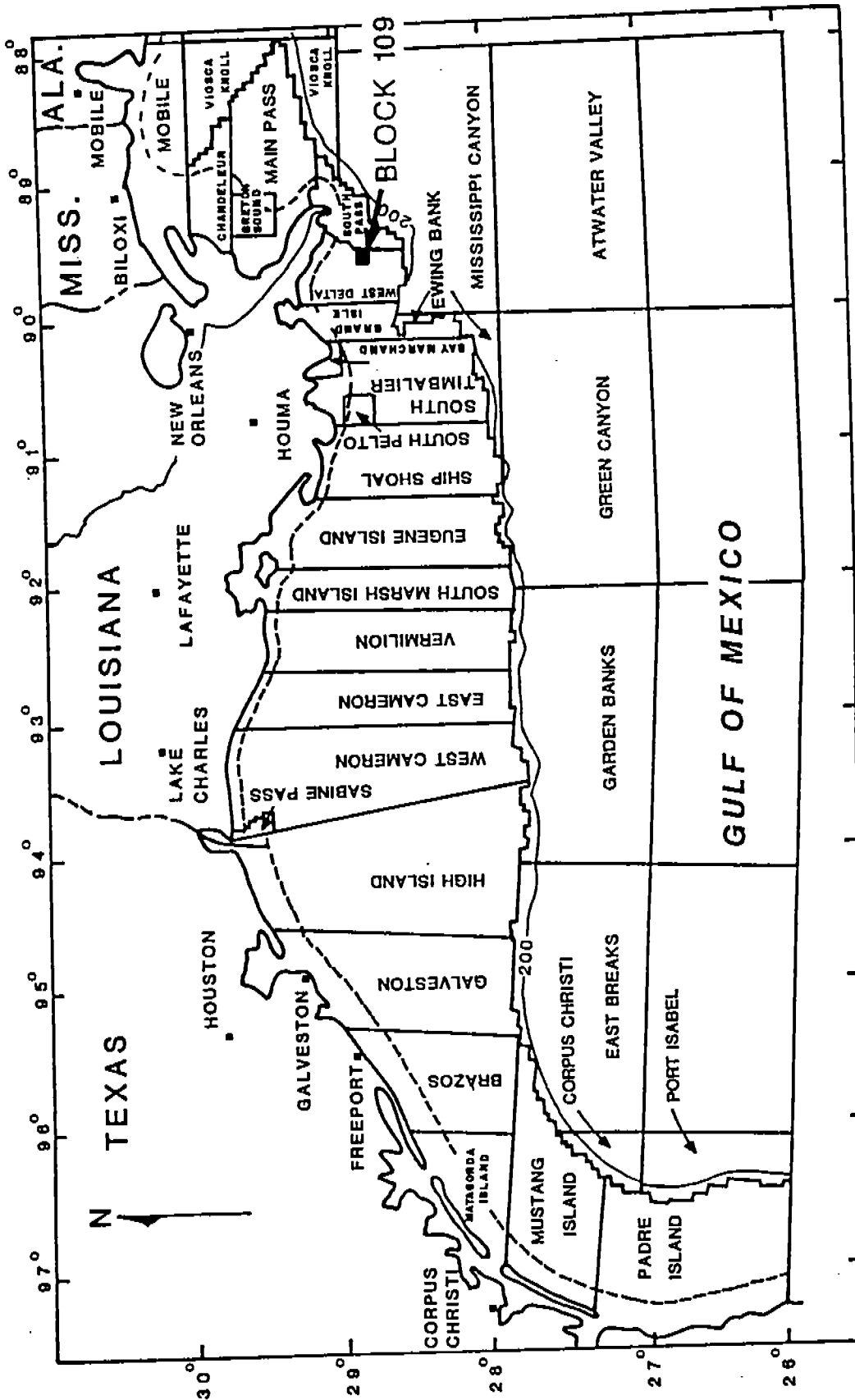
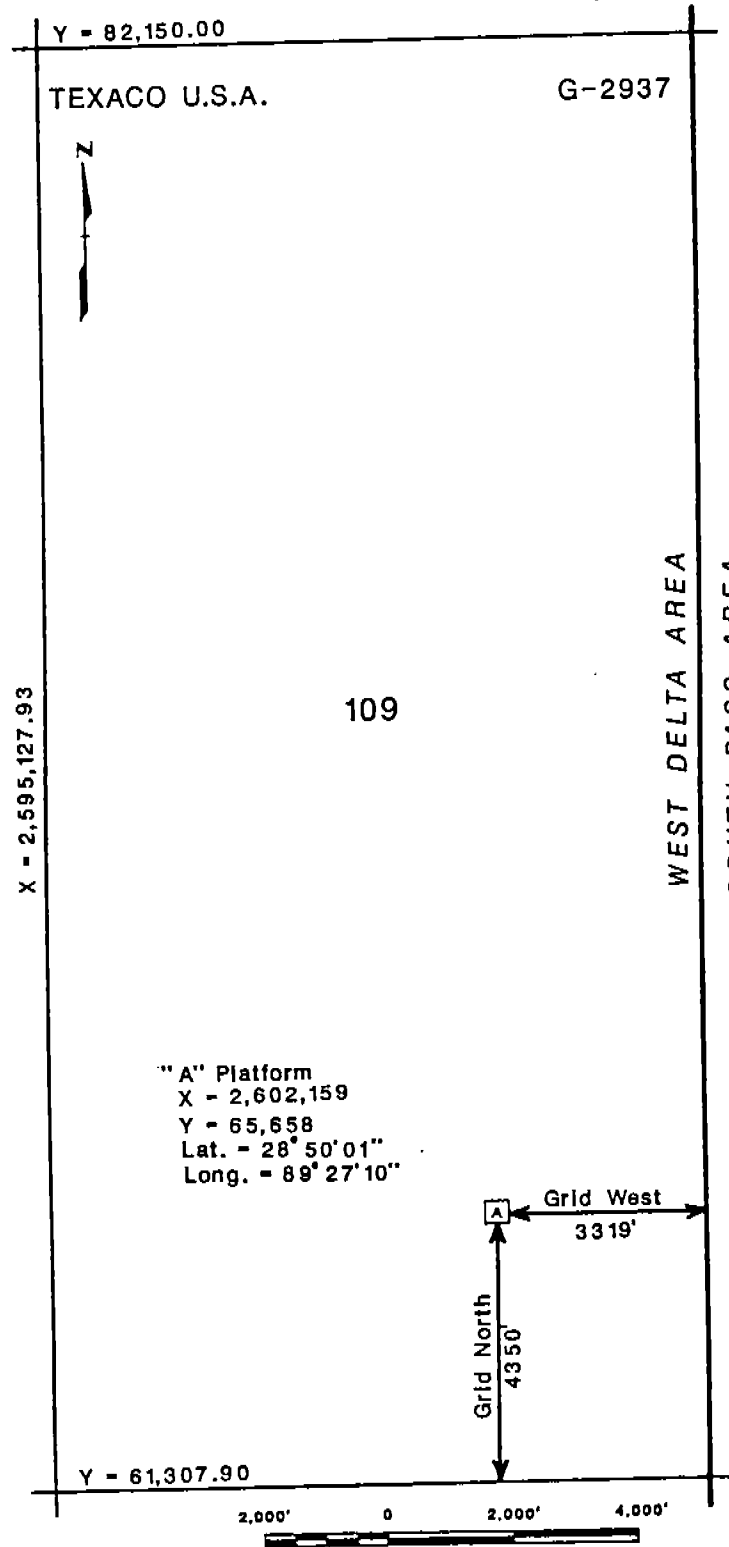
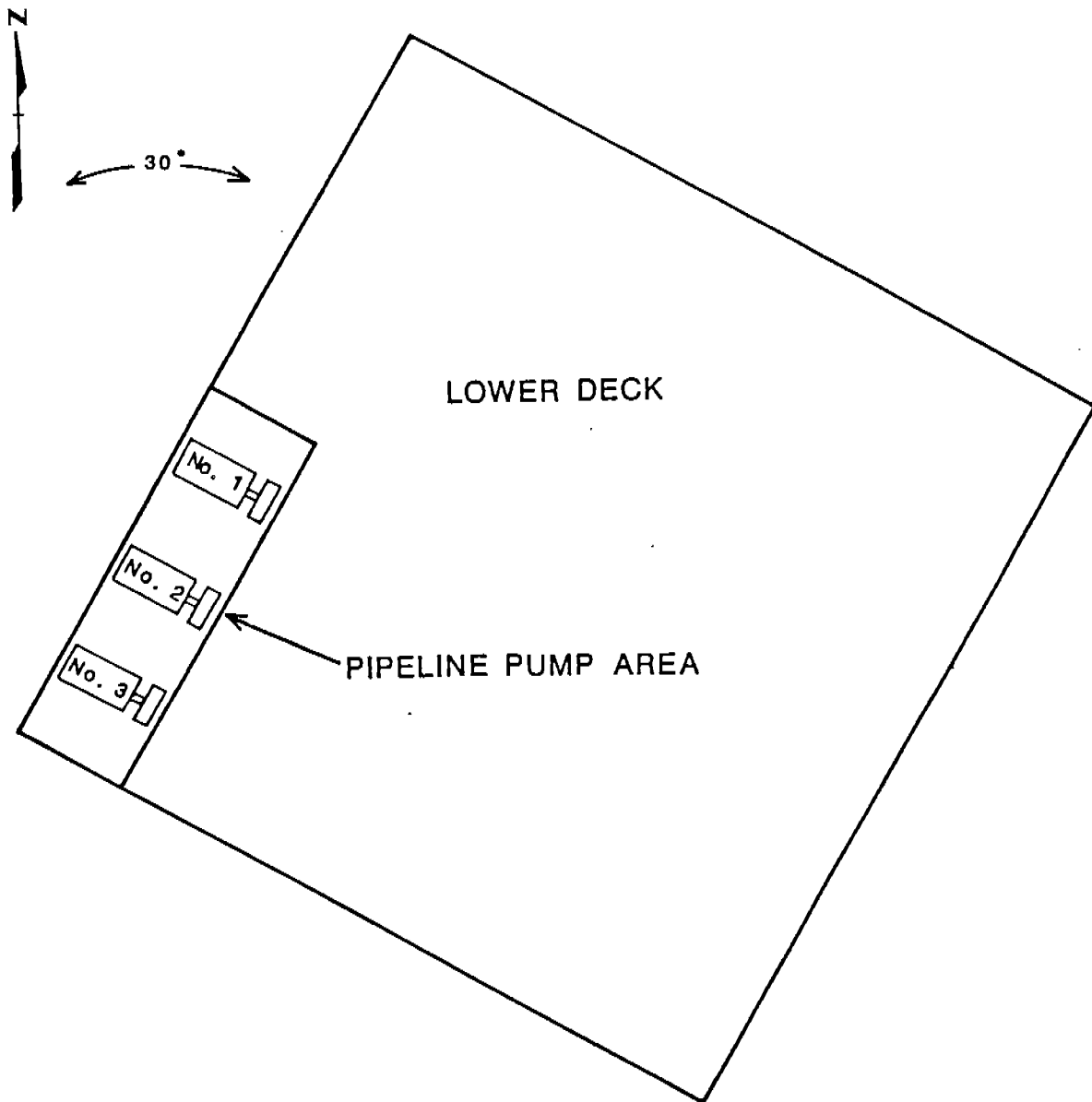


Figure 1. — Location of West Delta Block 109. Index map showing Outer Continental Shelf and Slope leasing areas off Texas, Louisiana, Mississippi, and Alabama. Dashed lines, shown at 9 nautical miles (3 marine leagues) from the Texas coast and 3 nautical miles from the Louisiana coast, indicate boundary between State and Federal waters. Solid line indicates 200-meter water depth.

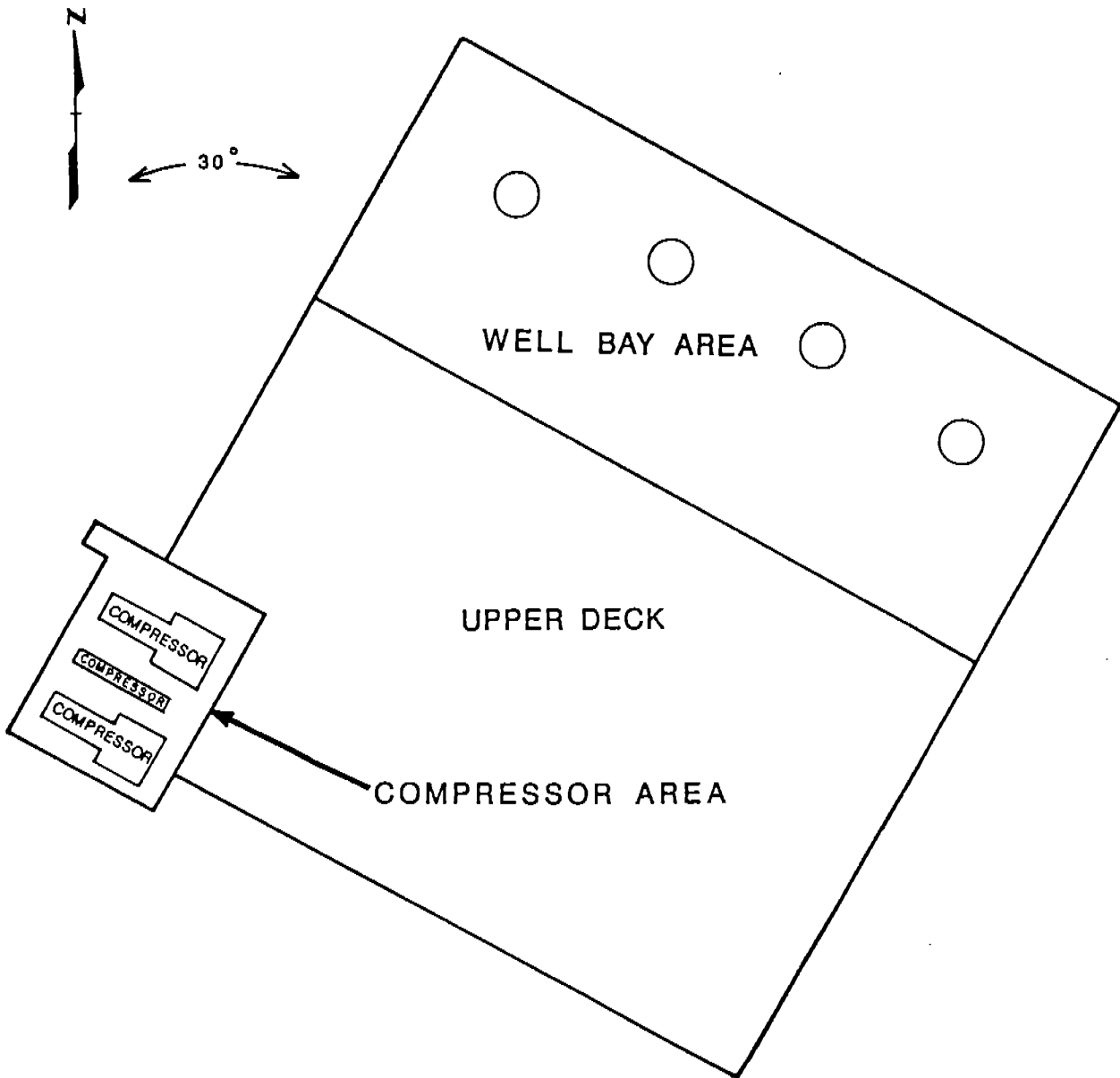
West Delta Block 109
Location Of Platform A
On Lease OCS - G 2937

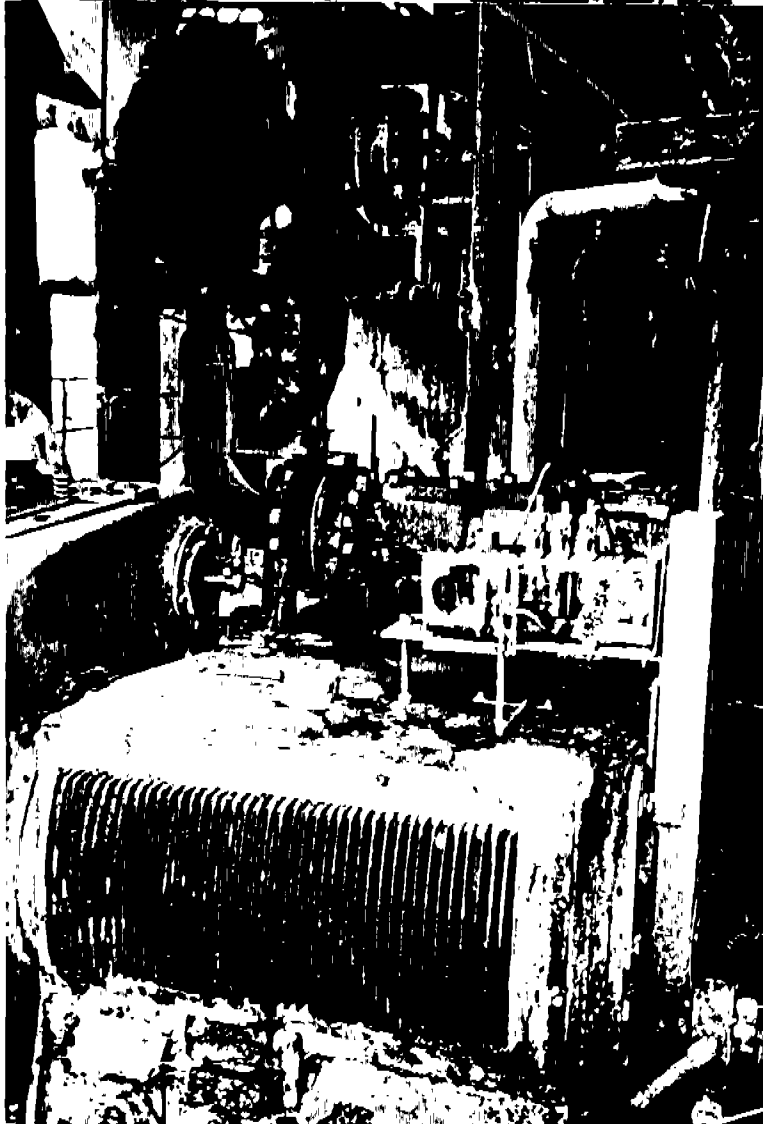
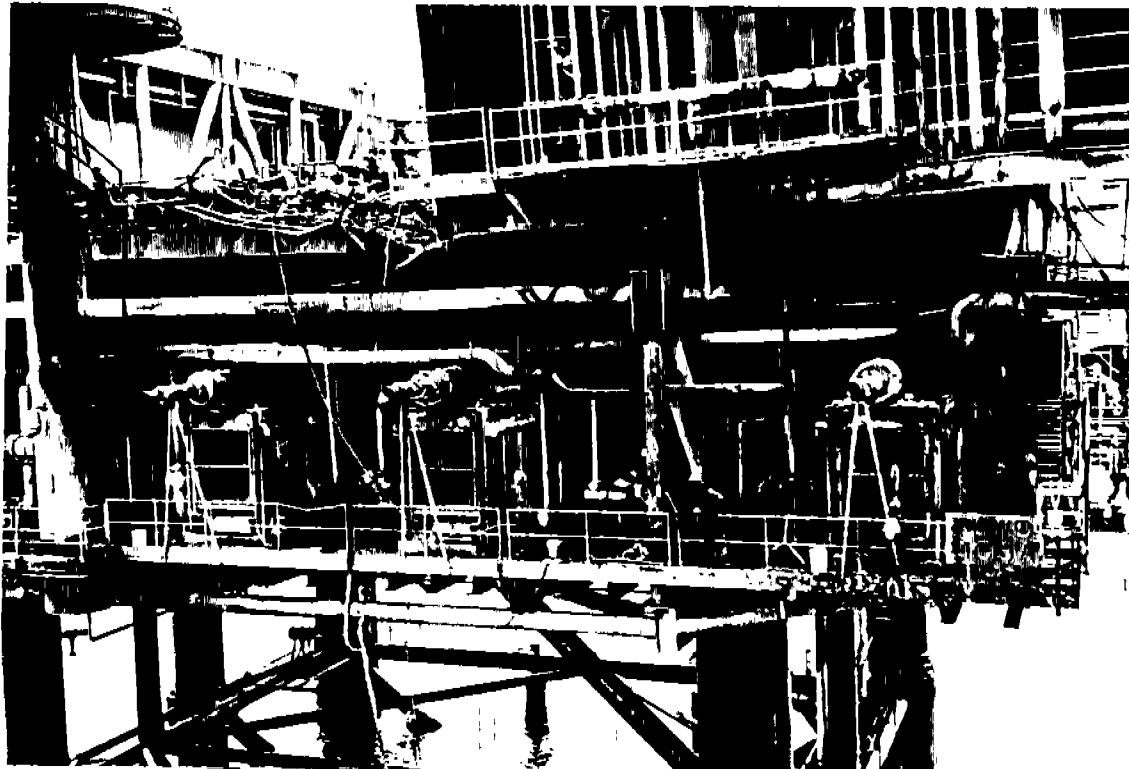


WEST DELTA BLOCK 109
PLATFORM A
LOWER DECK



WEST DELTA BLOCK 109
PLATFORM A
UPPER DECK





Platform Photographs

Pipeline Pump Area
and Compressor Area

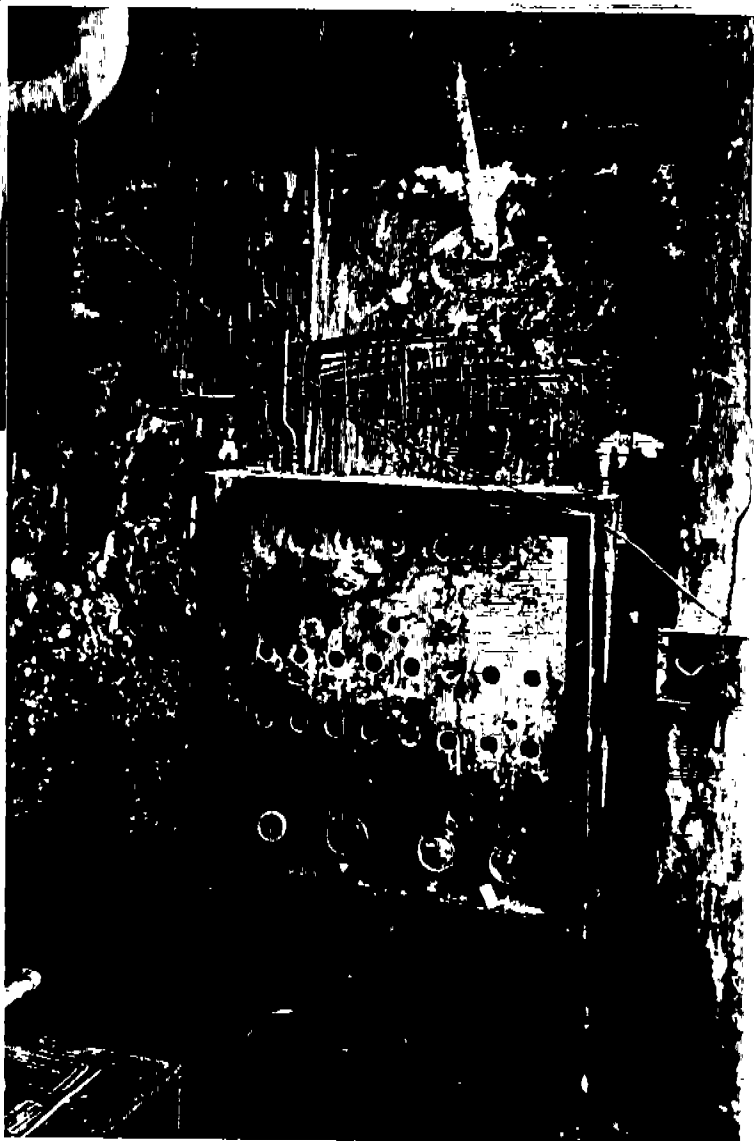
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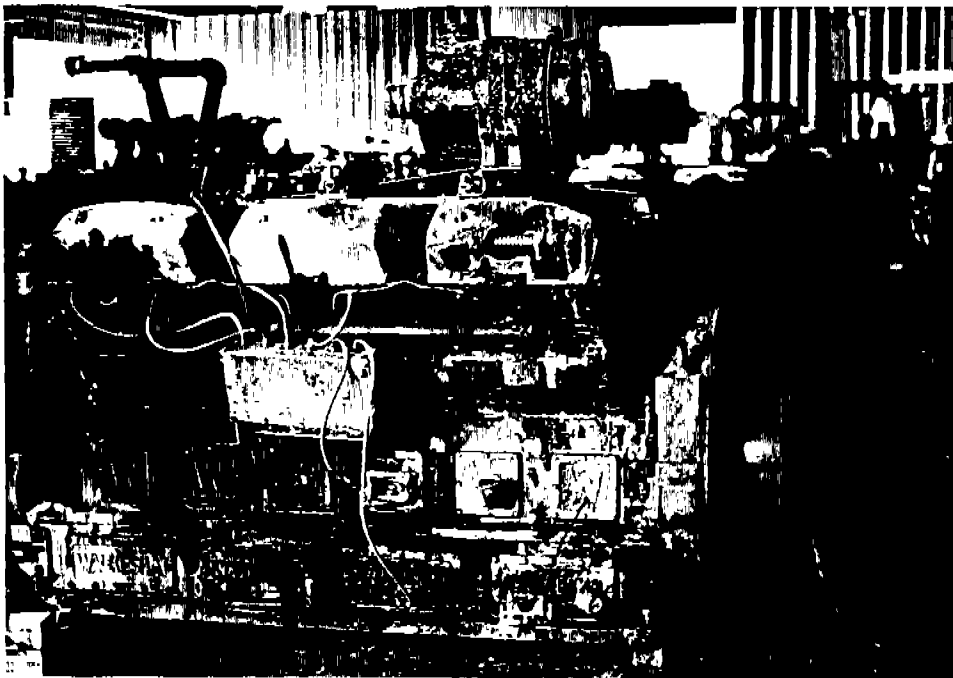
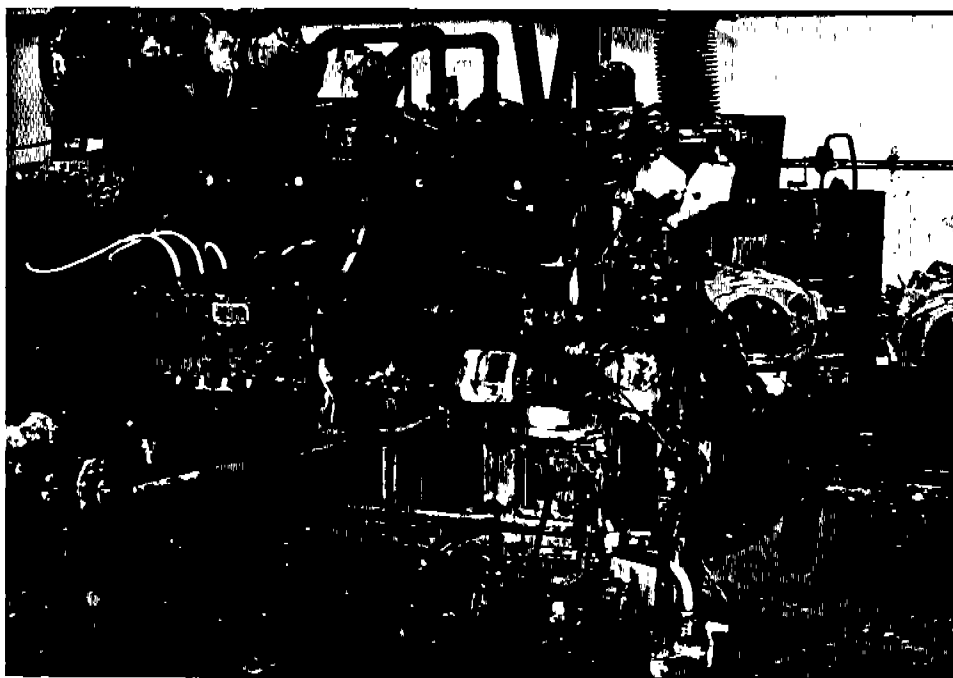


Platform Photographs

Pipeline Pump Area
and Compressor Area

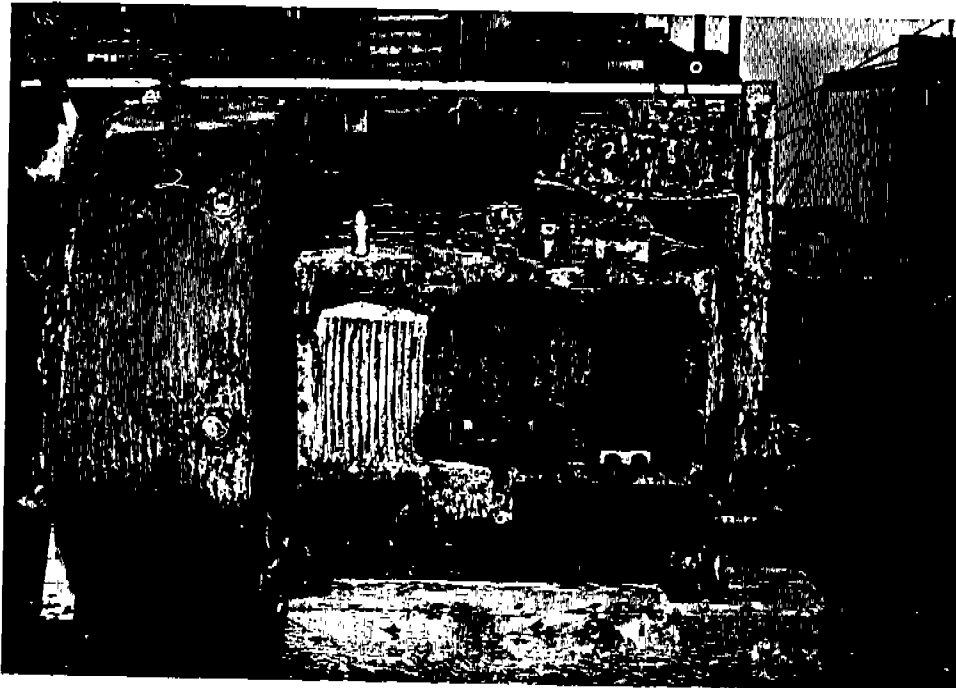
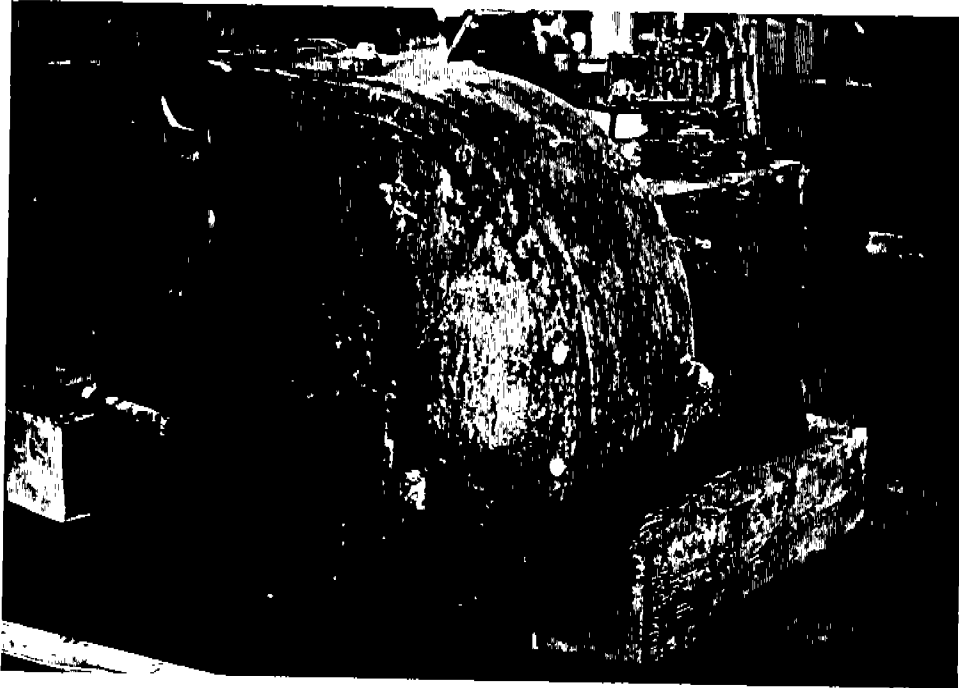
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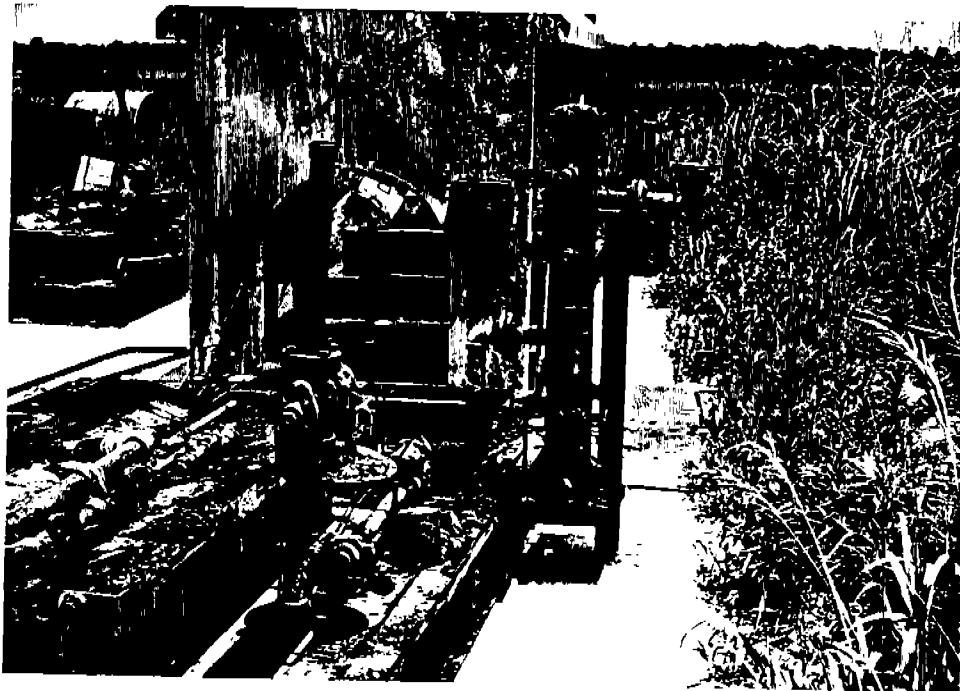
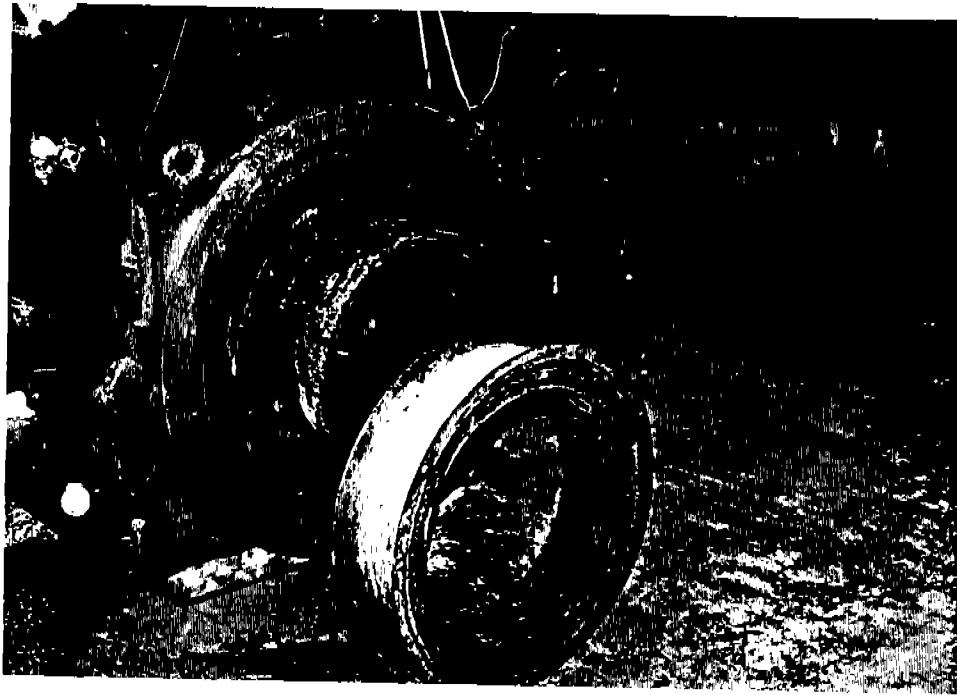
Photographs of Pipeline Pumps and Engines — Onshore

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Photographs of Pipeline Pumps and Engines — Onshore

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