OCS Report
MMS 89-0072

Investigation of Fire September 1988 Lease OCS-G 1633 Main Pass Block 133

Gulf of Mexico
Off the Louisiana Coast

MMS
U.S. Department of the Interior
Minerals Management Service
Gulf of Mexico OCS Region

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by
Rufus P. Kirk
Felix G. Dyhrkopp
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U.S. Department of the Interior
Minerals Management Service
Gulf of Mexico OCS Regional Office

New Orleans
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Contents

Authority and Procedures for the Investigation and Public Report

Authority

A fire occurred on September 23, 1988, on Platform A, Lease OCS-G 1633, Main Pass Block 133, 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 1978, 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:

Rufus P. Kirk
Felix G. Dyhrkopp
Robert C. Lanza
William D. Terrebonne, Sr.

Procedures

An examination of the platform and scene of the fire was made on September 24, 29, 30, and October 7, 1988.

An informal investigative hearing was held on October 7, 1988, at Platform C, Main Pass Block 142, Lease OCS-G 1313, Gulf of Mexico, off the coast of Louisiana, with Mr. Rufus Kirk presiding as chairman. Individuals who attended the hearing are listed in attachment 1.

Introduction

Background

Lease OCS-G 1633 covers 4,994.55 acres and comprises Block 133 in the central portion of the Main Pass Area, Gulf of Mexico, off the Louisiana coast approximately 45 miles northeast of Venice, Louisiana (see attachment 2). The lease was issued to Chevron Oil Company (50 percent) and Mobil Oil Corporation (50 percent) on July 1, 1967, for a cash bonus of $5,352,000.00 with a fixed royalty rate of 16-2/3 percent and an annual rental of $3.00 per acre.

Exploratory drilling by the jack-up rigs *Penrod 53* and *Penrod 69* began in August 1967 and continued until March 1970. Six wells were drilled, of which five were subsequently permanently abandoned. Platform installation was completed in 1971 (for platform location, see attachment 3). The platform is an unmanned satellite consisting of two main decks, one of which has the well bay and production equipment; the other has the pipeline pump, header, and electrical equipment (for layout of equipment see attachments 4 and 5).

The first development well was spudded October 5, 1971, by *Noble Rig AW-24*. First production occurred in September 1972. Nine wells have been drilled, the last one completed August 11, 1977. Two of the wells were drilled to an adjacent block. Production consists of one oil well producing 85 barrels of oil per day and one gas well producing 1.8 million cubic feet per day.

Preliminary Activities

Prior to September 23, 1988, operations on Platform A were normal. Personnel working on the platform had observed no unusual conditions. On August 18, 1988, MMS technicians had finished a complete inspection of the platform and no Incidents of Non-Compliance (known as INC's) were in evidence.

Description of Incident

At approximately 6:25 p.m. on September 23, 1988, Mr. Robert Allen, production foreman for the Main Pass Block 133 area, received word at his office at Platform A, Viosca Knoll Block 899, that there was smoke on Platform A, Main Pass Block 133, and that production was blocked off at Platform C, Main Pass Block 133. He immediately flew by helicopter to Platform A, Main Pass Block 133, with Mr. James Calhoun, control and instrument specialist. The same information was received by Mr. Greg Lester, control and instrument specialist at Platform A, Main Pass Block 142. He and Mr. C. B. Mason, production foreman for the Main Pass Block 299 area, immediately flew by helicopter to Platform A, Main Pass Block 133, arriving about 30 seconds before Messrs. Robert Allen and James Calhoun. Proximity of the flames to the heliport prevented them from landing on the platform. Flames were observed coming through the doors (Doors A and B shown on attachment 5) and the grating opening to the lower deck. The flames were engulfing the compressor, glycol unit, and production area. Flames were particularly concentrated in the glycol unit area.

Heavy, black smoke obscured the visibility. The seas were smooth with a light, variable breeze. There was no pollution on the water.

The Venice office was called and advised to dispatch firefighting boats to the scene and notify proper officials. Messrs. Greg Lester and C. B. Mason landed on Satellite Platform CC, Main Pass Block 133, to bleed off the gas-lift gas line from Platform A. They found the line was bled off and the platform shut-in due to actuation of the safety system.

Findings

Firefighting

The boat *State Yankee* and field boat *Shirley* arrived on the scene shortly after the fire was reported. The *Shirley* commenced spraying water but could not reach the top deck. At about 7 p.m. the boat *Thunder U.S.A.* arrived to spray water, but it also could not reach the top of the platform. At 7:15, the *Sea Tide* arrived and the *State Yankee* was released. Messrs. Robert Allen, James Calhoun, and C. B. Mason boarded the *Shirley*. Shortly thereafter, the *Dock Tide*, *Flood Tide*, and *Wave Tide* arrived and began firefighting operations. They were able to spray water on the upper part of the platform. The boats *Masco 3*, *Suntre*, and *P. A. Adams* arrived on the scene. Messrs. Greg Lester and C. B. Mason boarded the *Suntre* and assisted Mr. Robert Allen, who directed the firefighting operations from the *Shirley*. The boats were positioned to the best advantage to fight the fire and were alternated as needed. Four or five boats fought the fire until about 10 p.m., when the fire subsided. At 10:15 p.m. the flames erupted again, died down, and blazed up again at 10:30 p.m.

At 11:35 p.m. all flames were extinguished. A schedule was set up to spray the platform until daylight to cool it. Two boats were used simultaneously.

Damage

There was damage to the platform throughout most of the lower deck and portions of the upper deck.

The most severe damage was in the pipeline pump room and header room (see attachments 6 and 7). The pipeline pump and header were severely damaged, and the generator skid electrical control panel was completely destroyed (see attachment 7). There was moderate damage in the Southern Natural Gas pipeline room. There was extensive damage to the 8-foot transverse and longitudinal plate girders of the structure in the vicinity of Door A (see attachment 8). The firewalls and decking were buckled moderately. The meter buildings and radio room were destroyed.

The upper deck was most severely damaged in the areas of the production equipment, compressor, and glycol unit (see attachment 9). The tool shed was destroyed. It is estimated that the total damage was approximately $5 1/2 million.

There was no damage to other parts of the platform including the well-bay area, heliport, and areas below the lower deck.

Conclusions

Proximate Cause of Incident

Inspection of the platform showed that the No. 3 packing gland nut on the National J-150 oil pipeline pump had loosened and possibly allowed crude oil to leak past the plunger and accumulate on the deck while the pump was in operation. It is believed that sufficient gas was emitted from the crude oil to form a combustible mixture, which was ignited by an unknown source.

Proximate Ignition Source

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

Recommendations

Maintenance Procedures	Ensure that maintenance procedures for pipeline pumps on unmanned platforms are adequate for detecting potential packing gland leaks.
Training	Ensure that all personnel operating pipeline pumps are trained in the correct maintenance procedures.
Leak Sensor	Consider the possibility of using a leak-sensing safety device on pipeline pumps on unmanned platforms.
Locking Device	Consider the possibility of using a locking device on the packing gland retaining nuts.

Attachment 1

Personnel Attending Informal Hearing
Main Pass Block 133, Platform A
Chevron U.S.A. Inc.
Friday October 7, 1988

Chevron

Robert Earl Allen
James Calhoun
Greg Lester
C. J. Malley
L. J. Rachal

Minerals Management Service

Rufus P. Kirk
Felix G. Dyhrkopp
Robert C. Lanza
William D. Terrebonne, Sr.

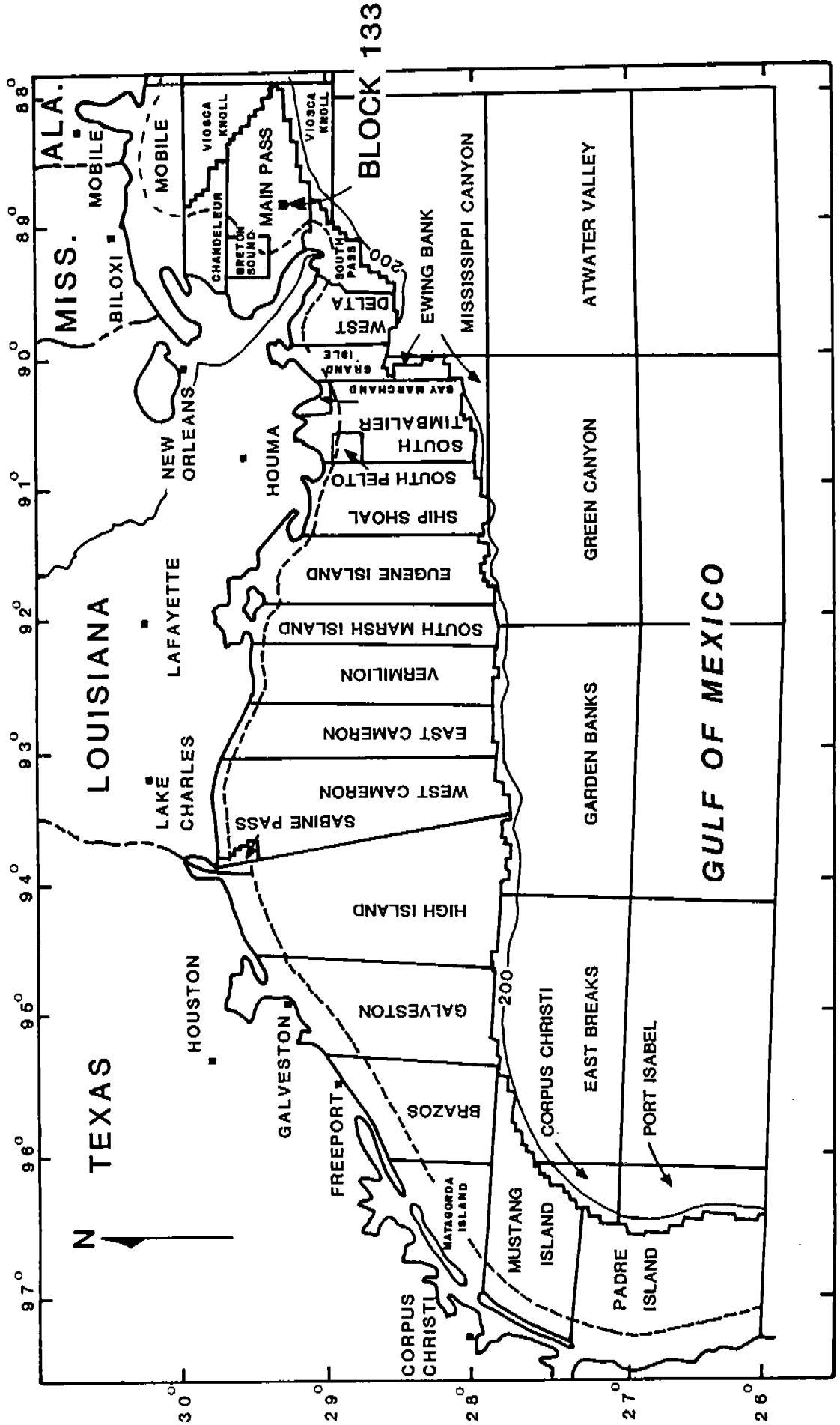
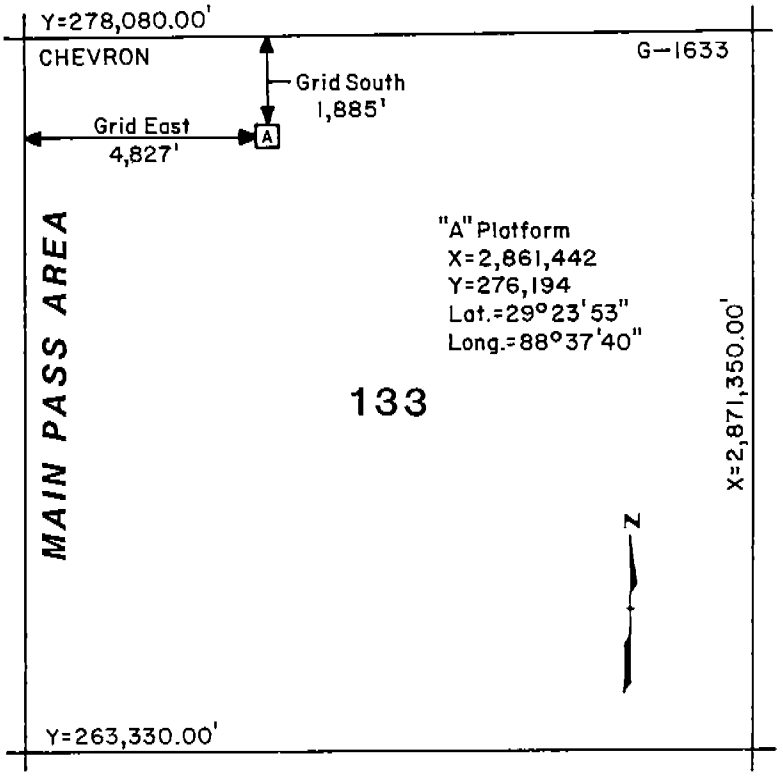


Figure 1. — Location of Main Pass Block 133. Index map showing Outer Continental Shelf and Slope leasing areas off Texas, Louisiana, Mississippi, and Alabama. Dashed lines, shown at 9 nautical miles (3 marine leagues) from the Texas coast and 3 nautical miles from the Louisiana coast, indicate boundary between State and Federal waters. Solid line indicates 200-meter water depth.

MAIN PASS BLOCK 133

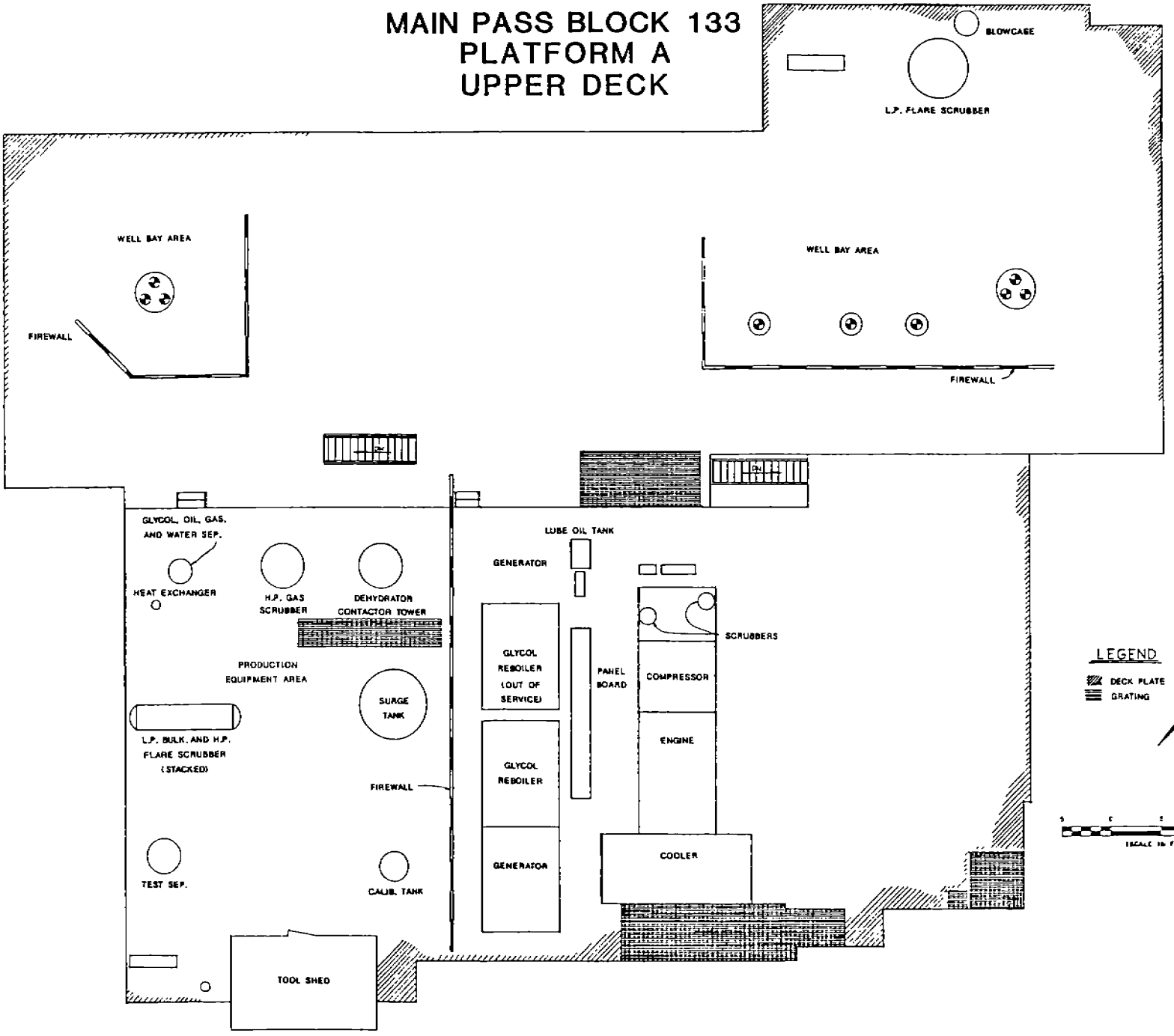
Location of Platform A

On Lease OCS G-1633



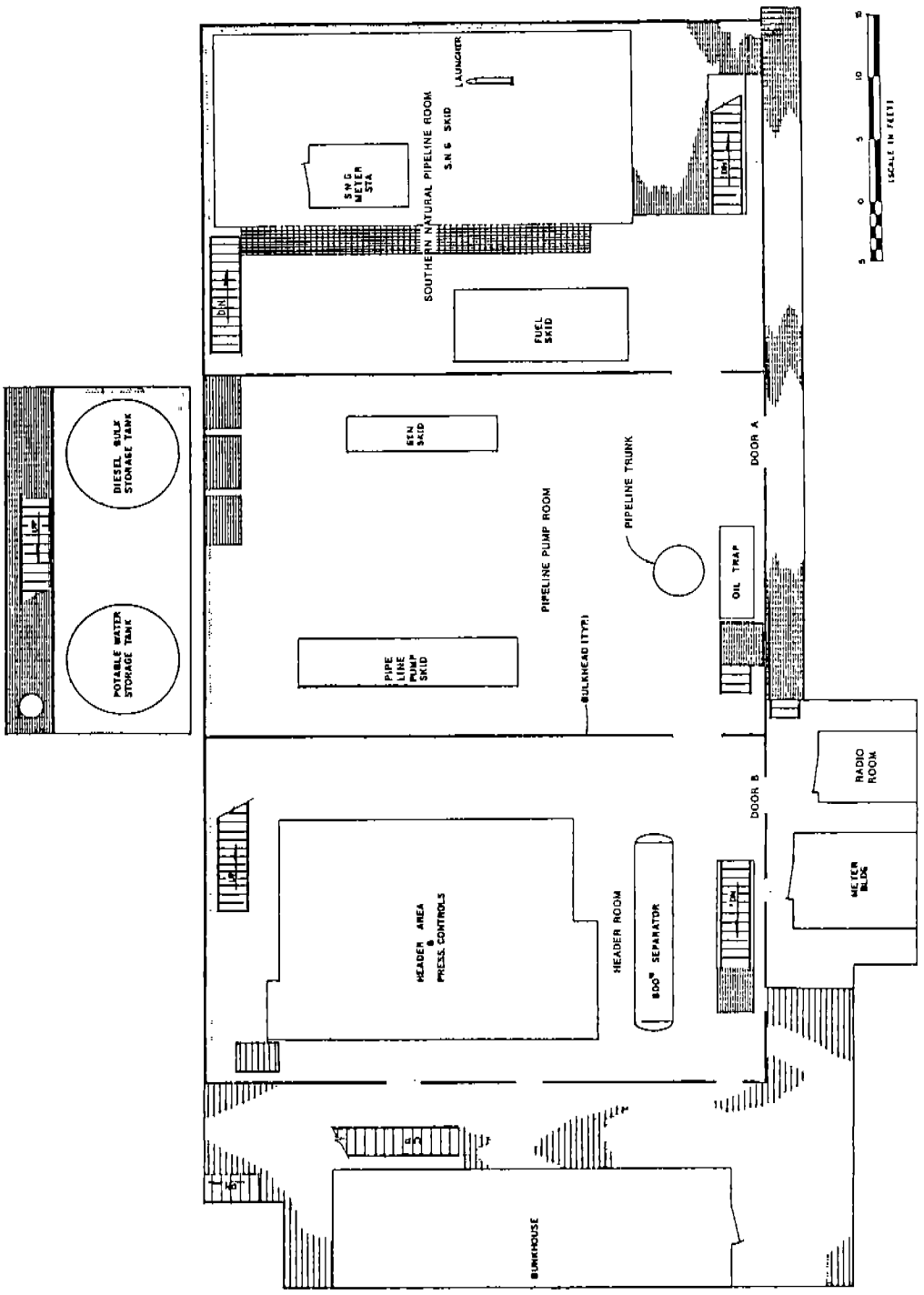
SCALE 1"=4000'

MAIN PASS BLOCK 133
PLATFORM A
UPPER DECK

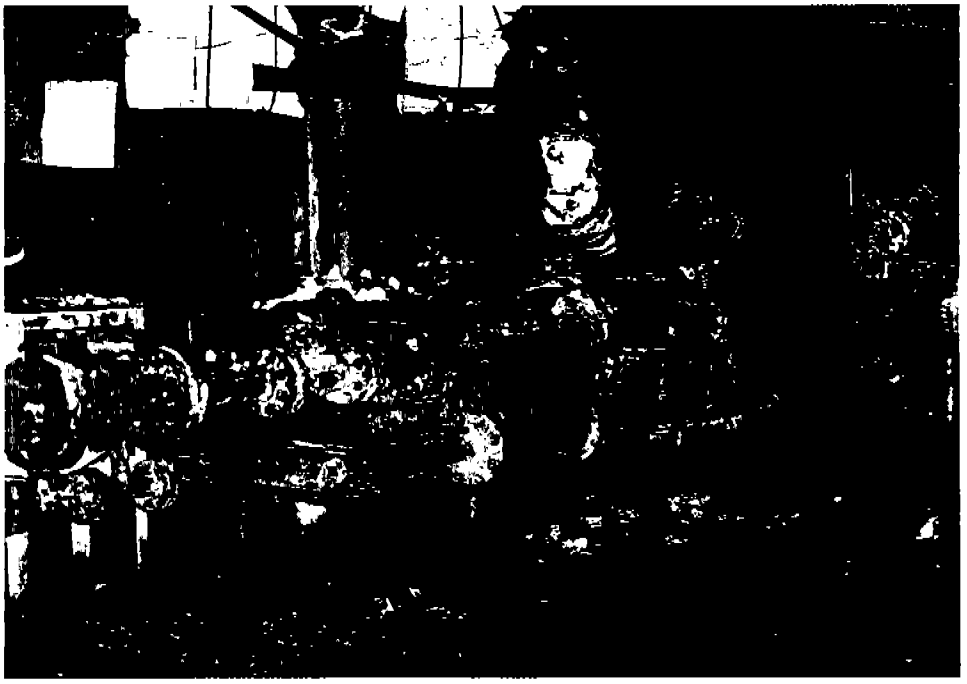


Attachment 4

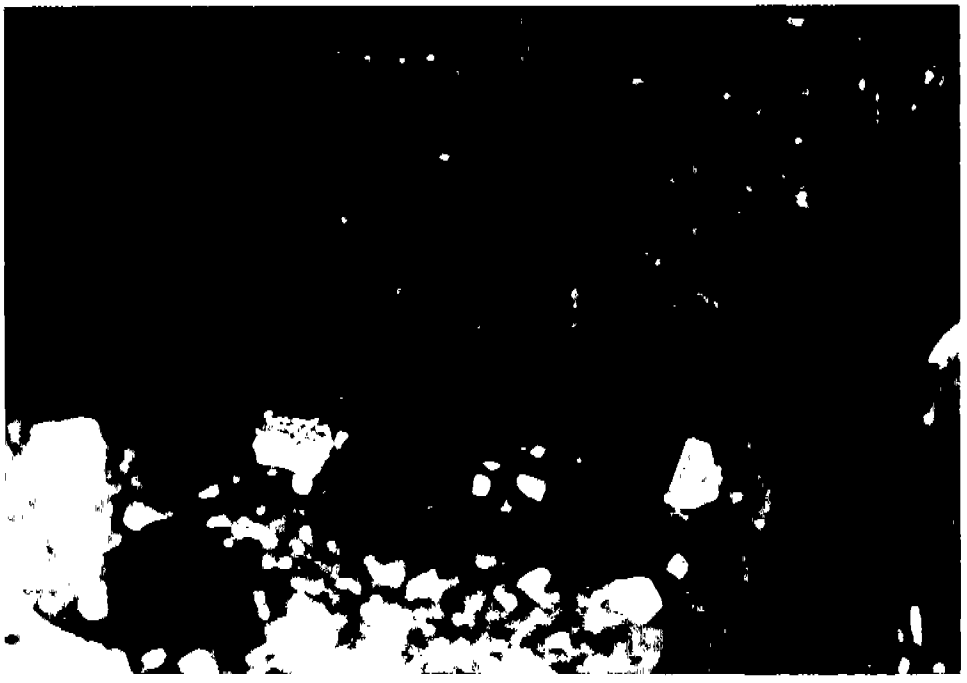
MAIN PASS BLOCK 133
PLATFORM A
LOWER DECK



Photographs of Pipeline Pump

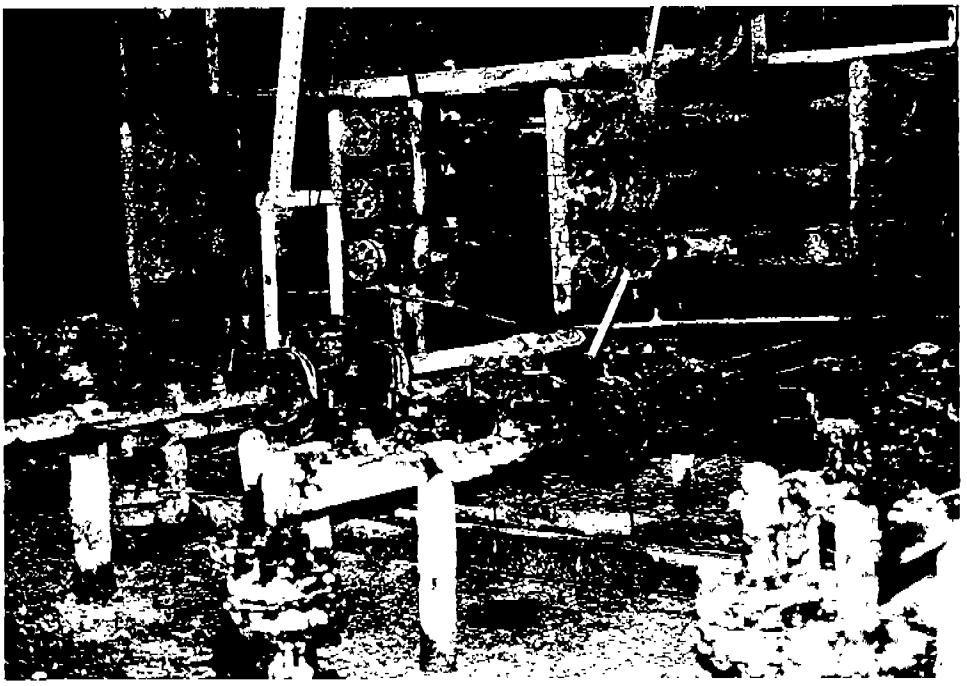


Pipeline Pump and Engine



Pipeline Pump with Loosened Packing Gland Nut

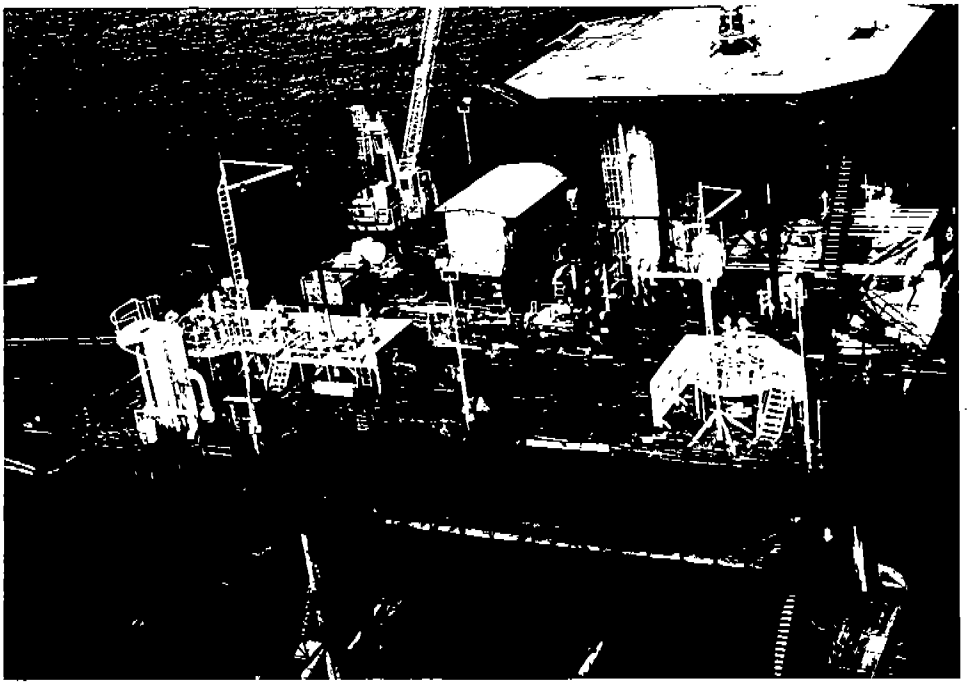
Photographs of Header and Electrical Control Panel



Header

Electrical Control Panel

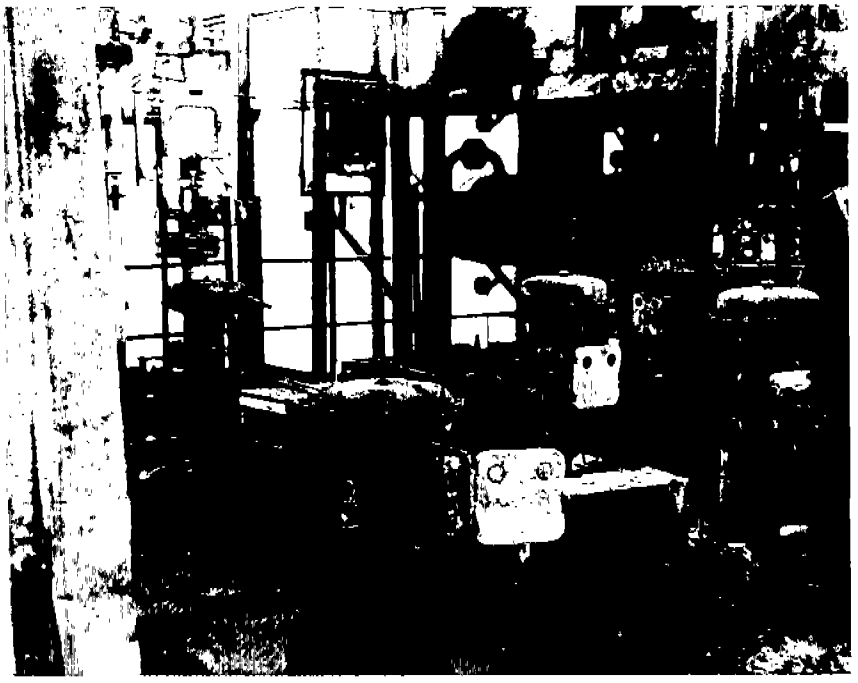
Photographs of Platform and Plate Girder



Platform A, Main Pass Block 133

Plate Girder — Buckled Above Door A

Photographs of Production Equipment



Production Equipment Area

Production Testing Equipment