

OCS REPORT
MMS 86-0006

**Investigation of January 6, 1984, Flash Fire
Ship Shoal Block 269
Gulf of Mexico,
Off The Louisiana Coast**

SCANNED

**Investigation of January 6, 1984, Flash Fire
Ship Shoal Block 269
Gulf of Mexico,
Off The Louisiana Coast**

February 1986

Prepared by

William Martin
Gerald Daniels
John Borne
John Guidry
Jack Leezy

TABLE OF CONTENTS

	<u>Page</u>
I. INVESTIGATION AND REPORT	
A. Authority	1
B. Procedures	1
II. INTRODUCTION	
A. Background	2
B. Description of Incident	2
1. Rigging Up Workover Rig	2
2. Fluid Level in Skimmer	2
3. Failure of Chem-electric	2
4. Drillwater Tank	3
5. Hydrocarbons in Water	3
6. Welding and Cutting Operations	3
7. Fire	4
8. Evacuation and Rescue	4
9. Weather Conditions	4
III. FINDINGS	
A. Preliminary Activities	4
B. Platform Shut in	5
C. Platform Fire	6
D. Emergency Warning and Evacuation	7
E. Damage	7
IV. CONCLUSIONS	
A. Approximate Cause of Incident	7
1. Chem-electric	7
2. Low Dry Production Separator	8
3. Skimmer Tank	8
4. Drillwater Tank	10
5. Pollution from Other Sources	10
B. Probable Cause of Fire	10
C. Contributing Cause to the Incident	11
V. RECOMMENDATIONS	11
 APPENDIX	
Attachment 1 -- Location Plat.	12
Attachment 2 -- List of Witnesses at Formal Hearings	13
Attachment 3 -- Computer Analysis	14
Attachment 4 -- Photographs	15-16
Attachment 5 -- Flow Schematics, Platform A	17-20
Attachment 6 -- Top Deck	21
Attachment 7 -- Fire Permit	22
Attachment 8 -- Middle Deck, Platform A	23
Attachment 9 -- Gas Sales Chart	24
Attachment 10-- Boat Landing - Jacket	25
Attachment 11-- Signed Statements	26-28
Glossary	29-30

I. INVESTIGATION AND REPORT

A. Authority

A serious fire occurred on January 6, 1984, on and in the vicinity of Union Oil Company of California (Union) Platform A, Ship Shoal Block 269, Lease OCS-G 1036 in the Gulf of Mexico, offshore the State of Louisiana (Attachment 1). Pursuant to section 208, subsection 22 (d), (e), and (f), of the Outer Continental Shelf (OCS) Lands Act Amendments of 1978 and Department of the Interior regulations in 30 CFR Part 250, the Minerals Management Service (MMS) is required to investigate and prepare a public report of this accident. By memorandum dated January 20, 1984, the following Minerals Management Service personnel were named as the panel to investigate the accident and prepare a public report. The panel consisted of the following persons:

William Martin, Metairie, Louisiana
Gerald Daniels, Reston, Virginia
John Borne, Houma, Louisiana
John Guidry, Metairie, Louisiana
Jack Leezy, Houma, Louisiana

Mr. Lowell Hammons, MMS, Metairie, and Mr. Charles Shockey, Office of the Solicitor, Department of the Interior, also participated in the hearings. CWO Dan Buck, U.S. Coast Guard, was invited and participated in the hearing on February 22-23, 1984.

B. Procedures

Investigation meetings were convened in the conference room of the MMS office in Metairie, Louisiana, on February 22-23 and March 29, 1984. At the meetings, Union, the lease operator, and Pool Offshore (Pool), the drilling contractor, were represented by personnel who were present on the platform when the accident occurred. Union was represented also by supervisory and staff personnel knowledgeable about drilling and production operations, but who were not present on the platform. One employee of Gulf Inland, a contractor, also testified on February 22, 1984.

In addition, attorneys representing the witnesses were present at all three meetings. By agreement of the panel, each witness had been permitted the presence of one or more attorneys of his choice.

The investigative panel questioned witnesses under oath and on the record; all testimony was recorded by tape recorder, court reporter, or both. An official written transcript was prepared and is publicly available for inspection and copying. A list of the witnesses at the three meetings is shown in Attachment 2.

For the sequence of events before and immediately after the fire, questions were directed to Union and Pool personnel who were on the platform conducting drilling operations. Where company practices and policies were related to these events, questions were directed to onshore office personnel. For the most part, questions in this latter category were answerable only by Union.

Panel members also questioned Union personnel concerning the computer monitoring of the platform safety equipment. Following the meetings on April 19, 1984, the panel requested computer reports which were provided by Union (Attachment 3).

The facilities at Platforms A and A-Auxiliary were viewed by members of the investigative panel on January 7-9, 11, 17, February 2, and March 1, 1984. Members of the panel interviewed injured rig personnel on January 9, 1984, at West Jefferson General Hospital.

II. INTRODUCTION

A. Background

Lease OCS-G 1036, Ship Shoal Block 269, Gulf of Mexico, was issued on June 1, 1962. The lease contains approximately 5,000 acres and is located approximately 59 miles off the central Louisiana coast. Union purchased the tract for \$2,300,250.

Union drilled five exploratory wells on the block before installing Platform A in 1965. A Plan of Development was approved January 19, 1972, and 15 development wells were drilled from the platform. Ship Shoal Block 269, Platform A-Auxiliary was installed in 1972.

A Plan of Development for Platform B was approved February 28, 1972. The platform was installed in 1972, and 12 development wells were drilled.

Just before the installation of the Pool drilling rig on Platform A, five wells were producing on each platform.

On January 6, 1984, the date of the accident, all of the wells on Platform A were shut in except for A-12, which was kept on line to produce gas to run the generators. According to the simultaneous operations plan approved June 16, 1977, all producing wells must be shut in when offloading equipment from a boat to the platform. However, offloading operations were not being conducted at the time of the accident.

B. Description of Incident

1. Rigging up Workover Rig

Union submitted an application for permit to sidetrack Well A-4, and it was approved on November 4, 1983; the company planned to locate the Pool Rig 17 on Platform A for the operation.

Union began moving the rig onto the platform on January 2, 1984. During the drilling operation, Union planned to redesign its production systems by replacing some of the old production equipment. On January 6, 1985, just before the fire, the Pool drill crew and roustabouts were relocating the rig crane.

2. Fluid Level in Skimmer

Mr. Donald Stevens, Field Operator I, indicated that the liquid level in the skimmer tank was lowered through the water leg so that water treatment procedures could be evaluated. The water from the skimmer tank had been discharged on Friday, January 6, 1984, and Stevens testified that he closed the manual valve (valve 6) on the overboard discharge line leading to the Gulf (Attachment 5, page 20).

3. Failure of Chem-electric

The chem-electric unit developed problems at about 4:55 p.m. on the afternoon of January 6, 1984. When the chem-electric safety device activated the alarm panel,

Mr. Roger Hebert, safety technician, responded and began to take the unit out of service. He determined that the burst plate had leaked. The chem-electric safety devices activated as a result of high liquid level or low pressure. Messrs. Stevens and Hebert located a new burst plate at another platform.

The computer printout indicated that the unit malfunctioned on January 6, 1984, at 4:58 p.m. Production operations at the platform are monitored by a computer that scans the safety systems every four minutes. The computer is located in Union's Lafayette, Louisiana, office with a monitor in the Houma, Louisiana, office. A microwave system is used to transmit messages from platforms to the two offices. The chem-electric was bypassed in the flow stream to produce Well A-12 and Platform B.

At 8 p.m. the workboat M/V Hoffnung delivered the burst plate. According to testimony, Mr. Hebert installed the plate and placed the chem-electric unit back in service.

4. Drillwater Tank

The tank to be used to hold drill water (fresh water) for mixing drilling mud was formerly used as a crude oil storage tank. It was drained of seawater during the day of January 6, 1984, the water being discharged into the Gulf. A number of witnesses reported seeing the water discharge near the galley, but none indicated he saw pollution.

5. Hydrocarbons in Water

During the meetings, several witnesses testified that they observed patches of pollution in the water to the west of Platform A before the fire. The panel investigated reasons why the pollution occurred in the water near Platform A. These possible sources will be discussed in the Conclusions. Based upon the knowledge of witnesses, a large quantity of highly volatile liquids would be required on the water to cause such intense heat. Eyewitnesses testified that they saw hydrocarbons flowing over drip pans into the Gulf from the auxiliary platform after the fire was extinguished. Witnesses testified that this action was probably caused by the sump backing up into the pans on the auxiliary platform.

6. Welding and Cutting Operations

There were two welders on duty when the fire occurred. Mr. Buddy Van Vlake was working on the stair landing outside the Pool portable living quarters on the top deck. He was stationed on the west side of the platform, approximately 15 feet above the top deck (Attachment 6). Mr. Ronnie Odom was on the upper drilling deck of the rig with the drill crew. He was not welding at the time.

A fire permit was issued to Mr. Buddy Van Vlake by Mr. James Adams, senior drilling foreman, at 6 p.m. on January 6, 1984 (Attachment 7). The permit indicated Mr. Van Vlake would be working on the top and bottom decks of Platform A (Attachment 8). The bottom deck is actually the middle deck because the boat landing is usually referred to as bottom deck. The permit also indicated that a fire watch, Mr. Ronald Barton, would be present with a water hose and fire extinguisher, and that the platform would be shut in. Mr. Barton testified that he was the fire watch at the time of the fire.

7. Fire

The fire was observed by Mr. Ronald Barton, who was working as a fire watch on the west side of the platform. Mr. Barton was positioned on the middle deck, using a water hose to cool sparks or slag from the welder who was cutting angle iron outside the living quarters, about 15 feet above the top deck.

Mr. Barton indicated that he noticed a small fireball on the water; it suddenly became a big ball of fire and spread to the northeast side of the platform. Mr. Barton alerted Messrs. Stevens and Adams, Union personnel who were in the doghouse, of the fire; the welder's helper, Mr. Jimmy Phelps, alerted personnel in the living quarters. The area of most intense fire was described as being northeast of a diagonal line running from the northwest corner of the platform to the southeast corner of the platform. Mr. Barton estimated that the fire lasted about 15 minutes. Testimony at the meetings revealed that the fire extended in patches from Platform A almost to the auxiliary platform. Testimony also indicated that the emergency alarm signal was sounding, but no one recalled hearing it initially.

8. Evacuation and Rescue

Shortly after the fire started, personnel learned that three Pool employees had jumped overboard. Mr. Odom swam to the auxiliary platform, about 150 feet from Platform A. He was pulled out of the water onto the auxiliary platform. The other two employees who jumped were subsequently declared missing. After Mr. Horace Laney's body was found the following week, helicopter search was resumed for another week, but Mr. George Leverette's body was never found.

Another employee, Mr. William Brewer, a roustabout, received second and third degree burns over 90 percent of his body. At the time of the fire, he was fishing on the northeast corner of Platform A. He walked to the doghouse where Mr. Don Stevens tried to give him aid.

All of the injured employees were taken to the auxiliary platform to await the arrival of helicopters. The injured were furnished sheets, blankets, and as much aid as possible. The first of three helicopters arrived at 10:35 p.m., and the last rescue helicopter departed the platform at 11:05 p.m. Most of the injured personnel were burn victims.

9. Weather Conditions

Witnesses testified that, at the time of the fire, the seas were relatively calm. Wind was blowing out of the southwest at five to ten miles per hour. There was a light current running to the east-northeast. There was no precipitation. It was a clear night.

III. FINDINGS

A. Preliminary Activities

Before the installation of Pool Rig 17 platform rig components on Platform A, the following wells were producing:

Lease OCS-G 1036 A-5 - producing oil well
Lease OCS-G 1036 A-8 - producing oil well
Lease OCS-G 1036 A-10 - producing oil well
Lease OCS-G 1036 A-12 - producing gas well
Lease OCS-G 1036 A-13 - producing oil well

All the producing wells were equipped with surface-controlled subsurface safety valves. There were also seven wells off production. Total daily production from Platform A amounted to 1,677 barrels of oil per day and 8,200 thousand cubic feet of gas per day. The average combined gravity of the oil and condensate blend was 41° - 43° API.

On January 2, 1984, all the producing wells except A-12 were shut in to begin offloading the components of the Pool Rig 17. Well A-12 continued flowing on a reduced rate in order to provide fuel for the platform generators--approximately 1,816 thousand cubic feet and 5 - 10 barrels condensate per day (54.0° API gravity).

According to the simultaneous operations plan approved June 16, 1977, all producing wells must be shut in when offloading equipment from a boat to the platform. However, offloading operations were not being conducted at the time of the accident.

Platform A was also receiving condensate from Lease OCS-G 1036, Platform B, Ship Shoal Block 269, via a 4-inch pipeline. The condensate from Platform B is recovered from the compressor scrubbers and the contact tower at that location. Daily condensate production from Platform B was approximately 10 - 15 barrels.

On Friday, January 6, 1984, Well A-12 was producing to the high gas test separator having a design pressure of 1,422 pounds per square inch (psi) working pressure (WP). The gas was routed to the high production separator (1,422 psi WP), and then to the 6-inch pipeline to the B platform. Some of the gas was also routed to the 500 psi WP supply scrubber located on Platform A. From the 500 psi WP supply scrubber, the gas was routed to a 150 psi WP supply scrubber, and ultimately provided fuel for the generators which supply electrical power to the platforms.

The condensate from the high gas test separator was routed to the low dry separator (125 psi WP). Condensate from the low dry separator was routed to the chem-electric (25 psi WP). Gas from the low dry separator was directed to the flare scrubber (125 psi WP) because the compressor on Platform A-Auxiliary was shut down for the rig-moving activities. Condensate production from Platform B was also routed to the low dry separator.

The condensate or liquid hydrocarbon from the chem-electric was routed to the production tank No. 465, according to testimony from Mr. Hebert. Water from the chem-electric was routed to the skimmer tank. Water from the skimmer tank discharging through the water leg could be routed to the sump tank located on the auxiliary platform, or overboard through the 6-inch line located on the east side of Platform A. In the testimony, it was not clear where the water was routed from the skimmer tank water leg. The auxiliary platform is located adjacent to Platform A. A connecting walkway approximately 150 feet long connects the two platforms.

B. Platform Shut In

On Friday, January 6, 1984, at approximately 4:55 p.m., Platform A shut in because of a leak in the burst plate located on the chem-electric. Well A-12 was the only well flowing at that time. Transcontinental Gas Pipe Line Corporation's gas sales chart recorder on Platform B indicated that Well A-12 shut in at that time (Attachment 9). This chart

should be considered reliable in that its information is used to calculate sales time and gas volumes between gas producers and gas purchasers, according to contractual agreement. The computer printout indicated that the chem-electric, the separator, and Well A-12 safety devices activated (shut in) at 4:58 p.m. However, according to the gas sales chart, Well A-12 was back on production at approximately 6 p.m., even though the chem-electric was not in service. The computer printout showed Well A-12 was flowing at 6:09 p.m. Witnesses testified that Well A-12 was not producing while the chem-electric was out of service because of the problem with the burst plate. According to testimony, a bypass valve (valve 8) was opened, allowing condensate from the low dry separator to dump directly to the skimmer tank while the chem-electric was out of service (Attachment 5, page 19). This would also allow Well A-12 to produce and furnish gas to the platform generators.

At approximately 8 p.m., a replacement burst plate was delivered to the platform by the M/V Hoffnung. The burst plate was replaced on the chem-electric, the bypass valve (valve 8) was closed, and the condensate production from the low dry separator was routed to the chem-electric. The chem-electric was back in service, as initially described. It was not determined how much time was required to replace the burst plate and return the chem-electric to service. From the testimony, it was estimated that it took approximately 30 minutes.

C. Platform Fire

A fire permit was issued to Mr. Buddy Van Vlake at 6 p.m. on January 6, 1984. The permit indicated Mr. Van Vlake would be working on the top and bottom decks of Platform A. The permit also indicated that a fire watch would be present with a water hose and fire extinguisher, and that the platform would be shut in. Mr. Barton testified that he was the fire watch at the time of the fire. As shown on the gas sales chart, Well A-12 was flowing at the time the fire started, which violated Union's fire permit. However, in this case, this did not violate the welding requirements of OCS Order 5 because Mr. Van Vlake was welding 15 feet above the top deck on the exterior of Platform A which is well away from any production equipment and wellhead area.

A piece of metal the welder was trimming with a cutting torch fell in the water and ignited a volatile fluid on the water. A firewatch standing on the west side of the middle deck sprayed water on the hot slag as it fell into the Gulf and also sprayed the high gas test separator located near the hand rails. The welder, welder's helper, and the firewatch notified other personnel on the platform. There were 31 people on board the platform when the fire occurred. Most of the personnel were employed by Pool Offshore Company. One group of Pool employees was preparing to skid the rig crane on the north side of Platform A when the fire started. Most of the off-duty employees were in the quarters.

At the time of the fire the wind was blowing from the southwest at five to ten miles per hour. The seas were relatively calm, and the current was moving to the east-northeast. It was a clear night. Some personnel reported seeing pollution around the auxiliary platform. Firehoses on the auxiliary platform were used to fight the fire on the water approaching the platform from Platform A.

According to the Transcontinental Gas Pipe Line Corporation's gas sales chart, Platform A shut in at 9:20 p.m. The computer printout indicated that Well A-12 shut in at 9:21 p.m. and Platform A shut in at 9:26 p.m. This was determined to be the approximate time the fire occurred. The ignition of the hydrocarbons resulted from welding and cutting operations being conducted on the west side of Platform A. The welder and his helper were building a landing for stairs to the upper living quarters located on

the top deck. According to Union's Welding, Burning, and Hot Tapping Safe Practices and Procedures Plan, a fire permit (welding permit) must be issued to the welder before any welding is performed.

The photographs of the facilities are included in Attachment 4. Photographs 1 and 2 show the position of Platforms A and A-Auxiliary, and the connecting walkway in relation to each other. In photographs 1 and 4, one can see the general area where the fire occurred. Photograph 3 shows the stair landing to the living quarters, where the welder was working at the time of the fire.

D. Emergency Warning and Evacuation

It was not determined exactly what time the general alarm was sounded; however, some personnel heard the alarm as they were going to the auxiliary platform. Most of the 31 persons reported to the auxiliary platform when the fire began. Some stayed on Platform A to extinguish the fires on the tires of the boat landing (Attachment 10). The injured were evacuated by three helicopters. The first helicopter landed at 10:35 p.m. and departed at 10:45 p.m. The last helicopter departed at 11:05 p.m.

E. Damage

The fire caused minimal damage to Platform A and the drilling rig components. The fire, which began at approximately 9:20 p.m., had intense flames extending above the top deck, which is approximately 61 feet above the water. After that, the fire was confined to cardboard boxes, rags, and life rings on the middle deck, and tires on the boat landing. The fire on the middle deck probably lasted four or five minutes. It was estimated that the tires on the boat landing burned for approximately one hour.

Three employees of Pool Offshore jumped overboard during the fire. Only one survived. Of the nine employees who sustained burns, one succumbed to his burns. In all, three lives were lost and eight men sustained burns as a result of the fire.

IV. CONCLUSIONS

A. Approximate Cause of Incident

As stated earlier in the introduction, eyewitnesses observed patches of pollution in the water near Platform A before the accident. The panel investigated the following possible sources where pollution could have originated:

1. Chem-electric

The chem-electric unit, located on the middle deck of Platform A, developed problems about 4:55 p.m. on the afternoon of January 6, 1984. A safety device on the chem-electric activated the alarm panel, and Mr. Roger Hebert, safety technician, responded and began to take the unit out of service. He determined that the burst plate had leaked. Although no pollution was seen coming from the chem-electric, it is believed that the problem with the chem-electric and the following bypass procedures were the original contributors to operative actions taken that resulted in the pollution which caused the accident.

The flow schematic for Platform A indicates that water from the chem-electric can be routed to either the skimmer tank, the sump on the auxiliary platform, or the 6-inch overboard line on Platform A (Attachment 5, pages 17-20). The water

from the chem-electric could also be routed to all three locations at the same time by opening the valves 2, 4, 5, and 6 on the water outlet. Assuming that the water from the chem-electric was routed to all three locations, then it is conceivable that the fluid from the skimmer tank could gravity feed to the sump on the auxiliary platform and through the overboard line to the Gulf. Installation of a check valve in the skimmer tank inlet line during the design stage would have eliminated a hydrostatic liquid flow to a lower level discharge point.

2. Low Dry Production Separator

The low dry production separator is located on the middle deck on Platform A. The flow schematic for Platform A indicates that fluid (oil and water) from the low dry production separator can be routed to either the skimmer tank, the sump on the auxiliary platform, or the 6-inch overboard line on Platform A (Attachment 5, pages 17-20). With the chem-electric bypassed, the fluid from the low dry production separator could be routed to the remaining three locations mentioned above. Coincidentally, if valves 2, 4, 5, and 8 were opened at the same time, and valve 6 were closed, fluid from the low dry production separator directed to the skimmer tank on Platform A could have also gone to the sump tank on the auxiliary platform. Testimony indicated that personnel saw pollution at the auxiliary platform immediately after the fire.

3. Skimmer Tank

The skimmer tank is located on the top deck of Platform A. The chem-electric, high gas test separator, high production separator, and low dry separator are located on the middle deck of Platform A. On Friday morning, January 6, 1984, the skimmer tank, according to the tank gauge, contained 15 feet 4 inches of fluid. Of that amount, 7 feet 1 inch were water and 8 feet 3 inches were oil. On Saturday morning, January 7, 1984, the total amount of fluid in the skimmer tank was 9 feet 7 inches. Of that amount, 4 inches were water and 9 feet 3 inches were oil. The design capacity of the skimmer tank is 2,100 barrels. The water leg spill-over height on the skimmer tank was approximately 12 feet 4 inches at the time of the accident. Therefore, it is not conceivable that the fluid level in the skimmer could have been less than the total height of the water leg, unless the fluid was drained by some other method. On Friday, January 6, 1984, the chem-electric caused a platform shut in at approximately 4:55 p.m. because of the leaking burst plate. Contrary to the testimony of Mr. Hebert, Well A-12 was restored to production at approximately 6 p.m. by bypassing the chem-electric. This is supported by Transcontinental Gas Pipe Line Corporation's gas sales chart. At that time, bypass valve 8 was opened, allowing oil production to go from the low dry separator to the skimmer tank. Based upon analysis of the platform flow schematic, if valves 2, 4, and 5 were opened to allow liquid production from the low dry separator to go to the sump, the fluid from the skimmer tank (located on the top deck) could gravity feed to the sump located on the middle deck of the auxiliary platform. This old platform has had many revisions to the process system. Therefore, bypassing the chem-electric to keep Well A-12 flowing was, in our opinion, primarily the resultant cause of the pollution, based on an analysis of the platform flow schematic. Because of the complexity of the old system, it is possible that no one realized the skimmer tank could ultimately gravity feed to the sump if valves 2, 4, and 5 were opened and valve 6 were closed. Valve 3 is normally an open valve.

We assumed the production in the skimmer tank was inadvertently allowed to gravity feed to the sump during bypass operations, because on Friday morning, January 6, 1984, the skimmer tank gauges were as follows:

Total Fluid - 15 feet 4 inches
 Water - 7 feet 1 inch
 Oil - 8 feet 3 inches

However, on Saturday morning, January 7, 1984, the tank gauges indicated the following:

Total Fluid - 9 feet 7 inches
 Water - 0 feet 4 inches
 Oil - 9 feet 3 inches

These readings indicate that approximately 854 barrels of water were removed from the skimmer tank on Friday. One foot of fluid in the skimmer tank is approximately 126.6 barrels (126.6 bbls/ft. x 6.75 ft. = 854.5 barrels). Assuming that most of the fluid drained from the skimmer tank was water, it is unlikely that valve 6 to the 6-inch overboard line was opened while the skimmer tank was draining to the sump. Water drained overboard through the 6-inch line would not cause a fire; however, water draining to the sump could displace overboard (through the drip pan drains) the oil accumulated in the sump. After the water in the skimmer tank was completely drained, oil from the skimmer tank could then gravitate to the sump and drip pans.

The following information was obtained from the production reports for Platform A:

<u>Production Date</u>	<u>Tank 461</u>	<u>Tank 464</u>	<u>Tank 465</u>
January 5, 1984	7'1" Water 8'3" Oil 15'4" Total	----- 9'6" Oil 9'6" Total	----- 10'7" Oil 10'7" Total
January 6, 1984	0'4" Water 9'3" Oil 9'7" Total	----- 5'2" Oil 5'2" Total	----- 4'3" Oil 4'3" Total

Daily production on January 6, 1984, was 49 barrels.

In order to account for the production in all the tanks, the following volumes were calculated using the tank tables:

Tank 461

1/5/84 - 8'3" 1,044.75 bbls
 1/6/84 - 9'3" 1,171.44 bbls
 Gain + 126.69 bbls

Tank 464

1/5/84 - 9'6" 400.79 bbls
 5'2" 217.96 bbls
 Loss - 182.83 bbls

Tank 465

1/5/84 - 10'7" 445.44 bbls
4'3" 178.84 bbls

Loss - 266.60 bbls

A recap of the production for Friday, January 6, 1984, as of the morning of January 7, 1984, (report date) would be as follows:

Losses and Gains

Tank 461 - 126.69 bbls Gain
Tank 464 - 182.83 bbls Loss
Tank 465 - 266.60 bbls Loss
322.74 bbls Loss

Amount produced on 1/6/84 = 49 bbls
Amount pumped from tanks = 322.74 bbls
Total = 371.74 bbls

The total of 371.74 bbls available for sales compares favorably with the 372 bbls shipped on January 6, 1984, as recorded on the production report.

Inasmuch as the production in the three tanks was accounted for, it is assumed that the volatile liquid responsible for the fire was spilled at the auxiliary platform. This analysis is supported by the testimony. Personnel saw the pollution at the auxiliary platform immediately after the fire began.

4. Drillwater Tank

On January 6, 1984, seawater was drained from a tank, formerly used as a crude oil storage tank, that was to be used as a freshwater tank for mixing mud. The water was discharged overboard into the Gulf. A number of witnesses reported seeing the water discharge near the galley, but none indicated he saw pollution.

5. Pollution from Other Sources

Signed statements from Captain Russel Van Meter of the M/V Hoffnung indicated that he did not see or smell pollution in the water around Platform A at 8 p.m. on January 6, 1984. Thereafter, the M/V Hoffnung departed the area. An additional signed statement, from a representative of Shell Offshore, Incorporated, located on Ship Shoal Block 274, Platform A, indicated he saw no pollution before or after the incident (Attachment 11).

B. Probable Cause of Fire

1. Liquid hydrocarbons hydrostatically discharged from the skimmer tank to the sump and drip pans on the auxiliary platform presumably were the material cause/fuel for the fire.
2. Ignition was caused by a piece of extremely hot metal, being trimmed by the welder on the handrails of the living quarters on the top deck, dropping in the water where hydrocarbons were present.

C. Contributing Cause to the Incident

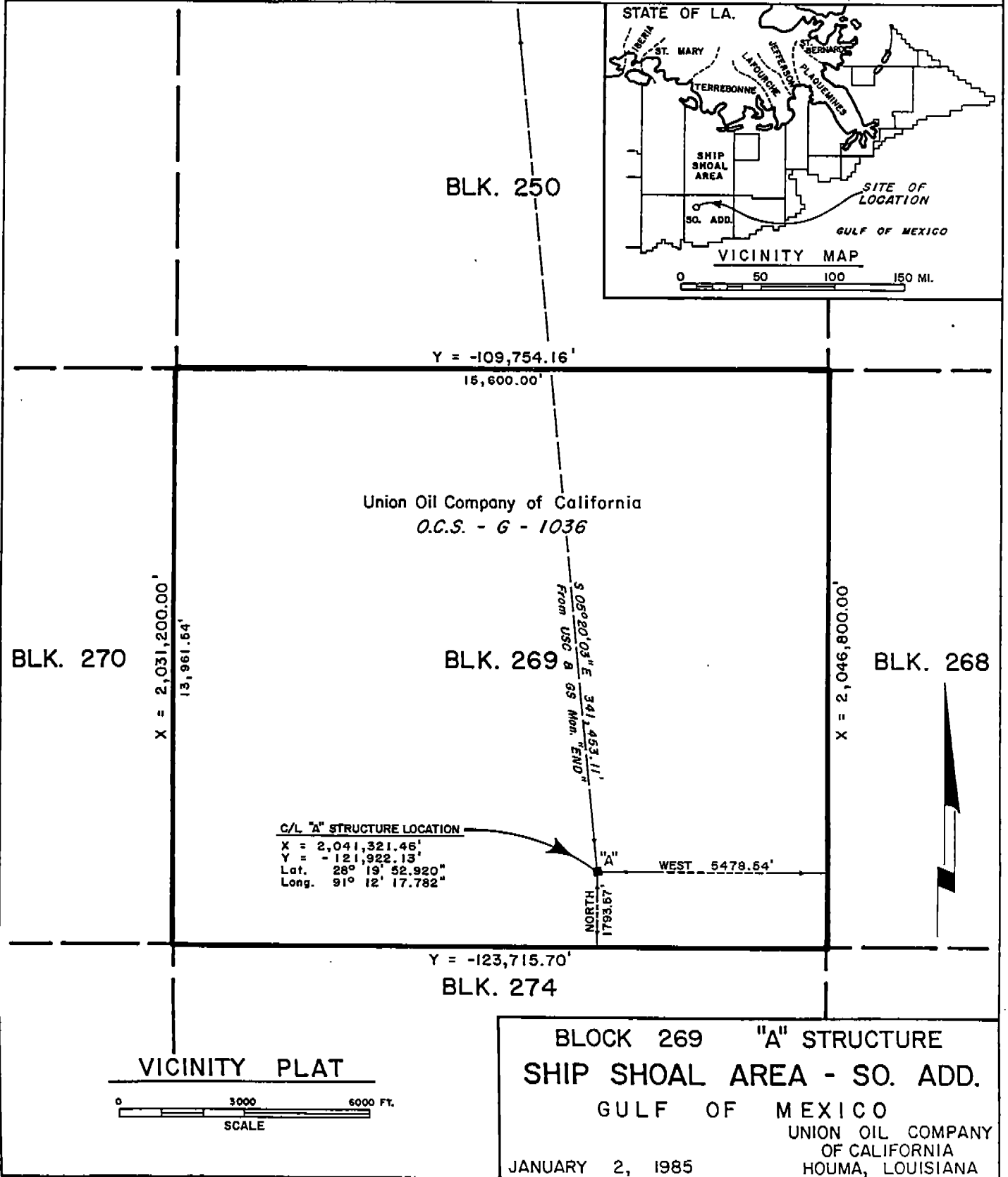
1. Failure to recognize at the time of equipment design the need for and the installation of a check valve in the skimmer tank inlet line to prevent hydrostatic liquid flow to lower levels was a contributing cause.
2. Lack of planning, coordinating, and flagging of valves by operating personnel during bypass operations of a major vessel was another contributing cause.
3. Weather conditions at the time of the accident were such that the seas and currents ran directly into Platform A from the auxiliary platform.
4. Since the accident occurred at night, darkness was a contributing factor because most personnel could not see hydrocarbons on the water.

V. RECOMMENDATIONS

- A. Check valves should be installed on skimmer inlets (vessel inlets) that are capable of hydrostatically discharging or backflowing to a sump or any overboard discharge system.
- B. During welding and burning operations, operating personnel, and especially the fire watch, should look for and be aware of any hydrocarbons on the surface of the water, possibly coming from discharge points on the platform or elsewhere.
- C. Bypass procedures of major vessels should be planned and coordinated, whereby personnel are aware of valves that are used.
- D. Directions on the issued work permits should be adhered to.
- E. Concur with Union's revised Welding, Burning, and Hot Tapping Safe Practices requiring a welder receive special approval from management before cutting and welding at night.
- F. Safety Alert -- In future designs, skimmer tanks should have the inlet line tie in the top section of the tank instead of the bottom.
- G. The panel recommends that this case be closed with the submission of this report.

LOCATION PLAT

Attachment No. 1



LIST OF WITNESSES AT FORMAL HEARINGS REGARDING JANUARY 6, 1984, FIRE AT
SHIP SHOAL BLOCK 269, LEASE OCS-G 1036, PLATFORM A

NAME	COMPANY	POSITION	ATTORNEY
<u>February 22, 1984</u>			
Donald Joseph Stevens	Union	Field Operator 1	Mr. Hanemann
Roger David Hebert	Union	Safety Technician	Mr. Hanemann
Ronald D. Barton	Pool	Roustabout	Mr. Craven
James R. Adams	Union	Senior Drilling Foreman	Mr. Exerck
Verges John Marcel	Gulf Inland	Roustabout	Mr. Hanemann
Wallis W. Lovell	Union	Reg. Safety Coordinator	Mr. Hanemann
James R. LeMaire	Union	Production Superintendent	Mr. Hanemann
Guion H. Kleinpeter	Union	District Manager	Mr. Hanemann
Rafel A. Pourciau	Union	Area Production Manager	Mr. Hanemann
Claude David Dehart	Union	Operator I	Mr. Hanemann
<u>February 23, 1984</u>			
Ronnie Ray Odom	Pool	Welder	Mr. Bruno
Jimmy Dale Phelps	Pool	Floorhand	Messrs. Johnson & Culwich
Henry L. Van Vlake	Pool	Welder	Mr. Johnson
Berley Broom	Pool	Crane Operator	Mr. Johnson
Franklin Mills	Pool	Welder	Mr. Johnson
David Pickett	Pool	Driller	Mr. Johnson
Charles Wesley McVay	Pool	Motorman	Mr. Johnson
Troy Charles Hayes	Pool	Derrickman	Mr. Johnson
Clarence Kelly	Pool	Derrickman	Mr. Johnson
Robert Allen Sprehe	Pool	Crane Operator	Mr. Johnson
Michael Brewer	Pool	Driller	Mr. Johnson
<u>March 29, 1984</u>			
Donald J. Stevens	Union	Operator I	Mr. Hanemann
Roger D. Hebert	Union	Safety Technician	Mr. Hanemann

COMPUTER ANALYSIS

Attachment No. 3

SCAN HISTORICAL FILE DUMP SS-269A
01/06 THRU 01/07

11:06:04 04/23/84

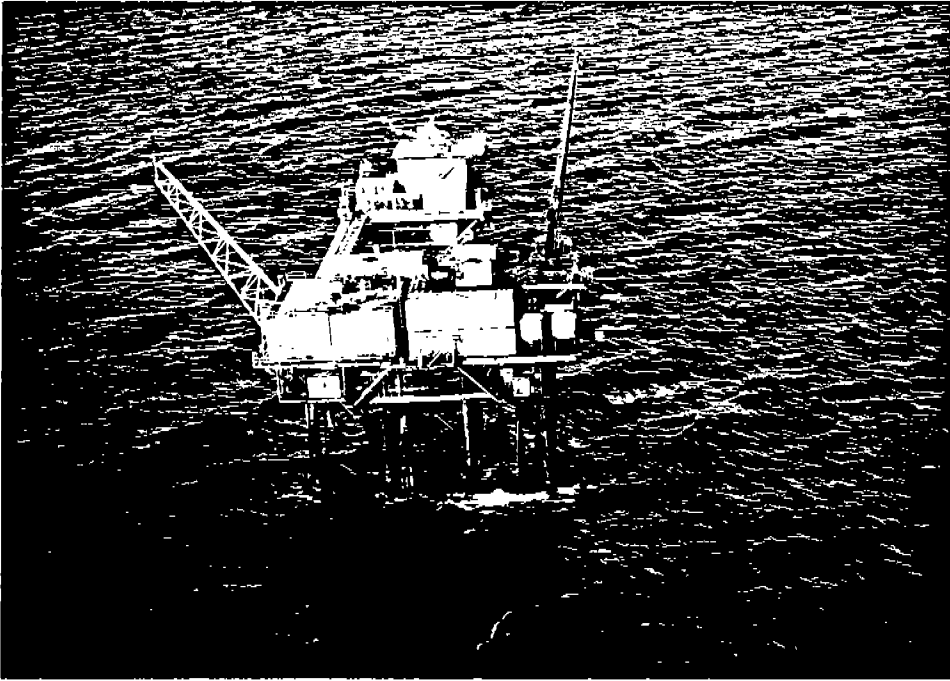
***	01/06	11:46	SS-269A	LACT PUMP #2	ON	
***	01/06	11:46	SS-269A	LACT PUMP #1	ON	
***	01/06	11:57	SS-269A	LACT DIVERT	NORM	
***	01/06	11:57	SS-269A	WELL A13	ALRM	***
***	01/06	12:33	SS-269A	LACT PUMP #2	OFF	***
***	01/06	13:02	SS-269A	LACT PUMP #2	ON	
***	01/06	13:02	SS-269A	LACT PUMP #1	OFF	***
***	01/06	13:28	SS-269A	WELL A13	NORM	
***	01/06	16:58	SS-269A	LO WET SEP	ALRM	***
***	01/06	16:58	SS-269A	HTR TRTR H L	ALRM	***
***	01/06	16:58	SS-269A	KEM ELECT	ALRM	***
***	01/06	16:58	SS-269A	WELL A12	ALRM	***
***	01/06	17:40	SS-269A	LO WET SEP	NORM	
***	01/06	17:40	SS-269A	HTR TRTR H L	NORM	
***	01/06	17:40	SS-269A	KEM ELECT	NORM	
***	01/06	17:45	SS-269A	LACT DIVERT	ALRM	***
***	01/06	17:50	SS-269A	WELL A13	ALRM	***
***	01/06	18:09	SS-269A	WELL A12	NORM	
***	01/06	19:29	SS-269A	TANK #1 LV	NORM	
***	01/06	20:27	SS-269A	LACT DIVERT	NORM	
***	01/06	21:20	SS-269A	LO WET SEP	ALRM	***
***	01/06	21:20	SS-269A	HTR TRTR H L	ALRM	***
***	01/06	21:20	SS-269A	LACT DIVERT	ALRM	***
***	01/06	21:20	SS-269A	FLARE SCB HL	ALRM	***
***	01/06	21:21	SS-269A	LACT PUMP #2	OFF	***
***	01/06	21:21	SS-269A	WELL A12	ALRM	***
***	01/06	21:21	SS-269A	SSW-1 HYD. SYSTEM	ALRM	***
***	01/06	21:26	SS-269A	PLATFORM S/I	ALRM	***
***	01/06	22:26	SS-269A	PLATFORM S/I	NORM	
***	01/06	22:31	SS-269A	SSW-1 HYDRAULIC PUMP	ON	
***	01/06	22:36	SS-269A	SUMP H L	ALRM	***
***	01/06	22:36	SS-269A	SSW-1 HYDRAULIC PUMP	OFF	***
***	01/06	22:36	SS-269A	SSW-1 HYD. SYSTEM	NORM	
***	01/06	23:41	SS-269A	SSW-1 HYD. SYSTEM	ALRM	***
***	01/07	00:09	SS-269A	LO WET SEP	NORM	
***	01/07	00:09	SS-269A	HTR TRTR H L	NORM	
***	01/07	00:09	SS-269A	FLARE SCB HL	NORM	
***	01/07	00:09	SS-269A	SSW-1 HYD. SYSTEM	NORM	
***	01/07	01:10	SS-269A	LO WET SEP	ALRM	***
***	01/07	01:10	SS-269A	HTR TRTR H L	ALRM	***
***	01/07	01:10	SS-269A	KEM ELECT	ALRM	***
***	01/07	01:24	SS-269A	SUMP H L	NORM	
***	01/07	01:39	SS-269A	LO WET SEP	NORM	
***	01/07	01:39	SS-269A	HTR TRTR H L	NORM	
***	01/07	01:39	SS-269A	WELL A12	NORM	
***	01/07	03:42	SS-269A	GENERATOR #1	ON	
***	01/07	03:47	SS-269A	GENERATOR #1	OFF	***
***	01/07	07:12	SS-269A	WELL A12	ALRM	***
***	01/07	13:57	SS-269A	WELL A13	NORM	
***	01/07	14:03	SS-269A	WELL A13	ALRM	***
***	01/07	14:17	SS-269A	WELL A12	NORM	
***	01/07	14:22	SS-269A	WELL A12	ALRM	***
***	01/07	21:14	SS-269A	WELL A2	NORM	
***	01/07	21:24	SS-269A	WELL A2	ALRM	***

BEST AVAILABLE COPY

PHOTOGRAPHS

Attachment No. 4

Photograph No. 1



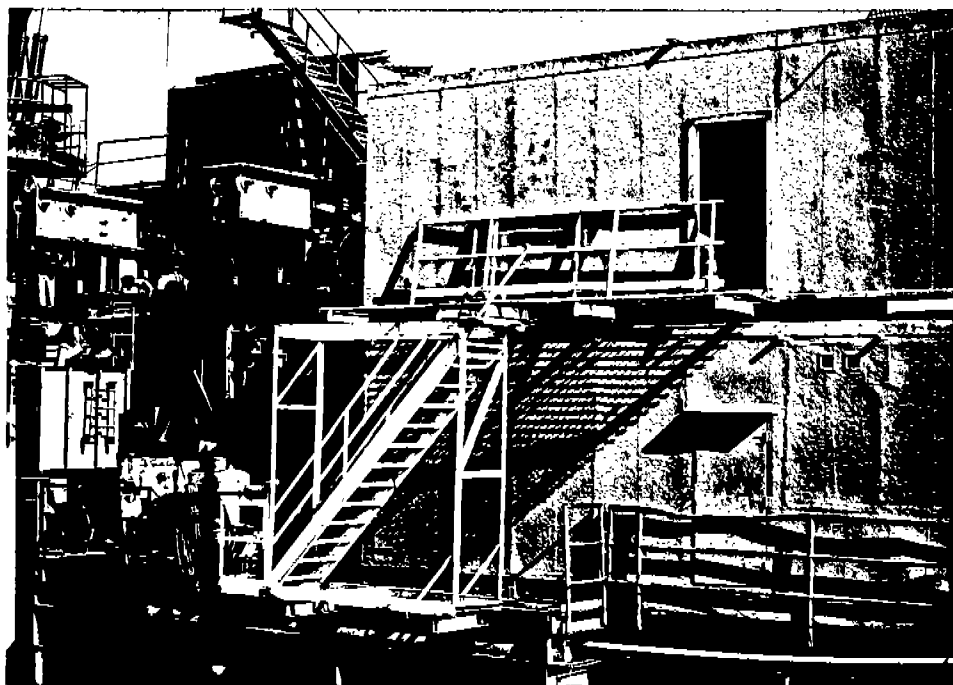
Photograph No. 2



BEST AVAILABLE COPY

PHOTOGRAPHS (con't)

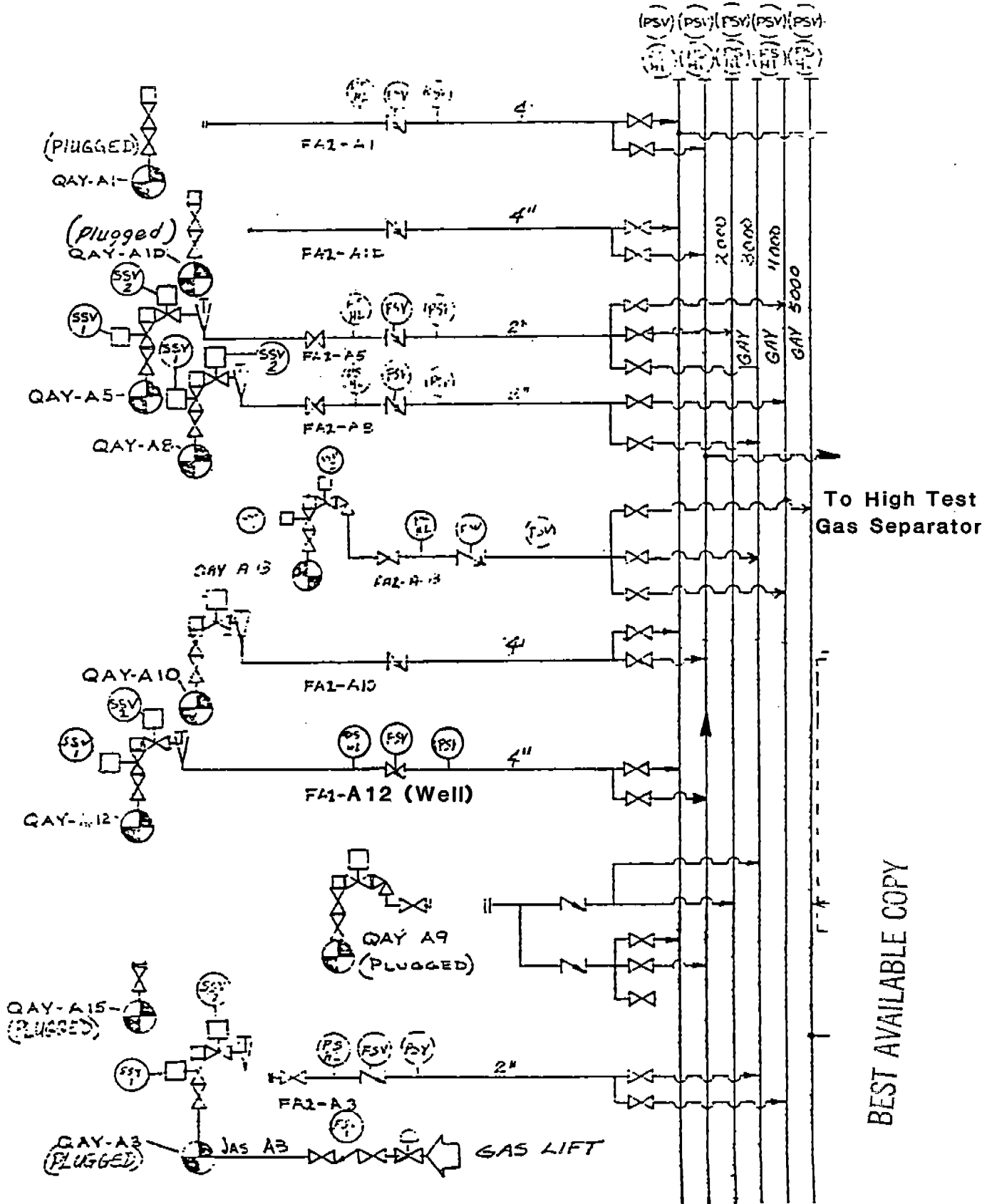
Photograph No. 3



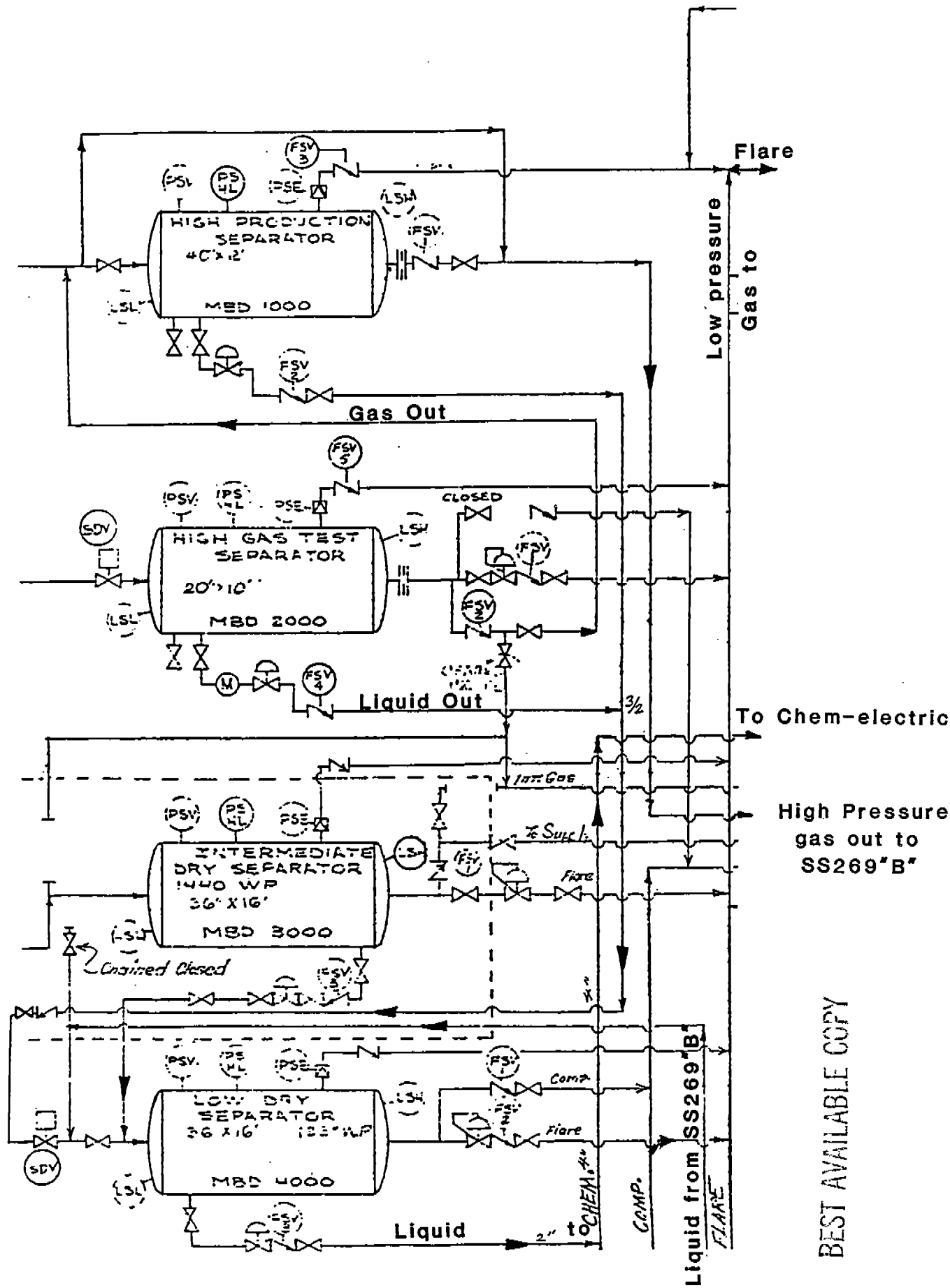
Photograph No. 4

BEST AVAILABLE COPY

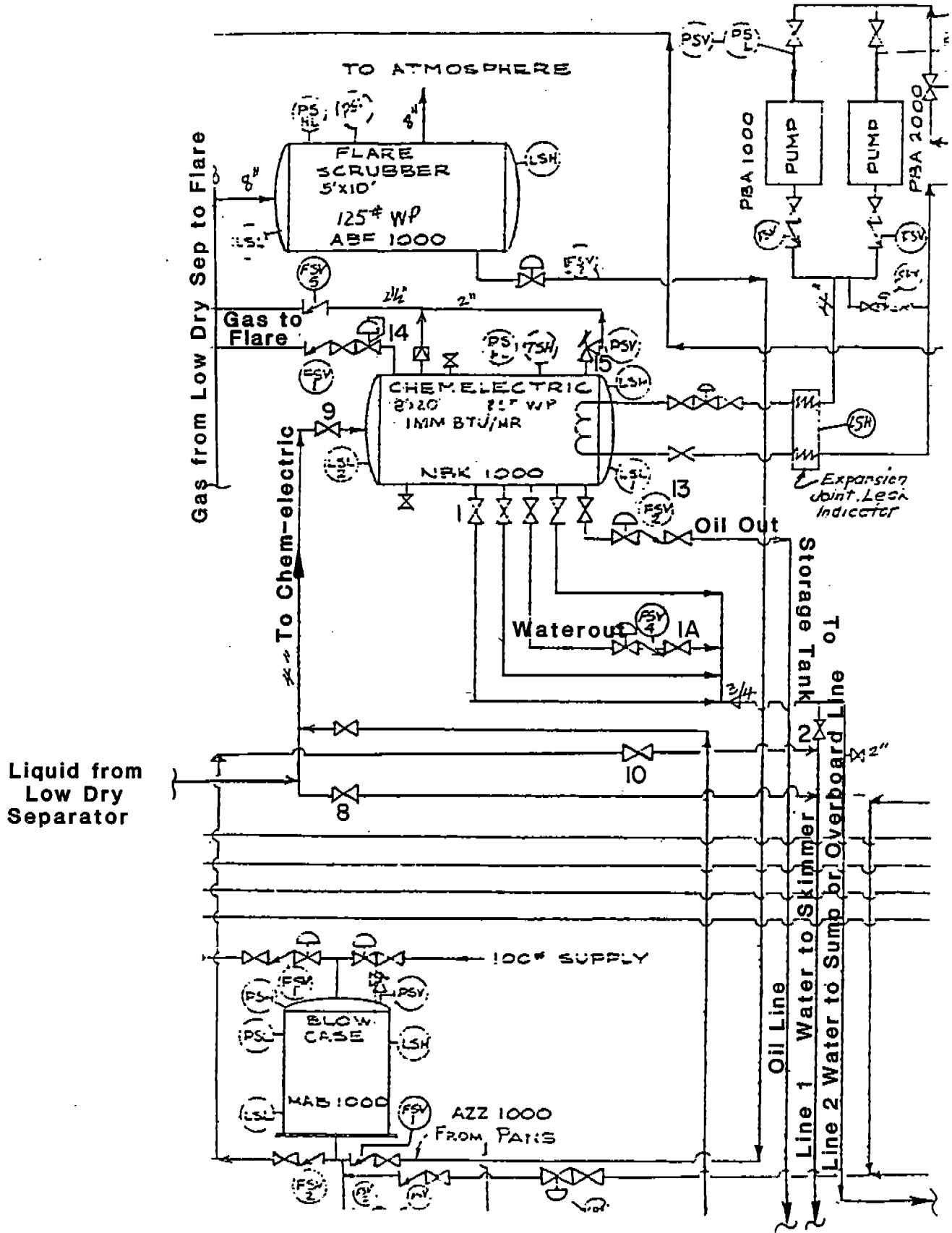
FLOW SCHEMATICS ATTACHMENT 5



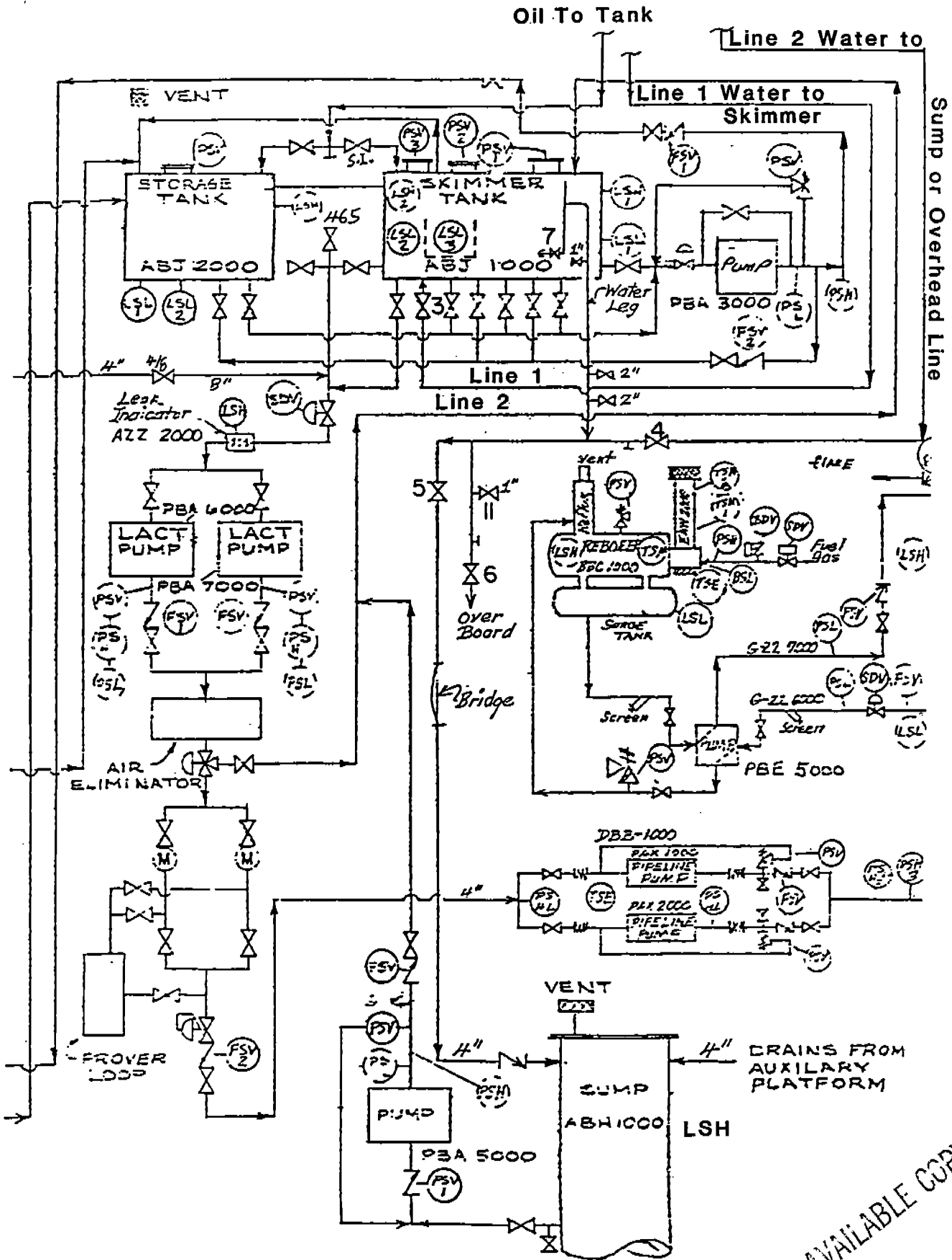
BEST AVAILABLE COPY



BEST AVAILABLE COPY



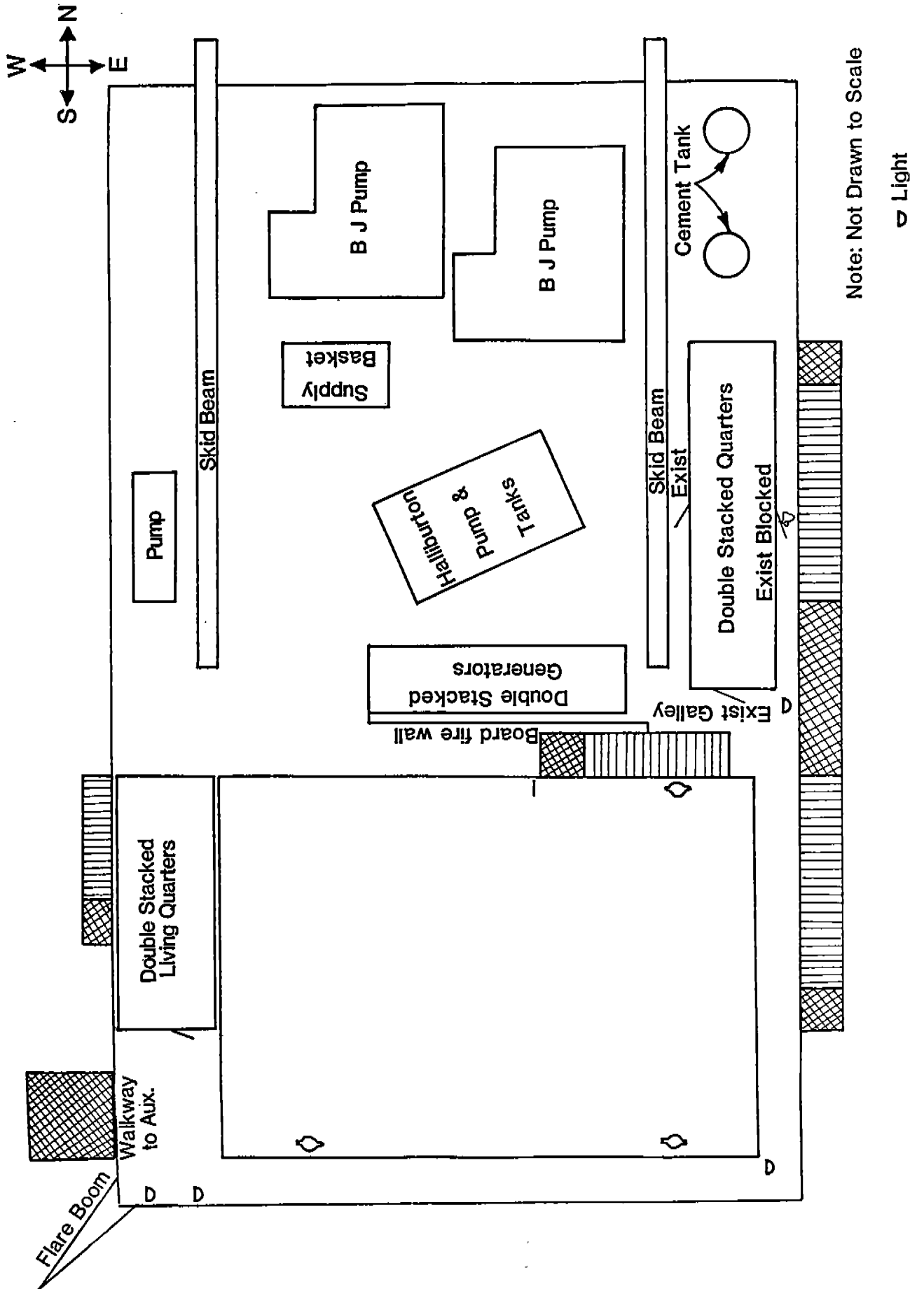
BEST AVAILABLE COPY



BEST AVAILABLE COPY

TOP DECK

Attachment No. 6



FIRE PERMIT

Attachment No. 7

Form P-700

Fire Permit



FIELD <u>5.5 274</u>	DATE <u>7-6-84</u>
PERMISSION IS GRANTED TO: <u>Buddy Van Vliet</u>	
<small>PLATFORM OR BATTERY</small>	
TO LIGHT FIRES IN: <u>5.5 269 A</u>	

Specific Location: Top of Atom Peak production platform

Effective Date: 7-6-84

Purpose of Fire: Cut & weld for rig move on platform

Special Safety Precautions: Fire watch
Fire Extinguishers
shut in platform
Water hose

Time Applied For: 6⁰⁰ AM
 PM

Time Issued: 6⁰⁰ AM
 PM

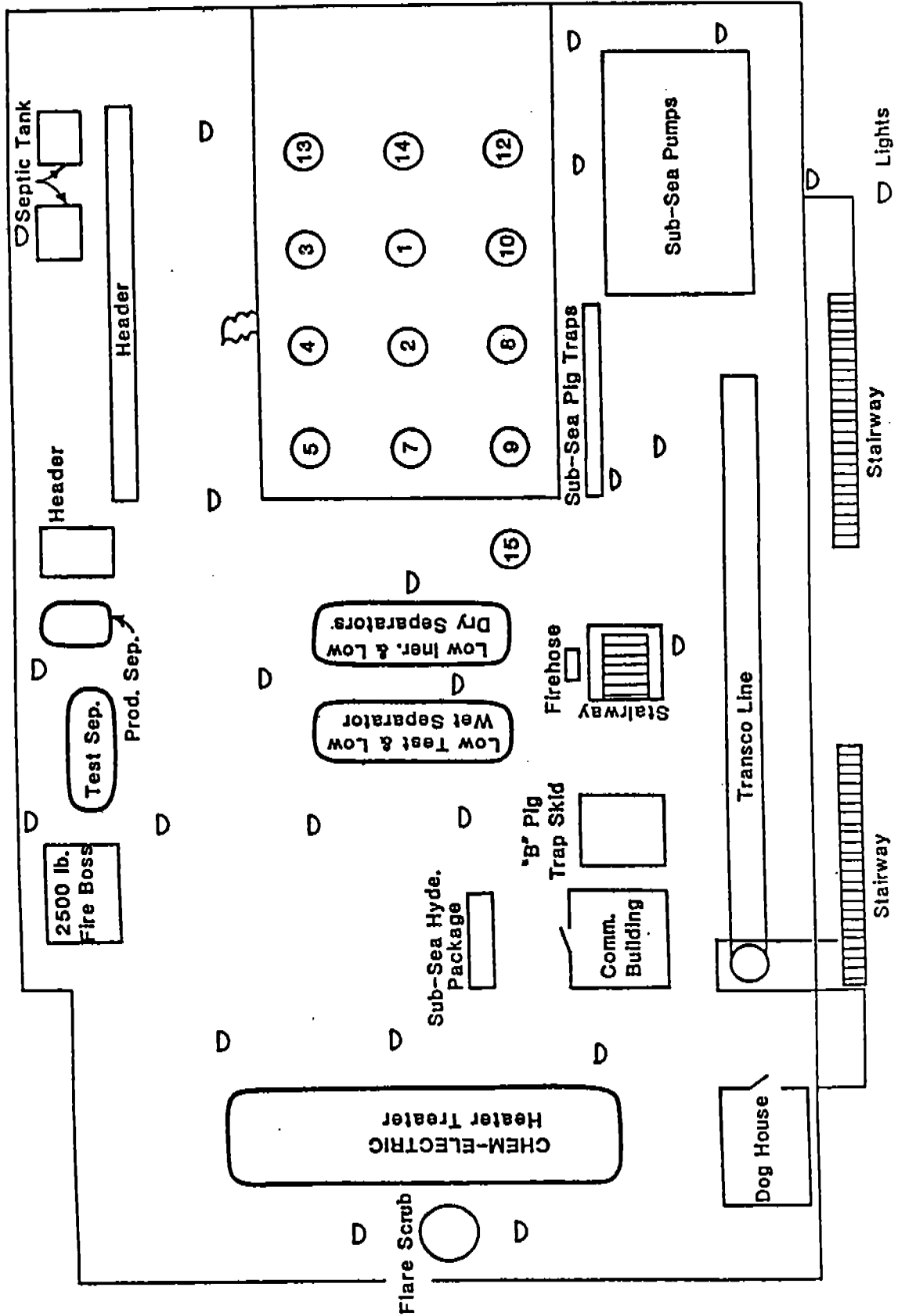
YES	NO		YES	NO	
<input checked="" type="checkbox"/>		IS EQPT. PROPERLY ISOLATED?		<input checked="" type="checkbox"/>	WARNING TAGS ATTACHED?
<input checked="" type="checkbox"/>		GAS TEST HAS BEEN MADE	<input checked="" type="checkbox"/>		FIELD OPERATORS INFORMED?
<input checked="" type="checkbox"/>		IS HOUSEKEEPING SATISFACTORY?	<input checked="" type="checkbox"/>		IS PROTECTIVE EQPT. REQD?
	<input checked="" type="checkbox"/>	IS ELEC EQPT DISCONNECTED?	<input checked="" type="checkbox"/>		IS FIREWATCH REQUIRED?
<input checked="" type="checkbox"/>		SNIFFER ON HAND?	<input checked="" type="checkbox"/>		IS FIRE EQPT. NEEDED?

Signed By: Ray Adams

Title: Asst. Safety Foreman

BEST AVAILABLE COPY

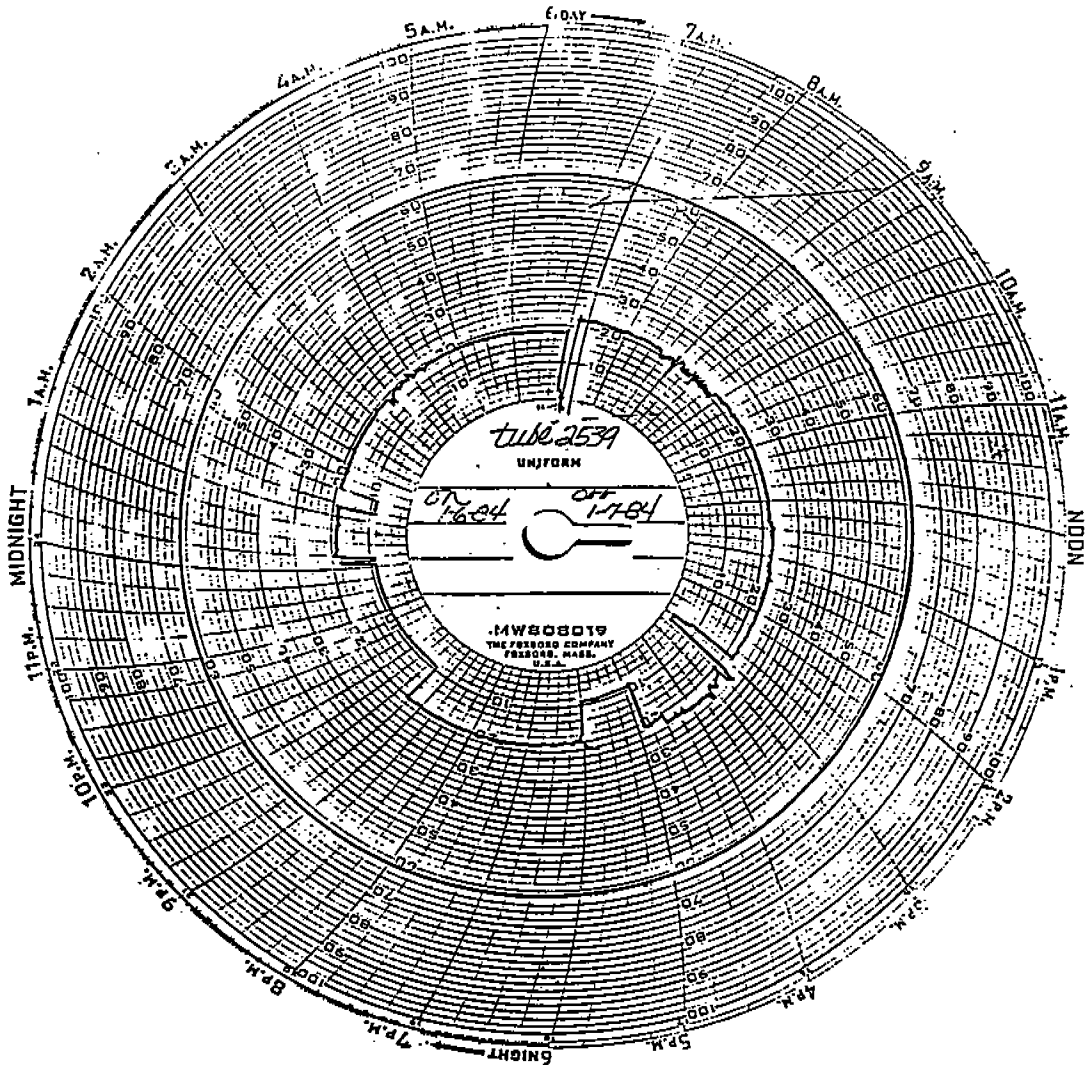
MIDDLE DECK, PLATFORM "A" ATTACHMENT NO.8



BEST AVAILABLE COPY

GAS SALES CHART

Attachment No. 9



TRANSCONTINENTAL
GAS PIPE LINE CORPORATION

FILE 1 OF FILE 004 000
REVISION 12-28-1961

Chart Changing Data					Office Calculation Data					
Tuber No.	Date	Change Code	App. Temp.	App. Gravity	App. Pressure	App. B.F.U.				
2539	7-16-64	OFF								

METER RANGE	
Chart Aperture Size	Scale Differential
<input type="checkbox"/> 100 #	<input type="checkbox"/> 10 #
<input type="checkbox"/> 250 #	<input type="checkbox"/> 20 #
<input type="checkbox"/> 500 #	<input type="checkbox"/> 50 #
<input type="checkbox"/> 1000 #	<input type="checkbox"/> 100 #
<input type="checkbox"/> 2500 #	<input type="checkbox"/> 200 #
Other _____	

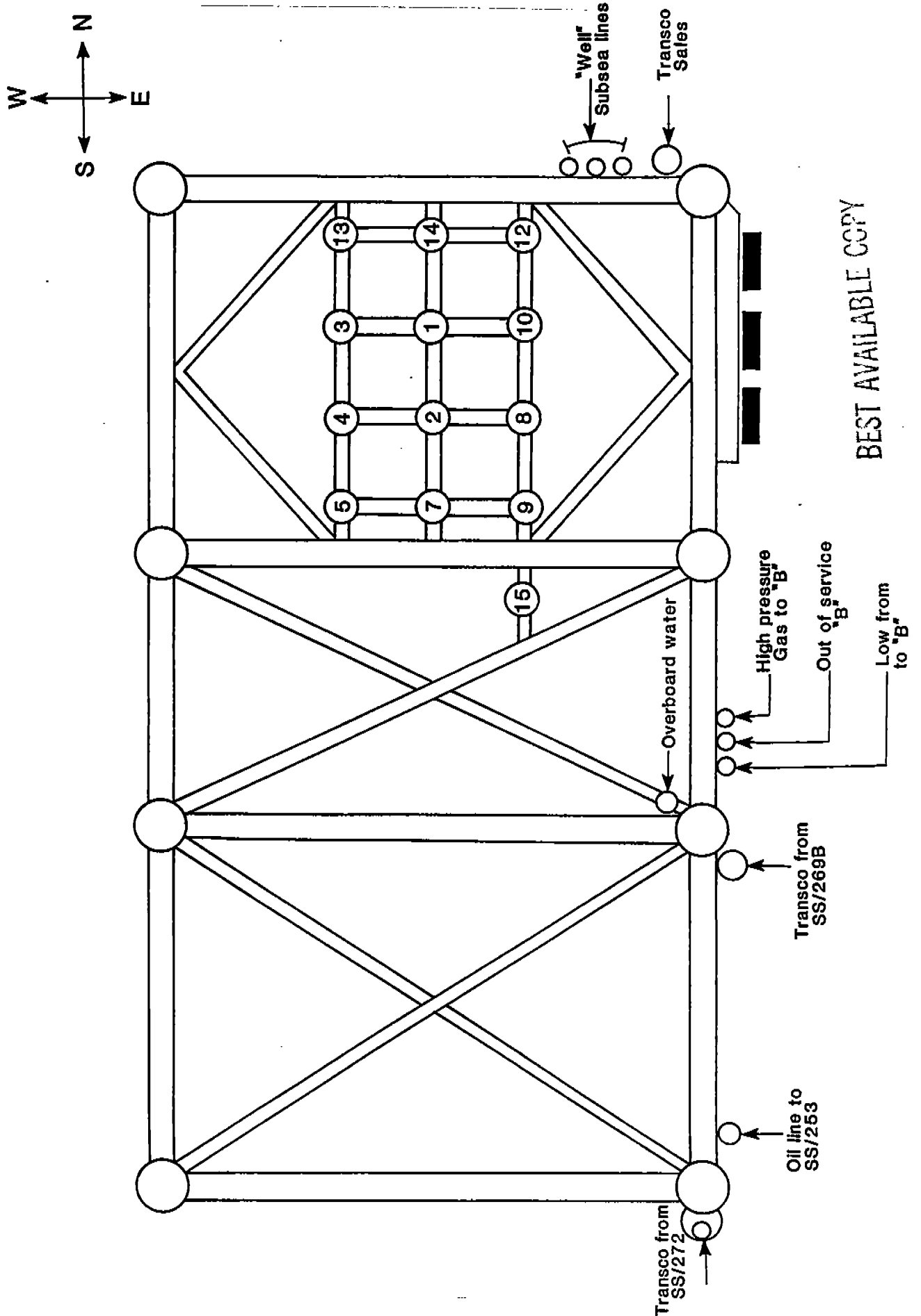
In Chain Readings: Multiply Scale % & Range

UNION OIL CO. OF CALIF.	
UNION SS BLK. 274-2698	
METER NUM SIZE 1 1/4"	OFFICE DESIG. NO. 2474
CHART ON: 10	CHART OFF: 20
REMARKS:	

BEST AVAILABLE COPY

BOAT LANDING - JACKET

Attachment No. 10



BEST AVAILABLE COPY

SIGNED STATEMENTS

Attachment No. 11

SWORN STATEMENT OF ROGER L. DALRYMPLE

My name is Roger L. Dalrymple and the following is my sworn statement which I make to the best of my information, knowledge and belief. I am a Lease Operator for Shell Offshore Inc. and have worked for Shell Offshore Inc. or its predecessor Shell Oil Company since 1977.

On the night of January 6, 1984, I was out at SOI's A Platform in Ship Shoal Block 274 Field. I understand that there was a fire on a nearby Union Oil platform around 9 or 10 p.m. that night. Union's platform is about 1½ miles from our Platform A. The first word I got was by radio communication, when SOI personnel at Ship Shoal 241 told me of the fire and asked me if I knew anything about it. This was around 10 p.m. I went to the side of our platform closest to the Union platform and looked out toward the Union platform. Normally, their platform is fairly well lit. In addition to the normal navaid lights, I saw two small strobe lights, like the kind on rig buoys, and I saw that their standby vessel was shining a spot light around the platform. I never saw a fire or heard an explosion.

A few days after, an MMS inspector came out and asked me if I had seen any pollution before or after the fire. I told him that I had not seen any pollution in the area during the time in question. We have strict instructions to report pollution, whether it originates from our platform or anywhere else. No pollution was seen.

We have safety devices which alert us of any problems on the platform. During the time in question, our operations were all routine and there was no malfunction or irregularity in our equipment or operations.

The above statement is given freely and is true to the best of my information, knowledge and belief.


ROGER L. DALRYMPLE

I Russell Van Meter on 1-6-84 came up on
SS269 at 1945 and was there until 2000 hrs I
didn't see or smell oil or gas while I was
there. (Caption M/V Hoffnung)

Russell Van Meter

GLOSSARY

API gravity -- American Petroleum Institute standard for measuring the specific gravity of oil.

Auxiliary platform -- A platform adjacent to and supporting a production platform with producing equipment; it usually has no producing wells and is connected to the producing platform by a walkway.

Burst plate or disc (PSE) -- A pressure safety element or device made with a thin piece of metal installed in the piping on top of a hydrocarbon-handling vessel, usually between two flanges, and designed to burst at the maximum working pressure of the vessel. The maximum working pressure is much lower than the test pressure of the vessel; thus, the burst plate protects the hydrocarbon vessel from blowing up.

Bypass -- To reroute a flow stream around a vessel, usually by the manipulation of valves.

Chem-electric -- A vessel designed to separate water droplets out of oil with the aid of chemicals, heat, and electricity.

Drilling rig -- A unit used to drill for hydrocarbons in the earth's substructure.

Drillwater tank -- A tank used to store fresh water to be used in mixing drilling mud.

Drip pan -- A containment pan designed or installed underneath a hydrocarbon vessel to catch any pollutants that may drip from the vessel.

Fire permit (welder's permit) -- A permit given to a welder before he begins any welding activity; the permit is required by an operator's welding, burning, and hot tapping safe practices and procedures plan.

Gas sales chart (Transco) -- A calibrated circular piece of paper used to monitor a gas flow stream, usually for sales purposes, indicating time, static pressure, and differential pressure.

Gravity feed -- The ability of a material (fluid) to move from one elevation to a lower elevation by its own weight.

Platform -- A steel-welded structure installed usually offshore on the Outer Continental Shelf and used for the support of drilling and production equipment necessary in the development and production of petroleum hydrocarbons.

Platform shut in -- The complete cessation of flow and any other activities involved in the production of and treatment of petroleum hydrocarbons on a production platform.

Pollution - A hydrocarbon substance spilled onto the waters of the Outer Continental Shelf.

PSI - Pounds per square inch.

PSIG - Pounds per square inch gauge.

Separator - A vessel designed for the multiphase separation of gas, oil, and water.

Simultaneous operation plan -- A general plan submitted by the lease operator describing measures taken when other activities such as drilling, completion, workovers, and so on, are performed in conjunction with normal production operations.

Skimmer tank -- An atmospheric tank used for holding produced water and for aiding in the further separation of oil droplets out of that water. The oil is skimmed from the fluid surface and the water is usually discharged near the bottom of the tank.

Sump pile -- An atmospheric oil-skimming device for produced water. It is ordinarily used to give more retention time and to allow for skimming of oil droplets out of produced water before that water is discharged into the Gulf.

Vessel -- A containment device used for the two-or three-phase separation of hydrocarbon materials. It can be pressurized or atmospheric.

Water leg -- An adjustable piping device used to set the produced water level in a tank, usually a skimmer tank, at a point where water flow would be maintained through the tank at that level.

Welding, Burning and Hot Tapping Safe Practices and Procedures Plan -- A plan required before the conduct of any welding, burning, or hot tapping operation. It outlines the qualification standards or requirements for personnel, and the methods by which the lessee will assure that only personnel meeting such standards or requirements are used.

WP -- Working pressure