DMB

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March 8, 1985

Mr. James G. Keppler
Regional Administrator
U.S. Nuclear Regulatory Commission
799 Roosevelt Road
Glen Ellyn, IL 60137

Subject: LaSalle County Station Units 1 and 2
Confirmatory Action Letter
NRC Docket Nos. 50-373 and 50-374

Reference (a): February 20, 985 letter from J. G. Keppler to Cordell Reed.

Dear Mr. Keppler:

This letter provides a report of actions taken and results achieved relative to matters discussed in the reference (a) Confirmatory Action Letter. This fulfills our commitment to provide a written summary of activities and findings.

Please direct questions regarding this matter to this office.

Very truly yours,

J. G. Marshall
Nuclear Licensing Administrator

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March 5, 1985

On February 18, 1985, the midnight shift Radwaste Foreman became concerned about a series of three (3) unexplained events in the previous three day period. He became aware of these events through shift turnover activities. The Radwaste Foreman wrote a note to his Shift Engineer who subsequently transmitted it to the Operating Assistant Superintendent. A description of these three events follows:

. . . At approximately 1200 hours on February 16, 1985, it was discovered that the Wastewater Treatment Facility Equalization Tank Discharge Valve was closed. The event was discovered by the Radwaste Coordinator following up on a report by the "B" Operator that the integrator had not changed during her rounds.

. . . At 1900 hours on February 16, 1985, the Radwaste Operator noted that level indication for the 2A Floor Drain Concentrator Feed Tank mysteriously dropped from 100" to 0" indicated level. Investigation by the Radwaste Foreman determined that the air supply to the bubbler valve was closed. This tank was not feeding at the time and this event therefore, had no impact on Radwaste operations.

. . . At approximately 2330 hours on February 17, 1985, an unsuccessful attempt was made to open the 1B Floor Drain Concentrator Feed Tank Side Suction Valve 1WF201B. Investigation determined that the air supply valve to the valve operator was closed.

Also on February 18, 1985, at approximately 0840 hours, a Security Officer on fire watch patrols discovered that the air supply valve (1DG060) to one bank of the 1A Diesel Generator Air Start Motors was unlocked and in the closed position. The Security Officer immediately notified the Shift Engineer who had the valve locked in the open position. Since the reason for the mispositioned valve could not be readily ascertained, and in light of the three previously referenced events, it was elected to call in the Security Administrator who was not onsite. He initiated a preliminary investigation into the mispositioned valves with emphasis on the diesel generator air start valve. As a precautionary measure, the following actions were initiated on February 18, 1985:

1) Initiated daily performance of mechanical lineups for all five (5) diesel generators.

2) Initiated weekly performance of the locked valve checklist for ESF systems for both Units 1 and 2 excluding High Radiation areas.

3) Informed Operating personnel of the events in question and advised them to be alert for abnormal lineups prior to their assuming shift duties.

4) In addition to the continuous Security Officer patrols of the Reactor and Auxiliary Building, the number of patrols by Security Officers was increased to double the frequency of surveillance in the Auxiliary Building and Diesel Generator Rooms.

5) Initiated a Potentially Significant Event investigation.

At 0648 hours on February 19, 1985, the Control Room received an ESF Status Panel Alarm and the alarm typer printed "2VP114B" Motor Control Power Unavailable".

Investigation determined that the breaker for Primary Containment Chilled Water Inboard Isolation Valve 2VP114B had been turned to the "OFF" position. The breaker was immediately returned to the "ON" position within minutes of receipt of the alarm. Since the Stationman's cage is located directly adjacent to the breaker in question, several stationmen were in the area in about the right time frame. Interviews of the stationmen involved identified no one with information as to how the breaker came to be in the "OFF" position.

Later the same day, a Technical Staff Engineer reported that she had found the bubbler valve for the Sewage Plant Lift Station #1 Wetwell Level Indicator closed at approximately 1100 hours on February 14, 1985. This event was discovered as a result of investigation into a low flow condition at the Sewage Treatment Plant. This event was closed on February 21, 1985, when the same problem reoccurred in the presence of a Technical Staff Engineer and was determined to be an equipment problem.

Two additional precautionary measures were initiated on February 18, 1985. These consisted of daily electrical lineups for all five (5) Diesel Generators and an additional Operating individual assigned to randomly check the status of safety related plant systems.

Also on February 19, 1985, at 1634 hours, the Control Room received a 1B Diesel Generator Fuel Oil Storage Tank Lo-Lo Level Alarm. An operator was dispatched to respond to the alarm. When the operator arrived in the area, he found the level indicator bubbler valve closed and three stationmen in the area assigned to housekeeping duties. The valve was immediately returned to its proper position.

The three stationmen involved, the Stationman Foreman, the Stationman Union Steward, an additional stationman and the Security Administrator were recalled to the plant to discuss the event. The above individuals, as well as the Shift Engineer and Operator involved were interviewed by the Administrative and Support Services Assistant Superintendent and the Security Administrator. Early the next morning it was concluded that no evidence existed that would indicate any surreptitious activity. This event was closed at that time.

Following the above event, it was decided to add daily mechanical and electrical lineups of the Diesel Generators Fuel Oil System and Security Officer patrols of the Diesel Generators Fuel Oil Storage Tank Rooms as additional precautionary measures.

On February 21, 1985, while reviewing a draft Deviation Report, it was discovered that the power supply breaker for the Radwaste Discharge Process Radiation Monitor was found turned off on January 20, 1985, for an apparently unexplained reason. Additional investigation, including an interview of the Substation Construction Foreman for the crew that responded to the problem, revealed that the problem was due to an equipment malfunction. This event is closed.

Additional information pertaining to each of the above events is presented in Attachments 1 through 8. Due to the large number of events investigated, each of the events was given a numerical designation as shown in Table 1. These events will be referred to utilizing the event number throughout the remainder of this report. Photographs of the components involved in Events 1 through 5 and 7 were taken to aid the investigation. These are presented in Figures 1 through 18.

Although each event was investigated as it occurred by both Technical Staff and Security personnel, it was decided on February 20, 1985, to organize an investigative task force to provide a more coordinated effort and to assure all avenues were explored. The task force organization is depicted in Attachment 9.

The investigative efforts were coordinated by the Administrative and Support Services Assistant Superintendent and included both a Technical investigation and a Security investigation.

Throughout the investigation, onsite efforts were augmented and monitored by the Corporate Security Administrator and his staff.

The Technical portion of the investigation was led by a Senior Licensed member of the Technical Staff. He had three Technical Staff members, all former Preoperational Test Engineers, assigned to assist him. Their assignment was to determine whether or not there was any logical explanation for the events, other than tampering.

These personnel conducted an exhaustive review of the following records for Events 1 through 5 for the applicable time frames:

1) System surveillances.

2) Instrument Maintenance work records.

3) Mechanical Maintenance work records.

4) Electrical Maintenance work records.

5) Equipment Outages hung and cleared.

6) Radiation Chemistry work assignments.

7) Stationman work assignments.

8) Contractor work records (Morrison, Transco, Vista and Cataract).

This review encompassed both the equipment involved as well as redundant equipment and like equipment on the opposite unit to account for the possibility that the problem was caused by being on the wrong equipment. Although this review did turn up some additional facts and identified personnel who were in the area for some of the events, in about the right time frame, nothing conclusive was accomplished. Pertinent facts are included in Attachments 1 through 8. All personnel identified were interviewed with negative results.

The Technical investigation also accomplished a review of the equipment involved to determine whether equipment malfunctions could account for the events in question. Three (3) experiments were performed as follows:

1) For Event #2, the air supply valve to the bubbler was isolated to determine how long it would take to lose level indication after the valve was closed. It was determined that level indication is lost 5 to 10 minutes after the valve is closed. This was done in an attempt to narrow the time frame in which the valve could have been closed.

2) For Event #3, the air supply valve to the valve operator was closed to determine how long it would take for valve 1WF201B to go closed upon loss of air. It was determined that the valve will close approximately 5 seconds after the isolation valve is closed. This was also done to narrow the time frame in which the valve could have been closed.

3) For Event #5, the power supply breaker for valve 2VP114B was tested to ensure that there was not a malfunction that would allow the breaker to go to the "Off" position instead of the "Trip" position following an electrical malfunction. The breaker operated as designed.

The Security investigation emphasized Events #2, 3, 4, and 5. Event #1 was excluded due to its location outside the Protected Area and accessability to the general public. With Event #1 there are no access control devices installed. Events 6 and 8 were excluded due to being closed out by the Technical portion of the investigation. Event #7 was investigated by Security, but was closed out within a few hours of its occurrence. The results of this investigation were described earlier in this report.

Computer access records were reviewed to identify personnel who potentially had access to one or more of the affected areas for Events 2 through 5 in the applicable time frames. These lists were further refined utilizing individual card reader histories, job assignments, and correlation with other events to eliminate individuals from the lists. Individuals on the lists were interviewed utilizing interview guidelines developed with the assistance of Corporate Security with initial emphasis on Operating personnel. Emphasis was placed on Operating personnel because the series of events indicated that if tampering were the cause it was done to make a statement rather than to disrupt plant operations by someone with significant knowledge of the plant. The fact that Operators are the only personnel that routinely access each of the areas involved also contributed to this decision.

Although some of the interviews identified additional personnel to be interviewed, none of the interviews revealed any evidence that conclusively explained how the incident occurred.

Some irregularities arose pertaining to one particular individual and the loss of a locked valve key. The individual involved was interviewed but the results of the interview indicated that it was unlikely that he was involved in any of these events.

The Security investigation also surveyed the various site work groups to determine whether any disciplinary action had been initiated within the past thirty days. The only disciplinary actions taken were minor (e.g. attendance interviews) and it was decided that they weren't appropriate for further investigation.

In addition to the interviews described above, these events were reviewed with each Operating shift, each Guard Mount and the Stationmen as a group. These personnel were advised to be alert for unusual activities and requested to provide any information they might have pertaining to these events. As a result of these tailgates and this investigation, a high degree of awareness of these events and the penalties associated with tampering exists at the station.

Despite an extensive effort involving over 400 manhours, review of hundreds of computer printouts, and 79 personal (one-on-one) interviews, several of these events remain unexplained. The probable cause of each of these events is identified in Table 1, but the fact remains that tampering cannot be ruled out. No unexplained events have occurred since February 19, 1985.

It is believed that the high degree of awareness of this investigation and the penalties for tampering is sufficient to deter any potential wrong-doer. To ensure that this high degree of awareness is maintained, signs have been placed at the entrances to the Main Access Facility warning of the penalties for tampering. This subject matter will also be included in orientation, NGET, and annual requalification training.

It is requested that the precautionary measures identified in Mr. J. G. Keppler's February 20, 1985, Confirmatory Action Letter to C. Reed be eliminated.

ATTACHMENT #1

At approximately 1200 hours on 2/16/85, it was discovered that the Wastewater Treatment Facility Equalization Tank Discharge Valve was closed. The event was discovered by the Radwaste Coordinator following up on a report by the "B" Operator that the integrator had not changed during her rounds. No authorized activities were discovered that could have resulted in this valve being in the closed position.

Since this valve is located outside the Protected Area, it is accessible to the General Public. Therefore, this event was not included in the Security Portion of the investigation.

This event was reported on 2/18/85 by a Radwaste Foreman that became concerned about a series of three unexplained events in a three day period. He became aware of these events during shift turnover activities. See Attachments #2 and #3.

ATTACHMENT #2

At 1900 hours on 2/16/85, the Radwaste Operator noted that level indication for the 2A Floor Drain Concentrator Feed Tank mysteriously dropped from 100" to 0" indicated level. Investigation by the Radwaste Foreman determined that the air supply to the bubbler valve was closed. This tank was not feeding at the time and this event therefore, had no impact on Radwaste operations.

Investigation revealed that stationmen had been cleaning in the area approximately two hours prior to the event, and that the valve could have been closed by someone inadvertently bumping the valve. However, this is unlikely since experimentation determined that level indication is lost 5 to 10 minutes after the valve is closed. The time frames involved do not place the stationmen in the area when the valve was closed.

Another possible cause is that a foreign material became lodged in the valve, blocking flow, and became dislodged when the operator adjusted the valve. The valve involved is a needle valve and due to close tolerances could easily be clogged by foreign particles. Experienced operating personnel state that this type of valve requires periodic adjustments to maintain proper level indication.

This event was reported on 2/18/85 by a Radwaste Foreman that became concerned about a series of three (3) unexplained events in a three day period through shift turnover activities. See Attachments #1 and #3. No authorized activities were discovered that could have resulted in this valve being in the closed position.

The Security investigation of this event consisted of interviews of Stationmen who had been in the area performing housekeeping activities approximately two hours prior to the event and Radiation/Chemistry Technicians who had been observed in nearby areas. The Radwaste Foreman who reported this event during turnover and the Radwaste Foreman that brought this event to management's attention were also interviewed. All personnel interviewed for events 3, 4 and 5 were also questioned about this event. Although some of the interviews identified additional personnel to be interviewed, none of the interviews revealed any evidence that conclusively explained how the incident occurred.

Computer access records were reviewed for the doors in closest proximity to this area, but no additional information was obtained.

ATTACHMENT #3

At approximately 2330 hours on 2/17/85, an unsuccessful attempt was made to open the 1B Floor Drain Concentrator Feed Tank Side Suction Valve 1WF201B. Investigation determined that the air supply valve to the valve operator was closed. Experimentation determined that valve 1WF201B will close approximately 5 seconds after isolation of its air supply.

This valve is normally always open and is positioned such that it would be virtually impossible to inadvertently bump the valve closed.

This event was reported on 2/18/85 by a Radwaste Foreman that became concerned about a series of three (3) unexplained events in a three day period through shift turnover activities. See Attachments #1 and #2. No authorized activities were discovered that could have resulted in this valve being in the closed position.

The Security investigation of this event consisted of interviews of Stationmen who had been in the area performing housekeeping activities on the day of this event and Radiation/Chemistry Technicians who had been observed in nearby areas. The Radwaste Foreman who reported this event during turnover and the Radwaste Foreman that brought this event to management's attention were also interviewed. All personnel interviewed for events 2, 4 and 5 were also questioned about this event. Although some of the interviews identified additional personnel to be interviewed, none of the interviews revealed any evidence that conclusively explained how the incident occurred.

Computer access records were reviewed for the doors in closest proximity to this area, but no additional information was obtained.

ATTACHMENT #4

At 0840 hours on 2/18/85, a Security Guard on fire watch patrols discovered that the air supply valve to the 1A Diesel Generator Air Start Motors was unlocked and in the closed position. The Security Guard immediately notified the Shift Engineer who had the valve locked in the open position.

Mechanical lineups for all five (5) diesel generator air systems were immediately performed with no other problems noted. Other corrective/precautionary measures are listed in the body of this report.

An investigation was initiated to determine how the valve became mispositioned. The last documented operation of the valve was on 1/18/85 when outages 1-41-85 and 1-42-85 were cleared following completion of planned maintenance. The valve was double verified in the correct position at that time. Both of the individuals who performed the verification have been interviewed but no useful information was obtained. They both state that there is no way the valve could have been mispositioned upon return to service.

The valve was apparently correctly positioned following the outage since one of the Shift Foremen has stated that he observed the valve in the correct position on 2/16/85. The diesel generator was started and ran on 2/14/85 in preparation for taking the 2A Diesel Generator out of service for routine maintenance. However, this is inconclusive because the diesel generator will start and run on one bank of air start motors.

The investigation also revealed that some of the locked valve keys have been lost from the Shift Engineer's controlled key cabinet, which makes it difficult to determine who may have improperly manipulated the valve. Plans are to upgrade all valve locks as soon as new locks can be obtained and to upgrade control of the keys.

No authorized activities were discovered that could have resulted in this valve being in the closed position.

Computer access records were reviewed to identify personnel who potentially had access to the area in the applicable time frame. This list was further refined utilizing individual card reader histories, job assignments, and correlation with other events to eliminate individuals from the list. Individuals on the list were interviewed with initial emphasis on Operation personnel. Emphasis was placed on Operating personnel because the series of events indicated that if tampering were the cause it was done to make a statement rather than to disrupt plant operations by someone with significant knowledge of the plant. The fact that Operators are the only personnel that routinely access each of the areas involved also contributed to this decision.

Although some of the interviews identified additional personnel to be interviewed, none of the interviews revealed any evidence that concluisvely explained how the incident occurred.

ATTACHMENT #5

At 0648 hours on 2/19/85, the Control Room received an ESF Status Panel Alarm and the alarm typer printed "2VP114B Motor Control Power Unavailable".

Investigation determined that the breaker for Primary Containment Chilled Water Inboard Isolation Valve 2VP114B had been turned to the "OFF" position. The breaker was immediately returned to the "ON" position within minutes of receipt of the alarm. This breaker is located on MCC236Y-1 (2AP82B), Compartment H-6. This compartment is located in the lower right corner of the MCC near the floor. No personnel were observed in the surrounding area when the operator arrived to check out the breaker.

A test of the power supply breaker for valve 2VP114B was conducted on March 1, 1985, to ensure that there was not a malfunction that would allow the breaker to go to the "Off" position instead of the "Trip" position following an electrical malfunction. The breaker operated as designed.

No authorized activities were discovered that could have resulted in the breaker being in the "OFF" position.

Due to the physical location of the breaker, it is possible that personnel in the area could have inadvertantly bumped the breaker into the wrong position. Although several stationmen were in the area in about the right time frame, interviews of the stationmen involved identified no one with information as to how the breaker came to be in the "OFF" position.

Computer access records were reviewed to identify personnel who potentially had access to the area in the applicable time frame. This list was further refined utilizing individual card reader histories, job assignments, and correlation with other events to eliminate individuals from the list. Individuals on the list were interviewed with initial emphasis on Operating personnel. Emphasis was placed on Operating personnel because the series of events indicated that if tampering were the cause it was done to make a statement rather than to descript plant operations by someone with significant knowledge of the plant. The fact that Operators are the only personnel that routinely access each of the areas involved also contributed to this decision.

Although some of the interviews identified additional personnel to be interviewed, none of the interviews revealed any evidence that conclusively explained how the incident occurred.

ATTACHMENT #6

On 2/19/85, a Technical Staff engineer reported that she had found the bubbler valve for the Sewage Plant Lift Station #1 Wetwell Level Indicator closed at approximately 1100 hours on 2/14/85. This event was discovered as a result of investigation into a low flow condition at the Sewage Treatment Plant.

Subsequently, this valve was again found closed on 2/21/85 by the same Technical Staff engineer. The valve was returned to its correct position and after a few minutes of observation was observed to close without any outside assistance. A work request has been submitted to effect repairs. This event is closed.

ATTACHMENT #7

At 1634 hours on 2/19/85, the control room received a 1B Diesel Generator Fuel Oil Storage Tank Lo-Lo Level Alarm. An operator was dispatched to respond to the alarm, but due to other duties, did not arrive in the area until approximately 55 minutes later. When the operator arrived in the area, he found the level indicator bubbler valve closed and three stationmen in the area assigned to housekeeping duties.

Interviews of the three stationmen revealed that one of the individuals had been cleaning in another area and had arrived in the area in question approximately 5 minutes prior to the operator's arrival. The other two stationmen were assigned to clean the area in question and the area immediately outside the only entrance to the 1B D/G Fuel Oil Storage Tank Room. They observed no one else entering or leaving the area in question.

The valve and instruments involved are supported from the wall of the room about three feet off the floor. One of the stationmen admitted to dusting (utilizing a foxtail brush) the brackets supporting the instruments in question and the other had swept the floor immediately below the valve. Neither individual recalled having bumped or otherwise disturbed the valve.

Both of the individuals have been with the company only a few months and both are rated as good employees by their supervisor.

The investigations concluded that one of the individuals most probably inadvertently bumped the valve in question causing it to close. The valve is normally cracked open and could easily have been bumped closed without the individual responsible being aware that anything unusual had happened.

Another possible cause is that a foreign material became lodged in the valve, blocking flow and became dislodged when the operator adjusted the valve. The valve involved is a needle valve and due to close tolerances could easily be clogged by foreign particles. Experienced operating personnel state that this type of valve requires periodic adjustments to maintain proper level indication.

No evidence exists that would indicate any surreptitious activity. This event is closed.

ATTACHMENT #8

Upon reviewing draft Deviation Report 1-1-85-19, it was discovered that the report indicated the power supply breaker for the Radwaste Discharge Process Radiation Monitor had been unexplainably found turned "OFF" on January 20, 1985.

The Deviation Report was initiated due to the Radwaste Discharge Process Radiation Monitor being declared inoperable following receipt of alarms for Radwaste Radiation Monitor Failure, Sample Flow Failure and a High Radiation Isolation Signal. A work request was initiated to troubleshoot the problem.

Further investigation of this event, including an interview of the Substation Construction Foreman for the crew that investigated the problem, indicated that the Deviation Report was in error. The breaker in question was in actuality the thermal overload for the pump motor which probably tripped due to the extreme weather conditions on the date in question. This event was caused by equipment malfunction and is closed.

ATTACHMENT #9

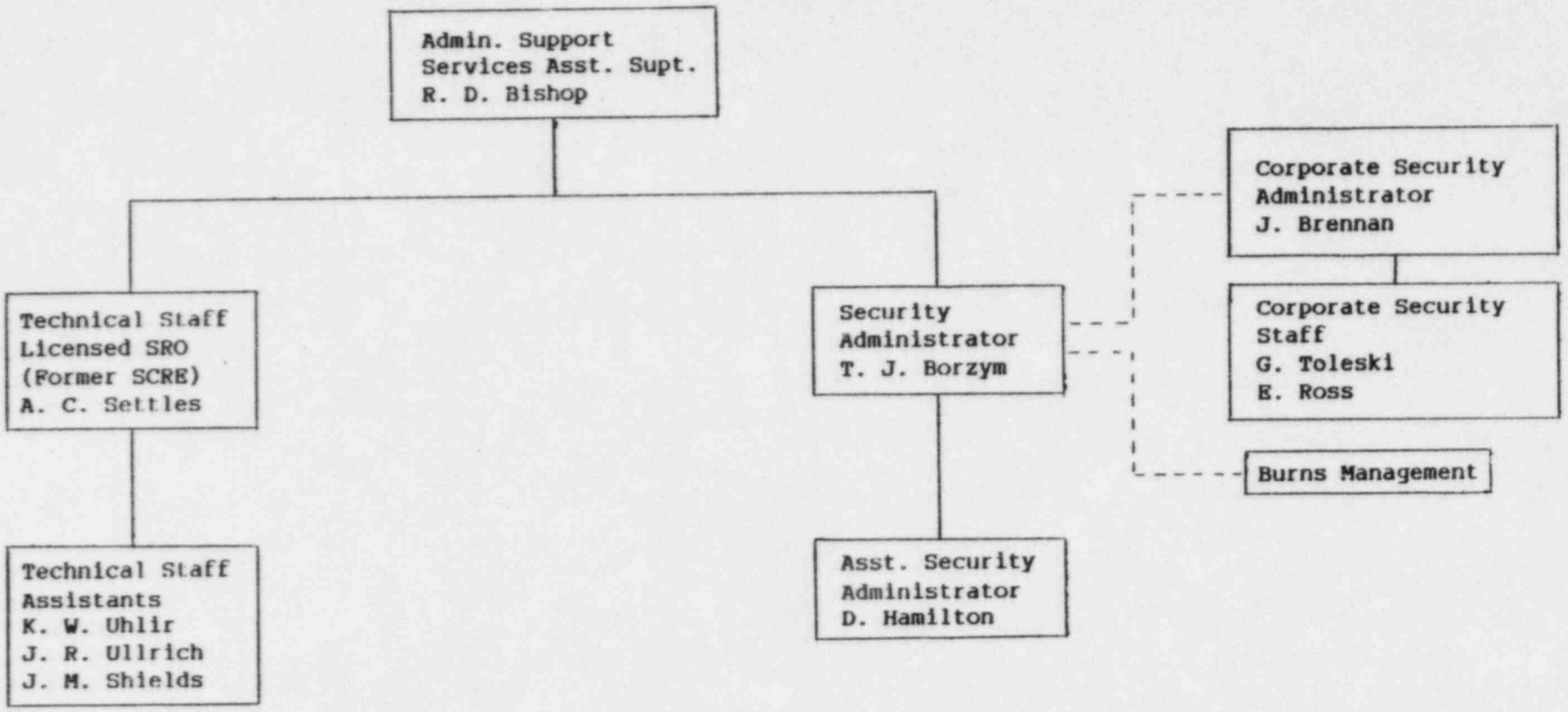

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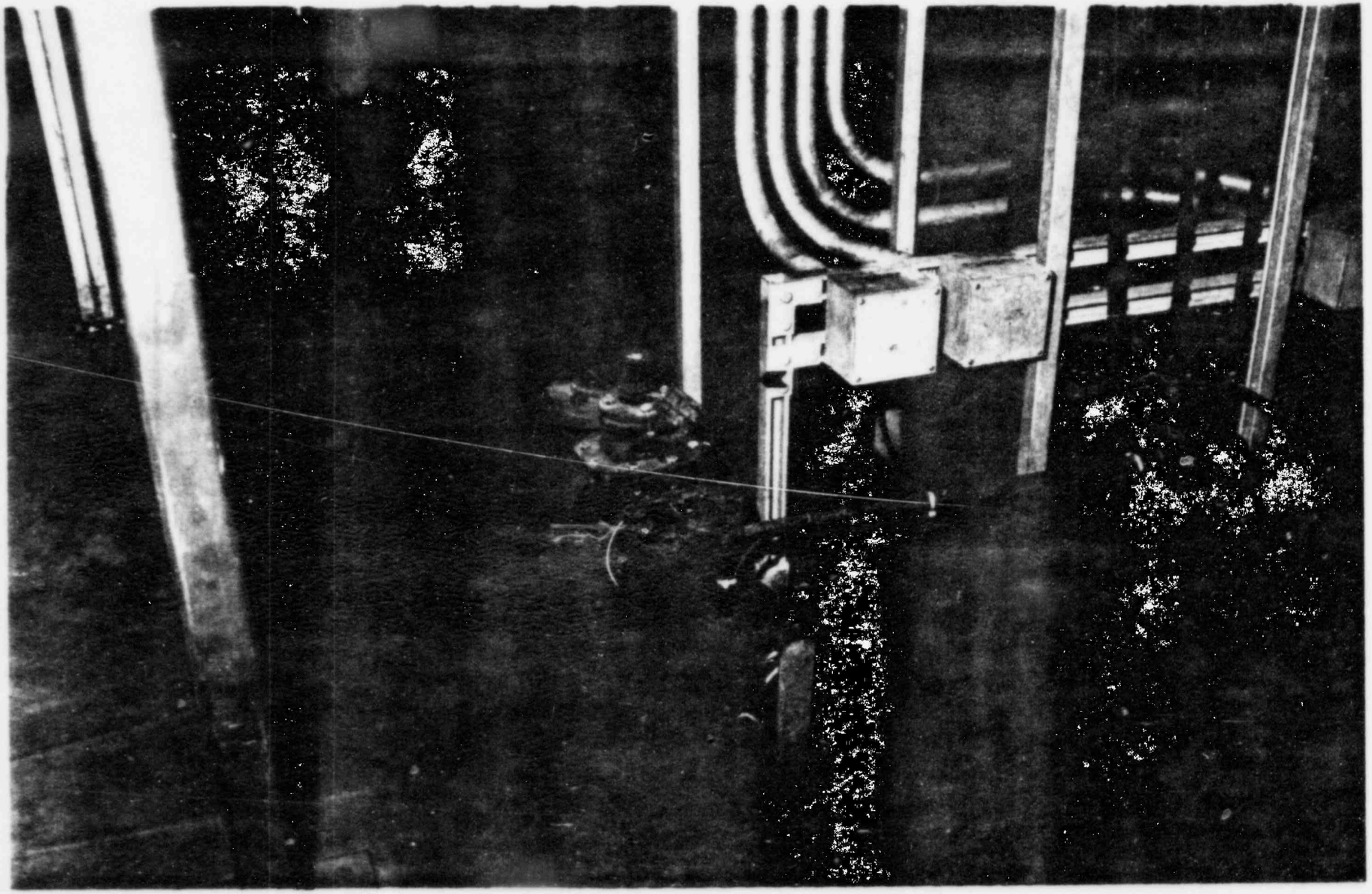
TABLE #1

EVENT NUMBER	EVENT DESCRIPTION	DATE/TIME DETERMINED MISPOSITIONED	LAST DATE/TIME DETERMINED IN CORRECT POSITION	PROBABLE CAUSE
1.	Wastewater Treatment Facility Equalization Tank Pump 0TW002A Discharge Valve	2/16/85 1200	2/15/85 Late Shift 2 or 3	Undetermined
2.	2A Floor Drain Concentrator Feed Tank (2WF03TA) Level Indicator Bubbler Valve	2/16/85 1900	2/16/85 ~1845	Equipment Malfunction Housekeeping Activities
3.	Air Supply Valve to 1B Floor Drain Concentrator Feed Tank (1WF03TB) Side Suction Valve 1WF201B	2/17/85 ~2330	2/17/85 1110	Undetermined
4.	1A Diesel Generator Air Isolation Valve to Air Start Motors	2/18/85 0840	2/16/85 2000	Undetermined
5.	Breaker for Primary Containment Chilled Water Inboard Isolation Valve 2VP114B	2/19/85 0648	2/19/85 0648	Housekeeping Activities Personnel Error Mischief
6.	Sewage Lift Station #1 Wetwell Level Indicator Bubbler Valve	2/14/85 1100	2/13/85 0800	Equipment Malfunction
7.	1B Diesel Generator Fuel Oil Storage Tank Level Indicator Bubbler Valve	2/19/85 1634	2/19/85 1634	Equipment Malfunction Housekeeping Activities
8.	Power Supply Breaker for Radwaste Discharge Process Radiation Monitor	1/20/85	1/20/85	Equipment Malfunction

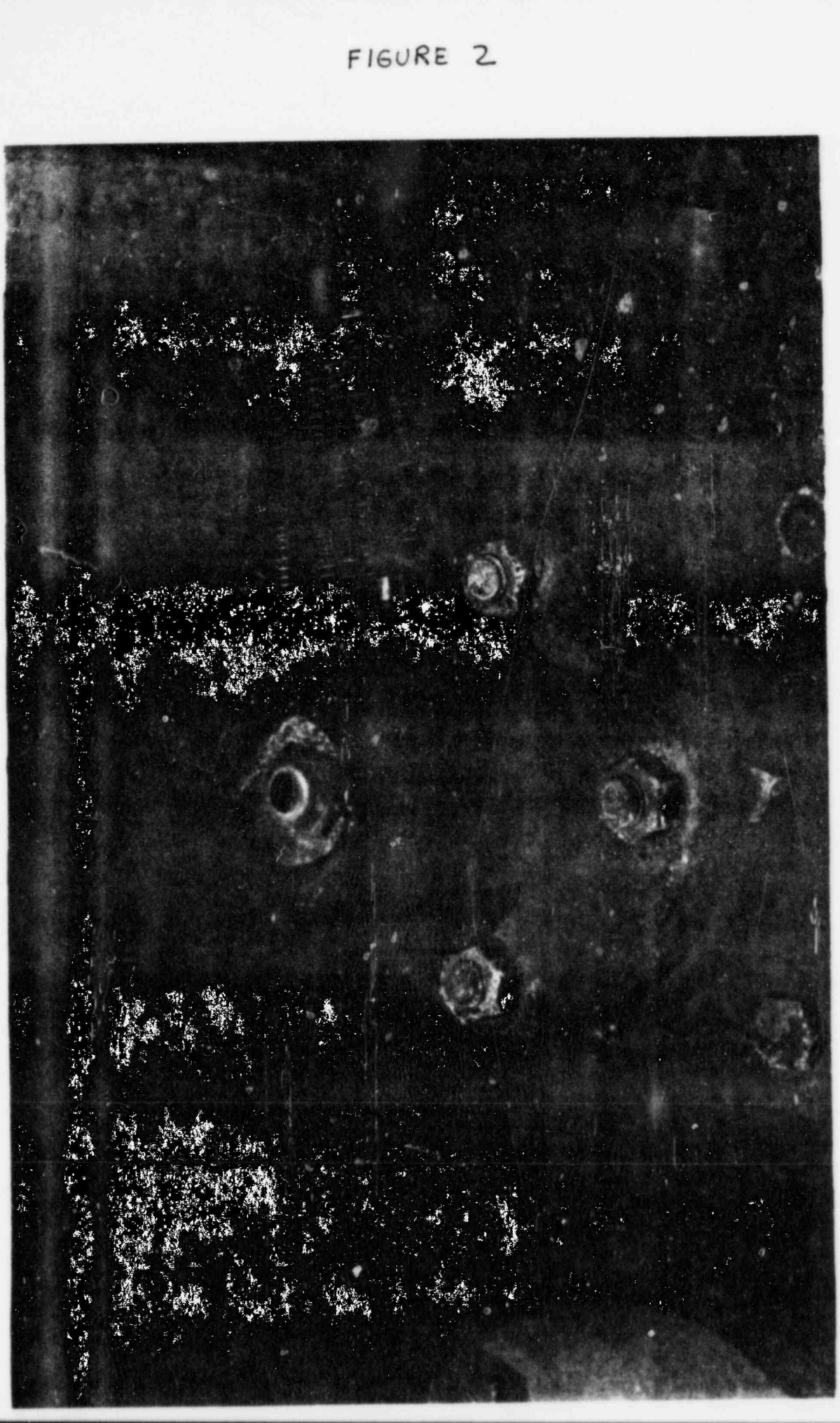
DOCUMENT ID 1153r/



LSCS EVENT #1 WWTF DISCHARGE VALVE OT W002A

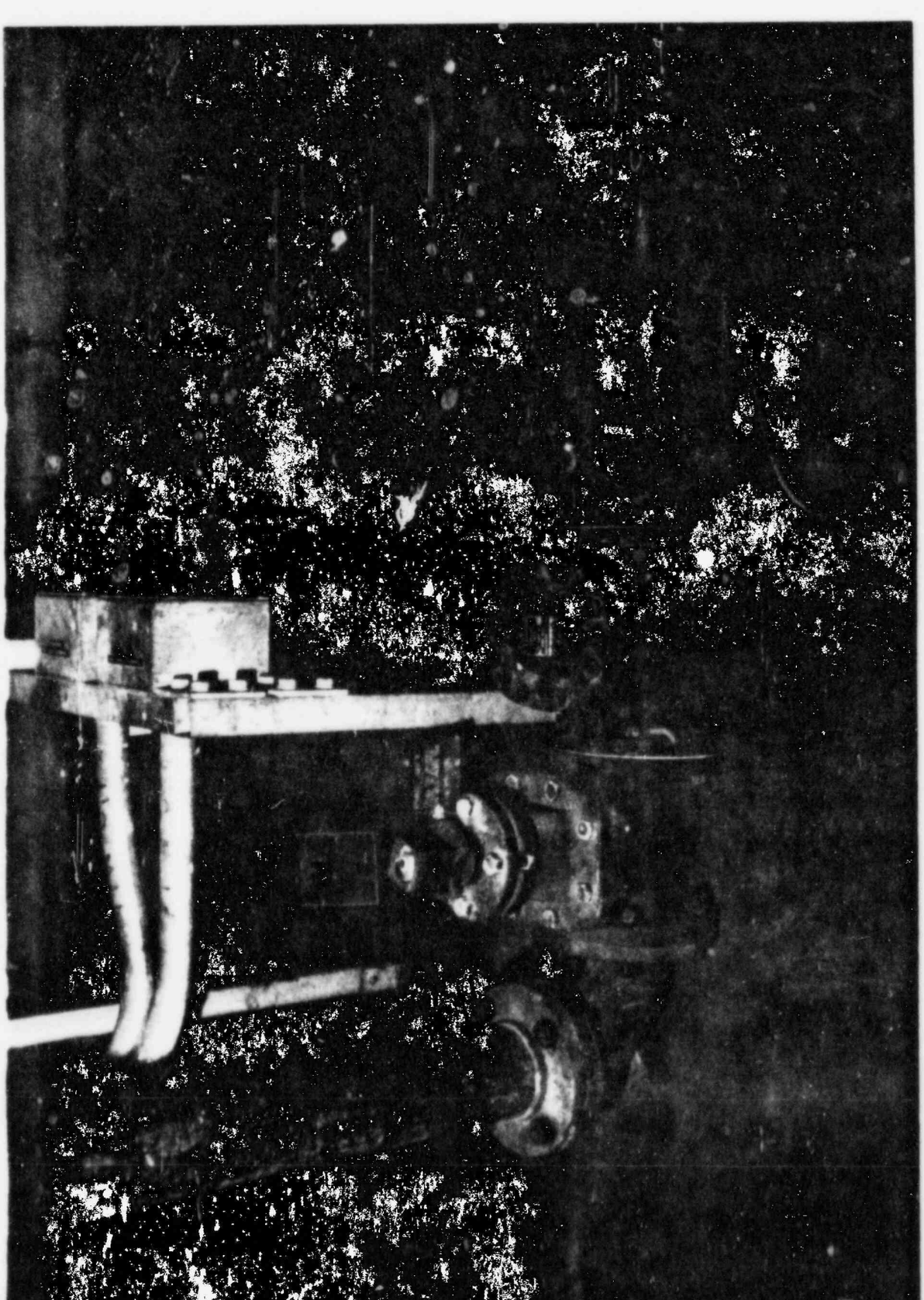
FIGURE 1

FIGURE 2



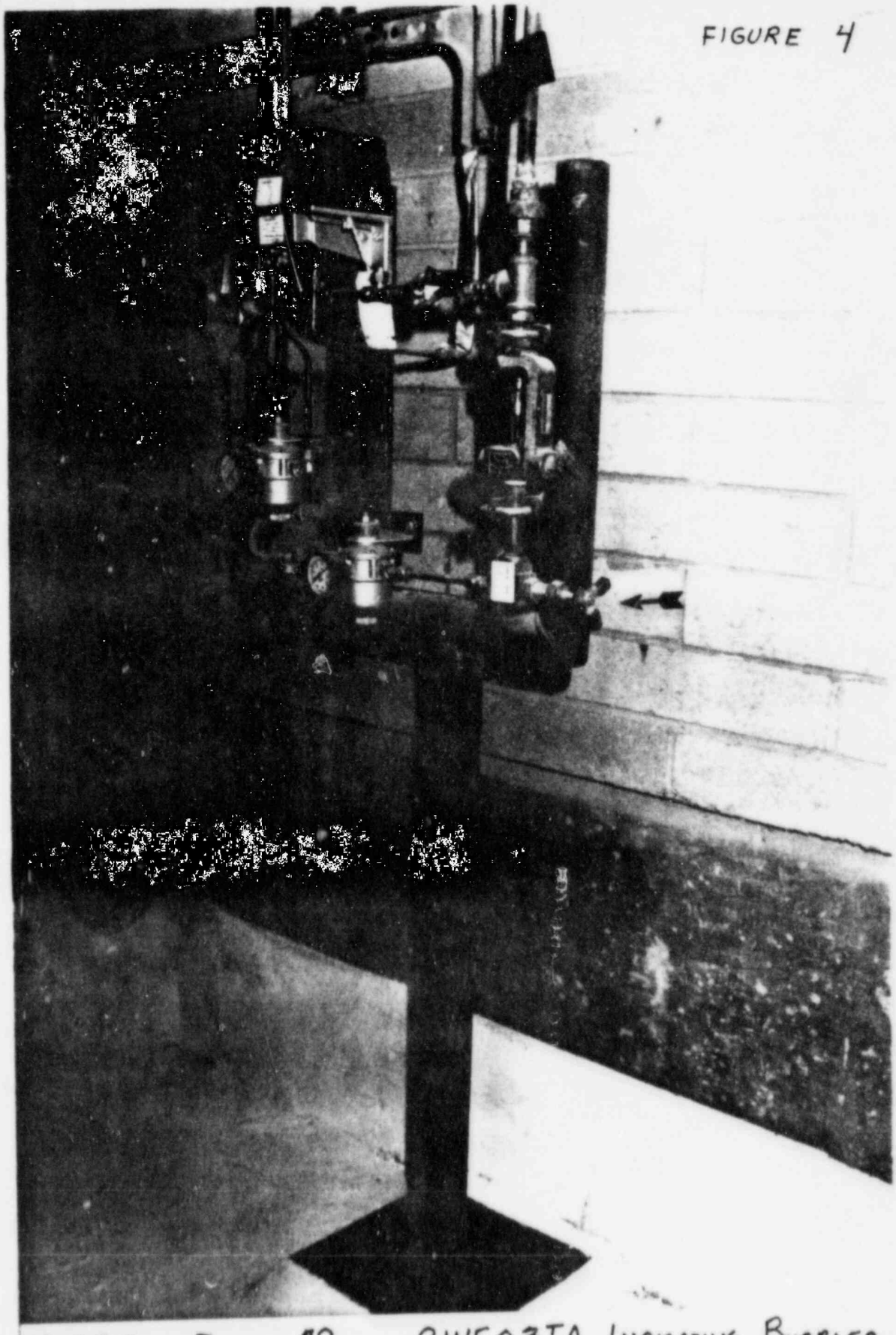
LSCS Event #1 WWTF Discharge Valve OTW002A

FIGURE 3



LSCS EVENT #1 WWTF DISCHARGE VALVE OTW002A

FIGURE 4



LSCS EVENT #2 2WF03TA INDICATING BUBBLER

FIGURE 5

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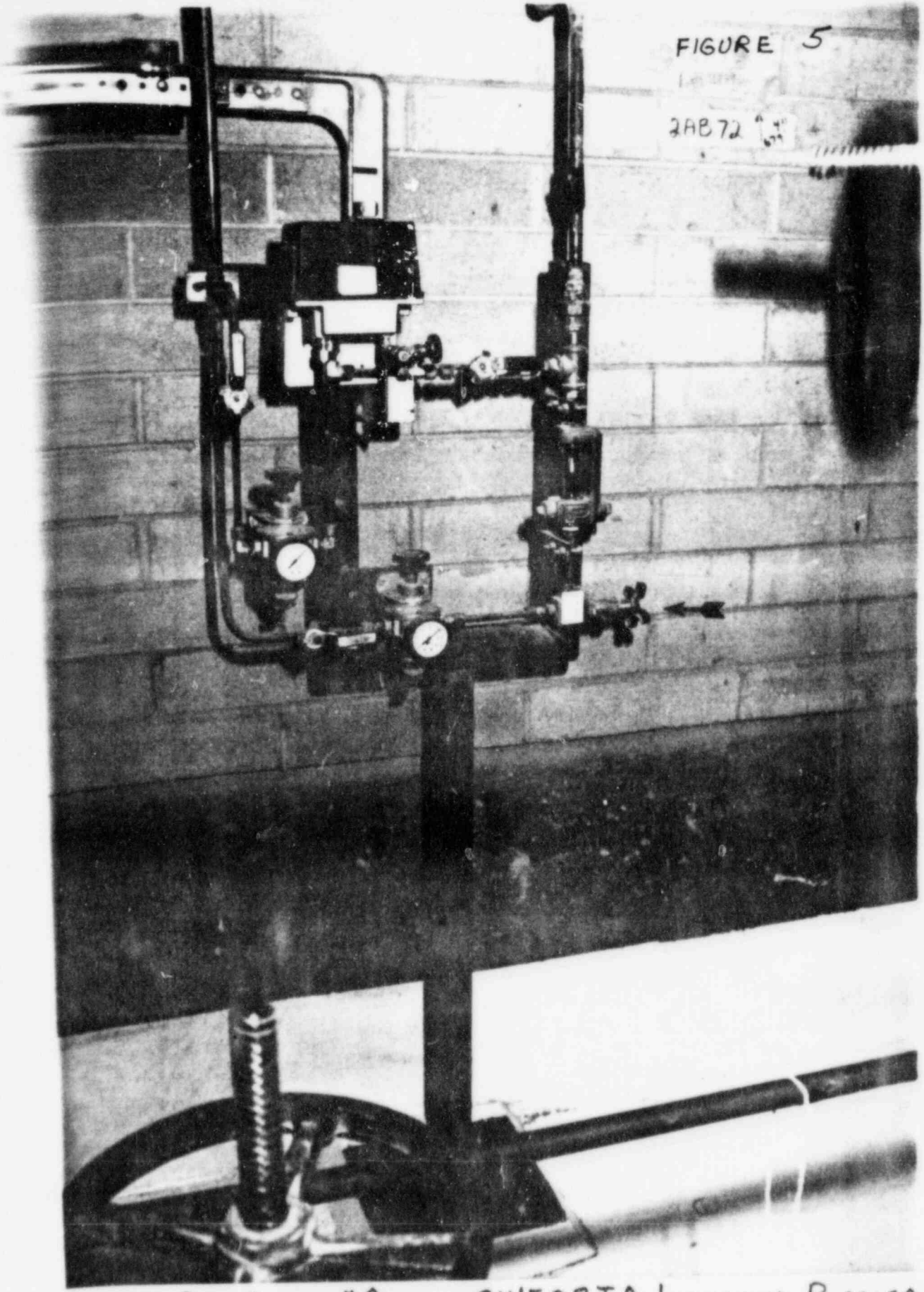
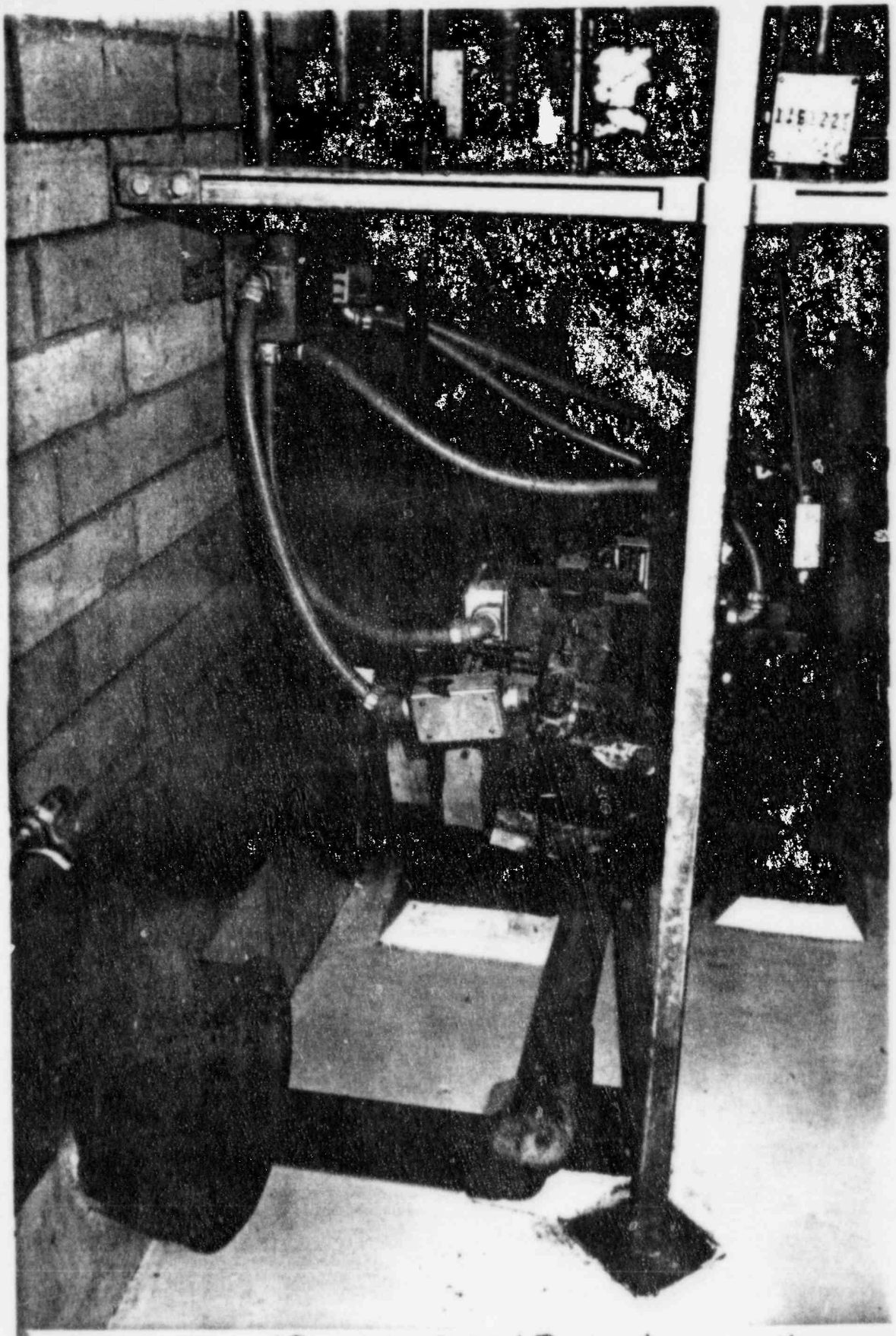
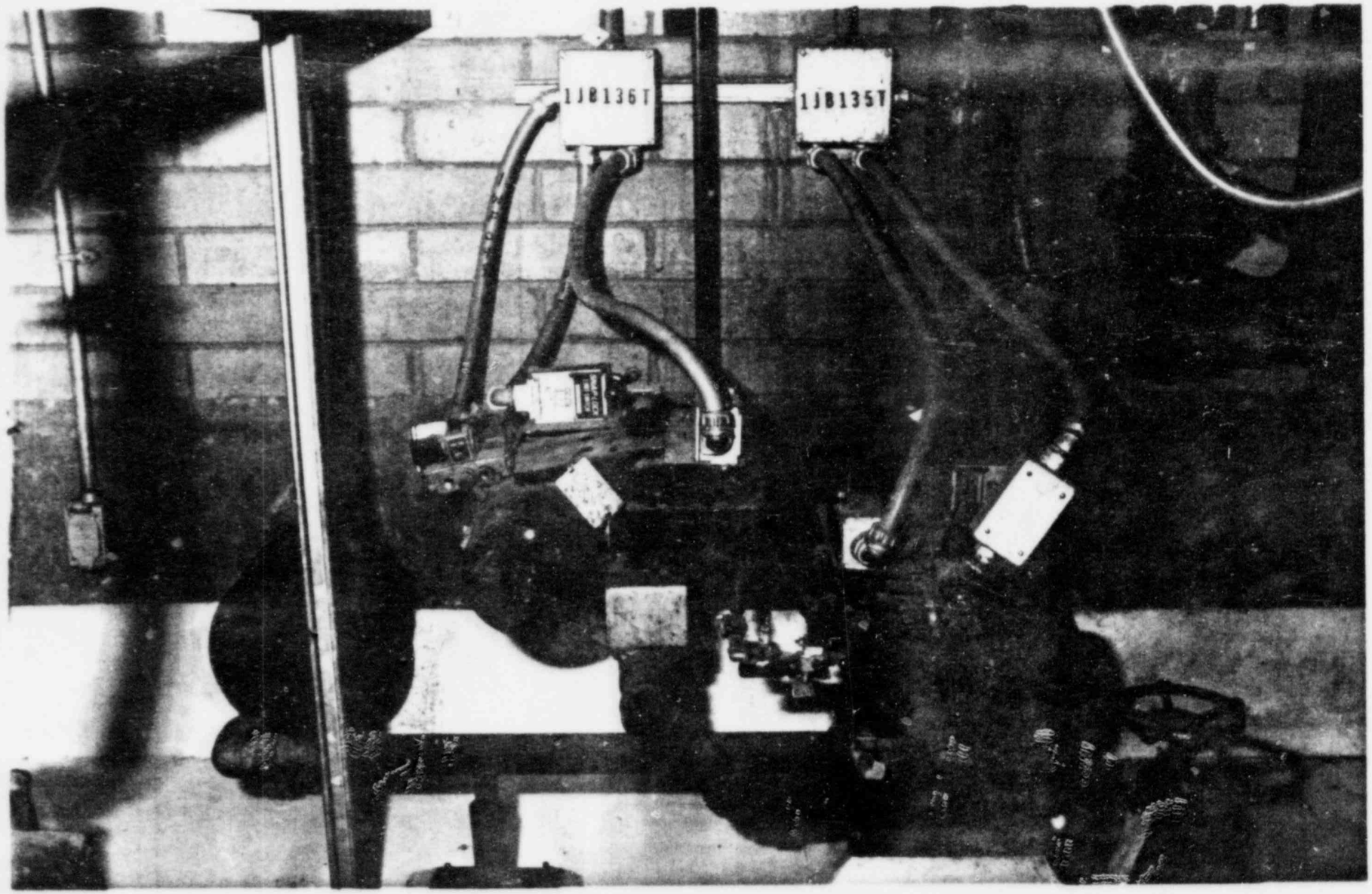


LSCS EVENT #2 2WF03TA INDICATING BUBBLER

FIGURE 6



LSCS EVENT #3 1WF201B AIR ISOLATION VALVE



LSCS EVENT #3 1WF201B AIR ISOLATION VALVE

FIGURE 7

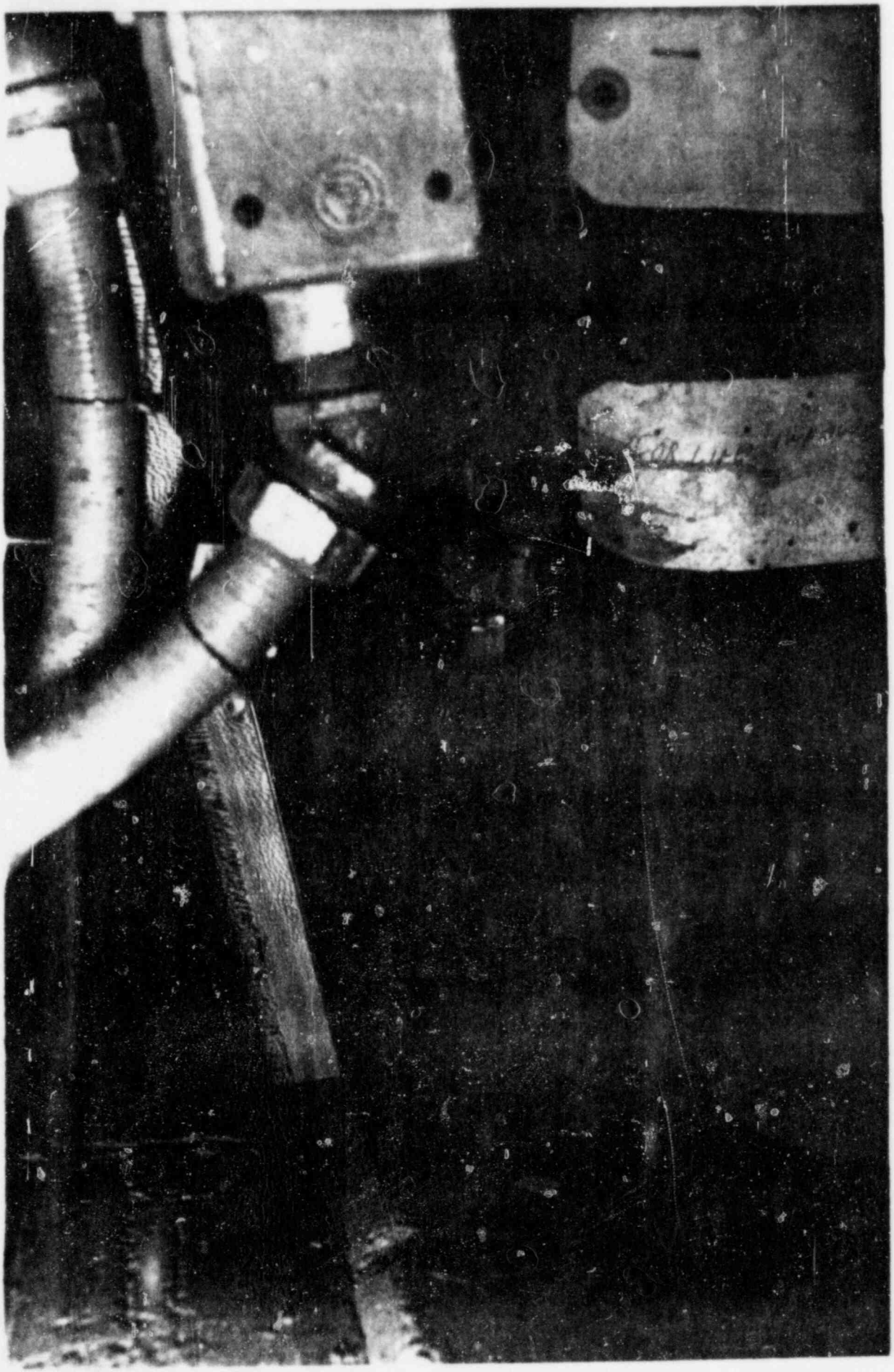
FIGURE 8

LSCS EVENT #3 1WF201B AIR ISOLATION VALVE

FIGURE 9

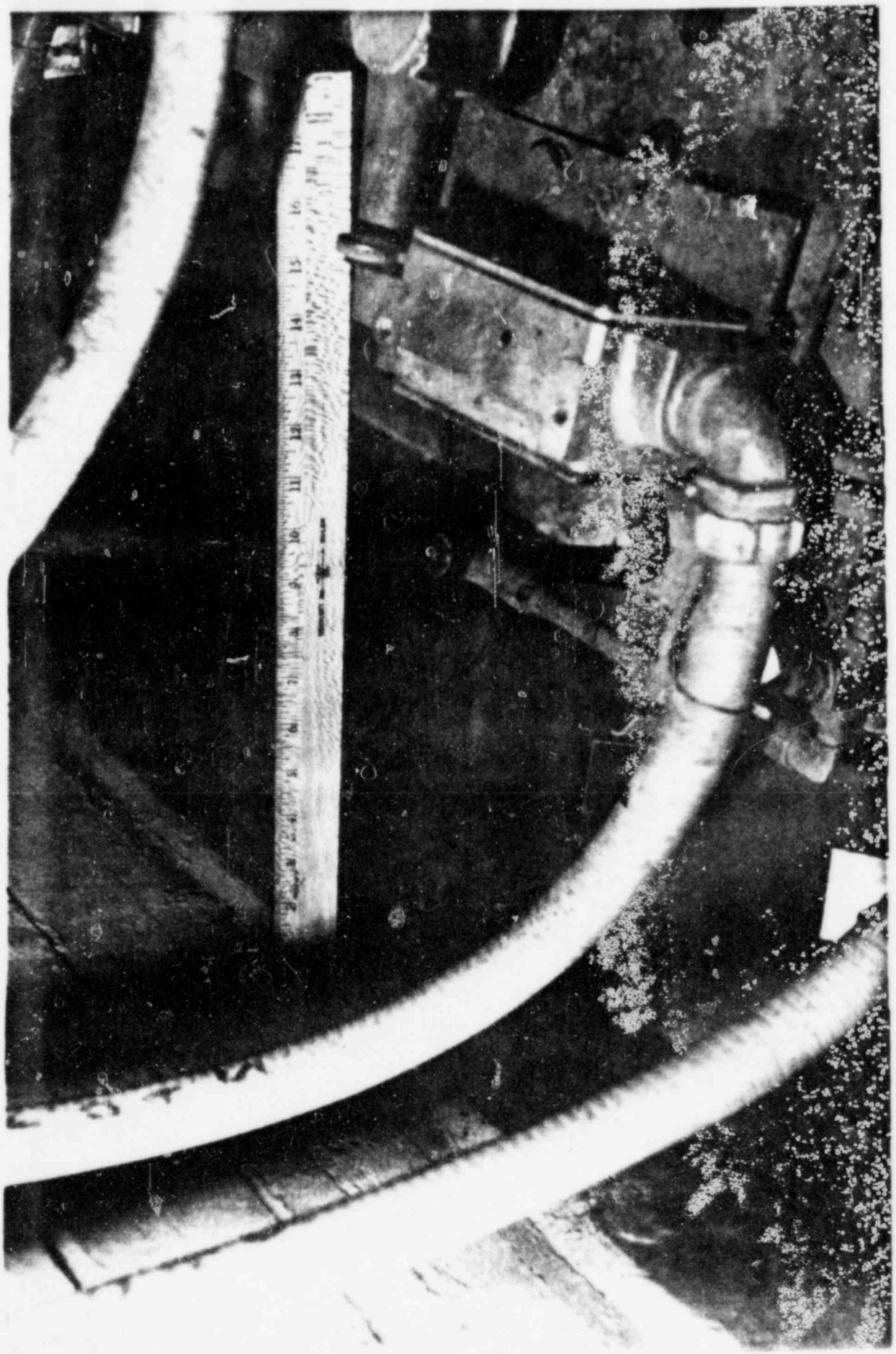
LSCS EVENT #3 1WF201B AIR ISOLATION VALVE

FIGURE 10



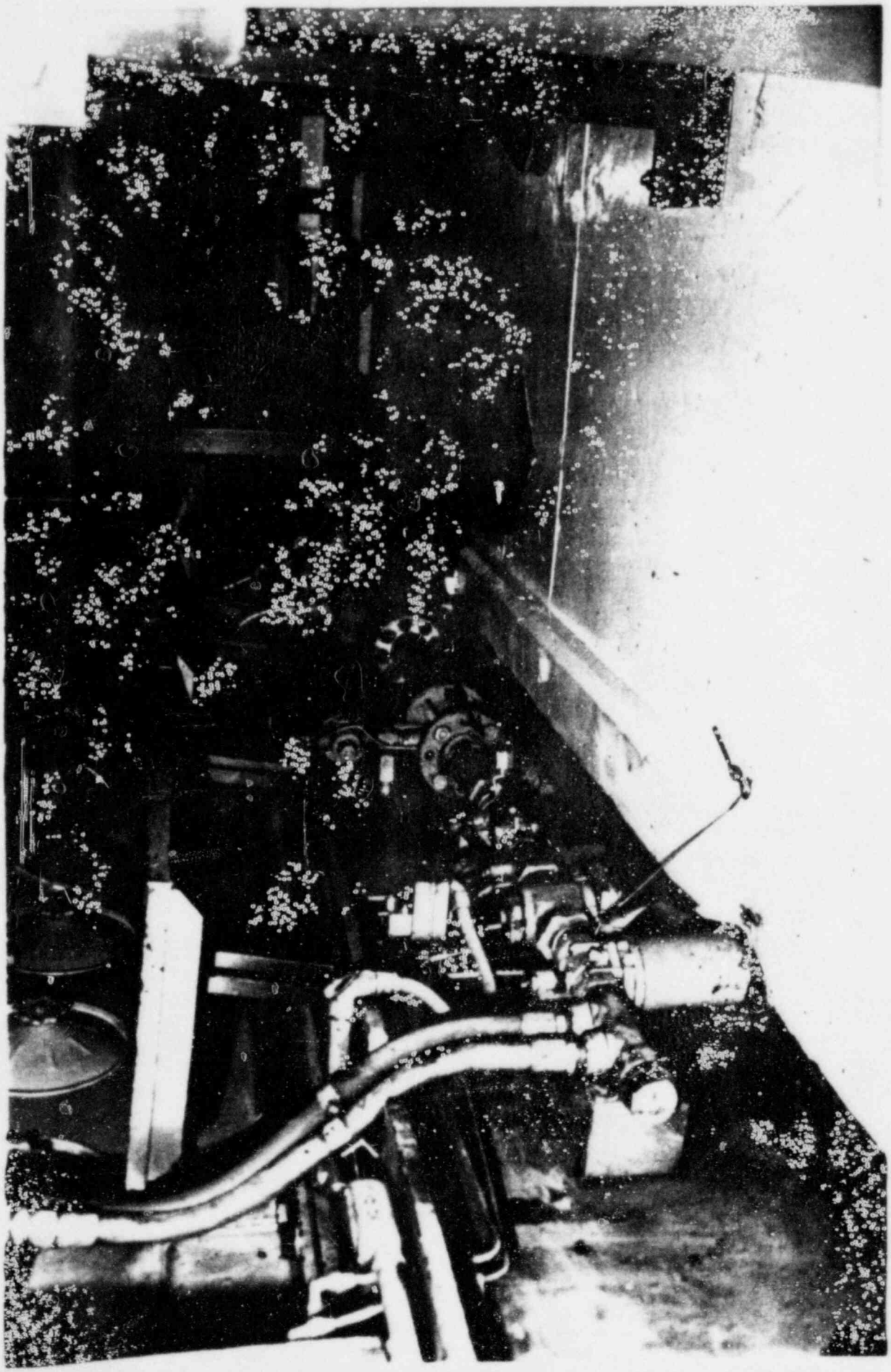
LSCS EVENT #3 1WF201B AIR ISOLATION VALVE

FIGURE 11

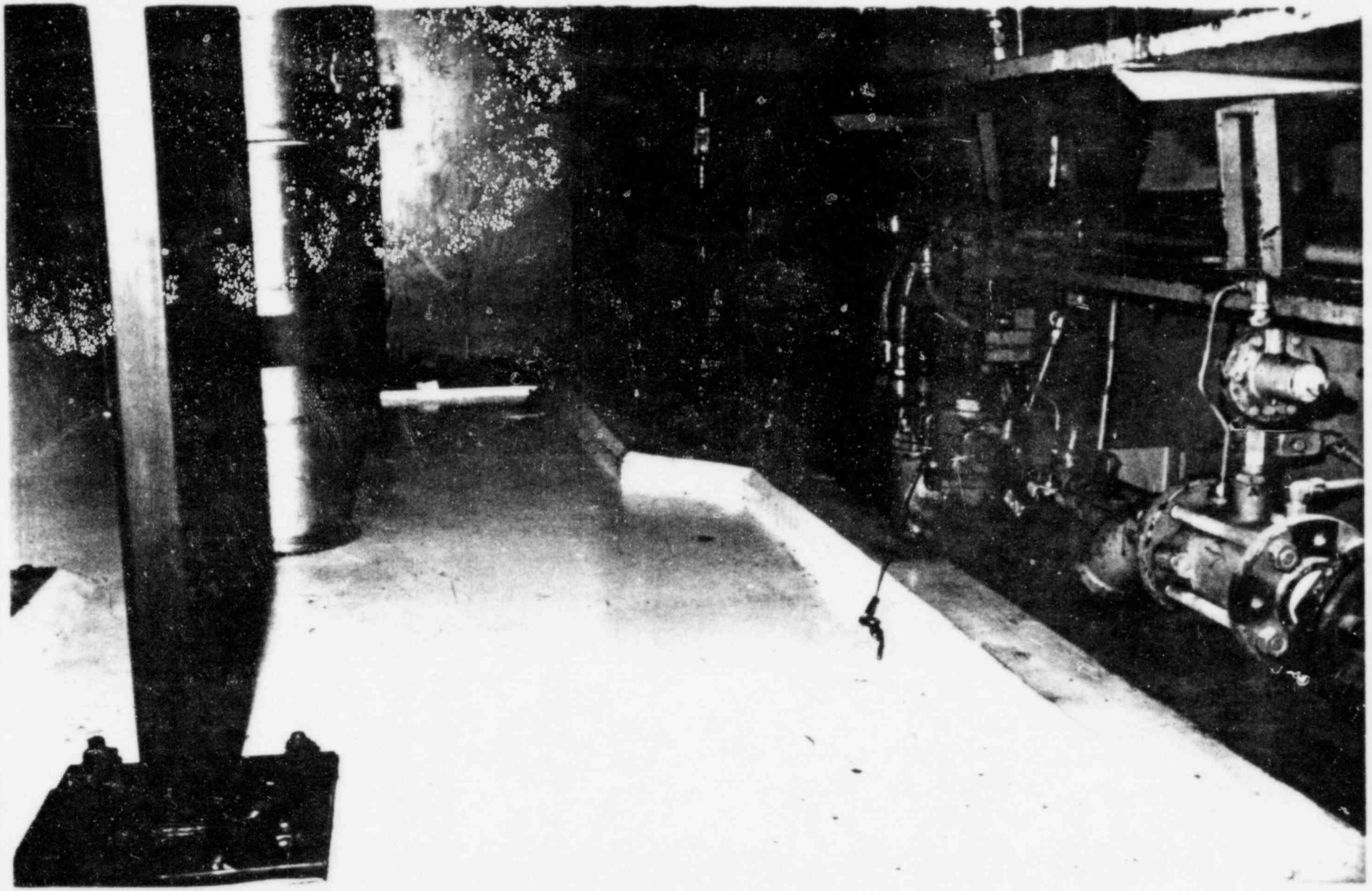


LSCS EVENT #3 1WF201B AIE ISOLATION VALVE

FIGURE 12

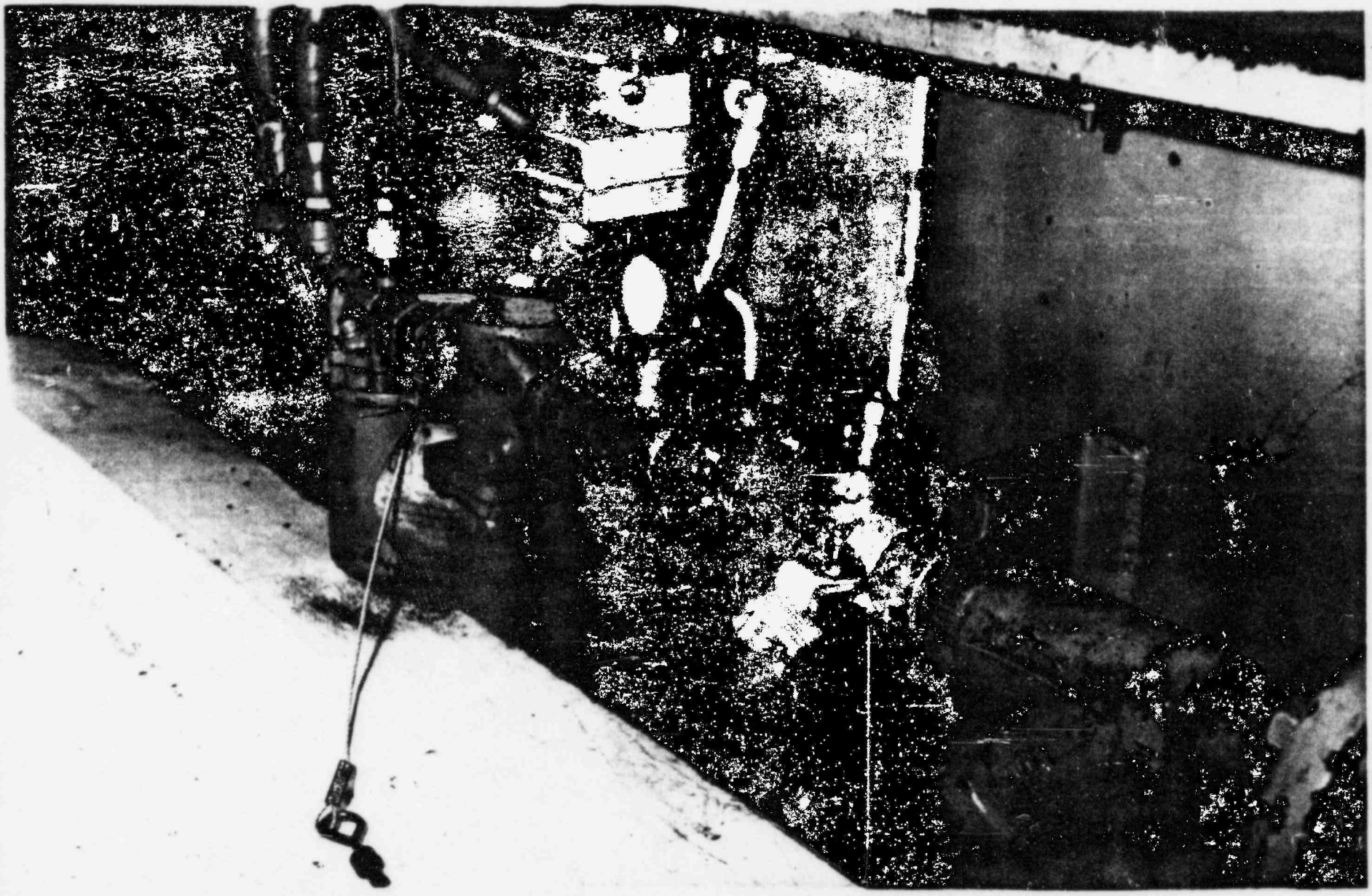


LSCS EVENT #4 1A D/G AIR START VALVE



LSCS EVENT #4 1A D/G AIR START VALVE

FIGURE 13



LSCS EVENT #4 1A D/G AIR START VALVE

FIGURE 14

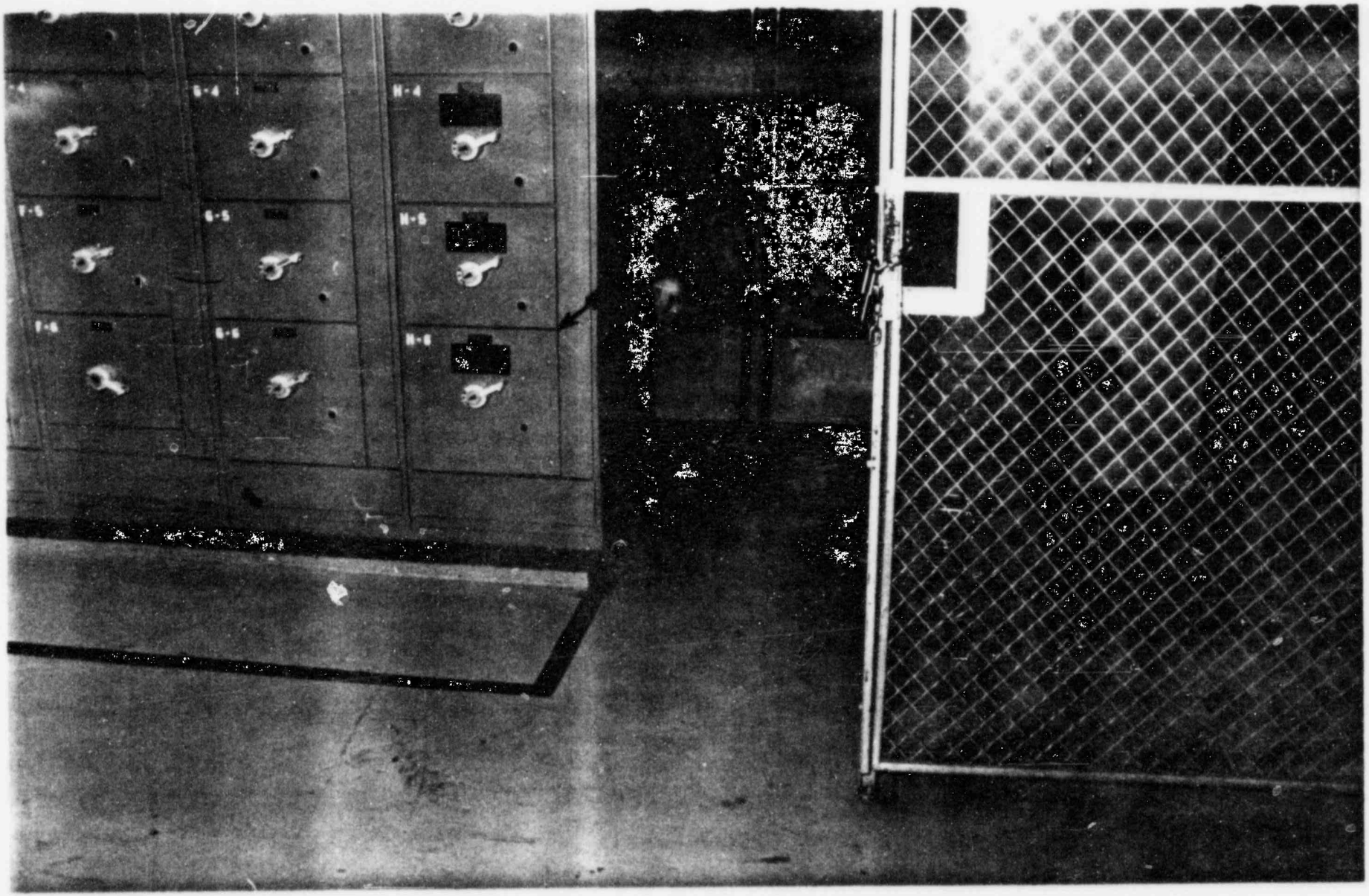


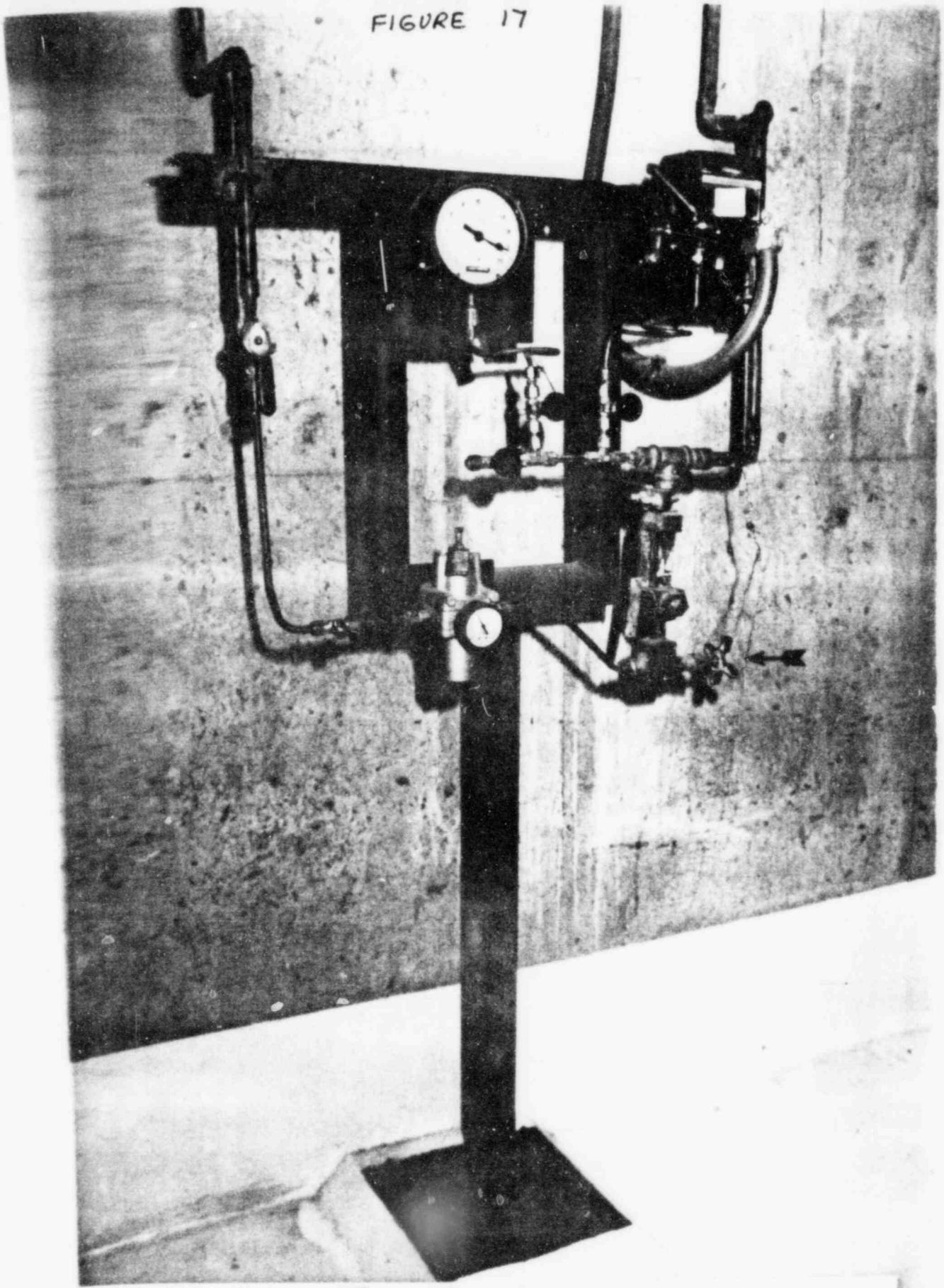
FIGURE 15

LSCS EVENT #5 CIRCUIT BREAKER FOR 2VP114B

LSCS EVENT #5 CIRCUIT BREAKER FOR 2VP114B

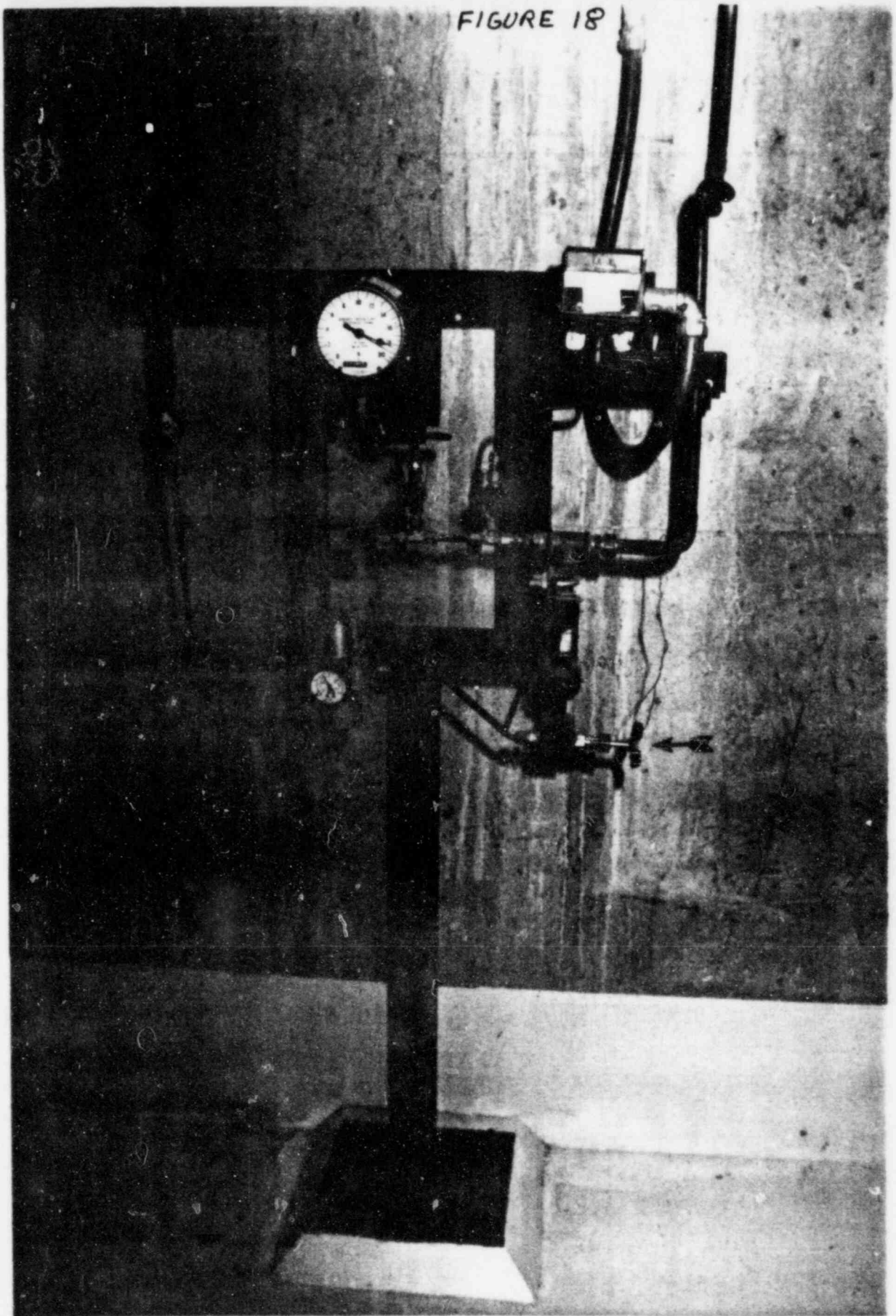
FIGURE 16

FIGURE 17



LSCS EVENT #7 1B D/G FUEL OIL LEVEL BUBBLER

FIGURE 18



LSCS EVENT #7 1B D/G FUEL OIL LEVEL BUBBLER